NEF67TE8P.S550 ROHS2

Brochure main description		@1500rpm	@1800rpm
Application & simbol		Power Generation	
Engine identication main		N67	
Engine identication rating	kW	239+/-5%	259+/-5%
Engine features		G-Drive	
Emission feature		RoHS2 Directive 2011/65/EU	

Main characteristics		@1500rpm	@1800rpm
Emission certification		RoHS2 Directive 2011/65/EU	
Commercial code (for order)		NEF67TE8P.S500	
Technical code (Pregnana productions, if needed)		-	
Technical code (original plant engine code, on engine block)		F4HFA615A*D	
Stand-by power (gross) [mech]	kW	244,5	263,5
Specific power	kW/l	36,5	39,3
Electric commercial power (estimation alternator power output)	kWe [kVA]	223	237
BMEP	bar	28,6	25,9
Oil consumption on mission (average)	% fuel comsumption	0,3	
Cycle		diesel 4 stroke	
Air charging system pattern		Turbocharged aftercooled air/air	
Number of cylinder		6	
Configuration (cylinder arrangement)		in line	
Bore	mm	104	
Stroke	mm	132	
Stroke / Bore		1,27	
Displacement	l	6.7	
Unit Displacement	l	1,12	
Bore pitch	mm	120	
Valves per cylinder		4	
Cooling system pattern		liquid	
Direction of rotation (looking flywheel)		anti-clockwise	
Compression ratio		17:1	
Firing order		1 - 5 - 3 - 6 - 2 - 4	
Injection type		direct	
Engine brake configuration		-	
Be10		8000	
Cylinder Head			
Single / Multiple		single	
Material		cast iron	
Head air circulation		crossflow	
Intake valve dia.	mm	33 ± 0,13	
Exhaust valve dia.	mm	33 ± 0,13	
Camshaft			
Layout		OHV	
Cam carrier		on inlet valve	
Material and Heat treatment		chilled cast iron	
Valve train		mechanical tappet & push rod	
Drivetrain (timing system)		gear tappet	

Main characteristics		@1500rpm	@1800rpm
Valve actuation		tappet & push rod	
Variable valve actuation system		no	
Cylinder block (crankcase)		No Structural	
Material of cylinder block		cast iron	
Type of liners		block liners	
Liners replaceable; (slip fit or interference fit)		no	
Bearing caps		machined cast iron	
Crankcase Ventilation		closed	
Oil separator		coalescent filter	
Crankshaft & counterweights			
Material		forged Steel	
Acceptable Inertia (clutch)	kgm^2	0,71	
Balancing		-	
Turbocharger & EGR system			
Turbocharger type		wastegate	
Turbocharger supplier		Cummins	
Turbocharger control		WG pneumatic control	
Max turbine inlet temperature	°C	730	
Max boost pressure	mbar	200	
Method of cooling the turbocharger		lubricated / oil	
Turbo protection devices		-	
EGR		internal EGR	
EGR control strategy		-	
Rate		-	
Valve		-	
Cooler		-	
Control		-	
Air mass measurement		-	
Exhaust flap			
Exhaust flap supplier		-	
Actuation type		-	
Exhaust flap cooling		-	
Switchability (1500-1800 rpm)			
Emission level 1500 rpm		Not Emissioned	
Emission level 1800 rpm		Not Emissioned	
Front power take off			
PTO type		-	
Max torque available from front of crankshaft (no side load)	Nm	-	
Power take off on gear train			
SAE A 9 teeth		-	
SAE A 11 teeth		-	
SAE B 13 teeth		-	
SAE B (DIN 5482)		-	
SAE 2B 15 teeth(ANSI B92,1)		-	
References values			
Engine dimension LxWxH (indicative values)	mm	1103 x 764 x 1164	
G-Drive Dimension LxWxH (indicative values)	mm	1787 x 814 x 1255	
Max permissible engine inclination	deg	25	

Main characteristics		@1500rpm	@1800rpm
Engine Weight - Dry (no fluids, value purely indicative)	kg	550	
Engine Weight - Wet (with fluids, value purely indicative)	kg	570	
G-Drive Weight - Dry (no fluids, value purely indicative)	kg	627	
G-Drive Weight - Wet (with fluids, value purely indicative)	kg	670	
Center of gravity (FFOB or RFOB according to picture, standard engine layout)	mm	-	
Principal moment of inertia (reference on center of gravity ,standard engine layout)	kgm^2	-	
Principal moment of inertia (reference matrix based on center of gravity,standard engine layout)	kgm^2	-	
Center of gravity (FFOB or RFOB according to picture, standard IPU/G-Drive layout)	mm	-6,88; 177,5; 408,8	
Principal moment of inertia (reference on center of gravity ,standard IPU/G-Drive layout)	kgm^2	3,84e+01; 9,06e+01; 1,06e+02	
Principal moment of inertia (reference matrix based on center of gravity,standard IPU/G-Drive layout)	kgm^2	3,84e+01; 9,06e+01; 1,06e+02	
Mass moment of inertia - rotating components (excluding flywheel)	kgm^2	0,33	
Mass moment of inertia - standard flywheel	kgm^2	0,7 - 1,3	
Bending moment on the flywheel housing	Nm	-	
Bending moment on PTO	Nm	-	
Max static mounting surface load	N	N/A	
Intermittent load:	MPa	N/A	
Continuous load:	MPa	15	
Rear main bearing load	MPa	N/A	
0 deg	Nm	100	
90 deg	Nm	270	
180 deg	Nm	270	
Environmental operating conditions			
Max altitude for declared performances	m	1000	
Max ambient temperaturefor declared performances	°C	40	
Min guaranteed temperature for cold start w/o any aid (stand alone engine)	°C	-15	
Min guaranteed temperature for cold start with grid heater (stand alone engine)	°C	-20	
Min guaranteed temperature for cold start with grid heater and block heater (stand alone engine)	°C	-30	
Time preheating for manifold heater	s	-3 °C: 0; -30 °C 21	
Time post heating for manifold heater	s	-3 °C: 0; -20 °C: 200	
Low idle continuous operation time (reccomended)	h	3	
Engine performance			
Continuous power (gross) [mech]	kW	179	193,6
Prime power (gross) [mech]	kW	222,3	239,5
Stand-by power (gross) [mech]	kW	244,5	263,5
Fan consumption [mech]	kW	5	8,6
Continuous power (net) [mech]	kW	172,8	183
Prime power (net) [mech]	kW	217,3	230,9
Stand-by power (net) [mech]	kW	239,5	254,4
Typical generator output	kW	223	237
Generator available power @ Prime power	kW	160	170
Generator available power @ Stand by	kW		

Main characteristics		@1500rpm	@1800rpm
Power limitation according to ambient conditions			
Ambient temperature above xx°C	%/5°C (xx°C)	2	
Altitude > 1000 < 3000m above sea level	%/500m	3	
Altitude > 3000m above sea level	%/500m	6	
Power limitation due to safety protections			
Max water temperature (Switch on of the MIL lamp)	°C	104	
Start derating: switch on of the warning coolant temperature lamp (amber color)	°C	106	
Max derating (50% derating) switch on of the high coolant temperature lamp (redcolor)	°C	110	
Altitude level: gradual reduction of transient response by smoke map correction from	m	2000	
Fuel temperature	°C	70	
Intake manifold air temperature	°C	70	
Max allowed exhaust temperature	°C	600	
Turbine overheating protection	°C	700	
Turbine overspeed protection	rpm	140000	
Oil temperature protection	°C	125	
Oil pressure protection	bar	N/A	

Fuel System		
Fuel density	kg/l	0,84
Injection system type		common rail
Injection pump manufacturer		Bosch
Injection model type		-
Injection model pump		CP3.3
Injection pressure	bar	1600
Injector		CRIN2 Euro VI
Injector installation (sleeve, sealing flat or conical)		-
Injector nozzle		-
Engine fuel compatibility		see GOLD Documentation on fluids
Feed pump		-
Max flow	l/h	-
Nominal feed pressure	bar	-
Fuel filter		Multilayer Stratapore. Diam 93, Lenght 191
Delta pressure on fuel filter	bar	0,2
Max continuous allowable fuel temperature (without derating)	°C	70
Max relative pressure at gear pump inlet	bar	0
Min relative pressure at gear pump inlet	bar	-0,5
Max back flow relative pressure	bar	0,2
Max back flow restriction	bar	0,2
Max heat rejection to return fuel	kW	0,65
Max fuel flow	kg/h	455
Min fuel tank venting requirement	m^3/h	0,4
Prefilter / Water separator micron size	µm	30

Air Intake System	@1500rpm	@1800rpm
Aftercooling type (air to air or water to air)	air to air	
Interstage cooling type	-	

Air Intake System		@1500rpm	@1800rpm
RoA (Temperature raise between ambient and inlet to engine	°C	≤ 25	
Filter air intake temperature (warm air ricirculatuion)	°C	≤ 5	
Max intake manifold temperature	°C	50	
Compressor inlet pressure (with new air filter)	hPa	≥ - 0,045	
Compressor inlet pressure (with dirty air filter)	hPa	≥ - 0,065	
Air filter type		dry	
Loads on turbocharger on compressor intake	kg	≤ 2,5	
Loads on turbocharger on compressor outlet	kg	≤ 2,5	
Charge air flow (max)	kg/h	923	1093

Exhaust System		
Max back pressure (after exhaust flap) @ rated power with clean system	hPa	0,2
Max mechanical load on turbine flange	kg	0
Max exhaust flow rate	kg/h	1048
Energy to exhaust	kcal/kWh	560@1500rpm

Lubrication System		
Oil sump capacity	l	15,8
Max	l	15
Min	l	8
Oil system capacity including filter	l	17
Oil pump type		Volumetric
Oil pump drive arrangement		by gear
Min oil pump flow	l/min	12
Max oil pump flow (@rated speed)	l/min	50
Min oil pressure @ low idle (engine oil temp at 120°C)	kPa (bar)	0,6
Min oil pressure @ rated speed (engine oil temp at 120°C)	kPa (bar)	2,5
Max oil pressure @ rated speed (engine oil temp at 120°C)	kPa (bar)	3,5
Max oil temperature @ full load (in main gallery)	°C	< 120
Max oil pressure peak on cold engine	bar	15
Oil cooler type		water cooled
Transducer for indicating oil temperature and pressure		signal from ECU
Max engine angularity - longitudinal / transversal (std oil pan)	deg	25
Allowed engine gradability during installation on vehicle	deg	0
Oil servicing intervals	h	600
Oil filter type		cartrige
Oil filter capacity	l	1
Max oil content admitted in blow by gas (after filter)	g/h	0,3
Approved engine oil specifications		10W-40 TD6201009 spec. CJ-4
Oil for cold condition mission (T° ambient < -25°C)		- 5W-30 ACEA E4 (according to FPI9.LUBR001-TFE) ◦ prodotto raccomandato: Petronas Urania FE; - 0W-40 API CI-4 (according to MAT 3507) ◦prodotto raccomandato: AMBRA Mastergold HSP SSL SAE 0W-40 / Akcela No.1 SAE 0W-40

Cooling system		@1500rpm	@1800rpm
Type (water to water or air to water)		water to air	

Cooling system		@1500rpm	@1800rpm
Recommended coolant		see dedicated goldbook documents on fluids	
Min radiator cap pressure	kPa	0,7	
Warnnig setting first threshold	°C	103	
Max additional restriction	Pa	-	
Air to boil (prime power, open genset configuration)	°C	57-60	
Air to boil (stand by, open genset configuration)	°C	52-56	
EGR Cooler water flow (for ΔT=6°C)	l/s	-	
LP-CAC water flow (for ΔT=6°C)	l/s	-	
Diameter	mm	685	
Number of blades		12	
Drive ratio		1,4:1	
Core dimensions LxWxh	mm	900 X 708 X 52	
Dry weight	kg	54	
Radiator coolant capacity	l	8	
Optimum coolant temperature range @engine out (50% glycol)	°C	-	
Engine Water pump Type		centrifuge	
Engine water pump drive		belt	
Coolant capacity (engine only)	l	12,6	
Coolant capacity (radiator & hoses)	l	15	
Thermostat type		wax	
Thermostat position		on cylinder head	
Thermostat opening / fully open temperature	°C	80 ÷ 90	
Recommended coolant circuit pressurization range (relative)	hPa	N/A	
Coolant engine pressure outlet – inlet (delta pressure, open thermostat, high idle conditions)	hPa	< 0,2	
Coolant engine pressure outlet – inlet (only with remote thermostat, ex. retarder)	hPa	-	
Min coolant pressure (no pressure cap and thermostat closed)	hPa	1	
Coolant water pump inlet pressure (water temperature 60-100°C)	hPa	0,5	
Coolant flow to radiator @rated speed	l/h	N/A	
Min coolant expansion space (% total cooling system capacity)	%	Expansion Tank Volume (and max level) must consider also coolant thermal expansion to avoid coolant loss in high temperature conditions. Thi can be checked in ATB Power test	
Max coolant flow to accessories @ rated speed from cab heater	l/min	N/A	
Engine out coolant to ambient @rated speed	delta °C	-	
Engine out coolant to ambient @torque speed	delta °C	-	
Charge air cooler outlet to ambient @max rpm - CAC dT	delta °C	-	
Coolant engine flow	l/min	156	186

Electrical, Electronic and Control Systems		
System voltage	V	24
Engine control unit		MD1CE101
ECU software		P1603v454r28
ECU Vehicle connection		interface Box
ECU operating range	°C	-40 ÷ +125
Temperature of ECU case for <5' after power up	°C	85

Electrical, Electronic and Control Systems		
ECU rated continuous temperature	°C	80
ECU communication protocol		CAN (XCP Protocol)
Min power supply for ECU operation	V	9
Max power supply for ECU operation	V	36
Battery wire connection resistance value @20°C (from battery to ECU)	mΩ	RT30= 8,1 - 16,7 mΩ (+20°C ; PE=0%) ; RT50= < 85
Diagnostic system		On board, Deutch Connector (11 poles)
Min cranking speed TDC @-30°C	rpm	90
Average cranking speed	rpm	130
N° tooth pinion/crown gear		10/125
Min battery voltage	V	(24V a vuoto) 18
Mean battery voltage	V	(24V a vuoto) 18,4
Min battery current	Ah	min 44, 357 CCA (or 50342)
Mean battery current	Ah	max 110, 765 CCA (or 50342)
Max starting circuit resistance (to starter)	mΩ	RT30= 8,1-16,7 mΩ (+20°C ; PE=0%) ; RT50= < 85

Cold starting		
Without air preheating	°C	-15
With air preheating (if available)	°C	-25

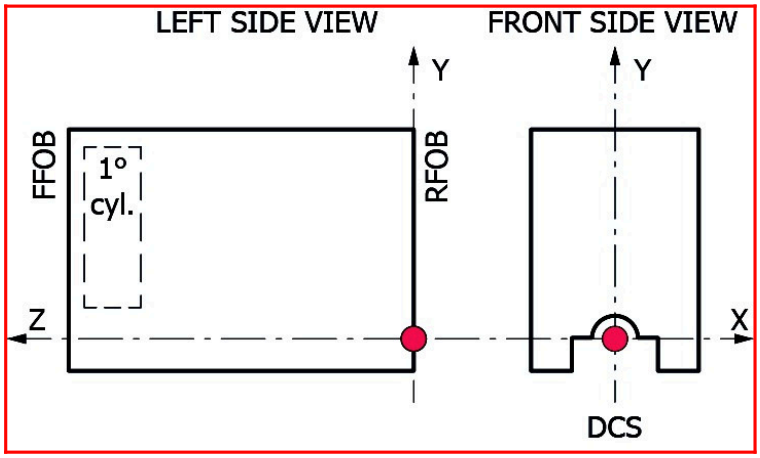
Emission gaseus and particulales		
NOX (Oxides of nitrogen)	g/kWh	-
HC (Hydrocarbons)	g/kWh	-
NOX+HC	g/kWh	-
CO (Carbon monoxide)	g/kWh	-
PT (Particlutes)	g/kWh	-
CO2 (Carbon Dioxide)	g/kWh	-

Maintenance	
Oil drain interval	see dedicated GOLD Book document
Oil filter change	see dedicated GOLD Book document
Oil refilling time	see dedicated GOLD Book document
CCV filter change	see dedicated GOLD Book document
Fuel filter change	see dedicated GOLD Book document
Fuel pre-filter change	see dedicated GOLD Book document
Belt replacement	see dedicated GOLD Book document
Valve lash check /adjustment	see dedicated GOLD Book document
Coolant change	see dedicated GOLD Book document

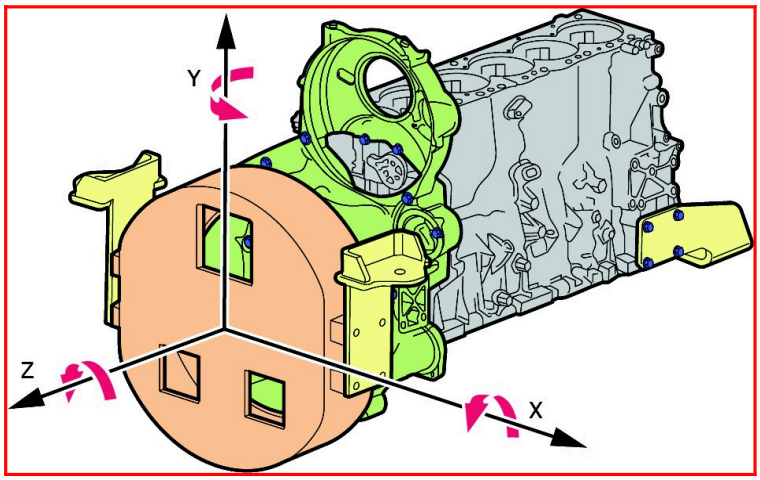
Engine Noise		
Overall sound pressure (engine only)	dBA	N/A
Overall sound pressure (with accessories only)	dBA	N/A
Exahust noise (w/o Muffler)	dBA	N/A
Noise spectrum (octave analysis performed at the position of maximum noise) - diagram	Table dB-Hz	-

Step Load		@1500rpm	@1800rpm
G1 (% of PrP)	%	60	75
G2 (% of PrP)	%	55	67
G3 (% of PrP)	%	62,5	-

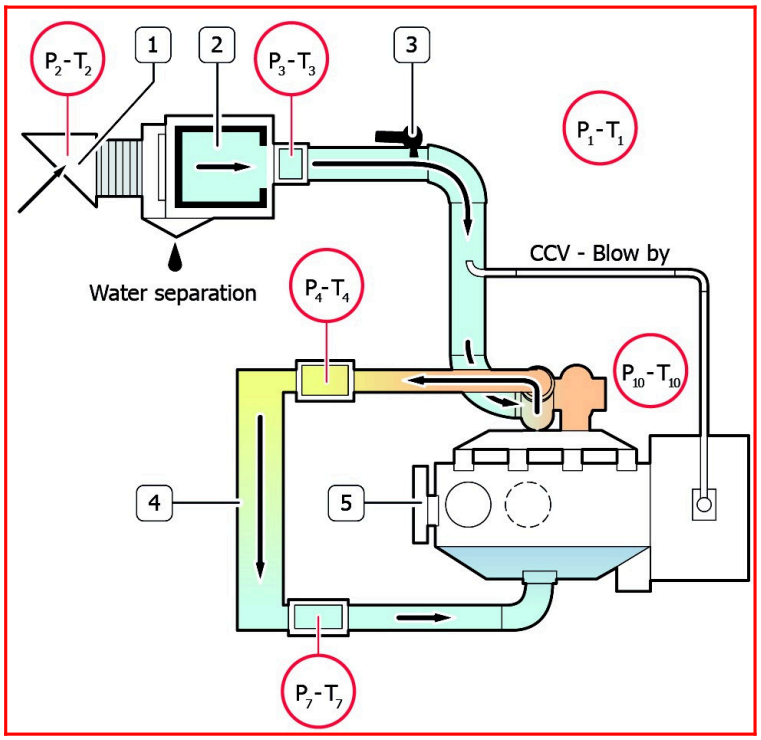
Maximum Rating Performance Data			
Torque	Nm	1560	1395
Ambient Temperature	°C	21	21
EGR Rate	%	-	-
Fuel Flow	g/s	-	-
Fuel consumption (BSFC) (prime power)	(kg/h) [g/kWh]	(43.3) [198]	(46.9) [197]
Fuel consumption (BSFC) (stand by)	(kg/h) [g/kWh]	(48.1) [205]	(53.6) [203]
Fuel consumption (BSFC) (80% prime power)	(kg/h) [g/kWh]	(32.6) [195]	(37.5) [194]
Fuel consumption (BSFC) (50% prime power)	(kg/h) [g/kWh]	(20.9) [194]	(24.2) [195]
Fuel consumption (BSFC) (25% prime power)	(kg/h) [g/kWh]	(12,1) [217,2]	(13,6) [237,9]
Exhaust Gas Flow	kg/h	-	-
EGR flow	kg/h	-	-
EGR pressure	kPa	-	-
Boost pressure (compressor outlet)	kPa	N/A	N/A
Pressure drop on charge air cooling system	kPa	N/A	N/A
Max temperature after HP-Compressor	°C	N/A	N/A
Boost temperature (includes EGR effect)	°C	N/A	N/A
Back pressure before DOC	kPa	-	-
Exhaust Gas Temp between HP-TC	°C	N/A	N/A
Max Exhaust Gas Temp (after TC)	°C	N/A	N/A
Max admitted back pressure after SCR	kPa	-	-
Max admitted back pressure after TC	kPa	N/A	N/A
Power engine coolant without EGR & CAC (prime power)	kW [kcal/kWh]		
Power engine coolant without EGR & CAC (stand by)	kW [kcal/kWh]		
Power high Temperature EGR Cooler (engine water) (prime power)	kW [kcal/kWh]	-	-
Power high Temperature EGR Cooler (engine water) (stand by)	kW [kcal/kWh]	-	-
Power LP-CAC (engine water) (prime power)	kW [kcal/kWh]	N/A	N/A
Power LP-CAC (engine water) (stand by)	kW [kcal/kWh]	N/A	N/A
Total water cooling power of engine (prime power)	kW [kcal/kWh]	N/A	N/A
Total water cooling power of engine (stand by)	kW [kcal/kWh]	N/A	N/A
Total pump water flow	l/s	N/A	N/A
Radiator Coolant Flow (5% less if continuous deareating system, coolant according to FPT norms)	l/min	N/A	N/A
EGR Cooler water flow (for ΔT=6°C)	l/s	-	-
LP-CAC water flow (for ΔT=6°C)	l/s	N/A	N/A
Total CAC power (air to air) (prime power)	kW [kcal/kWh]	N/A	N/A
Total CAC power (air to air) (stand by power)	kW [kcal/kWh]	N/A	N/A



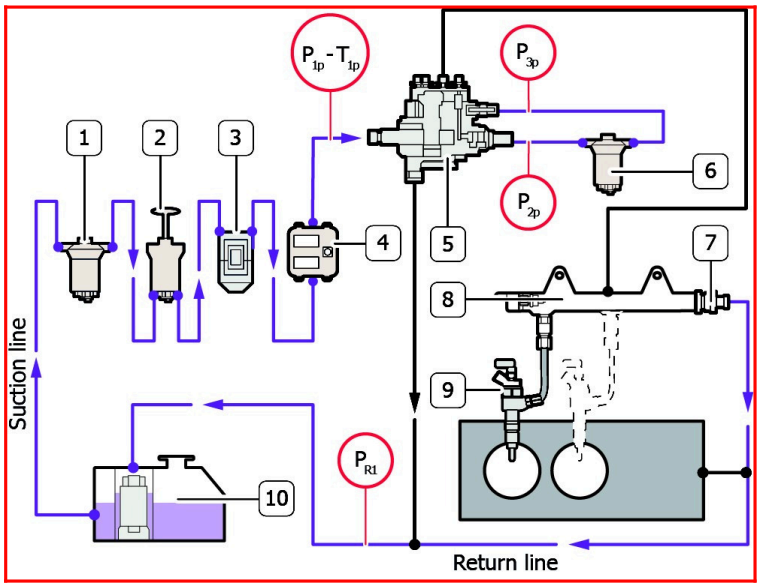
Principal Moment of Inertia



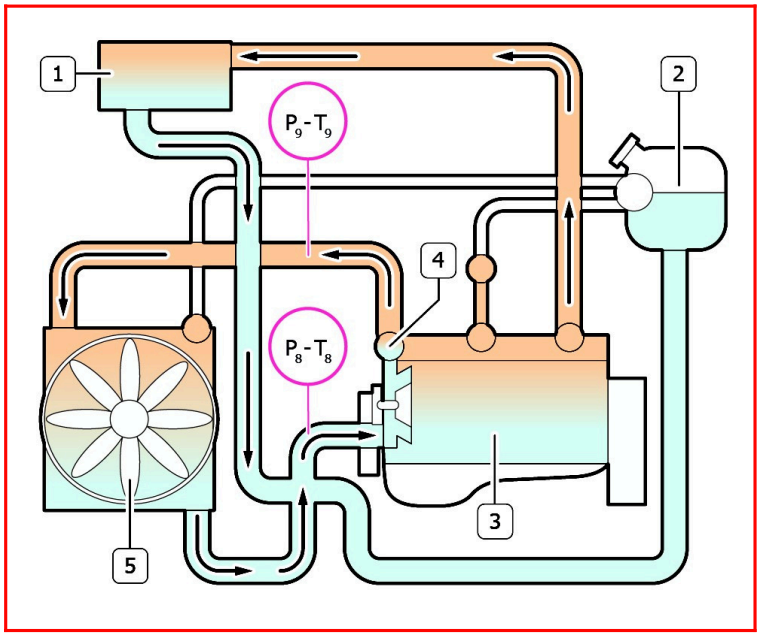
Components



1.Snorkel 2.Air Filter 3.Humidity sensor 4.Intercooler



1.Inspection glass with strainer 2.Prime pump 3.Pre-filter with water separator 4.ECU 5.High Pressure pump 6.Fuel Filter 7.Overpressure valve 8.Common Rail 9.Injectors 10.Fuel tank



1.Heating element 2.Expansion tank 3.Engine 4.Thermostat 5.Radiator

ACRONYMS LIST

Acronyms	Description
-	Not Needed
2stTC	Two Stage Turbo (sequential)
Ag	Agricultural
ASC	Ammonia Slip Catalyst (same as CUC)
ATS	After Treatment System
BSFC	Brake Specific Fuel Consumption
CAC	Charge Air Cooler
CCDPF	Close Coupled DPF
CCV	Crankcase Ventilation
CE	Construction Equipment
CI	Cast Iron
CRS	Common Rail System
CRSN	Common Rail System NKW (Commercial vehicles)
CUC	Clean Up Catalyst for ammonia (same as ASC)
DAVNT	Dual Axis Variable Nozzle Turbine
DCS	Drawing Coordinate System
DI	Direct Injection
DOC	Diesel Oxidation Catalyst
DOHC	Double Over Head Camshaft
DPF	Diesel Particulate Filter
ECEGR	External Cooled EGR
ECU	Engine Control Unit
EEGR	External EGR
EGR	Exhaust Gas Recirculation
epWG	Electro pneumatic WG
eVGT	Electrical VGT
eWG	Electrical WG
FFOB	Front Face of Block
FGT	Fixed Geometry Turbocharger (no WG)
FIE	Fuel Injection System
HD	Heavy Duty
HLA	Hydraulic Lash Adjusters
IDI	Indirect Injection

Acronyms	Description
iEGR	Internal EGR
IPU	Industrial Power Unit
ISC	Interstage Cooling
LD	Light Duty
LDCV	Light Duty Commercial Vehicles
LH	Left Hand Side
LWR	Laser Welded Rail
MD	Medium Duty
n/a	Not Available
NA	Natural Aspirated
NS	Non Structural
OHV	Over Head Valves
OPT	Option
PCP	Peak Cylinder Pressure
PTO	Power Take Off
RFOB	Rear Face of Block
RH	Right Hand Side
S	Structural
SAPS	Sulphated Ash, Phosphorus, Sulphur
SCR	Selective Catalytic Reduction catalyst
SCRoF	SCRon filter
SOHC	Single Over Head Camshaft
STD	Standard
TC	Turbocharged
TCA	Turbocharged, Charge Air Cooled
THM	Thermal Management
UFDPF	Under Floor DPF
UQS	Urea Quality Sensor
VE	Bosch Distributor Mechanical Pump
VFT	Variable Flow Turbine
VGT	Variable Geometry Turbocharger
WG	Waste Gate Turbocharger
XPI	Extra high Pressure Injection (Scania, Cummins)

Unit of misure according to international system of unit. Engine accessories and Options available on Option List. All data is subject to change without notice.

UPDATING

Revision	Description	Date
Revision 1.1_Mar 2020		May/2020
Revision 1.2_May 2020		May/2020
Revision 1.3_Jul 2020		August/2020