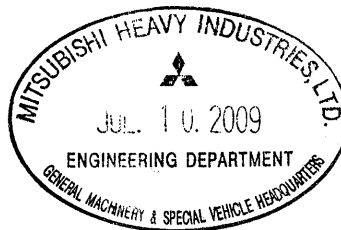


SPECIFICATIONS

MITSUBISHI HIGH SPEED DIESEL ENGINE MODEL MITSUBISHI S4K-T

For reference only



PLEASE RETURN AFTER APPROVAL

APPROVED		REMARKS		
DATE · SIGNATURE				
DATE Jun. 30. 2009 MITSUBISHI HEAVY INDUSTRIES, LTD.				
CHG	DATE	APPROVED	CHECKED	DRAWN
		Id. Endo	A. Takai	T. Igusa
1			K. Isono	
1				

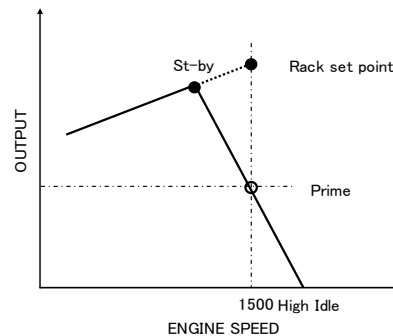
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P	搭E
P	E保
P	小E作
P	MHIES-A
	PDF
1	控
1	計

P:PDF配布

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-T MHI No. 34200-01740
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	235g/kW-h at Prime output and standard air conditions(Without fan)
Tolerance	±5%
Oil consumption	Within 3.0g/kW-h
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	SAE #11-1/2
Flywheel housing	SAE #3

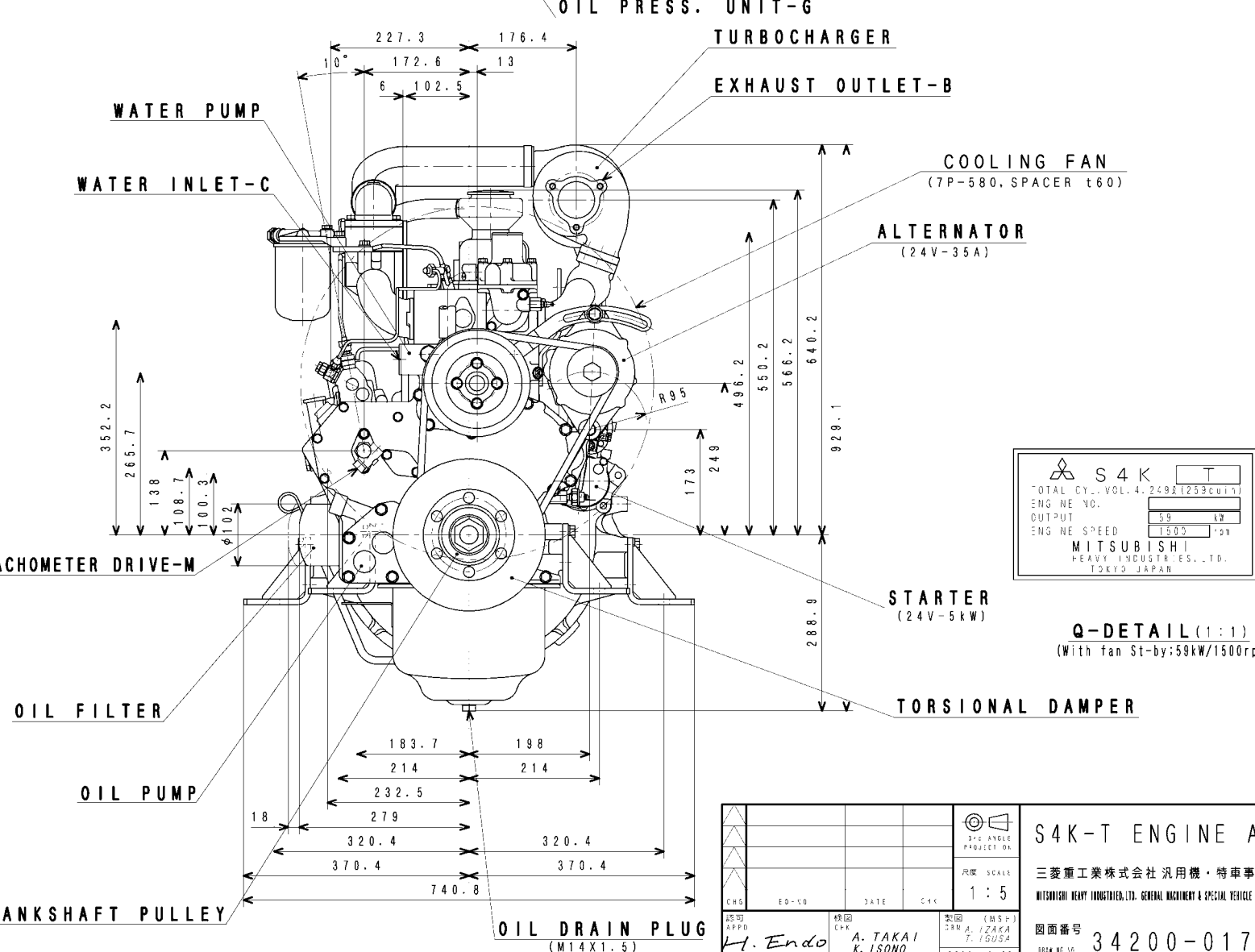
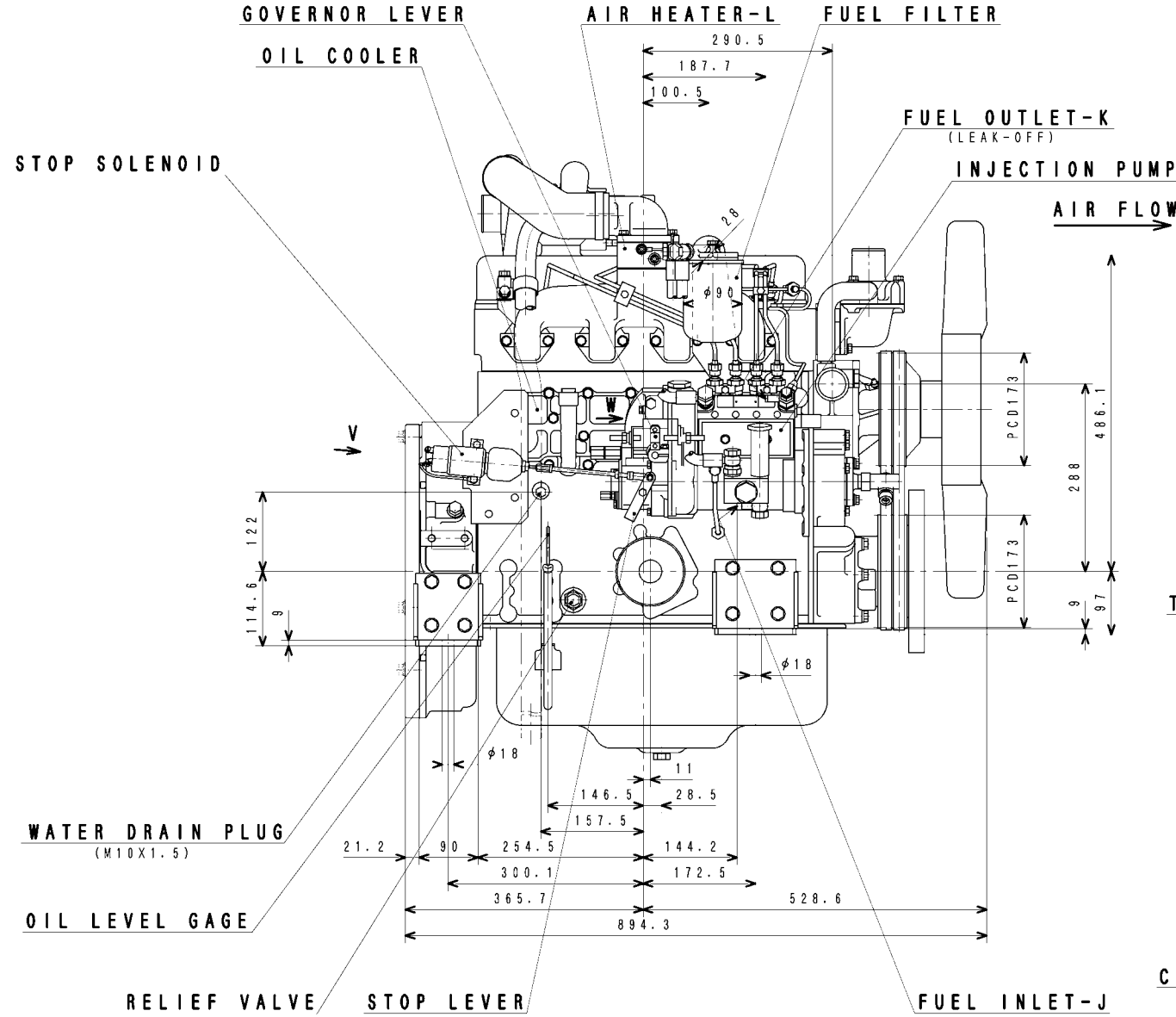
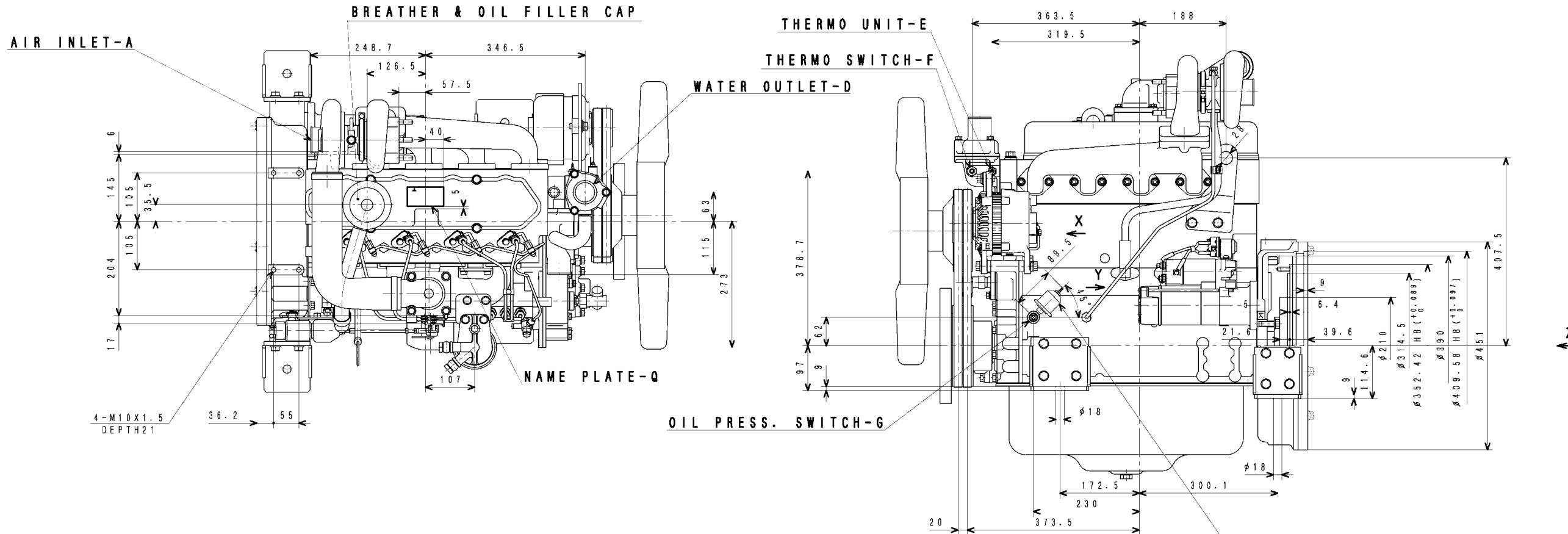
2. Engine attached items&Reference drawings

	Parts Name	Drawing No.	Q'ty	Remarks	
	WIRING DIAGRAM	34290-07021	-	Reference(only for)	A4
1	SWITCH,OIL PRESSURE	MC840-219	1		A4
2	SWITCH, THERMO	MC880-900	1		A4
3	UNIT,PRESSURE GAGE	05202-50100	1		A4
4	UNIT,THERMOMETER	05204-50300	1		A4
5	STOP SOLENOID(ETS)	34287-01300	1	STOP SOLENOID KIT 34287-00030	A4
6	STARTER	32B66-12300	1		A4
7	AIR,HEATER	36766-11502	1		A4
8	ALTERNATOR	34368-04100	1		A4
9	FILTER ASSY,FUEL	34362-00012	1		A4
10	FILTER,OIL	ME014-833	1		A4
11	COOLING FAN	34348-00201	1		A4
12	L-JOINT	30625-35020	1		A4

3. Accessories(Loose supply parts)

	Parts Name	Parts No.	Q'ty	Remarks	
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



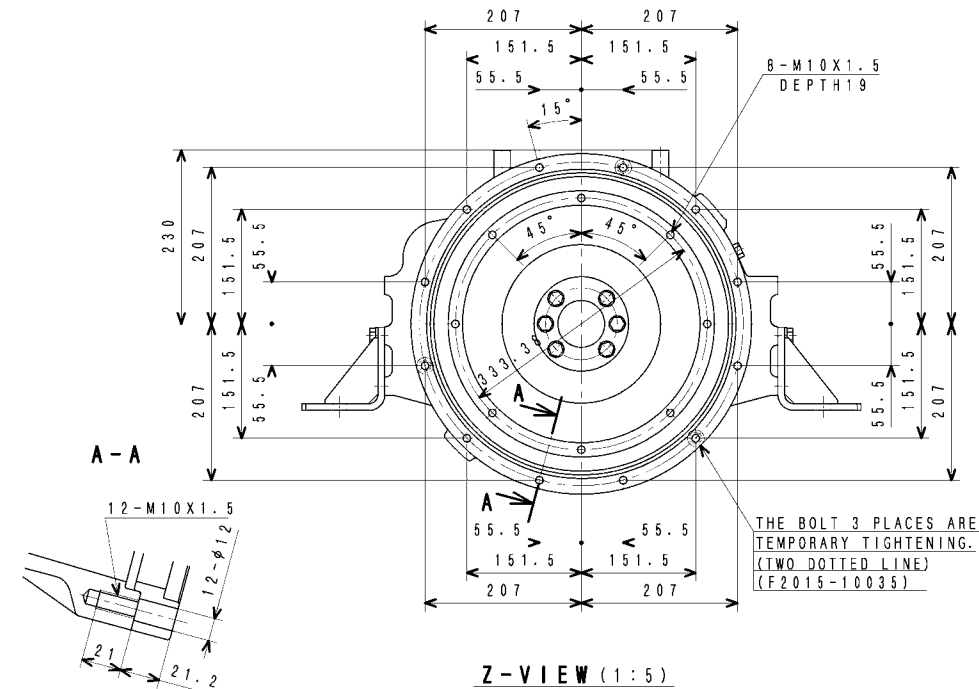
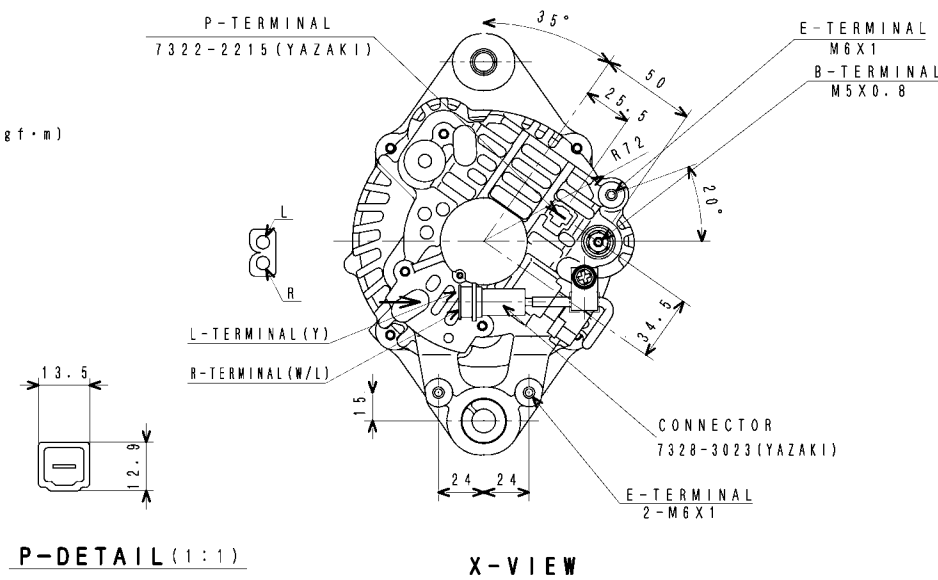
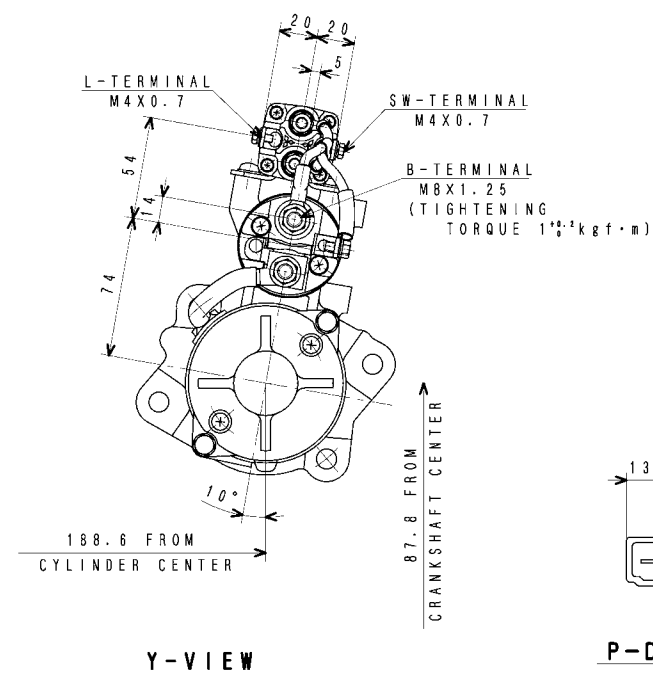
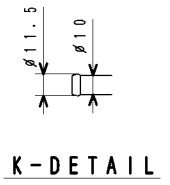
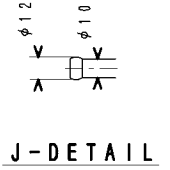
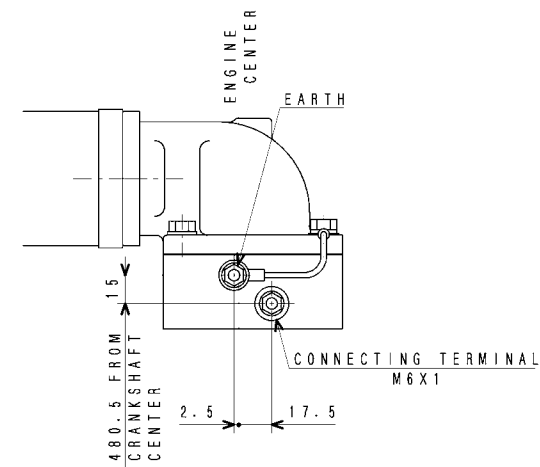
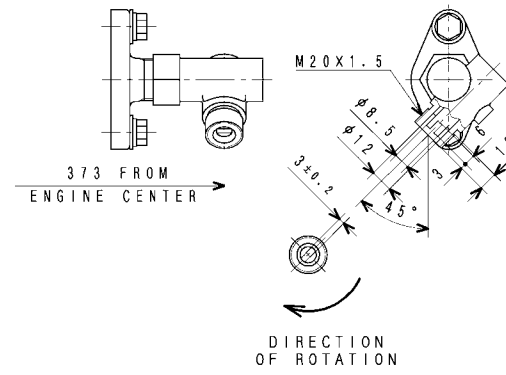
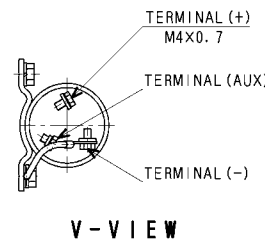
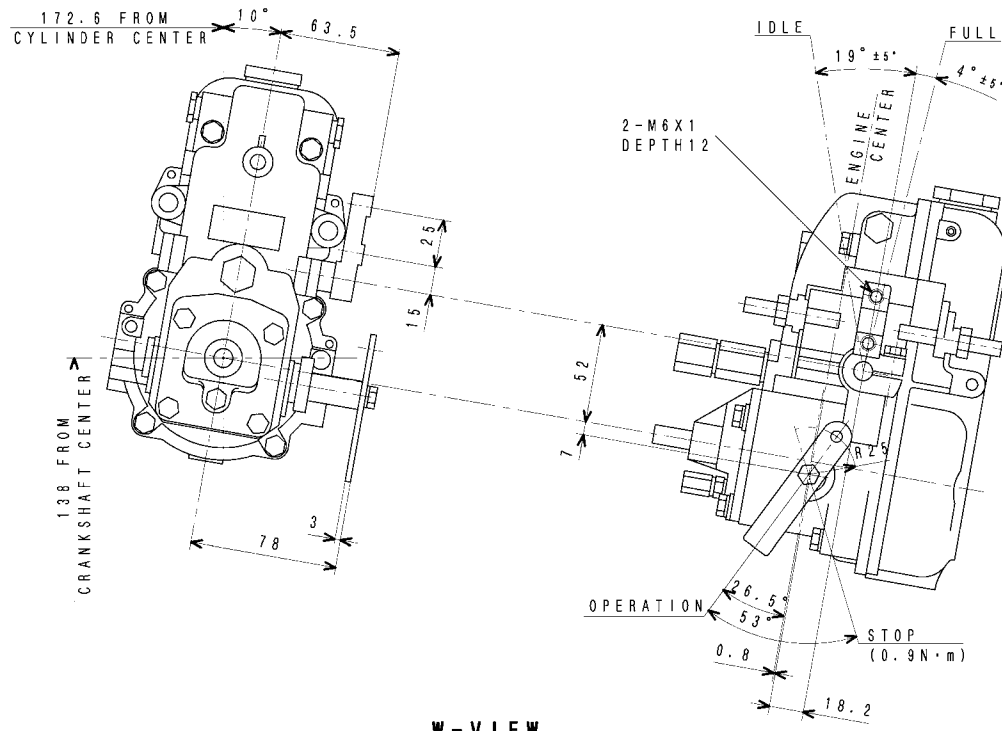
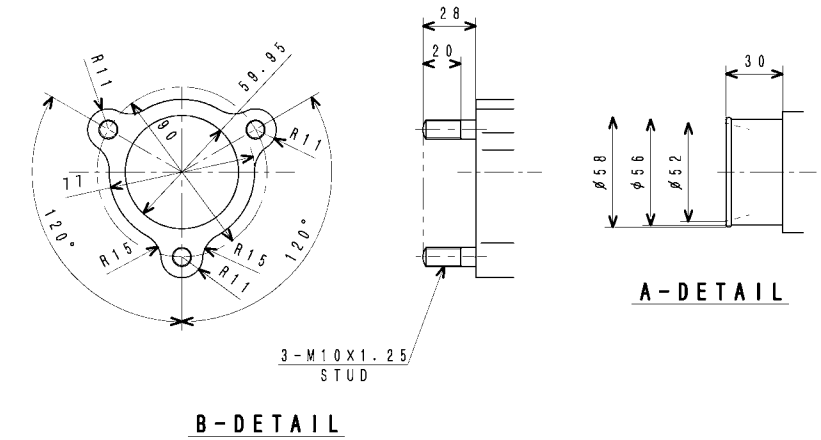
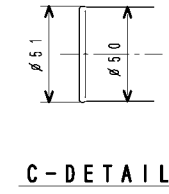
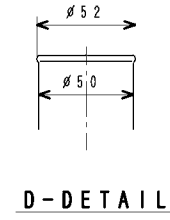
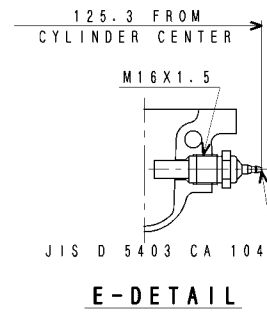
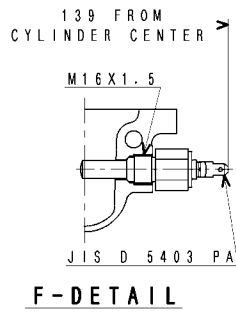
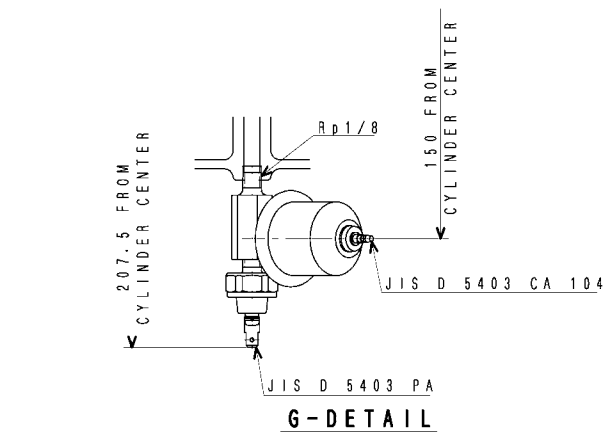
S4K T	
TOTAL CY. VOL. 4.2492 (259CU11)	
ENGINE NO.	
OUTPUT	39 kW
ENGINE SPEED	1500 rpm
MITSUBISHI	
HEAVY INDUSTRIES, LTD.	
TOKYO, JAPAN	

Q-DETAIL (1:1)
(With fan St-by:59kW/1500rpm)

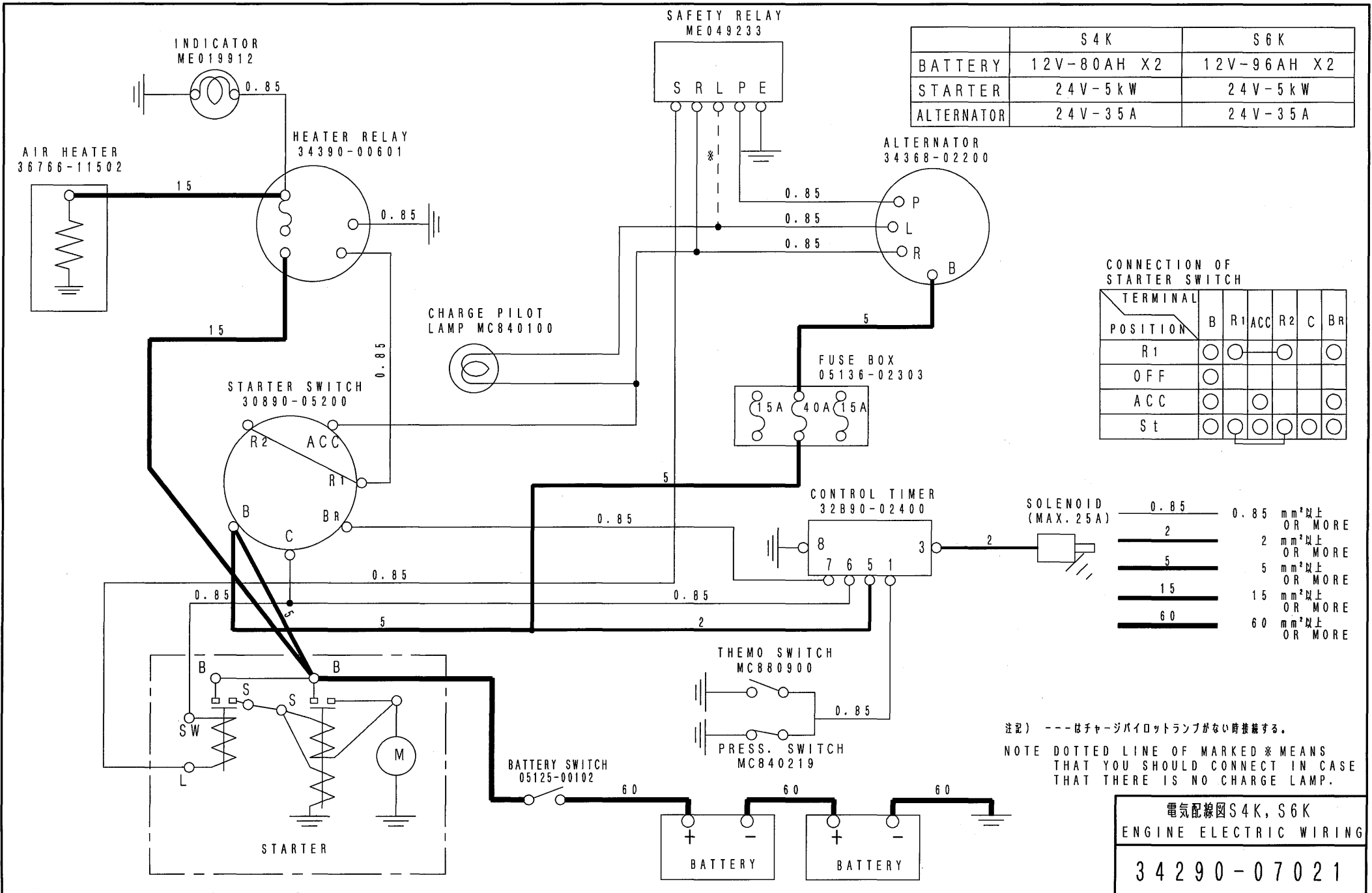
S4K-T ENGINE ASSY	
三菱重工業株式会社 汎用機・特車事業本部	
MITSUBISHI HEAVY INDUSTRIES, LTD. GENERAL MACHINERY & SPECIAL VEHICLE DEPARTMENTS.	
図面番号	34200-01740
図面尺	1:5
承認	H. Endo
検定	A. TAKAI
作成	K. ISONO
発行	2009. 6. 25

出図
汎特
2009
7.7

FULL-CAD



3-D ANGLE PROJECT ON			
SCALE 1:2			
ED-10	DATE	CHK	
ED-10	1/24/04		
S4K-T ENGINE ASSY			
三菱重工業株式会社 汎用機・特車事業本部			
MITSUBISHI HEAVY INDUSTRIES, LTD. GENERAL MACHINERY & SPECIAL VEHICLE DEPARTMENTS.			
図面番号	34200-01740		
作成	H. Endo	承認	A. TAKAI
検定	K. ISONO	検査	
<small> 1 製図 2 製図指導員 3 検査員 4 検査員 5 検査員 6 承認者 </small>			



	S4K	S6K
BATTERY	12V-80AH X2	12V-96AH X2
STARTER	24V-5kW	24V-5kW
ALTERNATOR	24V-35A	24V-35A

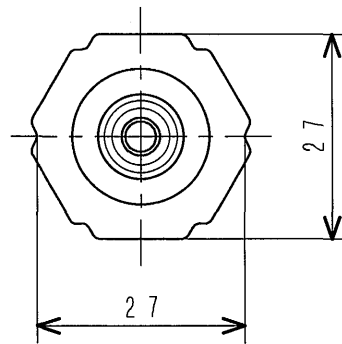
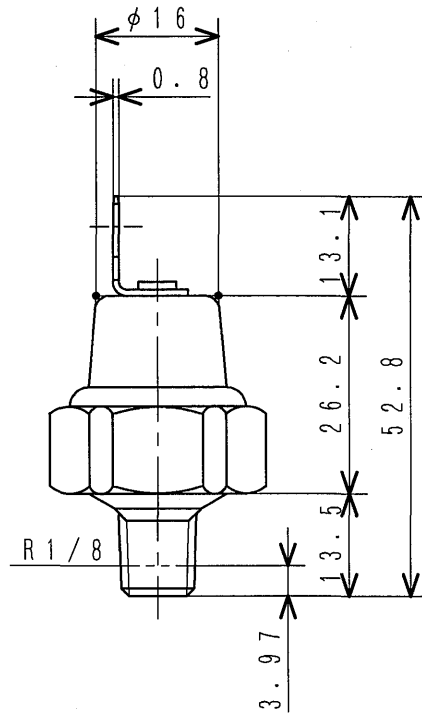
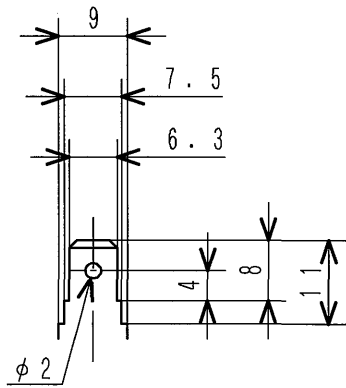
CONNECTION OF STARTER SWITCH

TERMINAL POSITION	B	R1	ACC	R2	C	BR
R1	○	○	○	○		○
OFF	○					
ACC	○		○			○
St	○	○	○	○	○	○

SOLENOID (MAX. 25A)	0.85	0.85	mm ² 以上 OR MORE
2	2	2	mm ² 以上 OR MORE
5	5	5	mm ² 以上 OR MORE
15	15	15	mm ² 以上 OR MORE
60	60	60	mm ² 以上 OR MORE

注記) ---はチャージパイロットランプがない時接続する。
 NOTE DOTTED LINE OF MARKED * MEANS THAT YOU SHOULD CONNECT IN CASE THAT THERE IS NO CHARGE LAMP.

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



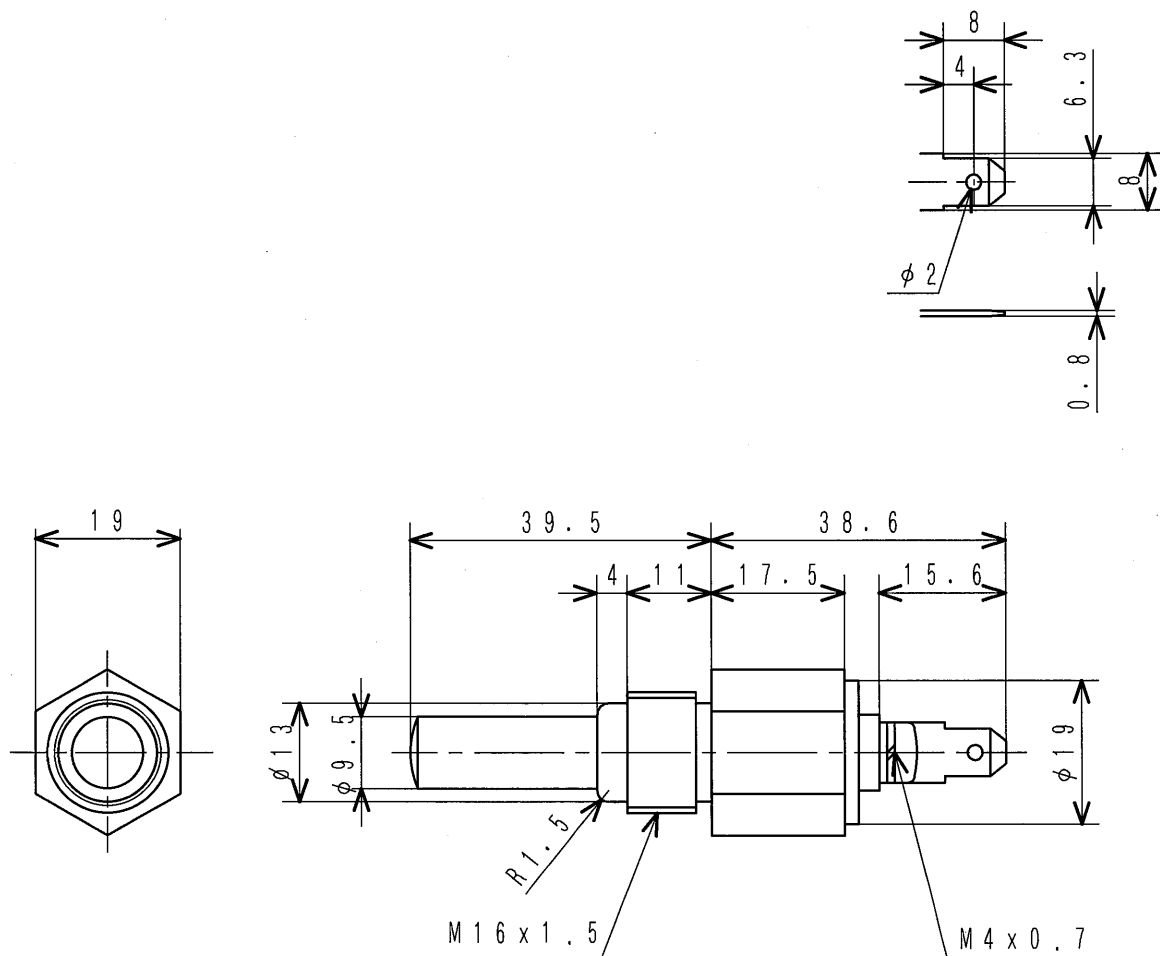
仕 様
SPECIFICATIONS

作 動 圧 力 OPERATING PRESS.	49 kPa { 0.5 kgf/cm ² }
作 動 電 圧 OPERATING VOLT.	12 V - 5 W 24 V - 5 W

オイルプレッシャスイッチ

SWITCH, OIL PRESSURE

MC840-219

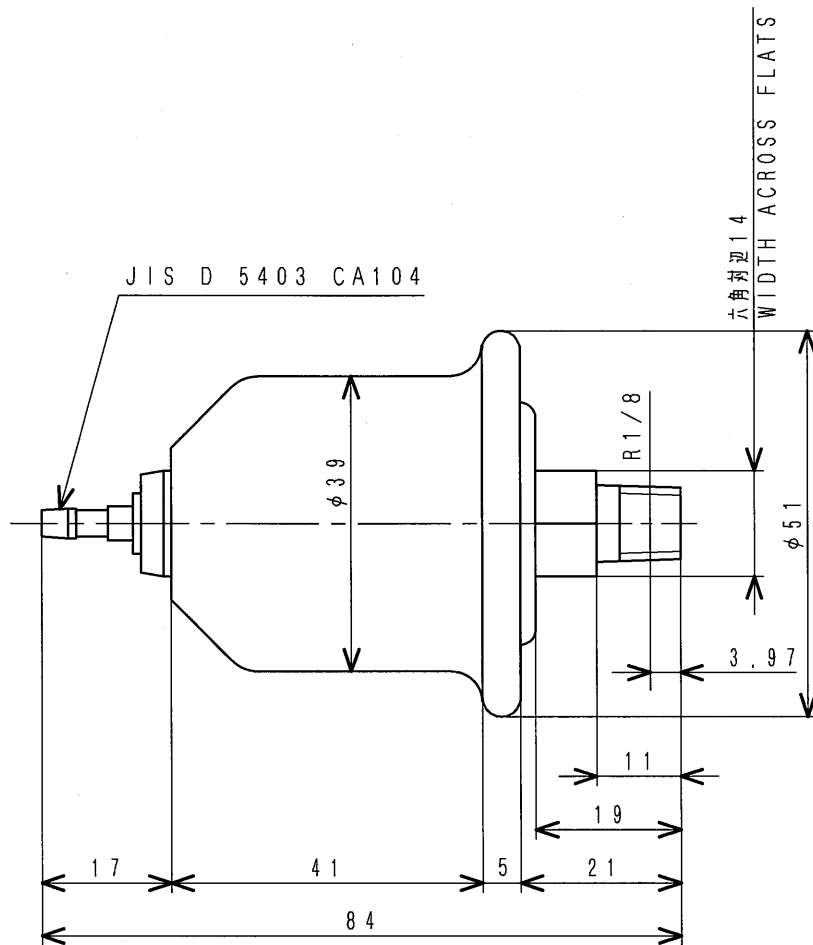


部品番号 PART No.	作動温度 OPERATING TEMP.	
MC880-900	温度下降時 DECREASE	≤ 100℃ ± 4℃ で接点開 OPEN
	温度上昇時 RISE	≥ 100℃ ± 2℃ で接点閉 CLOSE
MC880-901	温度下降時 DECREASE	≤ 105℃ ± 4℃ で接点開 OPEN
	温度上昇時 RISE	≥ 105℃ ± 2℃ で接点閉 CLOSE

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

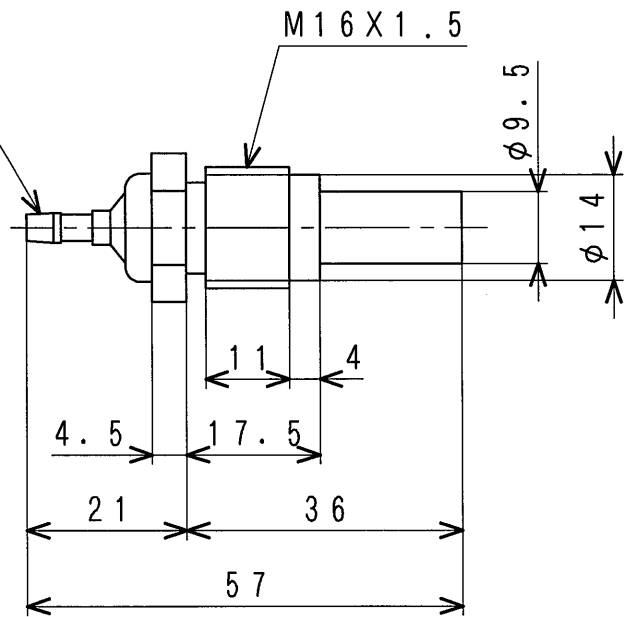
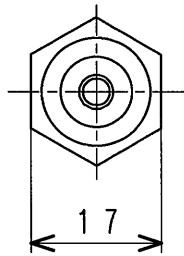


圧力 (MPa) {kgf/cm ² }	0	0.19	0.59	0.98
PRESSURE	{0}	{2}	{6}	{10}
基準抵抗値 (Ω)	80	54.4	26.4	10
RESISTANCE				

圧力計ユニット
UNIT, PRESSURE GAGE

05202-50100

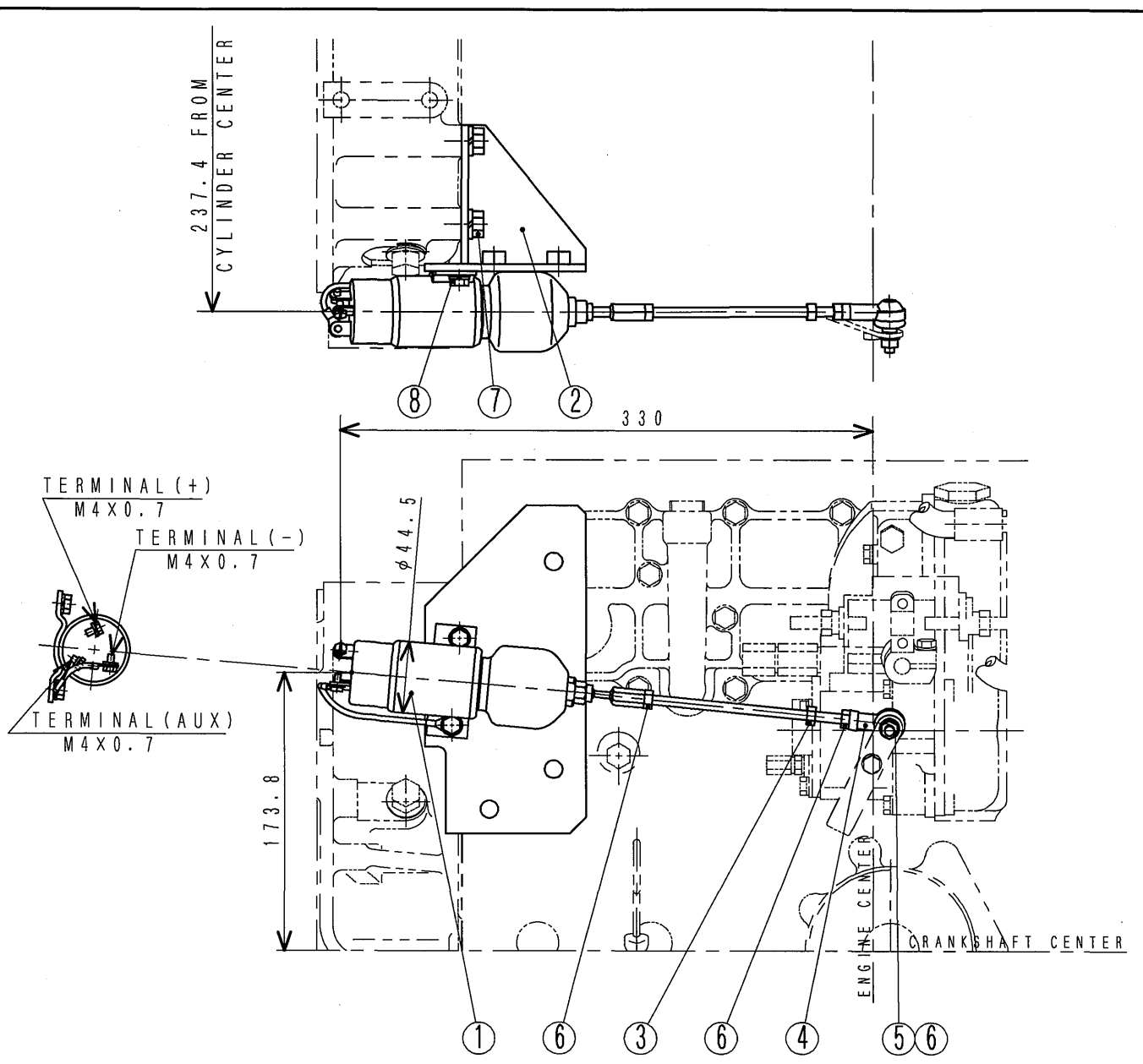
JIS D 5403 CA104



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

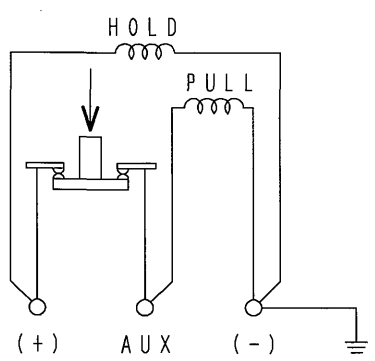
サーモメータユニット
UNIT, THERMOMETER

05204-50300



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	ホールドインコイル HOLD IN COIL
定格電流 RATED CURRENT	24.6A	0.5A
引張力 TENSILE FORCE	89N {9kgf}	180N {18kgf}



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

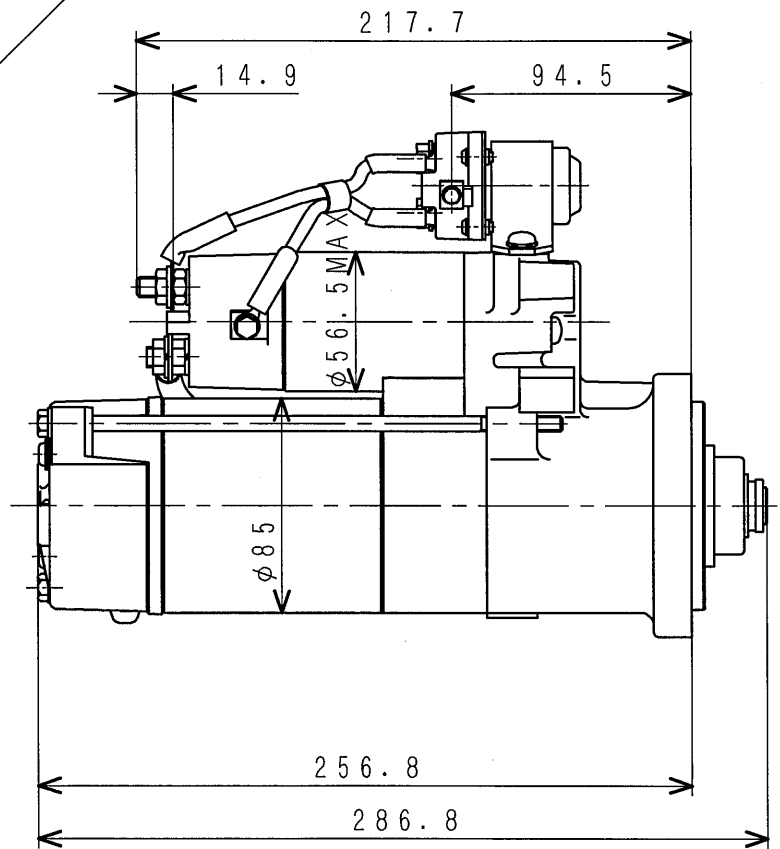
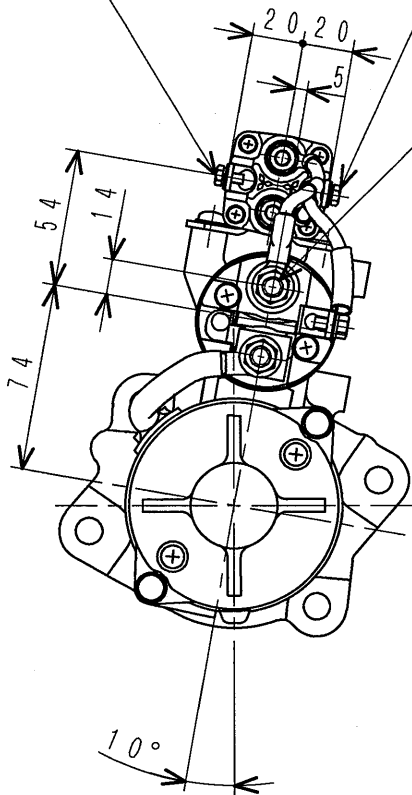
ストップ ソレノイド キット
STOP SOLENOID KIT (S4K)

34287-00030

L-TERMINAL
M4X0.7
(FOR SAFETY RELAY)

SW-TERMINAL
M4X0.7

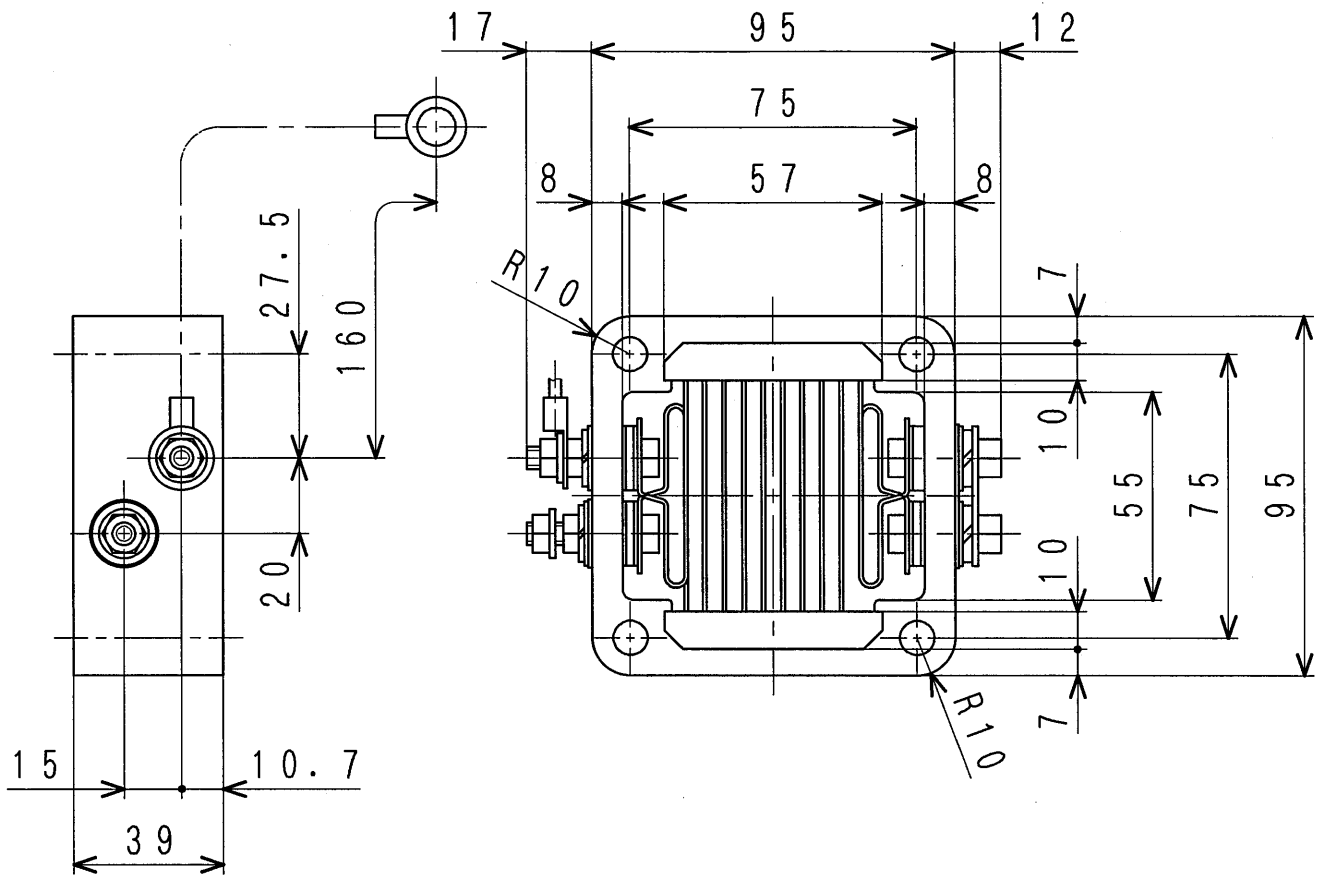
B-TERMINAL
M8X1.25
(TIGHTENING
TORQUE 10^{+2}_{-0} N·m)



MODEL	PART NO.	RATED OUTPUT OF STARTER	BATTERY (REFERENCE)
S4K, S6K	32B66-12300	24V-5kW	S4K: 100AH X2 S6K: 120AH X2

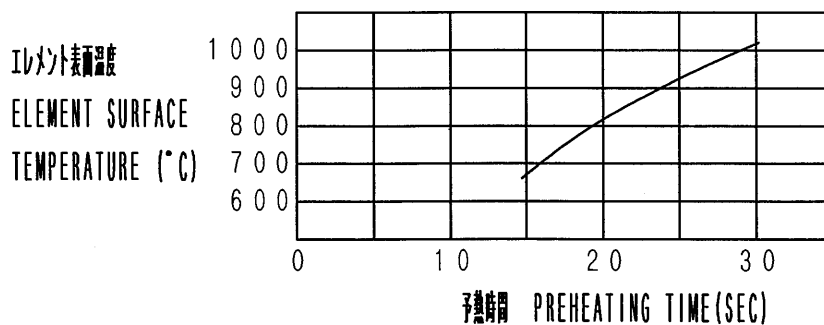
スターター
STARTER (24V-5kW)

32B66-12300



仕様
SPECIFICATIONS

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

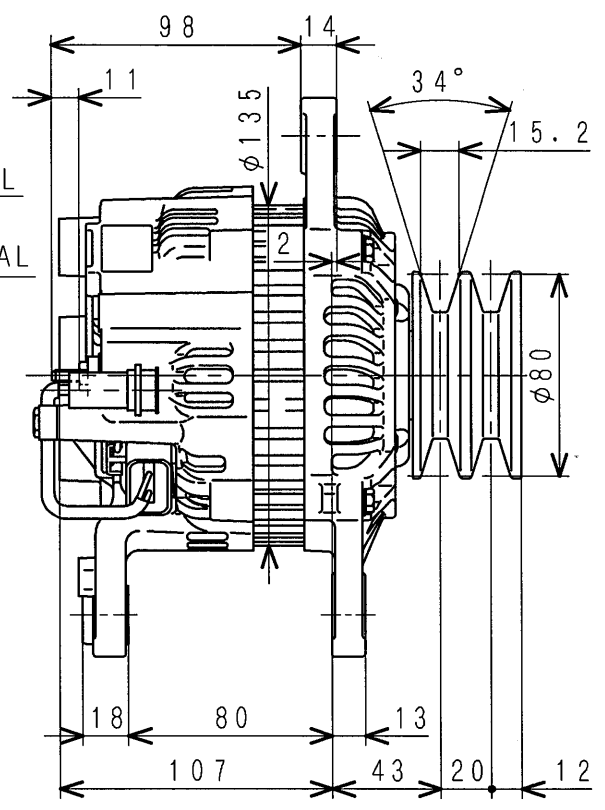
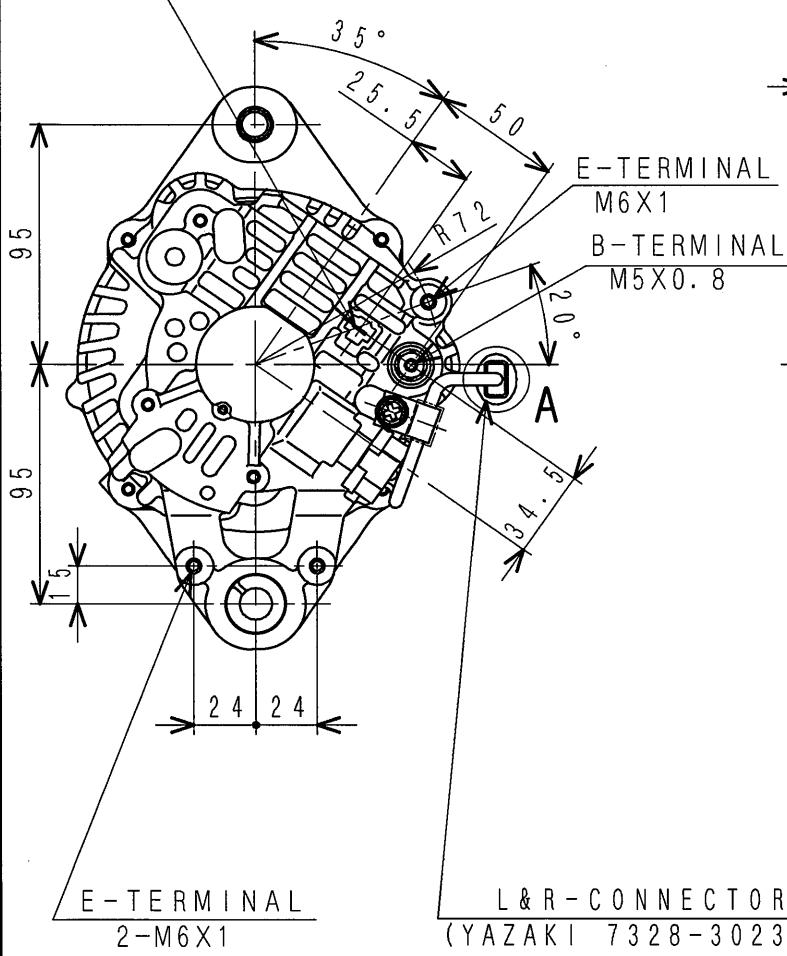


エア ヒータ アッシー
AIR HEATER ASSY

36766-11502

P-CONNECTOR

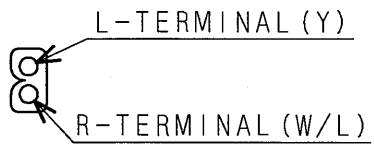
(YAZAKI 7322-2215)



E-TERMINAL
2-M6X1

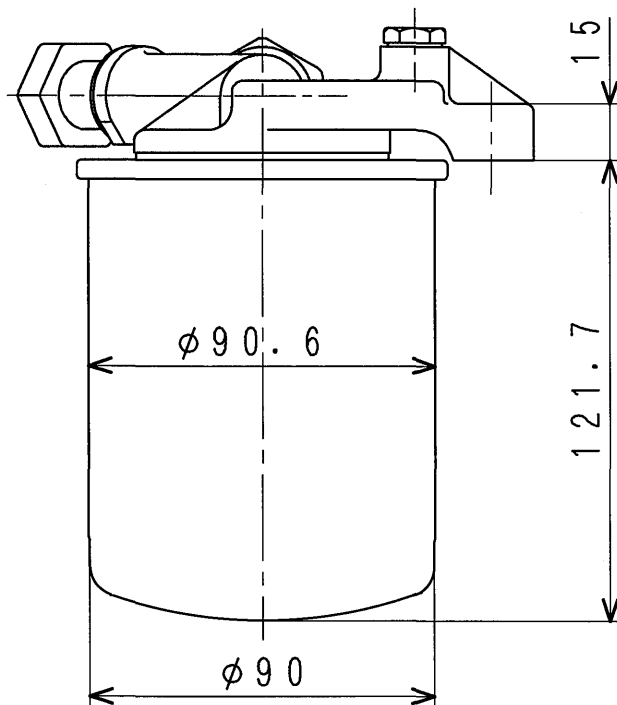
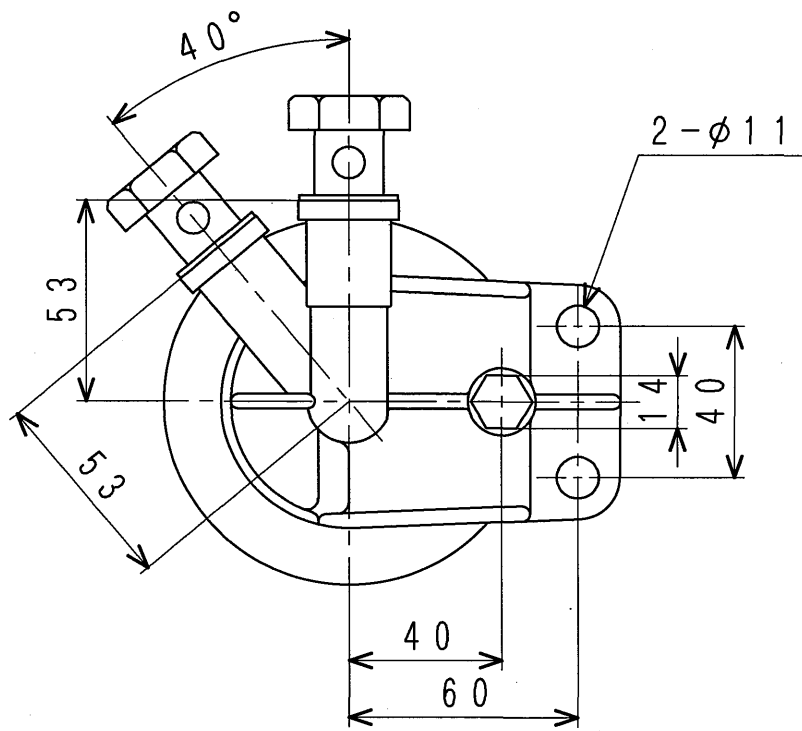
L&R-CONNECTOR
(YAZAKI 7328-3023)

A



オルタネータ
ALTERNATOR (24V-35A)

34368-04100



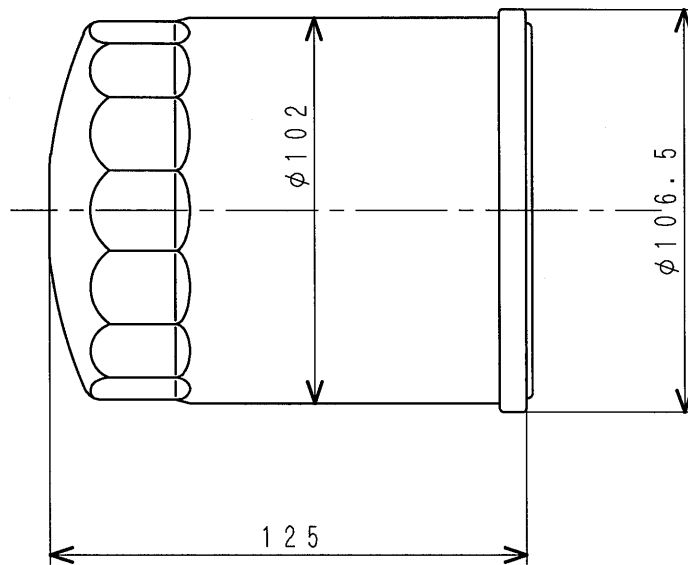
※カップ締付けトルク：13.7±2.0N・m

仕様
SPECIFICATIONS

ろ紙面積 FILTRATION AREA	3800cm ²
-------------------------	---------------------

ヒュエルフィルタアツシ
FILTER ASSY, FUEL

34362-00012

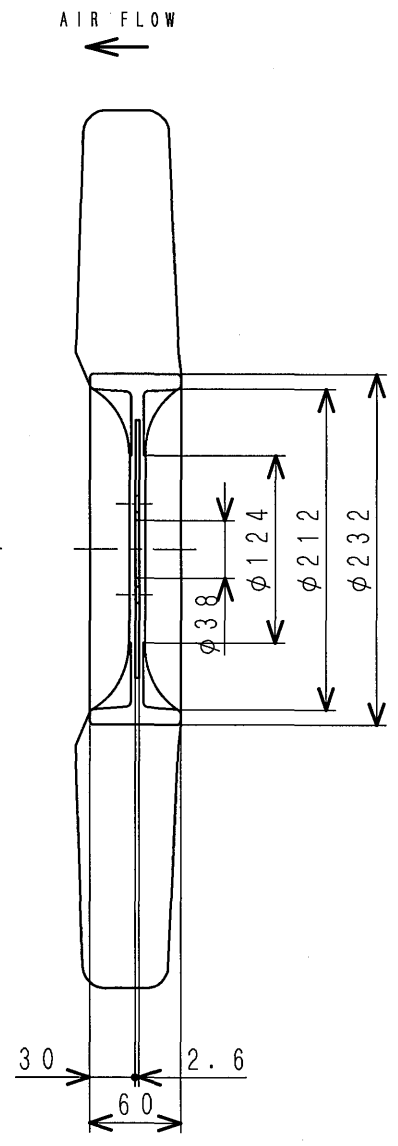
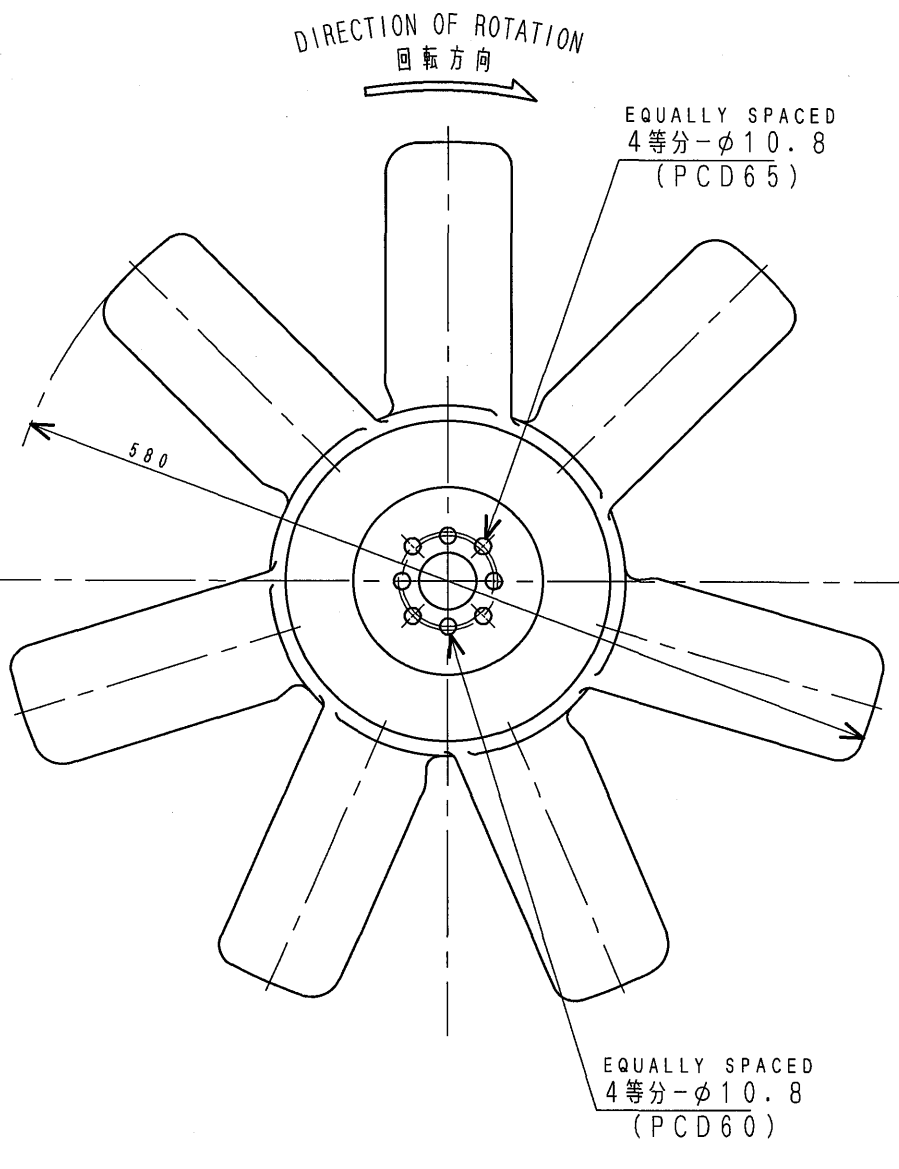


仕 様
SPECIFICATIONS

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

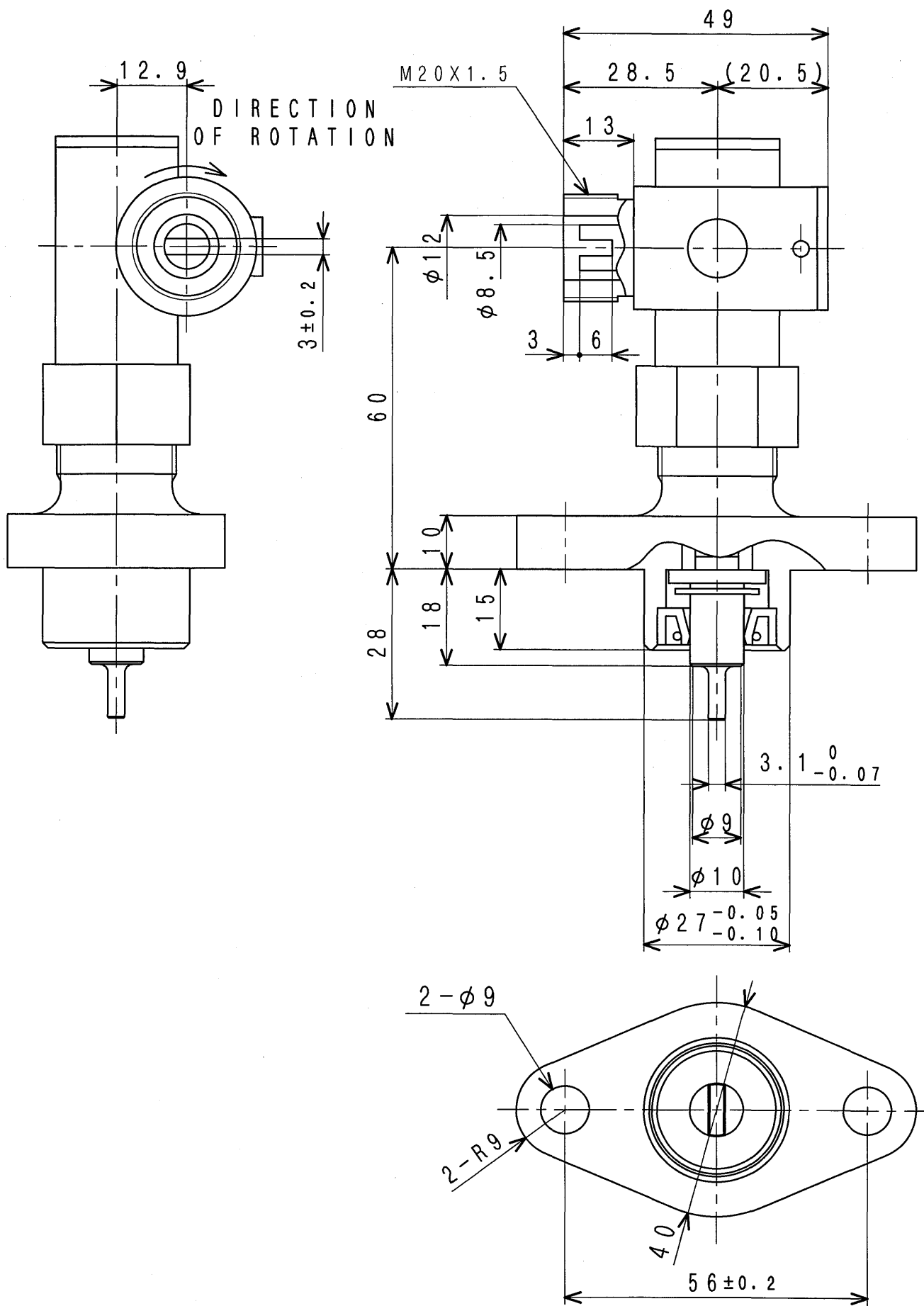
オイルフィルタ
FILTER, OIL

ME014-833



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

34348-00201

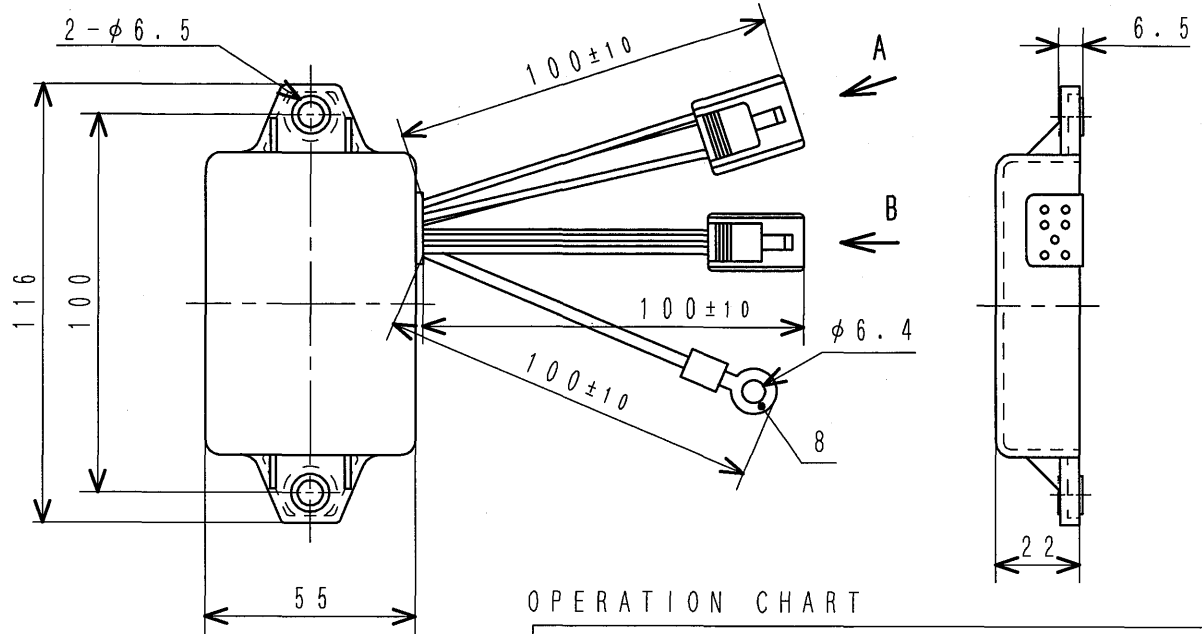


駆動軸と被駆動軸の回転比 1:1

ROTATION RATIO OF DRIVE & DRIVEN SHAFT IS 1:1

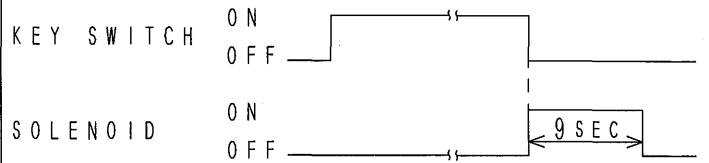
L-ジョイント
L-JOINT

30625-35020

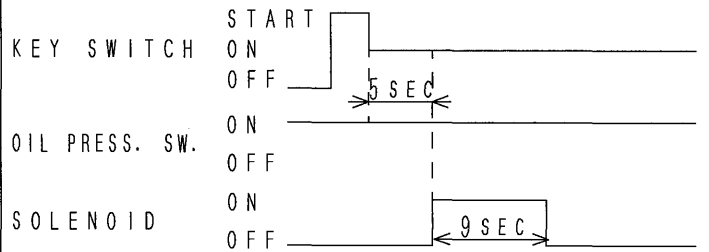


OPERATION CHART

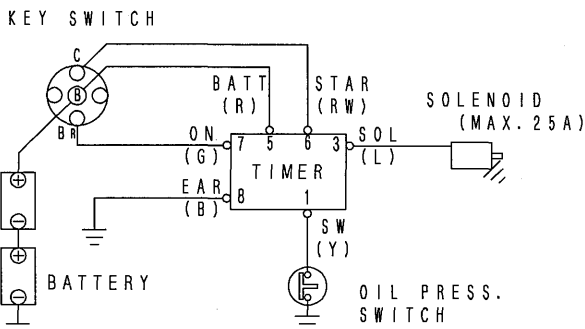
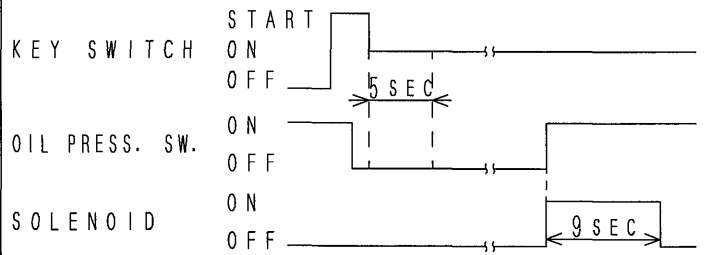
1. IN CASE THE KEY IS TURNED OFF.



2. IN CASE OIL PRESS. SW. IS ON ALL ALONG.



3. IN CASE OIL PRESS. SW. TURN ON AT ENG RUNNING.



配線図

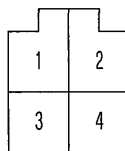
WIRING DIAGRAM

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)

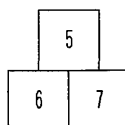
符号 SYM	線色 COLOUR	接続先 CONNECT FAR SIDE
1	YELLOW	油圧スイッチ OIL PRESS. SWITCH
2		(未使用) UNUSED
3	BLUE	ソレノイド(+) SOLENOID
4	BLUE	ソレノイド(-) SOLENOID
5	RED	バッテリー(+) BATTERY
6	RED WHITE	キースイッチ START KEY SWITCH
7	GREEN	キースイッチ ON KEY SWITCH
8	BLACK	アース EARTH

A-VIEW



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

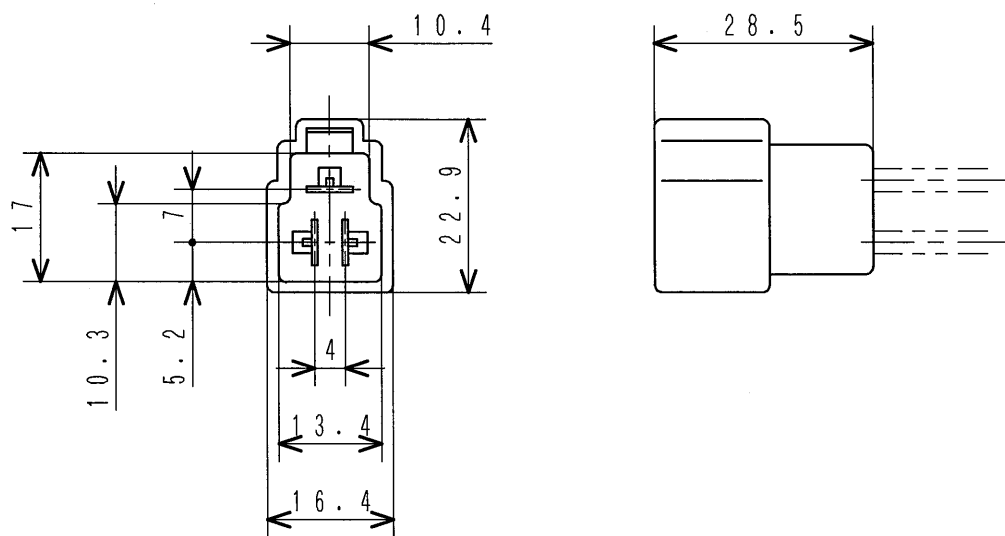
B-VIEW



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)

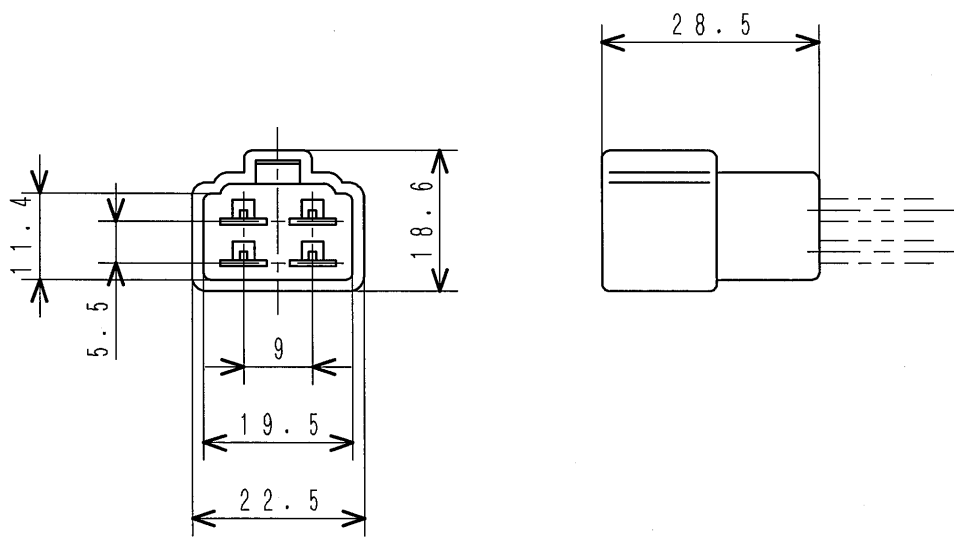
32B90-02400



注記 コントロールドライマ用 (YAZAKI 7322-2237)
 NOTE FOR CONTROL TIMER

コネクタ
 CONNECTOR (3 POLES)

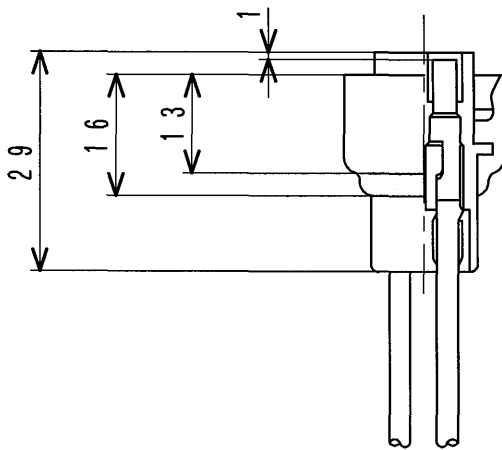
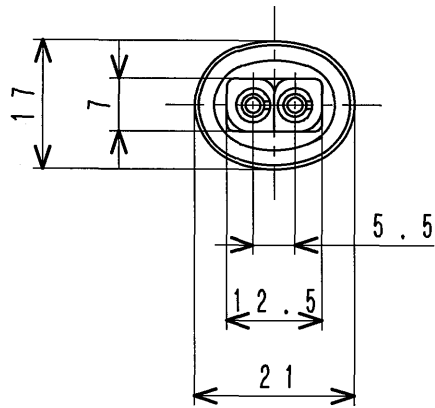
MM409-661



注記 コントロールタイマ用 (YAZAKI 7122-2446)
 NOTE FOR CONTROL TIMER

コネクタ
 CONNECTOR (4POLES)

MM409-663



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