

# AIRMAN GENERATOR

## 150 KVA ( 120 KW )

### (JAP)



# SPECIFICATIONS

OF

DIESEL GENERATOR SET

Model: SDG150S-3A6

**AIRMAN**<sup>®</sup>

**HOKUETSU INDUSTRIES CO., LTD.**

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## 1. GENERAL

### 1-1 Structure

The generator set is designed direct coupling with brushless type of generator and diesel engine. The A.C. generator and diesel engine are mounted on the robust steel skid frame with radiator, fuel tank and control panel.

It is provided large doors on both sides of unit and constructed to have easy daily maintenance works.

Moreover, it is put large inhalation of air and discharge duct on and make lining for sound absorption inside the unit. It is also installed large discharge silencer to have good effect of soundproof.

All control devices, operating switches and meters are positioned on a control panel so that it is easy to operate.

### 1-2 Applicable Standards

The generator is designed, manufactured and tested in accordance with the following standards.

JIS	Japanese Industrial Standards
JEM	Standard of the Japan Electrical Manufacturers' Association
JEC	Standard of the Japanese Electrotechnical Committee

### 1-3 Site Conditions

(Unless otherwise specified the generator shall be able to keep the performances.)

Temperature	-15°C~+40°C
Humidity	below 85%
Altitude	below 1,000m (Above sea level)

### 1-4 Standard condition

The rated output is assumed to be a value in a standard JIS atmospheric condition.

Atmospheric temp.	25 °C
Humidity	30%
Atmospheric pressure	100kPa

### 1-5 Strong point

The second exhaust gas restriction

Super low noise approval (less than 92 dB/sound power level)

Dual voltage switch equipment

(200/220(50Hz/60Hz) 3 Phase and 400/440(50Hz/60Hz) 3 phase)

Leakage protection device standard equipment

## 2. Specification

### 2-1 Dimensions & Weight

Model name	SDG150S-3A6	
Overall length	Approx.	2,990 mm
Overall width	Approx.	1,180 mm
Overall height	Approx.	1,480 mm
Net dry mass	Approx.	2,180 kg
Operating mass	Approx.	2,430 kg

Allowable inclination of the machine below 5°

### 2-2 Capacity for Water, Oil, and Battery

Cooling water capacity	22	Liters
Fuel tank capacity	250	Liters
Lubricating oil capacity	24.5	Liters
Battery	95D31R-MF x 2	

### 2-3 Painting Color

External painting	Peaceful Green Kawakami SP-189
External painting of frame	Charcoal Gray Kansai paint NS-388-X31

### 3. Generator

#### 3-1 A.C. Generator

		Dual Voltage type	
Type		Revolving field brushless type	
3P, 4W	Output	125/150 kVA (100/120 kW)	
	Voltage	200/220 V	400/440 V
Current		361 / 394 A	180 / 197 A
Frequency		50/60 Hz	
No. of phases		3phase 4wire	
No. of poles		4	
Power factor		80%	
Rated revolution		1,500/1,800 min <sup>-1</sup> (1,500/1,800 rpm)	
Class of insulation		Class F	
Class of rating		Continuous	
Driving system		Direct coupled to engine	
Connection		Star Connection	

#### 3-2 Rise of Temperature

When the ambient temperature is 40°C, the temperature of the following components shall be within the limit of the following figure.

Armature winding	105K (105deg) (Insulation class F)
Field winding	110K (110deg) (Insulation class F)
Bearing	40K (40deg)

#### 3-3 Dielectric test

An approximately sine wave form voltage of commercial frequency in the following table shall be applied for one minute.

Appropriate if no trouble takes place in such test.  
(not include AVR)

Between armature winding and earth	AC 1500V (one minute)
Between field winding and earth	AC 1500V (one minute)
Between control panel and earth	AC 1500V (one minute)

#### 3-4 Steady state voltage regulation

The steady state voltage regulation shall be maintained between  $\pm 1.5\%$  from full load to no load.

## 4. Diesel Engine

4-1	Maker	HINO
	Model	J08C-UD
	Type	Water-cooled 4 cycle, direct injection turbocharged with Intercooler
	No. of cylinder	6
	Bore dia. × stroke	114 mm × 130 mm
	Total displacement	7.961 L
	Rated output	120 kW / 1,500 min <sup>-1</sup> 143.3 kW / 1,800 min <sup>-1</sup>
	Dry weight	580 kg
	Diesel fuel	Cetane Value over 45
	Cooling system	Water-cooled
	Charging generator	24V, 35 A
	Starter motor	24V, 4.5 kW
	Engine Oil	API, Up to CD class, SAE 10W-30

### 4-2 Fuel consumption (reference value)

Frequency	50 / 60 Hz
Full load	27.8 / 32.1 L/Hr
75% load	19.4 / 24.3 L/Hr

## 5. Protection

	Engine stop	Breaker trip	Warning lamp on	Actuating
Engine oil pressure	○	○	○	Engine oil pressure drop Actuating pressure 0.05MPa
Engine water temp.	○	○	○	Engine water temp. rise Actuating temp. 105 °C
Overcurrent, Short circuit		○		Overcurrent and Short circuit
Leakage		○	○	Leakage Actuating current 30mA
Battery			○	Not charging
Air filter			○	clogging of air filter

This machine have above devices which are equipped to protect from each trouble during operation. The mark ○ means to function for each kind of trouble.



## 6. Control Panel

### 6-1 Control panel for A.C. generator

1) Voltmeter	1pc.
2) Ammeter	1pc.
3) Frequency meter	1pc.
4) Voltage regulator	1pc.
5) Ammeter change-over switch	1pc.
6) Leakage relay	1pc.
7) Circuit breaker	1pc.
8) Circuit breaker to single phase	1pc.
9) Output indicator lamp (200V - 400V)	1pc.
10) Synchronous detection lamps	1pc.
11) Synchronizing switch	1pc.

### 6-2 Control panel for engine

1) Starter switch	1pc.
2) Speed control knob	1pc.
3) Glow lamp/warning lamp	1pc.
4) Engine tachometer current (with hour meter)	1pc.
5) Fuelmeter	1pc.
6) Coolant temperature gauge	1pc.
7) Oil pressure gauge	1pc.
8) Panel light	1pc.
9) Panel light switch	1pc.

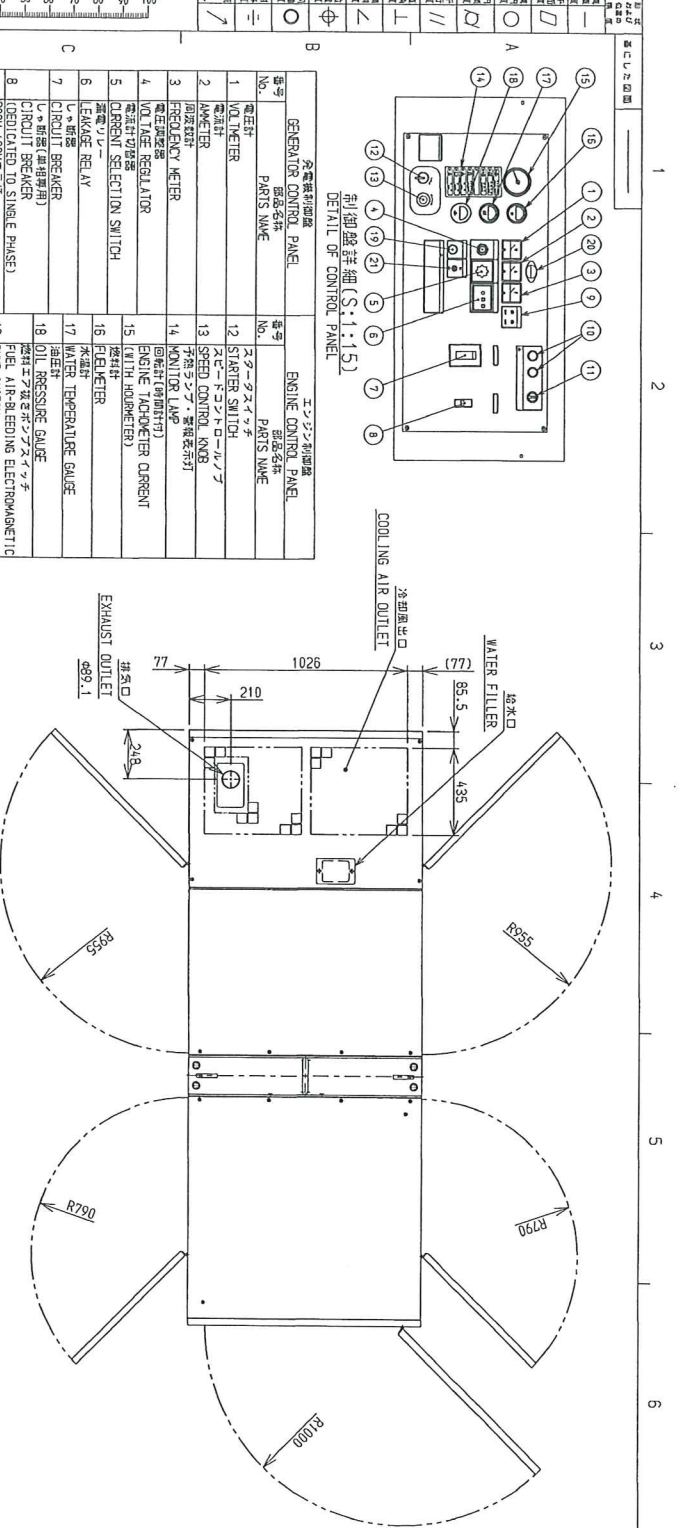
※Warning lamps

Engine oil pressure drop Engine water temperature rise Leakage Not charging Air filter clogging	1 set
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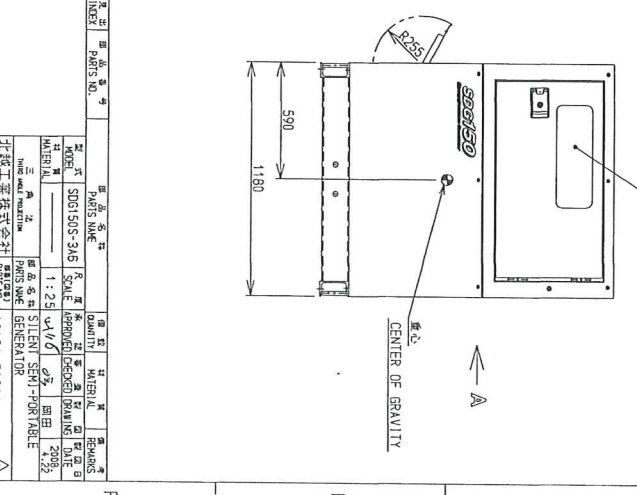
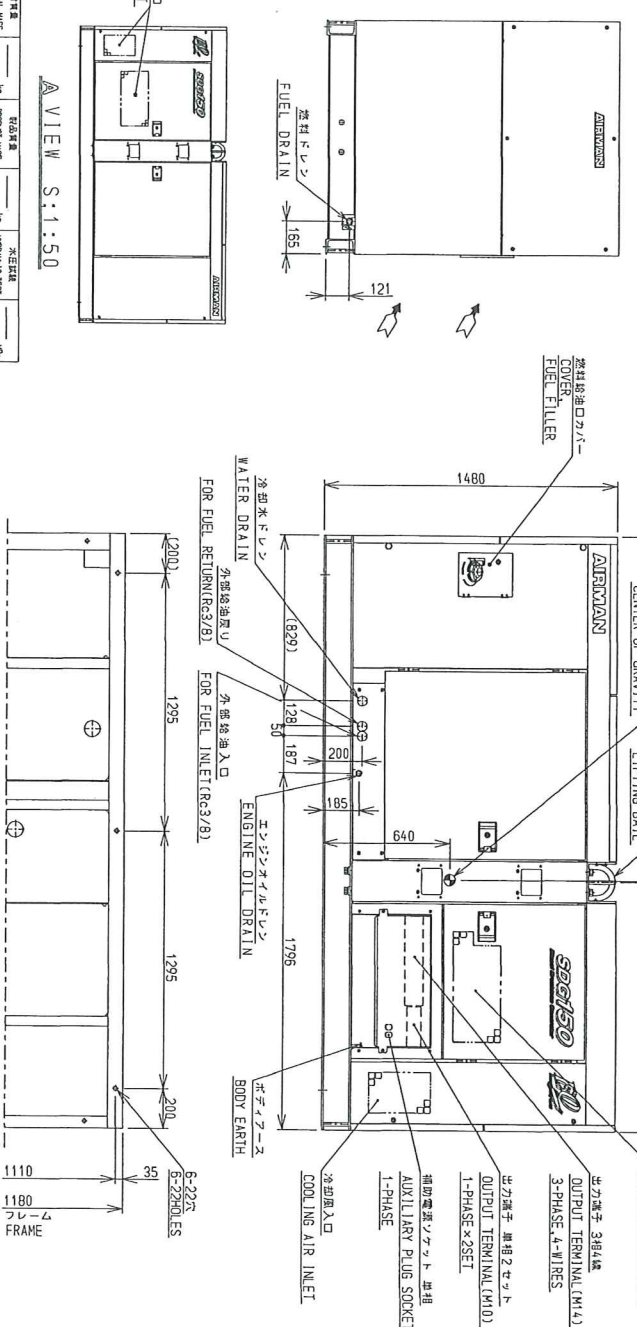


性能仕様 (Performance Specs)		注意 (Notes)	
13.50 (1)	50 (2)	12.00 (1)	50 (2)
6.50 (3)	20 (4)	10.00 (3)	20 (4)
1.500 (5)	0.800 (6)	1.000 (5)	0.800 (6)

SPECIFICATION	
MODEL	回機形タイプ 1相/4極 3Φ-4-WIRES 80-K
PHASES	3Φ-4-WIRES 80-K
POWER FACTOR	80-K
FREQUENCY	50/60Hz
VOLTAGE	125/150kVA(100/120kVA)
OUTPUT	200/400・220/440V
CURRENT	381/180・394/197A
TYPE	1500/1800 min <sup>-1</sup>
MODEL	10/11kVA×2 100/110V
TYPE	自然自動機 208C-UD 水圧式冷却装置、直接噴射、ターボチャージ、インターコールド
TYPE	5
DISPLACEMENT	7.98 l
TOTAL STROKE VOLUME	APPROX. 2,180kg
NET OPERATING MASS	APPROX. 2,430kg
OPERATING MASS	



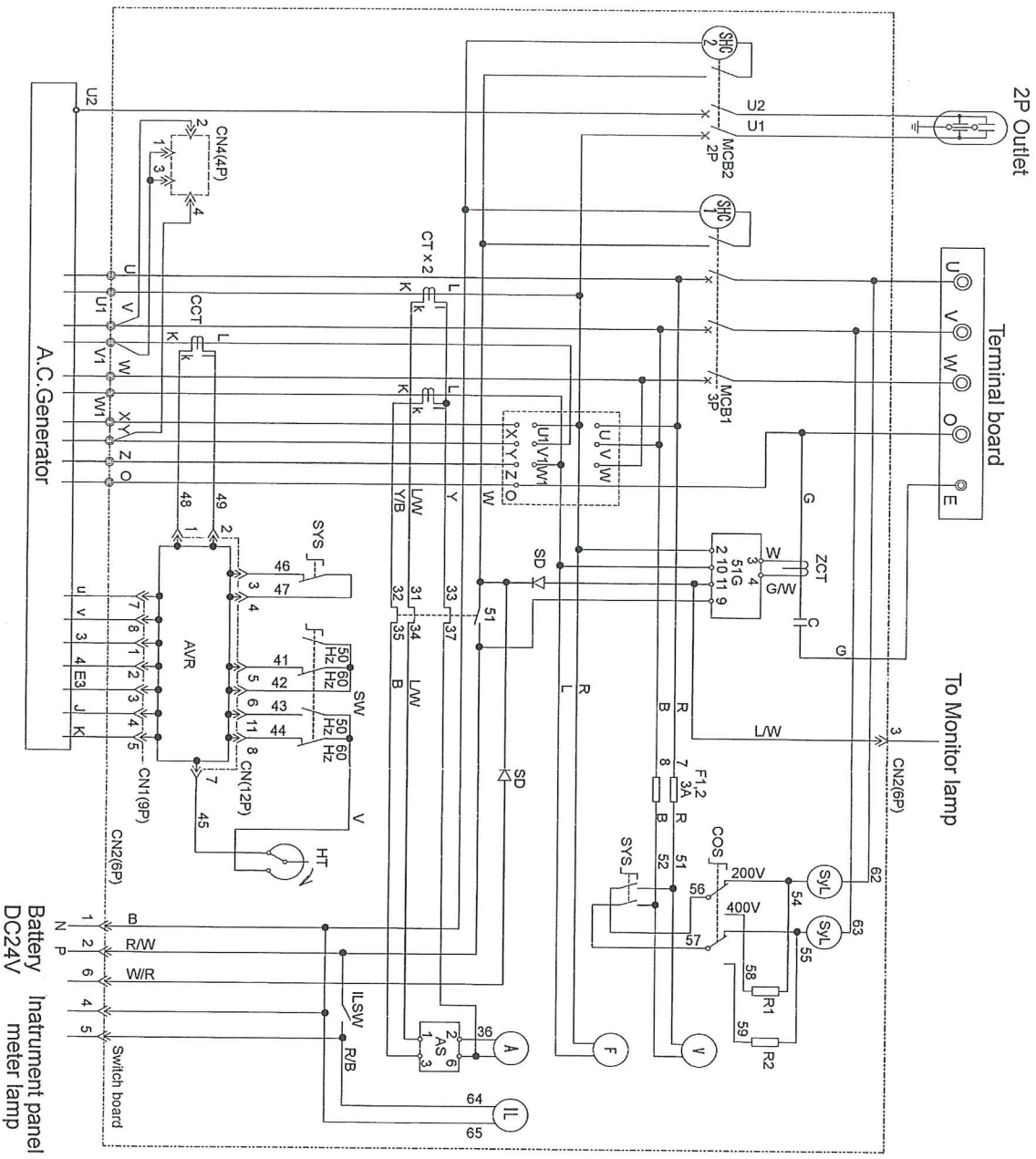
発電機制御盤 (GENERATOR CONTROL PANEL)		エンジン制御盤 (ENGINE CONTROL PANEL)	
番号 (No.)	部品名 (PARTS NAME)	番号 (No.)	部品名 (PARTS NAME)
1	VOLTMETER	12	スタータスイッチ (STARTER SWITCH)
2	AMMETER	13	スピードコントロール (SPEED CONTROL knob)
3	FREQUENCY METER	14	モニターランプ (MONITOR LAMP)
4	VOLTAGE REGULATOR	15	エンジンタコメーター (エンジン制御用) (ENGINE TACHOMETER (ENGINE CONTROL))
5	CURRENT SELECTION SWITCH	16	燃料計 (FUELMETER)
6	レガージュレリ (LEGAUGE RELAY)	17	水温計 (WATER TEMPERATURE GAUGE)
7	リブブレーキ (リブ) (RIB BRAKE (RIB))	18	油圧計 (OIL PRESSURE GAUGE)
8	CIRCUIT BREAKER (CIRCUIT BREAKER)	19	燃料空気供給電磁気スイッチ (FUEL AIR SUPPLY ELECTROMAGNETIC SWITCH)
9	出力検出ランプ (OUTPUT DETECTION LAMP)	20	パネルランプ (PANEL LIGHT)
10	同期検出ランプ (同期) (SYNCHRONOUS DETECTION LAMP (同期))	21	パネルランプスイッチ (PANEL LIGHT SWITCH)
11	同期調整スイッチ (同期調整) (SYNCHRONIZING SWITCH (同期調整))		



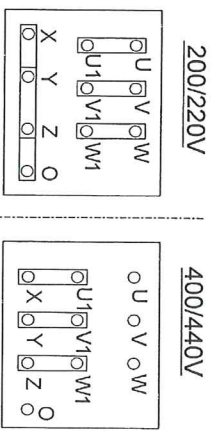
INDEX	部品番号 (PARTS NO.)	品名 (PART NAME)	図面番号 (DRAWING NO.)	数量 (QUANTITY)	材質 (MATERIAL)	備考 (REMARKS)
1	3003-S05-S-316	SCALE	11	1	ステンレス	
2	VAV	バルブ	11	1	ステンレス	
3		SILENT SEMI-PORTABLE GENERATOR				

# 9. Wiring Diagram

## 9.1 Generator wiring Diagram



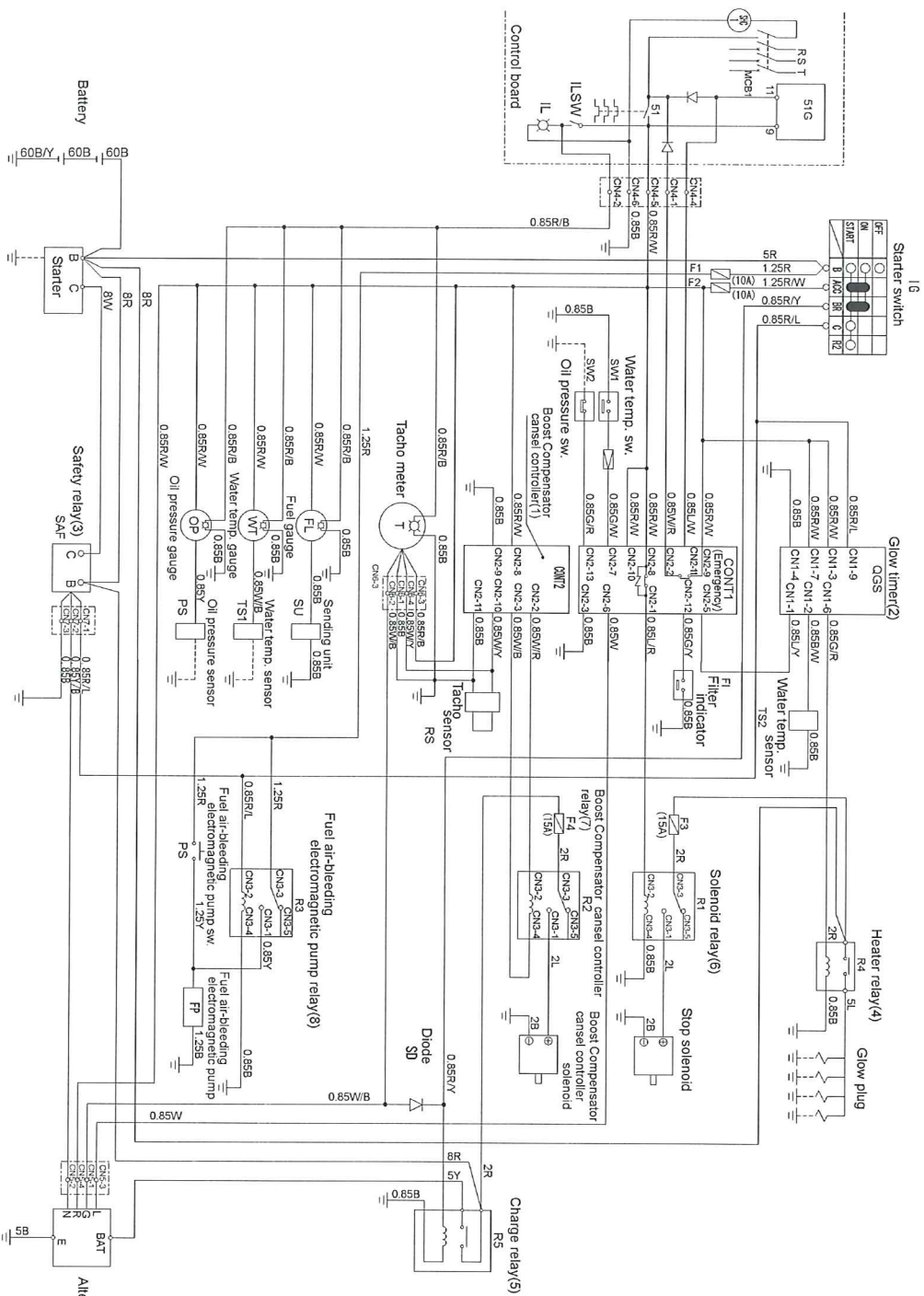
B	Black
Y	Yellow
L	Blue
G	Green
R	Red
W	White
Br	Brown
O	Orange
V	Violet
Gr	Gray



Procedure for voltage selection

# 9. Wiring Diagram

## 9.2 Engine Wiring Diagram



Connector terminal arrangement  
The following arrangement is seen from the side of the connector inserting port.

