DEFOGGER - REAR WINDOW

1998 Mitsubishi Galant

1998 ACCESSORIES & EQUIPMENT
Mitsubishi - Rear Window Defoggers

Diamante, Eclipse, Galant, Mirage, Montero, Montero Sport, 3000GT

DESCRIPTION & OPERATION

Rear window defogger is a heating filament grid bonded to inside of window. Rear window defogger is controlled by defogger switch on instrument panel and a defogger relay.

On Montero, a timer relay controls defogger operation for 9-11 minutes, then turns defogger off. On Eclipse and Galant, defogger timer circuit is integral with Electronic Timer Alarm Control System (ETACS) ECU. Timer will operate defogger for 11 minutes then turn off, even with defogger switch in ON position and indicator light illuminated. On Diamante, timer will operate defogger for 20 minutes, then turn off.

COMPONENT LOCATIONS

COMPONENT LOCATIONS TABLE

Component	Location
A/C ECU	
Diamante	Behind Center Of Dash
Data Link Connector (DLC)	Under Left Side Of Dash, Near Steering Column
Defogger Relay	
Montero Sport	Under Left Side Of Glove Compartment
Except Montero Sport	On Relay Block, Behind Left Side Of Dash
Defogger Timer	
Diamante	Integral With A/C ECU
Eclipse & Galant	Integral With ETACS-ECU
Montero	Behind Left Side Of Dash, Behind Speaker
ETACS-ECU	Above Left Kick Panel, On Junction Block

TROUBLE SHOOTING

* PLEASE READ THIS FIRST *

NOTE: For additional trouble shooting information on Eclipse and Galant, see SYMPTOM TESTS.

DEFOGGER DOES NOT WORK

Check for blown fuse, poor contact, defective defogger switch, poor connection or open wire.

DEFOGGER TIMER INOPERATIVE

Check defogger switch or defogger timer. See COMPONENT TESTS.

INDICATOR LIGHT DOES NOT WORK

Check for burned out bulb, open circuit or poor connection.

INDICATOR LIGHT IS DIM

Check rheostat or indicator bulb.

SYMPTOM TESTS

INPUT SIGNAL INSPECTION

NOTE: The following information only applies to Eclipse and Galant.

NOTE: Perform input signal inspection before proceeding with SYSTEM TESTS.

Eclipse & Galant

1) Input signal inspection can be performed using scan tool or an analog voltmeter. To perform inspection using scan tool, go to next step. To perform inspection using an analog voltmeter, go to step 3).

2) Turn ignition off. Connect scan tool to Data Link Connector (DLC). Turn ignition on and then off. If buzzer on scan tool sounds when ignition was turned on, ECU input signal is normal. If buzzer did not sound, go to SYSTEM TESTS.

3) Turn ignition off. Connect DTC Check Harness (MB991529) to DLC terminals No. 4 or 5 (ground) and terminal No. 9. See Fig. 1. Connect voltmeter leads to check harness leads. Turn ignition switch on, then off. If voltmeter deflects once when ignition was turned on, ECU input signal is normal. If voltmeter did not deflect, go to SYSTEM TESTS.

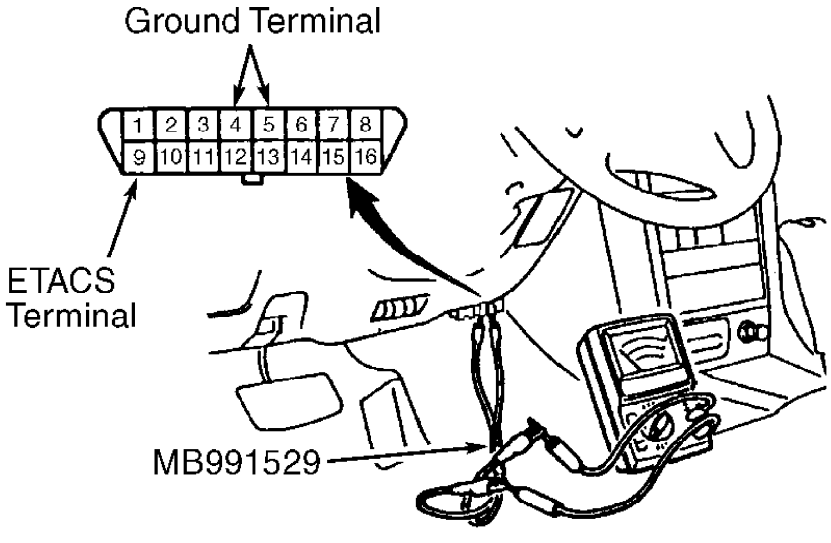

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Fig. 1: Identifying Data Link Connector (DLC) Terminals
Courtesy of Mitsubishi Motor Sales of America

SYSTEM TESTS

NOTE: The following information only applies to Eclipse and Galant.

NOTE: Perform INPUT SIGNAL INSPECTION before proceeding with SYSTEM TESTS. To identify circuit connector terminals, see WIRING DIAGRAMS.

Communication With All Systems Not Possible (Eclipse & Galant)

1) Check voltage between ground and Data Link Connector (DLC) terminal No. 16 (Red/Black wire on Eclipse or Brown/Red wire on Galant). See Fig. 1. If battery voltage is present, go to step 3). If battery voltage is not present, go to next step.

2) Check junction block connectors between DLC and power supply. See WIRING DIAGRAMS. If connectors are okay, check circuit between power supply and DLC. See WIRING DIAGRAMS. Repair as necessary.

3) Check continuity between ground and DLC terminals No. 4 and 5. If continuity is present, replace scan tool and retest. If continuity is not present, check circuit between ground and DLC. See WIRING DIAGRAMS. Repair as necessary.

Communication With One-Shot Pulse Input Signal Only Is Not Possible (Eclipse & Galant)

Check circuit between DLC and junction block No. 1. See WIRING DIAGRAMS. Repair as necessary. If circuit is okay, check harness connectors to ETACS-ECU, DLC and junction/joint connectors. Repair as necessary. If connectors are okay, replace ECU.

Defogger Does Not Operate With Defogger Switch ON (Eclipse & Galant)

1) Check defogger switch input signal. See INPUT SIGNAL INSPECTION. If switch input signal is okay, check defogger circuit and relay. See DEFOGGER RELAY TEST under COMPONENT TESTS. Repair or replace as necessary. If switch input signal is not okay, go to next step.

2) Check defogger switch. See DEFOGGER SWITCH TEST under COMPONENT TESTS. Replace as necessary. If defogger switch is okay, turn ignition on. Check voltage between ground and defogger switch harness-side connector terminal No. 4 (Eclipse) or terminal No. 2 (Galant). See WIRING DIAGRAMS. If voltage reading is 5 volts (Eclipse) or battery voltage (Galant), go to next step. If voltage reading is not as specified, go to step 4).

3) Check joint/junction connectors between switch, instrument panel cluster and ETACS-ECU. See WIRING DIAGRAMS. Repair as necessary. If connectors are okay, check circuit between defogger switch and ground. Repair as necessary. If circuit is okay, replace ECU.

4) Check harness connectors to ETACS-ECU and instrument panel cluster. Repair as necessary. If connectors are okay, check circuit between ECU and defogger switch. Repair as necessary.

Defogger Relay Circuit System Check (Eclipse & Galant)

1) Check defogger relay. See DEFOGGER RELAY TEST under COMPONENT TESTS. Replace as necessary. If relay is okay, go to next step.

2) Check voltage between ground and relay harness-side connector terminals No. 3 and 5. See WIRING DIAGRAMS. If battery voltage is present, go to next step. If battery voltage is not present, go to step 4).

3) Check harness connectors to relay, ETACS-ECU, junction block and rear wiring/liftgate. See WIRING DIAGRAMS. Repair as necessary. If connectors are okay, check circuit between defogger relay and rear defogger, defogger and ground, or defogger relay and ECU. See WIRING DIAGRAMS. Repair as necessary. If circuits are okay,

replace ECU.

4) Check harness connectors to junction block and ignition switch. Repair as necessary. If connectors are okay, check circuit between ignition switch and junction block, and between fusible link No. 2 and junction block. See WIRING DIAGRAMS. Repair as necessary.

COMPONENT TESTS

DEFOGGER RELAY TEST

Diamante & Eclipse

1) Remove defogger relay. See COMPONENT LOCATIONS. Ground relay terminal No. 1, and apply battery voltage to terminal No. 3. See Fig. 2. Check relay continuity using ohmmeter.

2) Continuity should exist between terminals No. 2 and 5. With voltage disconnected, continuity should not exist between terminals No. 2 and 5. Ensure continuity exists between terminals No. 1 and 3. If continuity is not as specified, replace relay.

Galant, Mirage & Montero Sport

1) Remove defogger relay. See COMPONENT LOCATIONS. Ground relay terminal No. 3, and apply battery voltage to terminal No. 1. See Fig. 2. Check relay continuity using ohmmeter.

2) Continuity should exist between terminals No. 2 and 5. With voltage disconnected, continuity should not exist between terminals No. 2and 5. Ensure continuity exists between terminals No. 1 and 3. If continuity is not as specified, replace relay.

Montero

1) Remove defogger relay. See COMPONENT LOCATIONS. Ground relay terminal No. 3 and apply battery voltage to terminal No. 1. See Fig. 3. Check relay continuity using ohmmeter.

2) Continuity should exist between terminals No. 4 and 5. With voltage disconnected, continuity should not exist between terminals No. 4and 5. Ensure continuity exists between terminals No. 1 and 3. If continuity is not as specified, replace relay.

3000GT

1) Remove defogger relay. See COMPONENT LOCATIONS. Ground relay terminal No. 3, and apply battery voltage to terminal No. 5. See Fig. 4. Check relay continuity using ohmmeter.

2) Continuity should exist between terminals No. 1 and 2. With voltage disconnected, continuity should not exist between terminals No. 1and 2. Ensure continuity exists between terminals No. 3 and 5. If continuity is not as specified, replace relay.

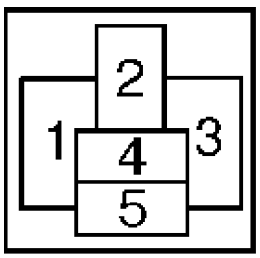

Fig. 2: Identifying Defogger Relay Terminals (Diamante, Eclipse, Galant, Mirage & Montero Sport)
Courtesy of Mitsubishi Motor Sales of America

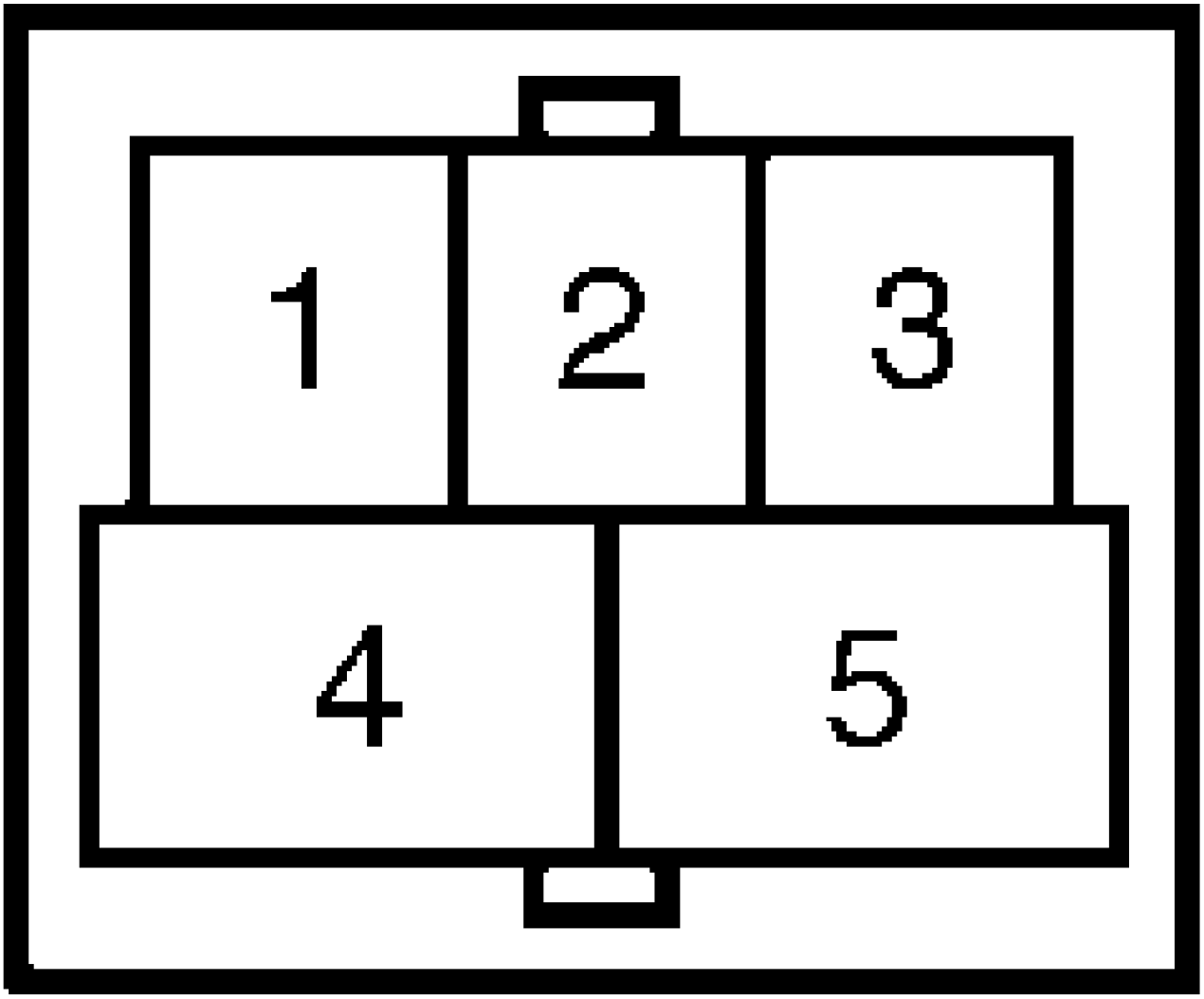

Fig. 3: Identifying Defogger Relay Terminals (Montero)
Courtesy of Mitsubishi Motor Sales of America

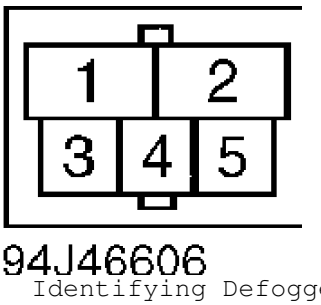

Fig. 4: Identifying Defogger Relay Terminals (3000GT)
Courtesy of Mitsubishi Motor Sales of America

DEFOGGER SWITCH TEST

NOTE: Remove window defogger switch and disconnect switch connector for the following test.

Diamante

Rear window defogger is integral with and controlled by A/C system ECU. To diagnose system, refer to AIR CONDITIONING & HEATING SERVICE & REPAIR article.

Eclipse

Turn defogger switch to OFF position. Using ohmmeter, check switch continuity. Continuity should be present between terminals No. 1 and 3, and terminals No. 2 and 6. Turn defogger switch to ON position. Continuity should be present between terminals No. 1, 3 and 4, and between terminals No. 2 and 6. See Fig. 5. If continuity is not as specified, replace switch.

Galant

Turn defogger switch to OFF position. Using ohmmeter, check switch continuity. Continuity should be present between terminals No. 1 and 3. Turn defogger switch to ON position. Continuity should exist between terminals No. 2, 4 and 6, and between terminals No. 1 and 3. See Fig. 5. If continuity is not as specified, replace switch.

Mirage

Turn defogger switch to OFF position. Using ohmmeter, check switch continuity. Continuity should be present between terminals No. 1 and 3, and terminals No. 2 and 6. Turn defogger switch to ON position. Continuity should exist between terminals No. 1 and 3, and terminals No. 2, 4, 5 and 6. See Fig. 5. If continuity is not as specified, replace switch.

Montero

Turn defogger switch to OFF position. Using ohmmeter, check switch continuity. Continuity should be present between terminals No. 1 and 3, and terminals No. 4 and 5. Turn defogger switch to ON position. Continuity should exist between terminals No. 1 and 3, terminals No. 4 and 5, and between terminals No. 2 and 6. See Fig. 5. If continuity is not as specified, replace switch.

Montero Sport

Turn defogger switch to OFF position. Using ohmmeter, check switch continuity. Continuity should be present between terminals No. 1 and 5, and terminals No. 2 and 6. Turn defogger switch to ON position. Continuity should be present between terminals No. 3 and 4, terminals No. 1 and 5, and between terminals No. 2 and 6. See Fig. 5. If continuity is not as specified, replace switch.

3000GT

1) Remove defogger switch assembly from instrument cluster bezel. With defogger switch in OFF position, check switch continuity using ohmmeter.

2) Continuity should exist between terminals No. 3 and 4. With defogger switch in ON position, continuity should exist between terminals No. 1 and 2, terminals No. 1 and 6, and between terminals No. 3 and 4. See Fig. 6. If continuity is not as specified, replace switch.

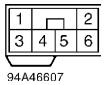

Fig. 5: Identifying Defogger Switch Terminals (Eclipse, Galant, Mirage, Montero & Montero Sport)
Courtesy of Mitsubishi Motor Sales of America

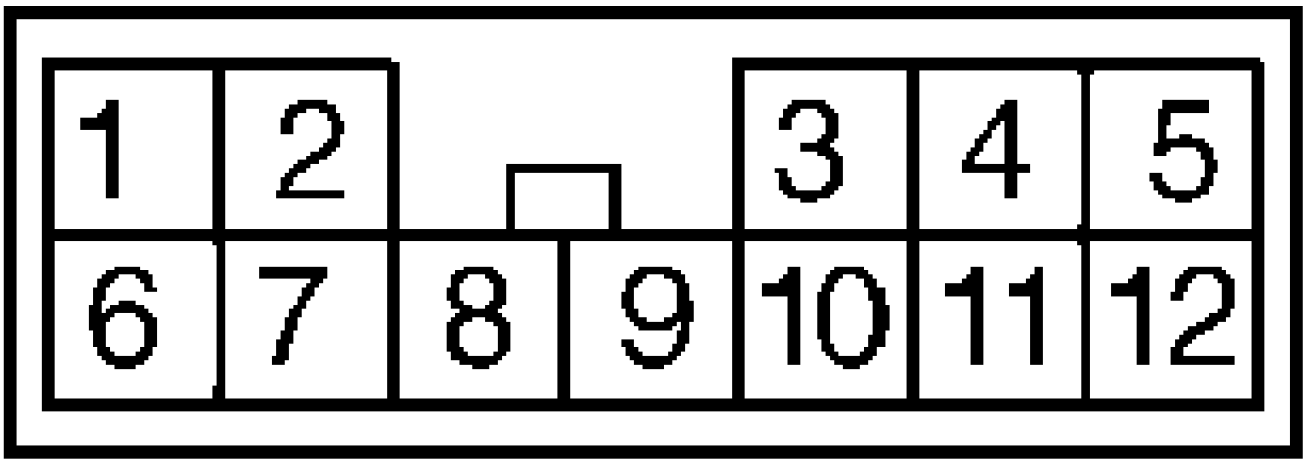

Fig. 6: Identifying Defogger Switch Terminals (3000GT)
Courtesy of Mitsubishi Motor Sales of America

DEFOGGER TIMER TEST

Montero

Remove defogger timer from interior relay block. Connect test battery and test light to timer. See Fig. 7. Ensure test light illuminates for about 11 seconds when battery voltage is applied to terminal No. 3. Reapply battery voltage to terminal No. 3 and observe test light. Test light should go off. If timer does not test as specified, replace timer.

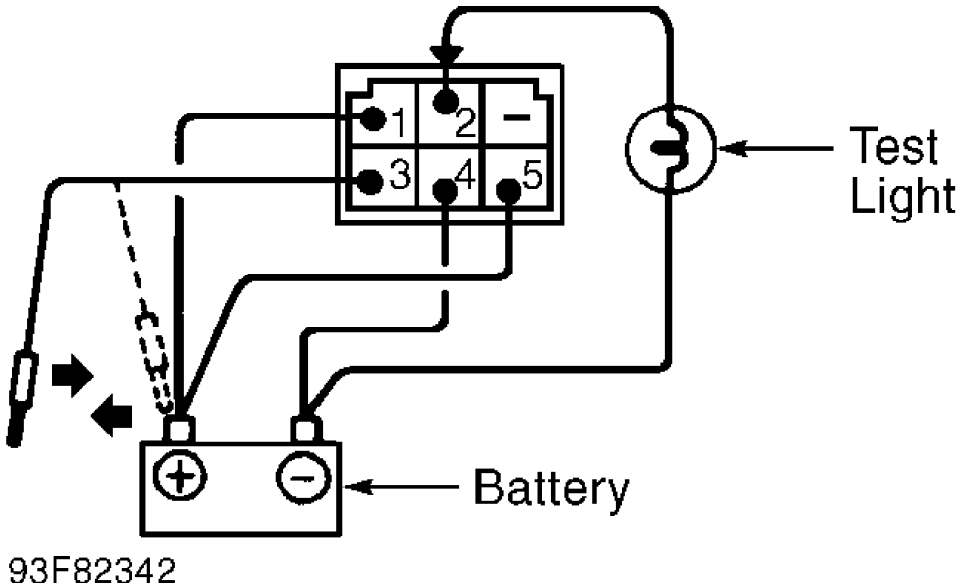

Fig. 7: Identifying Defogger Timer Terminals (Montero)
Courtesy of Mitsubishi Motor Sales of America

GRID TEST

1) Start and run engine at 2000 RPM. Ensure battery is fully charged. Turn defogger switch to ON position. Using a voltmeter, check voltage at center section of each defogger grid filament.

2) If voltage is about 6 volts, grid filament is okay. If voltage is about 12 volts, an open is present in negative circuit. Move probe slowly toward negative terminal to determine location of open circuit.

3) If voltage is zero volts, an open is present in positive circuit. Move probe slowly toward positive terminal to determine location of open circuit. Repair grid as necessary. See GRID FILAMENT REPAIR under ON-VEHICLE SERVICE.

ON-VEHICLE SERVICE

GRID FILAMENT REPAIR

Clean broken wire tips thoroughly. Place masking tape along both sides of broken wire. See Fig. 8. Apply Repair Paste (DuPont 4817) to broken section of grid. Remove masking tape after paste has dried. Wait 24 hours before using defogger.

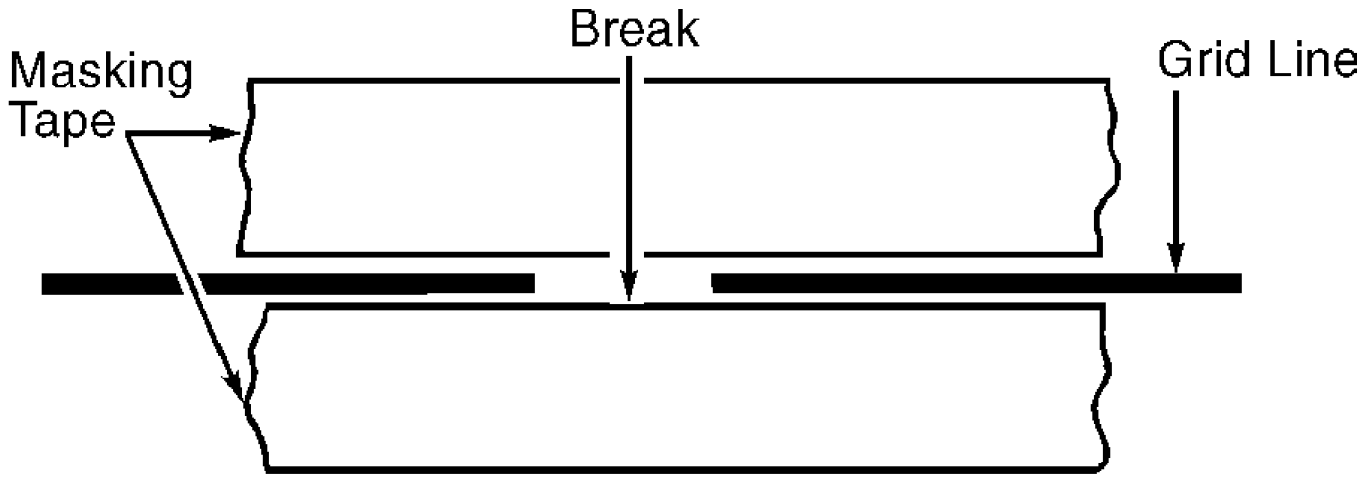

Fig. 8: Repairing Rear Defogger Grid Element

REMOVAL & INSTALLATION

DEFOGGER SWITCH

Removal & Installation (Diamante)

Defogger switch is integral with A/C system ECU. To remove A/C ECU, remove center console. Remove audio panel. Remove radio. Remove A/C ECU. To install, reverse removal procedure.

Removal & Installation (Eclipse)

Remove upper stoppers from glove compartment. Drop down glove compartment. From glove compartment opening, reach behind center air outlet assembly and disconnect harness connectors to switches. Release metal clips from center air outlet assembly. Remove center air outlet. Remove defogger switch from center air outlet. To install, reverse removal procedure.

Removal & Installation (Galant)

At heater unit, remove center air outlet cool air by-pass lever cable from damper lever. To remove center air outlet, push springs at bottom of center air outlet upward. Outlet is located above radio. Remove switch from center air outlet. To install, reverse removal procedure. Turn cool air by-pass lever on outlet fully upward. Pull air by-pass lever fully downward and install cool air by-pass lever cable to damper lever.

Removal & Installation (Mirage)

Remove driver-side lower dash panel. Remove center console assembly and foot distribution duct. Disconnect rear window defogger switch harness connector. Remove switch. To install, reverse removal procedure.

Removal & Installation (Montero)

Remove defogger switch by prying switch off instrument cluster bezel. Disconnect wiring harness from defogger switch. Remove switch. To install, reverse removal procedure.

Removal & Installation (Montero Sport)

Remove instrument cluster bezel. Bezel is held in by metal clips. Disconnect wiring harness from defogger switch. Remove switch from behind bezel. To install, reverse removal procedure.

Removal & Installation (3000GT)

Remove knee protector. Remove steering column upper and lower covers. Remove instrument cluster bezel. Disconnect wiring harness from defogger switch. Remove defogger switch. To install, reverse removal procedure.

WIRING DIAGRAMS

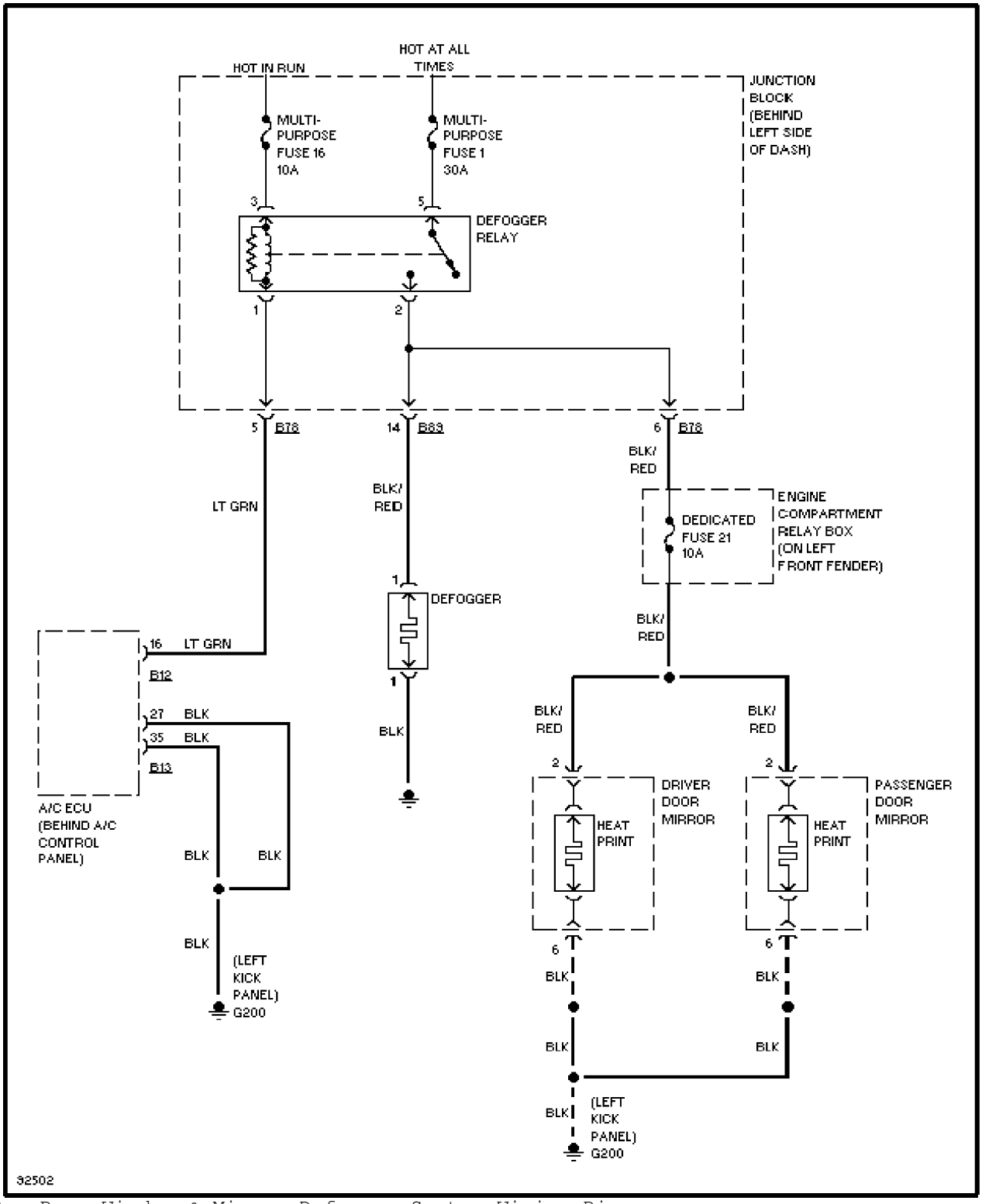

Fig. 9: Rear Window & Mirror Defogger System Wiring Diagram (Diamante)

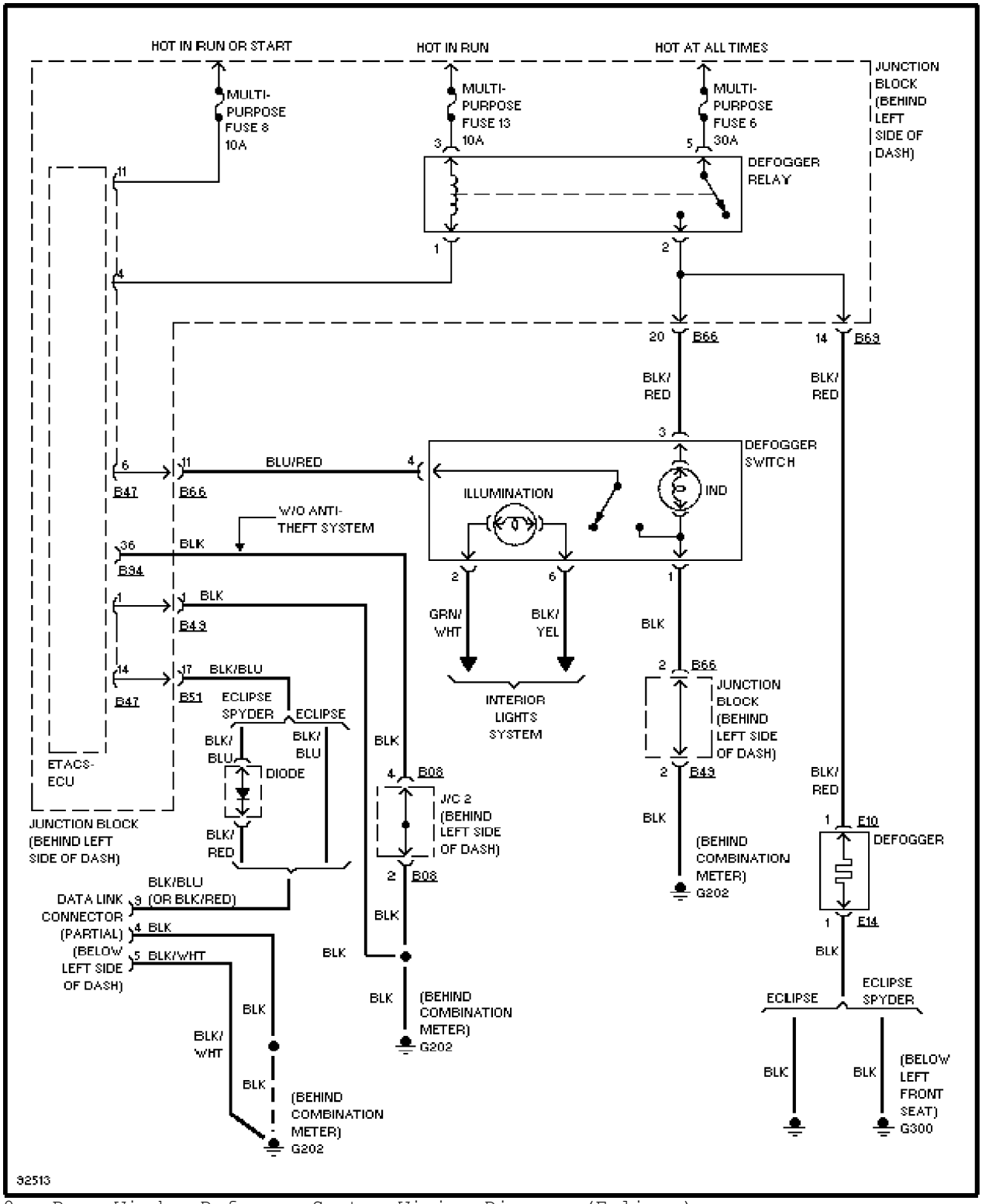

Fig. 10: Rear Window Defogger System Wiring Diagram (Eclipse)

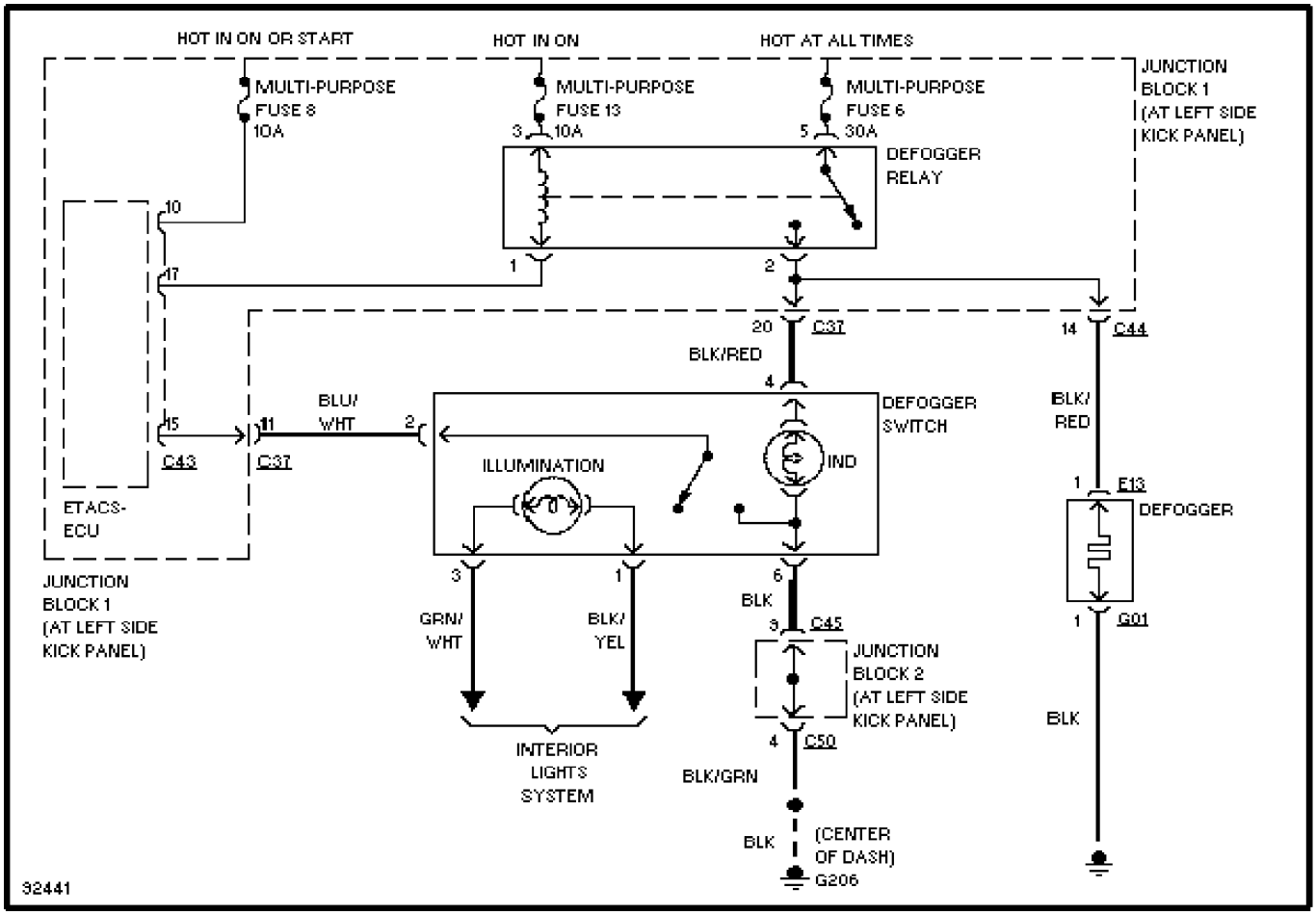

Fig. 11: Rear Window Defogger System Wiring Diagram (Galant With ETACS-ECU)

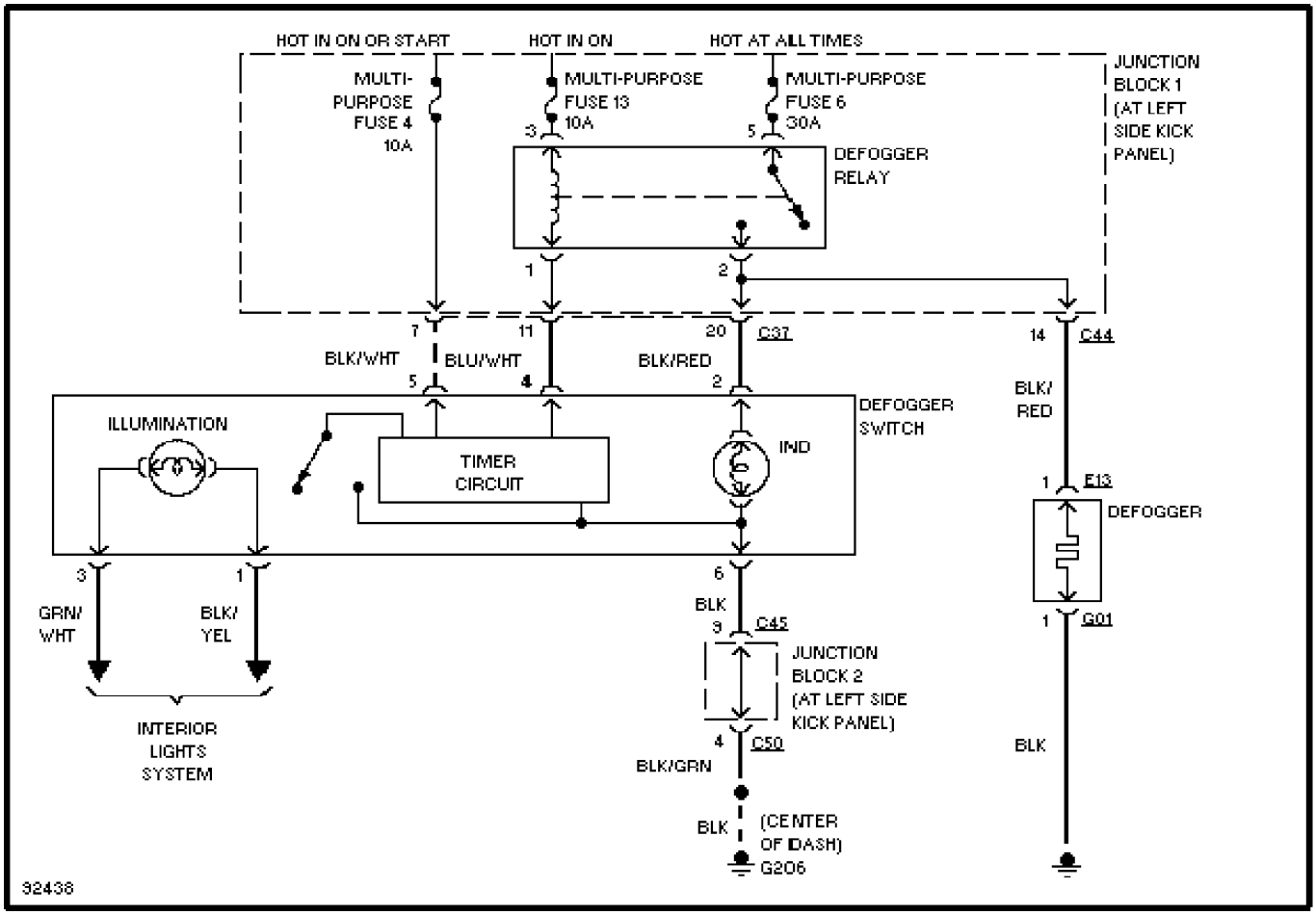

Fig. 12: Rear Window Defogger System Wiring Diagram (Galant Without ETACS-ECU)

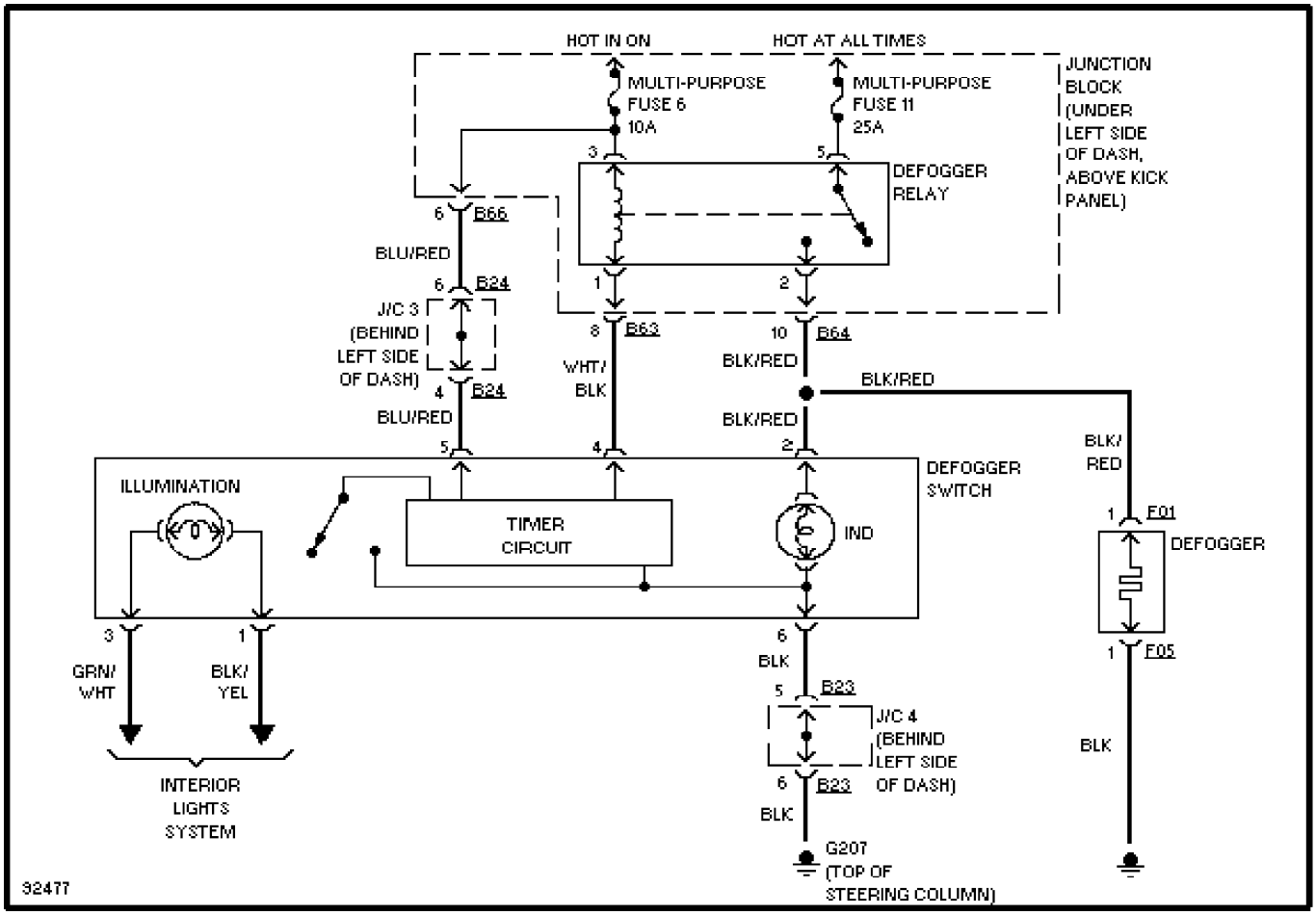

Fig. 13: Rear Window Defogger System Wiring Diagram (Mirage)

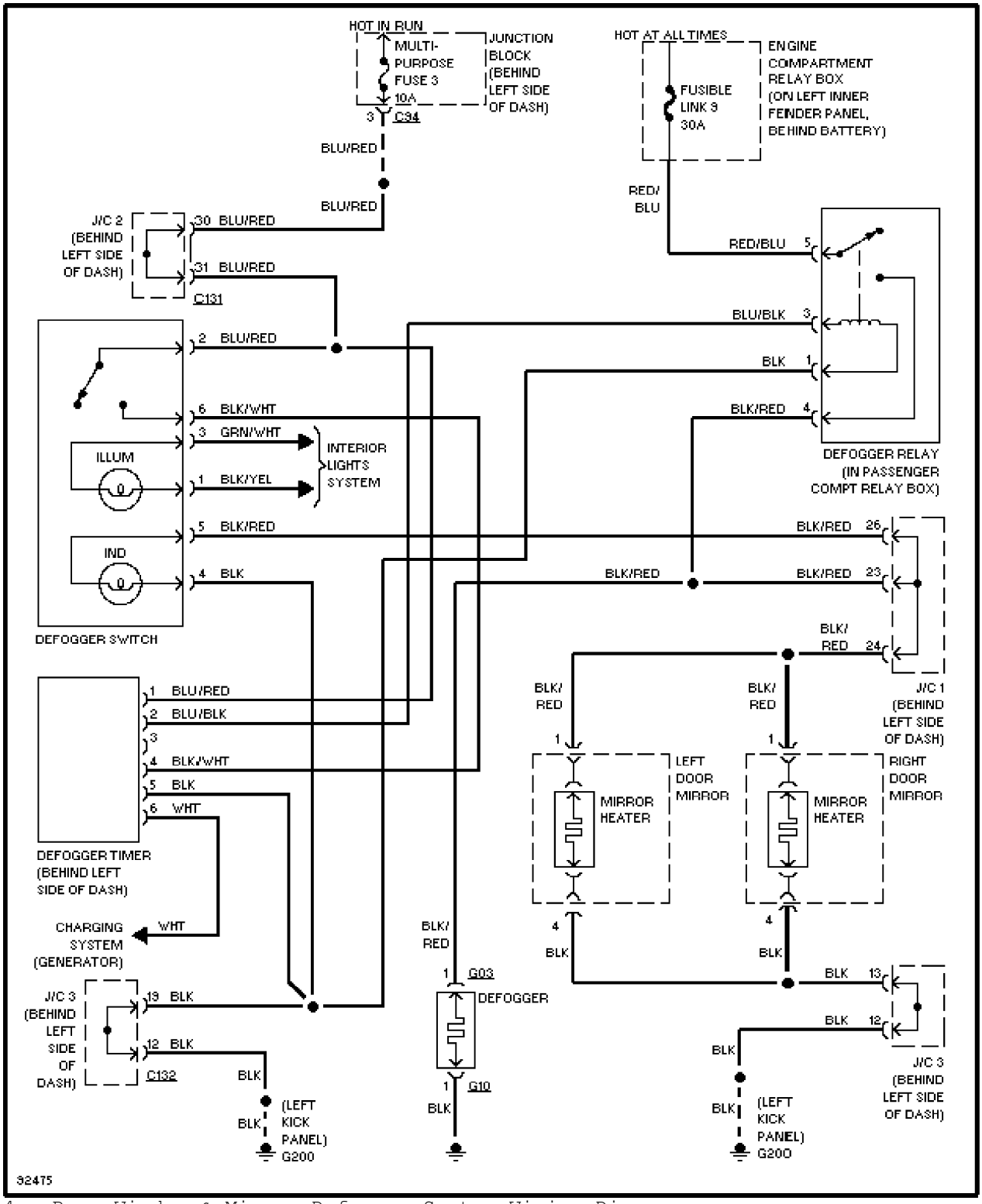

Fig. 14: Rear Window & Mirror Defogger System Wiring Diagram (Montero)

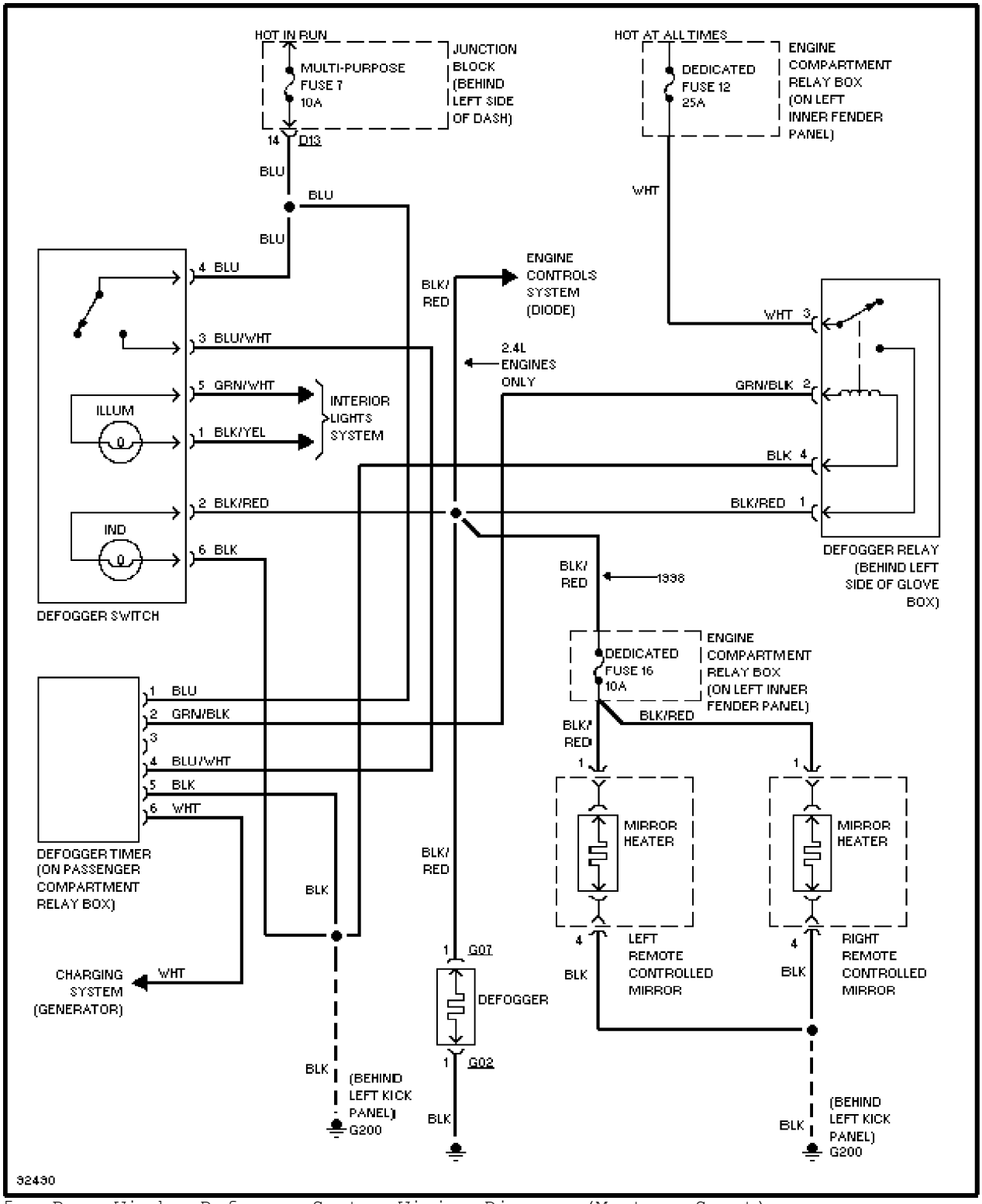

Fig. 15: Rear Window Defogger System Wiring Diagram (Montero Sport)

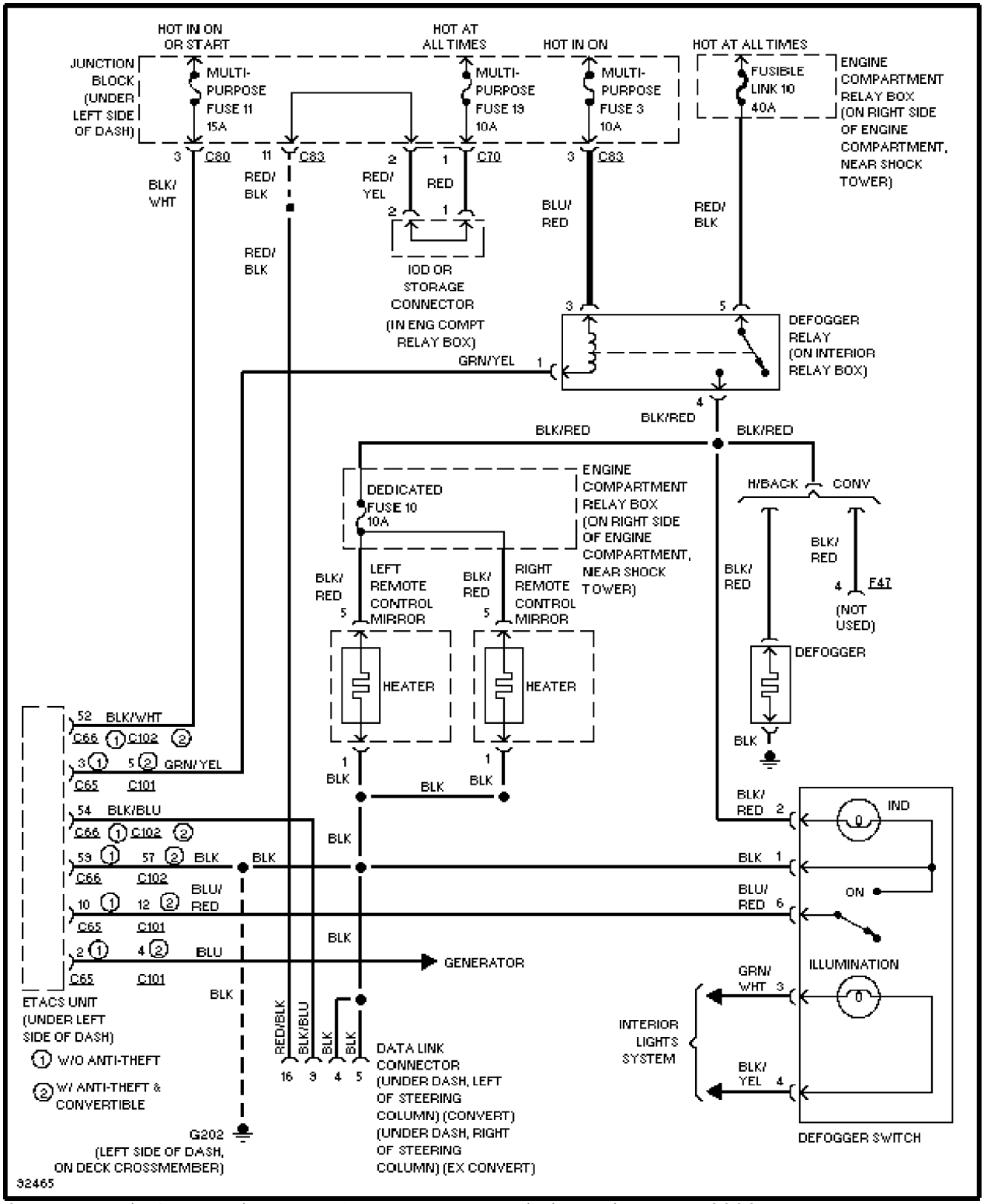

Fig. 16: Rear Window & Mirror Defogger System Wiring Diagram (3000GT)