

**MUSTANG SURVIVAL**



# **USER'S MANUAL**

**RAPID REPAIR TECHNOLOGY™**

**RE0001-RE0010**



**WE SAVE LIVES FOR A LIVING**

**DO NOT REMOVE PRIOR TO SALE**

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## INTRODUCTION

### RAPID REPAIR TECHNOLOGY™ USER MANUAL

The Sentinel Series Dry Suits take advantage of Mustang's Rapid Repair Technology™ which enables users to self-replace neck and wrist seals in an hour or less, and repair minor leaks in the dry suit shell.

Qualified repair personnel can normally perform minor repairs, with adequate facilities. This guide covers instructions for using Mustang's Rapid Repair Technology™ to perform the following procedures:

- Neck Seal Replacement

- Wrist Seal Replacement

- Minor Leak Repair

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

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A Mustang Survival repair facility should perform all major repairs outside the scope of this manual.

### Work Area

The work area where maintenance of the suit is performed should be smooth and flat, where the suit will not snag, tear or otherwise be punctured or damaged and should be clear of all non-essential equipment and materials. The working surface should be free of harmful contaminants such as oil, grease, acids or solvents. Work areas, which are subjected to wide temperature variations, should be avoided.

## RAPID REPAIR NECK SEAL INSTRUCTIONS

An online video tutorial of this procedure is available for viewing at [mustangsurvival.com](http://mustangsurvival.com). It may be helpful to watch this video in addition to the instructions below.

### ASSEMBLE MATERIALS

Make sure that you have all of the necessary equipment and materials to perform the neck seal replacement correctly.

#### You will need ONE of the following tool kits:

Rapid Repair Neck and Wrist Seal Tool Kit (Part# RE0001)

OR

Rapid Repair Neck Seal Tool Kit (Part# RE0002)  
& Rapid Repair Hand Iron (Part# RE0004)

#### Tools and Equipment Supplied by User:

Light work gloves

#### Additionally you'll need ONE of the following Rapid Repair Neck Seals:

SEAL PART#	SEAL DESCRIPTION	COMES STANDARD WITH SUIT SIZES
RE0005-L	Rapid Repair Rubber Neck Seal, Thin, Large	XS-3XL
RE0005-S	Rapid Repair Rubber Neck Seal, Thin, Small	-
RE0006-L	Rapid Repair Rubber Neck Seal, Thick, Large	XS-3XL
RE0006-S	Rapid Repair Rubber Neck Seal, Thick, Small	-
RE0007-L	Rapid Repair Neoprene Neck Seal, Large	XL-3XL
RE0007-M	Rapid Repair Neoprene Neck Seal, Medium	M-L2
RE0007-S	Rapid Repair Neoprene Neck Seal, Small	S
RE0007-XS	Rapid Repair Neoprene Neck Seal, Extra Small	XS

### HEAT REMOVE CURRENT NECK SEAL

The neck seal in your current dry suit can be removed by using a simple heating method with a Mustang Hand Iron.

1. Preheat the iron to its maximum temperature, approximately 310 °F.
2. Place the circle jig inside the suit, white side up, in the middle of the neck seal opening. A properly placed jig will make a nice flat

surface for the seal to sit against, with the bulk of the suit and collar out of the way. See Figure 1.

3. Flatten out wrinkles around the perimeter of the neck seal attachment area. Make sure there are no materials caught between the circle jig and the neck seal.
4. Pick a point on the neck seal as a starting point and heat until adhesive has softened, approximately 15 seconds. See Figure 2.



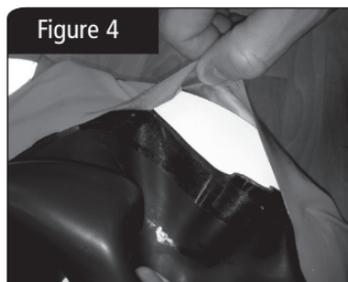
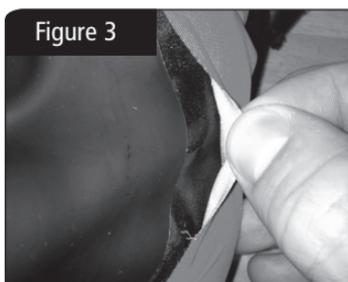
5. Grab neck seal and pull the neck seal away from the suit using only light force. The neck seal will separate from the suit in the area that was heated. Gloves may help as the neck seal will be hot where contacted by the iron. See Figure 3.

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**CAUTION: Stop pulling the neck seal away from the suit when resistance is encountered.**

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6. Continue to heat an adjacent section of the neck seal for 15 seconds.



7. Lightly pull the neck seal to detach the adjacent section. See Figure 4.
8. Repeat steps 6-7 until the old neck seal has been removed.

## PREPPING THE MATERIALS

Once the existing neck seal is removed, it is time to prepare the materials for the neck seal replacement. Make sure you have all of your tools and materials nearby during the replacement process.

1. With the circle jig still inside the suit, center the jig in the middle of the neck seal opening. You should have about 1" of suit material around the outside of the circle jig. See Figure 5.

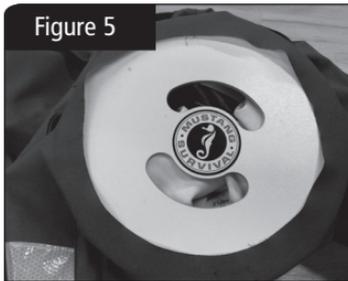


Figure 5

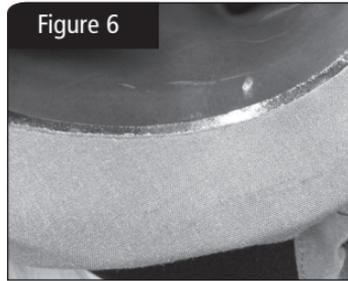


Figure 6

3. Peel the backing paper off the replacement heat activated neck seal.
4. Place the replacement neck seal into the opening on the suit. The heat adhesive portion of the neck seal should be inside the suit facing up. There should be a 1/8 inch edge of adhesive visible around the edge of the suit. See Figure 6.
5. Ensure that there are no wrinkles in the fabric or neck seal. Folding the neck seal in on itself will help to keep its shape and aid in the replacement process. See Figure 7.



Figure 7

## ATTACHING A HEAT ACTIVATED NECK SEAL

Once your materials are prepped you are ready to attach your new neck seal.

1. Preheat hand iron to its maximum temperature, approximately 310 °F.
2. Start by heating small sections around the edge of the neck seal for 3 – 5 seconds to tack and hold the neck seal in place. Continue to check the alignment before heating each spot. See Figure 8.



3. Once the neck seal has been tacked in at least 10 places, lightly heat the entire outside of the neck seal to tack all portions of the seal into place.
4. Cover the neck seal with the non-stick fabric template provided. Carefully use the iron to melt the adhesive on the neck seal. Apply heat to a single section for at least 30 seconds using maximum hand pressure before advancing iron to the next section leaving some overlap with the previously heated section. See Figure 9.
5. Continue around the perimeter of the neck seal applying heat and pressure.
6. Let the neck seal and fabric cool and then remove the circle jig.
7. Inspect for proper adhesion by examining the entire perimeter on both the inside and outside of the suit.
8. Pinhole leaks may be corrected by re-heating the area for an additional 30 seconds using maximum pressure.

### INSPECT REPLACEMENT

After installation is complete the suit should be leak tested before use. If a leak originates from a wrinkle in the fabric, the neck seal should be removed and a fresh neck seal installed. Repeat the leak test.

Once you have verified there are no leaks your new neck seal is now ready to be used.

## RAPID REPAIR WRIST SEAL INSTRUCTIONS

An online video tutorial of this procedure is available for viewing at [mustangsurvival.com](http://mustangsurvival.com). It may be helpful to watch this video in addition to the instructions below.

### ASSEMBLE MATERIALS

Make sure that you have all of the necessary equipment and materials to perform the wrist seal replacement correctly.

#### You will need ONE of the following tool kits:

Rapid Repair Neck and Wirst Seal Tool Kit (Part# RE0001)

OR

Rapid Repair Wrist Seal Tool Kit (Part# RE0003)  
& Rapid Repair Hand Iron (Part# RE0004)

#### Tools and Equipment Supplied by User:

Light work gloves

#### Additionally you'll need ONE of the following Rapid Repair Wrist Seals:

SEAL PART#	SEAL DESCRIPTION	COMES STANDARD WITH SUIT SIZES
RE0008-M	Rapid Repair Rubber Wrist Seal, Thin, Medium	XS-3XL
RE0008-S	Rapid Repair Rubber Wrist Seal, Thin, Small	-
RE0009-L	Rapid Repair Neoprene Neck Seal, Large	XL-3XL
RE0009-M	Rapid Repair Neoprene Neck Seal, Medium	M-L2
RE0009-S	Rapid Repair Neoprene Neck Seal, Small	S

### HEAT REMOVE CURRENT WRIST SEAL

The wrist seal in your current dry suit can be removed by using a simple heating method with a Mustang Hand Iron. All steps should be practiced prior to applications with heat.

1. Preheat the iron to its maximum temperature, approximately 310 °F.
2. Roll the jig to form the smallest possible diameter. See Figure 10.
3. Place the jig inside the suit. See Figure 11.
4. Center the jig about the seal and fabric interface.

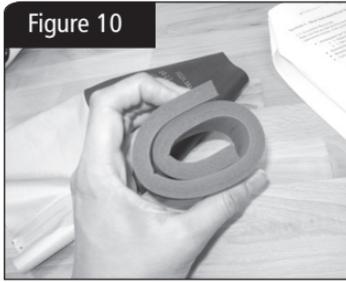


Figure 10

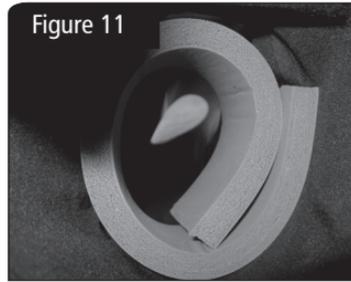


Figure 11

5. Stretch the jig until the ends meet forming a cylindrical shape. See Figure 12.
6. Flatten out wrinkles around the wrist seal attachment area.
7. Lay the wrist seal flat and place the non-stick fabric sheet on top.
8. Press the iron on the non-stick fabric sheet with moderate pressure for 30 seconds. See Figure 13.

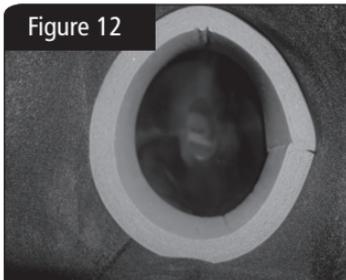


Figure 12

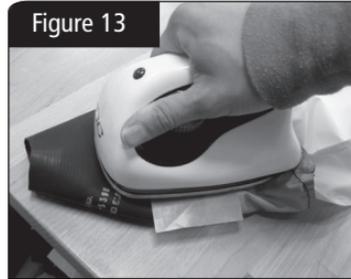


Figure 13

9. Remove the iron from the surface
10. Gently separate the seal from the fabric by lightly peeling. Gloves may help as the wrist seal will be hot where contacted by the iron. See Figure 14.

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**CAUTION: Stop pulling the wrist seal away from the suit when resistance is encountered.**

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11. Heat the adjacent area for 20 seconds and continue to pull.
12. Rotate the wrist seal and repeat steps 9 to 12 until the seal has been completely separated. See Figure 15.
13. Leave the wrist seal and sleeve to cool prior to completing any further actions. Gloves may help as the wrist seal will be hot where contacted by the iron.

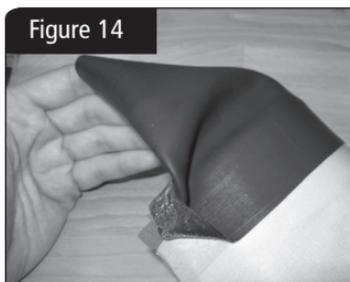


Figure 14



Figure 15

### ATTACHING A HEAT ACTIVATED WRIST SEAL

The wrist seal in your current dry suit can be applied by using a simple heating method with a Mustang Hand Iron. All steps should be practiced prior to applications with heat.

1. Preheat hand iron to its maximum temperature, approximately 310 °F.
2. Flip the suit right side out.
3. Remove adhesive paper backing from wrist seal.
4. Roll the Wrist Seal replacement jig and place it into the wrist seal. See Figure 16.

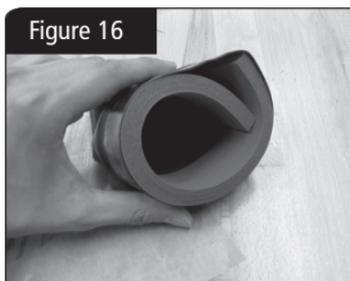


Figure 16

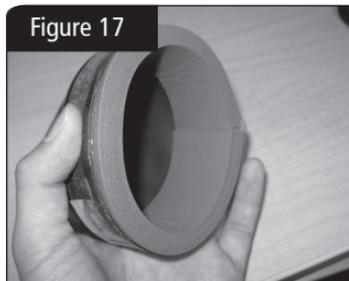


Figure 17

5. Line up the jig such that approximately 1/4" of the jig is exposed.
6. Stretch the wrist seal jig until the ends meet to form a cylindrical shape. See Figure 17.
7. Insert the jig and wrist seal into the sleeve from the inside. Ensure that dry suit seam lines up with the seam of the wrist seal jig.
8. Ensure the suit arm becomes taut and 1/8" of adhesive protrudes from the cuff end. See Figure 18.
9. Flatten the cuff such that the seam appears right of center. See Figure 19.

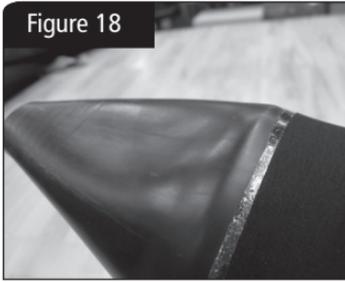


Figure 18



Figure 19

10. Center the non-stick paper over the wrist seal where the seal and suit meet and press the iron with moderate pressure for approximately 30 seconds. See Figure 20.
11. Leave the non-stick sheet on the seal for approximately 10 seconds before removing.



Figure 20

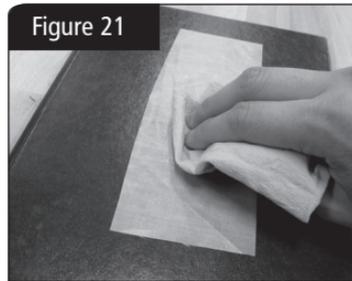


Figure 21

12. Clean off any adhesive that has attached to the non-stick paper. See Figure 21.
13. Continue around the circumference of the wrist seal applying heat and pressure to each adjacent section for 30 seconds.
14. The following steps (14a-15d) are performed for rubber wrist seals only. Do not perform these steps with neoprene wrist seals.
  - a. Remove the wrist seal jig.
  - b. Invert the suit sleeve inside out.
  - c. Re-insert the wrist seal jig.
  - d. Press the region around the seam of the dry suit for 30 seconds to ensure complete adhesion. See Figure 22.

15. Let the wrist seal and fabric cool and then remove the jig.
16. Inspect for proper adhesion by examining the entire perimeter on both the inside and outside of the suit.
17. Pinhole leaks may be corrected by re-heating the area for an additional 30 seconds using maximum pressure.



### INSPECT REPLACEMENT

After installation is complete the suit should be leak tested before use. If a leak originates from a wrinkle in the fabric, the wrist seal should be removed and a fresh neck seal installed. Repeat the leak test.

Once you have verified there are no leaks your new wrist seal is now ready to be used.

## RAPID REPAIR PATCH INSTRUCTIONS

An online video tutorial of this procedure is available for viewing at [mustangsurvival.com](http://mustangs survival.com). It may be helpful to watch this video in addition to the instructions below.

### LIMITS OF REPAIR

It is recommended that the following guidelines be used in determining potential for repair:

- Pinholes and small slits, cuts and tears less than 1 inch in length may be patched by the heat-sealing method.
- Do not patch the neck or wrist seals or socks.
- The total area of patches should not exceed 10% of the suit. Repair no more than 10% of any one panel.
- Any holes larger than a small slit, cut or tear less than 1 inch in length should be sent to Mustang Survival for repair.

### ASSEMBLE MATERIALS

Make sure that you have all of the necessary equipment and materials to perform the puncture repair correctly. A list is provided below:

Rapid Repair Dry Suit Patches (Part# RE0010)

Rapid Repair Hand Iron (Part# RE0004)

### APPLY PATCH

The puncture in your dry suit can be repaired using a simple heating method with a Mustang Hand Iron. All steps should be practiced prior to applications with heat.

1. Preheat hand iron to its maximum temperature, approximately 310 °F.
2. Turn dry suit inside out.
3. Locate puncture.
4. Lay the dry suit on flat surface such that the inside surface of the suit is facing up.
5. Ensure dry suit material is flat and wrinkle free around the puncture. See Figure 23.
6. Ensure area around puncture is both clean and dry.

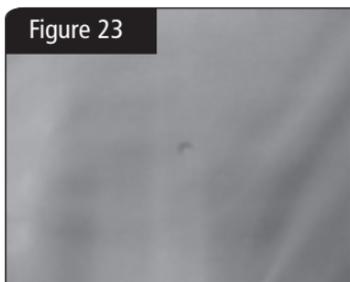


Figure 23

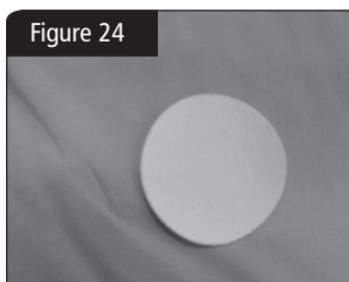


Figure 24

7. Place the shiny side of the patch downwards so that it is in contact with the inside surface of the dry suit.
8. Ensure the patch is centered over the puncture. See Figure 24.
9. Place hot iron on patch and apply pressure perpendicular to the flat surface for approximately 20 – 25 seconds. See Figures 25–26.

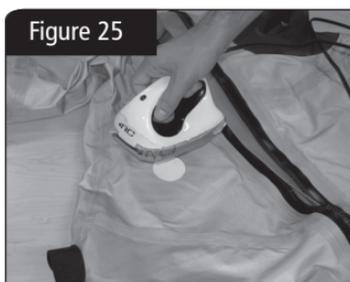


Figure 25

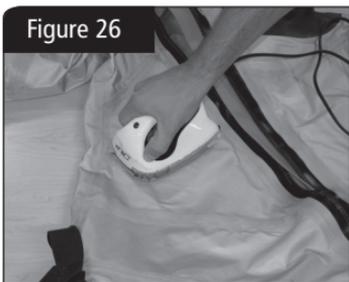


Figure 26

10. Remove iron and turn off.
11. Allow patch and suit to cool for approximately 5 minutes.

### INSPECT REPAIR

After repair is complete the suit should be leak tested before use.

It is recommended that a leak test be completed using Mustang Survival's Dry Suit Test Kit (Mustang P/N MA8836) or equivalent to test the complete integrity of the suit

Once you have verified that there are no leaks your suit is ready to be used.

## **CONTACT**

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

Mustang Survival

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Email: [custserv@mustangsurvival.com](mailto:custserv@mustangsurvival.com)

Web: [mustangsurvival.com](http://mustangsurvival.com)

Mustang Survival has been providing lifesaving solutions for over 45 years. 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 commercial mariners to the Coast Guard, fighter pilots and even NASA astronauts.



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