

SPECIFICATIONS

MITSUBISHI HIGH SPEED DIESEL ENGINE MODEL MITSUBISHI S4K-DT65SAG △

(For GENERATOR, 1500rpm)

APPLICATION
FOR APPROVAL



PLEASE RETURN AFTER APPROVAL

APPROVED		REMARKS		
DATE · SIGNATURE				
DATE Jun. 30. 2009				
MITSUBISHI HEAVY INDUSTRIES, LTD.				
CHG	DATE	APPROVED	CHECKED	DRAWN
			<i>K. Taketani</i>	T. Igusa
			<i>K. Sawazaki</i>	
			<i>M. Oyamada</i>	
△	Sep. 12. 2012	<i>R. Nagase</i>		

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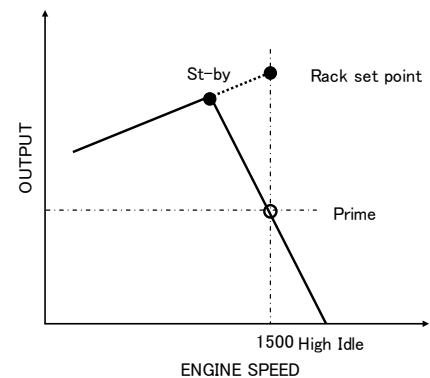
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1. Principal Particulars of Diesel Engine

General Specification

Standard	All items, unless otherwise specified, are in accordance with JIS and maker's standards
Model	Mitsubishi S4K-T S4K-DT65SAG
\triangle	MHI No. 34200-01740 (1/2-CHG2, 2/2-CHG1)
Application	Generator
Regulations	No emission regulated type
Type	4 cycle water-cooled, vertical overhead valve, cylinder in line, direct injection type
Number of cylinders	4
Bore × Stroke	102mm × 130mm
Piston displacement	4.249 liters
Compression ratio	17 : 1
Rotation	Anti-Clockwise rotation as viewed from flywheel side
Firing order	1-3-4-2
Engine weight(Dry)	Approx. 350kg
Dimensions(Length)	Approx. 894mm
(Width)	Approx. 741mm
(Height)	Approx. 929mm
Inclination(Continuous)	Max.15°
(Temporary)	Max.15°
Fuel	ASTM diesel fuel oil No.2-D(JIS K2204 gas oil specification No.2 or 3)
Lubricating oil	API classification service CF,CF-4 or CH-4 class
Output(Without fan)	Spec.Rating Breaking in around 50hr
Rated speed	1500rpm St-by ; 59.7kW Prime ; 54.7kW
Rack set point	59.7kW/1500rpm (With Fan St-by;59kW) (With Fan Prime,54kW)
Rating tolerance	±5% of nominal
Low Idle	1000±20rpm
High Idle	1583(0/-20)rpm
Rating conditions(Without fan)	JIS B 8002 Total barometric pressure : 100kPa Air temperature : 298K Relative humidity : 30%
Fuel consumption	Approx. 235g/kW·h at Prime output and standard air conditions(Without fan)
\triangle	
\triangle Oil consumption	Approx.0.1~0.3% of fuel consumption<Reference value>@ Full load, Rated speed
Fuel injection timing	20°BTDC
Mean effective pressure	1.03MPa{ 10.5kgf/cm ² } at Prime(Without fan)
Piston speed	6.5m/s at 1500rpm



Fuel system

Fuel injection pump	In-Line type
Fuel injection nozzle	Multi-Hole type
Governor	Mechanical centrifugal type
Fuel filter	Filtering paper type
Fuel pump	Yes(Engine attached)

Lubricating system

Lubricating system	Forced lubrication by gear pump
Lubricating oil filter	Filtering paper type, full flow
Oil pressure	0.2~0.4MPa{2~4kgf/cm ² } at duty run 0.1MPa{1kgf/cm ² } min. at low idling
Oil capacity	Approx. 13.0 liters (Oil pan high level 12 liters,Oil filter etc. Approx. 1 liters,High ~ Low Approx. 2.8 liters)
Oil dipstick	Standard dipstick
Oil pressure switch	Yes
Oil pressure unit	Yes
Oil cooler	Plate type

Cooling system

Cooling system	Forced circulation of fresh water by centrifugal pump with thermostat
Engine water capacity	Approx. 6 liters
Cooling fan	580mm diameter, 7 blades, pusher
Water pump pulley	PCD 173mm
Pulley ratio	1.00 (Crankpulley : Water pump pulley = 173:173)
Fan spacer	60mm thickness
Water temp. switch	Yes
Thermo. Unit	Yes
Thermostat	Open at 71deg.C - full open at 85deg.C

Electrical system

Alternator	24V-35A
Voltage regulator	IC type (Built in alternator)
Regulator set voltage	28.5 ± 0.5V
Alternator pulley	PCD 80mm
Starting system	Electric starting
Starter motor	24V-5kW
Air heater	22V,95A
Engine shut off system	Electric solenoid (ETS)

Intake and Exhaust system

Air intake	Engine rear side of turbo charger
Exhaust outlet	Engine front side of turbo charger
Induction Resistance	Max 1.96kPa{200mmH ₂ O}(Initial stage)
Exhaust Back Pressure	Max 4.0kPa{408mmH ₂ O}

Turbo system

Manufacturer	Mitsubishi Heavy Industries,Ltd.
Type	TD06H

<Remarks>

Engine color	Black(MHI standard color)
△ Flywheel	11-1/2inch
Flywheel housing	SAE #3

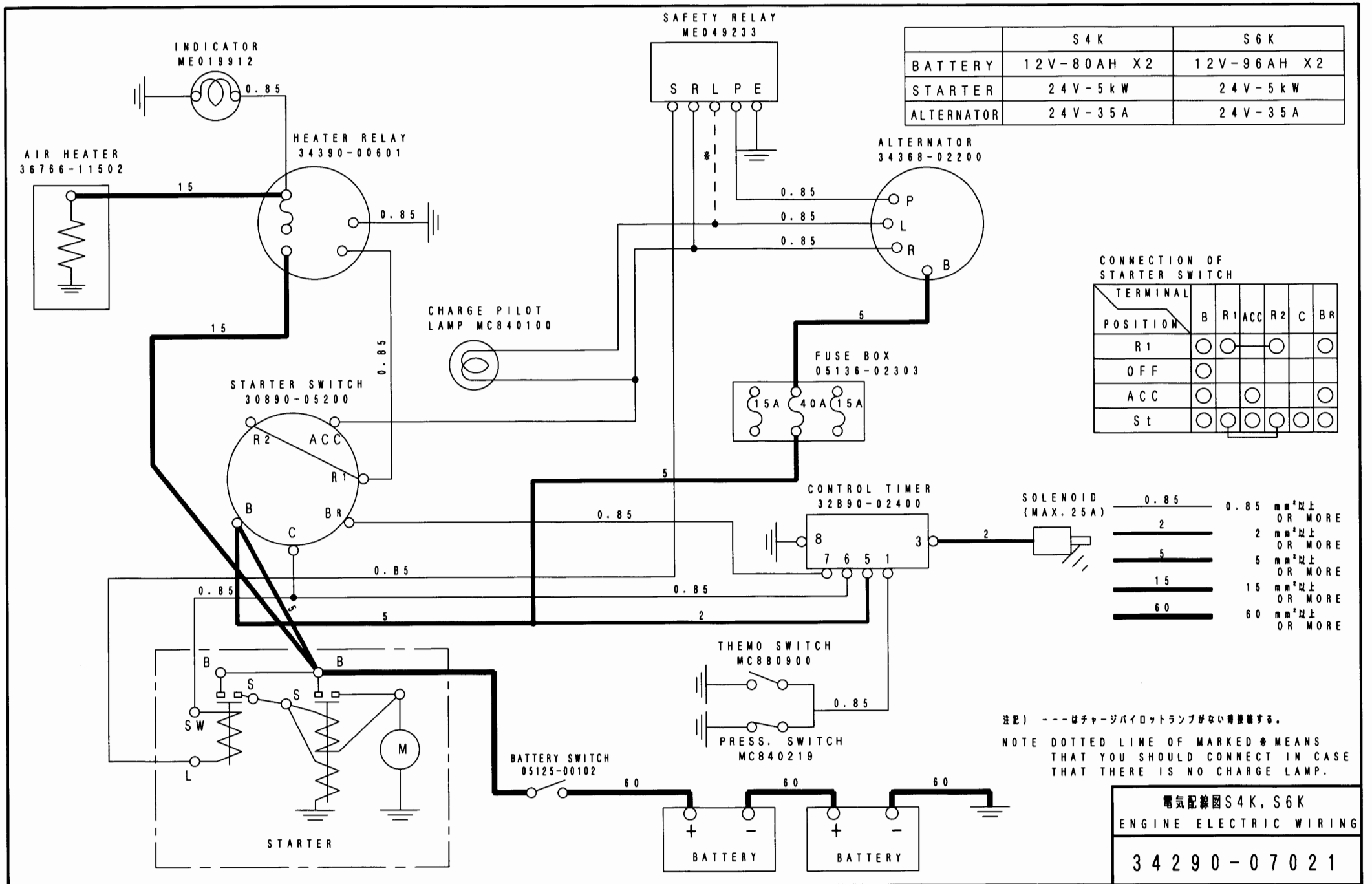
2. Engine attached items&Reference drawings

	Parts Name	Drawing No.	Q'ty	Remarks(Drawing No.)		
	1	WIRING DIAGRAM	34290-07021	—	Reference(only for)	A4
	2	SWITCH,OIL PRESSURE	MC840-219	1		A4
	3	SWITCH, THERMO	MC880-900	1		A4
	4					A4
	5	UNIT,THERMOMETER	05204-50300	1		A4
	6	STOP SOLENOID(ETS)	34287-01300	1	STOP SOLENOID KIT 34287-00030	A4
△	7	STARTER	32B66-12301	1		A4
	8	AIR,HEATER	36766-11502	1		A4
	9	ALTERNATOR	34368-04100	1		A4
	10	FILTER ASSY,FUEL	34362-00012	1		A4
	11	FILTER,OIL	ME014-833	1		A4
	12	COOLING FAN	34348-00201	1		A4
	13	L-JOINT	30625-35020	1		A4

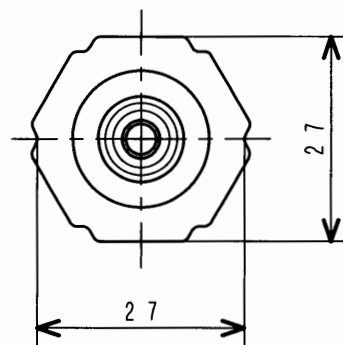
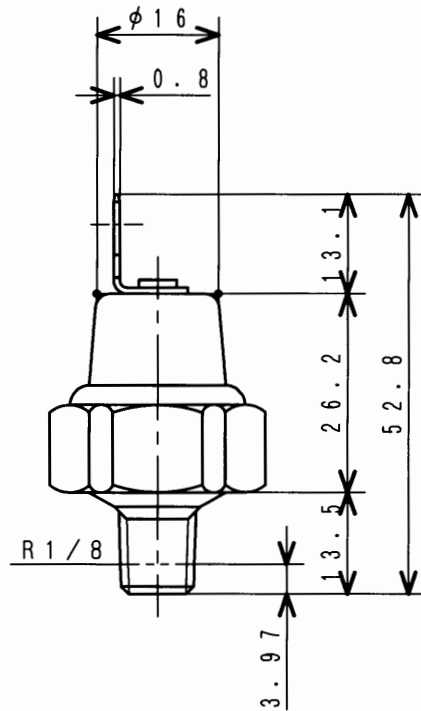
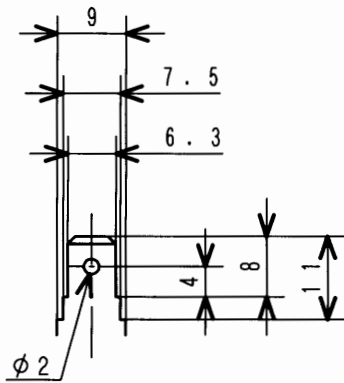
3. Accessories(Loose supply parts)

	Parts Name	Parts No.	Q'ty	Remarks(Drawing No.)		
	1	TIMER CONTROL	32B90-02400	1		A4
	2	CONNECTOR,3P	MM409-661	1		A4
	3	CONNECTOR,4P	MM409-663	1		A4
	4	CONNECTOR,2P	MH052-231	1		A4

Note:Drawing No. Subject to alteration without notice



電気配線図S4K, S6K
ENGINE ELECTRIC WIRING
34290-07021



仕様
SPECIFICATIONS

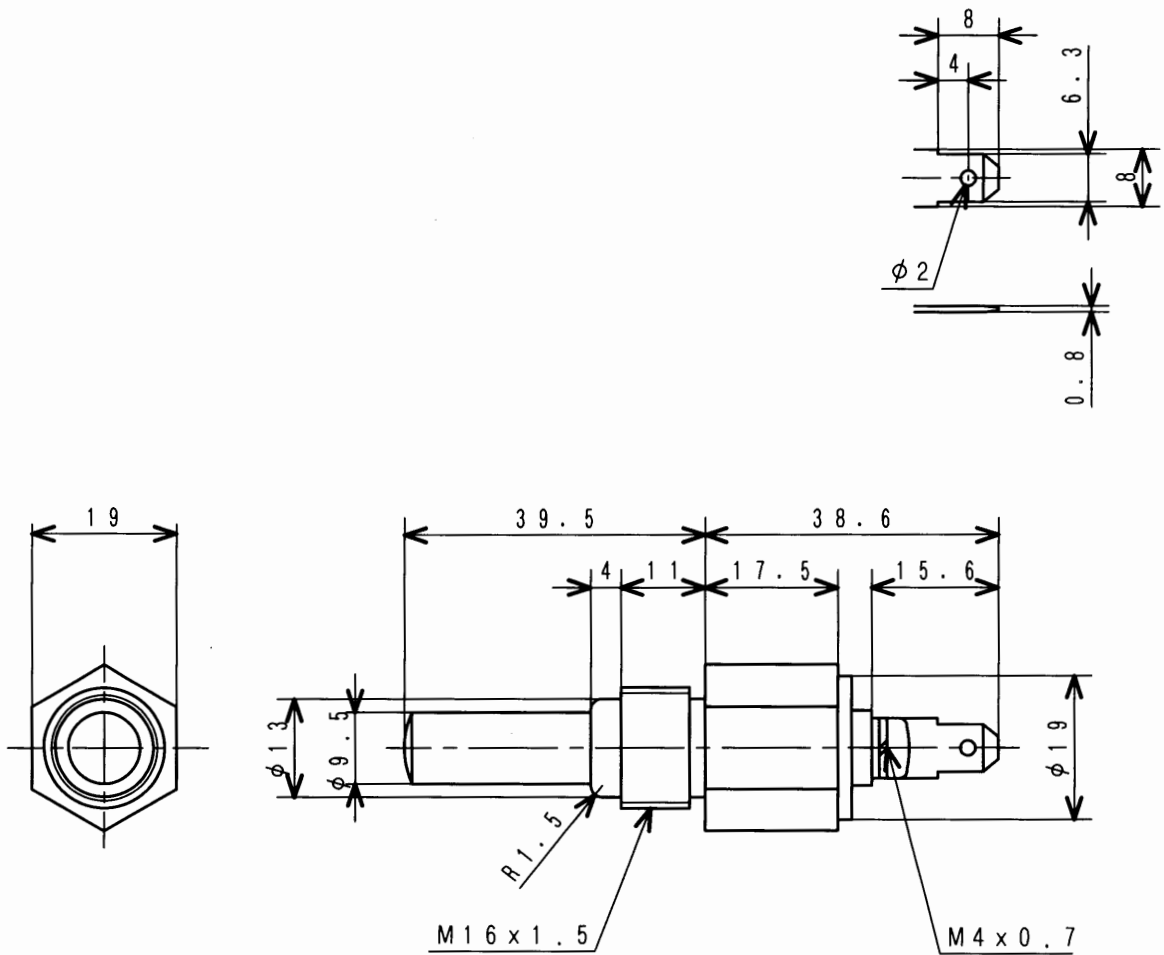
作動圧力 OPERATING PRESS.	49 kPa {0.5 kgf/cm ² }
作動電圧 OPERATING VOLT.	12V-5W 24V-5W

オイルプレッシャスイッチ

SWITCH, OIL PRESSURE

MC840-219

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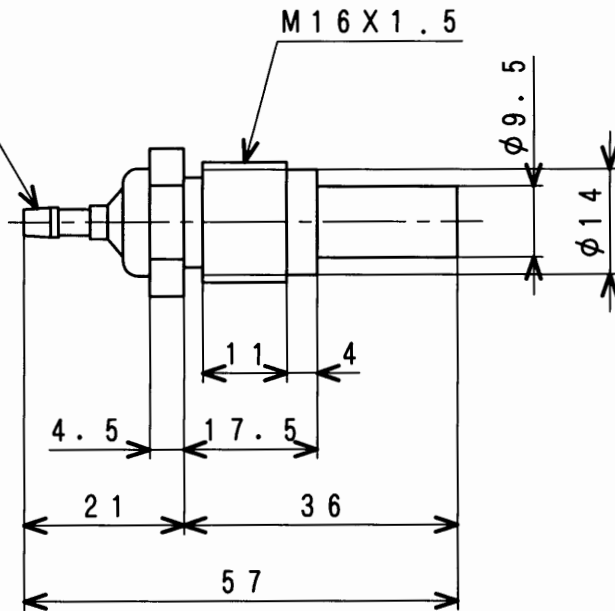
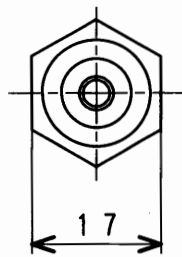
部品番号 PART No.	作動温度 OPERATING TEMP.		
MC880-900	温度下降時 DECREASE	$\leq 100^{\circ}\text{C} \pm 4^{\circ}\text{C}$	で接点開 OPEN
	温度上昇時 RISE	$\geq 100^{\circ}\text{C} \pm 2^{\circ}\text{C}$	で接点閉 CLOSE
MC880-901	温度下降時 DECREASE	$\leq 105^{\circ}\text{C} \pm 4^{\circ}\text{C}$	で接点開 OPEN
	温度上昇時 RISE	$\geq 105^{\circ}\text{C} \pm 2^{\circ}\text{C}$	で接点閉 CLOSE

定格負荷 RATED LOADED	1A以上 MIN.	0.5A以上 MIN.
定格電圧 RATED VOLT.	12V	24V

サーモスイッチ
SWITCH, THERMO

MC880-900

JIS D 5403 CA104

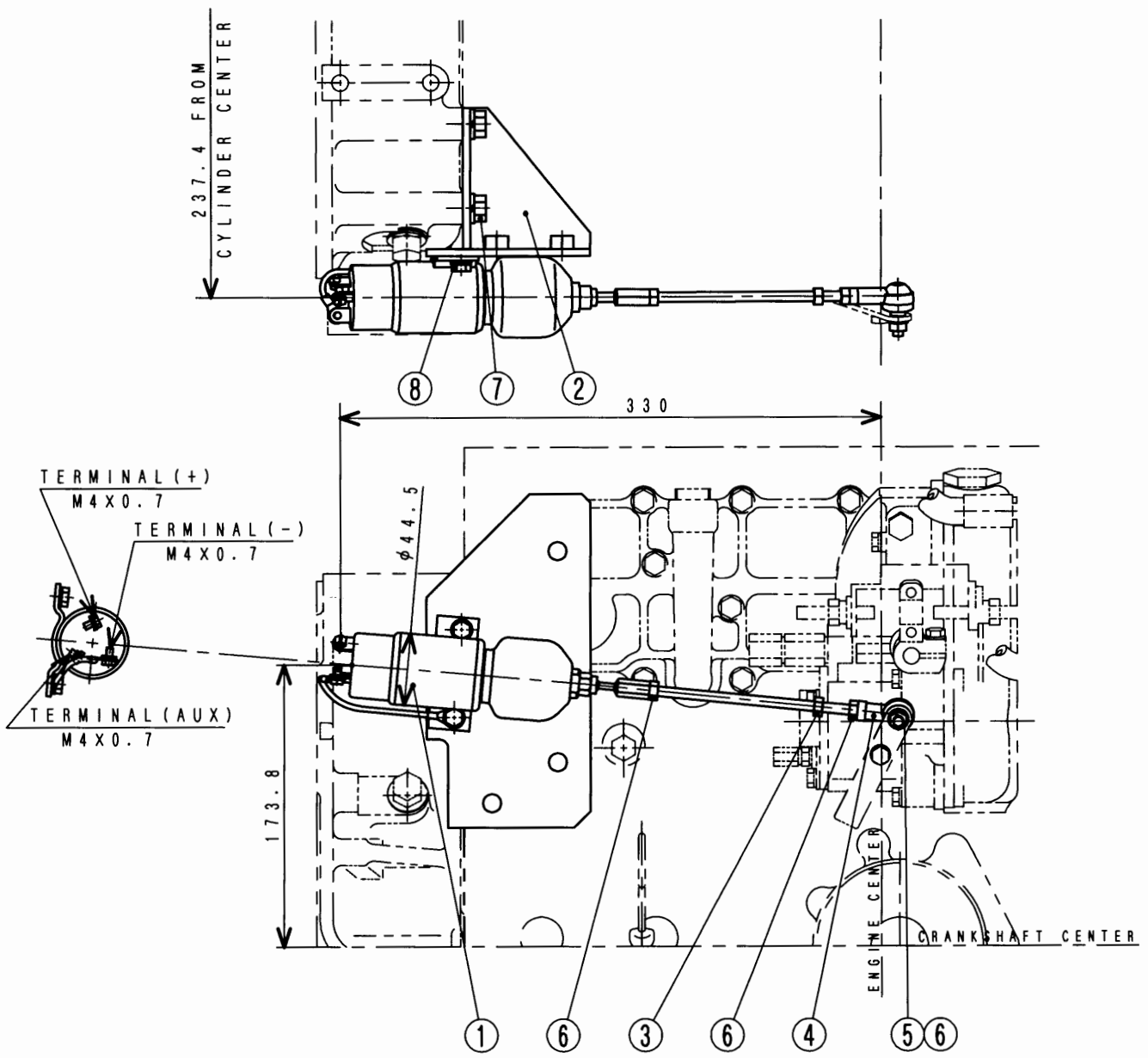


温度 (°C)	50	67	102	110	135
TEMPERATURE	50	67	102	110	135
抵抗 (Ω)	80	44.6	16.5	12.8	7
RESISTANCE	80	44.6	16.5	12.8	7

サーモメータユニット
UNIT, THERMOMETER

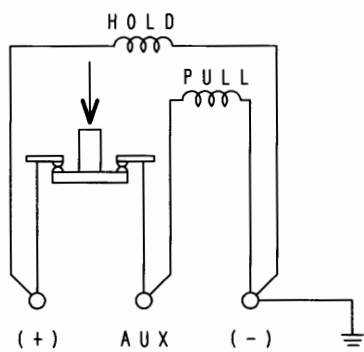
05204-50300

MHI CONFIDENTIAL



仕様(20℃にて)
SPECIFICATIONS (AT 20℃)

定格電圧 RATED VOLT.	DC 24V	
	プルインコイル PULL IN COIL	ホールディングコイル HOLD IN COIL
定格電流 RATED CURRENT	24.6 A	0.5 A
引張力 TENSILE FORCE	89 N {9 kgf}	180 N {18 kgf}



配線図
WIRING DIAGRAM

8	F1825-06012	BOLT W/ASSY	2
7	F2005-10020	BOLT W/ASSY	3
6	F2300-06000	NUT	3
5	F2515-06000	WASHER, SPRING	1
4	32563-06100	L-JOINT	1
3	34287-02703	ROD, SOLENOID	1
2	34287-12801	BRACKET, SOLENOID	1
1	34287-01300	SOLENOID	1
SYM	PART No.	PART NAME	QTY

ストップ ソレノイド キット

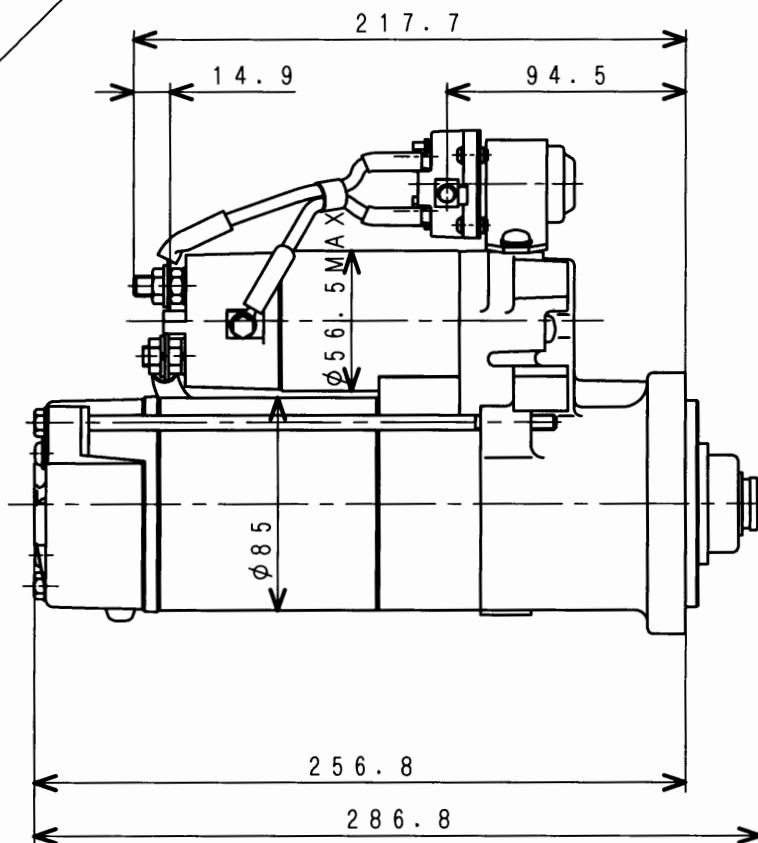
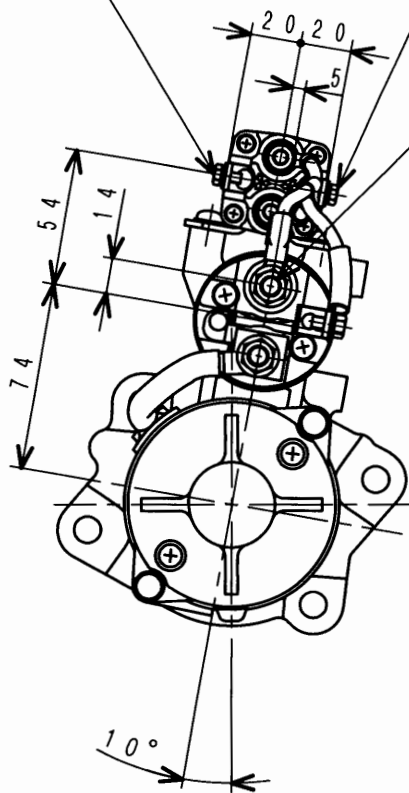
STOP SOLENOID KIT (S4K)



34287-00030

L-TERMINAL
M4X0.7
(FOR SAFETY RELAY)

SW-TERMINAL
M4X0.7

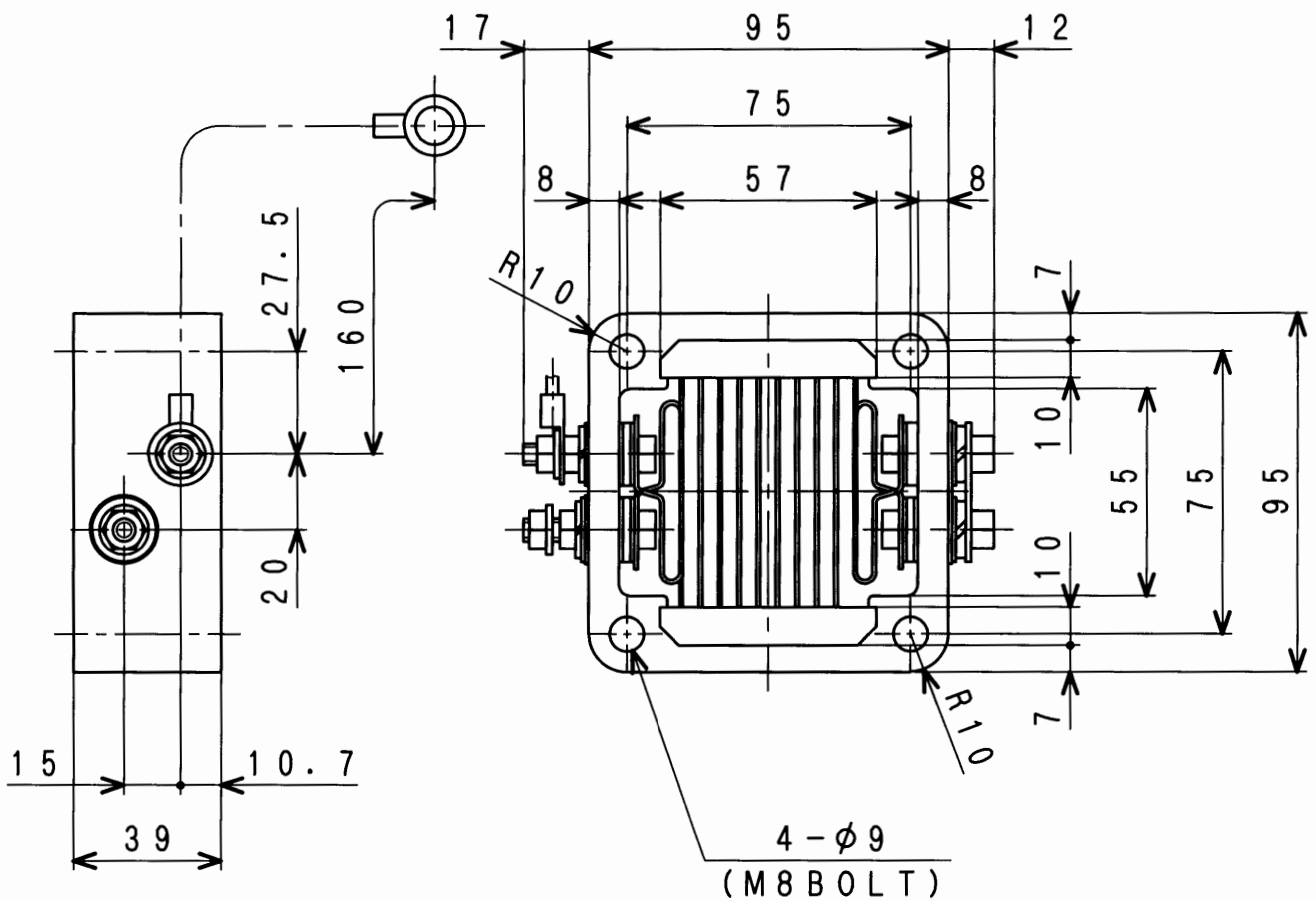
B-TERMINAL
M8X1.25
(TIGHTENING
TORQUE 10^{+2}_0 N·m)



MODEL	PART NO.	RATED OUTPUT OF STARTER	BATTERY (REFERENCE)
S4K, S6K	32B66-12301	24V-5kW	S4K: 80AH X2  S6K: 96AH X2 

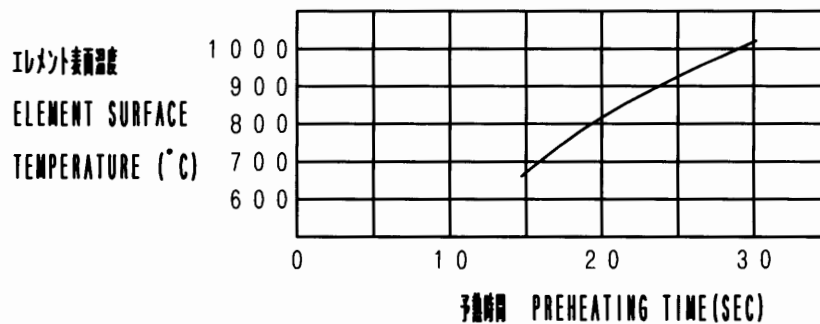
スターター
STARTER (24V-5kW)

32B66-12301



仕様
SPECIFICATIONS

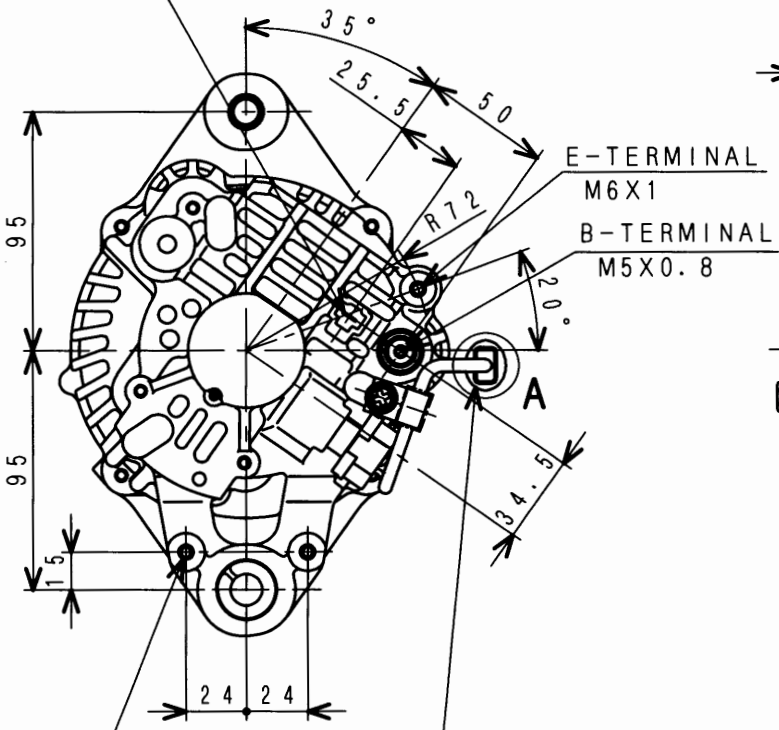
容量 CAPACITY	2.1 kW
定格電圧 RATED CURRENT	95 A \pm 10% (AT 22 V)



エア ヒータ アッシー
AIR HEATER ASSY

36766-11502

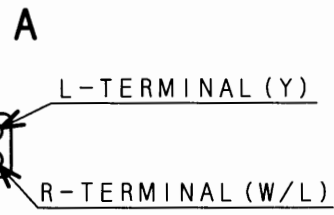
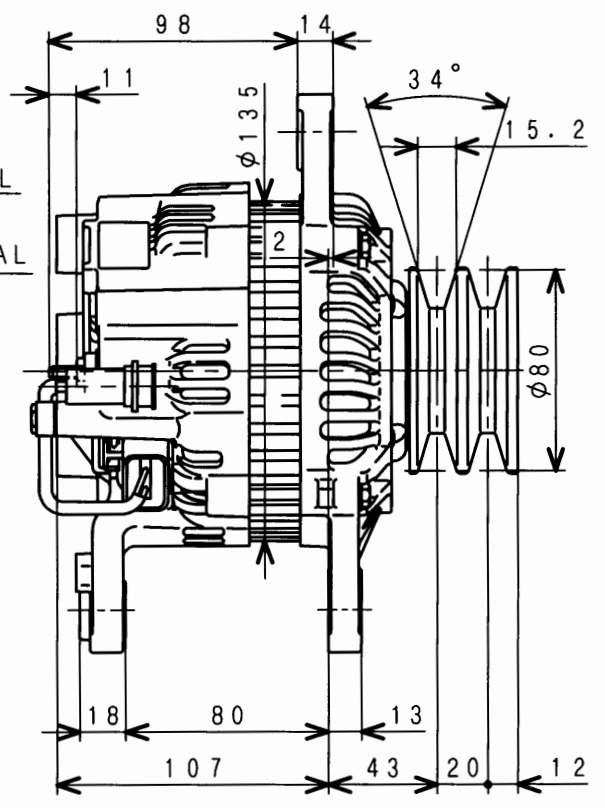
P-CONNECTOR
(YAZAKI 7322-2215)



E-TERMINAL
M6X1
B-TERMINAL
M5X0.8

E-TERMINAL
2-M6X1

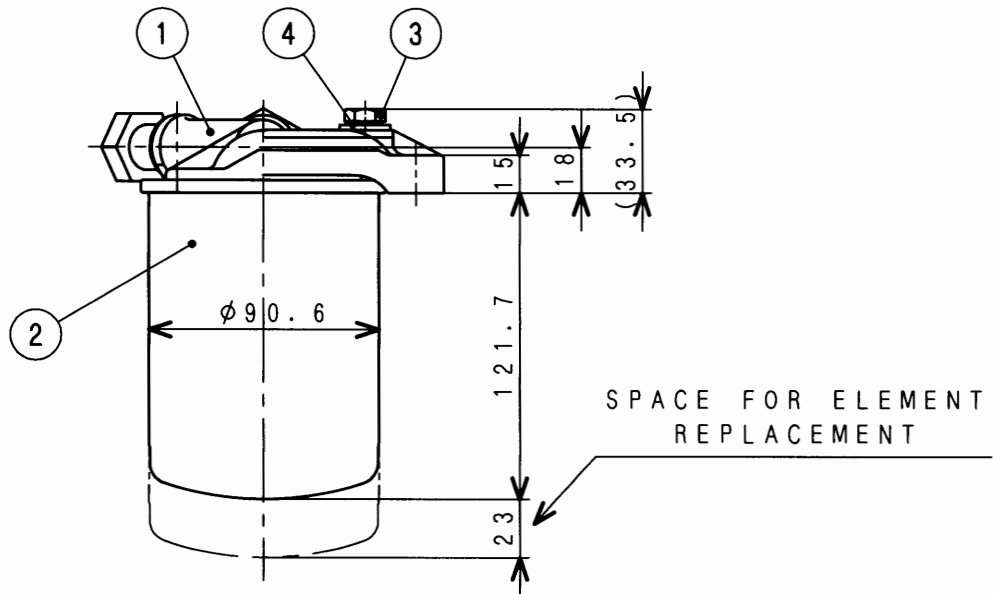
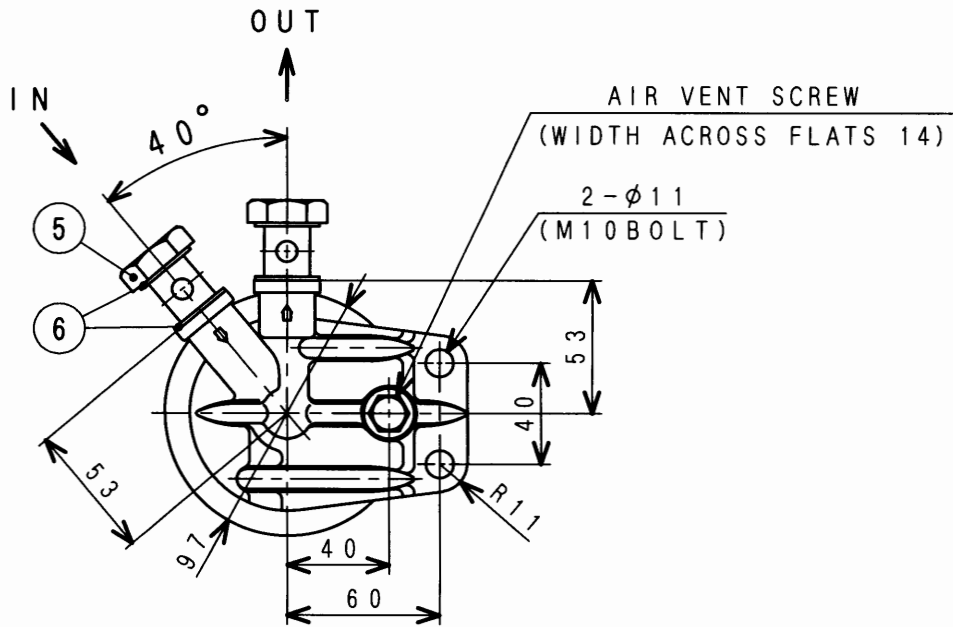
L&R-CONNECTOR
(YAZAKI 7328-3023)



オルタネータ
ALTERNATOR (24V-35A)

34368-04100

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2. FILTER TIGHTENING TORQUE: $13.7 \pm 2.0 \text{ N} \cdot \text{m}$ ($1.4 \pm 0.2 \text{ kgf} \cdot \text{m}$)
 NOTE 1. THEN TIGHTEN $3/4 \sim 1$ TURN AFTER GASKET CONTACTS BASE.

2. フィルタ締付けトルク: $13.7 \pm 2.0 \text{ N} \cdot \text{m}$ ($1.4 \pm 0.2 \text{ kgf} \cdot \text{m}$)
 注 記 1. 取付けはシール面にガスケットが接触してから $3/4 \sim 1$ 回転締付けて下さい。

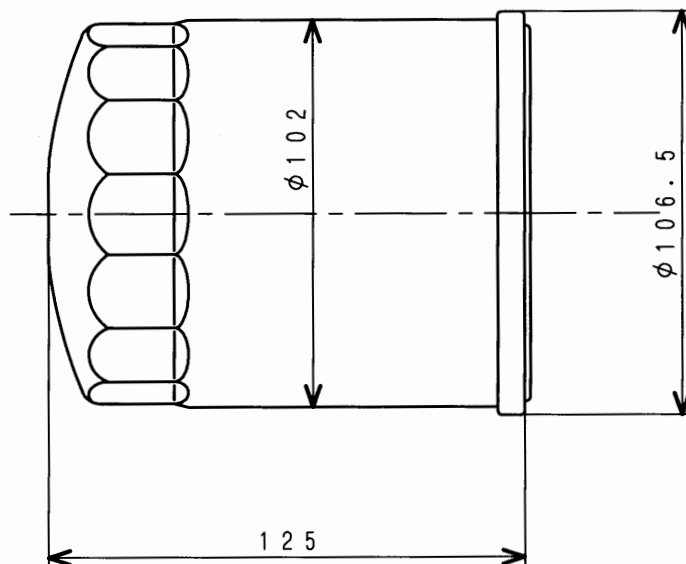
仕様
SPECIFICATIONS

ろ過面積 FILTRATION AREA	3800 cm ²
定格流量 RATED FLOW	3 l/min
乾燥重量 WEIGHT	830 g

6	MH035-069	GASKET	4
5	MH037-087	BOLT, EYE	2
4	MH035-067	GASKET	1
3	ME016-894	PLUG, AIR	1
2	34362-00101	ELEMENT, FUEL	1
1	ME035-672	HEAD, FUEL FILTER	1
SYM	PART No.	PART NAME	QTY

ヒュエルフィルタアッシー
FILTER ASSY, FUEL

34362-00012

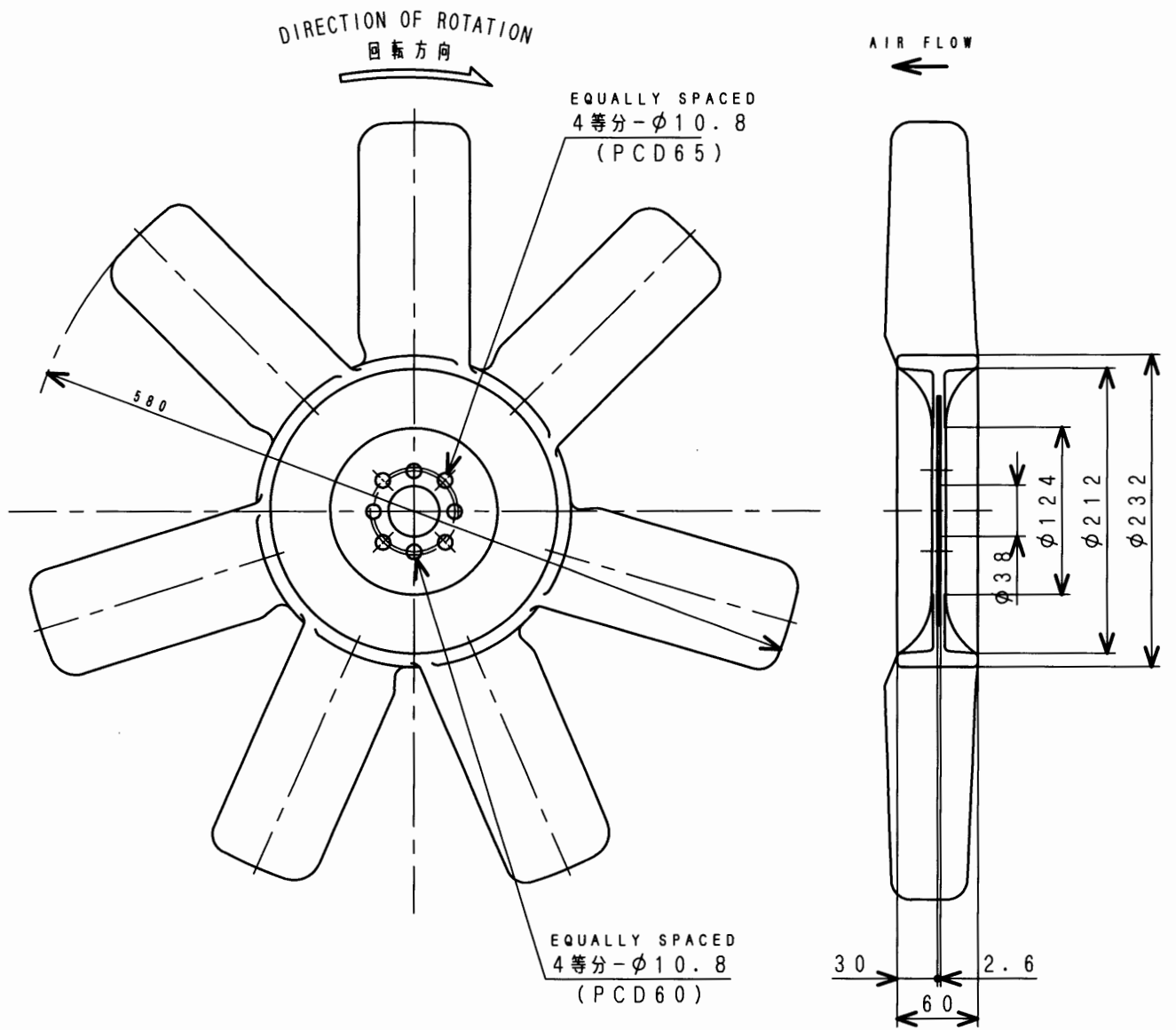


仕 様
SPECIFICATIONS

濾過面積 FILTRATION AREA	0.25 m ²
圧力損失(定格流量時) PRESSURE LOSS	29.4 kPa {0.3 kgf/cm ² } 以下
破壊圧力 PRESS. AT FRACTURE	1.47 MPa {15 kgf/cm ² }
エレメント差圧強度 ELEMENT RESISTANCE TO PRESS. DIFFERENCE	687 kPa {7 kgf/cm ² }
逃し弁調整圧力 RELIEF VALVE PRESSURE	98.1±19.6 kPa {1.0±0.2 kgf/cm ² }

オイルフィルタ
FILTER, OIL

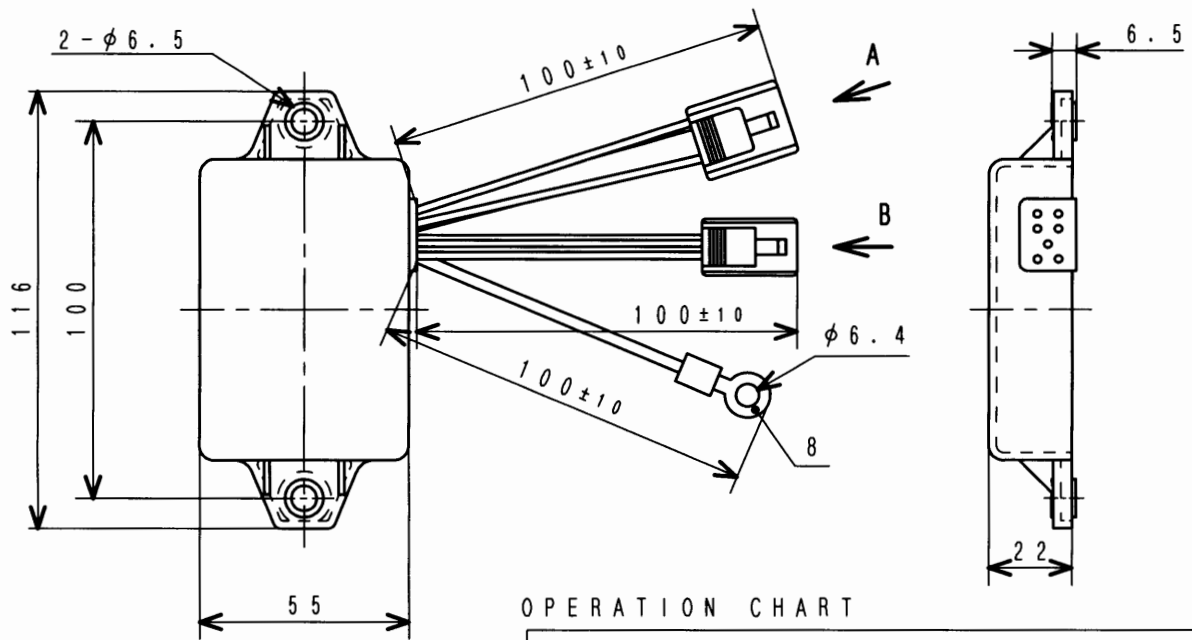
ME014-833



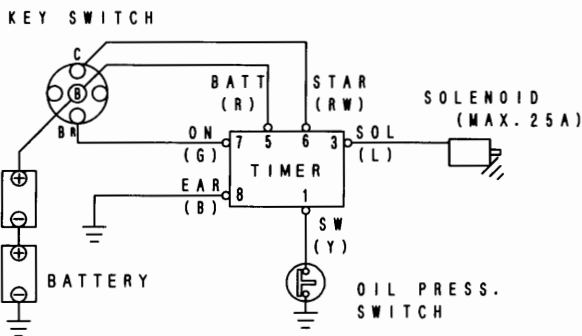
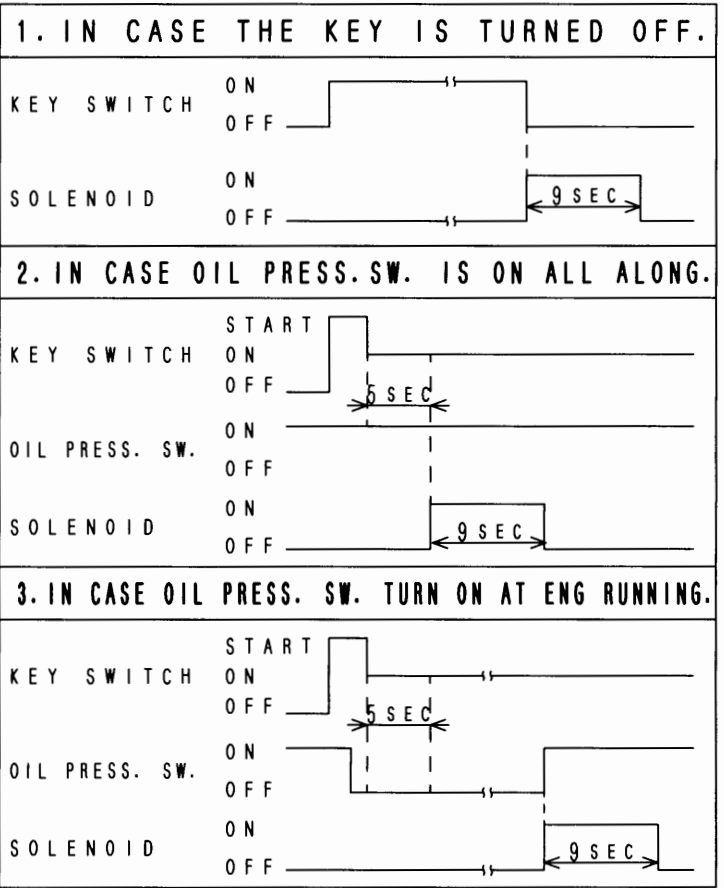
クーリング ファン (ブッシャー)
FAN, COOLING (7P-580)

34348-00201

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OPERATION CHART



配線図

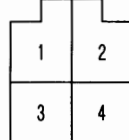
WIRING DIAGRAM

連続してキーON/OFF操作を繰り返さないこと。
NO CONTINUOUS KEY ON/OFF OPERATION PERMITTED.

部品番号 PART No.	電源電圧(標準) VOLTAGE	許容ソレノイド電流 SOL. MAX. CURRENT	使用温度範囲 AMBIENT TEMP.
32B90-02400	24 V	25 A	-30~+80°C (-22~+176°F)

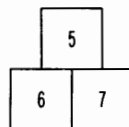
符号 SYM	線色 COLOUR	接続先 CONNECT FAR SIDE
1	YELLOW	油圧スイッチ OIL PRESS. SWITCH
2		(未使用) UNUSED
3	BLUE	ソレノイド(+) SOLENOID
4	BLUE	ソレノイド(-) SOLENOID
5	RED	バッテリー(+) BATTERY
6	RED WHITE	キースイッチ START KEY SWITCH
7	GREEN	キースイッチ ON KEY SWITCH
8	BLACK	アース EARTH

A-VIEW



4 POLES FEMALE
CONNECTOR
7323-2446 (YAZAKI)
TO MATE WITH
MM409-663 (MHI)
7122-2446 (YAZAKI)

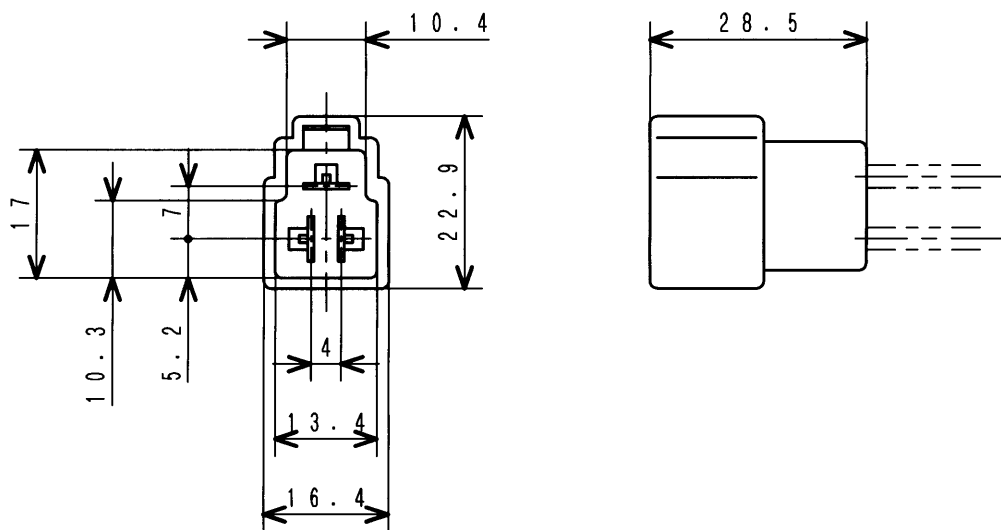
B-VIEW



3 POLES FEMALE
CONNECTOR
7323-2237 (YAZAKI)
TO MATE WITH
MM409-661 (MHI)
7322-2237 (YAZAKI)

コントロール タイマ (エマージェンシ リレー)
TIMER, CONTROL (RELAY, EMERGENCY)

32B90-02400

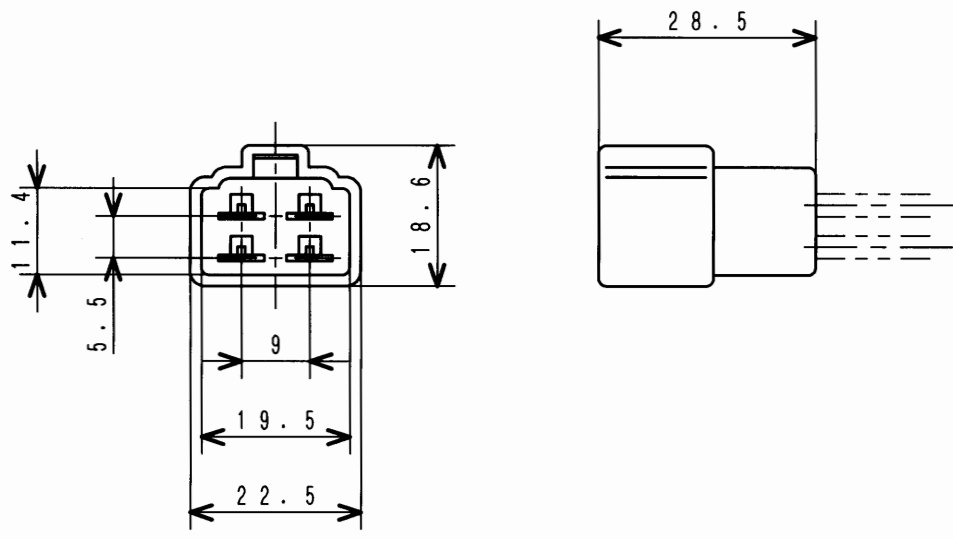


注 記 コントロールタイマ用 (YAZAKI 7322-2237)
 NOTE FOR CONTROL TIMER

コネクタ
 CONNECTOR (3 POLES)

MM409-661

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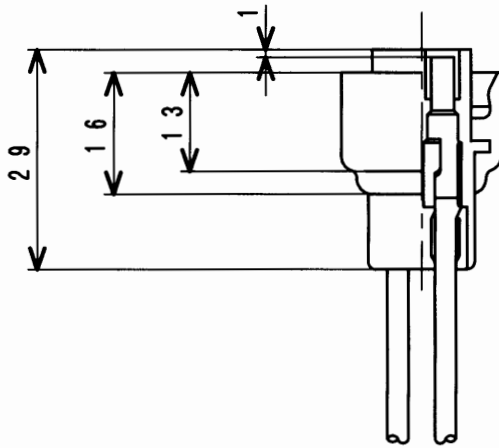
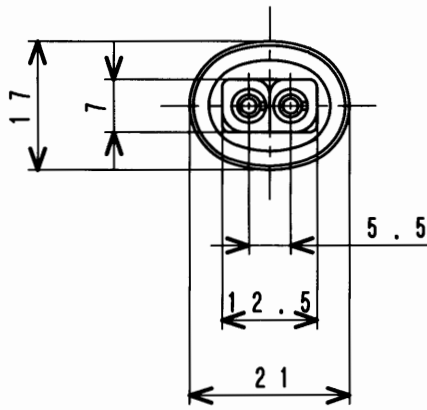
注 記 コントロールタイマ用 (YAZAKI 7122-2446)

NOTE FOR CONTROL TIMER

コネクタ
CONNECTOR (4 POLES)

MM409-663

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注 記 タ*イナモ L, R端子用 (SK ENG ALTERNATOR)
油水分離付燃料フィルタ用

NOTE FOR L AND R TERMINALS OF ALTERNATOR (SK)
FOR FUEL FILTER WITH WATER SEPARATOR

コネクタ
CONNECTOR (2 POLES)

MH052-231

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