broadcrown®

Technical Data

May 2013

John Deere 4024 HF285	CGT Stamford UCI 224	Generator Model:	BCJD 50-60 T3/F

60 Hz	3-Phase	Power Factor Cos Φ = 0.8	Emissions EPA Tier 3 Flex Compliant

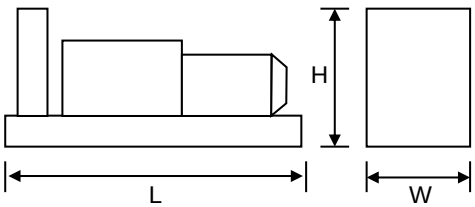
RATINGS	PRIME POWER (PRP)		STANDBY POWER (LTP)		
Voltage	kVA	kWe	kVA	**kWe**	Amps
480/277	57	46	63	**50**	76
440/254	57	46	63	**50**	83
416/240	57	46	63	**50**	87
240/138	57	46	63	**50**	152
220/127	57	46	63	**50**	165

Definition of Ratings & Reference Conditions

Prime Power (PRP) is the nominal output continuously available, where the average load (variable) does not exceed 70% of the prime power rating. 10% overload is available for a maximum of 1 hour in 12 hours of operation.
Standby Power (LTP) is the maximum output available, for up to 500 hours per year, where the average load (variable) does not exceed 70% of the standby power rating. No overload is available.
Standard Reference Conditions: air temperature 25°C (77°F), barometric pressure 99kPa, [110m (361ft) altitude], 30% relative humidity.
Note: The above ratings may be subject to derate at different operating conditions. Please see the Derate Guidelines on the Broadcrown Website.
All power ratings and reference conditions in accordance with ISO 8528-1 and ISO 3046-1.

Key Features:

- Efficient water cooled John Deere diesel engine.
- Single bearing CGT Stamford alternator
- Radiator with pressure cap and drain point
- Fully guarded engine-driven fan
- Fully welded steel skid base with fork lift pockets
- Integral fuel tank with filler cap and gauge
- Heavy duty rubber anti-vibration mountings
- 12V starter battery and connecting cables
- Separate engine-driven battery charging alternator
- Spin on oil and fuel filters and dry type air filter element
- Industrial silencer (15dBA reduction) supplied loose
- Auto Start control system with digital instruments
- Main line circuit breaker
- Factory Test Certificate
- Operation & Maintenance Manual
- Wide range of optional extra features available



Overall Dimensions & Weights - Open Set

Length (L) = 2300mm *[91in]*
Width (W) = 850mm *[34in]*
Height (H) = 1630mm *[61in]*

Dry Weight (inc oil) = 1252kg *[2766lb]*
Operating Weight = 1490kg *[3295lb]*

	Typical Open Generator Sound Pressure Level at 1m, Free Field (dB)							
Overall dBA	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
95	82	83	87	91	91	88	80	79

All designs and specifications subject to change without notice

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ENGINE & COOLING SYSTEM — JOHN DEERE 4024 HF285

		SI Units	[US Units]	PRIME	STANDBY
Performance	Engine Speed	r/min	[rpm]	1800	
	Gross Power	kWm	[bhp]	52 [70]	57 [76]
	Fan Power	kWm	[bhp]	3 [4]	3 [4]
	Net Power	kWm	[bhp]	49 [66]	54 [72]
	Emissions Certification			E3/F	
	Altitude Capability	m	[ft.]	3050 [10000]	3050 [10000]
General	Cylinders / Type			4 cyl / inline / 4-stroke	
	Aspiration / Charge Cooling			Turbocharged / Air to air	
	Governing / Engine Management			Electronic Governor	
	Bore / Stroke	mm	[in.]	86 / 105 [3.40 / 4.10]	
	Cubic Capacity	litres	[cu.in.]	2.4 [146]	
	BMEP	kPa	[psi]	1421 [206]	1558 [226]
Fuel	Fuel Consumption at 100% Power	litres/h	[gal/h]	14.4 [3.8]	16.1 [4.2]
	Fuel Consumption at 75% Power	litres/h	[gal/h]	10.9 [2.9]	12.1 [3.2]
	Fuel Consumption at 50% Power	litres/h	[gal/h]	7.4 [2.0]	8.2 [2.2]
	Total fuel flow	litres/h	[gal/h]	82 [22]	
	Standard Fuel Tank Capacity	litres	[gal]	232 [61]	
Air	Engine Air Flow	m³/s	[cfm]	0.067 [141]	0.072 [152]
	Maximum Air Intake Restriction (used filter)	kPa	[inWG]	6.25 [25]	
Exhaust	Exhaust Gas Flow	m³/s	[cfm]	0.182 [385]	0.198 [420]
	Exhaust Gas Temperature	°C	[°F]	554 [1029]	572 [1062]
	Maximum Exhaust Back Pressure	kPa	[inWG]	7.5 [30]	
	Typical Exhaust Pipe Diameter	mm	[in.]	65 [2.5]	
Cooling	Radiator Cooling Air Flow	m³/s	[cfm]	TBA [TBA]	
	Max Restriction to Cooling Air Flow	Pa	[inWG]	TBA [TBA]	
	Max Radiator Air-On Temperature	°C	[°F]	TBA [TBA]	
	Maximum Coolant Temperature	°C	[°F]	110 221]	
	Coolant Capacity - Engine Only	litres	[gal]	2.6 [0.7]	
	Total Coolant Capacity	litres	[gal]	16.0 [4.2]	
Oil	Total Oil Capacity incl Filters	litres	[gal]	7.5 [2.0]	
	Typical Oil Pressure at Rated Speed	kPa	[psi]	280 [41]	
	Typical Oil Consumption (>250hrs Operation)	litres/h	[pt/h]	0.04 [0.08]	
Thermal	Heat Rejection to Engine Cooling Water	kW	[btu/min]	27.4 [1560]	34.9 [1987]
	Heat Rejection to Charge Cooler	kW	[btu/min]	8.5 [484]	10.7 [609]
	Heat Radiated From Engine (Typical)	kW	[btu/min]	6.5 [370]	7.1 [406]
Elec	Electrical System Voltage		V	12	
	Battery Type			1 X 069	
	Battery Capacity SAE CCA		A	520	

ALTERNATOR — CGT STAMFORD UCI 224

		SI Units	[US Units]	PRIME	STANDBY
General Data	Manufacturer			Cummins Generator Technologies - STAMFORD	
	Model (may vary with voltage)			UCI 224 D	UCI 224 D
	Operating Temperature	°C	[°F]	40 [104]	27 [81]
	Coupling / No. of Bearings			Direct / Single Bearing	
	Phase / Poles / Winding Type			3-Phase / 4-Pole / Winding 311	
	Power Factor			Cos Φ = 0.8	
	Excitation			Self Excited	
	Insulation System			Class H	
	AVR Type			SX 460	
	Voltage Regulation			± 1.0%	

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STANDARD CONTROL SYSTEM — BC 7210 Digital Auto Start

The standard control system for this model is the **BC 7210** Auto Start system, based on the DSE 7210 control module, which provides :

- Automatic remote start
- Overspeed protection
- Underspeed protection
- Low oil Pressure protection
- High coolant temperature protection
- Fail to Start indication
- Automatic cool-down timer function
- Optional - Common Alarm & System In Auto volt-free contacts

Together with digital displays for :

- Volts, Amps and Frequency
- Engine operating hours

This system also has an increased digital input/output count for external options and, being cost effective in comparison with the optional (BC 701) analogue system, is the preferred choice for most customers.

CONTROL SYSTEM OPTIONS

BC 7310 & **BC 7320** control systems (just the DSE modules shown here) provide complete power monitoring and protection facilities.
Compared to BC 7210, addition features include :

- Pre-alarms for Low Oil Pressure and High Coolant Temperature
- Digital display of kW, kVA and Power Factor
- Under/Over Volts protection
- Over Current Protection
- Full RS485 Telemetry implementation as well as full SAE J1939 CANBus implementation. In fact, all generating sets driven by engines with onboard ECU/CANBus come with this system as standard.

The BC 7320 provides full AMF functionality with integrated mains monitoring and generator/mains contactor control.

BC 8610 & **BC 8620** control systems provide the same features as BC 7310 & BC 7320 respectively, plus :

- BC 8610 - Set-to-Set Synchronisation
- BC 8620 - Single Set-to-Mains Synchronisation with integrated mains monitoring

For Multi Set-to-Mains synchronisation, each set requires BC 8610 with the addition of one mains monitoring panel **BC 8660** (not illustrated).
See the Synchronisation Guidelines for further details.

The optional control system for this model is **BC 701** (photo), based on the Deep Sea Electronics DSE701 Key Start controller.
This provides for the manual control of the generator via a two-position key switch and membrane push button for Start, together with Overspeed, Low Oil Pressure and High Coolant Temperature protection.

- LED indications for protection operation & charge alternator fail
- Analogue voltmeter with 7-position selector switch
- Analogue ammeter with 4-position selector switch
- Analogue frequency meter
- Analogue gauges for Oil Pressure, Coolant Temp & Charge Amps
- Engine hours counter
- Emergency Stop button
- One auxiliary input for optional features
- Optional - analogue kW meter, Generator Running volt-free output

The panel is constructed in 1.5mm steel, powder coated to RAL9001 for a high quality, durable finish with side-hinged door.

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OPTIONAL ACOUSTIC ENCLOSURE — Canopy 2

The optional acoustic enclosure for this model is **Canopy 2**, suitable for operation in harsh outdoor environmments whilst providing excellent security and acoustic performance. All steel canopy components are pre-treated and polyester powder coated (to a typical thickness of 70-80µm) in RAL9001 white and the baseframe is finished in RAL9005 black.

Acoustically, the canopy is designed to meet the requirements of EU Legislation 2000/14/EC, achieved by extensive use of fire-retardant polyurethane foam together with efficient management of cooling air. Exhaust noise is minimised by internally mounted high performance exhaust silencers.

A steel fuel tank with filler, gauge and accessory points, is integrated within the baseframe. Alernatively, a bund with separate fuel tank can be provided where this is required.

Other key features include :

- Gull-wing doors with gas struts for good service access
- Panel/breaker access door with viewing window
- Heavy duty locks on all doors for total security
- Weather cap on exhaust discharge
- Emergency Stop button relocated to canopy exterior
- Lifting and holding down points
- Fork Lift pockets
- Optional single roof lifting point.

Dimensions mm *[in]*					Additional Weight kg *[lbs]**	Typical Sound Pressure Level at Standby Power		Fuel Tank Capacity Litres *[US gal]*		Single Point Lift
L	x	W	x	H		dB(A) at 1m [3ft]	dB(A) at 7m [23ft]	Integral	Bunded	
2800 *[110]*	x	1110 *[43]*	x	1670 *[65]*	450 *[992]*	79	69	250 *[66]*	220 *[58]*	Optional

* Indicative weight of canopy *additional* to open set

Typical SPL is a mean level, measured in free field conditions, with no contributory background noise.

KEY OPTIONS (Open Set)

Engine & Cooling :

- Electronic governor
- Oil and coolants drains extended to edge of baseframe
- Manual lub oil drain pump
- Coolant heater
- Medium duty air cleaner
- Exhaust manifold guards

Alternator :

- Anti-condensation heater
- Quadrature droop kit
- Alternative AVR
- Thermistor probes and controls

Fuel System :

- Baseframe with integral bund and drop-in fuel tank
- Fuel filter/separator
- Low fuel level switch (single point)
- Fuel level switch (four point)
- Manual fuel transfer pump
- Pumped/gravity fuel transfer system

Exhaust System :

- Residential silencer
- Critical silencer
- Flange/connection kit

Please refer to Broadcrown Sales Department for full details of these and other options

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