Wiring Diagrams

ACES VCdb Vehicle Key Content Development Kit

VERSION 3.3











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1 Overview

The tables that are defined in this document explain MOTOR's **Wiring Diagram** database in Auto Care Association ACES VCdb vehicle key coding. This dataset covers most domestic and imported car and light truck models. Low census vehicles (including low sales volume and exotic vehicles) may be excluded.

Auto Care Association has established a delivery specification for the communication of parts information in XML format utilizing a defined data schema. This delivery specification can be found in the ACES documentation package, which can be downloaded at http://www.autocare.org/what-we-do/technology/technologyhelp. The data in this delivery utilizes only the VCdb portion of the ACES standard. The data also deviates from the ACES standard in the following ways:

- The data described in this CDK is delivered in pipe-delimited UTF-8 text file (*.txt), not in XML database format as described in the ACES 3.0 specification.
- The ACES 3.0 XML lists vehicle attributes as elements to be included in an application when applied. Those elements have an attribute name "id", which provides the id value for looking up the attribute description within the VCdb Database. VCdb Attributes in the data described in this document will be listed in the table DiagramSet_Application_VCdbAttribute_xRef. The AttributeName field is the name of the VCdb vehicle attribute and is equivalent to the element name in the ACES 3.0 XML schema, and the AttributeID value is the value that is equivalent to the "id" attribute for that element.
- The ACES Delivery Specification indicates that each application should only contain the VCdb Attributes that are required to differentiate between two or more content records. In our experience, we have found that this can lead to potential errors and miscommunication of data because of implied, or assumed, vehicle coverage. Therefore, in this data, we have included enough vehicle attributes so that each Application resolves to exactly one VCdb Year, Make, Model, SubModel, Region and Engine (YMME) definition.
- As a result of adding enough vehicle attributes to the data so that each Application resolves to a single YMME, we have also added the VCdb VehicleToEngineConfigID value to the records in the DiagramSet_Application. This value represents a complete YMME description in the VCdb database.

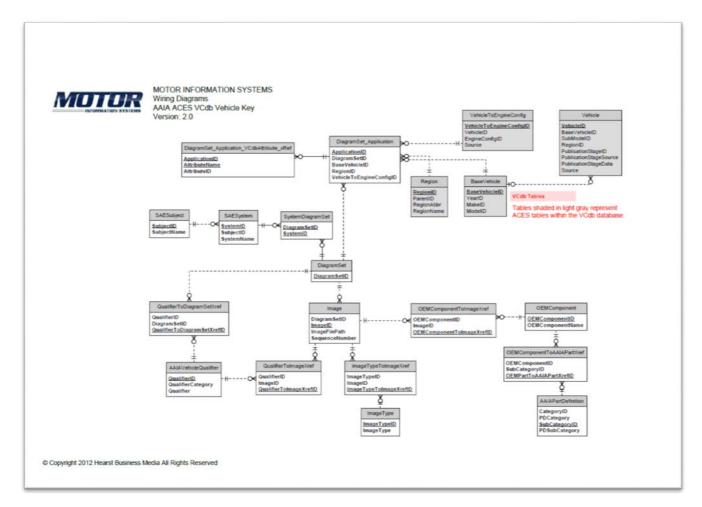
The vehicle data included in this deliverable provides two options for data look-up by vehicle.

- The traditional ACES approach of asking the user to select only the VCdb Attributes required to
 resolve to a single YMME application can be achieved by using the BaseVehicleID and RegionID
 values from the DiagramSet_Application table and any related Vehicle or Engine attributes in
 the DiagramSet_Application_VCdbAttribute_xRef table.
- The YMME application can be determined by looking at the VehicleToEngineConfigID, which
 references the top level table in the VCdb database that brings together Vehicle and Engine
 Attributes. This can be useful when trying to link multiple datasets together using a consistent
 vehicle key. However, when using this approach, the additional non YMME attributes listed in
 the DiagramSet_Application_VCdbAttribute_xRef table should still be presented to the end user
 to select the proper application.



2 Data Model

NOTE: For a higher-resolution view of the following data model, please refer to the Data Model document ("MOTOR - WiringDiagrams - DataModel") that was published with the CDK.





3 Data Dictionary

The following provides a list of tables that are included in this deliverable, along with a brief description for each.

3.1 AAIAPartDefinition

Defines AAIA Part (categories and sub-categories)

Column Name	Data Type (size)	Required	Comment
CategoryID	Number	Yes	Category ID
PDCategory	Text (100)	Yes	Category description, used for hierarchical navigation through part taxonomy
SubCategoryID	Number	Yes	Unique ID for SubCategory description, referenced in OEMComponentToAAIAPartXref table
PDSubCategory	Text (100)	Yes	Sub-Category description, used for hierarchical navigation through part taxonomy

3.2 AAIAVehicleQualifier

Vehicle Qualifiers - enhanced version of original Auto Care Association vehicle qualifiers

Column Name	Data Type (size)	Required	Comment
QualifierID	Number	Yes	(PK) Unique ID for each qualifier, referenced in QualifierToImageXref table
QualifierCategory	Text (50)	Yes	Qualifier Category description
Qualifier	Text (50)	Yes	Qualifier description



3.3 DiagramSet

DiagramSet definition table

Column Name	Data Type (size)	Required	Comment
DiagramSetID	Number	Yes	(PK) Unique ID, represents a set of wiring diagram images, referenced in SystemDiagramSetXref, VehicleToDiagramSetXref and Image tables

3.4 DiagramSet_Application

Application reference table, which links the Wiring Diagram data to base vehicles, regions, and engine configurations that are specified in the VCdb database.

Column Name	Data Type (size)	Required	Comment
ApplicationID	Long Number	Yes	(FK) Identifies a unique set of attributes in the DiagramSet_Application_VCdbAttribute_xRef file
DiagramSetID	Number	Yes	References unique identifier for the DiagramSet table
BaseVehicleID	Number	Yes	References unique identifier for the VCdb BaseVehicle table
RegionID	Number	Yes	References unique identifier for the VCdb Region table
VehicleToEngineConfigID	Number	Yes	References unique identifier for the VCdb VehicleToEngineConfig table

3.5 DiagramSet_Application_VCdbAttribute_xRef

Cross reference table, which links the Wiring Diagram data to various VCdb attributes that are specified in the VCdb database.

The ACES 3.0 XML lists vehicle attributes as elements to be included in an application when applied. Those elements have an attribute names "id" which provides the id value for looking up the attribute description within the VCdb Database. VCdb Attributes in the data described in this document will be listed in the table DiagramSet_Application_VCdbAttribute_xRef. The AttributeName field is the name of



the VCdb vehicle attribute and is equivalent to the element name in the ACES 3.0 XML schema and the AttributeID value is the value that is equivalent to the "id" attribute for that element.

Column Name	Data Type (size)	Required	Comment
ApplicationID	Long Integer	Yes	Identifies a unique set of VCdb attributes, which may span multiple rows (i.e., a "set" can include one or more attributes). Each attribute set will be referenced by one or more rows in the DiagramSet_Application table
AttributeName	Text	Yes	(PK) ACES attribute name
AttributeID	Number	Yes	ACES attribute id value

3.6 Image

Wiring Diagram Images definition table

Column Name	Data Type (size)	Required	Comment
DiagramSetID	Number	Yes	Diagram Set ID referenced from DiagramSet table. An image must exist in only one DiagramSet and a DiagramSet can have more than one image
ImageID	Text (20)	Yes	(PK) Unique ID for each image, this represents the image file name without file extension. Referenced in ImageTypeToImageXref, OEMComponentToImageXref and QualifierToImageXref table
ImageFilePath	Text (150)	No	Optional image file path, used only when image files are stored in sub-folders
SequenceNumber	Number	Yes	Sequential number in which the images must be displayed within a DiagramSet. It will be unique within a DiagramSetID



3.7 ImageType

Image type definition table

Column Name	Data Type (size)	Required	Comment
ImageTypeID	Number	Yes	(PK) Unique ID for Image Type, referenced in ImageTypeToImageXref table
ImageType	Text (50)	Yes	Image type descriptions, indicates whether an Image is the actual wiring diagram or contains legend info

3.8 ImageTypeToImageXref

This table relates Images to Image type.

Column Name	Data Type (size)	Required	Comment
ImageTypeID	Number	Yes	ImageType ID, referenced from Image Type table
ImageID	Text (20)	Yes	Image ID, referenced from Image table
ImageTypeToImageXrefID	Number	Yes	Unique ID

3.9 **OEMComponent**

OEM Component definition table

Column Name	Data Type (size)	Required	Comment
OEMComponentID	Number	Yes	(PK) Unique ID for OEM Component description, referenced in
			OEMComponentTOAAIAPartXref table
OEMComponentName	Text (100)	Yes	OEM Component description



${\bf 3.10\ OEMComponentToAAIAPartXref}$

This table relates OEM Component to AAIA Parts

Column Name	Data Type (size)	Required	Comment
OEMComponentID	Number	Yes	OEM Component ID referenced from OEM Component table
SubCategoryID	Number	Yes	SubCategory ID, indicates the AAIA Part, referenced from AAIAPartDefinition table
OEMCompoentToAAIAPartXrefID	Number	Yes	(PK) Unique key

3.11 OEMComponentTolmageXref

This table relates OEM Components and Wiring Diagram Images

Column Name	Data Type (size)	Required	Comment
OEMComponentID	Number	Yes	OEM Component ID, referenced from OEMComponent table
ImageID	Text (20)	Yes	ImageID, indicates the image that applies to OEM Component, referenced from Image table
OEMComponentToImageXrefID	Number	Yes	(PK) Unique ID

3.12 QualifierToDiagramSetXref

Relates Diagram sets to Vehicle qualifiers

Column Name	Data Type (size)	Required	Comment
QualifierID	Number	Yes	Vehicle Qualifier ID, referenced from AAIAVehicleQualifier table
DiagramSetID	Number	Yes	DiagramSet ID, to which the qualifier applies, referenced from DiagramSet table
QualifierToDiagramSetXrefID	Number	Yes	(PK) Unique ID



3.13 QualifierToImageXref

Relates vehicle qualifiers to individual Image, when its required to the Image applies to specific vehicle

Column Name	Data Type (size)	Required	Comment
QualifierID	Number	Yes	Vehicle Qualifier ID, referenced from AAIA VehicleQualifier table
ImageID	Text (100)	Yes	Image ID, to which the qualifier applies, referenced from Image table
QualifierToImageXrefID	Number	Yes	(PK) Unique ID

3.14 SAESubject

SAE Subject definition table

Column Name	Data Type (size)	Required	Comment
SubjectID	Number	Yes	(PK) Unique ID for each subject description, referenced in SAESystem table
SubjectName	Text (50)	Yes	SAE J2008 subject headings from section 5.5

3.15 SAESystem

SAE Systems definition table

Column Name	Data Type (size)	Required	Comment
SystemID	Number	Yes	(PK) Unique ID for System description, referenced in SystemDiagramSet table
SubjectID	Number	Yes	Subject ID, referenced from SAESubject table
SystemName	Text (50)	Yes	SAE J2008 system headings from section 5.5.1 through 5.5.12



3.16 SystemDiagramSet

Relates SystemID to DiagramSetID

Column Name	Data Type (size)	Required	Comment
DiagramSetID	Number	Yes	(PK) DiagramSet ID, to which the qualifier applies, referenced from DiagramSet table
SystemID	Number	Yes	(PK) Unique ID for System description, referenced in SystemDiagramSetXref table

