

# Sync KIT SYSTEM INSTALLATION

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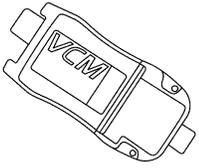
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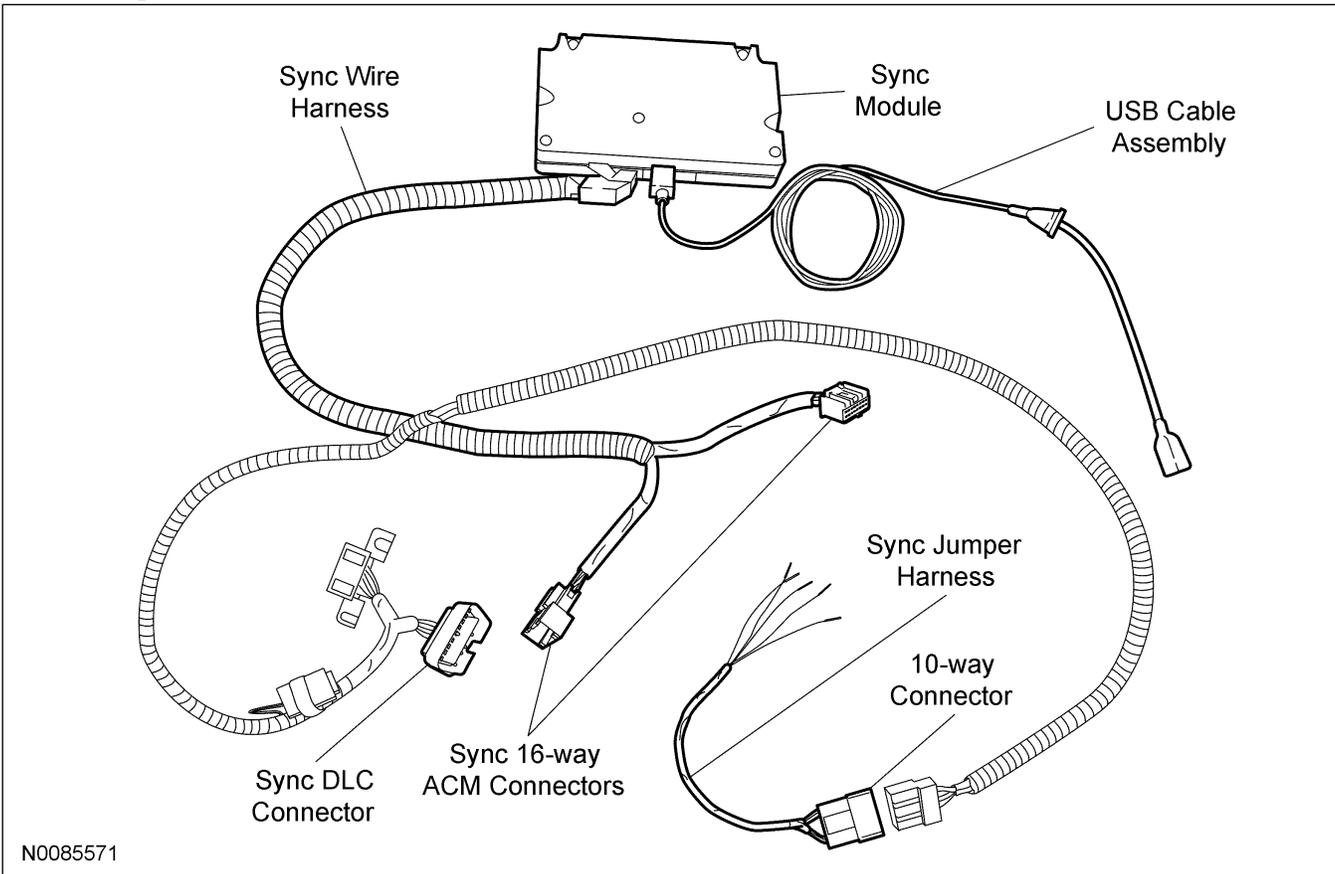
# INSTALLATION

## SYNC

### Special Tool(s)

 ST2834-A	Vehicle Communication Module (VCM) and Integrated Diagnostic System software with appropriate hardware.
 ST3051-A	Universal Serial Bus (USB) Male-A to Male-A Cable CCMUSB2-AM-AM-10 or equivalent.

### SYNC Components



## INSTALLATION (Continued)

### DESCRIPTION AND OPERATION

Ford Sync™ - developed in collaboration with Microsoft - is a fully integrated, voice-activated in-vehicle communication and entertainment system that works with most Bluetooth mobile phones and digital music players.

The Sync system is comprised of the following:

- Accessory protocol interface module (APIM)
- Steering wheel controls
- Microphone, located in the rear view mirror
- Universal serial bus (USB) port, located in the center console
- Audio input jack, located in the center console

Sync is a hands-free communication and entertainment system that allows the following interactions:

- Send and receive phone calls via a Bluetooth®-enabled phone
- Send and receive text messages via a Bluetooth®-enabled phone
- Connect media devices (such as an iPod® or USB flash device) to play audio files
- Play media files via a Bluetooth®-enabled audio device

Not all features are available with every phone. For additional information on audio system operation, including Sync, refer to the Owner's Literature.

### INSTALLATION OVERVIEW

Installing this Sync kit will include the following:

- Re-pinning the rear DVD player assembly electrical connector
- Drilling a hole and locating a USB port in the center console box
- Installing the Sync wire harness to the Sync Module with takeouts to the ACM, the vehicle DLC and the black 10-way connector with jumper harness to the center console areas
- Tap into the vehicle's communication link by T-ing into the vehicle's DLC connector
- Re-pin electrical connector C314 located in the center console
- Mounting the Sync module near the center stack between the ACM and the glove compartment opening
- Programming and testing the Sync system after installation

**INSTALLATION (Continued)****Review Sync Installation Kit Contents**

**NOTE:** Kits are not interchangeable.

**NOTE:** Installer must have access to Professional Technicians Society (PTS) and have a valid PTS user ID and password.

**NOTE:** Before beginning installation ensure correct operation of vehicle entertainment system.

**NOTE:** This Sync kit only fits 2008 Navigator and Navigator L built after 12-4-2007 with Elite option package only. Elite package includes vehicle navigation and rear roof mounted DVD player.

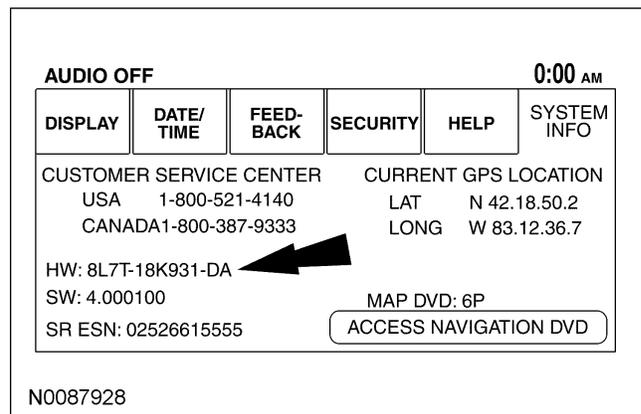
1. Review the Sync kit contents.

**Sync Kit Contents**

QUANTITY	DESCRIPTION
1	INSTALLATION INSTRUCTIONS (WEB BASED)
1	SYNC MODULE
1	SYNC MAIN HARNESS
1	USB CABLE
2	TIE STRAPS 14"
10	TIE STRAPS 8"
1	CUSTOMER INFORMATION PACKET. INCLUDES QUICK REFERENCE (ENGLISH & FRENCH) AND NAVIGATION SYSTEM SUPPLEMENT (ENGLISH & FRENCH)

**Before Installing This Kit**

2. Turn the ignition key to the "ON" position.
3. Inspect the Audio Control Module (ACM) part number. If the ACM part number is not 8L7T-18K931-DA, "STOP". Do not install this kit. To check the ACM part number:
  - Press the "Menu" button on the ACM.
  - Touch the "System Info" button on the ACM screen.
  - ACM part number is located on the display after HW:
  - ACM part number must be:  
8L7T-18K931-DA.



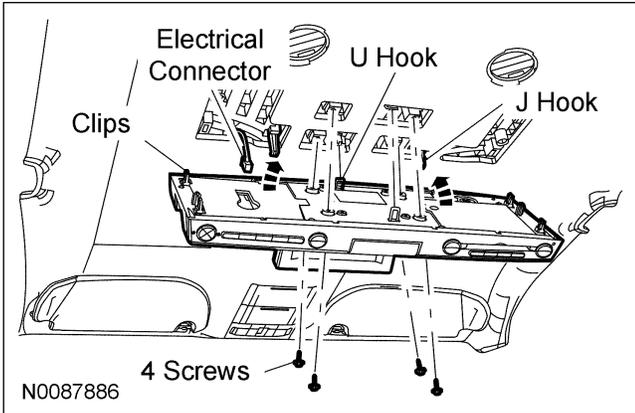
4. Turn the ignition key to the "OFF" position.

**Prepare Vehicle**

**NOTE:** If the vehicle does not have a rear roof mounted DVD player, "STOP". Do not install this kit.

5. Remove the Rear DVD player.
  - Flip down the DVD video display and remove the 4 mounting screws.
  - Pull down on the sides of the DVD player to disengage the clips from the bracket.
  - Using a suitable tool, push the rear most U-hook forward and release the U-hooks.
  - Hang the DVD player on the J-hooks and disconnect the electrical connector.
  - Remove the DVD player from the J-hooks.

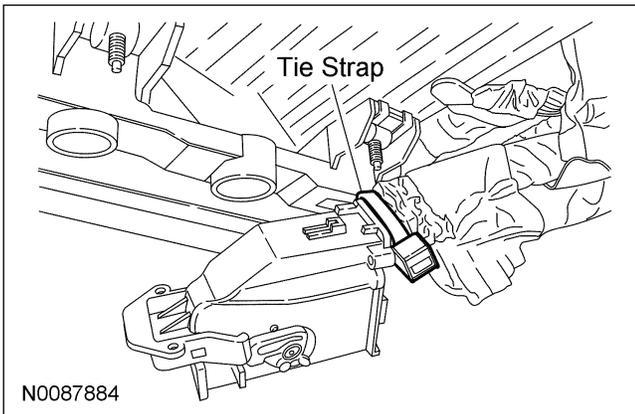
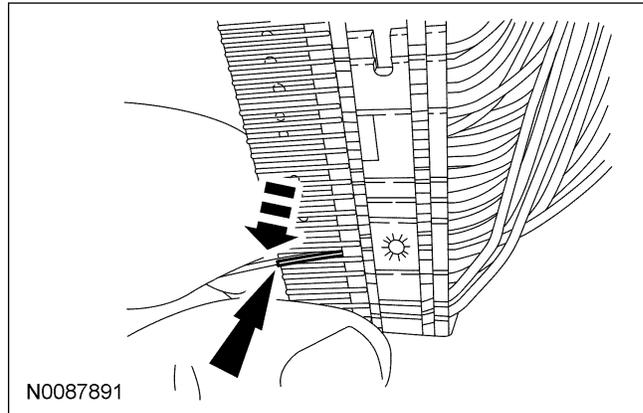
**INSTALLATION (Continued)**



**NOTICE:** Use extreme care in releasing the wire terminals from the connector. Lifting the terminal release more than 1mm could result in connector damage.

8. Using a small pick or equivalent lift the terminal release no more than 1mm to release the wires with the terminals.

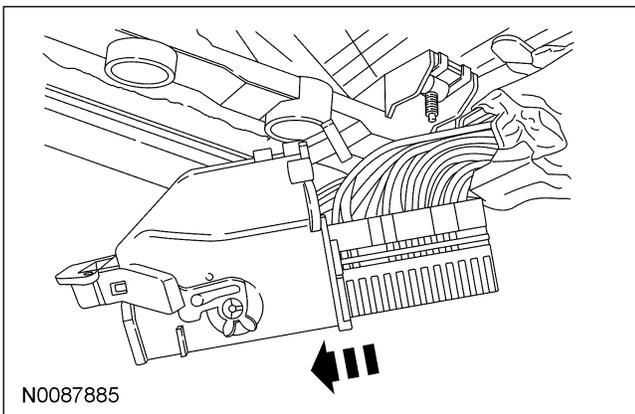
6. Snip the DVD connector tie strap and unwrap wire tape.



9. Repin green/orange wire located in cavity 5:
  - Remove green/orange wire from cavity 5.
  - Insert green/orange wire into cavity 4.

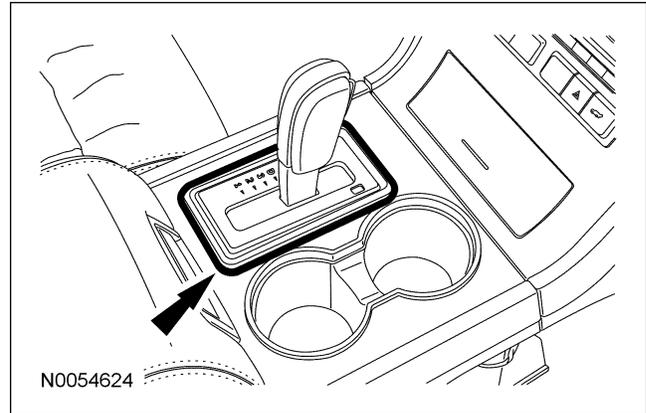
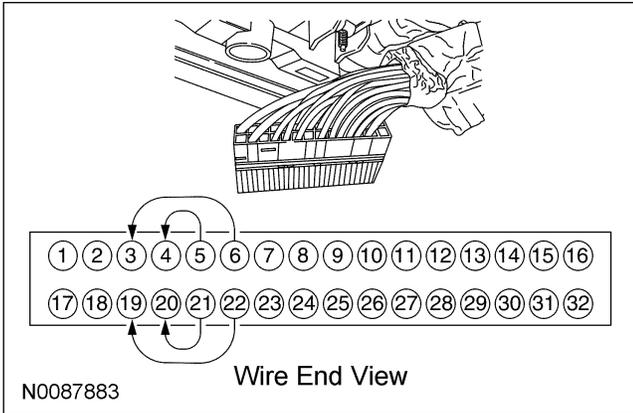
7. Remove the connector cover.
  - Using a small pick or equivalent, slightly spread the end of the outer connector cover to release it from the connector before sliding.
  - Slide the cover from the connector.

10. Repin blue/brown wire located in cavity 6:
  - Remove blue/brown wire from cavity 6.
  - Insert blue/brown wire into cavity 3.



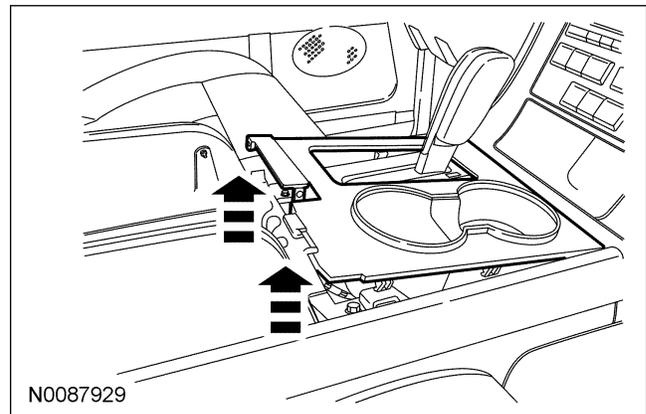
11. Repin violet/brown wire located in cavity 21:
  - Remove violet/brown wire from cavity 21.
  - Insert violet/brown wire into cavity 20.

12. Repin yellow/blue wire located in cavity 22:
  - Remove yellow/blue wire from cavity 22.
  - Insert yellow/blue wire into cavity 19.

**INSTALLATION (Continued)**

13. Install the connector cover.
  - Slide the cover onto the connector.
  - Secure with 8“tie strap.
14. Hang the DVD player on the J-hooks.
15. Connect the electrical connector.
16. Remove the DVD player from the J-hooks.
17. Tilt the DVD player, as necessary, to align it correctly.
18. Align the left side guide pin with the left side locating hole.
19. Lift up the right side of the DVD player and engage the U-hooks.
20. Push on the left and right sides of the DVD player to engage the clips.
21. Install the 4 mounting screws.
22. Turn the ignition key to the "ON" position. Apply the parking brake and move the shift lever to "NEUTRAL".
  - Turn the ignition key to the "OFF" position.
23. Remove the shifter trim ring.

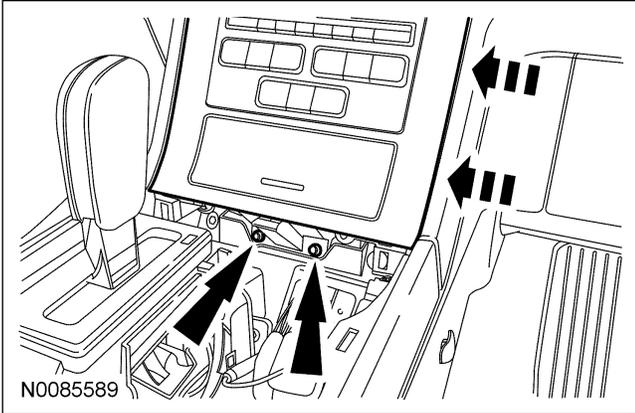
24. Remove the front floor console finish panel.
  - Open the floor console storage door.
  - Lift upward on the rear of the floor console finish panel to release the floor console finish panel clips.



**NOTICE:** Use extreme care not to contact the ACM navigation display screen when removing the ACM and the instrument panel center finish panel. Unintended contact with the display screen can easily scratch and otherwise damage the display.

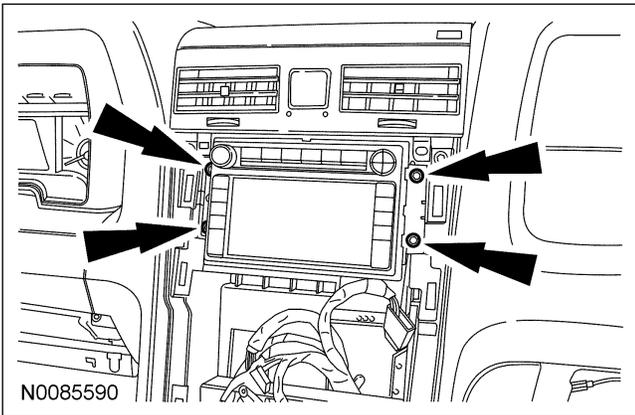
25. Remove the instrument panel center finish panel.
  - Remove the 2 instrument panel center finish panel screws.
  - Pull outward on the panel to disengage the clips.
  - Disconnect the electrical connectors.

**INSTALLATION (Continued)**



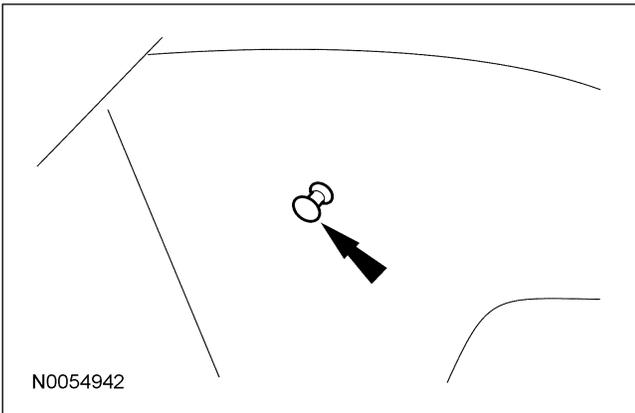
26. Remove the 4 screws and the Audio Control Module (ACM).

- Disconnect the electrical connectors, the antenna cable connector, and the global positioning system (GPS) antenna.
- Remove the ACM.

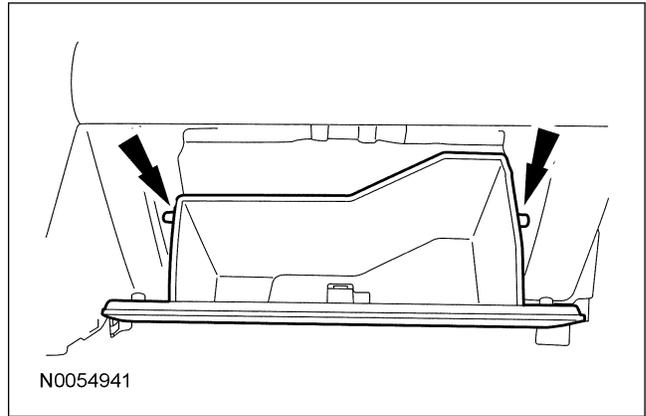


27. Open the glove compartment.

- Disconnect the dampener.



28. Release the stops and lower the glove compartment.



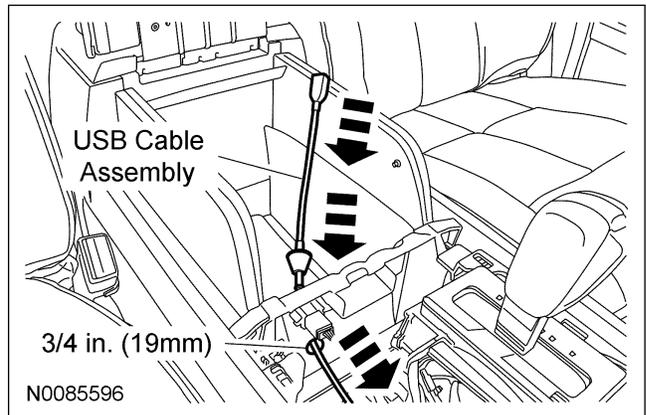
**Install USB Cable Assembly**

**NOTE:** USB Cable Assembly will be connected to the Sync module later in this procedure.

29. Locate and drill 3/4'' (19mm) hole in the front of the console box below the Auxiliary audio Input Jack.

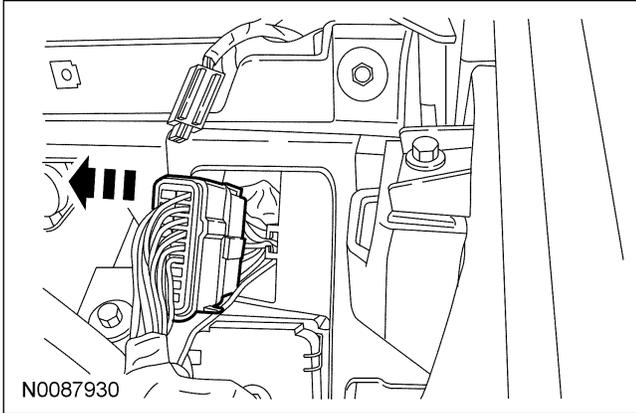
30. Install the USB cable assembly.

- Route through the hole as shown.
- Secure the grommet.

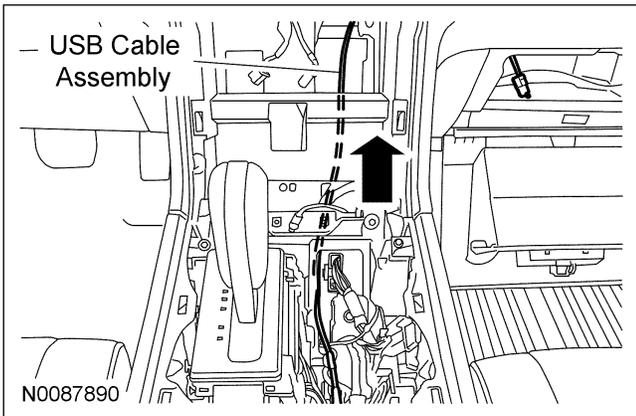


31. Disengage the green electrical connector mounting clip and position connector aside.

**INSTALLATION (Continued)**

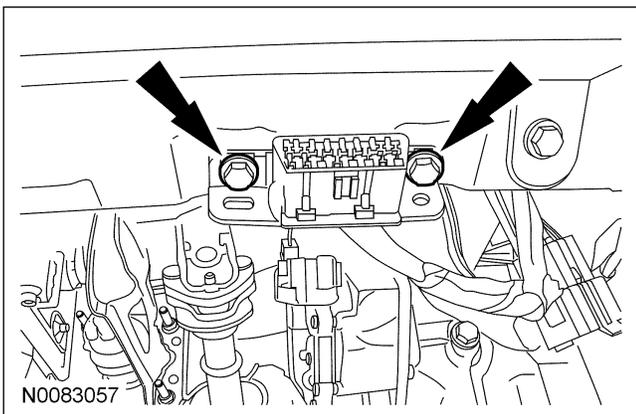


32. Route the USB cable through the opening next to the green electrical connector, up behind the center stack panel and out the glove box opening.



**Install Sync Wire Harness**

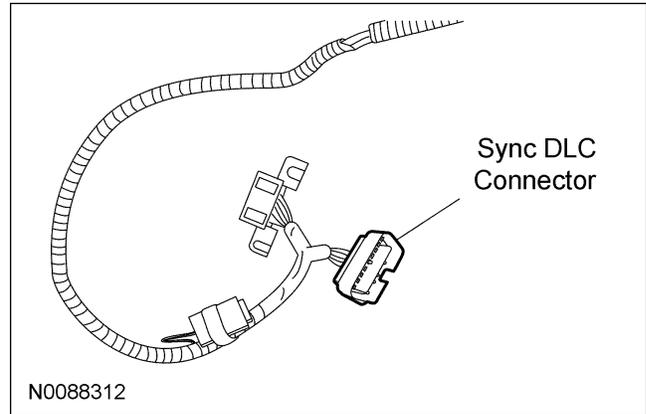
33. Remove the 2 screws at the Data Link Connector (DLC).



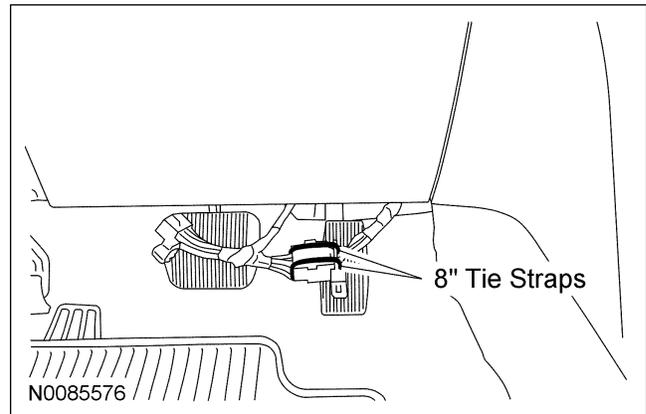
34. **NOTE:** Avoid routing the Sync wires near sharp edges and moving components.

**NOTE:** Ensure the Sync wires are secure and do not interfere with vehicle operation.

Start at the ACM opening and route the DLC takeout of the Sync harness from the ACM area to the driver footwell area.



35. Connect the Sync male DLC connector to the vehicle female DLC connector and secure the connection using (2) 8" tie straps through open cavities of the connectors.

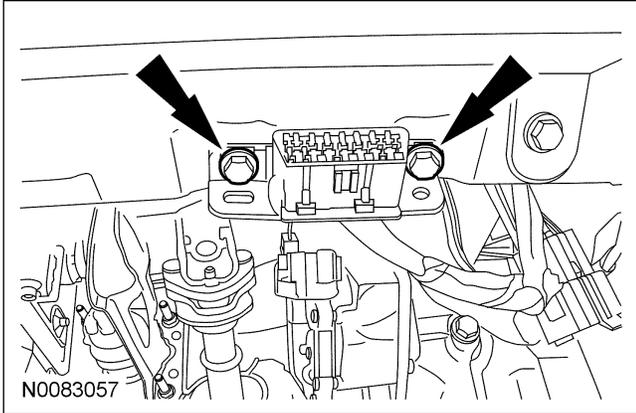


36. **NOTE:** Ensure the Sync wires are secure and do not interfere with vehicle operation.

Install the Sync wire harness female DLC to the vehicle DLC mounting location.

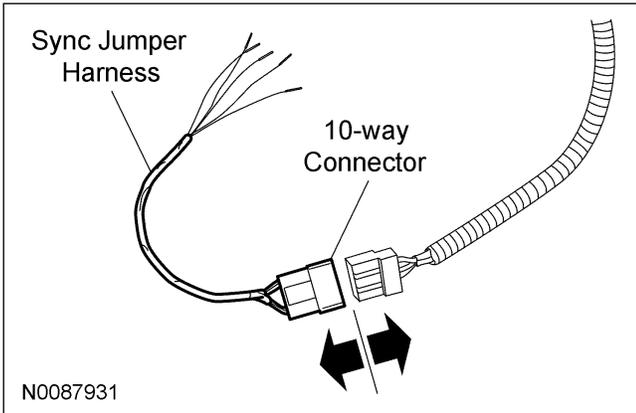
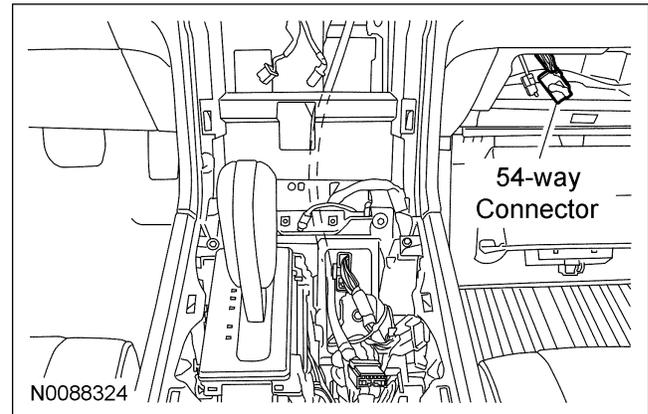
- Install the 2 screws.
- Secure DLC connector and excess harness under instrument panel.

**INSTALLATION (Continued)**



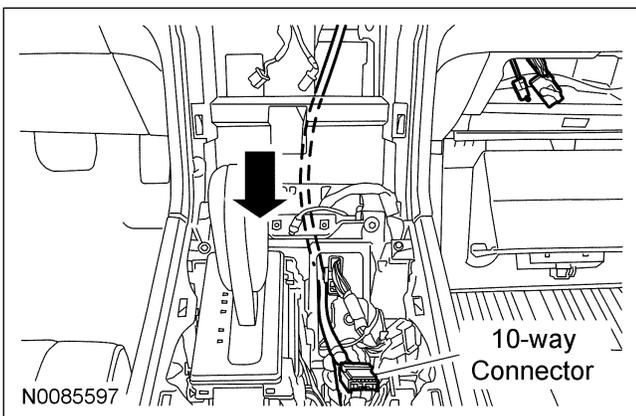
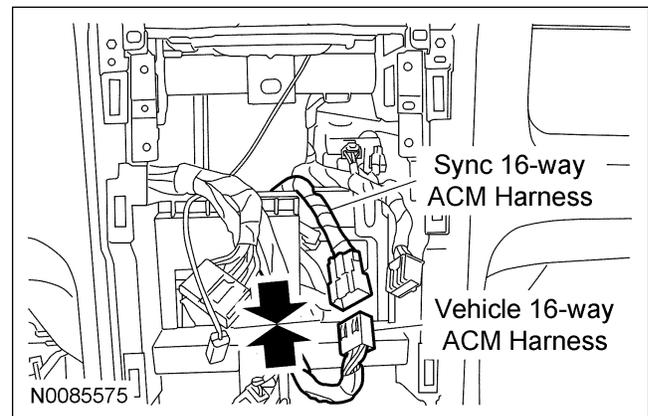
- 39. Reposition the green electrical connector and secure to the mounting clip.
- 40. Route the 54-way module connector from the ACM opening to the glove compartment opening.

- 37. Disconnect the black 10-way connector separating the Sync jumper harness from the main Sync harness.

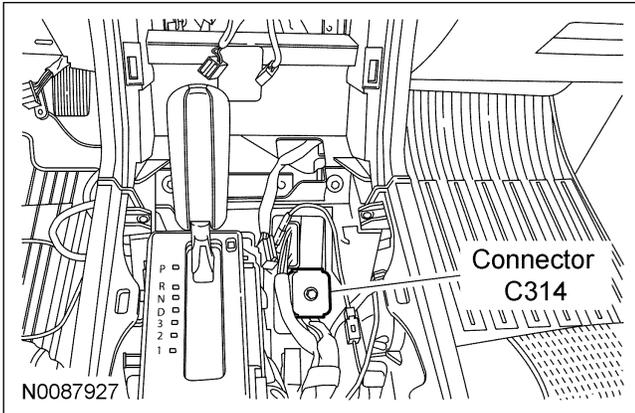


- 41. Connect the Sync harness 16-way ACM connector to the vehicle 16-way ACM connector.

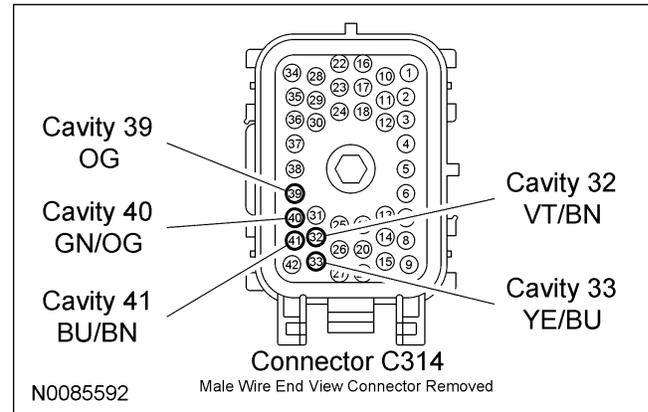
- 38. Route the female black 10-way connector takeout from the ACM opening down behind the center stack panel and out next to the green electrical connector.



- 42. Locate and disconnect the 42-way connector C314 located in the center console. The connector is located to the right of the shift lever.

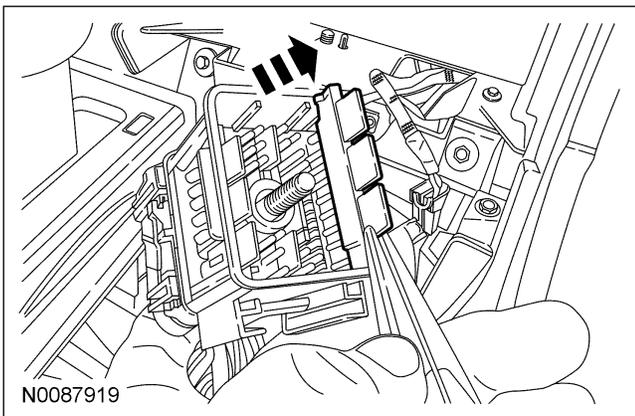
**REMOVAL AND INSTALLATION (Continued)**

**NOTE:** Connector view is wire end view.

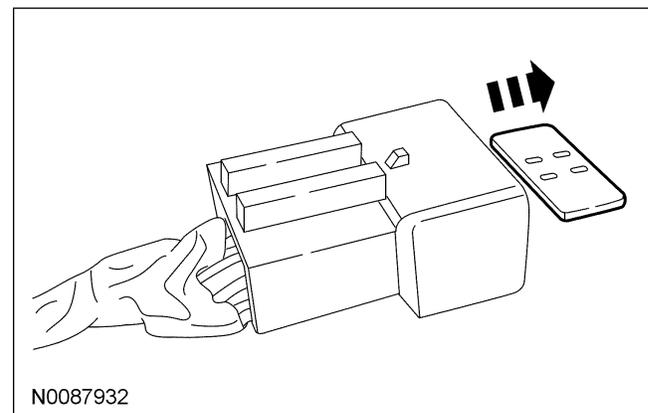


43. Remove the connector wire cover.

44. Remove the red terminal lock between cavity numbers 28-42.



46. Remove the red terminal lock from the Sync jumper harness male black 10-way connector.



45. Release the following 5 wires.

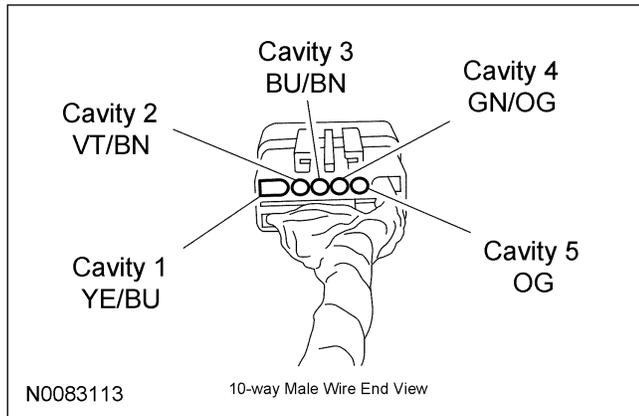
- Orange wire located in cavity 39.
- Green/orange wire located in cavity 40.
- Blue/brown wire located in cavity 41.
- Violet/brown wire located in cavity 32.
- Yellow/blue wire located in cavity 33.

47. Insert the following 5 vehicle wires removed from connector C314 into the Sync jumper harness male black 10-way connector.

- Insert the yellow/blue wire into the male black 10-way connector cavity 1.
- Insert the violet/brown wire into the male black 10-way connector cavity 2.
- Insert the blue/brown wire into the male black 10-way connector cavity 3.
- Insert the green/orange wire into the male black 10-way connector cavity 4.
- Insert the orange wire into the male black 10-way connector cavity 5.

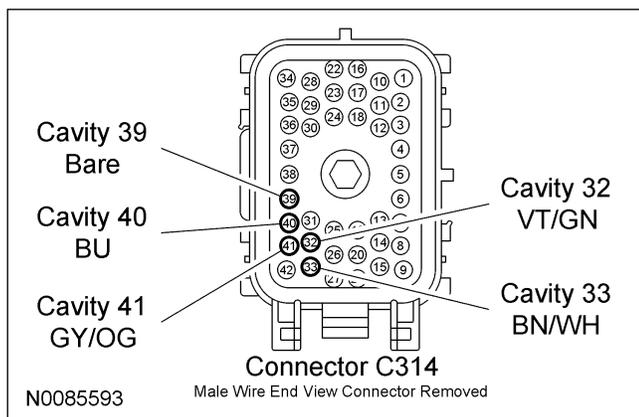
**INSTALLATION (Continued)**

**NOTE:** Connector view is the wire end view of the Sync jumper harness male black 10-way connector.

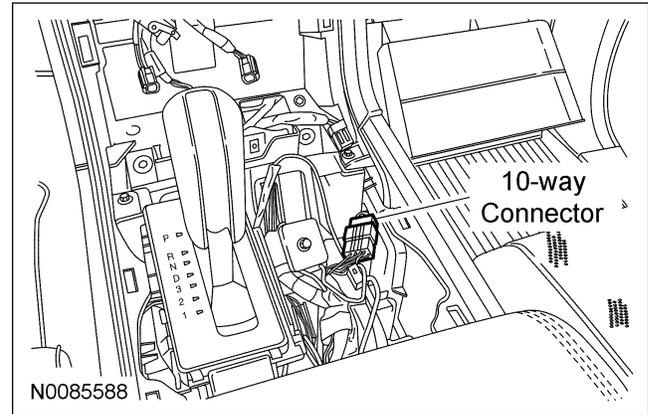


48. Install the red terminal lock to the Sync jumper harness male black 10-way connector.
49. Insert the five terminals provided with the Sync Jumper harness into connector C314 as follows:
  - Bare wire into cavity 39.
  - Blue wire into cavity 40.
  - Gray/orange wire into cavity 41.
  - Violet/green wire into cavity 32.
  - Brown/white wire into cavity 33.

**NOTE:** Connector view is wire end view.



50. Re-install the red terminal lock.
51. Re-install C314 connector cover and re-connect.
  - Tighten to 3Nm (27 lb-in).
52. Connect the Sync jumper male harness black 10-way connector to the main Sync harness female black 10-way connector.



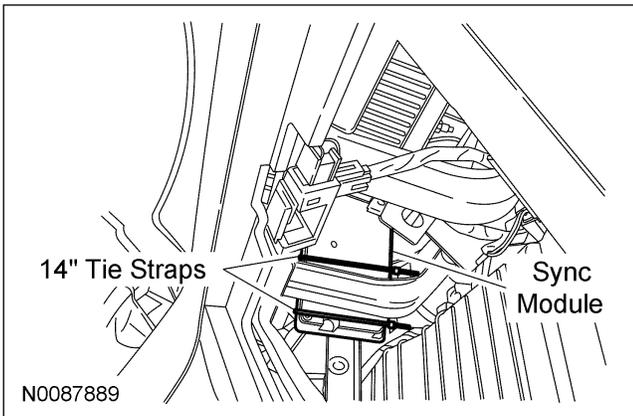
**Install Module**

**NOTE:** Before connecting Sync harness to the Sync module, make sure the connector lock lever is positioned forward away from the connector wires in the full release position.

53. Working through the glove compartment opening plug the Sync 54-way connector into the Sync module and the USB cable into the black USB port on the Sync module.
54. Position the Sync module inside the bracing between the glove compartment and the center stack.
55. Using (2) 14'' tie straps, secure the Sync module to the bracing between the glove compartment and the center stack.

**INSTALLATION (Continued)**

**NOTE:** View looking through the glove compartment opening



56. Install the audio ACM and the 4 mounting screws.
  - Connect the electrical connectors, the 16-way Sync wire harness connector, the antenna cable connector, and the global positioning system (GPS) antenna.

**Configuration, Programming and Function Test**

57. [Refer to the Sync configuration and programming section \(click here\).](#)
58. [Refer to the Sync functional test section \(click here\).](#)

**Install Trim**

**NOTE:** Ensure the Sync wires are secure and do not interfere with vehicle operation.

59. Use the supplied 8“ tie wraps to secure the Sync harness wires.
60. Install the instrument panel finish panel.
  - Connect the electrical connectors.
  - Push inward on the panel to engage the clips.
  - Install the instrument panel finish panel screws.
61. Install the front floor console finish panel.
  - Close the floor console storage door.
62. Install the shifter trim ring.
63. With the parking brake applied turn the ignition key to the "ON" position.
64. Move the shift lever to "PARK".
  - Turn ignition key to the "OFF" position.
  - Release the park brake.
65. Connect the glove box dampener.
66. Close the glove compartment.

**INSTALLATION (Continued)**

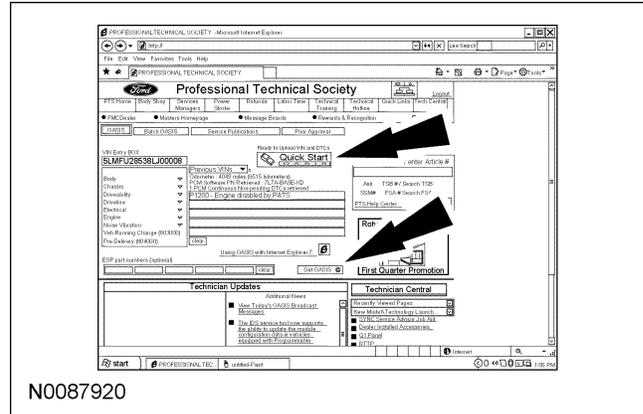
**Sync Module Configuration & Programming**

**NOTE:** To complete the Sync kit installation procedure, the Sync module **MUST** be configured and programmed to the latest released software. Also, the ACM **MUST** be configured properly.

**NOTE:** Configuration and programming requires the use of a special PTS application. Installer must have access to PTS and have a valid PTS user ID and password.

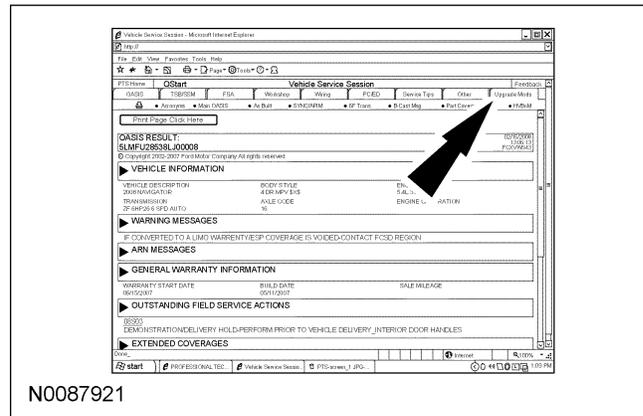
**NOTE:** IDS software must be at level B 53.6 P14 or higher.

1. Connect the VCM to the data link connector (DLC).
2. Connect the VCM to the IDS tool or laptop running IDS software.
3. Turn the ignition key to the "ON" position.
4. Launch IDS tool.
5. If required update the VCM with the latest software.
6. Close the IDS tool.
7. From the technician service publication site (PTS), run OASIS using Quick Start.
  - Press the "Quick Start" button.
  - After Vehicle communication is established Press the "Get OASIS" button.



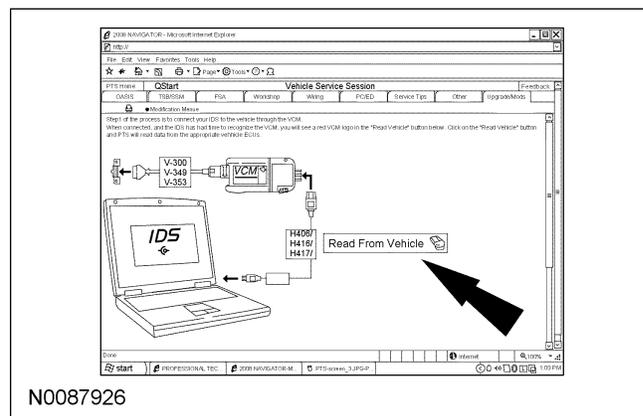
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8. Launch IDS tool.
9. From the Vehicle Service Session screen, Select the "Upgrade/Mods" tab.



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10. Select "Sync Accessory Installation - 2008 Navigator ONLY" link.
  - Press "Read From Vehicle" button.

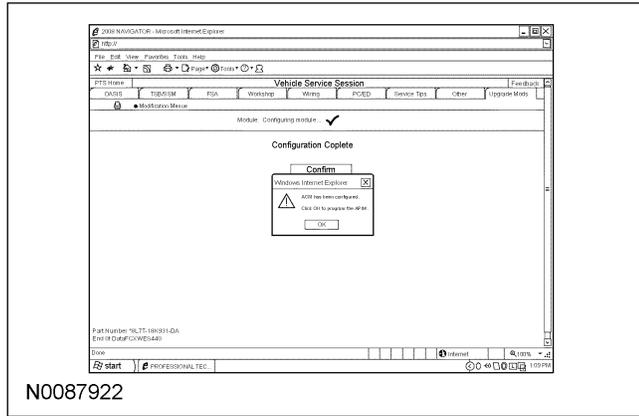


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11. Follow the on-screen instructions to complete the Radio (ACM) configuration.

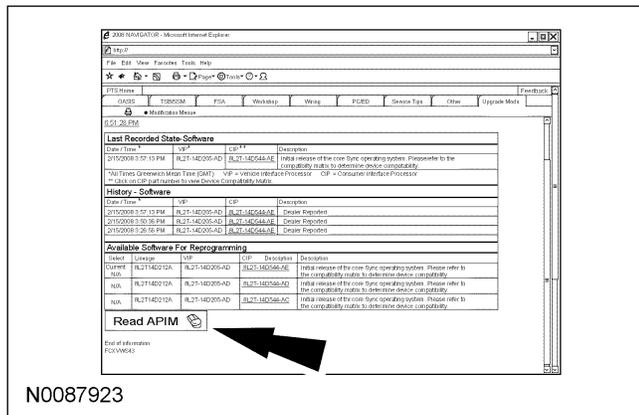
**INSTALLATION (Continued)**

12. Select OK to program the APIM (Sync module).



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13. Select the "Read APIM" button.



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14. Press OK to message related to APIM not yet configured or not in Ford database.

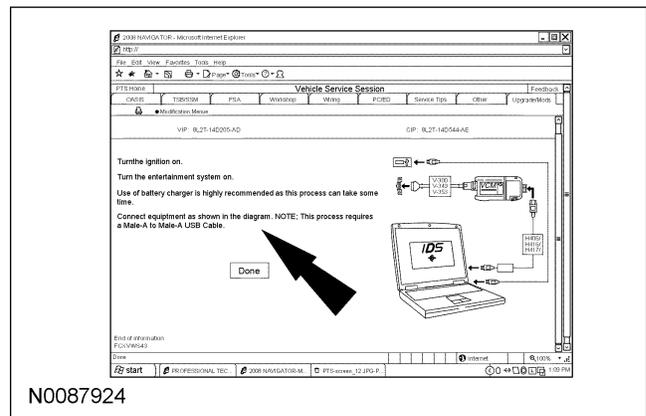
15. **NOTE:** You must use a Male-A to Male-A USB cable to complete this step.

**NOTE:** Do not disconnect the VCM or USB cables during APIM programming.

**NOTE:** The system may prompt you to install software for the USB port. Follow the on screen instructions to install the USB port driver already included in windows XP.

Program both processors on the Sync module (VIP & CIP).

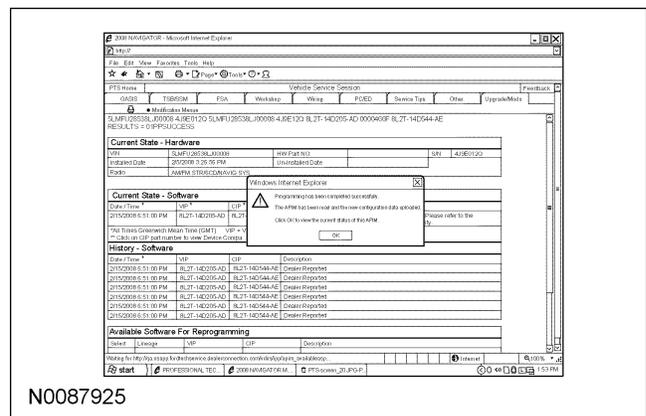
- Connect the Male-A to Male-A USB cable to the IDS tool, or laptop running IDS software, and to the vehicle USB port.
- Follow the on-screen instructions to program both processors on the Sync module (VIP & CIP).



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16. If CIP programming failed due to USB port not ready, repeat step 15.

17. At the end of the configuration and programming procedure the "Programming has been completed successfully" screen will be displayed.



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**INSTALLATION (Continued)**

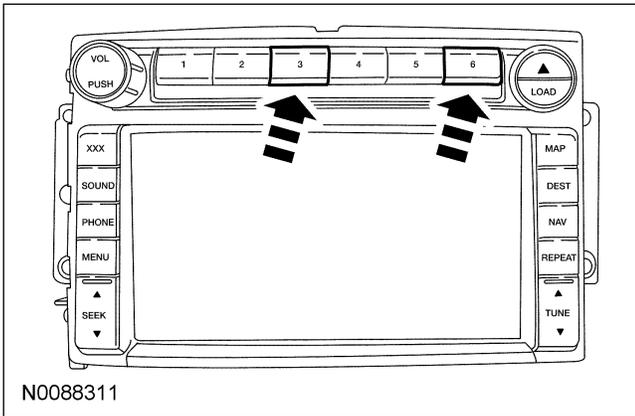
18. Exit PTS.

- Disconnect the VCM.
- Disconnect the USB cable.

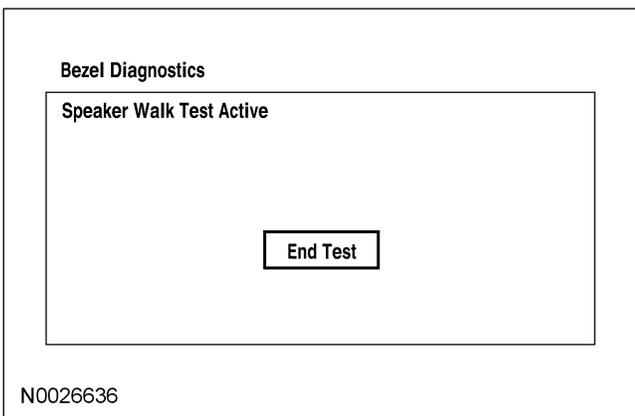
**Functional Test**

**NOTE:** Due to system limitation, satellite radio, line in audio and USB audio cannot be accessed through the DVD headphones.

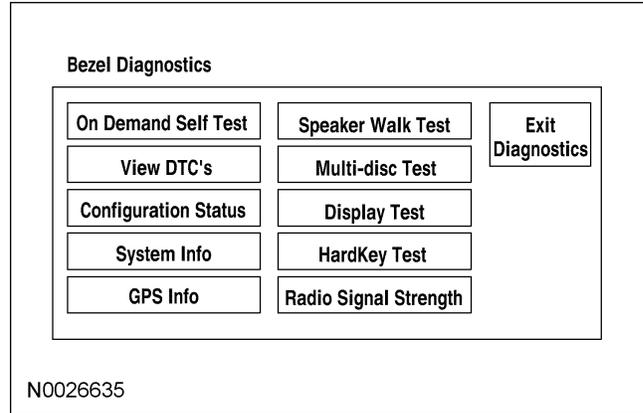
19. Press buttons 3 & 6 on the ACM at the same time to activate self test. Verify all speakers are functioning.



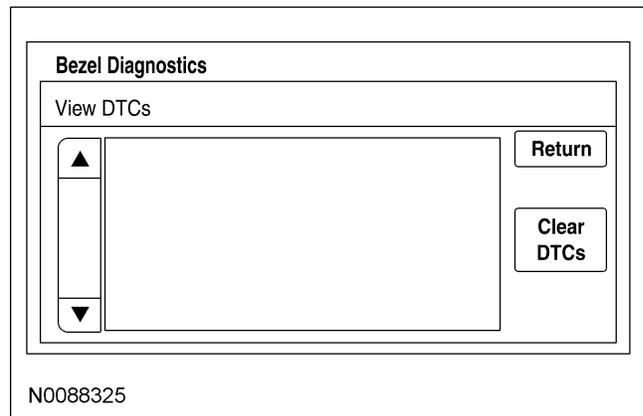
20. Press the “End Test” button on the screen to exit the speaker walk test.



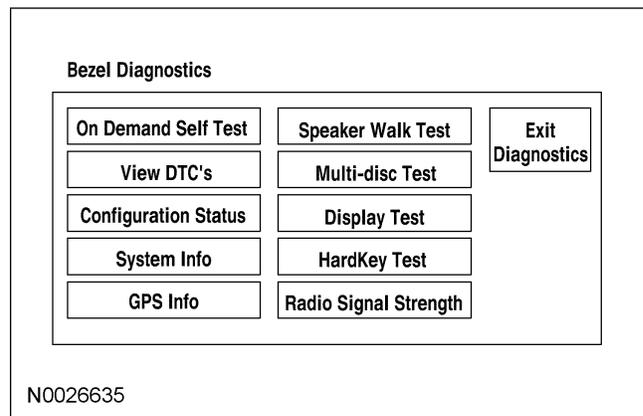
21. Select “View DTCs”.



22. From the DTC screen, document DTC's if necessary, then select “Clear DTCs”



23. The DTC's are cleared and the user is returned to the diagnostics menu pick screen, select “Exit Diagnostics”.



**Functional Test using Rotunda Tool 105-00120 Multi-Media Interface Tester (MIT)**

24. Turn the audio ACM “ON” and “SELECT” a local radio broadcast station.

**INSTALLATION (Continued)**

25. Adjust the audio ACM volume to an audible level.

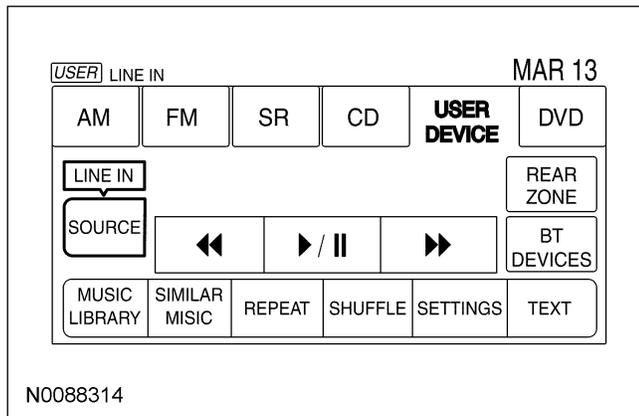
**NOTE:** The MIT is powered by the USB cable.

26. Connect the MIT.

- Connect the MIT USB cable to the vehicle USB port.
- Connect the MIT audio cable to the vehicle audio port.

27. Set the audio ACM input source to line in.

- Select the “USER DEVICE” button on the ACM display.
- Press the “SOURCE” button on the ACM display until line in is displayed.



**NOTE:** Audio level is lower than the pre-set volume.

28. Test the Sync Line in function using the MIT aux test output.

- Press the “TEST SELECTOR” button on the MIT until the aux test output led is illuminated.
- Increase the audio level on the ACM.
- The test message “The audio input jack test using the Sync input test tool is working correctly” should be heard repeating through the audio ACM speakers.

29. Test the Sync USB function using the MIT USB test output.

- Press the “TEST SELECTOR” button on the MIT until the USB test output led is illuminated.

30. Set the audio ACM input source to USB.

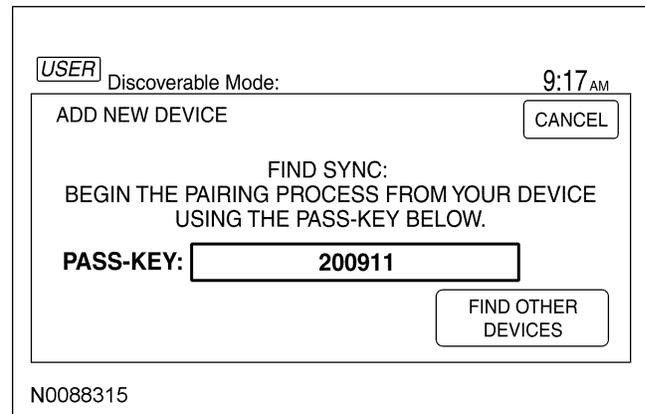
- Press the “SOURCE” button on the ACM display until USB is displayed.
- The test message “The USB audio test using the Sync input test tool is working correctly” should be heard repeating through the audio ACM speakers.

31. Test the Sync bluetooth function using the MIT bluetooth test output.

- Press the “TEST SELECTOR” button on the MIT until the bluetooth test output led is illuminated.

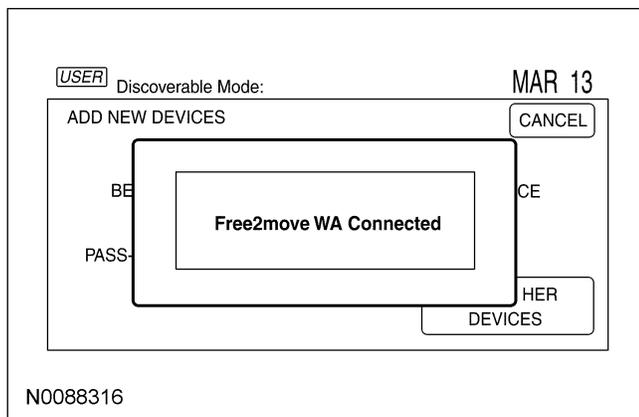
32. Place the audio ACM in the discovery mode.

- Press the “BT DEVICES” button on the ACM display.
- Select the “ADD” button from the next display screen.
- The ACM will display a six digit pass key with the audio message “Search for Sync on your device and enter the pass key provided by Sync.” through the audio ACM speakers.



**INSTALLATION (Continued)**

33. Enter the six digit pass key number into the MIT.
- Press and hold the “PAIR” button until the three test mode LEDs illuminate.
  - Release the “PAIR” button. The Aux test LED will illuminate.
  - Enter the first digit of the pass key by pressing the “PAIR” button on the MIT the number of times equal to the first number of the six digit pass key. If the number is “0” do not press the PAIR button. Press the “TEST SELECTOR” button to confirm the entry.
  - Enter the second digit of the pass key by pressing the “PAIR” button on the MIT the number of times equal to the second number of the six digit pass key. Press “TEST SELECTOR” button to confirm the entry. Continue until all six numbers of the pass key have been entered.
  - Once all six pass key digits have been entered the MIT will flash the bluetooth test selector led indicating the pairing is in process. Pairing is complete when the audio ACM plays an audio warning and displays “Free2move WA Connected.”



34. Disconnect the MIT tool.

35. Remove the bluetooth device from the audio ACM.
- Select the “MEDIA” button on the ACM.
  - Select the “BT DEVICES” button on the audio ACM display.
  - Select the “Free2move WA Connected” button on the audio ACM display. .
  - Select the “Delete” button on the audio ACM display.
  - Select “YES” to confirm button on the audio ACM display.
  - Select “RETURN” button on the audio ACM display to return to the main display.
36. Turn the ignition key to the “OFF” position.
37. If multi media interface tester is not available, Sync bluetooth functionality can be verified by pressing the phone button on the ACM. A message stating “No Phone Connected” must be displayed on the ACM screen. USB port functionality can be verified using any USB media device (iPod, MP3 player, or a memory stick) with audio files. Line-in audio functionality can be verified using the same media device.

38. **NOTE:** The vehicle must be outside in order to receive satellite radio and GPS signals.  
**NOTE:** The satellite radio must be activated in order to test this functionality.

Verify audio output of the satellite radio through each speaker.

39. Verify the correct operation of the navigation system.
40. Verify the correct operation of the DVD player system.
41. Verify steering wheel controls are functioning properly.

**INSTALLATION (Continued)****Trouble Shooting**

Note: To ensure proper connection(s) verify connections are fully seated, pins and hard-shells are in good condition, and related wiring is not pinched, chaffed or in any way damaged. For additional information on correct location, and seating of electrical connections refer to the installation section of this Installation Sheet.

<b>Symptom/Concern</b>	<b>Check</b>
Sync fails to program	Ensure proper connection at the DLC connector Ensure proper connection of USB at the Sync module Ensure proper connection of main harness at the Sync module Ensure proper connection of T-harness at the ACM and ACM harness
No audio from USB, Line In, Satellite Radio	Ensure proper connection at the 42 way connector C314 Ensure proper connection at the 10 way connector Ensure proper connection at the DVD player assembly
Navigation screen displays "MGM CONNECT ERROR - SEE DEALER" When User Device or Phone is selected	Ensure proper connection at the DLC takeout Ensure proper connection of T-harness at the ACM and ACM harness Ensure proper connection of main harness at the Sync module Check the Fuse in Sync harness near the DLC takeout connections
Navigation screen displays "A SYSTEM FAULT HAS BEEN DETECTED THAT MAY CAUSE THE NAVIGATION TO PERFORM ABNORMALLY. PLEASE CONTACT YOUR DEALERSHIP"	Ensure proper connection at the GPS antenna
ACM inoperative	Ensure proper connection of T-harness at the ACM and ACM harness