EDMS 5.1 Release Notes

September 19, 2008

EDMS is a combined emissions and dispersion model for assessing air quality at civilian airports and military air bases. The model was developed by the Federal Aviation Administration (FAA) in cooperation with the United States Air Force (USAF).

These release notes provide a summary of the improvements and bug fixes for EDMS 5.1. For more information on EDMS please check the EDMS User's Manual.

New functionalities have been added to EDMS5.1 including the ability to:

- Calculate individual speciated hydrocarbons (HC), including known hazardous air pollutants (HAPs) for all airport emission sources
- Calculate total organic gases (TOG) for all airport emission sources,
- Estimate carbon dioxide (CO_2) emissions for aircraft only
- Export emissions inventory results into a semi-colon delimited text file for analytical use in spreadsheet programs
- Estimate particulate matter (PM) emissions from Auxiliary Power Units (APUs)

In addition to the new functionalities, the following major updates are discussed more in detail below and in the EDMS5.1 User's Manual:

- Revised HC to NMHC, VOC and TOG conversions factors for most of the sources
- Aircraft PM emissions are estimated only for aircraft with International Civil Aviation Organization (ICAO) certified engines
- Revised FOA3 (for non-US airports) and FOA3a (for US airports) methodologies are harmonized to predict the non-volatile portion of PM emissions more accurately based on the engine type: turbofan (TF) versus internally-mixed turbofan (MTF)
- To derive sulfur-driven volatile PM emissions from aircraft, default values for fuel sulfur content (FSC) and the sulfur-to-sulfate conversion rate have been adjusted to reflect the latest science for application in the FOA3 methodology for non-US airports only, as recommended by ICAO. Users still have the flexibility to change these default values to suit their study-specific data
- Default values for FSC and the sulfur-to-sulfate conversion rate have been fixed for US airports only, as recommended by the EPA
- Updated equation to derive the sulfur oxides (Sox) emission index for aircraft based upon the sulfur balance between sulfur-driven volatile PM emissions and SOx gaseous emissions
- Revised HC emission estimates upon engine startup for aircraft with ICAO-certified engines only, as recommended by ICAO
- 40 new aircraft have been added
- 63 new engines have been added
- 5 new APUs have been added

EDMS5.1 Improvements and Bug Fixes	
EDMS 5.0.2 Behavior	**EDMS 5.1 Behavior**

AERMAP

Selecting multiple DEM files that are in 7.5 minute format in the *AERMAP* dialog, may create or set a bad default domain.	The default domain is properly set in the *AERMAP* dialog when multiple DEM files of 7.5 minute format are selected.

AERMET Wizard

The user-edited values for the lat-long in Step1 and 2 and the time zone in step 3 of the AERMET Wizard are not properly stored.	All user-edited values in the AERMET Wizard are properly stored and loaded the next time the Wizard is executed.
Entering a Base File Name which contains a space in step 3 of the AERMET Wizard may cause EDMS to fail.	EDMS will not fail if the Base File Name in step 3 of the AERMET Wizard contains a space. Any spaces are replaced by an underscore.
The weather station ID for Radiosonde upper-air data is not properly recognized in step 2 of the AERMET Wizard.	The weather station ID is properly recognized when Radiosonde upper-air data is selected in step 2 of the AERMET Wizard.
EDMS does not save the location of the weather files selected in Step1.	In Step 1 of the AERMET Wizard, the folder selected as the location of the weather files is properly saved and is subsequently used as the default weather file location in Step 2.

AERMOD (including AERMOD Input Files)

The hill height information is not properly saved in the INP files.	The INP files contain the proper hill height.

When trying to generate the INP files for a different set of pollutants than one previously generated, the following error sometimes occur: “Error. Could not copy .INP file for AERMOD processing”, and AERMOD stops running.	AERMOD will not stop running when generating the INP files for a different set of pollutants than one previously generated.
When selecting *Run AERMOD*, there is no pollutant confirmation.	EDMS displays the pollutants for which AERMOD will run. Although .HRE files are generated for all pollutants, EDMS allows the option for the selection of specific pollutants for generating AERMOD input files.
Suspend date checking is checked as a default option in Step 3 of generating AERMOD input files.	Suspend date checking is not checked as a default option in Step 3 of generating AERMOD input files.

***Aircraft Operations and Assignments* window**

Fuel Sulfur Content, under the *Engine Emissions* tab is not saved properly when a non-US airport is used.	The *Fuel Sulfur Content* value is saved and loaded properly.

All Model Inputs

The *All Model Inputs* under the *View* menu did not print the correct category name and some units for stationary sources.	Stationary source properties are properly printed in the *All Model Inputs*.

Configurations Window

Deleting a configuration from the *Available* list sets the “emissions out of date” indicator.	The “emissions out of date” indicator is not set when a configuration is deleted from the *Available* list, since doing so has no affect on emissions.

Emissions Inventory

New!	EDMS5.0.2 cannot export emissions inventory results.	An export button allows the user to export the emissions into a semi-colon delimited text file in the specified units.
	The status of inventory buttons do not change when a study has multiple scenario – airport combinations. Thus, if one scenario does not have stationary sources but another has, the *stationary button* will not be "grayed out".	The appropriate inventory buttons are "grayed out" to reflect the emission source status of each scenario – airport combination in a study.

Emissions Processing

New!	Emissions for 8 criteria pollutants are calculated.	In addition to the 8 criteria pollutants, EDMS5.1 has the ability to calculate Total Organic Gas (TOG) emissions for all airport sources, as well as CO_2 emissions for aircraft only.
New!	There are no individual speciated hydrocarbon emissions, including known hazardous air pollutants (HAPs) for aircraft and other airport emission sources.	Individual speciated hydrocarbon emissions are calculated for all emission sources. Based on new FAA/EPA speciated hydrocarbon profile for turbofan, turbojet, and turboprop engines for aircraft. Includes 19 known HAPs. Airport-wide, this includes 44 known HAPs and 351 non-HAP compounds which are provided as a list in Appendix A.

Revised!	N/A	Updated methodology and conversion factors between HC, TOG, VOC, and NMHC for all sources. GSE is the only exception as EPA's NONROAD model handles these emissions. See file "MISC_FACT.DBF" for the updated conversion factors. In previous EMDS versions, this file was called "PM25_VOC.DBF".
Revised!	Total PM emissions are calculated for all non-piston engined aircraft. For all other aircraft whose engines do not have valid smoke numbers, only the volatile portion of PM emissions are calculated based on fuel sulfur content and organic hydrocarbon emission indices.	Total PM (both non-volatile and volatile) emissions are calculated only for aircraft with ICAO certified engines that report smoke numbers.
Revised!	The FOA3 and FOA3a methodologies are used to calculate PM emissions for aircraft without taking into account the engine type: turbofan (TF) versus mixed turbofan (MTF).	Revised FOA3 (for non-US airports) and FOA3a (for US airports) methodologies have been harmonized to predict the non-volatile portion of PM emissions more accurately based on the engine type: turbofan (TF) versus internally-mixed turbofan (MTF).
Revised!	FOA3 and FOA3a Fuel Sulfur Content (FSC) and sulfur-to-sulfate conversion rate values: FOA3 default values (non-US airports) FSC: 0.068 % Sulfur-to-Sulfate Conversion Rate: 0.5 % FOA3a fixed values (US airports) FSC: 0.068 % Sulfur-to-Sulfate Conversion Rate: 5 %	FOA3 and FOA3a Fuel Sulfur Content (FSC) and sulfur-to-sulfate conversion rate values: FOA3 default values (non-US airports) FSC: 0.06 % Sulfur-to-Sulfate Conversion Rate: 2.4 % FOA3a fixed values (US airports) FSC: 0.068 % Sulfur-to-Sulfate Conversion Rate: 5 %
Revised!	SOx emission index for aircraft at US airports is fixed at 1.36 g/Kg.	Updated the equation to derive the SOx emission index, which is based on the fuel sulfur content and the sulfur to sulfate conversion rate. Because EPA fixed the FSC for US airports, the SOx EI is calculated to be 1.292 g/Kg.

Revised!	Engine Startup HC emissions are calculated for all aircraft	Aircraft engine startup HC emissions are estimated using a new methodology only for aircraft with ICAO certified engines in terms of its thrust rating, per recommendations from ICAO.
New!	There are no PM APU emissions.	PM emissions are estimated for APUs.
	The minimum pressure is erroneously set, resulting in using standard atmospheric pressure at high altitude airports.	The appropriate atmospheric pressure is used at high altitude airports.
	When using ICAO times in mode, sea level pressure is used instead of ambient pressure.	Ambient pressure is properly used when using ICAO times in mode.

Error Reporting

New!	N/A	Notes and problems that occur during the emission calculations are saved in a file named "RUN_LOG_EMIS.txt" located in the EDMS directory.

GSE Emissions

	Fuel flow was sometimes erroneously calculated for GSE.	Fuel flow calculations for GSE have been removed because of inconsistencies within the NONROAD data. This area has been marked as a future EDMS update.
	GSE population emissions are sometimes not properly loaded if the study is closed and then re-opened.	GSE population emissions are properly loaded, every time the study is closed and re-opened.

GSE Population Window

	The GSE Population dialog produces an error when trying to set the population count for user-created GSE.	The error associated with the population count of user-created GSE has been corrected. Users can now enter the number of user-created GSE without receiving an error.

MOBILE6.2 Application

New!	The AIR_TOXICS option is not used.	The AIR_TOXICS option has been added as a MOBILE parameter to calculate emission factors for six toxic pollutants. The following input parameters are used in the MOBILE6.2 run: E200: 50 E300: 85 GAS AROMATIC%: 25 GAS OLEFIN%: 15 GAS BENZENE%: 1.5 OXYGENATE: MTBE 0.00 0.0 ETBE 0.00 0.0 ETOH 10.0 1.0 TAME 0.00 0.0 NOTE: For more site specific emission factors, if other values or parameters are needed, FAA suggests that the user runs MOBILE6.2 outside of EDMS5.1 and manually update the emission factors.

***Parking Facilities* Window**

The release height of multi level parking facilities is not properly saved.	The release height of multi level parking facilities is properly saved.

***Receptors* Window**

Renaming a polar receptor or a polar network sets the “Emissions out of date” indicator.	The “Emissions out of date” indicator is not set when a polar receptor or polar network is renamed.
Receptors which contain a space in their name may cause AERMOD to fail.	To prevent AERMOD from failing, EDMS will automatically replace any spaces in the name of the receptors with an underscore.

***Roadways* Window**

The roadway length is not properly saved when the Metric units are selected.	The user is able to properly change the roadway length when the metric units are selected.

***View Airport* screen**

Drawing airport components from the *View Airport* screen may produce unwanted results when the English units are selected.	When English units are selected, the user is able to properly draw airport components.

Other Changes

Revised!	N/A	The sequence model has an updated runway exit selection algorithm which allows for more realistic runway exit selection after an aircraft has landed.
	Invalid entries in the ACCODE and UID fields of the schedule of aircraft operations may cause EDMS to fail.	Invalid entries in the ACCODE and UID fields of the schedule are skipped and do not cause EDMS to fail. The invalid entries are listed in the error file "RUN_LOG_EMIS.txt" located in the EDMS directory.
	Unsorted schedule of aircraft operations may cause EDMS to fail.	Unsorted operations in the schedule are skipped and do not cause EDMS to fail. The skipped operations are listed in the error file "RUN_LOG_EMIS.txt" located in the EDMS directory.
	Adding, removing, or duplicating a scenario causes EDMS to save the study without warning the user.	EDMS does not save the study when adding, removing, or duplicating a scenario.
	Removing all aircraft from the In Study list did not remove all aircraft. Similar behavior occurs when removing all scenarios.	When all aircraft in the In Study list are selected, and the remove button is pressed, all aircraft are removed. Similarly, all scenarios can be removed.

New!	N/A	40 new aircraft have been added. See Appendix B for a detailed list of the aircraft.
New!	N/A	63 new engines have been added. See Appendix C for a detailed list of the engines.
New!	N/A	5 new APUs have been added. See Appendix D for a detailed list of the APUs.

Appendix A. Speciated Hydrocarbons

The following list shows the speciated hydrocarbons that are new in EDMS 5.1. For more information please check the EDMS 5.1 User's Manual.

The following 44 speciated hydrocarbons have been identified as known HAPs in the CAA Section 112r or EPA's Integrated Risk Information System (IRIS) database. It is important to note that the HAPs listed in CAA Section 112r do not apply to mobile sources.

1,1,1-trichloroethane
1,3-butadiene
2,2,4-trimethylpentane
2-ethoxyethanol (cellosolve) (egee)
2-methylnaphthalene
Acetaldehyde
Acetone
Acrolein (2-propenal)
Benzaldehyde
Benzene
Butyl cellosolve (2-butoxyethanol) (egbe)
Chlorobenzene
Cyclohexane
Dichloromethane (methylene chloride)
Ethyl acetate
Ethyl chloride
Ethyl ether
Ethylbenzene
Ethylene dibromide
Ethylene glycol
Formaldehyde
Isomers of xylene
Isopropylbenzene (cumene)
M & p-xylene
Methyl alcohol
Methyl chloride
Methyl ethyl ketone (2-butanone)
Methyl isobutyl ketone
M-xylene
Naphthalene
N-butyl alcohol
N-heptane
N-hexane
O-xylene
Perchloroethylene
Phenol (carbolic acid)
Phthalic anhydride
Propionaldehyde
P-xylene
Styrene
Toluene
Trichloroethylene
Trichlorotrifluoroethane-F113
Vinyl acetate

The following 351 speciated hydrocarbons have <u>not</u> been identified as HAPs in the CAA or the IRIS.

(1-Methylpropyl)benzene
(2-methylpropyl)benzene
1,1,3-trimethylcyclohexane
1,2,3-trimethylbenzene
1,2,4-trimethylbenzene (1,3,4-trimethylbenzene)
1,2-diethylbenzene (ortho)
1,2-propadiene
1,3,5-trimethylbenzene
1,3-diethylbenzene (meta)
1-butene
1-decene
1-Ethoxy-2-propanol
1-hexene
1-Methyl-2-ethylbenzene (o-ethyltoluene)
1-Methyl-3-ethylbenzene (m-ethyltoluene)
1-Methyl-3-isopropylbenzene
1-Methyl-3-propylbenzene
1-Methyl-4-ethylbenzene (p-ethyltoluene)
1-Methylcyclopentene
1-Methylnaphthalene
1-nonene
1-octene
1-pentene
1-propyne
1-undecene
2-(2-butoxyethoxy)ethanol (butyl carbitol)
2,2,5-trimethylhexane
2,2-Dimethyl-3-ethylpentane
2,2-dimethylbutane
2,2-dimethylhexane
2,3,3-trimethylpentane
2,3,4-trimethylpentane
2,3,5-trimethylhexane
2,3-dimethylbutane
2,3-dimethyloctane
2,3-dimethylpentane
2,4,4-trimethyl-1-pentene
2,4,5-trimethylheptane
2,4-dimethylheptane
2,4-dimethylhexane
2,4-dimethyloctane
2,4-dimethylpentane
2,5-dimethylheptane
2,6-dimethyloctane
2-Butyltetrahydrofuran
2-ethoxyethyl acetate (cellosolve acetate)
2-Ethyl hexanol
2-hexenes
2-methyl-1-butene
2-methyl-1-pentene
2-methyl-2-butene

2-methyl-2-pentene
2-methyl-2-propenal (methacrolein)
2-Methyl-3-hexanone
2-methyldecane
2-methylheptane
2-methyloctane
2-methylpentane
2-methylphenanthrene
3-(Chloromethyl)-heptane
3,4-dimethyloctane
3-ethylhexane
3-methyl-1-butene
3-methylheptane
3-methylhexane
3-methyloctane
3-methylpentane
4-methyl-1-pentene
4-methylheptane
4-methyloctane
4-Phenyl-1-butene
Acetylene
Alkene ketone
Butylcyclohexane
Butyraldehyde
C-1 Compounds
C10 Aromatic
C-10 Compounds
C10 Olefins
C10 Paraffinss
C10H12
C-11 Compounds
C11 Olefins
C-12 Compounds
C12 Olefins
C-13 Compounds
C-14 Alkane
C-14 Compounds
C14-Branched alkane
C-15 Alkane
C-15 Compounds
C15-Branched alkane
C16 Branched alkane
C-16 Compounds
C-17 Compounds
C-18 Alkane
C-18 Compounds
C-19 Compounds
C-2 Compounds
C2 Cyclohexane
C-20 Compounds
C-21 Compounds
C-22 Compounds
C-23 Compounds
C-24 Compounds
C-25 Compounds
C-26 Compounds
C-27 Compounds
C-28 Compounds
C-29 Compounds
C2-Alkylnaphthalene
C-3 Compounds
C3 Cyclohexane
C3/C4/C5 Alkylbenzenes
C-30 Compounds
C-31 Compounds
C-32 Compounds
C-33 Compounds
C-34 Compounds
C-35 Compounds
C-36 Compounds
C-37 Compounds
C-38 Compounds
C-39 Compounds
C-4 Compounds
C4 Substituted cyclohexane
C-40 Compounds
C-41 Compounds
C-42 Compounds
C-43 compounds
C4-Alkylphenols
C4-Alkylstyrenes
C4-Benzene + C3 Aroald
C-5 Compounds
C5 Cyclohexane
C5 Ester
C5-Alkylbenzenes
C5-Alkylbenzenes (Unsat.)
C5-Alkylphenols
C5-Benzene + C5-Aroald
C5-Olefin
C5-Paraffin
C5-Paraffin/olefin
C-6 Compounds
C6-Alkylbenzene
C6H18O3SI3
C-7 Compounds
C-7 Cycloparaffinss
C7 Paraffins
C7-C16 Paraffins
C7H12O
C-8 Compounds
C-8 Olefins
C8 Paraffin
C8H24O4SI4
C-9 Compounds
C9 Olefins
C9 Paraffin
Carbitol (degee) (2-(2-ethoxyethoxy)ethanol)
Cis-1,4-dimethylcyclohexane
Cis-1,trans-2,3-trimethylcyclopentane
Cis-2-butene
Cis-2-hexene
Cis-2-pentene
Crotonaldehyde
Cyclohexene
Cyclopentane
Cyclopentene
Cyclopentylcyclopentane
Decalins
Di(propylene glycol) methyl ether
Diacetone
Dibutyl ether
Diethylcyclohexane
Diethylene glycol
Dihydronaphthalene
Dimethoxymethane
Dimethyl napthalene
Dimethylbutene
Dimethylcyclohexane
Dimethylcyclopentane
Dimethylcyclopentenes
Dimethyldecane
Dimethylethylcyclohexane
Dimethylheptanes
Dimethylhexadiene
Dimethylhexanes
Dimethylhexene
Dimethylindans
Dimethylindene
Dimethylnaphthyridine
Dimethylnonanes
Dimethyloctanes
Dimethylpentane
Dimethylpentene
Ethane
Ethyl alcohol
Ethylbicycloheptane
Ethylcyclohexane
Ethylcyclopentane
Ethylcyclopentene

Ethyldimethylbenzene
Ethyldimethylcyclohexane
Ethyldimethylpentane
Ethylene
Ethylenediaminetetraacetic Acid
Ethylheptane
Ethylheptene
Ethylindan
Ethylisopropyl ether
Ethylmethylcyclohexanes
Ethylmethylcyclopentane
Ethylmethylhexane
Ethylmethyloctane
Ethyloctane
Ethyloctene
Ethylpentene
Ethylpropylcyclohexanes
Ethyltoluenes (methylethylbenzenes)
Furfuryl alcohol
Glyoxal
Heptadecane
Heptadienal
Heptene
Hexadecane
Hexadienal
Hexaldehyde
Hexene
Hexylene glycol (2-methyl-2,4-pentanediol)
Hexyne
Indan
Isobutane
Isobutyl alcohol
Isobutylene
Isobutyraldehyde
Isomers of butene
Isomers of butylbenzene
Isomers of C10H18
Isomers of C9H16
Isomers of decane
Isomers of diethylbenzene
Isomers of dodecane
Isomers of ethyltoluene
Isomers of heptane
Isomers of hexane
Isomers of nonane
Isomers of octane
Isomers of pentadecane
Isomers of pentane
Isomers of pentene
Isomers of propylbenzene
Isomers of tetradecane
Isomers of tridecane
Isomers of undecane
Isopentane
Isoprene
Isopropyl alcohol
Isovaleraldehyde
Ketones - general
Methane
Methyl amyl ketone
Methyl carbitol (2-(2-methoxyethoxy)ethanol) (degme)
Methyl naphthalenes
Methyl palmitate
Methyl styrene (mixed) (vinyl toluene)
Methylbutadiene
Methylbutene
Methylcyclohexadiene
Methylcyclohexane
Methylcyclohexene
Methylcyclooctane
Methylcyclopentadiene
Methylcyclopentane
Methyldecalins
Methyldecanes
Methyldecene
Methyldihydronaphthalene
Methyldodecane
Methylglyoxal
Methylheptane
Methylheptene
Methylheptyne
Methylhexadiene
Methylhexanal
Methylhexane
Methylhexenes
Methylindans
Methylisopropylcyclohexane
Methylnonane
Methylnonene
Methyloctanes
Methylpentane
Methylpentenes
Methylpropylcyclohexanes
Methylpropylnonane
Methylundecane
Mineral spirits
N-butane
N-butyl acetate
N-butylbenzene
N-decane
N-dodecane
N-heptadecane
N-nonane
N-octane
Nonadiene
N-pentane
N-pentylbenzene
N-pentylcyclohexane
N-propylbenzene
N-tridecane
N-undecane
Octahydroindenes
Octatriene
o-Tolualdehyde
Oxygenates
Pentadecane
Pentyne
Propane
Propenylcyclohexane
Propyl acetate
Propylene
Propylene glycol methyl ether (1-methoxy-2-propanol)
Propylene glycol monomethyl ether acetate (2-(1-methoxy)propyl acetate)
p-Tolualdehyde
Sec-butyl alcohol
Substituted C9 ester (C12)
T-1-Phenylbutene
T-2-Nonene
Tetradecane
Tetramethylbenzene
Tetramethylcyclobutene
Tetramethylcyclopentane
Tetramethylthiourea
Tolualdehyde
Trans-2-butene
Trans-2-hexene
Trans-2-pentene
Trans-3-hexene
Trimethylbenzenes (mixed)
Trimethyldecane
Trimethylheptanes
Trimethylhexene
Trimethylindan
Trimethyloctanes
Trimethylpentadiene
Trimethylpentane
Triphenylene
UNC peaks to CBM xylene
Valeraldehyde

Appendix B. New Aircraft

The following list shows the 40 aircraft that are new in EDMS 5.1. To obtain more information about these aircraft, please select the *Aircraft* table from the *Systems Tables* option under the *View* menu.

Airbus A330-800 Series
Airbus A380-900 Series
Boeing 737-800 with winglets
Boeing 747-400 Freighter
Boeing 737-900-ER
Boeing 777-200-LR
Bombardier CRJ-100-LR
Bombardier CRJ-200-ER
Bombardier CRJ-200-LR
Bombardier CRJ-400
Bombardier CRJ-400-LR
Bombardier CRJ-700-ER
Bombardier CRJ-700-LR
Bombardier CRJ-705-LR
Bombardier CRJ-900-ER
Embraer ERJ140-LR
Embraer ERJ145-EP
Embraer ERJ145-EU
Embraer ERJ145-LU
Embraer ERJ145-MP
Embraer ERJ145-XR
Embraer ERJ170-LR
Falcon 7X
Gulfstream V-SP
Raytheon Hawker 900
Ilyushin 114
Lockheed L-1011-1 Tristar
Lockheed L-1011-100 Tristar
Lockheed L-1011-200 Tristar
Lockheed L-1011-250 Tristar
Lockheed L-1011-500 Tristar
Boeing MD-10-1
Bombardier Learjet 35A/36A (C-21A)
Raytheon Hawker C-29A
Antonov AN28 Cash
PZL M-28 Skytruck
Rockwell Sabreliner 75
CESSNA CITATION 510
Eclipse 500
Falcon 900DX

Appendix C. New Engines

The following list shows the 63 engines that are new in EDMS 5.1. To obtain more information about these engines, please select the *Aircraft Engines Emissions Data* table from the *Systems Tables* option under the *View* menu.

Trent 970-84	CF34-8C5B1	CFM56-5B7/3
Trent 556-61	CF34-8E2A1	CFM56-5B6/3
Trent 553-61	CF34-8C5	CFM56-5B5/3
SPEY Mk511	CF34-8E6	CFM56-5B4/3
PW307A	CF34-8E5	CFM56-5B3/3
PW307A	CF34-8C5A1	CFM56-5B2/3
PW4084	CF34-8E6A1	CFM56-5B1/3
JT9D-20	CF34-8E5A1	CFM56-7B26
JT9D-7A	CF34-8C5A2	AE3007C
JT9D-7	CF34-8C5A3	AE3007C1
JT8D-7 series	CF34-8E5A2	AE3007A1 series
V2527M-A5	CF6-80C2B8F	AE3007C
V2527E-A5	GE90-94B	RB211-535E4
AS907-1-1A	CFM56-7B27/3	RB211-535E4
CF34-10E7	CFM56-7B26/3	RB211-524G
CF34-10E6A1	CFM56-7B24/3	PW2040
CF34-10E5A1	CFM56-7B22/3	PW2037
CF34-10E6	CFM56-7B20/3	CF6-80C2B1F
CF34-10E5	CFM56-7B18/3	CF6-80C2A5
CF34-10E2A1	CFM56-5B9/3	CF6-80C2A3
CF34-8E2	CFM56-5B8/3	CF6-80C2A2

Appendix D. New APUs

The following list shows the 5 APUs that are new in EDMS 5.1. To obtain more information about these APUs, please select the *APU Emissions Data* table from the *Systems Tables* option under the *View* menu.

APU GTCP 165-9(135 HP)
APU GTCP 165-1A(128 HP)
APU GTCP 331-250
APU 85-180(177 HP)
APU T62T27(65 HP)