RHEEM CRITERION

MODEL NUMBER:	Upflow model RGDG, Downflow model RGLG, Horizontal model RGVG
BTU SIZES:	50,000, 75,000, 100,000, 125,000, 150,000

ACCESSIBILITY CLEARANCE

24" is recommended to the front of the furnace for service access.

CLEARANCE FROM COMBUSTIBLE MATERIAL

CLEARANCE TO COMBUSTIBLE MATERIAL (INCHES) UPFLOW MODELS

SIZE	LEFT	RIGHT	BACK	TOP	FRONT	VENT
50,000	0	4*	0	1	6	6#
75,000	0	3*	0	1	6	6#
100,000A	0	3*	0	1	6	6#
100,000B	0	0*	0	1	6	6#
120,000	0	0*	0	1	6	6#
150,000	0	0*	0	1	6	6#

* May be 0" with type B vent

May be 1" with type B vent

CLEARANCE TO COMBUSTIBLE MATERIAL (INCHES) DOWNFLOW MODELS

SIZE	LEFT	RIGHT	BACK	TOP	FRONT	VENT
50,000	0	4*	0	1	6	6#
75,000	0	3*	0	1	6	6#
100,000A	0	3*	0	1	6	6#
100,000B	0	0*	0	1	6	6#
120,000	0	0*	0	1	6	6#
150,000	0	0*	0	1	6	6#

* May be 0" with type B vent

May be 1" with type B vent

Counterflow models on combustible wood flooring require subbase.

CLEARANCE TO COMBUSTIBLE MATERIAL (INCHES) HORIZONTAL MODELS

SIZE	SIDES	BACK	TOP	FRONT	VENT
50,000	1	0	2	6	6*
75,000	1	0	2	6	6*
100,000A	1	0	2	6	6*
100,000B	1	0	2	6	6*
120,000	1	0	2	6	6*
150,000	1	0	2	6	6*

* May require 3" to 4" or 3" to 5" adapter

May be 1" with type B vent

COLD AIR RETURN AIR DUCTS

All return air duct work must be adequately sealed and secured to the furnace with sheet metal screws and joints taped. When using return air through the bottom it must be sealed air tight between the furnace and the return air plenum. A solid metal base plate must be in place when the furnace is installed with side or rear air return ducts. (Use factory part and proper number applies)

GARAGE

Approved. Must meet requirements of UMC and the Good Practice Book.

GENERAL

This is a Category I furnace. Fan assisted and requires venting furnace with the A.G. A. GAMA tables. Can also be horizontally vented as a Category #3. See enclosed bulletin #GHT-224 for new installations.

HIGH ALTITUDE INSTALLATIONS

Deration	No deration if installed at elevations of 8,000 feet or less with orifice size #42. Refer to interoffice memo sent 1/26/93.
Orifice	8,000 ft. or less #42 - over 8,000 ft. requires a #43 orifice.
Regulator Pressure	Manifold pressure 3.5" W.C. $\pm$ .3 " W.C.
Pressure Switch	Normally open switch closes when induced draft blower starts.

MOBILE HOME

Not approved.

VENTING MATERIAL AND REQUIREMENTS

Vent Pipe	B - Vent C - Vent Plexco/Ultra vent
Vent Fittings	Standard fittings - see chart attached with the special venting system showing available component parts and installation.

VENT CLEARANCE FROM COMBUSTIBLE MATERIAL

B - Vent 1" clearance
C - Vent 6" clearance
Plexco venting material - 5" clearance

VENTING PROCEDURE

Must be vented in accordance with A.G.A. GAMA venting tables or high temperature plastic.

SPECIAL VENT SYSTEM (S.V.S)
HIGH TEMPERATURE PLASTIC - GENERAL INFORMATION

Hart & Cooley's ULTRAVENT material or Plexco's PLEXVENT material.

The maximum length is 30 feet plus three 90° sweep elbows. The minimum vent length is 5 feet plus one 90° sweep elbow.

WARNING: Entire vent system must be sealed with high temperature sealant which will withstand temperatures to 450° F such as Dow-Corning RTV-732 for hart and Cooley and Down Corning RTV-738 for Plexco.

1) Do not drill holes in the pipe or fittings. Do not use sheet metal or other types of screws.
2) All vent systems must include a tee and drain plug for collection and disposal of condensate. The drain tee must be installed within the first 5 feet of the vent run to protect the furnace.
3) All horizontal sections must have a slope toward the drain tee of not less than 1/4 inch per foot to prevent collection of condensate at any location other than at the tee.
4) Horizontal runs must be supported with 3/4 inch perforated pipe strap at a maximum of 3 foot intervals and at each point where an elbow is used.
5) Maintain a 5 inch minimum air space to combustibles from all sections of the vent system, except where wall thimble is used for horizontal venting.

HORIZONTAL THRU-THE-WALL VENT SIZE

INPUT	UPFLOW**	DOWNFLOW/HORIZ.
50K	3"	3"
75K	3"	3"
100K	3"	3"
125K	3"	*4"
150K	3"	*4"

* Note: All furnaces have a 3" vent connection as shipped from the factory. A 3" to 4" vent transition is required on 125 & 150,000 BTUH downflow/horizontal models. **The vent transition connection must be made at the furnace vent exit.**

** Avoid prevailing wind.

The vent must be installed with the minimum clearance as shown in figure 10 at the end of the document.

1) 12 inches above grade level and above normal snow levels.
2) Not above any walkway.
3) 4 feet below, 4 feet horizontally from, or 1 foot above any door, window or gravity air inlet to the building or from gas or electric meter.
4) 6 feet from an inside corner formed by two exterior walls. 10 feet is recommended where possible.
5) At least 4 feet horizontally from any soffit or under eave vent.
6) 10 feet from any forced air inlet to the building. Any fresh air or make up air inlet such as for a dryer or furnace area is considered to be a forced air inlet.
7) Avoid areas where condensate drippage may cause problems such as above planters, patios, or adjacent to windows where steam may cause fogging.

Penetrating a combustible wall requires the use of a wall thimble.

CONTINUED.....

VENTING PROCEDURE

WARNING: Standing pilot models cannot be safely vented horizontally.

VERTICAL VENTING (S.V.S) (Refer to Figure 14 at the end of document)

When a vent installation extends through an enclosed zone, it must be provided with an enclosure constructed so as to maintain at least the minimum air space between the vent and all combustible materials.

SUPPORT: All vertical installations required the use of a support. The support acts as a firestop. Refer to Figure 14 & 15 at end of document.

FIRESTOP: A firestop must be provided whenever the vent passes through a combustible floor or ceiling.

GENERAL INFORMATION:

A ground joint union or flex connector is required. Heat anticipator for H.S.I. set at .75 amps. Blower motor and induced draft motor are prelubricated. The cabinet of the furnace must be permanently grounded (electrically). If L-1 and L-2 are reversed on electronic ignition module, unit will not sense flame.

MISCELLANEOUS INFORMATION/NOTES

SEQUENCE OF OPERATION
(Honeywell or Hamilton Standard Integrated Control)

This furnace is equipped with a Honeywell ST9201A or Hamilton Standard 1012-800 integrated ignition and blower control board. This control combines functions of the hot surface ignition 100% lockout safety control and fixed time on/time off blower controls. It also provides a low voltage heat/cool thermostat control terminal board and connection points for field installed humidifier and electronic air cleaner optional accessories. Two indicator lights are also provided to aid the service technician.

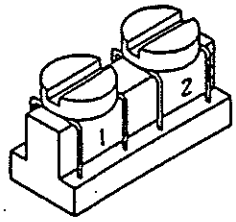
When the heating thermostat closes (connection or R and W terminals), the induced draft blower starts and runs through a 30 second prepurge cycle. After the induced draft blower starts, the proving differential negative pressure switch closes and starts the main burner ignition cycle. the hot surface ignitor is energized for 36 seconds to heat up, then the gas valve is energized to start gas flow to the main burner for ignition. The main gas burner flame is sensed by the de-energized hot surface ignitor within 0.8 seconds. If main burner flame is not sensed within the six second maximum trial for ignition time, the control will repeat the prepurge and ignition cycle for four additional ...es. After a total of five cycles without sensing main ...ner flame, the system will then go into a 100% lockout mode. During the lockout mode neither the hot surface ignitor or the gas valve will be energized until the system is reset by opening the thermostat (disconnecting the R and W terminals) or interrupting the electrical power for ten seconds or longer.

The induced draft blower and main burner will shut off when the thermostat is satisfied (R an W open).

The fixed time blower control will start the circulating air blower on heat speed thirty seconds after the main burner is ignited. The circulating air blower will continue to run during burner operation then shut down at a preset time after the burner shuts off. The circulating air blower will start and run on heating speeds if the thermostat fan switch is in the "On" position and the thermostat mode switch is in the "Heat" position. When the thermostat closes while in this mode, the blower will stop and go through a delay until 30 seconds after the burner lights.

NOTE: The blower time off delay has been set at the factory for the blower to run until the furnace circulating air temperature falls below 120° F. (110° to 120° is the most efficient shut off temperature). This setting will be good for the majority of applications. However, if your installation requires that the delay be reset, follow the instructions given for your specific control board.

The heating mode blower time off delay can be changed between 45, 60, 75, and 90 seconds on the control board.



MODEL ST9201A HONEYWELL

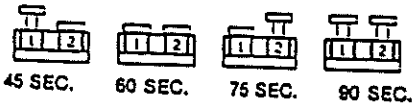
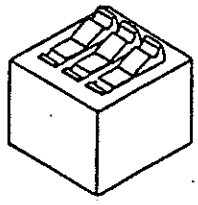


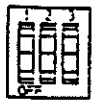
FIGURE 22. BLOWER OFF - HONEYWELL INTEGRATED CIRCUIT

1. Adjust blower time off delay by loosening or tightening the switch screws on the control board as shown in ...ure 22.



HAMILTON STANDARD

MODEL 1012-800



OFF TIME	SWITCH 1	SWITCH 2	SWITCH 3
45 SEC.	OFF	OFF	ON
60 SEC.	OFF	ON	ON
75 SEC.	ON	OFF	ON
90 SEC.	ON	ON	ON

FIGURE 23. BLOWER OFF - HAMILTON STANDARD INTEGRATED CIRCUIT

2. Adjust blower time off delay on the control board by setting the switches in the proper sequence.

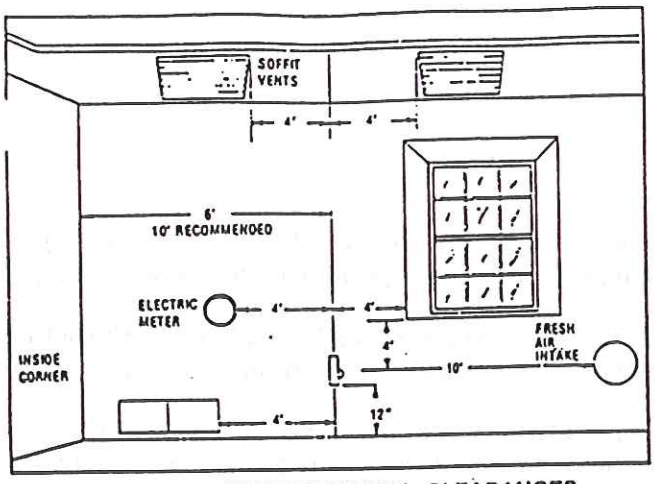


FIGURE 10. VENT TERMINAL CLEARANCES

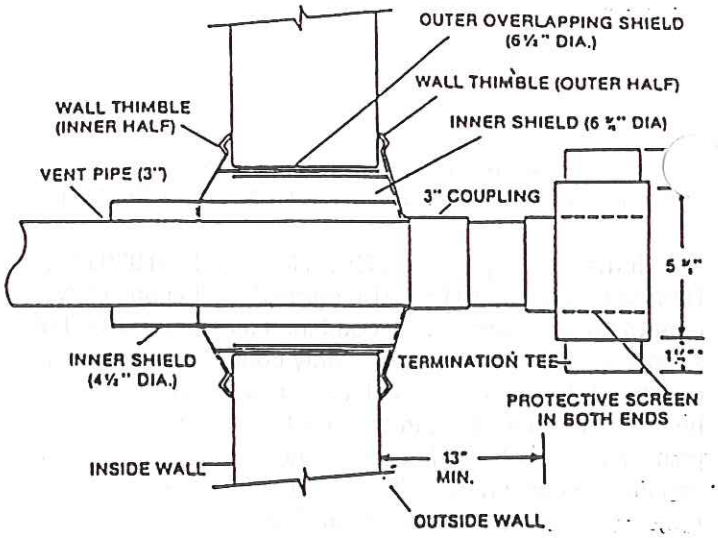


FIGURE 13. TERMINATION TEE

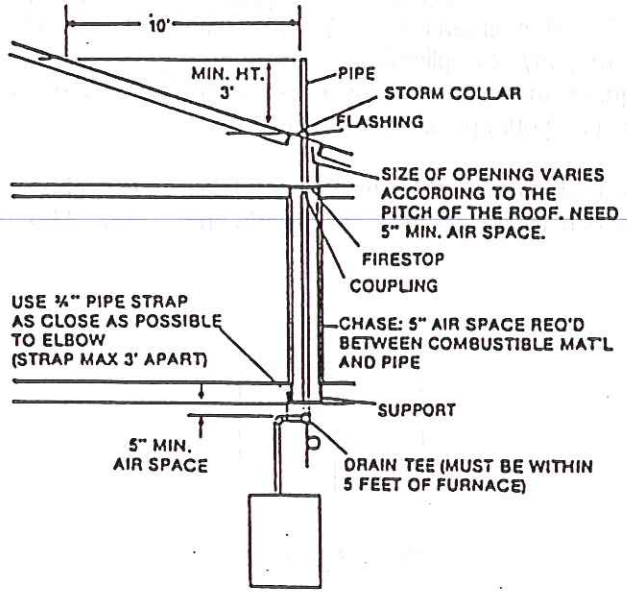


FIGURE 14. VERTICAL VENT

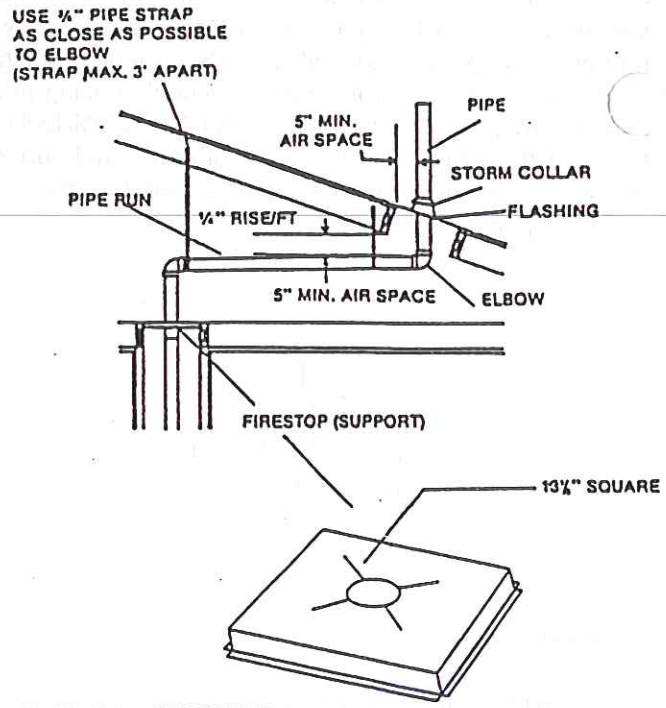


FIGURE 15. FIRESTOP

TO: Holders of Resource Manual

FROM: Technical Service Training

DATE: January 26, 1993

SUBJECT: **DERATION FOR RHEEM "CRITERION" MODEL RDGD FURNACE**

Mountain Fuel

The Rheem Criterion furnace has been tested and approved for NO deration if installed at 8,000 feet elevation or less. Keep in mind the rated BTU per hour input has to be divided by the BTU content of the gas at your location to get a correct C.F.H. figure before clocking the appliance.

EXAMPLE:

$$\frac{\text{Rated input}}{\text{BTU per cubic foot}} \quad \frac{100{,}000 \text{ BTU}}{940} = 106 \text{ C.F.H.}$$

The Criterion should come with a #42 orifice. This is the correct orifice for up to 8,000 feet elevation. Above 8,000 feet elevation, a #43 orifice is required. Manifold pressure is 3.5" W. C. ±.3.

TECHNICAL COMMUNICATIONS CENTER
BULLETIN #GHT-224
August 8, 1994

RHEEM AIR CONDITIONING DIVISION
P.O. BOX 17010 • FORT SMITH, ARKANSAS 72917-7010

TO: ALL RHEEM AIR CONDITIONING DISTRIBUTORS

SUBJECT: USE OF PLEXVENT® AND ULTRAVENT® SPECIAL HIGH TEMPERATURE PLASTIC VENT PRODUCTS WITH RHEEM'S RGDG, RGVG, RGLG, RGPH, RGLH, RGVH FURNACES -- PROHIBITED IN ONTARIO, CANADA; RECOMMENDATION AGAINST IN U.S.A.

We recently learned that the Ontario, Canada Ministry of Consumer and Commercial Relations issued a Regulatory Bulletin on June 7, 1994, prohibiting the sale or installation in Ontario of PLEXVENT®, ULTRAVENT® and SELVENT® High Temperature Plastic Gas Vents. The Bulletin stated that Underwriters' Laboratory of Canada had suspended its certification of PLEXVENT®, and ULTRAVENT® and the pending application of SELVENT®.

Therefore, with respect to new installations in Ontario, Canada, you are instructed not to install Plexco's PLEXVENT® or Hart and Cooley's ULTRAVENT® High Temperature Plastic Vent Products with **Rheem's RGDG, RGVG, RGLG, RGPH, RGLH, RGVH Furnaces** (these furnaces were never certified for use with SELVENT® High Temperature Plastic Vent Products).

With respect to new installations in the U.S.A. and elsewhere in Canada, it is recommended that you not install Plexco's PLEXVENT® or Hart and Cooley's ULTRAVENT® with any of our above Furnaces pending a study by Underwriter's Laboratory, Inc., GAMA and the suppliers of these High Temperature Plastic Vent Products into the causes of the reported field failures and possible alternative horizontal venting systems. Rheem is cooperating with this study and will keep you informed of significant developments.

For the time being, this Bulletin supersedes the instructions beginning on Page 7 of our Installation Instructions for installing Special Vent Systems of High Temperature Plastic Vent Products for the above Furnaces. This does not impact the instructions starting on Page 6 of our Installation Instructions for vertical venting of the Furnaces with approved metallic venting materials.

The Ontario Ministry's Regulatory Bulletin did not require removal of existing installations. Rather, it is recommended that existing installations with such High Temperature Plastic Vent Products be inspected at least annually. If any problems are noted in such Hig

Temperature Plastic Vent Products, the appropriate vent pipe manufacturer should be contacted immediately at the telephone numbers they have provided:

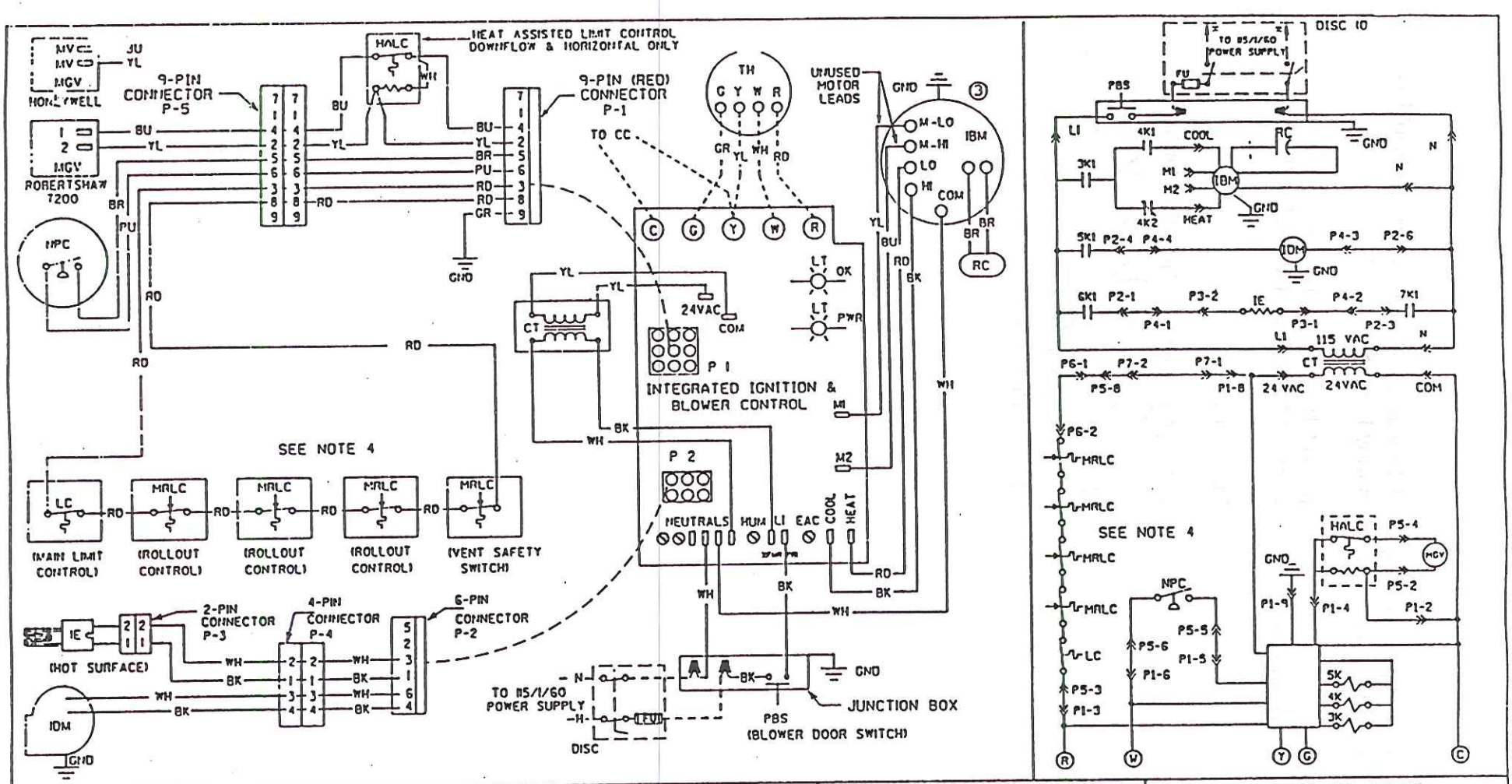
Plexco's PLEXVENT®	1-800-218-7132 or 1-708-350-3700
Hart & Cooley's ULTRAVENT®	1-800-499-1609 or 1-616-392-7855

Sincerely,

RHEEM AIR CONDITIONING DIVISION

Douglas J. Widenmann
Heating Product Manager

DJW;af



COMPONENT CODE

ALC	AUX. LIMIT CONTROL (TEMP)	PL	PLUG
CC	COMPRESSOR CONTACTOR	RC	RUN CAPACITOR
CT	CONTROL TRANSFORMER	TH	THERMOSTAT (H/C)
DISC	DISCONNECT SWITCH	▲	WIRE NUT
FU	FUSE		
GND	GROUND		
HALC	HEAT ASSISTED LIMIT CONTROL		
IBM	INDOOR BLOWER MOTOR		
IDM	INDUCED DRAFT MOTOR		
IE	IGNITOR ELEMENT		
LC	LIMIT CONTROL		
MGV	MAIN GAS VALVE		
MRLC	MANUAL RESET LIMIT CONTROL		
NPC	NEGATIVE PRES. CONT'L		
PBS	PUSH BUTTON SWITCH		

NOTES:

1. IF FACTORY WIRING OF HEATING AND COOLING SPEEDS IS NOT DESIRABLE, REFER TO SPEC. SHEET FOR APPROPRIATE SPEEDS.
2. CONNECT UNUSED MOTOR LEADS TO M1 AND M2
3. MODELS WITH 3 SPEED MOTOR - BLUE LEAD IS FOR MEDIUM SPEED NO YELLOW LEAD ON MOTOR
4. A. UPFLOW MODELS (1) MRLC
   B. DOWNFLOW/HORIZONTAL (3) MRLC(S)
   C. HORIZONTAL ONLY MODELS (2) MRLC(S)

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., AND LOCAL CODES.

WIRE COLOR CODE

BK__BLACK	PU__PURPLE
BR__BROWN	RD__RED
BU__BLUE	WH__WHITE
GR__GREEN	YL__YELLOW
OR__ORANGE	

WIRING DIAGRAM

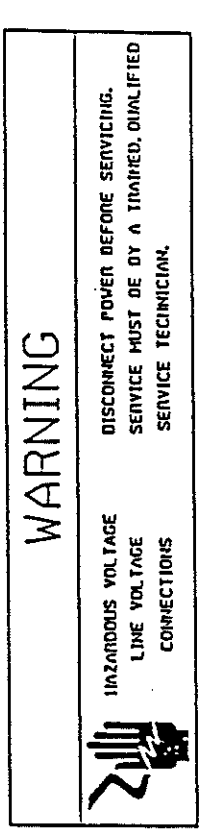
UPFLOW, DOWNFLOW & HORIZONTAL BLOWER INDUCED DRAFT, GAS FIRED, FORCED AIR FURNACE, SINGLE STAGE HEAT, SINGLE STAGE COOL, ROBERTSHAW OR HONEYWELL GAS VALVE, HOT SURFACE IGNITION

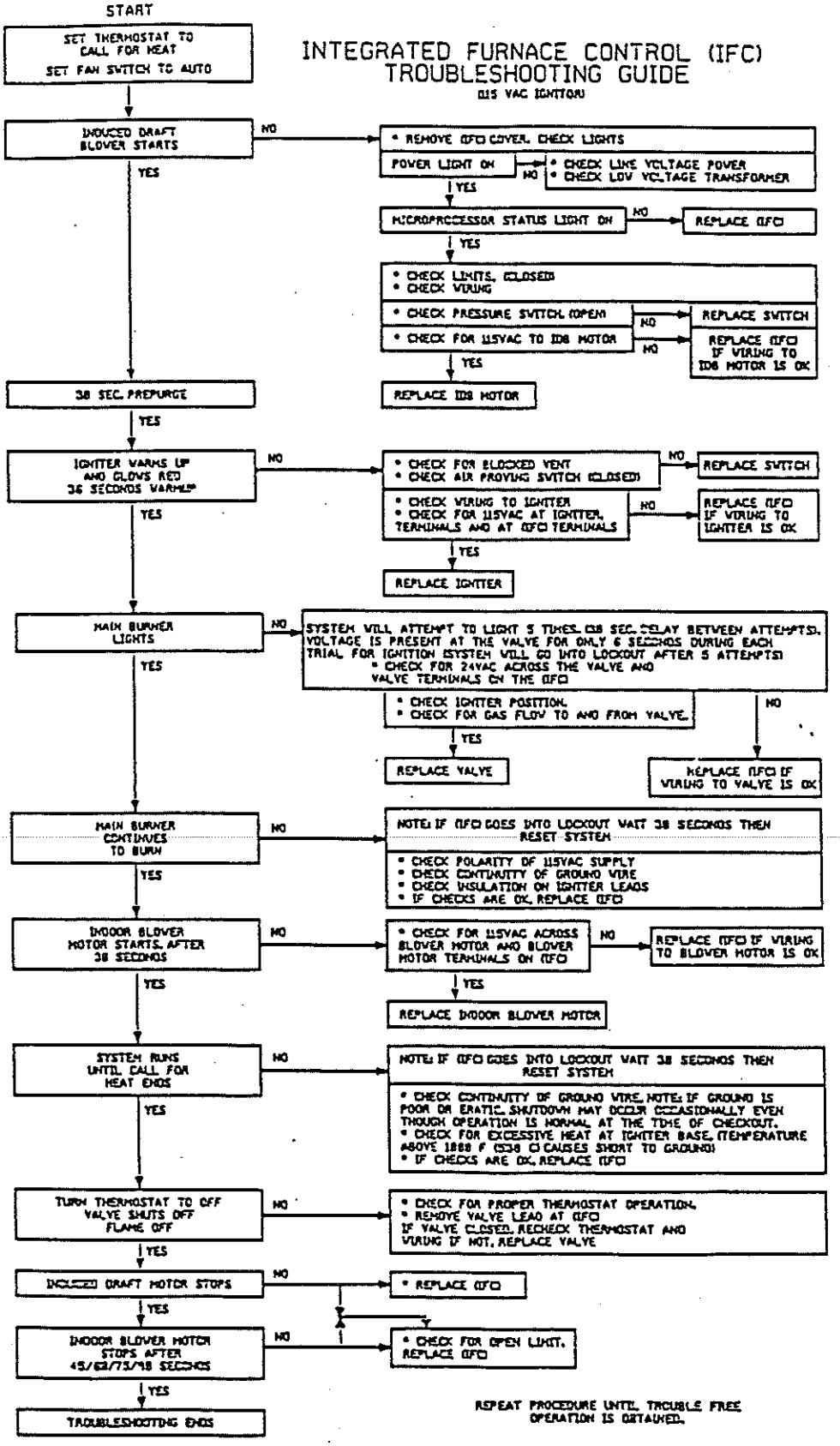
DR. BY	APP. BY	DATE	DWG. NO.	REV
DKO	TJS	5-17-90	90-22886-01	08

DWG. NO. 90-22886-01 REV 08

INTEGRATED FURNACE CONTROL (IFC) TROUBLESHOOTING GUIDE

(115 VAC IGNITOR)





NOTE: STATIC DISCHARGE CAN DAMAGE INTEGRATED FURNACE CONTROL (IFC)

IDB - INDUCED DRAFT BLOWER
IFC - INTEGRATED FURNACE CONTROL

92-22744-87-02