SEBE6161A16

SHOP MANUAL

KOMATSU®

6D170-1 SERIES DIESEL ENGINE

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CONTENTS OF ELECTRONIC GOVERNOR CONTROL

No.	Item	Contents
1	Selection of droop/isochronous	Droop control (Revolution changes according to the load) or isochronous control (Revolution is kept at the rated speed, regardless of the load) is selected with switch input.
2	Selection of LI/rated speed	Low-idling speed or rated speed is selected with switch input.
3	Adjustment of LI speed	Engine speed is changed with the rpm adjustment control knob during low idling. Upper limit : 900 rpm, Lower limit : 700 rpm
4	Adjustment of frequency (In isochronous control mode)	Rated speed is adjusted with outside control knob. Adjustment range : Approx. ± 50 rpm, Judgment : 15 msec
5	Selection of droop (adjustment) (In droop control mode)	Regulation is changed with droop adjustment knob during high idling from about 3% to 5%.
6	Adjustment Hi speed (In droop control mode)	Engine speed is adjusted with speed control switches (Speed raising switch and speed lowering switch) during high idling. Speed adjustment range : Approx. 0)100rpm Adjusting speed : Approx. 5rpm/sec, Judgment : 50msec Initial set engine speed (set when power is reset) is shown in separate table.
7	LI isochronous control	Engine speed is kept constant during low idling, regardless of load.
8	Selection of frequency (50/60Hz)	50Hz or 60Hz is selected with switch input.
9	Emergency stop function (Error signal output)	Engine is stopped when oil pressure lowers, water temperature rises or he engine overruns, and error signal is output to outside.
10	Injection rate control function for start	Fuel injection rate is control so that engine will start easily.
11	Overrun-preventive function	If engine speed exceeds set value, fuel is turned off and stop signal is output to outside. Set value : (1) 2070rpm (by software) (2) 2300rpm (by hardware)
12	Diagnosis function	If electronic governor system has trouble, set measures are taken and error signal is output to outside. (See next item.)
13	Memory clearing function	Error signal to outside is reset. (See next item.)
14	Sharp acceleration limiting speed	When engine is accelerated sharply, full rack position is limited to prevent production of black smoke.
15	Pre-operating function of rack	Rack is moved to reduce sliding resistance before engine is started at low temperature.
16	Overspeed testing function (Used only during test)	While LI/Hi selector switch is set to Hi position, overspeed operation can be executed with external input. Engine speed is adjusted with speed control switch in droop control mode and with control knob in isochronous control mode.

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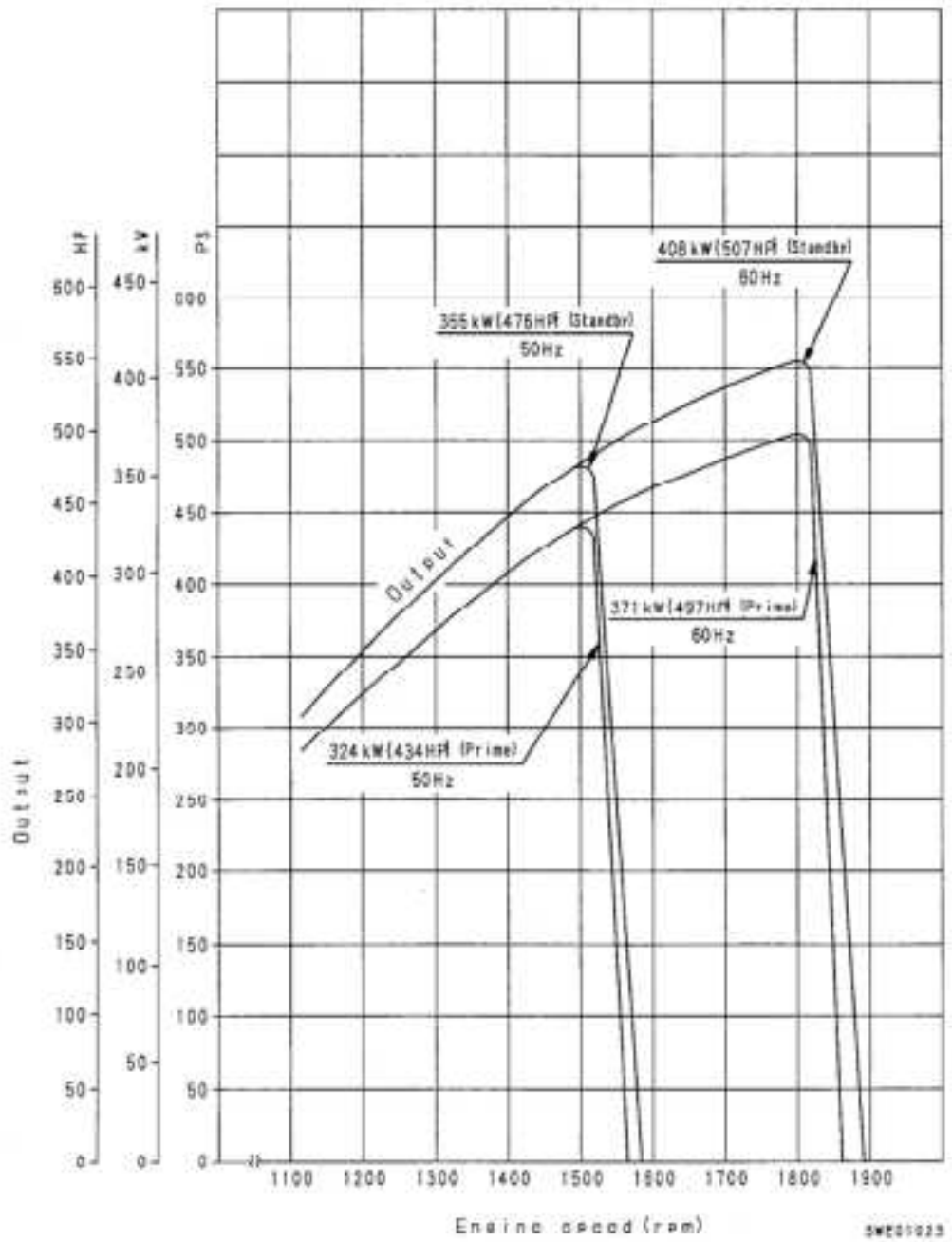
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S6D170-1 (OEM for generator)

Flywheel horsepower :

Prime use : 324 kW {434 HP} 1,500 rpm (50 Hz)
371 kW {497 HP} 1,800 rpm (60 Hz)

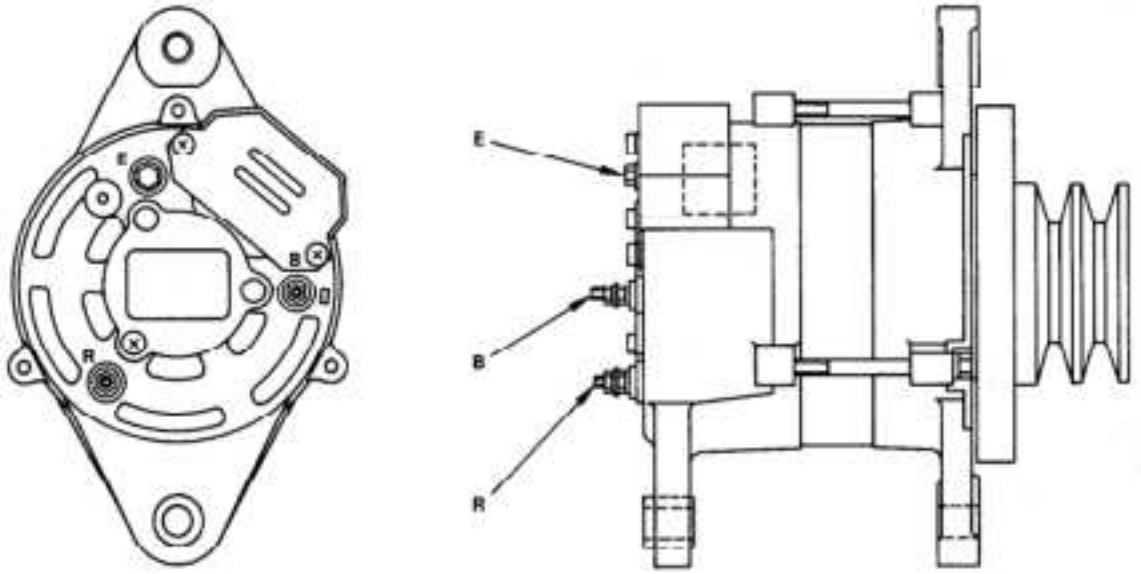
Stand by use : 355 kW {476 HP} 1,500 rpm (50 Hz)
408 kW {547 HP} 1,800 rpm (60 Hz)



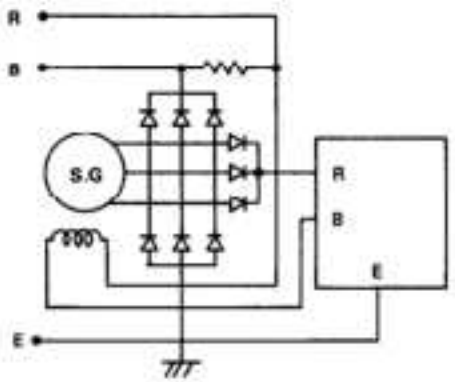
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ALTERNATOR BUILT-IN REGULATOR



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B.E.R: Terminal

Wiring diagram F6161A022

Engine	Applicable machine model	Type	Specifications	Pulley outside diameter (mm)	Weight
SA6D170-A-1	EPSA6D170-A-1	Nikko Denki, Open type	24V, 25A	95	8.5 kg
SA6D170-B-1	EPSA6D170-B-1	Nikko Denki, Open type	24V, 25A	95	8.5 kg

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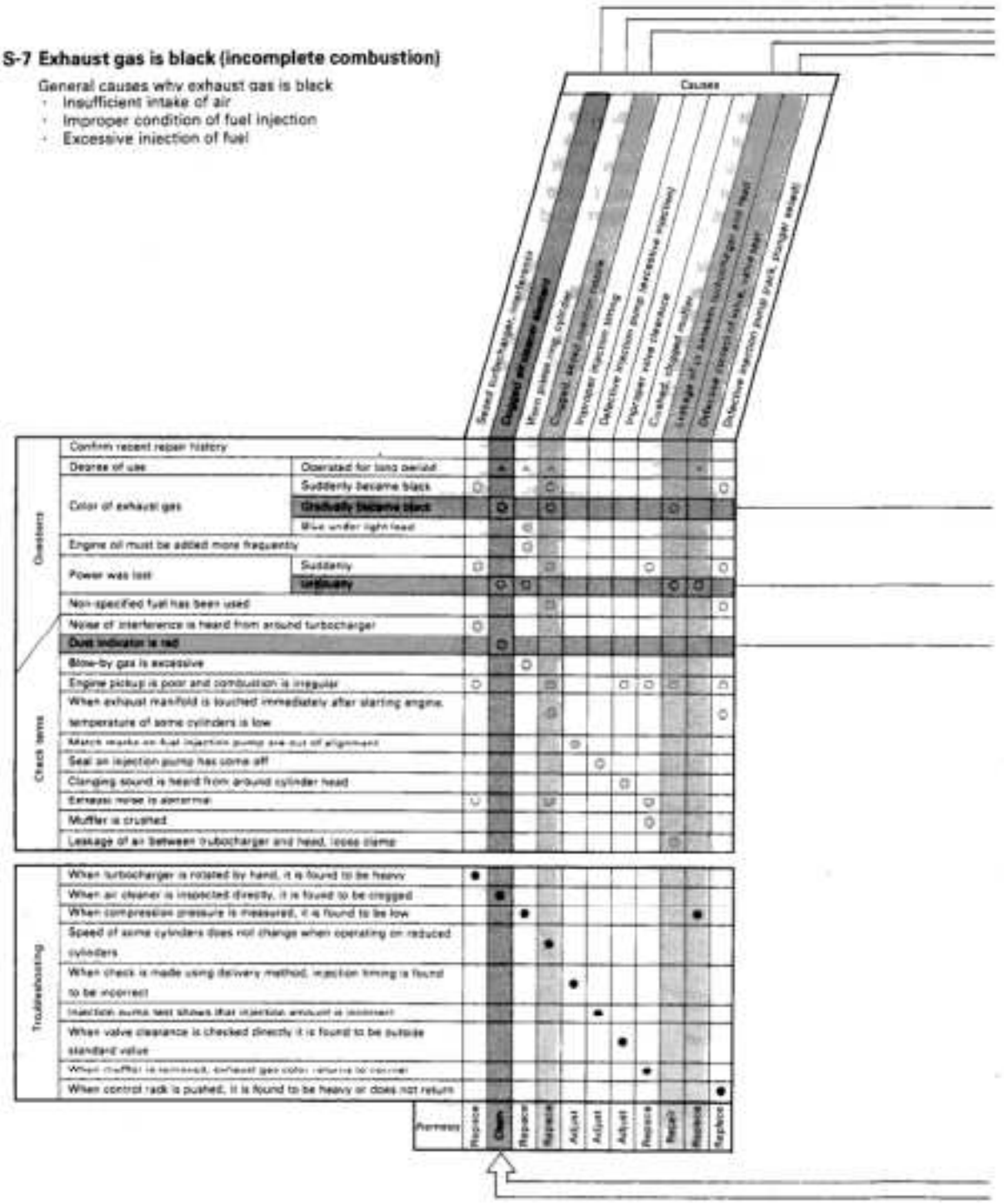
· Example of troubleshooting when exhaust gas is black

Let us assume that [Clogged air cleaner] is taken to be the cause of black exhaust gas. Three symptoms have causal relationship with this problem: [Exhaust gas slowly became black], [Power slowly became weaker], and [Dust indicator is red].

If we look from these three symptoms to find the causes, we find that there is a relationship with five causes. Let us explain here the method of using this causal relationship to pinpoint the most probable cause.

S-7 Exhaust gas is black (incomplete combustion)

General causes why exhaust gas is black
- Insufficient intake of air
- Improper condition of fuel injection
- Excessive injection of fuel



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