iSED®

Erythrocyte Sedimentation Rate Analyzer

SERVICE MANUAL

Product Catalog # 112-00101

ALCOR SCIENTIFIC

TABLE OF CONTENTS

1. Package Contents

The documents and procedures listed in the following tables are provided by Alcor. All procedures marked as "VIDEO" with the file extension '.SMG' must be opened using the program 3Dvia Composer Player. Use either the 32-bit or 64-bit installer provided by Alcor based on your computer's operating system compatible with Windows-based computers only. Only the latest revision of documents are approved by Alcor.

NOTE: For information not listed in this document, please refer to the latest revision of the *iSED*® Operator's Manual.

1.1. Supporting Document Procedures and Instructions:

Document ID	Description	Type
112-09-020	*iSED*® Communication Protocol	DOC
112-09-055	*iSED*® Unpacking Instructions	DOC
112-09-058	Checklist for *iSED*® Instrument Return	DOC
112-09-065	Transfer Card Instructions	DOC
112-24-038	MicroSD Programming Procedure	DOC
112-24-041	Belt Tension Procedure	DOC
112-24-050	Needle Alignment and Piercing Depth Calibration Procedure	DOC
112-24-051	Pressure Control Procedure	DOC
112-24-052	Barcode Alignment Procedure	DOC
112-24-059	Bootloader Programming Procedure	DOC
112-24-061	Operative Software Install Procedure	DOC
112-28-003	Bleach Cleaning Procedure	DOC
112-28-004	Primary Pump Tube Replacement Procedure	VIDEO
112-28-005	Needle Replacement Procedure	DOC
112-28-006	Wash Pump Tube Replacement Procedure	VIDEO
112-28-007	Belt Replacement Procedure	VIDEO

1.2. iSED Inspection and Test Documents

Document ID	Description	Type
112-27-003	*iSED*® Main PCB Wiring & Test Point Diagram	DOC
112-28-002	*iSED*® Service Report	XLSX

2. When Should I Use Each Document?

2.1. *iSED*® Communication Protocol

To facilitate the setup of *iSED*® communication with LIS system.

2.2. *iSED*® Unpacking Instructions

Handling of Instrument when taking it out of the box.

2.3. Checklist for *iSED*® Instrument Return

Checklist and instructions on how and what to package with the *iSED*® in the event that the instrument must be transported or returned for service.

2.4. Transfer Card Instructions

In the event that *iSED*® must be sent back for repair AND a loaner is issued, this document is used to describe how to transfer the remaining credits purchased from one *iSED*® to another.

2.5. MicroSD Programming Procedure

To reprogram the MicroSD card used in the event of corrupted data. Possible indicators of corrupted data:

2.5.1. *iSED*® is not withdrawing properly due to misalignment of the needle assembly

2.5.2. *iSED*® not ejecting samples tubes correctly due to misalignment

2.5.3. *iSED*® not showing daily results files on the Reprint Screen (refer to *iSED*® Operator's Manual)

Note: This procedure will erase everything on the MicroSD card including all sample data results stored by the analyzer.

2.6. Belt Tension Procedure

In the event of removing and replacing the following parts, use this procedure:

2.6.1. Needle Drive Motor Sub Assembly (112-08-014), See Section 2.7

2.6.2. Piercing System Sub Assembly (112-08-055)

2.6.3. Needle Belt (000080). See Sections 2.7 for Needle Alignment and 2.12 for Belt Replacement Procedures

2.7. Needle Alignment and Piercing Depth Calibration Procedure

2.7.1. In the event of removal and replacement of the Piercing System Sub Assembly (112-08-055)

2.7.2. When Operative Software installation is completed (see Section 2.8)

2.7.3. When reprogramming of MicroSD card (see Section 2.5)

2.8. Pressure Control Procedure

2.8.1. In the event of replacement of the following parts:

A. Needle Tip Assembly (112-01-029)

B. Reading Cell (112-01-031)

C. Tube, Needle to Reading Cell Sub Assembly (112-08-025)

D. Tube, Reading Cell to PeriPump Sub Assembly (112-08-026)

E. Tube, Peristaltic Pump Sub Assembly (112-08-039)

F. Primary Pump Assembly (112-08-050)

2.8.2. When checking for presence of leaks in the hydraulic system.

2.9. Barcode Alignment Procedure

In the event of customer reporting that *iSED*® is not scanning sample tube barcodes consistently or the Barcode Scanner (000017) needs to be replaced.

2.10. Bootloader Programming Procedure

In the event of Service requiring the replacement of *iSED*® Main PCB (112-02-009).

2.11. Operative Software Install Procedure

2.11.1. In the event of a new *iSED*® Software Update release.

2.11.2. In the event of Service requiring the replacement of the following parts:

A. *iSED*® Main PCB (112-02-009)

B. LCD Display (000043)

2.12. Bleach Cleaning Procedure

2.12.1. When regular maintenance is performed; every 30,000 tests.

2.12.2. In the event of a recently found clog in the internal tubing of the *iSED*®. Clear out residual blood from previous tests.

2.12.3. When experiencing “Tail Sensor Calibration” errors repeatedly.

2.13. Primary Pump Tube Replacement Procedure

2.13.1. When regular maintenance is performed; every 30,000 tests.

2.13.2. If iSED was powered off for longer than one hour without running a Wash Cycle.

2.14. Needle Replacement Procedure

2.14.1. When regular maintenance is performed; every 30,000 tests.

2.14.2. Broken, damaged or bent Needle tip Assembly (112-01-029). This can be caused by misalignment of Needle Assembly – check that Needle assembly is aligned by performing Needle Alignment Procedure (112-24-050).

2.14.3. "Unable to Withdraw" errors and it is determined that a blockage is within the Needle Tip Assembly (112-01-029).

2.15. Wash Pump Tube Replacement Procedure

2.15.1. When regular maintenance is performed; every 30,000 tests.

2.15.2. If iSED was powered off for longer than one hour without running a Wash Cycle.

2.16. Belt Replacement Procedure

2.16.1. Necessary in the event of a broken, damaged or overstretched Needle Belt (000080).

2.16.2. After this procedure is performed, the Needle Alignment Procedure (112-24-050) and Belt Tension Procedure (112-24-041) are required to be performed.

2.17. *iSED*® Main PCB Wiring & Test Point Diagram

2.17.1. As a reference diagram for connector identification and location for motors, smart card readers, printers, etc. on the *iSED*® Main PCB (112-02-009).

2.17.2. As a reference diagram for the location of each Main PCB Test Point used in the Electronics Control Sheet of the *iSED*® Service Report (112-28-002).

2.18. *iSED*® Service Report

The Service Report (112-08-001) contains procedures and tests that are required to be performed at every service, regardless of the problem or failure.

Must be filled out completely and sent to techservice@alcorscientific.com.

3. Assembly Identification Diagrams

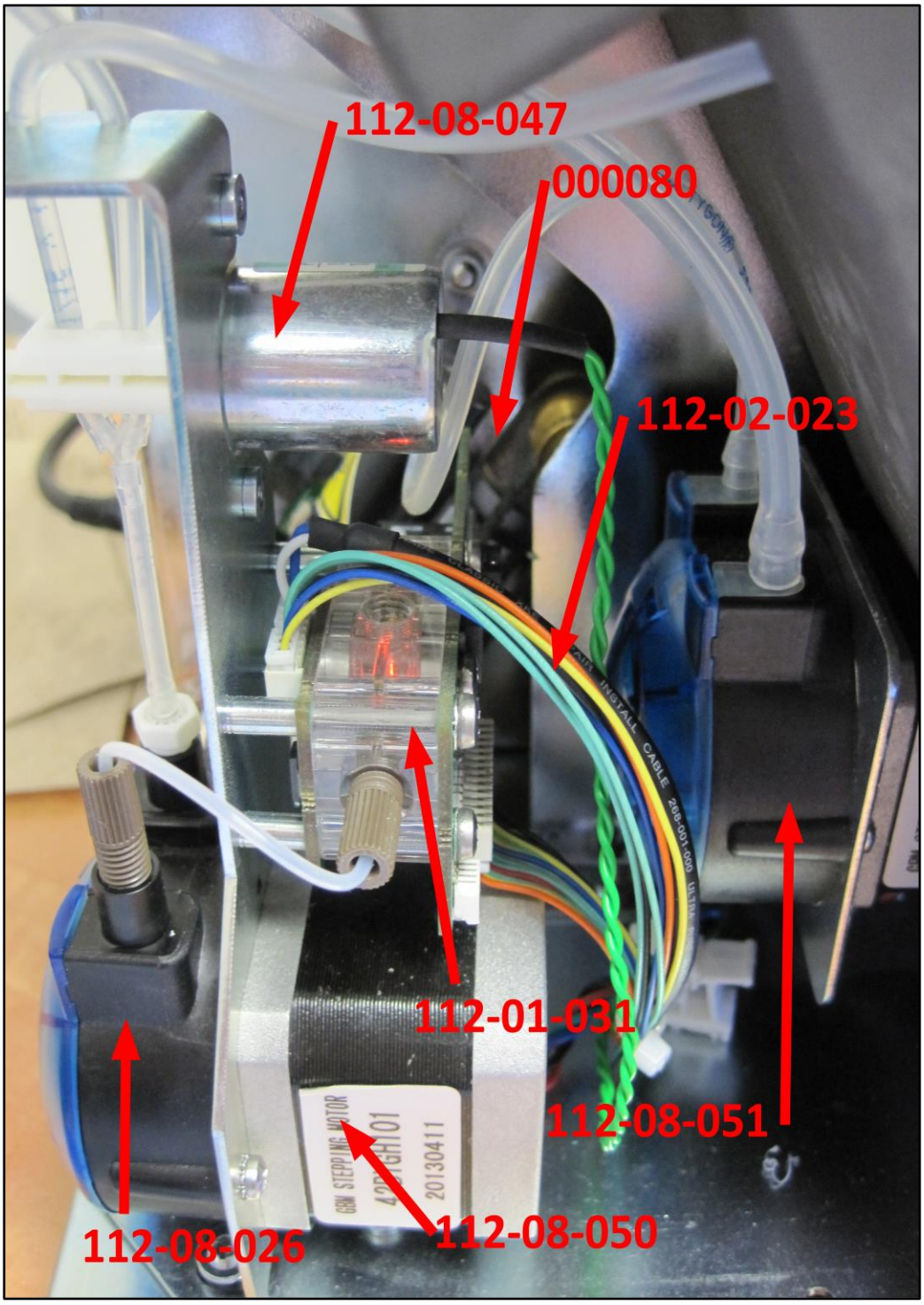

Figure 1: Left View-Quick Identification Overview of Assembly Items and Locations

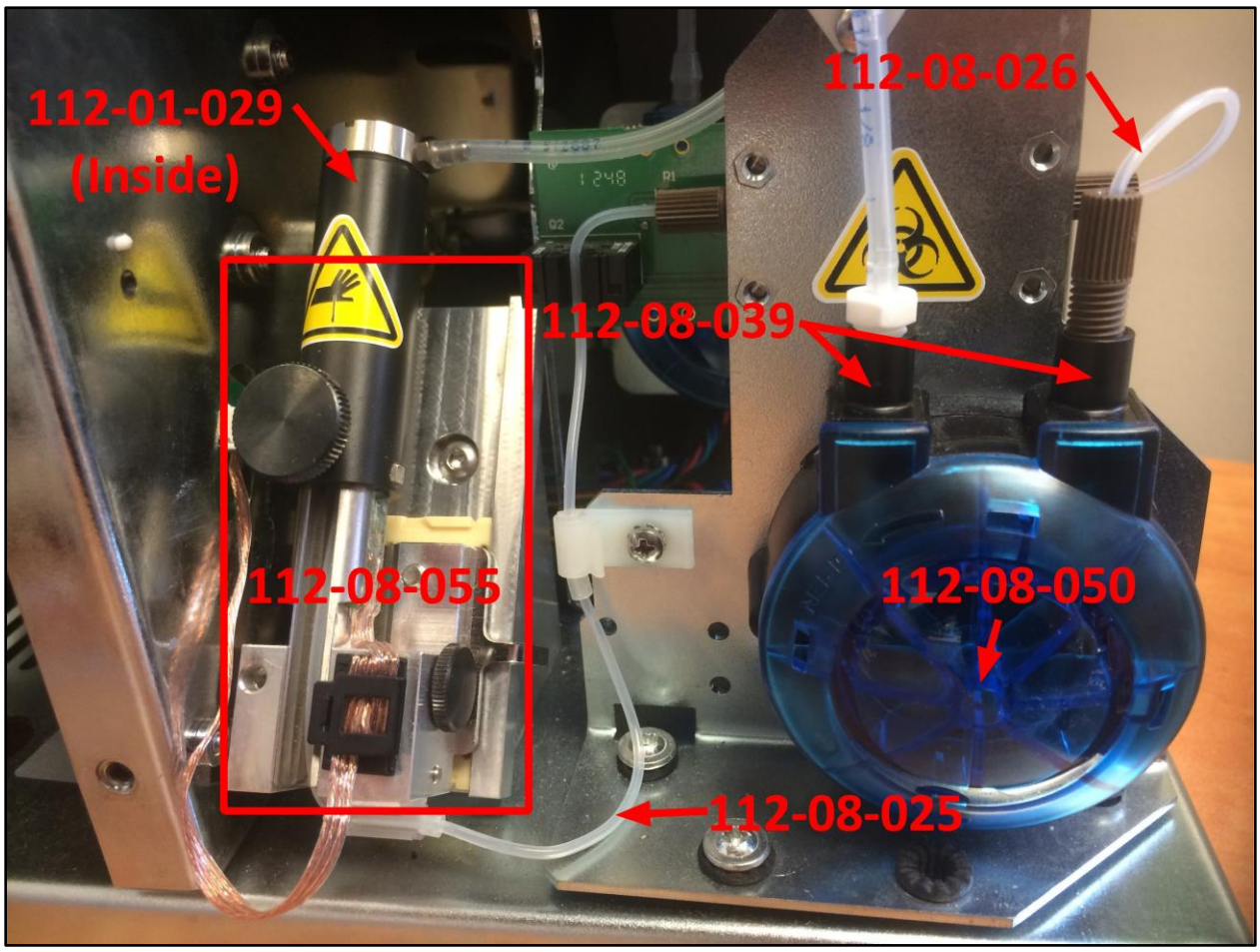

Figure 2: Right View-Quick Identification Overview of Assembly Items and Locations

4. Troubleshooting Flowcharts

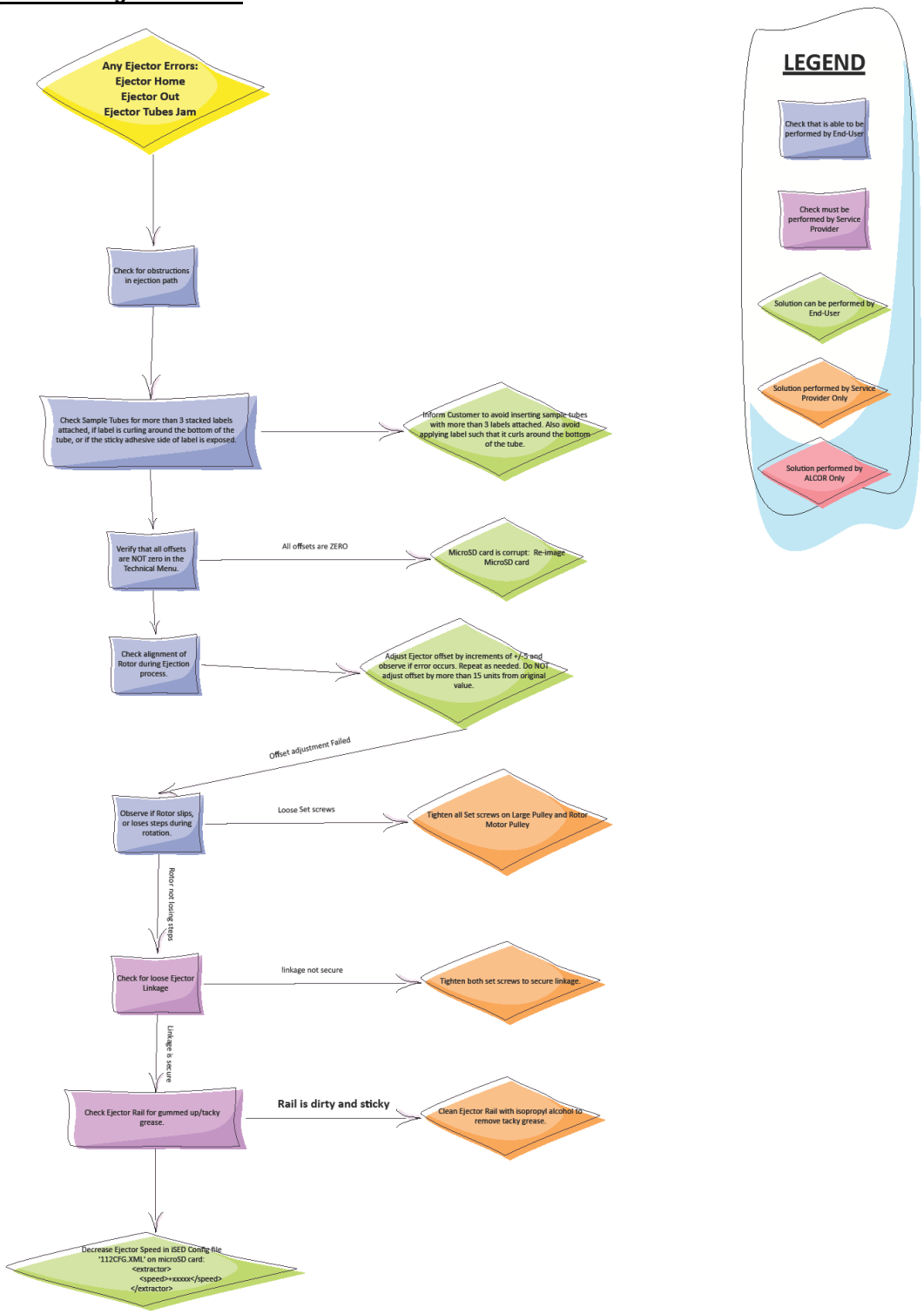

Figure 3: Troubleshooting Flowchart for Ejector Errors

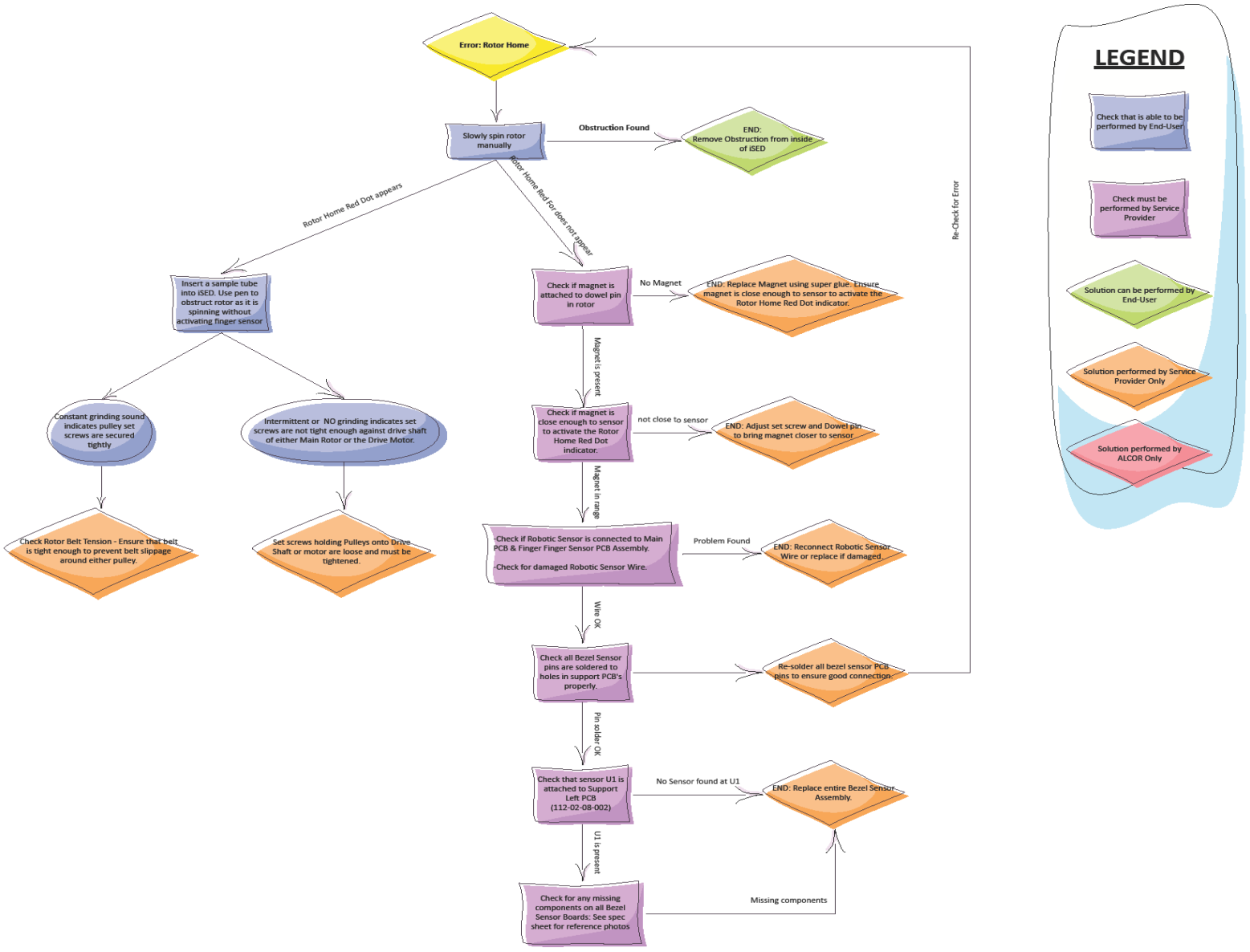

Figure 4: Troubleshooting Flowchart for Rotor Home Error

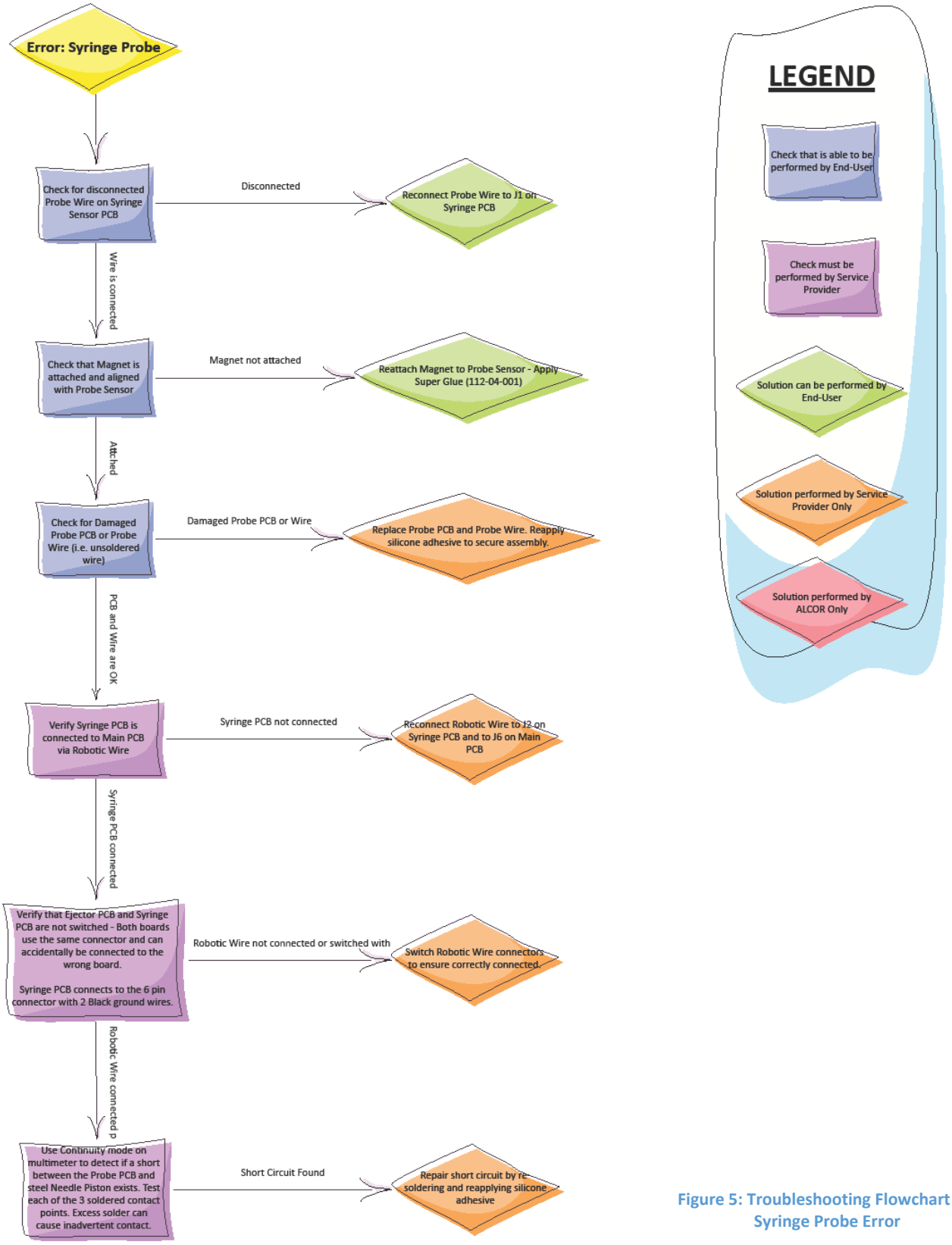

Figure 5: Troubleshooting Flowchart for Syringe Probe Error

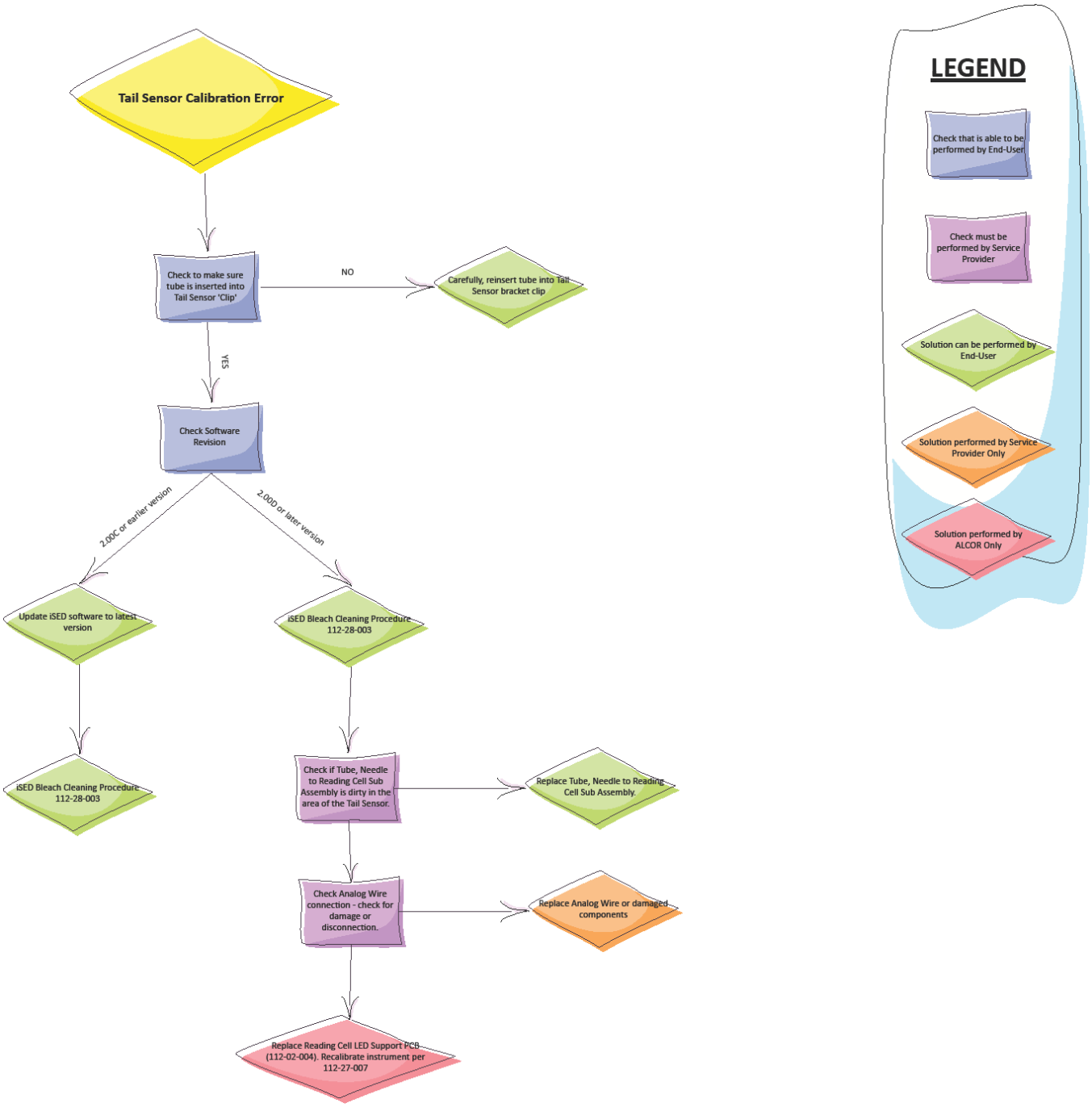

Figure 6: Troubleshooting Flowchart for Tail Sensor Calibration Error

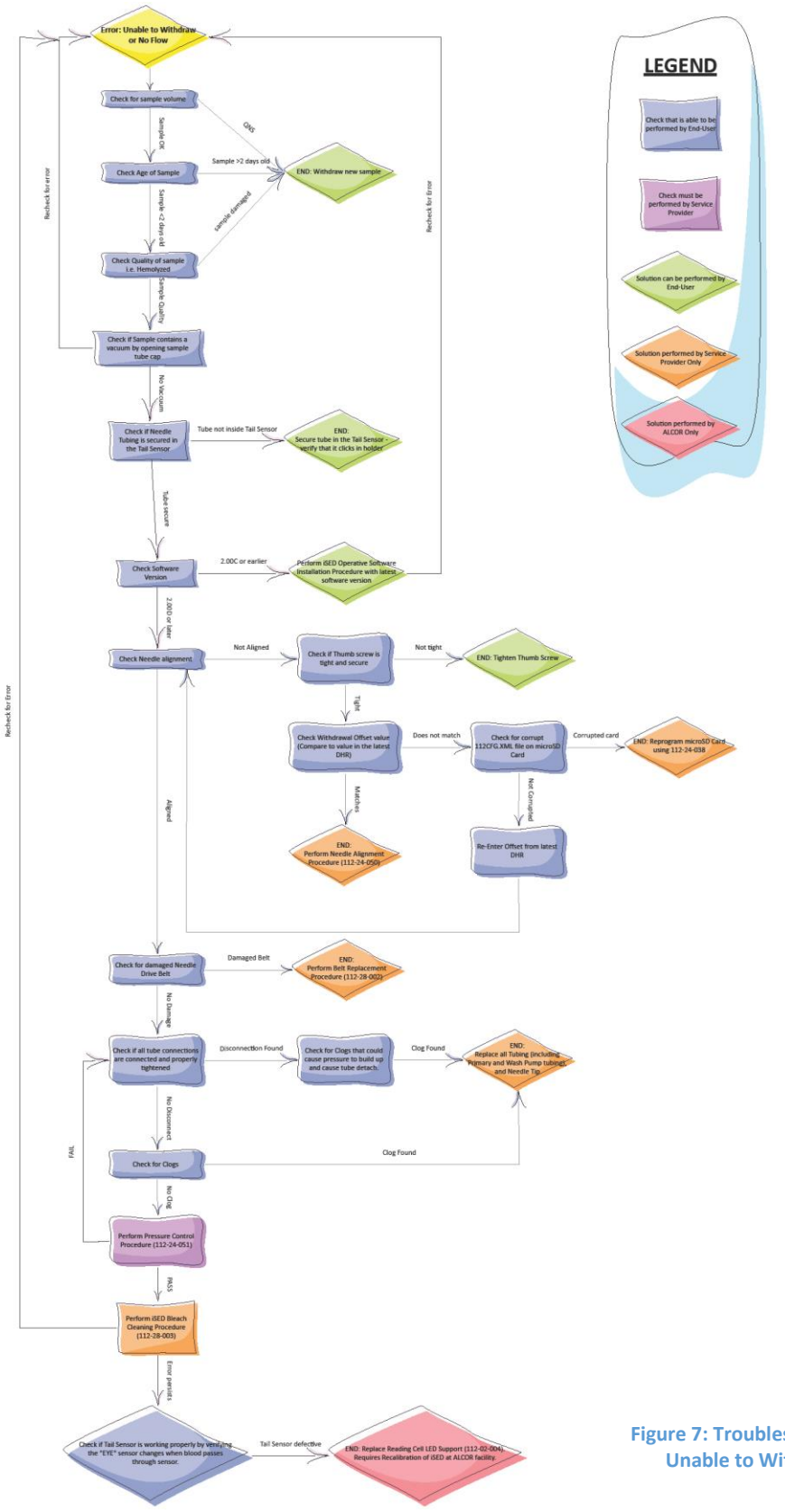

Figure 7: Troubleshooting Flowchart for Unable to Withdraw or No Flow