IMPORTANT INSTRUCTIONS FOR:

first need®

"DELUXE" & "ORIGINAL" DRINKING WATER SYSTEMS

WITH FIELD-SERVICEABLE PUMP

Keep With Your FIRST NEED® System

EASY TO USE

- **No brushing**
- **No chemicals required**
- **No exposure to Giardia concentrations or Cryptosporidia**
- **No boiling**

BRIEF INSTRUCTIONS TO GET YOU STARTED

1. Place pump inlet into water source.
2. Place FIRST NEED canister outlet into clean container.
3. Pump steadily and slowly to obtain about one liter of purified water per minute. (When initial pint or two is pumped through new canister, air and some fine black particles of adsorptive material may appear in filtered water. These are non-toxic if consumed, but may be discarded).

   IMPORTANT: Ultra-fine microstraining, causes back pressure during pumping. A reduction in pumping pressure, compared to pressure experienced during initial use of the new unit, is an indication of possible damage to the canister matrix (most likely after backwashing or dropping the canister, see Canister Integrity Test Procedure).

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EPA. EST. REG. NO. 37403-PA-01

4. When pump becomes "hard" to operate, it's time to backwash prefilter (see Prefilter Backwash Procedure), or replace the canister (see Canister Backwash Procedure).

TIPS TO EXTEND CANISTER LIFE:

1. Use the cleanest source water available. Avoid raw sewage and undiluted industrial discharges. *Please remember, however, that bacteria, cysts, asbestos, silt, etc., are invisibly small and can sometimes clog the canister as quickly as murky waters, depending upon the concentrations present.* Rapidly moving water, whether clean or murky, typically carries high levels of clogging debris and should be avoided.
2. Remove pump inlet from water and operate the pump several strokes to expel "loose" water from canister if freezing might occur. Although freezing will not destroy the structured matrix it may rupture the canister and water cannot pass until the canister matrix is sufficiently thawed.
3. If dropped or frozen, check to be sure the canister doesn't "rattle" or "thump." If so, *replace immediately. (See integrity test)*
4. For storage between trips, we recommend that a dilute solution (¼ tsp. to 1 gallon water — no more) of household bleach be pumped slowly through the canister in both directions. Then pump the remaining "loose" water from canister. Because of the possibility of air-borne algae, spores and fungi collecting on canister matrix, and as a matter of good maintenance, flush prior to next use.

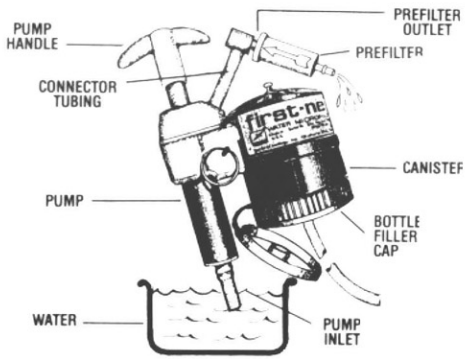
   NOTE: Please be sure to thoroughly rinse all pieces of blue tubing, which for maximum flexibility and purity, are manufactured from natural latex rubber. For longer life, this tubing, when not in use, should be kept free of chlorine and should be kept out of sunlight.

   IMPORTANT: Using excess pump pressure during backwash may break the matrix seal . . . evidenced by a sudden decrease in pump force required. *Replace canister if this occurs.* (See integrity test)

PREFILTER BACKWASH PROCEDURE:

(See instructions furnished with prefilter for complete details).

1. Remove the **optional** prefilter from the short (2 inch) rubber tubing connecting the prefilter to the pump hose barb.
2. Remove the connector tube from the top (inlet end) of canister and slip *outlet* end of prefilter into this tube.
3. Place the inlet of pump, with 2" tubing, into clean water and pump a few strokes so water flows backward through the prefilter, removing surface debris.
4. Reverse the above sequence to reinstall the prefilter. This completes the backwash procedure for the prefilter and the prefilter is ready to use again!



CANISTER BACKWASH PROCEDURE:
(Perform canister integrity test after backwash)

1. Filter 2 quarts of water, and set 1 quart aside for later use.
2. Mix 5 drops of household bleach *(be sure not to add too much)* into one of the two quarts of filtered water.
3. For "Deluxe" unit, remove connector tube from top of canister, remove the steel pin. Slide bracket and canister downwards approximately one inch on pump barrel. Remove canister by sliding it upwards away from the lowered bracket. Remove the 6 or 9 inch filtered water tubing and set aside. For "original" configuration unit, remove connector tubing and clamp from the top of canister marked "in."
4. Place pump inlet into dilute bleach solution and pump several times until bleach/water solution comes out of connector tubing. (This will eliminate the possibility of contaminating the filtered water outlet on canister.) Be careful to not splash this solution onto clothing or other surfaces.
5. Place the entire pump with the blue tubing and the connector tubing in the bleach/water solution. Allow to stand for 5 minutes, then rinse thoroughly using half of the quart of filtered water previously set aside. (From Step 1)
6. Attach the connector tubing to filtered water outlet on canister. Pump a cup of the dilute water/bleach solution *slowly and steadily* through the canister.

   NOTE: **DO NOT FORCE THE PUMP** because this can permanently damage the canister matrix. The idea is to develop a slow, rinsing flow backwards through the unit to dislodge loose debris from the surface. It is not possible to dislodge tightly embedded debris . . . especially the invisibly fine debris nearly the same size as the openings in the matrix.
7. For the deluxe unit, reattach the canister to pump bracket, slide bracket and canister together, upwards into position, reinsert the steel pin, and then for either unit reinsert the connector tubing to top of canister (marked "in"), being sure the spring clamp is in place in "original" configuration. No clamp is needed for the "deluxe" configuration.

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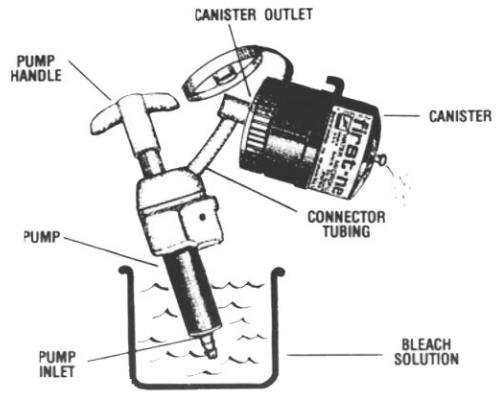
8. Now rinse the complete unit with the remaining filtered water to be sure all the bleach solution is removed from the canister, pump and tubing.



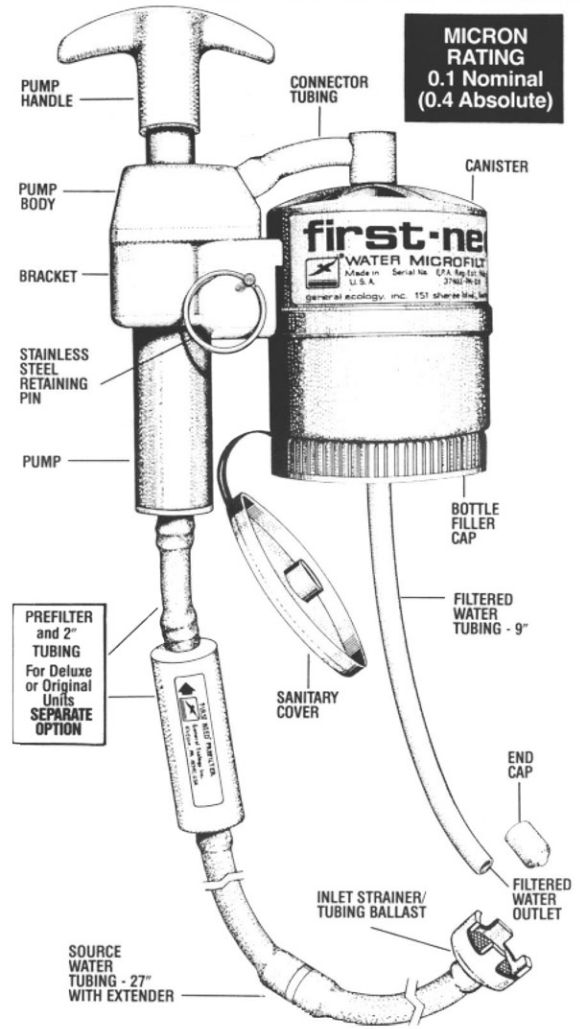
CANISTER INTEGRITY TEST PROCEDURE: (Blue food dye included with unit)

A simple test to assure that the canister has not been damaged internally, either during use, transport or backwash is to:

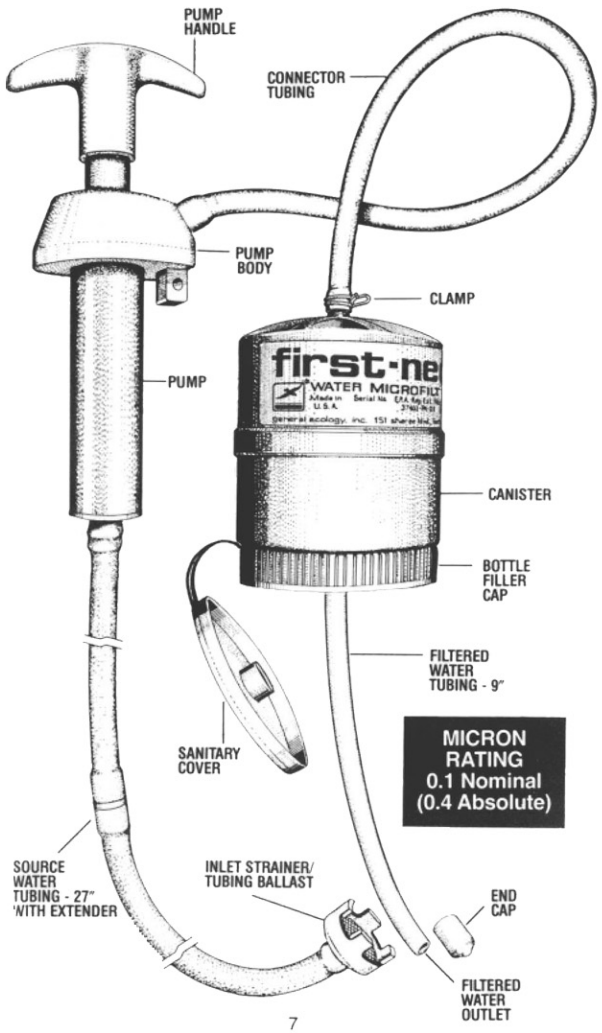
1. Add a couple drops (no more) of ordinary red, green or blue food coloring to a glass of water.
2. Pump this solution through the canister.
3. The filtered water should be colorless.

If the filtered water is still colored, even faintly, the internal canister matrix has most likely been damaged and ***THE CANISTER SHOULD NOT BE RELIED UPON UNDER THIS CONDITION AND MUST BE REPLACED.***

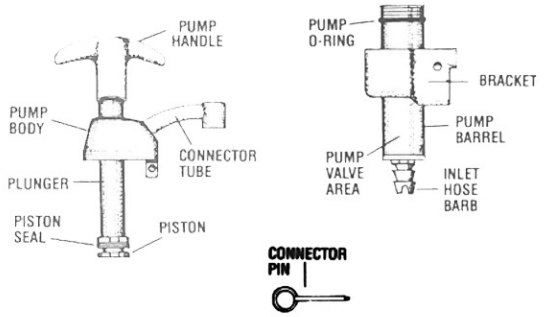
PARTS: "DELUXE" UNIT



PARTS: "ORIGINAL" UNIT



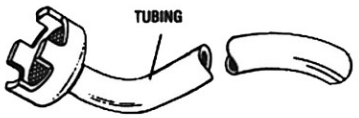
FIELD SERVICEABLE PUMP



Occasionally, even with care, sand, a small twig or other debris can enter the pump chamber causing malfunction. Usually, this can be cleared simply by shaking the pump or flushing water through the pump with the canister removed. For those times when flushing doesn't work, First Need users now can disassemble the pump simply by removing the connecting tube from the canister inlet, removing the canister from the bracket and turning the pump barrel counter clockwise, unthreading it from the pump body. Removing the barrel permits access to the pump shaft, piston and piston seal as well as to both sides of the pump valve. Conveniently, there are no springs and all small parts, including O-rings and seals, are captured on larger subassemblies so there's small likelihood of losing or damaging anything when servicing the pump.

Be careful to keep all parts clean and free of sand and other abrasives. Also, it's helpful to apply a small amount of petroleum jelly to the pump plunger to keep it lubricated for long term smooth operation. Please note that while we've eliminated the need for a clamp on the Deluxe configuration connector hose, a clamp continues to be used with the "original" configuration.

INLET STRAINER/TUBING BALLAST



The inlet strainer/tubing ballast is intended to improve pump reliability by preventing larger debris from entering the pumping chamber. It is **NOT** intended to replace the prefilter which provides very fine filtration in the 10 micron range.

The inlet ballast is designed to provide just enough weight to keep the end of the tube below the water surface, to avoid air intake during pumping. Additionally, the inlet ballast prevents "lockup" which can occur when the end of the inlet tube attaches by suction to smooth surfaces, (i.e., the bottoms of buckets, etc. being used as source water containers).

It is unnecessary to remove the inlet ballast during backwash or any other operation.

GRAVITY FLOW "MATRIX PUMPING™" SYSTEM

Because of its very fine structure, the FIRST NEED® Portable Drinking Water System canister has a unique ability to "matrix pump™" water through a **"wetted" matrix** with minimal gravity assistance. This feature can provide useful amounts of water without manual pumping, and is particularly useful for over-night camp and rest period situations.

The Gravity Flow "Matrix Pumping" system includes everything you will need to matrix pump water almost effortlessly **even through a semi-clogged canister.**

Important: For Matrix Pumping to work, the canister must be **"wet"** from previous pumping.

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1) **Open** a polyethylene liner (or any convenient plastic bag) and **press** adapter spout (D) through either lower corner. Lock the liner in place by pressing the liner retaining ring (E) firmly onto the adapter spout. (Fig. 1)

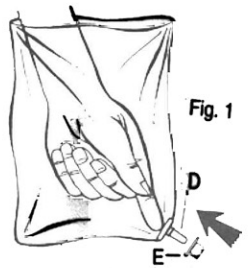


Fig. 1

Fig. 2

2) Insert the liner into the Nylon Tote Bag, aligning the adapter spout with the prepunched hole in the bag. Lock the hose adapter and liner in place by pressing the tote bag retainer ring (F) firmly in place over the liner retainer ring and spout. (Fig. 2) Slip end of 18" tubing over spout.

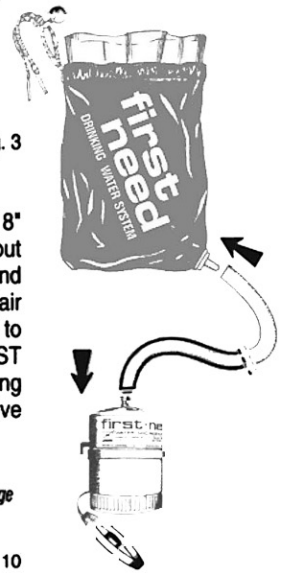


Fig. 3

3) Connect one end of the 18" translucent hose to the spout on the adapter. Then raise and lower the hose to remove air bubbles. Connect the free end to the inlet side of your FIRST NEED® canister. (Fig. 3) Hang full bag of source water above the canister to obtain "fall".

Continued on page

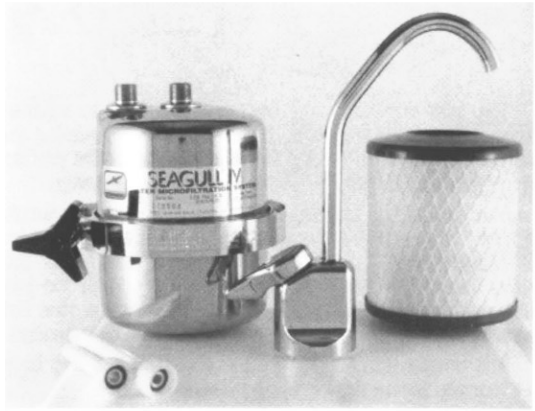
Fig. 4

4) Attach hose to the "wetted" canister to complete the system. **(Fig. 4) Within a few** seconds **water should** begin to drip from **the canister outlet.** A semi-**clogged canister will tend** to **"pump" somewhat more slowly. Allow approximately 1/2 to 1 hour per liter of water.**

HINTS FOR "MATRIX PUMPING™"

- **Always use cleanest water source possible.**
- **Hang the bag as high above the canister as possible to obtain maximum head pressure.**
- **Starting the flow with a little additional pressure may speed the process. Twist the top of the polyethylene liner closed and gently squeeze the bag to apply pressure and momentarily increase the water flow.**
- If dripping slows, shake the canister vigorously for a few seconds and flow will resume. **Do not bump canister against any surface while shaking.**

GENERAL ECOLOGY'S DRINKING WATER SYSTEMS REALLY DO THE JOB!



For more information about SEAGULL® IV X-1FP point-of-use drinking water system as pictured above and other General Ecology Inc. products please contact:

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