

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION**

September 15, 2011

**PERMIT TO INSTALL**  
305-08A

**ISSUED TO**  
Delphi Automotive Systems, LLC

**LOCATED AT**  
3000 University Drive  
Auburn Hills, Michigan

**IN THE COUNTY OF**  
Oakland

**STATE REGISTRATION NUMBER**  
N2721

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203:

**July 14, 2011**

DATE PERMIT TO INSTALL APPROVED:

**September 15, 2011**

SIGNATURE:

DATE PERMIT VOIDED:

SIGNATURE:

DATE PERMIT REVOKED:

SIGNATURE:

## PERMIT TO INSTALL

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**Common Abbreviations / Acronyms**

<b>Common Acronyms</b>		<b>Pollutant/Measurement Abbreviations</b>	
AQD	Air Quality Division	BTU	British Thermal Unit
ANSI	American National Standards Institute	°C	Degrees Celsius
BACT	Best Available Control Technology	CO	Carbon Monoxide
CAA	Clean Air Act	dscf	Dry standard cubic foot
CEM	Continuous Emission Monitoring	dscm	Dry standard cubic meter
CFR	Code of Federal Regulations	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H <sub>2</sub> S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
HAP	Hazardous Air Pollutant	m	Meter
HVLP	High Volume Low Pressure *	mg	Milligram
ID	Identification	mm	Millimeter
LAER	Lowest Achievable Emission Rate	MM	Million
MACT	Maximum Achievable Control Technology	MW	Megawatts
MAERS	Michigan Air Emissions Reporting System	ng	Nanogram
MAP	Malfunction Abatement Plan	NO <sub>x</sub>	Oxides of Nitrogen
MDEQ	Michigan Department of Environmental Quality (Department)	PM	Particulate Matter
MIOSHA	Michigan Occupational Safety & Health Administration	PM10	PM less than or equal to 10 microns diameter
MSDS	Material Safety Data Sheet	PM2.5	PM less than or equal 2.5 microns diameter
NESHAP	National Emission Standard for Hazardous Air Pollutants	pph	Pound per hour
NSPS	New Source Performance Standards	ppm	Parts per million
NSR	New Source Review	ppmv	Parts per million by volume
PS	Performance Specification	ppmw	Parts per million by weight
PSD	Prevention of Significant Deterioration	psia	Pounds per square inch absolute
PTE	Permanent Total Enclosure	psig	Pounds per square inch gauge
PTI	Permit to Install	scf	Standard cubic feet
RACT	Reasonably Available Control Technology	sec	Seconds
ROP	Renewable Operating Permit	SO <sub>2</sub>	Sulfur Dioxide
SC	Special Condition	THC	Total Hydrocarbons
SCR	Selective Catalytic Reduction	tpy	Tons per year
SRN	State Registration Number	µg	Microgram
TAC	Toxic Air Contaminant	VOC	Volatile Organic Compounds
TEQ	Toxicity Equivalence Quotient	yr	Year
VE	Visible Emissions		

\* For High Volume Low Pressure (HVLP) applicators, the pressure measured at the HVLP gun air cap shall not exceed ten (10) pounds per square inch gauge (psig).

### GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**
2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environmental Quality, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**
3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to R 336.1210, operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**
4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**
5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to R 336.1219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of R 336.1219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **(R 336.1219)**
6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**
7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**
8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of R 336.1301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with R 336.1303. **(R 336.1301)**
  - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
  - b) A visible emission limit specified by an applicable federal new source performance standard.
  - c) A visible emission limit specified as a condition of this Permit to Install.
  
12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in R 336.1370(2). **(R 336.1370)**
  
13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

**SPECIAL CONDITIONS**

**EMISSION UNIT SUMMARY TABLE**

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

<b>Emission Unit ID</b>	<b>Emission Unit Description (Process Equipment &amp; Control Devices)</b>	<b>Installation Date / Modification Date</b>	<b>Flexible Group ID</b>
EU-3D-EDL 6 (formerly 3D)	An engine dynamometer test cell lab capable of testing engines up to 450 brake horsepower in size. The engines tested will be fueled by gasoline, E85 ethanol, or diesel fuel. A maximum of seven engines will be tested simultaneously. The lab is equipped with a single exhaust stack, SV3D-EDL. For purposes of this permit, gasoline and E85 ethanol are considered equivalent fuels.	October 16, 2008/ September 2011	FG-DynoTestLabs
EU-3F-EDL 4 (formerly 3F)	An engine dynamometer test cell lab capable of testing engines up to 300 brake horsepower in size. The engines tested will be fueled by gasoline or E85 ethanol. A maximum of one engine will be tested simultaneously. The lab is equipped with a single exhaust stack, SV3F-EDL. For purposes of this permit, gasoline and E85 ethanol are considered equivalent fuels.	October 16, 2008/ September 2011	FG-DynoTestLabs
EU-3G-EDL 5 (formerly 3G)	An engine dynamometer test cell lab capable of testing engines up to 380 brake horsepower in size. The engines tested will be fueled by gasoline, E85 ethanol, or diesel fuel. A maximum of three engines will be tested simultaneously. The lab is equipped with a single exhaust stack, SV3G-EDL. For purposes of this permit, gasoline and E85 ethanol are considered equivalent fuels.	October 16, 2008/ September 2011	FG-DynoTestLabs
EU-3H-EDL 1 (formerly 3H)	An engine dynamometer test cell lab capable of testing engines up to 60 brake horsepower in size. The engines tested will be fueled by gasoline, E85 ethanol, or diesel fuel. A maximum of one engine will be tested simultaneously. The lab is equipped with a single exhaust stack, SV3H-EDL. For purposes of this permit, gasoline and E85 ethanol are considered equivalent fuels.	October 16, 2008/ September 2011	FG-DynoTestLabs
EU-3J-EDL 3 (formerly 3J)	An engine dynamometer test cell lab capable of testing engines up to 600 brake horsepower in size. The engines tested will be fueled by gasoline, E85 ethanol, or diesel fuel. A maximum of one engine will be tested simultaneously. The lab is equipped with a single exhaust stack, SV3J-EDL. For purposes of this permit, gasoline and E85 ethanol are considered equivalent fuels.	October 16, 2008/ September 2011	FG-DynoTestLabs

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EU-3K-EDL 2 (formerly 3K)	An engine dynamometer test cell lab capable of testing engines up to 300 brake horsepower in size. The engines tested will be fueled by gasoline, E85 ethanol, or diesel fuel. A maximum of three engines will be tested simultaneously. The lab is equipped with a single exhaust stack, SV3K-EDL. For purposes of this permit, gasoline and E85 ethanol are considered equivalent fuels.	October 16, 2008/ September 2011	FG-DynoTestLabs
Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1290.			

**FLEXIBLE GROUP SUMMARY TABLE**

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FG-DynoTestLabs	Six engine dynamometer test cell labs. The largest engine tested in any of the six labs will be 600 brake horsepower in size. A maximum of sixteen engines will be tested simultaneously in the combined Test Labs. Each lab is equipped with its own single exhaust stack. For purposes of this permit, gasoline and E85 ethanol are considered equivalent fuels.	EU-3D-EDL 6 EU-3F-EDL 4 EU-3G-EDL 5 EU-3H-EDL 1 EU-3J-EDL 3 EU-3K-EDL 2

**The following conditions apply to: FG-DynoTestLabs**

**DESCRIPTION:**

Six engine dynamometer test cell labs. The largest engine tested in any of the six labs will be 600 brake horsepower in size. A maximum of sixteen engines will be tested simultaneously in the combined Test Labs. Each lab is equipped with its own single exhaust stack. For purposes of this permit, gasoline and E85 ethanol are considered equivalent fuels.

**POLLUTION CONTROL EQUIPMENT:** Oxidation catalysts or combinations of diesel traps, NOx or hydrocarbon adsorbers designed to meet U.S. EPA vehicle emissions standards.

**I. EMISSION LIMITS**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. NO <sub>x</sub>	4.0 tpy	12-month rolling time period as determined at the end of each calendar month.	FG-DynoTestLabs	SC VI.2	R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d)
2. CO	14.0 tpy	12-month rolling time period as determined at the end of each calendar month.	FG-DynoTestLabs	SC VI.2	R 336.2804, 40 CFR 52.21 (d)
Emission Factors for CO during bypass operation as allowed in SC IV.1: Gasoline/E-85: 0.963 pph (0.741 lb/gallon) Diesel: 0.288 pph (0.093 lb/gallon)			Emission Factors for NOx during bypass operation as allowed in SC IV.1: Gasoline/E-85: 0.064 pph (0.049 lb/gallon) Diesel: 0.354 pph (0.114 lb/gallon)		

**II. MATERIAL LIMITS**

1. The total combined gasoline and/or E85 ethanol fuel usage for FG-DynoTestLabs shall not exceed 101,500 gallons per 12-month rolling time period as determined at the end of each calendar month. **(R 336.1225, R 336.1702(a), R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**
2. The total combined diesel fuel usage for FG-DynoTestLabs shall not exceed 56,500 gallons per 12-month rolling time period as determined at the end of each calendar month. **(R 336.1225, R 336.1702(a), R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

**III. PROCESS/OPERATIONAL RESTRICTIONS**

1. When doing performance testing, the permittee shall not test more than two engines simultaneously in any single dynamometer test cell lab. **(R 336.1225, R 336.1702(a), R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

#### **IV. DESIGN/EQUIPMENT PARAMETERS**

1. The permittee shall equip and maintain each engine tested within all of six of the engine dynamometer test cell labs with either oxidation catalysts or combinations of diesel traps, NO<sub>x</sub> or hydrocarbon adsorbers designed to meet U.S. EPA vehicle emissions standards. The permittee shall be allowed to bypass the add on control device during the following engine testing conditions; thermal shock, poisoning tests, or backpressure requirements, or other non-routine development tests. **R 336.1225, R 336.1702(a), R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d)**

#### **V. TESTING/SAMPLING**

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

NA

#### **VI. MONITORING/RECORDKEEPING**

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the 30th day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1225, R 336.1702(a), R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**
2. The permittee shall keep the following information on a monthly basis for FG-DynoTestLabs:
  - a) A record of engine displacement, the type of testing (durability or performance), and engine run hours for each dynamometer test cell lab.
  - b) A record of the number of engines being tested in each dynamometer test cell lab and the type of test that is being performed.
  - c) A record of the type of control used on each engine being tested. When the add on control device is bypassed, the permittee shall record the engine testing condition that is the cause for bypassing the add on control device.
  - d) Gallons of gasoline, E85 ethanol, and diesel fuel used per month and 12-month rolling time period.
  - e) NO<sub>x</sub> emission calculations determining the monthly emission rate in tons per calendar month.
  - f) NO<sub>x</sub> emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month.
  - g) CO emission calculations determining the monthly emission rate in tons per calendar month.
  - h) CO emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month.

The permittee shall keep the records in a format acceptable to the AQD District Supervisor shall use the tested emission factors (adjusted for engine displacement as necessary) or as specified in the emission unit summary table in doing their calculations. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1225, R 336.1702(a), R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21(c) & (d))**

#### **VII. REPORTING**

NA

**VIII. STACK/VENT RESTRICTIONS**

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Dimensions (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1. SV3D-EDL-6	20.0	35.0	R 336.1225, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d)
2. SV3F-EDL-4	15.0	35.0	R 336.1225, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d)
3. SV3G-EDL-5	15.0	35.0	R 336.1225, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d)
4. SV3H-EDL-1	15.0	35.0	R 336.1225, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d)
5. SV3J-EDL-3	15.0	35.0	R 336.1225, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d)
6. SV3K-EDL-2	16.0	35.0	R 336.1225, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d)

**IX. OTHER REQUIREMENTS**

NA

**Footnotes:**

<sup>1</sup>This condition is state only enforceable and was established pursuant to Rule 201(1)(b).