

**THE MASTER TECHNICIAN'S  
SERVICE REFERENCE BOOK**

SESSION NO.

**63-2**

**HEATER  
SERVICE  
TIPS**

**MASTER TECHNICIANS SERVICE CONFERENCE  
PREPARED BY CHRYSLER CORPORATION  
PLYMOUTH • DODGE • CHRYSLER • IMPERIAL**

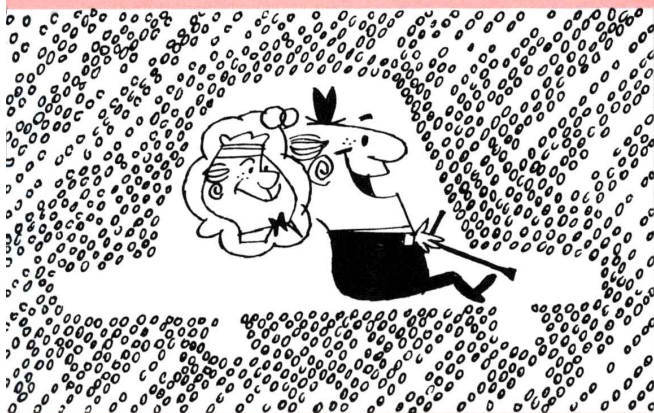


# Comfort experts needed!

When icy blasts begin blowing, will your service customers be comfortable in their cars? They sure will—if you put the service tips in this Reference Book to work for you. It's loaded with heater information.

Among other things, it covers the all-new Valiant and Dart heaters. And heaters for other models haven't been forgotten. There are many timely service tips on *all* the 1963 heaters. This includes the heating system of air-conditioned cars, too. Many of these "hot" tips also apply to earlier models.

As Tech says, "In frigid weather, top-notch heater performance is essential for customer comfort. And keeping your customers comfortable is one way to *keep your customers!*"



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## HEATER SERVICE PROBLEMS

### PRELIMINARY STEPS

In some cases, a heating complaint can be corrected without even touching the heater itself. Of course, you realize the importance of checking those items other than the heater which can influence the temperature in the passenger compartment. It's not necessary to discuss these points in detail in this book, but let's briefly review them to be sure you don't miss any when the chips are down!

**Car sealing:** In cold weather, the heater can't keep passengers comfortable if very much cold air leaks in. Make sure there are no air leaks past door seals or weatherstripping. The fire-wall is another critical area for cold-air leaks, so examine it carefully. Remember, at higher speeds the effect of ram air entering the engine compartment can force quite a bit of cold air through a comparatively small leak.

**Cooling system:** For good heater performance, the car's cooling system should be up to par and protected with permanent-type antifreeze. Be sure a 180° thermostat's installed and working correctly. See if the coolant level in the radiator is okay. If it's low, circulation through the heater core will be reduced and heater output will be cut down. Also look for bubbles or foam in the coolant while the engine's running—a sure sign of a combustion gas or air leak into the cooling system. Check the condition of the fan belt. Finally, be sure

someone hasn't accidentally reversed the heater hoses.

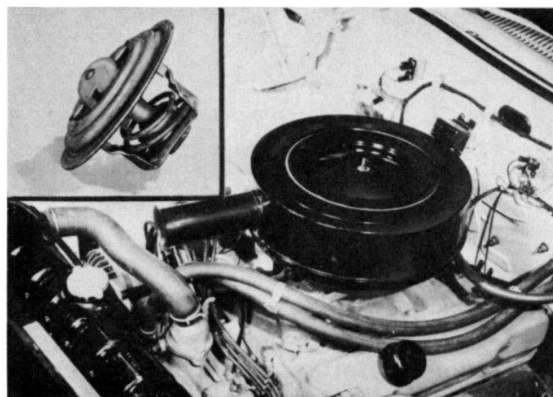


Fig. 1—Check cooling system

### OPERATING PROCEDURES

Once in a while, you might get a service customer who's not using his heater as he should. Here's one example. Modern fresh-air heaters in Chrysler Corporation automobiles are engineered to perform most effectively with the car windows closed. Yet some drivers believe that heat circulation is improved when they open the vent windows, for instance. Actually, all they're doing is "short-circuiting" the air circulation pattern in the car—allowing warmed air to take a short, direct path from the heater outlets to the outside.



## 1963 VALIANT-DART HEATER

### DESIGN

The 1963 Valiant and Dart heater is a new unit which offers many advantages. Simplicity is the keynote in its design. Deflectors that control airflow for heating and defrosting are operated mechanically by push-pull cables from three heater control knobs.

It's an air-mixing type of heater. Outlet air temperature is controlled by blending warm air and cold air in the heater housing. Consequently, heater output temperature responds immediately when the driver moves the temperature control knob.

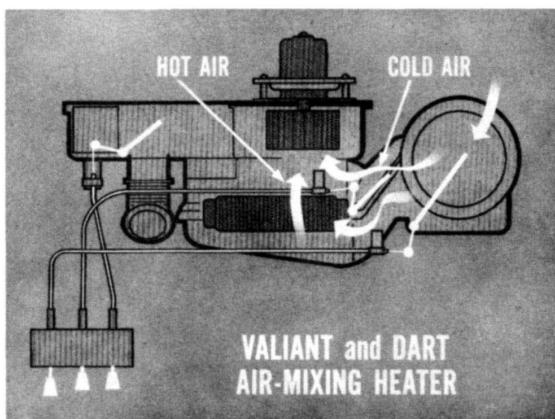


Fig. 2—Valiant-Dart air-mixing heater

### HEATER CONTROLS

The 1963 Valiant and Dart heater is controlled by three knobs on the instrument panel. All three knobs are attached to push-pull cables which actuate doors or deflectors; in addition, one of the knobs operates a rotary electric switch. The left-hand knob controls the blower motor and the door which admits fresh air to the heater housing. The center knob controls the deflector which determines the output temperature of the heater. The right-hand knob controls the door which regulates the amount of warmed air used for defrosting.

### HEATER AND BLOWER CONTROL KNOB

The left-hand knob is a dual-purpose control knob. Pulling out the knob opens the air door in the right-hand fresh-air duct to admit out-

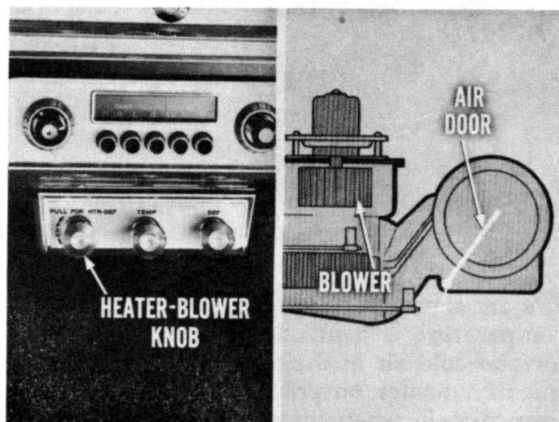


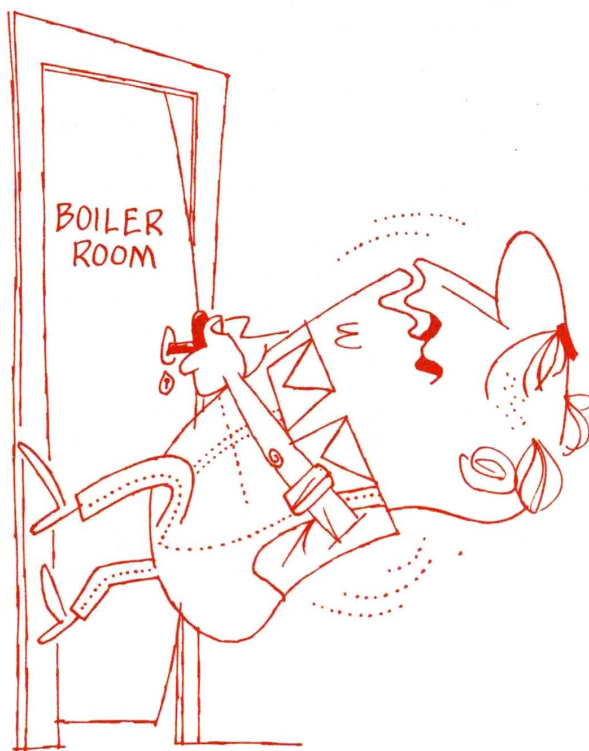
Fig. 3—Heater and blower control

side air to the heater. An over-center spring attached to the air-door shaft insures that the door will be either fully open or completely closed at all times—intermediate positions aren't desirable.

Turning the knob clockwise turns on the blower motor. The knob controls a two-speed switch. For low-speed blower operation, the knob should be turned only to the first stop. For high-speed blower operation, it should be turned to the right as far as it will go.

### OPERATING PRECAUTIONS

When the heater and blower control knob is in, the air door is closed. If the driver turns the blower on with the knob in, the blower will cause a vacuum inside the housing by literally pumping some of the air out of the heater. This vacuum will tend to hold the air door shut even more tightly.



As a result, it takes a pretty strong pull on the control knob to overcome the force of the vacuum and open the air door. This may lead

the owner to believe he has a bind in the operating cable or its linkage. However, if he follows instructions to pull the heater and blower control knob out before he turns it to start the blower, he won't have this trouble.

#### TEMPERATURE CONTROL KNOB

The center knob controls the temperature door located inside the heater housing, just to the right of the heater core. When the temperature knob's pulled all the way out, the door completely closes the direct passage to the blower, causing all of the air to flow through the heater core. When the knob's all the way in, no air is admitted to the heater core; it all flows directly to the blower. The temperature

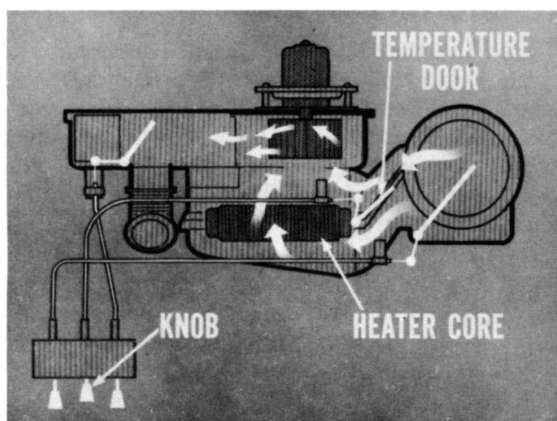


Fig. 4—Temperature control

door can also be set in any intermediate position. The position of the door determines how much cold air will be mixed with the heated air from the heater core.

#### DEFROSTER CONTROL KNOB

When the defroster knob on the right side of the heater control panel is pulled full out, it delivers maximum defrosting air to the two outlets in the top of the instrument panel. When the knob's all the way in, a slight amount of air still flows up the defroster ducts to the windshield whenever the heater's operating. And by using intermediate knob settings, the driver can select the exact amount of defrosting he wants.

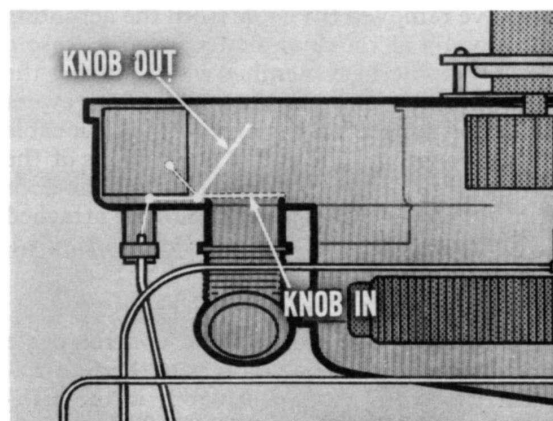


Fig. 5—Defroster control



### VALIANT-DART HEATER SERVICE TIPS

#### AIR-DOOR CABLE ADJUSTMENT

If the air-door cable isn't adjusted properly, the air door could be held slightly open when it's supposed to be closed. At quite high road speeds, the effect of ram air from the cowl vent passing the door may create a rather loud fluttering noise. If you're not aware of this possibility, it might be somewhat of a problem to track down the cause of this noise!

*Adjustment:* To adjust the air-door cable, first

remove the glove box so you'll have access to the cable adjustment area. Then disconnect the cable mounting clip on the heater housing, but leave the cable attached to the actuating arm of the air-door shaft. Be sure the left-hand control knob's pushed all the way in, then turn the air-door shaft counterclockwise as far as it will go. Hold it there while you install the cable mounting clip. Before you reinstall the glove box, check to be sure the temperature control cable is adjusted correctly.

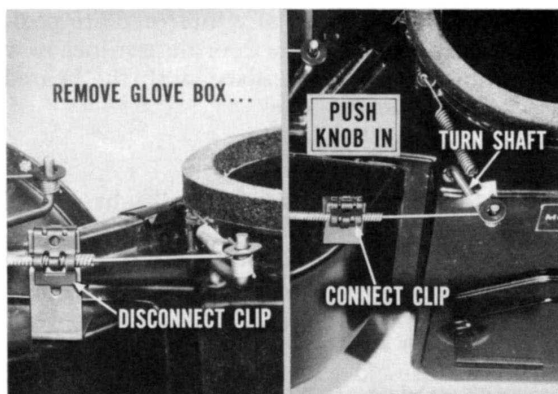


Fig. 6—Air-door cable adjustment

### CABLE INSTALLATION

If you've removed the cable from the actuating arm on *any* of the door shafts for any reason, here's a point to remember when putting the cable eyelet back on the arm. The eyelet should be slipped on the arm so that the cable spirals *down* and the end of the cable is at the lowest point of the spiral. And on the air-door arm, the over-center spring should be attached to the arm *after* the cable eyelet is installed.

### TEMPERATURE CONTROL CABLE ADJUSTMENT

**Diagnosis:** If the temperature control cable adjustment is off in one direction, the temperature door won't close completely in the high-heat position. Then the heater will never produce maximum output temperature, because some cold air will always flow past the door directly to the blower, cooling the heated air.

If the cable adjustment's off in the other direction, the temperature door won't close completely in the "off" position. Then some warm air will be discharged from the heater when it's being used for summer ventilation.

**Adjustment:** To adjust the temperature control cable, remove the glove box and disconnect the cable mounting clip on the heater housing. Don't remove the end of the cable from the actuating arm of the temperature door shaft, though. Make certain that the center control knob—the temperature control knob—is pushed in. Then turn the temperature door shaft as far as it will go in a clockwise direction and hold it there while you attach the clip. Before reinstalling the glove box, make sure the air-door cable adjustment is correct.

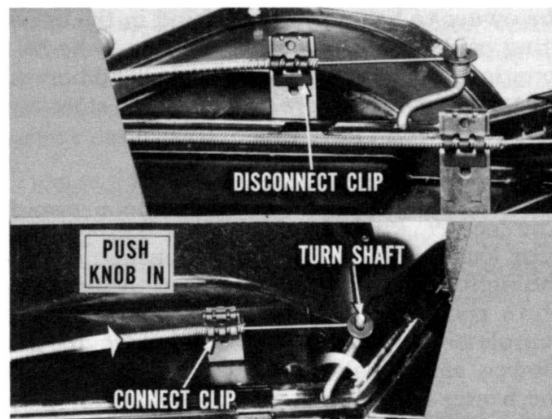


Fig. 7—Temperature control cable adjustment

### DEFROSTER CABLE ADJUSTMENT

To adjust the defroster cable, disconnect the cable mounting clip and push the defroster knob in. Then turn the defroster door shaft clockwise as far as it will go and hold it there while you install the clip. Remember—you don't have to remove the glove box to make this adjustment.

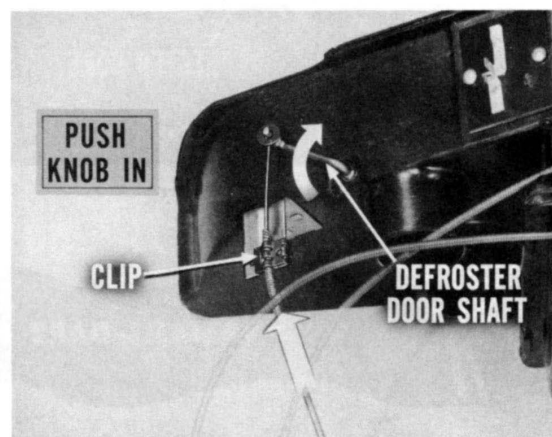


Fig. 8—Defroster cable adjustment

### BLOWER-TO-HOUSING CLEARANCE

Here's a reassembly tip to remember if you've loosened or moved the blower on the motor shaft during servicing. After you've installed the motor and blower in the heater housing, but before you put the heater back in the car, attach jumper wires from the heater switch in the car to the blower motor. Run the motor for a short while to be sure there is no inter-

ference between the blower and the rim of the opening in the housing. Normally, there should be between 15/32-inch and 1/2-inch clearance between the blower and the motor mounting plate, but this dimension varies with individual heaters, due to production tolerances.

#### HEATER HOSE ROUTING

When you install the heater, be sure you don't get the heater hoses reversed. The hot-water hose from the cylinder head should be attached to the heater tube closest to the blower motor at the right side of the firewall. The return hose that leads to the water pump should be attached to the heater tube farthest from the blower motor.

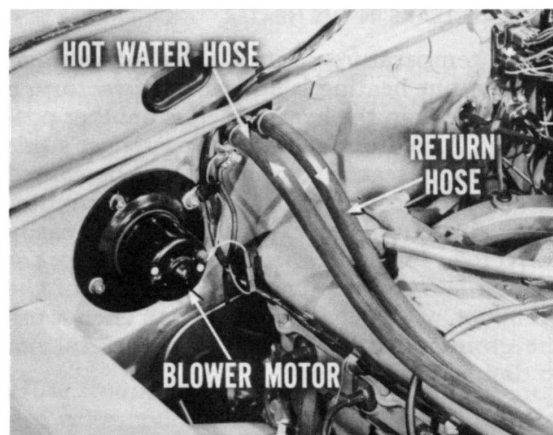


Fig. 9—Valiant-Dart heater hose routing



### PLYMOUTH-DODGE HEATER SERVICE TIPS

The heater in the 1963 Plymouth and Dodge is similar to the units used in last year's Plymouth and Dart. For all practical purposes, service procedures are identical. So all information in this book on the 1963 Plymouth and Dodge heaters will also apply to the comparable '62 counterparts.

#### TEMPERATURE CONTROL CABLE ADJUSTMENT

**Diagnosis:** If the heater is delivering less than full heat output when the temperature selector lever at the instrument panel is in the full warm position, a temperature control cable adjustment may be all that's needed. The same adjustment is usually required if there's some slight heat output when the lever's in the "off" position. In either case, the trouble's due to the temperature selector lever hitting one end of the slot in the instrument panel before the temperature control valve is fully opened or closed.

**Adjustment:** Before making the temperature control cable adjustment, check the cable carefully to be sure it's not bent sharply or kinked. A bend or kink could cause the cable to bind in its housing. It's easiest to adjust the cable at its water flow valve end, but first make sure the other end of the cable housing extends three coils past the retaining clip at the selector lever end of the cable.

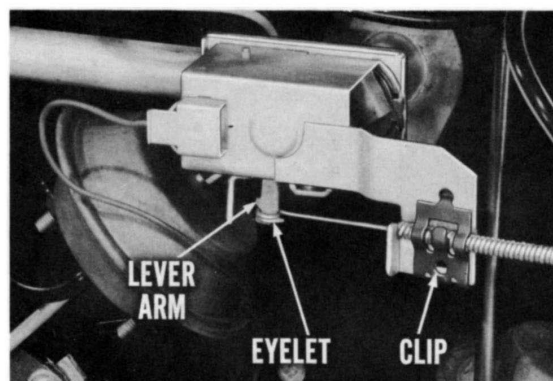


Fig. 10—Plymouth-Dodge temperature control cable adjustment

If that's correct, disconnect the retaining clip and slip the cable eyelet off the lever arm at the water flow valve. Pull firmly on the cable to move the selector lever positively to the full "warm" position. Then push the lever arm on the water flow valve forward and hold it there while you attach the cable eyelet and install the retaining clip.

Valve replacement is very seldom necessary. Long experience has proved that the control valve practically never fails, because there's very little that can possibly go wrong with it. In almost every case, proper adjustment of the cable will correct the trouble.

### COLD-AIR LEAKS IN THE HEATER

If the temperature control cable adjustment is okay, but heating is still not satisfactory, a cold-air leak in the heater itself is another possibility. A cold-air leak on the passenger's side of the front seat, for example, can be caused by the rubber grommet for the blower motor wire being out of place. This condition is easily corrected. Just pull the wires out gently, far enough so that you can grasp the tip of the grommet with needle-nose pliers. Then work the grommet into position, being careful not to damage the wires.

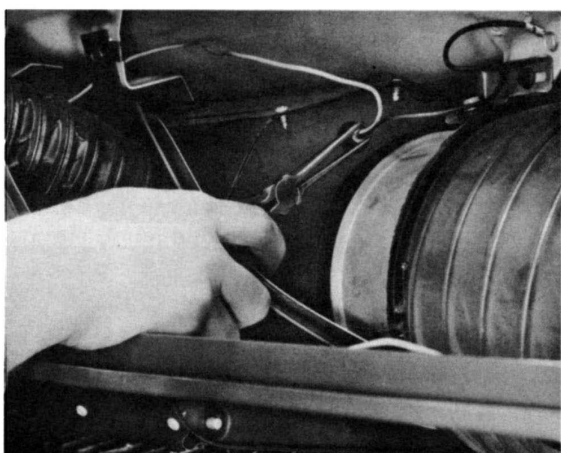


Fig. 11—Blower motor wire grommet

Cold-air leaks on the passenger's side might also come from the flexible duct between the air inlet and the blower motor housing, if it's not properly fitted and tightened at both ends.

### CARPET RETAINERS

Look under the heater to be sure the front edge of the carpet or floor mat is fitted under the retainer lip at the front of the heater housing. If the carpet or mat is out of place, it could keep the heater deflector from going completely into the heat position. Then some of the cold air from the fresh-air inlet will bypass the heater core and leak directly into the passenger compartment.

While you're at it, take a moment to check the carpet retainer clip just ahead of the accelerator pedal. If it's not doing its job, the carpet or mat could curl up and deflect the warm air away from the driver's left foot.

### DEFLECTOR ACTUATOR LINKAGE

In the "heat" position, the actuator linkage for the heater deflector must travel over-center to apply enough tension to compress the deflector seals. If the linkage is out of adjustment, the seals will not be held tightly closed. Then the blower will force some cold air past the seals directly into the passenger compartment.

*Diagnosis:* To determine if an adjustment is needed, start the engine and push in the "off" heater button. Then push in the "heat" button while watching the linkage. As the "heat" button is pushed in, the actuator and linkage at the left front side of the heater housing should close the deflector. The linkage, consisting of two levers connected by a short hinged link, should move to an over-center position. If this over-center action is not evident, an adjustment is called for.

*Adjustment:* To adjust the linkage, first make sure the linkage is in the closed position by starting the engine and pushing in the "heat" button, if necessary. After stopping the engine, loosen the lever pivot screw slightly—just enough so that the screw can be moved sideways in the pivot bracket.

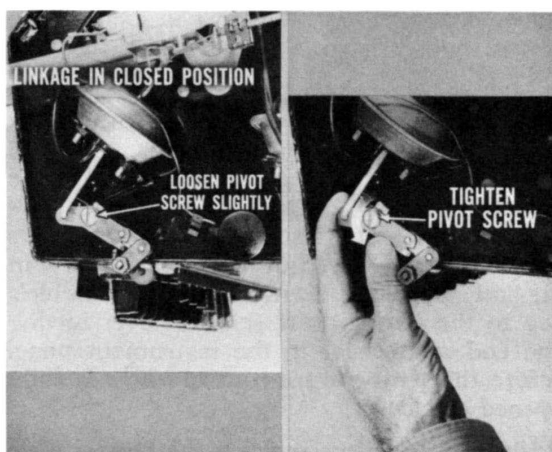


Fig. 12—Deflector actuator linkage adjustment

Then, while pushing up on the deflector to insure that the seals are compressed, twist the lever counterclockwise and push it toward the rear of the car at the same time. Hold the parts firmly in those positions and tighten the pivot screw.



### DEFLECTOR SEAL LEAKS

If a cold-air leak in the area of the deflector persists even after you're sure the actuator linkage is correctly adjusted, it's possible that air is leaking past the deflector seals. To check this possibility, remove the fresh-air duct and the blower. Hold a light inside the heater housing and look for light leaking out past the seal when the deflector's in the closed or "heat" position.

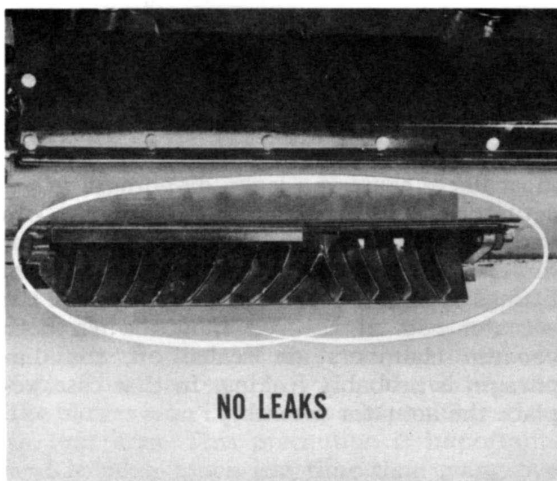


Fig. 13—Check deflector seals

There should be no leaks all along the full length of both long deflector seals. Don't be concerned, however, if some light shines through beyond the ends of the seals. But remember—any appreciable leakage past the seals themselves is bound to create a cold draft or reduce heater output temperature. So just be sure to find and correct any *big* leaks!

**Deflector Shaft Seals:** While you're checking that area, be sure the thick, round seals at both ends of the deflector shaft are doing their jobs, too. A leak at either of these seals could direct a stream of cold air right down on the driver's or passenger's feet.

**Corrective Measures:** If you do find a leak, you can remove the deflector and straighten out or replace the defective seal without having to take the heater housing out of the car. After reinstalling the deflector, however, it's always a good idea to adjust the deflector actuator linkage as described earlier in this Reference Book.

### AIR DISTRIBUTION PROBLEMS

Many air distribution problems—like a lack of airflow through defroster vents or no heated air being discharged at floor level, for example—can be traced to some part of the vacuum actuating system that controls the deflectors. The trouble could be in the push-button switch, the vacuum hoses, or in the actuator itself. And don't overlook the possibility that the deflector or door may be binding.

### VACUUM HOSES

**Hose Routing:** Vacuum hoses to the actuators are color-coded with a red stripe or a white stripe. With but one exception, the red-striped hose is always attached to the rod side of the vacuum actuator while the white-striped hose goes to the other side. The exception to this "Red-to-Rod" rule occurs on the Chrysler, Imperial and Dodge Custom 880 air-conditioning unit only and is covered later in this Reference Book.

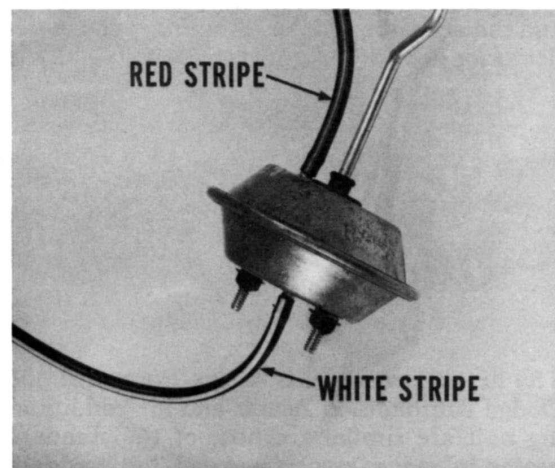


Fig. 14—Hose connections to actuators

**Hose Condition:** When you check the hose connections, also make sure the hoses aren't pinched, twisted or leaking. Usually, you can detect a leak in a vacuum hose by running your finger along the suspected area while vacuum is applied to the hose. Although not essential, a vacuum gauge with an adapter to permit a connection to the vacuum actuator hose is handy to have. If there are no air leaks in the vacuum hose or switch, normal engine vacuum should be indicated.

## VACUUM ACTUATORS

**Actuator Rod Lubrication:** When winterizing past model cars, take a moment to lubricate every vacuum actuator rod with silicone grease. You may also want to do this when troubleshooting air distribution problems on current models, if evidence indicates that any rod is binding in the actuator seal. Apply just enough grease to keep the rod from binding in the seal. Move the rod in and out of the actuator a few times to work the lubricant up into the seal. Then wipe away the excess from the exposed part of the rod to keep dirt from accumulating there.

**Actuator Rod Seal:** If the rod hasn't been lubricated, it might bind sufficiently to pull the seal right out of the actuator case when vacuum is applied. If this happens, just lubricate the rod to prevent a recurrence, then moisten the rim of the seal with clean water and press it back into place in the actuator.

**Actuator Diaphragm:** If the vacuum hoses are in good condition and connected correctly, and the actuator rod isn't binding, yet the deflector or door doesn't operate as it should, the

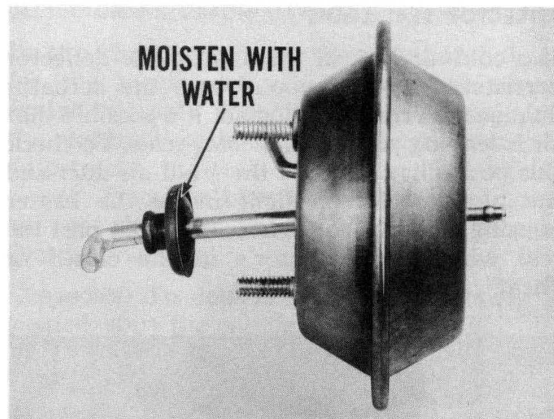


Fig. 15—Reinstalling actuator rod seal

most likely cause is a leaky diaphragm in the actuator. To test the diaphragm, remove both vacuum hoses from the actuator. Place your fingers tightly over the ends of both vacuum fittings to seal them airtight. Try to move the actuator rod. If the rod moves when both vacuum chambers are sealed off, the diaphragm is probably leaking. In that case, replace the actuator assembly.



## PLYMOUTH-DODGE AIR-CONDITIONING HEATER SERVICE TIPS

The heater components of the Plymouth and Dodge combination heater and air-conditioning unit are similar to those of the standard heater in many respects. As in the standard heater, heat output is governed by regulating the flow of hot water through the heater core. However, the method of controlling the water flow valve is different. In addition, provision is made at the fresh-air door to permit interior air to be recirculated during air conditioning for faster cool-down. Because of these and other differences between the air-conditioning unit and the standard heater, service procedures and some troubleshooting diagnosis steps will be different. You can use a lot of the service tips for the standard heater when you're working on the air-conditioning unit, though.

For example, many of the tips on checking the heater for cold-air leaks and the information on vacuum actuators and their hoses and switches apply generally to these units as well.

### COLD-AIR LEAK PAST RECIRCULATING DOOR

A cold-air leak into the passenger compartment could occur if the recirculating door at the right side of the flexible fresh-air duct doesn't close tightly when the heater's on. To see if an adjustment is needed, remove the sound-deflector beneath the right-hand side of the instrument panel. Observe the recirculating door when the engine is running and the "heat" button is pushed in. It should be closed tightly, compressing the sponge seal to prevent air leakage.

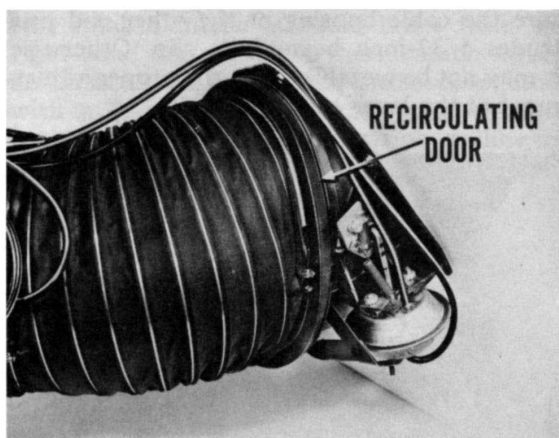


Fig. 16—Possible source of cold-air leak

#### DOOR LINK ADJUSTMENT

If the door does not close properly, you'll have to remove the flexible duct from the blower and the recirculating door to adjust the linkage. But first, disconnect the blower motor ground wire and insulate the end of it with tape. That's an easy way to make certain that the blower won't operate while you're working in that area. This precaution is important—and it takes much less time than going over to the first-aid kit to have a finger bandaged!

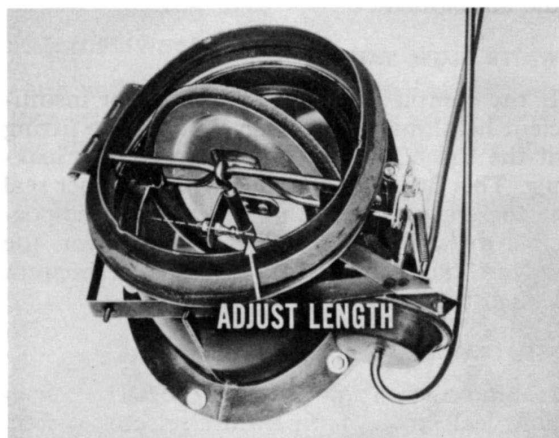


Fig. 17—Door link adjustment

Disconnect the ball-and-socket joint at the link on the fresh-air door. Use a screwdriver to remove the link from the ball, prying against the bracket and the link at the same time. Be very careful not to bend the bracket.

Hold the fresh-air door wide open against its stop, and hold the recirculating door tightly closed, compressing the sponge seal. With the doors in this position, adjust the length of the link to line up the socket with the ball, then snap them together. Once again, be careful not to bend the ball bracket.

#### TRAVEL ADJUSTMENT SCREW

After the link is adjusted, start the engine and see if the recirculating door closes tightly when the blower switch is in the fresh-air position. If the door still doesn't close correctly, you'll have to remove the glove box and adjust the travel adjustment screw. To make this adjustment, loosen the adjustment screw on the fresh-air door actuating lever assembly. Fully retract the vacuum actuator rod by pushing down on it until it bottoms in the actuator. Hold the fresh-air door closed, compressing the seal, and tighten the adjustment screw.

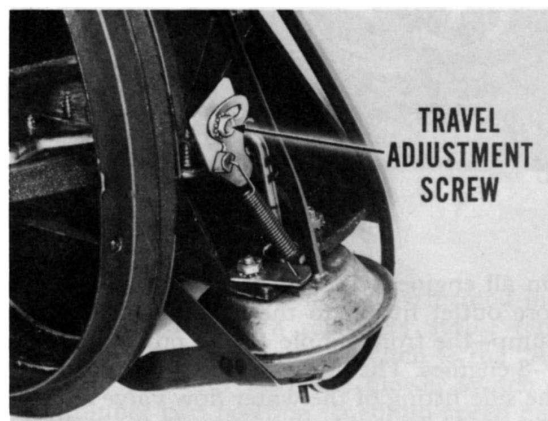


Fig. 18—Adjusting fresh-air door actuating lever travel

#### CARPET RETAINER

1963 Plymouth and Dodge air-conditioning units have a formed-wire carpet retainer installed in the heat outlet slots in the forward edge of the bottom of the housing. This retainer prevents the front edge of the carpet from curling up and blocking off the flow of warm air from the outlets.

It's a good idea to install this retainer, Part Number 2277988, in 1962 units, too. The retainer's easy to install—just spring both ends inward and snap it in place in the heat outlet slots. No fastening hardware is needed.

### HEATER HOSE ROUTING

Take a quick look at the heater hose routing. Fluctuating air outlet temperatures without complete loss of heat or unusually high heater-core temperatures for low selector lever positions can be caused by reversed hoses. The heater core fitting *closest* to the water flow valve is the core *inlet* fitting. A short hose goes to this fitting from the lower hose fitting of the water flow valve. The other heater core fitting is the core *outlet* fitting.

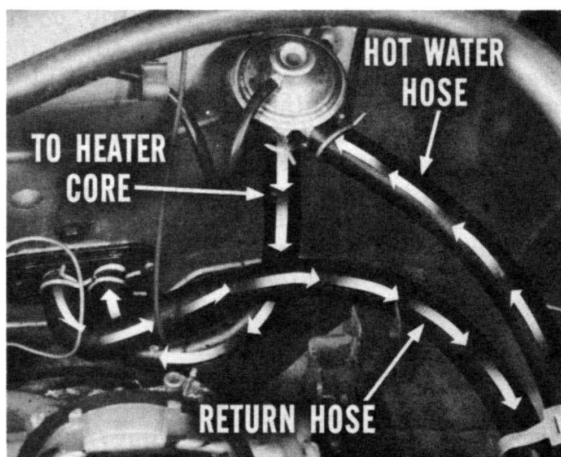


Fig. 19—Plymouth-Dodge air-conditioning heater hose routing

On all engines, the return hose goes from the core outlet fitting to the nipple on the water pump—the front nipple on the pump of larger V-8 engines. The hot water hose is attached to the side fitting of the water flow valve and the remaining heater hose nipple at the cylinder head or, on larger V-8's, the water pump.

### TEMPERATURE CONTROL CABLE

**Diagnosis:** If the complaint is one of too little heat in cold weather when the temperature selector lever is in the full “warm” position, the control cable may be out of adjustment. The lever may be hitting the end of the slot in the instrument panel before the cam on the heater stat travels to its full “on” position.

**Adjustment:** When the cable is adjusted properly, both ends of the cable housing should protrude beyond the retaining clips about 5/32-inch. It's easier to adjust the cable at the temperature control lever end, but first be

sure the cable housing at the other end protrudes 5/32-inch beyond its clip. Otherwise, it may not be possible to get the proper adjustment at the lever end.

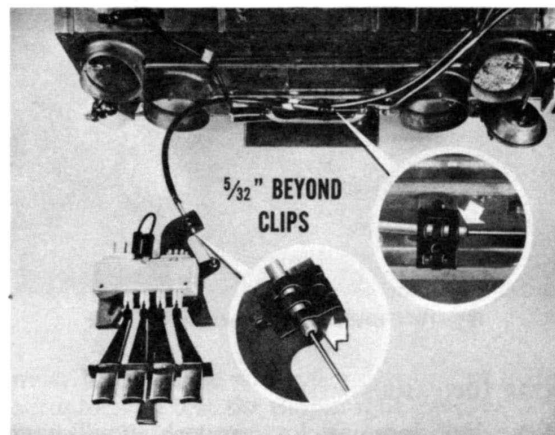


Fig. 20—Temperature control cable properly adjusted

To adjust the control cable, remove the retaining clip at the control lever end. Then remove the cable eyelet from the lever arm. Pull out firmly on the control cable wire to move the stat cam to the “off” position. Hold the temperature control lever in the “off” position and slip the control-cable wire eyelet back over the lever arm. Install the retaining clip to hold the adjustment.

### WATER FLOW VALVE

If the complaint is one of no heat or insufficient heat, make sure the vacuum hose fitting at the top of the water flow valve isn't leaking. This fitting is attached with a rubber seal to the diaphragm chamber, so it may be possible to wiggle it very slightly. However, the valve should be replaced if there's a vacuum leak at the fitting.

### TEMPERATURE SELECTOR SWITCH

Insufficient heat may also be caused by a vacuum leak in the temperature selector switch. Before testing the switch, however, it's a good idea to inspect the vacuum hoses for leaks.

### TEST PREPARATIONS

In the engine compartment, disconnect the vacuum hose from the water flow valve, and plug the end of the hose. Then disconnect the

two small-diameter vacuum hoses from the right-hand side of the two thermostatic valves, and connect the free ends of the hoses together with a T-fitting. Notice that each vacuum hose is coded with a colored stripe: yellow for the heating system and green for the air-conditioning system.

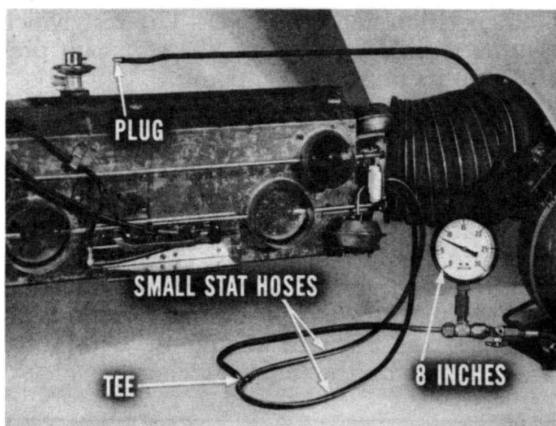


Fig. 21—Temperature selector switch test preparations

Attach the C-3707 vacuum gauge set to the C-3652 vacuum pump. Seal off the end of the test hose from the gauge set with your fingertip, and adjust the bleed valve to give exactly eight inches of vacuum. Connect the test hose to the T-fitting.

#### SELECTOR SWITCH TEST

Push and release the plunger on the temperature selector switch a few times while watching the vacuum gauge. A drop of more than

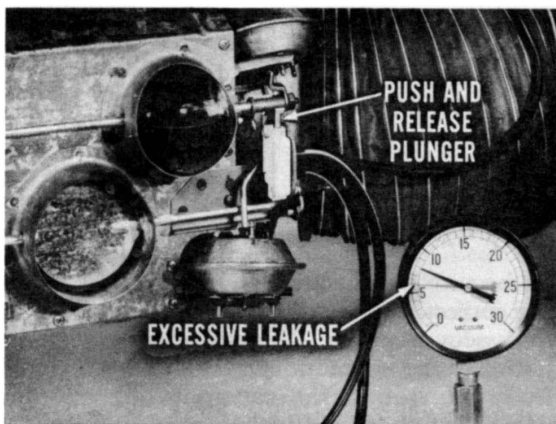


Fig. 22—Selector switch test

one-half inch in vacuum indicates excessive leakage. If you're sure the leakage isn't in the vacuum hoses, replace the temperature selector switch. But before you install the replacement switch, it's a good idea to connect the vacuum hoses to it and repeat the test.

#### SWITCH POSITION ADJUSTMENT

To insure proper operation, the switch must be correctly positioned during installation. Install the switch, but leave the attaching screws slightly loose. Connect the vacuum hoses. Start the engine and depress the "heat" button. Hold a .060" spacer between the end of the switch plunger and the actuating lever on the spot cooler door shaft. Slide the switch upward until the plunger is fully depressed, then tighten the attaching screws. Remove the spacer and test the operation by alternately pushing the "heat" and "cool" buttons.

#### HEATER THERMOSTATIC VALVE

A complaint of erratic heat output, or no heat at all, might be traced to a faulty heater thermostatic valve. Before testing the heater stat, be sure the vacuum hoses aren't pinched or leaking. Check the vacuum line fitting at the top of the water flow for leaks. Also test the temperature selector switch.

#### HEATER STAT TEST PREPARATIONS

In winter, the test should be performed in a heated area having a relatively stable temperature. Turn the ignition switch to the "Accessory" position. Turn the blower switch to the number two position (medium-speed heat operation). Depress the "defrost" push button. The blower should be kept running for the entire test.

Place a thermometer in the upper outlet (defroster) grille so you'll know when the temperature of the discharged air is stabilized. You can't begin the test until the air temperature remains constant within one degree per minute. While you're waiting for the temperature to level out, remove the radio speaker grille and the speaker to make it easier to get at the heater stat.

The heater stat is the left-hand valve. It is identified by two yellow dots of paint on the valve body. Disconnect the small-diameter

vacuum hose from the right-hand side of this valve. Also disconnect the large-diameter vacuum supply hose from the right-hand stat (the air-conditioning thermostatic valve) and plug the hose.

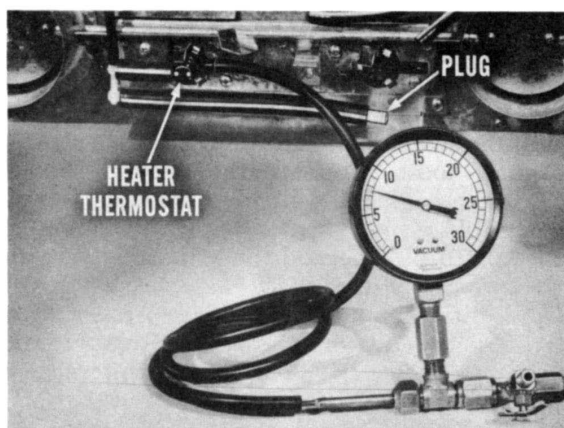


Fig. 23—Heater stat test preparations

Disconnect the vacuum source hose for the air-conditioning unit from the intake manifold. Connect the hose to the C-3652 vacuum pump. Then attach a special test hose to the C-3707 vacuum gauge test set. Connect the other end of the test hose to the right-hand side of the heater thermostatic valve.

**Important:** The test hose must be exactly forty-eight inches long and have an inside diameter of three-sixteenths inch. The specifications for this test have been calibrated for this specific hose, so don't substitute another.

#### THERMOSTAT MID-POSITION SETTING

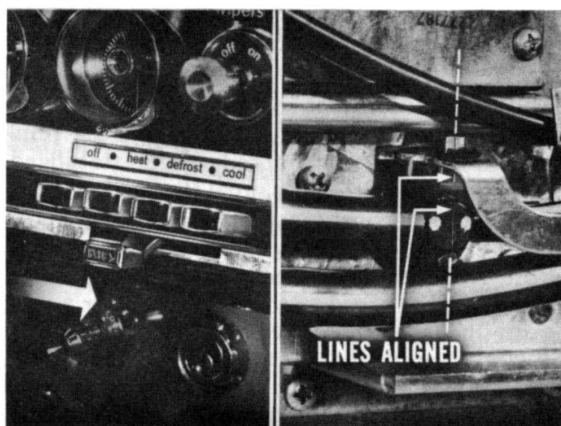


Fig. 24—Adjusting heater stat to exact mid-position

Put the temperature selector lever in the “off” position, then move it slowly toward the center of its slot while observing the heater stat. Stop when the vertical line on the stat cam lever arm is aligned with the raised vertical line on the valve body. If you overshoot the mark, *don't* move the lever directly back to the proper setting. Instead, return the selector lever to the “off” position and start over. The test which follows is based on having the stat cam precisely on its mid-position point.

#### CALIBRATION TEST

When the air temperature at the upper outlet is stabilized and the heater stat cam is set precisely at its mid-position, start the vacuum pump. A vacuum of at least twenty inches is required for this test. Read the thermometer and the vacuum gauge. For any given temperature, the vacuum should be within the limits shown on the following chart.

### HEATER THERMOSTAT MID-POSITION VACUUM CALIBRATION

DEGREES FAHRENHEIT	VACUUM RANGE	DEGREES FAHRENHEIT	VACUUM RANGE
65	7.75-9.50	76	7.00-8.75
66	7.75-9.50	77	6.75-8.50
67	7.50-9.50	78	6.75-8.50
68	7.50-9.50	79	6.75-8.50
69	7.50-9.25	80	6.50-8.50
70	7.50-9.25	81	6.50-8.25
71	7.25-9.00	82	6.50-8.25
72	7.25-9.00	83	6.50-8.25
73	7.25-9.00	84	6.25-8.00
74	7.00-9.00	85	6.25-8.00
75	7.00-8.75		

#### CHECK VALVE TEST

To be sure the check valve in the stat is working correctly, disconnect the source hose from the vacuum pump. This will release all vacuum in the vacuum source lines upstream from the stat. If the vacuum gauge reading drops less than one inch in one minute, the check valve is okay.



## CHRYSLER, IMPERIAL AND CUSTOM 880 HEATERS AND AIR CONDITIONING

Fundamentally, the heaters and air-conditioning units used in this year's Chrysler, Imperial and Dodge Custom 880 models are similar to those used in last year's cars. As a general rule, many of the service tips given for the Plymouth and Dodge heaters will apply to these units as well.

### VACUUM ACTUATOR HOSES

Vacuum actuator system diagnosis, for example, is similar. But don't forget the one exception to the "Red-to-Rod" rule for attaching vacuum hoses. On the bypass-door actuator for *air-conditioning units only*, the white-striped hose goes to the rod side of the actuator, while the red-striped hose is attached to the other side.

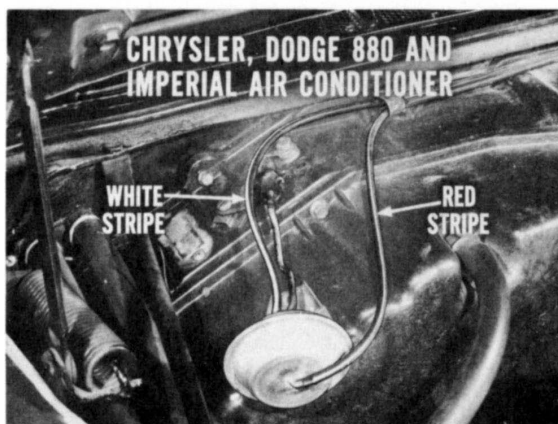


Fig. 25—Air-conditioning unit bypass door actuator hose connections

### HEATER HOSE ROUTING

On the Chrysler, Imperial and Dodge Custom 880, the water flow valve for the heater is mounted at the right-hand side of the passenger compartment, with fittings extending into the engine compartment. The hot-water hose from the rear hose nipple in the water pump must lead to the inboard fitting. A short hose leads from the outboard fitting to the heater core fitting in the heater housing. The return

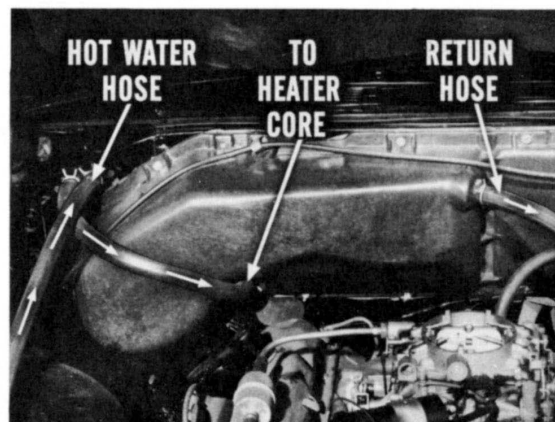


Fig. 26—Chrysler, Imperial and Dodge Custom 880 heater hose connections

hose from the left side of the heater housing must be connected to the hose nipple toward the front of the water pump.

### TEMPERATURE CONTROL CABLE ADJUSTMENT

On these heaters and air conditioners, the easiest end of the temperature control cable to adjust is the selector lever end. First, make sure the other end of the cable housing extends about 5/32-inch beyond the retaining clip. Then disconnect the other retaining clip from the lever end of the cable housing and slip the cable eyelet off the selector lever arm. Pull the cable out of its housing as far as it will go, shutting off the water flow valve. Hold the temperature selector lever in the "off" position. Then attach the cable to the lever and install the retaining clip while keeping the lever and the cable in their "off" positions.

**FLASH . . .** The special six-cylinder distributor cap and rotor in service package Part No. 2448273 is now black instead of green. To identify these new parts, forget the color and look for the wide inserts in the cap and the narrow rotor contact strip.

