G3516C

GAS ENGINE TECHNICAL DATA

CATERPILLAR®

GENSET POWER (WITH ANCILLARY LOAD) (1)(2) keW 1476 1106 73 GENSET POWER (WITH ANCILLARY LOAD) (1)(2) ktVA 1843 1382 92 ENGINE POWER (WITH ANCILLARY LOAD) (1)(2) ktVA 1843 1382 92 GENSET FOLENCY (B10 Power Factor) (ISO 30461) (3) % 38.0 38.6 33. TOTAL EFFICIENCY (G0 1.0 Power Factor) (ISO 30461) (4) % 46.1 46.7 48. GENSET FUEL CONSUMPTION (ISO 30461) (6) Btu/keW-hr 9262 9398 101. GENSET FUEL CONSUMPTION (INOMINAL) (6) Btu/keW-hr 928.2 104 GENSET FUEL CONSUMPTION (INOMINAL) (6) Btu/keW-hr 928.8 104 GENSET FUEL CONSUMPTION (INOMINAL) (6) Btu/keW-hr 928.2 104 GENSET FUEL CONSUMPTION (INOMINAL) (6) Btu/keW-hr 928.2 104 GENSET FUEL CONSUMPTION (INOMINAL) (6)	ENGINE SPEED (rpm): COMPRESSION RATIO: AFTERCOOLER TYPE: AFTERCOOLER - STAGE 2 INLET (°F): JACKET WATER OUTLET (°F): JACKET WATER OUTLET (°F): ASPIRATION: COOLING SYSTEM: CONTROL SYSTEM: EXHAUST MANIFOLD: COMBUSTION: NOX EMISSION LEVEL (mg/Nm3 NOX): ANCILLARY LOAD (eKW):	JW+OC+1AC, 2AC FUEL METH ADEM3 W/ IM FUEL LHV (DN: VEL: EM: SURE RANGE(psig IANE NUMBER: Btu/scf): CAPABILITY AT 77 CTOR: /):	- /	ИР. (ft):	WITH AIR FUEL	STANDARD GENSET CONTINUOUS NAT GAS LOW PRESSURE RATIO CONTROL 0.5-5.0 80 905 5499 0.8 400-11000
GENSET POWER (WITH ANCILLARY LOAD) (11)(2) kVA 1443 1382 92 ENGINE POWER (WITHOUT FAN) (2) bhp 2175 1660 113 GENERATOR EFFICIENCY (1) % 95.6 95.8 95.8 95.8 GENSET EFFICIENCY (@ 1.0 Power Factor) (ISO 3046/1) (3) % 38.0 36.6 33.1 THERMAL EFFICIENCY (@ 1.0 Power Factor) (ISO 3046/1) (6) Btu/ekW-hr 9062 9398 101. GENSET FUEL CONSUMPTION (ISO 3046/1) (6) Btu/ekW-hr 9062 9398 104. GENSET FUEL CONSUMPTION (INOMINAL) (6) Btu/ekW-hr 928.3 962.8 104. GENSET FUEL CONSUMPTION (NOMINAL) (6) Btu/ekW-hr 928.3 962.8 104. GENSIDE FUEL CONSUMPTION (WOMINAL) (6) Btu/ekW-hr 928.3 962.4 104. GENSIDE FUEL CONSUMPTION (WOMINAL) (7) ft3/min 4297 333.0 237. A	RATING			-			50%
ENGINE POWER (WITHOUT FAN) (2) bpp 2175 1660 111 GENERATOR EFFICIENCY (I) % 95.6 95.8 25.2 104.4 46.1 <							737
GENERATOR EFFICIENCY (1) % 95.8							922
GENSET EFFICIENCY(@ 1.0 Power Factor) (ISO 3046/1) (3) % 38.0 36.6 33. THERMAL EFFICIENCY (@ 1.0 Power Factor) (S) % 44.1 48.3 48.1 ENGINE DATA GENSET FUEL CONSUMPTION (ISO 3046/1) (6) BLu/ekW-hr 9062 9398 101 GENSET FUEL CONSUMPTION (ISO 3046/1) (6) BLu/ekW-hr 9062 9398 101 GENSET FUEL CONSUMPTION (NOMINAL) (6) BLu/ekW-hr 9283 6628 1044 GENSET FUEL CONSUMPTION (NOMINAL) (6) BLu/ekW-hr 9283 6414 666 AIR FLOW (77", 14.7 psia) (WET) (7) fb/hr 149051 14767 105 COMPRESOR OUT TEMPERATURE (WET) (7) fb/hr 19051 14767 105 COMPRESOR OUT TEMPERATURE (WET) (7) 130.7 82.4 61. COMPRESOR OUT TEMPERATURE (F 330 132 133 132 133 <		(WITHOUT FAN)			-		1150
THEEMAL EFFICIENCY (4) % 46.1 46.7 48.8 TOTAL EFFICIENCY (@ 1.0 Power Factor) (6) % 84.1 83.3 81. ENGINE DATA (6) % 84.1 83.3 81. GENSET FUEL CONSUMPTION (ISO 3046/1) (6) Btu/ekW-hr 9062 9398 104. GENSET FUEL CONSUMPTION (INOMINAL) (6) Btu/ekW-hr 9283 9628 104. GENSET FUEL CONSUMPTION (INOMINAL) (6) Btu/ekW-hr 9283 9628 104. GENSET FUEL CONSUMPTION (INOMINAL) (6) Btu/ekW-hr 9283 9628 104. GENSET FUEL CONSUMPTION (INOMINAL) (6) Btu/ekW-hr 9283 9628 104. AIR FLOW (77'F, 14.7 psia) (WET) (7) Ib/hr 19061 14767 105. COMPRESSOR OUT TEMPERATURE (Ino Hg(abs) 103.7 82.4 61. 104 (fabs) 131.3 132 133. 132 133. 133. 133.		(100 2040/4)					95.3
TOTAL EFFICIENCY (@ 1.0 Power Factor) (5) % 84.1 83.3 81. ENGINE DATA GENSET FUEL CONSUMPTION (IISO 3046/1) (6) Btu/eKW-hr 9062 9398 101 GENSET FUEL CONSUMPTION (INOMINAL) (6) Btu/eKW-hr 9062 9398 104 ENGINE FUEL CONSUMPTION (INOMINAL) (6) Btu/eKW-hr 9062 9338 104 ENGINE FUEL CONSUMPTION (INOMINAL) (6) Btu/eKW-hr 9062 9338 104 ENGINE FUEL CONSUMPTION (INOMINAL) (6) Btu/ekW-hr 9283 6414 666 AIR FLOW (77*, 14.7 psia) (WET) (7) Ib/hr 19051 14767 105 COMPRESSOR OUT TEMESSURE (WET) (7) Ib/hr 19051 14767 105 COMPRESSOR OUT TEMERATURE in Hg(abs) 103.7 82.4 61 COMPRESSOR OUT TEMERATURE (MEASURED IN PLENUM) (9) "F 133 133 133 133 133 <t< td=""><td></td><td>(ISO 3046/1)</td><td></td><td></td><td></td><td></td><td>33.7</td></t<>		(ISO 3046/1)					33.7
ENGINE DATA GENSET FUEL CONSUMPTION (ISO 304/T) (6) Btu/ekW-hr 9062 9398 101 GENSET FUEL CONSUMPTION (NOMINAL) (6) Btu/ekW-hr 9283 9628 104 GENSET FUEL CONSUMPTION (NOMINAL) (6) Btu/ekW-hr 9283 9628 104 LGINE TUEL CONSUMPTION (NOMINAL) (6) Btu/ekW-hr 9283 9628 104 LGINE TUEL CONSUMPTION (NOMINAL) (6) Btu/ekW-hr 9283 9628 104 AIR FLOW (77°F, 14.7 psia) (WET) (7) fb/hr 19051 14767 105 COMPRESSOR OUT TEMPERATURE scfm 252 196 144 COMPRESSOR OUT TEMPERATURE (WET) (7) Ib/hr 19051 137 132 133 INLET MAN. PRESSURE (MEASURED IN PLENUM) (9) °F 133 132 133 132 133 132 133 132 133 132 133 132 133 132 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>48.1</td></td<>							48.1
GENSET FUEL CONSUMPTION (IIS0 3046/1) (6) Btu/ekW-hr 9062 9398 101. GENSET FUEL CONSUMPTION (NOMINAL) (6) Btu/ekW-hr 9283 6414 666 AIR FLOW (77*F, 14.7 psia) (WET) (7) ft3/min 4297 3330 233 AIR FLOW (77*F, 14.7 psia) (WET) (7) ft3/min 4297 3330 233 AIR FLOW (60*F, 14.7 psia) (WET) (7) ft3/min 4297 3330 233 COMPRESSOR OUT TEMPERATURE scfm 252 196 144 COMPRESSOR OUT TEMPERATURE 'F 380 312 23 AFTERCOOLER AIR OUT TEMPERATURE 'F 133 132 133 INLET MAN. PRESSURE (B) in Hg(abs) 89.1 69.0 49.9 INLET MAN. PRESSURE (MEASURED IN PLENUM) (9) 'F 135 135 INLET MAN. PRESSURE (11) 'F 865 899 93 EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia) (WET)<	IUTAL EFFICIENCY (@ 1.0 Power Factor)		(5)	%	84.1	83.3	81.8
GENSET FUEL CONSUMPTION (NOMINAL) (6) Blu/ekW-hr 9283 9628 104. ENGINE FUEL CONSUMPTION (NOMINAL) (6) Blu/bhp-hr 6293 6414 666 AIR FLOW (VCT) (13,7) 6293 6414 666 AIR FLOW (WET) (7) Ib/hr 19051 14767 1055 AIR FLOW (60°F, 14.7 psia) (WET) (7) Ib/hr 19051 14767 1055 COMPRESSOR OUT TEMPERATURE (WET) (7) Ib/hr 19051 14767 1055 COMPRESSOR OUT TEMPERATURE (WET) (7) Ib/hr 19051 14767 1055 INLET MAN. TEMPERATURE (MEASURED IN PLENUM) (9) °F 133 132 133 TIMING (10) "BTDC 28 28 28 28 EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia) (WET) (12) ft3/min 11419 9083 663 EXHAUST GAS FLOW (WET) (12) ft3/min	ENGINE D/	ATA					
ENGINE FUEL CONSUMPTION (NOMINAL) (6) Btu/bhp-hr 6293 6414 669 AIR FLOW (77"; 14.7 psia) (WET) (7) ft3/min 4297 3330 237 AIR FLOW (77"; 14.7 psia) (WET) (7) ft3/min 4297 3330 237 FUEL FLOW (60°F, 14.7 psia) scfm 252 196 144 COMPRESSOR OUT PRESSURE in Hg(abs) 103.7 82.4 61. COMPRESSOR OUT TEMPERATURE °F 133 132 133 INLET MAN. PRESSURE (8) in Hg(abs) 89.1 69.0 49. INLET MAN. TEMPERATURE - ENGINE OUTLET (11) °F 865 899 93 EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia) (WET) (12) ft3/min 11419 9083 663 EXHAUST GAS MASS FLOW (WET) (12) ft3/min 11419 9083 663 EXHAUST GAS MASS FLOW (WET) (12) ft3/min 11419 9083 662 CO (1	GENSET FUEL CONSUMPTION		(6)	Btu/ekW-hr	9062	9398	10186
AIR FLOW (77*F, 14.7 psia) (WET) (7) ft3/min 4297 3330 237 AIR FLOW (WET) (7) ft3/min 4297 3330 237 AIR FLOW (0°F) 14.7 psia) (WET) (7) ft3/min 4297 3330 237 AIR FLOW (60°F, 14.7 psia) (WET) (7) ft3/min 14951 14767 105 COMPRESSOR OUT PRESSURE in Hg(abs) 103.7 82.4 61. COMPRESSOR OUT TEMPERATURE * * F 330 237 INLET MAN. PRESSURE (B) in Hg(abs) 89.1 69.0 49.0 INLET MAN. TEMPERATURE (MEASURED IN PLENUM) (9) * F 135 135 135 135 135 135 135 135 135 135 135 135 133 14119 9083 663 899 93 854.104 109 144.104 109 144.104 109 144.104 109 144.104 14119 9083 663 899 93 144.105 150.10 <t< td=""><td>GENSET FUEL CONSUMPTION</td><td></td><td>(6)</td><td>Btu/ekW-hr</td><td>9283</td><td>9628</td><td>10434</td></t<>	GENSET FUEL CONSUMPTION		(6)	Btu/ekW-hr	9283	9628	10434
AIR FLOW (WET) (7) Ib/hr 19051 14767 1055 FUEL FLOW (60°F, 14.7 psia) scfm 252 196 144 COMPRESSOR OUT PRESSURE in Hg(abs) 103.7 82.4 61. COMPRESSOR OUT TEMPERATURE 'F 380 312 23. AFTERCOOLER AIR OUT TEMPERATURE 'F 133 132 13. INLET MAN. PRESSURE (MEASURED IN PLENUM) (9) 'F 135 135 13. INLET MAN. TEMPERATURE (MEASURED IN PLENUM) (9) 'F 135 135 13. TIMING (10) 'BTDC 28 23 30.	ENGINE FUEL CONSUMPTION	. ,	(6)	Btu/bhp-hr	6293	6414	6691
FUEL FLOW (60°F, 14.7 psia) scfm 252 196 14.4 COMPRESSOR OUT PRESSURE in Hg(abs) 103.7 82.4 61. COMPRESSOR OUT TEMPERATURE °F 380 312 23. AFTERCOLER AIR OUT TEMPERATURE °F 133 132 13. INLET MAN. PRESSURE (MEASURED IN PLENUM) (9) °F 135 135 13 INLET MAN. TEMPERATURE (MEASURED IN PLENUM) (9) °F 135 135 135 INLET MAN. TEMPERATURE (MEASURED IN PLENUM) (9) °F 865 899 93 EXHAUST TEMPERATURE - ENGINE OUTLET (11) °F 865 899 93 EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia) (WET) (12) ft3/min 11419 9083 663 EXHAUST GAS MASS FLOW (WET) (12) lb/hr 19741 15304 109 MAX INLET RESTRICTION (13) in H2O 20.07 9.69 1.9 NOX (as NO2) (14)(16) g/bp-hr 5.05 5.62 6.5 NMHC (mol. wt. of 15.84) <	AIR FLOW (77°F, 14.7 psia)	. ,	(7)	ft3/min	4297	3330	2375
COMPRESSOR OUT PRESSURE in Hg(abs) 103.7 82.4 61. COMPRESSOR OUT TEMPERATURE "F 380 312 23. AFTERCOCLER AIR OUT TEMPERATURE "F 133 132 13. INLET MAN. PRESSURE (B) in Hg(abs) 89.1 69.0 49. INLET MAN. TEMPERATURE (MEASURED IN PLENUM) (9) "F 135 135 13 TIMING (10) "BTDC 28 28 28 28 EXHAUST TEMPERATURE - ENGINE OUTLET (11) "F 865 899 93 EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia) (WET) (12) ft3/min 11419 9083 663 EXHAUST GAS MASS FLOW (WET) (12) ft3/min 11419 9083 663 30.0 MAX INLET RESTRICTION (WET) (12) ft3/min 11419 9083 663 CO (14)(16) g/bhp-hr 1.00 1.02 1.00 1.02 1.00 1.02 1.00		(WET)	(7)				10532
COMPRESSOR OUT TEMPERATURE "F 380 312 23 AFTERCOOLER AIR OUT TEMPERATURE "F 133 132 13 INLET MAN. PRESSURE (MEASURED IN PLENUM) "F 133 132 13 TIMING (MEASURED IN PLENUM) (9) "F 135 135 135 TIMING (10) "BTDC 28 28 28 28 EXHAUST TEMPERATURE - ENGINE OUTLET (11) "F 865 899 93 EXHAUST GAS AMSS FLOW (@engine outlet temp, 14.5 psia) (WET) (12) ft3/min 11419 9083 663 MAX INLET RESTRICTION (WET) (12) Ib/hr 19741 15304 109 MAX EXHAUST RESTRICTION (WET) (13) in H2O 10.04 6.23 3.0 MAX EXHAUST RESTRICTION (14)(16) g/bhp-hr 2.03 2.00 1.9 VOX (as NO2) (CO (14)(16) g/bhp-hr 2.03 2.00 1.9 NMHC (mol. wt. of 15.84) (1							142
AFTERCOOLER AIR OUT TEMPERATURE °F 133 132 133 INLET MAN. PRESSURE (MEASURED IN PLENUM) (8) in Hg(abs) 89.1 69.0 49. INLET MAN. TEMPERATURE (MEASURED IN PLENUM) (9) °F 135 135 13 TIMING (10) °BTDC 28 28 28 28 EXHAUST TEMPERATURE - ENGINE OUTLET (11) °F 865 899 93 EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia) (WET) (12) ft3/min 11419 9083 663 EXHAUST RESTRICTION (WET) (13) in H2O 10.04 6.23 3.0 MAX INLET RESTRICTION (13) in H2O 10.04 6.23 3.0 MAX (as NO2) (14)(16) g/bhp-hr 2.03 2.00 1.9 THC (mol. wt. of 15.84) (14)(16) g/bhp-hr 0.76 0.84 0.9 NMNEHC (VOCS) (mol. wt. of 15.84) (14)(16) g/bhp-hr 0.55 5.62 6.5 NMNEHC							61.2
INLET MAN. PRESSURE (8) in Hg(abs) 89.1 69.0 49. INLET MAN. TEMPERATURE (MEASURED IN PLENUM) (9) °F 135 135 135 TIMING (10) °BTDC 28 28 28 28 EXHAUST TEMPERATURE - ENGINE OUTLET (11) °F 865 899 93 663 EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia) (WET) (12) ft3/min 11419 9083 663 EXHAUST GAS MASS FLOW (WET) (12) b/hr 19741 15304 109 MAX INLET RESTRICTION (13) in H2O 10.04 6.23 3.0 MAX EXHAUST RESTRICTION (13) in H2O 20.07 9.69 1.9 EMISSIONS DATA - ENGINE OUT CO (14)(16) g/bhp-hr 2.03 2.00 1.9 THC (mol. wt. of 15.84) (14)(16) g/bhp-hr 0.55 5.62 6.5 NMNEHC (VOCS) (mol. wt. of 15.84) (14)(16) g/bhp-hr 0.51 0.53 0.53 0.55 CO2 C2 (14)(16)							234
INLET MAN. TEMPERATURE (MEASURED IN PLENUM) (9) •F 135 135 135 135 TIMING (10) •BTDC 28 28 28 EXHAUST TEMPERATURE - ENGINE OUTLET (11) •F 865 899 93 EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia) (WET) (12) ft3/min 11419 9083 663 EXHAUST GAS MASS FLOW (WET) (12) ft3/min 11419 9083 663 MAX INLET RESTRICTION (WET) (12) ft3/min 11419 9083 663 MAX EXHAUST RESTRICTION (WET) (12) ft3/min 11419 9083 663 MAX EXHAUST RESTRICTION (13) in H2O 10.04 6.23 3.0 MAX EXHAUST RESTRICTION (13) in H2O 20.07 9.69 1.9 THC (mol. wt. of 15.84) (14)(16) g/bp-hr 2.03 2.00 1.9 THC (mol. wt. of 15.84) (14)(16) g/bp-hr 0.76 0.84 0.9 NMNEHC (VOCS) (mol. wt. of 15.84) (14)(16) g/bp-hr				-			133
TIMING (10) *BTDC 28 28 28 EXHAUST TEMPERATURE - ENGINE OUTLET (11) *F 865 899 93 EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia) (WET) (12) ft3/min 11419 9083 663 EXHAUST GAS MASS FLOW (WET) (12) lb/hr 19741 15304 109 MAX INLET RESTRICTION (WET) (13) in H2O 10.04 6.23 3.0 MAX EXHAUST RESTRICTION (13) in H2O 20.07 9.69 1.9 FMISSIONS DATA - ENGINE OUT C CO (14)(15) g/bp-hr 1.00 1.02 1.0 CO (14)(16) g/bp-hr 2.03 2.00 1.9 THC (mol. wt. of 15.84) (14)(16) g/bp-hr 0.51 0.56 0.6 NMNE (wol. wt. of 15.84) (14)(16) g/bp-hr 0.53 0.53 0.53 0.53 NMNE (wol. wt. of 15.84) (14)(16) g/bp-hr 0.53 0.53 0.53 0.53 0.53 0.53 0.53							49.6
EXHAUST TEMPERATURE - ENGINE OUTLET (11) °F 865 899 93 EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia) (WET) (12) ft3/min 11419 9083 663 EXHAUST GAS MASS FLOW (WET) (12) Ib/hr 19741 15304 109 MAX INLET RESTRICTION (WET) (13) in H2O 10.04 6.23 3.0 MAX EXHAUST RESTRICTION (13) in H2O 20.07 9.69 1.9 EMISSIONS DATA - ENGINE OUT Nox (as NO2) (14)(15) g/bhp-hr 1.00 1.02 1.0 CO (14)(16) g/bhp-hr 5.05 5.62 6.5 NMHC (mol. wt. of 15.84) (14)(16) g/bhp-hr 0.76 0.84 0.9 NMNEHC (VOCs) (mol. wt. of 15.84) (14)(16) g/bhp-hr 0.53 0.53 0.53 0.53 CO2 (CO2 (14)(16) g/bhp-hr 0.53 0.53 0.53 0.53 0.53 0.53 0.53 0.55 0.56		(MEASURED IN PLENUM)					137
EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia) (WET) (12) f13/min 11419 9083 663 EXHAUST GAS MASS FLOW (WET) (12) lb/hr 19741 15304 109 MAX INLET RESTRICTION (13) in H2O 10.04 6.23 3.0 MAX EXHAUST RESTRICTION (13) in H2O 20.07 9.69 1.9 EMISSIONS DATA - ENGINE OUT (14)(15) g/bp-hr 1.00 1.02 1.00 CO (14)(16) g/bp-hr 2.03 2.00 1.9 THC (mol. wt. of 15.84) (14)(16) g/bp-hr 5.05 5.62 6.5 NMHC (mol. wt. of 15.84) (14)(16) g/bp-hr 0.53 0.53 0.53 0.53 NMNEHC (VOCs) (mol. wt. of 15.84) (14)(16) g/bp-hr 0.53 0.53 0.55 CO2 (14)(16) g/bp-hr 0.53 0.53 0.53 0.53 CO2 (14)(16) g/bp-hr 0.53 0.53 0.53 0.53 0.53 0.53 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
EXHAUST GAS MASS FLOW (WET) (12) Ib/hr 19741 15304 109 MAX INLET RESTRICTION (13) in H2O 10.04 6.23 3.0 MAX EXHAUST RESTRICTION (13) in H2O 20.07 9.69 1.9 EMISSIONS DATA - ENGINE OUT (14)(15) g/bp-hr 1.00 1.02 1.00 NOx (as NO2) (14)(16) g/bp-hr 2.03 2.00 1.9 THC (mol. wt. of 15.84) (14)(16) g/bp-hr 5.05 5.62 6.5 NMHC (mol. wt. of 15.84) (14)(16) g/bp-hr 0.51 0.56 0.6 NMNEHC (VOCs) (mol. wt. of 15.84) (14)(16) g/bp-hr 0.53 0.53 0.53 NMNEHC (VOCs) (mol. wt. of 15.84) (14)(16) g/bp-hr 0.53 0.53 0.5 CO (14)(16) g/bp-hr 0.53 0.53 0.5 NMNEHC (VOCs) (mol. wt. of 15.84) (14)(16) g/bp-hr 0.53 0.53 0.5 CO2 (14)(16) g/bp-hr 0.5			. ,				
MAX INLET RESTRICTION (13) in H2O 10.04 6.23 3.0 MAX EXHAUST RESTRICTION (13) in H2O 20.07 9.69 1.9 EMISSIONS DATA - ENGINE OUT NOx (as NO2) (14)(15) g/bhp-hr 1.00 1.02 1.0 CO (14)(16) g/bhp-hr 2.03 2.00 1.9 THC (mol. wt. of 15.84) (14)(16) g/bhp-hr 5.05 5.62 6.5 NMHC (mol. wt. of 15.84) (14)(16) g/bhp-hr 0.51 0.56 0.6 NMHC (VOCs) (mol. wt. of 15.84) (14)(16) g/bhp-hr 0.53 0.53 0.53 NMNEHC (VOCs) (mol. wt. of 15.84) (14)(16) g/bhp-hr 0.51 0.56 0.6 HCHO (Formaldehyde) (14)(16) g/bhp-hr 0.53 0.53 0.53 0.53 CO2 (14)(16) g/bhp-hr 428 437 455 CO2 (14)(18) % DRY 10.0 9.9 9.7 LAMBDA (14)(18) 1		, , ,	. ,				
MAX EXHAUST RESTRICTION (13) in H2O 20.07 9.69 1.9 EMISSIONS DATA - ENGINE OUT NOx (as NO2) CO THC (mol. wt. of 15.84) NMHC (mol. wt. of 15.84) NMHC (mol. wt. of 15.84) (14)(15) g/bhp-hr 1.00 1.02 1.0 NMAX EXHAUST OXYGEN LAMBDA (14)(16) g/bhp-hr 5.05 5.62 6.5 0 (14)(16) g/bhp-hr 0.76 0.84 0.9 0 (14)(16) g/bhp-hr 0.51 0.56 0.6 0 (14)(16) g/bhp-hr 0.53 0.53 0.53 0.53 0 (14)(16) g/bhp-hr 0.53 0.53 0.53 0.53 0 (14)(16) g/bhp-hr 428 437 455 0 (14)(16) g/bhp-hr 1.00 9.9 9.7 1AMBDA (14)(18) % DRY 10.0 9.9 9.7		(₩Ľ1)	. ,				
EMISSIONS DATA - ENGINE OUT NOx (as NO2) CO (14)(15) g/bhp-hr 1.00 1.02 1.0 THC (mol. wt. of 15.84) (14)(16) g/bhp-hr 2.03 2.00 1.9 NMHC (mol. wt. of 15.84) (14)(16) g/bhp-hr 5.05 5.62 6.5 NMHC (mol. wt. of 15.84) (14)(16) g/bhp-hr 0.51 0.56 0.6 NMNEHC (VOCs) (mol. wt. of 15.84) (14)(16) g/bhp-hr 0.51 0.56 0.6 HCHO (Formaldehyde) (14)(16) g/bhp-hr 0.53 0.53 0.53 CO2 (14)(16) g/bhp-hr 0.53 0.53 0.53 CO2 (14)(16) g/bhp-hr 428 437 45 CO2 (14)(18) % DRY 10.0 9.9 9.7 LAMBDA (14)(18) 1.73 1.73 1.73 1.7							
NOx (as NO2) CO (14)(15) g/bhp-hr 1.00 1.02 1.00 THC (mol. wt. of 15.84) (14)(16) g/bhp-hr 2.03 2.00 1.9 NMHC (mol. wt. of 15.84) (14)(16) g/bhp-hr 5.05 5.62 6.5 NMNEHC (VOCs) (mol. wt. of 15.84) (14)(16) g/bhp-hr 0.76 0.84 0.9 NMNEHC (VOCs) (mol. wt. of 15.84) (14)(16) g/bhp-hr 0.51 0.56 0.6 HCHO (Formaldehyde) (14)(16) g/bhp-hr 0.53 0.53 0.53 0.5 CO2 (14)(16) g/bhp-hr 428 437 450 CO2 (14)(16) g/bhp-hr 428 437 450 EXHAUST OXYGEN (14)(18) % DRY 10.0 9.9 9.7 LAMBDA (14)(18) 1.73 1.73 1.7			(13)	111120	20.07	9.09	1.95
CO (14)(16) g/bhp-hr 2.03 2.00 1.9 THC (mol. wt. of 15.84) (14)(16) g/bhp-hr 5.05 5.62 6.5 NMHC (mol. wt. of 15.84) (14)(16) g/bhp-hr 0.76 0.84 0.9 NMNEHC (VOCs) (mol. wt. of 15.84) (14)(16) g/bhp-hr 0.51 0.56 0.6 HCHO (Formaldehyde) (14)(16) g/bhp-hr 0.53 0.53 0.53 0.5 CO (14)(16) g/bhp-hr 0.53 0.53 0.5 0.5 CO (14)(16) g/bhp-hr 0.53 0.53 0.5 0.5 CO (14)(16) g/bhp-hr 428 437 450 CO2 (14)(18) % DRY 10.0 9.9 9.7 LAMBDA (14)(18) 1.73 1.73 1.7		ENGINE OUT		-			
THC (mol. wt. of 15.84) (14)(16) g/bhp-hr 5.05 5.62 6.5 NMHC (mol. wt. of 15.84) (14)(16) g/bhp-hr 0.76 0.84 0.9 NMNEHC (VOCs) (mol. wt. of 15.84) (14)(16) g/bhp-hr 0.51 0.56 0.6 HCHO (Formaldehyde) (14)(16) g/bhp-hr 0.53 0.53 0.53 CO2 (14)(16) g/bhp-hr 428 437 455 EXHAUST OXYGEN (14)(18) % DRY 10.0 9.9 9.7 LAMBDA (14)(18) 1.73 1.73 1.7							1.06
NMHC (mol. wt. of 15.84) (14)(16) g/bhp-hr 0.76 0.84 0.9 NMNEHC (VOCs) (mol. wt. of 15.84) (14)(16) g/bhp-hr 0.51 0.56 0.6 HCHO (Formaldehyde) (14)(16) g/bhp-hr 0.53 0.53 0.5 CO2 (14)(16) g/bhp-hr 428 437 45 EXHAUST OXYGEN (14)(18) % DRY 10.0 9.9 9.7 LAMBDA (14)(18) 1.73 1.73 1.7							1.99
NMNEHC (VOCs) (mol. wt. of 15.84) (14)(16)(17) g/bhp-hr 0.51 0.56 0.6 HCHO (Formaldehyde) (14)(16) g/bhp-hr 0.53 0.53 0.53 0.53 CO2 (14)(16) g/bhp-hr 428 437 45i EXHAUST OXYGEN (14)(18) % DRY 10.0 9.9 9.7i LAMBDA (14)(18) 1.73 1.73 1.7i	· · · · · · · · · · · · · · · · · · ·						6.52
HCHO (Formaldehyde) (14)(16) g/bhp-hr 0.53 0.53 0.53 CO2 (14)(16) g/bhp-hr 428 437 455 EXHAUST OXYGEN (14)(18) % DRY 10.0 9.9 9.7 LAMBDA (14)(18) 1.73 1.73 1.7	- ()						0.98
CO2 (14)(16) g/bhp-hr 428 437 455 EXHAUST OXYGEN (14)(18) % DRY 10.0 9.9 9.7 LAMBDA (14)(18) % DRY 10.0 1.73 1.73 1.7							
EXHAUST OXYGEN (14)(18) % DRY 10.0 9.9 9.7 LAMBDA (14)(18) 1.73 1.73 1.73 1.7							
LAMBDA (14)(18) 1.73 1.73 1.7							
				70 DICI			1.70
ENERGY BALANCE DATA		-	(11)(10)		1.10	1.10	1.10
		CE DATA					
	-		. ,				128211
							21080
							4490
			()()				4338
							43700
							31410
							1530
							3101
PUMP POWER (27) Btu/min 1218 1218 121 CONDITIONS AND DEFINITIONS (27) Btu/min 1218 1218 1218			(27)	Bu/IIIII	1210	1210	1218

CONDITIONS AND DEFINITIONS Engine rating obtained and presented in accordance with ISO 3046/1. (Standard reference conditions of 77°F, 29.60 in Hg barometric pressure.) No overload permitted at rating shown. Consult the altitude deration factor chart for applications that exceed the rated altitude or temperature.

Emission levels are at engine exhaust flange prior to any after treatment. Values are based on engine operating at steady state conditions, adjusted to the specified NOx level at 100% load. Tolerances specified are dependent upon fuel quality. Fuel methane number cannot vary more than ± 3.

For notes information consult page three.

G3516C

		FUEL U	SAGE GU	IDE										
		NE NUMB		35	40	45	50	55	60	65	70	75	80	100
	-	DINT TIMI	-	-	-	-	-	20	22	24	28	28	28	28
D	ERATI	ON FACT	OR 0	0	0	0	0	0.90	0.91	0.93	1	1	1	1
ALTITU	ide de	RATION F	ACTORS	AT RATE	-									
	130	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating
	120	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating
INLET AIR	110	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating
TEMP	100	1	1	1	0.96	0.89	0.81	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating
°F	90	1	1	1	1	0.98	0.92	0.87	0.81	0.76	No Rating	No Rating	No Rating	No Rating
	80	1	1	1	1	1	0.98	0.93	0.88	0.83	0.78	0.67	No Rating	No Rating
	70	1	1	1	1	1	1	0.95	0.90	0.85	0.79	0.73	0.62	No Rating
	60	1	1	1	1	1	1	0.96	0.90	0.85	0.80	0.74	0.65	0.56
	50	0 0	1 1000	1 2000	1 3000	1 4000	1 5000	0.96 6000	0.91 7000	0.85 8000	0.80 9000	0.74 10000	0.67 11000	0.60 12000
AFT	ERCO	OLER HEA (A	AT REJEC ACHRF)	TION FAC	TORS	ALTI	TUDE (FE	ET ABOV	E SEA LE	VEL)				
	130	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating
	120	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating
INLET	110	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating
AIR	100	1.12	1.17	1.21	1.26	1.31	1.35	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating
TEMP °F	90	1.06	1.10	1.15	1.19	1.24	1.28	1.28	1.28	1.28	No Rating	No Rating	No Rating	No Rating
Г	80	1	1.04	1.08	1.13	1.17	1.22	1.22	1.22	1.22	1.22	1.22	No Rating	No Rating
	70	1	1	1.02	1.06	1.11	1.15	1.15	1.15	1.15	1.15	1.15	1.15	No Rating
	60	1	1	1	1	1.04	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
	50	1	1	1	1	1	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
						ALTI	TUDE (FE	ET ABOV	E SEA LE	VEL)				

FUEL USAGE GUIDE:

This table shows the derate factor and full load set point timing required for a given fuel. Note that deration and set point timing reduction may be required 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 vour site

ACTUAL ENGINE RATING:

To determine the actual rating of the engine at site conditions, one must consider separately, limitations due to fuel characteristics and air system limitations. The Fuel Usage Guide deration establishes fuel limitations. The Altitude/Temperature deration factors and RPC (reference the Caterpillar Methane Program) establish air system limitations. RPC comes into play when the Altitude/Temperature deration is less than 1.0 (100%). Under this condition, add the two factors together. When the site conditions do not require an Altitude/Temperature derate (factor is 1.0), it is assumed the turbocharger has sufficient capability to overcome the low fuel relative power, and RPC is ignored. To determine the actual power available, take the lowest rating between 1) and 2).

AFTERCOOLER HEAT REJECTION FACTORS(ACHRF):

To maintain a constant air inlet manifold temperature, as the inlet air 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 inlet air temp and altitude conditions. See notes 28 and 29 for application of this factor in calculating the heat exchanger sizing criteria. Failure to properly account for these factors could result in detonation and cause the engine to shutdown or fail

INLET AND EXHAUST RESTRICTIONS FOR ALTITUDE CAPABILITY:

The altitude derate chart is based on the maximum inlet and exhaust restrictions provided on page 1. Contact factory for restrictions over the specified values. Heavy Derates for higher restrictions will apply.

NOTES:

1. Generator efficiencies, power factor, and voltage are based on standard generator. [Genset Power (ekW) is calculated as: (Engine Power (bkW) x Generator Efficiency) - Ancillary Load (ekW)], [Genset Power (kVA) is calculated as: ((Engine Power (bkW) x Generator Efficiency) - Ancillary Load (ekW))/ Power Factor]

2. Rating is with two engine driven water pumps. Tolerance is (+)3, (-)0% of full load.

3. ISO 3046/1 Genset efficiency tolerance is (+)0, (-)5% of full load % efficiency value based on a 1.0 power factor.

Thermal Efficiency is calculated based on energy recovery from the jacket water, lube oil, 1st stage aftercooler, and exhaust to 248°F with engine operation at ISO 3046/1 Genset Efficiency, and assumes unburned fuel is converted in an oxidation catalyst.

5. Total efficiency is calculated as: Genset Efficiency + Thermal Efficiency. Tolerance is ±10% of full load data.

6. ISO 3046/1 Genset fuel consumption tolerance is (+)5, (-)0% of full load data. Nominal genset and engine fuel consumption tolerance is ± 2.5% of full load data.

Air flow value is on a 'wet' basis. Flow is a nominal value with a tolerance of ± 5 %.

8. Inlet manifold pressure is a nominal value with a tolerance of ± 5 %

9. Inlet manifold temperature is a nominal value with a tolerance of ± 9°F.

10. Timing indicated is for use with the minimum fuel methane number specified. Consult the appropriate fuel usage guide for timing at other methane numbers.

11. Exhaust temperature is a nominal value with a tolerance of (+)63°F, (-)54°F.

12. Exhaust flow value is on a 'wet' basis. Flow is a nominal value with a tolerance of ± 6 %.

13. Inlet and Exhaust Restrictions are maximum allowed values at the corresponding loads. Increasing restrictions beyond what is specified will result in a significant engine derate. Emissions data is at engine exhaust flange prior to any after treatment.
NOx tolerances are ± 18% of specified value.
CO, CO2, THC, NMHC, NMNEHC, and HCHO values are "Not to Exceed" levels. THC, NMHC, and NMNEHC do not include aldehydes.

17. VOCs - Volatile organic compounds as defined in US EPA 40 CFR 60. subpart JJJJ

18. Exhaust Oxygen tolerance is ± 0.5; Lambda tolerance is ± 0.05. Lambda and Exhaust Oxygen level are the result of adjusting the engine to operate at the specified NOx level. 19. LHV rate tolerance is ± 2.5%.

20. Heat rejection to jacket water value displayed includes heat to jacket water alone. Value is based on treated water. Tolerance is ± 10% of full load data.

Heat rejection to atmosphere based on treated water. Tolerance is \pm 50% of full load data. 21

Lube oil heat rate based on treated water. Tolerance is ± 20% of full load data.

23. Exhaust heat rate based on treated water. Tolerance is ± 10% of full load data.

Heat rejection to exhaust (LHV to 77°F) value shown includes unburned fuel and is not intended to be used for sizing or recovery calculations.

25. Heat rejection to A/C - Stage 1 based on treated water. Tolerance is ±5% of full load data.

Heat rejection to A/C - Stage 2 based on treated water. Tolerance is ±5% of full load data.

27. Pump power includes engine driven jacket water and aftercooler water pumps. Engine brake power includes effects of pump power.

28. Total Jacket Water Circuit heat rejection is calculated as: (JW x 1.1) + (OC x 1.2) + (1AC x 1.05) + [0.92 x (1AC + 2AC) x (ACHRF - 1) x 1.05]. Heat exchanger sizing criterion is maximum circuit heat rejection at site conditions, with applied tolerances. A cooling system safety factor may be multiplied by the total circuit heat rejection to provide additional margin. 29. Total Second Stage Aftercooler Circuit heat rejection is calculated as: (2AC x 1.05) + [(1AC + 2AC) x 0.08 x (ACHRF - 1) x 1.05]. Heat exchanger sizing criterion is maximum circuit heat rejection at site conditions, with applied tolerances. A cooling system safety factor may be multiplied by the total circuit heat rejection to provide additional margin.

FREE FIELD MECHANICAL & EXHAUST NOISE

MECHANICA	ECHANICAL: Sound Power (1/3 Octave Frequencies)												
Gen Power Without Fan	Percent Load	Engine Power	Overall	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz
ekW	%	bhp	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1475	100	2175	113.7	79.3	79.9	85.7	87.8	91.8	92.2	95.2	99.6	98.2	98.1
1106	75	1660	111.0	77.5	77.0	83.6	85.7	88.4	89.5	92.2	97.7	96.6	97.0
737	50	1150	109.5	75.4	75.3	80.9	83.1	86.1	87.8	90.7	96.4	96.0	96.1

MECHANICAL: Sound Power (1/3 Octave Frequencies)

Gen Power Without Fan	Percent Load	Engine Power	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
ekW	%	bhp	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1475	100	2175	102.4	101.3	101.4	100.3	100.7	99.4	99.4	99.8	101.7	110.1	96.4
1106	75	1660	101.1	100.8	99.7	98.9	99.6	98.1	98.3	99.0	103.5	97.9	93.9
737	50	1150	100.4	100.1	98.8	98.2	99.0	97.4	97.1	99.2	97.6	93.8	93.4

EXHAUST: Sound Power (1/3 Octave Frequencies)

Gen Power Without Fan	Percent Load	Engine Power	Overall	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz
ekW	%	bhp	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1475	100	2175	127.3	114.9	117.7	117.8	115.8	111.1	107.7	113.9	117.2	106.2	108.9
1106	75	1660	125.7	114.1	117.3	117.0	115.8	109.0	107.6	111.4	114.5	104.5	107.2
737	50	1150	123.8	114.6	117.3	114.5	113.2	107.0	106.7	108.2	110.8	103.0	105.4

EXHAUST: Sound Power (1/3 Octave Frequencies)

Gen Power Without Fan	Percent Load	Engine Power	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
ekW	%	bhp	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1475	100	2175	100.7	107.7	107.5	108.8	111.2	113.5	113.9	115.4	115.1	116.0	114.0
1106	75	1660	99.0	105.6	104.8	106.2	109.6	111.8	112.4	113.4	114.2	113.4	109.8
737	50	1150	98.7	101.9	102.3	105.1	108.0	109.5	109.5	110.3	110.9	109.4	105.9

SOUND PARAMETER DEFINITION:

Sound Power Level Data - DM8702-02

Sound power is defined as the total sound energy emanating from a source irrespective of direction or distance. Sound power level data is presented under two index headings: Sound power level -- Mechanical Sound power level -- Exhaust

Mechanical: Sound power level data is calculated in accordance with ISO 6798. The data is recorded with the exhaust sound source isolated.

Exhaust: Sound power level data is calculated in accordance with ISO 6798 Annex A. Exhaust data is post-catalyst on gas engine ratings labeled as "Integrated Catalyst".

Measurements made in accordance with ISO 6798 for engine and exhaust sound level only. No cooling system noise is included unless specifically indicated. Sound level data is indicative of noise levels recorded on one engine sample in a survey grade 3 environment.

How an engine is packaged, installed and the site acoustical environment will affect the site specific sound levels. For site specific sound level guarantees, sound data collection needs to be done on-site or under similar conditions.