

**HEAT WAGON  
342 N. CR 400 E.  
VALPARAISO IN 46383**

**Model OP400IDF  
CONSTRUCTION HEATER**

**Installation and Maintenance Manual**

**Please retain for future reference**

**FOR YOUR SAFETY**

**Do not use this heater in a space  
where gasoline or other liquids  
having flammable vapors are  
stored or used.**

# **SPECIFICATIONS**

**MODEL:**

**OP400IDF**

**FUEL:**

**#1 Fuel Oil or Diesel Fuel or Kerosene**

**CAPACITY:**

**400,000 BTUH Maximum**

**FUEL CONSUMPTION:**

**3.0 GPH**

**FAN:**

**4100 CFM**

**ELECTRICAL:**

**Standard: 120 Volts, 1Ø, 20 AMPS**

**Optional: 240 Volts, 1Ø, 13 AMPS**

## **Installation Instructions for OP400IDF**

- The recommendations of local authorities must be followed
- Place the heater on a firm, non-combustible surface
- Place wedges under wheels to prevent accidental moving
- **Do not** use heater in an enclosed area where exhaust gases may harm people
- **Do not** use heater in areas where vapors or liquid flammable materials may be present

### **INSTALLATION CLEARANCES:**

**Top: 3 feet**

**Sides: 3 feet**

**Discharge End: 10 feet**

**Flue Pipe: 2 feet**

**Floor: Do not place on combustible floor**

### **FUEL SUPPLY:**

- Use fuel oil #1 or diesel fuel or kerosene only – **do not use gasoline!**
- Use only fuel tanks approved for this purpose
- Ensure that fuel lines are fitted and leakproof
- Never place fuel contained in front of the heaters discharge end
- Never place oil container so that the oil level is above the oil burner pump
- Never place oil contained so that the oil level (minimum) is more than 10 feet below oil burner

### **FLUE PIPE**

- Ensure that flue pipe is firmly bolted in place
- Ensure that no combustible materials are above or in close proximity to the flue pipe

## **DUCTING**

- Use steel ducting or fabric ducting capable of withstanding maximum temperature of 250 degrees F
- Maximum length of duct: 50 feet
- Duct diameter: 14 inches
- Avoid sharp bends and corners to ensure maximum air flow

**CAUTION:** \* Never start heater if excess oil has accumulated in combustion chamber  
\* Never shut off heater by disconnecting power supply

## **OPERATING INSTRUCTIONS**

### **TO START:**

- Turn main switch to "O" position
- Connect the heater to a 120 volt grounded power source
- Turn remote thermostat to desired position
- Turn main switch to position "1=HEAT"
- The heater will now operate automatically, controlled by the remote thermostat

### **TO STOP:**

- Turn main switch to position "O"
- The fans will continue to turn until the heater has cooled down to a safe temperature. Disconnect the power source after fans have stopped.

**CAUTION:** \* **DO NOT** stop by disconnecting power source – heat accumulated in heater can damage burner or safety equipment.

### **TO USE AS A VENTILATOR:**

- Start fans by turning main switch to "2=VENT"
- Stop fans by turning main switch to "O"

## **TROUBLE SHOOTING**

### **1. Nothing happens when main switch is turned to "HEAT" or "VENT"**

- Check power supply cord and fuses
- Push the red overhear reset button on triple thermostat
- Push the burner reset button (red button in burner relay control box)

### **2. Fan starts when main switch is turned to "VENT" but nothing happens (in the "Heat" position)**

- Check remote thermostat setting
- Check remote thermostat cord
- Push the burner reset button

### **3. When main switch in position "HEAT", burner fires but stops after a while without fan starting at all:**

- Push the reset button on fan limit switch
- Clean the cadcell of the burner.
- Push the reset button on the fan motor

**4. Oil burner starts, but there's no flame.**

- Check oil level in drum/tank
- Check for possible water in oil
- Check that there are no leaks in oil hoses
- Check that the burner ignitor tips give a spark when started

**Refer to separate burner manual for additional troubleshooting instructions.**

## **MAINTENANCE**

1. Refer to separate burner manual for adjustment of burner

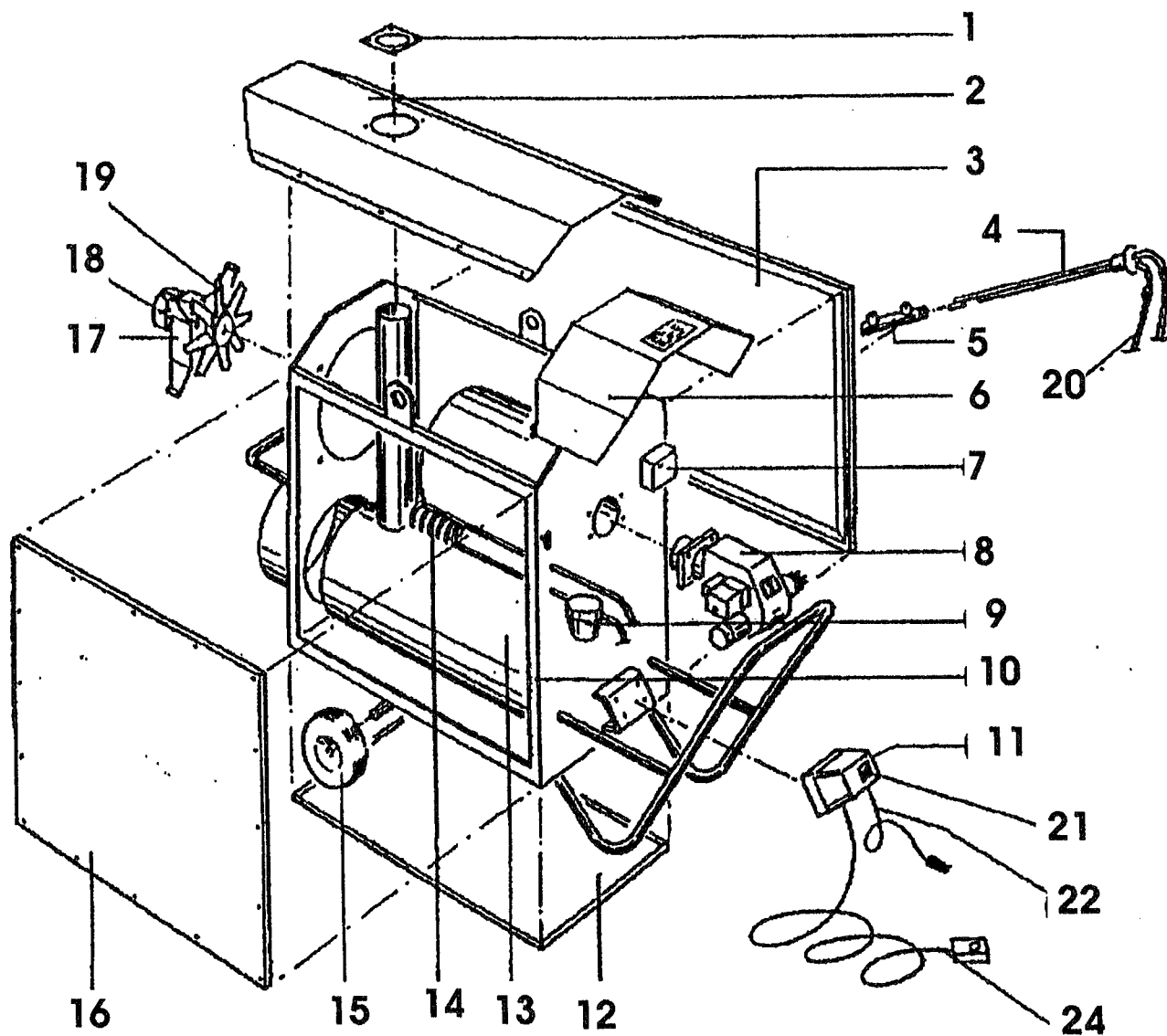
2. To clean the heater (once a season)

- Open all side panels
- Open the cleaning flanges of burner chamber and heat exchanger
- Clean burner chamber and exchanger tubes with brush
- Vacuum clean all loose ash and soot
- Close all cleaning flanges carefully to avoid damage to gasket material
- Tighten all bolts carefully
- Close side panels
- Replace burner orifice (Every 400 hours)
- Replace fuel filter (Every 400 hours)

**WARNING: \* DO NOT tamper with heater – have a competent serviceman make necessary adjustments.**

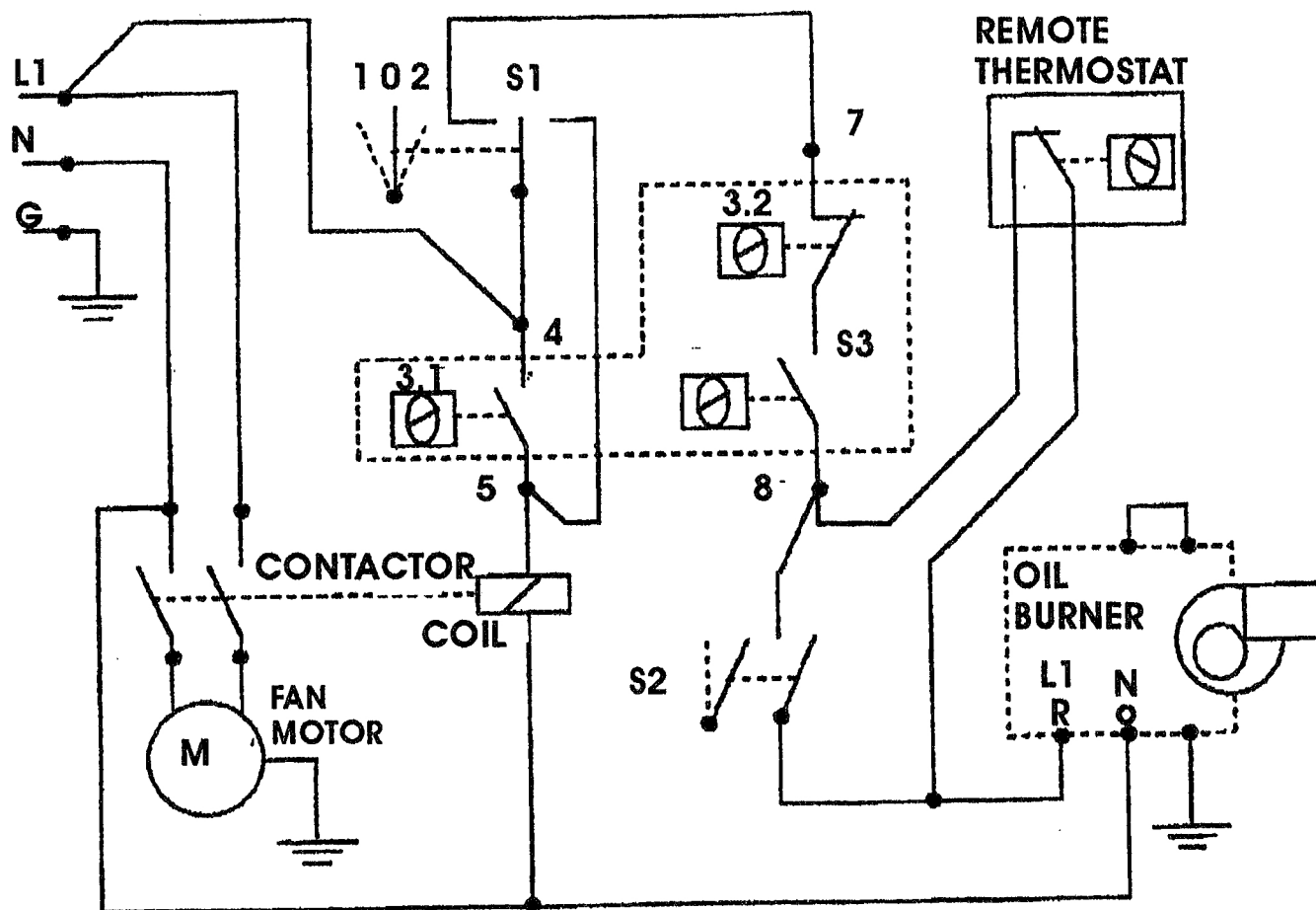


# HEAT WAGON OP400IDF PARTS LIST



ITEM	PART #	DESCRIPTION	ITEM	PART #	DESCRIPTION
1	120001	Flue Collar	15	120015A	Wheel
2	120002	Top Cover		120015B	Wheel Shaft
3	120003	Side Panel, Right		120015C	Washer
4	120004	Oil Wand		120015D	Cotter Pin
5	120005	Oil Wand Holder	16	120016	Side Panel, Left
6	120006	Burner Cover	17	120017	Fan Motor Bracket
7	120007	Triple Thermostat	18	120018	Fan Motor
8	120008	Oil Burner	19	120019	Fan Blade
9	120009	Oil Filter	20	120020	Oil Hose Assy
10	120010	Heater Frame	21	120021	Main Switch
	120011	Electric Control Box	22	120022	Power Cord
	11SC15	Fan Motor Relay (Not shown)	24	120024	Remote Thermostat (Opt.)
12	120012	Bottom Plate			
13	120013	Burner Chamber Assy			
14	120014	Oil Preheat Coil			

**WIRING DIAGRAM    HEAT WAGON OP400IDF    110-120 VOLT**



**S2 = THERM. BYPASS SWITCH**  
**S3 = TRIPLE THERMOSTAT**  
**3.1 = FAN THERMOSTAT**  
**3.2 = OVERHEAT THERM.**  
**3.3 = BURNER CONTROL THERM.**

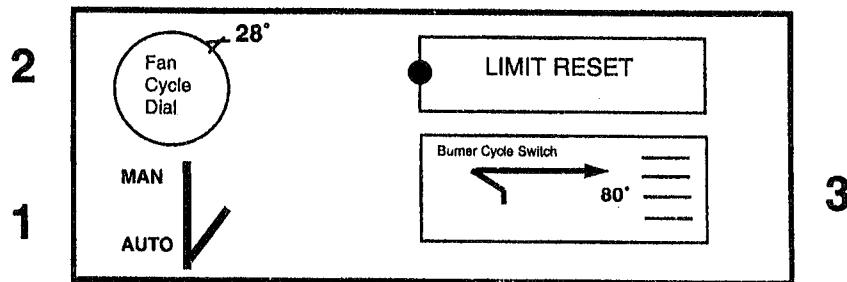
**S1 = MAIN SWITCH**  
**1 = HEAT**  
**2 = FAN ONLY**  
**0 = OFF**

## Triple Thermostat

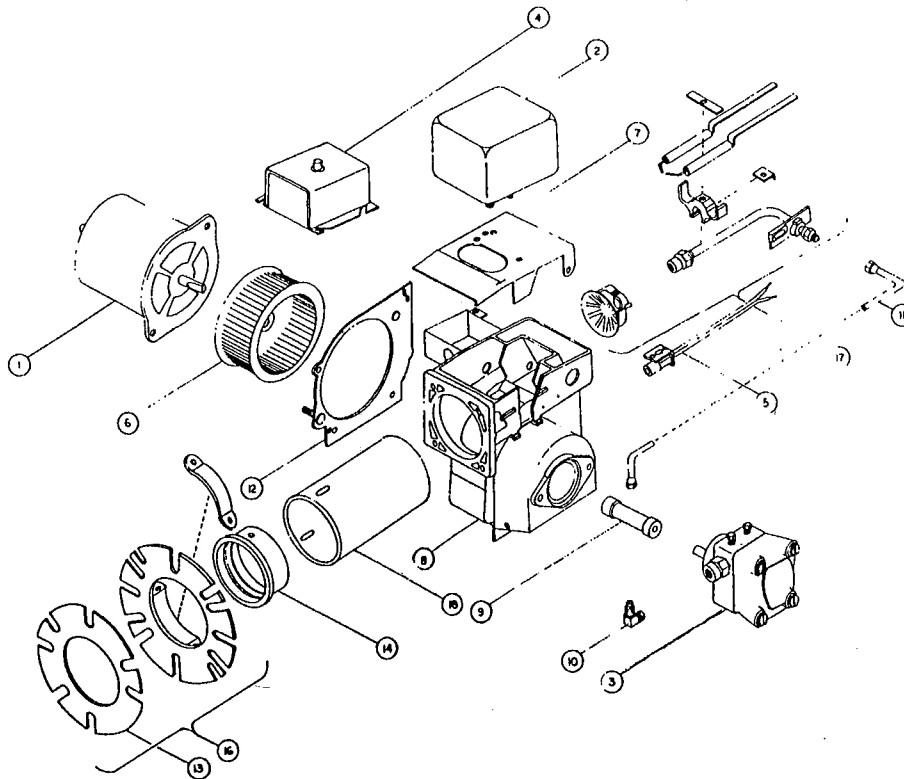
The triple thermostat (item S3 on wiring diagram) is located above and to the right of the burner. It can be identified by the manual reset button.

### Normal Settings

- 1) Auto/Manual Lever — **Always** set at Auto
- 2) Fan Cycle Dial — 28°c or 10°c above ambient
- 3) Burner Cycle Switch — Set Between 75°c and 80°c



# BURNER COMPONENTS MODEL HS

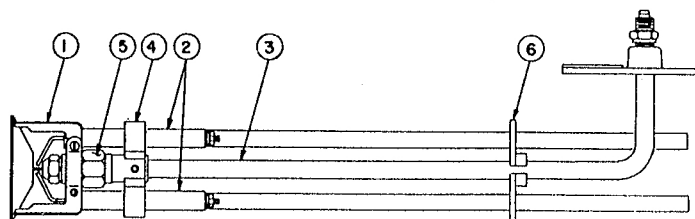


## STATE SPECIFICATION NUMBER, BURNER MODEL, PART DESCRIPTION, AND PART NUMBER WHEN ORDERING PARTS

NO.	DESCRIPTION	PART NO.	NO.	DESCRIPTION	PART NO.
1	Motor — 1/8 HP	20627	14	Air Cone 0.50-2.50	100420
2	Transformer	21659		2.50-3.00	100531-001
3	Fuel Unit — Type A	13495	15	Pedestal (not shown)	21760-011
	Fuel Unit — Type B	13634	16	Adjustable Flange w/Gasket	21724-011
4	Relay	13084	17	Gun Assembly 6"	31396-013
5	Cad Cell — Housing Mounted	14289		Gun Assembly 9"	31396-025
	Gun Mounted	13666		Gun Assembly 12"	31396-037
6	Blower Wheel	21642		Gun Assembly 15"	31396-049
7	Housing Cover Assembly	21680		Gun Assembly 18"	31396-061
8	Housing Assembly	30885	18	Air Tube 6"	21886-013
9	Coupling	100386		Air Tube 9"	21886-025
10	Elbow	13494		Air Tube 12"	21886-037
11	Oil Line Assembly	14451		Air Tube 15"	21886-049
12	Motor Side Plate	21658		Air Tube 18"	21886-061
13	Gasket	100428			

NO.	DESCRIPTION	PART NO.
1	Flamelock Assembly	100393
2	Electrode Assembly (Pair)	21684
3	Oil Pipe Assembly 6"	21818-013
	Oil Pipe Assembly 9"	21818-025
	Oil Pipe Assembly 12"	21818-037
	Oil Pipe Assembly 15"	21818-049
	Oil Pipe Assembly 18"	21818-061
4	Electrode Holder Assembly	21679
5	Nozzle Adapter	12362
6	Buss Bar Support	13276

## GUN ASSEMBLY DETAILS MODEL HS



NOTE: BACKSIDE OF FLAMELOCK TO NOZZLE FACE.

## BLUE ANGEL™ REPLACEMENT AIR TUBE COMBINATIONS

Includes Air Tube, Air Cone and Gun Assembly

Air Tube Combination — 6"	30884-013	Air Tube Combination — 15"	30884-049
Air Tube Combination — 9"	30884-025	Air Tube Combination — 18"	30884-061
Air Tube Combination — 12"	30884-037		