

# 2424-A and 2424-B Series 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. All products guaranteed free from defect for 90 days. This guarantee does not include accident, misuse, or normal wear and tear. **Please note warranty limitation on core tubes, below.**

## Important Note

Due to the wide variety of substrates that may be sampled by coring instruments, Wildco® does not warrant the core tubes except for initial production errors. An example of a valid warranty claim would be: "The hand corer head would not screw onto the coring tube when I received my shipment." Examples of invalid warranty claims would be: "The threads on the core tube deformed on the hand corer during use" or, "The nosepiece hit a large rock, bent and can no longer be removed from the tube."

When inserting or removing the coring sampler, do not rock it back and forth when it is embedded in the ground. Excessive lateral force may bend components, making them unusable. Only forces that are vertical in nature should be applied to these coring instruments.

Do not use wrenches to affix nosepiece, head or couplers. Excessive tightening of these components can lead to warping of the core tube and/or binding of the components. If mechanical means are used to tighten the components, it may become impossible to disassemble them again.

Make certain each and every time the core tubes are threaded into the head, nosepiece or coupler, that the threads are very clean on all parts. Grains of sand, dirt or other foreign substances will cause the components to bind together, making it very difficult or impossible to separate them.



Diagram 1

## 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 poly-urethane elastomer selected for its good sealing qualities and long service life. The polyurethane seal 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 in the core tube makes a tight seal. This helps prevent sample washout as the corer is pulled from the substrata.

Order on-line at [www.wildco.com](http://www.wildco.com)!

Check out our website for prices, replacement parts, new products and more!

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## Inspection of the Corer

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

1. Assemble and disassemble the core tube from the head and nose piece from the core tube to make sure the threads are not binding. If they are, clean them before going out.
2. 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. The 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

**CAUTION:** *Do not pound the corer into sediment! Corer will be irreparably damaged!*

### 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 corer as described above.
3. Position the core 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 sample.*

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 most 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. To empty the sample into a container, remove the nosepiece and core catcher. To keep the core intact, hold the corer upright, unscrew the nosepiece and place an end cap on the bottom of the liner tube. (It is a good idea to leave the core catcher in the liner tube until the sample is removed later). You may wish to tape it in place. Lift the flutter valve, slide the liner tube out of the corer and place an end cap on top of the liner tube.

### Using the push handles:

Using the Wildco® hand corer to obtain a sample normally 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. 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.

*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.*

3. 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.*
4. Lift the core sampler clear of the water, keeping it as nearly vertical as possible.
5. To empty the sample into a container, remove the nosepiece and core catcher. To keep the core intact, hold the corer upright, unscrew the nosepiece and place an end cap on the bottom of the liner tube. (It is a good idea to leave the core catcher in the liner tube until the sample is removed later). You may wish to tape it in place. Lift the flutter valve, slide the liner tube out of the corer and place an end cap on top of the liner tube.

### **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.

## **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, seal the threads by applying a small amount of high quality silicone grease or vasoline to the threads.
2. Sediments with rounded sand grains, clays and thin, silty marls may not be firm enough to open the fingers on the bronze (2444-B21) or stainless steel (2449-B31) core catchers. For very soft or soupy sediments, try the Eggshell™ core catchers (2449-B13).
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 force to a minimum.
5. Sometimes only a diver assist will work.

### **Other problem areas:**

#### ***Nose piece***

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.

#### ***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", 36", 48", 60", 72", 84" and 96". Core tubes longer than 60" are usually made in two pieces with a coupling to fasten the pieces together.

#### ***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, prompt 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 replace or repair damaged parts as necessary.
2. Thoroughly clean the core sampler, particularly the threads and flutter valve, by rinsing with fresh water after each use.

## 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 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 substrata.

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. Tap gently to drive in the new roll pin into the old roll pin hole.

## Replacement Parts

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

2449-A11	Lexan™ nose piece
2449-A13	Eggshell™ core catchers, pack of 3
2449-B21	Bronze core catcher
2449-B31	Stainless steel core catcher
2444-D17	Core tube coupling - connects 2 lengths
2447-C21	20" CAB liner tube with 2 end caps
2447-C41	36" Clear CAB liner tube/ 2 end caps
2447-C51	48" Clear CAB liner tube/ 2 end caps
2447-C61	60" Clear CAB liner tube/ 2 end caps
2447-C91	96" Clear CAB liner tube/ 2 end caps
2447-B21	20" stainless steel liner tube/ 2 end caps
2447-E18	End caps, pack of 12
2448-L10	Ring Seal
910-G34	Plastic carry case
2424-L12	Flutter valve
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
2425-L25	Hand corer head handles, 6", pack of 2
61-B14	Cable, stainless steel, 100'
62-C15	Polyester line, 100'



Extension handle

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