MITSUBISHI DIESEL ENGINE TECHNICAL INFORMATION	IFM NO.	JN03411-007(1/6)
	DATE	Feb. 26, 2003

TITLE	Specification Sheets of S12U-MPTK Engine (IMO Certified Engine)

Specification Sheets of S12U-MPTK Engine that is satisfied with IMO certified engine are enclosed herein.

These specifications are subject to change without notification.

No.	DATE	SIGNATURE	CAUSE

S12U-MPTK

SPECIFICATION SHEET

MITSUBISHI DIESEL ENGINES

GENERAL ENGINE DATA

Type	4-Cycle, Water Cooled
Aspiration	Turbo-Charged, Inter Cooler (Raw Water to Cooler)
Cylinder Arrangement	60°V
No. of Cylinders	12
Bore mm (in.)	240 (9.45)
Stroke mm (in)	260 (10.24)
Displacement liter (in^3)	141.145 (8614)
Compression Ratio	12.7 : 1
Dry Weight - Engine only - kg (lb)	15500 (34171)
Wet Weight - Engine only - kg (lb)	16600 (36596)

PERFORMANCE DATA

Steady State Speed Stability Band at any Constant Load - %	±0.5
Idling Speed -rpm	370-420
Maximum Overspeed Capacity - rpm	1400
Moment of Inertia of Rotating Components GD^2 - kgf· m^2 (lbf· ft^2) (Includes Std. Flywheel)	337.8 (8019)
Cyclic Speed Variation with Flywheel at 1200 rpm	1/392
1000 rpm	1/275

AIR INLET SYSTEM

Maximum Allowable Intake Air Restriction	
With Clean Filter Element - mm H_2O (in. H_2O)	300 (11.8)
With Dirty Filter Element - mm H_2O (in. H_2O)	760 (29.9)
Maximum Allowable Intake Air Temperature-°C (°F)	45 (113)

EXHAUST SYSTEM

Maximum Allowable Back Pressure - mm H_2O (in. H_2O)	450 (17.7)

LUBRICATION SYSTEM

Oil Pressure at Idle -MPa (psi)	0.15-0.2 (21.3)
at Rate Speed - MPa (psi)	0.45-0. 7 (64 - 100)
Standard Thermostat (modulating) Range - °C (°F)	55 - 75 (131 -167)
Maximum Oil Temperature - °C (°F)	95 (203)
Oil Capacity of Standard Pan High - liter (U.S. gal.)	470 (124.2)
Low - liter (U.S. gal.)	330 (87.1)
Total System Capacity (Includes Oil Filter) - liter (U.S. gal.)	520 (137.4)
Maximum Installation Angle (Std. Pan) Front Up - °	10
(Includes Trim Angle) Front Down - °	10
Maximum Instantaneous Operating Angle	Front Up - ° 14
(Engine Level) Front Down - °	14
Side to Side - °	25

S12U-MPTK SPECIFICATION SHEET MITSUBISHI DIESEL ENGINES

COOLING SYSTEM

MPTK (FW) Maximum Coolant (Fresh Water) Temperature at Air Cooler Inlet - °C (°F)	40(104)
Coolant Capacity (Engine only) - liter (U.S. gal.)	520 (137.4)
Maximum External Friction Head at Engine Outlet - MPa (psi)	0.1 (14.2)
Maximum Static Head of Coolant above Crankshaft Center - m (ft)	12.5 (41.0)
Maximum Outlet Pressure of Engine Water Pump - MPa (psi)	0.25 (35.6)
Standard Thermostat (modulating) Range - °C (°F)	65 -75 (149 - 167)
Maximum Allowable Coolant Temperature at Engine Outlet -°C (°F)	95 (203)
Maximum Recommended Coolant Temperature at Engine Outlet -°C (°F)	80 (176)
Maximum Allowable Pressure of Expansion Tank- MPa (psi)	0.07(10)
Minimum Coolant Expansion Space - % of System Capacity	10

FUEL SYSTEM

Fuel Injection Pump Type	Bosch Type × 12
Maximum Suction Head of Feed Pump - mmHg (in. Hg)	110 (4.3)
Maximum Static Head of Leak Pipe - mmHg (in. Hg)	370 (14.6)
Minimum Fuel Oil Supply Pipe Inner Diameter - mm(in)	25(1.0)
Minimum Fuel Oil Return Pipe Inner Diameter - mm(in)	25(1.0)
Minimum Fuel Oil Leak Pipe Inner Diameter - mm(in)	25(1.0)
Fuel Oil Tank Height from Inlet Port of Fuel Injection Pump - m (ft)	0 - 2 (0 – 6.56)

STARTING AIR SYSTEM

Air Reservoir Capacity - liter (U.S. gal)	300 (79.2)
No. of Air Reservoir	2
Air Pressure - MPa (psi)	2.94 (427)

STOP SYSTEM

Air Pressure - MPa (psi)	0.6 (85.4)

ACCESSORY EQUIPMENT

Air Cleaner	Silencer Type
Exhaust Manifold	Lagging and Heat Insulated Plate
Turbocharger	Air Cooled (Turbine Case)
Inter cooler	Fresh Water Cooled
Breather	Conduction Type
Governor	Hydraulic UG8 or Electric EG10P Type
Fuel Injection Pump	Individual Unit Pump
Fuel Feed Pump	Trochoid Type
Fuel Injection Pipe	Double Walled Tube Type
Fuel Injection Nozzle	Whole Nozzle Type
Fuel Filter	Paper Element Type
Lubricating Oil Pump	Gear Pump
Lubricating Oil Cooler	Shell and Tube Type
Lubricating Oil Filter (Full Flow)	Paper Element Type
Lubricating Oil Filter (By Pass Flow)	Paper Element Type
Oil Pan	Large Capacity, Steel
Lubricating Oil Thermostat	Wax Pellet Type
Cooling Water Pump	Centrifugal Type
Cooling Water Thermostat	Wax Pellet Type
Air Starter	Air Direct Type
Stop device	Air Cylinder Type

ACCESSORY EQUIPMENT (LOOSE SUPPLY)

- Jack Bolt
- Companion Flange
- Standard Tools
- Standard Spare Parts

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S12U-MPTK

SPECIFICATION SHEET

MITSUBISHI DIESEL ENGINES

ENGINE RATING

All data represent net performance with standard accessories such as fuel injection pump, water pump, L.O. pump under the following conditions;

Barometric pressure ; 100 kPa (750 mmHg)
Ambient temperature ; 298 K (25 °C)
Relative humidity ; 60%
Calorific value of fuel ; 42,700kj/kg

S:Limited Light Duty, A:Light Duty, B:Medium Duty, C:Heavy Duty

ITEM	UNIT	Propulsion use				Remarks
		S	A	B	C	
Engine Speed	rpm	1200	1200	1100	1060	
Brake Horse Power	kW HP	2686 3600	2462 3300	2238 3000	2014 2700	Fuel Set Power Flywheel End
Specific Fuel Consumption	g/kWh g/HPh	217 160	215 158	210 154	210 154	Allowance +5%
Break Mean Effective Press.	MPa psi	1.90 276	1.74 253	1.73 251	1.62 234	
Mean Piston Speed	m/s ft/min	10.4 2047	10.4 2047	9.5 1877	9.2 1808	
Maximum Regenerative Power Absorption Capacity	kW HP	242 324	242 324	202 272	190 254	
Intake Air Flow	m^3/min CFM	252 8874	228 8026	202 7104	180 6352	
Exhaust Gas Flow	m^3/min CFM	604 21298	546 19260	482 17048	432 15244	
Coolant (Jacket Water) Flow	l/min US GPM	1700 449	1700 449	1570 413	1500 395	
Coolant(Jacket Water) Pressure (Water Pump Outlet)	MPa psi	0.17 24	0.17 24	0.15 21	0.14 20	
Cooling water (A/C & O/C) Flow	l/min US GPM	1700 449	1700 449	1570 413	1500 395	FW temp<40°C
Oil Flow	l/min US GPM	1024 271	1024 271	940 247	900 237	
Radiated Heat to Ambient	$\times 10^4$kcal/h BTU/min	17.82 11826	16.20 10714	14.40 9524	12.96 8572	
Heat Rejection to Coolant (Jacket Water)	$\times 10^4$kcal/h BTU/min	53.53 35397	48.60 32144	43.14 28532	38.82 25675	
Heat Rejection to Air & Oil Cooler	$\times 10^4$kcal/h BTU/min	80.22 53056	72.90 48214	64.68 42778	58.20 38492	

ITEM	UNIT	Propulsion use				Remarks
		S	A	B	C	
Heat Rejection to Exhaust	$\times 10^4$kcal/h BTU/min	211.98 140198	190.56 126034	164.70 108929	148.20 98018	
Noise Level (Excludes exhaust gas)	dB(A)					Mechanical 1 m Dis. 1.5m H.
Max. No Load Governored Speed	Rpm	1290	1290	1183	1140	

Note: Brake Horse Power at flywheel end.

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