

**Level 1**



# **Introduction to M-MDS**

## **TC001-18-01H**

**Student Guide**

**Mazda Motor Corporation  
Technical Service Training**



**Masters**

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### FOREWORD

Advanced computer controlled systems and highly sophisticated computer-assisted mechanisms on Mazda vehicles are now normal equipment. Computer-controlled systems are used on more than 90% of the modern 21<sup>st</sup> century vehicle.

As customers come to have high expectations of their vehicles, technicians must have sophisticated technical skills.

“Fix It Right the First Time” is the working philosophy of Mazda Corporation: Make this your diagnostic approach to every Mazda!

### Purpose

This activity-based, 2-day course is intended to familiarize you with Mazda’s new diagnostic tool, Mazda Modular Diagnostic System (M-MDS). This class is intended primarily for Mazda technicians who have competency with WDS, Mazda’s previous scan tool.

### Objectives

After completing this course, you will be able to diagnose control systems and program programmable modules in current Mazda vehicles using M-MDS. This course includes:

- Identifying and connecting M-MDS hardware components
- Installing and updating M-MDS software on a Mazda-supported laptop
- Installing, updating, and removing M-MDS software on a Mazda-supported Personal Digital Assistant (PDA)
- Performing PDA navigation for using M-MDS
- Using M-MDS to identify vehicles, read diagnostic trouble codes (DTCs), read/print freeze frame data (FFD), and use DataLogger
- Programming and updating programmable modules
- Accessing and diagnosing passive antitheft systems (Immobilizer and PATS)
- Defining M-MDS terms and describing the functions of frequently used M-MDS icons

NOTE: This training course has been originally developed for North American Market. Then, the course materials have been modified and edited to be suitable for other markets. However, some particular markets may be required further modification.

# INTRODUCTION TO M-MDS

## SG00 - General

### Timetable

Day 1		
Time	Session	Remarks
8:30 – 9:00	Introductions	
9:00 – 10:20	M-MDS Components	PDA Owners Manual must be available
10:20 – 10:30	Morning Break	
10:30 – 11:50	M-MDA Activities	
12:00 – 13:00	Lunch	
13:00 – 14:50	M-MDA Activities	
14:50 – 15:00	Afternoon Break	
15:00 – 17:00	M-MDA Activities	

Day 2		
Time	Session	Remarks
8:30 – 9:00	Review Day 1	
9:00 – 10:20	M-MDA Activities	
10:20 – 10:30	Morning Break	
10:30 – 11:50	Introduction to IDS	
12:00 – 13:00	Lunch	
13:00 – 14:50	IDS Activities	
14:50 – 15:00	Afternoon Break	
15:00 – 17:00	IDS Activities/Evaluation	

This schedule is subject to change when necessary.

# INTRODUCTION TO M-MDS

## SG01 - Introduction

### M-MDS Components

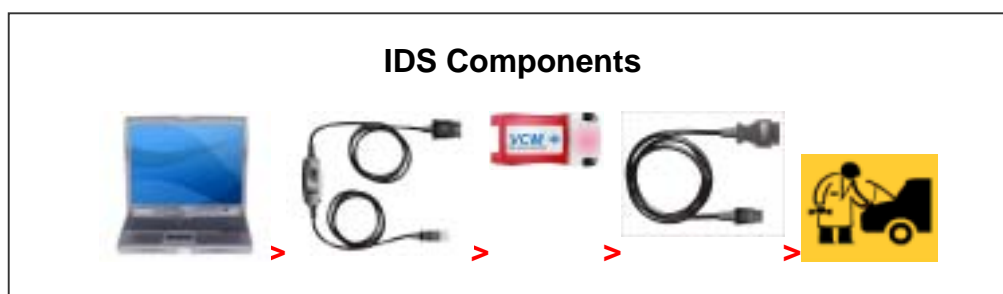
M-MDS consists of new hardware and software to communicate with the vehicle's control modules via the Data Link Connector (DLC).

There are two diagnostic systems within M-MDS.

- Integrated Diagnostic Software (IDS)
- Portable Diagnostic Software (PDS)

Like WDS, both systems get updates via DVD every 6 to 8 weeks. In addition, both systems get daily updates from the internet. These updates are similar to the updates previously downloaded from ESI.

IDS uses a Mazda-approved laptop computer, a Vehicle Communication Module (VCM), several cables, and IDS software.



PDS uses a Mazda-approved Personal Digital Assistant (PDA), the same VCM as IDS, several cables, ActiveSync, and PDS software. PDS also requires a host PC to get data into and out of the PDA.



### NOTE

Mazda PDS uses a PDA. In this class and in Mazda Service Information, the PDA acronym is the same as Pocket PC (P-PC). M-MDS uses a PDA/Pocket PC with Windows Mobile 2003 SE software. M-MDS will not run on a Palm Pilot.

Mazda PDS consists of two pieces of software, Portable Diagnostic Software (PDS) and Portable File Manager (PFM). Together, this software is referred to as Portable Diagnostic System (PDS).

## Vehicle Diagnostic System

All modules in vehicles with scan tool diagnostics connect to the DLC via one of several communication methods:

These are the different forms of communication the scan tool must be able to understand to communicate with the vehicle. These are:

- ISO1941“K” line
- J1850 SCP
- ISO 11898 CAN

**ISO 1941**, also known as “K” line, is a single wire from the module to the DLC and then to the scan tool. The only communication on the “K” line is module to scan tool. The only diagnostic functions available are DTC retrieval, Data logger, and limited programming ability. There is only one “K” line (single wire) in the DLC

**J1850**, also known as **Standard Corporate Protocol (SCP)**, is a 2-wire system (Bus + and Bus -) allowing module to module communication. It also goes to the DLC to allow communication with the scan tool. With SCP, the scan tool can retrieve DTC(s), access data logger PID(s), and program/reprogram the modules. When connected, the scan tool becomes another module on the SCP bus lines. There is only one Bus + and one Bus – in the DLC

**ISO 11898 CAN** (Controller Area Network) is a two-wire system (CAN + and CAN -) that allows module-to-module communication. CAN also connects to the DLC to allow communication with the scan tool. Like SCP, the scan tool becomes another module on the network. With CAN, the scan tool can retrieve DTC(s), access data logger PID(s), and program/reprogram modules. When connected, the scan tool becomes another module on the CAN network(s). Currently there can be up to two CAN networks on Mazda vehicles: High speed CAN (HS CAN, DLC pins 6 and 14) and medium speed (MS CAN, DLC pins 3 and 11). All current Mazda's have HS CAN. MS CAN depends on the vehicle's options or module content:

- **HS CAN** communicates at **500K** per second
- **MS CAN** communicates at **125K** per second.

Now let's talk about information flow to the scan tool, starting at the DLC.

When you plug the data cable into the DLC, information goes to the VCM in Controller Area Network, Standard Corporate Protocol, or “K” line. The VCM converts this data into Universal Serial Bus (USB). Data in this format is then sent to the laptop (IDS) or PDA (PDS).

### NOTE

“Universal Serial Bus” is an external bus standard that supports data transfer rates of 12 Mbps. A single USB port can be used to connect up to 127 peripheral devices, such as a mouse, modems, and keyboards. USB also supports plug-and-play installation and hot plugging. (Source: [www.webopedia.com](http://www.webopedia.com)).

**Vehicle Diagnostic System**

(Cont'd)

The laptop or PDA then converts this data into text or images (i.e., graphics) for us to use when diagnosing the vehicle.

IDS is very similar to WDS, using the same icons and functions to operate it. The only difference to the operator is that the Mazda-approved laptop is not “touch screen” like the WDS Portable Test Unit. This means you have to use the keyboard and mouse or scratch pad.

Since you are already familiar with WDS, this class deals primarily with PDS. Let's get started with PDS activities.

# INTRODUCTION TO M-MDS

## 01 - Installing ActiveSync Software

### Activity 01: Installing ActiveSync Software

Upon completing this activity you will be able to install Microsoft ActiveSync on your laptop or PC so it communicates with the PDA for M-MDS.

#### What you need to complete this activity:

- Mazda-approved laptop or PC with Windows XP or higher
- Microsoft ActiveSync software
- Mazda-approved PDA and cradle
- Ask your Instructor to log in to the PC before you begin this activity

#### Procedure:

1. Before using the PDA the first time, did you charge its battery for at least 8 hours? If no, charge the battery before continuing.

#### NOTES

Do not connect the PDA cradle or the PDA to the computer until step 14.

The ActiveSync installation screens may differ slightly from one PDA manufacturer to another.

To do this activity, you must have Administrator rights to install and remove software from the laptop or PC.

2. Put the Microsoft ActiveSync CD included with your PDA in the computer's CD or DVD drive.
3. Click **Getting Started**.





# INTRODUCTION TO M-MDS

## 01 - Installing ActiveSync Software

### Activity 01 (Continued)

4. Click **Start Here**.



5. Click **Install ActiveSync** in the left panel of the screen, under Overview.



# INTRODUCTION TO M-MDS

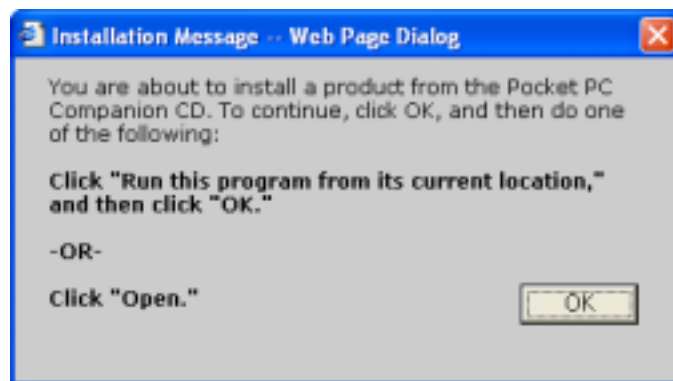
## 01 - Installing ActiveSync Software

### Activity 01 (Continued)

6. Click **Install** in the middle of the screen, under the ActiveSync icon.



7. The Installation Message pops up; click **OK**.



### NOTE

If the only screen visible during installation is the Start Here screen, click the first icon in the upper right corner to minimize the screen.

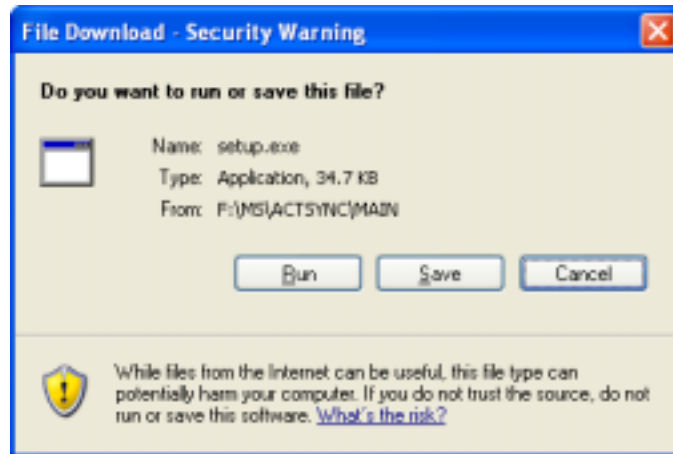


# INTRODUCTION TO M-MDS

## 01 - Installing ActiveSync Software

### Activity 01 (Continued)

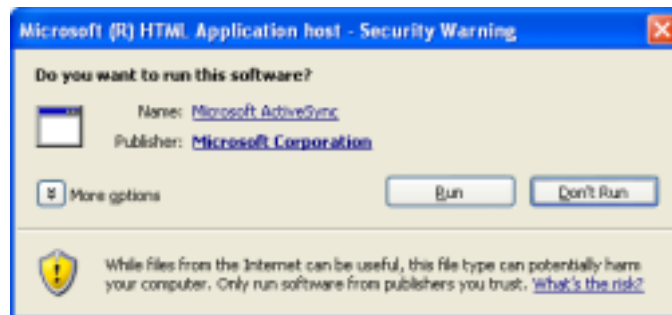
8. Click **Run**.



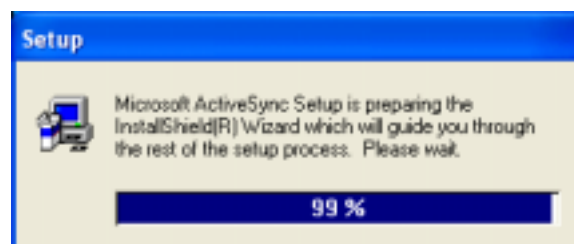
### NOTE

It will take about a minute for the next window to pop up.

9. Click **Run**.



10. This window indicates the Install Shield wizard for ActiveSync is in progress. Continue with step 11.

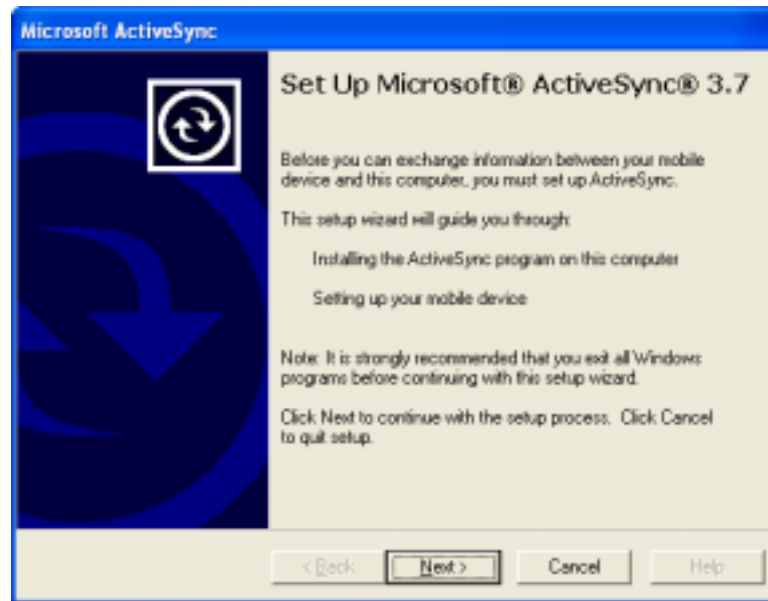


# INTRODUCTION TO M-MDS

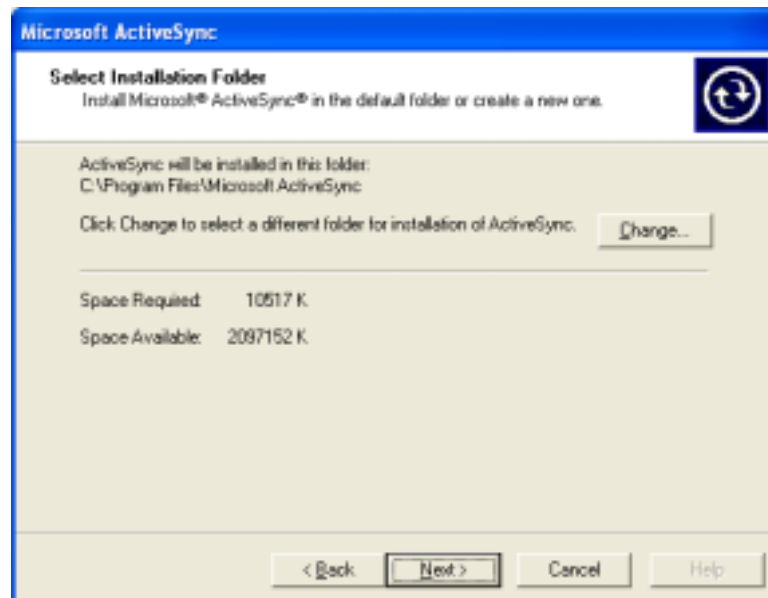
## 01 - Installing ActiveSync Software

### Activity 01 (Continued)

11. Click **Next**.



12. Click **Next**.



# INTRODUCTION TO M-MDS

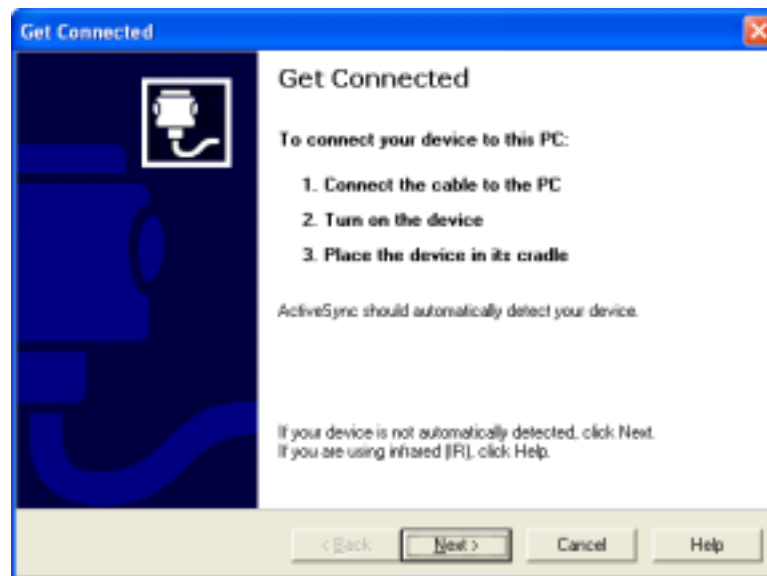
## 01 - Installing ActiveSync Software

### Activity 01 (Continued)

13. You may see several windows as ActiveSync is installed



14. Follow the instructions on the screen, and then click **Next**.

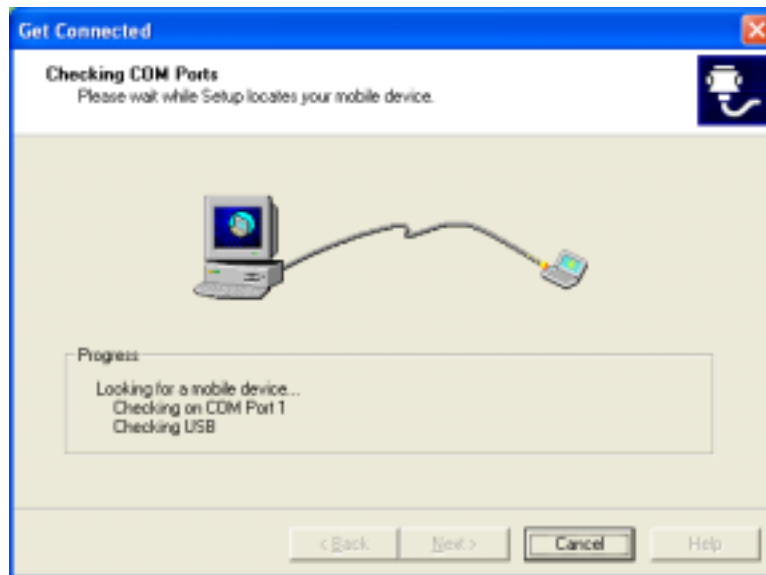


# INTRODUCTION TO M-MDS

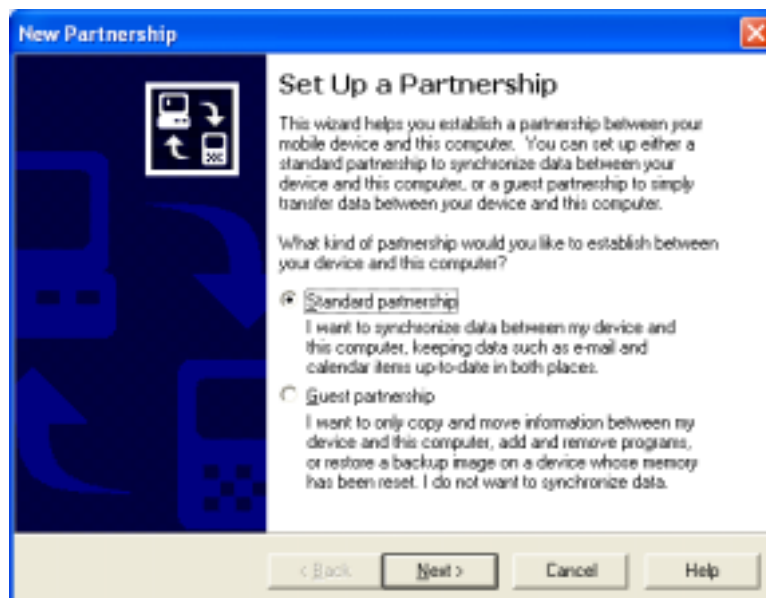
## 01 - Installing ActiveSync Software

### Activity 01 (Continued)

15. You may see several windows similar to this. Click **next** to continue.



16. The PDA / Pocket PC will turn on. You should see this screen. Verify **Standard Partnership** is selected, and then click **Next**.

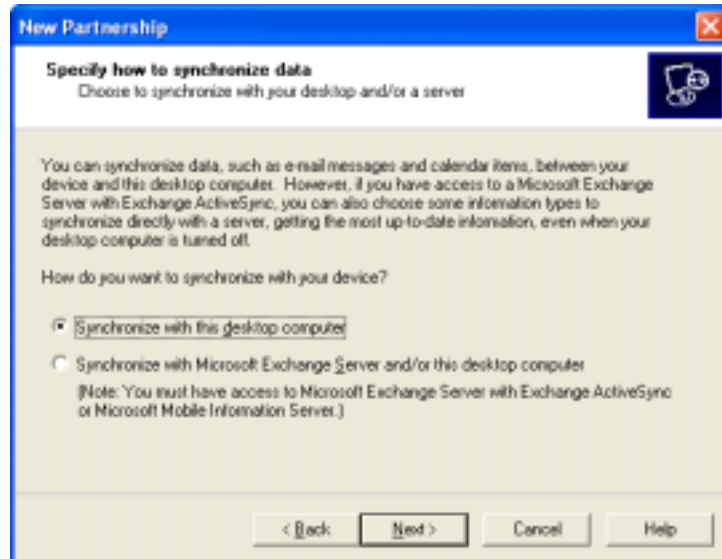


# INTRODUCTION TO M-MDS

## 01 - Installing ActiveSync Software

### Activity 01 (Continued)

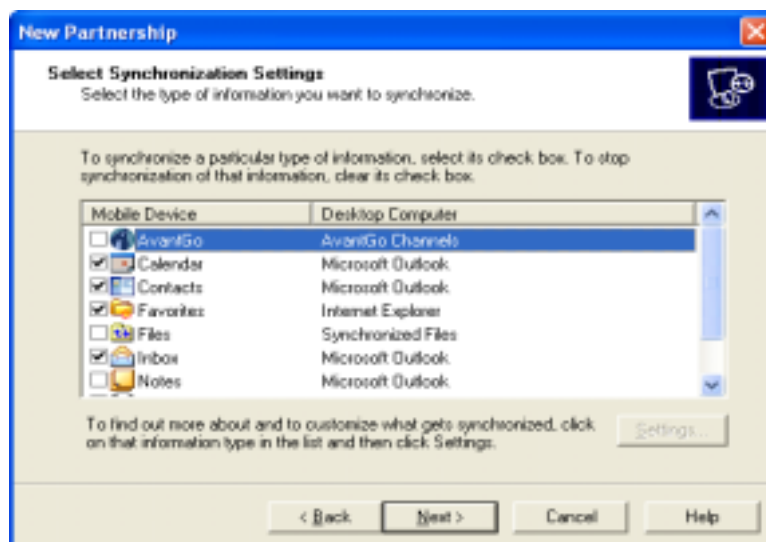
17. Verify **Synchronize with this desktop computer** is selected, then click **Next**.



18. Uncheck all of the boxes in the New Partnership window.

### WARNING

You must uncheck all of the boxes in this window. Additional information left checked will use the PDA's memory, reducing the performance of PDS.



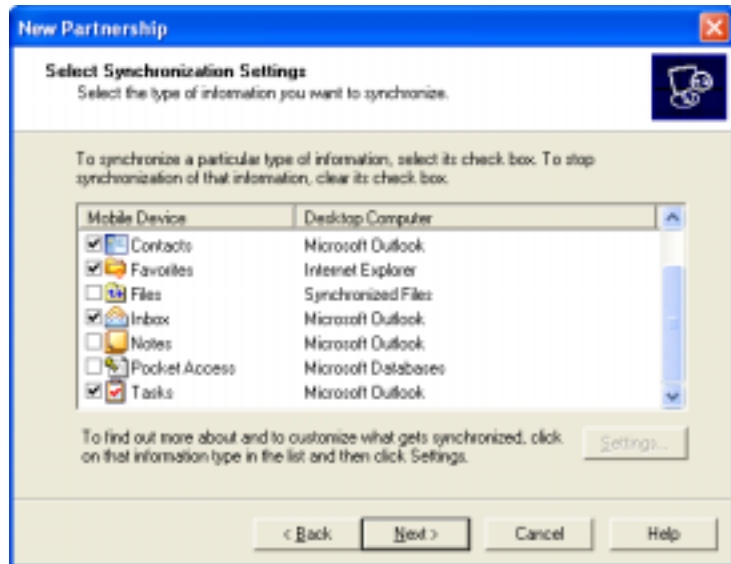


# INTRODUCTION TO M-MDS

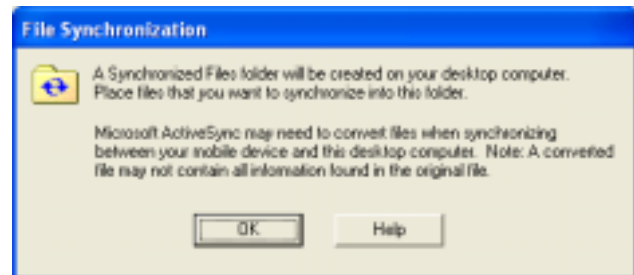
## 01 - Installing ActiveSync Software

### Activity 1 (Continued)

19. Scroll down and make sure that all the boxes are unchecked.



20. When you have unchecked all of the boxes, check **Files**. The following pop-up message will display.



21. The New Partnership window should now look like this. If does, click **Next**.

#### NOTE

Make sure the only box checked is Files.



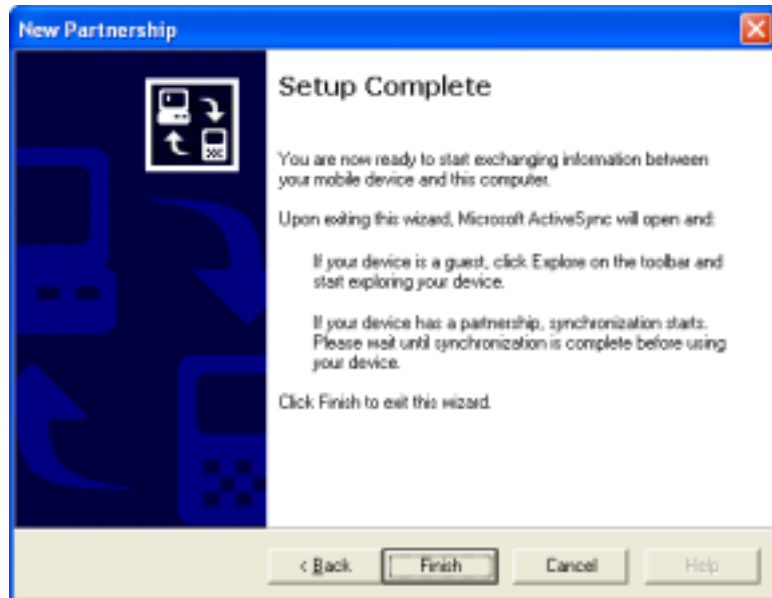


# INTRODUCTION TO M-MDS

## 01 - Installing ActiveSync Software

### Activity 01 (Continued)

22. Click **Finish**.



23. If the following window displays, click **Unblock**.

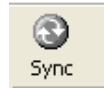


# INTRODUCTION TO M-MDS

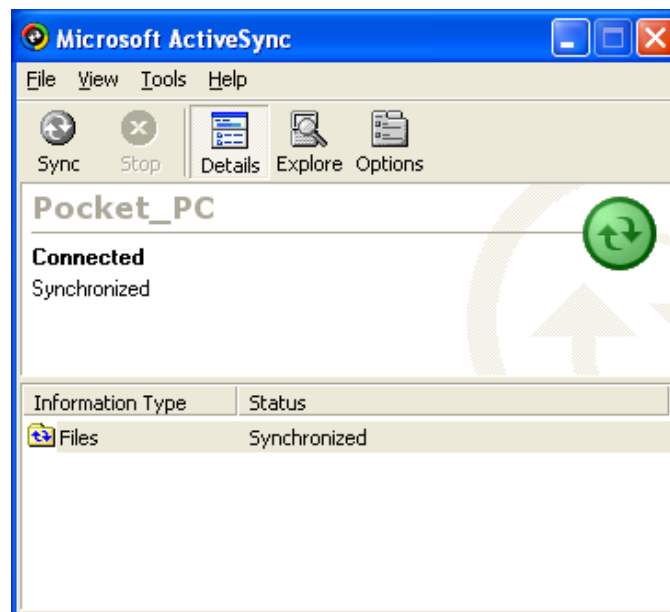
## 01 - Installing ActiveSync Software

### Activity 01 (Continued)

24. The following window should display. If **Synchronized** is listed below **Connected** like the example below, click the **X** in the upper right corner to close the window.



If the window indicates one or more files are not synchronized, click the **Sync** icon. The PDA will then sync and the window will look like this.



25. Click the **X** in the upper right to close this window.



# INTRODUCTION TO M-MDS

## 01 - Installing ActiveSync Software

### Activity 1

(Continued)

26. The desktop should now have this icon:



Pocket\_PC My Documents.LNK

27. Remove the ActiveSync CD from the computer and store it in a safe place.

### Conclusion:

In this activity, you installed Microsoft ActiveSync on your computer so it can communicate with the PDA for M-MDS.

Instructor Sign-off: \_\_\_\_\_

# INTRODUCTION TO M-MDS

## 02 - Installing PFM & PDS

### Activity 02: Installing PFM & PDS

Upon completing this activity you will be able to install PDS and PFM on your laptop or PC and PDA.

#### What you need to complete this activity:

- Mazda-approved laptop or PC ActiveSync installed
- High-speed internet access if possible
- The PDA you just synchronized with the above computer
- PDS software 2005.8 or higher (on VCM DVD)
- Ask your Instructor to log in to the PC before you begin this activity

#### Procedure:

#### NOTES

The PDA / Pocket PC (P-PC) remains in its cradle during this activity.

To do this activity, you must have Administrator rights to install and remove software from the laptop or PC.

1. Put the PDS VCM CD in the computer's CD or DVD drive. This CD is numbered 2005.8 or higher.



# INTRODUCTION TO M-MDS

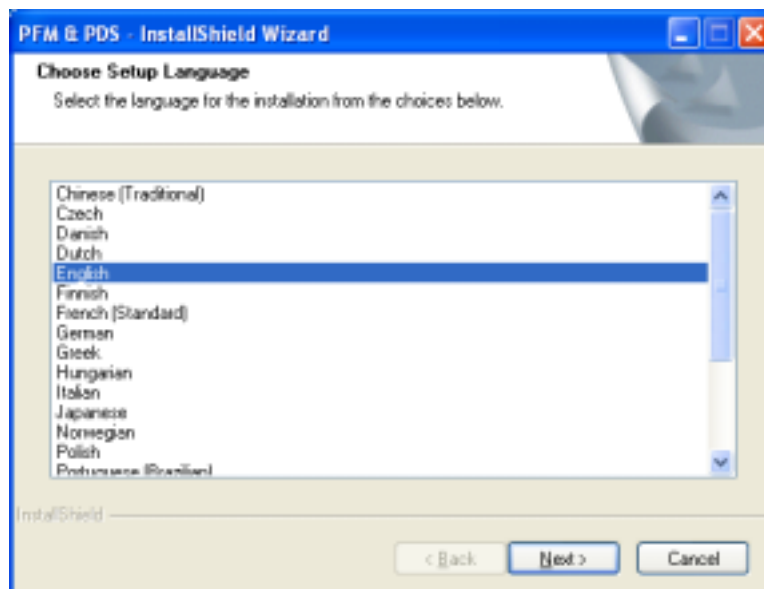
## 02 - Installing PFM & PDS

### Activity 02 (Continued)

2. Click **PFM & PDS**.



3. Select the language for the installation, and then click **Next**.

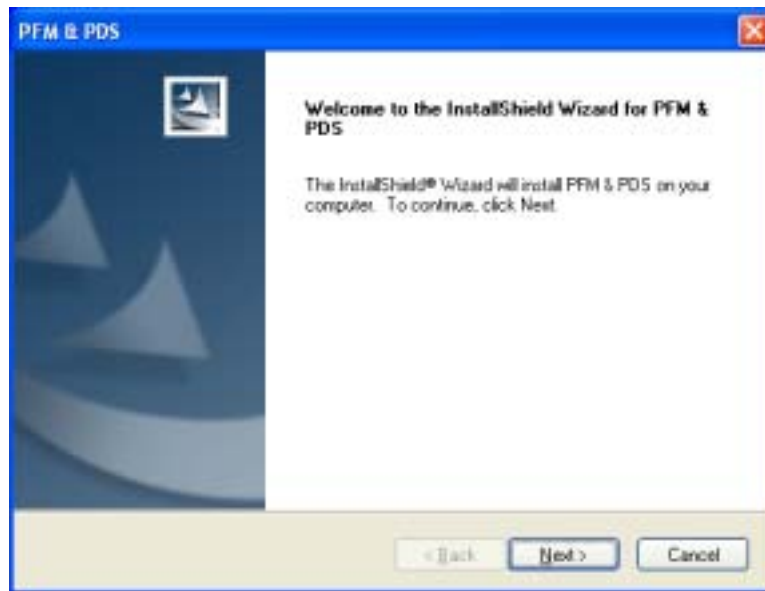


# INTRODUCTION TO M-MDS

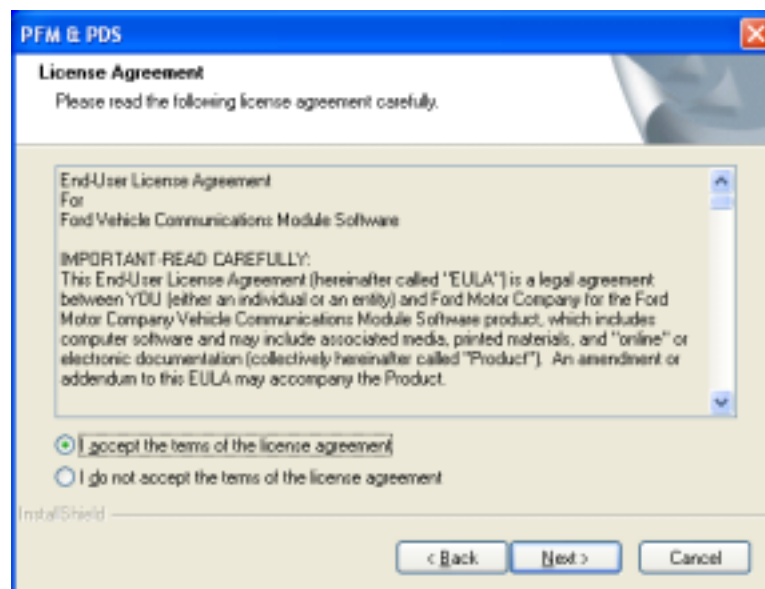
## 02 - Installing PFM & PDS

### Activity 02 (Continued)

4. Click **Next**.



5. Select **I accept the terms of the license agreement**, then click **Next**.



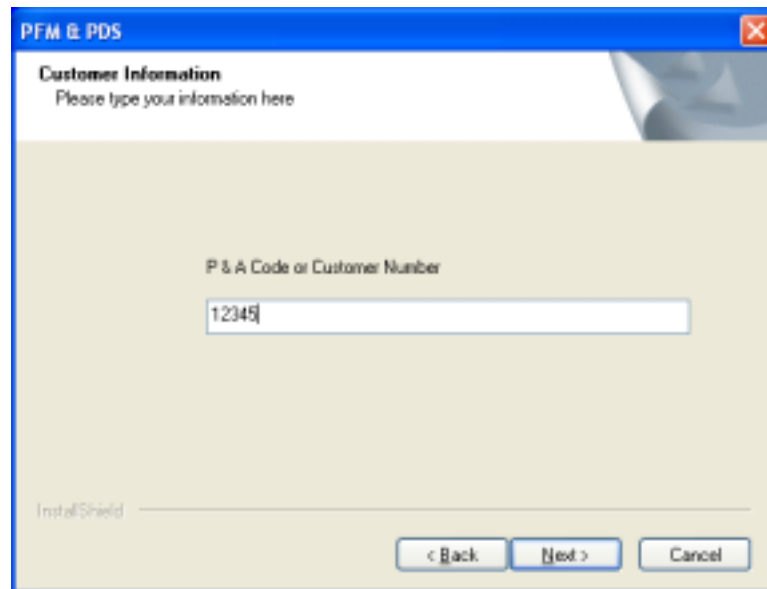
# INTRODUCTION TO M-MDS

## 02 - Installing PFM & PDS

### Activity 02

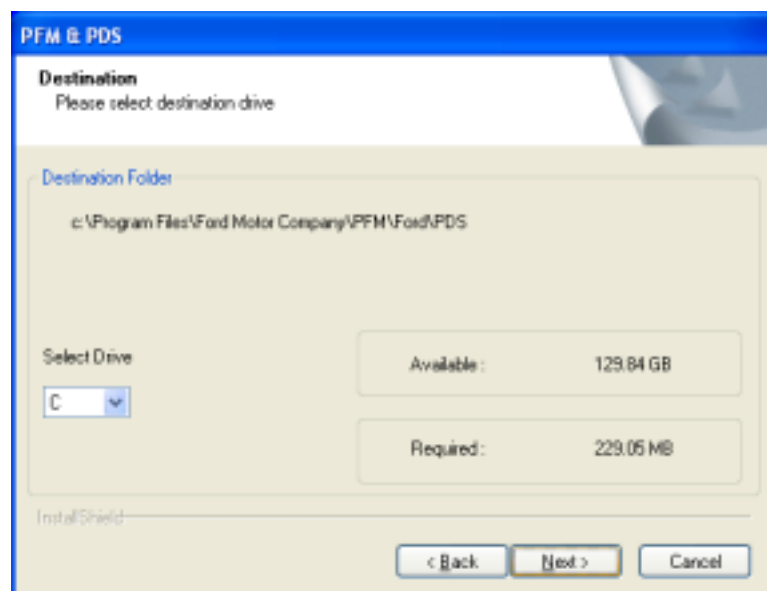
(Continued)

6. Type your dealer code in the P & A Code or Customer Number field, then click **Next**.



The screenshot shows a dialog box titled "PFM & PDS" with a blue header and a red close button. The main area is titled "Customer Information" and contains the instruction "Please type your information here". Below this is a text input field labeled "P & A Code or Customer Number" which contains the value "12345". At the bottom left, the text "InstallShield" is visible. At the bottom right, there are three buttons: "< Back", "Next >", and "Cancel".

7. Click **Next**.



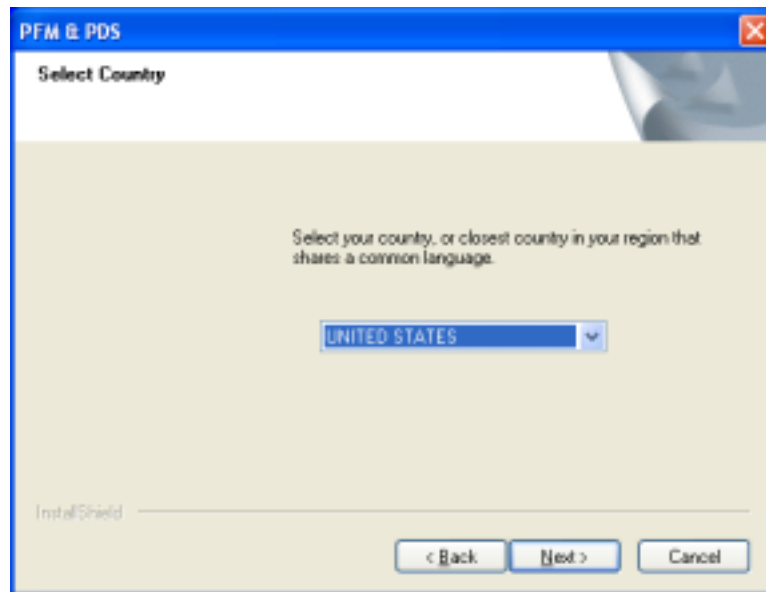
The screenshot shows a dialog box titled "PFM & PDS" with a blue header and a red close button. The main area is titled "Destination" and contains the instruction "Please select destination drive". Below this is a section labeled "Destination Folder" with the path "c:\Program Files\Ford Motor Company\PFM\Ford\PDS". Underneath is a "Select Drive" dropdown menu currently set to "C". To the right of the dropdown are two boxes: "Available : 129.84 GB" and "Required : 229.05 MB". At the bottom left, the text "InstallShield" is visible. At the bottom right, there are three buttons: "< Back", "Next >", and "Cancel".

# INTRODUCTION TO M-MDS

## 02 - Installing PFM & PDS

### Activity 02 (Continued)

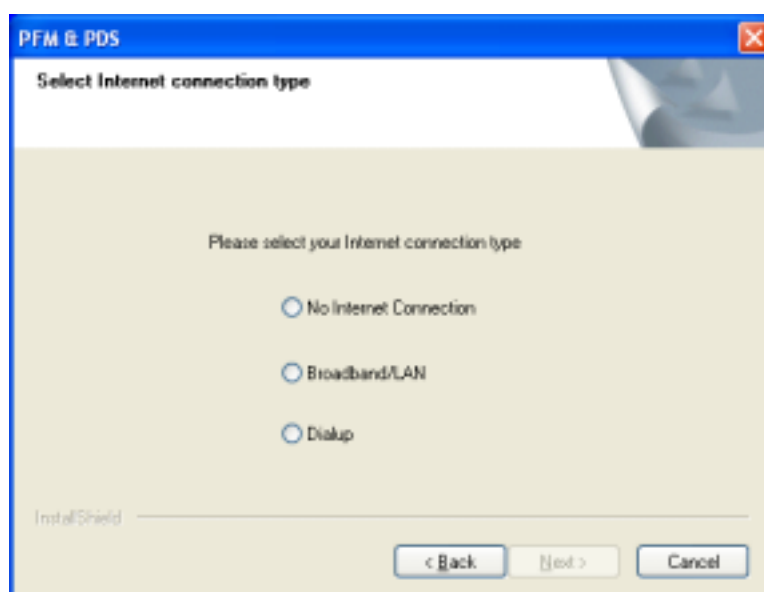
8. Select your country or closest country in your region, then click **Next**.



9. Select your internet connection type, then click **Next**.

### NOTE

You have only one chance to correctly select your internet connection type. If you select the wrong option, you will have to remove and reinstall PDS.





# INTRODUCTION TO M-MDS

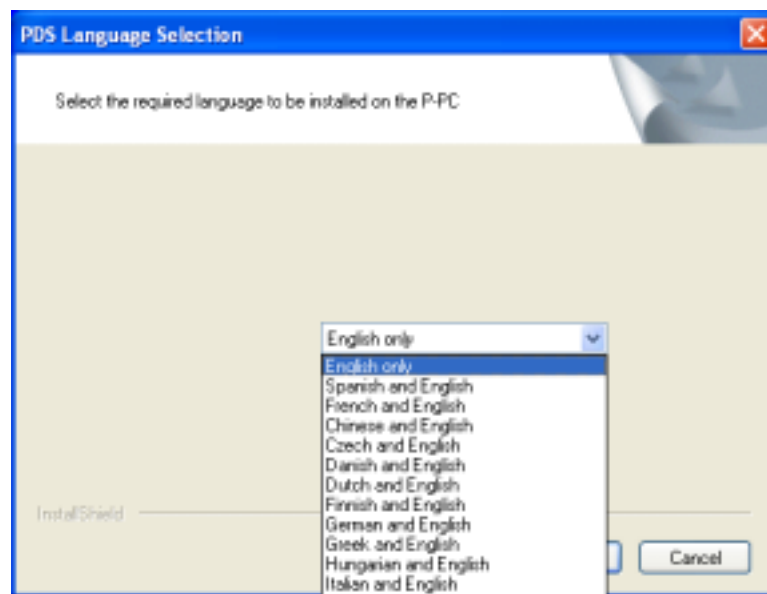
## 02 - Installing PFM & PDS

### Activity 02 (Continued)

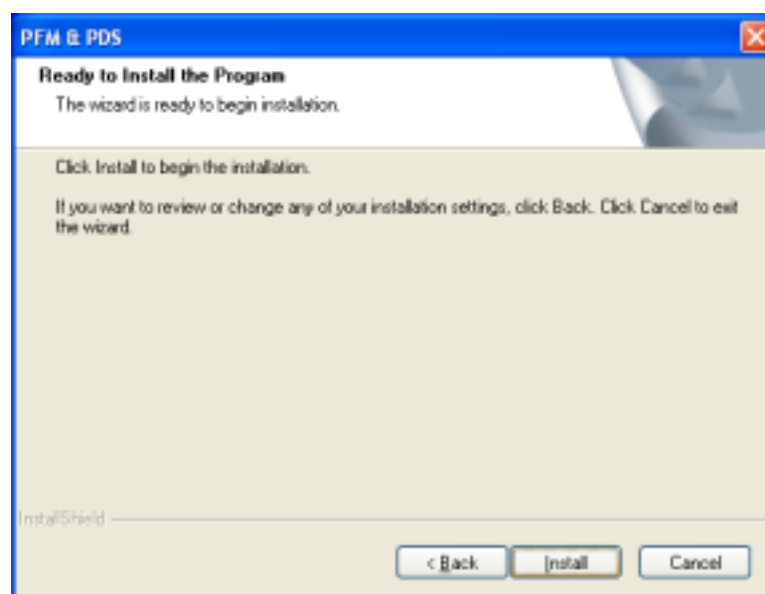
10. Select the desired language for PDS from the drop-down menu, then click **Next**.

#### NOTE

There are many choices for multiple languages.



11. Click **Install**.



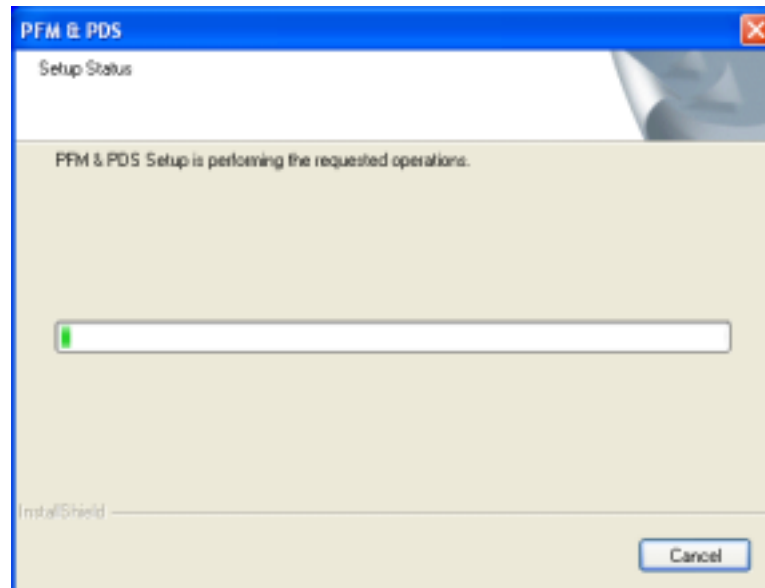
# INTRODUCTION TO M-MDS

## 02 - Installing PFM & PDS

### Activity 02

(Continued)

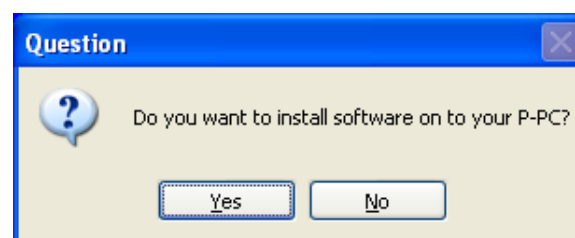
12. This screen displays the progress of the setup status. This will take a few minutes to perform the requested operations.



13. Click **YES**.

### NOTE

Make sure your PDA / P-PC is connected and turned on. Also make sure the SD card is installed in the PDA / P-PC.



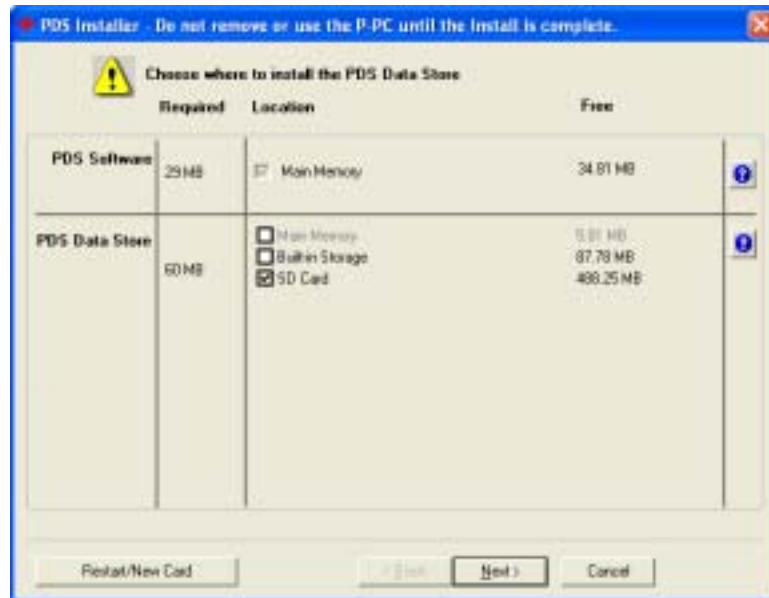
# INTRODUCTION TO M-MDS

## 02 - Installing PFM & PDS

### Activity 02

(Continued)

14. Check **SD Card** and click next



15. Confirm the options look like the options in the following window, then click **Next**.



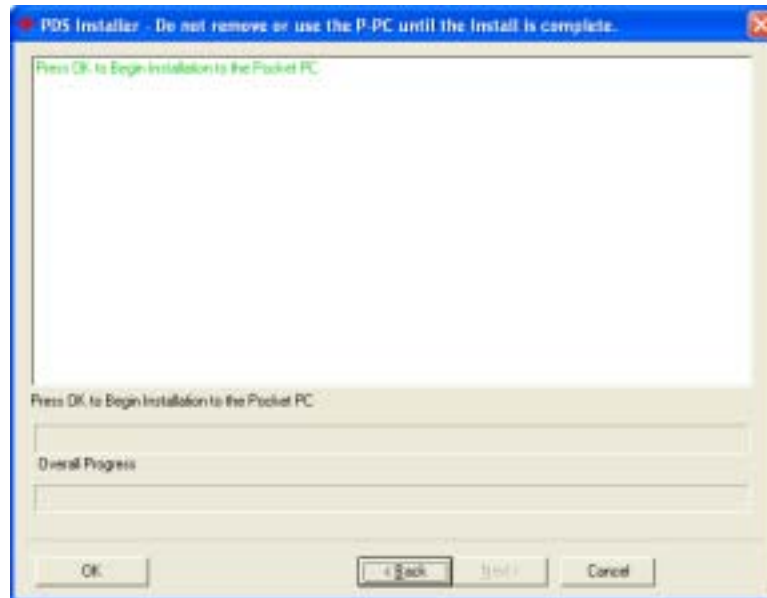
# INTRODUCTION TO M-MDS

## 02 - Installing PFM & PDS

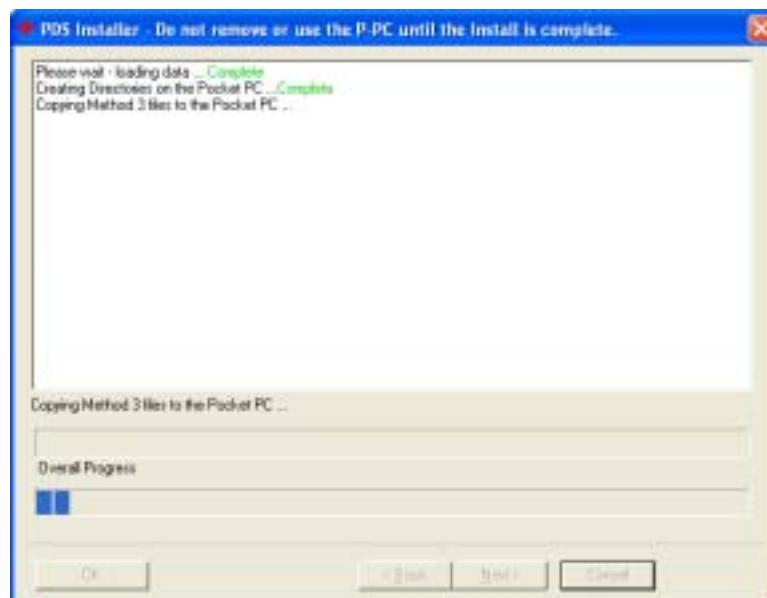
### Activity 02

(Continued)

16. Click **OK**.



17. During this process you will see data transfer to the PDA on its screen. This process will take a few minutes.

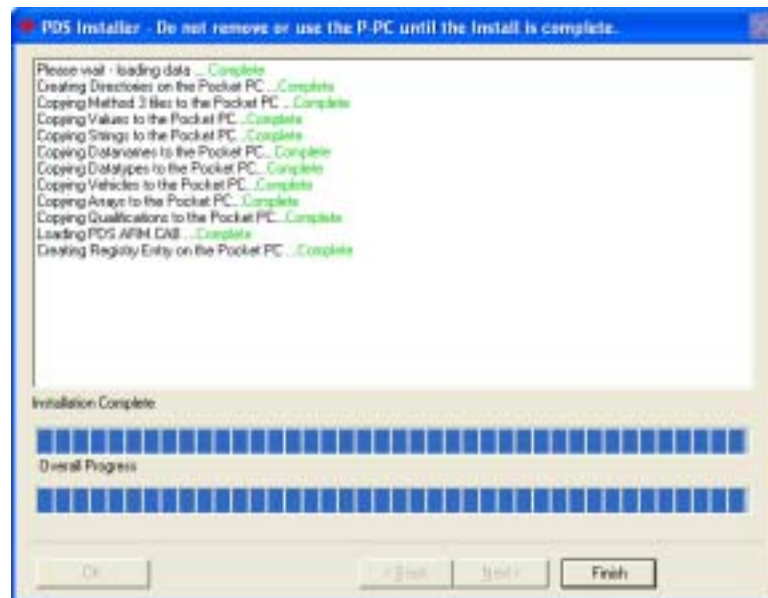


# INTRODUCTION TO M-MDS

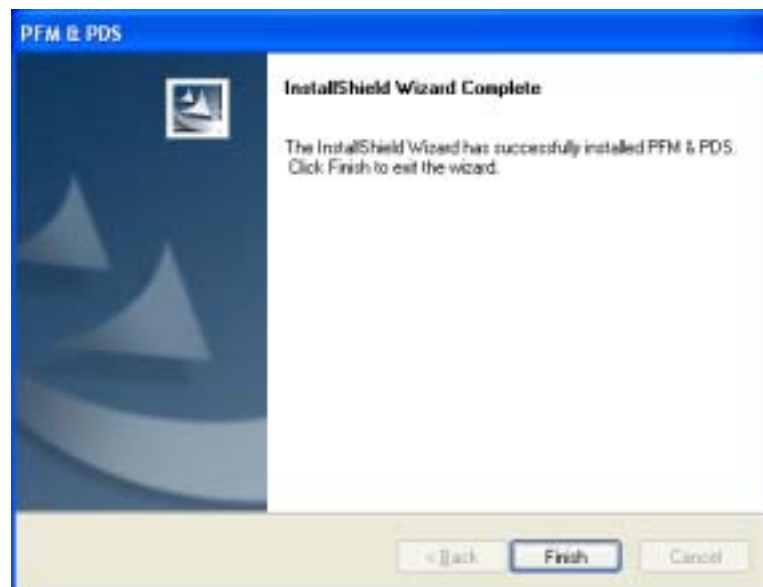
## 02 - Installing PFM & PDS

### Activity 02 (Continued)

18. Click **Finish**.



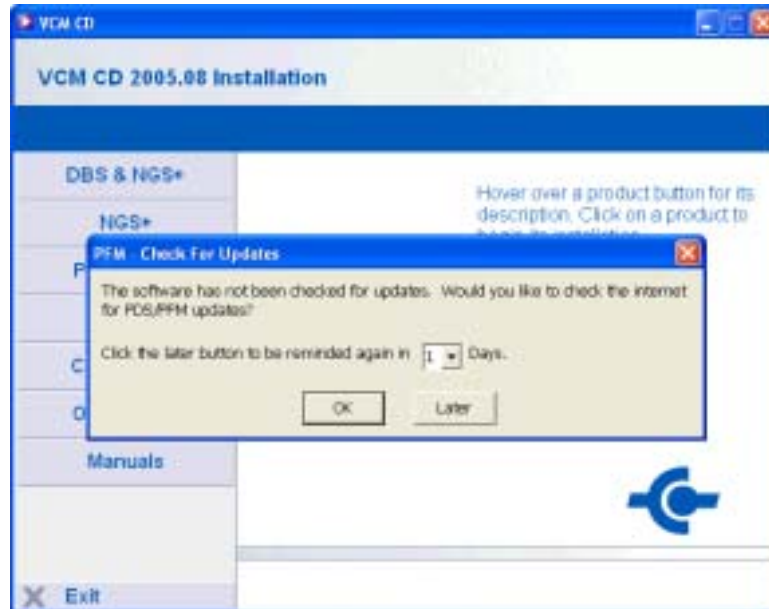
19. Click **Finish**.



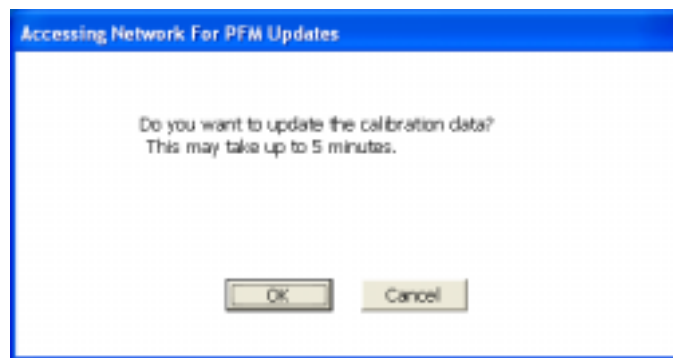
### Activity 02

(Continued)

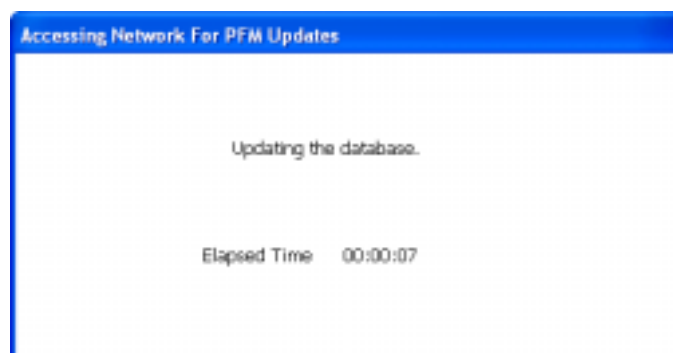
20. Click **OK** to check the internet for PDS / PFM updates.



21. Click **OK** to update the calibration data. This may take up to 5 minutes.



The following window displays.



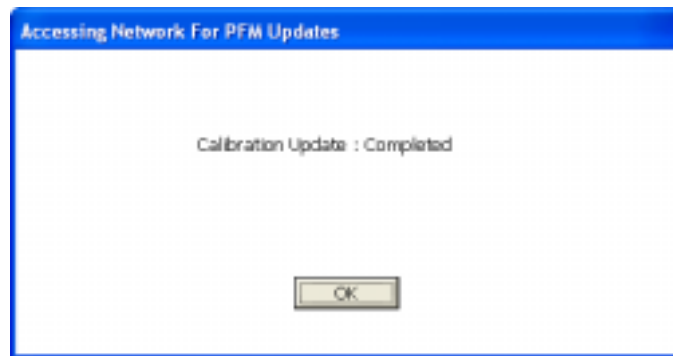
# INTRODUCTION TO M-MDS

## 02 - Installing PFM & PDS

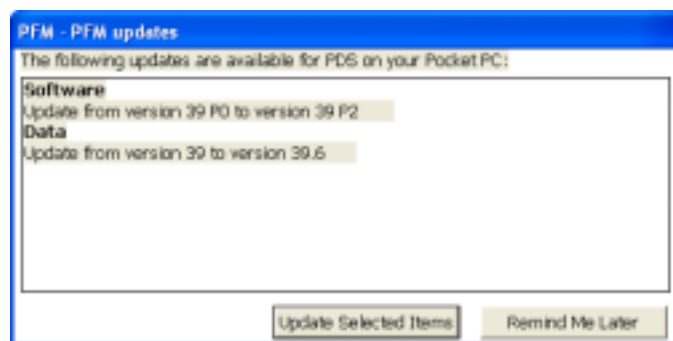
### Activity 02

(Continued)

22. Click **OK**.



23. Click **Update Selected Items**.



24. Click **OK**.



### NOTE

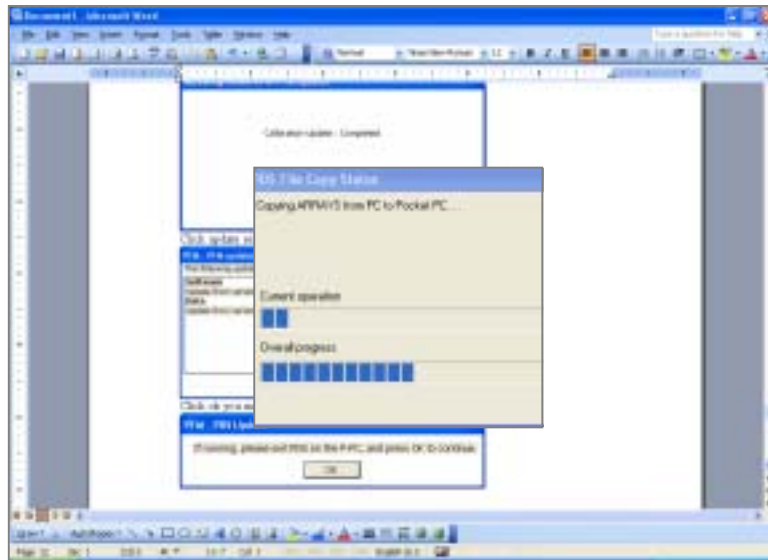
If the above window displays again, click **OK**.

# INTRODUCTION TO M-MDS

## 02 - Installing PFM & PDS

### Activity 02 (Continued)

25. This will take a few minutes.



26. Click **Exit** in the lower left corner to close this window.



27. Remove the VCM CD and store it in a safe place.

28. If the VCM has been updated already, you can end this activity here.



# INTRODUCTION TO M-MDS

## 02 - Installing PFM & PDS

### Activity 02 (Continued)

**NOTE**

When installing the PDS and VCM into the carrying case, make sure the LEDs are visible from the back side of the case.

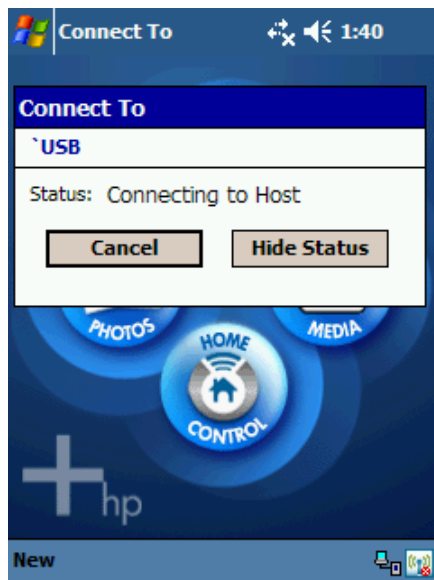


**NOTE**

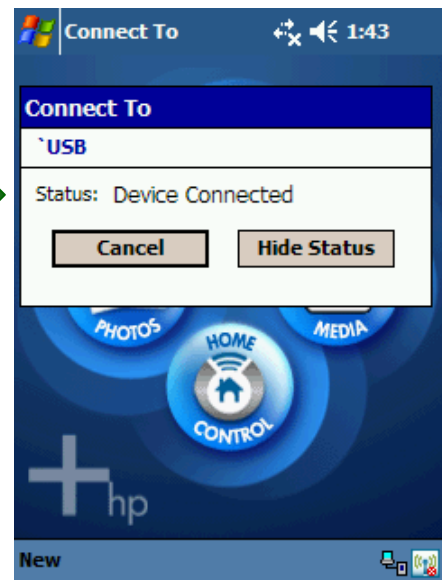
If you are installing PDS for a new VCM (i.e., the VCM has not been used before), you must perform the following steps to update the VCM.

29. Connect the M-MDS data cable to DLC 2 under the dash. The PDA will turn on automatically.

Three USB pop-up messages quickly flash on and off the PDA. You may not see the first two messages:



USB message 1



USB message 2

# INTRODUCTION TO M-MDS

## 02 - Installing PFM & PDS

### Activity 02 (Continued)

The third message, "Status: User Authenticated," is the most important message.

30. Tap **Start** on the main screen.



USB message 3

31. Tap **Programs**.



# INTRODUCTION TO M-MDS

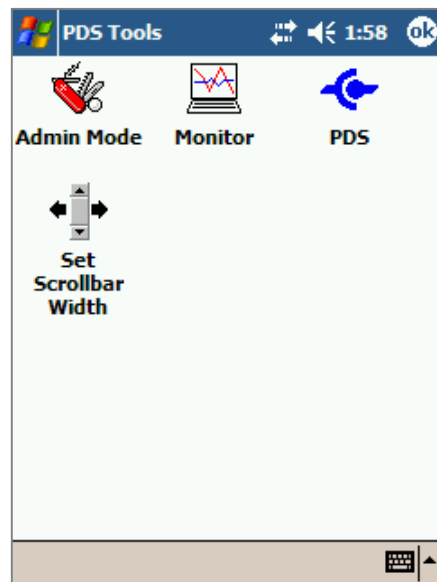
## 02 - Installing PFM & PDS

### Activity 02 (Continued)

32. Tap **PDS Tools**.



33. Tap **PDS**



34. The PDS Establishing Communications screen flashes on then off. This screen indicates the PDA is connecting to the VCM via the USB network.

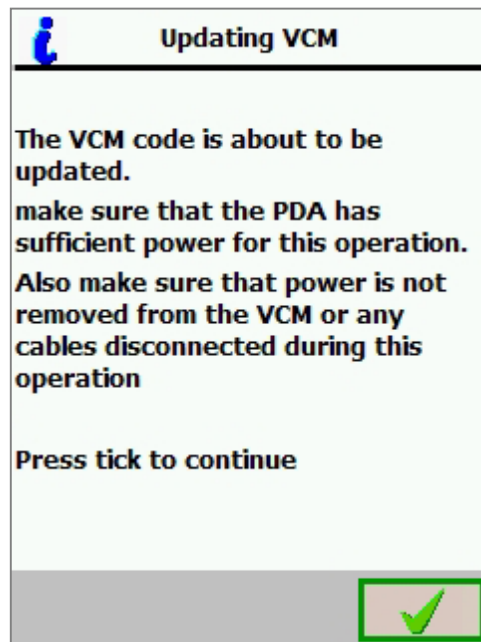


### Activity 02 (Continued)

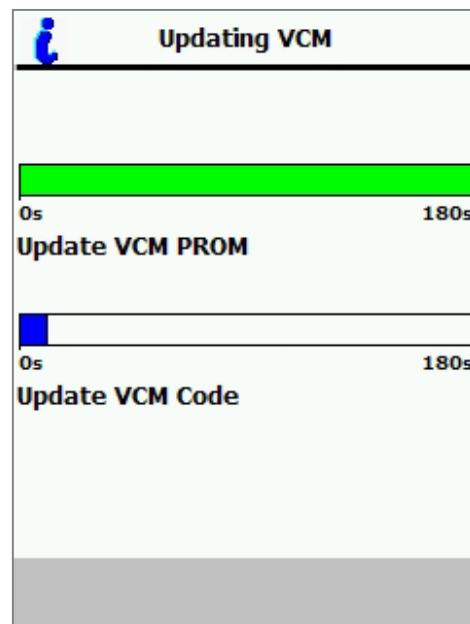
#### NOTE

PDS will now update the VCM. You will see the following screens. Follow the screen instructions and tap tick as needed.

35. Tap tick.



36. This screen flashes on then off.



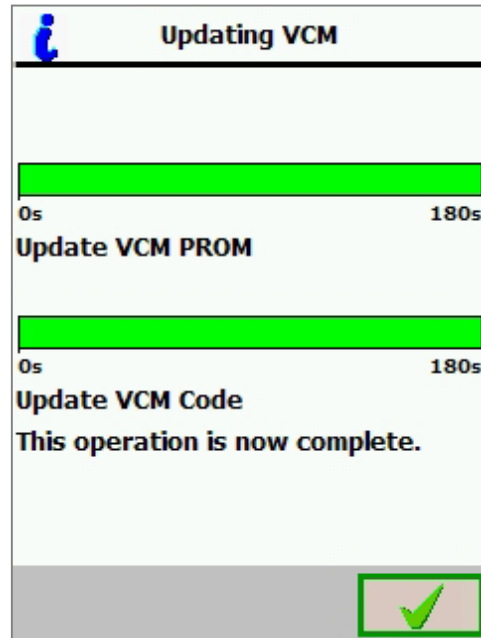
# INTRODUCTION TO M-MDS

## 02 - Installing PFM & PDS

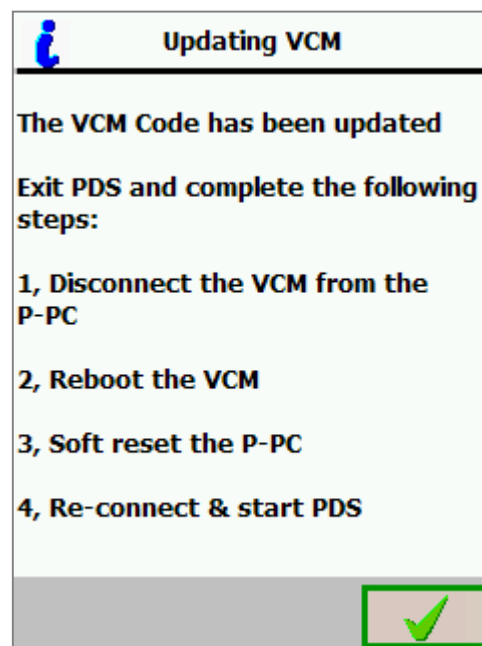
### Activity 02

(Continued)

37. Tap tick.



38. Follow the screen instructions.



PDS and the VCM are now ready to use.

### Conclusion:

In this activity, you installed PDS and updated a new VCM.

Instructor Sign-off: \_\_\_\_\_

### Activity 03: PDA Navigation

Upon completing this activity you will be able to:

- Navigate a PDA using “screen taps”
- View battery status
- Adjust screen brightness
- Adjust screen “on time”

### What you need to complete this activity:

- Mazda-approved PDA with PDS installed

### Procedure:

1. Press the power button to turn ON the PDA.

Your PDA and PDA's main screen may look slightly different than this example.



2. Slide the stylus out of its location on the back of the PDA. The stylus replaces the computer mouse. To open a menu or select an item, tap the screen once with the stylus.

### CAUTION

Use the stylus or soft cap from a pen on the touch screen. You can damage the touch screen if you use the tip of a mechanical pencil or other sharp item.

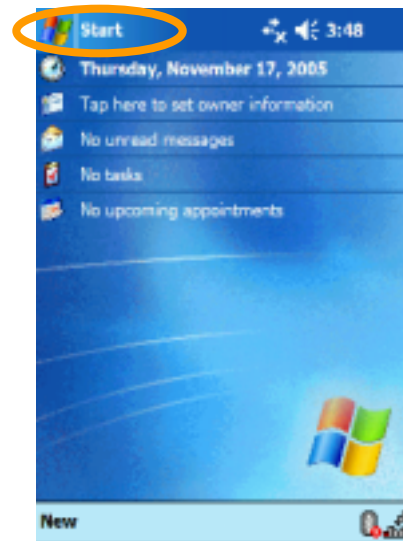
# INTRODUCTION TO M-MDS

## 03 - PDA Navigation

### Activity 03

(Continued)

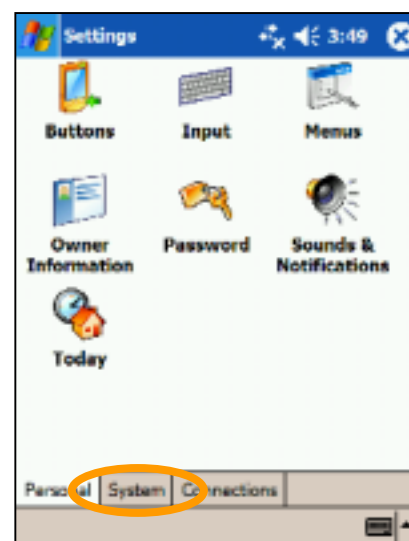
3. Tap **Start** at the top of the main screen.



4. Tap **Settings** from the drop-down menu.



5. Tap the **System** tab at the bottom of the Settings screen.



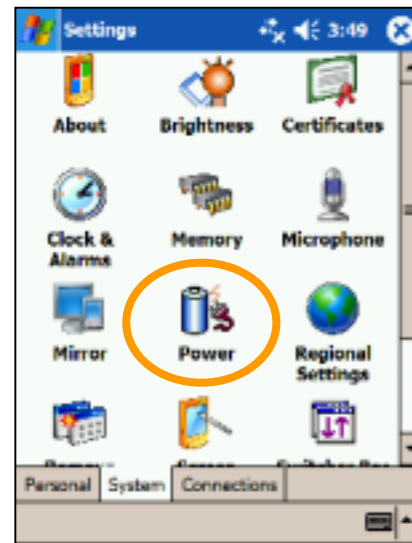
# INTRODUCTION TO M-MDS

## 03 - PDA Navigation

### Activity 03

(Continued)

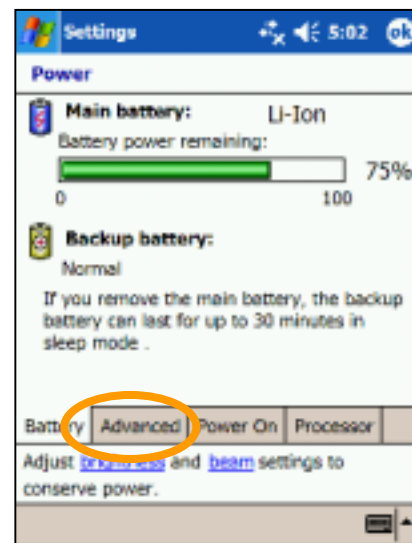
6. Tap **Power**.



7. What is the main battery power remaining on your PDA?

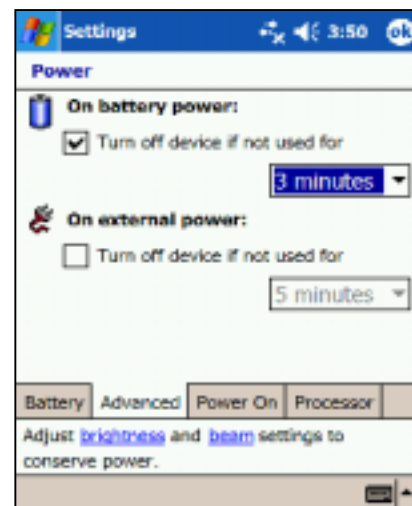
\_\_\_\_\_ %

The battery power remaining must be **50% or more** for PDS to properly function.



8. Tap the **Advanced** tab at the bottom of the screen.

9. Verify **Turn off device if not used for** is checked.

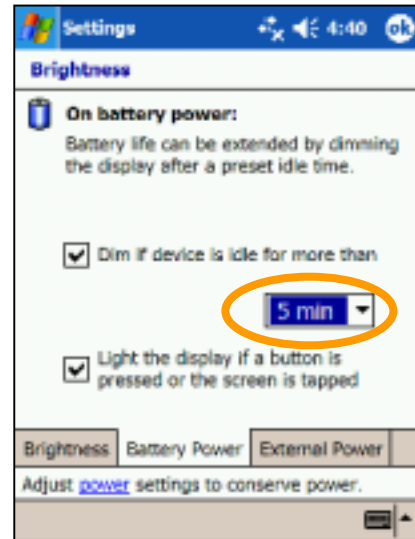




### Activity 03

(Continued)

- Tap the drop-down list and select 5 minutes. Tap **OK** at the top right corner to save your selection and exit the screen.

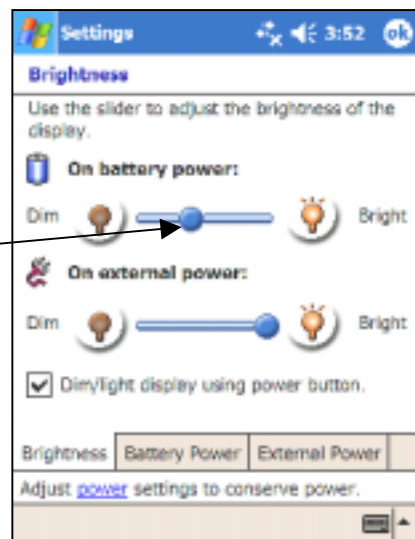


- Tap **Brightness**.



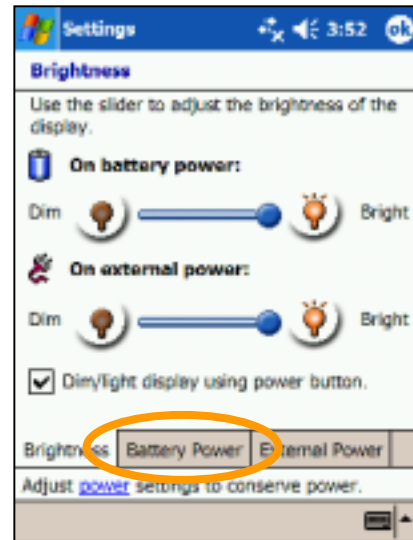
- Press and hold down the stylus **On battery power** and drag the slider to Bright.

Drag slider to Bright on the right

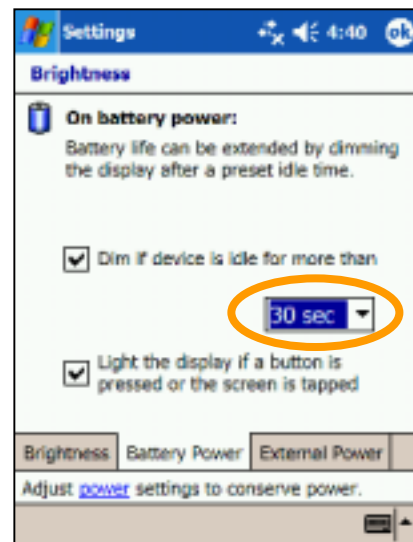


### Activity 03 (Continued)

13. Tap the **Battery Power** tab.



14. Set **Dim if device is idle for more than** to 5 minutes.

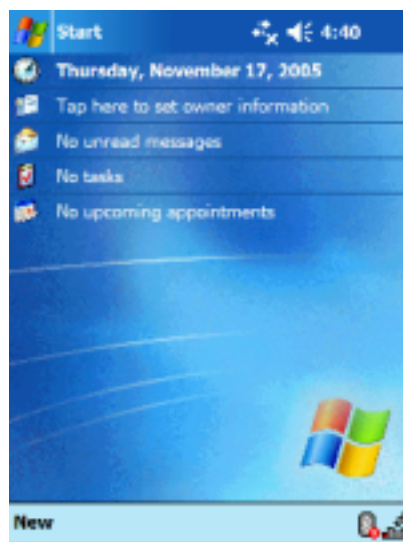
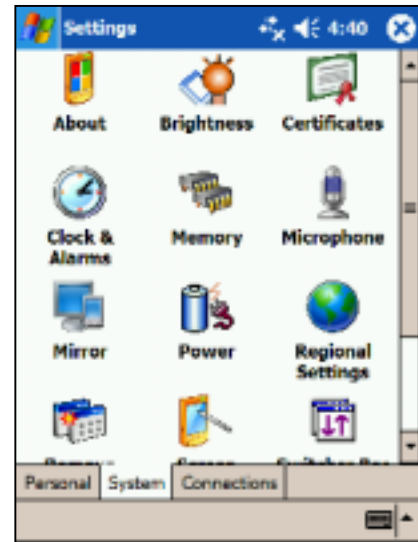


15. Tap **OK** to save your selection and exit the screen.



### Activity 03 (Continued)

16. Tap **X** at the upper right corner to exit the Settings screen.



Your PDA's main screen may look slightly different than this example.

The main screen displays when you have saved your selections and exited the Settings screen.

# INTRODUCTION TO M-MDS

## 03 - PDA Navigation

Now that you have mastered basic PDA navigation, perform a soft reset so the PDA will be ready to use with M-MDS. The soft reset deletes data that has not been saved, such as the current vehicle session, but saves data previously stored in the PDA's memory.

To perform a soft reset, use the stylus to press the reset button one time on the back of the PDA, as shown in the picture below.



### NOTE

On an HP PDA, the reset button is in a different location. Ask your instructor if you are not sure where the reset button is located.

### Conclusion:

In this activity, you performed basic PDA navigation to view battery status, adjust screen brightness, and adjust screen "on time." You also learned "soft resetting" the PDA.

Instructor Sign-off: \_\_\_\_\_

# INTRODUCTION TO M-MDS

## 04 - Retrieving and Clearing DTCs

### Activity 04: Retrieving and Clearing DTCs

Upon completing this activity you will be able to use M-MDS to:

- Open a vehicle session
- Retrieve and clear DTCs from a current Mazda vehicle
- Close a vehicle session

#### What you need to complete this activity:

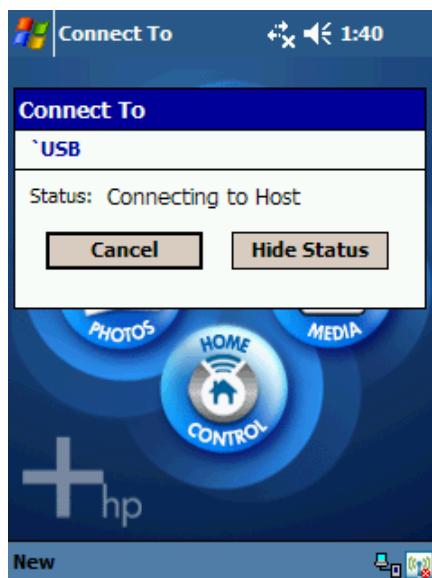
- A current Mazda vehicle prepped by your instructor
- Mazda-approved PDA with PDS installed
- Mazda-approved laptop with ActiveSync installed
- High-speed internet access if possible.
- VCM

#### Procedure:

##### *Initialize M-MDS and Open a Vehicle Session*

1. Connect the M-MDS data cable to DLC 2 under the dash. The PDA will turn on automatically.

Three USB pop-up messages quickly flash on and off the PDA. You may not see the first two messages:



USB message 1



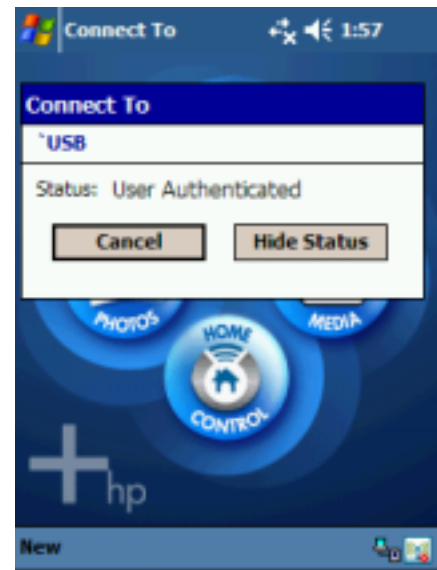
USB message 2

# INTRODUCTION TO M-MDS

## 04 - Retrieving and Clearing DTCs

### Activity 04 (Continued)

The third message, "Status: User Authenticated," is the most important message.



USB message 3

2. Tap **Start** on the main screen.

Your PDA's main screen may look slightly different than this example.



3. A drop-down menu lists the frequently used programs. Go to step 4 if **PDS** is listed on the drop-down menu. Go to step 5 on page 3 if PDS is not listed on the drop-down menu.
4. Tap **PDS** from the drop-down menu, then go to step 6 on page 4..



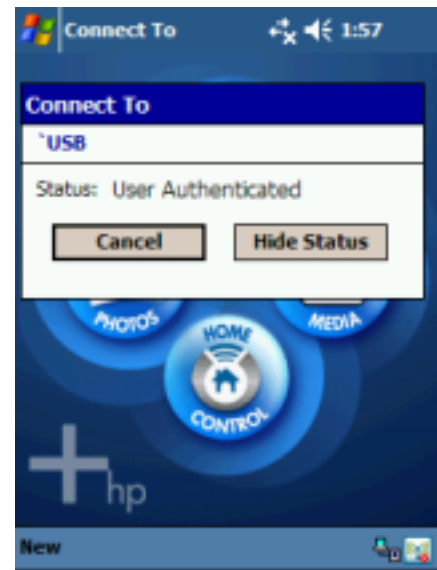
# INTRODUCTION TO M-MDS

## 04 - Retrieving and Clearing DTCs

### Activity 04

(Continued)

5. If PDS is not listed on the drop-down menu, you will need to access PDS from the Programs screen.



USB message 3

### NOTE

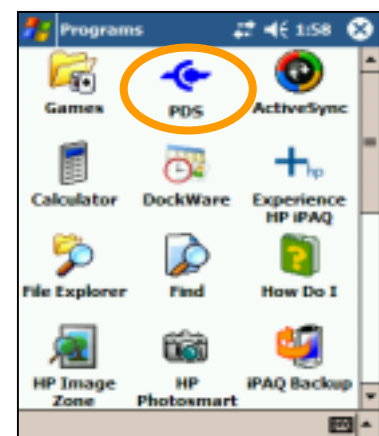
The following steps are required when PDS is newly installed on the PDA or after conducting a hard reset on the PDA.

- A. Select **Programs** from the drop-down menu.



- B. The Programs screen displays either **PDS** or **PDS Tools**.

Tap **PDS** if it is displayed.





# INTRODUCTION TO M-MDS

## 04 - Retrieving and Clearing DTCs

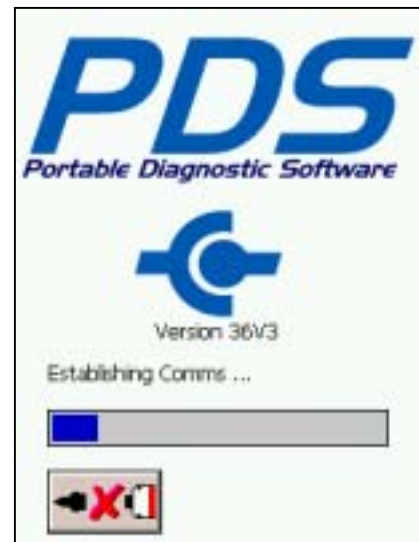
### Activity 04 (Continued)

- OR -

Tap **PDS Tools** if it is displayed, then tap **PDS**.



- The PDS Establishing Communications screen flashes on then off. This screen indicates the PDA is connecting to the VCM via the USB network.



- Tap the  **New Vehicle** icon.





# INTRODUCTION TO M-MDS

## 04 - Retrieving and Clearing DTCs

### Activity 04

(Continued)

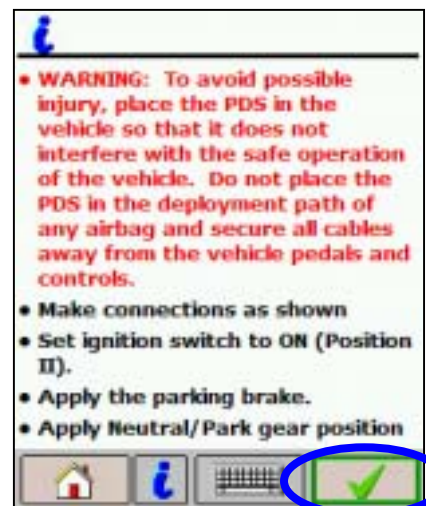
- Select **16 pin**, then tap tick.



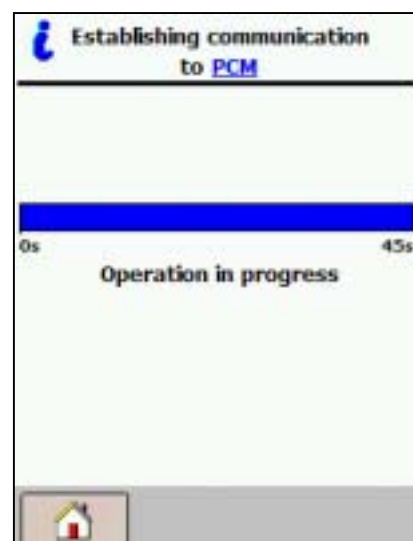
- Turn the ignition key to Key On Engine Off (KOEO), then tap tick.

**CAUTION**

If you do not turn the ignition key ON, you will need to perform a soft reset on your PDA and reboot the VCM.



- Watch the following Establishing Communication screen flash on then off.



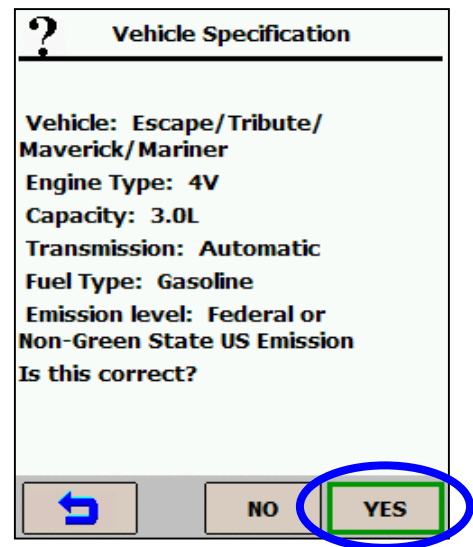
# INTRODUCTION TO M-MDS

## 04 - Retrieving and Clearing DTCs

### Activity 04

(Continued)

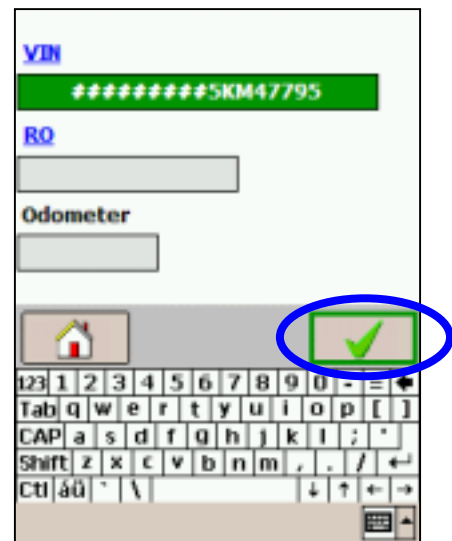
- Verify the vehicle information is correct, then tap **YES**.



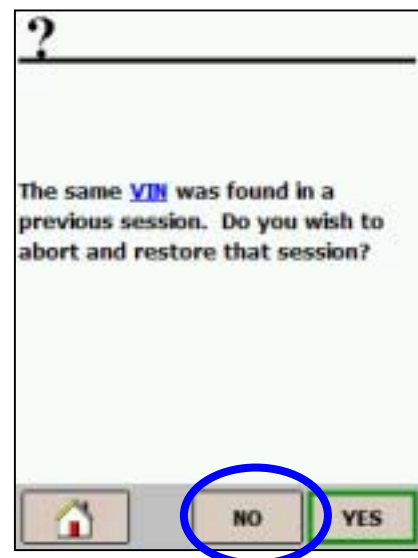
- If desired, leave the fields empty or tap data into any of the fields, then tap tick.

**NOTE**

This is an optional screen and you may not see it.



- If this screen displays, tap **NO**.

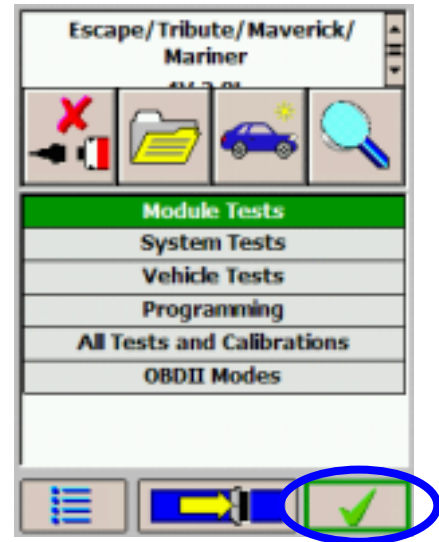


# INTRODUCTION TO M-MDS

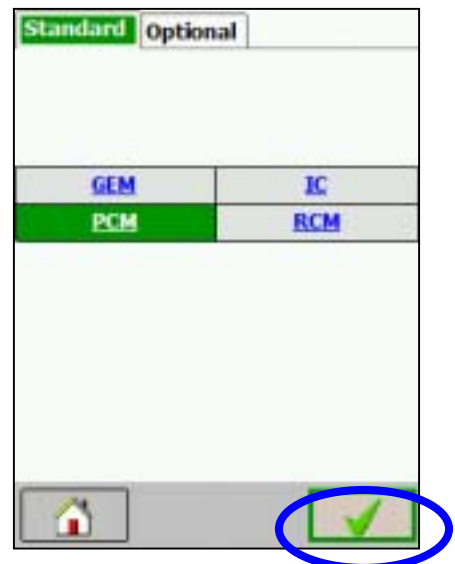
## 04 - Retrieving and Clearing DTCs

### Activity 04 (Continued)

14. Tap **Module Tests** if it is not highlighted, then tap tick.

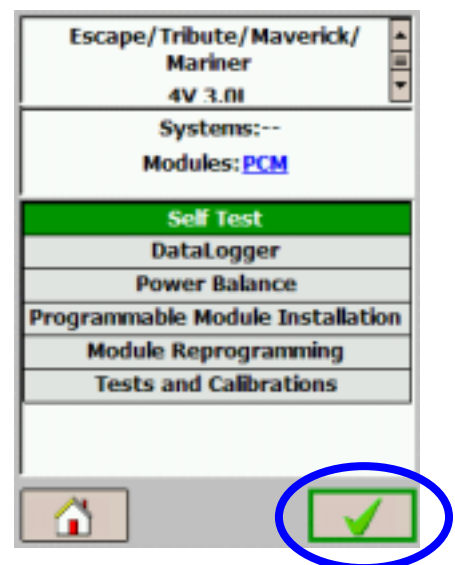


15. Tap tick.



### Retrieve DTCs

16. Tap **Self Test** if it is not highlighted, then tap tick.



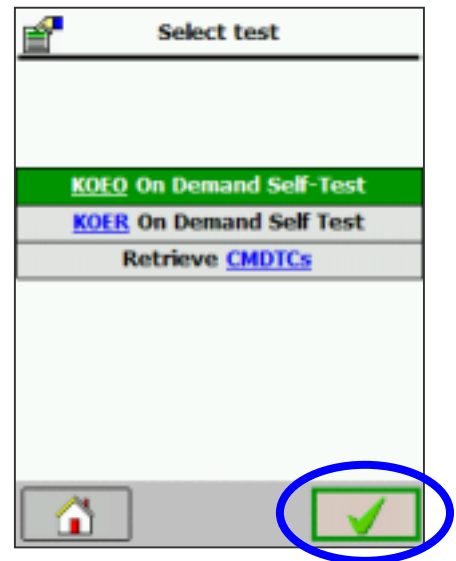
# INTRODUCTION TO M-MDS

## 04 - Retrieving and Clearing DTCs

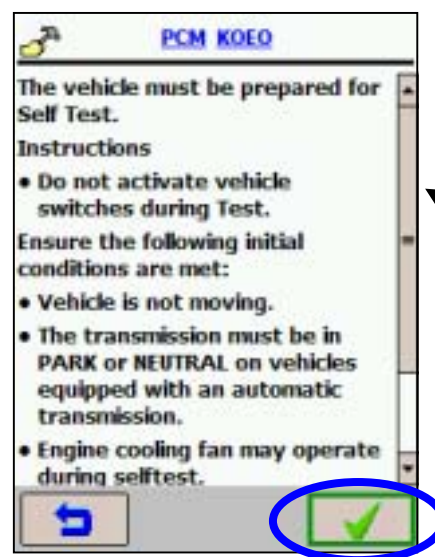
### Activity 04

(Continued)

17. Tap tick.

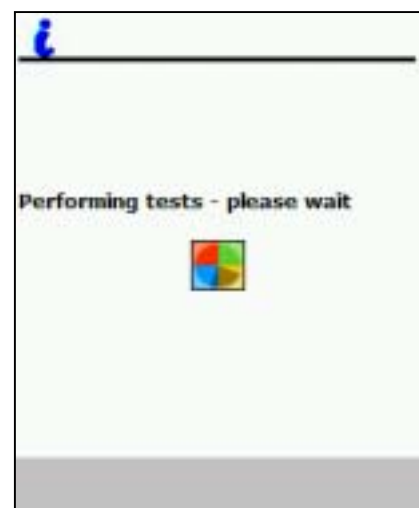


18. Follow the screen instructions to prepare the vehicle, then tap tick.



Scroll down to see the rest of the screen.

19. This screen flashes on then off.

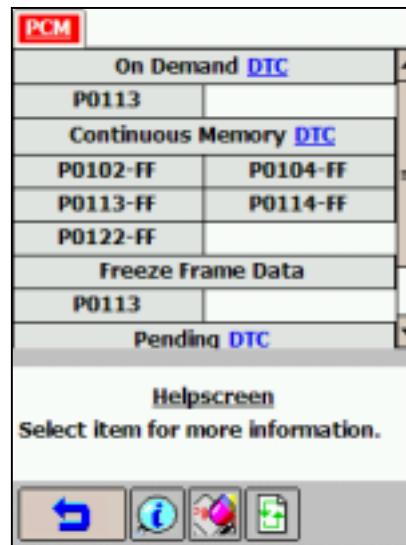


# INTRODUCTION TO M-MDS

## 04 - Retrieving and Clearing DTCs

### Activity 04 (Continued)

20. The following screen lists On Demand DTC(s), Continuous Memory DTC(s), Freeze Frame Data, and Pending DTC(s).



Scroll down to see the rest of the screen.

Write the DTCs displayed on your PDA.

On Demand DTC	Continuous Memory DTC	Pending DTC

# INTRODUCTION TO M-MDS

## 04 - Retrieving and Clearing DTCs

### Activity 04

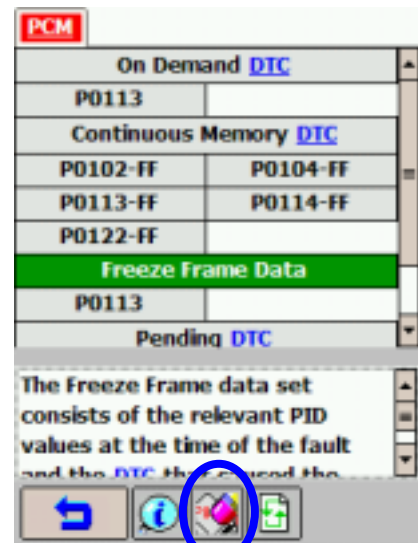
(Continued)

#### Clearing DTCs

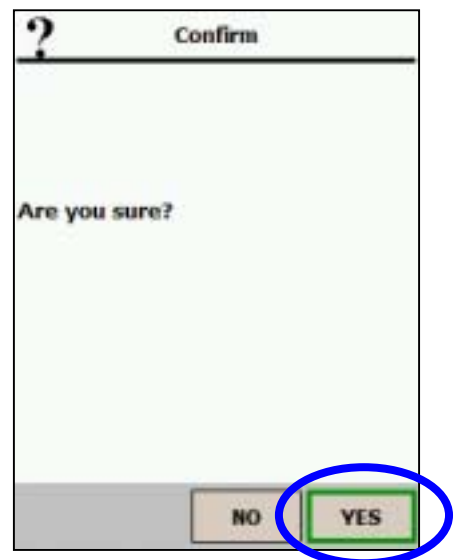
21. When you are finished reading the DTCs currently listed, tap Erase to clear the DTCs.



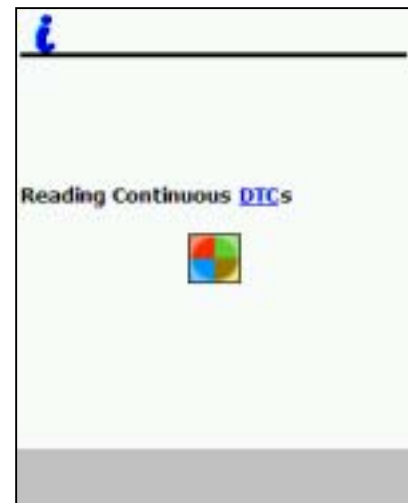
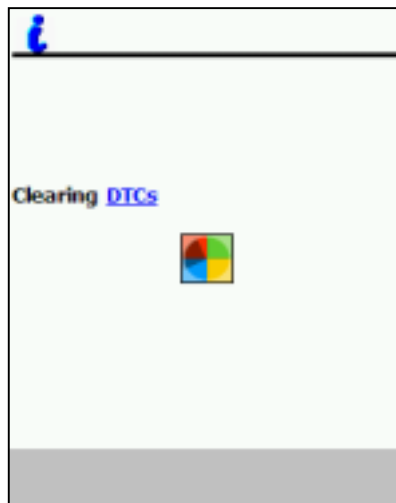
Erase Button



22. Tap **YES** to retrieve additional DTCs.



23. The next two screens flash on and off.

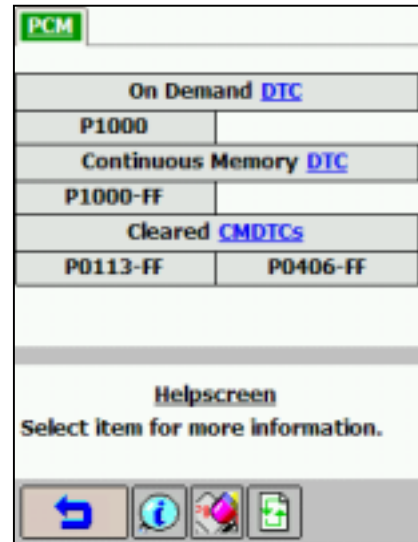


# INTRODUCTION TO M-MDS

## 04 - Retrieving and Clearing DTCs

### Activity 04 (Continued)

24. The following screen lists additional DTCs.



Write the DTCs displayed on your PDA.

On Demand DTC	Continuous Memory DTC	Cleared CMDTCs

# INTRODUCTION TO M-MDS

## 04 - Retrieving and Clearing DTCs

### Activity 04

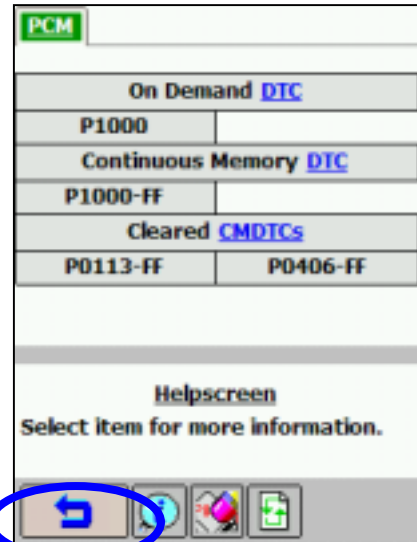
(Continued)

#### Close the Vehicle Session

25. When you have verified the DTCs are cleared from the screen, tap



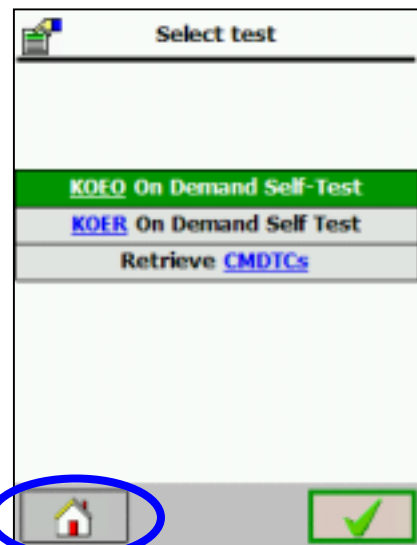
Go to Previous Screen.



26. Tap



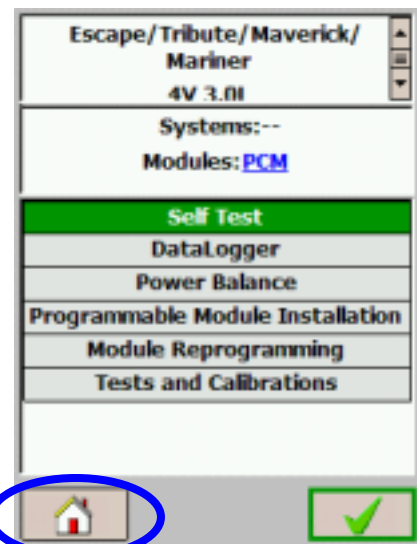
Go to Previous Screen.



27. Tap



Go to Previous Screen again.

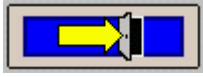


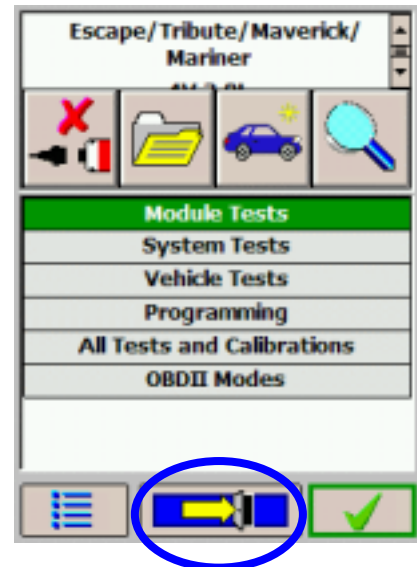


# INTRODUCTION TO M-MDS

## 04 - Retrieving and Clearing DTCs

### Activity 04 (Continued)

28. Tap  Exit PDS.



The main screen displays:



Your PDA's main screen may look slightly different than this example.

The vehicle session is now closed.

### **Exit PDS**

29. Turn the ignition key OFF.
30. Disconnect PDS from the vehicle.
31. Turn OFF the PDA.

### **Conclusion:**

In this activity, you used M-MDS to retrieve and clear DTCs. You will use the vehicle session data from this activity for Activity 4.

Instructor Sign-off: \_\_\_\_\_

# INTRODUCTION TO M-MDS

## 05 – Reading and Printing Freeze Frame Data (FFD)

TC001-18-01H

### Activity 05: Reading and Printing Freeze Frame Data (FFD)

Upon completing this activity you will be able to use M-MDS to read and print FFD from a current Mazda vehicle.

#### What you need to complete this activity:

- Mazda-approved PDA with PDS installed
- Mazda-approved laptop with ActiveSync installed
- High-speed internet access if possible
- VCM

#### Procedure:

##### *Read Freeze Frame Data*

1. Disconnect the PDA from the VCM if it is connected.
2. Turn on the PDA.
3. Tap **Start** on the main screen.

Your PDA's main screen may look slightly different than this example.



4. Tap **PDS**.




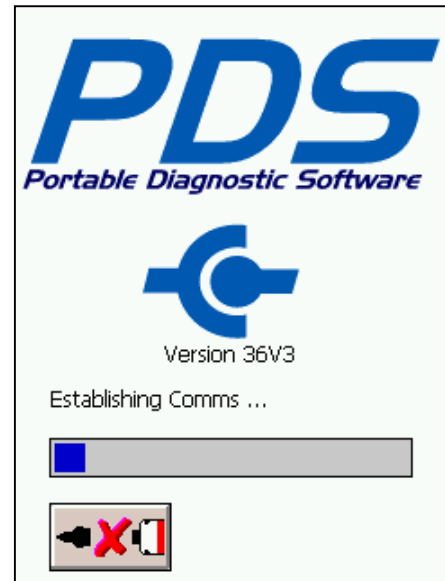
# INTRODUCTION TO M-MDS

## 05 – Reading and Printing Freeze Frame Data (FFD)

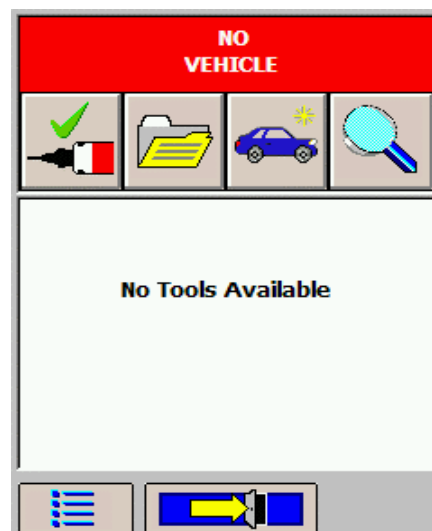
TC001-18-01H

### Activity 05 (Continued)

- When the PDS Establishing Communications screen displays, tap **Disconnect VCM**. 



- Tap the  **Previous Sessions** menu.



- Select the vehicle you used in Activity 3 from the Previous Sessions screen. This is the first vehicle listed. Other previous sessions, if any, are listed by date, with the newest dates listed at the top.

Tap tick.

Previous Sessions		
VIN	Vehicle	DATE
5KM47795	Escape/Tribute/	04/04
5KM47795	Escape/Tribute/	04/04
5KM47795	Escape/Tribute/	04/04
5KM47795	Escape/Tribute/	04/04

# INTRODUCTION TO M-MDS

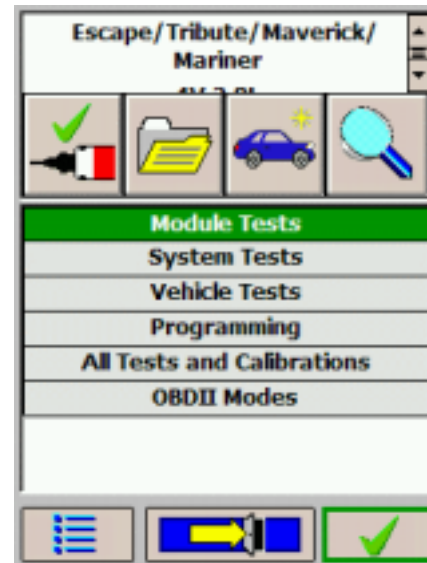
## 05 – Reading and Printing Freeze Frame Data (FFD)

TC001-18-01H

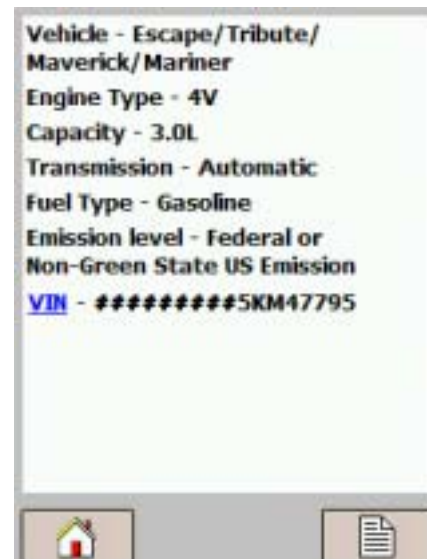
### Activity 05

(Continued)

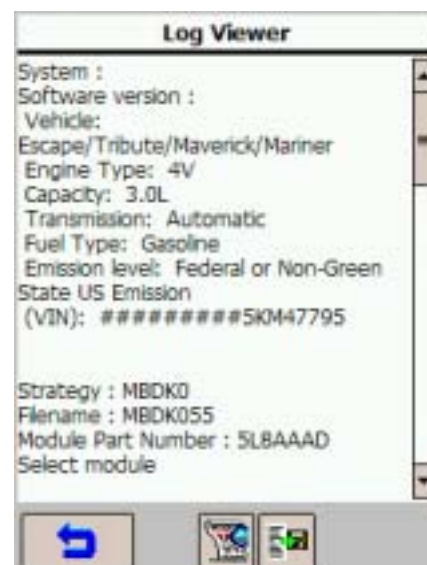
8. Tap the  **Vehicle Details** menu.



9. Tap  **Previous Sessions**.



10. Tap  **Select Item Types**.



# INTRODUCTION TO M-MDS

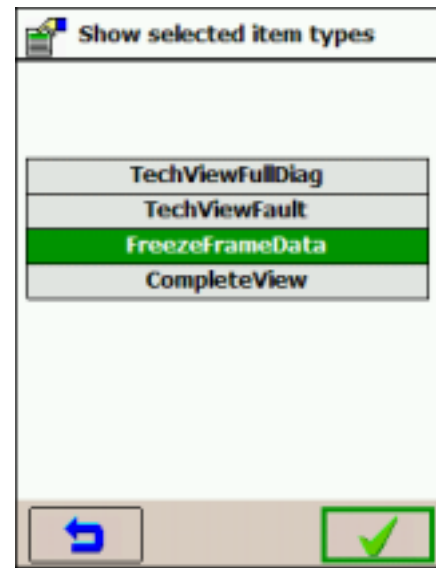
## 05 – Reading and Printing Freeze Frame Data (FFD)

TC001-18-01H

### Activity 05

(Continued)

11. Tap **Freeze Frame Data**, then tap tick.




12. The Log Viewer screen displays the Freeze Frame Data.

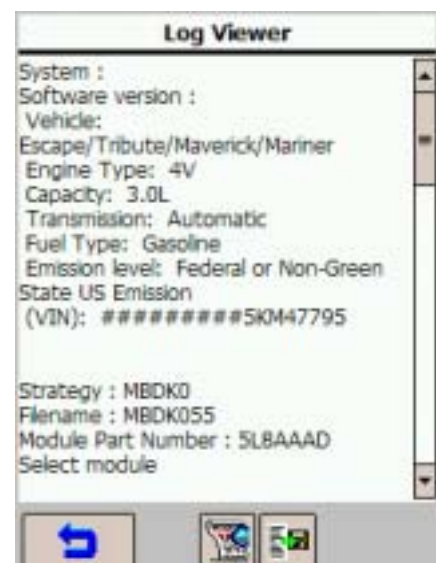
List the following values when the DTC was stored:

ECT: \_\_\_\_\_

VS: \_\_\_\_\_



13. Tap  **Write Contents to File** in the lower right corner.



# INTRODUCTION TO M-MDS

## 05 – Reading and Printing Freeze Frame Data (FFD)

TC001-18-01H

### Activity 05

(Continued)

- Confirm **Write all items to file** is selected, and then tap tick.



- The PDA automatically assigns and displays the Trace File number on the Confirm screen. In the example below, **TraceFile4** is the fourth trace file saved on the PDA.

Write the Trace File number below so you can locate the file later:

**My Documents \ PDS \ WriteTraceFiles \ TraceFile\_\_\_\_\_**

Tap tick.



- Tap  **Go to Previous Screen.**



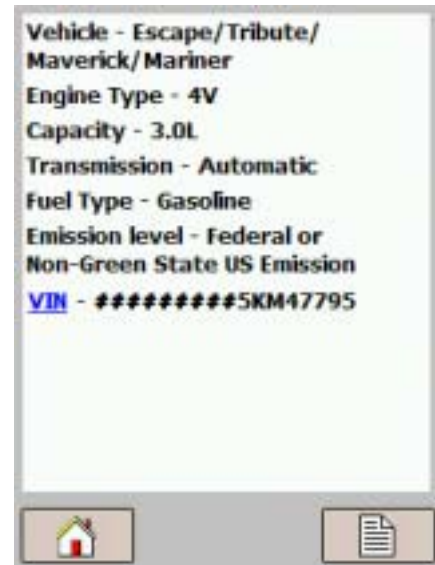
# INTRODUCTION TO M-MDS

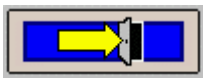
## 05 – Reading and Printing Freeze Frame Data (FFD)

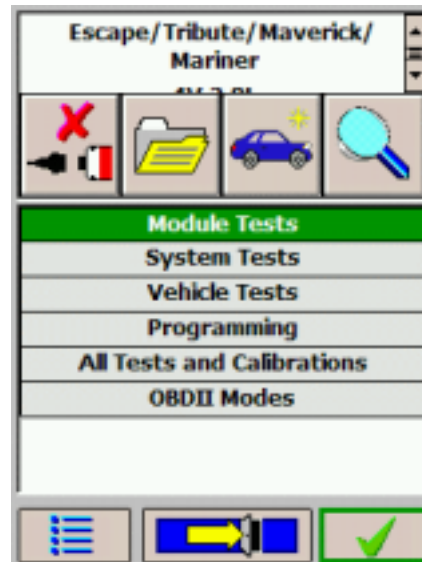
TC001-18-01H

### Activity 05 (Continued)

17. Tap  Go to Previous Screen.



18. Tap  Exit PDS.



19. The PDA's main screen displays. Continue with step 20 for printing the FFD.

Your PDA's main screen may look slightly different than this example.





# INTRODUCTION TO M-MDS

## 05 – Reading and Printing Freeze Frame Data (FFD)

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### Activity 05 (Continued)

*Print Freeze Frame Data*

- Place the PDA in the cradle attached to the same PC that you previously used.



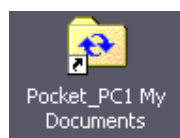
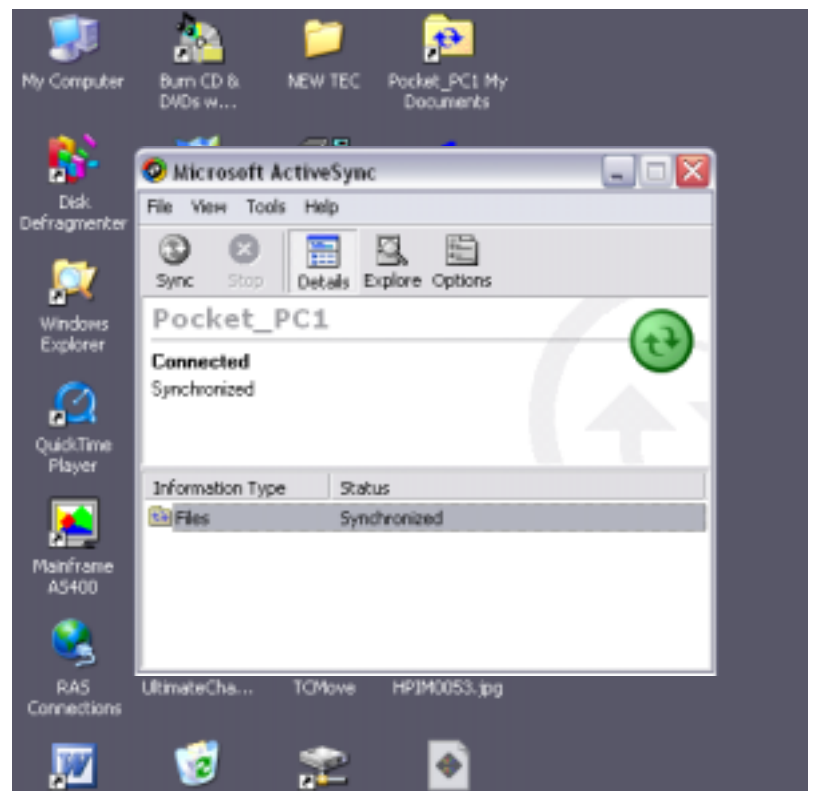
- The Microsoft ActiveSync pop-up window will display on the PC's desktop. This window indicates the PDA and PC are communicating.

If all files do not synchronize click on the



**Sync** icon as needed until the pop-up window displays "Synchronized" under Connected on the top half of the window.

- Click the **X** in the upper right corner to close the pop-up window.



- Double-click the **Pocket\_PC [number] My Documents** folder.



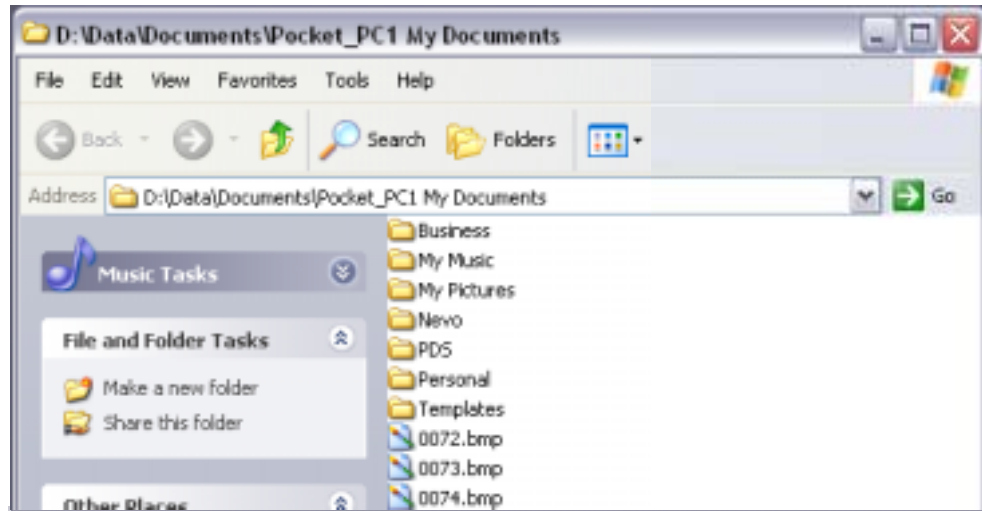
# INTRODUCTION TO M-MDS

## 05 – Reading and Printing Freeze Frame Data (FFD)

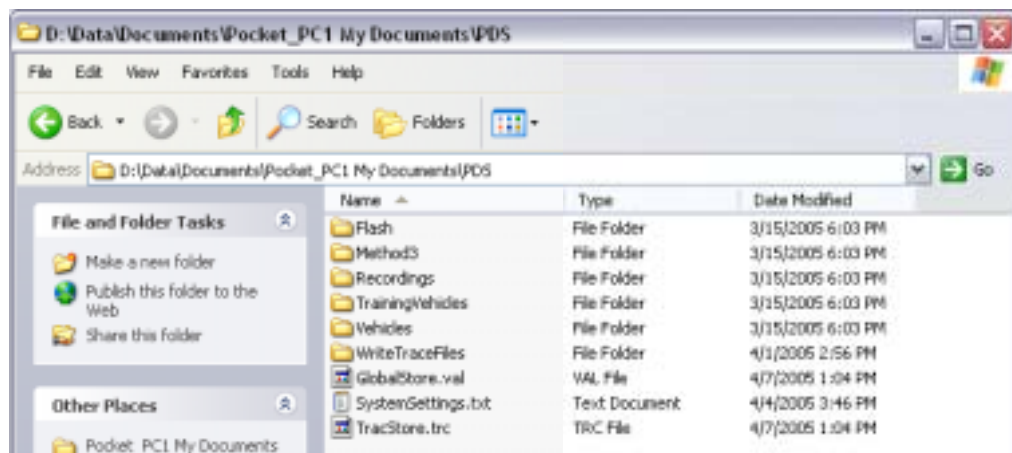
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### Activity 05 (Continued)

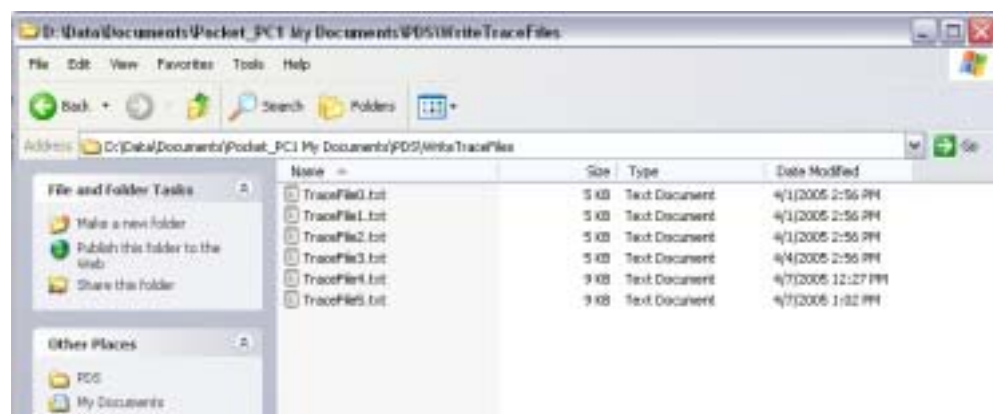
24. Double-click the **PDS** folder.



25. Double-click the **WriteTraceFiles** folder.



26. Double-click the **Trace File [number].txt** file you wrote down in step 15 on page 5.

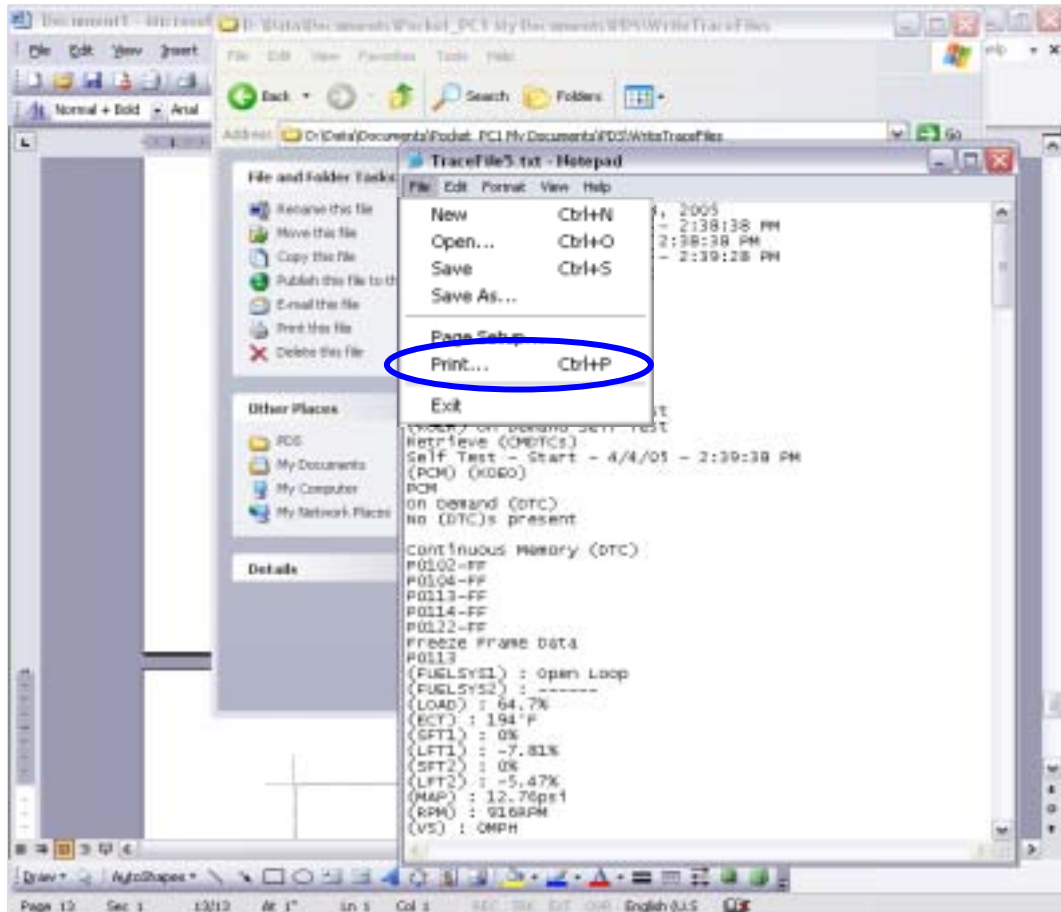


# INTRODUCTION TO M-MDS

## 05 – Reading and Printing Freeze Frame Data (FFD)

### Activity 05 (Continued)

27. Click on the **File** menu in the TraceFile pop-up window, then click **Print**.



# INTRODUCTION TO M-MDS

## 05 – Reading and Printing Freeze Frame Data (FFD)

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### Activity 05

(Continued)

28. When the Print window displays, click **Print** to print the FFD.



The FFD is now printed. Bring this activity and the printed FFD page to your instructor to sign off this activity.

### Conclusion:

In this activity, you used M-MDS to read and print FFDs.

Instructor Sign-off: \_\_\_\_\_