

PERMIT BOOK

STATE OF MISSOURI



DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: 062010-007 Project Number: 2010-02-005

Parent Company: Dallas Airmotive, Inc.

Parent Company Address: 900 Nolen Drive, Suite 100, Dallas, TX 76051

Installation Name: Premier Turbines

Installation Number: 145-0044

Installation Address: 3551 Doniphan Drive, Neosho, MO 64850

Location Information: Newton County, S11, T24N, R31W

Application for Authority to Construct was made for:

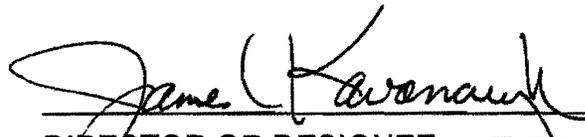
The reactivation of engine test cell number 3. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

Standard Conditions (on reverse) are applicable to this permit.

Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

JUN 11 2010

EFFECTIVE DATE



DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Departments' Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available within 30 days of actual startup. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

Premier Turbines
Newton County, S11, T24N, R31W

1. Emissions Limitations – Carbon Monoxide (CO), Volatile Organic Compounds (VOCs) and Hazardous Air Pollutants (HAPs)
 - A. Premier Turbines shall emit less than 250.0 tons of CO from the entire installation in any consecutive 12-month period.
 - B. Premier Turbines shall emit less than 250.0 tons of VOCs from the entire installation in any consecutive 12-month period.
 - C. Premier Turbines shall emit less than ten (10.0) tons individually and twenty-five (25.0) tons combined of hazardous air pollutants (HAPs) from the entire installation in any consecutive 12-month period.
 - D. Attachment A, B, C, D and Appendix A, or equivalent forms approved by the Air Pollution Control Program, shall be used to demonstrate compliance with Special Conditions 1.A, 1.B and 1.C.
 - E. Premier Turbines shall maintain all records required by this permit for not less than five (5) years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request. These records shall include Material Safety Data Sheets (MSDS) for all material used at the installation.
 - F. Premier Turbines shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten (10) days after the end of the month during which the records from Special Condition 1.D. indicate that the source exceeds the limitation of Special Conditions 1.A., 1.B. or 1.C.

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SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

2. Fuel Content Limit – Sulfur

- A. The sulfur content of the jet fuel combusted in test cell No. 3 shall not exceed 0.29 percent by weight.
- B. To demonstrate compliance with the 0.29 percent sulfur limit, Premier Turbines shall obtain, for each fuel oil delivery, documentation from the fuel vendors or conduct its own fuel analysis to evaluate the sulfur content for the fuel.
- C. Premier Turbine shall maintain the records required in Special Condition 2.B. for not less than five (5) years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.
- D. Premier Turbines shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten (10) days after the end of the month during which the records from Special Condition 2.B. indicate that the source exceeds the limitation of Special Conditions 2.A.

3. Superseding Condition

Special Condition No. 1 of this permit supersedes Special Condition No. 7 of permit 122004-009 (Project 2004-10-019)

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW

Project Number: 2010-02-005
Installation ID Number: 145-0044
Permit Number:

Premier Turbines
3551 Doniphan Drive
Neosho, MO 64850

Complete: February 1, 2010

Parent Company:
Dallas Airmotive, Inc.
900 Nolen Drive, Suite 100
Dallas, TX 76051

Newton County, S11, T24N, R31W

REVIEW SUMMARY

- Premier Turbines has applied for authority to reactivate engine test cell No. 3.
- Hazardous Air Pollutant (HAP) emissions are expected from the engines being tested but only in amounts below the Screening Model Action Levels (SMAL).
- None of the New Source Performance Standards (NSPS) apply to the proposed equipment.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) or Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment.
- No air pollution control equipment is being used in association with the new equipment.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, Construction Permits Required. Potential emissions of all pollutants are below *de minimis* levels.
- This installation is located in Newton County, an attainment area for all criteria pollutants.
- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.
- Ambient air quality modeling was not performed since potential emissions of the application for criteria pollutants are below *de minimis* levels and for HAPs are below SMAL.
- Emissions testing is not required for the equipment.

- A modification to the installation’s intermediate operating permit is required within 90 days of equipment startup or the facility may apply for a Part 70 Operating Permit within one (1) year of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Premier Turbine owns and operates an aircraft engine repair and rebuild facility in Neosho, MO. It is unclear from its permitting history whether the volatile organic compounds (VOCs) and carbon monoxide (CO) emissions are below major source levels for construction permitting. Therefore, the facility opted to take a 250.0 tons per year limit on both VOC and CO emissions in order to remain a minor source for construction permits.

The facility was issued an intermediate operating permit (Project 2006-12-038, Permit OP2010-015) which limited its criteria pollutants to less than 100.0 tons per year, individual HAP to less than 10.0 tons per year and combined HAPs to less than 25.0 tons per year. After the issuance of this permit, the facility shall either submit an application to modify its intermediate operating permit or apply for a Part 70 Operating Permit.

The following permits have been issued to Premier Turbines from the Air Pollution Control Program.

Table 1: Permit History

Permit Number	Description
1098-008	Installation of two test jet engines
082000-023	Installation of a vapor degreaser
092000-011	Temporary permit for a vapor degreaser
032001-015	Modification to its existing vapor degreaser to allow the use of perchloroethylene
122004-009	Modification of Test Cells 5 and 6 to accommodate larger jet engines, installation of cartridge collectors on three (3) existing plasma/flame spray booths, replacement of a nondestructive testing line with larger tanks and installation of a fuel nozzle test bench

PROJECT DESCRIPTION

Premier Turbines has applied for authority to restart engine test cell No. 3 to test Walter engines M601D and M601E. The test cell was constructed in 1981 and was deactivated in 1991. Each test will consist of 6 minutes of take-off, 6 minutes of climb-out, 3 minutes of approach and 6.5 minutes of idling. No control device will be used to control emissions from the engines. The facility expects to test a maximum of forty (40) engines per year and each engine is expected to be tested no greater than two (2) times for a total of 80 tests. However, this maximum rate is not based on a physical bottleneck at the facility but is based on business practice. The company calculated the maximum number of engines based on the following facts.

- 1) There are 200 engines in North America.
- 2) There are 5 years/2,000 flight hour time between overhauls.
- 3) The overhaul is completed in Prague, Czech Republic.
- 4) All test cell runs will be based on unscheduled engine entry.
- 5) Additional introduction of engines to North America will be on a limited basis in the near future.

Since business practices can and often do change, it is not known how accurate this method is. However, the emissions from each test are expected to be small. The facility would have to conduct 12,214 tests for the acrolein (the HAP with emissions closest to its SMAL) emissions to exceed the Screening Model Action Level (SMAL) of 0.04 tons per year and 13,091 tests for particulate matter less than ten (10) microns (PM₁₀) emissions to exceed their *de minimis* level of 15 tons per year. Therefore, the potential emissions of the project were calculated using a maximum of 80 test per year under the assumption that even if the facility exceeds 80 tests per year, it would not exceed it by an amount that would increase emissions to above the *de minimis* level for criteria pollutants or SMAL for HAPs.

EMISSIONS/CONTROLS EVALUATION

Premier Turbines submitted nitrogen oxides (NO_x), CO and total hydrocarbon (THC) emission factors from performance tests conducted at a General Electric facility in the Czech Republic. VOC emission factors can be calculated by multiplying the total hydrocarbon (THC) emission factor from the performance tests by 1.15, as recommended by the Environmental Protection Agency (EPA) in its document, *Recommended Best Practice for Quantifying Speciated Organic Gas Emissions from Aircraft Equipped with Turbofan, Turbojet and Turboprop Engines* (5/09). Since the tests were performed overseas, it is not known how the tests were performed or if an EPA approved method was used. However, EPA document AP-42, *Compilation of Air Pollutant Emission Factors, Third Edition*, lists emission factors from the testing of various jet engines in Chapter 3.2.1, *Aircraft* (4/73). Emissions were calculated using emission factors from both AP-42 and the performance tests. Results show that the NO_x, CO and VOC emissions calculated from both sources are of similar magnitude and below the regulatory *de minimis* levels. Therefore, the testing data was accepted for use in calculating NO_x, CO and VOC emissions from the project. The facility will test two (2) types of engines at test cell No. 3, Walter model M601D and M601E, and the performance test includes emission factors for both engines. The potential emissions of the project were calculated using the higher emission factor.

Sulfur oxide (SO_x) emissions were calculated by assuming that the sulfur content of the fuel is 0.29% and that 100% of the sulfur is converted to SO_x. The facility is required to either obtain data from the fuel vendors or conduct its own fuel analysis to show that the sulfur content is less than 0.29%. PM₁₀ emissions were calculated using an emission factor from AP-42, *Compilation of Air Pollutant Emission Factors, Third Edition*, Chapter 3.2.1, *Aircraft* (4/73). AP-42 contains emission factor for different types of engines, but does not include Walter M601D and M601E. Therefore, the highest emission factor was used. Individual HAP emissions were calculated by multiplying the VOC emissions by the mass fraction expected in the engine exhaust. The mass fraction were taken from EPA document, *Recommended Best Practice for Quantifying Speciated Organic Gas Emissions from Aircraft Equipped with Turbofan, Turbojet and Turboprop Engines* (5/09). Some of

the HAP fractions differ from those used in the previous permit (No. 122004-009, Project 2004-10-019) because tests performed after the issuance of those permits suggest a different percentage. The new HAP speciation profile (See Appendix A) should be used to calculate the installation-wide individual and combined HAP emissions. Operating permit OP2010-015 (Project 2006-12-038) issued to the facility in February, 2010, still use the old speciation profile. The new speciation profile should be used in future operating permit projects.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	¹ Existing Potential Emissions	Existing Actual Emissions (2008 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM ₁₀	15.0	<100.0	0.70	0.092	N/A
SO _x	40.0	<100.0	0.94	0.028	N/A
NO _x	40.0	<100.0	15.53	0.023	N/A
VOC	40.0	<100.0	27.69	0.011	<250.00
CO	100.0	<100.0	12.45	0.125	<250.00
HAPs	10.0/25.0	<10.0/25.0	3.77	0.003	<10.0/25.0

NA = Not Applicable

Note 1: Existing potential emissions based on limits in operating permit OP2010-015 (Project 2006-12-038).

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are below their respective *de minimis* level.

APPLICABLE REQUIREMENTS

Premier Turbines shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required June 1 for the previous year's emissions.
- *Operating Permits*, 10 CSR 10-6.065
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170

- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-3.090

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Sulfur Compounds*, 10 CSR 10-6.260

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

Chia-Wei Young
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated January 27, 2010, received February 1, 2010, designating Premier Turbines as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Third Edition.

Appendix A: Jet Fuel HAP Speciation

Premier Turbines
 Newton County, S11, T24N, R32W
 Installation ID Number: 145-0044
 Permit Number OP2010-015

HAP	CAS No.	Weight Percent (%)
1,3-Butadiene	106-99-0	1.89
Acetaldehyde	75-07-0	4.83
Acrolein	107-02-8	¹ 2.45
Benzene	71-32-2	2.02
Ethylbenzene	100-41-4	0.18
Formaldehyde	50-00-0	15.48
Isopropylbenzene	98-82-8	² 0.003
Methanol	67-56-1	² 18.05
m-xylene and p-xylene	108-38-3/106-42-3	0.50
Napthalene	91-20-3	0.60
O-xylene	95-47-6	0.20
Phenol	108-95-2	0.73
Propionaldehyde	123-38-6	¹ 0.73
Styrene	100-42-5	0.41
Toluene	108-88-3	¹ 0.64

Note 1: For these pollutants, the weight percentage differs than those used in previous construction permit (No. 2004-10-019, Project 2004-10-019) and operating permit (OP2010-015, Project 2006-12-038) because new testing data since the issuance of these permits suggest a higher value.

Note 2: These pollutants were not included in the analysis for the previous construction permit (No. 2004-10-019, Project 2004-10-019) and operating permit (OP2010-015, Project 2006-12-038). New testing data suggest that these pollutants are present in aircraft exhaust.