@Perkins®

Technical Data

1000 Series

1006TAG2

Diesel Engine - ElectropaK

143 kW @ 1500 rev/min

Basic technical data

Number of cylinders ... 6
Cylinder arrangement ... Vertical, in line
Cycle ... 4 stroke
Induction system ... Turbocharged air tp air charge cooled
Compression ratio ... 17.0 : 1
Bore ... 100 mm (3.94 in)
Stroke ... 127 mm (5.0 in)
Cubic capacity ... 5,99 litres (365.0 in³)
Direction of rotation ... Clockwise, from the front
Firing order ... 1, 5, 3, 6, 2, 4
Cylinders 1 furthest from flywheel

Total weight of ElectropaK

-dry ... 586 kg (1291 lb)
-wet ... 630 kg (1388 lb)

Overall dimensions

-height ... 1065 mm (41.92 in)
-length ... 1685 mm (63.33 in)
-width ... 773 mm (30.43 in)

Moment of inertia (mk²)

-flywheel ... see option drawings
-engine ... 0,2996 kgm² (1024 lbf in²)

Centre of gravity

Complete ElectropaK (wet engine / without fan guards)
-forward from rear of block ... 402 mm (15.8 in)
-above block centre line ... 187 mm (7.4 in)
-offset to RHS ... 41 mm (1.6 in)

Performance

Note: All data based on operation to BSAU141A 1971; BS5514; 1987, ISO3046/1 1982; DIN6271.

Cyclic irregularity for engine and flywheel at
-100 % continuous power ... 0,0036
Maximum overspeed limit ... 2050 rev/min
Average sound level at 1 metre
-bare engine without inlet / exhaust ... 94,9 dB(A)

Test conditions

Air temperature ... 25 °C (68 °F)
Relative humidity ... 30%
Barometric pressure ... 101,3 kPa (29.5 in hg)
All ratings certified within ... +5% 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.

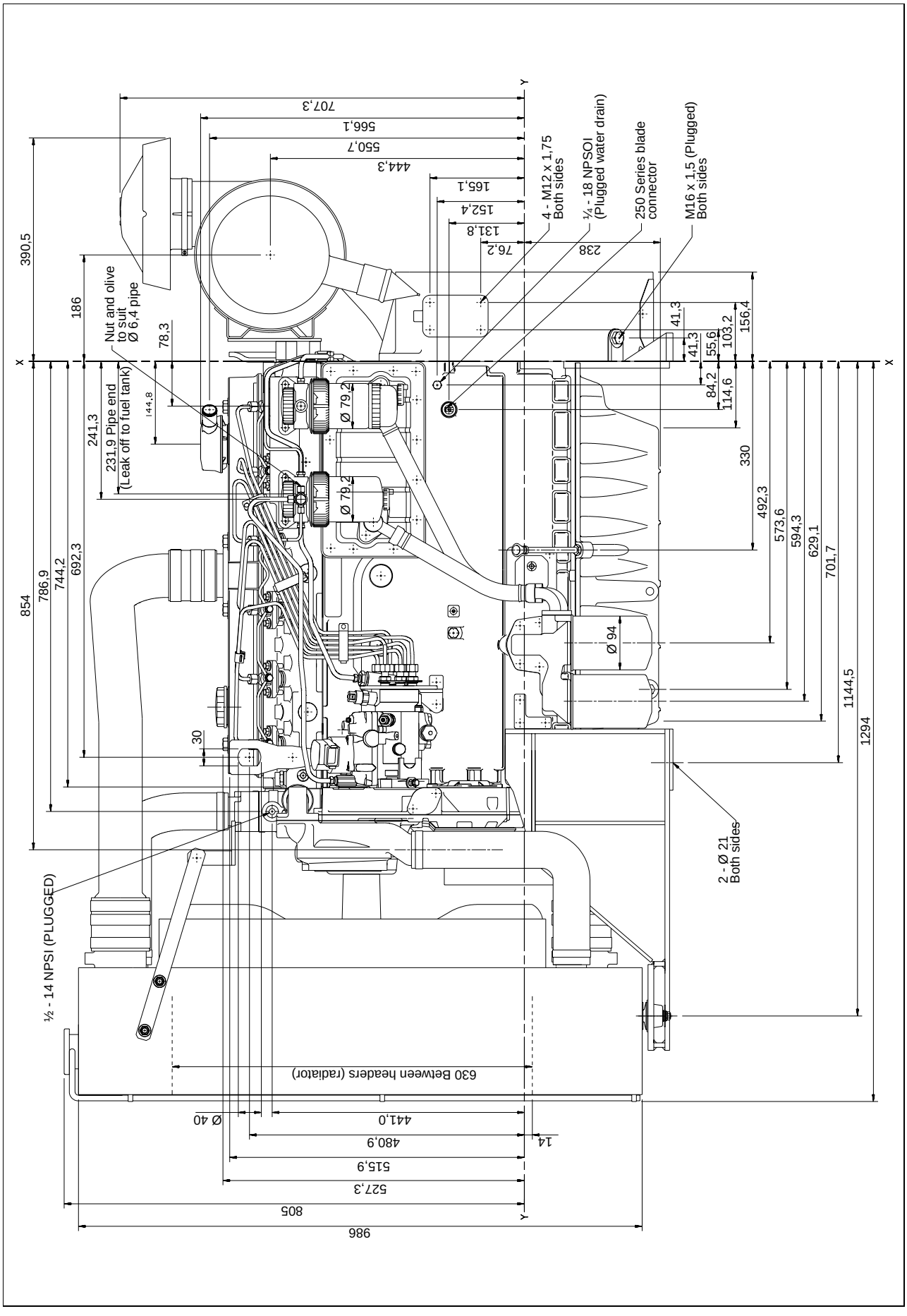
For details of load acceptance values, contact the applications department at Perkins Engines Company Limited, Stafford.

General installation

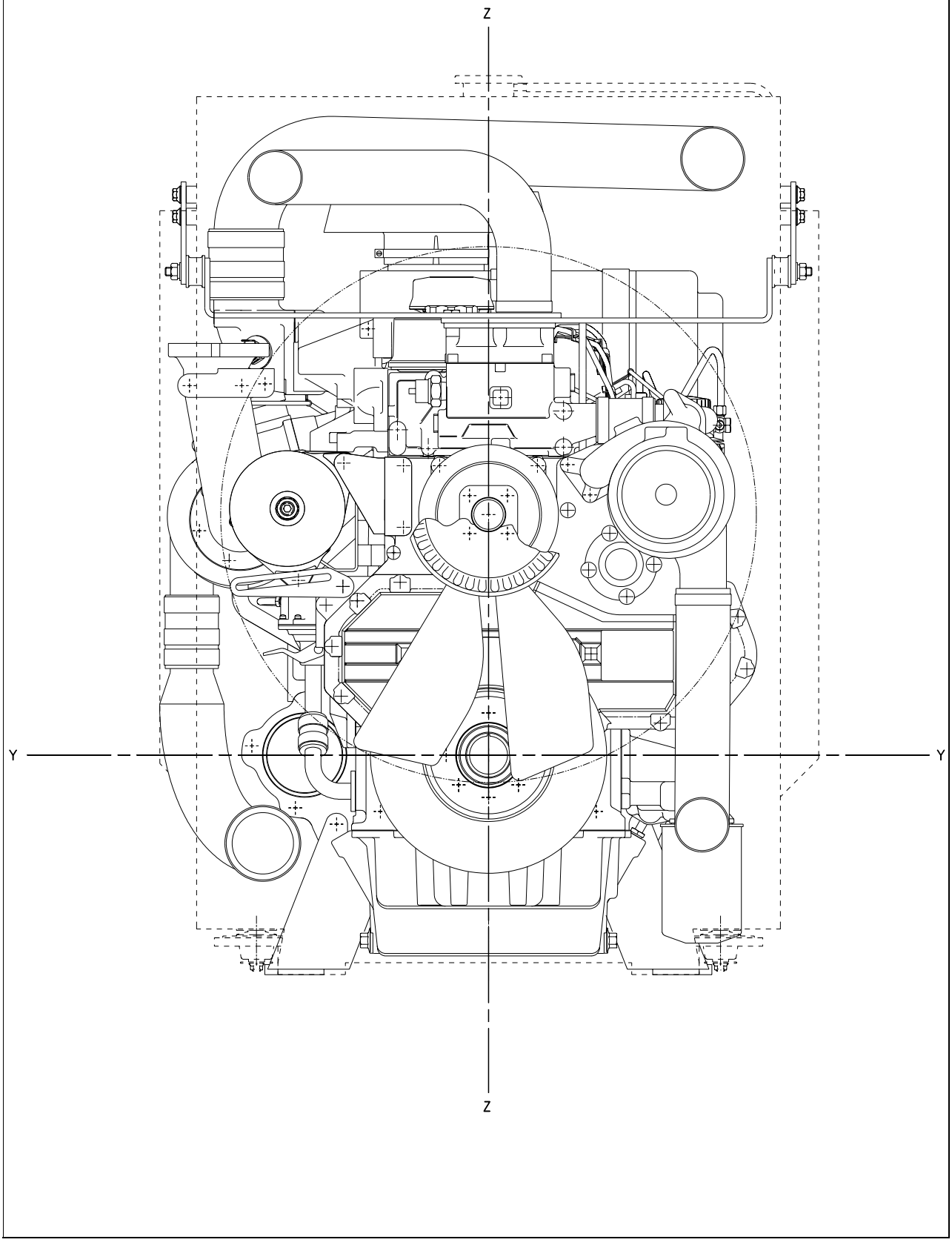
Designation	Units	Type of operation and application	
		(Continuous) Prime	Stand-by
		50Hz	50Hz
Gross engine power (to BSAU141A)	kW (bhp)	136,8 (183.4)	150,5 (201.7)
Fan loss	kW (bhp)	7,5 (10.1)	7,5 (10.1)
ElectropaK net engine power	kW (bhp)	129,3 (173.3)	143,0 (191.7)
Brake mean effective pressure	kPa (lbf/in²)	1825,0 (264.7)	2007,0 (291.1)
Piston speed	m/s (ft/s)	6,35 (20.8)	6,35 (20.8)
Engine coolant flow	l/min (UK gal/min)	140,0 (30.8)	140,0 (30.8)
Combustion air flow	m³/min (ft³/min)	10,1 (357)	10,7 (378)
Exhaust gas flow	m³/min (ft³/min)	29,1 (1028)	31,3 (1105)
Exhaust gas temperature	°C (°F)	580 (1076)	595 (1103)
Cooling fan air flow	m³/min (ft³/min)	154 (5438)	154 (5438)
Total heat from fuel	kW (bhp)	339,0 (454.6)	373,0 (500.2)
Gross heat to power	kW (bhp)	136,8 (183.5)	150,5 (201.8)
Net heat to power	kW (bhp)	129,3 (173.4)	143,0 (191.8)
Heat to exhaust	kW (bhp)	99,1 (132.9)	109,0 (142.1)
Heat to water and lubricating oil	kW (bhp)	68,5 (91.9)	73,4 (98.4)
Heat to charge cooler	kW (bhp)	20,9 (28.0)	23,0 (30.8)
Heat to radiation	kW (bhp)	14,0 (18.8)	17,0 (22.8)

***Caution:** The airflow shown in this table will provide acceptable cooling for an open power unit operating in ambient temperature of up to 53 °C (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.*

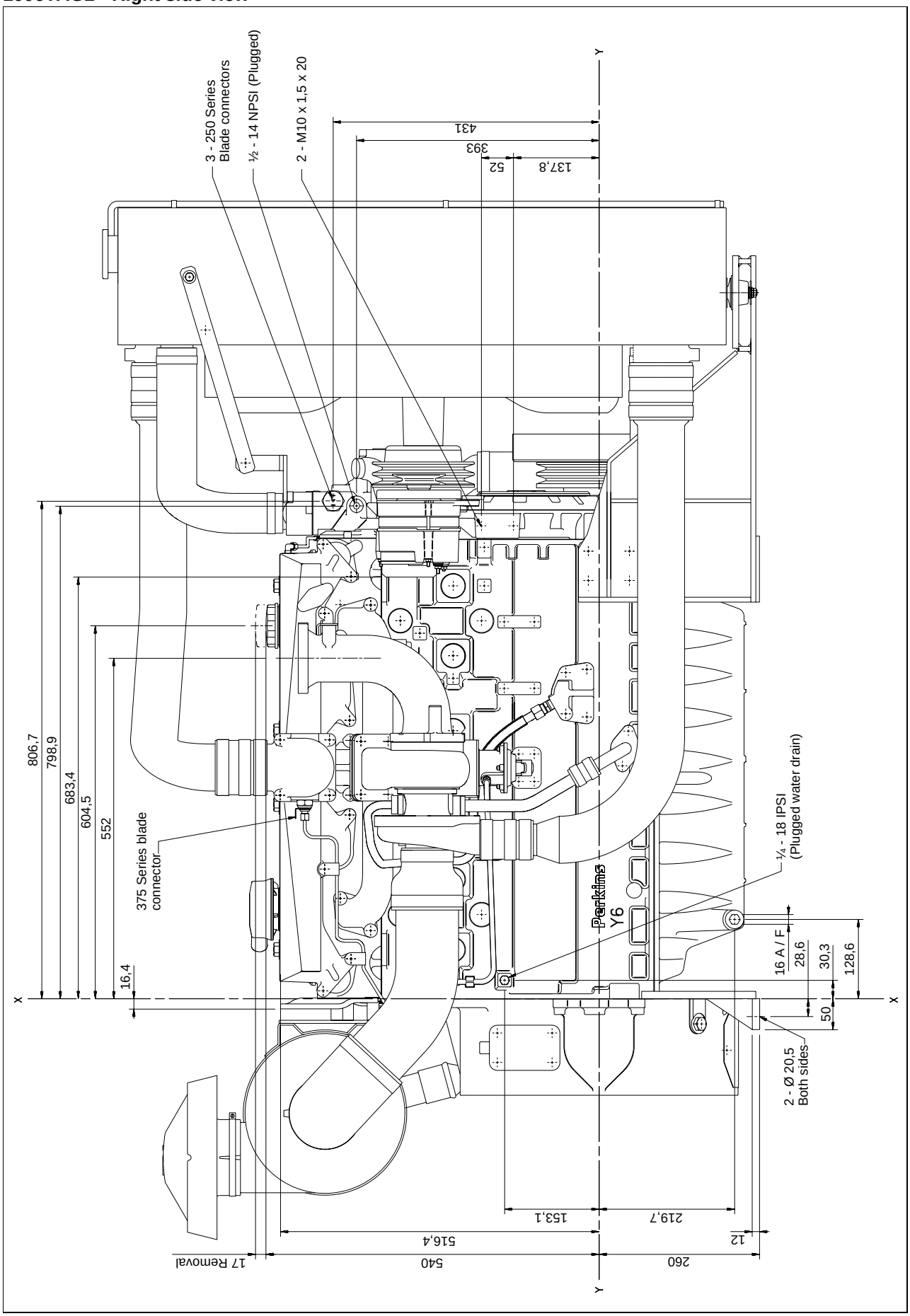
1006TAG2 - Left side view



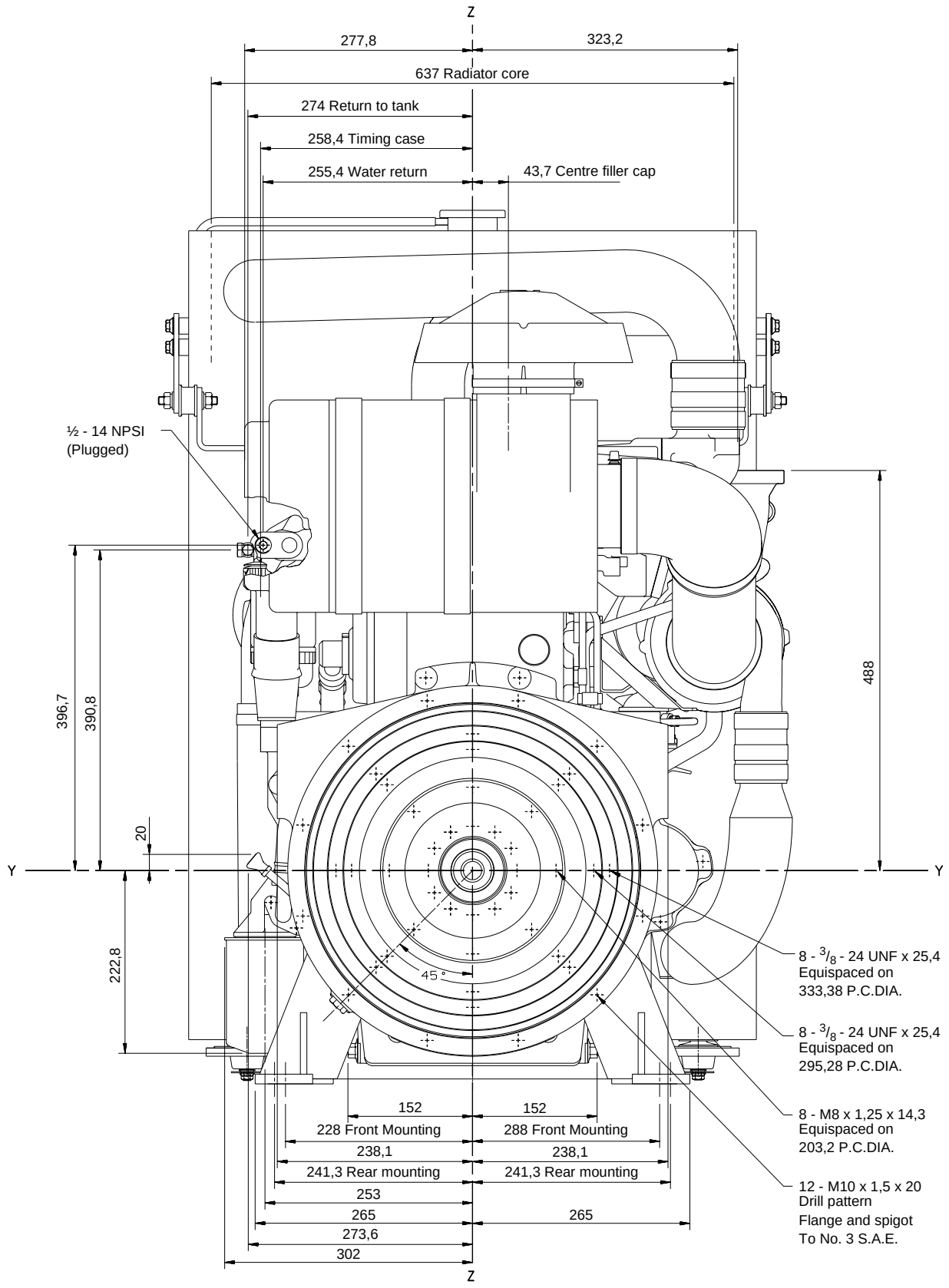
1006TAG2 - Front view



1006TAG2 - Right side view



1006TAG2 - Rear view



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Cooling system

Radiator

-face area ... ... 0,401 m² (4.3 ft²)
-rows and materials ... ...4 rows, brass
-gills / inch and material . ... 14, copper
-width of matrix ... ... 637 mm (25.1 in)
-height of matrix . ... 630 mm (24.8 in)
-pressure cap settings ... ...68,9 kPa (9.9 lbf / in²)
Maximum top tank temperature . ... 103 °C (217 °F)
Estimated cooling air flow reserve
(see 'caution' on page 1) ... ... 0,15 kPa (0.59 in H_20)

Charge cooler

-type ... ... fin and tube
-rows and materials ... ... 1 row / 62 mm (2.4 in) - Aluminium
-number of blades .. .. 10 - Aluminium

Fan

-diameter ... ... 635 mm (25 in)
-drive ratio .. .. 1.25 : 1
-number of blades 10
-material . ... Composite

Coolant

Maximum pressure head pump . ...6,8 m (22.3 ft)

Coolant capacity

-with radiator .. ..37,22 litres (65.5 UK pints)
-without radiator . ...12,70 litres (22.4 UK pints)
-drain down capacity .. ..35,30 litres (62.2 UK pints)
Minimum temperature to engine ... ... 76 °C (169 °F)
Temperature rise across engine ... ... 8 °C (14 °F)
Maximum permissible external system resistance 35 kPa (5 lbf/in²)
Thermostat operating range ... ... .82 - 93 °C (180 - 199 °F)
Recommended coolant:

Electrical system

Type ... ...Negative ground
Alternator output ... ... 55A 12 / 24v option
Starter motor power ... ... .12 / 24v option

Cold start recommendations

Minimum starting temperature °C	Grade of engine lubricating oil	Battery specification			
		BS3911 Cold start amps	SAEJ537 Cold cranking amps	Number of batteries needed	Perkins type
-10	10W	340	540	2	D (069)
-10	20W	340	540	2	D (069)
-15	10W	340	540	2	D (069)
-20	5W	340	540	2	D (069)

Exhaust system

Maximum back pressure for total system ... ... TBA
Inside diameter of outlet flange ... ... 78 mm (3.1 in)
Note: Changes to induction restriction, exhaust back pressure and fuel viscosity / temperature / specific gravity, can affect power output. For further details contact Perkins Technical Service Department.

Fuel system

Type of injection .. ..Direct
Fuel injection pump . ...Delphi rotary
Fuel atomiser ... ...0.35 mm diamete)
Injection pressure ... ... 24,7 MPa (243.8 atm)

Fuel lift pump

-delivery / hour. ... ... 122,4 litres (215 UK pints)
-pressure . ...30 kPa (4.35 lbf / in²)
Maximum suction head ... ...1,8 m (6.0 ft)
Maximum pressure head . ...3,0 (9.8 ft)
Diesel Fuel to conform to BS 2869 1983 class A2 ASTM D97566T Number 2D.
Governor type .. .. Electronic

Fuel consumption

litres / hour (UK gallons / hour)

Power rating %			
110	100	75	50
45 (9.9)	41 (9.0)	31 (6.8)	20 (4.4)

Induction system

Maximum permissible air intake restriction at engine

-clean filter ... ... 3,0 kPa (12 in H_20)
-dirty filter . ... 5,0 kPa (20 in H_20)
-air filter type ... ... dry element
Minimum dirt capacity .. ..353 g / m³ / min
Turbocharger type ... ... Garrett T04E

Lubrication system

Capacities

-total ... ...19 litres (33.5 UK pints)
-sump only . ...16 litres (28.2 UK pints)
Maximum operating angles
-front up, front down, right side .. ..25°

Lubricating oil pressure

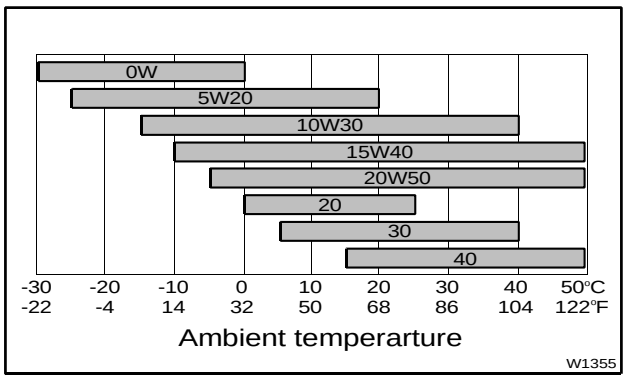
-relief valve opens.. ... ... 345 - 414 kPa (50 - 59 lbf / in²)
-at rated speed... ... ... 300 - 340 kPa (43 -49 lbf / in²)
-idle speed . ... 62 -60 kPa (9 - 13 lbf / in²)

Lubricating oil temperature

-at normal operation... ... ... 105 °C (221 °F)
-maximum .. .. 125 °C (257 °F)
Lubricating oil consumption as a % of fuel consumption 0.2% max

Recommended SAE viscosity

A single of multigrade lubricating oil which conforms to API CD / SE or CCMC D4 must be used.



Mountings

Type ... ... 4 point rubber mounting
Maximum bending moment at
rear face of block ... ... 1130 Nm (835 lbf ft)

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