



Bi-Color Signal[®] Mirror Installation Instructions

2005 -2009 Toyota Tacoma



THE safety accessory of the 21st Century.[™]

P/N 210-0141-0

Rev. A2 (3/30/09), BTV

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PROFESSIONAL INSTALLATION RECOMMENDED

Warranty does not cover damage to the vehicle or mirror housing due to improper installation. Muth Mirror Systems, LLC (MMS) assumes no responsibility with regard to the accuracy of this information. MMS assumes no liability or responsibility resulting from improper installation, even in reliance upon this information. Proper installation is the responsibility of the installer. It is your responsibility to verify any circuit before interfacing with it using a digital multimeter.

INCLUDED ITEMS:

1 left and 1 right *Signal*[®] mirror
1 left and 1 right wire harness
1 Bi-Color Control Module
4 t-taps
4 small butt-splices
1 ring connectors
1 instruction manual
8 cable ties (Not Required)
1 dielectric grease (Not Required)

REQUIRED TOOLS:

Ratchet with extension or ratcheting screwdriver
11mm socket
Socket wrench
T-25 Torx wrench
Large slotted screwdriver
Small slotted screwdriver
Large Phillips screwdriver
Small Phillips screwdriver
Small pry bar
Gopher rod (wire)
Electrical tape
Wire crimper and stripper
Needle nose pliers
Multimeter or wire tester
Sturdy gloves
Safety glasses or goggles
Utility knife

Please read instructions prior to installation.

PROBLEMS OR QUESTIONS?

Technical Assistance is available by calling
Muth Mirror Systems Technicians at:

1-800-844-6616

Monday through Friday
Between 8:00 a.m. and 5:00 p.m. CST

Or through the Muth web site: www.muthco.com

Or via E-mail: techsupport@muthco.com

Wiring instructions for Bi-Color (amber for turn and red for brake) begin on page 9.

Wiring instructions for red or amber turn only begin on page 12.

DOOR PANEL REMOVAL



Start with opening the driver's side door and lowering the window (A). Unsnap corner plastic triangular cover (B). Carefully remove door handle cover using a slotted screwdriver (C). Remove screw in door handle with a Phillips screwdriver (D). With the slotted screwdriver, remove plastic covering on the grab bar (E). Release the revealed screw using a Phillips screwdriver. Using a plastic pry bar, carefully unsnap and lift the control console (F). Disconnect all wiring connections behind control console and remove it.

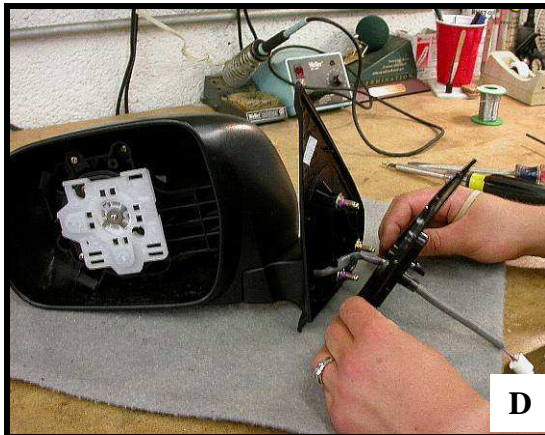
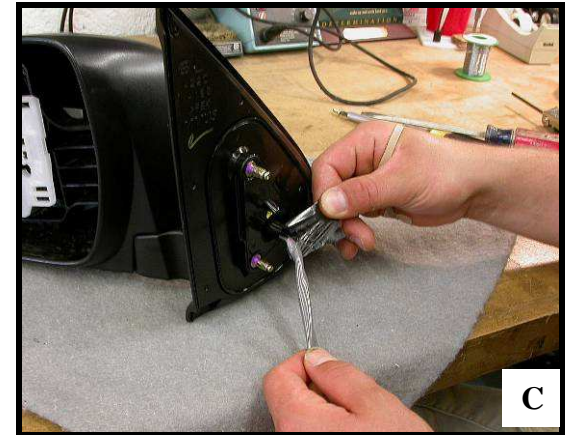
DOOR PANEL & MIRROR HOUSING REMOVAL CONTINUED



Using a small Phillips screwdriver, push in the center post on the plastic dowel pin and release the dowel pin from the door panel (G). Carefully pry on the lower outboard corner of the door panel using a small plastic pry bar (H). Continue prying around the door panel until it unsnaps from the door frame. Lift up and pull door panel out a few inches away (I). Disconnect tweeter and wiring connection. Remove door panel and set it aside. Disconnect mirror harness (J). Secure the mirror housing with one hand, remove the (3) nuts holding the mirror housing to the door frame using a 11mm socket (K). **WARNING: Not securing mirror housing with one hand before loosening the nuts could cause the mirror housing to fall and become damaged.** Carefully remove mirror housing from door frame and set mirror housing on a cloth covered surface.

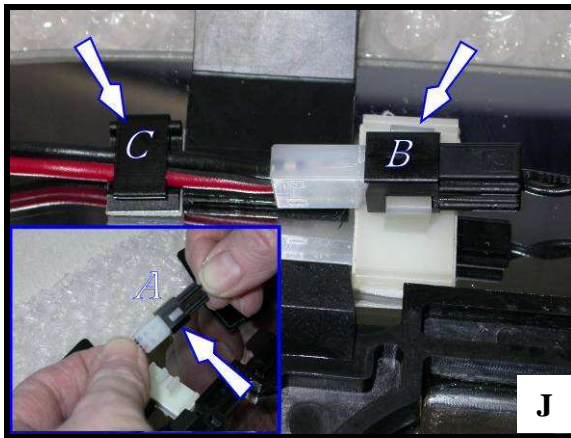
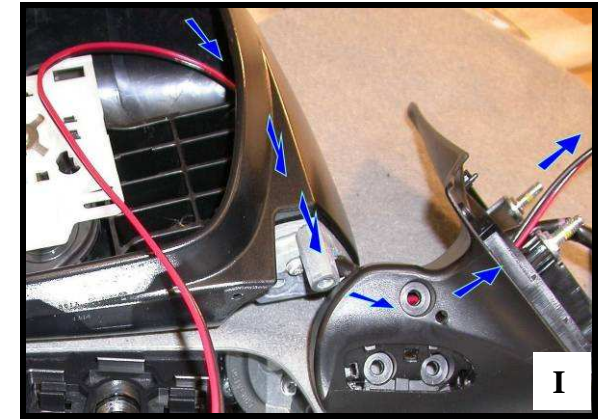
MIRROR REPLACEMENT

WARNING: Safety glasses and sturdy gloves are required for mirror replacement.



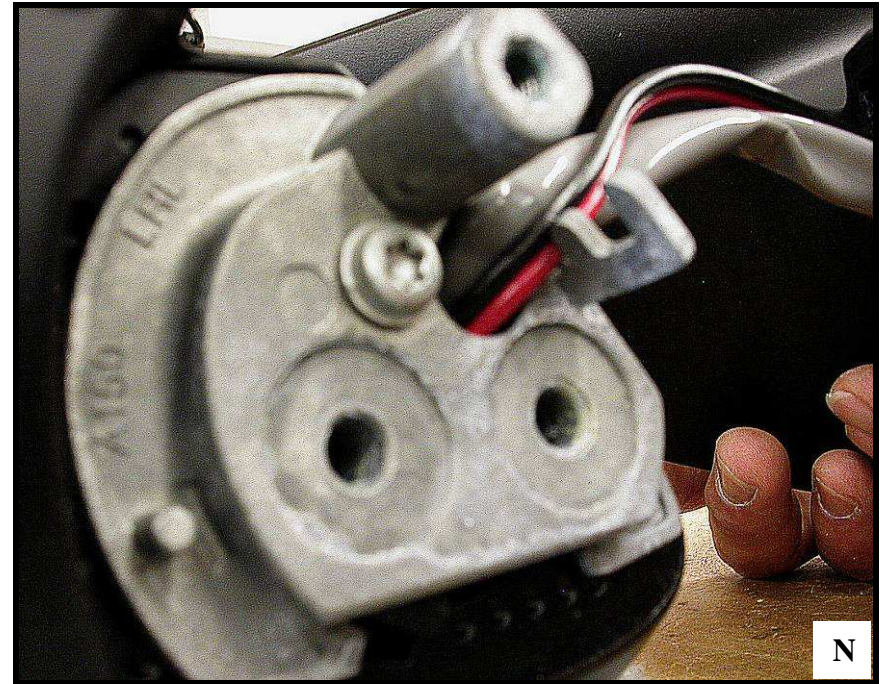
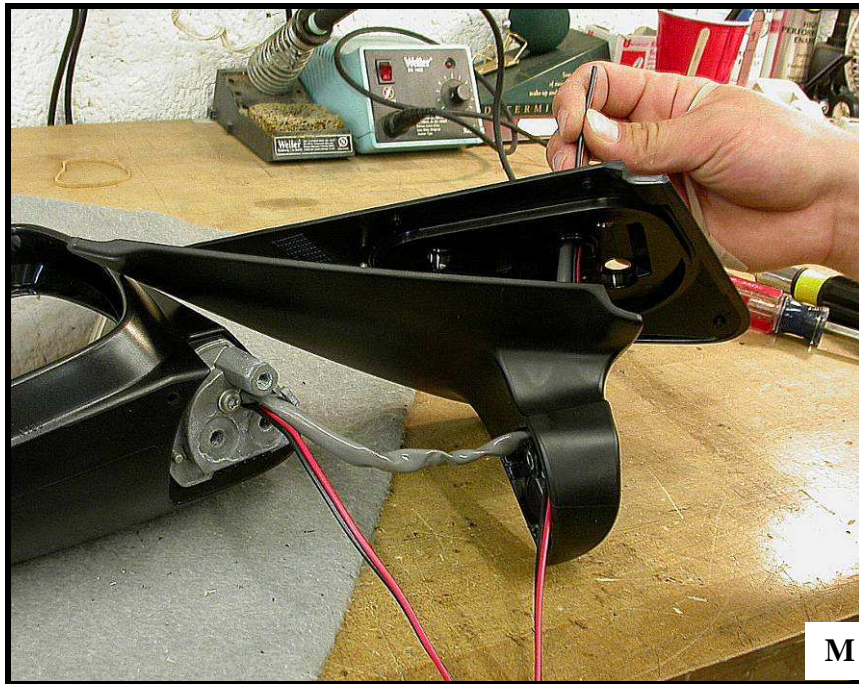
Push down on the upper outboard edge of glass until mirror pivots fully outward. Insert a large slotted screwdriver in between the mirror backing plate and motor actuator (**A**). Carefully pry and twist screwdriver until original mirror pops off. **If heated**, disconnect heater wires from heater terminals and remove mirror. Unscrew and release the strain relief on the wire harness (**B**). Un-wrap the electrical tape around the wire harness (**C**). Remove the plastic insulation on the housing sail (**D**). Turn the mirror housing over so you are looking at the bottom of the mirror housing. Carefully pry open the plastic cover (**E**). Unscrew and remove the (2) screws on the bottom of the mirror housing using a T-25 Torx wrench (**F**).

MIRROR REPLACEMENT CONTINUED



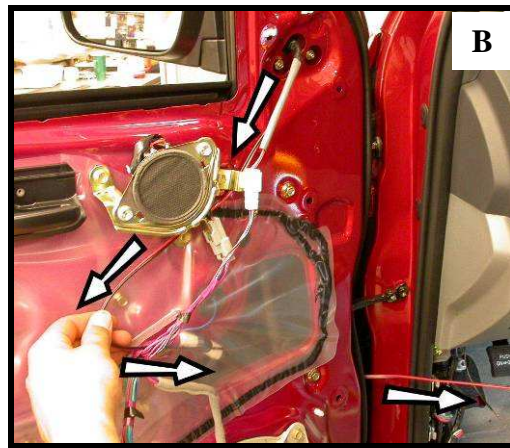
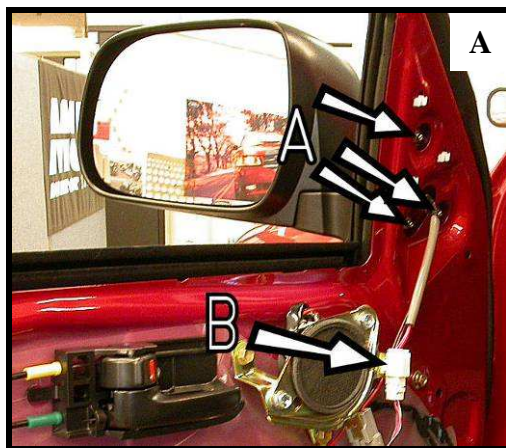
Remove sail from mirror housing (G). Remove the revealed remaining screw on mirror housing with a T-25 Torx wrench (H). Remove sail mount from mirror housing. Using the shorter of the two harnesses from the supplied wiring kit, start from inside mirror housing, guide the end without the connector thru the narrow passage down and out of the mirror housing. **TIP: A gopher rod may be use to guide the Signal® mirror wire harness thru narrow passage.** Pull the Signal® mirror wire harness thru leaving about 4"-6" of slack inside mirror housing for connection purposes (I). Connect the mating connectors on the new Signal® mirror and the Signal® mirror wire harness (J-A). Snap these mating connectors into the connector clip (J-B). Secure the Signal® mirror wire harness into the wire clip (J-C). **If heated, reconnect the heater wires to the heater terminals on the back of the new Signal® mirror.** **NOTE: There is no polarity so the heater wires may be interchanged.** Carefully tuck all wiring behind motor actuator. **Not doing so, could result in wiring interfering with mirror travel.** Align and insert the tongues on the motor mount [black] with its corresponding slots on the motor actuator [white] (K). With the palm of your hand, slowly push down on the glass until the new Signal® mirror snaps into position. Press down on all sides to ensure the new Signal® mirror is fully seated and functional (L).

MIRROR REPLACEMENT CONTINUED



Continue routing the *Signal*[®] mirror wire harness thru the sail and plastic insulation (M). **CAUTION: When replacing the sail, make sure to position all wire harnesses as shown on (N). Not doing so could result in wiring harnesses being crushed by the sail, when re-assembling, causing shortage in the long run.** Re-assemble the sail back onto the mirror housing. Replace the plastic insulation onto the housing sail.

WIRE ROUTING



WARNING: When routing wire into vehicle, it is extremely important to not let wire get pinched or crushed at any time. Avoid window track and sharp edges at all times. Not doing so may cause circuit shortage problems in the long run.

Guide all wire harnesses thru the hole in the door frame and position the mirror housing assembly onto the mirror mount. Attach the mirror housing to the mirror mount with three mirror mounting nuts (A-A). **WARNING! Do not over tighten the mirror mounting nuts.** Reconnect mirror harness (A-B). Find the rubber boot located between the door frame and vehicle frame. Push in and pull out on both ends of the rubber boot. Guide the *Signal*[®] mirror wire harness alongside original wire harness down and thru clear protective covering and out the hole vacated by the removal of the rubber boot (B). Remove floor trim and kick panel. Tape the open end of the *Signal*[®] mirror wire harness to the gopher rod (C). Push the gopher rod thru the rubber boot, thru the hole on the vehicle frame and into the vehicle (D). Gently pull the *Signal*[®] mirror wire harness thru, removing any slack in the *Signal*[®] mirror wire harness. Cut the tape with a utility knife and remove the gopher rod.

The vehicle's electrical wirings are located on the driver side kick panel area. Route the all *Signal*[®] mirror wire harnesses to the wiring location.

Repeat all of the previous steps to replace the factory mirror on the passenger side door with the new *Signal*[®] mirror.

BI-COLOR WIRE IDENTIFICATION

(FOR AMBER TURN ONLY OR RED TURN ONLY – SEE PAGE 12 & 13)

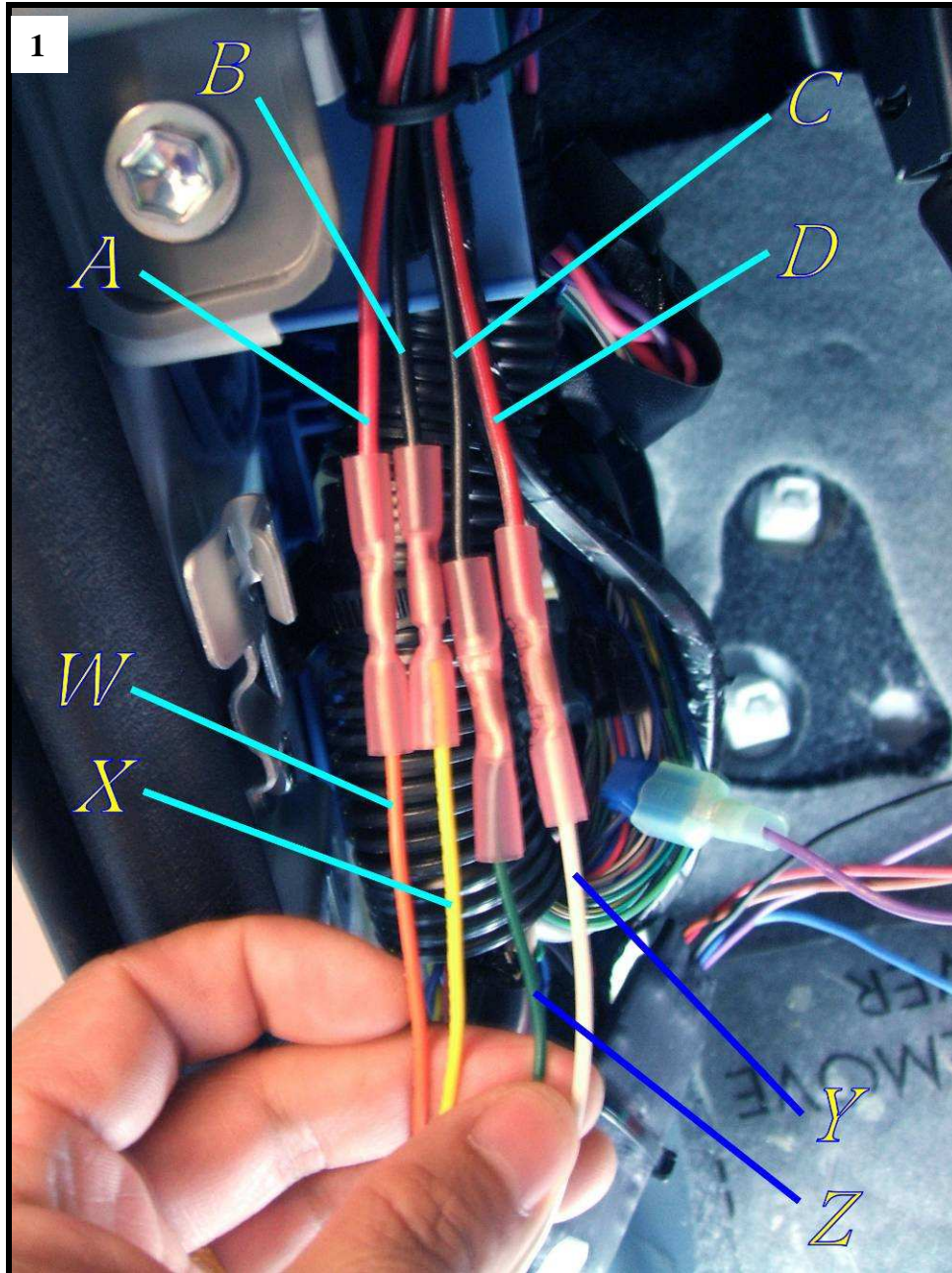


Table -1

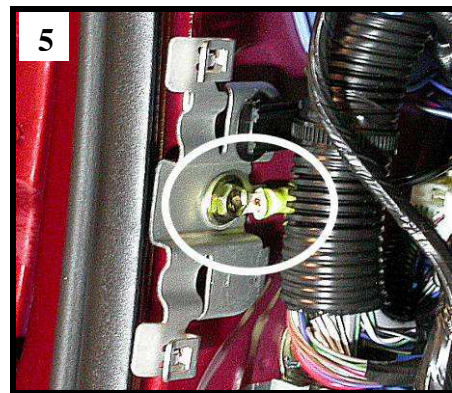
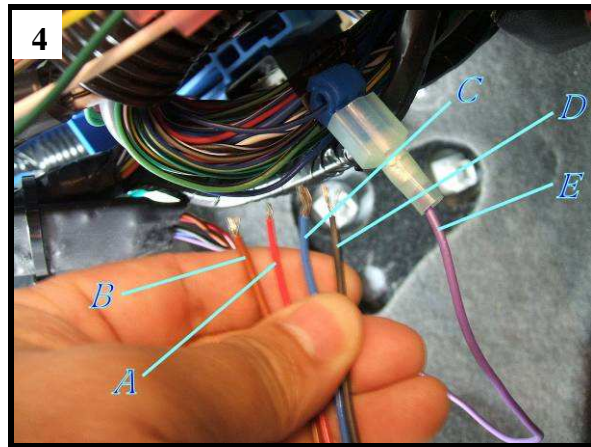
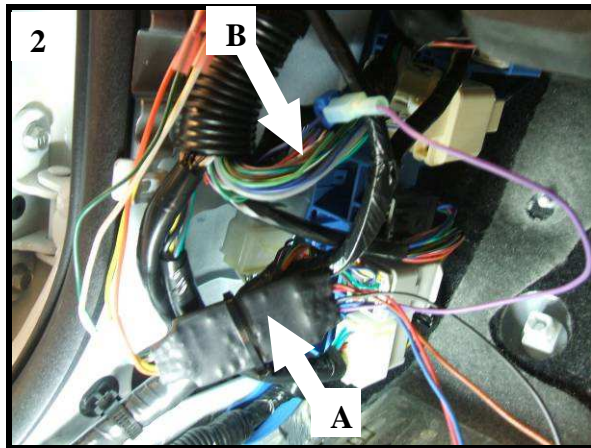
Signal® mirror Harness	Connect	C-Module
LH Red Wire (A)	To	Orange Wire (W)
LH Black Wire (B)	To	Yellow Wire (X)
RH Black Wire (C)	To	Green Wire (Z)
RH Red Wire (D)	To	White Wire (Y)

1) Once both Signal® mirror harnesses are routed to the driver side kick panel area, cut the wires to length for splicing. Label the left-hand Signal® mirror harness as 'LEFT'. Label the right-hand Signal® mirror harness as 'RIGHT'. Using a utility knife, slice between the red and black wire on each Signal® mirror wire harnesses. Gently and carefully pull on the red and black wires to separate the two wires for about 1" – 2". Strip about 3/16" off on all wires.

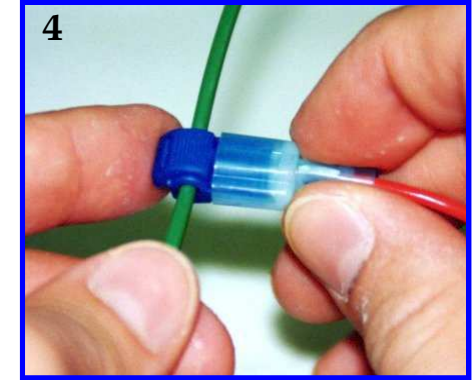
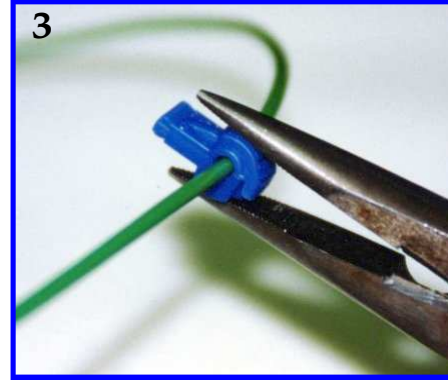
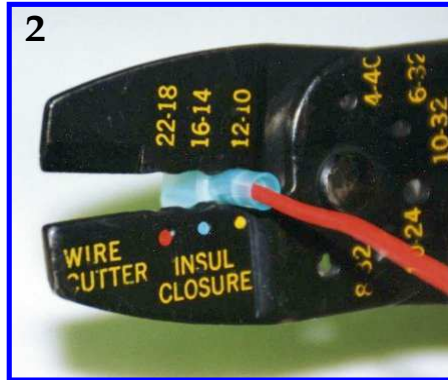
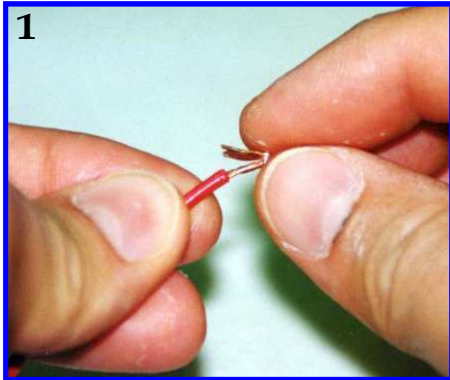
Find the included bi-color control module. Locate the (4) wires [orange, yellow, green, and white] coming off of the control module. Strip about 3/16" off on these four wires.

Using the (4) included butt-splices, butt-splice the 'LEFT' red wire [A] to orange wire [W]. Repeat butt-splice process for: 'LEFT' black wire [B] to Yellow wire [X], 'RIGHT' black wire [C] to Green wire [Z] and 'RIGHT' red wire [D] to White wire [Y] as shown in (Table -1).

BI-COLOR WIRE IDENTIFICATION CONTINUED



- 2) Cable-tied the Bi-Color Control Module as shown (A). The vehicle's electrical wirings are located in the wire bundle specified by (B).
- 3) Turn the ignition key so that electrical power is on and activate the driver side turn indicator. Find the BLUE with BLACK STRIPE wire and probe with the wire tester to verify that flashing turn directional power is present. Label that wire as 'driver side indicator'. Activate the passenger side turn indicator. Find the BLUE with YELLOW STRIPE wire, probe with the wire tester to verify that flashing turn directional power is present. Label that wire as 'passenger side indicator'. Find the BLUE wire and probe with the wire tester. Press and depress the brake to verify that power is on and off. Label that wire as 'brake wire'. Locate the BLACK with RED STRIPE wire, probe with the wire tester to verify that power is present. Label that wire as 'ACC wire'.
- 4) Locate the remaining (5) wires coming off of the Bi-Color Control Module. Label the RED wire [A] as 'ACC'. Label the BROWN wire [B] as 'Right Turn'. Label the Blue wire [C] as 'Brake'. Label the BLACK wire [D] as 'Ground'. Label the VIOLET wire [E] as 'Left Turn'.
- 5) The grounding bolt is located in the driver side kick panel area. Strip the 'Ground' [black] wire about 1/2", bend about half of the stripped portion of the wire back and insert it into the supplied grounding ring connector. Crimp the grounding ring and the wire together. Give the wire several tugs to ensure it is secure within the grounding ring. Attach the grounding ring to the bolt as shown.



USE THE INCLUDED BLUE T-TAPS AND FOLLOW THE 4 STEPS ABOVE TO SPLICE INTO THE TURN INDICATORS, BRAKE AND ACC WIRES

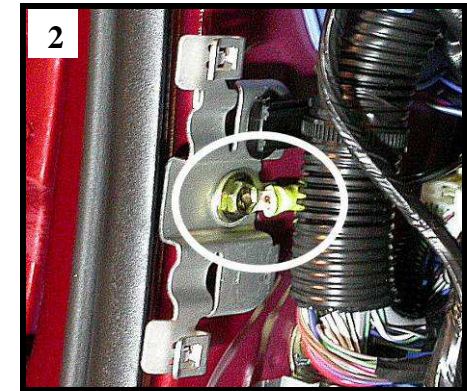
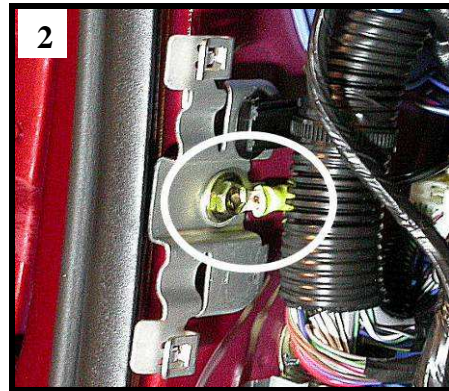
1. Make sure the harnesses are routed securely to the wire bundle(s) and enough slack is left for splicing.
2. Tap the wire previously labeled 'left turn' into the vehicle wire previously labeled 'driver side indicator'.
3. Tap the wire previously labeled 'right turn' into the vehicle wire previously labeled 'passenger side indicator'.
4. Tap the wire previously labeled 'brake' into the vehicle wire previously labeled 'brake wire'.
5. Tap the wire previously labeled 'ACC' into the vehicle wire previously labeled 'ACC wire'.
6. Activate each turn indicator to verify that the *Signal*[®] mirrors are working.

Replace both door panels, door accessories, insulation, plastic moldings, and trim pieces.

STOP! BI-COLOR WIRE IDENTIFICATION ENDS HERE.

'AMBER TURN' OR 'RED TURN' WIRE IDENTIFICATION

Only for those who want 'Amber Turn Only' OR 'Red Turn Only' without brake features



Amber Turn Only

****DO NOT USE BI-COLOR CONTROL MODULE****

The vehicle's electrical wirings are located in the wire bundle near the driver side kick panel area.

1) Turn the ignition key so that electrical power is on and activate the driver side turn indicator. Find the BLUE with BLACK STRIPE wire and probe with the wire tester to verify that flashing turn directional power is present. Label that wire as 'driver side indicator'. Activate the passenger side turn indicator. Find the BLUE with YELLOW STRIPE wire, probe with the wire tester to verify that flashing turn directional power is present. Label that wire as 'passenger side indicator'.

2) Route both Signal® mirror wire harnesses to the wiring location. Cut the harnesses to length making sure enough slack is available for splicing. Label the 'RED' wire from the left Signal® mirror harness as 'left hot'. Label the 'RED' wire from the right Signal® mirror harness as 'right hot'. The grounding bolt is located in the driver side kick panel area. Strip both 'BLACK' wires about 1/4" and insert them into the supplied grounding ring connector. Crimp the grounding ring and the wire together. Give the wires several tugs to ensure they are secure within the grounding ring. Attach the grounding ring to the bolt as shown.

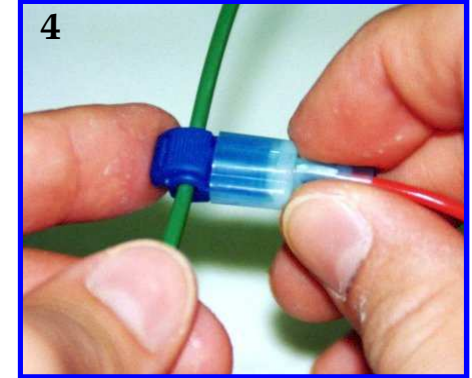
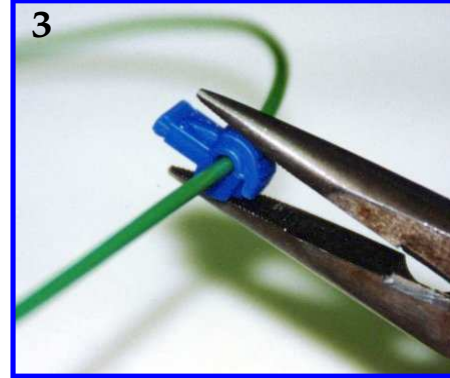
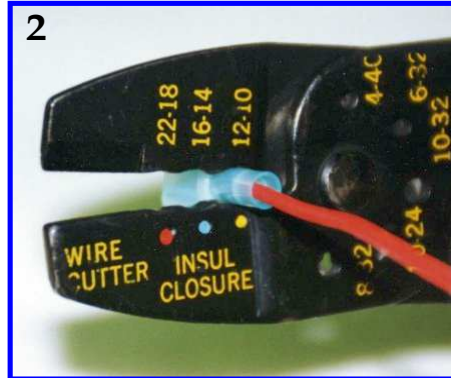
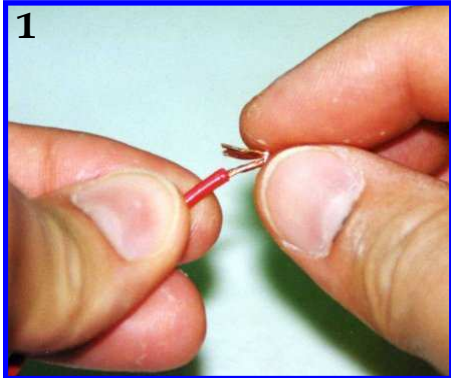
Red Turn Only

****DO NOT USE BI-COLOR CONTROL MODULE****

The vehicle's electrical wirings are located in the wire bundle near the driver side kick panel area.

1) Turn the ignition key so that electrical power is on and activate the driver side turn indicator. Find the BLUE with BLACK STRIPE wire and probe with the wire tester to verify that flashing turn directional power is present. Label that wire as 'driver side indicator'. Activate the passenger side turn indicator. Find the BLUE with YELLOW STRIPE wire, probe with the wire tester to verify that flashing turn directional power is present. Label that wire as 'passenger side indicator'.

2) Route both Signal® mirror wire harnesses to the wiring location. Cut the harnesses to length making sure enough slack is available for splicing. Label the 'BLACK' wire from the left Signal® mirror harness as 'left hot'. Label the 'BLACK' wire from the right Signal® mirror harness as 'right hot'. The grounding bolt is located in the driver side kick panel area. Strip both 'RED' wires about 1/4" and insert them into the supplied grounding ring connector. Crimp the grounding ring and the wire together. Give the wires several tugs to ensure they are secure within the grounding ring. Attach the grounding ring to the bolt as shown.



USE THE INCLUDED BLUE T-TAPS AND FOLLOW THE 4 STEPS ABOVE TO SPLICE INTO THE TURN INDICATORS, BRAKE AND ACC WIRES

1. Make sure the harnesses are routed securely to the wire bundle(s) and enough slack is left for splicing.
2. Tap the wire previously labeled 'left hot' into the vehicle wire previously labeled 'driver side indicator'.
3. Tap the wire previously labeled 'right hot' into the vehicle wire previously labeled 'passenger side indicator'.
4. Activate each turn indicator to verify that the *Signal*[®] mirrors are working.

Replace both door panels, door accessories, insulation, plastic moldings, and trim pieces.

Muth products are protected by these, and other pending, United States Patents

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5,788,357 6,005,724 6,045,243 6,076,948 6,257,746 6,700,123 6,749,325 6,918,685 7,008,091 7,015,642 7,104,676 D363,920
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