Application and Engineering Data

Basic Technical Data

Manufacturer	General Motors
Model	Vortec 8.1 L
Number of cylinders	8
Cylinder arrangement	Vertical in-line
Cycle	4
Induction system	Turbocharged and Charge Cooled
Compression ratio	9.1:1
Bore	4.25 in (108 mm)
Stroke	4.37 in (111 mm)
Cubic capacity	496 cu in (8.1 L)
Piston speed	1311 ft/min (399 m/min)
Main bearings: qty and type	Alum. Lead Silicon Alloy
Governor type	Electronic
Rated rpm	1800
Max power at rated rpm	228 hp (170 kW)
Engine power at Standby rating	N/A
Frequency regulation, no-load to full-load	Isochronous
Frequency regulation, steady state	± 0.5%
Frequency	Fixed
Air cleaner type	Dry

Exhaust System

Exhaust manifold type	Dry
Exhaust flow at rated kW	1063 cfm (30.1 m³/min)
Exhaust temperature at rated kW	1200 ºF (649 ºC)
Maximum allowable back pressure	3.0 in (10.2 kPa)
Exhaust outlet size at engine hookup	N/A

Cooling System

Ambient temperature	122 ºF (50 ºC)
Engine jacket water capacity	2.6 gal (10 L)
Radiator system capacity, including engine	6.4 gal (24.2 L)
Engine jacket water flow	33 gpm (125 Lpm)
Heat rejected to cooling water at rated	7320 Btu/min (129 kW)
Max restriction of cooling air, intake and discharge side of radiator	0.5 H2O (0.125 kPa)

Lubrication System

Type	Full Pressure
Oil pan capacity	8.5 qt (8.0 L)
Oil pan capacity with filter	9.0 qt (8.5L)
Oil filter: qty and type	1, Cartridge

Electrical System

Ignition system	Individual Coil, Near Plug Ignition
Battery charging alternator:	
Ground	negative
Volts	12
Ampere rating	70
Starter motor rated voltage	12
Battery, recommended cold cranking amps (CCA):	
Qty rating for –18 ºC (0 ºF)	1,630
Battery voltage	12

Operation Requirements

Radiator-cooled cooling air, m³/min (scfm) ‡	10800 scfm (306 m³/min)
Combustion air	312 cfm (8.8 m³/min)
Heat rejected to ambient air:	
Engine	4100 Btu/min (72 kW)
Alternator	780 Btu/min (13.7 kW)

Fuel System

Fuel Type	Natural Gas

Fuel Consumption

Natural Gas	
100% Load	1930 cfh (54.7 m³/hr)
75% Load	1512 cfh (42.9 m³/hr)
50% Load	1112 cfh (31.5 m³/hr)
25% Load	707 cfh (20.0 m³/hr)