

2424- Hand Corer Instructions

Warranty and Parts:

We replace all missing or defective parts free of charge. For additional parts, use part numbers on Page 4. We accept Mastercard, Visa, American Express, checks, institutional P.O.'s. All products guaranteed free from defect for 90 days. This guarantee does not include accident, misuse, or normal wear and tear. **Made in U.S.A.**

Introduction:

The **Wildco®** hand corer is a simple, low-cost core sampler particularly intended for shallow water coring in fresh, salt, or brackish waters. It is, because of its simplicity, an excellent core sampler for student or survey use.

It is equipped with an automatic flutter valve of polyurethane elastomer selected for its good sealing qualities and long service life. The polyurethane seal is blue in color and seats on the smooth top of the corer head.

When closing, this flutter valve seals the upper end of the core tube; during retrieval, the resulting low internal pressure (sometimes called a suction) in the core tube makes a tight seal. This helps prevent sample washout as the corer is pulled from the substrata.

Core samplers have the advantage of deeper penetration of the substratum than a grab; collection of a uniform sample area at all effective depths, and fewer animals to count per sample with a smaller surface area.

Inspection of the corer

Before sampling, inspect the core sampler to make sure all the parts are present and in proper operating condition.

1. Assemble and disassemble the core tube from the head and nose piece from the core tube (if present) to make sure the threads are not binding. If they are, fix them before going out. Pipe threads are discussed on page 4.
2. If your model uses a liner tube of CAB plastic, be sure that the liner tube can slide easily in and out, and that there are no obstructions along its length.
3. The bottom edge of the core tube or nose piece should be sharp and free of nicks or dents. File smooth, if necessary, using a round file.
4. Check the flutter valve for ease of movement.
5. Check the flutter valve seat to make sure it is clear of any obstruction or disfigurement that could prevent a tight closure. Flutter valve seat must be kept free of grease and oil, as they may cause the valve to leak.
6. If using a line such as #62-C15 polyester line, attach it securely. The line should be free of any frayed or worn sections and sufficiently long to reach the bottom.



Operating procedures and techniques Using clevis and line

Obtaining samples using the clevis and line is essentially a simple drop-and-retrieve procedure. Even so, preliminary practice in handling the corer is helpful in developing a good technique. In field sampling, attention to the following key steps can help assure reliable and uniform samples.

Clevis and line procedure:

- 1 Stabilize the boat, raft or work platform to assure as a vertical drop and successful recovery.
- 2 Inspect the prepare the corer as described above.
- 3 Position the corer sampler over the drop point and steady it momentarily. With the line arranged to run freely, release the sampler.

Since the corer's penetration is by simple gravity, it is important that the top be free - with no restraint or slowing by stricture on the line. Keep a firm hold on the line (or tie it to the boat or raft) but let the rest of it run free with the descending corer. The longest free fall or free drop is about 20 to 30 feet through water. Longer falls often mean that the angle of striking the bottom is much less than 90°, resulting in an unsatisfactory sampler.

4. Entry of the corer into the bottom sediments can usually be detected by the momentary slack of the line when the corer movement changes from free fall

through the water to penetration of sediment.

5. When the corer has stopped, take up the slack in the line and begin to retrieve.
This movement automatically causes the valve to close. This closure is tight, with a seal so snug that all but the soupiest of sediments will be retained in the core tube during the return to the surface.
6. Draw the line taut and, after the initial pull that may be needed to free the corer from the bottom, bring the sampler back to the surface in a smooth, hand-over-hand recovery of the line.
7. Lift the core sampler above the water surface and, keeping it as nearly vertical as possible, bring it aboard the work station.
8. Secure and identify the new sample according to the requirements of the work in progress:
 - a. If a core liner tube was used and the sample is to be retained essentially intact for later in situ examination:
 1. Remove the nose piece.
 2. Cap the bottom end of the core liner and tape or otherwise secure the liner tube cap (#2447-A70) in place.
 3. Release the valve, free the core liner, and slide it from the core tube.
 4. Cap the top of the liner tube and tape the cap firmly in place.
 5. Scrape any sediment adhering to the nose piece or the core tube into a sample jar, and label it.
 - b. If the polycarbonate Lexan™ plastic core tube was used, and the sample is to be retained in the tube for in situ study:
 1. Cap the bottom of the tube and tape securely in place.
 2. Release the valve and remove (by untwisting) the core tube from the corer head.
 3. Cap the top of the tube and tape the cap securely in place. (Tape not included).
 4. Scrape any sediment adhering to the core tube into a sample jar.
 - c. If the entire sample is to be placed in a jar, set the jar under the tube and, opening the valve, release the sample for emptying into the jar.
 - d. When bacterial or microchemical sampling is desired, the core tube must be prepared in advance of the drop by drilling a small hole through the tube wall and plugging this hole with a heavy wax. On recovery of the corer, insert a hypodermic needle through the heavy wax and draw out the desired study sample.
9. Seal all sample jars tightly. Protect core liners against drying out by wrapping several layers of plastic film or by wax coating.
10. Label all samples.

Using the push handles

Using the **Wildco**® hand corer to obtain a sample involves pushing the corer by hand into the sediment to be sampled and then pulling the corer free. A few trials, plus reasonable care in performing the work, will enable the student or researcher to take satisfactory samples.

Push handle procedure:

1. Get in position for the sampling operation, keeping in mind that, if the purpose is to obtain samples containing fauna or stratified sediments, disturbance of the bottom area to be sampled should be avoided.
Watch your feet!
2. Release the valve and remove (by untwisting) the core tube from the corer head.
3. Line up the sampler, aiming it vertically for the point where the sample is to be taken.
4. Push the core sampler, in a smooth and continuous movement, through the water and into the sediments, increasing the thrust as necessary to obtain the penetration desired.
5. If the corer has not been completely submerged, close the flutter valve by hand and press it shut while the sample is retrieved. **Warning:** The flutter valve must be kept very wet if it is to seal properly.
6. Lift the core sampler clear of the water, keeping it as nearly vertical as possible, and handle the sample according to the type of core tube and the work in progress as described in Steps #7 and #8 above.
7. Seal all sample jars tightly. Protect cores against drying out by wrapping in several layers of plastic film or by wax coating.
8. Label all samples.

Using the extension handles:

Attach the extension handle to the core head and insert the corer into the sediments off a dock, bridge or high bank. Keep the corer 90° to the ground as much as possible.

Do not hammer or pound the corer into sediments.

When entering or exiting the substrate, do not tilt. Pounding or tilting may cause the head assembly posts and tube to bend. If using a PVC core tube, take special care, as it may break if bent too much.

Trouble Shooting

Core sample washout:

- 1 **Is the core tube screwed tightly into the corer head?**
This is a common occurrence. If not screwed on tightly, air will bypass the top threads and eliminate the suction. Should the threads become worn or loose, let the air seal the threads by applying a small amount of high quality silicone grease or vasoline to the threads.
- 2 **The bottom substrate may be structurally too weak to bridge over the opening;** rounded (as opposed to sharp) sand grains and thin, silty marks and clays are

the worst offenders. **Wildco®** core catchers such as the bronze (2449-B21) or stainless steel (2449-B31) will often contain the sample. If not, try the Eggshell™ core catcher (2449-B13) which is good for soupy sediments. *To use a core catcher, both a liner tube and nose piece are required. The liner tube holds the core catcher between the bottom of the tube and the inside shoulder of the nose piece.*

3. The **top seal may not be seating properly** because of dirt, soiling or damage. The top of the hand corer must be smooth and free of burrs and scratches. The corer head is made from welded steel which has been bright nickel plated. If the plating is damaged in the seal area, the core head can sometimes be re-plated. Alternately, it might be simpler to smooth the seal area by fine sanding and then coating with lacquer. After letting the coating dry thoroughly, sand smooth with a fine sandpaper, such as size #320 or 400.
4. The sample **substrate may be gripping the penetrated core tube** so tightly that the suction overcomes both the core catchers and the top seal's holding capabilities. The key here is to break the grip of the substrata on the outside of the core tube. This can often be done by working the top of the sampler back and forth horizontally, thus creating a larger hole and reducing the pull-out suction forced to a minimum.
5. Sometimes only a **diver assist** will work.

In the factory, the core tube is expected to hold a full 19" high column of water above the surface of the test tank; this indicates that the valve is sealing.

Other problem areas:

Nose pieces.

Core catchers are held in place by a **nose piece**; these are made from either the plastic polycarbonate termed Lexan™ (2449-A11) or from stainless steel alloy 316 (2449-A21). Be sure all threads are clean of dirt, that the threads are not cross threaded, and that the nosepiece is threaded up completely by hand turning. Do not use a wrench to over-tighten.

Liner tubes.

If your Wildco® corer has a nose piece, it can also have **liner tubes** to hold the sample. With the liner tubes, the sample can be easily removed from the core tube, stored and evaluated later. If the liner tube is split longitudinally for in situ examination of the sample, it can be washed and taped back together with a strong, flexible plastic tape and reused.

The liner tube is made of CAB (cellulose acetate butyrate), a chemically "clean" cellulosic thermoplastic of good strength and flexibility. **Wildco®** liner tubes are stocked in the same lengths as the core tubes.

Liner tubes can also be made from 316 stainless steel which is primarily used for trace organic sampling.

Core tube.

The **core tube, constructed** of stainless steel, fastens to the corer head by the same size threads. Be sure that the core tube is on firmly. Remember to seat the end of the core tube tightly against the seat in the corer head. The impact shock of the corer hitting the bottom is designed to go through the wall of the core tube to the corer head and not through the threads.

If the corer **does not penetrate as deeply as desired** into the substrata, several courses of action are available. First, **is the core tube long enough?** It is available in standard lengths of 20", 30", 36", 48", 60", 72", 84" and 96". Core tubes longer than 48" are usually made in two pieces with a coupling to fasten the pieces together. One piece is usually 48" long; the second piece is the additional length.

Note: The length of core tube does not always match the catalog measurement. The length of a straight tube without a nose piece is as listed. However, the core tubes with nose piece measure somewhat less than the catalog listing; this is because part of the liner tube extends into the nose piece for ease of removal from the core tube. The liner tube used with the nose piece is the length specified in the catalog.

If your core tube does not have a nose piece, its cutting edge must be maintained by careful filing to **remove any nicks or other damage to the butting edge** that will interfere with sampling.

Is there **enough weight** on the corer for the depth of penetration desired? Since substrates vary greatly in hardness, weight requirements may vary. All corers obtain their basic penetration force from their weight, not by the speed of their fall. Some people use bricks or cements blocks as weights; if this is done, do not free-drop the hand corer as it will not be sufficiently balanced to strike the ground vertically.

Threads

All threads on all 2" diameter (51mm) **Wildco®** corers are made with 2" American straight (not tapered) pipe thread. This same thread is used around the world for all pipe work, although the tapered dies and taps are more common than the straight ones.

The threads have been removed from the ends of the core tube to prevent thread damage while in use or being transported; banging the core tube ends on a rock or piece of metal or other hard object. If the external threads do get damaged, and a die is not handy, sometimes a small triangular file can be used to clean out the misplaced metal. If the internal threads in the nosepiece or corer head are damaged, a pipe tap is often the only choice. When threading the nose piece or corer head to the core tube, use only hand pressure to avoid cross-threading problems.

Maintenance

Inspection after each usage, promptly replacement of damaged parts, and regular attention to a few points of routine maintenance can assure long, trouble-free service from Wildco® core samplers. To avoid delays in field work, it is advisable to keep spare parts available, such as extra **nose pieces, tubes, liners, and core catchers.**

1. Inspect the core sampler after each field trip and replacement or repair of damaged parts as necessary.
2. Thoroughly clean the core sampler, particularly the flutter valve, by rinsing with fresh water after each use.
3. Lubricating the valve seat is generally not needed because water, either fresh or salt, is a lubricant for all rubbers and polyurethane elastomers such as the blue flutter valve. If you feel lubrication would be helpful, apply a **thin** film of high quality silicone grease or vasoline.
4. At the close of each day's operations, rinse all parts of the core sampler in fresh water.

Flutter valve replacement

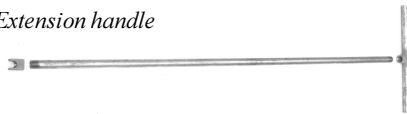
The **Wildco®** hand corer is equipped with an automatic flutter valve made of polyurethane elastomer selected for its good sealing qualities and long service life. The seal is blue in color and seats on the smooth top of the corer head.

When closing, this flutter valve seals the upper end of the core tube; during retrieval, the resulting low internal pressure (suction) in the core tube makes a tight seal. This helps prevent sample washout as the corer is pulled from the substrate.

A replacement flutter valve consists of the blue flutter valve, its pre-mounted support arm and a replacement roll pin.

1. Use a small hammer and a large nail set to remove the existing roll pin from the **Wildco®** corer head.
2. Locate the new flutter valve with its oval roll pin slot above and below the hole in the corer head. Replace the old flutter valve with the new. Tap gently to drive in the new roll pin into the old roll pin hole.
4. Dispose of the old flutter valve and old roll pin.

Extension handle



Hand corer with two lexan nose pieces; two liner tubes with caps; three eggshell™ core catchers.

Replacement parts

These parts can be ordered from **Wildlife Supply Company®** by phone, fax or on-line. We strongly recommended keeping spare parts of critical parts on hand to avoid delay in the field.

For more information, please request the definitive **Wildco®** catalog, which contains hard-to-find specs and reference materials, or phone our staff aquatic biologists during business hours Eastern Standard Time.

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|-----------------|---|
| 2449-A11 | Lexan™ nose piece |
| 2449-B13 | Eggshell™ core catchers, pack of 3 |
| 2449-B21 | Bronze core catcher, liner-type, each |
| 2449-B31 | Stainless steel core catcher, liner-type, each |
| 2444-B25 | 20" stainless steel liner-type core tube |
| 2444-B35 | 30" stainless steel liner-type core tube |
| 2444-B45 | 36" stainless steel liner-type core tube |
| 2444-B55 | 48" stainless steel liner-type core tube |
| 2444-B65 | 60" stainless steel liner-type core tube |
| 2444-B75 | 72" stainless steel liner-type core tube, 2 pc. |
| 2444-B85 | 84" stainless steel liner-type core tube, 2 pc. |
| 2444-B95 | 96" stainless steel liner-type core tube, 2 pc. |
| 2444-C25 | 20" PVC liner-type core tube |
| 2444-D17 | Core tube coupling - connects two lengths |
| 2447-C21 | 20" Clear CAB liner tube |
| 2447-C31 | 30" Clear CAB liner tube |
| 2447-C41 | 36" Clear CAB liner tube |
| 2447-C51 | 48" Clear CAB liner tube |
| 2447-C61 | 60" Clear CAB liner tube |
| 2447-C91 | 96" Clear CAB liner tube |
| 2447-B21 | 20" stainless steel liner tube |
| 2447-B31 | 30" stainless steel liner tube |
| 2447-E18 | End caps, pack of 12 |
| 2448-L10 | Ring Seal |
| 910-G34 | Extra large plastic carry case for hand corer |
| 2424-L12 | Flutter valve for 2424-B15 head assembly |
| 2424-D15 | Head assembly for hand corer |
| 2425-E12 | Extension handle, 5 feet |
| 2425-E14 | Extension handle, 10 feet |
| 2425-E16 | Extension handle, 15 feet |
| 2424-L25 | Hand corer head handles, 6", pack of 2 |
| 61-B14 | Cable, stainless steel, 100' |
| 62-C15 | Polyester line, 100' |

Order on-line at www.wildco.com!

Check out our new website for prices, replacement parts, new products (including **FISP** products) and more!