



**MITSUBISHI DIESEL ENGINE
TECHNICAL INFORMATION**

ITEM NO.

T0215-0005C Rev.1 (1/4)

DATE

August, 2013

Specification Sheets of S12R-PTAA2-C Engine

Specification Sheets of S12R-PTAA2-C Engine are enclosed herein.

Revision

Engine Engineering Department
High Speed Engine Designing Section

Approved by

Checked by

Drawn by

K.FUKUZAWA

S.MORI
K.SAKAMOTO

N.YAMAGUCHI



MITSUBISHI HEAVY INDUSTRIES, LTD.
GENERAL MACHINERY & SPECIAL VEHICLE HEADQUARTERS

GENERAL ENGINE DATA

Type	4-Cycle, Water Cooled	
Aspiration	Turbo-Charged, Air to Air Cooler	
Cylinder Arrangement	60°V	
No.of Cylinders	12	
Bore mm(in.)	170	(6.69)
Stroke mm(in.)	180	(7.09)
Displacement liter(in ³)	49.03	(2992)
Compression Ratio	13.5:1	
Dry Weight - Engine only - kg(lb)	5300	(11687)
Wet Weight - Engine only - kg(lb)	5580	(12304)

PERFORMANCE DATA

Steady State Speed Stability Band at any Constant Load		
Hydraulic (std.) or Electric Governor - %	±0.25 or better	
Maximum Overspeed Capacity - rpm	2100	
Moment of inertia of Rotating Components - N·m ² (lbf·ft ²)	738	(1786)
(Includes Std.Flywheel)		
Cyclic Speed Variation with Flywheel at 1500rpm	1/294	

ENGINE MOUNTING

Maximum Bending Moment at Rear Face of Flywheel Housing - N·m(lbf·ft)	4413	(3256)
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AIR INLET SYSTEM

Maximum Intake Air Restriction (Includes piping)		
With Clean Filter Element - mm H ₂ O (in.H ₂ O)	400	(15.7)
With Dirty Filter Element - mm H ₂ O (in.H ₂ O)	635	(25.0)

EXHAUST SYSTEM

Maximum Allowable Back Pressure - mm H ₂ O (in.H ₂ O)	600	(23.6)
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LUBRICATION SYSTEM

Oil Pressure at Idle - MPa(psi)	0.2~0.3	(29~43)
at Rate Speed - MPa(psi)	0.49~0.64	(71~93)
Maximum Oil Temperature - °C(°F)	110	(230)
Oil Capacity of Standard Pan High - liter (U.S.gal)	150	(39.6)
Low - liter (U.S.gal)	110	(29.1)
Total System Capacity (Includes Oil Filter) - liter (U.S.gal)	180	(47.6)
Maximum Angle of Installation (Std. Pan) Front Down	6.5°	
(Engine Only) Front Up	6.5°	
Side to Side	22.5°	

COOLING SYSTEM

Coolant Capacity (Engine Only) liter (U.S.gal)	125	(33.0)
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)
Maximum Outlet Pressure of Engine Water Pump - MPa(psi)	0.20	(28.6)
Standard Thermostat (modulating) Range-°C(°F)	71~85	(160~185)
Maximum Coolant Temperature at Engine Outlet-°C(°F)	98	(208)
Minimum Coolant Expansion Space - % of System Capacity	10	
Maximum Cooling Air Temperature at Air to Air Cooler Inlet, TAA type-°C(°F)	40	(104)
Maximum Air Restriction on Discharge Side of Radiator and Fan-mm H ₂ O(in.H ₂ O)	40	(1.6)

APPLICATION : GENERATOR

FUEL SYSTEM

Fuel Injector	Mitsubishi PS6 Type × 2
Maximum Suction Head of Feed Pump - mm Hg (in. Hg)	75 (3.0)
Maximum Static Head of Return & Leak Pipe - mm Hg (in.Hg)	150 (5.9)

STARTING SYSTEM

Battery Charging Alternator - V-Ah	24-30
Starting Motor Capacity - V -kW	24-7.5×2
Maximum Allowable Resistance of Cranking Circuit - mΩ	1.5
Recommended Minimum Battery Capacity	
At 5°C(41°F) and above - Ah	300
Below 5°C(41°F) through - 5°C(23°F)	600

The specifications are subject to change without notice

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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.

ITEM	UNIT	STAND-BY POWER			PRIME POWER		
			50Hz			50Hz	
Engine Speed	rpm		1500			1500	
No. of Cylinders		12					
Bore	mm (in.)	170 (6.69)					
Stroke	mm (in.)	180 (7.09)					
Displacement	liter (in. ³)	49.03 (2992)					
Brake Horse power with Fan	kW (HP)		1404 (1882)			1277 (1712)	
Brake Moment of inertia of Rotation	kW (HP)		1441 (1932)			1314 (1762)	
Brake Mean Effective Pressure with Fan	MPa (psi)		2.35 (341)			2.15 (311)	
Brake Mean Effective Pressure with Maximum Bending Moment	MPa (psi)						
Mean Piston Speed	m/s (ft/min)		9.0 (1772)			9.0 (1772)	
Fuel Consumption	g/kWh (g/HPh)		221 (165)			221 (165)	
Maximum Regenerative Power Absorption Capacity without Fan	kW (HP)		105 (141)			105 (141)	
Intake Air flow	m ³ /min (CFM)		97 (3425)			88 (3107)	
Maximum Air Temperature at Charge Air Cooler Inlet, TAA type	°C		220			220	
Maximum Air Temperature at Charge Air Cooler Outlet, TAA type	°C		70			70	
Allowable Pressure Drop at Charge Air Cooler	kPa (psi)		16 (2)			16 (2)	
Charge Air Cooler Working Pressure	MPa (psi)		0.345 (50)			0.345 (50)	
Exhaust Gas Flow	m ³ /min (CFM)		343 (12111)			312 (11017)	
Coolant Flow	liter/min (U.S. GPM)		1650 (436)			1650 (436)	
Cooling Air Flow	m ³ /min (CFM)		1800 (63558)			1800 (63558)	
Allowable Fan Loss Horse Power	kW (HP)		37 (50)			37 (50)	
Radiated Heat to Ambient	kJ/hr (BTU/min)		408252 (6450)			372274 (5882)	
Heat Rejection to Coolant	kJ/hr (BTU/min)		1905183 (30102)			1737274 (27449)	
Heat Rejection to Air to Air Cooler	kJ/hr (BTU/min)		1769100 (27952)			1613180 (25488)	
Heat Rejection to Exhaust	kJ/hr (BTU/min)		4339388 (68562)			3956546 (62520)	
Noise Level (1 m height & distance) (excludes, Intake, Exhaust & Fan)	dB(A)		TBD			TBD	

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APPLICATION : GENERATOR