

ENGINE DATASHEET





JOHN DEERE

ENGINE PERFORMANCE CURVE

Rating: Gross Power
 Application: Generator
 1800 RPM (60 Hz)

PowerTech™ PVL 6.8L Engine
Model: 6068HFG05
 JD Electronic Control
 235 hp (175 kW) Prime
 257 hp (192 kW) Standby
 Dual-frequency Partner, 6068HFG05_C

| Nominal Engine Power @ 1800 RPM | | | |
|---------------------------------|-----|---------|-----|
| Prime | | Standby | |
| HP | kW | HP | kW |
| 235 | 175 | 257 | 192 |

| Generator Efficiency % | Fan Power (% of Standby) | | Power Factor | Prime Rating | | Standby Rating | |
|------------------------|--------------------------|-----|--------------|--------------|---------|----------------|---------|
| | hp | kW | | kWe | kVA | kWe | kVA |
| 89-93 | 7.8 | 5.8 | 0.8 | 151-157 | 188-197 | 166-173 | 207-217 |

Note 1: Based on nominal engine power; Fan Power is 3% of Standby Power.

STANDARD CONDITIONS

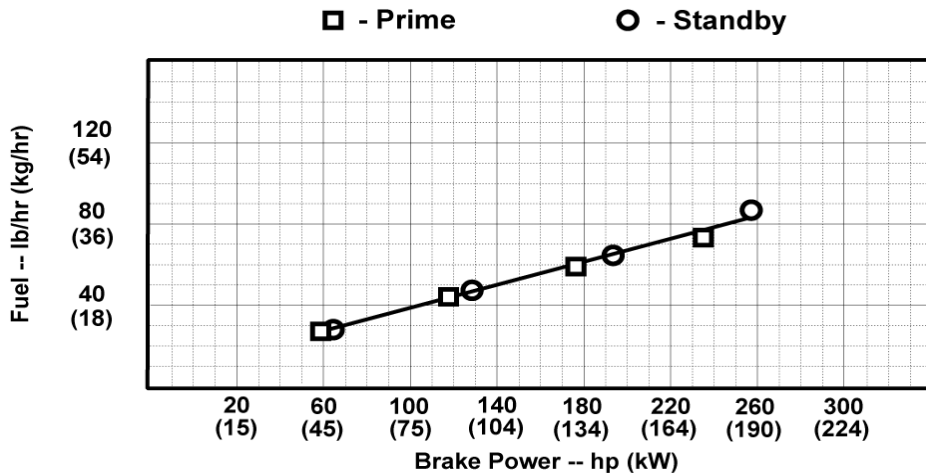
Air Intake Restriction.....12 in.H₂O (3 kPa)
 Exhaust Back Pressure.....20.1 in. H₂O (5.0 kPa)

Gross power guaranteed within + or - 5% at SAEJ1995 and ISO 3046 conditions:
 Air Inlet Temperature = 77 °F (25 °C)
 Barometer = 29.31 in.Hg (99 kPa)
 Fuel Inlet Temperature = 104 °F (40 °C)
 Fuel Specific Gravity @ 60 °F (15.5 °C) = 0.853

CONVERSION FACTORS:
 Power: kW = HP x 0.746
 Fuel: 1 Gal = 7.1 lb, 1 L = 0.85kg
 Torque: N·m = lb·ft x 1.356

All values are from currently available data and are subject to change without notice.

Notes: 1) This Performance Curve provides installation requirements necessary for the engine to emit at its certified emission levels. For additional information necessary to meet applicable regulatory requirements, refer to the John Deere Emissions-related Installation Instructions (AG01):
<https://power.deere.com/wps/myportal/jdps/products/engines/apguidelines>.
 2) A crankshaft Torsional Vibration Analysis is required on all Gen Set applications.



| | |
|--|--|
| Designed/Calibrated to meet: | Certified by: |
| <ul style="list-style-type: none"> CARB EPA Tier 4 | <i>Will Comp</i> <i>02 MAY 2017</i> |
| Ref: Engine Emission Label | |

Performance Curve: 6068HFG05_A

Engine Installation Criteria

General Data

| | | |
|-------------------------------------|---|----------------------|
| Model | 6068HFG05 | |
| Number of Cylinders | 6 | |
| Bore | 106 mm | 4.2 in. |
| Stroke | 127 mm | 5.0 in. |
| Displacement | 6.8 L | 415 in. ³ |
| Compression Ratio | 17.2 : 1 | |
| Valves per Cylinder, Intake/Exhaust | 2 \ 2 | |
| Firing Order | 1-5-3-6-2-4 | |
| Combustion System | HPCR | |
| Engine Type | In-line, 4-cycle | |
| Aspiration | Turbocharged and air-to-air aftercooled | |
| Engine Crankcase Vent System | Open | |

Physical Data

| | | |
|---|-----------|-----------|
| Length | 1140 mm | 44.9 in. |
| Width | 720 mm | 28.3 in. |
| Height | 1315 mm | 51.8 in. |
| Center of Gravity Location, X-axis From Rear Face of Block | 400 mm | 15.7 in. |
| Center of Gravity Location, Y-axis Right of Crankshaft | 0 mm | 0 in. |
| Center of Gravity Location, Z-axis Above Crankshaft | 220 mm | 8.7 in. |
| Max. Bending Moment about Main Bearings Front and Rear | 480 N·m | 354 lb·ft |
| Max. Allowable Static Bending Moment At Rear Face of Flywheel Housing with 5-G Load | 814 N·m | 600 lb·ft |
| Thrust Bearing Load Limit Forward, Intermittent | 4000 N | 899 lb |
| Thrust Bearing Load Limit Forward, Continuous | 2200 N | 495 lb |
| Thrust Bearing Load Limit Rearward, Intermittent | 2000 N | 450 lb |
| Thrust Bearing Load Limit Rearward, Continuous | 1000 N | 225 lb |
| Weight, with oil & no coolant (Includes engine, flywheel housing, flywheel & electrics) | 770 kg | 1698 lb |
| Max. Continuous Damper Temp | 82 °C | 180 °F |
| Max. ECU Vibration, All Axis | 6.00 gRMS | |
| Max. Torsional Vibration, Front of Crank | 0.25 DDA | |

Electrical System

| | | |
|---|------------|--------|
| Min. Instantaneous Cranking | 50 rpm | |
| Min. Steady State Cranking | 120 rpm | |
| Starter Rolling Current, 12V @32 °F (0 °C) | 450 amps | |
| Starter Rolling Current, 24V @32 °F (0 °C) | 250 amps | |
| Starter Rolling Current, 12V @-22 °F (-30 °C) | 700 amps | |
| Starter Rolling Current, 24V @-22 °F (-30 °C) | 400 amps | |
| Min. Voltage at ECU during Cranking, 12V | 6 volts | |
| Min. Voltage at ECU during Cranking, 24V | 10 volts | |
| Max. Voltage Drop, Battery to Starter | 0.8 volts | |
| Max. Allowable Start Circuit Resistance, 12V | 0.0012 Ohm | |
| Max. Allowable Start Circuit Resistance, 24V | 0.002 Ohm | |
| Max. Voltage From Engine to Crankshaft, 12V | 15 volts | |
| Max. Voltage From Engine to Crankshaft, 24V | 30 volts | |
| Max. ECU Temperature | 105 °C | 221 °F |
| Max. VTG Actuator Surface Temp | 130 °C | 266 °F |
| Max. Air Throttle Electrical Actuator Temperature | 125 °C | 257 °F |
| Max. Harness Temperature | 125 °C | 257 °F |
| Max. Alternator Temperature | 105 °C | 221 °F |
| Max. Starter Temperature | 120 °C | 248 °F |
| Max. Temperature, All Other Electronics | 125 °C | 257 °F |

Performance Curve: 6068HFG05_A

Engine Installation Criteria

Charge Air Cooling System

| | | |
|--|---------|---------------------------|
| Air-to-Air Heat Rejection | 46.7 kW | 2658 BTU/min |
| Compressor Discharge Temperature @77°F(25°C) Ambient Air | 215 °C | 419 °F |
| Intake Manifold Pressure | 231 kPa | 33.5 psi |
| Compressor Discharge Temperature @117°F(47°C) 80 kPa Barametric pressure | 225 °C | 437 °F |
| Max. Temperature Out of Charge Air Cooler @All Ambient Conditions | 88 °C | 190 °F |
| Max. Pressure Drop through CAC | 16 kPa | 64.0 in. H ₂ O |
| Min. Pressure Drop through CAC | 8 kPa | 32.0 in. H ₂ O |
| Max. Temperature Out of Charge Air Cooler @77°F (25°C) Ambient Air | 56 °C | 133 °F |
| Min. Temperature Out of Charge Air Cooler @77°F (25°C) Ambient Air | 48 °C | 118 °F |
| Max. Bending Moment on Compressor Outlet | 3.5 N-m | 3 lb-ft |
| Max. Shear on Compressor Outlet | 2.5 kg | 6 lb |

Cooling System

| | | |
|---|------------|--------------|
| Engine Heat Rejection | 127 kW | 7229 BTU/min |
| Coolant Flow @10 kPa External Restriction | 468 L/min | 124 gal/min |
| Coolant Flow @40 kPa External Restriction | 420 L/min | 111 gal/min |
| Thermostat Start to Open | 85 °C | 185 °F |
| Thermostat Fully Open | 97 °C | 207 °F |
| Engine Coolant Capacity | 11.9 Liter | 12.6 quart |
| Min. Coolant Fill Rate | 12 L/min | 3.2 gal/min |
| Max. Water Pump Inlet Pressure | 235 kPaa | 34 psia |
| Min. Pump Inlet Pressure @203°F (95°C) Coolant | 110 kPaa | 16 psia |
| Min. Pump Inlet Pressure @Max. Top Tank Temperature | 159 kPaa | 23 psia |
| Max. External Coolant Restriction | 50 kPa | 7 psi |
| Max. Top Tank Temperature | 113 °C | 235 °F |
| Max. Top Tank Temperature 95% of Operating Hours | 103 °C | 217 °F |

Exhaust System

| | | |
|--|--------------------------|---------------------------|
| Exhaust Flow | 27.2 m ³ /min | 961 ft. ³ /min |
| Exhaust Temperature | 402 °C | 756 °F |
| Max. Allowable Exhaust Restriction | 12.8 kPa | 51 in. H ₂ O |
| Max. Bending Moment on Turbo Outlet | 7.4 N-m | 5.5 lb-ft |
| Max. Shear on Turbine Outlet | 2.5 kg | 6 lb |
| Exhaust Filter Size | 5; Gen 1.5 | |
| Exhaust Filter Pressure Drop (Clean) | 7.8 kPa | 31 in. H ₂ O |
| Min. Mixing Length, Outlet to Exhaust Filter | NA | |
| Max. Bending Moment on Exhaust Filter Inlet | 110 N-m | 81 lb-ft |
| Max. Bending Moment on Exhaust Filter Outlet | 110 N-m | 81 lb-ft |
| Max. Exhaust Leakage Rate, Engine to Exhaust Filter @30kPa | 5 L/min | 1.3 gal/min |
| Max. Temperature Drop, Engine to Exhaust Filter | 30 Δ°C | 54 Δ°F |

Fuel System

| | | |
|--|----------------|---------------------------|
| ECU Description | L33 Controller | |
| Fuel Injection Pump | Denso HP6 | |
| Governor Type | Electronic | |
| Total Fuel Flow | 125 kg/hr | 276 lb/hr |
| Fuel Consumption, Prime | 39.5 kg/hr | 87 lb/hr |
| Fuel Consumption, Standby | 35.7 kg/hr | 79 lb/hr |
| Fuel Temperature Rise, Inlet to Return | 21 Δ°C | 38 Δ°F |
| Min. Fuel Inlet Pressure | -30 kPa | -120 in. H ₂ O |
| Max. Fuel Return Pressure | 40 kPa | 160 in. H ₂ O |
| Min. Fuel Return Pressure | 0 kPa | 0 in. H ₂ O |
| Max. Fuel Inlet Temperature | 75 °C | 167 °F |
| Fuel Filter @98% Efficiency | 2 mic | |

Lubrication System

| | | |
|-----------------------------|---------|------------------------|
| Oil Pressure at Rated Speed | 300 kPa | 44 psi |
| Max. In-Pan Oil Temperature | 138 °C | 280 °F |
| Max. Crankcase Pressure | 2 kPa | 8 in. H ₂ O |

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Engine Installation Criteria

Air Intake System

| | | |
|---|--------------------------|---------------------------|
| Engine Air Flow | 13.2 m ³ /min | 466 ft. ³ /min |
| Air Mass Flow | 903 kg/hr | 1991 lb/hr |
| Maximum Allowable Temperature Rise, Ambient Air to Engine Inlet | 8 Δ°C | 15 Δ°F |
| Max. Air Intake Restriction, Clean Air Cleaner | 3.75 kPa | 15.0 in. H ₂ O |
| Max. Air Intake Restriction, Dirty Air Cleaner | 6.25 kPa | 25.0 in. H ₂ O |
| Air Cleaner Efficiency | 99.9 % | |

Performance Data

| | | |
|--------------------------------|------------|-----------|
| Rated Power, Prime | 175 kW | 235 HP |
| Rated Power, Standby | 192 kW | 257 HP |
| Rated Speed | 1800 rpm | |
| Low Idle Speed | 1200 rpm | |
| Rated Torque, Prime | 928 N·m | 684 lb-ft |
| Rated Torque, Standby | 1020 N·m | 752 lb-ft |
| BMEP, Prime | 1736 kPa | 252 psi |
| BMEP, Standby | 1908 kPa | 277 psi |
| Altitude Capability, Prime | 3048 m | 10000 ft |
| Altitude Capability, Standby | 1372 m | 4500 ft |
| Friction Power @Rated Speed | 20 kW | 27 HP |
| Air:Fuel Ratio, Prime | 22.5 : 1 | |
| Air:Fuel Ratio, Standby | 22.1 : 1 | |
| Noise @1 m Prime | 94.7 dB(A) | |
| Noise @1 m Standby | 94.8 dB(A) | |
| 0-100% Standby Load Acceptance | 2.4 sec | |
| Load Acceptance, ISO 8528-5 | G3 | |

DEF Data

| Rating | Engine Speed | DEF Consumption* | | Percent of Diesel Consumption** |
|---------|--------------|------------------|----------|---------------------------------|
| | | g/kWh | lb/hp-hr | |
| | RPM | | | % |
| Standby | 1800 | 8.7 | 0.0143 | 3.3 |
| Prime | 1800 | 8.5 | 0.0140 | 3.2 |

*DEF conversion factor: 1.087 kg/l (9.071 lb/gal)

** Percent of diesel consumption by volume at 100% power

| Fuel Consumption | Prime | | Standby | |
|------------------|-------|------|---------|------|
| | lb/hr | kg/h | lb/hr | kg/h |
| 25 % Power | 27.1 | 12.3 | 28.9 | 13.1 |
| 50 % Power | 44.5 | 20.2 | 47.8 | 21.7 |
| 75 % Power | 59.5 | 27.0 | 65.0 | 29.5 |
| 100 % Power | 72.3 | 32.8 | 87.1 | 39.5 |

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