



# F34TEVP01.00

## G-DRIVE TIER 4B\_STAGE V



| Brochure main description                                      |                    | @1500rpm  | @1800rpm                      |
|--|--------------------|---|-------------------------------|
| <b>Application &amp; simbol</b>                                |                    | Power Generation                                      |                               |
| Engine identification main                                     |                    | F34   |                               |
| Engine identification rating                                   | kW                 | 55  | 55                            |
| Engine features  |                    | PG G-Drive  |                               |
| Emission feature   |                    | Tier4B_StageV   |                               |
| Main characteristics   |                    | @1500rpm  | @1800rpm                      |
| Emission certification   |                    | Tier 4B_Stage V                                       |                               |
| Commercial code (for order)                                    |                    | F34TEVP01.00  |                               |
| Technical code (original plant engine code, on engine block)   |                    | F5HGL415A*X001  |                               |
| Technical homologation code                                    |                    | F5HGL465A*X   |                               |
| Stand-by power (gross) [mech]                                  | kW                 | 55  | 55                            |
| Specific power   | kW/l               | 16,2  | 16,2                          |
| Electric commercial power (estimation alternator power output) | kWe [kVA]          | 48 [60] (generator eff. 0,88)                         | 47 [59] (generator eff. 0,88) |
| BMEP   | bar                | 12,9  | 10,8                          |
| Oil consumption on mission (average)                           | % fuel consumption | 0,25  |                               |
| Cycle  |                    | diesel - 4 stroke                                     |                               |
| Air charging system pattern                                    |                    | Turbocharged aftercooled                              |                               |
| Number of cylinder   |                    | 4   |                               |
| Configuration (cylinder arrangement)                           |                    | in line   |                               |
| Bore   | mm                 | 99  |                               |
| Stroke   | mm                 | 110   |                               |
| Stroke / Bore  |                    | 1,11  |                               |
| Displacement   | l                  | 3,4   |                               |
| Unit Displacement  | l                  | 0,85  |                               |
| Bore pitch   | mm                 | 110   |                               |
| Valves per cylinder  |                    | 2   |                               |
| Cooling system type  |                    | liquid  |                               |
| Direction of rotation (looking flywheel)                       |                    | anti-clockwise  |                               |
| Compression ratio  |                    | 17 : 1  |                               |
| Firing order   |                    | 1 - 3 - 4 - 2   |                               |
| Injection type   |                    | direct - electronic common rail                       |                               |
| Be10   |                    | 8000 h  |                               |
| <b>Cylinder Head</b>   |                    | N/A   |                               |
| Single / Multiple  |                    | single  |                               |
| Material   |                    | cast iron   |                               |
| Head air circulation   |                    | reverse-flow  |                               |
| Intake valve dia.  | mm                 | 41  |                               |
| Exhaust valve dia.   | mm                 | 37  |                               |
| <b>Camshaft</b>  |                    | N/A   |                               |
| Layout   |                    | OHV   |                               |
| Cam carrier  |                    | on block cylinder                                     |                               |
| Material and Heat treatment                                    |                    | C53 bon - harness 55 hrc on cammes                    |                               |
| Valve train  |                    | OHV valve train with valve pushrod and lower camshaft |                               |
| Drivetrain (timing system)                                     |                    | gear tappet   |                               |
| Valve actuation  |                    | tappet & push rod                                     |                               |



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| Main characteristics  |                  | @1500rpm         | @1800rpm  |
|---|------------------|------------------|---|
| Variable valve actuation system   |                  |                  | no  |
| Cylinder block (crankcase)  |                  |                  | No Structural   |
| Material of cylinder block  |                  |                  | cast iron   |
| Type of liners  |                  |                  | parent metal cylinder block                                   |
| Liners replaceable; (slip fit or interference fit)  |                  |                  | no  |
| Bearing caps  |                  |                  | machined cast iron  |
| Crankcase Ventilation   |                  |                  | closed  |
| Oil separator   |                  |                  | centrifugal   |
| <b>Crankshaft &amp; counterweights</b>  |                  |                  | N/A   |
| Material  |                  |                  | GH 90-52-05 AS 15-2218  |
| Acceptable Inertia (clutch)   | kgm <sup>2</sup> |                  | 0,8   |
| Balancing   |                  |                  | no  |
| <b>Turbocharger &amp; EGR system</b>  |                  |                  | N/A   |
| Turbocharger type   |                  |                  | fixed geometry with wastegate valve                           |
| Turbocharger supplier   |                  |                  | BorgWarner  |
| Turbocharger control  |                  |                  | WG pneumatic control  |
| Pressure after turbocharger compressor  | mbar             |                  | 2600  |
| Max turbine inlet temperature   | °C               |                  | N/A   |
| Temperature after turbocharger compressor   | °C               |                  | N/A   |
| Method of cooling the turbocharger  |                  |                  | oil lubricated  |
| Turbo protection devices  |                  |                  | wastegate and ECU derating                                    |
| EGR type  |                  |                  | yes   |
| EGR control strategy  |                  |                  | external cooled EGR   |
| EGR recirculation rate  |                  |                  | <10%  |
| Valve   |                  |                  | Ø 21  |
| Cooler  |                  |                  | water cooler  |
| Control   |                  |                  | from engine ECU   |
| Air mass measurement  |                  |                  | no  |
| <b>Exhaust flap</b>   |                  |                  | N/A   |
| <b>Switchability (1500-1800 rpm)</b>  |                  |                  | N/A   |
| Emission level 1500 rpm   |                  |                  | StageV  |
| Emission level 1800 rpm   |                  |                  | Tier4B  |
| <b>Front power take off</b>   |                  |                  | N/A   |
| <b>Power take off on gear train</b>   |                  |                  | N/A   |
| <b>References values</b>  |                  |                  | N/A   |
| Engine dimension LxWxH (indicative values)  |                  | mm               | 890 x 665 x 880   |
| G-Drive Dimension LxWxH (indicative values)   |                  | mm               | 1215 x 740 x 965  |
| Max permissible engine inclination  |                  | deg              | 30  |
| Engine Weight - Dry (no fluids, value purely indicative)  |                  | kg               | 390   |
| Engine Weight - Wet (with fluids, value purely indicative)  |                  | kg               | 400   |
| G-Drive Weight - Dry (no fluids, value purely indicative)   |                  | kg               | 435   |
| G-Drive Weight - Wet (with fluids, value purely indicative)   |                  | kg               | 450   |
| Center of gravity (FFOB or RFOB according to picture, standard IPU/G-Drive layout)                    |                  | mm               | x = 9 ; y = 148 ; z = -208                                    |
| Principal moment of inertia (reference on center of gravity ,standard IPU/G-Drive layout)             |                  | kgm <sup>2</sup> | I1 = 21 kgm <sup>2</sup> ; I2 = 32 kgm <sup>2</sup> ; I3 = 40 |
| Principal moment of inertia (reference matrix based on center of gravity,standard IPU/G-Drive layout) |                  | kgm <sup>2</sup> | N/A   |



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| Main characteristics   |                  | @1500rpm                   | @1800rpm   |
|--|------------------|----------------------------|--|
| Mass moment of inertia - rotating components (excluding flywheel)                                | kgm <sup>2</sup> |                            | N/A  |
| Mass moment of inertia - standard flywheel   | kgm <sup>2</sup> |                            | 1,189  |
| Bending moment on the flywheel housing   | Nm               |                            | N/A  |
| Flywheel housing SAE sizing  |                  |                            | N/A  |
| Flywheel SAE sizing  |                  |                            | N/A  |
| Max static mounting surface load   | N                |                            | N/A  |
| Crankshaft thrust bearing pressure limit   |                  |                            | N/A  |
| Intermittent load:   | MPa              |                            | N/A  |
| Continuous load:   | MPa              |                            | N/A  |
| Rear main bearing load   | MPa              |                            | N/A  |
| Max bending moment available from front of the crankshaft:                                       |                  |                            | N/A  |
| 0 deg  | Nm               |                            | 100  |
| 90 deg   | Nm               |                            | 300  |
| 180 deg  | Nm               |                            | 300  |
| <b>Environmental operating conditions</b>  |                  |                            | N/A  |
| Max altitude for declared performances   | m                |                            | 1676   |
| Max ambient temperature for declared performances  | °C               |                            | 40   |
| Min guaranteed temperature for cold start w/o any aid (stand alone engine)                       | °C               |                            | - 15 (with glow plugs)                               |
| Min guaranteed temperature for cold start with Air Heater (stand alone engine)                   | °C               |                            | - 23 (with glow plugs and fuel heater)               |
| Min guaranteed temperature for cold start with grid heater and block heater (stand alone engine) | °C               |                            | - 32 (with glow plugs, fuel heater and block heater) |
| Low idle continuous operation time (reccomended)   | h                |                            | N/A  |
| <b>Engine performance [*]</b>  |                  | N/A                        |  |
| Continuous power (gross) [mech]  | kW               | 39                         | 39   |
| Prime power (gross) [mech]   | kW               | 55                         | 55   |
| Stand-by power (gross) [mech]  | kW               | 55                         | 55   |
| Fan consumption [mech]   | kW               | 1                          | 1,4  |
| Continuous power (net) [mech]  | kW               | 39,8                       | 39,2   |
| Prime power (net) [mech]   | kW               | 54                         | 53,6   |
| Stand-by power (net) [mech]  | kW               | 54                         | 53,6   |
| Typical generator output   |                  | 88%                        | 88%  |
| Generator available power @ Prime power  | kW               | 47,5 (generator eff. 0,88) | 47,2 (generator eff. 0,88)                           |
| Generator available power @ Stand by   | kW               | 47,5 (generator eff. 0,88) | 47,2 (generator eff. 0,88)                           |
| <b>Power limitation according to ambient conditions</b>  |                  |                            | N/A  |
| 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  |
| <b>Power limitation due to safety protections</b>  |                  |                            | N/A  |
| Pre-Warning: first advice of high coolant temperature [**]. Switch-on of the amber lamp          | °C               |                            | 104  |
| Warning: second advice of high coolant temperature [**]. Switch-on of the red lamp               | °C               |                            | 110  |
| Start of derating  | °C               |                            | 108  |
| Altitude level: gradual reduction of transient response by smoke map correction from             | m                |                            | 2000   |
| Fuel temperature   | °C               |                            | 70   |
| Intake manifold air temperature  | °C               |                            | 70   |



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|  |     |                      |
|--|-----|----------------------|
| ATS Max gas inlet temperature            | °C  | 600                  |
| Max allowed exhaust temperature          | °C  | 740 cont. / 760 peak |
| Turbine overheating protection           | °C  | N/A                  |
| Turbine overspeed protection             | rpm | N/A                  |
| Oil temperature protection               | °C  | 125                  |
| Oil pressure protection (min engine rpm) | bar | N/A                  |

### Fuel System

|  |      |   |
|--|------|---|
| Fuel density   | kg/l | 0,84                                    |
| Injection system type  |      | electronic common rail                  |
| Injection pump manufacturer                                  |      | Bosch                                   |
| Injection model type   |      | common rail                             |
| Injection model pump   |      | CP4N1                                   |
| Injection pressure   | bar  | 1600                                    |
| Injector   |      | CRI 2-16 OHW                            |
| Injector installation (sleeve, sealing flat or conical)      |      | sealing flat                            |
| Injector nozzle  |      | 8 x 350                                 |
| Engine fuel compatibility                                    |      | see dedicated GOLD Book document        |
| Feed pump on engine  |      | integrated in high pressure pump        |
| Max fuel flow supply line                                    | l/h  | 50                                      |
| Nominal feed pressure  | bar  | 1600                                    |
| Fuel filter  |      | single cartridge on left side           |
| Fuel filter clogging sensor                                  |      | yes                                     |
| Max continuous allowable fuel temperature (without derating) | °C   | 70                                      |
| Max relative pressure at gear pump inlet                     | bar  | N/A                                     |
| Min relative pressure at gear pump inlet                     | bar  | N/A                                     |
| Max back flow relative pressure                              | bar  | N/A                                     |
| Max back flow restriction                                    | bar  | N/A                                     |
| Max heat rejection to return fuel                            | kW   | N/A                                     |
| Max fuel flow return line                                    | kg/h | @1500rpm: 11,6 kg/h @1800rpm: 11,8 kg/h |
| Min fuel tank venting requirement                            | m³/h | N/A                                     |
| Prefilter / Water separator micron size                      | µm   | > 99% @ 30                              |

### Air Intake System

|   |      | @1500rpm | @1800rpm   |
|---|------|----------|------------|
| Aftercooling system type                                    |      |          | air to air |
| RoA (Temperature raise between ambient and inlet to engine) | °C   |          | 10         |
| Filter air intake temperature (warm air ricirculatuion)     | °C   |          | 40         |
| Max intake manifold temperature                             | °C   |          | 50         |
| Compressor inlet pressure (with new air filter)             | hPa  |          | > - 20     |
| Compressor inlet pressure (with dirty air filter)           | hPa  |          | > - 50     |
| Air filter type   |      |          | cartridge  |
| Loads on turbocharger on compressor intake                  | kg   |          | 0          |
| Loads on turbocharger on compressor outlet                  | kg   |          | 0          |
| Charge air flow (max)                                       | kg/h | 230      | 262        |

### Exhaust System

|  |     | @1500rpm | @1800rpm             |
|--|-----|----------|----------------------|
| Max back pressure (after exhaust flap) @ rated power with clean system | hPa |          | 220                  |
| Max mechanical load on turbine flange                                  | kg  |          | 0                    |
| Max exhaust temperature After Treatment System                         | °C  |          | 740 cont. / 760 peak |



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| Exhaust System        |      | @1500rpm                    | @1800rpm |
|-----------------------|------|-----------------------------|----------|
| Max exhaust flow rate | kg/h | 243 (1500m) - 275 (1800rpm) |          |
| Energy to exhaust     | kW   | 33,1                        | 33,2     |

| After Treatment System    |   |
|---------------------------|---|
| After Treatment System    | DOC + DPF   |
| POC                       | not installed                                     |
| DPF                       | yes   |
| DOC                       | yes   |
| SCR                       | not installed                                     |
| Urea Dosing System        | not installed                                     |
| AdBlue mixer              | not installed                                     |
| ATS sensors               | DPF Delta Pressure - US/DS DOC Temperature sensor |
| DPF regeneration strategy | Active and Passive                                |

| Lubrication System   |           |  |
|--|-----------|--|
| Oil sump capacity, max level                                     | l         | 8  |
| Oil sump capacity, min level                                     | l         | 6  |
| Oil system capacity including filter                             | l         | 9,5  |
| Oil pump type  |           | gear pump                                  |
| Oil pump drive arrangement                                       |           | driven by gear                             |
| Min oil pump flow  | l/min     | N/A  |
| Max oil pump flow (@rated speed)                                 | l/min     | 70   |
| Min oil pressure @ low idle (engine oil temp at 120°C)           | kPa (bar) | N/A  |
| Min oil pressure @ rated speed (engine oil temp at 120°C)        | kPa (bar) | N/A  |
| Max oil pressure @ rated speed (engine oil temp at 120°C)        | kPa (bar) | N/A  |
| Max oil temperature @ full load (in main gallery)                | °C        | 125  |
| Max oil pressure peak on cold engine                             | bar       | N/A  |
| Oil cooler type  |           | water cooled                               |
| Transducer for indicating oil temperature and pressure           |           | Signal from ECU                            |
| Max engine angularity - longitudinal / transversal (std oil pan) | deg       | 35   |
| Allowed engine gradability during installation on vehicle        | deg       | ± 4  |
| Oil servicing intervals  | h         | 600  |
| Oil filter type  |           | cartridge                                  |
| Oil filter capacity  | l         | 0,5  |
| Max oil content admitted in blow by gas (after filter)           | g/h       | < 0,5                                      |
| Oil for cold condition mission (T° ambient < -25°C)              |           | see dedicated GOLD Book document on fluids |

| Cooling system  |      | @1500rpm   | @1800rpm |
|---|------|--|----------|
| Type (water to water or air to water)   |      | air to water                                     |          |
| Recommended coolant   |      | 50% water and 50% coolant (depending on mission) |          |
| Min radiator cap pressure   | kPa  | 100  |          |
| Warnnig setting first threshold   | °C   | 106  |          |
| Max additional restriction (cooling system)   | Pa   | N/A  |          |
| Air to boil (prime power, open genset configuration). For further information see GB document | °C   | 53°C @1500rpm                                    |          |
| Air flow (prime power, open genset configuration)   | m³/s | N/A  |          |
| Air to boil (stand by, open genset configuration). For further information see GB document    | °C   | N/A  |          |



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| Cooling system   |                   | @1500rpm                          | @1800rpm |
|--|-------------------|-----------------------------------|----------|
| Air flow (stand by, open genset configuration)   | m <sup>3</sup> /s | N/A                               |          |
| EGR Cooler water flow (for ΔT=6°C)   | l/s               |                                   | N/A      |
| LP-CAC water flow (for ΔT=6°C)   | l/s               |                                   | N/A      |
| <b>Fan</b>   |                   |                                   | N/A      |
| Diameter   | mm                |                                   | 550      |
| Number of blades   |                   |                                   | 10       |
| Drive ratio  |                   |                                   | 1,1      |
| Speed  |                   | 3,3 m/s @1500rpm 4,3 m/s @1800rpm |          |
| Air flow   |                   | 1 m3/s @1500rpm 1,3 m3/s @1800rpm |          |
| Power consumption  |                   | @1500rpm: 1 kW @1800rpm: 1,4 kW   |          |
| <b>Radiator</b>  |                   |                                   | N/A      |
| Core dimensions LxWxh  | mm                | 625 x 80 x 720                    |          |
| Dry weight   | kg                | 31                                |          |
| Radiator coolant capacity  | l                 | 5,1                               |          |
| Optimum coolant temperature range @engine out (50% glycol)                                     | °C                | 80                                |          |
| Engine Water pump Type   |                   | centrifugal pump                  |          |
| Engine water pump drive  |                   | driven by belt                    |          |
| Coolant capacity (engine only)   | l                 | 5                                 |          |
| Coolant capacity (radiator & hoses)  | l                 | N/A                               |          |
| Thermostat type  |                   | wax type                          |          |
| Thermostat position  |                   | on cylinder head                  |          |
| Thermostat opening / fully open temperature  | °C                | 79 ± 2 ÷ 94 ± 2                   |          |
| Recommended coolant circuit pressurization range (relative)                                    | hPa               | 1000                              |          |
| Coolant engine pressure outlet – inlet (delta pressure, open thermostat, high idle conditions) | hPa               | 300                               |          |
| Min coolant pressure (no pressure cap and thermostat closed)                                   | hPa               | N/A                               |          |
| Coolant water pump inlet pressure (water temperature 60-100°C)                                 | hPa               | 60                                |          |
| Coolant flow to radiator @rated speed  | l/h               | N/A                               |          |
| Min coolant expansion space (% total cooling system capacity)                                  | %                 | N/A                               |          |
| Max coolant flow to accessories @ rated speed from cab heater                                  | l/min             | N/A                               |          |
| Engine out coolant to ambient @rated speed   | delta °C          | N/A                               |          |
| Engine out coolant to ambient @torque speed  | delta °C          | N/A                               |          |
| Charge air cooler outlet to ambient @max rpm - CAC dT  | delta °C          | N/A                               |          |
| Pump water flow  | l/min             | 111                               | 134      |

| Electrical, Electronic and Control Systems     |    |              |  |
|--|----|--------------|--|
| System voltage                                 | V  | 12           |  |
| Engine control unit                            |    | MD1 CS069    |  |
| ECU software                                   |    | P1738v51.1   |  |
| ECU Vehicle connection                         |    | via CAN      |  |
| ECU operating range                            | °C | - 40 ÷ + 105 |  |
| Temperature of ECU case for <5' after power up | °C | 85           |  |
| ECU rated continuous temperature               | °C | 80           |  |
| ECU communication protocol                     |    | SAE J1939    |  |
| Min power supply for ECU operation             | V  | 10           |  |



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### Electrical, Electronic and Control Systems

|  |     |           |
|--|-----|-----------|
| Max power supply for ECU operation                                   | V   | 16        |
| Battery wire connection resistance value @20°C (from battery to ECU) | mΩ  | ≤ 70      |
| Diagnostic connector type  |     | ISO 14229 |
| Min cranking speed TDC @-30°C  | rpm | 70        |
| Average cranking speed   | rpm | 110       |
| N° tooth pinion/crown gear   |     | 10 / 126  |
| Min battery voltage  | V   | 10        |
| Mean battery voltage   | V   | 14 ± 0,5  |
| Min battery current  | Ah  | N/A       |
| Mean battery current   | Ah  | 101       |
| Max starting circuit resistance ( to starter)                        | mΩ  | < 70      |

### Cold starting

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

### Emission gaseus and particulales

|                                 |       |                              |
|---------------------------------|-------|------------------------------|
| NOx (Oxides of nitrogen) [NRSC] | g/kWh | see homologation certificate |
| HC (Hydrocarbons) [NRSC]        | g/kWh | see homologation certificate |
| NOX+HC [NRSC]                   | g/kWh | see homologation certificate |
| CO (Carbon monoxide) [NRSC]     | g/kWh | see homologation certificate |
| PM (Particlutes) [NRSC]         | g/kWh | see homologation certificate |
| CO2 (Carbon Dioxide) [NRSC]     | g/kWh | see homologation certificate |
| NOx (Oxides of nitrogen) [NRTC] | g/kWh | see homologation certificate |
| HC (Hydrocarbons) [NRTC]        | g/kWh | see homologation certificate |
| NOX+HC [NRTC]                   | g/kWh | see homologation certificate |
| CO (Carbon monoxide) [NRTC]     | g/kWh | see homologation certificate |
| PM (Particlutes) [NRTC]         | g/kWh | see homologation certificate |
| CO2 (Carbon Dioxide) [NRTC]     | g/kWh | see homologation certificate |

### Maintenance

|                                    |  |  |
|------------------------------------|--|--|
| Oil drain interval                 |  | see dedicated GOLD Book document on fluids   |
| Oil filter change                  |  | 600 h  |
| Oil refilling time                 |  | daily check to evaluate oil refill necessity |
| Approved engine oil specifications |  | N/A  |
| CCV filter change                  |  | 1800 h                                       |
| Fuel filter change                 |  | 600 h  |
| Fuel pre-filter change             |  | 600 h  |
| Belt replacement                   |  | 3000 h                                       |
| Valve lash check /adjustment       |  | for life                                     |
| AdBlue filter Change               |  | not installed                                |
| DPF filter service                 |  | 600 h  |
| Coolant change                     |  | 3000 h                                       |

### Engine Noise

|  |     |      |
|--|-----|------|
| Overall sound pressure (engine only)           | dBA | 92,5 |
| Overall sound pressure (with accessories only) | dBA | N/A  |
| Exahust noise (w/o Muffler)                    | dBA | N/A  |



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### Engine Noise

|   |             |     |  |
|---|-------------|-----|--|
| Noise spectrum (octave analysis performed at the position of maximum noise) - diagram   | Table dB-Hz | N/A |  |
| A-weight sound power level LW function of power (value calculated respecting standard ISO 3744 and 3746. For further information see GB document) |             | N/A |  |
| 0% (no load)  | dBA         | N/A |  |
| 75% (partial load)  | dBA         | N/A |  |
| 100% (full load)  | dBA         | N/A |  |
| 110% (overload)   | dBA         | N/A |  |

### Step Load (for further information see GB document)

|                              |   | @1500rpm | @1800rpm |
|------------------------------|---|----------|----------|
| G1 (% of PrP)                | % | 100      | N/A      |
| G2 (% of PrP)                | % | 100      | N/A      |
| G3 (% of PrP)                | % | 83       | 100      |
| G1 (% of PrP) [open flap]    | % | N/A      | N/A      |
| G2 (% of PrP)[open flap]     | % | N/A      | N/A      |
| G3 (% of PrP)[open flap]     | % | N/A      | N/A      |
| G1 (% of PrP) [closed flap]  | % | N/A      | N/A      |
| G2 (% of PrP) [closed flap ] | % | N/A      | N/A      |
| G3 (% of PrP) [closed flap]  | % | N/A      | N/A      |
| Removal load (G1)            | % | N/A      | N/A      |
| Removal load (G2)            | % | N/A      | N/A      |
| Removal load (G3)            | % | N/A      | N/A      |
| Emergency (xxx)              | % | N/A      | N/A      |
| Emergency (xxx)              | % | N/A      | N/A      |
| Emergency (xxx)              | % | N/A      | N/A      |

### Maximum Rating Performance Data

|   |                | @1500rpm | @1800rpm |
|---|----------------|----------|----------|
| Torque                                    | Nm             | 350      | 292      |
| Ambient Temperature                       | °C             | 22       | 22       |
| EGR Rate                                  | %              | <10      | <10      |
| Fuel Flow                                 | g/s            | 3,24     | 3,28     |
| Fuel consumption (BSFC) (prime power)     | (kg/h) [g/kWh] | [212]    | [215]    |
| Fuel consumption (BSFC) (stand by)        | (kg/h) [g/kWh] | [212]    | [215]    |
| Fuel consumption (BSFC) (80% prime power) | (kg/h) [g/kWh] | [212]    | [220]    |
| Fuel consumption (BSFC) (50% prime power) | (kg/h) [g/kWh] | [221]    | [239]    |
| Fuel consumption (BSFC) (25% prime power) | (kg/h) [g/kWh] | [255]    | [295]    |
| Exhaust Gas Flow                          | kg/h           | 243      | 275      |

### Design air handling system data

|  |      | @1500rpm | @1800rpm |
|--|------|----------|----------|
| EGR flow                                   | kg/h | N/A      | N/A      |
| EGR pressure                               | kPa  | N/A      | N/A      |
| 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      |
| ATS back pressure                          | kPa  | N/A      | N/A      |
| 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 TC        | kPa  | N/A      | N/A      |





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## G-DRIVE TIER 4B\_STAGE V



| Design air handling system data   |               | @1500rpm | @1800rpm |
|---|---------------|----------|----------|
| Power engine coolant without EGR & CAC (prime power)  | kW [kcal/kWh] | N/A      | N/A      |
| Power engine coolant without EGR & CAC (stand by)   | kW [kcal/kWh] | N/A      | N/A      |
| Power high Temperature EGR Cooler (engine water) (prime power)                                  | kW [kcal/kWh] | N/A      | N/A      |
| Power high Temperature EGR Cooler (engine water) (stand by)                                     | kW [kcal/kWh] | N/A      | N/A      |
| Power to coolant due to EGR LP-Circuit (prime power)  | kW [kcal/kWh] | N/A      | N/A      |
| Power to coolant due to EGR LP-Circuit (stand by)   | kW [kcal/kWh] | N/A      | N/A      |
| Total Power to coolant (prime power)  | kW [kcal/kWh] | 36,9     | 36,6     |
| Total Power to coolant (stand by)   | kW [kcal/kWh] | 36,      | 36,6     |
| Total pump water flow   | l/s           | 1,85     | 2,23     |
| Radiator Coolant Flow (5% less if continuous deaerating system, coolant according to FPT norms) | l/min         | N/A      | N/A      |
| EGR Cooler water flow (for $\Delta T=6^{\circ}\text{C}$ )                                       | l/s           | N/A      | N/A      |
| LP-CAC water flow (for $\Delta T=6^{\circ}\text{C}$ )   | l/s           | N/A      | N/A      |
| Power in CAC (air to air) (prime power)   | kW [kcal/kWh] | 6,7      | 7,7      |
| Power in CAC (air to air) (stand by power)  | kW [kcal/kWh] | 7,3      | 8,3      |
| Power Radiated  | kW            | 7,8      | 7,8      |
| Charge Air Flow   | g/s           | N/A      |          |

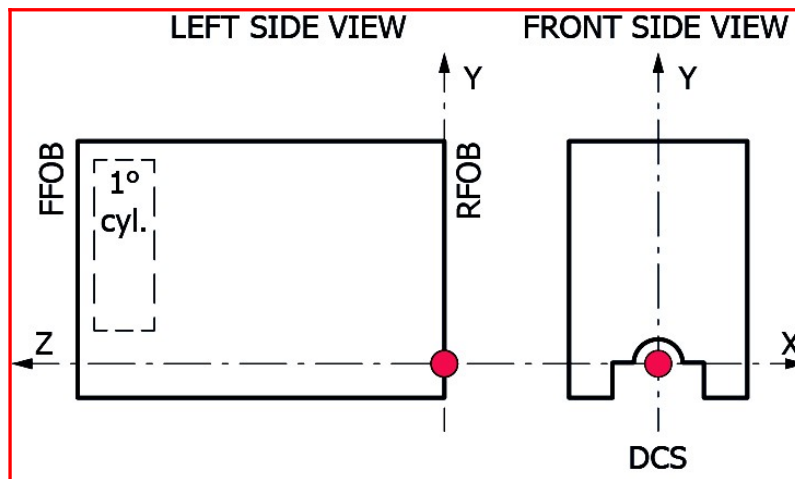
[\*] Power at flywheel according dir. 97/68 EC (w/o fan), after 50 hours of run-in, tolerance  $\pm 5\%$ , fuel EN 590; Test according ISO 3046/1, turbo air inlet temperature  $25^{\circ}\text{C}$ , atmospheric pressure 100 kPa, humidity 30 %

N/A

[\*\*] according to temperature sensor tolerance

N/A

### Images

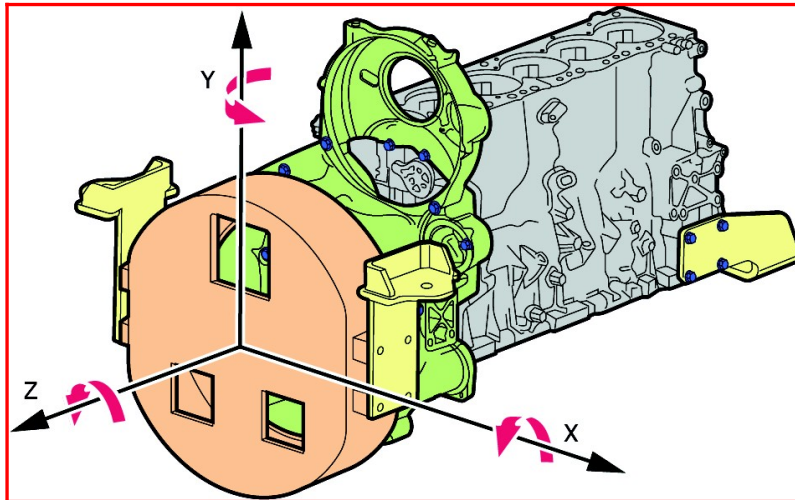


Principal Moment of Inertia

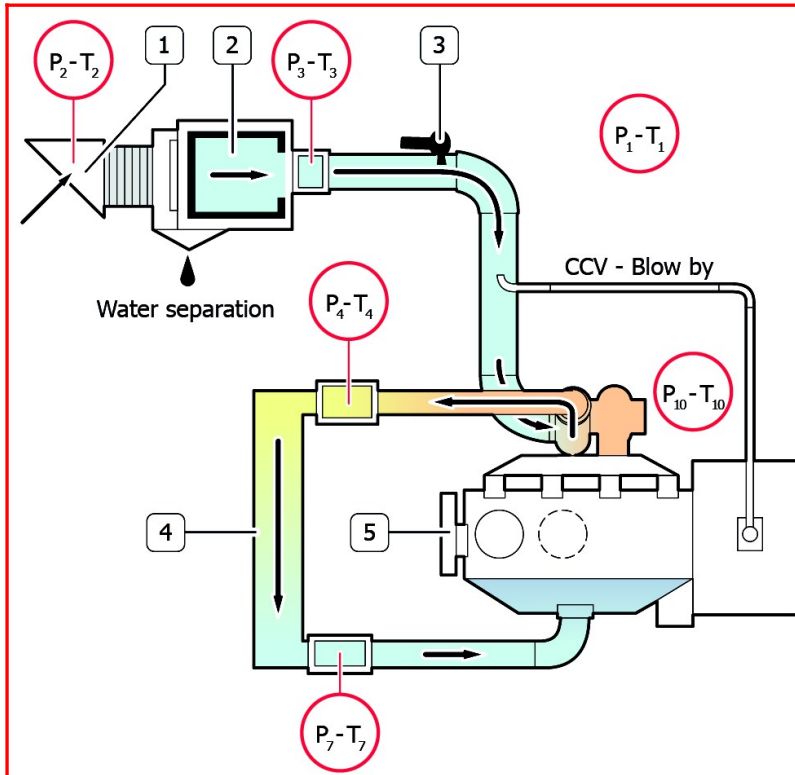


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## G-DRIVE TIER 4B\_STAGE V



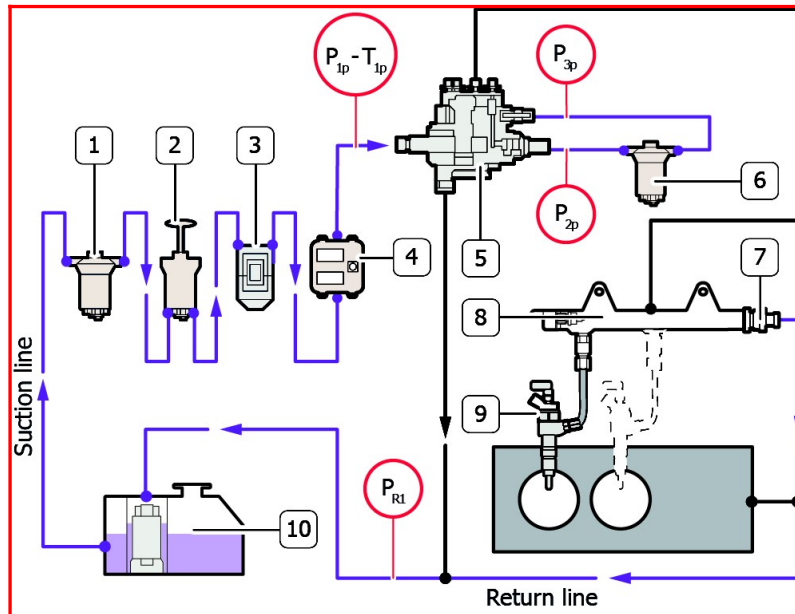
Components



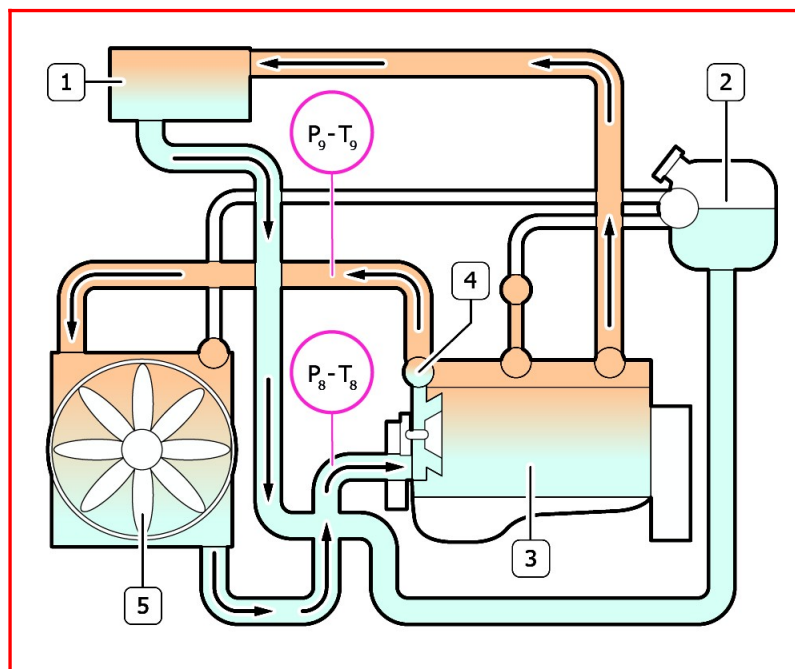
1.Snorkel 2.Air Filter 3.Humidity sensor 4.Intercooler



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G-DRIVE TIER 4B\_STAGE V



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



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## G-DRIVE TIER 4B\_STAGE V



### 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    | SCR on 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 3.0_Mar 2022 |             | March/2022    |
| Revision 3.1_Sep 2022 |             | October/2022  |
| Revision 4.0_Feb 2023 |             | February/2023 |
| Revision 4.1_Apr 2023 |             | April/2023    |