INSTALLATION INSTRUCTIONS

INSTRUCTIONS FOR COMBINING TWO GAS FURNACES FOR PARALLEL OPERATIONS (HEATING AND AIR CONDITIONING) USING GAS WIRING KIT MODEL RXGP F03

THIS KIT MAY ONLY BE USED WITH THE FOLLOWING GAS FURNACE MODELS:

(-)GPJ- SERIES (-)GLJ- SERIES
(-)GDJ- SERIES (-)GVJ- SERIES

⚠ 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.

THESE WIRING KIT INSTRUCTIONS ARE INTENDED TO BE USED AS A SUPPLEMENT TO AND IN CONJUNCTION WITH THE FURNACE INSTALLATION AND OPERATING INSTRUCTIONS. CAUTION SHOULD BE USED TO FOLLOW THESE INSTRUCTIONS. IN THE EVENT THERE ARE ANY QUESTIONS, CONTACT YOUR LOCAL DISTRIBUTOR OR SERVICE REPRESENTATIVE.

PARTS LIST - RXGP PARALLEL FURNACE KIT

PART NUMBER	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
63-24368-01	Screw, Sheet Metal #8-18 x 1/4" B, Hex Hd	6
63-22505-02	Screw, #1 0-32 x 3/8", Hex Hd	2
92-23521-07	Installation Instructions	1
90-23553-03	Wiring Diagram	1

TWINNING 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 this kit. The interconnection of the controls with these instructions will assure simultaneous operation of both blowers independent of the status of both furnaces. These applications usually occur when two furnaces are used to supply air for a 7 ½ or 10 ton cooling coil in a common duct system. The addition of the two blower compartment door interlock switches in this kit assures that all electrical power to both furnaces is de-energized if the blower compartment door on either furnace is not in place. The additional switch, located in the remote furnace is in series to the furnace electrical supply as shown in Wiring Diagram 90-23553-03. A line voltage jumper connected between the electronic air cleaner ("EAC") terminals on both furnace control boards assures simultaneous 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 installation items and are not supplied in this kit.

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

These publications can be obtained from:

National Fire Protection Association
Batterymarch Park
Quincy, MA 02269

Canadian Standards Association
178 Roxdale Boulevard
Roxdale, Ontario, Canada M9W 1R3

ELECTRICAL WIRING

⚠WARNING

TURN OFF ELECTRIC POWER AT 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. FAILURE TO DO SO COULD RESULT IN AN ELECTRICAL SHOCK HAZARD, PROPERTY DAMAGE AND/OR PERSONAL INJURY.

GROUND CONNECTIONS MUST BE COMPLETED BEFORE MAKING LINE VOLTAGE CONNECTIONS.

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 L2 (NEUTRAL) POLARITY MUST BE OBSERVED WHEN MAKING FIELD CONNECTION TO THE FURNACES. FAILURE TO DO SO COULD RESULT IN A DIRECT SHORT VIA THE JUMPER BETWEEN THE "EAC" TERMINALS WHEN 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 separate branch circuit with adequate ampacity and overcurrent protection. Do not use existing lighting or other circuits.

See Table 1 for electrical current ratings of the furnaces.

NOTE: See furnace rating plate for motor H.P. rating and electrical characteristics and amp draw.

TABLE 1.

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

NOTE: Fuse or circuit breaker must be time delay type.

Wiring Diagram 90-23553-03 shows only the details for the twinning conversion. See the wiring diagram on the furnace for details of the furnace wiring and controls.

NOTE: L1 (hot) and L2 (neutral) polarity must be observed when making field connections to the furnace.

1. Install the furnaces side by side and make connections to the common supply and return air duct system. Follow the furnace installation instructions. It may be convenient to convert to right side gas and electrical supply to the furnace on the right side.

   Install the two boxes from the kit in the jackets with the screws provided before locating the furnaces. Remove the knockouts as required, Insert snap bushings and plug button while side access is available. See Figure 1.

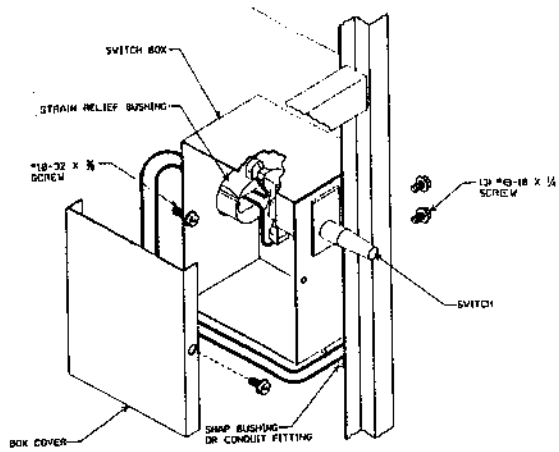


FIGURE 1. SWITCH BOX ASSEMBLY

2. Identify the furnaces as number 1 and 2 for wiring purposes. Wiring Diagram 90-23553-03 arbitrarily shows furnace 1 on the left.
3. Be sure the electrical supply to both furnaces is turned *off* while making these electrical connections.
4. Disconnect and remove the control transformer from furnace 2. Remove the black and white line voltage transformer leads from "L1" and "neutral" board 2 terminals. Remove only the red and yellow transformer lead wires from the "24VAC" 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 the switch in the rectangular mounting hole.
7. Install the line voltage interconnecting wires as shown on Wiring Diagram 90-23553-03. Route the wires out of the top hole of the control box and through the strain relief bushing.

   The blue wires connect the original door switch 1, through the new door switch in furnace 2 and to terminal "L1" on control board 1.

   Similarly, the yellow wires connect the original door switch 2, through the new door switch in furnace 1 and to terminal "L1" on control board 2.

   The red wire connects the two electronic air cleaner (EAC) screw terminals on both control boards.

   Secure the line voltage wires with the strain relief bushings at the 7/8" dia. hole where they exit the control boxes.
8. Connect control power (24VAC) 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) jumper wires between thermostat terminals "W", "Y", "G" and "C" on the control boards in furnaces 1 and 2.

10. Install a control thermostat (not supplied) in accordance with its instructions to furnace 2.

    NOTE: The electrical power to the furnaces must be shut off when wiring the thermostat. The furnace control system terminal "C" (common) is connected to (cabinet) ground as part of the flame sense circuit. Accidental shorting of thermostat wires to ground during installation can cause the control transformer to be damaged.

    The control 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 common to both furnaces as shown. 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 anticipator for the heating mode, set it for approximately 0.8 amps or the measured current amperage. This can be done when the furnaces are in operation. See item 13 below.

11. Secure the interconnecting and thermostat wiring in place to avoid contact with exposed edges, moving parts or servicing procedures. Wire ties are provided. Additional materials should be field supplied if required. Attach Wiring Diagram 90-23553-03 to one furnace.

12. Install 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 the air filters.

13. Complete the furnace installation and put the furnaces in operation following the furnace installation and operating instructions.

Be sure to make the proper operational and safety checks. Remove the blower compartment doors individually and determine if the electrical power to both furnaces is shut off when either door is off.

NOTE (1): This twinning kit **cannot** be used for heat pump fossil fuel kit applications.

NOTE (2): Two parallel condensing units may be used for twinning applications by wiring the control circuits (4) in parallel.

MODE OF OPERATION

The furnaces will operate essentially the same as they would if they were installed individually except that the indoor air blowers will operate simultaneously. This is essential when the furnaces are connected to a common duct system.

If one blower would start and get up to speed, the back pressure could spin the idle blower wheel backwards and cause the second blower to run backwards when it is energized.

The start of burner operation for the individual furnaces is likely to vary by a few seconds. Both furnaces will initiate an operating cycle when the thermostat contacts close, calling for heat by starting the induced draft blower. The individual furnaces start a prepurge and trial for ignition when its pressure switch contacts close.

A delay of several seconds for the furnace pressure switch to close varies dependent on the individual switch calibration point, the induced draft blower, the furnace components and the combustion air inlet/vent pipe configuration. The indoor air blowers in both furnaces should start approximately 20 seconds after the first burner lights and continues operation. During a heat call, the blowers will shut off and resume operation approximately 20 seconds after the first burner starts operating.

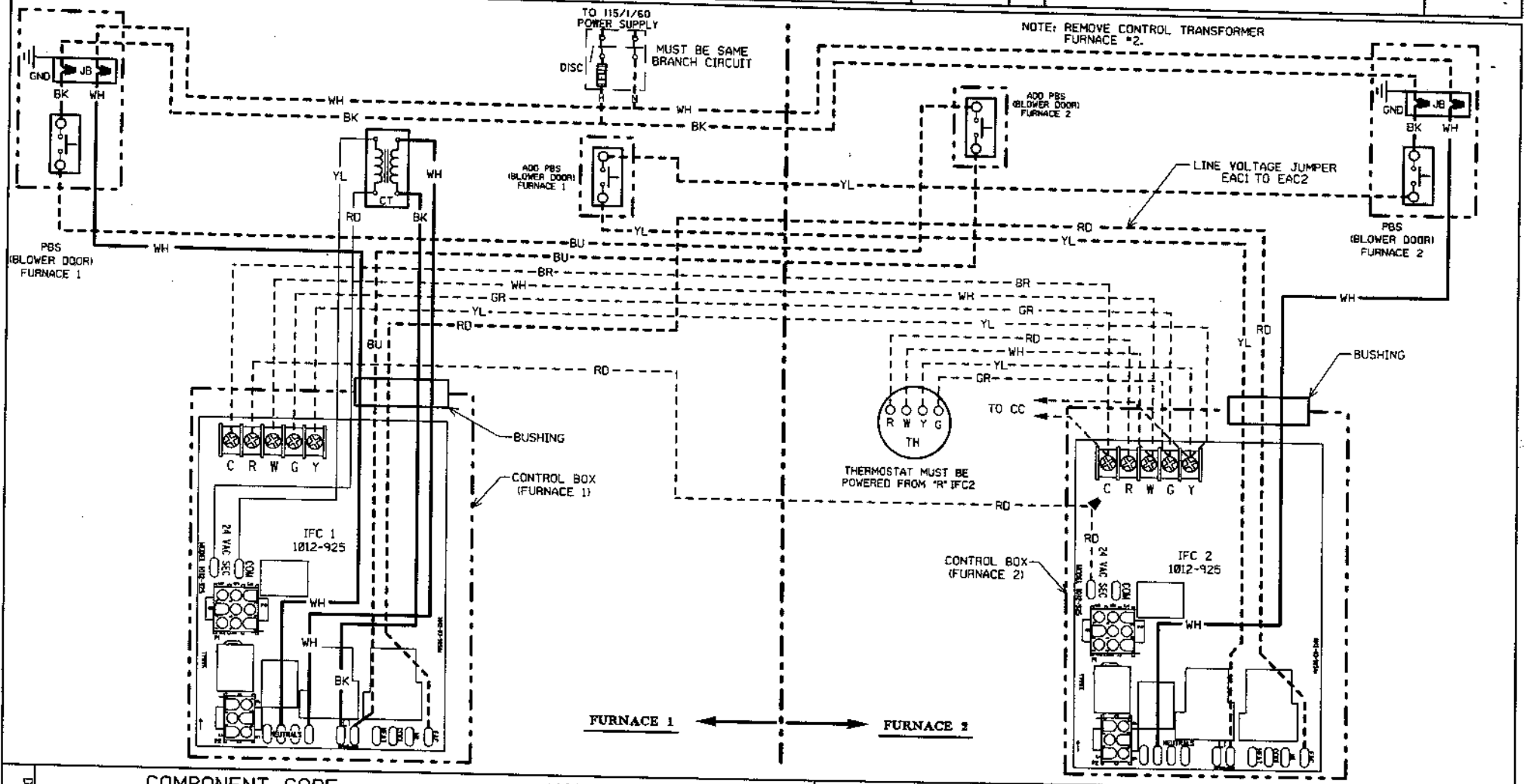
At the end of a heat call, the burners and induced draft blowers shut down in both furnaces when the thermostat contacts open. The indoor air blowers in both furnaces continue to run until the board with the longest blower off time delay setting is satisfied. Both furnace control boards should be set for the same blower off delay time.

The burner operation of each furnace is under the supervision of its ignition control. It is possible that one furnace could be locked out due to failure to light or failure to sense flame and the other furnace continue to operate and satisfy the thermostat. The control would reset during the off cycle and could operate normally during the next call for heat. If one furnace becomes disabled, the second furnace will continue to operate.

When a high temperature limit control opens on either furnace, the gas controls shut off on both furnaces and the indoor air blowers turn on and/or remain on in both furnaces. The induced draft blower will remain on in the furnace with the open limit and the induced draft blower will shut off in the other furnace.

When the open limit control cools and closes with the thermostat still calling for heat, the other furnace immediately initiates an operating cycle. The indoor air blowers on both furnaces will continue to operate through the blower off delay time then shut off. The furnace that had the open limit will initiate an operating cycle at this time. The indoor air blowers will restart on both furnaces approximately 20 seconds after the first burner goes into operation. Burner ignition on the furnace that had the open limit control could be delayed up to 4 minutes after the first burner started.

ORIGINAL RELEASE NO.	F-17963	RHEEM MANUFACTURING CO.	■ FT. SMITH	☒ MILLEDGEVILLE	☒ GREENVILLE	CAD
MATERIAL	PRESSURE SENSITIVE, ADHESIVE BACKED LABEL.	REVISIONS				
PRINTING INSTRUCTIONS	REDUCE TO 5½ X 8½. WHITE WITH BLACK LETTERING					



COMPONENT CODE

CC	COMPRESSOR CONTACTOR
CT	CONTROL TRANSFORMER
DISC	DISCONNECT SWITCH
EAC	ELECTRONIC AIR CLEANER
FU	FUSE
GND	GROUND
HUM	HUMIDIFIER
IFC	INTEGRATED FURNACE CONT.
JB	JUNCTION BOX
PBS	PUSH BUTTON SWITCH
TH	THERMOSTAT (H/C)
▲	WIRE NUT

NOTES:

① THIS DIAGRAM SHOWS FIELD WIRING ONLY FOR PARALLEL OPERATION OF TWO GAS FURNACES EQUIPPED WITH UTEC 1Ø12-925 INTERGRATED FURNACE CONTROL (IFC).

② THE HEATING AND COOLING OPERATION IS CONTROLLED BY ONE THERMOSTAT CONNECTED TO FURNACE 2 (IFC-2). THIS GIVES SIMULTANEOUS BLOWER OPERATION FOR FURNACES LOCATED SIDE BY SIDE CONNECTED TO THE SAME COOLING COIL AND/OR AIR CIRCULATING DUCT SYSTEM.

③ FOR DETAILS OF THE FURNACE INTERNAL WIRING AND CONTROLS, SEE THE WIRING DIAGRAM ON THE FURNACE OR IN THE FURNACE INSTALLATION INSTRUCTIONS.

WIRING INFORMATION

LINE VOLTAGE
- -FACTORY STANDARD
- -FACTORY OPTION
- -FIELD INSTALLED

LOW VOLTAGE
- -FACTORY STANDARD
- -FACTORY OPTION
- -FIELD INSTALLED

REPLACEMENT WIRE
- -MUST BE THE SAME SIZE AND TYPE OF INSULATION AS ORIGINAL (105° C MIN.)

WARNING
- -CABINET MUST BE PERMANENTLY GROUNDED AND CONFORM TO N.E.C., (C.E.C.-CANA0A) AND LOCAL CODES.

WIRE COLOR CODE

BK	BLACK	O	ORANGE
BR	BROWN	PR	PURPLE
BL	BLUE	R	RED
G	GREEN	W	WHITE
GY	GRAY	Y	YELLOW

WIRING DIAGRAM

FIELD WIRING FOR PARALLEL OPERATION OF TWO GAS FURNACES EQUIPPED WITH UTEC 1Ø12-925 INTEGRATED FURNACE CONTROL

DR. BY	APP. BY	DATE	DWG. NO.	REV
JIM		10-19-95	90-23553-03	00

DWG. NO. 90-23553-03 REV 00