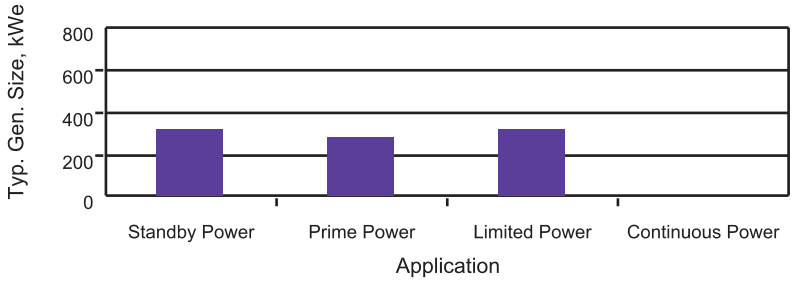
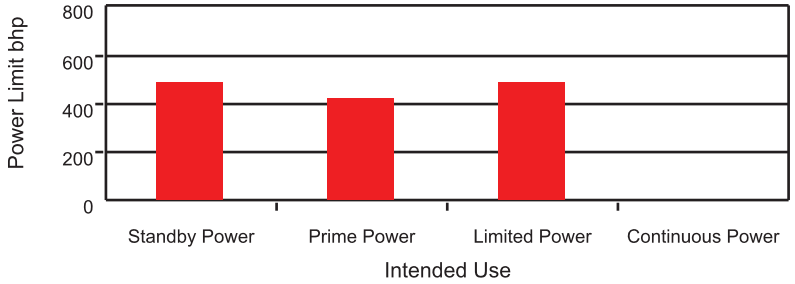
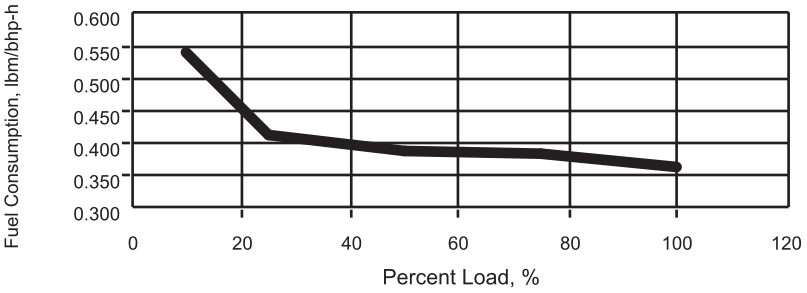
# Gen Set
# Series 60 (14.0 L) - 6063HV35
# 490 bhp @ 1800 r/min

# Performance Data
# 06N04M8144




Available power is shown. Data does not include parasitic losses from fans, accessories, etc. Parasitic losses will vary depending on the final product configuration and reduce the available power accordingly.

| Standby Power 60 Hz - 330 kWe | | |
|---|---|---|
| Percent Load, % | Power, bhp | Fuel Consumption, lbm/bhp-h |
| 10 | 49 | 0.541 |
| 25 | 123 | 0.415 |
| 50 | 245 | 0.390 |
| 75 | 368 | 0.384 |
| 100 | 490 | 0.362 |

| Prime Power 60 Hz - 280 kWe | | |
|---|---|---|
| Percent Load, % | Power, bhp | Fuel Consumption, lbm/bhp-h |
| 10 | 42 | - |
| 25 | 106 | 0.429 |
| 50 | 212 | 0.383 |
| 75 | 318 | 0.381 |
| 100 | 424 | 0.374 |
| 110 | 466 | 0.369 |

| Limited Power 60 Hz - 330 kWe | | |
|---|---|---|
| Percent Load, % | Power, bhp | Fuel Consumption, lbm/bhp-h |
| 10 | 49 | 0.541 |
| 25 | 123 | 0.415 |
| 50 | 245 | 0.390 |
| 75 | 368 | 0.384 |
| 100 | 490 | 0.362 |

| Continuous Power 60 Hz - 0 | | |
|---|---|---|
| Percent Load, % | Power, bhp | Fuel Consumption, lbm/bhp-h |
| 10 | - | - |
| 25 | - | - |
| 50 | - | - |
| 75 | - | - |
| 100 | - | - |

Tolerance for power values shown is +2/-0% at the conditions listed.
Tolerance for fuel values shown has not been specified.

| Condition | SAE J1995 |
|---|---|
| Air Inlet Temp. | 77 °F |
| Total Baro. Pressure | 30 in. Hg |
| Dry Baro. Pressure | 29 in. Hg |
| Fuel Inlet Temp. | 100 °F |
| Spec. Fuel Gravity | 0.8376 |
| [ref. temp.] | 100 °F |
| Air Inlet Restriction | 10 in. $H_2O$ |
| Exhaust Back Pressure | 15 in. $H_2O$ |
| Min. Fuel Heat Content | 20,500 Btu/lbm |
| [ref. test spec] | - |
| Air Density | 0.1 lb/ft³ |
| Fuel Density | 6.99 lb/gal (US) |
| Oil Density | 7.50 lb/gal (US) |

| | Standby Power 60 Hz - 330 kWe | Prime Power 60 Hz - 280 kWe | Limited Power 60 Hz - 330 kWe | Continuous Power 60 Hz - 0 | |
|---|---|---|---|---|---|
| **Calibration Details** | | | | | |
| Control System | DDEC V Electronics | DDEC V Electronics | DDEC V Electronics | - | - |
| Maximum Power | 490 | 490 | 490 | - | bhp |
| Maximum Power Speed | 1800 | 1800 | 1800 | - | r/min |
| Rated Power Limit | 490 | 424 | 490 | - | bhp |
| Rated Power Limit Speed | 1800 | 1800 | 1800 | - | r/min |
| Typical Low Idle Speed | - | - | - | - | r/min |
| Typical High Idle Speed | - | - | - | - | r/min |
| Intended Use | Standby Power applications | Prime Power applications | Limited Run Time Power applications | - | - |
| **Cooling System** | | | | | |
| Coolant Capacity in Engine Circuit | 24 | 24 | 24 | - | qt (US) |
| Coolant Flow Rate in Engine Circuit | 96 | 96 | 96 | - | gal/min (US) |
| Heat Rejection to Engine Coolant Circuit | 7950 | 7000 | 7950 | - | Btu/min |
| Heat Rejection to Air in Charge Air Circuit | 5150 | 4750 | 5150 | - | Btu/min |
| Radiated Heat Rejection | 3950 | 3950 | 3950 | - | Btu/min |
| **Exhaust System** | | | | | |
| Exhaust Flow Rate (volumetric) | 2903 | 2657 | 2903 | - | ft³/min |
| Exhaust Temperature | 944 | 871 | 944 | - | °F |
| **Fuel System** | | | | | |
| Injector Device | EUI N3 | EUI N3 | EUI N3 | - | - |
| Injection System | EUI | EUI | EUI | - | - |
| Injector Timing Height | - | - | - | - | mm |
| Fuel Flow Rate (mass) | - | - | - | - | lbm/h |
| Fuel Flow Rate (volumetric) | - | - | - | - | gal/h (US) |
| Fuel Spill Rate (mass) | - | - | - | - | lbm/h |
| Fuel Spill Rate (volumetric) | - | - | - | - | gal/h (US) |
| Fuel Consumption (mass) | 177.5 | 158.6 | 177.5 | - | lbm/h |
| Fuel Consumption (volumetric) | 25.4 | 22.7 | 25.4 | - | gal/h (US) |
| Heat Rejection to Fuel | 150 | - | 150 | - | Btu/min |
| **Intake System** | | | | | |
| Engine Air Flow Rate (volumetric) | 1105 | 1070 | 1105 | - | ft³/min |
| Intake Manifold Pressure | 62 | 58 | 62 | - | in. Hg |
| Turbocharger Compressor Outlet Temp. | 358 | 345 | 358 | - | °F |

Available power is shown. Data does not include parasitic losses from fans, accessories, etc. Parasitic losses will vary depending on the final product configuration and reduce the available power accordingly.

| | Standby Power 60 Hz - 330 $kW_e$ | Prime Power 60 Hz - 280 $kW_e$ | Limited Power 60 Hz - 330 $kW_e$ | Continuous Power 60 Hz - 0 | |
|---|---|---|---|---|---|
| **Lubrication System** | | | | | |
| Oil Flow Rate | - | - | - | - | gal/min (US) |
| Oil Pressure | - | - | - | - | $lb_f/in.^2$ |
| Oil Consumption (mass) | 0.18 | 0.16 | 0.18 | - | $lb_m/h$ |
| Oil Consumption (volumetric) | 0.09 | 0.08 | 0.09 | - | qt/h (US) |
| **Additional Information** | | | | | |
| Altitude Capability | - | - | - | - | ft |
| Brake Mean Effective Pressure (BMEP) | 252 | 218 | 252 | - | $lb_f/in.^2$ |
| Compression Ratio | 16.0 | 16.0 | 16.0 | - | : 1 |
| Friction Horsepower | - | - | - | - | fhp |
| Mean Piston Speed | 1984 | 1984 | 1984 | - | ft/min |
| Turbocharger | GT47, Wastegated | GT47, Wastegated | GT47, Wastegated | - | - |

Available power is shown. Data does not include parasitic losses from fans, accessories, etc. Parasitic losses will vary depending on the final product configuration and reduce the available power accordingly.

| Cooling System | | |
|---|---|---|
| Min. Coolant Flow Rate in Engine Circuit | 86.4 | gal/min (US) |
| Max. Coolant Out Temp. in Engine Circuit | 210 | °F |
| Max. Engine Water Pump Discharge Pressure (Exclusive of Pressure Cap) | - | $lb_f/in.^2$ |
| Min. Water Pump Inlet Pressure (Rapid Warm-up Rad.) | 0.0 | $lb_f/in.^2$ |
| Min. Water Pump Inlet Pressure (Conventional Rad.) | 0.0 | $lb_f/in.^2$ |
| Max. Water Pump Static Pressure Head | 21.7 | $lb_f/in.^2$ |
| Max. External Restriction in Engine Circuit | 5.3 | $lb_f/in.^2$ |
| Min. Engine Coolant Fill Rate | 3.0 | gal/min (US) |
| Min. Drawdown | 10 | % |
| Max. Dearation Time | 30 | min |
| Min. Pressure Cap | 9.0 | $lb_f/in.^2$ |
| Max. System Pressure (Exclusive of Pressure Cap) | 7.8 | $lb_f/in.^2$ |
| Min. Top Tank Coolant Temp. | 160 | °F |

| Crankshaft System | | |
|---|---|---|
| Max. Radial Load- Crankshaft | - | $lb_f$ |
| Max. Continuous Load- Thrust Bearing | 900 | $lb_f$ |
| Max. Intermittent Load- Thrust Bearing | 1800 | $lb_f$ |
| Max. Shock Load- Thrust Bearing | - | $lb_f$ |
| Max. Vertical Load at Rear Face of Flywheel (†) | 2001 | $lb_f$ |
| Max. Static Bending Moment at Rear Face of Block | 1000 | $ft\text{-}lb_f$ |

(†) The weight of the flywheel must be included with the OEM components.

| Electrical System | | |
|---|---|---|
| Max. Resistance of Starting Circuit - 12 V System | 0.0012 | Ω |
| Max. Resistance of Starting Circuit - 24 V System | 0.002 | Ω |
| Rec. Battery Capacity - 12 V System | 1875 | CCA |
| Rec. Battery Capacity - 24 V System | 950 | CCA |

| Exhaust System | | |
|---|---|---|
| Max. Exhaust System Back Pressure | 3.0 | in. Hg |
| Rec. Dry Exhaust Pipe Dia. - Single | 5.0 | in. |
| Rec. Dry Exhaust Pipe Dia. - Dual | 4.0 | in. |

| Fuel System | | |
|---|---|---|
| Max. Fuel Inlet Temp. | 140 | °F |
| Max. Fuel Pump Suction for Clean System | 6.0 | in. Hg |
| Max. Fuel Pump Suction for Dirty System | 12.2 | in. Hg |
| Rec. Primary Fuel Filter Size | 25 | micron |
| Max. Secondary Fuel Filter Size | 5 | micron |

| Intake System | | |
|---|---|---|
| Max. Ambient to Intake Manifold Temp. Differential | 45 | °F |
| Max. Ambient to Turbo Compressor Inlet Temp. Rise | 30 | °F |
| Max. CAC System Total Pressure Drop | 4 | in. Hg |
| Max. Crankcase Pressure | 3 | in. $H_2O$ |
| Max. Intake Manifold Pressure | - | in. Hg |
| Max. Intake Manifold Temp. | 151 | °F |
| Max. Intake Restriction for a Clean Air Cleaner | 12 | in. $H_2O$ |
| Max. Intake Restriction for a Dirty Air Cleaner | 20 | in. $H_2O$ |
| Rec. Intake Pipe Dia. - Single | 6.0 | in. |
| Rec. Intake Pipe Dia. - Dual | - | in. |

| Lubrication System | | |
|---|---|---|
| Max. Change in Oil Pressure from Engine Out to Oil Cooler Inlet for Remote-mounted Filters | - | in. $H_2O$ |

| Certification Summary | |
|---|---|
| Certification Code (CWC) | 5533 |
| US Nonroad (Tier 1) | Not certified. |
| US Nonroad (Tier 2) | Not certified. |
| US Nonroad (Tier 3) | Certified. |
| US Nonroad (Tier 4) | Not certified. |
| EURO Nonroad (Stage I) | Not certified. |
| EURO Nonroad (Stage II) | Not certified. |
| EURO Nonroad (Stage III) | Not certified. |
| EURO Nonroad (Stage IV) | Not certified. |
| South Coast Air Quality Management District (SCAQMD) | Certified. |

| Compliance Summary | |
|---|---|
| Japanese Nonroad | No. |
| TA-Luft Power Plant | No. |
| SCAQMD Permit Information | |
| - Application Number | 439137 |
| - Status | Certified. |
| - Issue Date | 01 APR 2005 |
| - Expiration Date | 01 APR 2006 |

Available power is shown. Data does not include parasitic losses from fans, accessories, etc. Parasitic losses will vary depending on the final product configuration and reduce the available power accordingly.

| Emission Data | | | | | | |
|---|---|---|---|---|---|---|
| Steady-state Emission Summary | | | | | | |
| $NO_x$ | | | | | - | g/h |
| CO | | | | | - | g/h |
| HC | | | | | - | g/h |
| $SO_2$ - with .5% sulfur content fuel | | | | | 403 | g/h |
| $SO_2$ - with .05% sulfur content fuel | | | | | 40.3 | g/h |
| Particulates | | | | | - | g/h |
| C1 Cycle Emission Summary | | | | | | |
| $NO_x$ | | | | | - | g/bhp·h |
| CO | | | | | - | g/bhp·h |
| HC | | | | | - | g/bhp·h |
| Particulates | | | | | - | g/bhp·h |

| D2 - Cycle Emissions | | | | | | |
|---|---|---|---|---|---|---|
| Engine Load | 10% | 25% | 50% | 75% | 100% | Cycle Value |
| | | | g/h | | | g/bhp·h |
| CO | 223 | 141 | 96.9 | 131 | 126 | 0.56 |
| HC | 44.5 | 25.4 | 25.8 | 23.1 | 17.0 | 0.11 |
| $SO_2$ - with 0.5% sulfur content fuel | 60.1 | 116 | 217 | 320 | 403 | - |
| $SO_2$ - with 0.05% sulfur content fuel | 6.0 | 11.6 | 21.7 | 32.0 | 40.3 | - |
| Particulates | 14.3 | 25.1 | 18.6 | 21.4 | 19.3 | 0.09 |
| $NO_x$ | 191 | 287 | 592 | 1085 | 1485 | 2.63 |

| | | |
|---|---|---|
| Opacity Mode | | |
| Acceleration | - | % |
| Lug | - | % |
| Peak | - | % |
| Smoke | | |
| Bosch No. | 0.2 | |
| @ Peak Torque Speed (- -) | - | |

Emission levels of the engine may vary as a function of ambient temperature, barometric pressure, humidity, fuel type and quality, installation parameters, measuring instrumentation, etc. The data provided are laboratory results from one engine representing this rating. The data was obtained under controlled environmental conditions with calibrated instrumentation traceable to the United States National Bureau of Standards and in compliance with US EPA regulations found at 40 CFR Part 89 (Control of Emissions From New and In-Use Nonroad Compression-Ignition Engines). The weighted cycle value from each engine is guaranteed to be below the US EPA Standards at the US EPA defined conditions.

| Frequency, Hz | Surface, dB(A) | Exhaust, dB(A) | Structureborne Longitudinal, dB(A) | Structureborne Transverse, dB(A) | Structureborne Vertical, dB(A) |
|---|---|---|---|---|---|
| 40 | - | - | - | - | - |
| 80 | 60.0 | - | - | - | - |
| 100 | 68.0 | - | - | - | - |
| 125 | 76.0 | - | - | - | - |
| 160 | 80.0 | - | - | - | - |
| 200 | 78.0 | - | - | - | - |
| 250 | 79.0 | - | - | - | - |
| 315 | 81.0 | - | - | - | - |
| 400 | 87.0 | - | - | - | - |
| 500 | 88.0 | - | - | - | - |
| 630 | 90.0 | - | - | - | - |
| 800 | 96.0 | - | - | - | - |
| 1000 | 99.0 | - | - | - | - |
| 1250 | 96.0 | - | - | - | - |
| 1600 | 97.0 | - | - | - | - |
| 2000 | 97.0 | - | - | - | - |
| 2500 | 96.0 | - | - | - | - |
| 3150 | 94.0 | - | - | - | - |
| 4000 | 89.0 | - | - | - | - |
| 5000 | 88.0 | - | - | - | - |
| 6300 | 86.0 | - | - | - | - |
| 8000 | 88.0 | - | - | - | - |
| 10,000 | 79.0 | - | - | - | - |
| 12,500 | 76.0 | - | - | - | - |
| 16,000 | 76.0 | - | - | - | - |
| 20,000 | - | - | - | - | - |
| Total | 105.4 | - | - | - | - |

## Conditions and Tolerances

| | | | | | |
|---|---|---|---|---|---|
| Data Tolerance | Tolerance for values shown has not been specified. | Tolerance for values shown has not been specified. | Tolerance for values shown has not been specified. | Tolerance for values shown has not been specified. | Tolerance for values shown has not been specified. |
| Test Standard | not specified | not specified | not specified | not specified | not specified |
| Comments | not specified | not specified | not specified | not specified | not specified |

| Camshaft | |
|---|---|
| UPC Group Number | 06X01B6099 |
| Type | Gear-driven |
| Location | In the cylinder head |
| Material | Bar stock (SAE 1513) |
| Surface Finish - Journal | Ground finish |
| Surface Finish - Lobe | Injector & Exhaust: Thielenhaus honed, Intake: Ground finish |

| Camshaft Bearing | |
|---|---|
| Type | Two-piece design |
| Material | Trimetal (Steel backed bronze with lead overlay) |
| Mean Effective Length [MEL] | 1.486 in. |
| Mean Journal Diameter [MJD] | 2.559 in. |
| Projected Area [per bearing] | 3.80 in.² |

| Connecting Rod | |
|---|---|
| Type | "I"-section |
| Material | Forged, steel alloy - SAE 4140 |

| Connecting Rod Cap | |
|---|---|
| Type | - |
| Material | - |

| Connecting Rod Crank Pin Bearing | |
|---|---|
| Type | Precision, half-shell design |
| Quantity [per journal] | 2 |
| Material - Lower Bearing | Trimetal (steel-backed, bronze, and lead overlay) |
| Material - Upper Bearing | Trimetal (steel-backed, bronze, and lead overlay) |
| Mean Effective Length [MEL] | 1.705 in. |
| Mean Journal Diameter [MJD] | 3.346 in. |
| Projected Area [per bearing] | 5.70 in.² |

| Crankshaft | |
|---|---|
| Type | One-piece |
| Material | Forged, steel alloy - SAE 1548 |
| Surface Finish - Journal | Induction hardened |
| Type of Balance | Dynamic |

| Crankshaft Main Bearing | |
|---|---|
| Type | Precision, half-shell design |
| Quantity [per journal] | 2 |
| Material - Lower Bearing | Trimetal (steel-backed, bronze, and lead overlay) |
| Material - Upper Bearing | Trimetal (steel-backed, bronze, and lead overlay) |
| Mean Effective Length [MEL] | 1.547 in. |
| Mean Journal Diameter [MJD] | 4.921 in. |
| Projected Area [per bearing] | 7.61 in.² |

| Crankshaft Thrust Bearing | |
|---|---|
| Type | - |
| Quantity | - |
| Mean Effective Length [MEL] | - in. |
| Mean Journal Diameter [MJD] | - in. |
| Projected Area [per bearing] | - in.² |

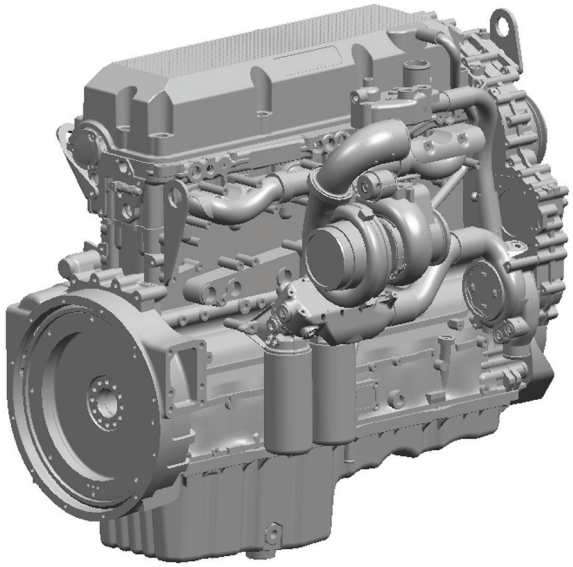
| Cylinder Block | |
|---|---|
| UPC Group Number | 06A01 6043 |
| Type | Inline cylinder block |
| Material | Cast iron |

| Cylinder Head | |
|---|---|
| UPC Group Number | 06A02 6034 |
| Type | One-piece slab, 4 valves per cylinder |
| Material | Cast iron |
| Air Management | Cross-flow |

| Cylinder Liner | |
|---|---|
| UPC Group Number | 06A01 6043 |
| Type | Wet, replaceable liner |
| Material | Cast iron |

| Exhaust Valve | |
|---|---|
| Type | Poppet valve with rotator |
| Material - Head | Nickel-based |
| Material - Stem | Chrome-plated |
| Operating Mechanism | Overhead camshaft with rocker arm |
| Type of Lifter | Roller follower |
| Quantity [valves per cylinder] | 2 |
| Quantity [springs per valve] | 1 |
| **Exhaust Valve Insert** | |
| Type | Replaceable design |
| Material | Nickel-based - GM3550 |
| **Intake Valve** | |
| Type | Poppet valve with rotator |
| Material - Head | Iron-based |
| Material - Stem | Chrome-plated |
| Operating Mechanism | Overhead camshaft with rocker arm |
| Type of Lifter | Roller follower |
| Quantity [valves per cylinder] | 2 |
| Quantity [springs per valve] | 1 |
| **Intake Valve Insert** | |
| Type | Replaceable design |
| Material | Iron-based - GM76135 |

| Piston | |
|---|---|
| Type | Cross-head design |
| Material - Crown | Steel |
| Material - Skirt | Aluminum |
| Cooling | Oil- cocktail shaker |
| **Piston Pin** | |
| Type | Polished and hardened |
| Material | - |
| Wrist Pin Keepers | - |
| **Piston Pin Bearing** | |
| Type | One-piece bushing |
| Material | Bronze - solid |
| **Piston Ring, Compression** | |
| Top Ring | Keystone - chrome, barrel face design |
| Second Ring | Keystone - chrome, barrel-tapered face design |
| Quantity [per piston] | - |
| **Piston Ring, Oil** | |
| Type | Double rail with expander, conformable |
| Quantity [per piston] | 1 |
| Location | Bottom of piston dome |



| Description | |
|---|---|
| Model Number | 6063HV35 |
| Number of Cylinders | 6 |
| Bore | 5.24 in. |
| Stroke | 6.61 in. |
| Displacement - per cylinder | 142 in.³ |
| Displacement - total | 855 in.³ |
| Aftertreatment | No Aftertreatment Device |
| Aspiration | Turbocharged |
| Combustion System | Direct Injection |
| Charge Air Cooling System | Air-to-Air Charge Cooling |
| Electronic System | DDEC V Electronics |
| Engine Type | Inline Engine |
| Ventilation | Open Engine Crankcase |
| Status | Available |
| Availability Date | 01 JAN 2005 |
| Discontinued Date | - |

This model is approved for commercial gen set applications that can be operated at either 50 or 60 Hz.

| Size | |
|---|---|
| Overall Length | 57.20 in. |
| Overall Width | 39.63 in. |
| Overall Height | 50.07 in. |

| Weight | |
|---|---|
| Approximate Dry Weight | 2551 lbm |
| Approximate Wet Weight | 2679 lbm |

| Center of Gravity for a Dry Engine | |
|---|---|
| Distance from Rear Face of Block: x-axis | 22.30 in. |
| Distance above Crankshaft: y-axis | 7.52 in. |
| Distance to the Right of the Crankshaft: z-axis | 1.32 in. |