

Belay in the Box™ Install Guide / Manual for Models AB34 through AB44

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Congratulations!

Congratulations on your purchase of an Extreme Engineering Belay in the Box™ auto-belay system. This is the ultimate safety-climbing device designed specifically for climbing. Thanks for choosing Extreme Engineering's auto-belay system, the only fully patented system on the market designed specifically for climbing.

Your auto-belay system is the first and best in the industry!



The Belay in the Box™ is durable, designed to give you years of service and provide hundreds of thousands of climbs for your customers with minimal maintenance.

Your Belay in the Box™ is easy to install and use. If you follow these simple instructions carefully, you'll be assured of safe and reliable operation.



WARNING: DO NOT INSTALL OR OPERATE UNTILL YOU HAVE FULLY READ AND UNDERSTOOD THE MANUAL!!

WARNING!! PLEASE READ CAREFULLY.

Extreme Engineering's® CLIMBING PRODUCTS and CLIMBING PRODUCT PROVIDERS are designed and tested specifically for CLIMBING, MOUNTAINEERING AND TECHNICAL ROPE WORK.

Extreme Engineering's® PRODUCTS are designed and tested specifically for FIRE, RESCUE, INDUSTRIAL and TECHNICAL ROPE WORK. The user is responsible for following NFPA, OSHA, ANSI and all other State and Federal regulations regarding the use of these products.

All of these activities are inherently dangerous and present the risk of SERIOUS INJURY and/or DEATH if not maintained.

The product information contained in the catalogs and brochures is not a substitute for qualified personal instruction. Any person using Extreme Engineering® products IS RESPONSIBLE FOR OBTAINING QUALIFIED INSTRUCTION on the proper use, techniques and limitations involved in such use.

Inspect all equipment before each use and destroy any gear that is damaged, worn or does not pass inspection. Any person using Extreme Engineering® products is responsible for the proper care and maintenance of these products. IMPROPER USE, ABUSE AND/OR LACK OF PROPER MAINTENANCE WILL INCREASE THE RISK OF SERIOUS INJURY OR DEATH.

WHEN IN DOUBT, REPLACE IT!!!

ANY PERSON USING EXTREME ENGINEERING® PRODUCTS IN ANY MANNER ASSUMES ALL RISKS AND ACCEPTS FULL RESPONSIBILITY FOR ANY DAMAGE OR INJURY, INCLUDING DEATH, WHICH MAY RESULT FROM THE USE OF ANY EXTREME ENGINEERING® PRODUCT.

ANY LITIGATION INVOLVING THIS PRODUCT WILL BE IN CALIFORNIA STATE PURSUANT TO CALIFORNIA LAW

THE DISTRIBUTOR-WHOLESALE-RETAILER IS RESPONSIBLE FOR PROVIDING THIS WARNING INFORMATION TO THE CUSTOMER. THIS WARNING MUST ACCOMPANY ALL SHIPMENTS/SALES OF EXTREME ENGINEERING PRODUCTS.

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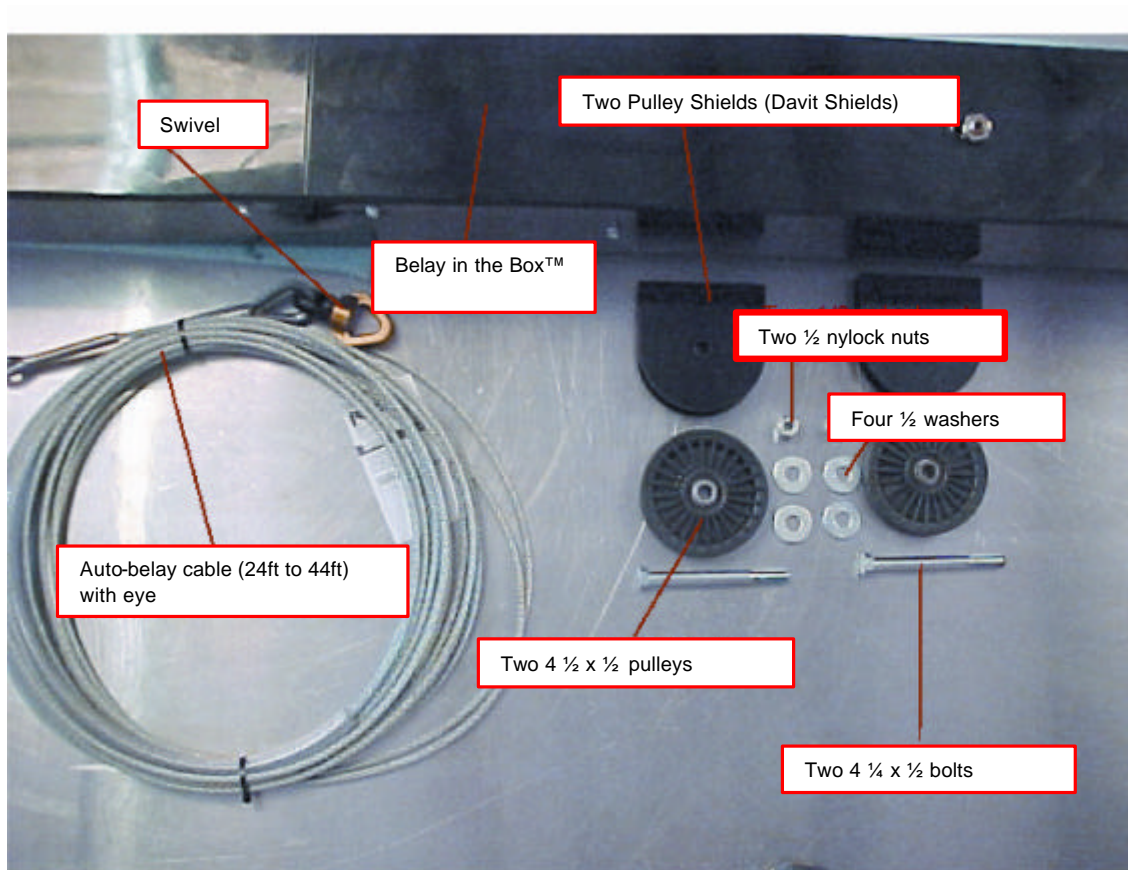
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HOW TO INSTALL AN AUTO-BELAY CABLE

[Depending on your system cable may already be installed]

Before we get started please make sure that everything on your packing list is complete and that you have received everything in acceptable condition.

Auto- Belay Kit



Locate all parts in your shipment and make this complete Auto-belay kit:

1. Two 4 1/4 x 1/2 bolts
2. Two 1/2 nylock nuts
3. Four 1/2 washers
4. Two 4 1/2 x 1/2 pulleys
5. Auto-belay cable with eye (cable length depends on your auto-belay system)
6. Swivel
7. Pulley shields (Davit Shields)

Placing / Replacing you Auto-Belay™ Cable

Step 1

Release Air Here



First release all the pressure out of the tank.

Make sure pressure is 0 PSI

Step 2



Loosen all the bolts on the lids of the box.

Step 3



Using a ratchet, drill, or a wrench, loosen and remove all bolts. Please make sure you save all the bolts!

Step 4



After the bolts are removed, place them in a safe place and remove the two lids.

Step 5



Pull up on the rams so that they are standing out of the box.

Step 6



Brace the rams in place with some sort of solid bar such as a hammer, crowbar, a piece of wood, etc.

Step 7



Pin or bolt (depending on model)

Loosen and remove the bolt or pin (depending on model) so that the AutoBelay™ cable can be placed around the pulleys. Make sure to place parts in a safe place.

Step 8



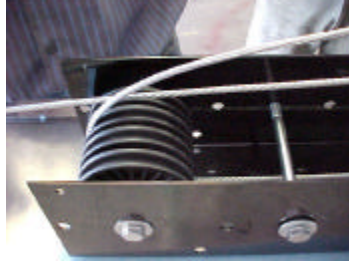
From the front end of the AutoBelay™ box, start placing the cable through the pulleys starting from the left side first. (Note: you will have 3 to 5 pulleys depending on your Auto-Belay™ system).

Step 9

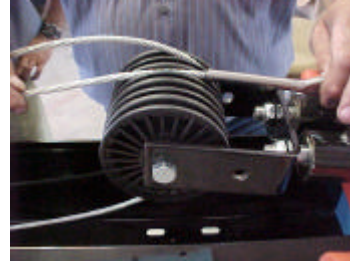
1a.



1b.



1c.



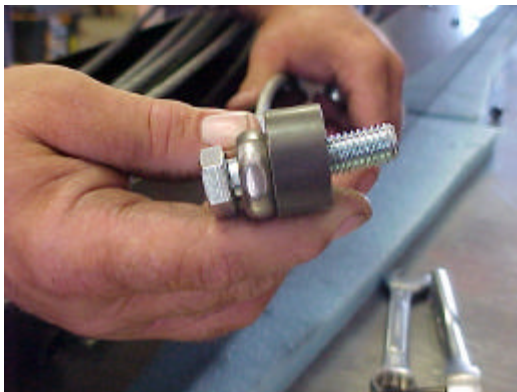
On the other end, wrap the cable over the pulley so it comes underneath. Repeat this process until the eye of the cable ends up at the top end of the Auto-Belay™.

Step 10



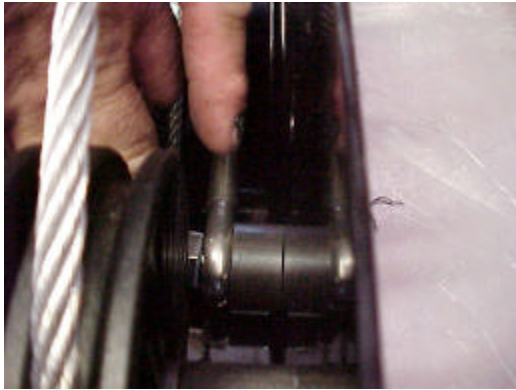
This is what the cable should look like after it is correctly placed through the Auto-Belay™ system. Make sure the eye of the cable ends up at the top end of the auto-belay at the opposite side of where you started.

Step 11



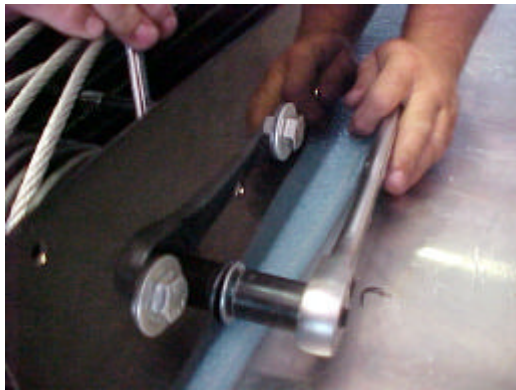
At the top end of the AutoBelay™ remove the bolt with a wrench located on the front, lower right hand side of the box. Bolt and place the Auto-Belay™ cable eye through spacer.

Step 12



Locate and Place the bolt back into its existing hole.

Step 13



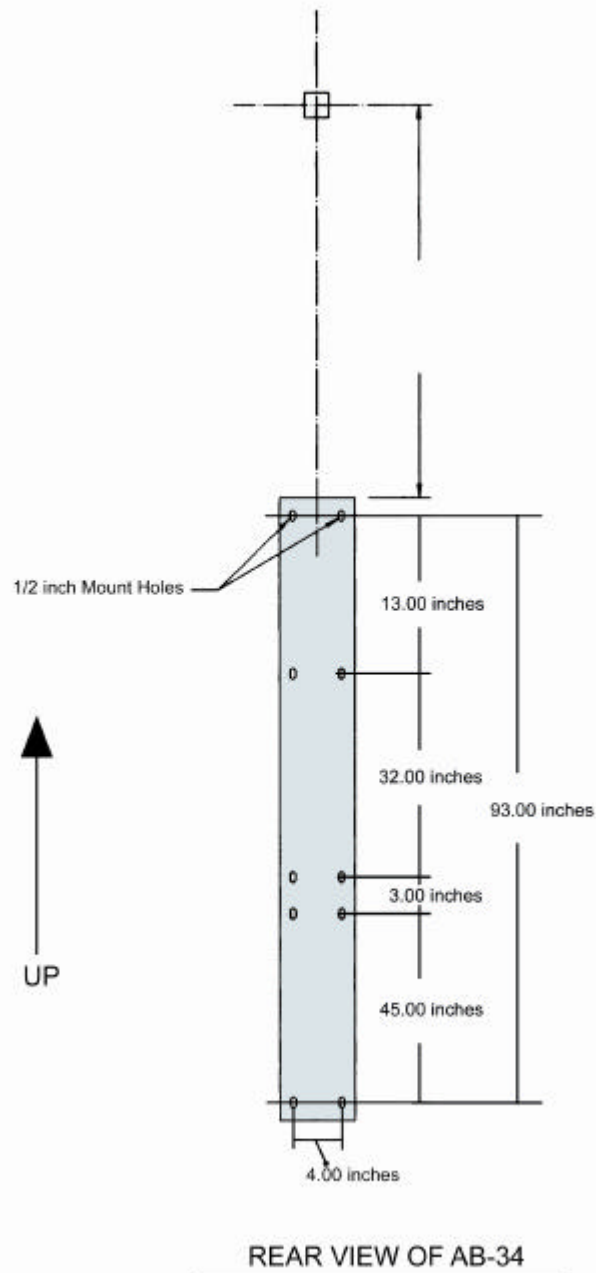
Place the washer and nut back on the bolt and tighten down the bolt. Make sure when you tighten down the bolt that the cable's eye is parallel with the box and not kinked at an angle.

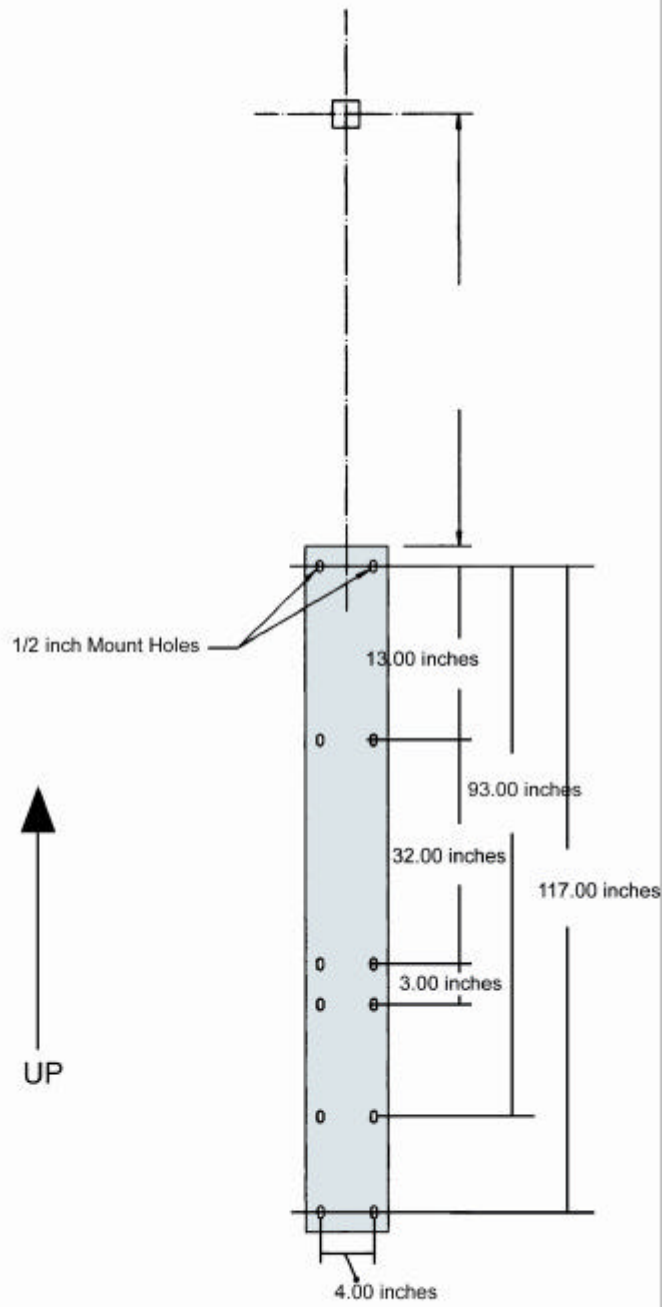
INSTALLING THE AUTO-BELAY TO A FIXED STRUCTURE

Use these diagrams to help locate the position of where your auto-belay unit needs to be installed. Please make sure you use the appropriate spacing between the auto-belay unit and the top stanchion.

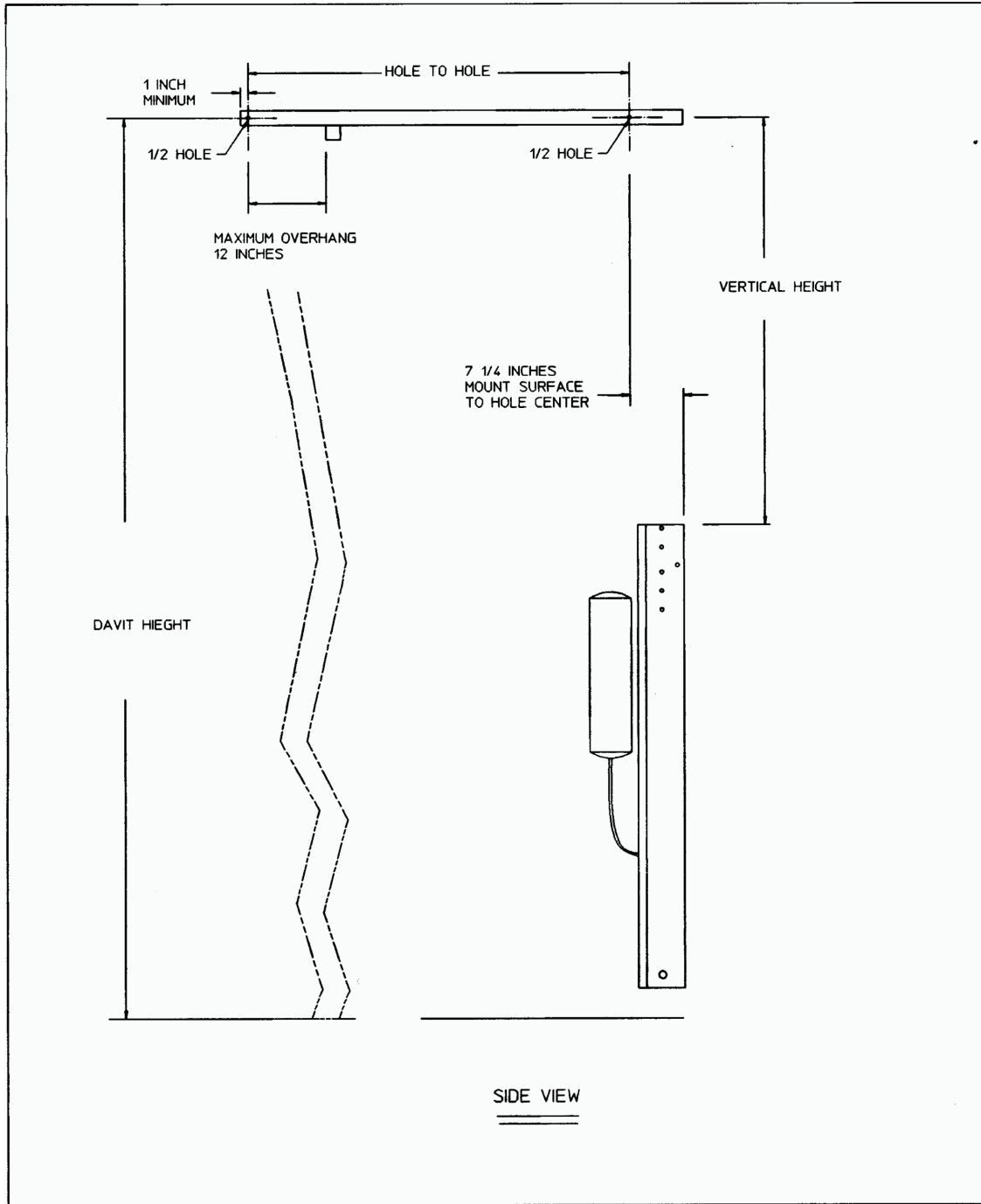


WARNING: NEVER WELD BOX WHEN INSTALLING THE BELAY IN THE BOX SYSTEM. WELDING CAN COMPROMISE METAL INTEGRITY. WELDING THE SYSTEM CAN RESULT IN INJURY OR DEATH. WELDING THE SYSTEM WILL VOID YOUR WARRANTY.





REAR VIEW OF AB-44



Step 1



Tools Needed:

1. 2 9/16" wrenches or socket and ratchet
2. 2 3/4" wrenches
3. 1 air compressor capable of 65psi or large bicycle pump (not applicable if tank is already charged).
4. 4 – 6 Quarts of Dexron III Transmission Fluid (not applicable if tank already has fluid). Inspect the sight glass on the side of the air tank to ensure fluid is inside.

Step 2

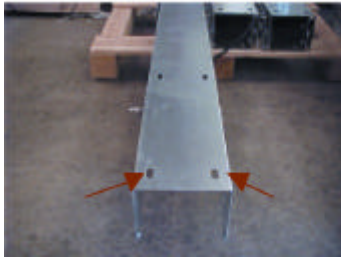
With the cable exiting out the top of the auto-belay, use six 3/8" – grade 5 bolts with flat washers and lock nuts to secure the box to the mounting structure.



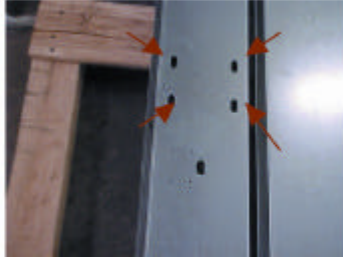
WARNING: Ensure that your mounting structure is structural enough to support the belay in the box's weight.

Step 3

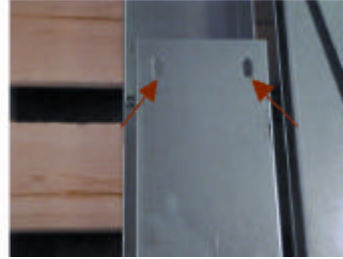
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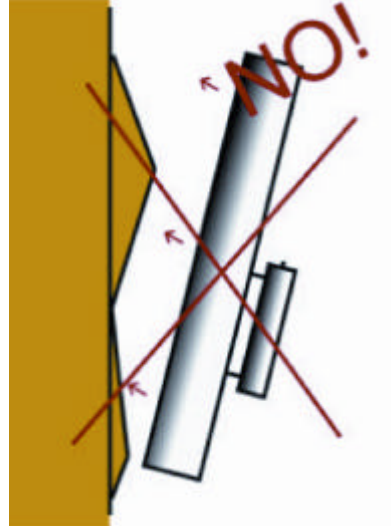
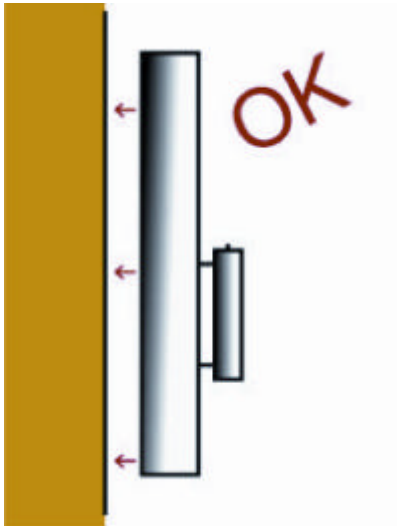


1c.



Use the ½ slotted holes at each end of the box, and either set of slotted holes near the center of the box to mount your auto-belay system (see photos for slot locations).

Step 4



In order for the belay box to work properly it has to be mounted perpendicular to the ground.



NOTE: Make sure the auto-belay system is mounted in the upright position. The upright position is where the cable retracts out of the system.

Step 5

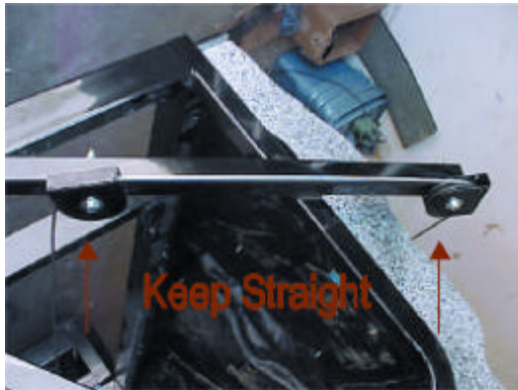
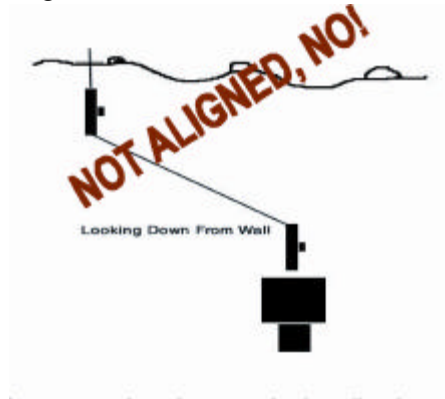


Fig A



When mounting the davit, it is extremely important that the rear davit pulley is aligned with the exit pulley in the belay box. If the pulleys are not aligned properly there will be excessive wear on both the pulleys and the cable (look at Fig A).



WARNING: MISALIGNING PULLEYS CAN CAUSE IMPROPER OPERATION RESULTING IN INJURY OR DEATH.

Step 6



The pulley shields are designed to be mounted on 2" square stock. The pulley mounting holes will need to be a 1/2" hole drilled in the center of the davit. The outer mounting hole should be 1" from the end of the davit. It is important when mounting the davit pulleys and pulley shields to use 1/2" – grade 5 bolts with flat washers and lock nuts (review page 17 for details on stock).

Step 7



Once the belay box, tank and davit are completely installed, pressurize system (if applicable). **60 to 65 PSI for a 34FT auto-belay. 70 to 75 PSI for a 44FT autobelay.**

Step 8

Before climbing, cycle the belay box system by pulling up and down on the cable until it stops then let the cable retract at least seven feet. Do this 10 times to eliminate any possible air bubbles in the system. It is advisable that on the first climb after installation, the climber should only go up to a maximum height of 8 or 10 feet to insure everything is working properly.

Congratulations you're finished installing your auto-belay system!!

Make sure that you have an anchor bolt attached to the surface of your existing wall for the auto-belay's cable to click in (this will prohibit the cable from going in the up position). Please make sure you go over the maintenance log and the troubleshooting portion of the manual (listed below) before climbing. Enjoy, be safe, and have fun!!

Maintenance

Your auto-belay system will give you years of trouble-free service if you take care of it. For safety, trouble-free operation and good appearance, follow the maintenance schedules provided here.

Log Book

A logbook is essential for tracking the use of the auto-belay system. If you record the date, number of daily cycles, and number of cumulative cycles, this record will allow you to anticipate when some maintenance tasks (such as replacing an auto-belay cable) should occur.

Maintenance procedures and inspection logs

Read the inspection procedures on the following pages. Be sure to use copies of the inspection checklists provided in this manual to keep a record of your inspections.

Detailed description of inspection items

Inspect the climbing wall thoroughly before you use it! Your safety during setup and your climbers' safety depend on it!



NOTE: USE THIS CHECK LIST EVERYTIME BEFORE AN EVENT WHEN RUNNING THE AUTO-BELAY SYSTEMS!!

DAILY CHECKLIST

- **Auto-belay cable**

Check the cable for fraying, broken strands, kinks, wear or damage. Run your hands along the entire length of the cable, checking for a wavy or uneven feel to the cable. We recommend wearing leather gloves when checking the cable. If you hit a broken strand or frayed section of cable, it can hurt your fingers!



WARNING: REPLACE AUTO-BELAY CABLE EVERY 12 CALENDAR MONTHS FROM DATE OF PURCHASE OR IF ANY SIGNS OF FREYING, LOOSE WIRES, LOOSE TERMINATIONS, AND/OR CABLE DAMAGE OF ANY KIND. WORN OUT OR OLD CABLES CAN RESULT IN INJURY OR DEATH.

For directions replacing your cable refer to **page 4** in the manual.



WARNING: Always replace any suspect cable. This is absolutely critical for safe operation! If you suspect that a cable is damaged, or are not sure, call Customer Service for assistance before operating the system.

- **Auto-belay pulleys**

Make sure the cables are traveling through the pulleys without binding.

Make sure all the pulleys are turning smoothly and are not worn.

- **Auto-belay system**



WARNING: Ensure that all fasteners, fittings, clips, pins, etc., are in place and secure. Failure to do so could result in serious injury or death.

Inspect the auto-belay system thoroughly for wear in the pulleys or cables. Call Customer Service for assistance in ordering and replacing pulleys or cables. Replace lock nuts after any auto-belay servicing.

Make several climbs on the surface of the wall. Be sure that the cables retract smoothly, and your descent is smooth, without any halts or jerky motion.

Prime the auto-belay system by pulling down on the cable various times to eliminate any possible air bubbles in the system.

- **Hydraulic Hose**

Thoroughly check system for signs of leaking, inside and outside. Make sure the hose isn't leaking. If you find a leak, call Customer Service for assistance at 916-663-1560.

- **Air Tank**

Make sure the pressure in the air tank is at the correct pressure, 60 to 65 PSI (AB34) or 70 to 75 PSI (AB44) with the cable extended, or as otherwise marked on the tank.

Never recharge (add air pressure) tank without checking fluid level.

- **Fluid**

Fluid Levels:

AB-34	4 QTS minimum for safe operation 6 QTS recommended
AB-44	6 QTS minimum for safe operation 8 QTS recommended

Fluid Type: Dexron III or Mercon ONLY

There are three ways to check the fluid level:

1. Relieve all air pressure. Use a dipstick type device to determine level (6 QTS = Tank ½ Full).
2. Apply "Freeze Spray" to outside of tank. Locate level by determining where frost line is.
3. Apply adhesive fluid level indicator and use hot water method to determine level.

- Site

Clean all oil and debris from operation site.

All landing pads (if used) must be clean and free of any trip or slip hazards.

- Equipment

Use only steel carabiners with triple action. Carabiners must be replaced if full closing action is hampered.

Use only Speed Harnesses™ (one size fits all).

Cleaning and other special care

- **Auto-belay system**

We recommend Windex and a clean rag on the outside of the box. Inside components can be wiped down with Windex as well.

Protection from the elements

- Your auto-belay system is designed to be handled outdoors or indoors. We recommend that you make sure the system is kept clean from long periods of dirt and dust.

- - - **CALL THE FACTORY FOR ASSISTANCE IN TROUBLESHOOTING** - - -

SAFETY RULES

CLIMBING WALL WITH THE BELAY IN THE BOX SYSTEM

CLIMBER RECOMMENDATIONS

- Must weigh 45 minimum, 250 maximum to wear climbing harness.

BEFORE YOUR CLIMB STARTS

- After you are hooked into your harness, stay in the harness area. Wait until we tell you to go to the climbing area.
- Don't step on the Auto-Belay™ cable while you wait to start.

DURING YOUR CLIMB

- Stay on the climbing route for your station.
- Don't cross over to put yourself directly beneath or above other climbers.
- Don't climb without shoes or a top.
- Don't climb beyond the wall top. Don't go beyond chest-height to the wall top.

DURING YOUR DESCENT

- Don't kick off more than 6 or 8 feet from the wall.
- Rappel straight down, and don't swing too close to other climbers.
- Be alert for other climbers beneath you, who may have strayed from their routes.

AT THE END OF YOUR CLIMB

- When you are lowered to the ground at the end of the climb, land on your feet.
- After your climb is complete, wait for us to unhook you.
- Once you have been unhooked, go to the harness area where we will remove your harness. Please do not try to remove the harness yourself.

This Page May Be Duplicated

Special Situations

The vast majority of climbs take place without any difficulty or interruption, but sometimes a problem can occur. Here's what to do:

Climber frozen at top

1. Ask the climber to stay calm. Say that you are going to come up and help the climber down.
2. Put on a harness.
3. As the climber next to the frozen climber finishes climbing, clip into the auto-belay cable and climb the wall.
4. When you reach the frozen climber, show the climber the climbing holds to climb down.



NOTE: Encouraging the climber to rappel down generally will not work.



WARNING: NEVER FREE CLIMB THE CLIMBING WALL!! FAILURE TO DO SO CAN RESULT IN INJURY OR DEATH.

Climber reports discomfort

1. Ask the climber to stay calm. Ask if the climber is comfortable rappelling down. If so, then ask the climber to do so. (If not, follow the procedure for "Climber frozen at top" above.)
2. If the problem is with the comfort of the harness, then adjust the harness, and let the climber begin his or her climb again.
3. If a climber is unable to resume for whatever reason, unhook and send hi or her back to the harness area.

Climber is intentionally reckless

1. Ask the climber to take it easy. Choose one of the following options if he or she persists:
 - a. If you do not believe adjacent climbers would be endangered, tell the reckless climber to rappel down or climb down now; or
 - b. If you believe other climbers might be endangered, tell the reckless climber to freeze at their position, and ask the other adjacent climber to rappel down first (you can let them restart once the reckless climber is removed from the wall). Then, tell the reckless climber to either rappel down or climb down.

2. Unhook and send the climber to the harness area.

Climber too light to rappel down

1. Ask the climber to stay calm.
2. Put on a harness.
3. As the climber next to the frozen climber finishes climbing, clip into the auto-belay cable and climb the wall.
4. When you reach the climber, grab his or her auto-belay cable. Then your weight and the climber's weight will cause both of you to rappel down.
5. You can also prevent going up to the light climbers by attaching rope and a carabiner to the gear loops of the harness and pull down on the rope, forcing the climber to come down safely.

Auto-belay cable retracts to top of wall

1. Put on a harness.
2. Clip onto another available auto-belay cable and climb the wall.
3. Grab the loose auto-belay cable and bring it down. When you get to the bottom, attach it to a bolt hanger at the bottom of the wall.

Specifications for Belay in the Box™ auto-belay system

BELAY IN THE BOX™ AUTO-BELAY SYSTEM	
Hydraulics	Hydraulics are fully redundant and fail-safe. Heavy-duty weld hydraulic cylinders. 1 1/2" cylinder. Dual check valves, cylinders and hydraulic hoses.
Air tank pressure	AB-34 = 60 to 65 PSI, or as otherwise marked on tank, with the cable fully extended. AB-44 = 70 to 75 PSI, or as otherwise marked on tank, with cable fully extended.
Belay in the Box™ system	Redundant air/oil (pneumatic over hydraulic). Pulleys of top quality engineering-grade polymers. Certified 7,000 lb tensile test cable, with integral swivel. Pulley shields are stainless steel and cover moving parts. US Pat# 6,390,952
Climber capacity	1 climber per auto-belay system
Weight Limit	Recommended weights are 45-250 lbs.
Belay in the Box™ dimensions	AB-34 = 8 feet long X 6 inches wide X 13 inches tall. AB-44 = 10 feet long X 6 inches wide X 13 inches tall.
Unit Weight	AB-34 = approximately 150 lbs. AB-44 = approximately 170 lbs.

Limited Warranty

EXTREME ENGINEERING® warrants to the first consumer purchaser that this product will be free from defective workmanship and materials, subject to the following conditions:

1. Extreme Engineering® agrees that it will, at its option, either repair or replace a defective part or will, at its option, repair or replace the defective product, at no charge to the purchaser for *labor* for a period of ninety (90) days, in house, from date of delivery, and at no charge to the purchaser for *parts* for a period of one (1) year from date of delivery (shipping and handling cost may apply). Warranty does not include consumables (harnesses, handholds, cables, pulleys, etc.) We have a 90-day warranty on electronics, 30-days on labor, 90-day on parts. AutoBelay™ systems are warranted for the original purchaser(s) for one year (does not include AutoBelay™ cables or pulleys).
2. This limited warranty is valid only when the product is installed, operated, and maintained in accordance with the Extreme Engineering® User's Guide. Any deviation from these recommended procedures must be approved in writing by Extreme Engineering®.
3. This limited warranty does not apply to any part which has been subjected to misuse, abnormal service or handling, or which has been altered or modified in design or construction.
4. This limited warranty does not apply to changes in the exterior appearance of the climbing wall.
5. Neither the sales personnel of the seller nor any other person is authorized to make any warranties other than those described herein, or to extend the duration of any warranties beyond the time period described, on behalf of Extreme Engineering®.
6. ANY IMPLIED WARRANTIES ARE LIMITED TO THE DURATION OF THIS LIMITED WARRANTY, AS STATED ABOVE. EXTREME ENGINEERING DOES NOT ASSUME RESPONSIBILITY FOR CONSEQUENTIAL DAMAGE OR LOSS, INCLUDING LOSS OF USE OF VEHICLE, LOSS OF TIME, INCONVENIENCE, EXPENSE FOR GASOLINE, TELEPHONE, TRAVEL, LODGING, LOSS OR DAMAGE TO PERSONAL PROPERTY, OR LOSS OF REVENUES. Some states do not allow limitations on how long an implied warranty lasts or limitations on

consequential damages, so the above limitation may not apply to you.

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If you have a warranty claim

In the event of a warranty claim, contact the Extreme Engineering® Customer Service Department, 9198-B Ridge Road, Newcastle, CA 95658. The telephone number is 916/663-1560. The fax number is 916-663-9249.

Warranty claim service must be performed as approved by the Extreme Engineering® Customer Service Department. Warranty replacement hardware systems and components or parts will be furnished freight prepaid. Labor cost to repair or replace will be limited to the amount of the original purchase price of the systems and components. The replaced warranty products or parts become the property of Extreme Engineering® and must be returned to the Extreme Engineering® Customer Service Department freight prepaid, unless prior arrangements have been made.

Replacement parts

Purchase your replacement parts through our customer support center at 916/663-1560 or visit our online store at www.extremeengineering.com Always make sure that your extreme products are running at optimal performance

Customer Service

You can always reach us for help with problems. Contact Extreme Engineering® using one of the following methods.

By phone:	916/663-1560
By e-mail:	info@extremeengineering.com
By fax:	916/663-9249
By mail:	Customer Service Extreme Engineering® 9198-B Ridge Road, Newcastle, CA 95658

Thank you for purchasing an Extreme Engineering® product!