

WALT DISNEY WORLD®

## PROJECT RED

### FLOUNDER

#### OPERATIONS AND REPAIR MANUAL



104 E. Vine Street, Hatfield PA 19440

[contact@monkeyboysprodctions.com](mailto:contact@monkeyboysprodctions.com)

215-839-6627

## Revision History

| Date       | Version | Description                         | Author                                          |
|------------|---------|-------------------------------------|-------------------------------------------------|
| 02/14/2024 | 1.0     | First iteration                     | Bridget Reilly<br>Beauchamp,<br>Brieaunna Avery |
| 04/29/2024 | 1.1     | Addition of Comprehensive Materials | Bridget Reilly<br>Beauchamp,<br>Brieaunna Avery |
| 06/11/2024 | 2.2     | Final Iteration before installation | Bridget Reilly<br>Beauchamp, Betsy Falk         |
|            |         |                                     |                                                 |
|            |         |                                     |                                                 |
|            |         |                                     |                                                 |

## Table of Contents

|                                                                |    |
|----------------------------------------------------------------|----|
| 1 Introduction and Preface                                     | 4  |
| 1.1 General Project Information                                | 4  |
| 1.1.1 Notes from Monkey Boys Productions                       | 4  |
| 1.1.2 From the Disney Scope of Work, section 1.2-1.4:          | 4  |
| 1.2 Item Description                                           | 4  |
| 1.2.1 Summarized from the Disney Scope of Work, Section 4.1.1: | 4  |
| 1.2.2 Basis of Engineering                                     | 4  |
| 2 Construction and Assembly                                    | 5  |
| 2.1 Front View                                                 | 5  |
| 2.2 Rear View                                                  | 6  |
| 2.3 Left view                                                  | 7  |
| 2.4 Right View                                                 | 8  |
| 2.5 Closeup of Face                                            | 9  |
| 2.6 Closeup of Embellishments                                  | 10 |
| 2.7 UV Views                                                   | 11 |
| 3 Description of Operating Modes                               | 12 |
| 3.1 Operating Modes                                            | 12 |
| 3.1.1 Storage                                                  | 12 |
| 3.1.2 Performance                                              | 12 |
| 3.2 Operating Procedures                                       | 12 |
| 3.2.1 Removing the puppet from the stand                       | 12 |
| 3.2.2 Action: Moving Mouth                                     | 12 |
| 3.2.4 Placing puppet on stand                                  | 14 |
| 3.2.5 Storage                                                  | 14 |
| 4 Detailed Diagrams of Mechanisms and Hardware                 | 15 |
| 4.1 Puppet Interior                                            | 15 |
| 4.2 Fin trigger assembly                                       | 16 |
| 4.3 Mouth trigger assembly                                     | 17 |
| 4.4 Mouth mechanism view 1                                     | 18 |
| 4.5 Mouth mechanism view 2                                     | 19 |
| 4.6 Fin mechanism                                              | 20 |
| 5 Safety and Hazards                                           | 21 |
| 5.1 Safety Precautions and Hazard Identification               | 21 |
| 5.2 Hazard Mitigation Strategy                                 | 21 |
| 6 Repair & Service                                             | 22 |
| 6.1 Daily Checks and Inspections                               | 22 |
| 6.2 Periodic Testing                                           | 22 |
| 6.3 Routine Corrective Maintenance                             | 22 |
| 6.4 Puppet-specific Service Items                              | 22 |
| 6.5 Cleaning Fabrics                                           | 22 |

|                                                                                |           |
|--------------------------------------------------------------------------------|-----------|
| 6.5.1 Spot Cleaning                                                            | 23        |
| 6.5.2 Deep Cleaning Option 1 for widespread stains                             | 23        |
| 6.5.3 Deep Cleaning Option 2 for deep stains                                   | 23        |
| 6.5.4 In all cases                                                             | 23        |
| 6.6 Cleaning Hard Surfaces                                                     | 23        |
| 7 Detailed Maintenance Procedures                                              | 24        |
| 7.1 Specialty information about opening the puppet for repair or maintenance   | 24        |
| 7.2 Specialty information about fully detaching the head from the body         | 26        |
| 7.3 Specialty information about replacing the mouth cable                      | 28        |
| 7.4 Specialty information about replacing the mouth spring                     | 35        |
| 7.5 Specialty information about replacing the fin string                       | 36        |
| 7.6 Specialty information about closing the puppet after repair or maintenance | 40        |
| <b>8 Comprehensive Parts List</b>                                              | <b>41</b> |
| 8.1 Understructure and Base                                                    | 41        |
| 8.2 Hardware                                                                   | 41        |
| 8.3 Fabric and Fibers                                                          | 44        |
| 8.4 Custom Made Parts                                                          | 45        |
| 8.5 Paints and Dyes                                                            | 46        |
| 8.6 Glues, Treatments, Coatings, and Chemicals                                 | 47        |



# 1 Introduction and Preface

## 1.1 General Project Information

### 1.1.1 Notes from Monkey Boys Productions

This character is designed for use in collaboration with Walt Disney World/Disney's Hollywood Studios for use in the Voyage of the Little Mermaid Theater. All information contained herein was prepared for Monkey Boys Productions, LLC and is property of the Disney Corporation and not to be used in any way without their consent.

### 1.1.2 From the Disney Scope of Work, section 1.2-1.4:

#### *General Resort Overview*

*Movie magic comes to life at Disney's Hollywood Studios. This park features 8 sections: Hollywood Boulevard, Echo Lake, Grand Avenue, Sunset Boulevard, Commissary Lane, Star Wars: Galaxy's edge, Toy Story Land and Animation Courtyard.*

#### *General Venue Overview*

*Project Red will take place in the Voyage of the Little Mermaid (VOLM) Theater located within the One Man's Dream building next to Animation Courtyard in Disney's Hollywood Studios. The VOLM Theatre is a 400-seat theatre with a small, elevated stage with access between the house and backstage on Stage Left. All elements must fit through a double door at most due to limited load in infrastructure.*

#### *General Show Overview*

*A reimaged retelling of the classic film seen through the unique perspective of Ariel, a 16-year-old girl. Through cutting edge technology, mixed media, puppetry, and live actors, we follow Ariel's journey as she boldly pursues her dream to be part of the human world above, even if it means leaving her under the sea home.*

## 1.2 Item Description

### 1.2.1 Summarized from the Disney Scope of Work, Section 4.1.1:

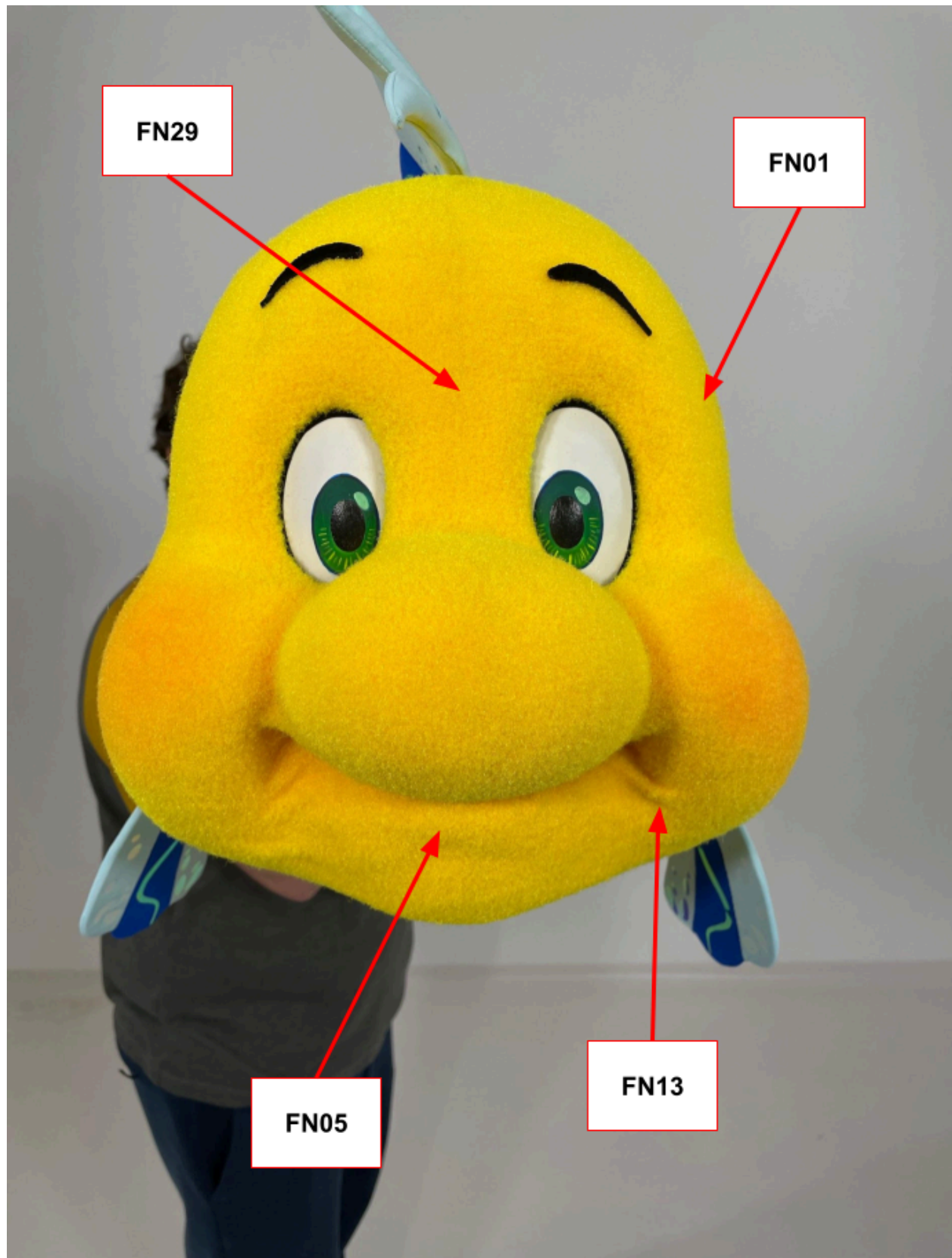
Flounder rod puppet is controlled via rod with lever controls of all animated features located on the rod.

### 1.2.2 Basis of Engineering

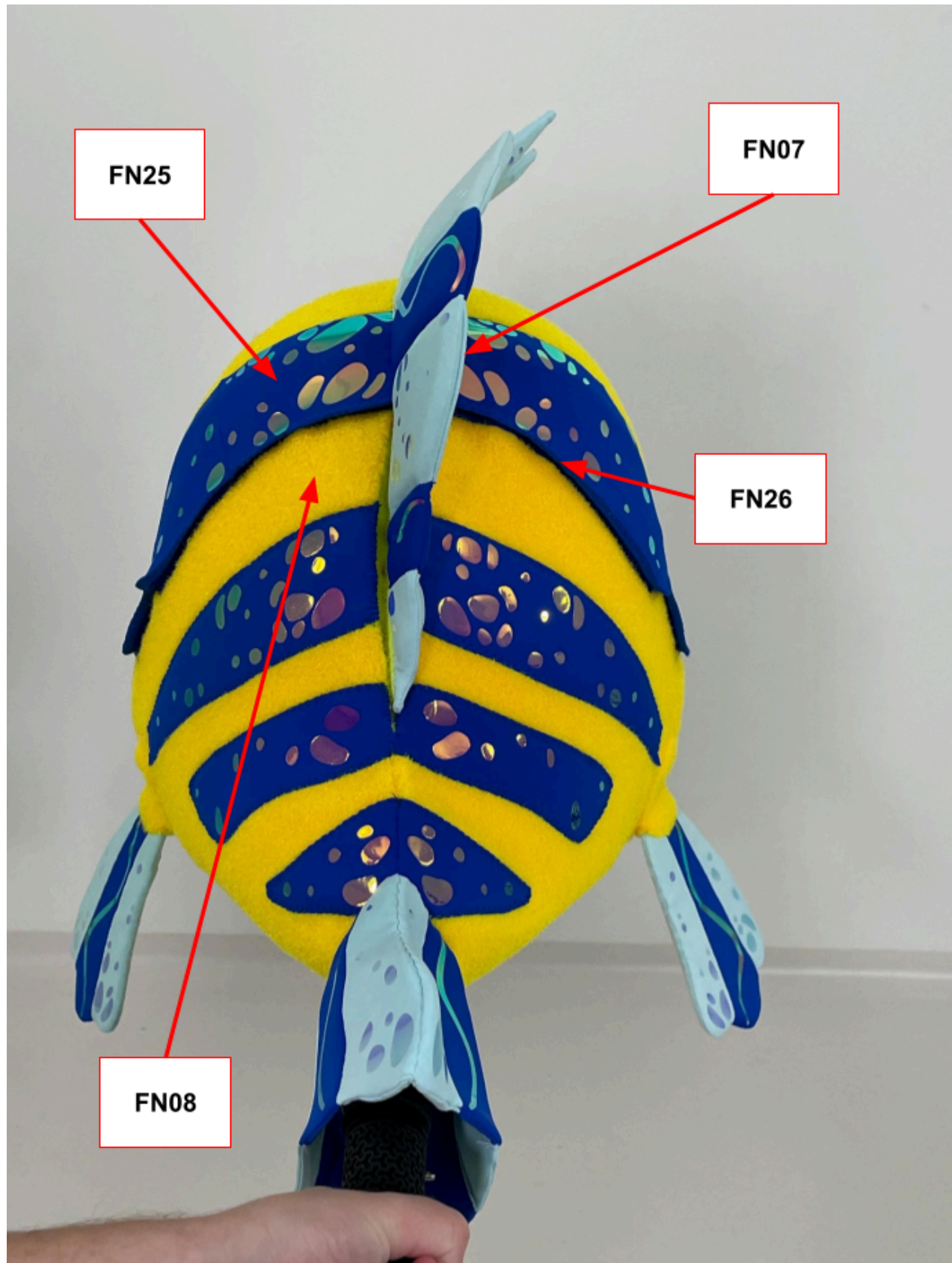
Flounder Rod is built with laminated poly foam, plastazote, and carbon fiber, with bicycle brake mechanism controls on a short rod. The body is covered with a combination of UV-reactive fleece, paint, and embellishments. The mouth opens and closes via one mechanism and the fins flap via the other. The puppet's eyes do not blink.

## 2 Construction and Assembly

### 2.1 Front View

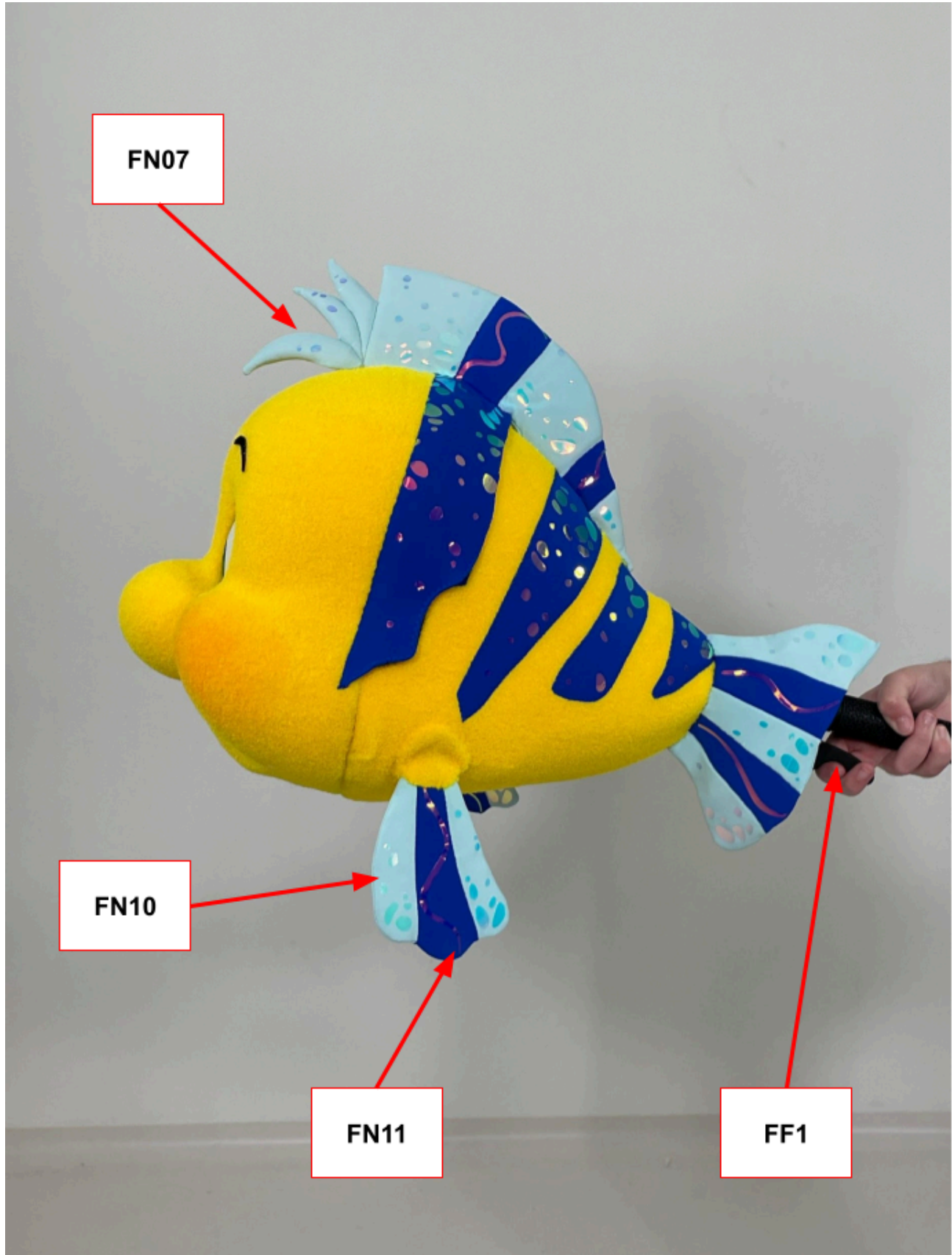


## 2.2 Rear View

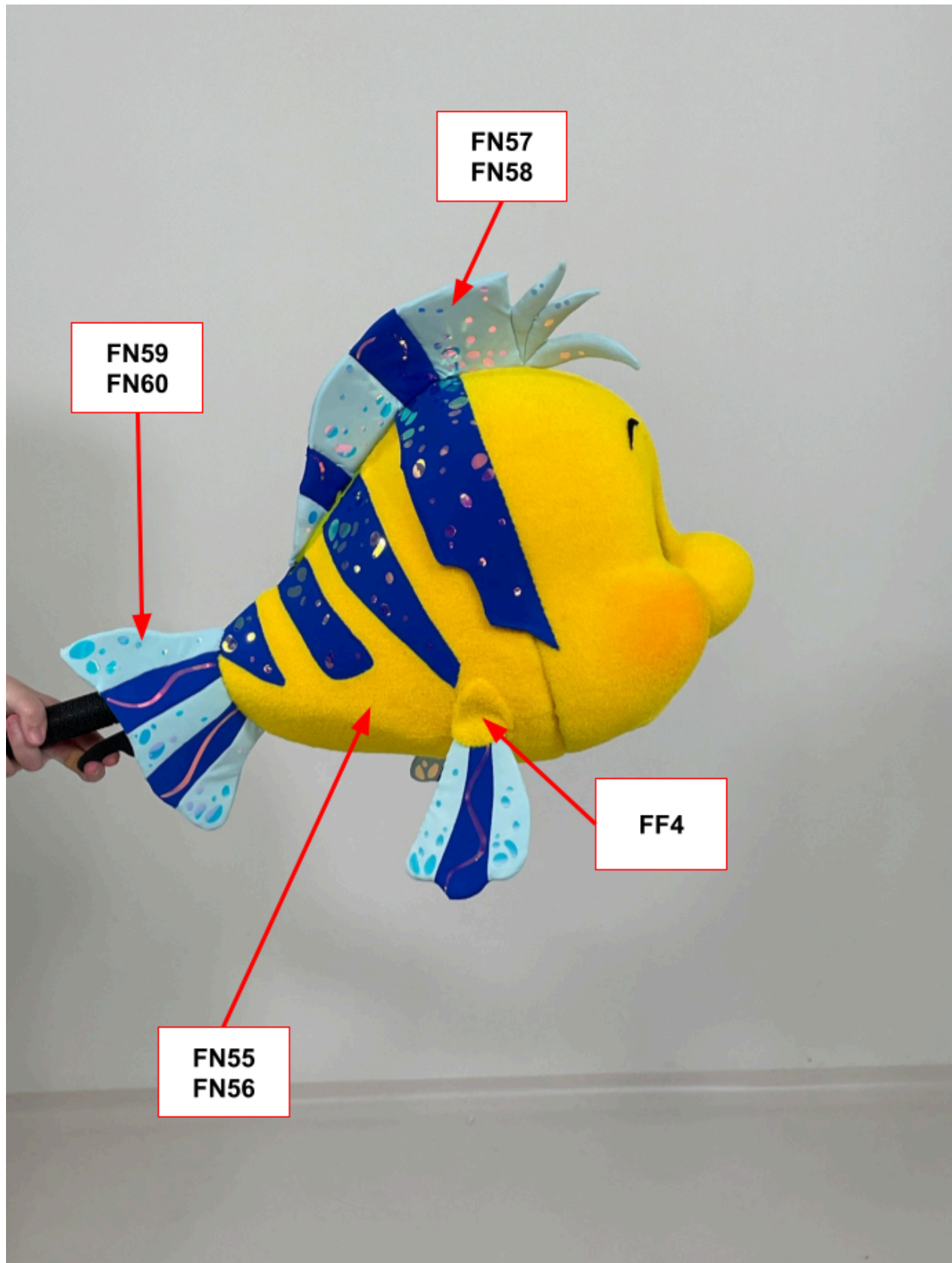




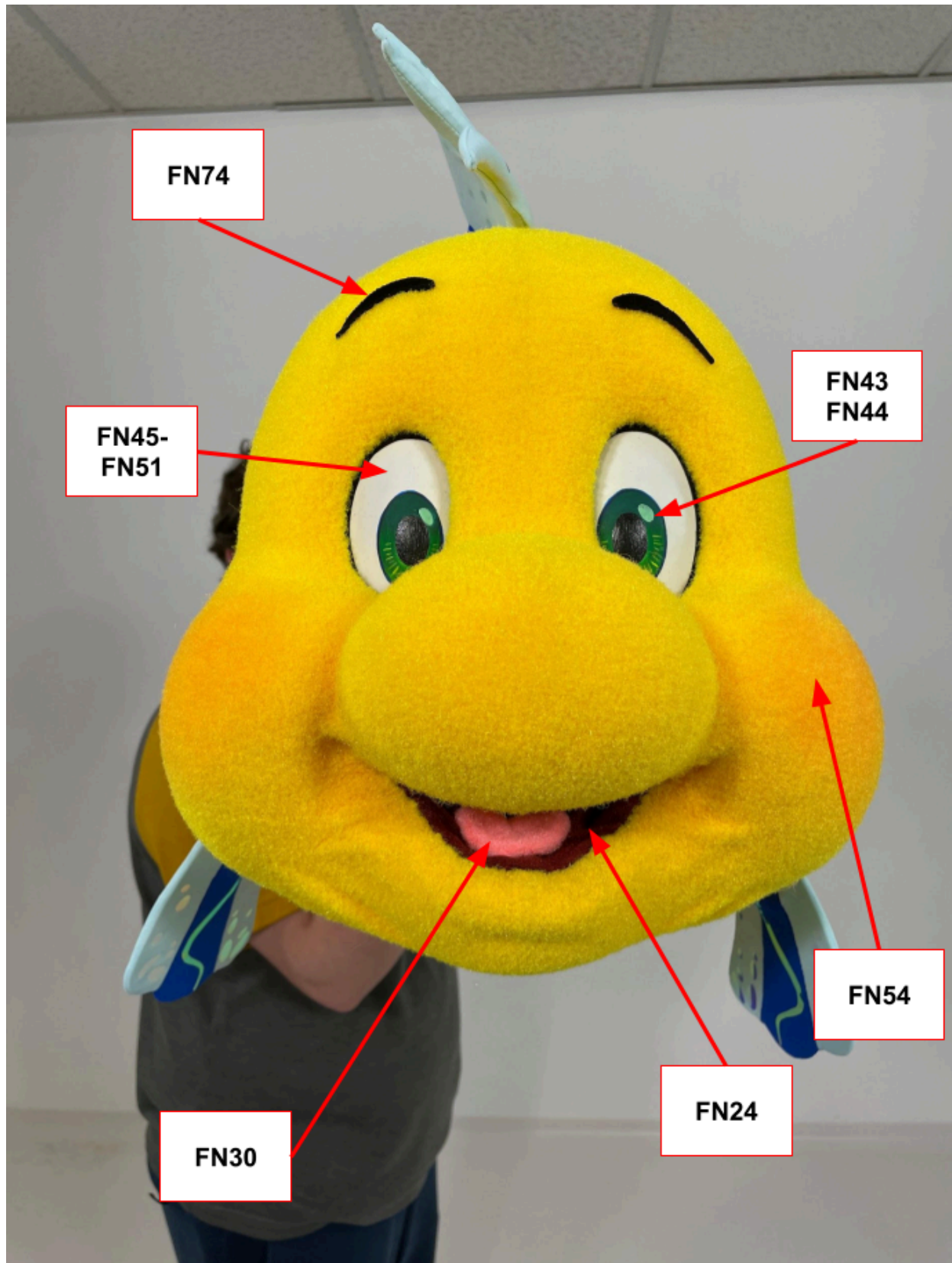
### 2.3 Left view



## 2.4 Right View

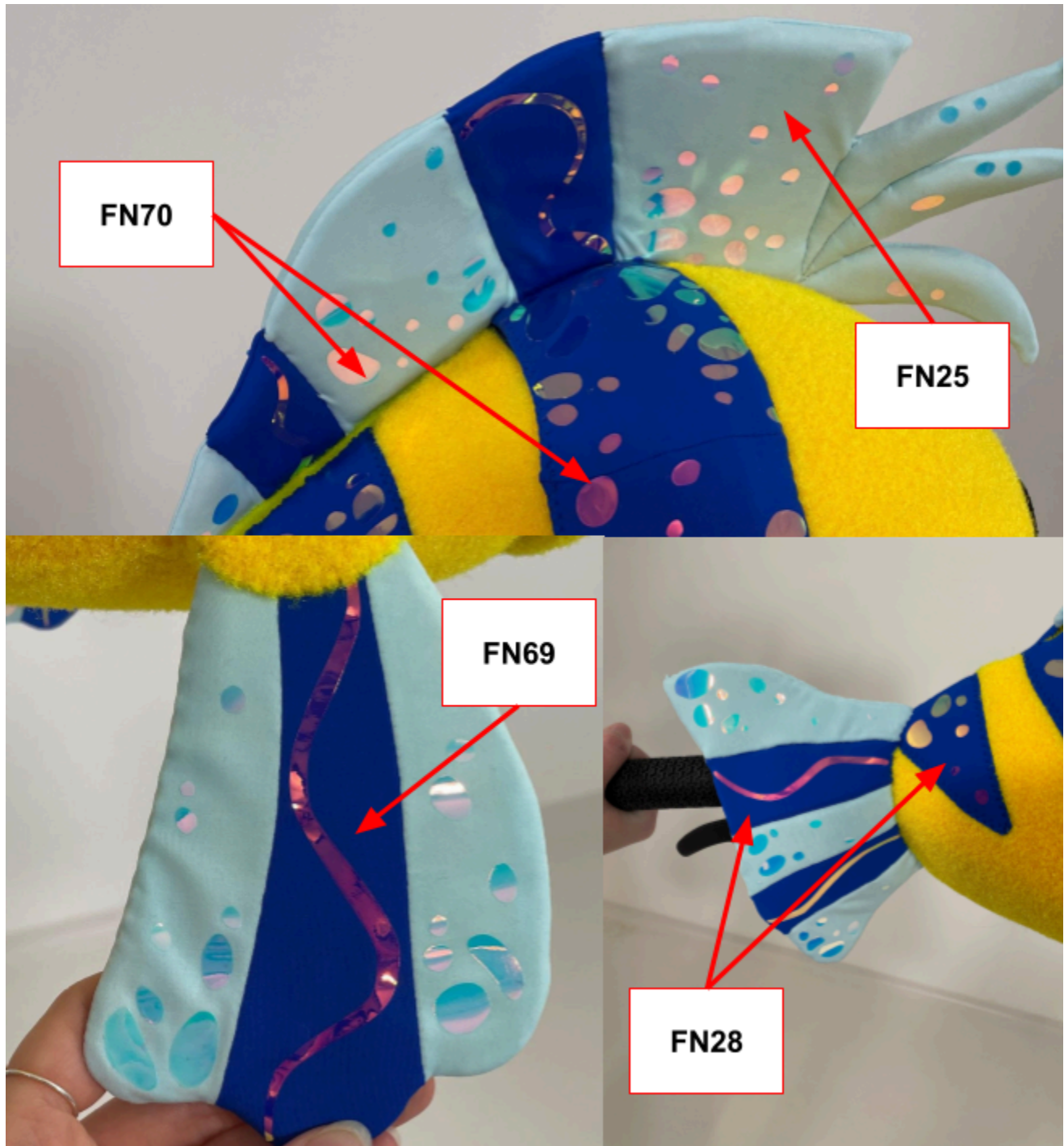


## 2.5 Closeup of Face

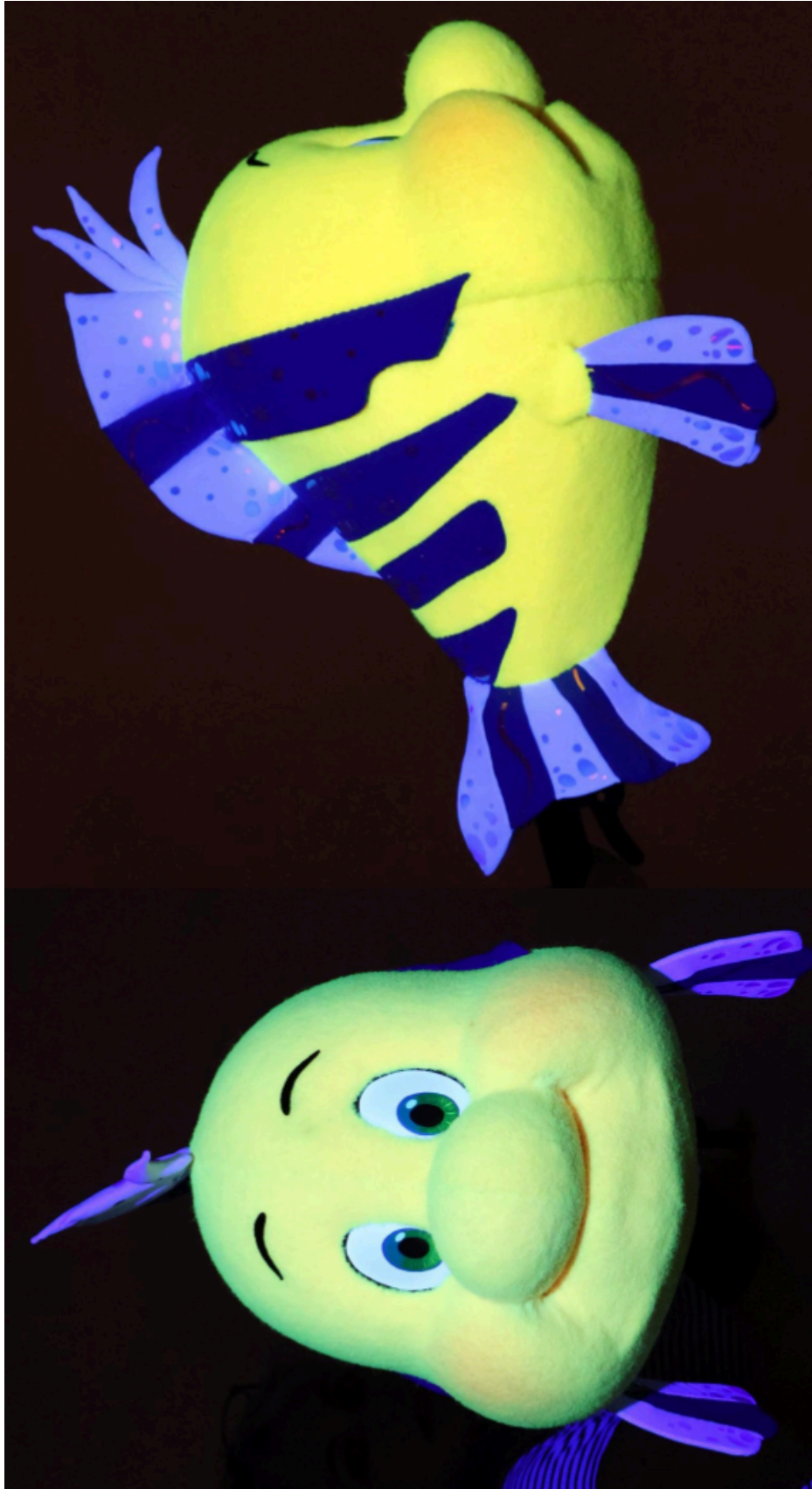




## 2.6 Closeup of Embellishments



## 2.7 UV Views





## 3 Description of Operating Modes

### 3.1 Operating Modes

#### 3.1.1 Storage

The Flounder Rod Puppet will be hung from a rack.

Between performances, the puppet should be covered with its custom dust cover in order to protect it from the elements.

At no point should a puppet be stacked on top of or underneath another puppet or prop.

#### 3.1.2 Performance

The puppet is operated by a single performer. They should be able to do all performing actions without assistance.

### 3.2 Operating Procedures

#### 3.2.1 Removing the puppet from the stand

*\*\*Please ensure that you have clean hands before handling this puppet.\*\**

To remove the puppet from the stand, simply unclip the carabiner and remove.



#### 3.2.2 Action: Moving Mouth

Flounder's mouth is neutral in the closed position.



To make Flounder's Mouth open, squeeze the bike brake trigger located near the end of the rod with two or three fingers. Release to make the mouth close again.

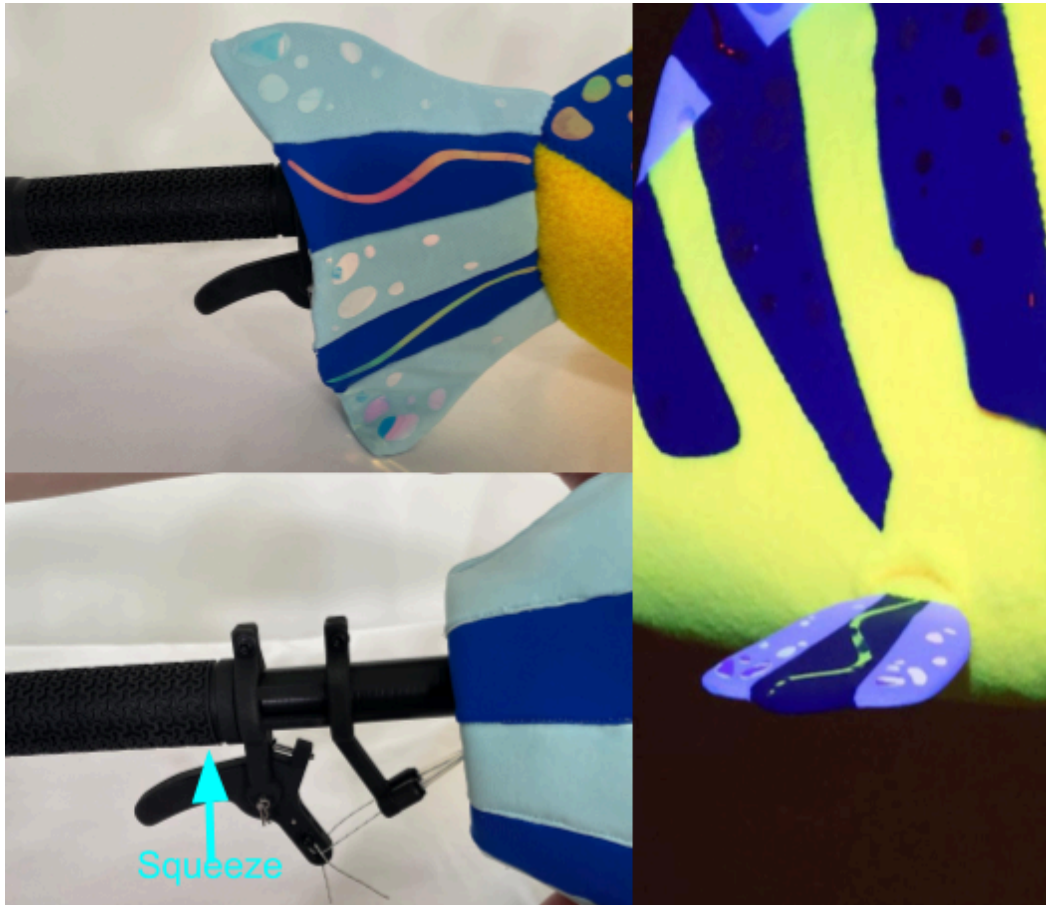


### 3.2.3 Action: Waving Fins

Flounder's fins are neutral in a "downward" position.



To activate the fins, squeeze the lever style trigger located close to the tail. Release to allow the fins to relax.



#### 3.2.4 Placing puppet on stand

To place the puppet on its stand, reverse the actions described in section 3.2.1

#### 3.2.5 Storage

For storage between shows, the puppet should be covered with its dust cover. Bring the bag up and over the puppet, cinching it in place using the cord lock.





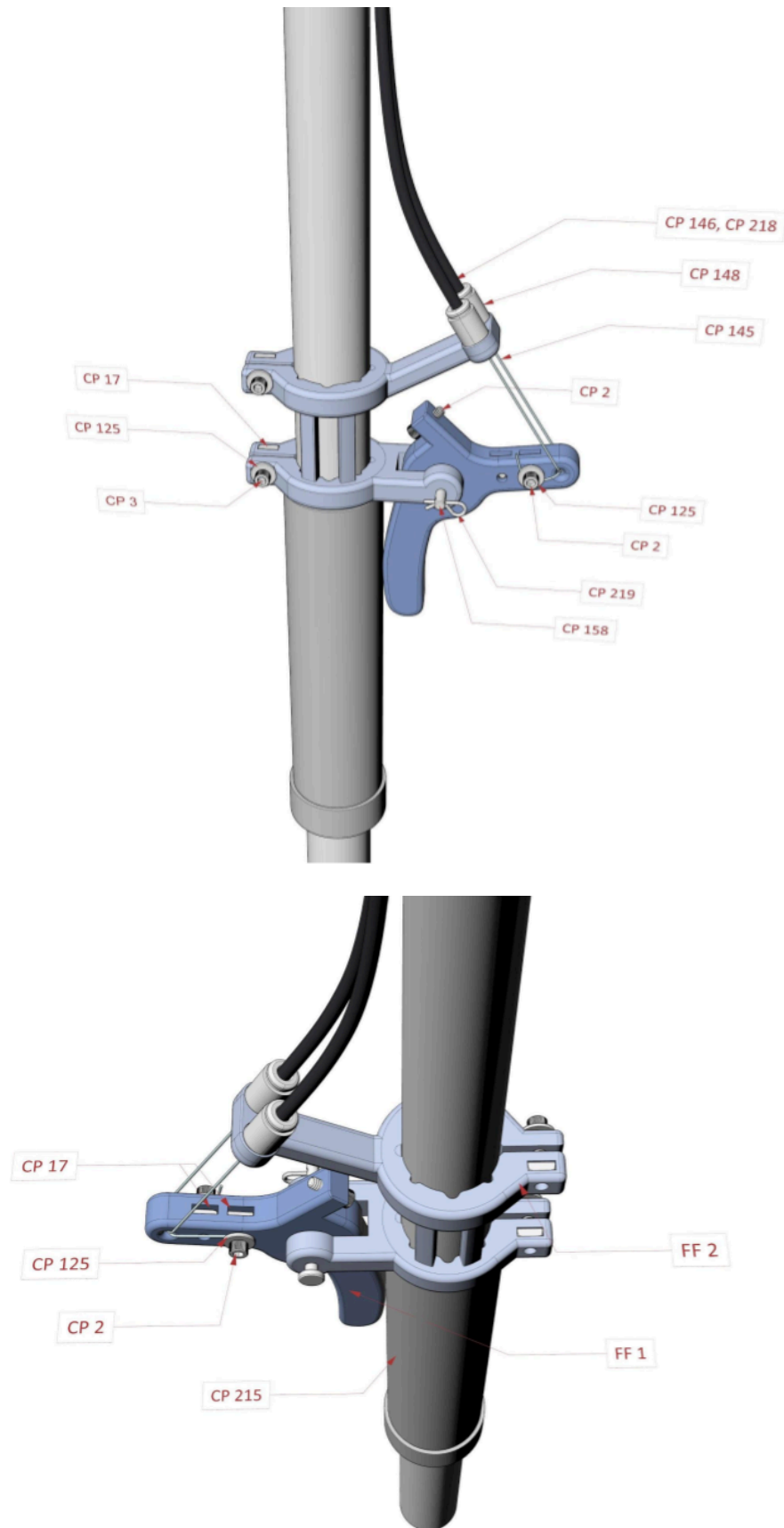
## 4 Detailed Diagrams of Mechanisms and Hardware

### 4.1 Puppet Interior

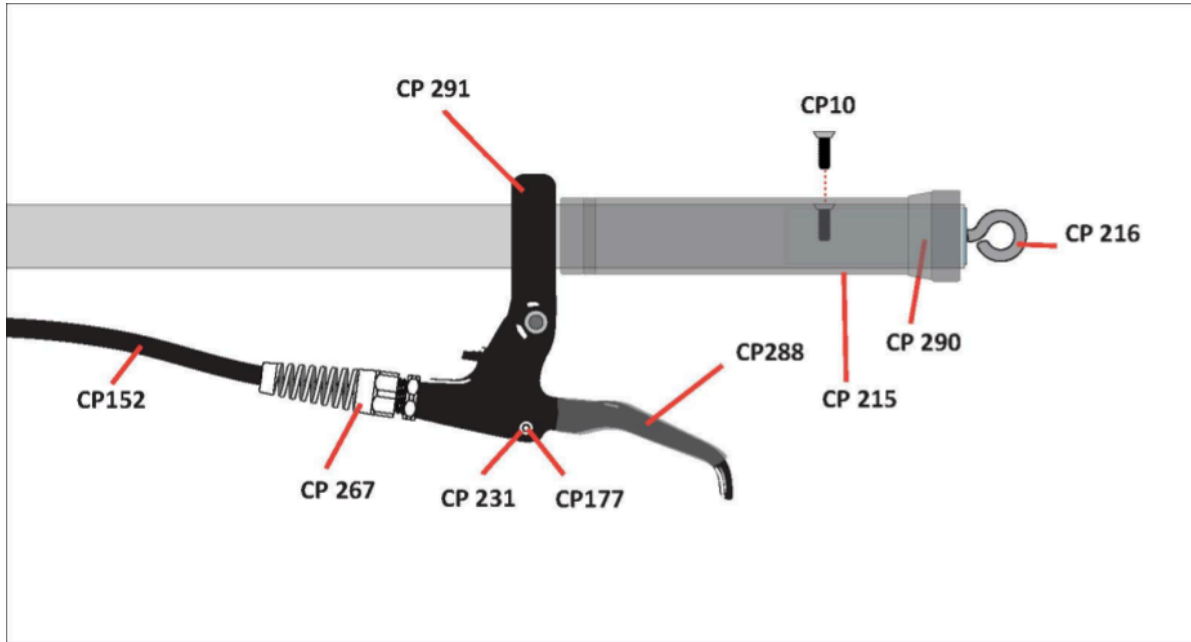




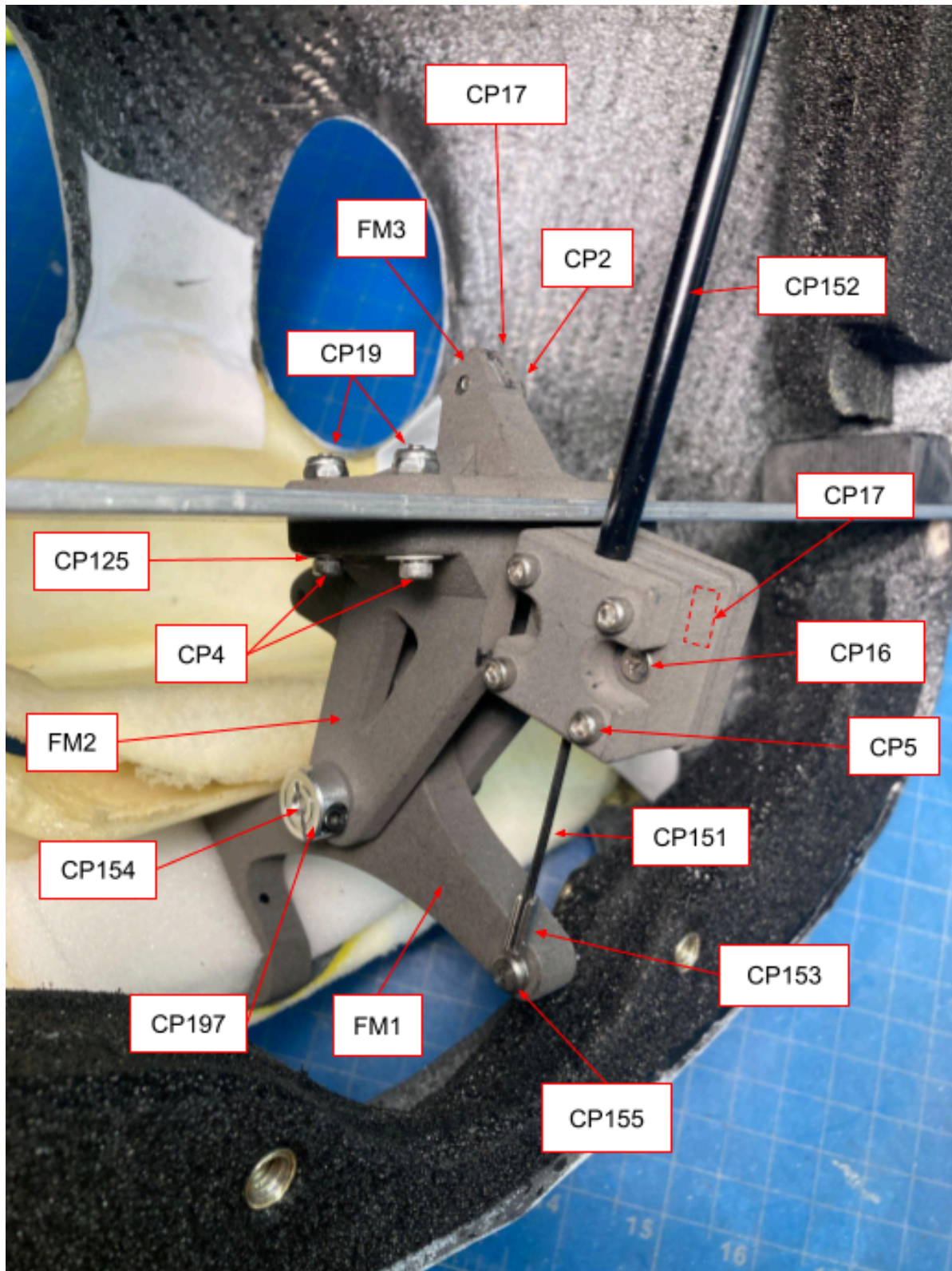
## 4.2 Fin trigger assembly



### 4.3 Mouth trigger assembly

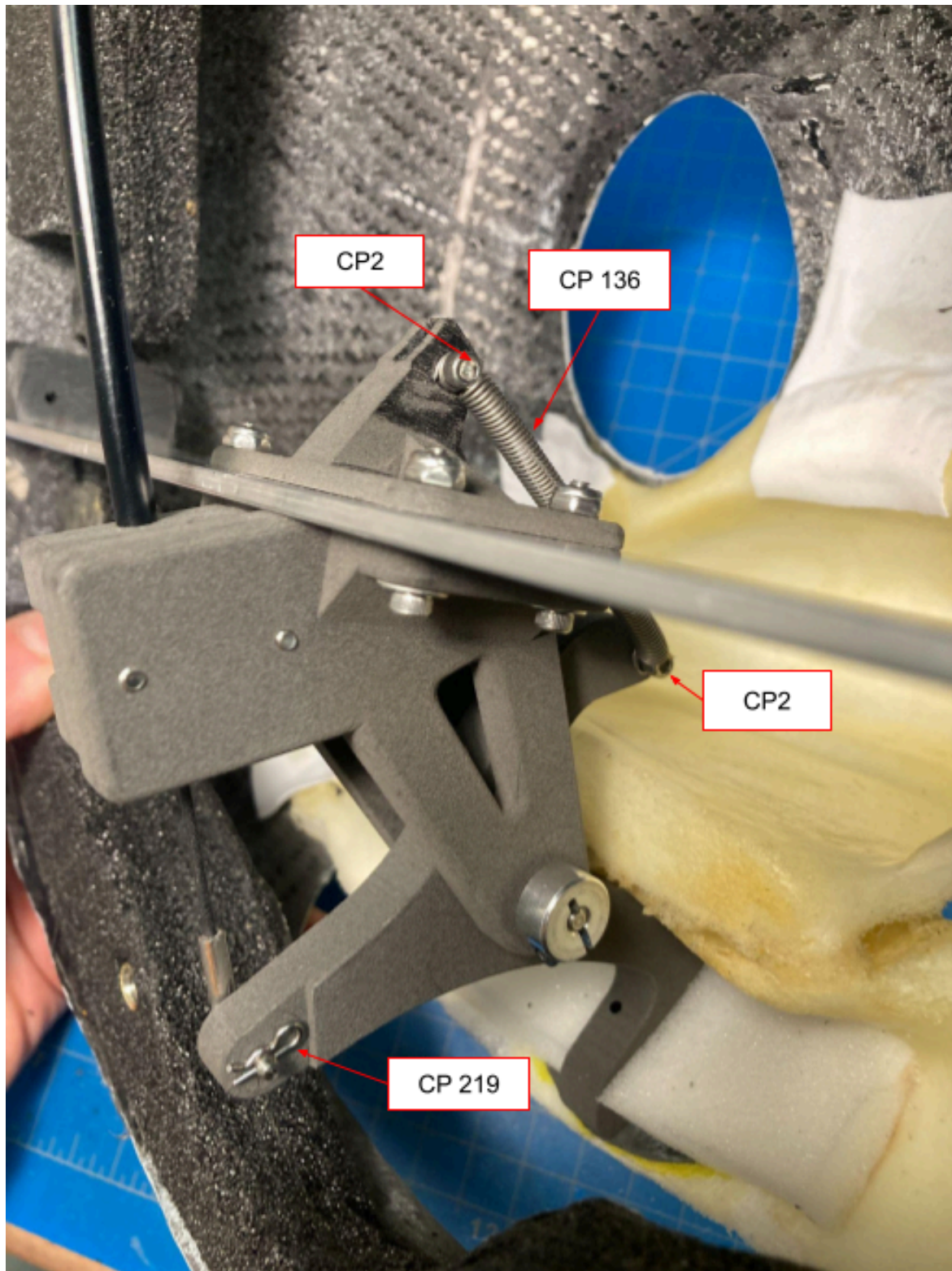


#### 4.4 Mouth mechanism view 1





#### 4.5 Mouth mechanism view 2





## 4.6 Fin mechanism



## 5 Safety and Hazards

### 5.1 Safety Precautions and Hazard Identification

As is the case with any puppet, care must be taken when handling this item to make sure that the item does not become damaged beyond normal expectations.

- Care should be taken that the puppet and its accessories do not crash against walls, doorframes, other props, or other items. This could cause the puppet to become damaged or soiled.
- If the hardware on the puppet becomes loosened, pieces of the puppet will be likely to behave erratically. Care should be taken to ensure that all hardware is present and properly tightened at all times.
- All electrical systems should be regularly checked and maintained to the utmost safety standards.

### 5.2 Hazard Mitigation Strategy

There is always a chance of breakage and small injury when handling puppets and props, but Monkey Boys Productions has done their best to keep these chances low and keep both performers and technicians safe. All items have been built to be safe to handle with little chance of injury when handled correctly.

- All carbon fiber parts have been sanded to a smooth surface and sealed or covered.
- All wires and other such electrical parts have been assembled in the most safe and logical way to avoid injury and avoid becoming a hazard to performers or technicians.
- Weights and distribution of weight have been thought through to make the carrying and handling of the props easier on the performers to avoid muscular injury or strain.

These puppets are not a hazard to the environment or the performance location.

## 6 Repair & Service

### 6.1 Daily Checks and Inspections

The following list is provided as a basis for daily inspection of the puppet. Items may be added to or removed from this list as the on-site technical director sees fit.

| Check Point       | How to Inspect                                                                                    |
|-------------------|---------------------------------------------------------------------------------------------------|
| Velcro attachment | Visually check to ensure that the Velcro is securely closed around the puppet.                    |
| Eye blinks        | Activate the eye blink mechanism and visually check that both eyes are fully closing and opening. |
| Fin mechanism     | Activate the fin mechanism and visually check that the fins are moving in the correct manner.     |

### 6.2 Periodic Testing

The following list is provided as a basis for periodic testing of the puppet. Items may be added to or removed from this list as the on-site technical director sees fit.

| Check Point       | How to Inspect                                                                                                    | When to Inspect       |
|-------------------|-------------------------------------------------------------------------------------------------------------------|-----------------------|
| Internal Hardware | Visually and physically inspect all visible hardware to ensure that nothing has become loose or otherwise damaged | Monthly, or as needed |

### 6.3 Routine Corrective Maintenance

The following list is provided as a basis for routine maintenance of items that will commonly need replacement or adjustment. Items may be added to or removed from this list as the on-site technical director sees fit.

| Check Point | Corrective Action | When to Address                                            |
|-------------|-------------------|------------------------------------------------------------|
| Eye Spring  | Replace           | As needed when eye is not re-opening on its own            |
| Fin string  | Replace           | As needed when looking worn or fin is not moving correctly |

### 6.4 Puppet-specific Service Items

A basic service kit has been supplied for use with this specific prop. Refills of the items in this kit can be handled by direct purchase from the source or by emailing [contact@monkeyboysproductions.com](mailto:contact@monkeyboysproductions.com). A full manifest of these items is supplied inside the kit and is included on the final page of this manual.

### 6.5 Cleaning Fabrics

**\*\*\*Please note that using liquids or detergents on UV treated fabrics may cause the UV reactivity to fade\*\*\***

#### 6.5.1 Spot Cleaning

- Spot clean as soon as dirt and grime are noticed.
- Gently wipe with Shout or Tide wipe.
- Dab product into deeper stains.
- Blot and gently wipe with a clean, white towel.
- Make sure that the area dries well.

#### 6.5.2 Deep Cleaning Option 1 for widespread stains

- Dilute a drop of Woolite detergent in room temperature water.
- Dab on with a white cloth.
- Gently wipe & dab with clean white towel.

#### 6.5.3 Deep Cleaning Option 2 for deep stains

- Spray Bissell Pro Carpet Cleaner on worst of spot.
- Allow it to rest for 1 minute.
- Carefully dab and wipe with a clean towel, being mindful that fabric doesn't pull away from the material beneath.

#### 6.5.4 In all cases

- DO NOT rub, twist, or pull when cleaning
- DO NOT use heat, steam, or pressure
- DO NOT use bleach or other harsh chemicals
- DO NOT immerse in or saturate with water

### 6.6 Cleaning Hard Surfaces

**\*\*\*Please note that using liquids or detergents on UV treated surfaces may cause the UV reactivity to fade\*\*\***

- Hard surfaces (Carbon fiber, plastic, aluminum, grip tapes, etc.) can be wiped clean with water or a mild cleanser such as Dawn dish detergent diluted in water.
- Always use a soft cloth and work carefully to avoid scratching or damaging any coatings or paints.
- Always wipe all surfaces dry immediately after cleaning to avoid leaving water spots or otherwise damaging finishes.



## 7 Detailed Maintenance Procedures

### 7.1 Specialty information about opening the puppet for repair or maintenance

1. Begin with freshly washed or gloved hands.
2. Use puppet's cover as a clean surface to work on.
3. Begin by detaching the top fin velcro from the body. It is a velcro tab that runs along the back end of the fin that is sandwiched between the velcro slit in the top of the body.



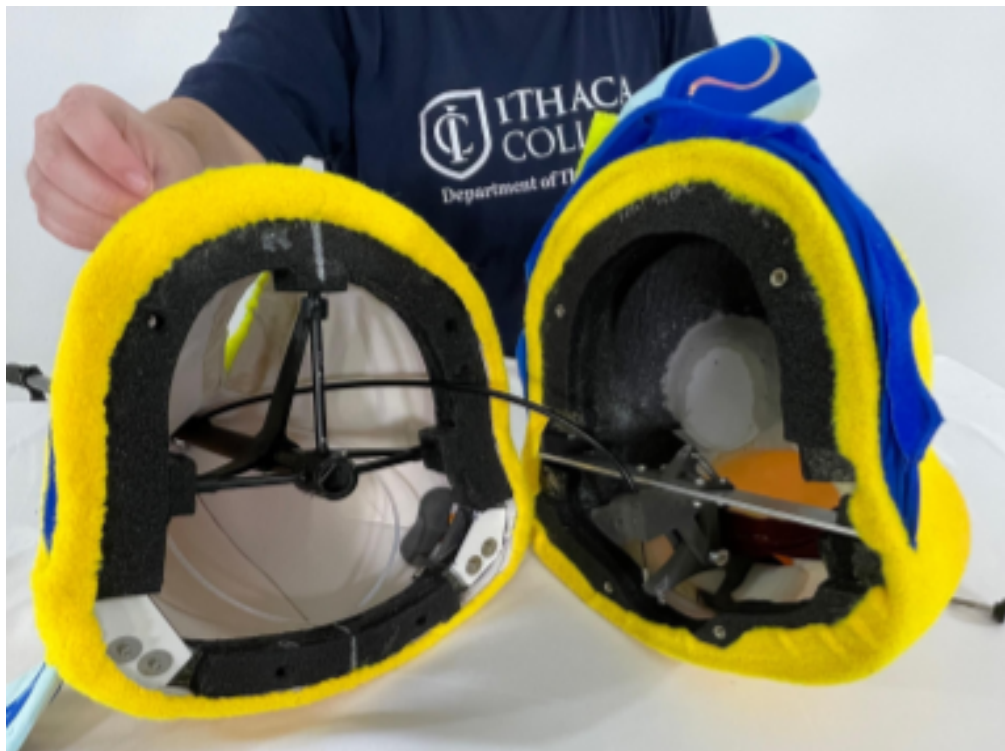
4. Detach velcro closure under the first large blue stripe. Start at the corners closest to the fins. It helps to apply pressure against the fleece body side and pull up on stripe velcro.
5. Roll the velcro/spandex stripe back over head as you go to get it out of the way



6. Next, place your hand in the puppet's back opening and you will find four thumb screws that hold the head to the body. Unscrew them just enough to let the two halves fall away from each other.



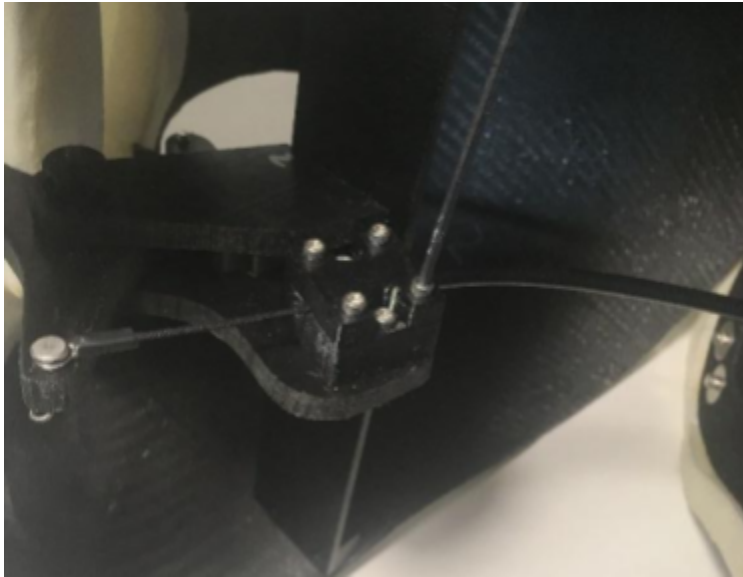
7. Head and body should now be detached while still leaving the mech cables still intact.



## 7.2 Specialty information about fully detaching the head from the body

*\*\*Images are from the WISH Flounder, procedure is the same\*\**

1. Flounder's head can be separated from the body without disturbing the settings of the mouth mechanism by doing the following:  
First follow the instructions for Accessing the Mechanisms for Flounder Rod (Section 7.1).
2. Now that the velcro has been released, the only thing holding Flounder's two halves together is the mouth cable. To release, first remove the four corner screws (CP4) on the cable housing sandwich (FM4). Do not remove the two center screws mounting the bottom half of the sandwich to the lever assembly.



3. Remove the top half of the sandwich (FM4). Remove the cotter pin (CP219) and clevis pin (CP155) from the mouth lever to release the eyelet cable end (CP153).



4. Replace the top of the cable housing sandwich, and re-insert the cotter pin and clevis pin in the mouth lever.





### 7.3 Specialty information about replacing the mouth cable

*\*\*Images are from the WISH Flounder, procedure is the same\*\**

*Tools needed - sava crimping tool, felco cable cutters. 3/32" hex allen key, 2mm hex allen key*

*Replacement parts: eyelet (CP153), end crimp, brake cable (CP151)*

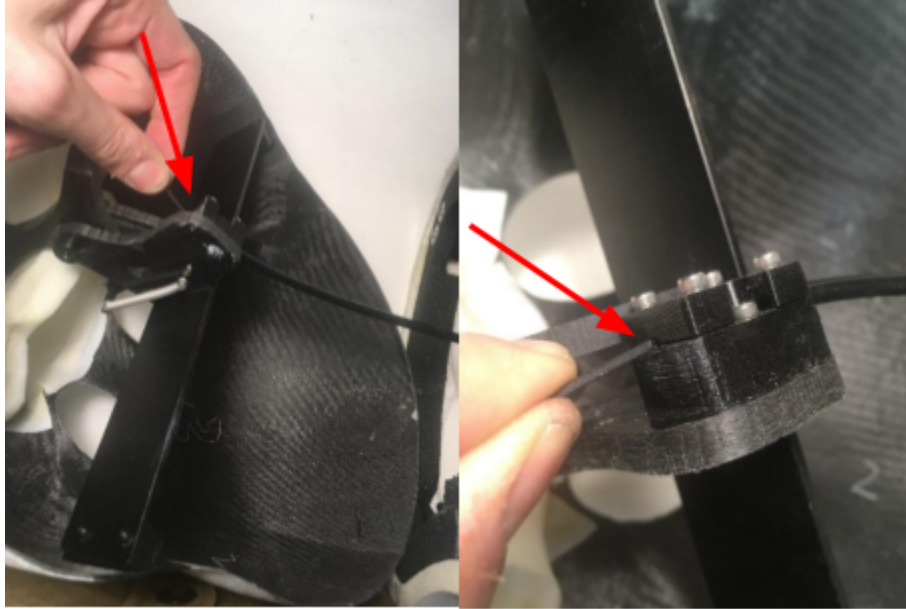


In the event that you need to replace the mouth cable, first follow the instructions for “how to detach the head from the body” (Sections 7.1 & 7.2).

1. Then, loosen the set screws (CP177) on the mouth trigger using a 3/32" hex allen key. Pull the old cable out of the housing and discard it.



2. Starting at the cable housing sandwich (FM4), near the mouth lever inside the head, insert a new cable (CP151) and feed it through the cable housing towards the bike brake.



3. The end of the cable will emerge at the bike brake.



4. Pass the cable through the hole in the bike brake lever and through the threaded spacer (CP231) and then out the bottom hole in the lever as shown.



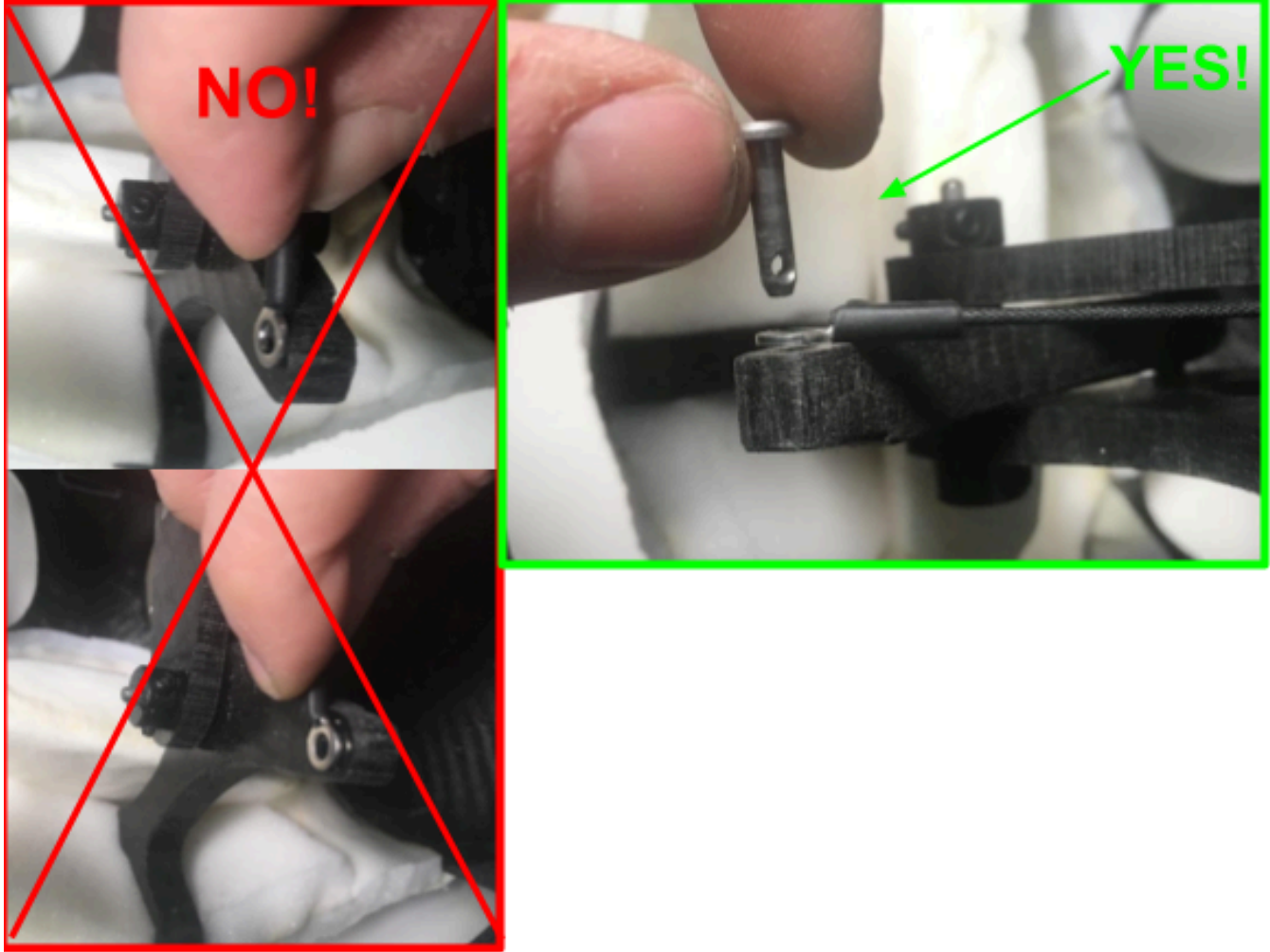
5. Returning to the mouth lever side of the bike cable, cut the ball end off of the cable as shown.



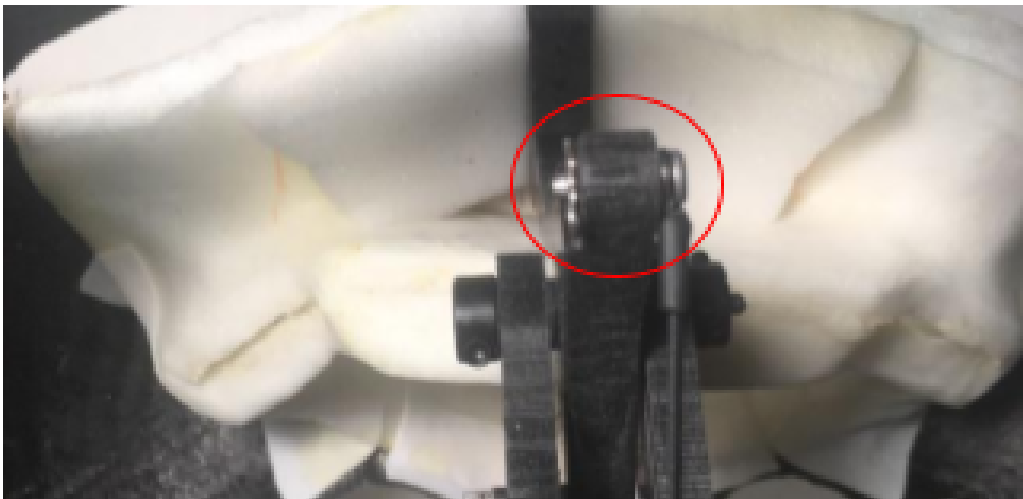
6. Next slip a new eyelet cable end (CP153) on to the end of the cut cable, and using the crimping tool, crimp the eyelet onto the cable, ensuring that the end of the cable is not exposed beyond the sleeve towards the eyelet.



7. The eyelet will be pinned to the left side of the mouth lever so that the flush side pivots against the lever. **\*\*IMPORTANT\*\*** The eyelet needs to be in the orientation shown on the right and not on the left in order for the mechanism to work properly.



8. With the flush side of the eyelet against the lever, insert the clevis pin (CP155) through the eyelet (CP153) and then through the mouth lever as shown.

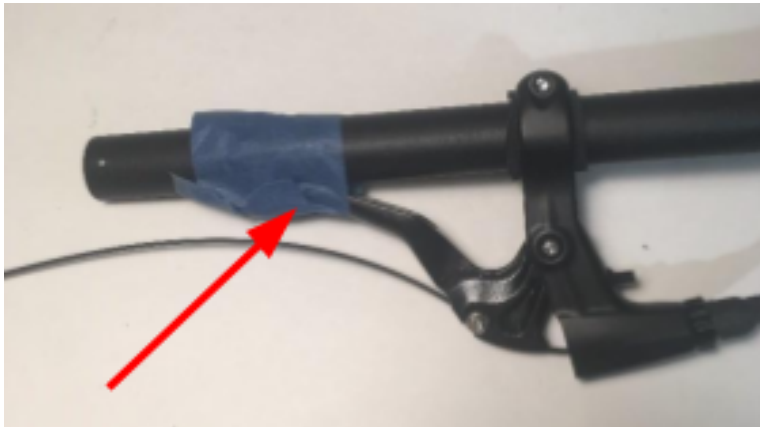




9. Secure the clevis pin (CP155) with a cotter pin (CP219) as shown.



10. Next, tape or clamp the bike brake down to the handle. Handle foam and silicone tape (not pictured here) should be installed as this will affect the total throw of the bike brake)



11. Next, have a second person squeeze the mouth lever as shown, so that the mouth is in its fully open position.



12. While the second person holds the mouth open, pull the cable towards the end of the pole, removing any slack, and then tighten a set screw (CP177) into the threaded spacer (CP231) and against the cable, to secure it. The second person may then let go of the mouth lever, and you may remove the clamp or tape from the handle. For an even more secure cable clamp (but more difficult de-install) you may optionally use 2 set screws in the threaded spacer, one on each side of the cable, compressing the cable between them.



13. With flounder's mouth closed, if there is any wiggle in the trigger (the trigger is able to move before it begins to operate the mechanism), you may adjust the set screw above the trigger using a 2mm hex allen key. Tightening the set screw to remove any additional slack and loosen it if the mouth does not return to a fully closed position. If there is slack in the trigger and the mouth does not return to a closed position, you may need to change the spring in the mouth mechanism.



14. Cut the excess cable, leaving enough to hang just beyond the bike brake, so that the end does not interfere with the puppeteer's hand.



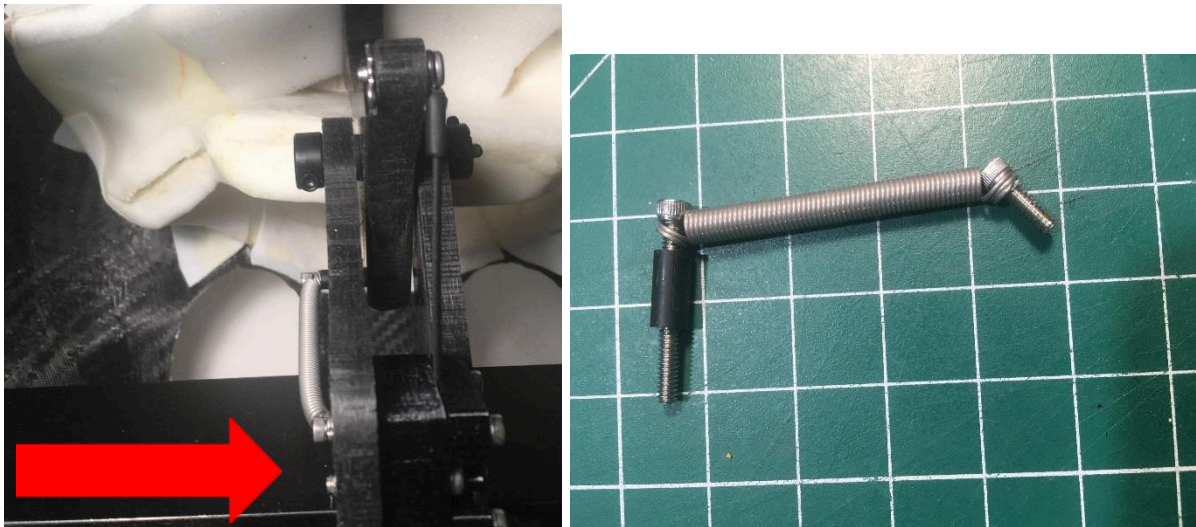
15. Protect the end of the cable by applying a new cable end crimp (FR151) as shown, using the crimping tool. Additionally, you may apply a sleeve of heat shrink tubing or bar wrap to capture both the excess cable and brake lever together.



## 7.4 Specialty information about replacing the mouth spring

*\*\*Images are from the WISH Flounder, procedure is the same\*\**

If the mouth spring is broken or no longer functioning, you may need to replace it.



Using a 3/32" hex allen key or mini ratchet, remove the two screws securing the mouth spring (CP136). Replace the spring with the new one provided in the repair kit, being careful to re-install it in the same orientation as the previous spring.





## 7.5 Specialty information about replacing the fin string

*\*\*Images are from the WISH Flounder, procedure is the same\*\**

1. Holding the puppet facedown with the belly facing you, run the right hand string along the right side of the rod and thread the string through the lever from right to left.



2. Wrap the string around the washer on the left side of the lever clockwise so the string sits between the washer and the lever. If there is not enough space or it is not fitting in, loosen the screw slightly.



3. Push the lever so that it hits the stop and ensure that the string is taut between the lever and the puppet **WITHOUT** actuating the fin up.



4. Tighten the screw to securely capture the string. **DO NOT OVERTIGHTEN.**



5. Run the left hand string along the left side of the rod and thread the string through the lever from left to right.

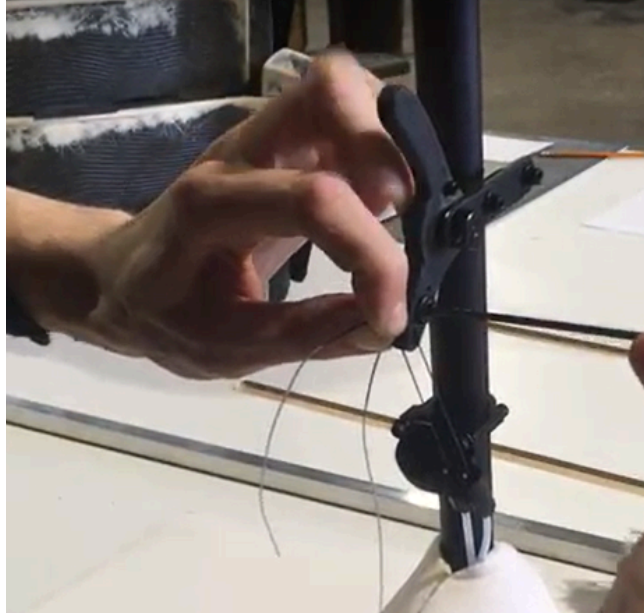


6. Wrap the string around the washer on the right side of the lever clockwise so the string sits between the washer and the lever. If there is not enough space or it is not fitting in, loosen the screw slightly.



7. Push the lever so that it hits the stop and ensure that the string is taut between the lever and the puppet WITHOUT actuating the fin up.

8. Tighten the screw to securely capture the string. DO NOT OVERTIGHTEN



9. Actuate the fins to test their movement.



## 7.6 Specialty information about closing the puppet after repair or maintenance

**\*\*NOTE:** It helps to sit while doing this reattachment and have the pole vertically between your knees. This allows you to have your hand in the back opening and to peek into the seam to more accurately line up the screws and holes

1. Push all thumb screws fully through so as much of their thread ends can be seen as possible. This helps with visibility for lining up the screw into the threaded hole on the head side.
2. When you are ready, start with the two chin area thumb screws. **ONLY THREAD ENOUGH FOR IT TO CATCH.** This allows for you to keep an open seam to see what you are doing. Next do the top two.

**\*\*NOTE:** THIS IS NOT EASY! You may have to gently push against the foam rings to help things align.

3. Once they are all in place, screw them all down fully.
4. Next, velcro the blue stripe in place. This stripe is VERY particular in how it goes on. Try your best to keep it flat so the velcro doesn't bulge through the spandex. Put your one hand in the puppet and push out against the foam to give yourself more surface area and **TAKE YOUR TIME! IT CAN BE DONE!**
5. It is best to attach this velcro from the lower cheek corner, lining up the velcro edges as you go toward the top fin.
6. Then switch to the other lower cheek corner and do the same going towards the top fin.
7. Lastly, velcro the top fin back into the body slit. Pinching it in place as you go.

## 8 Comprehensive Parts List

### 8.1 Understructure and Base

| Part # | Part                   | Usage                                      | Vendor                                                | Vendor Part ID   |
|--------|------------------------|--------------------------------------------|-------------------------------------------------------|------------------|
| FN01   | Carbon Fiber           | Carbon Fiber Face                          | Rockwest Composites                                   | P/N 14008-LYD    |
| FN02   | Sports Mesh Net        | Foam Nose & Jaw (w/net)                    | In House/MBP                                          | N/A              |
| FN0-3  | White PETG             | 3D Palate (Lower Lip)                      | In House/ MBP                                         | N/A              |
| FN04   | 1mm Hips               | Vaquiform Eyes                             | In House/MBP                                          | N/A              |
| FN05   | Poly Foam              | Mouth Mech                                 |                                                       | N/A              |
| FN06   | 1/2" Bra Foam          | Tongue                                     | Pacific Fiber Products                                |                  |
| FN07   | 3/8" Bra Foam          | Top Fin                                    | Pacific Fiber Products                                | W01-01726        |
| FN08   | 1/2" Bra Foam          | Body Foam                                  | Pacific Fiber Products                                | asin: B07BGZ82XH |
| FN09   | 1" HD110 Plastazote    | Plastazote Ring (Body Side & Head Side)    | JMS Plastics Supply                                   | n/a              |
| FN10   | Plastic School Folder  | Side Fin                                   | Walgreens                                             | n/a              |
| FN11   | 1/8" Bra Foam          | Side Fin                                   | Pacific Fiber Products                                | n/a              |
| FN12   | 5/8" ABS plastic sheet | attachment blocks for aluminum head bar    | Curbell                                               | CPIT100032       |
| CP290  | Black ABS Rod          | Carbon fiber tube plug, eyehook attachment | Mcmaster-Carr                                         | B08CN624Z2       |
| FN13   | Super Soft             | Mouth Mech                                 | <a href="https://foambyemail.com">Foambyemail.com</a> | B08CN624Z2       |
| FN14   | Silicone Rubber Wrap   | To tighten fit of bike brake               | Amazon                                                | VO50BE           |

### 8.2 Hardware

| Part # | Part                        | Quantity | Usage                               | Vendor              | Vendor Part ID |
|--------|-----------------------------|----------|-------------------------------------|---------------------|----------------|
| FN15   | #4 CF Tube (7/8 od)         |          | Carbon Fiber Tube Pole and 4" Brace | Rockwest Composites | P/N 45004      |
| FN16   | #5 CF Tube (ID7/8") "Brace" |          | Carbon Fiber Tube Pole and 4"       | Rockwest Composites |                |

|        |                                                  |     |                                                                 |                     |                 |
|--------|--------------------------------------------------|-----|-----------------------------------------------------------------|---------------------|-----------------|
|        |                                                  |     | Brace                                                           |                     |                 |
| FN17   | 1/4" rods (3)                                    | 3   | Carbon Fiber Inner Spokes                                       | Rockwest Composites | CE15-AB-05      |
| FN18   | Body Side Thumb Screws                           | 4   | Holds Body to Head                                              | McMaster Carr       | #91185A422      |
| FN19   | Head Side T-Nuts                                 | 4   | Holds Body to Head                                              | McMaster Carr       | #97217A393      |
| FN20   | ABS Rod plug                                     | 1   | Anchors Rod End hooks in the end of the pole                    | McMaster Carr       | #8587k5         |
| FN21   | Inner Rod Support (Body Side)                    | 1   | Supports Rod array Inside body                                  | MBP                 | n/a             |
| CP 22  | SS socket head screw, 6-32 3/8"                  | 6   | Fin trigger attachment, clamping screw for FR12/Z01             | McMaster-Carr       | 92196A146       |
| CP 3   | ss socket head screw, 1/2" X 4-40                | 3   | string to fin attachment, fin trigger housing clamping          | McMaster-Carr       | 92196A070       |
| CP 2   | SS socket head screw, 3/8" x 4-40                | 3   | mouth spring attachment, fin trigger string attachment and stop | McMaster-Carr       | 92196A108       |
| CP 148 | push-to-connect tube fitting                     | 4   | Tube to mech connection                                         | McMaster-Carr       | 5779K241        |
| CP 227 | heat shrink tubing 1/2"                          | n/a | Covering push to connect fitting                                | McMaster-Carr       | 7856K47         |
| CP 197 | aluminum shaft collar, 1/8"                      | 2   | Mouth mech axle retainment                                      | McMaster-Carr       | 6157K11         |
| CP 1   | SS socket head screw, 1/4" x 4-40                | 4   | spring to fin mech attachment                                   | McMaster-Carr       | 92196A106       |
| CP 154 | SS rotary shaft, 1/8"                            | 1   | mouth mech axle shaft                                           | McMaster-Carr       | 1257K39         |
| CP 151 | Yuauy bike brake cable, mountain bike            | n/a | Mouth Mechanism                                                 | Amazon              | ASIN B07WLLD2NG |
| CP 229 | heat shrink tubing 1" wide                       | n/a | Capturing excess bike cable to the mouth trigger                | McMaster-Carr       | 7856K91         |
| CP 231 | female threaded round stand off, 10-32 3/8" 1/4" | 1   | Cable stop in mouth trigger                                     | McMaster-Carr       | 91125a463       |
| CP 177 | ss flat tip set screw, 10-32 3/16"               | 2   | Cable stop in mouth trigger                                     | McMaster-Carr       | 94355A328       |
| CP 264 | 2.5 finger fomtor mountain bike brake            | 1   | Mouth mech trigger                                              | Amazon              | ASIN B076WL5C8H |
| CP 152 | mountain bike brake cable housing                | n/a | Mouth mech                                                      | Amazon              | ASIN B082Y77712 |

|        |                                                 |     |                                                                                        |                 |                     |
|--------|-------------------------------------------------|-----|----------------------------------------------------------------------------------------|-----------------|---------------------|
| CP 151 | cable end crimp                                 | 1   | End of bike cable                                                                      | Amazon          | ASIN B01JR8CIZA     |
| CP 4   | ss socket head screw, 4-40 x 5/8"               | 4   | Attaching clevis and spring mount to mouth mech flat bar                               | McMaster-Carr   | 92196A112           |
| CP 5   | ss socket head screw, 4-40 x 3/4"               | 4   | Axle sandwich                                                                          | McMaster-Carr   | 92196A113           |
| CP 16  | ss philips flat head screws, 4-40 x 3/4"        | 4   | attaching cable housing sandwich block to mouth clevis                                 | McMaster-Carr   | 91771A113           |
| CP 146 | teflon tubing, 1/8" D                           | n/a | mech tubing                                                                            | McMaster-Carr   | 5239K24             |
| CP 145 | IGFA braided dacron, 30 lb test                 | n/a | mech string                                                                            | Amazon          | ASIN B005EJ4NNC     |
| CP 134 | ss spring, .017 x 1"                            | 3   | fin mech return                                                                        | McMaster-Carr   | 9665K83             |
| CP 125 | ss washer, 1/8"                                 | 6   | fin mech trigger clamping washers, fin to string attachment                            | McMaster-Carr   | 92141A005           |
| CP 19  | ss nylon lock nut, 4-40                         | 2   | attaching mech string to fin, attaching clevis and spring mount to mouth mech flat bar | McMaster-Carr   | 91831A005           |
| CP 185 | SS slotted spring pin, 1/8" x 1 1/4"            | 2   | Fin Mech Axle                                                                          | McMaster-Carr   | 92373A185           |
| CP 136 | SS spring, 0.026 wire diameter, x 1 3/4" length | 1   | Mouth mech return                                                                      | McMaster-Carr   | 9665K15             |
| CP153  | eyelet cable end, 0.156 hole size, 0.063 cable  | 1   | Mouth mech cable pick point                                                            | Carl Stahl Sava | 310S156             |
| CP 155 | SS clevis pin, 1/2" x 1/8"                      | 1   | Mouth mech cable pick point attachment                                                 | McMaster-Carr   | 92390A070           |
| CP 219 | SS hairpin cotter pin                           | 1   | Mouth mech cable pick point attachment, fin trigger axle attachment                    | McMaster-Carr   | 92391A005           |
| CP 33  | ss nylon locknut, 6-32                          | 4   | Attaching fin mech to body rib                                                         | McMaster-Carr   | 91831A007           |
| CP 26  | ss socket head screw, 6-32 x 1"                 | 4   | fin hinge plate attachment                                                             | McMaster-Carr   | 92196A165           |
| CP 158 | SS Clevis Pin, 1.25" x 1/8"                     | 1   | fin trigger axle                                                                       | McMaster-Carr   | 92390A095           |
| CP 218 | Heat Shrink Tubing                              | n/a | black covering for mech tubing                                                         | Amazon          | (AISN - B01MSESRK)  |
| CP215  | bike handles                                    | 2   | control handles                                                                        | Amazon          | (AISN - B07XXR9CMF) |
| CP216  | SS Eye Hook 10-24                               | 1   | hook for hanging puppet                                                                | McMaster-Carr   | 9489T54             |



|       |                                                |   |                                                    |               |           |
|-------|------------------------------------------------|---|----------------------------------------------------|---------------|-----------|
| CP267 | continuous flex cord grip                      | 1 | cable housing to mouth trigger connection          | McMaster-Carr | 69915K42  |
| CP10  | ss flat head screw                             | 1 | securing bushing to carbon fiber tube              | McMaster-Carr | 91771A108 |
| CP17  | 4-40 Square nut                                | 5 | fin trigger mount tightening, setting mech strings | McMaster Carr | 94855A281 |
| FN22  | 4-40 5/8" Extra Wide Truss Head Phillips Screw | 1 | Fin trigger stop adjustment                        | McMaster Carr | 91770A011 |
| FN75  | SBR Rubber Grommet                             | 2 | To protect bike cable when going through CF rod    | McMaster Carr | 9600K117  |

### 8.3 Fabric and Fibers

| Part # | Part                                  | Usage                          | Vendor              | Vendor Part ID   |
|--------|---------------------------------------|--------------------------------|---------------------|------------------|
| FN23   | Spandex                               | Mouth Mech                     | Spandex World/House |                  |
| FN24   | Wine Craft velour                     | Wine Winella Palate Cover      | CR's Crafts         | SKU: 86073       |
| FN25   | Dyed Spandex Dark Blue                | First Stripe Spandex w/ velcro | Spandex World/House | N/A              |
| FN26   | Female, 3" Cut & Dyed Velcro          | First Stripe Spandex w/ velcro | Velcro Brand        | asin: BOBPDJQV87 |
| FN27   | Muslin                                | Body Foam Velcro Opening       | Online Fabric Store | 8016-63          |
| FN28   | Dyed Spandex Light Blue               | Side Fin, Double Tail          | Spandex House       | N/a              |
| FN29   | F3 Dyed Yellow                        | Body, face                     |                     | N/A              |
| FN30   | F3 Dyed Light Pink                    | Tongue                         |                     | n/a              |
| FN31   | Pellon Fusible Interfacing            | Stripes                        | Joann's             | # 1944974        |
| FN32   | Gutermann Mara 100 thread color 177   | Body, face                     | Wawak               | # 177            |
| FN33   | Gutermann Mara 100 thread color 14401 | Body, face, fins               | Wawak               | # 14401          |
| FN34   | Gutermann Mara 100 thread color 53    | Body, face, fins               | Wawak               | #53              |
| FN35   | 1/2" Male & Female Velcro             | Top Fin Velcro                 | Wawak               |                  |
| FN36   | 1/2" Velcro                           | Body Foam Velcro Opening       | Velcro Brand        |                  |

|      |                                   |                                 |                  |                  |
|------|-----------------------------------|---------------------------------|------------------|------------------|
| FN37 | Male Side of 3" cut & dyed velcro | Velcro Strip on Body for Stripe | Wawak            |                  |
| FN38 | Pupil Paper Rings                 | Vaquform Eyes                   | Amazon/Benecreat | asin: B07BGZ82XH |
| FN74 | Black suede                       | Eyebrows                        | Leather Guy      |                  |

#### 8.4 Custom Made Parts

| Part # | Part                              | Quantity | Usage                          | Vendor         | Filename                                                                                                                                                                                    |
|--------|-----------------------------------|----------|--------------------------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FN39   | Abs Parts                         |          | Mouth Mech                     | In House / MBP | **All Flounder 3D Files located in the box drive here:<br><a href="https://disney.box.com/s/5zslvpsvpqtr3b7rids3twkdip8o1mew">https://disney.box.com/s/5zslvpsvpqtr3b7rids3twkdip8o1mew</a> |
| FN40   | 3D Parts                          |          | Mouth Mech, Side Fin Mech      | In House / MBP |                                                                                                                                                                                             |
| FN41   | 3D Resin Parts                    |          | Inner Rod Support (Body Side)  |                |                                                                                                                                                                                             |
| FN42   | Inner Rod Support (Body Side)     | 1        | Supports Rod array Inside body | MBP            |                                                                                                                                                                                             |
| FF1    | fin trigger lever                 | 1        | Fin trigger assembly           | MBP            |                                                                                                                                                                                             |
| FF2    | fin trigger housing               | 1        | Fin trigger assembly           | MBP            |                                                                                                                                                                                             |
| FF3    | fin pair                          | 1        | Fin mech assembly              | MBP            |                                                                                                                                                                                             |
| FF4    | fin mount pair                    | 1        | Fin mech assembly              | MBP            |                                                                                                                                                                                             |
| FF5    | fin mount mending plate           | 1        | Fin mech assembly              | MBP            |                                                                                                                                                                                             |
| FM1    | mouth lever                       | 1        | Mouth mech assembly            | MBP            |                                                                                                                                                                                             |
| FM2    | mouth clevis                      | 1        | Mouth mech assembly            | MBP            |                                                                                                                                                                                             |
| FM3    | mouth spring mount                | 1        | Mouth mech assembly            | MBP            |                                                                                                                                                                                             |
| FM4    | tall brake cable housing sandwich | 1        | Mouth mech assembly            | MBP            |                                                                                                                                                                                             |
| CP 291 | Customized 264                    | 1        | Mouth Trigger Assembly         | MBP            |                                                                                                                                                                                             |

## 8.5 Paints and Dyes

SDS sheets are available in the separate SDS Project Packet.

| Part # | Part                               | Usage                                                       | Vendor                            | Vendor Part ID |
|--------|------------------------------------|-------------------------------------------------------------|-----------------------------------|----------------|
| FN43   | white fluorescent paint            | Flounder eyes                                               | Modern Masters, Wildfire lighting | VLP            |
| FN44   | Extra white paint                  | Flounder eyes                                               | sherwin williams                  | K60W00651      |
| FN45   | kilkenny Green paint               | Flounder iris                                               | sherwin williams                  | K42W00053      |
| FN46   | Manual Lemon yellow paint          | Flounder iris                                               | sherwin williams                  | K42W00053      |
| FN47   | Hyper blue paint                   | Flounder iris                                               | sherwin williams                  | K60W00651      |
| FN48   | Green fluorescent paint            | Flounder iris                                               | Modern Masters, Wildfire Lighting | VLP            |
| FN49   | Blue fluorescent paint             | Flounder iris                                               | Modern Masters, Wildfire Lighting | VLP            |
| FN50   | brilliant yellow fluorescent paint | Flounder iris                                               | Modern Masters, Wildfire Lighting | VLP            |
| FN51   | Deep yellow fluorescent paint      | Flounder iris                                               | Modern Masters, Wildfire Lighting | VLP            |
| FN52   | Tricorn black paint                | Flounder pupil                                              | sherwin williams                  | K60W00651      |
| FN53   | White Primer spray paint           | flounder CF skull                                           |                                   | W026           |
| FN54   | Fluorescent Pink Airbrush paint    | Cheek blush                                                 | Createx Colors, wicked colors     | # 1004773678   |
| FN55   | Fluorescent Safety Orange acid dye | yellow F3 fleece - body<br>0.25% depth of shade             | Dharma Trading Company            | 456            |
| FN56   | Fluorescent Yellow acid dye        | yellow F3 fleece - body<br>4% depth of shade                | Jacquard                          | 640            |
| FN57   | Aqua Tropic acid dye               | light blue spandex -<br>stripes 1/16% depth of<br>shade 50% | Jacquard                          | 647            |
| FN58   | Blacklight Blue acid dye           | light blue spandex -<br>stripes 1/16% depth of              | Jacquard                          | 645            |

|      |                          |                                                   |          |     |
|------|--------------------------|---------------------------------------------------|----------|-----|
|      |                          | shade 50%                                         |          |     |
| FN59 | Blacklight Blue acid dye | dark blue spandex - stripes 4% depth of shade     | Jacquard | 645 |
| FN60 | Brilliant Blue acid dye  | dark blue spandex - stripes 2% depth of shade 50% | Jacquard | 623 |
| FN61 | Royal blue acid dye      | dark blue spandex - stripes 2% depth of shade 50% | Jacquard | 625 |

## 8.6 Glues, Treatments, Coatings, and Chemicals

SDS sheets are available in the separate SDS Project Packet.

| Part # | Part                                        | Usage                      | Vendor               | Vendor Part ID |
|--------|---------------------------------------------|----------------------------|----------------------|----------------|
| FN62   | Barge                                       | Flounder Foam and spandex  | Frankford Leather    | BAPCPAR        |
| FN63   | vaseline                                    |                            |                      | B00407DVNC     |
| FN64   | EpoxaMite 100 Part A                        | Carbon Fiber Face          | Smooth On            | N/A            |
| FN65   | 102 Medium Part B                           | Carbon Fiber Face          | Smooth On            | N/A            |
| FN66   | EpoxaMite Filler                            | Carbon Fiber Face          | Smooth On            | N/A            |
| FN67   | Flex Foam It 7FR                            | Foam Nose & Jaw (w/net)    | Smooth On            | N/A            |
| FN68   | Transluscent Blue Holographic Iron on vinyl | flounder embellishments    | Cricut               | 2006161        |
| FN69   | Blue Holographic Iron on Vinyl              | flounder embellishments    | Cricut               | 2006160        |
| FN70   | Tri-Flow Superior Lubricant                 | Lubricant for bike brake   | Tri-Flow             | TF21010        |
| FN71   | Free Form Air                               | Attaching eyes             | Smooth on            | N/A            |
| FN72   | Super 77                                    | Temporarily attaching face | Lowes                | #41209         |
| FN73   | Fabri-tak                                   |                            |                      | N/A            |
| FN76   | Insta-Shield Flame Retardant                | Fire treatment             | Northeast FireShield | N/A            |