

13L



ENERGY

[Stoich Turbocharged]
56100046 Rev: 3

General Engine Data ⁵												
Type	Inline 4-cycle				Flywheel housing			SAE No. 1				
Number of cylinders	6				Flywheel			SAE No. 14				
Aspiration	Charged Cooled Forced Induction				Dry Weight (Fan to Flywheel)			lb	kg	2313	1050	
Firing Order	1 - 5 - 3 - 6 - 2 - 4				Wet Weight (Fan to Flywheel)			lb	kg	2423	1100	
Rotation Viewed from Flywheel	Counter Clockwise				CG From Flywheel Housing Rear Face			in	mm	17.8	451	
Bore	in	mm	5.0	127.0	CG Above Crank Centerline			in	mm	6.4	162	
Stroke	in	mm	6.5	165.1	Max Bending Moment @ Rear of Block			lbf-ft	N-m	8238	11170	
Displacement	in ³	L	764.9	12.54	Moment of Inertia About Roll Axis			lbf-ft ²	kg-m ²	1066	45	
Compression Ratio	9.75 : 1				Oil Specification			SAE 15W-40 Low Ash Gas engine oil (.25-.5% by wt), API CD/CF or higher				
Exhaust Manifold Type	Water Cooled				Engine Oil Capacity ⁸			Min	qts	L	28.0	26.5
Turbo Exhaust Outlet Pipe Size	in	mm	3.15 - 3.37	80.0 - 85.6	ECU Low Oil Pressure Warning ⁶			psi	bar	30	2.1	
Catalyst Inlet Size	in	mm	3.5	90	ECU Low Oil Pressure Shutdown ⁶			psi	bar	25	1.7	
Catalyst Dp	in-H ₂ O	kPa	29.9	7.45	Oil Pressure Operating Range			Idle	psi	bar	19 - 36	1.3 - 2.5
Maximum Allowable Exhaust Back Pressure	in-Hg	kPa	3.8	15	Rated			psi	bar	51 - 80	3.5 - 5.5	
Maximum Fuel System Pressure	psi	kPag	1.0	6.9	Max Allowable Oil Temperature			°F	°C	221	205	
Maximum Operating pressure to EPR	in-H ₂ O	kPa	10.8	2.7	Coolant Capacity (Engine only)			gal	L	5.8	22	
Minimum Operating pressure to EPR	in-H ₂ O	kPa	6.8	1.7	Coolant Capacity (Radiator only)			gal	L	14.3	54	
Minimum Gas Supply Pipe Size ⁵	1-1/4" NPT				Radiator Weight (Dry)			lb	kg	705	320	
Maximum Pressure Drop Across CAC	psi	kPa	1.7	12.0	Thermostat Operating Temperature Range ⁹			Cracking	°F	°C	169	76
Maximum Allowable Intake Restriction	Clean Air Filter	in-H ₂ O	kPa	12.0	3.0	Full Open			°F	°C	190	88
	Dirty Air Filter	in-H ₂ O	kPa	24.9	6.2	ECU Coolant Temp Warning			°F	°C	220	103
Spark Plug Part Number	Bosch R66857				ECU Coolant Temp Shutdown			°F	°C	230	110	
Standard Spark Plug Gap ¹⁰	in	mm	0.020	0.5	Max External Coolant Friction Head			psi	kPa	7.3	50	
Spark Plug Coil - Primary Resistance	Ohms				0.59Ω ± 10%	CAC Rise Above Ambient Specified			°F	°C	37.8	21
Battery Voltage	Volts				24							
Starter Motor Power	HP	kW	7.4	5.5								
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	1949	9.9	Mean Piston Speed	ft/min	m/s	1624	8			
RPM Range (Min-Max) ISO 8528-5 G1	RPM		1778 - 1823		RPM Range (Min-Max) ISO 8528-5 G1	RPM		1477 - 1519				
Charging Alternator Voltage	Volts		28		Charging Alternator Voltage	Volts		28				
Charging Alternator Current	Amps		70		Charging Alternator Current	Amps		70				
Total Engine Coolant Flow	gal/min	L/min	159	600	Total Engine Coolant Flow	gal/min	L/min	90	340			
Cooling Fan Power ¹¹	HP	kW	39	29	Cooling Fan Power ¹¹	HP	kW	23	17			
Cooling Fan Speed	RPM		2200		Cooling Fan Speed	RPM		1830				
Cooling Fan Air Flow ¹¹	SCFM	m ³ /min	26697	756	Cooling Fan Air Flow ¹¹	SCFM	m ³ /min	22194	629			
Maximum Cooling Air Temp at Radiator	°F	°C	111	44	Maximum Cooling Air Temp at Radiator	°F	°C	118	48			
Standby				NG 60Hz		NG 50Hz		LP 60Hz		LP 50Hz		
Power Rating ^{1,2,3,4} Per ISO 3046	HP	kWm	402	300	335	250	243	181	202	151		
MEP (@ rated Load on NG)	psi	bar	231	16.0	231	16.0	140	9.6	140	9.6		
Fuel Consumption ^{3,4,7,12}	lb/hr	kg/hr	153	69	122	56	109	49.4	84	38		
	ft ³ /hr	m ³ /hr	3418	97	2734	77	-	-	-	-		
	gal/hr	L/hr	-	-	-	-	26	97	20	75		
BSFC	lb/(hp-hr)	g/(kW-hr)	0.380	231	0.364	222	0.448	273	0.413	252		
Turbine Outlet Temperature	°F	°C	1204	651	1177	636	1260	682	1191	644		
Exhaust Flow at Turbine Outlet Conditions (entire engine)	lb/hr	kg/hr	2701	1226	2200	1000	1815	825	1395	634		
	ACFM	m ³ /min	1855	52.5	1492	42.3	1285	36.4	953	27.0		
Air Induction System ⁹												
Combustion Air required (entire engine)	lb/hr	kg/hr	2551	1157	2094	950	1634	741	1257	570		
	ACFM	m ³ /min	575	16.3	472	13.4	368	10.4	283	8.0		
Compressor Outlet Temperature ²	°F	°C	326	163	279	137	170	112	208	98		
Thermal Balance ⁵												
Total Fuel	BTU/min	kW	52570	924	41629	732						
Mechanical Power	BTU/min	kW	17072	300	14217	250						
Heat Rejected to Cooling Water at Rated Load	BTU/min	kW	16299	287	13023	229						
Heat Rejection CAC at Rated Power	BTU/min	kW	2144	38	1934	34						
Heat Rejection to Exhaust (LHV to 150C)	BTU/min	kW	14593	257	11374	200						
Engine Radiated Heat	BTU/min	kW	2462	43	1081	19						

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. 56100019 - Fuel Standard.

⁸ Standard Sump Capacity.

⁹ ± 2 degrees Celsius.

¹⁰ ± 0.002" or 0.05mm.

¹¹ At 0.5 in-H₂O of Package Restriction at 50C Ambient Air Temperature.

¹² Volume calculated using density of 0.717 kg/m³ for NG, 0.51 kg/L for LPG