

HitchHikerXF (HHxf) by Climbing Innovations LLC

Warnings, user manual, explanations, and parts list.



Inspired by the original
HitchHiker invented by Paul
Cox

Climbing Innovations LLC

www.ClimbingInnovations.com

The HHxf is a unique device in the world of multicenders (a device that allows movement up, down, and laterally with little to no configuration change). It is the only device that combines the load bearing anchor point with the required single rope tending point and allows for on-the-fly added friction. It is mid-line attachable, does not alter the path of the rope, can be attached to a weighted line, is unaffected by the weight of the rope below it and does not require a configuration change or added components when switching from doubled moving rope to a single rope, in other words, it can go from 100% friction (stopped) to nearly 0% friction for ascent without changing the configuration. It works equally well on a high angle “zip line” as it does on a vertical line. It does not have “big-top” exposure or collapsible components. It is built with strong solid parts in a low-profile simple design. Because it is a hybrid device using 360° wraps with a friction hitch, any rope flattening has little effect, making for consistent and predictable performance. Replacement hitch cord does not require a spliced or sewn termination making replacement inexpensive.

Details, updates and video explanations are available at

www.ClimbingInnovations.com/HHXF



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Warnings

For expert use only.

This manual and related material cannot teach you all that must be known, nor can it present every situation for safe activities at height.

The HHxf is a hybrid device using both a mechanical means for functionality and a hitch-based means for life support and controllability.

The user is responsible for understanding and using a properly tied, dressed, set, and verified friction hitch. The friction hitch (including size, material and usability) is totally up to the user. The body or frame of the HHxf can accommodate rope sizes from 9-14mm. The friction hitch must be able to engage the rope when needed and support the weight of the user(s) when in use with the HitchHikerXF. Awareness to heat and glazing damage from high speed or long descents to both the climbing line and hitch cord, must be considered. A friction hitch is not for fall arrest but is for fall prevention.

Prior to each use, a thorough inspection is required of all metal components and textiles used.

The metal components of the HitchHikerXF are a connection to the life support function of the friction hitch, therefore it is required that these connections be properly set and inspected. When inserting the SlicPin, make sure both plungers are extended fully, don't become distracted by other activities, they are very visible, secure, and easy to inspect.

There is nearly an infinite number of combinations of cordage material, rope material and methods of connecting those for the creation of a safe and functional friction hitch. Although examples may be used in this manual and other material, it is the responsibility of the user of the HitchHikerXF to ensure the friction hitch functions in a safe and life supporting manner.

Swingarms should not be side loaded or pulled side to side.



Failure to follow these warnings and instructions can lead to severe injury or death.

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Explanation of Parts

- **Friction Hitch:** An appropriate type and size of cordage, approximately 4 to 5 feet in length, when tied around a climbing line or rope that provides controllable friction. Properly tied the cordage will disengage the climbing line providing a small amount of friction on ascent and without action from the climber, engage or spring into action and provide fall protection and controllable friction for the descent.
- **Controllable friction:** Friction provided by appropriate rope-on-rope contact that can control the descent of the climber. Speed can be regulated from a complete stop to an acceptable rate depending on the type of cordage in use.
- **Tending:** The act of lifting the Hitch Hiker without the use of hands to keep the device in the same position relative to the climber, approximately chest level.
- **Stopper knot:** A knot tied to prevent the hitch cordage from pulling thru the placement holes of the Dog Bone. Two are used, a Double Overhand stopper knot on one side and a Stevedore Stopper Knot on the other. Tails of about 5 times the cord diameter are required. The supplied hitch cords are treated on the ends to keep them from fraying and allow them to be shaped to fit in the Dog Bone easily. Visit the above listed website for instructional videos on tying these knots and others.



Double Overhand Knot



Stevedore Stopper Knot

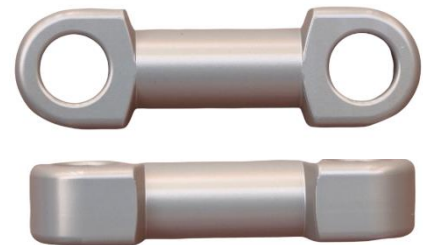
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- HHxf body: (7075-T6 hard anodized aluminum.) The main body part of the device comprising of a large slotted channel, allowing for rope passage, 2 slotted openings on each side providing an inclined plane that applies a proportional amount of friction to the climbing line and a threaded opening on the back to accommodate additional friction. [3D view https://a360.co/2Sjz7Wm](https://a360.co/2Sjz7Wm)



- Dog Bone: (7075-T6 hard anodized aluminum.) The upper mechanical friction point connecting the friction hitch to the HHxf body by means of openings at each end, that when inserted into the upper body of the HHxf and secured by stopper knots, cannot be removed. <https://a360.co/3wEjEWs>



- SLIC Pin™ (Stainless steel Self-Locking-Implanted-Cotter manufactured by PivotPoint inc.)
The lower mechanical friction point that connects the body of the HHxf to the Swing Arm. Plungers prevent the pin from coming out without numerous unattended actions by the climber.



- Slic Pin Keeper. Made of nylon and held in place with a #4-40x1/4" screw. Designed to keep the Slic Pin from falling to the ground when disengaged. When in place it has a very low profile to resist snagging and to make it obvious when the Slic Pin is completely seated. Do not replace this with cable or other strong attachments as that could adversely pull on the Slic Pin. [Link to 3D view here. \(https://a360.co/3JPIMRo\)](https://a360.co/3JPIMRo)



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- Swing Arm: (7075-T6 hard anodized aluminum.) A weight bearing and upward tending connection point to the HHxf body. Two versions are available. A captive eye version for direct connection to a rope bridge or other suitable life support point and an open arms version for connections to captive eye swivels, carabiners or other suitable life support points. [3D view of Swing Arm with Captive Eye](https://a360.co/3sidjE) [3D view of Swing Arm without Captive Eye.](https://a360.co/3BQbpK9) (<https://a360.co/3BQbpK9>)



- Extra Friction Plug: (7075-T6 hard anodized aluminum.) A threaded plug that when inserted into the back of the HHxf body provides extra friction to the mechanical and proportional friction component for descent. (Not to be used during ascent.) It does so by creating a bend in the rope and putting more friction on the other 2 friction components. It provides adjustable proportional friction but is not controllable as is the friction hitch. [3D view at https://a360.co/3gwgDBL](https://a360.co/3gwgDBL)



- Proportional Non-Controllable Friction: That portion of friction that keeps a climber from free falling to the earth. When initiated by other means, for example a friction hitch, it applies a consistent percentage of weight induced friction to the climbing line. If a climber and gear weight 200 pounds and the Proportional Non-Controllable Friction takes 70% then the other 30% or 60 pounds must be controlled by other means, again, the friction hitch. Example in a Blakes Hitch system, it is the branch above.
- Controllable Friction: That portion of friction under direct control of the climber. In this case the friction hitch. The smaller this portion is, the more easily it is controlled.
- Two configurations are available. One has a captive eye for direct connection to a rope bridge or suitable harness anchor point. This is ideal for a primary climbing anchor point. The other allows for the attachment of swivels or other connections that also provide a captive eye.

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Instructions for use.

<http://climbinginnovations.com/HHxf>

Configuration and installation:

This is considered the back of the device and reference point for set-up and use. While no device is fool proof, these components will not function if improperly installed. References are made to Up, Left and Right for orientation discussions.



The Swing Arm with captive eye should be on your rope bridge or other suitable anchor point. A carabiner that is capable of miss orientation should not be used. Hold the body with text facing you and attach it to the rope with the Slic Pin in the open position. A slip knot or other means tied in the climbing line below will help. Extend the Slic Pin thru the lower slots capturing the rope. Be certain at this time that both plungers on the Slic Pin are extended on the other side. The head of the Slic Pin should be almost flush with the Slic Pin Keeper.



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Insert the Dog Bone into the upper slot with the hitch cord attached and Double Overhand Knot into the left side of the Hitch Hiker body. Capture the climbing line between the Dog Bone and the body.



Next tie a suitable friction hitch and insert the tail into the right side of the Dog Bone keeping the cordage parallel and the Dog Bone perpendicular to the Upper Slot.



Tie the Stevedor Stopper knot on the right side. Make sure knots are tied, dressed, set and verified. At this point the head of the Slic Pin is almost entirely set into the Slic Pin keeper and both plungers are clearly visible on the left side.

The climbing line is captured by both the Dog Bone and Slic Pin.



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Maintenance

Because of the simple design the HHxf is easy to maintain and inspect. Occasionally add a drop of 3in1 oil on the threads of the Friction Plug. Inspect cordage for signs of brazing or excessive wear just as you would do with any friction hitch. Alternate the Dog Bone to balance the wear of either side. Replace it when worn beyond 80% combined diameter. Inspect the Slic Pin for proper function of the plungers and keep them clean.

Notes

- Fully weight your system to check that the hitch will engage and support your weight without slipping or creeping. Keep your hands free of the hitch during this check and let it prove its ability to function. Adjustments may be necessary to the number of wraps or tension of the hitch. Throughout your climb, verify the function and engagement of the hitch. There is a personal preference to the amount of engagement tension for positioning or descent and the amount of disengagement tension for ascent or limb walks, find your preference but always make sure the hitch will engage when needed.
- When climbing SRT, tending is done from the anchor point attachment. Do not attach a tending lanyard or other attachment to the body of the Hitch Hiker, it will not advance this way. If you want to advance the device by hand, hold the swing arm to reposition up the rope.
- I have videos at www.ClimbingInnovations.com/HHxf showing efficient ways to tie the stopper knots and how to adjust the hitch cord by an inch or two to relocate any concentrated wear. Other helpful tips will also be available there along with frequently asked questions.

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Four types of hitch cord are included to give the user a good sampling. They range from high heat resistance to low heat resistance. These hitch cords are the life support function of a hybrid device and because of the wide variety of hitch cord and climbing line combinations available, it is beyond the scope of this manual to instruct a user on how to use them. Generally, a hitch cord must be tied so that it properly engages the climbing line when needed and managed so that heat is properly dissipated before damage can be done to the cord or the climbing line. The same can be said for a purely mechanical (without hitch cord) device as well. Keep descent rates and loads within the useable range of the hitch cord chosen.

[Marlow Viper](https://www.marlowropes.com/product/viper-cord) <https://www.marlowropes.com/product/viper-cord>

CONSTRUCTION: Twisted Polypropylene Core



COVER: 16 Plait Vectran / Polyester

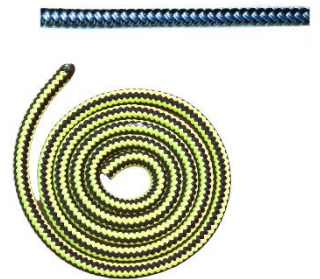
Mixed heat resistance.

<https://www.marlowropes.com/product/blue-ocean%C2%AE-boa-cord>

Marlow BOA CORD (Color may vary, blue or lime green and yellow)

CONSTRUCTION: 16: plait polyester.

Low heat resistance.



Sterling RIT <https://sterlingrope.com/store/work/cordage>

Diameters: 8 mm and 9 mm

The RIT with a Twaron® sheath and nylon core for heat resistance and durability.

