A/C-HEATER SYSTEM - MANUAL

1988 Chrysler LeBaron Convert/Coupe

1988 Manual A/C-Heater Systems
CHRYSLER MOTORS PASSENGER CARS

All Front Wheel Drive Models

* PLEASE READ THIS FIRST *

CAUTION: When discharging air conditioning system, use only approved refrigerant recovery/recycling equipment. Make every attempt to avoid discharging refrigerant into the atmosphere.

CHRYSLER BODY CODE DESIGNATIONS

NOTE: For Caravan, Ram Van and Voyager Wagons, see MANUAL A/C-HEATER SYSTEMS, CHRYSLER MOTORS TRUCKS - FWD Models article in this section.

CHRYSLER BODY DESIGNATIONS

Vehicle	Body Code
Aries LE	K
Caravelle	E
Caravelle SE	E
Daytona	G
Daytona Pacifica	G
Daytona Shelby Z	G
Dynasty	C
Horizon	L
Lancer	H
Lancer ES	H
LeBaron	J
LeBaron GTS	H
LeBaron 4dr Sedan	K
New Yorker	C
New Yorker Landau	C
New Yorker Turbo	E
Omni	L
Reliant LE	K
Shadow	P
Sundance	P
Town & Country	K
600	E
600 SE	E

DESCRIPTION

This system is a blend-air type. Air flows through evaporator and heater core. A blend-air door controls the amount of air which passes through heater core, changing the temperature of the discharge air. The blend-air door position is controlled by the temperature lever and control cable.

The heater control valve is also controlled by this lever through a vacuum switch mounted on the control. Heat and defrost air flow is controlled and directed by a series of vacuum-operated doors.

The system includes a high pressure relief valve located in the receiver-drier and a replaceable low-pressure cut-off switch

located on the expansion ("H" type) valve assembly. The Cycling Clutch Switch (CCS) provides evaporator temperature control and is mounted on the refrigerant sealing plate at the expansion valve.

OPERATION

SYSTEM CONTROLS

Temperature Lever
Controls temperature of discharge air in all mode lever positions except "MAX A/C" and "OFF" when vacuum operated heater control valve is closed. Moving lever to left provides cooler air and moving lever to right provides warmer air.

Blower Switch
Motor operates at 4 speeds. Blower will be on and operating at fan speed selected in all mode lever positions except "OFF".

"OFF"
Air inlet door is closed to outside air but open to inside recirculating air. The mode door is in A/C position. The heater/defroster door is in heat position. Heater control valve is closed. Blower motor is off. Compressor clutch is off.

"MAX" or "MAX A/C"
All of the doors are in the same position as "OFF". This mode closes the electrical circuits to the compressor clutch and blower motor.

OPERATION CONTROL CHART - ALL EXCEPT HORIZON & OMNI

Control Position	
Off	
Inlet Air Door (Open To)	Inside
Mode Door (Open To)	A/C
Heat Defrost (Open To)	
Heat	
Compressor Clutch	Off
Blower Motor	Off
Water Valve	Closed
Max	
Inlet Air Door (Open To)	Inside
Mode Door (Open To)	A/C
Heat Defrost (Open To)	Heat
Compressor Clutch	On
Blower Motor	On
Water Valve	Closed
Norm*	
Inlet Air Door (Open To)	Inside
Mode Door (Open To)	A/C
Heat Defrost (Open To)	Heat
Compressor Clutch	On*
Blower Motor	On
Water Valve	Open
Bi-Level*	
Inlet Air Door (Open To)	Inside
Mode Door (Open To)	Bi-Level
Heat Defrost (Open To)	Heat
Compressor Clutch	On*

Blower Motor ..... On
Water Valve ..... Open

Heat
Inlet Air Door (Open To) ..... Outside
Mode Door (Open To) ..... Heat/Def.
Heat Defrost (Open To) ..... Heat
Compressor Clutch ..... Off
Blower Motor ..... On
Water Valve ..... Open

Defrost
Inlet Air Door (Open To) ..... Outside
Mode Door (Open To) ..... Heat/Def.
Heat Defrost (Open To) ..... Defrost
Compressor Clutch ..... On
Blower Motor ..... On
Water Valve ..... Open

* Push button is pulled out to disengage compressor and allow Normal Vent and Bi-Level Vent modes.

OPERATION CONTROL CHART - HORIZON & OMNI

Control Position
Off
Inlet Air Door (Open To) ..... Inside
Mode Door (Open To) ..... A/C
Heat Defrost (Open To) ..... Heat
Compressor Clutch ..... Off
Blower Motor ..... Off
Water Valve ..... Closed

Max. A/C
Inlet Air Door (Open To) ..... Inside
Mode Door (Open To) ..... A/C
Heat Defrost (Open To) ..... Heat
Compressor Clutch ..... On
Blower Motor ..... On
Water Valve ..... Closed

A/C
Inlet Air Door (Open To) ..... Outside
Mode Door (Open To) ..... A/C
Heat Defrost (Open To) ..... Heat
Compressor Clutch ..... On
Blower Motor ..... On
Water Valve ..... Open

Vent
Inlet Air Door (Open To) ..... Outside
Mode Door (Open To) ..... A/C
Heat Defrost (Open To) ..... Heat
Compressor Clutch ..... Off
Blower Motor ..... On
Water Valve ..... Open

Heat
Inlet Air Door (Open To) ..... Outside
Mode Door (Open To) ..... Heat/Def.
Heat Defrost (Open To) ..... Heat
Compressor Clutch ..... Off

Blower Motor	On
Water Valve	Open
Defrost	
Inlet Air Door (Open To)	Outside
Mode Door (Open To)	Heat/Def.
Heat Defrost (Open To)	Defrost
Compressor Clutch	On
Blower Motor	On
Water Valve	Open

"A/C" or "NORM"

Vacuum to the recirculation door motor is applied to the rod side. The door is moved away from outside air inlet and closes the recirculation inlet. All other door and vacuum applications are the same as for "MAX A/C".

"BI-LEVEL"

(Aries, Caravelle, Daytona, Dynasty Lancer, LeBaron, New Yorker, Reliant, Shadow, Sundance & 600)

Air inlet door is positioned for outside air entry. Mode door allows air flow from instrument panel outlets and a lesser portion from floor and defroster outlets. Heater/defroster door is in heat position, with heater control valve open. Blower operates in this mode.

"VENT" (Horizon & Omni)

Vacuum circuit is the same as in "A/C" position, except compressor clutch circuit is open and compressor does not operate. Blower motor is used to force outside air into passenger compartment through A/C outlets.

"HEAT"

The outside air door is open. Vacuum is applied to the rod side of the A/C door motor, closing off the A/C distribution duct. The heater/defroster door is open, and most of the heated air goes through the heater outlets. A small amount bleeds through defroster outlets. The heater control valve is open and the compressor clutch is off.

"DEFROST"

All conditions are the same as in "HEAT" position, except that no vacuum is applied to the defroster door motor (spring loaded to the defrost position). The heater outlets are left open far enough to direct about 30% of air to floor and 70% to defroster outlets. The compressor clutch is engaged to dehumidify the air.

TROUBLE SHOOTING

NOTE: See MANUAL A/C-HEATER SYSTEMS, FORD MOTOR CO. PASSENGER CARS & TRUCKS, TROUBLE SHOOTING article in this section. For cooling fan trouble shooting see GENERAL SERVICING section.

TESTING

A/C CLUTCH COIL TEST

1) Verify that battery is fully charged. Connect an ammeter (on 0-10 amp scale) in series with the clutch coil terminal. Install a volt meter (on 0-20 volt scale) across battery and clutch coil lead.

With A/C on and blower on low speed, start and run engine at normal idle.

2) The A/C compressor clutch should engage immediately. and clutch voltage should be within 2 volts of battery voltage. If A/C clutch does not engage, check fusible link. If current draw from A/C clutch is 2.0-3.7 amps at 11.5-12. 5 volts with ambient temperature between 65°-75°F, clutch coil is okay.

3) When voltage is more than 12.5 volts, turn on additional electrical loads (electrical accessories) to bring voltage down. If coil current reads zero, coil is opened and should be replaced. If ammeter reading is 4 or more amps, coil is shorted and should be replaced. If coil voltage is not within 2 volts of battery voltage, check clutch coil supply line for proper voltage to the coil.

A/C DAMPED PRESSURE CYCLING SWITCH

All models Except Horizon & Omni

1) Disconnect electrical lead. Check continuity of switch, contacts should be closed when temperature is above 45°F (7°C). If no continuity is detected,replace switch. If continuity is okay, reconnect electrical lead to switch, Set temperature control lever to full "COOL" position.

2) Turn A/C blower speed to "LOW" and turn A/C switch on. Run engine at 1300 RPM for 5 minutes to stabilize A/C system. If compressor clutch cycles on and off 2 to 10 times a minute when ambient temperature is between 68°-90°F (20°-32°C), pressure cycling switch is okay.

3) If compressor does not engage, check for continuity between switch connector and clutch coil connector. If ambient temperature is above 90°F (32°C) clutch will not cycle off, this is normal.

LOW-PRESSURE CUT-OFF SWITCH

Horizon & Omni Only

1) Remove protective boot from switch and jumper leads together. Press A/C button to on.

2) Momentarily turn ignition switch to on while listening for compressor clutch to cycle. If clutch does not cycle, cycling clutch switch or fuse may be defective. Also check clutch circuit and clutch.

3) If clutch engages, install a manifold gauge set and read pressure of evaporator suction pressure. At pressures of 18 psi and above, switch should activate compressor clutch.

4) If evaporator suction pressure is below 25 psi, refrigerant is low and is probably leaking from system. Repair leak, reconnect electrical connector and return to step 2).

CYCLING CLUTCH SWITCH

Horizon & Omni Only

1) Remove electrical connector from switch. Check for continuity between terminals of switch. With ambient temperature above 45°F (7°C) continuity should be present. If not, replace switch.

2) Reconnect electrical connector. Set temperature control lever to full "COOL" position. Set blower motor speed to low and push A/C button to on. Operate engine at 1300 RPM for about 5 minutes to stabilize A/C system.

3) If compressor cycles on and off 21 to 3 times per minute with ambient temperature between 68°-90°F (20°-32°C), cycling clutch switch is operating normally.

4) If compressor clutch fails to operate correctly, check for an open in the electrical circuit to the compressor. When temperatures are above 90°F (32°C), clutch may not cycle off, this condition is

normal.

ELECTRONIC CYCLING CLUTCH SWITCH

Dynasty & New Yorker Only

1) With ambient temperature of test area around 70°F (21°C), supply 12 volts to pin No. 2 and ground pin No. 4 of the Electronic Cycling Clutch Switch (ECCS). See Fig. 1.

2) Check for continuity between pin No. 1 and pin No. 3. If continuity is present, proceed to compressor clutch inoperative. If no continuity is present, replace ECCS.

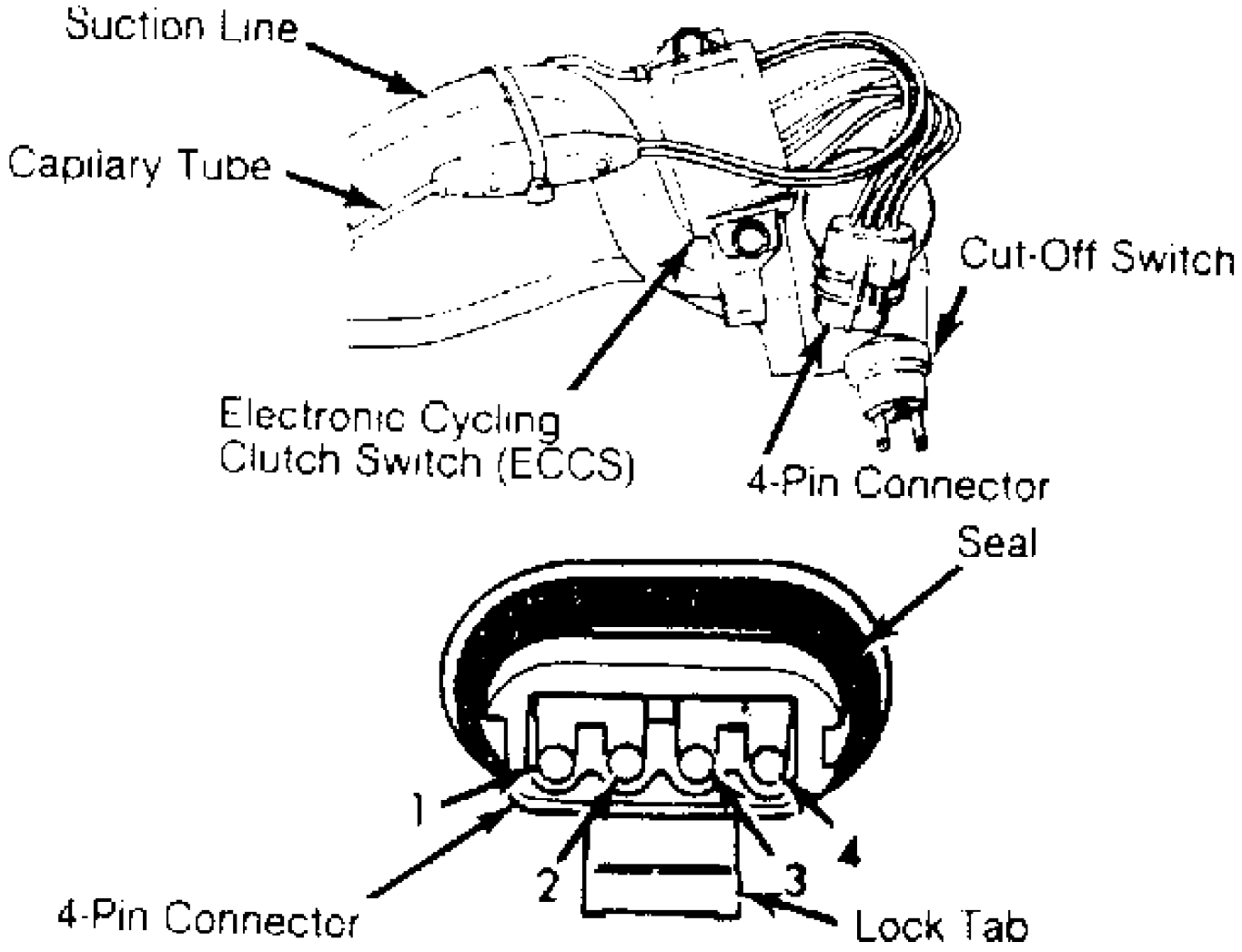

Fig. 1: Electronic Cycling Clutch Switch Connector

ADJUSTMENTS

CONTROL CABLES

Temperature Control Cable

For adjustments, refer to REMOVAL & INSTALLATION - CONTROL CABLES in this article.

REMOVAL & INSTALLATION

EXPANSION VALVE

Removal & Installation

1) Discharge system using approved refrigerant recovery/recycling equipment and disconnect wires from low pressure cut-off switch. Remove center bolt from plumbing seal plate and pull refrigerant line assembly toward front of vehicle. DO NOT scratch sealing surfaces.

2) Remove 2 Torx head cap screws while holding valve in place. Carefully remove valve. See Fig. 2. To install, replace 2 aluminum "N" gaskets and reverse removal procedure.

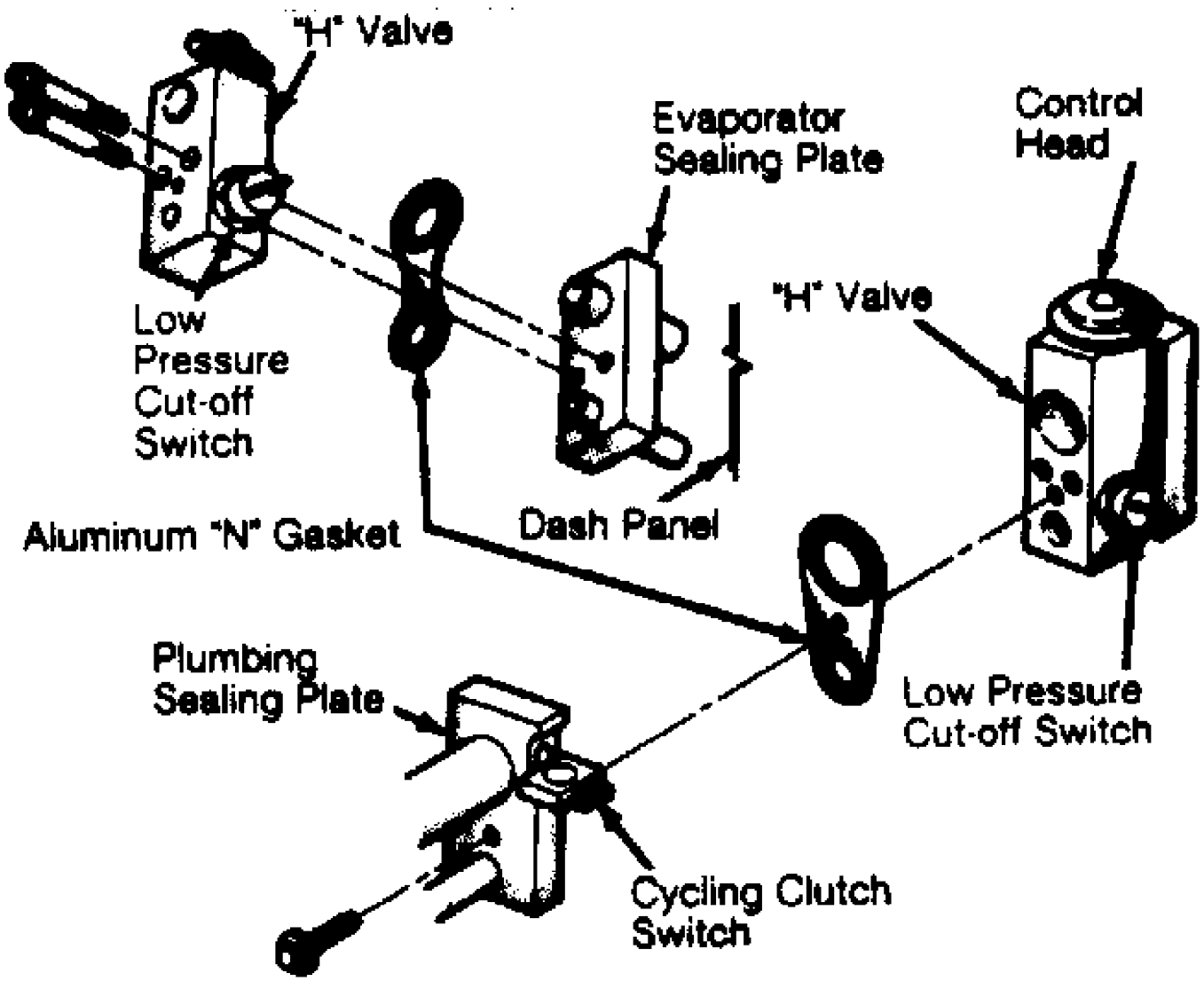

Fig. 2: Removal of Expansion Valve ("H" Type)
Remove 2 Torx head cap screws to remove valve.

EVAPORATOR & HEATER CORE

NOTE: The following procedures are for vehicles with air

conditioning systems. For replacement on vehicles equipped with heater systems, see appropriate article in HEATER SYSTEMS, CHRYSLER MOTORS PASSENGER CARS, in this section.

Removal & Installation (Aries, Caravelle, Daytona, Dynasty, Lancer, LeBaron (except convertible), New Yorker, Reliant, Shadow, Sundance & 600)

1) Discharge system using approved refrigerant recovery/recycling equipment. Drain engine coolant. Disconnect battery fusible link. Disconnect heater hoses at heater core. Plug heater core tube openings.

2) Disconnect vacuum lines at engine intake manifold and heater control valve. Remove right scuff plate and cowl side trim panel. Remove condensate drain tube.

3) On J and C bodies, remove right upper and lower underpanel silencers. On E bodies and J/passive bodies (LeBaron with passive restraint system), remove right underpanel lower trim. On P, H and C bodies, remove steering wheel column cover.

4) On G bodies and J/passive bodies, remove outer steering column cover as well as hood release and parking brake release handles from inner steering column cover. Remove inner steering column cover and position right front seat to the full back position.

5) On J/passive and C bodies, remove left underpanel silencer. On P bodies, remove right A-pillar trim and right cowl side trim. On J bodies, pull back right A pillar trim to remove right side cowl trim.

6) On all models, remove glove box. On G bodies, J/passive, H and C bodies, remove instrument panel reinforcement. On P, K and E bodies, remove right instrument panel roll-up screw.

7) On G and J bodies, remove forward console bezel, side trim and lower carpet panels. Loosen floor console and move rearward. Remove forward console. On J/passive only, remove instrument panel to floor reinforcement.

8) On P bodies, Remove center bezel and lower center module cover. Remove floor console. Remove instrument panel support brace between steering column opening and right lower side of instrument panel. Remove instrument panel support panel below glove box. Remove ashtray and radio. Remove instrument panel top cover. Remove 3 right side (below windshield) panel attaching screws.

9) On E bodies, remove forward console and mounting bracket. On K bodies, remove floor console. On H bodies, remove front and rear consoles. On C bodies, remove ashtray.

10) On P, K and E bodies, pull right lower side of instrument panel rearward. Remove center distribution and defroster adapter duct. On P, C and H bodies, disconnect relay module. On P bodies, remove instrument panel to A/C unit bracket. Remove lower air distribution duct.

11) On K and E bodies, remove audible message center and right side cowl to plenum brace. Disconnect blower motor wire connector and demister hose from top of unit. On K and E bodies, with Automatic Climate Control (ATC), remove temperature control cable from control unit and move out of way. Disconnect vacuum lines at control unit.

12) On K and E bodies with ATC, disconnect instrument panel wiring from rear face of ATC unit. On C and H bodies, disconnect 25-way connector bracket and fuse block from instrument panel. On H bodies, remove cable from retaining clip on top of unit. On G and J bodies, remove cable from retaining clip on rear face of unit.

13) On all bodies except C and H, fold back right side carpet and remove 4 unit mounting nuts. Remove unit strap lower mounting screw and rotate strap out of way. Move heater-A/C unit rearward to clear studs and lower unit.

14) On P bodies, remove demister adapter from top of unit.

While pulling back on lower right side of instrument panel, slide unit upright and out from under instrument panel. On all bodies except P, rotate unit while pulling out from under dash.

15) To remove heater and evaporator cores, remove unit top cover. See Fig. 3. Remove heater core to dash panel seal from heater core tubes, and remove heater core. Remove expansion valve sealing plate seal retaining screw. Remove evaporator core. To install, reverse removal procedures.

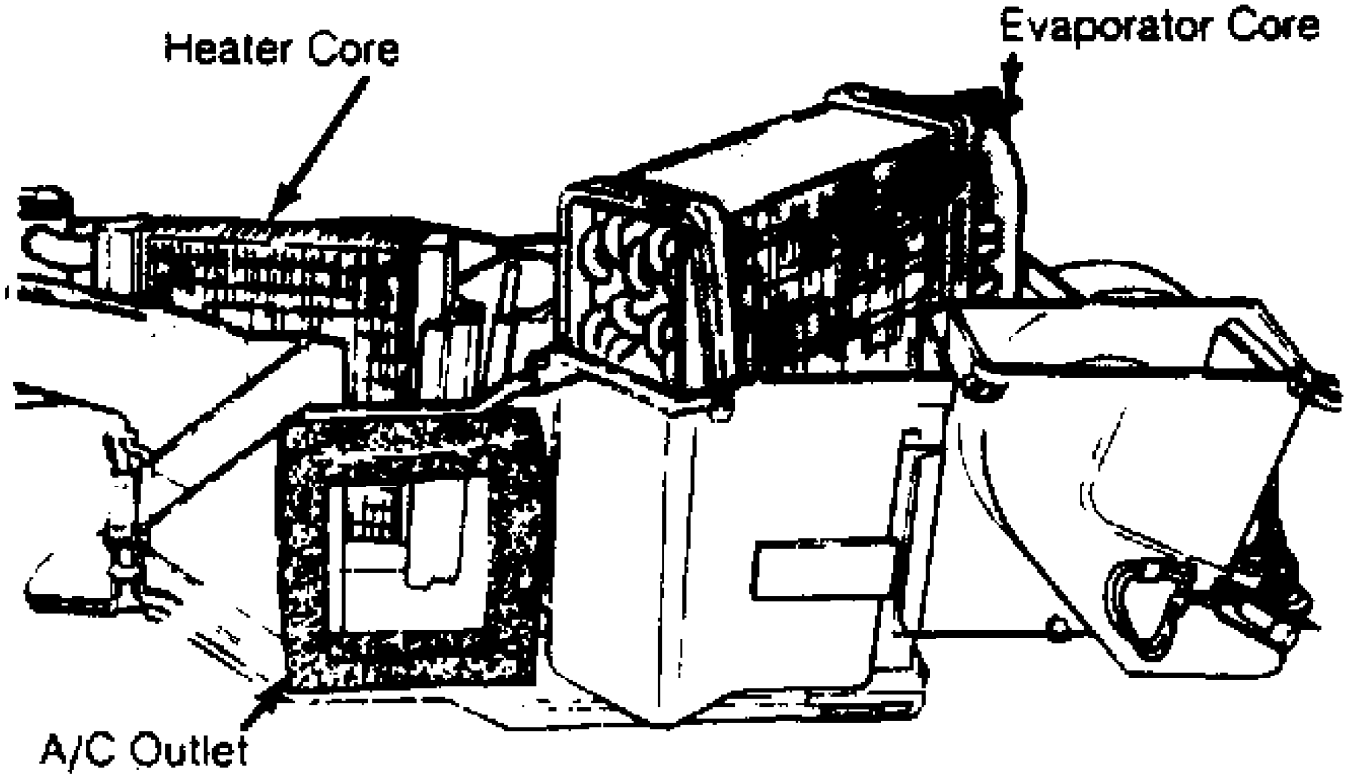

Fig. 3: A/C-Heater Unit Removed

LeBaron Convertible Removal & Installation

NOTE: To remove A/C-Heater unit from LeBaron Convertibles, follow the steps outlined above, in addition to the following steps.

1) Remove floor distribution duct from housing. Remove upper instrument panel pad. Remove instrument panel mounting screws along windshield. Using 2 people, lift up on instrument panel while pulling evaporator/heater unit backward and rolling it out from under instrument panel.

2) To remove heater and evaporator cores, remove unit top cover. See Fig. 3. Remove heater core to dash panel seal from heater core tubes, and remove heater core. Remove expansion valve sealing plate seal retaining screw. Remove evaporator core. To install, reverse removal procedures.

Horizon & Omni Removal & Installation

1) Discharge refrigerant from system using approved refrigerant recovery/recycling equipment. Drain engine coolant. Disconnect negative battery cable. Disconnect blend air door cable and disengage from retaining clip on air duct. Remove glove box. Disconnect center distribution duct.

2) Remove defroster duct adapter. Disconnect heater hoses and

A/C lines at dash panel. Plug openings of all lines and hoses. Disconnect vacuum lines at engine and water valve. From engine compartment, remove 4 mounting nuts that attach unit to firewall.

3) Remove right side cowl trim. Remove right side instrument panel pivot bracket screw. Remove 2 screws securing lower instrument panel at steering column. Remove panel top cover. Remove all but left panel fenceline (along windshield) attaching screws. Pull back carpet from under A/C unit as far back as possible.

4) Remove support strap nut and blower motor ground cable. While supporting unit with hands, remove support strap from its mounting stud. Using 2 people lift up on unit and pull it as far rearward as possible, to clear dash panel and liner. Also at this time panel will need to be pulled rearward to allow unit removal clearance.

5) Slowly lower unit taking care to prevent dash attachment studs from catching in dash liner. Continue lowering unit until it reaches floorboard and then slide entire unit out.

NOTE: When reinstalling A/C-Heater unit, be careful that vacuum lines to engine compartment do not get hung up on the accelerator or become trapped between the unit and the dash. Proper routing of these lines during installation, may require 2 people. Also the portion of the vacuum harness that is routed through steering column must be positioned before the distribution housing is reinstalled. Vacuum harness is routed above the temperature control cable.

6) To remove heater and evaporator cores, remove unit top cover. See Fig. 3. Remove heater core to dash panel seal from heater core tubes, and remove heater core. Remove expansion valve sealing plate seal retaining screw. Remove evaporator core. To install, reverse removal procedures.

BLOWER MOTOR

Removal & Installation (All Models Except Horizon & Omni)

1) Disconnect negative battery cable. Remove glove box and right side instrument panel trim cover (if equipped). Remove right side cowl panel trim cover. Disconnect blower motor feed wire and ground cable. Locate and disconnect cooling tube at A/C-heater housing.

2) Remove air door actuator and position out of way. Remove 5 mounting screws from rear face of recirculation housing and 2 from top. Drop housing downward and remove it from vehicle.

3) Remove blower wheel from housing. Remove 3 mounting flange nuts and lift blower assembly from unit. To install, reverse removal procedure. Note that blower motor vent tube is connected to A/C-heater unit.

Removal & Installation (Horizon & Omni)

1) Disconnect battery ground. Remove glove box. Disconnect vacuum lines from recirculating air door actuator. Disconnect blower feed wire. Remove 2 screws at top of blower housing, securing it to unit cover.

2) Remove 3 screws that attach blower wheel assembly to unit and separate. To install, reverse removal procedures.

CONTROL PANEL

Removal & Installation

(Aries, Caravelle, Daytona, Dynasty, Lancer, LeBaron, New Yorker, Reliant, Shadow, Sundance & 600)

Remove 2 bezel attaching screws. Remove bezel by rolling out and lifting up to free bezel locking tabs. Remove 2 control mounting

screws and slide control out. Detach cables, vacuum hose and wiring. Remove control panel. To install, reverse removal procedure.

Removal & Installation (Horizon & Omni)

Reach under left side of instrument panel and press headlight knob release button while pulling knob out. Remove 4 bezel screws and left bezel. Remove 2 control mounting screws. Slide control rearward. Disconnect cables, vacuum hose and wiring. Remove control panel. To install, reverse removal procedure.

Removal & Installation (Lancer & LeBaron GTS Only)

Move gear selector to low position. Remove 11 torx head screws from bezel and lift cluster bezel over steering wheel. Remove two control mounting screws. Detach cables, vacuum hoses, and wiring. Remove control panel. To install, reverse removal procedure.

TEMPERATURE CONTROL CABLE

Removal & Installation

1) Remove control panel to provide access to cable attachment. Depress tab on flag and pull flag out of receiver on control panel. On Charger, Horizon, Omni and Turismo, pull the unit end of cable toward the right of vehicle and through middle holes on steering column support bracket.

2) On all models, pull cable out from evaporator-heater assembly. Place a 1/4" (7 mm) I.D. tube over clip and pry self-adjusting clip off cable core. To install, place self-adjusting clip in locked position 2" from loop at end of cable core. With a 1/4" (7 mm) I.D. tube, twist self-adjusting clip into position on core wire. See Fig. 4.

3) On Aries, Caravelle, Daytona, Lancer, LeBaron, New Yorker, Reliant, Shadow, Sundance and 600, route cable by pushing control unit end up, near the accelerator, through loop on top corner of A/C package cover that the original cable used.

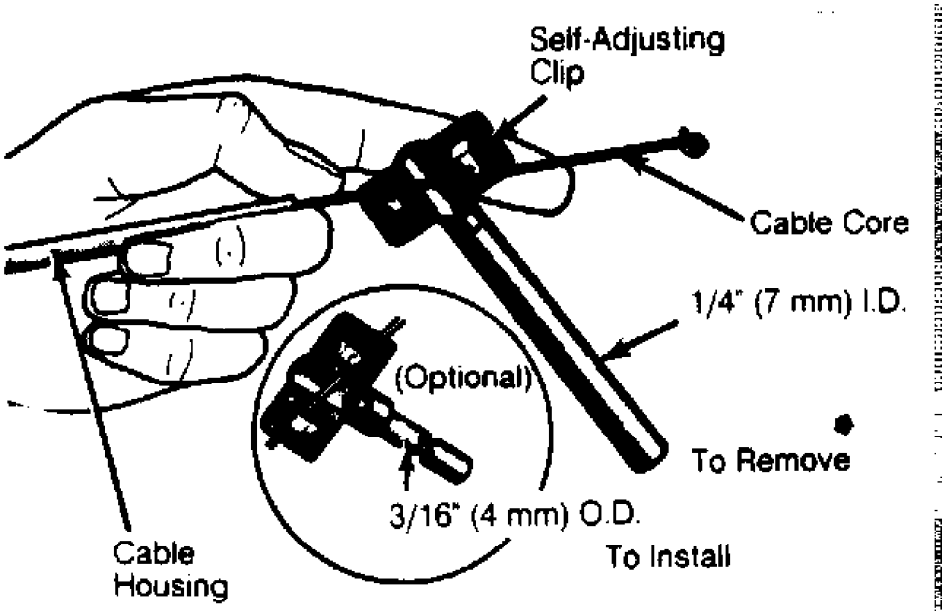

Fig. 4: Removal or Installation of Self-Adjusting Clip

4) Use a wire hook to engage cable and pull it to control unit opening. Be sure cable is routed through clip in left side of heater distribution duct. Place temperature control lever in "COOL"

position.

5) On Horizon and Omni models, route cable through middle holes in steering column support bracket, and forward of and around main wiring harness. On all models, attach cable core on control lever pin and snap flag into receiver on A/C-heater control.

6) Align door crank pin with self-adjusting clip and snap flag into receiver on evaporator-heater assembly. Install A/C-heater control in panel and adjust by moving control to full "WARM" position until it contacts edge of slot.

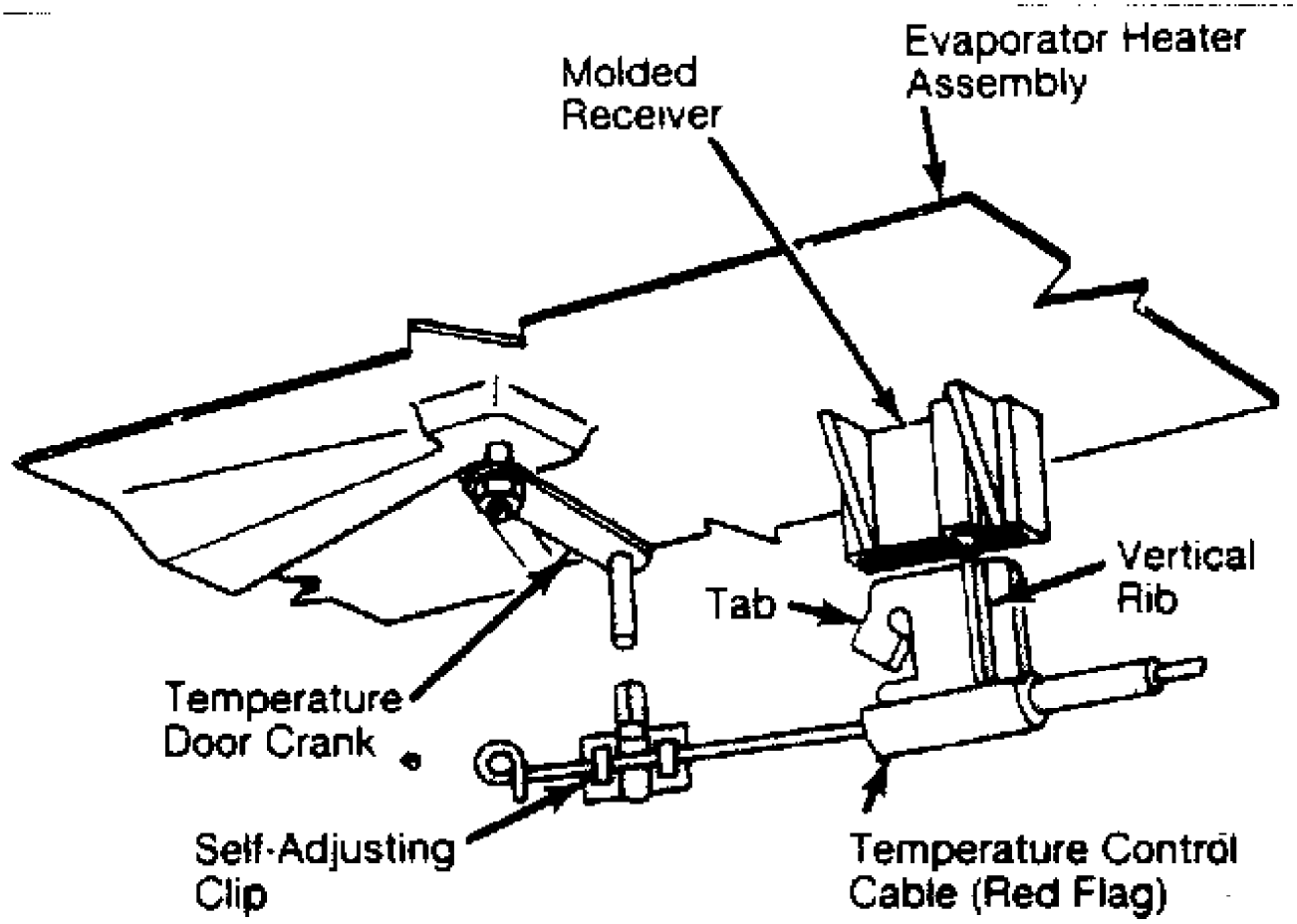

Fig. 5: Temperature Control Cable Replacement

SPECIFICATIONS

AIR GAP

AIR GAP SPECIFICATIONS

Application	In (mm)
A/C Compressor Clutch	.020 & .035 (.05 & 0.9)

VACUUM DIAGRAMS

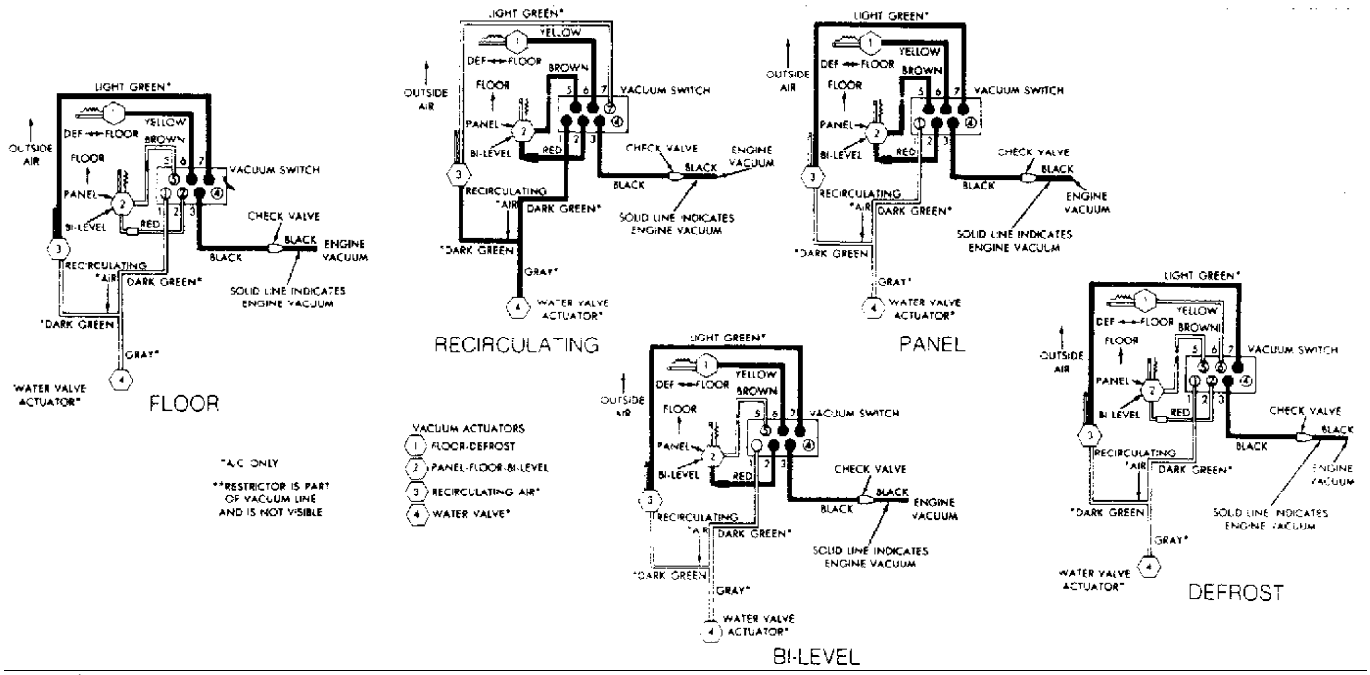

Fig. 6: A/C-Heater Vacuum Diagram (All Exc. Horizon & Omni)

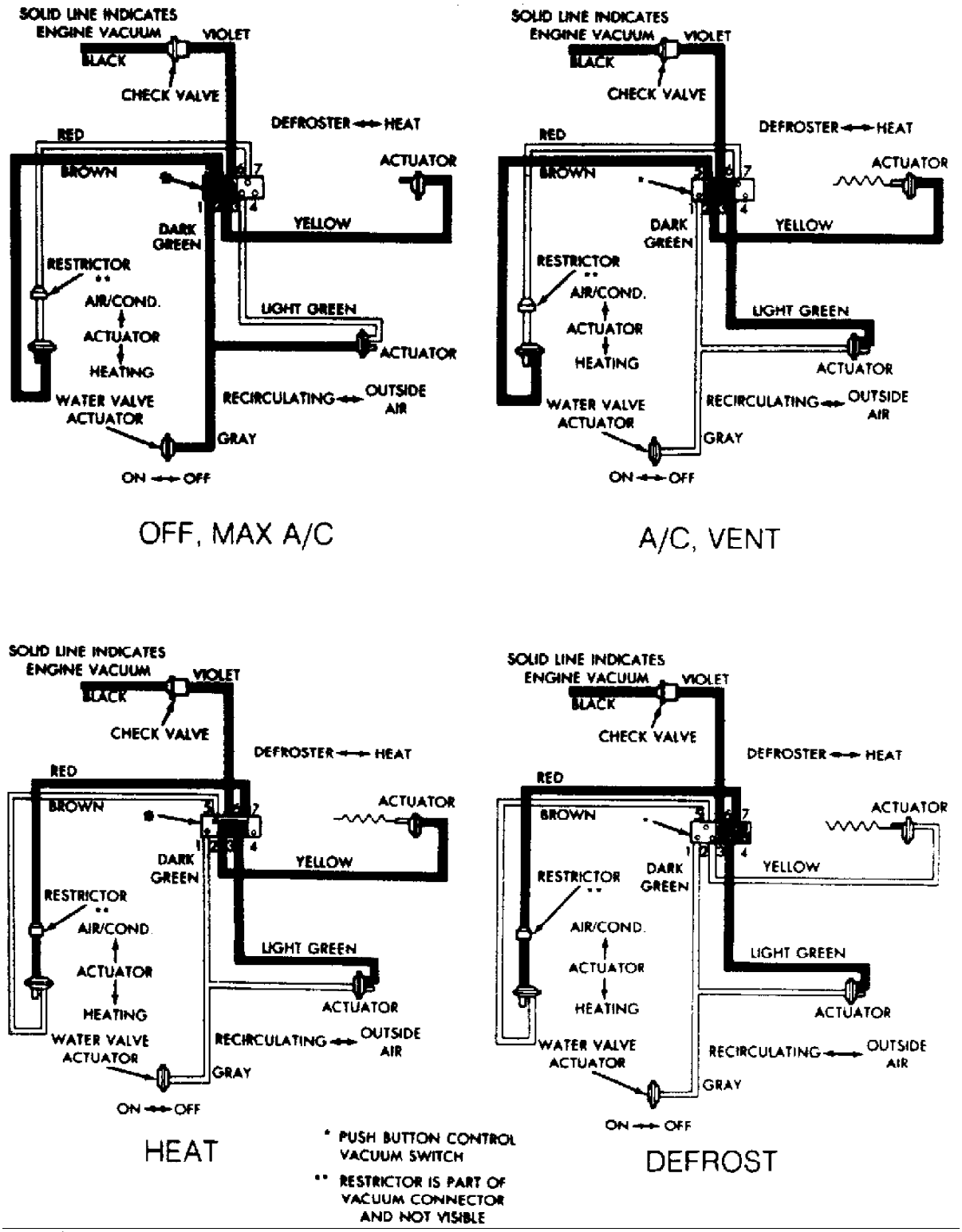

Fig. 7: A/C-Heater Vacuum Diagram (Horizon & Omni)

WIRING DIAGRAMS

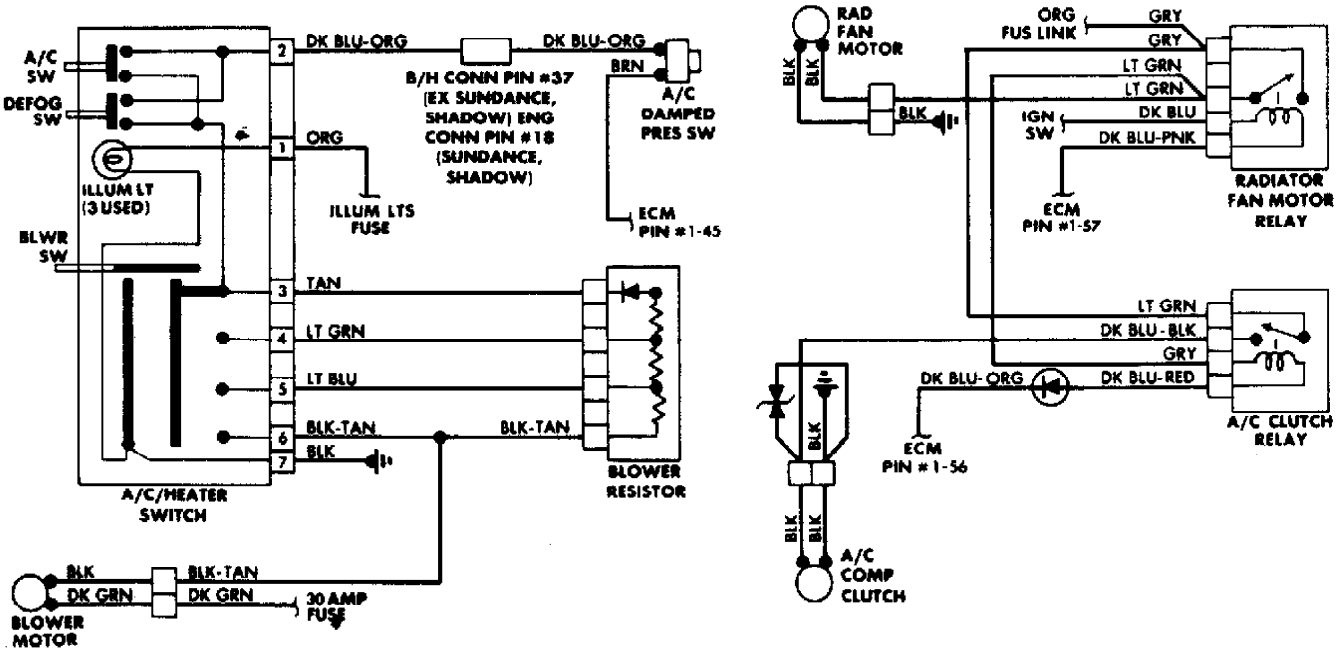

Fig. 8: A/C-Heater Wiring Diagram (All Exc. Horizon, Omni, Dynasty, New Yorker & Landau)

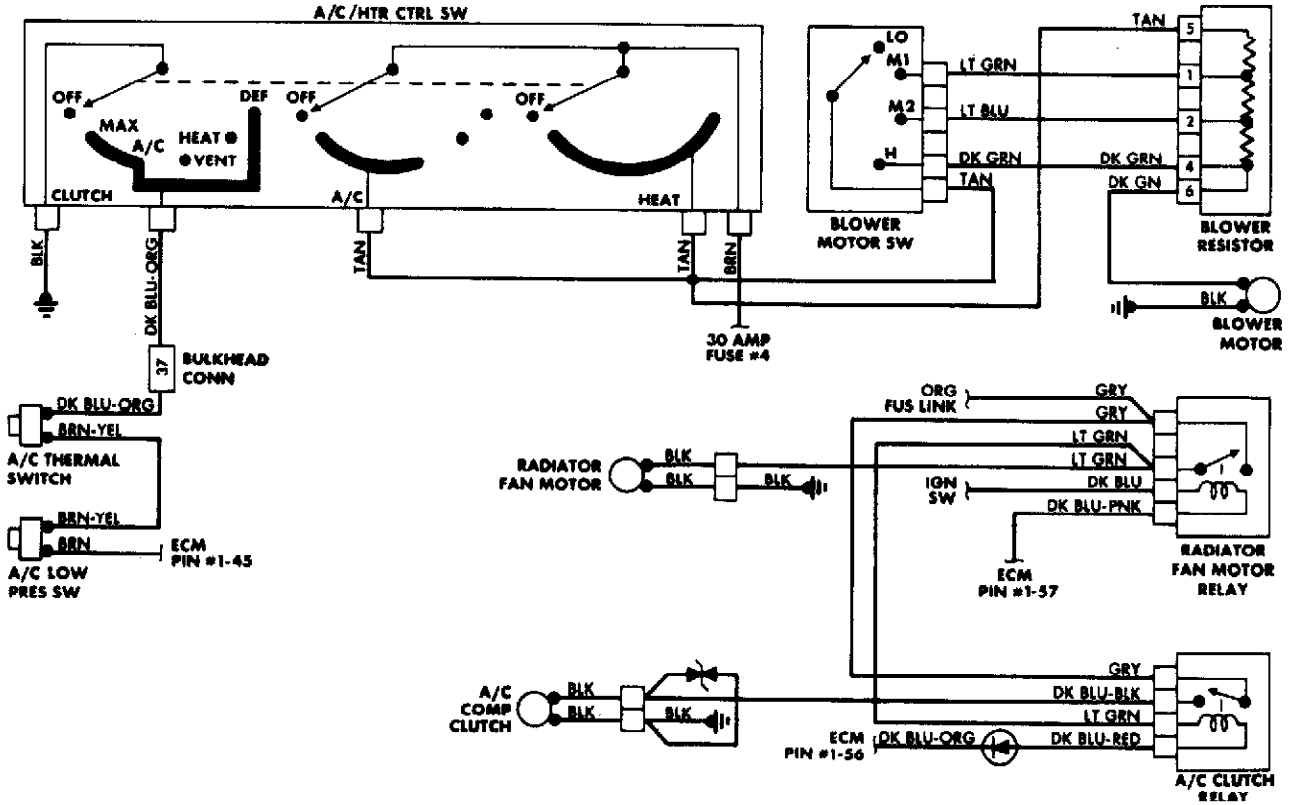

Fig. 9: A/C-Heater Wiring Diagram (Horizon & Omni)

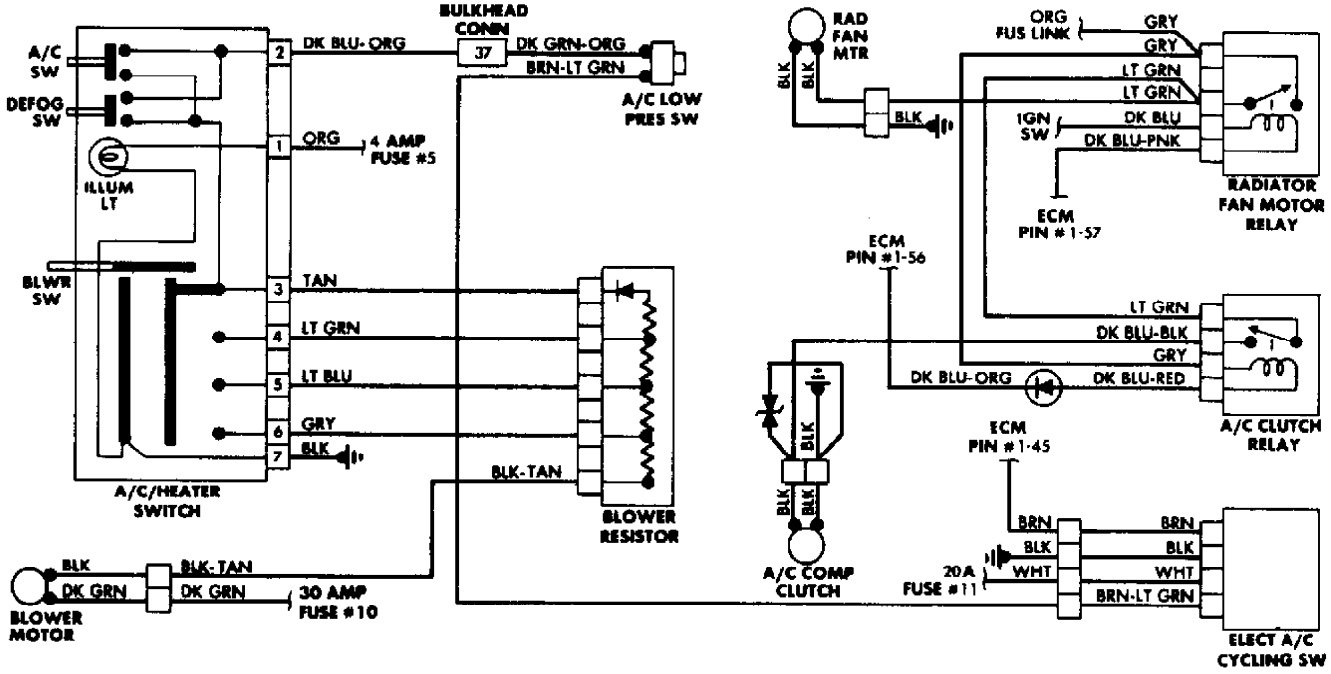

Fig. 10: A/C-Heater Wiring (Dynasty, New Yorker & Landau)