

# **Lightspeed Aviation Service Repair Manual**

## **Models: Zulu 2 / Zulu 3**



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## 1. PURPOSE

This guide is designed to simplify troubleshooting/repair process and provides two options for the user to utilize during the process.

- Isolate by Part: Method to quickly identify failed part via use of “known good Sample Parts”
- Isolate by Symptom Failure: Method using possible failure modes to pinpoint most likely part

## 2. SCOPE

- Zulu 2 & 3 models

## 3. TROUBLESHOOTING AIDS

- FAQ per Lightspeed Aviation website (<https://www.lightspeedaviation.com/support/>)
- Part Removal/Replacement Video – Step by Step guide of product disassembly and re-assembly
- Audio device with 3.5mm output (eg am/fm radio, mobile device, etc...)
- Audio device with BT capability (eg am/fm radio, mobile device, etc...)
- Com Panel/COM Radio or access to aircraft with Com Panel/Radio (GA, Lemo, U-174 ports depending on headset)
  - Available on the open market

## Before You Start

1. **CONTACT LIGHTSPEED AVIATION SERVICE DEPARTMENT TO DETERMINE IF YOUR SIERRA HEADSET QUALIFIES FOR WARRANTY REPAIR OR TRADE-UP PROGRAM**
  - Toll free: 1-800-332-2421 (Monday-Friday, 7am - 4pm Pacific Time)
  - Email: [support@lightspeedaviation.com](mailto:support@lightspeedaviation.com)
2. **REVIEW AND FAMILIARIZE YOURSELF WITH THE GUIDE IN ITS ENTIRETY BEFORE ATTEMPTING REPAIR**
3. **REVIEW FAQs FOUND ON LIGHTSPEED AVIATION WEBSITE** (<https://www.lightspeedaviation.com/support/>)
4. **LOCATE APPROPRIATE REPAIR MANUAL via LIGHTSPEED AVIATION WEBSITE** (<https://www.lightspeedaviation.com/other-policies/>)
5. **LOCATE APPROPRIATE PART REMOVAL/REPLACEMENT VIDEO INSTRUCTION via LIGHTSPEED AVIATION WEBSITE** (<https://www.lightspeedaviation.com/other-policies/>)
6. **PART AVAILABILITY AND COST ARE UPDATED FREQUENTLY. PLEASE CHECK LIGHTSPEED AVIATION WEBSITE** (<https://www.lightspeedaviation.com/other-policies/>) **FOR THE LATEST INFORMATION OR CONTACT LIGHTSPEED AVIATION SERVICE DEPARTMENT**
  - Toll free: 1-800-332-2421 (Monday-Friday, 7am - 4pm Pacific Time)
  - Email: [support@lightspeedaviation.com](mailto:support@lightspeedaviation.com)

## Headset Part Numbers

### ***APPLICABLE PART NUMBERS – ZULU 2:***

Note: Contact Lightspeed Aviation directly if the part number is unknown, not listed, or has different plug types than listed

Model	Item Number	Part Number	Description
Zulu 2	4014	800-00009-001	ASSY, HEADSET, ZULU, GA
Zulu 2	4015	800-00009-002	ASSY, HEADSET, ZULU, P
Zulu 2	4016	800-00009-003	ASSY, HEADSET, ZULU, CP
Zulu 2	4017	800-00009-004	ASSY, HEADSET, ZULU, C
Zulu 2	4018	800-00009-005	ASSY, HEADSET, ZULU, CD
Zulu 2	4019	800-00009-006	ASSY, HEADSET, ZULU, SU

Note: Some Zulu 2 parts are discontinued, however they can be upgraded using the corresponding Zulu 3 parts. All parts listed in parts lists are Zulu 3 parts. Zulu 2 parts from donor headsets are not recommended for use on Zulu 3.

GA = General Aviation plugs

P = Panel Power (6-pin LEMO connector)

C = Coil, coil upper, U-174 lower (Heli plug)

CD = Coil Dual, Coil Upper, GA

CP = Coil Panel, coil upper, Lemo

SU = Straight Upper, Standard upper, U-174 lower

## Headset Part Numbers

### ***APPLICABLE PART NUMBERS – ZULU 3:***

Note: Contact Lightspeed Aviation directly if the part number is unknown, not listed, or has different plug types than listed

Model	Item Number	Part Number	Description
Zulu 3	4064	800-00019-001	ASSY, HEADSET, ZULU, GA
Zulu 3	4065	800-00019-002	ASSY, HEADSET, ZULU, P
Zulu 3	4069	800-00019-003	ASSY, HEADSET, ZULU, H

**NOTE: CHECK WITH LIGHTSPEED AVIATION TO DETERMINE IF YOUR ZULU 3 HEADSET QUALIFIES FOR WARRANTY REPAIR (Toll free: 1-800-332-2421)**

GA = General Aviation plugs

P = Panel Power (6-pin LEMO connector)

H = U-174 lower (Heli plug)

## Parts List

### ***REPLACEABLE PARTS – ASSEMBLY/PART:***

a. Below parts must be replaced as an assembly

Part Number	Description
285-00021-000	Sub-Assembly, Mic Boom, International Repair, Zulu series/Delta Zulu series
250-00052-000	Ear Seal, Premium
285-00017-000	Speaker Plate, Left
285-00018-000	Speaker Plate, Right
285-00053-000	Zulu 3 GA Conversion Kit
285-00054-000	Zulu 3 Panel Power Conversion Kit
285-00055-000	Zulu 3 Heli Conversion Kit
285-00056-000	Sub-Assy, Control Box Bottom, Battery
285-00063-000	Volume Slider Kit

## Parts List

### ***REPLACEABLE PARTS – ASSEMBLY OR SUB-COMPONENTS:***

a. Below parts can be replaced as an assembly or its individual parts

Part Number	Description
000000316	Cable, Lower, Dual GA
000000343	Lightpipe
000000439	Button, Power, Painted
000000813	Button, Bluetooth Volume Down
000000814	Button, Bluetooth Control, Painted
000000815	Button, Bluetooth Volume Up, Painted
000000816	Button, Comm Priority, Painted
0000001524	WINDSCREEN, MIC
200-00015-000	PCBA, Control Box Upper, Battery
200-00015-001	PCBA, Control Box Upper, Panel
200-00016-000	PCBA, Control Board, Lower
250-00055-000	Control Box Assembly, Bottom
250-00056-000	Control Box Bottom, Panel Power
260-00033-000	Z.2 Headband Assy
260-00050-001	Control Box Assy Z3 Battery
260-00050-002	Control Box Assy Z3 Panel Power
300-00001-000	Cable, Upper, Straight
300-00002-000	Cable, Lower, Panel
300-00003-000	Cable, Upper, Coiled



## Parts List

### ***REPLACEABLE PARTS – ASSEMBLY OR SUB-COMPONENTS (CONTINUED):***

a. Below parts can be replaced as an assembly or its individual parts

Part Number	Description
300-00004-000	Cable, Lower, Straight, U-174
300-00035-000	Cable, Lower, Braided, U-174
300-00037-000	Cable, Lower, GA
300-00038-000	Cable, Lower, Panel
300-00041-000	Cable, Upper, Tinsel Zulu
301-00002-000	iPhone Aux Cable
303-00057-100	Slider Clamp Top
303-00058-100	Slider Clamp Bottom
303-00120-000	Headband Slider A, Painted
303-00121-000	Headband Slider B, Painted
303-00193-000	Headband Clamp Top
303-00194-000	Headband Clamp Bottom
303-00197-000	Control Box Top, Textured
304-00008-000	Decal Zulu 2 Battery
304-00009-000	Decal Zulu 2 Panel
311-00001-000	Control Box Screws
311-00015-000	Faceplate Screws
311-00032-000	Lower Housing Screws
311-00036-000	Upper Housing Screws

# Troubleshooting Guide

## ***FAILURE VALIDATION:***

1. Validate/duplicate failure complaint using 1. Customer set-up 2. LSA set-up
  - a. No Problem Found?
    - Check with customer to ensure appropriate information for duplication. Retest as needed
    - Document test method, Retest.
  - b. Confirmed?
    - Proceed to step 2.
2. Ensure fresh batteries or known good panel power source as appropriate for control module
3. Unplug from com panel
4. Retest
  - a. Failure resolved?
    - Failure mode is either bad batteries or panel power source
  - b. Failure continues?
    - a. Isolate by Part
    - b. Isolate by Symptom

# Troubleshooting Guide – By Part

## Isolate by Part:

Note: If failure is related to Side Tone (Boom Mic) Go to step 3, otherwise proceed with step 1.

1. Open Left Earcup and unplug Control Module assembly (Upper Cable/Control Module/Lower Cable), connect known good Control Module assembly. Retest.
  - a. failure resolved? Isolate down to cables or control module replacing each and reconnect until faulty part found and replace. Note: move the cable around strain relief areas to facilitate pinpointing of faulty part.
  - b. failure continues? Go to step 2
2. Connect Original Control Module to known good Headband Assembly (headband/faceplates)
  - a. failure resolved? Open Original headband Left/Right Cup and check PCBA, wiring, reseal and re-assemble.
  - b. failure continues? Isolate failure to left or right faceplate, replace, then retest.
3. Disconnect Boom MIC and test with known good Boom MIC.
  - a. failure resolved? Replace Boom Mic with known good/tested Boom Mic.
  - b. failure continues? Restart at Step #1

Component Replaced	Assembly Reference
Control Module / sub-components	<ul style="list-style-type: none"> <li>Zulu 3 PART REMOVAL/REPLACEMENT VIDEOS</li> </ul>
Headband assembly	<ul style="list-style-type: none"> <li>Zulu 3 PART REMOVAL/REPLACEMENT VIDEOS</li> </ul>
Boom Mic	<ul style="list-style-type: none"> <li>Zulu 3 PART REMOVAL/REPLACEMENT VIDEOS</li> </ul>
Left or Right Faceplate	<ul style="list-style-type: none"> <li>Zulu 3 PART REMOVAL/REPLACEMENT VIDEOS</li> </ul>

# Troubleshooting Guide – By Symptom/Failure



#	Symptom/Failure	Repair Action	References
1	Noise – Headset powered on (ANR)	<ol style="list-style-type: none"> <li>1. Listen to headset and: Shake head, push on cups, open/close mouth</li> <li>2. Replace Left, Right faceplates if there is abnormal noise on that side</li> <li>3. If complaint is about squealing when descending fast, replace both left and right faceplates</li> </ol>	<ul style="list-style-type: none"> <li>• Zulu 3 PART REMOVAL/REPLACEMENT VIDEOS</li> </ul>
2	Bluetooth	<ol style="list-style-type: none"> <li>1. If headset will not pair with any device or Audio is Missing/Distorted               <ol style="list-style-type: none"> <li>1. Replace Control Box Upper PCBA 200-00015-00X</li> </ol> </li> </ol>	<ul style="list-style-type: none"> <li>• Zulu 3 PART REMOVAL/REPLACEMENT VIDEOS</li> </ul>
3	No Comm Audio/Distorted Comm Audio	<ol style="list-style-type: none"> <li>1. Perform test while headset powered on and off</li> <li>2. Visually inspect cabling for wear or defects.</li> <li>3. Plug headset into comm. panel.</li> <li>4. Pull and bend Lower cable along length of wires and strain reliefs while listening to headset</li> <li>5. If no change, Pull and bend Upper cable along length of wires and strain reliefs while listening to headset</li> </ol>	<ul style="list-style-type: none"> <li>• Zulu 3 PART REMOVAL/REPLACEMENT VIDEOS</li> </ul>
4	No Mic Audio	<ol style="list-style-type: none"> <li>1. Plug headset into comm. panel.               <ol style="list-style-type: none"> <li>1. If possible, turn squelch setting down to 'hot mic'</li> </ol> </li> <li>2. Rock and bend Boom mic, tap on mic while listening               <ol style="list-style-type: none"> <li>1. If audio is intermittent, replace boom mic assembly</li> </ol> </li> <li>3. Visually inspect cabling for wear or defects</li> <li>4. Pull and bend Lower cable along length of wires and strain reliefs while listening to headset               <ol style="list-style-type: none"> <li>1. If audio is intermittent, replace Lower cable</li> </ol> </li> <li>5. If no change, Pull and bend Upper cable along length of wires and strain reliefs while listening to headset               <ol style="list-style-type: none"> <li>1. If audio is intermittent, replace Upper cable</li> </ol> </li> </ol>	<ul style="list-style-type: none"> <li>• Zulu 3 PART REMOVAL/REPLACEMENT VIDEOS</li> </ul>

# Troubleshooting Guide – By Symptom/Failure



#	Symptom/Failure	Repair Action	References
5	No Auxiliary Audio	<ol style="list-style-type: none"> <li>1. Play sound through Auxiliary patch cord into headset.</li> <li>2. Rock cord back and forth while listening to headset <ol style="list-style-type: none"> <li>1. If music cuts in/out or is distorted, replace 200-00016-00X Control board lower PCBA</li> </ol> </li> </ol>	<ul style="list-style-type: none"> <li>• Zulu 3 PART REMOVAL/REPLACEMENT VIDEOS</li> </ul>
6	No Power	<ol style="list-style-type: none"> <li>1. Confirm Batteries or panel power source is good.</li> <li>2. Visually inspect cabling for wear or defects</li> <li>3. For panel power headsets: Pull and bend Lower cable along length of wires and strain reliefs while testing for power.</li> <li>4. Pull and bend Upper cable along length of wires and strain reliefs while testing for power</li> <li>5. Move sliders up and down and press buttons on control box while gently twisting.</li> <li>6. Replace Control Box Upper PCBA (200-00015-00X) <ol style="list-style-type: none"> <li>1. Replace DC-DC Converter PCBA (000000745) For panel Power Headsets</li> </ol> </li> </ol>	<ul style="list-style-type: none"> <li>• Zulu 3 PART REMOVAL/REPLACEMENT VIDEOS</li> </ul>