

TRANSMITTAL OF MITSUBISHI HIGH SPEED DIESEL ENGINE DOCUMENT

ORDERED BY _____ CUSTOMER _____

	PART NAME	PART No.	FOR APPR.		FOR APPR.		FOR APPR.						ENGINE TYPE S4K-D65SAG
			N	D	N	D	N	D	N	D	N	D	
1	S4K-D65SAG SPEC.	SPC-S4K-249	P	A	P	B	P	C					A: First offer B: Update of specific fuel consumption value C: Addition of China Emission Regulation Label (Export Only Label)
2	S4K-D65SAG ENG ASSY	34200-01730	P	A	P	B							
3	S4K-D65SAG ENG ASSY	34200-01731					P	C					
4	ACCESSORIES (WITH ENGINE)		P	A	P	B	P	C					
5													
6													
7													
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26													
27													B
28													
29													
30													A
31													
32													
33													DATE
34													APPROVED
35													CHECKED BY
													CC
													ORDER

N: NUMBER, D: DATE
P: PDF

SPECIFICATIONS

Used for 50kVA generator

MITSUBISHI HIGH SPEED DIESEL ENGINE
MODEL MITSUBISHI S4K-D65SAG △

(For GENERATOR OEM, 1500rpm)

APPLICATION
FOR APPROVAL



PLEASE RETURN AFTER APPROVAL

APPROVED		REMARKS		
DATE · SIGNATURE				
<p>DATE Jun. 30. 2009</p> <p>MITSUBISHI HEAVY INDUSTRIES, LTD.</p>				
CHG	DATE	APPROVED	CHECKED	DRAWN
△	Mar. 14. 2016	<i>K. Iwano</i>	<i>H. Komatsu</i>	T.Igusa
△	Sep. 12. 2012			

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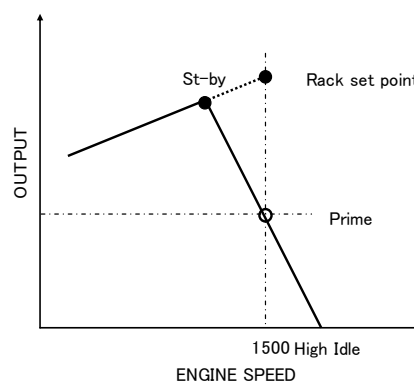
Revised record

No.	Date	Items	New	Old	Remarks
0	Jun. 30. 2009	First offer.			
①	Sep. 12. 2012	Model	S4K-D65SAG	S4K	
		Eng Assy(34200-01730)	1/2-CHG 1, 2/2-CHG 1	———	Addition of description
		Fuel consumption			Update of specific fuel consumption value
		Tolerance	———	±5%	
		Oil consumption	Approx.0.1~0.3% of fuel consumption <Reference value> @ Full load, Rated speed	Within 3.0g/kW-h	Change of notation to latest
		Flywheel	11-1/2 inch	SAE #11-1/2	Correction
		Accessories parts change			
		Starter	32B66-12301	32B66-12300	Interchangeable
②	Mar. 14. 2016	MHI No.	34200-01731 (1/2-CHG0, 2/2-CHG0)	34200-01730 (1/2-CHG2, 2/2-CHG1)	Addition of China emission label(Export only) Removal of oil pressure unit
		Regulations	National Standard of the People's Republic of China GB20891-2014 Export Only engine family; G3MVXLL0637KNZ (engine type; KNZ-S4K-1)	No emission regulated type	Change of spec
		Rating conditions(Without fan)	ISO 15550	JIS B 8002	
		Engine attached items&Reference drawings change			
		UNIT,PRESSURE GAGE	———	05202-50100	Stop production of supplier
		UNIT,THERMOMETER	MD366-869	05204-50300	Interchangeable

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
△ ₁	S4K-D65SAG
△ ₁ △ ₂	MHI No. 34200-01731 (1/2-CHG0, 2/2-CHG0)
△ ₁ Application	Generator
△ ₂ Regulations	National Standard of the People's Republic of China GB20891-2014 Export Only engine family; G3MVXLL0637KNZ (engine type; KNZ-S4K-1)
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. 340kg
Dimensions(Length)	Approx. 878mm
(Width)	Approx. 741mm
(Height)	Approx. 868mm
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 ; 46.7kW Prime ; 42.7kW
Rack set point	46.7kW/1500rpm (With Fan St-by;46kW) (With Fan Prime,42kW)
Rating tolerance	±5% of nominal
Low Idle	1000±20rpm
High Idle	1583(0/-20)rpm
△ ₂ Rating conditions(Without fan)	ISO 15550 Total barometric pressure : 100kPa Air temperature : 298K Relative humidity : 30%
Fuel consumption	Approx. 245g/kW·h at Prime output and standard air conditions(Without fan)
△ ₁	
△ ₁ Oil consumption	Approx.0.1~0.3% of fuel consumption<Reference value>@ Full load, Rated speed



Fuel injection timing	20°BTDC
Mean effective pressure	0.80MPa{8.2kgf/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	440mm diameter, 6 blades, pusher
Water pump pulley	PCD 137mm
Pulley ratio	1.26 (Crankpulley : Water pump pulley = 173:137)
Fan spacer	45mm 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

Intake manifold(cover)	Rear side way
Exhaust manifold	Uppr side way
Induction Resistance	Max 1.96kPa{200mmH ₂ O}(Initial stage)
Exhaust Back Pressure	Max 6.7kPa{683mmH ₂ O}

<Remarks>

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

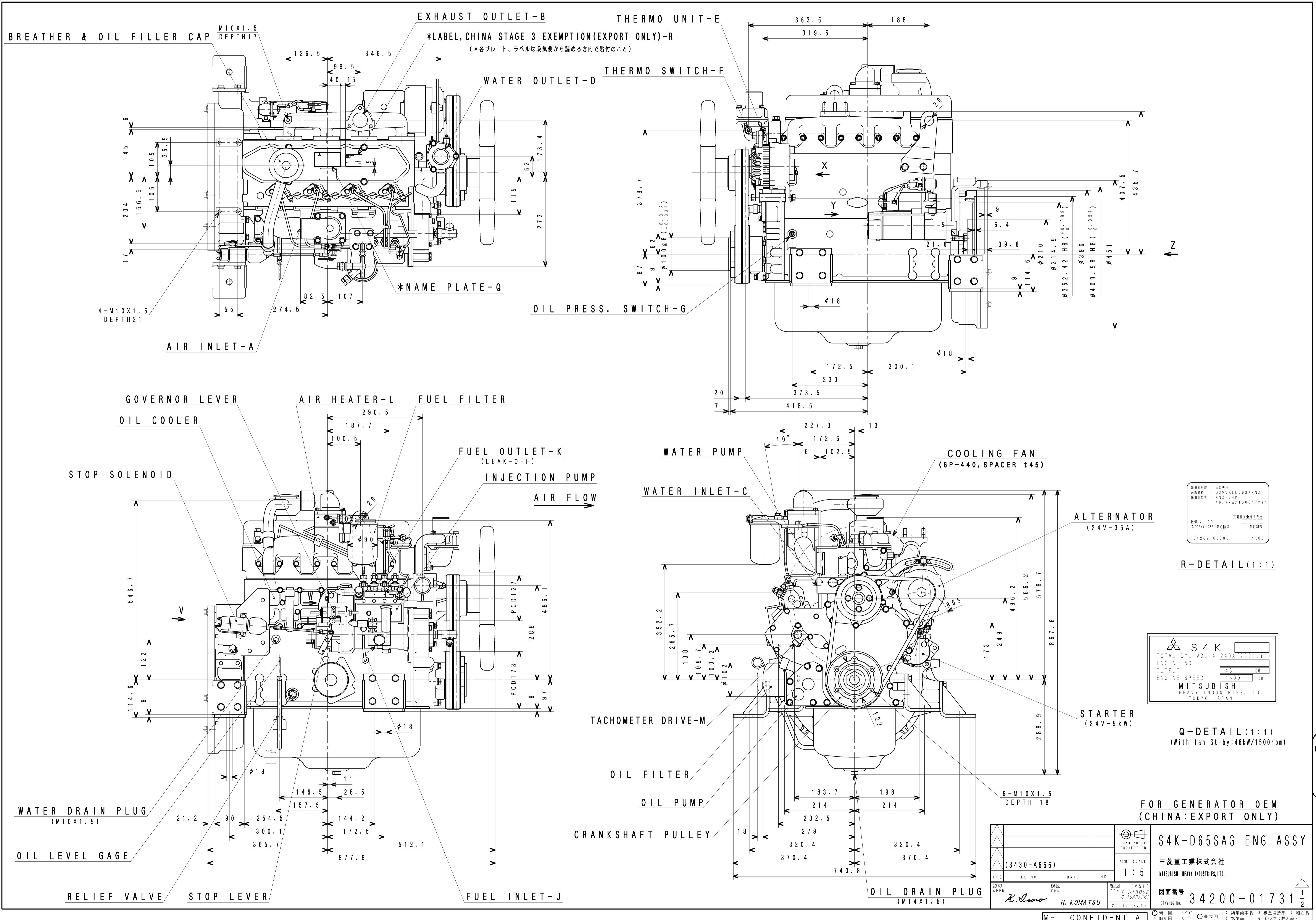
2. Engine attached items&Reference drawings

	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					
△	5	UNIT,THERMOMETER	MD366-869	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	34448-44200	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



保証期間: 出口専用
保証書種別: G3MVXLL0637KNZ
保証書型式: KNZ-S4K-1
46.7kW/1500r/min
数量: 100
375Peak175 第1期機 年月製造
三菱重工株式会社
34289-08300 4K03

R-DETAIL (1:1)

S4K	
TOTAL CYL. VOL. 4.249L (259cuin)	
ENGINE NO.	
OUTPUT 46 kW	
ENGINE SPEED 1500 rpm	
MITSUBISHI	
HEAVY INDUSTRIES, LTD.	
TOKYO, JAPAN	

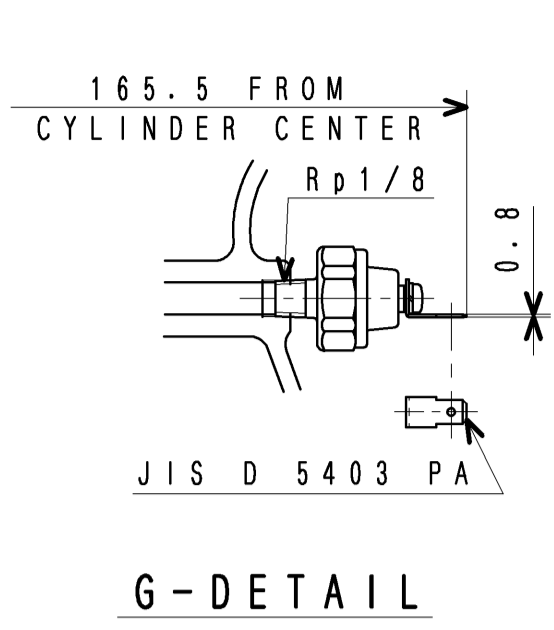
Q-DETAIL (1:1)
(With fan St-by:46kW/1500rpm)

FOR GENERATOR OEM
(CHINA: EXPORT ONLY)

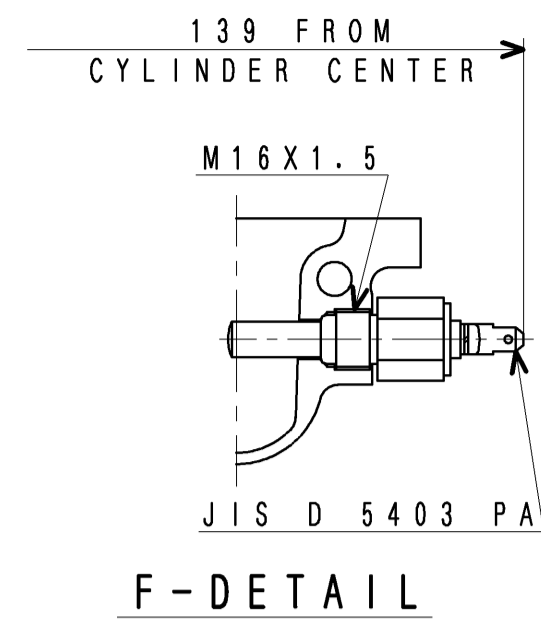
3/4 ANGLE PROJECTION			
R/F SCALE 1:5			
(3430-A666)			
CHG	ED-NO	DATE	CHK
APPD	DRN	CHK	
H. KOMATSU		H. KOMATSU	
2016. 2. 18		2016. 2. 18	
S4K-D65SAG ENG ASSY			
三菱重工株式会社			
MITSUBISHI HEAVY INDUSTRIES, LTD.			
図面番号 34200-01731			
DRAWING NO. 34200-01731			

出図
MHI
相模原
2016
3.17

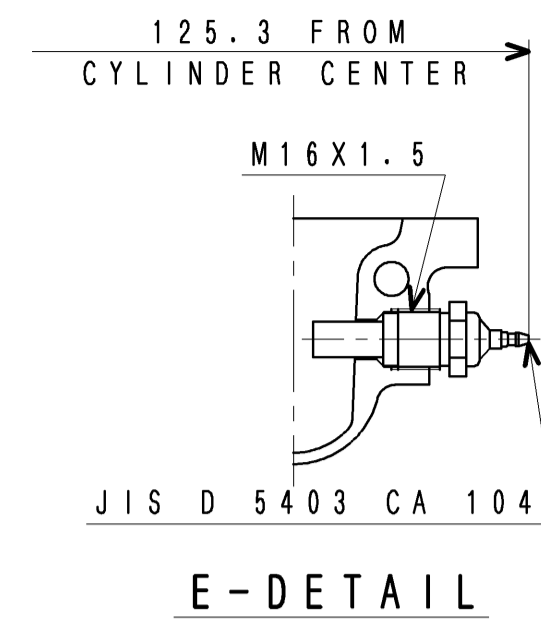
M/C



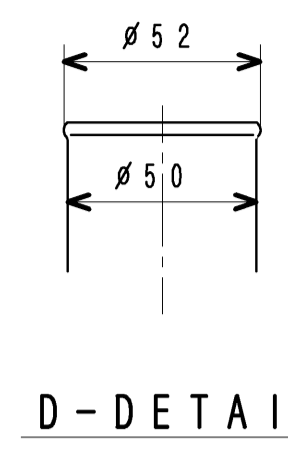
G-DETAIL



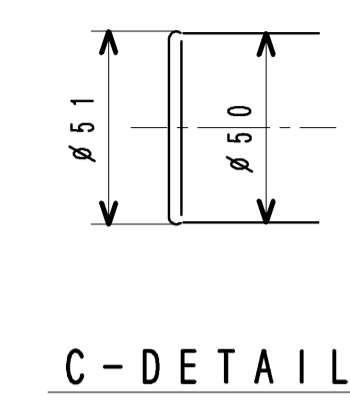
F-DETAIL



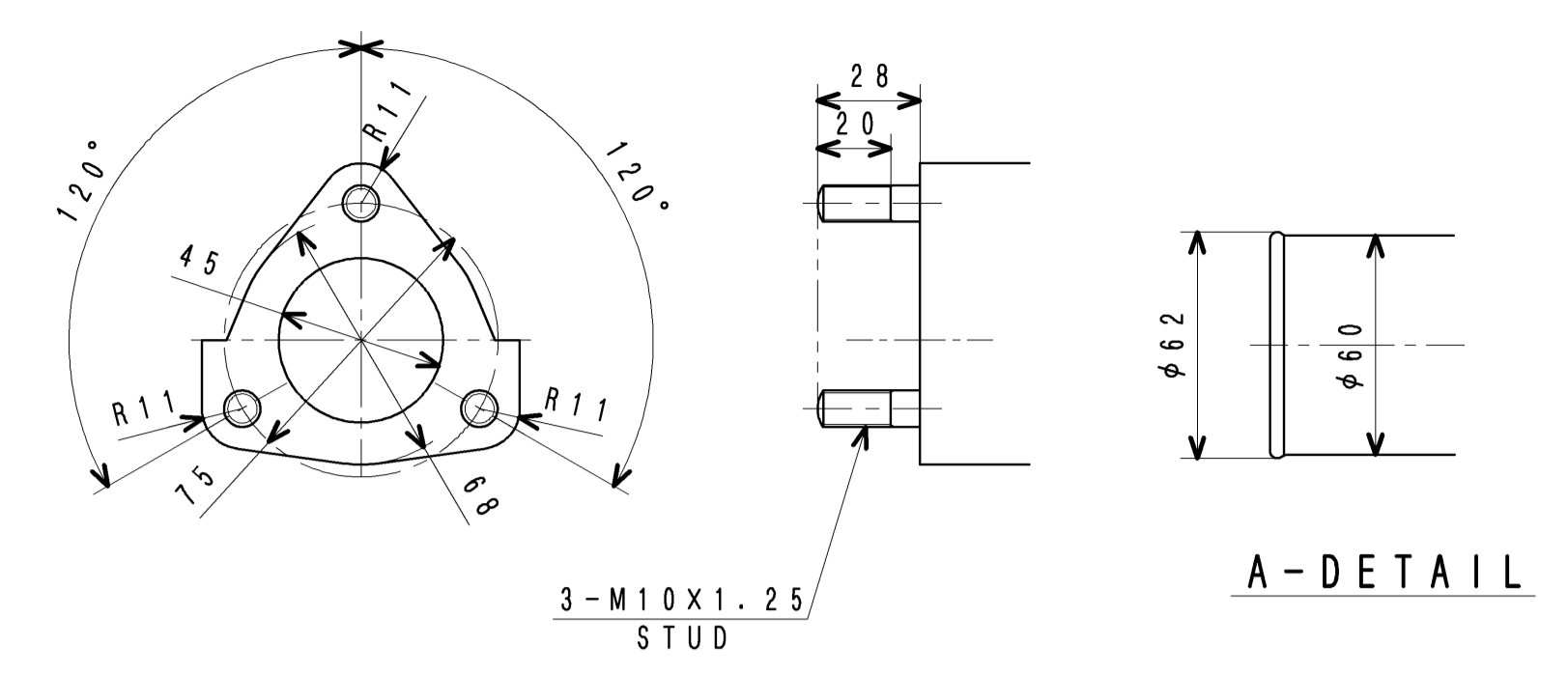
E-DETAIL



D-DETAIL

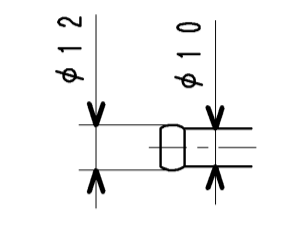


C-DETAIL

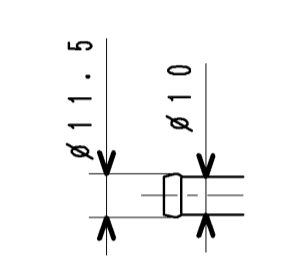


A-DETAIL

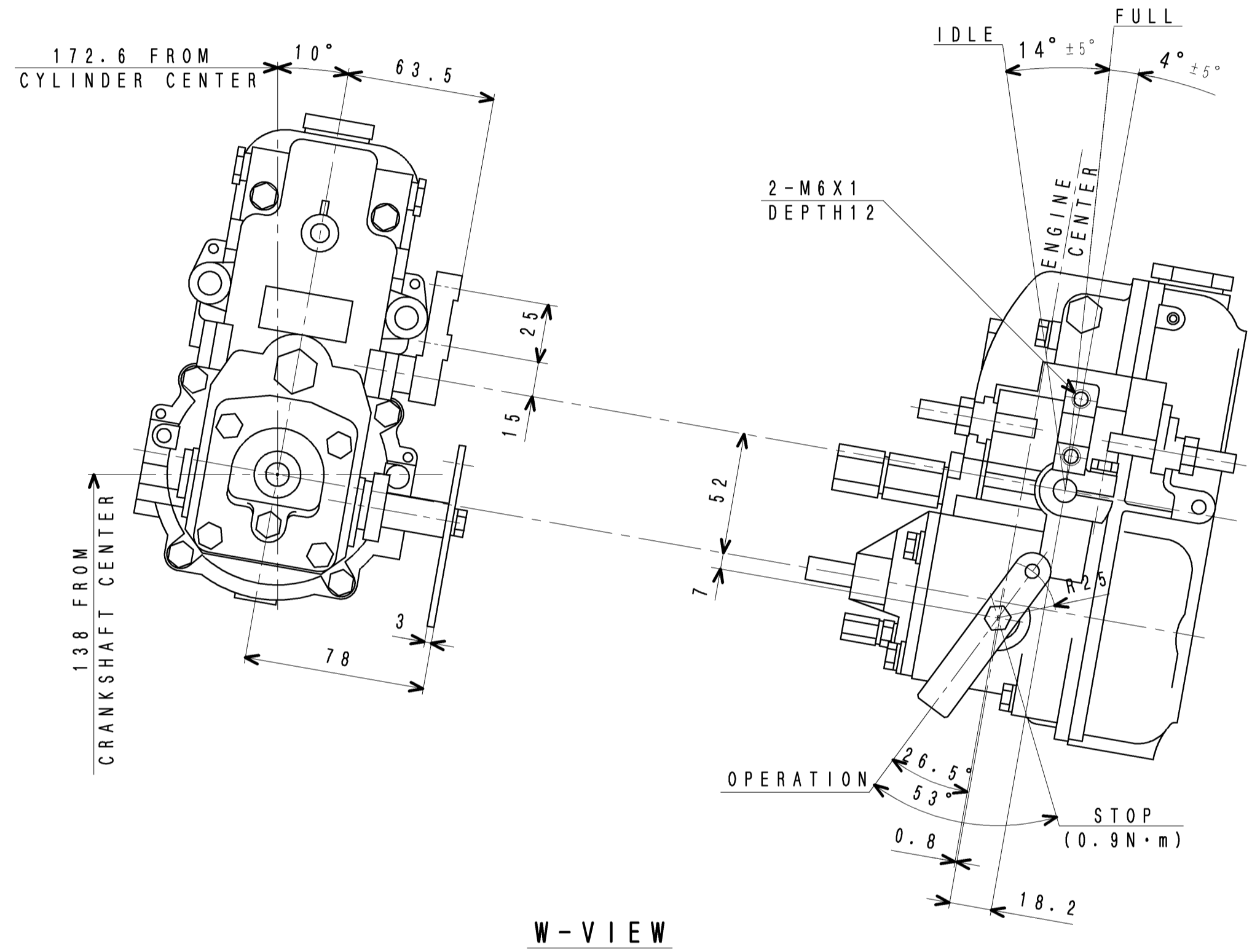
B-DETAIL



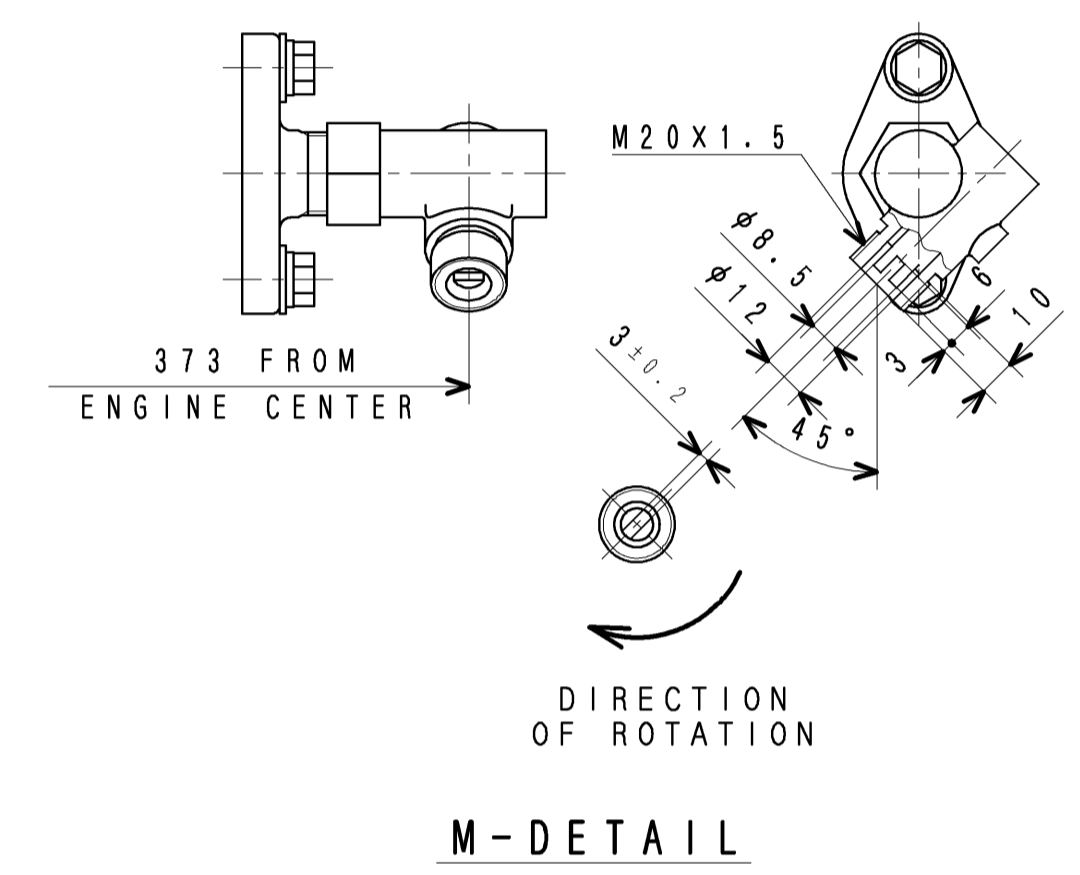
J-DETAIL



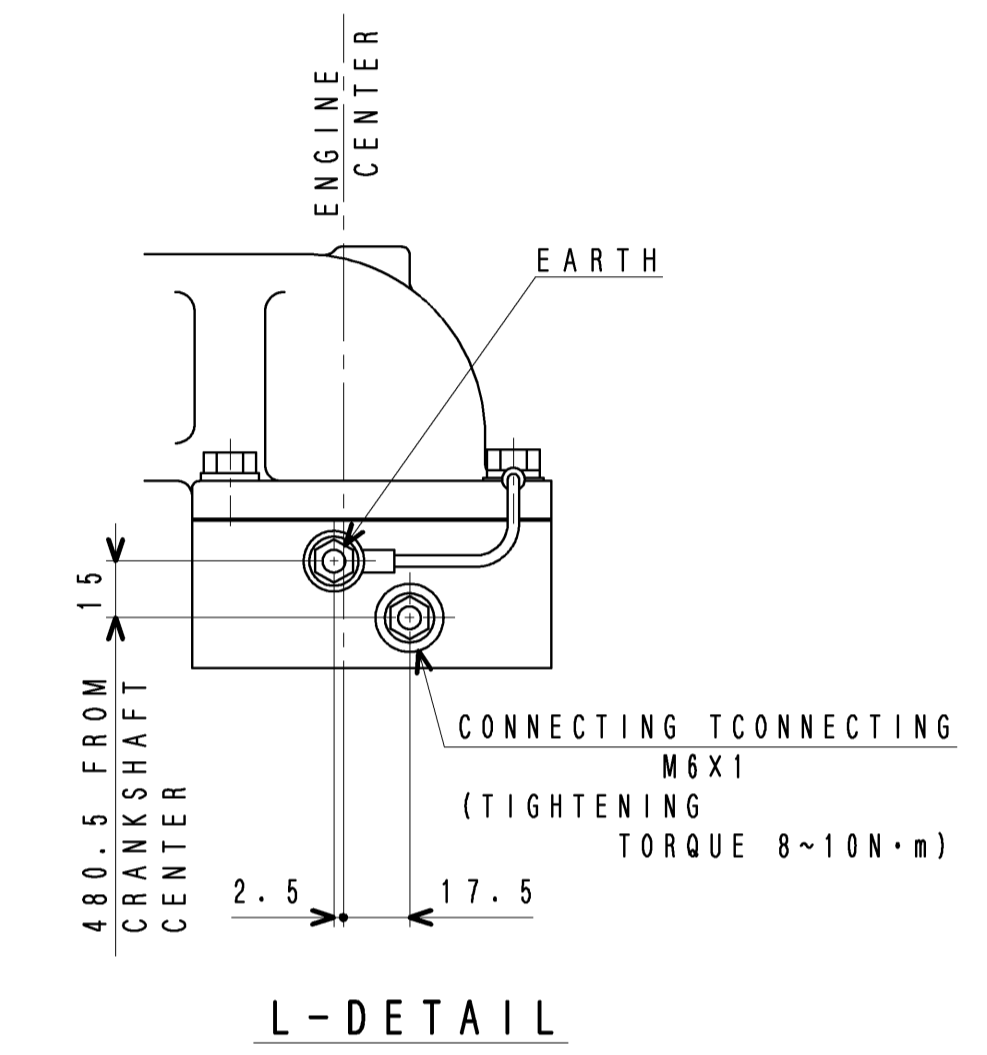
K-DETAIL



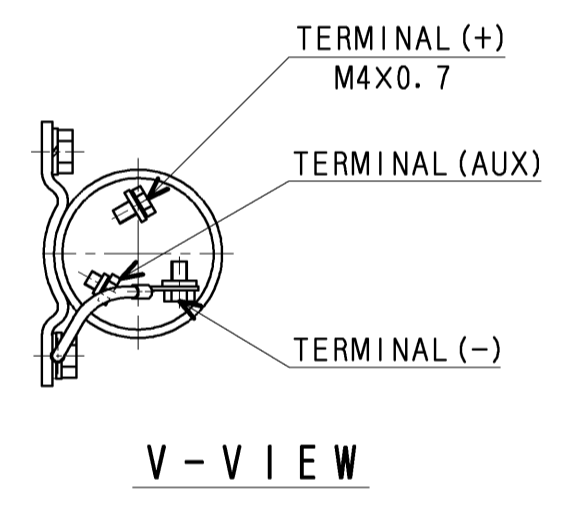
W-VIEW



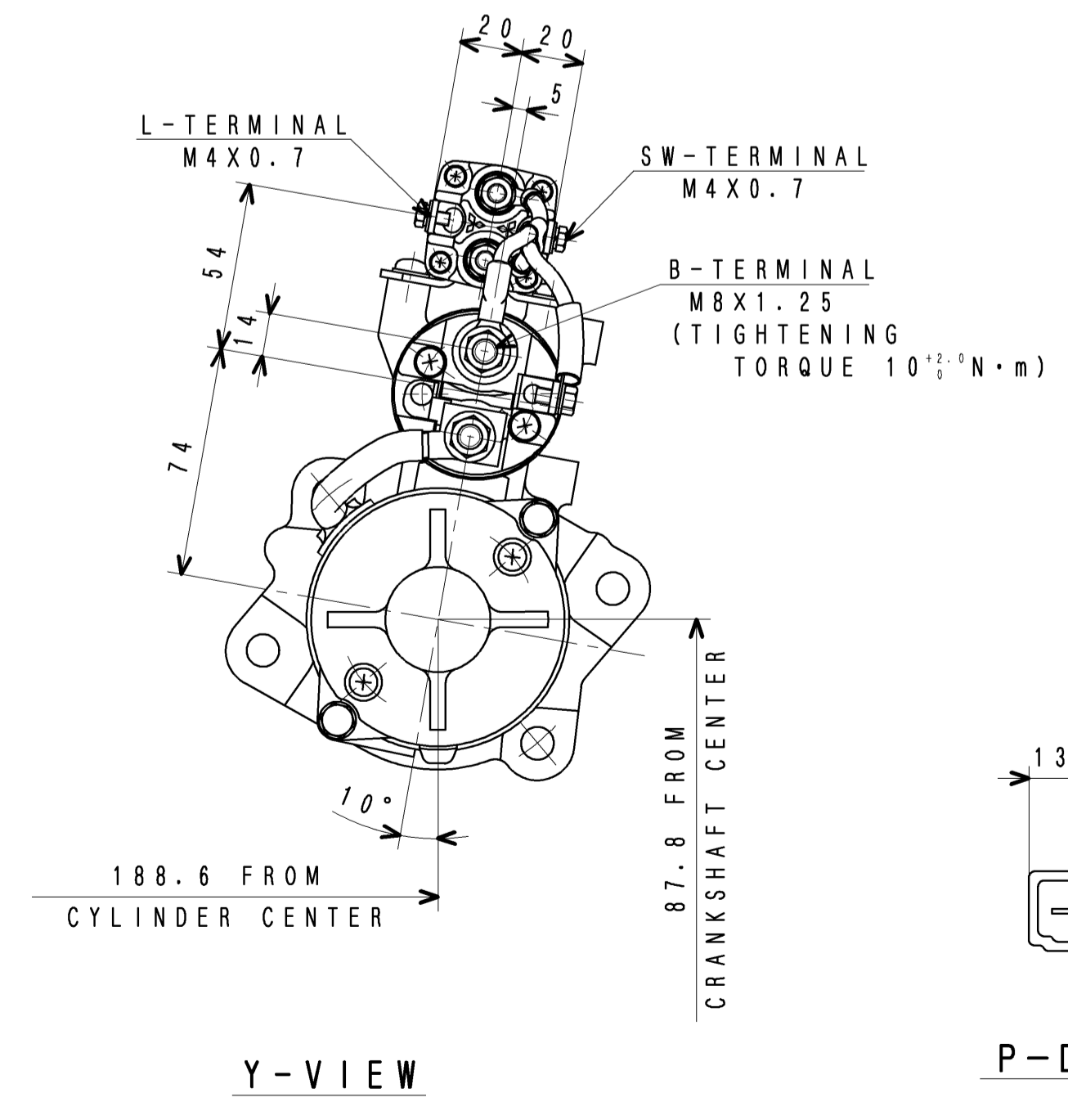
M-DETAIL



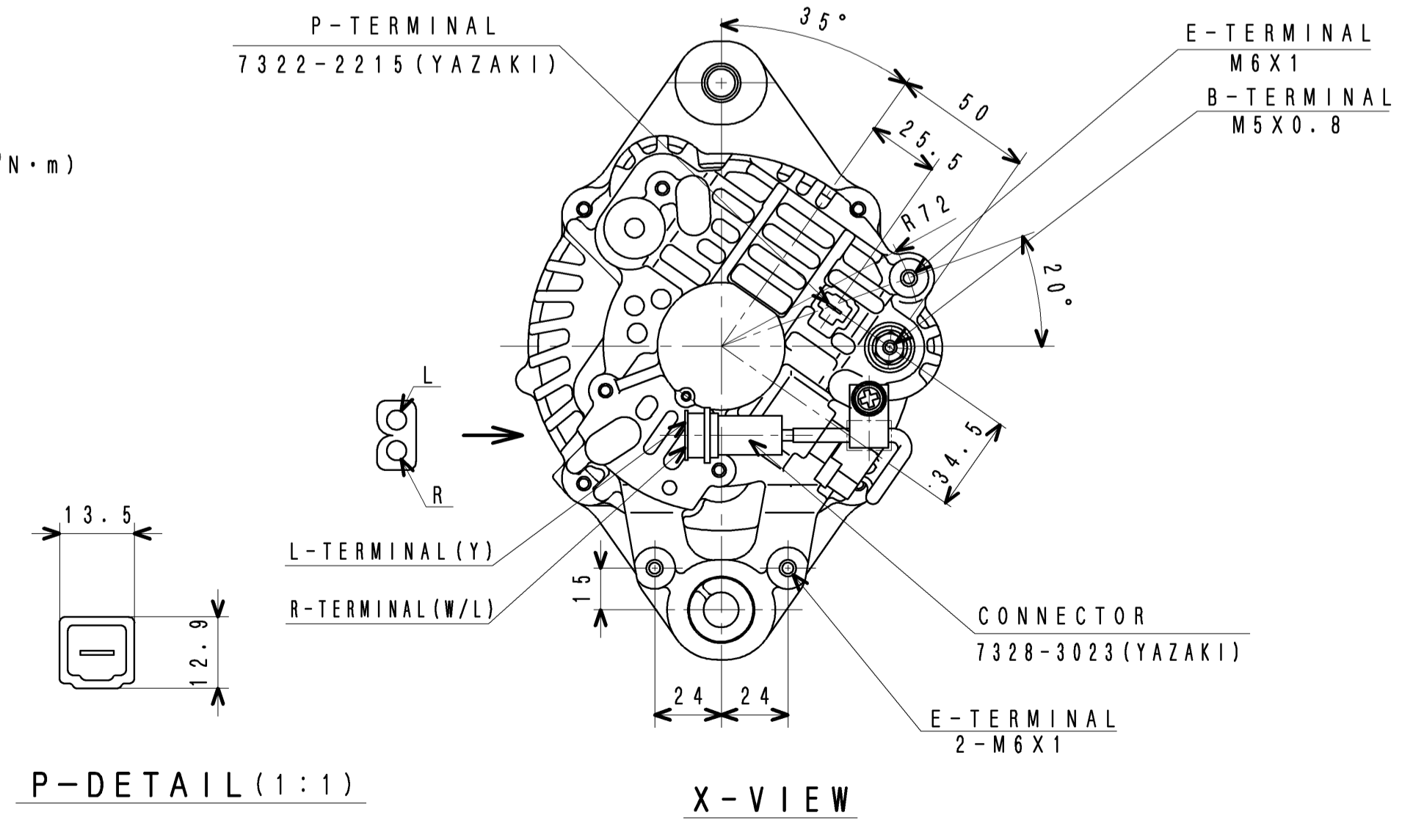
L-DETAIL



V-VIEW

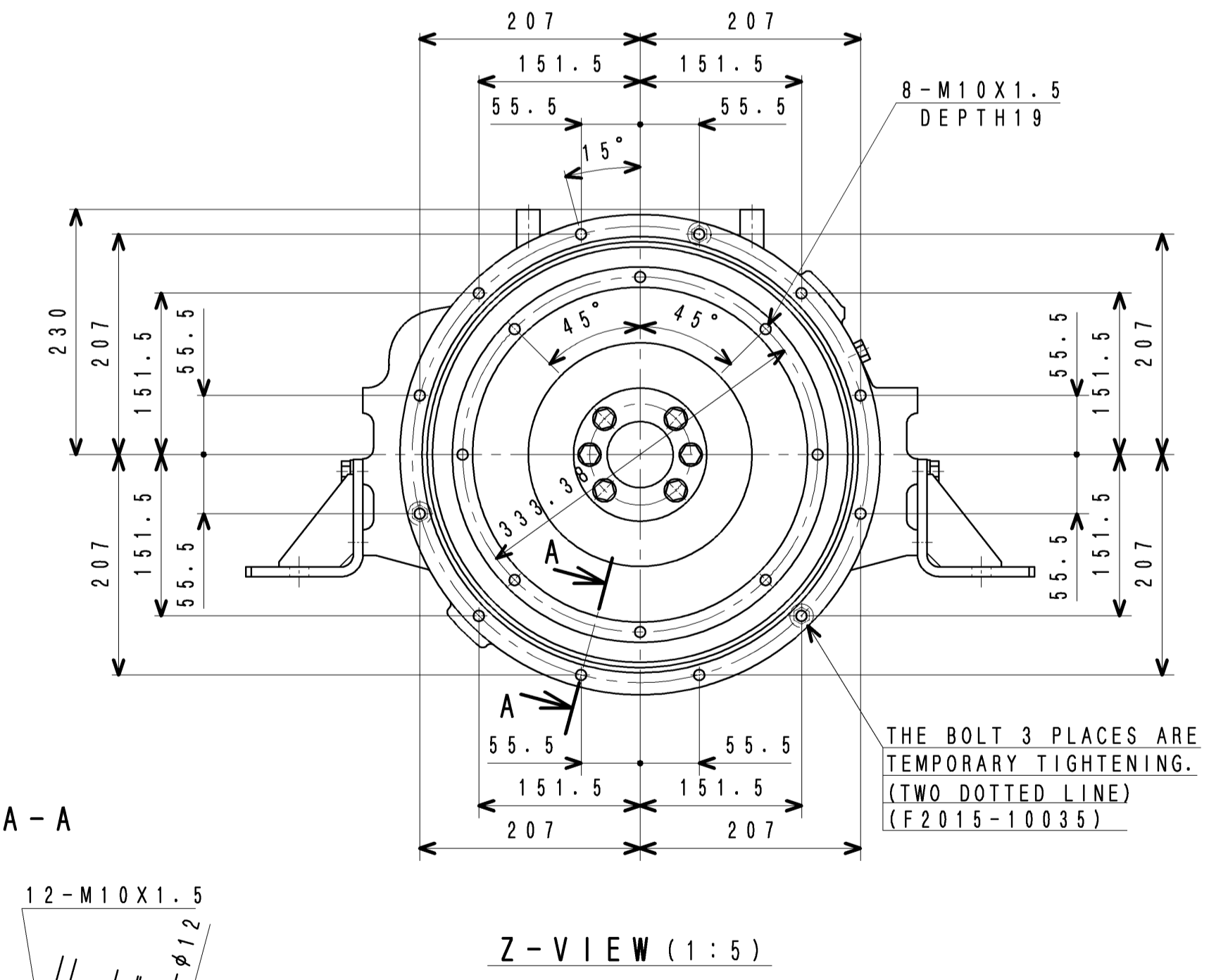


Y-VIEW

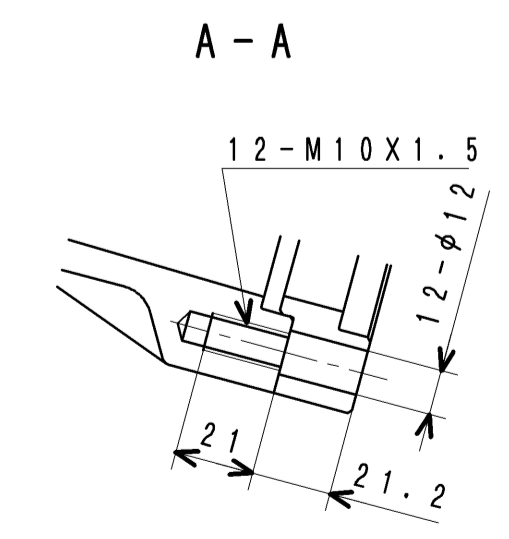


X-VIEW

P-DETAIL (1:1)



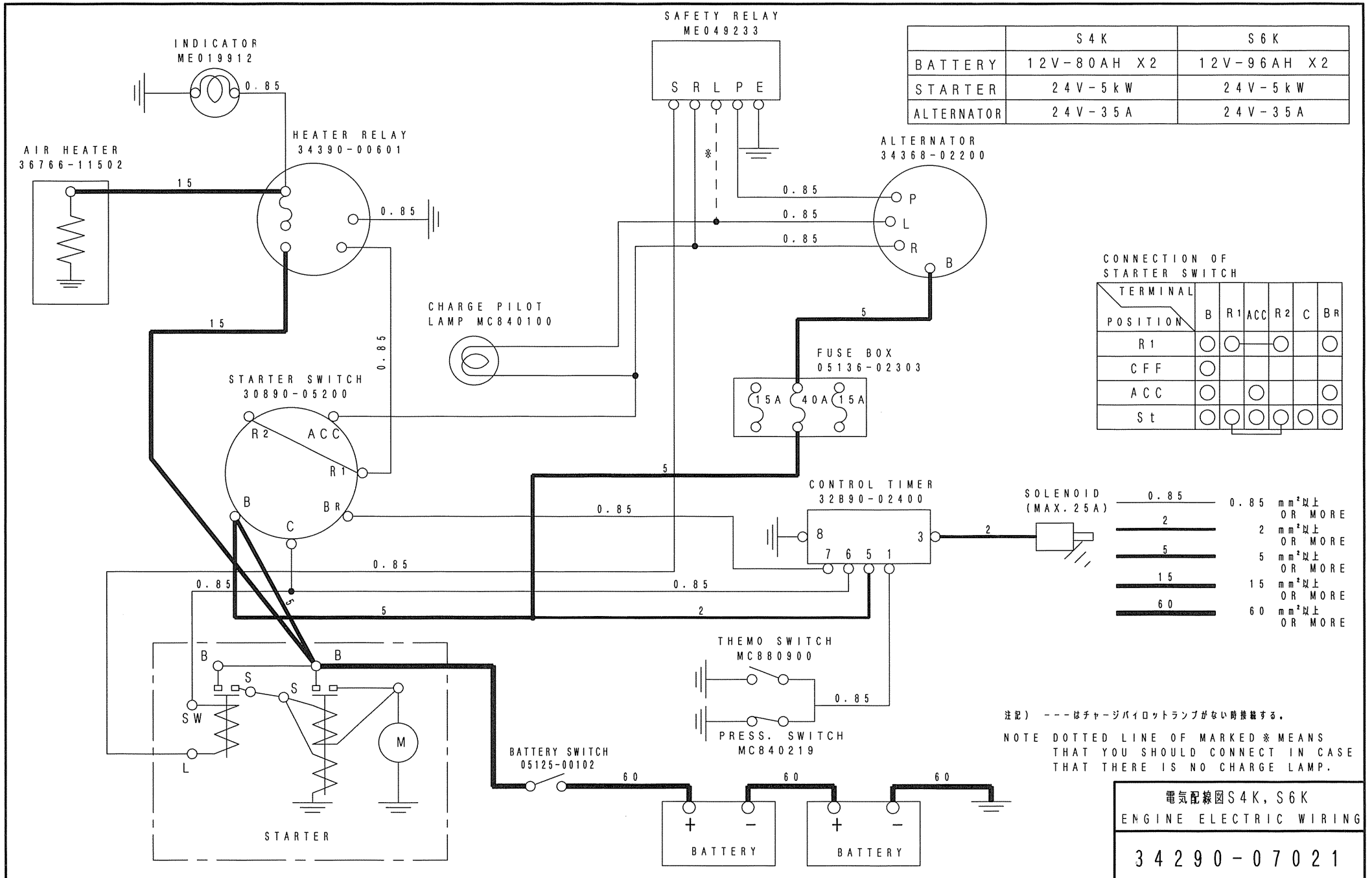
Z-VIEW (1:5)



A-A

FOR GENERATOR OEM (CHINA: EXPORT ONLY)

3/4 ANGLE PROJECTION				S4K-D65SAG ENG ASSY			
R/R SCALE 1:2				三菱重工業株式会社			
MITSUBISHI HEAVY INDUSTRIES, LTD.				MITSUBISHI HEAVY INDUSTRIES, LTD.			
図面番号 34200-01731				DRAWING NO. 34200-01731			
CHG	ED-NO	DATE	CHK	製図 (M.S.H.)	検図 (M.S.H.)	承認 (M.S.H.)	発行 (M.S.H.)
				DRN T. HIRASE	CHK C. IGARASHI	APPV H. Komatsu	2016. 2. 18



	S 4 K	S 6 K
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	○	○	○	○		○
CFF	○					
ACC	○		○			○
St	○	○	○	○	○	○

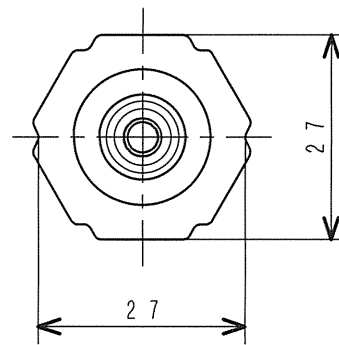
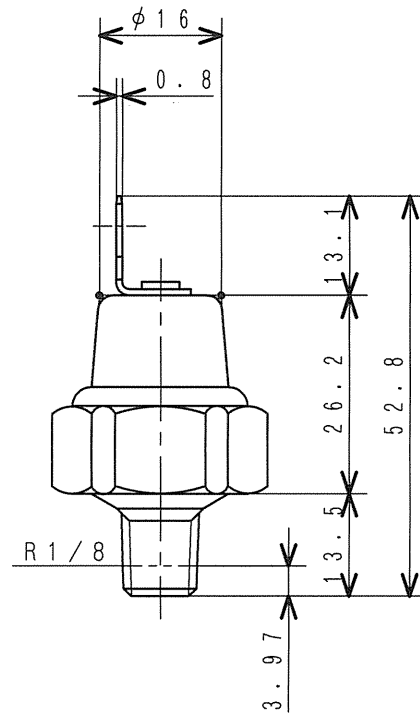
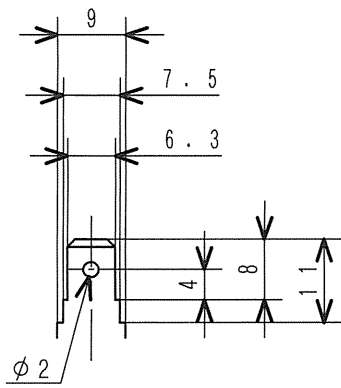
SOLENOID (MAX. 25A)	0.85	0.85	mm ² 以上 OR MORE
2	2	2	mm ² 以上 OR MORE
5	5	5	mm ² 以上 OR MORE
15	15	15	mm ² 以上 OR MORE
60	60	60	mm ² 以上 OR MORE

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

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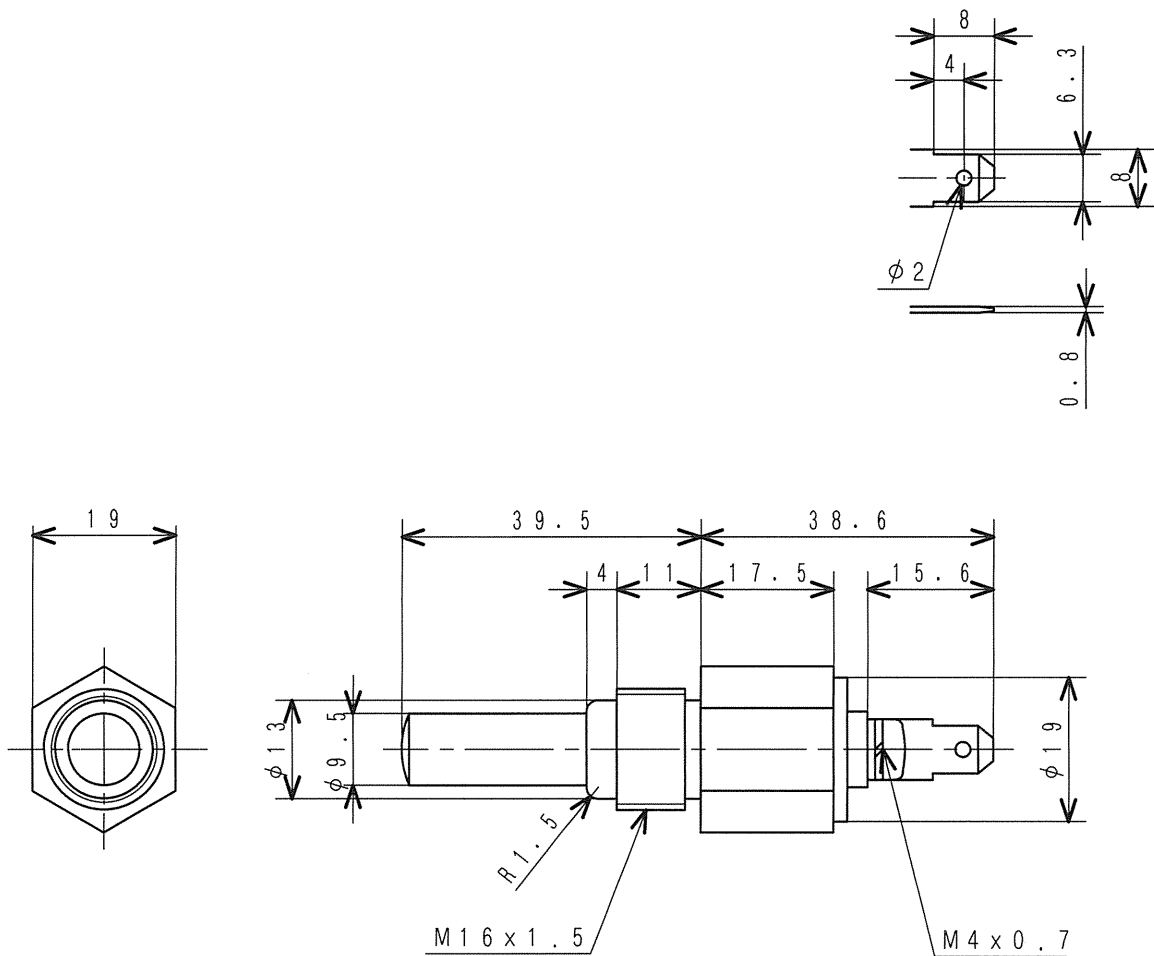
仕様
SPECIFICATIONS

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

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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以下 MAX.	0.5A以下 MAX.
定格電圧 RATED VOLT.	12V	24V

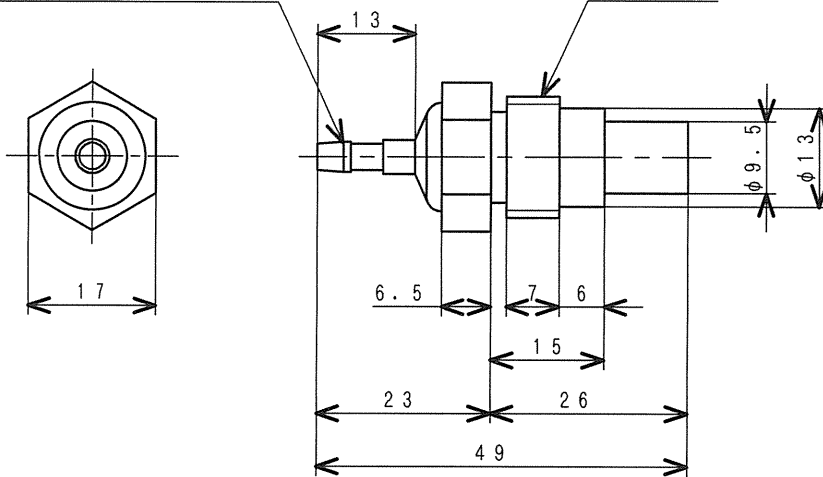
サーモスイッチ
SWITCH, THERMO

MC880-900

MHI CONFIDENTIAL

JIS D 5403 CA104

M16X1.5



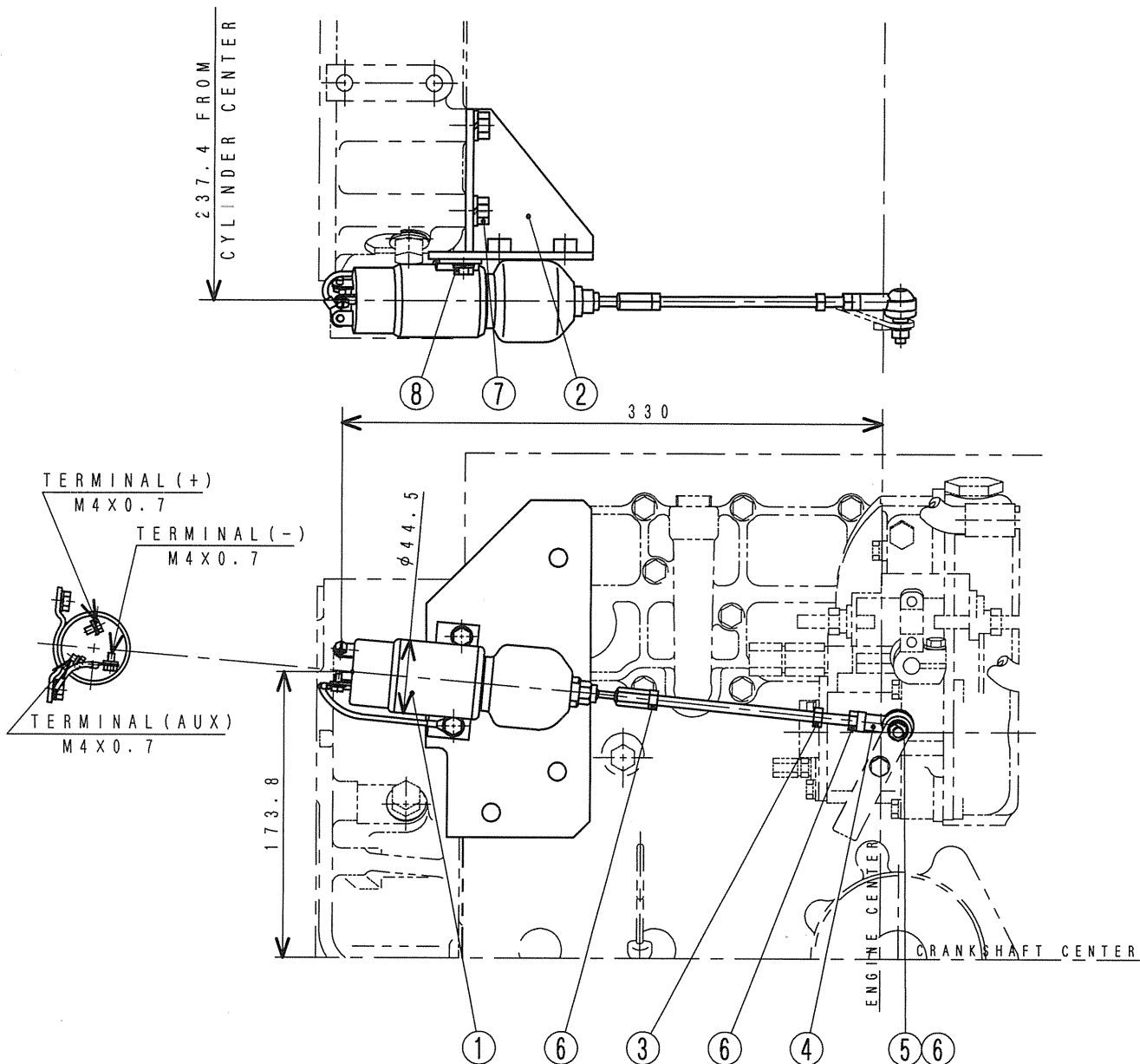
温度 (°C) TEMPERATURE	50	67	70	100	102	110	135
抵抗 (Ω) RESISTANCE	80	44.6	40.9	17.6	16.5	12.8	7

サーモメータユニット

UNIT, THERMOMETER

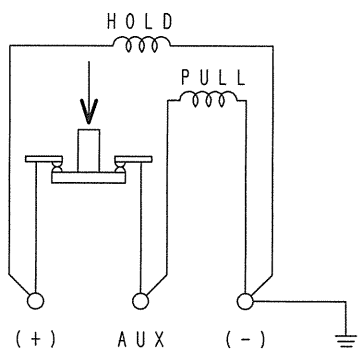
MD366-869

MHI CONFIDENTIAL



仕様 (20℃にて)
SPECIFICATIONS (AT 20℃)

定格電圧 RATED VOLT.	DC 24 V	
	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)

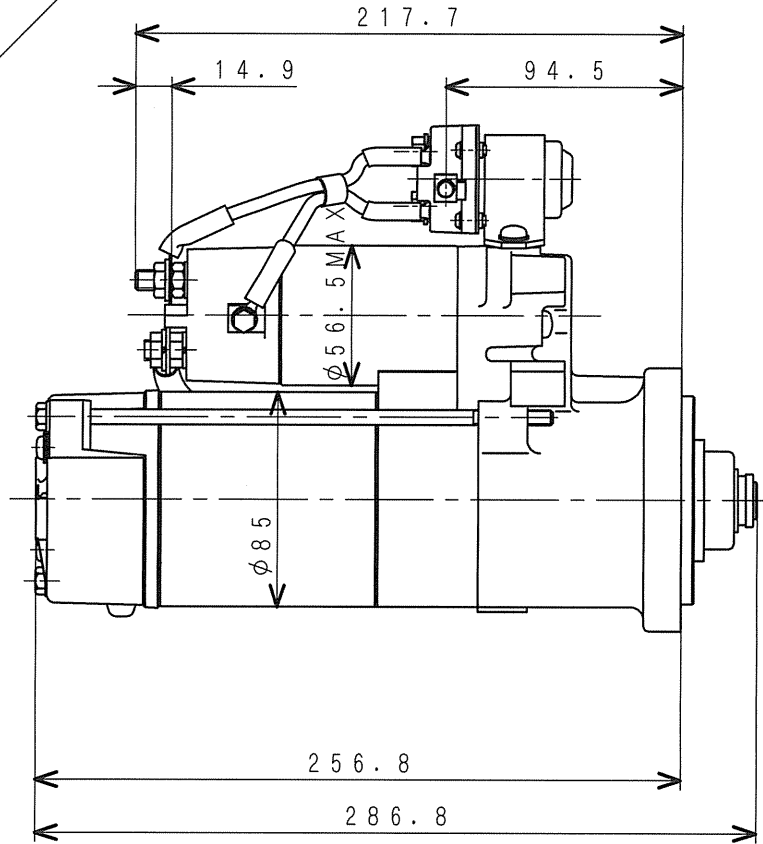
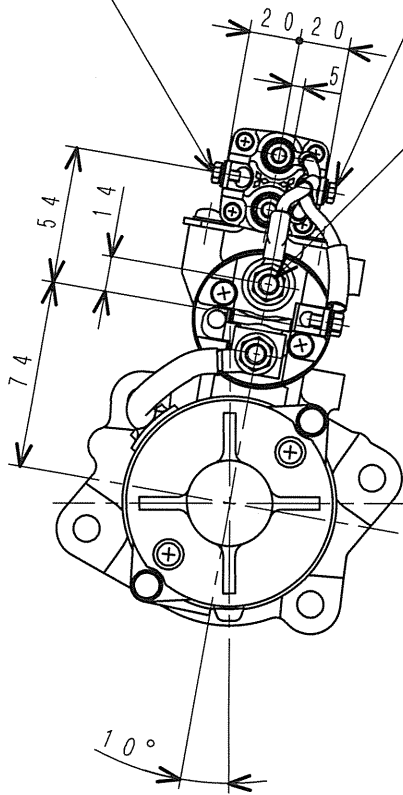
34287-00030



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L-TERMINAL
M4X0.7
(FOR SAFETY RELAY)

SW-TERMINAL
M4X0.7

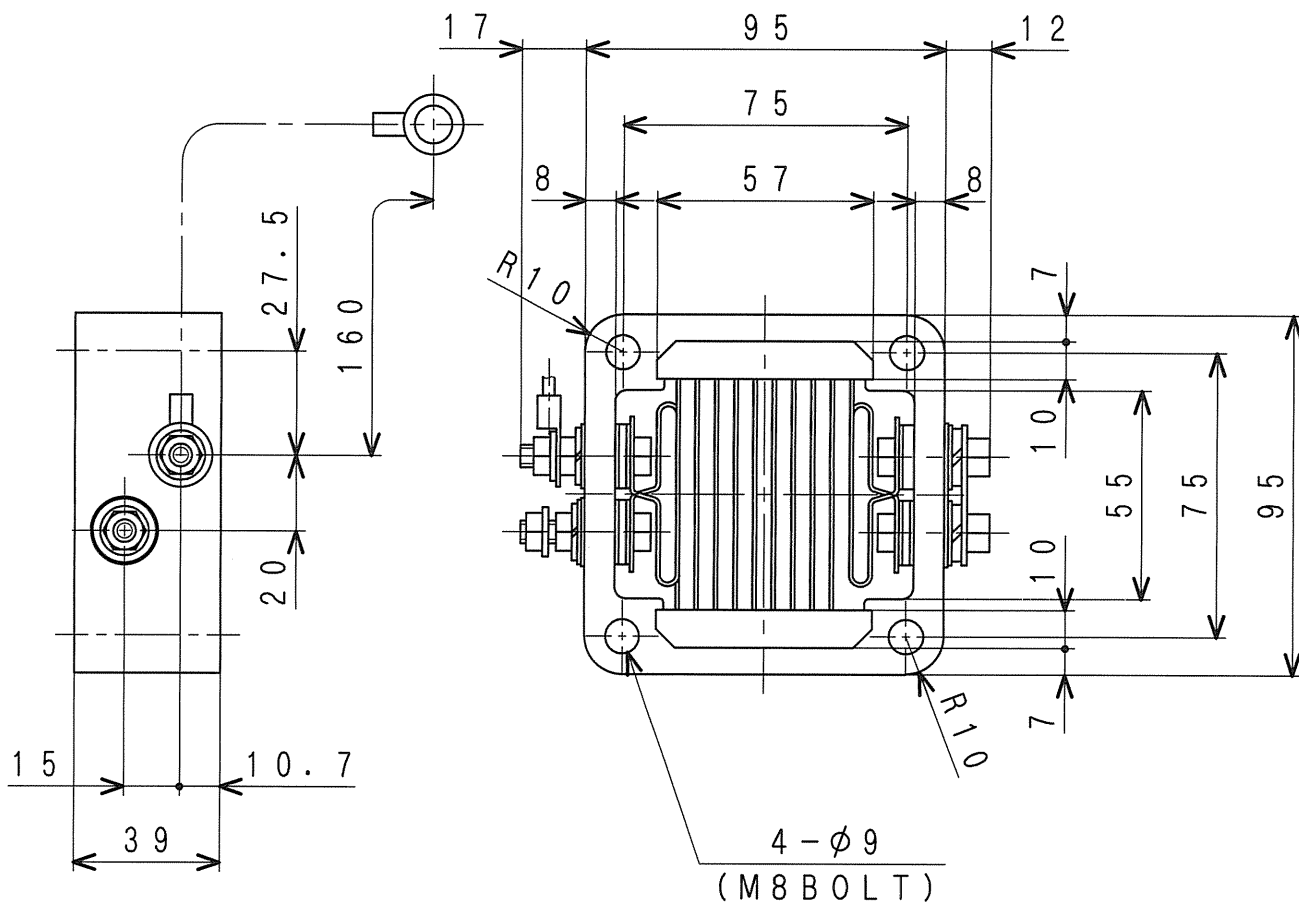
B-TERMINAL
M8X1.25
(TIGHTENING
TORQUE 10^{+2}_0 N·m)



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

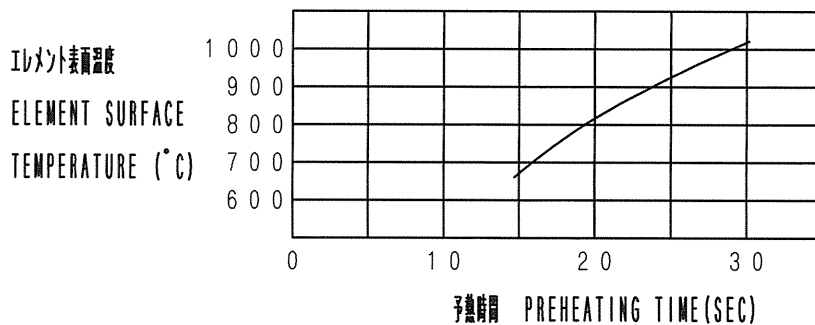
スタータ
STARTER (24V-5kW)

32B66-12301



仕様
SPECIFICATIONS

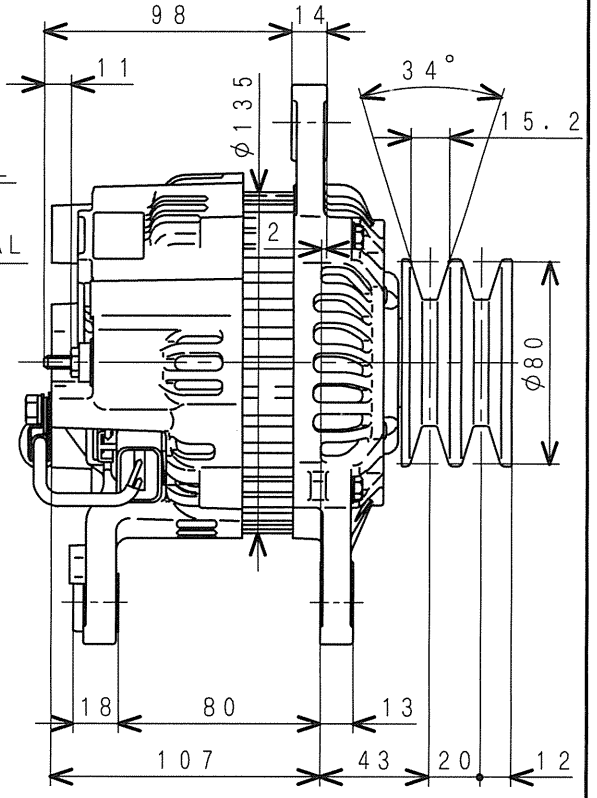
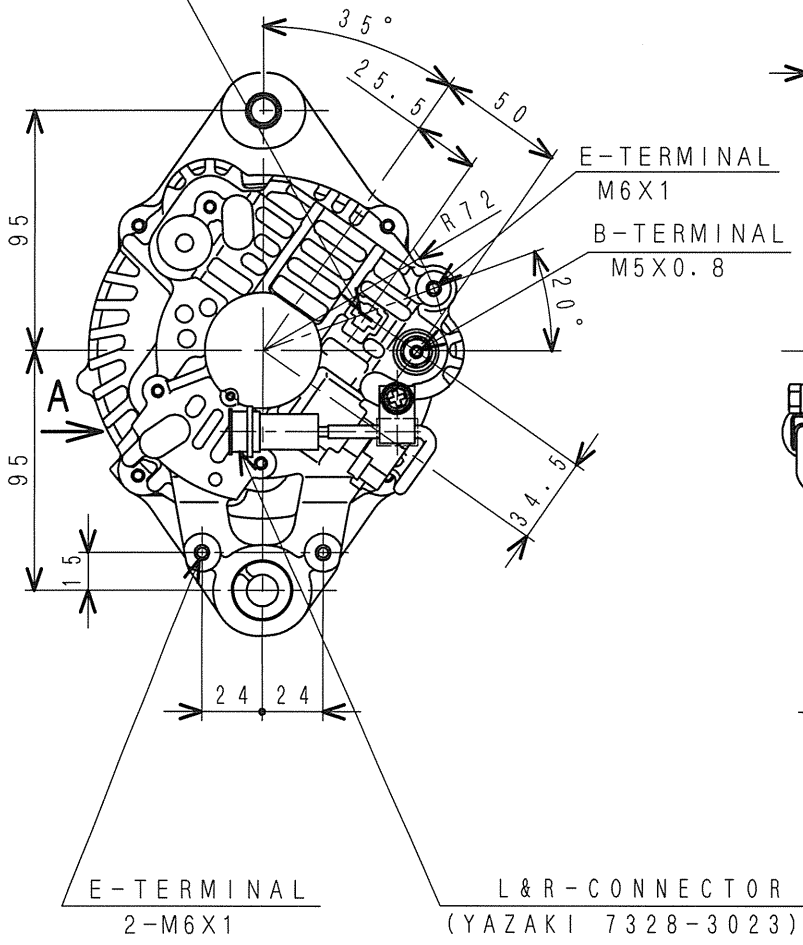
容量 CAPACITY	2.1 kW
定格電圧 RATED CURRENT	95 A ± 10% (AT 22 V)



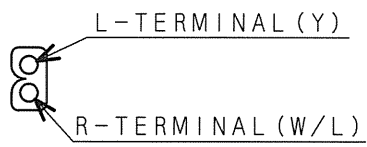
エア ヒータ アッシー
AIR HEATER ASSY

36766-11502

P-CONNECTOR
(YAZAKI 7322-2215)



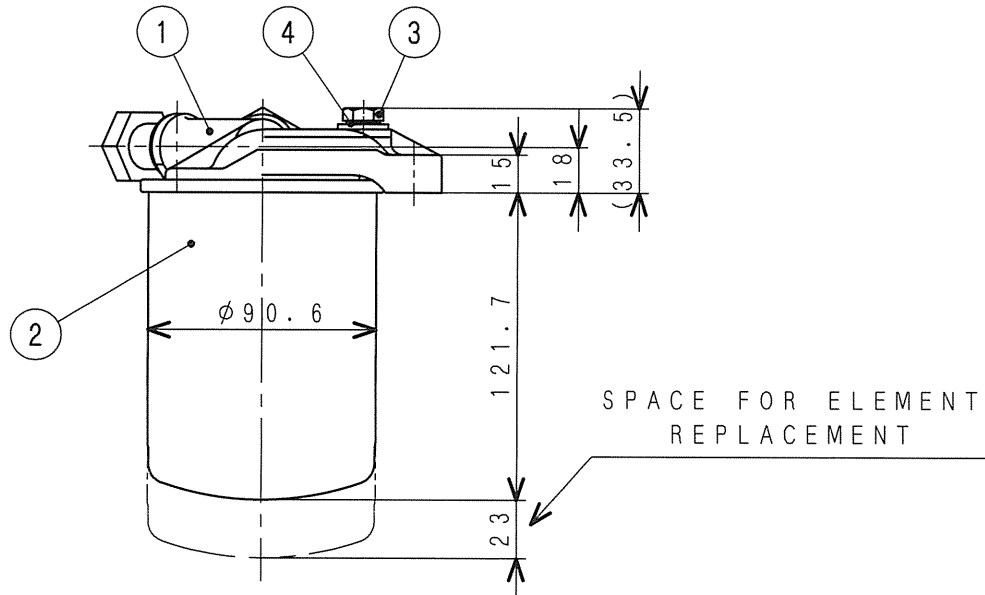
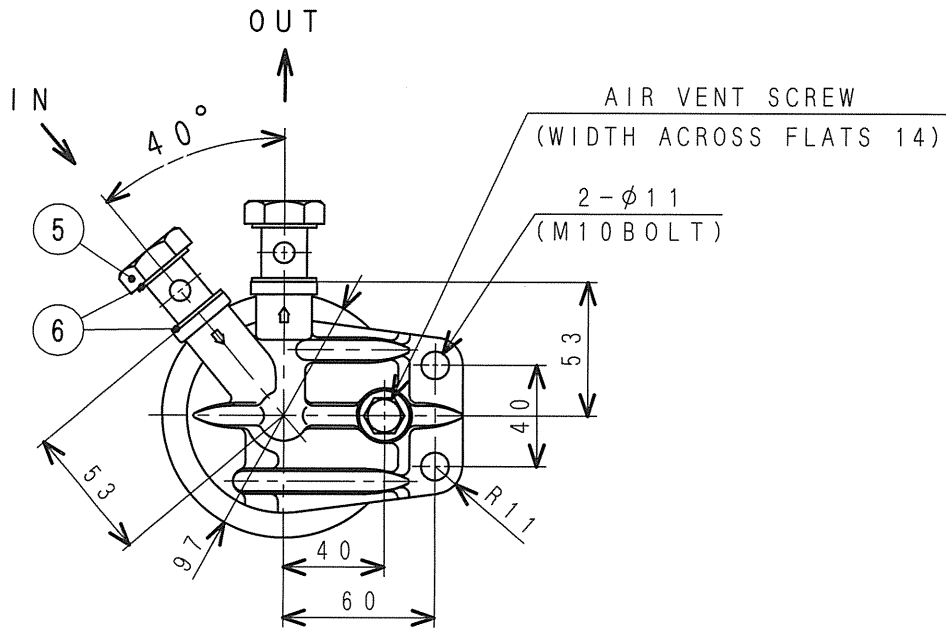
A



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。

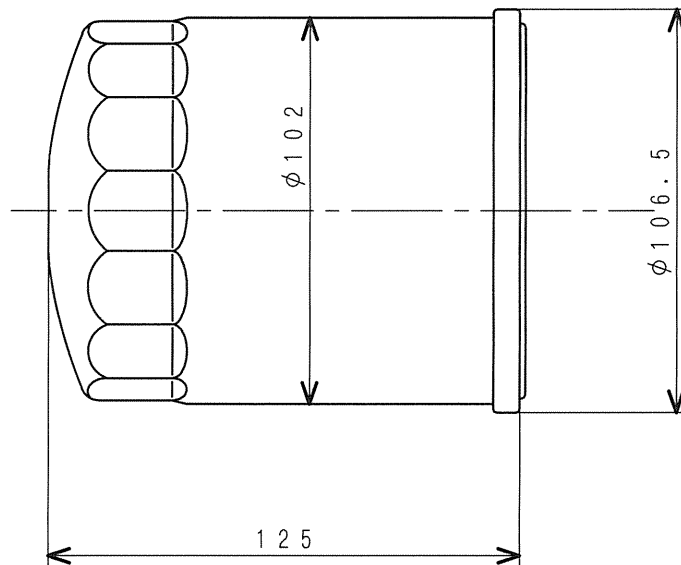
仕様
 SPECIFICATIONS

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
 FILTER ASSY, FUEL

34362-00012

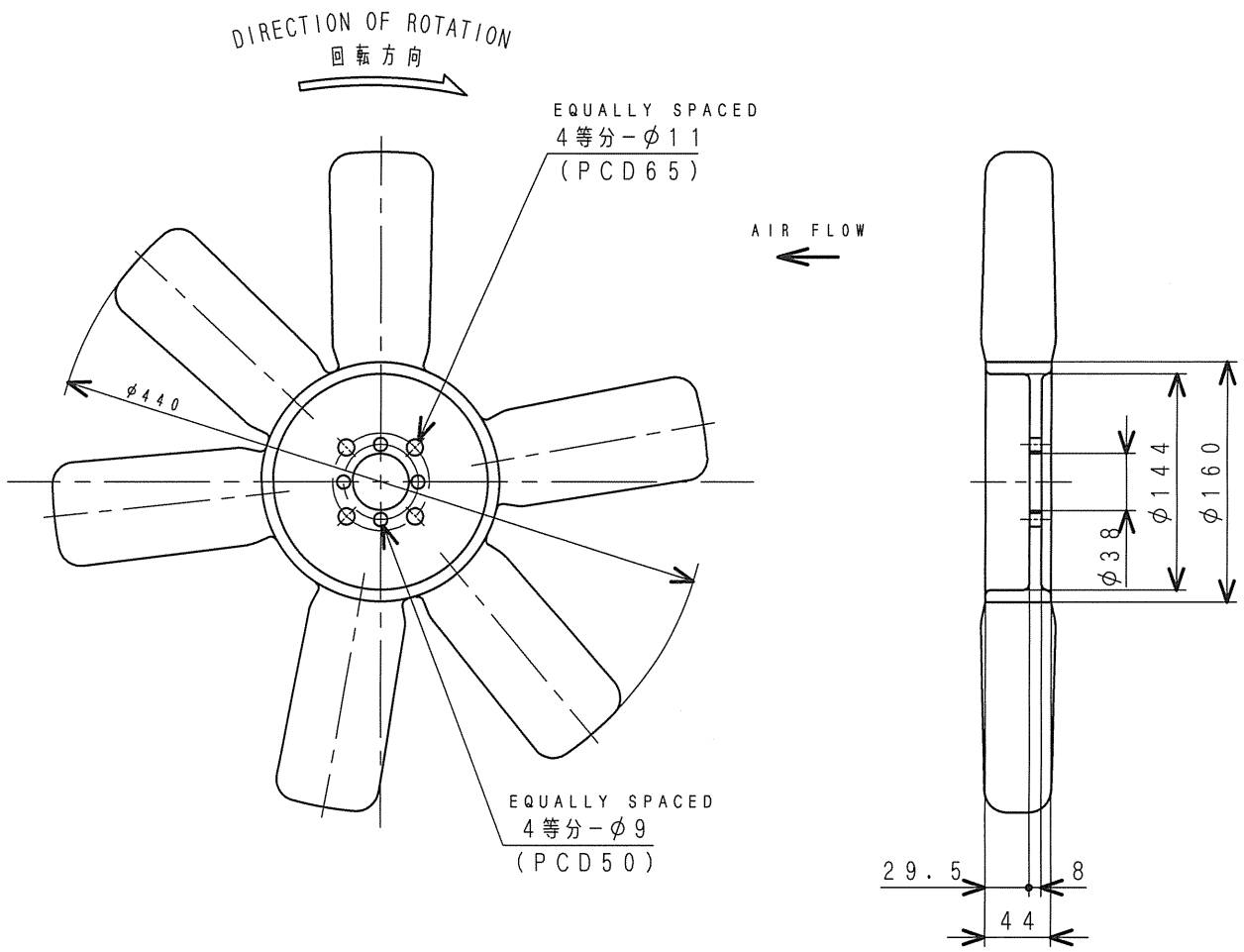


仕 様
SPECIFICATIONS

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

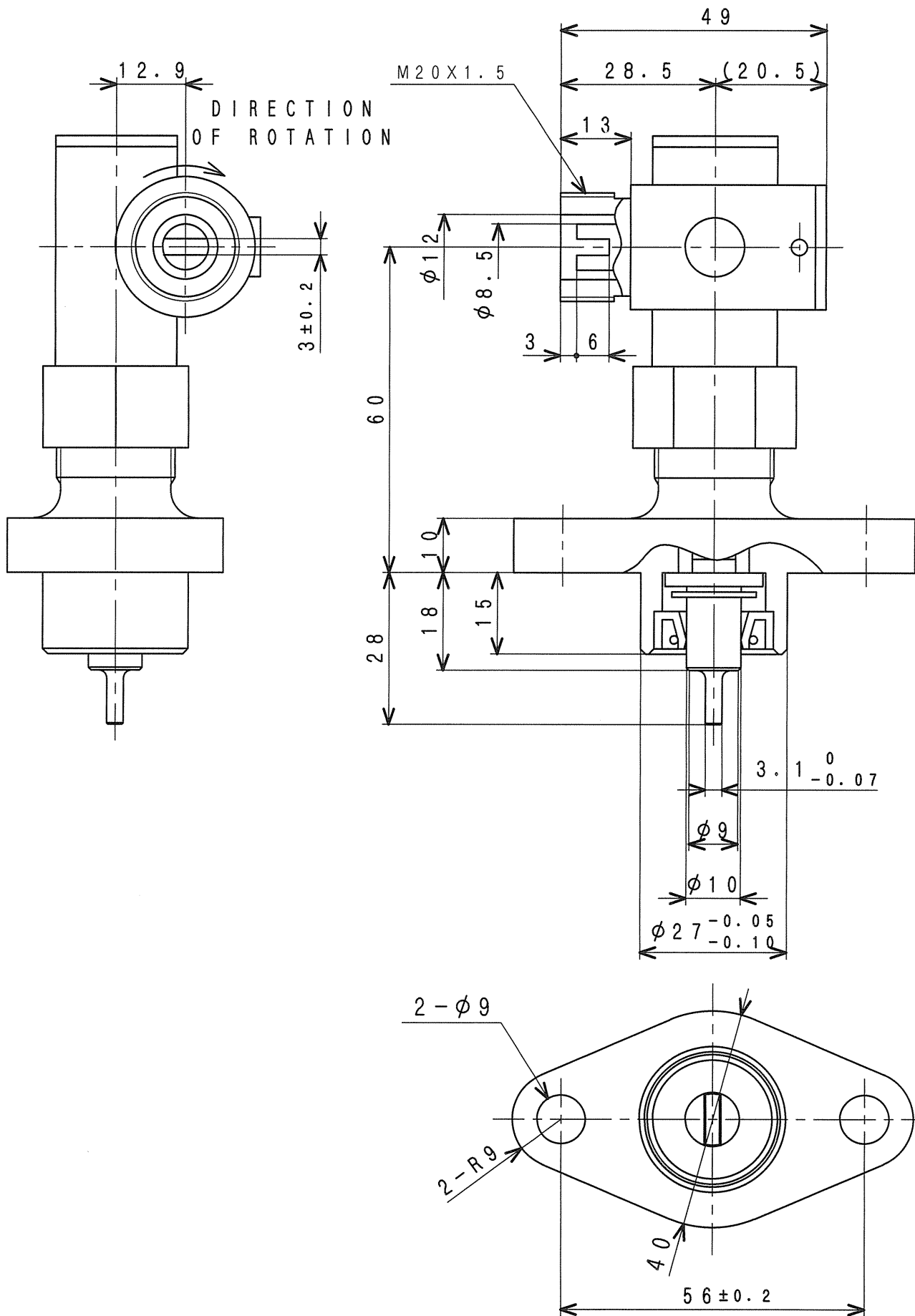
ME014-833



クーリング ファン (プッシャー)
FAN, COOLING (6P-440)

34448-44200

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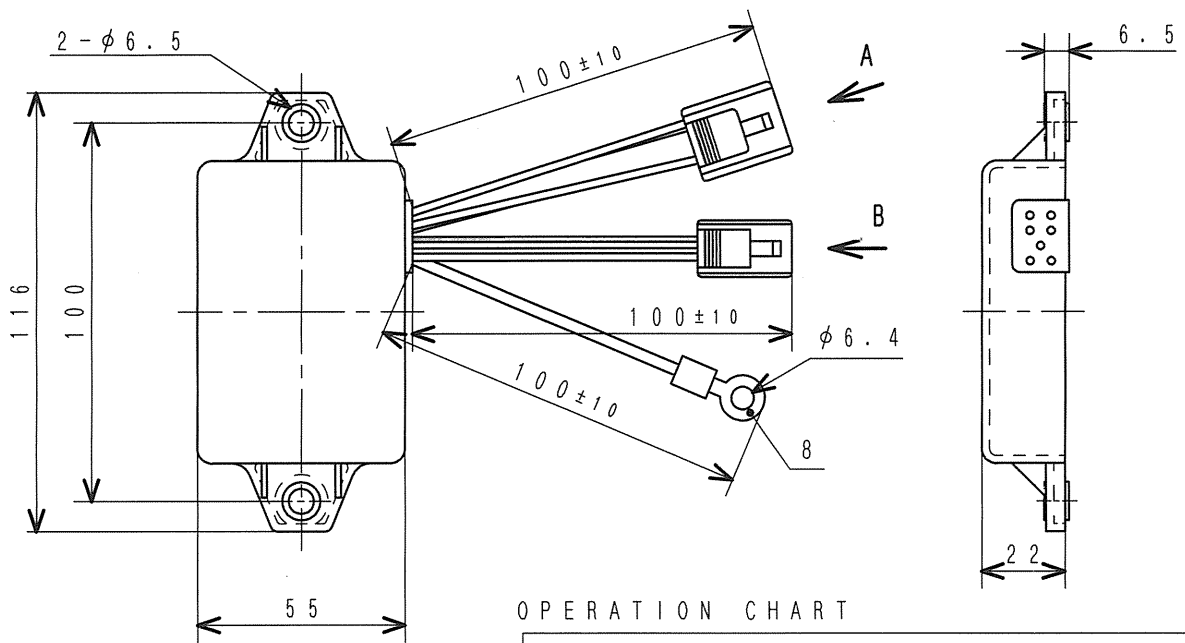
駆動軸と被駆動軸の回転比 1:1

ROTATION RATIO OF DRIVE & DRIVEN SHAFT IS 1:1

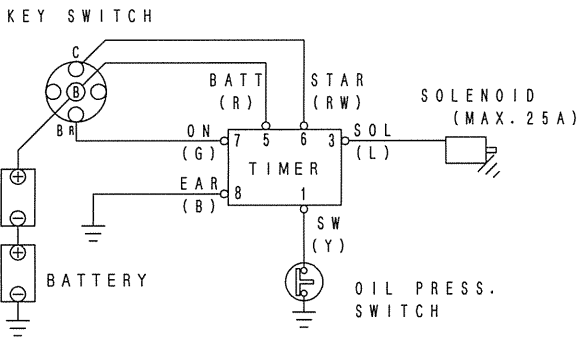
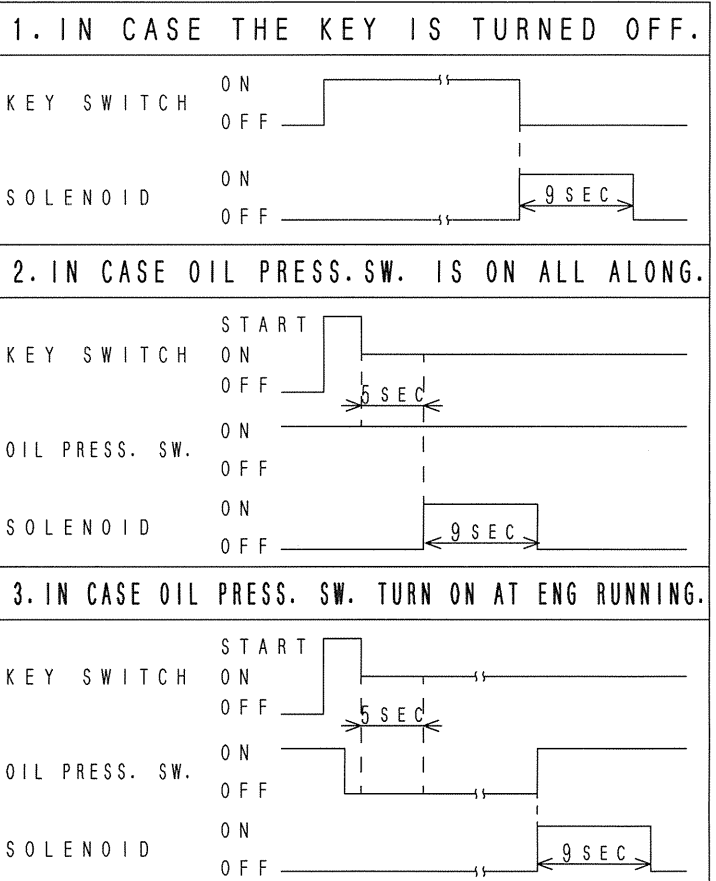
L-ジョイント
L-JOINT

30625-35020

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OPERATION CHART



配線図

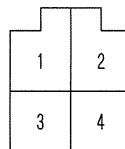
WIRING DIAGRAM

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)

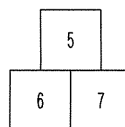
符号 SYM	線色 COLOUR	接続先 CONNECT FAR SIDE
1	YELLOW	油圧スイッチ OIL PRESS. SWITCH
2		(未使用) UNUSED
3	BLUE	ソレノイド(+) SOLENOID
4	BLUE	ソレノイド(-) SOLENOID
5	RED	バッテリー(+) BATTERY
6	RED WHITE	キースイッチ START KEY SWITCH
7	GREEN	キースイッチ ON KEY SWITCH
8	BLACK	アース EARTH

A-VIEW



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

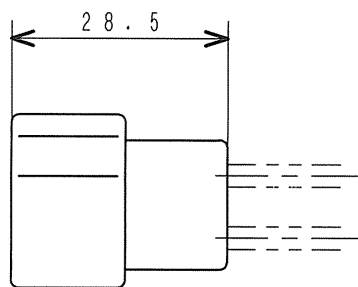
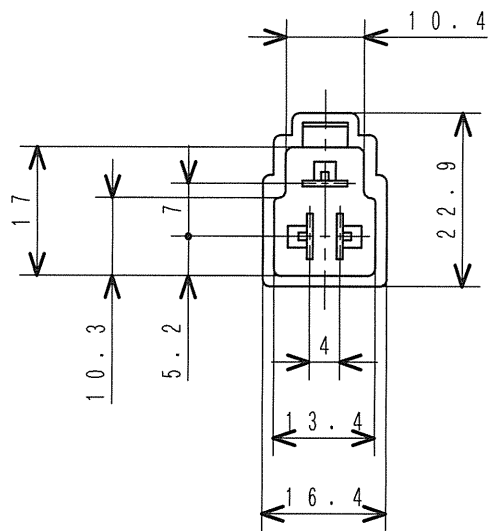
B-VIEW



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

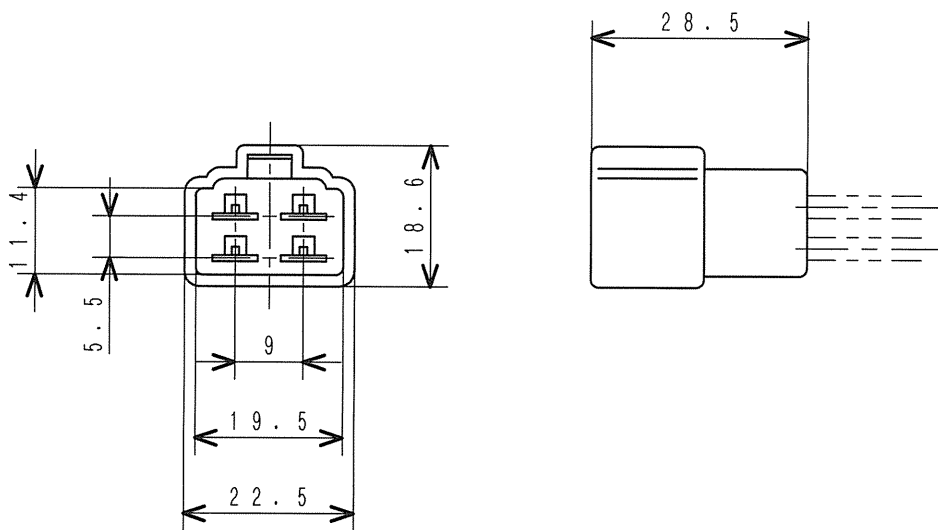


注 記 コントロールタイマ用 (YAZAKI 7322-2237)
 NOTE FOR CONTROL TIMER

コネクタ
 CONNECTOR (3 POLES)

MM409-661

MHI CONFIDENTIAL



注 記 コントロールタイマ用 (YAZAKI 7122-2446)

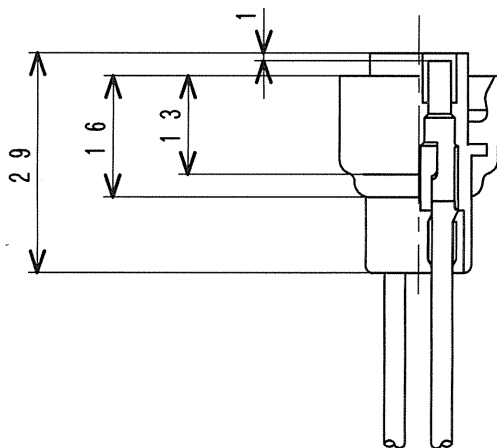
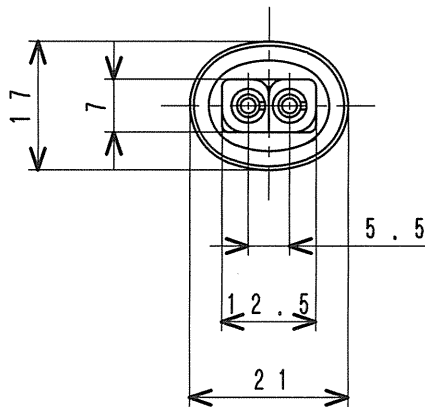
NOTE FOR CONTROL TIMER

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

MHI CONFIDENTIAL