GAS ENGINE TECHNICAL DATA

CATERPILLAR®

| RATING AND EFFICIENCY NOTES LOAD 100% 75% 50% ENGINE FOWER (WITHOUT FAN) (1) BHP 791 593 396 GENERATOR POWER (WITHOUT FAN) (2) EKW 555 416 276 ENGINE EFFICIENCY (INOMINAL) (3) % 32.5 30.8 28.3 INERMAL EFFICIENCY (INOMINAL) (3) % 52.5 30.8 28.3 THERMAL EFFICIENCY (INOMINAL) (6) BTU/bhp-hr 7821 8254 8993 FUEL CONSUMPTION (ISO 30447) (7) SCFM 1107 879 636 AIR FLOW (77 °F, 14.7 psi) (INOMINAL) (6) BTU/bhp-hr 7821 8254 8993 COMPRESSOR OUT PRESSURE (7) SCFM 1107 879 636 INLET MAN. PRESSURE (7) Ib/n 403 55.3 42.9 NLET MAN. TEMPERATURE (MEASURED IN PLENUM (9) 9 F 133 129 126 </th <th>ENGINE SPEED: COMPRESSION RATIO: AFTERCOOLER - MAX. INLET (°F): JACKET WATER - MAX. OUTLET (°F): COOLING SYSTEM: IGNITION SYSTEM: EXHAUST MANIFOLD: COMBUSTION:</th> <th></th> <th>1200 9:1 130 210 /+OC, AC EIS ASWC ATALYST</th> <th></th> <th>PLIED AIR FUEL ANGE (PSIG): NUMBER: DE (FT): 30. TEMP. (°F): MISSION LEVEL: /SCF):</th> <th>NAT GAS HPG IMPCO RATIO CONTROL 25.0 - 30.0 80 5000 77 0.3 %O2 905 60 Hz GENSET</th> | ENGINE SPEED: COMPRESSION RATIO: AFTERCOOLER - MAX. INLET (°F): JACKET WATER - MAX. OUTLET (°F): COOLING SYSTEM: IGNITION SYSTEM: EXHAUST MANIFOLD: COMBUSTION: | | 1200 9:1 130 210 /+OC, AC EIS ASWC ATALYST | | PLIED AIR FUEL ANGE (PSIG): NUMBER: DE (FT): 30. TEMP. (°F): MISSION LEVEL: /SCF): | NAT GAS HPG IMPCO RATIO CONTROL 25.0 - 30.0 80 5000 77 0.3 %O2 905 60 Hz GENSET | |
|---|--|---------------------------------------|---|---------|--|--|-------|
| ENGINE POWER (WITHOUT FAN) (1) BHP 791 593 396 GENERATOR POWER (WITHOUT FAN) (2) EKW 555 416 278 ENGINE EFFICIENCY (ISO 30467) (3) % 32.5 30.8 28.3 ENGINE EFFICIENCY (NOMINAL) (3) % 54.4 56.1 59.1 TOTAL EFFICIENCY (NOMINAL) (5) % 86.9 87.0 87.4 FUEL CONSUMPTION (ISO 30467) (6) BTU/bhp-hr 7821 8254 8993 AIR FLOW (T7) F14.7 psi) (7) Ib/hr 7821 8254 8993 COMPRESSOR OUT TRESSURE (7) Ib/hr SCFM 1107 879 636 COMPRESSOR OUT TEMPERATURE (F 133 129 126 13.4 32.5 146 NLET MAN, PRESSURE (10) °F 13.9 136 136 136 146 IMING (00) °FDC 23 | | | NOTES | | 100% | 75% | 500/ |
| GENERATOR POWER (WITHOUT FAN) (2) EKW 555 416 278 ENGINE EFFICIENCY (INOMINAL) (3) % 32.5 30.8 28.3 THERMAL EFFICIENCY (NOMINAL) (3) % 32.5 30.8 28.3 THERMAL EFFICIENCY (NOMINAL) (4) % 55.4 56.1 59.1 TOTAL EFFICIENCY (NOMINAL) (6) BTU/bhp-hr 7821 8254 8993 FUEL CONSUMPTION (ISO 30467) (6) BTU/bhp-hr 7821 8254 8993 AIR FLOW (T° F, 14.7 psi) (7) SCFM 1107 879 636 AIR FLOW (T° F, 14.7 psi) (7) Ib/hr 4907 3898.00 2822.00 COMPRESSOR OUT TRESSURE (7) Ib/hr 4907 3898.00 2822.00 INLET MAN. PRESSURE (9) °F 133 129 126 INLET MAN. TEMPERATURE (Measured in PLENUM (9) °F 133 129 12 | | | | - | | | |
| ENGINE EFFICIENCY (ISO 30467) (3) % 32.5 30.8 28.3 ENGINE EFFICIENCY (NOMINAL) (3) % 32.5 30.8 28.3 THERMAL EFFICIENCY (NOMINAL) (4) % 54.4 56.1 59.1 TOTAL EFFICIENCY (NOMINAL) (6) BTU/bhp-hr 7821 8254 8993 AIR FLOW (77 °F, 14.7 psi) (10) (100 all (abs) 60.3 55.3 42.9 COMPRESSOR OUT PRESSURE (7) Ib/hr 1107 879 636 COMPRESSOR OUT TEMPERATURE (F 133 129 126 INLET MAN. TEMPERATURE (MEASURE) IN PLENUM °F 133 129 126 INLET MAN. TEMPERATURE (MEASURE) IN PLENUM (9) °F 892 837 790 EXHAUST STACK TEMPERATURE (11) °F 892 837 790 EXHAUST STACK TEMPERATURE (11) °F 892 837 790 EXHAUST STACK TEMPERATURE (14) | | · · · · · · · · · · · · · · · · · · · | | | - | | |
| ENGINE EFFICIENCY (NOMINAL) (3) % 32.5 30.8 28.3 THERMAL EFFICIENCY (NOMINAL) (4) % 54.4 56.1 59.1 TOTAL EFFICIENCY (NOMINAL) (5) % 86.9 87.0 87.4 FUEL CONSUMPTION (ISO 3046/1) (6) BTU/bhp-hr 7821 8254 8993 FUEL CONSUMPTION (ISO 3046/1) (6) BTU/bhp-hr 7821 8254 8993 AIR FLOW (7° *F, 14.7 psi) (NOMINAL) (6) BTU/bhp-hr 7821 8254 8993 COMPRESSOR OUT PRESSURE (7) ID/hr 4907 3898.00 2822.00 COMPRESSOR OUT TEMPERATURE (7) In.HG (abs) 60.3 55.3 42.9 INLET MAN. TEMPERATURE (MEASURED IN PLENUM) (9) °F 133 129 126 INLET MAN. TEMPERATURE (MEASURED IN PLENUM) (10) °F 892 837 790 EXHAUST STACK TEMPERATURE (11) °F 892 <td></td> <td>· · · · · · · · · · · · · · · · · · ·</td> <td></td> <td></td> <td></td> <td></td> <td>-</td> | | · · · · · · · · · · · · · · · · · · · | | | | | - |
| THERMAL EFFICIENCY (NOMINAL) (4) 9/2 54.4 56.1 59.1 TOTAL EFFICIENCY (NOMINAL) (5) % 86.9 87.0 87.4 ENGINE DATA FUEL CONSUMPTION (ISO 3046/1) (6) BTU/bhp-hr 7821 8254 8993 AIR FLOW (77 °F, 14.7 psi) (NOMINAL) (6) BTU/bhp-hr 7821 8254 8993 AIR FLOW (77 °F, 14.7 psi) (7) Ib/hr 4907 3898.00 2822.00 COMPRESSOR OUT PRESSURE (7) Ib/hr 4907 3898.00 2822.00 COMPRESSOR OUT TEMPERATURE (*F 133 129 126 INLET MAN. PRESSURE (% in. HG (abs) 52.6 43.4 32.5 INLET MAN. TEMPERATURE (MEASURED IN PLENUM) (9) °F 133 129 126 INLET MAN. TEMPERATURE (11) °F 892 837 790 EXHAUST STACK TEMPERATURE (11) °F 892 837 790 <td></td> <td>· · ·</td> <td></td> <td></td> <td></td> <td></td> <td></td> | | · · · | | | | | |
| TOTAL EFFICIENCY (NOMINAL) (5) % 86.9 87.0 87.4 FUEL CONSUMPTION (ISO 3046/1) (6) BTU/bhp-hr 7821 8254 8993 FUEL CONSUMPTION (NOMINAL) (6) BTU/bhp-hr 7821 8254 8993 ARR FLOW (7) SCFM 107 879 636 COMPRESSOR OUT PRESSURE (7) Ib/hr 4907 3898.00 2822.00 COMPRESSOR OUT TEMPERATURE "F 258 235 173 AFTERCOOLER AIR OUT TEMPERATURE "F 133 129 126 INLET MAN. PRESSURE (MEASURED IN PLENUM) (9) "F 133 129 126 INLET MAN. TEMPERATURE (MEASURED IN PLENUM) (9) "F 892 837 790 EXHAUST STACK TEMPERATURE (MEASURED IN PLENUM) (10) "BTDC 23 23 23 EXHAUST GAS FLOW (11) "F 892 837 790 EXHAUST GAS FLOW (12) | | | | | | | |
| ENGINE DATA (ISO 3046/1) (6) BTU/bhp-hr 7821 8254 8993 FUEL CONSUMPTION (NOMINAL) (6) BTU/bhp-hr 7821 8254 8993 AIR FLOW (7) Ibhr 107 879 636 AIR FLOW (7) Ibhr 4907 3898.00 2822.00 COMPRESSOR OUT PRESSURE (7) Ibhr 4907 3898.00 2822.00 COMPRESSOR OUT TEMPERATURE (7) Ibhr 4907 3898.00 2822.00 AFTERCOOLER AIR OUT TEMPERATURE (MEASURED IN PLENUM) (7) Ibhr 4907 3898.00 2822.00 INLET MAN. PRESSURE (MEASURED IN PLENUM) (7) In. HG (abs) 52.6 43.4 32.5 INLET MAN. TEMPERATURE (MEASURED IN PLENUM) (10) °F 139 136 136 EXHAUST GAS FLOW (@ stack temp.) (12) CFM 3132 2384 1664 EXHAUST GAS FLOW (@ stack temp.) (12) G/bhp-hr 12.47 14.4 3001 </td <td></td> <td>(,</td> <td></td> <td></td> <td></td> <td></td> <td></td> | | (, | | | | | |
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| COMPRESSOR OUT TEMPERATURE °F 258 235 173 AFTERCOOLER AIR OUT TEMPERATURE °F 133 129 126 INLET MAN. PRESSURE (MEASURE) IN PLENUMI °F 133 129 126 INLET MAN. TEMPERATURE (MEASURE) IN PLENUMI (9) °F 139 136 136 TIMING (10) °BTDC 23 23 23 23 EXHAUST STACK TEMPERATURE (11) °F 892 837 790 EXHAUST GAS FLOW (@ stack temp.) (12) CFM 3132 2384 1664 EXHAUST MASS FLOW (13) g/bhp-hr 12.72 11.92 11.47 CO (14) g/bhp-hr 12.47 14.19 15.2 THC (molecular weight of 15.84) (14) g/bhp-hr 0.32 0.38 0.54 EXHAUST O2 (15) % DRY 0.3 0.3 0.3 0.3 LMV INPUT HEAT BALANCE DATA (16) BTU/min 103134 81633 | _ | | (7) | | | | |
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| INLET MAN. PRESSURE (MEASURED IN PLENUM) (8) in. HG (abs) 52.6 43.4 32.5 INLET MAN. TEMPERATURE (MEASURED IN PLENUM) (9) °F 139 136 136 TIMING (10) °F 892 837 790 EXHAUST STACK TEMPERATURE (11) °F 892 837 790 EXHAUST GAS FLOW (@ stack temp.) (12) CFM 3132 2384 1664 EXHAUST MASS FLOW (12) CFM 3132 2384 1664 EXHAUST MASS FLOW (12) CFM 5219 4144 3001 EMISSIONS DATA NOx (as NO2) (13) g/bhp-hr 12.47 14.19 15.2 CO (14) g/bhp-hr 2.13 2.55 3.58 NMHC (molecular weight of 15.84) (14) g/bhp-hr 0.32 0.38 0.54 EXHAUST O2 (15) % DRY 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.4 1099 0.99 0.99 0.99 0.99 | | | | | | | |
| INLET MAN. TEMPERATURE (MEASURED IN PLENUM) (9) °F 139 136 136 TIMING (10) °BTDC 23 23 23 23 EXHAUST STACK TEMPERATURE (11) °F 892 837 790 EXHAUST GAS FLOW (@ stack temp.) (12) CFM 3132 2384 1664 EXHAUST MASS FLOW (12) Ib/hr 5219 4144 3001 EMISSIONS DATA (12) Ib/hr 5219 4144 3001 CO (13) g/bhp-hr 12.72 11.92 11.47 CO (14) g/bhp-hr 12.47 14.19 15.2 THC (molecular weight of 15.84) (14) g/bhp-hr 0.32 0.38 0.54 NMHC (molecular weight of 15.84) (14) g/bhp-hr 0.33 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 | | JRE | (0) | - | | - | |
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| EXHAUST 02 LAMBDA (15) % DRY 0.3 0.99 0.3 0.99 0.3 0.99 0.3 0.99 HEAT BALANCE DATA LHV INPUT HEAT REJECTION TO JACKET (JW) (16) (17) (22) BTU/min 103134 81633 59294 HEAT REJECTION TO JACKET (JW) (17) (22) (18) BTU/min 37352 31743 25195 HEAT REJECTION TO ATMOSPHERE (18) BTU/min 3643 3036 2429 HEAT REJECTION TO LUBE OIL (OC) (19) (22) BTU/min 5571 4734 3758 HEAT REJECTION TO EXHAUST (LHV to 77°F) (20) BTU/min 19562 14323 9625 HEAT REJECTION TO EXHAUST (LHV to 350°F) (20) BTU/min 13166 9346 6102 HEAT REJECTION TO A/C (AC) (21) (23) BTU/min 2477 1655 534 | | | | 0 1 | | | |
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| LHV INPUT (16) BTU/min 103134 81633 59294 HEAT REJECTION TO JACKET (JW) (17) (22) BTU/min 37352 31743 25195 HEAT REJECTION TO ATMOSPHERE (18) BTU/min 3643 3036 2429 HEAT REJECTION TO LUBE OIL (OC) (19) (22) BTU/min 5571 4734 3758 HEAT REJECTION TO EXHAUST (LHV to 77°F) (20) BTU/min 19562 14323 9625 HEAT REJECTION TO EXHAUST (LHV to 350°F) (20) BTU/min 13166 9346 6102 HEAT REJECTION TO A/C (AC) (21) (23) BTU/min 2477 1655 534 | LAMBDA | | | | 0.99 | 0.99 | 0.99 |
| HEAT REJECTION TO JACKET (JW) (17) (22) BTU/min 37352 31743 25195 HEAT REJECTION TO ATMOSPHERE (18) BTU/min 3643 3036 2429 HEAT REJECTION TO LUBE OIL (OC) (19) (22) BTU/min 5571 4734 3758 HEAT REJECTION TO EXHAUST (LHV to 77°F) (20) BTU/min 19562 14323 9625 HEAT REJECTION TO EXHAUST (LHV to 350°F) (20) BTU/min 13166 9346 6102 HEAT REJECTION TO A/C (AC) (21) (23) BTU/min 2477 1655 534 | HEAT BALANCE DAT | A | | | | | |
| HEAT REJECTION TO JACKET (JW) (17) (22) BTU/min 37352 31743 25195 HEAT REJECTION TO ATMOSPHERE (18) BTU/min 3643 3036 2429 HEAT REJECTION TO LUBE OIL (OC) (19) (22) BTU/min 5571 4734 3758 HEAT REJECTION TO EXHAUST (LHV to 77°F) (20) BTU/min 19562 14323 9625 HEAT REJECTION TO EXHAUST (LHV to 350°F) (20) BTU/min 13166 9346 6102 HEAT REJECTION TO A/C (AC) (21) (23) BTU/min 2477 1655 534 | LHV INPUT | | (16) | BTU/min | 103134 | 81633 | 59294 |
| HEAT REJECTION TO LUBE OIL (OC) (19) (22) BTU/min 5571 4734 3758 HEAT REJECTION TO EXHAUST (LHV to 77°F) (20) BTU/min 19562 14323 9625 HEAT REJECTION TO EXHAUST (LHV to 350°F) (20) BTU/min 13166 9346 6102 HEAT REJECTION TO A/C (AC) (21) (23) BTU/min 2477 1655 534 | | | | | | | |
| HEAT REJECTION TO EXHAUST (LHV to 77°F) (20) BTU/min 19562 14323 9625 HEAT REJECTION TO EXHAUST (LHV to 350°F) (20) BTU/min 13166 9346 6102 HEAT REJECTION TO A/C (AC) (21) (23) BTU/min 2477 1655 534 | HEAT REJECTION TO ATMOSPHERE | | (18) | BTU/min | 3643 | 3036 | 2429 |
| HEAT REJECTION TO EXHAUST (LHV to 350°F) (20) BTU/min 13166 9346 6102 HEAT REJECTION TO A/C (AC) (21) (23) BTU/min 2477 1655 534 | | | (19) (22) | BTU/min | 5571 | 4734 | 3758 |
| HEAT REJECTION TO A/C (AC) (21) (23) BTU/min 2477 1655 534 | | , | (20) | | | | |
| | | to 350°F) | (20) | | | 9346 | |
| HEAT REJECTION TO ENGINE PUMPS BTU/min 977.2 977.2 977.2 | | | (21) (23) | | | | |
| | HEAT REJECTION TO ENGINE PUMPS | 3 | | BTU/min | 977.2 | 977.2 | 977.2 |

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. EMISSION TOLERANCES SPECIFIED ARE DEPENDANT UPON FUEL QUALITY. METHANE NUMBER CANNOT VARY MORE THAN ± 3. PUBLISHED PART LOAD DATA REQUIRES CUSTOMER SUPPLIED AIR FUEL RATIO CONTROL.

ENGINE RATING IS WITH 2 ENGINE DRIVEN WATER PUMPS.

FOR NOTES INFORMATION CONSULT PAGE THREE.

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GAS ENGINE TECHNICAL DATA

CATERPILLAR®

| | | FUE | LUSAG | e GUID | E | | | | | | | | | |
|--|----------------|-------------------|--------|--------|-------|---------|---------|----------|---------|--------|-------|-------|-------|--------|
| CAT M | ETHANE | NUMBER | <30 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80-100 |
| IGNITION TIMING | | - | 14 | 15 | 16 | 17 | 14 | 15 | 16 | 16 | 18 | 20 | 23 | |
| DE | RATION | FACTOR | 0 | 0.62 | 0.62 | 0.62 | 0.62 | 0.90 | 0.90 | 0.90 | 1.00 | 1.00 | 1.00 | 1.00 |
| | | | | | CTOPS | | | Π | | | | | | |
| | А | LTITUDE | DERA | HON FA | CIORS | | | | | | | | | |
| | 50 | 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 |
| | 45 | 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 |
| AIR | 40 | 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 |
| TO | 35 | 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 |
| TURBO | 30 | 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 |
| | 25 | 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 |
| (°C) | 20 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.97 | 0.94 | 0.90 | 0.86 | 0.83 | 0.80 | 0.76 |
| | 15 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 0.95 | 0.92 | 0.88 | 0.85 | 0.81 | 0.78 |
| | 10 | 1.00 | 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 | 250 | 500 | 750 | 1000 | 1250 | 1500 | 1750 | 2000 | 2250 | 2500 | 2750 | 12000 |
| | | | | | | A | LTITUDE | (FEET AB | OVE SEA | LEVEL) | | | | |
| | D 0001 | | | OTION | LOTOP | 0 (1 0) | | 1 | | | | | | |
| AFIE | RCOOL | ER HEA | I REJE | CTION | ACTOR | S (ACH | RF) | | | | | | | |
| | 130 | 1.53 | 1.62 | 1.71 | 1.80 | 1.89 | 1.99 | 1.99 | 1.99 | 1.99 | 1.99 | 1.99 | 1.99 | 1.99 |
| | 120 | 1.42 | 1.51 | 1.60 | 1.69 | 1.78 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 |
| AIR | 110 | 1.31 | 1.40 | 1.49 | 1.58 | 1.67 | 1.76 | 1.76 | 1.76 | 1.76 | 1.76 | 1.76 | 1.76 | 1.76 |
| то | 100 | 1.21 | 1.29 | 1.38 | 1.46 | 1.55 | 1.64 | 1.64 | 1.64 | 1.64 | 1.64 | 1.64 | 1.64 | 1.64 |
| TURBO | 90 | 1.10 | 1.18 | 1.27 | 1.35 | 1.44 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 |
| | 80 | 1.00 | 1.07 | 1.16 | 1.24 | 1.33 | 1.41 | 1.41 | 1.41 | 1.41 | 1.41 | 1.41 | 1.41 | 1.41 |
| (°F) | 70 | 1.00 | 1.00 | 1.05 | 1.13 | 1.21 | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 |
| | 60 | 1.00 | 1.00 | 1.00 | 1.02 | 1.10 | 1.18 | 1.18 | 1.18 | 1.18 | 1.18 | 1.18 | 1.18 | 1.18 |
| | 50 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.07 | 1.07 | 1.07 | 1.07 | 1.07 | 1.07 | 1.07 | 1.07 |
| | | 0 | 1000 | 2000 | 3000 | 4000 | 5000 | 6000 | 7000 | 8000 | 9000 | 10000 | 11000 | 12000 |
| | | | | | | A | LTITUDE | (FEET AB | OVE SEA | LEVEL) | | | | |
| | | ELD MEC | | | | NOISE | | 1 | | | | | | |
| F | | | - | | | | | | | | | | | |
| | 100% Load Data | | ata | | dB(A) | | | | | · · · | В) | | | |
| | | STANCE FROM | | | 5.3 | 94.5 | 91.1 | 85.3 | 86.3 | 89.0 | 90.6 | 87.4 | 79.0 | |
| | | THE ENGINE (FEET) | | 22.9 | | 5.4 | 84.6 | 81.2 | 75.4 | 76.4 | 79.1 | 80.7 | 77.5 | 69.1 |
| | | | | 49.2 | | 9.6 | 78.8 | 75.4 | 69.6 | 70.6 | 73.3 | 74.9 | 71.7 | 63.3 |
| Free Field DISTANC Exhaust THE ENGI | | 4.9 | | | 0.6 | 98.8 | 102.6 | 104.7 | 101.2 | 102.0 | 104.1 | 105.9 | 99.3 | |
| | | THE ENGINE (FEET) | | 22.9 | | 7.3 | 88.5 | 90.8 | 92.2 | 88.6 | 91.0 | 90.8 | 91.2 | 84.2 |
| | | | . , | 49.2 | |).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 |

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.

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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 94.1% 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 ± 5% 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 5 % 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 "NOT TO EXCEED".
- 14 CO, CO2, THC, and NMHC VALUES ARE "NOT TO EXCEED".

15 O2% TOLERANCE IS ± 0.2.

16 LHV INPUT TOLERANCE IS ± 5%.

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.

DM5209-02

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