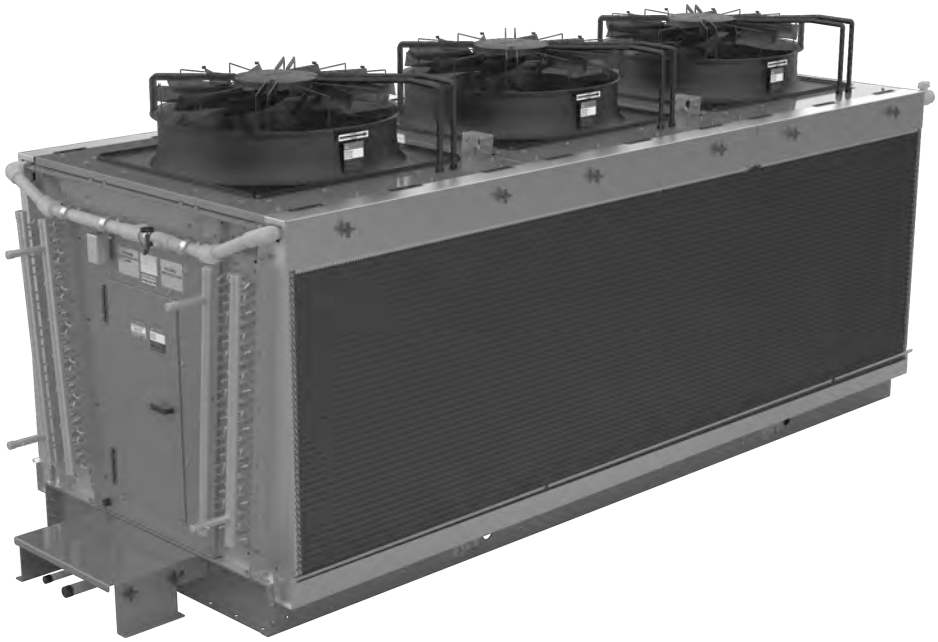
HEATCRAFT™ Worldwide Refrigeration

# Adiabatic Gas Cooler Installation & Operation

**Bulletin No. H-IM-AGC** **June 2025** **Part Number 25093701**

# Adiabatic Gas Coolers Installation and Operation Guide



## Table of Contents

## Inspection

Responsibility should be assigned to a dependable individual at the job site to receive material. Each shipment should be carefully checked against the bill of lading. The shipping receipt should not be signed until all items listed on the bill of lading have been accounted for.

Check carefully for concealed damage. Any shortage or damages should be reported to the delivering carrier.

Damaged material becomes the delivering carrier's responsibility, and should not be returned to the manufacturer unless prior approval is given to do so. When uncrating, care should be taken to prevent damage. Heavy equipment should be left on units shipping base until it has been moved to the final location.

## System Warranty

This equipment is designed to operate properly and produce rated capacity when installed in accordance with accepted industry standards. Failure to meet the following conditions may result in voiding of the system warranty:

1. System piping must be installed following industry standards for good piping practices.
2. Inert gas must be charged into piping during brazing or welding.
3. System must be thoroughly leak checked and evacuated before initial charging. High vacuum gauge capable of reading microns is mandatory. Dial indicating pressure gauges are not acceptable.
4. Power supply to system must meet the following conditions:
   a. Voltage for 208/230 motors not less than 195 volts or more than 253 volts.
   b. All other voltages must not exceed +/- 10% of nameplate ratings.
   c. Phase imbalance not to exceed 2%.
5. All controls and safety switch circuits properly connected per wiring diagram.
6. Factory installed wiring must not be changed without written factory approval.

## Installation

**NOTICE**

***Installation and maintenance to be performed only by qualified personnel who are familiar with local codes and regulations and experienced with this type of equipment.***

**⚠ CAUTION**

***Sharp edges and coil surfaces are a potential injury hazard. Avoid contact with them.***

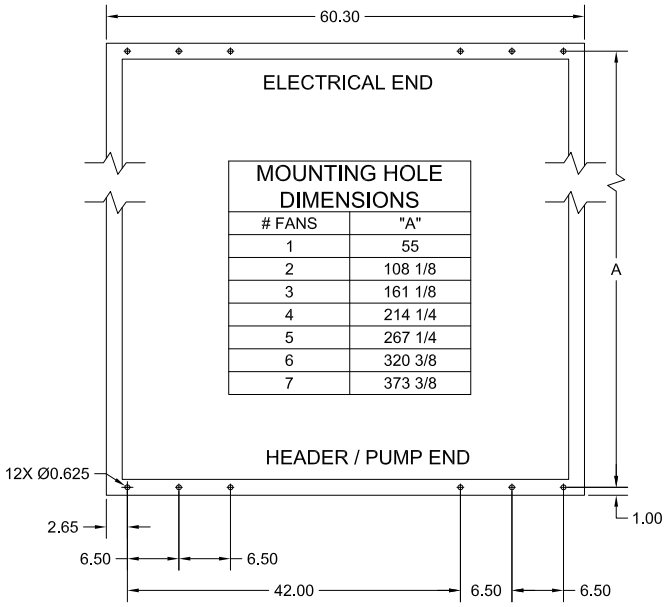
## Unit Location

Units are designed for outdoor application and may be mounted on a roof or concrete slab (ground installation). Roof mounted units should be installed level on steel channels or an I-beam frame to support the unit above the roof. The unit framework should be fully supported along the full length of each side. Use of vibration pads or isolators is recommended. The roof must be strong enough to support the weight of the unit. The support structure used for unit mounting should be level and be properly supported to prevent settling. A one-piece concrete slab with footings extending below the frost line is recommended.

The gas cooler should be located far enough away from any wall or other obstruction to provide sufficient clearance for air entrance. Do not attach ductwork to the coil inlet or fan outlet. Care should be taken to avoid air recirculation conditions that can be caused by sight screening, walls, etc. Also keep unit fan discharge away from any building air intakes. See page 3 for space and location requirements.

Use provided holes in base runner to secure unit to mounting structure. See **Figure 1.**

### Figure 1.




Dimensions shown in inches

## Sound Vibration

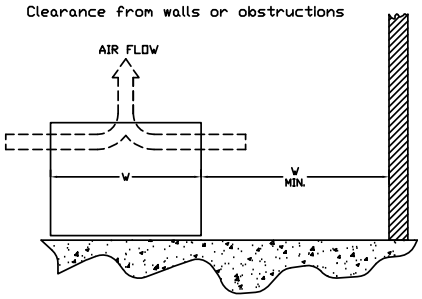
Units should be installed away from occupied spaces and above or outside of utility areas, corridors and auxiliary spaces to reduce the transmission of sound and vibration to occupied spaces. The refrigerant piping should be flexible enough to prevent the transmission of noise and vibration from the unit into the building. If the refrigerant lines are to be suspended from the structure of the building, isolation hangers should be used to prevent the transmission of vibration. Where piping passes through a wall, it is advisable to pack fiberglass and sealing compound around the lines to minimize vibration and retain flexibility in the lines.

**⚠ WARNING**

***There may be more than one source of electrical current in this unit. Do not service before disconnecting all power supplies.***

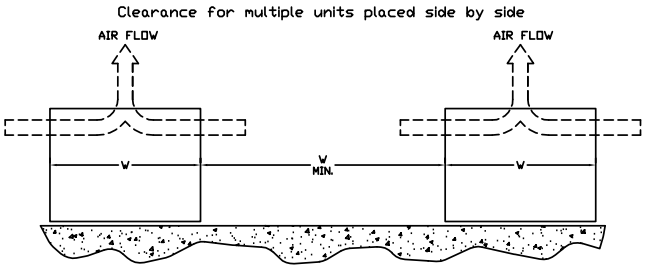
## Walls or Obstructions

The unit should be located so that air may circulate freely and not be recirculated. For proper air flow and access all sides of the unit should be a minimum of "W" away from any wall or obstruction. It is preferred that this distance be increased whenever possible. Care should be taken to see that ample room is left for maintenance work through access doors and panels. A minimum of one unit width should be allowed on the header end of the unit to provide sufficient clearance. Overhead obstructions are not permitted. When the unit is in an area where it is enclosed by three walls the unit must be installed as indicated for units in a pit.




## Multiple Units

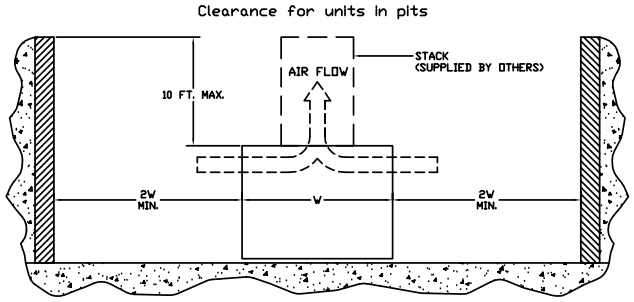
For units placed side by side, the minimum distance between units is the width of the largest unit. If units are placed end to end, the minimum distance between units is 6 feet.




## Units in Pits

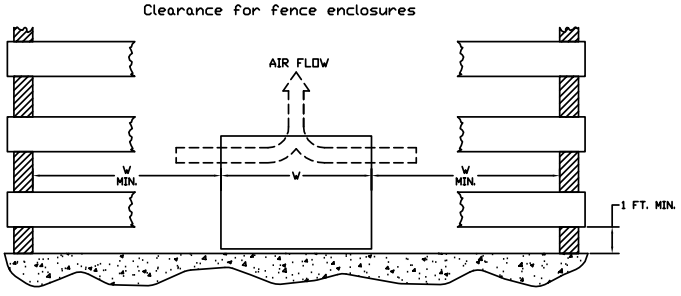
The top of the unit should be level with the top of the pit, and side distance increased to "2W".

If the top of the unit is not level with the top of pit, discharge cones or stacks must be used to raise discharge air to the top of the pit. Follow all applicable safety codes.




## Decorative Fences

Fences must have 50% free area, with 1 foot undercut, a "W" minimum clearance, and must not exceed the top of unit. If these requirements are not met, unit must be installed as indicated for "Units in pits".




* "W" = Total width of the gas cooler.

## Rigging Instructions

**⚠WARNING**

1) . Use spreader bar for all rigging .

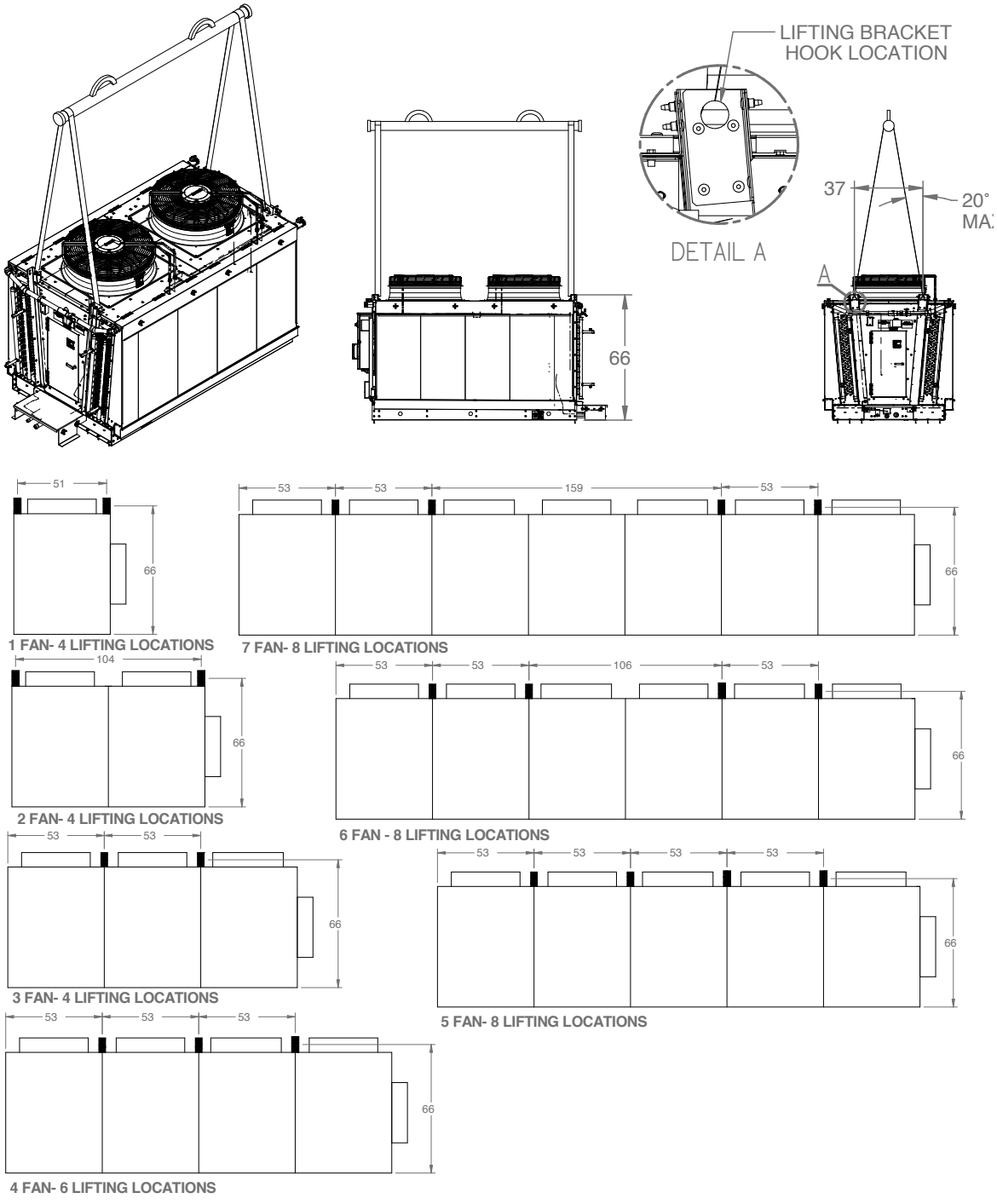
2) . Do not use coil connections, coil headers, return bends, or electrical box to lift or move the gas cooler .

3) . Do not walk or stand under gas cooler during lifting .

4) . Use all lifting points

5) . Do not use gas cooler lifting points if gas cooler is attached to other equipment or framing. Use lifting points provided on attached equipment or framing

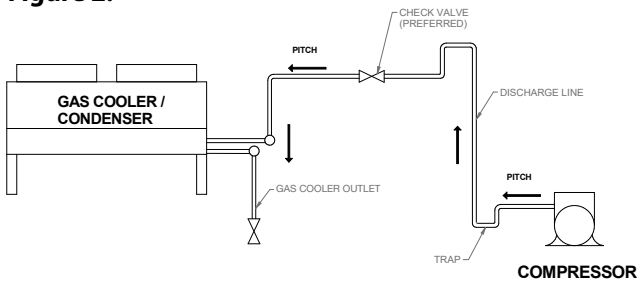
## Drawing 1. Rigging Instructions for Standard Adiabatic Gas Cooler



## Typical Arrangements

Figure 2 illustrates a typical piping arrangement involving a remote gas cooler located at a higher elevation, as commonly encountered when the gas cooler is on a roof and the compressor and receiver are on grade level or in a basement equipment room.

**Figure 2.**




**Notes:**

1. All oil traps are to be as short in radius as possible. Common practice is to fabricate the trap using three 90 degrees ells.

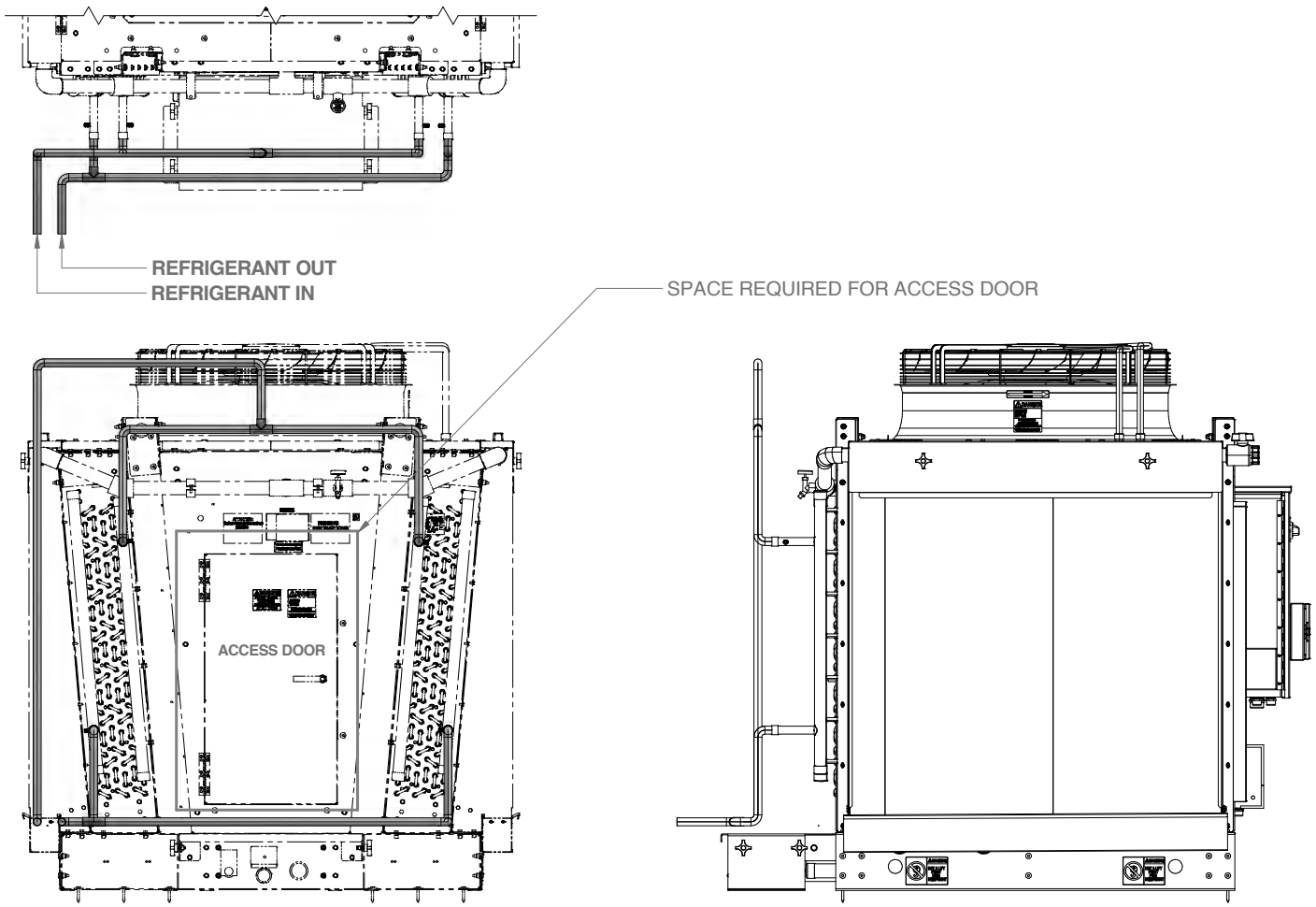
2. Installation of a pressure relief valve at the coil inlet is recommended.

## Installation, Refrigerant Piping

Install piping according to standard accepted refrigeration practice. The following recommendations should be adhered to:

1. Use only refrigeration grade $CO_2$ copper alloy, stainless steel, or carbon alloy steel tubing.
2. Copper tubing must be CuFe2P or C194000 alloy with a minimum 1886 psig rating.
3. When connecting to stainless or carbon steel piping, it is recommended to use BAg-5 phosphor bronze or similar brazing rod with minimum silver content of 45%. Brazing similar metals may use a brazing rod with a minimum silver content of 15%.
4. Soft solder joints are not acceptable.
5. Put dry nitrogen through lines while brazing.
6. Do not leave dehydrated piping or components open to the atmosphere any longer than is absolutely necessary.
7. Inverted traps should be located near coil inlets as shown in Figure 2.

## Recommended Refrigerant Manifold Connections




It is recommended that coil manifold connections are piped in parallel and maintain sufficient space to allow access to the service access door.

## Discharge Lines

The discharge line should be properly sized for the desired pressure drop at full load conditions and an oil separator installed at the bottom of the trap in the discharge line from the compressor. For more complete information, refer to the ASHRAE Handbook. The proper design of discharge lines involves two objectives:

1. To minimize refrigerant pressure drop, since high pressure losses cause increased compressor horsepower per ton of refrigerant. Recommend maximum pressure drop is 5 PSI.
2. To maintain sufficiently high gas velocity to carry oil through to the gas cooler coil and receiver at all loading conditions.

---

**Table 1. Gas Cooler Line Size Table**

| Gas Cooler Unit Size | Line Size | |
|---|---|---|
| | Gas Cooler In | Gas Cooler Out |
| 1 Fan | 1-1/8" | 7/8" |
| 2 Fan | 1-3/8" | 1-1/8" |
| 3 Fan | 1-5/8" | 1-3/8" |
| 4 Fan | 1-5/8" | 1-3/8" |
| 5 Fan | 2-1/8" | 1-5/8" |
| 6 Fan | 2-1/8" | 1-5/8" |
| 7 Fan | 2-1/8" | 1-5/8" |

Example Condition: 70F Wet bulb, 100 F dry bulb, 85F gas cooler outlet; distance between rack and adiabatic gas cooler 100 ft.
Recommended line size is based on average PD 7.5 psi/100ft for gas cooler discharge line, and 5 psi PD on the gas cooler return line.
It may be adjusted based on job-site piping condition, piping length, and allowable total pressure drop on the system design and running

## Electrical Wiring

The electrical installation should be in accordance with National Electrical Code, local codes and regulations. Proper overcurrent protection should be provided for the fan motors.

See unit wiring diagram for field power connections and sensor connections.

**⚠ WARNING**

***There may be more than one source of electrical current in this unit. Do not service before disconnecting all power supplies.***

## Motors with Integrated Variable Speed

Gas Coolers use an EC motor/fan blade combination to provide variable speed gas cooler control. All components required to run the motor at variable speeds are built into the motor.

**⚠ WARNING**

***High voltage may remain in motor after disconnecting power. Do not open motor within 5 minutes after disconnecting all phases.***

**⚠ CAUTION**

***Fan motors may start while power is applied to unit. Disconnect power before servicing fans.***

## Speed Adjustment Characteristics

The EC motor varies it's speed linearly based on a 10-0V input signal. At 0 VDC, the motor runs at full speed. At 10 VDC, the motor turns off.

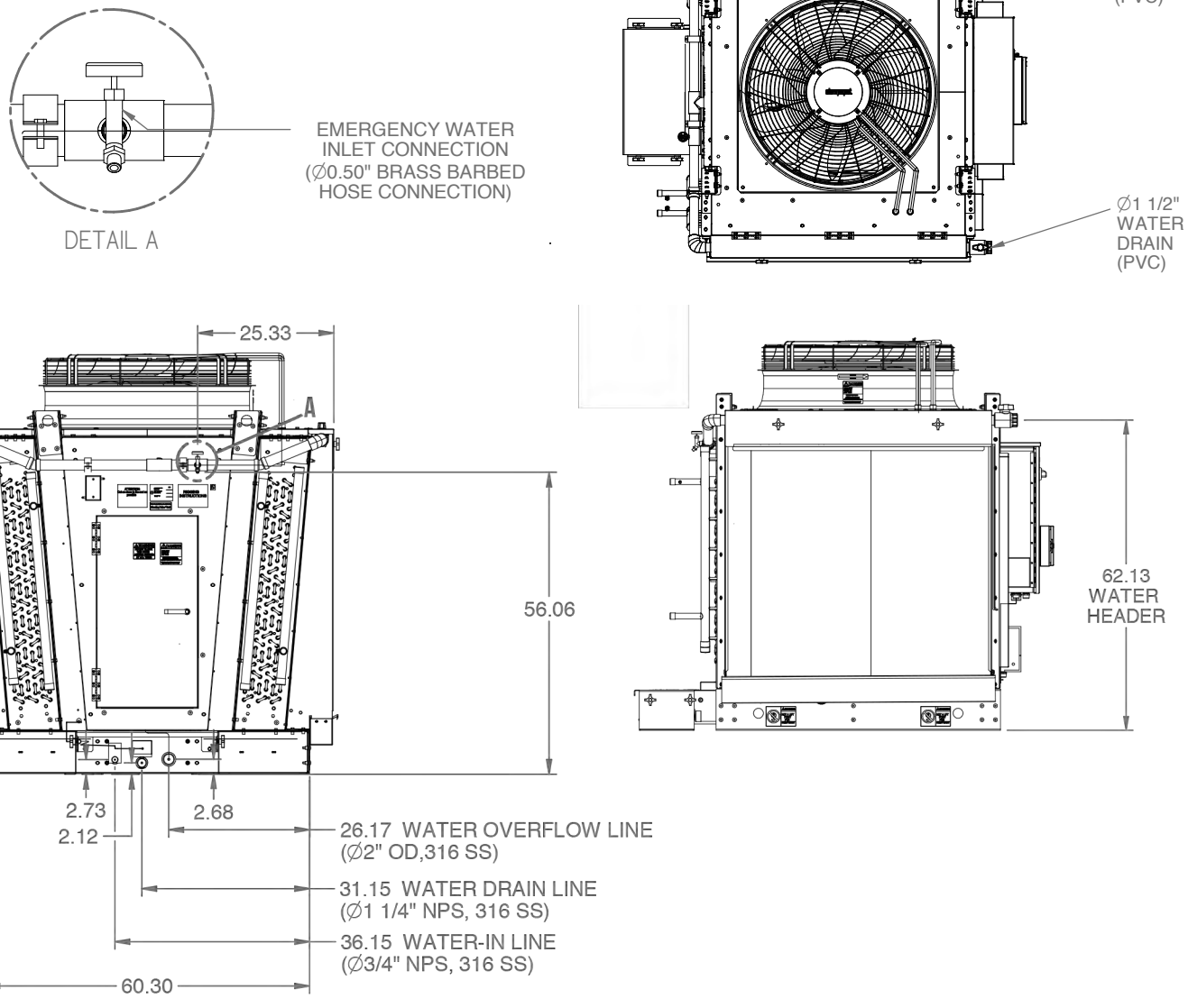
The input control signal can be supplied from the on-board control when the Fan Mode parameter is set to "Condenser" or by any controller that outputs a 10-0 VDC signal when the Fan Mode parameter is set to "Gas Cooler". For units with a control signal supplied from a rack control or other external controller, the unit is provided with a terminal board for control signal wiring.

## External Control Signal

External Control Signal Required for $CO_2$ Gas Cooler Mode (default operating mode). Contact control manufacturer for setup of external controller to provide 10-0VDC control signal. Wire the control signal to terminal board in unit control box using 22 to 18 awg shielded cable. See Wiring Diagram for typical external signal control wiring. The motors must be checked for proper rotation. Be sure to check that motor voltage and control connection agree with electric services furnished.

## Water Connections

| Connection Type | Connection Size / Material |
|---|---|
| Water in Line | Ø3/4" NPS, 316 SS |
| Water Drain Line | Ø1-1/4" NPS, 316 SS |
| Water Overflow Line | Ø2" OD,316 SS |
| Emergency Water Inlet | Ø0.50" BRASS BARBED HOSE CONNECTION |
| Water Header Drain | Ø1-1/2" WATER DRAIN (PVC) |




NOTES

1. Pressure rating range for emergency water inlet valve 40-100 PSI
2. City/Tap water Total Dissolved Solids (TDS) should be less than 300-500PPM
3. The recommended level of chlorine in water is between 0.2 and 0.5 milligrams per liter (mg/L)
4. If available water supply cannot meet the listed requirements, a field supplied water chemical treatment system should be used.
5. A water shutoff valve and drain valve should be installed in the water supply line to allow draining the line in Winter or when ambient temperatures are expected to be below 40°F.

# ADIABATIC GAS COOLER STARTUP

1. VERIFY UNIT IS INSTALLED PER THIS MANUAL AND ALL APPLICABLE CODES
- Verify unit is level and properly supported.
- Verify main power supply per unit data plate.

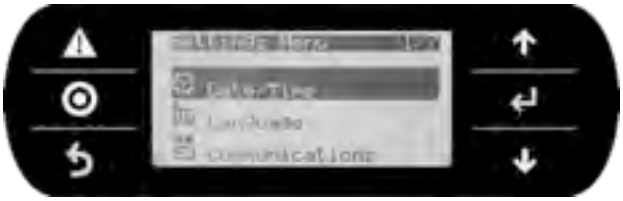
2. TURN ON POWER
- Turn on power supply and verify voltage with meter.
- Verify all disconnects and circuit breakers are on.
- The controller display should be illuminated.


3. VERIFY DATE & TIME
- The date and time are displayed at the top of the screen.
- To change the time or set the time zone, press Menu to go to Main Menu
    - o Login if necessary.
        - Password is 1234. Press Up or Down arrows to change the first digit then Enter to advance to the next digit.

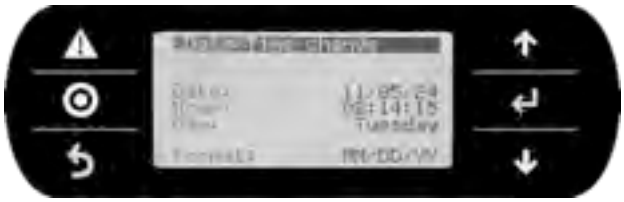
    - o After the fourth digit is set, press Enter to continue to the Main Menu

    - o Move Up or Down to **F. Settings** and press Enter

    - o Select Date & Time and press Enter



    - o Press Enter to adjust the date or time
        - Use up and down buttons to adjust values then press enter to move to the next digit
    - o Press the Return button to accept the settings and return to the top navigation bar



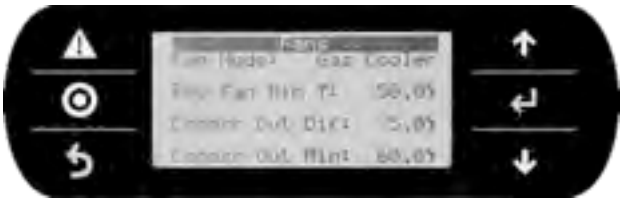
    - o Press Down to access the time zone settings

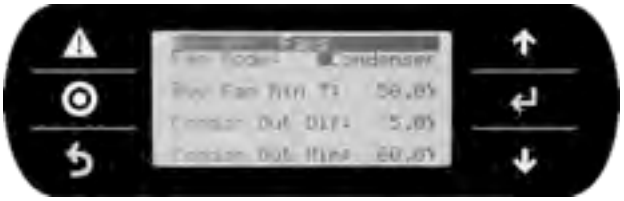
    - o Press Enter to edit the time zone
    - o Press Up or Down to find the time zone description that best matches your location and then press Enter (Cursor will return to the top bar)
    - o After the date, time and time zone are set, press Return to return to the settings menu or press the Menu button to return to the main menu

4. VERIFY OPERATING MODE
- The unit is shipped configured to receive a 10-0VDC fan input signal from a master (rack) controller typically used in $CO_2$ gas cooler applications. For non-$CO_2$ applications, the unit can be configured to operate as a stand-alone condenser without connection to a rack controller.

- From the Main Menu select C. Fans

    - o Under fan mode select Gas Cooler or Condenser

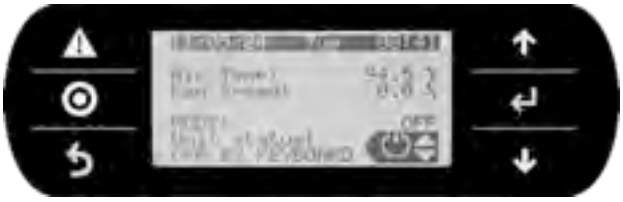




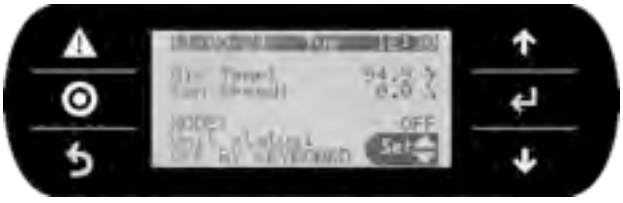
- For rack-controlled fan operation:
  - o Connect a 10-0VDC input signal from the rack controller to terminals 7 & 8 (See diagram 15)
  - o Connect rack to air-on-coil sensor at terminals 21 & 22 (See diagram 15)
  - o Connect rack to outlet temperature sensor at terminals 23 & 24 (See diagram 15)
  - o The outlet temperature sensor is provided wired on the header end of the unit, but not mounted to prevent damage during piping installation. Once field piping is completed, clamp the sensor on the combined return pipe as close to the unit as possible in a 3 or 9 o'clock orientation and insulate.
- For stand-alone fan operation
  - o Replace the outlet temp sensor and Air-on-coil sensors with the included sensors shipped with the unit.
  - o Connect the air-on-coil sensor to terminal Uai:5 on the unit control (See diagram 16)
  - o Connect the outlet temperature sensor to Uai:4 on the unit control (See diagram 16)
  - o Once field piping is completed, clamp the outlet temperature sensor on the combined return pipe as close to the unit as possible in a 3 or 9 o'clock orientation and insulate.

5. VERIFY SENSOR READINGS

- To view all sensors, press the Return button to return to the home screen.



- Press Up or Down until Set is displayed on bottom right, then press Enter.

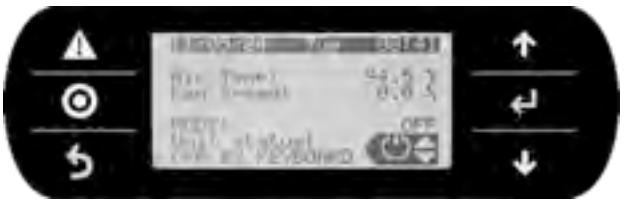


- The first screen is the Analog Status. All analog values are displayed.

  - o Verify values are present and within expected range for all sensors.

6. VERIFY FAN OPERATION

- Close all water system valves.
- Turn the unit On
  - o On the Home screen, press Up or Down button until the power symbol ( ) is displayed on bottom right.

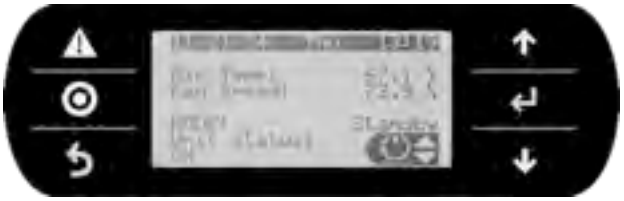


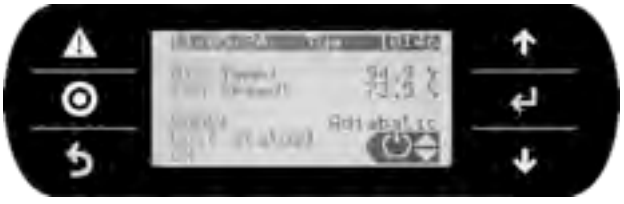
  - o Press Enter, then press Up or Down to toggle between Off and On.



  - o Press Return to return to the home screen.

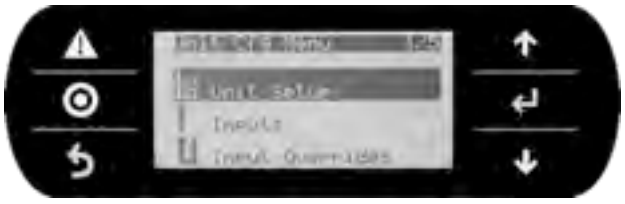
- The Mode on Home screen should now show either STANDBY or ADIABATIC depending on whether the Air Temp is above or below the adiabatic setpoint.





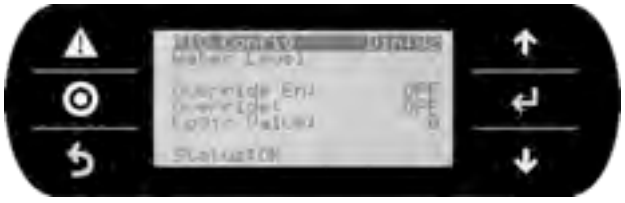
- The Fan Speed will now modulate based on the temperature inputs. The actual fan speeds may lag the displayed speed by a few seconds.
- Override the temperature input signal to test fan speed operation.
    - o If in Gas Cooler mode, vary the Speed Reference signal.
        - From the main menu, press Up or Down to select D. Unit Config.

- Press Enter.

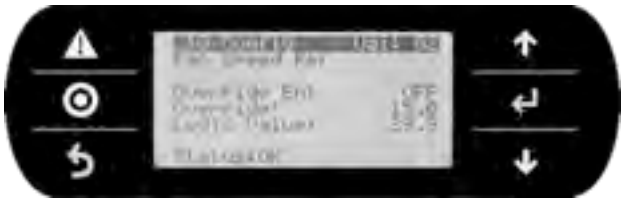


- Press Up or Down to select Input Overrides.

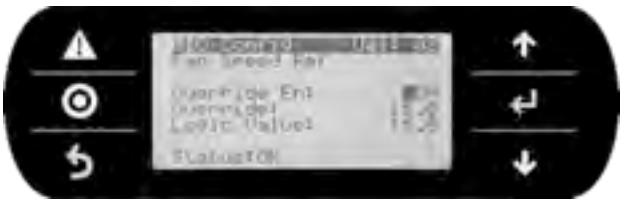
- Press Enter.



- Press Down to navigate to the Fan Speed Ref menu.



- Press Enter
- Press Up or Down to toggle the override On



- Press Enter to move the cursor to the override value.
- Press Up or Down to adjust the override value.

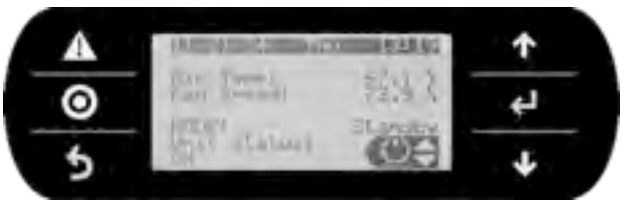
- Observe that the fan speed adjusts to the override setting.
- Return the override setting to Off.

    - o If in Condenser mode, apply heat (no open flame) to the condenser outlet sensor. The fan speed should ramp up as if it were trying to cool it.

- Verify all fans are exhausting out from the top of the unit.

7. VERIFY WATER SUPPLY AND OPERATION

- Disable the fan above the sump (the highest numbered fan) by turning off its circuit breaker.
- Verify that the unit's drains (drain valve and overflow) are piped to a suitable location.
- Verify that the water supply is connected.
- Open the access door to the sump and the covers over the distribution headers over the pads.
- Inspect the piping for damage.
- Open all valves on the water supply.
- If the Mode on the Home screen reads STANDBY, the Air temp is below the Adiabatic setpoint



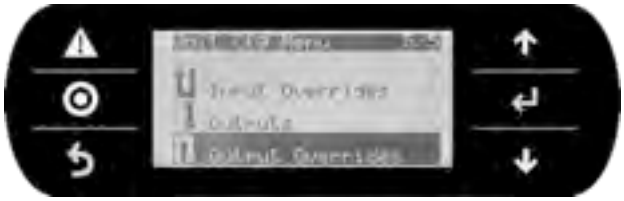
    - o Adjust the Adiabatic setpoint to it's minimum. If Air temp is still too low, heat the Air sensor.

- When the mode switches to ADIABATIC, the drain valve will close, and the makeup solenoid valve will open and begin filling the sump.
- Once the sump is filled, the pump(s) will start.
- Check that water is distributed evenly to pads over the full length of the headers, but not with excessive force. Adjust the flow control valves if necessary.

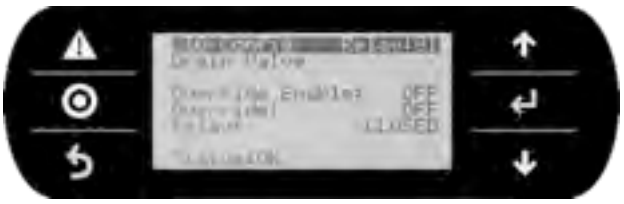
8. TEST THE DRAIN AND MAKEUP VALVES

- Override the closed drain valve
    - Select Unit Config from the Main Menu

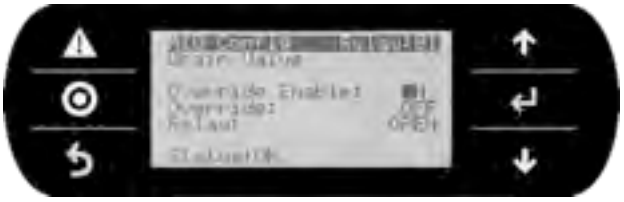
    - Select Output Overrides



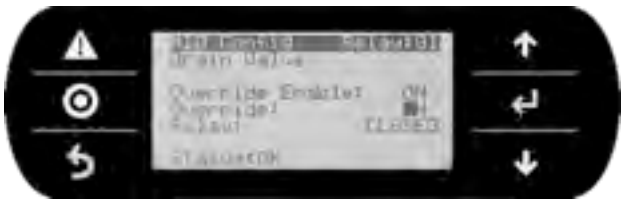
    - Press Enter



    - Press Enter to move cursor to the Override Enable setting
    - Press Up or Down to change the Override Enable to ON



    - Press Enter to move cursor to the Override setting
    - Press Up or Down to change the override to ON



- The Drain valve will open.
    - As the water level drops, the Makeup valve will turn on to maintain the level. The water level may or may not be maintained depending on the drain piping and the makeup water pressure.
- Temporarily close the manual valve on the makeup line.
    - Allow the sump to drain. The pump should stop within a minute of the water level falling below the switch level.
- Reopen the makeup valve and reset the drain override to off. The sump will refill and the pump restart.

- Close all access doors & covers, and re-enable all fans. Return Adiabatic setpoint to original setting if applicable.

9. WINTER OPERATION

- Verify that the water supply is returned to a winter-safe condition, if applicable.
    - Drain all water or add heat-trace to water system when ambient temperatures are expected below 40°F to prevent freeze damage

## Operation

The Adiabatic Gas Cooler is capable of several modes of operation depending on the selected application and the environmental conditions.

### Off Mode

When enabled "Off Mode" will display on the control. The unit will not operate while in Off Mode.

CAUTION: Do not attempt to service any electrical components while unit is in Off Mode. Disconnect unit power prior to accessing any electrical components.

### Standby (Dry) Mode

During Standby (Dry) Mode operation, the water system is disabled and only the fans will operate. Standby (Dry) Mode operation is controlled by parameters "ADIABATIC LOCKOUT START", ADIABATIC LOCKOUT END", and "ADIABATIC SETPOINT".

### Adiabatic Mode

During Adiabatic Mode operation, the pump and water system will activate. Adiabatic Mode operation is controlled by parameters "ADIABATIC LOCKOUT START", ADIABATIC LOCKOUT END", and "ADIABATIC SETPOINT".

### Clean Mode

Clean Mode operates the fans in reverse direction to clear debris from the coils and pads. Clean mode is started automatically after "ADIABATIC LOCK-OUT" has cleared and AIR TEMP > REVERSE FAN MINIMUM TEMP. The fans will continue to run in reverse for the duration of time set by parameter "REVERSE FAN TIMER".

### Flush Mode

If "FLUSH MIN TIMER" is exceeded and the conductivity > "CONDUCTIVITY SETPOINT", or if "FLUSH TIMER MAX" is exceeded then the display will show "FLUSH MODE".

During Flush Mode, the water in the sump will be drained and fresh water added to the system. Once "FLUSH TIMER" expires, "FLUSH MIN" and "FLUSH MAX" timers are reset. The system goes back to Standby (Dry) Mode.

### TROUBLESHOOTING

| ISSUE | OBSERVATION | CHECK / POSSIBLE ISSUE |
|---|---|---|
| **High Gas Pressure** | Fan(s) not running | No temperature differential detected. Check gas cooler outlet temp sensor |
| | | Breaker off/tripped |
| | | Fan fault |
| | Fan(s) running at slow speed | No temperature differential detected. Check gas cooler outlet temp sensor |
| | Adiabatic pads are dry | Not in Adiabatic mode – ambient temperature is less than Adiabatic setpoint |
| | | Water Level switch stuck in High or low position, bad switch, or a break in the wiring |
| | | Clogged or blocked pump filter or pipe |
| | | Bad Pump |
| | | Bad sump fill solenoid valve or a break in the wiring |
| | | Bad sump drain valve actuator or break in the wiring |
| **Low Gas Pressure** | Fan(s) running full speed (Fan speed not modulating) | No speed ref signal – check DC voltage |
| | | Temperature sensor failure – Check Air and Gas Cooler Outlet sensors |
| **Sump Overflows/ Excessive water usage** | | Level switch stuck in low position or bad switch |

**Table 2. Parameters**

| ADJUSTABLE PARAMETERS | MIN ACCESS | RANGE | DEFAULT | DESCRIPTION |
|---|---|---|---|---|
| FAN MODE | SERVC | Gas Cooler Condenser | Gas Cooler | Sets whether fans are controlled locally or by rack control. Gas Cooler= Rack Control. Condenser= Local control. |
| ADIABATIC LOCKOUT START | SERVC | 0000 - 2359 | 0100 | Sets time start period where unit is forced into dry mode operation to dry pads |
| ADIABATIC LOCKOUT END | SERVC | 0000 - 2359 | 0500 | Sets time end period where unit is forced into dry mode operation to dry pads. |
| FAN % MAX | SERVC | 50 – 100 | 100 | Sets maximum fan speed capability. |
| FAN % MIN | SERVC | 0 – 20 | 0 | Sets maximum fan speed capability. |
| FAN % DEFAULT | SERVC | 0 – 100 | 100 | Sets default fan speed if loss of control signal. |
| CONDENSER OUT DIFF | SERVC | 1 -15 DEG F | 5 | Target differential between gas outlet temperature and air temperature. |
| CONDENSER OUT MIN | SERVC | 50 – 80 | 60 | Sets minimum condensing temperature. |
| CONDENSER OUT MAX | SERVC | 70 – 95 | 80 | Sets point at which fans run full speed. |
| ADIABATIC SETPOINT | SERVC | 60-100 DEG F | 75 | Sets ambient temperature at which the water system will activate. |
| REVERSE FAN MIN TEMP | SERVC | 35–100 DEG F | 50 DEG F | Sets minimum temperature at which the fans will perform a reverse rotation cleaning cycle. |
| ADIABATIC DIFF | SERVC | 2 - 20 DEG F | 5 | Difference between adiabatic cut-in and cut-out. |
| CONDUCTIVITY SETPOINT | ADMIN | 2.0 – 5.0 V | 3.0 | Sets the conductivity level at which the water system will flush and refill with fresh water. |
| REVERSE FAN TIMER | SERVC | 1 -300 SEC | 30 | Duration the fans will operate in the reverse rotation cleaning cycle. |
| FLUSH TIMER MINIMUM | SERVC | 1 – 4 HOURS | 1 | Minimum time between water system flushes. |
| FLUSH TIMER MAXIMUM | SERVC | 1 – 8 HOURS | 4 | Maximum time between water system flushes. |
| FLUSH TIMER | SERVC | 30 – 300 SEC | 120 | Time duration that system flushes. |
| MAKEUP VALVE DELAY | ADMIN | 5 – 60 SEC | 10 | Delay between float switch turning off signal and valve closing. |
| PUMP START DELAY | ADMIN | 30 – 120 SEC | 60 | Sets delay time between float switch indicating full and startup of pump. |
| PUMP STOP DELAY | ADMIN | 10 – 60 SEC | 15 | Sets delay time between float switch turning on and shut-off of pump. |
| PUMP ALARM DELAY | ADMIN | 10 – 60 SEC | 15 | Delay between lack of current signal from pump and sending alarm. |

## General Cleaning Instructions

Heatcraft recommends that the finned surface of this unit be cleaned approximately every six months; more frequent cleaning may be required if extreme conditions cause clogging or fouling of air passages through the finned surface.

Calgon Corporation's CalClean 41352 (or equal) should be acceptable for cleaning this unit. CalClean should be applied liberally to entering air and leaving air surfaces of the finned area in accordance with the label directions.

**NOTICE**

***Do not use acid-based cleaners on this equipment.***

### Table 3. Maintenance Schedule

| Maintenance Check | Start- up | Monthly | Quarterly | Biannually | Annually |
|---|---|---|---|---|---|
| Examine Coil | x | | x | | |
| Check Operation of Pump | x | | x | | |
| Clean Pump Strainers | x | | x | | |
| Self-Clean Cycle- Fan Reverse | | | x | | |
| Check operation of Make-up Valve and Drain Valve | x | | x | | |
| Check the unit's overall condition and detect any unusual noises or vibrations | x | | x | | |
| Water Header Flush | | x | | | |
| Gutter Maintenance | | | x | | |
| Water Header Maintenance | | | x | | |
| Pump Maintenance | | | x | | |
| Fan Cycling | x | x | x | x | x |
| General Condition of the Fan | x | | x | | |

## I. Cooling Pad Cleaning:

The Cooling pads are designed for quick, tool-free removal, allowing easy access to the unit's coils and sump for cleaning and inspection.

1. Remove the hand screws along the water distribution system covers.
2. Raise the hinged water header covers to access and remove the pads.
3. Remove pads and rest upright against a wall or other sturdy surface.
4. Rinse each side of pads with a gentle stream of water.

**NOTICE**

***Do not use pressurized water or strong "jet" streams to clean pads.***

5. Reinstall pads after cleaning.
    1. One of the cooling pads on each side is smaller than the others. Place the smaller pad in its designated location, indicated by a yellow label.
    2. Install pads at each end first, ensuring that the pad is slid completely to the side and behind the sheet metal lip.
    3. Install the middle pad(s) after each end pad is installed. If the middle pad does not easily fit, check that the end pads are properly installed.


## II. Water Header Cleaning and Extensive Cleaning Flush

This system utilizes a corrosion-resistant polyvinyl chloride (PVC) spray distribution method to ensure efficient water distribution. Minimal maintenance is needed.

1. Ensure the unit is operating in Adiabatic Mode.
2. Confirm that water is flowing consistently from each hole of the distribution header.
    1. Clean out any blocked holes.
3. Flush the distribution headers.
    1. Open the ball valve at end of the distribution header.
    2. Close the ball valve after flushing.

## III. Sump Cleaning

1. Open the access door to gain access.
2. Remove the hand screw on the sump cover and open it.
3. Remove the quick release pin on the strainer assembly.
4. Twist the union coupling on top of the pump and take off the pump and strainer.
5. Separate the pump and strainer for more thorough cleaning.
6. After cleaning, reinstall everything by following these steps in reverse order.

## In-Warranty Return Material Procedure

The warranty period for adiabatic gas coolers is one (1) year from date of original equipment start-up, or eighteen (18) months from date of shipment by Seller, whichever first occurs. Material may not be returned except by permission of authorized factory service personnel of Heatcraft Refrigeration Products in Stone Mountain, Georgia. A "Return Goods" tag will be sent to be included with the returned material. Enter the required information on the tag in order to expedite handling at our factories and prompt issuance of credits. All parts shall be returned to the factory designated on the "Return Goods" tag, transportation charges prepaid.

The return of a part does not constitute an order for replacement. Therefore, a purchase order must be entered through your nearest Heatcraft Refrigeration Products representative. The order should include part number, model number and serial number of the unit involved.

Following our careful inspection of the returned part and if it is determined that the failure is due to faulty material or workmanship, credit will be issued on customer's purchase order.

## Parts by InterLink™

When writing to the factory for service or replacement parts, refer to the model number and serial number of the unit as stamped on the serial plate attached to the unit. If replacement parts are required, mention the date of installation of the unit and date of failure, along with an explanation of the malfunctions and a description of the replacement parts required.

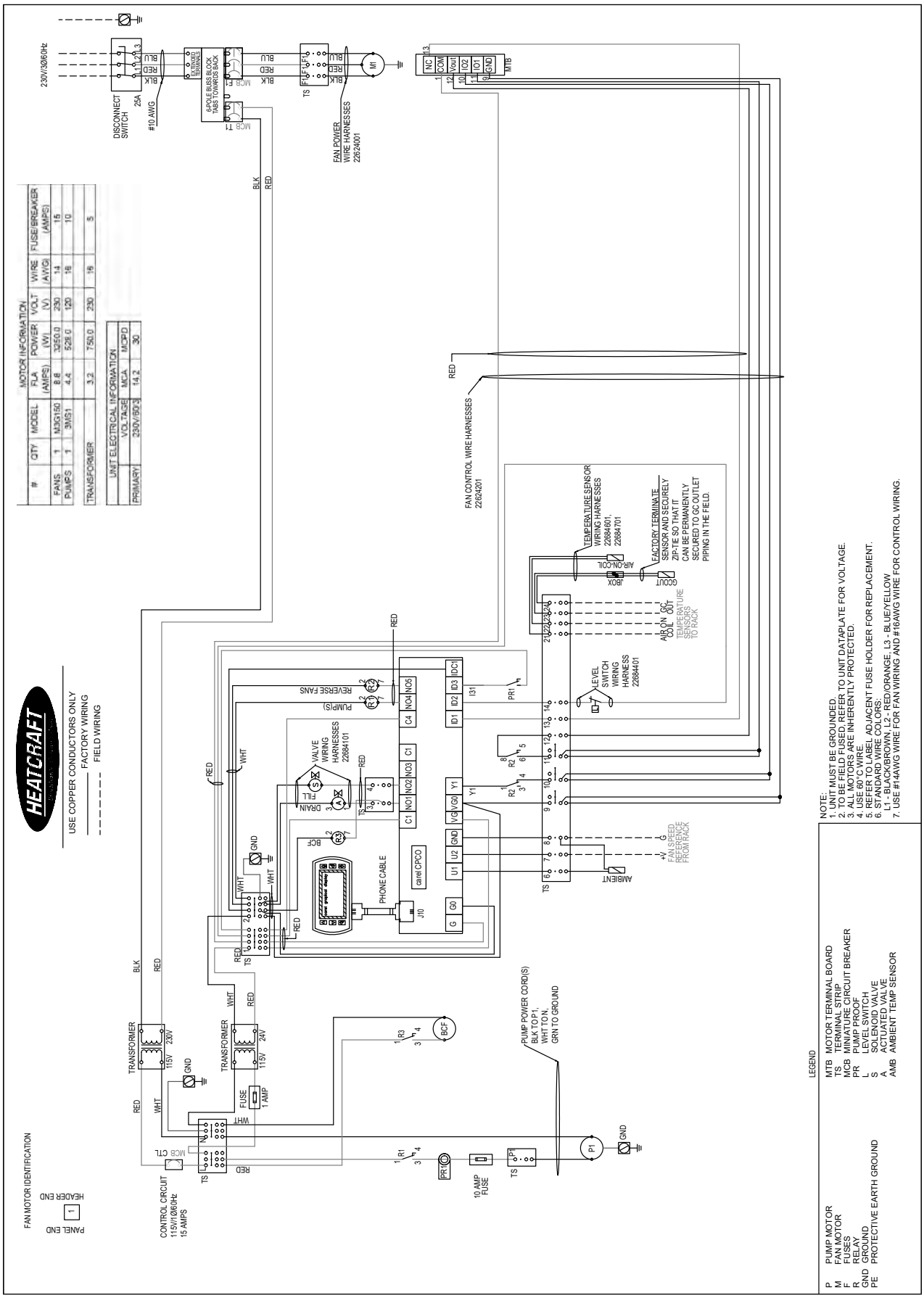
InterLINK
*Commercial Refrigeration Parts*

### Table 5. InterLink™ Gas Cooler Parts List

| S.no | HRP PN | Description |
|---|---|---|
| 1 | 25393201 | FAN EBM MOTOR,460V,AGC |
| 2 | 25393202 | FAN EBM MOTOR,230V,AGC |
| 3 | 26499101 | PUMP EBARA,HP 1/3,OPTIMA-3MS1 |
| 4 | 31217301 | CARTON-PAD COOLING W/DP,AGC |
| 5 | 23391001 | MOTOR-ACTUATOR 2 WY VALVE WITH ACTUATOR |
| 6 | 23390801 | VALVE REDHAT 24V AC SOLENOID .75 |
| 7 | 28911701 | AMBIENT AIR SENSOR / OUTLET TEMPERATURE SENSOR |
| 8 | 28915701 | AIR ON COIL SENSOR (RACK CONTROLLED) |
| 9 | 23390701 | FLOAT SWITCH |

Contact the InterLink™ Customer Service Department for parts to specific gas cooler models at 800-686-7278, interlinkparts@heatcraftrpd.com, or www.interlinkparts.com.

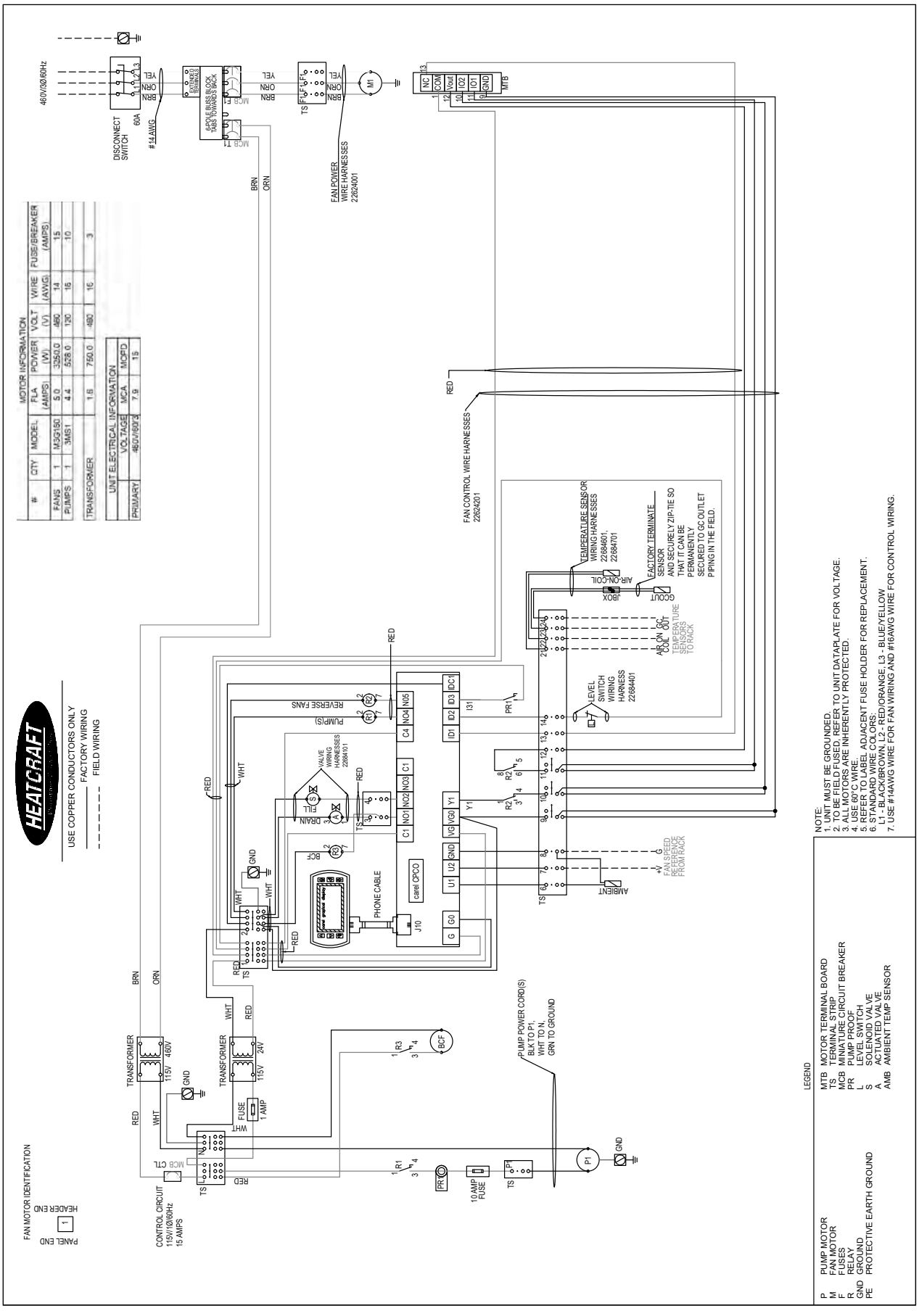
## Diagram 1. 1-Fan Gas Cooler Wiring Diagram (230V)



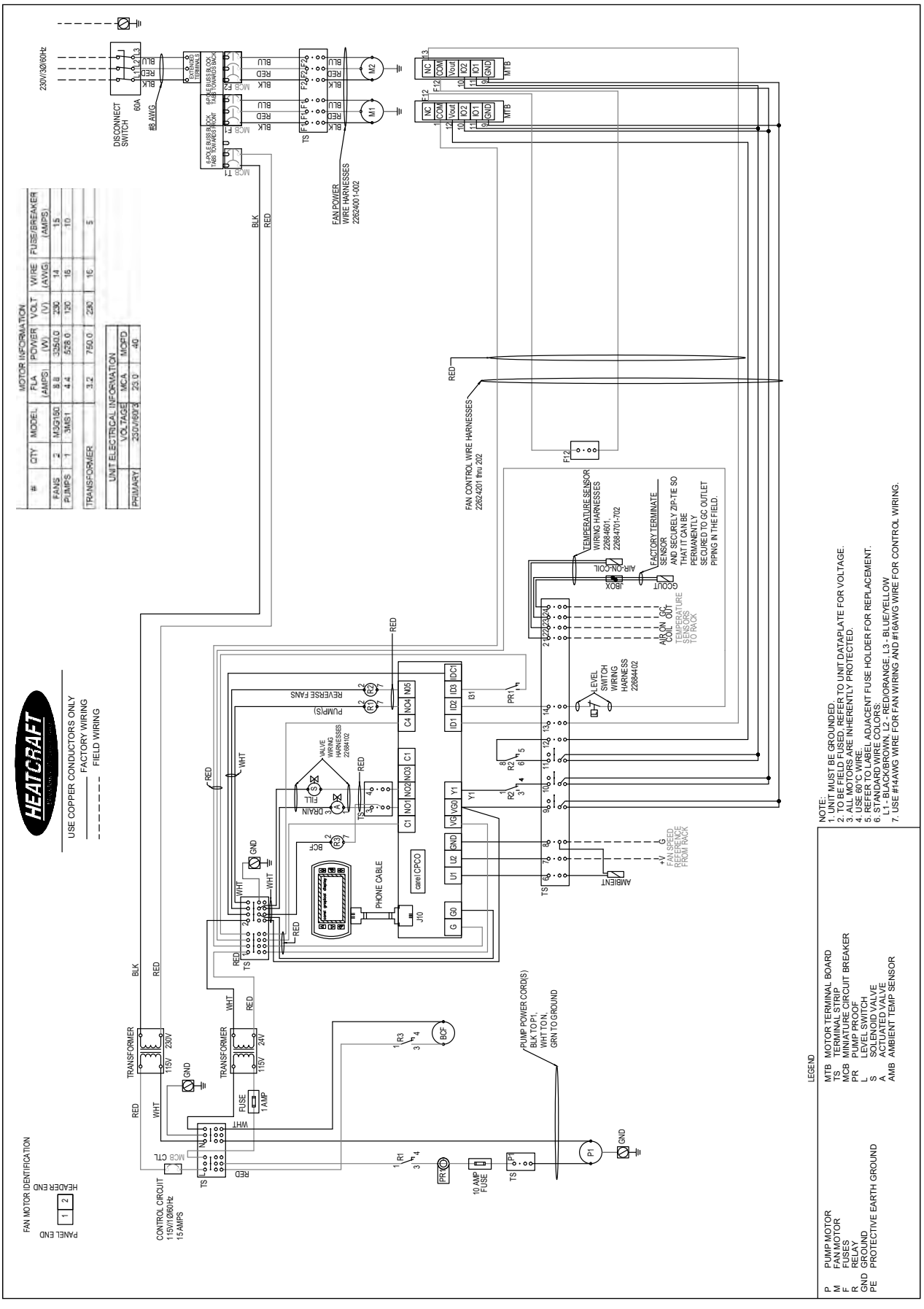

| # | QTY | MODEL | FLA (AMPS) | POWER (W) | VOLT (V) | WIRE (AWG) | FUSE/BREAKER (AMPS) |
|---|---|---|---|---|---|---|---|
| FANS | 1 | MJG150 | 8.8 | 3250.0 | 230 | 14 | 15 |
| PUMPS | 1 | 3MS1 | 4.4 | 528.0 | 120 | 16 | 10 |
| TRANSFORMER | | | 3.2 | 750.0 | 230 | 16 | 5 |

| | VOLTAGE | MCA | MOPD |
|---|---|---|---|
| PRIMARY | 230V/60/3 | 14.2 | 30 |

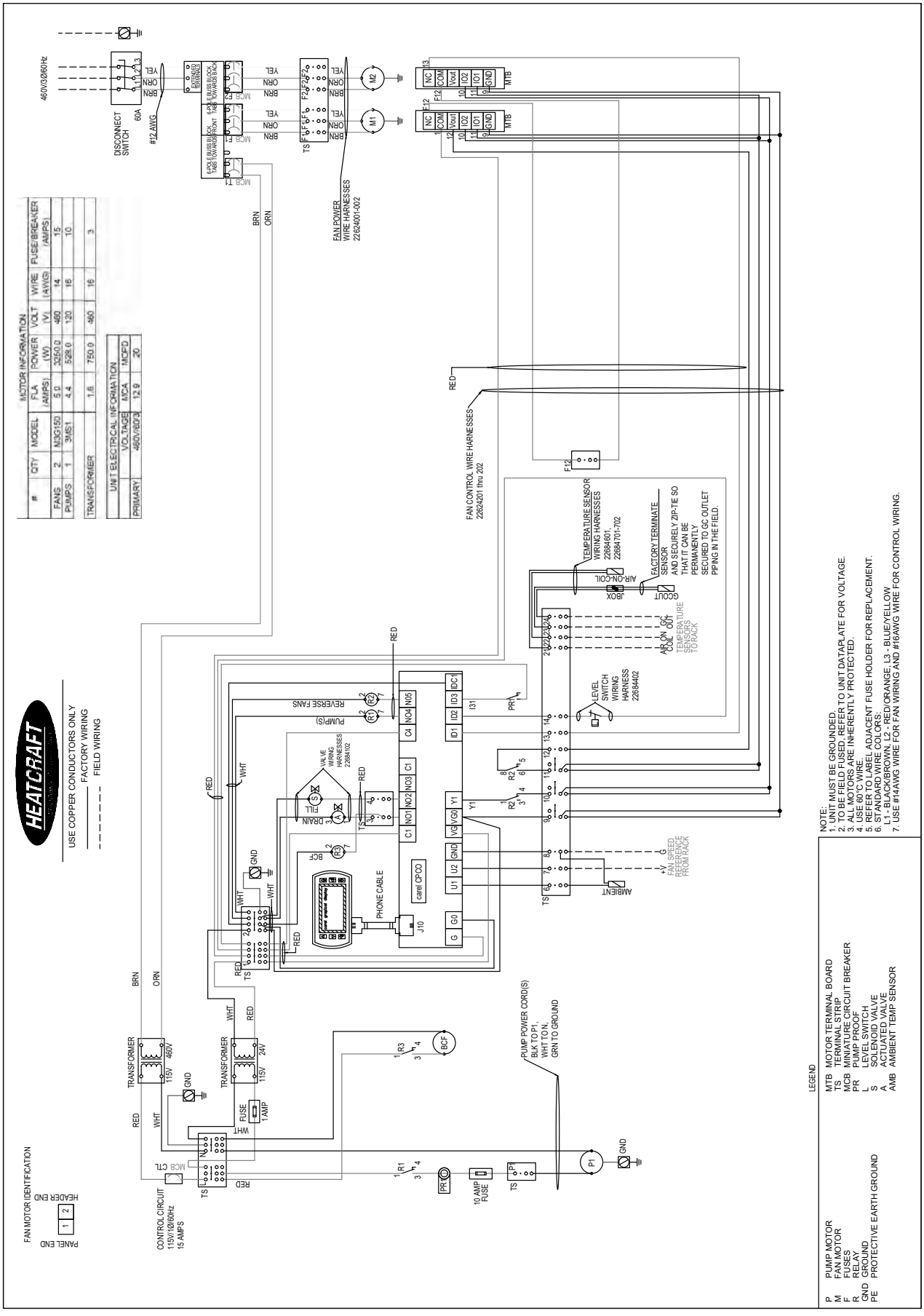
## Diagram 2. 1-Fan Gas Cooler Wiring Diagram (460V)



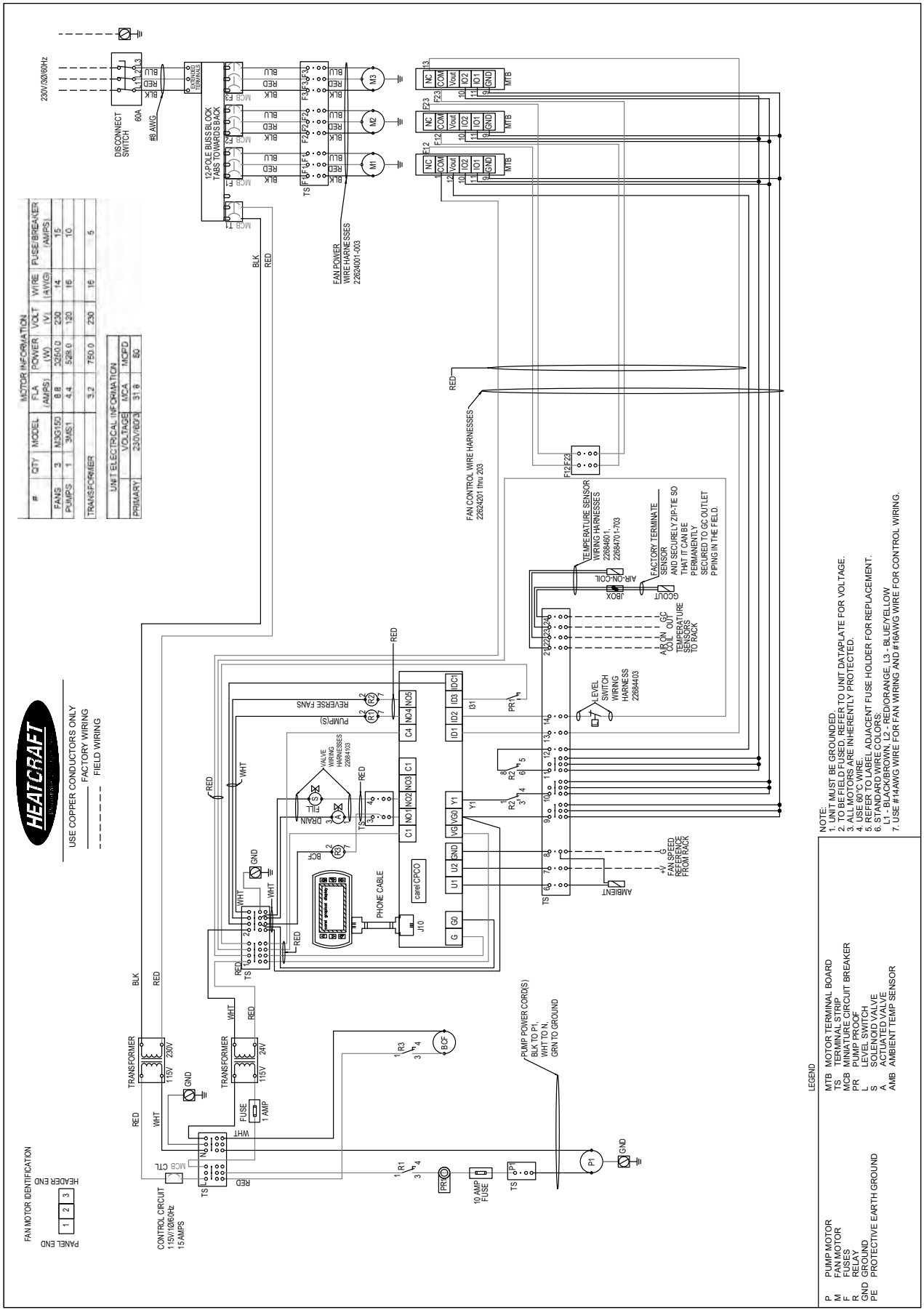
## Diagram 3. 2-Fan Gas Cooler Wiring Diagram (230V)



## Diagram 4. 2-Fan Gas Cooler Wiring Diagram (460V)



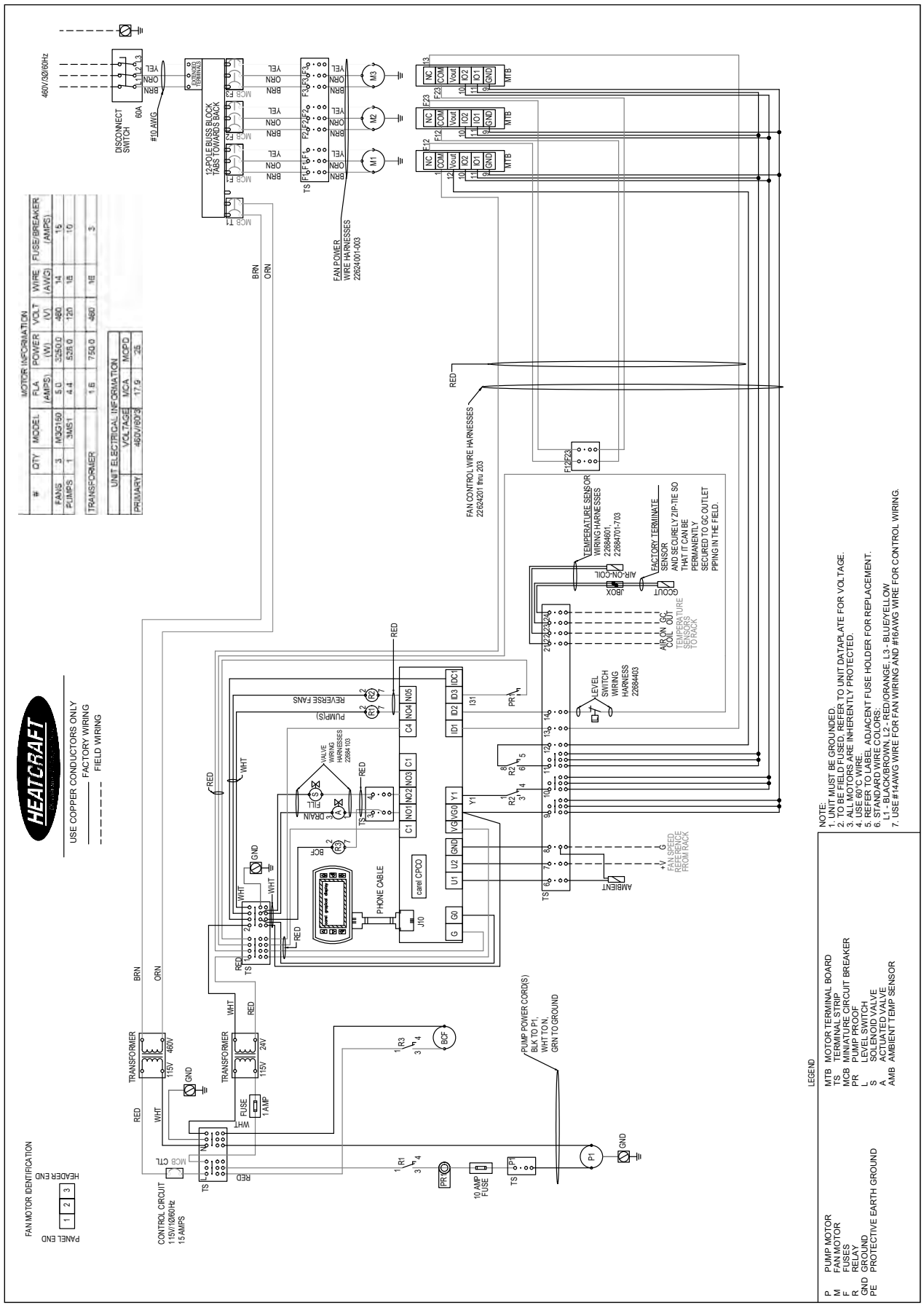
## Diagram 5. 3-Fan Gas Cooler Wiring Diagram (230V)



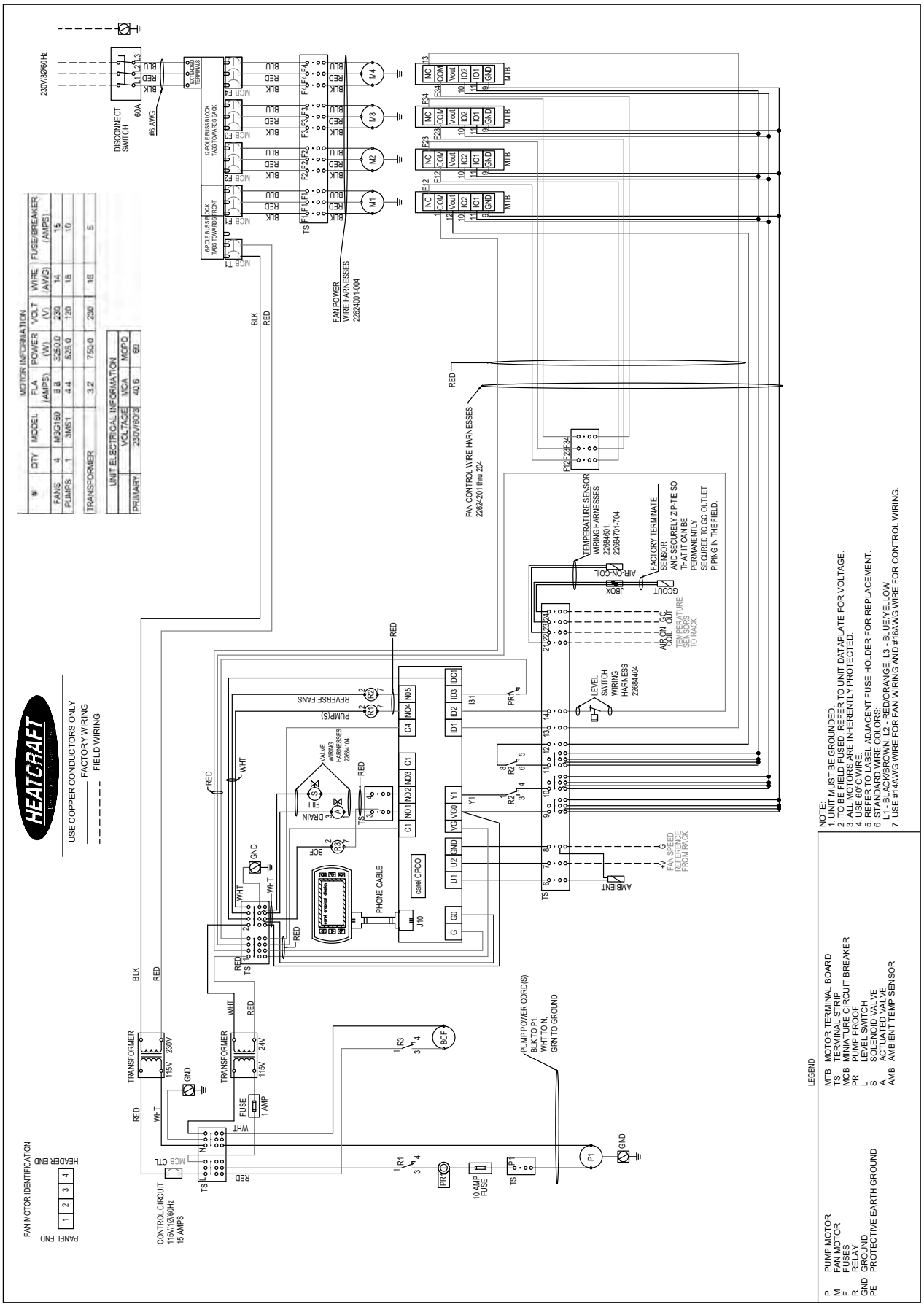

| # | QTY | MODEL | MOTOR INFORMATION FLA (AMPS) | POWER (W) | VOLT (V) | WIRE (AWG) | FUSE/BREAKER (AMPS) |
|---|---|---|---|---|---|---|---|
| FANS | 3 | M3G150 | 8.8 | 3250.0 | 230 | 14 | 15 |
| PUMPS | 1 | 3MS1 | 4.4 | 528.0 | 120 | 16 | 10 |
| TRANSFORMER | | | 3.2 | 750.0 | 230 | 16 | 5 |

| UNIT ELECTRICAL INFORMATION | VOLTAGE | MCA | MOPD |
|---|---|---|---|
| PRIMARY | 230V/60/3 | 31.8 | 60 |

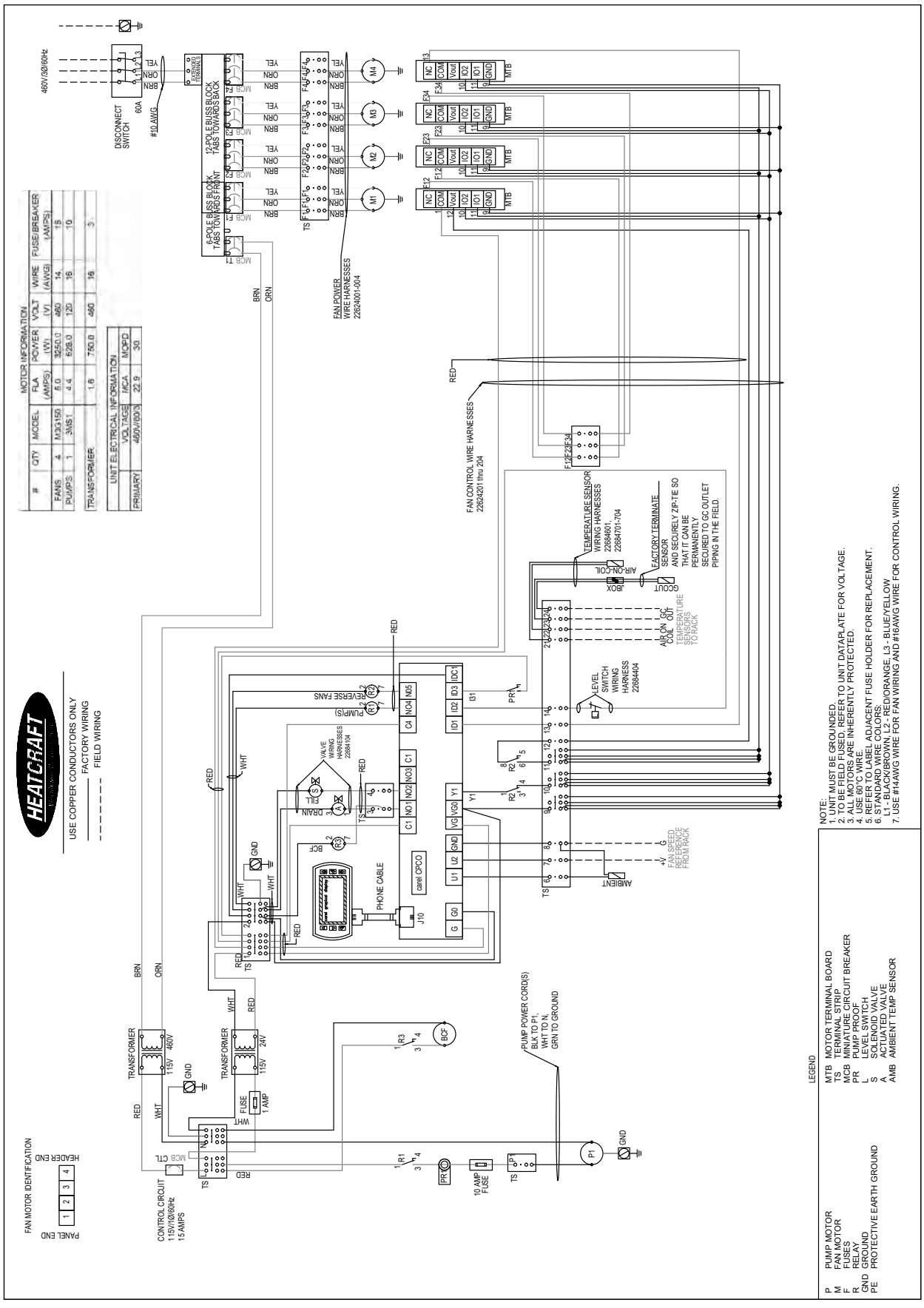
## Diagram 6. 3-Fan Gas Cooler Wiring Diagram (460V)



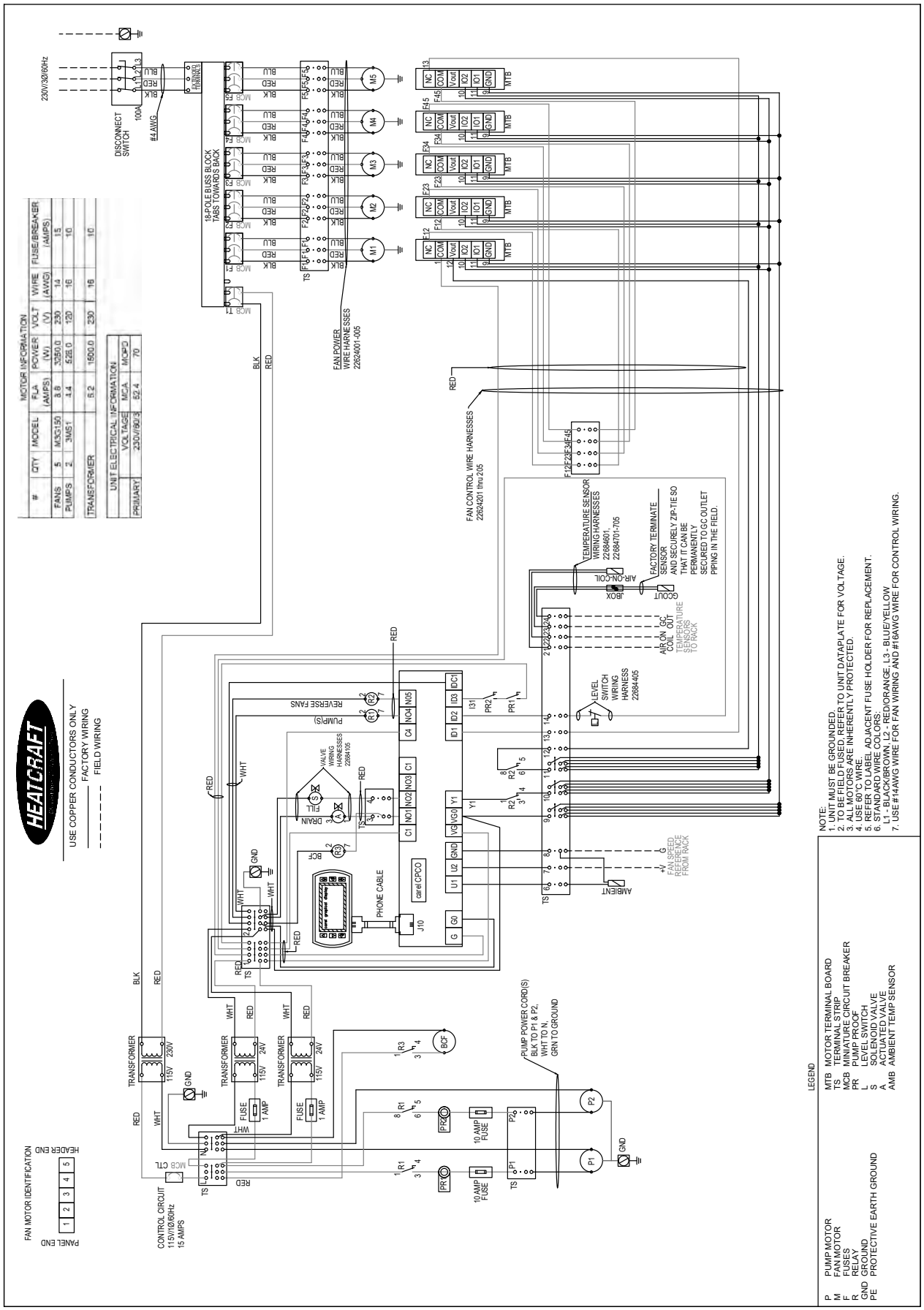
## Diagram 7. 4-Fan Gas Cooler Wiring Diagram (230V)



## Diagram 8. 4-Fan Gas Cooler Wiring Diagram (460V)



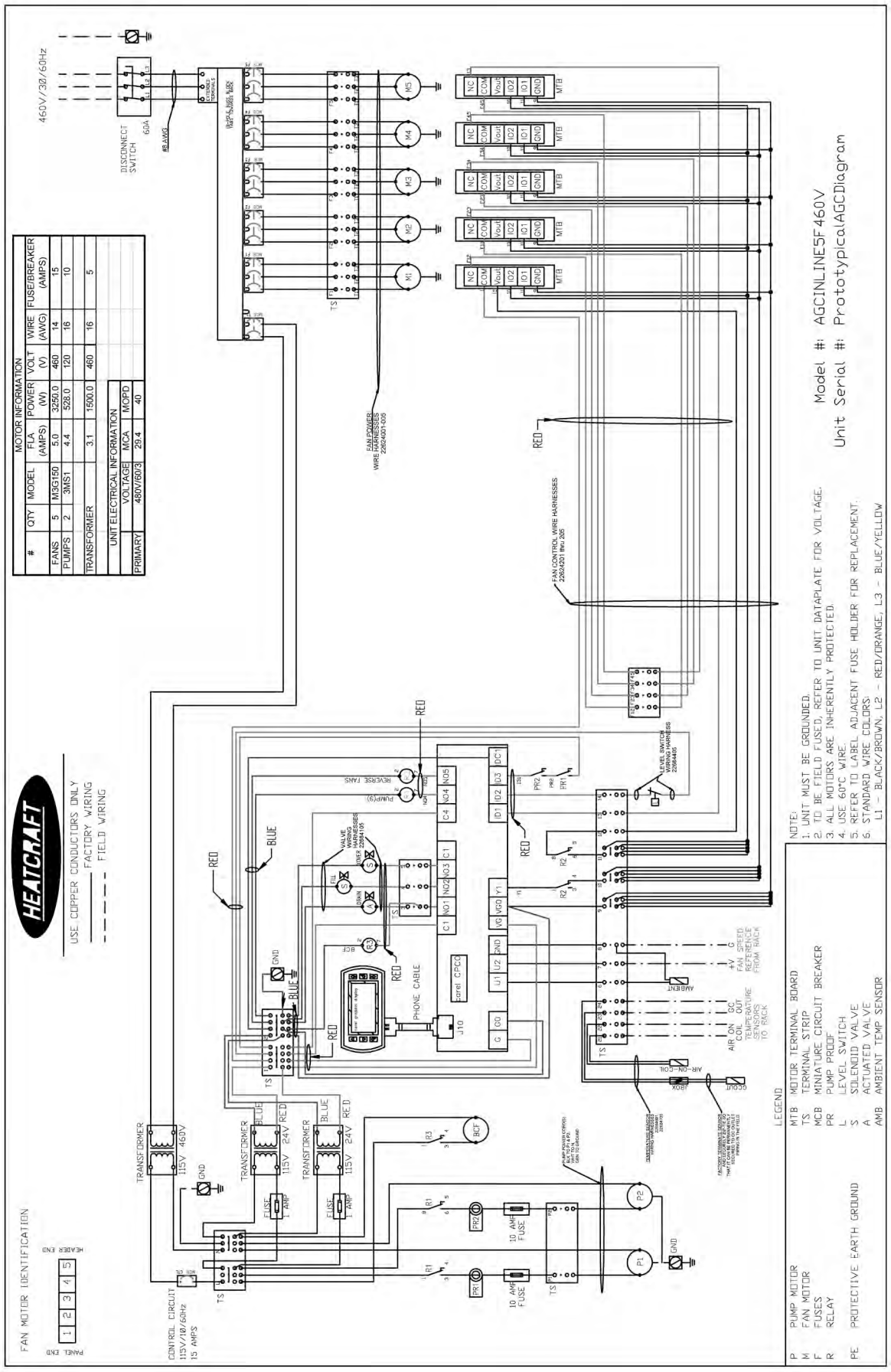
## Diagram 9. 5-Fan Gas Cooler Wiring Diagram (230V)



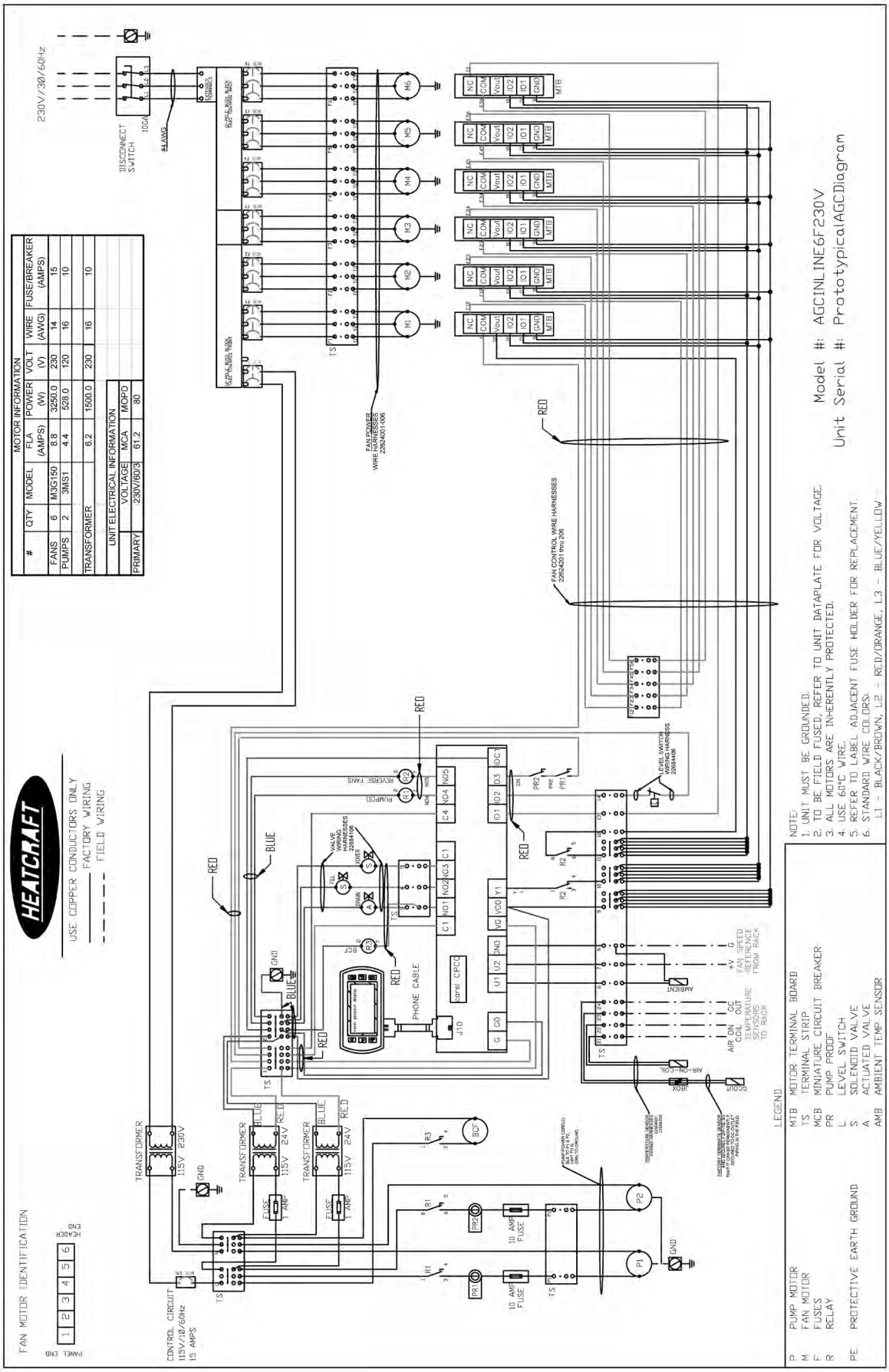

| # | QTY | MODEL | FLA (AMPS) | POWER (W) | VOLT (V) | WIRE (AWG) | FUSE/BREAKER (AMPS) |
|---|---|---|---|---|---|---|---|
| FANS | 5 | M3G150 | 3.8 | 3350.0 | 230 | 14 | 15 |
| PUMPS | 2 | 3M61 | 4.4 | 526.0 | 120 | 16 | 10 |
| TRANSFORMER | | | 5.2 | 1600.0 | 230 | 16 | 10 |

| UNIT ELECTRICAL INFORMATION | | | |
|---|---|---|---|
| | VOLTAGE | MCA | MOPD |
| PRIMARY | 230/60/3 | 52.4 | 70 |

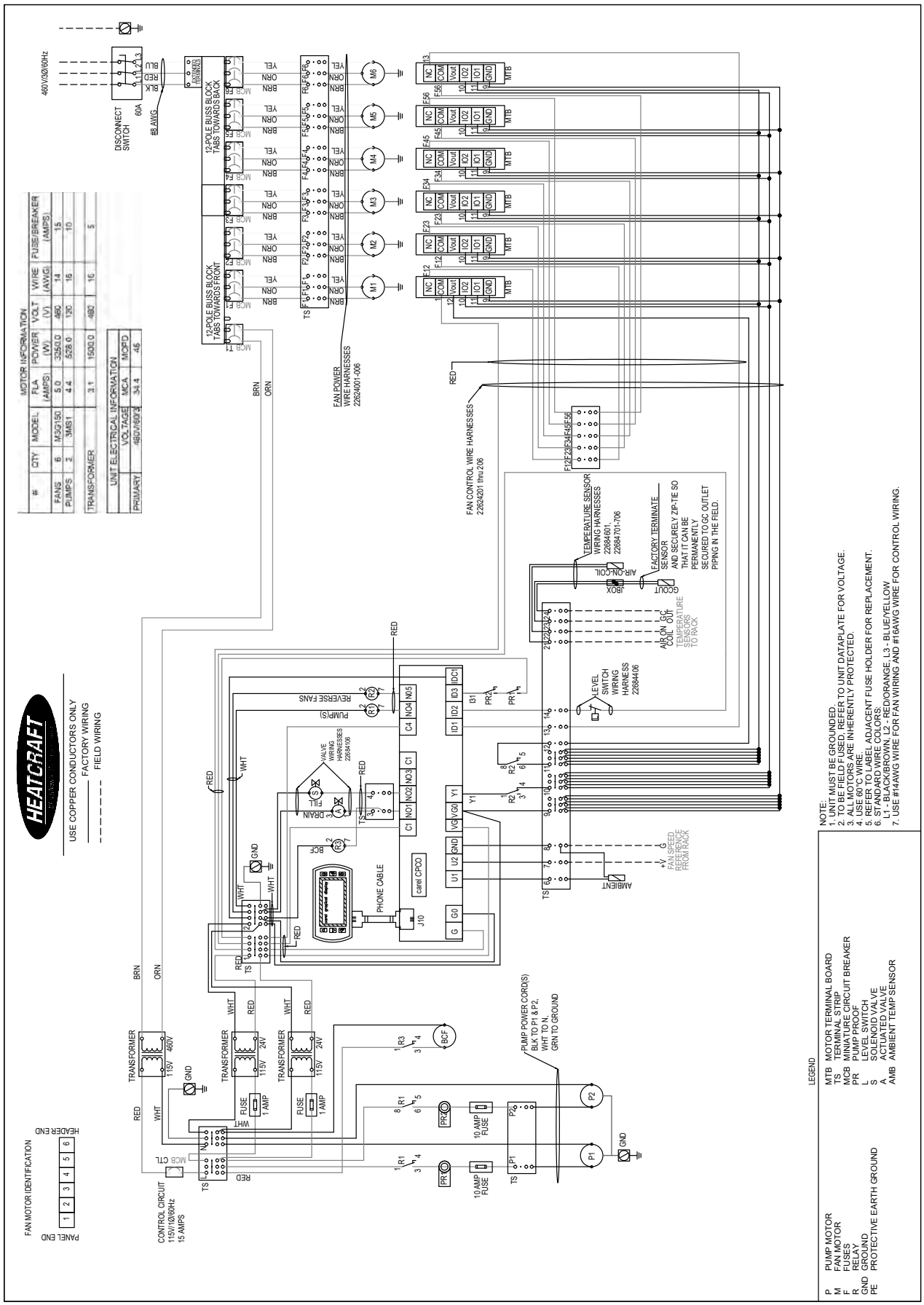
## Diagram 10. 5-Fan Gas Cooler Wiring Diagram (460V)



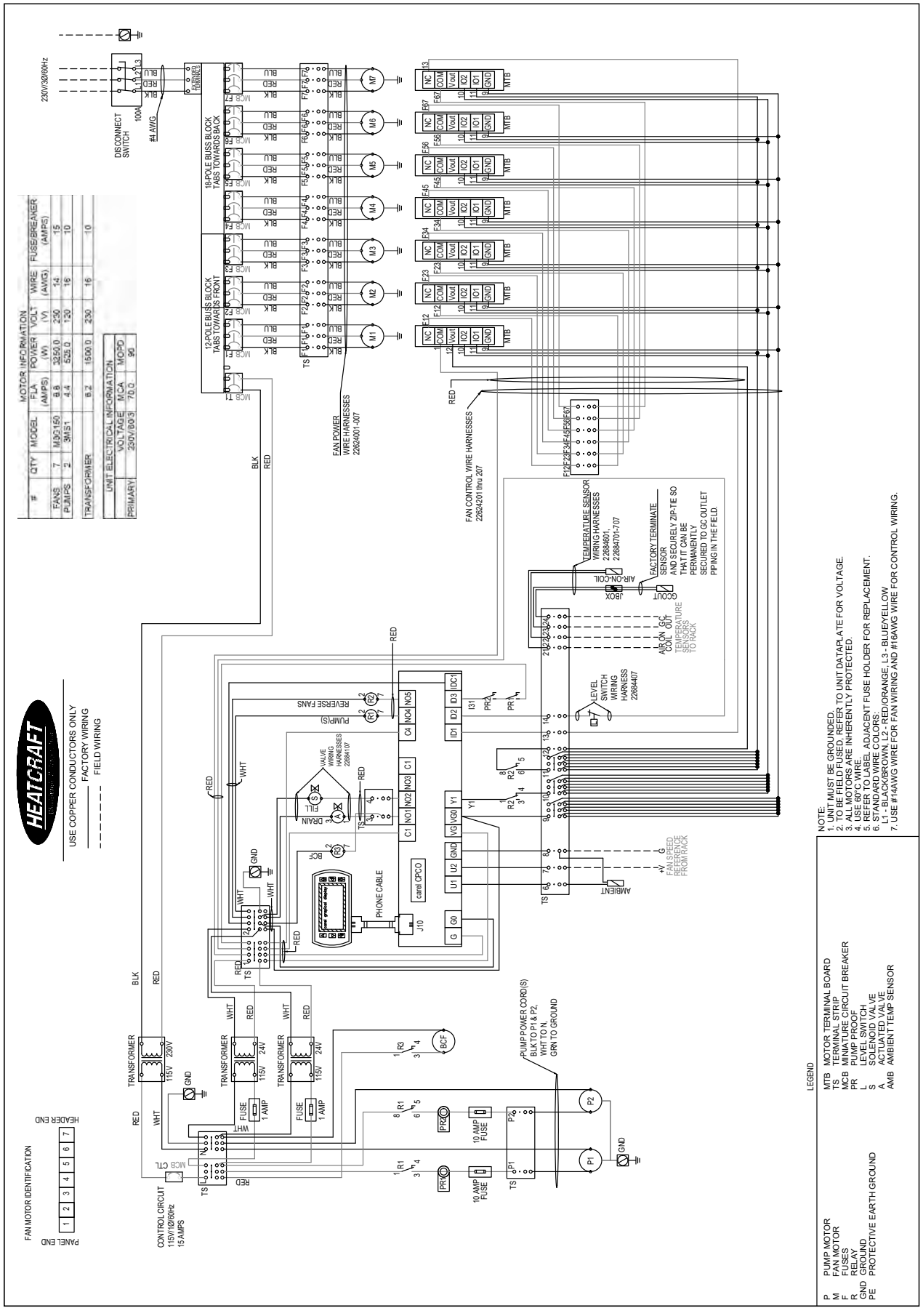
## Diagram 11. 6-Fan Gas Cooler Wiring Diagram (230V)



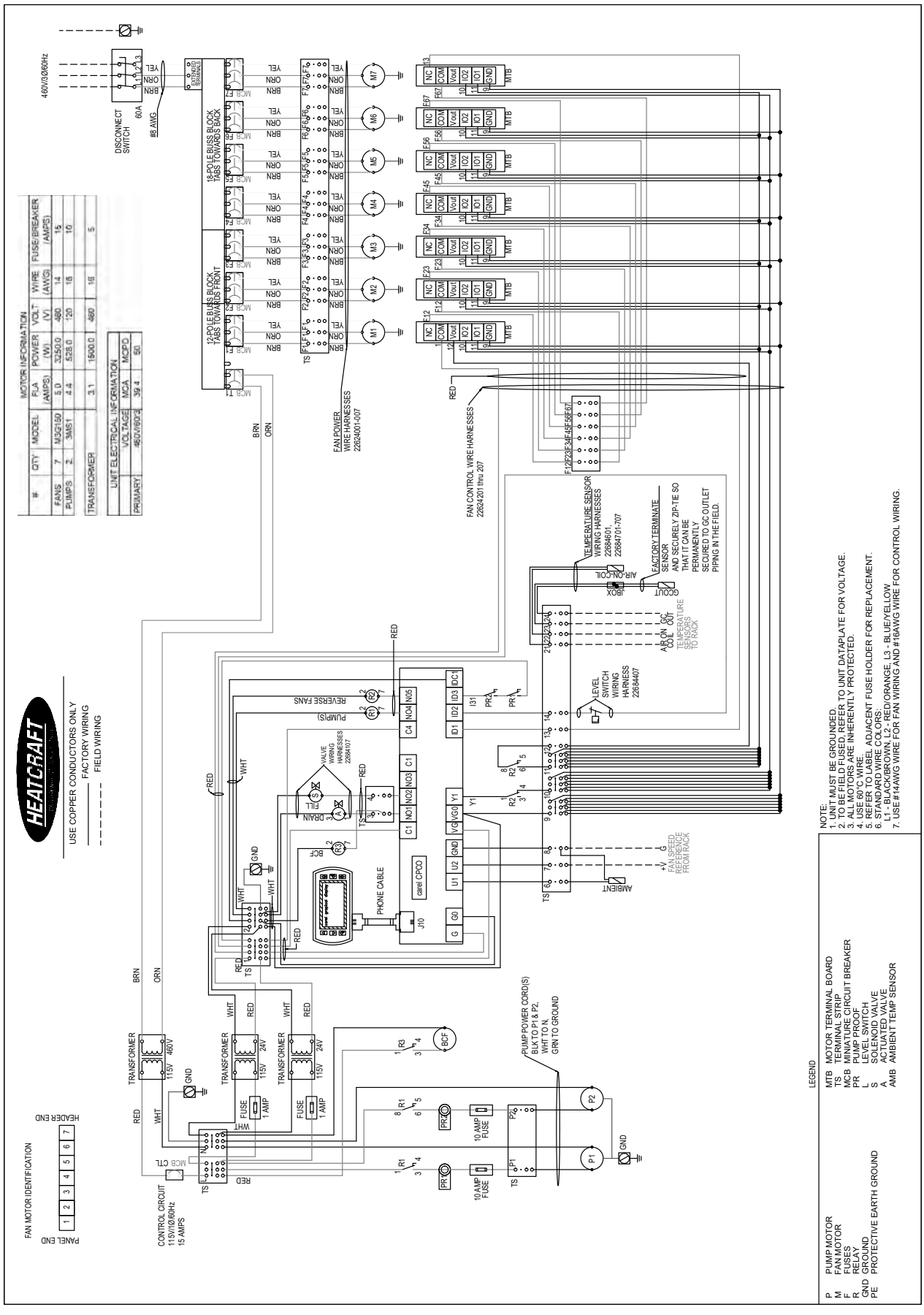
## Diagram 12. 6-Fan Gas Cooler Wiring Diagram (460V)



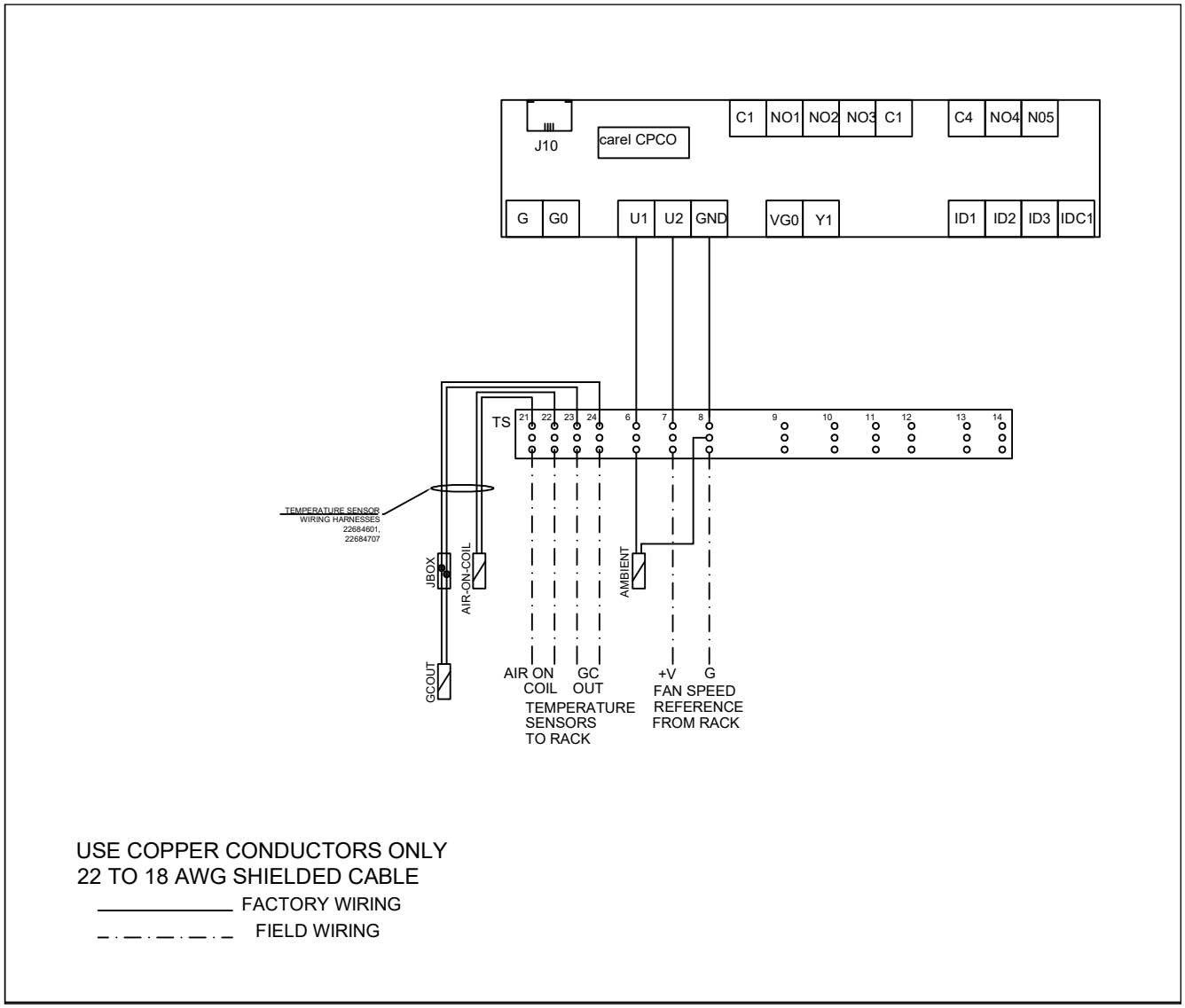
## Diagram 13. 7-Fan Gas Cooler Wiring Diagram (230V)



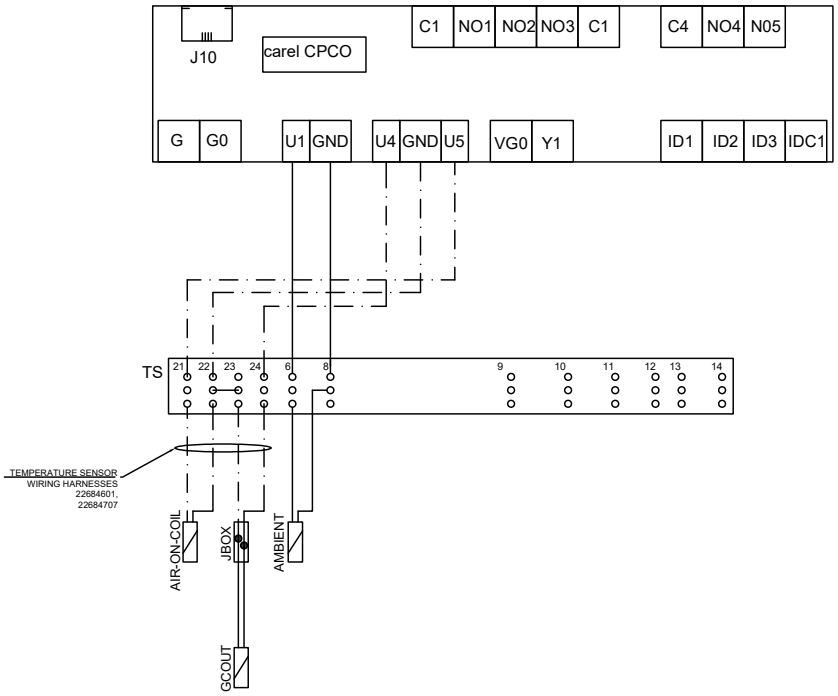
## Diagram 14. 7-Fan Gas Cooler Wiring Diagram (460V)



## Diagram 15. Rack Controlled Unit Sensor Wiring



## Diagram 16. Stand-Alone Unit Sensor Wiring




USE COPPER CONDUCTORS ONLY
22 TO 18 AWG SHIELDED CABLE

_____ FACTORY WIRING

_ . _ . _ . _ . _ FIELD WIRING

# Installation Check List

## Adiabatic Gas Cooler

**Start Up Date** _____

**Model #** _____

**Serial #** _____

**Electrical**

**Voltage** _____

**Amperage** _____

**Installer:** **Name & Address**

_____

_____

_____

**Telephone:**

_____

**Please retain this information with the gas cooler**

Since product improvement is a continuing effort, we reserve the right to make changes in specifications without notice.

www.heatcraftrpd.com