

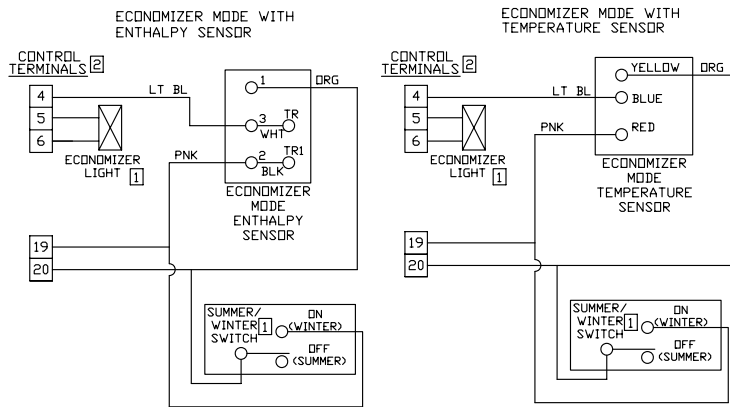


INSTALLATION, OPERATION, AND MAINTENANCE MANUAL

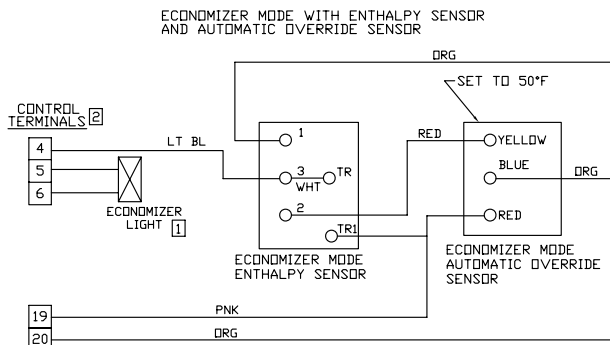
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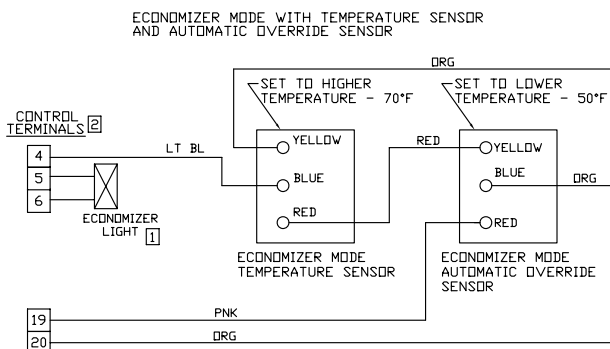
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ECONOMIZER MODE DESCRIPTION;
THE ENERGY RECOVERY WHEEL TRANSFERS SENSIBLE AND LATENT ENERGY MORE EFFICIENTLY WHEN THERE IS A LARGE DIFFERENCE IN TEMPERATURES BETWEEN THE EXHAUST AND SUPPLY AIRSTREAMS. AS THE TEMPERATURE DIFFERENCE BETWEEN THE AIRSTREAMS DECREASES THE HEAT TRANSFER EFFICIENCY ALSO DECREASES TO A POINT AT WHICH THERE IS NO HEAT TRANSFER OCCURRING AT ALL. THE ECONOMIZER MODE PROVIDES A MEANS TO SHUT THE WHEEL OFF DURING PERIODS OF LOW HEAT TRANSFER, WHICH SAVES THE ENERGY NEEDED TO ROTATE THE WHEEL AND CONSERVES THE WHEELS USABLE LIFE. THE ERV CONTINUES TO VENTILATE THE CONDITIONED SPACE WITH THE WHEEL TURNED OFF. THERE ARE TWO DIFFERENT SENSORS USED FOR ECONOMIZER MODE. THE TEMPERATURE SENSOR SENSES TEMPERATURE DIFFERENCES AND WORKS WELL IN DRY CLIMATES. THE ENTHALPY SENSOR SENSES TEMPERATURE AND HUMIDITY DIFFERENCES AND WORKS WELL IN MORE HUMID CLIMATES. BOTH SENSORS ARE USED TO TURN THE WHEEL OFF DURING MILD CLIMATIC CONDITIONS BUT NEITHER SENSOR PROVIDES A WAY TO TURN THE WHEEL BACK ON FOR WINTER HEATING SEASON. THE ECONOMIZER AUTOMATIC OVERRIDE SENSOR WILL AUTOMATICALLY TURN THE WHEEL BACK ON FOR WINTER HEATING SEASON. THE OVERRIDE SENSOR IS ONLY AVAILABLE IN COMBINATION WITH AN ECONOMIZER MODE OPTION. A MANUAL SUMMER/WINTER SWITCH CAN BE SUBSTITUTED FOR THE AUTOMATIC OVERRIDE TO TURN THE WHEEL BACK ON FOR WINTER HEATING SEASON.



SEQUENCE OF OPERATION ECONOMIZER MODE; ALL ECONOMIZER MODE SENSORS ARE MOUNTED JUST INSIDE THE OUTDOOR AIR INTAKE OPENING.
ECONOMIZER MODE WITH TEMPERATURE SENSOR; TURNS THE ENERGY RECOVERY WHEEL OFF WHEN THE TEMPERATURE SENSED DROPS BELOW THE ADJUSTABLE SET POINT OF THE THERMOSTAT (FACTORY SET TO 70° F).
ECONOMIZER MODE WITH ENTHALPY SENSOR; TURNS THE ENERGY RECOVERY WHEEL OFF WHEN THE ENTHALPY SENSED DROPS BELOW ONE OF THE FOUR ENTHALPY CURVE SETTINGS THAT HAS BEEN SELECTED. THE OWNERS MANUAL AND THE ENTHALPY SENSOR SHOW THE ENTHALPY CURVES PLOTTED ON A PSYCHROMETRIC CHART. WHEN THE TEMPERATURE AND HUMIDITY CONDITIONS OF THE OUTSIDE AIR MOVE TO THE LEFT HAND SIDE OF THE SELECTED CURVE THE WHEEL SHUTS OFF.
ECONOMIZER AUTOMATIC OVERRIDE SENSOR; TURNS THE ENERGY RECOVERY WHEEL ON WHEN THE TEMPERATURE SENSED DROPS BELOW THE ADJUSTABLE SET POINT OF THE THERMOSTAT. (FACTORY SET TO 50° F)



1 SUMMER/WINTER SWITCH AND INDICATOR LIGHTS ARE REMOTE MOUNTED. A REMOTE CONTROL PANEL CAN BE SUPPLIED BY COOK WHICH INCLUDES THESE OPTIONS AND OTHERS. IF A REMOTE CONTROL PANEL ISN'T INCLUDED WITH THE ORDER, THEN IT IS BEING PROVIDED BY OTHERS.

2 CONTROL TERMINALS THAT ARE NOT USED FOR ECONOMIZER MODE ARE NOT SHOWN FOR CLARITY. REFERENCE ERV WIRING DIAGRAMS FOR COMPLETE CONTROL TERMINAL LAYOUT.

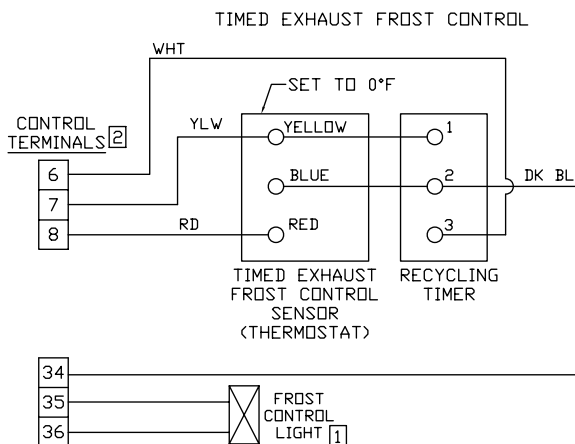
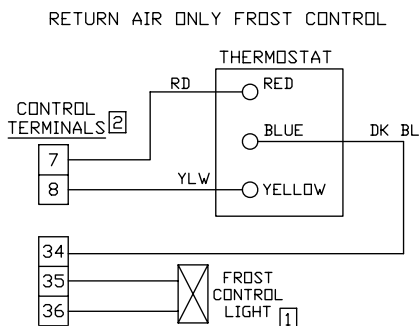
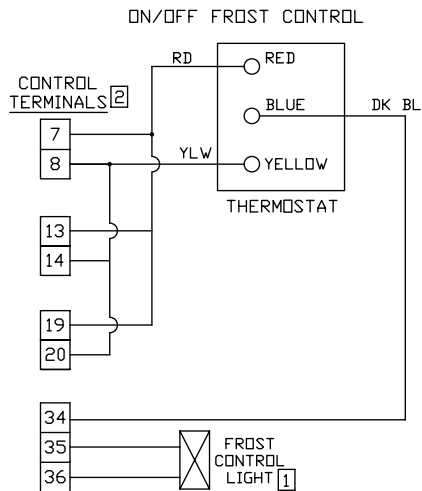


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FROST CONTROL DESCRIPTION:

FROST FORMATION ON THE ENERGY RECOVERY WHEEL IS POSSIBLE DURING WINTER MONTHS WITH THE RIGHT COMBINATION OF COLD OUTDOOR AIR CONDITIONS AND HIGH RETURN AIR RELATIVE HUMIDITY. THE FROST WILL FORM ON THE WHEEL AS THE WARM HUMID INDOOR AIR FLOWS ONTO THE COLD SURFACE OF THE WHEEL MEDIA AS IT ROTATES OUT OF THE OUTDOOR AIR INTAKE CHAMBER AND INTO THE RETURN AIR DISCHARGE CHAMBER. BECAUSE THE WHEEL ROTATES FROM A COLD AIRSTREAM TO A WARM AIRSTREAM EVERY FEW SECONDS, THE OUTDOOR AIR MUST BE EXTREMELY COLD FOR FROST FORMATION. BECAUSE OF THIS, THERE IS A VERY LARGE AREA OF THE COUNTRY THAT WILL NEVER REQUIRE FROST CONTROL. WHEN FROST CONTROL IS REQUIRED, THERE ARE 4 DIFFERENT FROST CONTROL OPTIONS; ON/OFF FROST CONTROL, EXHAUST ONLY FROST CONTROL, TIMED EXHAUST FROST CONTROL, AND PRE-HEAT FROST CONTROL. PRE-HEAT FROST CONTROL IS ONLY NEEDED IN THE NORTHERN MOST STATES AND CANADA.

SEQUENCE OF OPERATION FROST CONTROL: ON/OFF FROST CONTROL:

Turns the unit off when the temperature sensed drops below the adjustable set point of the thermostat (factory set to 0° F). The thermostat is located just inside the outdoor air intake opening.

EXHAUST ONLY FROST CONTROL:

Turns the supply blower off when the temperature sensed drops below the adjustable set point of the thermostat (factory set to 0° F). The thermostat is located in the return air discharge chamber mounted just above the ERV control panel on the wall that separates the two airstreams.

TIMED EXHAUST FROST CONTROL:

Turns the supply blower off and engages an ON/OFF recycling timer when the temperature sensed drops below the adjustable set point of the thermostat (factory set to 0° F). The timer provides independent adjustment of both the ON and OFF periods (1 to 100 minutes). The supply blower then turns on and off based on timer settings. The thermostat is located in the return air discharge chamber mounted just above the ERV control panel on the wall that separates the two airstreams.

PRE-HEAT FROST CONTROL:

Turns on a open coil duct heater mounted in the outside intake opening when the temperature sensed drops below the adjustable set point of the thermostat (factory set to 0° F). The thermostat is located just downstream of the pre-heat coils.

1] INDICATOR LIGHTS ARE REMOTE MOUNTED. A REMOTE CONTROL PANEL CAN BE SUPPLIED BY COOK WHICH INCLUDES THESE OPTIONS AND OTHERS. IF A REMOTE CONTROL PANEL ISN'T INCLUDED WITH THE ORDER, THEN IT IS BEING PROVIDED BY OTHERS.

2] CONTROL TERMINALS THAT ARE NOT USED FOR FROST CONTROL ARE NOT SHOWN FOR CLARITY. REFERENCE ERV WIRING DIAGRAMS FOR COMPLETE CONTROL TERMINAL LAYOUT.



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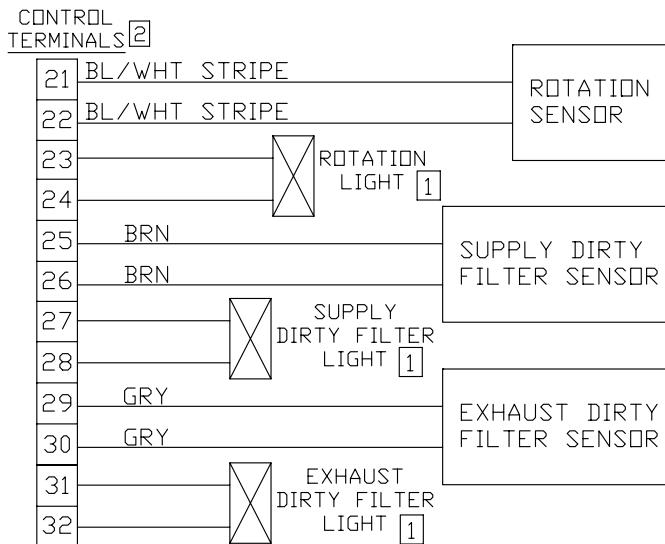
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SEQUENCE OF OPERATION STATUS INDICATION; ROTATION SENSOR;
 THE ROTATION SENSOR CONSISTS OF A MAGNET ATTACHED TO THE ENERGY WHEEL, A MAGNETIC REED SWITCH THAT MOUNTS TO THE OUTSIDE PERIMETER OF THE ENERGY WHEEL CASSETTE AND A TIMER THAT MOUNTS TO THE UNITS CONTROL PANEL AND IS WIRED BACK TO THE REED SWITCH. WHEN THE MAGNET MOUNTED ON THE ENERGY WHEEL PASSES BY THE REED SWITCH IT MOMENTARILY CLOSES THE CONTACTS ON THE REED SWITCH, WHICH IS SENSED BY THE TIMER AND CAUSES THE TIMER TO RESTART AN ADJUSTABLE COUNTDOWN TIME. IF THE ENERGY WHEEL STOPS DUE TO A MECHANICAL PROBLEM OR A MOTOR FAILURE, THEN THE MAGNET DOESN'T CLOSE THE REED SWITCH AND THE TIMER COUNTDOWN IS NOT RESTARTED. IF THE TIMER REACHES THE END OF IT'S COUNTDOWN, IT WILL ENERGIZE A 24 VOLT INDICATOR LIGHT BY OTHERS OR SUPPLIED BY COOK.

DIRTY FILTER SENSOR;
 THE DIRTY FILTER SENSOR CONSISTS OF TWO PRESSURE SWITCHES, ONE IN THE SUPPLY AIRSTREAM AND ONE IN THE EXHAUST AIRSTREAM. IF THE PRESSURE MEASURED EXCEEDS THE ADJUSTABLE PRESSURE SETTING, THEN THE SWITCH CLOSES AND ENERGIZES A 24 VOLT INDICATOR LIGHT BY OTHERS OR SUPPLIED BY COOK.



1 INDICATOR LIGHTS ARE REMOTE MOUNTED. A REMOTE CONTROL PANEL CAN BE SUPPLIED BY COOK WHICH INCLUDES THESE OPTIONS AND OTHERS. IF A REMOTE CONTROL PANEL ISN'T INCLUDED WITH THE ORDER, THEN IT IS BEING PROVIDED BY OTHERS.

2 CONTROL TERMINALS THAT ARE NOT USED FOR ROTATION OR DIRTY FILTER SENSORS ARE NOT SHOWN FOR CLARITY. REFERENCE ERV WIRING DIAGRAMS FOR COMPLETE CONTROL TERMINAL LAYOUT.

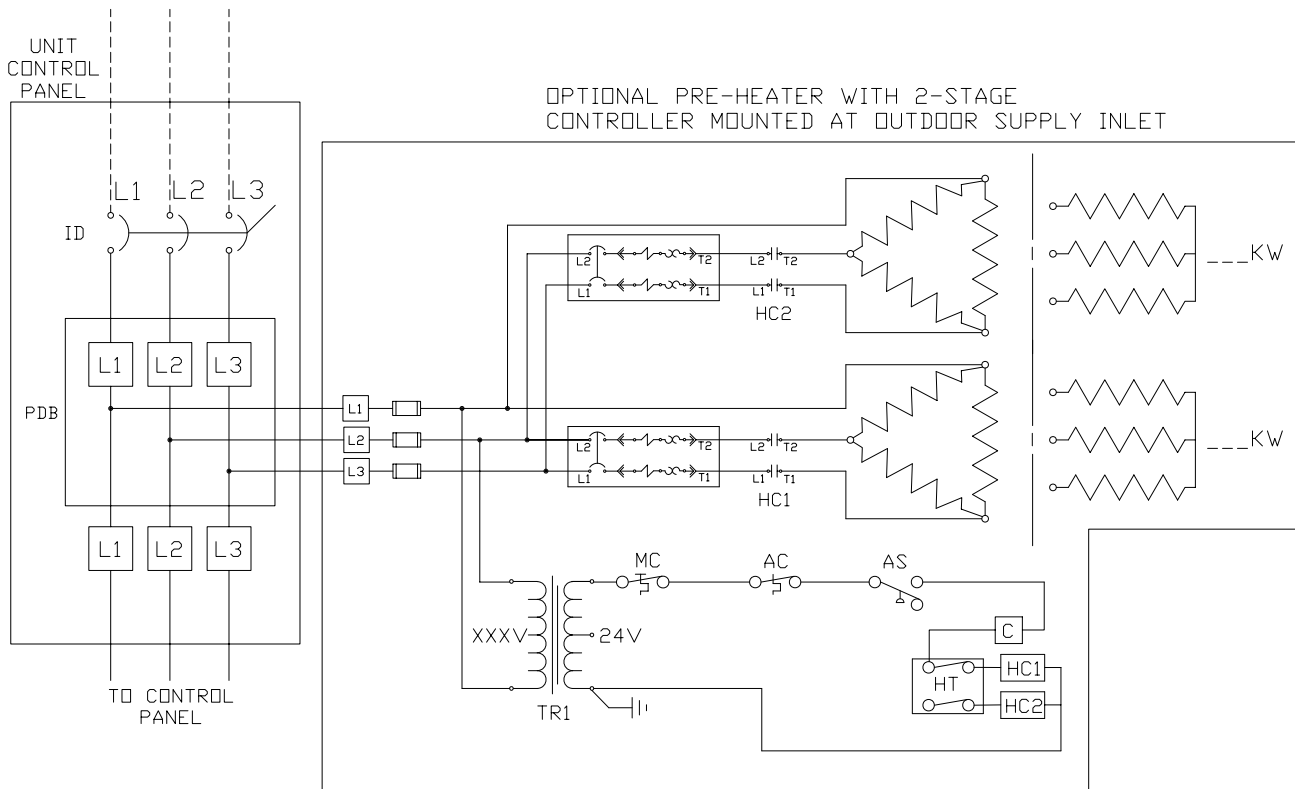


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- NOTES:**
 1.) DASHED LINES INDICATE FIELD WIRING CONNECTIONS.

LEGEND	
ABBREVIATION SYMBOL	DESCRIPTION
ID	INTERLOCK DISCONNECT
HC1	FIRST STAGE HEATER CONTACT
HC2	SECOND STAGE HEATER CONTACT
MC	HEATER MANUAL CUTOUT(S)
AC	HEATER AUTOMATIC CUTOUT(S)
AS	HEATER AIR FLOW SWITCH
HT	HEATER 2-STAGE CONTROL THERMOSTAT
PDB	CONTROL PANEL POWER DISTRIBUTION BLOCK