

Technical Data

4000 Series

Diesel Engine - Electropak

4012-46TAG1A

4012-46TAG2A

Emissions Compliant engines

Basic technical data

Number of cylinders 12
 Cylinder arrangement Vee, 60°
 Cycle 4 stroke
 Induction system Turbocharged
 Combustion system direct injection
 Compression ratio 13:1
 Bore 160 mm
 Stroke 190 mm
 Cubic capacity 45-842 litres
 Direction of rotation anti-clockwise when viewed from flywheel
 Firing order 1^A, 6^B, 5^A, 2^B, 3^A, 4^B, 6^A, 1^B, 2^A, 5^B, 4^A, 3^B
 Cylinder 1 furthest from flywheel
Note: Cylinders designated 'A' are on the right hand side of the engine when viewed from the flywheel end

Approximate weights

Description	unit	Tropical	Temperate
Engine (dry)	Kg	4400	4400
Electropak (wet) + fuel cooler	Kg	6086	5949
Electropak (wet) - fuel cooler	Kg	6070	5933

Overall dimensions of Electropak

	unit	Tropical	Temperate
Height	mm	2258	2255
Length	mm	3915	3916
Width	mm	2198	1775

Moment of inertia

Engine 9,73 kgm²
 Flywheel 9,57 kgm²

Cyclic irregularity for engine/flywheel maximum

4012-46TAG1A 1:714
 4012-46TAG2A 1:669

Ratings

Steady state speed stability at constant load ± 0.25%
 Electrical rating are based on average alternator efficiency and are for guidance only (0.8 power factor being used).

Operating point

Engine speed 1500 rev/min
 Static injection timing see engine number plate
 Cooling water exit temperature < 98 °C
 Fuel data to conform to BS2869 class A2 or BS EN590

Performance

All data based on operation to ISO 3046/1, BS 5514 and DIN 6271 standard reference conditions.

Noise

For noise data, refer to page 17.
 For engines operating in ambient conditions other than the standard reference conditions stated below, a suitable de-rate must be applied.
 De-rate tables for increased ambient temperature and/or altitude are available, please contact Perkins Applications Department.

Test conditions

Air temperature 25 °C
 Barometric pressure 100 kPa
 Relative humidity 30%
 Air inlet restriction at maximum power (nominal) 2,5 kPa
 Exhaust back pressure at maximum pressure (nominal) 3,0 kPa
 Fuel temperature (inlet pump) 58 °C maximum
 For test conditions relevant to data on load acceptance, refer to page 18 of this document.

General installation

4012-46TAG1A - Temperate

Designation	Units	Type of operation and application		
		Baseload power	Prime power	Standby power
Gross engine power	kWm	973	1212	1327
Fan and battery charging alternator power	kW	42		
Nett engine power	kWm	931	1170	1285
Brake mean effective pressure (gross)	kPa	1694	2110	2309
Combustion air flow at ISO conditions	m³/min	85	100	110
Exhaust gas temperature (max) after turbo	°C	470		
Exhaust gas flow (max) @ atmospheric pressure	m³/min	280		
Boost pressure ratio	-	2,6	2,9	3,2
Mechanical efficiency	%	89	91	92
Overall thermal efficiency (nett)	%	41,0	41,5	41,0
Friction power and pumping losses	kWm	120		
Mean piston speed	m/s	9,5		
Engine coolant flow	l/min	1020		
Typical Genset electrical output (0.8pf)	kVA	1106	1389	1526
	kWe	884	1112	1221
Assumed alternator efficiency	%	95		

4012-46TAG1A - Tropical

Designation	Units	Type of operation and application		
		Baseload power	Prime power	Standby power
Gross engine power	kWm	973	1212	1327
Fan and battery charging alternator power	kW	64		
Nett engine power	kWm	909	1148	1263
Brake mean effective pressure (gross)	kPa	1694	2110	2309
Combustion air flow at ISO conditions	m³/min	85	100	110
Exhaust gas temperature (max) after turbo	°C	470		
Exhaust gas flow (max) at atmospheric pressure	m³/min	280		
Boost pressure ratio	-	2,60	2,93	3,20
Mechanical efficiency	%	89	91	92
Overall thermal efficiency (nett)	%	41,0	41,5	41,0
Friction power and pumping losses	kWm	120		
Mean piston speed	m/s	9,5		
Engine coolant flow	l/min	1020		
Typical Genset electrical output (0.8pf)	kVA	1080	1364	1500
	kWe	864	1091	1200
Assumed alternator efficiency	%	95		

General installation

4012-46TAG2A - Temperate

Designation	Units	Type of operation and application		
		Baseload power	Prime power	Standby power
Gross engine power	kWm	1069	1331	1459
Fan and battery charging alternator power	kW	42		
Nett engine power	kWm	1027	1289	1417
Brake mean effective pressure (gross)	kPa	1861	2317	2538
Combustion air flow at ISO conditions	m³/min	90	105	120
Exhaust gas temperature (max) after turbo	°C	500		
Exhaust gas flow (max) at atmospheric pressure	m³/min	309		
Boost pressure ratio	-	2,8	3,4	3,6
Mechanical efficiency	%	89	91	92
Overall thermal efficiency (nett)	%	39,5	38,8	38,6
Friction power and pumping losses	kWm	120		
Mean piston speed	m/s	9,5		
Engine coolant flow	l/min	1020		
Typical Genset electrical output (0.8pf)	kVA	1220	1531	1682
	kWe	976	1225	1346
Assumed alternator efficiency	%	95		

4012-46TAG2A - Tropical

Designation	Units	Type of operation and application		
		Baseload power	Prime power	Standby power
Gross engine power	kWm	1069	1331	1459
Fan and battery charging alternator power	kW	64		
Nett engine power	kWm	1005	1267	1395
Brake mean effective pressure (gross)	kPa	1861	2317	2538
Combustion air flow at ISO conditions	m³/min	90	105	120
Exhaust gas temperature (max) after turbo	°C	500		
Exhaust gas flow (max) at atmospheric pressure	m³/min	309		
Boost pressure ratio	-	2,8	3,4	3,6
Mechanical efficiency	%	89	91	92
Overall thermal efficiency (nett)	%	39,5	38,8	38,6
Friction power and pumping losses	kWm	120		
Mean piston speed	m/s	9,5		
Engine coolant flow	l/min	1020		
Typical Genset electrical output (0.8pf)	kVA	1194	1505	1656
	kWe	955	1204	1325
Assumed alternator efficiency	%	95		

Note: Not to be used for combined heat and power (CHP) purposes (indicative figures only). If necessary, please consult the Applications Department, Perkins Engines Company Limited, Stafford.

Rating definitions

Baseload power

Unlimited hours usage with an average load factor of 100% of the published baseload power rating.

Prime power

Variable load. Unlimited hours usage with an average load factor of 80% of the published Prime Power over each 24 hour period. A 10% overload is available for 1 hour in every 12 hours.

Standby power

Limited to 500 hours annual usage with an average load factor of 80% of the published Standby Power rating over each 24 hour period. Up to 300 hours of annual usage may be run continuously. No overload is permitted on Standby Power.

Energy balance

4012-46TAG1A - Temperate

Designation	Units	Baseload power	Prime power	Standby power
Energy in fuel	kW	2328	2962	3330
Energy in power output (gross)	kW	973	1212	1327
Energy to cooling fan	kW	42		
Energy in power output (nett)	kW	931	1170	1285
Energy to exhaust	kW	750	1020	1150
Energy to coolant and oil	kW	335	365	413
Energy to radiation	kW	70	75	100
Energy to charge coolers	kW	200	290	340

4012-46TAG1A - Tropical

Designation	Units	Baseload power	Prime power	Standby power
Energy in fuel	kW	2328	2962	3330
Energy in power output (gross)	kW	973	1212	1327
Energy to cooling fan	kW	64		
Energy in power output (nett)	kW	909	1148	1263
Energy to exhaust	kW	750	1020	1150
Energy to coolant and oil	kW	335	365	413
Energy to radiation	kW	70	75	100
Energy to charge coolers	kW	200	290	340

4012-46TAG2A - Temperate

Designation	Units	Baseload power	Prime power	Standby power
Energy in fuel	kW	2548	3320	3740
Energy in power output (gross)	kW	1069	1331	1459
Energy to cooling fan	kW	42		
Energy in power output (nett)	kW	1027	1289	1417
Energy to exhaust	kW	805	1160	1250
Energy to coolant and oil	kW	387	428	499
Energy to radiation	kW	76	100	112
Energy to charge coolers	kW	210	301	420

4012-46TAG2A - Tropical

Designation	Units	Baseload power	Prime power	Standby power
Energy in fuel	kW	2548	3320	3740
Energy in power output (gross)	kW	1069	1331	1459
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Energy in power output (nett)	kW	1005	1267	1395
Energy to exhaust	kW	805	1160	1250
Energy to coolant and oil	kW	387	428	499
Energy to radiation	kW	76	100	112
Energy to charge coolers	kW	210	301	420

Note: Not to be used for combined heat and power (CHP) purposes (indicative figures only). If necessary, please consult the Applications Department, Perkins Engines Company Limited, Stafford.

Cooling system

Recommended coolant: 50% inhibited ethylene glycol or 50% inhibited propylene glycol and 50% clean fresh water. For combined heat and power systems (CHP) and where there is no likelihood of ambient temperature below 10 °C, then clean 'soft' water may be used, treated with 1% by volume of Perkins inhibitor in the cooling system. The inhibitor is available from Perkins.
Maximum pressure in crankcase water jacket 170 kPa
Maximum top tank temperature (standby) 98 °C
Maximum static pressure head on pump 7 m

Total coolant capacity

Electrounit (engine only) 73 litres
Electropak (engine and radiator):
-temperate.. ... 207 litres
-tropical 210 litres
Maximum permissible restriction to coolant pump flow.. ... 20 kPa
Thermostat operating range... .. 71 - 85 °C
Temperature rise across the engine (standby power) with inhibited coolant 8 °C
Coolant temperature shutdown switch setting 101 °C rising
Coolant immersion heater capacity (2 off) 4 kWe each

Radiator

Temperate

Radiator face area 2,57 m²
Material and number of rows:
-charge air and water jacket... ..copper, 4 rows
Fins per inch and material:
-charge air and water jacket... .. brass, 12 rows
Width of matrix 1-608 m
Height of matrix... .. 1-601 m
Weight of radiator... .. 1117 kg
Pressure cap setting (min) 70 kPa

Tropical

Radiator face area 3,46 m²
Material and number of rows:
-charge air and water jacket... ..copper, 4 rows
Fins per inch and material:
-charge air and water jacket... .. brass, 12 rows
Width of matrix 2,10 m
Height of matrix... .. 1,65 m
Weight of radiator... .. 1620 kg
Pressure cap setting (min) 70 kPa

Water jacket cooling data

Temperate and Tropical

-coolant flow 1020 litres/min
-coolant exit temperature (max) 98 °C
-coolant inlet temperature (min) thermostatic control
-coolant inlet temperature (max) 90 °C

Coolant pump

Speed. 2110 rev/min
Method of drive gear

Fan

Type axial flow
Diameter
-Temperate 1530 mm
-Tropical 1600 mm
Number of blades... .. 12
Material Aluminium
Drive ratio... .. 0-93:1

4012-46TAG1A - Temperate, Standby power

Maximum additional restriction (duct allowance) to cooling airflow and resultant minimum airflow		
Ambient clearance: 50% Glycol	Duct allowance (Pa)	Min airflow (m ³ /sec)
35 °C	250	20,2

4012-46TAG1A - Tropical, Standby power

Maximum additional restriction (duct allowance) to cooling airflow and resultant minimum airflow		
Ambient clearance: 50% Glycol	Duct allowance (Pa)	Min airflow (m ³ /sec)
50 °C	200	32,4

4012-46TAG2A - Temperate, Standby power

Maximum additional restriction (duct allowance) to cooling airflow and resultant minimum airflow		
Ambient clearance: 50% Glycol	Duct allowance (Pa)	Min airflow (m ³ /sec)
35 °C	250	20,2

4012-46TAG2A - Tropical, Standby power

Maximum additional restriction (duct allowance) to cooling airflow and resultant minimum airflow		
Ambient clearance: 50% Glycol	Duct allowance (Pa)	Min airflow (m ³ /sec)
50 °C	200	32,4

Lubrication system

Recommended SAE viscosity: A multigrade oil conforming to the following must be used: API CH4 15W/40.

Note: For additional notes on lubricating oil specifications, please refer to the Operation and Maintenance Manual (OMM)

Lubricating oil capacity

-total system capacity... .. 177 litres
-sump maximum... .. 157,5 litres
-sump minimum... .. 115 litres
-oil temperature at normal operating conditions to bearings 105 °C

Lubrication oil pressure

-at rated speed 400 kPa
-minimum at 80 °C... .. 340 kPa
-oil relief valves open 400 kPa
-oil filter spacing 20 microns
-sump drain plug tapping size G1
-oil pump speed... .. 2100 rev/min
-method of drive gear
-shutdown switch pressure setting (where fitted) .. 193 kPa falling
Oil pump flow... .. 6,0 litres/sec

Normal operating angles

Front and rear... .. 5°
Side tilt. 10°

Oil consumption

Prime power	Units	
After running in (typically after 250 hours)	g/kWhr	0,52
Oil flow rate from pump	litres/sec	6

Electrical system

Type .. insulated return
Alternator voltage .. 24 volts with integral regulator
Alternator output ... 40 amps stabilised, 28 volts at 20 °C ambient
Starter type ... axial
Starter motor voltage. ... 24 volts
Starter motor power ... 16,4 kW
Number of teeth on flywheel ... 156
Number of teeth on starter pinion... 12
Minimum cranking speed ... 120 rev/min
Pull in current of starter motor
solenoid @ -25 °C max ⁽¹⁾ ... 30 amps at 24 volts
Hold in current of starter motor
solenoid @ -25 °C max ⁽¹⁾ ... 9 amps at 24 volts
Stop solenoid hold-in current ... 1,1 amps at 24 volts
Engine stop solenoid. ... 24 volts
1. All leads to rated at 10 amps minimum

Fuel system

Recommended fuel to conform to:

... BS2869 1998 Class A2 or BS EN590
Injection system ... direct
Fuel injection pump and injector type ... combined unit injector
Injector pressure ... 140 MPa
Lift pump type ... Tuthill TCH 1-089

Delivery

-4012-46TAG1A ... 1020 litres/hour
-4012-46TAG2A ... 1020 litres/hour
Heat retained in fuel to tank ... 8 kW
Fuel inlet temperature to be less than... 58 °C
Delivery pressure ... 300 kPa
Maximum suction head at pump inlet ... 2,5 m
Maximum static pressure head . see installation manual for details
Fuel filter spacing ... 10 microns
Governor type ... electronic
Governing to ISO 8528-12 CLASS 3 and 4; ISO 8528-5 CLASS G2
Tolerance on fuel consumption. ... 5%

Fuel consumption

Ratings	g/kW/hr	litres/hr
4012-46TAG1A, Temperate & Tropical		
Standby	219	338
Prime	218	307
Baseload	216	244
75% Prime	218	230
50% Prime	232	164
4012-46TAG2A, Temperate & Tropical		
Standby	209	378
Prime	207	342
Baseload	207	270
75% Prime	208	252
50% Prime	212	178

Note: Fuel consumption calculated on gross rated powers.

Induction system

Maximum air intake restriction of engine:

-clean filter. ... 2 kPa
-dirty filter ... 4 kPa
-air filter type ... paper element

Exhaust system

Exhaust outlet size (internal) ... 2 x 254 mm Table D flanges
Exhaust outlet flange size ... 2 x 254 mm Table D flanges
Back pressure for total system at standby power... 5 kPa
For recommended pipe sizes, please refer to the Installation Manual.

Cold start recommendations

Temperature range	
5 °C down to -10 °C (41 °F to 14 °F)	Oil: 15W40 CH4 Starter: 2 x 24 volts Battery: 4 x 12V 286 Ah Max breakaway current: 1600 amps Cranking current: 810 amps Aids: block heaters Min mean cranking speed: 120 rev/min

Notes:

- The battery capacity is defined by the 20 hour rate
- The oil specification should be for the minimum ambient temperature as the oil will not be warmed by the immersion heater
- Breakaway current is dependant on battery capacity available. Cables should be capable of handling the transient current which may be up to double the steady cranking current.

Engine mounting

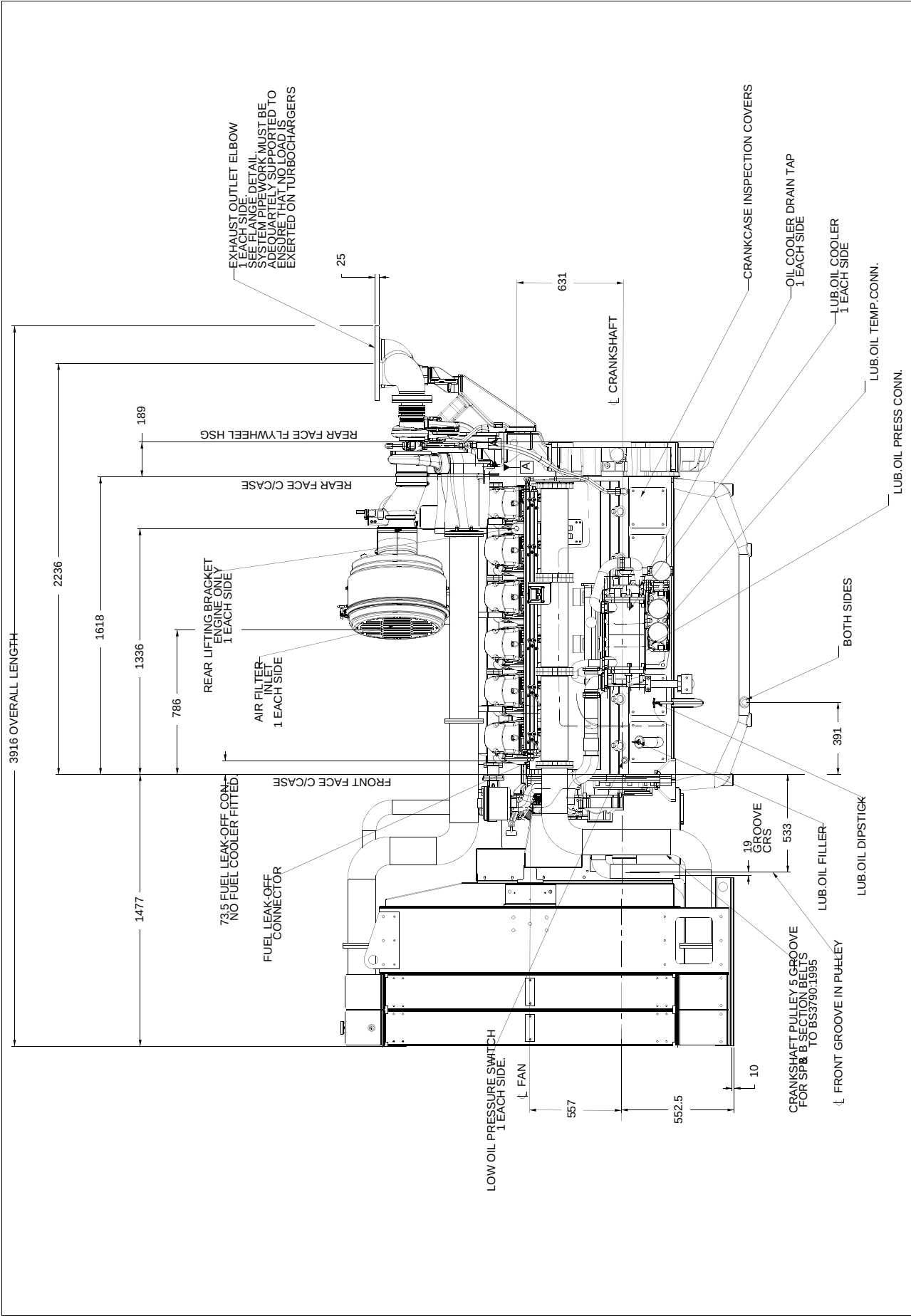
Maximum static bending moment at rear face of block .. 1356 Nm
Maximum additional load applied to flywheel
due to all rotating components ... 850 kg

Centre of gravity

Bare engine, dry

-forward of the rear face of the cylinder block ... 771 mm
-above the crankshaft centre line ... 32 mm
ElectropaK, dry
-forward of the rear face of the cylinder block ... 1176 mm
-above the crankshaft centre line ... 32 mm

4012-46TAG1A / 4012-46TAG2A Temperate - Left hand side view



Technical drawing of a Perkins 1104 engine and generator set, showing front and side views with detailed dimensions and component labels.

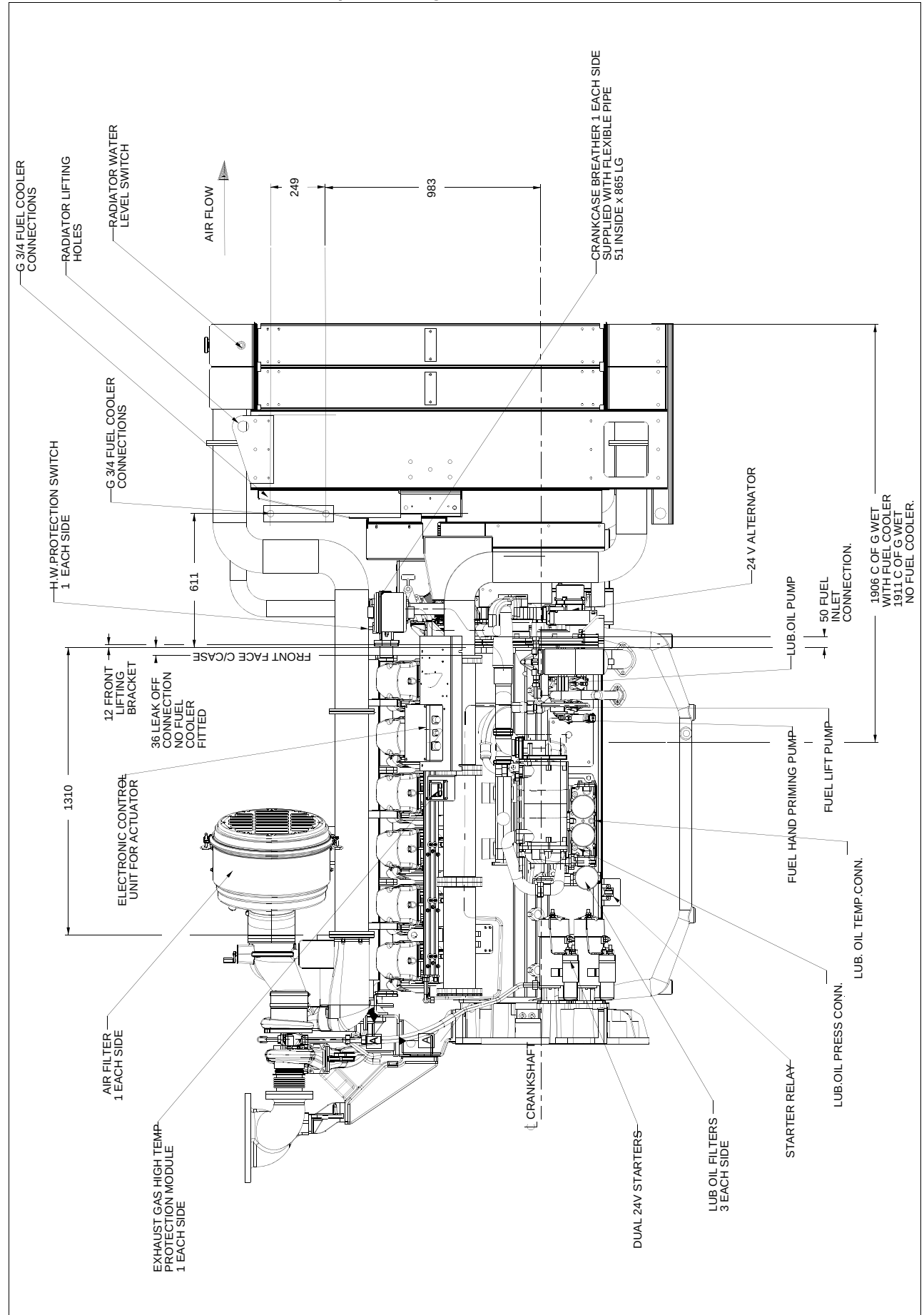
Dimensions:

- Overall width: 802
- Overall height: 1597 OVER MATRIX
- Distance between generator sets: 513
- Distance between generator sets (center-to-center): 510 FUEL COOLER CONN
- Distance between generator sets (center-to-center): 513
- Distance between generator sets (center-to-center): 650
- Distance between generator sets (center-to-center): 837
- Distance between generator sets (center-to-center): 1500
- Distance between generator sets (center-to-center): 1200 PITCHES OF 200
- Distance between generator sets (center-to-center): 570
- Distance between generator sets (center-to-center): 385
- Distance between generator sets (center-to-center): 150
- Distance between generator sets (center-to-center): 311
- Distance between generator sets (center-to-center): 359.5
- Distance between generator sets (center-to-center): 70 CLEARANCE REQUIRED TO REMOVE SUMP.
- Distance between generator sets (center-to-center): 315
- Distance between generator sets (center-to-center): 315
- Distance between generator sets (center-to-center): 641
- Distance between generator sets (center-to-center): 75

Labels:

- RADIATOR FILLER 0.7 BAR RELIEF VALVE
- 18 SLOTS 19 WIDE X 19 HIGH (FOR DUCTING PURPOSES)
- FUEL LEAK-OFF CONN TO SUIT 15mm O/D PIPE. 'BITE' TYPE NON RETURN VALVE SUPPLIED 1 EACH SIDE (NO FUEL COOLER)
- Ø 20 HOLE FRONT LIFTING BRACKET (ENGINE ONLY) 1 EACH SIDE.
- IN THERMOSTAT HOUSING 1 EACH SIDE
- THERMOSTAT HOUSING 1 EACH SIDE
- THERMOSTAT HOUSING 1 EACH SIDE
- ELECTRONIC ACTUATOR
- FUEL INLET CONNECTION Ø 15 (OUTSIDE) STEEL PIPE. MAXIMUM FUEL LIFT 2.5 METRES WHEN FUEL TANK OUTLET IS LOWER THAN LIFT PUMP INLET A NON-RETURN VALVE MUST BE FITTED AT FUEL TANK. IF MAX FUEL LIFT FIGURE IS EXCEEDED CONSULT PERKINS TECHNICAL DEPT.
- CRANKSHAFT
- FUEL FILTER/ WATER SEPARATOR
- TORSIONAL VIBRATION DAMPERS
- RADIATOR DRAIN PLUG G1/2
- CONDENSATE DRAIN PLUG (WITH 3mm HOLE THRO) IN BOTTOM OF AIR TANK.

4012-46TAG1A / 4012-46TAG2A Temperate - Right hand side view



Technical drawing of a 1200 kW generator set, showing front and side views with dimensions and labels.

Dimensions:

- Overall Width: 1775
- Overall Height: 2255
- Front View Dimensions: 12.5, 464, 301, 301, 464, 12.5, 1400, 611, 235.3 ENGINE FEET, 25, 182, 182, 11.25
- Side View Dimensions: 12.5, 464, 301, 301, 464, 12.5, 2227, 646, 280, 39

Labels:

- AIR FILTER RESTRICTION INDICATOR, 1 EACH SIDE.
- 24V AIR SHUT-OFF VALVE ENERGISED TO CLOSE, 1 EACH SIDE
- REAR LIFTING BRACKET
- CRANKSHAFT
- CRANKSHAFT
- ROTATION
- SUMP DRAIN PLUG
- 16 HOLES M12 x 21 DEEP EQUALLY SPACED AS SHOWN
- 6 HOLES M16 x 30 DEEP EQUALLY SPACED ON $\varnothing$ 543 (33.5) PC
- CLEARANCE REQUIRED TO REMOVE FUEL FILTER

AIR FILTER RESTRICTION
INDICATOR. 1 EACH SIDE.

24V AIR SHUT-OFF VALVE
ENERGISED TO CLOSE.
1 EACH SIDE

-REAR LIFTING BRACKET

CRANKSHAFT

2255	OVERALL
2227	HEIGHT

CRANKSHAFT

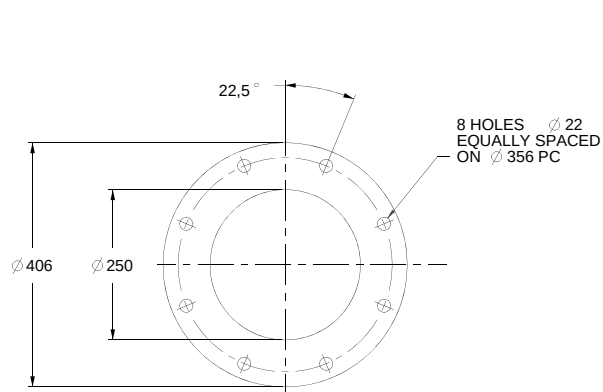
CLEARANCE REQUIRED TO
REMOVE FUEL FILTER

SUMP DRAIN PLUG

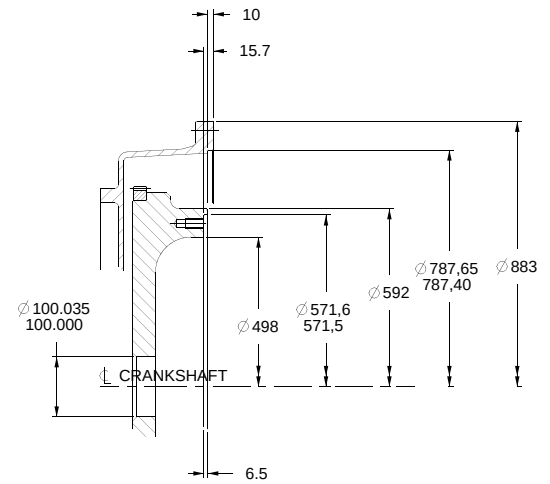
16 HOLES M12 x 21 DEEP
EQUALLY SPACED AS SHOWN

6 HOLES M16 x 30 DEEP
EQUALLY SPACED ON
Ø 543 (33.5) PC

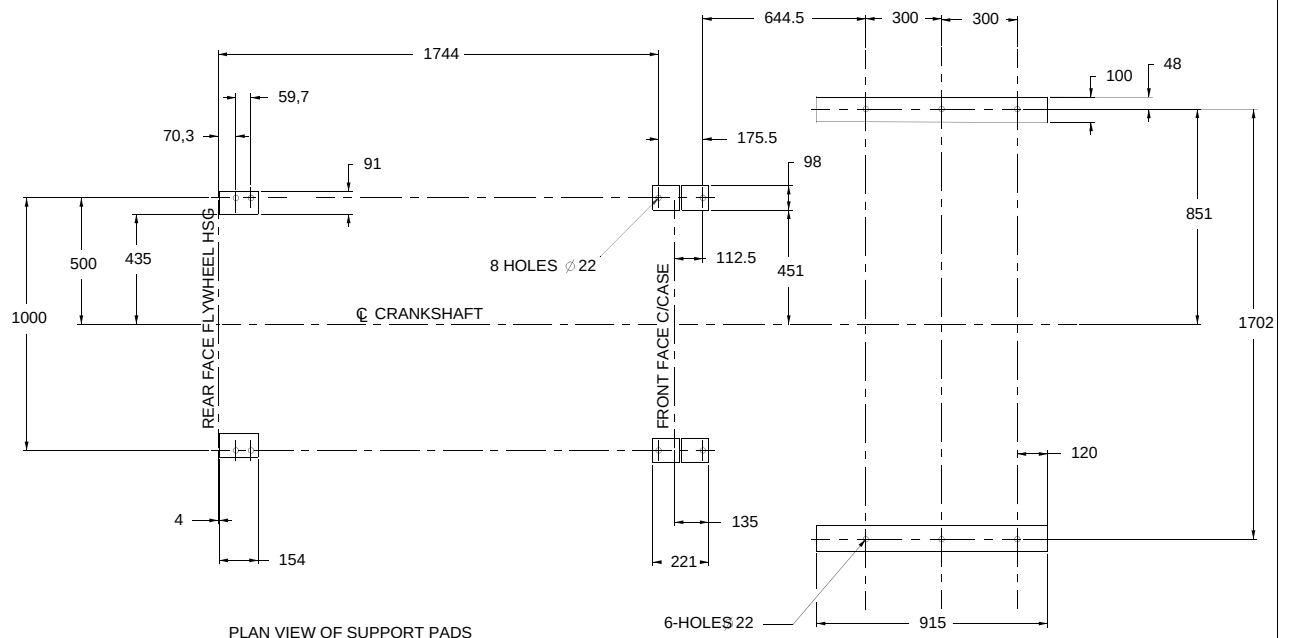
4012-46TAG1A / 4012-46TAG2A Temperate - Plan view of support pads, exhaust outlet flange and flywheel



DETAIL OF EXHAUST OUTLET FLANGE
(B.S.10 TABLE D)
SCALE 1:5

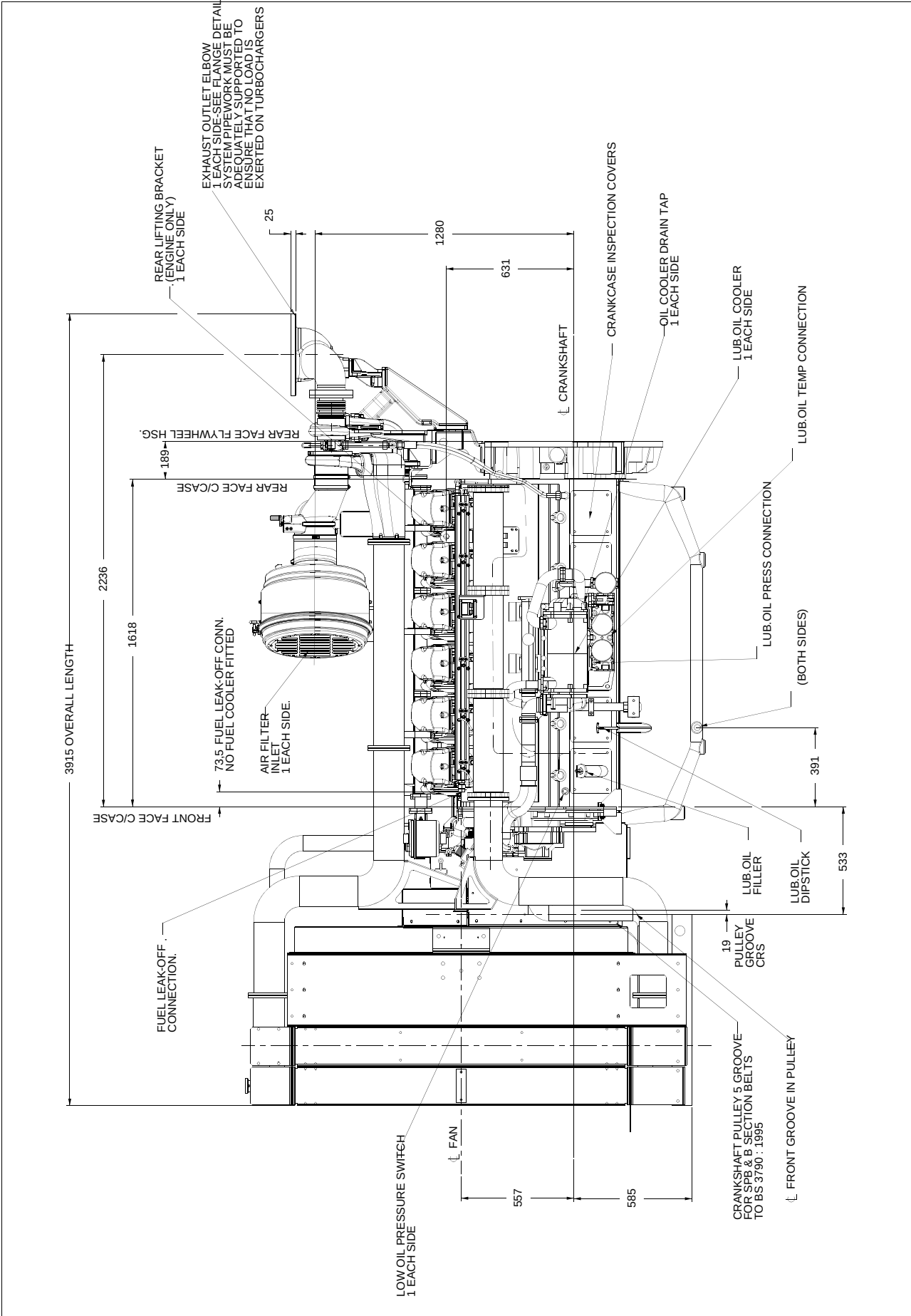


DETAIL OF SAE 518 FLYWHEEL
AND SAE 00 FLYWHEEL HOUSING
(METRIC TAPPINGS)
SCALE 1:5

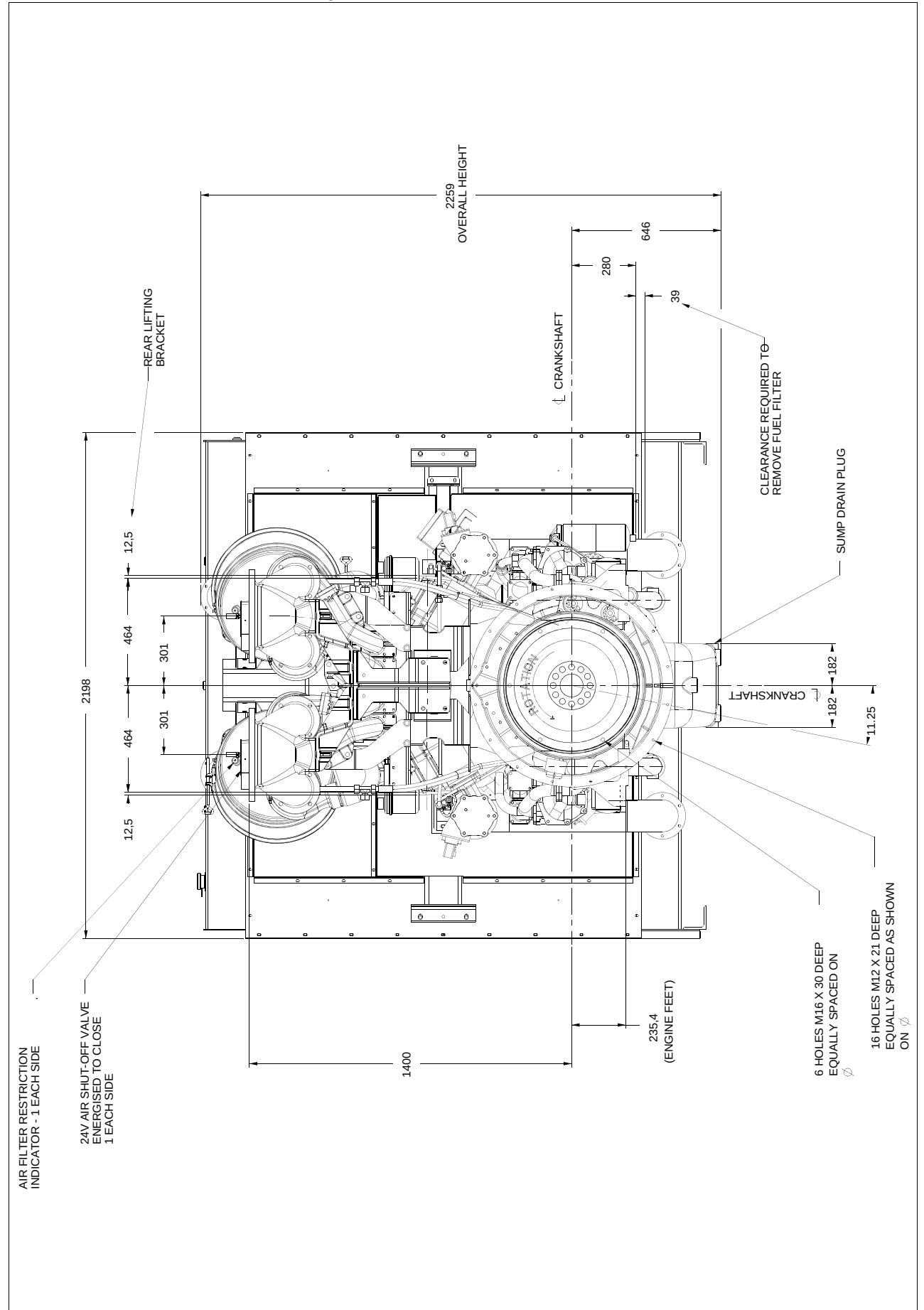


PLAN VIEW OF SUPPORT PADS

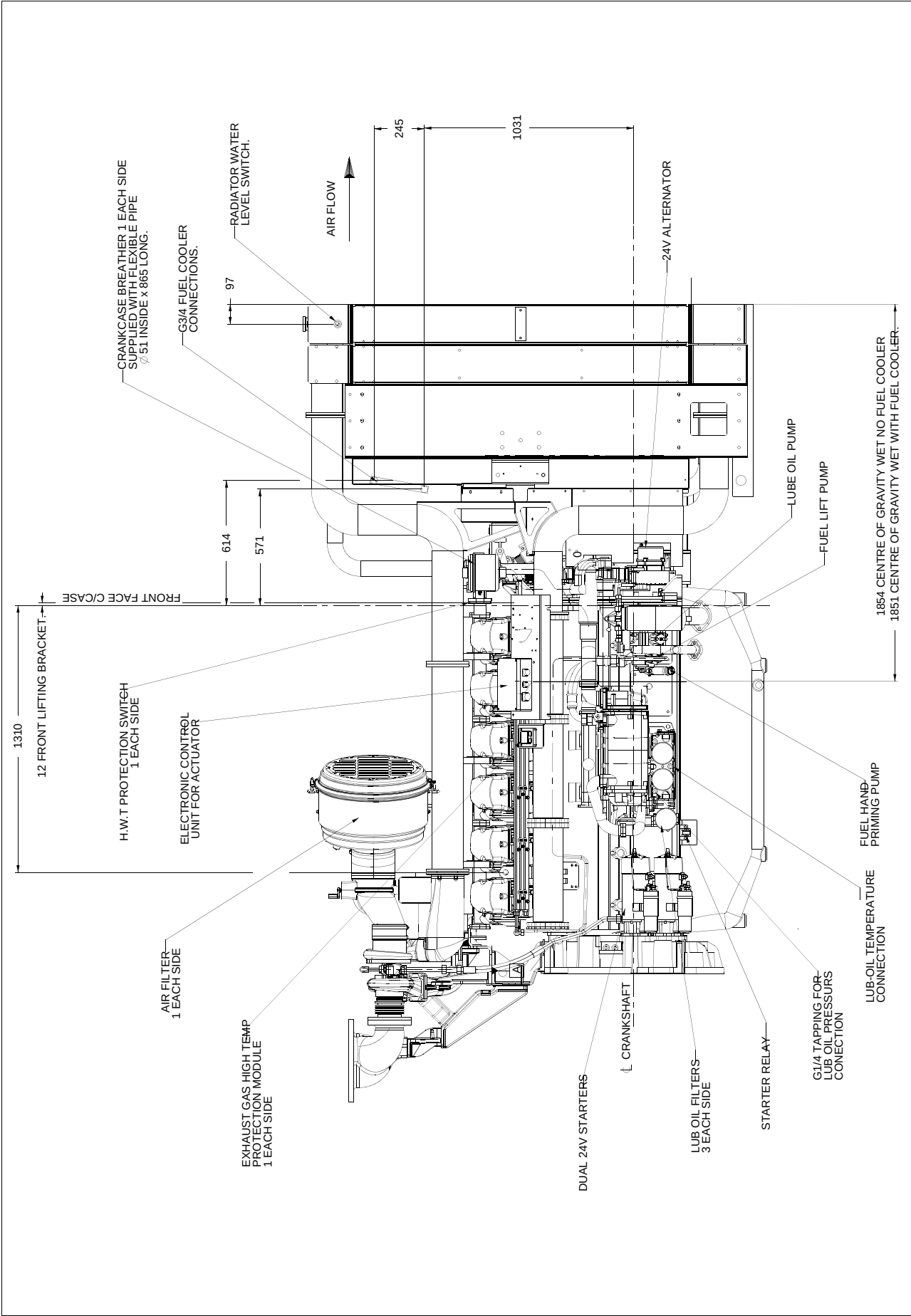
4012-46TAG1A / 4012-46TAG2A Tropical - Left hand side view



4012-46TAG1A / 4012-46TAG2A Tropical - Front view



4012-46TAG1A / 4012-46TAG2A Tropical - Right hand side view



2160 CRS

2112 OVER MATRIX

1056

522 FUEL COOLER CONNECTION.

513

513

315

315

14 SLOTS 19 WIDE x 11 HIGH (FOR DUCTING PURPOSES)

RADIATOR FILLER 0.7 BAR RELIEF VALVE.

FUEL LEAK -OFF CONNECTION TO SUIT 15mm O/D PIPE BITE TYPE-NON RETURN VALVE SUPPLIED 1 EACH SIDE- NO FUEL COOLER.

20 HOLE FRONT LIFTING BRACKET (ENGINE ONLY) 1 EACH SIDE.

1500 6 PITCHES OF 250

1662 OVER MATRIX

570

385

392

311

10

TORSIONAL VIBRATION DAMPERS

70 CLEARANCE REQUIRED TO REMOVE SUMP.

CRANKSHAFT

641

FUEL COOLER WHEN FITTED

THERMOSTAT HOUSING.

THERMOSTAT HOUSING.

THERMOSTAT HOUSING 1 EACH SIDE.

ELECTRONIC ACTUATOR

FUEL INLET CONNECTION 15 (OUTSIDE STEEL PIPE) MAXIMUM FUEL LIFT 2.5 METRES WHEN FUEL TANK OUTLET IS LOWER THAN LIFT PUMP INLET A NON RETURN VALVE MUST BE FITTED AT FUEL TANK. IF MAX FUEL FIGURE IS EXCEEDED CONSULT PERKINS TECHNICAL DEPT.

385

75

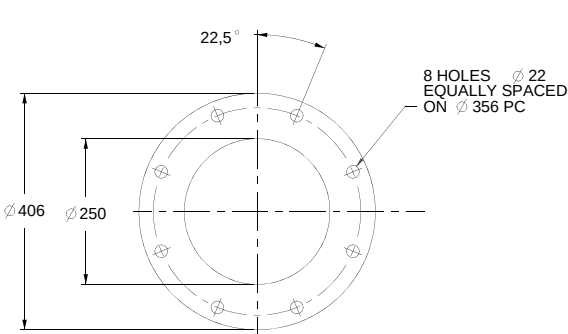
CRANKSHAFT

FUEL FILTER/WATER SEPARATOR

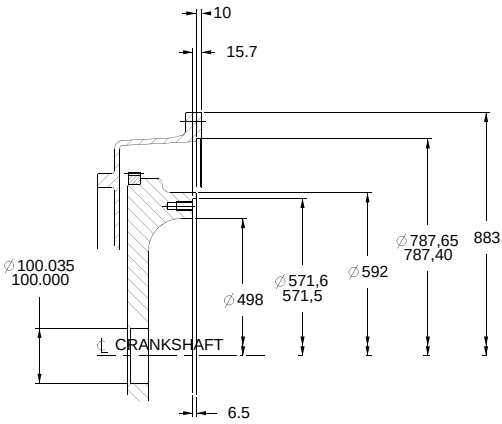
RADIATOR DRAIN

CONDENSAGE DRAIN PLUG WITH 3mm HOLE THRO IN BOTTOM OF AIR TANK.

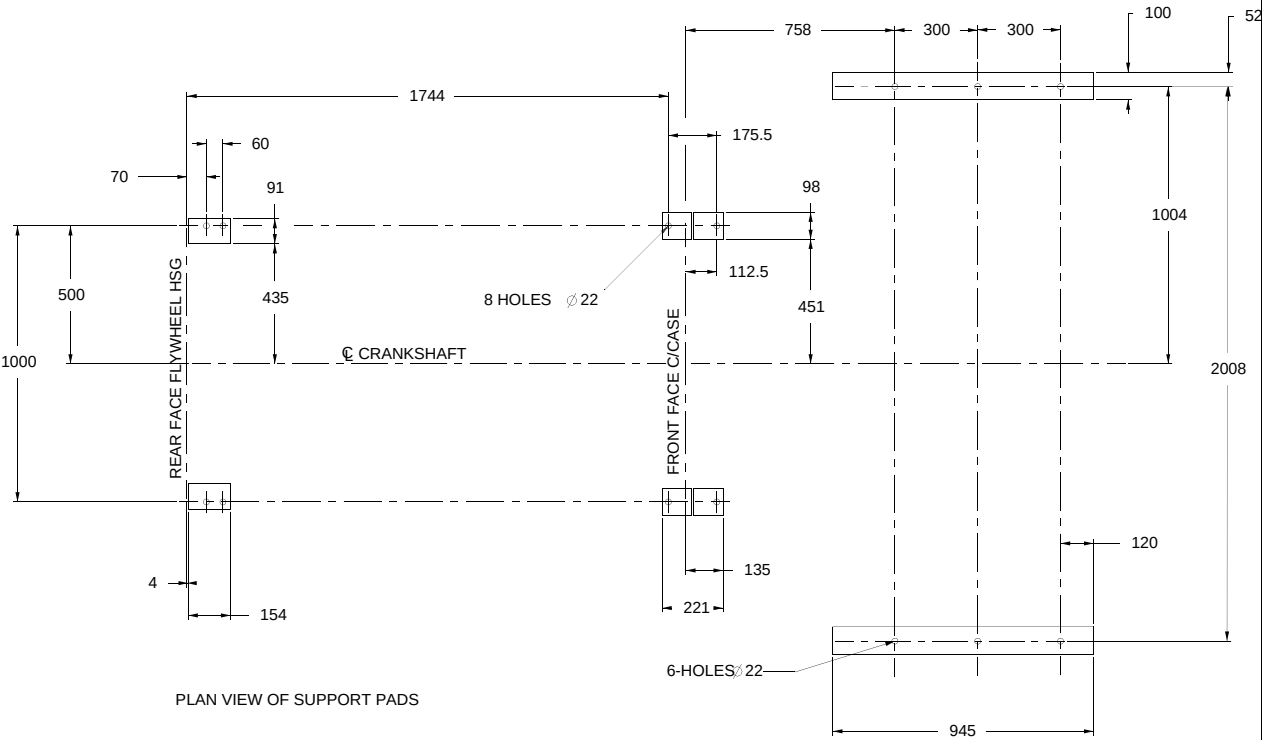
4012-46TAG1A / 4012-46TAG2A Tropical - Plan view of support pads, exhaust outlet flange and flywheel



DETAIL OF EXHAUST OUTLET FLANGE
(B.S.10 TABLE D)
SCALE 1:5

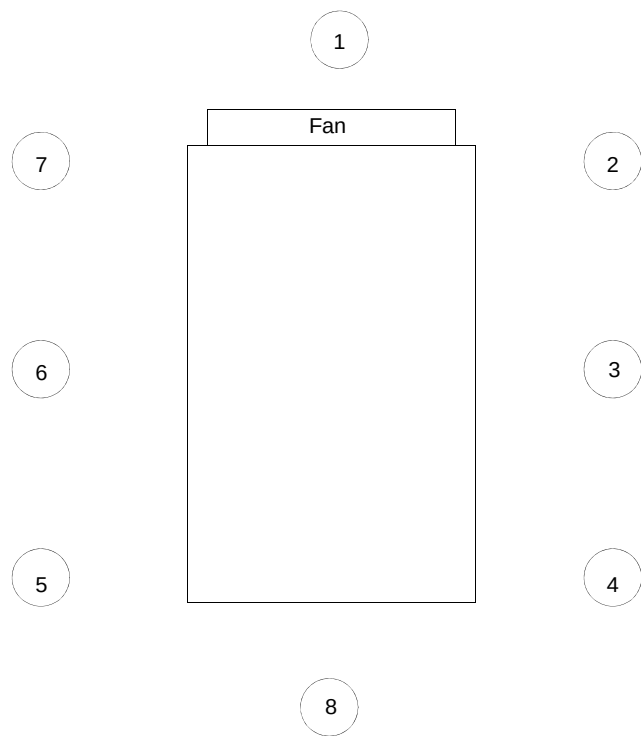


DETAIL OF SAE 518 FLYWHEEL
AND SAE 00 FLYWHEEL HOUSING
(METRIC TAPPINGS)
SCALE 1:5



PLAN VIEW OF SUPPORT PADS

Noise



Noise Levels
The figures for total noise levels are typical for an engine running at Standby Power rating in a semi-reverberant environment and measured at a distance of one metre from the periphery of the engine.

Total Noise Level
Sound pressure level re: -20x10 Pa
Ambient noise level 79 dBA
Octave analysis performed at the position of maximum noise.

ENGINE 1500 RPM POWER STANDBY
1/3 (1/1 bandwidth)OCTAVE ANALYSIS

SITE			
POSN.	DBA	HZ	DB AT POSN ...6...
1	114	31.5	90.2
2	113	63	101
3	111	125	104
4	110	250	112
5	110.5	500	109
6	111	1k	107
7	110.5	2k	104
8	107	4k	101
		8k	100

POSN.	DBA	HZ	DB AT POSN ...6...
1	114	31.5	90.9
2	113	63	101
3	111	125	104
4	110	250	110
5	110	500	109
6	111	1k	106
7	110	2k	103
8	107	4k	100
		8k	99
		16k	98

POSN.	DBA	HZ	DB AT POSN ...6...
1	114	31.5	91
2	113	63	101
3	111	125	104
4	110	250	110
5	110	500	109
6	111	1k	106
7	110	2k	103
8	107	4k	100
		8k	99
		16k	98

AMBIENT NOISE...79.....DBA

d(B)ATypical load acceptance (cold)

Engine type	Initial Load Acceptance When engine reaches rated speed (15 seconds maximum after engine starts to crank)				2nd Load Application Immediately after engine has recovered to rated speed (5 seconds after initial load application)			
	Prime power%	Load kW _e Nett	Transient frequency deviation %	Frequency recovery time seconds	Prime power%	Load kW _m Nett	Transient frequency deviation %	Frequency recovery time seconds
4012-46TAG1A	73	800	≤ 10	5	27	291	≤ 10	5
4012-46TAG2A	71	860	≤ 10	5	29	344	≤ 10	5

The above figures were obtained under test conditions as follows:

Engine block temperature ... 40 °C
 Ambient temperature ... 25 °C
 Governing mode ... Isochronous
 Alternator inertia ... 50 kgm²
 Under frequency roll off (UFRO) point set to ... 49,5
 UFRO rate set to ... 16 v/hz
 LAM on / off ... on

Emissions chart

Spill timing 12°				
Rating	German TA- Luft @ <3 MW	German TA- Luft Limit @ >3 MW	French limits 2000 @ <500 hours/year	French limits 1500 @ >500 hours/year
4012-46TAG1A				
Baseload	Yes	Yes	Yes	No
Prime power	Yes	Yes	Yes	No
Standby	N/A	Yes	Yes	No
4012-46TAG2A				
Baseload	Yes	Yes	Yes	No
Prime power	N/A	Yes	Yes	No
Standby	N/A	Yes	Yes	No

German TA Luft legislation (1986) limits:

- NO_x ≤ 2000 mg/Nm³
- CO ≤ 650 mg/Nm³
- HC ≤ 150 mg/Nm³
- PM ≤ 50 mg/Nm³

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

Applied load is a percentage of generator electrical output efficiency as published in the general installation section of this data sheet.

The above data complies with the requirements of classifications 3 and 4 of ISO 8528-2 and G2 Operating Limits stated in ISO 8528-5.

The information given on this Technical Data Sheet is for standard engines, and for guidance only.

For ratings other than those shown contact Perkins Engines Company Limited, Stafford.



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All information in the document is substantially correct at the time of printing but may be subsequently altered by the company.

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