| California Environmental Protection Agency AIR RESOURCES BOARD | GENERAL ENGINE PRODUCTS, L.L.C. | EXECUTIVE ORDER A-341-0015 New Engines for Diesel or Incomplete Medium-Duty Vehicles |
|---|---|---|

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-45-9;

**IT IS ORDERED AND RESOLVED:** The engine and emission control systems produced by the manufacturer are certified as described below for use in diesel or incomplete medium-duty vehicles with a manufacturer's GVWR from 8501 to 14000 pounds. Production engines shall be in all material respects the same as those for which certification is granted.

| MODEL YEAR | ENGINE FAMILY | EMISSION STD CATEGORY [2] | FUEL TYPE [1] | STANDARDS & TEST PROCEDURE | ENGINE SIZES (L) | ECS & SPECIAL FEATURES [3] | OBD COMPLIANCE |
|---|---|---|---|---|---|---|---|
| 2005 | 5GEPH06.5527 | ULEV | Diesel | Diesel | 6.5 | OC, EGR, IDI, TC | OBD(F) |

| ENGINE MODELS / CODES (rated power, in hp) | ENGINE (L) | OBD COMPLIANCE |
|---|---|---|
| L65 / 1 (205) | 6.5 | OBD(F) |
| * | * | |
| * | * | * |
| * | * | * |

* =not applicable; **GVWR**=gross vehicle weight rating; **13 CCR xyz**=Title 13, California Code of Regulations, Section xyz; **40 CFR 86.abc**=Title 40, Code of Federal Regulations, Section 86.abc; **L**=liter; **hp**=horsepower; **kw**=kilowatt; **(2004may26)**

[1] **CNG/LNG**=compressed/liquefied natural gas; **LPG**=liquefied petroleum gas; **E85**=85% ethanol fuel; **MF**=multi fuel a.k.a **BF**=bi fuel; **DF**=dual fuel; **FF**=flexible fuel;

[2] **SULEV / ULEV / LEV**=super ultra / ultra / low emission vehicle;

[3] ECS=emission control system; TWC/**OC**=three-way/oxidizing catalyst; **WU (prefix)** =warm-up catalyst; **DPF**=diesel particulate filter; **HO2S/O2S**=heated/oxygen sensor; **HAFS/AFS**=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); **TBI**=throttle body fuel injection; **SFI/MFI**=sequential/multi port fuel injection; **DGI**=direct gasoline injection; **GCARB**=gaseous carburetor; **IDI/DDI**=indirect/direct diesel injection; **TC/SC**=turbo/super charger; **CAC**=charge air cooler; **EGR**=exhaust gas recirculation; **PAIR/AIR**=pulsed/secondary air injection; **SPL**=smoke puff limiter; **OBD(F) / (P) / ($)**=full / partial / partial with a fine / on-board diagnostic; **ECM/PCM**=engine/powertrain control module; **EM**=engine modification; **2 (prefix)**=parallel; **(2) (suffix)**=in series;

Following are: 1) the FTP exhaust emission standards or family emission limit(s) as applicable under 13 CCR 1956.8; 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For dual- and flexible-fueled engines, the CERT values in brackets [ ] are those when tested on conventional test fuel.) [4]

| | NMHC | | NOx | | NMHC+NOx | | CO | | PM | | HCHO | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | FTP | EURO | FTP | EURO | FTP | EURO | FTP | EURO | FTP | EURO | FTP | EURO |
| STD | 0.5 | * | * | * | 2.5 | * | 14.4 | * | 0.10 | * | 0.050 | * |
| FEL | * | * | * | * | * | * | * | * | * | * | * | * |
| CERT | 0.2 | * | * | * | 2.4 | * | 1.5 | * | 0.09 | * | 0.036 | * |
| NTE | * | | * | | * | | * | | * | | * | |

[4] **g/bhp-hr**=grams per brake horsepower-hour; **FTP**=Federal Test Procedure; **EURO**=Euro III European Steady-State Cycle; **NTE**=Not-to-Exceed emission limit; **STD**=standard or emission test cap; **FEL**=family emission limit; **CERT**=certification level; **NMHC/HC**=non-methane/hydrocarbon; **NOx**=oxides of nitrogen; **CO**=carbon monoxide; **PM**=particulate matter; **HCHO**=formaldehyde;

**BE IT FURTHER RESOLVED:** Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

**BE IT FURTHER RESOLVED:** The listed engine models have been certified to the optional emission standards and test procedures in 13 CCR 1956.8 applicable to diesel or incomplete medium-duty vehicles with a GVWR from 8501 to 14000 pounds and, therefore, shall be subject to 13 CCR 2139(c) (in-use testing of engines certified for use in diesel or incomplete medium-duty vehicles with a 8501-14000 pound GVWR).

**BE IT FURTHER RESOLVED:** For the listed engine models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels), 13 CCR 1968.2 (on-board diagnostic, full or partial compliance), and 13 CCR 2035 et seq. (emission control warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.
The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 26TH day of January 2005.

**Allen Lyons, Chief**
**Mobile Source Operations Division**

# Family Information Form

A-341-0015

Manufacturer: **General Engine Products LLC**

Engine category: **On-highway HDDE**

Cert contact: **Michael Kunz**

1. Model Year: **2005**
2. Carry over: **Yes**
   If yes, list the previous family: **4GEPH06.5527**
3. Process Code: **New Submission**
   Date EPA Fee Paid: **4-7-2004**
4. EPA Standard Engine Family: **5GEPH06.5527**
5. Mfr's Family Name: **N/A**
6. Engine Cycle: **Diesel**
7. Displacement(s) (CID or Liters) **6.5 Liters**
8. Engine Configuration: **V-8**
9. Emission Control System:
   - [X] Catalyst
   - [ ] Engine Modification
   - [X] Electronic Control
   - [ ] Smoke Puff Limiter
   - [X] EGR
   - [ ] None
   - [ ] Other...

   OC, EGR, TC, IDI
10. Fuel Type: **Diesel**
11. Fuel System Type: **Indirect Diesel Injection**
12. Method Of Aspiration: **Turbo-Charged**
13. Useful Life Period: **10 years / 120,000 miles**
14. Deterioration Factor Type
    A. Gaseous Exhaust: **Multiplicative**
    B. Smoke: **Additive**
15. Intended Service Class **CA Medium duty** ULEV
    If CFF, Select which category:
16. Projected Sales :
    FED
    CA
    TOTAL

17. Estimated Production Period: Start **8/30/04** End **12/31/2005**
18. Sales Area: **50 States**
19. Plant Contact:
    **Jeffrey Dowell**
    **(734) 523-8134**
20. Plant Location:
    **General Engines Products LLC**
    **2000 Watkins Glenn Drive**
    **Franklin, Ohio 45005**
21. Program Information:

| NCPs | AVE | B&T |
|---|---|---|
| [ ] PM | [ ] PM | [ ] PM |
| [ ] NOx | [ ] NOx | [ ] NOx |
| [ ] NMHC+NOx | [ ] NMHC+NOx | [ ] NMHC+NOx |
| [X] None | [X] None | [X] None |
| [ ] NA | [ ] NA | [ ] NA |

22. Family Emission Limits:

| | |
|---|---|
| PM | N/A |
| NOx | N/A |
| NMHC + NOx | N/A |
| Units: | g/bHp-hr |

23. Nonroad Engine Equipment Types:
    - [ ] Crane
    - [ ] Loaders
    - [ ] Tractor
    - [ ] Dozer
    - [ ] Pump
    - [ ] Compressor
    - [ ] Generator Set
    - [X] NA
    - [ ] Other...

24. Auxiliary Emission Control Devices:

| AECD | Sensed | PARAMETER | Controlled | Does AECD result in reducing effectivness of emission control device(s): |
|---|---|---|---|---|
| See General Engine Products Specification # 007 AECD Description Document | | | | Yes / No |
| | | | | Yes / No |
| | | | | Yes / No |
| | | | | Yes / No |
| | | | | Yes / No |
| | | | | Yes / No |
| | | | | Yes / No |
| | | | | Yes / No |
| | | | | Yes / No |
| | | | | Yes / No |

# Test Information Form

A-341-0015

Manufacturer: **General Engine Products LLC**

Engine category: **On-highway HDDE**

Cert contact: **Michael Kunz**

1. EPA Standard Engine Family: **5GEPH06.5527**
2. Process Code: **New Submission**
3. Test Data Set: **1**
4. Engine Code: **1**
5. Engine Model: **L65**
6. Displacement(s) (cid Or Liters): **6.5 Liters (395 CID)**
7. Engine I.d. Number: **CERT #1**
8. Rated HP @ **205** @ Rated RPM: **3200**
9. Torque (ft-lb) @ **440** @ Engine RPM: **1800**
10. WAIVERs:

| CO | PM | Smoke | Idle Co |
|---|---|---|---|
| No | NA | NA | NA |

11. Cold Start? **No**
12. Certification Fuel: **Diesel (Part 89,Sub D,Appdx A,Table 4)**
13. Special Test Device **No**
14. Test Procedure: **On-Hwy Diesel**

## 15. Official Test Results

Date: 9/8/2003

| | Test 1 | Test 2 | Test 3 |
|---|---|---|---|
| HC/OMHCE | 0.213 | | |
| NMHC/OMNMHCE | 0.183 | | |
| HC + NOx | | | |
| CARBON MONOXIDE | 1.269 | | |
| OXIDE OF NITROGEN | 2.253 | | |
| PARTICULATE | 0.088 | | |
| FORMALDEHYDE | 0.027 | | |
| ACCELERATION (%opacity) | 2.53 | | |
| LUGGING (Gen) (%opacity) | 1.87 | | |
| PEAK (%opacity) | 5.27 | | |
| IDLE CO % | | | |
| CO2 | | | |

## 16. Deterioration Factors

| |
|---|
| 1.047 |
| 1.000 |
| --- |
| 1.176 |
| 1.000 |
| 1.064 |
| 1.351 |
| 0.000 |
| 0.000 |
| 0.000 |
| |

## 17. Certification Levels (Rounded Test Results)

Units-- [ ] --Units

| | | | | STDs g/BHP-hr | STDs g/kW-hr | FELs |
|---|---|---|---|---|---|---|
| HC/OMHCE | | | | | | |
| NMHC/OMNMHCE | 0.183 | | | -- | | |
| NMHC + NOx | 2.4 | | | 2.5 | | N/A |
| CARBON MONOXIDE | 1.5 | | | 14.4 | | |
| OXIDE OF NITROGEN | 2.253 | | | -- | | N/A |
| PARTICULATE | 0.09 | | | 0.10 | | N/A |
| FORMALDEHYDE | 0.036 | | | 0.050 | | |
| ACCELERATION (%opacity) | | | | | -- | |
| LUGGING (Gen) (%opacity) | | | | | -- | |
| PEAK (%opacity) | | | | | -- | |
| IDLE CO% | | | | | -- | |

# Engine Model Summary Form

A-341-0015

Manufacturer: **General Engine Products LLC**

Engine category: **On-highway HDDE**

EPA Engine Family: **5GEPH06.5527**

Mfr Family Name: **N/A**

Process Code: **New Submission**

| 1.Engine Code | 2.Engine Model | 3.BHP@RPM (SAE Gross) | 4.Fuel Rate: mm/stroke @ peak HP (for diesel only) | 5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only) | 6.Torque @ RPM (SEA Gross) | 7.Fuel Rate: mm/stroke@peak torque | 8.Fuel Rate: (lbs/hr)@peak torque | 9.Emission Control Device Per SAE J1930 |
|---|---|---|---|---|---|---|---|---|
| 1 | L65 | 205 @ 3200*<br>*SAE NET | 68 | 94.5 | 440 @ 1800*<br>*SAE NET | 78.5 | 62.7 | OC,TC,ECM,EGR,IDI |

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# Part Number Summary Form

A-341-0015

Manufacturer: **General Engine Products LLC**

Engine category: **On-highway HDDE**

EPA Engine Family: **5GEPH06.5527**

Mfr Family Name: **N/A**

Process Code: **New Submission**

| Engine Code | Engine Model | Injection Pump | Injector | Turbo Charge | Electronic Control Module | After Treatment Device (Specify) | Smoke Puff Limiter |
|---|---|---|---|---|---|---|---|
| 1 | L65 | 18000423 | 5743223 | 18000464 | 18001020 | CATALYST 6008247 | N/A |

Sensor Assemblies

| Description | Part Number |
|---|---|
| MAP | 18000410 |
| Air Int Temp | 5744430 |
| Crnk Shft Pos | 5744911 |
| Eng cool temp | 5744030 |
| MAF Meter | 6015124 |
| Baro Pressure | 18000466 |

TCwb

A-341-0015

# Part Number Summary Form

A-341-0015

Manufacturer: **General Engine Products LLC**

Engine category: **On-highway HDDE**

EPA Engine Family: **5GEPH06.5527**

Mfr Family Name: **N/A**

Process Code: **New Submission**

| Engine Code | Engine Model | Glow plug | Glw plg cntrlr | C/case reg valv | EGR valve | EGR cooler | Wstgate Solnd |
|---|---|---|---|---|---|---|---|
| 1 | L65 | 5745281 | 5745246 | 5714132 | 18000404 | 18000405 | 5745247 |

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