

**MUSTANG SURVIVAL**



# OWNER'S MANUAL



## **MSD575**

TACTICAL OPERATIONS DRY SUIT

## **MSD575 WR**

WATER RESCUE DRY SUIT

## **MSD585 AS/LS**

BOAT CREW DRY SUIT

**WE SAVE LIVES FOR A LIVING**

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Patent Information:

US Patent No. 6,668,386 Canadian Patent No.2,381,720 and other Patents Pending

## DESCRIPTION

### MSD575 - Tactical Operations Dry Suit

The MSD575 is specially designed for over-water and waterborne tactical operation teams that require an abrasion resistant, durable dry suit. The breathable GORE-TEX® is supplemented with Kevlar® patches on arms and legs to protect against abrasion in the areas that are affected by vertical insertion from a helicopter (i.e. fast roping). Cushioned patches on the knees and elbows add additional protection and comfort during tactical maneuvers. The integral neck pad protects the adjustable neck seal and reduces chafing and discomfort often associated with tactical vests or harnesses typically worn during operations.

The suit's internal suspender system provides an almost "custom fit" over the range of sizes, limiting the bulkiness associated with "one-size-fits-all" dry suits. The patented adjustable neck seal and neoprene wrist seals provide a comfortable yet fully functional fit for surface or over water operations. In the event of water entry, the adjustable neck seal can be drawn tight to prevent water entering the suit. These seals also provide increased durability compared to traditional latex seals resulting in lowered life-cycle maintenance costs. A diagonal waterproof entry zipper and horizontal waterproof relief zipper ensure easy entry and crew comfort during extended operations.

### MSD575 WR - Water Rescue Dry Suit

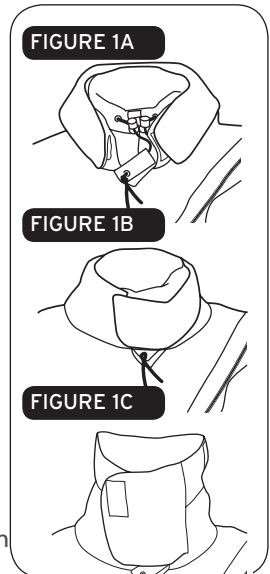
The MSD575 WR is a traditional fitting, durable dry suit designed for rescuers who face the challenge of moving water and urban flooding. The suit combines the robustness of Mustang's Tactical Operations Dry Suit, with the high visibility and padding needed in a swift water or urban search and rescue (USAR) environment. The breathable GORE-TEX® is supplemented with Kevlar® patches on hip, knees, arms and cuffs to provide extreme abrasion and puncture resistance against rocks and debris.

The suit's internal suspender system provides an almost "custom fit" over the range of sizes, ensuring maximum mobility. 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. The diagonal waterproof entry zipper and horizontal waterproof relief zipper ensure easy entry and crew comfort during extended operations.

### MSD585 AS/LS - Boat Crew Dry Suit

The MSD585 offers enhanced protection while providing the comfort and functionality needed for marine operations. Made of lightweight waterproof, breathable GORE-TEX®, the MSD585 includes internal suspenders for a near custom fit.

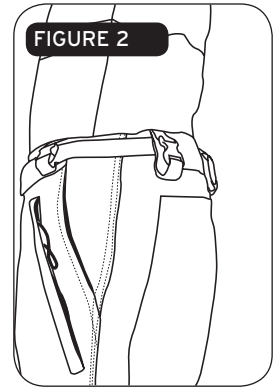
Fleece lined hand warmers offer relief for cold, wet hands and the adjustable storm collar protects against rain or sea spray and can be folded out of the way when not in use (Figures 1A-C). Elbows, knees and seat are



reinforced with 500-Denier Cordura® and reflective tape on the arms increases visibility.

The MSD585 offers plenty of storage with a large sleeve pocket and two deep cargo pockets that provide easy access to equipment. A pocket on the back calf can be used to store a thermal hood and easy-clip belt keepers stabilize duty belts and gear without the hassle of an over the shoulder harness (Figure 1).

The Boat Crew Dry Suit is available with either Mustang's Closed Comfort System (CCS™) adjustable neck seal (MSD585 AS) and a latex trim-to-fit neck seal (MSD585 LS).



**Note: Dry suits alone provide inadequate protection for extreme climate differences. All users should wear appropriate thermal undergarments to prevent hypothermia (in cold climates) and moisture wicking undergarments to prevent heat stroke (in warm climates).**

### Dry Suit Features Comparison Chart

Features / Products	MSD575	MSD575 WR	MSD585 AS	MSD585 LS
GORE-TEX Waterproof Breathable	X	X	X	X
Abrasion Patches	X	X	X	X
Adjustable Internal Suspenders	X	X	X	X
Trim to Fit Neoprene Cuffs	X	X	X	X
CCS™ Adjustable Neck Seal	X	X	X	
High Visibility Colours		X	X	X
SOLAS Reflective Tape		X	X	X
Relief Zipper	X	X	X	X
3-way Modular Collar			X	X
Fleece Lined Hand Warmers			X	X
Cargo Pockets			X	X
Law Enforcement Belt Keepers			X	X

**WARNING: Dry suits are not inherently buoyant. All users should wear appropriate flotation devices with the dry suit. Water rescue is inherently dangerous. Users should be aware of risks associated with water rescue and complete training in the use of water rescue equipment and techniques.**

## INSTRUCTIONS FOR USE

This manual supplies instructional, maintenance and safety information for the MSD575, MSD575 WR, and MSD585 AS/LS unless specified otherwise.

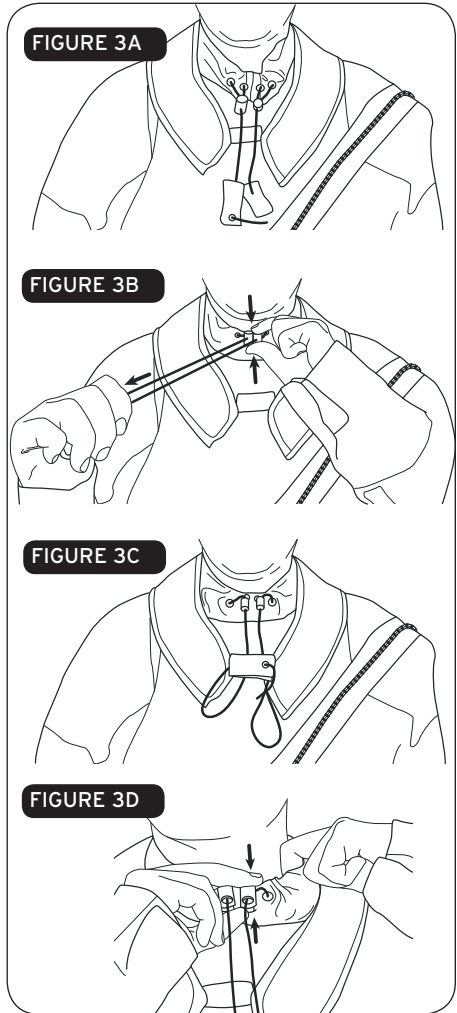
### NECK SEALS AND WRIST FITTING

#### Neck Seal Instructions

**CAUTION: The Closed Comfort System Neck Seal (CCS™) must be fully closed to prevent water intake.**

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.

1. The (CCS™) neck seal can be worn loose for comfort (Figure 3A).
2. To close, pinch the toggles while pulling the elastic drawstring away from the neck (Figure 3B). For maximum effectiveness the neck seal should be adjusted to be snug, but not uncomfortably tight (Figure 3C).
3. Once the neck seal has been drawn tight, the velcro tabs can be attached to keep the elastic out of the way (Figure 3C).
4. To loosen, insert fingers between the neck and the neck seal while pinching the toggles. Then gently pull on the neck seal with your fingers to loosen (Figure 3D)



#### Wrist Seal Trimming Instructions

The suit comes equipped with neoprene wrist seals that have a tapered sealing surface. This tapered end allows you to modify the size of the cuff opening to match the physical characteristics of your hand and wrist. Trimming the end of the seal increases the diameter of the end opening, allowing a larger wrist to be inserted and sealed comfortably without damaging the wrist seal.

**Required materials: Tape measure, sharp scissors**

When trimming, use a very sharp pair of scissors with no nicks. Make a small incision in the side of the ring and continue cutting around the ring until you make a clean cut. Any little nicks can cause a tear when stretching the seal. Be conservative with your measurements. You can always cut more but you cannot add back!

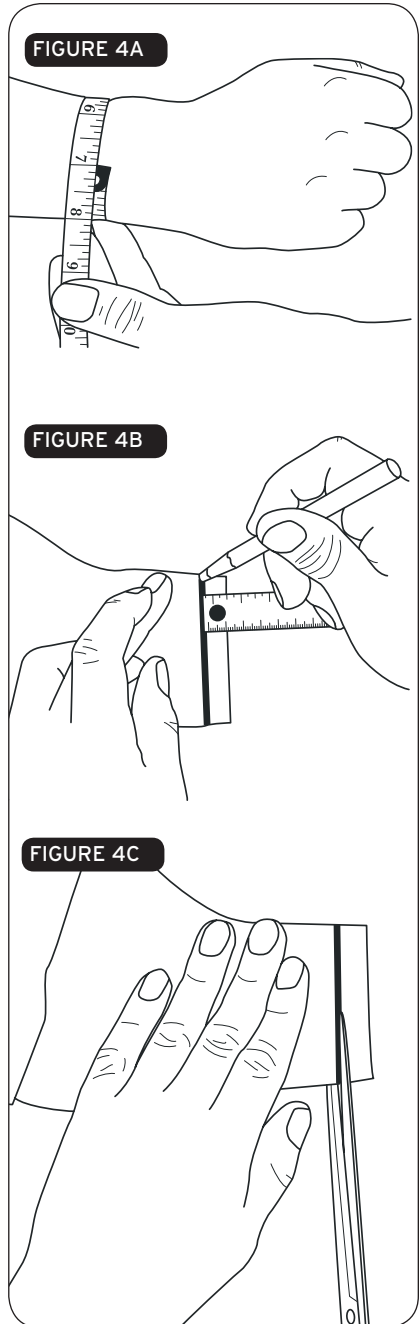
Users with unusually boney wrists should try to make the wrist seal fit properly further up the arm where the sealing surface is smooth. Once the wrist seal is trimmed, it may not provide an adequate seal for a smaller wrist.

The trim table below details recommended "Trim Off" lengths relative to wrist size. To ensure a watertight seal that provides safety, the fit should be tight without cutting off circulation to your hand. Don't cut off more wrist seal than recommended, otherwise the safety provided may be compromised.

1. Use a tailor's measuring tape or other device to determine each wrist circumference [Fig 4A]. Measure just above the wrist joint towards the elbow. Left and right wrist sizes may vary. Measure again to confirm.
2. Refer to the trim table below to determine the recommended "Trim Off" amount. E.g.: a wrist size of 7" requires approximately 1/2" be trimmed from the cuff end.

Trim	Wrist Size
0"	5 1/2" - 6"
1/4"	6 1/2"
1/2"	7"
3/4"	7 1/2"
1"	8"

3. If wrist circumference is 6" or less, try on the cuff "as is" to gauge the comfort and seal provided. Continue with trimming only if required.



4. If trimming is required, mark a circular line around the cuff that is offset from the original cuff end by the recommended "Trim Off" amount [Fig 4B].
5. Using sharp scissors, or a razor, carefully cut the cuff end at the marked line [Fig 4C]. Evaluate the fit and comfort after each cut. Apply talcum powder to your hand and wrist to make donning the cuff much easier. Don the sleeve by pointing the fingers straight, tucking the thumb into the palm and inserting the hand through the seal. Do not make a fist when putting your wrist through the seal. Forcing the wrist through a cuff that is too small may tear the cuff end open.
6. If further trimming is required, shorten the cuff end 1/8" at a time until the optimum balance of fit and comfort is achieved. It is not recommended to exceed the original cut by more than 1/2"
7. To maximize the protection provided by the wrist seals, try to minimize flexing of the wrist when in the water.

## **DONNING THE SUIT**

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

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**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.**

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**CAUTION: Use extreme care when donning the dry suit. Prior to donning, remove all rings, watches, earrings, necklaces and eyeglasses that will cause damage to wrist and neck seals. Footwear other than socks must not be worn inside the dry suit.**

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### **Suit Preparation Prior to Donning**

1. Loosen the neck seal completely.
2. Ensure that the Velcro™ wrist covers are unfastened and the ankle gussets are opened.
3. Ensure that the waist belt and is fully loosened.
4. Ensure that the waterproof entry zipper is fully opened.
5. Ensure the suspenders are pulled out of the suit legs.

### **Donning the 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.
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.
10. Ensure the waterproof relief zipper is completely closed.

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**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.**

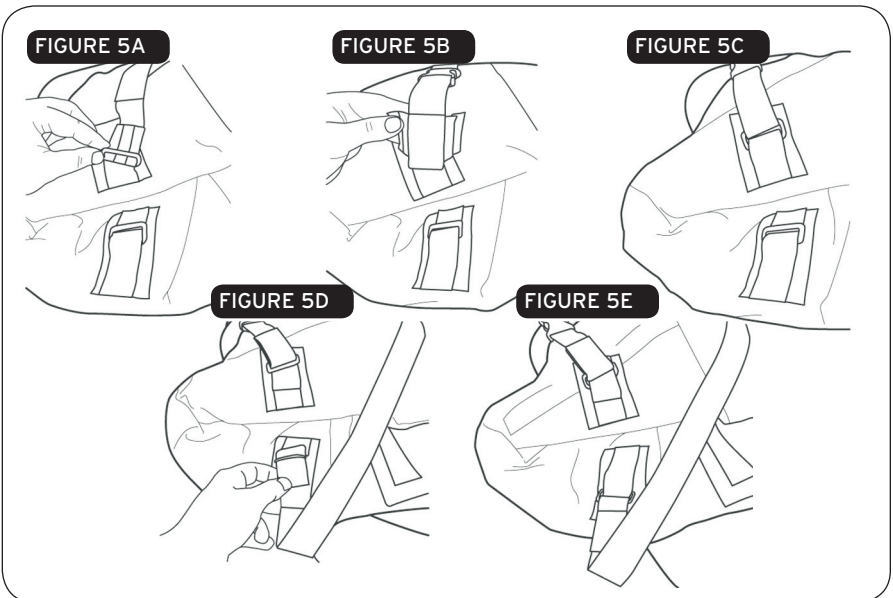
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11. Fasten the ankle gussets.
12. Burp the suit before water entry. Squat down and force excess air through the neck opening. Tighten the patented neck seal by grasping the drawstring and pulling the tabs out and away from the neck until a snug, comfortable fit is achieved.

### Attaching Suspenders

To improve fit, lower in-water resistance and reduce rescuer fatigue, suspenders can be adjusted to a comfortable and secure position. Replacement suspenders are available for order under Mustang part number MA7650.

1. Completely unzip the entry zipper.
2. Open the suit so that the (front and back) attachment loops are accessible [Figs 5A - 5C].



3. Attach the end of the suspender, with the buckle, to the suit's front attachment point by un-peeling the Velcro™ flaps and lifting the Velcro™ strap that is folded on itself. Fold the flaps over the strap (so that hook Velcro™ faces hook Velcro™) [Fig 5D]. Pass the suspender through the attachment loop. The strap end can now be folded over itself so the Velcro patches close. To secure the suspender, wrap the Velcro flaps around the edges of the strap and attach to Velcro on the opposite side of the strap.
4. While keeping the strap straight, attach the non-adjusting end of a suspender to the suit's back attachment point [Fig 5E]. This procedure should be similar to Step 3.
5. Repeat these steps to attach the other suspender. It is recommended to use two suspenders for even support.
6. Use the suspender strap ends to adjust for a secure comfortable fit.

## DOFFING THE DRY SUIT

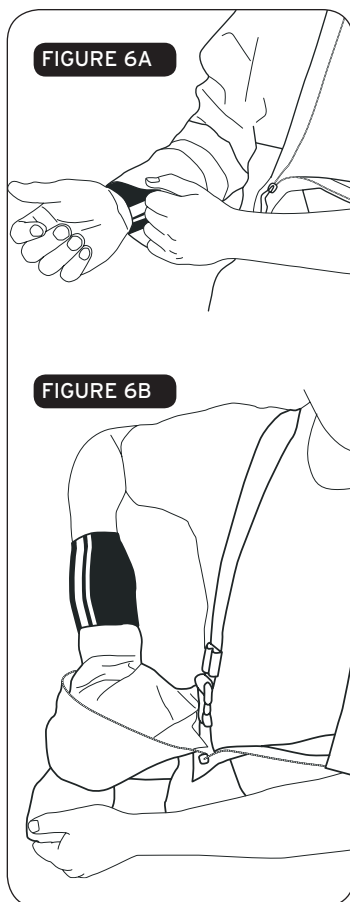
1. Remove all equipment worn over the suit.
2. Thoroughly rinse down the exterior of the suit while wearing it, paying special attention to the seals and zippers. Remove all dirt, salt and debris.
3. Loosen the waist belt.
4. Completely open the waterproof zipper. If not completely open, the zipper faces the risk of damage to the zipper during doffing.

**WARNING: Placing undue force on the zipper may damage the seal and harm the integrity of the suit. Never forcefully yank on the zipper.**

5. Completely loosen the neck seal drawstring. Insert fingers between neck seal and neck. Gently stretch the seal outward and upward while pulling neck seal over your head.
6. Gently begin to pull both arms out of the suit by grabbing the outside cuff [Fig 6A] and turning sleeves inside out as you do [Fig 6B].

**WARNING: Pulling on the neoprene wrist seal may damage the seal.**

7. With an unclenched fist, slowly pull each hand through wrist seals.
8. Pull suit down past hips and slide legs from the suit. Turn the sleeves right-side out again.
9. Follow the cleaning and storage instructions for the suit.



# CLEANING AND MAINTENANCE

## Cleaning

1. Thoroughly rinse your dry suit after every use.

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**Do not dry clean. Do not iron. Do not bleach.**

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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 with 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 warm for at least 50 minutes . The heat from the dryer will help to reactivate the product's durable water based repellent (DWR) treatment.
5. Apply a topical water based repellency restorative (DWR treatment) following the manufacturer's instructions.

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**NOTE: For maintaining waterproof integrity, Mustang Survival recommends McNett's ReviveX® Water Repellent for Outerwear**

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## Maintenance

Regular zipper maintenance is recommended to maintain a water-tight seal, inhibit rust and 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 using warm soapy water.
2. Use one of the recommended cleaning fluids listed below to clean the inner and outer elements of the zipper.
3. Apply a recommended lubricant to the outer elements of the zipper only, according to supplier directions.
4. Close and open zipper carefully to thoroughly distribute lubricant. Repeat process until zipper moves freely. Wipe away excess.
5. A suit that is used daily requires Steps 3 and 4 to be done on a weekly basis, as a minimum, paying close attention to more frequent cleaning of the zipper as required.

## ZIPPER CARE

Care Product	Product Name	Supplier
Cleaning Fluid	Zippy Cool Zip Care BDM Fluid	YKK USA McNett BDM UK
Lubricating Wax	Zippy Cool Zip Tech BDM Wax	YKK USA McNett BDM UK

## REPAIRS

Should a Mustang Survival product require repair or inspection, please contact

your local dealer or Mustang Survival Customer Service. Contact us for a Return Authorization Number (RA#) and correct shipping address prior to sending your Mustang Survival product in for service. A Return Authorization Number for tracking and identification purposes must accompany all products returned to our facility.

The cost of non-warranty repairs is dependent upon the cost of the materials and extent of the repair. After the product is inspected, Mustang Survival will notify you of the cost associated with the repair to obtain your approval on the costs before the repair is started.

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**NOTE: For in-field repairs, Mustang Survival recommends McNett's GORE-TEX® Fabric Repair Kit.**

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## STORING THE DRY SUIT

The suit can be hung to dry. Hang the suit with all zippers half closed.

### Folding and Packing

Ensure that the suit is thoroughly clean and dry and that the main entry zipper is in the closed position before folding and packing. To fold and pack the suit:

1. 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.
2. 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 [Fig 7A].
3. Fold the socks over top of the legs until they reach crotch level.
4. Fold the legs, from the crotch, up to the chest level, right below the folded sleeves [Fig 7B].
5. Fold the suit in half.
6. To pack, roll or fold the suit ensuring that the zippers do not crease.



## ACCESSORIES

### Recommended Dry Suit Liner - MSL351 Dry Suit Liner

Thermal protection is needed for a variety of water and weather conditions. The MSL351 was designed to integrate with Mustang Dry Suits improving protection against hypothermia without limiting mobility. The liner combines different weight Polartec® fleece panels to reduce the thermal burden

when wearing the dry suit out of the water and to provide extra insulation protection when in cold water. The MSL351 has shortened, tapered sleeves that won't interfere with wrist seals and full-length tapered legs that fit inside dry suits comfortably without bunching. The liner provides warmth without weight, is highly breathable, quick drying, durable and machine washable.

### **Water Rescue Vests - MRV100 SR (Rescuer Vest) and MRV200 SR (Instructor Vest)**

All dry suits should be worn in conjunction with a flotation device.

These IRIA Certified rescue vests are made of rugged, high visibility rip stop nylon and contain extra flotation to combat the reduced buoyancy effects of turbulent water. An integrated structural harness and single piece over-the-shoulder foam design provide extra strength, structural integrity and body protection. Multiple adjustment points provide a secure fit that prevent ride up and a "live bait" quick release belt helps the rescuer to escape dangerous situations. Fast Tabs on both shoulders act as easy attachment points for accessories such as knives, scissors or strobe lights.

The MRV100 is the choice for rescue professionals involved in boat and shore operations or low to medium risk swift water environments. Includes two quick-drain front pockets for storing extra gear.

The MRV200 enables rescue swimmers to safely and quickly reach victims in high risk swift water environments. Removable front and back pockets reduce snag risks and a one hand self extrication leash aides in self rescue. An internal nylon plate disperses force when the chest harness is under tension and provides protection against impact.

## **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:

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## research & Design

For 40 years Mustang Survival has been committed to providing life support solutions. Through constant innovation and the application of new technologies, Mustang is the leading supplier of quality flotation and hypothermia protection products to the most demanding users - from fishermen, sailors and power boaters to the Coast Guard, jet fighter pilots and even NASA astronauts.

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Our commitment to quality has earned our Richmond facilities ISO 9001 registration, the highest of all international standards. This is our guarantee you're receiving the ultimate in design and manufacturing.

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