CATERPILLAR®

ENGINE SPEED: 1200 FUEL: NAT CAS COMPRESSION RATIO: 15.41 FUEL SYSTEM: HPG IMPCO ATTERCOOLER - MAX. INLET ("F): 130 JACKET WATER - MAX. OUTLET ("F): 210 FUEL PRESS. RANGE (PSIG): 35.0 - 40.0 ASPIRATION: TA MIN. METHANE NUMBER: 80 COOLING SYSTEM: JW-OC, AC RATED ALTTUDE (FT): 3600 IONITION SYSTEM: EIS AT AIR TO TURBO TEMP. ("F): 77 COMBUSTION: LOW EMISSION LEVEL: 2.0 ghbp-hr COMBUSTION: LOW EMISSION FUEL LHV (ETUSC): 906 ENGINE POWER (WITHOUT FAN) (1) ENGINE POWER (WITHOUT FAN) (1) ENGINE EFFICIENCY (MOMINAL) (3) SA 35.0 34.1 31.8 ENGINE EFFICIENCY (MOMINAL) (3) W 35.0 34.1 31.8 ENGINE EFFICIENCY (MOMINAL) (4) W 46.0 48.7 53.2 ENGINE EFFICIENCY (NOMINAL) (5) SA 44. 33.4 31.1 HERMAL EFFICIENCY (NOMINAL) (6) BTU/bhp-hr T221 1251 846 AIR FLOW (77 "F, 14.7 psi) AIR FLOW (13) W 43.0 31.0 124 ENGINE STACK TEMPERATURE COMPRESSOR OUT PRESSURE COMPRESSOR OUT SA 41.1 31.6 124 THMING NAX (as NO2) CO CO CO CO CO CO CO CO CO CO							
AFTERCOLER - MAX. INLET (*F): 130 JOKKET WARE - MAX. OUTLET (*F): 210 FUEL PRESS. RANGE (*SIG): 36.0 - 40.0 ASPIRATION: TA MIN. METHANE NUMBER: 860 OOLING SYSTEM: JW+OC, AC RATED ALTITUDE (*F): 77 EXHAUST MANIFOLD: ASWC NOX EMISSION LEVEL: 2.0 g/blp, hr COMBUSTON: LOW EMISSION FUEL LHV (BTU/SCF): 905 RATING AND EFFICIENCY NOTES LOAD 100% 75% 59%, ENGINE POWER (WITHOUT FAN) (2) EKW 570 427 285 ENGINE POWER (WITHOUT FAN) (2) EKW 570 427 285 ENGINE POWER (WITHOUT FAN) (2) EKW 570 427 285 ENGINE POWER (WITHOUT FAN) (2) EKW 570 427 285 ENGINE POWER (WITHOUT FAN) (2) EKW 570 427 285 ENGINE DATA (2) EKW 570 427 285 285 2810 44.3 31.1 HEEMATOR (2) OSOMPTION<					-		
JACKET WATER. MAX. OUTLET (°F): 210 FUEL PRESS. RANGE (°FSIG): 35.0 - 40.0 ASPIRATION: TA MIN. METHANE NUMBER: 80 COOLING SYSTEM: LIS AT AIR TO TURBO. TEMP. (°F): 77 COMBUSTION: LIS ASWC NOX. EMISSION LEVEL: 2.0 g/b/p-hr COMBUSTION: LOW EMISSION NOX. EMISSION LEVEL: 2.0 g/b/p-hr COMBUSTION: LOW EMISSION MOTES LOAD 100% 75% 50% RATING AND EFFICIENCY (WITHOUT FAN) (1) BHP 814 611 407 ENGINE EFFICIENCY (WITHOUT FAN) (2) BKW 57.0 427 225 ENGINE EFFICIENCY (NONIMAL) (3) % 35.4 33.1.1 1 THERMAL EFFICIENCY (NONIMAL) (3) % 34.4 33.4 31.1 THERMAL EFFICIENCY (NONIMAL) (4) % 46.0 48.7 53.2 COMARESSOR OUT PRESSOR OUT PRESSOR (NONIMAL) (6) BTU/bhp-hr 7462 8014 </td <td></td> <td></td> <td></td> <td></td> <td>FUEL SYSTEM:</td> <td>HPG IMPCO</td>					FUEL SYSTEM:	HPG IMPCO	
ASPRATION: TA MIN. METHANE RUMBER: 80 COOLING SYSTEM: JW+OC, AC RATED ALTITUDE (FT): 3600 IGNITION SYSTEM: LIS AT AIR TO TURBO. TEMP. (FF): 77 EXHAUST MANFOLD: ASWC NOX EMISSION LEVEL: 2.0 g/brp-hr COMBUSTION: LOW EMISSION FUELLHV (BTUSCF): 60 Hz GENSET RATING AND EFFICIENCY NOTES LOAD 100%, 75%, 50%, ENGINE POWER (WITHOUT FAM) (2) EKW 570 427 285 ENGINE EFFICIENCY (NOMINAL) (3) % 35.0 34.1 31.8 ENGINE EFFICIENCY (NOMINAL) (3) % 34.4 33.4 31.1 THERMAL EFFICIENCY (NOMINAL) (3) % 80.4 62.1 84.4 FUEL CONSUMPTION (ISO 394647) (6) BTU/bhp-hr 7407 7607 8170 AIR FLOW (7'T IS/A 174.1 751 846 AIR FLOW (7'T SCFM							
COOLING SYSTEM: JW+OC, AC FATED ALTITUDE (FT): 3800 IGNITION SYSTEM: EIS AT AIR TO TURBO, TEMP. (FF): 77 COMBUSTION: LOW EMISSION FUEL LHY (BTURSC): 3000 ASWC NOX EMISSION LEVEL: 2.0 g/bnp-hr RATING AND EFFICIENCY LOW EMISSION FUEL LHY (BTURSC): 3000 GENERATOR POWER (WITHOUT FAN) BHP B14 611 407 GENERATOR POWER (WITHOUT FAN) (2) EKW 570 427 285 ENGINE EFFICIENCY (NONINAL) (3) % 34.4 33.4 31.1 THERMAL EFFICIENCY (NONINAL) (6) BTU/bhp-hr 7266 7462 8014 FUEL CONSUMPTION (NONINAL) (6) BTU/bhp-hr 7407 7607 8170 FUEL CONSUMPTION (NONINAL) (6) BTU/bhp-hr 7466 7462 8014 FUEL CONSUMPTION (NONINAL) (7) Ib/hr 730 5549 3752 COMPRESSOR OUT PRESSURE	JACKET WATER - MAX. OUTLET (°F):		210		FUEL PRESS. R.	35.0 - 40.0	
ICNITION SYSTEM: EIS AT AIR TO URBO. TEMP. (*F): 77 EXHAUST MANIFOLD: ASWC NOX EMISSION LEVER 2.0 g/bhp-hr COMBUSTION: LOW EMISSION FUEL LHV (BTUSCF): 2.0 g/bhp-hr RATING AND EFFICIENCY (WITHOUT FAN) (2) BHP 814 411 407 ENGINE POWER (WITHOUT FAN) (2) EKW 570 427 285 ENGINE EFFICIENCY (INOMINAL) (3) % 34.4 31.8 ENGINE EFFICIENCY (INOMINAL) (3) % 34.4 31.4 THERMAL EFFICIENCY (INOMINAL) (3) % 34.4 31.4 FUEL CONSUMPTION (ISO 30467) (6) BTU/bhp-hr 7266 7462 8014 FUEL CONSUMPTION (ISO 30467) (7) BTU/bhp-hr 7407 7607 8170 AIR FLOW (T * 1, 1.4, 7, ps) (NOMINAL) (7) BU/bhp-hr 7630 5549 3752 COMPRESSOR OUT TREMERATURE *F 133 131 <	ASPIRATION:		TA		MIN. METHANE	80	
EXHAUST MANIFOLD: COMBUSTION: ASWC LOW EMISSION NOX EMISSION LEVEL: FUEL LHV (BTU/SCF): B0 Hz CENSET 2.0 g/bhp-fr 905 RATING AND EFFICIENCY NOTES LOAD 100% 75% 50% RATING AND EFFICIENCY (WITHOUT FAN) (BINE POWER 10 BHP 814 611 407 ENGINE EFFICIENCY (WITHOUT FAN) (BINE FFICIENCY (ISO 30467) (ISO 30467) 10) BHP 814 611 407 ENGINE EFFICIENCY (ISO 30467) (ISO 30467) (3) % 35.4 33.4 31.1 THERMAL EFFICIENCY (INOMINAL) (3) % 36.4 82.1 84.4 FUEL CONSUMPTION (ISO 30467) (6) BTU/bhp-hr 7407 7607 8170 ARF LOW (77 *F. 14.7 psi) (INOMINAL) (7) Ib/hr 7630 5549 375.2 COMPRESSOR OUT RESSURE (IN HG (abs) 70.1 60.3 45.2 COMPRESSOR OUT TEMPERATURE 'F 133 131 129 INLET MAN. RESSURE (IN HG (abs) 7.1 60.3 4	COOLING SYSTEM:	JV	V+OC, AC		RATED ALTITUE	3600	
COMBUSTION: LOW EMISSION FUEL LHV (BTU/SCF): APPLICATION: 505 60 Hz GENSET RATING AND EFFICIENCY (WITHOUT FAN) (SCFM 10 BHP 814 611 407 ENGINE POWER (WITHOUT FAN) (SCFM (2) EKW 570 427 285 ENGINE EFFICIENCY (ISO 3046r1) (SO 3046r1) (3) % 34.4 31.8 ENGINE EFFICIENCY (INOMINAL) (4) % 46.0 48.7 53.2 TOTAL EFFICIENCY (INOMINAL) (6) BTU/bhp-hr 7266 7462 8014 FUEL CONSUMPTION (ISO 3046r1) (6) BTU/bhp-hr 7266 7462 8014 FUEL CONSUMPTION (ISO 3046r1) (6) BTU/bhp-hr 7266 7462 8014 COMPRESSOR OUT TEMERSURE (NOMINAL) (7) Ib/hr 7530 54.9 3752 COMPRESSOR OUT TEMERATURE (F 133 131 129 142 142 142 INLET MAN. TEMPERATURE (F 306 266 191	IGNITION SYSTEM:		EIS		AT AIR TO TURE	77	
ENGINE POWER (WITHOUT FAN) (1) BHP 814 611 407 ENGINE POWER (WITHOUT FAN) (2) EKW 570 427 285 ENGINE EFFICIENCY (BO 3046/1) (3) % 33.4 31.1 407 ENGINE EFFICIENCY (INOMINAL) (3) % 34.4 33.4 31.1 THERMAL EFFICIENCY (INOMINAL) (3) % 46.0 48.7 53.2 TOTAL EFFICIENCY (INOMINAL) (6) BTU/bhp-hr 7266 7462 8014 FUEL CONSUMPTION (ISO 3046/1) (6) BTU/bhp-hr 7407 7607 8170 AIR FLOW (77 Fr, 14.7 psi) (INOMINAL) (7) SCFM 1721 1251 346 COMPRESSOR OUT TEMPERATURE (NET MAN, PRESSURE 70.1 60.3 45.2 150 INLET MAN, PRESSURE (MARUUT FEMPERATURE (PF 133 131 129 INLET MAN, SE FLOW (8 tack temp.) (11) "FF 802 797	EXHAUST MANIFOLD:		ASWC		NOx EMISSION	2.0 g/bhp-hr	
RATING AND EFFICIENCY NOTES LOAD 100% 75% 50% ENGINE POWER (WITHOUT FAN) (2) EKW 570 427 285 ENGINE EFFICIENCY (IVITHOUT FAN) (2) EKW 570 427 285 ENGINE EFFICIENCY (IVITHOUT FAN) (3) % 34.4 33.4 31.1 ENGINE EFFICIENCY (INOMINAL) (3) % 44.4 33.4 31.1 THERMAL EFFICIENCY (INOMINAL) (5) % 80.4 82.1 84.4 FUEL CONSUMPTION (ISO 30461) (6) BTU/bhp-hr 7407 7607 8170 AIR FLOW (77 °F, 14.7 psi) (INOMINAL) (6) BTU/bhp-hr 7462 8014 COMPRESSOR OUT PRESSURE (I) (I) T21 1251 846 COMPRESSOR OUT TEMPERATURE (I) (I) F 306 266 191 INLET MAN. PRESSURE (II) (I) F 8062 797 790	COMBUSTION:	LOW E	EMISSION		FUEL LHV (BTU/	905	
ENGINE POWER (WITHOUT FAN) (1) BHP 814 611 407 GENERATOR POWER (WITHOUT FAN) (2) EKW 570 427 285 ENGINE EFFICIENCY (ISO 304647) (3) % 34.4 33.4 31.1 HERMAL EFFICIENCY (INOMINAL) (3) % 44.4 33.4 31.1 THERMAL EFFICIENCY (INOMINAL) (3) % 46.0 48.7 53.2 TOTAL EFFICIENCY (INOMINAL) (4) % 80.4 82.1 84.4 ENGINE DATA (INOMINAL) (5) % 80.4 82.1 84.4 FUEL CONSUMPTION (INOMINAL) (6) BTU/bhp-hr 7407 7607 8170 AIR FLOW (7) Ib/hr 7630 5549 3752 10.4 646 111 47 COMPRESSOR OUT TEMPERATURE (6) Ib/hr 7630 5549 3752 10.1 16 64.54 47.6 33.4 129					APPLICATION:	60 Hz GENSET	
ENGINE POWER (WITHOUT FAN) (1) BHP 814 611 407 GENERATOR POWER (WITHOUT FAN) (2) EKW 570 427 285 ENGINE EFFICIENCY (ISO 304647) (3) % 34.4 33.4 31.1 HERMAL EFFICIENCY (INOMINAL) (3) % 44.4 33.4 31.1 THERMAL EFFICIENCY (INOMINAL) (3) % 46.0 48.7 53.2 TOTAL EFFICIENCY (INOMINAL) (4) % 80.4 82.1 84.4 ENGINE DATA (INOMINAL) (5) % 80.4 82.1 84.4 FUEL CONSUMPTION (INOMINAL) (6) BTU/bhp-hr 7407 7607 8170 AIR FLOW (7) Ib/hr 7630 5549 3752 10.4 646 111 47 COMPRESSOR OUT TEMPERATURE (6) Ib/hr 7630 5549 3752 10.1 16 64.54 47.6 33.4 129			NOTES		100%	75%	50%
GENERATOR POWER (WITHOUT FAN) (2) EKW 570 427 285 ENGINE EFFICIENCY (ISO 30467) (3) % 34.4 33.4 31.1 THERMAL EFFICIENCY (NOMINAL) (3) % 34.4 33.4 31.1 THERMAL EFFICIENCY (NOMINAL) (4) % 46.0 48.7 53.2 TOTAL EFFICIENCY (NOMINAL) (6) BTU/bhp-hr 7266 7462 8014 FUEL CONSUMPTION (ISO 30467) (6) BTU/bhp-hr 7266 7462 8014 FUEL CONSUMPTION (ISO 30467) (6) BTU/bhp-hr 7266 7462 8014 AR FLOW (7° F, 14.7 psi) (INOMINAL) (6) BTU/bhp-hr 7407 7607 8170 COMPRESOR OUT PRESSURE (INO (INOMINAL) (6) BTU/bhp-hr 7630 5549 3752 INLET MAN, TEMPERATURE (IN (IS) 70.1 60.3 34.1 129 INLET MAN, TEMPERATURE (IN STG				-			
ENGINE EFFICIENCY (ISO 30467) (0) % 35.0 34.1 31.8 ENGINE EFFICIENCY (INOMINAL) (3) % 35.0 34.1 31.8 ENGINE EFFICIENCY (INOMINAL) (3) % 34.4 33.4 31.1 THERMAL EFFICIENCY (INOMINAL) (6) BTU/bhp-hr 7266 7462 8014 FUEL CONSUMPTION (ISO 30467) (6) BTU/bhp-hr 7266 7462 8014 FUEL CONSUMPTION (ISO 30467) (7) SCFM 1721 1251 846 AIR FLOW (77 °F, 14.7 psi) (7) Ib/hr 7630 5549 3752 COMPRESSOR OUT PRESSURE (7) In. HG (abs) 70.1 60.3 45.2 COMPRESSOR OUT TEMPERATURE (8) in. HG (abs) 62.4 47.6 33.4 INLET MAN, TEMPERATURE (11) °F 133 131 129 INLET MAN, TEMPERATURE (11) °F 802 797 790 EXHAUST STACK T		· · · ·			-	-	
ENGINE EFFICIENCY (NOMINAL) (3) % 34.4 33.4 31.1 THERMAL EFFICIENCY (NOMINAL) (4) % 46.0 48.7 53.2 TOTAL EFFICIENCY (NOMINAL) (5) % 80.4 48.7 84.4 Thermodeline Data (NOMINAL) (6) BTU/bhp-hr 7467 7607 8170 AIR FLOW (7) Ib/hr 7630 5549 3752 306 2666 191 AFTERCOOLER AIR OUT TEMPERATURE (7) Ib/hr 7633 33.3 33 33 33 33 33 33 33 33 33 33 33 33 33 33 33 33 33 33		. ,	. ,				
Emerginal EFFICIENCY (NOMINAL) (4) % 46.0 48.7 53.2 TOTAL EFFICIENCY (NOMINAL) (5) % 80.4 82.1 84.4 ENGINE DATA FUEL CONSUMPTION (ISO 3046/1) (6) BTU/bhp-hr 7462 8014 FUEL CONSUMPTION (NOMINAL) (6) BTU/bhp-hr 7407 7607 8170 AIR FLOW (77 °F, 14.7 psi) (7) Ib/hr 7630 5549 3752 COMPRESSOR OUT PRESSURE (7) Ib/hr 7630 5649 3752 COMPRESSOR OUT TEMPERATURE (* 10.46 (abs) 70.1 60.3 45.2 COMPRESSURE (8) in. HG (abs) 62.4 47.6 33.4 11 INLET MAN. PRESSURE (10) *BTDC 33		. ,				-	
TOTAL EFFICIENCY (NOMINAL) (6) % 80.4 82.1 84.4 FUEL CONSUMPTION (ISO 3046/1) (6) BTU/bhp-hr 7266 7462 8014 FUEL CONSUMPTION (INOMINAL) (6) BTU/bhp-hr 7407 7607 8170 AIR FLOW (77 'F, 14.7 psi) (IO) (IO) (IO) 80.4 82.1 84.6 COMPRESSOR OUT PRESSURE (IO) (IO) 1257 1251 846 COMPRESSOR OUT TEMPERATURE (III) 6 97 306 266 191 INLET MAN. RESSURE (III) °F 333 131 129 INLET MAN. RESSURE (III) °F 802 797 790 EXHAUST STACK TEMPERATURE (III) °F 802 7183 3320 EXHAUST SACK temperature (III) °F 802 7183 3920 EXHAUST SACK TEMPERATURE (III) °F 3.7 7.1 7.1 CO (III) (IO) <td></td> <td>,</td> <td>• • •</td> <td></td> <td>-</td> <td></td> <td>-</td>		,	• • •		-		-
ENGINE DATA Image: Solution of the second seco		/				-	
FUEL CONSUMPTION (ISO 3046/1) (6) BTU/bhp-hr 7266 7462 8014 FUEL CONSUMPTION (NOMINAL) (6) BTU/bhp-hr 7407 7607 8170 AIR FLOW (7) (7) SCFM 1721 1251 846 AIR FLOW (7) (7) 160.3 45.2 9 9 9 306 266 191 45.2 9 9 9 9 9 133 131 129 11. HG (abs) 62.4 47.6 33.4 131 129 11. 116 116 9 9 9 142		(NOMINAL)	(5)	%	80.4	82.1	84.4
FUEL CONSUMPTION (NOMINAL) (6) BTU/bip-hr 7407 7607 8170 AIR FLOW (77 °F, 14.7 psi) (7) SCFM 1721 1251 846 AIR FLOW (77 °F, 14.7 psi) (7) Ib/hr 7630 5549 3752 COMPRESSOR OUT PRESSURE (7) Ib/hr 7630 266 191 AFTERCOOLER AIR OUT TEMPERATURE 9°F 133 131 129 INLET MAN. PRESSURE (8) 9°F 142 142 142 TIMING (10) °BTDC 33 33 33 33 EXHAUST STACK TEMPERATURE (11) °F 802 797 790 EXHAUST GAS FLOW (@ stack temp.) (12) CFM 4382 3185 2150 EXHAUST MASS FLOW (13) g/bp-hr 2 3.7 7.1 CO (14) g/bp-hr 2 3.7 7.1 CO (14) g/bp-hr 2.93 2.67 2.72 NMHC (molecular weight of 15.	ENGINE DATA]				
AIR FLOW (77 °F, 14.7 psi) (7) SCFM 1721 1251 846 AIR FLOW (7) BL/hr 7630 5549 3752 COMPRESSOR OUT PRESSURE (7) In HG (abs) 70.1 60.3 45.2 COMPRESSOR OUT TEMPERATURE °F 133 131 129 INLET MAN. PRESSURE (8) °F 142 142 142 INLET MAN. PRESSURE (10) °BTDC 33 33 33 EXHAUST STACK TEMPERATURE (11) °F 802 797 790 EXHAUST GAS FLOW (@ stack temp.) (12) CFM 4382 3185 2150 EXHAUST MASS FLOW (13) g/bhp-hr 2 3.7 7.1 CO (14) g/bhp-hr 1.57 1.67 1.8 THC (molecular weight of 15.84) (14) g/bhp-hr 0.44 0.4 0.41 CO2 (14) g/bhp-hr 517 522 563 EXHAUST O2 (15) % DRY 8.3 7.6 6.6 LMMC (molecular weight of 15.84) (14)<	FUEL CONSUMPTION	(ISO 3046/1)	(6)	BTU/bhp-hr	7266	7462	8014
AIR FLOW (77 °F, 14.7 psi) (7) SCFM 1721 1251 846 AIR FLOW (7) SCFM 1721 1251 846 AIR FLOW (7) b/hr 7630 5549 3752 COMPRESSOR OUT PRESSURE in. HG (abs) 70.1 60.3 45.2 COMPRESSOR OUT TEMPERATURE "F 133 131 129 INLET MAN. PRESSURE (8) "F 142 142 142 INLET MAN. PRESSURE (10) "BTDC 33 33 33 EXHAUST STACK TEMPERATURE (11) "F 802 797 790 EXHAUST GAS FLOW (@ stack temp.) (12) CFM 4382 3185 2150 EXHAUST MASS FLOW (23) C.67 2.72 3.7 7.1 CO (14) g/bhp-hr 1.57 1.67 1.8 THC (molecular weight of 15.84) (14) g/bhp-hr 5.17 5.22 563 EXHAUST O2 (15) % DRY 8.3	FUEL CONSUMPTION	(NOMINAL)	(6)	BTU/bhp-hr	7407	7607	8170
AIR FLOW (7) Ib/hr 7630 5549 3752 COMPRESSOR OUT PRESSURE (7) In. HG (abs) 70.1 60.3 45.2 COMPRESSOR OUT TEMPERATURE °F 336 266 191 AFTERCOOLER AIR OUT TEMPERATURE (MEASURED IN PLENUM) (9) °F 133 131 129 INLET MAN. TEMPERATURE (MEASURED IN PLENUM) (9) °F 142 142 142 INLET MAN. TEMPERATURE (11) °F 802 797 790 EXHAUST STACK TEMPERATURE (11) °F 802 797 790 EXHAUST MASS FLOW (2) °F 142 142 142 NOx (as NO2) (12) CFM 4382 3185 2150 CO (14) g/bhp-hr 2.67 2.72 1.8 NHC (molecular weight of 15.84) (14) g/bhp-hr 2.93 2.67 2.72 NMHC (molecular weight of 15.84) (14) g/bhp-hr 0.44 0.4 0.41	AIR FLOW (77 °F, 14,7 psi)	. ,		SCFM	1721	1251	846
COMPRESSOR OUT PRESSURE In. HG (abs) 70.1 60.3 45.2 COMPRESSOR OUT TEMPERATURE F 306 266 191 AFTERCOOLER AIR OUT TEMPERATURE "F 133 131 129 INLET MAN. PRESSURE (MEASURED IN PLENUM) (9) "F 133 131 129 INLET MAN. TEMPERATURE (MEASURED IN PLENUM) (9) "F 142 142 142 TIMING (10) "BTDC 33 33 33 33 EHAUST STACK TEMPERATURE (11) "F 802 797 790 EXHAUST GAS FLOW (@ stack temp.) (12) CFM 4382 3185 2150 EXHAUST MASS FLOW (13) g/bhp-hr 2.67 2.72 NOX (as NO2) (13) g/bhp-hr 0.44 0.44 0.41 CO (14) g/bhp-hr 517 522 563 EXHAUST O2 (15) "D 1.57 1.48 1.40 HEAT BALANCE DATA (16)				lb/hr	7630	5549	3752
COMPRESSOR OUT TEMPERATURE °F 306 266 191 AFTERCOOLER AIR OUT TEMPERATURE °F 133 131 129 INLET MAN. PRESSURE (MEASURED IN PLENUM) (9) °F 142 142 142 TIMING (MEASURED IN PLENUM) (9) °BTDC 33 33 33 EXHAUST STACK TEMPERATURE (11) °F 802 797 790 EXHAUST GAS FLOW (@ stack temp.) (12) CFM 4382 3185 2150 EXHAUST MASS FLOW (12) Ib/hr 7933 5783 3920 EMISSIONS DATA NOx (as NO2) (13) g/bhp-hr 1.57 1.67 1.8 CO (14) g/bhp-hr 2.93 2.67 2.72 NMHC (molecular weight of 15.84) (14) g/bhp-hr 517 522 563 EXHAUST O2 (15) % DRY 8.3 7.6 6.6 LAWIDA (16) BTU/min 100486 77404 55			()	in, HG (abs)	70.1	60.3	45.2
AFTERCOOLER AIR OUT TEMPERATURE °F 133 131 129 INLET MAN. PRESSURE (MEASURED IN PLENUM) (8) °F 142 142 142 INLET MAN. TEMPERATURE (MEASURED IN PLENUM) (9) °F 142 142 142 INLIET MAN. TEMPERATURE (I1) °F 802 797 790 EXHAUST STACK TEMPERATURE (11) °F 802 797 790 EXHAUST GAS FLOW (@ stack temp.) (12) CFM 4382 3185 2150 EXHAUST MASS FLOW (12) CFM 4382 3185 2150 EXHOSIONS DATA (14) g/bhp-hr 2 3.7 7.1 NOX (as NO2) (13) g/bhp-hr 2.93 2.67 2.72 NHC (molecular weight of 15.84) (14) g/bhp-hr 5.17 5.22 563 EXHAUST O2 (15) % DRY 8.3 7.6 6.6 LAWBDA (15) % DRY 8.3 7.6 6.6 LAWBDA (17) (22) BTU/min 100486 77404<					-		-
INLET MAN. PRESSURE (MEASURED IN PLENUM) (8) in. HG (abs) 62.4 47.6 33.4 INLET MAN. TEMPERATURE (MEASURED IN PLENUM) (9) °F 142 142 142 TIMING (10) °F 142 142 142 142 EXHAUST STACK TEMPERATURE (11) °F 802 797 790 EXHAUST GAS FLOW (@ stack temp.) (12) CFM 4382 3185 2150 EXHAUST MASS FLOW (12) CFM 4382 3185 2150 CO (13) g/bhp-hr 793 5783 3920 EMISSIONS DATA NOX (as NO2) (14) g/bhp-hr 2.3.7 7.1 CO (14) g/bhp-hr 2.93 2.67 2.72 NMHC (molecular weight of 15.84) (14) g/bhp-hr 5.17 522 563 EXHAUST O2 (15) 9/bP-hr 5.17 5.22 563 LAMBDA (17) (22) BTU/min 100486 <td></td> <td>?F</td> <td></td> <td></td> <td></td> <td></td> <td>-</td>		?F					-
INLET MAN. TEMPERATURE (MEASURED IN PLENUM) (9) °F 142 142 142 142 TIMING (10) °BTDC 33 33 33 33 EXHAUST STACK TEMPERATURE (11) °F 802 797 790 EXHAUST GAS FLOW (@ stack temp.) (12) CFM 4382 3185 2150 EXHAUST MASS FLOW (12) Ib/hr 7933 5783 3920 EMISSIONS DATA NOx (as NO2) (13) g/bhp-hr 1.57 1.67 1.8 CO (14) g/bhp-hr 2.93 2.67 2.72 NMHC (molecular weight of 15.84) (14) g/bhp-hr 517 522 563 EXHAUST O2 (15) % DRY 8.3 7.6 6.6 LAMBDA (17) (22) BTU/min 100486 77404 55420 LHV INPUT (17) (22) BTU/min 26292 22690 18916 HEAT REJECTION TO ATMOSPHERE (18) BTU/min <td></td> <td></td> <td>(8)</td> <td>-</td> <td></td> <td>-</td> <td>-</td>			(8)	-		-	-
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HEAT REJECTION TO A/C (AC) (21) (23) BTU/min 5320 3018 936		,					
			(21) (23)				
	HEAT REJECTION TO ENGINE FOMFS		1		311.2	511.2	511.2

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 AND ADJUSTED TO THE SPECIFIED NOX LEVEL AT 100% LOAD. 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.

G3512

GAS ENGINE TECHNICAL DATA

CATERPILLAR®

		FUE	LUSAC	SE GUID	E									
CAT M	ETHANE	NUMBER	30	30	35	40	45	50	55	60	65	70	75	80-100
IGNITION TIMING		-	19	21	22	23	24	26	27	28	30	31	33	
DERATION FACTOR 0 0.90 0.90 1.00							1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
					07000			Π						
	A	LTITUDE	DERA	HON FA	CTORS									
	130	1.00	1.00	0.97	0.93	0.90	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.65
	120	1.00	1.00	0.98	0.95	0.91	0.88	0.84	0.81	0.78	0.75	0.72	0.69	0.66
AIR	110	1.00	1.00	1.00	0.96	0.93	0.89	0.86	0.82	0.79	0.76	0.73	0.70	0.67
то	100	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.77	0.74	0.71	0.68
TURBO	90	1.00	1.00	1.00	1.00	0.96	0.92	0.89	0.85	0.82	0.79	0.76	0.73	0.70
	80	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
(°F)	70	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
	60	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
	50	1.00	1.00	1.00	1.00	1.00	1.00	0.96	0.92	0.89	0.85	0.82	0.78	0.75
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
						A	LTITUDE	(FEET AB	OVE SEA	LEVEL)				
								3						
AFTE	RCOOL	ER HEA	T REJE	CTION F	ACTOR	S (ACH	RF)							
	130	1.40	1.47	1.54	1.61	2	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65
	120	1.32	1.39	1.46	1.53	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57
AIR	110	1.24	1.30	1.37	1.44	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48
то	100	1.16	1.22	1.29	1.36	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
TURBO	90	1.08	1.14	1.20	1.27	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
	80	1.00	1.06	1.12	1.19	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23
(°F)	70	1.00	1.00	1.04	1.10	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
. ,	60	1.00	1.00	1.00	1.02	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
	50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
						A	LTITUDE	(FEET AB	OVE SEA	LEVEL)				
F	REE FI	ELD MEC	CHANIC	AL & EX	HAUST	NOISE								
	100% Load Data			1	dB(A)				(dB)					
Free Field DISTANCE F		F FROM	3.2			94.5	91.1	85.3	86.3	89.0	90.6	87.4	79.0	
Mechar		THE ENGI		22.9		5.4	84.6	81.2	75.4	76.4	79.1	80.7	77.5	69.1
moonu			. ,	49.2	79	9.6	78.8	75.4	69.6	70.6	73.3	74.9	71.7	63.3
Eroo E	old	DIOTAL		4.9	11	0.6	98.8	102.6	104.7	101.2	102.0	104.1	105.9	99.3
		DISTANCE FROM THE ENGINE (FEET)		22.9	97	7.3	88.5	90.8	92.2	88.6	91.0	90.8	91.2	84.2
Exnat	151		()	49.2	90).6	81.9	84.2	85.6	82.0	84.4	84.2	84.6	77.5
					Overa	al SPL	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 khz
							00	tave Ban	d Conto					

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 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.

GAS ENGINE TECHNICAL DATA



NOTES

- 1 ENGINE RATING IS WITH 2 ENGINE DRIVEN WATER PUMPS. TOLERANCE IS ± 3% OF FULL LOAD.
- 2 GENERATOR POWER DETERMINED WITH AN ASSUMED GENERATOR EFFICIENCY OF 93.9% AND POWER FACTOR OF 0.8 [GENERATOR POWER = ENGINE POWER x GENERATOR EFFICIENCY].
- 3 ISO 3046/1 ENGINE EFFICIENCY TOLERANCE IS (+)0, (-)5% OF FULL LOAD % EFFICIENCY VALUE. NOMINAL ENGINE EFFICIENCY TOLERANCE IS \pm 3% OF FULL LOAD % EFFICIENCY VALUE.
- 4 THERMAL EFFICIENCY: JACKET HEAT + LUBE OIL HEAT + EXH. HEAT TO 350°F.
- 5 TOTAL EFFICIENCY = ENGINE EFF. + THERMAL EFF. TOLERANCE IS ± 10% OF FULL LOAD DATA.
- **6** ISO 3046/1 FUEL CONSUMPTION TOLERANCE IS (+)5, (-)0% OF FULL LOAD DATA. NOMINAL FUEL CONSUMPTION TOLERANCE IS \pm 3 % OF FULL LOAD DATA.
- 7 UNDRIED AIR. FLOW TOLERANCE IS ± 5 %
- 8 INLET MANIFOLD PRESSURE TOLERANCE IS ± 5 %
- 9 INLET MANIFOLD TEMPERATURE TOLERANCE IS ± 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 STACK TEMPERATURE TOLERANCE IS (+)63°F, (-)54°F.
- 12 WET EXHAUST. FLOW TOLERANCE IS ± 6 %
- 13 NOX VALUES ARE SET POINTS AND WILL VARY WITH OPERATING CONDITIONS.
- 14 CO, CO2, THC, and NMHC VALUES ARE "NOT TO EXCEED".
- 15 O2% TOLERANCE IS \pm 0.5; LAMBDA TOLERANCE IS \pm 0.05. LAMBDA AND O2 LEVEL ARE THE RESULT OF ADJUSTING THE ENGINE TO OPERATE AT THE SPECIFIED NOX LEVEL.
- **16** LHV INPUT TOLERANCE IS ± 3%.
- 17 HEAT REJECTION TO JACKET TOLERANCE IS ± 10 % OF FULL LOAD DATA, BASED ON TREATED WATER.
- 18 HEAT REJECTION TO ATMOSPHERE TOLERANCE IS ± 50% OF FULL LOAD DATA, BASED ON TREATED WATER.

19 HEAT REJECTION OF LUBE OIL TOLERANCE IS ± 20% OF FULL LOAD DATA, BASED ON TREATED WATER.

20 HEAT REJECTION TO EXHAUST TOLERANCE IS ± 10% OF FULL LOAD DATA, BASED ON TREATED WATER.

21 HEAT REJECTION TO A/C TOLERANCE IS ± 5 % OF FULL LOAD DATA, BASED ON TREATED WATER.

SITE SPECIFIC COOLING SYSTEM SIZING EQUATIONS (WITH TOLERANCES)

22 TOTAL JACKET CIRCUIT $(JW+OC) = (JW \times 1.1) + (OC \times 1.2)$.

23 TOTAL AFTERCOOLER CIRCUIT (AC) = AC x ACHRF x 1.05.

DM0147-02

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08-Jul-09