WSM

WORKSHOP MANUAL

DIESEL ENGINE

ELECTRONIC GOVERNOR

Kubota

KiSC issued 04, 2021 A

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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.**

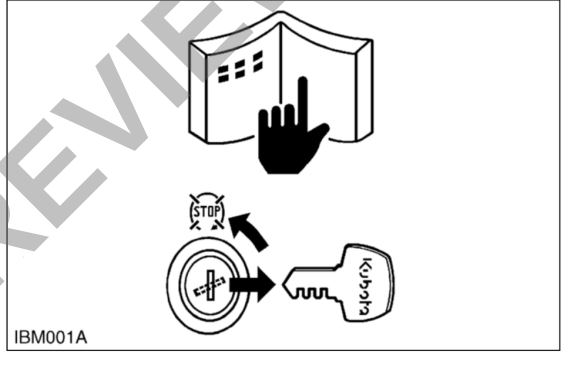
WARNING
- **Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.**

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.**

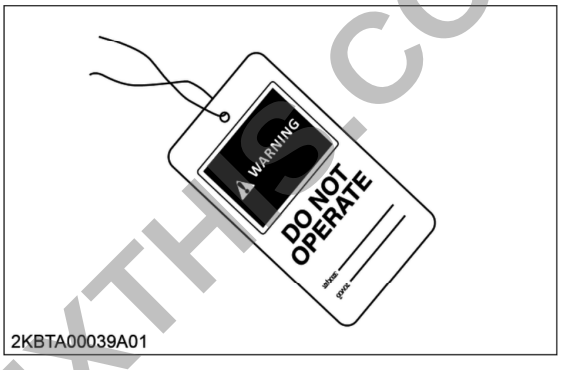
NOTE
- **Gives helpful information.**

1. Working precautions



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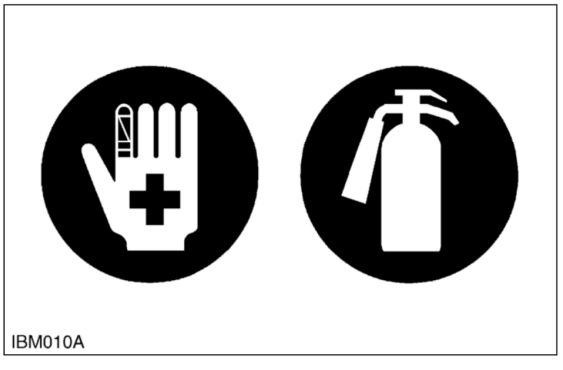
- Understand all safety instructions and safety labels in this manual.
- Park the machine on a stable and level ground then lower the attachment to check the machine safely.
- Stop the engine and remove the key when leaving the operator's seat for cleaning, maintenance, and servicing.



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- 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


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- 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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2. Structure of electronic governor

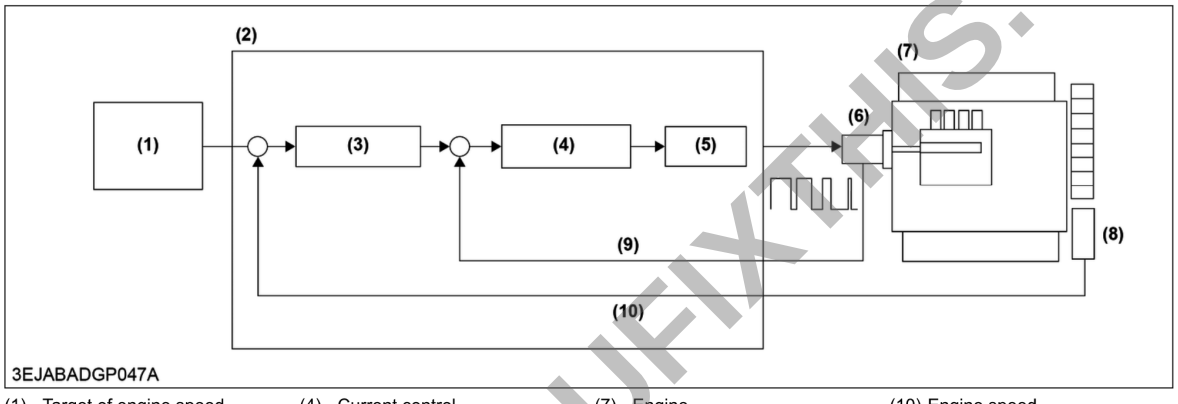
The electronic governor consists of the mechanical governor, the actuator, the other sensors and ECU.

2.1 Software block diagram

■ **NOTE**

- **The signal of engine speed sensor and the actuator are used as a feedback signal. The signal of actuator is calculated as the mount of fuel injection by ECU.**

Software block diagram



(1) Target of engine speed
(2) ECU
(3) Speed control
(4) Current control
(5) Pulse width modulation
(6) Actuator
(7) Engine
(8) Engine speed sensor
(9) Current of actuator
(10) Engine speed

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2.3 Component parts

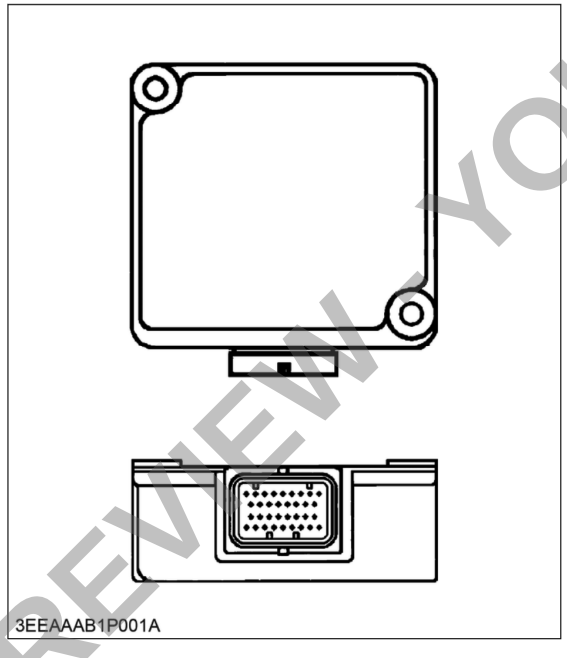
2.3.1 Function of control unit

It processes the speed signal received from the speed sensor and compares it to a reference speed set with calibration program. The output of the control unit is a pulse width modulated signal to the actuator.

[ECU specifications]

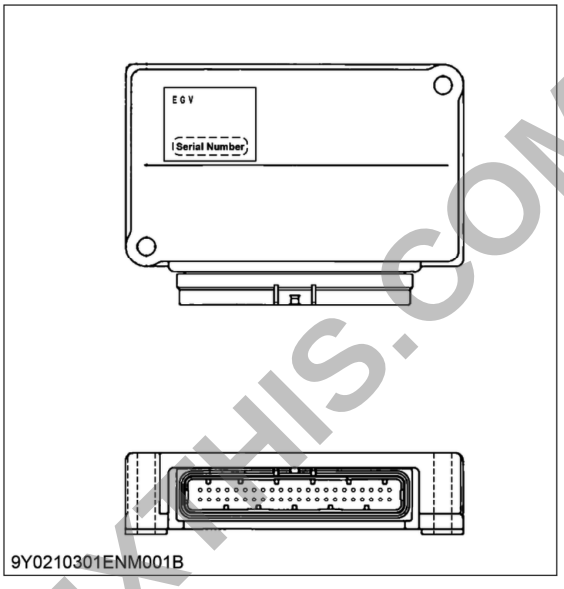
	EGV01/ EGV09	EGV06	EGV08
Operating temperature	-30 to 65 ℃ -22 to 149 ℉	-30 to 80 ℃ -22 to 176 ℉	-30 to 80 ℃ -22 to 176 ℉
Storage temperature	-40 to 85 ℃ -40 to 185 ℉	-30 to 85 ℃ -22 to 185 ℉	-45 to 85 ℃ -49 to 185 ℉
Operating voltage range	10 to 16 V		
Working voltage range	8 to 16 V		
Tightening torque	7.0 to 9.0 N·m 0.72 to 0.91 kgf·m 5.2 to 6.6 lbf·ft		

EGV01/EGV09



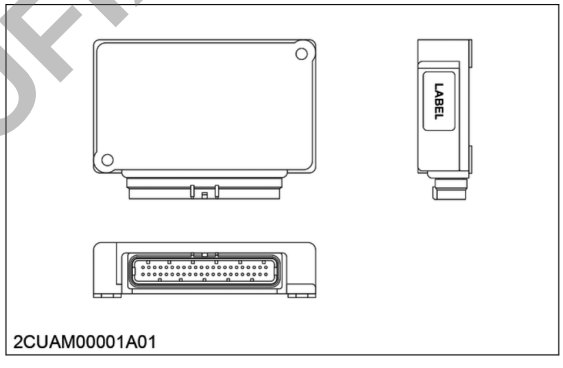
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EGV06



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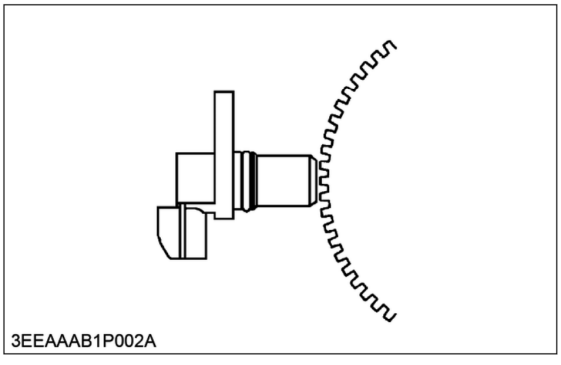
EGV08



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2.3.2 Function of speed sensor

The speed sensor senses engine speed by converting mechanical motion into electrical signals.



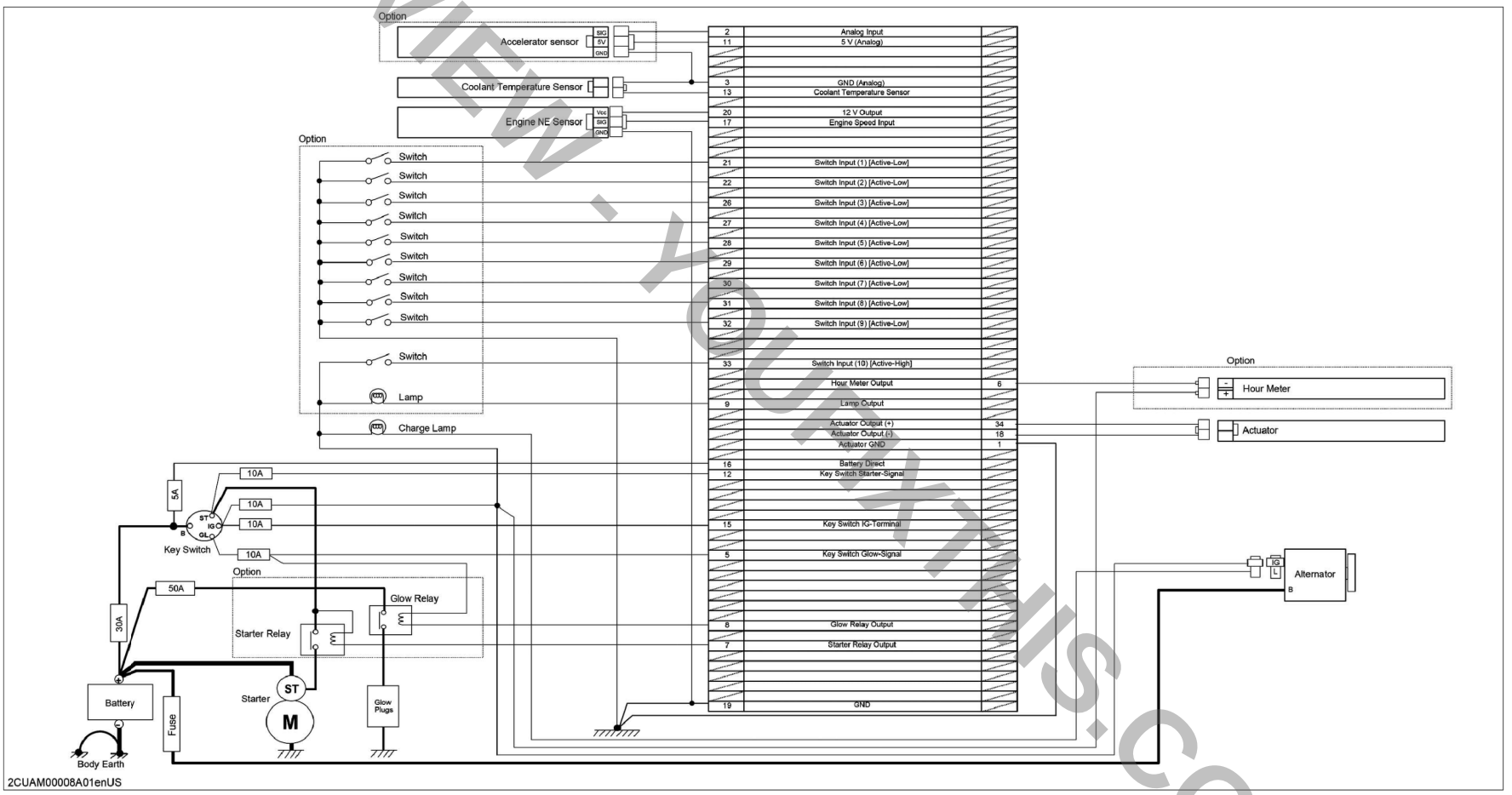
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4. Specification of electronic governor

4.1 Wiring diagram

EGV01/EGV09 (Connection Example)



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4.2 Terminal layout (EGV01/EGV09)



9Y0210301ENM002A

Terminal No.	Name	Terminal No.	Name
1	Actuator GND	18	Actuator
2	Blank	19	GND
3	Blank	20	Engine speed sensor power (+12 V)
4	Blank	21	Blank
5	Glow (Main key SW)	22	Blank
6	Hour meter	23	Blank
7	Starter relay	24	Blank
8	Glow relay	25	Blank
9	Glow lamp	26	Alternator (L terminal)
10	Blank	27	Oil SW
11	Blank	28	Coolant temp. SW
12	Start (Main key SW)	29	Emergency stop SW
13	Coolant temp. signal	30	Machine select SW
14	Blank	31	Blank
15	ACC (Main key SW)	32	50/60 Hz select SW
16	B (Main key SW)	33	Response SW
17	Engine speed signal	34	Actuator

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SERVICING

1. Troubleshooting

1.1 Troubleshooting for engine

■ IMPORTANT

- **The engine trouble divides into an electronic governor, the main body of engine and the operating constancy.**
  In this manual, contents specific to the components of electronic governor are described.
  If the trouble is not resolved in this WSM, refer to the WSM of applicable engine series.

Symptom	Probable cause and checking procedure	Solution	Reference page
Engine will not start.	1. Starter operating but not cranking the engine	Check the actuator	2-23
		Check the glow plug harness	2-23
	2. Starter does not operate	Check the emergency stop switch	2-25
Engine stopped automatically. Engine can be started again and stops again 10 seconds later.	1. Trouble in the electronic governor composition parts	Checking pattern of the glow lamp. If glow lamp does not equipped, engine warning lamp is blinking instead of glow lamp.  (1) Glow lamp	2-18
		[EGV06/EGV08] Check DTC by CAN communication at panel of machine side	2-20
Engine speed cannot be controlled.	1. Engine speed does not increase/decrease	Check the slow down switch	2-25
		Check the speed switch	2-24
		Check the actuator	2-23
		Check CAN communication	—
		Check the speed sensor	2-21
	2. Engine runs rough	Check the actuator	2-23
		Check the speed sensor	2-21

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