

Technical Data

1300 Series EDi

1306C-E87TAG4

ElectropaK

242 kW @ 1800 rev/min

Basic technical data

| | |
|---|---|
| Rating code | M432 |
| Switchable rating code (with 224 kW @ 1500 rev/min) | M435 |
| Number of cylinders | 6 |
| Cylinder arrangement | Vertical, in-line |
| Cycle | Four stroke |
| Induction system | air to air charged cooled, turbocharged |
| Compression ratio | 16:9:1 |
| Bore | 116,6 mm |
| Stroke | 135,9 mm |
| Cubic capacity | 8,7 litres |
| Direction of rotation | Clockwise, from the front |
| Firing order | 1, 5, 3, 6, 2, 4 |

Engine weight

| | |
|--|--------|
| -dry (1), (2) | 671 kg |
| -wet (1), (2) | 698 kg |
| -ElectropaK kit (3) | 225 kg |
| (1) Includes SAE 2 flywheel and flywheel housing | |
| (2) Without ElectropaK kit | |
| (3) Includes radiator; fan; fan-guards; starter motor; alternator and air filter assembly. Does not include weight of radiator coolant | |

Overall dimensions (includes ElectropaK kit)

| | |
|--------------------------------------|---------|
| -height | 1369 mm |
| -length | 1822 mm |
| -width (including mounting brackets) | 875 mm |

Moments of inertia (mk²)

| | |
|-------------------------------|--------------------------|
| -engine | 0,536 kgf m ² |
| -flywheel SAE 2 (option GL08) | 1,005 kgf m ² |

Centre of gravity

| | |
|--|----------|
| -above centre line of block | 185,4 mm |
| -offset to RHS of centre line | 25,4 mm |
| Position of centre (dry, base engine plus accessories) | |
| -forward from rear of block | 449,6 mm |
| -above centre line of block | 182,9 mm |
| -offset to RHS of centre line | 10,2 mm |

Performance

| | |
|--|--------|
| Data based on ISO/TR14396, SAE J1995 3.1, ISO3046/1, DIN6271 | |
| Engine speed control in accordance with BS5514 pt.4; ISO3046-4 and ISO8528-5 | |
| Cyclic irregularity | |
| -at 110% stand-by power | 0,0253 |

Test conditions

| | |
|----------------------|---------|
| -air temperature | 25 °C |
| -barometric pressure | 100 kPa |
| -relative humidity | 30% |

Sound level

| | |
|----------------------------------|--------------|
| -bare engine at 1 metre | 108 dB(A) |
| -all ratings certified to within | +3 % to -5 % |

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; For details of load acceptance values, contact the applications department at Perkins Engines Company Limited, Stafford.

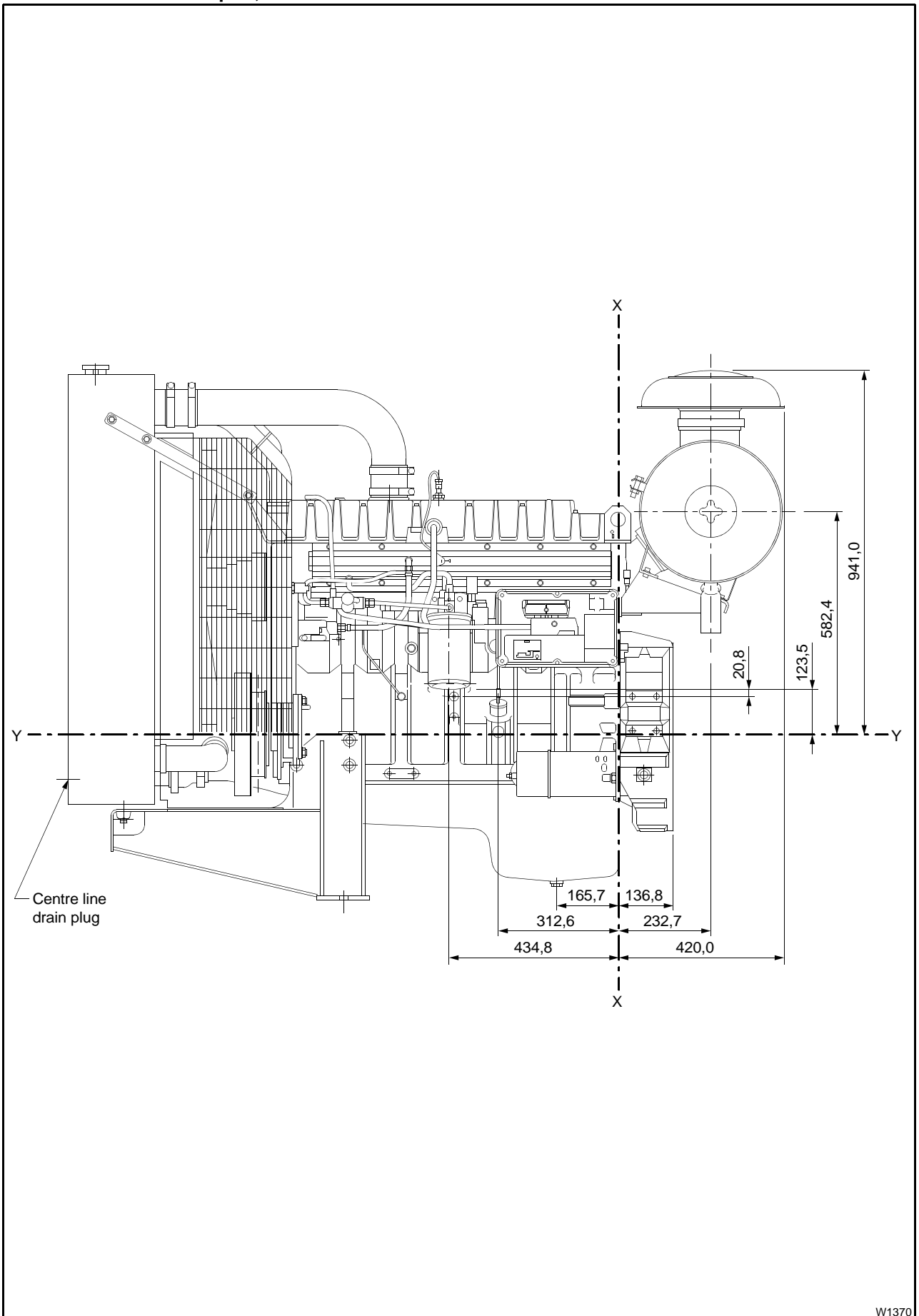
Certified against the requirements of EU2007 legislation for non-road mobile machinery, powered by constant speed engines (EU97/68/EC Stage II)

General installation

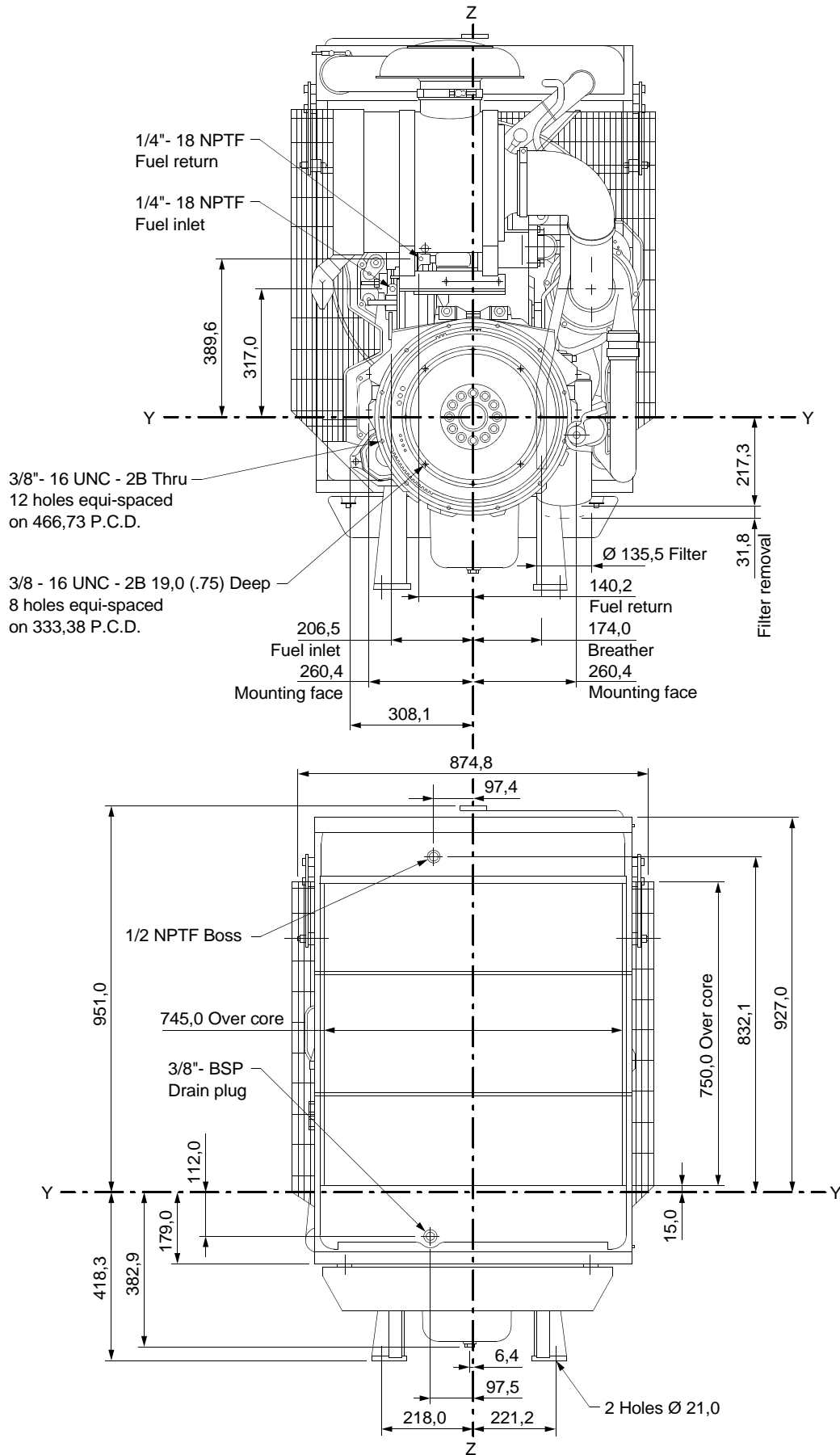
| Designation | Units | Type of operation and application | | |
|---|---------------------|-----------------------------------|-------|----------|
| | | Base | Prime | Stand-by |
| | | 60Hz | 60Hz | 60Hz |
| Gross engine power | kWb | 200 | 220 | 242 |
| Fan power | kW | 7 | 7 | 7 |
| Brake mean effective pressure | kPa | 1533 | 1686 | 1855 |
| Mean piston speed | m/s | 8,2 | 8,2 | 8,2 |
| ElectropaK net engine power | kWb | 194 | 213 | 235 |
| Engine coolant flow | l/min | 285 | 285 | 285 |
| Combustion air flow | m ³ /min | - | - | 20,2 |
| Exhaust gas flow (max) | m ³ /min | - | - | 51,3 |
| Exhaust gas temperature (max) | °C | - | - | 477,0 |
| Cooling fan air flow | m ³ /min | 480 | 480 | 480 |
| Typical Genset electrical output (0.8 pf) | kWe | - | 196 | 216 |
| | kVa | - | 245 | 270 |
| Energy balance | | | | |
| Energy in fuel (Fuel heat of combustion) | kW | - | 520 | 573 |
| Gross energy to power | kW | 200 | 220 | 242 |
| Energy to coolant and lubricating oil | kW | - | 104 | 115 |
| Energy to exhaust | kW | - | 124 | 137 |
| Energy to radiation | kW | - | 40 | 44 |
| Energy to charge cooler | kW | - | 32 | 35 |

Caution: The airflows shown in this table will provide acceptable cooling for an open power unit operating in ambient temperatures of up to 53 °C or 46 °C. if a canopy is fitted. If the power unit is to be enclosed totally, a cooling test should be done to check that the engine cooling is acceptable. If there is insufficient cooling, contact Perkins Technical Service Department.

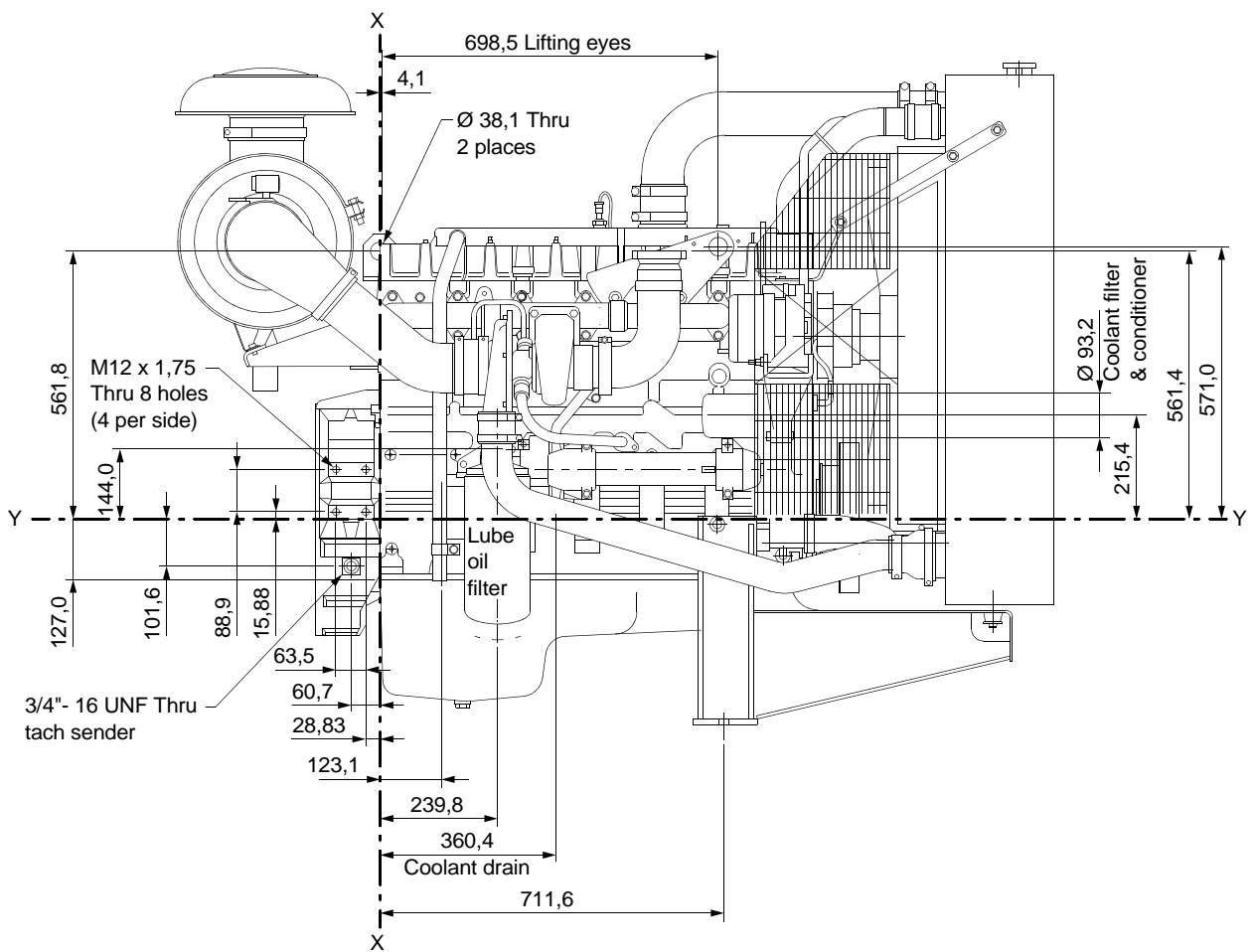
1306C-E87TAG4 ElectropaK, left side view



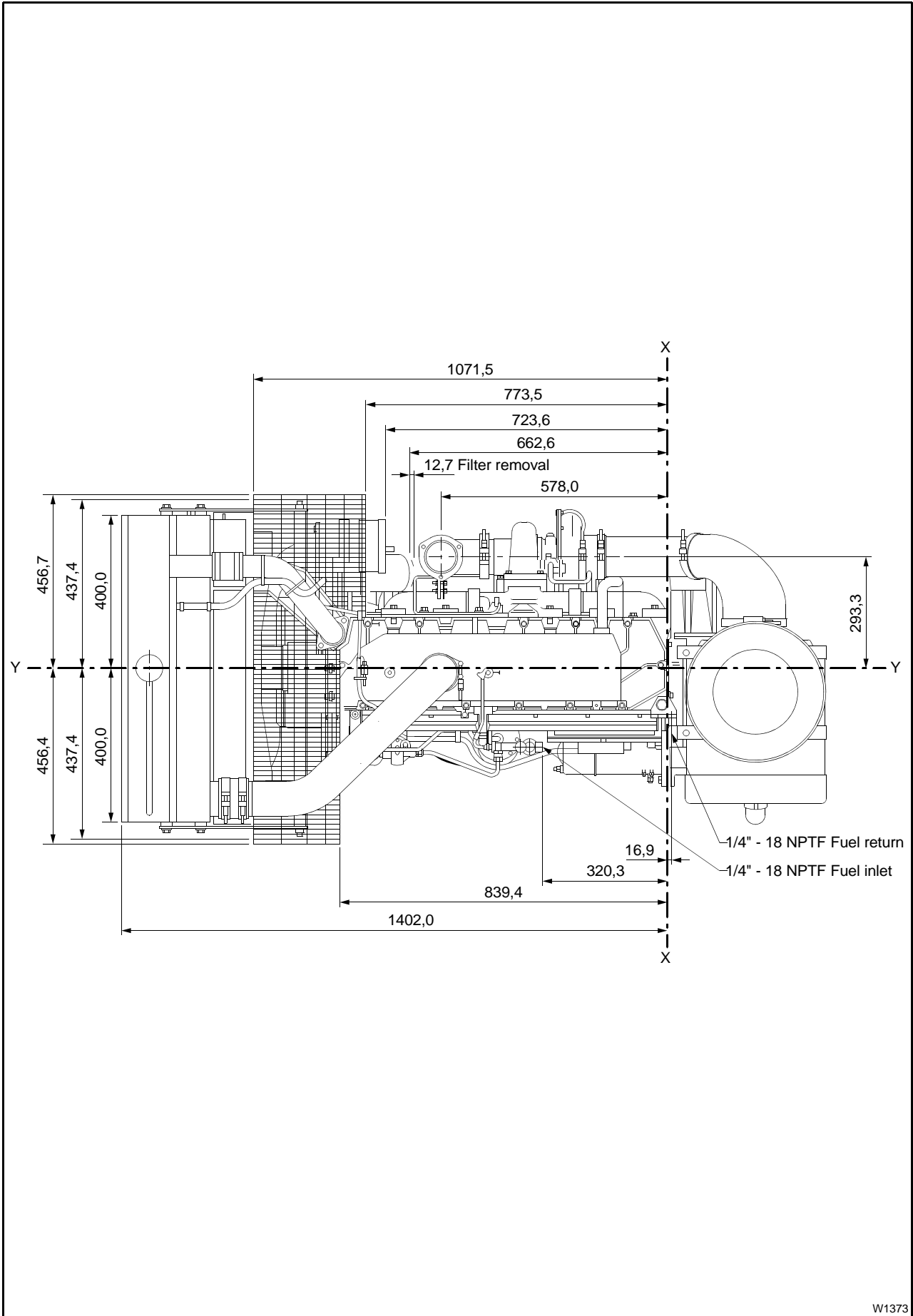
1306C-E87TAG4 ElectropaK, front and rear views



1306C-E87TAG4 ElectropaK, right side view



1306C-E87TAG4 ElectropaK, plan view



Cooling system

Radiator

-face area0,6 m²
 -rows and materials 3, brass
 -matrix density and material 12, copper
 -width of matrix 745 mm
 -height of matrix 750 mm
 -pressure cap setting68,9 kPa
 Estimated cooling air flow reserve 0,15 kPa

Fan

-diameter 711,2 mm
 -drive ratio1:2 : 1
 -number of blades 7
 -material Plastic
 -type Pusher

Coolant

Maximum pressure head at pump 15,54 m
 Total system capacity
 -with radiator 37,2 litres
 -without radiator 12,8 litres
 -draindown capacity 1,3 litres
 Maximum top tank temperature 103 °C
 Minimum temperature to engine 79 °C
 Temperature rise across engine 5 °C
 Max permissible external system resistance 35 kPa
 Thermostat start to open 87,8 °C
 Thermostat fully open 96,1 °C

Electrical system

-type Negative ground
 -alternator 12/24V Lucas AC5R
 -starter motor 12V Lucas PE129 / 24V Lucas S115

Cold start recommendations

Minimum cranking speed 130 rev/min

| Minimum starting temperature | | Grade of engine lubricating oil | Battery specifications | | | |
|------------------------------|----|---------------------------------|------------------------|----------------------------|----------------------------|--------------|
| | | | BS3911 Cold start amps | SAEJ537 Cold cranking amps | Number of batteries needed | Perkins type |
| °C | °F | | | | | |
| -15 | 5 | 10W | 440 | 660 | 2 | A |
| -20 | 4 | 5W | 440 | 660 | 2 | A |

Exhaust system

Maximum back pressure 10,7 kPa

Note: For exhaust pipe details, see chapter five of the Gen Set Manual.

Fuel system

Type of injection Direct
 Fuel feed pump Bosch
 Hydraulic pump Rexroth
 Fuel atomiser Heui
 Feed pump operating pressure 417 kPa

Fuel lift pump

-flow/hour 180 litres/hr
 -suction depression 14 kPa
 -pressure 137,9 kPa
 Maximum suction head 1 m
 Maximum static pressure head 3 m
 Maximum fuel pump suction (clean system) 14 kPa
 Governor type electronic (isochronous or droop capability)
 -speed control for diesel fuel to conform to BS 2869 Class A2
 ASTM D975 66T Number 2D

Fuel specification

| Fuel specification | USA Fed Off Highway EPA 2D 89.330-96 |
|--|--------------------------------------|
| Density (kg/l @ 15 °C) | 0,845 - 0,85 |
| Viscosity (mm ² /s @ 40 °C) | 2,0 - 3,2 |
| Sulphur Content | 0,03 - 0,05% |
| Cetane Number | 40 - 48 |

Fuel consumption

-at rated speed 61 litres/hr

Induction system

Maximum air intake restriction

-clean filter 2,5 kPa
 -dirty filter 6,22 kPa
 -air filter type dry paper element
 Turbocharger type Allied signal

Lubrication system

Lubricating oil capacity

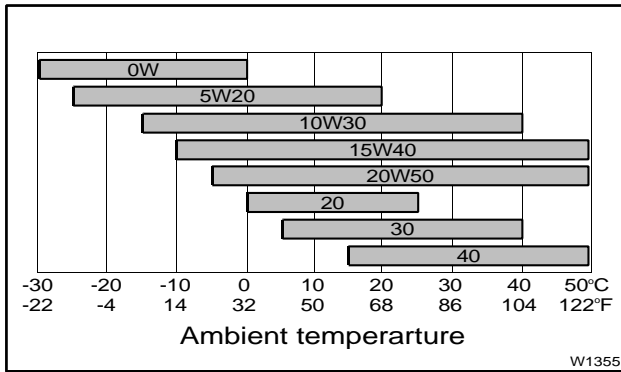
- dry engine with filter28,3 litres
 - oil change with filter26,4 litres
 - oil change without filter22,7 litres
- Maximum engine operating angles
 -front up, front down, right side or left side.30°

Lubricating oil pressure

- relief valve opens..552 kPa
 - at low idle (700 rev/min)103 kPa
 - at high idle speed..276 - 483 kPa
- Normal oil temperature (sump)121 °C
 Oil consumption at full load as a % of fuel consumption <0,1%

Recommended SAE viscosity

A single or multigrade oil must be used which conforms to API-CH-4, API-CG-4 or ACEA E3 (if not available, use only API-CF-4 or ACEA E2) see illustration below:



Mountings

Maximum static bending moment
 at rear face of block2644 Nm

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