

GENTEX MIRROR INSTALLATION INSTRUCTIONS

by MITO CORPORATION

Instructions for Universal Harness

These instructions have been prepared to provide you with details necessary for complete installation of the Gentex Automatic Dimming Mirror, Gentex Automatic Dimming Compass/Temperature Mirror, or Gentex Auto Dimming/Compass/Temperature Mirror with Map Lights. Be sure to read all instructions prior to beginning the installation. Follow all the safety guidelines outlined in this instruction book as well as those set forth by industry and government. Please direct all operational or troubleshooting questions to our MITO Customer Service Department toll-free at (800) 433-6486. This Gentex Rearview Mirror Universal Harness is designed for use in applications where a custom harness is not available for your vehicle.

**IT IS IMPORTANT THAT YOU OBTAIN THE
CORRECT INFORMATION FOR YOUR VEHICLE, OR
DAMAGE TO THE WIRING SYSTEM COULD OCCUR.**

PARTS NEEDED:

- One (1) Mirror**
- One (1) Harness**
- One (1) Temp Probe Harness (only on comp/temp mirrors)**
- One (1) Temp Sensor (only on comp/temp mirrors)**
- One (1) Hang Tag**

Tools Required for Proper Installation:

- Safety Glasses**
- DC Voltmeter Trouble light or
Flashlight**
- Crimping Pliers Power Drill**
- Torx Driver #20 9/16" Drill Bit**
- Phillips screwdriver Knife**
- Wire Strippers**

1.0 PREPARATION

- 1.1 Inspect mirror for damage
- 1.2 Check Parts List for accuracy.

2.0 PREPARATION FOR ROUTING THE HARNESS (Inside the Driver's Side Area)

2.1 Remove the "A" pillar (windshield post) trim molding, upper windshield trim molding (if applicable), and kick panel trim.

INSTALLATION PRECAUTIONS/NOTES:

- " Do not use excessive force when removing OE mirror from windshield. The windshield button may separate from the windshield or the windshield may break.
- " Do not use excessive force if removal of OE mirror button is necessary.
- " Do not route wiring over sharp metal edges or allow to be pinched behind trim to avoid causing an electrical short or break in the wire.
- " Manufacturer/distributor not responsible for installation-related damage to vehicle.
- " Contact original purchase source if additional information is desired regarding these products.
- " For installation situations that installer is not familiar with, a qualified installation technician or mechanic should be consulted for assistance.
- " Use wire ties to hold wires away from hot engine and critical parts such as brake and steering systems.
- " Do not cut or try to modify temperature sensor harness in any way.
- " Contact your local auto dealership or auto sound center to obtain detailed information pertaining to your specific automobile wire color information.

3.0 REMOVE ORIGINAL EQUIPMENT (OEM) REARVIEW MIRROR

CAUTION: DO NOT USE EXCESSIVE FORCE WHEN REMOVING MIRROR FROM WINDSHIELD. THE WINDSHIELD BUTTON MAY SEPARATE FROM THE WINDSHIELD OR THE WINDSHIELD MAY BREAK.

3.1 Screw mount mirror removal procedure. Note that there are several versions of mirror mount systems. If unfamiliar with mirror removal, seek professional assistance.

- " Using a Philips screwdriver or a #20 torx bit, loosen the screw in the base of the mirror.
- " After loosening screw, gently lift upward to slide mirror off of mirror mount.

3.2 Wedge mount mirror removal procedure: (Common Method for screwless mount).

" Using a small 1/8" (4 mm) flat-blade screwdriver, insert the flat end into the opening at the bottom of the mirror mount at the windshield.

" Slide the screwdriver into the center of the mirror mount until resistance is felt.

" Gently apply a small amount of additional upward force to lift away locking spring in the mount.

" While still applying upward pressure with the screwdriver, grasp the mirror bracket and wiggle side to side. Lift mirror up toward the headliner and off the windshield mount button.

3.3 Camlock Mirror Removal procedure: (Common Method)

" Grasp the base of the mirror.

" Rotate 90 degrees left or right.

" Slide mirror downward toward dash to remove.

4.0 INSTALL NEW INTERIOR MIRROR

4.1 Wedge Mount Mirror Installation:

" Slide the mirror bracket over the mirror button on the windshield.

" Rock mirror side to side to aid installation until mirror fits tightly onto mirror button.

" Use #20 Torx screwdriver to tighten locking screw through hole in center of compass pod below mirror mount.

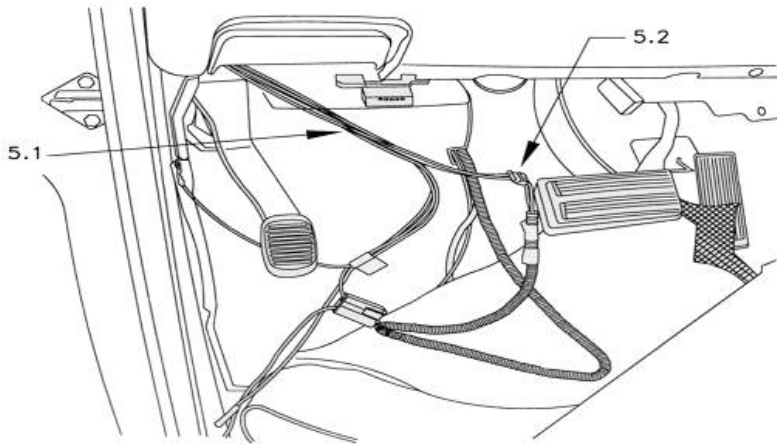
NOTE: If Gentex Mirror does not fit button on your windshield, it is possible that one of our adapter plates may, i.e. for some foreign manufactured vehicles. It may also be possible that the mirror button will have to be replaced with one that is compatible with the Gentex mirror, i.e. Fords built prior to 1996. If you need information concerning one of our Gentex adapter plates or a mirror button kit, please contact your Gentex mirror retailer.

5.0 ROUTING OF THE GENTEX UNIVERSAL POWER HARNESS

NOTE: Locate the Gentex power harness. It will have a flat 7 or 10-pin connector which plugs into the mirror.

5.1 From the bottom of the driver's side dash, near the post location, feed this connector up along the side of the dash to the opening at the "A" pillar near the base of the windshield. Pull the harness up far enough to reach the mirror location.

5.2 Plug in the harness connector to its mirror counterpart. Route the harness straight up to the headliner.



5.3 Gently pull down the front edge of the headliner and tuck the harness up under the edge of the headliner.

5.4 Continue tucking the harness under the headliner along the top of the windshield working your way over to the driver's side "A" pillar. Dress the harness along the "A" pillar down to the dash opening.

NOTE: It will probably be necessary to tape these wires in place, or wire tie them to the existing factory harness.

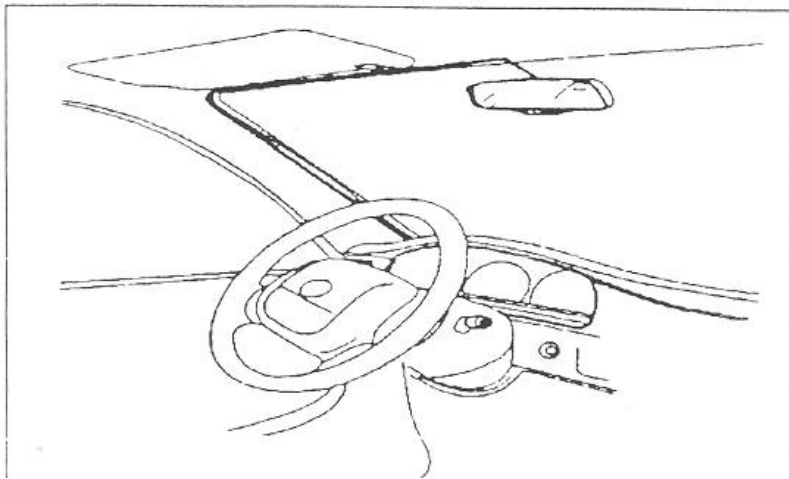
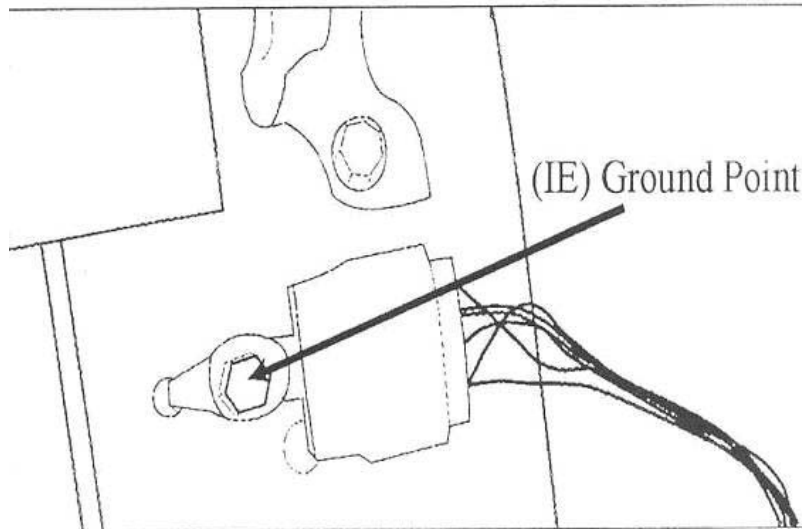


Fig. 5.4

Wire Color	Connection
Black	Ground Wire
Red	+12V supply switched by ignition
Yellow	+12V constant power (battery)
Brown	Connected to +12V dome light circuit

6.0 GROUND WIRE CONNECTION



6.1 Locate an existing bolt or screw that is in contact with the vehicles metal body in the area of the driver's step well.

6.2 Route the mirror ground wire (black) to the ground point.

6.3 Remove the bolt or screw from the ground point and install the ring terminal over the ground bolt/screw. Scrape off paint from mounting surface, if necessary, to obtain a solid connection.

6.4 Reinstall and tighten the fastener.

7.0 12-VOLT (POSITIVE) WIRE CONNECTION

7.1 Route the 12-volt red wire to an ignition controlled wire.

NOTE: If mirror remains on at all times, it could eventually drain the car's battery.

7.2 Power source - Using a multi-meter, check for wire exiting fuse block that tests positive for being controlled by the ignition switch. The power must turn off when the ignition is in the OFF position.

7.3 Expose some vehicle wiring by slicing open some of the insulation and connect the red ignition wire at this time. Use electrical tape to insulate and protect the connection. You may need to remove the butt connector and strip some insulation from the Gentex harness. See examples of a good connection on the following pages. Yellow wire (constant power source) is shown in the example.

NOTE: Each vehicle is different. Always use a multi-meter and double check before making any connections. If you are not familiar with vehicle wiring please consult a professional.

****READ** - If you are installing a standard mirror, proceed to step 10.0. If you are installing a mirror with outside temperature, continue with step 9.0.**



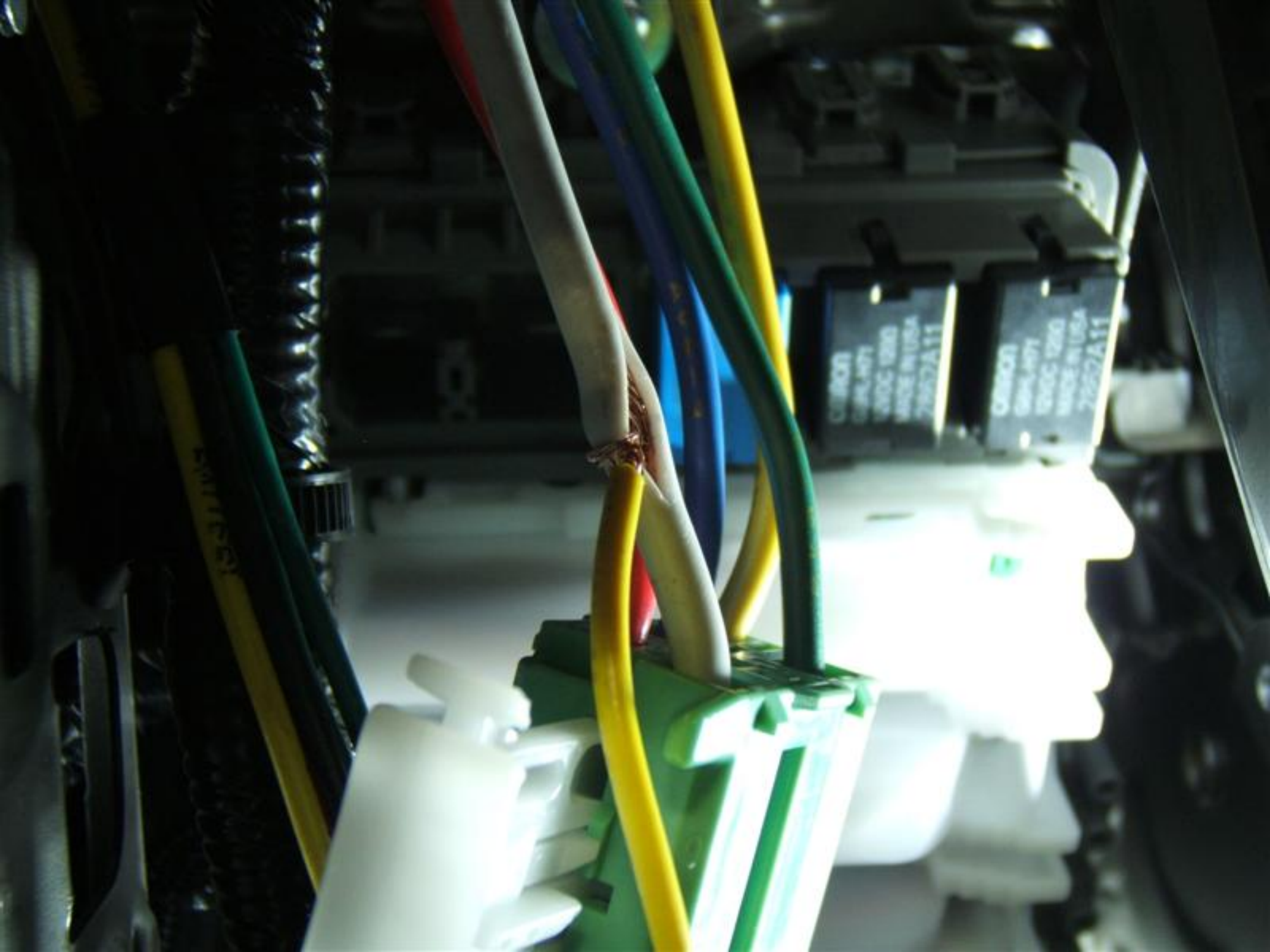
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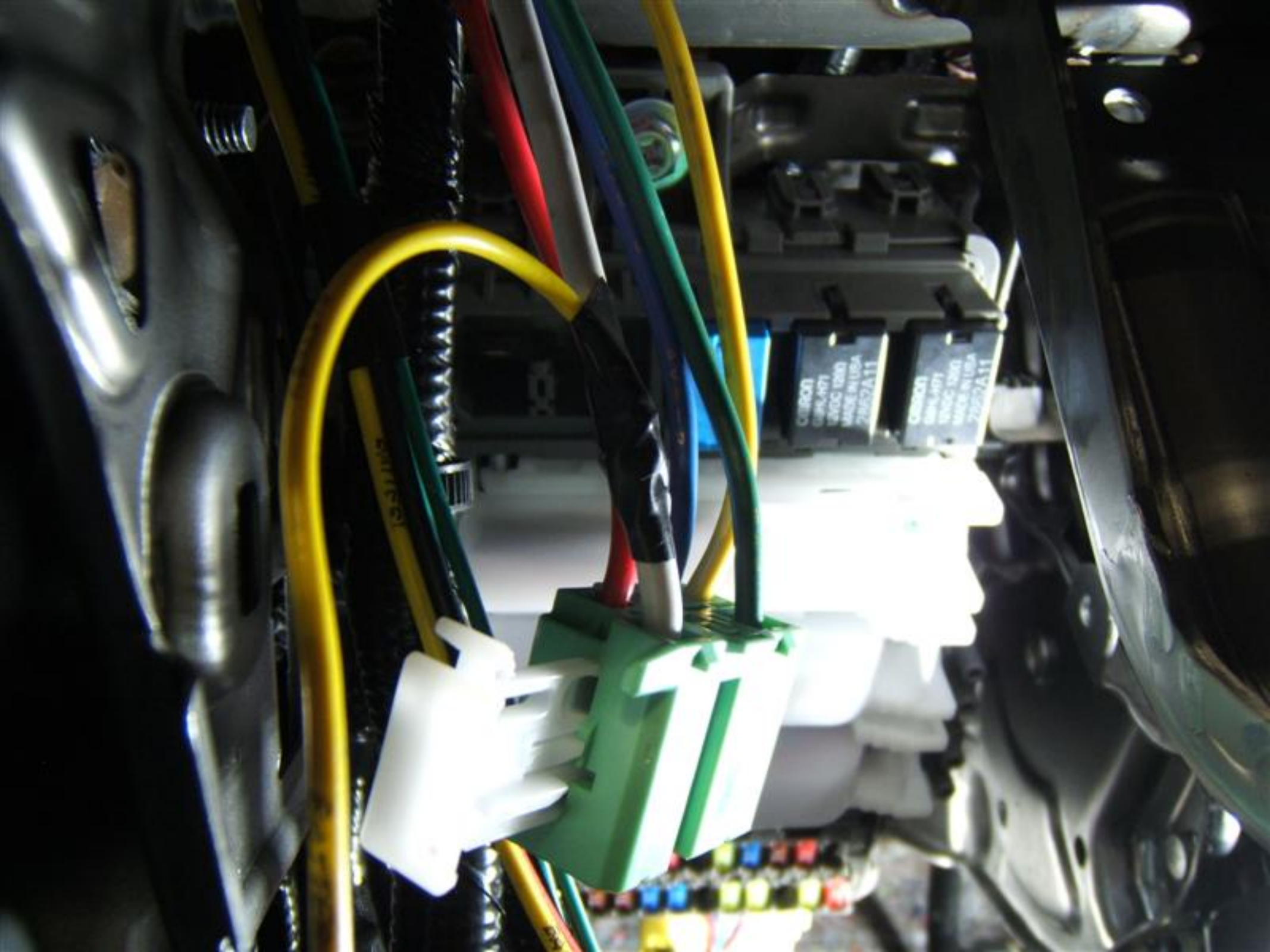
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9.0 ROUTING THE TEMPERATURE HARNESS (inside the engine compartment)

9.1 Open the hood of the vehicle.

9.2 Locate the temperature sensor portion of your harness. It is the section with the green wires.

9.3 Locate a grommet in the firewall near the interior harness location and remove it.

NOTE: If a grommet is not available, drill a 9/16" hole in a safe and convenient place to feed the 2-pin connector through. Take care not to cause damage to objects in the passenger compartment when drilling.

9.4 Locate the temperature probe harness and lay it out with the 2-pin connector toward the firewall. Pass this connector through the hole or grommet access to just inside the passenger compartment.

NOTE: It is important that the 2-pin connector be inside the vehicle to prevent moisture from coming in contact with it.

9.5 Route the rest of the harness towards the front of the vehicle over the fender well to an area in front of the radiator.

NOTE: The preferred location for the temperature probe is in the center of the grille or some place where it will be in free air in front, or to the side, of the radiator. Down near the bumper may also be used. Avoid locating it inside or in front of the wheel well, engine compartment, or too close to the headlamps. Try to keep the height no higher than the center of radiator, and no lower than 8" above the pavement. Always try to keep the temperature probe in the center of the vehicle; never locate it outside of the frame rails.

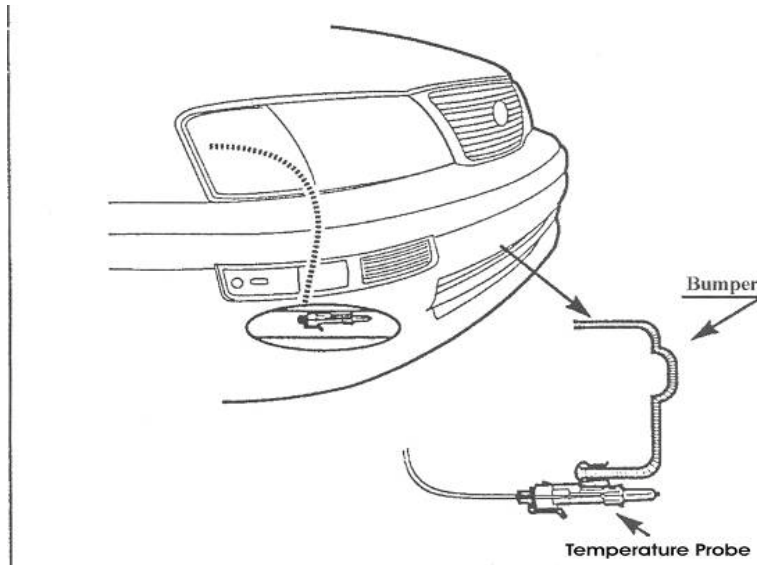


Fig. 9.5

9.6 Locate the temperature sensor probe.

9.7 Plug the probe on the connector making sure that the gray moisture seal seats inside the probe collar.

9.8 Clip on the temperature sensor probe. Do not install it pointing toward the rear of the car or pointing downwards, as water may get past the connector seals. Pull the excess temperature sensor harness back into the engine compartment.

9.9 Use wire ties to secure the temperature sensor harness.

NOTE: Take care to route away from the accelerator and brake area so that the harness does not in any way interfere with their operation.

9.10 Find the grommet that was removed in order to feed the temperature sensor harness through the firewall. Using a knife, carefully slit the grommet and slide the wires into the grommet and reinstall the grommet back to its original position in the firewall.

9.11 If you have not already plugged the temperature sensor harness into the main power harness mating plug, do so at this time.

****Read** - If you are installing a 50-9050549001M, proceed to step 12.0. If you are installing a 50-9050620001M, continue with step 10.0**

10.0 12-VOLT (POSITIVE) BATTERY WIRE CONNECTION

10.1 Route the yellow wire labeled battery to a constant power source.

10.2 Power source - Using a multi-meter, check for a wire at the fuse block

that tests positive for +12 volts. The power must be present when the ignition is in the OFF position.

11.0 MAP LIGHT WIRE CONNECTION

11.1 There are two (2) types of dome light circuits used in automobiles.

Type A. All General Motors, most Chrysler, and some Ford import vehicles use a circuit that puts a constant +12 volts to the dome light.

When the door is opened, the door jam switch provides a path to ground and the light comes on. In this case the wire at the switch will have +12 volts when the door is closed and 0 volts when the door is open.

Type B. Most full-size Ford and some Chrysler vehicles use a circuit that has two wires at the door jam switch. When the door is closed, there is +12 volts on one wire but not the other. When the door is open, there is +12 volts on both wires.

11.2 Using a multi-meter, check the power at the door switch wire(s) and determine if the circuit is Type A or Type B. Contact your local auto dealership or auto sound center to obtain detailed information pertaining to your specific automobile wiring.

11.3 Route the brown wire to a location so it can be connected to the proper wire at the door switch. The wire at the door switch must change from +12 volts to 0 volts or 0 volts to +12 volts when the door is opened or closed!

11.4 Use a scotch lock or t-tap to connect the brown wire or butt connector.

11.5 Test the map lights on the mirror and compare it with the vehicle's dome light. Both the map lights and dome lights should turn on and off together.

11.6 If the mirror map lights work opposite of the dome light, open the black box connected to the brown wire and change the position of the switch inside.

NOTE: If the map light on the Gentex mirror does not turn off and you have changed the position of the switch (11.6), disconnect brown wire and repeat step 11.2.

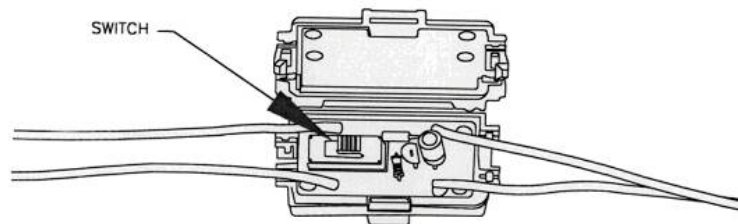


Figure 11.6

12.0 SECURING WIRE HARNESS

12.1 Now that all wires from temperature probe harness and the main harness have been installed, they will need to be secured with wire ties.

" Under hood - be sure to keep wires away from moving parts such as steering and brake mechanisms.

" Keep away from extremely hot engine components.

" Interior - wire tie all wires out of the way, making sure to avoid steering and brake components.

13.0 TESTING

13.1 Turn the ignition switch to ON.

13.2 With the vehicle in a fairly well lit area, perform the following:

" Push and hold temperature switch for 15 seconds ON/OFF. Auto dimming is enabled when green LED is on.

" Cover the forward-looking photocell located on the back side of the mirror (a dark cloth or towel will work).

" After a few seconds, the mirror will begin to darken (the time may vary with ambient light levels).

" Remove the cover from the forward photocell and the mirror will begin to clear.

" With car in garage facing back wall, shift into reverse with foot on brake.

" Mirror testing is now complete.

14.0

14.1 You are now ready for final assembly of removed components and calibration of your mirror. Operating instructions for your mirror are located on a hang tag provided with your mirror kit.

Complete Parts List Required for Installation

Part Number	Description	Quantity
50-9053501M or 50-9050549001M or 50-9053781M or 50-9050620001M	E.C. Electronic Rearview Mirror - Alternating Display E.C. Comp Temp (Dual Display) E.C. Only Mirror E.C. Comp/Temp and Map Lights	1
50-517GTEMP	Temperature Sensor Harness (only on comp/temp mirrors)	1
50-9RT1H832	Temperature Sensor (must be used with the 50-517GTEMP)	1

72-101 or 72-102 or 72-110	Hang Tag for Mirror Operations (Auto Dim) Hang Tag for Mirror Operations (Auto Dim/Comp/Temp) Hang Tag for Mirror Operations (Auto Dim/Comp/Temp/Map Lights)	1
50-517102G or 50-517198G	Wire Harness (2-pc) With Mounting Hardware	1

If you have any questions or comments regarding these instructions, please feel free to contact MITO Corporation at 800-433-6486.