



FOR MODEL NUMBER MSD63X / MSD64X

OWNERS MANUAL

SENTINEL™ SERIES/ BOAT CREW DRY SUITS

MOBILITY BASED SIZING™

In order to take your measurements correctly and select the appropriate size, please follow the instructions provided on our website at:

www.mustangsurvival.com/mobility

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DESCRIPTION

MSD63X SENTINEL™ SERIES – LIGHTWEIGHT BOAT CREW DRY SUITS **MSD64X SENTINEL™ SERIES – HEAVY DUTY BOAT CREW DRY SUITS**

The Sentinel™ Series Boat Crew Dry Suits are waterproof & breathable constant wear boat crew dry suits ideal for Law Enforcement and Search and Rescue (SAR) small boat operations where crew members don't intend to enter the water but require hypothermia protection in case of accidental immersion.

Optimizing fit, comfort and functionality are extremely important, especially when a poorly fitted suit can impede on a mission's efficiency and your safety. Validated by NAVAIR and the SAR Model Manager Office, Naval Special Warfare, and swift water and ice rescue instructors and trainers, our Sentinel™ Series is designed to be compatible with all types of equipment used in these environments.

- Military grade GORE-TEX® BD6.5 waterproof & breathable dry suit fabric
- Mobility Based Sizing™ offers semi-custom size fits without the custom price tag, reducing bulk and while increasing range of motion
- YKK™ Aquaseal zipper entry and relief openings for both male and female. More comfortable, easier to operate and less maintenance required than traditional dry zippers
- Two-point attachment removable suspender system for an improved fit, mobility and comfort
- Rapid Repair Technology™ enables users to self-replace neck and wrist seals and repair small leaks in an hour or less
- 2 Layer design for increased durability (MSD64X Series Only)
- CORDURA® reinforced elbows, and wrist and leg over cuffs
- Ballistic nylon reinforced knees and seat
- 5mm neoprene knee pads help prevent injury
- Integrated GORE-TEX® dry socks
- Multi-position fleece lined storm collar for improved protection and comfort
- 2 chest hand warmer pockets (accessible even while wearing a PFD)
- 1 calf pocket with neoprene survival hood attachment (survival hood sold separately)
- 2 arm pockets and 2 thigh cargo pockets
- Large leg and wrist over cuffs have Velcro® closures for adjustability
- 62 square inches of SOLAS retro-reflective tape for increased visibility
- Duty belt keepers at the waist

The Sentinel Series Boat Crew Dry Suits are easily donned/doffed by the wearer using the diagonal entry zippers across the torso and wearer's left shoulder and includes relief zippers. Customized fit can be achieved through adjustment of the internal suspenders to modify trunk length for improved range of motion.

Every Sentinel Series Boat Crew Dry Suit produced by Mustang is leak tested to ensure waterproof integrity prior to leaving our factory. All suits are 100% tested to ensure the highest level of reliability and performance.

WARNING: DRY SUITS ALONE PROVIDE INADEQUATE PROTECTION FOR EXTREME CLIMATE DIFFERENCES. ALL USERS SHOULD WEAR APPROPRIATE WICKING THERMAL UNDERGARMENTS TO PREVENT HYPOTHERMIA (IN COLD CLIMATES) AND MOISTURE WICKING UNDERGARMENTS TO PREVENT HEAT STROKE (IN WARM CLIMATES).

WARNING: DRY SUITS ARE NOT INHERENTLY BUOYANT. ALL USERS SHOULD WEAR APPROPRIATE FLOTATION DEVICES WITH THE DRY SUIT. WATER RESCUE AND MARITIME LAW ENFORCEMENT ARE INHERENTLY DANGEROUS. USERS SHOULD BE AWARE OF RISKS ASSOCIATED WITH THESE TYPES OF MARINE OPERATIONS AND COMPLETE TRAINING IN THE USE OF MARINE OPERATIONS EQUIPMENT AND TECHNIQUES.

SENTINEL™ SERIES SIZING GUIDE

Exclusively available for the Sentinel™ Dry Suits, we introduce the industry's newest improved fitting platform designed specifically for dry suit users for tactical, rescue or special operations.

Based on more than two years of extensive anthropometric research, range of motion testing and user evaluations, Mobility Based Sizing™ offers users a semi-custom suit that reduces bulk and increases range of motion without the expensive custom price tags or long lead times.

The Mobility Based Sizing™ platform is like none other currently in the industry.

There are 24 sizes available. To order a suit that fits you best, please follow the instructions provided on our website at:

www.mustangsurvival.com/mobility.

	EXTRA SMALL	SMALL	MEDIUM	LARGE 1	LARGE 2	EXTRA LARGE	DOUBLE EXTRA LARGE	TRIPLE EXTRA LARGE
SHORT	XSS	SS	MS	L1S	L2S	XLS	XXLS	3XLS
REGULAR	XSR	SR	MR	L1R	L2R	XLR	XXLR	3XLR
LONG	XSL	SL	ML	L1L	L2L	XLL	XXLL	3XLL

INSTRUCTIONS FOR USE

This manual supplies instructional, maintenance and safety information for the Sentinel Series Boat Crew Dry Suits.

CCS™ ADJUSTABLE NECK SEAL (IF EQUIPPED)

Mustang's patented Closed Comfort System CCS™ can be worn loose to provide comfort out of the water and can quickly be drawn tight to keep the water out. The adjustable seal also provides increased durability compared to traditional latex seals and allows the suit to be worn by multiple users without compromising waterproof integrity.

CAUTION: THE CLOSED COMFORT SYSTEM NECK SEAL (CCS™) MUST BE FULLY CLOSED TO PREVENT WATER INTAKE.

1. The CCS™ neck seal can be worn loose for comfort, but whenever there is a risk of accidental immersion the neck seal should be closed enough so that there aren't any gaps between the neck seal and the wearer's neck.
2. To close, pinch the toggle while pulling the elastic drawstring away from the neck. For maximum effectiveness the neck seal should be adjusted to be snug, but not uncomfortably tight
3. Once the neck seal has been drawn tight, the Velcro® tabs can be attached to keep the elastic out of the way.
4. To loosen, insert fingers between the neck and the neck seal while pinching the toggle. Then gently pull on the neck seal with your fingers to loosen.

RUBBER NECK AND WRIST SEAL FITTING (IF EQUIPPED)

The Rubber Neck Seals and Wrist Seals may be trimmed at the initial fitting, but the seals tend to adjust to the wearer after a short period of time. If no excessive seal restriction exists, and seal fit is acceptable to the user, the seals should be left as is. Neck seals shall fit snugly and remain in direct contact with the neck through all normal head movements. Wrist seals shall fit tightly enough to prevent water entry, but not tight enough to restrict blood flow. If seal sizing is required, proceed as follows:

CAUTION: TRIM NECK SEALS WITH EXTREME CAUTION. A SMOOTH TRIM LINE IS ESSENTIAL. EXCESSIVE OR CARELESS TRIMMING COULD RESULT IN LOOSE SEALS THAT LEAK AND NECESSITATE REPLACEMENT. AVOID NICKING SEAL FABRIC, AS THIS COULD RESULT IN TEARING THE SEALS WHEN DONNING AND DOFFING, AND ALSO COULD RESULT IN SKIN IRRITATION. TRIM ONLY 1 RING AT A TIME. YOU CAN ALWAYS TRIM MORE, BUT YOU CAN'T REPLACE WHAT YOU HAVE CUT OFF.

1. If neck seal trimming is necessary, turn the neck seal inside-out so you can see the rings running parallel down the gasket around the circumference of the neck seal.
2. Trimming only one ring at a time carefully cut between the rings with a very sharp pair of scissors.
 - i) An alternative method is to place the neck seal inside-out, so the trim rings are facing out, over a large metal coffee can and carefully cut between the rings using a very sharp razor blade (x-acto knife or utility knife style).

NOTE: VISUALLY INSPECT THE TRIMMED EDGE FOR NICKS. IF THE CUT IS NOT SMOOTH AND STRAIGHT CAREFULLY TRIM OUT ANY NICKS. NICKS CAN CAUSE A TEAR DURING DONNING AND DOFFING

3. Check for fit and if necessary repeat steps 1 & 2 until there is a proper fit.
4. Trim wrist seals in same manner as neck seals using very sharp scissors.
 - i) An alternative method is to place the wrist seal inside-out, so the trim rings are facing out, over a metal soup can (10.5 - 15 oz can) and carefully cut between the rings using a very sharp razor blade (x-acto knife or utility knife style).
5. After trimming seals, have the user don the suit to determine seal restriction and water-sealing characteristics. Make any additional adjustments to the seal.

NEOPRENE NECK AND WRIST SEAL FITTING (IF EQUIPPED)

The neoprene seals should only be trimmed if they are unreasonably tight and restrict blood flow. The below chart indicates the target body dimensions for the standard neoprene seals. The seals are designed to fit the individuals with the smallest measurements. If your neck and/or wrist is larger than the target dimensions, you will likely have to trim your seals. If your measurements are better suited to another size, you can order a Rapid Repair replacement kit in the appropriate size.

SUIT SIZE	TARGET NECK CIRCUMFERENCE		TARGET WRIST CIRCUMFERENCE		RAPID REPAIR REPLACEMENT KIT	
	INCH	CM	INCH	CM	NECK SEAL	WRIST SEAL
XS	12"	30.5CM	5.75"	14.6CM	RE0007-XS	RE0009-S
S	13.25"	33.6CM	5.75"	14.6CM	RE0007-S	RE0009-S
M-L2	14.25"	36.2CM	6.25"	15.9CM	RE0007-M	RE0009-M
XL-XXXL	15.25"	38.7CM	6.75"	17.1CM	RE0007-L	RE0009-L

If seal trimming is required, proceed as follows:

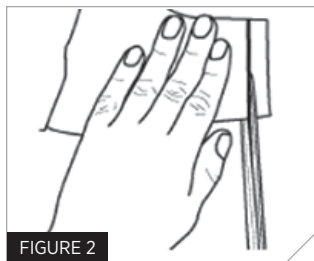
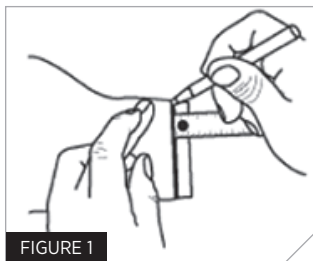
CAUTION: TRIM SEALS WITH EXTREME CAUTION. A SMOOTH TRIM LINE IS ESSENTIAL. EXCESSIVE OR CARELESS TRIMMING COULD RESULT IN LOOSE SEALS THAT LEAK AND NECESSITATE REPLACEMENT. AVOID NICKING SEAL FABRIC, AS THIS COULD RESULT IN TEARING THE SEALS WHEN DONNING AND DOFFING, AND ALSO COULD RESULT IN SKIN IRRITATION. TRIM ONLY 1/8" AT A TIME. YOU CAN ALWAYS TRIM MORE, BUT YOU CAN'T REPLACE WHAT YOU HAVE CUT OFF.

Required materials: Ruler, sharp scissors and a white china marker or silver pen.

NOTE: ONLY NEOPRENE SEALS CAN BE TRIMMED USING THIS PROCEDURE.

1. Trim only 1/8" at a time to a maximum of 1". Using a ruler, mark a circular line around the seal that is offset from the edge of the cuff end by 1/8".
2. Using sharp scissors carefully cut the cuff end at the marked line. Evaluate the fit and repeat step 1 & 2 until there is a proper fit.

NOTE: VISUALLY INSPECT THE TRIMMED EDGE FOR NICKS.



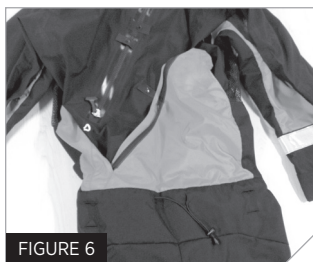
IF THE CUT IS NOT SMOOTH AND STRAIGHT CAREFULLY TRIM OUT ANY NICKS. NICKS CAN CAUSE A TEAR DURING DONNING AND DOFFING.

3. After trimming the seals, have the user don the suit to determine seal restriction and water-sealing characteristics. Make any additional adjustments to the seal.

ATTACHING SUSPENDERS

To attach suspenders please follow the instructions below. The removable suspenders can be used to improve fit, lower in-water resistance and reduce rescuer fatigue. Suspenders can be adjusted to a comfortable and secure position.

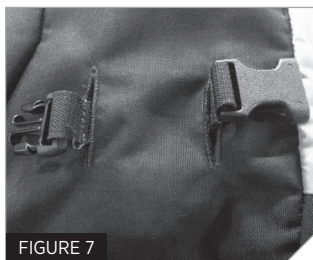
1. Completely unzip the entry zipper.
2. Open the suit so that the two attachment points are visible.
3. Thread the end of the nylon strap attached to the suit through the rectangular clip on the suspenders.
4. Once the nylon strap has been threaded, flare the sewn folds on the strap to prevent it from passing back through the rectangular clip.
5. Repeat these steps for the other attachment point.
6. Use the suspender strap ends to adjust for a secure comfortable fit.



INTEGRATING THE TWO LAYERS (MSD64X SERIES ONLY)

Your Sentinel Series Heavy Duty Boat Crew Dry Suit is comprised of two distinct layers: an inner immersion layer and an outer shell. The inner immersion layer, or dry suit layer, should be treated with care as this is the layer that provides the water tight protection in case of water entry. The outer shell layer is fitted with the abrasion protection, pockets and other external features of the suit. The instructions below indicate how to integrate these two layers to prepare the suit for use.

1. Completely unzip the entry zipper of the outer shell.
2. Slide the inner immersion layer into the outer shell. Pay attention that the front of the immersion layer is facing the front of the outer shell.
3. Align the positions of the duty belt keepers on the inner immersion layer with the corresponding button holes on the outer shell.
4. Slide the duty belt keepers through the button holes of the outer shell.
5. Align the Velcro® and/or snap of the outer suit with the Velcro® and/or snap of the inner suit in the three locations along the entry zipper, one location at the end of each sleeve, and one location at the back of the neck.
6. Ensure that the sleeves of the inner immersion layer are not twisted inside the suit.
7. The two layers are now integrated and the suit is ready for use.



DONNING & DOFFING THE DRY SUIT

Before donning the suit, ensure that appropriate undergarments have been selected for the conditions.

CAUTION: ALWAYS DON THE DRY SUIT ON A CLEAN SURFACE SUCH AS A TOWEL OR TARP TO AVOID ATTRACTING DEBRIS. PEBBLES, SAND, DIRT AND OTHER DEBRIS ON THE GROUND CAN CAUSE DAMAGE TO DRY SUIT SOCK AND COMPROMISE THE SUIT'S INTEGRITY.

CAUTION: USE EXTREME CARE WHEN DONNING THE DRY SUIT. PRIOR TO DONNING, REMOVE ALL RINGS, WATCHES, EARRINGS, NECKLACES AND EYEGASSES THAT WILL CAUSE DAMAGE TO WRIST AND NECK SEALS. FOOTWEAR OTHER THAN SOCKS MUST NOT BE WORN INSIDE THE DRY SUIT.

SUIT PREPARATION PRIOR TO DONNING

1. Ensure that the Velcro® wrist covers and ankle covers are unfastened.
2. Ensure waist adjusters are loosened.
3. Ensure that both the outer shell entry zipper (MSD64X Series Only) and the waterproof entry zipper are fully opened.
4. Ensure the suspenders are pulled out of the suit legs.

DONNING THE DRY SUIT

1. Slide your legs into the suit until your toes reach the end of the socks.
2. Don the suspenders. Ensure they are crossed in back but not twisted.
3. Apply talcum powder inside wrist seals.
4. Place the right arm into the right sleeve.
5. Carefully place the right hand into the right cuff by pointing the fingers straight, tucking the thumb underneath and inserting the hand through the seal. Do not make a fist when putting your wrist through the seal. If you need to pull on the suit to get your hand through the seal pull on the suit cuff and not the seal. Pulling on the seal can lead to damage.
6. Roll the Velcro® wrist covers back and refasten to a snug fit.
7. Repeat steps 4 - 8 for the left arm.
8. Bring the upper portion of the suit over your head, aligning the neck opening with the top of the head. Reach inside the top of the neck seal with fingers and gently pull the seal outward and down as you push your head through. Flatten any folds or rolls of the seal against the skin.
9. Close the waterproof entry zipper. Reach over your left shoulder with your right hand and grasp the zipper toggle. While holding the top of the zipper, pull the toggle down until the zipper is completely fastened. Both sides of the zipper chain should remain parallel while closing to avoid zipper damage.

CAUTION: PLACING UNDUE FORCE ON THE ZIPPER MAY DAMAGE THE SEAL AND HARM THE INTEGRITY OF THE SUIT. NEVER FORCEFULLY YANK ON THE ZIPPER.

10. Ensure the waterproof relief zipper is completely closed and the slider is fully engaged with the zipper stop. Stow the zipper toggle in the yellow loop located under the zipper cover.

WARNING: FAILURE TO COMPLETELY CLOSE THE WATERPROOF ENTRY ZIPPER AND THE RELIEF ZIPPER WILL RESULT IN LEAKAGE OF WATER INSIDE THE SUIT AND REDUCTION OF SURVIVAL TIME WHEN IN THE WATER. HAVE A FELLOW TEAM MEMBER DOUBLE-CHECK EACH SLIDE FASTENER TO ENSURE THEY ARE COMPLETELY CLOSED AGAINST THEIR SEALING PLUGS.

11. (MSD64X Series Only) Close the outer shell entry zipper. Reach over your left shoulder with your right hand and grasp the zipper toggle. While holding the top of the zipper, pull the toggle down until the zipper is completely fastened.
12. Tighten the ankle Velcro® covers to a snug fit.
13. Burp the suit before water entry. Cross arms in front and gently slide fingers between the neck seal and your neck, squat down and force excess air through the neck opening.

DOFFING THE DRY SUIT

1. Remove all equipment worn over the suit.
2. Thoroughly rinse down the exterior of the suit while wearing it, paying special attention to the seals and zippers. Remove all dirt, salt and debris.
3. Loosen Velcro® waist and ankle adjustment tabs.
4. Completely open the outer shell entry zipper and the inner immersion layer waterproof zipper. If not completely open, the zippers face the risk of being damaged during doffing.

CAUTION: PLACING UNDUE FORCE ON THE ZIPPER MAY DAMAGE THE SEAL AND HARM THE INTEGRITY OF THE SUIT. NEVER FORCEFULLY YANK ON THE ZIPPER.

5. Insert fingers between neck seal and neck. Gently stretch the seal outward and upward while pulling neck seal over your head.
6. Remove hands from wrist seals by holding onto the cuff or pull tab. Point your fingers straight, tucking the thumb underneath the seal. Slowly pull your hand through the wrist seal. Do not make a fist when putting your wrist through the seal or pull on the seal. Once your hands are out the seals invert the seals back out of the suit sleeve so that they are oriented away from the suit.
7. Pull suit down past hips and slide legs from the suit.
8. Follow the cleaning and storage instructions for the suit.

CAUTION: PULLING ON THE WRIST SEAL MAY DAMAGE THE SEAL.

NOTE: IF WEARING SUSPENDERS, REMOVE SUSPENDERS PRIOR TO PROCEEDING

CLEANING AND MAINTENANCE

CLEANING

1. Thoroughly rinse your dry suit after every use.

CAUTION: DO NOT DRY CLEAN. DO NOT IRON. DO NOT BLEACH.

2. Treat stains with a pre-wash treatment such as Shout® or Spray 'n Wash®. Follow the manufacturer's instructions. Rinse well.
3. Machine wash warm (104° F/40° C) on gentle cycle using a gentle powder or liquid detergent. Do not use fabric softener, bleach or wash-in treatments, as they can affect the suit's breathability.
4. Tumble-dry using an air setting.

CAUTION: USE ONLY A FRONT LOADING WASHING MACHINE OR A TOP LOADING WASHING MACHINE THAT DOES NOT HAVE AN AGITATOR POST. WASHING MACHINES WITH AGITATOR POSTS CAN DAMAGE THE SUIT.

MAINTENANCE

Regular zipper maintenance is recommended to maintain a water-tight seal, inhibit corrosion and keep the zipper gliding freely.

These steps are essential to zipper longevity:

1. Clean the zipper of any heavy deposits of mud, sand, salt or foreign substances by gently brushing and rinsing the zipper with fresh water.
2. YYK® zippers need to be lubricated on the docking end approximately every 15-20 days of field use. One package of Molykote® lubricant is included with your suit. Only use the Molykote® lubricant.
 - a. Open the zipper to expose the W-SEAL.
 - b. Open the Molykote®, seen in **Figure 9**, by ripping the package seal.
 - c. Squeeze the package gently and apply a small amount of lubricant to the W-SEAL as indicated in **Figure 10**. Only apply to the indicated areas.
 - d. Flip over the zipper end and lubricate the back in the same highlighted areas as the front.
 - e. Close the zipper.
3. Repeat before long term storage.

CAUTION: DO NOT LUBRICATE THE ZIPPER TEETH.

NOTE: DO NOT DISCARD THE BLISTER PACKAGE. THE MOLYKOTE® LUBRICANT CAN BE STORED IN THE ZIPLOCK BAG AND REUSED.



FIGURE 9

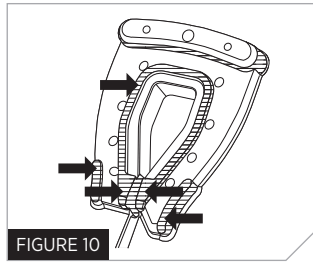


FIGURE 10

STORING THE DRY SUIT

Hang the suit with all zippers closed.

FOLDING AND PACKING

1. Ensure that the suit is thoroughly clean and dry and that the main entry zippers are in the closed position before folding and packing.
2. Lay the suit flat on its back on a horizontal, clean surface, allowing the suit to be fully extended with none of the parts overlapping.
3. Fold the left sleeve, from the shoulder, straight across the body of the suit. Fold the right sleeve, from the shoulder, straight across the body of the suit on top of the folded left arm.
4. Fold the socks over top of the legs until they reach crotch level.
5. Fold the legs, from the crotch, up to the chest level, right below the folded sleeves.
6. Fold the suit in half.
7. To pack, roll or fold the suit ensuring that the zippers do not crease.

REPAIRS

The protection provided by this dry suit relies very much on its watertight characteristics. It is extremely important that damaged suits are handled in accordance with repair requirements.

The Sentinel Series Boat Crew Dry Suits take advantage of Mustang's Rapid Repair Technology™ enabling users to self-replace neck and wrist seals and repair small leaks in an hour or less. For detailed information on repair procedures For detailed information on repair procedures please visit the below website and download the user manual: www.mustangsurvival.com/rapid-repair-technology

All major repairs should be performed by the manufacturer. For inspection, testing, and repair information, please contact our customer service department at: **1 800 526 0532** OR email custserv@mustangsurvival.com

ACCESSORIES

The following accessories are available for your Sentinel Series Boat Crew Dry Suit:

NEOPRENE SURVIVAL HOOD (PART # MA7348)

SENTINEL DRY SUIT LINER (PART # MSL600)

SENTINEL FEMALE DRY SUIT LINER (PART # MSL601)

YKK ZIPPER LUBRICANT (PART # MA0094)

SENTINEL™ SERIES BASE LAYERS (MSL602/603/604/605/606)

For more information on these items please visit www.mustangsurvival.com.

WARRANTY INFORMATION

LIMITED WARRANTY/ Mustang Survival products are warranted to be free from defects in materials and workmanship for a period of one year from the date of purchase by the initial purchaser (the Customer End user) under normal and intended conditions and use. Proof of purchase may be required at the discretion of Mustang Survival. Products, which, in the sole judgment of Mustang Survival, have received excessive or abusive use or have been altered in any way by a dealer, the Customer or any other person, will not be covered by this limited warranty.

Mustang Survival requires return of the product (postage or delivery costs prepaid by Customer) for inspection before determining whether the product will be covered under limited warranty. A return authorization is required before the goods are returned and should be obtained by contacting our Customer Service Department. Once returned, Customer Service, Quality Assurance and Sales Departments inspect the product as required. It is then determined whether the product will be covered under this limited warranty.

If the product is deemed to be covered under our warranty policy, it will either be repaired or replaced at the sole discretion of Mustang Survival at no charge to the Customer. The only obligation or liability of Mustang Survival under this limited warranty is to repair or replace the product and Mustang Survival shall not, under any circumstances be liable for loss of use or any consequential damages sustained by the Customer.

All other warranties expressed or implied, and remedies with respect to the condition or use of the product, which might otherwise be provided by law in any jurisdiction, are specifically excluded.

CONTACT

For further information concerning this manual or the suit, contact Mustang Survival:

TF 1 800 526 0532

E custserv@mustangsurvival.com



MUSTANG ENGINEERED

For 50 years Mustang Survival has been engineering high-performance marine gear for military, coast guard, and rescue personnel. With a focus on applied research and field-testing, we're committed to the protection and enhancement of those who push themselves to extremes. We build gear that saves lives and fuels exploration.

www.mustangsurvival.com

DO NOT REMOVE PRIOR TO SALE.

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