

**INSTALLATION INSTRUCTIONS FOR NOVAR DDC KIT USED WITH ENERGENCE™ UNITS
(605240-01 [64W72], 605240-02 [64W73], 605240-03 [64W74])**

Shipping and Packing List

Package 1 of 1 (64W72, 64W73 & 64W74) contains:

- 1 - Novar DDC assembly (A1)
- 1 - Air flow switch (S52)
- 1 - Return air sensor (A2)
- 1 - Discharge air sensor (RT1)
- 1 - Bag assembly (**64W72**) containing:
 - 8 - #8-32 X 1/2" screws
 - 1 - Wiring diagram sticker
 - 1 - Airflow tubing
 - 1 - Fitting
- 1 - Bag assembly (**64W73**) containing:
 - 13 - #8-32 X 1/2" screws
 - 4 - Wire-Tie Insertion
 - 1 - Wiring diagram sticker
 - 1 - Airflow tubing
 - 1 - Fitting
 - 1 - Harness, J63 to RT1
 - 1 - DDC Panel Holder
 - 1 - Latch
- 1 - Bag assembly (**64W74**) containing:
 - 2 - #8-32 X 1/2" screws
 - 4 - #10-16 X 5/8" screws
 - 2 - #10-16 X 5/8" screws
 - 1 - Harness, J63 to RT1
 - 1 - Harness, J62 to A2
 - 1 - Wire-Tie
 - 1 - Wire-Tie Insertion
 - 1 - Wiring diagram sticker
 - 1 - Airflow tubing
 - 1 - Fitting

Application

The Novar DDC assembly is used with the following Energence™ units:

Box Size	Unit	Tons	Cat. No.	LB No.
A	036 to 072	3 to 6	64W72	605240-01
B	092 to 150	7-1/2 to 12-1/2	64W73	605240-02
C & D	156 to 360	13 to 30	64W74	605240-03

The A2 return air sensor monitors return air temperature and provides input to the DDC to determine unit heating or cooling function.

The RT1 discharge air sensor monitors discharge or supply air temperature. This input may be reconfigured in the software of the DDC for use as the input from a second zone sensor for temperature averaging.

NOTE - Refer to the notes in the wiring diagram in this kit when installing optional sensors. A2 and RT1 may not be connected in some sensor applications.

The normally open S52 air flow (blower proving) switch closes with static pressure increase when the blower is started. If the static increase is not sensed, the DDC assembly will keep the heating and cooling functions locked out and also show an alarm in the system.

⚠ WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Installation and service must be performed by a qualified installer, service agency or the gas supplier

⚠ WARNING



**Electric shock hazard.
Can cause injury or death.
Before attempting to perform any service or maintenance, turn the electrical power to unit OFF at disconnect switch(es). Unit may have multiple power supplies.**

⚠ CAUTION

**Danger of sharp metallic edges.
Can cause injury.
Take care when servicing unit to avoid accidental contact with sharp edges.**



Install DDC Assembly

See figure 1 for location of DDC assembly in A box units. See figure 2 for location of DDC assembly in B box units. See figure 3 for location of DDC assembly in C and D box units.

1. Disconnect all electrical power to unit.
2. Open compressor section access doors.
3. Install DDC Assembly

A Box Units—Position the DDC assembly on the right side of the M2 board (see figure 1). Secure with two #8-32 x 1/2" TFS" screws.

B Box Units—Position the DDC assembly in front of control panel and secure the assembly with three #8-32 x 1/2" TFS screws to the control box located at the right side of control panel (see figure 2).

C & D Box Units—Position the DDC assembly so that the DDC control module faces the M2 unit controller. Align dimples or knock-outs in unit mullion with engaging holes in DDC mounting bracket. Secure with two 5/8" sheet metal screws (see figure 4).

Jack Plug Connections

A Box Units

Route harnesses coming from sub-assembly (see figure 1 for the following steps 1 through 5).

1. Disconnect J264C from M2 board and connect to P303 of controller sub-assembly.
2. Install RT1 sensor located on the bottom left corner of the compressor compartment with two #8-32 x 1/2 TFS screws. Connect J63 jack to RT1 sensor.
3. Connect connectors (J297A-B&C) to M2 board on J297.
4. Locate J62 female terminals under M2 board panel; connect with male wires coming from sub-assembly.
5. Connect modular cable between DDC SYSBUS and M2 SYSBUS connector.

6. Use P300 (NOVAR Comm Bus connector), P301 and P302 to install field provided sensors (see wiring diagram, figure 9).

NOTE - Wires are labeled (hot stamped) to the plugs to identify wire positions.

7. Open blower compartment and install blower proving switch on top of blower wrapper with two #8-32 x 1/2 TFS screws (see figure 5).
8. Locate S52 terminals near piping in front of the blower and connect to blower proving switch (see figure 5).

B Box Units

Route harnesses coming from sub-assembly (see figure 2 for the following steps 1 through 6).

1. Disconnect J264C from M2 board and connect to P303 of controller sub-assembly.
2. Connect connectors (J297A-B&C) to M2 board on J297.
3. Install A2 sensor behind compressor B2, use two #8-32 x 1/2 TFS screws. Connect J62 jack to sensor plug P62.
4. Connect modular cable between DDC SYSBUS and M2 SYSBUS connector.
5. Get harness J63 from bag assembly; connect one end to RT1 sensor and fit the other end through the conduit on top of indoor coil. Connect P63 connector from sub-assembly to the harness connector fitted through conduit coming from blower compartment.
6. Install RT1 sensor located on the left side of blower following instructions on Discharge Air Sensor (RT1) section.
7. Use P300 (NOVAR Comm Bus connector), P301 and P302 to install field provided sensors (see wiring diagram, figure 9).

NOTE - Wires are labeled (hot stamped) to the plugs to identify wire positions.

8. Open blower compartment and install blower proving switch on top of blower wrapper with two #8-32 x 1/2 TFS screws (see figure 5).
9. Locate S52 terminals near piping in front of the blower and connect to blower proving switch (see figure 5).

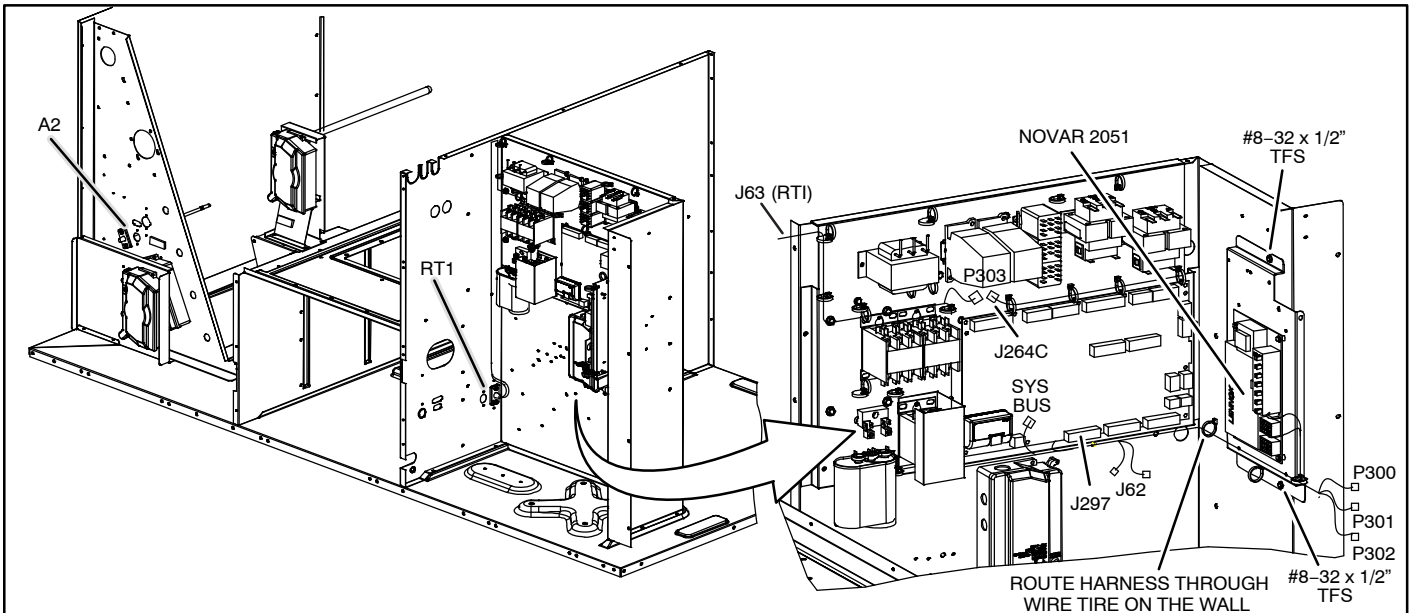


Figure 1. Novar 2051 DDC Location - A Box Units

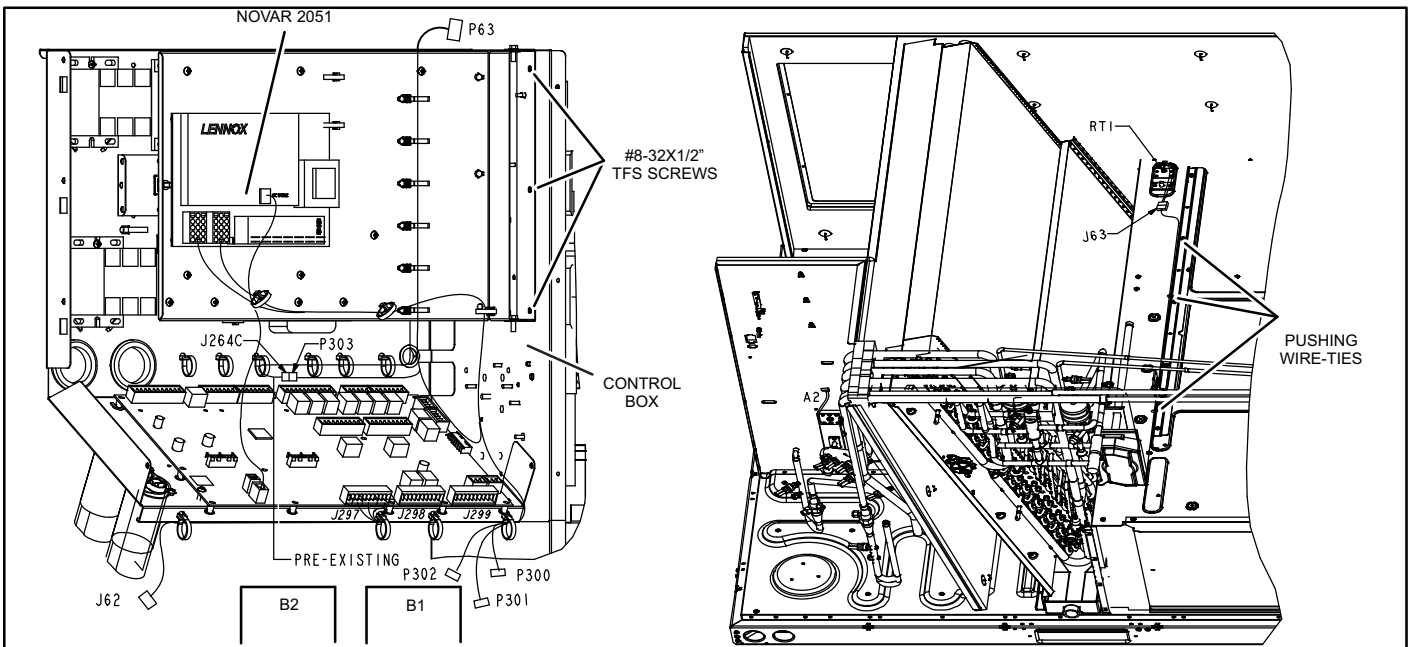


Figure 2. DDC Location - B Box Units

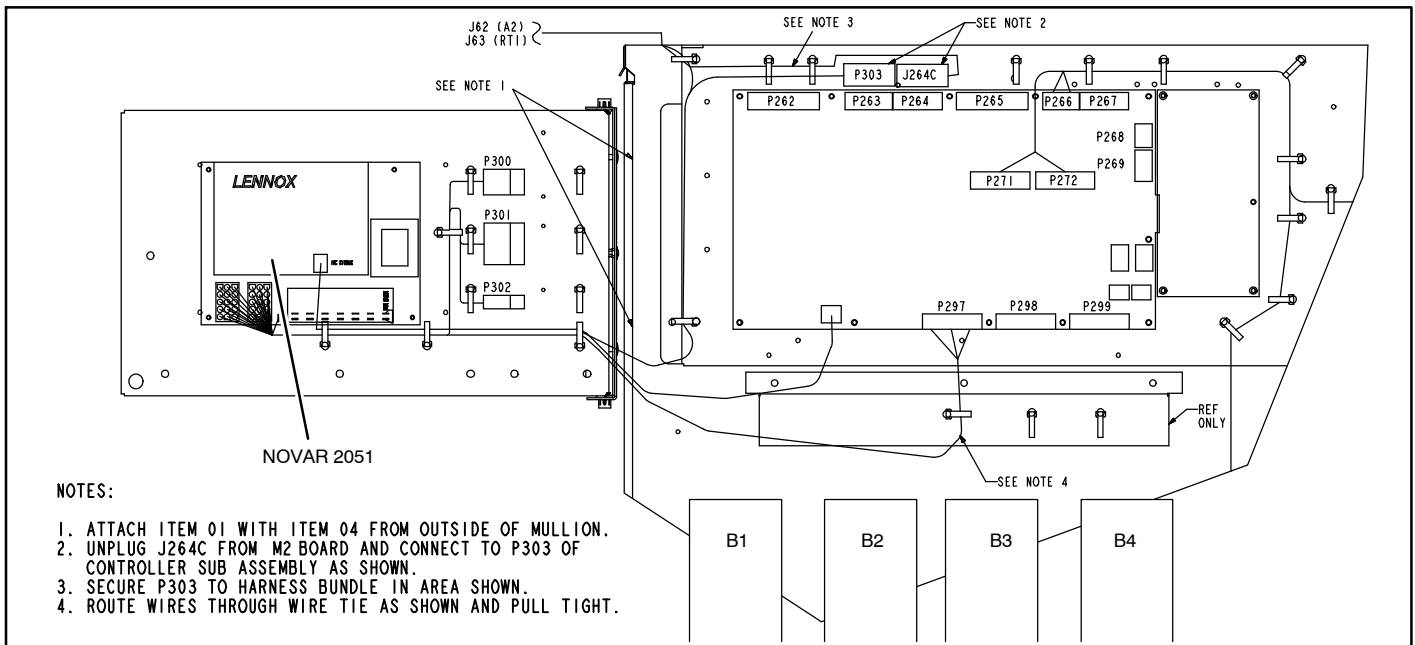


Figure 3. DDC Location - C & D Box Units

C & D Box Units

Route harnesses coming from sub-assembly (see figure 3 for the following steps 1 through 3).

1. Disconnect J264C from M2 board and connect to P303 of controller sub-assembly.
2. Connect connectors (J297A-B&C) to M2 board J297.
3. Connect modular cable between DDC SYSBUS and M2 SYSBUS connector.
4. Install RT1 sensor (on bottom of blower compartment) with two #10-16 x 5/8 SMS screws (see figure 6). Get harness J63 from bag assembly; connect one end to RT1 sensor and fit the other end through the conduit on the compressor wall. Connect J63 female terminals to the J63 male terminals from sub-assembly.
5. Open filter access door, install A2 sensor (location

shown in figure 7) with two #10-16 x 5/8 SMS screws. Get harness J62 from bag assembly; connect one end to A2 sensor and fit the other end through the conduit on the indoor coil and then through the compressor wall conduit. Connect J62 female terminals to the J62 male terminals from sub-assembly.

6. Use P300 (NOVAR Comm Bus connector), P301 and P302 to install field provided sensors (see wiring diagram, figure 9).

NOTE - Wires are labeled (hot stamped) to the plugs to identify wire positions.

7. Open blower compartment and install blower proving switch on top of blower wrapper with two #8-32 x 1/2 TFS screws (see figure 5).
8. Locate S52 terminals near piping in front of the blower and connect to blower proving switch (see figure 5).

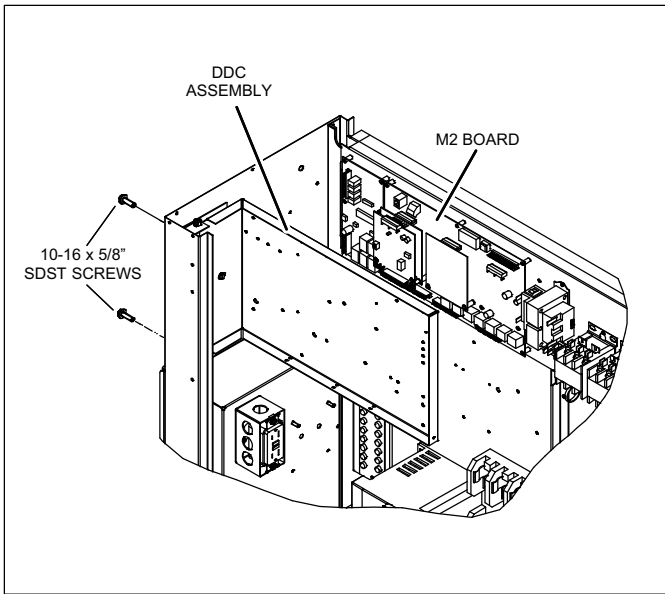


Figure 4. Install DDC Assembly (C & D Box Units)

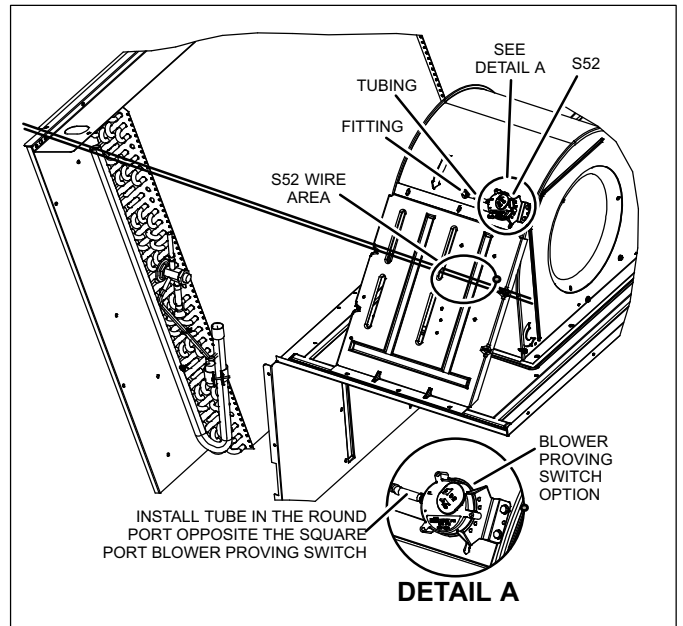


Figure 5. Blower Proving Switch Location

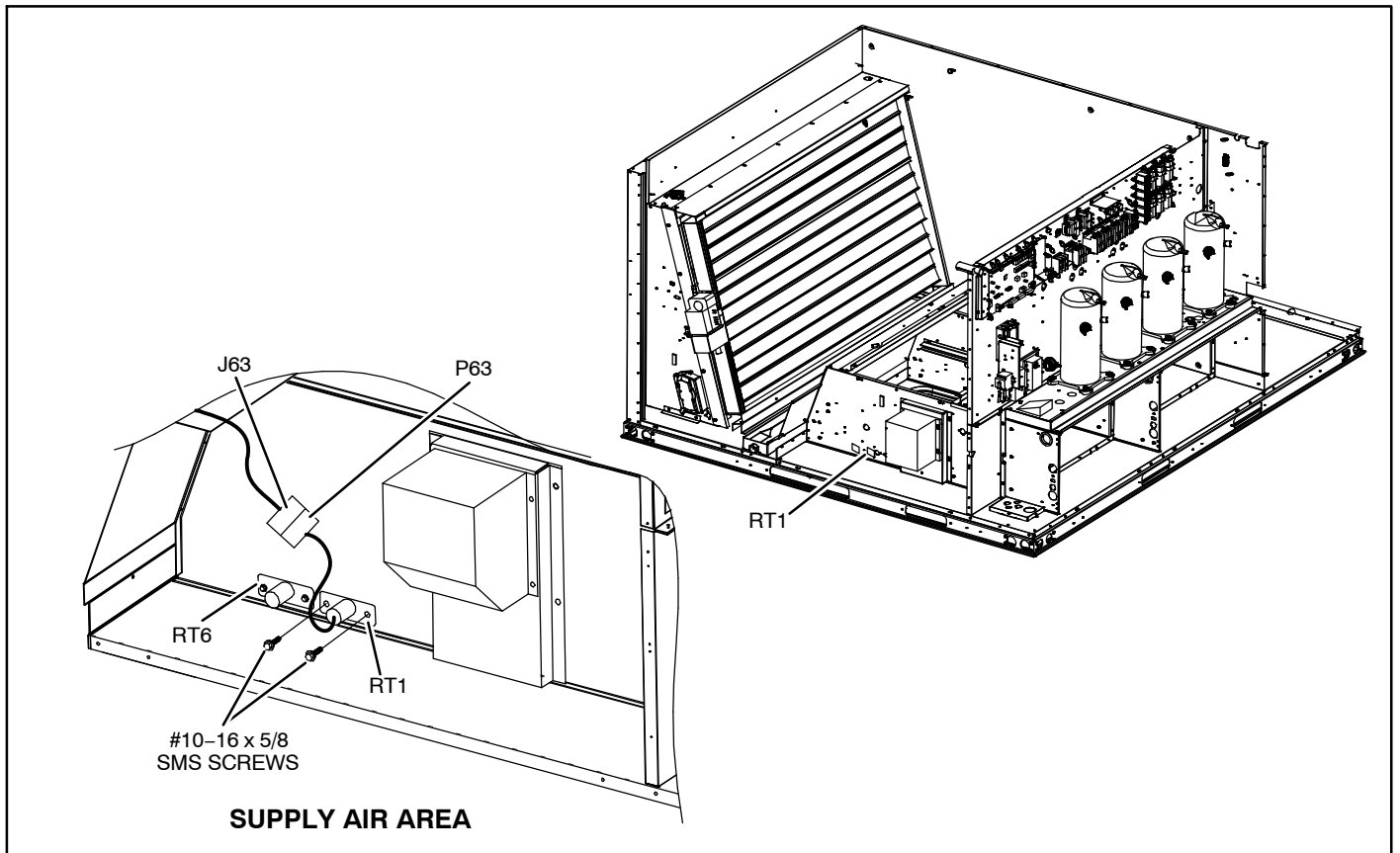


Figure 6. Install RT1 Sensor

Return Air Sensor (A2) A-Box only

1. Open filter access door.
2. Insert return air sensor probe into hole (location shown in figure 7). Secure with screws provided.
3. Connect A2 return air sensor plug P62 to A2 return air sensor jack J62.

NOTE - Refer to the notes in the wiring diagram in this kit when installing optional sensors. A2 and RT1 may not be connected in some sensor applications.

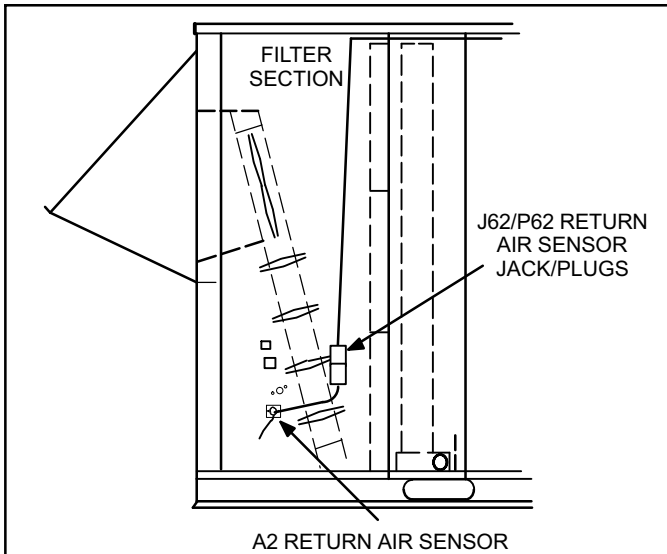


Figure 7. A2 Return Air Sensor

Discharge Air Sensor (RT1) B-Box only

1. Slide out the blower deck.
2. Connect RT1 discharge air sensor plug P63 to RT1 discharge air sensor jack J63 coming from the single wire just installed.

3. Insert discharge air sensor probe into hole at the left of blower deck as shown in figure 2. Secure with two #8 -32 x 1/2 TFS screws provided.
4. Cut wire ties holding sensor RT6 and secure both harnesses with pushing wire ties provided as shown in Figure 2.
5. Slide blower deck back in the unit.

Wiring

1. Controls contractor completes field wiring connections to optional system components shown in dotted lines in figure 9.

NOTE - Microprocessor and zone sensor are polarity-sensitive; proper connections to M2 are necessary for proper unit operation.

2. Wiring diagram sections are affixed to inside of unit panel in alphabetical order. Figure 8 shows an example of a complete system diagram on an installation consisting of an LGH240 unit with an electro-mechanical or electronic control system and a modulating economizer. Affix the C section wiring diagram, provided, over the top of the existing C section wiring diagram.

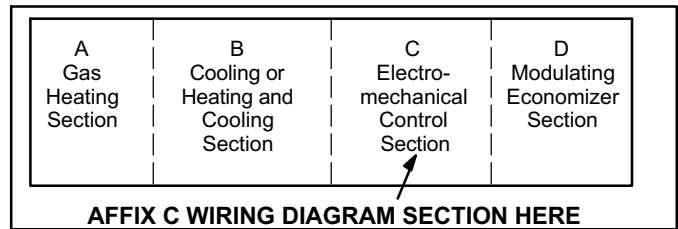


Figure 8. Affixing System Wiring Diagram

Check-Out Procedure

The DDC contains relay outputs. Field installed jumpers or toggle switches may be connected to the relay tabs to simulate a thermostat demand (see figure 10). Refer to unit installation instructions and M2 manual provided with unit.

1. Disconnect all electrical power to unit.
2. Remove fuse (F1) from the DDC to disable automatic control of the DDC outputs.
3. Install toggle switches across the relay tabs. If using jumper wire, connect individual jumper wires across the two tabs on each relay. Do not install jumper wires between relays.
4. Restore power to unit. One relay at a time, turn on toggle switch or make jumper connection to other relay tab. The corresponding indicating light on the A55 M2 Unit Controller should turn on. This indicates that the M2 board is receiving a demand from the DDC and the

wiring between the DDC output terminals and the M2 input terminals is correct for each function.

NOTE - When a jumper is removed, a delay may keep a component functioning. A short push on the M2 pushbutton will reset the delay.

IMPORTANT - Do not jumper cooling and heating outputs at the same time.

5. Turn off power.
6. Remove all jumpers or toggle switches.
7. Replace fuse (F1) on DDC.
8. Restore power to unit. Blinking status LED indicates normal operation.
9. Repeat check-out procedure if needed.

NOTE - All field installed jumpers or toggle switches should be removed after service has been completed to ensure that unit control has been switched back to the DDC.

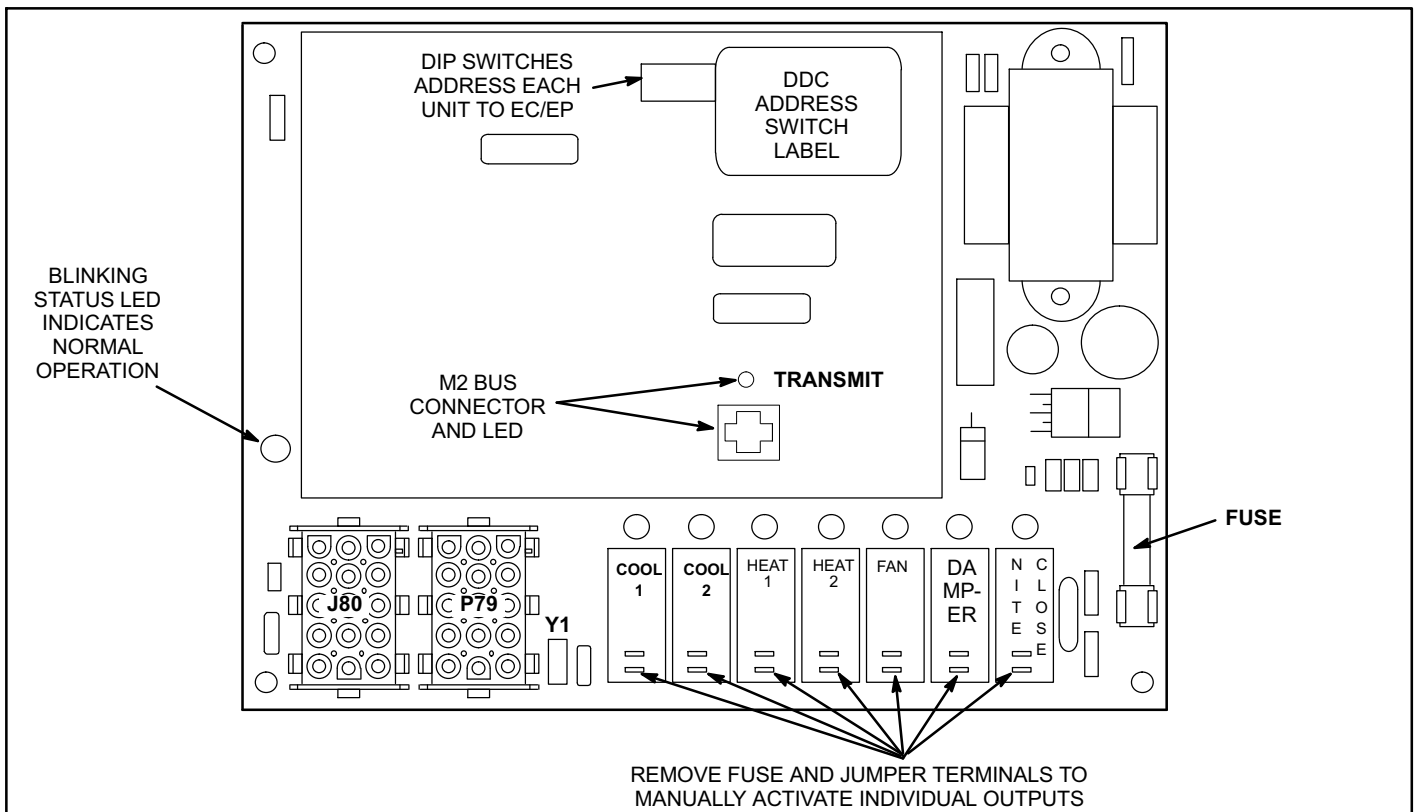


Figure 10. NOVAR ETM-2051 DDC

Revision History

—	12/2009	Original Release
a	01/2010	Add Novar comm connection in text and on wiring diagram; correct J301 connector callout
b	07/2010	Add D Box Unit support