

WALT DISNEY WORLD®

PROJECT RED

FLOTSAM & JETSAM

OPERATIONS AND REPAIR MANUAL



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Revision History

Date	Version	Description	Author
02/27/2024	1.0	First iteration	Bridget Reilly Beauchamp, Brieaunna Avery
04/29/2024	1.1	Addition of Comprehensive Materials	Bridget Reilly Beauchamp, Brieaunna Avery
06/12/2024	2.2	Final Iteration before installation	Bridget Reilly Beauchamp, Betsy Falk

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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 4.6.1:

"The Flotsam and Jetsam puppet(s) are cable and rod-controlled puppets. The rod will need to be inserted into a receiver permanently located within the head of the puppet.

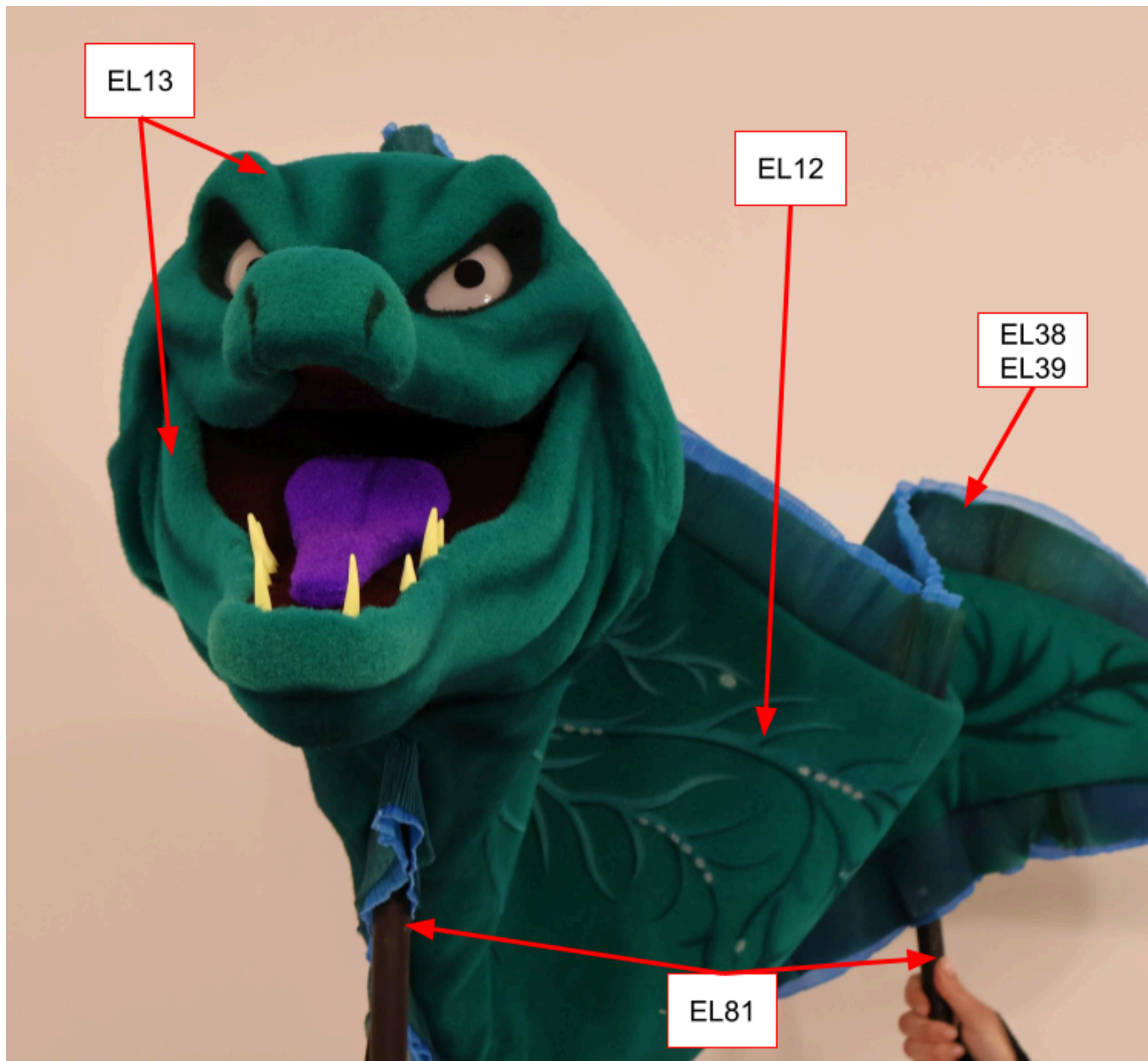
The eyes will also need to be illuminated and controlled via DMX. One Eye will always be white, the other eye will always be yellow."

1.2.2 Basis of Engineering

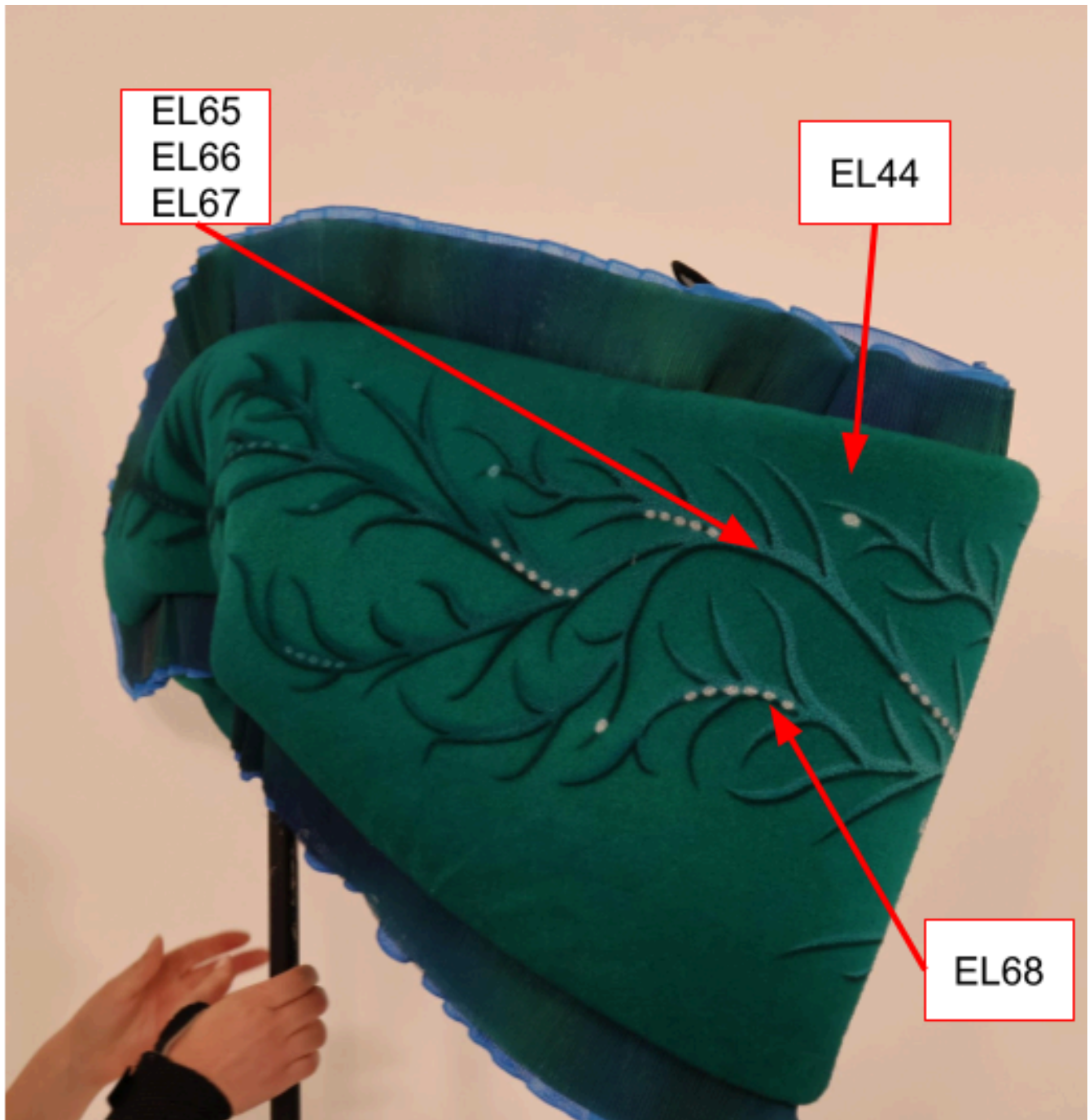
The Flotsam & Jetsam puppets have carbon fiber heads with bra foam bodies and aluminum interior structures. They are covered with UV-reactive fabrics and have programmable LEDs in the eyes. The puppets are carried on carbon fiber poles and the mouth is operated with a bike-brake-style trigger.

2 Construction and Assembly

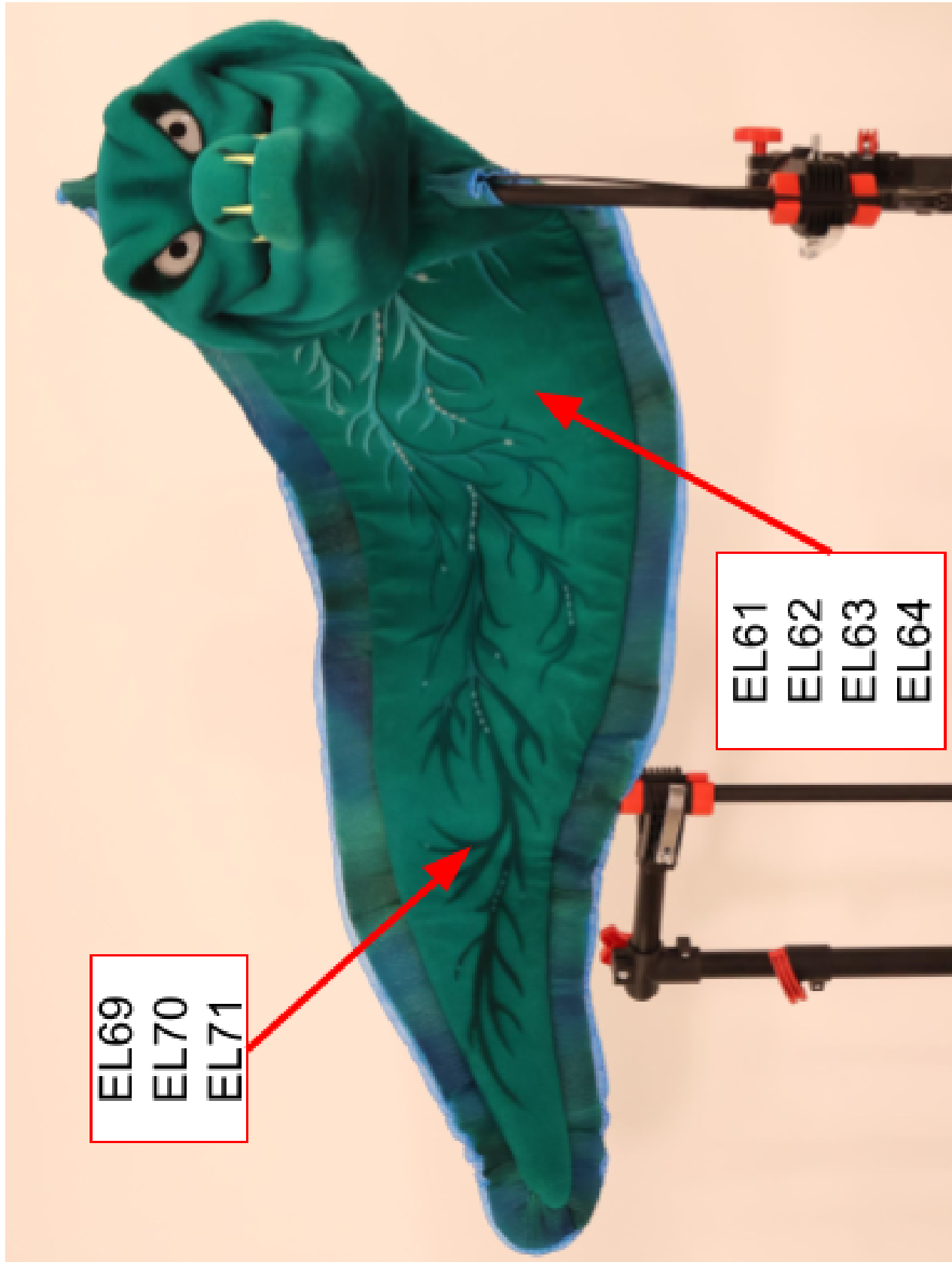
2.1 Front View



2.2 Rear View



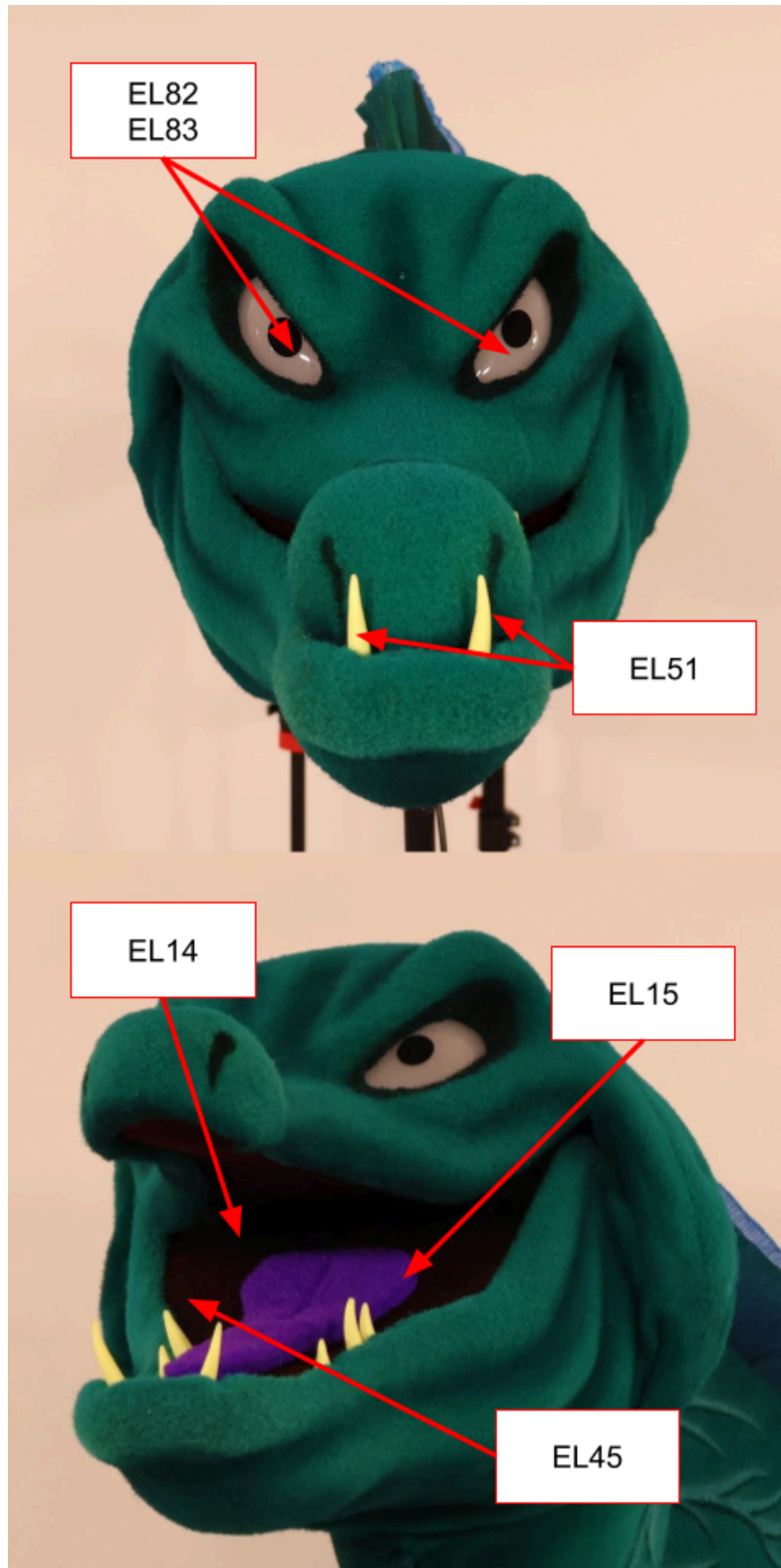
2.3 Left view



2.4 Right View



2.5 Closeup of Face



2.6 UV View



3 Description of Operating Modes

3.1 Operating Modes

3.1.1 Storage

The puppet will be stored on a stand during the show.

Between performances, the puppet should be covered with its custom 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 can be operated by one performer. They should be able to do all performing actions without assistance. The puppet can also be operated by two performers, one on each pole, if more body movement is desired.

3.2 Operating Procedures

3.2.1 Removing the puppet from the stand

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

Holding the front pole in one hand, release the lever (circled in green), with the other. Slide the pole out in the direction of the blue arrow. Holding the front pole in that same hand, use your free hand to lift the rear pole out in the direction of the orange arrow.



3.2.2 Attaching the Power supply to the puppet

See Section 7.1 for detailed directions on inserting the battery. ***DO NOT pull on wires to remove or install the battery in the bag, grasp only the battery to do this. ALWAYS remove the battery from the puppet in order to charge DO NOT CHARGE BATTERY INSIDE PUPPET.***

3.2.3 Action: Moving Mouth

Character's mouth is closed in a neutral position. To open the mouth, the puppeteer should squeeze the bike brake trigger located on the front pole with their dominant hand, while holding the rear pole in their non-dominant hand.. To close the mouth, release the trigger.

3.2.4 Action: Moving Head

To move the character's head from side to side, the performer should twist their dominant wrist in the desired direction. For larger head turns, the twist should start in the performer's elbow. To nod the head, the performer should bend their wrist and/or elbow up and down.

3.2.5 Action: Moving Body

To move the body in a waving or swimming motion, the puppeteer should move the front and rear poles in opposition to one another . The puppeteer can also swivel the wrist of their non-dominant hand to give the impression of wrapping the tail around something,

3.2.6 Placing puppet on stand

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

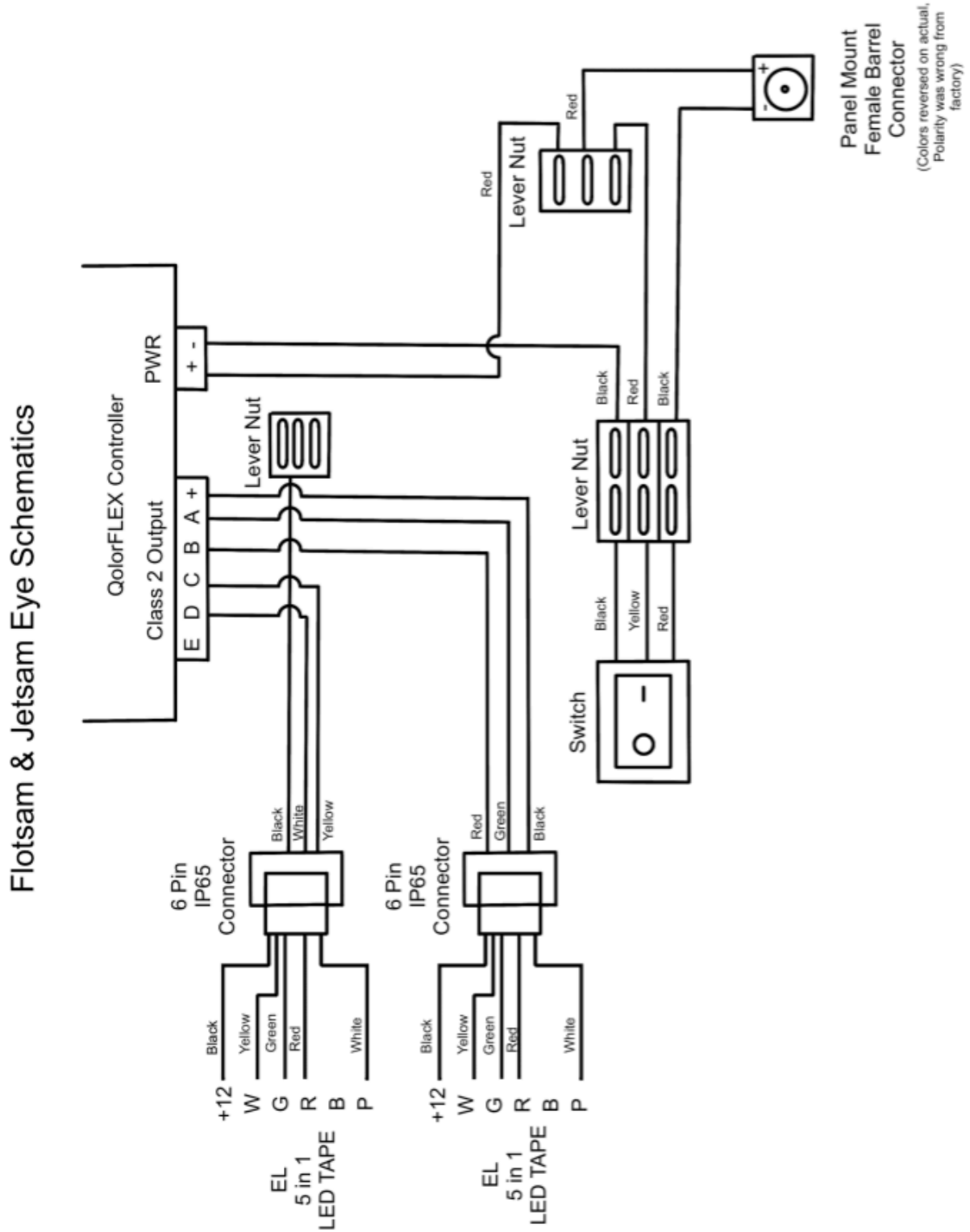
3.2.8 Storage

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.

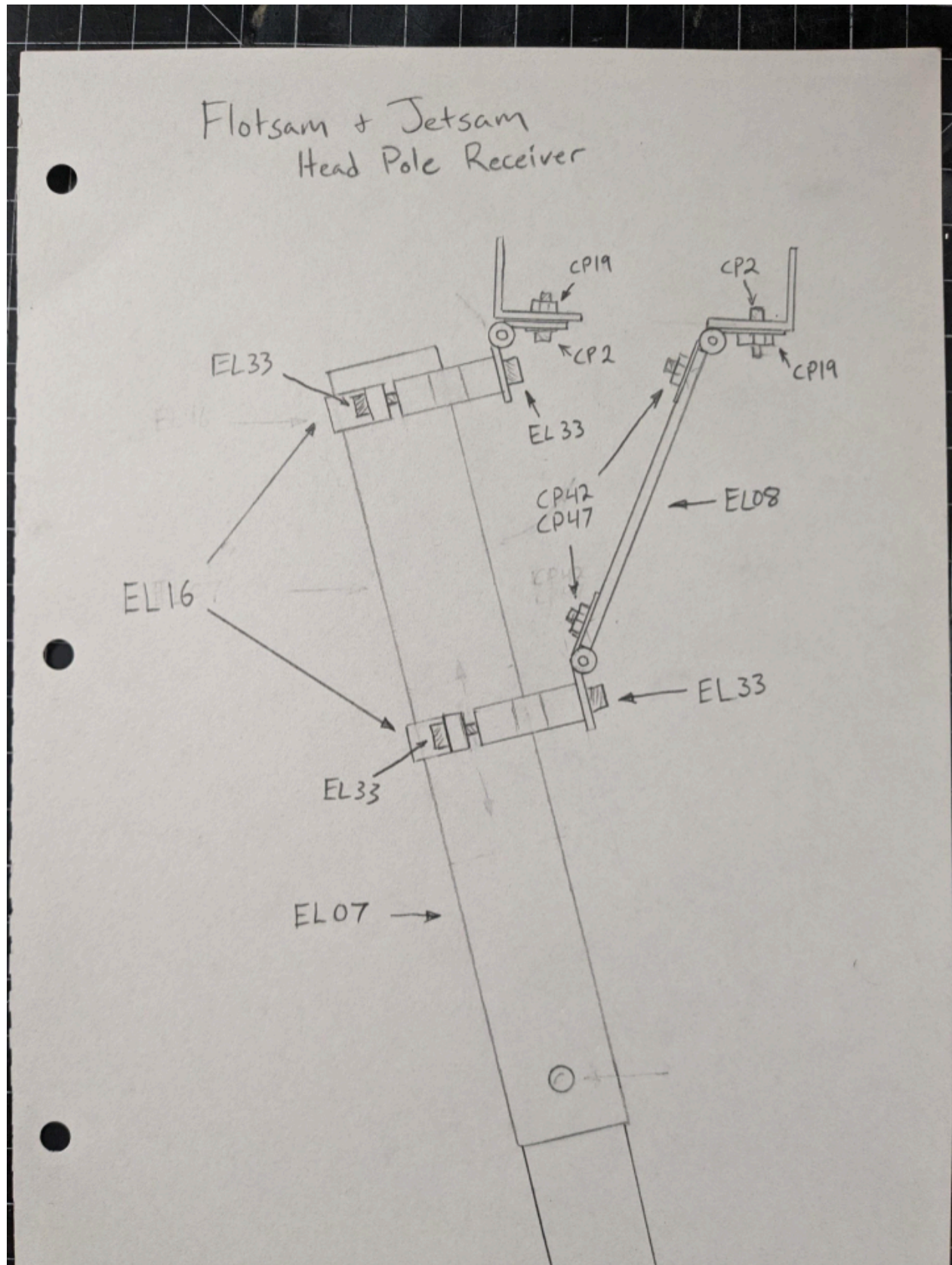


4 Detailed Diagrams of Mechanisms and Hardware

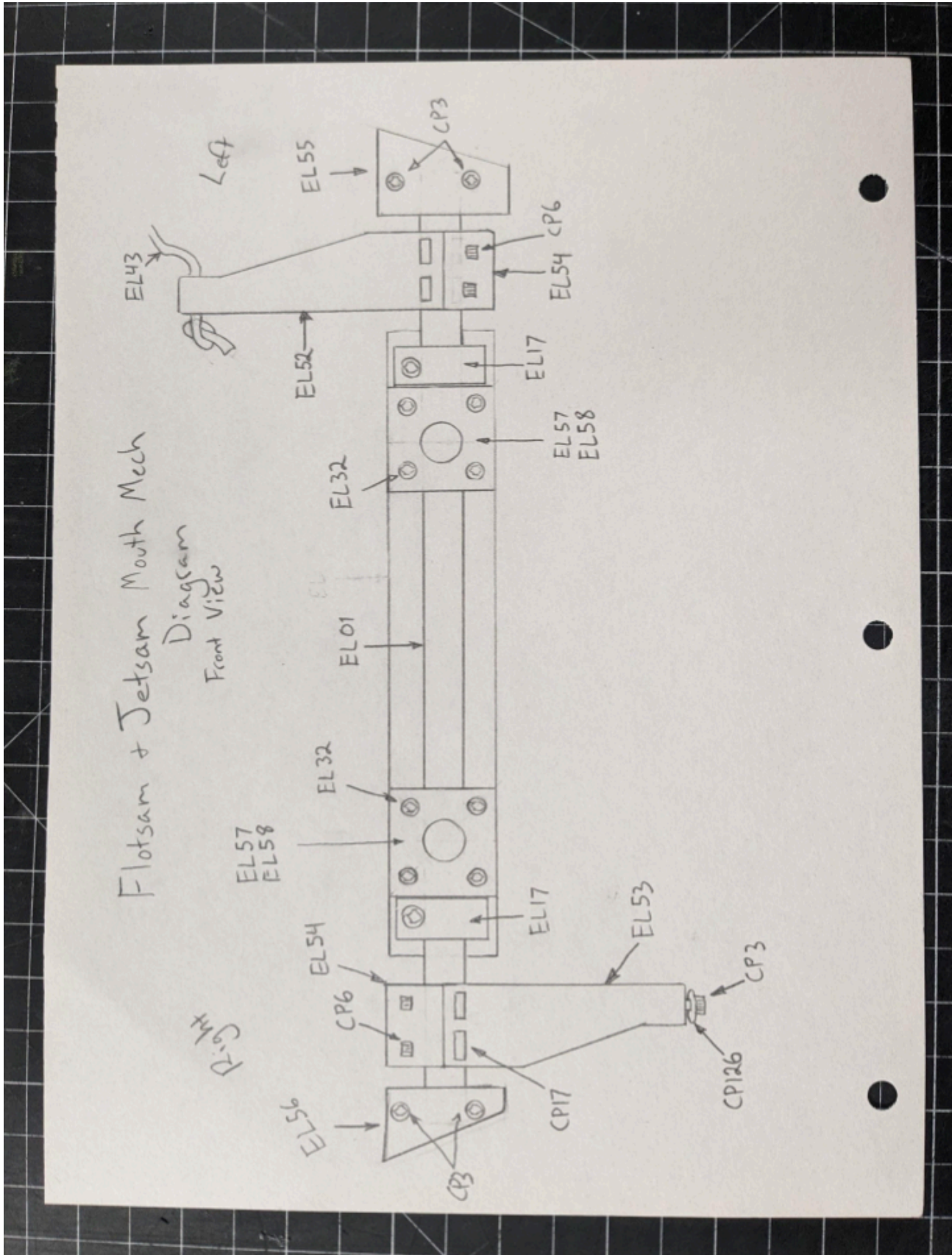
4.1 Electrical Wiring Diagram



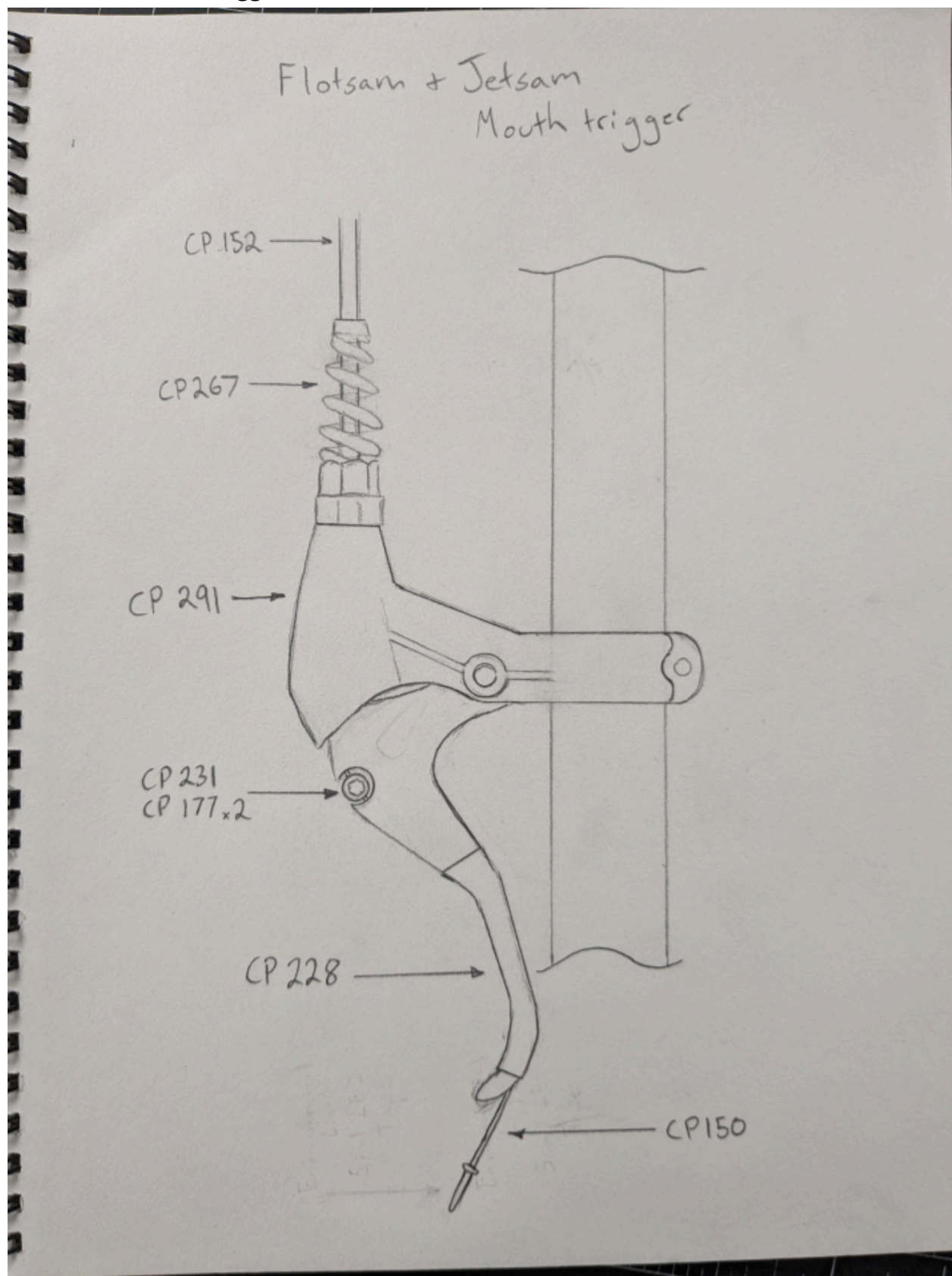
4.2 Front Pole Receiver



4.3 Mouth Mech



4.4 Mouth Mech Trigger



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
electrical connections	check that the connections are secure and the wires are in good shape
eyes	power up system to be sure that the eyes are working and the correct color

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
Mouth trigger	physically & visually	weekly
All connection points	physically & visually	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
UV paint	touch up	when needed
Battery	recharge	when 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.

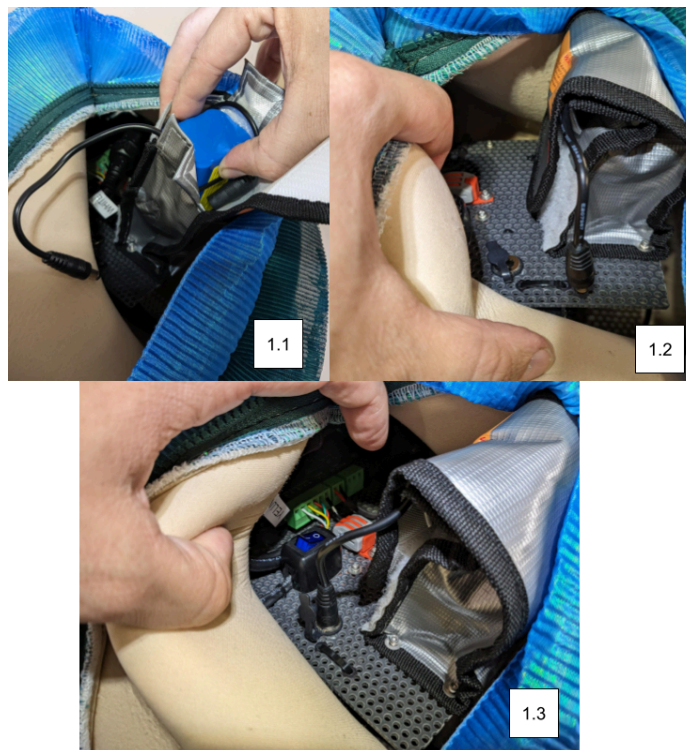
7 Detailed Maintenance Procedures

7.1 Specialty information about installing/removing/replacing the battery

1. Open Zipper on the top of the neck to access electronic board (fig 1.0)



2. Make sure Rocker switch is in the off position
3. Open battery bag velcro
4. If there is a battery, disconnect the barrel connector from the electronics board and remove from battery bag
5. Place the charged battery in the bag leaving the male barrel connector out of the opening (fig 1.1)
6. Fold over and close the bag using the lower velcro to secure the lid flap (fig 1.2)
7. Plug in Male barrel connector into panel mounted receiver on the left side of the electronics board (fig 1.3)



8. Use the Rocker switch to turn on/off electronics.
Notes- DO NOT pull on wires to remove or install the battery in the bag, grasp only the battery to do this.
ALWAYS remove the battery from the puppet in order to charge DO NOT CHARGE BATTERY INSIDE PUPPET.

7.2 Specialty information about removing and reinstalling the electronics board

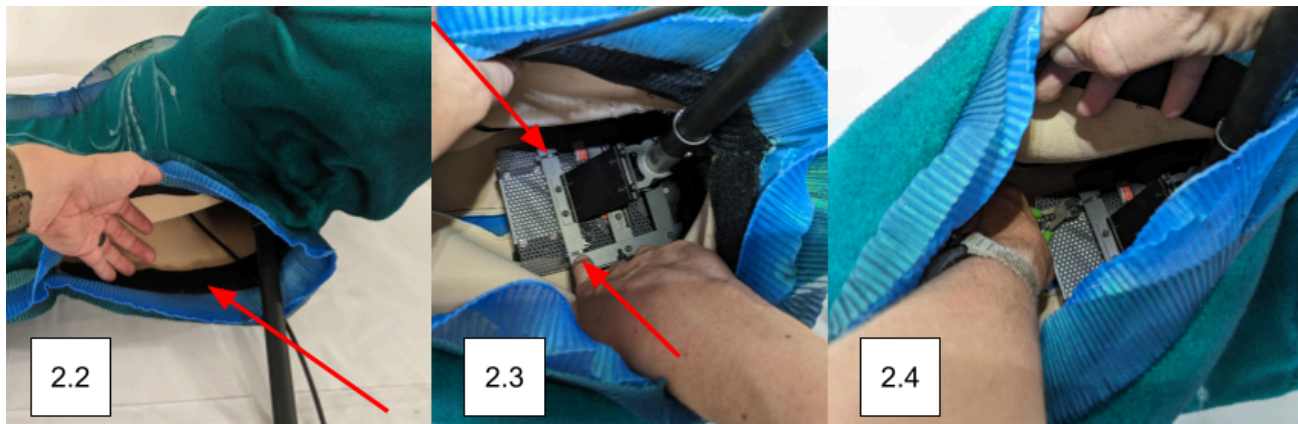
To remove:

Necessary tools- snips or side cutters

1. Open Zipper on the top of the neck to access the electronics board as seen in Fig 1.0. Make sure the electronics are turned off and the battery is removed (see Install/Remove/Replace Eye Battery)
2. Unplug both eye cable connectors (fig 2.0 and 2.1)



3. Open the lower velcro around the head pole to access the underside of the head structure (fig 2.2)
4. From the lower velcro opening, locate the two zip ties towards the rear of the head structure securing the electronics board to the structure (fig 2.3)
5. Cut both zip ties with snips or side cutters (fig 2.4)



6. From the top zipper opening carefully remove the electronics board (fig 2.5 and 2.6).

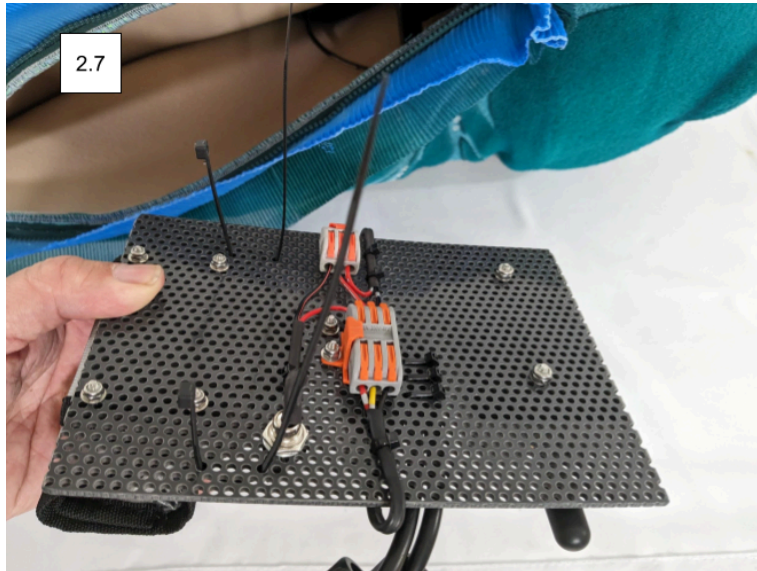


7. Refer to electronics schematic for any troubleshooting

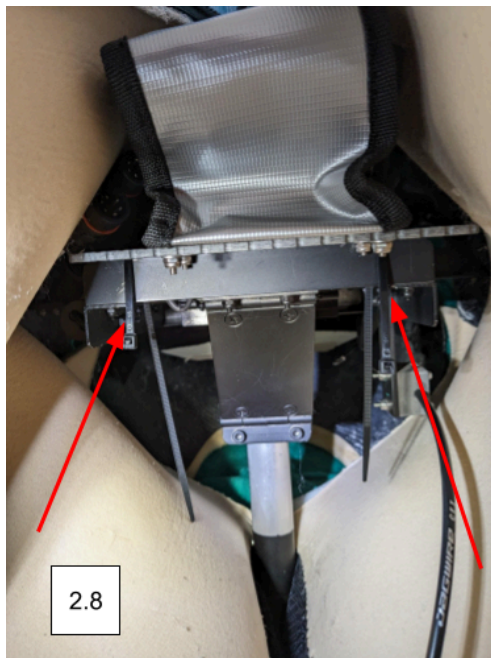
To reinstall:

Necessary tools- Zip tie flush cutters

1. There are 4 holes in the electronics boards that have been drilled out to accept the zip ties. Consider marking holes with a sharpie before removing cut zip ties to better locate. Remove the cut pieces of zip ties from the electronics board.
2. Replace cut zip ties with fresh 4x200mm or equivalent zip ties in the orientation seen in fig 2.7



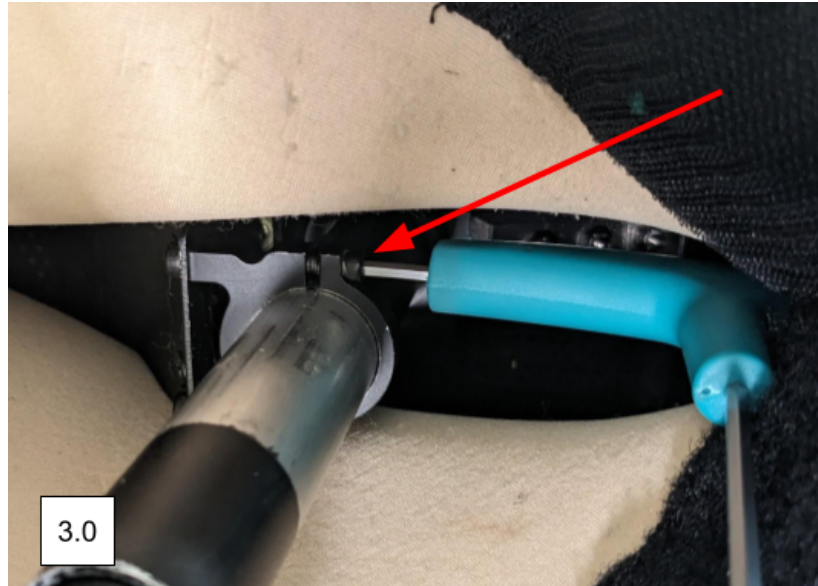
3. Carefully slide the electronics board through the upper zipper opening into place on top of the head structure with the light transmitter facing up and forward. The electronics board should be mostly centered making sure the antenna from the transmitter does not interfere with the bungee or mouth return lever and care should be taken to be sure that the eye cable plugs are out of the way and not pinched between the board and the head structure. The two zip ties should straddle the rear most aluminum crossmember of the head structure (fig 2.8)
4. Fasten and cut the two zip ties using zip tie flush cutters (fig 2.9)



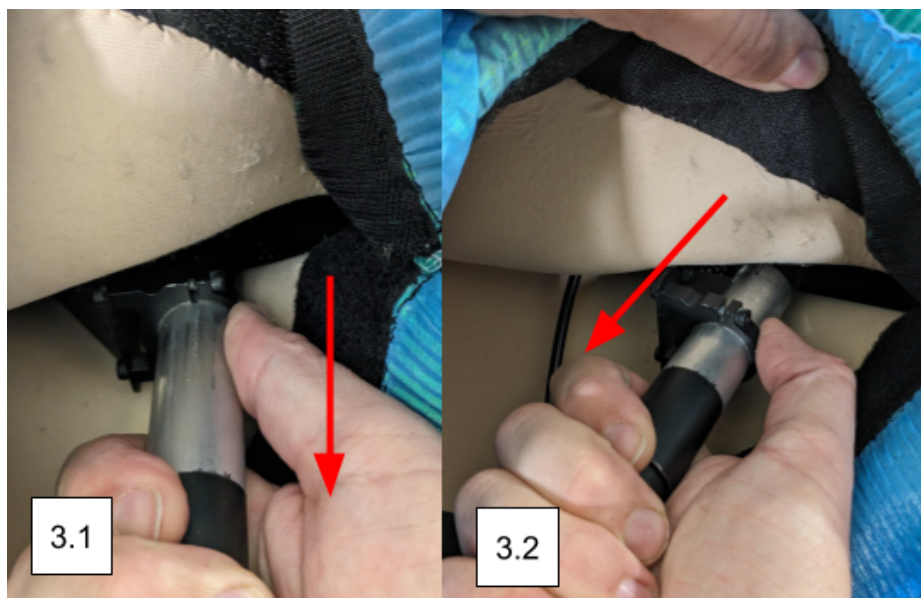
7.3 Specialty information about adjusting the head pole angle

Necessary tools- 3mm Hex

1. Open the velcro around the head pole as seen in fig 2.2
2. Locate and loosen the M4 screw on the lower mounting shaft collar (fig 3.0) with a 3mm hex.



3. To make the pole more vertical (closer to 90 degrees), apply forward pressure to the pole and upward pressure to the front of the shaft collar at the same time to get the shaft collar to slide up the pole receiver (fig 3.1). Due to the tight tolerances, even pressure must be applied in order for the shaft collar to slide.
4. To make the pole less vertical (angled towards the rear of the puppet), apply rearward pressure to the pole and downward pressure to the front of the shaft collar at the same time to get the shaft collar to slide down the pole receiver (fig 3.2). Again pressure must be applied evenly in order for the shaft collar to slide and not cant/jam.



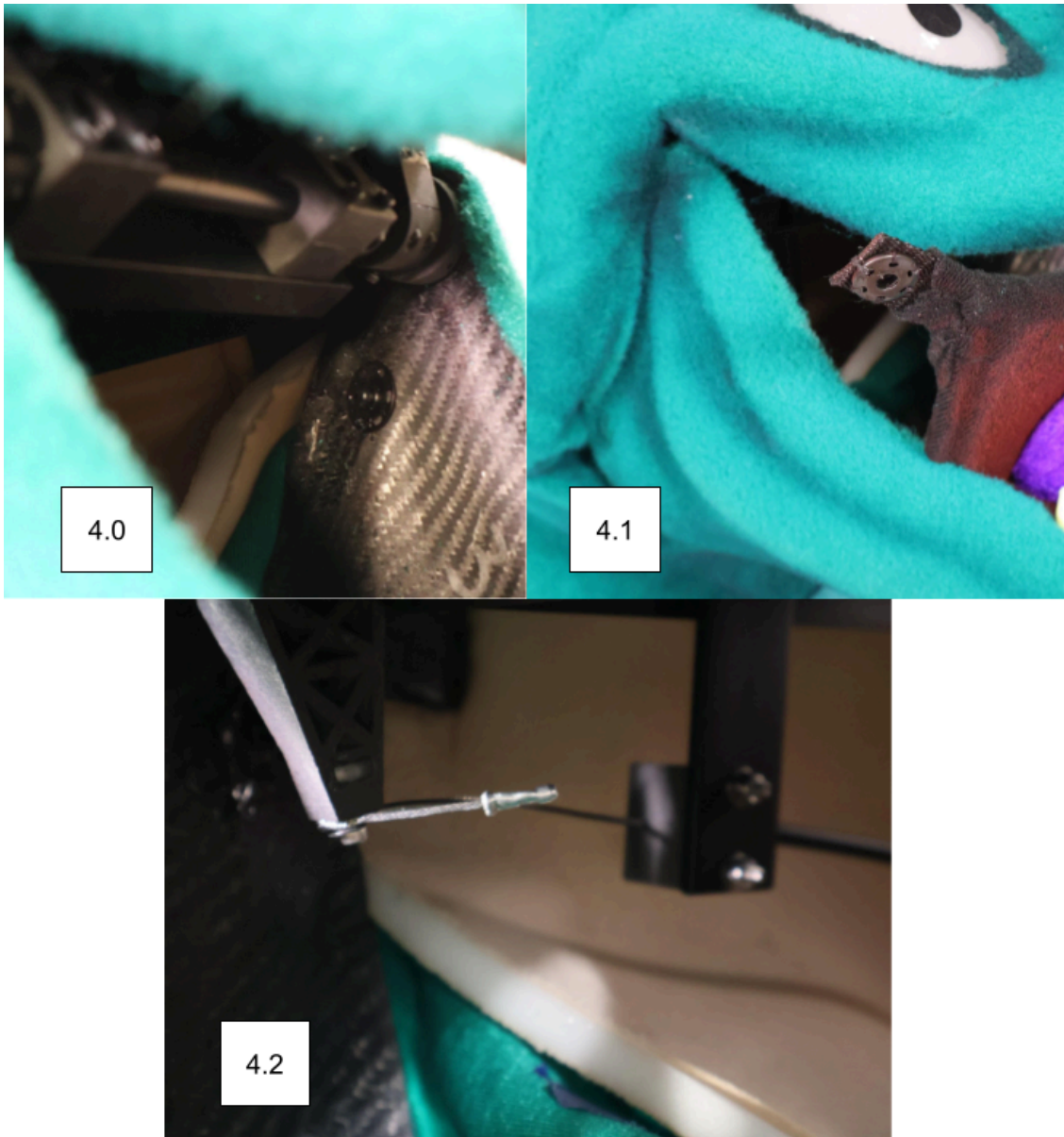
5. Once the pole is at the desired position, retighten the m4 screw on the shaft collar from step 2

7.4 Specialty information about replacing the mouth cable

Necessary tools- two 3/32" hex key/drivers, cable cutters, crimping tool.

Parts- cable, 2 cable end crimps

1. Open bottom velcro opening as seen in fig 2.2. Reaching in from this opening, locate and release the two snaps in the "cheeks" of the lower jaw to release the lower palate.
2. Open the mouth and fold the lower palate forward to both prop open the mouth and access the cable control arm. (fig 4.0 and 4.1)
3. Loosen the socket cap 4-40 screw holding the cable to the control arm (fig 4.2)



4. Cut the cable crimp off as well as any kink that may have been introduced to the cable by being clamped by the screw.
5. Remove the heat shrink tubing on the bike brake lever.
6. Locate the round stand-off in the bike brake lever clamping the cable.

7. Using two 3/32" hex drivers, loosen both set screws clamping the bike brake cable. Be mindful that this fitting is not captured and will fall out once cable is removed(fig 4.3).



8. Remove the old cable.
9. Insert new cable through the bike brake handle, through the round stand-off, and through the cable housing.
10. Once through, install a crimp on the cable end in the mouth.
11. Put a 90 degree bend in the cable about an inch from the end, insert this bend under the washer on the end of the control arm and tighten the 4-40 screw.
12. With the mouth propped all the way open and the bike handle squeezed to the pole/handle, pull the cable end coming out of the handle to remove slack, and tighten the set screws clamping the cable in place(fig 4.4).



13. Replace the lower palate, and reattach the snaps from step 1.
14. Check for proper function. Be sure the mouth closes all the way when the brake lever is released and opens all the way when it is depressed.
15. Make necessary adjustments at the brake lever.
16. Further problems may suggest the control arm has moved on the jaw axle (fig 4.5).



17. Cut off excess cable leaving 4" tail for future adjustment.
18. Install cable end crimp
19. Install new 1.5" length of 3/4" heat shrink tubing over bike brake lever and cable.

7.5 Specialty information about switching the eye colors

1. Open Zipper on the top of the neck to access the electronics board as seen in Fig 1.0. Make sure the electronics are turned off and the battery is removed (see Install/Remove/Replace Eye Battery)
2. Locate the two connectors above the electronics board labeled "yellow" and "white." (fig2.0) Unplug these two connectors, and plug them back in, swapping the jacks they plug into.

8 Comprehensive Parts List

8.1 Understructure and Base

Part #	Part	Usage	Vendor	Vendor Part ID
EL01	3/8" aluminum tube	jaw axle	mcmaster	1968T69
EL02	3/4" x 1/16" aluminum angle	internal head frame	mcmaster	88805K694
EL03	1" x 1/16" aluminum angle	internal head frame to carbon brackets	mcmaster	88805K734
EL04	1/2" x 1/2" x 1/16" aluminum square tube	internal head frame	mcmaster	6546K49
EL05	1/2" x 1" x 1/16	internal head frame	mcmaster	9001K26
EL06	1/16" clear acrylic	eye lens	mcmaster	8560K176
EL07	1" Clam rake aluminum tubing	head pole receiver	Fazzios	6061-T6
EL81	7/8" Clam rake aluminum tubing	Head and tail poles	Fazzios	
EL08	2" aluminum flat bar	adjustable pole receiver	mcmaster	8975K582
EL09	1/2" aluminum flat bar	forehead support bracket	mcmaster	4490T111
EL10	1/8" thick perforated pvc sheet	electronics mount	macmaster	92985T55
EL11	1/16" HIPS 4 sheets for vacuum former	eye bezel	Curbell	# W11-00103
EL12	3/8" Bra foam	Body	Coastpad	CPIT100032
EL13	Carbon fiber	upper and lower Jaw	Rock West Composites	P/N 14008-LYD
EL14	L200	mouth palate	FoamFactory	XPE4
EL15	1/8" Bra foam	tongue	Coastpad	n/a

8.2 Hardware

Part #	Part	Quantity	Usage	Vendor	Vendor Part ID
EL16	mounting shaft collar	2	pole receiver mount into head	servo city	1400-0032-1000
EL17	3/8" shaft collar	2	mouth axle	mcmaster	6157k13

EL18	1" piano hinge	7.5"	pole receiver mount	mcmaster	1581A311
EL19	12v light up rocker switch	1	turn eyes on	amazon	B08CZD8PPX
EL20	6 pin waterproof cable connector	2	plug in eyes to controller	amazon	B081N9Q7FH
EL21	panel mount 5.5 x 2.1mm barrel connector jack		plug in battery	amazon	B08P5PJBCM
EL22	3 port lever nut with base	2	splicing wires, eye electronics	amazon	B07SFCCPZ6
EL23	3 circuit inline lever nut	1	splicing wires, eye electronics		B07K7H7BXM
EL24	2.5x100mm zip ties		mounting wires to electronic board		
EL25	4x200mm zip ties	2	mounting electronic board to head frame		
EL26	double cord locks	1	return bungee	amazon	B075CQ8P62
EL27	6-32 x 1/2" Flat head screws	2	Qolorflex mount to electronics board	mcmaster	91771A148
EL28	6-32 x 1/2" Button Head screws	8	Rear head frame crossbrace to head shell, Jaw to axle mounts	mcmaster	92949A148
EL29	6-32 x 5/8" Button head screws	1	Center forhead frame to head shell mount	mcmaster	92949A150
EL30	6-32 x 3/4" shank Eye hook	1	mouth return bungee to frame attachment	mcmaster	9489T52
CP33	6-32 nylon locknut	6	head to frame mounting screws, bungee eye hook, Qolorflex mount	mcmaster	91831A007
EL31	#6 washer	2	Qolorflex mount to electronics board	mcmaster	92141A008
CP2	4-40 x 3/8" Socket cap screw	20	head frame, Battery mount webbing	mcmaster	92196A108
CP3	4-40 x 1/2" Socket cap screw	11	Jaw axle mount set	mcmaster	92196A110

			screws, Lever nut mounts		
CP4	4-40 x 5/8" Socket cap screw	6	axle blocks to frame, cable housing mount	mcmaster	92196A112
EL32	4-40 x 7/8" Socket cap screw	13	head frame 1/2" square tube to brackets and U channel, axle blocks	mcmaster	92196A114
CP6	4-40 x 1" Socket cap screw	10	Cable and bungee control arms, cable housing mount to frame	mcmaster	92196A031
CP19	4-40 nylon locknut	36	Head frame, Electronics board	mcmaster	91831A005
CP17	4-40 square nut	9	cable and bungee control arms	mcmaster	94855A281
CP20	4-40 hex nut	12	axle blocks, cable housing mount	mcmaster	91831A005
CP126	#4 thin washer	66	Head Frame, Electronics board	mcmaster	92141A609
CP42	8-32 x 1/2" Flat head screw	4	hinge plate	mcmaster	91771A194
CP47	8-32 nylon locknut	4	hinge plate	mcmaster	91831A009
CP288	#8 washer	4	hinge plate	mcmaster	92141A009
EL33	m4 x 0.7 x 10mm Socket cap screw	4	shaft collar mounting screws	mcmaster	91831A007
EL34	#10 snaps	2	mouth palate closure	Wawak	# SOS300BK
EL35	24" zipper	1	upper body/ mech accessibility	Wawak	# IZ224BK
CP150	Bike Brake cable	1	Mouth mech		B0055WPJEA
CP152	Bike Cable Housing	1	mouth mech		B000AO9OTO
CP267	Flex cord Grip	1	mouth mech		69915K42
CP231	SS Female Threaded Round Standoff	1	cable adjustment at bike brake		91125A463

CP177	10-32 set screw	2	cable adjustment at bike brake		94355A328
EL36	5/16" -18 Vented set screw	1	cable stop ini bike handle		91979A712
EL37	cable crimp	2	both ends of mouth mech cable	amazon	B01JR8CIZA
EL83	spring button for 1/2" to 1-1/4" round tube	1	stand pole	mcmaster	92988A530

8.3 Fabric and Fibers

Part #	Part	Usage	Vendor	Vendor Part ID
EL38	Retro Ruffle Pleated Chiffon Trim in Aurora Green	Fin	amazon	B0B8NJLNJ3
EL39	Retro Ruffle Pleated Chiffon Trim in Iridescent White	Fin	amazon	B09K7PF9VN
EL40	1" x 5-1/4" black velcro (loop)	battery holder	Velcro/Wawak	# VO620BK
EL41	1" x 3-1/4" black velcro (hook)	battery holder	Velcro/Wawak	# VO520BK
EL42	1" x 6" black nylon webbing	battery holder	Wawak	# WEBN2BK
EL43	9" x 3/16" black bungee	mouth return "spring"	Quality Nylon Rope	BPP6S250B
EL44	F3 fleece	body and face covering	Dharma trading	N/A
EL45	wanella craft velour	mouth palette covering	C&R crafts	SKU: 86027
EL46	Velcro	Lower body mech accessibility	wawak	# VO50BK
EL47	White nylon thread	most stitching	wawak	ATDP1000
EL48	2" adhesive loop velcro (3.5")	Battery bag edit	SKU: 86027	SKU: 86027
EL49	Tenergy Battery Bag 5.5"x3.5"x2"	fireproof pouch for eye batteries	Amazon	# VO50BK

8.4 Custom Made Parts

Part #	Part	Quantity	Usage	Vendor	Filename
EL50	Pole receiver	1	back pole attachment	Lo	All F&J files are in Box Drive: https://disney.box.com/s/zuyhhaadl690w83i7jqlwz3bm012z9d1
EL51	cast resin teeth	8	teeth	Val	
EL52	Spring Lever	1	bungee return lever		
EL53	Cable Lever	1	Bike brake lever		
EL54	Cable Lever Cap	2	Clamping cap for both levers		
EL55	Jaw Axle Mount Left (slant cap left)	1	mounts mouth axle to lower jaw		
EL56	Jaw Axle Mount Right (slant cap Right)	1	mounts mouth axle to lower jaw		
EL57	Bearing block top	2	mounts jaw axle to head frame		
EL58	Bearing block bottom	2	mounts jaw axle to head frame		
EL59	Bike Cable housing mount top	1	secures bike cable housing to head frame		
EL60	Bike Cable housing mount bottom	1	secures bike cable housing to head frame		
EL82	HIPS eye shrouds vacuum formed	2	mount LEDs and contain light	ken	
EL83	1/16" plexi eye lenses vacuum formed	2	eyes	ken	

8.5 Paints and Dyes

SDS sheets are available in the separate SDS Project Packet.

Part #	Part	Usage	Vendor	Vendor Part ID
EL61	647 Aqua Tropic	Dye - Body	Dharma Trading Co.	647
EL62	645 Blacklight Blue (Neon)	Dye - Body	Dharma Trading Co.	645
EL63	623 Brilliant Blue (Primary)	Dye - Body	Dharma Trading Co.	623
EL64	479 Radioactive (fluor.)	Dye - Body	Dharma Trading Co.	479
EL65	Wicked Colors – W007 Blue	Body Shadows & Decal	Airbrush Paint Direct	W007
EL66	Wicked Colors – W028 Fluorescent Blue	Body Shadows & Decal	Airbrush Paint Direct	W028
EL67	WICKED Colors W019 Fluorescent Aqua	Body Shadows & Decal	Amazon	W019
EL68	Wicked Colors – W030 Opaque White	Body Shadows & Decal	Airbrush Paint Direct	W030
EL69	Createx Wicked Colors phthalo Green	Body Shadows & Decal	Amazon	W009
EL70	Createx Wicked Colors W210 Glow Base	Body Shadows & Decal	Amazon	W210
EL71	Createx Wicked Colors W031 Jet Black	Body Shadows & Decal	Amazon	W031
EL72	Modern Masters OPTICAL WHITE	Body Shadows & Decal	Amazon	WF19106
EL73	Createx Wicked Colors Fluorescent Red W022	Mouth Palate	Amazon	W022

8.6 Glues, Treatments, Coatings, and Chemicals

SDS sheets are available in the separate SDS Project Packet.

Part #	Part	Usage	Vendor	Vendor Part ID
EL74	SUPERGRIP™ CARBON AND ALLOY ASSEMBLY COMPOUND	friction compound for mouth mech levers	Parktool	B005Z4BAAK
EL75	Barge	Body construction,. applying teeth	Frankford Leather	BAPC
EL76	spray adhesive	adhering face fleece		
EL77	smooth cast	Teeth	smooth on	N/A
EL78	smooth cast tint	Teeth	smooth on	N/A
EL79	Resin	lamination of carbon fiber	smooth on	N/A
EL80	Insta-Shield Flame Retardant	Fire treatment	Northeast FireShield	N/A

