NORDIC STOVE

Versatile, Effective, Non-electric Oil Heat

Installation and Operating Instructions

A French version of this manual can be found online at www.rural-energy.com
Une version française de ce manuel peut être consultée en ligne à www.rural-energy.com

THE INSTALLTION SHALL BE IN ACCORDANCE WITH THE REGULATIONS OF AUTHORITIES HAVING JURISDICTION

Model Sizes: 68, 130, 250, 400
Model Types: Basic, Convector, Deluxe, Rustic

READ these INSTRUCTIONS thoroughly and carefully.
SAVE FOR FUTURE REFERENCE

Installation shall be in accordance with the following standards:

In Canada: CSA-B139-1962. *"Installation Code for Oil Burning Equipment"*
In the U.S.A: National Fire Prevention Association (NFPA) #31. *"Standard for the Installation of Oil-Burning Equipment."*

***Tested to UL 896-2013 and CSA CAN/CSA-B140.3-1962(R2015) by OMNI-Test Laboratories Inc.* Portland, Oregon, USA**

OMNI 0129HS001S, 0129HS002S, 0129HS003S, 0129HS004S

Tested & Listed By O-T L C US Portland Oregon USA

OMNI-Test Laboratories, Inc.

I. CONTENTS

II. GENERAL INFORMATION

NordicStoves are oil-burning stoves that can be used for heating and cooking on boats and in tents, ice-fishing huts, vans, trailers, trucks, workshops, cabins, or homes. **NordicStoves** do not require electricity and can therefore be used in almost any situation where a heating and/or cooking device is needed. NordicStove models are durable and attractive as well as efficient and effective**.**

A. FUEL: **NordicStoves** normally burn heating oil or stove oil (#1 or #2). They may also burn automotive or marine diesel fuel, or kerosene but may require slight adjustment in order to operate properly and for the high and low range on the controller to equal the same heat output as the factory settings. Do not use crankcase or waste oil. **DO NOT under any circumstances use a volatile fuel such as gasoline, white gas, or any mix of fuels containing gasoline!**

Each NordicStove comes from the factory pre-set for U.S. #1 heating oil. If you use a different grade such as marine diesel, #2 heating oil or automotive diesel you will likely need to adjust the oil regulator to achieve maximum heat output, efficiency, and proper operation in the low controller settings. (See the attached "Tuning Your NordicStove" document or consult your dealer.)

B. ENVIRONMENTAL IMPACT: **NordicStoves** are designed for environmentally clean burning and meet rigorous clean air requirements. They produce a minimum of carbon in the exhaust.

C. HEATING CAPACITY: **NordicStoves** are available in several BTU per hour ***output sizes including 6,800; 13,000; 25,000, and 40,000.*** Each model can be adjusted with the oil regulator down to approximately one fourth of the maximum output. A thermostat accessory is available that allows automatic adjustment of the oil flow within a limited range.

D. HEATING AND COOKING: All models are designed and equipped with a flat, thick, top plate that acts as a cooking surface. On units with a cabinet or touch protection, the top of the protective cabinet can be removed to expose the cooking surface. This surface temperature is approximately 300 degrees C. (630 F)

E. MAINTENANCE: After heavy continuous use over several months the burner will require cleaning. This can usually be accomplished by adding a small amount of carbon removing fuel additive to the burner while it is burning. (Consult your dealer.) If the additive does not remove sufficient carbon and soot, remove the top plate, remove the burner rings, and brush the inside walls of the heater and burner. Then use a shop vacuum or brush to remove loose soot or carbon.

F. VENTING: **NordicStoves** can be used in a variety of structures to meet various heating and cooking needs. However, a venting system is required to remove exhaust gases and combustion by-products from the structure. Various venting types and configurations are possible.

1. CAMP TENTS: Some tents utilize the chimney as a support for the canvas roof and walls. Some tents have an opening in the canvas roof that supports the venting. In other situations, it is best to use a horizontal vent pipe through the wall of the tent. This horizontal pipe must then connect to a vertical chimney or a flexible chimney that enables the vent system to develop the necessary draft. *Consult the tent supplier to determine the safest and most effective vent system for your tent.*

2. CABINS, SHEDS, HOMES, ETC.: **NordicStoves** may be vented up through the roof of the structure or vented out through the wall and then upward on the outside of the building. When going through combustible material you must observe local codes for clearances and/or requirements to use insulated vent pipe. **No combustible material must touch any un-insulated exhaust vent pipe!** When used in cold climates, all venting that is exposed to cold temperatures must consist of insulated or double-wall pipe in order to prevent excessive condensation and soot accumulation. See details in the INSTALLATION Section IV. Page 5 below.

3. BOATS: Venting the **NordicStoves** for boat use is similar to other applications. The length of the vent system may be shorter but not to the degree that the stove burns poorly.

4. BAROMETRIC DAMPERS: (Draft regulator) A barometric damper should not be necessary in most applications. A draft regulator may be necessary in order to maintain stable draft in certain locations or installations.

5. CHIMNEY CLEANOUT: NordicStoves emit very little carbon and soot into the venting system. However, it may be prudent to design your vent system so that it can be brushed clean if necessary. In most cases -because the stove itself is very light weight and can easily be disconnected- it is not necessary to provide a separate cleanout. However, a clean-out "T" or cap may make the process more convenient. Consult your dealer.

6. COMBUSTION AIR: All fuel-burning devices require sufficient oxygen. If the structure or location is well sealed against air infiltration, it may be necessary to make some provision to allow combustion air to enter the room or structure near the **NordicStove**. The Basic**,** Deluxe**,** and Rustic models have a connection near the bottom of the stove for a pipe to provide direct flow of air to the **NordicStove**. This energy-saving feature can reduce your fuel consumption and eliminate drafts in the structure. See INSTALLATION Section IV. Page 5 for details.

III. UNPACKING AND ASSEMBLY

A. CONTENTS OF CARTON

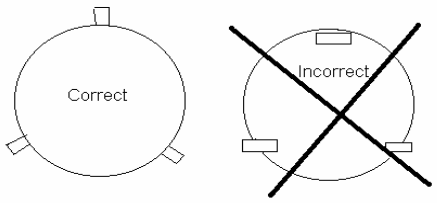
The NordicStove carton contains the following:

- Installation and Operating Instructions with Warranty Registration form.
- Stove
- Thick steel or cast iron top plate
- Convection jacket cover. (Basic models w/o convector will not have this cover.)
- 2 burner rings (only one in the 68 models)
- Fuel connection union (1/4" MIP x 3/8" flare) and 3/8" flare nut. (May be on or fastened to the oil regulator)

B. UNPACKING

1. Remove upper packing materials and separate carton containing parts.
2. Lift stove out of carton.
3. Remove any packaging material and/or parts from inside the stove.
4. Check inside the flue, air intake connections, and the burner and remove any packaging material that may be situated in these areas.
5. Carefully remove, unwrap, and inspect all parts.

C. ASSEMBLY



1. Rotate the three legs on the bottom of the stove to their proper positions.
2. Install the burner ring(s). Look for the UP or UPSIDE mark on each ring and if there are two rings, determine which is the UPPER or TOP ring and which is the BOTTM or LOWER ring. Stoves with two rings will have an upper and lower set of pins in the burner to support the rings. When the heater is ready to be installed and will not be moved extensively, position the lower ring on the

support pins and then position the upper ring on the support pins. Note: the rings must be horizontal and resting firmly on the correct row of pins. There is no alignment necessary between the upper and lower rings.

3. Position top plate. Align the tab on the top plate with the orientation slot and set the top plate on the stove. The gasket on the plate should align with the top rim of the stove body.
4. Fuel connection fitting. The fitting may have been installed at the factory. If not, use an oil-compatible thread sealant on the ¼" MIP side of the union and screw it into the hole on the oil regulator. Make tight but do not over-tighten.

IV. INSTALLATION

A. LOCATION

1. The NordicStove may be placed on a flat level surface made of material that can resist heat. Hardwood, plywood, concrete, etc. are acceptable. The NordicStove should not be mounted directly on a carpeted floor. Use a solid platform of rigid heat resistant material between the carpet and the stove. A drip tray is recommended under the stove but is not required.
2. For maximum heating effectiveness place the stove in a large open space.
3. Due to High Surface Temperatures, Keep Children, Clothing, and Furniture Away. Take this into consideration when choosing a location for your stove.
4. Clearances to combustible materials as listed in the Specifications table should be strictly observed. These clearance requirements can be reduced if NON-COMBUSTIBLE material is installed between the stove and combustible surfaces. Consult your dealer or NFPA #31 or CSA #B139-1962.

B. LEVELING

1. **NordicStoves** should be level. Generally this can be done by sight. For more precision use a level placed across the top of the stove.
2. You will notice that if the stove is not level, it may not burn evenly, especially in the low position. If necessary, tune the level position while operating.

C. SECURING TO FLOOR

1. UL and CSA safety standards require that the stove be securely anchored to the floor. After the stove has been connected to the flue and is level, use screws or lag bolts to anchor the stove to the floor. On a wood surface use screws or bolts that are long enough to penetrate at least ¾" into the wood.
2. If anchoring to concrete, swivel the leg to one side and use a concrete drill bit to make a concrete anchor hole. Install the anchor. Re-position the leg and use an appropriate length lag bolt to anchor the leg in the correct position.

D. FLUE SYSTEM

1. Combustion by-products from **NordicStoves** must be vented outside of the space to be heated and occupied. Use venting materials that are the same diameter as the exhaust (upper) outlet flange on the heater.
2. In order to meet requirements of U.S. and Canadian test standards for residential use, you must observe clearance and material specifications for both the stove and the chimney system. For the connection between the stove and any penetration through a combustible material, 24 gauge Black or 26 gauge Blue stove pipe or All-Fuel "L" vent capable of continuous use at 1000^0 F may be used. For penetrations through combustible material clearance requirements of the specific chimney must be observed. The manufacturer recommends using an insulated "All-Fuel factory built Class A chimney" system when the chimney is near combustible material and/or exposed to cold temperatures. Please consult the National Fire Prevention Association Oil Stove Installation bulletin # 31.1-6 or CSA Standard B139-1962 for details.
3. UL and CSA standards require that ALL OIL BURNING APPLIANCES SHALL BE CONNECTED TO FLUES HAVING SUFFICIENT DRAFT AT ALL TIMES TO ASSURE SAFE AND PROPER OPERATION OF THE BURNER. The length, diameter, and construction of the exhaust system are all important to meet these safety standards. As heated air rises in the chimney it draws or "sucks" through the burner to provide air for combustion. Thus, a chimney or flue system of proper length and draft is critical. The manufacturer recommends a minimum of nine feet of flue for most applications and recommends insulated flue pipe (Class A Chimney) wherever the pipe is exposed to cold temperatures.
4. Recommended draft specifications: Minimum: .019 inches of water column. Normal range .034 to .078 inches of water column. A draft gauge may be necessary to test the draft if it seems insufficient or excessive. Consult your dealer for more information.
5. The termination of the chimney should be two feet above any surface that is within 10 feet of the top of the chimney.

E. COMBUSTION AIR

1. Adequate air supply is necessary to maintain the proper draft and to provide sufficient oxygen for combustion. For most efficient and effective heating, attach a non-combustible duct pipe to the lower connection on the NordicStove. (Such as: aluminum dryer vent pipe.) The termination should be located out of doors or in an area that has plenty of airflow but is outside the heated space. (Garage, crawl space, porch, etc.)
2. Ensure that this pipe will not become obstructed. (Snow, debris, etc.)
3. Use a large mesh screen to prevent objects or small animals from getting into the stove through this pipe.
4. The intake air pipe should be the same size as the exhaust pipe though it may be possible to use a reducer and slightly smaller pipe. Be sure the flame and draft are acceptable at all burning positions if a smaller pipe is used.

5. This pipe may be oriented in any direction from the stove. Sideways, to the rear, upwards, or down. Check the flame to be sure the unit is getting enough combustion air.
6. In very cold climates, it may be wise to wrap this pipe with insulation to avoid condensation.

F. FUEL SUPPLY

1. Fuel Tanks. A portable heavy-duty plastic fuel tank and a rubber fuel line are available for temporary applications such as tents, vans, cabins, boats, etc. For more permanent installations a 5/16" or 3/8" OD copper fuel line and a steel or polyethylene tank should be used. The bottom of this tank should be approximately 16 inches above the base of the heater to ensure consistent flow of oil. A good quality fuel filter is highly recommended to prevent foreign matter from entering the fuel regulator.
2. The **NordicStove** TOBY fuel regulator has an over-heat shut off device that stops the flow of fuel in the event the regulator gets hot. However, some local codes may require an externally mounted fusible link valve on the fuel line.
3. The top of the tank should be no more than eight feet above the heater. Consult your dealer if you must use a tank that is higher.
4. When using the portable tank system, keep the fuel out of the structure and be sure that the quick-connect couplers are properly locked in position before allowing fuel to flow. The tank should always be at lest four feet away from the heater to prevent heating of the fuel. You may also use a siphon hose to connect between the tank and stove. To connect the quick-couplings slide the outer sleeve back when attaching to the nipples and make sure the sleeve is completely forward and locked before allowing fuel to flow.
5. Always check for leaks after installing any fuel line system!

V. OPERATION

CAUTION: DO NOT OPERATE THE NORDICSTOVE IN THE PRESENCE OF COMBUSTIBLE FUMES FROM VOLATILE MATERIALS SUCH AS PAINT, CHEMICALS, GASOLINE, ETC.!

A. STARTING PROCEDURE (Follow these steps whenever the stove is ignited.)

1. Be sure all fuel connections are tight and without leaks.
2. Lift the lever on the side of the fuel regulator opposite the fuel line until the lever is at the top position. This lever sets the regulator flow to the open position and allows fuel to enter the regulator. It also engages the overflow safety lever. (See detail of oil regulator.)
3. Turn the regulator control knob counterclockwise from the "O" (closed) position to a position between the third mark to the left of the "O" and the sixth mark to allow fuel to begin flowing.
4. Open the top of the stove and look at the bottom of the burner. Use a flashlight in order to see clearly.

5. When you see liquid on the bottom of the burner, turn the control knob clockwise back to the off position ("O").
6. Fold a one-inch by two-inch piece of special lighting paper (or similar material) in the middle, ignite it, and place it on the bottom of the burner.
7. When the lighting paper is burning well turn the regulator knob to a position between the first mark and the third mark. This is the "Start" position. The "best" position will depend upon your fuel. If your unit burns with very yellow flames and produces dirty smoke, you may have allowed too much fuel into the burner and/or you have insufficient draft or combustion air.
8. Close the top of the stove.
9. After the stove has burned a few minutes and the draft has been well established, open the regulator to the desired heating position.

NOTE: DO NOT ATTEMPT TO START THE BURNER WHEN EXCESS OIL HAS ACCUMULATED, OR WHEN THE BURNER IS HOT. Fuel will vaporize rapidly on the hot burner bottom and vapors could be explosive. Wait until the stove has cooled for 20 to 30 minutes before beginning the lighting procedure again

B. <u>COLD CHIMNEY STARTING:</u> If the flue (chimney) is cold and does not establish a negative draft with the procedure in A. above, it may be necessary to add and ignite a small amount of more volatile fuel such as lighter fluid (not gasoline) or a larger piece of lighting paper before opening the fuel regulator knob to the starting position. After a small amount of fuel has entered the burner, turn the fuel knob to "O." Then add the lighter fluid. When it has burned and heated up the chimney so that a draft is established, open the fuel control knob to the proper position.

C. <u>STOPPING PROCEDURE</u>

1. To stop the heating/cooking process, merely turn the regulator control knob to the "Off" position (O). The stove will continue to burn for a minute or two. If the flame does not stop, be sure the regulator is off and check your venting and fuel system are correct before using the stove again. It may be flooding slightly if the flame does not die out within two minutes. Always keep the valve shut off when the burner is not operating.
2. If you are using the temporary fueling system with quick-couplers, turn the fuel tank to the upright position and then remove the coupler at the stove oil regulator. Fuel should not drain from the fuel line. The entire fuel line should be raised above the tank to allow the fuel to drain back into the tank before the line is disconnected from the tank. Be prepared for a small amount of fuel to drip out of the regulator. If the stove is to be moved, drain the regulator after the venting system has been disconnected and before the stove is moved

D. <u>OPTIONAL THERMOSTAT OPERATION</u>

1. An optional accessory thermostat can be attached to the oil regulator. The thermostat device consists of a bulb filled with fluid, a coiled connecting tube,

an adjustment knob, and a control pin lever. As the fluid expands and contracts a lever moves an adjusting pin that protrudes from the top of the regulator. The tube may be gently uncoiled to allow the bulb to be mounted on the wall near the stove.

2. To adjust the thermostat, first light the stove and allow it to burn at the high setting until the room is at the desired temperature. Adjust the oil control knob to a position that will maintain this comfort level. Turn the thermostat adjustment knob until the flame can be reduced slightly. Then, position the thermostat to maintain the flame level that you desire. If the room temperature increases, the oil flow will be reduced. If the room temperature decreases, the oil flow will be increased accordingly.

VI. MAINTENANCE

A. PERIODIC: **NordicStoves** require very little maintenance. However, occasionally the following items should be inspected as indicated.

1. Inspect fuel line connections, tank, and filter for leakage.
2. Inspect fuel line on stove between oil regulator and fuel feed tube for leakage and/or loose connections.
3. Check the de-coking rod retaining nut for leakage and loose nut.
4. Rotate and slide the de-coking rod back and forth to clean the fuel nozzle tube.
5. Inspect the combustion air intake opening for obstructions.
6. Check to be sure that the combustion air intake pipe is securely connected.
7. Check connections to flue system for loose connections or signs of leakage. (Soot stains.)
8. Visual check of chimney termination for damage, obstructions, or indications that the stove is burning improperly. (Soot and carbon.)
9. Visual check for any signs of overheating or leakage.
10. Observe the flame through top plate hole or front window and verify satisfactory flame color and height.

B. ANNUAL: In addition to the items listed above, the manufacturer recommends the following on an annual basis or more often.

1. Flue inspection. Disconnect stove from the flue system and inspect the flue/chimney for heavy soot. Clean the entire flue if necessary.
2. Soot carbon. Remove all internal components from the burner and loosen soot and carbon. Remove the material with a brush or vacuum cleaner.
3. Inspect burner rings and other internal parts and replace as necessary if warped or cracked.
4. Inspect the top cover and the gasket and replace with a properly sized wood stove gasket if necessary.
5. Dust removal. Check the convector surfaces and wipe off or blow out dust.
6. Oil control screen. Shut off the fuel line at the tank valve or valve nearer the stove. Provide a container to catch fuel that may drip out. Remove the screws holding retaining plate that is located on the opposite side of the controller as

the fuel line. Remove the retaining plate and gently pull out the screen. Rinse out debris. Replace the screen and be careful to insert it in the correct position.

7. Replace fuel filter element.
8. Thoroughly clean the fuel nozzle tube with the de-coking rod or remove the rod and clean the tube with a suitable tool.

C. SUMMER SHUTDOWN: Prepare the unit for being taken out of service for an extended period of time by closing the shut-off valve on the fuel line and draining the oil controller completely.

VII. TROUBLESHOOTING:

A. CONDITION

1. Fuel oil smell.
2. Exhaust smell.
3. Smoky exhaust.
4. Stove glows red and appears too hot.
5. Weak flame on low setting.
6. Weak flame on high setting.
7. Stove goes out or flares on and off on low.
8. Flame goes out when windy outside.
9. Excessive noise.
10. Stove becomes flooded with oil.
11. Oil regulator activation lever must be reset often.

B. REMEDY

1. Check all fuel line connections to the stove. Check oil line and connections between regulator and nozzle tube. Check oil regulator for signs of overflow. Be sure fuel tank is not too high or too much pressure in fuel line.
2. Verify that you have sufficient draft in the chimney. Check for obstructions in the chimney. Be sure you do not have a back-draft condition. Attach the outside combustion air pipe.
3. May be caused by several factors: Excessive fuel in burner. Be sure you are using the correct fuel viscosity. Contact your dealer if the oil regulator needs to be adjusted. Also be sure your exhaust system is properly designed and creates sufficient draft. Be sure the combustion air intake pipe is not obstructed.
4. Most likely caused by excessive fuel. Reduce the fuel flow to the burner and verify that you are using the correct grade of fuel. Contact a dealer if necessary to adjust the oil regulator. See #3 above for more possibilities.
5. Oil feed tube may be obstructed. Use the de-coking rod to clean it. Oil regulator may be set too low. Increase the fuel flow slightly. Contact your dealer for instructions for adjusting the oil regulator.
6. Oil feed tube obstructed. Use the de-coking rod. Also verify proper fuel level and proper draft conditions.
7. See # 5 above.
8. Chimney system may require use of a barometric draft regulator. Install a draft regulator of the correct size and fuel type as indicated in the device instructions.

9. Draft may be too high or there may be excessive fuel in the burner. See #3 and #8. Be sure the burner has very little fuel inside when the unit is lighted.
10. Verify that the oil regulator stops the fuel flow when in the Off position. After the unit has burned dry, wait several hours before re-lighting and check to be sure there is no fuel in the burner before beginning the lighting process. If the regulator is not stopping the fuel flow consult the information below about the TOBY regulator and contact your dealer for information details about servicing or replacing the regulator.
11. Tank may be too high thus causing excessive pressure in the fuel line. Lower the tank or install a pressure-reducing valve near the stove. Consult your dealer.

VIII. TOBY OIL REGULATOR MODEL DVR 5

A. PARTS:
1. Control knob
2. Activation pin
3. Cover
4. Flow lever (Lock handle)
5. Drain screw
6. Filter cap and screws
7. Regulator fuel inlet connection

B. GENERAL DESCRIPTION:
1. Heat output of the heater may be manually adjusted to the desired level. The Toby DVR 5 regulator is a very safe mechanical fuel regulator. Apart from the float and needle valve there are no moving parts during operation. A slotted dosage fuel tube ensures that the correct amount of fuel enters the burner. When the control knob is turned, the amount of the dosage slot that is exposed is changed to regulate the fuel flow. This ensures safe, reliable, and precise regulation of the fuel.
2. ***U.S. and Canadian NordicStoves are equipped with regulators calibrated for light grade #1 heating oil. #2 oil can be used but heat output values may be slightly lower and the unit may not burn properly in the low range. See the attached "Tuning Your NordicStove or contact your dealer if you choose to adjust the regulator for a heavier grade of fuel.***

C. SAFETY FEATURES: The following features ensure safe, continuous, unattended operation of the stove.
1. Fuel filter screen to prevent foreign matter from entering the regulator.
2. Automatic control of the fuel level in regulator. (Float valve.)
3. Overheat protection. A built in fusible valve stops fuel flow if the regulator gets too hot.
4. The regulator automatically and mechanically stops the fuel flow if the level of fuel in the burner exceeds the proper level.

D. MAINTENANCE and REPAIR: The DVR is extremely reliable and trouble-free. Check the following if fuel does not flow properly.

1. Be sure the fuel filter is clean and unobstructed. (Also be sure you have fuel flow from the tank.)
2. Lift the flow lever (#4) to the top position and release it.
3. Press the activation pin (#2) several times to be sure the inner valve is moving.
4. Be sure the fuel feed pipe is unobstructed.

IX. TECHNICAL DESCRIPTION AND SPECIFICATIONS

A. OPERATING PRINCIPLE: NordicStoves are efficient vaporizing (drip-pot) burners. NordicStove burners have a catalytic element or rings that improve combustion efficiency. A float-type carburetor regulates fuel flow and prevents over fueling and over heating. Air intake is developed by the chimney draft. The proper mixture of air and evaporated fuel will be maintained as long as sufficient air is present.

B. FUEL: Various grades of fuel oil can be used. In warm conditions number-two heating oil, automotive grade diesel fuel, or marine grade diesel fuel may be acceptable. However, some fuels contain additives that may leave residue in the burner and regulator. Use an appropriate grade of heating oil whenever possible. In colder conditions, number one heating oil or kerosene will give better performance.

C. SPECIFICATIONS:

	Dimensions	Chimney	Shipping	Cl. Rear	Clearance	Clearance	Max. Fuel	Min. BTU
Model	Diam. x Hght.	Size	Weight	To stove	To pipe	To sides	Input	Output-High
Basic 68	7"x17"	3"	20 lbs.	16”	9”	15”	.079 GPH	6,800
Deluxe 68	10"x20"	3"	22 lbs.	16”	9”	15”	.079 GPH	6,800
Basic 130	8"x 22"	4"	25 lbs.	20”	12””	23”	.148 GPH	13,000
Deluxe 130	14"x 22"	4"	27 lbs.	17”	9”	16”	.148 GPH	13,000
Basic 250	10" x 25"	5"	30 lbs.	20”	12”	23”	.26 GPH	25,000
Deluxe 250	14" x 28"	5"	35 lbs.	17”	9”	16”	.26 GPH	25,000
Rustic 250	14" x 28"	5"	36 lbs.	17”	9”	16”	.26 GPH	25,000
Basic 400	12" x 28"	6"	66 lbs.	24”	13”	26”	.397 GPH	40,000
Deluxe 400	16" x 31"	6"	66 lbs.	23”	12”	24”	.397 GPH	40,000
Rustic 400	16" x 31"	6"	68 lbs.	23”	12”	24”	.397 GPH	40,000

NOTE: Basic models are available with or without a CONVECTOR jacket. Specifications above show the Basic without the convector. Specifications for the Basic models WITH the CONVECTOR are the same as the Deluxe models.

NORDICSTOVE
Versatile, Effective, Non-electric Oil Heat

Fuel Flow Adjustment Basics

For more detailed instructions refer to "Details for tuning your NordicStove to your fuel oil and chimney system."(Owner's Manual)

WARNING: Incorrect fuel flow adjustment can create a fire hazard!
Use extreme caution! The manufacturer recommends hiring a qualified technician!
Warranty coverage is void if the unit is over-fired!

Though heating fuel oil is sold under various names such as #1 heating oil, #1 stove oil, #2 heating oil, #2 diesel, etc. there can be **significant differences in viscosity** even between specific deliveries of fuel that are sold having the same name.

Viscosity significantly effects the amount of fuel flow through drip pot oil controllers such as the TOBY DVR used on the NordicStove. Consequently, adjustment of the controller may be necessary in order to achieve a proper match between your specific fuel and the controller settings. (Note: Adjust high burn first and low burn last.)

Before adjusting your oil controller make sure your chimney system is drafting properly and your fuel tank, filter, and fuel line are allowing fuel to flow to the NordicStove and that the stove is level and all burner rings are properly installed.

See back page of this document for a diagram of the Toby DVR controller.

Situation #1: Stove appears to be burning with a weak flame at the HIGH setting. Note: **TWO adjusting screws** effect the fuel flow rate at the HIGH setting. One is the high adjusting screw and the other is the high limit screw. Both of these must be adjusted properly in order to have appropriate fuel flow.

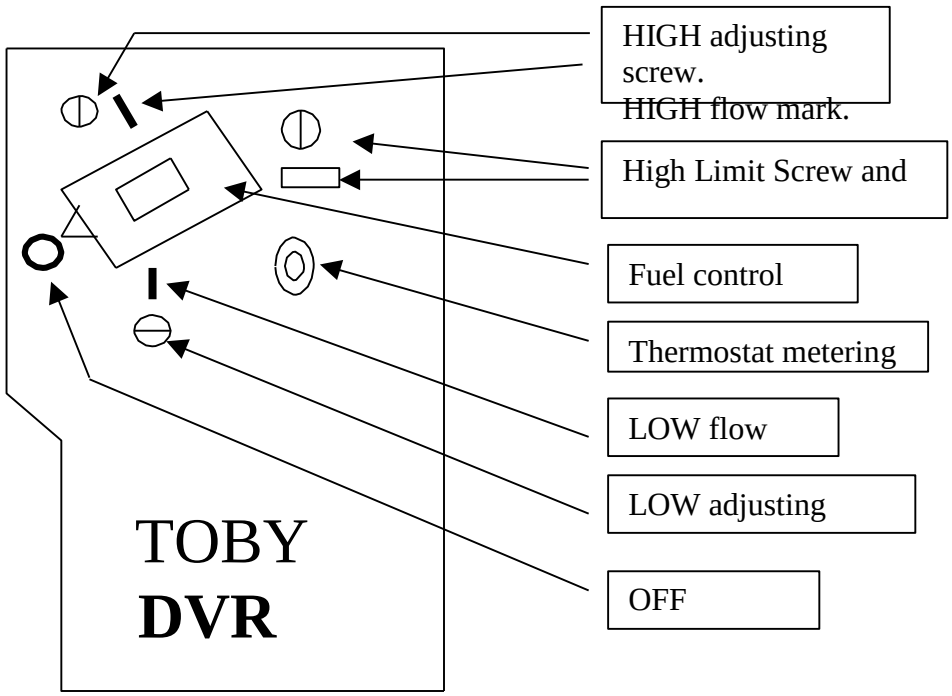
1. **Light stove** and gradually increase fuel control knob to High setting. Operate at High setting for approximately 15-20 minutes (until the chimney is fully heated and drafting properly).
2. **Evaluate your flame**. On high burn, the flames should pulse not higher than the stove's chimney connection. If flame is to low on high burn, adjust high adjusting screw.
3. **Mark position** of HIGH adjusting screw and position of HIGH LIMIT screw.
4. Turn high limit screw counterclockwise one revolution.
5. Increase high burn by turning high adjusting screw counterclockwise (CCW) 1/4th turn.
6. **WAIT five minutes.** Visually check to determine whether flame has increased. Turn High adjusting screw until flame is correct (clean exhaust, flame is pulsing as high as the to stove's chimney connection).
7. Remember, be patient and work slowly. Allow flame to stabilize. Adjustments do not take effect immediately!
8. **After flame has stabilized,** turn high limit screw clockwise until adjustment indicator tab starts to move downward then turn high limit screw CCW ½ turn.

9. **Adjust Low** setting using guidelines mentioned in Situation #2. Always check operation at Low after adjusting High settings!

Situation #2: Stove appears to be burning with a weak flame at the LOW setting.

1. **Light the stove**. Gradually increase Fuel Control Knob (FCB) to High. Operate at High for approximately 15-20 minutes (until the chimney is fully heated and drafting properly.)
2. **Evaluate your flame**. On high burn, the flames should pulse not higher than the stove's chimney connection. If flame is low or to high on high burn, see SITUATION #1.
3. Turn **FCN slowly** counterclockwise to lowest position. At low burn, the flame should fill the bottom burner ring. If it does not fill the bottom burner ring, is flaring up and down or going out and then "whoofing" back on again, adjust the low burn adjusting screw.
4. **Mark the starting position** of LOW adjusting screw.
5. **Increase fuel flow** by turning Low adjusting screw counterclockwise 1/4 turn per 5 minutes until flame is stable and fills the bottom burner ring.
6. In rare cases, the flame may perform as described in #3, second sentence, before reaching the lowest setting. Use this position to start making an adjustment to the low burn screw. Make adjustment and then reduce FCB until the lowest position is achieved.

Top View Of Toby DVR Oil Controller



WARRANTY

The manufacturer (Glembring) through Rural Energy Enterprises, Inc. (REE) warrants NordicStove room heaters. REE will repair, replace or refund original purchase price at REE's sole option any part which fails in normal use and service within the applicable period(s) specified below, in accordance with the terms of this warranty. The REE replacement will be warranted for the unexpired portion of the original warranty. This warranty will be valid only for NordicStoves in possession of the original purchaser as recorded on the proof of purchase (Warranty Registration or Invoice).

A. TWO YEAR WARRANTY:
   1. REE will repair, replace or refund original purchase price –at its sole option- any part(s) which prove(s) defective in materials or workmanship within the first year of the original purchase. During the second year REE will repair, replace or refund 50% of original purchase price –at its sole option- any part(s) which prove(s) defective in materials or workmanship verified by REE.
   2. REE assumes no liability for removal or installation labor costs, or freight or delivery charges.

B. SERVICE LABOR COSTS: This warranty does not cover any labor costs associated with service, removal, or re-installation of part(s). All such costs must be paid by the Purchaser.

C. EXCEPTIONS: This warranty will not apply**:**
   1. To defects or malfunctioning resulting from failure to properly install, operate, or maintain the unit in accordance with the printed instructions provided;
   2. To damage or abuse, accident, neglect, or freezing and other acts of nature;
   3. To damage resulting from incorrect adjustment of the fuel controller;
   4. To failures of the metal resulting from the operation of the heater in a corrosive atmosphere;
   5. To defects or damage caused by any attachment or modification.

D. HOW TO MAKE A CLAIM: Any claim for warranty service should be made to your local dealer. In most cases, the dealer will be able to promptly honor your claim and subsequently notify REE. However, all replacements are made subject to validation by REE of in-warranty coverage. The damaged or defective item must be made available in exchange for the replacement.

E. MISCELLANEOUS: No one is authorized to make any other warranties on behalf of REE. It is expressly understood that the replacement warranty of REE shall be in lieu of any and all other warranties, express or implied, including warranties of merchantability or fitness for a particular use or purpose, and further that REE shall not be liable for any loss or damage directly or indirectly arising from the use of the

NordicStove, or for any consequential damages arising from such use. REE's sole liability with the respect to any defect shall be for the replacement of the defective part(s).

This warranty gives specific legal rights. You may also have other rights which vary from state to state. In the event that the warranty service is required, reasonable proof of the effective date of purchase, installation, and operation must be provided: otherwise, it may not be possible to honor this warranty.

Manufactured Bv:	***Distributed In North America Bv:***	***Your Local Dealer:***
Ingenjorsfirmen **GLEMBRING** AB Dagjaminingsgaten 16-18 Goteborg, Sweden	Rural Energy Enterprises, Inc. 6637 Arctic Spur Rd. Anchorage, AK 99518 (907) 278-7441	*Record the name for future reference.*

Tested and Certified to meet UL 896-1993; CSA Standard CAN/CSA-B140.3-1962 By:
OMNI-Test Laboratories, Inc. Beaverton, Oregon, USA

NordicStove Warranty Registration Form

Tear off and mail or send by facsimile to Rural Energy Enterprises, Inc.

Name: _____

Mailing Address: _____

City: _____ State/Province: _____ Zip/Postal Code_____

Purchased From: _____ Serial Number:_____

Date of purchase: (Attach sales receipt if possible.) _____

Stove is installed in: _____ Installed by: _____
Home, cabin, tent, boat, RV, Other — Self, Dealer, Other

Please mail or send by facsimile to:

Rural Energy Enterprises-NordicStove
6637 Arctic Spur Rd.
Anchorage, AK. USA 99518

U.S. toll free fax number:1-888-408-7330
Canada toll free fax: 1-800-770-7330

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