

DETROIT DIESEL

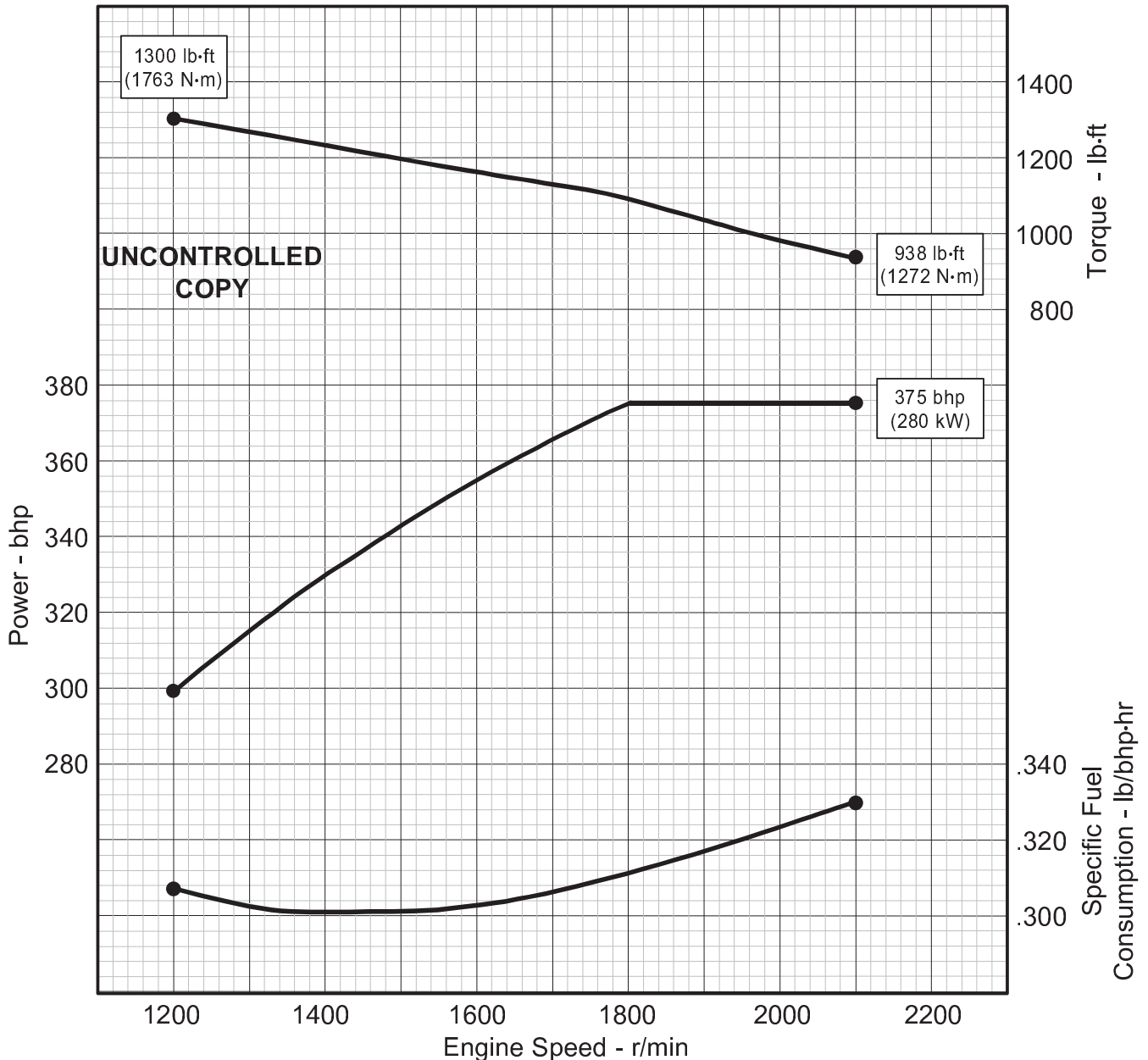
Industrial Power



Model: Series 60®

Rating: 375 bhp @ 2100 r/min
1300 lb-ft @ 1200 r/min

Certification:
1996-98 Nonroad



| | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| Power output guaranteed within 5% at SAE J1995 conditions: 77°F (25°C) air inlet temperature; 29.31 in. Hg (99kPa) dry barometer; 100°F (38°F) fuel inlet temperature; .653 specific gravity at 60°F (15°C) Charge air cooler system pressure drop: 16 in. H ₂ O (4 kPa) Charge air cooler system temperature out: 97°F (36°C) Air intake restriction: 10 in. H ₂ O (2.5 kPa) Exhaust Back Pressure: 15 in. H ₂ O (3.7 kPa) | Conversion Factors: Power: kW = bhp x 0.746 Fuel: kg/kW · hr = lb/bhp · hr x 0.608 Torque: N · m = lb · ft x 1.356 | Turbo: TMF55 (1.34 A/R) Injector: 5235695 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|

Certified by: *Paul Ammer*

Curve No. E4-6063-32-80
Rev. / Date: 2 / 7-20-98
Sheet No. 1 of 2

Performance Curve

CONSTRUCTION AND INDUSTRIAL SPECIFICATION SHEET

General Data

| | |
|--------------------------------------------|-------------------------|
| Model | 6063-TK33 |
| Number of Cylinders..... | 6 |
| Bore and Stroke – in. x in. (mm x mm)..... | 5.12 x 6.30 (130 x 160) |
| Displacement – in. ³ (L) | 778 (12.7L) |
| Compression Ratio | 15.0:1 |
| Piston Speed – ft/min (m/min) | 2205 (672) |
| Intake Valves Per Cylinder | 2 |
| Exhaust Valves Per Cylinder | 2 |
| Combustion System | Direct Injection |
| Engine Type | Inline 4 Cycle |
| Aspiration..... | Turbocharged |

Configuration

| | |
|------------------------------------|-----------------|
| Injection Device | EUI |
| Turbocharger | TMF55 (1.34A/R) |
| Charge Air Cooling | Air to Air |
| Low Idle Speed – r/min..... | 600 |
| High Idle Speed – r/min..... | 2225 |
| Engine Crankcase Vent System | Open |

Physical Data

| | |
|-----------------------------------------------|---------------|
| Size: | |
| Length – in. (mm)..... | 57.2 (1453) |
| Width – in. (mm)..... | 35.0 (889) |
| Height – in. (mm) | 54.2 (1377) |
| Weight, Dry – lb (kg) | 2570 (1166) |
| Weight, Wet – lb (kg) | 2692 (1221) |
| Center of Gravity Distance: | |
| From R.F.O.B. (x axis) – in. (mm) | 22.3 (566) |
| Above Crankshaft (y axis) – in. (mm) | 8.6 (218) |
| Right of Crankshaft (z axis) – in. (mm) | -1.4 (-35.6) |
| Installation Drawing | 23515495 Ref. |

Mechanical Data

| | |
|-------------------------------------------------------|--------------|
| Thrust Bearing Load Limit, Continuous – lb (N)..... | 900 (4000) |
| Thrust Bearing Load Limit, Intermittent – lb (N)..... | 1800 (8000) |
| Maximum Static Bending Moment at Rear | |
| Face of Block – lb-ft (N·m) | 1000 (1356) |
| Additional Mechanical Data | E4-6060-32-1 |

Fuel System

| | |
|------------------------------------------------|--------------|
| Fuel Injector..... | 5235695 |
| Injection Timing Height – mm..... | 78.8 |
| Certification Code | 5017 |
| Fuel Consumption – lb/hr (kg/hr)..... | 123.8 (56.2) |
| Fuel Consumption – gal/hr (L/hr) | 17.7 (67.0) |
| Fuel Spill – lb/hr (kg/hr) | 483 (219) |
| Fuel Spill – gal/hr (L/hr) | 69.1 (262) |
| Total Fuel Flow – lb/hr (kg/hr) | 607 (275) |
| Total Fuel Flow – gal/hr (L/hr) | 86.8 (329) |
| Maximum Fuel Inlet Temperature – °F (°C)..... | 140 (60) |
| Maximum Fuel Pump Suction: | |
| Clean System – in. Hg (kPa) | 6 (20.3) |
| Dirty System – in. Hg (kPa) | 12 (41) |
| Fuel Filter Size, Primary – microns | 25 |
| Fuel Filter Size, Secondary – microns | 8 |
| Fuel Spill Restrictive Fitting – in. (mm)..... | 0.08 (2.03) |

Lubrication System

| | |
|--------------------------------------------------------------|-----------|
| Oil Pressure at Rated Speed – lb/in. ² (kPa)..... | 50 (345) |
| Oil Pressure at Low Idle – lb/in. ² (kPa) | 12 (83) |
| In Pan Oil Temperature – °F (°C)..... | 235 (113) |
| Oil Flow – gal/min (L/min)..... | 36 (136) |
| Oil Pan Capacity, High Limit..... | 32 (30) |
| Oil Pan Capacity, Low Limit | 26 (25) |
| Total Engine Oil Capacity with Filters – qt (L)..... | 38 (36) |
| Oil Filter, Two Full Flow – microns | 30 |
| Engine Angularity Limits, Front Up – Degrees..... | 27 |
| Engine Angularity Limits, Front Down – Degrees | 27 |
| Engine Angularity Limits, Side Tilt – Degrees..... | 21 |

Electrical System

| | |
|-------------------------------------------|--------|
| Recommended Battery Capacity (CCA @ 0°F): | |
| 12 Volt System..... | 1875 |
| 24 Volt System..... | 950 |
| Maximum Resistance of Starting Circuit: | |
| 12 Volt System – ohms..... | 0.0012 |
| 24 Volt System – ohms..... | 0.002 |

Cooling System

| | |
|--------------------------------------------------------------------------------------|--------------|
| Engine Heat Rejection to Coolant: | |
| Rated Speed – Btu/min (kW)..... | 5810 (102.2) |
| Peak Torque Speed (1200 r/min) – Btu/min (kW) | 5150 (90.6) |
| Charge Air Cooler Heat Rejection: | |
| Rated Speed – Btu/min (kW)..... | 3504 (61.6) |
| Peak Torque Speed (1200 r/min) – Btu/min (kW) | 1700 (29.9) |
| Engine Radiated Heat: | |
| Rated Speed – Btu/min (kW)..... | 2260 (39.7) |
| Peak Torque Speed (1200 r/min) – Btu/min (kW) | 1750 (30.8) |
| Coolant Flow: | |
| Rated Speed – gal/min (L/min)..... | 113 (428) |
| Peak Torque Speed (1200 r/min) – gal/min (L/min)..... | 63 (238) |
| Thermostat: | |
| Start to Open – °F (°C)..... | 190 (86) |
| Fully Open – °F (°C) | 205 (96) |
| Minimum Water Pump Inlet Pressure – lb/in. ² (kPa): | 0 (0) |
| Engine Coolant Capacity – qt (L) | 24 (23) |
| Minimum Pressure Cap – lb/in. ² (kPa)..... | 7 (48.3) |
| Maximum Coolant Pressure | |
| (Exclusive of Pressure Cap) – lb/in. ² (kPa)..... | 17 (117) |
| Maximum Top Tank Temperature – °F (°C) | 210 (99) |
| Minimum Top Tank Temperature – °F (°C) | 160 (71) |
| Minimum Coolant Fill Rate – gal/min (L/min)..... | 3 (11.4) |
| Cooling Index (110 °F Ambient w/H ₂ O @ Sea Level): | |
| Max Air to Water Diff. @ Rated Speed – °F (°C) | 100 (56) |
| Max Air to Water Diff. @ 1200-1500 r/min – °F (°C)..... | 110 (61) |
| Deaeration, Air Injection Capacity – ft ³ /min (m ³ /min)..... | 0.6 (0.017) |
| Minimum Drawdown Requirement – qt (L) | 4 (3.8) |

Air System

| | |
|--------------------------------------------------------------------------------|-------------|
| Maximum Ambient to Turbo Compressor Inlet | |
| Temperature Rise – °F (°C)..... | 30 (16.7) |
| Maximum Air Intake Restriction: | |
| Clean Air Cleaner – in. H ₂ O (kPa)..... | 12 (3) |
| Dirty Air Cleaner – in. H ₂ O (kPa)..... | 20 (5) |
| Engine Air Flow: Rated Speed – ft ³ /min (m ³ /min)..... | 1050 (29.7) |
| Peak Torque Speed – ft ³ /min (m ³ /min)..... | 550 (15.6) |
| Manifold Pressure – in. Hg (kPa) | 45.0 (152) |
| Recommended Intake Pipe Diameter – in. (mm)..... | 5 (127) |
| Maximum Charge Air Cooler System Total | |
| Pressure Drop – in. Hg (kPa) | 47.6 (11.8) |
| Maximum Intake Manifold Temp. – °F (°C)..... | 150 (66) |
| Maximum Crankcase Pressure – in. H ₂ O (kPa)..... | 3.0 (0.75) |

Exhaust System

| | |
|-----------------------------------------------------------------------------|-------------|
| Exhaust Flow: Rated Speed – ft ³ /min (m ³ /min)..... | 2330 (66.0) |
| Peak Torque Speed – ft ³ /min (m ³ /min)..... | 1490 (42.2) |
| Exhaust Temperature Rated Speed – °F (°C)..... | 700 (371) |
| Peak Torque Speed – °F (°C) | 940 (504) |
| Maximum Back Pressure – in. Hg (kPa)..... | 3.0 (10.1) |
| Recommended Exhaust Pipe Diameter: | |
| Single – in. (mm)..... | 5 (127) |
| Dual – in. (mm)..... | 4 (102) |

Performance Data

| | |
|--------------------------------------------------|--------------|
| BMEP – lb/in. ² (kPa)..... | 182 (1254) |
| Friction Power: Rated Speed – fhp (kW) | 77 (57) |
| Peak Torque Speed – fhp (kW)..... | 28 (21) |
| Altitude Capability – ft (m)..... | 12000 (3660) |
| Torque Available at 800 r/min – lb-ft (N·m)..... | 867 (1175) |

| Engine Speed | Rated Power | Rated Torque | Rated BSFC |
|--------------|-------------|--------------|---------------------|
| r/min | bhp (kW) | lb-ft (N·m) | lb/bhp-hr (g/kW-hr) |
| 2100 | 375 (280) | 938 (1272) | 0.330 (201) |
| 1950 | 375 (280) | 1010 (1369) | 0.320 (195) |
| 1800 | 375 (280) | 1094 (1484) | 0.311 (189) |
| 1650 | 360 (269) | 1146 (1554) | 0.304 (185) |
| 1500 | 342 (255) | 1197 (1624) | 0.301 (183) |
| 1350 | 321 (239) | 1249 (1693) | 0.301 (183) |
| 1200 | 297 (222) | 1300 (1762) | 0.307 (187) |

Emissions Data

| | |
|-----------------------------------------------|-----------------|
| Certification..... | 1996-98 Nonroad |
| Smoke, Rated Speed – Bosch Number | 0.6 |
| Smoke, Peak Torque Speed – Bosch Number | 1.2 |
| Noise – dB(A) @ 1 | 102.8 |
| Additional Noise Data..... | Not Available |

| | 2100 r/min | 8 Mode Cycle |
|-----------------------|------------|--------------|
| | g/hr | g/bhp-hr |
| NO _x | 2115 | 6.53 |
| CO | 68 | 0.58 |
| HC..... | 23 | 0.11 |
| Particulates..... | 15 | 0.06 |

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