WSM

WORKSHOP MANUAL
TRACTOR

M8200DNB(SUPPLEMENT), M8200SDNB,M8200SDNBC

Kubota

KiSC issued 10, 2018 A

N M8200DNB (Supplement)
M8200SDNB
M8200SDNBC

KiSC issued 10, 2018 A

CONTENTS

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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.

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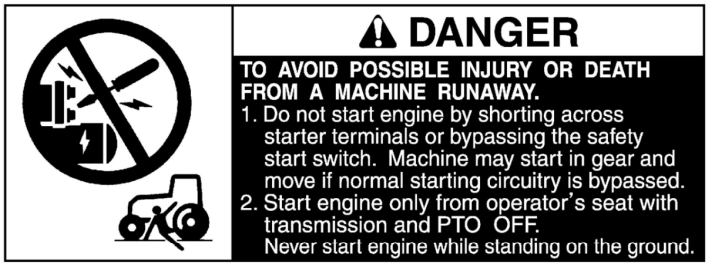
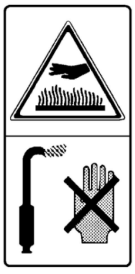
SAFETY DECALS

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

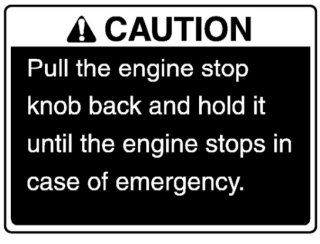


(2) Part No. TA040-4958-1
Do not touch hot surface like muffler, etc.

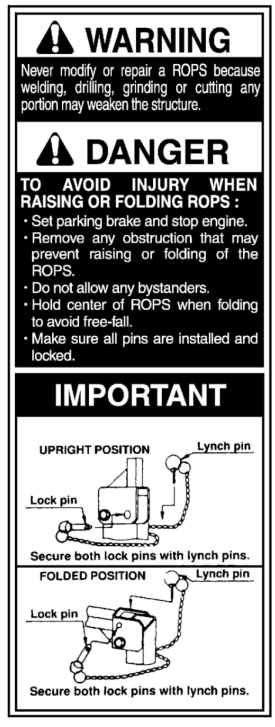


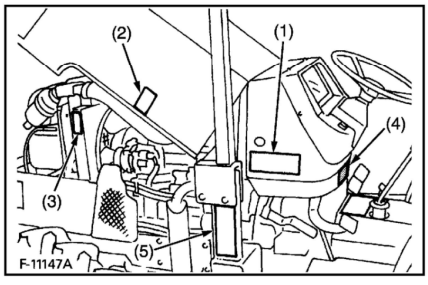
(3) Part No. TA040-4957-1
Stay clear of engine fan and fanbelt.

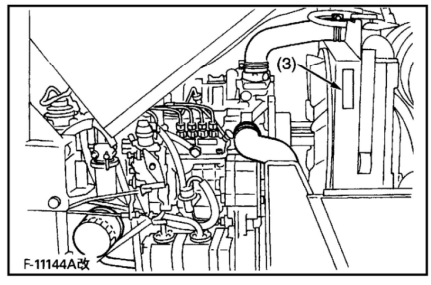
(4) Part No. 35080-6528-2



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







T12730ZZ00101

(1) Part No. 35260-3491-3

⚠ CAUTION

TO AVOID PERSONAL INJURY:
1. Read and understand the operator's manual before operation.
2. Before starting the engine, make sure that everyone is at a safe distance from the tractor and that the PTO is OFF.
3. Do not allow passengers on the tractor at any time.
4. Before allowing other people to use the tractor, have them read the operator s manual.
5. Check the tightness of all nuts and bolts regularly.
6. Keep all shields in place and stay away from all moving parts.
7. Lock the two brake pedals together before driving on the road.
8. Slow down for turns, or rough roads, or when applying individual brakes.
9. On public roads use SMV emblem and hazard lights, if required by local traffic and safety regulations.
10. Pull only from the drawbar.
11. Before dismounting, lower the implement, set the parking brake, stop the engine and remove the key.

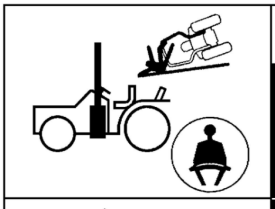
(5) Part No. 3A481-9852-1

(2) Part No. 3A481-9890-1

⚠ WARNING

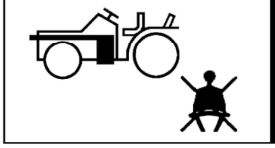
TO AVOID THE POSSIBILITY OF MACHINE RUNAWAY BEFORE DISMOUNTING TRACTOR:
1. ALWAYS SET PARKING BRAKE.
When engine is stopped, parking brake operates with rear wheels only regardless of front axle engagement.
2. PARK ON LEVEL GROUND WHENEVER POSSIBLE.
If parking on a slope, position tractor across the slope. If that is not possible, choke wheels securely.
3. LOWER ALL IMPLEMENTS TO THE GROUND.

(3) Part No. TA431-9848-1



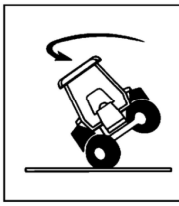
⚠ WARNING

TO AVOID INJURY OR DEATH FROM ROOL-OVER :
- Keep Roll-Over Protective Structures (ROPS) in the upright and locked position.
- Check operating environment or vertical clearamce for ROPS
- Fasten SEAT BELT before operating.



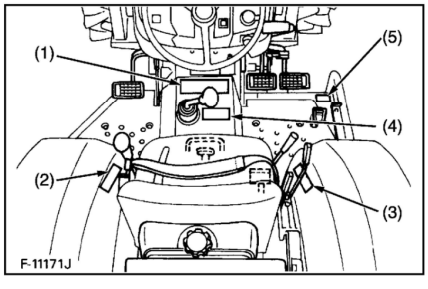
IN FOLDED POSITION ROPS PROTECTION IS ELIMINATED
- Do not fasten SEAT BELT when ROPS is folded.
- Raise ROPS as soon as vertical clearance allows and read related instructions and warning.

(4) Part No. 3F240-4905-2



⚠ WARNING

To avoid personal injury:
Use "Bi-speed Turn" only in low gears and slow speed. Do not use "Bi-speed Turn" in high gears or road speed.



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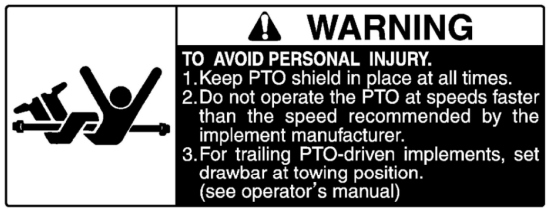
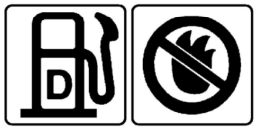
(1) Part No. TA040-4959-3

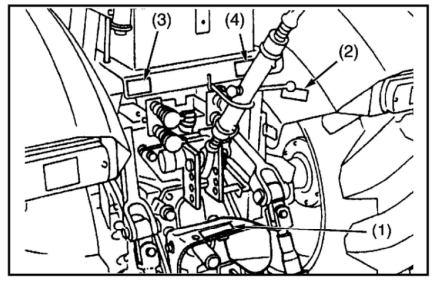


(4) Part No. TA040-4935-1

(2) Part No. 3A111-9856-3

(3) Part No. TA040-4956-2





CARE OF DANGER, WARNING AND CAUTION LABELS

1. Keep danger, warning and caution labels clean and free from obstructing material.
2. Clean danger, warning and caution labels with soap and water, dry with a soft cloth.
3. Replace damaged or missing danger, warning and caution labels with new labels from your local KUBOTA distributor.
4. If a component with danger, warning and caution label(s) as the replaced component.
5. Mount new danger, warning and caution labels by applying on a clean dry surface and pressing any bubbles to outside edge.

T12321ZZ00201

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 Imp.gals.)	
	Engine crankcase capacity		10.7 L (11.3 U.S.qts., 9.4 Imp.gal.)	
	Engine coolant capasity		9.0 L (9.5 U.S.qts., 7.9 Imp.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 Imp.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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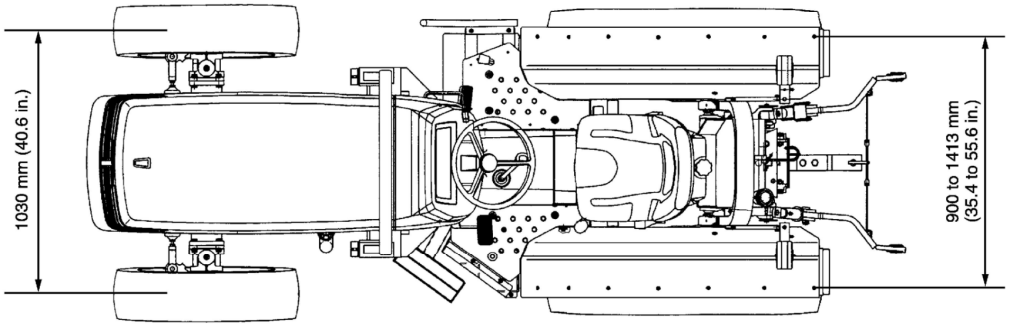
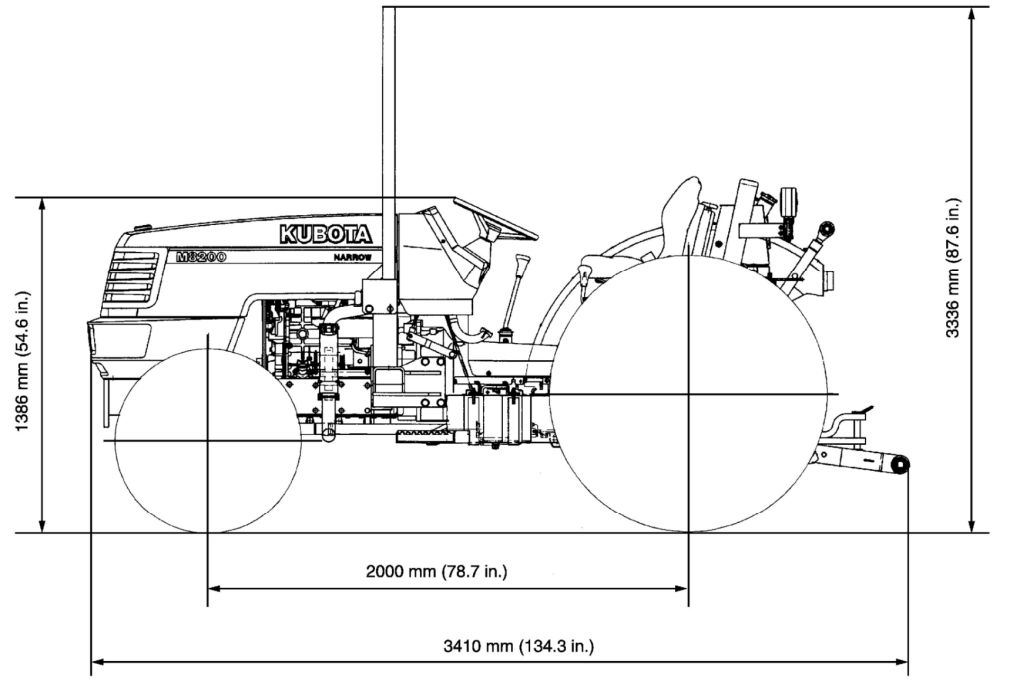
DIMENSIONS





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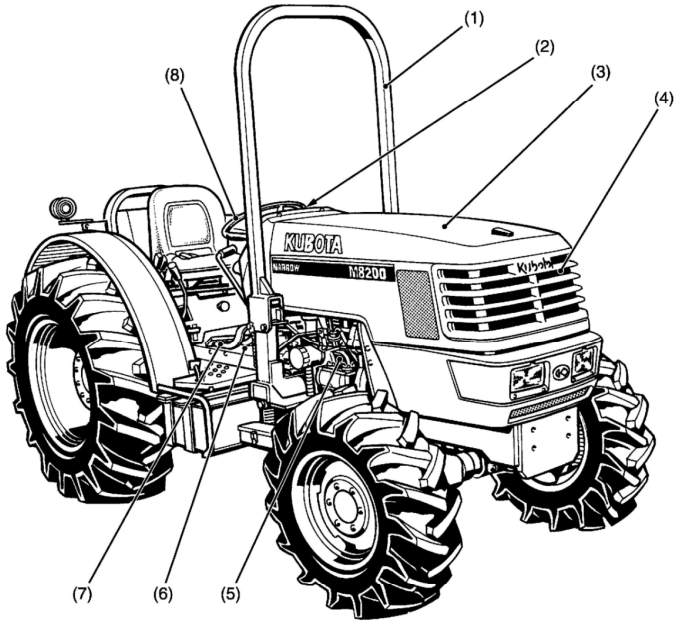
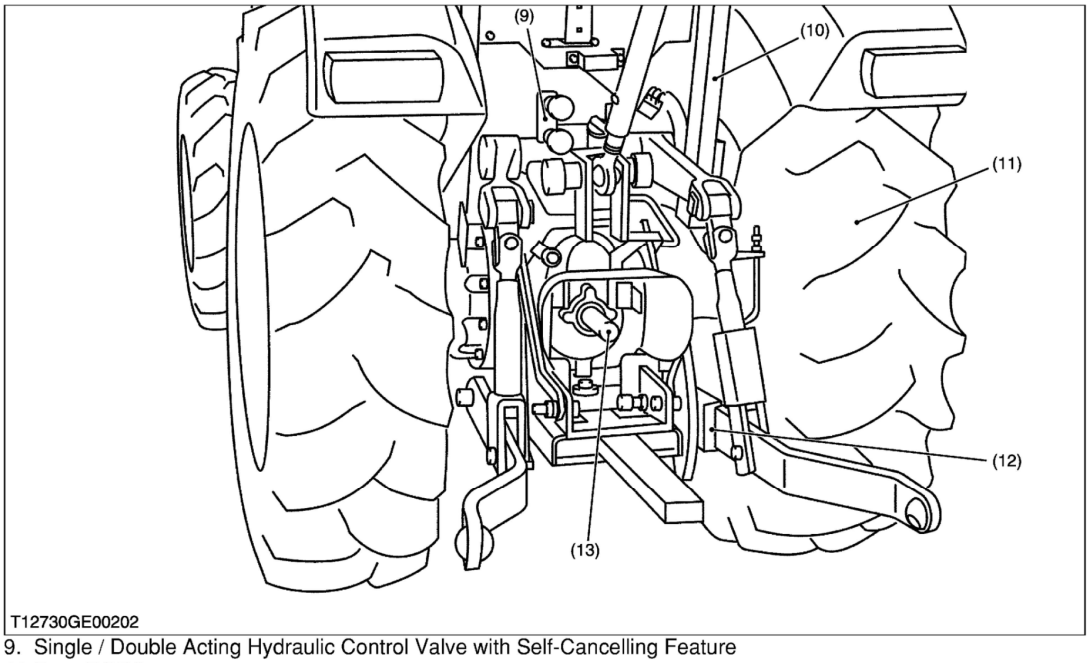
G. GENERAL

[1] FEATURES



T12321GE00101

1. Foldable ROPS
2. Synchro-Shuttle Shift : Forward - Reverse (M8200SDNB)
3. New Design
4. Double-Element Air Cleaner
5. E-TVCS (Three Vortex Combustion System)
6. Shuttle Synchromesh, 12F/4R : Lo-Reverse (M8200DNB)
   12F/12R : Fully Synchronized Main and Shuttle Transmission (M8200SDNB)
7. Hanging Type Clutch Pedal
8. Full Hydrostatic Power Steering



T12730GE00202

9. Single / Double Acting Hydraulic Control Valve with Self-Cancelling Feature
10. Rear ROPS
11. Rear Wheel (12.4-24)
12. Three Point Hitch with Sway Block
    Three Point Hitch Fully Equipped with Position, Draft and Mixed Control
13. PTO (540 rpm at 2160 engine rpm)

[2] LUBRICANTS, FUEL AND COOLANT

	Place	Capacity M8200DNB, M8200SDNB	Lubricants, fuel and coolant
1	Fuel tank	60 L 15.9 U.S.gals. 13.2 Imp.gals.	No. 2-D diesel fuel No. 1-D diesel fuel if temperature is below –10 °C (14 °F)
2	Coolant	9.0 L 9.5 U.S.qts. 7.9 Imp.qts.	Fresh clean water with anti-freeze Do not mix different brand anti-freeze together
3	Engine crankcase	10.7 L 11.3 U.S.qts. 9.4 Imp.qts.	Engine oil : API service CC or CD class Below 0 °C (32 °F) : SAE10W, 10W-30 or 10W-40 0 to 25 °C (32 to 77 °F): SAE20, 10W-30 or 10W-40 Above 25 °C (77 °F): SAE30, 10W-30 or 10W-40
4	Transmission case	33 L 34.9 U.S.gals. 29.0 Imp.gals.	KUBOTA SUPER UDT fluid*
5	Front axle case	6.0 L 6.3 U.S.qts. 5.3 Imp.qts.	KUBOTA SUPER UDT fluid* or SAE80, 90 gear oil

Greasing				
	Place	**No. of greasing point**	**Capacity**	**Type of grease**
6	Front wheel case support	2	Until grease overflows	Multipurpose type grease
	Front axle support	2		
	Top link	2		
	Top link bracket	2		
	Lift rod	2		
	Battery terminal	2	Moderate amount	

* KUBOTA original transmission hydraulic fluid.

[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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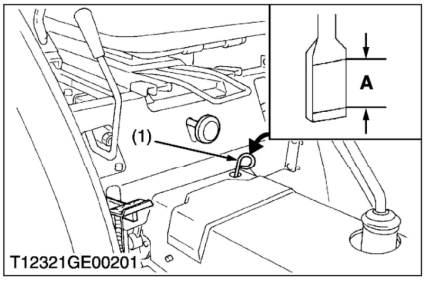
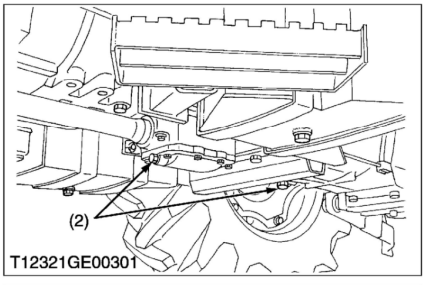
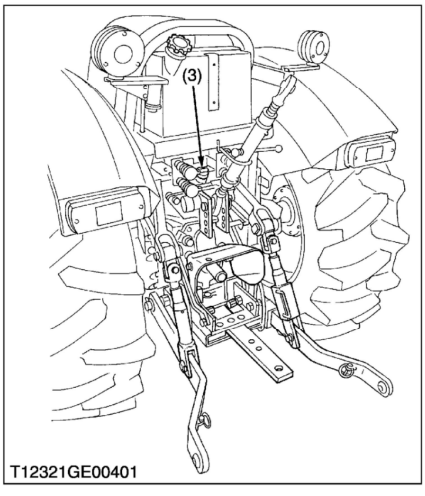
[4] CHECK AND MAINTENANCE

(1) Check Points of Initial 50 Hours







Changing Transmission Fluid

CAUTION

- **Allow engine to cool down sufficiently, oil can be hot and can burn.**

1. To drain the used oil, remove the drain plug at the bottom of the transmission csae and drain the oil completely into the oil pan.
2. After draining reinstall the drain plug.
3. Fill with the new KUBOTA SUPER UDT fluid up to the upper notch on the dipstick (1).
4. After running the engine for a few minutes, stop it and check the oil level again; add oil to prescribed level.

■ **IMPORTANT**

- **Do not operate the tractor immediately after changing the transmission fluid.**
- **Run the engine at medium speed for a few minutes to prevent damage to the transmission.**

Oil capacity	33.0 L 34.9 U.S.qts. 29.0 Imp.qts.

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

A : Oil level is acceptable within the range.

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(2) Check Points of Every 50 Hours

Checking Engine Start System

1. See page G-16. (Same as model M6800.)

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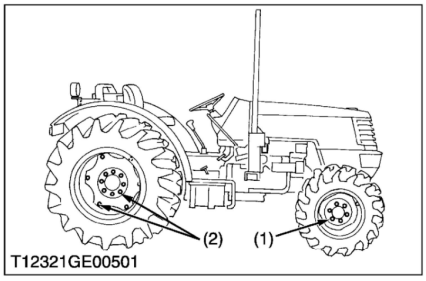


Checking Wheel Mouting Nuts Tightening Torque

CAUTION

- **Never operate tractor with a loose rim, wheel, or axle.**
- **Any time bolts and nuts are loosened, retighten to specified torque.**
- **Check all bolts and nuts frequently and keep them tight.**

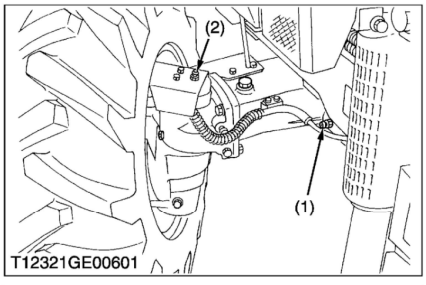
1. Check the wheel mounting nuts regularly especially when new. If there are loosened, tighten as follows.

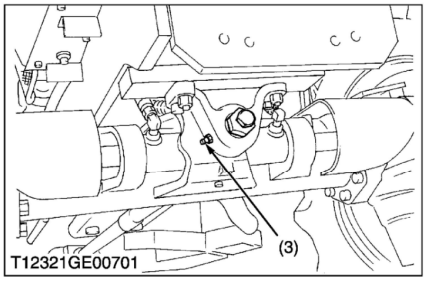
Tightening torque	Front wheel mounting nut	168 to 296 N·m 17.1 to 20.0 kgf·m 123.7 to 144.7 ft-lbs
	Rear wheel mounting nut and rear disc mounting nut	260 to 304 N·m 26.5 to 31.0 kgf·m 191.7 to 224.2 ft-lbs

(1) Front Wheel Mounting Nut
(2) Rear Wheel Mounting Nut and Rear Disc Mounting Nut

W1025274

(3) Check Points of Every 100 Hours





Lubricating Grease Fitting

1. Apply a small amount of multipurpose grease to following points every 100 hours.
2. If you operated the machine in extremely wet and muddy condition, lubricate grease fittings more often.

(1) Grease Fitting (Front Axle Support)
(2) Grease Fitting (Front Wheel Case Support) [R.H., L.H.]
(3) Grease Fitting (Front Axle Support)

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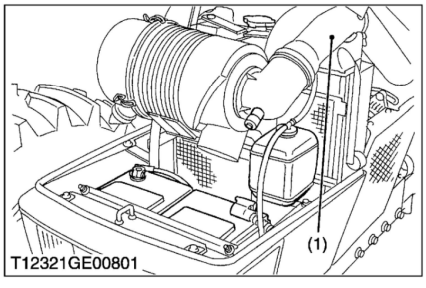
(4) Check Points of Every 200 Hours



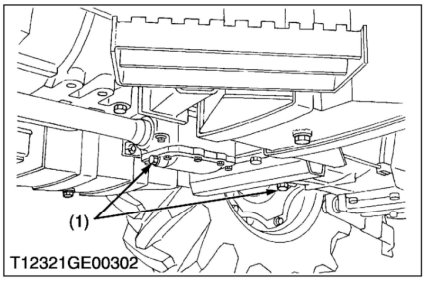
Checking Intake Air Line

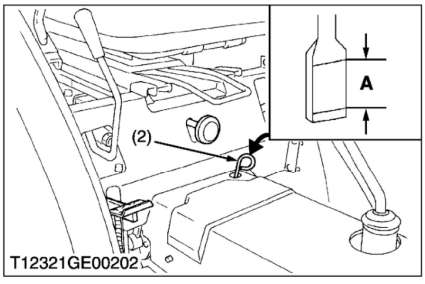
1. Check to see that hoses and hose clamps are tight and not damaged.
2. If hoses and clamps are found worn or damaged, replace or repair them at once.

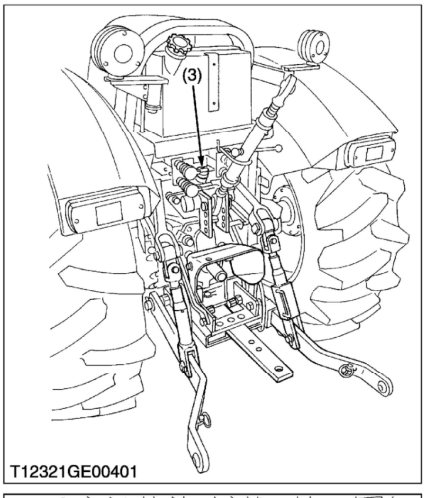
(1) Hose

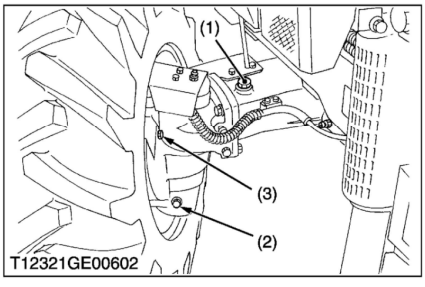
W1025564

(5) Check Points of Every 600 Hours









Changing Transmission Fluid

CAUTION

- **Allow engine to cool down sufficiently, oil can be hot and can burn.**

1. To drain the used oil, remove the drain plug (1) at the bottom of the transmission csae and drain the oil completely into the oil pan.
2. After draining reinstall the drain plug (1).
3. Fill with the new KUBOTA SUPER UDT fluid up to the upper notch on the dipstick (2).
4. After running the engine for a few minutes, stop it and check the oil level again; add oil to prescribed level.

■ **IMPORTANT**

- **Do not operate the tractor immediately after changing the transmission fluid.**
- **Run the engine at medium speed for a few minutes to prevent damage to the transmission.**

Oil capacity	33.0 L 34.9 U.S.qts. 29.0 Imp.qts.

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

A : Oil level is acceptable within the range.

W1025656

Changing Front Axle Case Oil

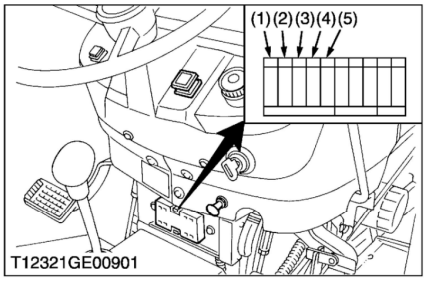
1. To drain the used oil, remove the right and left drain plugs (2) and filling plug (1) at the front axle case and drain the oil completely into the oil pan.
2. after draining reinstall the drain plugs (2).
3. Remove the right and left breather plugs (3).
4. Fill with the new oil. Refer to **"LUBRICANTS, FUEL AND COOLANT"**. (See page NG-3.)
5. After filling reinstall the filling plugs and breather plugs.

Oil capacity	6.0 L 6.3 U.S.qts. 5.3 Imp.qts.

(1) Filling Plug
(2) Drain Plug
(3) Breather Plug

W1025900

(6) Others



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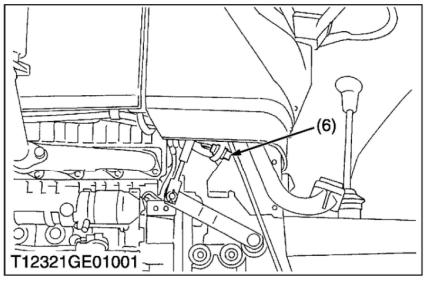

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Replacing Fuse

1. The tractor electrical system is protected from potential damage by fuses.
   A blown fuse indicates that there is an overload or short somewhere in the electrical system.
2. If any of the fuses should blow, replace with a new one of the same capacity.

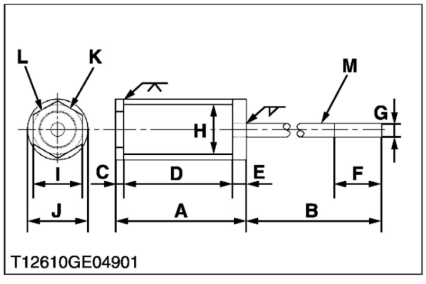
■ **IMPORTANT**

- **Before replacing the blown fuse, determine why the fuse blew and make any necessary repairs. Failure to follow this procedure may result in serious damage the tractor electrical system. Refer to ELECTRICAL section for specific information dealing with electrical problem.**

Fuse No.	Capacity (A)	Protected circuit
1	20	Main Key
2	15	Head Light
3	10	Parking, Flasher (Hazard)
4	10	Work Light
5	10	4WD, Bi-speed Turn
6	Slow blow fuse 50 A	Check circuit against wrong battery connection.

W1026314

[5] SPECIAL TOOL



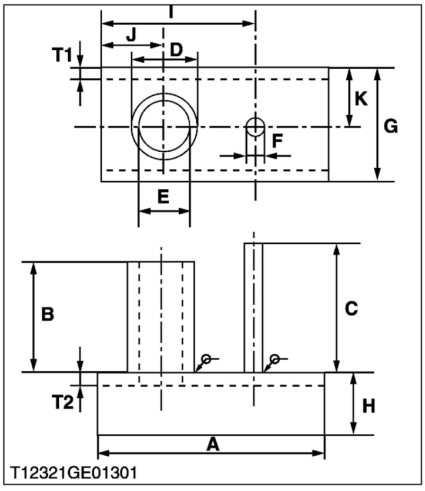
T12610GE04901

Pinion Shaft Remover

Application: Use for removing a pinion shaft.

A	106 mm (4.17 in.)
B	350 mm (13.78 in.)
C	6 mm (0.24 in.)
D	90 mm (3.54 in.)
E	10 mm (0.39 in.)
F	40 mm (1.57 in.)
G	10 mm (0.39 in.)
H	35.6 mm (1.40 in.)
I	36 mm (1.42 in.)
J	41.6 mm (1.64 in.)
K	Part code No. 3A201-41301 nut
L	M27 × P1.5
M	M10 × P1.25

W1031593



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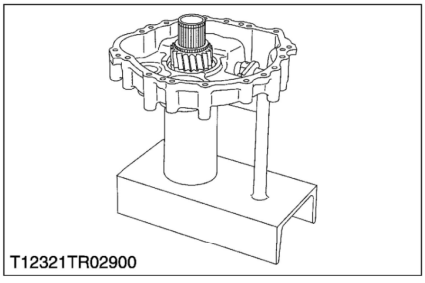

T12321TR02900

Shuttle Case Assembling Stand

Application: Use for assembling the shuttle case.

■ **NOTE**

- **This special tool is not provided so make it referring to the figure.**

A	300 mm (11.81 in.)
B	175 mm (6.89 in.)
C	195 mm (7.68 in.)
D	85 mm dia. (3.35 in. dia.)
E	75 mm dia. (2.95 in. dia.)
F	21 mm dia. (0.83 in.) dia.
G	150 mm (5.91 in.)
H	75 mm (2.95 in.)
I	220 mm (8.665 in.)
J	80 mm (3.15 in.)
K	75 mm (2.95 in.)
T1	15 mm (0.59 in.)
T2	15 mm (0.59 in.)

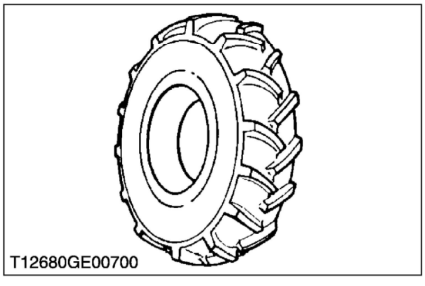
W1031821

[6] OTHERS

(1) Type of Tire

■ **IMPORTANT**

- **Do not use tires larger than specified.**


T12680GE00700

Type of Tire	Front	Rear
Farm Tire	8.0 – 16	12.4 – 24
	9.5 – 16	14.9 – 24

W1026739

(2) Tread Adjustment

(A) Front Wheel

■ **IMPORTANT**
- **This is not adjustable.**

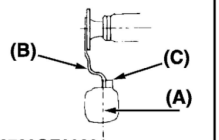
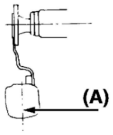
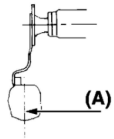
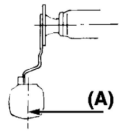
8.0 – 16	1030 mm (40.6 in.)
9.5 – 16	1100 mm (43.3 in.)

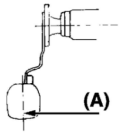
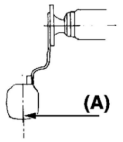
W1026893

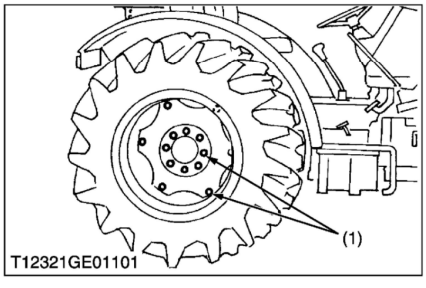
(B) Rear Wheels

Rear tread can be adjusted in 6 steps depending on the model.
To change the tread.

1. Lift the rear tires off the ground.
2. Follow the illustrations below to get the desired tread width.

12.4-24	900 m (35.4 in.)	1004 m (39.5 in.)	1208 m (47.6 in.)	1312 m (51.7 in.)
14.9-24	986 m (38.8 in.)	1090 m (42.9 in.)	1138 m (44.8 in.)	1242 m (48.9 in.)
 T12730GE00301				

1309 m (51.5 in.)	1413 m (55.6 in.)
1373 m (54.1 in.)	1477 m (58.1 in.)
 T12730GE00401	



T12321GE01101

CAUTION
- **When working on slopes or working with trailer, set the wheel tread as wide as practical for the job for maximum stability.**

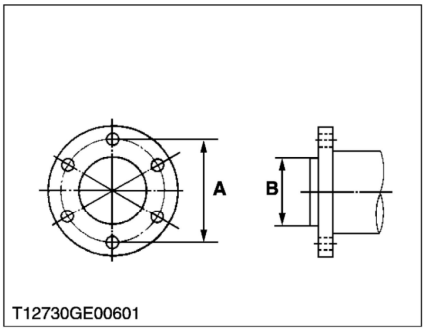
■ **IMPORTANT**
- **Always attach tires as shown in the drawings above.**
- **If not attached as illustrated, transmission parts may be damaged.**
- **Do not use tires larger than specified.**
- **When re-fitting or adjusting a wheel, tighten the nuts to the following torques then recheck after driving the tractor 200 m (200 yards) and there after daily check service.**

(1) Rear Wheel mounting Nut and Rear Disc Mounting Nut [Refer to "**Checking Wheel Mounting Nuts Tightening Torque**". (See page N3-S1)

(A) Tread
(B) Rear Wheel Disc
(C) Rear Wheel Rim

W1011765

(3) Wheel Hub



T12730GE00601

- Wheel Hub Dimension

	Front wheel hub	Rear wheel hub
Screw circle diameter **(A)**	152.4 mm (6 in.)	203.2 mm (8 in.)
Number of screw	6	8
Screw size	M14 × 1.5	M16 × 1.5
Hub pilot diameter **(B)** [4WD]	117.4 mm (4.625 in.)	152.4 mm (6 in.)
Hub pilot diameter **(B)** [2WD]	114.0 mm (4.488 in.)	

W1012151

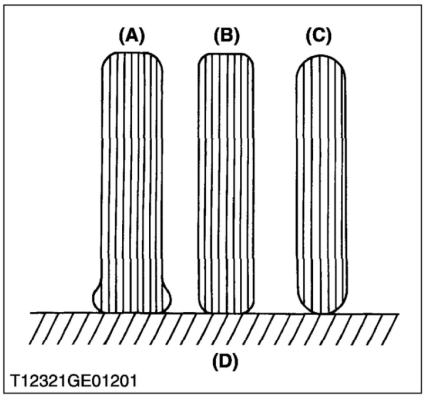
(4) Tire Pressure

CAUTION

- **Do not attempt mount a tire. This should be done by a qualified person with the proper equipement.**

■ **IMPORTANT**

- **Do not use tires larger than specified.**
- **When you intend to mount different size of tires from equipped ones, consult your distributor about front drive gear ratio for detail.**
- **Excessive wear of tires may occur due to improper gear ratio.**



T12321GE01201

Through the tire pressure is factory-set to the prescribed level, it naturally drops slowly in the course of time. Thus, check it every day and inflate as necessary.

To inflate the wheel tires, use an air compressor or hand pump.

■ **Recommended Inflation Pressure**

- Maintain the pressure shown below for normal use.

	Tire sizes	Inflation pressure
Front	8.0 – 16	240 kPa (2.4 kgf/cm^2, 34 psi)
	9.5 – 16	196 kPa (2.0 kgf/cm^2, 29 psi)
Rear	12.4 – 24	160 kPa (1.6 kgf/cm^2, 23 psi)
	14.9 – 24	138 kPa (1.4 kgf/cm^2, 20 psi)

■ **NOTE**

- **Maintain the maximum pressure in front tires, if using a front loader of when equipped with lots of front weight.**

(A) Insufficient
(B) Standard
(C) Excessive
(D) Ground

W1027488

(5) Tire Liquid Injection

Fig. 1

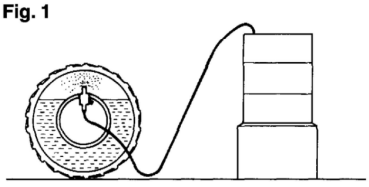


Fig. 2

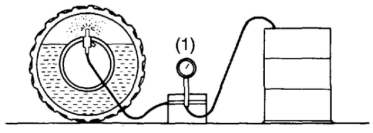
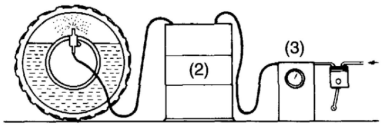


Fig. 3



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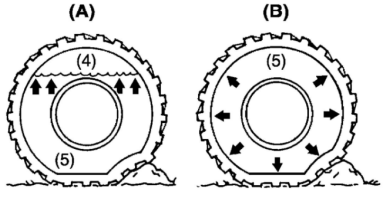


T12630GE07001

Preparation of Calcium chloride Solution

1. See page G-54.

W1029225

Attaching Injector

1. See page G-54.

W1029271

Injection

CAUTION

- **When a calcium chloride solution is used, cool it before pouring it into the tire.**
- **Do not fill tires with water or solution more than 75 % of full capacity (to the valve stem level).**

The following four ways can be used to inject water or a calcium chloride solution into tires.

1. Gravity injection (Fig. 1)
2. Pump injection (Fig. 2)
3. Pressure tank injection (Fig. 3)
4. Injection directly from tap (only when water is being used).

■ **NOTE**

- **Once injection is completed, reset the air valve, and pump air into the tire to the specified pressure.**

Weight of Calcium Chloride Solution Filling 75 % of Full Capacity of a Tire

Tire sizes	12.4-24	14.9-24
Slush free at –24 °C (–11 °F) Solid at –47 °C (–53 °F) [Approx. 1.5 kg (3.5 lbs.) $CaCl_2$ per 4 L (1 gal.) of water]	139.7 kg (308 lbs)	215.0 kg (474 lbs)
Slush free at –47 °C (–53 °F) Solid at –52 °C (–62 °F) [Approx. 2.25 kg (5 lbs.) $CaCl_2$ per 4 L (1 gal.) of water]	151.0 kg (333 lbs)	230.0 kg (507 lbs)

(1) Pump
(2) Pressure Tank
(3) Compressor
(4) Air
(5) Water

(A) Correct : 75 %
Air Compresses Like A Cushion
(B) Incorrect : 100 % Full
Water Can Not Be Compressed

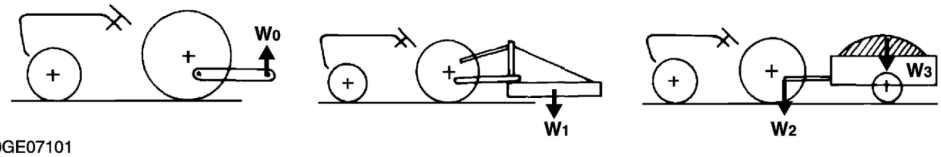
W1033435

[7] IMPLEMENT LIMITATIONS

The KUBOTA Tractor has been thoroughly tested for proper performance with implements sold or approved by KUBOTA. Use with implements which exceed the maximum specifications listed below, or which are otherwise unfit for use with the KUBOTA Tractor may result in malfunctions or failures of the tractor, damage to other property and injury to the operator or others. [Any malfunctions or failures of the tractor resulting from use with improper implements are not covered by the warranty.]

Tread (Max. width) with farm tires		Lower link end max. lifting capacity W_0
Front	Rear	
1030 mm (40.6 in.)	1413 mm (55.6 in.)	1900 kg (4190 lbs)
Actual figures		
Implement weight W1 and / or size	Lift capacity 24 inches behind lower link end W_1	Trailer loading weight W_3 Max. capacity
As in the following list	1000 kg (2200 lbs)	5000 kg (11000 lbs)

W_0 :Lower link end max. hydraulic lifting capacity
W_1 :The implement's weight which can be put on the lower link (Implement weight)
W_2 :Max. drawbar load
W_3 :The max. loading weight for trailer (without trailer's weight) (Trailer loading weight)



T12630GE07101

■ **NOTE**

- **Implement size may vary depending on soil operating conditions.**

No.	Implement		Remarks		Limitations
1	Trailer		Max. Load Capacity		5000 kg (11000 lbs)
			Max. Drawbar Load		1000 kg (2200 lbs)
2	Mower	Rotary-Cutter	Max. Cutting Width		2130 mm (84 in.)
			Max. Weight		540 kg (1200 lbs)
		Flail Mower (Heavy)	Max. Cutting Width		3050 mm (120 in.)
			Max. Weight		800 kg (1760 lbs)
		Sickle Bar	Max. Cutting Width		2130 mm (84 in.)
3	Sprayer		Max. Tank Capacity	Mid	680 L (180 U.S.gals.)
				Rear 3P	680 L (180 U.S.gals.)
				Drawbar	4000 L (1050 U.S.gals.)
4	Rotary Tiller		Max. Tilling Width		2130 mm (84 in.)
			Max. Weight		800 kg (1760 lbs)
5	Bottom Plow		Max. Size		14 in. × 3, 16 in. × 2, 18 in. × 1
			Max. Weight		450 kg (1000 lbs)
6	Disc-harrow	3P Type	Max. Size		18 in. × 24
			Max. Harrowing Width		2130 mm (84 in.)
			Max. Weight		450 kg (1000 lbs)
		Drawbar Type	Max. Harrowing Width		2750 mm (108 in.)
7	Disc Plow		Max. Size		24 in. × 3, 24 in. × 2
			Max. Weight		450 kg (1000 lbs)
8	Sub Soiler		Numbers of Cultivating Tines		2
			Cultivating Depth		400 mm (16 in.)
9	Cultivator		Max. Width		3660 mm (144 in.)
			Number of Rows		4
			Max. Weight		450 kg (1000 lbs)

■ **NOTE**

- **Implement size may very depending on soil operating conditions.**
  Must remove front weight with this implement.

W1012736

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

W1012736

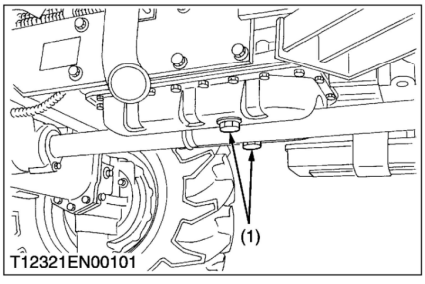
(2) Checking, Disassembling and Servicing

(A) Separating Engine from Tractor

Draining Coolant

1. See page 1-S7.

W1010746



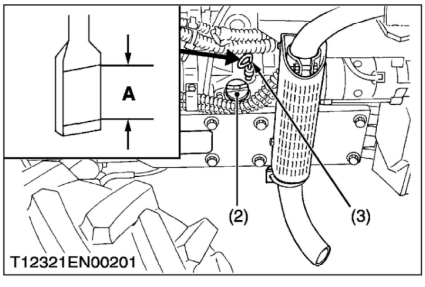
Draining Engine Oil

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**

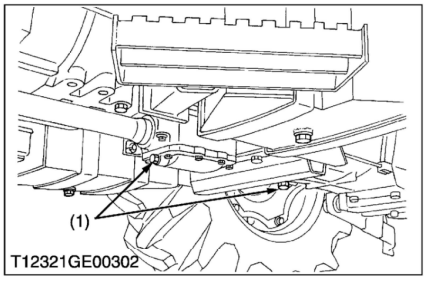
- **Never mix two different type oil.**
- **Use the proper SAE Engine Oil according to ambient temperatures.**
  Refer to "LUBRICANTS, FUEL AND COOLANT". (See page NG-3.)

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

A : Oil level is acceptable within this range.

W1010792

KiSC issued 10, 2018 A



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.

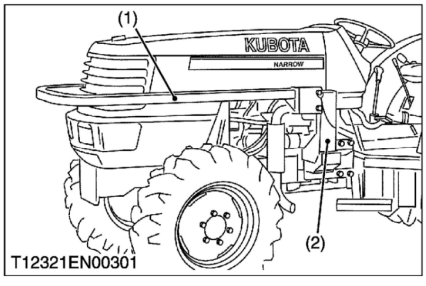
Transmission fluid	Capacity	33.0 L 34.88 U.S.qts. 29.04 Imp.qts.

■ **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

W1011006



Foldable ROPS

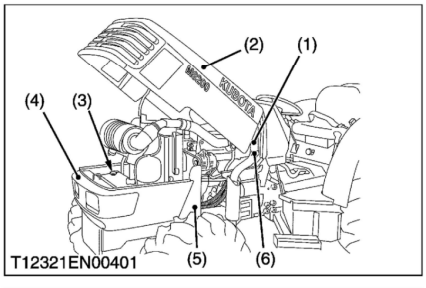
1. Remove the foldable ROPS (1).
2. Remove the ROPS frame right and left (2).

(When reassembling)

Tightening torque	ROPS frame (L and R)	193.1 to 225.6 N·m 20.0 to 23.0 kgf·m 144.7 to 166.4 ft-lbs
	Foldable ROPS	29.4 to 49.0 N·m 3.0 to 5.0 kgf·m 21.7 to 36.7 ft-lbs

(1) Foldable ROPS (2) ROPS Frame

W1011362

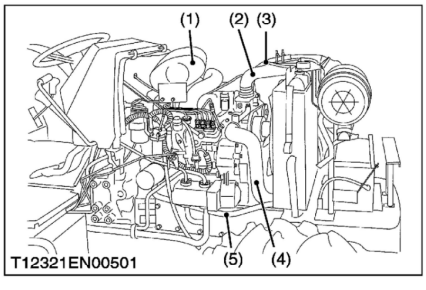


Bonnet and Covers

1. Remove the exhaust pipe (1).
2. Remove the bonnet (2).
3. Disconnect the battery's cable.
4. Disconnect the head light **3P** connectors.
5. Remove the front lower cover (4) and side cover (5).
6. Remove the bonnet stay (6).

(1) Exhaust Pipe
(2) Bonnet
(3) Battery
(4) Front Lower Cover
(5) Side Cover
(6) Bonnet Stay

W1011547

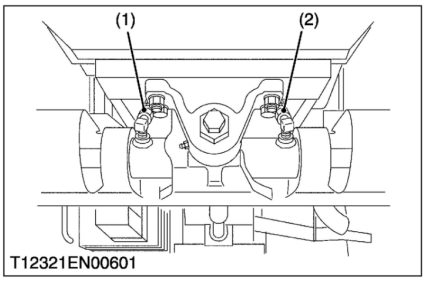


Radiator Hoses and Air Cleaner Hoses

1. Disconnect the radiator hoses (2) and (4) from engine side.
2. Disconnect the air cleaner hose (3) from the intake manifold.
3. Disconnect the radiator hose (5).
4. Remove the delivery pipe clamp.
5. Remove the muffler (1).

(1) Muffler
(2) Radiator Hose
(3) Air Cleaner Hose
(4) Radiator Hose
(5) Radiator Hose

W1011745



T12321EN00601

Power Steering Hoses

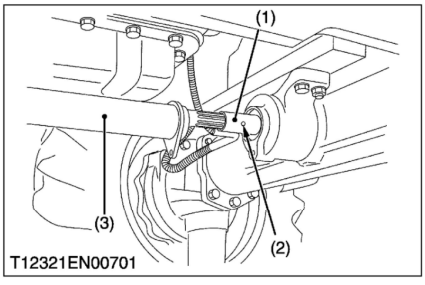
1. Disconnect the power steering hoses (1), (2).

(When reassembling)

Tightening torque	Power steering hose retaining nut	24.5 to 29.4 N·m 2.5 to 3.0 kgf·m 18.1 to 21.7 ft-lbs

(1) Power Steering Hose (2) Power Steering Hose

W1011890



T12321EN00701

Propeller Shaft

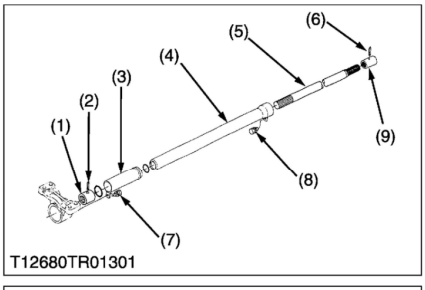
1. Slide the propeller shaft cover (3), (4) after removing the screws (7), (8).
2. Tap out the spring pin (2), (6) and then slide the coupling (1), (9) to the front and rear.

(When reassembling)

- Apply grease to the splines of the propeller shaft (5) and pinion shaft.

(1) Coupling
(2) Spring Pin
(3) Propeller Shaft Cover
(4) Propeller Shaft Cover
(5) Propeller Shaft
(6) Spring Pin
(7) Screw
(8) Screw
(9) Coupling

W1012089



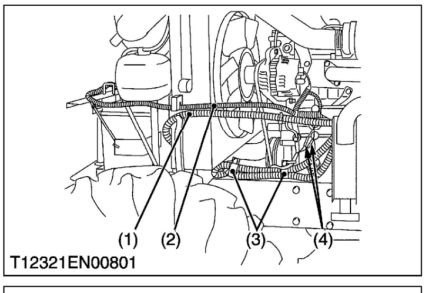
T12680TR01301

Wire Harness L.H.

1. Disconnect the battery positive cable (1).
2. Disconnect the head light cable (2) and 4WD / Bi-speed turn connectors (4).
3. Remove the hose clamps (3).

(1) Battery Positive Cable
(2) Head Light Cable
(3) Hose Clamp
(4) 4WD / Bi-speed Turn Connector

W1012261



T12321EN00801

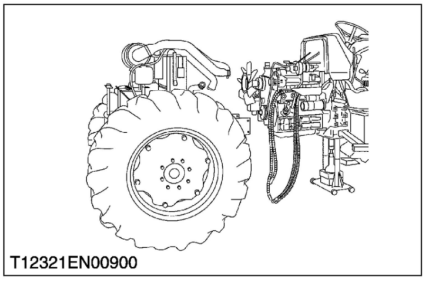
Front Axle Support as a Unit

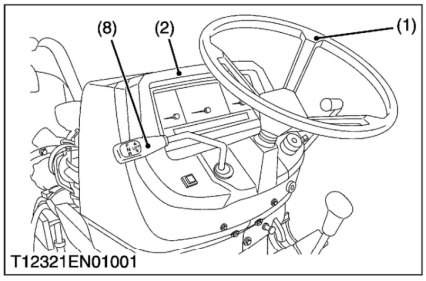
1. Check the front axle and clutch housing case are securely mounted on the disassembling stands.
2. Separate the front axle support as a unit after removing the front axle support mounting screws.

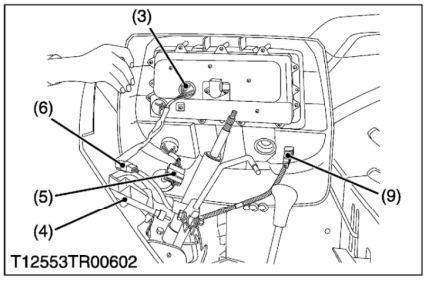
(When reassembling)

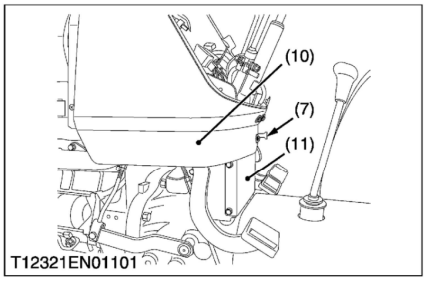
Tightening torque	Front axle support mounting screw (M14, UBS)	167 to 196 N·m 17.0 to 20.0 kgf·m 123 to 144 ft-lbs

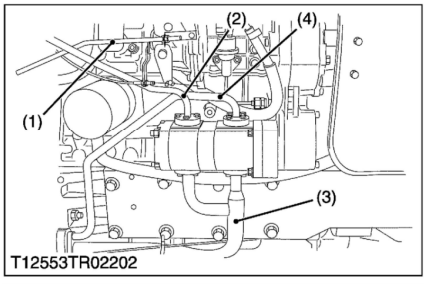
W1012372

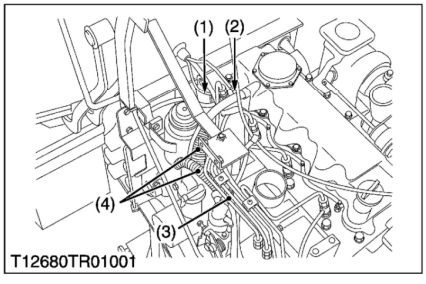

T12321EN00900











Steering Wheel, Meter Panel and Rear Bonnet

1. Remove the steering wheel (1) with a steering wheel puller (Code No. 07916-51090).
2. Remove the shuttle lever grip (8).
3. Remove the meter panel mounting screws open the meter panel (2).
4. Disconnect the two connectors (3) and meter cable (4).
5. Disconnect the main switch connector (5) and combination switch connector (6).
6. Disconnect the hazard switch connector (9).
7. Disconnect the engine stop cable (7) at the engine side.
8. Remove the rear bonnet (10) and lower cover (11).

(1) Steering Wheel
(2) Meter Panel
(3) Connector
(4) Meter Cable
(5) Main Switch Connector
(6) Combination Switch Connector
(7) Engine Stop Cable
(8) Shuttle Lever Grip
(9) Hazard Switch Connector
(10) Rear Bonnet
(11) Lower Cover

W1012482

Piping for 3-Point Hydraulic System

1. Remove the accelerator rod (1).
2. Remove the suction pipe (3).
3. Remove the delivery pipe (4) for 3-point hydraulic system.
4. Remove the delivery pipe (2) for power steering.

(1) Accelerator Rod
(2) Delivery Pipe
(3) Suction Pipe
(4) Delivery Pipe

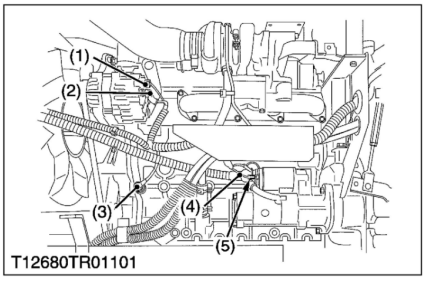
W1012667

Wire Harness R.H. and Fuel Pipes

1. Disconnect the **3P** connector for solenoid valve (3).
2. Disconnect the wiring lead (2) from the glow plug.
3. Disconnect the coolant thermo sensor **1P** connector (1).
4. Remove the fuel pipes (4).

(1) Coolant Thermo Sensor **1P** Connector
(2) Wiring Lead for Glow Plug
(3) **3P** Connector for Solenoid Valve
(4) Fuel Pipe

W1013162



T12680TR01101

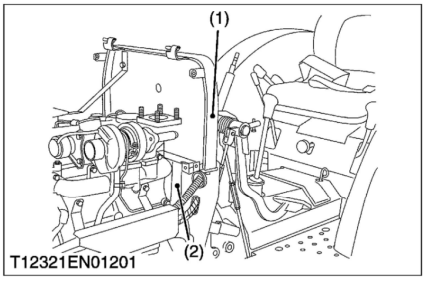
Wire Harness L.H.

1. Disconnect the alternator **2P** connector (1) and **B** terminal (2).
2. Disconnect the starter motor **C** terminal (5) and **B** terminal (4).
3. Disconnect the engine oil pressure switch terminal (3).

Tightening torque	Starter's terminal **B** mounting nut	8.8 to 11.8 N·m 0.9 to 1.2 kgf·m 6.5 to 8.7 ft-lbs

(1) Alternator **2P** Connector
(2) Alternator **B** Terminal
(3) Engine Oil Pressure Switch Terminal
(4) Starter Motor **B** Terminal
(5) Starter Motor **C** Terminal

W1013300



T12321EN01201

Bonnet Support

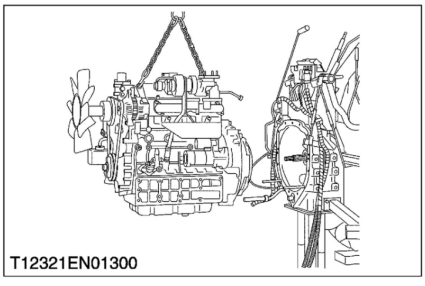
1. Remove the bonnet support (1).
2. Remove the support frame (2).

(When reassembling)

Tightening torque	Bonnet support mounting screw	48.1 to 55.8 N·m 4.9 to 5.7 kgf·m 35.5 to 41.2 ft-lbs
	Support frame mounting screw	48.1 to 55.8 N·m 4.9 to 5.7 kgf·m 35.5 to 41.2 ft-lbs

(1) Bonnet Support
(2) Support Frame

W1013588


T12321EN01300

Separating Engine from Clutch Housing

1. Hoist the engine by the hoist and chain.
2. Remove the engine mounting screws and nuts, and separate the engine from the clutch housing.

(When reassembling)

- Apply molybdenum disulphide (Three Bond 1901 or equivalent) to the splines of clutch disc boss.
- Apply liquid gasket (Three Bond 1141, 1211 or equivalent) to joint face of the engine 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

W1013765

2. CLUTCH

[2] SERVICING

(1) Tightening Torques

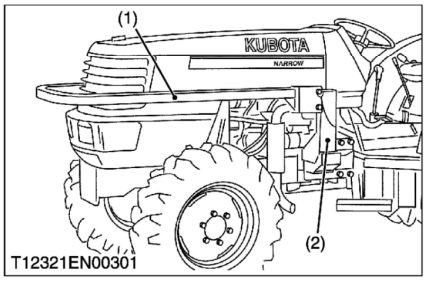
Tightening torques of screws, bolts and nuts on the table below are especially specified.
(For general use screws, bolts and nuts : See page G-11.)

Item	N·m	kgf·m	ft-lbs
ROPS frame (L and R)	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 hose retaining nut	24.5 to 29.4	2.5 to 3.0	18.1 to 21.7
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	35.5 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	38.2 to 45.1	3.9 to 4.6	28.2 to 33.3
Fuel hose cover mounting screw	77.5 to 90.2	7.9 to 9.2	57.1 to 66.5
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
Step mounting screw	48.1 to 55.9	4.9 to 5.7	35.4 to 41.2
Clutch housing and transmission case mounting screw, nut			
M12, grade 11 nut	103.0 to 117.7	10.5 to 12.0	75.9 to 86.8
M12, grade 7 screw, nut	77.5 to 90.2	7.9 to 9.2	57.1 to 66.5
M10, grade 9 screw	60.8 to 70.6	6.2 to 7.2	44.8 to 52.1
Clutch housing and transmission case mounting stud bolt	38.2 to 45.1	3.9 to 4.6	28.2 to 33.3
Transmission upper cover mounting screw	23.5 to 27.5	2.4 to 2.8	17.4 to 20.3
PTO clutch valve mounting screw	23.5 to 27.5	2.4 to 2.8	17.4 to 20.3
PTO clutch case bearing holder mounting screw	23.5 to 27.5	2.4 to 2.8	17.4 to 20.3

W1012736

(2) Disassembling and Assembling

(A) Separating Engine from Clutch Housing Case



Foldable ROPS

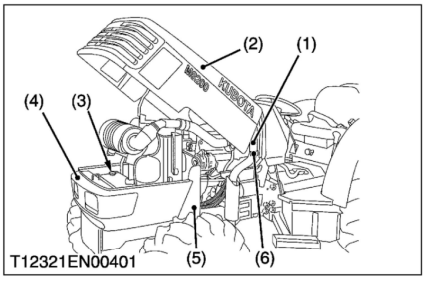
1. Remove the foldable ROPS (1).
2. Remove the ROPS frame right and left (2).

(When reassembling)

Tightening torque	ROPS frame (L and R)	193.1 to 225.6 N·m 20.0 to 23.0 kgf·m 144.7 to 166.4 ft-lbs
	Foldable ROPS	29.4 to 49.0 N·m 3.0 to 5.0 kgf·m 21.7 to 36.7 ft-lbs

(1) Foldable ROPS (2) ROPS Frame

W1011362

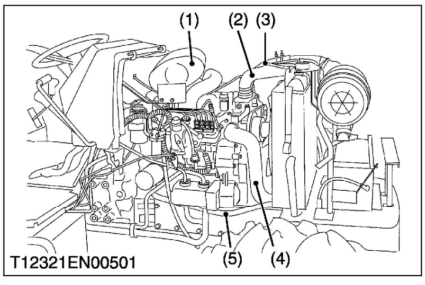


Bonnet and Covers

1. Remove the exhaust pipe (1).
2. Remove the bonnet (2).
3. Disconnect the battery's cable.
4. Disconnect the head light **3P** connectors.
5. Remove the front lower cover (4) and side cover (5).
6. Remove the bonnet stay (6).

(1) Exhaust Pipe
(2) Bonnet
(3) Battery
(4) Front Lower Cover
(5) Side Cover
(6) Bonnet Stay

W1011547

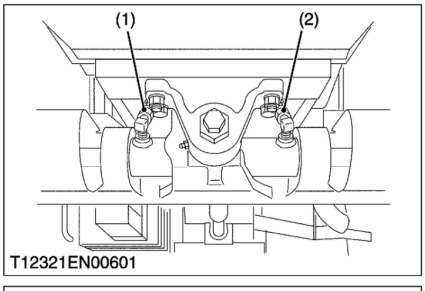


Radiator Hoses and Air Cleaner Hoses

1. Disconnect the radiator hoses (2) and (4) from engine side.
2. Disconnect the air cleaner hose (3) from the intake manifold.
3. Disconnect the radiator hose (5).
4. Remove the delivery pipe clamp.
5. Remove the muffler (1).

(1) Muffler
(2) Radiator Hose
(3) Air Cleaner Hose
(4) Radiator Hose
(5) Radiator Hose

W1011745



Power Steering Hoses

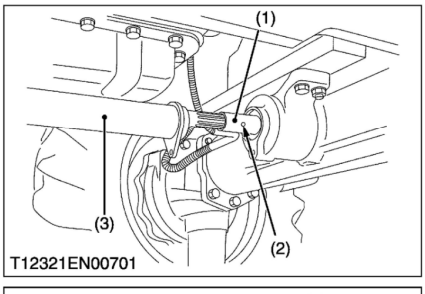
1. Disconnect the power steering hoses (1), (2).

(When reassembling)

Tightening torque	Power steering hose retaining nut	24.5 to 29.4 N·m 2.5 to 3.0 kgf·m 18.1 to 21.7 ft-lbs

(1) Power Steering Hose
(2) Power Steering Hose

W1011890



Propeller Shaft

1. Slide the propeller shaft cover (3), (4) after removing the screws (7), (8).
2. Tap out the spring pin (2), (6) and then slide the coupling (1), (9) to the front and rear.

(When reassembling)

- Apply grease to the splines of the propeller shaft (5) and pinion shaft.

(1) Coupling
(2) Spring Pin
(3) Propeller Shaft Cover
(4) Propeller Shaft Cover
(5) Propeller Shaft
(6) Spring Pin
(7) Screw
(8) Screw
(9) Coupling

W1012089