

**EVCON INDUSTRIES, INC.**

MANUFACTURES OF COLEMAN & EVCON HEATING & AIR CONDITIONING PRODUCTS

#1 QUALITY PLACE  
3110 NORTH MEAD  
P.O. BOX #19014  
WICHITA, KANSAS 67204-9014

CUSTOMER SERVICE DEPARTMENT  
PHONE NUMBER 316-832-6450  
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TO: Chad Lewis      DATE: 12-12-97

COMPANY: Mtn. Fuel      TIME: \_\_\_\_\_

FROM: Chad

**NOTES:**

NUMBER OF PAGES INCLUDING COVER SHEET: 16

w/o N.W  
Timer Kit

BLEND AIR QUESTIONS AND ANSWERS

UNCONTROLLED DOCUMENT  
IF IN DOUBT. REFER TO  
MASTER LIBRARY

DELUXE BLEND AIR II

*Question: Why is my Blend Air running constantly?*

Answer: Your Blend Air should be running on its timer; 4-hour ON and 4-hour OFF cycles. During the off cycle your Blend Air will come on when the furnace is turned on by the thermostat for heating, cooling, or ventilation only. Then when the furnace is turned off again by the thermostat, the blend air could come off if there is still time left for the off cycle. Therefore, the cycle ON/OFF repeats itself all the time starting from the furnace was first power up.

*Question: How do I synchronize the timer so that the blend air would not start by itself during the times I try to sleep or any other times?*

Answer: First of all the blend air is designed to operate quietly. However there are two ways you can synchronize the times:

- 1) Turn off the furnace power supply and turn it back on when you want the timer to start
- 2) Inside the control box there is test pin socket that you can temporarily apply at location marked "TEST" to cancel the current cycle. Example if the current cycle is OFF, then by applying socket at "TEST" will cancel the OFF and start the ON cycle.

*Question: Why do I need the blend air?*

Answer: There are two kinds of blend airs: Standard and Deluxe Blend Airs. Standard blend air is for whole house ventilation only. Deluxe is for whole house and attic ventilations. It has been determined from studies made by HUD that ventilation is important for manufactured housing due tighter home, chemical vapor from man made materials, and moisture built up inside the house and the attic space. Blend airs are driving force to expel moistured air out. If the air is left untreated, panels or plywood could be damaged from this moistured air.

*Question: How much operating cost am I expected to pay for my blend air*

Answer: The deluxe blend air attic motor consumes 100 watts of power  
 $100 \times 12 \text{ hour/day} \times 365 \text{ day/year} = 438,000 \text{ watt-hour} = 438 \text{ KWH}$   
energy cost =  $438 \text{ kwh} \times \$0.05 \text{ per KWH} = \$21.90/\text{year}$

This amount is very low compared to the cost of fixing the roof cavity, insulation, and ceiling.

*Question: Why is my blend air is so noisy?*

Answer: Currently Engineering is looking into possible causes of the blend air noise and fix the problems.

*Question: What do I do when the alarm beeps?*

Answer: This is a clear indication that something is wrong. First open the furnace door and slide the alarm switch to off. This will silence the alarm and disable the damper motor which will not allow fresh air to come in (the furnace still operates normally). Then do the following checks:

- a) Is there power supply to attic fan. Did any body turn the power switch to attic fan off?
- b) Check the edge connections
- c) Call for service if the above checks do not work.

~~**NORTHWEST TIMER KIT**~~

~~The kit is used exclusively in three states: Oregon, Washington, and Idaho~~

~~*Question: Why is my furnace running constantly?*~~

~~Answer: Homes built in the above three states have more stringent requirements. It is required by your local agencies that the fresh air be provided at least 8 hours a day, regardless of seasons or room temperatures. Remember that blend aircs deliver fresh air through the home via the furnace blower. It needs the furnace blower to bring in fresh air and distribute it throughout the house. Normal blend aircs only deliver fresh air when the furnace is in heating or cooling modes. The timer kit is used with current blend aircs to turn the furnace blower at 10 minutes on and 20 minutes off.~~

~~*Question: Can I increase or decrease both the on or off cycle times?*~~

~~Answer: Yes, see the installation Instructions.~~

~~*Question: During either ON/OFF cycle will my furnace provide for the comfort setting?*~~

~~Answer: Yes, the furnace heating or cooling functions will not be affected by the timer cycles.~~

~~*Question: Can I shut the timer off? and still get fresh air when the thermostat calls for heating or cooling. Another word, can I make the blend aircs function like the rest of the countries?*~~

~~Answer: Yes, there is a switch provided to turn timer off and still let the blend work when the thermostat calls for heating or cooling.~~

~~*Question: Can I even shut the fresh air off?*~~

~~Answer: Yes, fresh air can be turned off whether the timer is active or disabled.~~

## DELUXE BLEND AIR SYSTEM

Winter operation: Thermostat set to **Heat** and ventilation switch set to **Auto**.

The Deluxe Blend Air II operates on a four hour on and four hour off cycle. While in the four hour on, cycle the roof mounted unit will operate and ventilate the attic only.

If the furnace cycles on during the four hour on time, the damper motor, located on top of the furnace will drive the damper open and allow outside air (not air from the attic) to be drawn into the home. The damper motor is controlled by "W" terminal on the thermostat in the heating mode. A signal from W terminal will over-ride the timed off cycle.

In the four hour off cycle, the Blend Air II (roof mounted unit) is off and the damper is closed.

However; If the furnace should come on during the four hour off cycle, the roof mounted unit will cycle on, venting the attic space. The damper motor will drive the damper open within one minute and allow outside air to be drawn into the home by the furnace blower.

Summer operation: Thermostat set to **Cool** and ventilation switch set to **Auto**.

The Deluxe Blend Air II operates in a four hour on and four hour off mode.

During the four hour on cycle, the damper is closed. The roof mounted unit will ventilate the attic only.

If an air conditioning unit is installed, the roof mounted unit will continue to operate in a four hour on, four hour off cycle. In the four hour off cycle, the roof mounted unit is off and the damper is closed.

On a demand for cooling with the roof mounted unit in an off cycle, the air conditioning unit and Blend Air will cycle on. The damper motor is energized driving the damper to the open position. Fresh outside air will be drawn into the home. The roof mounted unit will ventilate the attic.

If the Blend Air II is in a four hour on cycle, when a call for cooling is received, the damper will open and supply outside air to the home.

With the thermostat system switch set to cooling mode, the Blend Air is controlled by "G" terminal on thermostat. A signal from G terminal will over-ride the timed off cycle.

### Ventilation:

The thermostat is equipped with a switch marked **ventilation on - auto**.

When set to the **auto** position, the roof mounted unit is in the four hour on and four hour off mode.

When set to the **on** position, the blower motor is operating, the roof mounted unit is on and ventilating the attic. The damper is open, supplying fresh outside air to the home.

### Pressure Balancing Damper:

The home is equipped with a damper assembly designed to allow air to pass to the outside. This relieves the positive pressure introduced by the Blend Air.

Alarm Signal: An alarm will sound when the motor in the roof mounted unit fails to respond to a ventilation demand.

EVCON INDUSTRIES, INC.  
WICHITA, KANSAS

**PRODUCT INFORMATION BULLETIN**

TO: MANUFACTURED HOUSING DISTRIBUTORS  
MANUFACTURED HOUSING CO-DISTRIBUTORS  
MANUFACTURED HOUSING SERVICE CENTERS  
MANUFACTURED HOUSING SERVICING DEALERS  
O.E.M. SERVICE MANAGERS  
REGIONAL SALES PERSONNEL  
INTERNAL PERSONNEL

SUBJECT: SERVICING BLEND AIR SYSTEMS

The amount of calls that Evcon receives from dealers, servicers and customers concerning the Blend Air systems has prompted this bulletin. Many of the calls pertain to "motor runs all the time." Under no circumstances is a Blend Air System to be left disconnected.

Attached is a troubleshooting guide for the Deluxe Blend Air systems, 7681-8171, 7681-8171/A and the 7681-8171/B, the "A" guide also applies to the "B" model. This information should provide the answers to technical questions. Here is a list of other bulletins concerning Blend Air systems available from your distributor or the service department

- MH 13-96, Moisture in furnace cabinet, 04-19-96
- MH 02-96, Changes to the Deluxe Blend Air II, 01-15-96
- MH 01-96, DGAT series furnace with Blend Air, 01-15-96
- MH 37-95, Blend Air system with Nordyne A/C, 12-31-95
- MH 28-95, Standard Blend Air, 11-14-95
- MH 27-95, Changes in the Deluxe Blend Air II, 11-13-95
- MH 22-95, "A" series troubleshooting guide, 10-23-95
- MH 13-95, Blend Air filter and retaining clamp, 06-22-95
- MH 08-95, Low voltage connection, 05-24-95
- MH 04-95, Installation on a package A/C, 03-27-95

These will provide information not found in other literature. If you don't have them and would like a copy, contact your distributor or the service department.

Any questions about this information should be directed to your field sales representative or the service department in Wichita, KS.

DATE 7/25/96 NO. MH16-96

## Trouble Shooting Guide

### 7681-8171 (A and B models) Deluxe Blend Air II

#### 1. Check wiring:

##### Blend Air II

Red  
White  
Green  
Yellow

##### Furnace Terminal

Red or "R"  
White or "W"  
Green or "G"  
Yellow \*or Black  
(Furnace "C"  
Common)

##### Thermostat

"R" Terminal  
"W" Terminal  
"G" Terminal  
"Y" Terminal connects to  
A/C contactor. Other side of  
A/C Contactor connects to  
"C" or Furnace Common.

\*NOTE STARTING FROM "A" VERSION YELLOW WIRE HAS BECOME BLACK

#### 2. Check voltage:

With furnace power turned on: 24VAC will be at Red and Yellow.

With thermostat fan switched to on or calling for Cooling : 24VAC will be at Green and Yellow.

With thermostat calling for heat: 24VAC will be at White and Yellow.

The above checks will indicate that the Blend Air and Furnace are wired correctly.

#### 3. Check Control Cable:

**NOTE: Do not short the following connections. If the connections are shorted, the transistors on the control boards will burn out.**

Check the four-wire edge connectors. On each connection, upper and lower board, make sure the connectors are not pushed out and are mated properly on both control boards. The plug-in edge connector is designed only to make contact on one side of the connector. The ends of the control cable should have matching colors. EX: If Red is in Pin 1 at one end then Red should be in Pin 1 at the opposite end. (See drawing on previous page)

**NOTE: The cable is designed so that either end will work on the control board.**

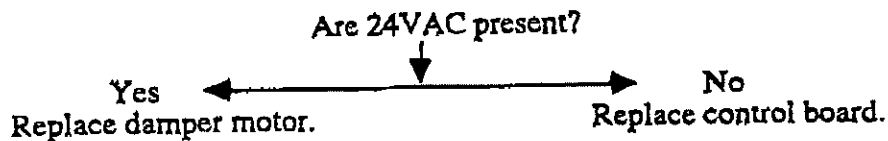
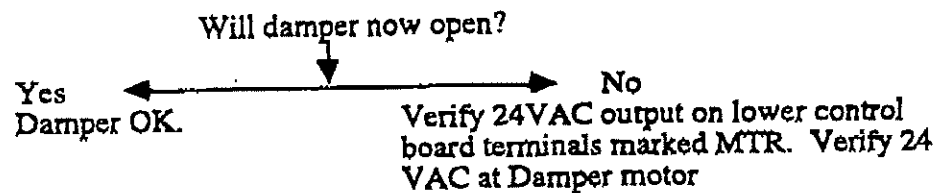
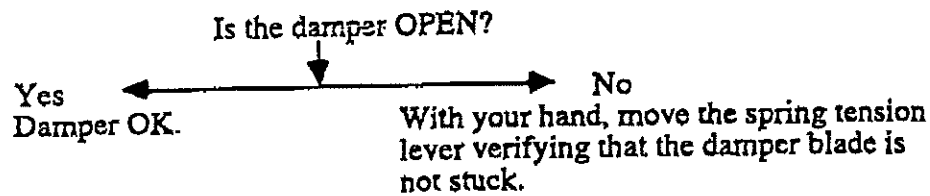
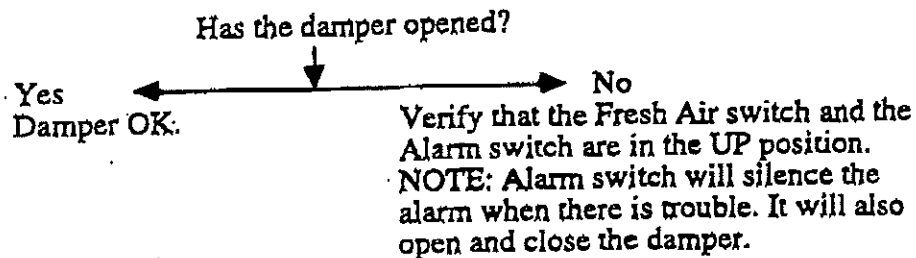
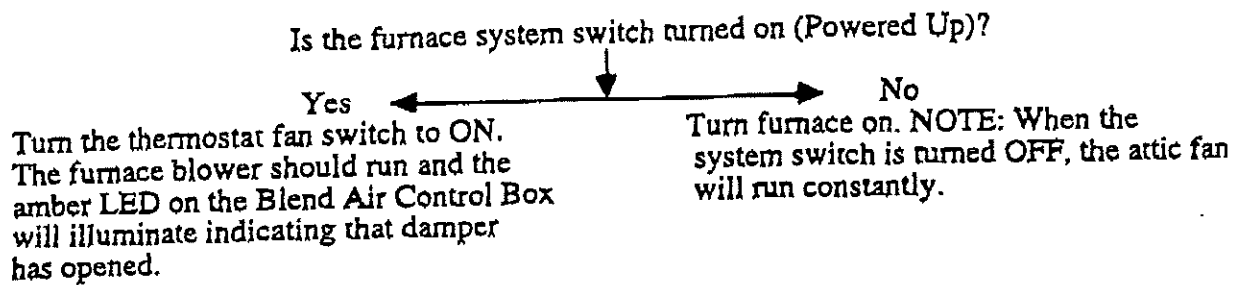
#### 4. Check Lower Control Voltage: (System is fully hooked up)

With System operational	Black and Red	30-34VDC
With Attic Fan OFF	Black and Green	0VDC
	Red and Green	30-34VDC
With Attic Fan ON	Black and Green	30-34VDC
	Red and Green	0 VDC
With Attic Fan ON	Black and White	.5 VAC

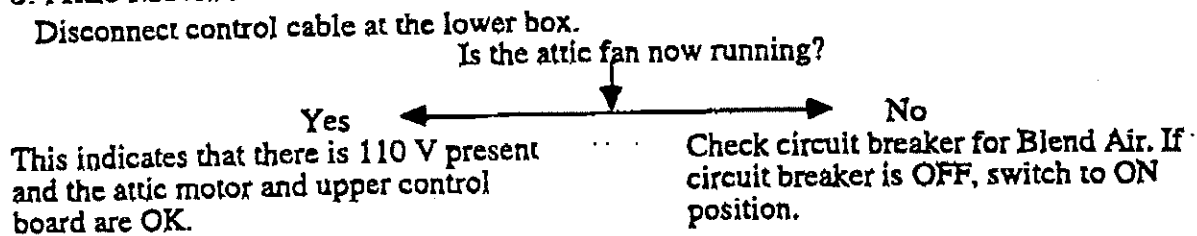
The above test will indicate that the lower board is operating correctly.

# 7681-8171(A & B) Deluxe Blend Air II Troubleshooting Guide

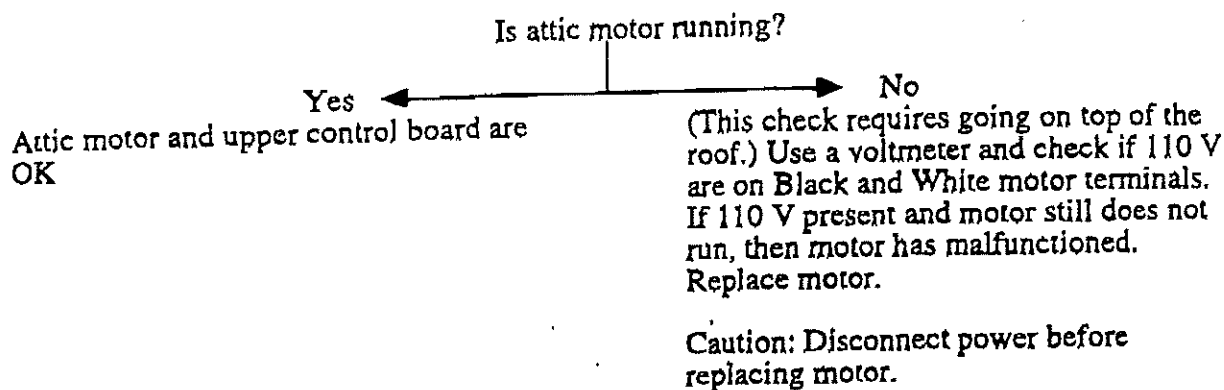
## 5. Motorized Damper Does Not Open:



## 6. Attic Motor Does Not Run:



# 7681-8171 (A & B) Deluxe Blend Air II Trouble shooting Guide

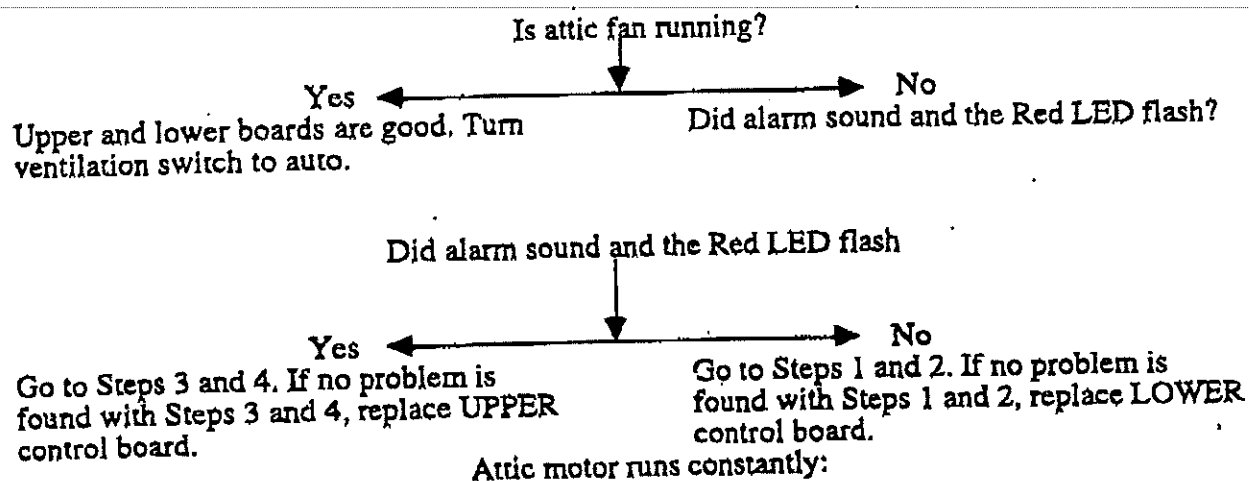


## 7. Upper and Lower Controls:

### Attic Motor Does Not Run:

Functions: Attic fan responds to thermostat inputs (Heat, Cool, or Fan)  
4-hour "ON" cycle, attic fan comes on with or without thermostat inputs.  
4-hour "OFF" cycle is interruptible by thermostat inputs and could return to "OFF" cycle if 4 hours has not elapsed.

Turn the thermostat ventilation switch to ON. Furnace blower should run. Amber LED, on Blend Air control box, will illuminate indicating that damper has opened and Green LED will illuminate indicating that the attic fan is on.



### NOTE:

Make sure that there is no thermostat input.  
(NO HEAT, COOLING, OR VENTILATION)

**IMPORTANT:** Test pins, when shorted, cancel current cycle only. If jumper socket is permanently applied at "TEST", the attic fan will cycle ON/OFF every 30 seconds. When it is removed from the "TEST" pins, the normal cycle resumes. Normal cycle also resumes if jumper socket is not applied at "RUN" pins. (In other words, If you leave the jumper off the unit will return to the four hour cycle.)





# 7681-8171 Deluxe Blend Air II Troubleshooting Guide

## Steps:

1. Wiring
2. Voltage
3. Control Cable
4. Lower Control Voltage
5. Motorized Damper Does Not Open
6. Attic Motor Does Not Run (Motor Check)
7. Upper & Lower Control Board
  - Attic Motor Does Not Run (Control Board Check)
  - Attic Motor Runs Constantly

## NOTE:

The Blend Air is designed to run in conjunction with, as well as independently, of the furnace or air conditioner. If the furnace system switch is turned off, the Blend Air WILL RUN CONSTANTLY.

# 7681-8171 Deluxe Blend Air II Troubleshooting Guide

## 1. Check wiring:

<u>Blend Air II</u>	<u>Furnace</u>	<u>Thermostat</u>
Red	Red	R Terminal
White	White	W Terminal
Green	Green	G Terminal
Yellow	Yellow* (or Furnace Common)	Note: Y Terminal connects to A/C contactor. Other side of A/C Contactor connects to Yellow Furnace.

## 2. Check voltage:

With furnace power turned on: 24VAC will be at Red and Yellow

With thermostat fan switched to on: 24VAC will be at Green and Yellow

With thermostat calling for heat: 24VAC will be at White and Yellow

The above checks will indicate that the Blend Air and Furnace are wired correctly.

## 3. Check Control Cable:

NOTE: Do not short the following connections. If the connections are shorted, the transistors on the control boards will burn out.

Check the four-wire edge connectors. On each connection, upper and lower board, make sure the connectors are not pushed out and are mated properly on both control boards. The plug-in edge connector is designed only to make contact on one side of the connector. The ends of the control cable should have matching colors. EX: If Red is in Pin 1 at one end, then Red should be in Pin 1 at the opposite end.

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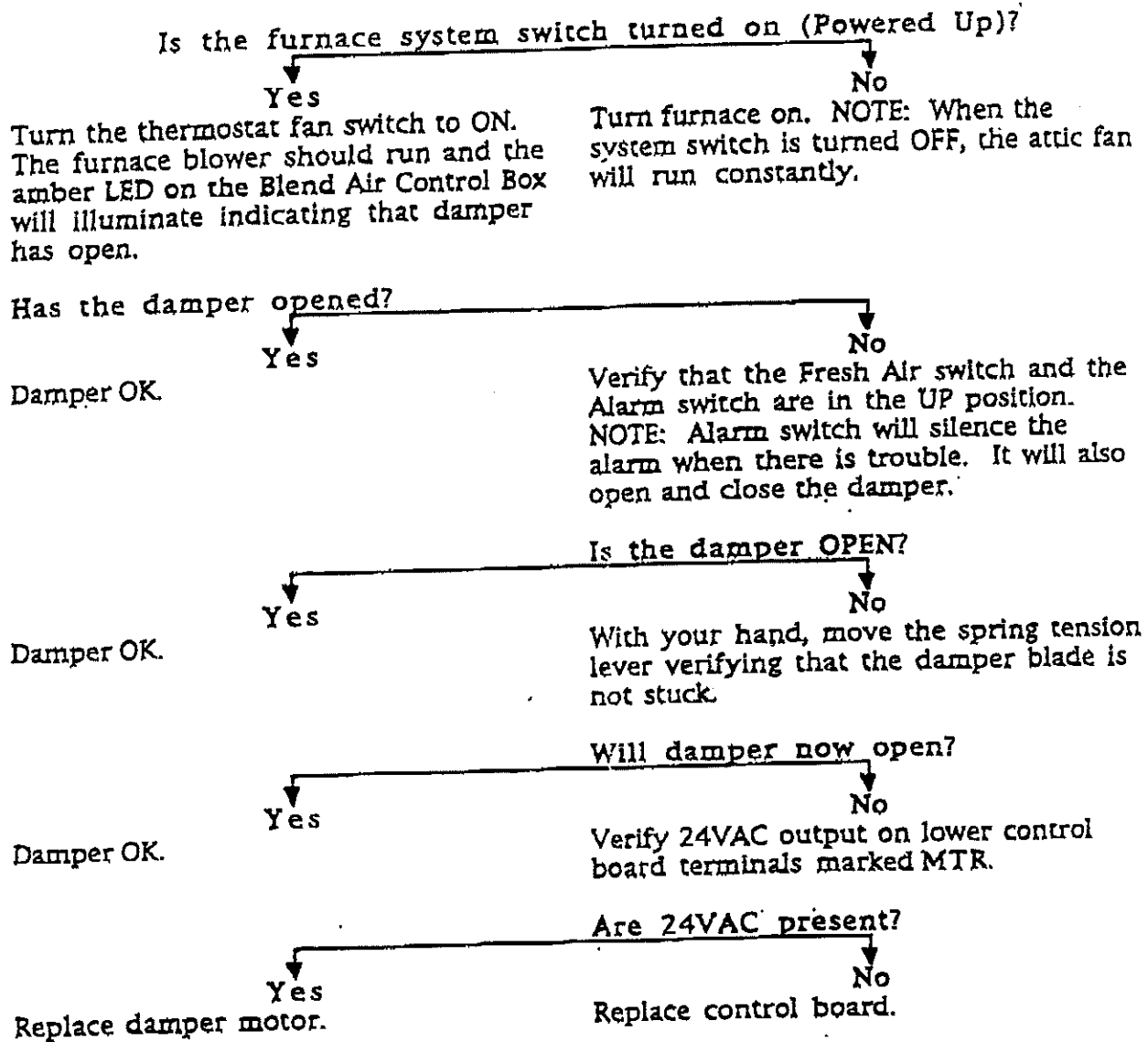
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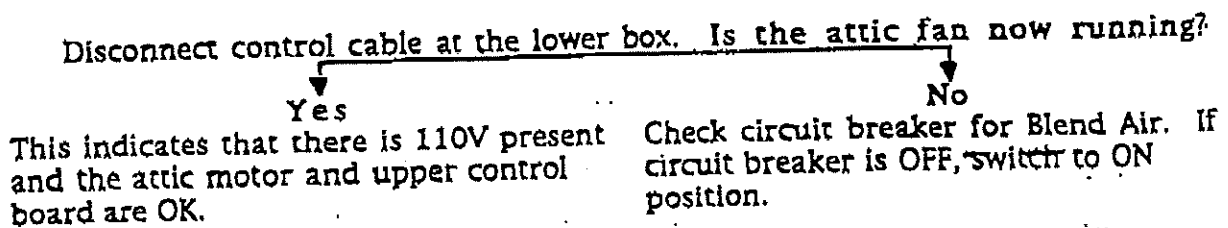
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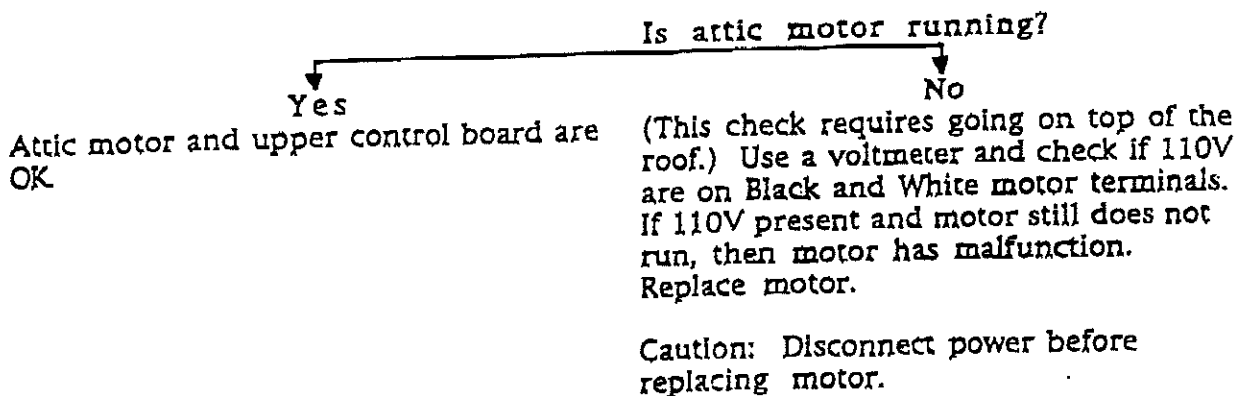
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## 6. Attic Motor Does Not Run:



# 7681-8171 Deluxe Blend Air II Troubleshooting Guide

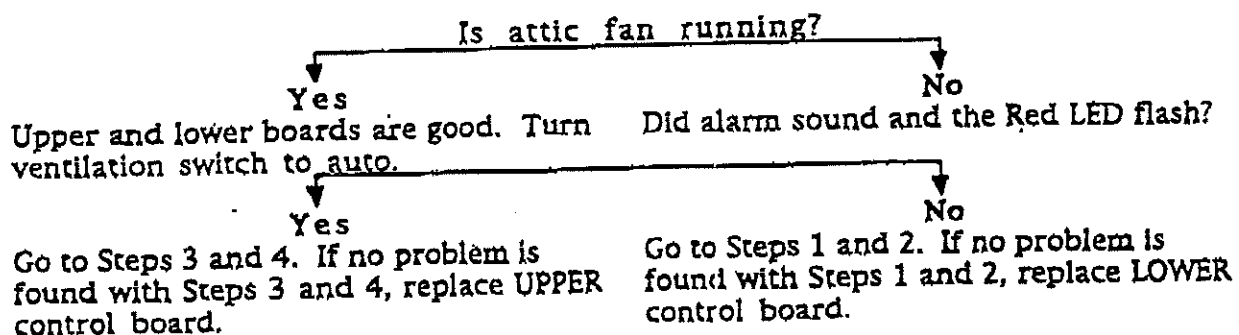


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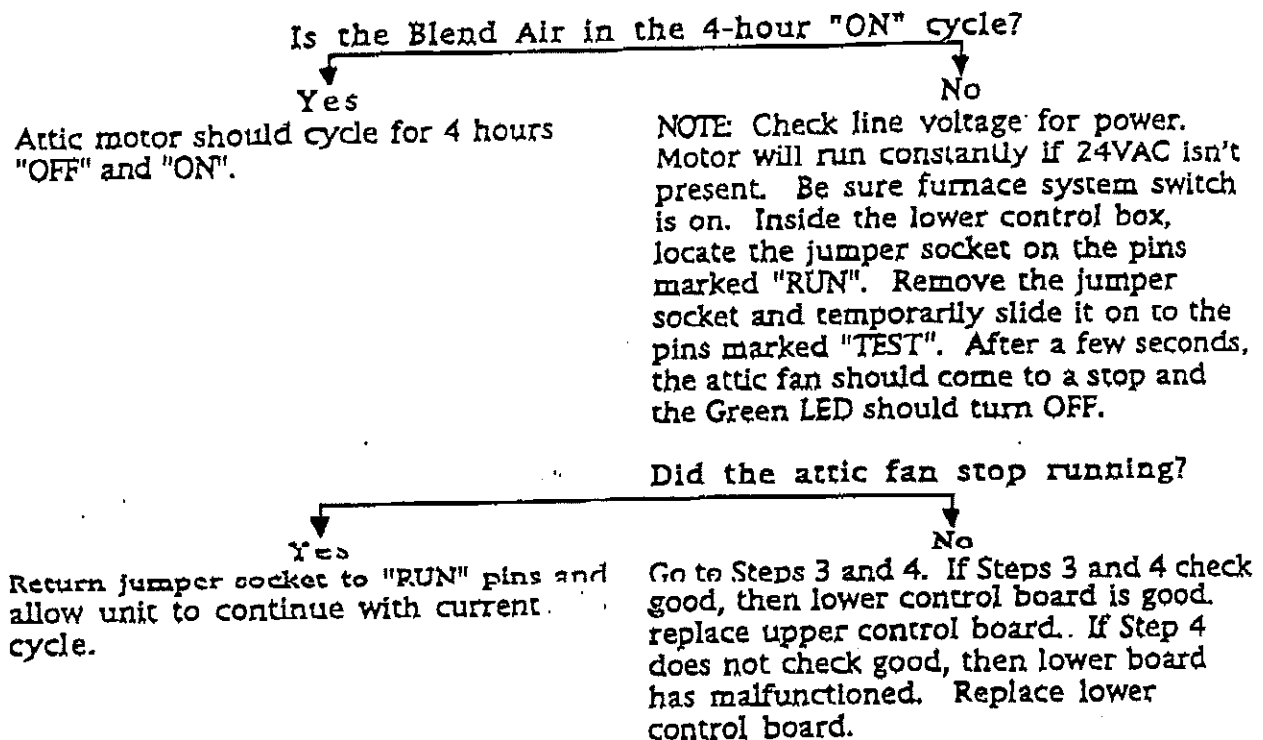


### Attic motor runs constantly:

**NOTE:** Make sure that there is no thermostat input. (NO HEAT, COOLING, OR VENTILATION)

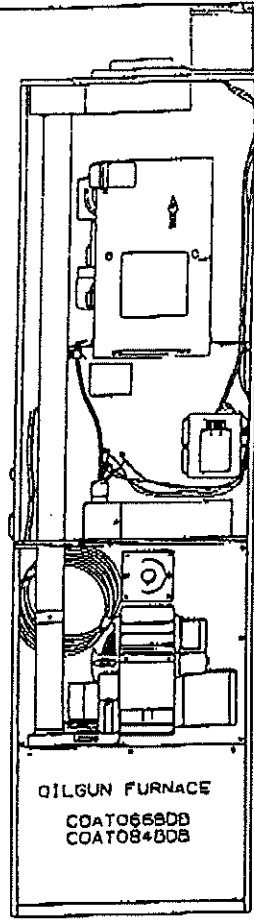
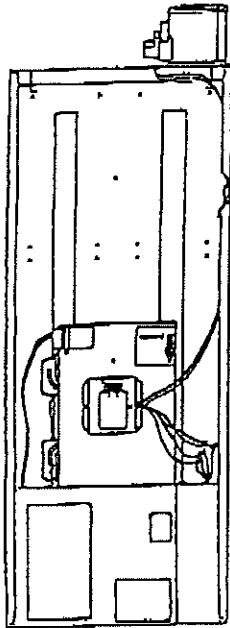
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# 7681-8171 Deluxe Blend Air II Troubleshooting Guide

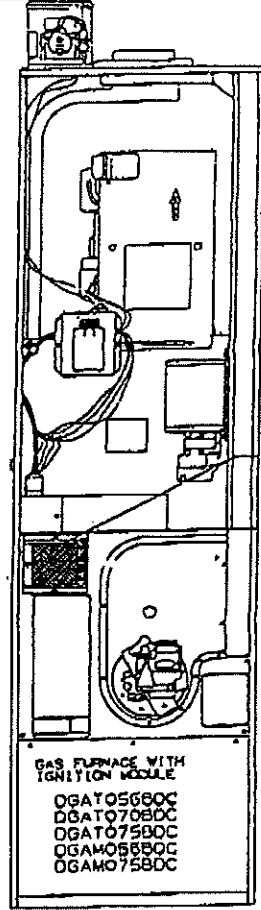


End of Blend Air Troubleshooting

ELECTRIC FURNACE  
 EB106, EB128, EB158  
 EB178, EB206, & EB230

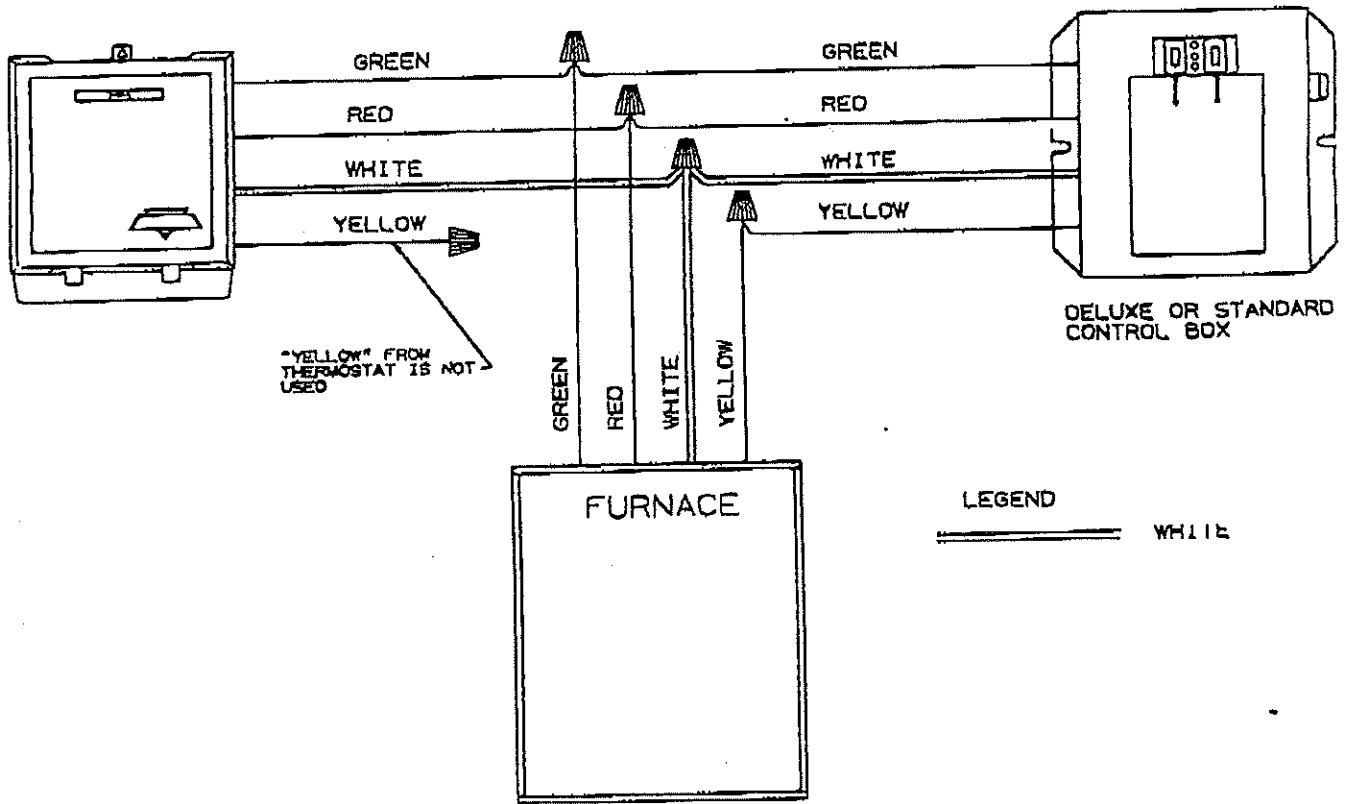


OILGUN FURNACE  
 COAT0668DB  
 COAT0848DB



IGNITION  
 MODULE

GAS FURNACE WITH  
 IGNITION MODULE  
 DGAT05660C  
 DGAT07080C  
 DGAT07580C  
 DGAM05660C  
 DGAM07580C

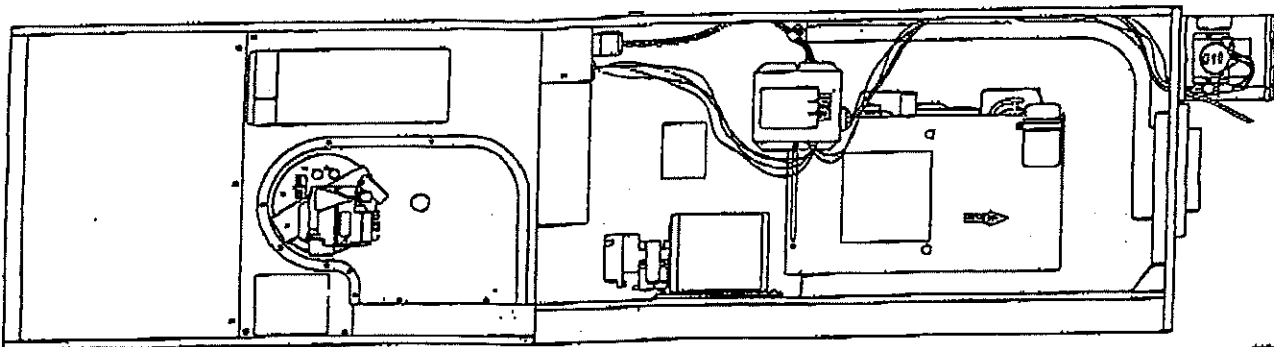


Jan 25, 1974 [ASKPS V1.32]

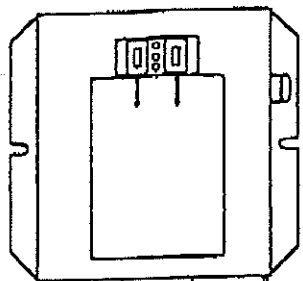
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GAS FURNACE WITH ELECTRONIC CONTROL BOARD

DGATO90BDD

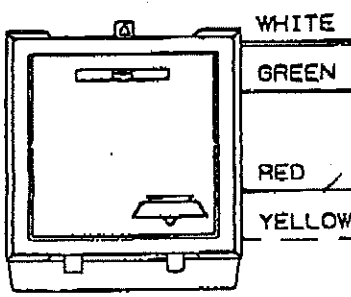
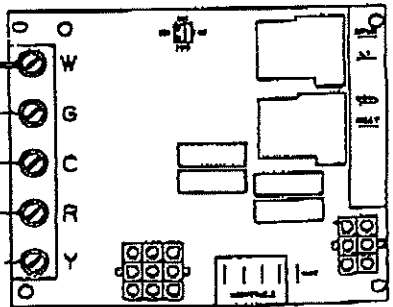


DELUXE OR STANDARD  
CONTROL BOX



WHITE  
GREEN  
YELLOW  
RED

CONTROL BOARD



\*YEL\* OF THERMOSTAT  
MUST BE AT 1/4" OR  
NOT INSTALLED