CONTENTS

1. INFORMATION

SAFETY FIRST 1-1
1. Working precautions 1-1
2. Preparing for emergencies 1-1
3. Working cautions 1-2
4. Starting machine safely 1-2
5. Preventing fires 1-3
6. Preventing acid burns 1-3
7. Avoiding high pressure fluid 1-3
8. Avoiding hot exhaust 1-4
SAFETY LABELS FOR RTV 1-5
1. Care of danger, warning and caution labels 1-11
SPECIFICATION TABLE 1-13
TRAVELING SPEEDS 1-15
DIMENSIONS 1-17

2. GENERAL

PRODUCT IDENTIFICATION 2-1
GENERAL PRECAUTIONS 2-3
HANDLING PRECAUTIONS FOR ELECTRICAL PARTS AND WIRING 2-5
1. Handling of wiring 2-5
2. Handling of battery 2-6
3. Handling of fuse 2-7
4. Handling of connector 2-7
5. Handling of circuit tester 2-8
6. Color of wiring 2-8
LUBRICANTS, FUEL AND COOLANT 2-9
TIGHTENING TORQUES 2-11
1. General use screws, bolts and nuts 2-11
2. Stud bolts 2-12
3. Hydraulic hose fittings 2-12
4. Hydraulic pipe cap nuts 2-13
5. Adapters, elbows and others 2-13
6. Metric screws, bolts and nuts 2-14
7. American standard screws, bolts and nuts with UNC or UNF threads 2-15
8. Plugs 2-15
MAINTENANCE CHECK LIST 2-17
1. Service intervals 2-17
CHECK AND MAINTENANCE 2-21
1. Daily check 2-21
1.1 Walk around inspection 2-21
1.2 Checking around engine 2-21
1.3 Checking amount of fuel and refueling 2-21
1.4 Checking engine oil level 2-22
1.5 Checking transmission fluid level 2-23
1.6 Checking coolant level 2-23
1.7 Cleaning radiator screen 2-24
1.8 Checking drain cap 2-24
1.9 Checking brake fluid level 2-24
1.10 Checking brake pedal 2-25
1.11 Checking parking brake 2-25
1.12 Checking Easy Checker™ 2-25
1.13 Checking head light, and so on 2-25
1.14 Checking seat belt, ROPS and door latch 2-26

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SPECIFICATION TABLE

Model				RTV-XG850		RTV-XG850 EVAP	
				49 states		California / AU	
				General Purpose	Worksite	General Purpose (California)	Worksite (California and AU)
Engine	Model			GZ8510		GZ8510-1	
	Type			2 cylinder DOHC, 4-cycle, Liquid-cooled, EFI Gas			
	Displacement		L (cu. in.)	0.851 (51.9)			
	Low idling revolution		rpm	1200 to 1300			
Fuel capacity*1			L (U.S.gals)	32.7 (8.6)			
Transmission				Continuously variable transmission (CVT) with inertial clutch			
Wheels, drive system				4, Rear 2WD or 4WD			
Differential lock				Front: LSD Rear: foot operated			
Gear selection				Hi-Low range forward, neutral, reverse			
Brakes	Front/rear			Dry disk brake			
	Parking brake			Rear mechanical/hand operated			
Steering				EPS (Electric power steering)			
Suspension	Front			4 wheel independent suspension			
	Rear						
Dimensions	Length		mm (in.)	2973 (117)	3093 (119.6)	2973 (117)	3093 (119.6)
	Width		mm (in.)	1605 (63.2)			
	Height, overall		mm (in.)	2020 (79.5)			
	Front tread centers		mm (in.)	1320 (52)			
	Rear tread centers		mm (in.)	1320 (52)			
	Wheelbase		mm (in.)	2045 (80.5)			
	Ground clearance	front axle	mm (in.)	249 (9.8)			
		rear axle	mm (in.)	251 (9.9)			
	Turning diameter		m (ft)	8.0 (26.2)			
Max. rolling weight (towing capacity)			kg (lbs.)	Level ground: 907.2 (2000) Steep ground: 703 (1550)			
Payload capacity			kg (lbs.)	660 (1455)	643 (1417)	657 (1448)	640 (1411)
Weight (with fuel and fluids)			kg (lbs.)	837 (1845)	854 (1883)	840 (1852)	857 (1889)
Gross Vehicle Weight Rating (GVWR)			kg (lbs.)	1497 (3300)			
Cargo bed	Width		mm (in.)	1465 (57.5)			
	Length		mm (in.)	1030 (40.5)			
	Depth		mm (in.)	290 (11.4)			
	Volume		m^3 (cu.ft.)	0.43 (15.2)			
	Bed height (unloaded)		mm (in.)	887 (34.9)			
	Cargo bed capacity		kg (lbs.)	454 (1000)		272 (600)	

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SAFETY FIRST

This symbol, the industry's "Safety Alert Symbol", is used throughout this manual and on labels on the machine itself to warn of the possibility of personal injury. Read these instructions carefully. It is essential that you read the instructions and safety regulations before you attempt to assemble or use this unit.

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

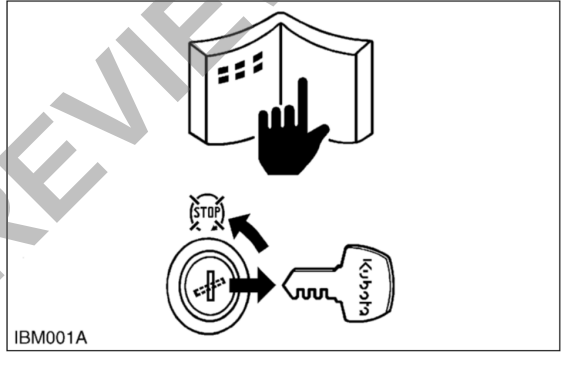
⚠ WARNING
- **Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.**

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

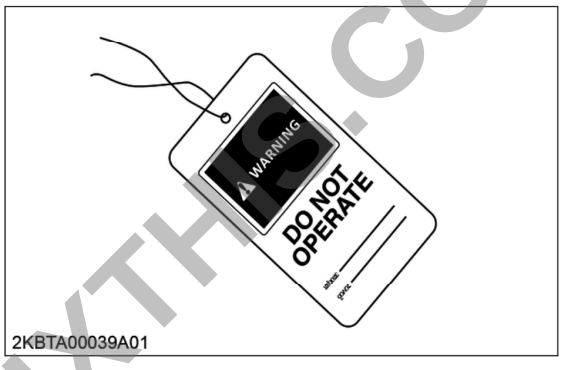
■ IMPORTANT
- **Indicates that equipment or property damage could result if instructions are not followed.**

■ NOTE
- **Gives helpful information.**

1. Working precautions



- Understand all safety instructions and safety labels in this manual.
- Park the machine on a stable and level ground then lower the attachment to check the machine safely.
- Stop the engine and remove the key when leaving the operator's seat for cleaning, maintenance, and servicing.



- Hang a DO NOT OPERATE tag near the operator's seat.
- Do not use worn or cracked tools. Use tools in a proper way with enough strength.
- In regards to the facility which is used in the workshop, follow each safety instruction.

2. Preparing for emergencies



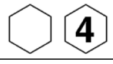
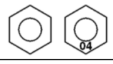
- Keep a first aid kit and fire extinguisher ready at all times.
- Keep emergency numbers near your telephone at all times.

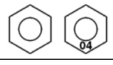
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TIGHTENING TORQUES

Refer to the following table if the tightening torques of screws, bolts and nuts are not specified in each part.

1. General use screws, bolts and nuts

Indication on top of bolt	 No-grade or 4T					
Indication on top of nut	 No-grade or 4T					
Material of opponent part	Ordinariness			Aluminum		
Unit	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
M8	18 to 20	1.8 to 2.1	13 to 15	17 to 19	1.7 to 2.0	13 to 14
M10	40 to 45	4.0 to 4.6	29 to 33	32 to 34	3.2 to 3.5	24 to 25
M12	63 to 72	6.4 to 7.4	47 to 53	–	–	–
M14	108 to 125	11.0 to 12.8	79.6 to 92.5	–	–	–
M16	167 to 191	17.0 to 19.5	123 to 141	–	–	–
M18	246 to 284	25.0 to 29.0	181 to 209	–	–	–
M20	334 to 392	34.0 to 40.0	246 to 289	–	–	–

Indication on top of bolt	 7T					
Indication on top of nut	 No-grade or 4T					
Material of opponent part	Ordinariness			Aluminum		
Unit	N·m	kgf·m	lbf·ft	N·m	kgf·m	lbf·ft
M6	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
M8	24 to 27	2.4 to 2.8	18 to 20	18 to 20	1.8 to 2.1	13 to 15
M10	48 to 55	4.9 to 5.7	36 to 41	40 to 44	4.0 to 4.5	29 to 32
M12	78 to 90	7.9 to 9.2	58 to 66	63 to 72	6.4 to 7.4	47 to 53
M14	124 to 147	12.6 to 15.0	91.2 to 108	–	–	–
M16	197 to 225	20.0 to 23.0	145 to 166	–	–	–
M18	275 to 318	28.0 to 32.5	203 to 235	–	–	–
M20	368 to 431	37.5 to 44.0	272 to 318	–	–	–

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MAINTENANCE CHECK LIST

WARNING
To avoid serious injury and vehicle damage:
- **Be sure you have sufficient knowledge, experience, the proper replacement parts and tools before you attempt any vehicle maintenance task.**

1. Service intervals

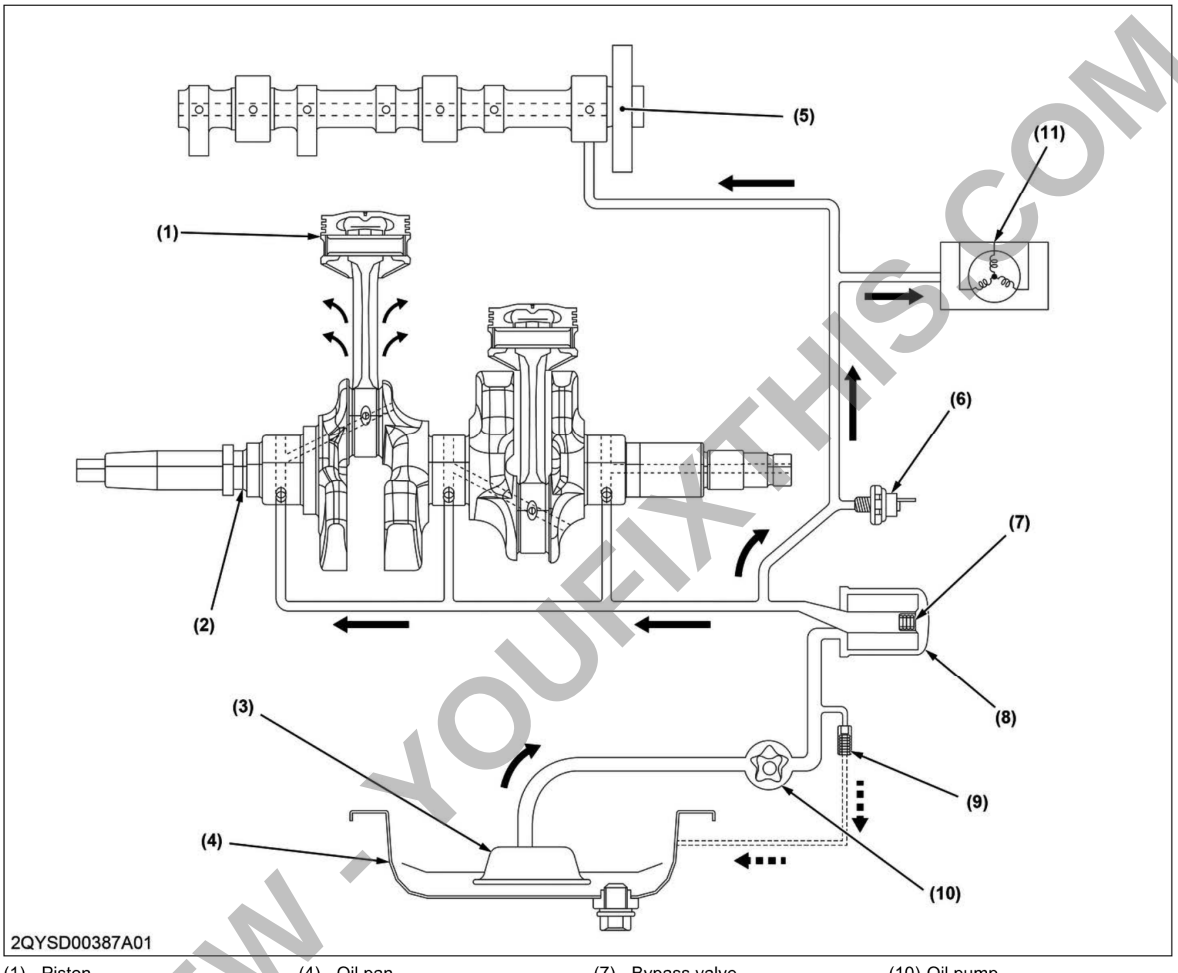
No.	Items		Indication of hour meter (hr) (Indication of odometer-km)											After 500 hrs (After 15000 km)	Ref. Page	
			20	50 (1500)	100 (3000)	150 (4500)	200 (6000)	250 (7500)	300 (9000)	350 (10500)	400 (12000)	450 (13500)	500 (15000)			
1	Engine start system	Check		○	○	○	○	○	○	○	○	○	○	Every 50 hrs (1500 km)	2-27	
2	Greasing	Apply		○	○	○	○	○	○	○	○	○	○	Every 50 hrs (1500 km)	2-27	*1
3	Wheel fastener torque	Check		◎	○		○		○		○		○	Every 100 hrs (3000 km)	2-29	*2
4	Brake pad wear	Check			○		○		○		○		○	Every 100 hrs (3000 km)	2-29	
5	Toe-in	Adjust			○		○		○		○		○	Every 100 hrs (3000 km)	2-33	
6	Battery condition	Check			○		○		○		○		○	Every 100 hrs (3000 km)	2-31	*3
7	Fuel pump filter	Check			○		○		○		○		○	Every 100 hrs (3000 km)	2-31	
8	Muffler (spark arrester)	Clean			○		○		○		○		○	Every 100 hrs (3000 km)	2-34	
9	Exhaust system	Check			○		○		○		○		○	Every 100 hrs (3000 km)	2-35	*4
10	Air cleaner element	Clean			○		○		○		○		○	Every 100 hrs (3000 km)	2-30	*5 *6
		Replace												Every 1000 hrs or 1 year	2-42	*6 *7
11	Engine oil	Change	☆		○		○		○		○		○	Every 100 hrs (3000 km)	2-30	*8 *9
12	Transmission gear shift sensor	Check			○		○		○		○		○	Every 100 hrs (3000 km)	2-35	*4

(Continued)

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2. Lubricating system

2.1 Structure of lubricating system



(1) Piston
(2) Crankshaft
(3) Oil strainer
(4) Oil pan
(5) Camshaft
(6) Oil pressure switch
(7) Bypass valve
(8) Oil filter
(9) Relief valve
(10) Oil pump
(11) Stator

The lubricating system components include the oil strainer (3), oil pump (10), relief valve (9), oil filter (8), and oil pressure switch (6).
Engine oil is sucked from the oil pan (4) through an oil strainer (3) by the oil pump (10). The engine oil is then pushed into the upper crankcase where it contacts the relief valve (9). After contacting the relief valve the oil is then returned to the lower crankcase and into the oil filter (8). The engine oil is then filtered and pushed to the oil pressure switch (6), stator (11), crankshaft (2), and camshafts (5). The engine oil lubricates the crankshaft, camshaft, and clutch. It also provides cooling for the stator and starter clutch.
The engine oil is also pushed through crankcase holes inside the engine to lubricate the cylinder, piston, and piston pin.

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SERVICING

1. Troubleshooting for engine

Engine body

Symptom	Probable cause and checking procedure	Solution	Reference page
Starter does not operate	1. Insufficient battery capacity	Charge or replace	2-31
	2. Damaged or disconnected wiring	Check wiring	—
	3. Damaged key switch	Replace key switch	9-15
	4. Damaged starter	Replace starter	9-17
	5. Damaged starter solenoid	Replace starter solenoid	9-17
Engine does not start	1. Empty fuel tank	Fill with fuel	2-21
	2. Clogged air cleaner	Clean or replace air filter	2-30
	3. Clogged fuel filter	Replace fuel filter	2-55
	4. Damaged fuel pump	Replace fuel pump	9-41
	5. Spark plug electrodes are wet with fuel	Dry electrode and restart, being careful not to close throttle valve excessively.	2-38
	6. No spark from spark plug	Solution order 1. Check wire harness connector	—
		2. Check and/or replace ignition coil	9-34
	7. Weak spark from spark plug	Solution order 1. Check wire harness connector	—
		2. Check and/or replace ignition coil	9-34
	8. Insufficient compression	Solution order 1. Check valve clearance	2-39
		2. Check degree of contact of intake and exhaust valves with their seat.	3-82
		3. Check the tightening torque on cylinder head screws.	3-75
		4. Check the wear of piston ring, piston and cylinder.	3-86
Improper low-speed running and idling	1. Improper spark plug	Replace spark plug	3-72
	2. Damaged ignition coil	Replace ignition coil	3-72

(Continued)

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1.1 Diagnostic trouble code for engine ECU

Error code	Problem description	Diagnostic procedure	WSM link page
Err 30	Abnormal 5 V sensor voltage	Replace the engine ECU	Checking ECU connector voltage: 9-31
Err 31	Abnormal 1st ignition coil Abnormal 2nd ignition coil	Check the wiring harness. If there is no problem, replace the ignition coil	Checking ignition coil harness connector: 9-34 Checking ignition coil: 9-35
Err 32	Fuel pump system malfunction	Check the wiring harness. If there is no problem, replace the fuel pump	Checking fuel pump harness connector: 9-41 Checking fuel pump: 9-41
Err 33	Abnormal 1st cylinder injector Abnormal 2nd cylinder injector	Check the wiring harness. If there is no problem, replace the injector	Checking injector harness connector: 9-32 Checking injector: 9-33
Err 34	Idle control system malfunction	Check the wiring harness. If there is no problem, replace the throttle body	Checking ISC (idle speed control) harness connector: 9-37 Checking ISC (idle speed control): 9-38
Err 35	Crankshaft position sensor (pulser) circuit malfunction	Check the wiring harness. If there is no problem, replace the stator	Checking pulsar coil harness connector: 9-39
Err 36	Vehicle speed sensor malfunction	Check the wiring harness. If there is no problem, replace the speed sensor	Checking traveling speed sensor connector voltage: 9-27
Err 37	Abnormal battery voltage	Check the wiring harness and battery	Checking battery condition: 2-31 Checking ECU connector voltage: 9-31
Err 38	Engine water temperature circuit malfunction	Check the wiring harness. If there is no problem, replace the coolant temperature sensor	Checking coolant temperature sensor connector: 9-31 Checking coolant temperature sensor: 9-32
Err 39	Intake air temperature sensor circuit malfunction	Check the wiring harness. If there is no problem, replace the TMAP sensor	Checking TMAP sensor harness connector: 9-33
Err 40	Intake air pressure sensor circuit malfunction	Check the wiring harness. If there is no problem, replace the TMAP sensor	Checking TMAP sensor harness connector: 9-33
Err 41	Fan motor relay circuit malfunction	Check the wiring harness. If there is no problem, replace the fan motor relay	Checking relay continuity: 9-19
Err 42	Transmission position sensor malfunction	Check the wiring harness. If there is no problem, replace the shift switch A, B or neutral safety switch	Disconnecting transmission wire harness: 3-56 Checking shift switch continuity: 9-18 Checking neutral safety switch continuity: 9-18
Err 43	O2 sensor heater circuit malfunction	Check the wiring harness. If there is no problem, replace the O2 sensor	Disconnecting engine wiring harness: 3-55
Err 44	Throttle position sensor (TPS) circuit malfunction	Check the wiring harness and TPS. If there is no problem with the harness, replace the throttle body	Checking throttle position sensor harness connector: 9-36 Checking throttle position sensor: 9-36

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6. Checking and adjusting

6.1 Engine body

6.1.1 Checking compression pressure

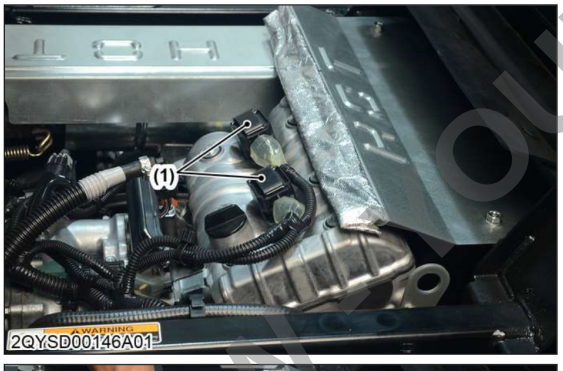
■ NOTE

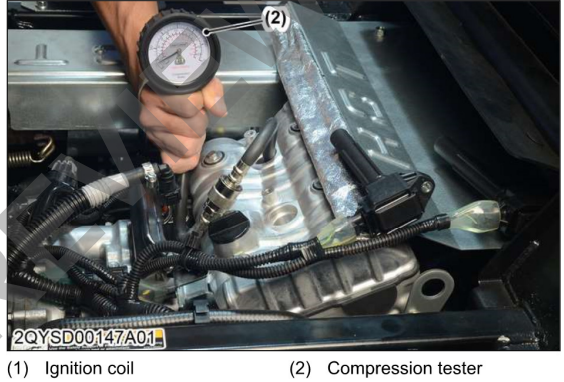
- **Check the compression pressure with the specified valve clearance.**
- **Keep the throttle valve in the closed position while checking the compression pressure.**
- **Always use a fully charged battery for performing this test.**

Tools required

- Compression tester

1. Lift the cargo bed and support with the cargo rod.
2. Remove the both ignition coils (1) and spark plugs.
3. Install the compression tester (2) into the spark plug hole.
4. Let the starter operate 5 to 7 seconds. Read the number value in the position where the compression tester needle stops. Repeat measurement twice or more.





(1) Ignition coil (2) Compression tester

Compression pressure	Service specification	1.00 to 1.20 MPa 10.2 to 12.2 kgf/cm^2 145 to 174 psi
	Service limit	0.900 MPa 9.18 kgf/cm^2 131 psi

6.1.2 Checking valve clearance

Tools required

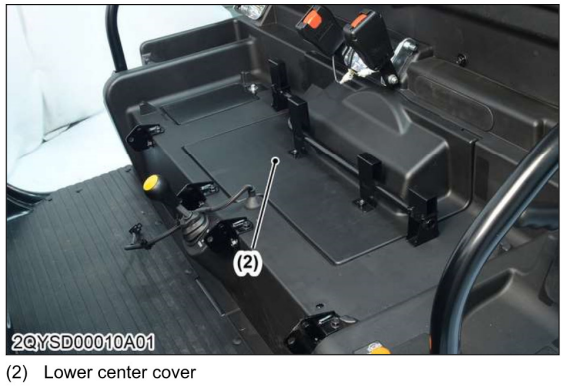
- Resbond 907TS blue
- Feeler gauge

1. Lift the seat to the upright position.
2. Remove the center box cover (1).



(1) Center box cover

3. Remove the lower center cover (2).



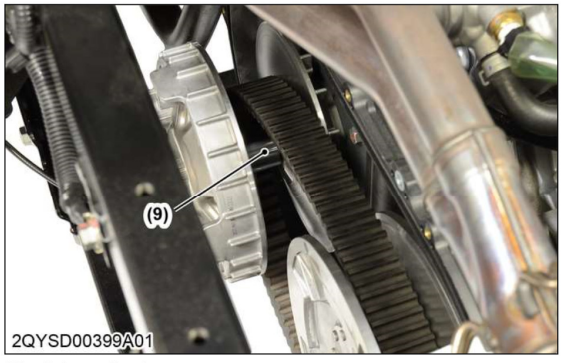
(2) Lower center cover

4. Lift the cargo bed and secure the cargo rod.
5. Remove the fuel tank cover (3).
6. Disconnect the magneto connector from the fender and remove the R.H. fender (4).

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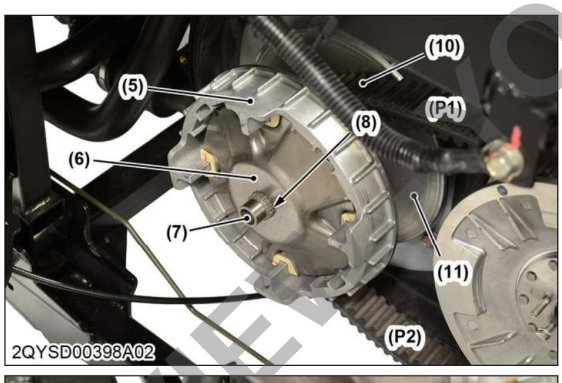
7. Remove the drive pulley boss (9) from the outer clutch shaft (7) if it was not removed with the movable drive pulley.

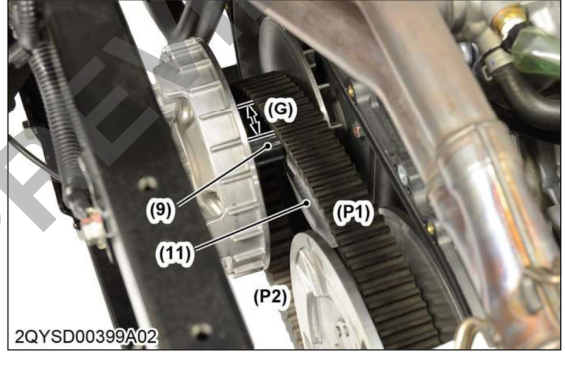


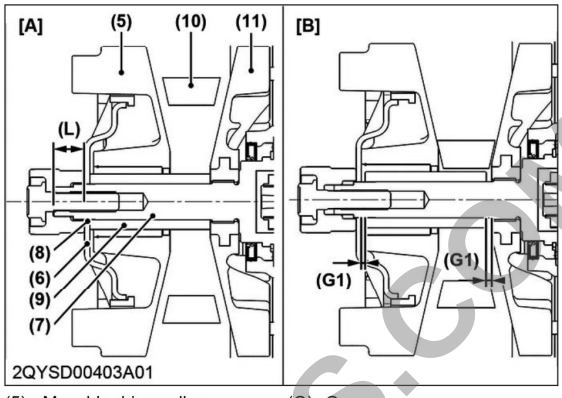
(9) Drive pulley boss

(When reassembling)

1. Install the drive pulley boss (9) into the movable drive pulley (5).
2. Squeeze the CVT belt (10) by hand at locations (P1) and (P2). This will cause a gap (G) between the front of the CVT belt and the outer clutch shaft. While squeezing the belt, install the movable drive pulley (5), drive pulley plate (6) and drive pulley boss (9) as an assembly onto the outer clutch shaft (7).







(5) Movable drive pulley
(6) Drive pulley plate
(7) Outer clutch shaft
(8) Splines
(9) Drive pulley boss
(10) CVT belt
(11) Drive pulley
(L) The length between the end of drive pulley plate and outer clutch shaft
(G) Gap
(G1) Gap at the both ends of the drive pulley boss
(P1) Upper CVT belt squeeze position
(P2) Lower CVT belt squeeze position
[A] Correct
[B] Incorrect

3. Make sure the length (L) between the end of outer clutch shaft (7) and drive pulley plate (6).

■ IMPORTANT

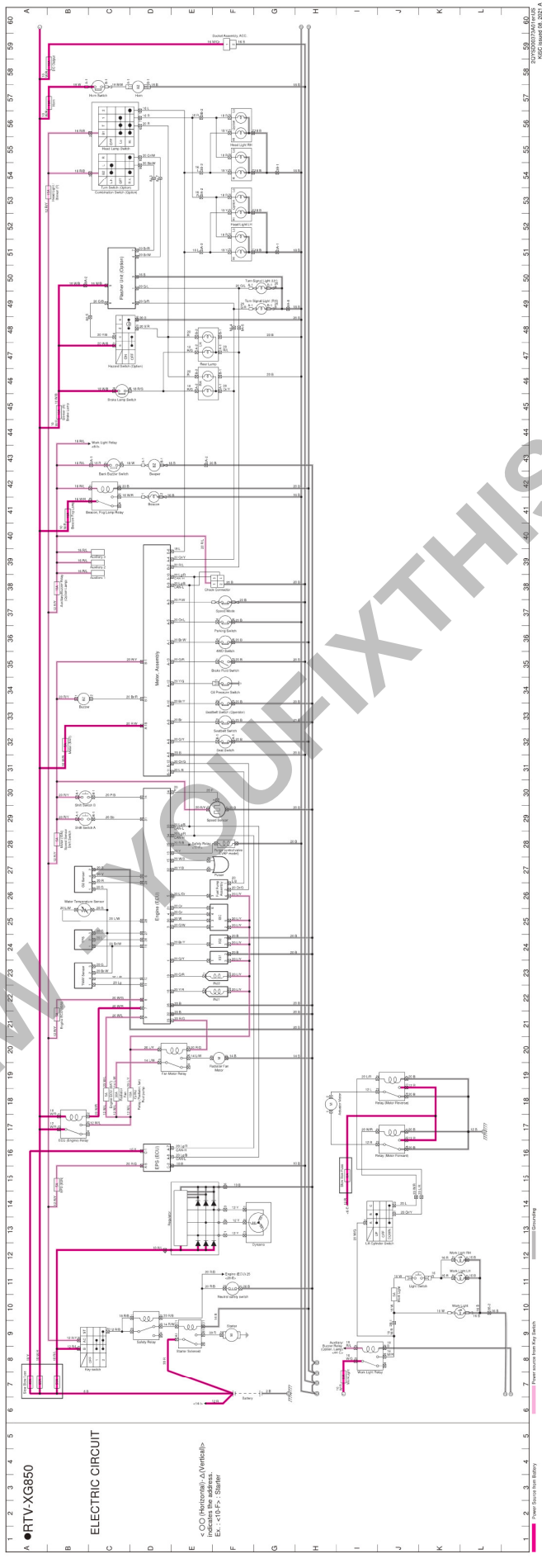
- **Do not make a gap (G1) at the both ends of drive pulley boss (9).**
- **The both ends of drive pulley boss (9) must be in contact with drive pulley plate (6) and drive pulley (11) firmly.**
- **Make sure the CVT belt is not pinched between the movable drive pulley and drive pulley. This can cause damage to the CVT components.**
- **If gap (G1) exists at the both ends of the drive pulley boss, it will play freely while traveling. Free play causes premature wearing of the splines (8).**

Length (L)	Service specification	18.4 to 19.6 mm 0.725 to 0.771 in.

4. Install the CVT bracket (2) with flange nuts and bolts (4). Rotate the movable drive pulley clockwise to make sure all components move freely. Tighten to the specified torque from (A) to (D) in the sequence shown.

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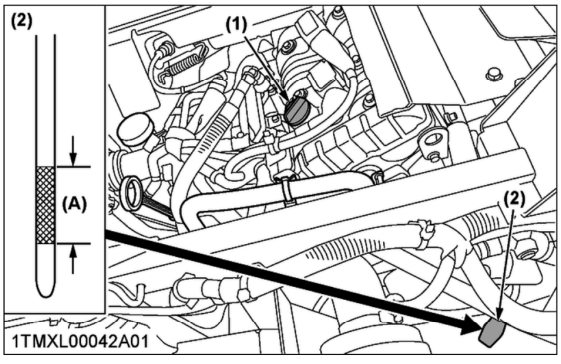
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5. To check the oil level, draw out the dipstick, wipe it clean, reinstall it, and draw it out again. Check to see that the oil level lies between the 2 lines.
6. After 10 seconds or more, draw it out again. Check to see that the oil level lies between the 2 lines.
7. If the level is too low, add new oil to the prescribed level at the oil inlet.



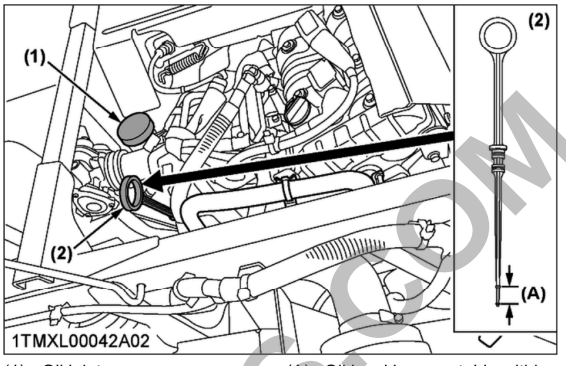
(1) Oil inlet
(2) Dipstick
(A) Oil level is acceptable within this range.

■ IMPORTANT

- **When using an oil of different maker or viscosity from the previous one, remove all of the old oil.**
  Never mix 2 different types of oil.
- **If oil level is low, do not run engine.**
- **Clean the area around dipstick and oil inlet before removing or loosening them.**

1.5 Checking transmission fluid level

1. Park the vehicle on a level surface.
2. Stop the engine.
3. Raise the cargo bed and mount the safety support.
4. To check the oil level, draw out the dipstick, wipe it clean, replace it, and draw it out again. Check to see that the oil level lies within the range as shown in the figure. If the level is too low, add new oil within the prescribed range on the dipstick.



(1) Oil inlet
(2) Dipstick
(A) Oil level is acceptable within this range.

1.6 Checking coolant level

⚠ WARNING

To avoid serious injury or death:

- **Do not remove 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. Park the vehicle on a level surface.
2. Stop the engine.
3. Open the hood.
4. Check to see that the coolant level is between the **[FULL]** and **[LOW]** marks of recovery tank.

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Piston
Slipper skirt pistons are used to reduce weight and friction. This skirt is resin coated to also help reduce friction. This resin aids in improving resistance to piston seizing.
The piston head is recessed slightly to prevent interference with the exhaust and intake valves.
The piston head is also engraved with marks that indicate the piston size and mounting direction (M).

Piston pin
The piston pin is offset 0.5 mm (0.02 in.) to the exhaust side to help reduce piston slapping during the expansion stroke.

Piston rings
Three piston rings are used on each piston, two compression rings and one oil control ring.
The inside of the top piston ring is chamfered and the bottom outside of the second ring is cut to reduce oil consumption.

1.6 Function of connecting rod

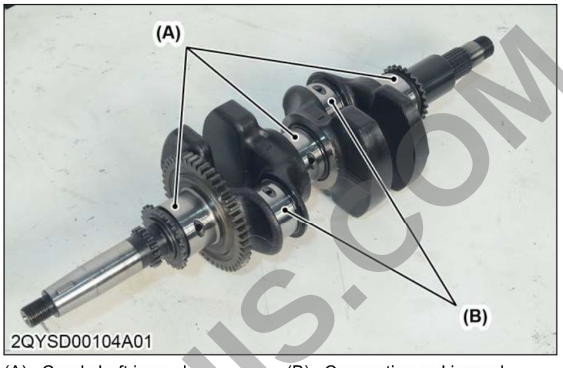
The function of the connecting rod is to connect the crankshaft and the piston. By using a connecting rod, the rotating motion of the crankshaft is converted to reciprocating motion of the piston.



The connecting rods are the nutless type. This means the connecting rod cap bolts are directly threaded into the connecting rod, thus eliminating the need for a nut. This contributes to the reduced mass of reciprocating parts which improves engine responsiveness during acceleration.

1.7 Function of crankshaft

The function of the crankshaft is to convert the reciprocating motion of the pistons to the rotating motion of the crankshaft. This is accomplished with the large end of the connecting rods connecting to offset connecting rod journals (B).



(A) Crankshaft journal (B) Connecting rod journal

The crankshaft is forged chrome-molybdenum steel with a 3.14 rad (180°) phase structure.
The crankshaft is supported by journals (A) at 3 points in the crankcase to improve rigidity.

1.8 Function of balancer

The function of the balancer is to cancel out the inertial forces of the piston and connecting rod while the engine is operating.



(1) Balancer shaft

The balancer shaft uses ball bearings to assist in weight reduction and allow for better lubrication.
The balancer shaft is directly connected to the crankshaft by gears.

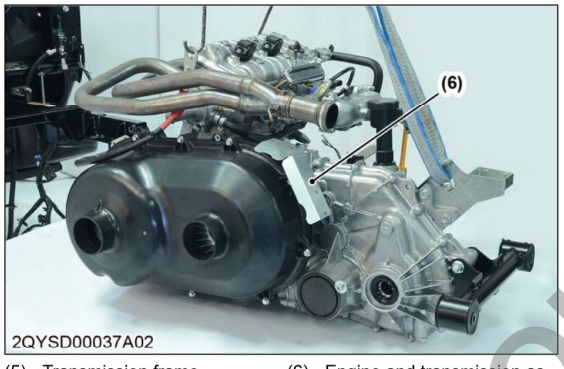
1.9 Function of flywheel

The function of the flywheel is to store the force produced during an explosion stroke to minimize a drop in rotation during the next compression stroke. In this

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4. With a hoist, lift the engine and transmission assembly (6) from the transmission frame (5).



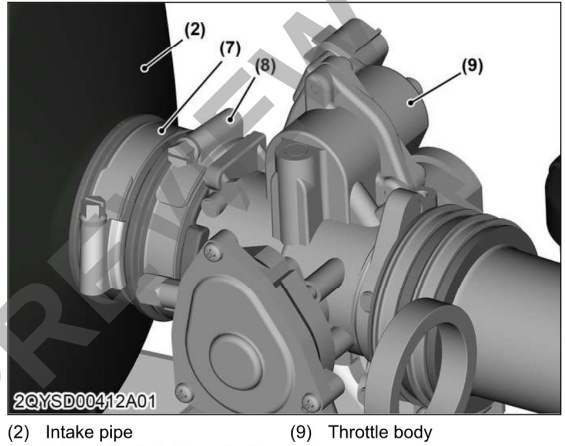


(5) Transmission frame
(6) Engine and transmission assembly

(When reassembling)

■ IMPORTANT

- **Position the clamps (7) and (8) as shown.**



(2) Intake pipe
(7) Intake pipe to intake adapter clamp
(8) Intake adapter to throttle body clamp
(9) Throttle body

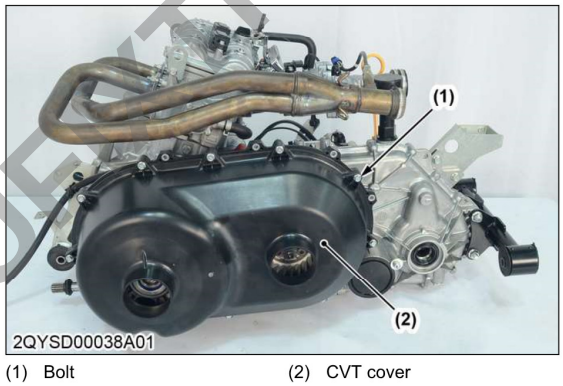
- **Tighten to the specified tightening torque.**

Tightening torque	Intake pipe to intake adapter clamp	2.5 to 3.5 N·m 0.26 to 0.35 N·m 1.9 to 2.5 lbf·ft
	Intake adapter to throttle body clamp	3.0 to 4.0 N·m 0.31 to 0.40 kgf·m 2.3 to 2.9 lbf·ft
	Engine bracket / mission bracket mounting bolts and nuts	77.4 to 90.2 N·m 7.90 to 9.19 kgf·m 57.1 to 66.5 lbf·ft

7.2 Separating engine from transmission

7.2.1 Removing CVT cover

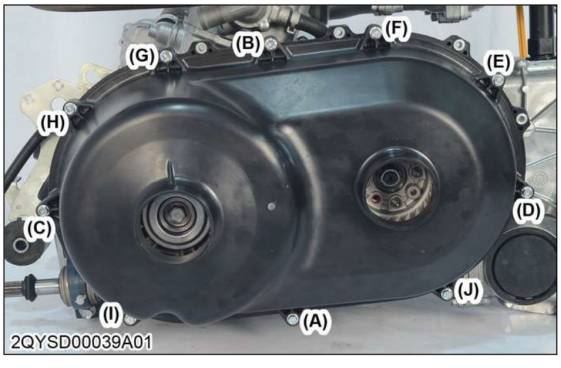
1. Remove the CVT cover bolts (1).
2. Remove the CVT cover (2).



(1) Bolt
(2) CVT cover

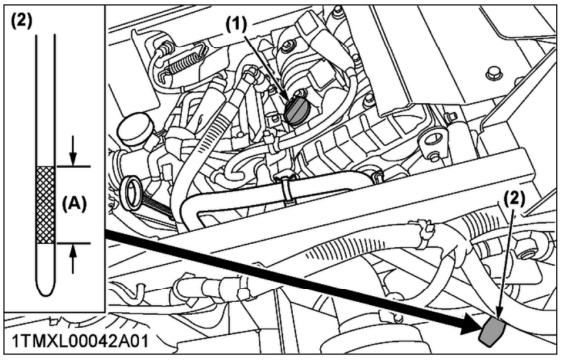
(When reassembling)

- Temporarily tighten all the bolts when installing the CVT cover.
- Since the CVT cover can be easily damaged, tighten the bolts in the sequence (A) to (J) as shown in the figure.



Tightening torque	CVT cover bolt	7.0 to 9.0 N·m 0.72 to 0.91 kgf·m 5.2 to 6.6 lbf·ft

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(1) Oil inlet
(2) Dipstick
(A) Oil level is acceptable within this range.

- Tighten to the specified tightening torque.

Tightening torque	Drain plug	20.0 to 23.0 N·m 2.04 to 2.34 kgf·m 14.8 to 16.9 lbf·ft

(Reference)

[Filter exchanged]

Engine oil	Capacity	3.8 L 4.0 U.S.qts 3.3 Imp.qts

[Filter non-exchanged]

Engine oil	Capacity	3.6 L 3.8 U.S.qts 3.2 Imp.qts

5.1.2 Draining coolant

⚠ WARNING

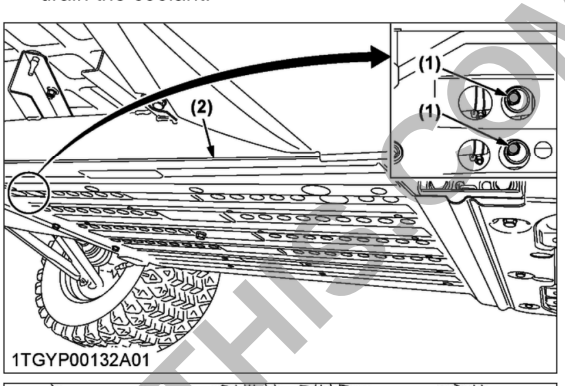
To avoid serious injury or death:

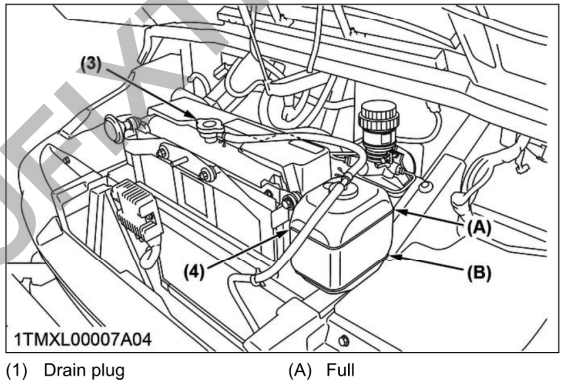
- **Do not remove the radiator cap while coolant is hot. When cool, slowly rotate cap to the first stop and allow sufficient time for excess pressure to escape before removing the cap completely.**

■ IMPORTANT

- **Do not start engine without coolant.**
- **Do not remove the cap on the radiator.**
- **Use clean, fresh distilled water and anti-freeze to fill the radiator and recovery tank.**
- **When the anti-freeze is mixed with distilled water, the antifreeze mixing ratio is 50%.**
- **Securely tighten radiator cap. If the cap is loose or improperly fitted, water may leak out and the engine could overheat.**
- **Make sure that the engine coolant breather is closed after filling the coolant.**

1. Stop the engine and let cool down.
2. Open the hood.
3. To drain the coolant, open the radiator drain plug (1) and remove the radiator cap (3).
   The radiator cap must be remove to completely drain the coolant.





(1) Drain plug
(2) Front skid plate
(3) Radiator cap
(4) Recovery tank
(A) Full
(B) Low

4. After all coolant is drained, install the drain plugs.

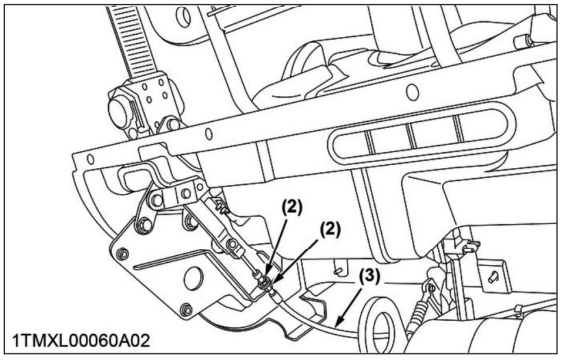
(When reassembling)

- Fill with clean distilled water and antifreeze until the coolant level is just below the radiator cap.
- Slowly loosen (open) the engine coolant breather plug (left) (5) but do not remove. If air is in the system, the air can be heard coming from around the breather plug. When no more air is heard, coolant should start to flow from around the breather plug. Tighten (close) the breather plug.

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5. Adjust the cable wire (3) length.



(2) Lock nut (3) Parking cable

6. Pull the parking brake lever 1 notch and make sure the vehicle does not roll easily by hand.
7. Release the parking brake and make sure the vehicle rolls easily by hand.
8. Tighten the lock nuts securely.

Tightening torque	Parking cable lock nut	19.6 to 28.4 N·m 2.00 to 2.89 kgf·m 14.5 to 20.9 lbf·ft

5. Disassembling and assembling

5.1 Master cylinder

5.1.1 Removing master cylinder assembly

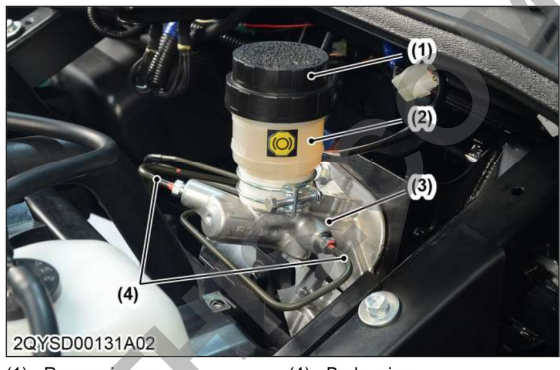
⚠ CAUTION

- **For your safety we strongly recommend KUBOTA DOT3 GENUINE BRAKE FLUID from a sealed container. Using other type of oil ruins synthetic resin or rubber installed in brake system components, and may cause brake failure.**
- **Avoid contamination of the brake fluid. Thoroughly clean area around the filler cap before removing. Do not open the brake fluid reservoir cap unless absolutely necessary.**
- **Use extreme care when filling the reservoir. If brake fluid is spilled on power steering hoses, wash off with water immediately. Brake fluid quickly ruins synthetic resin or rubber hoses.**

■ NOTE

- **Do not transform or damage the brake pipe.**
- **Do not reuse the drained brake fluid.**
- **Do not use brake fluid of the other brands to prevent chemical change from occurring.**

1. Remove the brake fluid reservoir cap (1).
2. Drain the brake fluid.
3. Disconnect the brake pipes (4) from master cylinder (3).
4. Remove the master cylinder (3).



(1) Reservoir cap (4) Brake pipe
(2) Reservoir
(3) Master cylinder

(When reassembling)

- Bleed the brake lines after reassembling master cylinder.
- Check and adjust the brake pedal free travel.
- Tighten to the specified tightening torque.

Tightening torque	Brake pipe flare nut	13 to 17 N·m 1.4 to 1.7 kgf·m 9.6 to 12 lbf·ft
	Master cylinder bolt	21.2 to 24.8 N·m 2.17 to 2.52 kgf·m 15.7 to 18.2 lbf·ft

RELATED PAGE
4.1.1 Adjusting brake pedal on page 6-11
4.2.3 Bleeding brake lines on page 6-13

5.1.2 Removing master cylinder inner parts

■ NOTE

- **Keep the disassembled parts in order and prevent them from being contaminated with dust or dirt.**

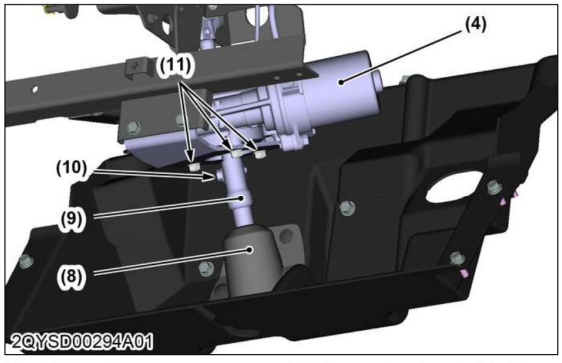
Tools required

- Rubber grease

1. Remove the push rod (1) and the boot (2).
2. Pushing in the primary piston (4), remove the internal circlip (3).
3. Remove the primary piston (4) from master cylinder body (6).
4. Pushing in the secondary piston (5), remove the stop bolt (7).

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7. Disconnect the EPS motor from the universal joint (intermediate shaft) 2 (9) and remove the EPS motor (4).



(4) EPS motor
(8) Steering grommet
(9) Universal joint (intermediate shaft) 2
(10) Lower steering shaft bolt
(11) Flange bolt

(When reassembling)

- If the steering grommet rivets are damaged, replace them with new ones.
- Tighten to the specified tightening torque.

Tightening torque	ECU cover screw	5.0 to 6.0 N·m 0.51 to 0.61 kgf·m 3.7 to 4.4 lbf·ft
	EPS motor flange bolt	17.6 to 20.6 N·m 1.80 to 2.10 kgf·m 13.0 to 15.1 lbf·ft
	Universal joint (intermediate shaft) 2 bolt	28 to 42 N·m 2.9 to 4.2 kgf·m 21 to 30 lbf·ft
	Accelerator pedal flange bolt	21.2 to 24.8 N·m 2.17 to 2.52 kgf·m 15.7 to 18.2 lbf·ft
	Steering shaft bolt	28 to 42 N·m 2.9 to 4.2 kgf·m 21 to 30 lbf·ft

5.2 Removing rack and pinion

5.2.1 Removing front wheel

⚠ WARNING

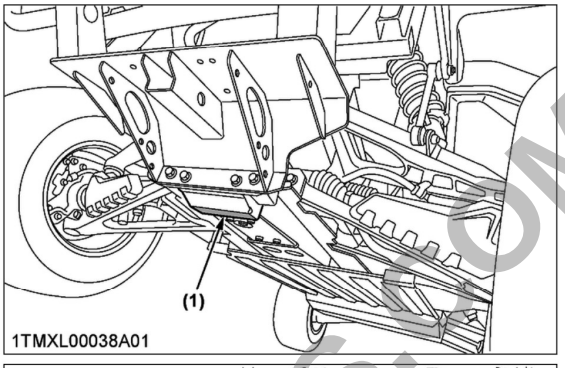
To avoid serious injury, death or vehicle damage:

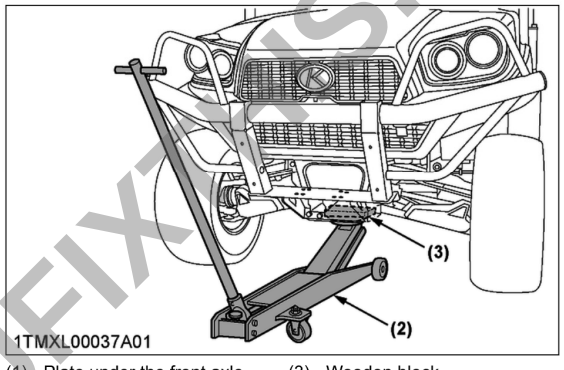
- **Do not work under the vehicle unless it is secured by safe stands or suitable blocking.**

■ NOTE

- **Before jacking up the vehicle, park it on a firm and level ground and chock the rear wheels.**
- **Select a jack that withstands the vehicle weight and set it up as shown below.**

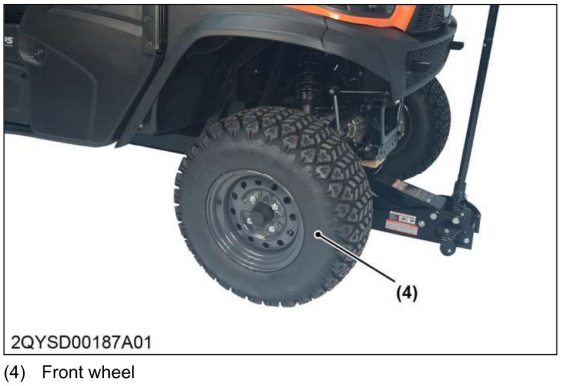
1. Jack up at the plate under the front axle case only.





(1) Plate under the front axle case
(2) Floor jack
(3) Wooden block

2. Remove the front wheel.



(4) Front wheel

(When reassembling)

Tightening torque	Aluminum wheel mounting nut	130.0 to 150.0 N·m 13.26 to 15.29 kgf·m 95.89 to 110.6 lbf·ft
	Steel wheel mounting nut	

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