

Splicing Procedure General Information**NOTE:**

Refer to applicable wiring diagrams for circuit information.

NOTE:

This procedure contains multiple splicing techniques.

NOTE:

Review splicing procedures prior to performing any cutting/soldering/splicing.

NOTE:**Recommended Tools and Materials:**

- NAIAT-R5903 Wire Splice Tool Kit (or equivalent).
- Rotunda Soldering Gun WELD550PK (or equivalent).
- Rosin core mildly activated (RMA) solder. Do not use acid core solder.
- Coroplast PVC adhesive Tape (or equivalent).
- Mastic Patch or Liquid Sealant.

Recommended Solder Procedure**NOTE:**

When applying solder, place Rotunda Soldering Gun WELD550PK (or equivalent) under twisted (wrapped) wires until wires are hot enough to melt solder. Feed solder into wires from the top. Do not drip melted solder on to the wires, as this will cause a cold solder joint.

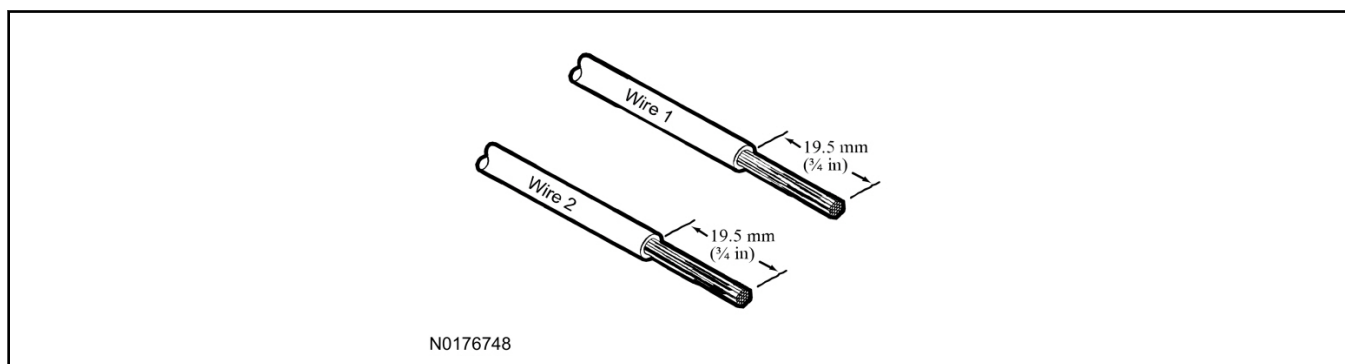
NOTE:

Do not over heat wire or damage to insulation may occur.

NOTE:

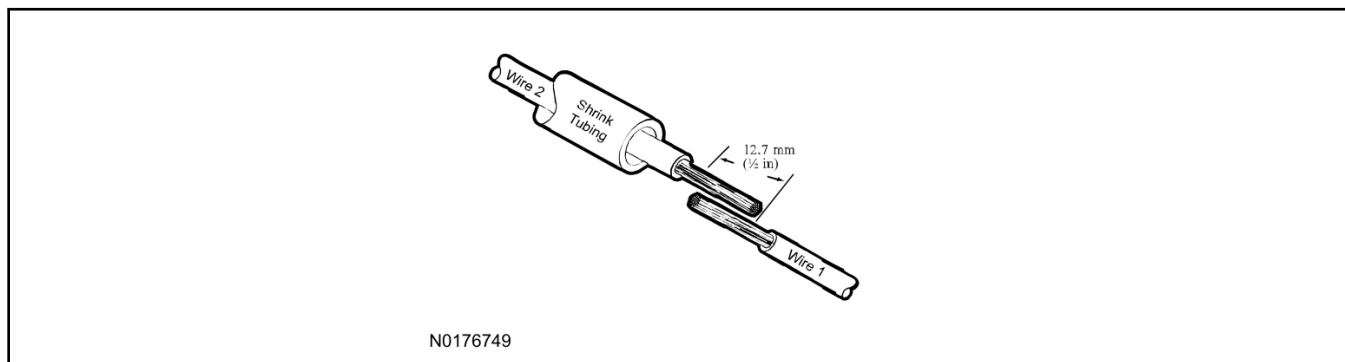
Use rosin core mildly activated (RMA) solder. Do not use acid core solder.

1. Disconnect battery ground cable. For additional information, refer to Workshop Manual (WSM) Section 414-01.
2. Strip wires to appropriate length.

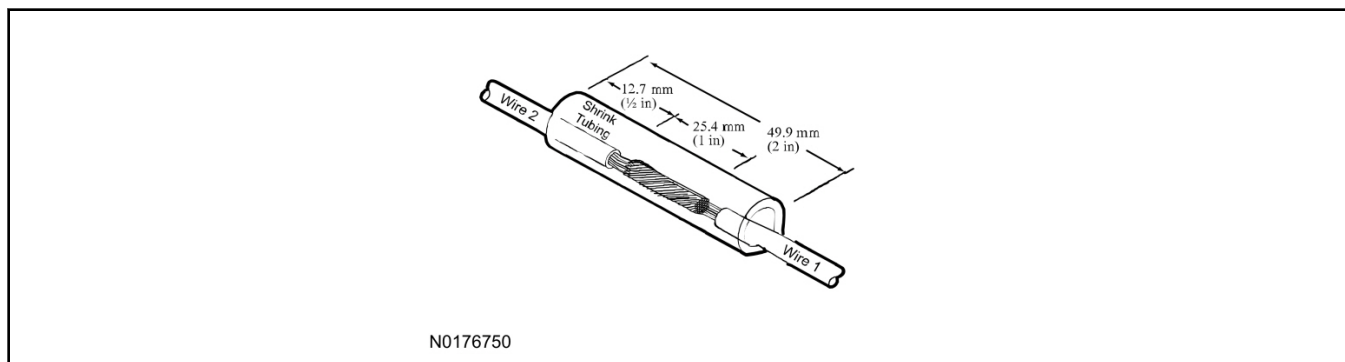
DESCRIPTION AND OPERATION (Continued)**NOTE:**

Use Motorcraft heat shrinkable tubes: Part# WT-56815 for 14-16 AWG Part# WT-56814 for 18-22 AWG.

3. Install heat shrink tubing.
4. Twist wires together.
5. Solder wires together.

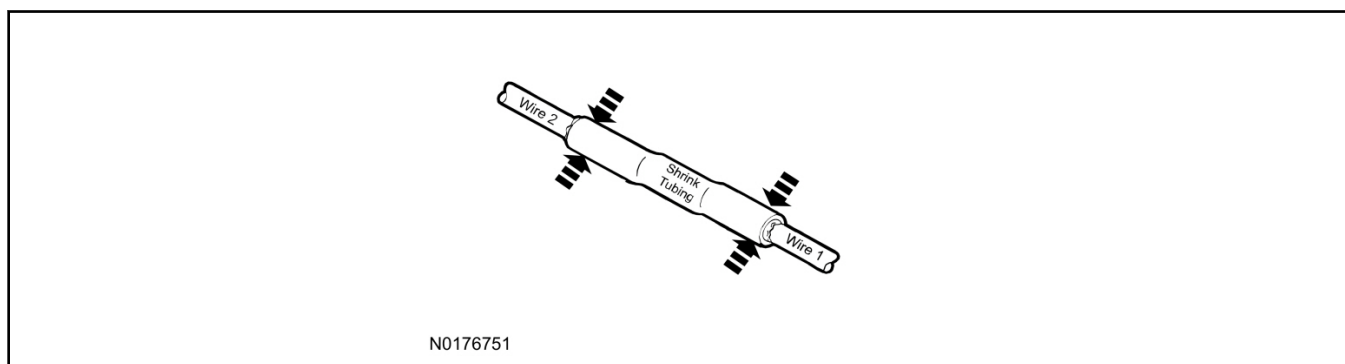


6. Overlap heat shrink tubing on both wires.

**NOTE:**

On smaller wires, use pliers to gently squeeze the ends of the heat shrink sleeve (while heat shrink is still warm) to ensure a tight fit and close any air gaps.

7. Use shielded heat gun to heat the repaired area until adhesive flows out of both ends of heat shrink tubing.

DESCRIPTION AND OPERATION (Continued)

8. Reconnect battery ground cable. For additional information, refer to WSM Section 414-01.

Solder Tap Splice Procedure (For Interior Use Only)**NOTE:**

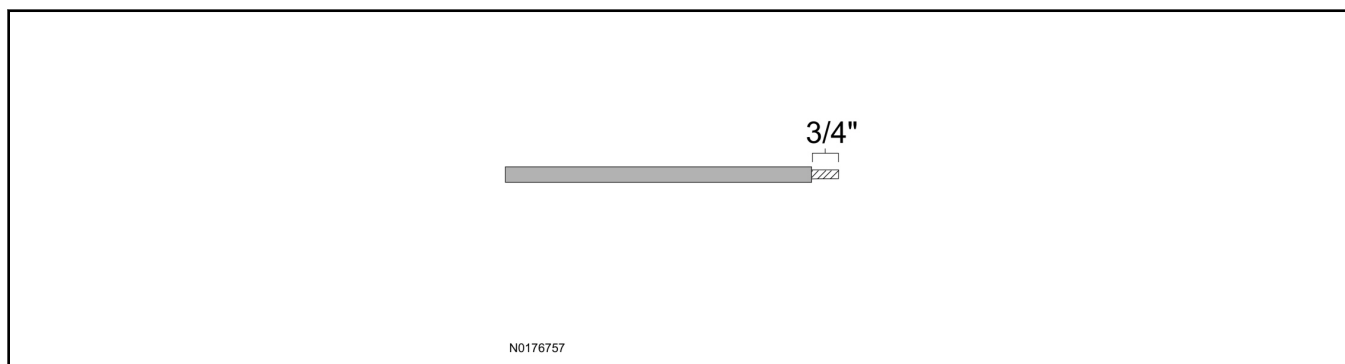
Procedure applicable with 16-22 AWG (or metric equivalent) ranges of wire involving:

- Limited working area
- Snug harnesses
- Short length wires

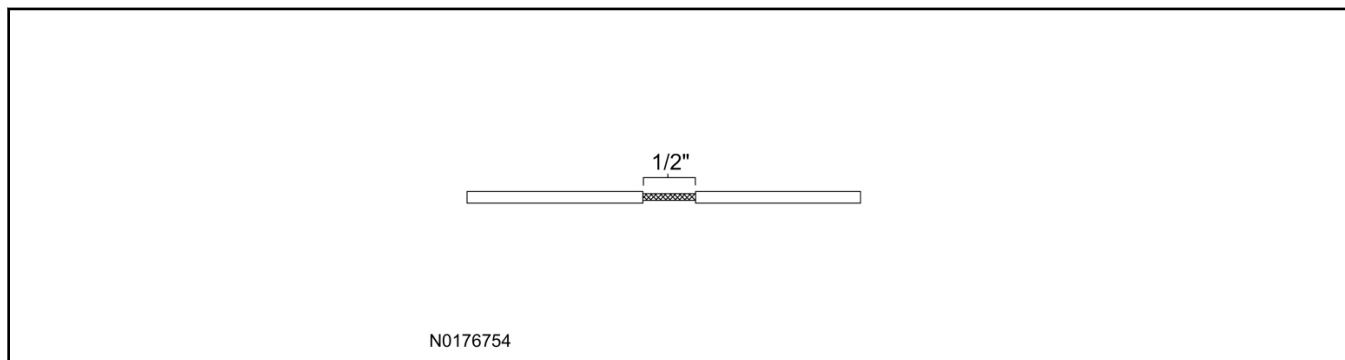
NOTE:

Do not separate the strands.

1. Strip approximately $\frac{3}{4}$ " (19.1mm) of insulation from the wire to be installed in the vehicle.

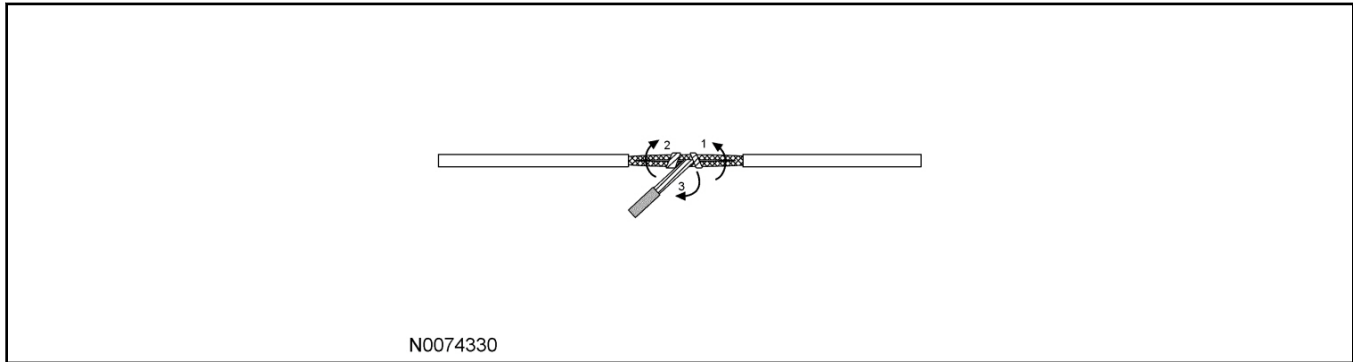


2. On the vehicle wire to be spliced into, carefully spread $\frac{1}{2}$ " (12.7mm) of insulation from the wire with the wire stripping tool. Inspect the wire for broken strands. If broken strands are present see "Wiring Repair Job Aid" for repair procedures.

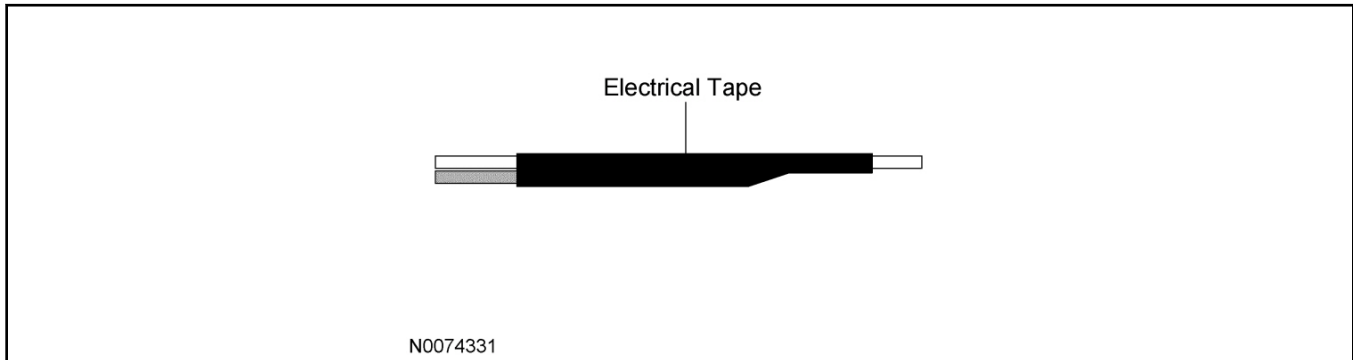


DESCRIPTION AND OPERATION (Continued)

3. Tightly wrap the new wire around the vehicle wire. Solder the wire together.



4. Wrap the connection with at least two layers of Coroplast PVC adhesive Tape (or equivalent) so the tape covers the wires approximately 2" (50.8mm). In possible wet areas such as near carpet or floor, use mastic patch or liquid sealing.
 - Tape the wires together as shown in the illustration.

**2-Wire Solder Splice/Ratcheting Crimp Tool Splice Procedure****NOTE:**

For 8-14 AWG Use The following "Ratcheting Crimp Tool Splice Procedure".

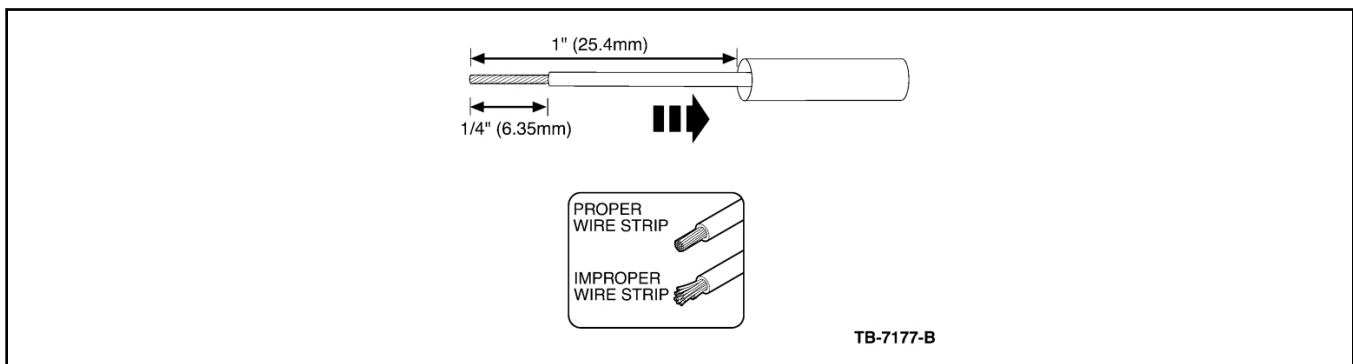
NOTE:

For Splicing Procedure Use Wire Splice Tool Kit (NAIAT-R5903).

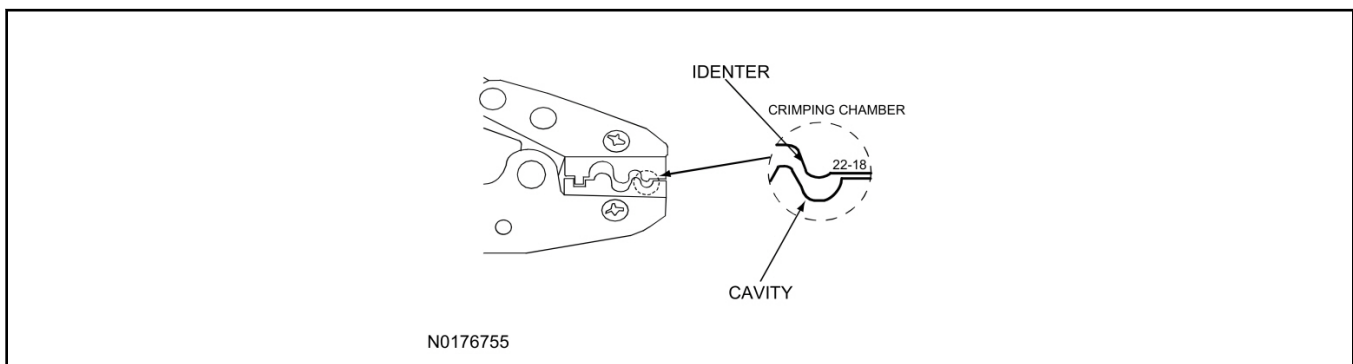
1. **NOTE:**

The strip length will vary depending on the butt splice and wire in harness. Refer to chart for strip lengths.

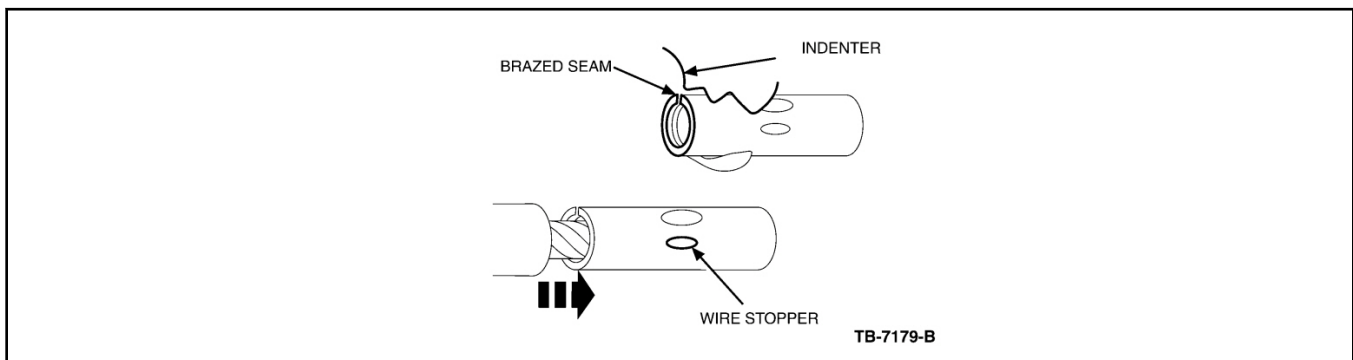
Strip 1/4" (6.35 mm) of insulation from pigtail wire end once the wire lengths are sized so repairs can be staggered. Take care not to nick or cut wire strands. Pull wire straight from stripper. If wire is pulled at an angle, wire strands may be cut off. If more than one (1) strand is cut off during stripping, cut off the end and re-strip. Slide heat shrink tubing onto one (1) of the wire ends to be crimped, must be at least 1" (25.4mm) away from the stripped end.

DESCRIPTION AND OPERATION (Continued)

2. Identify the appropriate crimping chamber of the Rotunda NAIAT-RACT (or equivalent) by matching the wire size on the dies with the wire size stamped on the butt splice. Hold the crimping tool so the identified wire sizes are facing you. Squeeze tool handles together until the ratchet releases, then allow the jaws of the tool to open fully.



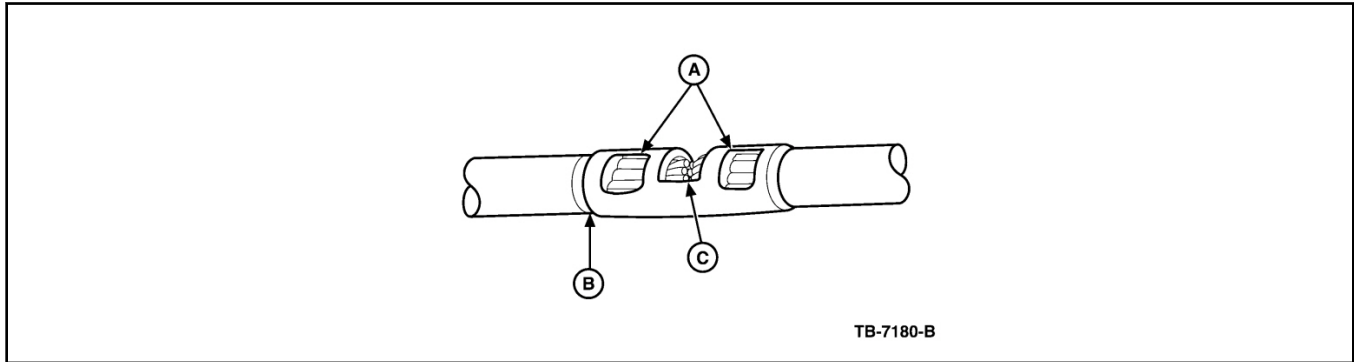
3. Center one (1) end of the butt splice on the appropriate crimping chamber. If visible, be sure to place the brazed seam of the butt splice toward the indenter. Hold the butt splice in place and squeeze the tool handles together until the ratchet engages sufficiently to hold the butt splice in position (typically one (1) or two (2) clicks). DO NOT deform the butt splice. Insert stripped wire into the butt splice, making sure the insulation on wire does not enter the butt splice.



4. Holding the wire in place, squeeze tool handles together until ratchet releases. Allow tool handles to open, then remove crimped butt splice. To crimp the other half of the splice, reposition the un-crimped wire barrel in the same crimping chamber, and repeat the crimping procedure. If splice cannot be turned for crimping the other half, turn the tool around. Check for acceptable crimp.

DESCRIPTION AND OPERATION (Continued)

- Crimp should be centered on each end of the butt splice. It is acceptable for crimp to be slightly off center, but not off the end of the butt splice (A).
- Wire insulation does not enter butt splice. Wire is flush with or extends slightly beyond end of butt splice (B).
- Wire is visible through inspection hole of splices (C).



5. **NOTE:**
Overlap heat shrink tubing on both wires.

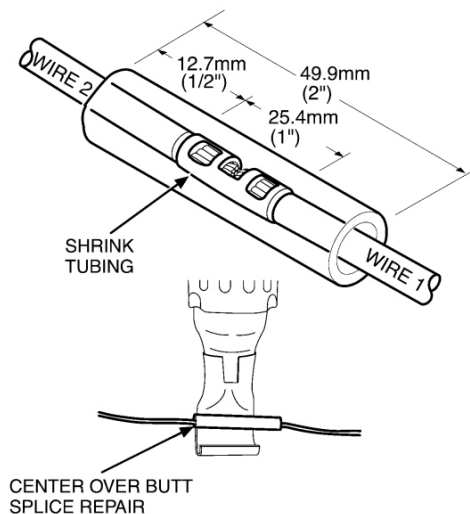
NOTE:

The hot melt forms an adhesive seal between the wire insulation and the heat shrink tubing, which prevents air and moisture from entering the solder point.

NOTE:

Durability of a heat shrink tubing splice is dependent on the hot melt that will appear from both ends of the tube.

Evenly position heat shrink tubing over wire repair. Use a shielded heat gun to heat the entire length of the heat shrink tubing until the hot melt appears from both ends of the tubing.

DESCRIPTION AND OPERATION (Continued)

TB-7175-D

Wire Stripping Lengths and Application Techniques

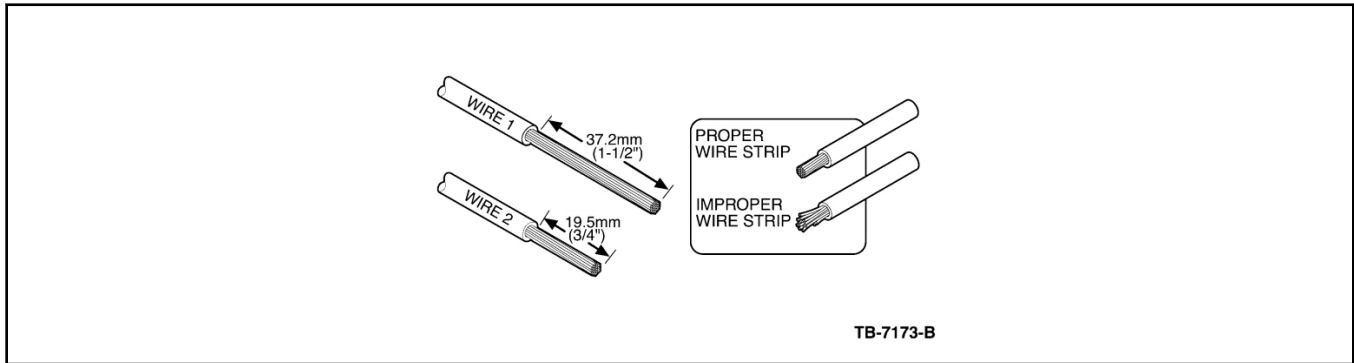
	Vehicle Wire Size										
	AWG (metric)	Butt Splice Kit	8 (8.0mm)	10 (5mm)	12 (3mm)	14 (2mm)	16 (1.5mm)	18 (0.75mm)	20 (0.5mm)	22 (0.35mm)	26 (0.13mm)
R e p a i r K i t W i r e S i z e	22 - 18 (0.35-0.75mm)	3U2Z-14A088-AB Motorcraft Part# (WT-56814)	Not Allowed	Not Allowed	Not Allowed	Not Allowed	Not Allowed	1/4 in. (6mm) Strip	1/4 in. (6mm) Strip	1/4 in. (6mm) Strip	Solder Only
	14 - 16 (1.5-2.0mm)	3U2Z-14A088-BA Motorcraft Part# (WT-56815)	Not Allowed	Not Allowed	Not Allowed	1/4 in. (6mm) Strip	1/4 in. (6mm) Strip	1/4 in. (6mm) Strip	Not Allowed	Not Allowed	Not Allowed
	10 - 12 (3.0-5.0mm)	3U2Z-14A088-CA Motorcraft Part# (WT-56816)	1/4 in. (6mm) Strip	1/4 in. (6mm) Strip	1/4 in. (6mm) Strip	1/4 in. (6mm) Strip	Not Allowed	Not Allowed	Not Allowed	Not Allowed	Not Allowed
	8 (8.0mm)	DU2Z-14A088-AA Motorcraft Part# (WT-56869)	1/4 in. (6mm) Strip	1/4 in. (6mm) Strip	Not Allowed	Not Allowed	Not Allowed	Not Allowed	Not Allowed	Not Allowed	Not Allowed

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DESCRIPTION AND OPERATION (Continued)

For 16-22 AWG wire or metric equivalent use either the above "Ratcheting Crimp Procedure" or the following "2 Wire Solder Splice Procedure".

1. Strip 1 1/2" (37.2 mm) of insulation from Wire #1 and 3/4" (19.5mm) of insulation from Wire #2, taking care not to nick or cut wire strands. Pull wire straight from stripper. If wire is pulled at an angle, wire strands may be cut off during stripping. Cut off the end and re-strip.



2. **NOTE:**

Use rosin core mildly activated (RMS) solder. do not use acid core solder for wire repair.

NOTE:

Overlap tubing on both wires and wait for solder to cool before moving the wires.

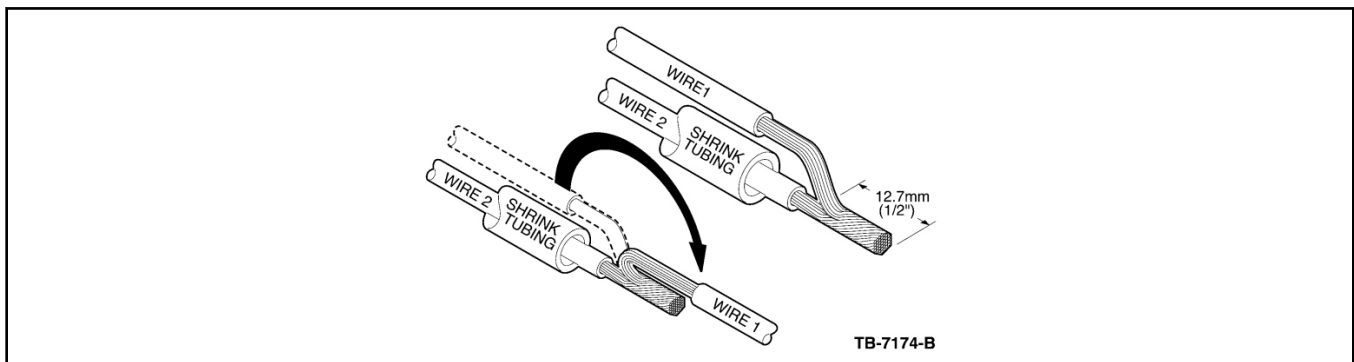
NOTE:

Durability of a heat shrink tubing splice is dependent on the hot melt that will appear from both ends of the tube.

NOTE:

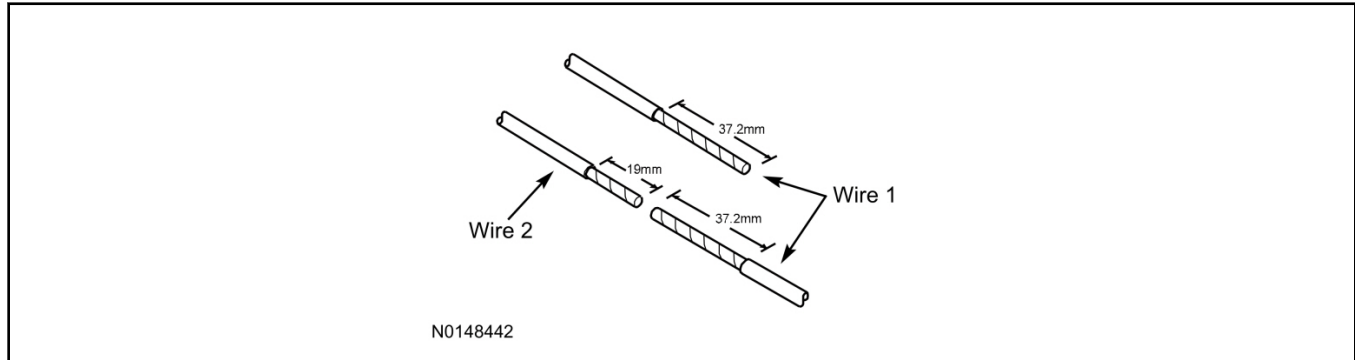
The hot melt forms an adhesive seal between the wire insulation and the heat shrink tubing, which prevents air and moisture from entering the solder point.

Install heat shrink tubing at least 1" (26 mm) away from one of the stripped ends being spliced. Twist the wires together. Solder the wires together. Bend Wire #1 back in a straight line for sealing. Inspect solder joint bond. Evenly position heat shrink tubing over wire repair. Use a shielded heat gun to heat the entire length of the heat shrink tubing until the hot melt appears from both ends of the tubing.



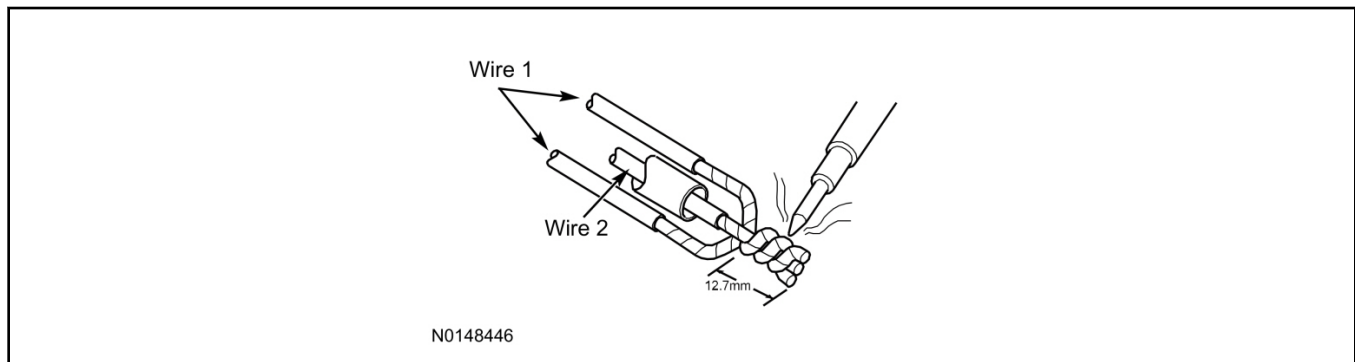
DESCRIPTION AND OPERATION (Continued)**3-Wire Solder Splice Procedure**

1. Strip 1 1/2" (37.2 mm) of insulation from both sides of Wire #1 and 3/4" (19 mm) of insulation from Wire #2, taking care not to nick or cut wire strands. Pull wire straight from stripper. If wire is pulled at an angle, wire strands may be cut off during stripping. Cut off the end and re-strip.

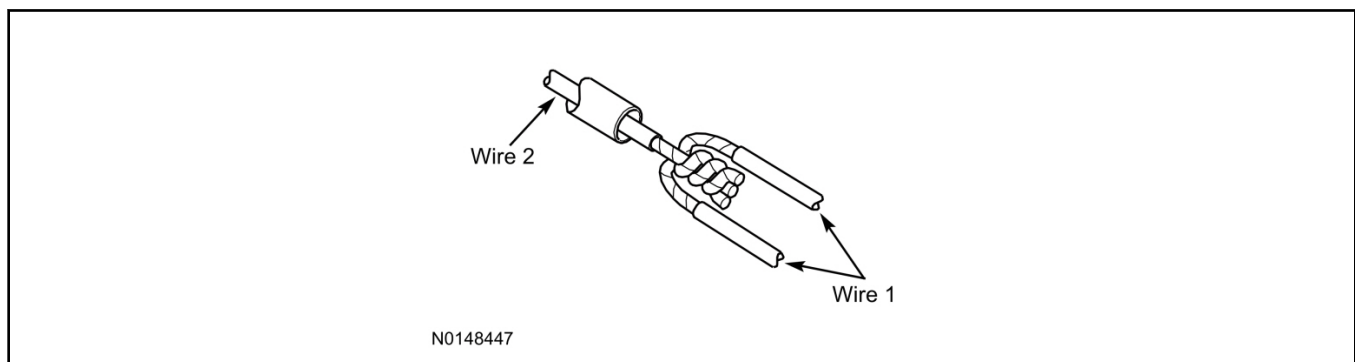


2. **NOTE:**
Wait for solder to cool before moving wires.

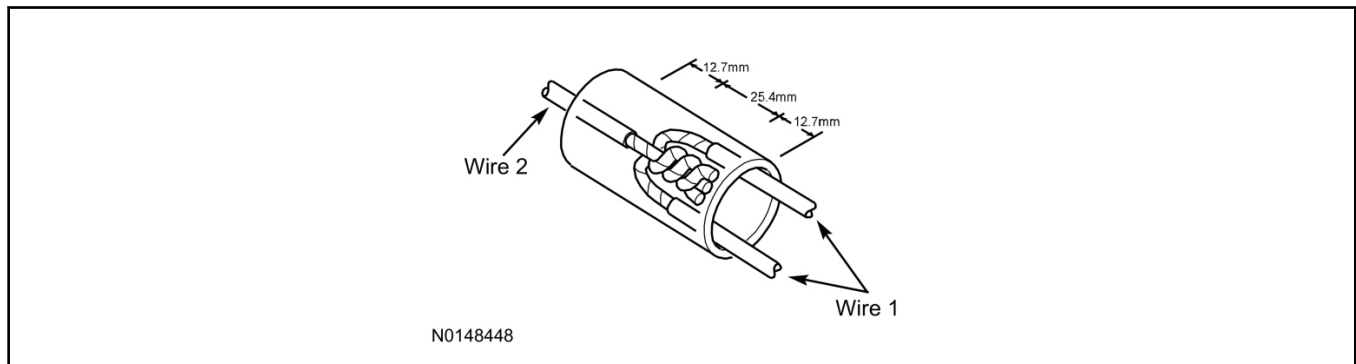
Apply heat shrink tubing to Wire #2. Twist both ends of Wire #1 around Wire #2. Solder the wires together.



3. Bend Wire #1 back over the twisted wires for sealing. Inspect solder joint bond.



4. Evenly position heat shrink tubing over wire repair.

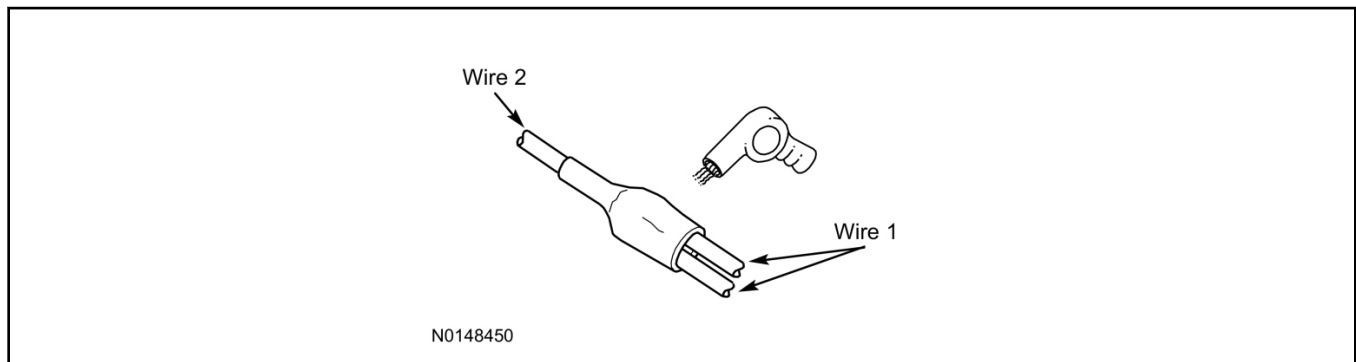
DESCRIPTION AND OPERATION (Continued)**5. NOTE:**

Durability of a heat shrink tubing splice is dependent on the hot melt that will appear from both ends of the tube.

NOTE:

The hot melt forms an adhesive seal between the wire insulation and the heat shrink tubing, which prevents air and moisture from entering the solder point.

Use a shielded heat gun to heat the entire length of the heat shrink tubing until the hot melt appears from both ends of the tubing.



Vehicle Security / Remote Start System Installation

CONTENTS

INSTALLATION

- Hood Latch Kit Installation
- Hood Switch Kit Installation
- VSS Module Installation
- Security Indicator LED Mounting
- RMST Kit Antenna Installation

GENERAL PROCEDURES

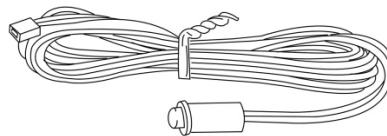
- Learn VSS Module
- VSS Module Optional Security Features
- Shock Sensor Sensitivity Adjustment
- VSS Functional Test
- Basic Remote Start Feature
- Programming Key Fobs
- Proper Wire Splicing Techniques

INSTALLATION**Vehicle Security / Remote Start****VSS System Components****NOTE:**

Prior to installation use OASIS vehicle information to verify if the vehicle is equipped with a 4G modem and Fordpass Connect. If the vehicle is equipped with a 4G mode, FordPass Connect or factory remote start do not use FDRS/IDS to enable as the feature is enabled at the assembly plant. The hood ajar switch will be present on these vehicles as well.



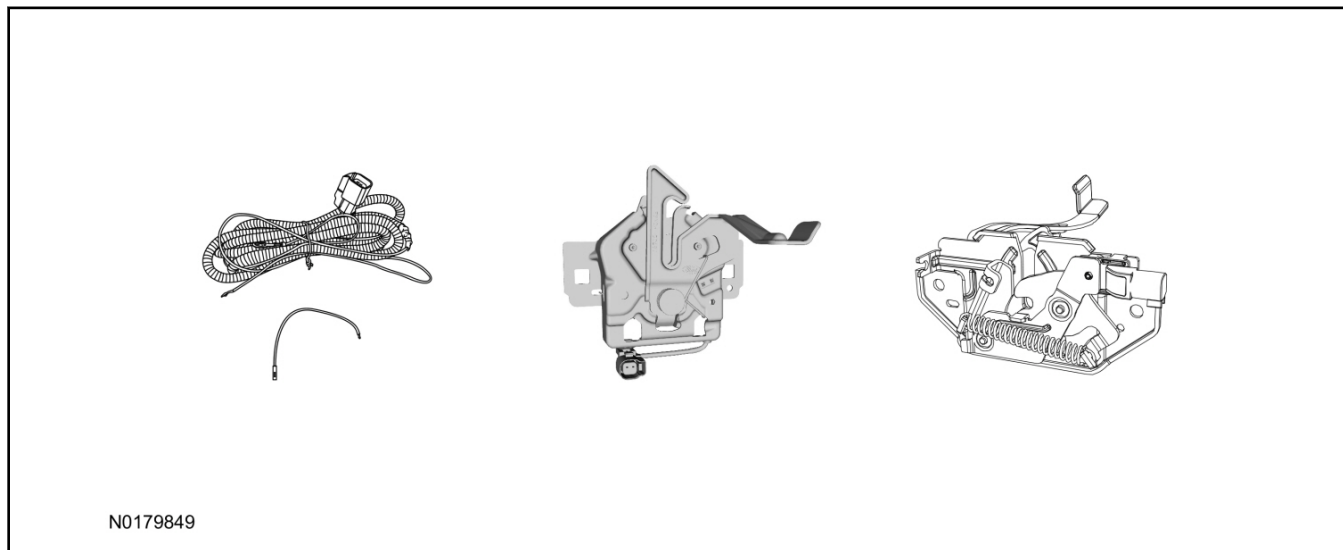
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Security Indicator LED (19D596) "Optional"

N0150452

INSTALLATION (Continued)**Hood Latch Kit - If Required****NOTE:**

Not all hood latch/switch kits shown.

**Review VSS Kit Contents****NOTE:**

Kits are vehicle specific and are not interchangeable.

1. Verify correct kit part number.
2. Review the VSS kit contents.

Vehicle Security System (VSS) Kit

QUANTITY	DESCRIPTION
1	VSS Module
1	T-harness
6	Tie-straps
1	Owner's Manual
2	Key Tags (not shown)

Security Indicator LED Kit Contents "Optional"

3. Verify correct kit part number.
4. Review the Security Indicator LED kit contents.

Security Indicator LED Kit

QUANTITY	DESCRIPTION
1	Security Indicator LED

INSTALLATION (Continued)**Hood Latch Kit Contents (if required) "Sold Separately"**

5. Review the Hood Latch/Switch/Wire Harness kit contents.

Hood Latch Kit "Sold Separately"

QUANTITY	DESCRIPTION
1	Hood Latch/Switch Assembly (multiple variants shown)

Hood Latch Kit "Sold Separately"

1	Body Control Module (BCM) Terminal Wire (if required)
1	Hood Latch/Switch Wire Harness (if required)
10	Tie-straps (not shown) (if required)

Hood Latch Kit (if required) - "Sold Separately" for Ecosport**NOTE:**

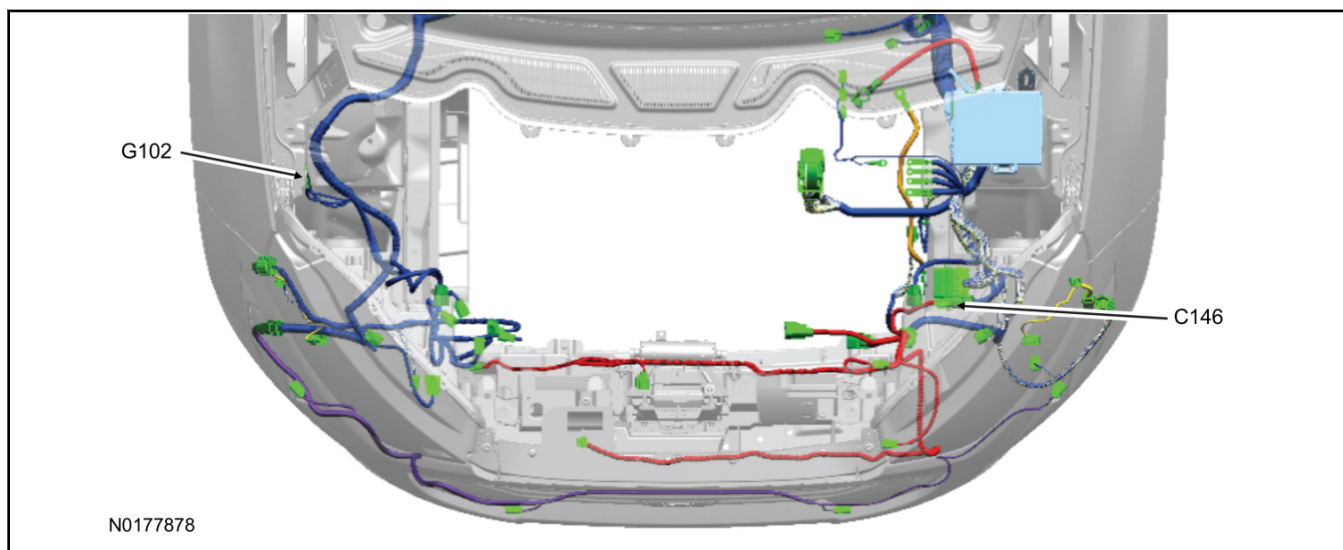
Hood latch installation is required if the vehicle is being upgraded to VSS/RMST and is not currently equipped with a hood switch. For VSS Only upgrade, hood switch installation is optional - to monitor engine compartment access with the VSS armed.

NOTE:

If vehicle is equipped with a hood latch wire harness, only step 6 of this section will be required.

6. Install a new hood latch equipped with switch. For additional information, refer to WSM Section 501-14.
7. Remove the air cleaner assembly. For additional information, refer to WSM Section 303-12.
8. **NOTE:**
If you are installing the wire harness labeled with part number JN1J-19A205-AB (with two male terminals), skip to step 10.

Route the hood latch wire harness ground wire to location G102 located on the RH side of the engine compartment. Attach the hood latch ground eyelet to G102.



INSTALLATION (Continued)

9. For vehicles using harness JN1J-19A205-AA, connect the hood latch wire harness power wire to connector C146 Pin 10 using the following steps.
 - 1 Route the hood latch wire harness power wire to connector C146 Pin 10 located behind the LH headlamp assembly.
 - 2 Locate the Blue/Orange wire at Pin 10 of connector C146.
 - 3 Cut off the female terminal attached to the Blue hood latch wire harness (that is being installed) power wire.
 - 4 Cut the Blue/Orange wire close to the C146 connector.
 - 5 Splice the Blue/Orange wire to the Blue hood latch wire harness power wire. Refer to Proper Wire Splicing Techniques within this document.
 - 6 Secure the hood latch wire harness with tie-straps.
10. For vehicles using harness JN1J-19A205-AB, connect the hood latch wire harness power wire to connector C146 using the following steps.
 - 1 Route the hood latch wire harness wires (Blue and Black wires) to connector C146 located behind the LH headlamp assembly.
 - 2 Remove the cavity plug from the male side of connector C146 Pin 10 and insert the hood latch power wire (blue) terminal into the empty cavity. The new hood latch power wire should align with the Blue/Orange wire on the female side of connector C146 Pin 10.
 - 3 Remove the cavity plug from the male side of connector C146 Pin 11 and insert the hood latch ground wire (Black) terminal into the empty cavity. The new hood latch power wire should align with the Black wire on the female side of connector C146 Pin 11.
 - 4 Secure the hood latch wire harness with tie-straps.
11. Reinstall the air cleaner assembly. For additional information, refer to WSM Section 303-12.

F-Super Duty Hood Latch Installation

12. Install a new hood latch equipped with switch. For additional information, refer to WSM Section 501-14.

I. VSS System Installation - All Vehicles**CAUTION:**

Carefully route and secure module and harnesses so that they do not interfere with moving parts or linkages.

NOTE:

If the VSS kit was installed previously and the vehicle is being upgraded, proceed to the "RMST" upgrade section(s).

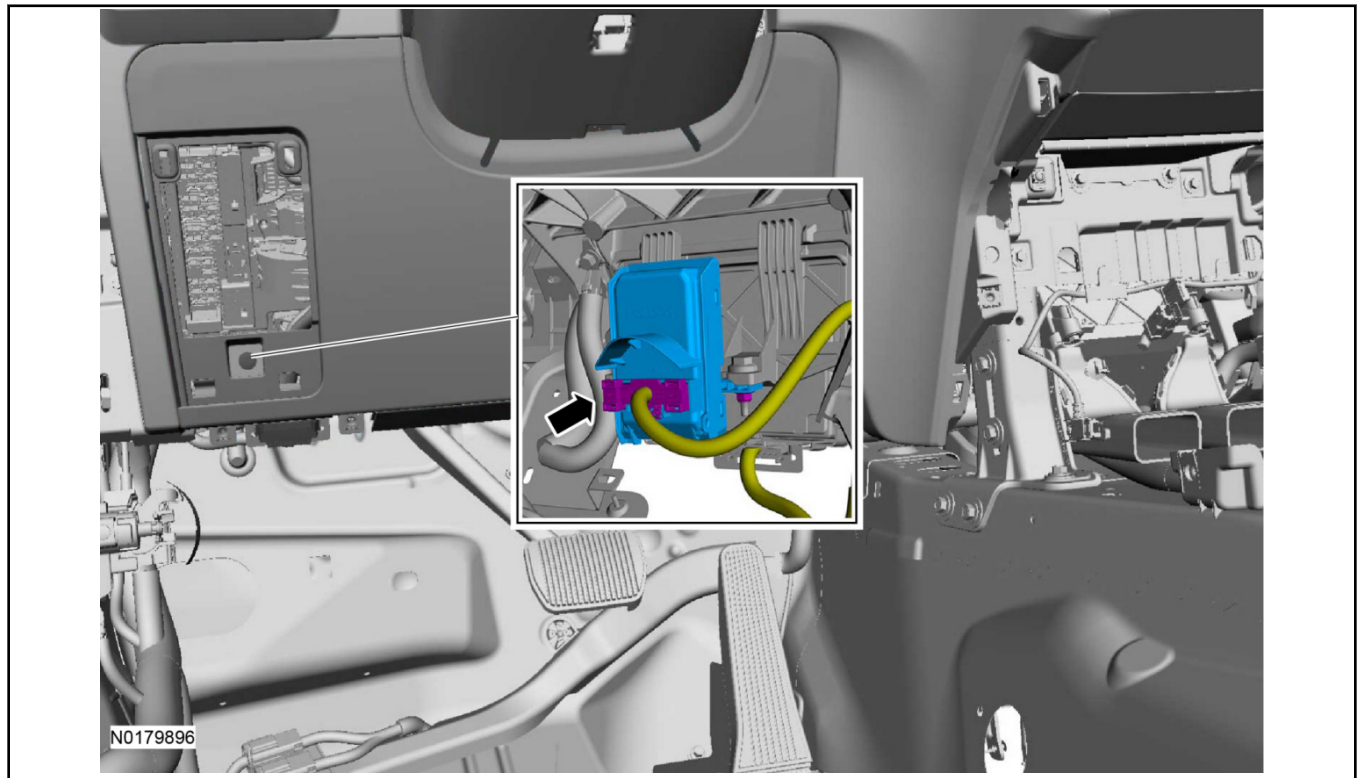
13. If the vehicle is equipped with factory remote start, test its operation by pressing the Lock button one time and the Remote Start button two times.
 - If the vehicle remote starts, stop the engine by pressing the Remote Start button one time.
 - If the vehicle does not remote start, diagnose the concern.
14. Disconnect the vehicle battery negative terminal. For additional information, refer to WSM Section 414-01.

INSTALLATION (Continued)

15. Disconnect the Gateway Module electrical connector, plug the VSS T-harness into the back of the module and plug the other end of the VSS T-harness into the vehicle harness.

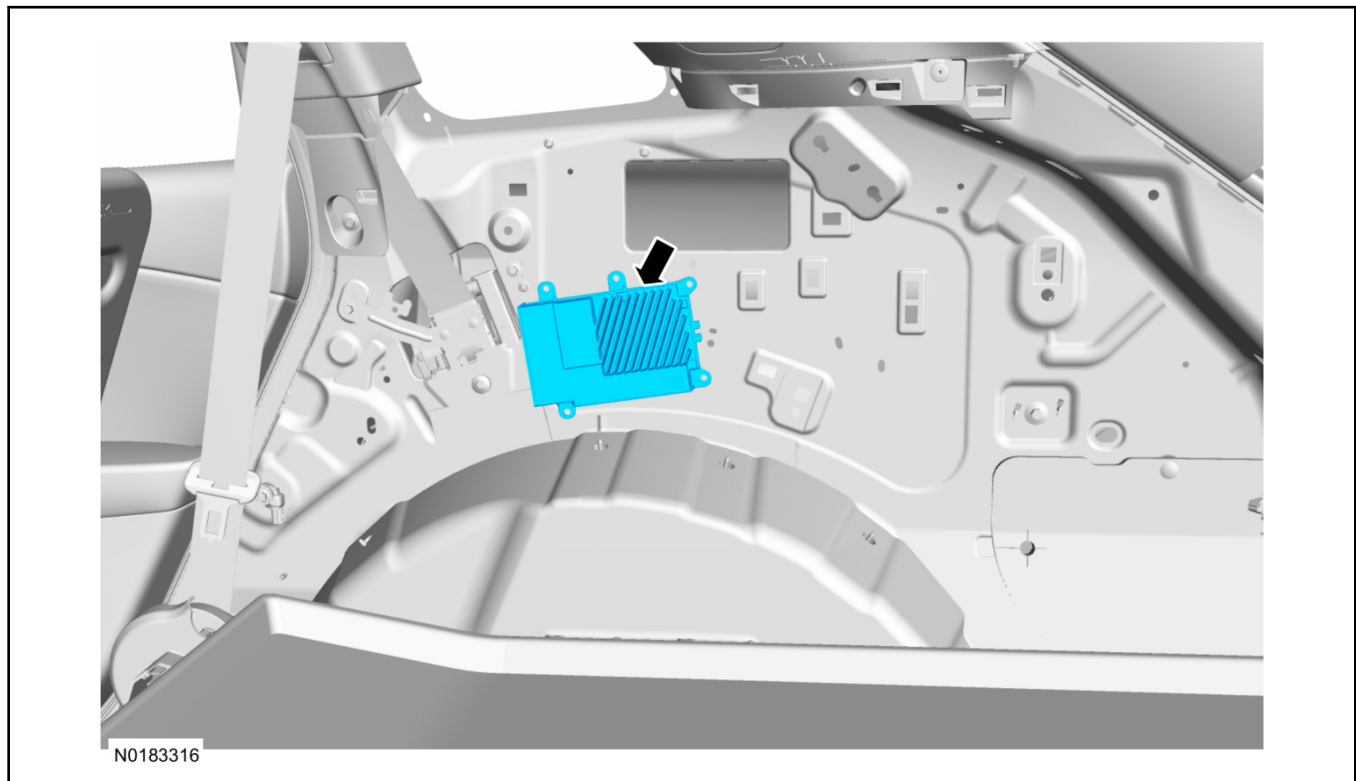
NOTE:

Explorer and Aviator, The gateway module (GWM) is located under driver side dash on the back side of the fuse box.

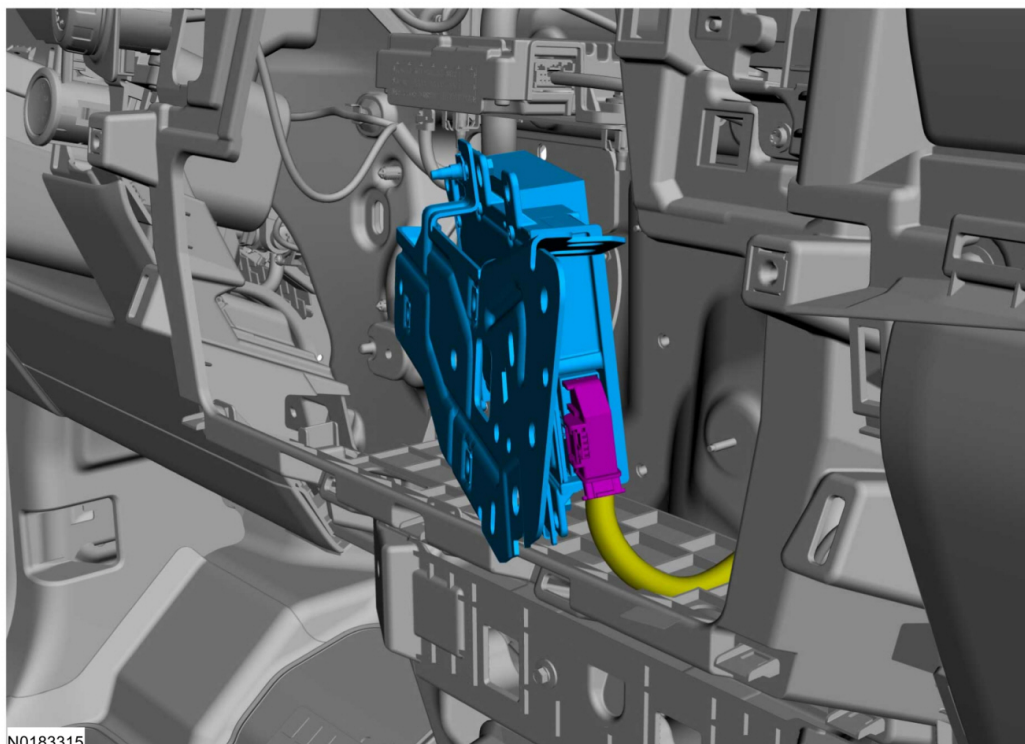


INSTALLATION (Continued)**NOTE:**

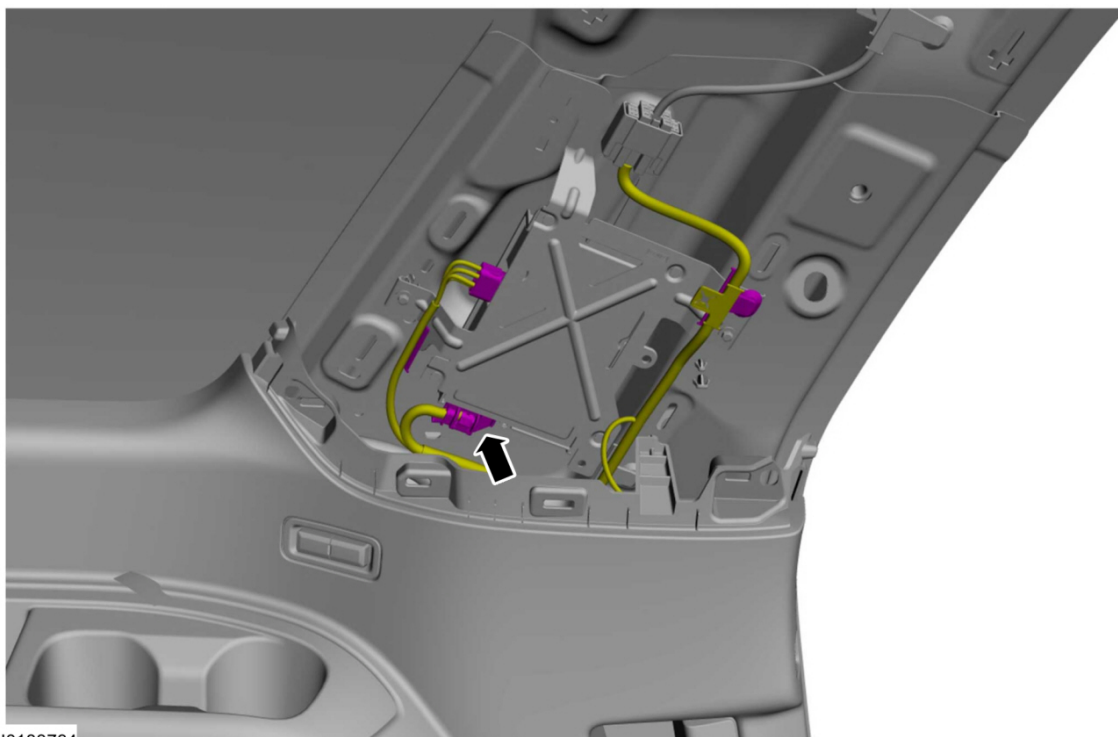
Edge and Nautilus, The enhanced central gateway (ECG) module is located behind the right rear quarter panel.

**NOTE:**

F-150, Expedition and SuperDuty SYNC 4, The enhanced central gateway (ECG) is located under the Front Display Interface Module, behind the sync module, for SuperDuty SYNC 3 vehicles, please refer to the “all other vehicles section”. For additional information refer to Workshop Manual (WSM) section 418-00.

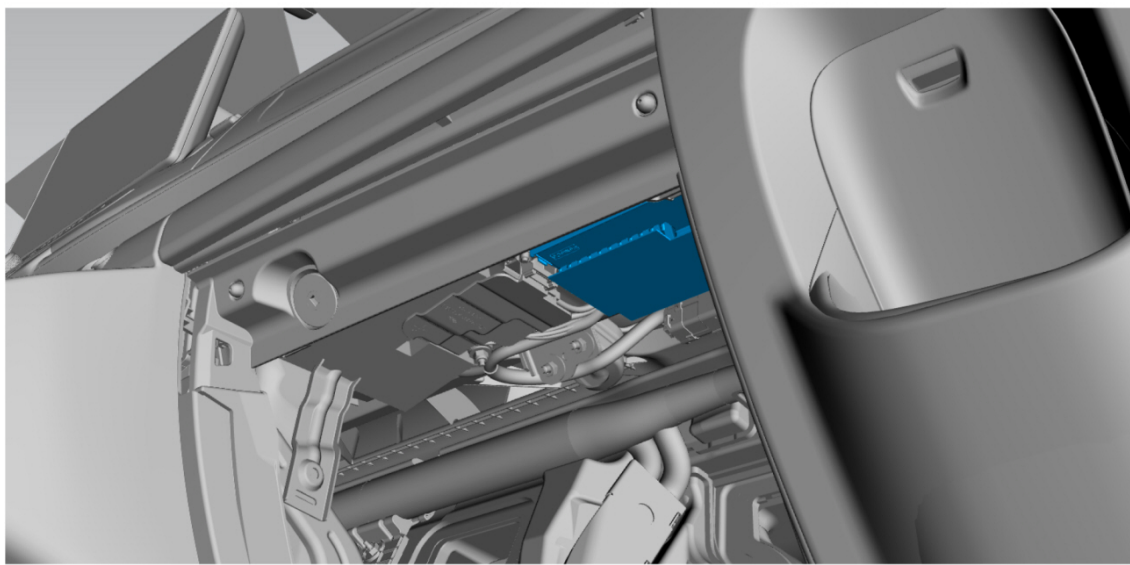
INSTALLATION (Continued)**NOTE:**

Navigator, The enhanced central gateway (ECG) is located on the Driver Side C-Pillar. For additional information refer to Workshop Manual (WSM) section 418-00.



INSTALLATION (Continued)**NOTE:**

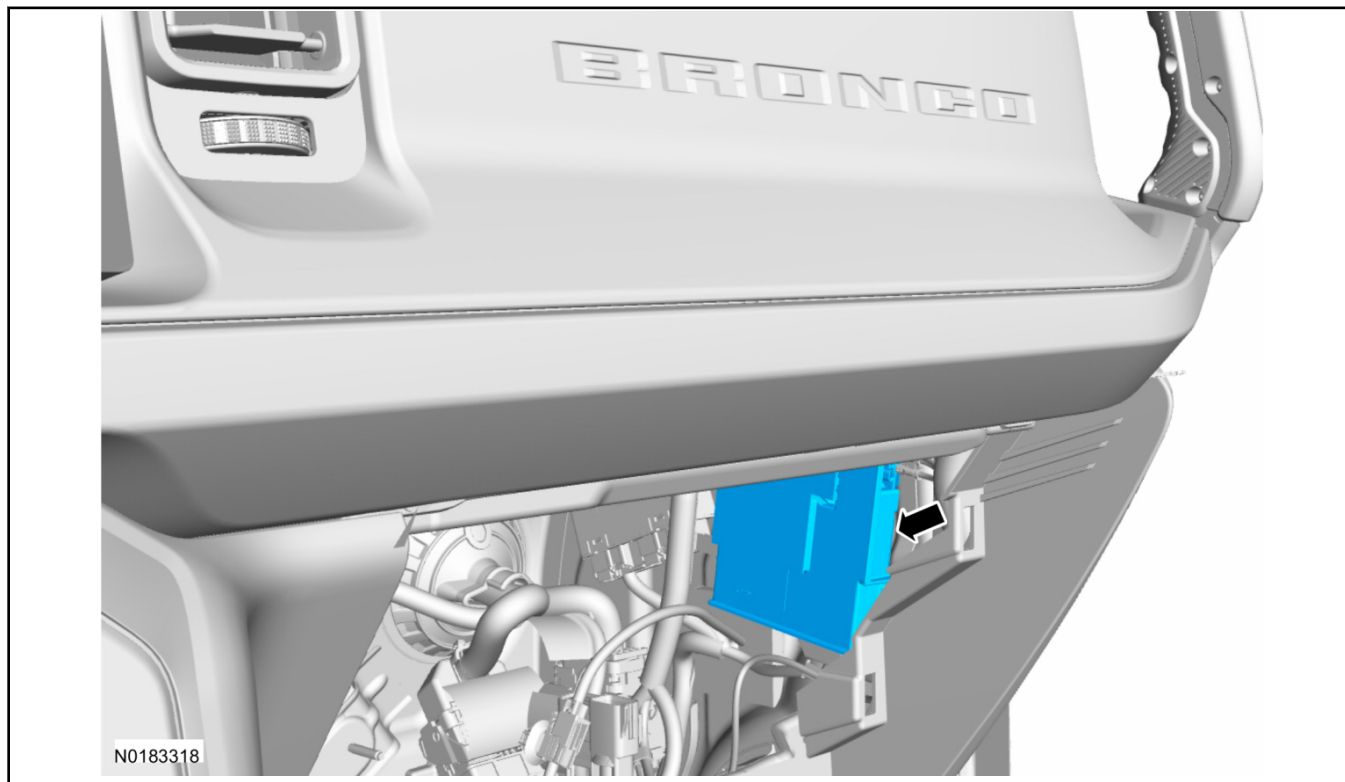
Transit, The SYNC 4 enhanced central gateway (ECG) is located behind the glove compartment on the top side, for SYNC 3 vehicles please refer to the "all other vehicles section". For additional information refer to Workshop Manual (WSM) section 418-00.



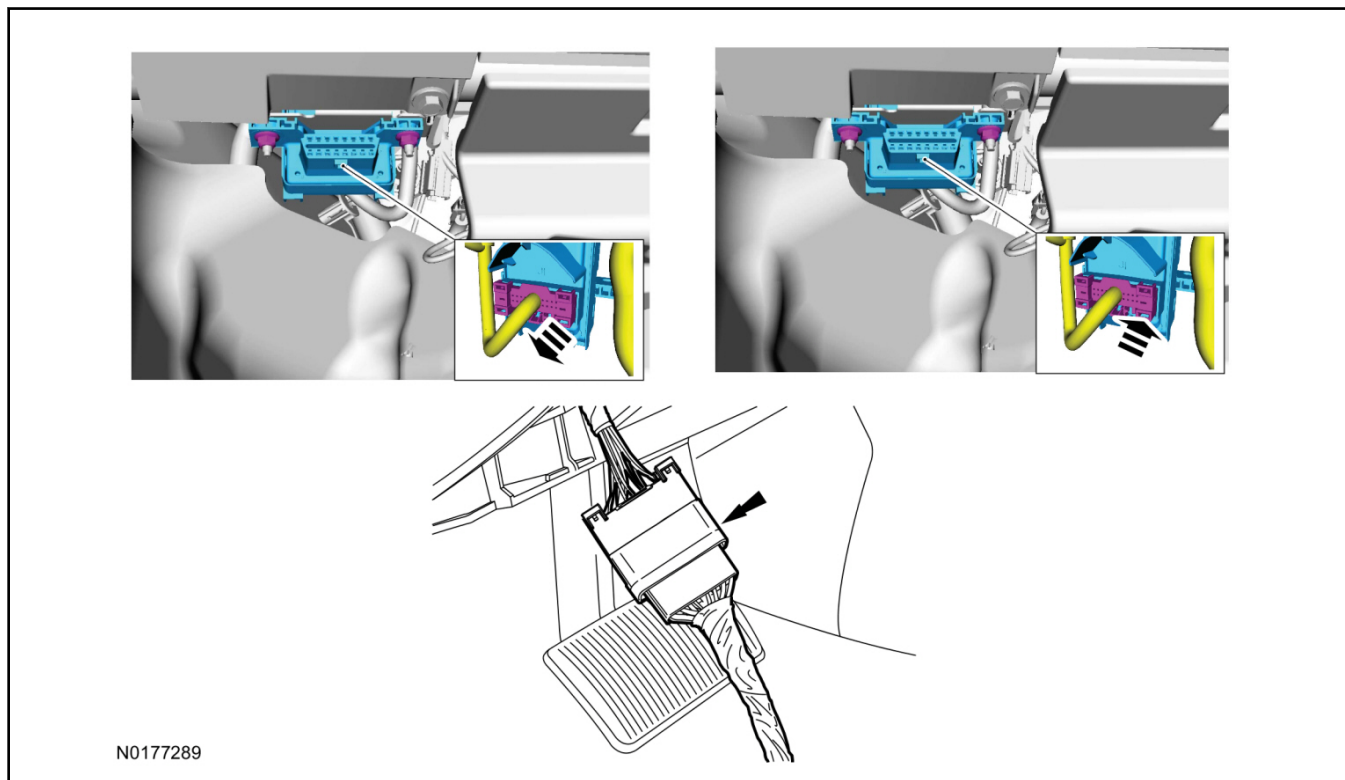
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INSTALLATION (Continued)**NOTE:**

Bronco, The enhanced central gateway (ECG) module is located behind the glove compartment.

**NOTE:**

For all other vehicles.



16. Position the VSS harness inside the IP being careful to avoid sharp edges and moving parts.

INSTALLATION (Continued)

17. Install and secure the VSS module to the instrument panel frame or wiring harness on the driver side of the vehicle to the left of the steering column.
 - Ensure the VSS module is positioned so the shock sensor adjustment knob can be accessed for later use.
 - Ensure the tie-strap is routed through the VSS module loops at opposite corners.
18. Connect the VSS harness to the VSS module.
 - Secure the VSS harness with tie-straps.
19. Connect the vehicle battery negative terminal. For additional information, refer to WSM Section 414-01.

Optional Security Indicator LED Mounting**CAUTION:**

Carefully route and secure the LED and harness so that it doesn't interfere with moving parts or linkages.

20. Keep the following points in mind when routing or positioning the LED for mounting:
 - Have at least 3/4" clearance behind trim panels for the wiring harness to be routed.
 - The LED should be clearly visible from the driver's side window when mounted.
 - Do not mount the LED on trim panels that cover air bags.
21. Mount the LED at an appropriate location on the upper steering column shroud, using the guidelines listed above.
 - Drill a 9/32" hole into the selected location, for the LED to mount in.
22. Route the LED wire harness to the VSS module.
23. Connect the LED wire harness to the VSS module 2-pin white connector.
 - Secure the LED wire harness with tie-straps.

Learn VSS Module to Vehicle**NOTE:**

Make sure the brake pedal is not depressed during this sequence.

24. Cycle ignition key ON then OFF.
25. Upon ignition OFF, vehicle doors will lock then unlock.

VSS Module - Optional Vehicle Security Features

26. Start with ignition key OFF, doors unlocked and VSS system DISARMED.
27. Place shifter in the PARK position (remaining in PARK).
28. Open driver door (remaining open throughout).
29. Depress and hold the brake pedal.

INSTALLATION (Continued)**30. NOTE:**

Brake pedal application is only required during the first ignition ON then OFF cycle.

Cycle ignition key ON then OFF 5 times, then back to the ON position a 6th time. Keep ignition key in the ON position for the remainder of the program cycle.

NOTE:

The horn will sound 3 times.

31. Close the driver door.

32. Open the driver door.

33. Close the driver door. The vehicle's horn will sound 1 time to indicate the security enable/disable option has been accessed.

34. Applying and releasing the brake pedal will toggle the security feature on/off.

- The horn will sound once to indicate the security feature is ON.
- The horn will sound twice to indicate the security feature is OFF.

35. Cycle ignition key to the OFF position to exit security enable mode.

Shock Sensor Sensitivity Adjustment**NOTE:**

The VSS module is equipped with an internal dual zone Shock Sensor. The VSS system will sound the horn and flash the lights once anytime a light to moderate impact is detected, and a "panic" horn sound/light flash for a 30 second sequence when a heavy impact is detected while the VSS system is armed. Adjustment of both zones is accomplished through a single adjustment knob on the VSS module. Rotating the knob clockwise will increase sensitivity and rotating the knob counter-clockwise will decrease sensitivity. Sensitivity adjustment must be completed with the module securely mounted and the adjustment knob accessible.

36. Starting with the adjustment knob in approximately the halfway position, lower the driver's window and exit the vehicle.

37. Press the LOCK button on the vehicle's RKE fob to arm the VSS system. If equipped, the LED will light solid for 20 seconds and then begin to flash a steady on/off sequence to indicate the system is armed.

38. Using a closed fist, impact the steering wheel with moderate force to simulate a light impact on the vehicle. If the impact is detected, the horn will sound and the lights will flash 1 time to indicate the warning impact was detected.

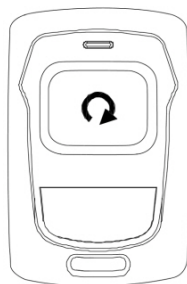
39. Using a closed fist, impact the steering wheel with heavy force to simulate a hard impact (i.e. glass breakage) on the vehicle. If the impact is detected, the horn will sound and the lights will flash a steady on off sequence to indicate the heavy or full shock trigger was detected.

40. Increase (rotate clockwise) or decrease (rotate counter-clockwise) the adjustment knob as necessary to achieve desired sensitivity, repeat the previous steps to test, and verify adjustment.

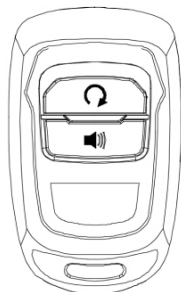
INSTALLATION (Continued)**VSS Functional Test****NOTE:**

If installed, observe the LED while performing these tests.

41. Lower the driver's door window, then close all doors, hood, and trunk/hatch and press lock on the keyfob. The LED should stay lit for 20 seconds while the VSS system pre-arms, after which it will flash every 3-4 seconds in fully armed mode.
42. Reach inside the window hit the door unlock trim switch. The LED should continue to flash, indicating that the vehicle is still armed. Use the inside driver's door handle to open the door. The alarm should sound, indicating perimeter breach. Turn the alarm off by turning the ignition to "On".
 - If equipped with OE perimeter security, there will be a 12 second interior chime prior to alarm sounding. For vehicles not equipped with OE perimeter security, there will be a 12 second delay with no interior chime prior to alarm sounding.
 - For push button start vehicles, the Intelligent Access (IA) key must be away from the vehicle, otherwise the security system may disarm immediately upon trigger.
43. Exit the vehicle and arm it again, this time leaving the driver's door open. The vehicle should arm itself, ignoring the open door but monitoring the rest. Once the vehicle is armed, shut the driver's door and reopen it after a few seconds. The alarm should sound. Turn the alarm off by hitting unlock on the keyfob.
 - For push button start vehicles, the Intelligent Access (IA) key must be away from the vehicle, otherwise the security system may disarm immediately upon trigger.
44. Test all other vehicle doors, the hood and the trunk in the same manner, by setting off the alarm and disarming with the keyfob.
45. **Please contact 1-800-FORD-KEY with any issues regarding hardware or kit contents.**

Standard Key Fob (15K601) "Sold Separately"

N0177414

INSTALLATION (Continued)**Bi-directional Key Fob (15K601) "Sold Separately"**

N0177415

Hood Latch/Switch Kit - (If Required) "Sold Separately"**NOTE:**

Hood latch/switch installation is required if the vehicle is being upgraded to VSS/RMST and is not currently equipped with a hood switch. For VSS Only upgrade, hood switch installation is optional - to monitor engine compartment access with the VSS armed.

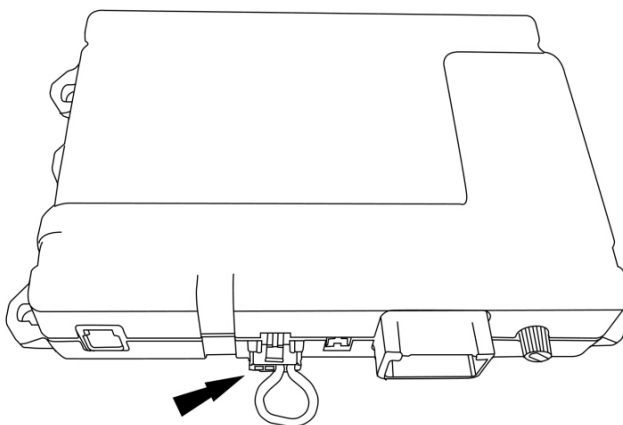
46. Install a new hood latch/switch. Refer to Hood Latch Kit or Hood Switch Kit installation above.

Basic Remote Start Feature

47. Enable/Disable Basic Remote Start Features:

Locate the jumper supplied in the kit.

- Install the jumper to the VSS module if the Basic Remote Start feature is to be **enabled**.
- Not installing and/or removing the jumper from the VSS module will keep the Basic Remote Start feature **disabled**.



N0177563

INSTALLATION (Continued)**RMST Activation - EcoSport and Expedition Without Factory Remote Start Only****NOTE:**

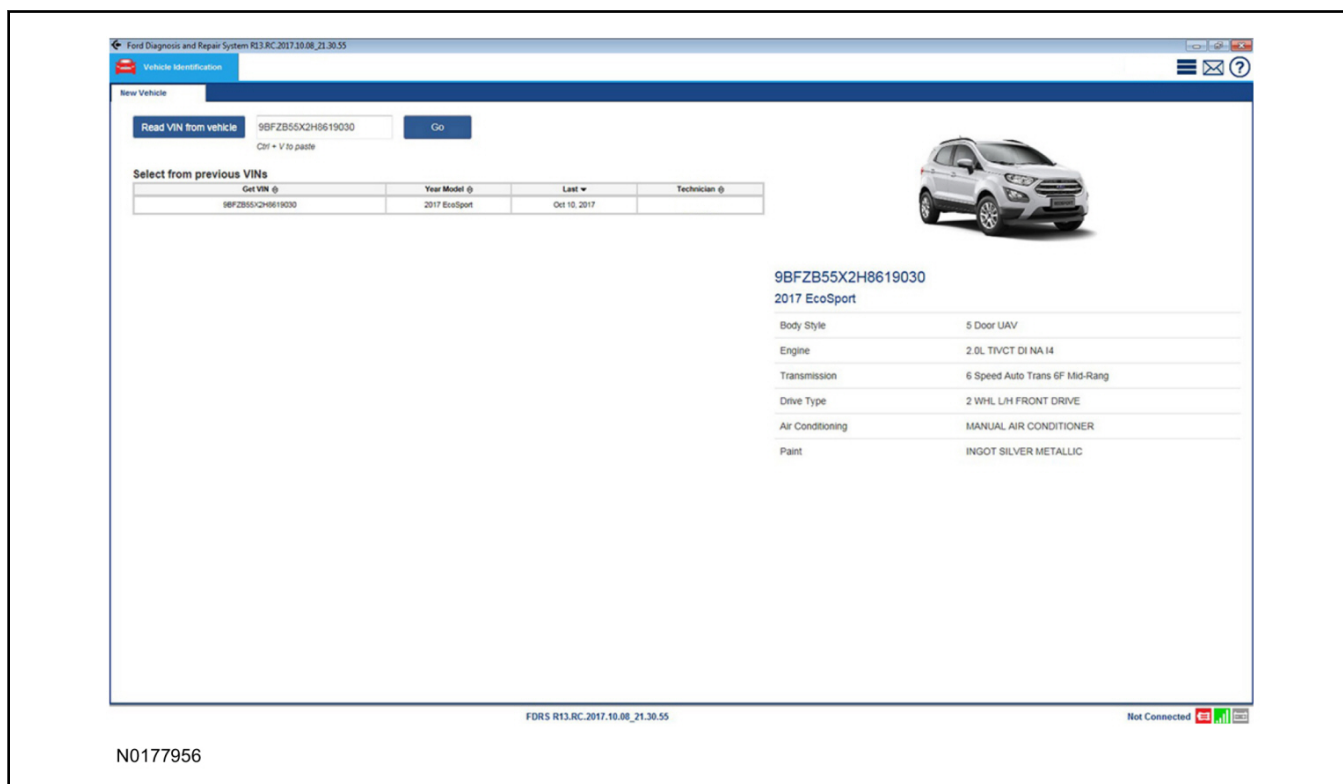
Prior to installation use OASIS vehicle Information to verify if the vehicle is equipped with a 4G modem and Fordpass Connect. If the vehicle is equipped with a 4G mode, FordPass Connect or factory remote start do not use FDRS/IDS to enable since the feature is enabled in the assembly plant. For vehicles equipped with a 4G mode, FordPass Connect or factory remote start proceed to the "Programming Key Fobs" section of this manual.

48. Cycle ignition OFF, ON, OFF one time to learn RMST to the vehicle.
49. Verify that the Ford Diagnostic and Repair Systems (FDRS) is updated to the most current version.
50. Connect FDRS.
 - Select the "Read VIN from vehicle" button.
 - When the VIN is read, select the "Go" button.

NOTE:

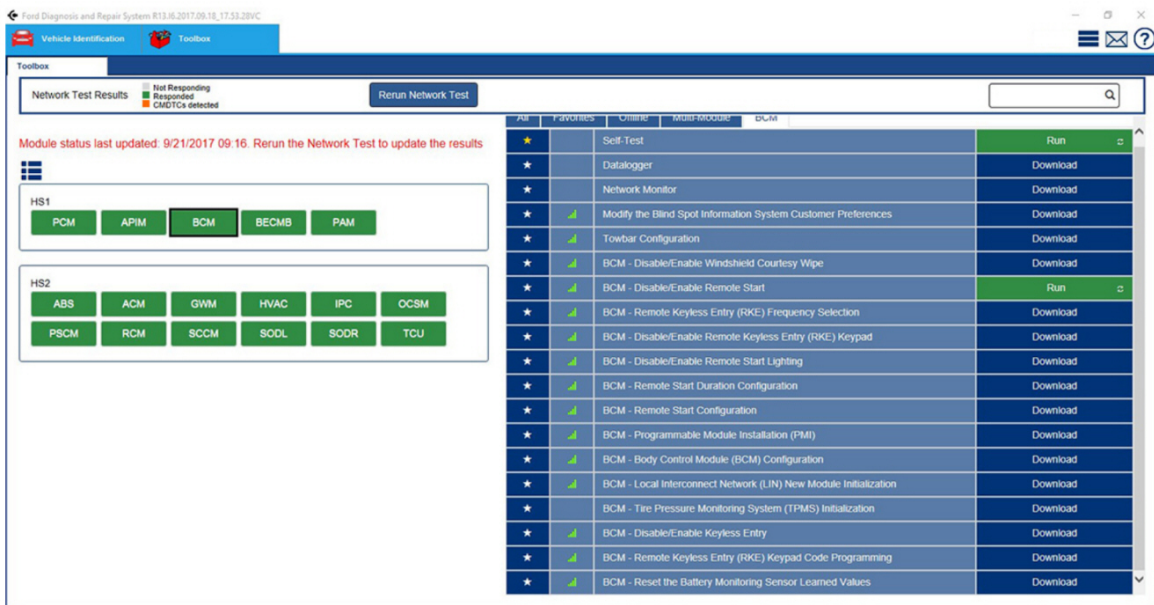
For 2019 Ranger with single display cluster, it is necessary to update the cluster (IPC) software to the latest level. Failure to update the IPC software will result in unintended operation of the Remote Start System. This can be done through FDRS. Identify the vehicle then select "SW Updates" then select IPC and follow the tool's direction.

Vehicle	Module	
	BCM	IPC
Ecosport	BCM - Disable/Enable Remote Start	IPC - Remote Start Configuration
	BCM - Disable/Enable Remote Start Lighting	
	BCM - Remote Start Duration Configuration	
Expedition	N/A	
Ranger	BCM - Body Control Module (BCM) Programmable Parameters→Select Remote Start	

INSTALLATION (Continued)

51. From the Toolbox tab, activate the remote start using the FDRS.

- Select BCM or IPC (see chart above).
- Select "Download".
- After download, select "Run".
- **NOTE:**
You will need to perform this step for each module if multiple modules are to be configured.
When prompted to continue (Yes/No), select "Yes"



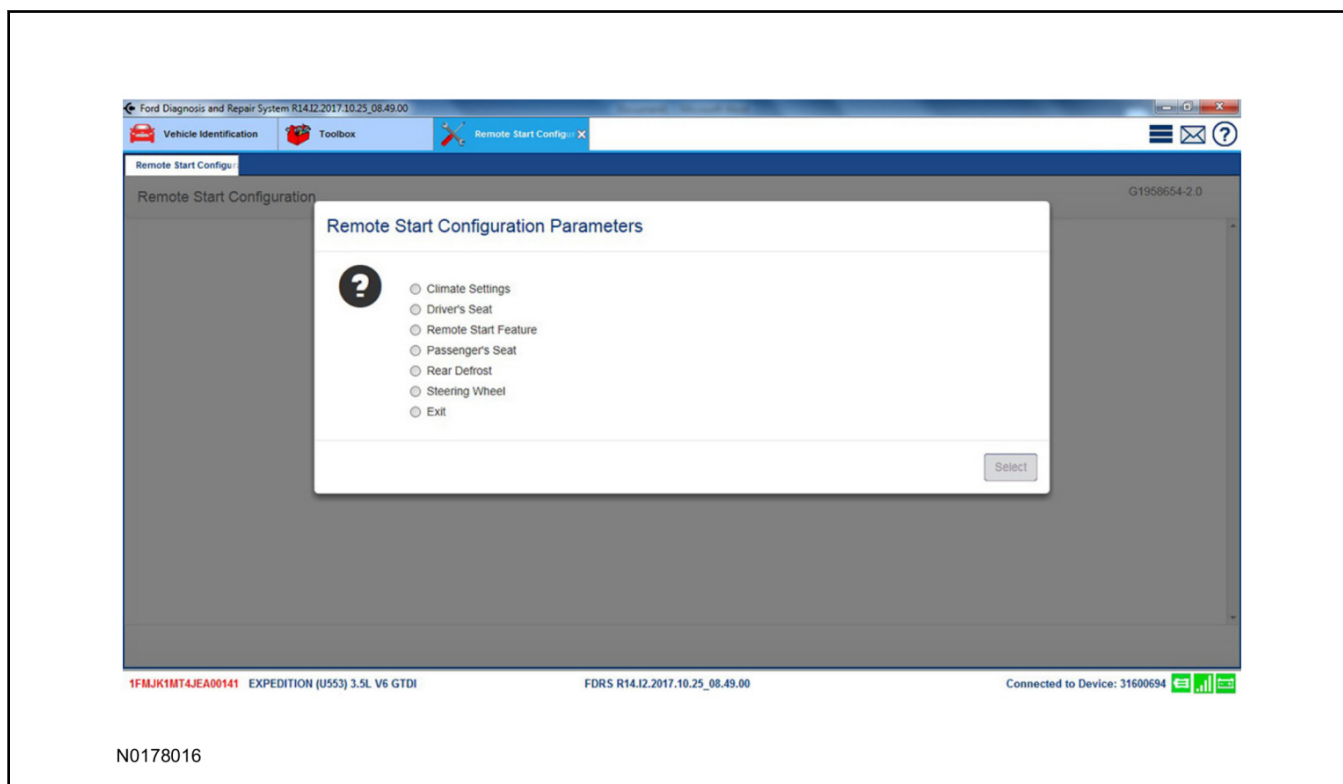
N0177957

52. **NOTE:**

For IPC configuration, note that each item must be selected and the "OK" button pressed to complete the process (each parameter must be individually selected).

When prompted, select "Enabled" and click the "Select" button.

- For the Driver's/Passenger's Seat and Steering Wheel items, enable only if the Heated Seats and/or Heated Steering Wheel features are present on the vehicle.

INSTALLATION (Continued)

53. Once all parameters have been individually configured, select "Exit", then "OK" when done.

54. Verify that the remote start option now appears in the IPC menu.

- Using the Select and Arrow buttons on the steering wheel, select Settings.
- Select Vehicle Settings or Advanced Settings.
- Select Vehicle.
- Select Remote Start System.
- Verify that the remote start system is enabled.

RMST Activation - All other Ford Vehicles Without Factory Remote Start and Without FordPass Connect (or Lincoln Connect) Only**NOTE:**

For vehicles equipped with factory remote start, proceed to "Push Button Start Vehicle" section within the "Programming Key Fobs" section of this manual.

55. Cycle ignition OFF, ON, OFF one time to learn RMST to the vehicle.

56. Verify that the IDS is updated to the most current version.

57. Connect IDS.

- Follow the prompts to select new vehicle session.
- Enter VIN.

58. Activate the remote start using the IDS.

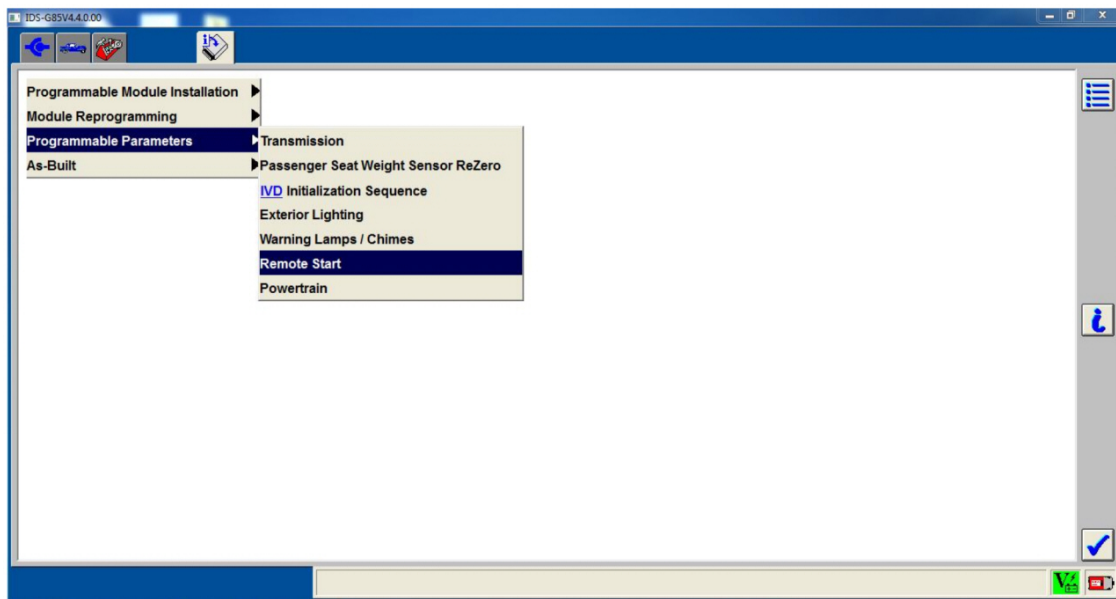
- Select the Tool Box icon.

INSTALLATION (Continued)

- Select Module Programming.
- Select Programmable Parameters.
- Select Remote Start.

NOTE:

For Mustang, select Remote Start to configure BCM parameters, then select Remote Start Advanced to configure IC parameters.



N0151675

59. NOTE:

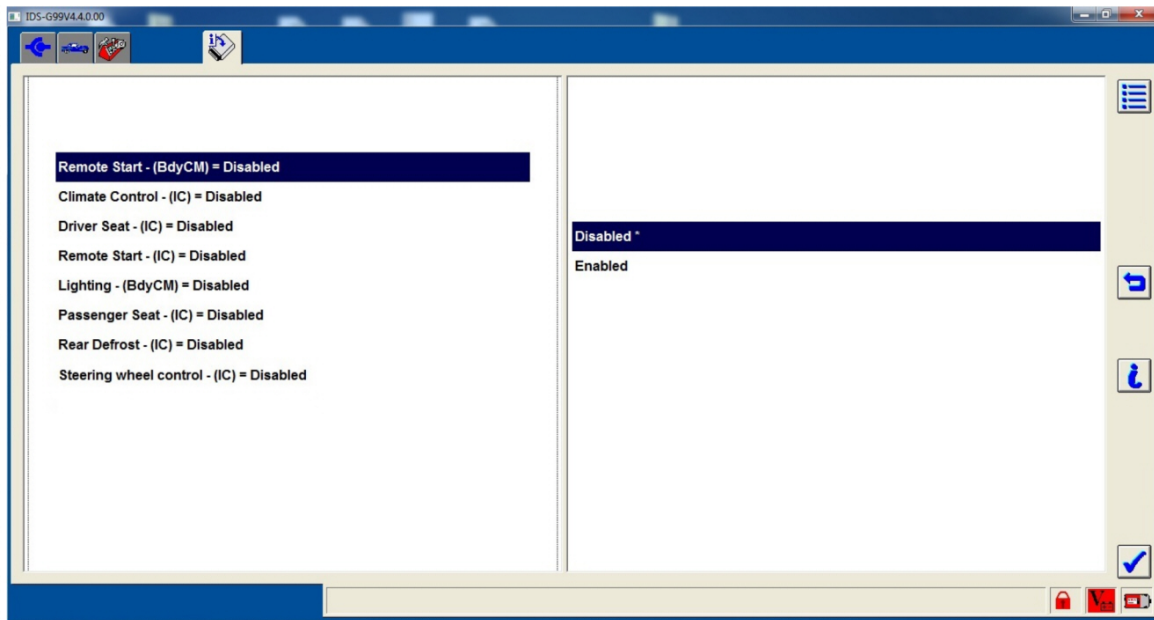
The Steering Wheel Control item refers to the heated steering wheel feature.
The Driver Seat and Passenger Seat items refer to climate controlled seating.

Verify that the instructions on the IDS screen have been completed and continue until you reach the screen below.

- From this screen, you must select the feature and then select the "Enabled" text (to the right) for these items:
 - Remote Start - (BdyCM)
 - Climate Control - (IC)
 - Remote Start - (IC)
- If these parameters are listed, select "Enabled" or "Present":
 - Lighting - (BdyCM)
 - Hood Switch - (BdyCM)

INSTALLATION (Continued)

- Select the feature and then select the "Enabled" text (to the right) for these items if the vehicle includes the optional feature:
 - Driver Seat - (IC)
 - Passenger Seat - (IC)
 - Rear Defrost - (IC)
 - Steering Wheel Control - (IC)
 - Driver Seat - (HVAC)
 - Remote Start Front Defrost HVAC - (HVAC)
 - Heated Steering Wheel - (HVAC)
 - Passenger Seat - (HVAC)
 - Rear Defrost - (HVAC)
 - Remote Start Heater A/C HVAC - (HVAC)
 - Remote Start Quiet Start HVAC - (HVAC)
- For 2018MY Mustang, select the feature and then select the "15 Minutes" text (to the right) for these items :
 - Remote Start Duration Init Value - (BdyCM)
 - Remote Start Duration 1 - (BdyCM)
 - Remote Start Duration 2 - (BdyCM)
 - Remote Start Duration 3 - (BdyCM)
 - Remote Start Duration 4 - (BdyCM)
 - Remote Start Duration 5 - (BdyCM)
- Once all appropriate items have been enabled, select the Tick button to direct IDS to enable the remote start option on the vehicle.

INSTALLATION (Continued)

N0167888

60. For vehicles equipped with advanced message center, verify that the remote start option now appears.

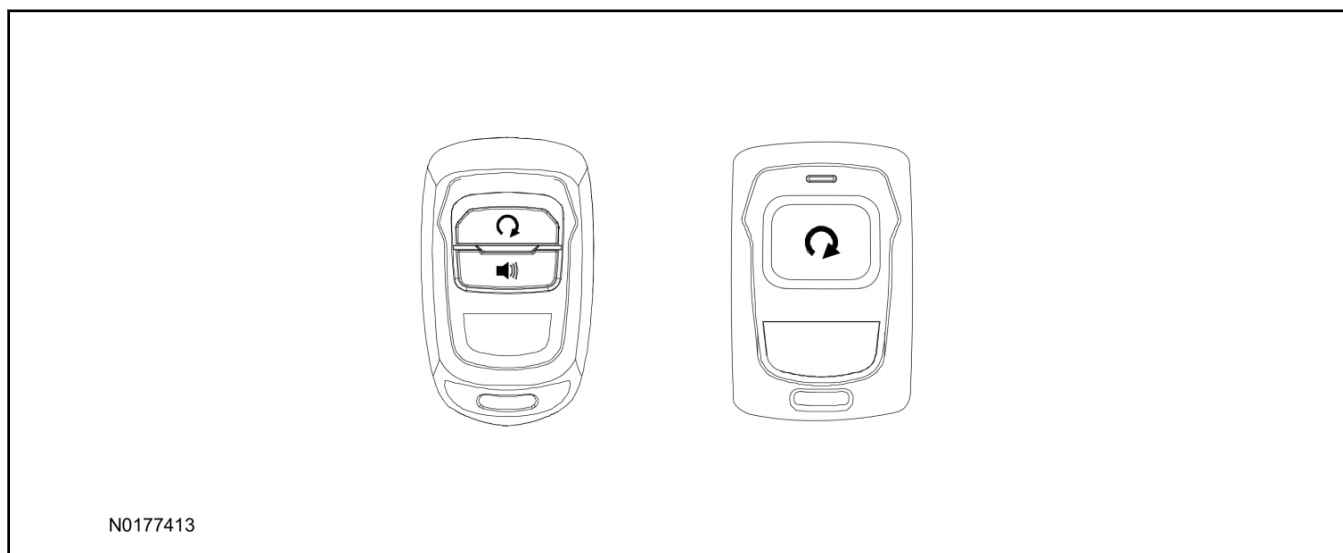
- Using the Select and Arrow buttons on the steering wheel, select Settings.
- Select Vehicle Settings or Advanced Settings.
- Select Vehicle.
- Select Remote Start System.
- Verify that the remote start system is enabled.

61. **NOTE:**

This step applies to both standard and advanced message centers.

While in the message center menu:

- 1 Change the remote start running duration from the default 10 minute setting to 15 minutes.

INSTALLATION (Continued)**Programming Key Fobs****62. Key Start Vehicles:**

- 1 Start with ignition key OFF, doors unlocked and VSS system DISARMED.
- 2 Open driver door (remaining open throughout).
- 3 Place shifter in the PARK position (remaining in PARK).
- 4 Depress and hold the brake pedal.
- 5 Cycle ignition key ON then OFF 5 times, then back to the ON position a 6th time.
 - The horn will sound 3 times to indicate transmitter learn mode access.
- 6 Press and hold the remote start button for 3 seconds on each fob you wish to program (horn will sound indicating successful programming).
- 7 Cycle ignition key to the OFF position to exit transmitter learn mode.

63. Push Button Start Vehicles:**NOTE:**

The following steps must be performed with the driver door open.

- 1 Enter the vehicle with the vehicle key(s) and key fobs you wish to program. Doors should be unlocked and vehicle security disarmed.
- 2 Depress and hold brake pedal.
- 3 Press the start/stop button.
- 4 After the vehicle starts, press the start/stop button to shut down.
- 5 Repeat steps 3 and 4 an additional 5 times, ending in ignition ON, engine ON.

NOTE:

The horn will sound 3 times to indicate transmitter learn mode access (some vehicles may not sound the horn 3 times).

INSTALLATION (Continued)

- 6 Press and hold the remote start button for 3 seconds on each fob you wish to program (horn will sound indicating successful programming).
- 7 Cycle ignition to the OFF position to exit transmitter learn mode.

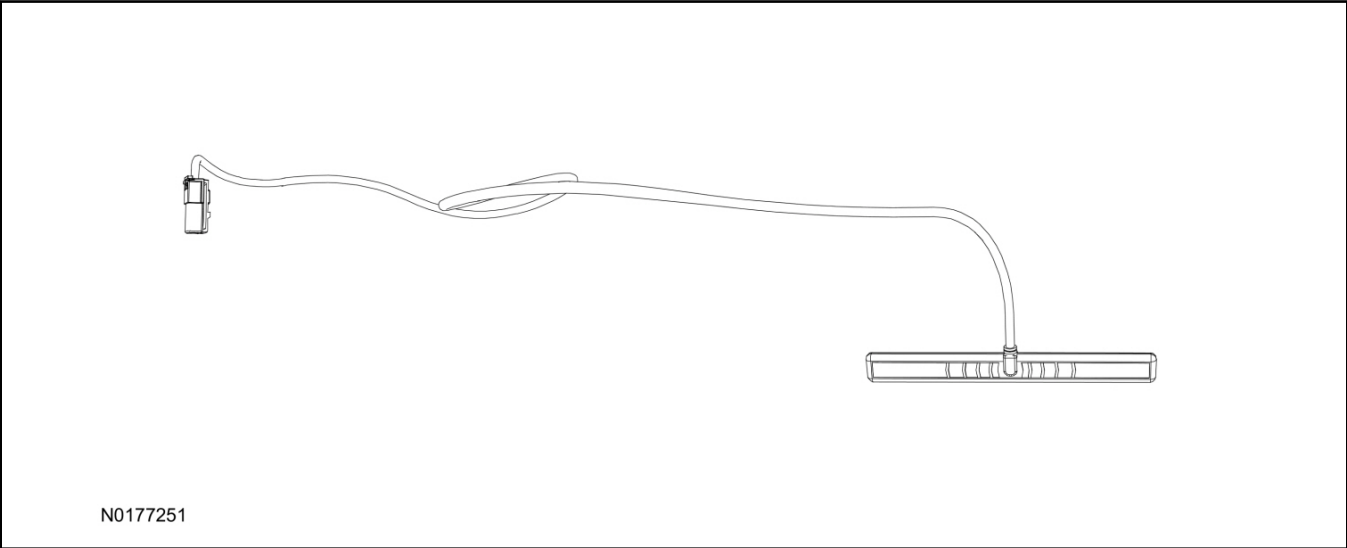
RMST Functional Test

64. Make sure the shift lever is in PARK and the ignition is in the OFF position. Remove all keys from the vehicle.
65. Close the hood.
66. Roll window down.
67. Close all of the vehicle doors.
68. Start the vehicle by pressing the remote start button twice within 3 seconds on the remote start key fob.
69. Confirm the remote start works with the vehicle in park and with the hood and doors closed.
70. Confirm full A/C and heat operation of the climate controls. If climate controls are inoperative, follow normal diagnostic procedures using the WSM.
71. Open the hood.
72. **NOTE:**
Vehicle doors should be closed while performing this step.

Confirm that the vehicle will not remote start with the hood open.
Please contact 1-800-FORD-KEY with any issues regarding hardware or kit contents.
73. See the Scalable Remote Start System Diagnosis Guide to resolve issues identified by the functional test.

II. Remote Start (RMST) Upgrade - Antenna Kit "Sold Separately"**CAUTION:**

Carefully route and secure the antenna and harness so that they do not interfere with moving parts or linkages.



Optional RMST Upgrade Components "Sold Separately"

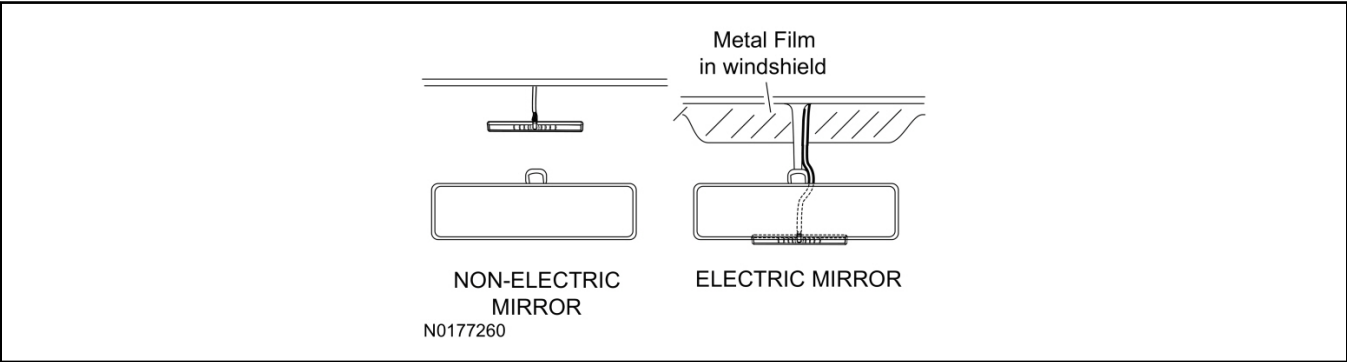
74. Review the RMST Upgrade components.

Remote Start (RMST) Upgrade - Antenna Kit "Sold Separately"

QUANTITY	DESCRIPTION
1	Extended Range Antenna (15603)

Extended Range Antenna Installation (Optional)

75. Clean the antenna mounting surface using an alcohol base solution and a clean cloth.



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

NOTE:
Make sure that the long wire on the antenna is pointing towards the top of the windshield since this wire will be routed along the headliner.

NOTE:
The wire will be attached to the control module later in this procedure.

Remove the protective backing from the adhesive on the antenna and firmly press the body of the antenna onto the mounting surface.

INSTALLATION (Continued)

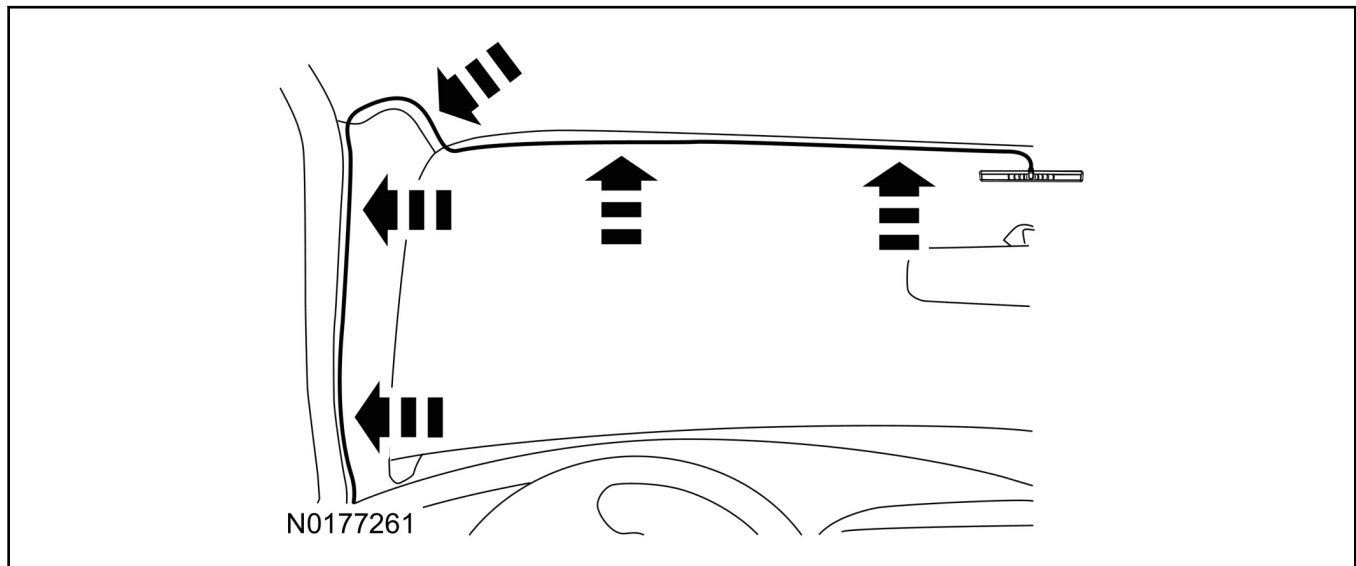
77. Position the LH A-pillar trim slightly outward to provide access to route the antenna wire.

NOTE:

Do not route the antenna wire over the top of air bags.

78. Route the antenna cable along the headliner and down the LH A-pillar towards the floor. Continue routing the wire into the IP towards the VSS module.

- Secure with tie-straps.



79. Connect the antenna connector to the VSS module.

80. Reposition the A-pillar trim panel back.