Technical Service Bulletins (TSB)
ACES VCdb Vehicle Key
Content Development Kit

VERSION 2.3

Table of Contents

1 Overview

The tables that are defined in this document explain MOTOR's TSB 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 TSB_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 TSB_Application. This value represents a complete YMME description in the VCdb database.
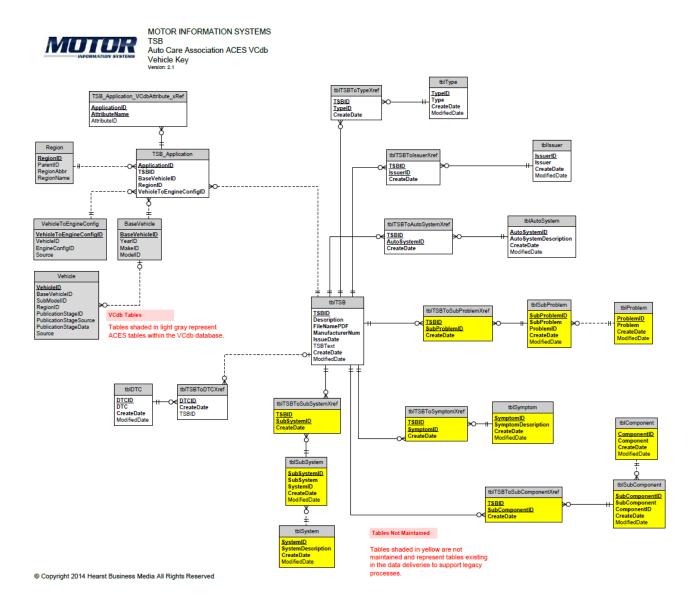
The vehicle data included in this deliverable provides two options for data look-up by vehicle.

- 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 TSB_Application table and any related Vehicle or Engine attributes in the TSB_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 TSB_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 - TSB - DataModel that was published with the CDK.

MOTOR INFORMATION SYSTEMS
TSB
Auto Care Association ACES VCdb
Vehicle Key
Version: 2.1

TSB_Application_VCdbAttribute_xRef
ApplicationID
AttributeName
AttributeID

Region
RegionID
ParentID
RegionAbbr
RegionName

TSB_Application
ApplicationID
TSBID
BaseVehicleID
RegionID
VehicleToEngineConfigID

VehicleToEngineConfig
VehicleToEngineConfigID
VehicleID
EngineConfigID
Source

BaseVehicle
BaseVehicleID
YearID
MakeID
ModelID

Vehicle
VehicleID
BaseVehicleID
SubModelID
RegionID
PublicationStageID
PublicationStageSource
PublicationStageData
Source

VCdb Tables
Tables shaded in light gray represent ACES tables within the VCdb database.

tblTSBToTypeXref
TSBID
TypeID
CreateDate

tblType
TypeID
Type
CreateDate
ModifiedDate

tblTSBToIssuerXref
TSBID
IssuerID
CreateDate

tblIssuer
IssuerID
Issuer
CreateDate
ModifiedDate

tblTSBToAutoSystemXref
TSBID
AutoSystemID
CreateDate

tblAutoSystem
AutoSystemID
AutoSystemDescription
CreateDate
ModifiedDate

tblTSB
TSBID
Description
FileNamePDF
ManufacturerNum
IssueDate
TSBText
CreateDate
ModifiedDate

tblTSBToSubProblemXref
TSBID
SubProblemID
CreateDate

tblSubProblem
SubProblemID
SubProblem
ProblemID
CreateDate
ModifiedDate

tblProblem
ProblemID
Problem
CreateDate
ModifiedDate

tblDTC
DTCID
DTC
CreateDate
ModifiedDate

tblTSBToDTCXref
DTCID
CreateDate
TSBID

tblTSBToSubSystemXref
TSBID
SubSystemID
CreateDate

tblTSBToSymptomXref
TSBID
SymptomID
CreateDate

tblSymptom
SymptomID
SymptomDescription
CreateDate
ModifiedDate

tblComponent
ComponentID
Component
CreateDate
ModifiedDate

tblSubSystem
SubSystemID
SubSystem
SystemID
CreateDate
ModifiedDate

tblTSBToSubComponentXref
TSBID
SubComponentID
CreateDate

tblSubComponent
SubComponentID
SubComponent
ComponentID
CreateDate
ModifiedDate

tblSystem
SystemID
SystemDescription
CreateDate
ModifiedDate

Tables Not Maintained
Tables shaded in yellow are not maintained and represent tables existing in the data deliveries to support legacy processes.

© Copyright 2014 Hearst Business Media All Rights Reserved

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 tblTSB

Column Name	Data Type (size)	Required	Description
TSBID	Long Number	Yes	(PK) Primary Key
Description	Text (255)	Yes	Description
FileNamePDF	Text(255)	Yes	
ManufacturerNum	Text(50)	Yes	
IssueDate	Date/Time	Yes	
TSBText	Text	No	
CreateDate	Date/Time	Yes	
ModifiedDate	Date/Time	No	

Sample data

TSBID	Description	Manufacturer Num	IssueDate
882	BATTERY - DISCONNECTED - SYSTEM ADAPTION NECESSARY	0/8901	01/13/1989
883	MAINTENANCE REQUIREMENTS (EXCLUDES 911 TURBO)	0/9001	09/18/1990
884	SUGGESTED REPAIR TIMES & MAINTENANCE SCHEDULES	0/9101	04/09/1991
885	MAINTENANCE REQUIREMENTS - SPARK PLUG R&R INTERVALS	0/9102	06/14/1991
886	MAINTENANCE REQUIREMENTS - ALL SYSTEMS	0/9103	08/16/1991
887	MAINTENANCE REQUIREMENTS & REPAIR TIMES	0/9201	10/13/1992
888	BODY - COVERS FOR REAR TRANSPORT TIE DOWNS	0/9301	08/12/1993
889	MAINTENANCE REQUIREMENTS - 1994 MODELS	0/9302	11/04/1993
890	OIL & FLUID CAPACITIES FOR ALL MODELS	0/9401	01/25/1994
891	MAINTENANCE TIMES - CARRERA	0/9402	03/01/1994
892	MAINTENANCE REQUIREMENTS - CARRERA	0/9403	04/05/1995
893	SPEC TOOL - SYSTEM TESTER 9288 VERSION 6.0	0/9404	10/27/1994
894	YEARLY MAINTENANCE REQUIREMENTS CHART	0/9405	11/17/1994
895	DIAGNOSTIC SOCKET (ADL) INFO UPDATE	0/9501	02/14/1995
896	CHASSIS DYNAMOMETER TESTING - TURBO	0/9502	06/07/1995
897	1988 MODEL YEAR INFORMATION AND SPECIFICATIONS	00 01 87	01/01/1980
898	E34 - GENERAL INFORMATION/SPECIFICATIONS	00 01 88	01/01/1980
899	MANUALS - ELECTRICAL TROUBLESHOOTING - NEW & REVISED	00 01 88	01/01/1980
900	MODEL YEAR GENERAL INFORMATION AND SPECIFICATIONS	00 01 90 (2098)	03/01/1990
901	MICROFICHE ERRORS - SPECIAL TOOLS	00 01 90 (3002)	01/01/1990
902	SOFTWARE VERSION 2.01 UPDATED - BMW MODIC	00 01 91 (3186)	02/01/1991
903	GENERAL INFO - FUEL REQUIREMENT CORRECTED/E36 COUPE	00 01 92 (2120)	04/01/1992
904	REPAIR MANUAL - MICROFICHE ERROR	00 01 92 (3477)	01/01/1992
905	OVERVIEW OF NEW SYSTEMS FOR 1994 MODEL YEAR	00 01 93 (2135)	10/01/1993
906	M3 GENERAL INFORMATION	00 01 94 (2140)	06/01/1994

3.2 tblAutoSystem

Column Name	Data Type (size)	Required	Description
AutoSystemID	Long Number	Yes	(PK) Primary Key
AutoSystemDescription	Text (100)	Yes	Description
CreateDate	Date/Time	Yes	
ModifiedDate	Date/Time	No	

Sample data

AutoSystemID	AutoSystemDescription
49	Chemicals, Antifreeze, Additives
50	Tools, Equipment
51	Labor Times, Manuals, Warranty, Aids
65	Identification, Models, Labels, Etc.
66	Wheels, Tires, Wheel Bearings, Seals, Hubs
67	Brakes, Power Brakes, Traction Control
68	Steering, Suspension
69	Drive Axles, Shafts, U-Joints, CV-Joints
70	Manual Trans, Clutches, Linkage, MTX
71	Automatic Trans, Coolers, Torque Converter
72	Diesel Engines
73	Gasoline Engines
74	Ignition, Electronic Ignition
75	Fuel Sys, Driveability, Filters (Air & Fuel)
76	Exhaust System
77	Cooling, Water Pump, Drive Belts, Pulleys
78	Emission Controls, Vacuum Hoses
79	Starting, Charging, Battery
80	Lighting, Horns, Turn Signals, Steering Column
81	Instruments, Dash Cluster, Warning Lights, Mirrors
82	Chassis Electrical, Wiring, Fuses & Breakers, Wipers, Motors
83	Aux Equip, Phone, Jacks, Trailer Hitches, Towing
84	Heating, A/C, Ventilation, Defogger
85	Electronic Devices, Computers, PROMS, Sensors
86	Entertainment: Stereo, Radio, Cassettes
87	Seats, Belts, Interior Trim, Carpets, Air Bags
88	Glass, Doors, Hood, Decklid, Tailgate, Liftgate, Locks
89	Finishes, Body Structure, Frame, Bumpers
90	Seals, Gaskets, Sealants

3.3 tblIssuer

Column Name	Data Type (size)	Required	Description
IssuerID	Long Number	Yes	(PK) Primary Key
Issuer	Text(50)	Yes	Description
CreateDate	Date/Time	Yes	
ModifiedDate	Date/Time	No	

Sample data

IssuerID	Issuer
3	Porsche
4	BMW
5	Kia
6	Alfa Romeo
7	Volvo
8	Volkswagen
9	Audi
10	Mercedes-Benz
11	Hyundai
12	Pontiac
13	Cadillac
14	GMC
15	Chevrolet
16	Yugo
17	Buick
18	Geo
19	Oldsmobile
20	Land Rover
21	Ford
22	Mercury
23	Lincoln
24	Merkur
25	AC-Delco
26	Ferrari
27	Saturn

3.4 tblType

Column Name	Data Type (size)	Required	Description
TypeID	Long Number	Yes	(PK) Primary Key
Type	Text(50)	Yes	Description
CreateDate	Date/Time	Yes	
ModifiedDate	Date/Time	No	

Sample data

TypeID	Type
1	Campaign or Recall
2	Dealer Notification
3	Labor Guide Update
4	General Tips and Best Practices
5	DTC Related
6	Service Bulletin

3.5 TSB_Application

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

Column Name	Data Type (size)	Required	Description
ApplicationID	Long Number	Yes	(FK) Identifies a unique set of attributes in the TSB_Application_VCdbAttribute_xRef file
TSBID	Number	Yes	References unique identifier for the tblTSB 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

3.6 tblTSBToAutoSystemXref

Column Name	Data Type (size)	Required	Description
TSBID	Long Number	Yes	(PK) Foreign key to TSB.TSBID
AutoSystemID	Long Number	Yes	(PK) Foreign key to AutoSystem.AutoSystemID
CreateDate	Date/Time	Yes	

Sample data

TSBID	AutoSystemID
882	79
883	51
884	51
885	51
886	51

3.7 tblTSBToIssuerXref

Column Name	Data Type (size)	Required	Description
TSBID	Long Number	Yes	(PK) Foreign key to tblTSB.TSBID
IssuerID	Long Number	Yes	(PK) Foreign key to tblIssuer.IssuerID
CreateDate	Date/Time	Yes	

Sample data

TSBID	IssuerID
882	3
883	3
884	3
885	3
886	3

3.8 tblTSBToTypeXref

Column Name	Data Type (size)	Required	Description
TSBID	Long Number	Yes	(PK) Foreign key to tblTSB.TSBID
TypeID	Long Number	Yes	(PK) Foreign key to tblType.TypeID
CreateDate	Date/Time	Yes	

Sample data

TSBID	TypeID
43485	6
44279	6
44422	6
53400	6
113290	1

Page 13 of 31

3.9 TSB_Application_VCdbAttribute_xRef

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

Column Name	Data Type (size)	Required	Description
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 TSB_Application table
AttributeName	Text	Yes	(PK) ACES attribute name
AttributeID	Number	Yes	ACES attribute id value

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 TSB_Application_VCdbAtttribute_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.

3.10tblDTC

Column Name	Data Type (size)	Required	Description
DTCID	Long Number	Yes	(PK) Primary Key
DTC	Text(50)	Yes	Description
CreateDate	Date/Time	Yes	
ModifiedDate	Date/Time	No	

Sample data

DTCID	DTC
1	P0456
2	P0300
3	P0301
4	P0302
5	P0303
6	P0304
7	P0332
8	U1000
9	U1024
10	P0708
11	P0847
12	P0872

3.11tblTSBToDTCXref

DTC code is applied only when present in the TSB, and will not be found for every TSB. In order to not lose any TSB data, this table should be implemented as an optional lookup or a "LEFT JOIN" instead of restricting parent TSB records to those found in the DTC xref.

Column Name	Data Type (size)	Required	Description
TSBID	Long Number	Yes	(PK) Foreign key to tblTSB.TSBID
DTCID	Long Number	Yes	(PK) Foreign key to tblDTC.DTCID
CreateDate	Date/Time	Yes	

Sample data

TSBID	DTCID
113587	202
113587	203
113587	204
113587	205
113969	206

3.12tblComponent (Not Maintained)

Column Name	Data Type (size)	Required	Description
ComponentID	Long Number	Yes	(PK) Primary Key
Component	Text (50)	Yes	Description
CreateDate	Date/Time	Yes	
ModifiedDate	Date/Time	No	

Sample data

ComponentID	Component
10	ACCESSORIES-EXTERIOR
11	ACCESSORIES-INTERIOR
12	BODY-EXTERIOR
13	BODY-INTERIOR
14	BRAKE/WHEEL HUB
15	CLUTCH
16	COOLING SYSTEM
17	DRIVETRAIN
18	ELECTRICAL
19	EMISSION
20	ENGINE
21	EXHAUST
22	FUEL
23	GLASS
24	HVAC
25	IGNITION
26	STEERING
27	SUSPENSION
28	TIRE/WHEEL
29	TOOL
30	TRANSAXLE-AUTOMATIC
31	TRANSAXLE-MANUAL
32	TRANSFER CASE
33	TRANSMISSION-AUTOMATIC
34	TRANSMISSION-MANUAL
35	WIPER
36	BELT DRIVE SYSTEM

3.13 tblProblem (Not Maintained)

Column Name	Data Type (size)	Required	Description
ProblemID	Long Integer	Yes	(PK) Primary Key
Problem	Text(50)	Yes	Description
CreateDate	Date/Time	Yes	
ModifiedDate	Date/Time	No	

Sample data

ProblemID	Problem
1	4WD
2	AC
3	Brakes
4	Coolant
5	Cruise Control
6	Electrical
7	Engine
8	Security
9	Suspension
10	Transmission Automatic
11	Transmission Manual
12	Transmission

3.14 tblSubComponent (Not Maintained)

Column Name	Data Type (size)	Required	Description
SubComponentID	Long Number	Yes	(PK) Primary Key
SubComponent	Text (50)	Yes	Description
ComponentID	Long Number	Yes	Foreign key to Component.ComponentID
CreateDate	Date/Time	Yes	
ModifiedDate	Date/Time	No	

Sample data

ComponentID	SubComponentID	SubComponent
10	1000	AIR DAM
10	1004	AIR DEFLECTOR
10	1005	AUXILIARY LIGHT
10	1008	BED LINER
10	1012	BED LINER ACCESSORY
10	1014	BED RAIL ANCHOR
10	1015	BUMPER GUARD/PUSH BAR
10	1016	TRUCK BED SIDE RAIL PROTECTOR
10	1018	BUMPER MOUNTING KIT
10	1019	TRUCK CAB TOP COVER
10	1020	CAR COVER
10	1021	CARRIERS/RACKS
10	1022	CARRIERS/RACKS ACCESSORY
10	1023	CORNER GUARD
10	1024	DOOR HANDLE
10	1025	CARRIER/RACKS & COMPONENT
10	1028	DOOR LOCK KIT
10	1032	DOOR SILL PROTECTOR
10	1036	FENDER FLARE/EXTENDER
10	1040	FRONT END COVER
10	1042	GRAPHICS/STRIPING KIT
10	1044	GRILL GUARD
10	1045	GRILL GUARD MOUNTING KIT
10	1046	GRILL SCREEN/COVER
10	1048	GROUND EFFECTS KIT

3.15 tblSubProblem (Not Maintained)

Column Name	Data Type (size)	Required	Description
SubProblemID	Long Number	Yes	(PK) Primary Key
SubProblem	Text (50)	Yes	Description
ProblemID	Long Number	Yes	Foreign key to Problem.ProblemID
CreateDate	Date/Time	Yes	
ModifiedDate	Date/Time	No	

Sample data

ProblemID	SubProblemID	SubProblem
1	1	4WD Engagement Problems
1	2	Improper shifting
1	3	Incorrect light function
2	4	Climate control air flow problem
2	5	Rear air flow problem
2	6	No AC operation with the AC indicator flashing
2	7	The AC Compressor Clutch Does Not Engage
2	8	AC pressures are incorrect
2	9	Blower Speed Is Incorrect
2	10	Climate control will not control temperature prope
2	11	Rear AC/heater climate control will not control te
3	12	ABS and/or traction control light is on
3	13	Hard pedal when applied
3	14	Low pedal when applied
3	15	Pulls one direction when applying the brakes
3	16	There is a problem with the brakes
3	17	False ABS activation
4	18	Coolant loss
4	19	Low coolant indicator on
4	20	The Engine Is Overheating
5	21	Will not engage
5	22	Will not stay engaged
6	23	Power window problem
6	24	Keyless entry not working
6	25	Power door lock problem

3.16 tblSymptom (Not Maintained)

Column Name	Data Type (size)	Required	Description
SymptomID	Long Number	Yes	(PK) Primary Key
SymptomDescription	Text (100)	Yes	Description
CreateDate	Date/Time	Yes	
ModifiedDate	Date/Time	No	

Sample data

SymptomID	SymptomDescription
65	Abnormal Smoke, Fumes
66	Continuous Operation but Turned Off
67	Driveability
68	Erratic Operation
69	Excessive Control Effort
70	False Instrument Panel Indications
71	Inoperative, No Response
72	Leaks
73	Low, Dead Battery
74	Noise
75	Odors
76	Overheating
77	Pull, Grab
78	Starting Problems
79	Sticking, Binding
80	Uneven Wear
81	Vibration
82	Warping
83	Insufficient Performance

3.17 tblSystem (Not Maintained)

Column Name	Data Type (size)	Required	Description
SystemID	Long Number	Yes	(PK) Primary Key
SystemDescription	Text(50)	Yes	Description
CreateDate	Date/Time	Yes	
ModifiedDate	Date/Time	No	

Sample data

SystemID	SystemDescription
1	Engine
2	Suspension
3	Driveline/Axle
4	Brakes
5	Transmission/Transaxle
6	Steering
7	HVAC
8	Restraints
9	Body, Cab, and Accessories
10	Control Systems
11	Frame and Frame Accessories
12	Axle

3.18 tblSubSystem (Not Maintained)

Column Name	Data Type (size)	Required	Description
SubSystemID	Long Number	Yes	(PK) Primary Key
SubSystem	Text (50)	Yes	Description
SystemID	Long Number	Yes	Foreign key to System.SystemID
CreateDate	Date/Time	Yes	
ModifiedDate	Date/Time	No	

Sample data

SystemID	SubSystemID	SubSystem
1	1	Control Systems
1	2	Fuel Systems
1	3	Aux. Emission Control Devices
1	4	Electrical
1	5	Induction
1	6	Mechanical
1	7	Exhaust
1	8	Cooling
1	9	Lubrication
1	10	Speed Control Systems
1	11	Ignition
1	12	Starting/Charging Systems
2	13	Control Systems
2	14	Front Suspension
2	15	Rear Suspension
2	16	Wheel and Tire System
3	17	Differentials
3	18	Control Systems
3	19	Drive Shaft System (Shafts, Bearings, CV, U-Joints
3	20	Transfer Case
4	21	Control Systems
4	22	ABS
4	23	Power-Assist (Non-ABS)
4	24	Non-Power Assist
4	25	Parking Brake System

3.19 tblTSBToSubSystemXref (Not Maintained)

Column Name	Data Type (size)	Required	Description
TSBID	Long Number	Yes	(PK) Foreign key to tblTSB.TSBID
SubSystemID	Long Number	Yes	(PK) Foreign key to tblSubSystem.SystemID
CreateDate	Date/Time	Yes	

Sample data

TSBID	SubSystemID
115509	64
115509	65
115509	66
115509	67
115509	68

3.20 tblTSBToSubComponentXref (Not Maintained)

Column Name	Data Type (size)	Required	Description
TSBID	Long Number	Yes	(PK) Foreign key to tblTSB.TSBID
SubComponentID	Long Number	Yes	(PK) Foreign key to tblSubComponent.SubComponentID
CreateDate	Date/Time	Yes	

Sample data

TSBID	SubComponentID
113550	1432
113550	1436
113550	1440
113550	1444
113550	1448

3.21 tblTSBToSubProblemXref (Not Maintained)

Column Name	Data Type (size)	Required	Description
TSBID	Long Number	Yes	(PK) Foreign key to tblTSB.TSBID
SubProblemID	Long Number	Yes	(PK) Foreign key to tblSubProblem.SubProblemID
CreateDate	Date/Time	Yes	

Sample data

TSBID	SubProblemID
113550	1
113550	2
113550	3
113550	36
113550	37

3.22 tblTSBToSymptomXref (Not Maintained)

Column Name	Data Type (size)	Required	Description
TSBID	Long Number	Yes	(PK) Foreign key to tblTSB.TSBID
SymptomID	Long Number	Yes	(PK) Foreign key to tblSymptom.SymptomID
CreateDate	Date/Time	Yes	

Sample data

TSBID	SymptomID
882	67
985	70
1160	67
1161	67
1440	83