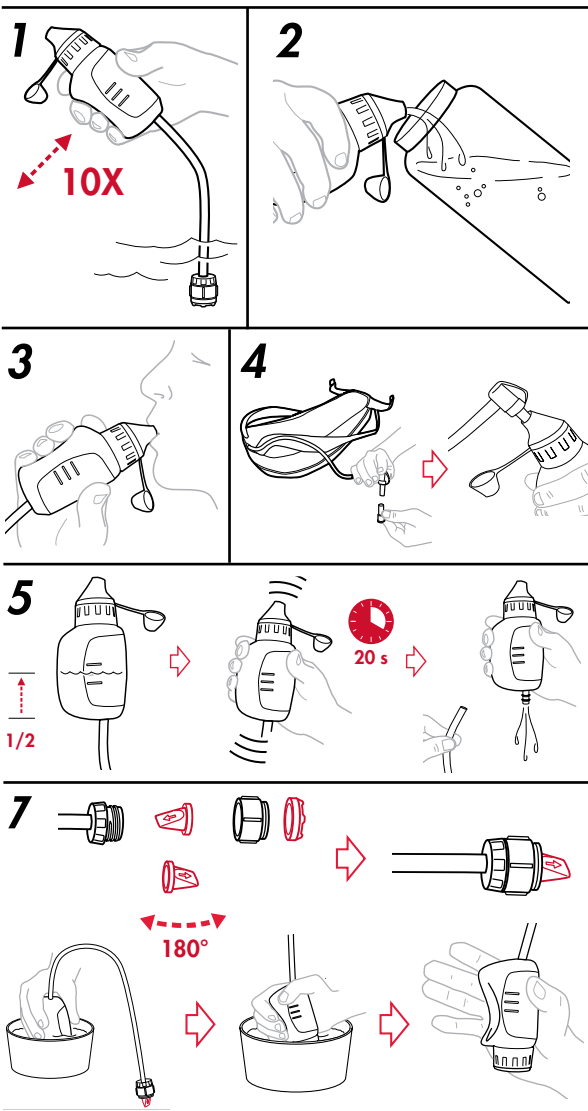
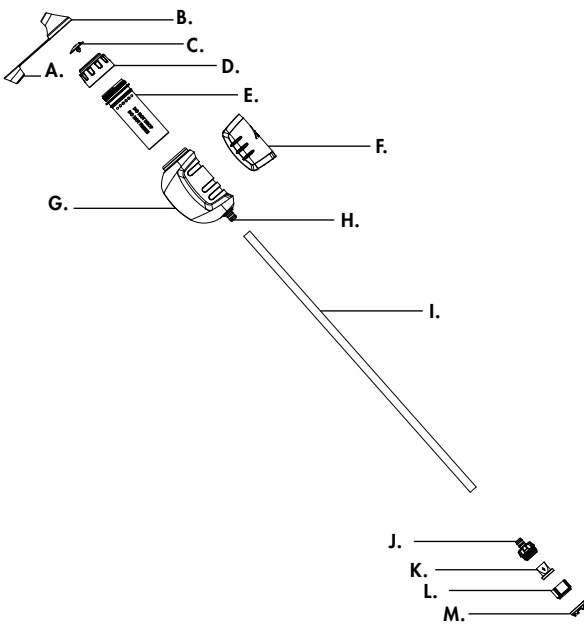


# INSTRUCTION MANUAL



## TRAILSHOT™ MICROFILTER

Retain these instructions for future reference.



MOUNTAIN SAFETY RESEARCH®

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## IMPORTANT

Read and understand this entire manual carefully before assembling or using this water filter. Keep this manual for future reference. If you do not understand this manual or have any questions, please call Cascade Designs at 1-800-531-9531.

## ⚠️ WARNING

### BIOLOGICAL HAZARD

There are hazards associated with backcountry or international travel and the use of water filters. Drinking untreated water can result in exposure to harmful microorganisms and an increased risk of gastrointestinal illness.

Never use the TrailShot™ filter to filter seawater or chemically contaminated water, such as water from mining tailing ponds or near agricultural operations. The TrailShot filter does not make potable water from these sources and does not remove chemicals and radioactive materials, or particles smaller than 0.2 microns.

Using this filter improperly increases your risk of exposure to harmful microorganisms and increases your risk of gastrointestinal illness. Reduce your chances of becoming sick by following the warnings and instructions in this manual and educating yourself on backcountry and international water safety.

YOU ARE RESPONSIBLE FOR YOUR OWN SAFETY AND THE SAFETY OF THOSE IN YOUR GROUP. PLEASE USE GOOD JUDGMENT. Keep the Inlet Hose, Prefilter and other potentially contaminated parts away from filtered water to prevent cross contamination. READ, UNDERSTAND, AND FOLLOW ALL instructions and warnings in this manual before using this filter. Failure to follow warnings and instructions may result in gastrointestinal illness.

## TRAILSHOT™ MICROFILTER INSTRUCTIONS

The TrailShot™ Microfilter uses hollow fiber technology to remove waterborne pathogenic bacteria and protozoa, as well as particulates, from fresh water sources. This filter does not remove viruses.

### MICROFILTER PARTS:

- |                     |                             |                               |
|---------------------|-----------------------------|-------------------------------|
| A. Clean Side Cover | F. Clip                     | K. Check Valve                |
| B. Spout            | G. Bulb                     | L. Female Check Valve Housing |
| C. Umbrella Valve   | H. Nozzle                   | M. Prefilter                  |
| D. Cap              | I. Inlet Hose               |                               |
| E. Filter Cartridge | J. Male Check Valve Housing |                               |

### IMPORTANT NOTES:

- Use the cleanest, clearest water available.
- Filtering silty, cloudy, muddy or glacial stream water or tea-colored water that contains visible tannins can clog the filter faster.
- When filtering, squeeze all of the water out of the Bulb; then wait for the Bulb to completely refill before squeezing again.
- To treat water with suspected waterborne viruses, use an approved disinfectant/purifier and follow the manufacturer's recommendations for use. To see MSR's purification options, visit [www.msrgear.com](http://www.msrgear.com). Further information on disinfectant use can be found on the Centers for Disease Control website: [www.cdc.gov](http://www.cdc.gov).
- Do not carry the filter by the loop attached to the Clean Side Cover (A). Do not attach a carabiner to this loop. This loop is not made to bear weight. Carrying the filter by this loop can cause the Clean Side Cover to pop off of the Spout.
- When replacing the Filter Cartridge, use *only* the lubricant provided in the TrailShot Replacement Cartridge Kit. Do not use generic silicone grease, as it may cause the O-rings to swell.

**⚠️ WARNING** When using the lubricant, avoid contact with skin and eyes. Do not attempt to eat the lubricant; keep it out of reach of children.

**1. PRIME FILTER** 1. Place the Prefilter (M) into the water source. 2. Remove the Clean Side Cover (A). 3. Hold the filter with the Spout (B) facing up at about 45°, and squeeze the Bulb (G) 10 times. (Let the Bulb fully refill each time before squeezing again.)

**⚠️ WARNING** DO NOT drop or freeze the TrailShot Filter. A damaged filter cannot prevent exposure to harmful microorganisms. If you suspect the Filter Cartridge may be damaged, perform a safety check (See "Safety Integrity Check"). If the Filter Cartridge is damaged, discontinue use and replace it.

**2. FILTERING INTO BOTTLE** 1. Holding filter at 45°, place the lip of your bottle against the filter's Spout (B) so that your bottle holds down the Clean Side Cover (A). 2. Filter water by squeezing Bulb (G). (Ensure that the Prefilter (M) stays fully submerged.)

**⚠️ WARNING** If the Spout becomes contaminated with dirty water, rinse it with clean water before filtering your water or drinking directly from the Spout.

**3. FILTERING INTO MOUTH** 1. Twist the Spout (B) around so that it's facing you, and the Bulb (G) is facing away. 2. Remove Clean Side Cover (A). 3. Put mouth on Spout. 4. Filter water by squeezing Bulb. (Ensure that the Prefilter (M) stays fully submerged.) 5. Drink.

**4. FILTERING WATER INTO HYDRATION RESERVOIR** 1. Set backpack on ground so that the reservoir has as little weight as possible pressing down on it. 2. Remove the bite valve from your hydration hose to expose the bite valve nozzle. 3. Turn the bite valve nozzle to its unlock position, and insert it about ¼ inch into the filter's Spout (B). 4. Filter water by squeezing Bulb (G). (Ensure that the Prefilter (M) stays fully submerged.) 5. When reservoir is full, pull the bite valve nozzle out of the filter's Spout and replace the bite valve.

**5. CLEANING FILTER (BACKFLUSHING)** Clean the Filter Cartridge (E) every 8 liters to prevent build up and to extend the filter's lifespan. If cleaning the filter fails to restore water flow, replace the Cartridge. 1. Pump water until the Bulb (G) is half full. 2. Shake the filter for 20 seconds. 3. Remove the Inlet Hose (I) from the Nozzle (H). 4. Squeeze the dirty water out of the Nozzle. 5. Reconnect Inlet Hose to Nozzle.

**6. CLEANING THE PREFILTER** If Prefilter (M) becomes clogged, swirl it in water to dislodge debris.

**7. SAFETY INTEGRITY CHECK** 1. Hold the filter at about 45° and prime it by squeezing the Bulb (G) 10 times. 2. Pump 3/4 liter of water into a bowl or pot. 3. Unsnap the Prefilter (M) from the Female Check Valve Housing (L) (put it in a safe spot). 4. Unscrew the Female Check Valve Housing from the Male Check Valve Housing (J). 5. Remove the Check Valve (K) and reverse its direction. Place it back into the Female Check Valve Housing. 6. Screw the Female Check Valve Housing back onto the Male Check Valve Housing. 7. Remove the Spout (B) and Umbrella Valve (C). 8. Place the Cap (D) into the bowl/pot of clean water and pump 1/2 liter of clean water backward through filter. 9. While the Cap is still submerged, squeeze and hold the Bulb. Then remove the Cap from the water and release the Bulb. **10. If Bulb re-inflates within 30 seconds, the filter is NOT SAFE.** (NOTE: If a few bubbles escape the Check Valve, and screw the Female Check Valve Housing back onto the Male.) Then test the filter again. 11. If Bulb stays compressed, the filter is safe to use. 12. Reverse steps to reassemble the filter for use.

**8. PACK AND STORE FILTER** 1. Remove Prefilter (M) from water. 2. Squeeze Bulb (G) to purge excess water. 3. Replace Clean Side Cover (A). 4. Before long-term storage, remove Filter Cartridge (See "Replacing the Filter Cartridge") and let Bulb and Filter Cartridge dry out at room temperature for at least one week. 5. Before or after long-term storage, sterilize filter to ensure fresh tasting water.

**⚠️ WARNING** Never store the Filter Cartridge in cold temperatures (below 32 F/ 0 C) because freezing the filter will permanently damage the internal fibers.

**9. STERILIZING THE FILTER** Sterilize your TrailShot™ Filter before or after long-term storage to ensure fresh tasting water. 1. Mix 2.5 mL (≈ ½ tsp) of household bleach free of dyes or perfumes with 1 liter of water; or dissolve 6 Aquatabs® purification tablets in 1 liter of water. 2. Pump most of this solution through the filter, stopping at a point where the Prefilter is still fully submerged (don't suck air into the Prefilter). 3. Wait 30 minutes. 4. Pump 1 liter of clean water through the filter to clear any remaining solution. 5. Squeeze the Bulb (G) to purge remaining water.

**⚠️ WARNING** Never use a dishwasher or microwave to disinfect parts because the high heat will damage or melt them.

**10. REPLACING THE FILTER CARTRIDGE** This cartridge should be replaced when the filter's flow rate drops to less than ¼ liter per minute.

1. Unscrew the Cap (D) from the filter. [Squeeze the Bulb (G) to keep the Filter Cartridge (E) from rotating inside]. 2. Remove the Clip (F) from the Bulb. 3. Pull the Filter Cartridge out. 4. Apply a light coating of the provided silicone lubricant to the bottom inside ¼" (6 mm) of the Cap below the threads. (NOTE: Use only the lubricant in the TrailShot Replacement Cartridge Kit.) 5. Insert the new Filter Cartridge into the Bulb so that the Filter Cartridge snaps into place and sits flush with the top of the Bulb. 6. Thread the Cap back on. 7. Replace the Clip.

Limited Warranty details at [msrgear.com/warranty](http://msrgear.com/warranty)

For Troubleshooting Solutions, visit: [msrgear.com/trailshot-filter](http://msrgear.com/trailshot-filter)