



955 Industrial St NE, Pine City MN 55063  
Telephone: 320 / 629-6737 • Fax 320 / 629-3677  
www.dakacorp.com

## **FORCED DRAFT CONVERSION KIT #253**

### **INSTALLATION INSTRUCTIONS**

#### **PRINCIPLE OF OPERATION**

This kit is designed to convert DAKA Deluxe and ProLine automatic damper furnaces to forced draft units. The chief benefit of this forced draft design is that it permits heat output control of a solid-fuel furnace from the upstairs living area, without constant trips to the basement furnace room to adjust the damper. The upstairs room thermostat senses the need for heat and signals the combustion air blower on the front of the solid fuel furnace to start up, freshening the fire and increasing the heat output. When the room temperature upstairs reaches the desired level, the room thermostat signals the combustion air blower to shut off and the fire returns to maintenance level, ready for the next cycle.

**NOTE: Furnace models 511D/611D/822/922 can be converted without modification. Models 521/521FB/621 require some drilling & position modifications.**

#### **I. UNPACKING**

Check all piece parts against Parts List on page 2. If any parts are missing, contact DAKA Customer Service at the address/phone number above.

**WARNING: SHUT POWER OFF BEFORE PROCEEDING!**

#### **II. ASSEMBLY**

**NOTE: FOR INSTALLATION ON MODELS 511D/611D/822/922, FOLLOW STEPS A THRU G. FOR MODELS 521/521FB/621, FOLLOW STEPS H THRU L.**

- A. Remove six screws holding Automatic Damper Control Adapter Plate to front of DAKA furnace and remove entire assembly.
- B. Install Draft Blower Adapter Plate using same six screws. Attach Draft Blower to adapter plate using (3) three #12-1/2 screws provided.
- C. Remove cover plates from small junction box on Draft Blower and from 4"x 4" junction box ring mounted on side of furnace. Remove one knockout from each junction box.
- D. Attach 90° conduit connector to blower junction box and straight conduit connector to furnace junction box. Join with 34" flexible conduit provided.

- E. On side of furnace, within junction box, mount snap disc operating control (L190) using (2) two #12-1/2 screws provided.
  - F. Attach crimp terminal to pigtail leading to solenoid on Transformer Relay. Attach other crimp terminal to one end of red wire provided in wire set.
  - G. Proceed to wire installation in accordance with schematic in Diag. 1, using wire nuts to make all splices. Check all connections for tightness and electrical safety. Tuck all wires into junction boxes and install covers.
- Note: Transformer Relay replaces furnace junction box cover plate.**

**WARNING: SHUT POWER OFF BEFORE PROCEEDING!**

**FOR MODELS 521/521FB/621 ONLY:**

- H. Remove and discard cover plate from electrical junction box on upper side of DAKA furnace. Remove screws holding both the snap disc fan control and junction box itself to the cabinet side. Discard the snap disc fan control (F110) and remove the crimp terminals from the wire ends.
- I. Relocate the junction box on cabinet side 14" down from the top, centered. As indicated, mark and drill (2) two 9/64" holes and remount box.
- J. At a point on the furnace cabinet directly over the junction box and 3" down from the top of the cabinet, mark and drill a 3/4" hole. Remove the cover of the L4064B fan control included in this kit and insert its probe into the 3/4" hole. Mark and drill (3) three 9/64" holes through the mounting holes on the fan control back plate. Using (3) three #12 screws provided, mount fan control.
- K. Remove one knockout from bottom of fan control. Using two straight conduit connectors provided, join the fan control to the junction box.
- L. **Proceed to steps A through G to complete assembly.**

| <b>FORCED DRAFT CONVERSION KIT #253 - PARTS LIST</b> |                               |             |
|--|-------------------------------|-------------|
| <b>Part #</b>  | <b>Description</b>            | <b>Qty.</b> |
| 63811142   | Draft Blower, 50-CFM          | 1           |
| 58640001   | Fan/Limit control L4064B      | 1           |
| 58640002   | Transformer Relay R8235A      | 1           |
| 58640003   | Wall Thermostat               | 1           |
| 58640005   | Snap Disc Operating Control   | 1           |
| 62630405   | Flexible Conduit 34"          | 1           |
| 62630401   | Flexible Conduit 8"           | 1           |
| 62630802   | Wire Nuts, small              | 3           |
| 61660208   | Sheet Metal Screw #12-1/2"    | 8           |
| 60670011   | Wire Set                      | 1           |
| 62670201   | Conduit Connector – Straight  | 3           |
| 62670202   | Conduit Connector – 90 degree | 1           |
| 62670205   | Crimp Terminal                | 2           |
| 57670603   | Blower Adapter Plate          | 1           |



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### OPERATING INSTRUCTIONS

#### I. Fan Controls

The fan control on the side of the DAKA furnace has a rotating thermostat disc. Holding the disc firmly in place, adjust the three settings from left to right as follows:

**FAN OFF** – 90°F, **FAN ON** – 130°F, **LIMIT** – 200°F. These Fahrenheit settings will cause the 550-CFM back blower on the DAKA furnace to turn on when the temperature within the air jacket rises to 130° and off when the temperature within falls to 90°F. The limit setting will shut off the front 50-CFM draft blower should an unsafe bonnet temperature over 200°F be reached. The blower will be reactivated automatically when the temperature falls to 160°F.

While this fan control is designed for fully automatic operation, you can manually turn the back blower on at any time by pushing the white button on the fan control IN. Pulling the button OUT will turn the blower off, unless the heat within the air jacket is above the "FAN ON" dial setting. In that case, the blower will continue to run until the temperature drops.

The snap disc fan control inside the J-box ring is an operating control for the 50-CFM blower, with a built in range of 190°F - OFF, 170°F - ON, to prevent furnace over-heating. During normal operation, this control may be activated frequently and is designed to help level the furnace heat output.

#### II. Living Area Thermostat

Install the Honeywell T822D thermostat in any ground floor room on an inside wall, preferably beside the thermostat governing the primary furnace, which should be set approximately 5° lower than the DAKA thermostat. When falling room temperatures call for heat, the DAKA thermostat turns on the 50-CFM front draft blower on the DAKA furnace; the additional combustion air increases the heat output until the DAKA room thermostat signals the blower to cut off. Combustion air then reduces to a maintenance level with relatively low heat output, ready for the next firing cycle. Should there be insufficient fuel to increase the room temperature as called for, the primary furnace will fire when the temperature falls to the 5 degree lower setting. The DAKA draft blower will continue to run. However; to turn it off, lower the DAKA room thermostat setting below that of the primary furnace.

#### IMPORTANT

Normal operation will produce flue gas temperatures in the 300°F to 600°F range. If higher or lower operating temperatures are normally obtained, increase or decrease the barometric draft control setting and room thermostat setting to bring temperatures within range. Too cool a flue gas temperature can result in heavy creosote formation, while too hot a temperature increases danger of chimney fire.

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