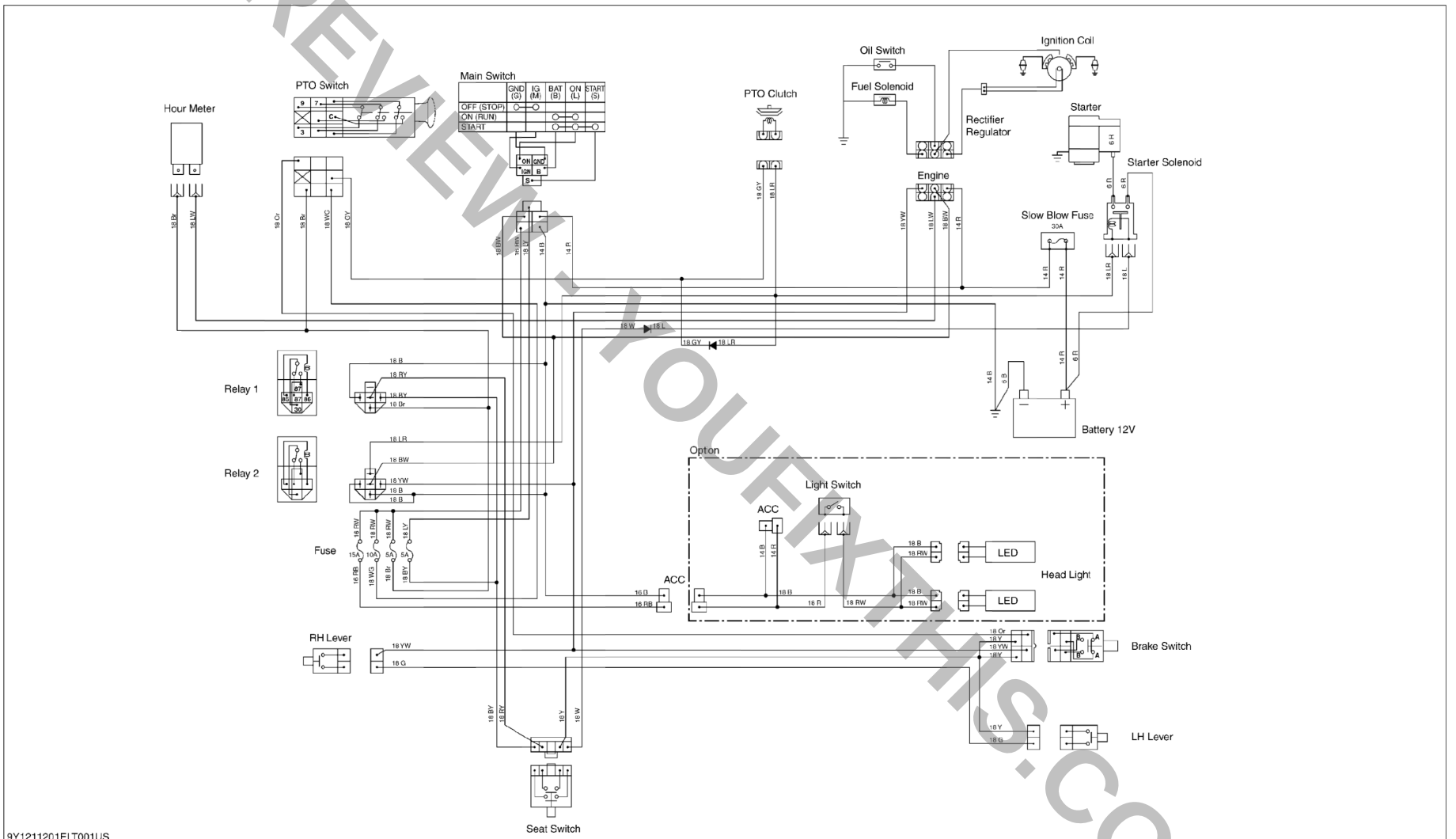
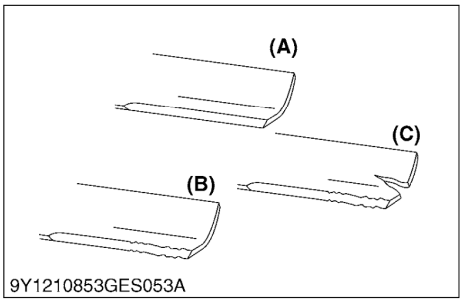
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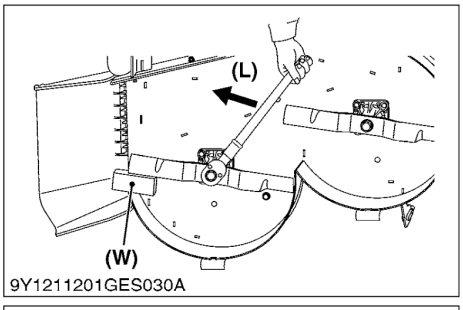


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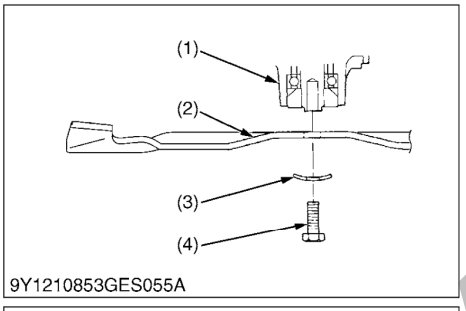
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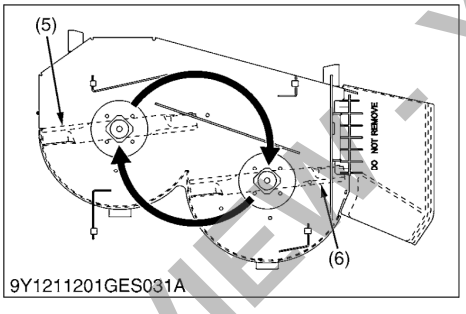
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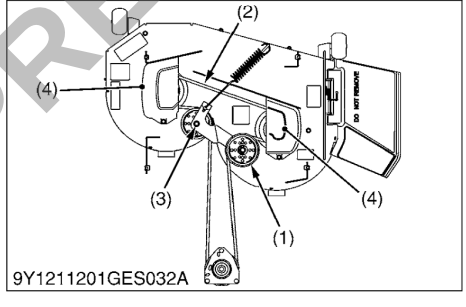
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Checking and Replacing Blade

WARNING

To avoid serious injury:

- **Be sure to stop the engine and remove the key.**
- **Blades may be sharp. When you handle blades, wear heavy gloves or wrap end of blade with a rag.**

■ **Checking**

The blade cutting edges should be kept sharp at all times. Sharpen the cutting edges, if they resemble blade **(B)**. Replace the blades if they appear similar to blade **(C)**.

■ **Replacing**

1. Dismount the mower deck from the machine. (See **"Dismounting the Mower Deck"** in **"MOWER"** section.) Then turn it over to expose the blades.
2. Wedge a block of wood between the blade and mower housing or use a box wrench over the pulley nut to prevent the spindle from rotating while removing the blade bolts; loosen the blade bolt as illustrated.

■ **IMPORTANT**

- **Use the proper metric size box or socket wrench to tighten or loosen the blade mounting bolt.**

3. To sharpen the blades yourself, clamp the blade securely in a vise. Use a large mill file and file along the original bevel until sharp.
4. To check the blade for balance, place a small rod through the center hole. If the blade is not balanced, file the heavy side of the blade until balance is achieved.
5. To attach blades, be sure to install the cup washer between the blade and bolt head. Then tighten the bolt securely.
6. Before checking or replacing the blade, wipe grass and mud off the top and inside of the mower. Especially clean up the inside of the belt cover, because otherwise the belt life will be reduced.

■ **IMPORTANT**

- **Tighten the bolts of the outer blades from 103 to 118 N·m (10.5 to 12.0 kgf·m, 76.0 to 86.7 lbf·ft) of torque.**
- **The blade bolts have right hand threads. Turn them counterclockwise to loosen.**
- **To prolong the service life of the blades, reposition them as shown in the figure below periodically.**

(1) Spindle Holder
(2) Blade
(3) Cup Washer
(4) Bolt
(5) LH Blade
(6) RH Blade

(A) New Blade
(B) Worn Blade
(C) Cracked Blade
(L) "LOOSEN"
(W) WOOD

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Mower Belt Replacement

1. Remove the mower deck from the machine according to the procedure **"Dismounting the Mower Deck"**.
2. Remove the left and right hand shield (4) from the mower deck.
3. Remove the tension pulley (1), and remove the belt (2).
4. To install a new belt, reverse the above procedure.

■ **NOTE**

- **Tighten the tension pulley bolt securely 77.6 to 90.2 N·m (7.92 to 9.19 kgf·m, 57.3 to 66.5 lbf·ft).**

(1) Tension Pulley
(2) Belt
(3) Bolt
(4) Shield

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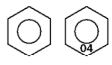
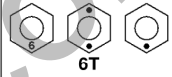
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5. TIGHTENING TORQUES

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

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[1] GENERAL USE SCREWS, BOLTS AND NUTS

Indication on top of bolt	 No-grade or 4T						 7T						 9T		
Indication on top of nut	 No-grade or 4T												 6T		
Material of opponent part	Ordinariness			Aluminum			Ordinariness			Aluminum			Ordinariness		
Unit	N·m	kgf·m	lbf·ft	N·m	kgf·m	lbf·ft	N·m	kgf·m	lbf·ft	N·m	kgf·m	lbf·ft	N·m	kgf·m	lbf·ft
M6	7.9 to 9.3	0.80 to 0.95	5.8 to 6.8	7.9 to 8.8	0.80 to 0.90	5.8 to 6.5	9.81 to 11.2	1.00 to 1.15	7.24 to 8.31	7.9 to 8.8	0.80 to 0.90	5.8 to 6.5	12.3 to 14.2	1.25 to 1.45	9.05 to 10.4
M8	18 to 20	1.8 to 2.1	13 to 15	17 to 19	1.7 to 2.0	13 to 14	24 to 27	2.4 to 2.8	18 to 20	18 to 20	1.8 to 2.1	13 to 15	30 to 34	3.0 to 3.5	22 to 25
M10	40 to 45	4.0 to 4.6	29 to 33	32 to 34	3.2 to 3.5	24 to 25	48 to 55	4.9 to 5.7	36 to 41	40 to 44	4.0 to 4.5	29 to 32	61 to 70	6.2 to 7.2	45 to 52
M12	63 to 72	6.4 to 7.4	47 to 53	–	–	–	78 to 90	7.9 to 9.2	58 to 66	63 to 72	6.4 to 7.4	47 to 53	103 to 117	10.5 to 12.0	76.0 to 86.7
M14	108 to 125	11.0 to 12.8	79.6 to 92.5	–	–	–	124 to 147	12.6 to 15.0	91.2 to 108	–	–	–	167 to 196	17.0 to 20.0	123 to 144
M16	167 to 191	17.0 to 19.5	123 to 141	–	–	–	197 to 225	20.0 to 23.0	145 to 166	–	–	–	260 to 304	26.5 to 31.0	192 to 224
M18	246 to 284	25.0 to 29.0	181 to 209	–	–	–	275 to 318	28.0 to 32.5	203 to 235	–	–	–	344 to 402	35.0 to 41.0	254 to 296
M20	334 to 392	34.0 to 40.0	246 to 289	–	–	–	368 to 431	37.5 to 44.0	272 to 318	–	–	–	491 to 568	50.0 to 58.0	362 to 419

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[2] STUD BOLTS

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

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1. TROUBLESHOOTING

Refer to
- GH739V KAWASAKI ENGINE SERVICE MANUAL.

Symptom	Probable Cause and Checking Procedure	Solution	Reference Page
Engine is difficult to start or will not start	1. No operator on the seat	Sit on the operator's seat	G-17
	2. Parking brake lever not in the proper position	Apply the parking brake	G-17
	3. PTO switch not in the proper position	Make sure PTO switch is in "DISENGAGED" (OFF) position	G-17
	4. Motion control levers not in the proper position	Make sure motion control levers are in "NEUTRAL LOCK" position	G-17
	5. Main switch is not in the proper position	Make sure main switch is in "ON" position	G-17
	6. No fuel	Fill fuel	G-8, G-15, G-23
	7. Fuse is blown	Replace the fuse	G-29
	8. Air cleaner is clogged	Clean or replace the air cleaner	G-21
	9. Over choking or choke is adjusted incorrectly	Check and adjust	G-26
	10. Battery becomes weak	1. Clean battery cables and terminals	G-24
		2. Charge the battery	G-25
		3. In cold weather, always remove the battery from the engine, charge and store it indoors Install it on the machine only when you use the machine	G-25
	11. Spark plug damaged	1. Check the spark plug wire connection	G-22
		2. Adjust the spark plug gap or replace the spark plug	G-22
	12. Fuel hose or fuel filter clogged or damaged	Clean or replace fuel lines	G-8, G-23, G-29
	13. Engine oil viscosity is wrong	Use oils of different viscosities, depending on ambient temperature	G-8, G-20
	14. Improper or stale fuel (fuel quality is poor)	Replace fuel and the fuel filter	G-8, G-15, G-23
	15. Water or dirt in the fuel system	Replace fuel	G-8, G-15, G-23
Insufficient engine power	1. Air cleaner is clogged	Clean or replace the air cleaner	G-21
	2. Fuel filter is clogged	Replace the fuel filter	G-23
	3. Insufficient or dirty fuel	Check the fuel system	G-8, G-15, G-23 KAWASAKI MANUAL
	4. Spark plug damaged	Adjust the spark plug gap or replace it	G-22
Engine stops suddenly	1. Insufficient fuel	1. Check the fuel valve position	G-23
		2. Refuel	G-8, G-15, G-23
		3. Check the carburetor fuel valve position	KAWASAKI MANUAL

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3. SPECIFICATIONS

Model			Z122RKW-AU
Engine	Model		KAWASAKI GH739V
	Max. engine power (Gross)		16.0 kw (21.5 HP) *1*2
	Type		Air-cooled gasoline engine
	Number of cylinders		2 (V-Twin)
	Bore and stroke		76.0 × 78.0 mm (3.00 × 3.07 in.)
	Total displacement		726 cm^3 (44.3 cu. in.)
	Rated revolution		3600 min^{-1} (rpm)
	Fuel		Unleaded gasoline
	Starter		Electric
	Lubrication		Full pressure lubrication
	Cooling		Air cooled
	Battery		U1 (12 V, RC: 45 min, CCA: 300, CA: 410)
Capacities	Fuel tank		12.2 L (3.22 U.S.gals, 2.68 Imp.gals)
	Engine crankcase (with filter)		2.1 L (2.2 U.S.qts, 1.8 Imp.qts)
	Transmission case including Rear axle gear case		1.513 to1.588 L (1.599 to 1.678 U.S.qts, 1.332 to 1.397 Imp.qts) *3
Dimensions	Overall length		1890 mm (74.41 in.)
	Overall width w/o mower deck		1076 mm (42.36 in.)
	Overall height	With ROPS	1652 mm (65.04 in.)
	Wheelbase		1236 mm (48.66 in.)
	Min. ground clearance		104 mm (4.06 in.)
	Tread	Front	616 mm (24.3 in.)
		Rear	885 mm (34.8 in.)
Weight (W/MOWER DECK)			282 kg (621 lbs)
Traveling system	Tread	Front	11 × 4 - 5 (4PR) Smooth
		Rear	18 × 7.5 - 10 (4PR)
	Traveling speeds	Forward	10.5 km/h (6.5 mph)
		Reverse	6.4 km/h (4.0 mph)
	Steering		2 - Hand levers
	Transmission		2 - HST w / Gear
	Parking brake		Hand lever applied, released
	Min. turning radius		0 mm (0 in.)
PTO	Drive system		Belt
	Clutch type		Electric

(Specifications and design subject to change without notice)

■ **NOTE**

- ***1: Manufacturer's estimate**
  ***2: These Kawasaki engines have been tested in accordance with SAE J1995, verified by TÜV Rheinland Group, and certified by SAE International. The gross power ratings of these engines were determined by using measurements according to SAE J1995 which were witnessed by SAE-approved witnesses from TÜV Rheinland Group. Torque ratings of these engines were not certified by SAE. Actual power and torque output will vary depending on numerous factors, including, but not limited to, the operating speed of the engine in application, environmental conditions, maintenance, and other variables.**
  ***3: Oil amount when the oil level is at the upper level.**

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INFORMATION

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2. SAFETY DECALS I-4
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4. DIMENSIONS I-11

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I INFORMATION

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[3] HYDRAULIC FITTINGS

(1) Hydraulic Hose Fittings

Hose size	Thread size	Tightening torque		
		N·m	kgf·m	lbf·ft
02	1/8	13.8 to 15.6	1.40 to 1.60	10.2 to 11.5
03	1/4	22.6 to 27.4	2.30 to 2.80	16.7 to 20.2
04				
05	3/8	45.2 to 52.9	4.60 to 5.40	33.3 to 39.0
06				

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(2) Hydraulic Pipe Cap Nuts

Pipe size	Tightening torque		
	N·m	kgf·m	lbf·ft
ϕ4 × t1.0	19.7 to 29.4	2.00 to 3.00	14.5 to 21.6
ϕ6 × t1.0	24.6 to 34.3	2.50 to 3.50	18.1 to 25.3
ϕ8 × t1.0	29.5 to 39.2	3.00 to 4.00	21.7 to 28.9
ϕ10 × t1.0	39.3 to 49.0	4.00 to 5.00	29.0 to 36.1
ϕ12 × t1.5	49.1 to 68.6	5.00 to 7.00	36.2 to 50.6
ϕ15 × t1.6	108 to 117	11.0 to 12.0	79.6 to 86.7
ϕ18 × t1.6	108 to 117	11.0 to 12.0	79.6 to 86.7

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(3) Adaptors, Elbows and Others

Item	Thread size	Tightening torque		
		N·m	kgf·m	lbf·ft
Fitting with O-ring	G 1/8	45 to 53	4.5 to 5.5	33 to 39
	G 1/4	74 to 83	7.5 to 8.5	55 to 61
	G 3/8	93.2 to 102	9.50 to 10.5	68.8 to 75.9
	G 1/2	113 to 122	11.5 to 12.5	83.2 to 90.4
Elbow with O-ring	G 1/8	23 to 26	2.3 to 2.7	17 to 19
	G 1/4	36 to 43	3.6 to 4.4	26 to 31
	G 3/8	54 to 63	5.5 to 6.5	40 to 47
	G 1/2	73 to 83	7.4 to 8.5	54 to 61
Adaptor	G 1/8	9.8 to 14	1.0 to 1.5	7.3 to 10
	G 1/4	30 to 34	3.0 to 3.5	22 to 25
	G 3/8	49 to 68	5.0 to 7.0	37 to 50
	G 1/2	69 to 88	7.0 to 9.0	51 to 65

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MECHANISM

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1. STRUCTURE 1-M1
2. FUEL SYSTEM 1-M2
   [1] FUEL LINE 1-M2
3. LUBRICATION SYSTEM 1-M3

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4. CHECKING, DISASSEMBLING AND SERVICING

[1] CHECKING AND ADJUSTING

(1) Motion Control Lever

WARNING

To avoid personal injury:

- **Park the machine on a firm and level surface.**
- **If it is necessary to operate the engine in an enclosed area, use a gas tight exhaust pipe extension to remove the fumes.**
- **Always try to work in a wall-ventilated area.**
- **Lift up and secure with jack stands or blocking the rear of the machine, do not operate the machine while adjusting. Remove rear wheels.**
- **Do not adjust only one of the following adjustments; exclude "Motion Control Lever Alignment". They are interlinked.**

■ **IMPORTANT**

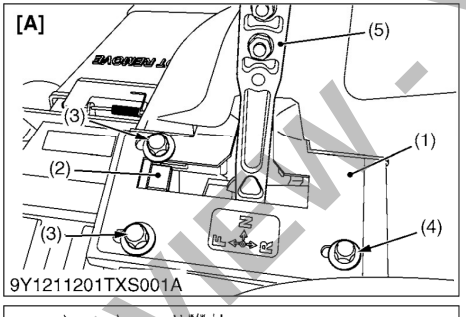
- **Right and left motion control levers can be adjusted independently.**

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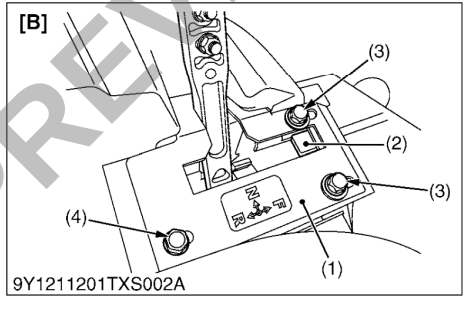

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HST Neutral

1. Lift-up and secure with jack stands or blocking the rear of the machine frame.
2. Remove both rear wheels.
3. Start the engine, and operate at maximum speed.
4. Place the motion control lever (5) in **"NEUTRAL LOCK"** position.
5. Loosen the three bolts (3), (4) of the guide plate (1). Adjust the guide plate position until the rear axle rotation stops.
6. Tighten the rear bolt (4) and place the lever in **"NEUTRAL LOCK"** position. Check that the rear axle does not rotate. If the axle does not stop rotating, adjust the **"HST NEUTRAL"** again.
7. Adjust the other side **"HST NEUTRAL"** equally.
8. After adjustment, make sure to stop the engine immediately.
9. Push the motion control lever (5) until it contacts the speed adjust plate and reaches the end of its range of motion. Then move the speed adjust plate (2) to 2 to 3 mm backward and tighten two front bolts (3) securely.
10. If at full speed the machine pulls one direction or the other, it is an indication that one wheel is turning faster than the other. To adjust the condition, proceed as follows:
    1) Park the machine on a firm and level surface.
    2) Stop the engine.
    3) Loosen two front bolts (3) of faster side.
    4) Move the speed adjust plate (2) to backward.
    5) Tighten two front bolts securely.



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Tightening torque	Bolt (front, rear)	24 to 27 N·m 2.4 to 2.8 kgf·m 18 to 20 lbf·ft

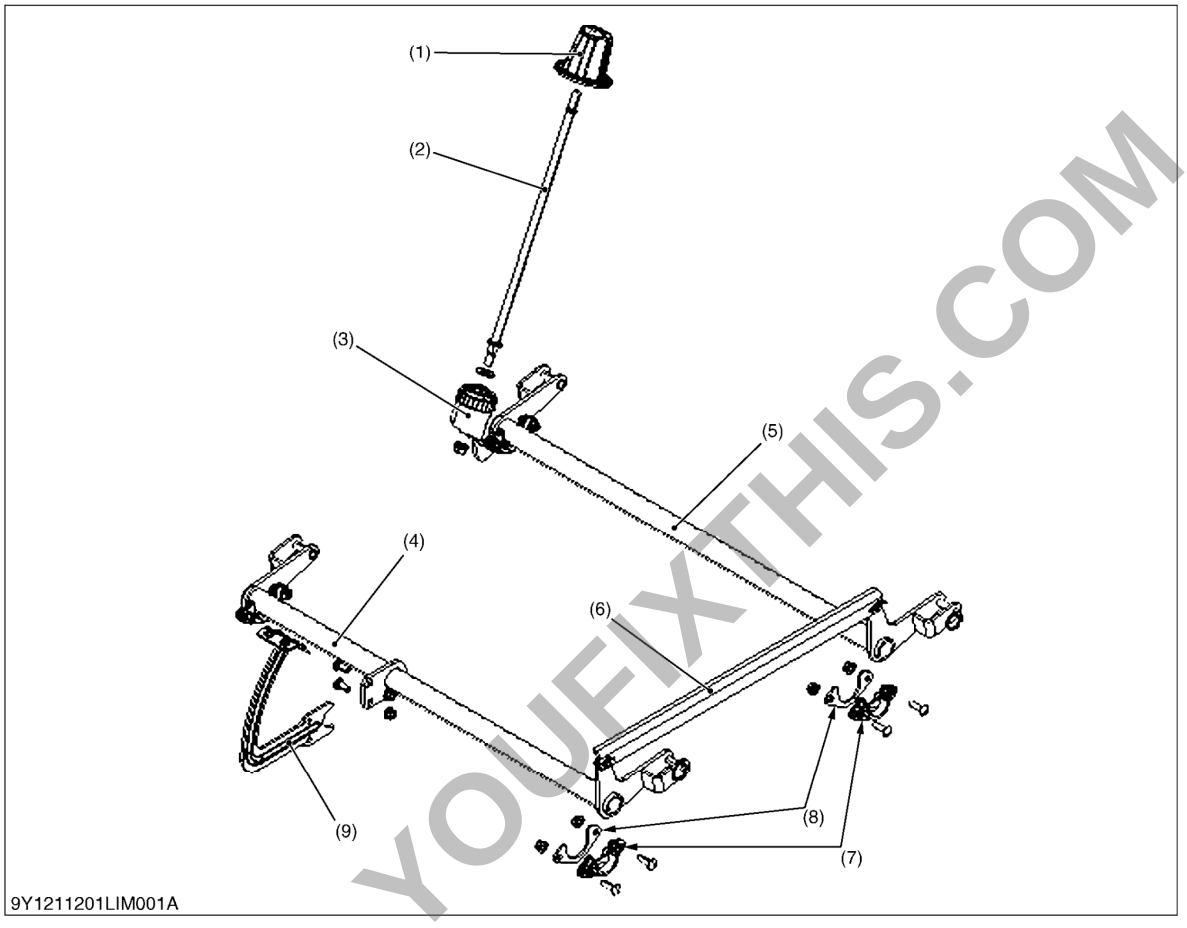
(1) Guide Plate
(2) Speed Adjust Plate
(3) Bolt (Front)
(4) Bolt (Rear)
(5) Motion Control Lever

[A] RH
[B] LH

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1. STRUCTURE



(1) Cam Dial
(2) Cam Shaft
(3) Cam
(4) Front Lift Shaft
(5) Rear Lift Shaft
(6) Mower Link
(7) Bushing
(8) Bushing Plate
(9) Link Pedal

Front lift shaft (4) and rear lift shaft (5) are held by resin bushings (7).
Push the link pedal (9) to lift the mower.

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3. CHECKING, DISASSEMBLING AND SERVICING

CAUTION

- **To avoid accidental short circuit, be sure to attach the positive cable to the positive terminal before the negative cable is attached to the negative terminal.**
- **Never remove the battery cap while the engine is operating.**
- **Keep electrolyte away from eyes, hands and clothes. If you are spattered with it, wash it away completely with water immediately.**
- **Keep open sparks and flames away from the battery at all times. Hydrogen gas mixed with oxygen becomes very explosive.**

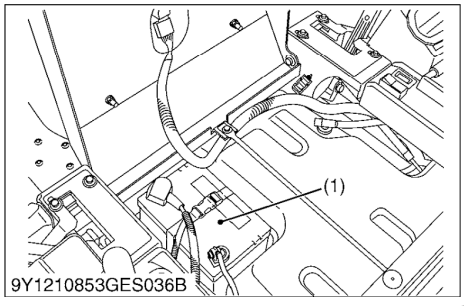
IMPORTANT

- **If the machine is to be operated for a short time without battery (using a slave battery for starting), use additional current (lights) while engine is operating and insulate terminal of battery. If this advice is disregarded, damage to alternator and regulator may result.**

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[1] CHECKING

(1) Battery



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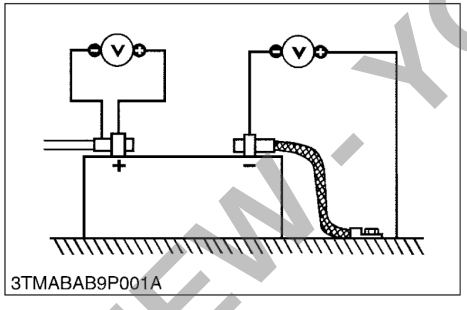
Battery Voltage

1. Stop the engine and turn the main switch off.
2. Connect the COM (–) lead of the voltmeter to the battery's negative terminal post and the (+) lead to the positive terminal post, and measure the battery voltage.
3. If the battery voltage is less than the factory specification, check the battery specific gravity and recharge the battery.

Battery voltage	Factory specification	More than 12 V

(1) Battery

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Battery Terminal Connection

1. Turn the main switch on, and turn on the head light.
2. Measure the voltage with a voltmeter across the battery's positive terminal post and the cable terminal, and the voltage across the battery's negative terminal post and the chassis.
3. If the measurement exceeds the factory specification, clean the battery terminal posts and cable clamps, and tighten them firmly.

Potential difference	Factory specification	Less than 0.1 V

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