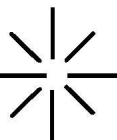


Natural Gas Engines



GTA12 ENGINE DATA SHEET #DS7500D

INDUSTRIAL & IRRIGATION MARKETS

RATINGS	CR	HP	KW	RPM
MAXIMUM RATINGS	10:1	275	205	1800
CONTINUOUS RATINGS	10:1	250	186	1800

REFERENCE INFORMATION
 Model -----GTA12
 Performance Curve Number -----[PC7500A](#)

INSTALLATION DIAGRAM NUMBERS
 Industrial Base-----[ID3396011](#)
 IP -----[ID3396003](#)

GENERAL ENGINE DATA

Type..... 4 Cycle, In-Line, 6 Cyl.
 Aspiration..... Turbocharged & Aftercooled
 Bore - in. (mm) x Stroke - in. (mm) 5 1/8 (130) x 6 (152)
 Displacement - cu. in. (litre) 743 (12.2)
 Compression Ratio 10:1
 Dry Weight
 Fan Hub to Flywheel - lb. (kg)..... 2700 (1225)
 Radiator Cooled Engine - lb. (kg) 3600 (1633)
 Heat Exchanger Cooled Engine - lb. (kg) 2765 (1254)
 Wet Weight
 Fan Hub to Flywheel - lb. (kg)..... 2820 (1279)
 Radiator Cooled Engine - lb. (kg) 3840 (1742)
 Heat Exchanger Cooled Engine - lb. (kg) 2990 (1356)
 C.G. Distance From Front Face of Block (Engine Only) - in. (mm).....
 C.G. Distance Above Crank Centerline (Engine Only) - in. (mm)
 Moment of Inertia of Rotating Components (Excluding Flywheel) - lb. - ft.² (kg m²) 30 (1.26)
 Firing Order..... 1-5-3-6-2-4

ENGINE MOUNTING

Maximum Allowable Bending Moment at Rear Face of Block - lb. ft. (N m) 1000 (1356)
 Moment of Inertia About Roll Axis - lb. - ft.² (kg m²).....

EXHAUST SYSTEM

Maximum Allowable Back Pressure - in. Hg. (mm Hg) 2 (50)
 Exhaust Outlet Pipe Size - in. (mm)..... 4 (102)
 Exhaust Gas Flow - cfm (L/s)..... 1698 (801)
 Maximum Exhaust Temp (Stack - Wet Manifold) - °F (°C) 1350 (732)

AIR INDUCTION SYSTEM

IMPCO High Altitude, Low Pressure Gas System (Std)
 Maximum Allowable Intake Air Restriction With Heavy Duty Air Cleaner
 Clean Element - in. H₂O (mm H₂O) 8 (203)
 Dirty Element - in. H₂O (mm H₂O) 15 (381)
 Minimum Dirt holding Capacity With Heavy Duty Air Cleaner - gm/cfm (gm. L/s.) 25 (53)
 Intake Air Flow Requirement @ Rated RPM and Load + or - 5 % cfm(L/s)..... 584 (276)

COOLING SYSTEM

Coolant Capacity - Engine Only U.S. qt. (litre).....	20 (19)
- Engine With Radiator - U.S. qt. (litre).....	100 (94.6)
- Engine With Heat Exchanger - U.S. qt. (litre).....	27 (25.5)
- Aftercooler Circuit -U.S. qt. (litre).....	4 (3.8)
- Aftercooler Circuit (Unit Mtd. Heat Exchanger) - U.S. qt. (litre).....	11 (10.4)
Engine Coolant Flow - 5 PSI External Water Circuit Resistance - U.S. GPM (L/min)	
1800 RPM	87 (330)
Maximum Coolant Friction Head External to the Engine - PSI (kPa)	5 (34)
Maximum Static Head of Coolant Above Engine Crank Centerline - ft. (m).....	46 (14)
Maximum Air Restriction Across a Radiator - in. H ₂ O (mm H ₂ O)	5 (12.8)
Minimum Raw Water Flow @ 90° F (32° C) to Heat Exchanger - U.S. GPM(L/m).....	22 (83)
Aftercooler Aux. Water Pump Coolant Flow	
- 3 PSI External Water Circuit Resistance - U.S. GPM (L/min)	
1800 RPM	27 (102)
Maximum Raw Water Inlet Pressure at Heat Exchanger - PSI (kPa).....	100 (690)
Standard Thermostat (Modulating) Range - °F (°C).....	175 - 195 (79 - 91)
Maximum Output Pressure of Engine Water Pump - PSI (kPa).....	35 (241)
Maximum Output Pressure of Aftercooler Circuit Pump - PSI (kPa)	30 (207)
Heat Rejection to Aftercooler (Full Maximum HP Load @ 1800 RPM) - Btu/min. (kW)	824 (14)
Heat Rejection to Ambient - Wet Manifold - BTU/min. (kW)	1153 (20)
Heat Rejection to Coolant - Wet Manifold - BTU/min. (kW)	10217 (180)
Heat Rejection to Exhaust - Wet Manifold - BTU/min. (kW).....	8239 (145)
Minimum Allowable Pressure Cap - PSI (kPa).....	7 (48)
Maximum Allowable Top Tank Temperature - °F (°C).....	200 (93)
Minimum Recommended Top Tank Temperature - °F (°C).....	160 (71)
Minimum Allowable Fill Rate - U.S. GPM (L/min).....	5 (19)
Maximum Allowable Initial Fill Time - min.....	5
Minimum Allowable Coolant Expansion Space - % of System Capacity.....	6
Maximum Allowable Deaeration Time - min.....	25
Minimum Allowable Drawdown - U.S. qt. (litre)	2 (1.9)
(Drawdown does not include expansion area & must exceed volume not initially filled.)	
Fan HP @ 1800 Engine RPM (Fan Speed 1530 RPM) - BHP (kW)	19.4 (14)
Cooling Fan Air Flow @ 1" Static H ₂ O Pressure and 100° F (38° C) @ Radiator - cfm (L/s).....	23500 (11092)

LUBRICATION SYSTEM

CNGE recommends a multi-viscosity or a straight weight single viscosity NATURAL GAS ENGINE OIL that meets Mil-2104A(CB), Mil-2104B (CC), Mil-2104C (CD/SC), CE and CF-4 specification. Ash Content between .15 and .85 of one percent. Refer to CNGE Service Bulletin SB91-02, dated 6/91 for specific details.

Oil Pressure @ Idle - PSI (kPa).....	15 (103)
@ Rated Speed - PSI (kPa)	50 - 70 (345 - 483)
Maximum Allowable Oil Temperature - °F (°C)	225 (107)
Maximum Oil Consumption - U.S. qt./hr. (L/hr)25 (.24)
Combination Full Flow/ By-Pass LF 3000 Filter Capacity – U.S. gal. (litre)	1 (3.8)
External By-Pass Filter Capacity – Cartridge Type - U.S. gal. (litre)	4 (15.1)
Oil Pan Capacity - High/Low- U.S. gal. (litre)	9.0 – 7.0 (34.1 – 26.5)
Total System Capacity (Including LF3000 Filter) - U.S. gal. (litre)	10 – 8 (37.9 – 30.3)

ELECTRICAL SYSTEM

Minimum Recommended Battery Capacity - Cold Soak 0° F (-18° C) or Above	12 Volt	24 Volt
Engine only (De-clutched Load) - Cold Cranking Amperes - CCA.....	1800	900
- Reserve Capacity - min.....	640	320
Engine With Connected Drive Train - Cold Cranking Amperes - CCA.....	1800	900
- Reserve Capacity - min.....	640	320
Maximum Allowable Resistance of Starting Circuit - Ohms00075	.002

FUEL SYSTEM

Standard Carburetor - IMPCO Make

Low Pressure Dry Processed Natural Gas - (905 BTU/ft.³ L.H.V.)

Maximum Running Pressure to Carburetor (After Regulation) - in. H ₂ O (mm H ₂ O).....	6 (152)
Maximum Running Pressure to Engine Mounted Regulator - in. H ₂ O(mm H ₂ O)	20 (508)
Minimum Running Pressure to Engine Mounted Regulator - in. H ₂ O(mm H ₂ O)	10 (254)
Minimum Gas Supply Pipe Size @ Engine - in. (mm)	2 (51)
Gas Supply Filter Pressure Rating - PSI (kPa).....	100 (690)

The preceding pipe sizes are only suggestions and piping may vary with temperatures distance of fuel tanks and application of local codes. Gas must be available at adequate volume & pressure for engine at the regulator.

FUEL APPLICATION GUIDE

Compression Ratio	10:1
Dry Processed Natural Gas	X

All gases such as field gas, digester and sewage require an analysis of the specified gas and pre-approval from CNGE. Consult your Distributor for details.

PERFORMANCE DATA - STANDBY POWER - CR. 10:1

Low Idle Speed - RPM.....	900
Maximum No-Load Governed Speed - RPM	1980
Maximum Overspeed Capability - RPM.....	2100
Maximum Rated Speed - RPM	1800
Piston Speed - ft./min. (m/s)	1800 (9.145)
Brake Mean Effective Pressure - PSI (kPa).....	163 (1125)
Maximum Fuel Consumption at Maximum Rated Output and Speed - cu. ft./hr.....	2185
Cranking Torque at Minimum Unaided Start Temperature - lb. ft. (N m)	
Torque Available at Clutch Engagement (800 RPM) - lb. ft. (N m)	
Minimum Recommended Combined Converter and Hydraulic Stall Speed - RPM	
Crankshaft Thrust Bearing Load Limit - Maximum Intermittent - lb. (N)	
- Maximum Continuous - lb. (N)	
Maximum Allowable Power From Front of Crankshaft - HP (kW).....	30 (22)
Maximum Allowable Power From Accessory Drive - HP (kW).....	30 (22)
Minimum Cranking Speed - RPM	150

All data is based on the engine operating with fuel system, water pump, and lubrication oil pump; not included are battery charging alternator, fan, optional equipment, driven components or installation of catalytic converter.

The fuel consumption data shown above is published as approximate value for purposes of establishing pipe and system sizing.

Data shown above represents gross engine performance capabilities obtained and corrected to condition of 29.61 in. Hg. (100 kPa) barometric pressure [300 ft. (91 m) altitude], 77° F (25° C) inlet air temperature, and 0.30 in. Hg. (1 pa) water vapor pressure using dry processed natural gas fuel with 905 BTU per standard cubic foot (33.72 kJ/l) lower heating value.

ALTITUDE & AMBIENT TEMPERATURE REQUIREMENTS

The engine may be operated at the MAXIMUM RATING up to 3000 ft. (914 m) altitude and 100° F (38° C) inlet air temperature and at the CONTINUOUS POWER RATING up to 5000 ft. (1524 m) altitude and 100° F (38° C) inlet air temperature. For sustained operation at high load factor at higher altitudes and temperatures, please contact factory.

LIMITED WARRANTY

Cummins Natural Gas Engines carry a Limited Warranty on both factory workmanship and materials. See your nearest Cummins Distributor or dealer for full details, or write Cummins Natural Gas Engines, Inc. 8713 Airport Freeway, Suite #316, Fort Worth, Texas 76180, U.S.A.

GTA12 INDUSTRIAL DATA SHEET

This **Data Sheet** is subject to change without notice.

ENGINE MODEL(S) : GTA12 Data Sheet No: **DS7500D**
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