



mitsubishi S6B3-T2MPTAW-12

Click on the headlines below to get redirected to the respective sections in this document.

[Technical data](#)
[Elastic drawing](#)
[Flywheel & housing drawing](#)
[Measure of overhaul](#)
[Connection details](#)
[Performance curves](#)



**MITSUBISHI DIESEL ENGINE
TECHNICAL INFORMATION**

ITEM NO.

T0203-0007E (1/4)

DATE

Feb, 2012

Specification Sheets of S6B3-T2MPTAW Engine (IMO-Tier 2 Certified Engine)

Specification Sheets of S6B3-T2MPTAW Engine that is satisfied with IMO-Tier 2 certified engine are enclosed herein.

Revision	First Edition : Feb, 2012	Engine Engineering Department Engine System Design Section		
		Approved by	Checked by	Drawn by

GENERAL ENGINE DATA

Type	4-Cycle, Water Cooled	
Aspiration	Turbo-Charged, Aircooler (Fresh Water)	
Cylinder Arrangement	Inline	
No. of Cylinders	6	
Bore mm(in.)	135	(5.31)
Stroke mm(in.)	170	(6.69)
Displacement liter(in ³)	14.60	(891)
Compression Ratio	14.2:1	
Dry Weight - Engine only - kg(lb)	1310	(2889)
Wet Weight - Engine only - kg(lb)	1407	(3102)

PERFORMANCE DATA

Steady State Speed Stability Band at any Constant Load(Generator Use)

Hydraulic (std.) or Electric Governor - %	±0.25 or better	
Idling Speed -rpm	600~650	
Maximum Overspeed Capacity - rpm	2315	
Moment of inertia of Rotating Components - kgf·m ² (lbf·ft ²)	16.8	(399)
(Includes 14 inch Flywheel)		
Cyclic Speed Variation with Flywheel at 1800min ⁻¹	1/120	
1500min ⁻¹	1/78	

ENGINE MOUNTING

Maximum Bending Moment at Rear Face of Flywheel Housing - N·m(lbf·ft)	1373	(1013)
---	------	--------

AIR INLET SYSTEM

Maximum Intake Air Restriction (Includes piping)- kPa (in.H ₂ O)	3.92	(15.7)
Maximum Allowable Intake Air Temperature - °C (°F)	45	(113)

EXHAUST SYSTEM

Maximum Allowable Back Pressure - kPa (in.H ₂ O)	4.41	(17.7)
---	------	--------

LUBRICATION SYSTEM

Oil Pressure at Idle - MPa(psi)	0.2~0.3 (29~43)	
at Rate Speed - MPa(psi)	0.5~0.6 (71~86)	
Maximum Oil Temperature - °C(°F)	110	(230)
Oil Capacity of Marine Pan High - liter (U.S.gal)	70	(18.5)
Low - liter (U.S.gal)	52	(13.7)
Total System Capacity (Includes Oil Filter) - liter (U.S.gal)	80	(21.1)
Maximum Installation Angle Front Up	22°	
Front Down	12.5°	
Maximum Instantaneous Operating Angle Front Up	35°	
(Engine Level) Front Down	22.5°	
Side to Side	22.5°	

COOLING SYSTEM

Coolant Capacity of Jacket (Engine Only) - liter (U.S.gal)	30	(7.9)
Coolant Capacity of Air Cooler (Engine Only) - liter (U.S.gal)	3	(0.8)
Maximum External Friction Head at Engine Outlet - MPa(psi)	0.034	(5.0)
Maximum Static Head of Coolant above Crankshaft Center - m(ft)	10	(32.8)
Standard Thermostat (modulating)Range of Jacket- °C(°F)	71~85	(160~185)
Standard Thermostat (modulating)Range of Air cooler- °C(°F)	35~50	(95~122)
Maximum Coolant Temperature at Engine Outlet- °C(°F)	95	(203)
Minimum Coolant Expansion Space - % of System Capacity	10	
Maximum Coolant Temperature at Air cooler Inlet, PTAW type- °C(°F)	see page 4/4	

The specifications are subject to change without notice.

FUEL SYSTEM

Fuel Injector	Bosch S7S Type × 1
Maximum Suction Head of Feed Pump - kPa (in. Hg)	14.7 (4.3)
Maximum Level of Fuel Tank - m	Continuous Use ----- 5.0
	Stand-by Use ----- 2.0
Minimum Fuel Oil Supply Pipe Inner Diameter - mm(in.)	----- 16 (0.63)
Minimum Fuel Oil Leak Pipe Inner Diameter - mm(in.)	----- 12 (0.47)

STARTING SYSTEM

Battery Charging Alternator - V-Ah	----- 24-35
Starting Motor Capacity - V -kW	----- 24-6.0
Maximum Allowable Resistance of Cranking Circuit - m Ω	----- 2.5
Recommended Minimum Battery Capacity	
At 5°C(41°F) and above - Ah	----- 200
Below 5°C(41°F) through - 5°C(23°F)	----- 400
Cranking Ampere of Starter at 5°C (41°F) / -5°C (23°F)	
Static Ampere -A	300 / 330
Momentary Ampere -A	525 / 585

ACCESSORY EQUIPMENT

Air Cleaner	Silencer Type
Exhaust Manifold	Water Cooled
Turbocharger	Air Cooled
Air Cooler	Fresh Water Cooled
Breather	Conduction Type
Governor	Hydraulic PSG Type
Fuel Injection Pump	
Fuel Feed Pump	
Fuel Injection Pipe	Double walled Type
Fuel Injection Nozzle	
Fuel Filter	Paper Element Type
Lubricating Oil Pump	
Lubricating Oil Cooler	
Lubricating Oil Filter(Full-Flow)	Paper Element Type
Lubricating Oil Filter(By-Pass Flow)	Paper Element Type
Oil Pan	Large Capacity,aluminium
Cooling Water Pump (Jacket water)	
Cooling Water Thermostat(Jacket water)	
Starter	Earth Float Type
Alternator	Earth Float Type
Stop Solenoid	DC24V-15A
Engine Support	Marine Type
Accessory Drive	Front Drive Pulley

ACCESSORY EQUIPMENT(LOOSE SUPPLY)

Relay Safety	For Starter
Jack Bolt	
Companion Flange	
Standard Tools	
Standard Spare Parts	

The specifications are subject to change without notice.

ENGINE RATING

All data represent net performance with standard accessories such as air cleaner, inlet /exhaust manifolds, fuel oil system, L.O. pump, etc. under the condition of 100kPa(29.6inHg) barometric pressure, 77°F(25°C) ambient temperature and 30% relative humidity.

A:Light duty B:Medium duty C:Heavy duty

ITEM	UNIT	Propulsion use		Generator use		
		B	C	60Hz	50Hz	
Engine Speed	min ⁻¹	2000	1940	1800	1500	
No. of Cylinders		6				
Bore	mm (in.)	135 (5.31)				
Stroke	mm (in.)	170 (6.69)				
Displacement	liter (in. ³)	14.6 (891)				
Brake Horse power without Fan	HP	469	429	503	449	
	kW	350	320	375	335	
Brake Mean Effective Pressure without Fan	kgf/cm ²	14.7	13.8	17.5	18.7	
	MPa	1.44	1.35	1.72	1.83	
	(psi)	(209)	(196)	(249)	(266)	
Mean Piston Speed	m/s	11.3	11.0	10.2	8.5	
	(ft/min)	(2225)	(2165)	(2008)	(1673)	
Maximum Regenerative Power Absorption Capacity without Fan	HP	50	48	45	37	
	kW	37	36	33	28	
Intake Air flow	m ³ /min	33	30	35	30	
	(CFM)	(1165)	(1059)	(1236)	(1059)	
Exhaust Gas Flow	m ³ /min	88	79	92	79	
	(CFM)	(3107)	(2789)	(3249)	(2789)	
Coolant Flow	liter/min	555	540	500	435	
	(U.S. GPM)	(147)	(143)	(132)	(115)	
Coolant Flow to Aircooler (Max. Flow: 200L/min)	liter/min	150	150	150	150	
	(U.S. GPM)	(40)	(40)	(40)	(40)	
Coolant(Jacket water) Pressure (water pump outlet)	kgf/cm ²	1.45	1.40	1.20	0.90	
	MPa	0.14	0.14	0.12	0.09	
	(psi)	(21)	(20)	(17)	(13)	
Oil Flow	kJ/hr	250	242	225	188	
	(BTU/min)	(66)	(64)	(59)	(50)	
Radiated Heat to Ambient	kcal/hr	16817	15099	17533	15158	
	kJ/hr	70397	63205	73394	63452	
	(BTU/min)	(1112)	(999)	(1160)	(1003)	
Heat Rejection to Coolant (include water cooled manifold)	kcal/hr	218616	196293	227930	197049	
	kJ/hr	915136	821691	954125	824856	
	(BTU/min)	(14459)	(12983)	(15075)	(13033)	
Heat Rejection to Air Cooler	kcal/hr	75675	67947	78899	68209	
	kJ/hr	316779	284429	330275	285526	
	(BTU/min)	(5005)	(4494)	(5218)	(4511)	
Heat Rejection to Exhaust	kcal/hr	228784	200486	229855	189421	
	kJ/hr	957700	839243	962183	792925	
	(BTU/min)	(15131)	(13260)	(15202)	(12528)	
Cooling system	Direct Sea Water Cooling Max. sea water temp. at inter cooler inlet		N/A	N/A	N/A	N/A
	Intermediate Fresh Water Cooling Max. fresh water temp. at inter cooler inlet		Max. 38°C (When sea water temp. 32°C)			
	Radiator Cooling Max. coolant temp. at inter cooler inlet		N/A	N/A	Max. 45°C (When air temp. 25°C)	
Noise Level (1 m height & distance) (excludes, Intake,Exhaust & Fan)	dB(A)	TBD	TBD	TBD	TBD	
Maximum No Load Governed Speed	min ⁻¹	2150	2086	1890	1575	

The specifications are subject to change without notice.

APPLICATION : MARINE

Pub. No. T0203-0007E 4/4



**MITSUBISHI DIESEL ENGINE
TECHNICAL INFORMATION**

ITEM NO.

T0307-0023E (1/2)

DATE

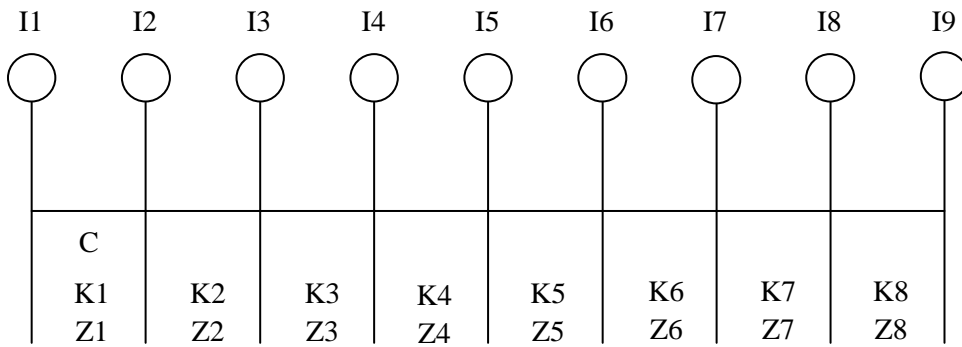
April, 2007

Elastic data of S6B3-M Engine

Elastic data of S6B3-M Engine are enclosed herein.

Revision	First Edition : April, 2007 (Refer to MTD00-0017)	Engine Engineering Department Large Engine Design Section		
		Approved by	Checked by	Drawn by



S6B3-M ELASTIC DATA

	Moment of inertia J kg.m ²	Damping coefficient Nm/rad/s	Spring const. x10 ⁷ Nm/rad	Tensile strength N/mm ²	Section modulus cm ³
I1	DAMPER	0.415	C=392.3	0.0	Z1 =0.0
I2	PULLEY	0.439	—	834	Z2 =135.0
I3	No.1 CRANK	0.211	—	834	Z3 =135.0
I4	No.2 CRANK	0.137	—	834	Z4 =135.0
I5	No.3 CRANK	0.211	—	834	Z5 =135.0
I6	No.4 CRANK	0.211	—	834	Z6 =135.0
I7	No.5 CRANK	0.137	—	834	Z7 =135.0
I8	No.6 CRANK	0.211	—	834	Z8 =135.0
I9	FLYWHEEL	2.23	—	(SAE#14")	
I9	FLYWHEEL	5.41	—	(SAE#18")	

Hysteresis constant:194 No. of Cylinder: 6 Bore:135mm Stroke:170mm

Length of Con-Rod: 270mm Mass of Reciprocating Parts: 5.59 kg

Firing order:1-5-3-6-2-4

Firing interval:0-120-240-360-480-600

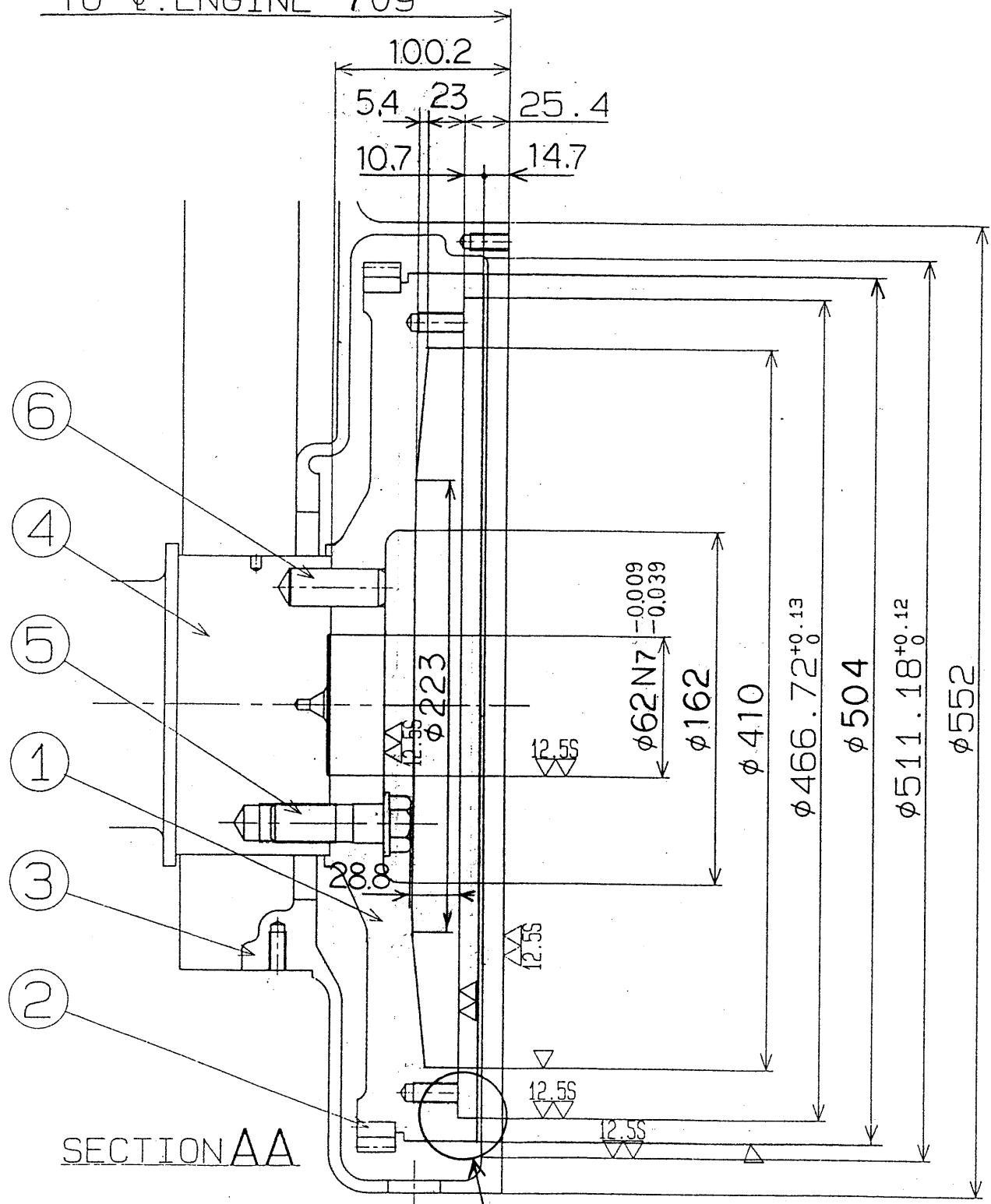
APPLICATION : MARINE USE

The data is subject to change without notice.



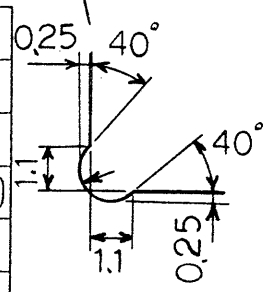
MITSUBISHI HEAVY INDUSTRIES, LTD.
GENERAL MACHINERY & SPECIAL VEHICLE

TO ϕ .ENGINE 709



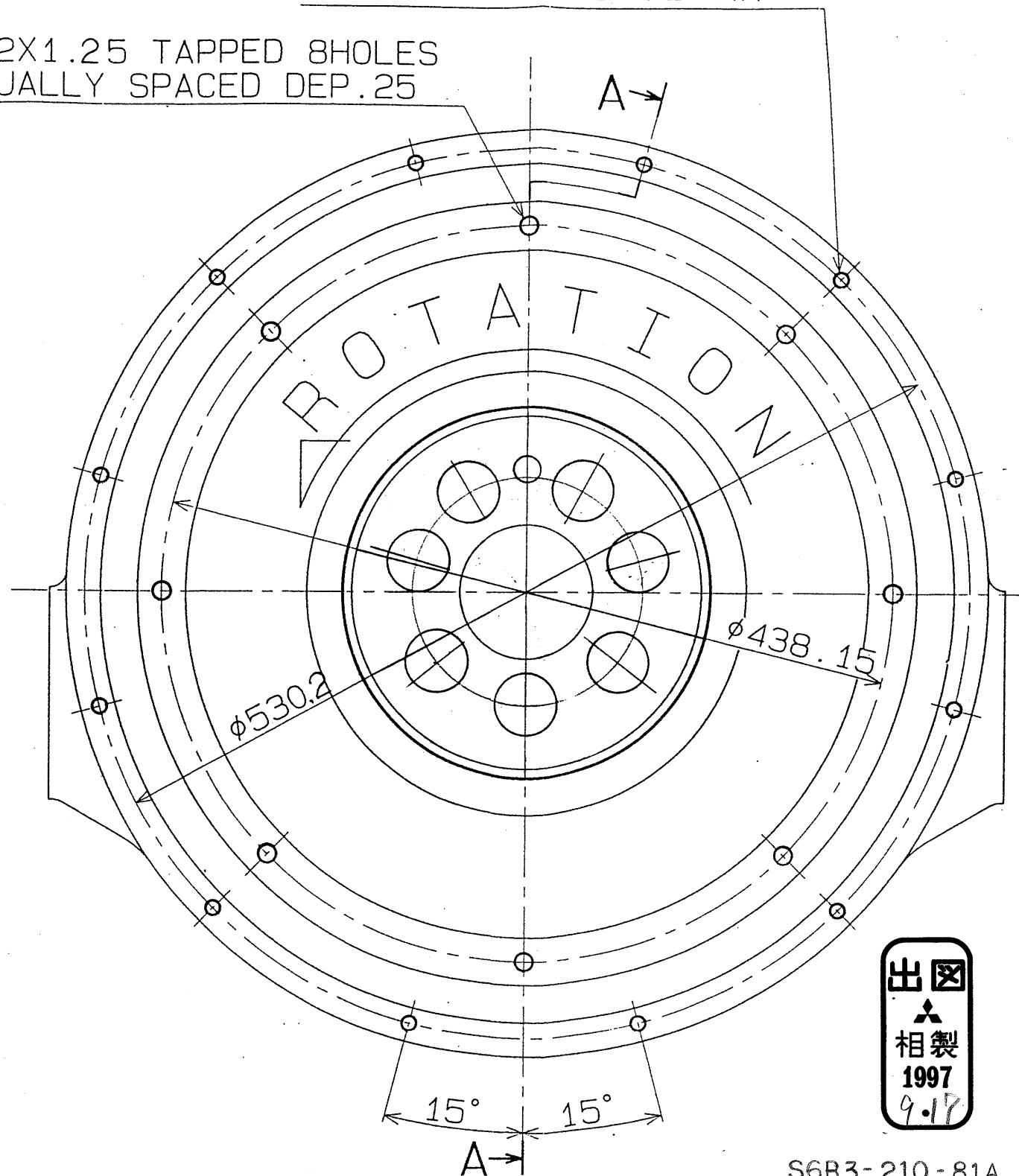
SECTION AA

6	DOWEL PIN	
5	FLYWHEEL BOLT	
4	CRANK SHAFT	
3	FLYWHEEL HOUSING	SAENO.1D
2	RING GEAR	
1	FLYWHEEL	SAE14in
NO	PARTS NAME	SIZE



M10X1.25 TAPPED 12HOLES
EQUALLY SPACED DEP.17

M12X1.25 TAPPED 8HOLES
EQUALLY SPACED DEP.25



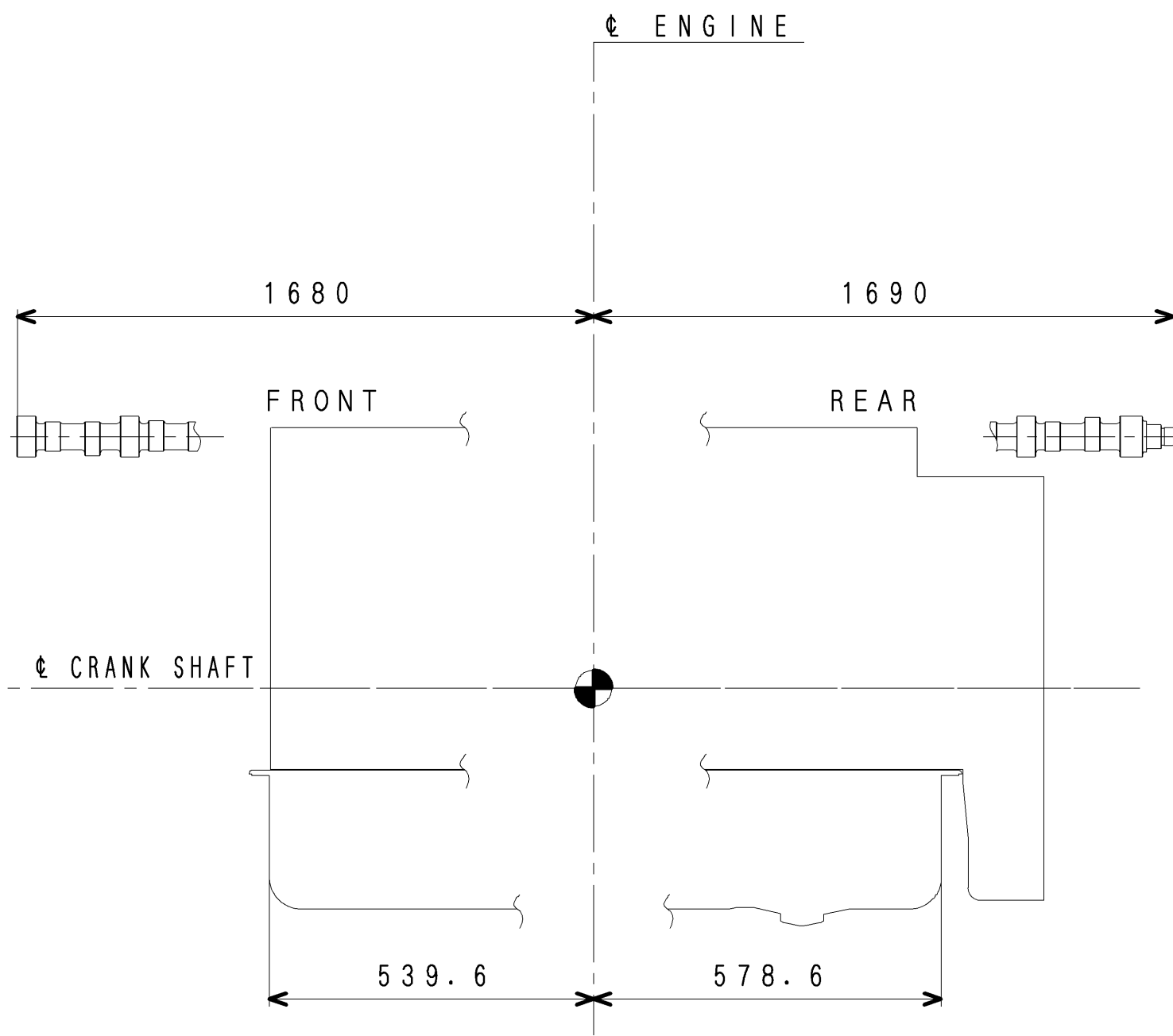
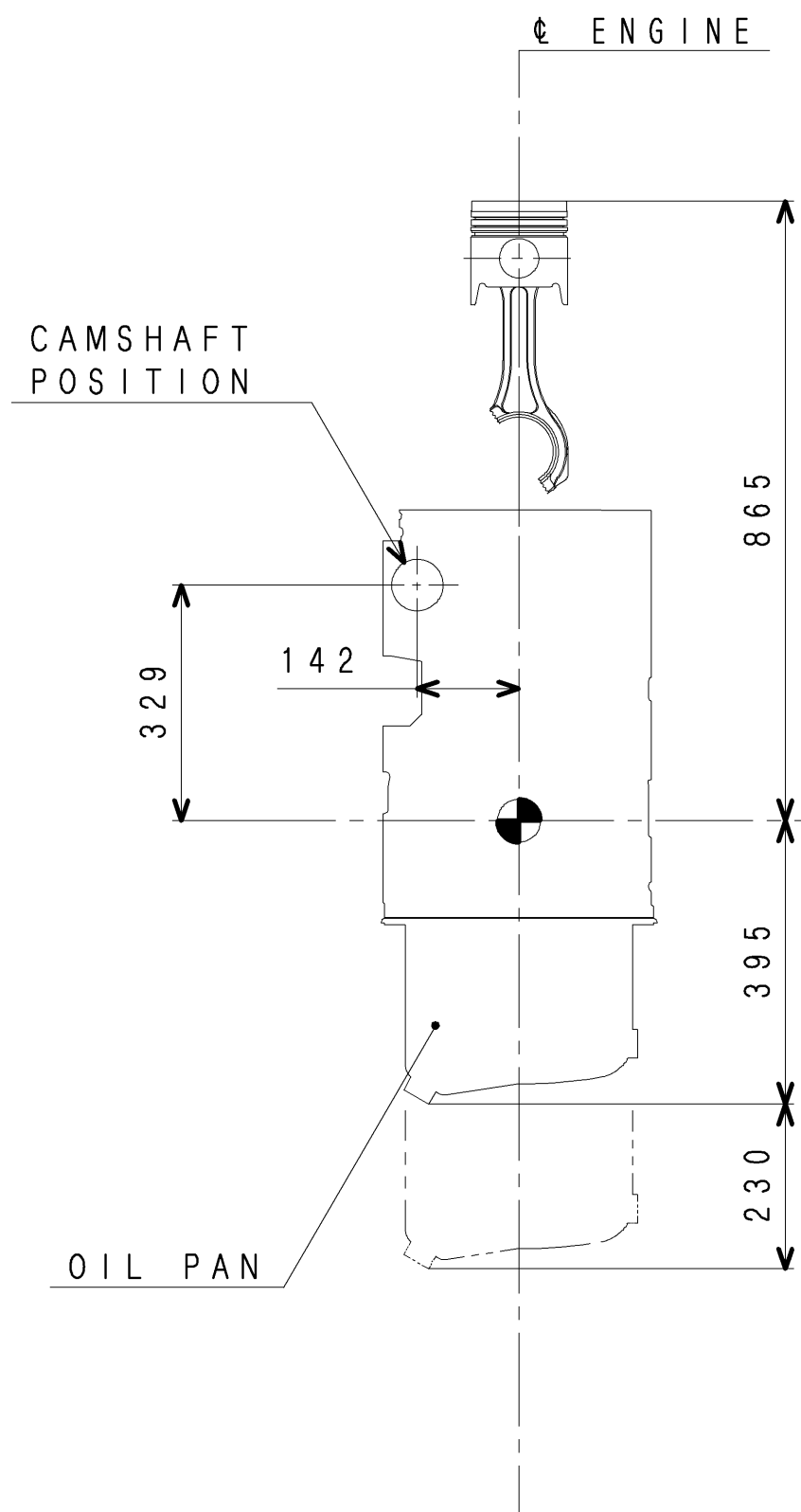
出図
相製
1997
9.17

S6B3-210-81A

△				 3rd ANGLE PROJECTION 尺度 SCALE
△				
△				
△				
CHG	EO-NO	DATE	CHK	

S6B3 FLYWHEEL & HOUSING DETAIL
 三菱重工業株式会社相模原製作所
 SAGAMIHARA MACHINERY WORKS. MITSUBISHI HEAVY INDUSTRIES,LTD.
 図面番号
 DRAWING No. 45B96-21001

③ 新図 ④ 組立図 ⑤ 鋳造曲車品 ⑥ 板金溶接品 ⑦ 組立品 ⑧ 4 旧引図 ⑨ A 3 ⑩ 1 切削品 ⑪ 5 ⑫ 6 その他(購入品)



MHI CONFIDENTIAL

△				 3rd ANGLE PROJECTION 尺度 SCALE
△				
△				
CHG	ED-NO	DATE	CHK	

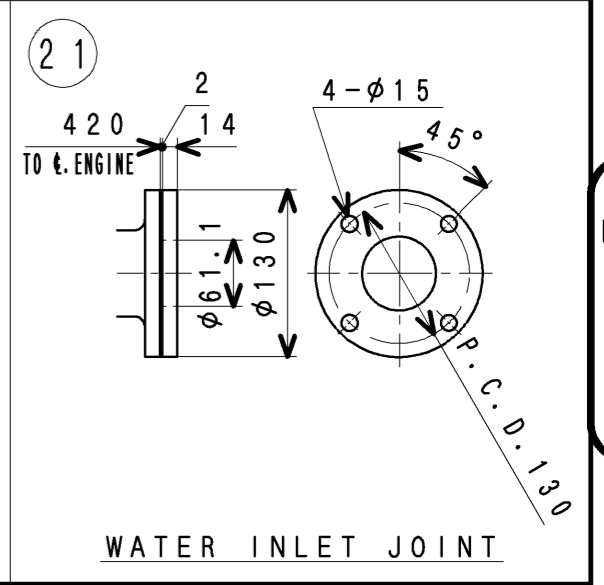
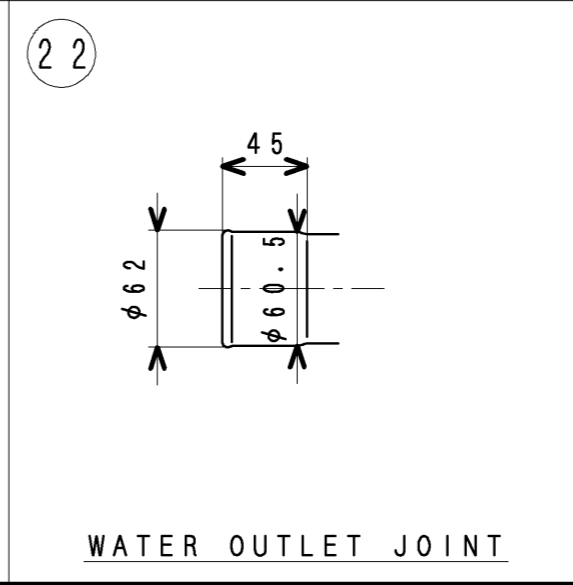
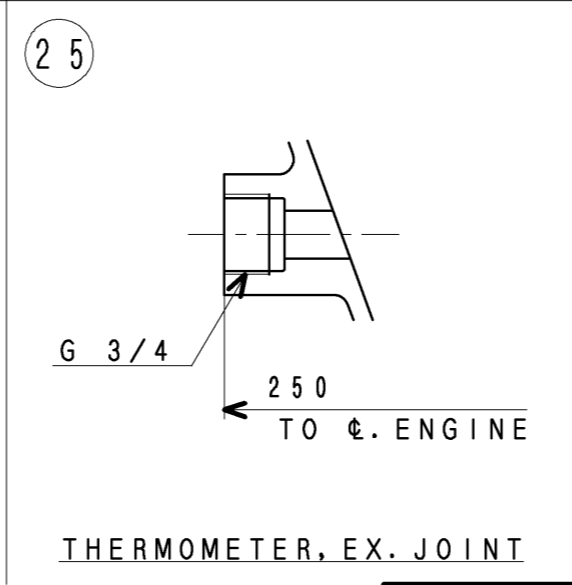
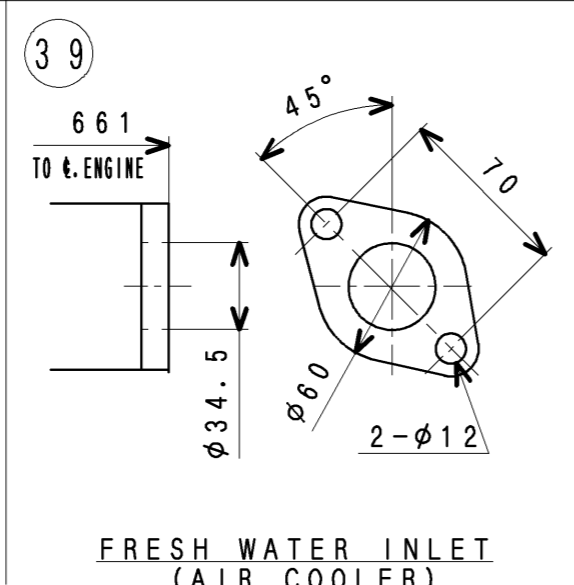
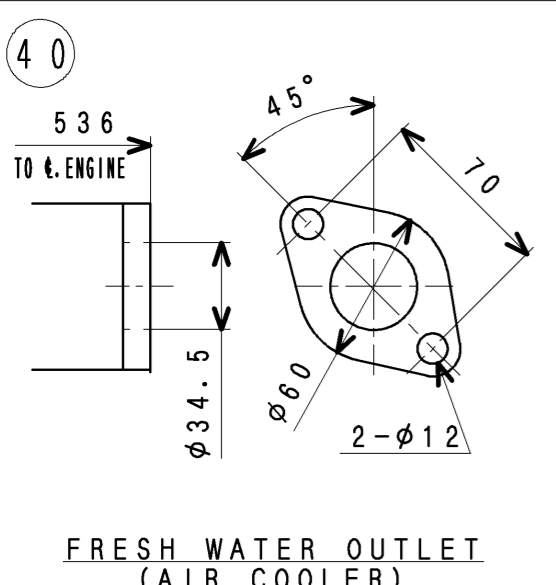
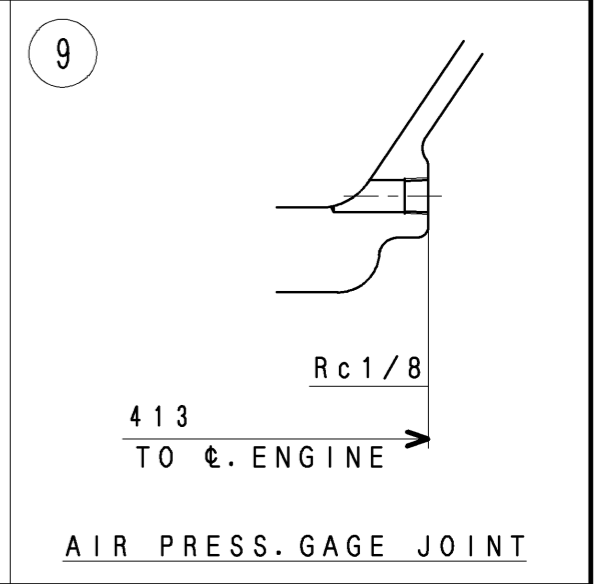
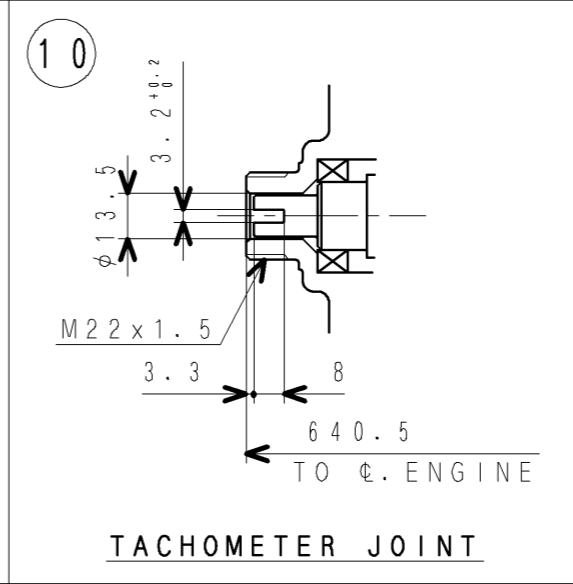
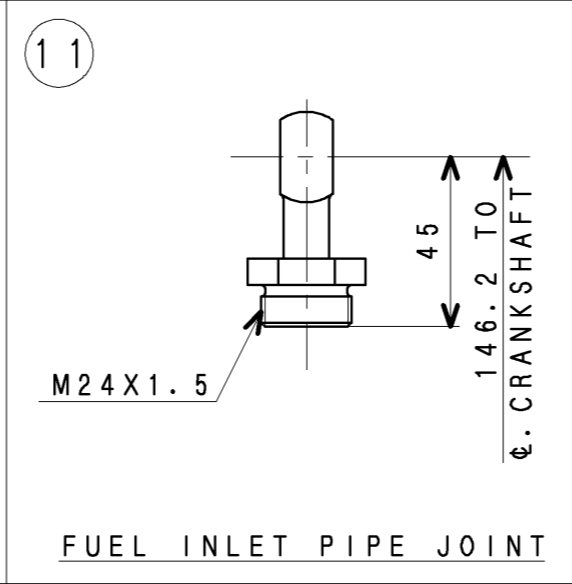
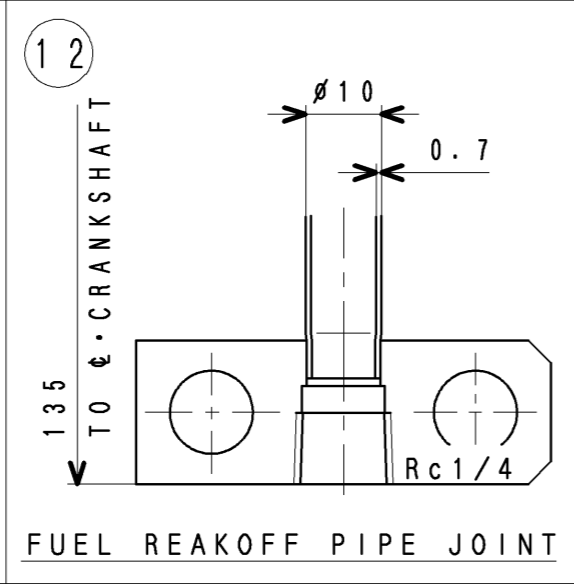
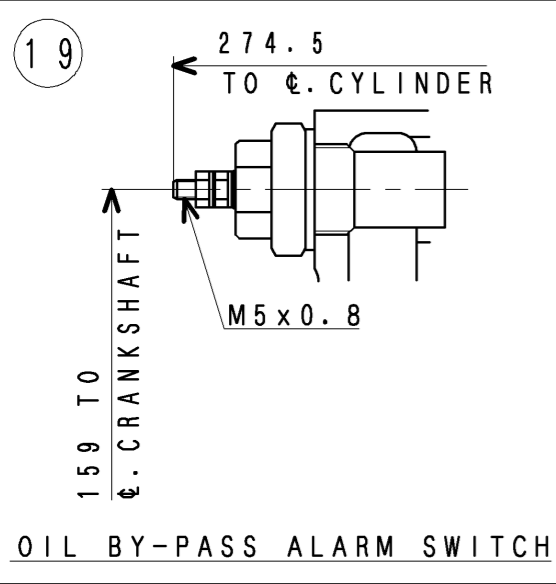
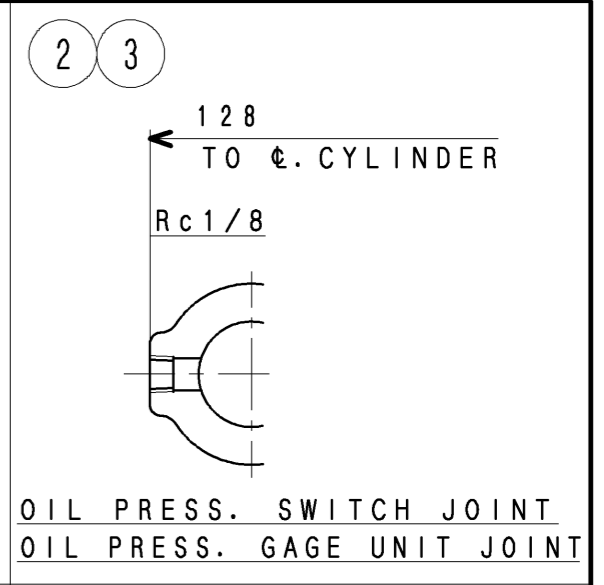
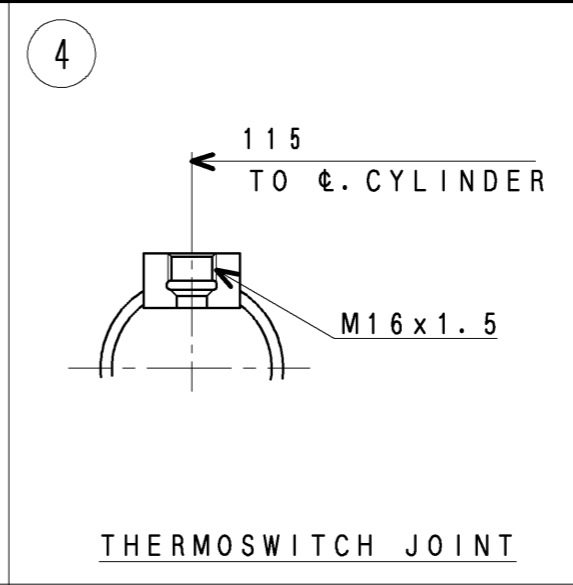
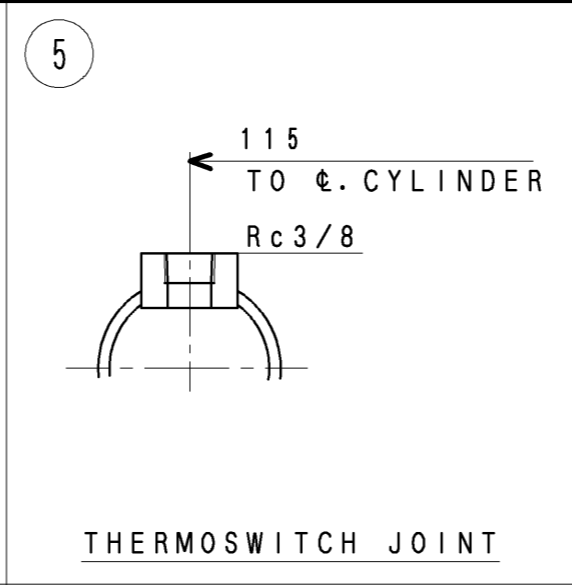
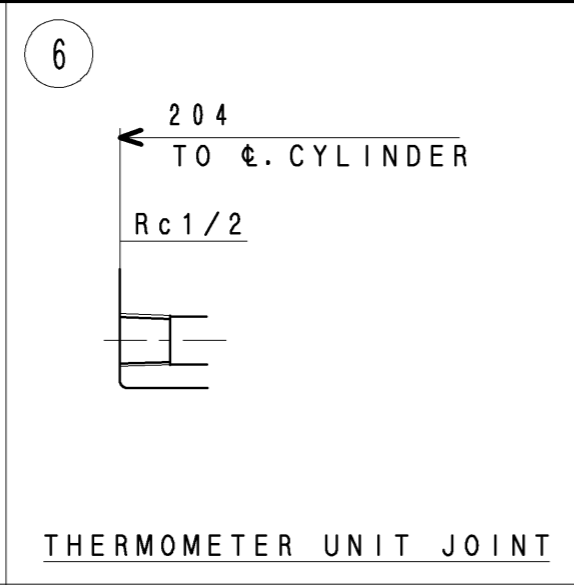
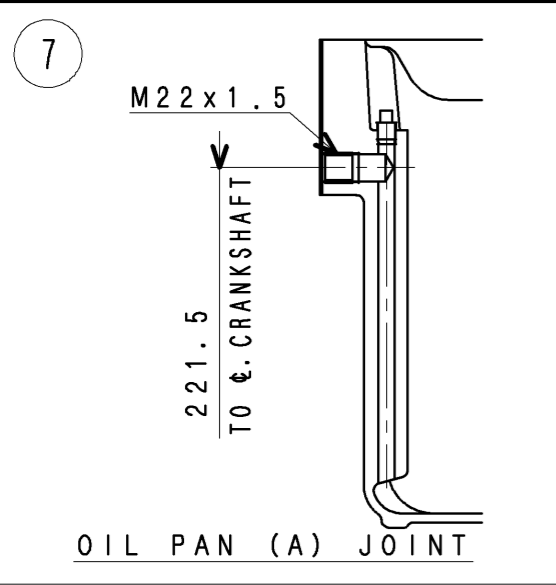
MEASURE OF OVERHAUL FOR S6B3

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 VEHICLES.

図面番号 45B96-09000
DRAWING No.

出図
汎特
2013
8.1

M/C



注記 (1) 本図は、S6B3-T2MPTAW仕様 (MEE向) ジョイント詳細図である。

CHG	ED-NO	DATE	CHK

3rd ANGLE PROJECTION
尺度 SCALE

S6B3
JOINT DETAIL

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.

図面番号 45B96-01001
DRAWING No.

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

出図
汎特
2012
2.22

M/C



**MITSUBISHI DIESEL ENGINE
TECHNICAL INFORMATION**

ITEM NO.

T0407-0034E (1/5)

DATE

Sep., 2012

Performance Curves of S6B3-T2MPTAW

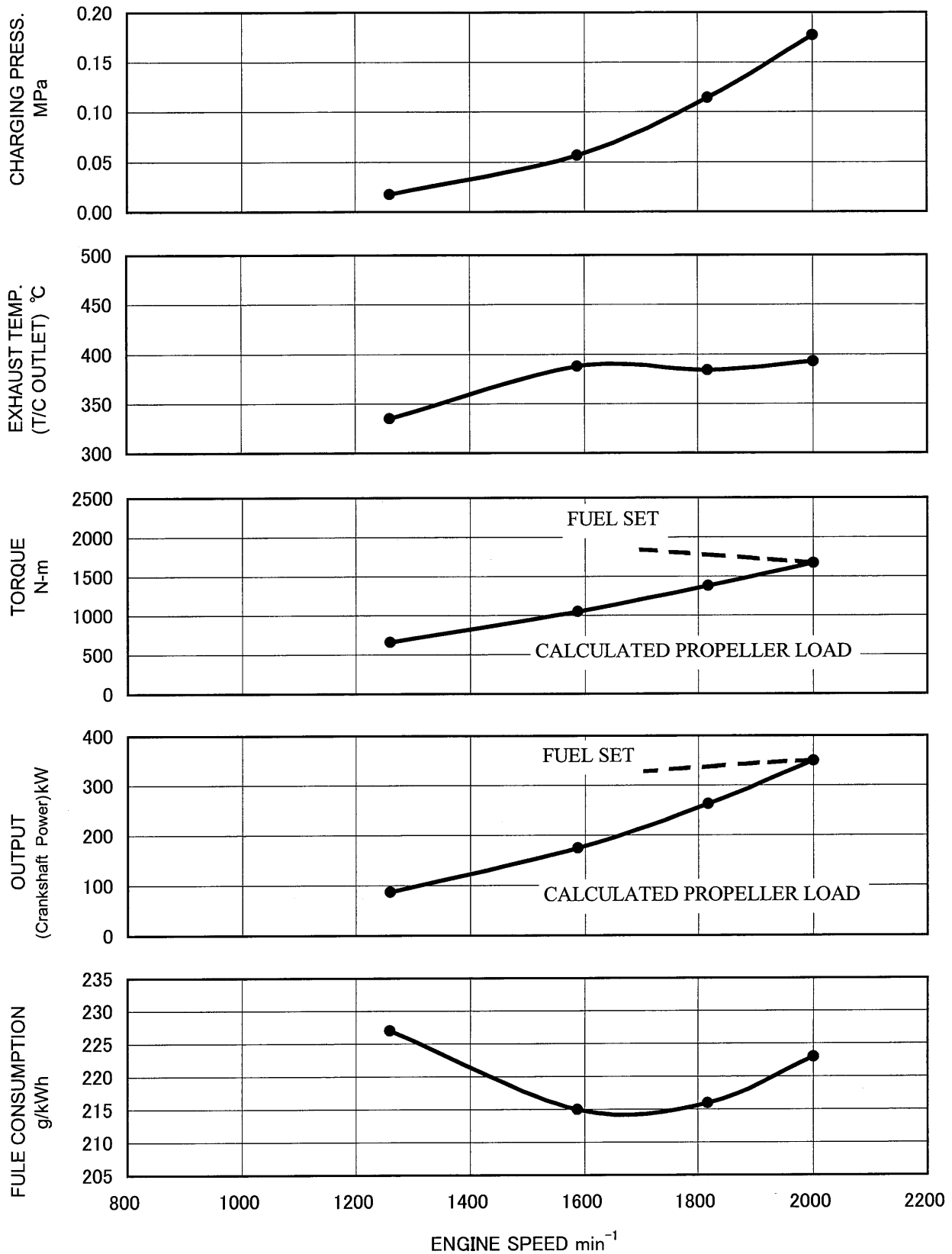
Performance Curves of S6B3-T2MPTAW Engine that is satisfied with IMO-Tier 2 are enclosed herein. The data are test bench data and not a guaranteed performance.

THE INFORMATION HEREON IS THE PROPERTY OF MITSUBISHI HEAVY INDUSTRIES, LTD. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED, IS PROHIBITED.

Revision	First Edition : Sep., 2012	Engine Engineering Department Engine System Designing Section		
		Approved by	Checked by	Drawn by

Rating: Medium Duty

RATED OUTPUT : 350kW/2000min⁻¹ (at FLYWHEEL)



MHI CONFIDENTIAL

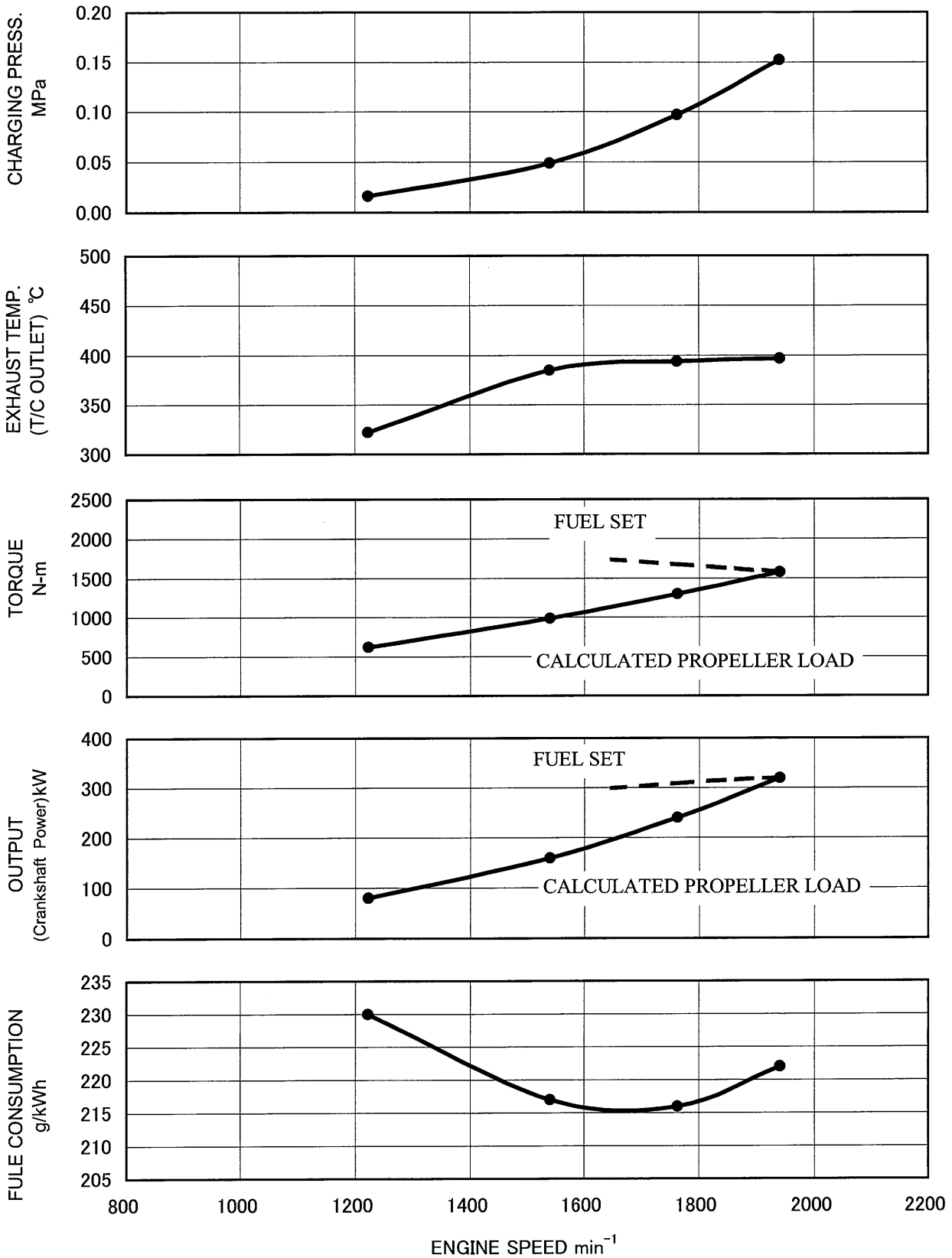
Fuel Consumption is based on ISO3046/1 with +5% tolerance at rated power.
The specifications are subject to change without notice.

APPLICATION : MARINE PROPULSION

Pub. No.T0407-0034E 2/5

Rating: Heavy Duty

RATED OUTPUT : 320kW/1940min⁻¹ (at FLYWHEEL)



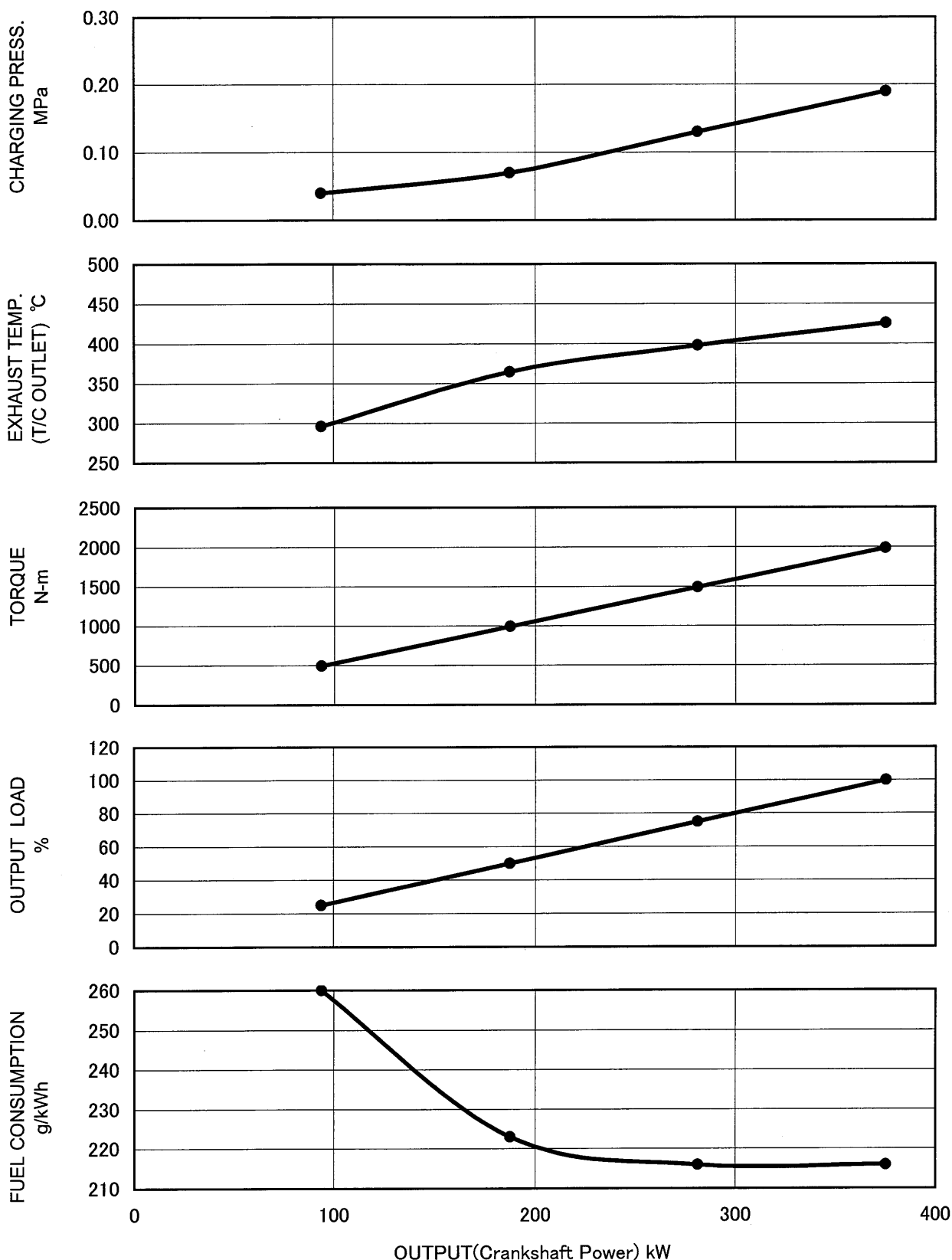
MHI CONFIDENTIAL

Fuel Consumption is based on ISO3046/1 with +5% tolerance at rated power.
The specifications are subject to change without notice.

APPLICATION : MARINE PROPULSION

Pub. No.T0407-0034E 3/5

Engine speed: 1800min⁻¹



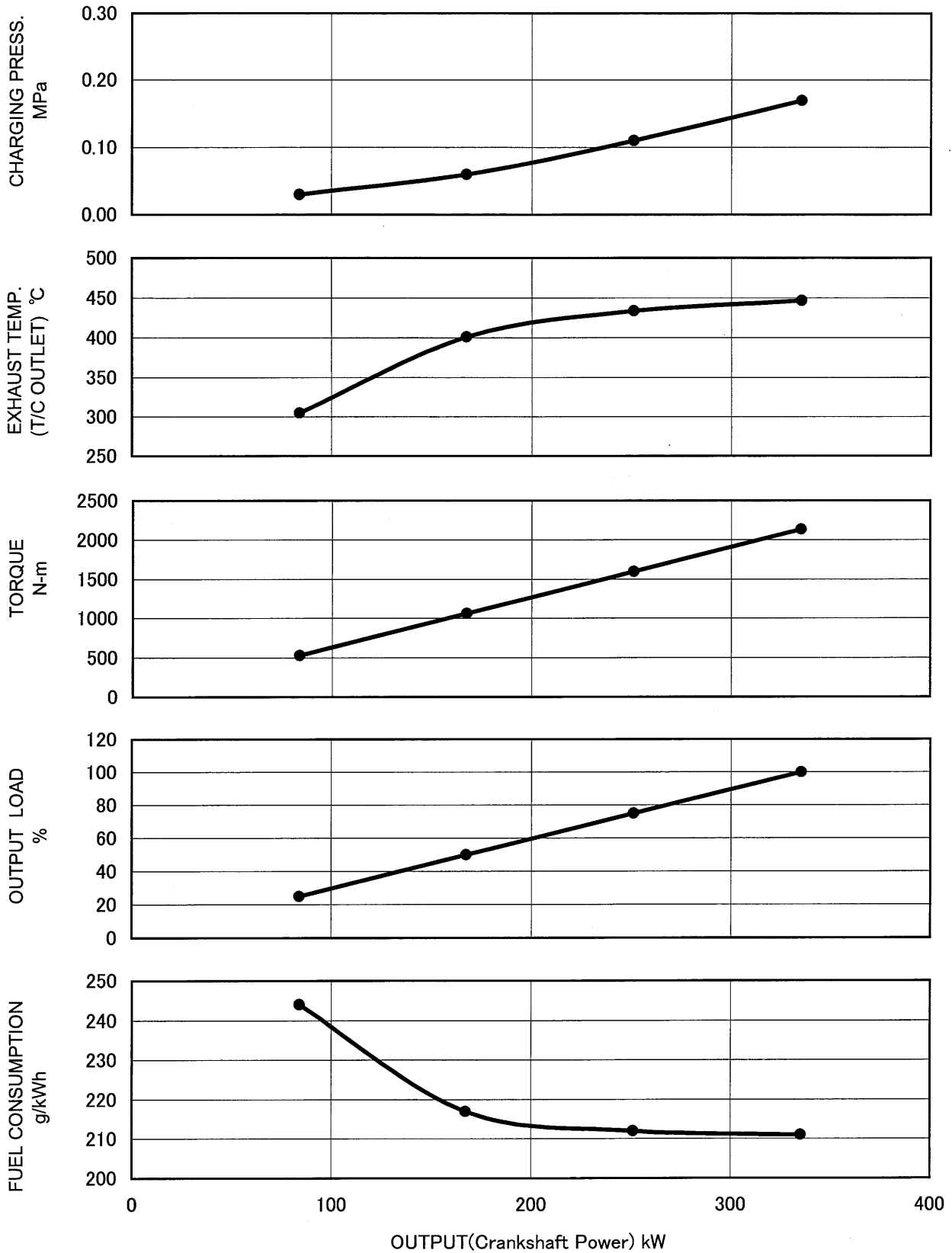
MHI CONFIDENTIAL

Fuel Consumption is based on ISO3046/1 with +5% tolerance at rated power.
The specifications are subject to change without notice.

APPLICATION : GENERATOR

Pub. No.T0407-0034E 4/5

Engine speed: 1500min⁻¹



MHI CONFIDENTIAL

Fuel Consumption is based on ISO3046/1 with +5% tolerance at rated power. The specifications are subject to change without notice.

APPLICATION : GENERATOR

Pub. No.T0407-0034E 5/5