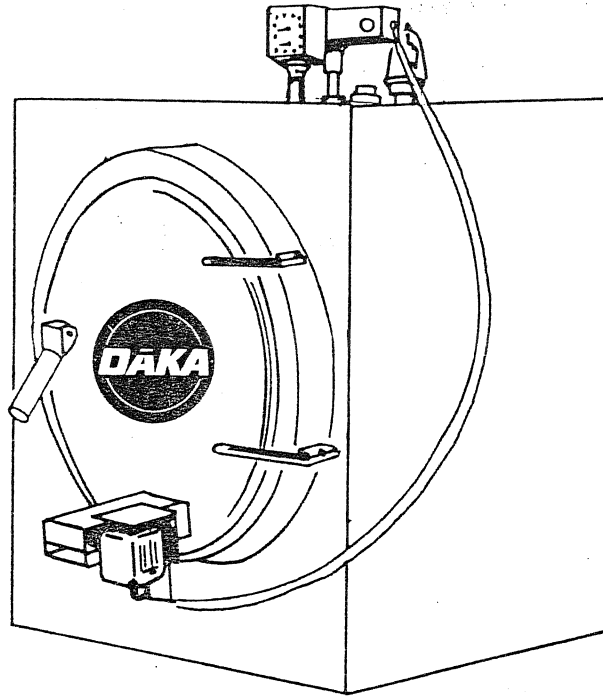
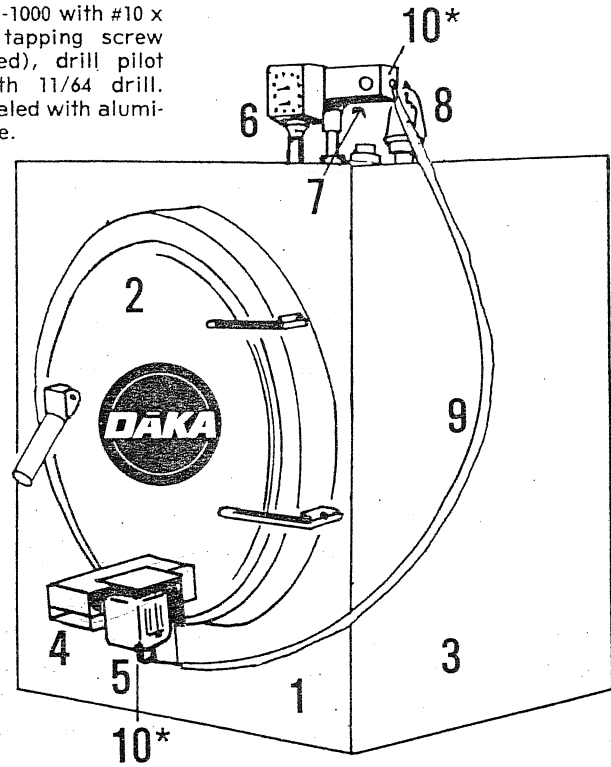


DAKA BOILER NO. B-1000 INSTALLATION MANUAL



DAKA CORPORATION
Industrial Park
P.O. Box 90
Pine City, MN 55063

Carburetor mounted to DAKA B-1000 with #10 x 1/2 self tapping screw (furnished), drill pilot hole with 11/64 drill. Seam sealed with aluminum tape.



Key Model B-1000 PARTS LIST

1	Boiler Shell	1 ea.
2	Firedoor	1 ea.
-	Gasket for Firedoor	1 ea.
3	Air Jacket - 3 pc. Set	1 set
4	Carburetor Assembly	1 ea.
5	Damper Motor	1 ea.
6	Pressure/Temperature Gauge	1 ea.
7	L4006A Aquastat	1 ea.
8	Pressure Relief Valve	1 ea.
-	Low-Voltage Wire Set	1 ea.
9	Thermal Wire Sheath	1 ea.
-	Aluminum Carburetor Tape	1 pc.
-	Carburetor Mounting Screw	1 ea.
10	Heyco Strain Relief Bushing*	2 ea.

*NOTE: Heyco Strain Relief Bushing to be installed in aquastat knockout and draft motor wire outlet. We recommend taping both ends of fiberglass wire tube before inserting thru strain relief bushing to prevent fiberglass wire tube from fraying.

INSTALLATION INSTRUCTIONS

WARNING: The following instructions are intended for professional plumbing and heating installers. We advise you not to attempt to install this unit unless you are qualified.

LOCATION: The B-1000 may be installed adjacent to the existing boiler or in a remote location, depending on personal preference. Remote locations such as an attached garage or an out building are popular choices. They eliminate the need for bringing wood into the home and do away with all dust and smoke odors associated with wood burning.

When the location has been decided upon, locate the B-1000 as close as possible to the chimney you intend to use. The main chimney servicing the B-1000 must be 7" or larger. **MAKE SURE ALL LOCAL CODES ARE FOLLOWED WHEN CHOOSING A CHIMNEY!!** Long stovepipe connections are not safe and may not have a sufficient vacuum for a good draft.

The B-1000 must be hooked to a chimney that is approved for solid fuel burning such as a **Class "A" or Masonry with a tile liner in good repair**. If in doubt about the condition of the chimney, secure professional advice.

Make sure there is always a slight upward angle in all horizontal stovepipe runs, minimum of 1/4" rise per foot toward the chimney.

Fasten all sections of the stovepipe together with at least three (3) sheet metal screws and also to the chimney collar of the B-1000.

Use a heavy-duty 22-gauge galvanized stovepipe to connect the B-1000 to the main stack.

The B-1000 has a 6" chimney collar. We recommend the use of an expansion collar (6" to 7") to be fitted on the B-1000 chimney collar and the use of 7" stovepipe. This will help prevent smoke from entering the room while fueling. The use of a barometric damper is recommended for fine tuning the air adjustment. Minimum clearance to combustibles is sides: 24"; top: 36"; rear: 24"; front: 48". Be sure to install an inline off-on switch in the 24-volt aquastat wire to remove power from the damper motor, if necessary.

PLUMBING: The installer has two choices of plumbing installations. They are: a series hook-up or a parallel hook-up. The series hook-up is most generally used especially with remote installations. The parallel hook-up is always used when the original boiler has a domestic hot water coil that is to be used. In the parallel hook-up, the water thermal circulates between the two boilers thereby maintaining the same temperatures in both boilers which enables the original boiler to supply domestic hot water from its domestic coil.

Install an air bleeder in the hot line at the first high point to prevent an airlock as indicated in the series and parallel hook-up diagrams. The use of an **air scoop** with a bleeder on top greatly increases the expulsion of air in the system also.

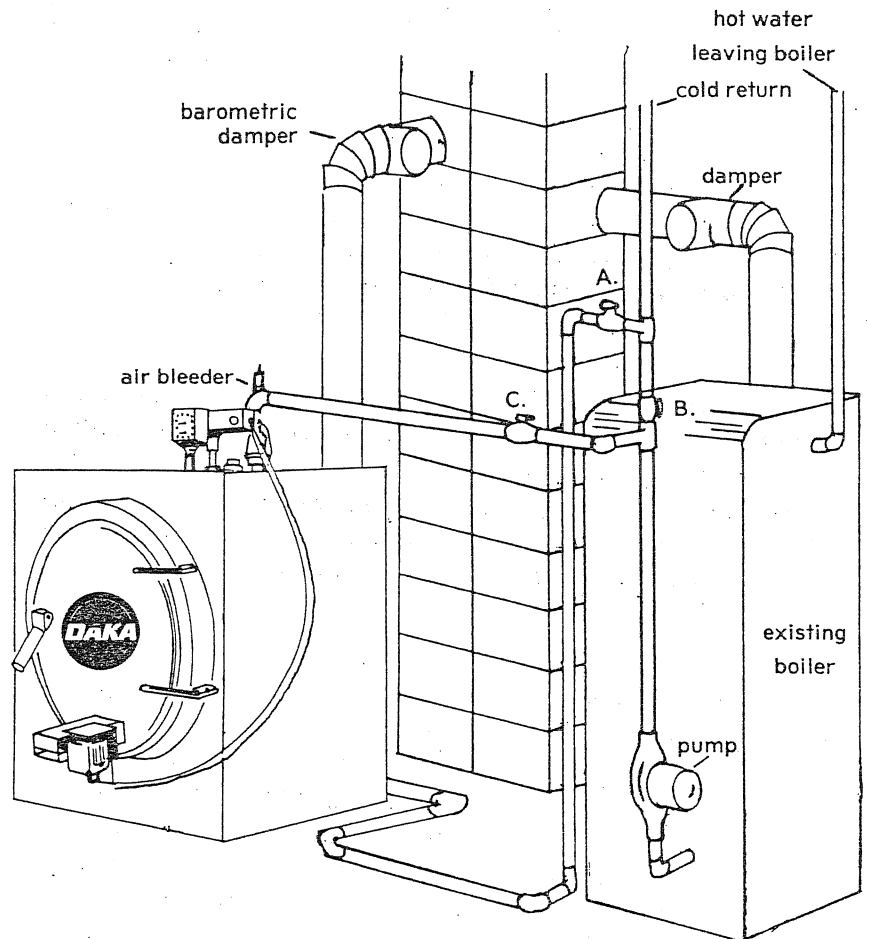
SERIES HOOK-UP: The three valve system as pictured in Diagram A is to be installed on the return line of the heating system as close to the original boiler as possible for maximum efficiency. It may be installed above or below the pump. If there is more than one return line, the three valve system must be placed on the common line that enters the boiler.

PARALLEL HOOK-UP: Diagram B — The B-1000 must be located next to the existing boiler for this system to work by thermal circulation. When hooking the hot line to the original boiler, use an unused tapping high up on the boiler section if the boiler has one. Do the same with the cold line, but choose a tapping near the bottom of the boiler section. If no unused taps are available, "T" into both the hot and cold lines right next to the original boiler. For remote installations a pump is required. Contact your dealer for instructions.

If any special situations arise, and the two preceding hook-ups do not seem applicable, contact DAKA for advice, or call the Boiler Service Hotline listed in the front of this booklet.

DIAGRAM A

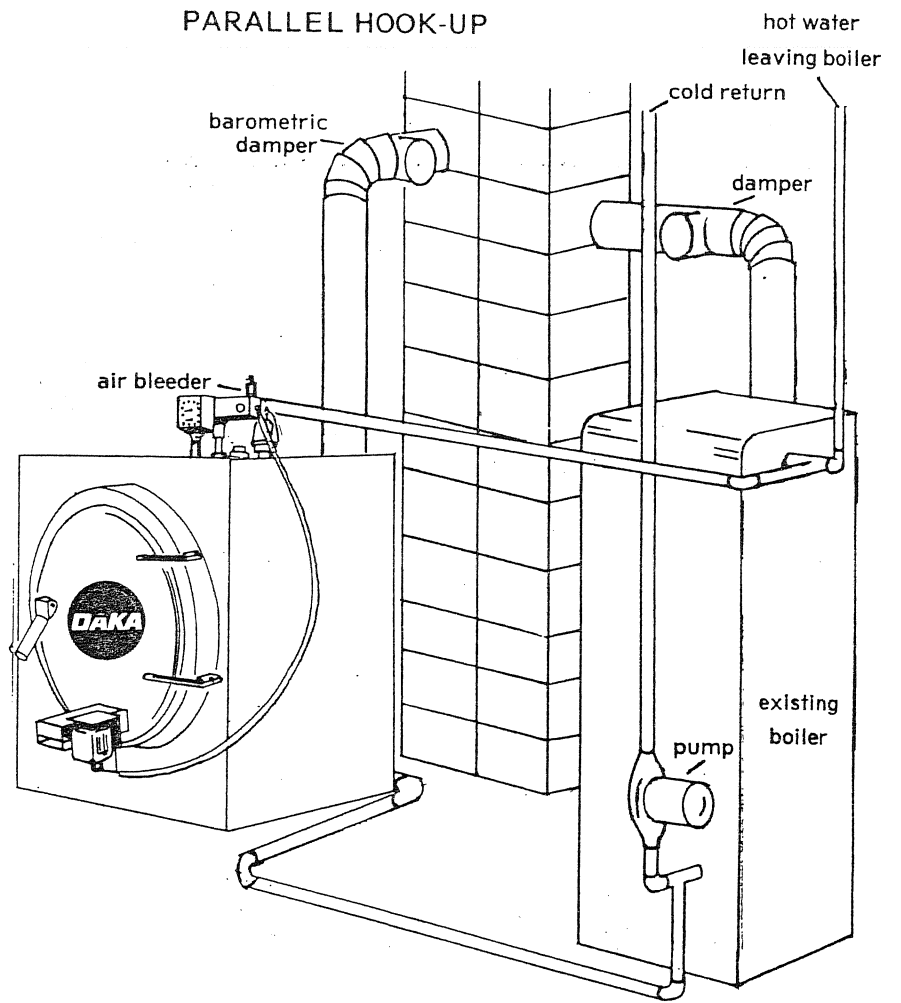
SERIES HOOK-UP



NOTE: B-1000 must be kept at least 3' from any combustible material.

To operate B-1000, open valves A and C,
Close valve B

DIAGRAM B

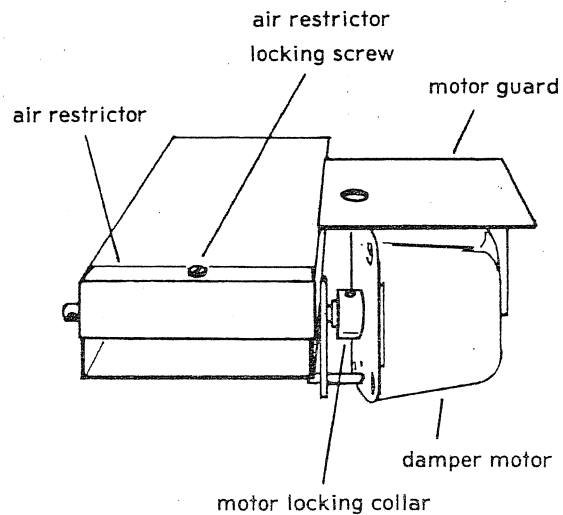


NOTE: Check existing boiler for extra tapped holes and hook-up as pictured, if taps are not available, T into existing pipes at boiler.

GENERAL INSTALLATION NOTES

1. If the two boilers are further apart than 6', always insulate the hot lines.
2. If you use a remote installation in a normally unheated area, we suggest you anti-freeze your system. If anti-freeze is used, a backflow preventer must be used.
3. Use only quality components, pipe, sealing compounds, fittings, valves, etc.
4. Do not use less than 1" pipe in any hook-up. We recommend 1¼" pipe.
5. Be sure to add a "boiler treatment" after the unit is plumbed in. It will lubricate your pump and help prevent scaling and rust in your system.
6. The use of a float type air-bleeder is required on the first high point of the hot line leaving the B-1000. **NOTE:** if you can "hear" the water circulating, the system has not been bled sufficiently.

CARBURETOR SCHEMATIC



HOW THE B-1000 OPERATES

Now that the B-1000 is plumbed and wired and the chimney is connected, there is only one more adjustment to be made. You now turn the aquastat on the existing boiler 10° to 20° below the setting on the B-1000 aquastat.

If installed in series with primary boiler (Diagram A), open valves A and C, close valve B. Set the aquastat on the B-1000 at a low setting such as 150°. Light a fire and watch the unit come up to temperature and shut off. You could cycle it again by increasing the temperature on the aquastat 10°, just to make sure all systems are functioning properly. After the second test cycle, set your B-1000 aquastat at a good operating temperature (approximately 180°).

Here is how it works: The house thermostat calls for heat. It signals the existing boiler. The circulating pump comes on, but not the gun or burner because the water in the existing boiler is hotter than the now turned-down aquastat setting. Therefore your pump pumps the hot water from the B-1000 into your original boiler and throughout the system. We use your thermostat system, your pumping system, and the B-1000 heats the water.

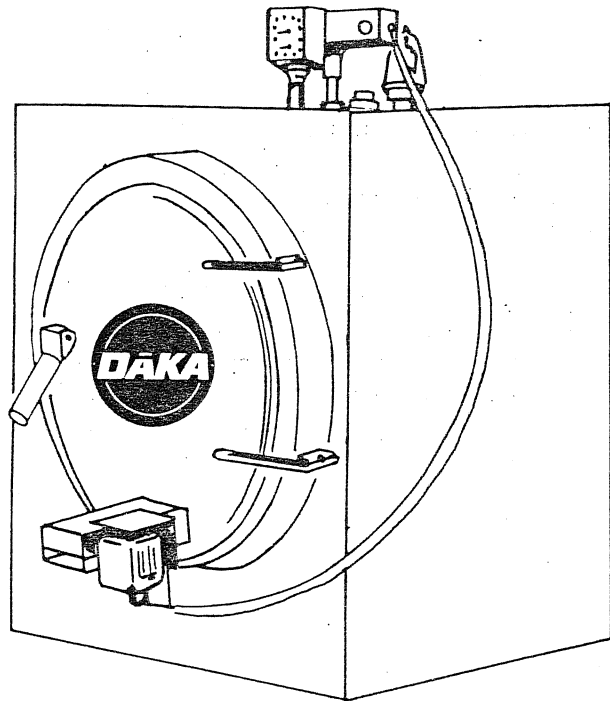
It is possible and it is to be expected that the gun or burner will come on periodically. This will happen when the weather is warm and the house does not call for heat very often. The water in the original boiler will cool and when the house calls for heat, the gun or burner may come on until the hot water from the B-1000 fills the original boiler. Your gun or burner usually does not run for more than 2-4 minutes.

If you do not want "help" from your existing boiler, you may turn the aquastat on the existing boiler all the way down to its lowest setting. Usually that is about 100°. This will cause your existing boiler to come on very rarely.

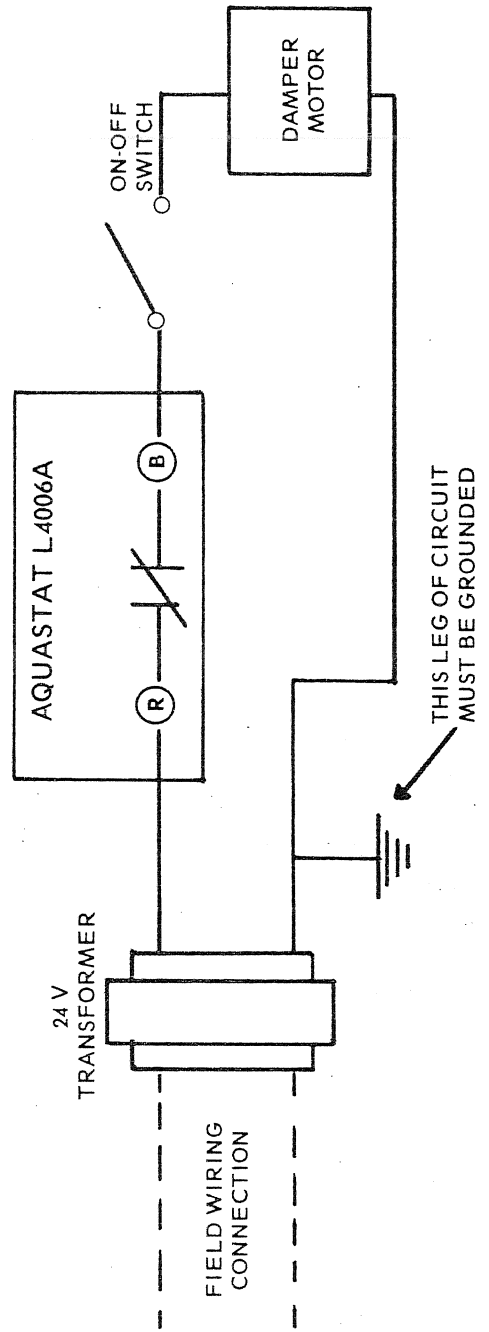
If you should leave and the B-1000 burns up its fuel supply, the water temperature in the system will drop 10°-20° that you lowered your original aquastat, and then your gun or burner will come on and continue to heat the home. It is all automatic — you do not need to adjust or set anything.

If your existing boiler has a "low temperature circulator cut-off", you will have to turn it to its lowest setting. If that temperature is not low enough and prevents your pump from pumping, you will have to bypass that system. We suggest you contact your local electrician for that job.

If your system is an older type gravity system, we recommend the aquastat on the B-1000 to be set at approximately 140°. If your boiler's aquastat is unable to turn down far enough to prevent your original boiler from firing, a new aquastat with lower settings should be purchased.



WIRING SCHEMATIC



TIPS ON FIRING

1. **Caution: How to open boiler door - When unit is not in a firing condition, open door a very small amount and wait a minute or two.**

This will allow the fire to start and prevent the boiler from smoking. Failure to do this could result in a large puff of smoke entering the room when the unburned gases ignite. If the boiler is firing, you may open the door without waiting. **Always open door slowly.**
2. Use wood no longer than 18" — longer wood just radiates heat out the front of the unit. It is a waste of fuel.
3. Always push fuel supply to rear of boiler.
4. Burn seasoned or dry wood only. It contains up to 30% more BTU's than green or wet wood. It also produces far less creosote buildup.
5. Use leather gloves for handling wood (to prevent slivers) and opening the furnace door. The handle can be hot and should be treated as such.
6. To start fire, crumple several old newspapers and place kindling wood on top, be sure the air intake is not clogged, allow to burn until a vigorous fire is going before adding larger wood.
7. The B-1000 should have a vigorous fire in it — not a roaring run-away fire, just a good vigorous fire. If the fire is not burning hard enough, you can adjust the air intake on the front of the carburetor. Check carburetor schematic.
8. How to adjust the air intake for peak efficiency.
 - A. Light fire and charge stove $\frac{1}{3}$ to $\frac{1}{2}$ full, allow fire to burn 15-20 minutes before adjusting.
 - B. Close barometric damper.
 - C. Watch unit burn by looking into the bottom of the carburetor.
 - D. Remove air restrictor locking screw and gradually lift the air restrictor in $\frac{1}{4}$ " increments pausing one minute between increments. When the fire begins to pulse, lower air restrictor $\frac{1}{8}$ " to $\frac{1}{4}$ ".

E. If pulse continues, adjust weight on barometric damper so that the damper opens enough to stop fire pulse.

F. Note how high you had to lift the air restrictor and cut off that amount from the bottom of the restrictor. Replace the restrictor and tighten the restrictor locking screw.

CAUTION: Do not adjust air restrictor to make the unit burn so hard as to pulsate or radiate excessive heat from its chimney or door! Once adjusted this setting must not be changed for any reason!

9. **WARNING:** Keep all combustibles at least 48" away from boiler and stovepipe.

10. Empty ashes when the fire is low. Push coals to one side, take out 2 or 3 shovels full and place in a metal bucket. Move coals to other side and remove a couple more shovels full. Keep a top on the bucket to prevent ashes from drifting around. We recommend the ash level to be 2" to 3". With boiler shut down and out, check chimney for soot and creosote formation weekly. Clean when noticeable formation occurs. Tap chimney connector all around outside to dislodge soot and accumulated creosote. Remove sheet metal screws at joints and break joints. Using metal pail, dump contents and remove from premises. Use a chimney brush of the size suitable for your flue. We suggest a professional cleaning once a year. Due to the relatively cool surface of the fire chamber, creosote will form. It is not necessary to clean this surface as it is burned as a fuel in the boiler.

11. **CAUTION:** Never burn garbage, gasoline or naphtha!

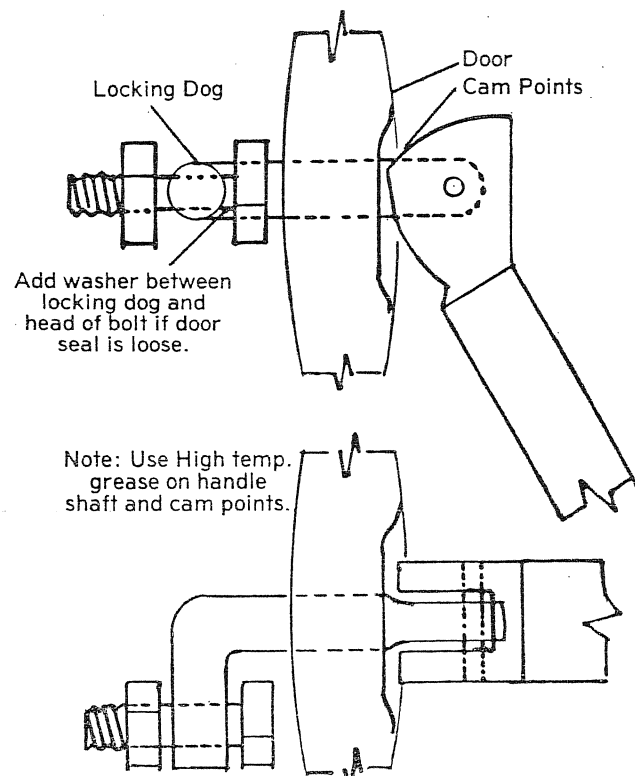
12. Store solid fuel in an area that permits air to circulate around pieces.

13. Fuel charges should be varied with outside air temperatures - in warm temperatures say 30° or above, don't load more than 1/3. In colder temperatures you may fill the unit.

14. **WARNING:** Unsafe to adjust the flue draft higher than .06 W.C.
15. Solid fuel burning boilers require the flue pipe to be inspected and cleaned frequently because the soot and ash accumulations are more rapid with solid fuel burning! It is not necessary to clean creosote formed inside of the boiler because it is burned as a fuel.
 - A. **WARNING:** Failure to keep the flue pipe clean may result in poor efficiency and a possibility of a soot fire.
 - B. **In the event of a soot fire:**
 1. Shut off electrical control switch. This will close the carburetor plate.
 2. All openings to the chimney must be closed.
 3. Cover opening to the barometric damper. Any other openings to the flue must be sealed off.
 4. Call fire department.
 5. Evacuate building.
 6. Inspect all areas where chimney passes close to wood or other combustible materials, if possible.
16. Adequate combustion air must be provided to assure good combustion. Inadequate combustion air may result in excessive creosote and soot formation in the chimney. If adequate combustion air is not present, do either of the following:
 - A. Open window slightly in furnace area.
 - B. Install 3''-4'' duct work from outside home to front of unit.
17. The B-1000 should have a vigorous fire in it. A small intense fire is preferable to a large smoldering fire, to reduce the amount of creosote.
18. If the installation is to be made on a combustible floor, an approved solid fuel insulating non-combustible base is required.
 - A. The base shall extend not less than 16'' in front of the fuel charging door, and the ash removal door and not less than 8'' from each side and the rear of the appliance.

19. The electrical system on the B-1000 is totally independent of the existing boiler's electrical system. **NOTE:** The only adjustment made to the existing boiler whether in a parallel or series hook-up, is to set the aquastat 15°-20° F. lower than the B-1000. See attached electrical hook-up sheet.
20. Periodically check the door seal. You can do this by placing a strip of paper over the bead on the door frame locking the door shut on the paper. If you can pull the paper out with a gentle tug, the door is too loose. A washer should then be added to the locking dog on the handle assembly. Check diagram. The unit **MUST NOT** be operated if the door seal is leaking air for any reason. If you are unable to make the door seal, contact your dealer for expert repair.

Handle and Locking Dog Assembly

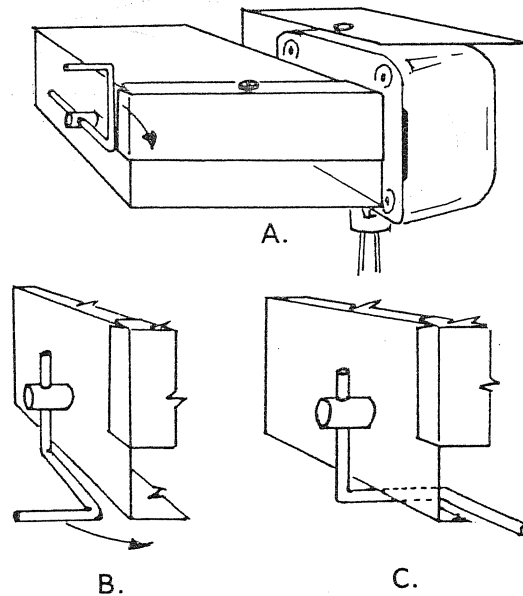


21. Turn off 24-volt power to the B-1000 whenever the boiler is not being used. Failure to do this could result in a burned-out damper motor.
22. In the spring and fall when the weather is warm, the B-1000 may fire only once or twice a day. Even if your wood is relatively dry, you may experience excessive amounts of creosote formation. We suggest that during warm periods such as those mentioned above, you use your original furnace. The amount of fuel oil or gas burned during these periods would be minimal.
23. If electric power fails in your area, the B-1000 can still heat your home. Manually open your zone valve to the area you want heated and fire the boiler manually as illustrated. Disconnect the 24-volt power to the boiler.

CAUTION: Never leave the boiler when firing manually!!

24. If water is lost through safety relief valve and system is not equipped with automatic "keep fill valve" water must be added manually.
25. **SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE!**

MANUAL FIRING MECHANISM



MAINTENANCE NOTES

1. Make a habit of checking the pressure relief valve weekly, (lift slightly until water escapes and then release lever).
2. Always disconnect electrical power to the B-1000 when not in use.
3. Check chimney for soot and creosote formation weekly. Clean when noticeable formations occur. We suggest professional cleaning once a year.
4. Prior to initial use in the fall, always check damper operation by turning on and off the electrical power to the B-1000. When the power is turned on, the damper should open. When the power is shut off, the damper should close. If it does not operate correctly, **DO NOT FIRE THE BOILER**. Contact your local dealer for service.

OWNER _____ ADDRESS _____
CITY _____ STATE _____ ZIP _____ PHONE _____
BOILER MODEL NO. _____ SERIAL NO. _____ DATE PURCHASED _____
DEALER _____ ADDRESS _____
CITY _____ STATE _____ ZIP _____ PHONE _____

DAKA CORPORATION
Industrial Park
P.O. Box 90
Pine City, MN 55063

—WARRANTY—

DAKA BOILER LIMITED WARRANTY

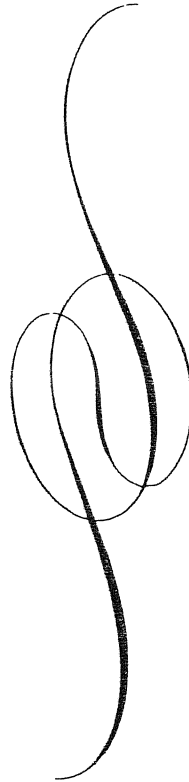
DAKA Corporation warrants to the original owner only, as set forth below, that any supplied mechanical or electrical part of this boiler that proves defective during normal home use for one year following date of purchase will be repaired or replaced, at our option, free of charge. The boiler vessel of the B-1000 is warranted against leaks for four additional years, under the same terms.

This warranty does not apply on any units used for commercial purposes, or for damage caused by misuse, accident, improper installation, overheating or negligence.

DAKA Corporation assumes no liability for any labor expenses for removal or installation of unit, or for freight charges for return of unit to factory for service.

All claims for service under this warranty should be made to dealer from which unit was purchased. If this cannot be done, please contact the factory for direct handling.

This warranty should be completed immediately and retained by original owner for presentation in the event of in-warranty failures. Do not mail form to either dealer or factory except in the event of in-warranty failure.



SAFETY TESTING

The DAKA B-1000 boiler is listed by The Energy Testing Laboratory of Maine, South Portland, ME as a Wood/Coal Boiler.

Test Criteria: ETLM-78-1 and CSA
B366M1979

Date Tested: November 12, 1980

Test Report: 80-08-107

PATENTED DESIGN

U.S. Patent No. 4127107

BOILER SERVICE HOTLINE

For Special installation problems, call this special number during working hours:

605-882-2632

*← not valid
as of 10/92*

OWNER'S NOTES