

2002 ACCESSORIES & EQUIPMENT

Defogger System - RAV4

BODY ELECTRICAL SYSTEM

PRECAUTION

NOTE: Take care to observe the following precautions when performing inspections or removal and replacement of body electrical related parts.

1. Headlight System

Halogen bulbs have pressurized gas inside and require special handling. They can burst if scratched or dropped. Hold a bulb only by its plastic or metal case.

Don't touch the glass part of a bulb with bare hands.

2. SRS (Supplemental Restraint System)

The RAV4 is equipped with an SRS (Supplemental Restraint System) such as the driver airbag and front passenger airbag. Failure to carry out service operation in the correct sequence could cause the SRS to unexpectedly deploy during servicing, possibly leading to a serious accident. Before servicing (including removal or installation of parts, inspection or replacement), be sure to read the precautionary notices in **AIR BAG SAFETY PRECAUTIONS**.

3. Audio System

If the negative (-) terminal cable is disconnected from the battery, the preset AM, FM1 and FM2 stations stored in memory are erased, so be sure to note the stations and reset them after the battery terminal is reconnected.

4. Mobile Communication System

If the vehicle is equipped with a mobile communication system, refer to precautions in **IF VEHICLE IS EQUIPPED WITH MOBILE COMMUNICATION SYSTEM**.

TROUBLESHOOTING

PROBLEM SYMPTOMS

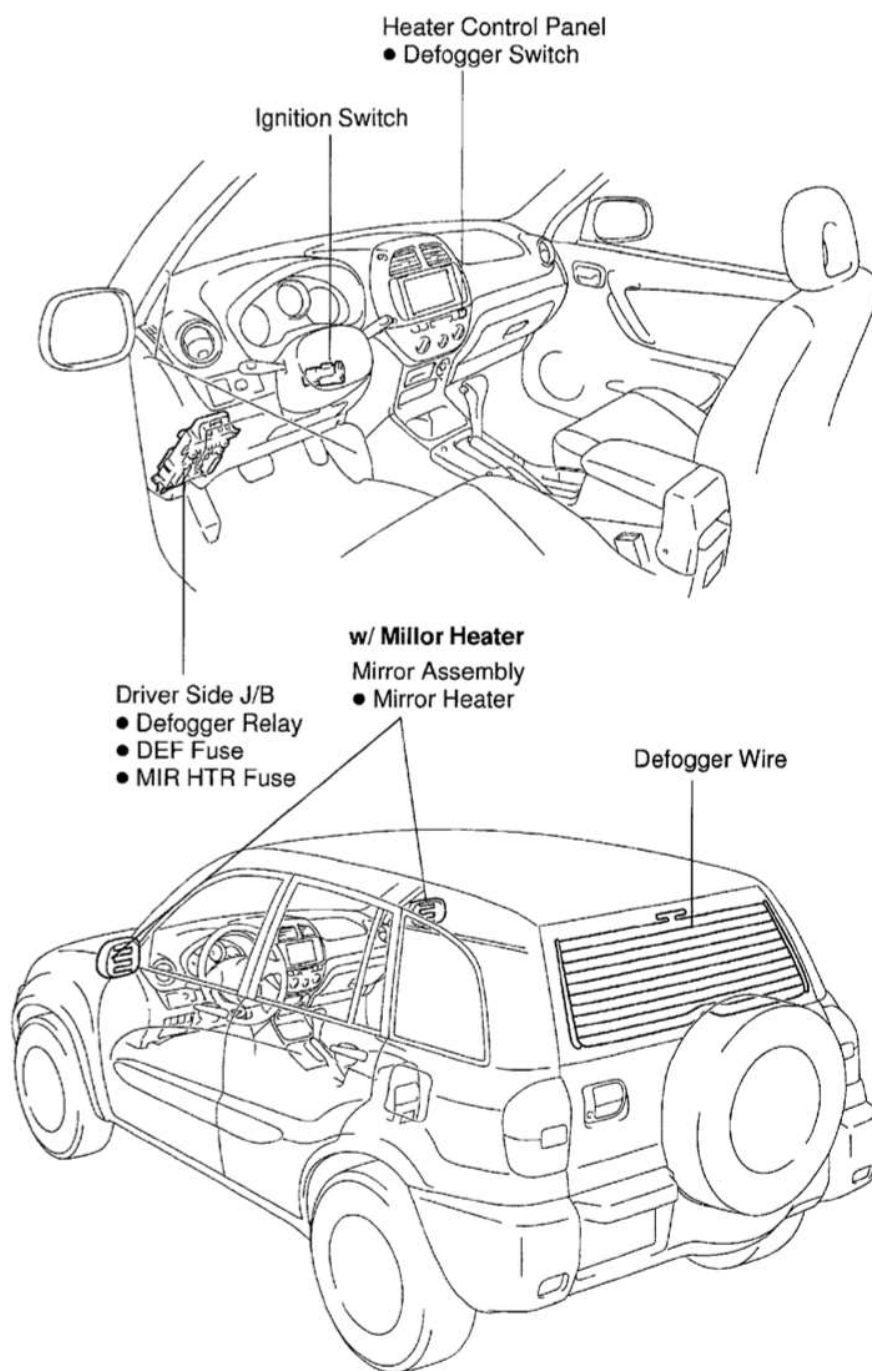
DEFOGGER SYSTEM

Symptom/Suspected Area	See
Entire Defogger System Does Not Operate	
HTR Fuse	FUSES & CIRCUIT BREAKERS

DEF Fuse	<u>FUSES & CIRCUIT BREAKERS</u>
Defogger Relay	<u>INSPECTION</u>
Defogger Switch	<u>INSPECTION</u>
Wire Harness	*****
Rear Window Defogger Does Not Operate	
Defogger Wire	<u>INSPECTION</u>
Wire Harness	*****

DEFOGGER SYSTEM

LOCATION



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Fig. 1: Locating Defogger System Components

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

1. Inspect defogger timer operation .

- Connect the positive (+) lead from the battery to terminals 1, 7 and negative (-) lead to terminal 9.
- Connect the positive (+) lead from the battery to terminal 4 through a 1.4 W test bulb.
- Push the defogger switch ON, and check that the test bulb and indicator light up for 12 to 18 minutes, then the indicator light go out.

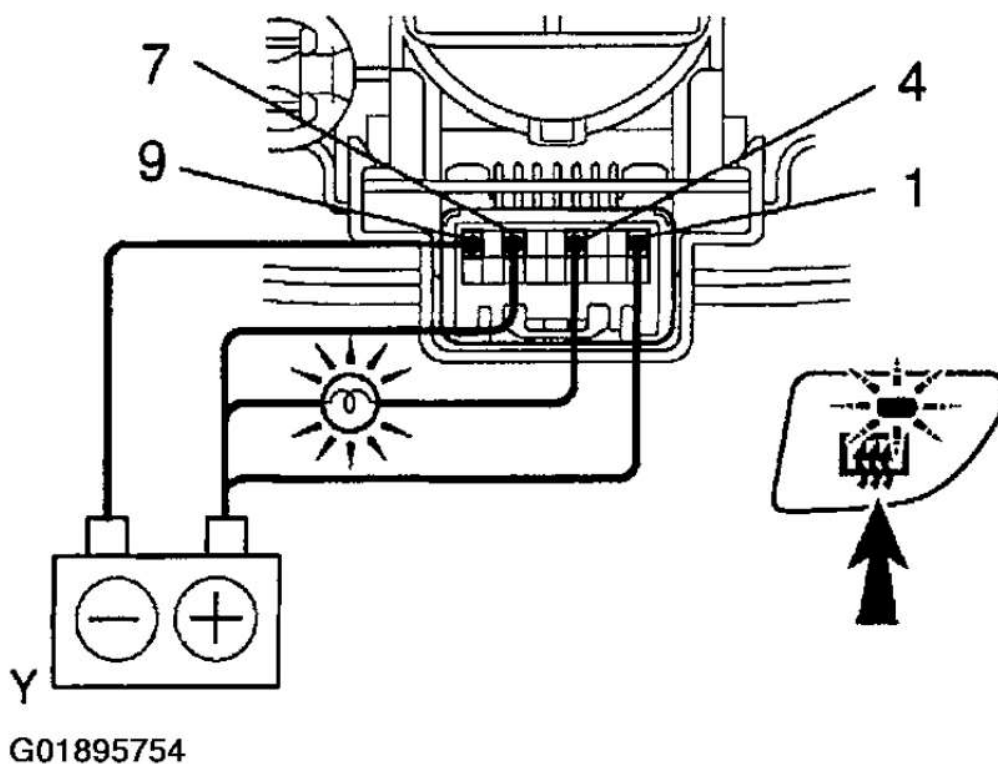
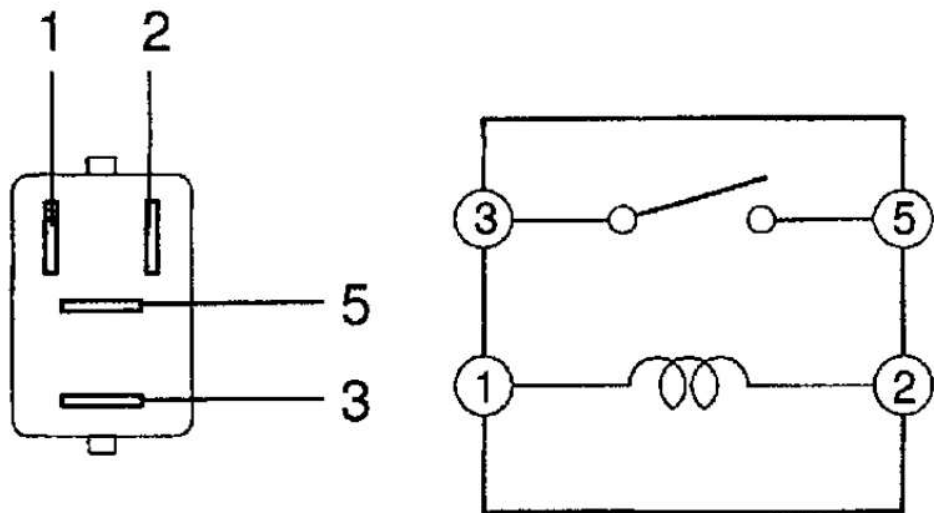


Fig. 2: Inspecting Defogger Timer Operation
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If operation is not as specified, replace the inner printed circuit board.

2. Inspect rear defogger relay continuity .



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Fig. 3: Inspecting Rear Defogger Relay Continuity
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Condition	Tester connection	Specified condition
Constant	1 – 2	Continuity
Apply B+ between terminals 1 and 2.	3 – 5	Continuity

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Fig. 4: Displaying Defogger Relay Continuity Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If continuity is not as specified, replace the relay.

3. W/ mirror heater: Inspect mirror heater operation .

- a. Connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 6.
- b. Check that the mirror becomes warm.

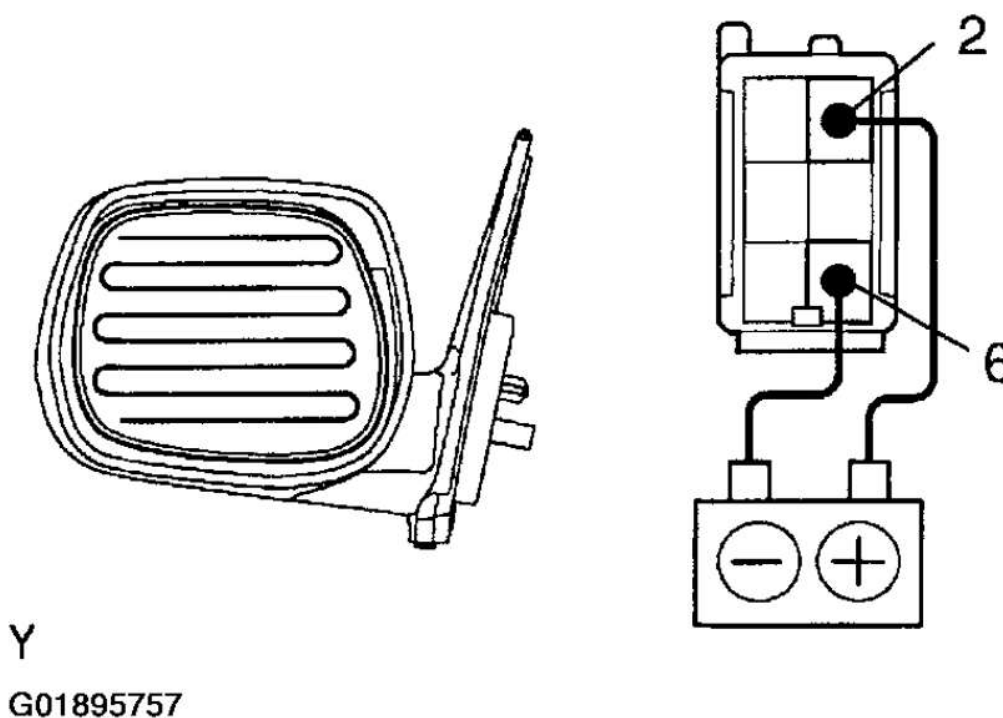


Fig. 5: Inspecting Mirror Heater Operation
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: It will take a short time for the mirror to become warm. If the mirror does not become warm, replace the mirror assembly.

4. Inspect defogger wire .

- NOTE:**
- When cleaning the glass, use a soft, dry cloth, and wipe the glass in the direction of the wire. Take care not to damage the wires.
 - Do not use detergents or glass cleaners with abrasive ingredients.
 - When measuring voltage, wind a piece of tin foil around the top of the negative probe and press the foil against the wire with your finger, as shown.

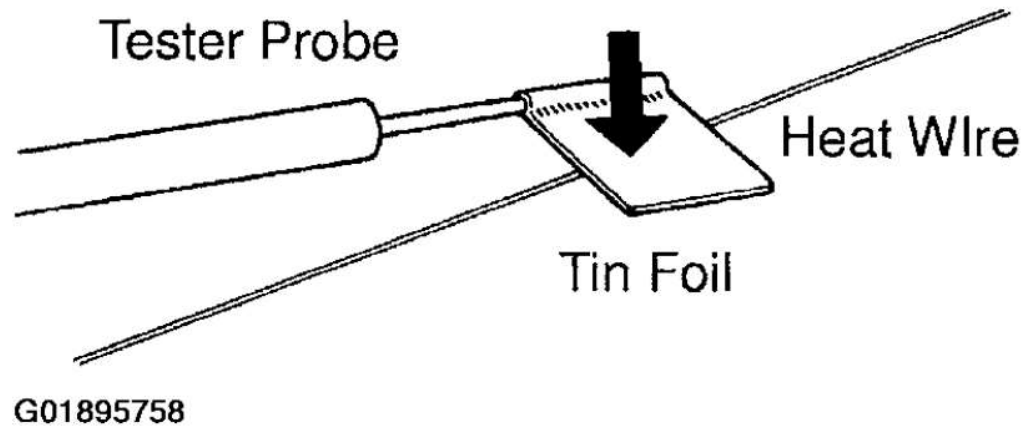
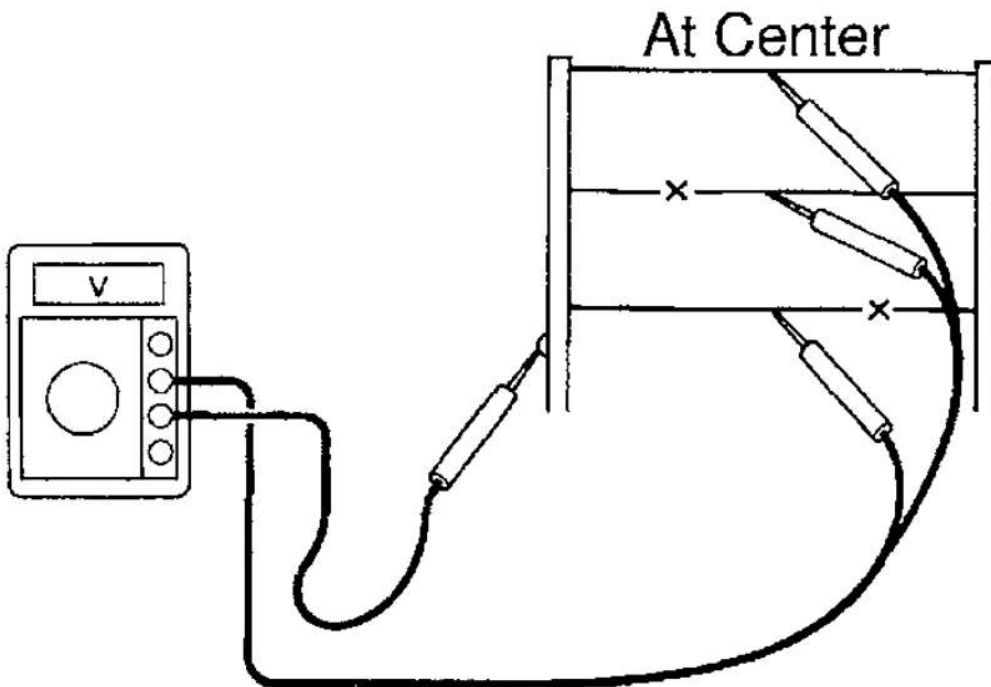


Fig. 6: Inspecting Defogger Wire
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Turn the ignition switch ON.
- b. Push the defogger switch ON.
- c. Inspect the voltage at the center of each heat wire, as shown.



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Fig. 7: Inspecting Voltage At Each Heat Wire
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Voltage	Criteria
Approx. 5 V	Okay (No break in wire)
Approx. 10 V or 0 V	Broken wire

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Fig. 8: Displaying Voltage Criteria
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: If there is approximately 10 V, the wire is broken between the center of the wire and the positive (+) end. If there is no voltage, the wire is broken between the center of the wire and ground.

- d. Place the voltmeter positive (+) lead against the defogger positive (+) terminal.
- e. Place the voltmeter negative (-) lead with the foil strip against the heat wire at the positive (+) terminal end and slide it toward the negative (-) terminal end.
- f. The point where the voltmeter deflects from zero to several V is the place where the heat wire is broken.

NOTE: If the heat wire is not broken, the voltmeter indicates 0 V at the positive (+) end of the heat wire but gradually increases to about 12 V as the meter probe is moved to the other end.

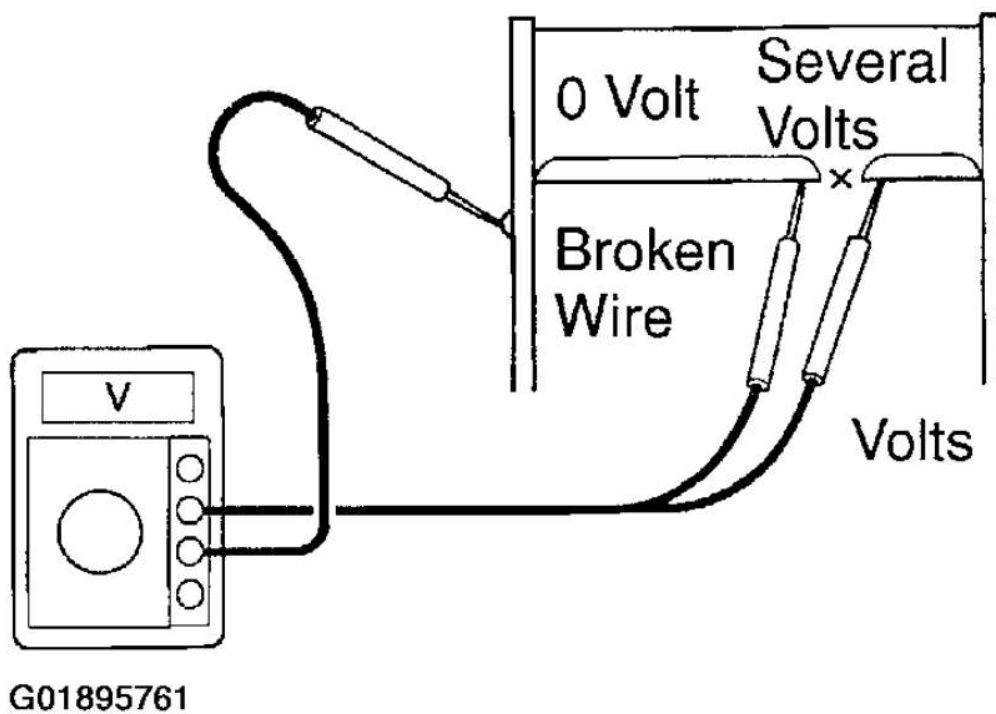


Fig. 9: Measuring Voltage On A Broken Wire
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. If necessary, repair defogger wire .
 - a. Clean the broken wire tips with grease, wax and silicone remover.
 - b. Place the masking tape along both sides of the wire to be repaired.

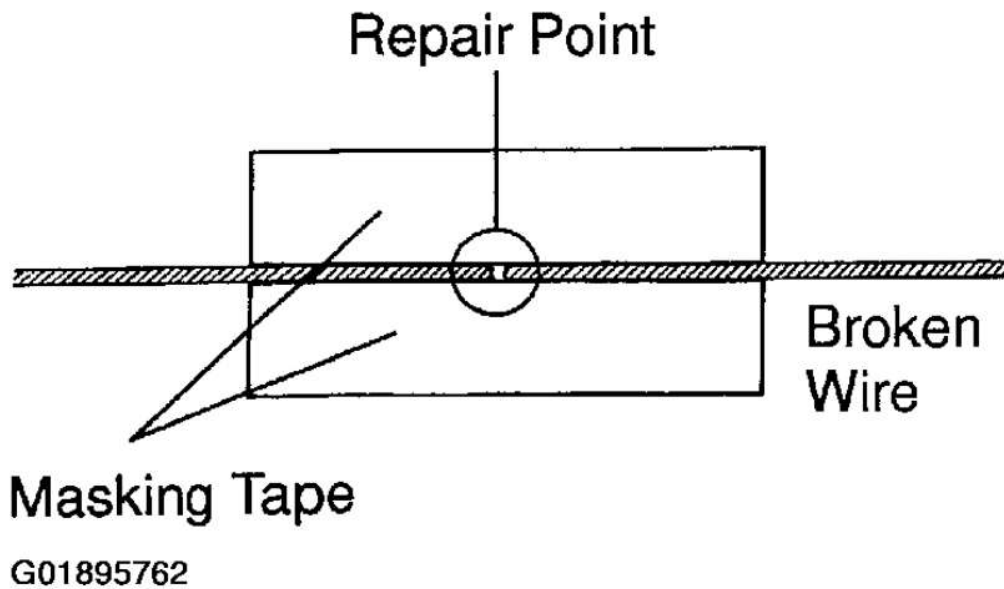
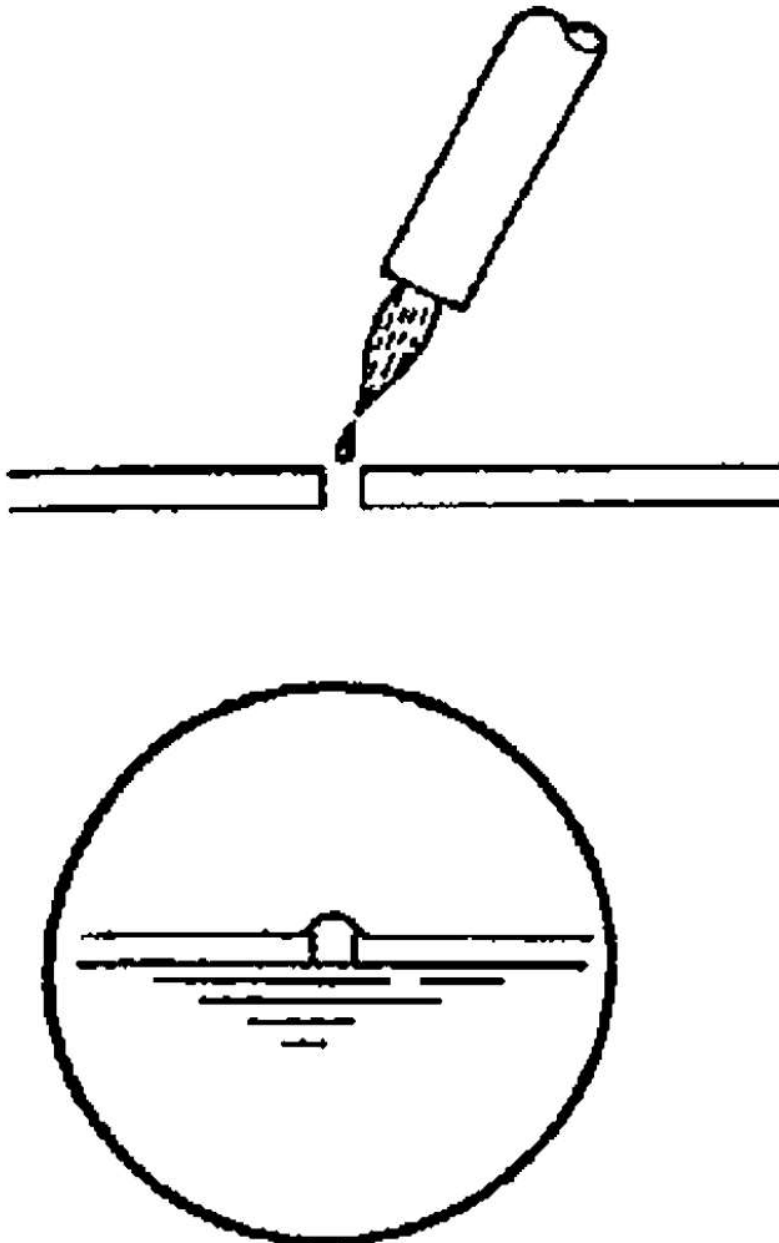


Fig. 10: Masking Off Broken Wire For Repair
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Thoroughly mix the repair agent (Dupont paste No. 4817 or equivalent).
- d. Using a fine top brush, apply a small amount to the wire.



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Fig. 11: Applying Repair Agent To Defogger Wire
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- e. After a few minutes, remove the masking tape.

- f. Do not use the defogger wire for at least 24 hours.