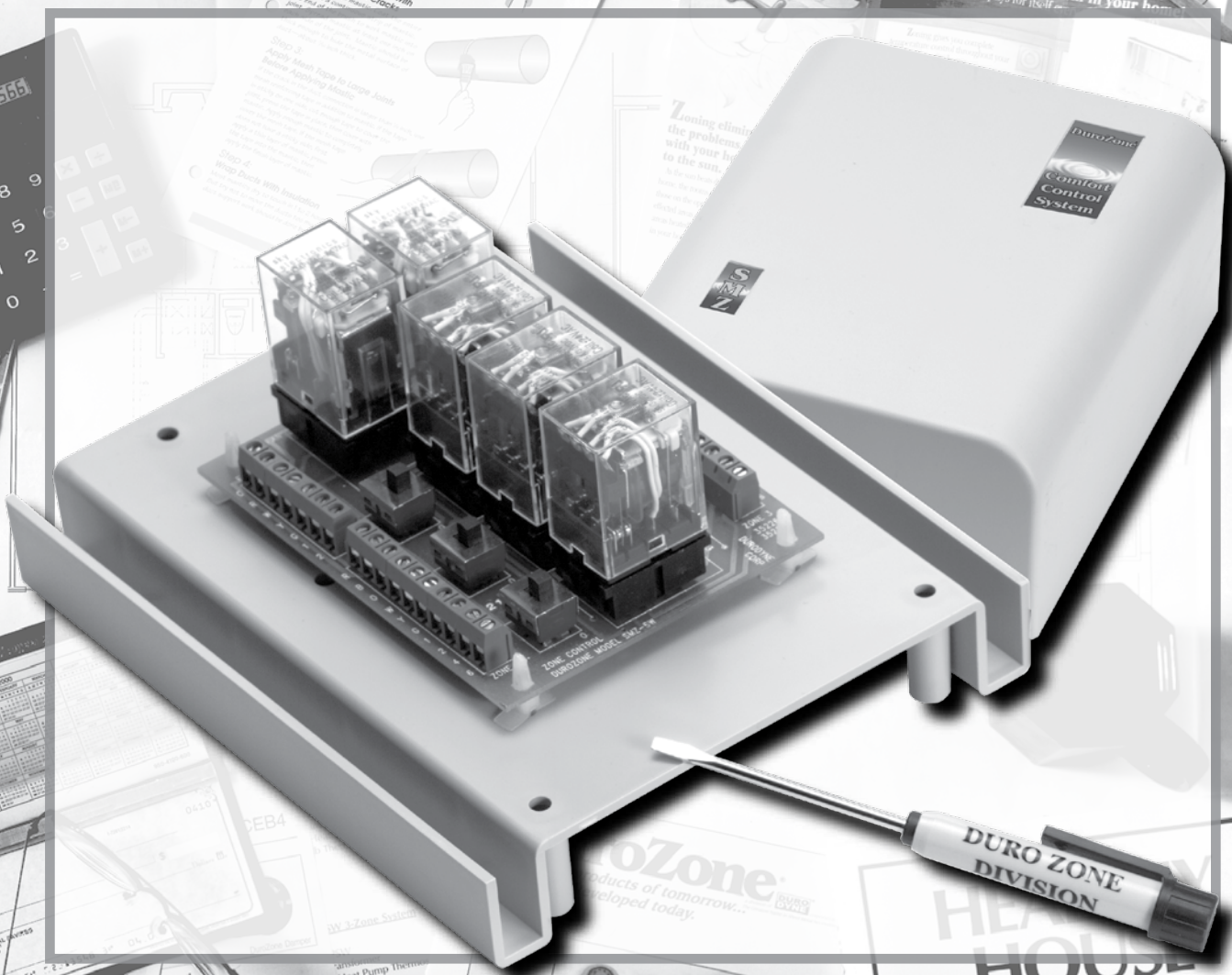
DuroZone®

MODEL SMZ-SW
ZONE CONTROL SYSTEM



DuroZone®
is a division of
DURO DYNE® Corporation

PART# 35226
PART# 35227

SMZ-2SW/SMZ-3SW INSTALLATION INSTRUCTIONS

Congratulations on purchasing a DuroZone SMZ Control System. The SMZ-SW Panel together with DuroZone Multiline Dampers will provide year- round comfort for your customer. Following are simple step-by-step installation instructions and wiring diagrams for the SMZ-SW System.
For your convenience, your SMZ-SW System is shipped "knocked down". Do not mount circuit board to box before attaching box to wall or the mounting holes will be inaccessible.

1. Mount Panel Box to any flat surface.
2. Mount Circuit Board to Panel Box with nylon standoffs provided.
3. Strip wires and attach to respective terminals.
4. Snap cover onto Panel Box.

WIRING

Your SMZ-SW Panel has 2 (3 if you have an SMZ-3SW) distinct terminal strips for wiring. One is for the equipment and one for each zone thermostat and damper. Simply follow the instructions below using the wiring diagram included for reference.

EQUIPMENT

The upper left terminal strip is for wiring the equipment to the SMZ Panel.

FROM TOP TO BOTTOM:

Terminal "C" goes to the "C" or common side of the equipment transformer.
Terminal "R" goes to the "R" or hot side of the equipment transformer.
Terminal "W" goes to the furnace circuit (W).
Terminal "Y" goes to the compressor circuit (Y).
Terminal "G" goes to the fan circuit (G).
Terminals 1 and 2 go to a separate 24-volt transformer used to power the DuroZone Dampers.
DuroZone's PT-40 24-volt 40VA transformer, (Part # 35054), is recommended.

ZONE 1

The lower left terminal strip is for Zone 1. The Zone 1 Thermostat must have a switching sub base and a separate B and O terminal. DuroZone Part # 35191, 35190 or 35173 are recommended.

FROM TOP TO BOTTOM:

SMZ Terminal "R" goes to "R" on Zone 1 Thermostat.
SMZ Terminal "B" goes to "B" on Zone 1 Thermostat.
SMZ Terminal "O" goes to "O" on Zone 1 Thermostat.
SMZ Terminal "W" goes to "W" on Zone 1 Thermostat.
SMZ Terminal "Y" goes to "Y" on Zone 1 Thermostat.
SMZ Terminal "G" goes to "G" on Zone 1 Thermostat.

Terminal "1" wires to terminal "1" on the DuroZone Damper. (24vac, common)

Terminal "2" wires to terminal "2" on the DuroZone Damper. (24vac, hot)

Terminal "4" wires to terminal "4" on the DuroZone Damper. (24vac, controlling - This terminal is hot on a signal to open.)

Terminal "6" is for special situations and should only be used under the direction of the DuroZone Technical Support Dept. (24vac, controlling - This terminal is hot on a signal to close.)

ZONE 2

The upper right terminal strip is for Zone 2.

FROM TOP TO BOTTOM:

SMZ Terminal W goes to Terminal W of the Thermostat.
SMZ Terminal R goes to Terminal R of the Thermostat.
SMZ Terminal Y goes to Terminal Y of the Thermostat.
NOTE: If using a DuroZone Thermostat 3WT Part # 35052, Terminal 4 corresponds to "W", Terminal 5 corresponds to "R" and Terminal 6 corresponds to "Y".
Terminal "1" wires to terminal "1" on the DuroZone Damper. (24vac, common)

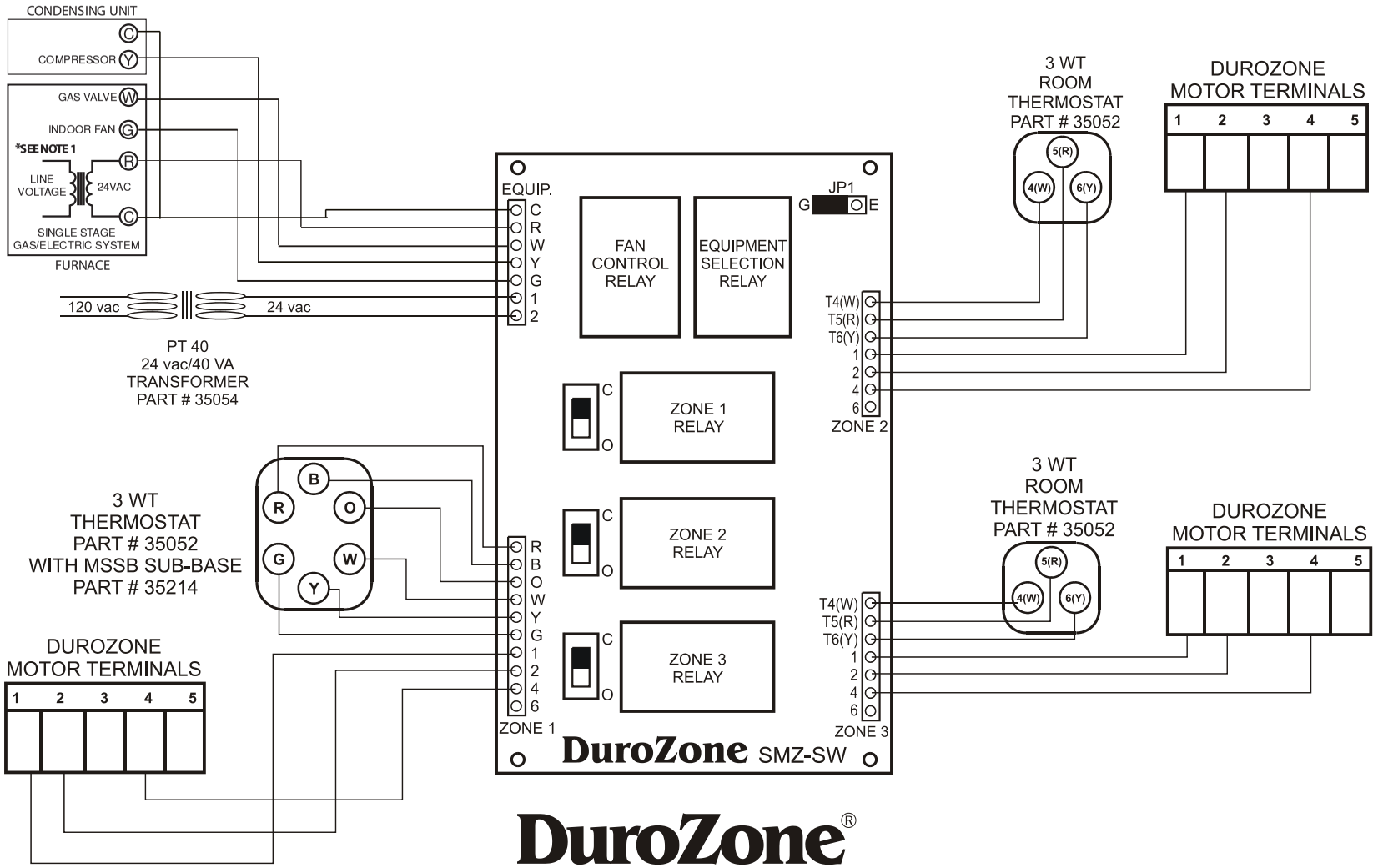
Terminal "2" wires to terminal "2" on the DuroZone Damper. (24vac, hot)

Terminal "4" wires to terminal "4" on the DuroZone Damper. (24vac, controlling - This terminal is hot on a signal to open.)

Terminal "6" is for special situations and should only be used under the direction of the DuroZone Technical Support Dept. (24vac, controlling - This terminal is hot on a signal to close.)

ZONE 3

(If Applicable)
The lower right SMZ terminal strip is for Zone 3.
Wire identically as Zone 2.



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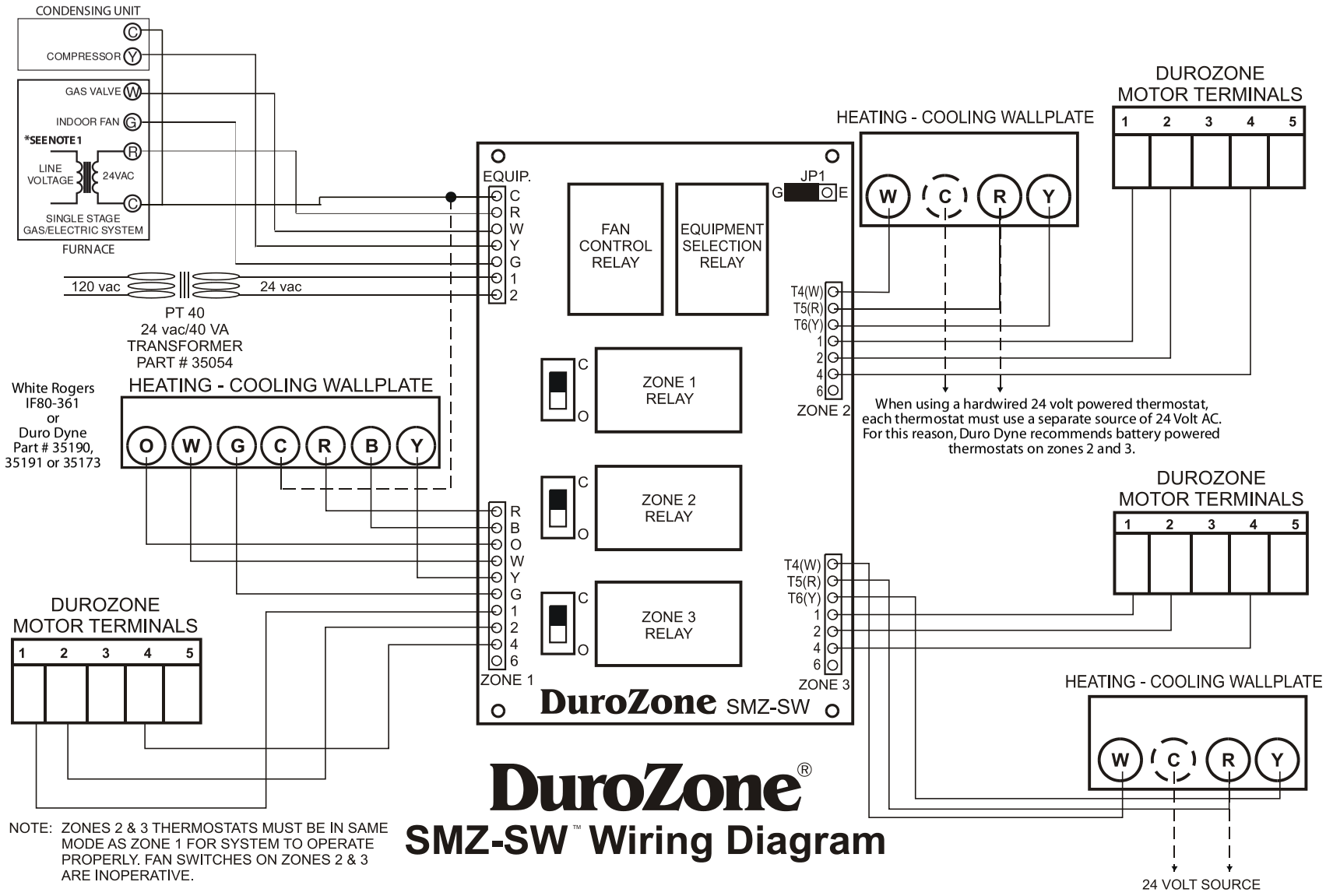
SMZ-SW™ Wiring Diagram

For use with SMZ-SW Part #35226, #35227

*Note 1: Some air handlers or furnaces require the Y terminal wired to them for fan speeds.



NOTE: ZONES 2 & 3 THERMOSTATS MUST BE IN SAME MODE AS ZONE 1 FOR SYSTEM TO OPERATE PROPERLY. FAN SWITCHES ON ZONES 2 & 3 ARE INOPERATIVE.

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SMZ-SW™ Wiring Diagram

For use with SMZ-SW Part #35226, #35227

***Note 1:** Some air handlers or furnaces require the Y terminal wired to them for fan speeds.

SMZ-SW OPERATION

The SMZ-SW is a simple zoning system incorporating individual thermostats and zone dampers to provide comfort and economy. The Zone 1 Thermostat has a Sub-Base which acts as the master control to determine if heating or cooling is desired and if the fan should be on constantly or just when the equipment calls. When all zones are satisfied, each zone damper will be in the position set by the Damper Switch, (see below). If any zone calls, that damper will open, or remain open and all others will close. Should another zone call, its corresponding damper will open. Upon satisfaction of the zone(s) all dampers will return to the position set with the Damper Switch, (see below).

With a call in the heat mode, "R" makes to "W" in the equipment section, activating the furnace circuit. The fan will be controlled by the fan limit switchs in the furnace.

With a call in the cool mode, "R" makes to "Y" activating the compressor and "R" makes to "G", activating the fan.

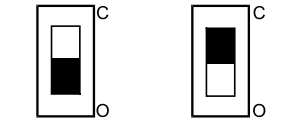
When the fan switch on the Zone 1 Sub-Base is in the "on" position, "R" makes to "G" and the fan provides constant air circulation.

NOTE: if all damper switches are set in "Closed" "(C)" position, the fan will not operate in the "Fan On" position.

DAMPER SWITCHES

The SMZ-2SW and SMZ-3SW Zone Systems are equipped with individual zone damper control switches. These switches are located to the left of the zone relays; one switch per zone. These switches will allow a zone damper to remain in either the open or closed position when the system board is at rest. The SMZ-2SW/SMZ-3SW allows the installer or home owner to choose the position of his system's dampers, to inhibit migration of air into spaces not desired, for seasonal purposes, or when a zone is not in use.

The SMZ-2SW/SMZ-3SW Zone System has a built-in safety feature. At least one zone damper switch must be in the open position for the "Fan On" switch on the master thermostat to be operational. If all switches are set to "Closed" (C), the constant fan circuit is disabled. This safety feature removes the possibility that the air handler could be damaged due to cavitation or by a restricted air distribution system.



Damper is open when zone is satisfied

Damper is closed when zone is satisfied

SMZ Gas/Electric Jumper

Your SMZ panel includes a jumper block labeled JP1. The purpose of this jumper is to configure the operation of the fan for normal gas /oil heating equipment or for electric heating equipment.

When Placed in the "G" position (default) the fan is controlled by the equipment in the heat mode (conventional operation).

When Placed in the "E" position the fan will come on immediately with the call for heating (electric heat operation).

JP1

Gas Mode - Normal operations. (Default Settings)

Electric Mode - Fan comes on immediately with heat call.

ORDERING INFORMATION

DuroZone's SMZ Panels can be ordered either as two or three zone systems.

35226: SMZ-2SW - 1 SMZ-SW Panel configured for two zones.
35227: SMZ-3SW - 1 SMZ-SW Panel configured for three zones.
NOTE: The end user must provide a switchable heat/cool thermostat with B & O terminals for use in Zone 1, such as DuroZone's 35190. 35191 or 35173. Thermostats such as White Rodger 1F80-361 are also compatible.

SMZ-SW SYSTEM CHECK-OUT PROCEDURE

The following check-out procedure requires a voltmeter set to read 24 volts A.C.. If, after the check-out procedure is completed, the SMZ-SW panel and dampers are operating correctly, but the system is not functioning properly, check your wiring carefully. The most common problems experienced are a misplaced wire, a bad connection or a broken wire. If none of these seems to be the problem, check your thermostats and equipment. **YOU MUST PERFORM THE FOLLOWING TEST PROCEDURES IN THE ORDER SHOWN. DO NOT SKIP ANY OF THESE STEPS. PLACE ALL DAMPER SWITCHES IN "O" OPEN POSITION.**

1. You must have 24 volts across R & C of the SMZ-SW Panel Equipment Terminal Strip. (This powers the SMZ-SW panel and your equipment).

2. You must have 24 volts across 1 & 2 of the SMZ-SW Panel Equipment Terminal Strip and every 1 & 2 of each SMZ-SW Panel Zone terminal. (This powers the dampers).

3. To test the operation of the SMZ-SW panel, you must disconnect all thermostats. With the thermostats disconnected and 24 volts as described in #2 above, all dampers should be open. (If the dampers are not open, go to step 4).

3A. To test the heat mode, connect R & B at the SMZ-SW Panel Zone 1 Terminal Strip. (This sets the panel to heat). Zone 1 will be activated when you jump R & W at the SMZ-SW Zone 1 Panel Terminal Strip. (All zone dampers, except Zone 1 will close and the furnace will turn on). Zone 2 or Zone 3 can be activated by jumping W & R at the corresponding SMZ-SW Zone 2 or Zone 3 Terminal Strips. If the furnace does not activate, with R & B connected and R & W, (or W & R of Zone 2 or Zone 3) jumped, test for 24 volts across C & W at the SMZ-SW Panel Equipment Terminal Strip. If voltage reading is 24 volts, panel is okay.

3B. To test the cool mode, disconnect the R & B connection made for the heat mode check. Connect R & O at the SMZ-SW Panel Zone 1 Terminal Strip. (This sets the panel to cool and the indicator light on the equipment relay will come on). Zone 1 will be activated when you jump R & Y at the SMZ-SW Panel Zone 1 Terminal Strip. (All zone dampers except zone 1 will close, and the air conditioning will come on). Zones 2 or 3 can be activated by jumping R & Y at the SMZ-SW Zone 2 or Zone 3 Terminal Strips. If the air conditioning does not activate with R & O connected and R & Y, (or R & Y of Zone 2 or Zone 3) jumped, test for 24 volts across C & Y at the SMZ-SW Panel Equipment Terminal Strip. If voltage reading is 24 volts, panel is okay.

3C. To test the Fan, jump R & G at the SMZ-SW Panel Zone 1 Terminal Strip. Be sure at least one Damper Switch is in "open" "(O)" position. The fan should activate. If the fan does not activate, with R & G jumped, test for 24 volts across C & G at the SMZ-SW Panel Equipment Terminal Strip. If voltage reading is 24, panel is okay.

4. To test the damper operation, perform step #3A, checking for 24 volts across 1 & 4 of every SMZ-SW Panel Zone Terminal Strip when that zone is activated, and for "0" volts at 1 & 4 of every SMZ-SW Panel Zone Terminal Strip that is not activated. (IMPORTANT: This test will work only if at least one zone is activated. If no zone is activated, all terminal 1 & 4 readings will be 24 volts). If all readings are correct, the panel is operating correctly. If a damper is not functioning but the SMZ-SW Panel has checked out okay, check for 24 volts across terminals 1 & 2 on the damper motor. If you have 24 volts, disconnect the terminal 4 connection to the damper. Jumping terminals 4 & 5 and the damper should open. (It will take 30 to 60 seconds for a damper to fully open). When you disconnect the jumper from terminals 4 & 5 the damper should close. If the damper tested does not operate as described, the problem could either be binding damper linkage, the blade movement is being obstructed, or you could have either an incorrect or a defective motor. (With multiblade dampers, it is possible to connect the motor to the linkage 180° "out of phase", which causes the damper to be open when it should be closed and closed when it should be open). If this is the case, remove the motor and rotate the linkage 180° and then re-install the motor (this applies to Power Open/Close Dampers only-not the Spring Return Dampers).

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