WSM

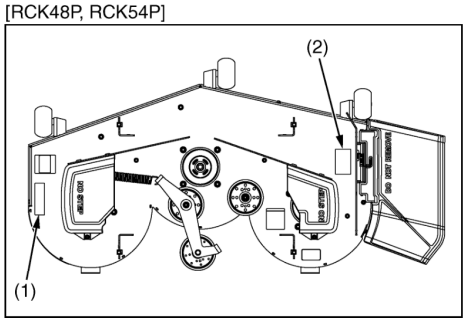
WORKSHOP MANUAL

ZG124E,ZG123S,
ZG127E,ZG127S

Kubota

KiSC issued 09, 2013 A

[RCK48P, RCK54P]



(1) Part No. K5617-7311-1

1BDABBSAP0030

(2) Part No. K5617-7312-1

1BDABBSAP0020

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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, and dry with a soft cloth.
3. Replace damaged or missing danger, warning and caution labels with new labels from your local KUBOTA Dealer.
4. If a component with danger, warning and caution label(s) affixed is replaced with new part, make sure new label(s) is (are) attached in the same location(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.

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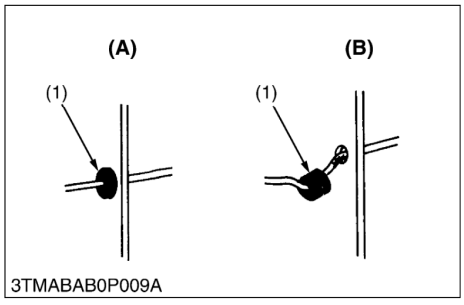

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- Securely insert grommet.

(1) Grommet

(A) Correct
(B) Incorrect

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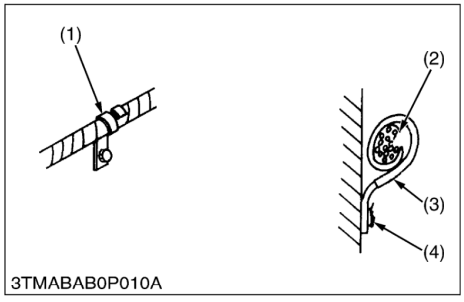

3TMABAB0P010A

- Securely clamp, being careful not to damage wiring.

(1) Clamp
(Wind Clamp Spirally)
(2) Wire Harness
(3) Clamp
(4) Welding Dent

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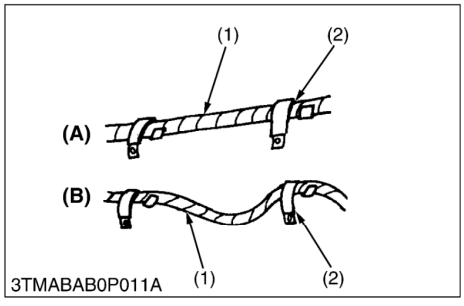

3TMABAB0P011A

- Clamp wiring so that there is no twist, unnecessary sag, or excessive tension, except for movable part, where sag be required.

(1) Wiring
(2) Clamp

(A) Correct
(B) Incorrect

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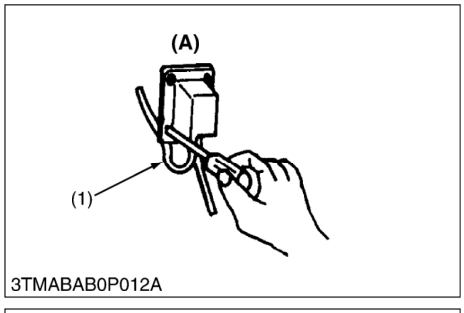

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- In installing a part, be careful not to get wiring caught by it.

(1) Wiring

(A) Incorrect

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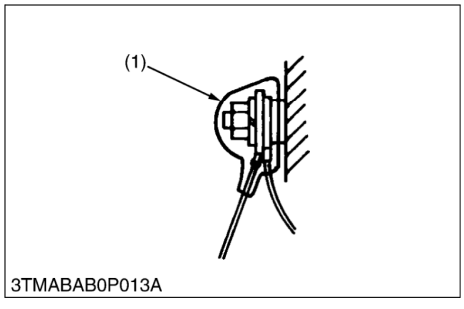

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- After installing wiring, check protection of terminals and clamped condition of wiring.

(1) Cover
(Securely Install Cover)

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7. CHECK AND MAINTENANCE

WARNING

To avoid serious injury:

- **Be sure to check and service the machine on a level surface with the engine shut off, the key removed and the parking brake securely set or chock the rear wheels.**

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[1] DAILY CHECK

To prevent trouble from occurring, it is important to know the condition of the machine. Check it before starting.

Checking

- Walking around the machine

1. Damage of machine body, tightness of all bolts, nuts and pins, etc.
2. Fuel and oil leak
3. Tire pressure, wear and damage
4. Engine oil level
5. Fuel level
6. Air intake screen
7. Transaxle fluid level
8. Air cleaner (precleaner element)
9. Machine body cleaning
10. Clean area around muffler and engine controls.

- Mower

1. Check all hardware.
2. Make sure all pins are in place.
3. Mower deck cleaning
4. Make sure blade bolts are tight.
5. Blades and belt wear or damage

- While sitting in the operator's seat

1. Motion control lever
2. Parking brake
3. Other movable parts

- Turning the main switch **"ON"**

1. Head light (if equipped)

- Starting the engine

1. Color of the exhaust fumes
2. Check for abnormal noise and vibration.
3. Safety systems.
   If either of these do not operate properly, contact your local KUBOTA Dealer immediately.

- Others

1. Check the areas where previous trouble was experienced.

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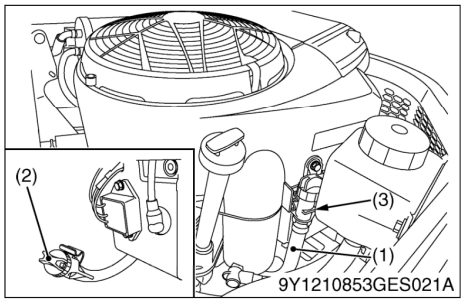

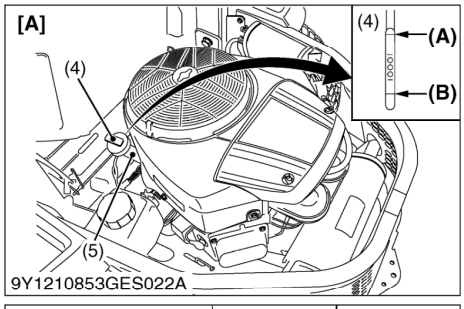

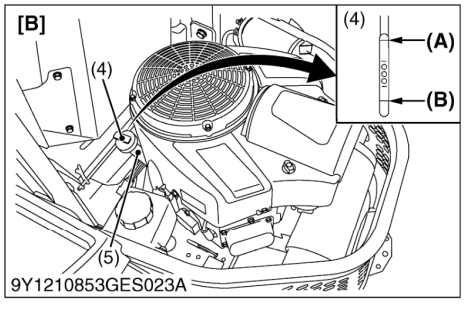

Changing Engine Oil (ZG124E, ZG127E)

CAUTION

To avoid personal injury:

- **Be sure to stop the engine and remove the key before changing the oil.**
- **Allow engine to cool down sufficiently; oil can be hot and may cause burns.**

1. To change the used oil, unhook the drain hose, direct the hose down and open the drain valve.

■ **NOTE**

- **The used oil can be drained out more easily if the engine is warm.**

2. Fill with the new oil up to the upper level on the dipstick.
3. To check the oil level. Remove the dipstick, wipe it clean, insert it and draw it out again. Check to see that the oil level is between the two marks.

■ **NOTE**

- **Do not overfill.**

(1) Drain Hose
(2) Drain Valve
(3) Hook
(4) Oil Level Dipstick
(5) Engine Oil Port

[A] ZG124E
[B] ZG127E
(A) "UPPER LEVEL"
(B) "LOWER LEVEL"

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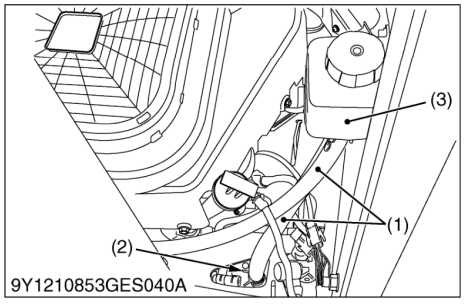
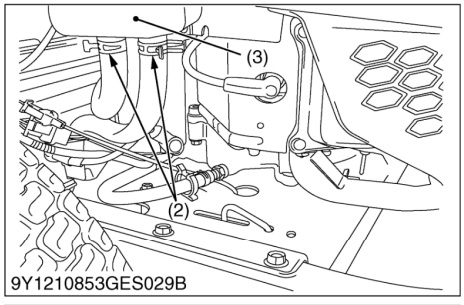
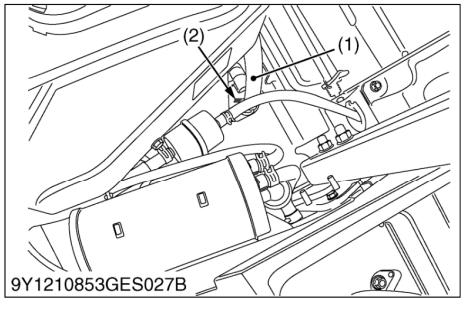
[5] CHECK POINT OF EVERY 200 HOURS







Checking Hydraulic Hose

CAUTION

To avoid personal injury:

- **Be sure to stop the engine, remove the key, and relieve pressure before checking and replacing the hydraulic hose.**
- **Allow the transmission case to cool down sufficiently; oil can be hot and may cause burns.**

Check to see if hydraulic hoses are properly fixed every 200 hours of operation.

1. Check to see that all lines 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) Hydraulic Hose
(2) Hose Clamp
(3) Transaxle Fluid Tank

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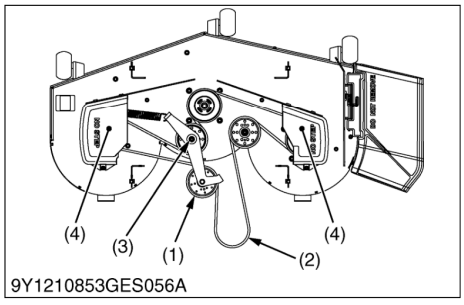

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Mower Belt Replacement

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 (8.0 to 9.2 kgf·m, 57.1 to 66.5 lbf·ft).**

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

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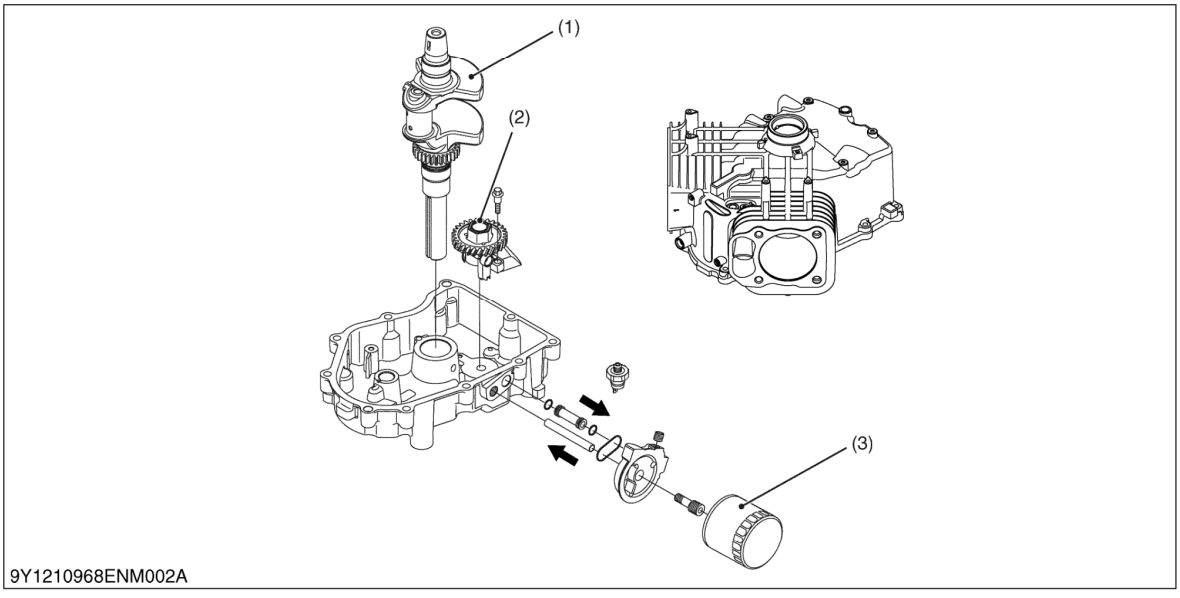
[2] ZG123S, ZG127S



(1) Crankshaft (2) Oil Pump (3) Oil Filter

This engine uses a combination pressure/splash lubrication system, delivering oil under pressure to crankshaft, connecting rod and main bearing surfaces. Other component areas are splash lubricated.

A high-efficiency gerotor oil pump keeps high oil flow and oil pressure, even at low speeds and high operating temperatures. A pressure relief valve limits maximum pressure of system. Oil pan must be removed to service oil pickup and oil pump.

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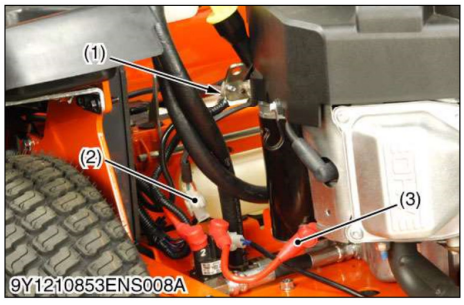

Disconnecting Wire Harness

1. Disconnect the coupler (2).
2. Disconnect the ground harness (1).
3. Disconnect the wire harness (3) from starter.

(1) Ground Harness
(2) Coupler
(3) Wire Harness

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Removing Engine

1. Lift up the engine.
2. Use hooks for ZG123S, ZG127S.
   Use the special tool (1) for ZG124E, ZG127E if necessary. Set the hook to the intake manifold (2). (See page G-47.)

(1) Special Tool
(2) Intake Manifold
[A] ZG123S, ZG127S
[B] ZG124E, ZG127E

9Y1210968ENS0013US0

3. TIGHTENING TORQUES

Tightening torques of screws, bolts and nuts on the table below are especially specified.
(For general use screws, bolts and nuts: Refer to "5. TIGHTENING TORQUES" on page G-10.)

Item	N·m	kgf·m	lbf·ft
Bolt (front, rear)	23.6 to 27.4	2.4 to 2.8	17.4 to 20.2
Flange nut (for transaxle, control rod)	23.6 to 27.4	2.4 to 2.8	17.4 to 20.2
Flange bolt (for transmission)	48.0 to 55.9	4.9 to 5.7	35.5 to 41.2
Rear axle bolt	23.6 to 27.4	2.4 to 2.8	17.4 to 20.2
Nut (ROPS)	123.5 to 147	12.6 to 15.0	91.2 to 108
Lug nut	108.5 to 130.2	11.1 to 13.3	80 to 96.0
Screw, side cover	11.8 to 17.5	1.2 to 1.8	8.8 to 12.9
Check plug or shock valve	31.6 to 45.2	3.2 to 4.6	23.3 to 33.3
Center section mounting screws	50.8 to 62.1	5.2 to 6.3	37.5 to 45.8
Stud, short 5/16-24	14.1 to 18.1	1.4 to 1.8	10.4 to 13.3
Torx head screw 5/16-24 × 1.00	25.9 to 35.0	2.6 to 3.6	19.2 to 25.8
Hub retaining nut	325.4 to 352.5	33 to 36	240 to 260.0
Lock nut (pulley)	61.0 to 74.5	6.2 to 7.6	45.0 to 55.0
Screw, hex head (Charge plate)	11.3 to 14.7	1.2 to 1.5	8.3 to 10.8

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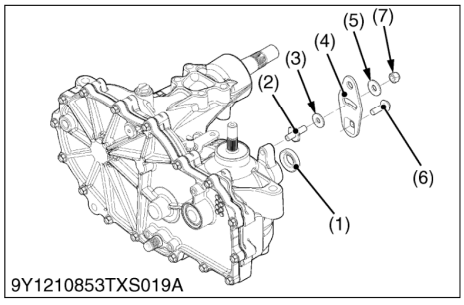

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Control Arm Assembly

1. Remove the lock nut (7), and the washer (5). Discard both items.
2. Remove the Torx head screw (6).
3. Remove the control arm (4), the washer (3) and the stud (2).

■ **NOTE**
- **Only remove the seal (1) if damaged or worn. The seal cannot be serviced separately.**

(When reassembling)
- Reassemble all parts in the reverse order of disassembly with the exception of the washer (5) and the lock nut (7).

■ **NOTE**
- **Use a new washer (5) and a new lock nut (7).**
- **When tightening the fasteners, refer to the table below for the required torque values.**
- **As a general rule, use the low end of the torque spec on fasteners when reassembling the unit.**

Tightening torque	Stud	14.1 to 18.1 N·m 1.4 to 1.8 kgf·m 10.4 to 13.3 lbf·ft
	Torx head screw	25.9 to 35.0 N·m 2.6 to 3.6 kgf·m 19.2 to 25.8 lbf·ft

(1) Seal
(2) Stud
(3) Washer
(4) Control Arm
(5) Washer
(6) Torx Head Screw
(7) Lock Nut

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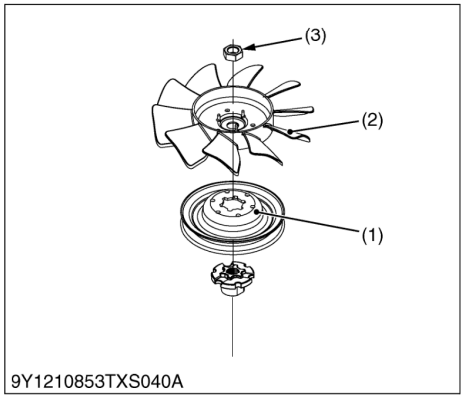

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Fan and Pulley

1. Remove the lock nut (3), slotted washer, fan (2) and the pulley (1) from the input shaft.
2. Check all components for excessive wear or damage. Replace if necessary.
3. Inspect input shaft splines for wear or damage.

(When reassembling)
- Reassemble all parts in the reverse order of disassembly.
- When tightening the fasteners, refer to the table below for the required torque values.

■ **NOTE**
- **As a general rule, use the low end of the torque specification on fasteners when reassembling the unit.**

Tightening torque	Lock nut (pulley)	61.0 to 74.5 N·m 6.2 o 7.6 kgf·m 45.0 to 55.0 lbf·ft

(1) Pulley
(2) Fan
(3) Lock Nut

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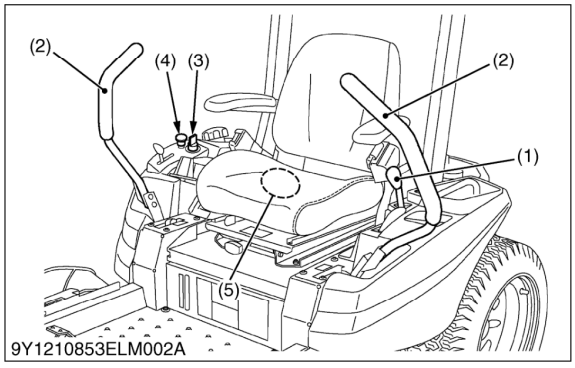
3 FRONT AXLE

SERVICING

CONTENTS

[3] SAFETY SWITCHES



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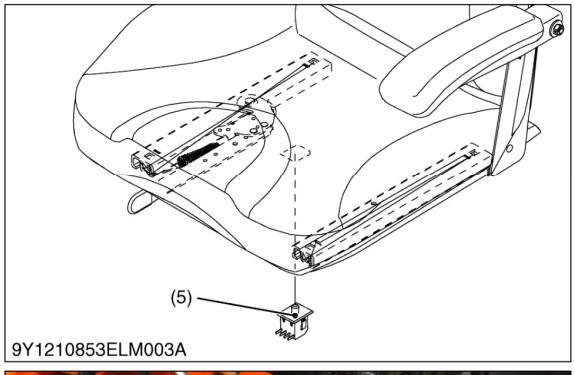

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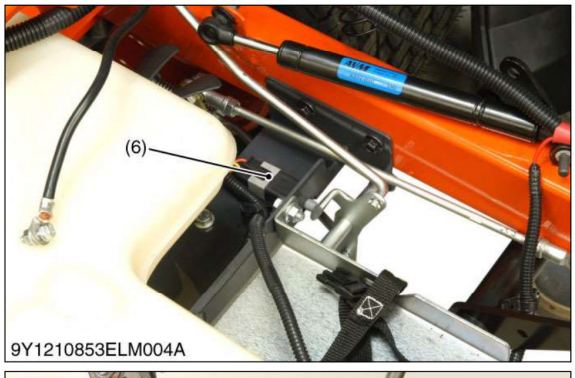

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Safety switches are:
- Seat switch (5)
- PTO switch (4)
- Parking brake switch (6) behind the battery,
- Motion control lever switch (7) (LH), (RH)

Function of switch is to control current from main switch to relay.

Switches change to **"CLOSE"** or **"OPEN"** electrically by changing the motion control levers, or sitting on the operator's seat or engaging the parking brake.

PTO switch has 2 functions:
- to turn on the PTO clutch. (**"PULL"**)
- to start the engine. (**"PUSH"**)

By selecting either normally open or normally closed contact, the switch function is determined.

Safety switch	Type
Seat switch	Normally open
PTO switch	Normally open, normally close
Parking brake switch	Normally close
Motion control lever (LH) switch	Normally open
Motion control lever (RH) switch	Normally open

(1) Parking Brake Lever
(2) Motion Control Lever
(3) Main Switch
(4) PTO Switch
(5) Seat Switch
(6) Parking Brake Switch
(7) Motion Control Lever Switch (RH)

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STARTING SYSTEM

Symptom	Probable Cause	Solution	Reference Page
Starter Motor Does Not Operate	Battery discharged or damaged	Recharge or replace	5-S4
	Slow blow fuse blown	Replace	G-43
	Safety switch damaged	Test and replace	5-S7 to 5-S10
	Wiring harness disconnected or improperly connected (between main switch terminal **5** and safety switches, between safety switches and starter motor, between battery positive terminal and starter motor)	Repair or replace	5-M2
	Starter motor damaged	Repair or replace	SUPPLE-MENT
	Main switch damaged	Replace	5-S5
Engine Does Not Stop When Main Switch Is Turned OFF	Fuse blown (10 A)	Replace	G-43
	Wiring harness disconnected or improperly connected (between main switch terminal **4** and engine stop solenoid)	Repair or replace	5-M2
	Fuel cut off solenoid damaged	Replace	SUPPLE-MENT
	Main switch, relay damaged	Replace	5-S5, 5-S12
Engine Does Not Start	Fuel cut off solenoid damaged	Replace	5-M2, SUP-PLEMENT
	Main switch, relay damaged	Check and replace	5-S5, 5-S12

PTO CLUTCH

Symptom	Probable Cause	Solution	Reference Page
Power Loss (PTO Belt Tension Weak)	Weak or broken PTO tension spring	Replace	6-S9
Power Loss (PTO Belt Tension Normal)	Worn or damaged PTO belt	Replace	6-S10
Noise from PTO System	Worn or damaged PTO belt	Repair or replace	6-S10
Blade Does Not Turn	Clearance too big	Adjust	5-S11
Blade Does Not Turn (PTO Clutch Clearance Proper)	Wiring harness disconnected or improperly connected	Repair or replace	5-M9
	Broken electric PTO Clutch	Repair or replace	5-S11
	Broken PTO switch	Repair or replace	5-S9

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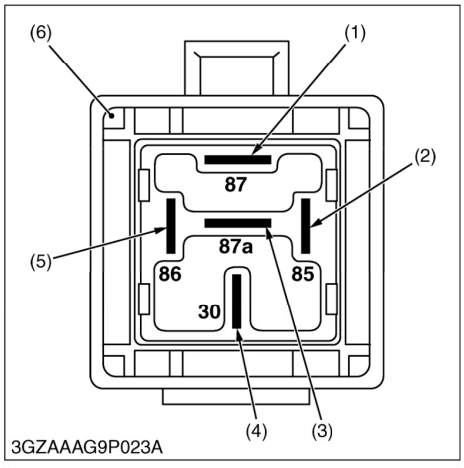
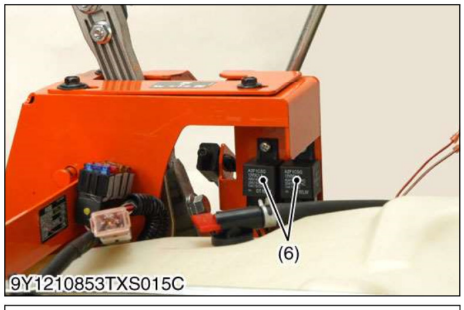
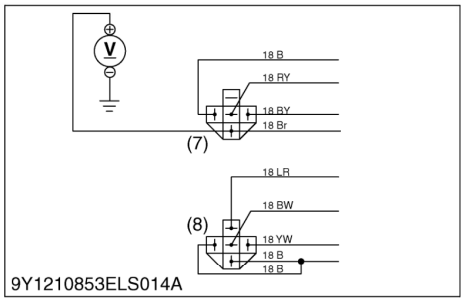
(5) Relay







Relay

1. Disconnect the relay (6) from the connector after turning the main switch off.
2. Remove the relay from bracket.
3. Measure the resistance with an ohmmeter across:
   - Terminal **85** (2) to terminal **86** (5)
   - Terminal **87** (1) to terminal **87a** (3)
   - Terminal **87** (1) to terminal **30** (4)
4. If the resistance differs from the factory specifications, the relay is faulty.

Resistance	Terminal **85** (2) – Terminal **86** (5)	Approx. 90 Ω
	Terminal **87** (1) – Terminal **87a** (3)	0 Ω
	Terminal **87** (1) – Terminal **30** (4)	Infinity

(1) Terminal **87**
(2) Terminal **85**
(3) Terminal **87a**
(4) Terminal **30**
(5) Terminal **86**
(6) Relay (Ignition, Solenoid and Starter)
(7) Seat Relay Connector
(8) Starter Relay Connector

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