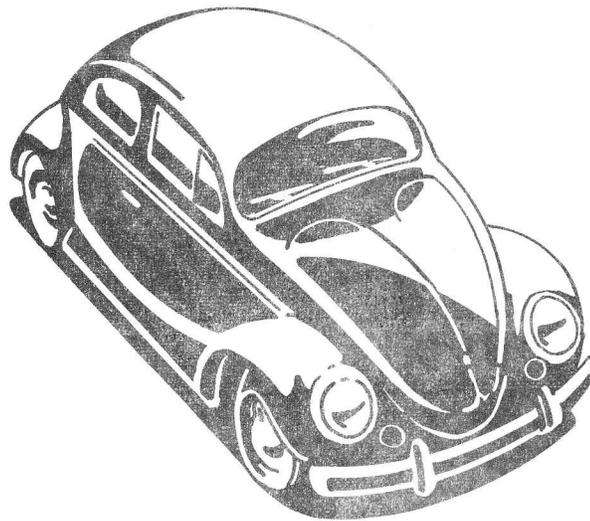


South Wind
HEATER

INSTALLATION INSTRUCTIONS



FOR VOLKSWAGEN SEDAN



South Wind
DIVISION

STEWART-WARNER CORPORATION

1514 Drover Street • Indianapolis 7, Indiana

CONFIDENTIAL

INSTALLATION INSTRUCTIONS
FOR
VOLKSWAGEN SEDAN HEATERS

DESCRIPTION

The Instant Heater installation for the Volkswagen consists of four main assemblies. Heater, Combustion Air Blower (which includes fuel pump and ignition breaker points), Ignition Coil and Fresh Air Blower, (which includes the thermostat).

The heater is mounted in the luggage compartment on the left side in a horizontal position. (See Figure 1). The combustion air blower is mounted under the Fuel Tank on the support bracket for the left front hydraulic brake line. (See Figure 2 and 7). The ignition coil is mounted in the spare tire compartment on shelf. (See Figure 3). The vent blower mounts on the underside of the luggage compartment deck in the passenger compartment. (See Figure 4)

OPERATION

The South Wind Instant Heater is completely automatic in operation and provides warm air immediately, regardless of the weather.

The heater does not affect the heating system already built into the car; under conditions where the regular system is adequate, it is recommended that the Instant Heater be turned off. It will truly provide remarkable warmup and comfort under cold weather conditions.

The heater is controlled by a dual purpose switch. To turn the heater on rotate the switch to the right or clockwise. To select a desired duct temperature, pull out the control knob to raise the temperature; push in to lower the temperature. The thermostat located in the blower outlet will maintain the preselected temperature.

SECTION A

INSTALLATION PROCEDURE

The following installation procedure is arranged in logical sequence for a fully equipped shop, but the order of installation may be changed to suit the available equipment and circumstances.

NOTE: "Right" and "Left" refer to the right and left sides of the car as seen from the driver's seat.

A. CONTINUED

1. Remove the spare tire, jack and windshield washer bag from the spare tire compartment. Also remove the plastic covering from the back of the instrument panel by removing the two thumbscrews at the bottom. Take out the plastic floor covering and pull back the insulation about two-thirds of the way from the left side (or remove entirely.)
2. Disconnect the battery ground lead and jack the car. Remove both front wheels.
3. Check position of the fuel transfer valve lever in the center of the dash panel inside the car (see owner's manual). Turn valve lever to the OFF position which is at an angle of 45° to the right of vertical. This will shut off the fuel valve on the bottom of the tank.
4. With the transfer valve in the OFF position, reach in from the right wheel well and remove the cotter pin which attaches the valve operating lever to the valve shaft underneath the fuel tank. After removing the pin, the lever may be pushed back off the valve shaft.
5. Loosen the hose clamp on the front side of the fuel valve and pull the engine fuel line off the valve. There will be no leakage of fuel if the valve is turned off.
6. Inside the luggage compartment, remove the four bolts and clips which secure the fuel tank. Lift out the tank and set it aside, being careful not to damage the valve on the bottom.

SECTION B

VENT

1. Remove the mounting plate from the back of the vent blower by removing the four nuts from the studs on the mounting plate.
2. Locate the mounting plate, with the studs toward the front and the duct collar aft, on the centerline of the dash panel. (See Figure 5). There will be sufficient room for the plate which should be very close to the center of vehicle. While holding the plate in position, mark the outline of the duct collar on the underside of the luggage compartment deck. A template for locating the holes may be used or the mounting plate itself may be used as a template. (See Figure 5).
3. Place the template in the center of the deck scupper inside the passenger compartment (See Figure 5) making certain that it fits squarely in the area.
4. Drill four (4) holes to match the circulating blower mounting plate. There are three (3) holes for studs, or mounting screws, and one for the hot air duct collar. The three holes for the screws are all No. 14 sheet metal screws, and the hot air duct hole is a three and one half inch hole (3.500 inch), which may be sawed or drilled. Since

a certain amount of oversize condition may arise, it makes no difference so long as the oversize condition is not excessive as the vent blower mounting plate will cover a wide area around it.

5. Fit the vent blower mounting plate into position from inside the passenger compartment and attach the blower mounting plate with three (3) No. 14 sheet metal screws.
6. Mount the vent blower on the plate and reinstall the four nuts on the studs (Figure 4). Be sure to attach the motor ground lead under one of these nuts.

SECTION C:

SWITCH AND CONTROL CABLE

1. Attach the switch and control cable mounting bracket to the underside of the instrument panel to the right of the steering column, approximately twelve (12) inches, using the bracket itself as a template, clamp it to the instrument panel flange by means of a small pair of vise grips, or mark holes with pencil and center punch (See Figure 5).
2. Secure this bracket to the instrument panel with two (2) No. 8-1/4 inches long hex head sheet metal screws.
3. Pass the control cable through the bracket and secure it with the 7/16 inch (0.4375 inch) jam nut provided. Push the control knob all the way in.
4. Remove the cover from the front of the circulating blower to expose the thermostat and pry off the cable clamp at the lower left corner of the thermostat plate. (See Figure 6)
5. Move the thermostat linkage to the right as far as it will go. Pass the wire at the end of the control cable through the swivel on the thermostat linkage and tighten the set-screw.
6. Re-install the cable clip to secure the cable housing to the thermostat plate.
7. Arrange the control cable on the under side of the luggage compartment in a smooth curve and attach it to the vent blower mounting stud with the clamp provided. (See Figure 4)

SECTION D:

COMBUSTION BLOWER FUEL PUMP, & BREAKER POINT ASSEMBLY

1. Fit the flat side of the blower mounting bracket on the outside of the left front wheel hydraulic brake line support bracket. The central "U" shaped opening in the bracket will fit around the hydraulic line which need not be disturbed nor disconnected. (See Figure 7)

2. Hold the bracket in position with the bottom of the "U" shaped opening in the bracket approximately 1/4 inch (0.250 inch) below the hose fittings and drill two holes with a 5/16 inch (0.3125 inch) drill, using the bracket as a template.
3. Attach the bracket with two (2) 1/4-20 x 1/2 hex head cap screws and lockwasher nuts.
4. Fit the rubber covered saddle over the tabs on the top of the bracket, making sure it fits down securely.
5. Fit the combustion air blower assembly on the saddle with the blower housing on the left side and the blower outlet facing forward. (See Figure 2)
6. Hook the two clamps over the hooks on the mounting bracket and install the clamp screw loosely to hold the blower in position. (See Figure 2)
7. Check clearance of blower from other parts of the car and turn the steering wheel all the way from right to left while observing movement of linkage for clearance. Adjust blower position as necessary and tighten clamp screw securely.
8. Loosen one of the blower mounting bracket screws and place the blower ground wire beneath it, then tighten to obtain good electrical contact.
9. Attach the 1-1/4 inch flexible duct to the blower outlet with one of the clamps and adapter provided.

SECTION E

HEATER FUEL LINE CONNECTION

1. Cut the flexible engine fuel line about 2-1/2 inches from the end that connects to the tank fuel valve and install the heater fuel tee, using the two small hose clamps provided in the kit. (See Figure 2)
2. Connect the free end of the heater fuel line (already attached to the tee) to the inlet of the fuel pump. The fuel pump cover is marked "IN" and "OUT". (See Figure 2)
3. Remove the fuel line from the heater assembly and connect it to the fuel pump outlet. Route the fuel line under the fuel tank and up into the luggage compartment through the hole identified as "E" in Figure 9.

SECTION F

IGNITION COIL INSTALLATION

1. Using the ignition coil mounting bracket as a tamplate, place on small shelf behind spare tire and drill two (2) No. 13 holes for two (2) No. 14 sheet metal screws. (See Figure 3)

2. Mount ignition coil in horizontal position on shelf floor with the ignition cable end toward the left side of the vehicle. (See Figure 3)

NOTE: On cars equipped with a bottle type windshield washer, reservoir, place the coil in a vertical position between the bottle and hydraulic fluid reservoir, and mount it to the vertical section above the shelf, with the cable end down.

SECTION G

HEATER ASSEMBLY

1. Locate bracket on left side of vehicle, under luggage compartment hood, which the hood restraining hinge is mounted on. All dimensions will generate from this point whenever possible, as shown in Figures 8 and 9.
2. All holes are identified in Figure 9 alphabetically and are shown as follows:

ITEM	HOLE	DIAMETER	PURPOSE
a.	A	3/16 inch (No. 13 drill) 4 required	Mounting Bracket, Burner Assembly
b.	B	1-1/2 inch - 1 required	Combustion Air Duct
c.	C	1-1/2 inch - 1 required	Exhaust Tube Duct
d.	D	3/4 inch - 1 required	Harness Finger to Combustion Blower
e.	E	3/4 inch - 1 required	Fuel Line
f.	F	3/16 inch (No. 1 Drill) 3 required	Circulating Blower Mounting Plate
g.	G	3-1/2 inch - 1 required	Hot Air Duct to Passenger Compartment.
h.	H	1/4 inch - 1 required	Fuel Drain Hole

NOTE: Items 'f' and 'g' are for reference purposes only since these holes were drilled and cut from the circulating blower mounting plate previously.

3. It must be remembered that at this point the mounting brackets for the heater assembly (See Figure 10 and 11) must be installed and the heater assembly laid in the brackets to assure the accuracy of the two holes in items (b) and (c).

NOTE: Be sure spark plug is near top, as unit rests in brackets. (See Figure 12 and 13). To adjust, loosen bolt in clamping ring around burner assembly and turn to proper position.

4. Provided all holes are correctly located and drilled, hold the heater assembly near its location and attach the fuel line, combustion air duct, overheat switch wires, and flexible steel tube.
5. Push the exhaust tube, the combustion air duct, and fuel line down through their respective holes and place the burner and exchanger assembly in its brackets and clamp in place.
6. Install guard on heater assembly.

SECTION H

ELECTRICAL WIRING INSTALLATION

1. In the luggage compartment and on the cowling, locate the ignition switch (See Figure 14). Just forward of and directly below, drill one 3/4 inch diameter hole through the luggage compartment deck.
2. Locate the cold terminal on the ignition switch and loosen the setscrew on this terminal.
3. Insert the fused lead on the harness into the above mentioned terminal without removing or disturbing the wire already installed there.
4. Through the hole drilled (refer to Paragraph 1 above), insert the end of the harness that has the fused lead nearest the harness "Y". The harness should be inserted up to a point between where the fused lead enters the loom and the first finger of the harness leaves the main body of the harness.
5. Insert the rubber grommet in the hole through which the harness was passed so that the wires and harness are well protected from the sharp edges of the metal.
6. Inside the passenger compartment, connect the two (2) lugs to the heater switch.
7. Clamp the harness finger (refer to Paragraph 4 above) to the stud on the vent blower housing. (See Figure 4)
8. There are three (3) lugs at the end of the finger (refer to Paragraph 7 above) which are to be connected as follows:
 - a. Connect the singular member to one terminal of the thermostat.
 - b. Connect the lug which has a pigtail attached to it, to other side of the thermostat.

- c. Connect the lug on the pigtail to the vent blower motor hot terminal.

This concludes the electrical connections inside the passenger compartment.

9. In the luggage compartment lay the harness on the luggage compartment deck toward the left front wheel well and left rear corner of the hole for the fuel tank. (See Figure 8)
10. Near the left rear corner of the opening for the fuel tank and two (2) inches from the vertical side of the left front wheel well, and two (2) inches from the edge of the hole for the fuel tank, drill one (1), 3/4 inch hole.

NOTE: Be exceptionally careful to be sure that all leads are clear underneath to prevent damage by the drills' break-through.
11. Near this point is another harness finger coming from the loom. This finger is to go down underneath the deck to be connected to the combustion blower motor assembly.
12. Connect the green wire to the breaker-point assembly and the red wire to the combustion blower motor terminal. This concludes the electrical connections underneath the vehicle.
13. In the luggage compartment and near the harness finger (mentioned in Paragraph 12, above), there is a dual wire coming from the loom which does not appear as a harness finger (i.e. - not wrapped or tied). This lug is to be connected to the overheat switch which is on top of the heater assembly.
14. The last and remaining finger of the harness is to be fed forward and down to the spare tire compartment and to the foremost bulkhead where it will follow the loom crossing the compartment. In the approximate center of the vehicle, this wire should turn and follow toward the fuel tank (up and aft) to the small shelf behind the spare tire. (See Figure 3)
15. Connect the red wire to the + (plus) side of the coil and the green wire to the - (minus) side of the coil.
16. Install the ignition cable on the coil and feed it up to the spark plug on the heating unit.
17. Check all wiring installations and see that all loose and/or free sections are securely clamped in place. This concludes all electrical connections for the heater. (See Figure 17)

SECTION I

EXHAUST TUBE INSTALLATION FROM EXCHANGER

1. After the heat exchanger assembly is mounted in place, lay the flexible steel tube along the aft wheel well bulkhead and where the

body and fender join the exterior portion of the body. Observe where clamp may be mounted approximately midway between point where tube joins the exhaust outlet on the exchanger and the end of the tube. This clamp must be installed in such a manner that the exhaust tube will not lay against the underside of an exterior surface. The placement of this clamp is extremely important, since, if it is clamped to the underside of an exterior surface, the heat from the exhaust might possibly damage or blister the vehicle's finish. (See Figure 15)

2. Remove the nearest body bolt that secures the fender to the vehicle and place the clamp at that point. (See Figure 15)
3. Secure tube to exhaust outlet by drilling one (1) No. 30 hole through flexible tube and exhaust outlet and installing one (1) No. 8 x 5/16 inch long sheet metal screw to join flexible tube to rigid tube.

SECTION J

RE-INSTALLATION and MODIFICATION

1. Reinstall gasoline tank and make fuel connection, after check of installation and before re-installation of luggage compartment deck cover. The cover itself will have to be modified slightly. (See Figure 16)
2. A slot, running from the tip (which, when installed, will be on the left side under the heater) inboard to a square cutout, must be cut. This square is for the inboard foot of the aft heat exchanger mounting bracket. This cover must be modified so as to be removable to provide access to wiring running on the deck of the luggage compartment. (See Figure 16)
3. Cut a hole to go around the hot air duct collar rising through the deck.
4. The location of these cutouts will be necessarily determined by the installation itself. The square cutout need not fit so snug; however, the round cutout for the hot air duct collar should fit rather "snug".
5. Install hot air duct after replacing deck cover.

NOTE: Before proceeding, check all switches to see if they are in "OFF" position.

6. Connect battery cable which was disconnected previously.
7. As a final check, perform the following:
 - a. Start heater and run momentarily while listening to see if proper ignition and combustion take place. Heater is burning properly if a slight "puff" is noticed upon turning on and heat begins flowing from exhaust tube. If the

thermostat is calling for heat, warm air should begin flowing from vent blower in passenger compartment within one minute. Stop heater.

- b. Check all around unit to see that no toxic fumes are being emitted anywhere except from exhaust duct.
- c. Check around heat exchanger and burner assembly for gasoline leaks.
- d. A slight "smoking" will be noticed when the heater is run for the first few times. This is not a defect; it is due to the new metal becoming hot.

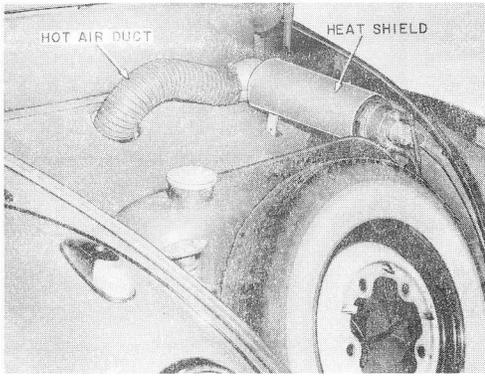


FIGURE 1

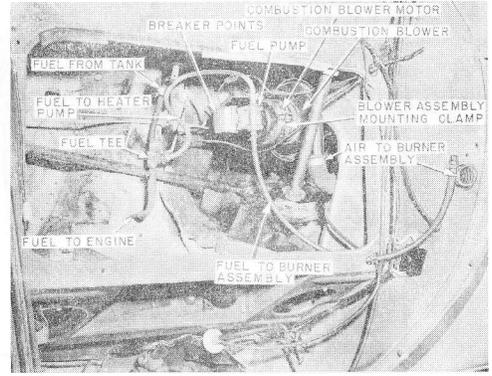


FIGURE 2

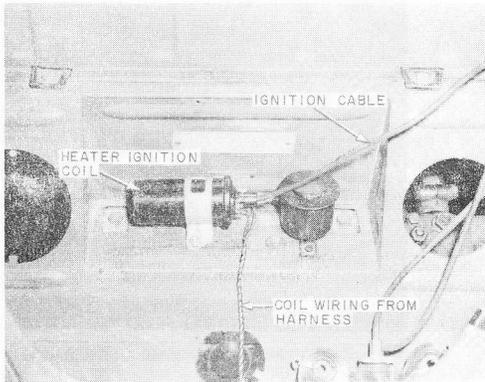


FIGURE 3

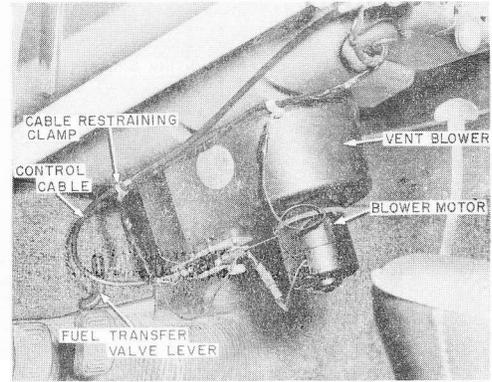


FIGURE 4

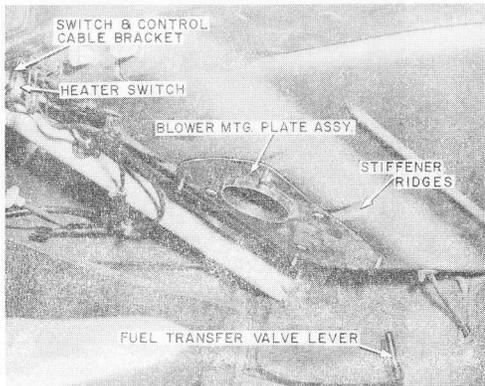


FIGURE 5

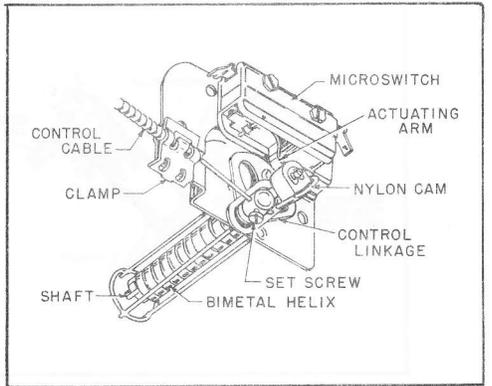


FIGURE 6

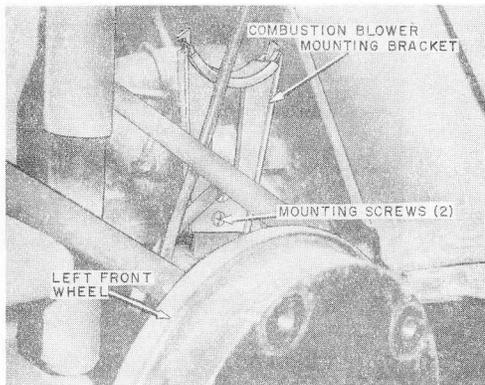


FIGURE 7

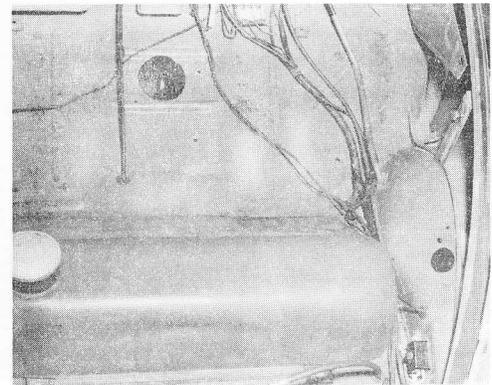


FIGURE 8

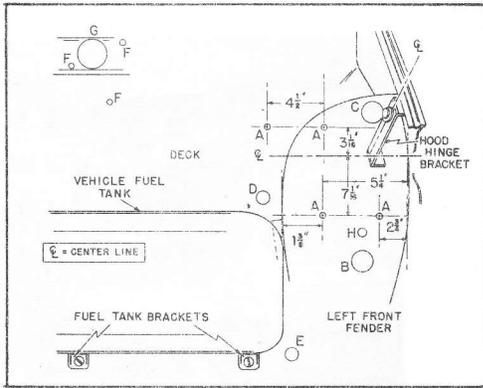


FIGURE 9

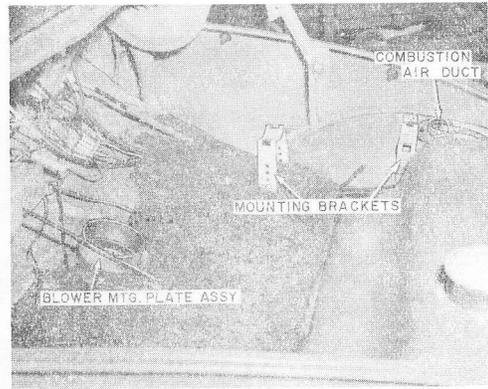


FIGURE 10

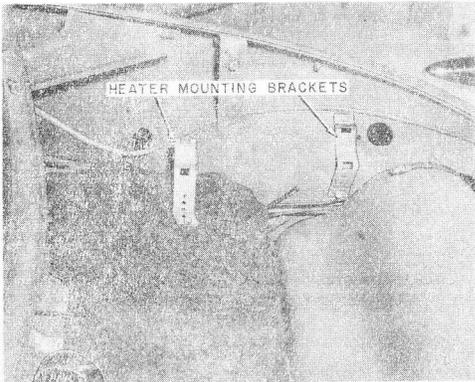


FIGURE 11

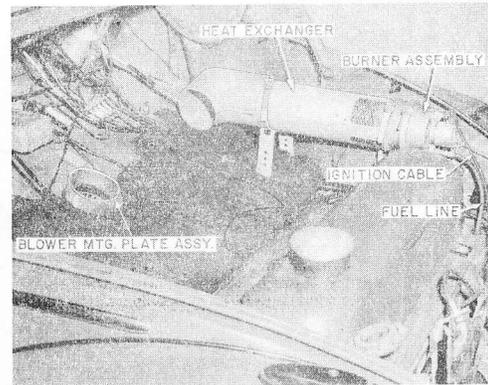


FIGURE 12

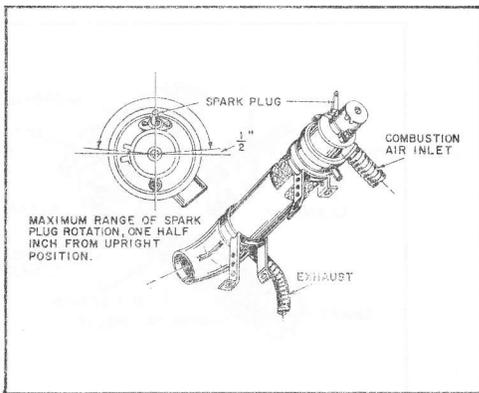


FIGURE 13

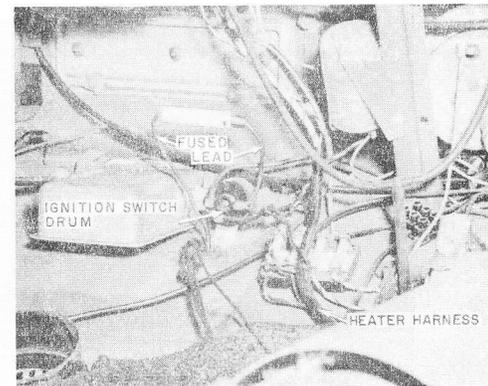


FIGURE 14

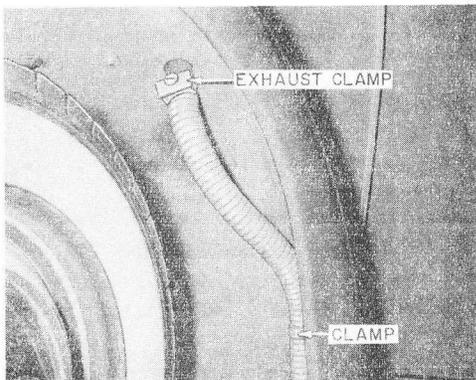


FIGURE 15

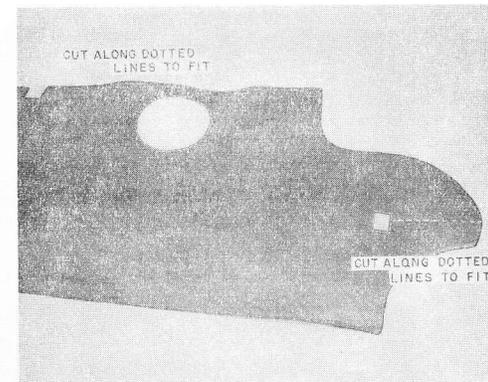


FIGURE 16

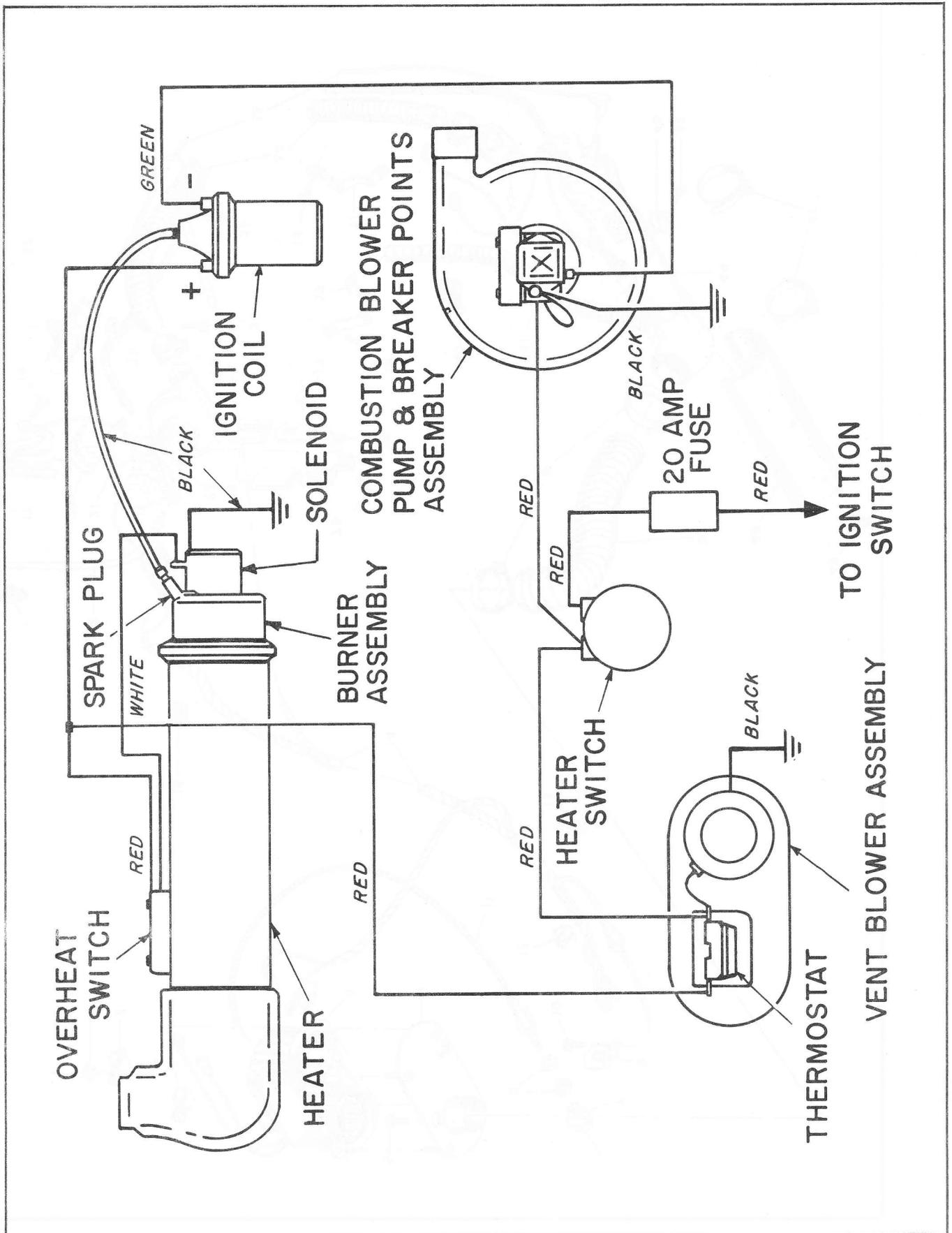


FIGURE 17 WIRING DIAGRAM

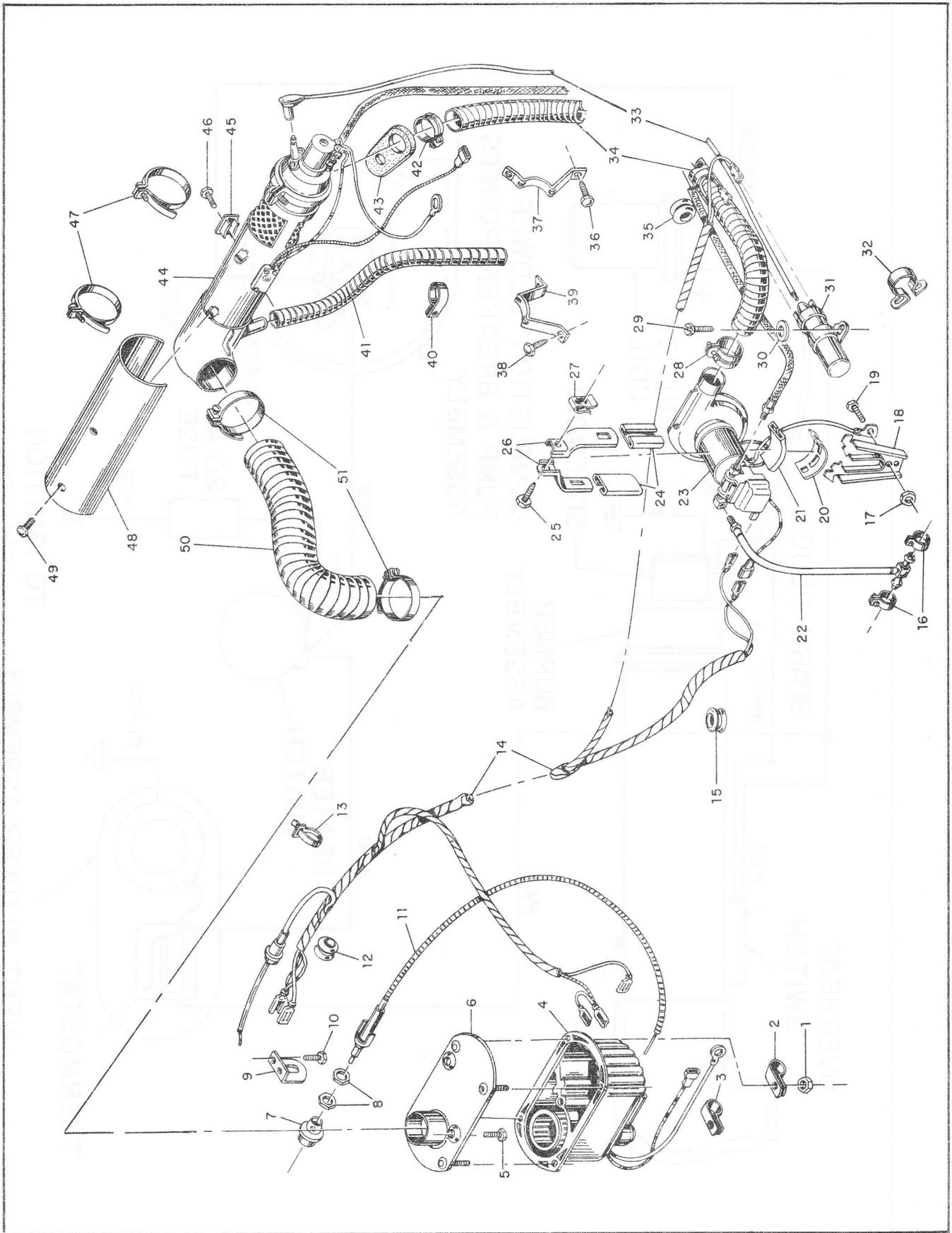


FIGURE 18 EXPLODED PARTS VIEW

PARTS LIST

<u>INDEX NO.</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>
1	Nut - No. 10-32	4
2	Clamp - Hold Down	1
3	Clamp - Hold Down	1
4	Vent Blower Assembly	1
5	Screw - No. 14 x 5/8 Sheet Metal	3
6	Plate - Blower Mounting	1
7	Knob - Switch	1
8	Nut - 7/16 - 28 Jam	2
9	Bracket - Control Mounting	1
10	Screw - No. 8 x 1/4 Sheet Metal	2
11	Switch - Temperature Control &	1
12	Grommet	1
13	Strap	1
14	Harness - Wiring	1
15	Grommet	1
16	Clamp - Fuel Line	2
17	Nut - 1/4 - 20 Keps	2
18	Bracket - Blower Mounting	1
19	Screw - 1/4 - 20 x 1/2	2
20	Saddle	1
21	Pad	1
22	Fuel Line Assembly	1
23	Combustion Blower Assembly	1
24	Pad	2
25	Screw - No. 10 x 1 Sheet Metal	1
26	Clamp - Motor	2
27	Nut - No. 10 Speed	1
28	Clamp	1
29	Screw - No. 14 x 3/8 Sheet Metal	2
30	Washer - No. 14 Flat	2
31	Coil - Ignition (6V)	1
32	Bracket - Coil Mounting	1
33	Cable - Ignition	1
34	Duct - Combustion Air	1
35	Grommet	1
36	Screw - No. 14 x 5/8 Sheet Metal	2
37	Bracket - Heater Mounting	1
38	Screw - No. 14 x 5/8 Sheet Metal	2
39	Bracket - Heater Mounting	1
40	Clamp - Exhaust Hold Down	1
41	Tube - Exhaust	1
42	Clamp	1
43	Seal - Combustion Air	1
44	Heater Assembly	1
45	Clamp - Exhaust	1
46	Screw - No. 10 x 5/8 Sheet Metal	1
47	Clamp	2
48	Shield - Heater	1
49	Screw - 1/4 - 20 x 1/2	4
50	Duct - Vent Air	1
51	Clamp	2