

No.		S4S-356															
TRANSMITTAL OF MITSUBISHI HIGH SPEED DIESEL ENGINE DOCUMENT																	
ORDERED BY								CUSTOMER									
PART NAME		PART No.		FOR APPR.										ENGINE TYPE			
				N	D	N	D	N	D	N	D	N	D	S4S-65SAGB			
1	S4S SPEC.	SPC-S4S-476	P	A											A: First offer		
2	S4S-65SAGB ENG ASSY	32A00-13870	P	A													
3	ACCESSORIES (WITH ENGINE)		P	A													
4																	
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27														B			
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29																	
30														A	<div> <div>K. Ajiro</div> <div>M. Yamauchi</div> <div>T. Hirose</div> <div>Apr. 12. 16</div> </div>	ref. spec	
31																	
32																	
33														DATE	APPROVED	CHECKED BY	CC
34														ORDER			
35																	

N:NUMBER, D:DATE
P:PDF

MITSUBISHI HEAVY INDUSTRIES, LTD.

SPECIFICATIONS

Used for 30kVA generator

MITSUBISHI HIGH SPEED DIESEL ENGINE
MODEL MITSUBISHI S4S-65SAGB

CHINA EMISSION CONTROL ENGINE(EXPORT ONLY)



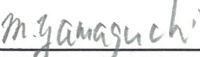
(For GENERATOR OEM, 1500rpm)

APPLICATION
FOR APPROVAL



PLEASE RETURN AFTER APPROVAL

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APPROVED		REMARKS		
DATE • SIGNATURE				
DATE Apr. 12. 2016 MITSUBISHI HEAVY INDUSTRIES, LTD.				
CHG	DATE	APPROVED	CHECKED	DRAWN
			 	T.Hirose

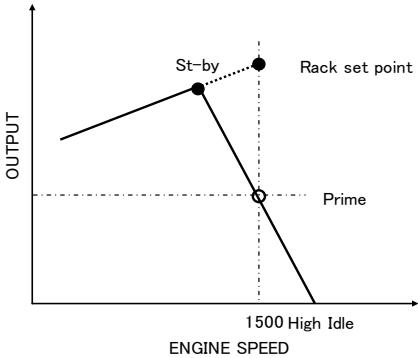
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1. Principal Particulars of Diesel Engine

General Specification

Standard	All items, unless otherwise specified, are in accordance with JIS and maker's standards
Model	Mitsubishi S4S S4S-65SAGB MHI No. 32A00-13870(1/2-CHG 0, 2/2-CHG 0)
Application	Generator
Regulations	National Standard of the People's Republic of China GB20891-2014 Export Only engine family; G3MVXLL0333SNX (engine type; SNX-S4S-PA1) * Rated output of application is St-by output without fan.
Type	4 cycle water-cooled, vertical overhead valve, cylinder in line, swirl chamber type
Number of cylinders	4
Bore × Stroke	94mm × 120mm
Piston displacement	3.331 liters
Compression ratio	22 : 1
Rotation	Anti-Clockwise rotation as viewed from flywheel side
Firing order	1-3-4-2
Engine weight(Dry)	Approx. 245kg
Dimensions(Length)	Approx. 781mm
(Width)	Approx. 609mm
(Height)	Approx. 710mm
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 ; 31.6kW Prime ; 28.7kW
Rack set point	31.6kW/1500rpm (With Fan St-by;30.9kW) (With Fan Prime,28.0kW)
Rating tolerance	±5% of nominal
Low Idle	850±20rpm
High Idle	1583(0/-50)rpm
Speed regulation	Steady state speed regulation at rated speed, within 5.5%
Rating conditions(Without fan)	ISO 15550 Total barometric pressure : 100kPa Air temperature : 298K Relative humidity : 30%
Fuel consumption	260g/kW-h at Prime output and standard air conditions(Without fan)
Tolerance	±5%



Oil consumption	Approx.0.1~0.3% of fuel consumption<Reference value>@ Full load, Rated speed
Fuel injection timing	19°BTDC
Mean effective pressure	0.69MPa{7.0kgf/cm ² } at Prime(Without fan)
Piston speed	6.0m/s at 1500rpm

Fuel system

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

Lubricating system

Lubricating system	Forced lubrication by trochoid 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. 10.0 liters (Oil pan high level 9.0 liters, Oil filter etc. Approx. 1.0 liters, High ~ Low Approx. 3.0 liters)
Oil dipstick	Standard dipstick
Oil pressure switch	Yes
Oil pressure unit	No

Cooling system

Cooling system	Forced circulation of fresh water by centrifugal pump with thermostat
Engine water capacity	Approx. 5.5 liters
Cooling fan	440mm diameter, 6 blades, pusher
Water pump pulley	PCD 123mm
Pulley ratio	1.30 (Crankpulley : Water pump pulley = 160:123)
Fan spacer	14.5mm thickness
Water temp. switch	Yes
Thermo. Unit	Yes
Thermostat	Open at 76.5deg.C - full open at 90deg.C

Electrical system

Alternator	12V - 50A
Voltage regulator	IC type (Built in alternator)
Regulator set voltage	14.7±0.3V
Alternator pulley	PCD 80mm
Starting system	Electric starting
Starter motor	12V-2.2kW
Glow plug	10.5V,9.7A x 4
Engine shut off system	Electric solenoid (ETR)

Intake and Exhaust system

Intake manifold(cover)	Rear side way
Exhaust manifold	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	10 inch
Flywheel housing	SAE #4

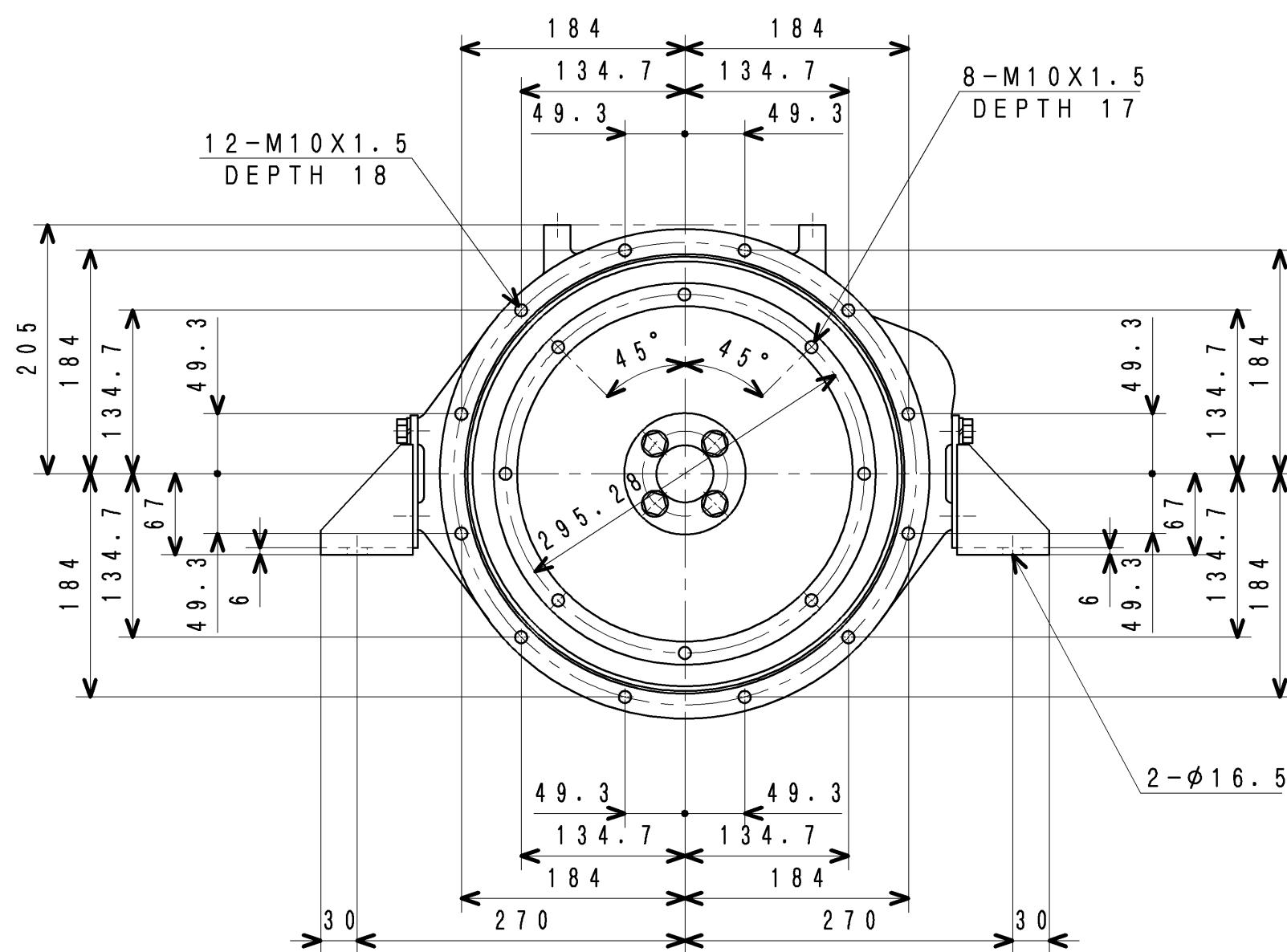
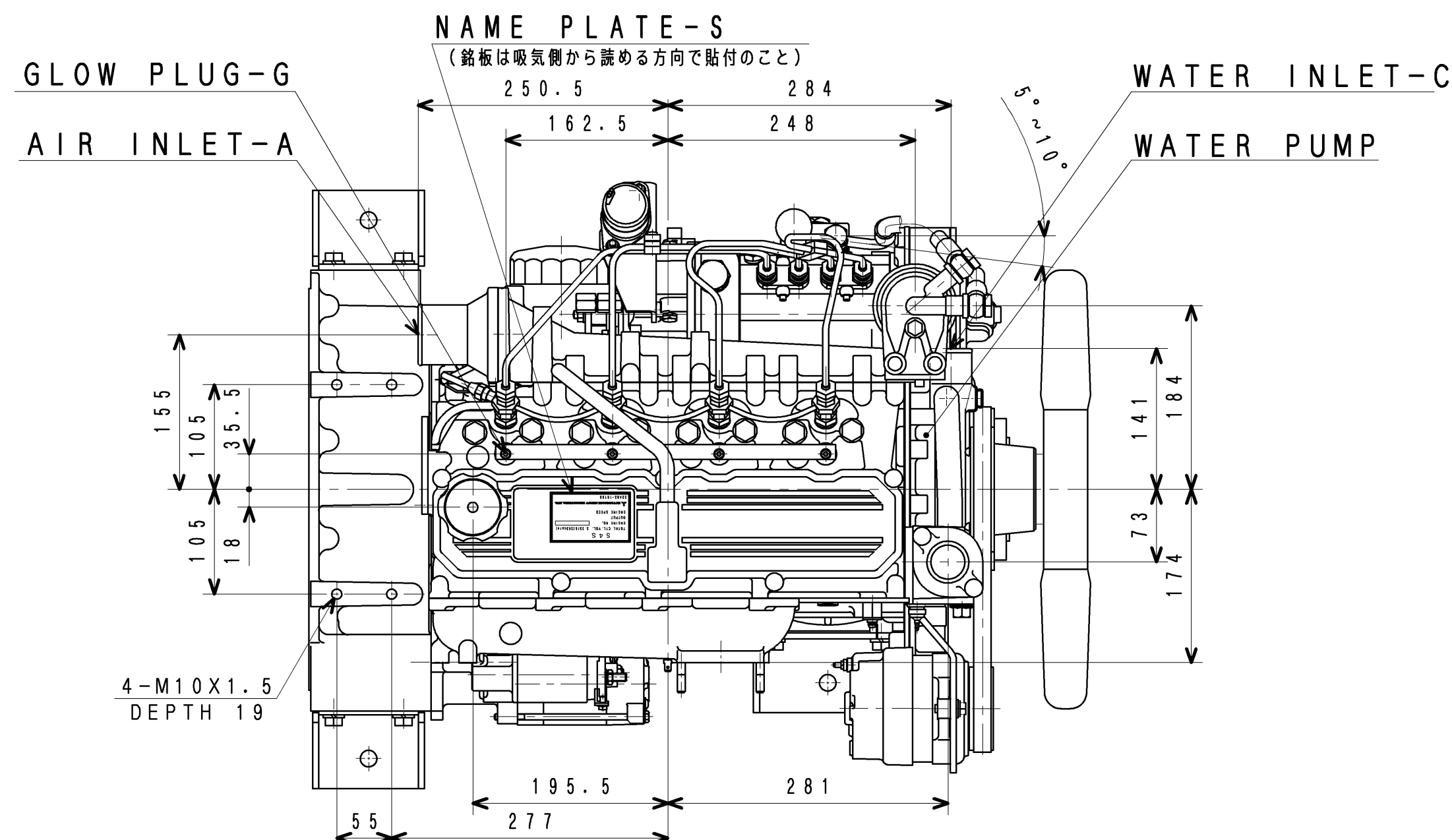
2. Engine attached items&Reference drawings

	Parts Name	Drawing No.	Q'ty	Remarks	
1	WIRING DIAGRAM	32A90-09052	-	Reference(only for)	A4
2	SWITCH,OIL PRESSURE	31A90-00701	1		A4
3	SWITCH, THERMO	MC880-900	1		A4
4	UNIT,THERMOMETER	MD366-869	1		A4
5	FILTER,OIL	32A40-00400	1		A4
6	COOLING FAN	34448-44200	1		A4
7	FILTER ASSY,FUEL	34462-00011	1		A4
8	STARTER	32A66-11100	1		A4
9	PLUG,GLOW	32A66-03102	4		A4
10	ALTERNATOR	32A68-00401	1		A4
11	TACHO DRIVE ASSY	32A25-00021	1		A4
12	SOLENOID ASSY	32A87-04010	1	32A87-06070(Writing together)	A4

3. Accessories(Loose supply parts)

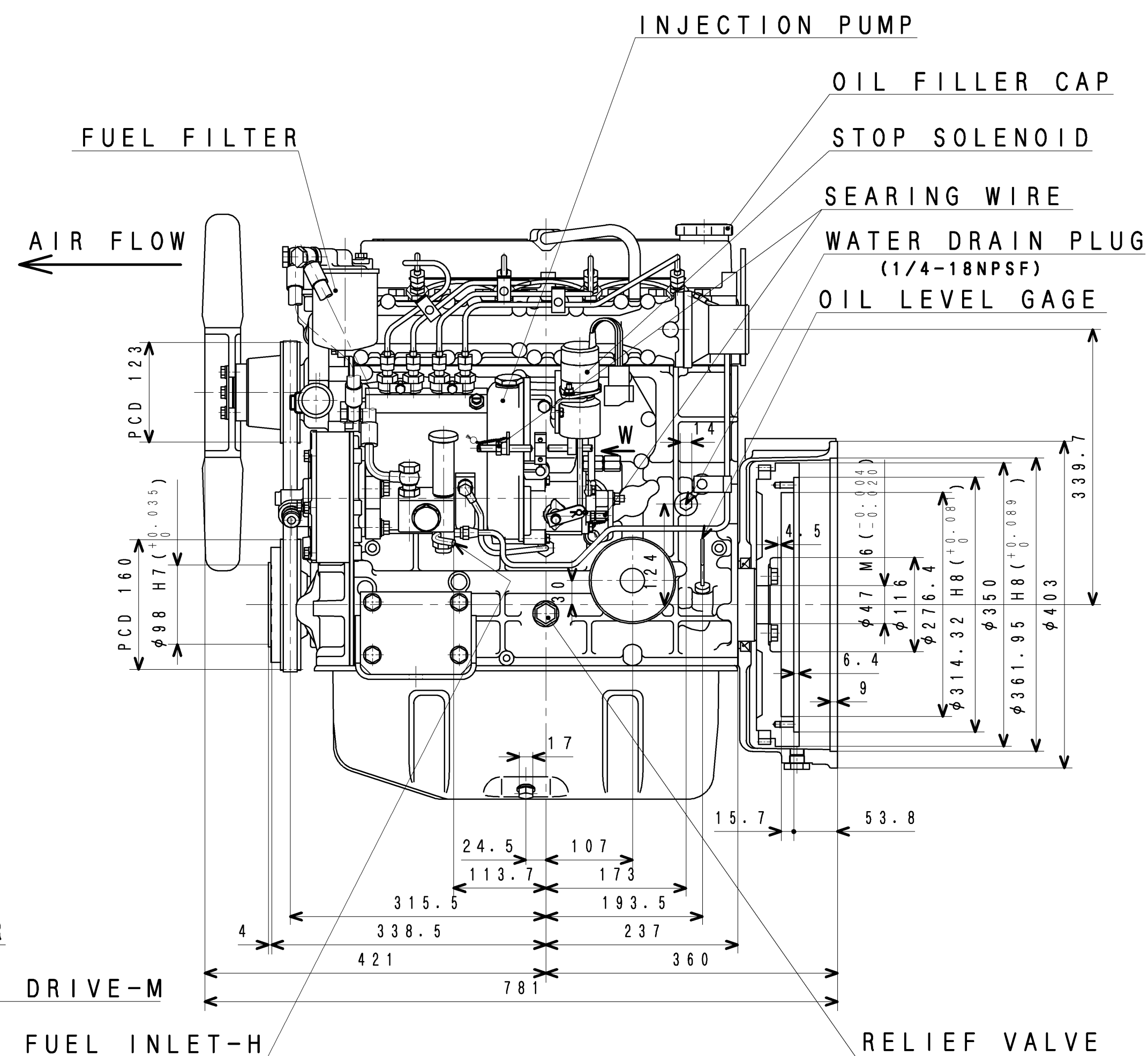
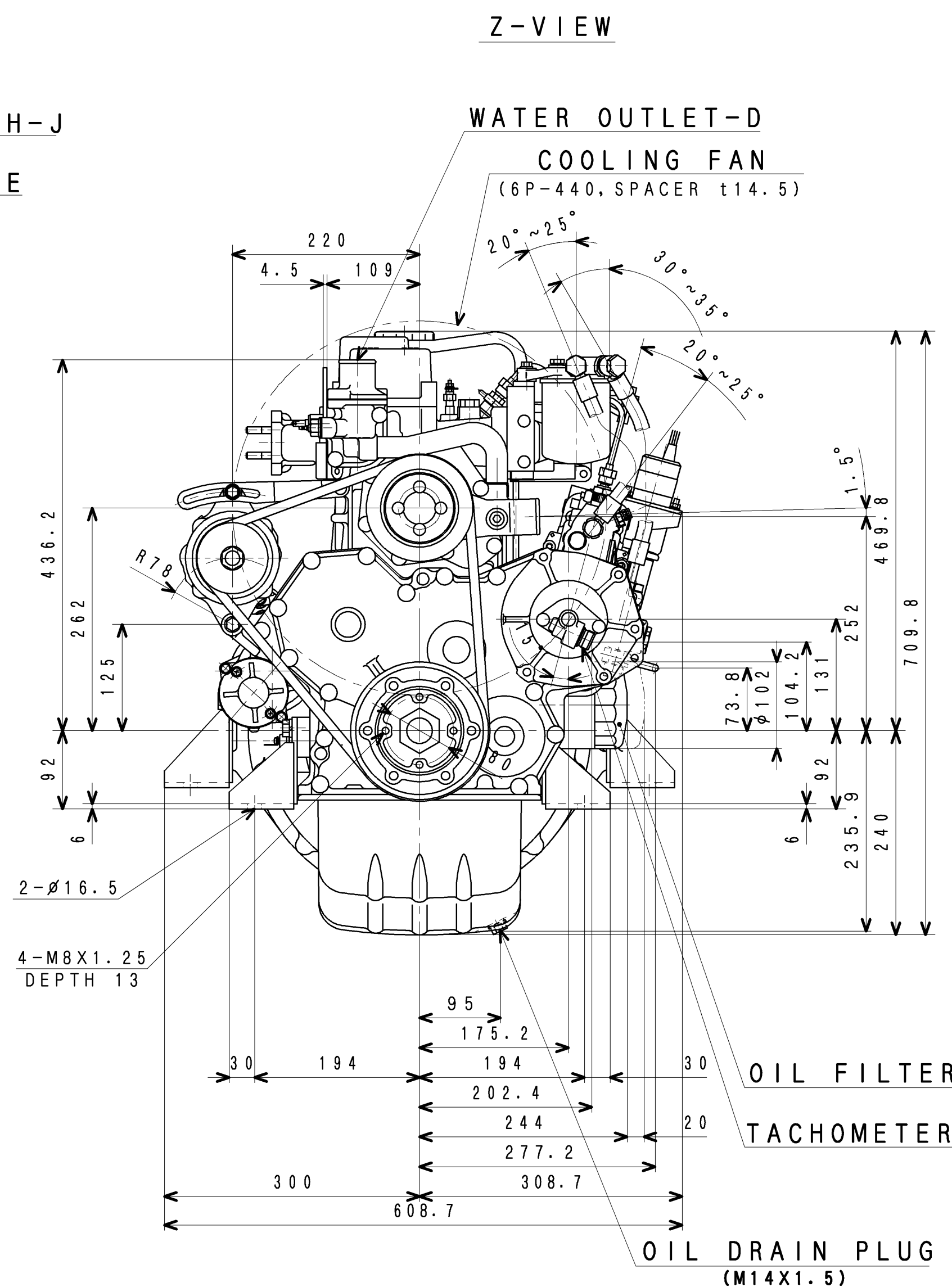
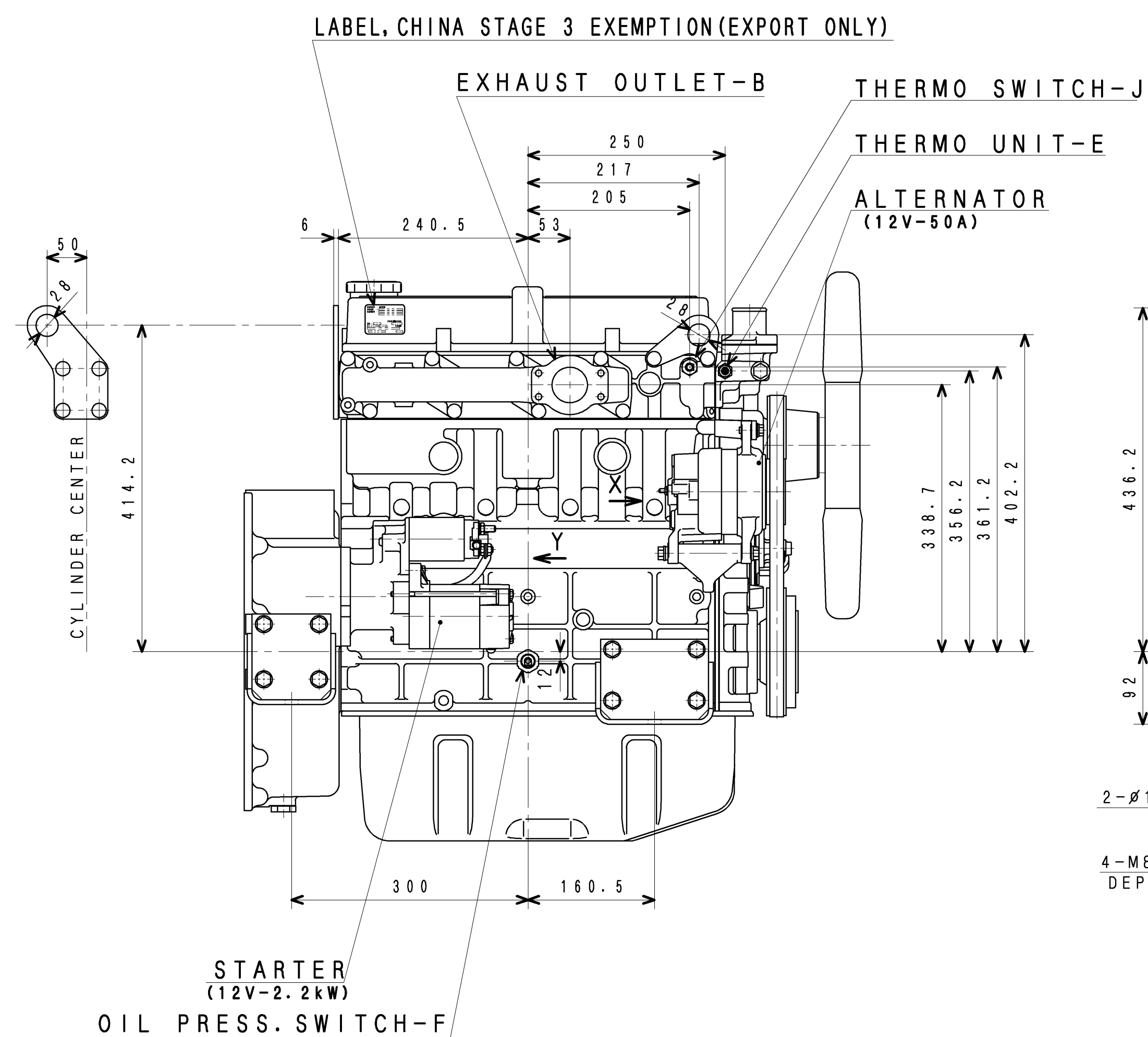
	Parts Name	Parts No.	Q'ty	Remarks	
1	CONTROLLER	31A66-06100	1		A4
2	CONNECTOR,2P	F8665-02100	1		A4
3	CONNECTOR,3P	30A87-00600	1		A4
4	CONNECTOR,2P	31A66-07100	1		A4
5	CONNECTOR,6P	31A66-07200	1		A4

Note:Drawing No. Subject to alteration without notice



S 4 S	
TOTAL CYL. VOL.	3.3312 (203cuin)
ENGINE NO.	
OUTPUT	30.9kW
ENGINE SPEED	1500rpm
MITSUBISHI HEAVY INDUSTRIES, LTD.	
32A93-10100	

S-DETAIL
(With fan St-by:30.9kW/1500rpm)



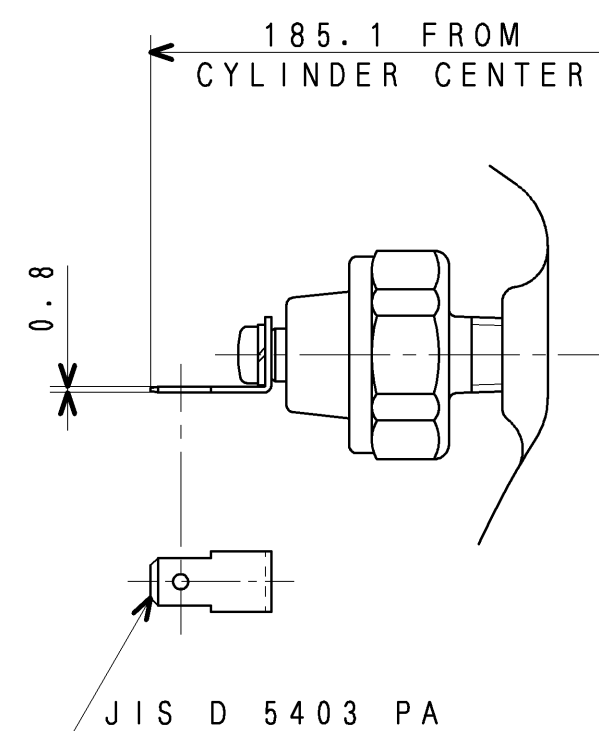
FOR GENERATOR
(CHINA:EXPORT ONLY)

				3rd ANGLE PROJECTION	S4S-65SAGB ENG ASSY	
				尺度 SCALE	三菱重工株式会社	
				1:5	MITSUBISHI HEAVY INDUSTRIES, LTD.	
CHG	ED-NO	DATE	CHK	製図 (MSH) CHK K. AJIRO M. YAMAGUCHI	図面番号 DRAWING NO.	32A00-13870 1/2
認可 APPD K. Isono	検図 CHK K. AJIRO M. YAMAGUCHI	2016. 4. 13		2 検図標準品 3 検査用標準品 4 組立品 5 切附品 6 その他(購入品)		

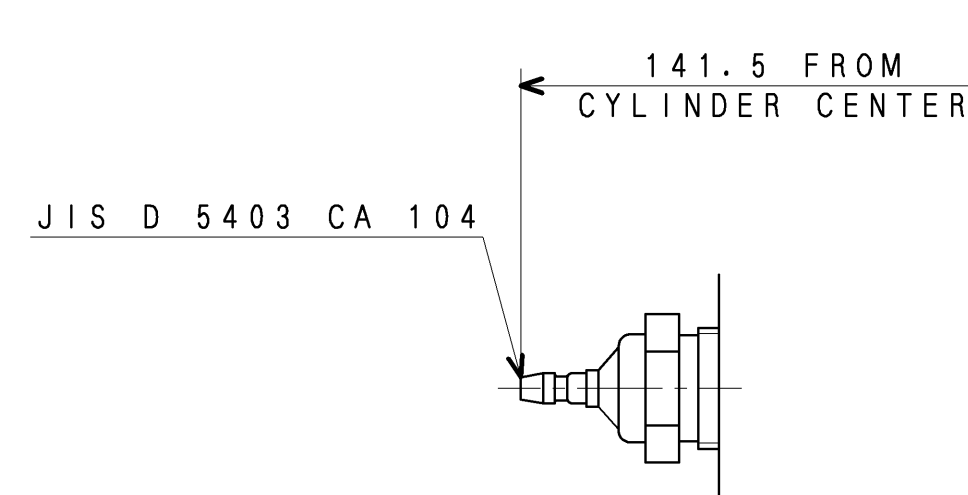
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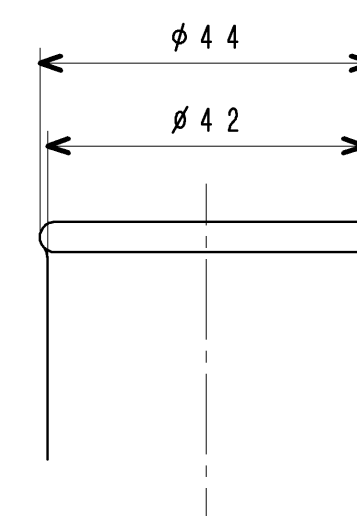
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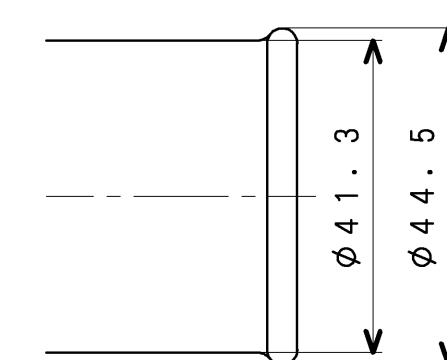
F-DETAIL



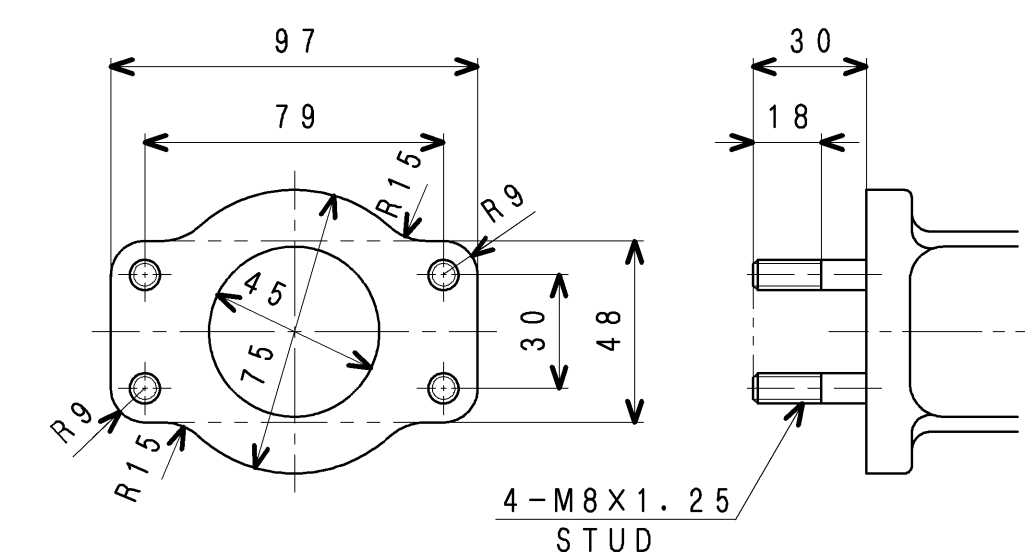
E-DETAIL



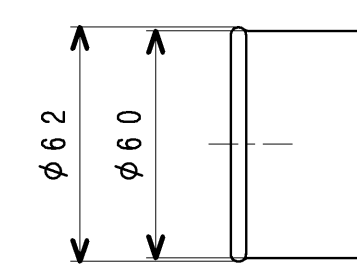
D-DETAIL



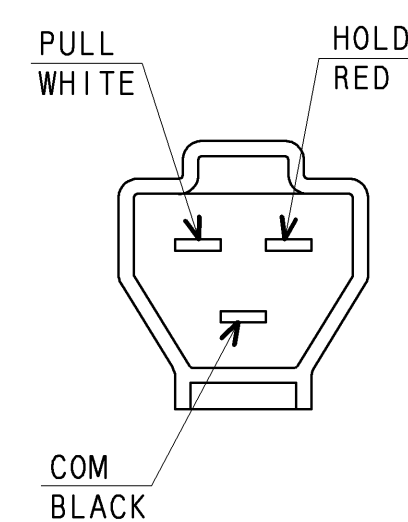
C-DETAIL



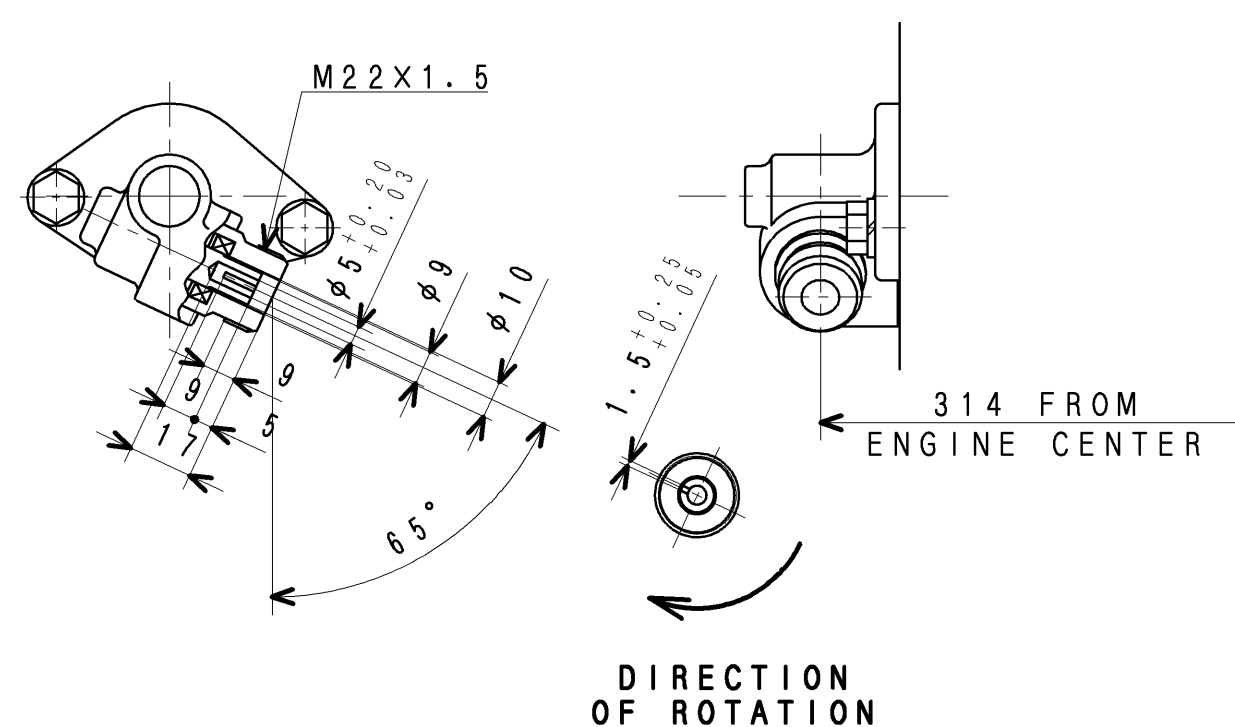
B-DETAIL(1:2)



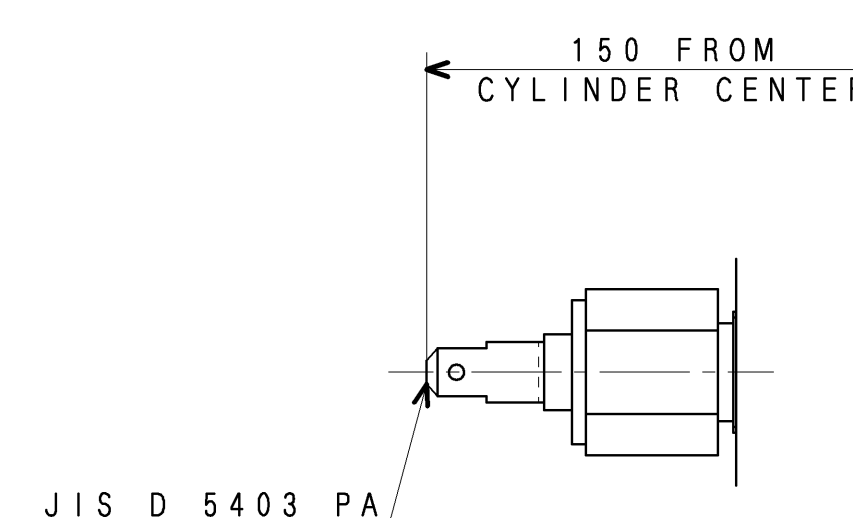
A-DETAIL (1:2)



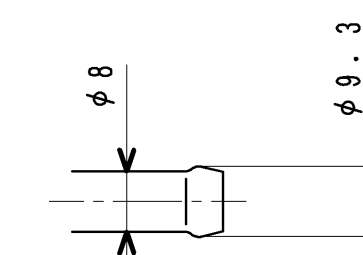
K-DETAIL



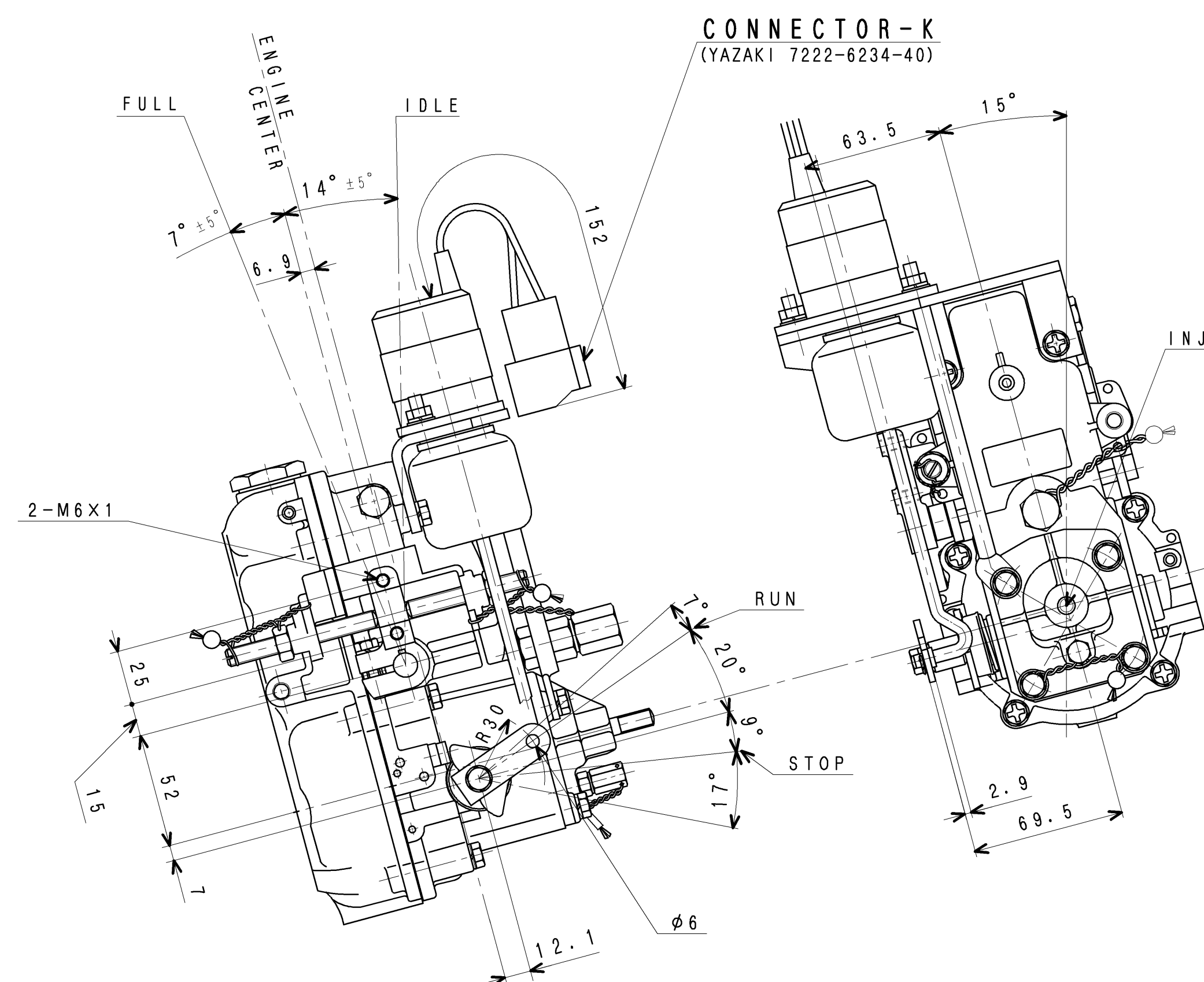
M-DETAIL (1:2)



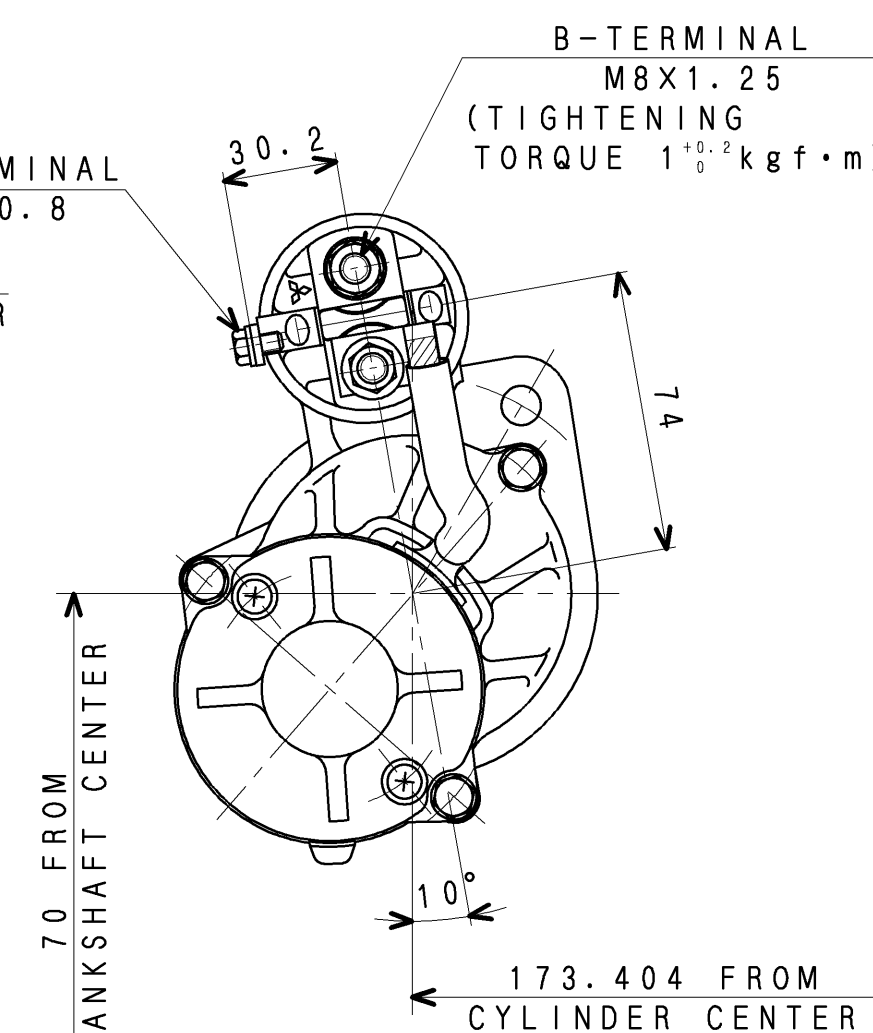
J-DETAIL



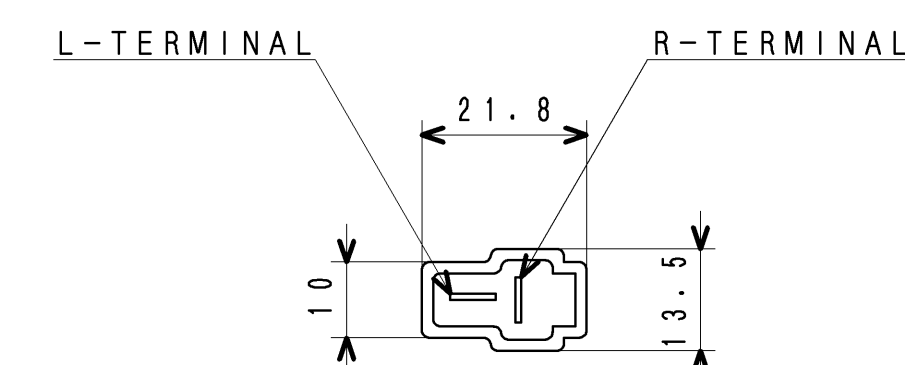
H-DETAIL



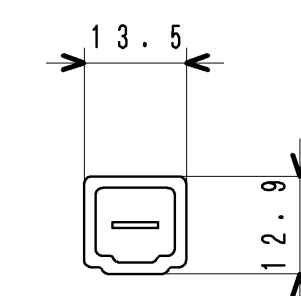
W - V I E W (1 : 2)



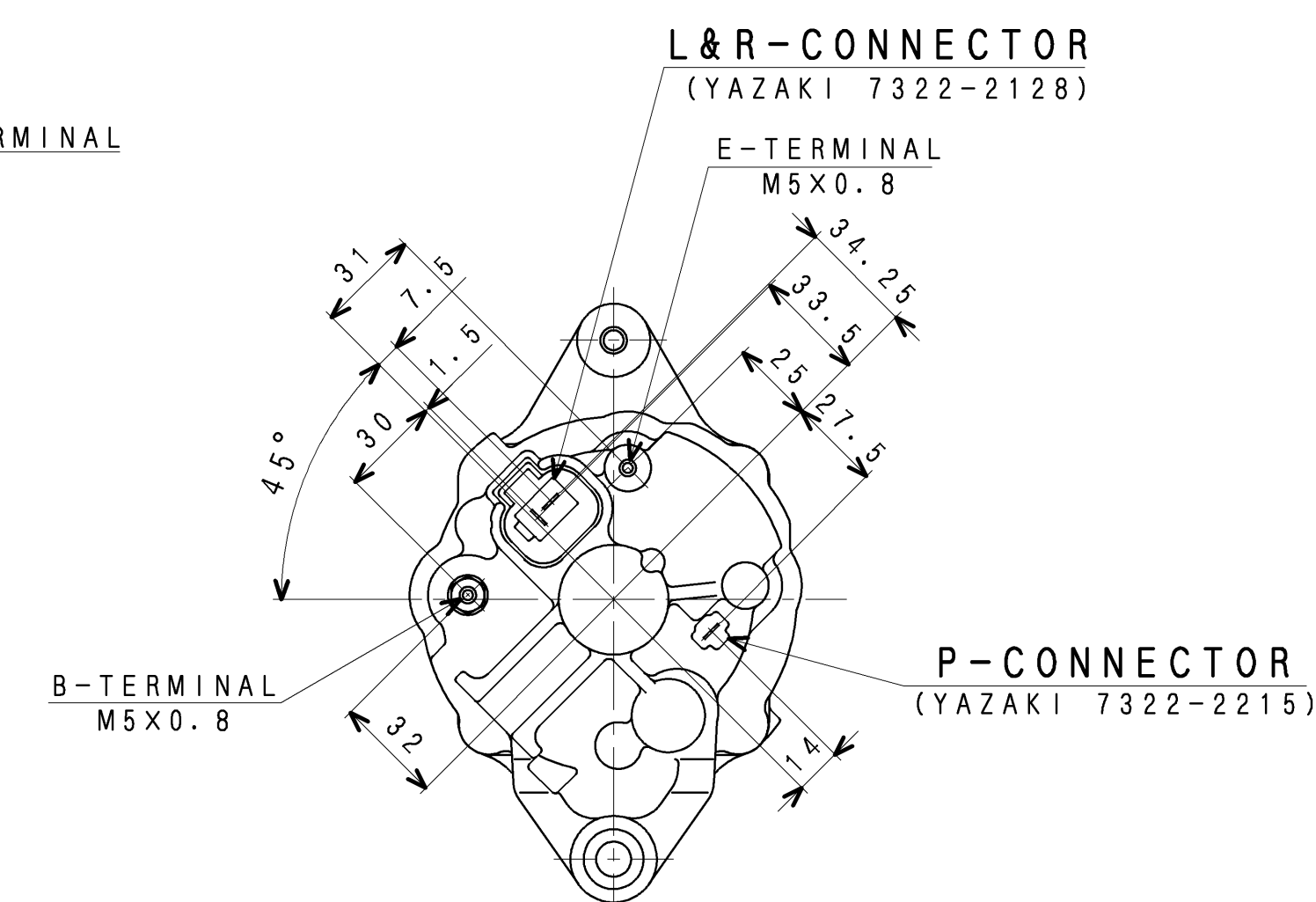
Y-VIEW (1:2)



L & R - DETAIL



P-DETAIL



X-VIEW (1:2)

FOR GENERATOR
(CHINA:EXPORT ONLY)

S4S-65SAGB ENG ASSY

三菱重工業株式会社
MITSUBISHI HEAVY INDUSTRIES, LTD.

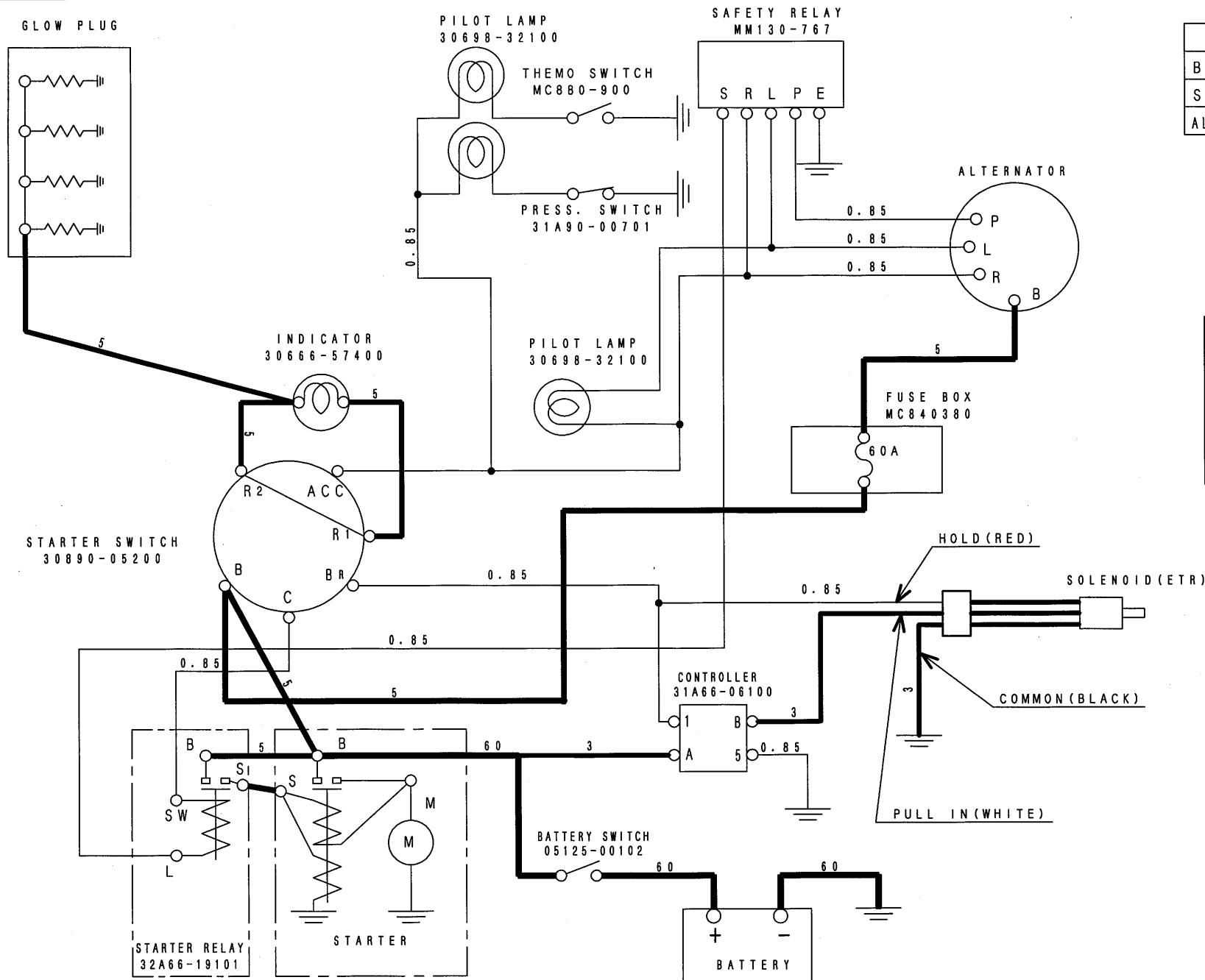
図面番号 32A00-13870
DRAWING NO.

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③新図	サイズ	①組立図	2 鋳鍛歯車品	3 板金溶接品	4 材料
4 旧引図	A 1		5 切削品	6 その他(購入品)	

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	S4S
BATTERY	12V-92AH
STARTER	12V-2.2kW
ALTERNATOR	12V-50A

CONNECTION OF STARTER SWITCH

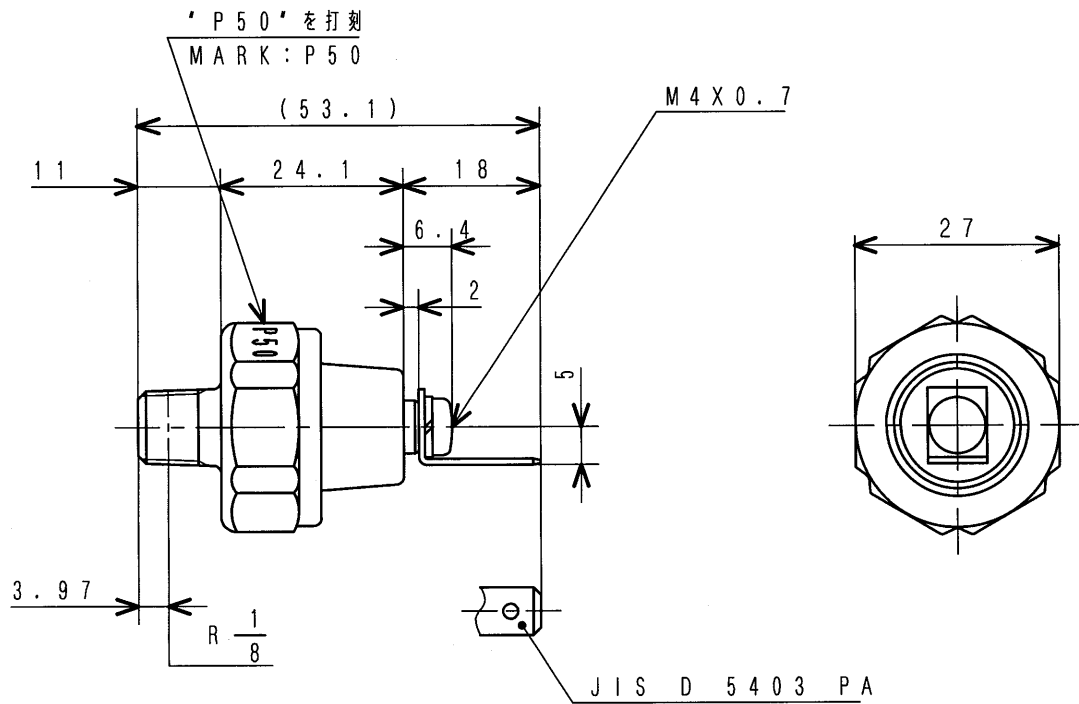
TERMINAL POSITION	B	R1	ACC	R2	C	BR
R1						
OFF						
ACC						
St						

0.85	0.85 mm ² 以上 OR MORE
3	3 mm ² 以上 OR MORE
5	5 mm ² 以上 OR MORE
60	60 mm ² 以上 OR MORE

電気配線図 S4S-12V (IDI)
ENGINE ELECTRIC WIRING

32A90-09052

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SPECIFICATIONS

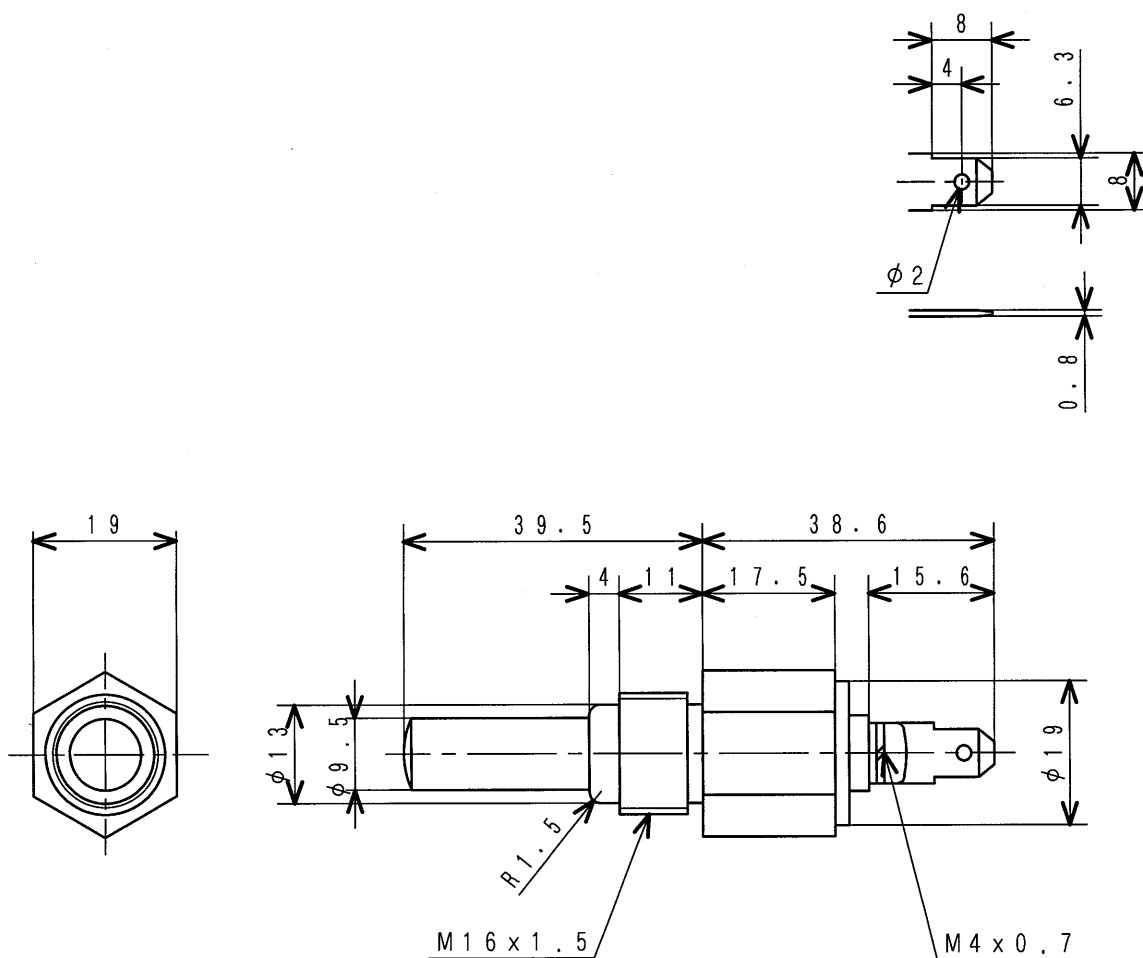
作 動 圧 力 OPERATING PRESS.	49 kPa { 0.5 kgf / cm ² }
作 動 電 圧 OPERATING VOLT.	12 V - 5 W 24 V - 3 W
結 線 様 式 CONNECTION	b (— ○ —)

油圧スイッチ

SWITCH, OIL PRESSURE

31A90-00701

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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

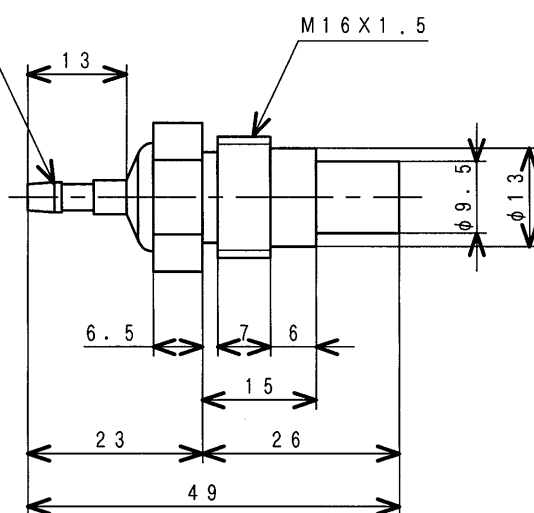
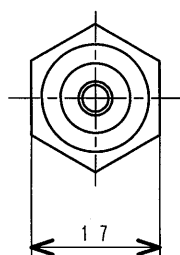
定 格 負 荷 RATED LOADED	1 A 以下 MAX.	0.5 A 以下 MAX.
定 格 電 圧 RATED VOLT.	12 V	24 V

サーモスイッチ
SWITCH, THERMO

MC880-900

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JIS D 5403 CA104



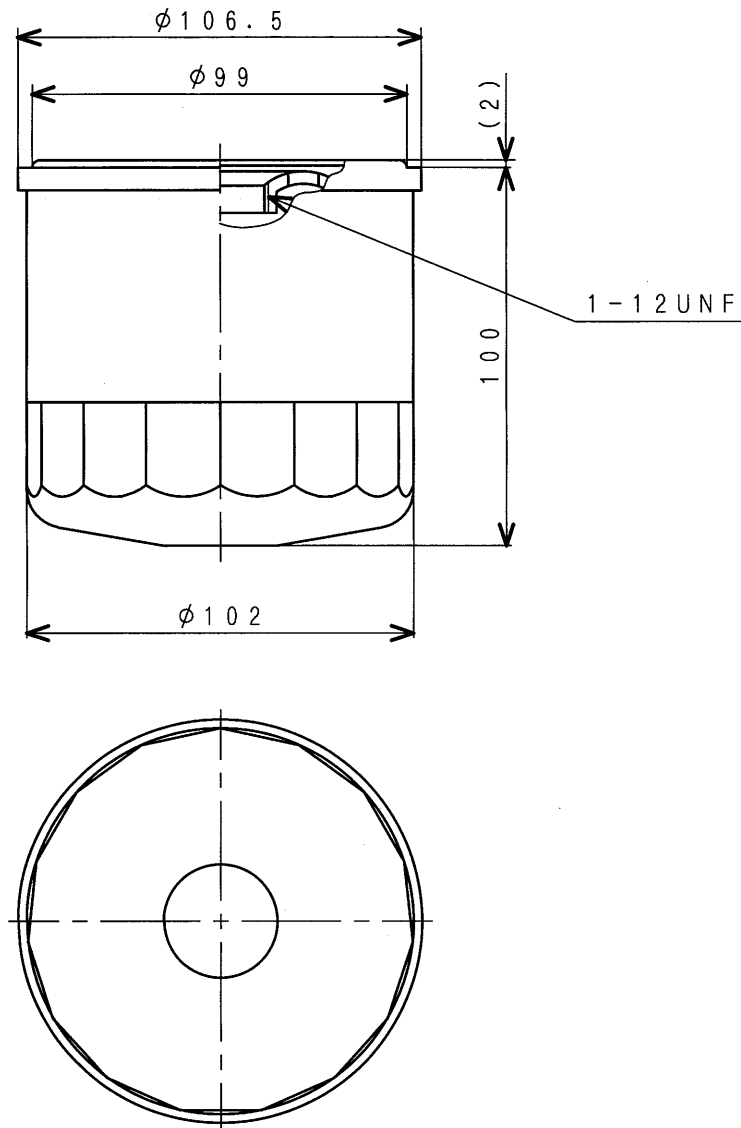
温度 (℃) TEMPERATURE	50	67	70	100	102	110	135
抵抗 (Ω) RESISTANCE	80	44.6	40.9	17.6	16.5	12.8	7

サーモメータユニット

UNIT, THERMOMETER

MD366-869

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SPECIFICATIONS

濾 過 面 積 FILTRATION AREA	0.2 m ²
圧 力 損 失 PRESSURE LOSS	29 kPa { 0.3 kgf/cm ² } Max. (at 80±3℃, SAE #30, 17ℓ/min.)
破 壊 圧 力 PRESS. AT FRACTURE	2 MPa { 20 kgf/cm ² }
エレメント差圧強度 ELEMENT RESISTANCE TO PRESS. DIFFERENCE	686 kPa { 7 kgf/cm ² }
逃し弁調整圧力 RELIEF VALVE PRESSURE	98±20 kPa { 1.0±0.2 kgf/cm ² }

3. START ENGINE AND CHECK FOR OIL LEAKAGE.

2. THEN TIGHTEN 3/4 TURN AFTER GASKET CONTACTS BASE.

NOTE 1. APPLY FILM OF ENGINE OIL TO GASKET AND SCREW ON.

3. 取付け後、エンジンを始動してガスケット面からのオイル洩れを点検して下さい。

2. 取付けはシール面にガスケットが接触してから3/4回転締付けて下さい。

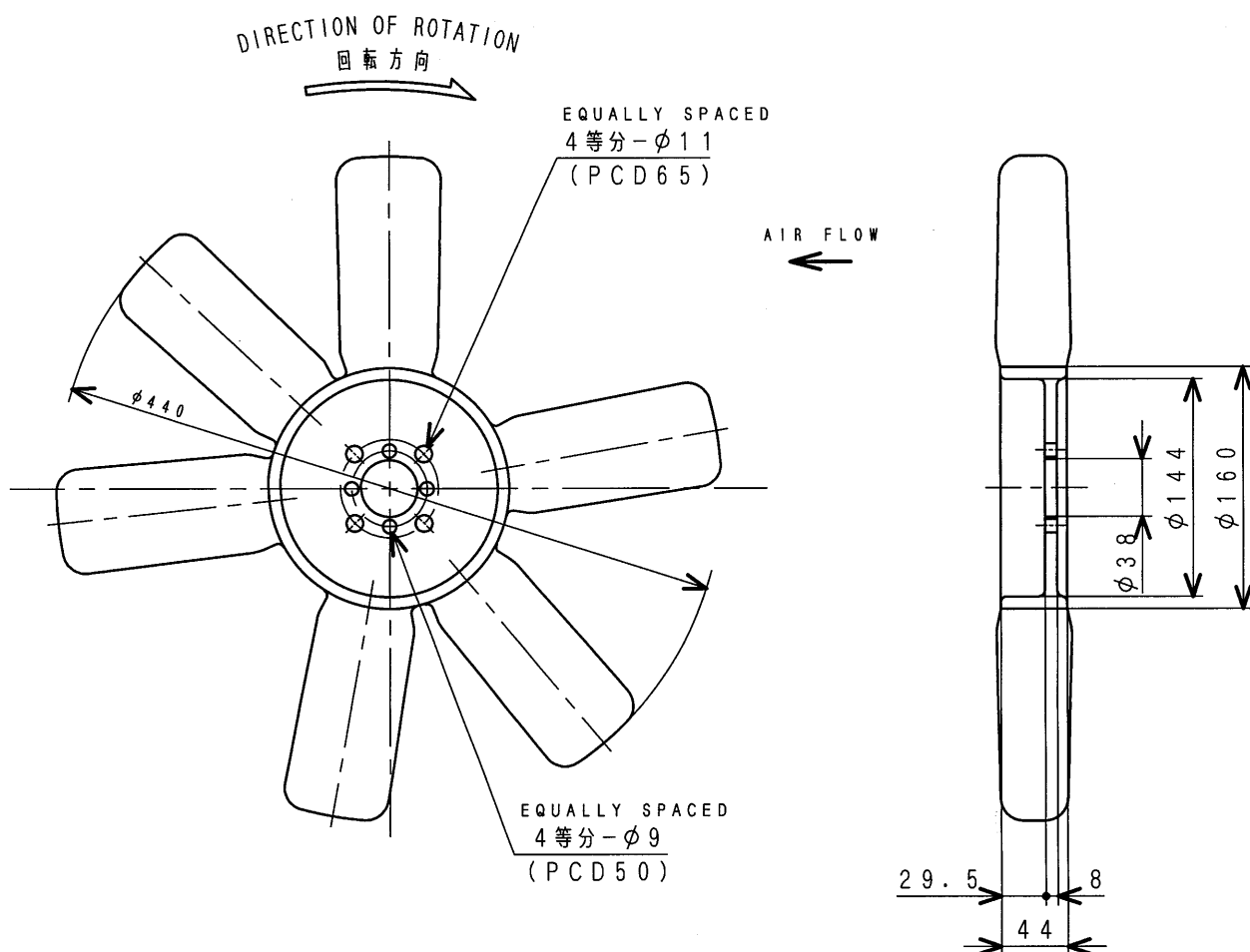
注 記 1. 取付け前、ガスケットにエンジンオイルを薄く塗布して下さい。

オイルフィルター

CARTRIDGE ASSY, OIL

32A40-00400

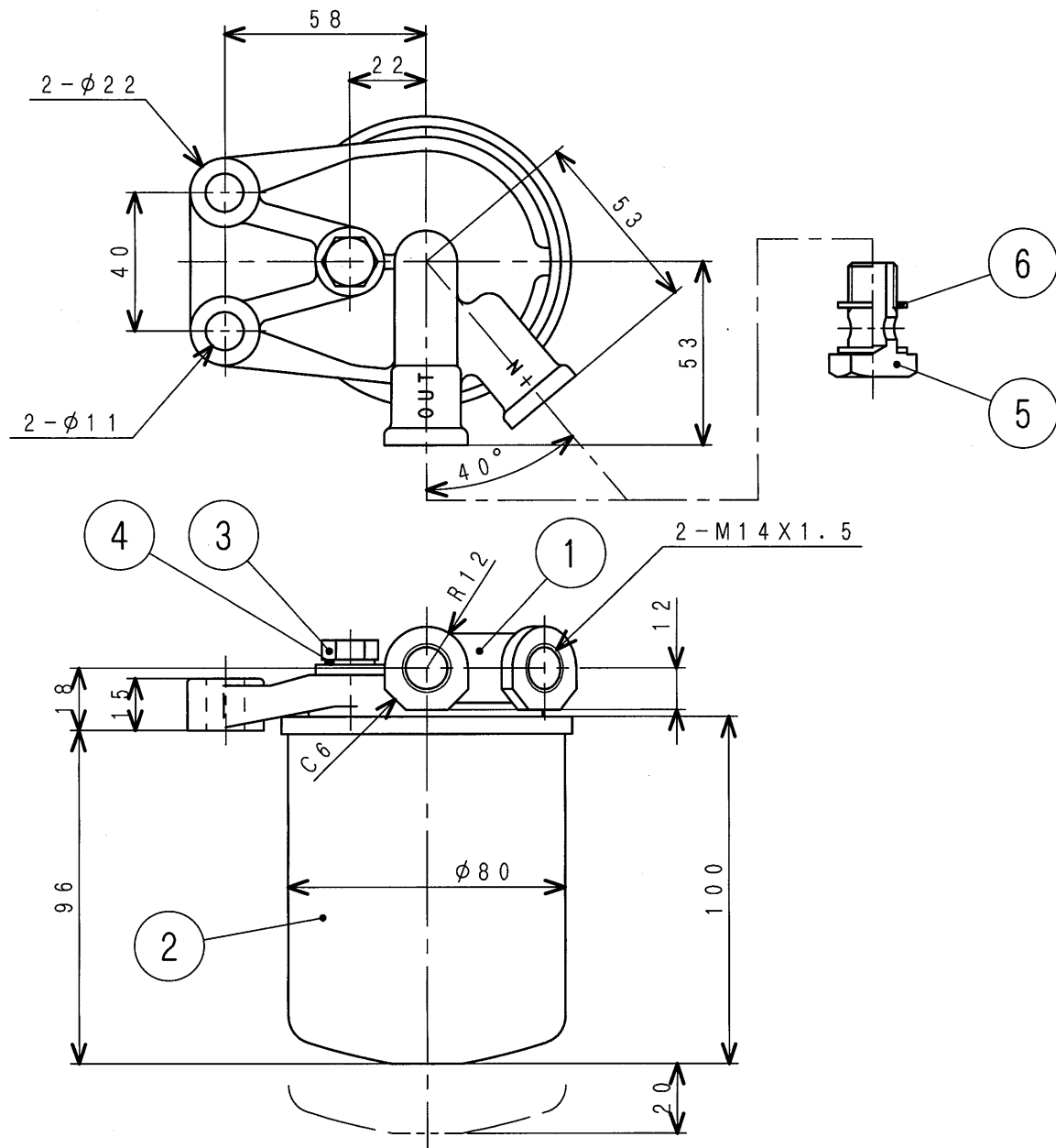
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クーリング ファン (プッシャー)
FAN, COOLING (6P-440)

34448-44200

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仕 様

SPECIFICATIONS

ろ 過 面 積 FILTRATION AREA	1 5 0 0 c m ²
ろ 過 精 度 FILTER MESH SIZE	6 μ
定 格 流 量 RATED FLOW	3 l / m i n
圧 力 損 失 PRESS. LOSS	6 . 7 k P a 以 下 (流 量 3 l / m i n) M A X C A P A C I T Y
乾 燥 重 量 WEIGHT	6 5 0 g

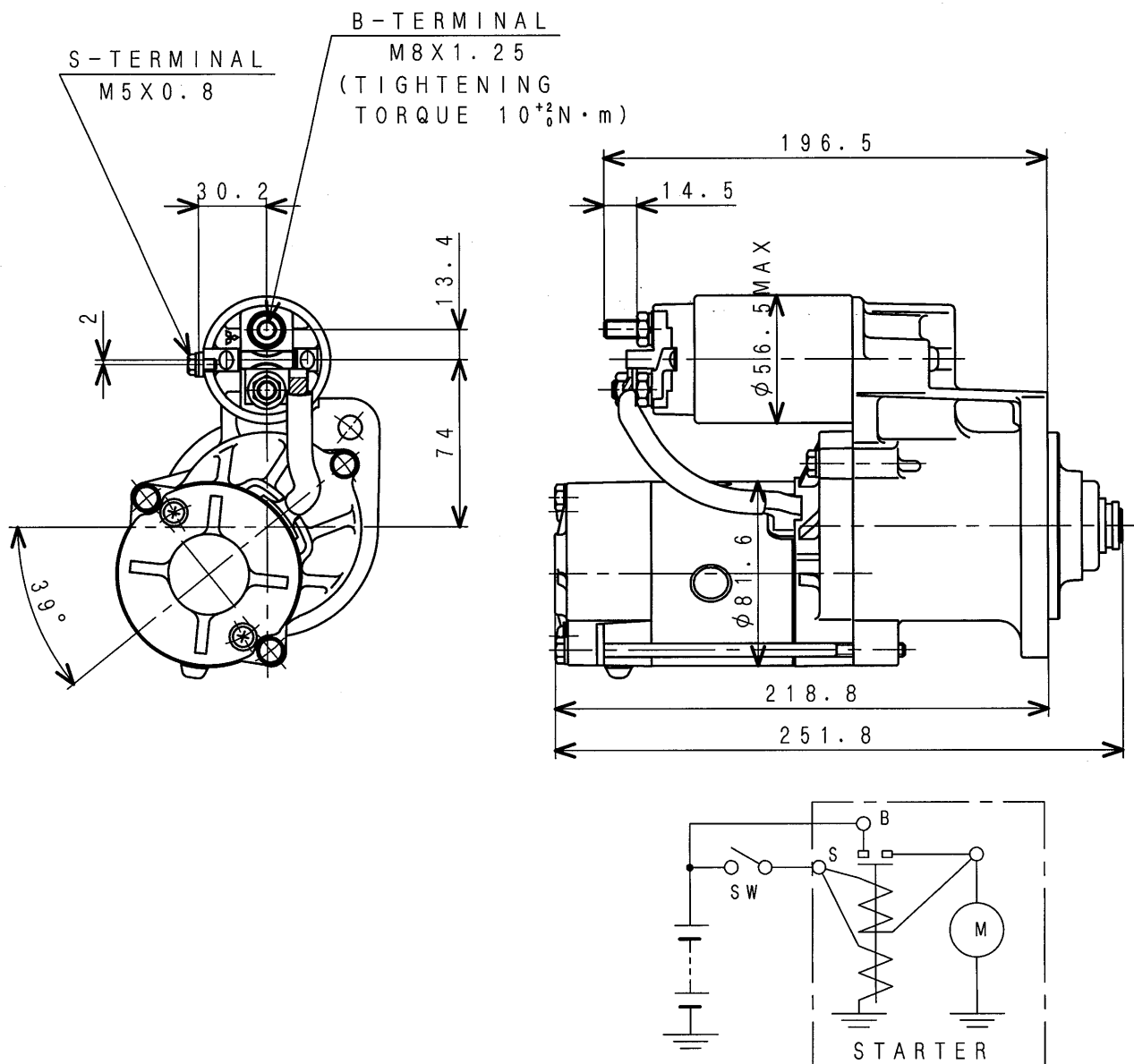
6	05946-01401	WASHER, SEALING	4
5	MH037-087	BOLT, EYE	2
4	05946-00801	WASHER, SEALING	1
3	MH037-084	PLUG, AIR	1
2	34462-00300	ELEMENT ASSY	1
1	34462-00201	BRACKET	1
SYM	PART No.	PART NAME	QTY

ヒュエルフィルタアッシ

FUEL FILTER ASSY

34462-00011

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NOMINAL OUTPUT		12V-2.2kW (JIS 12-D)		
ENGAGING SYSTEM		SOLENOID SHIFT ENGAGEMENT		
RATING TIME		30 S		
ROTATION		CLOCKWISE (VIEW FROM THE DRIVE END)		
PERFORMANCE SPECIFICATION (20°C)		TEST CONDITION	PERFORMANCE	
	NO LOAD	11V	130A MAX	3750r/min MIN
	LOAD	7.7V 400A	10.54Nm MIN	1360r/min MIN
	LOCKED	3V	1120 A MAX	31.81Nm MIN
WATER PROOF		WATER TEST "S1" JIS D 0203		

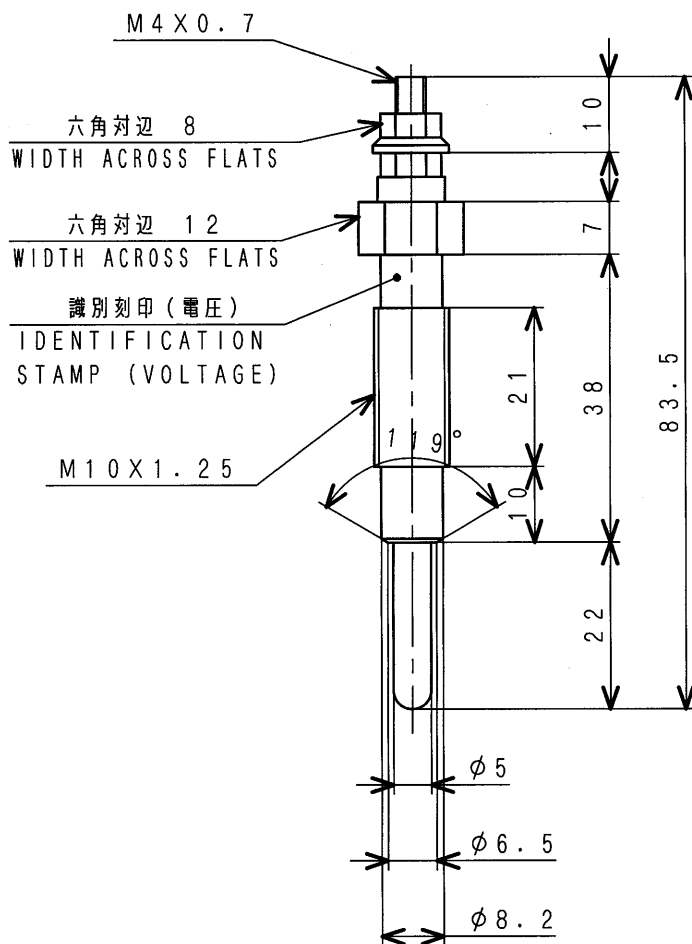
WIRING RESISTANCE	MAIN CIRCUIT	S. CIRCUIT
	2 mΩ MAX	50~70 mΩ MAX

MODEL	PART NO.	RATED OUTPUT OF STARTER	BATTERY (REFERENCE)
4EG, S4S	32A66-11100	12V-2.2kW	12V-92AH

スターター
STARTER (12V-2.2kW)

32A66-11100

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定格電圧 RATED VOLT	DC10.5V
電流値 CURRENT	定格電圧印加30秒時 AT RATED VOLTAGE FOR 30sec
	9.7±1.0A
温度上昇 TEMPERATURE	定格電圧印加800℃到達時間 (先端から5mmの位置で) TIME TO REACH 800℃ (AT RATED VOLTAGE AND 5mm POINT FROM TIP)
	9±2 sec
締付トルク TIGHTENING TORQUE	BODY (M10X1.25) : 14.7~19.6N・m
	TERMINAL (M4X0.7) : 1.0~1.5N・m

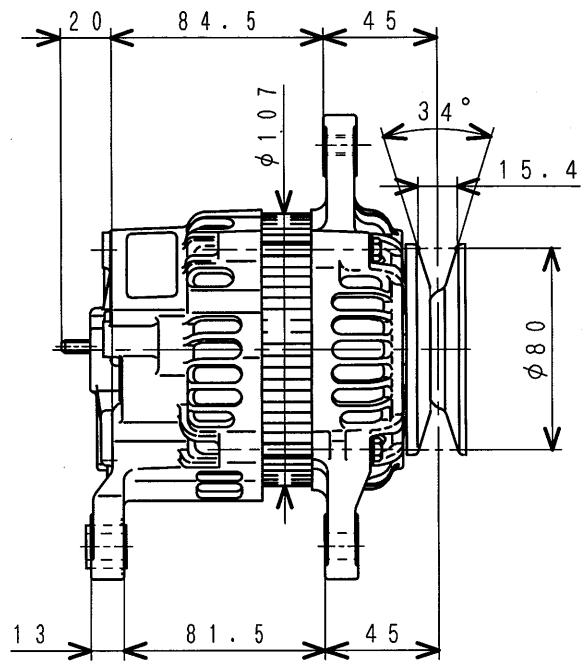
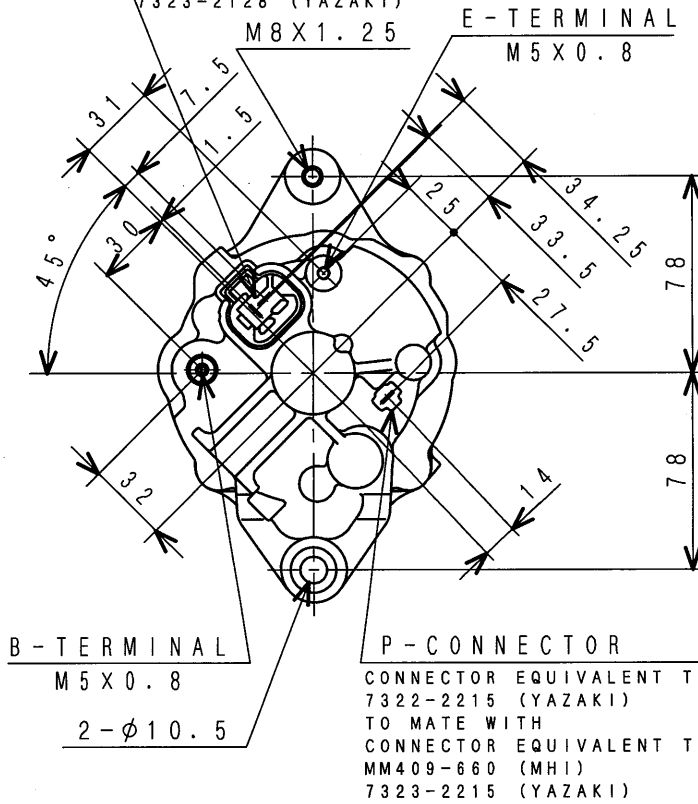
グロープラグ
PLUG, GLOW

32A66-03102

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L&R-CONNECTOR

CONNECTOR EQUIVALENT TO
7322-2128 (YAZAKI)
TO MATE WITH
CONNECTOR EQUIVALENT TO
MB084-014 (MHI)
7323-2128 (YAZAKI)



仕様

SPECIFICATIONS

定 格 RATING	連 続 CONTINUOUS
電 池 電 圧 BATT. VOLT.	12V
運 転 時 の 周 囲 温 度 AMB. TEMP. IN USE	100°C MAX.
レギュレータ性能 REG. PERFORMANCE	調 整 電 圧 SET VOLT 14.7±0.3V
使 用 回 転 速 度 SPEED IN USE	1,000~18,000rpm

出力性能 OUTPUT PERFORMANCE

1. 保証出力性能 GUARANTEE 20°C

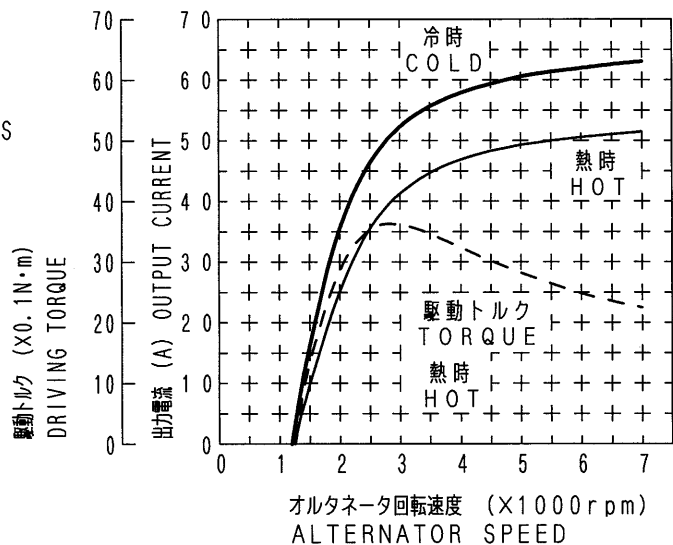
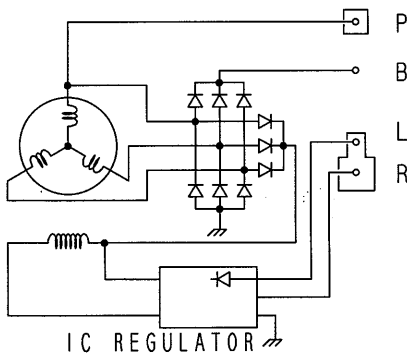
電 圧 (V) VOLTAGE	TYPE	CA-0008-1	
	回転速度 SPEED (rpm)	出力電圧 OUTPUT CURRENT (A)	
		冷 時 COLD	熱 時 HOT
13.5	1300	-	-
	2500	-	33
	5000	-	47
ヒートラン速度 TEMP. STAB. SPEED 5000rpm			

ヒートラン速度 TEMP. STAB. SPEED 5000rpm

2. 実力平均特性曲線 ACTUAL:AVERAGE CHARACTERISTIC CURVE

注記：キーOFF時外部ユニットを介してL端子にまわり込み
電流がないこと。

NOTE: WHEN THE KEY SWITCH IS OFF,
NO CURRENT FLOWS FROM OTHER UNITS
TO L AND R TERMINAL PERMITTED.

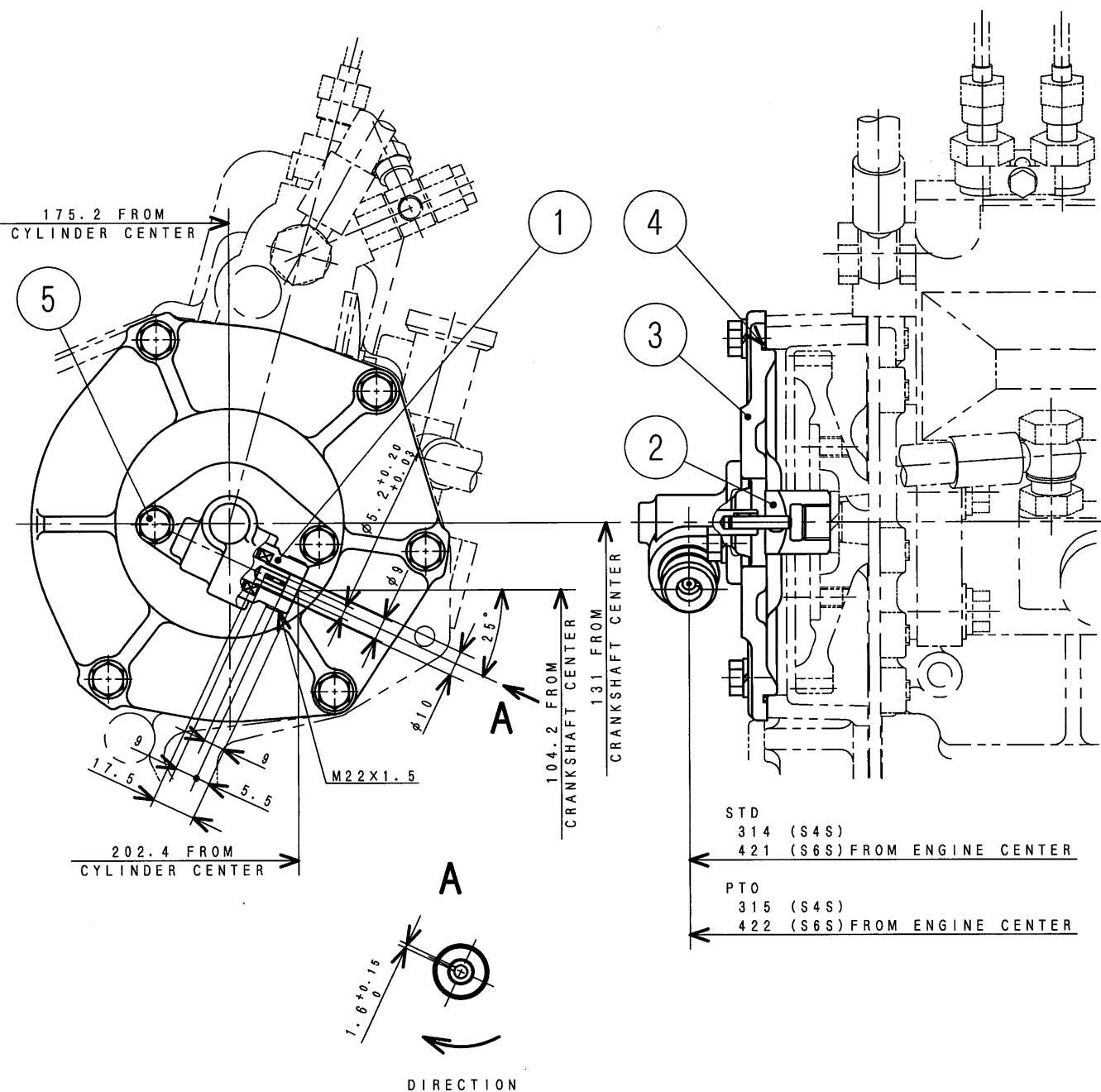


オルタネータ

ALTERNATOR (12V-50A)

32A68-00401

MHI CONFIDENTIAL



注 記 (1) 許容トルク: 0.196 Nm (2.0 kgf·cm) (起動時)

NOTE (1) ALLOWABLE TORQUE: 0.196 Nm (2.0 kgf·cm) AT STARTING

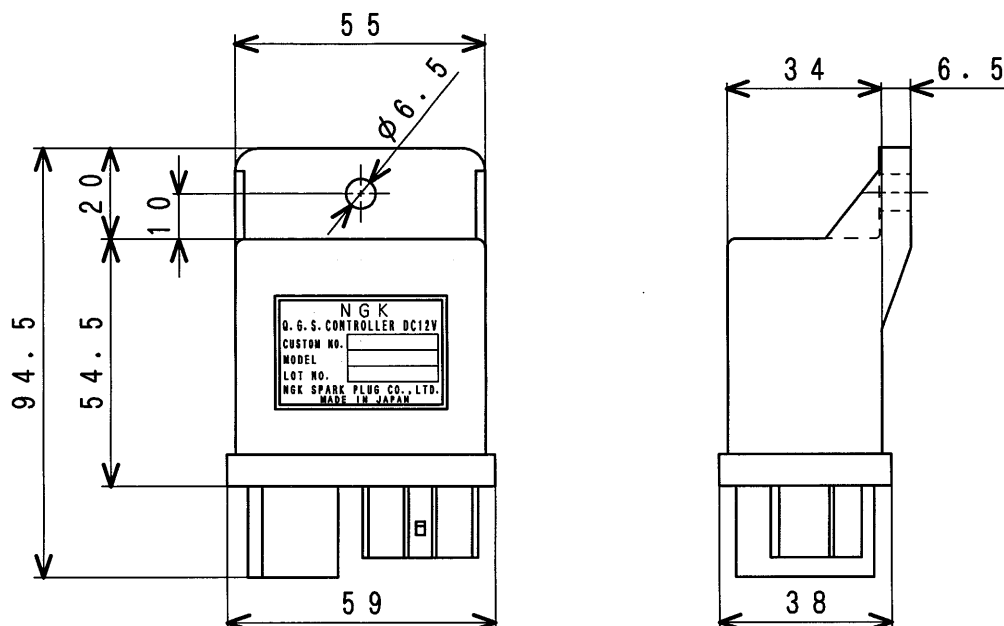
5	F1805-08016	BOLT	2	
4	06016-13140	O-RING	1	
3	32A11-21300	COVER, GEAR CASE	1	
2	32A61-09200	NUT, INJ. PUMP	1	IDI
	32A61-09300	NUT, INJ. PUMP	1	DI, CAV
1	32A25-00021	TACHO DRIVE ASSY	1	
SYM	PART No.	PART NAME	QTY	REMARKS

タコドライブ キット

TACHO DRIVE KIT

32A25-00021

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CONNECTOR A (SUMITOMO)

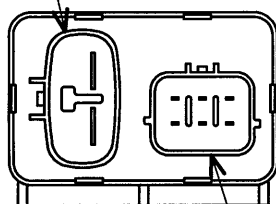
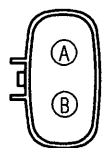
コネクタA: 6195-0057 (住友) 相当

相手側: 31A66-07100 (MHI)

相手側: 6195-0060 (住友)

MATING CONNECTOR (MHI & SUMITOMO)

CONNECTOR A
コネクタA



CONNECTOR B
コネクタB



CONNECTOR B (SUMITOMO)

コネクタB: 6195-0024 (住友) 相当

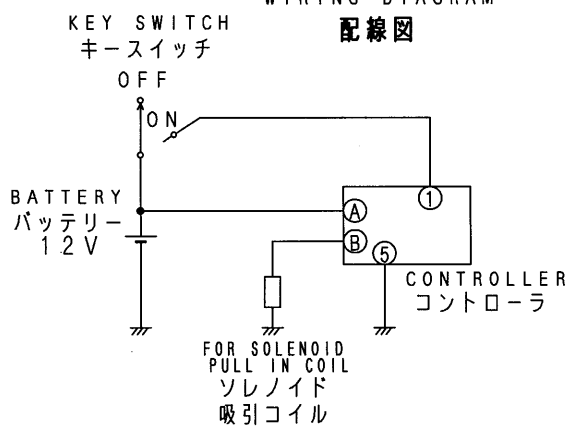
相手側: 31A66-07200 (MHI)

相手側: 6195-0021 (住友)

MATING CONNECTOR (MHI & SUMITOMO)

WIRING DIAGRAM

配線図



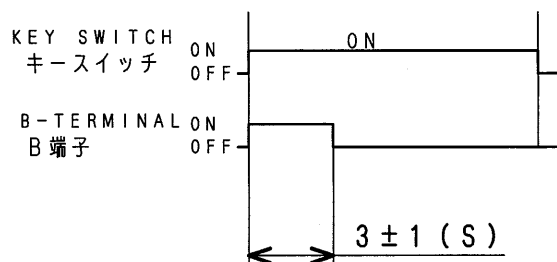
仕様

SPECIFICATIONS

RATED VOLTAGE 定格電圧	DC12V	
OPERATING VOLTAGE 使用電圧範囲	DC8V~16V	
AMBIENT TEMPERATURE 使用温度範囲	-30℃~80℃	
RATED LOADED 定格負荷	TERMINAL ⑧-端子	40A

TIMING CHART

動作チャート

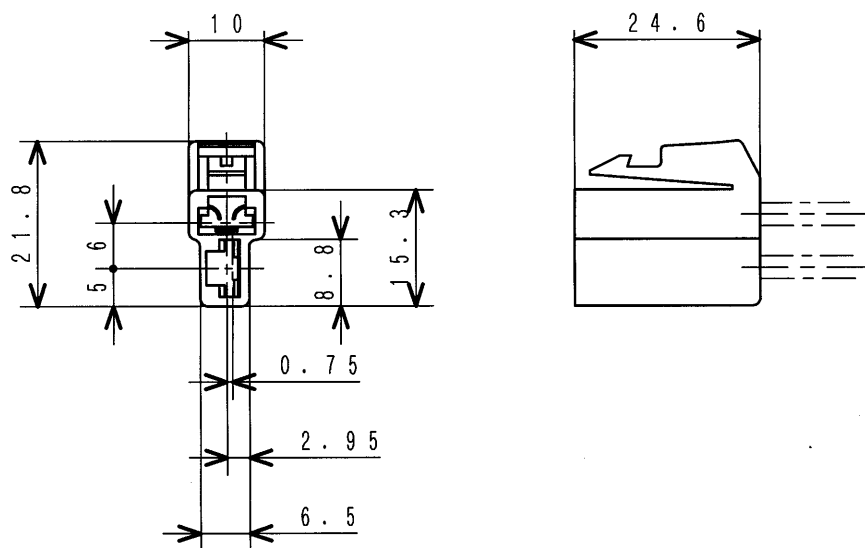


コントローラー

CONTROLLER

31A66-06100

MHI CONFIDENTIAL



注 記 オルタネータL・R用及びグローリレー用 (YAZAKI 7323-2825)

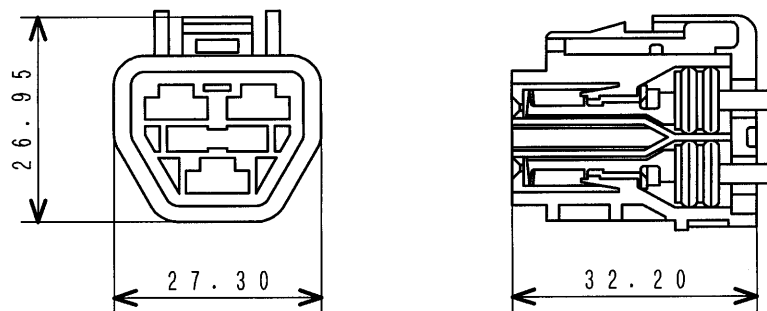
NOTE FOR L AND R TERMINALS OF ALTERNATOR AND FOR GLOW RELAY

コネクタ

CONNECTOR (2 POLES)

F8665-02100

MHI CONFIDENTIAL



	MHI No.	YAZAKI No.
CONNECTOR ASSY (3P-F)	30A87-00600	—
TERMINAL	30A87-01100	7116-2874
HOUSING	30A87-01300	7123-6234

適用電線サイズ 2.0~3.0mm²
 APPLICABLE CABLE 2.0~3.0mm²

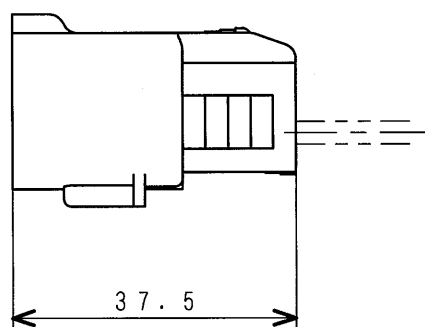
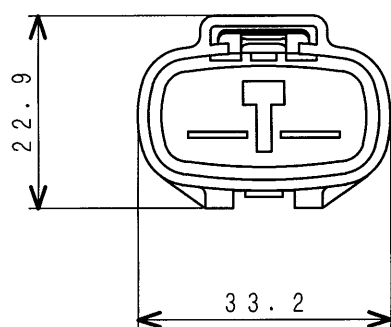
注 記 ストップソレノイド (ETR) 用
 NOTE FOR STOP SOLENOID (ETR)

コネクタ

CONNECTOR (3 POLES)

30A87-00600

MHI CONFIDENTIAL



注 記 コントローラ用

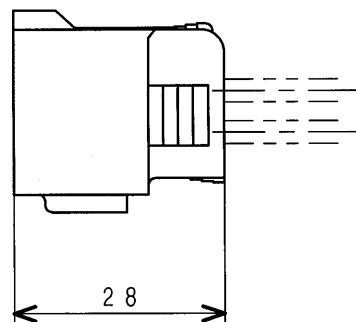
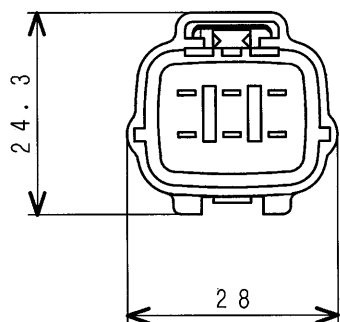
NOTE FOR CONTROLLER

コネクタ

CONNECTOR (2POLES)

31A66-07100

MHI CONFIDENTIAL



注 記 コントローラ用
NOTE FOR CONTROLLER

コネクタ
CONNECTOR (6 POLES)

31A66-07200

MHI CONFIDENTIAL