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DAKA FURNACE INSTALLATION AND OPERATION MANUAL Price $2.00

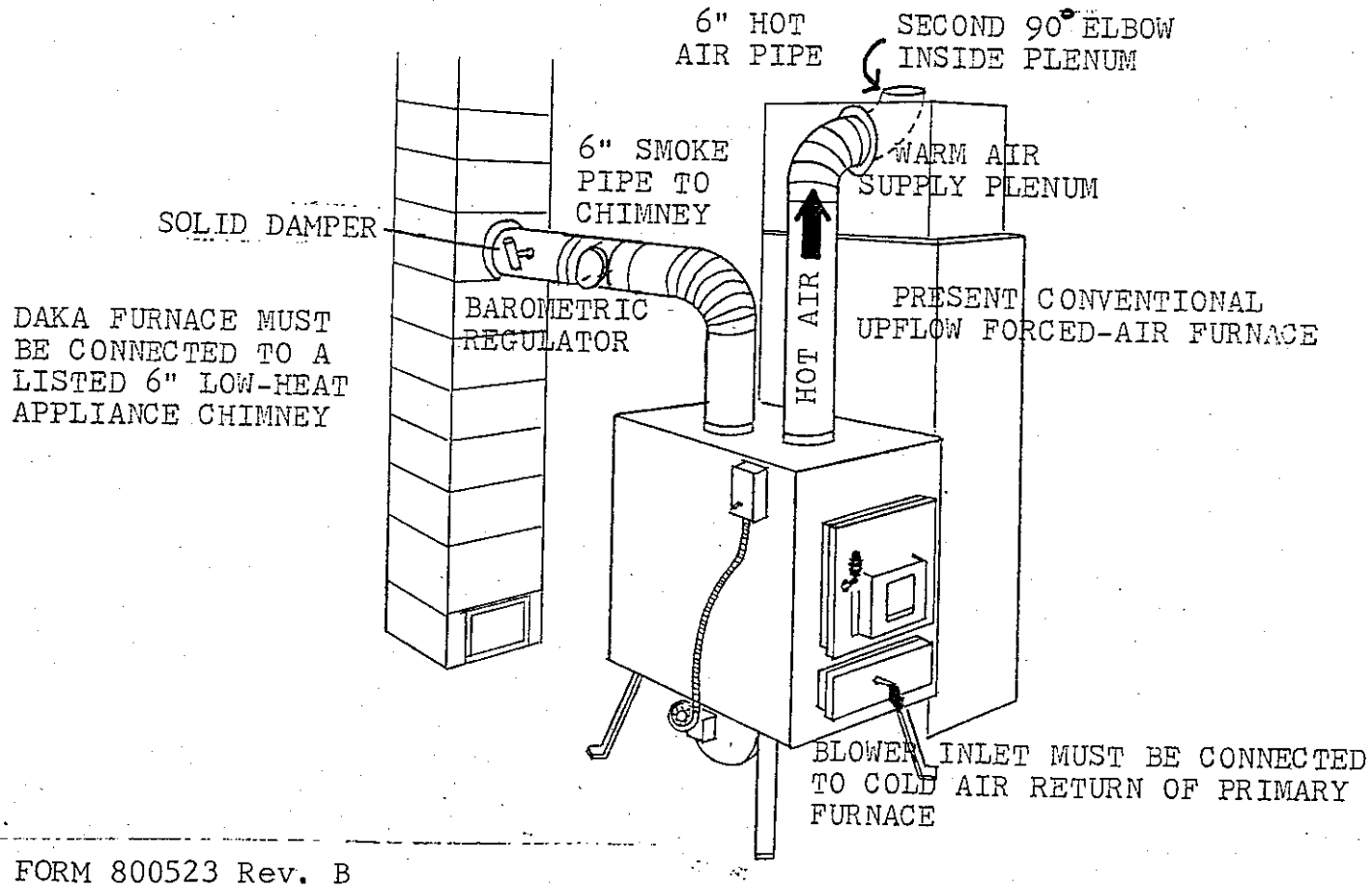
Classic Line Furnace Model Nos. 101C/201C/301C/401C

PRINCIPLE OF OPERATION

This DAKA furnace is designed to be used as an add-on unit to your present forced-air upflow gas, oil or electric furnace. The DAKA furnace consists of a 12-ga. steel combustion chamber, around which a 14-ga. air jacket has been welded in place. The bottom-mounted 265-cfm blower on the DAKA furnace turns on automatically as the air around the combustion chamber heats up during woodburning; this heat is picked up from five sides of the combustion chamber before being ducted to the main furnace supply (hot air) plenum via piping. The main system blower is then employed to distribute the heat evenly throughout the house via the present ductwork.

As long as the heat produced by the DAKA woodburning furnace keeps your living area temperature above the setting on your present room thermostat, your present furnace will not burn any gas or oil, or use any electricity beyond the small amount required to run the system blower. If the wood fire should die down in your absence, your regular furnace will start up as usual to maintain the preset living area temperature.

FIG. 1 - TYPICAL PARALLEL INSTALLATION



1. The DAKA furnace is designed for parallel use only with conventional upflow furnaces, and must deliver wood-heated air to the supply (warm air) plenum of same, never to ductwork or cold-air returns.

2. The DAKA furnace smoke outlet is to be connected only to a 6" listed low-heat appliance chimney by means of 24-ga. or heavier smoke pipe, secured at each joint with at least 3 screws.

3. A barometric regulator and cast-iron damper must be used in the smoke pipe leading to chimney, and setting must maintain .04" to .06" water column updraft during operation, as tested by a draft gauge.

4. The DAKA furnace blower air inlet must be connected to the cold air return on the main furnace by means of a 6" or larger pipe.

5. The DAKA furnace must be installed with the following minimum clearances to combustible surfaces; any wood framing behind a brick or concrete wall should be considered a combustible surface:

   18" from sides and back of add-on furnace
   18" from chimney connector, 6" from main furnace
   18" from horizontal warm air duct within 3 ft. of plenum
   48" from front of add-on furnace

6. The DAKA furnace must be installed on a non-combustible surface such as 3/8" thick asbestos millboard extending 8" on sides and back and 32" from front of unit. If a horizontal chimney connector (the smoke pipe connecting the DAKA furnace to the chimney) is used, a non-combustible surface at least 10" wide must be installed beneath the connector, extending 2" beyond connector on either side. NOT FOR INSTALLATION IN MOBILE HOMES.

7. The fire door and ash door on the DAKA furnace must always be closed and latched securely during operation; failure to do so could cause dangerous overheating and a possible fire hazard.

8. The DAKA furnace is designed for woodburning only; use wood that has been air-dried for at least six months after cutting to approximately 20-30% moisture content. Burning trash, paper, or coal could cause overheating and shorten the life of the unit, as well as causing a fire hazard.

9. Check local building codes for chimney requirements. Some communities require a separate chimney flue for each heating appliance. We do not recommend multiple use of a single flue, due to possible draft and safety problems. For more information, please write for publications 89M, 211 and HS-10 from: NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
   Publication Sales Department
   470 Atlantic Ave.
   Boston, MA 02210

10. To insure that your DAKA furnace is installed in accordance with fire safety and building code regulations, we recommend professional installation and inspection. You should also notify your insurance company concerning the installation of any woodburning appliance.

DANGER! EXPLOSION HAZARD

NEVER USE GASOLINE, GASOLINE-TYPE LANTERN FUEL, KEROSENE, CHARCOAL LIGHTER FLUID, OR SIMILAR LIQUIDS TO START OR 'FRESHEN UP' A FIRE IN THIS HEATER. KEEP ALL SUCH LIQUIDS WELL AWAY FROM THE FURNACE WHILE IT IS IN USE.

CAUTION! HOT WHILE IN OPERATION. DO NOT TOUCH, KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. SEE NAMEPLATE AND INSTRUCTIONS.

2. KEEP ASH DOOR CLOSED DURING FIRING OF FURNACE TO AVOID DEVELOPING EXCESSIVE TEMPERATURES.

WARNING! FIRE HAZARD

DO NOT EXCEED RATED FLUE DRAFT.
DO NOT STORE FLAMMABLE LIQUIDS IN FURNACE ROOM.
DO NOT STORE WOOD CLOSER TO FURNACE THAN MARKED CLEARANCES.
INSPECT FLUE PIPE AND CHIMNEY FREQUENTLY AND CLEAN OUT SOOT AND CREOSOTE DEPOSITS.

CRESOTE - FORMATION AND NEED FOR REMOVAL

WHEN WOOD IS BURNED SLOWLY, IT PRODUCES TAR AND OTHER ORGANIC VAPORS, WHICH COMBINE WITH EXPELLED MOISTURE TO FORM CREOSOTE. THE CREOSOTE VAPORS CONDENSE IN THE RELATIVELY COOL CHIMNEY FLUE OF A SLOW-BURNING FIRE. AS A RESULT, CREOSOTE RESIDUE ACCUMULATES ON THE FLUE LINING. WHEN IGNITED THIS CREOSOTE MAKES AN EXTREMELY HOT FIRE.

DISPOSAL OF ASHES:

ASHES SHOULD BE PLACED IN A METAL CONTAINER WITH A TIGHT FITTING LID. THE CLOSED CONTAINER OF ASHES SHOULD BE PLACED ON A NONCOMBUSTIBLE FLOOR OR ON THE GROUND, WELL AWAY FROM ALL COMBUSTIBLE MATERIALS, PENDING FINAL DISPOSAL. IF THE ASHES ARE DISPOSED OF BY BURIAL IN SOIL OR OTHERWISE LOCALLY DISPERSED, THEY SHOULD BE RETAINED IN THE CLOSED CONTAINER UNTIL ALL CINDERS HAVE THOROUGHLY COOLED.

INSTALLATION INSTRUCTIONS -

TOOLS NEEDED FOR ASSEMBLY

Electric drill with 11/64" and 13/64" H.S.S. drill bits.
Cabinet-head screwdrivers - small and large.
Adjustable wrench.
Tin snips or sabre saw with metal-cutting blade.
Pliers.
Hammer/mallet.

MATERIALS NEEDED FOR INSTALLATION - NOT PROVIDED

6" Sheet metal hot air pipes with two 90° elbows and plenum collar.
6" smoke pipe, 24-ga. or heavier, with necessary elbows and chimney connector.
Barometric regulator and solid cast-iron damper for 6" smoke pipe.
6" cold air return pipe with necessary elbows and two starting collars.
Conduit and wiring to connect add-on furnace to 120V AC service.
No. 7 Sheet metal screws for pipe connections - 50 or more.

Note: Length of various pipes, number of elbows, etc., will be determined by individual installation requirements.

I. UNPACKING

Open all cartons and check piece count against parts list on back page of this manual.

Parts Shortage: Call or write factory immediately; provide model number and serial number of unit along with description and count of missing parts. Replacements will be shipped immediately.

Concealed Damage: Immediately contact the dealer from whom the furnace was purchased so that a freight claim can be filed.

VII. CONNECTING DAKA FURNACE TO CHIMNEY

Parts needed: 6" diam. stove pipe and elbows as requires; metal screws; chimney connector.

A. Mount and secure a 6" diam. crimped end pipe of 24-ga. or heavier sheet metal to top rear outlet on DAKA furnace. Continue same gauge pipe run to chimney connector, with following rules in mind.

1. Do not use more than two 90° elbows in smoke pipe; each elbow is equivalent to six feet of pipe.
2. Smoke pipe length should not exceed 75% of chimney height above point of connection.
3. A barometric regulator should be installed in smoke pipe in furnace room at convenient point, and should be adjusted with draft gauge to maintain draft from .04" to .06" water column with good fire burning.
4. A solid damper should be installed in smoke pipe close to chimney; in the event of a chimney fire, it can be quickly closed to cut off draft.
5. Maintain at least ¼" per foot upslope on smoke pipe from DAKA furnace to chimney.
6. Secure all connections with at least three No. 7 sheet metal screws per joint.
7. Do not use any heat reclaimers on smoke pipe, as they cool flue gases, and greatly add to creosote formation problems when used on stoves and furnaces of advanced airtight design.

VIII. HOW TO OPERATE YOUR DAKA ADD-ON FURNACE

A. To Start A Fire

1. Take six double sheets of newspaper: Start at corner of one and roll up; Twist roll into a single knot. Do same to remaining sheets.
2. Lay rolls in firebox atop grate; place several pieces of kindling over them.
3. Light the newspaper rolls; once the kindling is burning well, you add wood logs as required. You may fill firebox to top of door frame for most heat output and/or longest burn time.

B. Adjusting the Draft Control

Depending on the model of furnace you have purchased, you have either a manual draft control (on furnace models 101C and 201C) or automatic draft control (on furnace models 301C and 401C).

The manual draft control is a circular plate attached to the firedoor with a screw assembly. Turning the plate spring handle counterclockwise opens the draft, and turning it clockwise closes it. For starting a fire, open the control all the way (about 5/16") for longer burn times, adjust the draft opening from 1/8" to 5/16", depending on heat output requirements.

The automatic draft control consists of a bimetallic coil spring and draft door assembly. As the heat from the firebox reaches the spring, it automatically contracts and lowers the draft door to reduce the combustion air; as the fire dies down, the coil spring automatically expands and lifts the draft door, adding more combustion air and freshening the fire. To start the fire, we recommend the knob control be set on "HIGH"; for extended burning, a setting between "OFF" and "HIGH" will have to be found through experimentation for your particular installation. (NOTE: If draft control shaft will not hold a setting, tighten only the shaft nut closest to the coil spring by turning counterclockwise with a 7/16" open-end or adjustable wrench).

C. Adjusting the Fan Control

This control will automatically turn DAKA furnace blower on and off when inner air temperature reaches a preset level. To adjust, hold circular dial firmly in place--DO NOT ROTATE. Adjust the three indicators in the slot from left to right as follows: left indicator (FAN OFF) to 90°; middle indicator (FAN ON) to 130°; right indicator (LIMIT OFF) is inoperative on these furnaces.

While this unit is designed for fully automatic operation, you can turn blower on manually at any time by pushing white button in. Pulling button out will turn the blower off, unless the heat within the air jacket is above the "FAN ON" setting of the dial, in which case the blower will continue to run until the temperature drops.

D. Operation During a Power Failure

1. Remove furnace filter from main furnace to prevent fire hazard.
2. On models 301C and 401C, set automatic draft control knob to "EPF" (electrical power failure) setting. On models 101C and 201C, close manual draft completely and then open to approximately 1/8" (two complete revolutions of draft disc).
3. Continue firing the furnace with smaller loads, more frequently tended.
4. Use extreme care and vigilance during power failure to keep furnace from overheating, which could cause warpage or breakage.

CAUTION! Do not expect the DAKA furnace to keep your house as warm during power failure as when power is on. Do not set draft control higher than recommended above.

E. What To Do In Case of a Chimney Fire

1. Call the fire department immediately.
2. Close the solid damper in the smoke pipe to cut off air to the chimney. Use chimney fire extinguishing flares if you have them (available at many fireplace and woodstove shops).
3. After chimney fire, do not use chimney until a professional inspection has been made to determine safety.

IX. MAINTENANCE OF YOUR DAKA FURNACE

A. Flue Pipe and Chimney

1. These must be checked often during heating season, at least twice monthly, and deposits of soot and creosote removed.
2. Use stiff brushes to clean flues and pipes--wear an air mask, gloves and old clothes.
3. Do not use a standard vacuum cleaner to clean up soot--the soot is fine enough to pass through the bag and ruin the cleaner motor

B. DAKA Furnace Blower

Lubricate motor bearings at beginning and end of each heating season with SAE 20 oil.

C. Fire Chamber and Ash Pan

1. Check ash pan every few days and safely dispose of ashes. Keep ashes from building up too high on grate.
2. At end of heating season, clean out all residual ashes and soot from furnace. The moisture they contain could rust your furnace over the summer months, and shorten the life of the unit.

X. TROUBLE SHOOTING GUIDE

A. Smoke puffback; poor burning; inadequate draft:
1. Check chimney draft; debris could be blocking flue; inadequate chimney height could be causing downdrafts.