

1506A-E88TAG2

1500

222 kWm standby @ 1500 rpm
239 kWm standby @ 1800 rpm

Series

Basic technical data

| | |
|---|---|
| Number of cylinders | 6 |
| Cylinder arrangement | Inline |
| Cycle | 4 stroke |
| Induction system | Air to air aftercooled, turbocharged |
| Compression ratio | 16.1:1 |
| Bore | 112 mm (4.41 inches) |
| Stroke | 149 mm (5.87 inches) |
| Displacement | 8.8 litres (537.0 inches ³) |
| Direction of rotation | Anticlockwise facing flywheel |
| Firing order (number 1 cylinder furthest from flywheel) | 1, 5, 3, 6, 2, 4 |
| Estimated total weight of ElectropaK (dry) | 1156 kg |
| Estimated total weight of ElectropaK (wet) | 1235 kg |

Overall dimensions

| | |
|--|---------|
| Length, front of radiator to rear of air cleaner | 1941 mm |
| Width | 1013 mm |
| Height, including radiator support brackets | 1366 mm |

Moments of rotational inertia (mk²)

| | |
|----------------|-------------------------|
| Engine | 0.7361 Nms ² |
| Flywheel SAE14 | 1.667 Nms ² |

Centre of gravity

| | |
|--|--------|
| Forward of rear face of cylinder block | 413 mm |
| Above crankshaft centre line | 231 mm |
| Offset RHS of centre line | -1 mm |

Performance

| | |
|----------------------------------|---------|
| All ratings certified to within | ± 3% |
| Speed variation at constant load | ± 0.25% |

Note: Data based on ISO/TR14396, SAE J1995 3.1, ISO3046-1.

Note: Engine speed control in accordance with BS5514 pt.4; ISO3046-4 and ISO8528-5.

Note: Electrical ratings are based on average alternator efficiency and are for guidance only.

Test conditions

| | |
|--|---------|
| Air temperature | 25°C |
| Barometric pressure | 100 kPa |
| Relative humidity | 35% |
| Air inlet restriction at maximum power (nominal) | 3.7 kPa |
| Exhaust back pressure at maximum power (nominal) | 10 kPa |
| Fuel temperature (inlet pump) | 40°C |

Note: If the engine is to operate in ambient conditions other than those of the test conditions, suitable adjustments must be made for these changes.

For full details, contact Perkins Technical Service Department.

General installation

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| Designation | Units | Type of operation and application | | | |
|--|---------------------|-----------------------------------|-------------|------------------|-------------|
| | | Standby power | Prime power | Standby power | Prime power |
| | | 50 Hz @ 1500 rpm | | 60 Hz @ 1800 rpm | |
| Gross engine power | kWb | 236 | 213 | 255 | 233 |
| Fan power | kWm | 8 | 8 | 13 | 13 |
| Restrictions and other losses | kWm | 4.5 | 4.2 | 4.8 | 4.5 |
| ElectropaK nett engine power | kWm | 223 | 201 | 237 | 216 |
| Gross BMEP | kPa | 2145 | 1936 | 1932 | 1765 |
| Combustion air flow | m ³ /min | 15.0 | 14.4 | 18.6 | 17.7 |
| | kg/hr | 1059 | 1023 | 1314 | 1253 |
| Exhaust gas temperature after turbocharged (maximum) | °C | 475 | 467 | 444 | 431 |
| Exhaust gas flow, wet | m ³ /min | 35.7 | 34.4 | 42.1 | 39.7 |
| | kg/hr | 1104 | 1066 | 1365 | 1300 |
| Boost pressure ratio | | 3.0 | 2.8 | 3.2 | 3.1 |
| Overall thermal efficiency (nett) | % | 42 | 42 | 43 | 43 |
| Mean piston speed | m/s | 7.4 | 7.4 | 8.9 | 8.9 |
| Engine coolant flow | l/min | 140 | 140 | 190 | 190 |
| Cooling fan air flow | m ³ /min | 370 | 370 | 482 | 482 |
| Typical generator set electrical output (0.8 pf) | kWe | 206 | 185 | 218 | 198 |
| | kVA | 257 | 231 | 273 | 248 |
| Assumed alternator efficiency | % | 92 | 92 | 92 | 92 |

Energy balance

| Designation | Unit | Standby power | Prime power | Standby power | Prime power |
|--|------|------------------|-------------|------------------|-------------|
| | | 50 Hz @ 1500 rpm | | 60 Hz @ 1800 rpm | |
| | | | | | |
| Energy in fuel | kWt | 531 | 496 | 600 | 547 |
| Energy in power output nett (at shaft) | kWb | 223 | 201 | 237 | 216 |
| Energy to restrictions/other losses | kWb | 4.5 | 4.2 | 4.8 | 4.5 |
| Energy to coolant | kWt | 99 | 93 | 107 | 101 |
| Energy to exhaust | kWt | 154 | 152 | 180 | 165 |
| Energy to ACC | kWt | 36 | 32 | 52 | 42 |
| Energy to cooling fan | kWm | 8 | 8 | 13 | 13 |
| Energy to radiation | kWt | 6 | 6 | 6 | 6 |

Note: The above data is based on 42,770 KJ/Kg calorific value for diesel conforming to specification BS2869 Class A2.

Rating definitions

Prime power

Variable load. Unlimited hours usage with an average load of 70% of the published prime power rating. A 10% overload is available for 1 hour in every 12 hours of operation.

Standby power

Variable load. Limited to 500 hours annual usage up to 300 hours of which may be continuous running. No overload is permitted.

Cooling system

| | |
|---|----------------|
| Total coolant capacity | 29.6 litres |
| Engine | 13.9 litres |
| Radiator | 12.6 litres |
| Pipes and hoses | 3.08 litres |
| Maximum top tank temperature | 107°C |
| Maximum static pressure head on pump | N/A kPa |
| Thermostat operating range | 87 - 98°C |
| Coolant flow, against 30 kPa restriction @ 1500 rpm | 140 litres/min |
| Coolant flow, against 30 kPa restriction @ 1800 rpm | 190 litres/min |
| Maximum temperature rise across the engine | N/A°C |

Radiator

| | |
|--------------------------------|---------------------|
| Radiator face area | 0.49 m ² |
| Number of rows and material | 4/Aluminium |
| Fins per inch and material | 10 FPI |
| Pressure cap setting (minimum) | 110 kPa |

Charge cooler

| | |
|-----------------------------|---------------------|
| Face area | 0.26 m ² |
| Number of rows and material | 2/Aluminium |
| Fins per inch and material | 10 FPI |

Width and height of matrix

| | |
|------------------------------|---------|
| Height | 1172 mm |
| Width | 900 mm |
| Weight of cooling pack (dry) | 84 kg |

Coolant pump

| | |
|-----------------|-------------|
| Method of drive | Belt driven |
|-----------------|-------------|

Fan type/details

| | |
|---------------------------------|-------------------------|
| Diameter | 813 mm (32 inches) |
| Drive ratio | 1:1 |
| Material | Plastic |
| Number of blades | 9 |
| Pusher/puller | Pusher |
| Cooling fan air flow @ 1500 rpm | 370 m ³ /min |
| Cooling fan air flow @ 1800 rpm | 482 m ³ /min |

Duct allowance

Ambient cooling clearance (standby power) based on air temperature at fan of 7°C above the ambient.

Maximum additional restriction (duct allowance) to cooling airflow and resultant minimum airflow.

| Description | @ 1500 rpm | @ 1800 rpm |
|-------------------------------|-------------------------|-------------------------|
| Ambient clearance | 51°C | 54°C |
| Duct allowance | 125 Pa | |
| Minimum airflow at conditions | 370 m ³ /min | 482 m ³ /min |

Normal operating angles:

| | |
|----------------|------|
| Front and rear | ± 7° |
| Side tilt | ± 7° |

Fuel system

Recommended fuel to conform to BS 2869 1998 CLASS A2 or BSEN590.

| | |
|------------------------------------|--|
| Injection system | Direct |
| Injector type | Hydraulically Actuated Electronically Controlled Unit Injector |
| Governor type | Electronic |
| Injector pressure | 185 MPa |
| Lift pump type | Gear |
| Lift pump fuel delivery @ 1500 rpm | 132 litres/hour |
| Lift pump delivery pressure | 140-655 kPa |
| Maximum suction head at pump inlet | 60.9 kPa |
| Maximum static pressure head | 4 m |
| Maximum fuel inlet temperature | 79°C |
| Fuel filter spacing | 4 Microns |
| Tolerance on fuel consumption | ± 5% |

Fuel consumption

Note: All figures based on gross engine power and assumed fuel density of 0.85 kg/litre.

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| Rating | 1500 rpm | | 1800 rpm | |
|-----------|----------|-----------|----------|-----------|
| | g/kWh | litres/hr | g/kWh | litres/hr |
| Standby | 197.1 | 51.5 | 200.3 | 59.5 |
| Prime | 197.0 | 48.6 | 199.0 | 54.2 |
| 75% prime | 194.4 | 35.7 | 202.4 | 41.8 |
| 50% prime | 205.4 | 23.5 | 214.0 | 29.3 |

Induction system

Maximum air intake restriction of engine:

| | |
|-----------------------------|-------------------|
| Clean filter | 3.7 kPa |
| Dirty filter | 6.2 kPa |
| Induction indicator setting | 7.5 kPa |
| Air filter type | Dry paper element |

Lubrication system

| | |
|---|----------------|
| Total lubrication system capacity (dry engine) | 41 litres |
| Total lubrication system capacity (oil change) | 39 litres |
| Sump capacity only | 36 litres |
| Oil temperature (in sump) maximum | 120°C |
| Oil temperature (in sump) normal continuous operation | 115°C |
| Lubricating oil pressure at bearings | 370 kPa |
| Minimum oil pressure | 250 kPa |
| Oil relief opens at | 662 kPa |
| Oil filter screen spacing | 23 Microns |
| Lubricating oil flow | 200 litres/min |
| Oil consumption (highest rating) | <0.1% of fuel |

Electrical system

| | |
|---|-----------------|
| Type (grounding) | Negative ground |
| Alternator type | 20SI 24 volts |
| Alternator voltage | 24 volts |
| Alternator output | 45 amps |
| Starter type | Electric |
| Starter motor voltage | 24 volts |
| Starter motor power | 5.3 kW or 6 kW |
| Number of teeth on flywheel | 113 |
| Number of teeth on starter pinion | 11 |
| Minimum mean cranking speed | 100 rpm |
| Starter solenoid maximum pull-in current @ 20°C | 215 amps |
| Starter solenoid maximum hold-in current @ 20°C | 6 amps |

Load acceptance (cold)

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| Rating | Prime % | kWe | Transient frequency deviation, % | Frequency recovery time, seconds |
|----------------|---------|-----|----------------------------------|----------------------------------|
| 50 Hz/1500 rpm | 65 | 119 | 9.5 | 3.0 |
| 60 Hz/1800 rpm | 82 | 160 | 8.7 | 2.5 |

Note: The information shown above complies with the requirements of ISO 8528-5 stated G2 operating limits.

The figure shown in the table above were obtained under the following test conditions:

| | |
|---|-------------------------|
| Minimum engine block temperature | 45°C |
| Alternator efficiency @ 1500 rpm | 93.8% |
| Alternator efficiency @ 1800 rpm | 94.1% |
| Ambient temperature | 25°C |
| Governing mode | Isochronous |
| Typical alternator inertia | 3.3759 kgm ² |
| Under frequency roll off (UFRO) set to @ 1500 rpm | 49.5 Hz |
| Under frequency roll off (UFRO) set to @ 1800 rpm | 59.5 Hz |
| Alternator manufacturer | Leroy Somer |
| Alternator model | LSA46.2VL12 |

Note: All tests were conducted using an engine installed and serviced to Perkins Engines Company Limited recommendations.

The information given on this technical data sheet is for guidance only. For ratings other than shown, installation guidance, please contact Perkins Engines Company Limited, United Kingdom.

Cold start recommendations at -20°C

| | |
|---------------------------|--------------|
| Oil SAE | 0W-30 |
| Starter type | 1 x 24 volts |
| Battery | 24 volts |
| Maximum breakaway current | 998 amps |
| Cranking current | 243 amps |

Starting aids

| | |
|-------------------|------|
| Block temperature | 45°C |
|-------------------|------|

Exhaust system

| | |
|--|--------|
| Maximum back pressure for total system | 10 kPa |
|--|--------|

Engine mountings

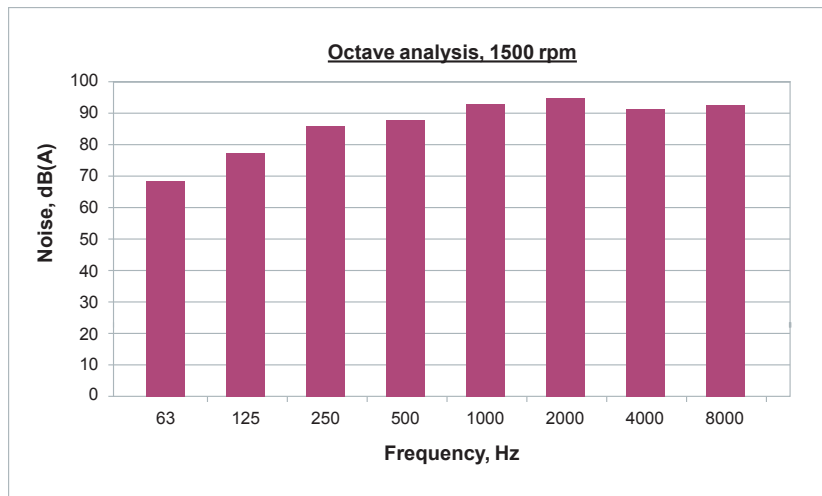
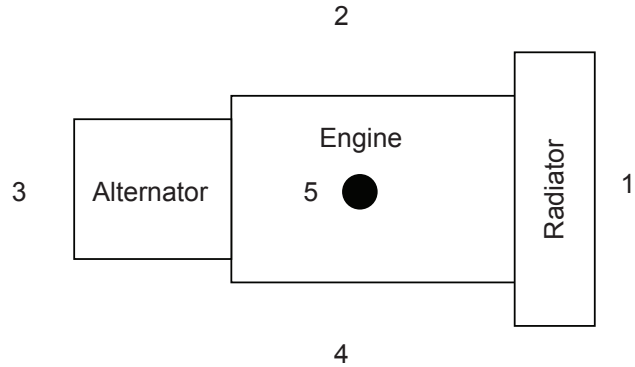
| | |
|---|---------------------------------|
| Maximum static bending moment at rear face of block | 3134 Nm |
| Maximum permissible overhung load on flywheel | 464 kg (at a distance of 65 mm) |

Noise data

Noise levels

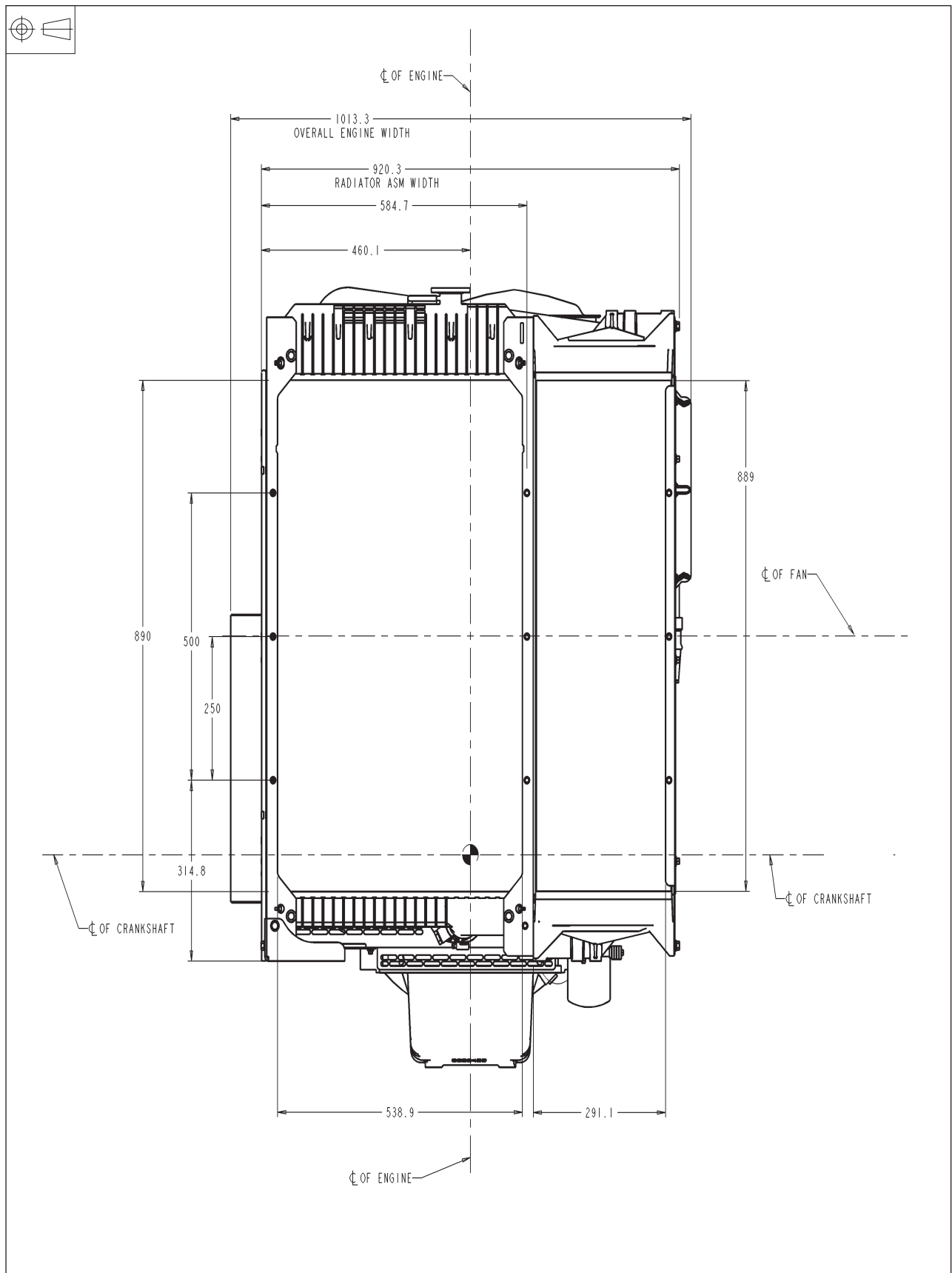
The figures for total noise levels are typical for an engine running at the standby continuous baseload power rating in a semi-reverberant environment and measured at a distance of one meter from the periphery of the engine (sound pressure level re: -20×10^{-6} Pa. Ambient noise level load with open set at 264 kWe, standby @ 1500 rpm. All value measured at Sound Pressure Levels (SPL).

| Position | Noise, dB(A) |
|----------|--------------|
| 1 | 96.7 |
| 2 | 98.1 |
| 3 | 93.8 |
| 4 | 97.7 |
| 5 | 102.2 |

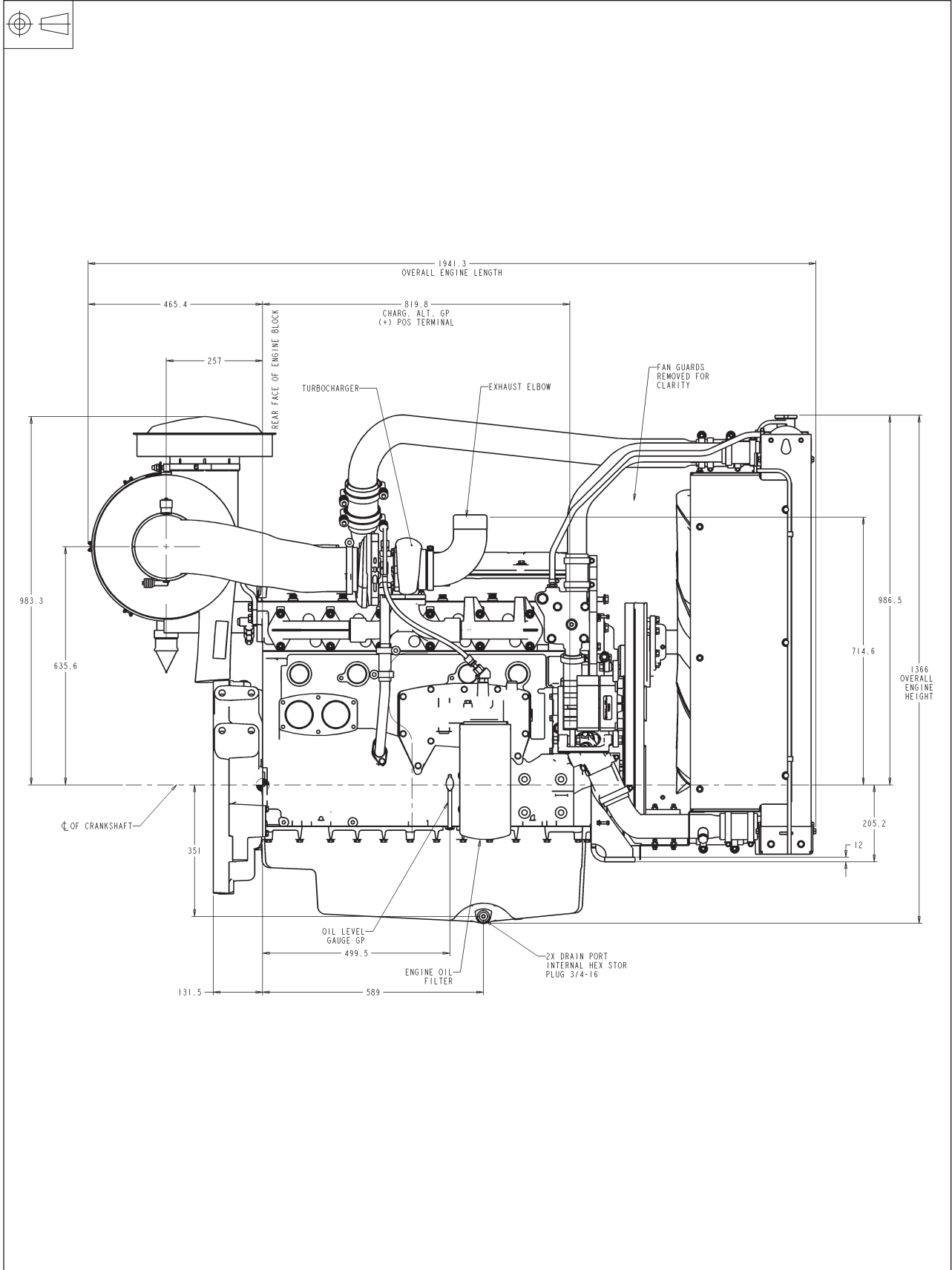


| Frequency, Hz | Noise, dB(A) |
|---------------|--------------|
| 63 | 69.2 |
| 125 | 77.7 |
| 250 | 86.4 |
| 500 | 87.0 |
| 1K | 92.2 |
| 2K | 93.3 |
| 4K | 90.5 |
| 8K | 91.0 |

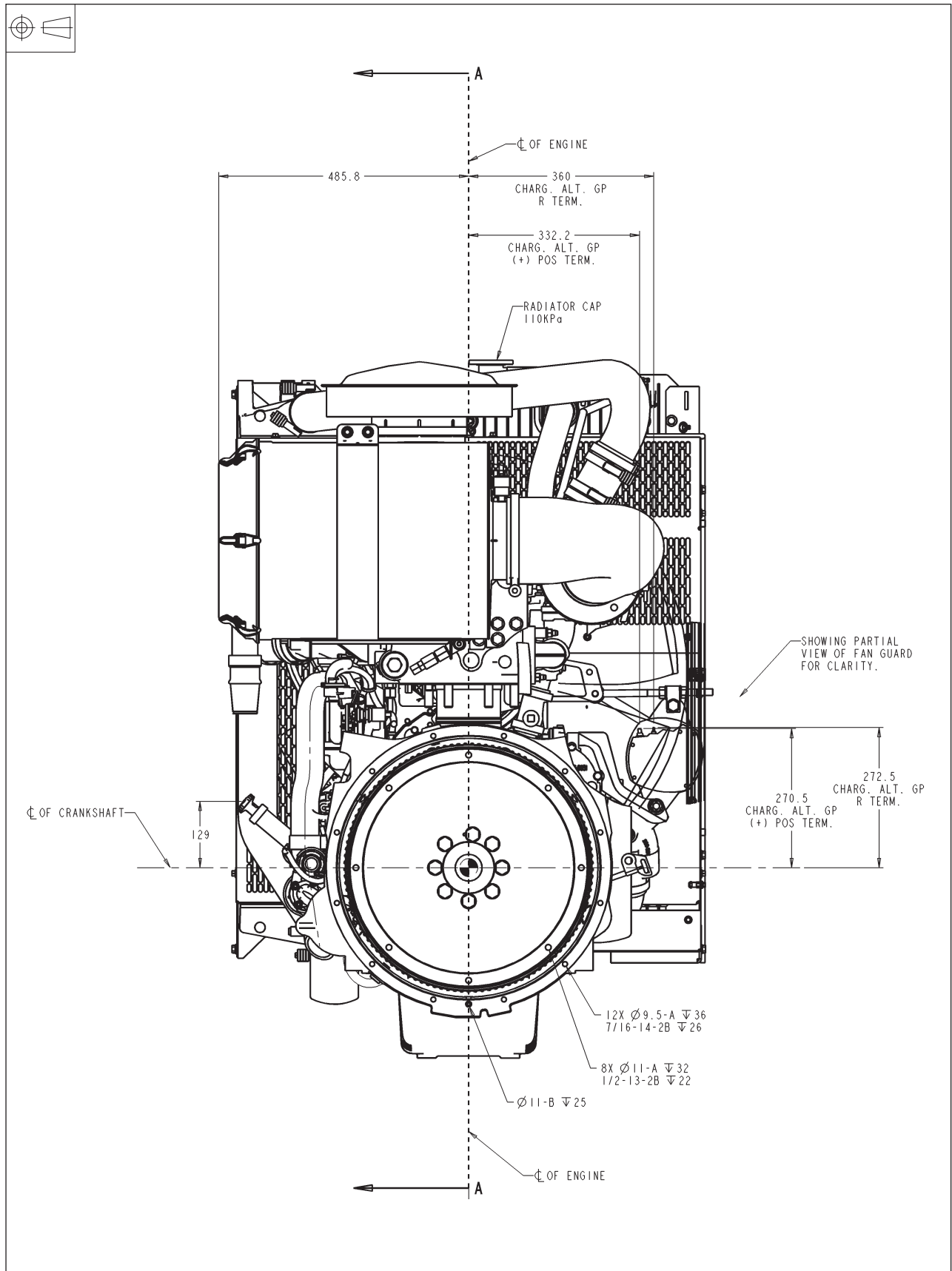
1506A-E88TAG2 - Front view



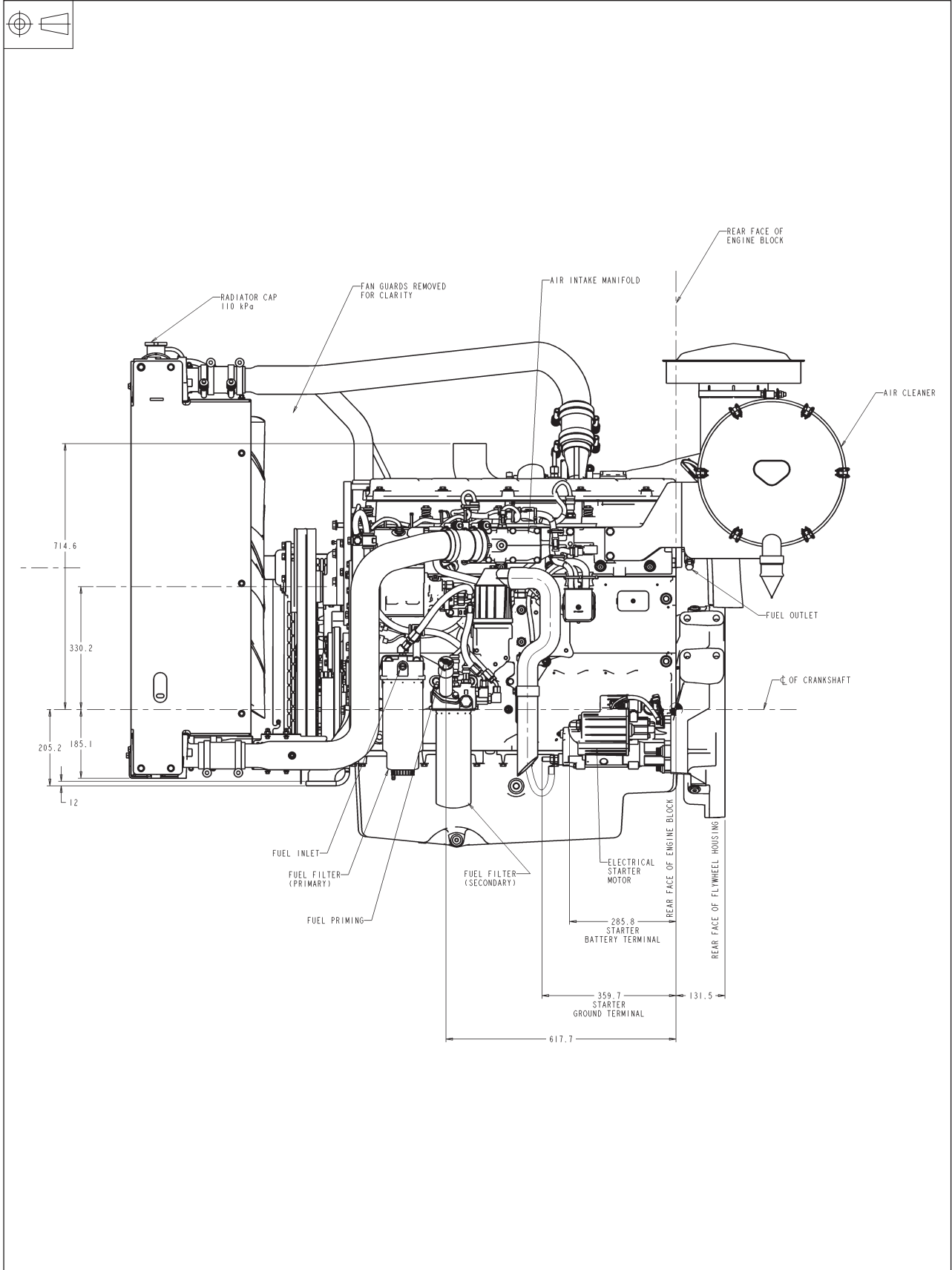
1506A-E88TAG2 - Right side view



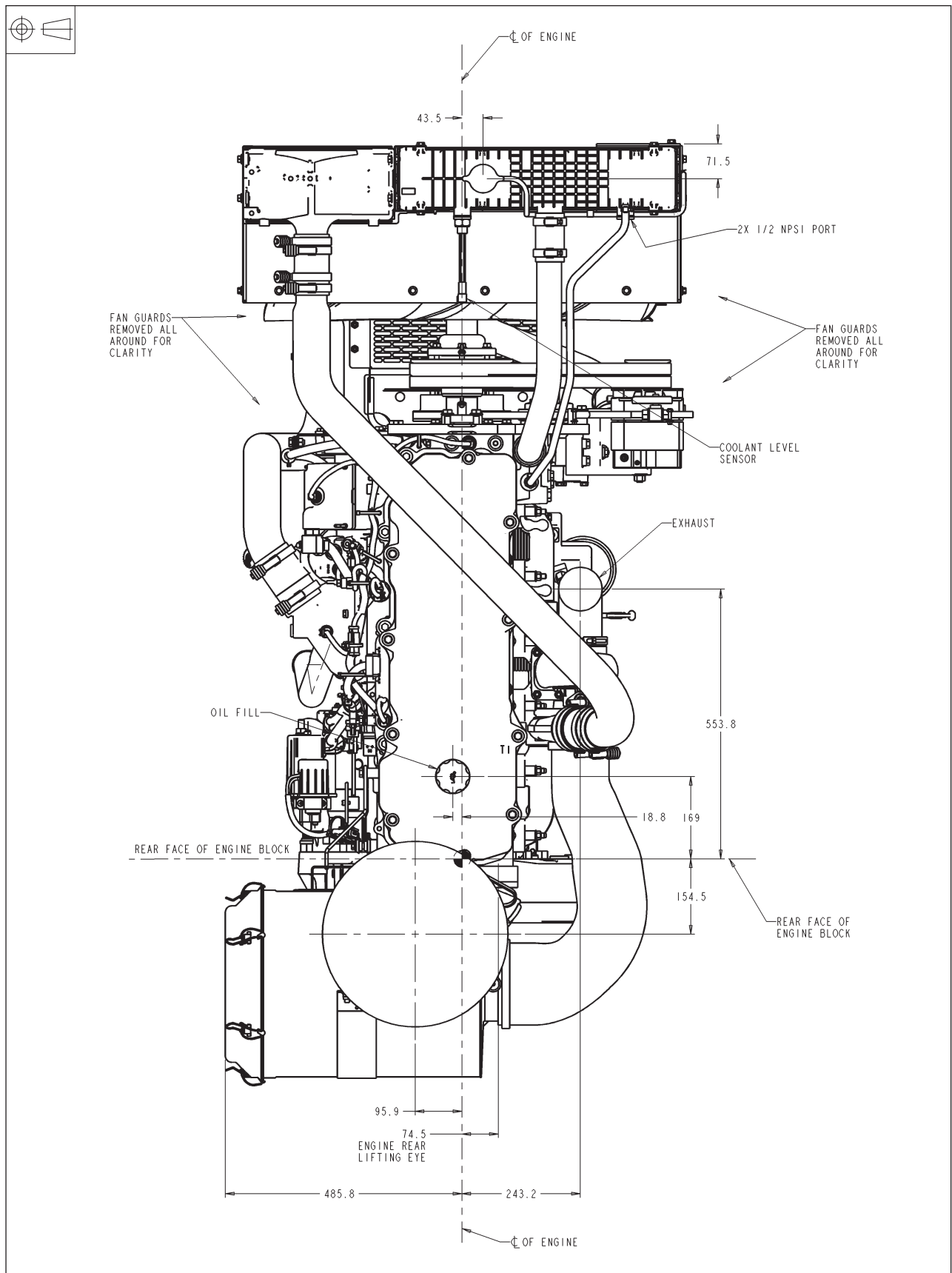
1506A-E88TAG2 - Rear view



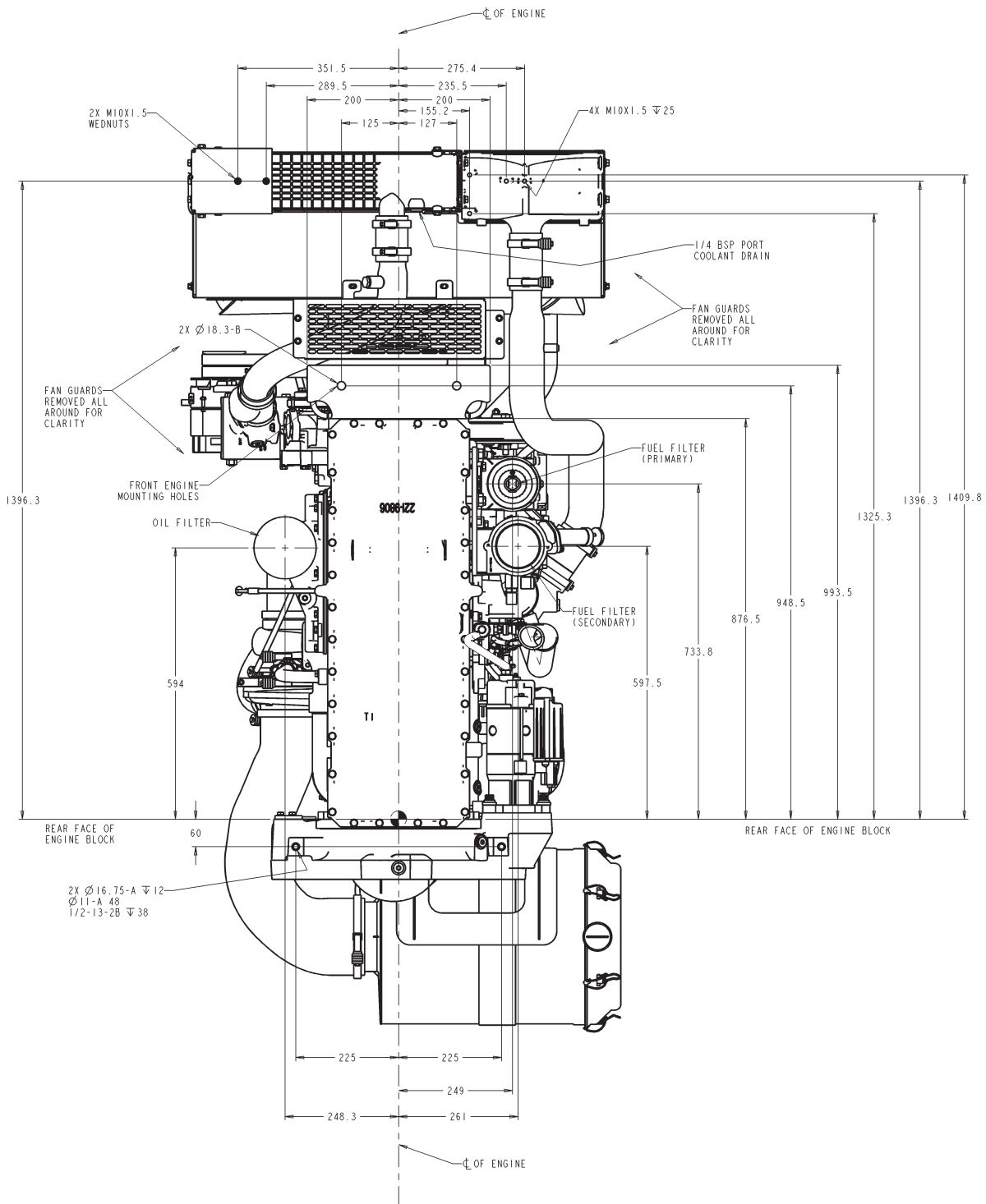
1506A-E88TAG2 - Left side view



1506A-E88TAG2 - Plan view



1506A-E88TAG2 - Under view



1506A-E88TAG2 - Connection details

