

WALT DISNEY WORLD®

PROJECT RED

BLOWFISH

OPERATIONS AND REPAIR MANUAL



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Revision History

Date	Version	Description	Author
02/15/2024	1.0	First iteration	Bridget Reilly Beauchamp, Brieaunna Avery
04/29/2024	1.1	Addition of Comprehensive Materials	Bridget Reilly Beauchamp, Brieaunna Avery
06/11/2024	2.2	Final Iteration before installation	Bridget Reilly 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: Inflating and deflating puppet	13
3.2.3 Placing puppet on stand	14
3.2.4 Storage	14
4 Detailed Diagrams of Mechanisms and Hardware	15
4.1 Internal parts Callouts	15
4.2 Inflating the Blowfish	16
5 Safety and Hazards	17
5.1 Safety Precautions and Hazard Identification	17
5.2 Hazard Mitigation Strategy	17
6 Repair & Service	18
6.1 Daily Checks and Inspections	18
6.2 Periodic Testing	18
6.3 Routine Corrective Maintenance	18
6.4 Puppet-specific Service Items	18
6.5 Cleaning Fabrics	18
6.5.1 Spot Cleaning	18
6.5.2 Deep Cleaning Option 1 for widespread stains	19
6.5.3 Deep Cleaning Option 2 for deep stains	19
6.5.4 In all cases	19

6.6 Cleaning Hard Surfaces	19
7 Detailed Maintenance Procedures	20
7.1 Specialty information about opening the puppet for repair or maintenance	20
7.2 Specialty information about removing the skin in order to replace one or more ribs	21
7.3 Specialty information about closing the puppet after repair or maintenance	23
8 Comprehensive Parts List	24
8.1 Understructure and Base	24
8.2 Hardware	24
8.3 Fabric and Fibers	25
8.4 Custom Made Parts	26
8.5 Paints and Dyes	26
8.6 Glues, Treatments, Coatings, and Chemicals	27

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 reimagined 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:

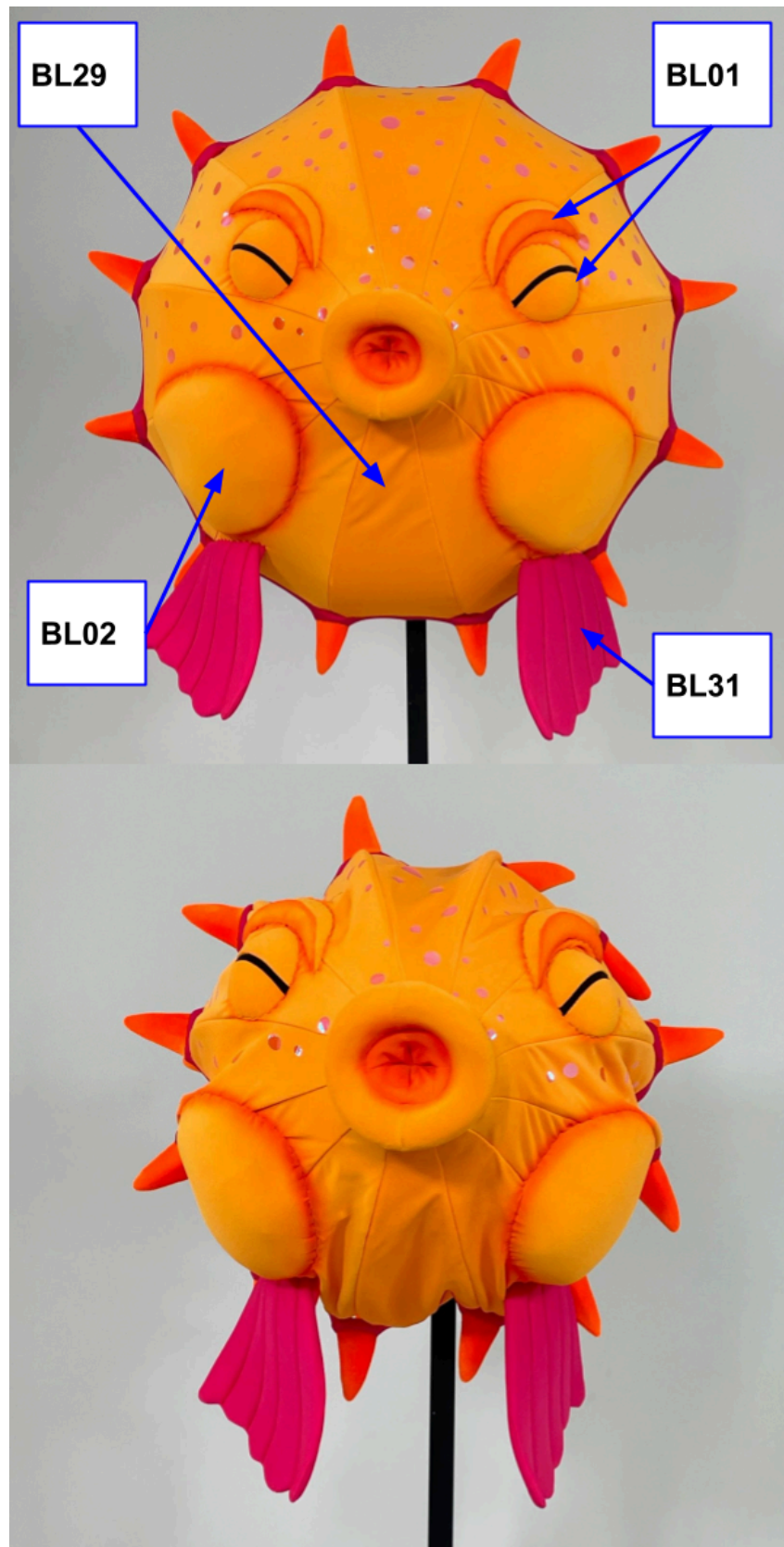
"The Blow Fish is a mechanical rod puppet performed by a single puppeteer that will need to 'inflate' while on stage. When the blowfish initially appears on stage it is in its deflated form. During a particular audio cue in the music the puppet will need to 'inflate'/expand quickly. Ideally this is performed by pushing up on a sleeve that should slide along the main supporting pole. The main support pole is held by the puppeteer's left and right hands. The sliding sleeve should be in the performer's upper hand and push up toward the puppet which should compress a series of ribs causing them to balloon out thereby filling and expanding the fabric skin."

1.2.2 Basis of Engineering

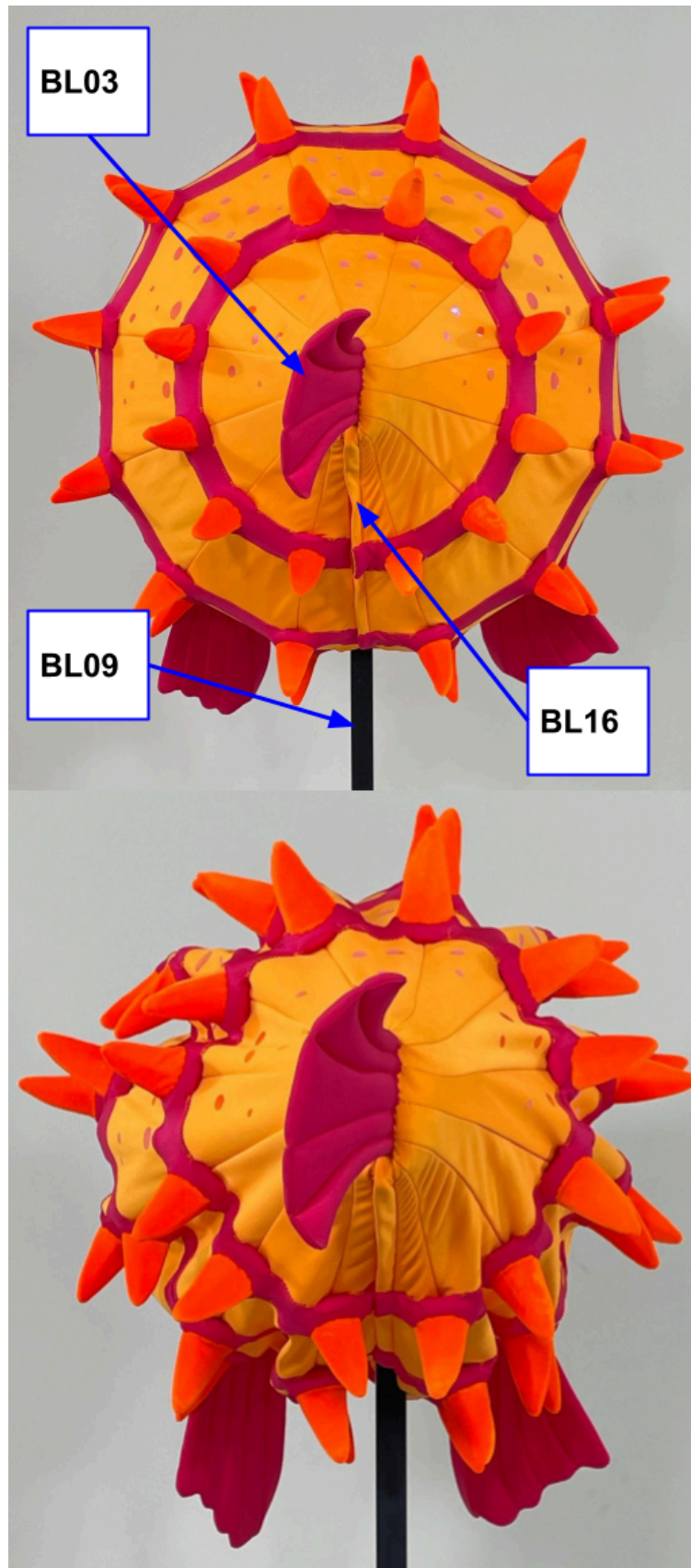
The Blowfish is made with an aluminum structure, and the ribs are created of nylon rods, supported by custom 3D printed receivers. The skin is covered with UV-reactive spandex, paint, and embellishments and is airbrushed to provide texture. The facial features remain stationary when the blowfish changes shape.

2 Construction and Assembly

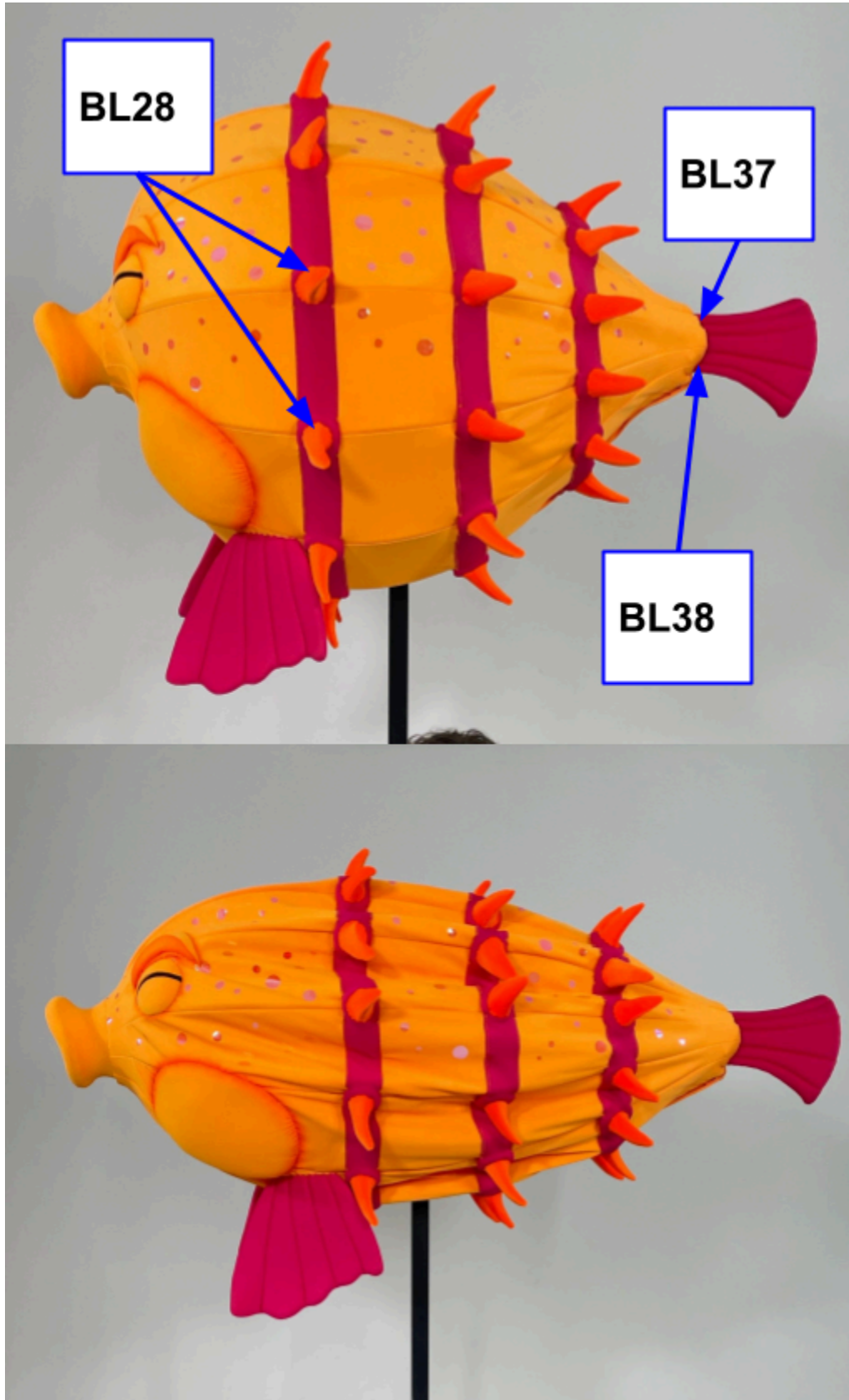
2.1 Front View



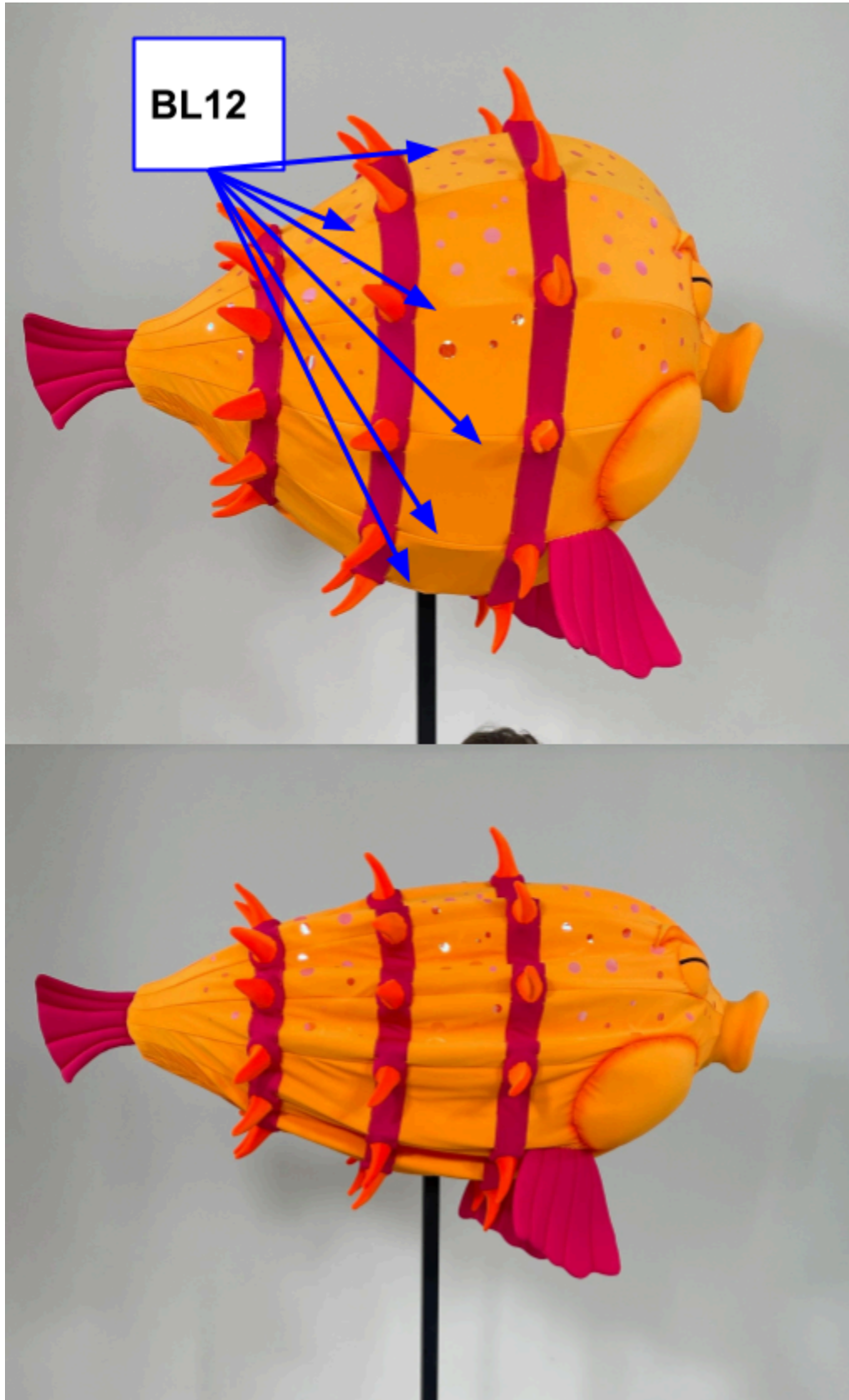
2.2 Rear View



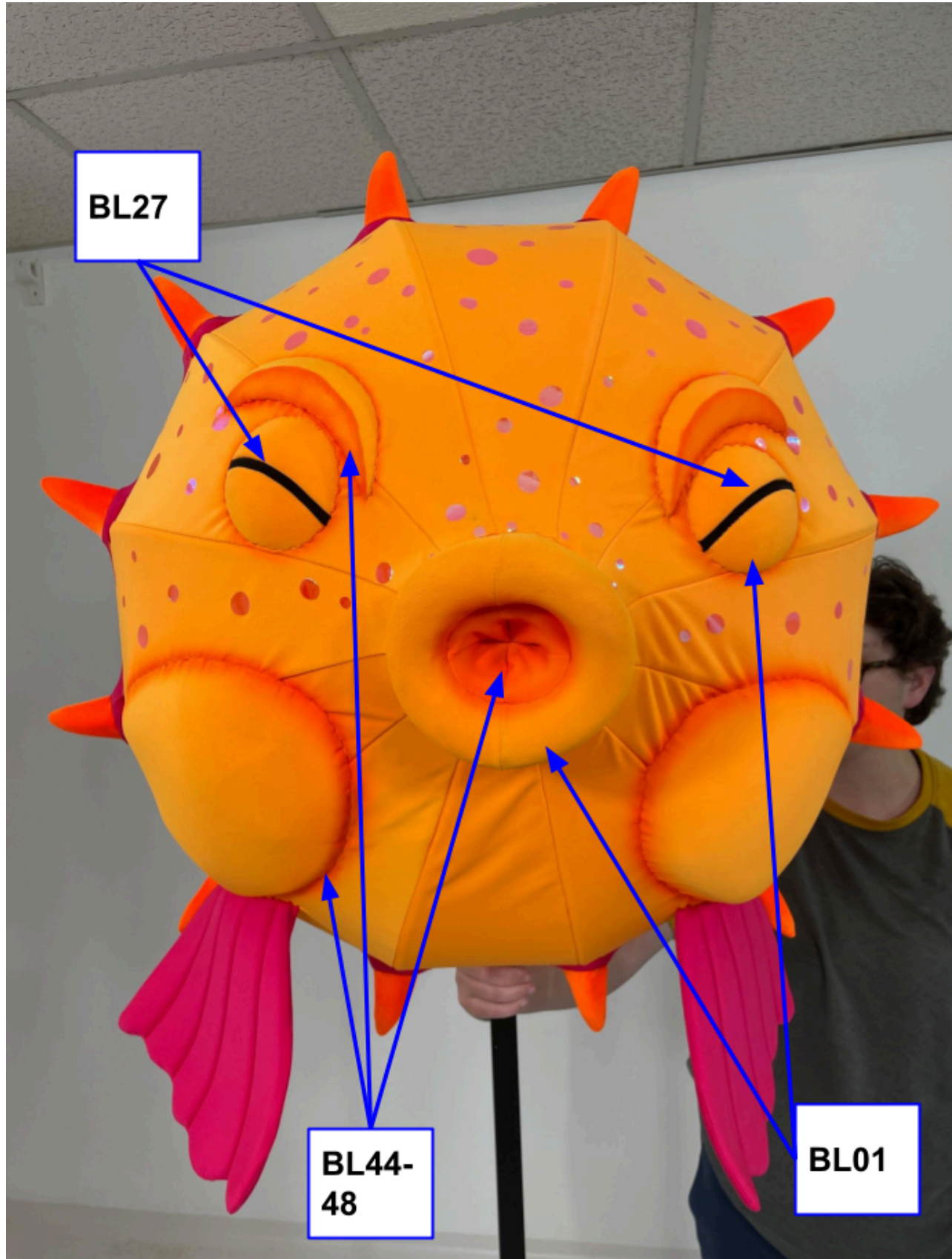
2.3 Left view



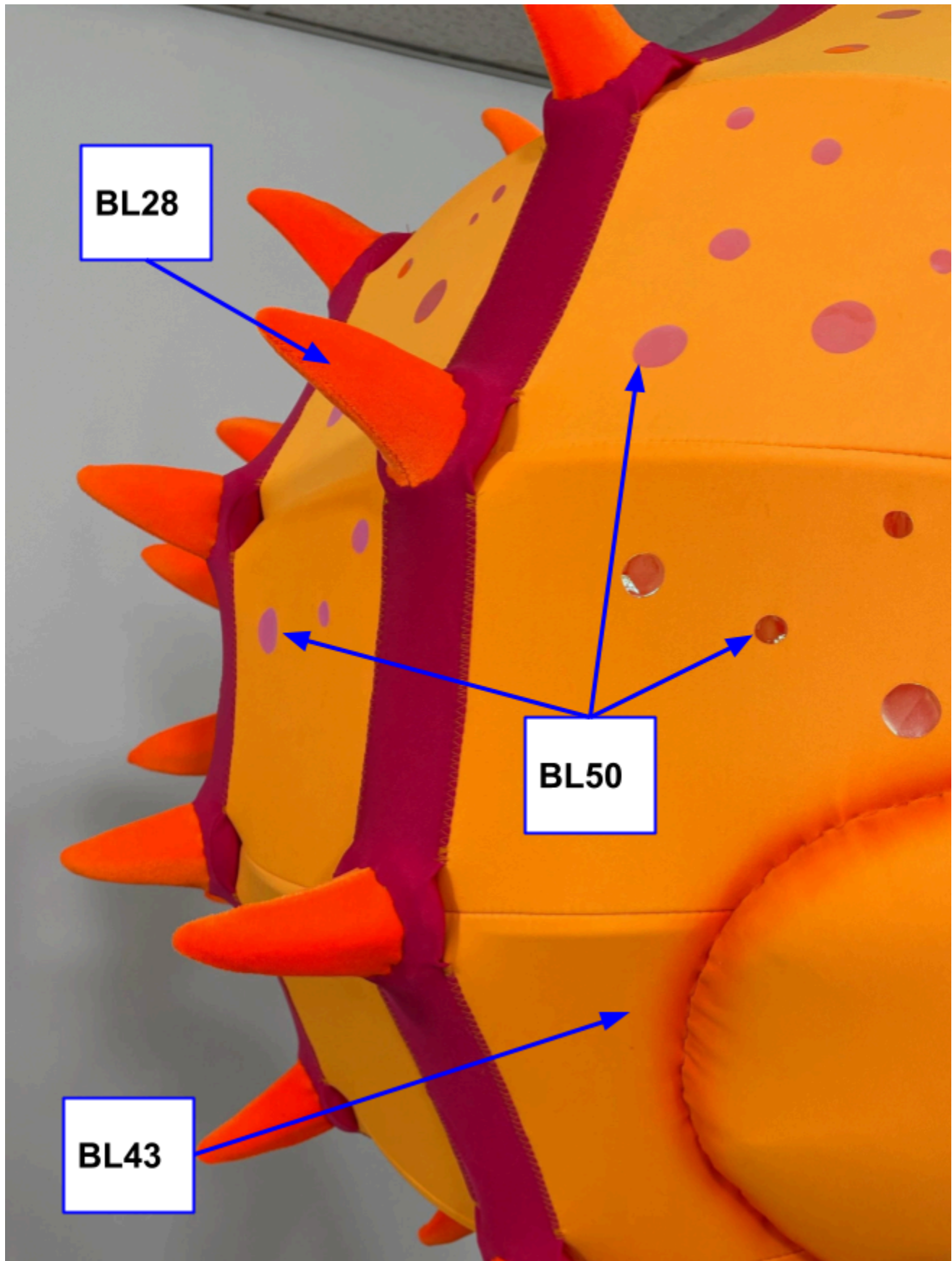
2.4 Right View



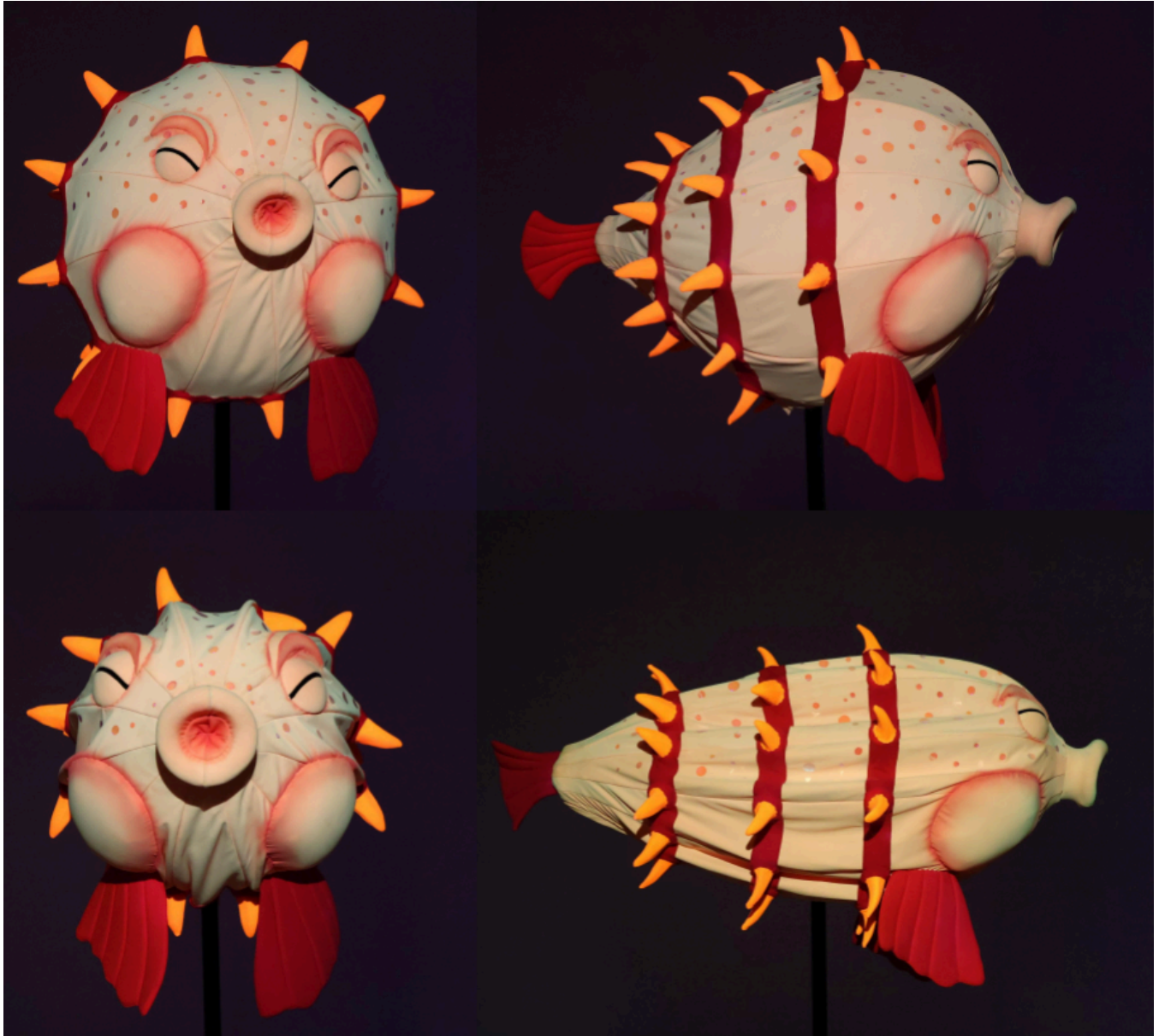
2.5 Closeup of Face



2.6 Closeup of embellishments



2.7 UV Views



3 Description of Operating Modes

3.1 Operating Modes

3.1.1 Storage

The Blowfish Puppet will be stored on a rolling stand during the show. 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

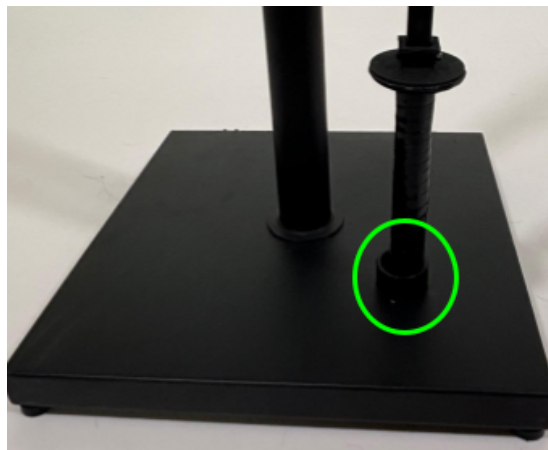
3.2.1 Removing the puppet from the stand

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

1. Grasp the handle with one hand and release the lever (circled in blue) by pulling it upwards with the other hand.



2. Lift Blowfish off stand. Be sure to clear the handle guard (circled in green).



3.2.2 Action: Inflating and deflating puppet

1. To deflate the character, the puppeteer should push their hands apart.



2. To “inflate” the character, the puppeteer should pull their hands together.



3.2.3 Placing puppet on stand

To replace the puppet on the stand, follow the instructions for removal in reverse.

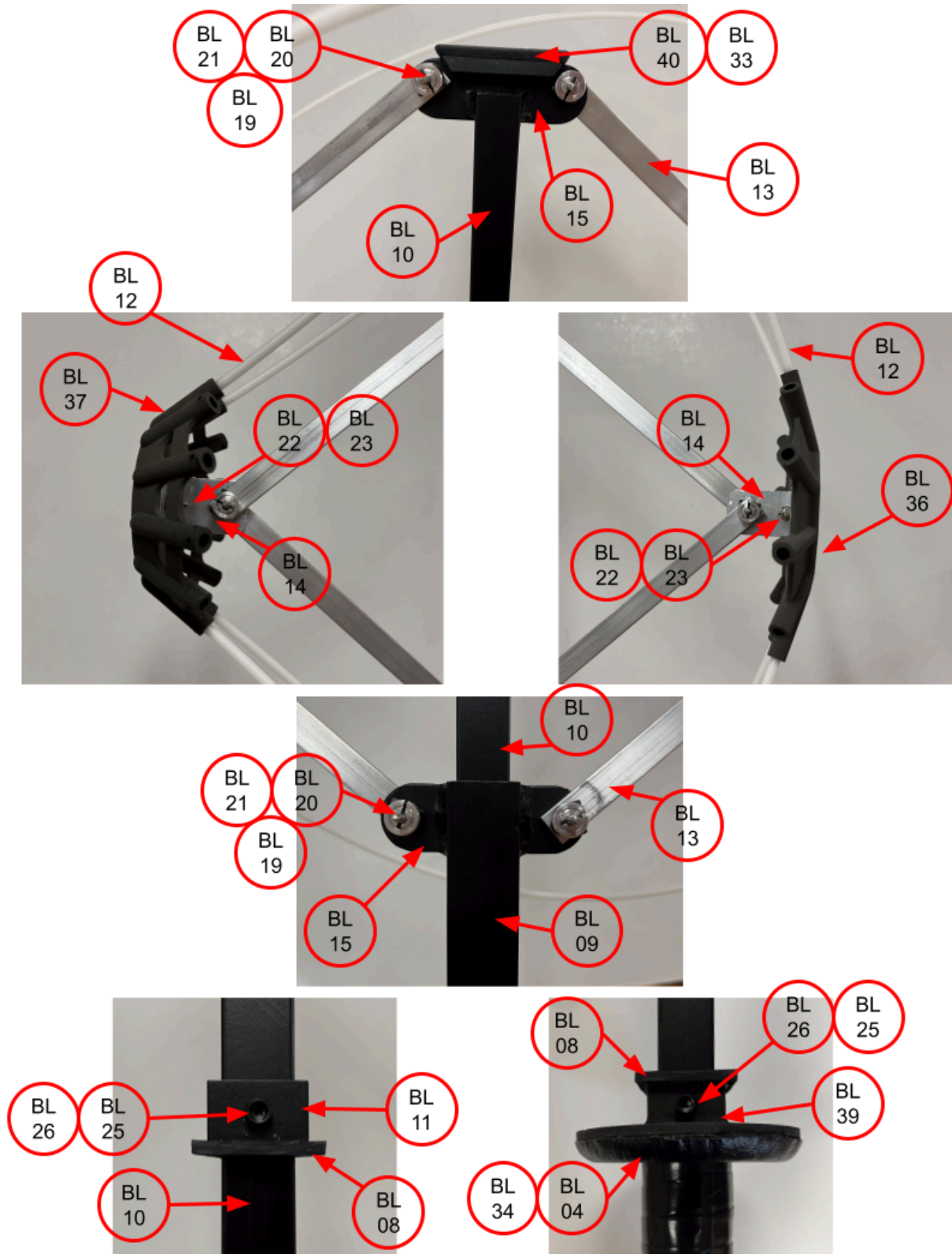
3.2.4 Storage

To store the puppet ensure that the puppet is stable on the stand and lower the cover over the top. Draw the string around the bottom of the puppet and pull the cord lock to secure it in place. The cover does not need to be cinched completely closed around the stand.

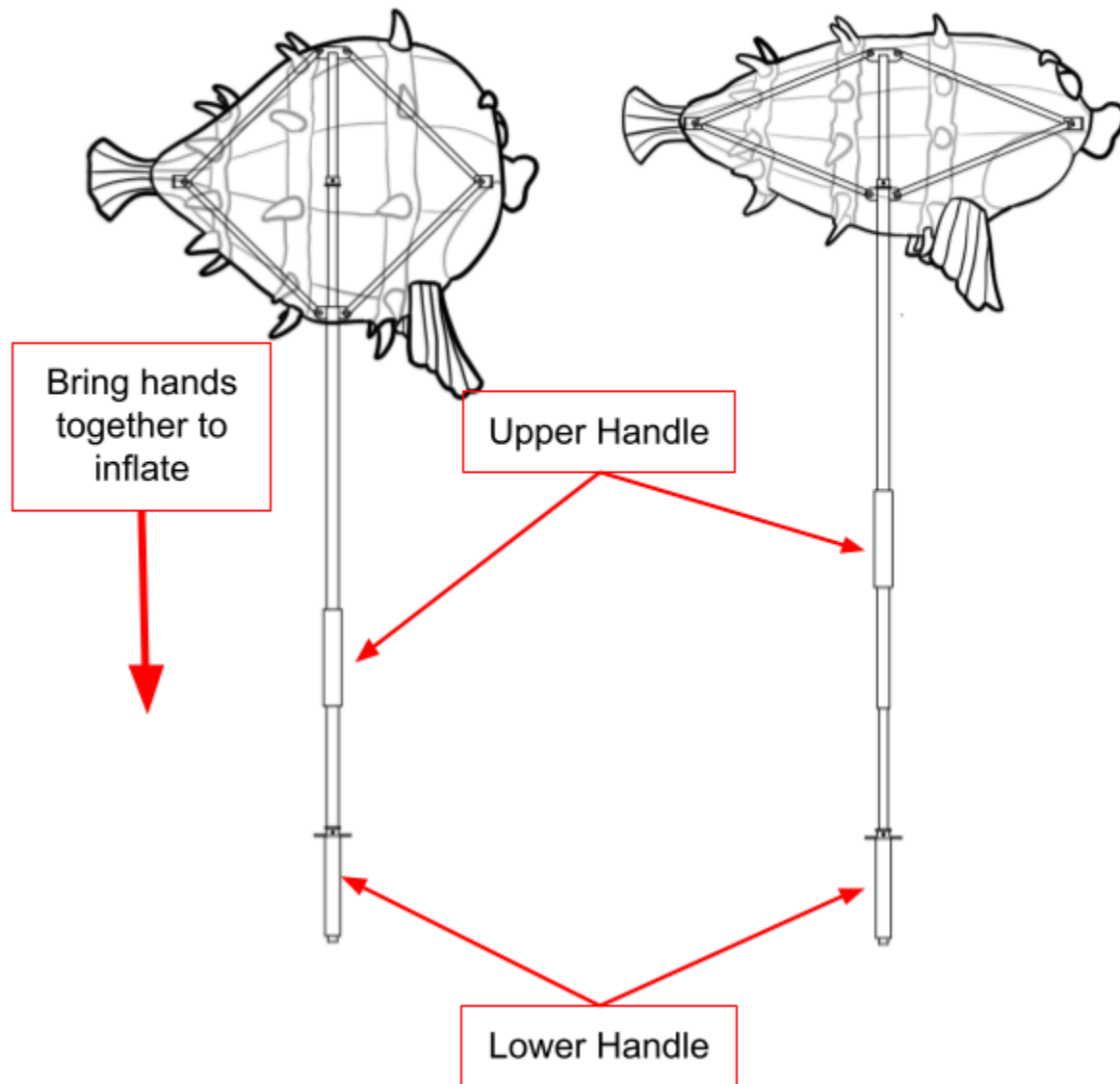


4 Detailed Diagrams of Mechanisms and Hardware

4.1 Internal parts Callouts



4.2 Inflating the Blowfish



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
Grip tape	Visually and physically ensure that the grips on the pole are secure and safe

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	Open the zipper on the back of the puppet and visually check to see if all hardware is correctly tightened and secure	Weekly
Outer fabric covering	Visually check for runs, holes, damage, or dirt on the outer parts of the puppet	Weekly

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
Grip tape	Replace with new tape	As needed (should not be often)
Spikes	Stitch any areas that are loose	As needed
Replace ribs	Remove broken ribs and replace	As needed

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. 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

There is a separating zipper located under the back tail that will allow you to access the interior of the puppet.

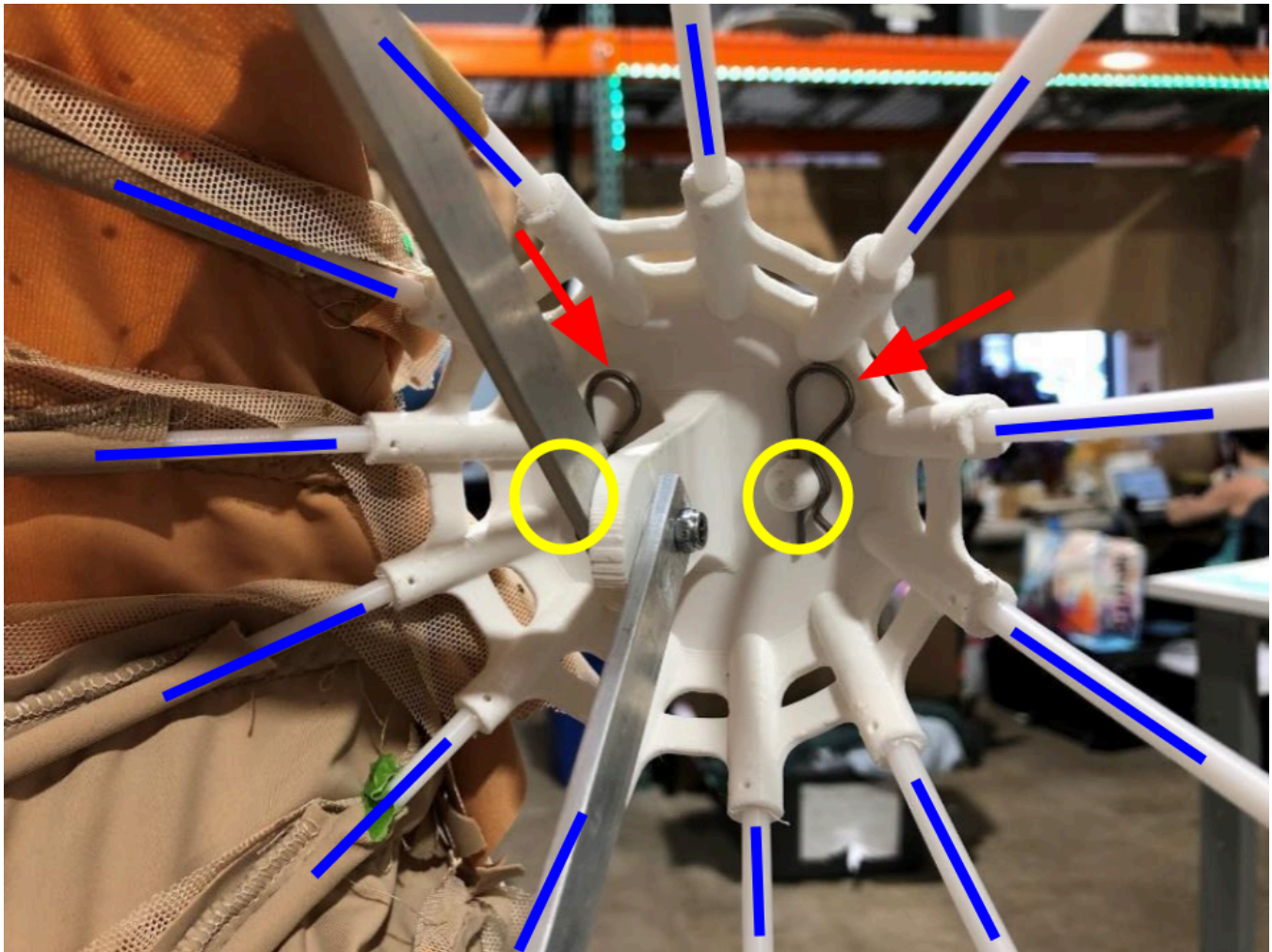
Pull out the tab near the tail and unzip



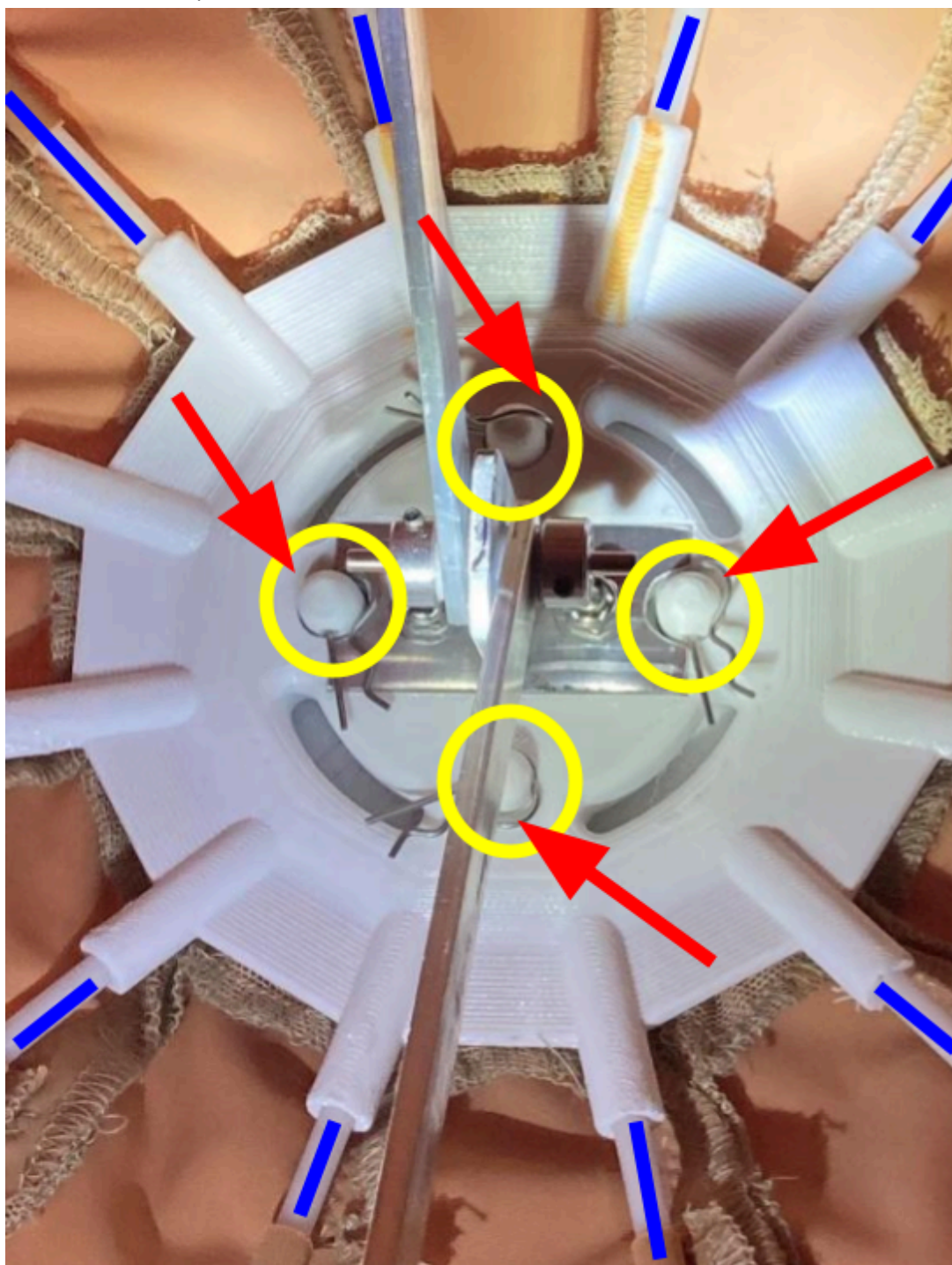
7.2 Specialty information about removing the skin in order to replace one or more ribs

Photos in section 7.2 are of the WISH Blowfish. The procedure is the same.

1. Using the instructions in section 7.1, unzip the puppet.
2. Remove the 2 cotter pins from behind the tail plate (marked with red arrows).
3. Pull out all rods from the rod connector plate on the tail end. (marked with blue lines)
4. Pull tail until the two nubs that the cotter pins were in (marked with yellow circles) dislocate from the rod connector plate



5. Move to the mouth end, remove 4 cotter pins from behind the mouth plate (marked with red arrows).
6. Pull out all rods from the rod connector plate on the mouth end (marked with blue lines)
7. Pull mouth until the four nubs that the cotter pins were in (marked with yellow circles) dislocate from the rod connector plate



8. Utilizing two people, gently pull off and over the frame, from tail to mouth.
9. Once replacement rods have been put in place, follow the steps in reverse order to reassemble the blowfish.

7.3 Specialty information about closing the puppet after repair or maintenance

To close the blowfish, join the zipper ends at the bottom and zip closed.

Be sure to tuck the tabs of the zipper in when you are finished.

8 Comprehensive Parts List

8.1 Understructure and Base

Part #	Part	Usage	Vendor	Vendor Part ID
BL01	3/16" Bra Foam	Eyes, Eyebrows, Mouth, Tail Filler	Foambymail.com	CPIT100028
BL02	1/2" Poly Foam	cheeks	Foambymail.com	PE17-_1
BL03	1/2" Bra Foam	Tail		N/A
BL04	L400 Filler (Side Wedges)	tail filler pieces		XPE4
BL05	3/8" bra foam	side fins	Foambymail.com	CPIT100032
BL06	Iron on stretch tricot interfacing	zipper facings		asin: B082YK2GTG
BL07	1/4" Black L400	Handles and hand guard pad		XPE4
BL08	Silicone rubber wrap	Handles	Amazon	
BL09	1"x1" Aluminum Square Tube 1/16" wall	Outer Tube	McMaster	#88875K51
BL10	3/4"x3/4" Aluminum Square Tube 1/16" wall	Inner Tube	McMaster	#6546K52
BL11	1"x1" Aluminum Square Tube 1/8" Wall	Top Stopper	McMaster	#88875K54
BL12	3/16" Diameter White Delrin Rod 37 1/2" Long	Spines	McMaster	#8572K49
BL13	1/2" Aluminum Bar 1/8" Thick	Scissoring Mechanism	McMaster	#8975K577
BL14	1 1/2"x 2" Aluminum T Bar	Attachment point for mouth and tail to scissoring mech	McMaster	#1668T53
BL15	1" Aluminum Bar 1/8" Thick	Attachment point for pole to scissoring mech	McMaster	#8975K578

8.2 Hardware

Part #	Part	Quantity	Usage	Vendor	Vendor Part ID
BL16	Coats & Clark Coil Separating Zipper 18"	1	Allows access to inner mechs	Coats & Clark	B00DD2D4X2
BL17	18-8 Stainless Steel Hairpin Cotter Pin	6	Holds tail and mouth to body mech	McMaster	#92391A024

BL18	Cut piece of 60A Neoprene textured rubber	2	Lower Handle stopper + upper handle stopper	McMaster	#8445K14
BL19	*1/8" OD Stainless Steel Rod 1 1/2"	6	Axel for pivot points in mech		#1257K39
BL20	1/8" Aluminum Clamping Shaft Collar	12	Fasteners for pivot points in mech		#6157K11
BL21	Delrin #5 Washers	20	Stopping friction at pivot points	McMaster	#95647A115
BL22	6-32 SS Lock Nut	4	Fastens nylon mouth and tail piece to mech		#91831A007
BL23	6-32 x 3/4" SS Flat Head Screw	4	Fastens nylon mouth and tail piece to mech		#91771A151
BL24	3/4" SS Cotter Pins 1/16 diameter	12	Secures delrin rod to nylon tail piece	McMaster	#98401A413
BL25	8-32 1 1/4" SS Socket Head Screw	2	Holds stops in place	McMaster	#92196A177
BL26	8-32 SS Lock Nut	2	Holds stops in place	McMaster	#91831A009

8.3 Fabric and Fibers

Part #	Part	Usage	Vendor	Vendor Part ID
BL27	Black Winella Eyeline	Eyes,	CRs Craft	86027
BL28	Neon orange stretch velvet	Spikes, stripes	Spandex House	0k82r
BL29	Dyed 11-Milliskin Matte - Chartreuse	Eyes, eyebrows, mouth, cheeks, body	Spandex House	N/A
BL30	White Matte spandex	Rib casings, lining	Spandex World	N/A
BL31	73-Milliskin Shiny - Shocking Coral	Fins, tail	Spandex House	N/A
BL32	*Spacer mesh	Spacer for mech		FMSP-TECHNO
BL33	Black Sew Classics Microsuede	Rubbing protection for top of mech	Joann's	#1626233

	Fabric			
BL34	Black Pleather	Hand guard padding	Spandex House	N/A

8.4 Custom Made Parts

Part #	Part	Quantity	Usage	Vendor	Filename
BL35	Nylon Front Mouth Piece	1	Attaches to mouth which connects to mech	Fuse	**All Blowfish 3D files are located in the Box Drive here: https://disney.box.com/s/xvawacpvktsp4jb2ixt0lsp32rztnaiy
BL36	Nylon Front Mouth Connector	1	Front end of scissor mech	Fuse	
BL37	Nylon Back Fin Plate	1	Attaches to tail with connects to mech	Fuse	
BL38	Nylon Back Fin Connector	1	Back end of scissor mech	Fuse	
BL39	Nylon Hand Guard/Stop	1	Hand guard and bottom stop	Fuse	
BL40	PETG Top Protector	1	Stops damage due to friction		

8.5 Paints and Dyes

SDS sheets are available in the separate SDS Project Packet.

Part #	Part	Usage	Vendor	Vendor Part ID
BL41	Black Dye-na-flow by Jacquard	Painted on nylon hand guard		#DNF2, DNF8, DNF32
BL42	Black Self Etching Primer	Main tube and slider tube		B08PMMZWL8
BL43	Fluorescent Safety Orange (#456)	0.5% depth of shade	Dharma Trading company	456
BL44	Wicked Colors Fluorescent Purple 0020	Shadows on face	Amazon	B00467SPOG
BL45	Createx Airbrush Fluorescent Orange 5409	Shadows on face	Amazon	B01MYA9M5C
BL46	Wicked Colors Yellow 0003	Shadows on face	Amazon	B01HY32GJI

BL47	Createx Airbrush Fluorescent Yellow 5405	Shadows on face	Amazon	B071XRTZNM
BL48	Createx Airbrush Fluorescent Red 5408	Shadows on face	Amazon	B001KD60C8

8.6 Glues, Treatments, Coatings, and Chemicals

SDS sheets are available in the separate SDS Project Packet.

Part #	Part	Usage	Vendor	Vendor Part ID
BL49	Flex Foam it 7fr	Eyes, Eyebrows, Mouth, Spikes on Stripes	Smooth On	
BL50	Translucent red Holographic Iron on vinyl	spots on exterior spandex	Amazon	
BL51	Barge cement	gluing mouth to mouth mech	Frankford Leather	
BL52	Fray Check	to reduce fraying all over		
BL53	VM&P Naphtha	Cleaning mold release	Lowes	
BL54	Isopropyl Alcohol	Cleaning Naphtha	CVS	
BL55	Insta-Shield Flame Retardant	Fire treatment	Northeast FireShield	N/A