



48/50HJ015-025

48/50TJ016-028

Single-Package Cooling Units with Novar Controls

PACKET ONLY

Installation Instructions Supplement

This book is a supplement to the 48 and 50HJ,TJ Installation, Start-Up and Service Instructions and is to be used for the rooftop units using Novar controls.

GENERAL

These units are designated by either the letter "H" or the letter "J" in the ninth position of the model number. For example:

48TJD016J-----

48TJD016H-----

These rooftop units are the same as the 48/50HJ015-025 and 48/50TJ016-028 units with the following custom-design modifications:

- Novar control with airflow switch (AFS) and compressor relays for fan and compressor status inputs, discharge temperature sensor (DTS), return temperature sensor (RTS), and 3-position economizer dampers. See Fig. A for AFS and DTS locations. The RTS is located below the unit control box.
- Hinged filter access panels
- Hinged evaporator-fan motor and blower access panels
- Hinged control box access panels ("H" models only)
- 115 v convenience outlet ("J" models only)
- Unit non-fused disconnect ("J" models only)

INSTALLATION

⚠ WARNING

Before performing service or maintenance operations on unit, turn off main power switch to unit. Electrical shock could cause personal injury.

Make Electrical Connections

FIELD POWER WIRING — All field wiring must comply with NEC (National Electrical Code) and local requirements.

Non-Fused Disconnect ("J" Models Only) — Unit is supplied with a factory-installed, non-fused disconnect. The switch can be locked into position for safety. A fuse or HACR (Heating, Air Conditioning, and Refrigeration) circuit breaker must be field supplied and installed. Route field power and ground wires through control box end panel or unit basepan, and make connections directly to factory-supplied disconnect as shown on unit wiring diagram (on the unit).

Convenience Outlet ("J" Models Only) — Unit is supplied with a factory-installed, 115-v convenience outlet. Connect blue and yellow wires from the convenience outlet and the first and third field power wires to the line side of the disconnect switch.

FIELD CONTROL WIRING — Install auxiliary temperature sensor(s) as specified in job requirements (if required).

Make field control wiring connections directly to the factory-installed Novar control board. Refer to the unit wiring diagram (on the unit).

Make Outdoor-Air Inlet Adjustments — All units are equipped from the factory with a 3-position economizer damper. Refer to Carrier standard unit Installation, Start-Up and Service Instructions for more details. Set the minimum damper position setting ON THE ECONOMIZER MOTOR at the full clockwise position.

The damper position adjustment is made on the separate potentiometer located next to the economizer motor. Rotate the adjustment knob clockwise to increase damper open position, and counterclockwise to decrease damper open position. See Fig. B for potentiometer location.

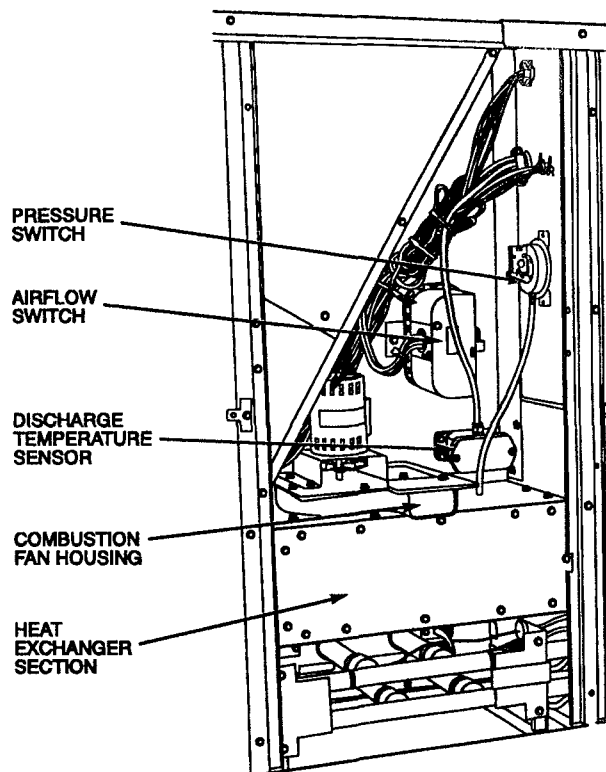


Fig. A — Airflow Switch and Discharge Temperature Sensor Location
(48 Series Unit Shown)

Manufacturer reserves the right to discontinue, or change at any time, specifications or designs without notice and without incurring obligations.

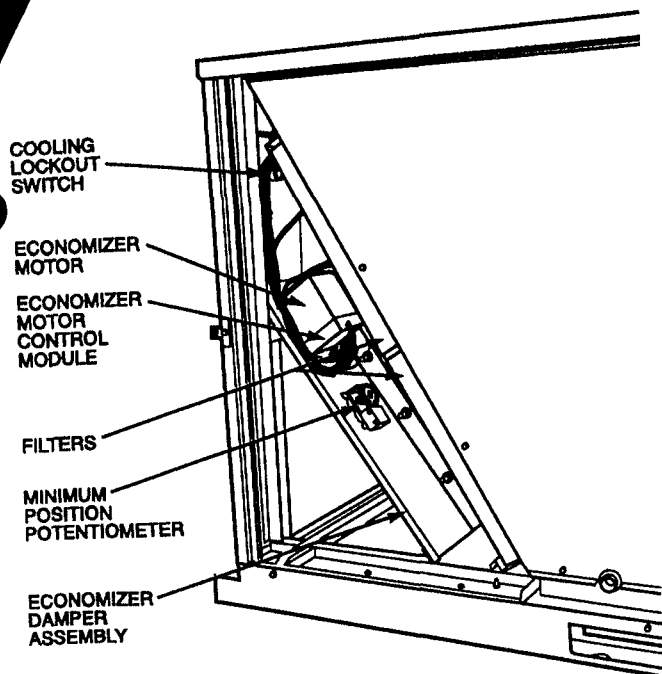


Fig. B — Potentiometer Location

START-UP

Evaporator Fan and Damper Operation — On a call for evaporator fan operation from the Novar control, fan starts and AFS closes. Outdoor-air dampers move to minimum position. On a call for outdoor air from the Novar control, outdoor-air dampers move to the fully-open position. When the Novar control night mode switch closes, the outdoor-air dampers move to the fully-closed position.

Cooling and Heating Operation — Cooling and heating operation are the same as described in the Carrier standard unit Installation, Start-Up and Service Instructions in the Cooling, Units Without Economizer and Heating, Units

Without Economizer sections, respectively. The only exception is that the Novar control takes the place of the thermostat in these units and operates the evaporator fan and dampers as described in Evaporator Fan and Damper Operation section above. See Fig. C and D for Typical Wiring Schematic and Component Arrangement.

SERVICE

⚠ CAUTION

When the unit disconnect is turned off, the 115-v convenience outlet and transformer are still powered. To turn off power to the 115-v convenience outlet, turn off switch located below the unit control box. To turn off power to the transformer, disconnect main power coming into the unit.

Three-Position Economizer Adjustment — To make adjustments to the economizer:

1. Turn off unit power. The outdoor-air dampers should be fully closed, and the return-air dampers should be fully open.
2. Turn on unit power.
3. Adjust the Novar control to call for fan operation (or place a jumper between terminals R and G on terminal block no. 2 [TB2] in the unit control box). The outdoor-air damper will move to the vent position.
4. Adjust the vent position using the minimum position potentiometer mounted next to the economizer motor.
5. Adjust the Novar control to call for damper operation (or place a jumper between terminals 3 and 7 on the Novar control). The outdoor-air dampers will move to the fully-open position.
6. Adjust the Novar control to call for night mode operation (or place a jumper between terminals 25 and 26 on the Novar control). The outdoor-air dampers will move to the fully-closed position.
7. Adjust mechanical linkage, if necessary, for correct positioning. It may be necessary to remove the filters to adjust the linkage.

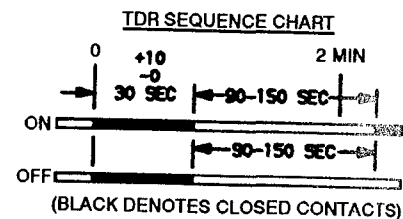
LEGEND FOR FIG. C AND D

AFS	—	Airflow Sensor	MPP	—	Minimum Position Potentiometer
BRK W/AT	—	Breaks With Amp Turns	MV	—	Main Valve
C	—	Contact	NMR	—	Night Mode Relay
CB	—	Circuit Breaker	NO	—	Normally Open
CCW	—	Counterclockwise	NR	—	Novar Relay
CH	—	Crankcase Heater	NVC	—	Novar Control
CLO	—	Compressor Lockout	OFC	—	Outdoor (Condenser) Fan Relay
COM	—	Common	OFM	—	Outdoor (Condenser) Fan Motor
COMP	—	Compressor	PGV	—	Pilot Gas Valve
CT	—	Current Transformer	PL	—	Plug
CW	—	Clockwise	PRI	—	Primary
DM	—	Damper Motor	PS	—	Pressure Switch
DTS	—	Discharge Temperature Sensor	PV	—	Pilot Valve
DU	—	Dummy Terminal	RS	—	Rollout Sensor
EQUIP	—	Equipment	RTS	—	Return Air Temperature Sensor
ER	—	Economizer Relay	SN	—	Sensor
FPT	—	Freeze Protection Thermostat	TB	—	Terminal Block
FU	—	Fuse	TDR	—	Time Delay Relay
GND	—	Ground	TH	—	Thermostat, Heating
HPS	—	High-Pressure Switch	TRAN	—	Transformer
HR	—	Heater Relay			
HV	—	High Voltage			
I	—	Ignitor			
ICP	—	Ignitor Control Pilot			
IDM	—	Induced Draft Motor			
IDR	—	Induced Draft Relay			
IFC	—	Indoor (Evaporator) Fan Contactor			
IFCB	—	Indoor (Evaporator) Fan Circuit Breaker			
IFM	—	Indoor (Evaporator) Fan Motor			
IFR	—	Indoor (Evaporator) Fan Relay			
IP	—	Internal Protector			
LOR	—	Lockout Relay			
LPS	—	Low-Pressure Switch			
LS	—	Limit Switch			
MGV	—	Main Gas Valve			

	—	Minimum Position Potentiometer
	—	Main Valve
	—	Night Mode Relay
	—	Normally Open
	—	Novar Relay
	—	Novar Control
	—	Outdoor (Condenser) Fan Relay
	—	Outdoor (Condenser) Fan Motor
	—	Pilot Gas Valve
	—	Plug
	—	Primary
	—	Pressure Switch
	—	Pilot Valve
	—	Rollout Sensor
	—	Return Air Temperature Sensor
	—	Sensor
	—	Terminal Block
	—	Time Delay Relay
	—	Thermostat, Heating
	—	Transformer
	—	Terminals (Marked)
	—	Terminal (Unmarked)
	—	Terminal Block
	—	Splice
	—	Factory Wiring
	—	Field Wiring
	—	To indicate common potential only, not to represent wiring.

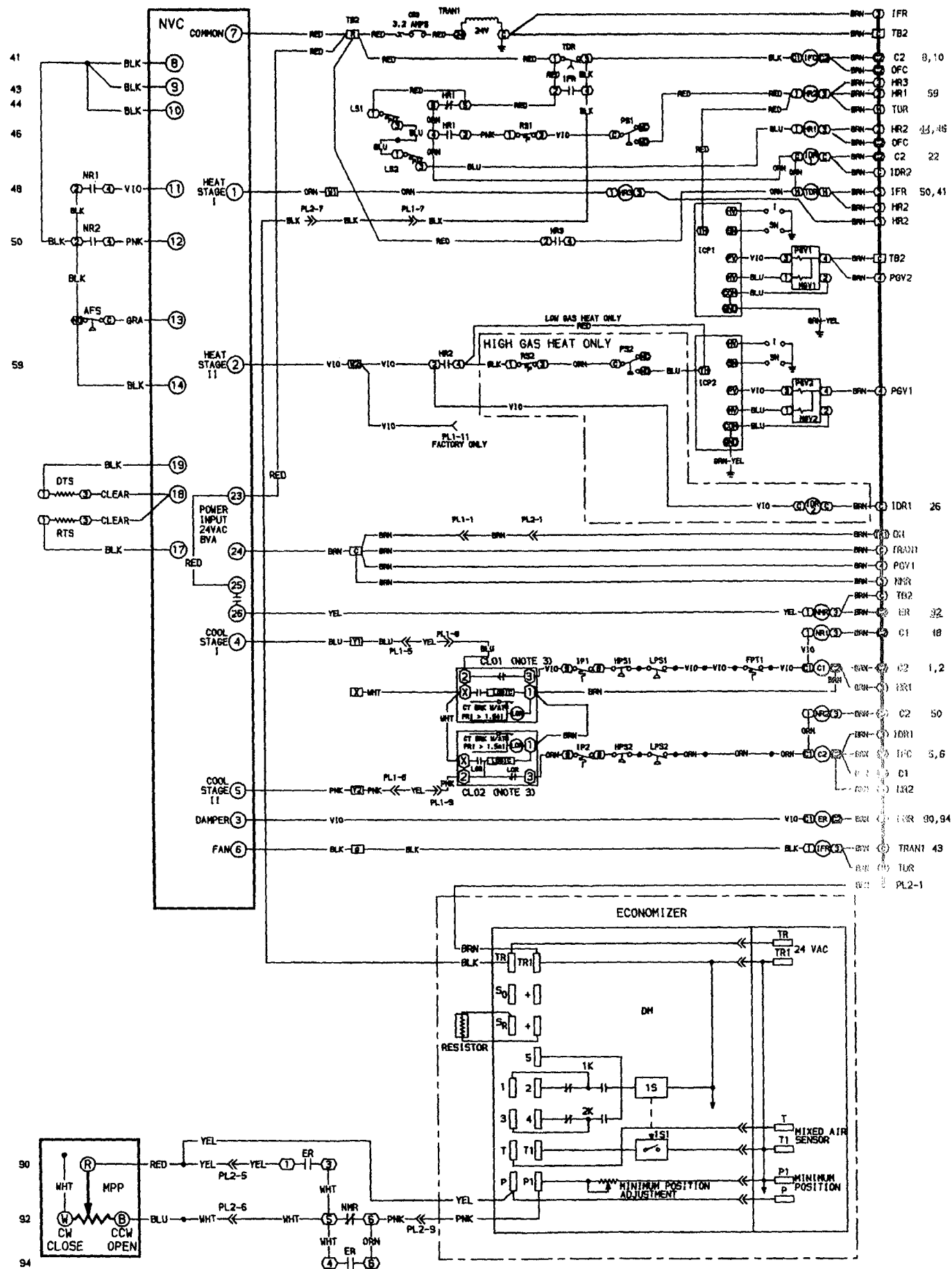
NOTES FOR FIG. C AND D

- Compressor and/or fan motor(s) thermally protected against primary single phasing conditions.
- If any of the original wire furnished must be replaced, it must be replaced with type 90° C wire or its equivalent.
- The CLO locks out the compressor to prevent short cycling on compressor overload and safety devices; before replacing CLO, check these devices.
- IFCB must trip amps is equal to or less than 140% FLA.
- Number(s) indicates the line location of used contacts. A bracket over (2) numbers signifies a single pole, double throw contact. An underlined number signifies a normally closed contact. Plain (no line) number signifies a normally open contact.





4



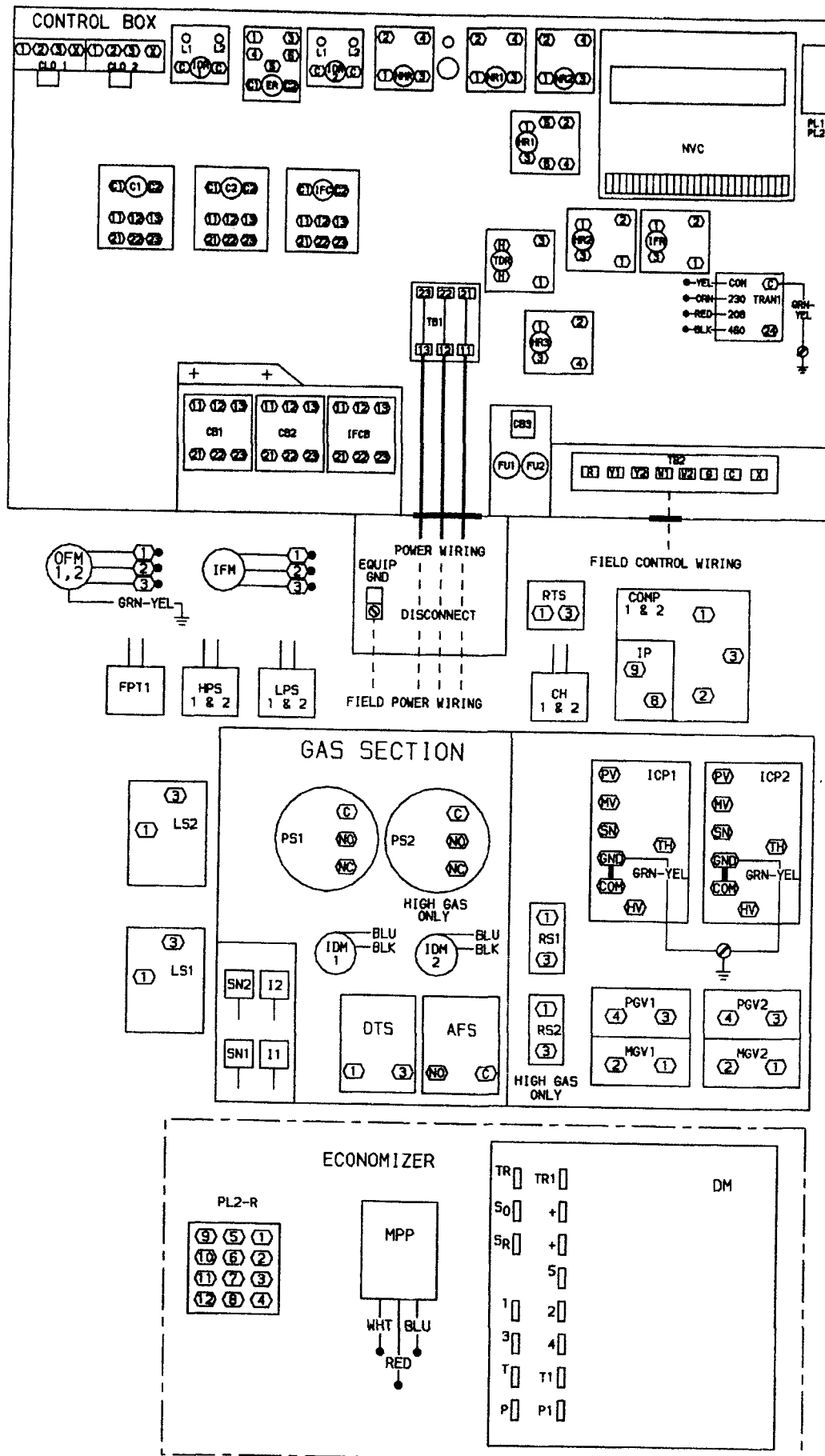


Fig. D — Typical Unit Component Arrangement (48HJ025, 50TJ028; 460-V Unit Shown)

Copyright 1996 Carrier Corporation

Manufacturer reserves the right to discontinue, or change at any time, specifications or designs without notice and without incurring obligations.

PC 111

Printed in U.S.A.

Form 48/50H I T L-2SIS

Pg 8

4-96

Replaces: 48/50H I T L-1SIS