

# SPECIFICATIONS

MITSUBISHI HIGH SPEED DIESEL ENGINE  
MODEL MITSUBISHI S4S-Z3DT

EU EMISSION CONTROL ENGINE(STAGE3A)

(MEE: For Power Unit)



PLEASE RETURN AFTER APPROVAL

APPROVED		REMARKS		
DATE • SIGNATURE				
DATE Mar. 17. 2010 MITSUBISHI HEAVY INDUSTRIES, LTD.				
CHG	DATE	APPROVED	CHECKED	DRAWN
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## Revised record

[illegible]

# 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-DT MHI No.32A00-07240
Regulations	97/68/EC Stage3A certified engine family SS-DTDPB (engine type ; S4S-DTDP2 62kW) 97/68/EC as last amended by 2004/26/EC
Type	4 cycle water-cooled, vertical overhead valve, cylinder in line, direct injection type
Number of cylinders	4
Bore × Stroke	94mm × 120mm
Piston displacement	3.331 liters
Compression ratio	19.5 : 1
Rotation	Anti-Clockwise rotation as viewed from flywheel side
Firing order	1-3-4-2
Engine weight(Dry)	Approx. 250kg
Dimensions(Length)	Approx. 781mm
(Width)	Approx. 566mm
(Height)	Approx. 821mm
Inclination(Continuous)	Max.15°
(Temporary)	Max.25°
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
Rated Power ; without fan	62kW/2500rpm
Maximum torque; without fan	265N·m/1800rpm
Tolerance	±5%
Fuel consumption	255g/kW·h at standard air conditions On run-in engine (60 hours operation)
Low Idle	1190 (±30) rpm (Bare engine)
High Idle	2820 (±30) rpm (Bare engine)
Rating conditions	SAE J1349, without fan Total barometric pressure:0.1MPa Air temperature :25°C Relative humidity:30%
Oil consumption	Approx. 0.1~0.3% <reference value> @ FLRS
Fuel injection timing	5°BTDC at 0.5mm cam lift point
Mean effective pressure	0.89MPa {9.1kgf/cm <sup>2</sup> }
Piston speed	10m/s at 2500rpm

**Fuel system**

Fuel injection pump	Distributor type
Fuel injection nozzle	Multi-Hole type
Governor	Mechanical centrifugal type
Fuel filter	Filtering paper type
Fuel pump	Yes(Engine attached)
Fuel inlet pressure	Within $\pm 15\text{kPa}$

**Lubricating system**

Lubricating system	Forced lubrication by trochoid gear pump
Lubricating oil filter	Filtering paper type, full flow
Oil pressure	$0.19 \sim 0.39\text{MPa}$ { $2 \sim 4\text{kgf/cm}^2$ } at duty run $0.1\text{MPa}$ { $1\text{kgf/cm}^2$ } min. at low idling
Oil capacity	Approx. 10 liters (Oil pan high level 9 liters, Oil filter etc. Approx. 1 liters, High ~ Low Approx. 3 liters)
Oil dipstick	Standard dipstick
Oil pressure switch	Yes
Oil pressure unit	No
Oil cooler	Plate type

**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, 7 blades, sucker
Water pump pulley	PCD 123mm
Pulley ratio	1.30 ( Crankpulley : Water pump pulley = 160:123 )
Fan spacer	No
Water temp. switch	Yes
Thermo. Unit	No
Thermostat	Open at $82\text{deg.C}$ - full open at $95\text{deg.C}$

**Electrical system**

Alternator	12V - 50A
Voltage regulator	IC type (Built in alternator)
Regulator set voltage	$14.7 \pm 0.3\text{V}$
Alternator pulley	PCD 80mm
Starting system	Electric starting
Starter motor	12V-2.2kW
Glow plug	11V, 5.5A x 4
Engine shut off system (Fuel cut-off valve)	Electric solenoid (ETR) 12V Resistance: $8\Omega$ (at $23^\circ\text{C}$ ) Closing circuit voltage: Max $6.3\text{V}$ (at $23^\circ\text{C}$ ) Opening circuit voltage: Min $2.5\text{V}$ (at $23^\circ\text{C}$ )

**Intake and Exhaust system**

Air intake	Engine rear side of turbo charger
Exhaust outlet	Engine front side of turbo charger
Recommended Air Intake Resistance	Max 1.96kPa{200mmH <sub>2</sub> O}(Initial stage)
Recommended Exhaust Back Pressure	Max 4kPa{408mmH <sub>2</sub> O}
Allowable Air Intake Resistance	Max 5kPa{510mmH <sub>2</sub> O}(Initial stage)
Allowable Exhaust Back Pressure	Max 15kPa{1530mmH <sub>2</sub> O}

**Turbo system**

Manufacturer	Mitsubishi Heavy Industries,Ltd.
Type	TD04HL

**<Remarks>**

Engine color	Clear lacquer
Flywheel coupling size	SAE #11-1/2
Flywheel housing coupling size	SAE #3

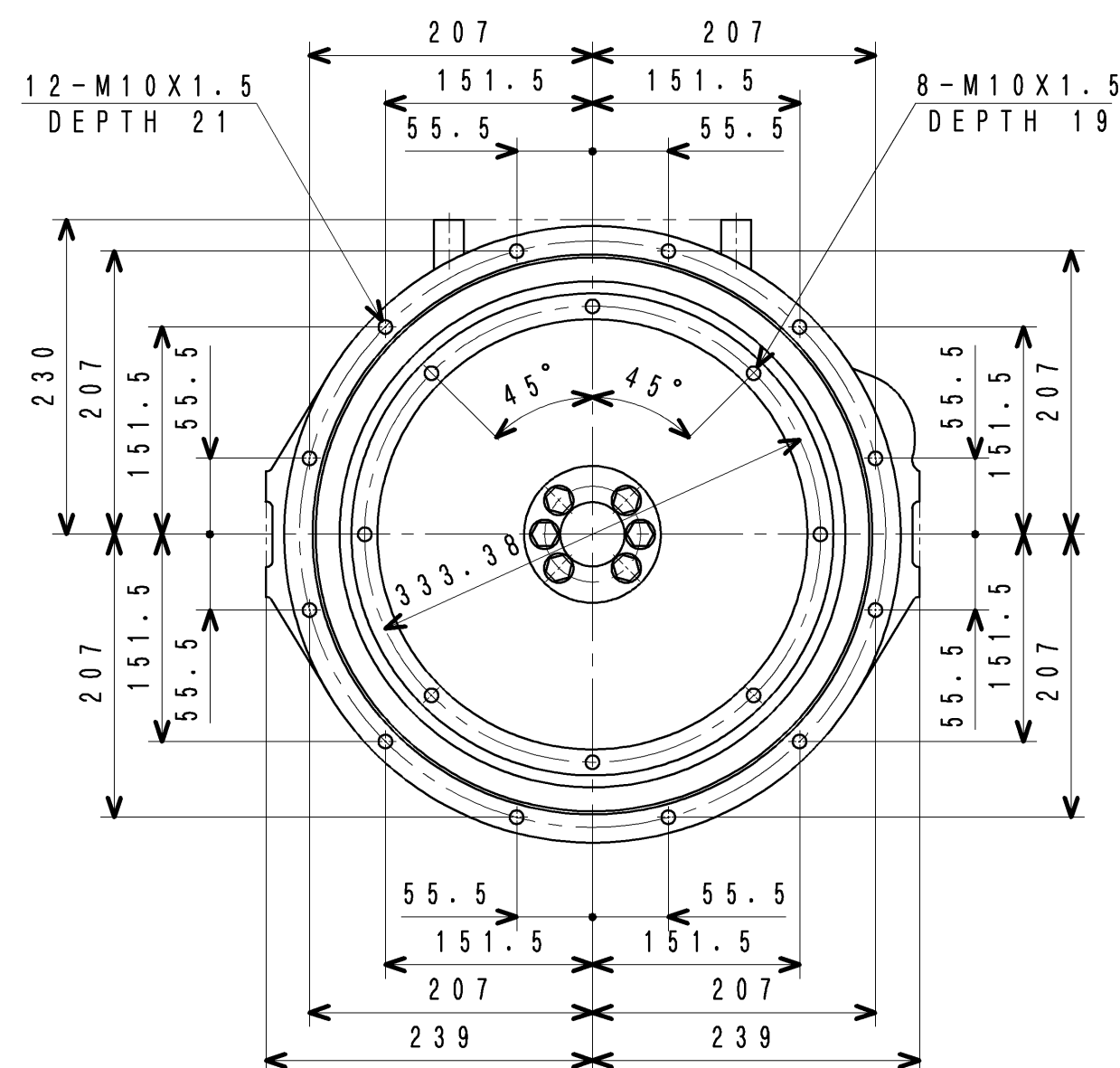
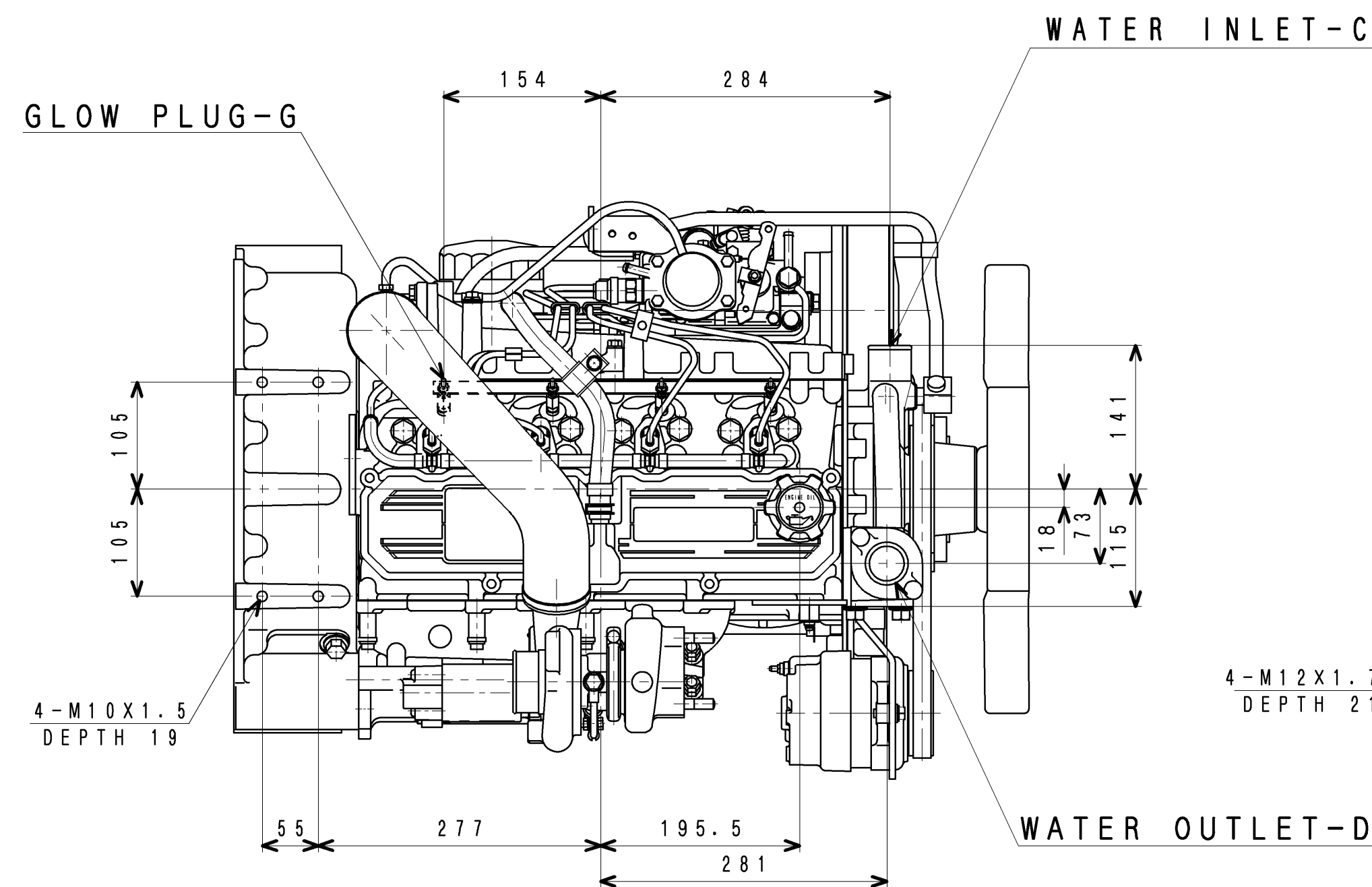
**2. Engine attached items&Reference drawings**

	Item	Parts No.	Q'ty	Remarks(Drawing number)	
1	OIL FILTER	32A40-00400	1		A4
2	COOLING FAN	ME015-735	1		A4
3	STARTER	32A66-10101	1		A4
4	PLUG ASSY,GLOW	32A66-07011	4		A4
5	ALTERNATOR	32A68-00401	1		A4
6	SWITCH,OIL PRESSURE	31A90-00701	1		A4
7	SWITCH, THERMO	MC880-900	1		A4

**3. Accessories(Loose supply parts)**

	Parts Name	Parts No.	Q'ty	Remarks	
1	FILTER ASSY,FUEL	32A62-00010	1		A4

Note: Drawing No. subject to alteration without notice.



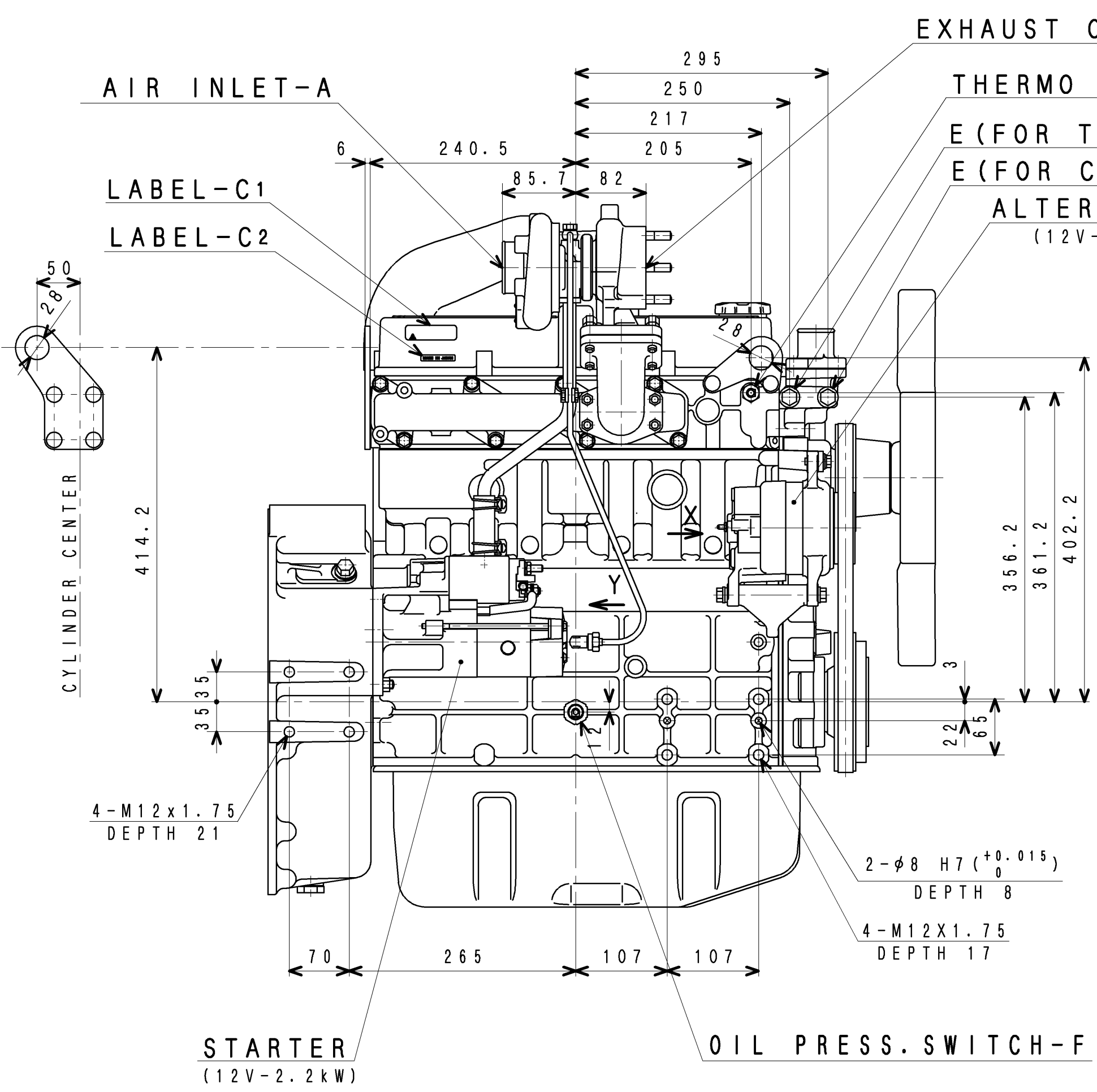
MADE IN JAPAN

ENGINE TYPE S4S-DTOP2 62kW  
RATED OUTPUT 62 kW/ 2500rpm  
ENGINE FAMILY SS-DTOPB  
EC TYPE-APPROVAL NO.  
e111497/EBJA1004/ZEN4302400

C2-DETAIL

C1-DETAIL (1:1)

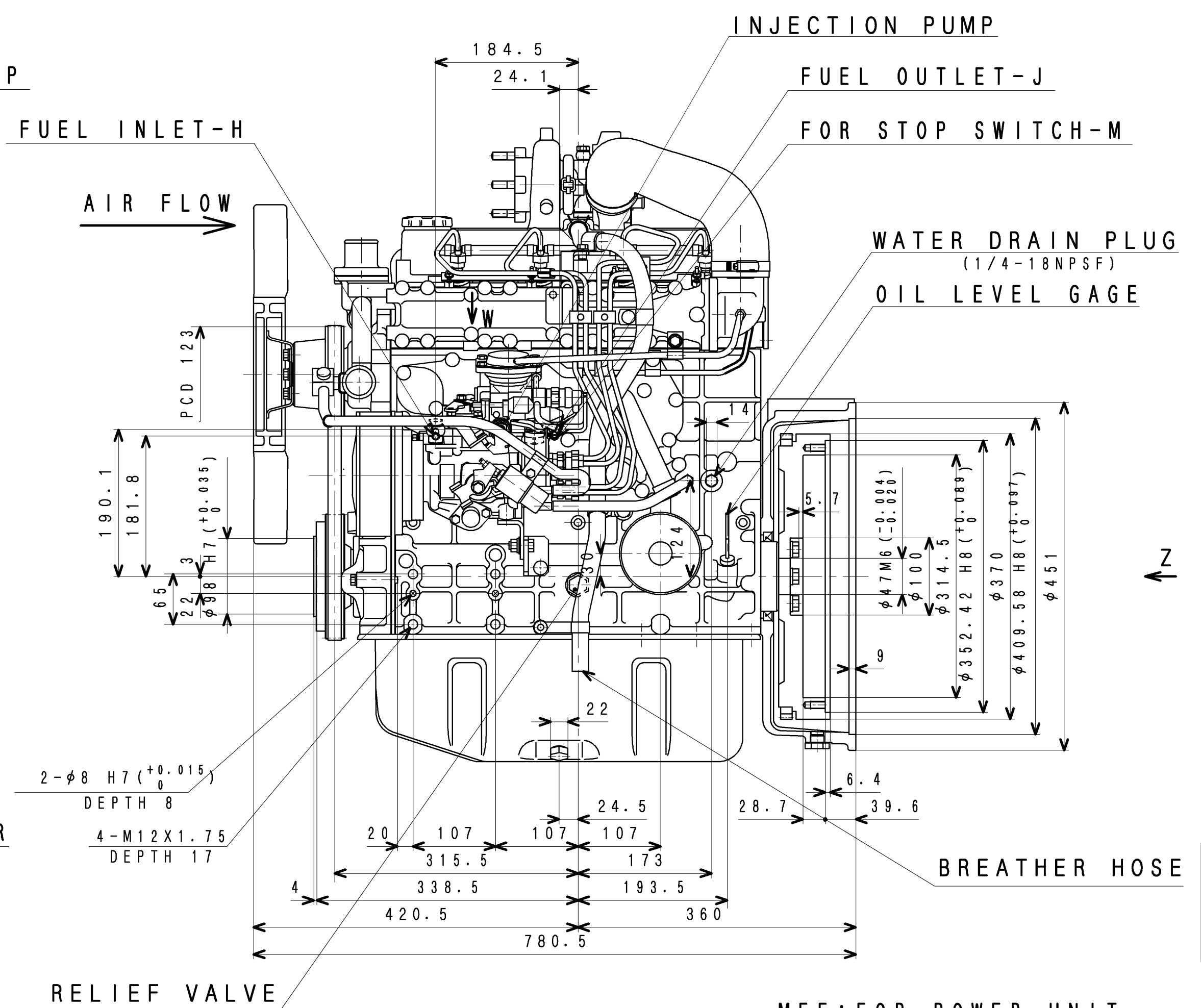
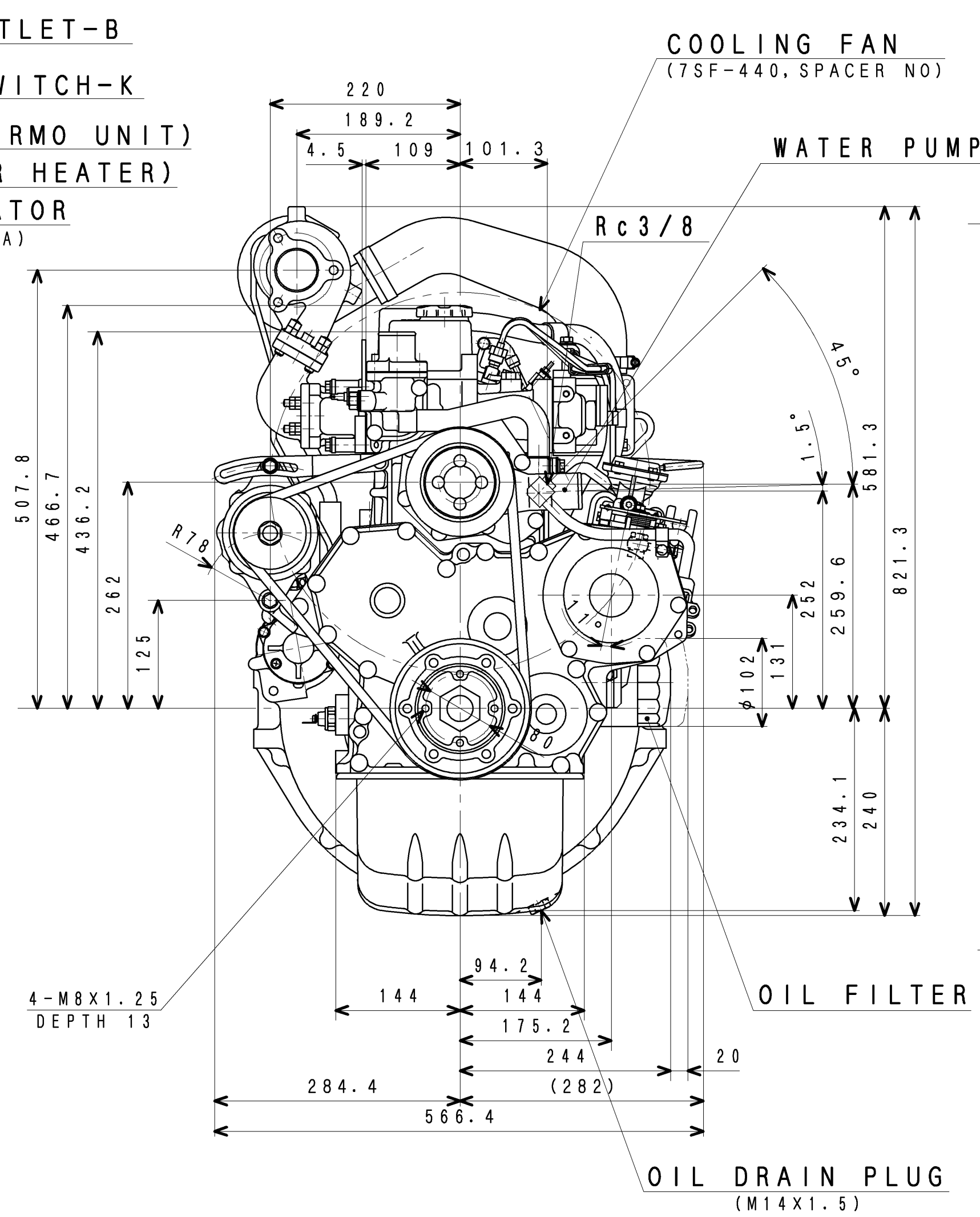
Z-VIEW



**EXHAUST OUTLET-B**

**THERMO SWITCH-K**  
E(FOR THERMO UNIT)  
E(FOR CAR HEATER)

**ALTERNATOR**  
(12V-50A)

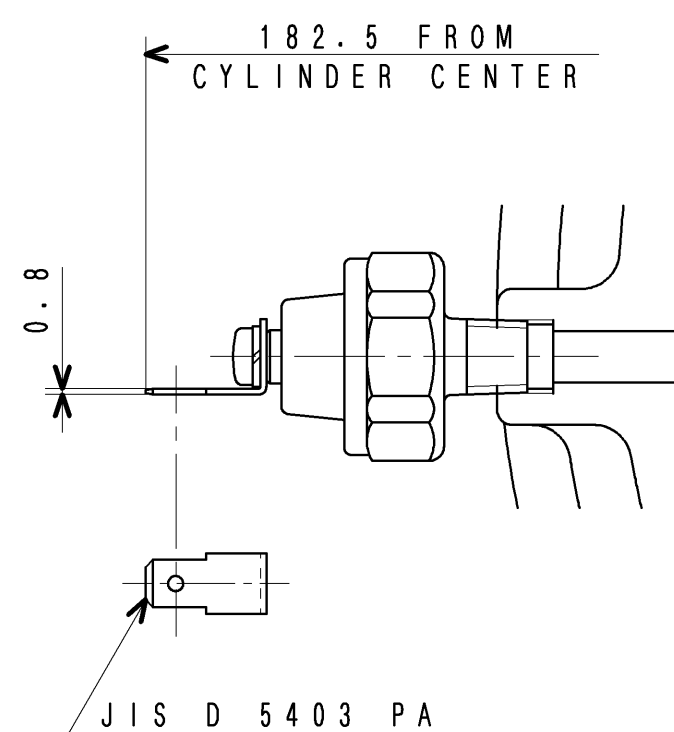


MEE:FOR POWER UNIT

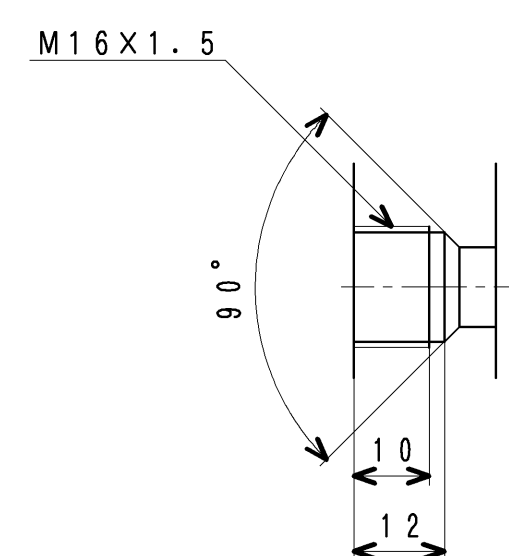
CHG	ED-NO	DATE	CHK	3rd ANGLE PROJECTION	<b>S4S-DT ENGINE ASSY</b> 三菱重工業株式会社 汎用機・特車事業本部 MITSUBISHI HEAVY INDUSTRIES, LTD. GENERAL MACHINERY & SPECIAL VEHICLE HEADQUARTERS.
認可 APPD	検図 CHK	製図 DRW	監製 T.MSHI	尺度 SCALE	
H. Endo	M. ENDO	T. FUJISAWA	T. IBE	1:5	図面番号 32A00-07240 DRAWING NO.
1	2	3	4	5	6

出図  
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2010  
3.23

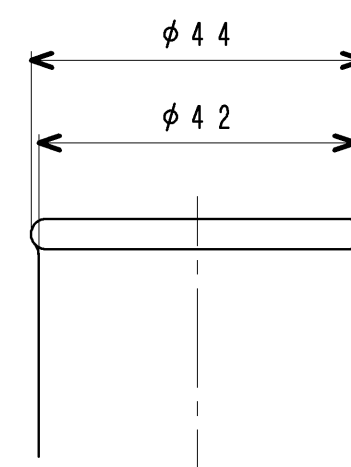
FULL-CAD



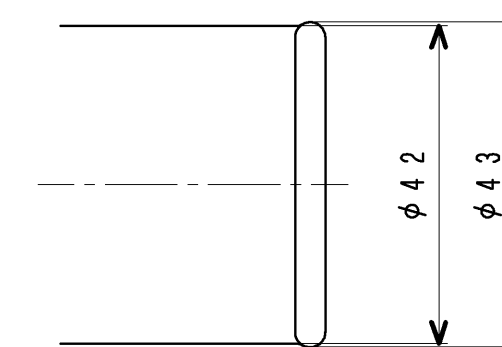
F-DETAIL



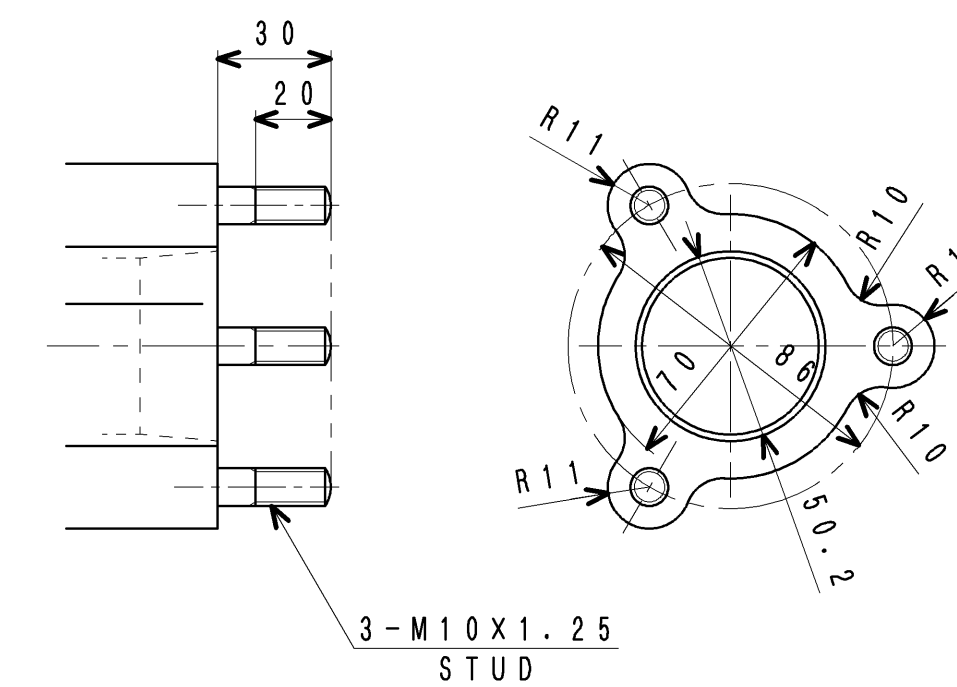
## E-DETAIL



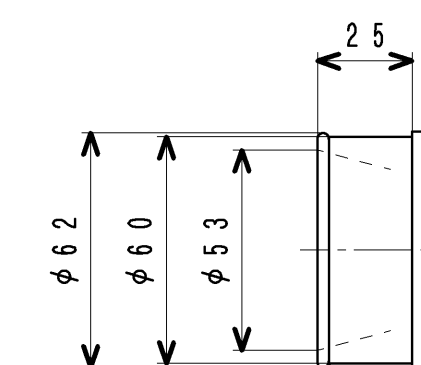
D-DETAIL



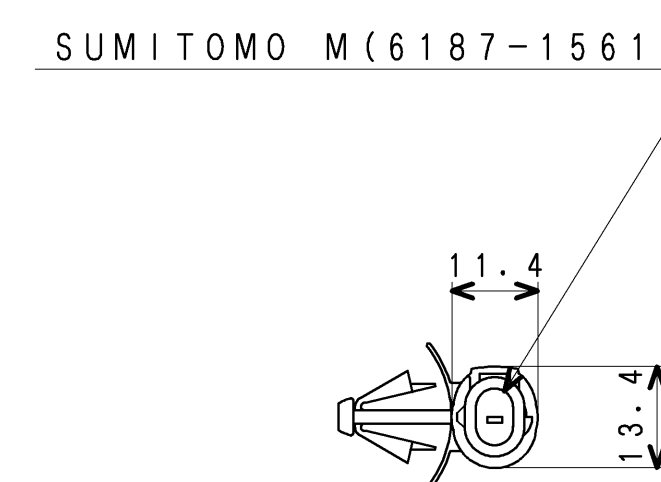
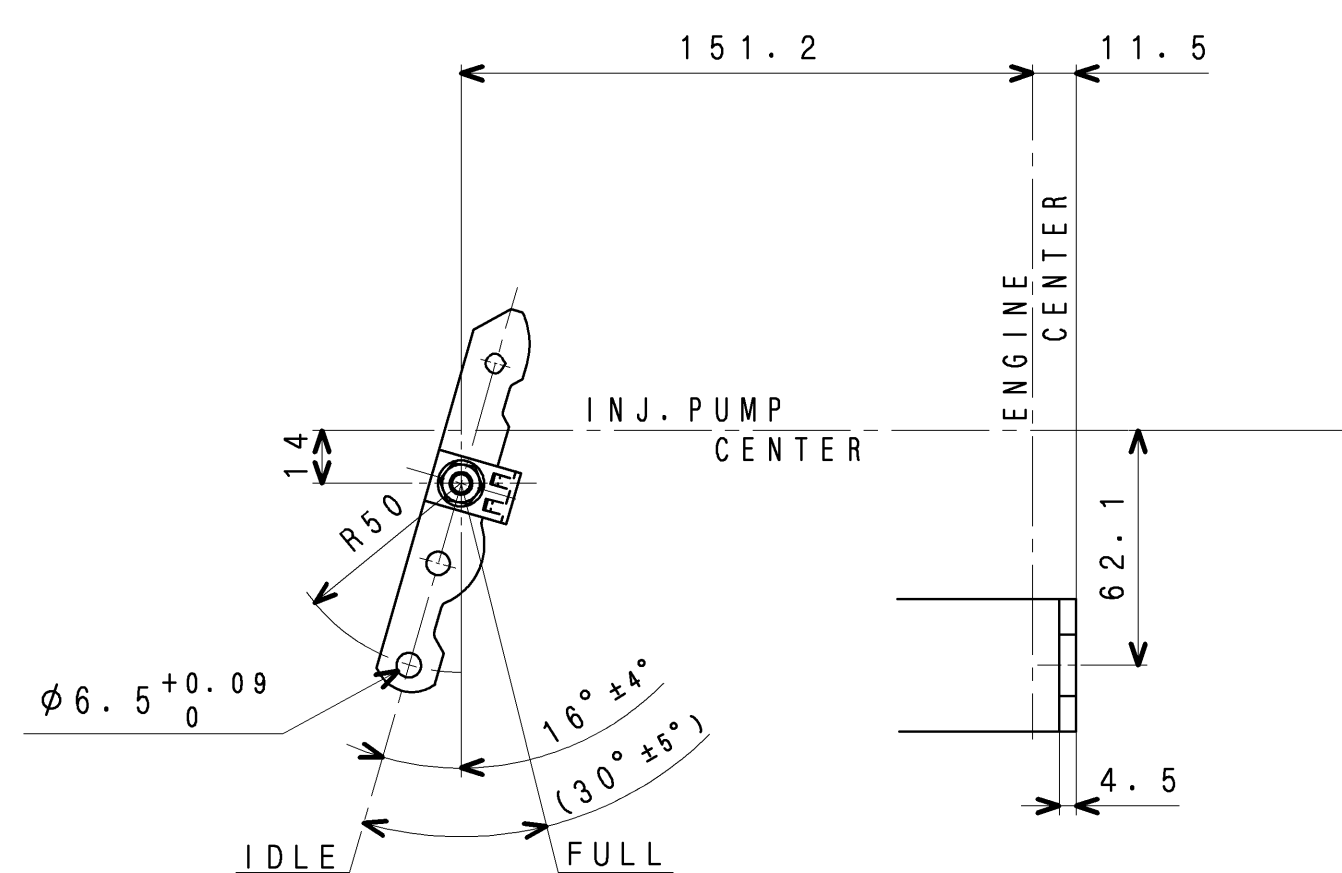
C-DETAIL



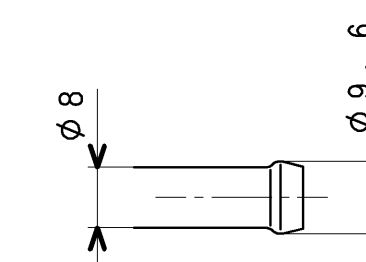
B-DETAIL(1:2)



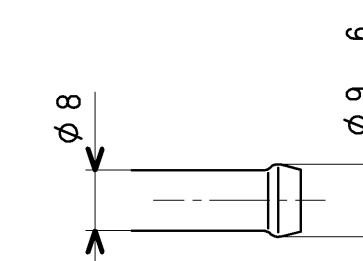
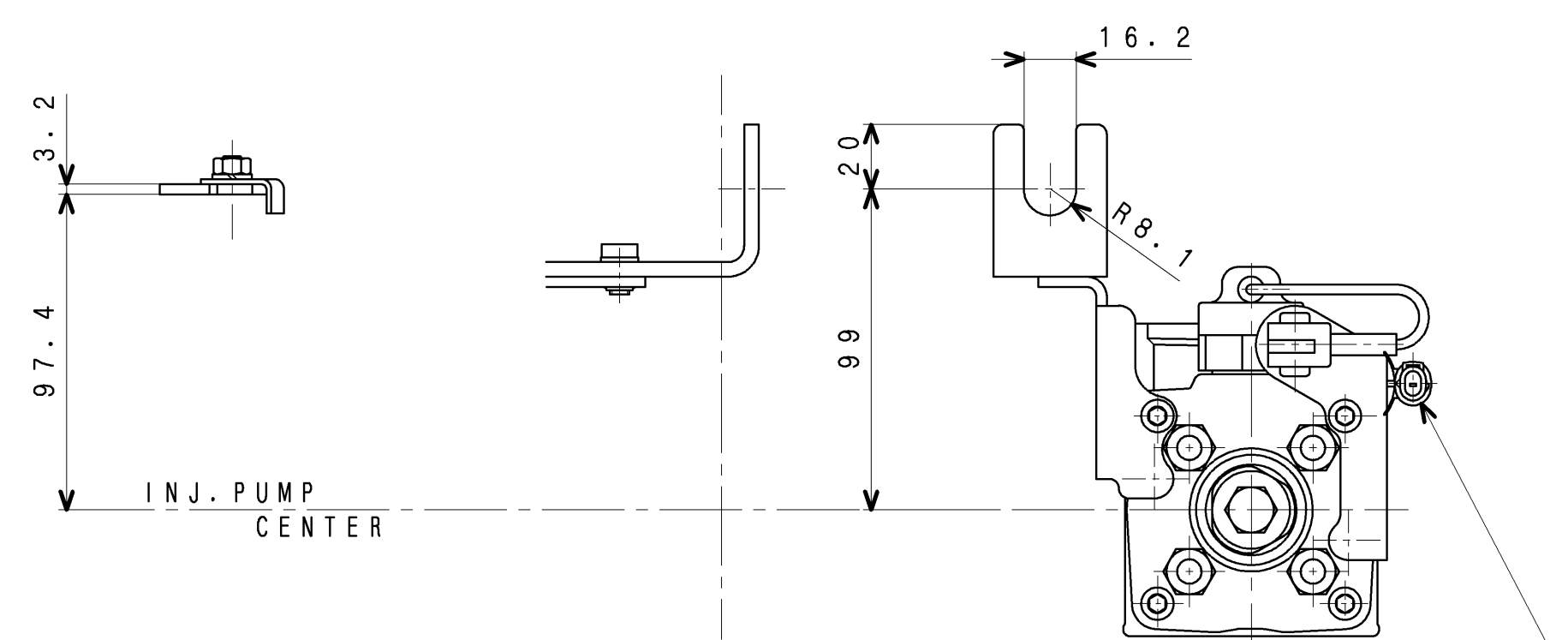
A-DETAIL (1:2)



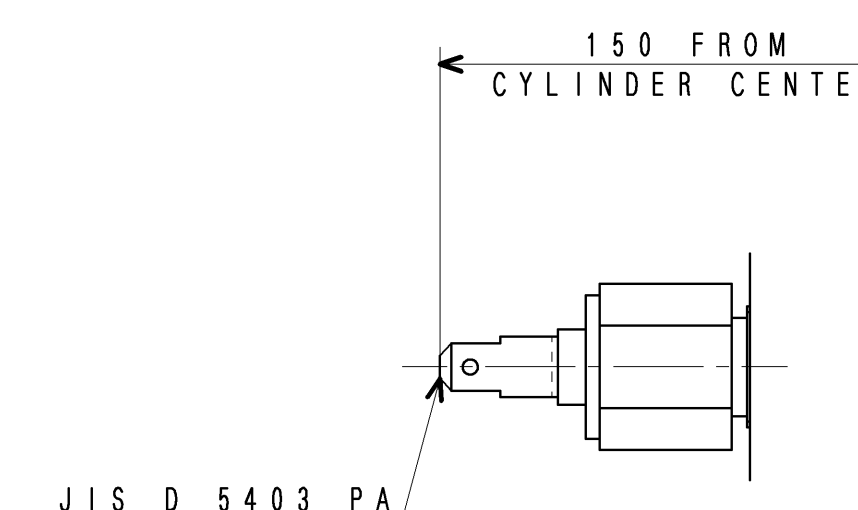
M, N-DETAIL



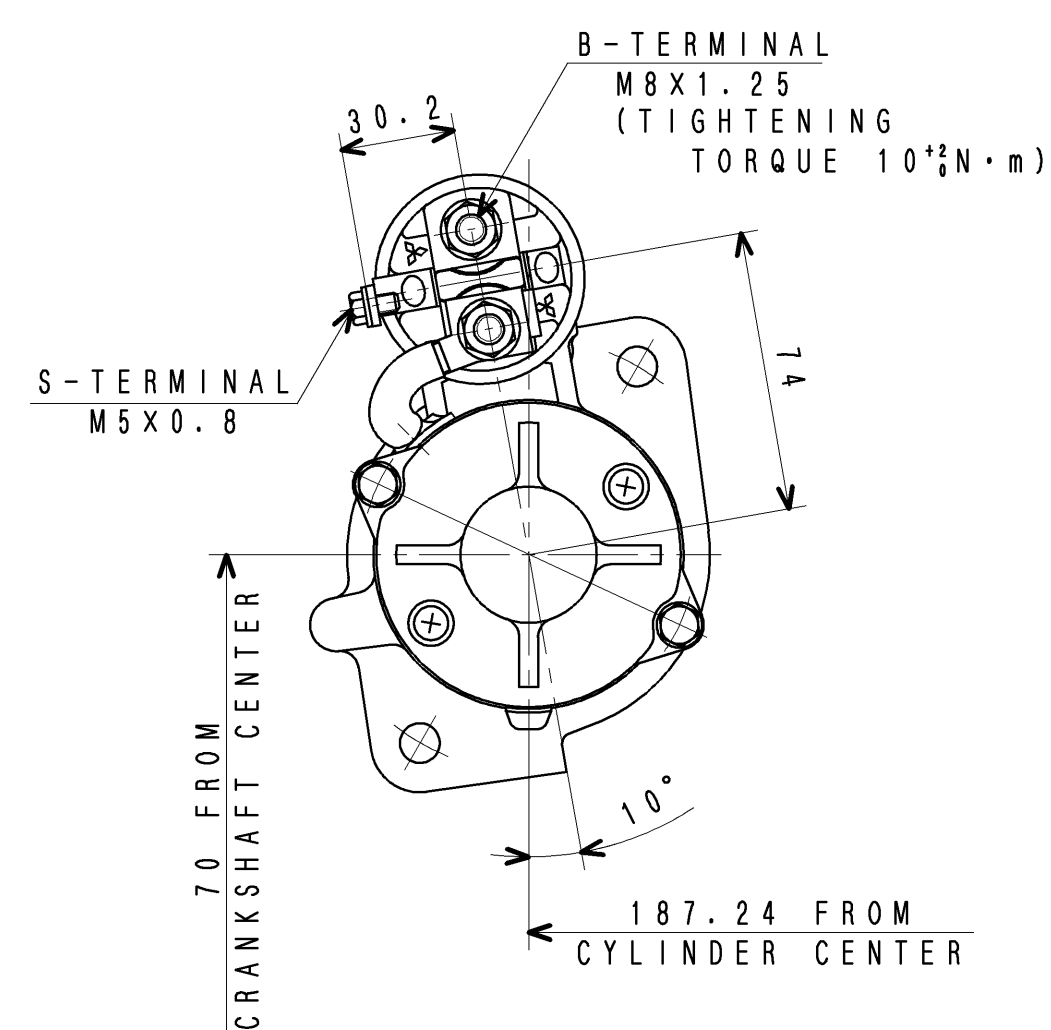
J-DETAIL

H-DETAIL

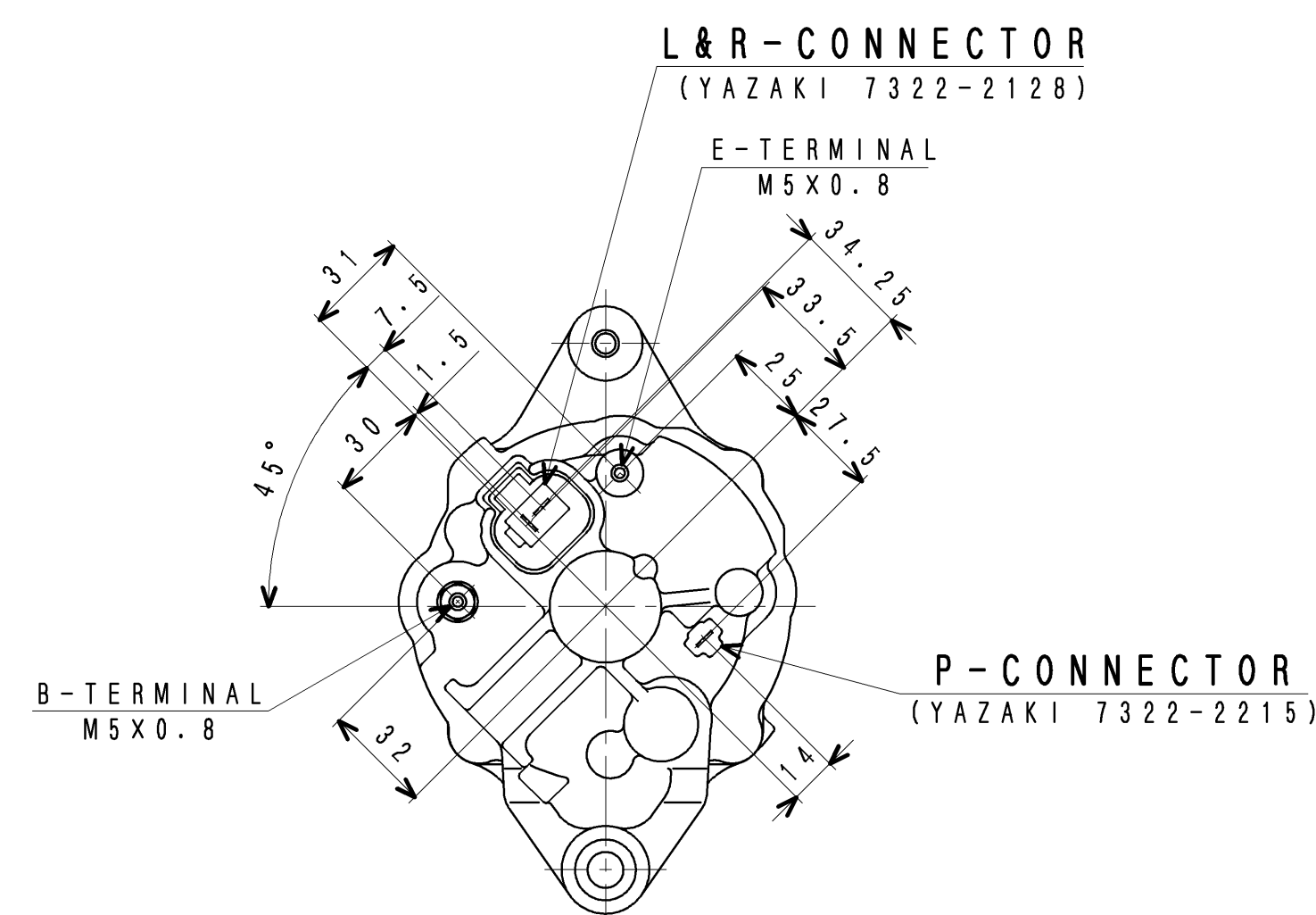
W-VIEW (1:2)  
(CONTROL LEVER)



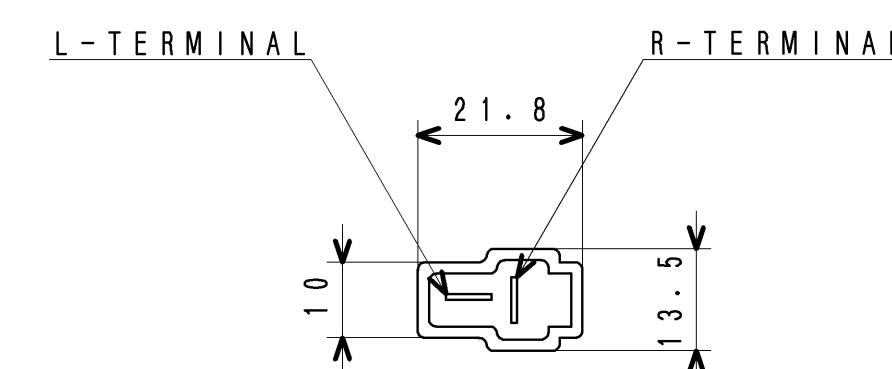
K - DETAIL



Y-VIEW (1:2)



X - V I E W ( 1 : 2 )



L & R - D E T A I L

MEE:FOR POWER UNIT


3RD ANGLE  
PROJECTION

# S4S-DT ENGINE ASSY

尺度 SCALE

1 : 1

## 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 HEADQUARTERS.

認可 APPROD

H. Endo

検図 CHK

M. ENDO  
T. FUJISAWA  
T. IBE

製図 DRA

(IMS) H  
S. HIROSE  
K. KAWAHARA

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図面番号 DRAWING NO.

32A00-07240

△ 2

2

新 訂 YYY

旧引換 A 1

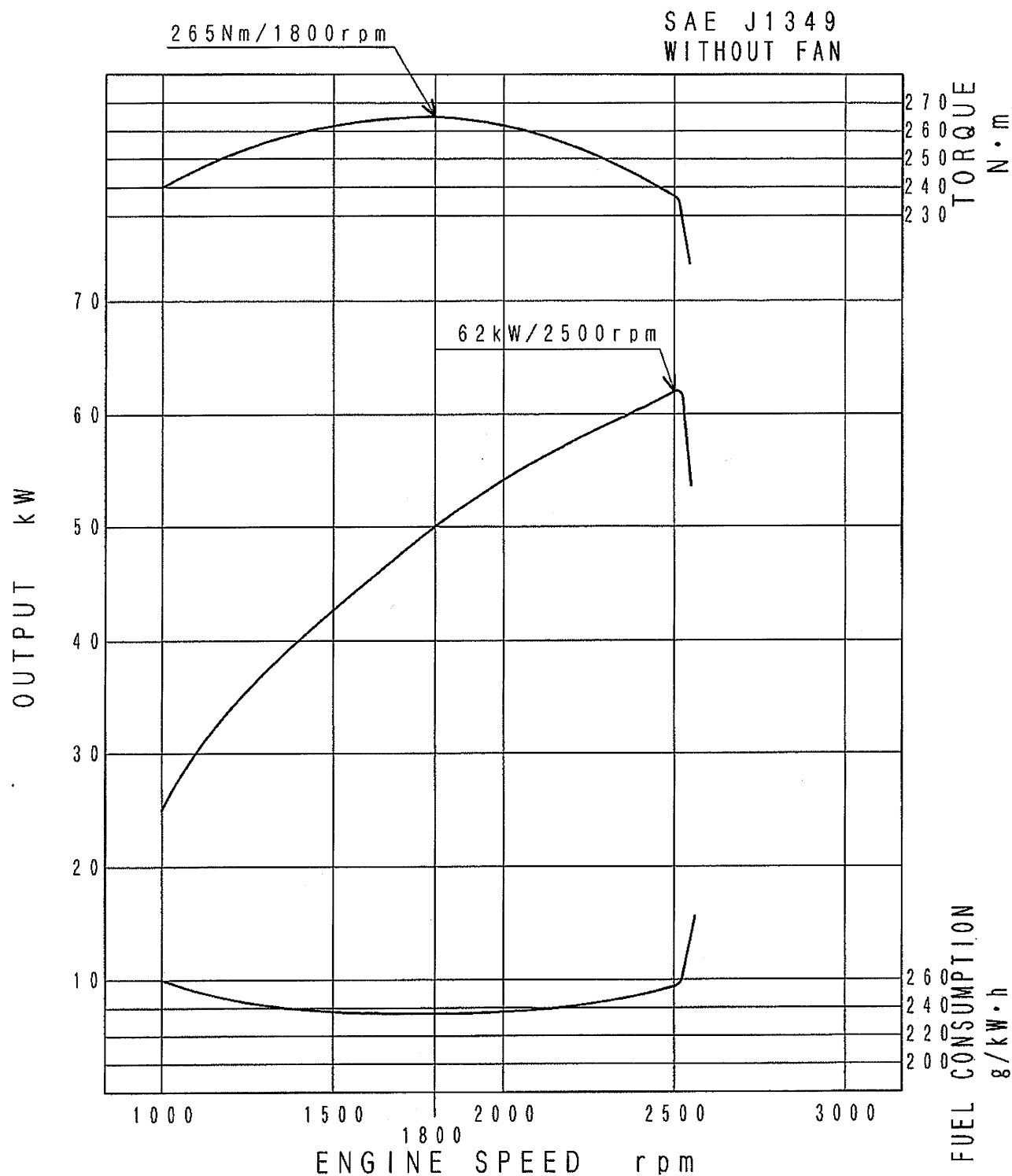
組立

1 鋸歯部品 2 板金溶接品 3 板金成形品 4 配管

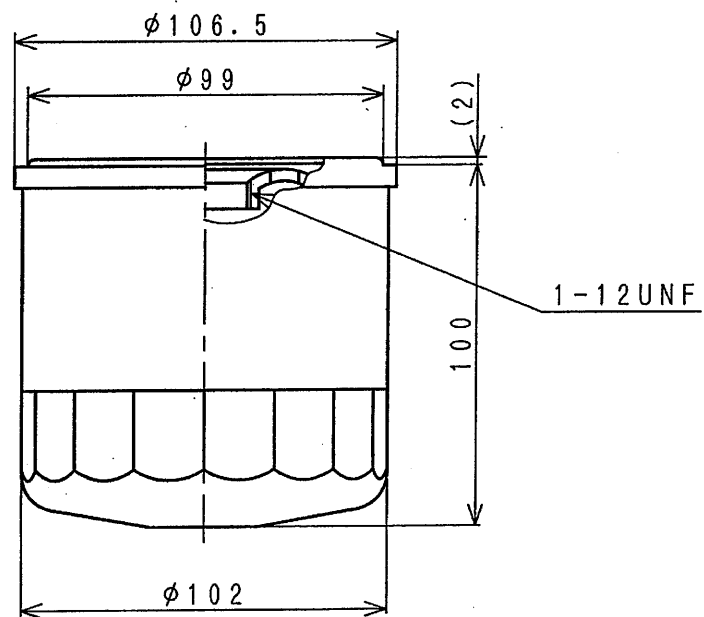
5 切削用品 6 その他（購入品）



# MITSUBISHI DIESEL ENGINE MODEL S4S-DT PERFORMANCE CURVE



PFC-S4S-187



仕 様  
SPECIFICATIONS

濾 過 面 積 FILTRATION AREA	0.2 m <sup>2</sup>
圧 力 損 失 PRESSURE LOSS	29 kPa {0.3 kgf/cm <sup>2</sup> } Max. (at 80±3℃, SAE #30, 17ℓ/min.)
破 壊 圧 力 PRESS. AT FRACTURE	1.5 MPa {15 kgf/cm <sup>2</sup> }
エレメント差圧強度 ELEMENT RESISTANCE TO PRESS. DIFFERENCE	690 kPa {7 kgf/cm <sup>2</sup> }
逃し弁調整圧力 RELIEF VALVE PRESSURE	98±20 kPa {1.0±0.2 kgf/cm <sup>2</sup> }

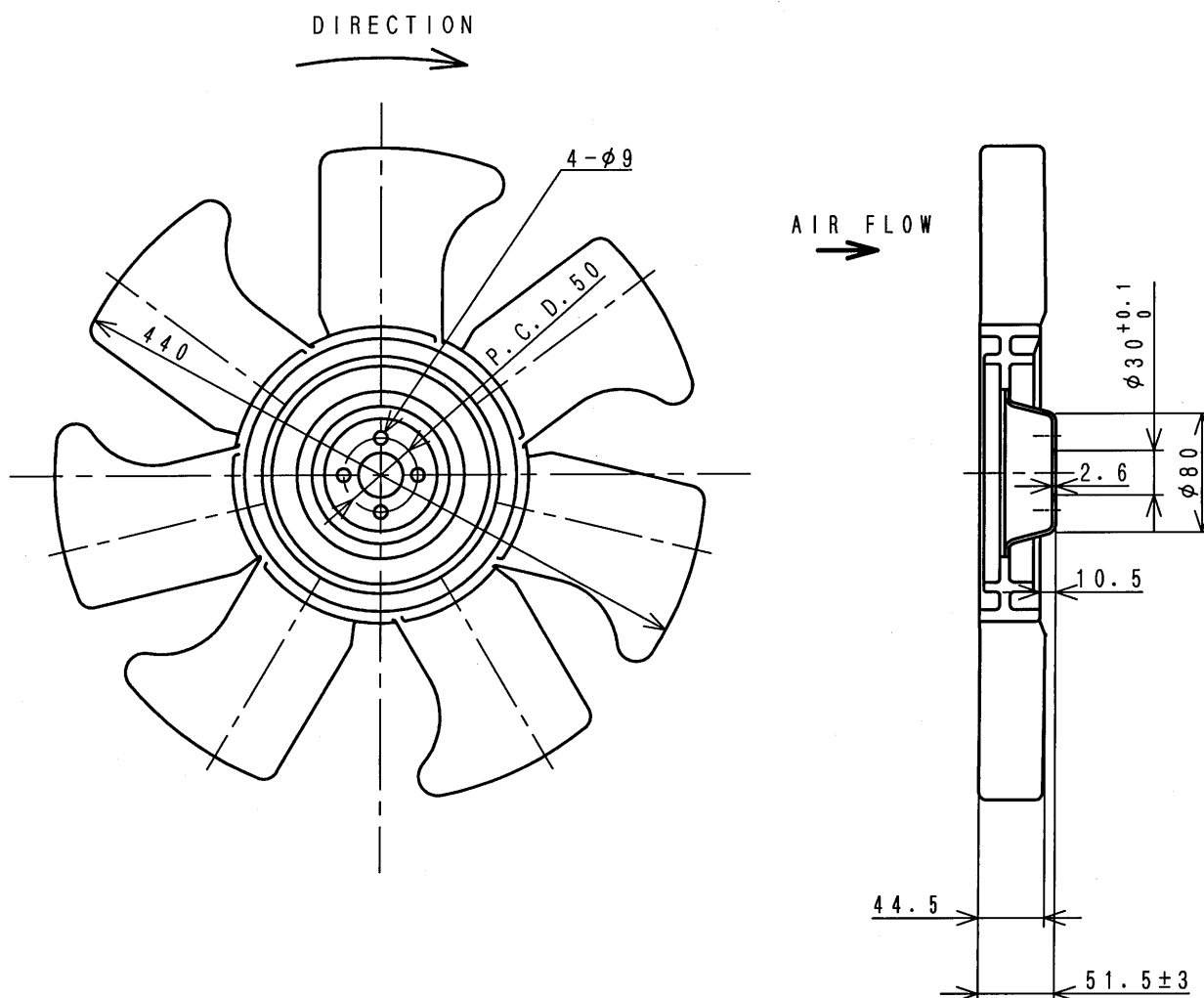
3. START ENGINE AND CHECK FOR OIL LEAKAGE.  
2. THEN TIGHTEN 3/4 TURN AFTER GASKET CONTACTS BASE.  
NOTE 1. APPLY FILM OF ENGINE OIL TO GASKET AND SCREW ON.

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

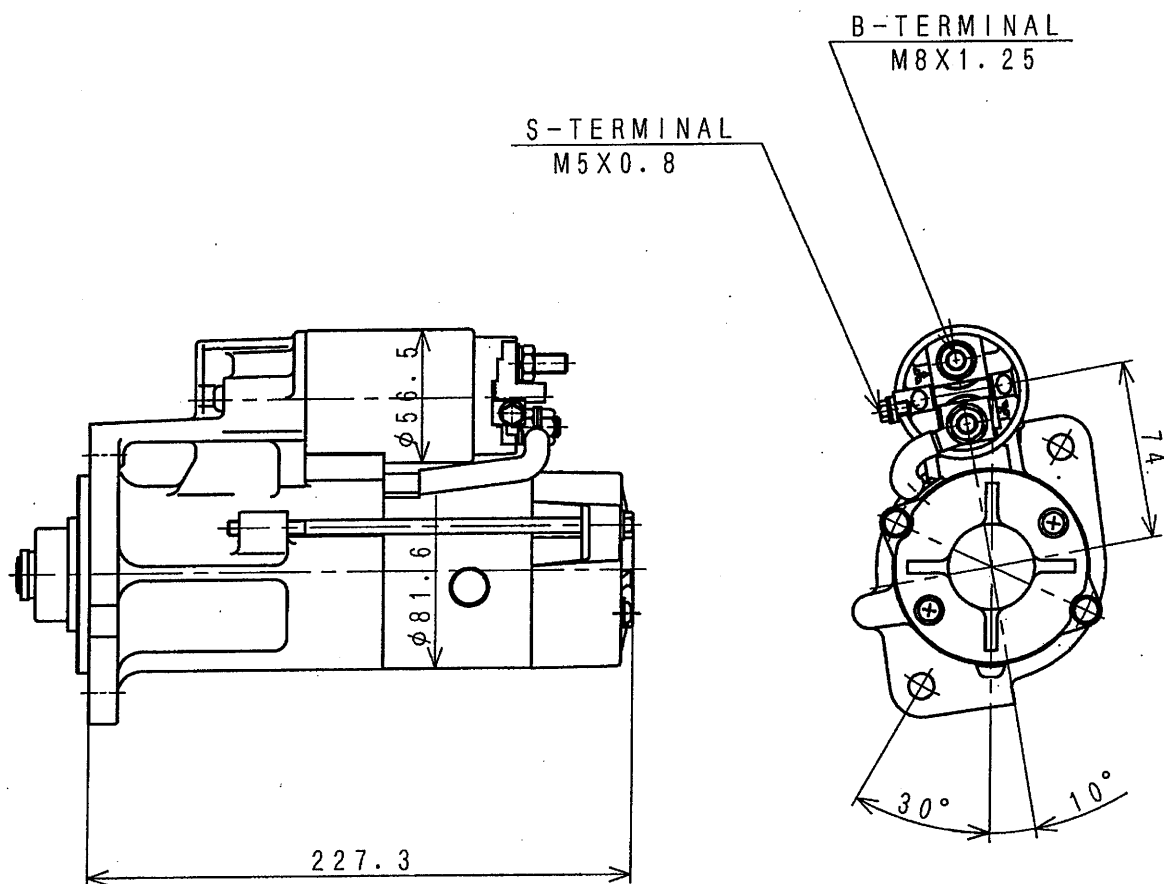
32A40-00400



ファン (サクション)

FAN (SUCTION) (S4S)

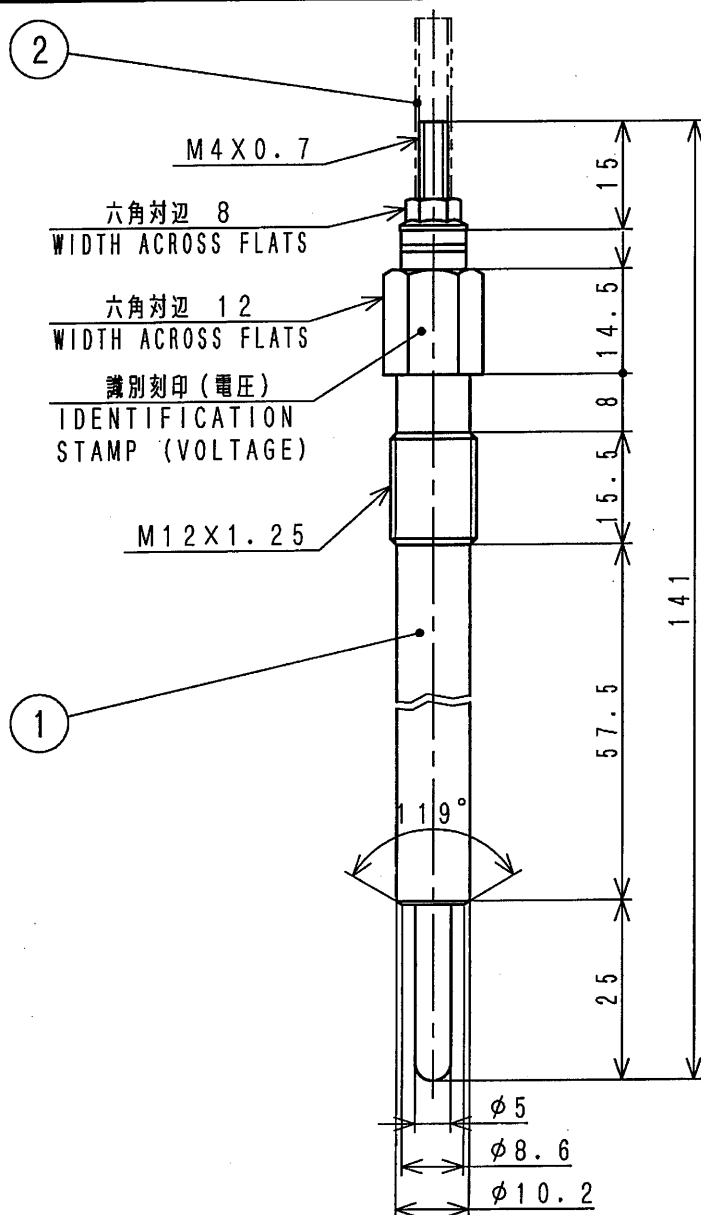
ME015-735



MODEL	PART NO.	RATED OUTPUT OF STARTER	BATTERY(REFERENCE)
S4S	32A66-10101	DC12V-2.2KW	92AH

スターター  
STARTER (DC12V-2.2kW)

32A66-10101



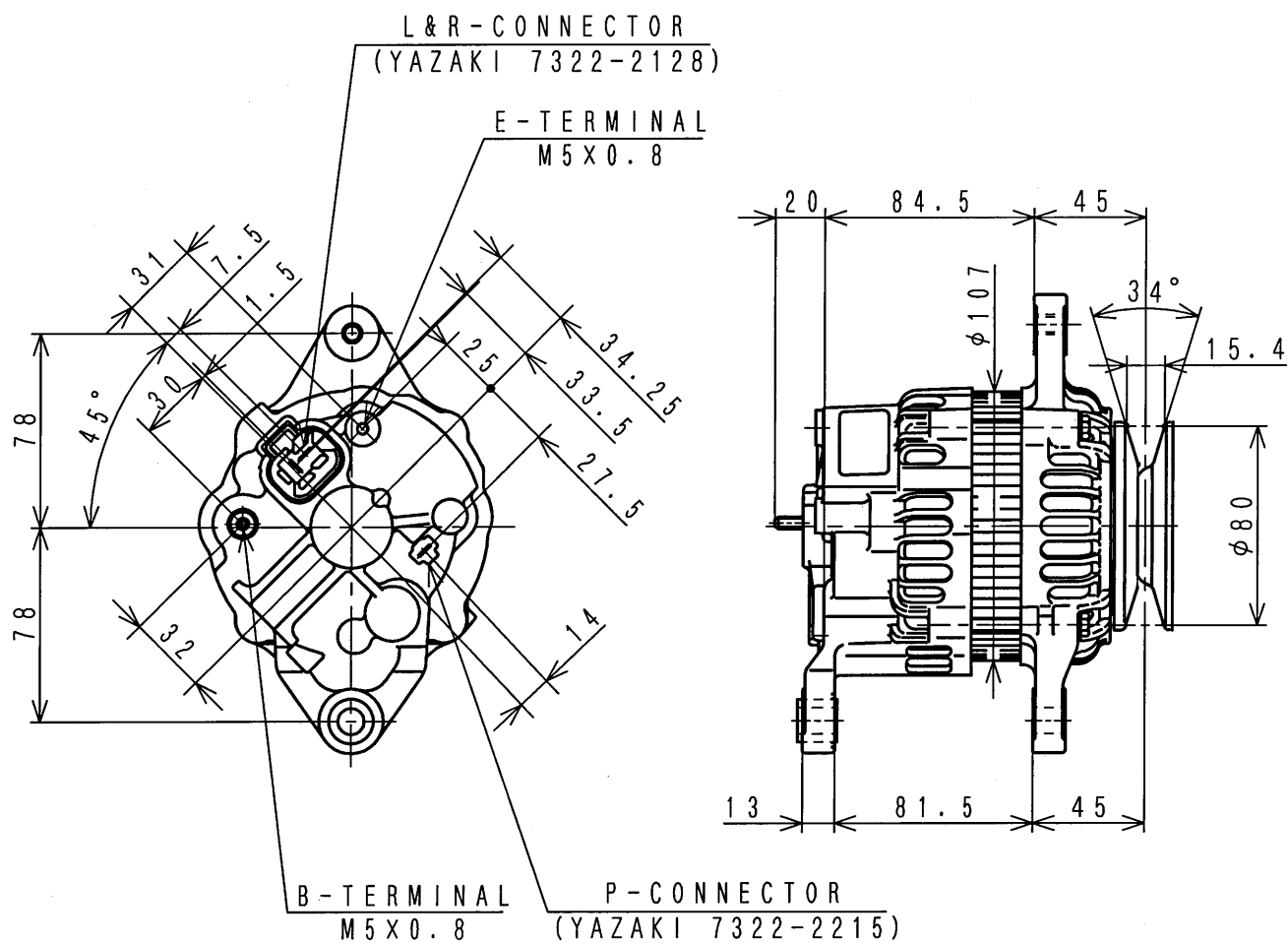
部 品 番 号 PART No.	32A66-07011	32A66-07020
定 格 電 圧 RATED VOLT	DC11V	DC23V
電 流 値 CURRENT	定格電圧印加30秒時 AT RATED VOLTAGE FOR 30sec 5.5A (参考値) (REF)   3.0A (参考値) (REF)	
温 度 上 昇 TEMPERATURE	定格電圧印加800℃到達時間 TIME TO REACH 800℃ (AT RATED VOLTAGE) 7 <sup>+1.5</sup> <sub>-1.0</sub> sec   8 <sup>+1.5</sup> <sub>-1.0</sub> sec	
締付トルク TIGHTENING TORQUE	BODY (M12X1.25) : 20~30N・m TERMINAL (M4X0.7) : 1.0~1.5N・m	

			32A66-07011	32A66-07020
2	32A66-07300	CAP		1
2	32A66-07301	CAP	1	
1	32A66-07200	PLUG, GLOW		1
1	32A66-07101	PLUG, GLOW	1	
SYM	PART No.	PART NAME	QTY	

グロープラグアッシー

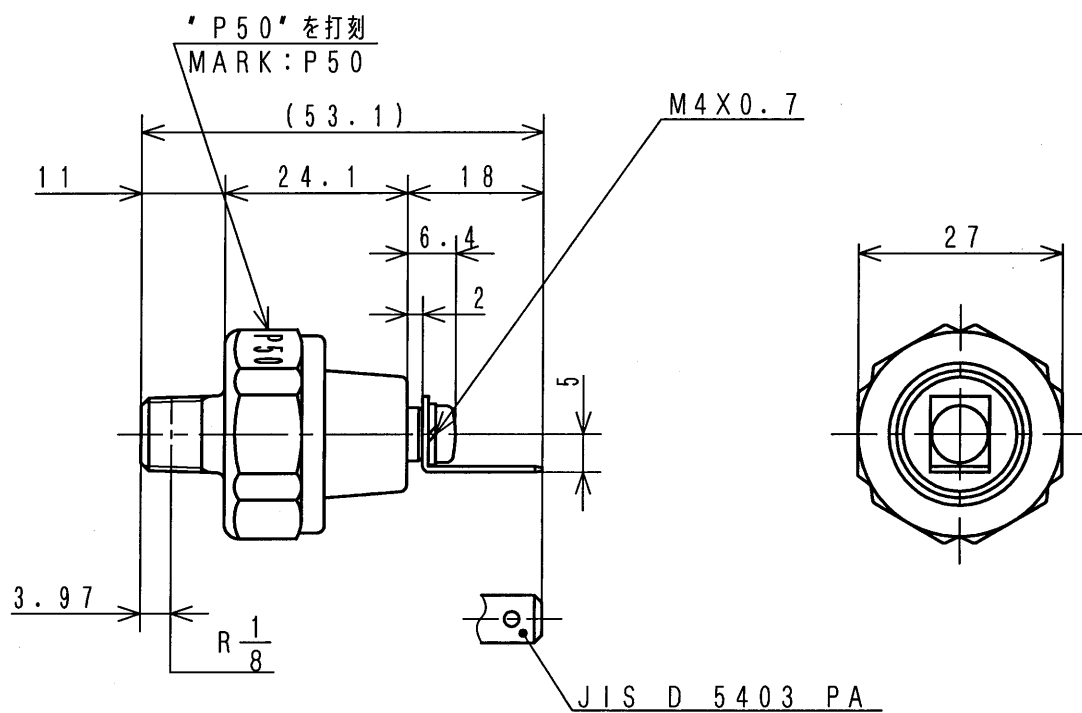
PLUG ASSY, GLOW

32A66-07011



オルタネータ  
ALTERNATOR (12V-50A)

32A68-00401



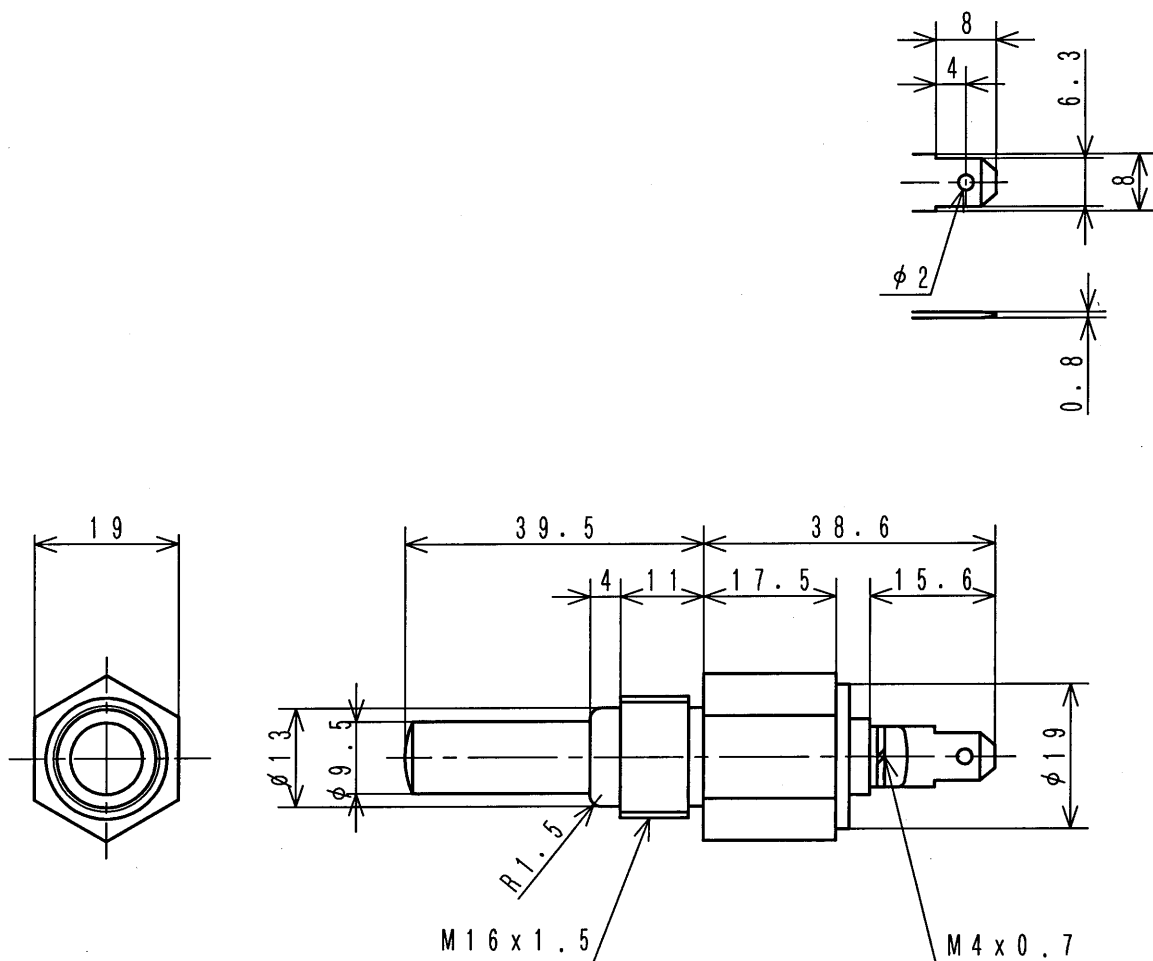
仕様  
SPECIFICATIONS

作動圧力 OPERATING PRESS.	49 kPa {0.5 kgf/cm <sup>2</sup> }
作動電圧 OPERATING VOLT.	12V-5W 24V-3W
結線様式 CONNECTION	a (—○—○—)

油圧スイッチ

SWITCH, OIL PRESSURE

31A90-00701



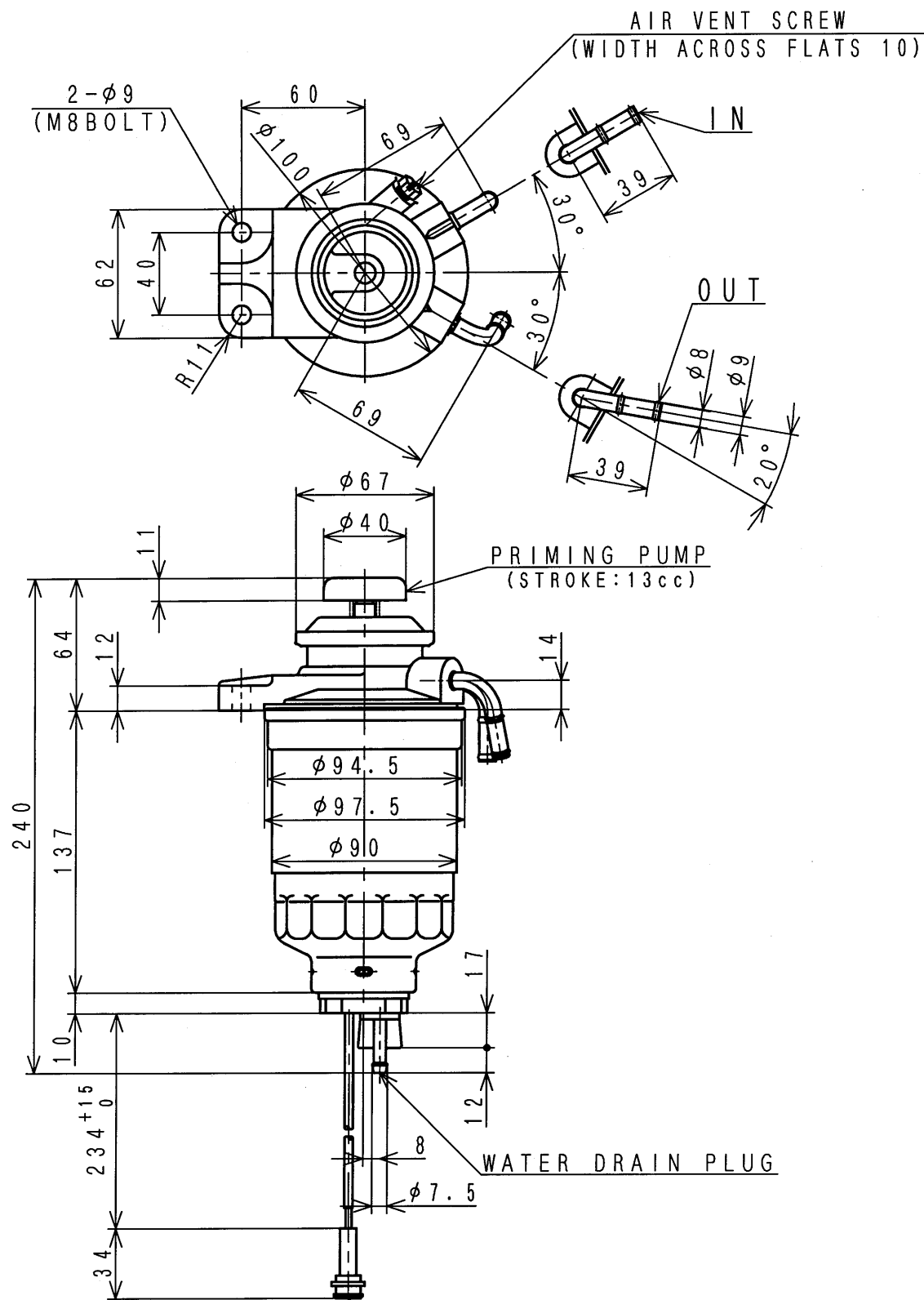
部 品 番 号 PART No.	作 動 温 度 OPERATING TEMP.		
MC880-900	温度下降時 DECREASE	$\leq 100^{\circ}\text{C} \pm 4^{\circ}\text{C}$	で接点開 OPEN
	温度上昇時 RISE	$\geq 100^{\circ}\text{C} \pm 2^{\circ}\text{C}$	で接点閉 CLOSE
MC880-901	温度下降時 DECREASE	$\leq 105^{\circ}\text{C} \pm 4^{\circ}\text{C}$	で接点開 OPEN
	温度上昇時 RISE	$\geq 105^{\circ}\text{C} \pm 2^{\circ}\text{C}$	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





仕 様  
SPECIFICATIONS

RATED FLOW 定 格 流 量	1.0 l / min
FILTRATION AREA 濾 過 面 積	0.4 m <sup>2</sup>
WARNING WATER CAPACITY 警 報 水 位	90 $\pm$ 10 cc
WEIGHT 重 量	1.0 kg

ヒュエル フィルタ アッシー  
FILTER ASSY, FUEL

32A62-00010