INSTALLATION INSTRUCTIONS
FOR COMBINING TWO GAS OR OIL FURNACES FOR PARALLEL OPERATIONS USING THE RCCL- COIL (HEATING AND AIR CONDITIONING)

⚠ WARNING

TO BE INSTALLED BY A QUALIFIED, LICENSED SERVICE PERSON. TO AVOID UNSATISFACTORY OPERATION OR DAMAGE TO THE PRODUCT AND POSSIBLE UNSAFE CONDITIONS, INCLUDING ELECTRICAL SHOCK AND FIRE, THE INSTALLATION INSTRUCTIONS PROVIDED WITH THIS KIT MUST BE STRICTLY FOLLOWED AND THE PARTS SUPPLIED USED WITHOUT SUBSTITUTION. DAMAGE TO THE PRODUCT RESULTING FROM NOT FOLLOWING THE INSTRUCTIONS OR USING UNAUTHORIZED PARTS MAY BE EXCLUDED FROM THE MANUFACTURER'S WARRANTY COVERAGE.

The following upflow furnaces may be used for 10 ton upflow application:

80% Gas Upflow
RGPN/RGPS/RGPT/80PS-05*AUE
RGPN/RGPS/RGPT/80PS-07*AUE
RGPN/RGPS/RGPT/80PS-10*AME
RGPN/RGPS/RGPT/80PS-10*BRJ
RGPN/RGPS/RGPT/80PS-12*ARJ
RGPN/RGPS/RGPT/80PS-15*ARJ

Two-stage 80% Gas Upflow
RGPR-05*AUE
RGPR-07*AUE
RGPR-07*AMG
RGPR-10*AME
RGPR-10*BRJ
RGPR-12*ARJ
RGPR-15*ARJ

90 Plus Gas Upflow
RGRA/RGRJ/RGRS-06*MAE
RGRB/RGRJ/RGRT-07*MAE
RGRB/RGRJ/RGRT-07*YBG
RGRA/RGRJ/RGRS-09*ZAJ
RGRA/RGRJ/RGRS-10*ZAJ
RGRA/RGRJ/RGRS-12*RAJ

Two-stage 90 Plus
RGRK/RGRL-06*MAE
RGRK/RGRL-07*MAE
RGRK/RGRL-07*YBG
RGRK/RGRL-09*ZAJ
RGRK/RGRL-10*ZAJ
RGRK/RGRL-12*RAJ

The following furnaces may be used in 6.5 and 7.5 ton [22.9 or 26.4 kW]

(-)GPR-07?BRQ?
(-)GPR-10?BRM?
(-)GPR-12?ARM?

- 80PS, 90RT, and 90RS models using UTEC 1027-200 IFC require the twinning kit RXGP-F03.
- Twinning kits must be ordered as a separate item.

FURNACE PREPARATION AND COIL/PLENUMS

⚠ Recognize this symbol as an indication of Important Safety Information!

Cased Coil assemblies include upflow coil and insulated cabinet.

1. Unpack coil/plenum assembly, the blockoff channels, end panels, and transition. Inspect for damage.
2. 17½″, 21″, and 24″ wide furnaces
   a. Set furnaces 1½″ apart. Drill four 1/8″ diameter holes and attach wide blockoff channel between the two furnaces with screws provided as shown in Figure 3.
   b. On 17½″ wide furnaces use 7 x 20 end panels. Drill three 1/8″ diameter holes and mount with screws supplied as shown in Figure 3.
   c. On 21″ wide furnaces use 3½ x 20 end panels. Drill three 1/8″ diameter holes and mount with screws supplied as shown in Figure 3.
3. 28″ wide furnace (Oil)
   a. Drill four 1/8″ diameter holes and attach narrow blockoff channel between the two furnaces with screws provided as shown in Figure 3.
   b. Assemble transition and install as shown in Figure 4.

NOTE: No end panels or transition required for 24″ wide gas or oil furnaces.

1. Set coil/plenum assembly on furnace with access cover toward flue outlet end of furnace.
2. Connect ductwork to plenum. Seal all joints around furnace, plenum and transition with duct tape.
3. Connect suction and liquid lines between coil and compressor/condenser section. Provide oil trap for suction line, if the vertical rise exceeds 3 ft.
4. Strap expansion valve sensing bulb to top of suction line on outside of cabinet. Be careful not to over tighten the clamps. See Figure 5.
5. Insulate sensing bulb and suction line.
6. The condensate drain is ¾″ NPT. Provide a 3″ trap and pitch the drain to an open sump. See Figure 5.

To twin two furnaces, follow these instructions and the twinning wiring diagrams at the end of the service manual.

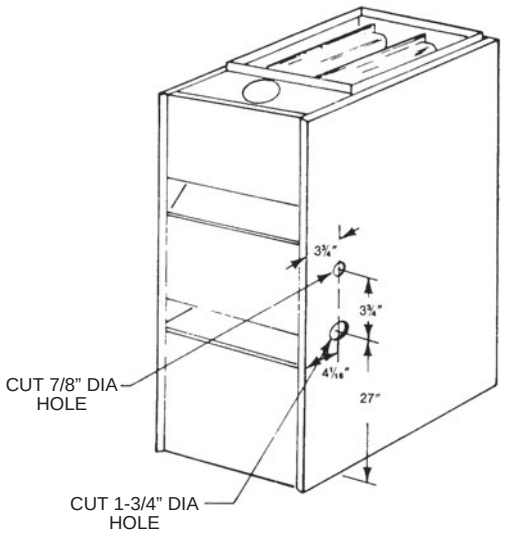
IMPORTANT: *Only twin furnaces with identical controls from the same manufacturer of control board.*

IMPORTANT: *Only bottom returns can be used. No more than two furnaces can share the same supply and return. Furnaces must have same heating and blower capacity. Twinning furnaces must operate off the same phase of power.*

NOTE: The transformer of both furnaces must be in the same phase.

NOTE: Twinning kit cannot be used for heat pump fossil fuel kit application.

FIGURE 1



(UPFLOW SHOWN)

LEFT HAND FURNACE

FIGURE 2

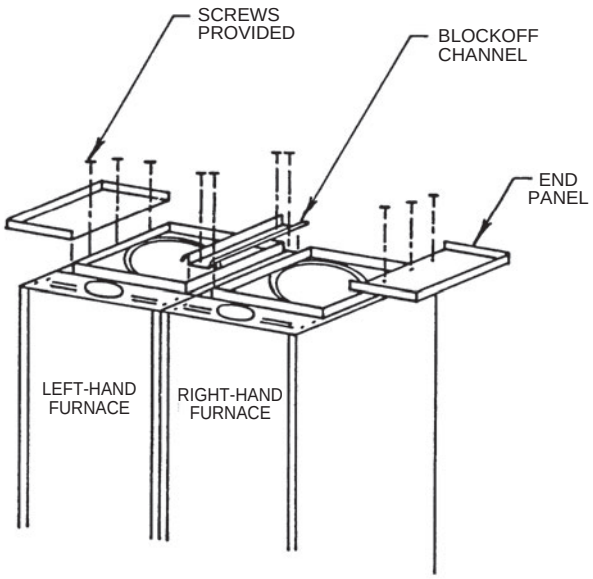


FIGURE 3
BLOCKOFF CHANNEL INSTALLATION

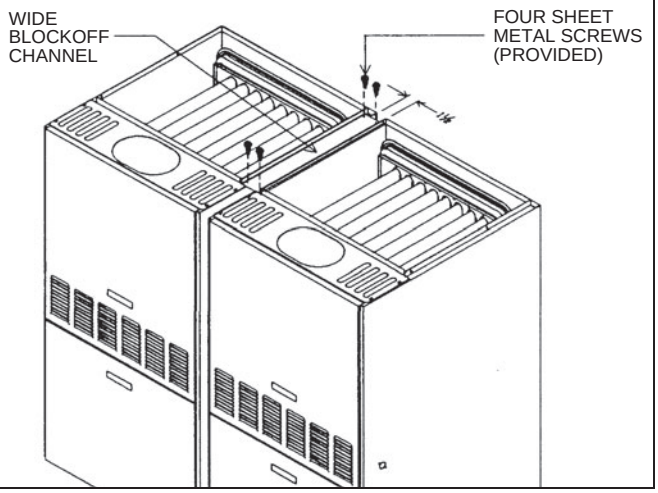


FIGURE 4
TRANSITION INSTALLATION

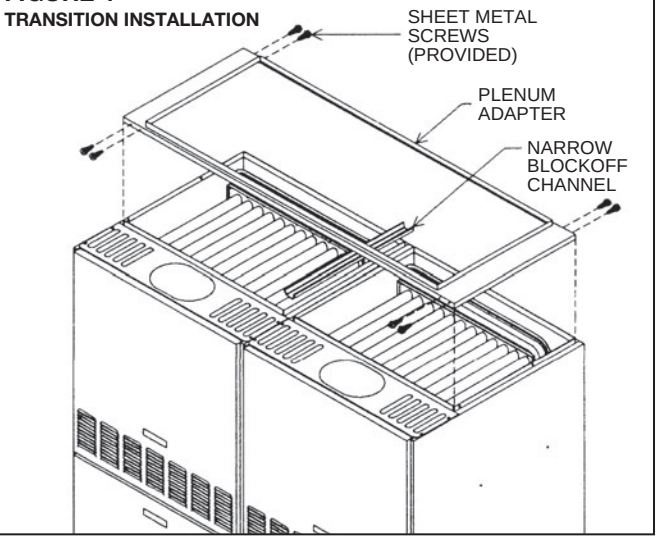
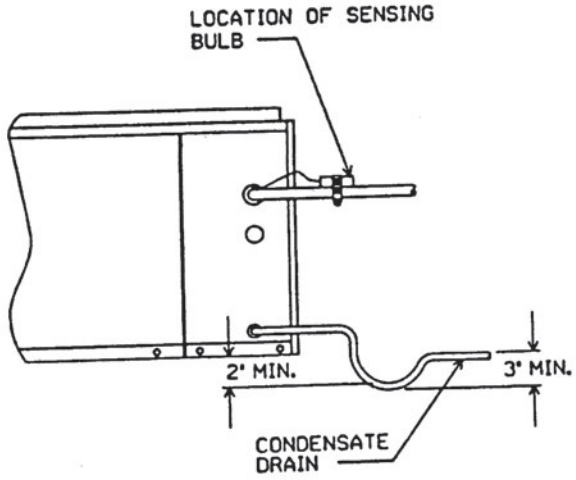


FIGURE 5
COIL INSTALLATION



GAS FURNACE TWINNING

A maximum of two furnaces may be installed side by side on a common duct system and operate as one, or as first stage and second stage. The twinning procedure makes both furnace blowers operate together, whether one or both furnaces are firing. One thermostat can control both units. This is necessary if the two furnaces supply air for one 7-1/2 or 10 ton single stage cooling system.

To twin two furnaces, follow these instructions and the twinning wiring diagrams at the end of the service manual.

IMPORTANT: ONLY TWIN FURNACES WITH IDENTICAL CONTROLS FROM THE SAME MANUFACTURER OF CONTROL BOARD.

IMPORTANT: ONLY BOTTOM RETURNS CAN BE USED. NO MORE THAN TWO FURNACES CAN SHARE THE SAME SUPPLY AND RETURN. FURNACES MUST HAVE SAME HEATING AND BLOWER CAPACITY. TWINNING FURNACES MUST OPERATE OFF THE SAME PHASE OF POWER.

NOTE: The transformer of both furnaces must be in the same phase.

NOTE: The "OK" LED flashes if the twinning is not installed properly. Hot surface ignition control boards flash "OK" LED continually if twinning kit or installed properly. Direct spark ignition control boards flash the "OK" LED five (5) times, pause, and then flash five (5) times again.

NOTE: Twinning kit cannot be used for heat pump fossil fuel kit application.

⚠ WARNING

TURN OFF ELECTRIC POWER AT THE FUSE BOX OR SERVICE PANEL BEFORE MAKING ELECTRICAL CONNECTIONS; FAILURE TO DO SO COULD RESULT IN AN ELECTRICAL SHOCK HAZARD, PROPERTY DAMAGE AND/OR PERSONAL INJURY.

⚠ WARNING

BOTH FURNACE CABINETS MUST BE PERMANENTLY GROUNDED. A GROUND SCREW IN THE JUNCTION BOX IS FOR THIS PURPOSE. GROUND CONNECTIONS MUST BE COMPLETED BEFORE MAKING LINE VOLTAGE CONNECTIONS. FAILURE TO DO SO COULD RESULT IN AN ELECTRICAL SHOCK HAZARD, PROPERTY DAMAGE AND/OR PERSONAL INJURY. THE FURNACES MUST BE INSTALLED SO THE ELECTRICAL COMPONENTS ARE PROTECTED FROM WATER.

⚠ WARNING

ELECTRICAL POWER MUST BE SUPPLIED TO BOTH FURNACES FROM THE SAME SEPARATE BRANCH CIRCUIT, FAILURE TO DO SO COULD RESULT IN EXPOSING THE FURNACE CONTROLS TO AN OVER VOLTAGE (230 VAC) CONDITION. THIS COULD RESULT IN DESTRUCTION OF THE CONTROL BOARDS, PROPERTY DAMAGE AND/OR PERSONAL INJURY.

⚠ WARNING

L1 (HOT) AND NEUTRAL POLARITY MUST BE OBSERVED WHEN MAKING FIELD CONNECTIONS TO THE FURNACES. FAILURE TO DO SO COULD RESULT IN A DIRECT SHORT VIA THE CONNECTION BETWEEN THE "EAC" TERMINAL WHEN THE INDOOR BLOWER RELAY CLOSES. THIS COULD RESULT IN DESTRUCTION OF THE CONTROL BOARDS, PROPERTY DAMAGE AND/OR PERSONAL INJURY.

THE FURNACE MUST BE ON THE SAME BRANCH CIRCUIT WITH ADEQUATE AMPACITY AND OVERCURRENT PROTECTION. DO NOT USE EXISTING LIGHTING OR OTHER CIRCUITS.

NOTE: See the furnace rating plates for motor HP ratings, electrical characteristics, and amp draw.

NOTE: Use time delay fuses or circuit breakers.

All electrical work must conform with the requirements of local codes and ordinances and the National Electric Code ANSI / NFPA–No. 70 latest edition or the Canadian Electrical Code Part 1 – CSA Standard C22.1 for Canadian installations.

FOR (-)GPN, (-)GPS, (-)GPT, (-)GRB, AND (-)GRA MODELS WITH UTEC 1012-920, 1028-927 AND -928 IFC BOARD

1. Single Stage Wiring
   a. Ensure that both furnace 24 volt power supplies are in phase.
   b. Connect furnace right-hand side control board to thermostat.
   c. Connect control board terminal "C" to "C", "W" to "W", and "twin" to "twin".
   d. Set DIP switch to "3" to the "twin" position on both control boards.
   e. Set both furnace control board DIP switches #4 to the "1st" position.
2. Two Stage Wiring
   a. Ensure that both furnace 24 volt power supplies are in phase.
   b. Connect furnace on the right-hand side control board terminal "W" to the "W1" terminal on the thermostat.
   c. Connect furnace on the left-hand side control board terminal "W" to the "W2" terminal on the thermostat.
   d. Connect control board terminals "C" to "C" and "TWIN" to "TWIN".
   e. Set DIP switch "3" to the "ON" position on both furnace control boards.
   f. Set furnace control board DIP switch #4 to the "1st" position on the right-hand side furnace.
   g. Set furnace control board DIP switch #4 to the "2nd" position on the left-hand side furnace.
   h. Set the thermostat heat anticipator for 0.1 amps on each stage of heat.

NOTE: The UTEC 1028-927 and -928 controls use only switch #3 for twinning. Connect the thermostat to the furnace intended to be first stage. The other furnace automatically becomes second stage.

IMPORTANT: A UTEC 1012-920A CONTROL CAN BE TWINNED WITH A UTEC 1012-920 CONTROL.

FIGURE 6
UTEC SINGLE STAGE TWINNING

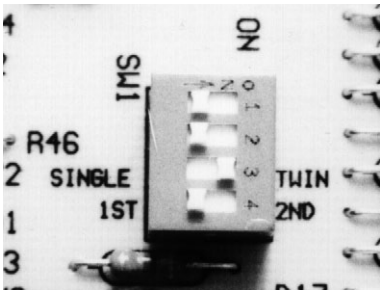


FIGURE 7
UTEC TWO STAGE TWINNING

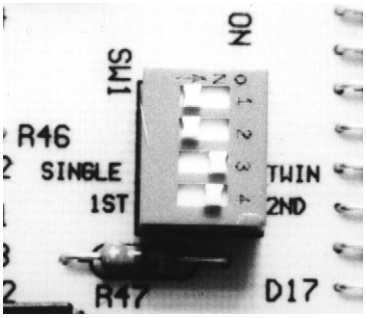
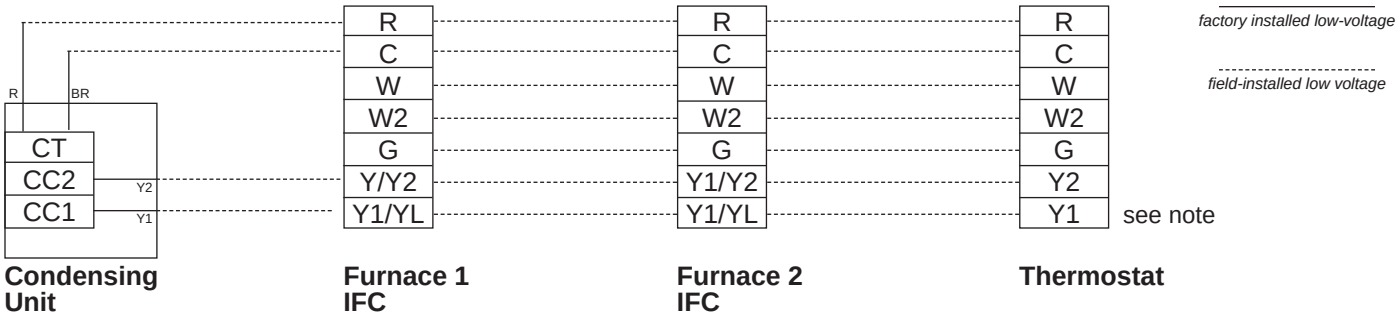


FIGURE 8
FURNACE TWINNING INSTRUCTIONS FOR TWO -GPR GAS FURNACES WITH ONE -AWL COMMERCIAL CONDENSING UNIT AND RCCL INDOOR COIL



Note: For single-stage condensing units, connect thermostat Y1 to Y/Y2 on furnace IFC boards.

1. Make sure that power to all equipment is turned off.
2. Disconnect and remove both furnace transformers.
3. Connect low voltage leads from condensing unit transformer to IFC board as shown above.
4. Connect furnace IFC boards in parallel as shown above.
5. Connect thermostat and condensing unit as shown above.
6. Restore power and verify correct furnace & condensing unit operation.

INSTALLATION PROCEDURES

Install the furnaces side by side and connect to the common supply and return duct system. Follow the furnace installation instructions. Convert the right hand furnace to right side gas and electrical supply.

1. Install the two boxes from the kit in the furnace jackets using the screws provided before locating the furnaces. Remove the knockouts as required. Insert the snap bushings and plug buttons while access is available.
2. Identify the furnaces as number 1 and 2 for wiring purposes. The wiring diagram arbitrarily shows furnace 1 on the left.
3. Turn off the electrical supply to both furnaces before making any electrical connections.
4. Disconnect and remove the control transformer from furnace 2. Remove the black and white line voltage transformer leads from the “L1” and “neutral” terminals on control board 2. Remove only the red and yellow transformer lead wires from the “24 VAC” and “COM” terminals.
5. Remove the black wires connecting the blower door switch (PBS) and “L1” on the control boards in furnaces 1 and 2.
6. Install the switches from the kit in the boxes. Insert each switch in the rectangular mounting hole.
7. Install the line voltage interconnecting wires as shown in the wiring diagram. Route the wires out of the top hole in each control box and through the strain relief bushing.
   a. The blue wires connect the original door switch 1, through the new door switch in furnace 2, and to terminal “L1” of control board 1.
   b. Similarly, the yellow wires connect the original door switch 2, through the new door switch in furnace 1 and to terminal “L1” of control board 2.
   c. The red wire connects the two electronic air cleaner (EAC) screw terminals on both control boards.
   d. Secure the line voltage wires with strain relief bushings at the 7/8" dia. hole where they exit the control boxes.
8. Connect control power (24 VAC) from terminal board “R” in furnace 1 to the “24VAC” terminal (1/4" push on) on the control board in furnace 2. Use the 4" piggyback terminated red wire and wire nut connector.
9. Connect control (24VAC) wires between thermostat terminals “W”, “Y”, “G” and “C” on furnace control boards 1 and 2.
10. Install a control thermostat (field supplied) according to its instructions to FURNACE 2.

IMPORTANT: ELECTRICAL POWER TO BOTH FURNACES MUST BE SHUT OFF WHEN WIRING THE THERMOSTAT. THE FURNACE CONTROL SYSTEM TERMINAL “C” (COMMON) IS CONNECTED TO THE (CABINET) GROUND AS PART OF THE FLAME SENSE CIRCUIT. ACCIDENTAL SHORTING OF THERMOSTAT WIRES TO GROUND DURING INSTALLATION CAN DAMAGE THE CONTROL TRANSFORMER.

11. **Control voltage power (24 VAC) to the thermostat must be supplied from thermostat terminal “R” on the control board in furnace 2.** Connect the thermostat to “W” (heat), “Y” (cool), and “G” (fan) that are now common to both furnaces as shown in the wiring diagram. Connect the remote compressor contactor (CC) leads to terminals “Y” (cool) and “C” (common) that also are common to both furnaces.

    If the thermostat has an adjustable heating anticipator, set it for approximately 0.8 amps or the measured current amperage. Do this after the furnaces are in operation.
12. Use the provided wire ties to secure the interconnecting and thermostat wiring in place to avoid contact with exposed edges, moving parts, or service procedures. Field provide additional materials, if required. Attach the wiring diagram from the kit to one furnace.
13. Replace the blower compartment doors and check that the doors fit correctly. Adjust the fit if required to assure easy removal and installation by the user when servicing air filters.
14. Complete the furnace installation and put the furnaces in operation following the furnace installation and operating instructions.

Make all proper operational and safety checks. Remove the blower compartment doors individually and ensure that electrical power to both furnaces is shut off when either door is off.

NOTE: This twinning kit cannot be used for heat pump fossil fuel kit applications.

NOTE: Two parallel condensing units may be used for twinning applications by wiring the control circuits (4) in parallel.

UTEC 1027-200 IFC BOARD TWINNING INSTRUCTIONS (RXGP-F03)

IMPORTANT: THIS KIT MAY ONLY BE USED WITH THE FOLLOWING GAS FURNACE MODELS EQUIPPED WITH THE UTEC 1027-200 IFC.

80PS
90RS
90RT

⚠ WARNING

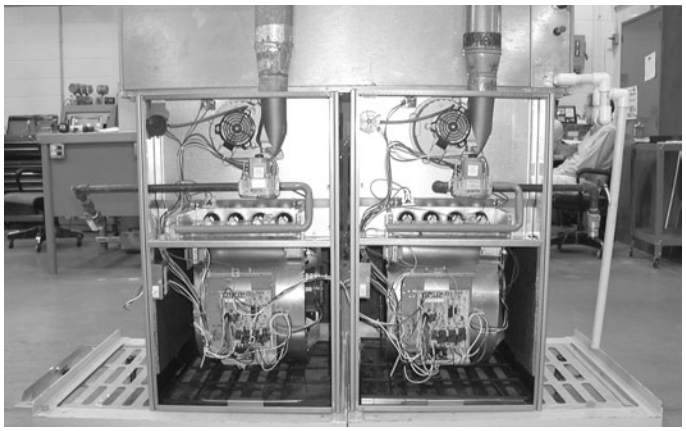
THESE INSTRUCTIONS ARE INTENDED AS AN AID TO QUALIFIED, LICENSED SERVICE PERSONNEL FOR PROPER INSTALLATION, ADJUSTMENT, AND OPERATION OF THIS PRODUCT. READ THESE INSTRUCTIONS THOROUGHLY BEFORE ATTEMPTING INSTALLATION OR OPERATION. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN IMPROPER INSTALLATION, ADJUSTMENT, SERVICE OR MAINTENANCE POSSIBLY RESULTING IN FIRE, ELECTRICAL SHOCK, CARBON MONOXIDE POISONING, EXPLOSION, PERSONAL INJURY OR PROPERTY DAMAGE.

Install the RXGP - F03 kit when twinning to assure that both indoor blowers run simultaneously and so that when either blower door is opened, both furnaces shut down. The kit contains additional blower door switches, wiring connections, and other hardware needed to twin the above listed furnace models.

TABLE 1
PARTS LIST - RXGP-F03 PARALLEL FURNACE KIT

Part No.	Part Description	Quantity
AE-61475-02	Junction Box	2
AE-61476-02	Junction Box Cover	2
AS-50240-41-TT	Wire, Red, 16GA, 48″	1
AS-50251-05-AD	Wire, Red, 18GA, 4″	1
AS-53397-41-JJ	Wire, Blue, 18GA, 48″	2
AS-76693-41-JJ	Wire, Yellow, 18GA, 48″	2
45-17055-11	Bushing, Strain Relief 7/8″ OD	2
45-17057-02	Bushing, Snap 7/8″ OD x 3/4″ ID	2
64-17606-01	Wire Tie, 8″	4
45-18058-07	Wire Connector, Yellow	1
45-18232-02	Plug Button (7/8″ Dia.)	1
42-22692-01	Switch, Push Button (Cherry, E69-08C - 10A)	2
63-22338-03	Screw, Sheet Metal #8-18 x 1/4″ B, Hex Hd.	6
63-22505-02	Screw, #10-32 x 3/8″, Hex Hd.	2
92-23521-04	Installation Instructions	1
90-23553-02	Wiring Diagram	1

FIGURE 9
COIL INSTALLATION



ELECTRICAL WIRING

⚠ WARNING

TURN OFF ELECTRIC POWER AT THE FUSE BOX OR SERVICE PANEL BEFORE MAKING ANY ELECTRICAL CONNECTIONS. FAILURE TO DO SO COULD RESULT IN AN ELECTRICAL SHOCK HAZARD, PROPERTY DAMAGE AND/OR PERSONAL INJURY.

⚠ WARNING

BOTH FURNACE CABINETS MUST BE PERMANENTLY GROUNDED. A GROUND SCREW IN THE JUNCTION BOX IS FOR THIS PURPOSE. GROUND CONNECTIONS MUST BE COMPLETED BEFORE MAKING LINE VOLTAGE CONNECTIONS. FAILURE TO DO SO COULD RESULT IN AN ELECTRICAL SHOCK HAZARD, PROPERTY DAMAGE AND/OR PERSONAL INJURY. THE FURNACES MUST BE INSTALLED SO THE ELECTRICAL COMPONENTS ARE PROTECTED FROM WATER.

⚠ WARNING

ELECTRICAL POWER MUST BE SUPPLIED TO BOTH FURNACES FROM THE SAME SEPARATE BRANCH CIRCUIT. FAILURE TO DO SO COULD RESULT IN EXPOSING THE FURNACE CONTROLS TO AN OVER VOLTAGE (230 VAC) CONDITION. THIS COULD RESULT IN DESTRUCTION OF THE CONTROL BOARDS, PROPERTY DAMAGE AND/OR PERSONAL INJURY.

⚠ WARNING

L1 (HOT) AND NEUTRAL POLARITY MUST BE OBSERVED WHEN MAKING FIELD CONNECTIONS TO THE FURNACES. FAILURE TO DO SO COULD RESULT IN A DIRECT SHORT VIA THE CONNECTION BETWEEN THE "EAC" TERMINALS WHEN THE INDOOR BLOWER RELAY CLOSES. THIS COULD RESULT IN DESTRUCTION OF THE CONTROL BOARDS, PROPERTY DAMAGE AND/OR PERSONAL INJURY.

The furnaces must be on the same branch circuit with adequate ampacity and overcurrent protections. Do not use existing lighting or other circuits.

NOTE: See the furnace rating plates for motor H.P. ratings, electrical characteristics, and amp draw.

NOTE: Use time delay fuses or circuit breakers.

NOTE: Use the wiring diagram when installing this twinning kit.

TWINNING KIT INSTRUCTIONS

Twinning or parallel operation of two furnaces, installed side by side, connected by a common duct system and controlled by a single thermostat can be done with UTEC 1012-925 integrated furnace controls using this wiring kit. The addition of the two blower compartment door interlock switches in this kit assures that all electrical power to both furnaces is deenergized if either furnace blower compartment door is not in place. The additional switch, located in the remote furnace is in series to the furnace electrical supply as shown in the wiring diagram included in kit. A line voltage connecting wire between the electronic air cleaner (EAC) terminals on both furnace control boards assures simultaneous indoor blower operation. The switches, line voltage wiring and mounting materials are included in this kit. The thermostat and low voltage (24 VAC) control wiring materials are normal field supplied items.

TABLE 2
CIRCUIT PROTECTION SIZING

MOTOR H.P.	AMPS	TOTAL AMPS	CIRCUIT AMPACITY	MAXIMUM FUSE OR CIRCUIT BREAKER SIZE
1/2	6.8	13.6	18.7	25
3/4	9.5	19.0	24.8	30

All electrical work must conform with the requirements of local codes and ordinances and the National Electric Code ANSI / NFPA - No. 70 latest edition or the Canadian Electrical Code Part 1 - CSA Standard C22.1 for Canadian installations.

FIGURE 10
UTEC NO. 1012-920/920A/1028-927/928 CONTROL BOARD TWINNING CONNECTION, SINGLE STAGE OPERATION

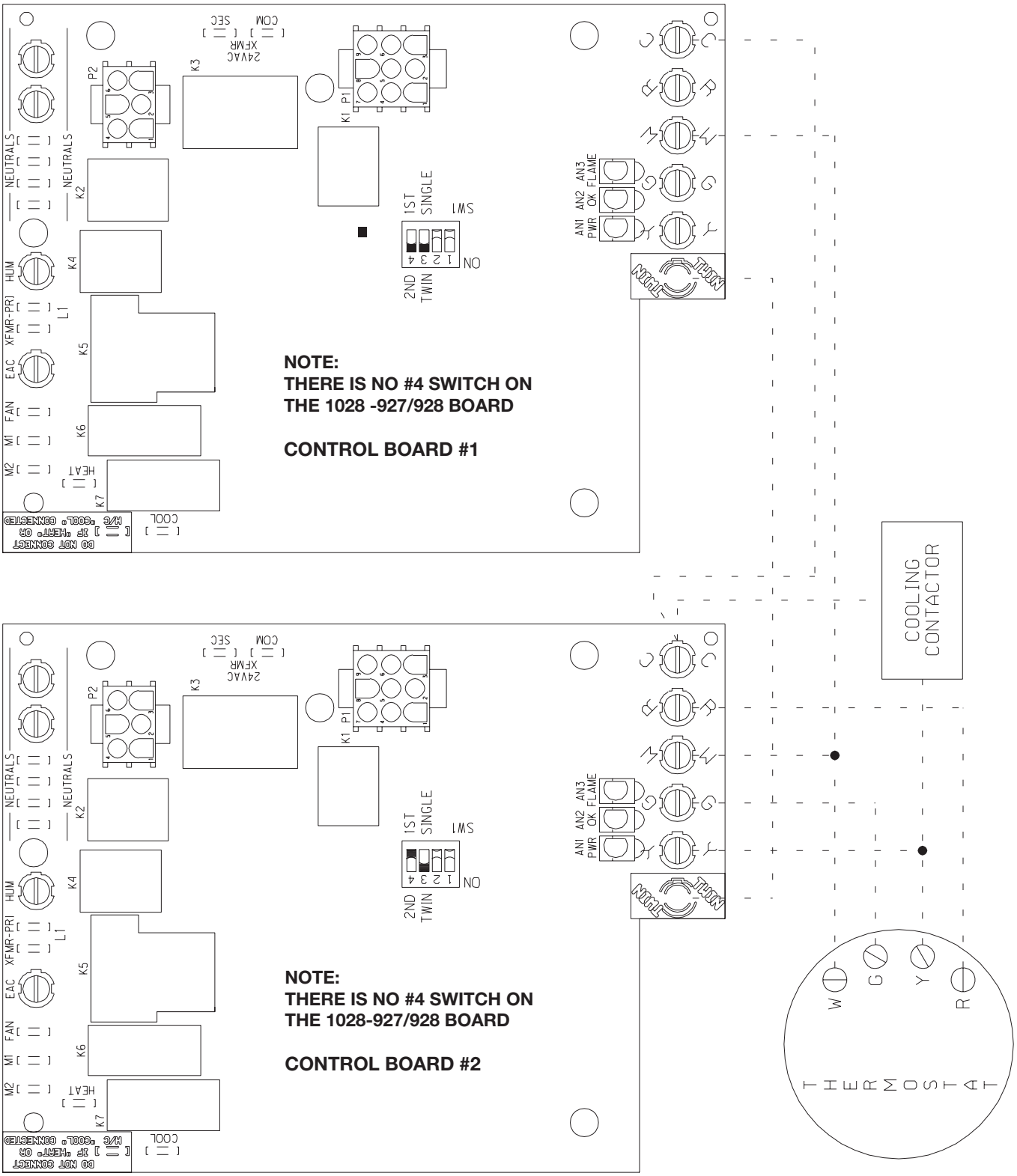


FIGURE 11
UTEC NO. 1012-920/920A/1028-927/928 CONTROL BOARD TWINNING CONNECTION, TWO STAGE OPERATION

