

DOWNFLOW INSTALLATION KIT

INSTALLATION INSTRUCTIONS FOR DOWNFLOW KIT USED TO MODIFY AIR HANDLER UNITS FOR DOWNFLOW APPLICATION MSHDK3660

⚠ 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 licensed professional HVAC installer or equivalent, service agency, or the gas supplier.

⚠ CAUTION

As with any mechanical equipment, contact with sharp sheet metal edges can result in personal injury. Take care while handling this equipment and wear gloves and protective clothing.

⚠ WARNING



Electric Shock Hazard. Can cause injury or death. Unit must be grounded in accordance with national and local codes.

Line voltage is present at all components when unit is not in operation on units with single-pole contactors. Disconnect all remote electric power supplies before opening access panel. Unit may have multiple power supplies.

General Information

⚠ IMPORTANT

All models should be set to high speed in the down flow configuration. Refer to page 8 for instructions on how to change blower speed.

This kit is used to modify air handler units for use in down-flow applications. The procedure requires that the installer remove the evaporator coil and reinstall it for downflow air discharge application.

Figure 1 shows the air handler unit as configured at the factory. As shipped, the units are ready for installation in either upflow or horizontal right-hand air discharge applications.

Figure 2 shows the air handler unit after re-configuring for installation in downflow air discharge applications.

NOTE – A downflow combustible floor base is **not required** for the applicable air handler.

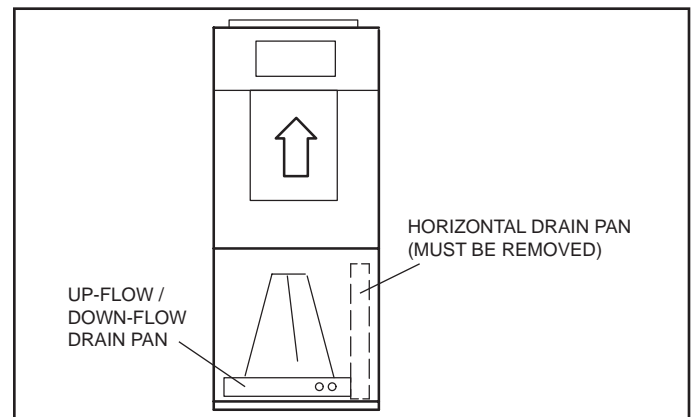


FIGURE 1. As-Shipped Configuration

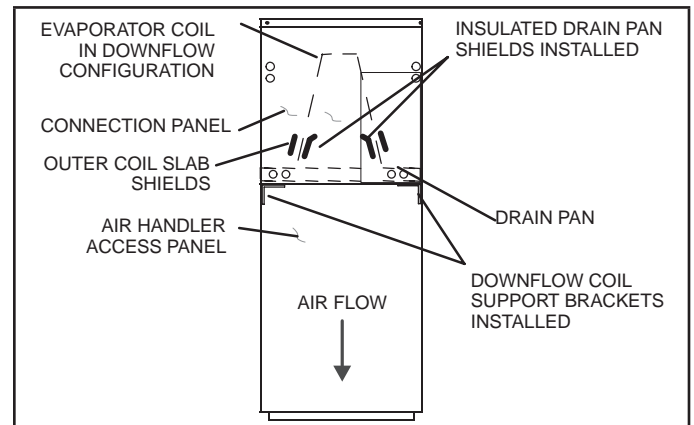


FIGURE 2. Downflow Configuration

Shipping and Packing List

TABLE 1. Kit Contents

AIR HANDLER SIZES	1-1/2, 2, and 2-1/2 ton	3, 3-1/2, 4 and 5 ton	Figure 3 Parts
Catalog Number	MSHDK1830	MSHDK3660	
Part Number			
Part Description	Quantity	Quantity	
Insulated drain pan	1 EA	1 EA	A
Insulated downflow coil support brackets	2 EA	2 EA	B
Insulated inner drain pan drip shields	2 EA	2 EA	C
Non-insulated outer coil slab shields	2 EA	2 EA	D
Front and rear insulated air seal plates	2 EA	2 EA	E
Tapping screws (#8 x 1" AB hex washer HD) for downflow coil support brackets	6 EA	6 EA	F
Pre-cut insulating foam tape for delta plates (16" long)	2 EA	2 EA	G
Insulating foam tape for coil suction manifold (12" long)	1 EA	1 EA	H

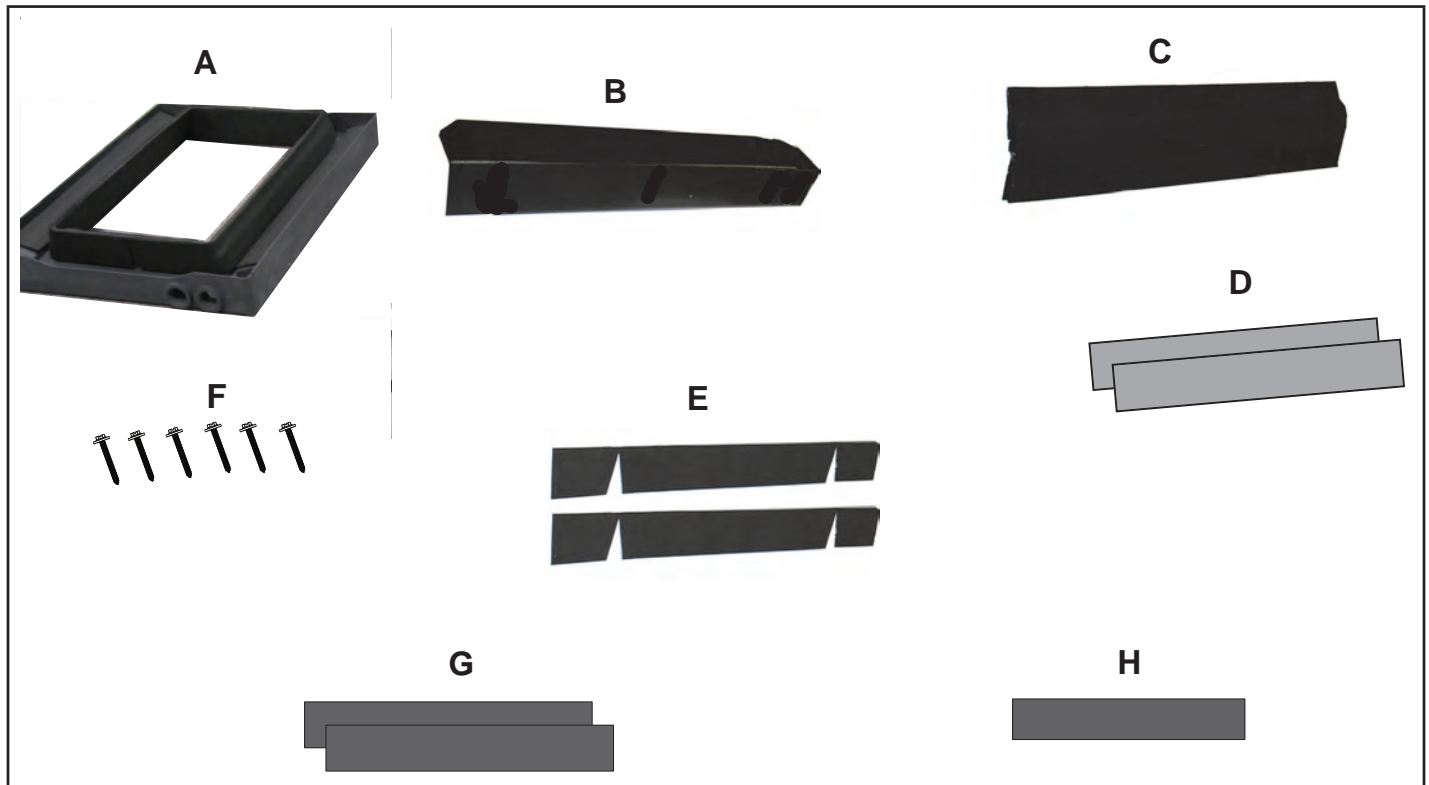


FIGURE 3. Downflow Kit Parts

Installation

REMOVING COIL FROM HOUSING

⚠ CAUTION

Be certain all power has been disconnected from the air handler before beginning work.

⚠ WARNING

Excessive Weight Hazard - Use two or more people when moving and installing the unit. Failure to do so can result in back or other type of injury.

- 1 - Remove air filter.
- 2 - Remove the connection panel, access panel, and the blower panel. Keep all panels and screws; these will be re-used when reassembling.
- 3 - Remove horizontal drain pan mounting bracket (see figure 4). This bracket will not be reinstalled for downflow air discharge applications.

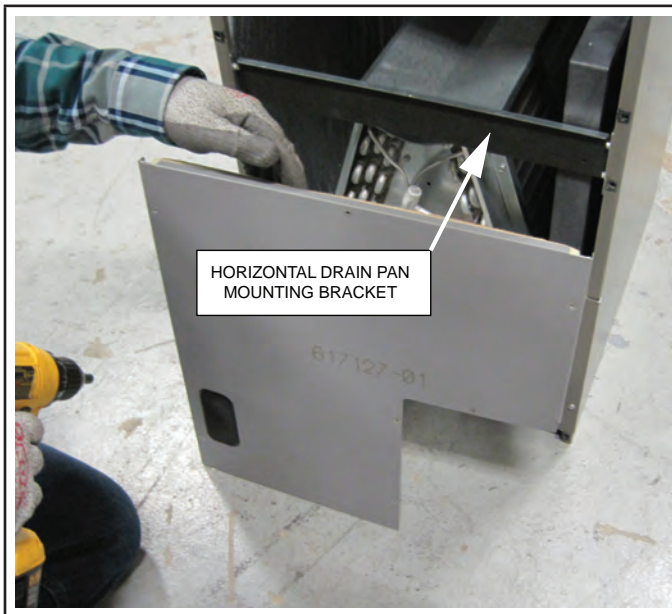


FIGURE 4. Remove Horizontal Drain Pan Mounting Bracket

- 4 - Carefully slide the coil and the horizontal drain pan assembly from the air handler cabinet. Discard the horizontal drain pan which is not used in this application.

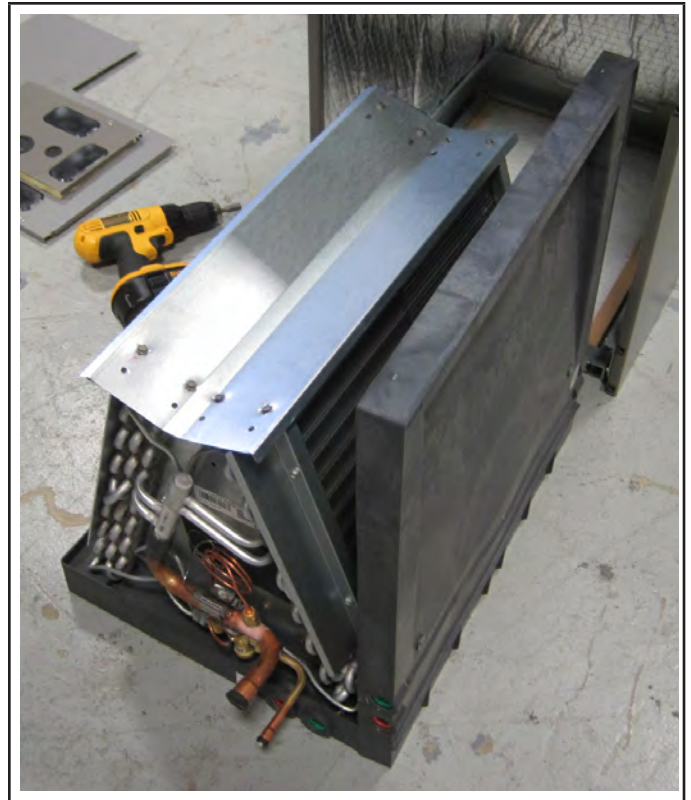


FIGURE 5. Coil and Horizontal Drain Pan Assembly Removed from Cabinet

MODIFYING INDOOR COIL

- 1 - Remove the original drain pan from the coil.
- 2 - Arrange the coil so it is laying on the rear delta plate.
- 3 - Working from the bottom of the coil, install provided insulating foam tape (Part G, two each) to the rear delta plate of the coil (see figure 6).

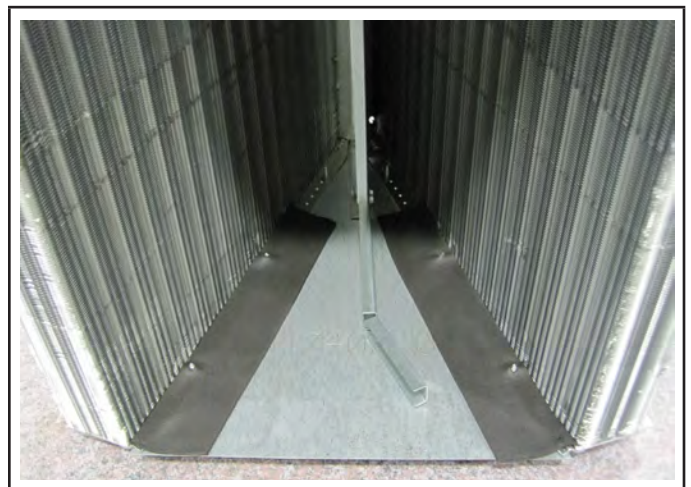


FIGURE 6. Install Delta Plate Foam Tape Insulation

NOTE – Foam tape may need to be trimmed to fit certain delta plates.

INSTALL INNER INSULATED DRAIN PAN DRIP SHIELDS

- 1 - Place the kit-provided insulated drain pan (Part A) on a stable surface, facing up.
- 2 - Stand the coil upright and lower it onto the drain pan, pushing down as required to fully contact coil surfaces with the pan (see figure 7).



FIGURE 7. Coil Installed on Insulated Downflow Drain Pan

- 3 - Arrange the coil so it is laying on the rear delta plate.
- 4 - Working from the bottom of the coil, install provided insulated drain pan drip shields (part C, two each). The shields slide into place between the inner coil slab and the drain pan (see figures 8 and 9).

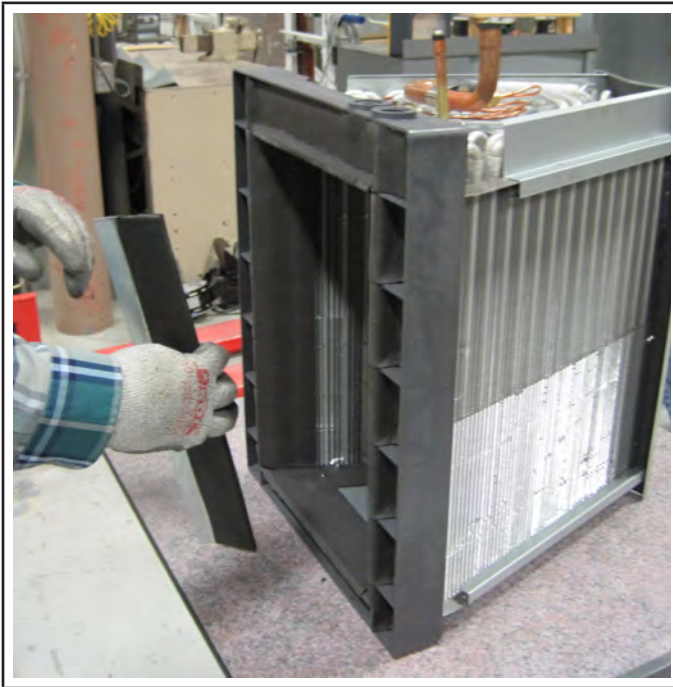


FIGURE 8. Arrange Insulated Drip Shield as Shown for Installation

NOTE – Short bend in drain pan drip shield faces away from coil slabs.



FIGURE 9. Insulated Drip Shield Installed

INSTALL OUTER COIL SLAB SHIELDS

- 1 - Arrange the coil / pan assembly so it is upright.
- 2 - Slide provided shields (part D, two each) behind the return bend and hairpin shields, then slide further down to rest on drain pan (see figures 10 and 11).

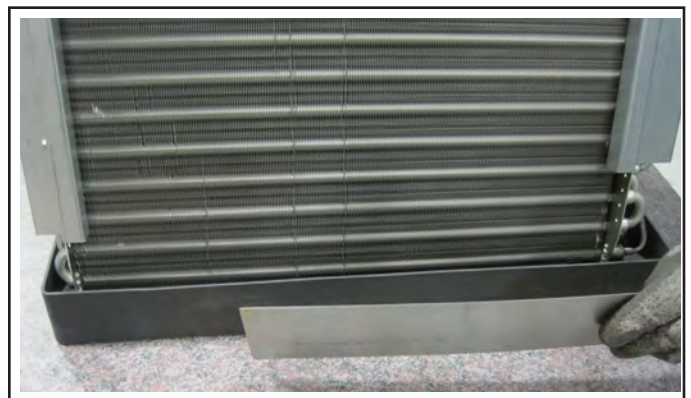


FIGURE 10. Slab Shield Positioned for Installation



FIGURE 11. Outer Coil Slab Shield Installed

NOTE – Failure to install all shields can result in condensate blow-off and subsequent damage to the building and its contents.

- 3 - Leave the TXV sensing bulb in the factory-installed position inside the cabinet. If necessary, the bulb can be insulated using extra foam tape (see figure 12).



FIGURE 12. Insulated TXV Sensing Bulb

MODIFYING AIR HANDLER HOUSING

- 1 - Install the provided insulated coil support brackets (part **B**, two each) using provided six #8-18 x 1" screws (part **F**) to the inner sides of the cabinet with the insulating foam facing up (see figure 13). Do not fully tighten screws at this time.

NOTE – It will be necessary to push the screws through the foil-faced insulation inside the cabinet to install support brackets.

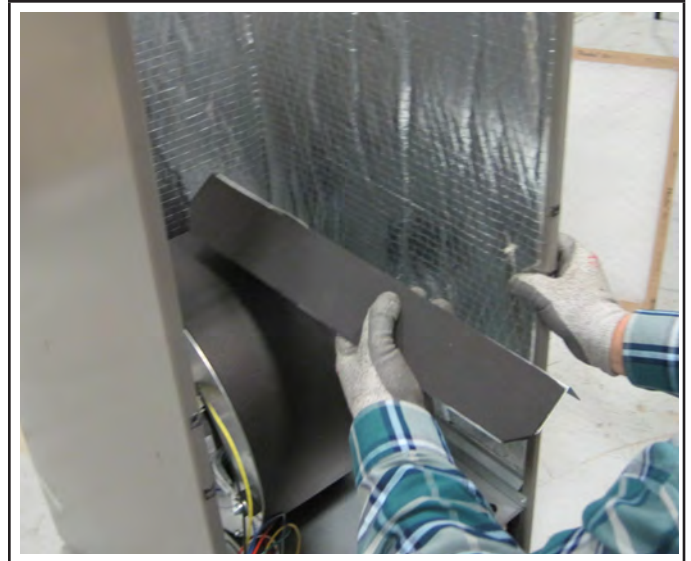


FIGURE 13. Install Insulated Coil Support Brackets to Inside Walls of Cabinet

- 2 - Shape the provided air seals (part **E**) like a U as shown in figure 14.



FIGURE 14. Form Air Seals into a U Shape

- 3 - Position the shaped air seals onto the downflow coil support brackets, ensuring that the seals seat against the sides and back of the air handler cabinet and that a seal will occur when the access panel is reinstalled (see figure 15).

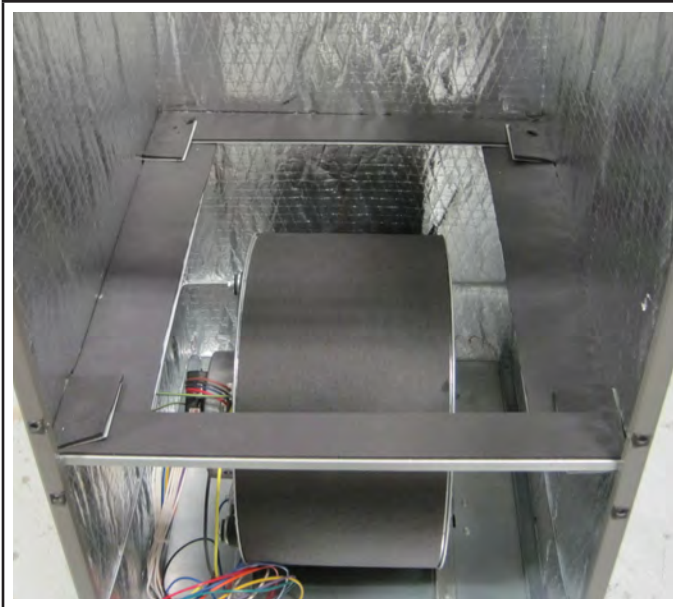


FIGURE 15. Air Seals Properly Installed

- 4 - Tighten the screws attaching the insulated coil support brackets to the air handler cabinet (installed in step 1).

COMPLETION OF DOWNFLOW CONFIGURATION

- 1 - Install evaporator coil / pan assembly onto the downflow coil support brackets (see figure 16).



FIGURE 16. Coil Installed on Support Brackets

- 2 - Uninstall the filter rails at the top of the cabinet and flip them for downflow configuration (see figures 17 and 18).

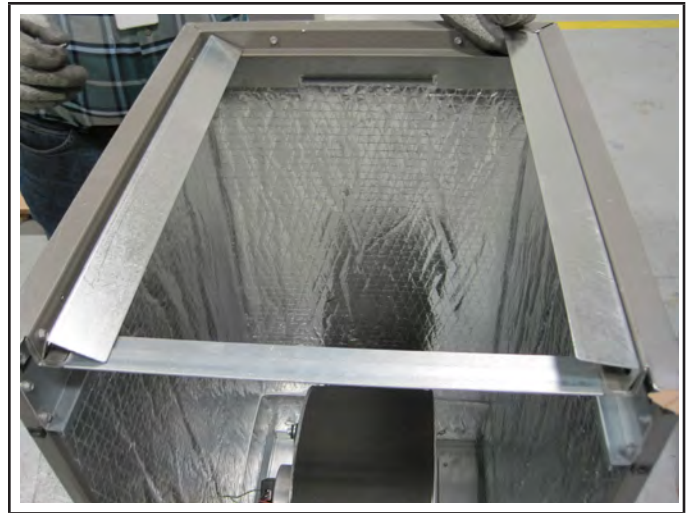


FIGURE 17. Filter Rails Must Be Flipped



FIGURE 18. Filter Rails Flipped for Downflow Use

- 3 - Reinstall the connection panel making sure that the openings are properly aligned with the refrigerant lines.
- 4 - Reinstall and fasten the blower panel in the inverted position.
- 5 - Reinstall and fasten the access panel.
- 6 - Install converted air handler onto floor opening. Apply sealant as required.
- 7 - Install air filter and replace filter door.

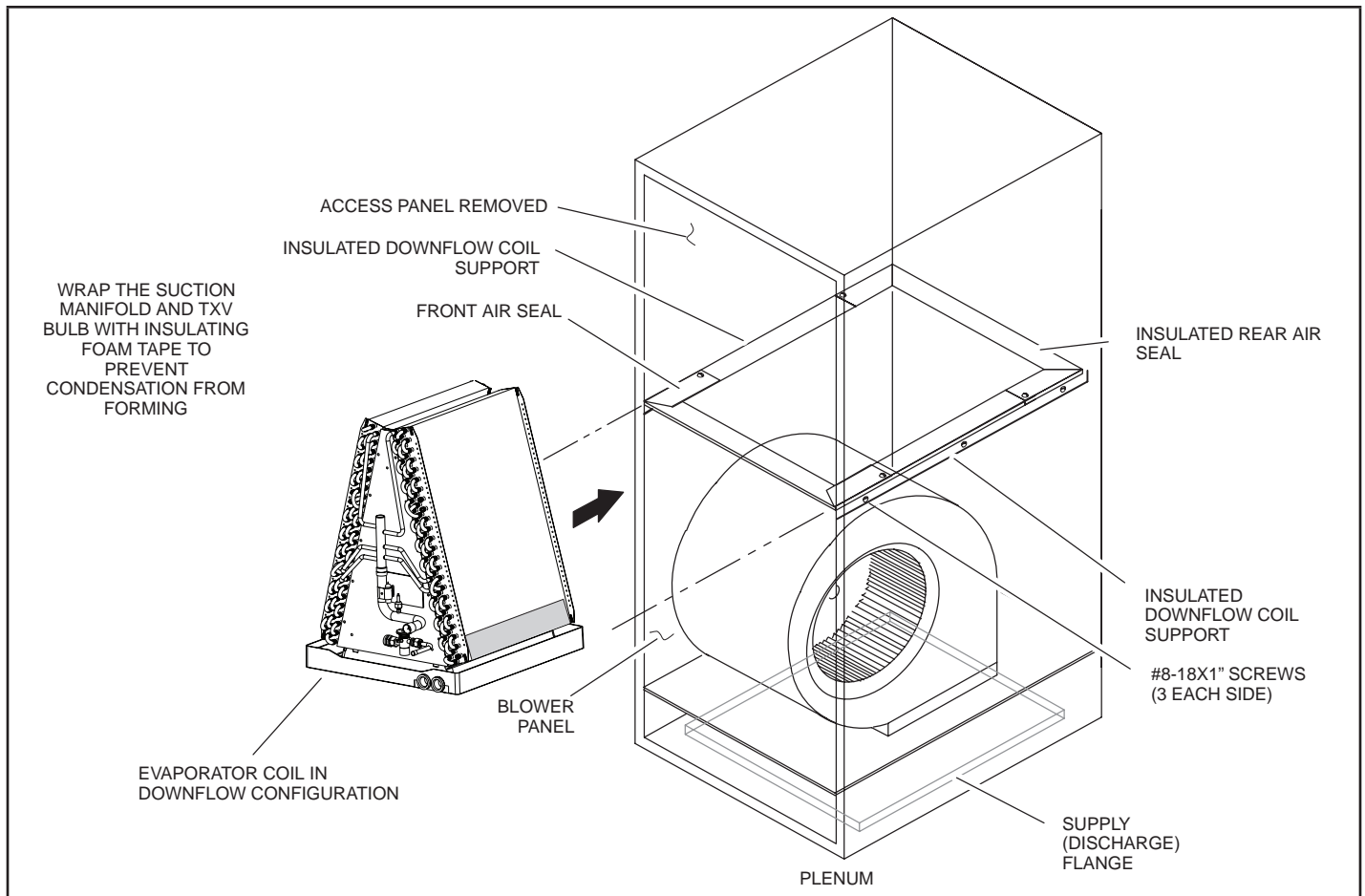


FIGURE 19. Downflow Configuration

Airflow – Cooling Blower Speed

IMPORTANT

All models should be set to high speed in the downflow configuration. Refer to table 2 on page 8 for blower performance chart.

CHANGE BLOWER SPEED ON PSC MODELS

All air data measured external to unit with 1 inch non-pleated air filter in place. All data given while air handler is operating with a dry DX coil. Use figure 20 on page 8 for assistance.

- 1 - Disconnect all power supplies.
- 2 - Remove the air handler access panel.
- 3 - Locate pin number 2 on the blower relay. Two black wires are connected to this terminal pin. One connects to pin number 5 on the blower relay, one connects to an in-line splice connecting to a red wire.

- 4 - Remove the wire going to the 4-pin blower motor connector from the splice.

- 5 - Connect the blower lead [Red (LO), Black (HI)] onto the splice from the 4-pin blower motor connector.

NOTE – Reuse the factory-installed plastic cap on which ever wire is not used.

- 6 - Replace all panels.
- 7 - Reconnect power.

NOTE – Refer to wiring diagram located on the unit access panel (or figure 20 on page 8) and blower performance (table 2 on page 8).

- All air data measured external to unit with 1 inch non-pleated air filter in place.
- All factory settings are medium speed except the -48 which is set to low speed from the factory.
- All data given while air handler is operating with a dry DX coil.

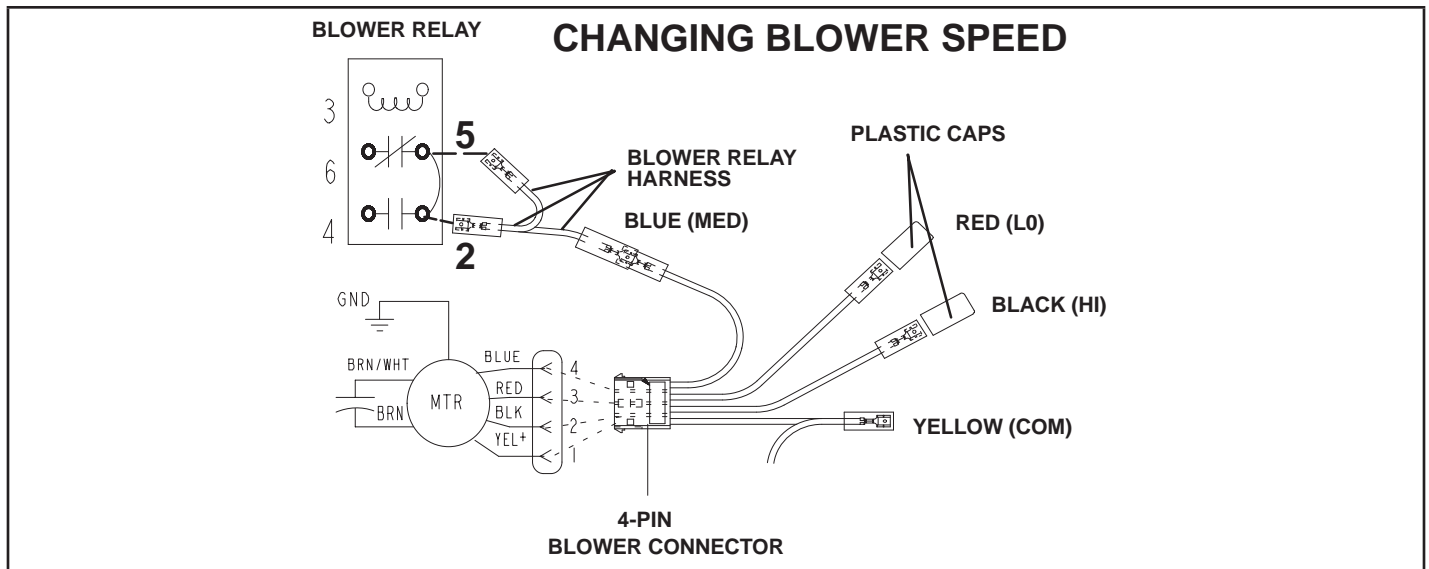


FIGURE 20

TABLE 2. CBA25UH Blower Performance (3-Speed PSC) – 230V (CFM @ ESP. - in. W.C.)

Air Handler Model	Blower Speed	.10" WC	.20" WC	.30" WC	.40" WC	.50" WC
-018	LOW	538	525	503	471	418
	MED	688	670	639	603	548
	HIGH	919	881	855	788	710
-024	LOW	677	673	657	629	592
	MED	1011	979	942	803	742
	HIGH	1106	1045	999	917	857
-030	LOW	871	870	853	812	769
	MED	1078	1057	1024	987	936
	HIGH	1311	1261	1214	1154	1086
-036	LOW	1020	972	956	909	806
	MED	1276	1240	1191	1148	1086
	HIGH	1559	1521	1446	1395	1327
-042	LOW	1,300	1,273	1,250	1,211	1,155
	MED	1,527	1,493	1,452	1,390	1,345
	HIGH	1,816	1,756	1,693	1,605	1,528
-048	LOW	1,257	1,212	1,157	1,116	1,053
	MED LOW	1,486	1,448	1,411	1,364	1,330
	MED	1,721	1,675	1,630	1,594	1,553
	MED HIGH	1,721	1,675	1,630	1,594	1,553
	HIGH	1,840	1,794	1,754	1,721	1,681
-060	LOW	1098	1049	1001	926	831
	MED LOW	1624	1594	1565	1520	1492
	MED	1815	1783	1758	1730	1685
	MED HIGH	1903	1869	1837	1809	1764
	HIGH	1981	1957	1923	1893	1861

BLOWER SPEEDS – CONSTANT TORQUE AND VARIABLE SPEED

To change blower speed to **HIGH** on above-listed models, refer to the unit instructions for each series.