

SPECIFICATIONS

MITSUBISHI HIGH SPEED DIESEL ENGINE
MODEL MITSUBISHI MVL3E-61SD-NP2

(Generator)

PLEASE RETURN AFTER APPROVAL

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APPROVED		REMARKS		
DATE・SIGNATURE				
DATE Jul. 16. 2010				
MITSUBISHI HEAVY INDUSTRIES, LTD.				
CHG	DATE	APPROVED	CHECKED	DRAWN
				T.Hirose
△	Nov. 14. 2011	<i>L. Enoh</i>	<i>R. Nagase</i>	
△	Nov. 12. 2010			









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Revised record

No.	Date	Items	New	Old	Remarks
0	Jul. 16. 2010	First offer for MVL3E-61SD-NP2 produced in MVDE(Indian plant) Main change points from current L3E-61SD for installation Engine size(width and height) is changed by oil pan, alternator, fuel filter and flywheel housing shape. Oil pan is changed to be deep type. Alternator rated voltage and ampere is the same as current 12V-40A. Cooling fan to be external Fuel filter is changed to be high capacity type and fuel in/out is changed. (common with L and SL) Flywheel housing side mount is deleted. Thermo switch is changed, but interchangeable type Oil filter is changed, but the size is similar as current(common with L and SL) Cooling fan is changed, but performance is interchangeable Glow plug is changed, the performance is better "Genset Engine" stamp on cyl.block side of fuel inj.pump Lables Loose supply parts Nut, bolt, ex.gasket is changed, but interchangeable			
△	Nov. 12. 2010	Modified specifications Engine assy drawing revised as follows Flywheel housing side mount thread holes added Alternator and the relate parts for installation is changed to the current. Fuel filter and the relate parts for installation is changed to the current. Fuel return hose and relate parts for installation is changed to the current. Label model and serial number label to be unified			
		Items	New	Old	Remarks
		Dimensions(Width)	418mm	471mm	ref. Phase-1 426mm
		Lubricating oil	CF or CH-4 class	CD class	
		Rating conditions	ISO 15550	ISO 3046	
		Fuel consumption	265g/kW-h{195g/PS-h} (Without Fan, after breaking in)	280g/kW-h{206g/PS-h}	Ref. JE72010L137
		Regulator set voltage	14.7±0.3V	14.5±0.5V	Back to JPN made(alternator)
		Engine attached items (page 5)			
		FILTER ASSY,FUEL	MM435-190	30N62-10030	Back to JPN made
		ALTERNATOR	30A68-00801	30N68-01200	Back to JPN made
		Accessories(Loose supply parts)			
		PUMP ASSY,FUEL	delete	30N60-20300	
△	Nov. 14. 2011	Specifications page change	1/8~8/8	1/7~7/7	
		Engine Assy (30N00-01020)	1/2-CHG 2,2/2-CHG 2	CHG-1	
		Oil consumption	Approx. 0.1~0.3% of fuel onsumption <Reference value> @Full load, Rated speed	Within 2.7g/kW-h {2.0g/PS-h}	Change

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 L3E	
 	MVL3E-61SD-NP2 (MHI No. 30N00-01020 1/2-CHG 2,2/2-CHG 2)	
Regulations	No emission type	
Type	4 cycle water-cooled, vertical overhead valve, cylinder in line, swirl chamber type	
Number of cylinders	3	
Bore × Stroke	76mm × 70mm	
Piston displacement	0.952 liters	
Compression ratio	23:1	
Rotation	Anti-Clockwise rotation as viewed from flywheel side	
Firing order	1-3-2	
Engine weight(Dry)	Approx. 90kg	
Dimensions(Length)	Approx. 557mm	
 (Width)	Approx. 418mm	
 (Height)	Approx. 532mm	
Inclination(Continuous)	25°	
(Temporary)	30°(Max. 30min)	
Fuel	ASTM diesel fuel oil No.2-D(JIS K2204 gas oil specification No.2 or 3)	
 Lubricating oil	API classification service CF or CH-4 class	
Output(Without fan)	Spec.Rating	Rating at delivery
	Breaking in around 50hr	Breaking in around 0.25hr
	St-by;7.4kW {10.1PS}/1485rpm	7.0kW {9.6PS}/1485rpm
	Prime;6.3kW {8.6PS}/1485rpm	
	(With Fan St-by;7.3kW {9.9PS}/1485rpm)	
	(With Fan Prime,6.2kW {8.4PS}/1485rpm)	
Rating tolerance	±5% of nominal	
Idling engine speed	1560(+30,0)rpm	
Speed regulation	Steady state speed regulation at rated speed, within 5%	
 Rating conditions	ISO 15550	
for output correction	Total barometric pressure : 100kPa	
	Air temperature	: 298K
	Relative humidity	: 30%
 Fuel consumption	Approx. 265g/kW-h {195g/PS-h} at Prime output (Without Fan, after breaking in)	
Tolerance	±8%	
 Oil consumption	Approx. 0.1~0.3% of fuel onsumption <Reference value>@Full load, Rated speed	
Fuel injection timing	15°BTDC	
Mean effective pressure	0.62MPa {6.3kgf/cm2} at Prime output	
Piston speed	3.5m/s at 1485rpm	

Fuel system

Fuel injection pump	In-Line type(ND-PFR NC type)
Fuel injection nozzle	Throttle type
Governor	Mechanical centrifugal type
Fuel filter	Filtering paper type
Min. required fuel feeding head	100mm
Max.static head of leak pipe (return)	200mmHg

Lubricating system

Lubricating system	Forced circulation by gear pump
Lubricating oil filter	Filtering paper type, full flow
Oil pressure	0.29MPa~0.39MPa {3~4kgf/cm ² } at duty run 0.098MPa {1.0kgf/cm ² } min. at low idling
Oil capacity	4.7 liters (Oil pan 4.2 liters, high level, Oil filter etc. Approx.0.5 liters, High ~ Low Approx. 1.2 liters)
Oil dipstick	Standard dipstick
Oil pressure switch	Yes

Cooling system

Cooling system	Forced circulation of fresh water by centrifugal pump with thermostat
Engine water capacity	Approx. 1.8 liters
Cooling fan	320mm diameter, 6 blades, pusher
Water pump pulley	PCD 87mm
Pulley ratio	1.26 (Crankpulley : Water pump pulley = 110:87)
Fan spacer	No
Water temp. switch	Yes
Thermo. Unit	No
Thermostat	Open at 76.5deg.C - full open at 90deg.C

Electrical system

Alternator	12V - 40A
Voltage regulator	IC type (Built in alternator)
△ Regulator set voltage	14.7±0.3V
Alternator pulley	PCD 65mm
Starting system	Electric starting
△ Starter motor	12V-1.2kW
Glow plug	11.0V,9.4A x 3
Engine shut off system	Electric solenoid (ETR)

Intake and Exhaust system

Intake manifold(cover)	Side way
Exhaust manifold	Upper side way
Induction Resistance	Max 1.96kPa {200mmH ₂ O}
Exhaust Back Pressure	Max 6.57kPa {670mmH ₂ O}

<Remarks>

Engine color	Black(MHI standard color)
Flywheel	SAE #6-1/2
Flywheel housing	SAE #5

2. Engine attached items&Reference drawings

	Parts Name	Parts No.	Q'ty	Remarks(61SD p/n)	
	1 WIRING DIAGRAM	30L90-09101	—	Reference, for ETR solenoid	A4
	2 SWITCH,OIL PRESSURE	31A90-00500	1		A4
	3 SWITCH,THERMO	30N46-00500	1	Changed(MM432-104)	A4
	4 UNIT,PRESSURE GAGE	—			
	5 UNIT,THERMOMETER	—			
	6 OIL FILTER	30N40-00200	1	Changed(30A40-00105)	A4
△	7 COOLING FAN	MM405-43002	1		A4
△	8 FILTER ASSY,FUEL	MM435-190	1		A4
△	9 STARTER	30L66-10600	1		A4X2
	10 PLUG,GLOW	30N66-00700	3	Changed(MM432-14802)	A4
△	11 ALTERNATOR	30A68-00801	1		A4
△	12 SOLENOID ASSY	30A87-10044	1		A4

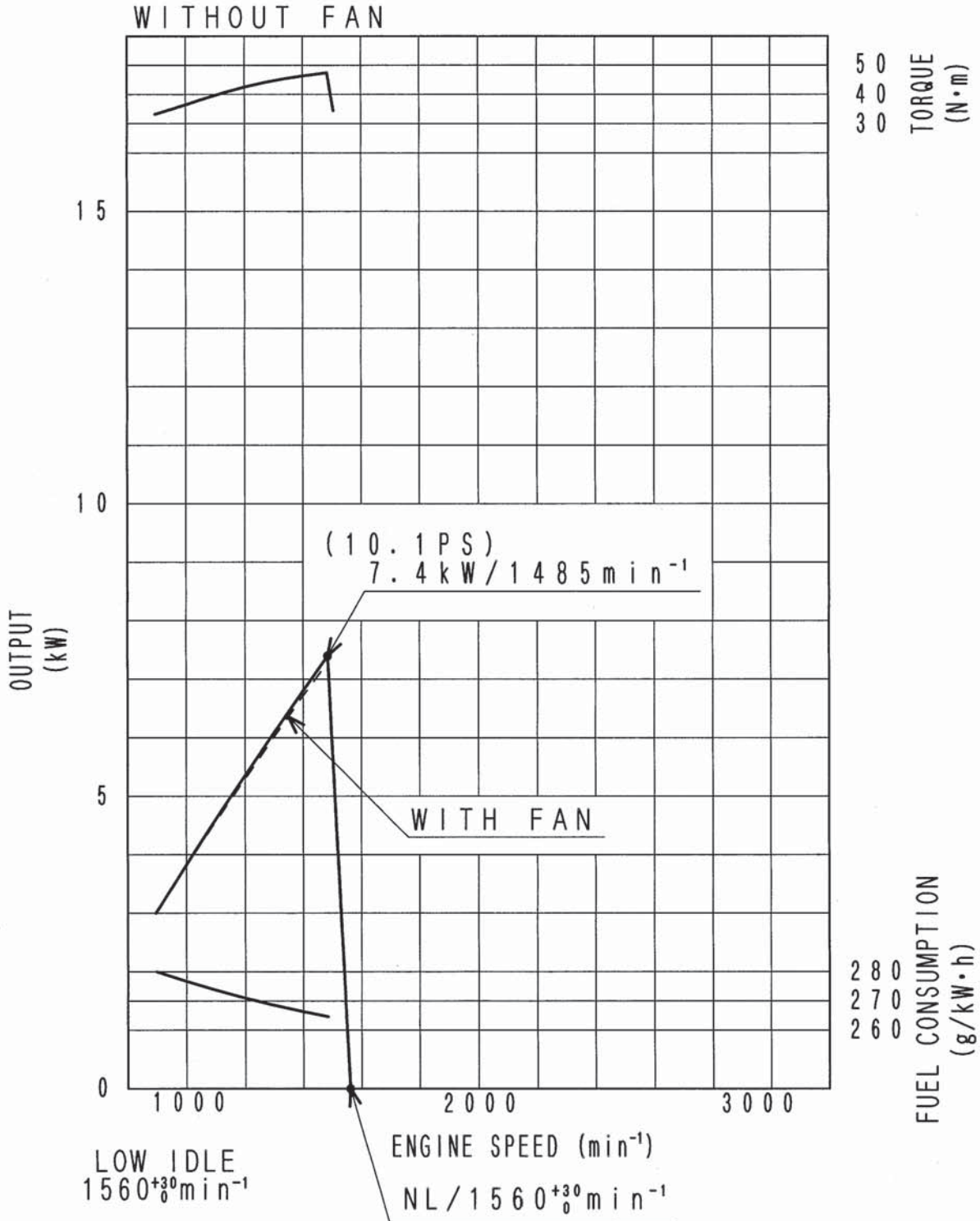
Note: Drawing No. subject to alteration without notice.

3. Accessories(Loose supply parts)

	Parts Name	Parts No.	Q'ty	Remarks(61SD p/n)	
	1 O-RING	F3150-03600	1	F3150-03800(Writing together)	A4
	2 NUT(6)	F2300-06000	1	Changed(MF430-004)	A4
	3 BOLT(6X20)	F1035-06020	1	Changed(MF101-229)	A4
	4 GASKET, EXHAUST	30N32-00100	1	Changed(30A30-00100)	A4
	5 RADIATOR ASSY	30L47-05073	1	RADIATOR KIT △ 30N47-02080	A4X3
△	6 HOSE,WATER UPPER	30N47-01200	1		
△	7 HOSE,WATER LOWER	30N47-01100	1		
△	8 CLAMP,HOSE(40)	30N47-03400	2		
△	9 CLAMP,HOSE(36)	30N47-03200	2		
△	10 HOSE SUPPORT	30N47-01300	1		
	11 SCREW,WASHER A	MS350-029	1		A4
△	12 PUMP ASSY, FUEL	30N60-20300	±	Changed(30A60-00200)	A4
△	13 PUMP ASSY, FUEL	MM200-54301	1		A4

Note: Drawing No. subject to alteration without notice.

MITSUBISHI DIESEL ENGINE
 MODEL L3E-61SD/MVL3E-61SD-NP2
 PERFORMANCE CURVE

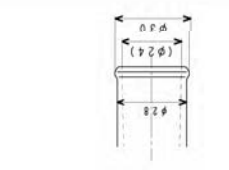


ISO 15550

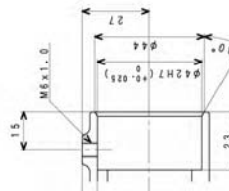
Total barometric pressure : 100kPa
 Air temperature : 298K
 Relative humidity : 30%

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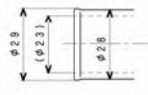
MVL3E-61SD-NP2 ENG ASSY
 三菱重工株式会社 採用機・特許機本部
 三菱重工業株式会社 採用機・特許機本部
 原機番号 30N00-01020



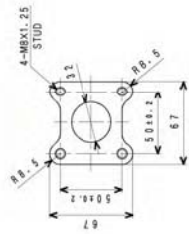
WATER INLET-A



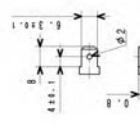
AIR INLET-B



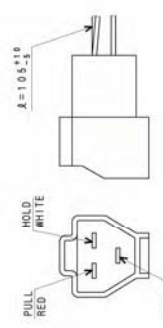
WATER OUTLET-C



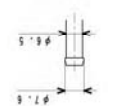
EXHAUST OUTLET-D
(1:2)



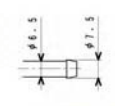
THERMO SWITCH-E
 OIL PRESS. SWITCH-E
 (JIS D 5403 PA)



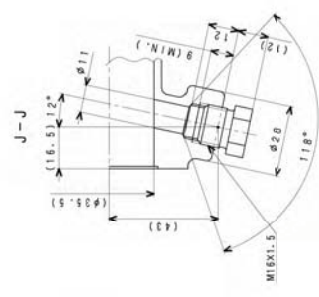
CONNECTOR OF STOP SOLENOID-F
 CONNECTOR EQUIVALENT TO
 7232-2128 (YAZAKI)
 30487-00600 (MHI)
 7113-6234-40 (YAZAKI)



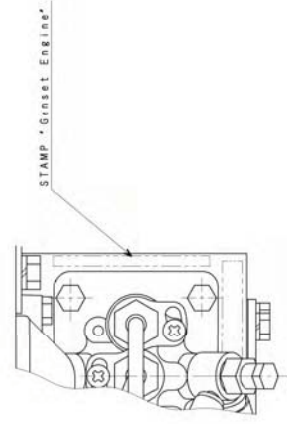
FUEL INLET-G



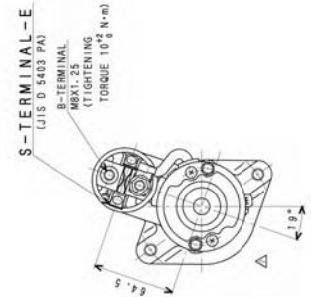
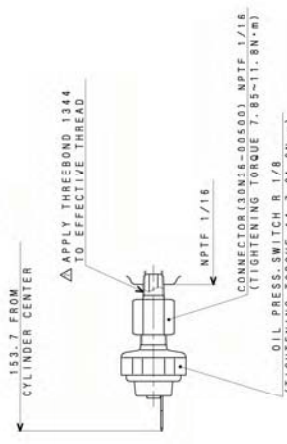
FUEL OUTLET-H



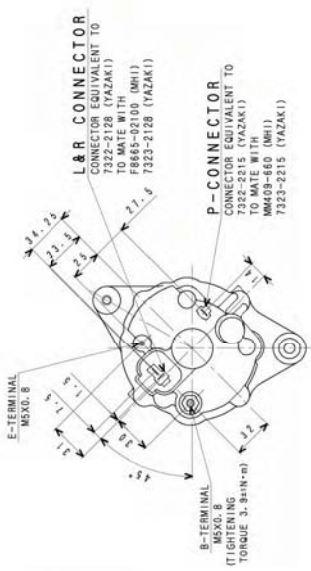
STAMP Genset Engine-K



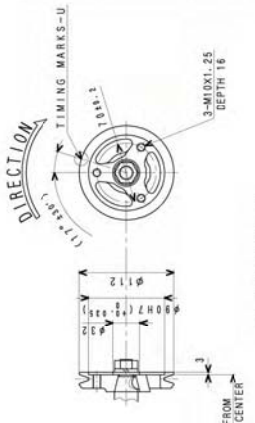
M-M



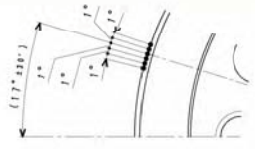
Y-VIEW(1:2)



△ X-VIEW(1:2)



V-VIEW(1:3)



U-DETAIL(2:1)

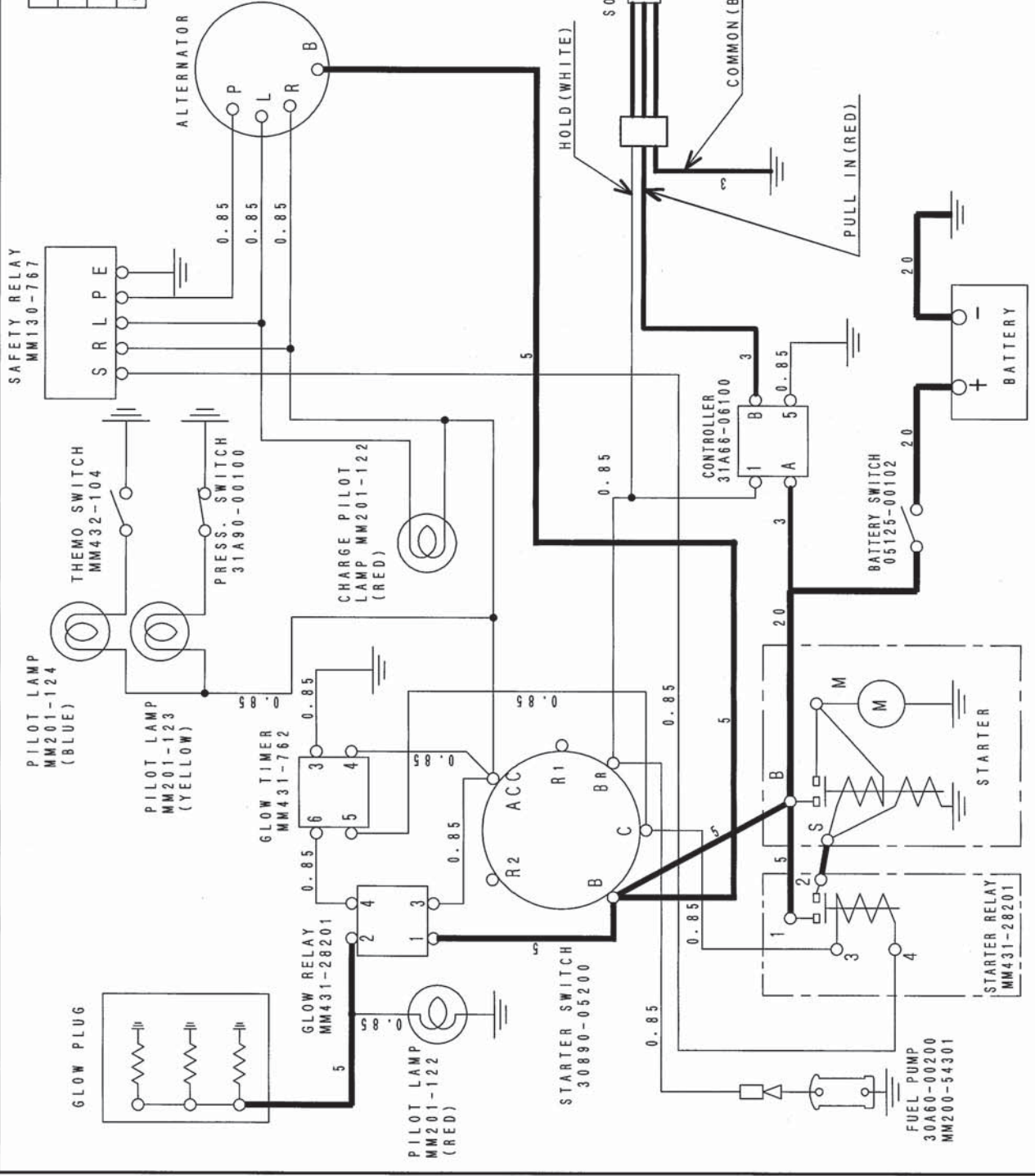
W-VIEW(1:2)

MODEL	L2E	L3E
BATTERY	12V-48AH	12V-60AH
STARTER	12V-1.2kW	12V-1.7kW OR 1.2kW
ALTERNATOR	12V-40A	

CONNECTION OF STARTER SWITCH

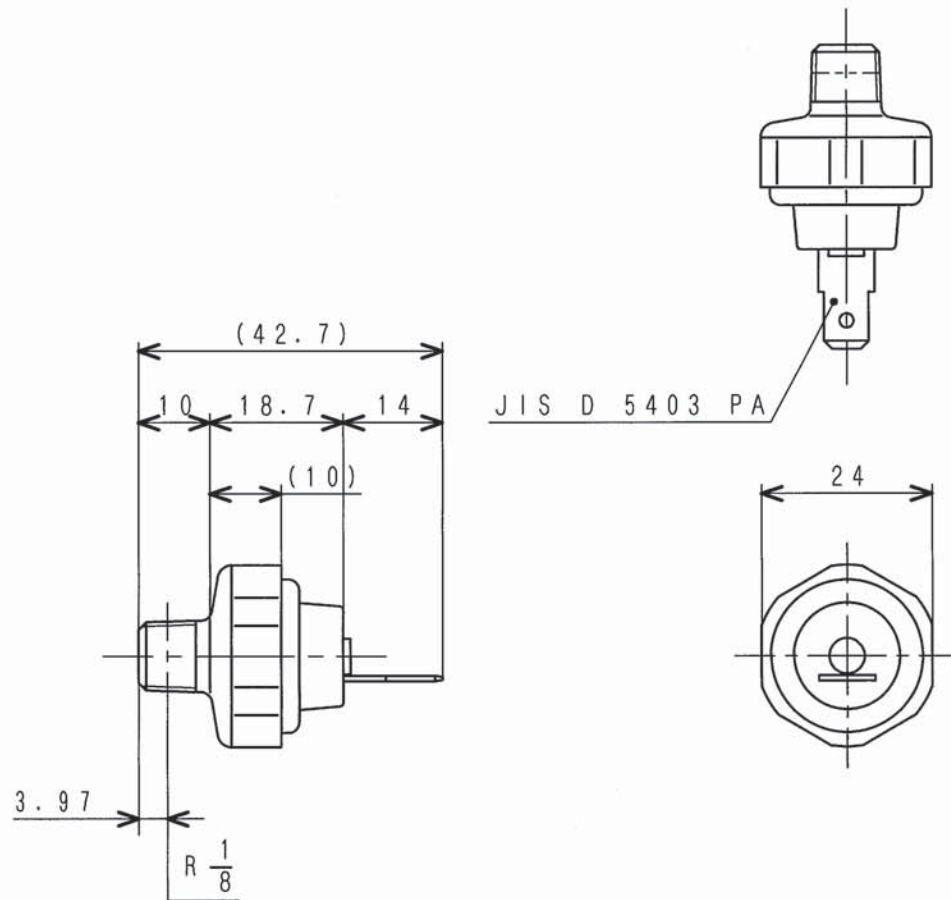
TERMINAL POSITION	B	R1	ACC	R2	C	BR
R1	○	○				○
OFF	○	○				
ACC	○	○	○			○
St	○	○			○	○

0.85	mm ² PL	OR MORE
2	mm ² PL	OR MORE
5	mm ² PL	OR MORE
20	mm ² PL	OR MORE



電気配線図 L2E, L3E
ENGINE ELECTRIC WIRING
30L90-09101

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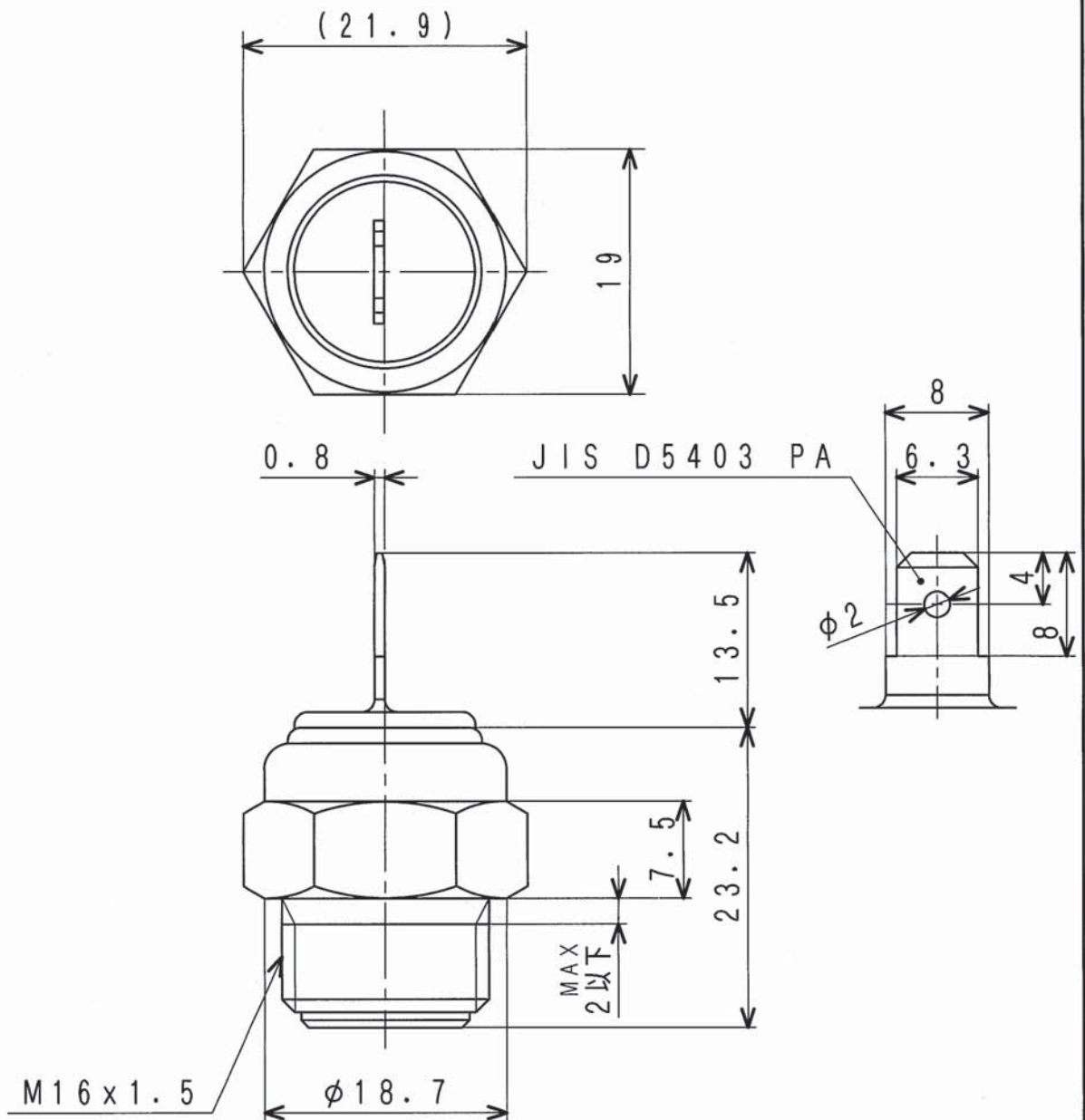
仕様
SPECIFICATIONS

作動圧力 OPERATING PRESS.	98 kPa {1.0 kgf/cm ² }
接点容量 CURRENT CAPACITY	12V-5W
結線様式 CONNECTION	b (—○—)

オイルプレッシャスイッチ
SWITCH, OIL PRESSURE

31A90-00500

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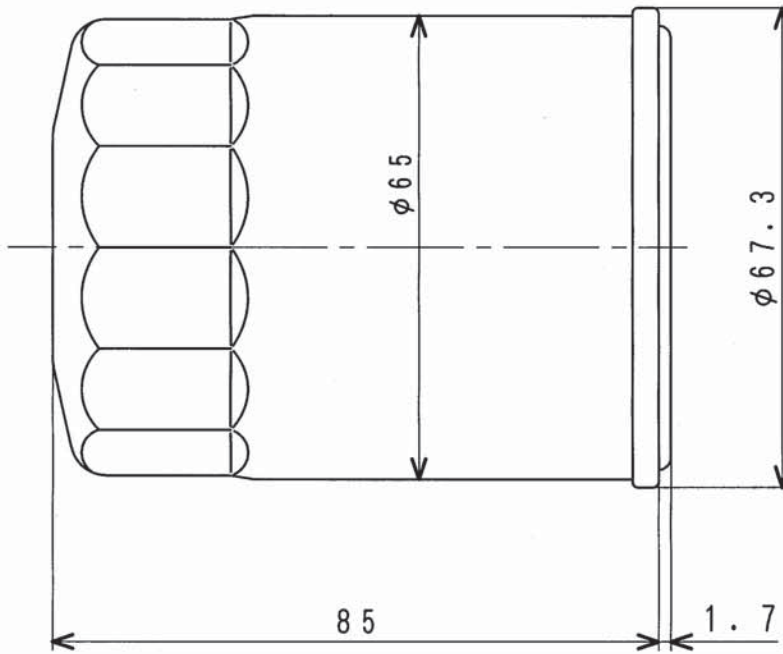
仕様
SPECIFICATIONS

作動温度 OPERATING TEMP	$111 \pm 3.5^\circ\text{C}$
接点容量 CURRENT CAPACITY	0.25A, MAX.
結線様式 CONNECTION	a (—○—)
	ON-OFF差 $8 \pm 3.5^\circ\text{C}$ ON-OFF DIFFERENCE $8 \pm 3.5^\circ\text{C}$

サーモスイッチ
SWITCH, THERMO

30N46-00500

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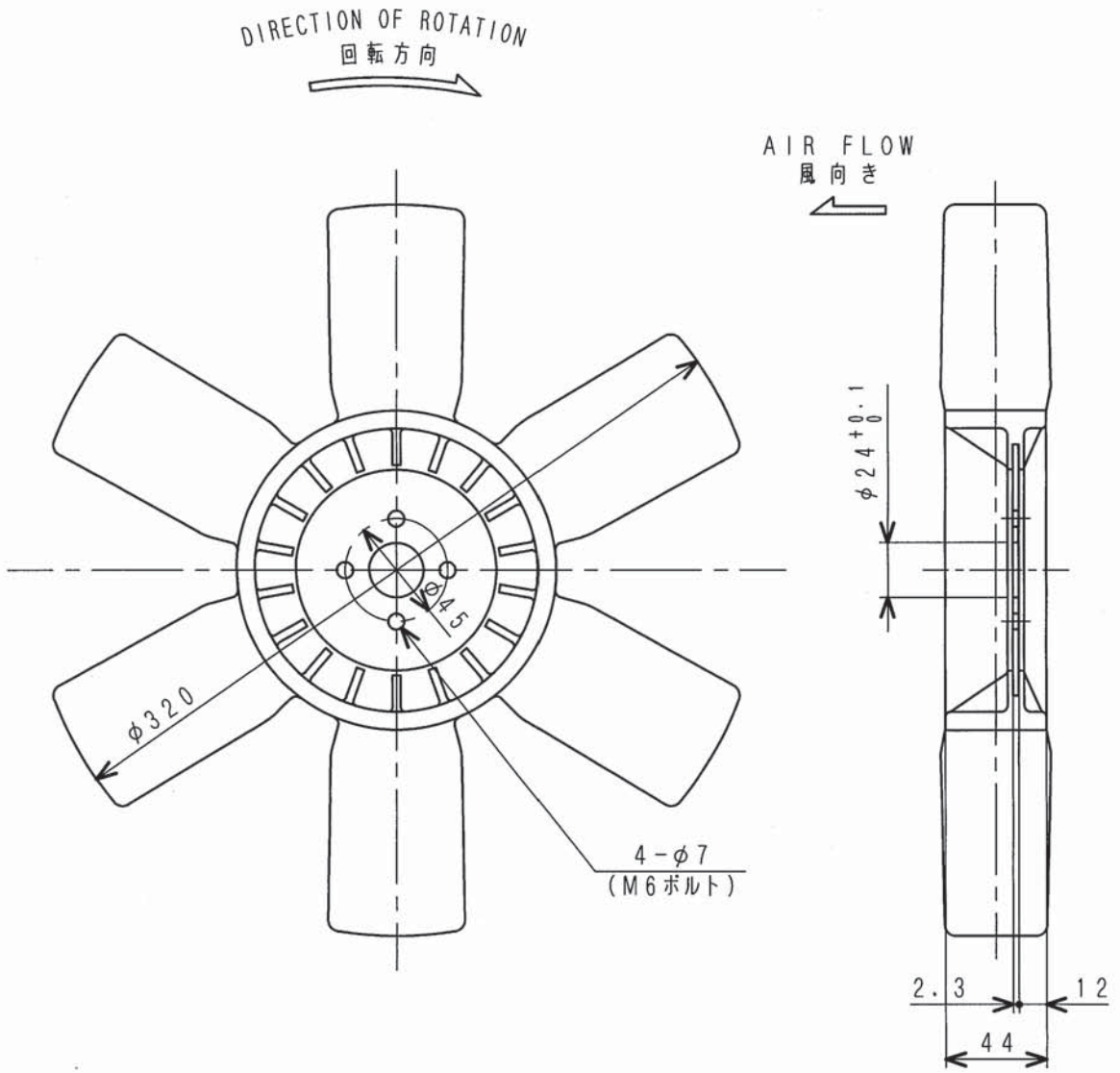
仕 様
SPECIFICATIONS

定 格 流 量 RATED FLOW	30 l/min
圧 力 損 失 (定 格 流 量 時) PRESSURE LOSS	70 kPa {0.7 kgf/cm ² } 以下
破 壊 圧 力 PRESS. AT FRACTURE	1.77 MPa {18 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	98.1 ± 20 kPa {1.0 ± 0.2 kgf/cm ² }

オイルフィルタ
FILTER, OIL

30N40-00200

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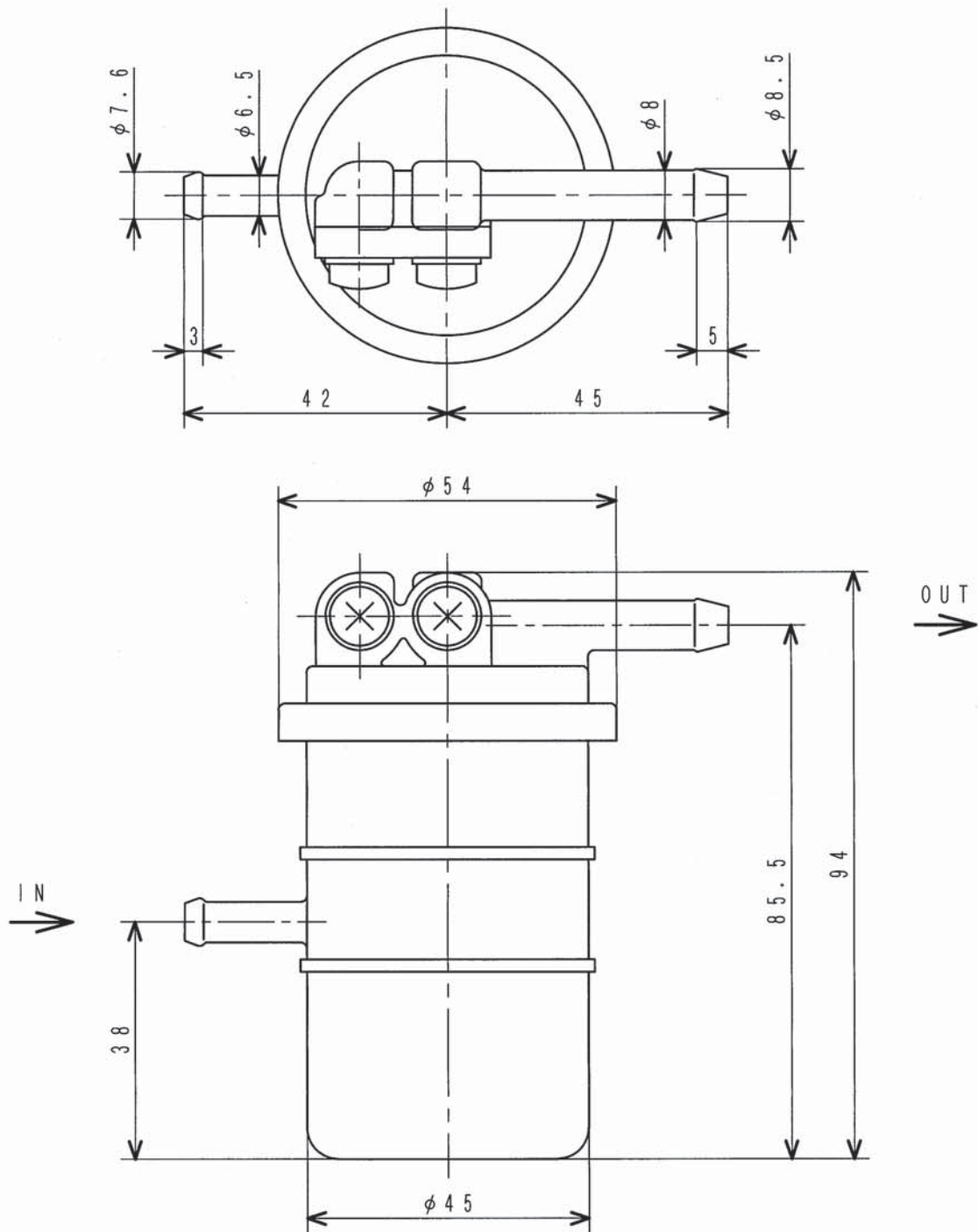


クーリングファン (ブッシャ)

FAN COOLING (6P-320)

MM405-43002

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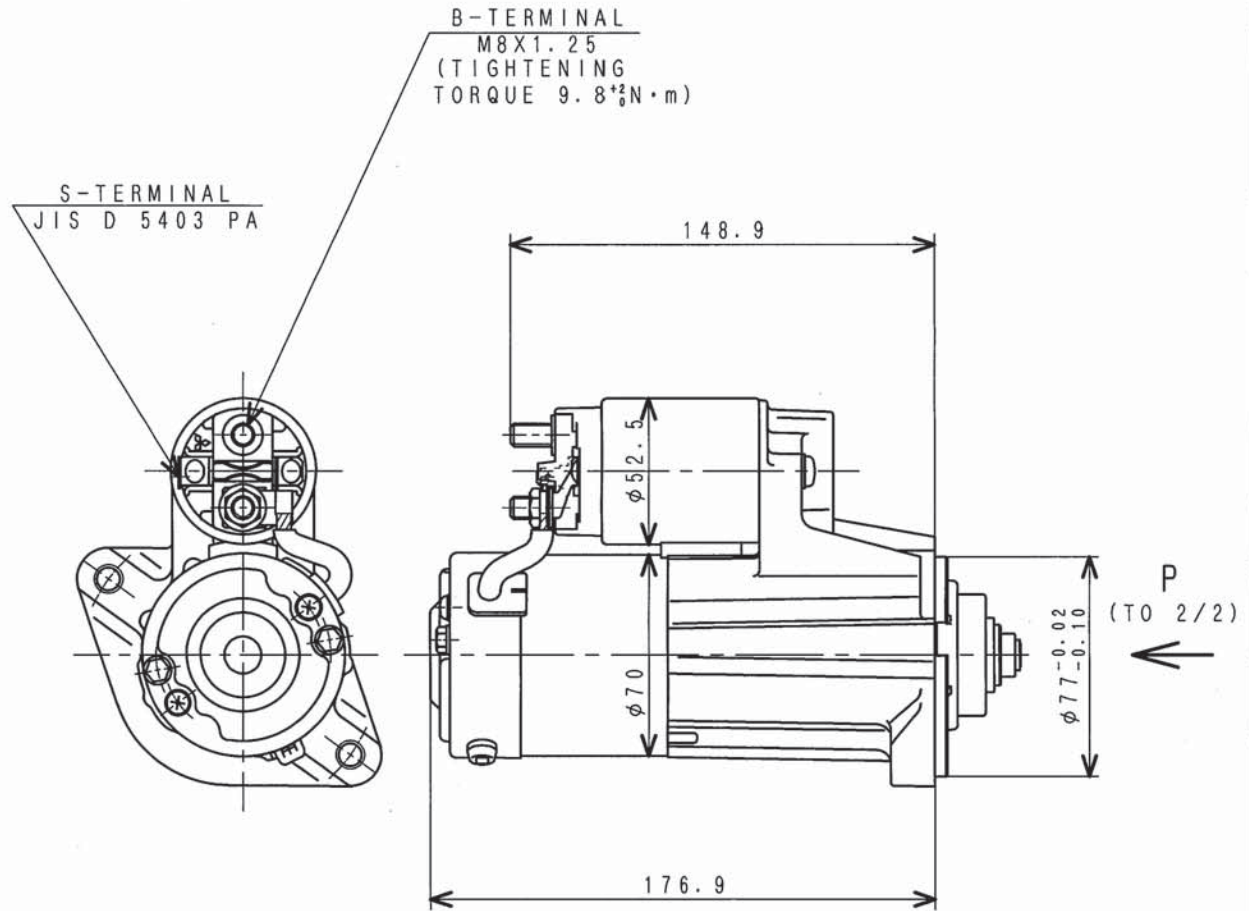
仕様
SPECIFICATIONS

ろ過面積 FILTRATION AREA	280 cm ²
ろ過精度 FILTER MESH SIZE	15 μ Max.
圧力損失 PRESS. LOSS	16 mmHg以下(流量0.5 l/min) MAX CAPACITY
試験圧力 TEST PRESS.	1 kg/cm ²
水溜容積 CUP CAPACITY	25 cc

ヒュエル フィルタ
FUEL FILTER

MM435-190

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SPECIFICATION 仕様 (20℃)	VOLTAGE 電圧		CURRENT 電流
	NO LOAD 無負荷特性	11V	90A MAX.
	LOAD 負荷特性	7.5V	300A
	LOCKED 拘束特性	4V	760A MAX.
OPERATION OF ENGAGE SWITCH 電磁スイッチ動作電圧	PULL IN VOLTAGE 8V MAX. PINION TRAVEL RESTRICTED AT 2mm ピニオン静止位置より2mmの位置にピニオン先端を拘束して8V以下のごと		
WIRING RESISTANCE (RECOMMEND VALUE) 配線抵抗 (推奨値)	MAIN CIRCUIT 主回路	2mΩ MAX.	
	S-CIRCUIT S回路	50~70mΩ	
RATED CURRENT (S-TERMINAL) 定格電流 (S端子)	PULL IN	54A	
	HOLD	12.3A	

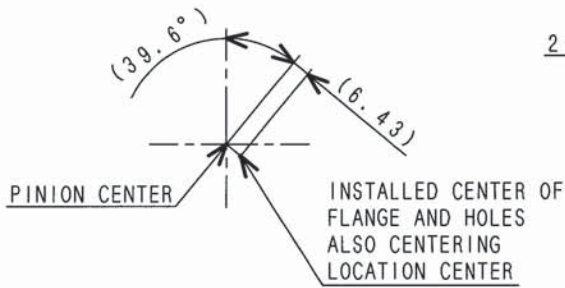
MAX. BATTERY : 80D26

スタータ
STARTER (12V-1.2kW)

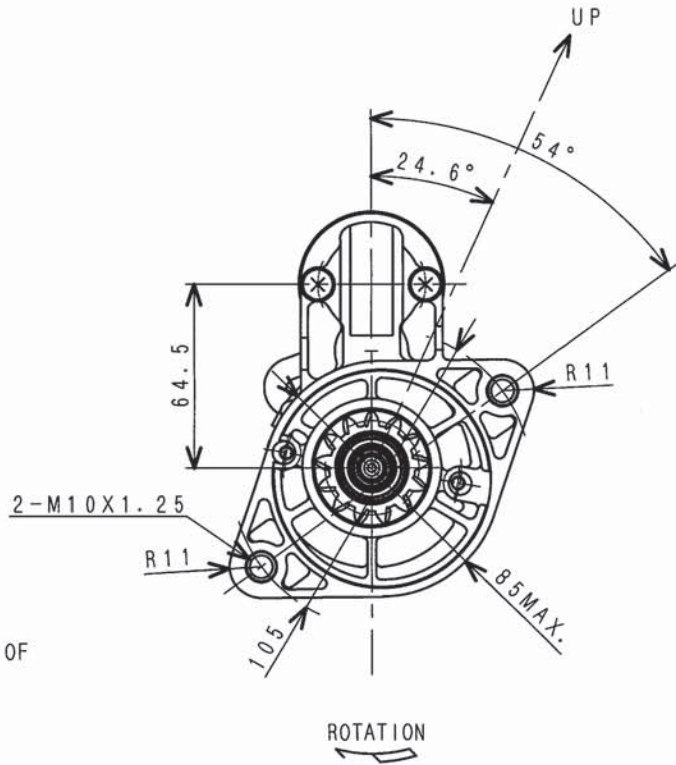
30L66-10600 $\frac{1}{2}$

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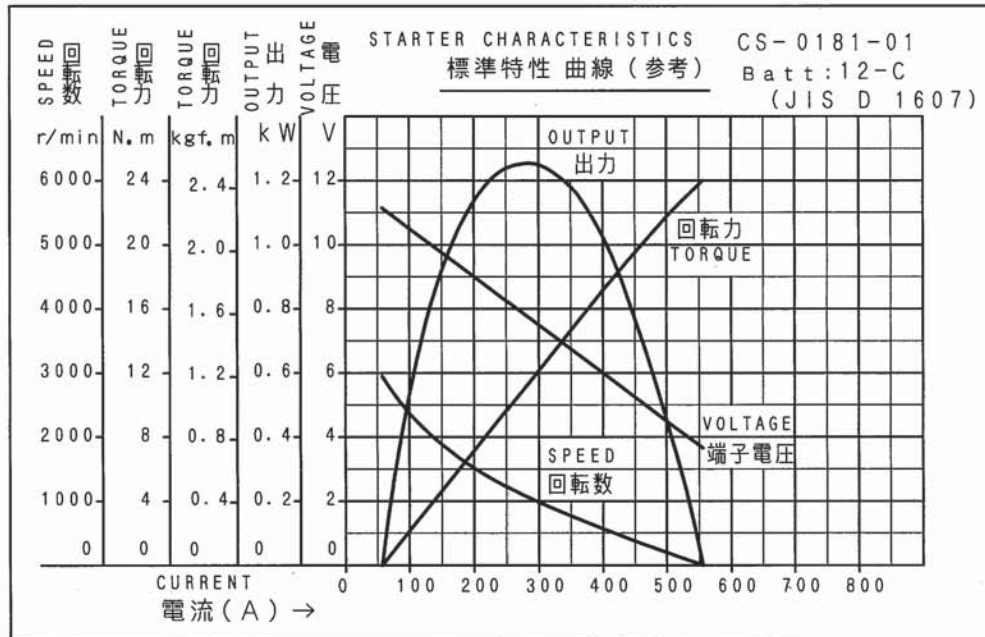
ピニオン仕様 PINION GEAR	
ダイヤメトラルピッチ DIAMETRAL PITCH	10
歯数 NUMBER OF TEETH	14
圧力角 PRESSURE ANGLE	20°
ピッチ円直径 PITCH CIRCLE DIA.	35.56
外径 OUTSIDE DIA.	42.7
歯底径 ROOT DIA.	32.72
転位量 MODIFICATION	1.27



DETAIL OF ECCENTRICITY

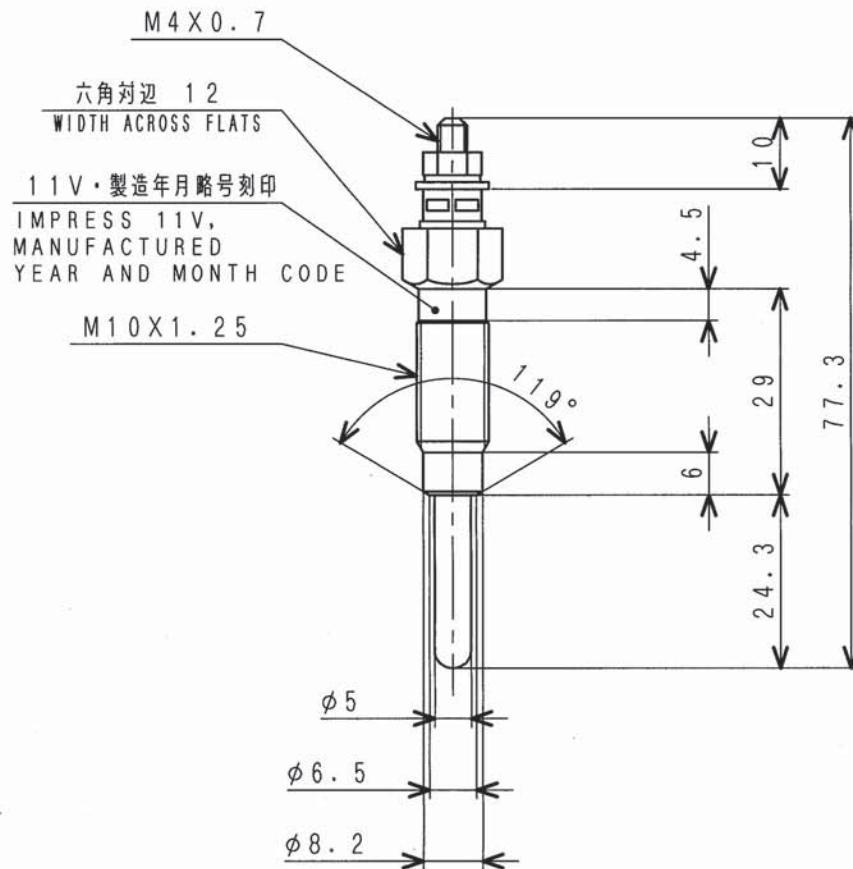


VIEW P



スタータ
STARTER (12V-1.2kW)

30L66-10600 $\frac{2}{2}$



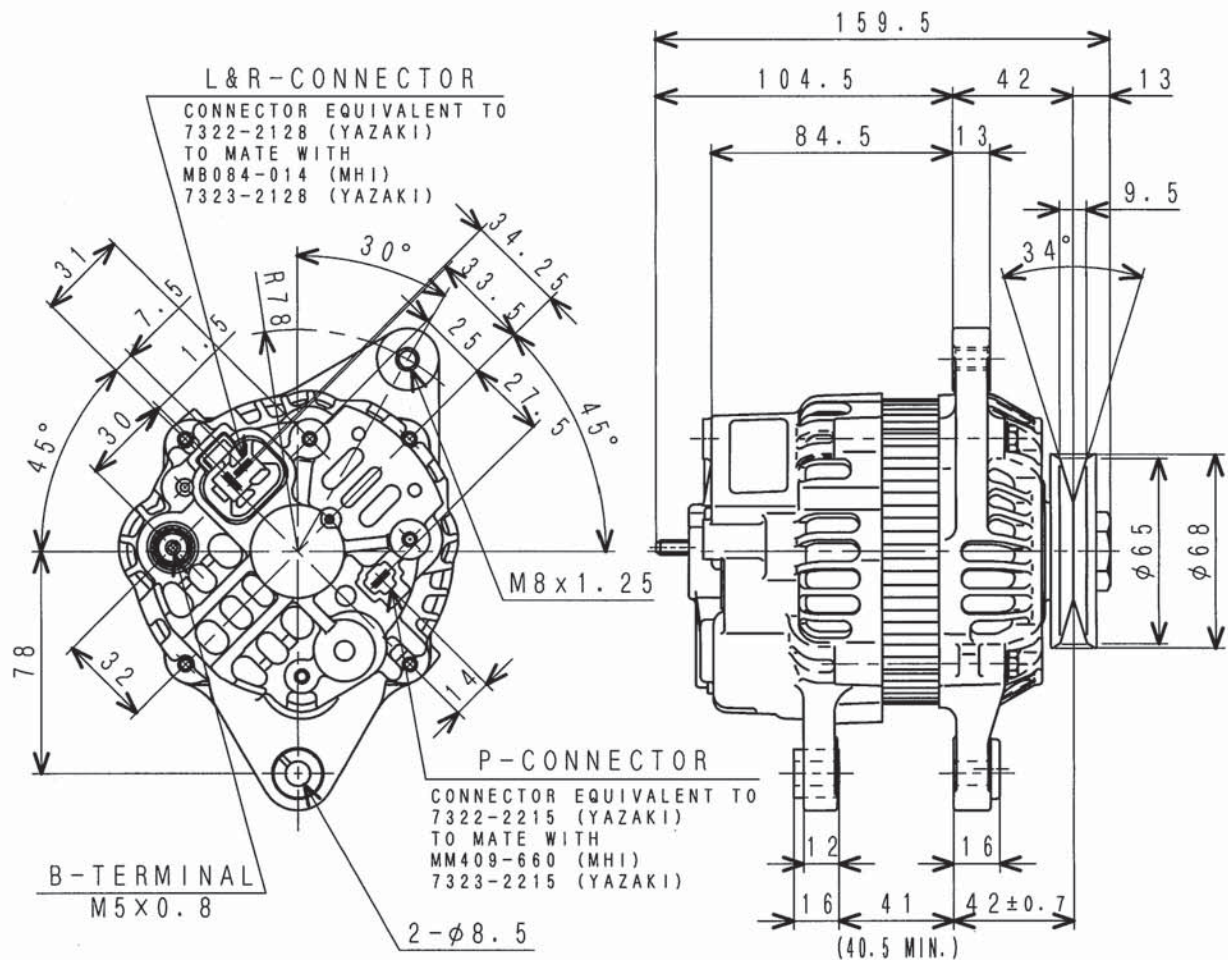
SPECIFICATIONS
仕様

定格電圧 RATED VOLT	DC11V
電流値 CURRENT	定格電圧印加6秒時 AT RATED VOLTAGE FOR 6sec
	9.5±1.0A
温度上昇 TEMPERATURE	定格電圧印加900 ⁺⁴⁰ ₋₁₅₀ ℃到達時間 TIME TO REACH 900 ⁺⁴⁰ ₋₁₅₀ ℃
	6sec
締付トルク TIGHTENING TORQUE	BODY (M10X1.25) : 15~20N・m
	TERMINAL (M4) : 1.0~1.5N・m

グロープラグ
PLUG, GLOW

30N66-00700

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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

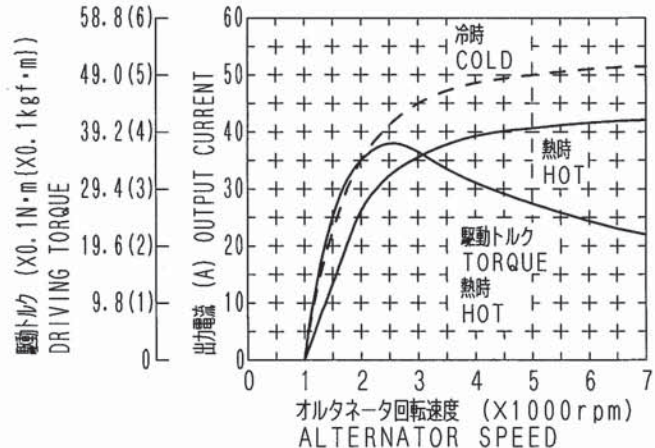
注記: キーOFF時外部ユニットを介してL端子にまわり込み電流がないこと。

NOTE: WHEN KEY IS OFF, THERE IS NOT AROUND CURRENT THAT THROUGH OUTSIDE UNITE ON L TERMINAL.

出力性能 OUTPUT PERFORMANCE
1. 保証出力性能 GUARANTEE 20°C

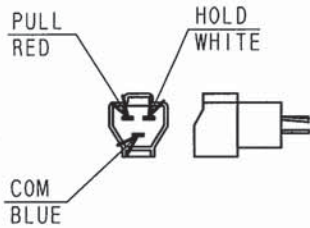
電圧 (V) VOLTAGE	TYPE 回転速度 SPEED (rpm)	CA-0006-1 出力電圧 OUTPUT CURRENT (A)	
		冷時 COLD	熱時 HOT
13.5	1500	-	-
	2500	-	21以上 MIN.
	5000	-	37以上 MIN.
ヒートラン速度 TEMP. STAB. SPEED 5000rpm			

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

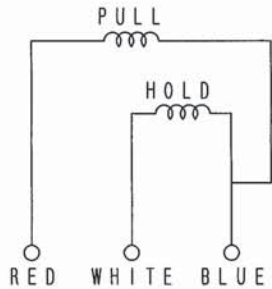
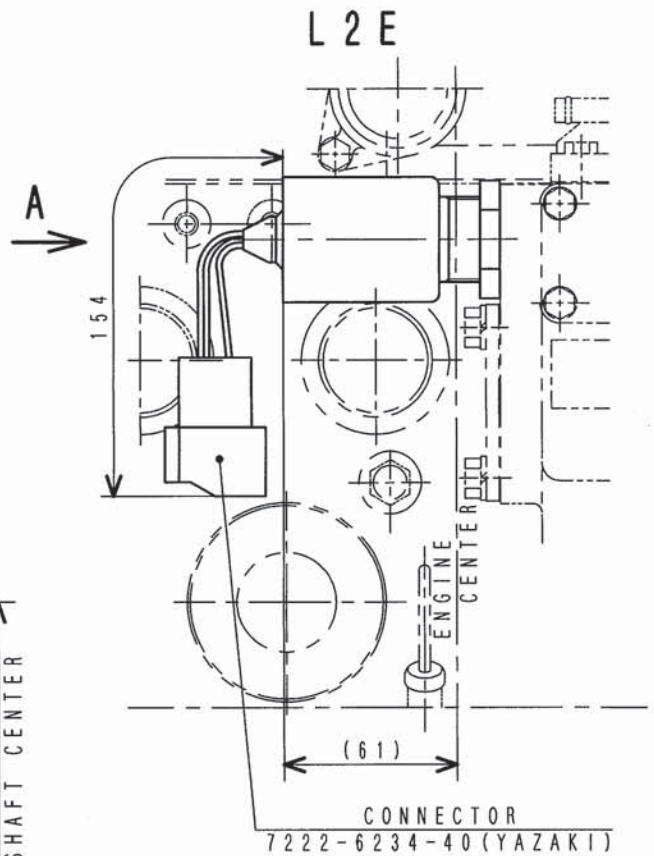
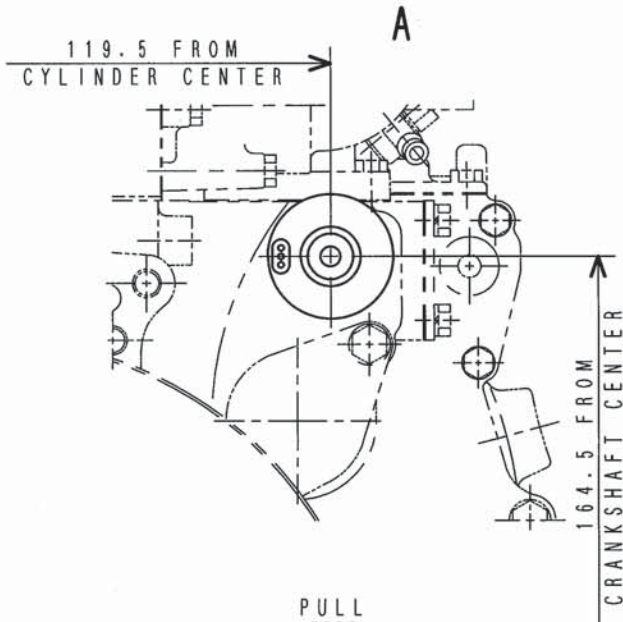


オルタネータ
ALTERNATOR (12V-40A)

30A68-00801



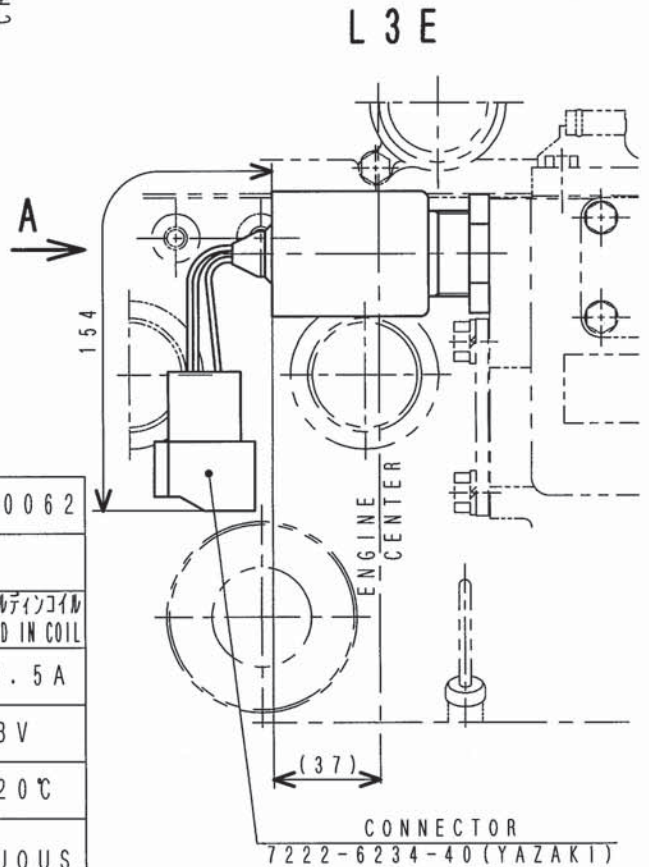
DETAIL OF CONNECTOR



配線図
WIRING DIAGRAM

仕様
SPECIFICATIONS

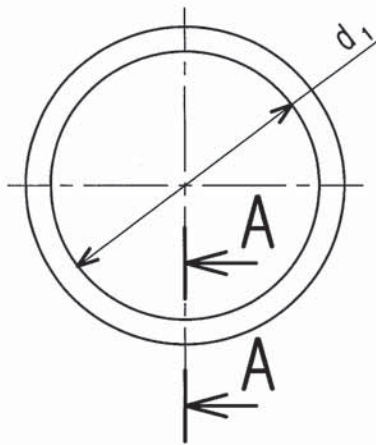
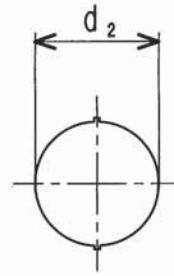
部品番号 PART No.	30A87-10044	31A87-00062
定格電圧 RATED VOLTAGE	12V	24V
	プルインコイル/ホールドインコイル PULL IN COIL/HOLD IN COIL	プルインコイル/ホールドインコイル PULL IN COIL/HOLD IN COIL
定格電流 RATED CURRENT	50A 1A	26A 0.5A
作動電圧 OPERATING VOLTAGE	8~14V	16~28V
作動温度 OPERATING TEMPERATURE	-40~120℃	-40~120℃
定格時間 RATED TIME	連続 CONTINUOUS	連続 CONTINUOUS



ストップソレノイド & ナットセット
STOP SOLENOID & NUT SET (ETR)

30A87-10044

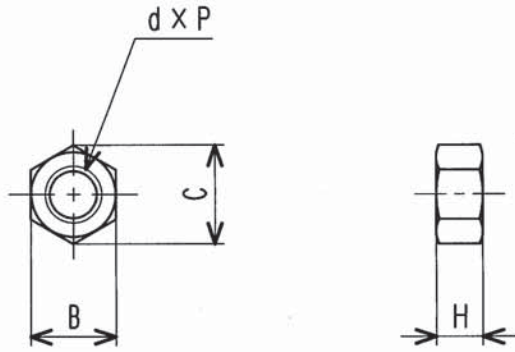
A - A



部品番号 PART No.	d_1	d_2
F3150-03800	37.7	3.5
F3150-03600	36.7	3.5

オーリング
O-RING

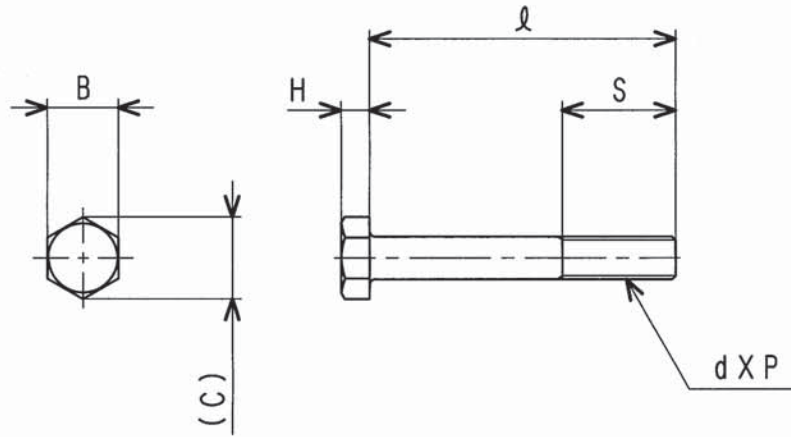
F3150-03800



部品番号 PART No.	B	C	H	d	P
F2300-06000	10	11.5	5	6	1

ジャムナット
NUT, JAM

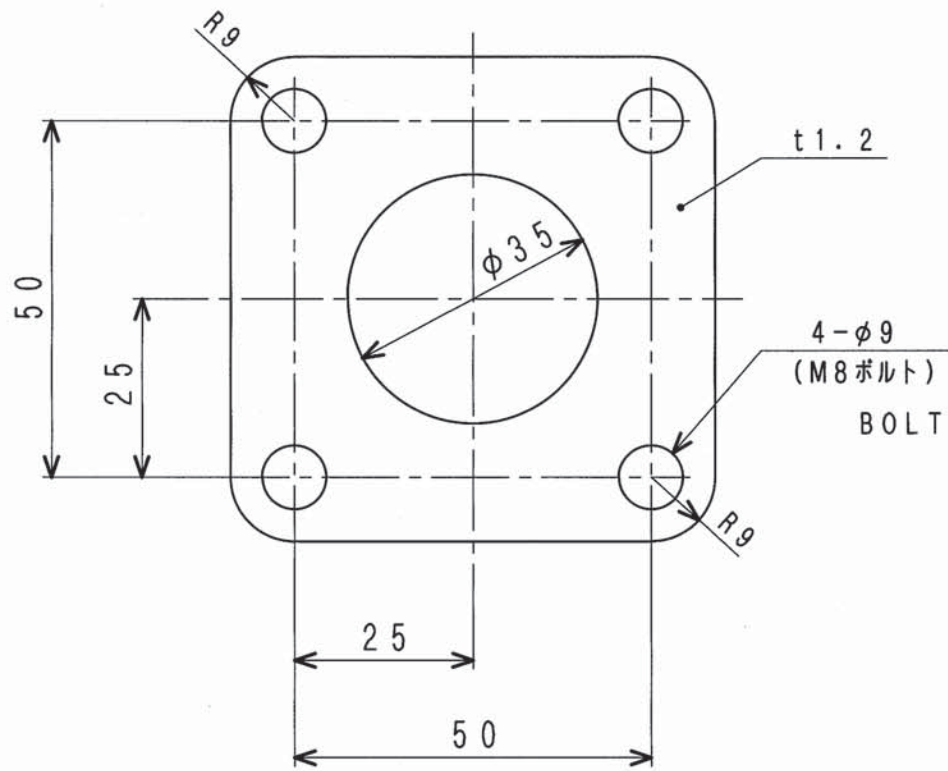
F2300-06000



部品番号 PART No.	B	C	H	S	l	d	P
F1035-06020	10	11.5	4	18	20	6	1
F1035-12040	17	19.6	8	30	40	12	1.25

ボルト
BOLT

F1035-06020

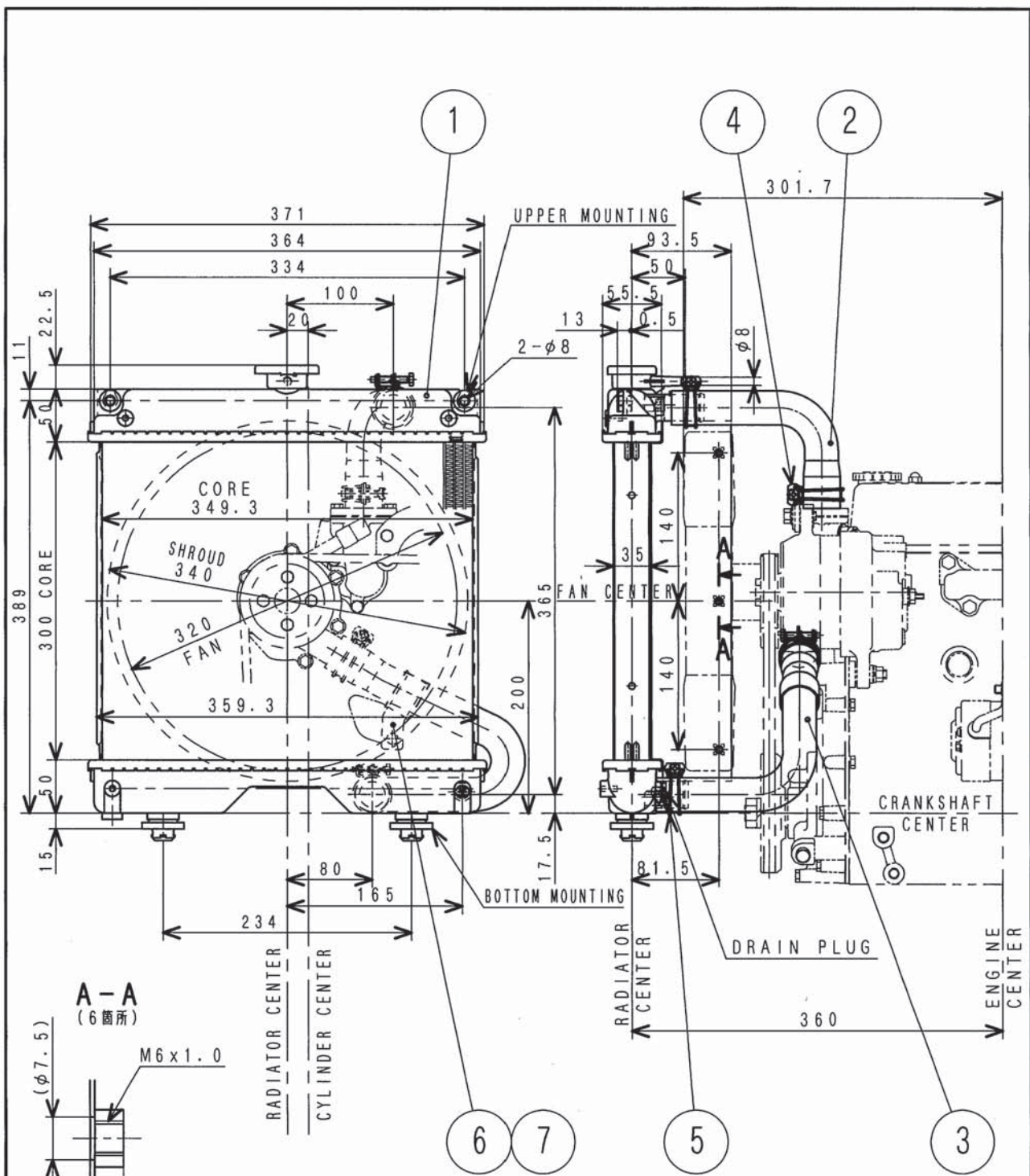


MATERIAL: POWER BESTOS
 材料: パワーベスト #1955-ENB

エキゾーストガスケット
 GASKET, EXHAUST

30N32-00100

MHI CONFIDENTIAL



・COOLING FAN:MM405-43002(6P-φ320)
 ・WITHOUT FAN SPACER

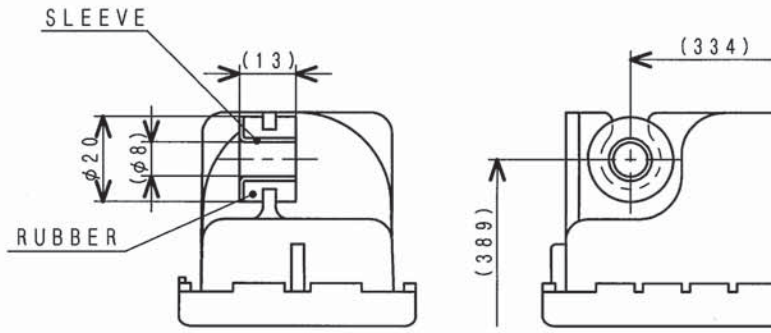
RADIATOR WEIGHT:2.0kg
 COOLANT:APPROX. 1.2ℓ

7	MS350-029	SCREW WASHER A(6X12)	1
6	30N47-01300	HOSE SUPPORT	1
5	30N47-03200	CLAMP, HOSE (36)	2
4	30N47-03400	CLAMP, HOSE (40)	2
3	30N47-01100	HOSE, WATER LO	1
2	30N47-01200	HOSE, WATER UP	1
1	30L47-05073	RADIATOR ASSY	1
SYM	PART No.	PART NAME	QTY

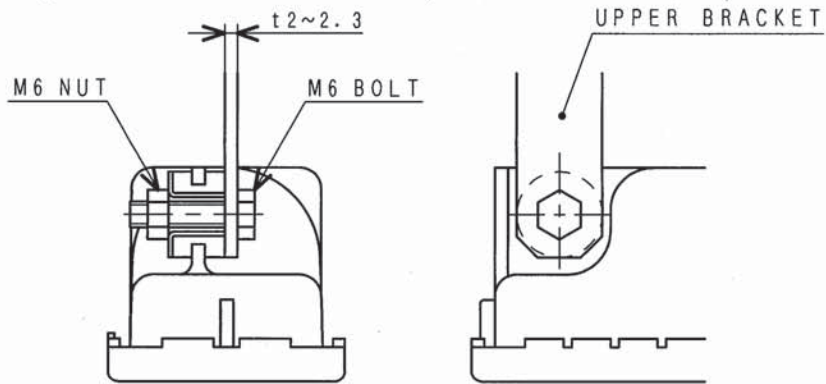
ラジエータキット
 RADIATOR KIT(L3)

30N47-02080 1/3

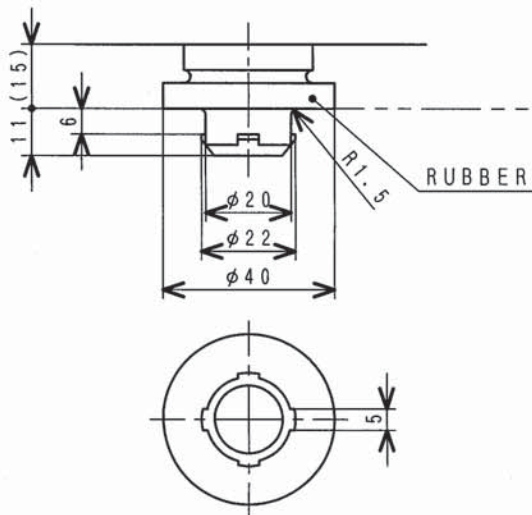
DETAIL UPPER MOUNTING



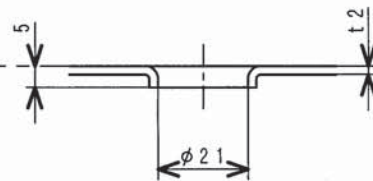
UPPER BRACKET
(REFERENCE)



DETAIL BOTTOM MOUNTING



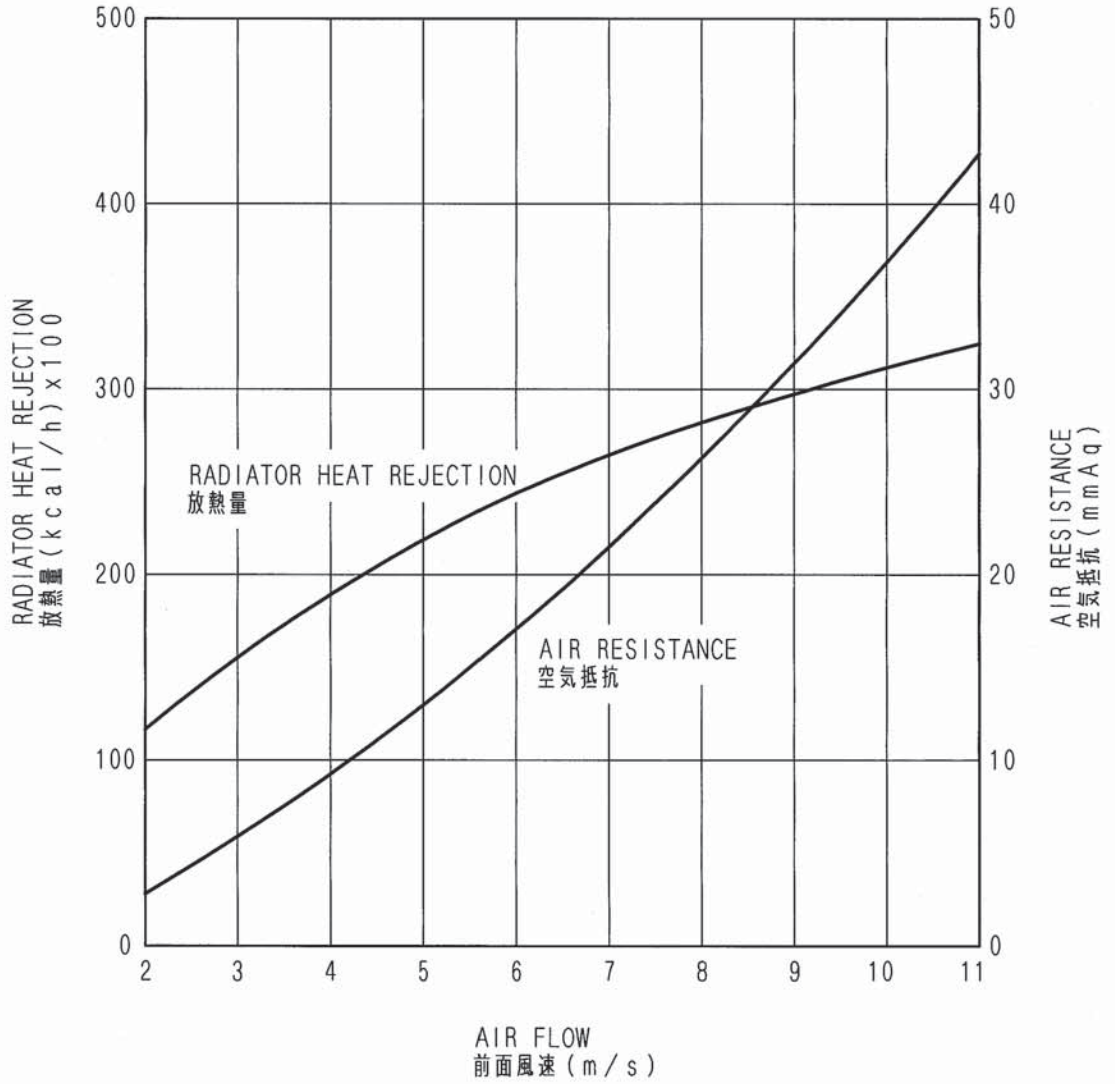
BOTTOM BRACKET
(REFERENCE)



ラジエータキット
RADIATOR KIT (L3)

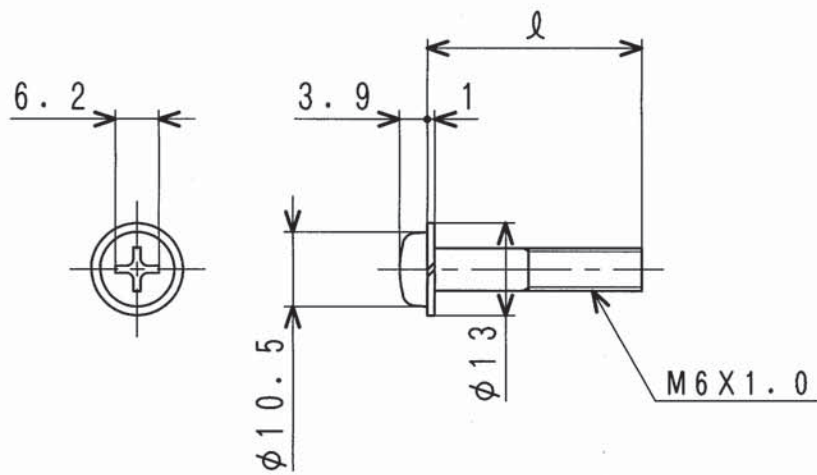
30N47-02080 $\frac{2}{3}$

RADIATOR PERFORMANCE
ラジエータ性能



ラジエータキット
RADIATOR KIT (L3)

30N47-02080 $\frac{3}{3}$



部品番号 PART No.	l
MS350-029	12

スクリュー ワッシャ アッシー
SCREW, WASHER ASSY

MS350-029

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