ENGINE PERFORMANCE CURVE

Rating: Gross Power
Application: Generator
250 kWe Standby Market
1800 RPM (60 Hz)

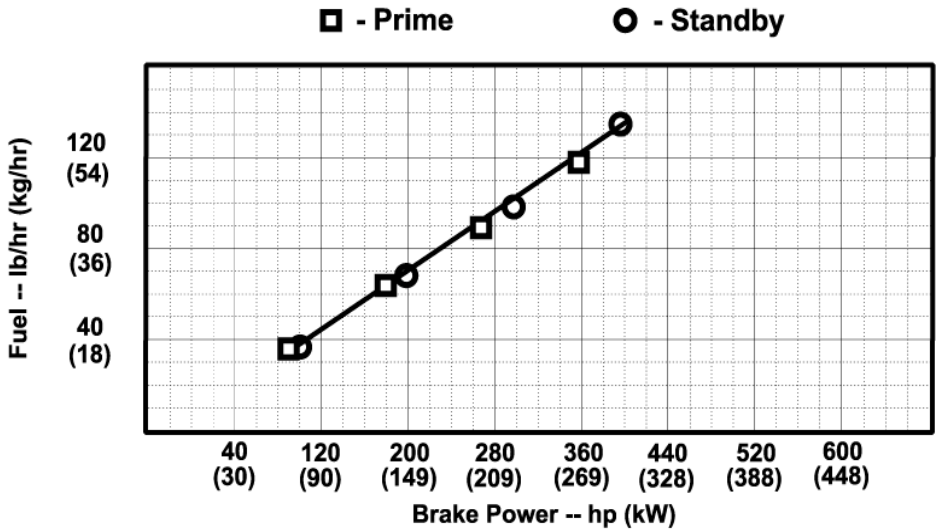
PowerTech™ PSX 9.0L Engine
Model:6090HFG95
JD Electronic Control

358 hp (267 kW) Prime
398 hp (297 kW) Standby

Nominal Engine Power @ 1800 RPM			
Prime		Standby	
HP	kW	HP	kW
358	267	398	297

Generator Efficiency %	Fan Power (% of Standby)		Power Factor	Prime Rating		Standby Rating	
	hp	kW		kWe	kVA	kWe	kVA
90-94	23.9	17.8	0.8	228-239	286-298	251-262	314-328

Note 1: Based on nominal engine power.
Note 2: kWe / kVA rating assumes 90% efficiency. Generator Efficiency % will vary.



STANDARD CONDITIONS

Air Intake Restriction.....12 in.H_2O (3 kPa)
Exhaust Back Pressure.....60 in.H_2O (15 kPa)

Gross power guaranteed within + or - 5% at SAE J1995 and ISO 3046 conditions:
- 77 °F (25 °C) air inlet temperature
- 29.31 in.Hg (99 kPa) barometer
- 104 °F (40 °C) fuel inlet temperature
- 0.853 fuel specific gravity @ 60 °F (15.5 °C)

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:
• EPA Interim Tier 4 Ref: Engine Emission Label	7 February 2011

Performance Curve: 6090HFG95_B

Engine Installation Criteria

General Data

Model			6090HFG95	
Number of Cylinders			6	
Bore	118.4	mm	4.7	in.
Stroke	136	mm	5.4	in.
Displacement	9.0	L	549	$in.^3$
Compression Ratio			16.0 : 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	1266.6	mm	49.9	in.
Width	841.7	mm	33.1	in.
Height	1344.0	mm	52.9	in.
Weight, with oil &no coolant (Includes engine, flywheel housing, flywheel &electrics)	1096.8	kg	2418	lb
Center of Gravity Location, X-axis From Rear Face of Block	458.7	mm	18.1	in.
Center of Gravity Location, Y-axis Right of Crankshaft		mm		
Center of Gravity Location, Z-axis Above Crankshaft	184.2	mm	7.3	in.
Max. Bending Moment about Main Bearings Front and Rear	550	N·m	406	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	2932	N	659	lb
Thrust Bearing Load Limit Forward, Continuous	1933	N	435	lb
Thrust Bearing Load Limit Rearward, Intermittent	139	N	31	lb
Thrust Bearing Load Limit Rearward, Continuous	899	N	202	lb
Max. Continuous Damper Temp	200	°C	392	°F
Max. ECU Vibration, All Axis			9.00	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)			920	amps
Starter Rolling Current, 24V @32 °F (0 °C)			600	amps
Starter Rolling Current, 12V @-22 °F (-30 °C)			1300	amps
Starter Rolling Current, 24V @-22 °F (-30 °C)			700	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			0.15	volts
Max. Voltage From Engine to Crankshaft, 24V			0.15	volts
Max. ECU Temperature	105	°C	221	°F
Max. VTG Actuator Surface Temp	180	°C	356	°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

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Engine Installation Criteria

Charge Air Cooling System

Air-to-Air Heat Rejection	87	kW	4952	BTU/min
Intake Manifold Pressure	309	kPa	44.8	psi
Compressor Discharge Temperature @77°F(25°C) Ambient Air	254	°C	489	°F
Compressor Discharge Temperature @117°F(47°C) 80 kPa Barametric pressure	294	°C	561	°F
Max. Temperature Out of Charge Air Cooler @All Ambient Conditions	88	°C	190	°F
Intake Manifold Temperature at which Power De-rate Occurs	88	°C	190	°F
Intake Manifold Temperature at which Severe Power De-rate Occurs	89.5	°C	193.1	°F
Max. CAC System Volume	27	Liter	29	quart
Max. Pressure Drop through CAC	16	kPa	64.0	in. H_2O
Min. Pressure Drop through CAC	8	kPa	32.0	in. H_2O
Max. Temperature Out of Charge Air Cooler @77°F (25°C) Ambient Air	52	°C	126	°F
Min. Temperature Out of Charge Air Cooler @77°F (25°C) Ambient Air	46	°C	115	°F
Max. Bending Moment on Compressor Outlet	6	N·m	4	lb-ft
Max. Shear on Compressor Outlet	4	kg	9	lb

Cooling System

Engine Heat Rejection	179.1	kW	10194	BTU/min
Coolant Flow @10 kPa External Restriction	405	L/min	107	gal/min
Coolant Flow @40 kPa External Restriction	360	L/min	95	gal/min
Max. Auxiliary Coolant Flow	30	L/min	8	gal/min
Thermostat Start to Open	85	°C	185	°F
Thermostat Fully Open	95	°C	203	°F
Engine Coolant Capacity	17	Liter	18.0	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	118	kPaa	17	psia
Min. Pump Inlet Pressure @Max. Top Tank Temperature	172	kPaa	25	psia
Min. External Coolant Restriction	15	kPa	2	psi
Max. External Coolant Restriction	60	kPa	9	psi
Max. Top Tank Temperature	113	°C	235	°F
Max. Top Tank Temperature 95% of Operating Hours	103	°C	217	°F
Min. Limiting Ambient Temperature	47	°C	117	°F

Exhaust System

Exhaust Flow	42	m^3/min	1483	$ft.^3$/min
Exhaust Temperature	380	°C	716	°F
Max. Allowable Exhaust Restriction	10.3	kPa	41	in. H_2O
Max. Bending Moment on Turbo Outlet	7	N·m	5.2	lb-ft
Max. Shear on Turbine Outlet	11	kg	24	lb
Exhaust Filter Size			7	
Exhaust Filter Pressure Drop (Clean)	15	kPa	60	in. H_2O
Min. Mixing Length, Outlet to Exhaust Filter	500	mm	20	in.
Max. Bending Moment on Exhaust Filter Inlet	180	N·m	133	lb-ft
Max. Bending Moment on Exhaust Filter Outlet	180	N·m	133	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	°C	86	°F

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Engine Installation Criteria

Fuel System

ECU Description			L21 Controller	
Fuel Injection Pump			Denso HP4	
Governor Type			Electronic	
Total Fuel Flow	210	kg/hr	463	lb/hr
Fuel Consumption, Prime	53.9	kg/hr	119	lb/hr
Fuel Consumption, Standby	62.6	kg/hr	138	lb/hr
Fuel Temperature Rise, Inlet to Return	54	Δ°C	97	Δ°F
Min. Fuel Inlet Pressure	-30	kPa	-120	in. H_2O
Max. Fuel Inlet Pressure	20	kPa	80	in. H_2O
Max. Fuel Return Pressure	20	kPa	80	in. H_2O
Min. Fuel Return Pressure	0	kPa	0	in. H_2O
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
Oil Pressure at Low Idle	100	kPa	15	psi
Max. In-Pan Oil Temperature	138	°C	280	°F
Max. Crankcase Pressure	2	kPa	8	in. H_2O

Air Intake System

Engine Air Flow	21	m³/min	742	ft.³/min
Air Mass Flow	1446	kg/hr	3188	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_2O
Max. Air Intake Restriction, Dirty Air Cleaner	6.25	kPa	25.0	in. H_2O
Air Cleaner Efficiency			99.9	%

Performance Data

Rated Power, Prime	358	HP	267	kW
Rated Power, Standby	398	HP	297	kW
Rated Speed			1800	rpm
Low Idle Speed			1800	rpm
Rated Torque, Prime	1418	N·m	1046	lb-ft
Rated Torque, Standby	1576	N·m	1162	lb-ft
BMEP, Prime	1993	kPa	289	psi
BMEP, Standby	2216	kPa	321	psi
Altitude Capability, Prime	1676	m	5500	ft
Altitude Capability, Standby	1676	m	5500	ft
Friction Power @Rated Speed	21	kW	28	HP
Air:Fuel Ratio, Prime			23.1 : 1	
Air:Fuel Ratio, Standby			22.9 : 1	
Noise @1 m Prime		dB(A)		
Noise @1 m Standby		dB(A)		
4 second Standby Block Load Capability		%		
Block Load Capability, ISO 8528 G2		%		

Fuel Consumption	Prime		Standby	
	lb/hr	kg/h	lb/hr	kg/h
25 % Power	36.8	16.7	37.3	16.9
50 % Power	63.1	28.6	68.8	31.2
75 % Power	89.9	40.8	98.8	44.8
100 % Power	118.2	53.6	135.8	61.6

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