

Lightspeed Aviation Service Repair Manual

Models: PFX



Table of Contents

Title Page.....	Page 1
Table of Contents.....	Page 2
Before You Start	Page 4
Headset Part Number, PFX.....	Page 5
Parts List, Assembly or Sub-Components.....	Page 6
Failure Validation.....	Page 9
Isolate by Part.....	Page 10
Isolate by Symptom	Page 11

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

- PFX 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
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

Headset Part Numbers

APPLICABLE PART NUMBERS – PFX:

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
PFX	4034	800-00011-001	ASSY, HEADSET, ZULU PFX (GA)
PFX	4035	800-00011-002	ASSY, HEADSET, ZULU PFX, P
PFX	4039	800-00011-003	ASSY, HEADSET, ZULU PFX, H

NOTE: CHECK WITH LIGHTSPEED AVIATION TO DETERMINE IF YOUR TANGO 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
250-00052-000	Ear Seal, Premium
285-00012-000	Battery Box, Battery
285-00034-000	Mic Boom Assembly
285-00035-000	Headband Assy w/ Boards
285-00024-000	Ear Cup Assy, Left w/o mic
285-00025-000	Ear Cup Assy, Right
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

	Description
000000635	Foam, Banana, Right
000000722	Foam, Banana, Left
000001524	WINDSCREEN, MIC
200-00025-000	PCBA, Upper, PFX
200-00025-001	PCBA, Upper, PFX Panel
200-00026-000	PCBA, Lower, PFX
250-00040-100	Battery Box Top
250-00054-000	Head Pad - Standard
285-00036-000	Battery Box Bottom
285-00039-000	Left Assembly/Speaker plates
285-00040-000	Right Assembly/Speaker plates
285-00050-000	Battery Box Bottom, Panel
300-00015-000	Cable, Lower, Dual GA
300-00017-000	Cable, Upper, Straight
300-00018-000	Cable, Lower, Panel
300-00019-000	Cable, Lower, U-174
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

Parts List

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

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

	Description
303-00194-000	Headband Clamp Bottom
304-00010-000	Label PFX Battery
304-00011-000	Label PFX Panel
305-00001-000	Head Pad - Tall
315-00050-000	Shim, Battery Contact

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. Retest
 - a. Failure Resolved?
 - a. Problem likely bad batteries or panel power source.
 - b. Failure Continues?
 - a. Update Firmware using Utility
4. Retest
 - a. 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 Golden 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 Golden 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 golden 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">• PFX PART REMOVAL/REPLACEMENT VIDEOS
Headband assembly	<ul style="list-style-type: none">• PFX PART REMOVAL/REPLACEMENT VIDEOS
Boom Mic	<ul style="list-style-type: none">• PFX PART REMOVAL/REPLACEMENT VIDEOS
Left or Right Faceplate	<ul style="list-style-type: none">• PFX PART REMOVAL/REPLACEMENT VIDEOS

Troubleshooting Guide – By Symptom/Failure



#	Symptom/Failure	Repair Action	References
1	Noise – Headset powered on (ANR)	<ol style="list-style-type: none"> 1. Listen to headset and: Shake head, push on cups, open/close mouth 2. Replace Left, Right faceplates if there is abnormal noise on that side <ol style="list-style-type: none"> 1. If White noise, Replace the Lower PCBA (200-00026-000) 	<ul style="list-style-type: none"> • PFX PART REMOVAL/REPLACEMENT VIDEOS
2	ANR Won't Update (adaptive ANR)	<ol style="list-style-type: none"> 1. Turn on headset and listen to engine noise at about 80dB <ol style="list-style-type: none"> 1. Ensure that the upper cable connectors are fully seated 2. Replace Lower PCBA 3. Replace Headset Assembly 	<ul style="list-style-type: none"> • PFX PART REMOVAL/REPLACEMENT VIDEOS
3	Bluetooth	<ol style="list-style-type: none"> 1. If headset will not pair with any device or Audio is Missing <ol style="list-style-type: none"> 1. Try to connect to headset with device (iPad) 2. Disconnect/ try reconnecting device with Bluetooth 3. Replace Upper PCBA (200-00025-00X) 	<ul style="list-style-type: none"> • PFX PART REMOVAL/REPLACEMENT VIDEOS
4	No Comm Audio/Distorted Comm Audio	<ol style="list-style-type: none"> 1. Perform test while headset powered on and off 2. Visually inspect cabling for wear or defects. 3. Plug headset into comm. panel. 4. Pull and bend Lower cable along length of wires and strain reliefs while listening to headset <ol style="list-style-type: none"> 1. If audio is intermittent, replace Lower cable 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"> 1. If audio is intermittent, replace Upper cable 	<ul style="list-style-type: none"> • PFX PART REMOVAL/REPLACEMENT VIDEOS

Troubleshooting Guide – By Symptom/Failure



#	Symptom/Failure	Repair Action	References
5	No Mic Audio	<ol style="list-style-type: none"> 1. Plug headset into comm. panel. <ol style="list-style-type: none"> 1. If possible, turn squelch setting down to 'hot mic' 2. Rock and bend Boom mic, tap on mic while listening <ol style="list-style-type: none"> 1. If audio is intermittent, replace boom mic assembly 3. Visually inspect cabling for wear or defects 4. Pull and bend Lower cable along length of wires and strain reliefs while listening to headset <ol style="list-style-type: none"> 1. If audio is intermittent, replace Lower cable 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"> 1. If audio is intermittent, replace Upper cable 	<ul style="list-style-type: none"> • PFX PART REMOVAL/REPLACEMENT VIDEOS
6	No Auxiliary Audio	<ol style="list-style-type: none"> 1. Play sound through Auxiliary patch cord into headset. 2. Rock cord back and forth while listening to headset <ol style="list-style-type: none"> 1. If music cuts in/out or is distorted <ol style="list-style-type: none"> 1. Retest with different patch cord. 2. Replace the Lower PCBA (200-00026-000) 	<ul style="list-style-type: none"> • PFX PART REMOVAL/REPLACEMENT VIDEOS
7	No Power	<ol style="list-style-type: none"> 1. Confirm Batteries are good. 2. Visually inspect cabling for wear or defects (panel power) 3. Replace Upper PCBA (200-00025-00X) 	<ul style="list-style-type: none"> • PFX PART REMOVAL/REPLACEMENT VIDEOS