MITSUBISHI DIESEL ENGINE TECHNICAL INFORMATION	ITEM No.	T0221-0013E Rev.5 (1/5)
	DATE	December, 2018

Specification Sheets of S16R2-PTAW2-E Engine

Specification Sheets of S16R2-PTAW2-E Engine are enclosed herein.

"Rating definitions (T0102-0009E)" must be strictly observed.

A double bearing generator and a flexible coupling must be used. The lower type vibration isolating system must be used. Torsional vibration calculation must be done.

The specifications are subject to change without notice.

Revision				
	First Edition : August, 2017	Engine Engineering Department		
	Rev.1: September, 2017	High Speed Engine Designing Section		
	Rev.2: November, 2017	Approved by	Checked by	Drawn by
	Rev.3: September, 2018	M.NAKAMURA	T.NISHIOKA	T.N
	Rev.4: October, 2018			
	Rev.5: December, 2018			

GENERAL ENGINE DATA

Type	4-Cycle, Water Cooled	
Aspiration	Turbo-Charged, Aircooler (Fresh Water)	
Cylinder Arragement	60^{o}V	
No.of Cylinders	16	
Bore mm(in.)	170	(6.69)
Stroke mm(in.)	220	(8.66)
Displacement liter(in^3)	79.90	(4876)
Compression Ratio	14.0:1	
Dry Weight - Engine only - kg(lb)	7750	(17089)
Wet Weight - Engine only - kg(lb)	8200	(18081)

PERFORMANCE DATA

Steady State Speed Stability Band at any Constant Load		
Electric Governor - %	±0.25 or better	
Maximum Overspeed Capacity - rpm	1750	
Moment of inertia of Rotating Components (S.I.) $kg \cdot m^2$($lb \cdot ft^2$)	33.22	(788)
(Includes Std.Flywheel) (GD^2) $kgf \cdot m^2$($lbf \cdot ft^2$)	132.9	(3154)
Cyclic Speed Variation with Flywheel at 1500rpm	1/182	

ENGINE MOUNTING

Maximum Bending Moment at Rear Face of Flywheel Housing - kgf・m(lbf・ft)	450	(3256)

AIR INLET SYSTEM

Maximum Intake Air Restriction (Includes piping)		
With Clean Filter Element - mm H_2O (in.H_2O)	400	(15.7)
With Dirty Filter Element - mm H_2O (in.H_2O)	635	(25.0)

EXHAUST SYSTEM

Maximum Allowable Back Pressure - mm H_2O (in.H_2O)	600	(23.6)

LUBRICATION SYSTEM

Oil Pressure at ldle - kgf/cm^2(psi)	2～3	(29～43)
at Rate Speed - kgf/cm^2(psi)	4～6	(57～86)
Maximum Oil Temperature - $^{o}C(^{o}F)$	105	(221)
Oil Capacity of Standard Pan High - liter (U.S.gal)	260	(68.7)
Low - liter (U.S.gal)	200	(52.8)
Total System Capacity (lncludes Oil Filter) - liter (U.S.gal)	290	(76.6)
Maximum Angle of lnstallation (Std. Pan) Front Down	6^{o}	
(Engine Only) Front Up	6^{o}	
Side to Side	25^{o}	

COOLING SYSTEM

Coolant Capactiy of Jacket (Engine Only) - liter (U.S.gal)	157	(41.5)
Coolant Capactiy of Air Cooler (Engine Only) - liter (U.S.gal)	33	(8.7)
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)
Standard Thermostat (modulating)Range of Jacket- $^{o}C(^{o}F)$	71～85	(160～185)
Standard Thermostat (modulating)Range of Air cooler- $^{o}C(^{o}F)$	42～55	(108～131)
Maximum Coolant Temperature at Engine Inlet- $^{o}C(^{o}F)$ External oil cooler not used	75	(167)
Maximum Coolant Temperature at Engine Outlet- $^{o}C(^{o}F)$ External oil cooler not used	83	(181)
External oil cooler used	98	(208)
Minimum Coolant Expansion Space - % of System Capacity	10	
Maximum Coolant Temperature at Air cooler Inlet, PTAW type-$^{o}C(^{o}F)$ (at ambient $25^{o}C$)	45	(113)

FUEL SYSTEM

Fuel Injector	Mitsubishi PS8 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	24-35
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	400
Below 5°C(41°F) through - 5°C(23°F)	600

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	DCP	
		50Hz	50Hz		
Engine Speed	rpm	1500	1500		
No. of Cylinders		16			
Bore	mm (in.)	170 (6.69)			
Stroke	mm (in.)	220 (8.66)			
Displacement	liter ($in.^3$)	79.9 (4876)			
Brake Horse power without Fan	HP (kW)	3257 (2430)	2961 (2209)		
Brake Mean Effective Pressure without Fan	kgf/cm^2 (MPa) (psi)	24.8 (2.43) (353)	22.5 (2.21) (320)		
Mean Piston Speed	m/s (ft/min)	11.0 (2165)	11.0 (2165)		
Maximum Regenerative Power Absorption Capacity without Fan	HP (kW)	204 (152)	204 (152)		
Intake Air flow	m^3/min (CFM)	212 (7486)	191 (6744)		
Exhaust Gas Flow	m^3/min (CFM)	562 (19844)	506 (17867)		
Coolant Flow	liter/min (U.S. GPM)	1650 (436)	1650 (436)		
Coolant Flow to Aircooler (PTAW only)	liter/min (U.S. GPM)	920 (243)	920 (243)		
Allowable Fan Loss Horse Power	HP (kW)	134 (100)	134 (100)		
Radiated Heat to Ambient	kcal/hr (kJ/hr) (BTU/min)	160810 (673158) (10636)	144825 (606244) (9579)		
Heat Rejection to Coolant	kcal/hr (kJ/hr) (BTU/min)	879095 (3679931) (58142)	791711 (3314138) (52363)		
Heat Rejection to Air Cooler	kcal/hr (kJ/hr) (BTU/min)	594997 (2490684) (39352)	535853 (2243105) (35441)		
Heat Rejection to Exhaust	kcal/hr (kJ/hr) (BTU/min)	1636045 (6848557) (108206)	1455749 (6093830) (96281)		
Noise Level	dB(A)	TBD	TBD		

・The requirements in "Rating definitions (T0102-0009E)" must be satisfied.

The specifications are subject to change without notice.

APPLICATION : GENERATOR

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[External Oil Cooler Used]

S16R2-PTAW2-E SPECIFICATION SHEET

MITSUBISHI DIESEL ENGINES

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	DCP	
		50Hz	50Hz		
Engine Speed	rpm	1500	1500		
No. of Cylinders		16			
Bore	mm	170			
	(in.)	(6.69)			
Stroke	mm	220			
	(in.)	(8.66)			
Displacement	liter	79.9			
	($in.^3$)	(4876)			
Brake Horse power without Fan	HP	3257	2961		
	(kW)	(2430)	(2209)		
Brake Mean Effective Pressure	kgf/cm^2	24.8	22.5		
	(MPa)	(2.43)	(2.21)		
without Fan	(psi)	(353)	(320)		
Mean Piston Speed	m/s	11.0	11.0		
	(ft/min)	(2165)	(2165)		
Maximum Regenerative Power	HP	204	204		
Absorption Capacity without Fan	(kW)	(152)	(152)		
Intake Air flow	m^3/min	212	191		
	(CFM)	(7486)	(6744)		
Exhaust Gas Flow	m^3/min	562	506		
	(CFM)	(19844)	(17867)		
Coolant Flow	liter/min	1650	1650		
	(U.S. GPM)	(436)	(436)		
Coolant Flow to Aircooler	liter/min	920	920		
(PTAW only)	(U.S. GPM)	(243)	(243)		
Oil Flow to External Oil Cooler	liter/min	70	70		
	(U.S. GPM)	(18)	(18)		
Allowable Fan Loss Horse Power	HP	134	134		
	(kW)	(100)	(100)		
Radiated Heat to Ambient	kcal/hr	160810	144825		
	(kJ/hr)	(673158)	(606244)		
	(BTU/min)	(10636)	(9579)		
Heat Rejection to Coolant	kcal/hr	825492	743436		
	(kJ/hr)	(3455546)	(3112056)		
	(BTU/min)	(54597)	(49170)		
Heat Rejection to Air Cooler	kcal/hr	594997	535853		
	(kJ/hr)	(2490684)	(2243105)		
	(BTU/min)	(39352)	(35441)		
Heat Rejection to External Oil Cooler	kcal/hr	80405	72413		
	(kJ/hr)	(336579)	(303124)		
(external oil cooler, mounted on radiator)	(BTU/min)	(5318)	(4789)		
Heat Rejection to Exhaust	kcal/hr	1609243	1431612		
	(kJ/hr)	(6736363)	(5992792)		
	(BTU/min)	(106433)	(94685)		
Noise Level (1 m height & distance)	dB(A)	TBD	TBD		
(excludes, lntake,Exhaust & Fan)					

・The requirements in "Rating definitions (T0102-0009E)" must be satisfied.

The specifications are subject to change without notice.

APPLICATION : GENERATOR

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