



# Zephyr<sup>®</sup> ELECTRIC FURNACE

## ⚠ WARNING

- Never tamper with the unit or its controls. User **MUST** contact a specialized contractor when a failure occurs. **DO NOT ATTEMPT** to repair.
- When using a humidifier make sure not to damage the heating element bank.
- We recommend that your unit be inspected by a specialized technician once a year.
- Poor maintenance of air filters OR an unbalanced static pressure may result in a performance decrease.
- Always use genuine parts for maintenance or service call. The use of unbranded parts will void the warranty.
- The use of this unit without an air distribution duct will void the warranty.
- It is strictly forbidden to use jumpers to simulate heat demand.
- Risk of electrical shock. Disconnect power before installation, servicing, maintenance or field wiring. Replace all panels before operating. Failure to do so can result in electrical shock causing severe injuries or death.
- When performing installation, servicing or cleaning the unit, it is recommended to wear safety glasses and gloves.
- To assure a proper performance of your furnace, we recommend that you use high quality name brand thermostats.
- When applicable local regulation comprises more restrictive installation and/or certification requirements, the aforementioned requirements prevail on those of this document and the installer agrees to conform to these at his own expenses.
- For your safety, do not store or use gasoline or other flammable liquids and vapors in the vicinity of this unit or any other appliance.
- These instructions are intended to be use by qualified personnel who have been trained in installing this type of furnace. Installation of this furnace by an unqualified person may lead to equipment damage and/or hazardous condition which may lead to bodily harm.
- This furnace is not watertight and is not designed for outdoor installation. This furnace shall be installed in such a manner as to protect its electrical components from water. Outdoor installation leads to a hazardous electrical condition and to premature furnace failure, thus voiding the warranty.
- Do not block the combustion air openings in the furnace. Any blockage will result in improper overheat situation and may result in a fire hazard and/or cause bodily harm.
- The unit must have an uninterrupted or unbroken electrical ground to minimize personal injury if an electrical fault should occur. When performing electrical connection, the ground conductor must be firmly attached to the ground lug in the furnace.
- Do not use this furnace as a construction heater. Use of this furnace as a construction heater exposes the furnace to abnormal conditions, contaminated combustion air and the lack of air filters. Failure to follow this warning can lead to premature furnace failure and/or vent failure which could result in a fire hazard and/or bodily harm.
- The owner and/or the user is responsible of the following: Always maintain the immediate surrounding of the furnace free from combustible and highly flammables materials. The furnace ambient air should not have an excessive dust concentration and humidity. Never operate this central heating appliance without an air filter.
- Before performing any service functions, unless operations specifically require the power to be on, make sure all utilities are turned "OFF" upstream of the appliance. Failure to comply with this warning will cause a fire hazard and/or bodily harm.
- All questions regarding the operation, maintenance or warranty of this unit should be addressed to the company where this product has been sold from.

## CAUTION

- Never burn garbage or paper in the heating system and never leave rags or paper around the unit.
- Return air grilles and warm air registers must not be obstructed.

**IMPORTANT:** All local and national code requirements governing the electrical installation heating equipment, wiring and flue connections must be followed. Some of the codes that may be applicable are:

ANSI/NFPA 70 NATIONAL ELECTRICAL CODE

CSA C22.1 CANADIAN ELECTRICAL CODE

Only the latest issues of the above codes should be used, and are available from either:

The National Fire Protection Agency  
Batterymarch Park  
Quincy, MA 02269

or

The Canadian Standards Association  
178 Rexdale Blvd.  
Rexdale, Ontario M9W 1R3

## IMPORTANT: READ AND SAVE THESE INSTRUCTIONS.

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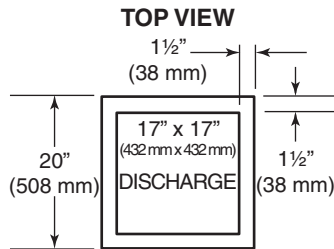
[www.ouellet.com](http://www.ouellet.com)

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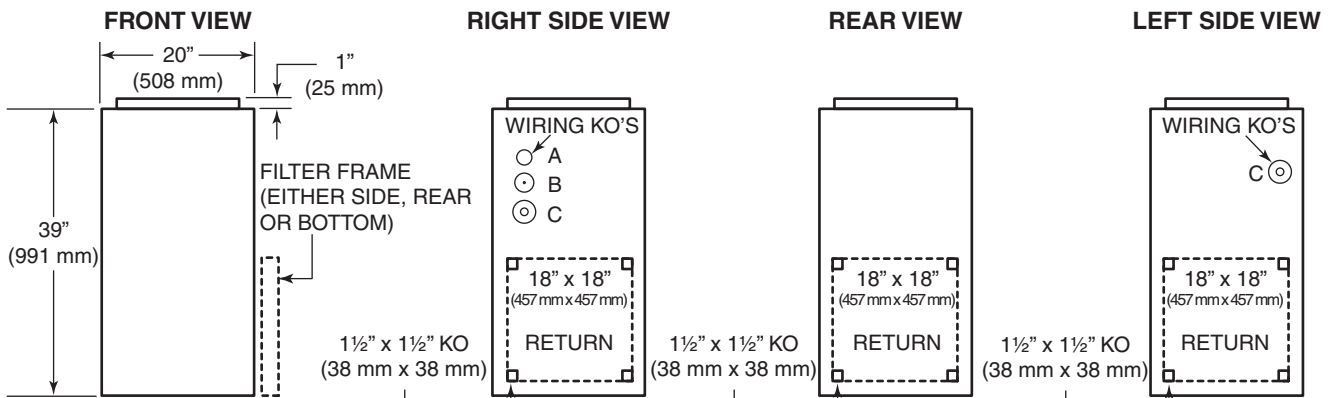
## INSTALLATION AND OPERATING INSTRUCTIONS

This furnace has been designed and manufactured to give the most reliable performance possible. Each unit has been given a running inspection before shipment to assure that every component is operating efficiently.

The safe and dependable operation of the furnace depends upon proper installation and compliance with all national and local codes and standards.



WIRING KO'S VALUES	
A	= 1" (25 mm)
B	= 1/4" (6 mm) & 1 1/4" (32 mm)
C	= 1/2" (13 mm) & 1 1/2" (38 mm)



## GENERAL REQUIREMENTS AND SPECIFICATIONS

### CAUTION

This unit must be installed in a dry place, in a non-corrosive, well-ventilated environment, without excessive dust. The ambient temperature must be over 10°C and under 27°C. If the ambient temperature is 10°C or less, the plenum must be insulated on 10 ft linear minimum length.

- LOCATION** – The furnace should be centrally located to the heating area.
- POSITIONS** – It can be installed for vertical, horizontal or downflow operation. When installed horizontally, the furnace should be positioned such as the door will not end up being on the top. The door should be on the side of the furnace, to ensure that the motor bearings are in their designed position. In vertical downflow installations, use only “L”- or “T”-shaped plenum with no openings or registers directly below furnace.
- INSTALLATION CLEARANCES** – As shipped from the factory, each unit is approved for “zero inch” clearance. If additional clearance is required, it will be indicated on the data label attached to the furnace.
- TEMPERATURE RISE** – Furnaces are shipped to operate at 0.20" (5 mm) W.C. (50 Pa) external static pressure. They are certified for operation up to 0.50" (13 mm) W.C. (125 Pa). Check the following page for temperature rise table on specification chart and, if necessary, adjust the unit to match.
- SERVICE CLEARANCE** – Units are serviced from the FRONT. Leave at least 24" (610 mm) clearance in front of the door.

## GENERAL REQUIREMENTS AND SPECIFICATIONS (CONT'D)

240 VOLTS – SINGLE PHASE					TEMP. RISE @ 0.20 IN. W.C.				
MODEL NO.	KW	BTUH	AMPS INCL. MOTOR	HP	BLOWER	°C	°F	*SPEED	RPM
OFY10000	10	34120	46	1/3	10" x 8" (254 mm x 203 mm)	21	70	LOW	663
OFY15000	15	51180	67	1/3		24	75	MED-LOW	814
OFY18000**	18	61420	77	1/3		27	81	MED-LOW	814
OFY20000**	20	68240	86	1/3		33	91	MED-LOW	814
OFY25000**	25	85300	107	1/3		37	99	MED-LOW	814
OFY27000***†	27	92130	116	3/4	12" x 8" (304 mm x 203 mm)	36	97	MED-HI	707

10" x 8" (254 mm x 203 mm) BLOWER						
SPEED	FLOW RATE	STATIC PRESSURE (INCHES OF WATER COLUMN)				
		0.2	0.3	0.4	0.5	0.6
LOW****	CFM	756	749	740	729	713
	L/s	357	353	349	344	337
MED-LOW	CFM	1035	1018	997	971	935
	L/s	488	480	470	458	441
MED-HIGH	CFM	1177	1157	1132	1102	1063
	L/s	556	546	534	520	502
HIGH	CFM	1301	1276	1247	1207	1145
	L/s	614	602	588	569	540

12" x 8" (304 x 203 mm) BLOWER						
SPEED	FLOW RATE	STATIC PRESSURE (INCHES OF WATER COLUMN)				
		0.2	0.3	0.4	0.5	0.6
LOW****	CFM	727	699	667	636	606
	L/s	343	330	315	300	286
MED-LOW****	CFM	912	897	878	853	823
	L/s	431	423	414	402	388
MED-HIGH	CFM	1216	1200	1181	1157	1129
	L/s	574	566	557	546	533
HIGH	CFM	1640	1601	1558	1513	1466
	L/s	774	755	735	714	692

**WARNING:**

\*FACTORY SETTINGS.

\*\*OFY18000, OFY20000 and OFY25000 must NOT be setup to run continuously at LOW speed as it will cause overheating conditions. These models are certified to run only at HIGH, MED-HIGH and MED-LOW speeds.

\*\*\*OFY27000 must NOT be setup to run continuously at LOW or MED-LOW speeds, as it will cause overheating conditions. This model is certified to run only at HIGH and MED-HIGH speeds.

\*\*\*\*These speeds can only be run with heater off, for cooling/ventilation purposes only.

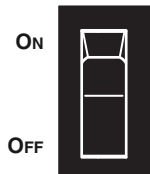
†OFY27000 has built-in noise-absorption components to run quietly during continuous or regular cycle modes.

SUBJECT TO CHANGE WITHOUT NOTICE.

## OPERATING OPTIONS

The furnace is shipped from the factory in a “Standard Heating Mode” (all switches are in the Down position). When the thermostat calls for heat, the automatic controls will be activated and the furnace turned “ON”.

The blower will run at low speed as the furnace heats up and will automatically switch to a higher speed when additional elements are activated by the time delay relays.



LOW SPEED

“On” – Some homeowners prefer the blower to run at low speed to more evenly distribute air in the house. In this position, the blower will run continuously on low and automatically change to a higher speed when heating elements are turned on by the thermostat.

“Off” – The blower motor will operate in the standard heating mode, controlled by the thermostat.



SEASON SELECT

MILD  
(NOT INCLUDED IN  
OFY10000 MODEL)

COLD

“Mild” – During spring and fall, you may not require full heating capacity to maintain a comfortable temperature. In this position, approximately half of the elements are “off-line” and will not be energized when the thermostat calls for heat.

“Cold” – All elements are “on-line” and controlled by the thermostat.

NOTE: If outdoor or two-stage thermostat is used, switch MUST be in “Mild” position at all times.



HIGH SPEED

“On” – The blower runs continuously at high speed to provide constant air circulation throughout the house during warm months.

“Off” – The switch is “OFF” and the blower will operate in the standard heating mode, controlled by the thermostat.

NOTE: When air conditioning is being used, switch must be in “OFF” position.

## INSTALLATION NOTES

### 1. COLD AIR RETURN

The duct can be attached to either side, rear or the bottom of the furnace.

For side return there are four 1½” (38 mm) knockouts which can be removed and used as an outline for cutting a 18” x 18” (457 mm x 457 mm) return air opening in the furnace left or right side. Mount the filter frame to the furnace over the opening with the open side of the frame facing front. Then attach the 19” x 19” (483 mm x 483 mm) air duct to the flanges on the filter frame.

For bottom mounting, remove the screws holding the bottom plate to the furnace, discard the bottom plate and attach the filter frame to the bottom flanges with the open side of the frame facing front.

### 2. ELECTRICAL WIRING - POWER SUPPLY

The furnaces are completely factory wired. From a separate breaker, a two-wire plus ground supply wire is required. The ground conductor must be firmly attached to the ground lug in the furnace and the supply wires to the terminal block in the furnace.

**NOTE:** If a OFYO-120 kit will be used to supply an air cleaner and/or humidifier, a third (neutral) conductor must be brought into the furnace.

All wiring must conform to the latest editions of the Canadian Electrical Code and local codes. Copper or aluminum wire of the appropriate size may be used.

### 3. CONNECTING AND ADJUSTING

#### THE LOW VOLTAGE THERMOSTAT

(Use only class 1 wires inside furnace compartments.)

Attach thermostat wires to the low voltage terminal block located on the inside of the furnace. Follow the diagrams supplied with the thermostat. As a general guide, remember that the R & W terminals control single stage heating; the R & Y terminals control cooling. Single stage cooling uses “Y/Y2” as first and only stage. Two-stage cooling uses “Y1” as first stage and “Y/Y2” as second stage. Make sure the thermostat is levelled on the wall and in appropriate location as per instructions supplied with the thermostat.

#### CAUTION

Before turning the furnace on, the heat anticipator in the thermostat must be properly set to prevent its failure and to assure comfortable, economical heating.

Because each installation is different an accurate reading of the current draw should be made with an AC meter. Set the meter at 2 A range for furnaces through 20 kW, and at 4 A range for larger units.

- Set the anticipator at its highest setting.
- Disconnect the “W1” thermostat wire from the furnace low voltage terminal connections.
- Connect the AC meter between the “W1” terminal on the board and the loose “W1” wire.
- Turn the thermostat up to start the furnace and allow it to run, with all elements on, for three or four minutes.
- Read the current draw on the meter and reset the anticipator to match the meter reading.

## FOR USE IN MOBILE HOMES

Zephyr furnaces 10, 15, 18 and 20 kW models are certified for “L”-shape and “T”-shape shallow duct installation with model OFYOR-SO sub-base in downflow applications when the supply air ducts pass through the floor of the structure. Recommended size of a floor opening: 14¼” x 14¼” (362 mm x 362 mm). The duct system must be designed so that the external static pressure of the system does not exceed the maximum external static pressure of 0.50” (13 mm) W.C. (125 Pa).

## USING OPTIONAL EQUIPMENT

### 1. A TWO-STAGE OR OUTDOOR THERMOSTAT

(The “Season Select” switch must be in the “Mild” position.) These controls can be used on all furnaces except 10 kW model. Follow the directions supplied with the two-stage or outdoor thermostat in conjunction with the furnace wiring diagram. When used, the furnace stage will supply heat as follows in the opposite chart:

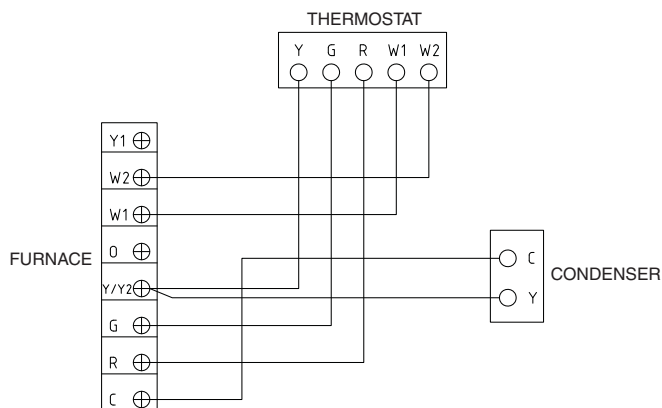
### 2. AIR CONDITIONING

Your furnace is equipped with all the controls required for the addition of air conditioning (except the heat-cool thermostat).

The evaporator coil may be installed by a local contractor in sheet metal plenum of his own manufacture. The coil should be located: centred over the “chimney” of the furnace 4” (102 mm) to 6” (152 mm) above the top of the furnace.

Make sure no air is allowed to bypass the cooling coil during cooling operation. If the discharge opening is a great deal larger than the coil, and the ductwork is correspondingly larger than the coil, you may want to use a bypass damper for heating. The damper would be closed in summer, directing all air flow through the coil. In winter the damper would be open to allow air to bypass the coil.

Typical air-conditioning field wiring connections are shown in the following diagram:



WIRING COLOR CODES					
C	G	R	W1	W2	Y
COMMON	GREEN	RED	WHITE	WHITE (BLUE OPTIONAL)	YELLOW

## SHALLOW DUCT AREA REQUIREMENTS

Duct Depth	Duct Width
4” (102 mm)	16” (406 mm)
5” (127 mm)	13” (330 mm)
6” (152 mm)	10” (254 mm)

	First Stage (kW)	Second Stage (kW)
10 kW	10	–
15 kW	10	5
18 kW	9	9
20 kW	10	10
25 kW	15	10
27 kW	13.5	13.5

### 3. ELECTRONIC AIR CLEANERS AND/OR POWERED FURNACE HUMIDIFIERS

These units operate at 120 V. Your 240 V furnace is designed so that Model OFYO-120 adaptor kit can be mounted inside the furnace to supply the required 120 V. Instructions for mounting and wiring are included with the kit.

### 4. WOOD ELECTRIC COMBINATION

When the electric furnace is used in combination with a wood burning furnace, connect the thermostat of the wood burning furnace across LOW VOLTAGE TERMINALS R and G. The thermostat in the wood burning furnace will then turn on automatically the blower in the electric furnace.

## MAINTENANCE

**MOTOR:** The motor is lubricated for life and needs no oiling.

**FILTERS:** Size is 20” x 20” x 1” (508 mm x 508 mm x 25 mm). Should be inspected and replaced when dirty. Ordinarily replacement is required twice per heating season and, perhaps, a third time if continuous blower operation is used.

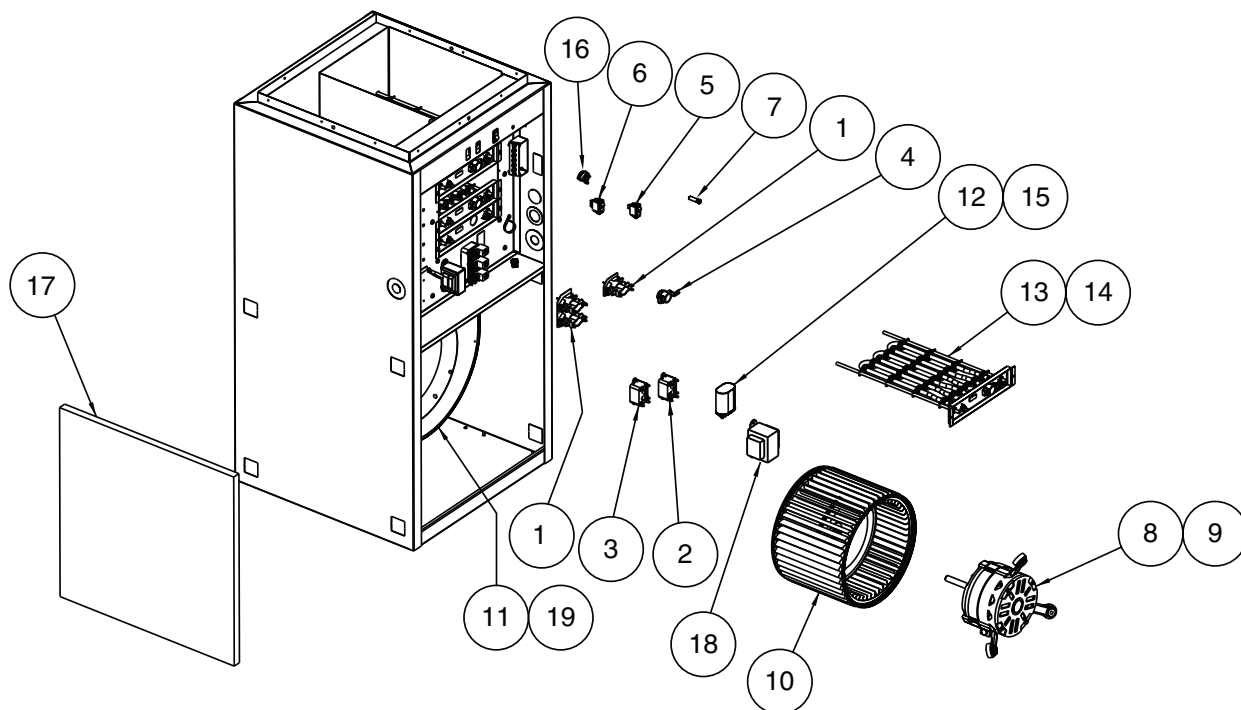
**NOTE:** Each element has an automatic reset thermal cut-out which is set to open at 160°F (71°C). If it opens, the element will be de-energized until the cut-out resets itself. In addition to that, there are 2 manual reset thermal cut-out that open at 200°F (93°C). In a case of a manual reset cut-out being open, a front panel needs to be removed so the cut-out can be manually reset.

## ⚠ WARNING

Cut 240 V supply before removing the front panel!

The reason for the failure should be investigated before re-starting the furnace. The limit usually opens when airflow is reduced because of blocked ductwork or very dirty filters.

# SERVICE PARTS



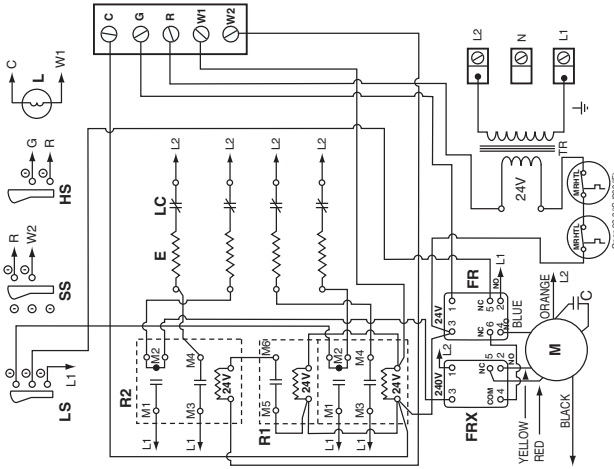
REPLACEMENT PARTS				
TIME DELAY RELAYS (SEQUENCERS)				
KEY NO.	PART NO.	BOTTOM	SECOND	THIRD
1	30270025		15 kW	27 kW
	30270026	10 kW	18-20-25-27 kW	
	10940925	15-18-20 kW		
	10940926	25-27 kW		

KEY NO.	PART NO.	DESCRIPTION
2	10940927	24 V Fan Relay
3	10940928	240 V Fan Relay (not in OFY10000)
4	30270032	Automatic Limit
5	30030006	Low Speed and Season Select Switch
6	30030025	High Speed Switch
7	30280021	Thermostat Indicator Light
8	10941288	Motor 3/4 HP, 240 V
9	10941203	Motor 1/3 HP, 240 V
10	30390553	Blower Wheel 12" x 8" (305 mm x 203 mm)
11	10941149	Service Blower Assembly for OFY 10/15/18/20/25 kW
12	30270038	Capacitor for 1/3 HP Motor
13	10940080	Element Assembly 5000 W, 240 V
14	10940081	Element Assembly 4500 W, 240 V
15	30271114	Capacitor for 3/4 HP Motor
16	30280020	Manual Reset Limit
17	30010010	Fiberglass Filter 20" x 20" x 1" (508 mm x 508 mm x 25 mm)
18	30300022	Transformer 240 V
19	10941221	Blower Assembly 12" x 8" (305 mm x 203 mm)

# WIRINGS DIAGRAMS

## WARNING

Risk of electrical shock. Disconnect power before installation, servicing, maintenance or field wiring. Replace all panels before operating. Failure to do so can result in electrical shock causing severe injuries or death.

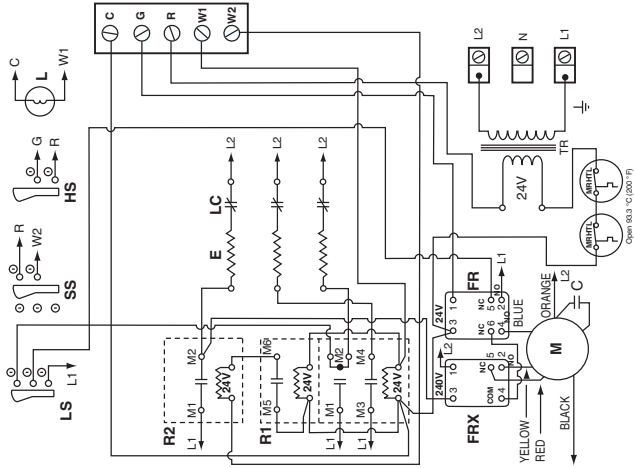


**OFY - 18-20 kW - 240 VOLTS - SINGLE PHASE**  
 WARNING: These models are not certified to run continuously in low speed (red wire) conditions. **DO NOT** reconnect red wire into different terminal.

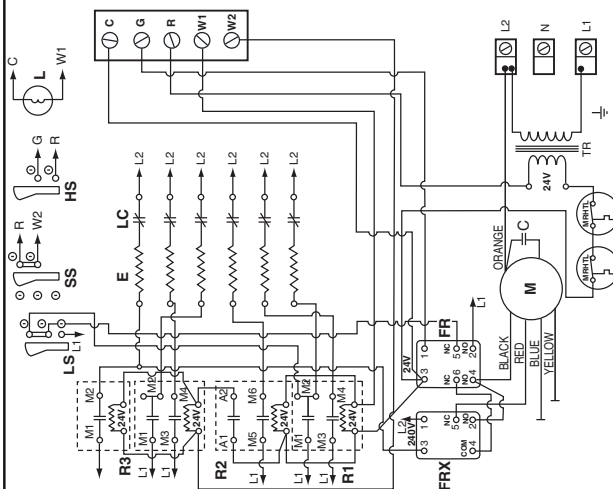
FAN MOTOR SPEED	COLOR
HI	BLACK
MED - HIGH	BLUE
MED - LOW	YELLOW
LOW	RED

- LEGEND
- C CAPACITOR
  - E ELEMENT
  - FR FAN RELAY - 24
  - FRX FAN RELAY - 240
  - L LIGHT
  - LC AUTOMATIC LIMIT
  - M MOTOR
  - R TIME DELAY RELAY
  - SS SEASON SELECT
  - LS LOW SPEED
  - HS HIGH SPEED
  - TR TRANSFORMER
  - COM COMMON
  - NC NORMALLY CLOSED
  - NO NORMALLY OPEN

CONNECT 24 V ROOM THERMOSTAT BETWEEN R AND W1.  
 USE ONLY CLASS 1 WIRING  
 INSIDE FURNACE COMPARTMENTS.  
 SUBJECT TO CHANGE WITHOUT NOTICE.

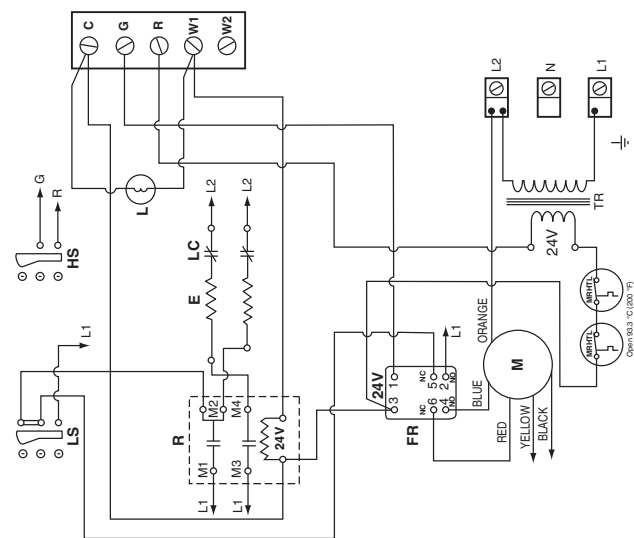


**OFY - 15 kW - 240 VOLTS - SINGLE PHASE**

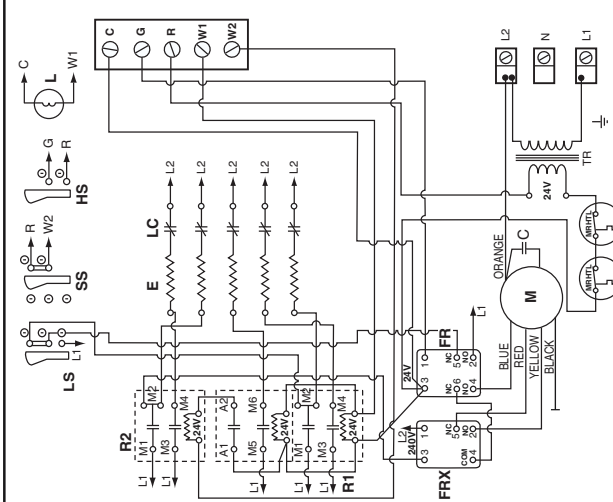


**OFY - 27 kW - 240 VOLTS - SINGLE PHASE**

WARNING: These models are not certified to run continuously in low speed (red wire) or in med-low speed (yellow wire) conditions. **DO NOT** reconnect red wire into different terminal and **DO NOT** connect yellow wire.



**OFY - 10 kW - 240 VOLTS - SINGLE PHASE**



**OFY - 24-25 kW - 240 VOLTS - SINGLE PHASE**

WARNING: These models are not certified to run continuously in low speed (red wire) as it will cause overheating conditions. **DO NOT** reconnect red wire into different terminal.



## TROUBLESHOOTING

The first step in identifying an operational problem is to determine whether the fault is in the furnace or in the thermostat and/or its connecting wiring.

To help make this determination, the furnace is equipped with a “Thermostat ON” diagnostic light. If the light is “ON”, it indicates the thermostat has closed and is calling for heat; the blower should be running. If the light is “OFF”, the furnace should not be operating—unless the Low Speed or the High Speed switch is set to run the motor continuously.

1. If the furnace will not start:

Turn the thermostat to its highest setting. If the light goes on, the thermostat has closed, so the fault is in the furnace. If the light does not go on, the thermostat or its connecting wiring is the problem.

2. If the furnace will not turn off:

Turn the thermostat to its lowest setting. If the light goes off and the furnace continues to run, the thermostat has opened properly and the problem resides in the furnace. If the light stays on, the fault is in the thermostat or its connecting wiring.

After the fault area is isolated by use of the diagnostic light, a check of the following components can be made more efficiently.

PROBLEM	POSSIBLE DEFECTIVE PARTS OR COMPONENTS
1. The furnace will not turn on	<ul style="list-style-type: none"> <li>• Thermostat</li> <li>• Circuit breaker or fuse is open</li> <li>• Motor or capacitor</li> <li>• Low Speed Switch</li> <li>• Bottom Sequencer</li> <li>• Transformer</li> </ul>
2. Motor runs continuously	<ul style="list-style-type: none"> <li>• Low Speed or High Speed switch is not on “Off” position</li> <li>• Thermostat wires incorrectly attached to furnace</li> <li>• Bottom sequencer (the bottom heating element would also remain on)</li> <li>• 24V relay</li> </ul>
3. Elements on, but motor does not run	<ul style="list-style-type: none"> <li>• Motor or capacitor</li> <li>• Bottom sequencer</li> </ul>
4. Motor going on and off in short cycles (or in too long cycles)	<ul style="list-style-type: none"> <li>• Heat anticipator in thermostat incorrectly set or may be defective</li> </ul>
5. Must set thermostat much higher (or lower) than the desired house temperature	<ul style="list-style-type: none"> <li>• Thermostat is not leveled or out of calibration</li> </ul>
6. Not enough heat	<ul style="list-style-type: none"> <li>• One or more defective elements or sequencers</li> <li>• Season Select switch in “Mild” position</li> <li>• Safety limits opening because duct obstruction or dirty filters are restricting air flow</li> <li>• Defective or incorrectly wired two-stage or outdoor thermostat</li> <li>• Lack of enough cold air returns in house</li> </ul>
7. Two-stage or outdoor thermostat not operating properly	<ul style="list-style-type: none"> <li>• Season Select switch not in “Mild” position</li> </ul>
8. Motor goes off, but one or more elements stay on	<ul style="list-style-type: none"> <li>• Sequencer</li> </ul>
9. Automatic speed change doesn’t occur when furnace heats up	<ul style="list-style-type: none"> <li>• Top sequencer</li> <li>• 240 V relay</li> </ul>

### LIMITED WARRANTY TO OWNER

The warranties herein set forth are in lieu of all other warranties expressed or implied and shall not apply to any accessory not part of the product. Ouellet Canada Inc., warrants its products to the owner against defects in material and workmanship for a sixty (60) month period under normal use and services following date of purchase when proof of such is provided to seller.

The obligation of Ouellet Canada Inc., under the terms of this warranty, shall be to supply a new part, or the repair of a defective part at the company’s option with no cost to owner for the new or repaired part. Such parts are to be returned to the factory, or such other location as the company may designate at the owner’s expense. This warranty does not obligate Ouellet Canada Inc. to bear the cost of labor in replacing any assembly, unit or component part thereof, nor does the company assume any liability for secondary charges, expenses for installing or removal, or any other consequential losses, freight or damages.

#### IN CASE OF PRODUCT FAILURE

It shall be the obligation of the owner or contractor to furnish to the company, within the designated warranty period the following information :

1. Model Number and serial number of product involved.
2. Complete description of the problem encountered with product.