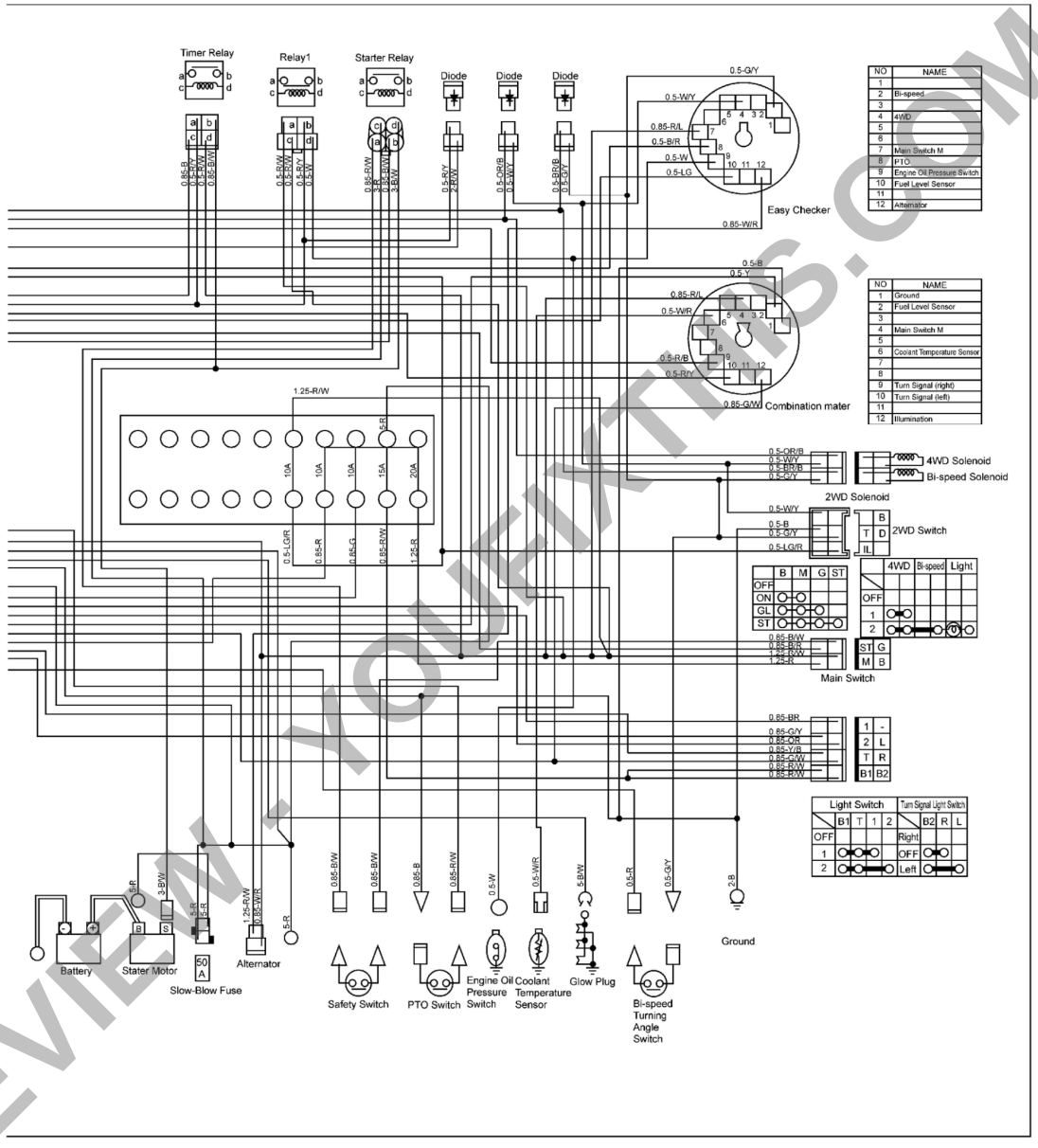
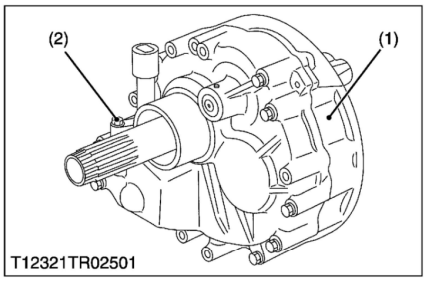
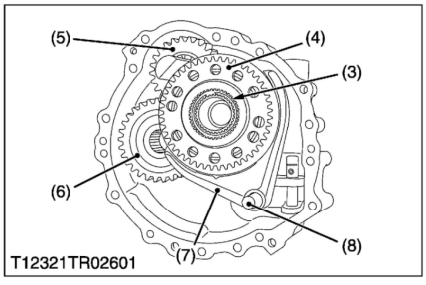


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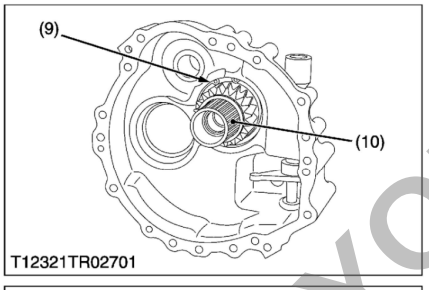
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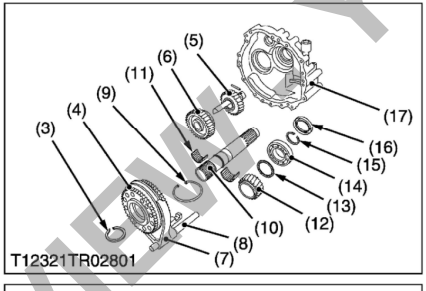
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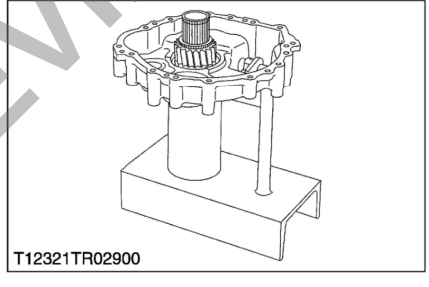
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T12321TR02701



T12321TR02801


T12321TR02900

Disassembling Shuttle Case Assembly

1. Remove the grade 7 and grade 9 screws.
2. Remove the shuttle case 2 (1).
3. Remove the screw (2).
4. Remove the external snap ring (3).
5. Remove the synchronizer assembly (4) with shifter (7) and shift rod (8).
6. Remove the 25T gear (5) and 31T gear (6).
7. Remove the internal snap ring (9).
8. Tap out the input shaft (10) with bearing.

(When reassembling)

- Take care of direction of the oil seal.
- Apply grease to the oil seal and bushing.
- Take care of position of needle bearing.
- Apply transmission fluid to the bearing.
- Use to shuttle case assembling stand (See page NG-9).

■ **NOTE**

- **After check the reassembly, please check the operation.**

Tightening torque	Shuttle case assembly screw, nut	M8, grade 7 nut	23.5 to 27.4 N·m 2.4 to 2.8 kgf·m 17.4 to 20.3 ft-lbs
		M8, grade 9 screw	29.4 to 34.3 N·m 3.0 to 3.5 kgf·m 21.7 to 25.3 ft-lbs

(1) Shuttle Case 2
(2) Screw
(3) External Snap Ring
(4) Synchronizer Assembly
(5) 25T Gear
(6) 31T Gear
(7) Shifter
(8) Shift Rod
(9) Internal Snap Ring
(10) Input Shaft
(11) Needle Bearing
(12) 20T Gear
(13) Thrust Bearing
(14) Bearing
(15) External Snap Ring
(16) Oil Seal
(17) Shuttle Case 1

W1014742

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1. ENGINE

[2] SERVICING

(1) Tightening Torques

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

Item	N·m	kgf·m	ft-lbs
ROPS frame	196.1 to 225.6	20.0 to 23.0	144.7 to 166.4
Foldable ROPS	29.4 to 49.0	3.0 to 5.0	21.7 to 36.2
Power steering hoses retaining nut	24.5 to 29.4	2.5 to 3.0	18.1 to 21.7
Front axle support mounting screw	167 to 196	17.0 to 20.0	123 to 144
Starter's terminal **B** mounting nut	8.8 to 11.8	0.9 to 1.2	6.5 to 8.7
Bonnet support mounting screw	48.1 to 55.8	4.9 to 5.7	35.5 to 41.2
Support frame mounting screw	48.1 to 55.8	4.9 to 5.7	35.3 to 41.2
Engine and clutch housing mounting screw, nut	77.5 to 90.2	7.9 to 9.2	57.1 to 66.5
Engine and clutch housing mounting stud bolt	39.2 to 49.0	4.0 to 5.0	28.9 to 36.2

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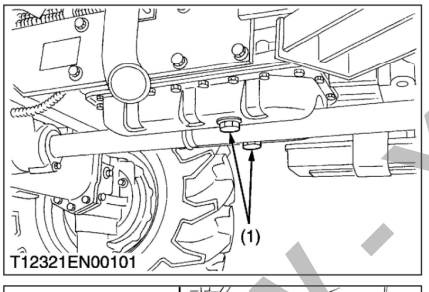
(2) Checking, Disassembling and Servicing

(A) Separating Engine from Tractor

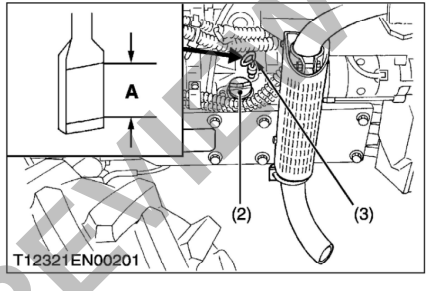
Draining Coolant

1. See page 1-S7.

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T12321EN00101



T12321EN00201

Draining Engine Oil

1. Start and warm up the engine for approx. 5 minutes.
2. Place an oil pan underneath the engine.
3. Remove the drain plugs (1) to drain oil.
4. After draining, screw in the drain plugs (1).

(When refilling)

- Fill the engine oil up to the upper line on the dipstick (3).

Engine oil	Capacity	10.7 L 11.3 U.S.qts. 9.4 Imp.qts.

■ **IMPORTANT**

- **Never mix two different type oil.**
- **Use the proper SAE Engine Oil according to ambient temperatures.**
  Refer to "LUBRICANTS, FUEL AND COOLANT". (See page NG-3.)

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

A : Oil level is acceptable within this range.

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[2] SERVICING

(1) Troubleshooting

Symptom	Probable Cause	Solution	Reference Page
Excessive Transmission Noise	• Transmission fluid insufficient	Replenish	NG-3

W1014322

4WD / Bi-SPEED TURN CLUTCH

4WD / Bi-speed Turn Clutch Slip	• Operating pressure is low (Same as PTO clutch) • Clutch disc or drive plate excessively worn • Deformation of piston or drive plate	Adjust Replace Replace	2-S11 N3-S23, S24 N3-S23, S25
4WD / Bi-speed Turn Shaft Does Not Rotate	• 4WD / Bi-speed turn clutch malfunctioning • 4WD / Bi-speed turn propeller shaft coupling disengaged	Repair or replace Engage	N3-S22, S23 N3-S22
4WD / Bi-speed Turn Clutch Operating Pressure is Low	• Transmission oil improper or insufficient	Replenish or change	NG-3
4WD / Bi-speed Turn Clutch Drags	• Deformation of drive plate or clutch disc	Replace	N3-S23, S24

W1013718

(2) Servicing Specifications

Item		Factory Specification	Allowable Limit
4WD / Bi-speed Turn Clutch Disc	Thickness	1.70 to 1.90 mm 0.067 to 0.075 in.	1.55 mm 0.061 in.
4WD / Bi-speed Turn Drive Plate	Thickness	1.15 to 1.25 mm 0.045 to 0.049 in.	1.10 mm 0.043 in.
4WD / Bi-speed Turn Piston	Flatness	–	0.15 mm 0.006 in.
4WD / Bi-speed Turn Drive Plate	Flatness	–	0.30 mm 0.012 in.

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SPECIFICATIONS

Model			M8200DNB	M8200SDNB
PTO power (Factory Observed)			54.5 kW [73 HP, 2600 min^{-1}(rpm)]	
Engine	Model		V3300-TE	
	Type		Vertical, water-cooled, 4-cycle diesel engine	
	No. of cylinders		4	
	Total displacement		3318 cm^3 (202.5 cu.in.)	
	Bore and stroke		98 × 110 mm (3.9 × 4.3 in.)	
	Engine rated output		61.2 kW (82 HP)	
	Rated revolution		2600 min^{-1}(rpm)	
	Maximum torque		285 N·m (29.1 kgf·m, 210 ft-lbs) / 1300 to 1500 min^{-1}(rpm)	
	Battery		12 V, CCA1000A	
	Fuel		Diesel fuel No. 1-D [below –10 °C (14 °F)], Diesel fuel No. 2-D [above –10 °C (14 °F)]	
	Fuel tank capacity		60 L (15.9 U.S.gals., 13.2 lmp.gals.)	
	Engine crankcase capacity		10.7 L (11.3 U.S.qts., 9.4 lmp.gal.)	
	Engine coolant capasity		9.0 L (9.5 U.S.qts., 7.9 lmp.gal.)	
Dimensions	Overall length		3410 mm (134.3 in.)	
	Overall width (Minimum tread)		1220 mm (48 in.)	
	Overall height (Top steering)		1386 mm (54.6 in.)	
	Wheel base		2000 mm (78.7 in.)	
	Tread	Front	1030 mm (40.6 in.)	
		Rear	900 mm (35.0 in.) to 1413 mm (55.6 in.)	
	Minimum ground clearance		228 mm (9.0 in.) (SWAY BLOCK)	
Weight (with ROPS)			1850 kg (4080 lbs)	
Travelling system	Standard tire size	Front	8.0 - 16	
		Rear	12.4 - 24	
	Clutch		Dry, Single plate	
	Steering		Full hydraulic power steering	
	Transmission		Shuttle synchtomesh, 12F/4R	12 forward and 12 reverse fully synchronized main and shuttle transmission with creep speed.
	Brake	Travelling	Wet type multiple discs (mechanical)	
		Parking	Connected with the travelling brake	
	Differential		Bevel gears (with differential lock)	
Hydraulic system	Hydraulic control system		Position, draft and mix control	
	Pump-up capacity		41.3 L (10.9 U.S.gal., 9.1 lmp.gal.)/min.	
	Three point hitch		Category I (CAT.II Link End)	
	Maximum lifting force		1900 kg (4189 lbs) at lower link end 1500 kg (3307 lbs) at 610 mm (24 in.) behind lifting point	
	System pressure		19.1 MPa (195 kgf/cm^2, 2773 psi)	
PTO	Independance clutch		Wet type, multiple discs	
	Live PTO	Direction of turning	Clock wise, viewed from tractor rear	
		PTO speed	540 rpm at 2160 engine rpm	
Traction system			Swing drawbar, adjustable in direction	

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[3] MAINTENANCE

No.	Item		Period	Indication on hour meter																Since then	Reference page	
				50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800			
1	Engine oil		Change	★			☆				☆				☆				☆	every 200 Hr	G-13	
2	Engine Oil Filter		Replace	★							☆								☆	every 400 Hr	G-14	
3	Fuel filter element		Replace								☆								☆	every 400 Hr	G-23	@
4	Water separator		Clean	★							☆								☆	every 400 Hr	G-23	
5	Hydraulic oil filter		Replace	★					☆						☆					every 300 Hr*	G-14	
6	Front axle gear case oil		Change	★											☆					every 600 Hr	NG-7	
7	Engine start system		Check	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	every 50 Hr	G-16	
8	Wheel bolt torque		Check	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	every 50 Hr	NG-6	
9	Battery condition		Check		☆		☆		☆		☆		☆		☆		☆		☆	every 100 Hr	G-17	
10	Greasing		–		☆		☆		☆		☆		☆		☆		☆		☆	every 100 Hr	G-20	
11	Fan belt		Adjust		☆		☆		☆		☆		☆		☆		☆		☆	every 100 Hr	G-19	
12	Clutch		Adjust	★	☆		☆		☆		☆		☆		☆		☆		☆	every 100 Hr	G-15	
13	Brake		Adjust		☆		☆		☆		☆		☆		☆		☆		☆	every 100 Hr	G-19	
14	Air cleaner element [Double type]	Primary element	Clean		☆		☆		☆		☆		☆		☆		☆		☆	every 100 Hr	G-18	@
			Replace																	every 1 year	G-18	
		Secondary element	Replace																	every 1 year	G-18	
15	Radiator hose and clamp		Check				☆				☆				☆				☆	every 200 Hr	G-21	
			Replace																	every 2 years	G-21	
16	Power steering oil line		Check				☆				☆				☆				☆	every 200 Hr	G-21	
			Replace																	every 2 years	G-21	
17	Fuel line		Check				☆				☆				☆				☆	every 200 Hr	G-21	@
			Replace																	every 2 years	G-21	
18	Toe-in		Adjust				☆				☆				☆				☆	every 200 Hr	G-22	
19	Transmission fluid		Change	★											☆					every 600 Hr	NG-5	
20	Front axle pivot		Adjust												☆					every 600 Hr	G-25	
21	Engine valve clearance		Adjust																☆	every 800 Hr	1-S15	
22	Cooling system		Flush																	every 2 years	G-26, 27	
23	Coolant		Change																	every 2 years	G-26, 27	
24	Fuel system		Bleed																	Service as required	G-28	
25	Clutch housing water		Drain																		G-28	
26	Fuse		Replace																		NG-8	
27	Light bulb		Replace																		G-29	
28	Intake air line		Check				☆				☆				☆				☆	every 200 Hr	–	@
			Replace																	every 2 years	–	
29	Fuel injection nozzle injection pressure		Check																	every 1500 Hr	1-S48	@
30	Injection pump		Check																	every 3000 Hr	1-S47	@

■ IMPORTANT

- **The jobs indicated by ★ must be done after the first 50 hours of operation.**
- *** : Air cleaner and hydraulic oil filter should be cleaned more often in dusty conditions than in normal conditions.**
- **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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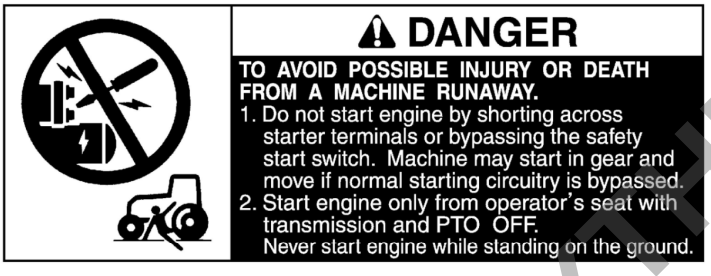
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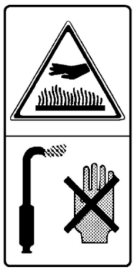
SAFETY DECALS

The following safety decals are installed on the machine.
If a decal becomes damaged, illegible or is not on the machine, replace it. The decal part number is listed in the parts list.

(1) Part No. TA040-4965-2



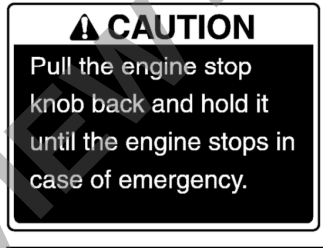
(2) Part No. TA040-4958-1
Do not touch hot surface like muffler, etc.



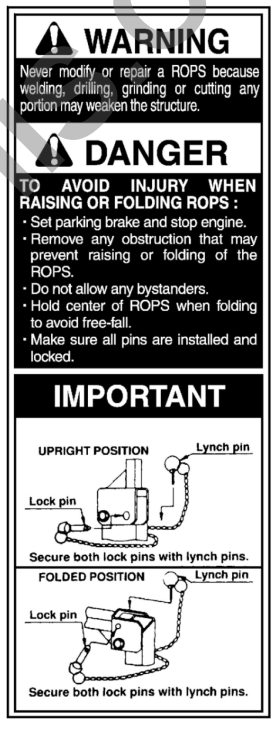
(3) Part No. TA040-4957-1
Stay clear of engine fan and fanbelt.

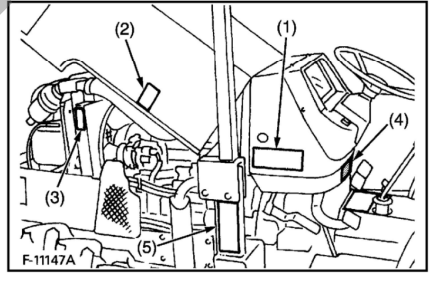


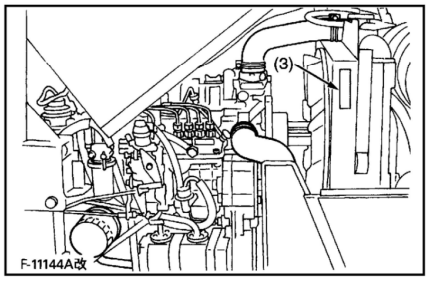
(4) Part No. 35080-6528-2



(5) Part No. 3A431-9849-2







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[2] SERVICING N8-S1

9. ELECTRICAL SYSTEM N9-M1
[1] MECHANISM N9-M1
[2] SERVICING N9-S1

10. CABIN N10-1

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TO THE READER

In this section , the main additional functions and altered points of M8200DNB, M8200SDNB, M8200SDNBC tractors from M6800, M8200, M9000 tractors are explained separately in two items, “Mechanism” and “Servicing” for each section.

As for the items which are not explained in this section, refer to M6800, M8200, M9000 Workshop Manual.

■ **Mechanism**

Information on the construction and function are included for M8200DNB, M8200SDNB, M8200SDNBC tractors. This part should be understood before proceeding with troubleshooting, disassembling and servicing.

■ **Servicing**

For M8200DNB, M8200SDNB, M8200SDNBC tractors, there are troubleshooting, servicing specification lists, checking and adjusting, disassembling and assembling, and servicing which cover procedures, precautions, factory specifications and allowable limits.

All information illustrations and specifications contained in this manual are based on the latest product information available at the time of publication.

The right is reserved to make changes in all information at any time without notice.

March 2001

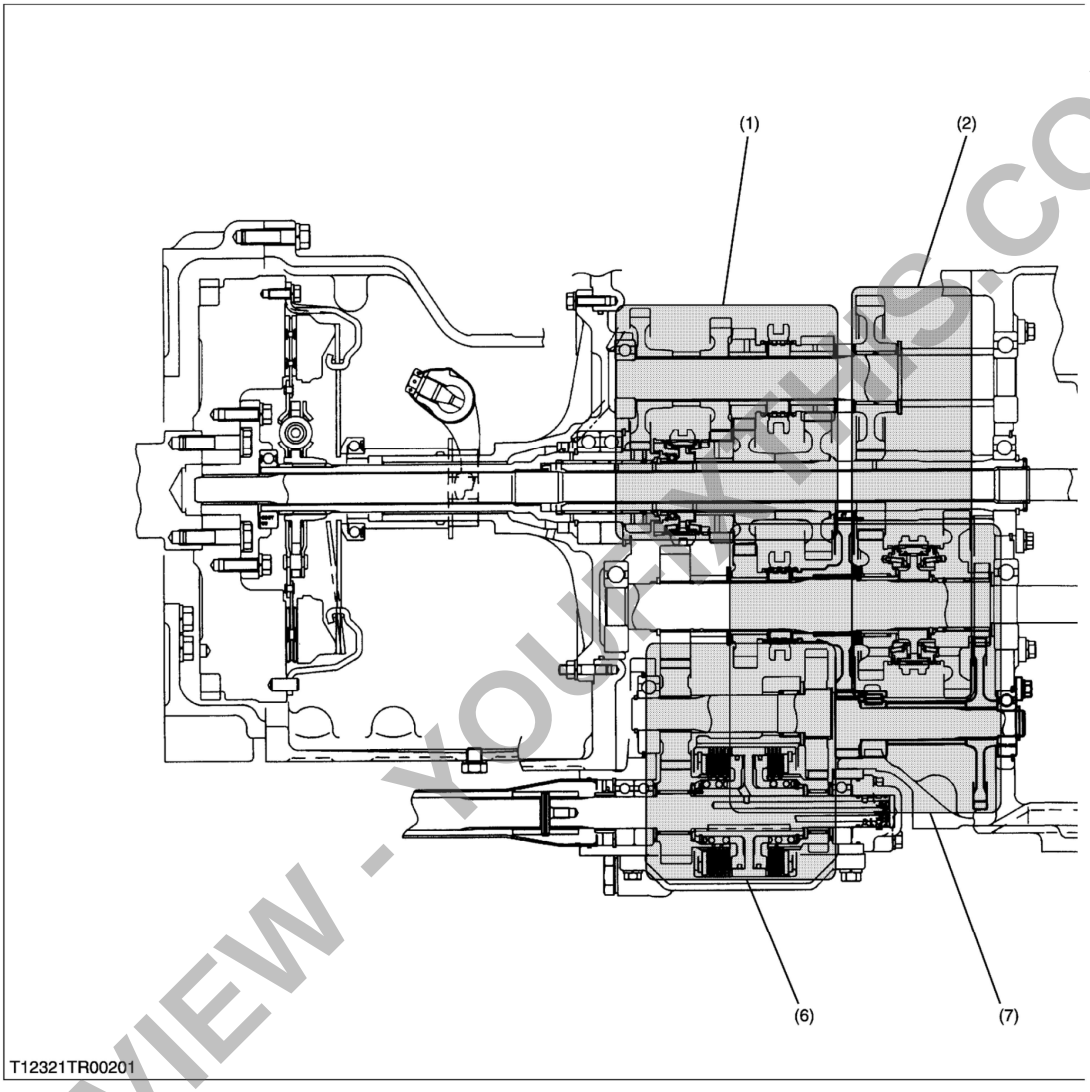
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(B) M8200DNB



(1) Main Gear Shift Section
(2) Shuttle Shift Section (Lo-Reverse)
(3) PTO Clutch Section
(4) Differential Gear Section

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4. REAR AXLE

[2] SERVICING

(1) Tightening Torques

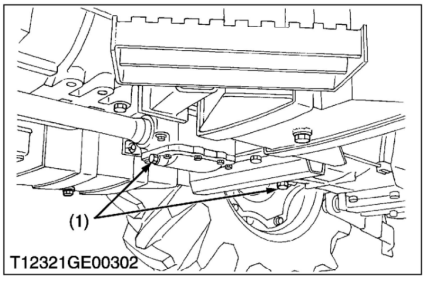
Tightening torques of screws, bolts and nuts on the table below are especially specified.
(For general use screws, bolts and nuts : See page G-11.)

Item	N·m	kgf·m	ft-lbs
Rear wheel mounting nut	260 to 304	26.5 to 31.0	192 to 224
Rear ROPS mounting U-bolt	196 to 225	20 to 23	144.7 to 166.4
Rear axle case mounting screw and nut			
M12 screw and nut	77.5 to 90.2	7.9 to 9.2	57.1 to 66.5

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(2) Disassembling and Assembling

(A) Separating Rear Axle Case from Transmission Case



Draining Transmission Fluid

1. Place oil pans underneath the transmission case.
2. Remove the drain plugs (1).
3. Drain the transmission fluid.
4. Reinstall the drain plugs (1).

(When reassembling)

- Fill up from filling port after removing the filling plug until reaching the dipstick.
- After running the engine for few minutes, stop it and check the fluid level again, add the fluid to prescribed level if it is not correct level.

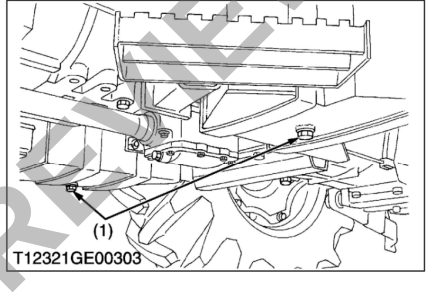
Transmission fluid	Capacity	33.0 L 34.88 U.S.qts. 29.04 Imp.qts.

■ **IMPORTANT**

- **Use only KUBOTA SUPER UDT fluid. Use of other oils may damage the transmission or hydraulic system.**
- **Refer to "LUBRICANTS, FUEL AND COOLANT". (See page NG-3.)**
- **Do not mix different brands fluid together.**

(1) Drain Plug

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Draining Fuel

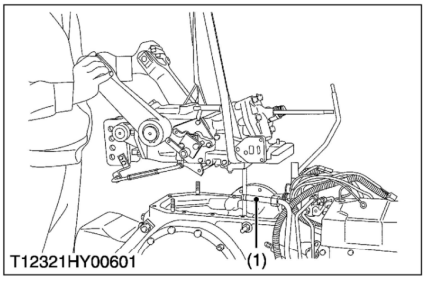
1. Place oil pans under the fuel tank.
2. Remove the drain plug (1).
3. Drain the fuel.
4. Reinstall the drain plug (1).

Capacity	60 L 15.9 U.S.gals. 13.2 Imp.gals.

(1) Drain Plug

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Hydraulic Cylinder Assembly

1. Remove the delivery pipe (1).
2. Remove the hydraulic cylinder assembly mounting screws and nuts.
3. Support the hydraulic cylinder assembly with nylon lift strap and hoist, and take out it.

(When reassembling)

- Apply liquid gasket (Three Bond 1216 or equivalent) to joint face of the hydraulic cylinder assembly and transmission case after eliminate the water, oil and stuck liquid gasket.

Tightening torque	Hydraulic cylinder assembly mounting stud bolt	38.2 to 45.1 N·m 3.9 to 4.6 kgf·m 28.2 to 33.3 ft-lbs
	Hydraulic cylinder assembly 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

■ **NOTE**

- **Reassemble the hydraulic cylinder assembly to the tractor, be sure to adjust the position control feedback rod and draft control rod.**

(1) Delivery Pipe

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