



**MITSUBISHI DIESEL ENGINE
TECHNICAL INFORMATION**

ITEM NO.

T0213-0001E Rev.2 (1/4)

DATE

January, 2014

Specification Sheets of S12A2-PTA Engine

Specification Sheets of S12A2-PTA Engine are enclosed herein.

Revision

First Edition : September, 2007 (T13-0303-E Jun.99)

Rev.1 : Mar., 2013

Rev.2 : Jan., 2014

Engine Engineering Department
High Speed Engine Designing Section

Approved by

Checked by

Drawn by

T.HASHIGUCHI

T.OGURA

K.NAKAMURA

GENERAL ENGINE DATA

Type	4-Cycle, Water Cooled	
Aspiration	Turbo-Charged, After Cooler (Jacket water to Cooler)	
Cylinder Arrangement	60°V	
No. of Cylinders	12	
Bore mm(in.)	150	(5.91)
Stroke mm(in.)	160	(6.30)
Displacement liter(in ³)	33.93	(2071)
Compression Ratio	14.5:1	
Dry Weight - Engine only - kg(lb)	3400	(7497)
Wet Weight - Engine only - kg(lb)	3620	(7982)

PERFORMANCE DATA

Steady State Speed Stability Band at any Constant Load

Hydraulic (std.) or Electric Governor - %	±0.25 or better	
Maximum Overspeed Capacity - rpm	2400	
Moment of inertia of Rotating Components - kgf·m ² (lbf·ft ²)	37.7	(895)
(Includes Std. Flywheel)		
Cyclic Speed Variation with Flywheel at 1800rpm	1/569	
1500rpm	1/335	
1200rpm	1/214	

ENGINE MOUNTING

Maximum Bending Moment at Rear Face of Flywheel Housing - kgf·m(lbf·ft)	200	(1447)
---	-----	--------

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)
--	-----	--------

LUBRICATION SYSTEM

Oil Pressure at Idle - kgf/cm ² (psi)	2~3	(29~43)
at Rate Speed - kgf/cm ² (psi)	5~6	(71~86)
Maximum Oil Temperature - °C(°F)	110	(230)
Oil Capacity of Standard Pan High - liter (U.S. gal)	100	(26.4)
Low - liter (U.S. gal)	80	(21.1)
Total System Capacity (Includes Oil Filter) - liter (U.S. gal)	120	(31.7)
Maximum Angle of Installation (Std. Pan)	Front Down	9.5°
(Engine Only)	Front Up	11°
	Side to Side	22.5°

COOLING SYSTEM

Coolant Capacity (Engine only) - liter (U.S. gal)	100	(26.4)
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)	1.7	(24.3)
Standard Thermostat (modulating) Range - °C(°F)	65~85	(149~185)
Maximum Coolant Temperature at Engine Outlet - °C(°F)	98	(208)
Minimum Coolant Expansion Space - % of System Capacity	10	
Maximum Coolant Temperature at Intercooler Inlet, TK type - °C(°F)	-	
Maximum Air Restriction on Discharge Side of Radiator and Fan - mm H ₂ O(in. H ₂ O)	10	(0.4)

The specifications are subject to change without notice.

APPLICATION : GENERATOR

Pub. No. T0213-0001E Rev.2 2/4

FUEL SYSTEM

Fuel Injector	_____	Bosch P 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	_____	24-25
Starting Motor Capacity - V - kW	_____	24-6.0 × 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)	_____	500

The specifications are subject to change without notice.

APPLICATION : GENERATOR

Pub. No. T0213-0001E Rev.2 3/4

S12A2-PTA

SPECIFICATION SHEET

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	EMERGENCY POWER	STAND-BY POWER				PRIME POWER			CONTINUOUS C		CONTINUOUS D	
		60Hz	60Hz	50Hz	60Hz	60Hz	50Hz	60Hz	60Hz	50Hz	60Hz	50Hz	
Engine Speed	rpm	1800	1800	1500	1200	1800	1500	1200	1800	1500	1800	1500	
No. of Cylinders		12											
Bore	mm (in.)	150 (5.91)											
Stroke	mm (in.)	160 (6.30)											
Displacement	liter (in. ³)	33.93 (2071)											
Brake Horse power without Fan	HP (kW)	1186 (885)	1140 (850)	1000 (746)	800 (597)	1020 (761)	910 (679)	730 (545)	860 (642)	780 (582)	760 (567)	690 (515)	
Brake Mean Effective Pressure without Fan	kgf/cm ² (psi)	17.7 (252)	17.0 (242)	17.9 (255)	17.9 (255)	15.2 (216)	16.3 (232)	16.4 (233)	12.9 (183)	14.0 (199)	11.4 (162)	12.4 (176)	
Mean Piston Speed	m/s (ft/min)	9.6 (1890)	9.6 (1890)	8.0 (1575)	6.4 (1260)	9.6 (1890)	8.0 (1575)	6.4 (1260)	9.6 (1890)	8.0 (1575)	9.6 (1890)	8.0 (1575)	
Maximum Regenerative Power Absorption Capacity without Fan	HP (kW)	125 (93)	125 (93)	91 (68)	63 (47)	125 (93)	91 (68)	63 (47)	125 (93)	91 (68)	125 (93)	91 (68)	
Intake Air flow	m ³ /min (CFM)	78 (2754)	75 (2648)	64 (2260)	53 (1871)	67 (2366)	58 (2048)	48 (1695)	56 (1977)	50 (1766)	49 (1730)	44 (1554)	
Exhaust Gas Flow	m ³ /min (CFM)	207 (7309)	197 (6956)	170 (6003)	141 (4979)	177 (6250)	154 (5438)	127 (4484)	147 (5191)	132 (4661)	131 (4626)	116 (4096)	
Coolant Flow	liter/min (U.S. GPM)	1100 (291)	1100 (291)	1000 (264)	840 (222)	1100 (291)	1000 (264)	840 (222)	1100 (291)	1000 (264)	1100 (291)	1000 (264)	
Coolant Flow to Intercooler (TK only)	liter/min (U.S. GPM)	—	—	—	—	—	—	—	—	—	—	—	
Cooling Air Flow (Std. Fan)	m ³ /min (CFM)	1380 (48728)	1380 (48728)	1140 (40253)	870 (30720)	1380 (48728)	1140 (40253)	870 (30720)	1380 (48728)	1140 (40253)	1380 (48728)	1140 (40253)	
Fan Loss Horse Power (Std. Fan)	HP (kW)	40 (30)	40 (30)	30 (22)	20 (15)	40 (30)	30 (22)	20 (15)	40 (30)	30 (22)	40 (30)	30 (22)	
Radiated Heat to Ambient	kcal/hr (BTU/min)	58792 (3888)	56163 (3715)	48348 (3198)	40147 (2655)	50251 (3324)	43718 (2891)	36188 (2393)	41842 (2767)	37473 (2478)	37210 (2461)	33149 (2192)	
Heat Rejection to Coolant	kcal/hr (BTU/min)	489937 (32404)	468027 (30955)	402900 (26647)	334560 (22127)	418761 (27696)	364319 (24096)	301563 (19945)	348687 (23062)	312273 (20653)	310080 (20508)	276242 (18270)	
Heat Rejection to Inter Cooler (TK Version)	kcal/hr (BTU/min)	—	—	—	—	—	—	—	—	—	—	—	
Heat Rejection to Exhaust	kcal/hr (BTU/min)	650277 (43008)	616683 (40787)	518918 (34321)	450386 (29788)	551769 (36493)	465532 (30790)	400255 (26472)	452585 (29933)	399028 (26391)	405541 (26822)	352986 (23346)	
Noise Level (1 m height & distance) (excludes, Intake,Exhaust & Fan)	dB(A)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	

The specifications are subject to change without notice.

APPLICATION : GENERATOR

Pub. No. T0213-0001E Rev.2 4/4