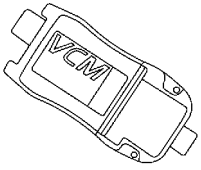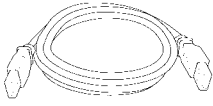# Sync KIT SYSTEM INSTALLATION

CONTENTS

NOTE:

Check the J1 plug for a wire in the number 2 slot. If you have this, you are wired for power for the SYNC system microphone to work correctly. It is shown to be necessary if you are using a Navigation head. If you do not have the wire in the 2nd slot, run a wire from the SBJ fused slot to the J1 harness and install into the number 2 slot. When you add the SYNC kit attachment (14D212), your microphone will have power to run it.
Not all Mustang's need this wire added, but if your car doesn't have the wiring going to the 2nd slot, then you will need to add it before your system will work 100%.
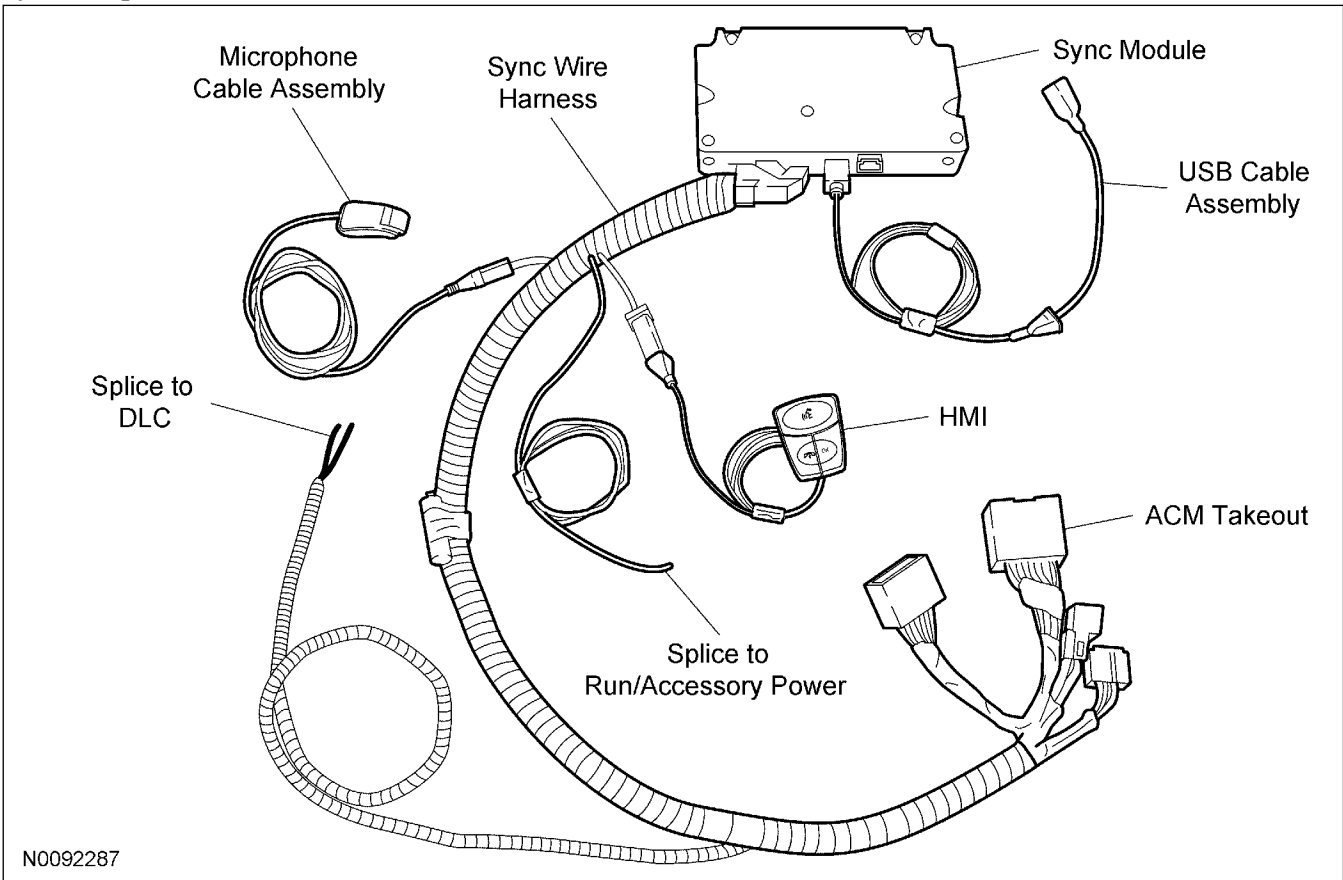
INSTALLATION

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

N0092287

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)
- Dash mounted control (HMI)
- Microphone, located on the driver A pillar
- 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:

- Drilling a hole and locating a USB port in the center console box
- Mounting the Sync module behind the instrument panel
- Installing the Sync wire harness to the Sync Module with takeouts to the ACM and the vehicle DLC
- Tap into the vehicle's communication link by splicing into the vehicle's DLC connector wiring
- Installing the Sync microphone to the driver A-pillar trim
- Installing the HMI to the instrument panel
- Programming and testing the Sync system after installation
- Re-install the vehicle trim

INSTALLATION (Continued)

Review Sync Installation Kit Contents
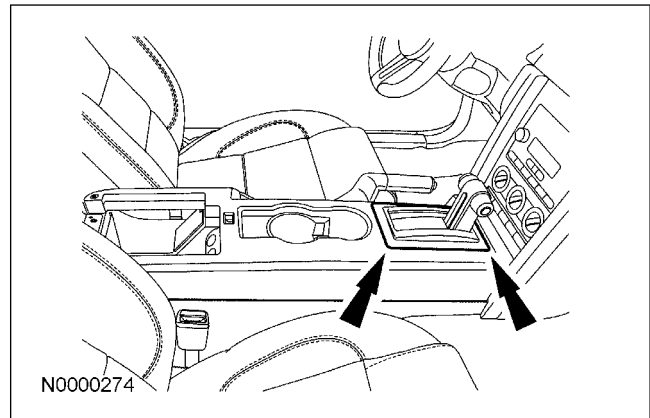
NOTE: Kits are not interchangeable.

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.
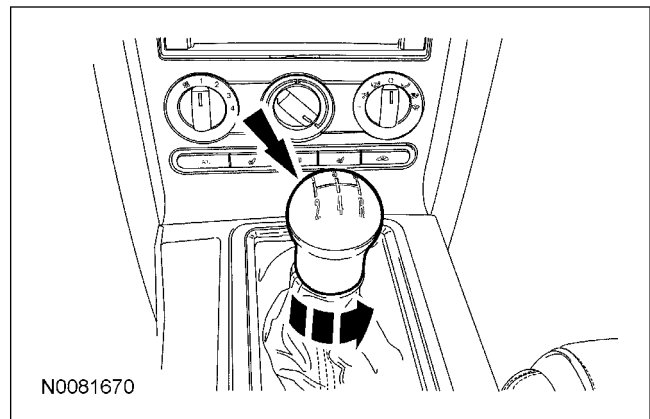
1. Review the Sync kit contents.

Sync Kit Contents

QUANTITY	DESCRIPTION
1	INSTALLATION INSTRUCTIONS (WEB BASED)
1	SYNC MODULE
1	USB CABLE
1	SYNC MAIN HARNESS
1	MICROPHONE
1	3-BUTTON HMI
2	TIE STRAPS 14''
10	TIE STRAPS 8''
1	CUSTOMER INFORMATION PACKET. INCLUDES QUICK REFERENCE (ENGLISH & FRENCH)

Prepare Vehicle

2. Apply the parking brake.

Automatic Transmission

3. Turn the ignition key to the ''ON'' position and move the shift lever to ''NEUTRAL''.
   - Turn the ignition key to the ''OFF'' position.

4. Remove the shifter trim ring.

N0000274

Manual Transmission

NOTE: Bullitt Mustang gearshift lever chrome boot trim is removed with gearshift lever boot. Use extreme care when removing to prevent damage.

5. Remove the gearshift lever knob and boot.
   - Unscrew the gearshift lever knob.
   - With a non-marring tool, lift the gearshift lever boot retainer upward
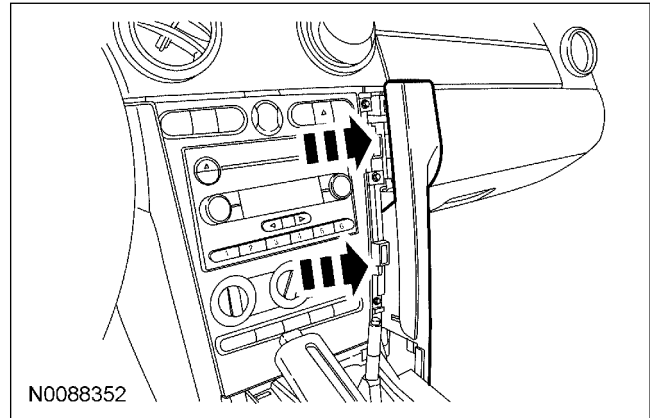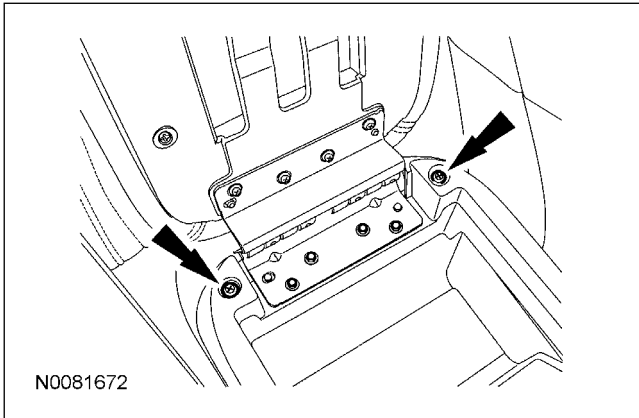

N0081670

All

6. Open the storage compartment door.

INSTALLATION (Continued)

7. Remove the 2 floor console finish panel screws.

NOTE: RH shown LH similar.

N0081672

N0088352

8. Remove the floor console finish panel.

    • Lift the floor console finish panel upward to release the retaining clips.

    • Disconnect the electrical connector(s).

10. Remove the 6 screws and remove the instrument panel center finish panel.

    • Disconnect the electrical connectors.

N0088351

N0088535

NOTE: Use caution near antenna lead-in cable to prevent possible damage.
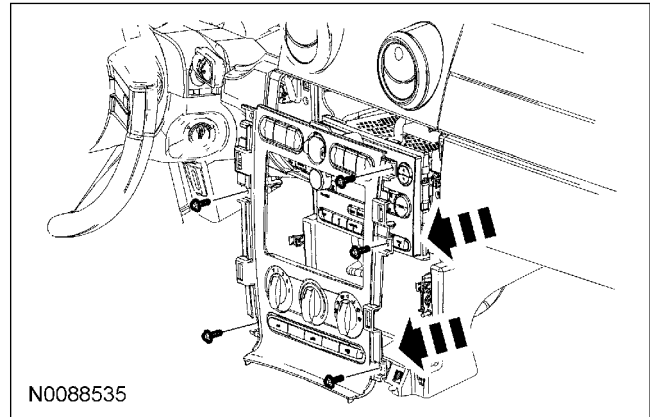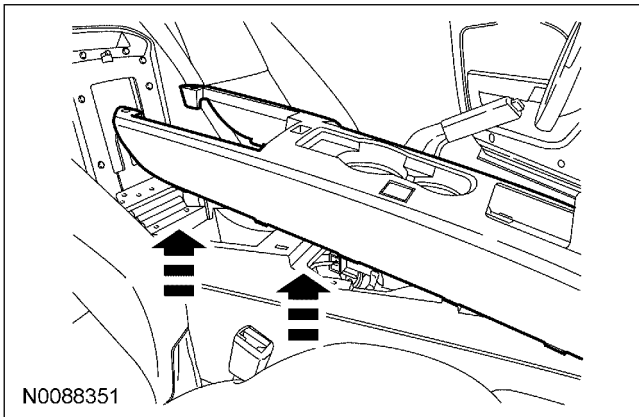
9. Remove the LH and RH instrument panel finish panels.

    • Pull outward on the instrument panel finish panels to release the retaining clips.

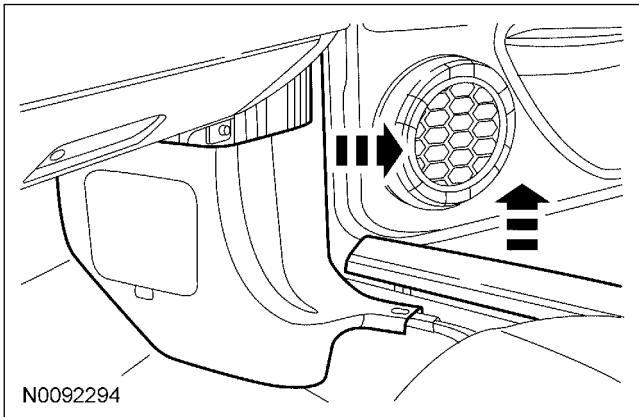11. Remove the 4 mounting screws and the audio ACM.

    • Disconnect the electrical connectors and the antenna lead-in cable.

    • Remove the audio ACM.
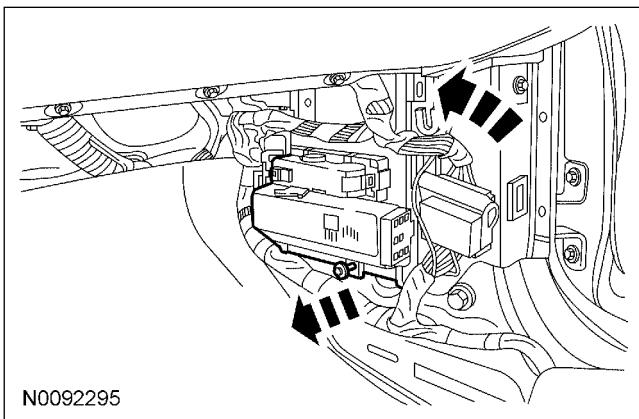
INSTALLATION (Continued)

N0088354
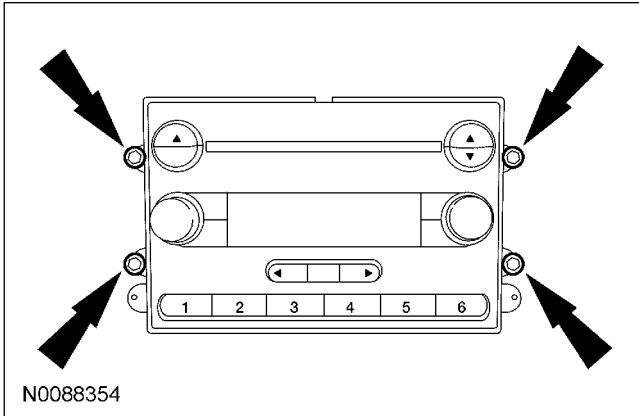
12. Remove the RH A-pillar lower trim panel.
    • Remove the door scuff plate.
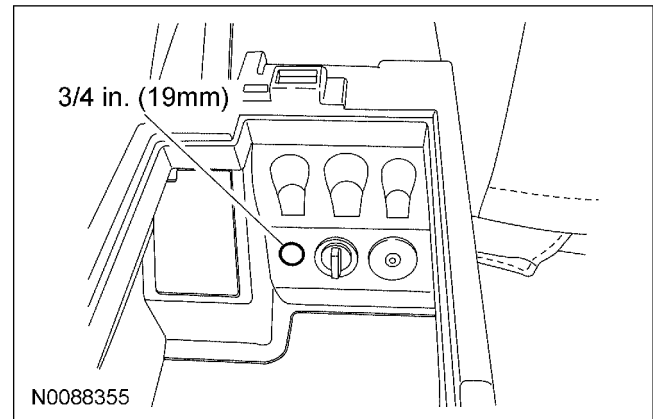   • Remove the A-pillar lower trim panel.

N0092294

13. Position aside the Smart Junction Box (SJB).
    • Remove the SJB mounting nut.
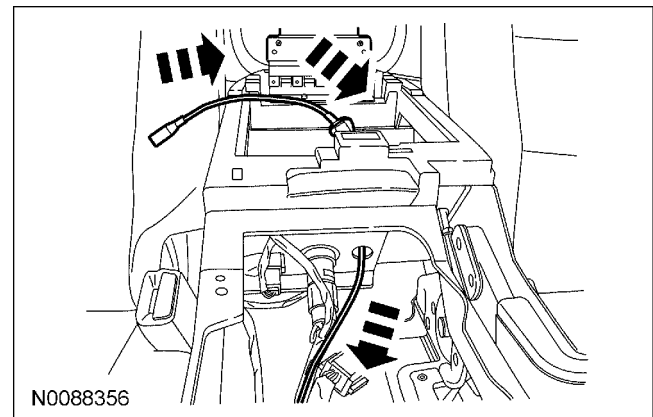   • Position the SJB away from the A-pillar.

N0092295

Install USB Cable Assembly

14. Locate and drill 3/4 '' (19mm) hole in the front of the console box next to the power outlet.

3/4 in. (19mm)

N0088355

15. Install the USB cable.
    • Route through the hole as shown.
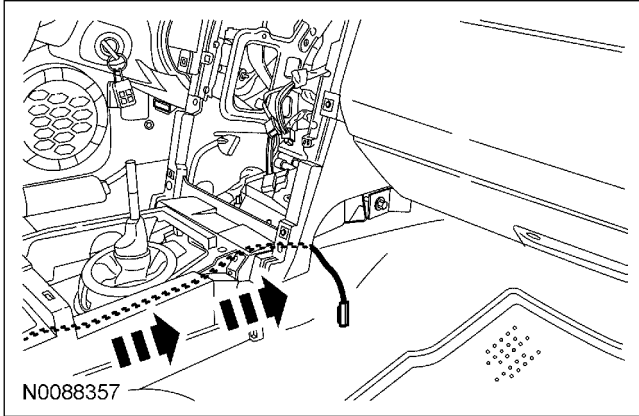   • Secure the grommet.

N0088356

NOTE: Ensure the USB wire is secure and does not interfere with vehicle operation.

NOTE: Route USB cable away from moving parts of the park brake system.
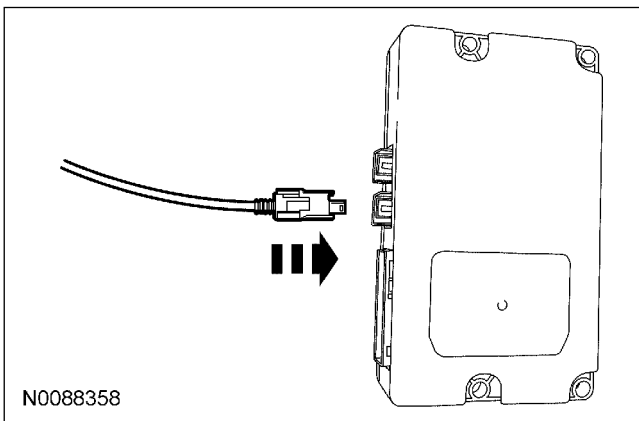
16. Route the USB cable to the right of the shift lever, under the center stack panel and out next to the glove compartment.
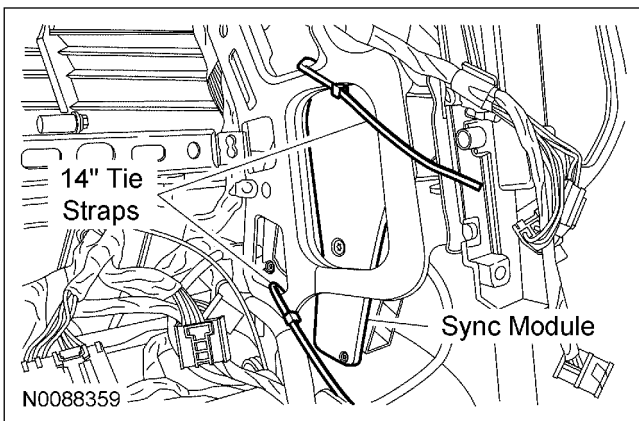
INSTALLATION (Continued)

N0088357

Install the Sync Module

17. Plug the USB cable to the black USB port of the Sync module.

N0088358

18. Using (2) 14'' tie straps mount the Sync module to the ACM bracket between the center stack and the glove compartment.


14" Tie Straps

Sync Module

N0088359

Install Sync Wire Harness

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

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

NOTE: Before connecting the 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.

19. Working through the center stack opening plug the Sync 54-way connector into the Sync module.

54-way Connector

N0088360
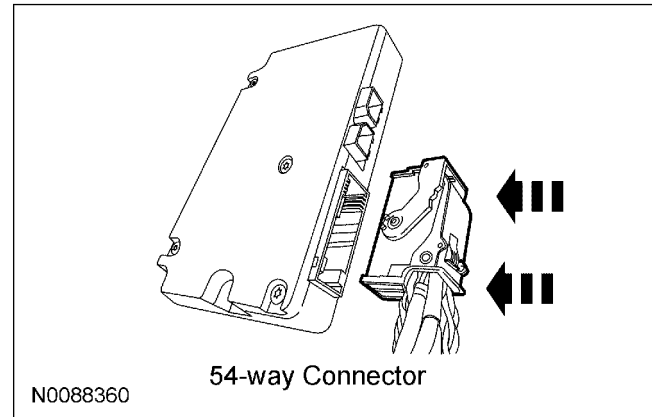
20. Connect the Sync harness 24-way ACM connector to the vehicle 24-way ACM connector.

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

Vehicle ACM Connectors

Sync 24-way ACM Connector

Sync 6-way ACM Connector

N0092276
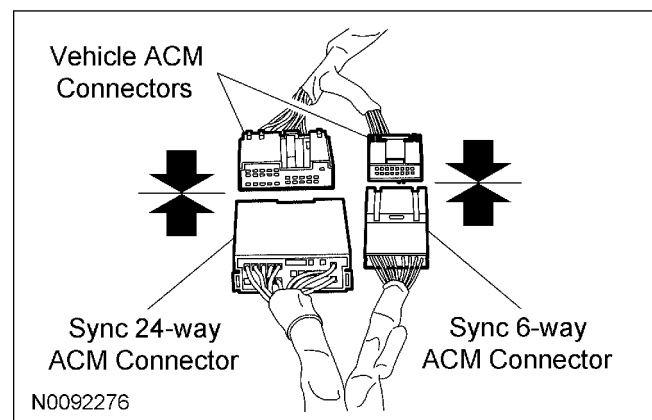
INSTALLATION (Continued)

NOTE: Use caution near antenna lead-in cable to prevent possible damage.

22. Install the audio ACM and the 4 mounting screws.

    • Connect the electrical connectors, the 24-way and the 16-way Sync wire harness connectors.

   • Connect the antenna lead-in cable.

Identify Circuit Wires For DLC Connections

NOTE: For proper wire splicing techniques (click here).

23. Route the 2 wire Sync harness takeout to the Data Link Connector (DLC) located in the driver footwell area.

WH/BU

WH

N0092277
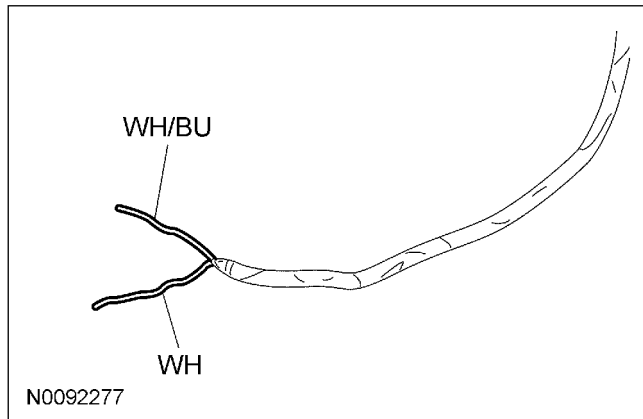
24. Remove the DLC connector from the instrument panel mounting location.

    • Release the retaining clip.

    • Slide the DLC to remove.

Retainer Clip

Data Link Connector

N0092278
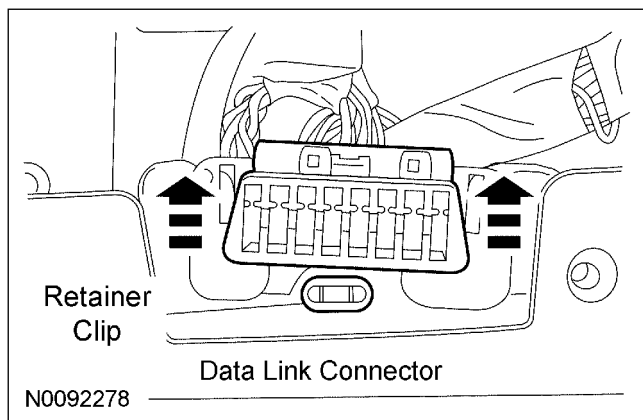
25. Identify the pink/light green circuit wire at the vehicle Diagnostic Link Connector (DLC).

26. Connect the White wire from the Sync module harness to the pink/light green circuit wire at the vehicle DLC.

27. Identify the White/light green circuit wire at the vehicle Diagnostic Link Connector (DLC).

NOTE: For proper wire splicing techniques (click here).

28. Connect the White/Blue wire from the Sync module harness to the White/light green circuit wire at the vehicle DLC.

WH

Sync 2-wire Takeout

WH/BU

WH/LG

PK/LG

N0092279
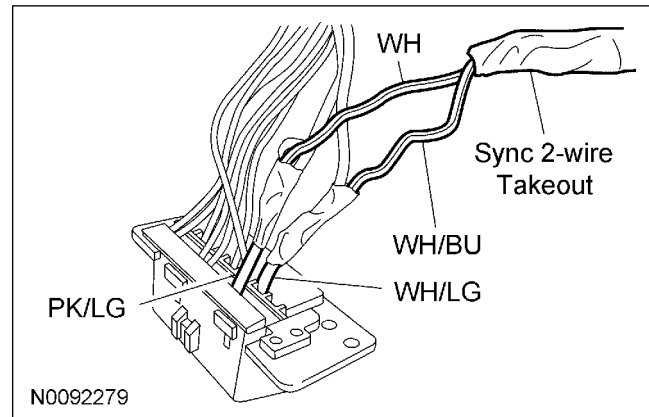
29. Install the DLC to the vehicle mounting location.

Install Microphone

30. **NOTE:** The microphone is directional, make sure that the microphone is aimed towards the driver headrest area.

    NOTE: The microphone should be attached near a point half-way between the dash and the headliner on the driver A-pillar trim.

    NOTE: The microphone should be attached to the A-pillar trim as close to the windshield as possible

    Chose a suitable mounting location on the driver A-pillar following the guidelines above.

INSTALLATION (Continued)

31. **NOTE:** Do not touch the adhesive, reduced adhesion may result.

    Remove the protective backing from the adhesive on the microphone and firmly press the body of the microphone to the A-pillar trim.

    - Direct the microphone toward the driver headrest area.

    - Position microphone on the LH A-pillar half-way between the top of the I/P and headliner.

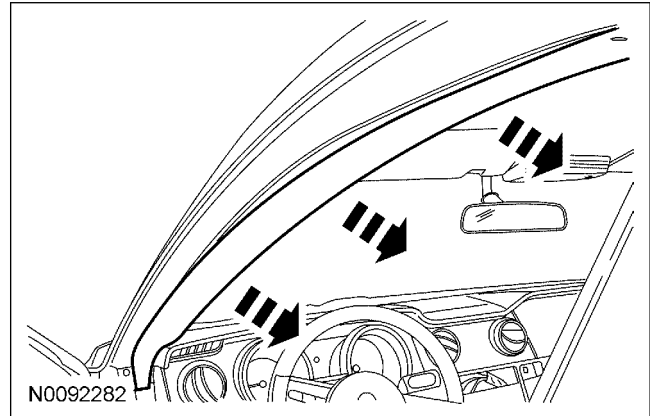   - Position microphone so wire length is minimized from view.

Aim Toward Driver headrest

N0094784
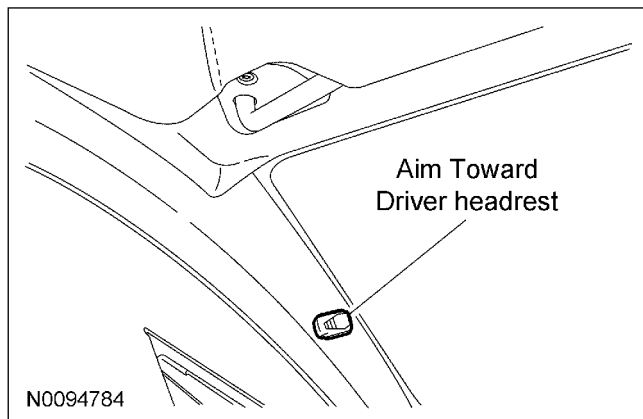
32. Position the LH A-pillar lower trim panel slightly away from the A-pillar.

    - Pull outward to disengage the retainers.


N0092281
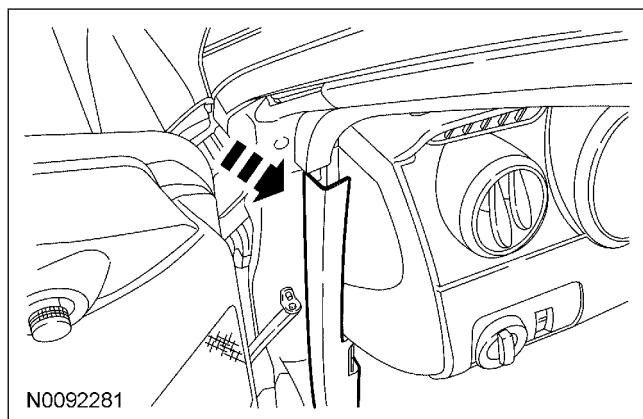
33. Position the LH A-pillar upper trim panel slightly away from the A-pillar.

    - Pull outward to disengage the retainers.

N0092282

34. Route the microphone cable behind the A-pillar trim, down toward the floor and follow the Sync 2-wire takeout harness toward the sync module to the black 3-way Sync harness connector located near the Sync module.

35. Connect the black 3-way microphone connector to the black 3-way Sync harness connector.

Black 3-way Microphone Connector

N0092283
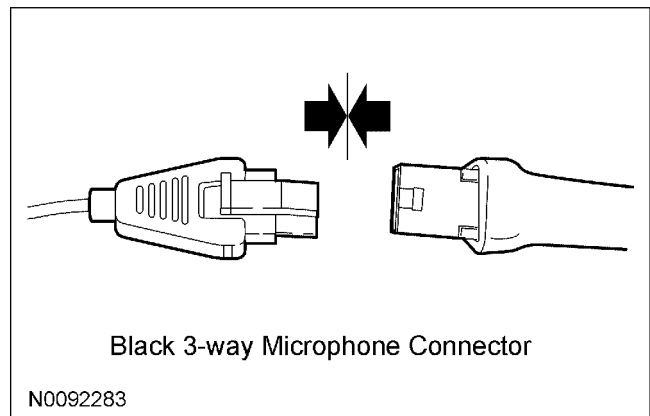
36. Secure the LH A-pillar upper trim panel.

    - Push inward to engage the retainers.

37. Secure the LH A-pillar lower trim panel.

    - Push inward to engage the retainers.

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

    Use the supplied 8" tie straps to secure the Sync harness wires.

INSTALLATION (Continued)

Connect HMI

**NOTE:** LH instrument panel finish panel will be installed later in this procedure.

39. Locate and drill 11/16'' hole at the top of the LH instrument panel finish panel as shown below.

11/16"
(17.5 mm)

N0092467
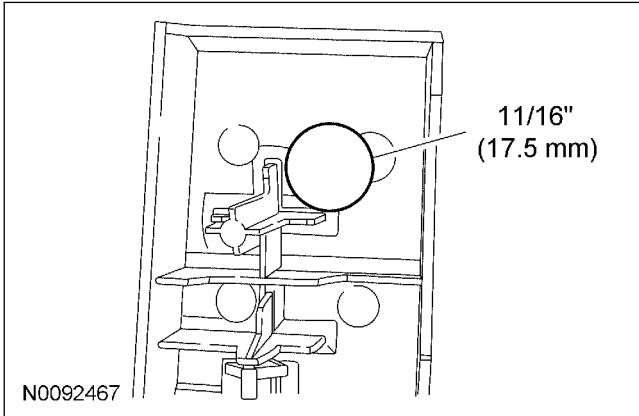
40. **NOTE:** Do not touch the adhesive, reduced adhesion may result.

    NOTE: Mount the HMI to the LH instrument panel finish panel as shown below.

    Remove the protective backing from the adhesive on the HMI, firmly press the body of the HMI to the LH instrument panel finish panel.

N0092468
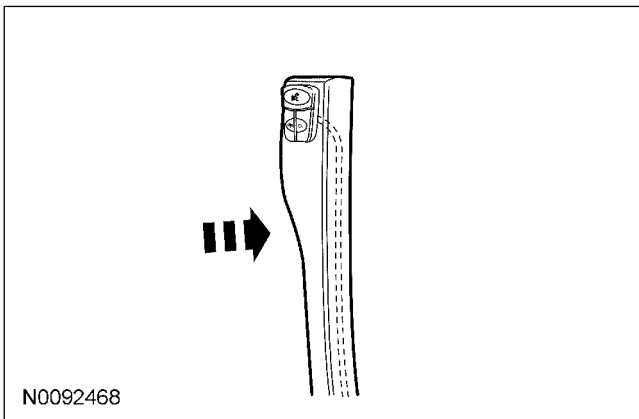
41. Working from the driver side of the center stack route the white 4-way HMI connector to the white 4-way Sync harness connector located near the Sync module.

42. Connect the white 4-way HMI connector to the white 4-way Sync harness connector.

White 4-way HMI Connector

N0092285
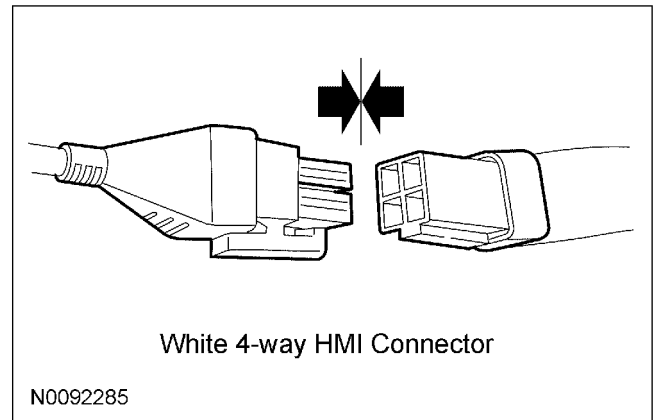
Connect Run Accessory Power

NOTE: For proper wire splicing techniques click here.

43. **NOTE:** A DVOM connected to the correct wire will show 0V, then show 12V when the Ignition switch is in the RUN/ACC position.

    A logic probe will show ground on the correct wire, then show power when the Ignition switch is in the RUN/ACC position.

    Identify the red/light blue accessory circuit wire at connector C2880E located on the back of the SJB.

RD/LB

C2880E

N0092296
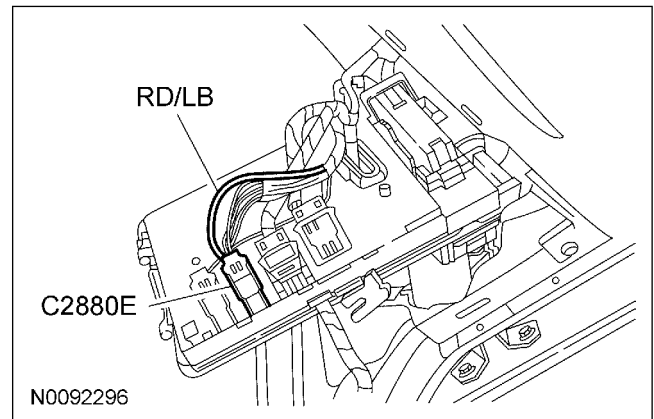
44. Connect the red wire from the Sync wire harness to the red/light blue accessory circuit wire at connector C2880E located on the back of the SJB.

INSTALLATION (Continued)

Configuration, Programming and Function Test

45. Refer to the Sync configuration and programming section (click here).

46. Refer to the Sync functional test section (click here).

Install Trim

47. Install the instrument panel center finish panel and the 6 screws.
    - Connect the electrical connectors.

48. Install the RH instrument panel finish panel.
    - Push inward on the instrument panel finish panels to engage the retaining clips.

49. **NOTE:** Route HMI wire away from trim panel locating tabs.

    Install the LH instrument panel finish panel.
    - Push inward on the instrument panel finish panels to engage the retaining clips.
    - Route the HMI cable behind the panel.

50. Install the SJB.
    - Position the SJB to the A-pillar mounting location.
    - Install the SJB mounting nut.

51. Install the RH A-pillar lower trim panel.
    - Install the A-pillar lower trim panel.
    - Install the door scuff plate.

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

    Use the supplied 8'' tie straps to secure the Sync harness wires.

53. Install the floor console finish panel.
    - Connect the electrical connector(s).
    - Push the floor console finish panel downward to engage the retaining clips.

54. Install the 2 floor console finish panel screws.

55. Close the storage compartment door.

Automatic Transmission

56. Install the selector lever bezel.
    - Push the selector lever bezel downward.
    - Place the gearshift lever in the PARK position.
    - Release the parking brake.

Manual Transmission

57. Install the gearshift lever knob and boot.
    - Push the gearshift lever boot retainer downward.
    - Screw the gearshift lever knob.
    - Release the parking brake.

GENERAL PROCEDURES

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: IDS software must be at level B 55 or higher with the latest database updates.

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. It is recommended that a wired internet connection is used.

NOTE: Before proceeding with module configuration and programming, ensure Internet Explorer is properly configured.

**NOTE:** For Internet Explorer configuration (click here).

NOTE: For programming troubleshooting (click here).

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.

   • Ensure Quick Start is retrieving the Vehicle Identification Number (VIN) from the vehicle.
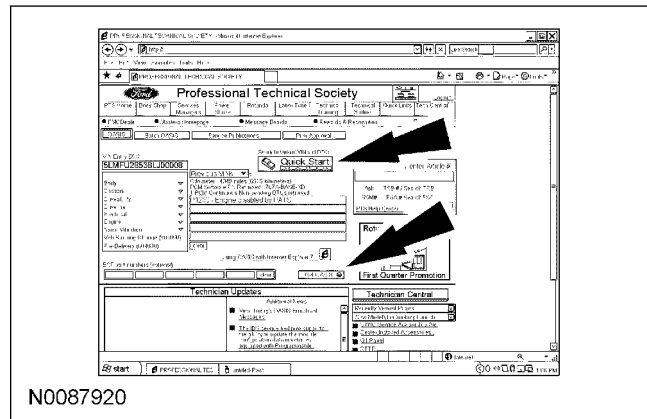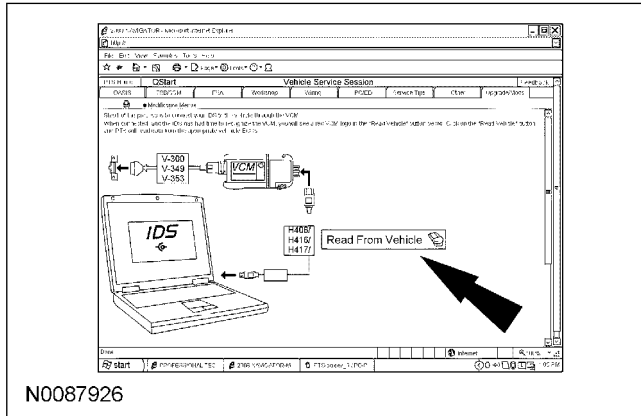

N0087920

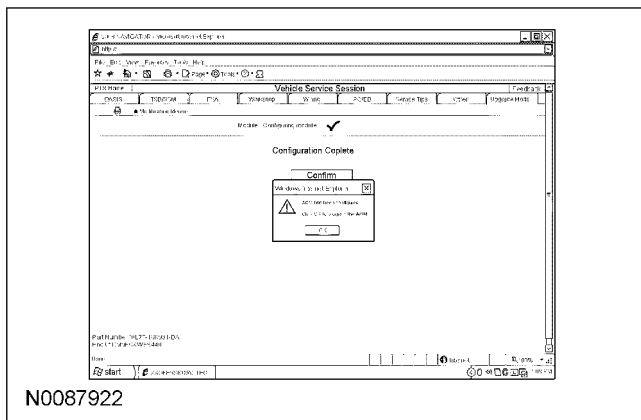8. From the Vehicle Service Session screen, Select the ''Upgrade/Mods'' tab.
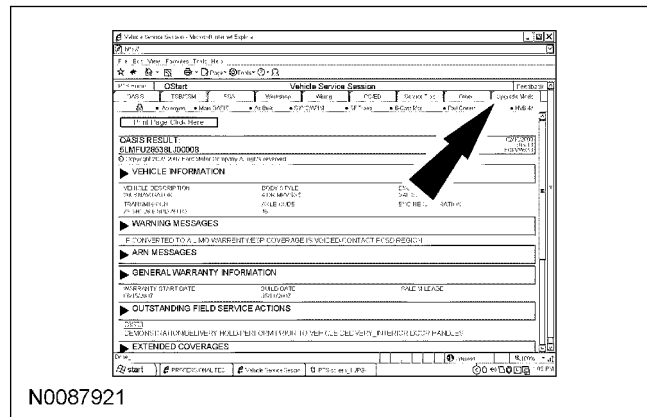
N0087921

9. Select the ''Sync Accessory Installation '' link for the appropriate vehicle.

   • Press ''Read From Vehicle '' button.
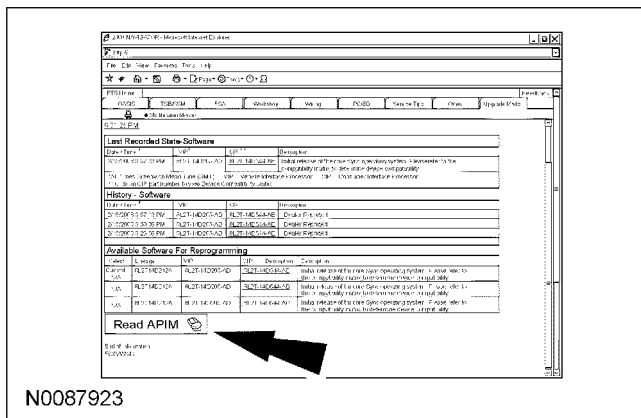
GENERAL PROCEDURES (Continued)

N0087926

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

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

N0087922

12. Select the ''Read APIM'' button.

N0087923

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

14. **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.

    NOTE: For programming troubleshooting (click here).

    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.

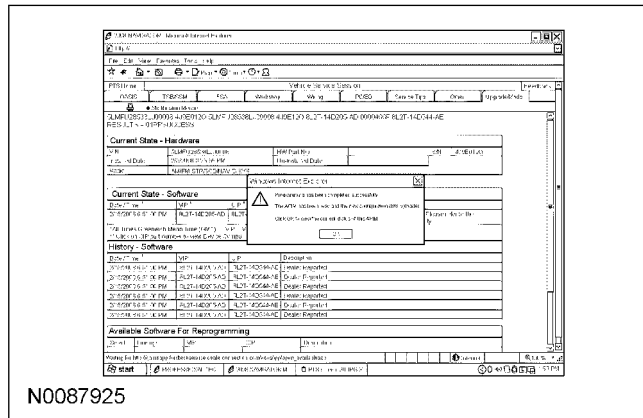   - Follow the on-screen instructions to program both processors on the Sync module (VIP & CIP).
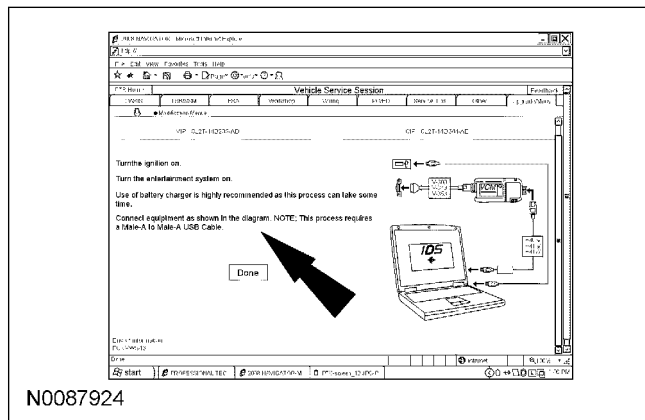
N0087924

15. If CIP programming failed due to USB port not ready, repeat step 14.

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

GENERAL PROCEDURES (Continued)
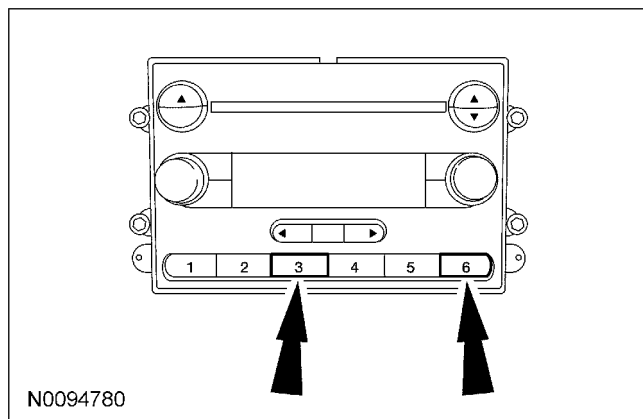

N0087925

17. Exit PTS.
    - Disconnect the VCM.
    - Disconnect the USB cable.

Functional Test

NOTE: Prior to performing the functional test, confirm the key is in the ''ON'' position and the radio is turned ''ON''.

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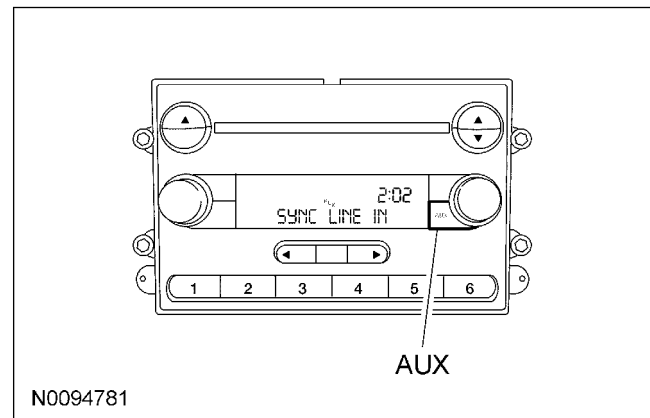

N0094780

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

19. Turn the audio ACM ''ON'' and ''SELECT'' a local radio broadcast station.

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

NOTE: The MIT is powered by the USB cable.

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

22. Set the audio ACM input source to line in.
    - Select the ''AUX'' button on the ACM display.
    - ''SYNC LINE IN'' will appear on radio display

AUX

N0094781

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

23. 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.

24. 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.

GENERAL PROCEDURES (Continued)

25. **NOTE:** Button Number 6 on the audio ACM is Pressed to select ''OK''

    Set the audio ACM input source to ''USB''.

    - Press the voice recognition button on the HMI.

    - When prompted, say ''USB''.

    - Press button 6 on the audio ACM for ''OK''.

    - 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.

26. 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.

NOTE: To scroll through the radio menu use the up and down arrow in the upper right corner of the radio. To select an option on the menu. Press button 6 on the audio ACM for ''OK''

27. Place the audio ACM in the discovery mode.

    - Press the ''Menu'' button on the audio ACM.

    - Using the up and down arrows scroll to ''System Settings''. Press button 6 on the audio ACM for ''OK''.

    - Using the up and down arrows scroll to'' BT Devices''. Press button 6 on the audio ACM for ''OK''.

    - Using the up and down arrows scroll to'' Add Device''. Press button 6 on the audio ACM for ''OK''.

    - ''Find Sync'' will appear on the audio ACM display. Press button 6 on the audio ACM for ''OK''.

    - The audio ACM will display a six digit pass key.

N0094783
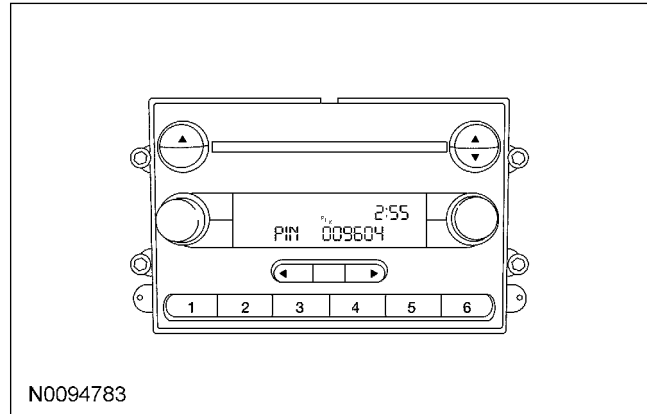
28. Enter the six digit pass key number into the MIT.

    - 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 ''For your safety stay alert to changing road conditions and use Sync voice commands while vehicle is in motion''.

29. Disconnect the MIT tool.

GENERAL PROCEDURES (Continued)

30. Delete the bluetooth device from the audio ACM.

    - Press the ''Menu'' button on the audio ACM.

    - Using the up and down arrows scroll to ''System Settings''. Press button 6 on the audio ACM for ''OK''.

    - Using the up and down arrows scroll to'' BT Devices''. Press button 6 on the audio ACM for ''OK''.

    - Using the up and down arrows scroll to'' Delete Device''. Press button 6 on the audio ACM for ''OK''.

31. Turn the ignition key to the ''OFF'' position.

NOTE: Ignition key must be in the ''ON'' position prior to testing Sync functionality.

32. 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.

GENERAL PROCEDURES

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.

Symptom/Concern	Check
If using Internet Explorer 7 (IE7)	Perform Internet Explorer Configuration Settings in this procedure
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 of main harness at the Sync module Ensure proper connection of T-harness at the ACM and ACM harness
ACM inoperative	Ensure proper connection of T-harness at the ACM and ACM harness

GENERAL PROCEDURES

Troubleshooting

1. It is strongly recommended that the IDS Computer is using a wired internet connection if possible.

Internet Explorer Configuration Settings

2. If using Internet Explorer 7 (IE7) perform the following IE7 security change:
   - Go to Tools->Internet Options.
   - Click on the Security Tab and then click on Custom level button. (see Figure 1)
   - Scroll down and find ''Navigate sub-frames across different domains'' then select the ''Enable'' option. (See Figure 2)

Figure 1

Figure 2

3. Add ''dealerconnection.com'' to the Internet Explorer Trusted sites.
   - Go to Tools->Internet Options.
   - Click on the ''Security'' tab.
   - Click on the ''trusted sites'' icon. (see Figure 3)
   - Click on sites.
   - In the box below ''Add this website to the zone:'' type in ''dealerconnection.com''.
   - Ensure that ''Require server verification (https:) for all sites in this zone'' is not checked. (See Figure 4)
   - Click the ''Add'' button. (see Figure 4)
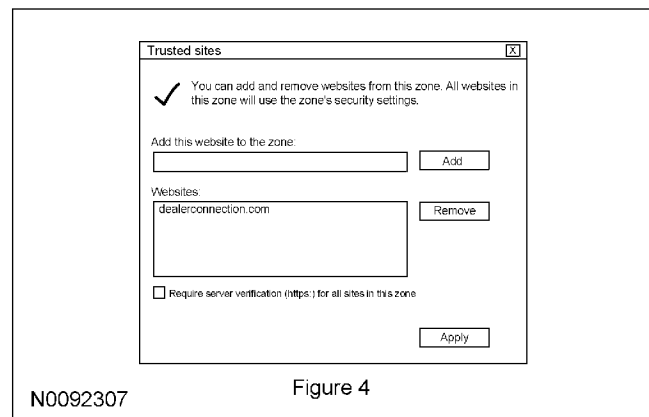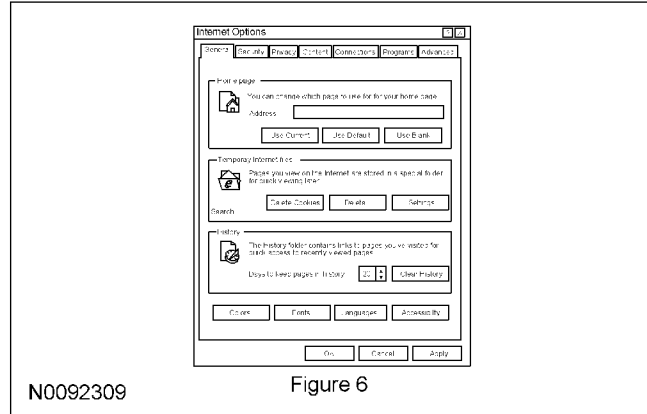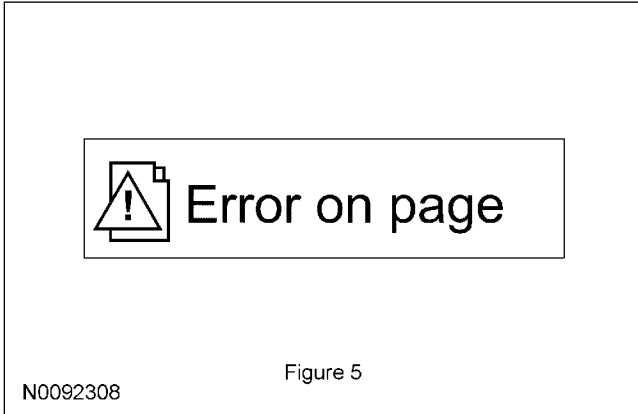   - Click the ''close'' button.
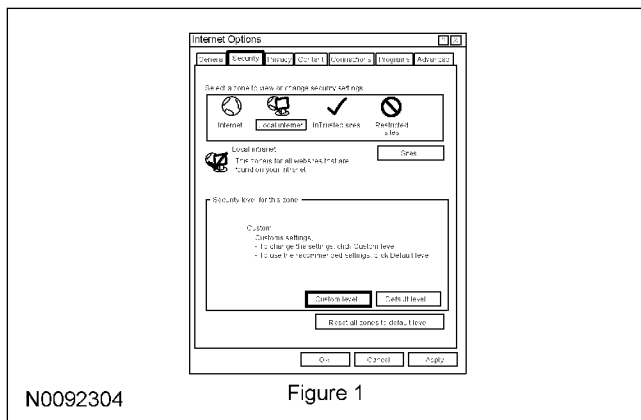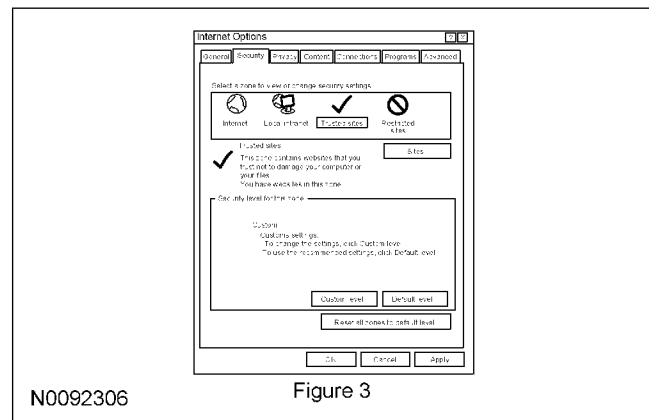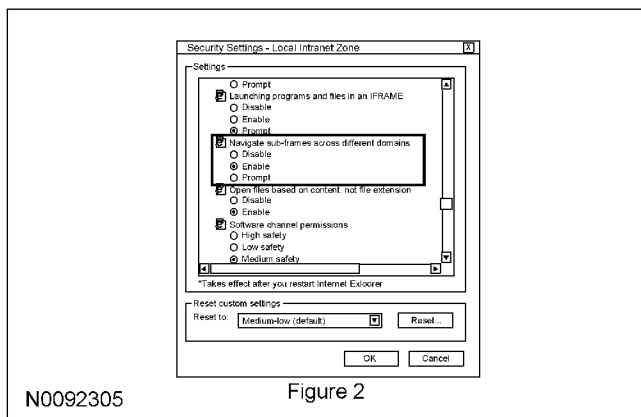
Figure 3

Figure 4

4. Look for any JavaScript errors indicated by a page with a yellow exclamation. (see Figure 5)
   - Double click on the ''Error on page'' icon to view JavaScript errors.
   - Write down and report any JavaScript errors to PTS.

GENERAL PROCEDURES (Continued)

Figure 5

N0092308

Figure 6

N0092309

5. Clear all cookies and temporary internet files (cache)

- If using Internet Explorer 6 (IE6):
  - Go to Tools-> Internet Options.
  - Click on the ''Delete Cookies...'' button. (see Figure 6)
  - Click on the ''OK'' button in the Delete Cookies conformation box.
  - Click on the ''Delete Files...'' button. (see figure 6)
  - Click on the ''OK'' button in the Delete Files conformation box.

- If using IE7:
  - Go to Tools-> Internet Options.
  - Click on the ''Delete...'' button under the Browsing history section. (see Figure 7)
  - Click on the ''Delete cookies...'' button. (see Figure 8)
  - Click on the ''OK'' button in the delete cookies confirmation box.
  - Click on the ''Delete Files...'' button. (see figure 8)
  - Click on the ''OK'' button in the delete files confirmation box.

Figure 7

N0092310

Figure 8

N0092311
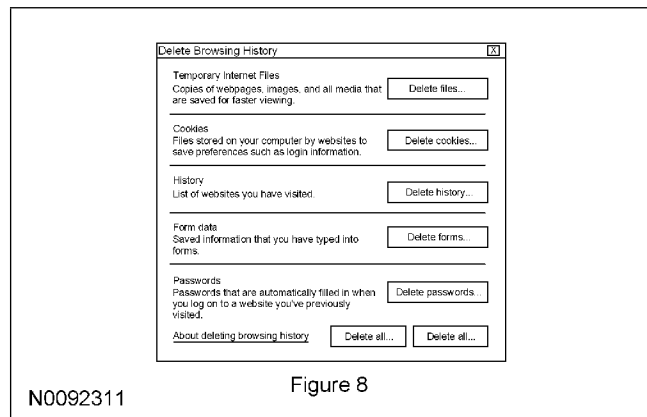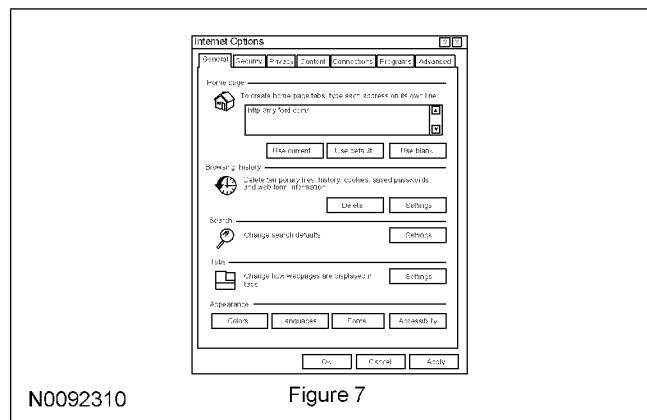
6. Restart the IDS Computer.

7. Launch IDS software and ID the vehicle.

8. Close IDS properly.

9. Go to PTS and Ensure that Quick Start is retrieving the VIN from the vehicle.

10. Click on the ''Upgrade/Mods'' tab.
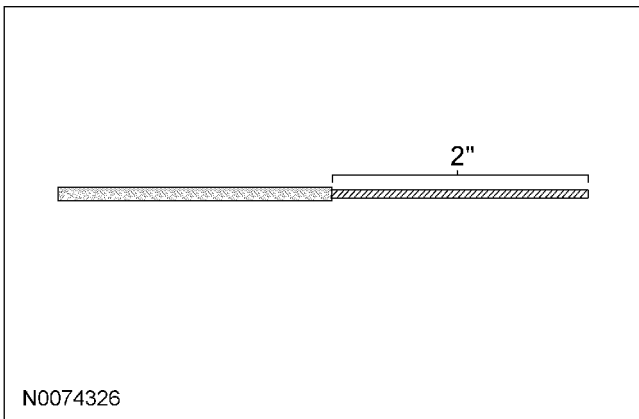
GENERAL PROCEDURES (Continued)

11. Click on the desired link and follow directions
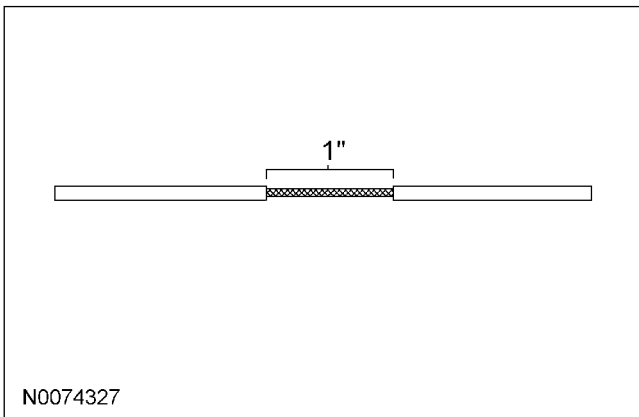   to program.

GENERAL PROCEDURES

Proper Splicing Techniques

**NOTE:** Follow this procedure when a wire can be spliced without cutting the wire in half.

1. Strip approximately two inches of insulation from the wire to be installed in the vehicle.

N0074326

2. On the vehicle wire to be spliced into, strip one inch of insulation form the wire.

N0074327

3. On the vehicle wire to be spliced into, separate the strands to allow the new wire to be placed between the parted strands of wire.

N0074328
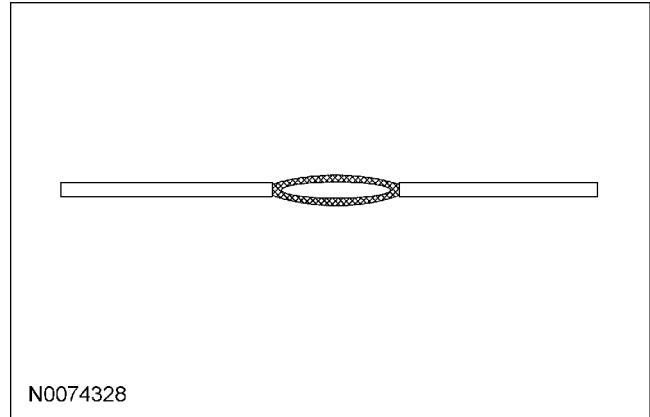
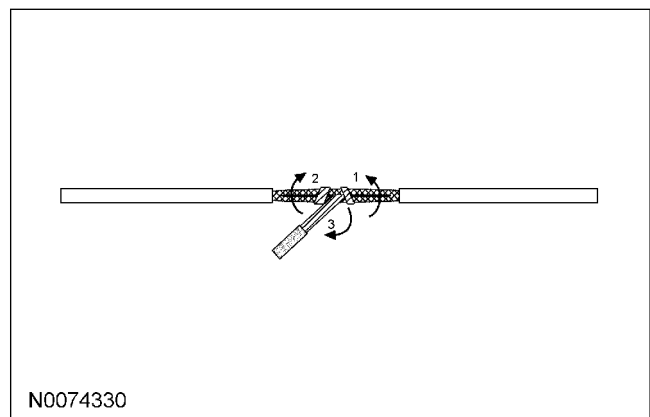4. Insert the new wire between the parted strands. If more than one wire is being spliced, wrap them in opposite directions.
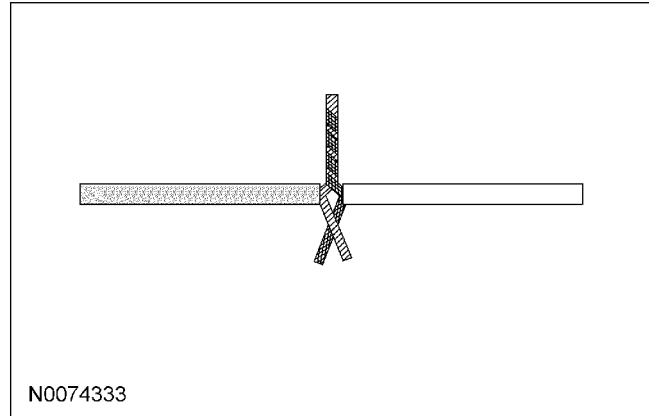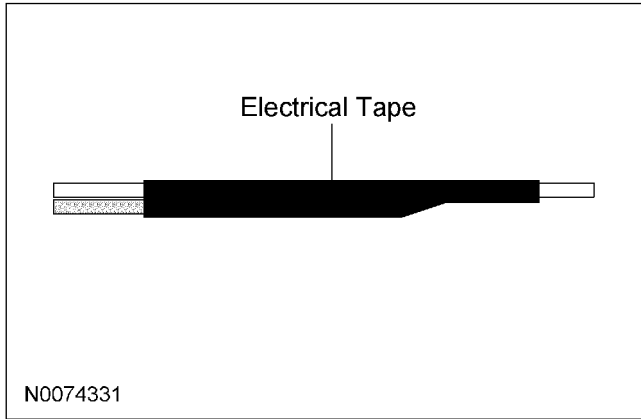

N0074329
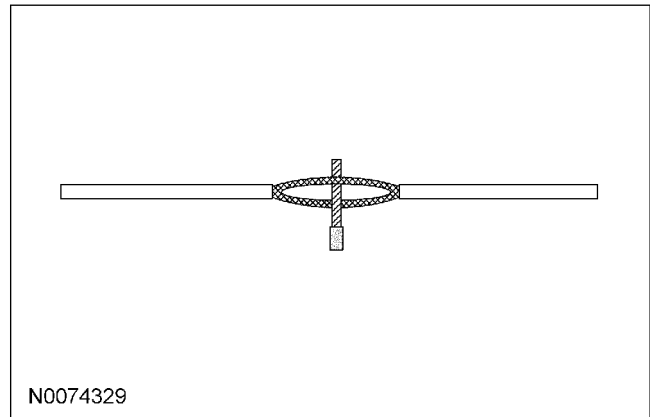
NOTE: Use Rosin Core Mildly-Activated (RMA) Solder. Do not use Acid Core Solder.

5. Wrap the new wire around one side of the split stands, then wrap it around the other side.
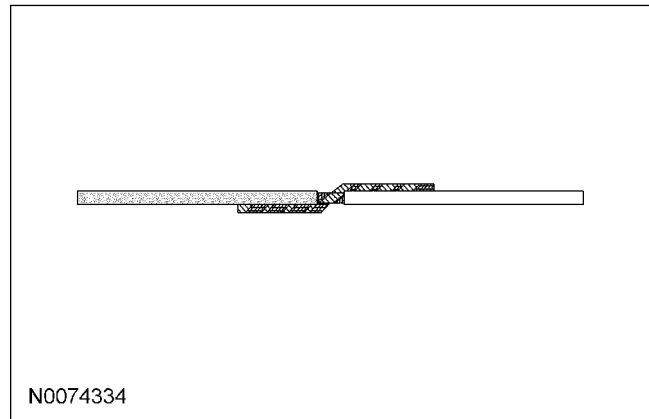   - Solder the connection.

N0074330

GENERAL PROCEDURES (Continued)

6. Wrap the connection with electrical tape so the tape covers the wires approximately two inches on either side of the connection.

   • Tape the wires together as shown in the illustration.

Electrical Tape

N0074331

Splicing End to End Connections

NOTE: When both ends of the wire are cut, use the end to end wire splicing procedure.

NOTE: Follow the steps below for end to end wire splicing.

1. To make an end to end connection, start by stripping one inch of insulation from each of the wires. Part each wire into equal strands as shown in the illustration.

N0074332

2. Place the wires next to each other and twist the upper and lower strands together as shown.

N0074333

NOTE: Use Rosin Core Mildly-Activated (RMA) Solder. Do not use Acid Core Solder.

3. Lay the upper strand of wire to one side, then lay the lower strand of wire to the other side as shown in the illustration.
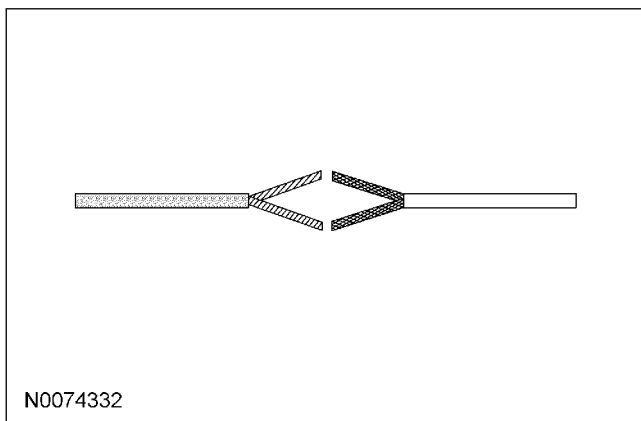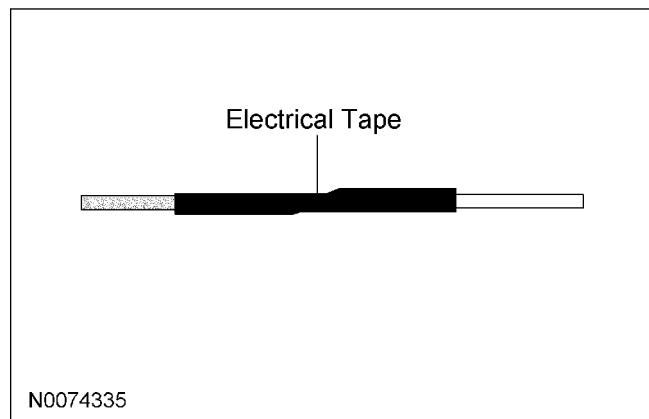
   • Solder the wires together.

N0074334

4. Wrap the connection with electrical tape so the tape covers the wires approximately two inches on either side of the connection.

Electrical Tape

N0074335