
CMC Rescue MPD™

User's Manual

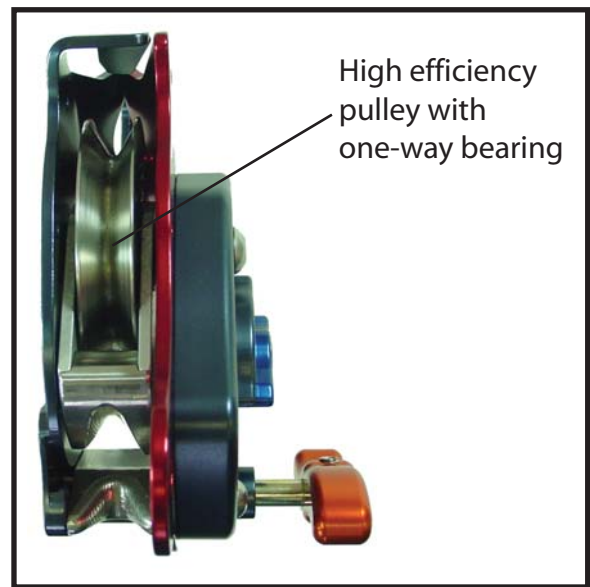
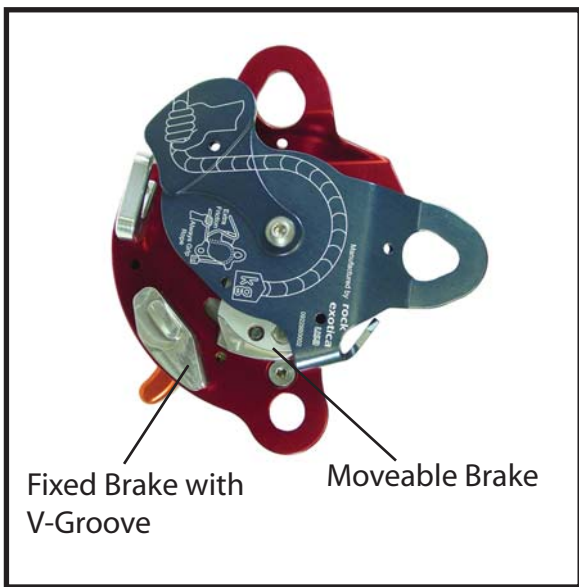
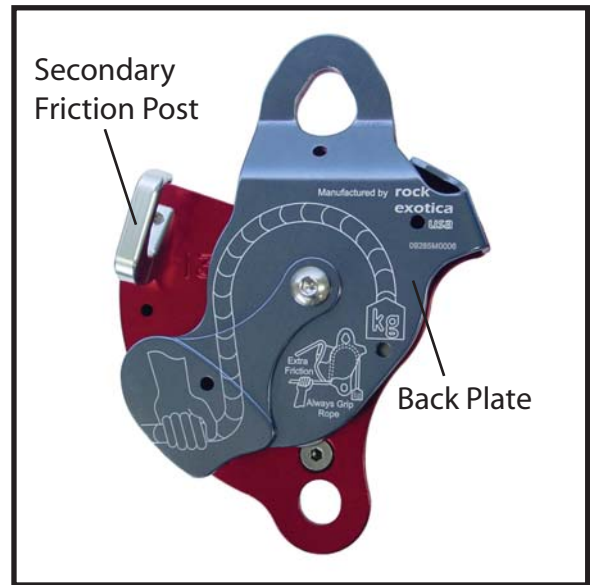
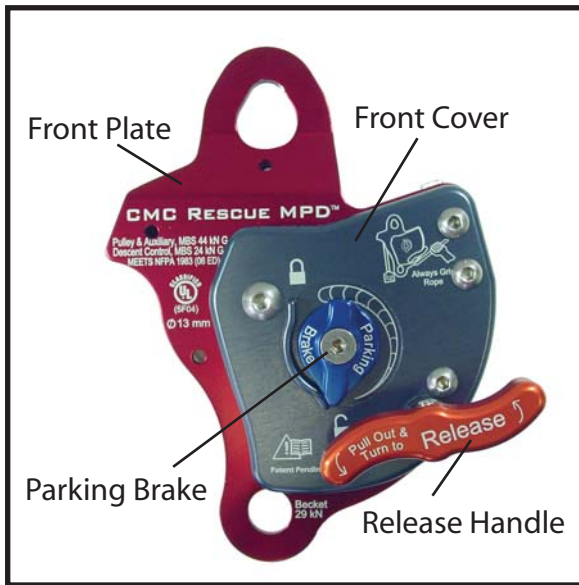


PULLEY - RESCUE BELAY - DESCENT CONTROL DEVICE

Thank you for selecting the CMC Rescue MPD™ for your technical rescue systems. Truly a multipurpose device, the flexibility and versatility of the MPD reduces the number of components in a rescue system, reduces the training requirements and simplifies system rigging. The result is a safer and more efficient rescue. As with other CMC Rescue equipment, if you have any questions or comments, please let us know.

PRIOR TO USE

As with any new piece of rescue equipment, the MPD should be thoroughly inspected before being placed in service. The MPD is a robust unit but still should be inspected after each use to ensure that damage did not occur. When inspecting, look for any damaged, dirty, or sticking components, excessive wear or any other factor that may prevent proper function.



LOADING THE ROPE

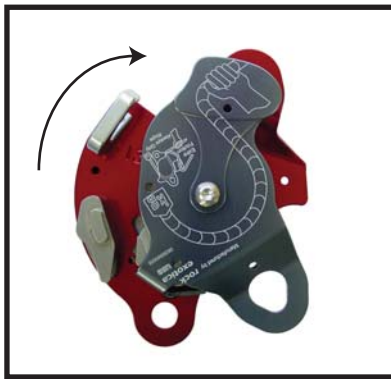
The MPD was designed for use with static kernmantle life safety rope. Use only rope in good condition. To load the rope, first ensure that the Parking Brake is off. Hold the MPD so that the Release Handle is pointed down, back plate facing up. Open the MPD by rotating the back plate clockwise until there is space to insert the rope between the fixed and movable friction brakes.

Insert the rope with the running end between the friction brakes and wrap the rope around the pulley in a clockwise direction. The load end of the rope exits on the opposite side of the MPD.

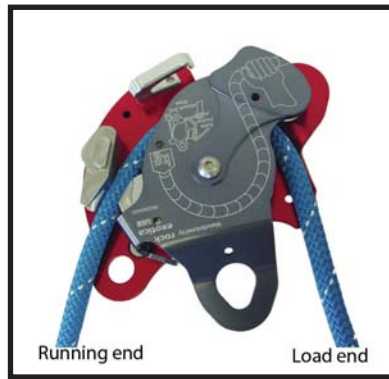
Close by rotating the back plate completely counterclockwise and making sure that the rope properly enters and exits the MPD as shown in the diagram on the back plate. Attach a locking carabiner through both the front and back plates.

Always perform a safety check by giving a quick tug on the load end to ensure proper loading prior to committing a live load over an edge. If loaded properly the MPD will lock up.

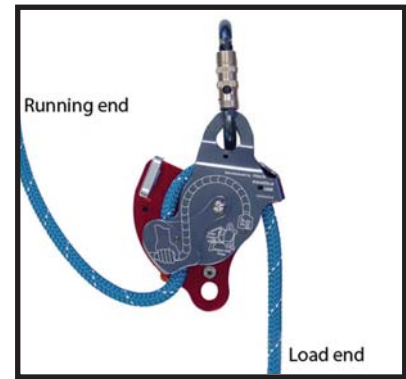
NOTE: The rope MUST be loaded correctly for the MPD to work



Open back plate



Load rope



Close & secure back plate

PARKING BRAKE

A unique feature of the MPD is the Parking Brake which prevents inadvertent letting out of the rope. The design of the Parking Brake allows for rope to be taken-in if required without having to disengage it, although increased rope friction will be encountered.

The Parking Brake should be engaged whenever the operator needs to release their grip from the running end of the rope except when the MPD is rigged as a ratchet or progress capture in a pulley system. For example, once the loaded MPD is clipped to the anchor, for safety, engage the Parking Brake until it is time to use the device.



With oversize diameter rope or if the rope is un-tensioned, to fully engage the Parking Brake it may first be necessary to pull out on the Release Handle and rotate it clockwise to further force the brake against the rope.

NOTE:

The Parking Brake is intended to be used to temporarily secure the MPD when it is necessary for the operator to release their grip on the running end of the rope. If the MPD is to be left unattended or if the operator needs to release their grip on the running end of the rope for more than a short time, secure the MPD by tying off the running end of the rope around the load end with an appropriate tie-off method.



USING THE MPD AS A DESCENT CONTROL DEVICE

When used to control a descent, the MPD design allows easy adjustment of the friction for the size of the load, rope type, and environmental and terrain conditions. The speed of the descent is controlled by a combination of the friction of the rope applied against the Fixed Brake V-groove and turning the Release Handle. Maximum friction is applied when the Secondary Friction Post is used.

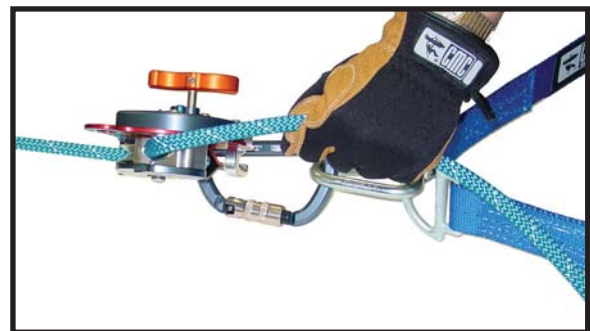
Edge transitions can be the most challenging part of an operation. Using the MPD as a descent control device allows for a very high degree of responsiveness and control. As the rescuer or rescuer and patient approach the edge, it is very easy to take-in rope through the MPD to prepare for the edge transition. Pre-tensioning of the Main Line is also simplified because of this.

TO LOWER

To lower, firmly grip the running end of the rope and tightly hold it against the Fixed Brake V-groove (for heavy loads, also thread the rope over the Secondary Friction Post). Disengage the Parking Brake and then firmly grip the Release Handle. For the most comfortable hand operating position, before pulling outwards on the handle, give a slight clockwise turn of the wrist, then pull out to engage the release mechanism. Begin lowering by rotating the handle slowly counterclockwise.

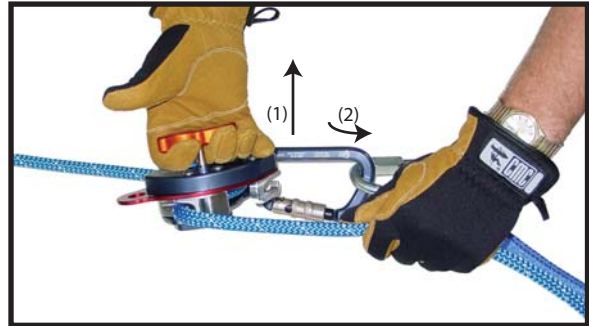
Preparing to Lower:

Firmly grip the running-end rope and apply friction over the Fixed Brake V-groove.



To Lower:

Disengage the Parking Brake, grasp the Release Handle, pull out to engage the release mechanism (1), and then rotate counterclockwise to initiate lower (2).



For heavy loads:

Add additional friction by threading the rope over the Secondary Friction Post.



TO STOP LOWERING

To stop lowering and lock the rope, disengage the Release Handle. **NOTE:** although there is a return spring to assist in disengaging the Release Handle, it is the user's responsibility to ensure that the handle is fully pushed in when not actively lowering.

Always maintain a firm grip on the running end of the rope when the Parking Brake is not engaged.

USING THE MPD AS A BELAY DEVICE

The MPD is designed to be used as a belay device to arrest a falling load should the Main Line fail. It is recommended that during edge transitions while either lowering or raising loads that the Belay Line tension be kept hand-tight. Stumbles by the rescuer or litter tender(s) are most likely to occur during edge transitions which may result in the ropes being run across edges which can potentially damage or cut the ropes. It is less likely to damage both ropes if the Belay Line remains un-tensioned during these transitions. Additionally, greater descent control can be achieved if only one rope manages the rate of descent during edge transitions.

It is recommended that the Belay Line not be run through a high directional.

If, for whatever reason, the Main Line completely fails during an edge transition (e.g. anchor failure or improper system connection), and if both ropes are suspended above the terrain, then a dynamic fall onto the Belay Line is likely. Among rescuers, this is widely recognized as potentially the worst-case dynamic event in rescue work. While every effort should be made to rig and operate systems to minimize the potential for such dynamic events, the MPD is designed and has been tested to catch a 1 m fall onto 3 m of static rope with a rescue-sized load and keep the peak

force below 15 kN (3,373 lbf.) with no more than 1 m (3.3 ft.) stopping distance (as advocated by the British Columbia Council of Technical Rescue Belay Competency Drop Test Criteria). Such a dynamic event is severe and warrants that all involved equipment be retired and properly disposed of after the operation is safely completed.

BELAYING A LOWERING SYSTEM

When belaying a lowering system, once the rescuer has good control of the load and is in the correct descent path - this often occurs within the first 10 m (33 ft.) of the descent - it is recommended to convert from hand-tight Belay Line tension to shared tension between the Main Line and Belay Line. This will minimize rope stretch and arresting distance should the Main Line system fail from this point on. It will also help mitigate other hazards such as an inadvertently slack Belay Line, or rope induced rockfall since the now tensioned Belay Line will be suspended above the terrain between contact points, just like the Main Line. Ideally, a true independent twin system is achieved with maximum flexibility and versatility when both the Main Line and Belay Line are each managed with an MPD. That way either rope system can perform either function, similarly, without the need for complex changeovers or function-specific equipment.

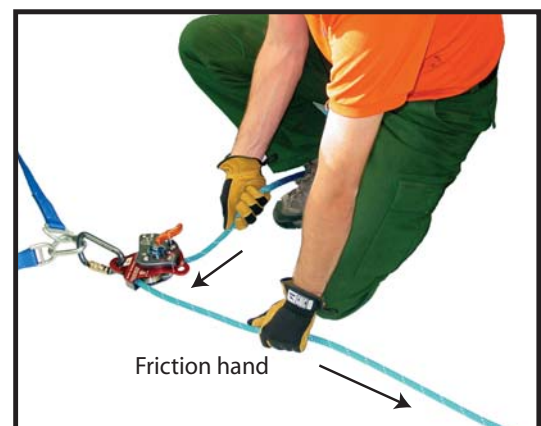
IMPORTANT NOTE:

Shared tension systems are essentially two lowering systems in place of one lowering system and a belay. If either system should fail, the increased load on the other descent control device will cause an increase in rate of descent. The MPD is an effective belay device capable of safely arresting the load. However, when used as a descent control device the operator tending the MPD is manually overriding the belay function and **MUST** let go of the Release Handle for the belay function of the MPD to activate.

- For the greatest system redundancy and therefore safety, ensure the Belay Line system is anchored and operated independently of the Main Line system.
- To ensure proper hand-tight tension of the Belay Line (such as during edge transitions), firmly grip the load end of the rope with one hand and apply friction such that there is no slack in the rope between the load and your hand. The other hand feeds the running end into the MPD at a pace which is slightly ahead of the rate of descent. Importantly, this technique allows the operator to match the speed of the Main Line. In contrast, the technique of trying to simultaneously shuffle rope into and out of the MPD will result in a repetitious 'start-stop' motion of the backup rope and will likely result in frequent unwanted lockups.
- As with the Main Line, it is recommended that someone assist the Belay Line operator by feeding rope to ensure there are no tangles or snags that would cause the operator to unnecessarily stop the operation.

Applying hand-tight tension to the Belay Line

The operator is bracing his hand on his leg to help maintain a fixed position of the friction hand while the other hand feeds rope into the MPD at a rate slightly ahead of the descent rate.



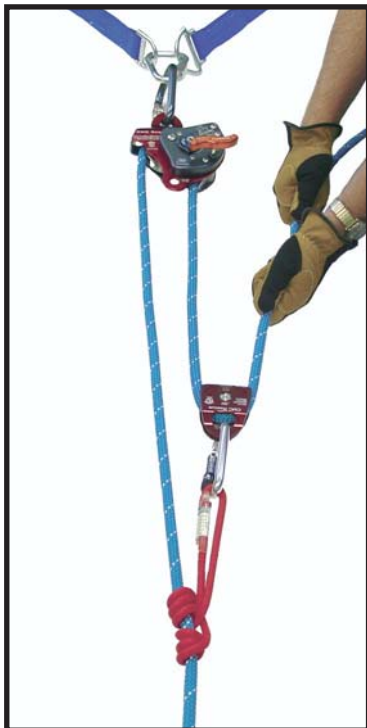
BELAYING A RAISING SYSTEM

If the load is being raised, then the Belay Line can simply be pulled hand-over-hand through the MPD. However, if the distance the load has to be raised is greater than approximately 30 m (100 ft.), then it is recommended to convert the Belay Line system into a simple 3:1 mechanical advantage pulley system and assist with the raising of the load. The MPD will function as a 'ratchet' or 'progress capture device'. This will also take the stretch out of the line. For the final edge transition, convert back to a 1:1 using only hand-tight tension on the Belay Line by pulling it in hand-over-hand.

The load can be raised more efficiently if the Belay Line assists with the raising since it is possible that a lower mechanical advantage will be required by the Main Line. Additionally, if an MPD is used for both the Main Line and Belay Line haul systems, then should either of these systems fail, the other rope system can serve as a belay and the potential arresting distance is minimized since both ropes will be pre-stretched.

USING THE MPD IN A MECHANICAL ADVANTAGE SYSTEM

The MPD is designed to function as both a pulley and as a 'ratchet' or 'progress capture device' in a MA system. After lowering, there is no need for a complex changeover between a lowering system and a raising system. The one-way pulley inside the MPD applies friction during descent control but serves as a fully functional and highly efficient pulley while raising the load and it effectively locks the rope between pulley system resets with minimal settling-in distance. To convert to a pulley system, simply attach a rope grab and traveling pulley to the Main Line and a simple 3:1 is created. The MPD has a built-in Becket which can be used to attach a change-of-direction pulley to allow higher mechanical advantage systems to be built (e.g. simple 5:1 or compound 9:1) thereby eliminating the need for a rigging plate. This keeps the pulley system neat and clean, with minimal loss of efficiency.



Simple 3:1 MA System



Simple 5:1 MA System

HIGHLINES AND GUIDING LINES

The MPD has been specifically designed to meet all the required functions of a descent control device, pulley and belay device. As such, the MPD is highly versatile for use in many aspects of highline rigging, such as:

- Guiding line or track rope tensioning
- Tag line management
- Operating the hoist or reeving lines

CMC's Rescue School can provide you with training on all these advanced techniques. For more information for training on the MPD or any other CMC products, please contact the CMC Rescue School by calling 818-240-0650.

CARE AND MAINTENANCE

Clean and dry the MPD after each use to remove any dust, debris, and moisture. Do not store where the equipment may be exposed to moist air, particularly where dissimilar metals are stored together.

User Information shall be provided to the user of the product. Industry equipment standards recommend separating the user information from the equipment and retaining it in permanent record. The standard also recommends making a copy of the user information to keep with the equipment and that the information should be referred to before and after each use.

Additional information regarding life safety equipment can be found in NFPA 1500, *Standard on Fire Department Occupational Safety and Health Programs*, and NFPA 1983, *Standard on Fire Service Life Safety Rope and Equipment for Emergency Services*.

INSPECTION

Inspect the MPD according to your department's policy for inspecting life safety equipment. Equipment should be inspected after each use by an inspector that meets your department's training standard for inspection of life safety equipment. Record the date of the inspection and the results in the equipment log. Each user should be trained in equipment inspection and should do a cursory inspection before each use.

Inspect the MPD for damage after each use. If any significant damage is observed, the equipment should be removed from service. The MPD is a robust unit but still should be inspected after each use to ensure that damage did not occur. When inspecting, look for any damaged, dirty, or sticking components, excessive wear or any other factor that may prevent proper function.

If the MPD is dropped or impact loaded, it should be inspected by a qualified inspector prior to being returned to service. In most cases, a visual inspection will not be able to determine if the equipment has been damaged. Based on the history of the incident, if there is any doubt regarding the safety of the equipment, it should be removed from service and retired.



REPAIR

All repair work must be done by the manufacturer. Any other repair work or modifications may void the warranty. For service or repairs, please contact:

CMC Rescue, Inc., PO Box 6870, Santa Barbara, CA 93160
Phone: 800-235-8951 or 805-562-9120

email: info@cmcrestue.com

PRODUCT SPECIFICATIONS

Model 333000, CMC Rescue MPD

UL Classified to NFPA 1983 - 2006 ed.

- Pulley: General-use
- Auxiliary equipment: General-use
- Descent control device: General-use

Rope Diameter: 13 mm (1/2-inch)

Weight: 1.2 kg (2 lbs. 10 oz.)

Rated Strength: Pulley & Auxiliary – 44 kN (9,892 lbf.)
Descent Control – 24 kN (5,359 lbf.)
Becket – 29 kN (6,519 lbf.)



