

CHONGQING CUMMINS ENGINE PERFORMANCE CURVE

Engine Model
NT855-GA
L Code Data Sheet

Curve No. **C-0171A**

Date **2006-9-22**

CPL Code **3469**

C-0171A

Emission Level

Displacement: **14L**

[855 in.³]

Cylinders: 6

Fuel System: PT

Bore: **140mm**

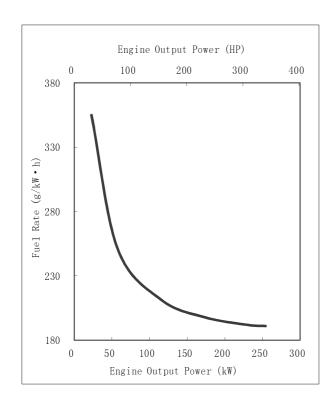
[5.50 in.]

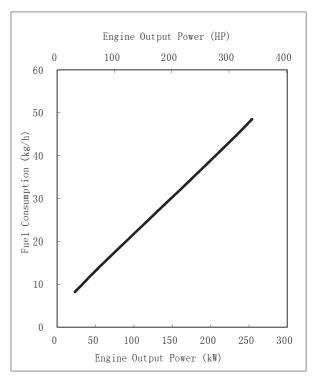
Speed: 1500 r/min

Cfg. Number: **D092553DX02**

Stroke: 152mm [6.00in.] Aspiration: Turbocharged

Standby Power		Prime Power		Continuous Power	
kW	HP	kW	HP	kW	HP
254	340	231	310		





	Output	Power	Fuel Consumption		Fuel Rate
	HP	kW	kg/h	L/h	g/kW-h
Standby100%	340	254	48.5	58.4	191.0
Prime100%	310	231	44.3	53.4	191.8
75%	233	173	34.3	41.3	197.8
50%	155	116	24.4	29.4	211.4
25%	78	58	14.5	17.5	251.1
10%	31	23	8.2	9.9	355.0

All data is based on :

- --Engine Operating with fuel system, water pump, lubricating oil pump, air cleaner and exhaust silencer, fan, and optional driven components.
- --Engine operating with fuel corresponding to grade No.2-D per ASTM D975.
- --ISO 3046, Part1, Standard Reference Conditions of : Barometric Pressure:100kPa(29.5in.Hg); Air Temperature: 25°C (77°F); Relative Humidity: 30%.

STAUS FOR CURVES AND DATA:

CHIEF ENGINEER:

杂茶

TOLERANCE: +/-5%

POWER RATING APPLICATION GUIDELINES FOR GENERATOR DRIVE ENGINES

These guidelines have been formulated to ensure proper application of generator drive engines in A.C. generator set installations. Generator drive engines are not designed for and shall not be used in variable speed D.C. generator set applications.

STANDBY POWER RATING is applicable for supplying emergency power for the duration of the utility power outage. No overload capability is available for this rating. Under no condition is an engine allowed to operate in parallel with the public utility at the Standby Power rating.

This rating should be applied where reliable utility power is available. A standby rated engine should be sized for a maximum of an 80% average load factor and 200 hours of operation per year. This includes less than 25 hours per year at the Standby Power rating. Standby ratings should never be applied except in true emergency power outages. Negotiated power outages contracted with a utility company are not considered an emergency.

<u>CONTINUOUS POWER RATING</u> is applicable for supplying utility power at a constant 100% load for an unlimited number of hours per year. No overload capability is available for this rating.

PRIME POWER RATING is applicable for supplying electric power in lieu of commercially purchased power. Prime Power applications must be in the form of one of the following two categories:

UNLIMITED TIME RUNNING PRIME POWER

Prime Power is available for an unlimited number of hours per year in a variable load application. Variable load should not exceed a 70% average of the Prime Power rating during any operating period of 250 hours.

The total operating time at 100% Prime Power shall not exceed 500 hours per year.

A 10% overload capability is available for a period of 1 hour within a 12 hour period of operation. Total operating time at the 10% overload power shall not exceed 25 hours per year.

LIMITED TIME RUNNING PRIME POWER

Prime Power is available for a limited number of hours in a non-variable load application. It is intended for use in situations where power outages are contracted, such as in utility power curtailment. Engines may be operated in parallel to the public utility up to 750 hours per year at power levels never to exceed the Prime Power rating. The customer should be aware, however, that the life of any engine will be reduced by this constant high load operation. Any operation exceeding 750 hours per year at the Prime Power rating should use the Continuous Power rating.

Reference Standards:

BS-5514 and DIN-6271 standards are based on ISO-3046.

Operation At Elevated Temperature And Altitude:

The engine may be operated at:

1800 RPM up to 5000 ft. (1525 m) and 104 $^{\circ}\text{F}$ (40 $^{\circ}\text{C})$ without power deration.

1500 RPM up to 5000 ft. (1525 m) and 104 $^{\circ}\text{F}$ (40 $^{\circ}\text{C}) without power deration.$

For sustained operation above these conditions, derate by 4% per 1,000 ft. (300 m), and 1% per 10 $^{\circ}$ F (2% per 11 $^{\circ}$ C).



Chongqing Cummins Engine Co. Ltd.

Engine Data Sheet

CCEC MODEL: NT855-GA DATA SHEET: C-0171A
NFIGURATION NO.: D092553DX02 PERFORMANCE CURVE: C-0171A
CPL NUMBER: 3469 INSTALLATION DIAGRAM: 4915106
PRIME POWER: 310 HP (231 kW) at 1500 r/min DATE: 2006/9/22

STANDBY POWER: 340 HP (254 kW) at 1500 r/min EMISSION LEVEL:

GENERAL ENGINE DATA		
Type	Oveletin_line:6_0	Cylinder
Aspiration		
Bore x Stroke - in. ×in. (mm×mm)		(140 × 152)
Displacement - in. ³ (L).		(14)
Compression Ratio	15.0:1	
Firing Order	1-5-3-6-2-4	1
Dry Weight		
Fan to Flywheel Engine - Ib. (kg)	2800	(1270)
Heat Exchanger Cooled Engine - Ib. (kg)	3040	(1380)
Wet Weight		
Fan to Flywheel Engine - Ib. (kg)		(1320)
Heat Exchanger Cooled Engine - Ib. (kg)		(1480)
Moment of Inertia of Rotating Components - With FW1109 flywheel - Ib. ft. (kg-	m ²) 118.5	(4.99)
Center of Gravity from Rear Face of Flywheel Housing - in.(mm)		(704)
Center of Gravity Above Crankshaft Centerline - in.(mm)	5.5	(140)
ENGINE MOUNTING		
Maximum Allowable Bending Moment at Rear Face of Block - lb.·ft. (N·r	n) 1000	(1356)
EXHAUST SYSTEM		
Maximum Allowable Back Pressure - in.Hg (kPa)	3.0	(10)
Standard Exhaust Pipe Diameter - in. (mm)		(127)
AIR INDUCTION SYSTEM		, ,
Maximum Allowable Intake Air Restriction		
With Clean Filter Element - in. H ₂ O (kPa)	15	(3.74)
With Dirty Filter Element - in. H ₂ O (kPa)		(6.22)
Minimum Dirt Holding Capacity - g/CFM (g/L/s)		`(53) [′]
Maximum Allowable Intake Air Temperature ΔT - °F (°C)	30	(17)
COOLING SYSTEM		
Coolant Capacity - Engine Only - U.S. gal (L)	5.5	(20.8)
- With Radiator - U.S. gal (L)		(60.6)
- With Heat Exchanger - U.S. gal (L)		(49.2)
Maximum Coolant Friction Head External to Engine - PSI (kPa)		(41)
Maximum Coolant Pressure(exclusive of Pressure Cap) - PSI (kPa)		(276)
Maximum Static Head of Coolant Above Engine Crank Centerline -ft. (m Standard Thermostat (Modulating) Range - °F (°C)		(14.0) (82 - 94)
Minimum Allowable Pressure Cap -PSI (kPa)		(48.2)
Maximum Coolant Temperature - °F (°C)		(96)
Maximum Top Tank Temperature - °F (°C)		(100)
Minimum Top Tank Temperature - °F (°C)		(71)
Maximum Allowable Top Tank Temperature for Standby / Prime Power - °F (°C).		(104/100)
Minimum Recommended Top Tank Temperature - °F (°C)		(71)
Minimum Coolant Expansion Space - % of System Capacity		(40)
Minimum Coolant Makeup Capacity - U.S. gal (L)		(4.2)
Maximum Inlet Restriction at Raw Water Pump - in.Hg (kPa)		(103) (34)
maximon information at itaw water i ump - ining (it a)		(54)

Maximum Raw Water Pump Initial Suction Lift- ft. (m)	2	(10) (51)
Allowable Pressure Drop Across Keel Cooler -PSI (kPa)	4	(28)
LUBRICATION SYSTEM		
Oil Pressure @ Idle Speed - PSI (kPa)		(103) Min
@ Governed Speed - PSI (kPa)		(241 - 345)
Maximum Allowable Oil Temperature - °F (°C)		(121)
Oil Pan Capacity - Low / High - U.S. gal. (L)		•
Total System Capacity - U.S. gal. (L)		(38.6)
Angularity of Oil Pan - Front Down/Front Up/Side to Side	38°/38°/38	3-
FUEL SYSTEM		
Type Injection SystemDi	rect Injection Cur	nmins PT
Maximum Allowable Restriction to Fuel Pump		
With Clean Fuel Filter - in.Hg (kPa)		(13.5)
With Dirty Fuel Filter - in.Hg (kPa)	8.0	(27.1)
Maximum Allowable Head on Injector Return Line		()
With Check Valve - in.Hg (kPa)		(22.0)
Without Check Valve - in.Hg (kPa)		(8.5)
Minimum Fuel Supply Line Size - in. (mm)		(16)
Minimum Fuel Return Line Size - in. (mm)		(13)
Maximum Fuel Pump Supply - U.S.gal/h (L)		(232)
Fuel Rail Pressure - PSI (kPa)		(1148)
Maximum Fuel Temperature °F (°C)	160	(71)
ELECTRICAL SYSTEM		
Minimum Recommended Battery Capacity (24V)		
Cold Soak (No Load) - CCA		
- Minimum Reserved Capacity - CCA		
Cold Soak (With Load) - CCA		
- Minimum Reserved Capacity - CCA		
Maximum Allowable Resistance of Cranking Circuit - ohm		
Standard Cranking Motor (Heavy Duty , Positive Engagement) - volt		
Standard Battery Charging System , Negative Ground - ampere.	35	
PERFORMANCE DATA		
Idle Speed - r/min)
Maximum No-Load Governed Speed - r/min		
Maximum over Speed Capability - r/min		
Minimum Crankshaft Rotation for unaided Cold Start - r/min		
Minimum Torque for unaided Cold Start - Ib.·ft. (N·m)		(509)
Exhaust Sound Pressure at 1m from Exhaust Outlet -1500r/min -dBA	N/A	

All data is based on :

- --Engine Operating with fuel system, water pump, lubricating oil pump, air cleaner and exhaust silencer, fan, and optional driven components.
- --Engine operating with fuel corresponding to grade No.2-D per ASTM D975.
- --ISO 3046, Part1, Standard Reference Conditions of : Barometric

Pressure:100kPa(29.5in.Hg); Air Temperature: 25°C (77°F); Relative Humidity: 30%.

--This Data Sheet includes both air-cooled (Fan/Radiator) & raw water cooled (Heatexchanger/Raw Water Pump) type engine.

[Prime Power		Standb	y Power
	50Hz		50)Hz
Governed Engine Speed - r/min	1500		15	500
Gross Engine Power Output - HP (kW)	310	(231)	340	(254)
Torque lb.·ft. (N·m)	1085	(1471)	1192	(1617)
Brake Mean Effective Pressure - PSI (kPa)	191	(1320)	210	(1451)
Piston Speed - ft./min (m/s)	1500	(7.62)	1500	(7.62)
Friction Horsepower - HP (kW)	30	(22)	30	(22)
Intake Air Flow - CFM (L/s)	610	(288)	648	(306)
Engine Water Flow - GPM (L/min.)	79	(5)	79	(5)
Raw Water Flow - GPM (L/s)	54	(3.4)	54	(3.4)
Fuel Consumption - U.S.gal/h (L/h)	14.1	(53)	15.5	(59)
Oil Flow - GPM (L/s)	35	(2.2)	35	(2.2)
Exhaust Gas Temperature (After Turbine) - °F (°C)	859	(459)	877	(469)
Exhaust Gas Flow (After Turbine) - CFM (L/s)	1373	(650)	1458	(690)
Heat Radiation - BTU (kW)	1640	(29)	1810	(32)
Heat Rejection to Coolant - BTU (kW)	9860	(173)	10840	(191)
Heat Rejection to Ambient - BTU (kW)	8220	(144)	9040	(159)

Engine Model: NT855-GA Data Sheet: C-0171A Date: 2006/9/22

CHONGQING CUMMINS ENGINE CO. LTD CHONGQING, CHINA, 400031



Displacement: 14L

CHONGQING CUMMINS ENGINE PERFORMANCE CURVE

[855 in.³]

Engine Model
NT855-GA
CPL Code Data Sheet

Curve No. **C-0816A**

Rev **2006-9-22**

Emission Level

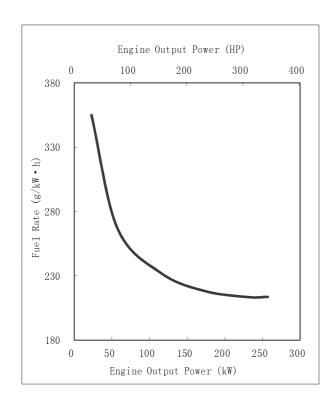
3684 C-0816A

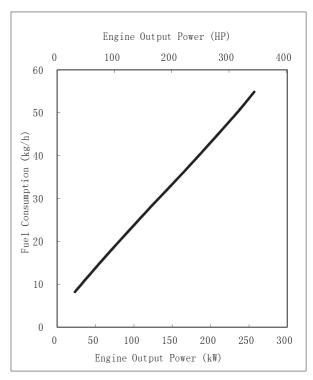
Cylinders: 6 Fuel System: PT

Bore: **140mm** [5.50 in.] Speed: **1800 r/min** Cfg. Number: **D092553DX02**

Stroke: 152mm [6.00in.] Aspiration: Turbocharged

Standby Power		Prime Power		er Continuous Power	
kW	HP	kW	HP	kW	HP
257	345	N.A.	N.A.	N.A.	N.A.





	Output	Power	Fuel Consumption		Fuel Rate
	HP	kW	kg/h	L/h	g/kW-h
Standby100%	345	257	54.9	66.1	213.6
100%	310	231	49.3	59.4	213.4
75%	233	173	37.8	45.5	218.2
50%	155	116	26.8	32.3	232.0
25%	78	58	15.4	18.6	266.7
10%	31	23	8.2	9.9	355.0

All data is based on :

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STAUS FOR CURVES AND DATA:

TOLERANCE: +/-5%

CHIEF ENGINEER:



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Reference Standards:

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Operation At Elevated Temperature And Altitude:

The engine may be operated at:

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For sustained operation above these conditions, derate by 4% per 1,000 ft. (300 m), and 1% per 10 $^{\circ}$ F (2% per 11 $^{\circ}$ C).



Chongqing Cummins Engine Co. Ltd.

Engine Data Sheet

CCEC MODEL: NT855-GA DATA SHEET: C-0816A
NFIGURATION NO.: D092553DX02 PERFORMANCE CURVE: C-0816A
CPL NUMBER: 3684 INSTALLATION DIAGRAM: 4915106

PRIME POWER: N.A. DATE: 2006/9/22

STANDBY POWER: 345 HP (257 kW) at 1800 r/min EMISSION LEVEL:

GENERAL ENGINE DATA		
Type		
Aspiration	•	•
Bore x Stroke - in. ×in. (mm×mm)	5.5 ×6 855	(140 × 152) (14)
Displacement - in. ³ (L)		(14)
Firing Order		l.
		•
Dry Weight		(4070)
Fan to Flywheel Engine - Ib. (kg)	2800	(1270)
Heat Exchanger Cooled Engine - Ib. (kg) Wet Weight	3040	(1380)
Fan to Flywheel Engine - Ib. (kg)	2900	(1320)
Heat Exchanger Cooled Engine - Ib. (kg)	3250	(1480)
	118.5	(4.99)
Moment of Inertia of Rotating Components - With FW1109 flywheel - lb.·ft.² (kg·m²)		,
Center of Gravity from Rear Face of Flywheel Housing - in.(mm)	27.7	(704)
Center of Gravity Above Crankshaft Centerline - in.(mm)	5.5	(140)
ENGINE MOUNTING		
Maximum Allowable Bending Moment at Rear Face of Block - Ib.·ft. (N·m)	1000	(1356)
EXHAUST SYSTEM		
Maximum Allowable Back Pressure - in.Hg (kPa)	3.0	(10)
Standard Exhaust Pipe Diameter - in. (mm)	5.0	(127)
AIR INDUCTION SYSTEM		, ,
Maximum Allowable Intake Air Restriction		
With Clean Filter Element - in. H ₂ O (kPa)	15	(3.74)
With Dirty Filter Element - in. H ₂ O (kPa)	25	(6.22)
Minimum Dirt Holding Capacity - g/CFM (g/L/s)	25	(53)
Maximum Allowable Intake Air Temperature ΔT - °F (°C)	30	(17)
COOLING SYSTEM		
Coolant Capacity - Engine Only - U.S. gal (L)	5.5	(20.8)
- With Radiator - U.S. gal (L)	16.0	(60.6)
- With Heat Exchanger - U.S. gal (L)	13.0	(49.2)
Maximum Coolant Friction Head External to Engine - PSI (kPa)	7	(48)
Maximum Coolant Pressure (exclusive of Pressure Cap) - PSI (kPa)	40	(276)
Maximum Static Head of Coolant Above Engine Crank Centerline -ft. (m)	46	(14.0)
Standard Thermostat (Modulating) Range - °F (°C)	180 - 202	,
Minimum Allowable Pressure Cap -PSI (kPa)	7.0	(48.2)
Maximum Coolant Temperature - °F (°C)	205	(96)
Maximum Top Tank Temperature - °F (°C)	212	(100)
Minimum Top Tank Temperature - °F (°C) Maximum Allowable Top Tank Temperature for Standby / Prime Power - °F (°C)	160	(71) (104/100)
Minimum Recommended Top Tank Temperature - °F (°C)	160	(71)
Minimum Coolant Expansion Space - % of System Capacity	5	(' ')
Minimum Coolant Makeup Capacity - U.S. gal (L)	1.1	(4.2)
Maximum Raw Water Pressure at Engine Outlet -PSI (kPa)	15	(103)
Maximum Inlet Restriction at Raw Water Pump - in.Hg (kPa)	10	(34)

Maximum Raw Water Pump Initial Suction Lift- ft. (m)	3.05 2 4	(10) (51) (28)
LUBRICATION SYSTEM	7	(20)
Oil Pressure @ Idle Speed - PSI (kPa) @ Governed Speed - PSI (kPa) Maximum Allowable Oil Temperature - °F (°C) Oil Pan Capacity - Low / High - U.S. gal. (L) Total System Capacity - U.S. gal. (L) Angularity of Oil Pan - Front Down/Front Up/Side to Side	15 Min 35-50 250 7.5 / 9.5 10.2 88°/38°/38	(103) Min (241 - 345) (121) (28.4 / 36.0) (38.6)
FUEL SYSTEM		
Type Injection System	ection Cum	ımins PT
With Clean Fuel Filter - in.Hg (kPa)	4.0	(13.5)
With Dirty Fuel Filter - in.Hg (kPa)	8.0	(27.1)
Maximum Allowable Head on Injector Return Line		
With Check Valve - in.Hg (kPa)	6.5	(22.0)
Without Check Valve - in.Hg (kPa)	2.5	(8.5)
Minimum Fuel Supply Line Size - in. (mm)	0.625	(16)
Minimum Fuel Return Line Size - in. (mm)	0.5 69	(13)
Maximum Fuel Pump Supply - U.S.gal/h (L)Fuel Rail Pressure - PSI (kPa)	184	(261) (1271.5)
Maximum Fuel Temperature °F (°C)	160	(71)
· · · · · · · · · · · · · · · · · · ·	100	(71)
ELECTRICAL SYSTEM		
Minimum Recommended Battery Capacity (24V)	000	
Cold Soak (No Load) - CCA	900 320	
Cold Soak (With Load) - CCA	900	
- Minimum Reserved Capacity - CCA	320	
Maximum Allowable Resistance of Cranking Circuit - ohm	0.002	
Standard Cranking Motor (Heavy Duty , Positive Engagement) - volt	24	
Standard Battery Charging System , Negative Ground - ampere	35	
PERFORMANCE DATA		
	575 - 650	
Maximum No-Load Governed Speed - r/min	2100	
Maximum over Speed Capability - r/min	2700	
Minimum Crankshaft Rotation for unaided Cold Start - r/min	150	
Minimum Torque for unaided Cold Start - Ib.·ft. (N·m)	375	(509)
Exhaust Sound Pressure at 1m from Exhaust Outlet -1500r/min -dBA	N/A	(- > -)

All data is based on :

- --Engine Operating with fuel system, water pump, lubricating oil pump, air cleaner and exhaust silencer, fan, and optional driven components.
- --Engine operating with fuel corresponding to grade No.2-D per ASTM D975.
- --ISO 3046, Part1, Standard Reference Conditions of : Barometric

Pressure:100kPa(29.5in.Hg); Air Temperature: 25°C (77°F); Relative Humidity: 30%.

--This Data Sheet includes both air-cooled (Fan/Radiator) & raw water cooled (Heatexchanger/Raw Water Pump) type engine.

Γ	Prime Power	Standby Power	
	N.A.	60Hz	
Governed Engine Speed - r/min		1800	
Gross Engine Power Output - HP (kW)		345	(257)
Torque lb.·ft. (N·m)		1006	(1364)
Brake Mean Effective Pressure - PSI (kPa)		177	(1224)
Piston Speed - ft./min (m/s)		1799	(9.14)
Friction Horsepower - HP (kW)		47	(35)
Intake Air Flow - CFM (L/s)		660	(311)
Engine Water Flow - GPM (L/min.)		95	(6)
Raw Water Flow - GPM (L/s)		62	(3.9)
Fuel Consumption - U.S.gal/h (L/h)		17.5	(66)
Oil Flow - GPM (L/s)		42	(2.6)
Exhaust Gas Temperature (After Turbine) - °F (°C)		900	(482)
Exhaust Gas Flow (After Turbine) - CFM (L/s)		1485	(700)
Heat Radiation - BTU (kW)		1830	(32)
Heat Rejection to Coolant - BTU (kW)		10970	(193)
Heat Rejection to Ambient - BTU (kW)		9140	(161)

Engine Model: NT855-GA Data Sheet: C-0816A Date: 2006/9/22

CHONGQING CUMMINS ENGINE CO. LTD. CHONGQING, CHINA, 400031