WSM

WORKSHOP MANUAL

GR2120EU

Kubota

KiSC issued 07, 2011 A

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GENERAL

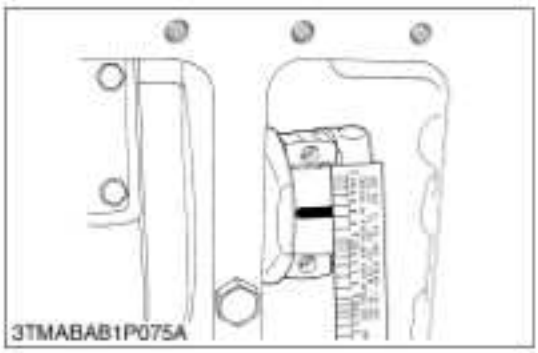
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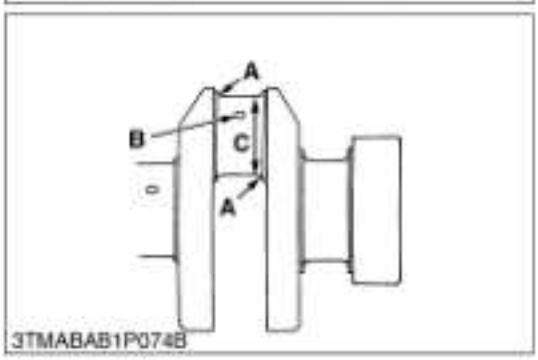
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Crankshaft Alignment

1. Support the crankshaft with V blocks on the surface plate at both end journals.
2. Set a dial indicator with its tip on the intermediate journal.
3. Measure the crankshaft alignment.
4. If the measurement is more than the allowable limit, replace the crankshaft.

Crankshaft alignment	Allowable limit	0.02 mm 0.0008 in.

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Oil Clearance between Crankpin and Crankpin Bearing

1. Clean the crankpin and crankpin bearing.
2. Put a strip of plastigauge on the center of the crankpin.
3. Install the connecting rod cap and tighten the connecting rod screws to the specified torque, and remove the cap again.
4. Measure the amount of the flattening with the scale, and get the oil clearance.
5. If the oil clearance is more than the allowable limit, replace the crankpin bearing.
6. If the same size bearing is useless because of the crankpin wear, replace it with an undersize one referring to the table and figure.

■ **NOTE**

- **Never insert the plastigauge into the crankpin oil hole.**
- **Be sure not to move the crankshaft while the connecting rod screws are tightened.**

Oil clearance between crankpin and crankpin bearing	Factory specification	0.020 to 0.051 mm 0.00079 to 0.0020 in.
	Allowable limit	0.15 mm 0.0059 in.

Crankpin O.D.	Factory specification	33.959 to 33.975 mm 1.3370 to 1.3375 in.
Crankpin bearing I.D.	Factory specification	33.995 to 34.010 mm 1.3384 to 1.3389 in.

(Reference)

- Undersize crankpin bearing

Undersize	Bearing	Code Number	Marking
0.20 mm 0.0079 in.	Crankpin bearing 02	15861-22970	020 US
0.40 mm 0.016 in.	Crankpin bearing 04	15861-22980	040 US

Undersize	0.20 mm 0.0079 in.	0.40 mm 0.0016 in.
Dimension **A**	2.3 to 2.7 mm radius 0.091 to 0.10 in.radius	2.3 to 2.7 mm radius 0.091 to 0.10 in.radius
*Dimension **B**	1.0 to 1.5 mm relief 0.040 to 0.059 in. relief	1.0 to 1.5 mm relief 0.040 to 0.059 in. relief
Dimension **C**	33.759 to 33.775 mm dia. 1.3291 to 1.3297 in. dia.	33.559 to 33.575 mm dia. 1.3213 to 1.3218 in. dia.
The crankpin journal must be fine-finished to higher than Rmax=0.8S *Holes to be de-burred and edges rounded with 1.0 to 1.5 mm (0.040 to 0.059 in.) relief.		

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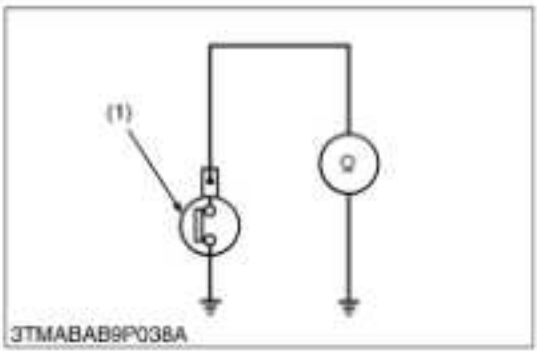
1. TROUBLESHOOTING

Symptom	Probable Cause	Solution	Reference Page
All Electrical Equipments Do Not Operate	Battery discharged or damaged	Recharge or replace	G-29, 7-S6
	Battery positive cable disconnected or improperly connected	Repair or replace	6-S5
	Battery negative cable disconnected or improperly connected	Repair or replace	6-S5
	Slow blow fuse blown (40 A)	Replace	G-46
Fuse Blown Frequently	Short-circuited	Repair or replace	G-46

BATTERY

Symptom	Probable Cause	Solution	Reference Page
Battery Discharges Too Quickly	Battery damaged	Replace	G-29
	Dynamo damaged	Repair or replace	7-S14, 7-S20
	Regulator damaged	Replace	7-S14
	Wiring harness disconnected or improperly connected (between battery positive terminal and regulator **B** terminal)	Repair or replace	–
	Cooling fan belt slipping	Adjust tension	G-34

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Engine Oil Pressure Switch Continuity

1. Measure the resistance with an ohmmeter across the switch terminal and the chassis.
2. If 0 ohm is not indicated in the normal state, the switch is damaged.
3. If infinity is not indicated at pressure over 4.9 kPa (0.5 kgf/cm^2, 7 psi), the switch is damaged.

Resistance (Switch terminal – Chassis	In normal state	0 Ω
	At pressure over approx. 4.9 kPa (0.5 kgf/cm^2, 7 psi)	Infinity

(1) Engine Oil Pressure Switch

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(3) Coolant Temperature Switch



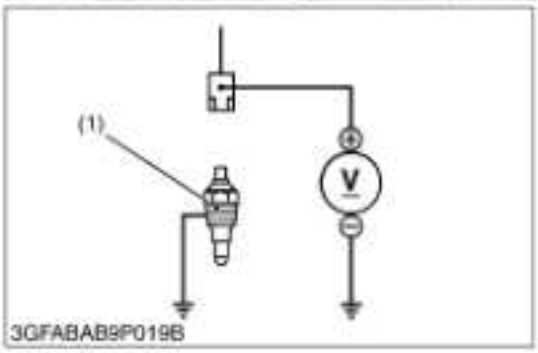
Connector Voltage

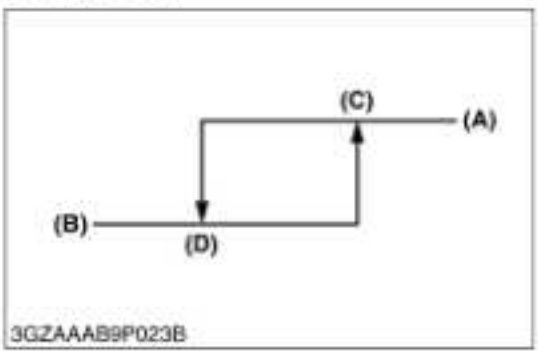
1. Disconnect the **1P** connector from the coolant temperature switch (1).
2. Turn the main switch key to the **"ON"** position, and measure the voltage with a voltmeter between the connector terminal and the chassis.
3. If a certain voltage is not indicated, the wiring harness is damaged.

Voltage (Connector terminal – Chassis)	Factory specification	A certain voltage is indicated

(1) Coolant Temperature Switch

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Switch Continuity

1. Disconnect the **1P** connector, and remove the coolant temperature switch.
2. Using an ohmmeter, check for continuity between the switch terminal and the chassis. The figure shows the operation histeresis
3. If infinity is indicated at temperature over factory specifications, the switch is damaged.

Working temperature	Factory specification	120 to 126 °C 248 to 258 °F

(A) ON
(B) OFF
(C) 120 to 126 °C (248.0 to 258.8 °F)
(D) 116 °C (240.8 °F) or more

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Battery

CAUTION

- **When disconnecting the battery cables, disconnect the negative cable from the battery first. When connecting, connect the positive cable to the battery first.**

1. Open the bonnet.
2. Disconnect the negative cable (1) from the battery.
3. Disconnect the positive cable (2) from the battery and remove the battery (3).

(1) Negative Cable
(2) Positive Cable
(3) Battery

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Seat

1. Turn the seat (1).
2. Disconnect the safety switch connector (2).
3. Remove the seat (1).

(1) Seat
(2) Safety Switch Connector
(3) Wire Harness

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Seat Base and Fender

1. Disconnect the seat connector (1).
2. Remove the screws (2).
3. Remove the support base (3).
4. Move the seat base (4) in ahead.
5. Remove the seat base (4).
6. Remove the lever grips (6), fuel and the cutting height control dial (9).
7. Remove the speed change pedal (10).
8. Remove the fuel tank cap (7) and fender (8).

■ **NOTE**

- **To remove the fender, remove the hydraulic hose from guide first.**

(1) Seat Connector
(2) Screw
(3) Support Base
(4) Seat Base
(5) Seat Base Mounting screw
(6) Lever Grip
(7) Fuel Tank Cap
(8) Fender
(9) Cutting Height Control Dial
(10) Speed Charge Pedal

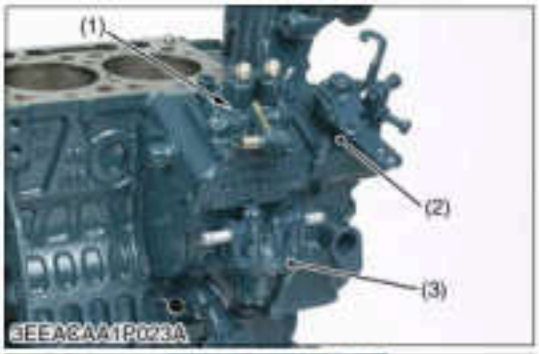
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(2) Gear Case and Timing Gears









Injection Pump, Fuel Feed Pump and Speed Control Plate

1. Remove the socket head screws and nuts, and remove the injection pump (1).
2. Remove the screws and separate the speed control plate (2), taking care not to damage the governor spring (4).
3. Disconnect the governor spring (4) and remove the speed control plate (2).
4. Remove the fuel feed pump (3).

(When reassembling)

- Hook the governor spring (4) to the governor lever (5) first and install the speed control plate (2).
- Be sure to place the copper washers underneath two screws (8). (Two screws (8) in the upper of the speed control plate (2).)
- Position the slot (7) on the fork lever just under the slot (6) on the crankcase.
- Insert the injection pump (1) so that the control rod (10) should be pushed by the idling adjusting spring (9) at its end and the pin (11) on the rod engages with the slot (7) on the fork lever (as shown in the photo).

■ **NOTE**

- **The sealant is applied to both sides of the soft metal gasket shim. The liquid gasket is not required for assembling.**
- **Addition or reduction of shim (0.05 mm, 0.002 in.) delays or advances the injection timing by approx. 0.009 rad (0.5 °).**
- **In disassembling and replacing, be sure to use the same number of new gasket shims with the same thickness.**

(1) Injection Pump
(2) Speed Control Plate
(3) Fuel Feed Pump
(4) Governor Spring
(5) Governor Lever
(6) Slot (Crankcase Side)
(7) Slot (Fork Lever Side)
(8) Screw and Copper Washer
(9) Idling Adjusting Spring
(10) Control Rod
(11) Pin

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Fan Drive Pulley

1. Secure the flywheel to keep it from turning.
2. Remove the fan drive pulley screw.
3. Pull out the fan drive pulley with a puller.

(When reassembling)

- Install the pulley to crankshaft, aligning the mark (1) on them.
- Apply engine oil to the fan drive pulley retaining screw. And tighten it.

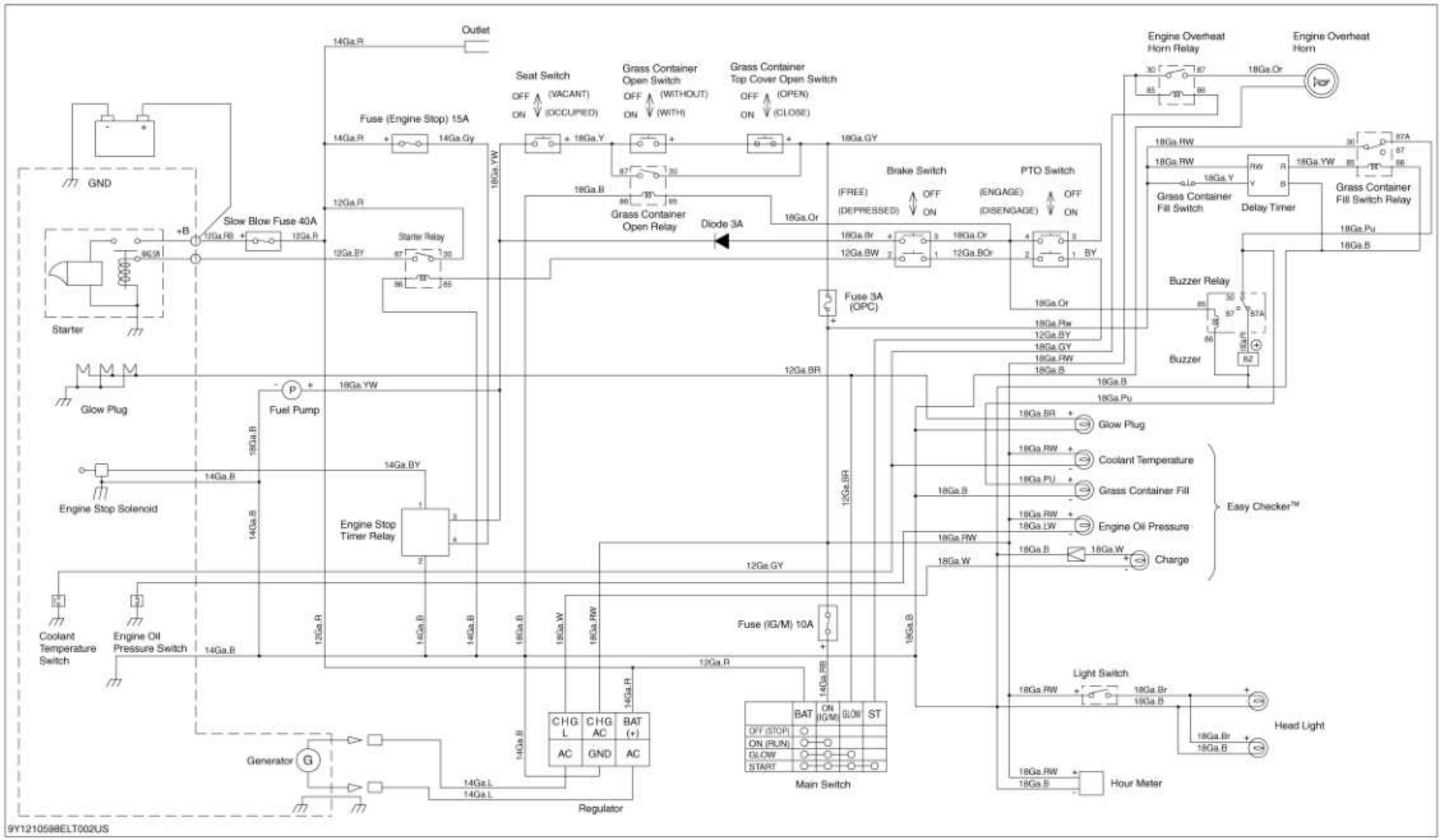
Tightening torque	Fan drive pulley screw	118 to 127 N·m 12.0 to 13.0 kgf·m 86.8 to 94.0 lbf·ft

(1) Alignment Mark

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[2] GR2120F, GR2120EU



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