



**MITSUBISHI DIESEL ENGINE
TECHNICAL INFORMATION**

ITEM NO.

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

DATE

September, 2007

Specification Sheets of S12R-PTAA2 Engine

Specification Sheets of S12R-PTAA2 Engine are enclosed herein.

Revision	First Edition : September, 2007 (T13-0352-E Jul.'04)		Engine Engineering Department Engine System Designing Section		
	Rev.1 : February, 2012				
		Approved by	Checked by	Drawn by	
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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)	4966	(10950)
- Radiator & Piping - kg(lb)	1562	(3444)
Wet Weight - Engine only - kg(lb)	5276	(11634)
- Radiator & Piping - kg(lb)	1764	(3890)

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 - kgf·m ² (lbf·ft ²)	75.3	(1787)
(Includes Std. Flywheel)		
Cyclic Speed Variation with Flywheel at 1800rpm	1/507	
1500rpm	1/294	

ENGINE MOUNTING

Maximum Bending Moment at Rear Face of Flywheel Housing - kgf·m(lbf·ft)	450	(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 - kgf/cm ² (psi)	2~3	(29~43)
at Rate Speed - kgf/cm ² (psi)	5~6.5	(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)	108	(28.5)
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 - liter (U.S.gal)	125	(33.0)
- Radiator & Piping - liter (U.S.gal)	202	(53.4)
Maximum External Friction Head at Engine Outlet - kgf/cm ² (psi)	0.35	(5.0)
Maximum Static Head of Coolant above Crankshaft Center - m(ft)	10	(32.8)
Maximum Outlet Pressure of Engine Water Pump - kgf/cm ² (psi)	2	(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)

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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 - m Ω	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.

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		
		60Hz	50Hz		60Hz	50Hz	
Engine Speed	rpm	1800	1500		1800	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 without Fan	HP (kW)	2189 (1633)	1932 (1441)		1989 (1484)	1761 (1314)	
Brake Mean Effective Pressure with Fan	kgf/cm ² (MPa) (psi)	22.6 (2.22) (321)	24.0 (2.35) (341)		20.6 (2.02) (293)	21.9 (2.15) (311)	
Mean Piston Speed	m/s (ft/min)	10.8 (2126)	9.0 (1772)		10.8 (2126)	9.0 (1772)	
Maximum Regenerative Power Absorption Capacity without Fan	HP (kW)	193 (144)	141 (105)		193 (144)	141 (105)	
Intake Air flow	m ³ /min (CFM)	148 (5226)	129 (4555)		134 (4732)	118 (4167)	
Maximum Air Temperature at Charge Air Cooler Inlet, TAA type	°C	230	220		230	220	
Maximum Air Temperature at Charge Air Cooler Outlet, TAA type	°C	70	70		70	70	
Allowable Pressure Drop at Charge Air Cooler	kgf/cm ² (kPa) (psi)	0.27 (26) (4)	0.16 (16) (2)		0.27 (26) (4)	0.16 (16) (2)	
Charge Air Cooler Working Pressure	kgf/cm ² (MPa) (psi)	3.5 (0.345) (50)	3.5 (0.345) (50)		3.5 (0.345) (50)	3.5 (0.345) (50)	
Exhaust Gas Flow	m ³ /min (CFM)	391 (13806)	343 (12111)		355 (12535)	312 (11017)	
Coolant Flow	liter/min (U.S. GPM)	1850 (489)	1650 (436)		1850 (489)	1650 (436)	
Cooling Air Flow	m ³ /min (CFM)	1800 (63558)	1800 (63558)		1800 (63558)	1800 (63558)	
Allowable Fan Loss Horse Power	HP (kW)	50 (37)	50 (37)		50 (37)	50 (37)	
Radiated Heat to Ambient	kcal/hr (BTU/min)	111193 (7354)	97528 (6450)		101047 (6683)	88933 (5882)	
Heat Rejection to Coolant	kcal/hr (BTU/min)	518900 (34319)	455132 (30102)		471554 (31188)	415020 (27449)	
Heat Rejection to Air to Air Cooler	kcal/hr (BTU/min)	481836 (31868)	422623 (27952)		437872 (28960)	385375 (25488)	
Heat Rejection to Exhaust	kcal/hr (BTU/min)	1190396 (78731)	1036643 (68562)		1081781 (71548)	945281 (62520)	
Noise Level (1 m height & distance) (excludes, Intake, Exhaust & Fan)	dB(A)	TBD	TBD		TBD	TBD	

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