



CHONGQING CUMMINS ENGINE PERFORMANCE DATASHEET

Engine Model
NTA855-G1

Rev
00

Date
2019/04/24

CPL
3523

Data sheet
FR10896

Configuration
D093677GX03

Displacement: **14L [855 in.³]**

Bore: **140mm [5.50 in.]**

Stroke: **152mm [6.00in.]**

Cylinders: **6**

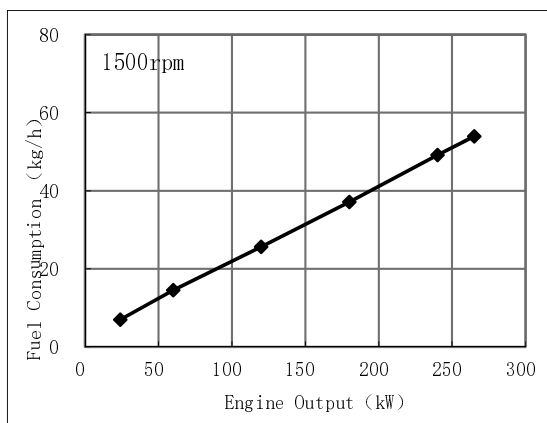
Fuel System: **PT**

Aspiration: **Turbocharged&Aftercooled**

Engine Speed	Standby Power		Prime Power		Continuous Power	
rpm	kW	HP	kW	HP	kW	HP
1500	265	355	240	322	-	-
1800	317	425	287	385	-	-

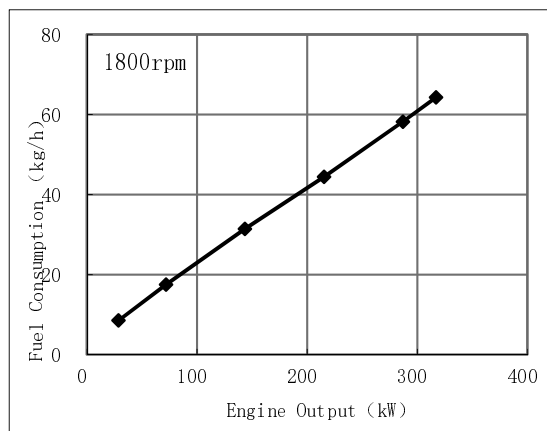
Engine Performance Data @1500 rpm

Output Power			Fuel Consumption		
%	HP	kW	kg/h	L/h	g/kW-h
Standby Power					
100	355	265	53.9	65.0	203.5
Prime Power					
100	322	240	49.1	59.2	204.7
75	242	180	37.1	44.7	206.1
50	161	120	25.6	30.9	213.7
25	81	60	14.5	17.5	241.7
10	32	24	7.0	8.4	291.7
Continuous Power					
100	-	-	-	-	-



Engine Performance Data @1800 rpm

Output Power			Fuel Consumption		
%	HP	kW	kg/h	L/h	g/kW-h
Standby Power					
100	425	317	64.3	77.4	202.8
Prime Power					
100	385	287	58.2	70.2	202.9
75	289	215	44.4	53.5	206.5
50	193	144	31.4	37.8	218.8
25	96	72	17.5	21.1	243.9
10	39	29	8.5	10.2	296.2
Continuous Power					
100	-	-	-	-	-



Data Subject to Change Without Notice !

All data is based on:

--ISO 3046 Standard Reference Conditions of : Barometric Pressure:100kPa(29.5in.Hg); Air Temperature: 25°C (77°F) ; Relative Humidity: 30% .

--Engine operating with fuel corresponding to grade No.2-D per ASTM D975.

--All data are based on 15 in H2O(3.7kPa) air intake restriction and 3.0 in Hg (10kPa) exhaust restriction.

--Power output curves are based on the engine operating with fuel system, water pump and lubricating oil pump; not included are battery charging alternator, fan, optional equipment and driven components.

Data Status: Production

Tolerance: ±5%

Chief Engineer:

Guan Rong

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.

CONTINUOUS POWER RATING 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 °F (40 °C) without power deration.

1500 RPM up to 5000 ft. (1525 m) and 104 °F (40 °C) without power deration.

For sustained operation above these conditions, derate by 4% per 1,000 ft. (300 m), and 1% per 10 °F (2% per 11 °C).

GENERAL ENGINE DATA

Type.....	4-Cycle;In-line;6-Cylinder	
Aspiration	0	
Bore x Stroke - in. × in. (mm × mm).....	5.5 × 6	(140 × 152)
Displacement - in. ³ (L).....	855	(14)
Compression Ratio	14.5:1	
Firing Order	1-5-3-6-2-4	
Dry Weight		
--Fan to Flywheel Engine - lb. (kg).....	2870	(1300)
--Heat Exchanger Cooled Engine - lb. (kg).....	3095	(1410)
Wet Weight		
--Fan to Flywheel Engine - lb. (kg).....	2970	(1350)
--Heat Exchanger Cooled Engine - lb. (kg).....	3320	(1510)
Moment of Inertia of Rotating Components - With FW1010 flywheel - lb.·ft. ² (kg	118.5	(4.99)
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 - lb.·ft. (N·m).....	1000	(1356)
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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) @1500/1800rpm (6/7)		41/48
Maximum Static Head of Coolant (exclusive of Pressure Cap) - PSI (kPa)	15	(103)
Maximum Static Head of Coolant Above Engine Crank Centerline -ft. (m)	46	(14.0)
Standard Thermostat (Modulating) Range - °F (°C)	180 - 202	(82 - 94)
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).....	160	(71)
Maximum Allowable Top Tank Temperature for Standby / Prime Power - °F (°C).....	220 / 212	(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	(10)
Minimum Raw Water Pipe Size - in. (mm).....	2	(51)
Allowable Pressure Drop Across Keel Cooler -PSI (kPa).....	4	(28)

LUBRICATION SYSTEM

Oil Pressure @ Idle Speed - PSI (kPa).....	15 Min	(103) Min
@ Governed Speed - PSI (kPa).....	35-50	(241 - 345)
Maximum Allowable Oil Temperature - °F (°C).....	250	(121)
Oil Pan Capacity - Low / High - U.S. gal. (L).....	7.5 / 9.5	(28.4 / 36.0)
Total System Capacity - U.S. gal. (L).....	10.2	(38.6)
Angularity of Oil Pan - Front Down/Front Up/Side to Side.....	38°/38°/38°	

FUEL SYSTEM

Type Injection System.....	Direct Injection Cummins PT	
Maximum Allowable Restriction to Fuel Pump		
-- 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	(13)
Maximum Fuel Pump Supply - U.S.gal/h (L) @ 1500/1800rpm.....	68/84	(257/319)
Maximum Fuel Temperature °F (°C).....	160	(71)

ELECTRICAL SYSTEM

Minimum Recommended Battery Capacity (24V)	
-- Cold Soak (No Load) - CCA.....	900
- Minimum Reserved Capacity - CCA.....	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

Cold Start Capability

Minimum Crankshaft Rotation for unaided Cold Start - r/min.....	150	
Minimum Torque for unaided Cold Start - lb.-ft. (N·m).....	375	(509)

PERFORMANCE DATA

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); Altitude: 110m (361ft.); 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				Standby Power			
	60Hz		50Hz		60Hz		50Hz	
	1800		1500		1800		1500	
Governed Engine Speed - r/min.....	385	(287)	322	(240)	425	(317)	355	(265)
Gross Engine Power Output - HP (kW).....	1123	(1523)	1127	(1528)	1240	(1682)	1240	(1681)
Torque lb.ft. (N.m).....	198	(1367)	199	(1371)	219	(1510)	219	(1509)
Brake Mean Effective Pressure - PSI (kPa).....	1799	(9.14)	1500	(7.62)	1799	(9.14)	1500	(7.62)
Piston Speed - ft./min (m/s).....	47	(35)	30	(22)	47	(35)	30	(22)
Friction Horsepower - HP (kW).....	900	(425)	680	(321)	980	(463)	730	(345)
Intake Air Flow - CFM (L/s).....	95	(6)	79	(5)	95	(6)	79	(5)
Engine Water Flow - GPM(L/s).....	62	(3.9)	54	(3.4)	62	(3.9)	54	(3.4)
Raw Water Flow - GPM (L/s).....	860	(460)	904	(484)	1010	(543)	928	(498)
Exhaust Gas Temperature (After Turbine) - °F(°C)...	2178	(1028)	1594	(752)	2656	(1253)	1806	(852)
Exhaust Gas Flow (After Turbine) - CFM(L/s).....	2040	(36)	1710	(30)	2260	(40)	1880	(33)
Heat Radiation - BTU(kW).....	12250	(215)	10250	(180)	13530	(238)	11270	(198)
Heat Rejection to Coolant - BTU(kW).....	10210	(179)	8540	(150)	11280	(198)	9390	(165)
Heat Rejection to Ambient - BTU(kW).....								

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All Data is Subject to Change Without Notice - contact CCEC for most recent data . Tel : 86-400-889-9990