

Technical Data

1100 Series

1104C-44G2
52,3 kWm @ 1800 rev/min

Electropak

Basic technical data

Number of cylinders 4
 Cylinder arrangement vertical in-line
 Cycle four stroke
 Induction system naturally aspirated
 Compression ratio 19:3 : 1
 Bore..... 105 mm
 Stroke 127 mm
 Cubic capacity..... 4,4 litres
 Direction of rotation..... anti-clockwise when viewed from flywheel
 Firing order 1, 3, 4, 2
 Estimated total weight (dry - fan to flywheel housing)..... 386 kg

Overall dimensions

-height 951,2 mm
 -length 1162,9 mm
 -width (includes mounting brackets)..... 622,6 mm

Moments of inertia (mk²)

-flywheel 1,14 kgm² (27.0 lbf²) & 1,13 kgm² (26.8 lbf²) options

Centre of gravity (wet - fan to flywheel)

-forward from rear of block 227,7 mm
 -above centre line of block 160,4 mm
 -offset to RHS of centre line..... 8,1 mm

General Installation

Designation	Units	Type of operation and application	
		Prime	Stand-by
		60Hz	60Hz
Gross engine power	kWb	49,0	54,0
Brake mean effective pressure	kPa	746	819
Engine coolant flow 35 kPa system restriction	l/min	170	
Combustion air flow	m ³ /min	3,58	3,55
Exhaust gas flow (max)	m ³ /min	9,58	9,95
Exhaust gas temperature (max)	°C	629	676
Cooling fan air flow (200 kPa External Restriction)	m ³ /min	81,6	
Overall thermall efficiency	%	35,0	35,7
Typical genset electrical output (0,8pf 25°C)	kWe	42,6	47,1
	kVa	53,2	58,8
Assumed alternator efficiency	%	90	
Energy balance			
Energy in fuel (Fuel heat of combustion)	kWt	135	148
Energy to power output (gross)	kWb	49,0	54
Energy to fan	kWm	1,7	
Energy to power (nett)	kWm	47,3	52,3
Energy to coolant and lubricating oil	kWt	30	33
Energy to exhaust	kWt	49	53
Energy to radiation	kWt	7,0	8

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.

Performance

All data based on operation to ISO/TR14396, ISO3046/1 standard reference conditions

All ratings certified to within ± 5%
 Speed variation at constant load ± 0.5%

Test conditions

-air temperature.....25 °C
 -barometric pressure100 kPa
 -relative humidity30%

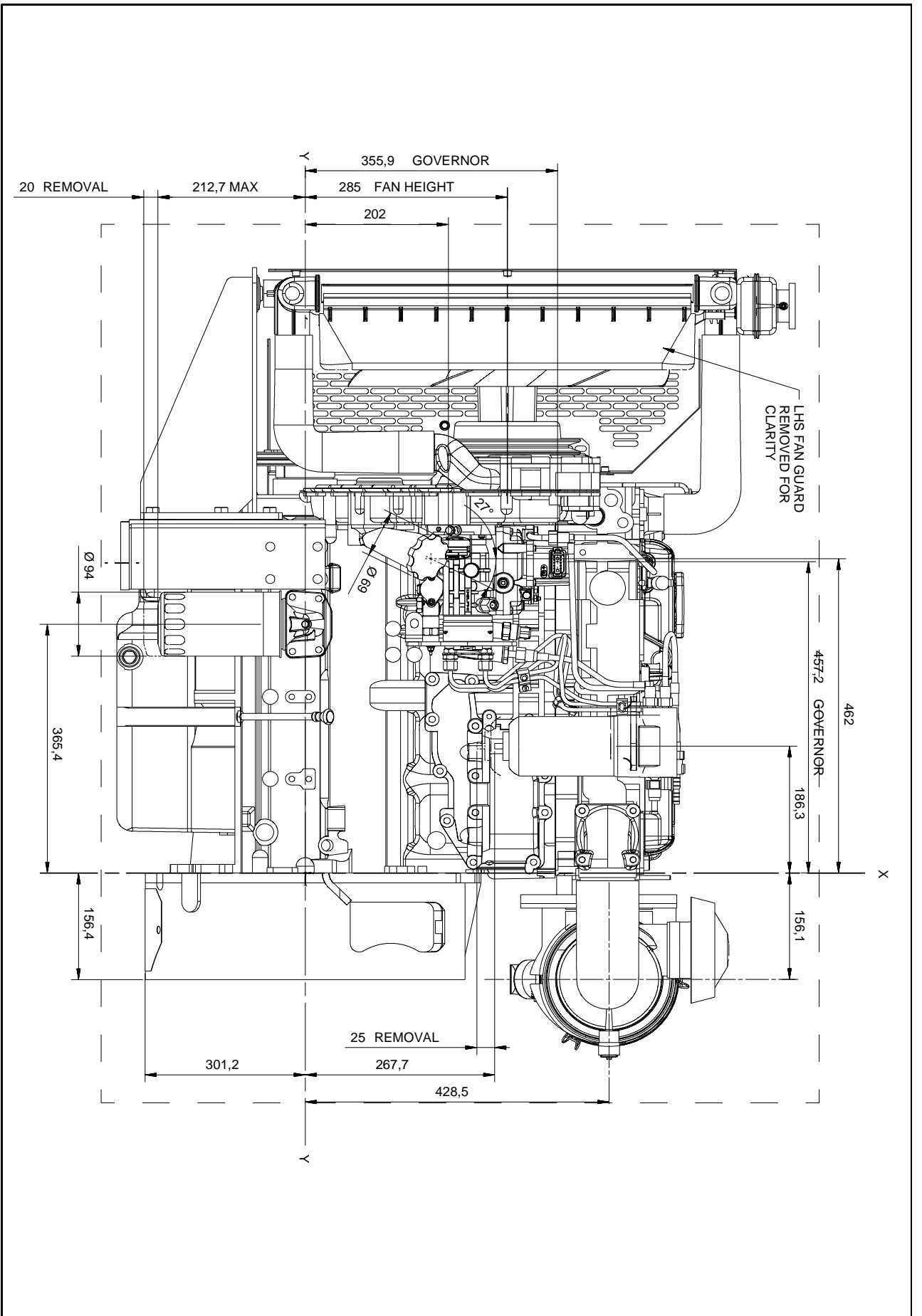
Sound level

Average sound power level for bare engine without inlet and exhaust at 1 metre Electronic governor..... 92,2 dBa

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.

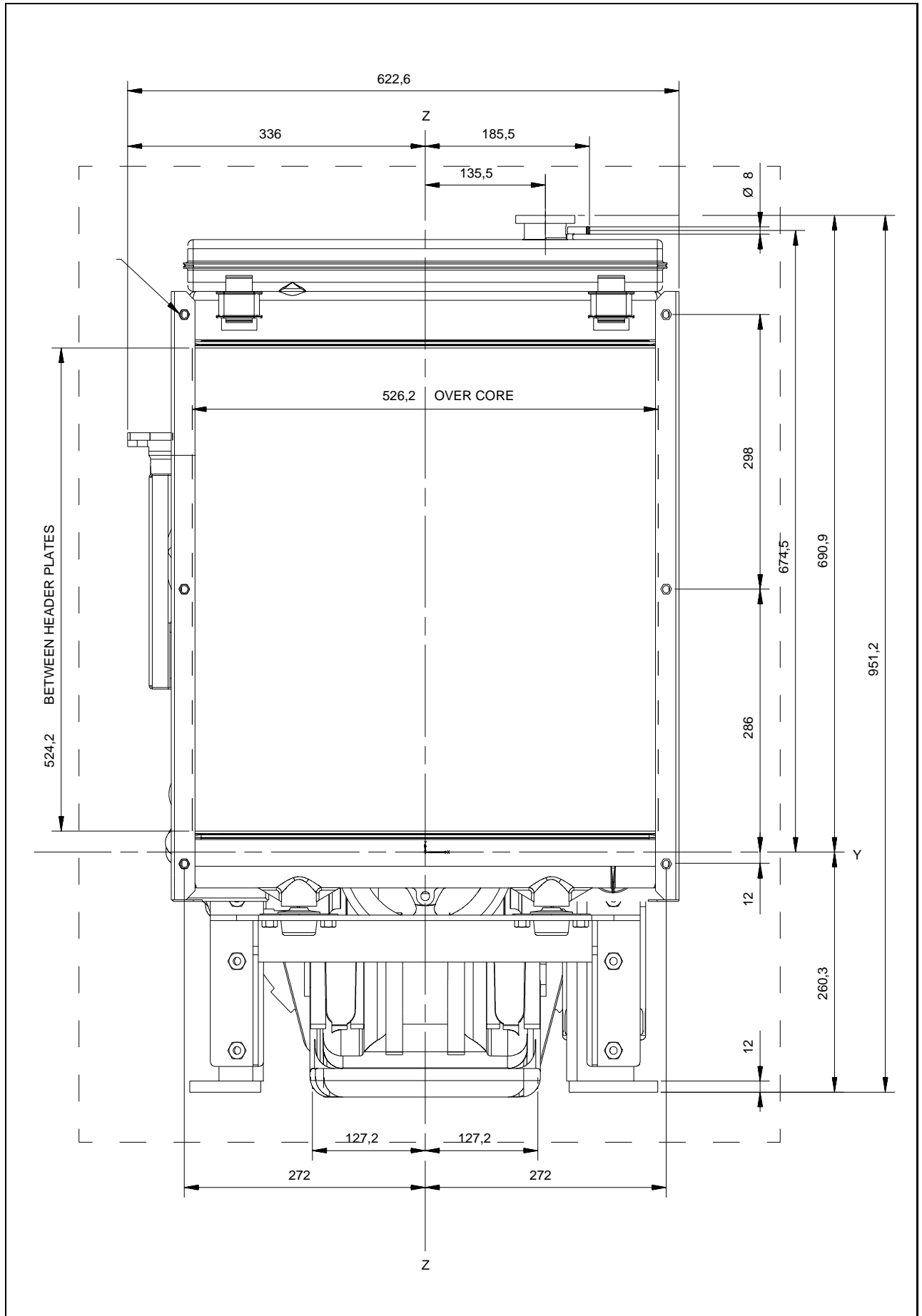
For details of load acceptance, contact the applications department of Perkins Engines Company Limited, Stafford.

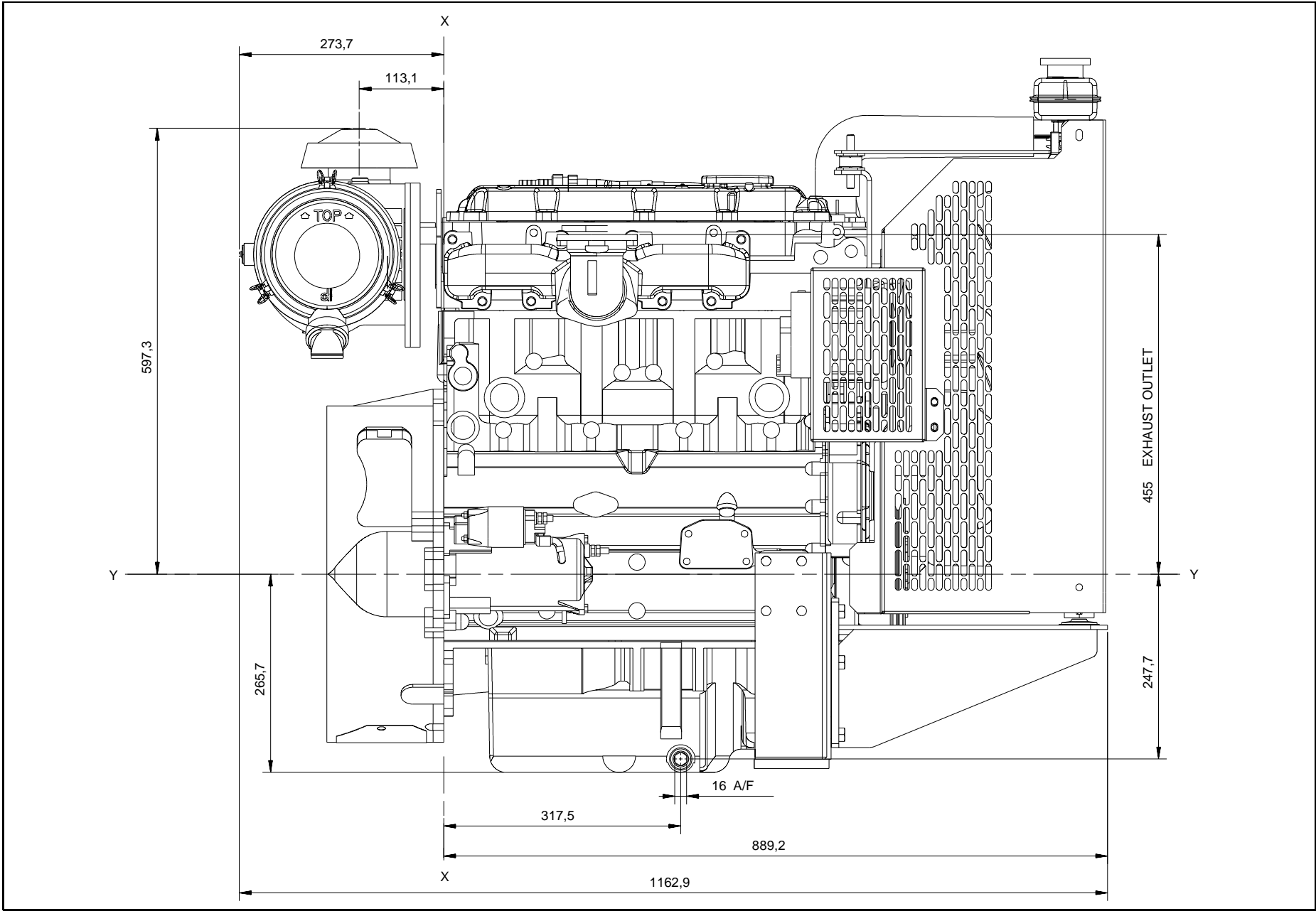
Emissions capability: Certified against the requirements of Tier 2 legislation for non-road mobile machinery, powered by constant speed engines (EPA 40 CFR Part 89 Tier 2)



1104C-44G2 - left side view

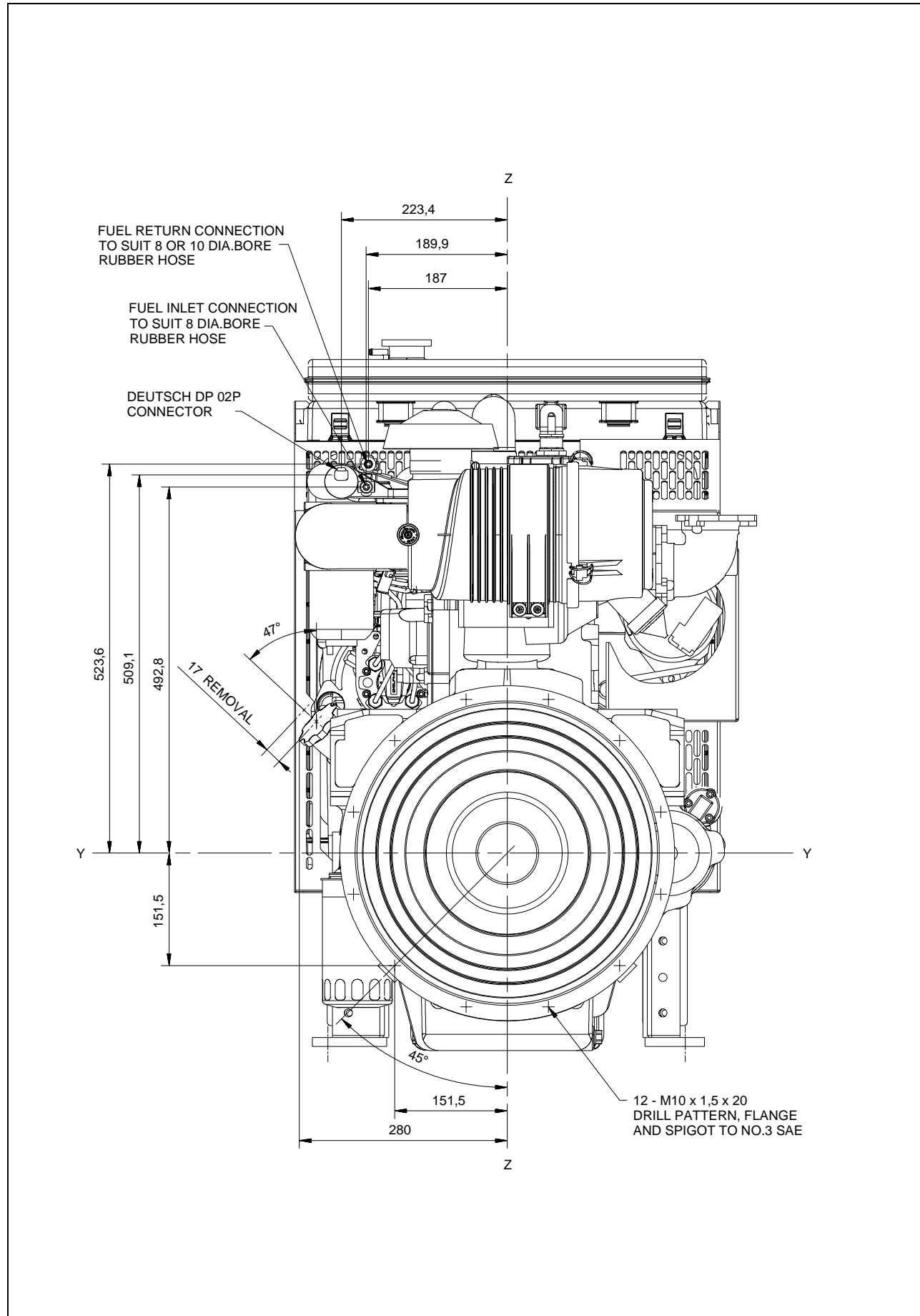
1104C-44G2 - front view





1104C-44G2 - right side view

1104C-44G2 - rear view



Cooling system

Radiator

-face area... 0,28 m²
 -rows and materials ... 54 Aluminium
 -matrix density and material... 12,7 Aluminium fins/Inch
 -width of matrix... 526 mm
 -height of matrix... 524 mm
 -pressure cap setting ... 107 kPa

Fan

-diameter ... 457 mm
 -drive ratio... 1 :1
 -number of blades... 7
 -material ... composite
 -type ... pusher

Coolant

Total system capacity
 -with radiator ... 12,8 litres
 -without radiator ... 7.0 litres
 Maximum top tank temperature ... 110 °C
 Thermostat operation range... 82 - 93 °C

Recommended coolant:

50% ethylene glycol with a corrosion inhibitor
 (BS 658 :1992 or MOD AL39) and 50% clean fresh water.

Electrical System

-type ... negative ground
 -alternator... 12V
 -starter motor ... 12V

Cold start recommendations

Minimum cranking speed ... 100 rev/min

Starter specification

Starter motor type	Minimum starting temperature	Minimum battery type for SAE lubricating oil viscosity			
		15W	10W	5W	0W
12 volt 3.0 kW	°C				
	-5	1 x A			
	-15		1 x A		
	-20			1 x B	
	-25				1 x B

Battery specifications

Commercial ref number	Perkins Code	Battery minimum performance		
		BS 3911	SAEJ537	DIN 43539.2
643	A	440	660	400
647	B	510	770	465
069	D	340	540	300
655	E	570	810	490

Exhaust system

Maximum back pressure ... 15 kPa
 Exhaust outlet size ... 64 mm
 Fuel system
 Type of injection ... direct
 Fuel injection pump ... rotary
 Fuel atomiser... multi-hole
 Nozzle opening pressure ... 29,0 MPa

Fuel lift pump

-flow/hour... 120 - 150 l/h
 -pressure ... 30 - 75 kPa
 Maximum suction head (with clean filter)
 ... 17 kPa at 1.7 m using 8 mm dia bore pipe
 Maximum static pressure head
 ... 30 kPa at 2.0 m using 8 mm dia bore pipe

Governor type

Electronic governor ... L Series Electronic Governor
 Electronic governor speed control to... ISO 8528, G3
 Mechanical governor speed control to ... ISO 8528, G2

Fuel specification

USA Fed Off Highway EPA2D 89.330-96
 Density (kg/l @ 15°C)... 0,835/0855
 Viscosity (mm²/s @ 40 °C)... 2,0/4.5
 Sulphur Content ... 0.2% Max.
 Cetane Number... 45min

Fuel consumption litres/hour

Power rating			
110%	100%	75%	50%
13,4	12,1	9,2	6,5

Induction system

Maximum air intake restriction

- clean filter. 3 kPa
- dirty filter6,6 kPa
- air filter type 2 stage cyclonic/paper element

Lubrication system

Lubricating oil capacity

- total system.. 7,0 litres
- minimum5,5 litres

Maximum engine operating angles

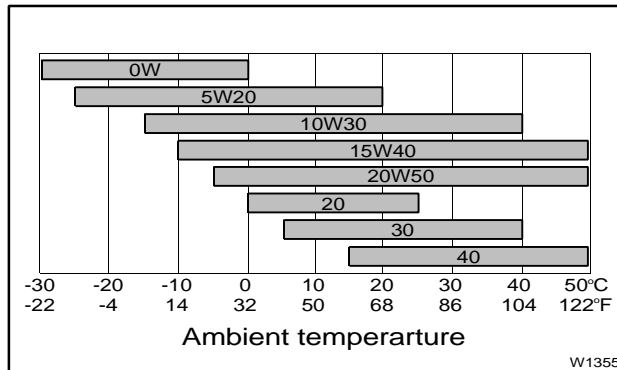
- front up, front down, right side or left side 30°

Lubricating oil pressure

- at rated speed.. minimum 250 kPa
- Normal oil temperature.. 110 °C
- Max continuous oil temperature 125 °C
- Oil consumption at full load as a % of fuel consumption.... 0.15%

Recommended SAE viscosity

A single or multigrade oil must be used which conforms to API-CG4/CH4 or ACEA-E3/E5, see illustration below:



Mountings

Maximum static bending moment

- at rear face of block... ..791Nm

Notes:



Perkins Engines Company Limited

Peterborough PE1 5NA United Kingdom

Telephone +44 (0) 1733 583000

Fax +44 (0) 1733 582240

www.perkins.com

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