

ENGINE SPEED:	1800	FUEL:	NAT GAS
COMPRESSION RATIO:	10.3:1	FUEL SYSTEM:	LPG IMPCO
AFTERCOOLER - MAX. INLET (°F):	130		
JACKET WATER - MAX. OUTLET (°F):	210	FUEL PRESS. RANGE (PSIG):	1.5 - 5.0
ASPIRATION:	TA	MIN. METHANE NUMBER:	80
COOLING SYSTEM:	JW+OC, AC	RATED ALTITUDE (FT):	5000
IGNITION SYSTEM:	CDIS	AT AIR TO TURBO. TEMP. (°F):	77
EXHAUST MANIFOLD:	WC	EXHAUST O2 EMISSION LEVEL:	4.0 %O2
COMBUSTION:	STANDARD	FUEL LHV (BTU/SCF):	905
		APPLICATION:	STANDBY 60 Hz GENSET

RATING AND EFFICIENCY		NOTES	LOAD	100%	75%	50%
ENGINE POWER	(WITHOUT FAN)	(1)	BHP	367	276	184
GENERATOR POWER	(WITHOUT FAN)	(2)	EKW	260	195	130
ENGINE EFFICIENCY	(ISO 3046/1)	(3)	%	35.1	33.2	30.3
ENGINE EFFICIENCY	(NOMINAL)	(3)	%	35.1	33.2	30.3
THERMAL EFFICIENCY	(NOMINAL)	(4)	%	48.4	50.9	55.7
TOTAL EFFICIENCY	(NOMINAL)	(5)	%	83.5	84.1	86.0

ENGINE DATA						
FUEL CONSUMPTION	(ISO 3046/1)	(6)	BTU/bhp-hr	7252	7662	8411
FUEL CONSUMPTION	(NOMINAL)	(6)	BTU/bhp-hr	7252	7662	8411
AIR FLOW (77 °F, 14.7 psi)		(7)	SCFM	593	459	320
AIR FLOW		(7)	lb/hr	2628	2037	1418.00
COMPRESSOR OUT PRESSURE			in. HG (abs)	54.7	52.6	43.5
COMPRESSOR OUT TEMPERATURE			°F	253	228	181
AFTERCOOLER AIR OUT TEMPERATURE			°F	136	133	130
INLET MAN. PRESSURE		(8)	in. HG (abs)	51.2	39.9	28.4
INLET MAN. TEMPERATURE	(MEASURED IN PLENUM)	(9)	°F	137	135	133
TIMING		(10)	°BTDC	18	18	18
EXHAUST STACK TEMPERATURE		(11)	°F	997	977	970
EXHAUST GAS FLOW (@ stack temp.)		(12)	CFM	1773	1358	944
EXHAUST MASS FLOW		(12)	lb/hr	2762	2143	1495

EMISSIONS DATA						
NOx (as NO2)		(13)	g/bhp-hr	21.44	21.06	19.89
CO		(14)	g/bhp-hr	1.14	1.13	2.1
THC (molecular weight of 15.84)		(14)	g/bhp-hr	3.9	4.6	4.2
NMHC (molecular weight of 15.84)		(14)	g/bhp-hr	0.59	0.69	0.63
EXHAUST O2		(15)	% DRY	4.0	3.7	2.8
LAMBDA				1.23	1.20	1.14

HEAT BALANCE DATA						
LHV INPUT		(16)	BTU/min	44412	35192	25755
HEAT REJECTION TO JACKET (JW)		(17) (22)	BTU/min	11479	10118	8700
HEAT REJECTION TO ATMOSPHERE		(18)	BTU/min	1776	1408	1030
HEAT REJECTION TO LUBE OIL (OC)		(19) (22)	BTU/min	1815	1600	1376
HEAT REJECTION TO EXHAUST (LHV to 77°F)		(20)	BTU/min	12373	9506	6538
HEAT REJECTION TO EXHAUST (LHV to 350°F)		(20)	BTU/min	8210	6179	4276
HEAT REJECTION TO A/C (AC)		(21) (23)	BTU/min	1385	875	320

CONDITIONS AND DEFINITIONS

ENGINE RATING OBTAINED AND PRESENTED IN ACCORDANCE WITH ISO 3046/1STD. REF. CONDITIONS OF 77°F, 29.6 IN HG BAROMETRIC PRESSURE, 500 FT ALTITUDE). NO OVERLOAD PERMITTED AT RATING SHOWN. CONSULT ALTITUDE CHARTS FOR APPLICATIONS ABOVE MAXIMUM RATED ALTITUDE AND/OR TEMPERATURE.

EMISSION LEVELS ARE BASED ON THE ENGINE OPERATING AT STEADY STATE CONDITIONS. EMISSION TOLERANCES SPECIFIED ARE DEPENDANT UPON FUEL QUALITY. METHANE NUMBER CANNOT VARY MORE THAN ± 3. PUBLISHED PART LOAD DATA MAY REQUIRE ENGINE ADJUSTMENT.

ENGINE RATING IS WITH 2 ENGINE DRIVEN WATER PUMPS.

FOR NOTES INFORMATION CONSULT PAGE THREE.

FUEL USAGE GUIDE												
CAT METHANE NUMBER	30	35	40	45	50	55	60	65	70	75	80	85-100
IGNITION TIMING	-	-	-	-	-	-	-	-	15	16	18	18
DERATION FACTOR	0	0	0	0	0	0	0	0	1.00	1.00	1.00	1.00

ALTITUDE DERATION FACTORS														
AIR TO TURBO (°F)	130	1.00	1.00	1.00	0.98	0.95	0.91	0.88	0.84	0.81	0.78	0.75	0.72	0.69
	120	1.00	1.00	1.00	1.00	0.96	0.93	0.89	0.86	0.82	0.79	0.76	0.73	0.70
	110	1.00	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.80	0.77	0.74	0.71
	100	1.00	1.00	1.00	1.00	1.00	0.96	0.92	0.89	0.85	0.82	0.79	0.75	0.72
	90	1.00	1.00	1.00	1.00	1.00	0.98	0.94	0.90	0.87	0.83	0.80	0.77	0.74
	80	1.00	1.00	1.00	1.00	1.00	0.99	0.96	0.92	0.88	0.85	0.81	0.78	0.75
	70	1.00	1.00	1.00	1.00	1.00	0.97	0.94	0.90	0.86	0.83	0.80	0.76	0.72
	60	1.00	1.00	1.00	1.00	1.00	0.99	0.95	0.92	0.88	0.85	0.81	0.78	0.74
	50	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.94	0.90	0.86	0.83	0.79	0.75
			0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000

ALTITUDE (FEET ABOVE SEA LEVEL)

AFTERCOOLER HEAT REJECTION FACTORS (ACHRF)														
AIR TO TURBO (°F)	130	1.54	1.64	1.75	1.86	1.97	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08
	120	1.43	1.53	1.63	1.74	1.85	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96
	110	1.32	1.42	1.52	1.62	1.73	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84
	100	1.21	1.31	1.41	1.51	1.61	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72
	90	1.10	1.19	1.29	1.39	1.49	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
	80	1.00	1.08	1.18	1.28	1.38	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48
	70	1.00	1.00	1.06	1.16	1.26	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36
	60	1.00	1.00	1.00	1.04	1.14	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
	50	1.00	1.00	1.00	1.00	1.02	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
			0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000

ALTITUDE (FEET ABOVE SEA LEVEL)

FREE FIELD MECHANICAL & EXHAUST NOISE												
100% Load Data			dB(A)					(dB)				
Free Field Mechanical	DISTANCE FROM THE ENGINE (FEET)	3.2	94.0	73.8	79.3	82.8	88.8	89.8	87.3	84.3	81.3	
		22.9	84.0	68.5	72.5	76.5	77.5	80.5	77.5	73.5	68.9	
		49.2	78.0	66.4	77.4	71.4	66.9	74.4	71.9	67.9	62.4	
Free Field Exhaust	DISTANCE FROM THE ENGINE (FEET)	4.9	109.4	106.5	108.5	105.8	107.8	102.5	102.8	97.8	87.5	
		22.9	96.0	91.7	94.1	89.4	96.1	88.1	88.4	82.7	75.4	
		49.2	89.4	85.1	87.5	82.8	89.5	81.5	81.8	76.1	68.8	
			Overall SPL	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	

Octave Band Center Frequency (OBCF)

FUEL USAGE GUIDE:
This table shows the derate factor required for a given fuel. Note that deration occurs as the methane number decreases. Methane number is a scale to measure detonation characteristics of various fuels. The methane number of a fuel is determined by using the Caterpillar Methane Number Calculation program.

ALTITUDE DERATION FACTORS:
This table shows the deration required for various air inlet temperatures and altitudes. Use this information along with the fuel usage guide chart to help determine actual engine power for your site.

ACTUAL ENGINE RATING:
It is important to note that the Altitude/Temperature deration and the Fuel Usage Guide deration are not cumulative. They are not to be added together. The same is true for the Low Energy Fuel deration (reference the Caterpillar Methane Number Program) and the Fuel Usage Guide deration. However, the Altitude/Temperature deration and Low Energy Fuel deration are cumulative; and they must be added together in the method shown below. To determine the actual power available, take the lowest rating between 1) and 2).

- 1) (Altitude/Temperature Deration) + (Low Energy Fuel Deration)
- 2) Fuel Usage Guide Deration

Note: For NA's always add the Low Energy Fuel deration to the Altitude/Temperature deration. For TA engines only add the Low Energy Fuel deration to the Altitude/Temperature deration whenever the Altitude/Temperature deration is less than 1.0 (100%). This will give the actual rating for the engine at the conditions specified.

AFTERCOOLER HEAT REJECTION FACTORS (ACHRF):
Aftercooler heat rejection is given for standard conditions of 77°F and 500 ft altitude. To maintain a constant air inlet manifold temperature, as the air to turbo temperature goes up, so must the heat rejection. As altitude increases, the turbocharger must work harder to overcome the lower atmospheric pressure. This increases the amount of heat that must be removed from the inlet air by the aftercooler. Use the aftercooler heat rejection factor (ACHRF) to adjust for ambient and altitude conditions. Multiply this factor by the standard aftercooler heat rejection. Failure to properly account for these factors could result in detonation and cause the engine to shutdown or fail.

SOUND DATA:
Data determined by methods similar to ISO Standard DIS-8528-10. Accuracy Grade 3. SPL = Sound Pressure Level.