21.9L

[Stoichiometric]

56100041 Rev: 2

PSI ENERGY

General Engine Data[5]							Flywheel housing			SAE No.1	
Type	V-type 4 cycle						Flywheel			No. 14	
Number of cylinders	12						Dry Weight (Fan to Flywheel)	lb	kg	3630	1650
Aspiration	Turbo Charge Air Cooled						Wet Weight (Fan to Flywheel)	lb	kg	3810	1732
Firing Order	1-12-5-8-3-10-6-7-2-11-4-9						CG From Flywheel Housing Rear Face	in	mm	23.7	602
Rotation Viewed from Flywheel	Counter Clockwise						CG Above Crank Centerline	in	mm	7.2	182
Bore	in	mm	5.0	128			Max Bending Moment @ Rear of Block	lb/ft	N m	8130	6000
Stroke	in	mm	5.6	142			Oil Specification	SAE 15W-40 Low Ash Gas engine oil (.25-.5% by wt), API CD/CF or higher			
Displacement	in^3	L	1336	21.9			Engine Oil Capacity[8]	Min	qts	L	35.0	33.0
Compression Ratio	10.5							Max	qts	L	42.4	40.0
Exhaust Manifold Type	Water Cooled Manifold						ECU Oil Pressure Warning[6]	psi	bar	30	2.1
Turbo Exhaust Outlet Pipe Size	in	mm	2.5	65			ECU Oil Pressure Shut Down[6]	psi	bar	25	1.7
Catalyst Inlet Size	in	mm	3.5	89			Oil Pressure at 1000 rpm (Idle)	Min	psi	bar	13	0.9
Catalyst Dp	in-H_2O	kPa	20.5	5.1				Max	psi	bar	44	3.0
Maximum Allowable Exhaust Back Pressure	in-Hg	kPa	3.0	10.2			Max Allowable Oil Temperature	°F	°C	250	121
Maximum Fuel System Pressure	psi	kPag	1.0	6.9			Coolant Capacity (Engine only)	gal	L	12	44
Maximum Operating pressure to EPR	in-H_2O	kPa	11.0	2.7			Coolant Capacity (Radiator only)	gal	L	39	146
Minimum Operating pressure to EPR	in-H_2O	kPa	7.0	1.7			Minimum Gas Supply Pipe Size[5]	2 x 2" NPT			
Maximum Pressure Drop Across CAC	psi	kPa	1.5	10.5			Radiator Weight (Dry)	lb	kg	1597	726
Maximum Allowable Intake Restriction	Clean Air Filter	in-H_2O	kPa	5.0	1.2		Thermostat Operating Temperature Range[9]	Cracking	°F	°C	160	71
	Dirty Air Filter	in-H_2O	kPa	15.0	3.7			Full Open	°F	°C	185	85
Spark Plug Part Number	IFR7F-4D						ECU Coolant Temp Warning	°F	°C	219	104
Standard Spark Plug Gap[10]	in	mm	0.015	0.38			ECU Coolant Temp Shutdown	°F	°C	230	110
Spark Plug Coil - Primary Resistance	Ohms		0.59Ω ± 10%				Maximum Radiator Cooling Air Temp	°F	°C	140	60
Battery Voltage	Volts		24				Max External Coolant Friction Head	psi	kPa	6	40
Starter Motor Power	HP	kW	9.4	7.0			CAC Rise Above Ambient Specified	°F	°C	16	9

Performance Data 60Hz[3,5]					Performance Data 50Hz[3,5]				
Nominal Engine Speed	RPM		1800		Nominal Engine Speed	RPM		1500	
Mean Piston Speed	ft/min	m/s	1677	8.5	Mean Piston Speed	ft/min	m/s	1397	7
RPM Range (Min-Max) ISO 8528-5 G1	RPM		1778-1823		RPM Range (Min-Max) ISO 8528-5 G1	RPM		1481-1519	
Charging Alternator Voltage	Volts		24		Charging Alternator Voltage	Volts		24	
Charging Alternator Current	Amps		45		Charging Alternator Current	Amps		45	
Total Engine Coolant Flow	gal/min	L/min	151	570	Total Engine Coolant Flow	gal/min	L/min	125	474
Cooling Fan Power[11]	HP	kW	42	31	Cooling Fan Power[11]	HP	kW	24	18
Cooling Fan Speed	RPM		1440		Cooling Fan Speed	RPM		1200	
Cooling Fan Air Flow[11]	SCFM	m^3/min	39995	1133	Cooling Fan Air Flow[11]	SCFM	m^3/min	34276	971

High Output Standby			NG 60Hz		NG 50Hz Preliminary	
Power Rating[1,2,3,4] Per ISO 3046	HP	kWm	764	570	597	445
MEP (@ rated Load on NG)	psi	bar	256	17.7	236	16.2
Fuel Consumption[3,4,7]	lb/hr	kg/hr	264	120	201	91
BSFC	lb/(hp-hr)	g/(kW-hr)	0.346	211	0.336	205
Turbine Outlet Temperature	°F	°C	1244	674	997	536
Exhaust Flow at Turbine Outlet Conditions (entire engine)	lb/hr	kg/hr	4699	2136	3525	1602
	ACFM	m^3/min	3301	93	2167	61
Air Induction System[5]						
Combustion Air required (entire engine)	lb/hr	kg/hr	4429	2013	3231	1468
	ACFM	m^3/min	917	25.97	669	19
Compressor Outlet Temperature[2]	°F	°C	312	156	319	159
Thermal Balance[5]						
Total Fuel	BTU/min	kW	92836	1632	68984	1213
Mechanical Power	BTU/min	kW	32415	570	25307	445
Heat Rejected to Cooling Water at Rated Load	BTU/min	kW	32152	565	24271	427
Heat Rejection CAC at Rated Power	BTU/min	kW	4935	87	2971	52
Heat Rejection to Exhaust (LHV to 150C)	BTU/min	kW	22373	393	15574	274
Engine Radiated Heat	BTU/min	kW	961	17	861	15

[1] Standby and overload ratings based on ISO 3046 gross flywheel power.

[2] Technical data based on ISO 3046-1 standards of 77°F(25°C), absolute pressure 14.5Psia(100kPa) and 30% relative humidity.

[3] Production tolerances in engines and installed components can account for power variations of ± 5%. Altitude, temperature and excessive exhaust and intake restrictions should be applied to power calculations.

[4] All fuel and thermal calculations unless otherwise noted are done at ISO 3046 rated load using LHV for NG of 48.17 MJ/kg.

[5] All values in the following section are provided for informational purpose only and are non-binding.

[6] >1400RPM.

[7] See PSI Energy Technical Spec. 56300019 - Fuel Standard.

[8] Standard Sump Capacity.

[9] ± 2 degrees Celsius.

[10] ± 0.002" or 0.05mm.

[11] At 0.5" H2O Package Restriction and 125F @ radiator