

Receiving Inspection

After unpacking the assembly; check it for shipping damage. If any shipping damage is found, report it immediately to the delivering carrier. During unpacking and installation do not handle by the control package.

Supporting the Assembly

Although the basic unit is light enough that it can be supported by the ductwork itself, we recommend that it be independently supported, especially when accessory modules, such as coils, attenuators, or multiple outlets are present. When requested, unit is supplied with field mounted hanger brackets for use with hanger rod up to 3/8 (9.5) dia. Hanger brackets should be screwed into the top of the unit casing. Hanger straps may alternately be used and screwed directly into the sides or bottom of the unit casing. Use the support method prescribed for the rectangular duct in the job specifications.

Duct Connections

Slip each inlet duct over the inlet collar of the terminal. Fasten and seal the connection as described in the job specification. The diameter of the inlet duct for round inlets (unit size 4 through 10) must be equal to the listed size of the terminal. The inlet collar of the terminal is made 1/8 (3) smaller than listed size in order to fit inside the duct. Unit size 12 through 16 utilize flat oval inlet collars. The flat oval inlets are undersized for flexible duct connection. For hard inlet duct connections, refer to submittal drawing for dimensional data.

Important: Do not insert ductwork inside the inlet collar of the assembly. For optimum performance, 2 to 3 equivalent diameters of straight duct should be installed prior to the inlet of the unit. All ducts should be installed in accordance with SMACNA guidelines. The outlet end of the terminal is designed for use with slip and drive duct connections. A rectangular duct the size of the terminal outlet should be attached.

Field Wiring

All field wiring must comply with NEC and local codes. Electrical, control, and piping diagrams can be found on labels affixed to the exterior/interior of the control enclosure box. All Nailor electric heaters are staged per specifications. The installing electrician should rotate the incoming electric service by phase to help balance the building electric load.

Fuse size designates the size of the internal fuse if it is supplied. Maximum Overcurrent Protection (MOP) designates the largest breaker or fuse in the electrical service panel that can be used to protect the unit.

Control Start-up, Operation

Your local Nailor Representative can provide detailed information about start-up and operating procedures for Nailor's digital, analog, and pneumatic controls. For specific information on controls provided by other manufacturers, contact the specific manufacturer's local or national office. This applies whether the controls were factory or field mounted.

Note: Digital controllers may use specific communication addresses based on Building Management Systems Architecture and original engineering drawings. Installing the terminal in a location other than that noted on the label may result in excessive start-up labor.

Balancing Procedure

This balancing procedure assumes that the fan supplying the system maintains a constant static pressure in the supply duct to the terminal unit. Bypass terminal units are pressure dependent and will need rebalancing if system duct static pressure changes.

The 3400 series are shipped with both inlet and bypass balancing dampers as standard to permit ease of field balancing and to ensure accurate adjustment and optimum operation.

1. Fully open the dampers of all supply outlets on the discharge duct from the terminal unit.
2. Place terminal in the full open position, supplying 100% air to the occupied space by adjusting the thermostat to full cooling.
3. Adjust the balancing dampers located in the terminal inlet to provide the required total airflow.
4. Starting with the outlet furthest downstream, adjust the damper of each air outlet to the required air volume.
5. Take a static pressure reading at the terminal unit, using a magnehelic gauge or equivalent.
6. Adjust the room thermostat to full heating to provide 100% bypass airflow or the minimum air volume to the room, if a mechanical minimum air volume stop is utilized. An indicator mark on the end of the driveshaft shows damper position, 90° rotation CW to close.
7. Adjust the bypass outlet damper(s) on the terminal until the static pressure reading equals that obtained in step 5.
8. Re-adjust the room thermostat to the desired setpoint temperature. The terminal is now balanced.

Dimensions are in inches (mm).

Mechanical Minimum Stop Field Setting Procedure

Pneumatic Actuator (MCP-3631 Series)

Actuator rotation is 100°. Angle of rotation can be limited by inserting a 1/4" – 20 stroke stop screw into front end of actuator and securing with a lock nut (field supplied by user). Length of screw is unimportant as long as it has adequate thread length. Damper rotates 90°, CW to close and has built in end stops.

Desired Rotation	Insertion of Stop Screw
95°	0.520" (13.2)
85°	0.700" (17.8)
75°	0.875" (22.2)
65°	1.050" (26.7)
55°	1.220" (40.0)
45°	1.400" (35.6)

1. Direct acting/normally closed damper connection: Disconnect control air to actuator. Ensure damper and actuator are in alignment. Damper should be fully closed.

(a) Using mechanical minimum stop. Adjust screw to back-off damper to required minimum airflow position.

(b) Using damper end stops (no mech. minimum stop provided). Loosen collar set and bushing on damper shaft. Rotate damper shaft CCW to desired minimum airflow position and re-tighten actuator connection.

2. Reverse acting/normally open damper connection:

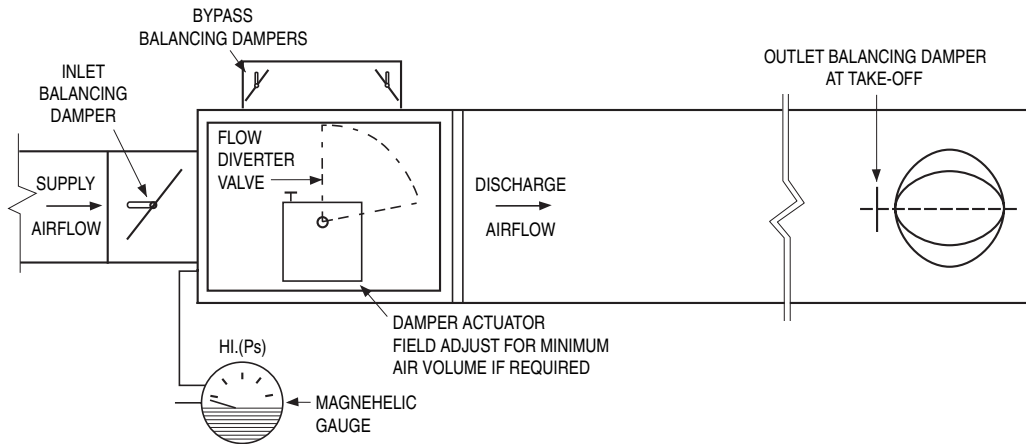
(a) Using stroke stop screw. Apply 20 psi main air to actuator. Insert screw (by others) and back-off damper to required minimum airflow position.

(b) Using damper end stops (no built-in stroke stop screw). Loosen damper/actuator collar set and bushing coupling. Apply 20 psi main air to actuator. When actuator reaches the end of its rotation, rotate damper shaft CCW to desired minimum airflow position and re-tighten on shaft.

Electric Actuators

KMC MEP-5071 (standard). Position damper to the full open position. Depress the gear disengagement button and position the drive collar so the indicator mark is at the "90" mark. Tighten setscrews on shaft. Loosen lower travel stop one-half turn and slide to desired position. Tighten stop screw.

Honeywell ML6161B-2024 (optional). Use clutch to position damper in fully open position. Insert setscrew with lock nut (supplied) in the threaded hole in top left corner of actuator, turning CW until fully inserted. With setscrew fully inserted, minimum position is 30°, fully out 0°. Use conversion of approx. 1.7 angular degrees per turn of the setscrew. Back screw out of housing and stop slightly short of the calculated position. This allows the setscrew to be set accurately while taking airflow measurements. (Important: Do not back-drive actuator with setscrew, damage may result.) Rotate actuators to minimum position using the manual declutch. Accurately set minimum flow by backing-off setscrew as required using airflow measurement. Using locknut, secure against actuator housing to lock setscrew in place.



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