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December 9, 2019

TO: All U.S. Ford and Lincoln Dealers

**SUBJECT: NEW VEHICLE DEMONSTRATION / DELIVERY HOLD -
 Safety Recall 19S43 – Supplement #1**
 Certain 2019 Model Year Ranger Vehicles
 Rear Tail Lamps

New REASON FOR THIS SUPPLEMENT

- **Updated technical instructions include the following:**
 - Do NOT remove the rear lamp assembly for continuity test.
 - Blind Spot Information System (BLIS) equipped vs non-equipped vehicles information now included. PCED updated also.

AFFECTED VEHICLES

Vehicle	Model Year	Assembly Plant	Build Dates
Ranger	2019	Michigan	June 4, 2018 through August 16, 2019

Affected vehicles are identified in OASIS and FSA VIN Lists.

REASON FOR THIS SAFETY RECALL

In some of the affected vehicles, terminals in connector C422 may be misaligned and may have been damaged during assembly. If a misalignment occurs and terminals are pushed out, there may be a loss of functionality of both the left and right rear tail lamps. While the center high-mounted stop lamp (CHMSL) will continue to function ensuring some level of stop lamp indication, all rear tail lamp features will not function. This includes the stop, turn, rear position, and reverse lamp features. This condition may be intermittent.

The C422 connector is a 34-pin inline connector and is located on the 14290 to 14405 harness mounted to the left frame rail around mid-vehicle.

SERVICE ACTION

Before demonstrating or delivering any new in-stock vehicles involved in this recall, dealers are to inspect connector C422, checking for any terminal push out, and if necessary replace the hard-shell connector. Simultaneously, a continuity check will be performed on the ground circuit, from the tail light to connector C422. This service must be performed on all affected vehicles at no charge to the vehicle owner.

OWNER NOTIFICATION MAILING SCHEDULE

Owner letters are expected to be mailed the week of January 6, 2020. Dealers should repair any affected vehicles that arrive at their dealerships, whether or not the customer has received a letter.

PLEASE NOTE:

Federal law requires dealers to complete this recall service before a new vehicle is delivered to the buyer or lessee. Violation of this requirement by a dealer could result in a civil penalty of up to \$21,000 per vehicle. Correct all vehicles in your new vehicle inventory before delivery.

New! ATTACHMENTS

Attachment I: Administrative Information
Attachment II: Labor Allowances and Parts Ordering Information
Attachment III: Technical Information
Owner Notification Letter

QUESTIONS & ASSISTANCE

For questions and assistance, contact the Special Service Support Center (SSSC) via the SSSC Web Contact Site. The SSSC Web Contact Site can be accessed through the Professional Technician Society (PTS) website using the SSSC link listed at the bottom of the OASIS VIN report screen or listed under the SSSC tab.

Sincerely,

A handwritten signature in black ink, appearing to read "D. Johnson".

David J. Johnson

**NEW VEHICLE DEMONSTRATION / DELIVERY HOLD -
Safety Recall 19S43 – Supplement #1**
Certain 2019 Model Year Ranger Vehicles
Rear Tail Lamps

OASIS ACTIVATION

OASIS was activated on November 22, 2019.

FSA VIN LISTS ACTIVATION

FSA VIN Lists were available through <https://web.fsavinlists.dealerconnection.com> on November 22, 2019. Owner names and addresses will be available by January 21, 2020.

NOTE: Your FSA VIN Lists may contain owner names and addresses obtained from motor vehicle registration records. The use of such motor vehicle registration data for any purpose other than in connection with this recall is a violation of law in several states, provinces, and countries. Accordingly, you must limit the use of this listing to the follow-up necessary to complete this recall.

SOLD VEHICLES

- Ford has not issued instructions to stop selling/delivering or driving used vehicles under this safety recall. Owners should contact their dealer for an appointment to have their vehicles remedied as soon as practicable. Owners can continue to safely drive their vehicles.
- Immediately contact any of your affected customers whose vehicles are not on your VIN list but are identified in OASIS. Give the customer a copy of the Owner Notification Letter (when available) and schedule a service date.
- Correct other affected vehicles identified in OASIS which are brought to your dealership.
- Dealers are to prioritize repairs of customer vehicles over repairs of new and used vehicle inventory.

STOCK VEHICLES

- Correct all affected units in your new vehicle inventory before delivery.
- Use OASIS to identify any affected vehicles in your used vehicle inventory.

DEALER-OPERATED RENTAL VEHICLES

The Fixing America's Surface Transportation (FAST) Act law effective June 2016 prohibits a rental company from selling, renting or leasing vehicles subject to a safety or compliance recall. Please consult your legal counsel for legal advice.

TITLE BRANDED / SALVAGED VEHICLES

Affected title branded and salvaged vehicles are eligible for this recall.

OWNER REFUNDS

Refunds are not approved for this program.

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Certain 2019 Model Year Ranger Vehicles
Rear Tail Lamps**

RENTAL VEHICLES

- **PASS INSPECTION:** Vehicles that pass inspection are **NOT** affected and are not approved for rental vehicles. Refer to the 19S43 technical instructions for additional information.
- **FAIL INSPECTION:** For vehicles that fail inspection and the applicable wiring pigtail kit is not available, submit a VIN-specific contact, along with a photo of the hard-shell connector showing terminal push out, via the SSSC Web Contact Site.
 - A ten-digit approval code is required from the SSSC for rental vehicles.
 - If rental vehicles are needed beyond 1/3/2020, dealers will have to contact SSSC for an extension.
- Part orders will be taken, but will be held by SSSC until sufficient quantities are available, which is expected by January 2020. Approval for all rental vehicles for this program will end at that time.
- Follow Extended Service Plan (ESP) guidelines for dollar amounts. Prior approval is required from the SSSC.

ADDITIONAL REPAIR (LABOR TIME AND/OR PARTS)

Additional repairs identified as necessary to complete the FSA should be managed as follows:

- For related damage and access time requirements, refer to the Warranty and Policy Manual / Section 6 – Ford & Lincoln Program Policies / General Information & Special Circumstances for FSA's / Related Damage.
- For vehicles within new vehicle bumper-to-bumper warranty coverage, no SSSC approval is required, although related damage must be on a separate repair line with the "Related Damage" radio button checked.
 - Ford vehicles – 3 years or 36,000 miles
- For vehicles outside new vehicle bumper-to-bumper warranty coverage, submit an Approval Request to the SSSC Web Contact Site prior to completing the repair.

CLAIMS PREPARATION AND SUBMISSION

- **Claim Entry:** Enter claims using Dealer Management System (DMS) or One Warranty Solution (OWS) online.
 - When entering claims, select claim type 31: Field Service Action. The FSA number (19S43) is the sub code.
 - For additional claims preparation and submission information, refer to the Recall and Customer Satisfaction Program (CSP) Repairs in the OWS User Guide.
- **Related Damage/Additional labor and/or parts:** Must be claimed as Related Damage on a separate repair line from the FSA with same claim type and sub code as described in Claim Entry above. **IMPORTANT:** Click the Related Damage Indicator radio button.
- **Provision for Locally Obtained Supplies: Includes zip ties.**
 - Program Code: 19S43
 - Misc. Expense: OTHER
 - Amount: Actual cost up to \$5.00
- **Rentals:** For rental vehicle claiming, follow Extended Service Plan (ESP) guidelines for dollar amounts. Enter the total amount of the rental expense under Miscellaneous Expense code RENTAL.

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LABOR ALLOWANCES

Description	Labor Operation	Labor Time
Inspect, PASS (includes using volt/ohm meter, cutting and installing zip tie to disassemble connector for inspection)	19S43A	0.5 Hours
Inspect FAIL , replace male side connector shell	19S43B	1.8 Hours
Inspect FAIL , replace female side connector shell	19S43C	1.4 Hours
Inspect FAIL , replace both connector shells	19S43D	2.7 Hours
Replace up to one female and/or male terminal (can only be used with 19S43B, 19S43C, and 19S43D)	19S43E	0.1 Hours
Extra time to remove and install skid plate on vehicles equipped with 4X4 (can only be used with 19S43A, 19S43B, 19S43C, and 19S43D)	19S43F	0.1 Hours

PARTS REQUIREMENTS / ORDERING INFORMATION**SSSC Web Contact Site:**

- Connector pigtail kits are not yet available to repair all vehicles which requirement connector replacement. Until parts are available to repair all vehicles, dealers may only repair vehicles, which are customer-owned vehicles and unsold vehicles with a signed sales contact.
- To place an emergency order for either a male or female connector pigtail kit, submit a VIN-specific Part Order contact via the SSSC Web Contact Site, along with the following:
 - VIN-specific photo showing the terminals pushed out of the connector or damaged/bent.
 - Any unsold vehicles must include a copy of the signed sales contact.
- Part orders will be taken but will be held by SSSC until sufficient quantities are available, which is expected by January 2020.

Part Number	Description	Order Quantity	Claim Quantity
KU2Z-14S411-SA	Female – Connector Pigtail Kit	1	1
KU2Z-14S411-TA	Male – Connector Pigtail Kit	1	1

Less than 2.2% of the affected vehicle population is expected to require the connector kit replacement. Dealers will be notified via a DOES II communication if circumstances warrant a change in part supply strategy and when open ordering resumes.

Obtain parts below locally:

Part Number	Description	Claim Quantity
Obtain Locally	Cable Tie 7" Long (can be cut to desired length) Two are required per vehicle Must be 'automotive' grade, (chemical and UV resistant)	Claim as MISC. OTHER

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DEALER PRICE

For latest prices, refer to DOES II.

PARTS RETENTION AND RETURN

Follow the provisions of the Warranty and Policy Manual, Section 1 - WARRANTY PARTS RETENTION AND RETURN POLICIES.

EXCESS STOCK RETURN

Excess stock returned for credit must have been purchased from Ford Customer Service Division in accordance with Policy Procedure Bulletin 4000.

CERTAIN 2019 MODEL YEAR RANGER VEHICLES — REAR TAIL LAMP WIRING


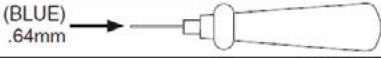

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OVERVIEW

In some of the affected vehicles, terminals in connector C422 may be misaligned and may have been damaged during assembly. If a misalignment occurs and terminals are pushed out, there may be a loss of functionality of both the left and right rear tail lamps. While the center high-mounted stop lamp (CHMSL) will continue to function ensuring some level of stop lamp indication, all rear tail lamp features will not function. This includes the stop, turn, rear position, and reverse lamp features. This condition may be intermittent. The C422 is a 34-pin inline connector and is located on the 14290 to 14405 harness mounted to the left frame rail around mid-vehicle.

NOTE: For this Service Action the following pin terminal release tools are available. The Rotunda Tool, Part Number NUD900-001, is the preferred tool to use. See Figure 1.

Additional Tool Needed (not in kit)		
Part Number	Description	Contact
NUD900-001 	Rotunda RTTP Tool Black Handle	1-800-ROTUNDA (768-8632)
NUD900-002 (BLUE) .64mm 	Rotunda RTTP Tool Blue Handle	1-800-ROTUNDA
NUD900-003 (BROWN) 1.5mm 	Rotunda RTTP Tool Brown Handle	1-800-ROTUNDA

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FIGURE 1



SERVICE PROCEDURE

NEW ! Inspection Procedure

All Vehicles

1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to: Jacking and Lifting (100-02 Jacking and Lifting, Description and Operation).

4x4 Vehicles

2. Remove the transfer case skid plate bolts and remove the skid plate. See Figure 2.

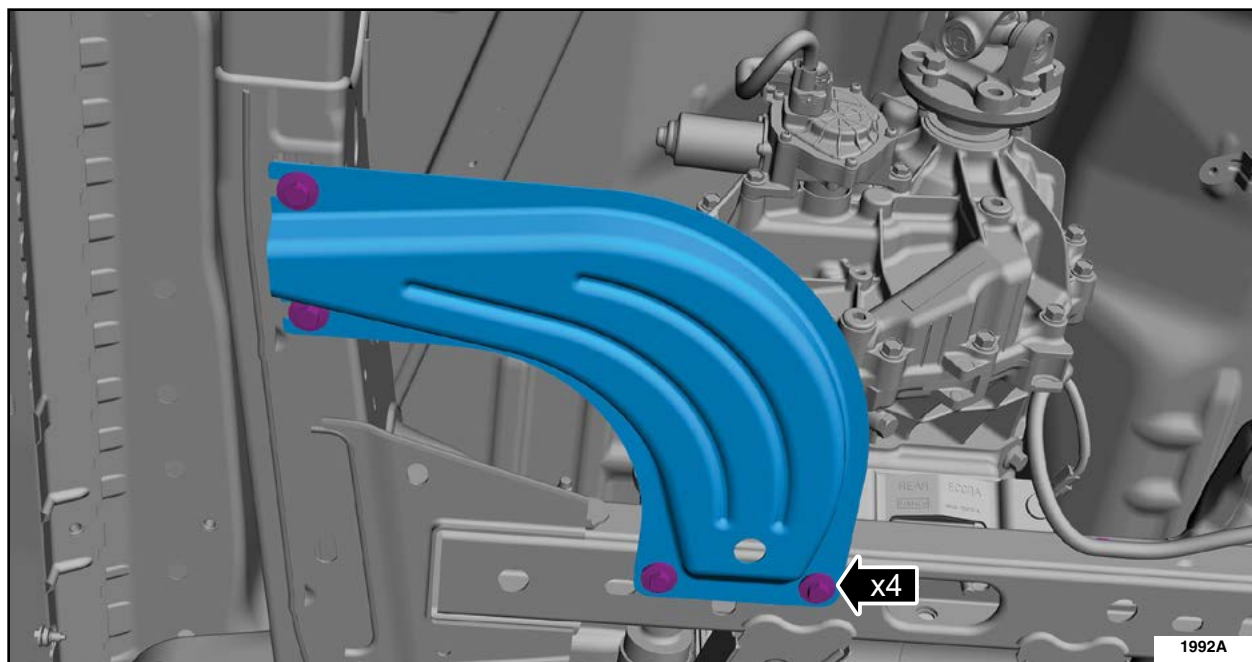


FIGURE 2



All Vehicles

3. Locate connector C422, inside the left frame rail just rearward of the transmission support crossmember. See Figure 3.

⚠ CAUTION: **DO NOT** release the connector lock and open the connector at this time. Opening the connector unnecessarily increases the possibility of damage to the connector, wiring, or terminals.

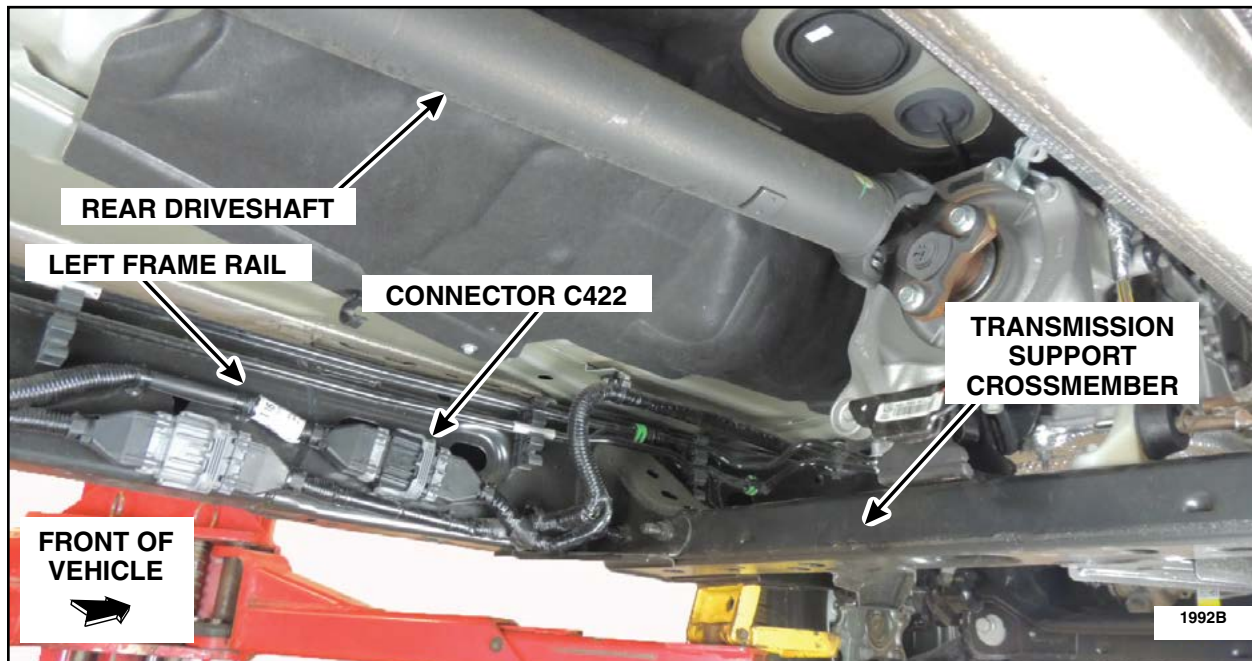


FIGURE 3



- Using a pair of side cutters, remove the zip ties holding the harness covers on both the male and female connector ends. See Figure 4.

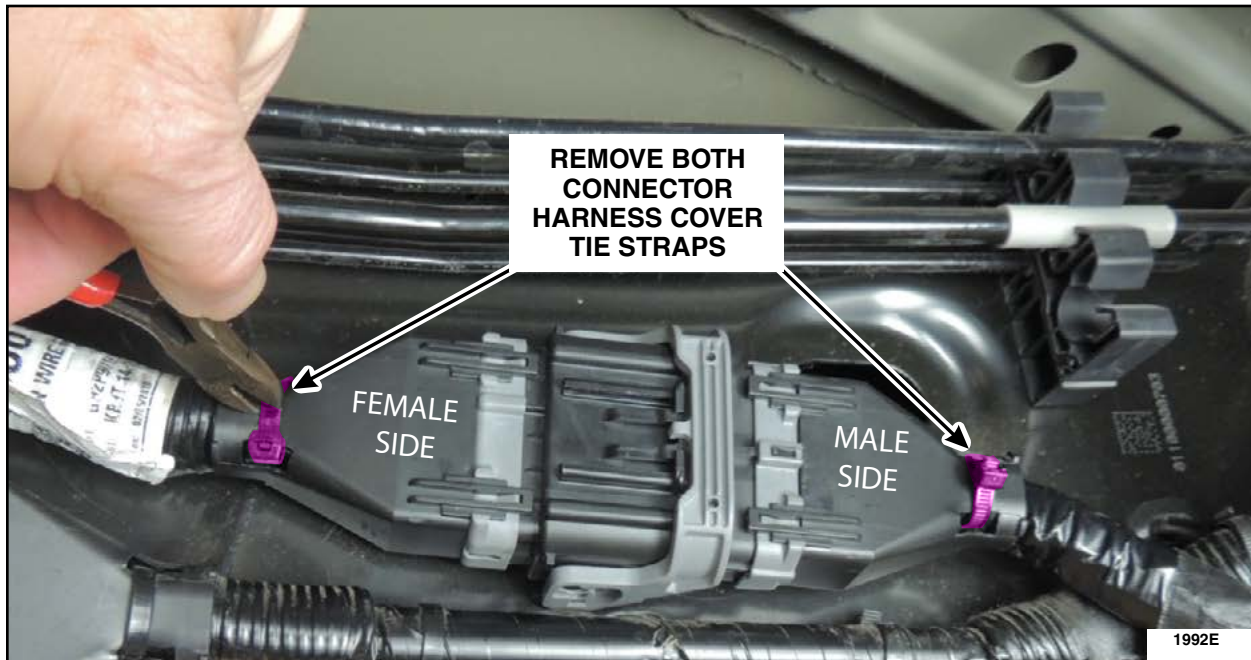


FIGURE 4

- Release the three retainers holding connector C422 and the wiring harness to the frame. See Figure 5.

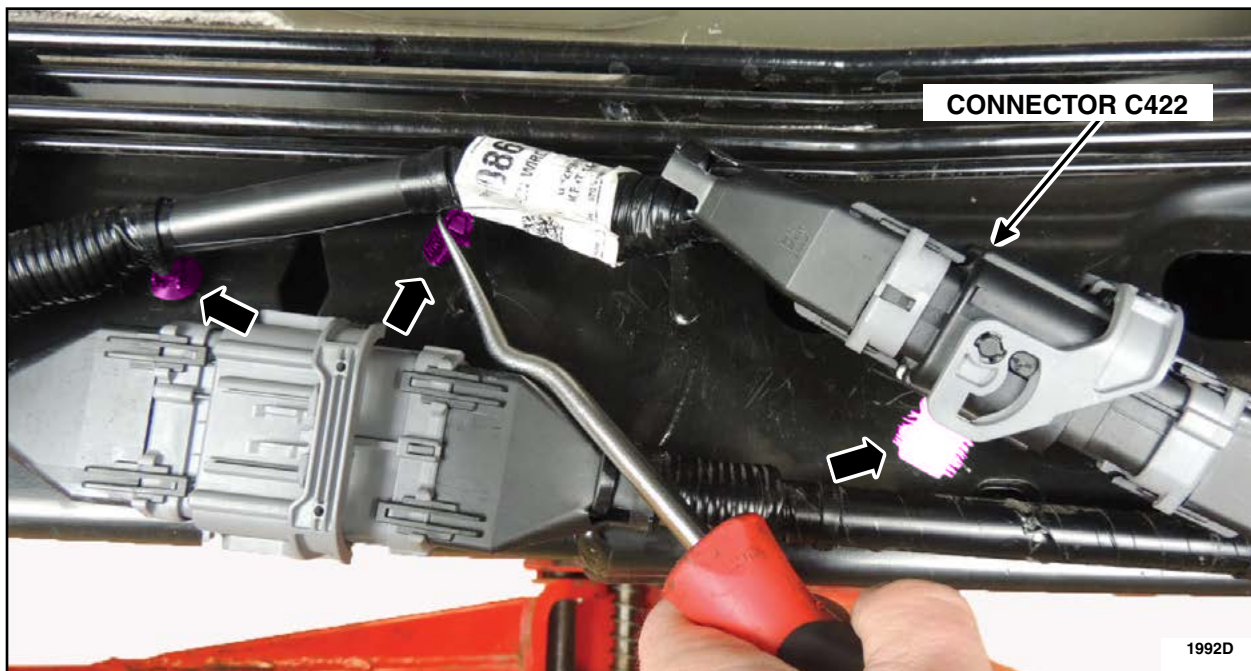


FIGURE 5



6. On both sides, remove the connector C422 harness covers by releasing the four connector cover tangs (two on the front side and two on the back side of each cover) and sliding the harness cover off of the main connector hard shell. See Figure 6.

⚠ CAUTION: DO NOT release the connector lock and open the connector at this time. Opening the connector unnecessarily increases the possibility of damage to the connector, wiring, or terminals.

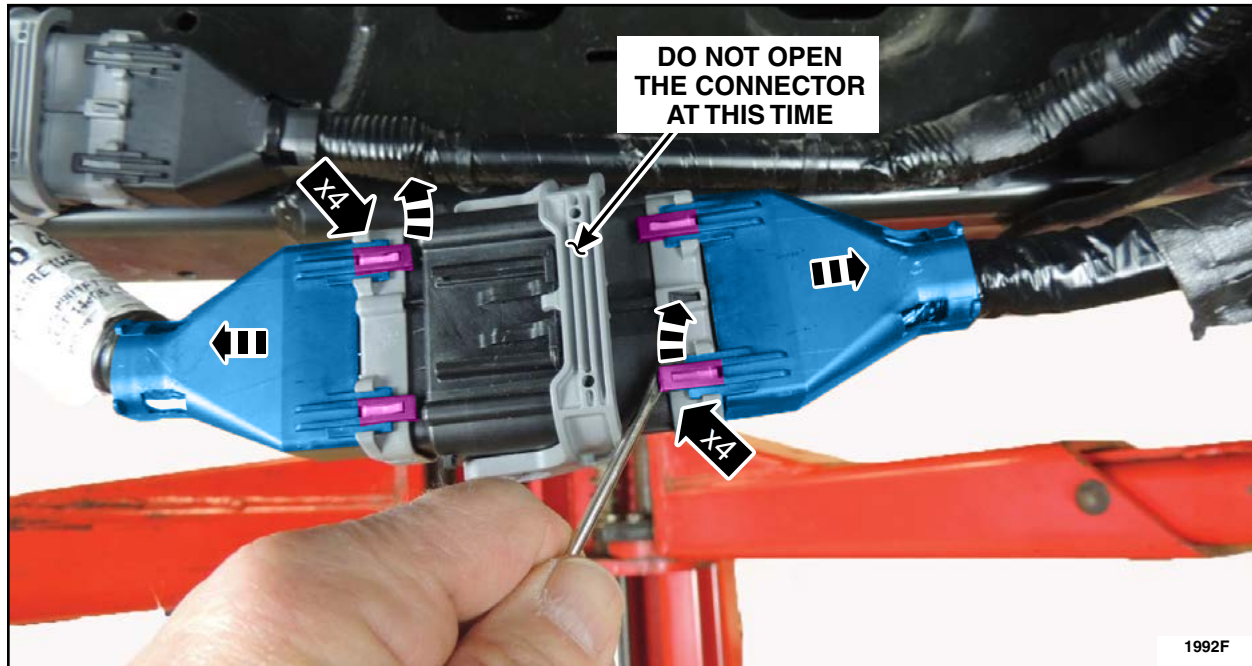


FIGURE 6



7. On both sides of connector C422, use a fabric seam ripper, or an equivalent tool, and cut back the wiring harness convolute. Then, remove the tape around the wiring bundle to gain better access to the center row of wires. See Figure 7.

⚠ CAUTION: **DO NOT** release the connector lock and open the connector at this time. Opening the connector unnecessarily increases the possibility of damage to the connector, wiring, or terminals.

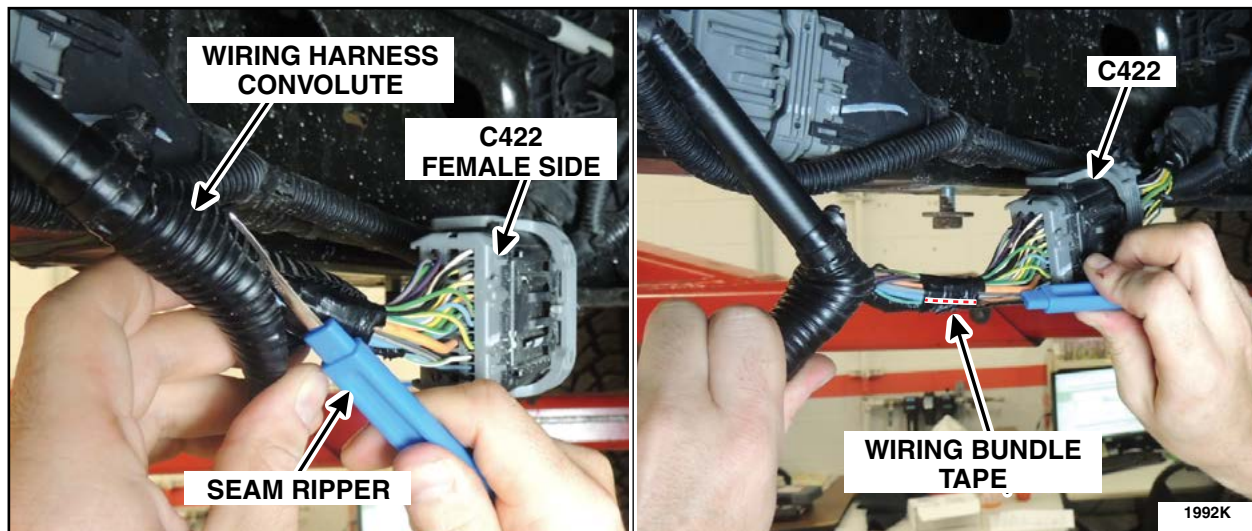


FIGURE 7



Vehicles Without Blind Spot Information System (BLIS)

NOTE: For vehicles equipped with BLIS, proceed to Page 8.

NOTE: Do NOT remove the rear lamp assembly for this test. Connector C415 is located on the outboard side of the right rear frame rail, and is accessible while vehicle is on the hoist.

8. Working from the rear of the vehicle, disconnect connector C415 (Without BLIS) located on the right rear outboard frame rail, **above the tailpipe**. Then Locate pin 1 (Black (BK) wire) **on the male terminal side**. See Figure 8.

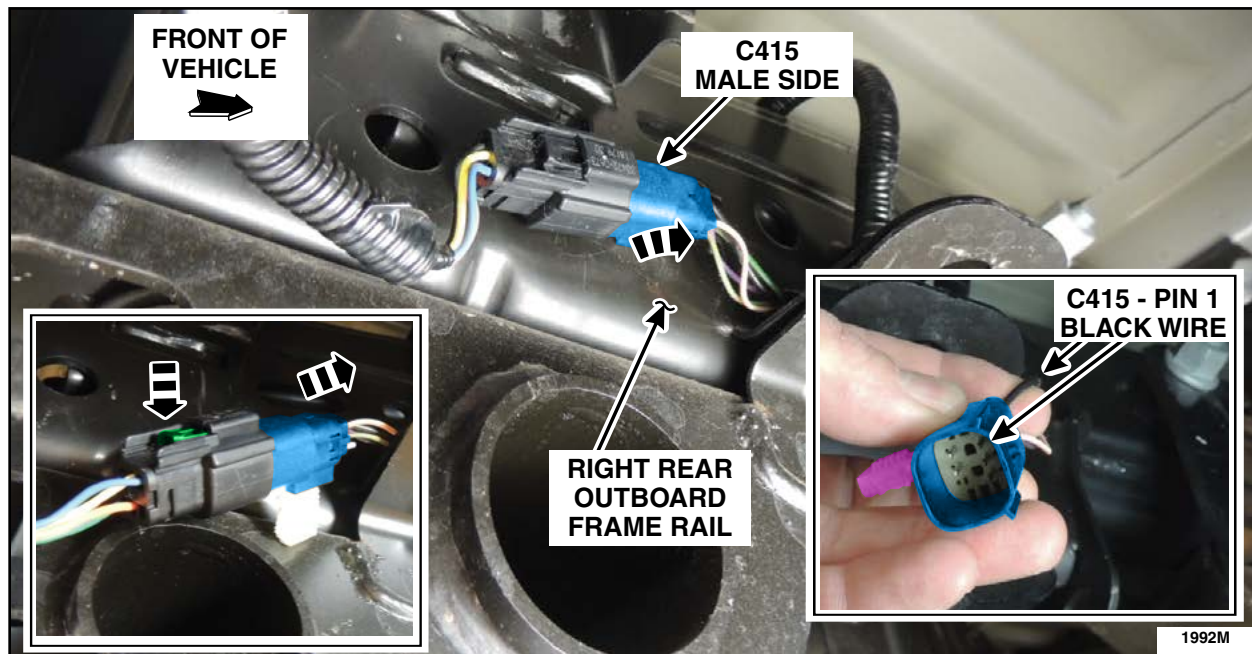


FIGURE 8



Vehicles With Blind Spot Information System (BLIS)

NOTE: Do NOT remove the rear lamp assembly for this test. Connector C4484 is located on the outboard side of the right rear frame rail, and is accessible while vehicle is on the hoist.

9. Working from the rear of the vehicle, disconnect connector C4484 (With BLIS) located on the right rear outboard frame rail, above the tailpipe. Then Locate pin 1 (Black (BK) wire) on the male terminal side. See Figure 9.

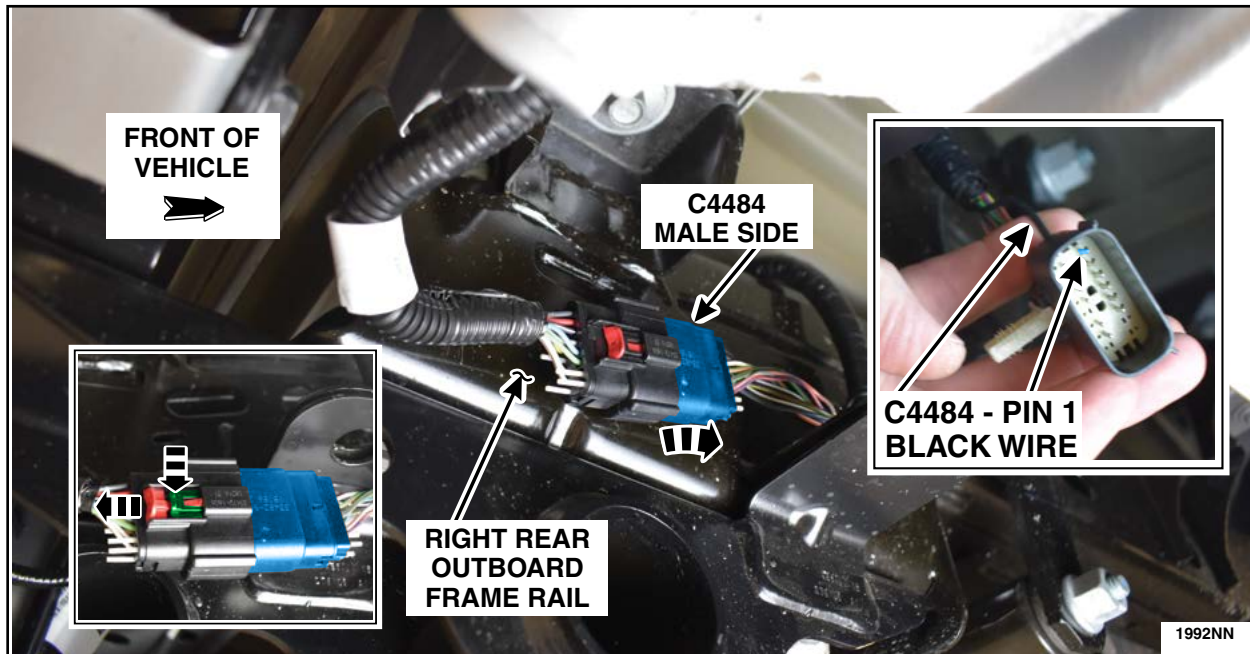


FIGURE 9



10. Connect the leads of a volt/ohm meter to pin 1 (Bk wire) of C415 or C4484 (a) and a good ground (exhaust or chassis ground) (b) as shown in Figure 10. Set the meter to ohms with an audible tone. The audible tone should be heard at this time, if not check for good meter lead connections at both locations. If the connections were found to be secure continue to the next Step.

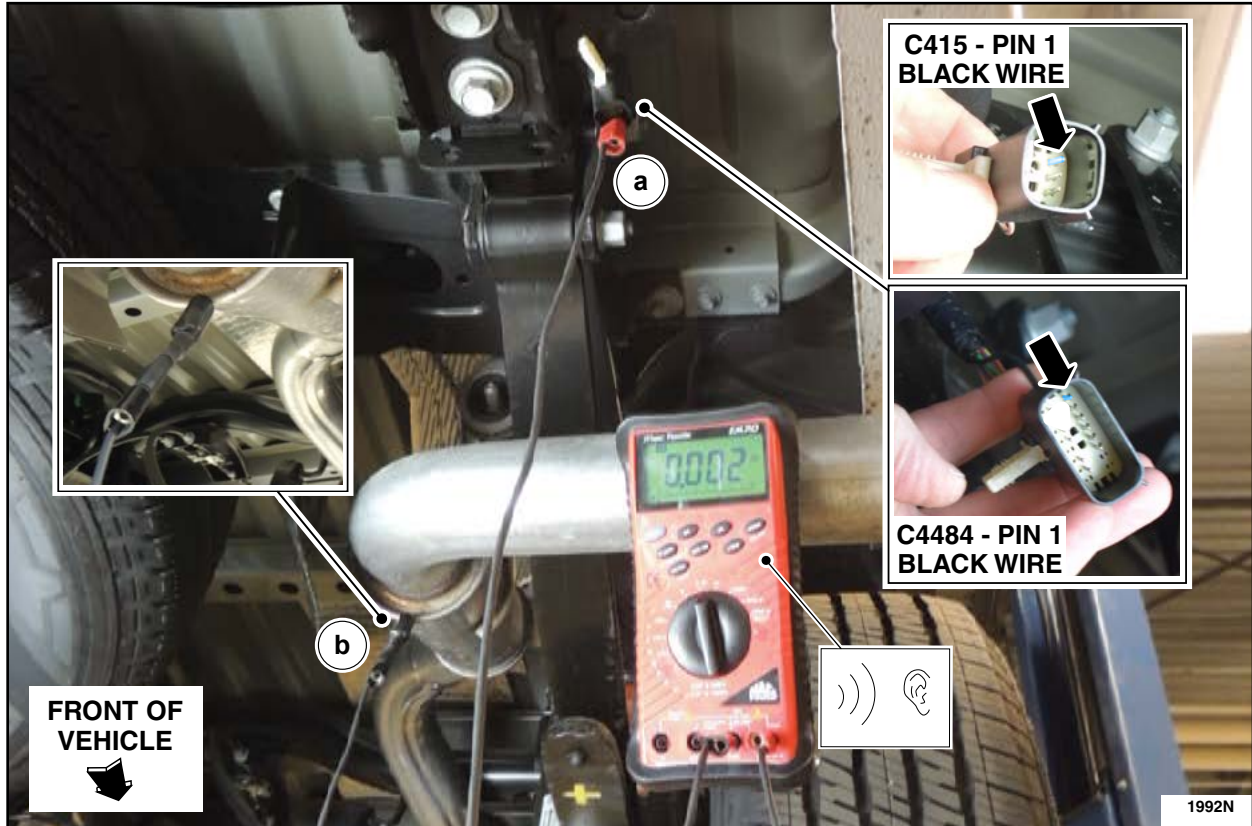


FIGURE 10



11. At connector C422, using your fingers pull outward on pin 20 (BK wire) on both sides of the C422 connector. Only apply enough pulling force to ensure the terminal is locked into the connector. Listen for the volt/ohm meters audible tone to either stop or intermittently break up as you pull on pin 20 (BK wire). If the terminal pulled out of the connector hard shell or the meters audible tone stop or intermittently broke up, record the side of the connector and the pin number on the repair order. Whether or not the terminal pulled out of the connector hard shell proceed to the next Step. See Figures 11, 12 and 13.

⚠ CAUTION: DO NOT release the connector lock and open the connector at this time. Opening the connector unnecessarily increases the possibility of damage to the connector, wiring, or terminals.

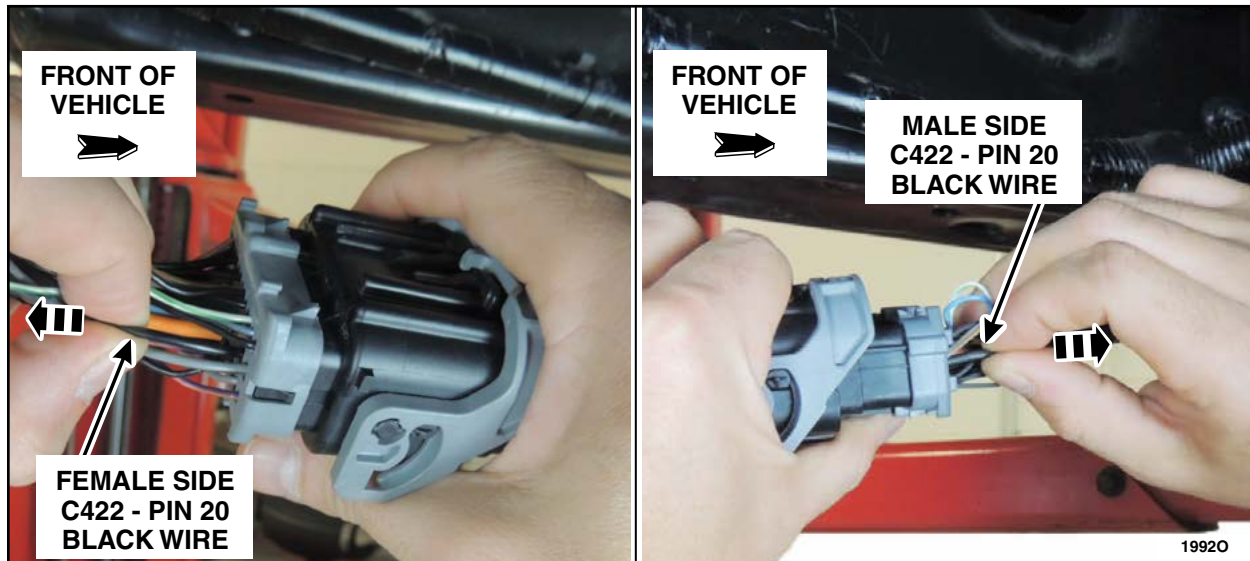


FIGURE 11



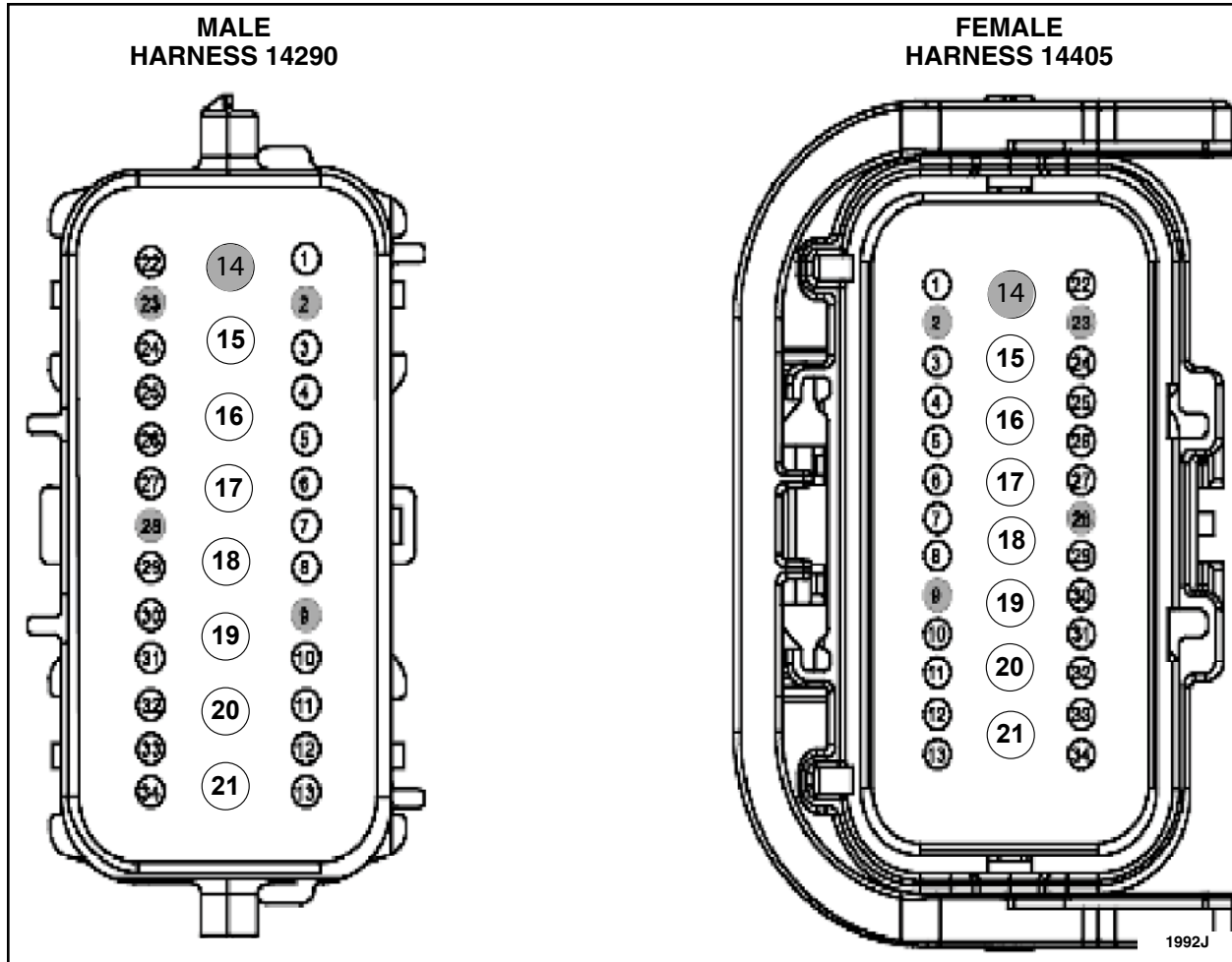


FIGURE 12



MALE SIDE		FEMALE SIDE	
1	CLS09 (WH-OG) 20	1	CLS09 (WH-OG) 20
2	* *	2	* *
3	VMP14 (WH-OG) 20	3	VMP14 (WH-OG) 20
4	VMP16 (YE-GY) 20	4	VMP16 (YE-GY) 20
5	VMP17 (YE-OG) 20	5	VMP17 (YE-OG) 20
6	RMP07 (GN-WH) 20	6	RMP07 (GN-WH) 20
7	CLS27 (GN-OG) 20	7	CLS27 (GN-OG) 20
8	LMP07 (BU-WH) 20	8	LMP07 (BU-WH) 20
9	* *	9	* *
10	VMP15 (YE-GN) 20	10	VMP15 (YE-GN) 20
11	VMP19 (WH-GN) 20	11	VMP19 (WH-GN) 20
12	RMP19 (BU-GY) 20 13 RMP51 (BK) 20	12	RMP19 (BU-GY) 20 13 RMP51 (BK) 20
14	* *	14	* *
15	CAT28 (YE) 14	15	CAT28 (YE) 14
16	CAT11 (BN) 14	16	CAT11 (BN) 14
16	CAT11 (BN-YE) 10	17	CAT29 (GN) 14
17	CAT29 (GN) 14	18	CAT19 (BU) 10
18	CAT19 (BU) 10	19	CAT14 (OG) 6
19	CAT14 (OG) 6	20	GD125 (BK) 14
20	GD125 (BK) 12	21	CAT03 (GY-BN) 14
21	CAT03 (GY-BN) 14	22	CLS44 (VT-BN) 18
22	CLS44 (VT-BN) 18	23	* *
23	* *	24	CLS54 (BU-OG) 20
24	CLS54 (BU-OG) 20	25	CLS10 (GN-BN) 14
25	CLS10 (GN-BN) 18	25	CLS10 (GN-BN) 18
26	CLS55 (GN-BU) 20	26	CLS55 (GN-BU) 20
27	CLS08 (VT-GN) 20	27	CLS08 (VT-GN) 20
28	* *	28	* *
29	CLS44 (VT-BN) 18	29	CLS44 (VT-BN) 18
30	CLS23 (GY-OG) 20	30	CLS23 (GY-OG) 20
31	VDB06 (GY-OG) 20	31	VDB06 (GY-OG) 20
31	VDB06 (GY-OG) 22	32	VDB07 (VT-OG) 20
32	VDB07 (VT-OG) 20	32	VDB07 (VT-OG) 22
32	VDB07 (VT-OG) 22	33	VDB06 (GY-OG) 20
33	VDB06 (GY-OG) 20	34	VDB07 (VT-OG) 20
34	VDB07 (VT-OG) 20		

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FIGURE 13



12. Remove the volt/ohm meter leads from pin 1 of connector C415 or connector C4484 and the ground connection by reversing Step 10.
13. Connect connector C415 or connector C4484 and reattach the connector to the right rear frame rail. See Figure 8 or 9.

Terminal Push Out Inspection - (Cavities 14-19 and 21) For Hard Shell Connector Replacement

14. At connector C422, using your fingers pull on the remaining wires in the center row of terminals wires (cavities 14-19 and 21) on both male and female connector sides, checking for any terminals that may be push out of the connector hard shell. See Figures 12, 13 and 14.

⚠ CAUTION: DO NOT release the connector lock and open the connector at this time. Opening the connector unnecessarily increases the possibility of damage to the connector, wiring, or terminals.

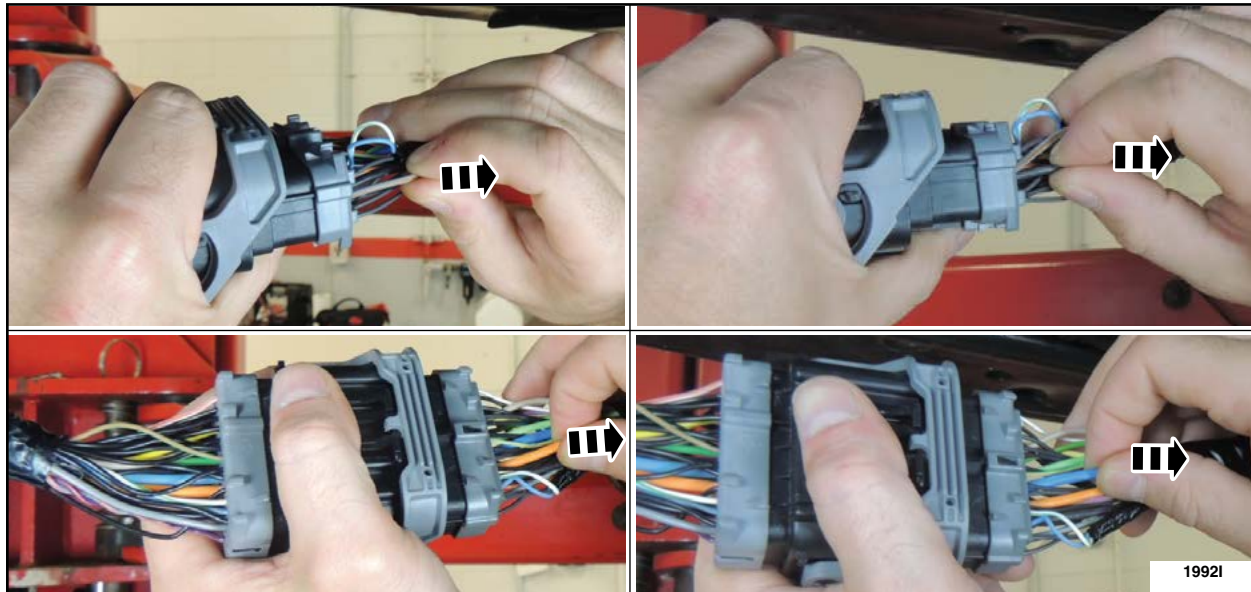


FIGURE 14



15. Were any of the wires in the center row of terminals on the male or female side of C422 pushed out of the connector hard shell and/or did the volt/ohm meters audible tone either stop or intermittently break up as you pulled on pin 20 (BK wire) in Step 11? See Figure 15.

Yes - Record the connector side and cavity number on the repair order, then proceed to Step 16.
No - Proceed to Vehicle Reassembly on Page 27.

NOTE: Pin terminal 20 of the male side connector shown, all pin terminals similar.

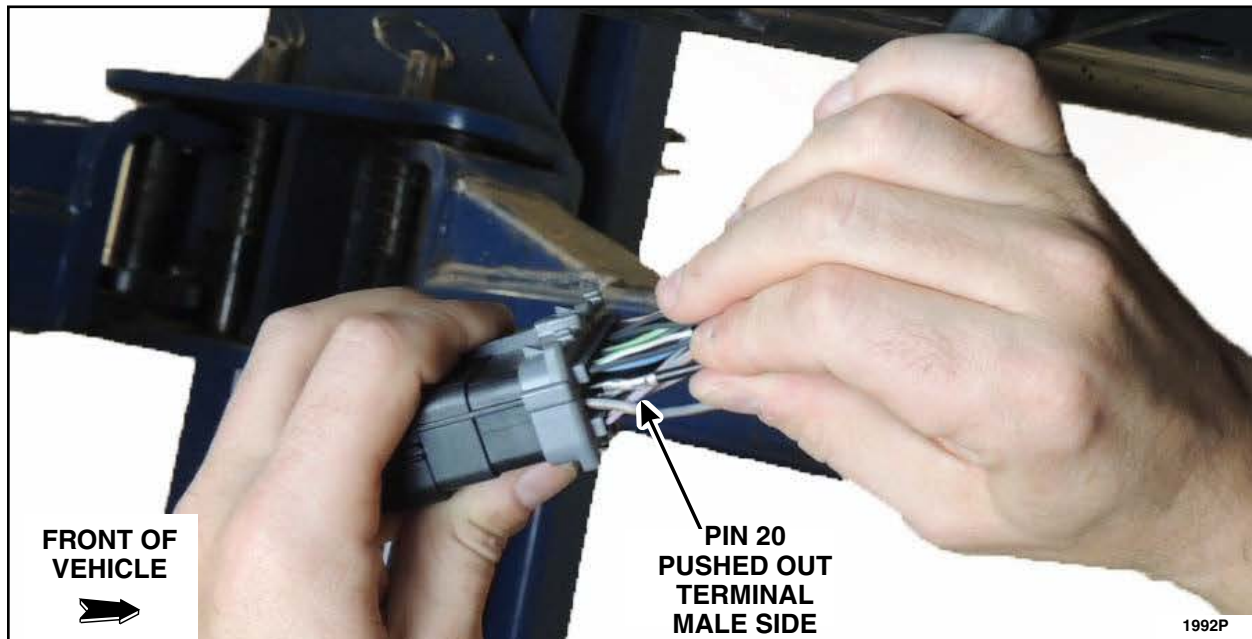


FIGURE 15



16. Release the connector lock and open the connector C422. See Figure 16.

- a. Push the connectors together and depress the primary lock.
- b. Once the primary lock releases the cam handle, rotate the cam handle as shown.
- c. Push the cam handle all the way back and seat the cam handle.
- d. Pull the male and female connectors apart.

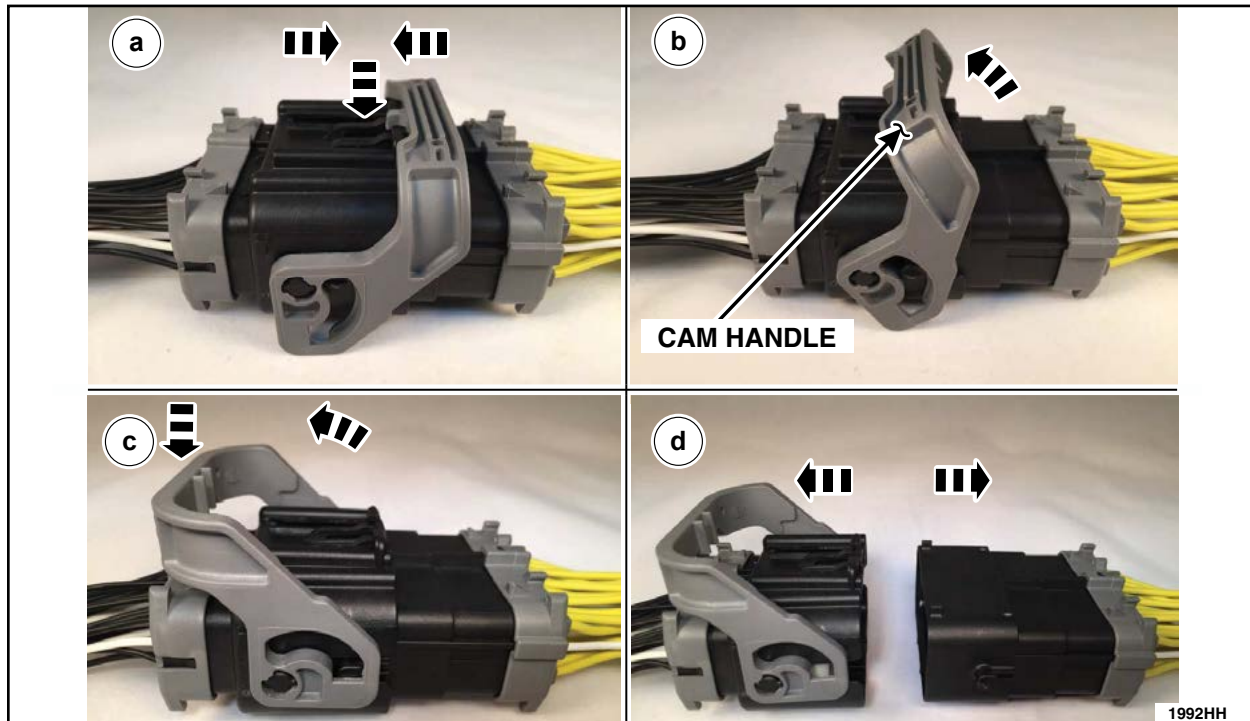


FIGURE 16



Internal Hard Shell Connector Inspection - For Pin Terminal Damage

17. Inspect all of the wire terminal(s) on both connectors, and complete connector and terminal replacement as required. See Figures 17 and 18.
- Replace the connector hard shell on the side(s) the pushed out terminal(s) were found. Refer to C422 Male and Female Side - Pigtail Connector Depinning Procedure.
 - Replace any damaged pin terminals that are found on either connector. Refer to C422 Male or Female Terminal Replacement Procedure.

NOTE: Only replace the connector hard shell and/or a damaged pin terminal on the side the pushed out and/or damaged terminal(s) were found.



FIGURE 17

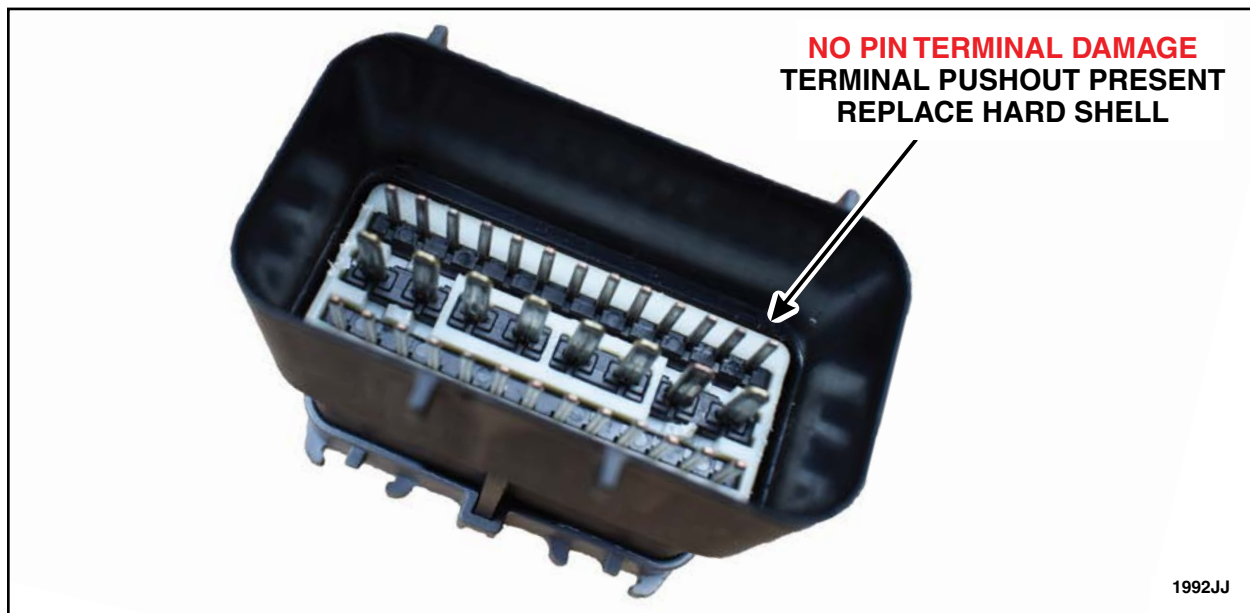


FIGURE 18



C422 Male and Female Side - Pigtail Connector Depinning Procedure

NOTE: Only replace the connector hard shell and/or the damaged pin terminal on the side the pushed out and/or damaged terminal/s were found.

NOTE: For the current repair procedure, C422 connector pigtails will be used. The connectors use a Mat Seal to block off the 5 unused cavities. The pigtail kits use a fully occupied connector where all 34 cavities have terminals with pigtails on them. The technician will seal off the unused cavities so water can't wick into the wire of the 5 unused terminals.

1. Position the white pin terminal locking tab.

- **Male Side Pigtail**, using a small pair of needle nose pliers, or an equivalent tool, remove the white pin terminal locking tab from the *new* male pigtail connector hard shell as shown in Figure 19.
- **Female Side Pigtail**, using a 90° pick ensure that the white pin terminal locking tab is positioned up, but Not removed, in the *new* female pigtail connector hard shell as shown in Figure 20.

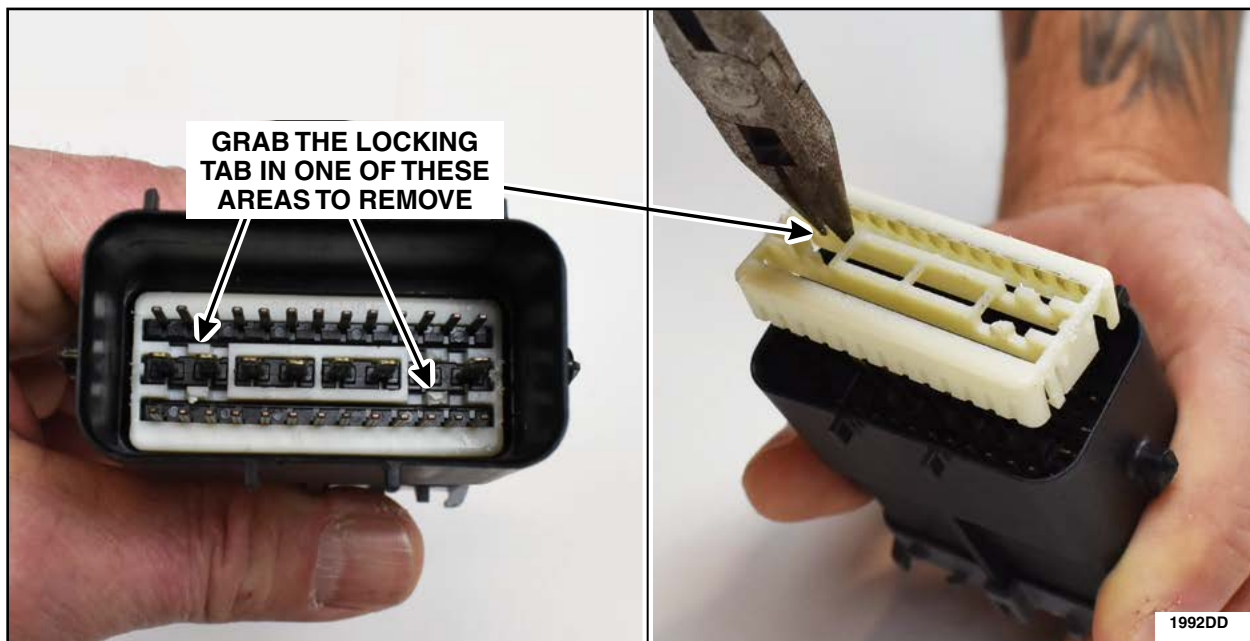


FIGURE 19



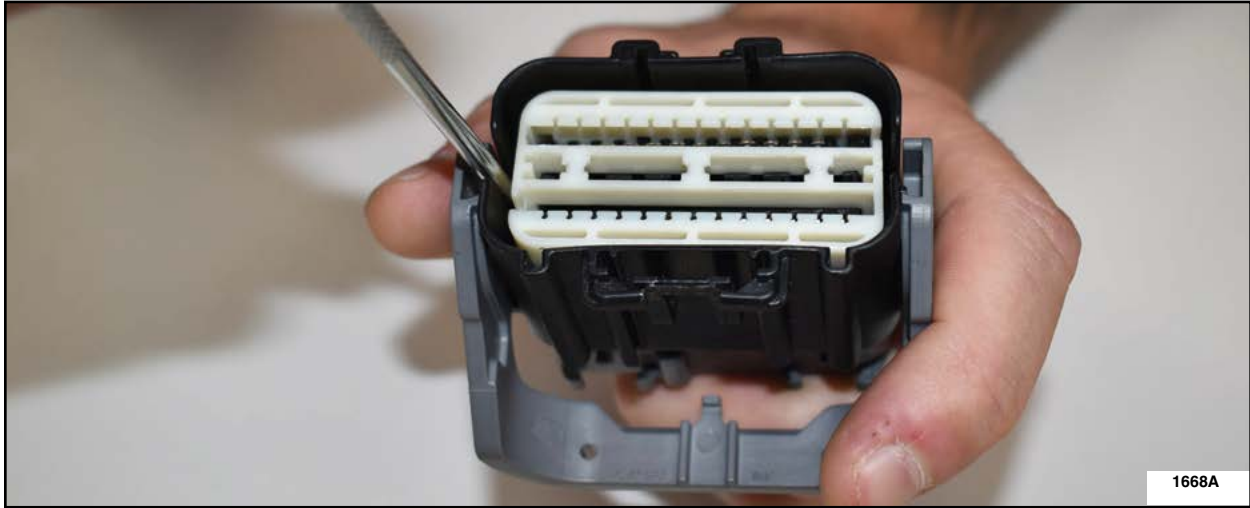


FIGURE 20



- Using Rotunda™ Terminal Release Tool (NUD900-001), release and remove all pin terminals from the *new* C422 pigtail connector **Except** for cavities 2, 9, 14, 23 and 28. See Figures 23-25 and/or 28-30. Refer to Figures 12 and 13 for connector details.

 **CAUTION: BE CAREFUL NOT TO DAMAGE THE RELEASE MECHANISM.**

- Measure and cut all five (5) wires, still remaining in the new pigtail connector, to 3 in. (76.2mm) in length.
- Position a heat shrink tube over the end of all five (5) wires. See Figure 21.
- One wire at a time, use a suitable heat gun, such as Rotunda Shielded Flameless Heat Gun with Heat Deflector (NAIAT-R5902), that is equipped with a shrink tubing attachment, to heat the heat shrink tubing until the sealant comes out of both ends, then with a pair of needle nose pliers pinch the end of the heat shrink tube to seal the wire end. See Figure 21.

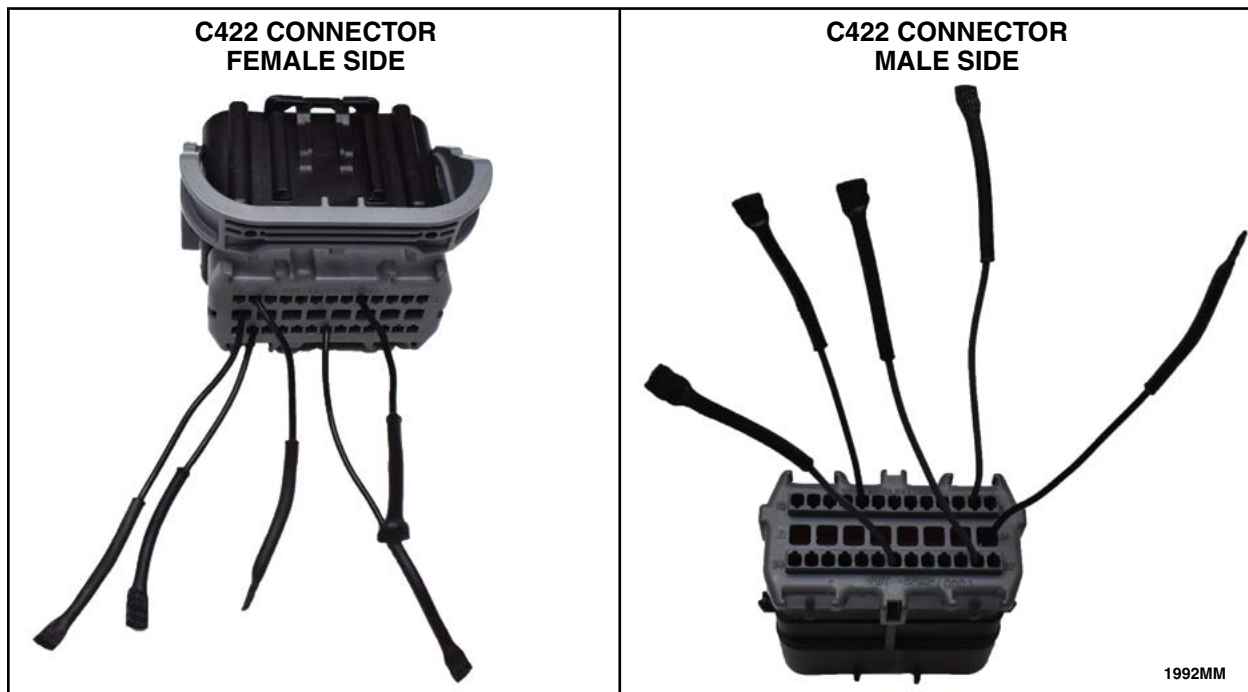


FIGURE 21

- Proceed to the procedure depending on the connector C422 side being replaced:
 - C422 Male Side Connector - Hard Shell Replacement Procedure on Page 20.
 - C422 Female Side Connector - Hard Shell Replacement Procedure on Page 23.



C422 Male Side Connector - Hard Shell Replacement Procedure

1. To avoid confusion between the *new* and original/damaged connector hard shells, mark the original/damaged connector hard shell.
2. Using a small pair of needle nose pliers, or an equivalent tool, remove the white pin terminal locking tab from the original/damaged connector hard shell. See Figure 22.

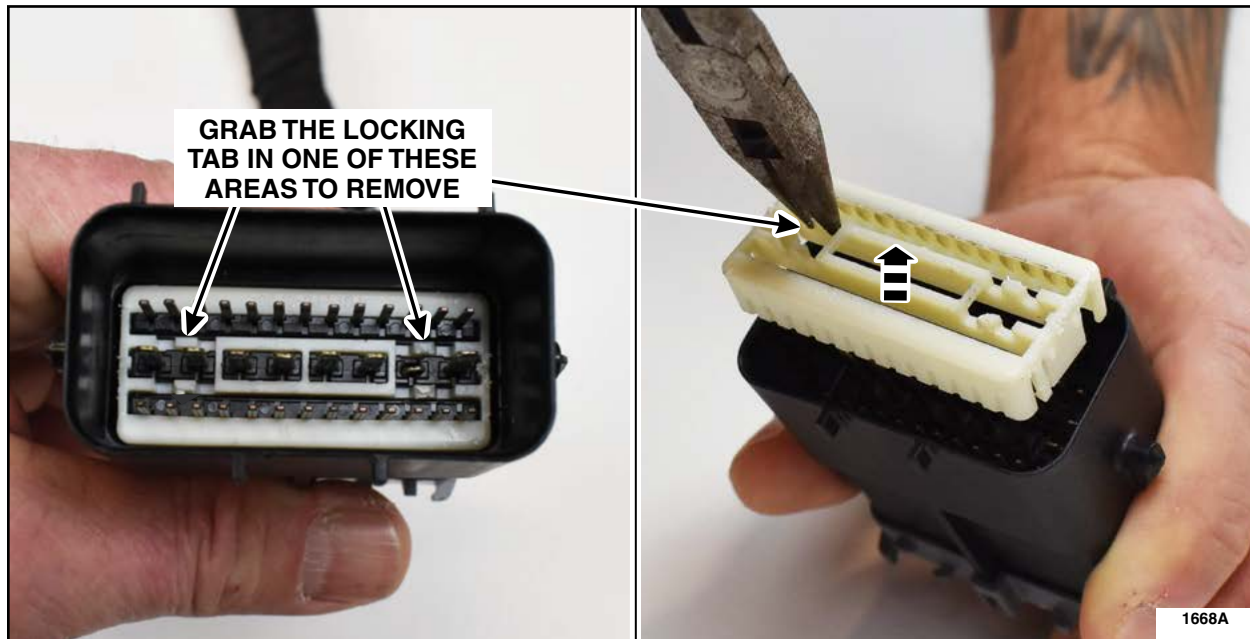


FIGURE 22



3. Using Rotunda™ Terminal Release Tool (NUD900-001), release, remove and install each pin terminal one at a time from the original/damaged connector shell into the *new* connector shell. Then reinstall the white pin terminal locking tab. See Figures 12, 13 and 23-25.

- At the mating surface of the connector, insert the tip of the Rotunda terminal removal tool into the terminal cavity until it stops.
- Holding the release tool in place, gently push the wire of the terminal to be removed toward the housing until it stops.
- Rotate the release tool toward the terminal to lift the latch beam away from the terminal. While holding the tool in position, pull the wire until the terminal is released, then pull it straight out of the connector.
- When installing the terminal, gently insert the terminal straight into the connector until you hear, or feel, a click. When the terminal is fully inserted, softly pull on the terminated lead to insure the terminal is locked into place.

NOTE: Make sure that the cavity number that the pin terminal was removed from in the original/damaged hard shell is the same cavity number that the pin terminal is installed into on the *new* connector hard shell.

NOTE: Refer to the Workshop Manual (WSM) procedure in Section 100-00 - General Procedures for additional terminal removal information.

NOTE: If the white pin terminal locking tab resists while attempting to seat, it may be detecting a partially installed terminal. Pull the white pin terminal locking tab back up and make sure all terminals are fully installed and oriented correctly. Upon completion, the white pin terminal locking tab can be seated fully.

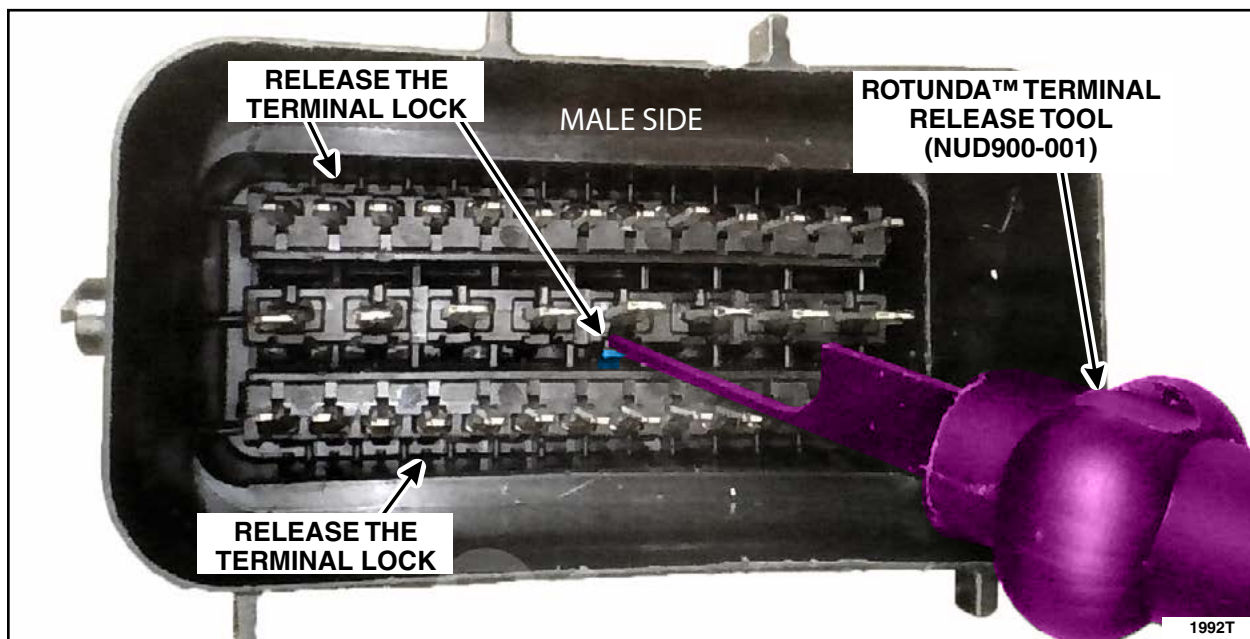


FIGURE 23



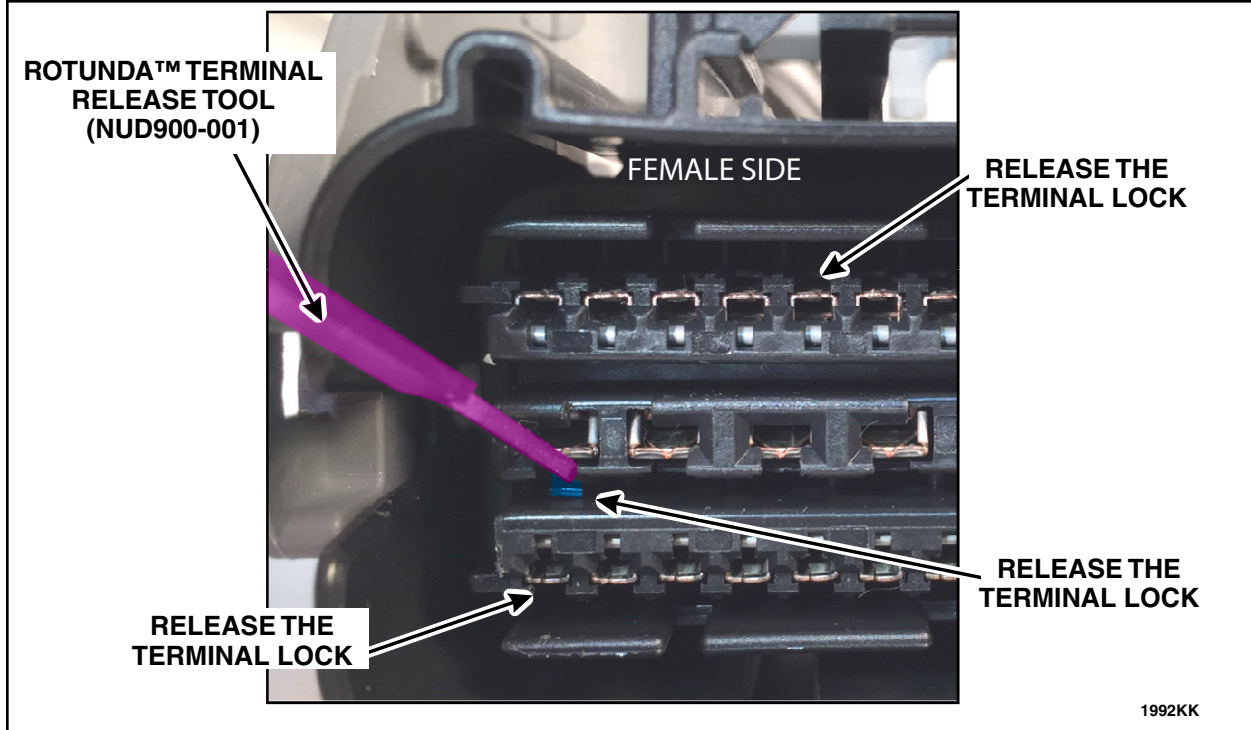


FIGURE 24

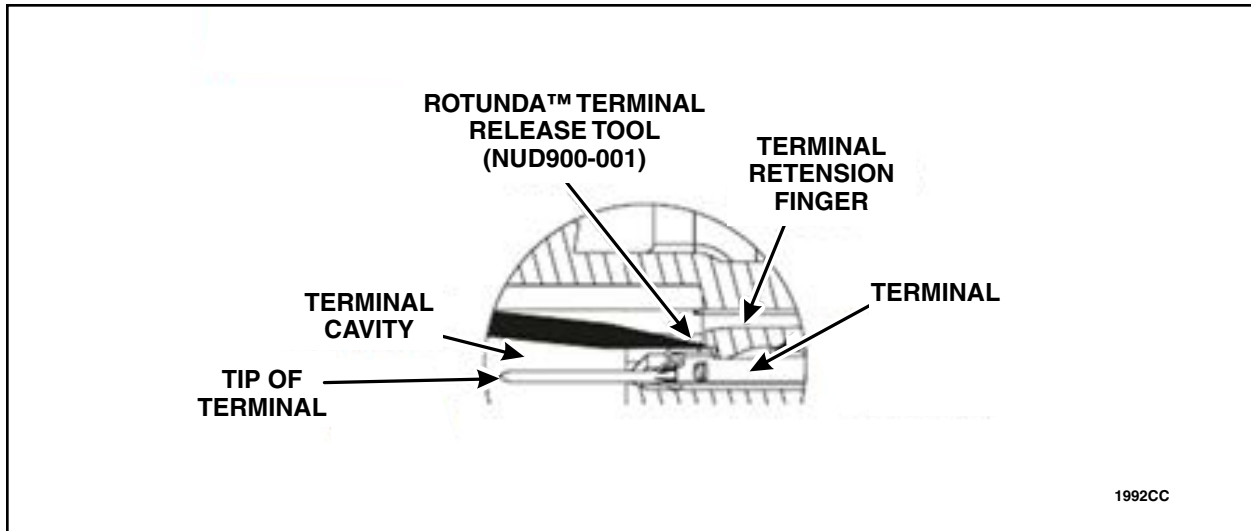


FIGURE 25



C422 Female Side Connector - Hard Shell Replacement Procedure

1. To avoid confusion between the *new* and original/damaged connector hard shells, mark the original/damaged connector hard shell.
2. Using a 90° pick and a small pair of needle nose pliers, remove the white pin terminal locking tab from the original/damaged connector hard shell. See Figure 26.

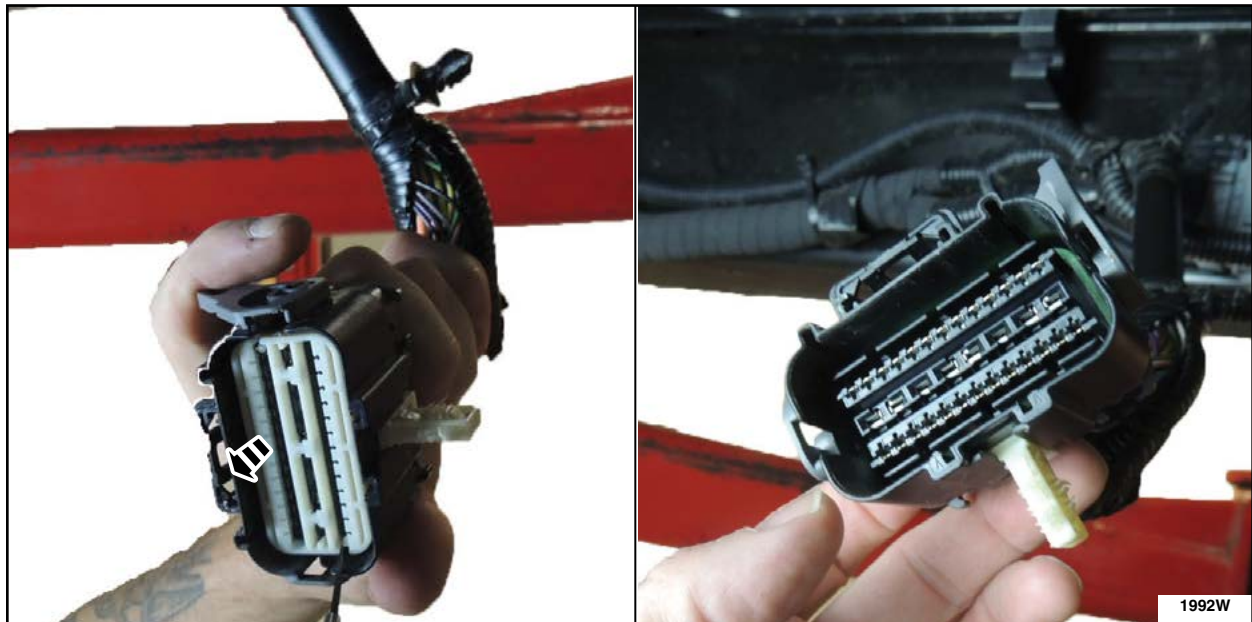


FIGURE 26

3. Transfer the original, C422 female side, connector to frame rail mounting clip as shown in Figure 27.

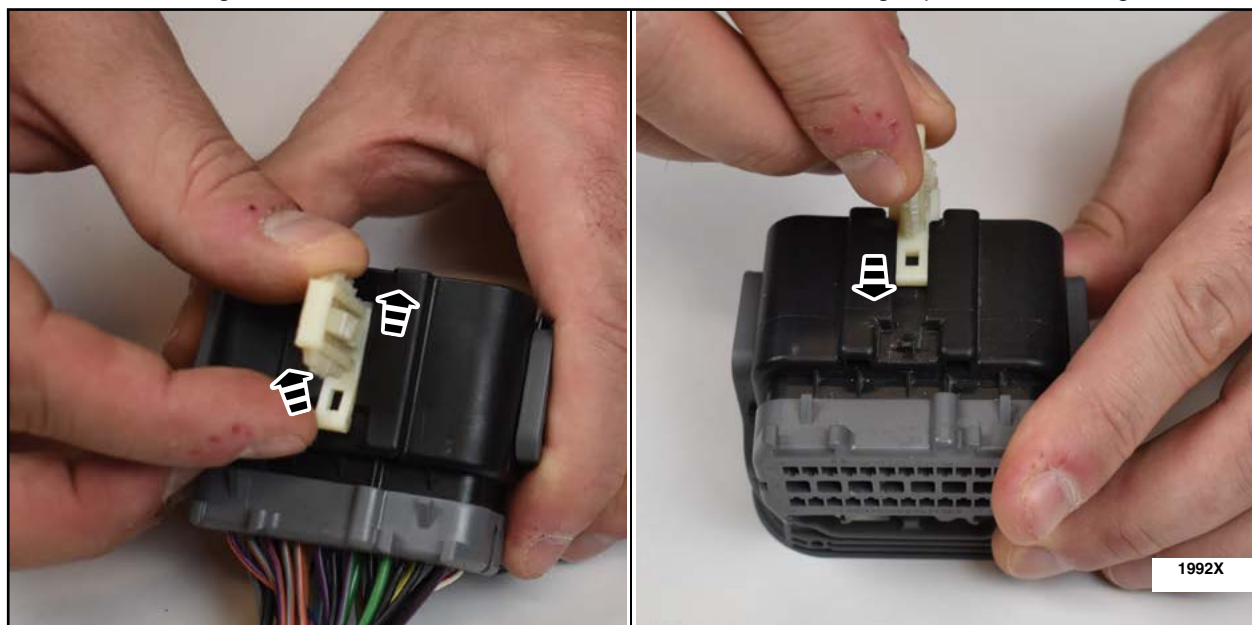


FIGURE 27



4. Using Rotunda™ Terminal Release Tool (NUD900-001), release, remove and install each pin terminal one at a time from the original/damaged connector shell into the *new* connector shell. Then push down and lock the white pin terminal locking tab. See Figures 12, 13 and 28-30.

- At the mating surface of the connector, insert the tip of the Rotunda terminal removal tool into the terminal cavity until it stops.
- Holding the release tool in place, gently push the wire of the terminal to be removed toward the housing until it stops.
- Rotate the release tool toward the terminal to lift the latch beam away from the terminal. While holding the tool in position, pull the wire until the terminal is released, then pull it straight out of the connector.
- When installing the terminal, gently insert the terminal straight into the connector until you hear, or feel, a click. When the terminal is fully inserted, softly pull on the terminated lead to insure the terminal is locked into place.

NOTE: Make sure that the cavity number that the pin terminal was removed from in the original/damaged hard shell is the same cavity number that the pin terminal is installed into on the *new* connector hard shell.

NOTE: If the white pin terminal locking tab resists while attempting to seat, it may be detecting a partially installed terminal. Pull the white pin terminal locking tab back up and make sure all terminals are fully installed and oriented correctly. Upon completion, the white pin terminal locking tab can be seated fully.

NOTE: Refer to the Workshop Manual (WSM) procedure in Section 100-00 - General Procedures for additional terminal removal information.

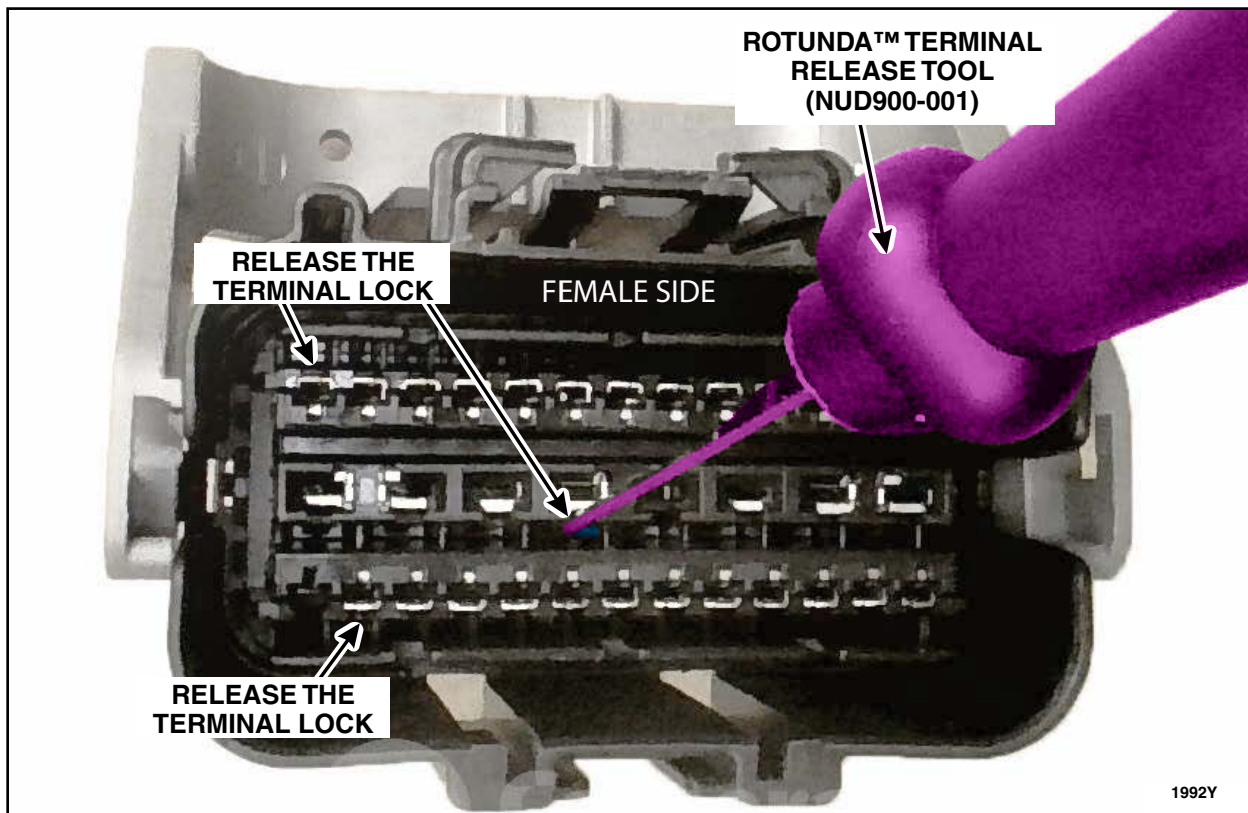


FIGURE 28



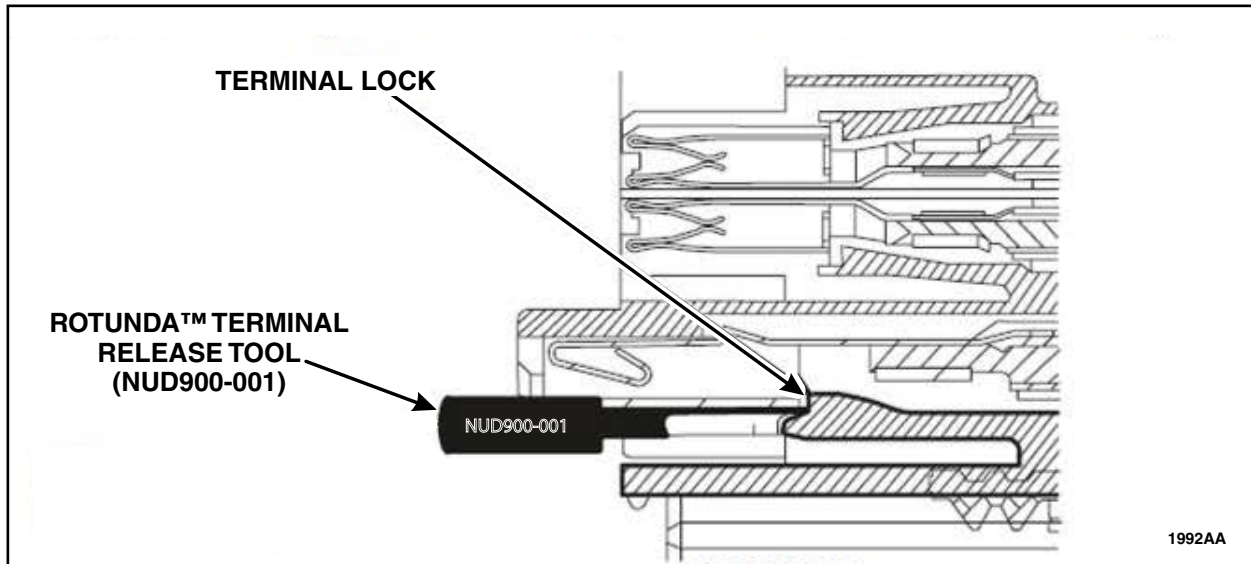


FIGURE 29

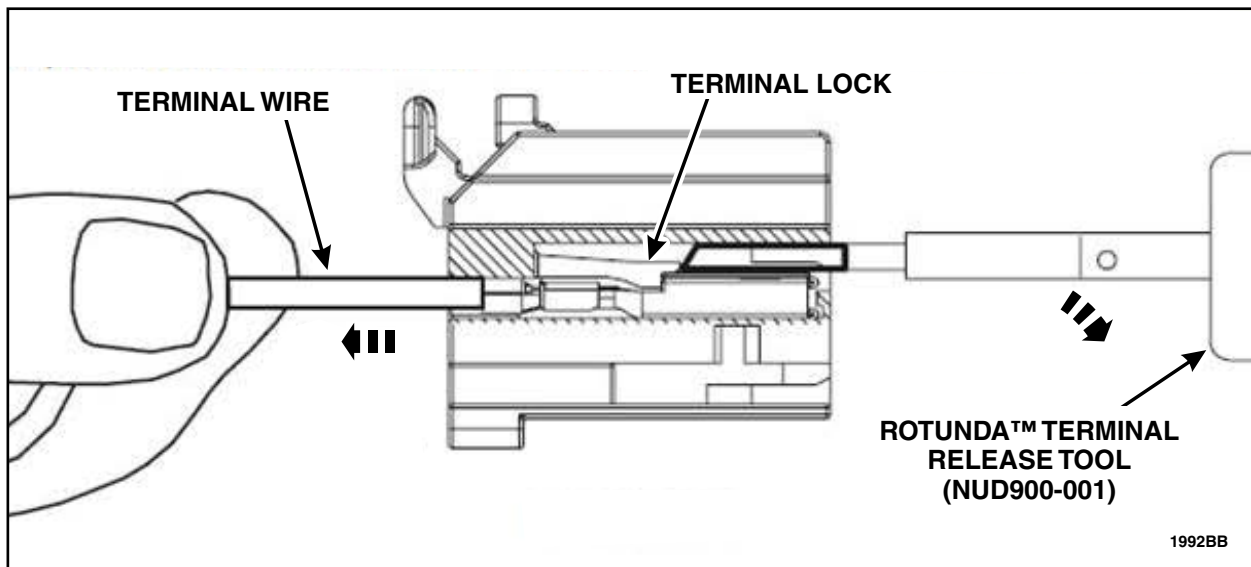


FIGURE 30



C422 Male or Female Terminal Replacement Procedure

NOTE: Refer to the instruction sheet supplied in the Wiring Terminal Repair Kit for additional information.

1. Cut off the damaged terminal end and approximately 4 in (101.6mm) of the wire.
2. Strip .75 in (19.5mm) from the harness wire and from the new wire and terminal.
3. Install a piece of heat shrink tubing over the wire on the harness side and slide it further up the harness away from heat of soldering.
4. Align both stripped wire ends (end to end) overlapping wires .5 in (12.7mm).
5. Twist the wires together.
6. **NOTE:** Use Rosin Mildly Activated (RMA) solder. Do Not use acid core solder.
 - Solder the wires together.
7. Slide the piece of heat shrink tubing evenly over the soldered repair.
8. Use a suitable heat gun such as Rotunda Shielded Flameless Heat Gun with Heat Deflector, (NAIAT-R5902), that is equipped with a shrink tubing attachment, to heat the heat shrink tubing until the sealant comes out of both ends.



Vehicle Reassembly

All Vehicles

1. On both sides of connector C422, tape the wiring bundle with electrical tape. See Figure 7.
2. On both sides of connector C422, position back the convolute and tape the down the convolute to the wiring harness. See Figure 7.
3. On both sides, install the connector C422 harness covers. See Figure 6.
4. On both sides, install the zip ties that secure the harness covers to the connector C422. See Figure 4.
5. If disconnected, connect the connector C422 halves together and lock the connector. See Figure 31.
 - a. Align the slots and the tabs on both connectors.
 - b. Ensure that the cam handle is fully seated in the correct position as shown.
 - c. Slide the connectors together until resistance is felt.
 - d. Rotate the cam handle fully forward until and primary latches.
 - e. Final lock position.

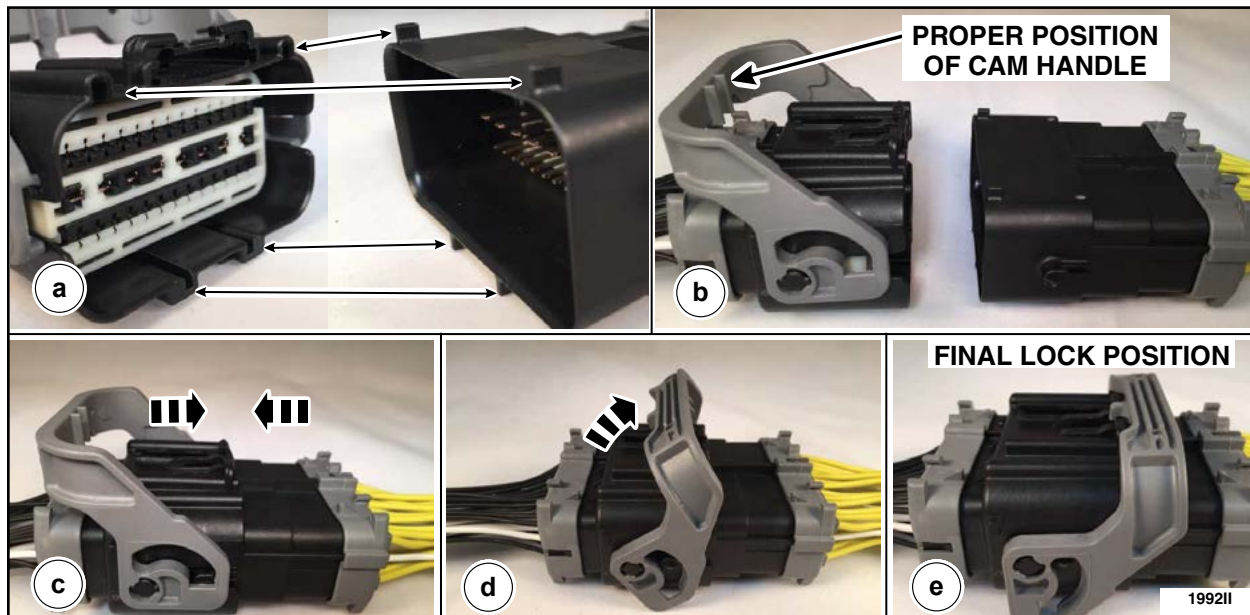


FIGURE 31

6. Attach the three retainers holding connector C422 and the wiring harness to the frame. See Figure 5.

4x4 Vehicles

7. Install the transfer case skid plate. See Figure 2.
 - Torque to: 22 lb. ft (30 Nm).

All Vehicles

8. Test the rear tail lamp assemblies for proper operation.

