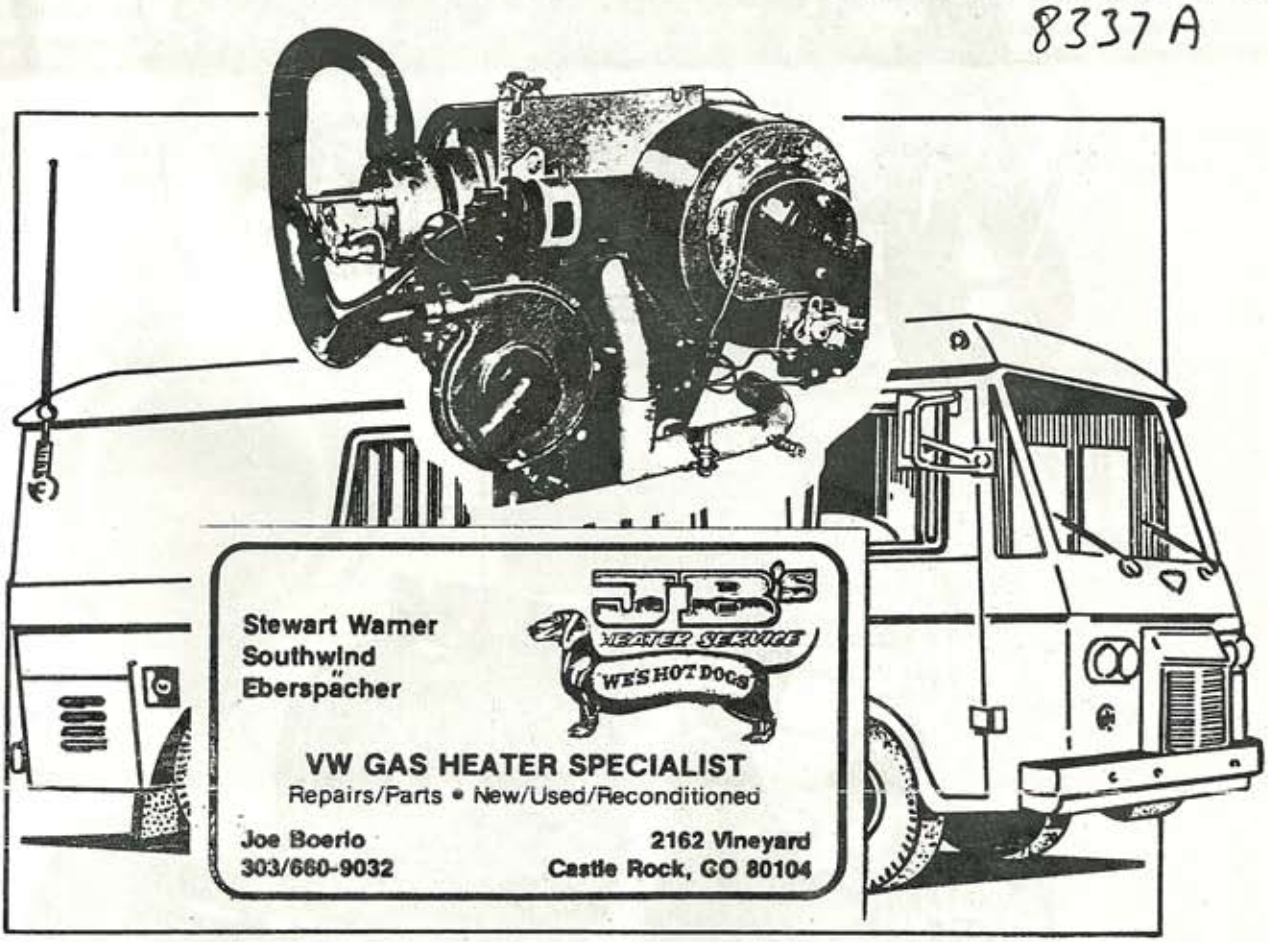
SERVICE MANUAL

South Wind HEATER

MODEL 8336

8337 A



FOR CORTEZ MOBILE HOME

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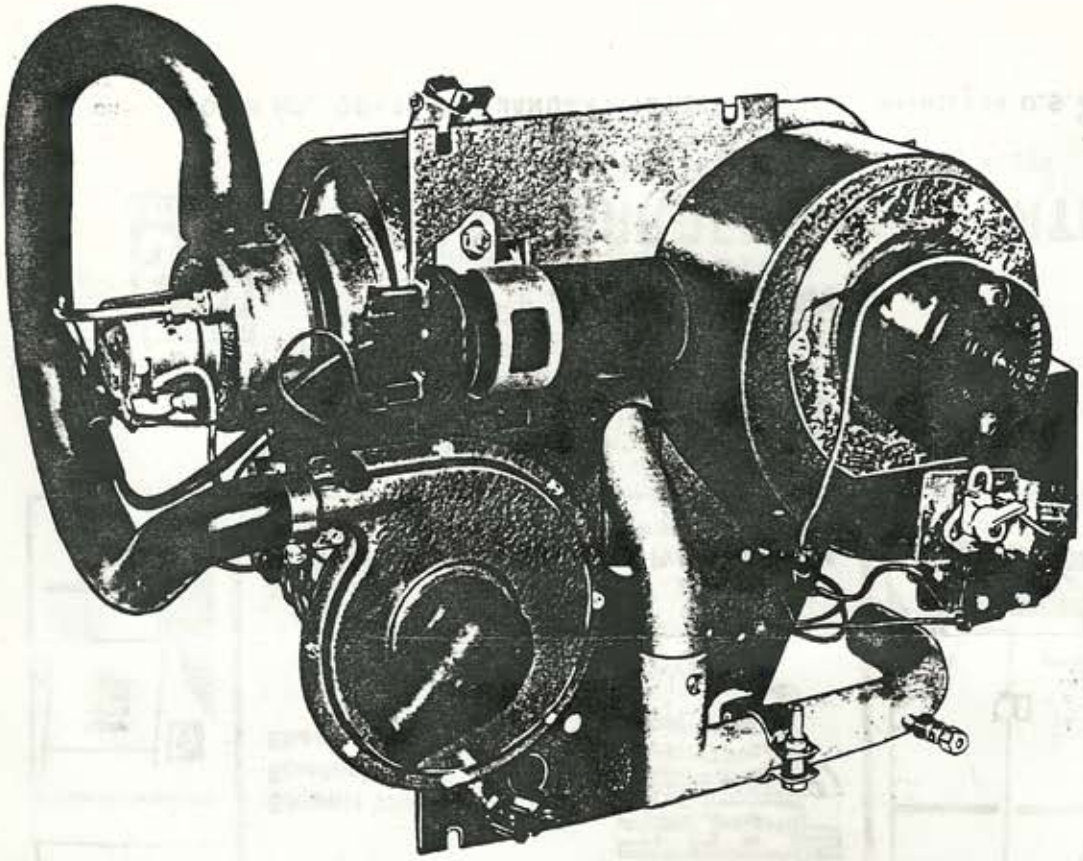
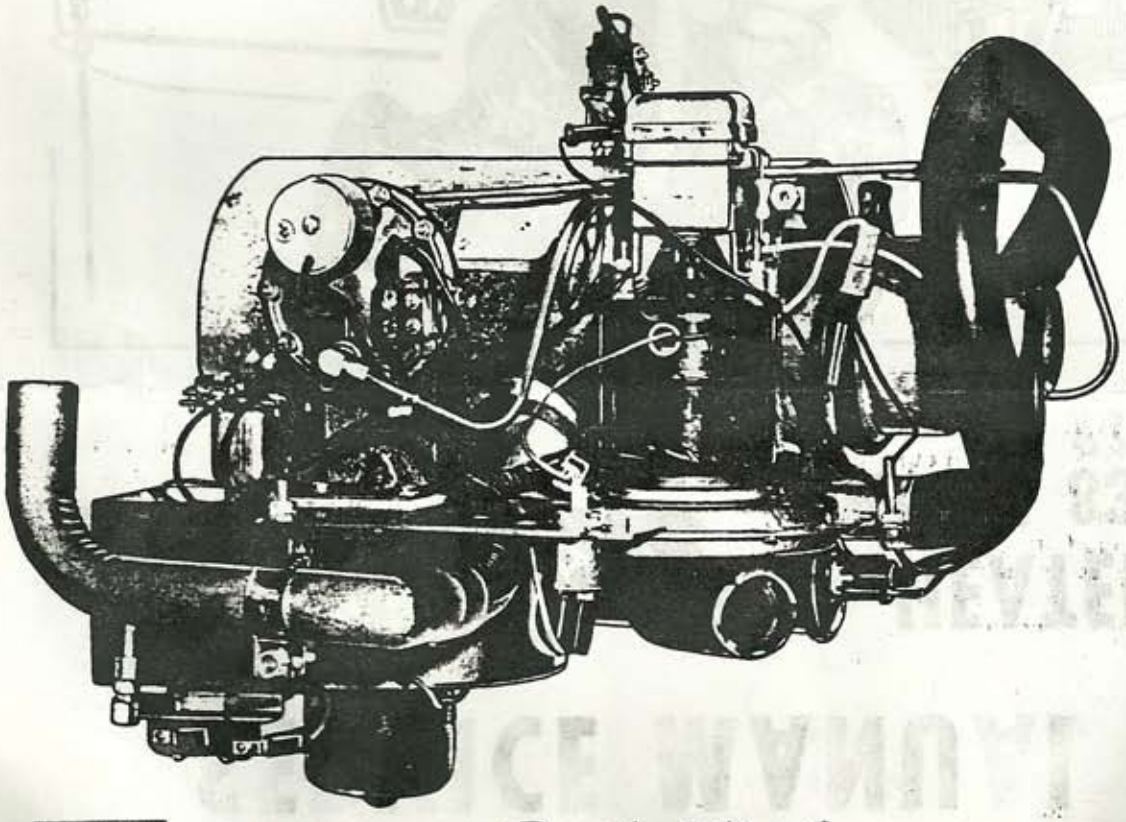
South Wind
DIVISION
STEWART-WARNER CORPORATION

1514 Drover Street • Indianapolis – Indiana, 46207

FORM NO. 05-1204 (JANUARY 1965) Printed in U.S.A.



MODEL 8336 HEATER



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SECTION I.
GENERAL DESCRIPTION

The South Wind Model 8336 Heater is designed specifically for the Cortez Mobile Home manufactured by Clark Equipment Company of Battle Creek, Michigan.

The heater bears approval of Underwriters' Laboratories and conforms to all specifications required of heating equipment to be used in Mobile Homes.

PRINCIPLES OF OPERATION

A fuel pump delivers fuel (gasoline only) to a burner assembly in which it is mixed with air supplied by a combustion air blower. This mixture is ignited by a spark plug which obtains its high voltage through a system employing a coil and set of points in much the same manner as that in a car's ignition system. The ignited mixture creates hot gases which circulate through the passages of a heat exchanger and heat the exchanger walls before passing out the heater exhaust. (See Fig. 1) The heat from the exchanger is then absorbed by fresh air which is forced across the exchanger by a separate ventilating air blower. This hot fresh air is then discharged into the vehicle.

A ductstat is provided to interrupt ignition, thereby stopping combustion within the heater at a given temperature determined by the ductstat setting which is preset at the factory.

A wall thermostat is provided to cycle the complete heating system on and off.

A safety device known as an overheat switch is provided for the purpose of interrupting heater operation in the event the heater exchanger temperature becomes higher than a predetermined safe maximum. Additional safety controls such as a flame detector switch and a fuel safety valve are used to comply with requirements specified by Underwriters' Laboratories.

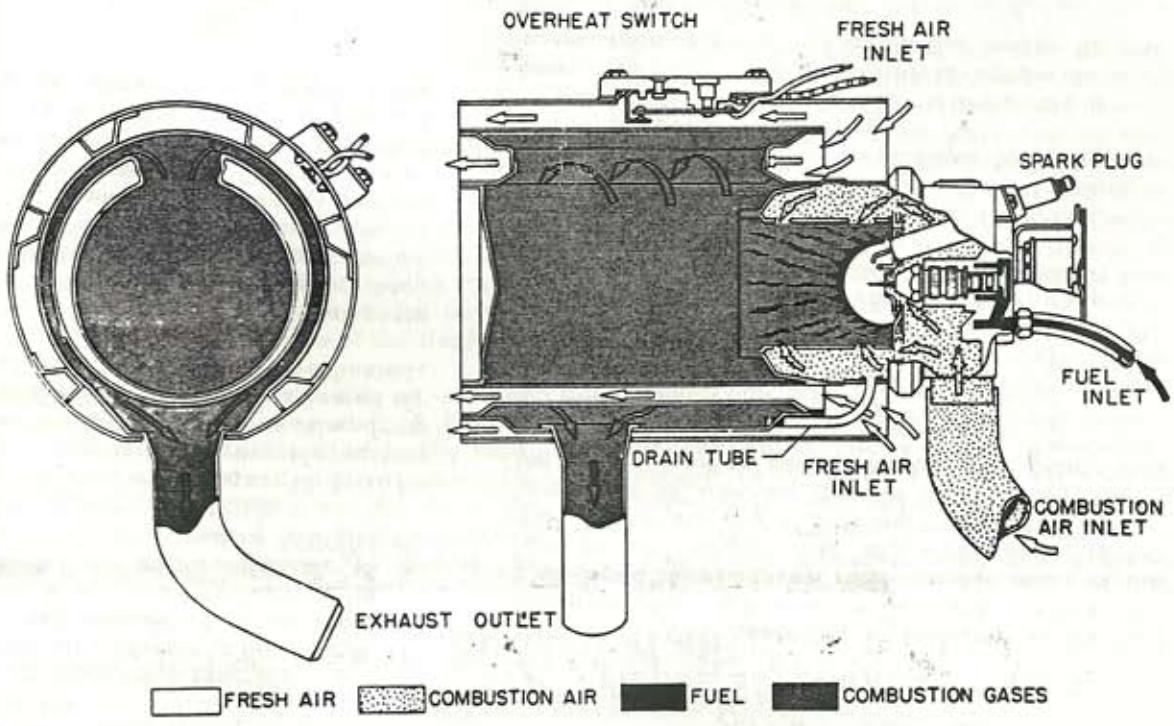

FIGURE 1 - FLOW SYSTEM

SECTION II.
HEATER COMPONENTS

1. Heat Exchanger and Burner Assembly

The heat exchanger is of all-welded stainless steel construction and is designed for maximum heat transfer.

The burner assembly (Fig. 14), which is secured to the exchanger by a clamp, consists of a casting into which is assembled a solenoid-operated on-off fuel valve, fuel nozzle, solenoid coil, mixer assembly, spark plug, and other components necessary for efficient burner operation.

The spring-loaded fuel valve is controlled by the solenoid coil which, in turn is controlled by the ductstat and overheat switch depending upon the circumstances. (See wiring diagram.) When the wall thermostat is calling for heat, the fuel solenoid coil is energized through the ductstat and overheat switch, and the resultant magnetic

field lifts the spring-loaded valve from the valve seat. This allows fuel to flow to the nozzle which introduces fuel into the mixer assembly in a fixed conical spray.

Air to mix with the fuel is delivered by the combustion air blower which will be discussed later. In order to enter the mixer, the combustion air must pass through the louver plate of the mixer and then through the small holes in the side of the mixer. The louvers and holes are of a predetermined size to admit the correct quantity of air and should not be altered without specific instructions.

The fuel-air mixture is ignited by a spark plug having a gap of .085. The plug has only one electrode and the ground electrode is welded to the mixer assembly.

2. Combustion Air Blower Assembly

The combustion air blower (Figs. 13 & 15) provides the correct amount of air to mix with the fuel to maintain a balanced fuel-air ratio. A duct is used to deliver combustion air to the burner assembly. Motor speed is 4000 RPM.

3. Ventilating Air Blower Assembly

The ventilating air blower (Figs. 13 & 16) is required for the purpose of supplying air across the heat exchanger to remove heat resulting from combustion within the exchanger. This heated air is then delivered to the space to be heated.

4. Heater Fuel Pump

Each heater is equipped with a fuel pump which is driven by the combustion air motor. This is accomplished by a coupling network consisting of a metal connector on the extended shafts of the motor and pump with a rubber coupling between the connectors. The fuel pump, which is designed to deliver fuel at a pressure of 5.5 to 9.5 PSI, is a spring-loaded diaphragm type with fixed internal pressure regulation. (See Figs. 2 & 15.)

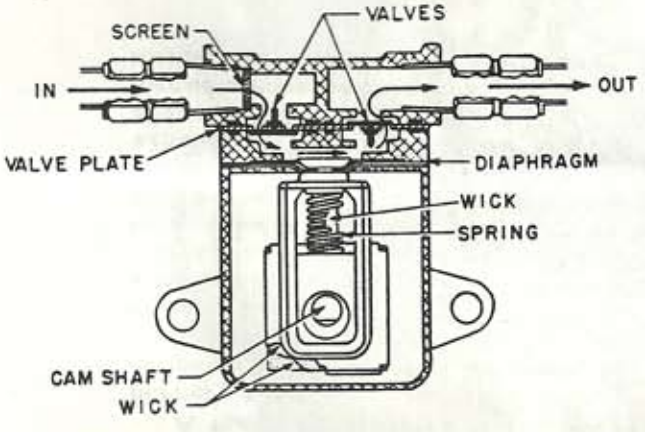

FIGURE 2 - HEATER FUEL PUMP SECTIONAL VIEW

5. Ignition Coil, Breaker Points and Cam

These components, in combination with the spark plug described in Paragraph 1, result in an ignition system very similar to that used in an automobile. The coil resembles a standard automotive coil and supplies the high voltage required for the spark plug. The breaker points assembly consists of a set of points and a condenser installed on a base assembly (Figs. 3 and 15). The assembly is installed on the fuel pump housing. A two-lobed cam which is threaded (left-hand threads) on the extended shaft of the fuel pump rotates with the shaft and actuates the points thereby producing the necessary interruption of current flow in the primary winding of the ignition coil. The breaker points gap is .018.

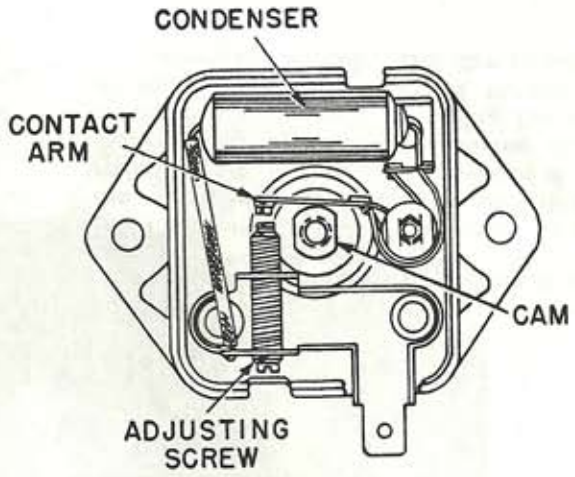

FIGURE 3 - BREAKER POINTS

6. Thermostat (Wall Type)

All heater circuits are controlled by this thermostat which actuates a relay through which all power for the heater must pass. When the thermostat is calling for heat, the relay is energized and power is supplied to the heater. (See Wiring Diagram.)

The thermostat is calibrated and marked with a range of 50°F. to 90°F. and also incorporates a switch which is actuated by movement of the temperature selector.

As with a home furnace thermostat, it will open and close in response to temperature of surrounding air and will cycle the heater on and off.

7. Overheat Switch

The overheat switch is connected electrically in series with the fuel solenoid coil (see wiring diagrams) and will cycle the fuel if the air temperature at the location of the overheat switch is higher than a predetermined safe maximum. The switch (Fig. 1) contains a bimetal blade which will have enough deflection at a given temperature (approximately 250°F.) to open a set of contacts thereby breaking the circuit to the fuel solenoid coil. As the air cools due to loss of combustion, the switch will automatically reset and the heater will cycle on the overheat switch until the cause of malfunction is corrected.

8. Ductstat (On Heater)

A ductstat (See Figs. 6 & 13) is located on the heater assembly and is set at (190%F.). This ductstat controls only the fuel and ignition circuits (See wiring diagrams.), and is used to control the temperature of the air discharging from the heater. If a lower duct temperature is desired loosen the set screw and move control linkage swivel further out on the wire.

9. Heater Relay

The relay was referred to in Item 6 above

and is actuated by the wall thermostat. The relay is used to provide a simple means of obtaining electrical power for the heater as dictated by the action of the thermostat. A 15 ampere fuse is installed on the relay. See wiring diagram.

10. Flame Detector Switch & Fuel Safety Valve

The flame detector switch and fuel safety valve (Figs. 4 & 5) prevent fuel from entering the burner if an ignition failure occurs.

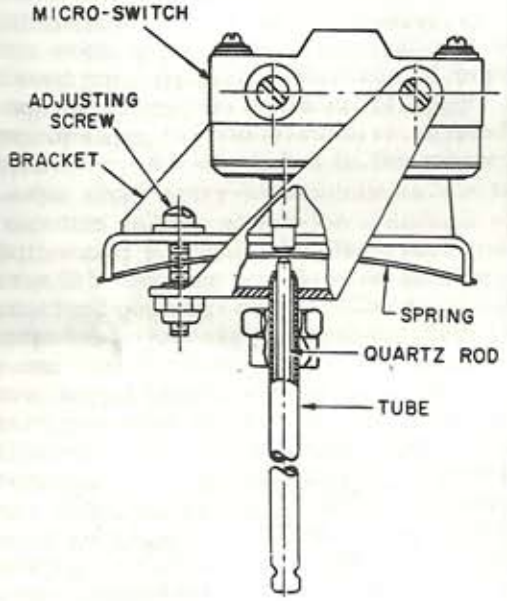

FIGURE 4 - FLAME DETECTOR SWITCH

The safety valve consists of two cup shaped castings separated by a flexible diaphragm. An integral solenoid valve connects the cavities on each side of the diaphragm. A light spring moves the diaphragm to the end of one of the cavities when the pressure on each side of the diaphragm is equal.

The flame detector switch consists of a closed end steel tube containing a quartz rod. A bracket supporting a microswitch is fastened to the tube. A spring keeps the quartz rod under compression and also provides a flat surface for the tip of the microswitch. When heated the steel tube has a high degree of expansion whereas the quartz rod has practically no expansion. The relative motion between these two is therefore used to sense flame temperature and actuate the microswitch. When heated the flame detector switch completes the circuit to the solenoid on the safety valve.

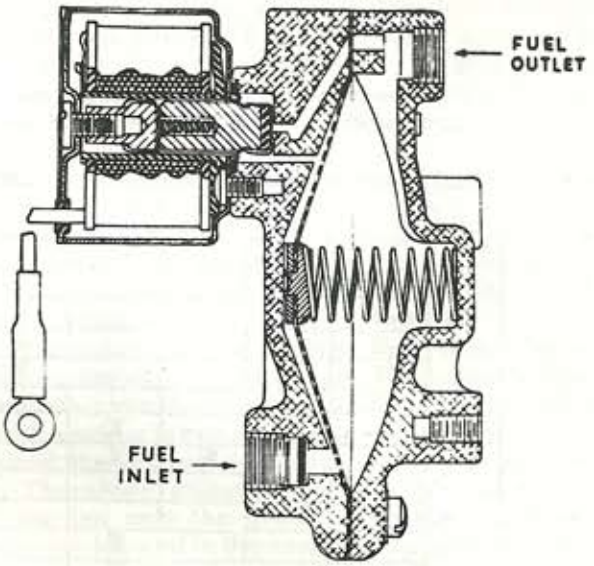

FIGURE 5 - SECTIONAL VIEW OF FUEL SAFETY VALVE

The initial supply of fuel for starting is supplied by the safety valve which accumulates fuel in a reservoir section during previous operation of the heater. Fuel pressure on the opposite side of the diaphragm forces the fuel from the reservoir side into the burner. If the heater fails to ignite, only the fuel in the reservoir section enters the burner because the flame detector switch did not transfer to energize the solenoid of the safety valve.

When a flame detector switch and safety valve are used with a heater, a safety valve reset switch is also included. After first installing a heater, or perhaps after maintenance, it is necessary to depress the spring-loaded reset switch (with heater switch on) and release it approximately 10 seconds after the heater ignites. This is required for priming the safety valve. The valve is self-priming during normal operation.

SECTION III.

SERVICE AND REPAIRS

This section consists of a Trouble Shooting Chart and other information to assist the service man in locating the cause of malfunction in a defective heating system. Basically, three things are required for correct heater operation. These are: FUEL, AIR, and IGNITION. The most obvious causes of malfunction should be investigated before disassembling major assemblies. Before conceding that the heater is defective, make certain the customer understands how to operate the heater. Then operate the heater to determine if the complaint is justified before proceeding with inspection.

1. Heat Exchanger and Burner Assembly

The heat exchanger should last for several

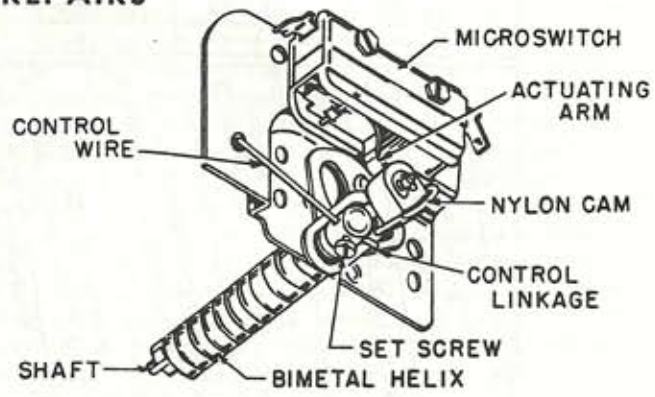

FIGURE 6 - HEATER DUCTSTAT

TROUBLE SHOOTING CHART

POSSIBLE CAUSE / COMPLAINT	Heater Inoperative; Combustion Air Blower Inoperative	Heater Inoperative; Combustion Air Blower Operates	Heater Operates; No Warm Air Delivered	Popping or Backfiring When Heater Cycles	Excessive Exhaust Smoke	Gasoline and/or Exhaust Odors in Car	Intermittent Operation; Heat too Low
Burned out fuse	X						
Loose or defective wiring	X	X		X	X		X
Incorrect wiring	X	X	X	X	X		X
Low voltage		X		X	X		
Kinked or restricted fuel lines		X		X			X
Defective fuel pump		X		X	X		X
Broken pump coupling		X		X			X
Defective pump check valves		X		X			X
Air lock in fuel line		X					X
Open fuel solenoid coil		X					
Fuel valve sticking on seat		X					
Clogged nozzle		X					X
Defective overheat switch		X					X
Defective Ductstat		X					X
Leaking fuel valve				X	X		
Incorrect spray from nozzle		X		X			
High fuel pressure					X		
Incorrect fuel nozzle					X		
Leaking fuel lines						X	X
Leak at coil cup						X	
Leak between nozzle and casting				X			
Leaking heat exchanger						X	
Loose burner clamp					X	X	
Slow combustion air motor				X	X		
Combustion air motor not grounded	X			X	X		
Damaged or disconnected combustion air duct		X		X	X	X	
Restricted exhaust		X		X	X	X	
Pitted breaker points		X		X			
Poor condenser solder joint (at breaker points)		X		X			
Worn points cam		X		X			
Incorrect points gap		X		X			
Damaged spark plug		X		X			
Incorrect spark gap		X		X			
Defective ignition coil		X		X			
Open flame detector switch		X					
Open safety valve coil		X					
Defective relay	X			X	X		
Defective control switch	X			X			
Defective wall thermostat	X						X
Damaged or restricted air duct			X				X
Ventilating air motor defective			X				X
Incorrect installation		X	X			X	X
Incorrect customer operation							X
Leak at vehicle tank or engine							

years. However, if a complaint of exhaust fumes arises and inspection of the exchanger reveals leakage, it should be replaced. Leaks will be indicated by red, yellow, and orange deposits surrounding the leak or a hole caused by a "burn-through".

The burner assembly is not a service part and should be repaired by replacing the defective parts only. If the burner assembly is removed for service, a thorough inspection prior to disassembly can sometimes reveal the cause of malfunction. The nozzle and inside of the mixer will normally be coated with a medium layer of black carbon, and the nozzle should have a small gray opening at the orifice. The outer end of the mixer will usually be burned to a gray or reddish color and some scaling or loose particles may be present. These should not be considered as defects. Indications of improper operation are uneven build-up of black, sooty carbon or an excessively burned or eroded spot on the mixer. All air holes in the mixer must be open to allow entry of combustion air to mix with the fuel. Also check for evidence of fuel leakage around the fuel inlet fitting and between the solenoid coil cup and burner casting. In a complaint of popping or backfiring, check the fuel valve for leakage by applying fuel (under pressure) to the burner with the solenoid coil de-energized. If the valve does not seat properly on the valve seat because of dirt or other foreign matter or a missing valve spring, fuel will enter the burner at all times regardless of thermostat setting. This condition is usually indicated by excessive black smoke from the exhaust when the heater is first turned on with gradual clearing of the smoke as the heater continues to operate. However, when the heater cycles off and then on again, pop or backfire can and usually does occur. In this instance, Part No.736009, Burner Service Kit, which contains gaskets, valve, valve seat, and other parts assembled in the burner casting, should be used after disassembly of the burner.

A leak between the nozzle and burner casting can also result in improper combustion and occasional popping. First determine if a leak is present at this point by holding your thumb over the nozzle orifice with the solenoid coil energized and fuel applied to the burner under pressure. If a leak is present, check to see if the nozzle is tight. If it is tight, remove it and check the nozzle seating surface of the burner casting for scoring or uneveness. If the surface is damaged, the burner casting should be replaced.

The fuel solenoid coil seldom fails. The coil can be checked by holding a screwdriver blade near the coil cover screw while energizing and de-energizing the coil. A good coil will attract the blade when the coil is energized. A magnetized screwdriver should not be used for this test. Another quick method of checking is by listening for a click as the coil is energized. The click is the valve being attracted to the bottom of the coil cup.

Many fuel nozzles are replaced in a routine manner when the real difficulty lies elsewhere. The nozzle should emit an even conical-shaped spray and should not be directed to one side. The nozzle may be checked by supplying fuel under pressure to the burner with the solenoid coil energized and the spark plug cable and combustion air duct if disconnected. It may be necessary to supply a separate length of fuel line in order to prevent fuel from being sprayed on the car or the test can be conducted at a bench. A slight dribbling of fuel may be noted when the solenoid coil is de-energized. This is permissible; however, continuous flow indicates a leaking valve which should be corrected. Never attempt to remove the screen in the nozzle nor clean the nozzle orifice with a sharp instrument. The best method of cleaning the face of the nozzle is by rubbing your thumb over the face while fuel is being emitted under pressure.

The spark plug is another item which is replaced quite often without cause. The plug housing protruding into the mixer will normally be coated with a medium layer of carbon. As previously explained, the ground electrode is welded to the mixer. Therefore, adjustment of the .085 gap is made by moving only the ground with the spark plug electrode located in the center of the plug housing. It is very important that the ground electrode be positioned correctly with respect to the nozzle orifice and Service Tool No. ST-890330 (Fig.8) should be used. The ground electrode should lie flat against the shoulder of the gauge (Fig.7). Replacement of the plug should be required only when it is broken or the electrode is burned excessively. Before reinstalling the burner assembly, check for an arc at the gap. During the test, the fuel solenoid leads should be disconnected, the burner assembly grounded, the heater switch on, and the thermostat on high. Spark Plug Kit, Part No. 736008, contains the plug and gaskets and is used for service.

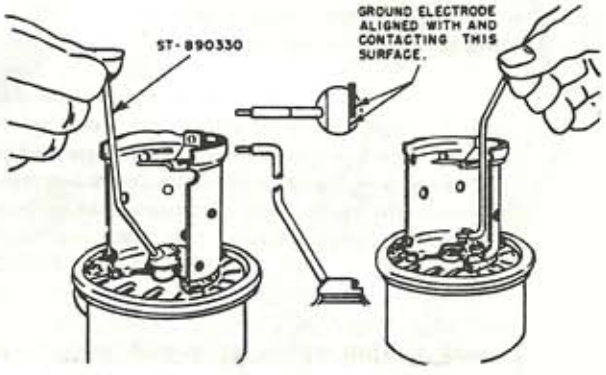

FIGURE 7 - CHECK PLUG ALIGNMENT AND GAP

2. Combustion Air Blower Assembly

Combustion air is taken from outside the vehicle. Therefore, in an instance of excessive exhaust smoke with insufficient combustion air suspected, inspect all combustion air ducts for restrictions caused by kinking, obstructions, or damage. Motor speed should be approximately 4000 RPM. Check to see that the motor is grounded and that sufficient voltage is available at the motor. Minimum voltage at the motor should be approximately 11 volts. If voltage is lower than this and heater is unsatisfactory, check all wiring connections, vehicle battery, vehicle charging circuit, and heater relay as outlined in Paragraph 9 of this section.

3. Ventilating Air Blower Assembly

A complaint of insufficient or no heat with the heater operating can be due to a defective ventilating air motor, wiring, or restricted or loose duct.

4. Fuel Pump

Fuel pump pressure should be 5.5 to 9.5 PSI with the heater operating. A slight rise in pressure will be noted when the heater cycles off. Since the fuel pump is driven by the combustion air motor, make sure the motor is operating during a pressure check. If the coupling or one of the metal connectors which serve as the coupling network between the shafts of the pump and motor is broken, Part No. 735405, Pump Coupling, should be used for service. The package contains two connectors, one coupling, and two flat washers. It is very important that the washers be installed behind the connectors to prevent the connectors from overriding the threads on the shafts. If there is no pressure or pressure is intermittent, it is very possible that the pump check valves are defective. The valves are installed in a brass plate beneath the pump top casting and are serviced by Part No. 735736, Fuel Pump Valve Kit, containing the valves installed in the plate and four gaskets. If the pump is defective for other reasons, it should be replaced. When installing new check valves, refer to Fig. 2 so that the valves will be installed correctly with respect to fuel flow as indicated on the pump casting marked "IN" and "OUT". The flap of the check valve should be down on the inlet side and up on the outlet side.

Whenever the top casting of the pump is removed for pump service, always make certain that the pump shaft is on the down portion of the stroke before reinstalling the top casting. This is an added precaution against high fuel pump pressure. A fuel pump with excessive pressure or binding shaft can sometimes be corrected by removing the top casting of the pump to expose the diaphragm, pressing down vigorously with the thumb (with the pump shaft on the down portion of the stroke), and reassembling without rotating pump shaft.

The pump shaft must rotate freely as a binding pump will overload the combustion air motor and cause excessive exhaust smoke due to lack of combustion air. A pump that binds, particularly in only one part of the rotation, usually indicates an improperly seated diaphragm.

5. Ignition Coil, Breaker Points, and Cam

The ignition coil resembles a standard automotive coil; however, if replacement is required, only the recommended service part should be used.

The breaker points are serviced by replacing the entire base assembly which includes the points and condenser. The adjustment of .018 is obtained by an adjusting screw which has the stationary contact on the end. When the proper gap is reached, solder the adjusting screw in place making certain that it is secure and that the condenser lead is also soldered. Do not use acid core solder since the acid will cause corrosion. Use rosin core solder only. If the adjusting screw is not soldered or a cold solder joint exists at the condenser and screw, backfiring will usually occur because of intermittent spark.

The two lobed cam has left hand threads and should be replaced if wear is noted. When adjusting points, rotate the cam so that a lobe of the cam raises the movable contact arm and adjust for .018 gap. Then rotate the cam to the other lobe and check for a gap of .012 to .021. With .018 on one lobe, .012 to .021 is permissible on the other lobe.

The coil, points, and cam can be functionally checked as follows. Remove the spark plug cable from the heater spark plug and insert a standard automotive plug gapped to approximately .085. Disconnect the fuel solenoid lead to prevent fuel from entering the burner, ground the automotive plug and place the thermostat on high heat. If all ignition parts are good, a steady spark will be noted. No spark indicates trouble in the coil, points, cam, wiring, or thermostat on heater. This check is made only if power is available to heater which indicates that wall thermostat and relay are operating.

6. Thermostat (Wall Type)

The thermostat will very seldom require service, and it is serviced by replacing the entire thermostat rather than just the defective part because of possible inaccuracy of field adjustment. However, it can be inspected for poor wiring connections and dirty contacts.

7. Overheat Switch

The overheat switch should have continuity through it during normal heater operation. If a defective overheat switch is suspected, it can be checked out with an ohmeter, buzzer, or test light after referring to the wiring diagram. A defective overheat switch should be replaced and no field adjustment is recommended.

8. Ductstat (On Heater)

To determine if the ductstat is defective proceed as follows: Make certain that wall thermostat is calling for heat. Blowers will be operating under this condition. (See wiring diagram.) Connect a test light between the cold terminal of the Ductstat and ground. If test light glows, the Ductstat switch is closed which indicates the circuit is being completed as it should. If the light does not glow and all wiring connections are good and the ductstat linkage is clockwise as far as it will go, the Ductstat should be replaced. If a shorted Ductstat is suspected depress the metal arm of the microswitch with test light as above. If switch is shorted, light will continue to glow and Ductstat should be replaced.

9. Heater Relay

With the wall thermostat calling for heat, power should be present at the "switch", "battery", and "load" terminals of the relay. This can be determined by placing a test light between ground and the terminal to be checked. Power should be present at the "battery" terminal at all times since this is connected to a power source on the vehicle. If the test light fails to glow when placed on the "switch" terminal, the wall thermostat or related wiring is defective. If the light glows when placed on the "battery" and "switch"

terminals but does not glow on the "load" terminal, either the fuse or relay is defective and should be replaced.

If the light glows when placed on the "load" terminal but is dim, it indicates excessive voltage drop across the relay contacts or poor fuse contact. The voltage drop between the "battery" terminal and "load" terminal should not exceed .2 volt with the heater operating. Check for good wiring and fuse connections. If voltage drop is still excessive, replace the relay.

10. Flame Detector Switch & Fuel Safety Valve

As previously explained, the flame detector switch and safety valve are safety controls used for the purpose of preventing fuel flow to the burner in the event the heater does not start. If the heater does not continue to operate after starting, it is possible that the microswitch of the flame detector switch is defective or the switch is out of adjustment. The switch can be checked for continuity with an ohmeter, buzzer, or a test light. Loosen the two screws holding the microswitch in place so that the button of the switch is released. Then check for continuity with an ohmeter or buzzer. If a test light is used, turn the heater switch on and check to see if the light glows when placed between ground and each of the terminals. If the light does not glow on both terminals, the switch is defective and the entire flame detector switch assembly should be replaced. If adjustment only is required, loosen the adjusting screw (with the microswitch free in the bracket) until the switch clicks. Next turn the adjusting screw in until the switch clicks again; then turn the screw in an additional 3/4 of a turn. Hold the microswitch firmly in place and then tighten the two mounting screws. This adjustment should be made with the switch at room temperature.

If the quartz rod is broken, it should be replaced since it is the controlling part of the safety feature. The quartz rod (Part No.486901)is a service item.

The fuel safety valve can be checked the same as any solenoid operated valve for electrical continuity of the solenoid coil and fuel flow through the valve.

11. Service Tools

Three service tools are available at nominal cost to aid in servicing South Wind Heaters.

Part No. ST-890330, Spark Plug Gage, (Fig.8) is necessary for heater service and is used not only for obtaining the correct gap of .085 but also for locating the ground electrode in the proper relationship to the fuel nozzle orifice.

FIG. 8 - SPARK PLUG GAGE - SW No. ST-890330

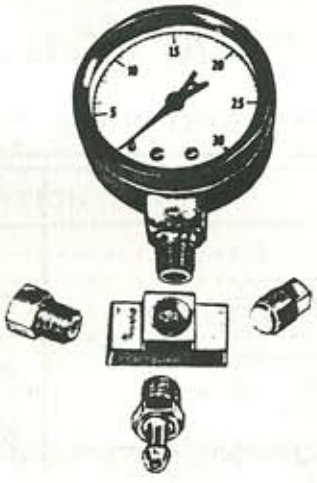

FIG. 9 - FUEL PRESSURE GAGE - SW No. ST-890322

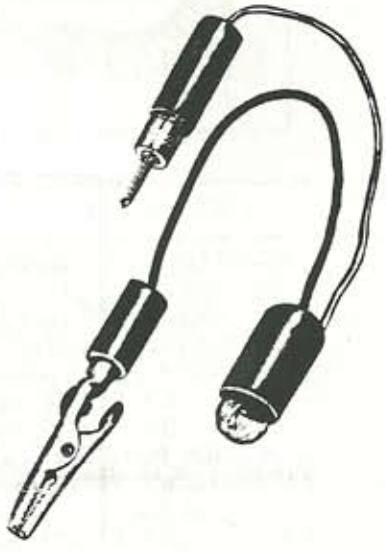

FIG 10 - TEST LIGHT SW No. ST-890325

Part No.ST-890322, Fuel Pressure Gage, (0-30 PSI) (Fig.9) and Part No.ST-890325, Test Light, (Fig. 10) are also available.

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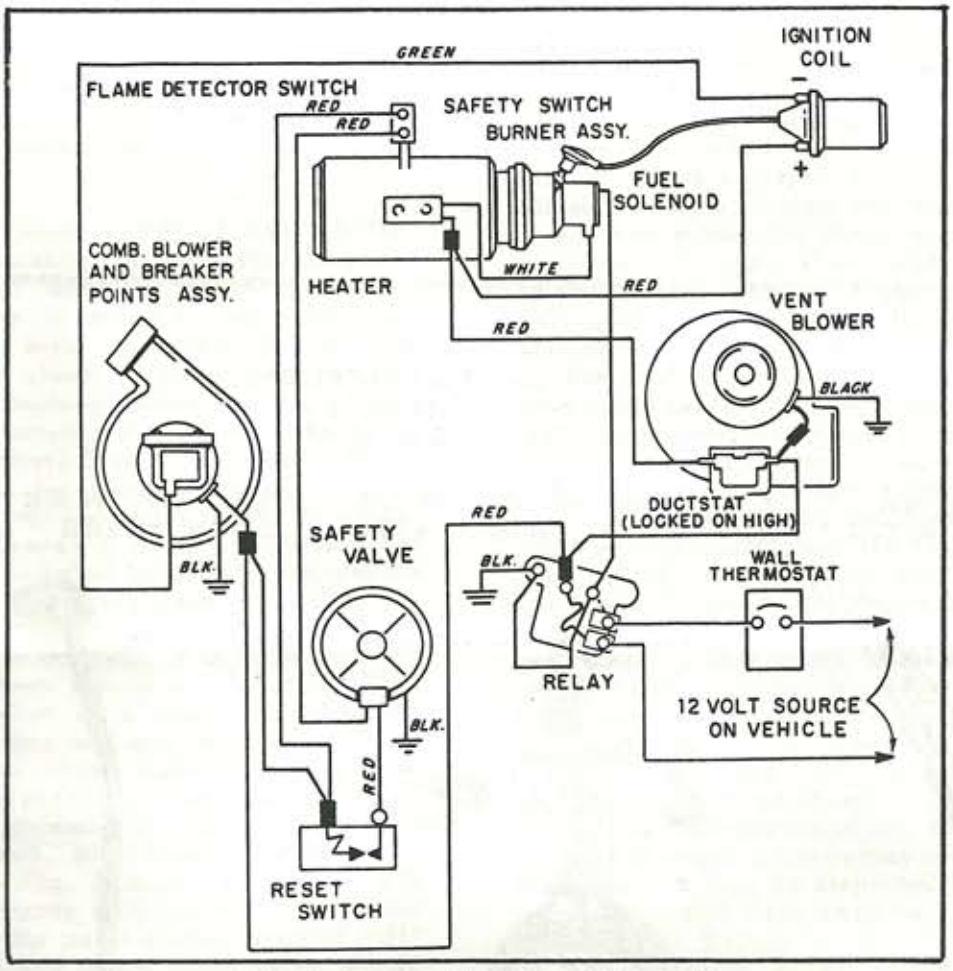

FIGURE 11 - WIRING DIAGRAM

SECTION IV.

PARTS CATALOG

This section contains listing of all parts, assemblies, and service tools used with heaters described in this manual. The parts list shows all parts whether they are service parts or not. Therefore, it is important that the "Remarks" column of the parts list be consulted before ordering the part since another part may be used for service. The reason for this is to minimize, as much as possible, the inventory of service parts. Some parts listed are assemblies which are not service parts and, therefore, should be serviced by replacing the defective part only. An example is the 735915-8 Blower Assembly which is serviced by replacing only the defective part of the assembly. Some items are also contained in kits and the "Remarks" column will indicate which kit is to be used. An example is 735062 Spark Plug, available only in 736008 Kit which contains the spark plug and gasket. In summary, only the parts which have a price indicated on the Service Parts List are available as service parts.

PART NO.	DESCRIPTION	REMARKS
13133	Nut - 7/16 - 20 JAM	
14534	Washer - 1/4 Flat	
77204	Washer - Flat	Also in 735405 Kit
79369	Lockwasher - No. 10	
85040	Screw - No. 6 x 1/4	
170174	Screw - No. 10 - 32 x 3/8	
170176	Screw - No. 10 - 32 x 1/2	
474695	Screen - Inlet	Also in 736009 Kit
475130	Wheel - Combustion Air Blower	
476229	Washer	
476339	Spring - Valve	Also in 736009 Kit
484085	Valve - Safety	
486901	Quartz Rod	Also part of 735974
487359	Screw - 1/4 - 20 x 1	
488155	Nut - No. 6 Speed	

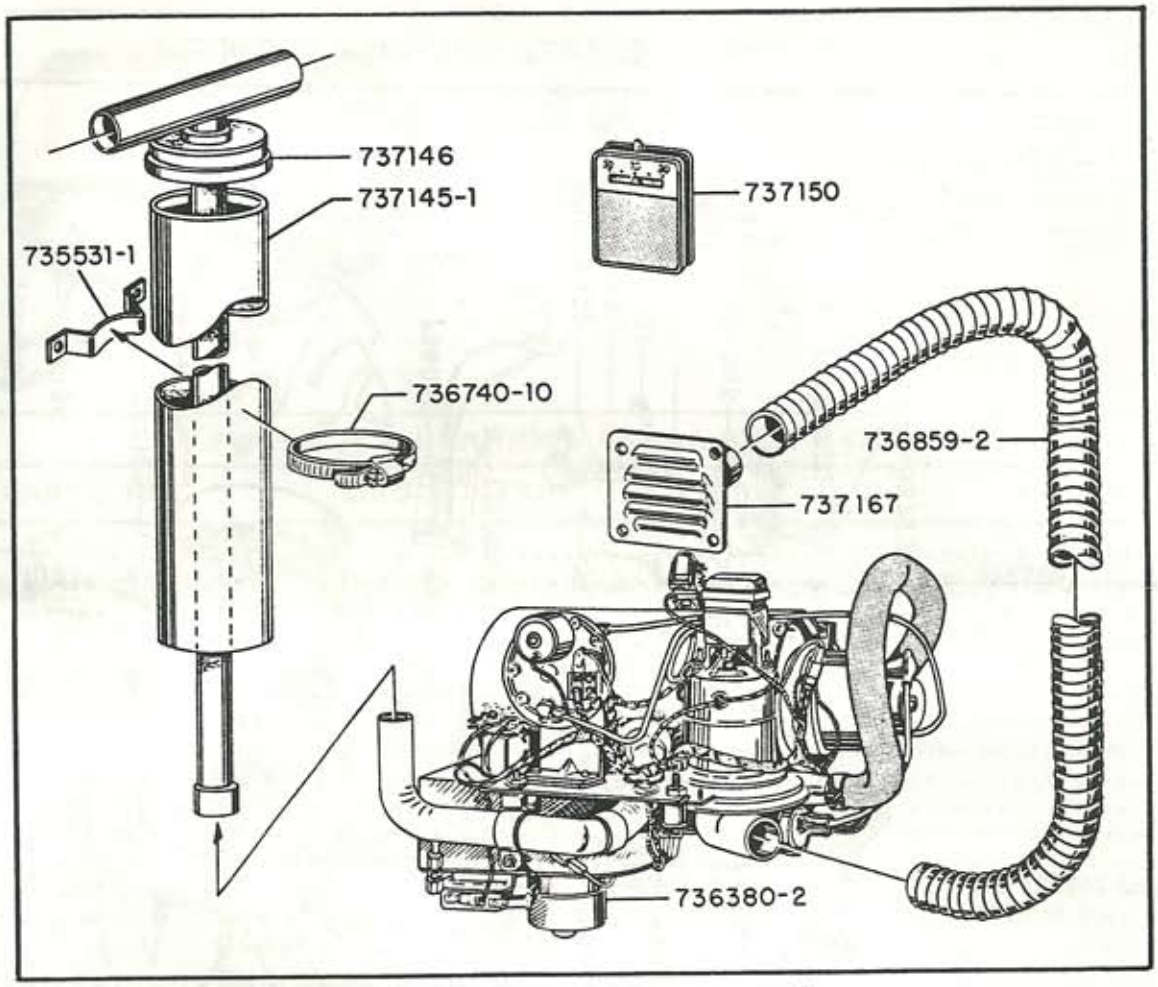

FIGURE 12 - KIT MODEL 8336

PART NO.	DESCRIPTION	REMARKS
488290	Clamp	Alternate for 736740-13
488589	Grommet	
492096	Screw - No. 8 x 3/8	
492371	Clip	
735045	Clamp - Burner	
735054	Gasket - Coil Cup	Use 736009 Kit
735059	Gasket - Valve Seat	Use 736009 Kit
735061	Gasket - Burner	Also in 736009 Kit
735062	Spark Plug	Use 736008 Kit
735063	Gasket - Spark Plug	Also in 736008 Kit
735100	Connector - Fuel Pump	Use 735405 Kit
735101	Coupling - Fuel Pump	Use 735405 Kit
735125	Cap - Spark Plug Retainer	
735127	Retainer - Valve Seat	
735196	Coil - Fuel Solenoid	Use 735481
735221	Screw - No. 8 - 32 x 3/8	
735317	Disc - Sealing	Use 736009
735329	Spacer	Use 736009
735405	Kit - Fuel Pump Coupling	
735407	Screw - No. 10 - 32 x 5/8	
735413	Valve - Fuel	Use 736009 Kit
735450	Cover - Breaker Points	
735451	Cam - Breaker Points	
735481	Coil - Fuel Solenoid	Use for 735196
735454	Wire Assembly	Make from bulk
735494	Cup - Coil	
735496	Cover - Coil	
735509	Screw - No. 6 x 3/4	
735531-1	Bracket - Exhaust Shroud	

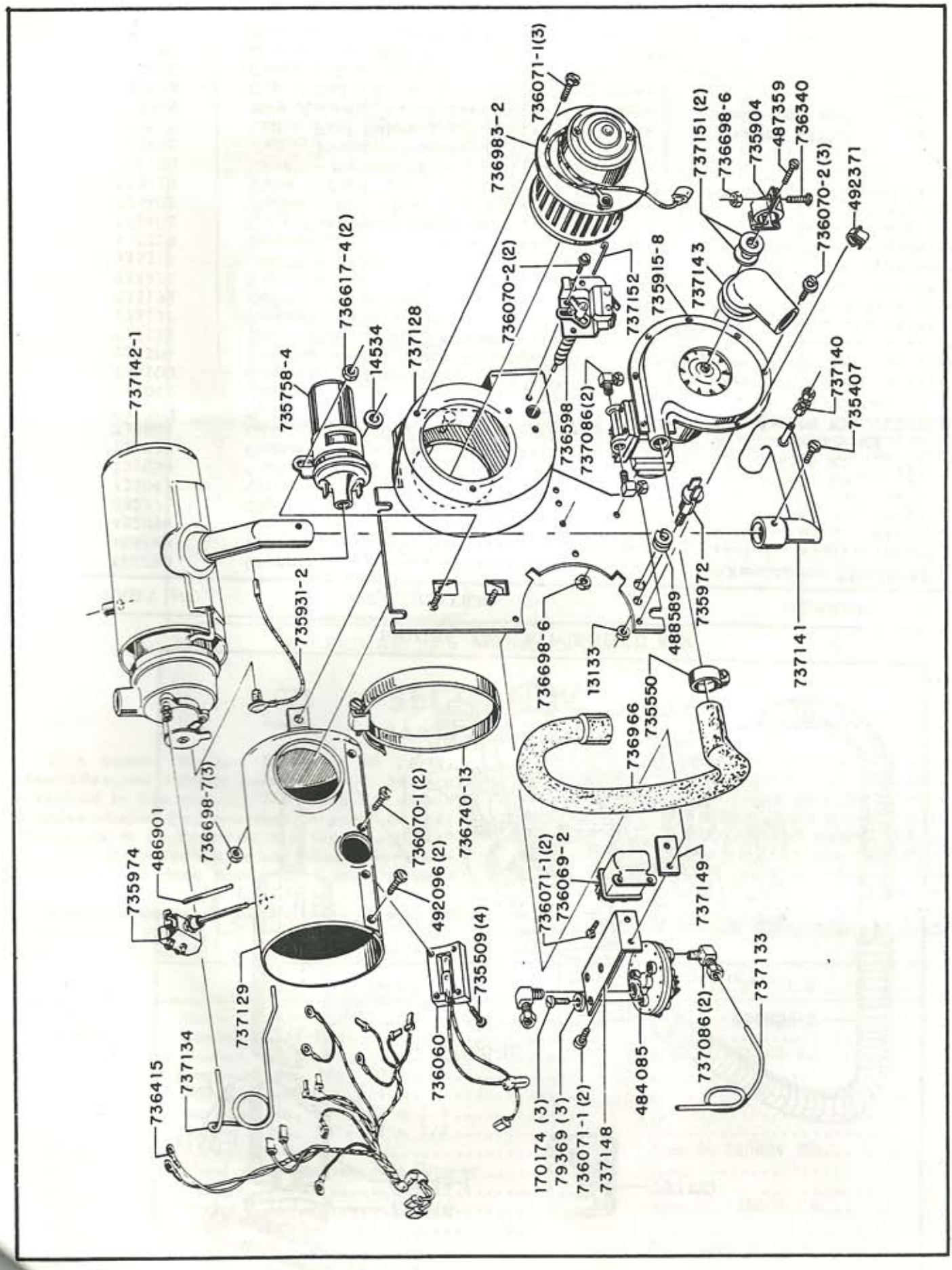

FIGURE 13 - HEATER ASSEMBLY 736380-2

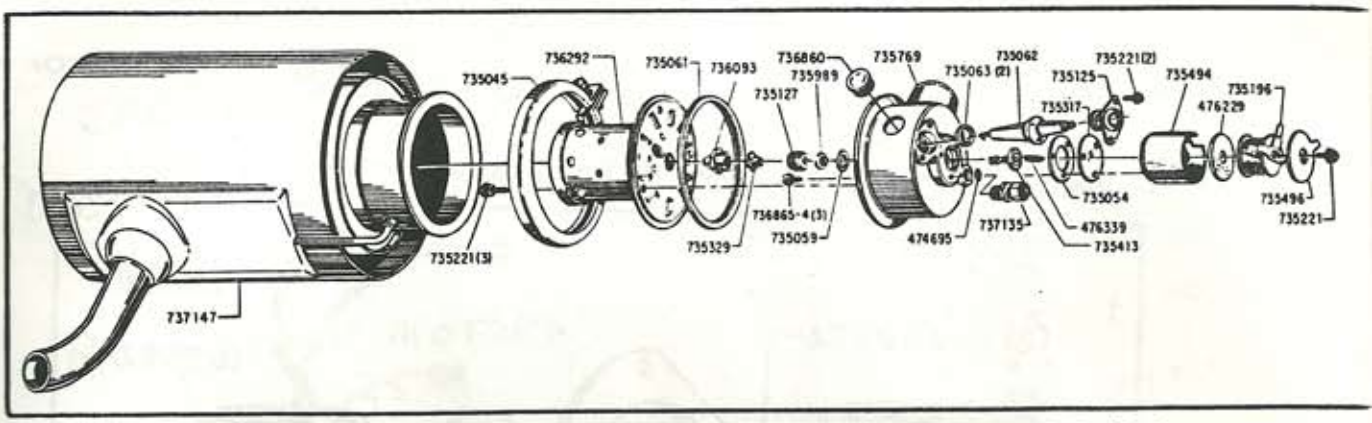

FIGURE 14 - BURNER & EXCHANGER ASSEMBLY 737142-1

PARTS NO.	DESCRIPTION	REMARKS
735550	Clamp	
735758-4	Coil - Ignition	Use 735758
735769	Base - Burner	
735841	Thermostat	Use for 736598
735904	Clamp	
735912	Housing - Blower	
735913	Spacer - Motor	
735915-8	Blower - Combustion Air	Ref. Only; See Fig. 15
735921	Screw	
735923	Breaker Points	
735931-2	Cable - Spark Plug	
735972	Switch - Reset	
735974	Switch - Flame Detector	Includes 486901 Quartz Rod
735989	Seat - Valve	Use 736009 Kit
736005	Gasket	
736008	Kit - Spark Plug	
736009	Kit - Burner Service	
736060	Switch - Overheat	
736069-2	Relay	
736070-1	Screw - No. 8 x 1/4	
736070-2	Screw - No. 8 x 3/8	
736071-1	Screw - No. 10 x 3/8	
736093	Nozzle - Fuel	
736122	Motor - Combustion Air	Alternate for 736677
736292	Mixer Assembly	
736321	Motor - Vent. Air	736678 is Alternate
736340	Screw - 1/4 - 20 x 1-1/2	

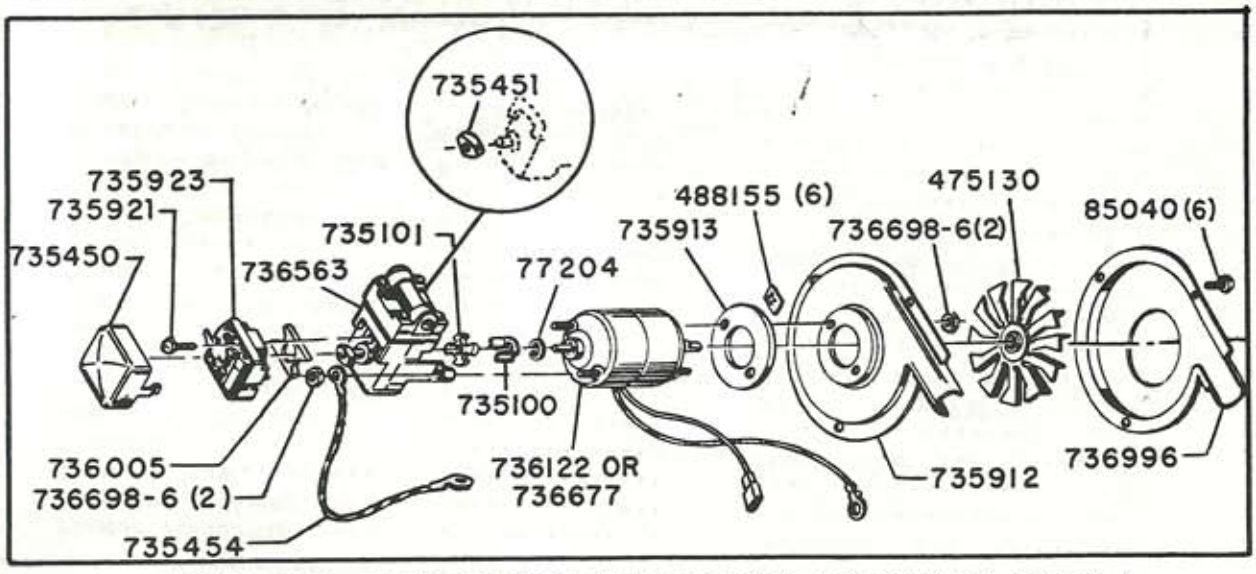

FIGURE 15 - COMBUSTION AIR BLOWER ASSEMBLY 735915-8

PART NO.	DESCRIPTION	REMARKS
736380-2	Heater Assembly	Ref.Only; See Fig.13
736415	Harness - Wiring	
736563	Pump - Fuel	
736598	Ductstat	Use 735841
736617-4	Nut - 1/4 20 Lock	
736677	Motor - Combustion Air	Alternate for 736122
736678	Motor - Vent. Air	Alternate for 736321
736698-6	Nut - No. 10 - 32 Lock	
736698-7	Nut - 1/4 - 20 Lock	
736740-10	Clamp	
736740-13	Clamp	Alternate is 488290
736859-2	Duct - Combustion Air Inlet	
736860	Plug	
736865-4	Screw - No. 6 - 32 x 5/8	
736914	Wheel Vent Blower	
736915	Plate - Blower Mounting	
736966	Duct - Combustion Air	
736983-2	Blower Wheel & Motor Assembly	Ref.Only; See Fig.16
736996	Housing - Combustion Blower	
737086	Elbow - 3/16 tube to 1/8 pipe	
737128	Bracket - Heater Mounting	
737129	Housing - Heater	
737133	Fuel Line	Fuel pump to safety valve
737134	Fuel Line	Safety valve to burner
737135	Connector - Fuel	
737140	Union	
737141	Elbow - Exhaust	
737142-1	Burner & Exchanger Assembly	Ref.Only; See Fig.14
737143	Adapter - Combustion Air Inlet	
737145-1	Shroud - Exhaust Stack	
737146	Exhaust - Stack	
737147	Exchanger - Heat	
737148	Bracket - Safety Valve	
737149	Gasket	
737150	Thermostat	
737151	Spacer	
737152	Wire - Control	
737167	Adapter - Combustion Air Inlet	

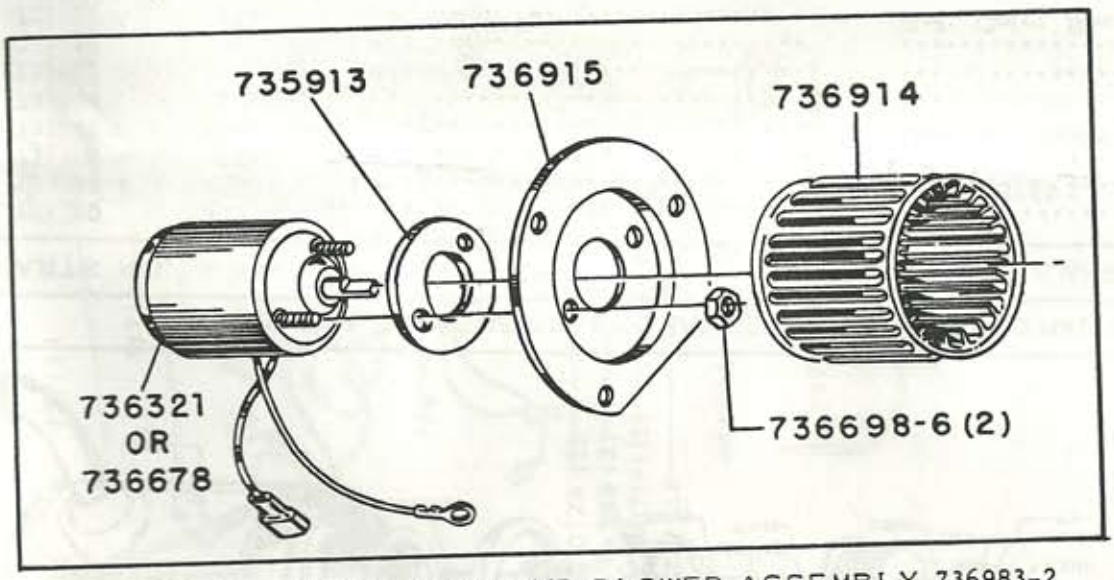

FIGURE 16 - VENTILATING AIR BLOWER ASSEMBLY 736983-2

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