

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	130	Fuel System	HPG IMPCO
Jacket Water Outlet Temperature (°F)	210		
Ignition System	DIG	Minimum Fuel Pressure (psig)	20.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (ft)	5000

at 77°F Design Temperature

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	400	300	200

Engine Data

Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7538	7820	8732
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	2655	2125	1575
Air Mass Flow (Wet)	scfm	579	464	344
Compressor Out Pressure	in. Hg (abs)	46.2	43.3	39.3
Compressor Out Temperature	°F	187	173	152
Inlet Manifold Pressure	in. Hg (abs)	43.4	35.7	27.9
Inlet Manifold Temperature (10)	°F	153	153	149
Timing (11)	°BTDC	22	22	22
Exhaust Stack Temperature	°F	966	914	846
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	1773	1345	952
Exhaust Gas Mass Flow (Wet)	lb/hr	2806	2242	1662

Engine Emissions Data

Nitrous Oxides (NOx as NO ₂) (9)	g/bhp-hr	21.3	21.7	21.0
	(Corr. 15% O ₂) ppm	1567	1523	1341
Carbon Monoxide (CO) (9)	g/bhp-hr	1.6	1.6	1.6
	(Corr. 15% O ₂) ppm	193	185	170
Total Hydrocarbons (THC) (9)	g/bhp-hr	2.6	2.3	2.3
	(Corr. 15% O ₂) ppm	541	439	420
Non-Methane Hydrocarbons (NMHC) (9)	g/bhp-hr	0.39	0.34	0.35
	(Corr. 15% O ₂) ppm	81	66	63
Exhaust Oxygen (9)	%	2.0	2.3	2.5
Lambda		1.14	1.15	1.16

Engine Heat Balance Data

Input Energy LHV (1)	Btu/min	50251	39099	29105
Work Output	Btu/min	16963	12722	8482
Heat Rejection to Jacket (2) (6)	Btu/min	18879	15566	13112
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	2010	1564	1164
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	11372	8520	5777
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	7982	5815	3773
Heat Rejection to Aftercooler (3) (7) (8)	Btu/min	417	196	22

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dB(A)
Noise - Exhaust @ 1.5 m	108 dB(A)

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/20	1.0/21	1.0/22

Altitude Deration Factors

AIR INLET TEMP. (°F)	ALTITUDE (FEET ABOVE SEA LEVEL)												
	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
130	1.00	1.00	1.00	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.72	0.70
120	1.00	1.00	1.00	1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71
110	1.00	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72
100	1.00	1.00	1.00	1.00	1.00	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73
90	1.00	1.00	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75
80	1.00	1.00	1.00	1.00	1.00	0.99	0.96	0.92	0.89	0.85	0.82	0.79	0.76
70	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.94	0.90	0.87	0.84	0.81	0.77
60	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.96	0.92	0.89	0.85	0.82	0.79
50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.94	0.90	0.87	0.84	0.80

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Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°F)	ALTITUDE (FEET ABOVE SEA LEVEL)												
	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
130	2.34	2.60	2.87	3.14	3.41	3.69	3.69	3.69	3.69	3.69	3.69	3.69	3.69
120	2.02	2.28	2.54	2.80	3.08	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35
110	1.70	1.95	2.21	2.47	2.74	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01
100	1.38	1.63	1.88	2.14	2.40	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67
90	1.06	1.30	1.55	1.81	2.06	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32
80	1.00	1.00	1.22	1.47	1.73	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98
70	1.00	1.00	1.00	1.14	1.39	1.64	1.64	1.64	1.64	1.64	1.64	1.64	1.64
60	1.00	1.00	1.00	1.00	1.05	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

TM9181-01 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8