WSM

WORKSHOP MANUAL
TRACTOR

B3150,B3150SU

Kubota

KiSC issued 05, 2021 A

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INFORMATION

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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.**

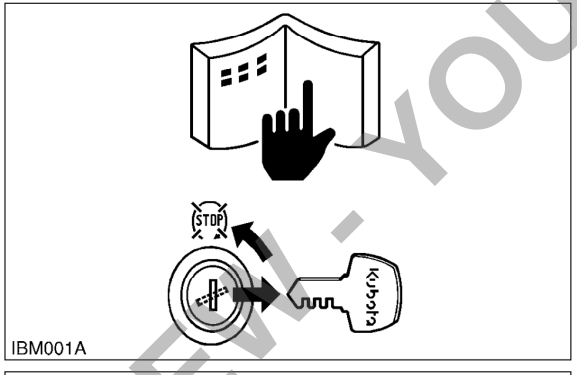
⚠ WARNING
- **Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.**

⚠ 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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3. SPECIFICATIONS

Model			B3150HSD	B3150SUHSD	B3150HSDCC
PTO power*			17.7 kW (23.7 HP)*		
Engine	Maker		KUBOTA		
	Model		V1505-E3-D26BH-A		V1505-T-E3-D26BHQ-A
	Type		Indirect Injection, Vertical, water-cooled, 4 cycle diesel		
	Number of cylinders		4		
	Bore and stroke		78 × 78.4 mm (3.1 × 3.1 in.)		
	Total displacement		1498 cm^3 (91.5 cu.in.)		
	Engine gross power*		22.8 kW (31.0 HP)*		
	Rated revolution		2500 min^{-1} (rpm)		
	Low idling revolution		1100 min^{-1} (rpm)		
	Maximum torque		97.9 N·m (9.98 kgf·m, 72.2 lbf·ft)		
	Battery		12 V, RC: 80 min, CCD: 430 A		
Capacities	Fuel tank		27 L (7.1 U.S.gals, 5.9 Imp.gals)		
	Engine crankcase (with filter)		4.0 L (4.2 U.S.qts, 3.5 Imp.qts)		
	Engine coolant		4.3 L (4.5 U.S.qts, 3.8 Imp.qts)		5.4 L (5.7 U.S.qts, 4.8 Imp.qts)
	Transmission case		15 L (4.0 U.S.gals, 3.3 Imp.gals)		
Dimensions	Overall length (without 3P)		2570 mm (101.2 in.)		2640 mm (103.9 in.)
	Overall width (min. tread)		1365 mm (53.7 in.)		
	Overall height		2245 mm (88.4 in.)		2150 mm (84.6 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			850 kg (1874 lbs)		1070 kg (2359 lbs)
Clutch			Not applicable		
Traveling system	Tires	Front	7-12		
		Rear	12.4-16		
	Steering		Hydrostatic type power steering		
	Transmission		Main-hydrostatic transmission, 3 range gear shift (3 forward, 3 reverse)		
	Brake		Wet disc type		
	Minimum turning radius (with brake)		2.1 m (6.9 feet)		
Hydraulic unit	Hydraulic control system		Position control		Quarter inching valve
	Pump capacity		33.1 L/min (8.7 U.S.gals/min, 7.3 Imp.gals/min)		
	3-point hitch		SAE Category 1		
	Max. lift force	At lift points	970 kg (2139 lbs)		
		24 in. behind lift point	760 kg (1676 lbs)		
PTO	Rear-PTO		SAE 1-3/8, 6 splines		
	PTO / Engine speed		1 speed 540 / 2398 min^{-1} (rpm)		
	Mid-PTO		USA No. 5 (KUBOTA 10-tooth) involve spline	–	USA No. 5 (KUBOTA 10-tooth) involve spline
	PTO / Engine speed		1 speed 2500 / 2500 min^{-1} (rpm)	–	1 speed 2500 / 2500 min^{-1} (rpm)

■ **NOTE**

- *** SAE J1995**

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

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6. MAINTENANCE CHECK LIST

No.	Item		Indication on hour meter														After since	Reference page	
			50	100	150	200	250	300	350	400	450	500	550	600	650	700	800			
1	Clogging of air conditioner condenser screen [CAB only]	Clean																Daily	G-17	
2	Engine oil	Change	★			☆				☆				☆			☆	every 200 Hr	G-20	
3	Engine oil filter	Replace	★			☆				☆				☆			☆	every 200 Hr	G-20	
4	Transmission oil filters [HST]	Replace	★			☆				☆				☆			☆	every 200 Hr	G-21	
5	Hydraulic oil filter	Replace	★							☆							☆	every 400 Hr	G-22	
6	Transmission fluid	Change								☆							☆	every 400 Hr	G-34	
7	Front axle case oil	Change								☆							☆	every 400 Hr	G-35	
8	Front axle pivot	Adjust								☆							☆	every 400 Hr	G-35	
9	Engine start system	Check	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	every 50 Hr	G-23	
10	Greasing	–	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	every 50 Hr	G-24	
11	Wheel bolt torque	Check	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	every 50 Hr	G-25	
12	Battery condition	Check		☆		☆		☆		☆		☆		☆		☆	☆	every 100 Hr	G-26	*4
13	Air cleaner element (Double element type) Primary element	Clean		☆		☆		☆		☆		☆		☆		☆	☆	every 100 Hr	G-28	*1
		Replace																every 1 year	G-28	*2
	Air cleaner element (Double element type) Secondary element	Replace																every 1 year	G-28	
14	Fuel filter element	Clean		☆		☆		☆		☆		☆		☆		☆	☆	every 100 Hr	G-29	
		Replace								☆							☆	every 400 Hr	G-35	
15	Fan belt	Adjust		☆		☆		☆		☆		☆		☆		☆	☆	every 100 Hr	G-29	
16	Brake	Adjust		☆		☆		☆		☆		☆		☆		☆	☆	every 100 Hr	G-30	
17	Tension of air conditioner drive belt [CAB only]	Adjust				☆				☆				☆			☆	every 200 Hr	G-33	
18	Clogging of inner air filter [CAB only]	Clean				☆				☆				☆			☆	every 200 Hr	G-33	
19	Clogging of fresh air filter [CAB only]	Clean				☆				☆				☆			☆	every 200 Hr	G-33	
20	Clogging of air conditioner condenser [CAB only]	Check				☆				☆				☆			☆	every 200 Hr	G-34	
21	Power steering oil line	Check				☆				☆				☆			☆	every 200 Hr	G-32	
		Replace																every 2 years	G-32	
22	Radiator hose and clamp	Check				☆				☆				☆			☆	every 200 Hr	G-31	
		Replace																every 2 years	G-31	
23	Fuel line	Check		☆		☆		☆		☆		☆		☆		☆	☆	every 100 Hr	G-30	
		Replace																every 2 years	G-30	*3

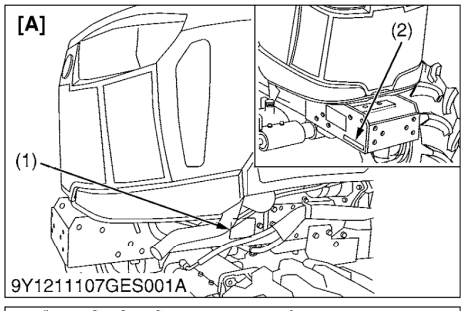
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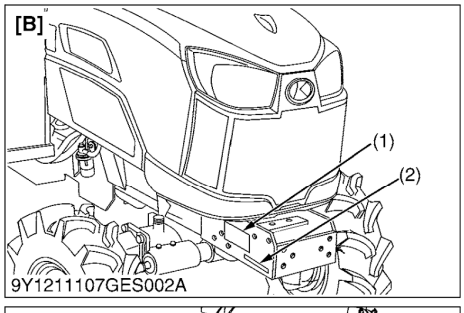
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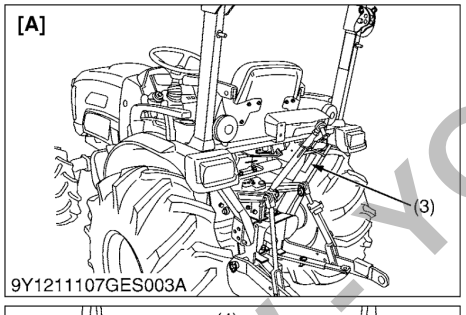
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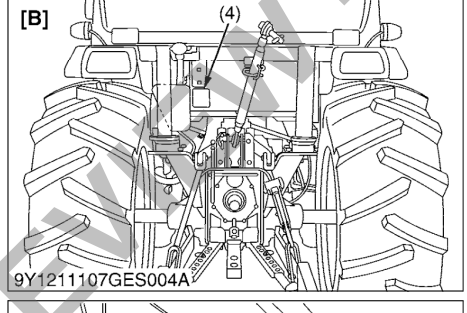
1. TRACTOR IDENTIFICATION

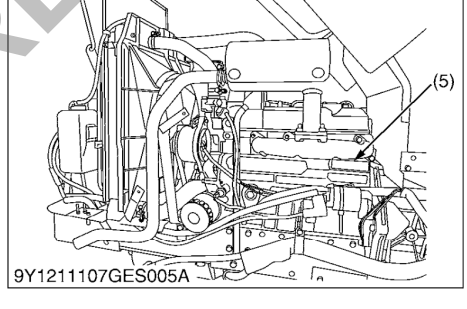
[1] MODEL NAME AND SERIAL NUMBER



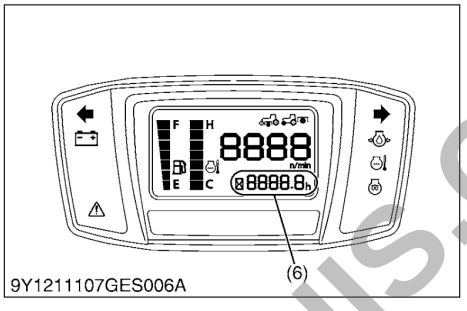








When contacting your local KUBOTA distributor, always specify engine serial number, tractor serial number, ROPS serial number, CAB serial number and hour meter reading.



(1) Tractor Identification Plate
(2) Tractor Serial Number
(3) ROPS Identification (ROPS Serial Number)
(4) CAB Identification Plate (CAB Serial Number)
(5) Engine Serial Number
(6) Hour Meter

[A] ROPS
[B] CABIN

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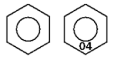
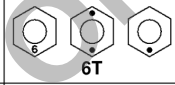
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5. TIGHTENING TORQUES

[1] GENERAL USE SCREWS, BOLTS AND NUTS

Tighten screws, bolts and nuts whose tightening torques are not specified in this Workshop Manual according to the table below.

Indication on top of bolt	 No-grade or 4T						 7T						 9T		
Indication on top of nut	 No-grade or 4T												 6T		
Material of opponent part	Ordinariness			Aluminum			Ordinariness			Aluminum			Ordinariness		
Unit	N·m	kgf·m	lbf·ft	N·m	kgf·m	lbf·ft	N·m	kgf·m	lbf·ft	N·m	kgf·m	lbf·ft	N·m	kgf·m	lbf·ft
M6	7.9 to 9.3	0.80 to 0.95	5.8 to 6.8	7.9 to 8.8	0.80 to 0.90	5.8 to 6.5	9.81 to 11.2	1.00 to 1.15	7.24 to 8.31	7.9 to 8.8	0.80 to 0.90	5.8 to 6.5	12.3 to 14.2	1.25 to 1.45	9.05 to 10.4
M8	18 to 20	1.8 to 2.1	13 to 15	17 to 19	1.7 to 2.0	13 to 14	24 to 27	2.4 to 2.8	18 to 20	18 to 20	1.8 to 2.1	13 to 15	30 to 34	3.0 to 3.5	22 to 25
M10	40 to 45	4.0 to 4.6	29 to 33	32 to 34	3.2 to 3.5	24 to 25	48 to 55	4.9 to 5.7	36 to 41	40 to 44	4.0 to 4.5	29 to 32	61 to 70	6.2 to 7.2	45 to 52
M12	63 to 72	6.4 to 7.4	47 to 53	–	–	–	78 to 90	7.9 to 9.2	58 to 66	63 to 72	6.4 to 7.4	47 to 53	103 to 117	10.5 to 12.0	76.0 to 86.7
M14	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	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	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	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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[2] STUD BOLTS

Material of opponent part	Ordinariness			Aluminum		
Unit	N·m	kgf·m	lbf·ft	N·m	kgf·m	lbf·ft
M8	12 to 15	1.2 to 1.6	8.7 to 11	8.9 to 11	0.90 to 1.2	6.5 to 8.6
M10	25 to 31	2.5 to 3.2	18 to 23	20 to 25	2.0 to 2.6	15 to 18
M12	30 to 49	3.0 to 5.0	22 to 36	31	3.2	23
M14	62 to 73	6.3 to 7.5	46 to 54	–	–	–
M16	98.1 to 112	10.0 to 11.5	72.4 to 83.1	–	–	–
M18	172 to 201	17.5 to 20.5	127 to 148	–	–	–

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4. LUBRICANTS, FUEL AND COOLANT

No.	Locations	Capacities		Lubricants
		B3150HSD / B3150HSDCC / B3150SUHSD		
1	Fuel	27 L 7.1 U.S.gals 5.9 Imp.gals		No.2-D S15 diesel fuel No. 1-D diesel fuel if temperature is below −10 °C (14 °F)
2	Coolant (with recovery tank)	[ROPS] 4.3 L 4.5 U.S.qts 3.8 Imp.qts	[CAB] 5.4 L 5.7 U.S.qts 4.8 Imp.qts	Fresh clean soft water with anti-freeze
3	Washer liquid	1.5 L 1.6 U.S.qts 1.3 Imp.qts		Automobile washer liquid
4	Engine crankcase (with filter)	4.0 L 4.2 U.S.qts 3.6 Imp.qts		**Engine oil** Refer to next page. • 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
5	Transmission case	15 L 4.0 U.S.gals 3.3 Imp.gals		KUBOTA UDT or SUPER UDT fluid*
6	Front axle case	4.7 L 5.0 U.S.qts 4.1 Imp.qts		KUBOTA UDT or SUPER UDT fluid* or SAE80 - SAE 90 gear oil

Grease				
No.	Greasing	No. of greasing points	Capacity	Type of grease
7	Top link	1	Until grease overflows	Multipurpose grease NLGI-2 or NLGI-1 (GC-LB)
	Lifting rod (RH)	1		
	Speed control pedal	1 [CAB Type]		
	Brake pedal	1 [ROPS Type]		
	Battery terminal	2	Moderate amount	

■ **NOTE**

- **The product name of KUBOTA genuine UDT fluid may be different from that in the Operator's Manual depending on countries or territories.**

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1. TROUBLESHOOTING

Symptom	Probable Cause and Checking Procedure	Solution	Reference Page
Engine Does Not Start	1. No fuel	Check fuel	G-9
	2. Air in the fuel system	Bleed air	G-39
	3. Water in the fuel system	Solution order 1. Repair or replace fuel system	1-S19
		2. Change fuel	G-9
	4. Fuel hose clogged	Clean or replace fuel hose	G-30
	5. Fuel filter clogged	Solution order 1. Replace fuel filter	G-35
		2. Check or change fuel	G-9
	6. Excessively high viscosity of fuel or engine oil at low temperature	Check fuel or engine oil	G-9
	7. Fuel with low cetane number	Check fuel	G-9
	8. Fuel leak due to loose injection pipe retaining nut	Repair retaining nut	1-S33
	9. Incorrect injection timing	Solution order 1. Check injection timing	1-S19
		2. Adjust injection timing	
	10. Fuel camshaft worn	Solution order 1. Inspect cam shaft	1-S39
		2. Replace cam shaft	
	11. Injection nozzle clogged	Solution order 1. Inspect injection nozzle	1-S21
		2. Replace or clean injection nozzle	1-S22
	12. Injection pump malfunctioning	Repair or replace injection pump	1-S38
	13. Seizure of crankshaft, camshaft, piston, cylinder or bearing	Solution order 1. Inspect crankshaft, camshaft, piston, cylinder or bearing	1-S51 to 1-S60
		2. Replace crankshaft, camshaft, piston, cylinder or bearing	1-S39 to 1-S45

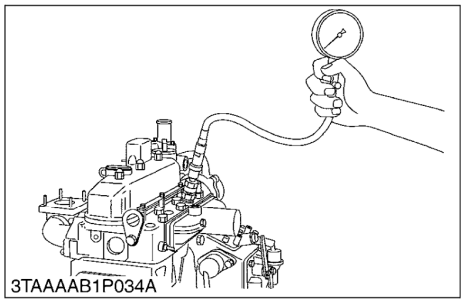
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4. CHECKING, DISASSEMBLING AND SERVICING

[1] CHECKING AND ADJUSTING

(1) Engine Body



Compression Pressure

1. Operate the engine until it is warmed up.
2. Stop the engine.
3. Remove the air cleaner, the muffler and all glow plugs (or nozzles).
4. Set a compression tester with the adaptor to the glow plug hole (or nozzle hole).
   Nozzle Hole: Adaptor **H**
   Glow Plug Hole: Adaptor **L**
5. After making sure that the stop lever is set at the stop position (non-injection), operate the engine with the starter and measure the compression pressure.
6. Repeat steps 4 and 5 for each cylinder.
7. If the measurement is below the allowable limit, apply a small amount of oil to the cylinder wall through the glow plug hole (or nozzle hole) and measure the compression pressure again.
8. If the compression pressure is still less than the allowable limit, check the top clearance, valve clearance and cylinder head.
9. If the compression pressure increases after applying oil, check the cylinder wall and piston rings.

■ **NOTE**

- **Check the compression pressure with the specified valve clearance.**
- **Always use a fully charged battery for performing this test.**
- **Variances in cylinder compression values should be under 10 %.**

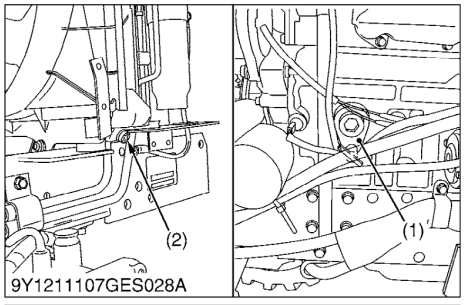
Compression pressure	Factory specification	3.73 to 4.11 MPa 38.0 to 42.0 kgf/cm^2 541 to 597 psi
	Allowable limit	2.26 MPa 23.0 kgf/cm^2 327 psi

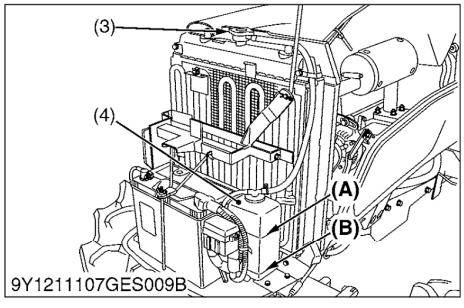
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[11] CHECK POINTS OF EVERY 2 YEARS





Flushing Cooling System and Changing Coolant

WARNING

To avoid personal injury or death:

- **Do not remove the radiator cap while coolant is hot. When cool, slowly rotate cap to the first stop and allow sufficient time for excess pressure to escape before removing the cap completely.**

1. Stop the engine, remove the key and let it cool down.
2. To drain the coolant, open the radiator drain plug and remove the radiator cap. The radiator cap must be removed to completely drain the coolant.
3. After all coolant is drained, close the drain plug.
4. Fill with clean water and cooling system cleaner.
5. Follow directions of the cleaner instruction.
6. After flushing, fill with clean water and anti-freeze until the coolant level is just below the radiator cap. Install the radiator cap securely.
7. Fill with coolant up to the **"FULL"** mark on the recovery tank.
8. Start and operate the engine for few minutes.
9. Stop the engine, remove the key and let cool.
10. Check coolant level of recovery tank and add coolant if necessary.
11. Properly dispose of used coolant.

■ **IMPORTANT**

- **Do not start engine without coolant.**
- **Use clean, fresh water and anti-freeze to fill the radiator and recovery tank.**
- **When the anti-freeze is mixed with water, the anti-freeze mixing ratio must be less than 50 %.**
- **Securely tighten radiator cap. If the cap is loose or improperly fitted, water may leak out and the engine could overheat.**

Coolant	Capacity (with recover tank)	ROPS	4.3 L 4.5 U.S.qts 3.8 Imp.qts
		CABIN	5.4 L 5.7 U.S.qts 4.8 Imp.qts

(1) Drain Cock
(2) Drain Plug
(3) Radiator Cap
(4) Recovery Tank

(A) FULL
(B) LOW

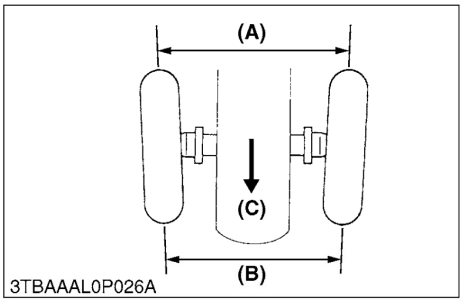
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4. CHECKING, DISASSEMBLING AND SERVICING

[1] CHECKING AND ADJUSTING



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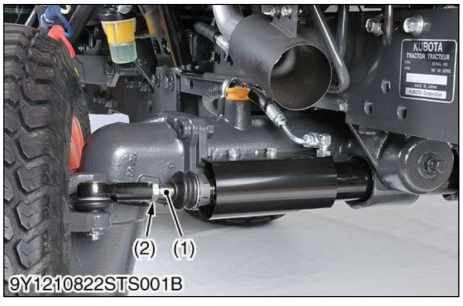
Toe-in

1. Inflate the tires to the specified pressure.
2. Turn the front wheels straight ahead.
3. Measure the toe-in **(A) - (B)**.
4. If the measurement is not within the factory specifications, adjust the tie-rod length.

Toe-in **(A) - (B)**	Factory specification	0 to 10 mm 0 to 0.39 in.

(A) Wheel to Wheel Distance at Rear (C) Front
(B) Wheel to Wheel Distance at Front

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9Y1210822STS001B

Toe-in Adjusting

1. Loosen the lock nut (2).
2. Turn the tie-rod joint (1) to adjust the rod length until the proper toe-in measurement is obtained.
3. Retighten the lock nut (2).

(1) Tie-rod Joint (2) Lock Nut

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9Y1210822FAS001A

Front Axle Rocking Force

1. Jack up the front side of tractor.
2. Set a spring balance to the front axle flange.
3. Measure the front axle rocking force.
4. If the measurement is not within the factory specifications, adjust with the adjusting screw (2).
5. Tighten the lock nut (1) firmly.

Front axle rocking force	Factory specification	50.0 to 100 N 5.1 to 10.2 kgf 11.3 to 22.4 lbf

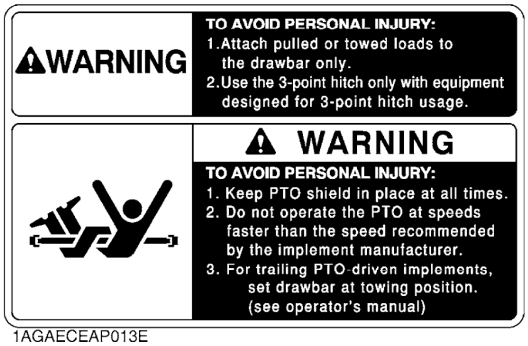
(1) Lock Nut (2) Adjusting Screw

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(1) Part No. 6C200-4959-1



1AGAECEAP013E

(2) Part No. 6C090-4958-2
Do not get your hands close to engine fan and fan belt.



1AGAIAZAP110A

(3) Part No. 6C430-4965-1

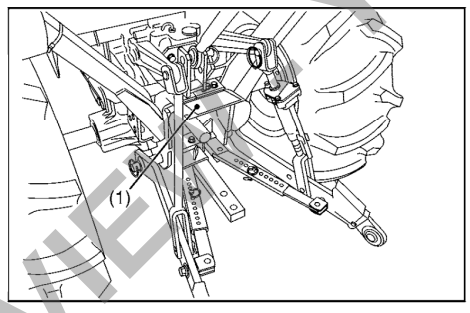


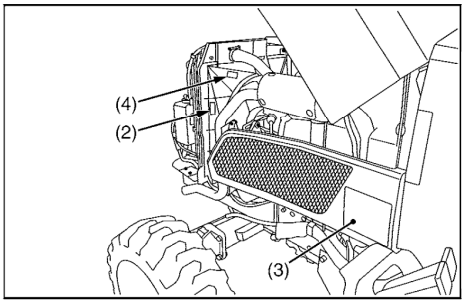
1AGAEEAAP003A

(4) Part No. 6C430-4959-1
Do not touch hot surface like muffler, etc.



1AGAEEAAP002A





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I INFORMATION

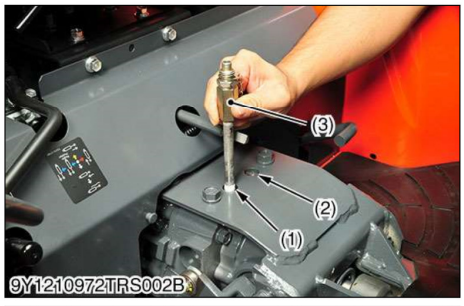
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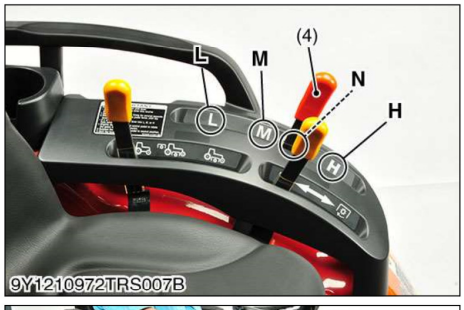
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Item		Factory Specification	Allowable Limit
Piston Pin Bore	I.D.	22.000 to 22.013 mm 0.86615 to 0.86665 in.	22.03 mm 0.8673 in.
Piston Pin to Small End Bushing	Clearance	0.014 to 0.038 mm 0.00055 to 0.0014 in.	0.15 mm 0.0059 in.
• Piston Pin	O.D.	22.002 to 22.011 mm 0.86622 to 0.86657 in.	–
• Small End Bushing	I.D.	22.025 to 22.040 mm 0.86713 to 0.86771 in.	–
Piston Pin to Small End Bushing (Spare Parts)	Clearance	0.014 to 0.038 mm 0.00056 to 0.0014 in.	0.15 mm 0.0059 in.
• Small End Bushing	I.D.	22.025 to 22.040 mm 0.86713 to 0.86771 in.	–
Piston Ring Gap			
• Top Ring		0.20 to 0.35 mm 0.0079 to 0.014 in.	1.20 mm 0.0472 in.
• Second Ring		0.40 to 0.55 mm 0.016 to 0.021 in.	1.20 mm 0.0472 in.
• Oil Ring		0.30 to 0.55 mm 0.012 to 0.021 in.	1.25 mm 0.0492 in.
Piston Ring to Piston Ring Groove			
• Second Ring	Clearance	0.0950 to 0.122 mm 0.00374 to 0.00480 in.	0.2 mm 0.008 in.
• Oil Ring	Clearance	0.020 to 0.060 mm 0.00079 to 0.0023 in.	0.15 mm 0.0059 in.
Connecting Rod	Alignment	–	0.05 mm 0.002 in.
Crankshaft	Side Clearance	0.15 to 0.31 mm 0.0059 to 0.012 in.	0.50 mm 0.020 in.
	Alignment	–	0.02 mm 0.0008 in.
Crankpin to Crankpin Bearing	Oil Clearance	0.029 to 0.091 mm 0.0011 to 0.0036 in.	0.20 mm 0.0079 in.
• Crankpin	O.D.	39.959 to 39.975 mm 1.5732 to 1.5738 in.	–
• Crankpin Bearing	I.D.	40.004 to 40.050 mm 1.573922 to 1.5767 in.	–
Crankshaft to Crankshaft Bearing 1	Oil Clearance	0.0340 to 0.114 mm 0.00134 to 0.00468 in.	0.20 mm 0.0079 in.
• Crankshaft	O.D.	47.934 to 47.950 mm 1.8872 to 1.8877 in.	–
• Crankshaft Bearing 1	I.D.	47.984 to 48.048 mm 1.8892 to 1.8916 in.	–

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High Pressure Relief Valve (Reverse)

CAUTION

- **When checking, park the tractor on flat ground and fully engage the parking brake.**

1. Remove the cover (for ROPS). Remove the seat under cover and the floor mat (for CABIN).
2. Remove the plug from **P1** port (reverse) (1).

NOTE

- **If the plug is tight to remove, warm up the plug by a hair drier etc..**

3. Install the adaptor (3) to **P1** port (1).
4. Install the cable (6) and high pressure gauge.

Engine speed	Rated speed
Range gear shift position	High
HST pedal	Reverse
Brake pedal	Depressed

5. Start the engine and warm the oil before testing. Check to see that parking brake is applied.
6. Place the range gear shift lever (4) to **"HIGH"** position.
7. Run the engine and set at 2500 min^{-1} (rpm).
8. Depress the rear side pedal of the HST pedal (5).
9. Read the high pressure gauge to measure the high pressure relief valve pressure.
10. If the measurement is not the same as factory specification, check the check and high pressure relief valve assembly.

Check and high relief pressure (Oil temperature at 40 to 60 °C (104 to 140 °F))	Factory specification	33 to 35 MPa 340 to 350 kgf/cm^2 4800 to 5000 psi

IMPORTANT

- **Measure quickly so that the relief valve may not be in operation more than 10 seconds.**

NOTE

- **High pressure gauge is 40 MPa (400 kgf/cm^2, 5800 psi) full scale.**
- **Engine speed: 2500 min^{-1} (rpm)**
- **Oil temperature: 45 to 55 °C (113 to 131 °F)**

(When reassembling)

- Apply liquid lock (Three Bond 1324B or its equivalent) to the plug.

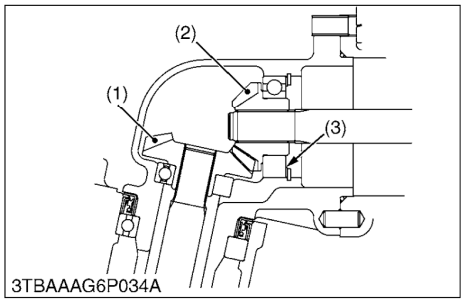
Tightening torque	Checking port plug	29 to 44 N·m 3.0 to 4.5 kgf·m 21.7 to 32.5 lbf·ft

(1) **P1** Port (Reverse)
(2) **P2** Port (Forward)
(3) Adaptor
(4) Range Gear Shift Lever
(5) HST Pedal
(6) Cable

L: Low Speed Position
M: Medium Speed Position
N: Neutral Position
H: High Speed Position

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Backlash between 11T Bevel Gear and 16T Bevel Gear

1. Stick a strip of plastigauge or wire of solder to three spots on the 16T bevel gear (1) with grease.
2. Fix the front axle case, bevel gear case and front gear case.
3. Turn the axle.
4. Remove the bevel gear case from front axle case and measure the thickness of the plastigauge or wire of solder with an outside micrometer.
5. If the backlash is not within the factory specifications, adjust with shim (3).

Backlash between bevel gear (11T) and bevel gear (16T)	Factory specification	0.10 to 0.30 mm 0.0039 to 0.0118 in.

(Reference)

- Thickness of adjusting shims (3):
  0.8 mm (0.031 in.)
  1.0 mm (0.039 in.)
  1.2 mm (0.047 in.)
  1.4 mm (0.055 in.)
- Tooth contact:
  More than 35 %

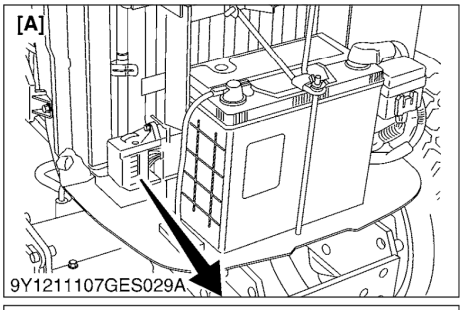
(1) Bevel Gear (16T)
(2) Bevel Gear (11T)
(3) Shim

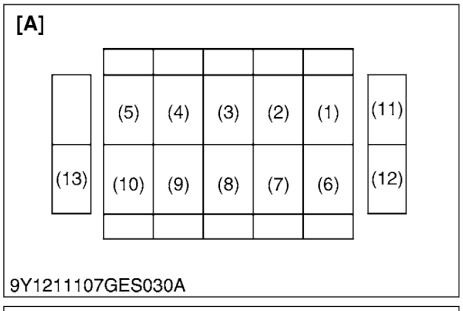
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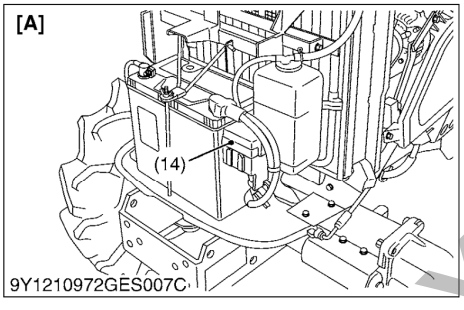
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[2] FUSE







Checking Fuse

1. Check the fuse.
2. If any of the fuses is blown, replace it with the one having same capacity.

■ **IMPORTANT**

- **If a fuse is blown, check the cause and be sure to replace it with the one having same capacity.**

[ROPS]

Fuse No.	Capacity (A)	Protected circuit
(1)	30	Key Stop
(2)	10	Flasher / Hazard
(3)	5	Panel
(4)	10	Brake Lamp
(5)	5	Glow Relay
(6)	10	Head Light
(7)	5	Panel / OPC
(8)	5	Dynamo / ACC Relay
(9)	10	Outlet (Right side)
(10)	10	Outlet (Rear)
(11)	5	Spare Fuse
(12)	10	Spare Fuse
(13)	30	Spare Fuse
(14)	Slow blow fuse	Check circuit against wrong battery connection

[A] ROPS

(To be continued)

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