



User Instructions Manual

skyTECH Launcher

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Revision History

Revision	Sections Affected	Changes	Date
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Warnings and Important Notices

You will find on this page, and throughout this user instructions manual, many warnings and important notices that must be considered seriously when operating this system. It is imperative to understand the meaning of the warnings and potential hazards.



It is the responsibility of the operator to document and maintain a product use, inspection and maintenance logbook. Skyline Ziplines supplies inspection criteria and guidelines, forms and log sheets specific to all manufactured systems and equipment. It is the responsibility of the operator to follow all guidelines, intervals, and criteria set forth by these documents.



WARNING: This product is designed for zip line operations only. The operator(s) must read and understand the instructions in this manual before using this product. Manufacturer's instructions must be followed for the proper use and maintenance of the system and provided equipment. Alterations or misuse of this equipment, or failure to follow instructions, may result in serious injury or death.



This document does not replace a complete training necessary for the use of this product. Knowledge by the user of all appropriate techniques and risks is required.



This manual contains information and instructions specific to skyTECH Launcher and associated equipment manufactured by Skyline Ziplines Ltd. Make sure this User Instructions Manual is the latest version available. Contact Skyline Ziplines to obtain the latest document revisions, important Updates and other notices.



Products and systems manufactured by Skyline Ziplines are intended for use by professionals trained and experienced in the use, inspection, and maintenance of these products, or for use by persons under the direct visual surveillance of competent and responsible persons.



Before using this equipment, record the product identification information from the ID label in the inspection and maintenance log at the end of this document. Make sure this User Instructions Manual is readily available with the product. Contact Skyline Ziplines Ltd to obtain additional copies of this manual.

1.0 Description

1.1 Applications

The skyTECH Launcher is to be used only as a trolley retention device for zipline amusement rides.

1.2 Standards

Refer to local, provincial/state and federal laws and regulations pertaining to the installation and use of this type of equipment.

1.3 Description of skyTECH Launcher

1.3.1 skyTECH Launcher

Product Codes:

- 1/2" Cable Right: SKY-L-RA1
- 1/2" Cable Left: SKY-L-LA1
- 5/8" Cable Right: SKY-L-RA2
- 5/8" Cable Left: SKY-L-LA2
- 3/4" Cable Right: SKY-L-RA3
- 3/4" Cable Left: SKY-L-LA3
- 7/8" Cable Right: SKY-L-RA4
- 7/8" Cable Left: SKY-L-LA4

Specifications:

- Designed for use with skyTECH Rocket Trolleys
- CNC Machined Aluminum and UHMW
- Stainless Steel Hardware
- Field Replaceable Parts
- Composite Inserts, Eliminate Metal-to-Metal Contact

2.0 Limitations

Consider the following application limitations before using this equipment:

2.1 Capacity and Working Load Limit

- Not to be used in operations exceeding 300 lbs

2.2 Environmental Hazards

Use of this equipment in areas with environmental hazards may require additional precautions to prevent injury to the user or damage to the equipment. Hazards may include, but are not limited to: heat, chemicals, corrosive environments, electrical fields and wires, gases and sharp edges.

2.3 Sharp Edges

Avoid using where the zip line equipment or other system components will be in contact with, or abrade against unprotected sharp edges.

2.4 Training

Skyline Launcher must only be installed and used by persons trained in their correct application and use.

3.0 System Requirements

3.1 Compatibility of Components

Skyline equipment is designed for use with the Skyline-approved components and subsystems only. Substitution or replacements made with non-approved components or subsystems may jeopardize compatibility of equipment and may affect the safety and reliability of the complete system.

Approved Trolleys

- skyTECH Rocket Trolley
- Contact Skyline Ziplines for any questions regarding trolley compatibility

3.2 Backup Requirement

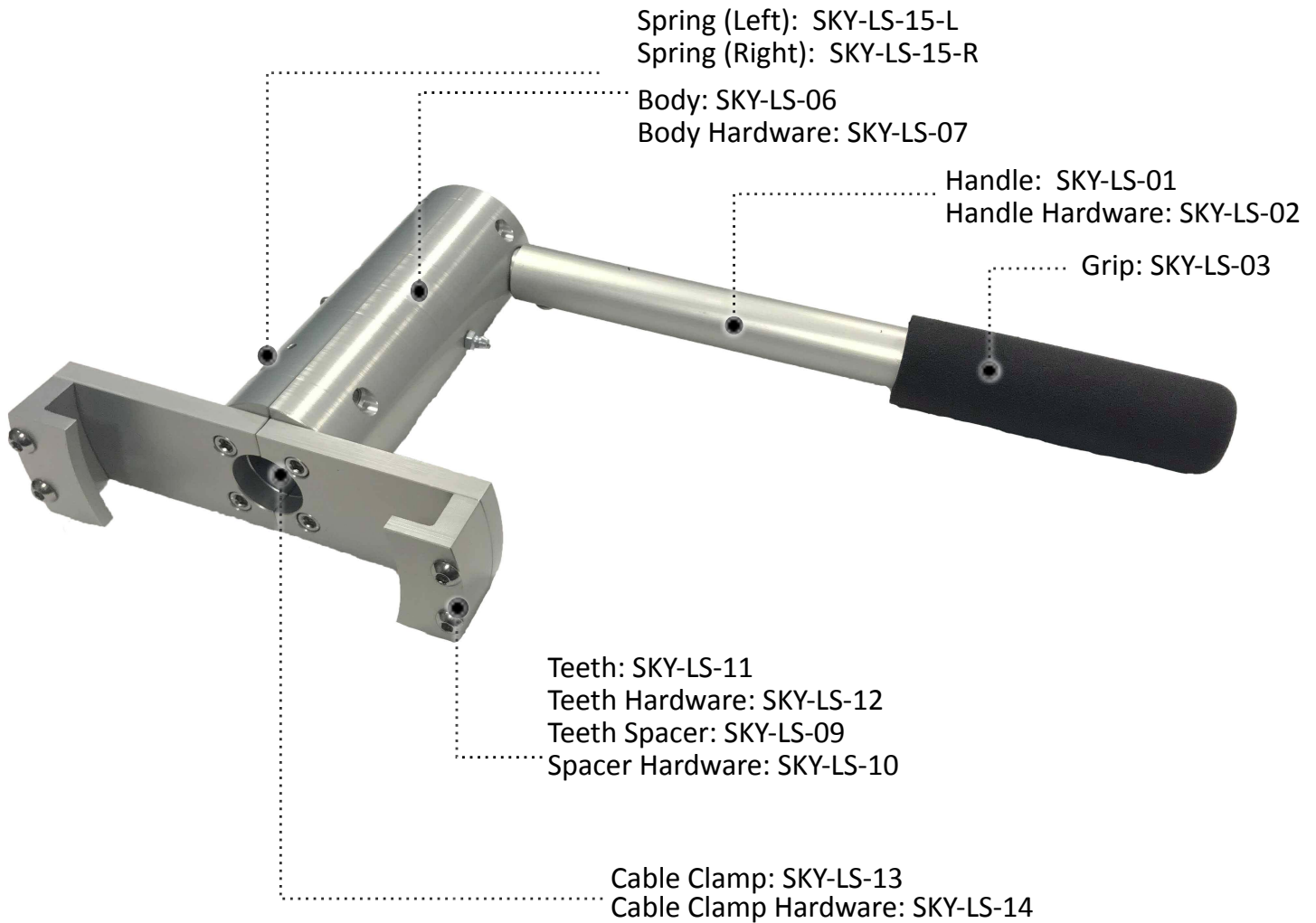
The skyTECH Launcher is designed to prevent a premature launch of a trolley. Skyline Ziplines requires that operations install a backup to this system as the Launcher does not guarantee the complete elimination of risk. Below is Skyline Ziplines' recommended backup system to be installed alongside a skyTECH Launcher. Safety is paramount in every zipline operation.

Recommended Backup System

- Travel Restraint Tether rated to a minimum of 22.2 kN and terminated behind the Launcher
- Contact Skyline Ziplines for any questions regarding backup system compatibility and integration into operations

4.0 Nomenclature and Assembly

4.1 Description of Parts





4.2 Procedure for Installing skyTECH Launcher

Tools Required: 1/4" Allen Wrench, Adjustable Wrench (10"), Prusik cord, Waterproof Grease

*Skyline Ziplines recommends utilizing an anti-seize compound on all stainless-steel components

- 4.2.1 Tie a Prusik knot on the cable one foot in front of ideal launcher placement
- 4.2.2 Install the internal bushing preliminarily with two bolts and the longer bushing half on the bottom, excess on the uphill side
- 4.2.3 Dry fit the skyTECH Launcher on the internal bushing to ensure that the placement is correct and that the handle is level. Adjust as necessary
- 4.2.4 Install the four remaining bolts making sure to tighten all six bolts evenly
- 4.2.5 Apply a generous, even coat of grease to the internal bushing's exterior
- 4.2.6 Install the spring in front of the internal bushing with the rear bend pin facing the bushing
- 4.2.7 Place the spring rear bend pin into the bushing
- 4.2.8 Install the non-handle launcher body piece onto the bushing with the outside bend pin inserted in the launcher body and hold in place
- 4.2.9 Install the handle launcher body piece onto the internal bushing and hold both halves of the launcher body in place
- 4.2.10 Install the front two bolts of the launcher body but do not tighten
- 4.2.11 Install the rear two bolts of the launcher body
- 4.2.12 Equally tighten down all four launcher body bolts
- 4.2.13 Use the adjustable wrench to install the handle on the body securely
- 4.2.14 Check that the Launcher operates smoothly and returns smoothly to its horizontal resting position

4.3 Procedure for Installing Backup System

Supplies Required: skyTECH Sling 15", Petzl Spirit Carabiner

- 4.3.1 Using the skyTECH Sling, tie a Girth Hitch on the cable, behind the Launcher
- 4.3.2 Connect the Petzl Spirit Carabiner to the Sling

5.0 Standard Operating Procedures



The following operating procedures outline only the necessary steps required to complete each process. The procedures do not consider additional safety requirements and additional safety considerations that should be considered for each site. Please consult a qualified person and/or your site-specific manual to ensure all necessary steps are taken to guarantee safety in your operations.

5.1 Standard Procedure For Operation

- 5.1.1 Take a trolley from the guest
- 5.1.2 Attach the trolley backup tether to the rear of the trolley
- 5.1.3 Place the guest trolley on the cable
- 5.1.4 Secure the trolley into the trolley release mechanism by either:
 - 5.1.4.1 Turning the handle down 80 degrees, slide trolley back into slot, release handle
 - Or -
 - 5.1.4.2 Rotating the trolley 90 degrees, sliding the trolley back into the slot, and rotating back upright
- 5.1.5 Attach the Guest to the trolley and have them sit down
- 5.1.6 Perform final check and radio protocol
- 5.1.7 Remove the trolley safety tether
- 5.1.8 Turn handle 80 degrees down to release the trolley from the Launcher

6.0 Training

It is the responsibility of the buyer/user of this equipment to make sure that they understand these instructions, and are sufficiently trained in the correct use and care of this equipment. The user must be aware of the operating characteristics, application limits, and the consequences of improper use. Training must be done prior to use and user must be evaluated for his/her competence to use this equipment. Gaining an adequate education in proper techniques and methods of safety is your own responsibility. Training should be done under the supervision of competent persons.

It is recommended that Skyline Ziplines perform a manufacturer's training to cover the material in this document, use with other equipment, and site specific training.

**Competent Persons: (OSHA) One who is capable of identifying existing and predictable hazards in the surroundings or working conditions that are hazardous or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them.*



7.0 Inspection

7.1 Frequency

- 7.1.1 The skyTECH Launcher must be formally inspected daily prior to initial use and recorded in the inspection log
- 7.1.2 The skyTECH Launcher must be inspected by the manufacturer or approved competent person(s) at least once a year (or more frequently if deemed necessary by the frequency and/or conditions of use). The results of this formal inspection must be recorded in the inspection and maintenance log at the end of this manual

7.2 Daily Pre-Use Inspection Process

The daily pre-use inspection process is included in Appendix A. The forms available in this manual may be used for operations and as a template for site specific forms. It is critical that every item presented on the provided form is inspected and documented.

7.3 Documentation Process

Located in Appendix A is a sample Inspection form that Skyline Ziplines recommends using as a template. Located in Appendix B is a sample Maintenance form that Skyline Ziplines recommends using as a template. Located in Appendix C is a flowchart explaining the appropriate process for inspections, maintenance, and documentation. It is important to reference this flowchart for proper Quality Assurance documentation.

7.4 Lock Out, Tag Out

To ensure the highest standard of safety, it is required that all sites produce a Lock Out, Tag Out system. The system/process is designed to identify and prevent the use of all equipment identified through the inspection process as REJECTED (not suitable for use). Below is an example provided by Skyline Ziplines and is also included in the flowchart in Appendix C:

- 7.4.1 Item identified as rejected or failed during inspection by staff member
- 7.4.2 Failure/rejection is noted on inspection log
- 7.4.3 Item is marked with a tag with the following information:
 - 7.4.3.1 Name of staff member
 - 7.4.3.2 Date of inspection
 - 7.4.3.3 Reason for rejection
- 7.4.4 Item is placed in designated Lock Out, Tag Out area. This area must be separate from the operating equipment area to avoid any chance of use



8.0 Maintenance and Storage

8.1 Storage

Proper storage of equipment leads to longer equipment life and assurance of the integrity of the product. Follow the below guidelines:

- Store the product in a cool, dry, and clean environment out of direct sunlight
- Avoid areas that vapors may exist
- Avoid stacking trolleys on top of each other and metal to metal contact
- Thoroughly inspect all equipment after extended storage

8.2 Launcher Maintenance – Replace the Spring

Tools Required: 1/4" Allen Wrench, Adjustable Wrench (10"), Prusik cord, Waterproof Grease

*Skyline Ziplines recommends utilizing an anti-seize compound on all stainless-steel components

- 8.2.1 Tie a Prusik knot on the cable one foot in front of ideal launcher placement
- 8.2.2 Disassemble device until just the internal bushing is present
- 8.2.3 Pry the old spring off and discard
- 8.2.4 Apply a generous, even coat of grease to the internal bushing's exterior
- 8.2.5 Install the new spring in front of the internal bushing with the rear bend pin facing the bushing
- 8.2.6 Place the spring rear bend pin into the bushing
- 8.2.7 Install the non-handle launcher body piece onto the bushing with the outside bend pin inserted in the launcher body and hold in place
- 8.2.8 Install the handle launcher body piece onto the internal bushing and hold both halves of the launcher body in place
- 8.2.9 Install the front two bolts of the launcher body but do not tighten
- 8.2.10 Install the rear two bolts of the launcher body
- 8.2.11 Equally tighten down all four launcher body bolts
- 8.2.12 Use the adjustable wrench to install the handle on the body securely
- 8.2.13 Check that the Launcher operates smoothly and returns smoothly to its horizontal resting position
- 8.2.14 Inspect unit and record maintenance in log (Appendix B)

8.3 Launcher Maintenance – Replace the Teeth

Tools Required: 1/4" Allen Wrench

*Skyline Ziplines recommends utilizing an anti-seize compound on all stainless-steel components

- 8.3.1 Using a 1/4" Allen wrench, remove bolts attaching teeth to launcher
- 8.3.2 Discard broken teeth
- 8.3.3 Install new teeth with original bolts

8.3.4 Inspect unit and record maintenance in log (Appendix B)

8.4 Launcher Maintenance – Replace the Grip

Tools Required: Razor blade, alcohol or hand sanitizer

- 8.4.1 Using the razor blade, cut the grip lengthwise (do not apply too much cutting pressure) and remove foam grip from the handle
- 8.4.2 Clean the exposed crossbar with alcohol
- 8.4.3 Wet bar and inside of grip with alcohol or hand sanitizer gel
- 8.4.4 Slide new foam grip onto the handle
- 8.4.5 Let dry for 24 hours
- 8.4.6 Inspect unit and record maintenance in log (Appendix B)

8.5 Launcher Maintenance – Replacing Grease

Tools Required: Waterproof Grease, Grease Gun

- 8.5.1 Locate the grease nipple
- 8.5.2 Attach grease gun per manufacturer's instructions
- 8.5.3 Apply grease
- 8.5.4 Check that the Launcher operates smoothly and returns smoothly to its horizontal resting position
- 8.5.5 Inspect unit and record maintenance in log (Appendix B)



9.0 Lifetime

The lifetime of a skyTECH Launcher is determined through the inspection process described in section 7.2. All parts are field replaceable. The actual lifetime depends on the intensity and the frequency of use as well as the environment. An exceptional circumstance might limit the product lifetime to a single use. A product that was not inspected at least once per year should be removed from service and replaced.

10.0 Incident and Failure Reporting

In the unfortunate situation that a Skyline trolley, sling or lanyard is involved in an incident or a failure, please notify Skyline Ziplines immediately so that prompt corrective measures can be taken by Skyline Ziplines. Product Safety Alerts are available at request and are sent out to all previous customers via email.

Complete information concerning the incident (date, location, details as to event and consequence, etc.) must be communicated to admin@skylineziplines.ca and/or called into the office at 604-905-4149.

Skyline Ziplines will investigate the incident and if a product recall alert is required, shall notify all known customers and distributors who have purchased the product.



11.0 Warranty

Subject to the following limitations, terms, and conditions, Skyline Ziplines LTD warrants to the original purchaser of each Product that such Products when purchased new, are free of defects in materials and workmanship. This limited warranty may be exercised for a period of up to one year from the date of receipt. This limited warranty does not apply to normal wear and tear, nor to claimed defects, malfunctions or failures that result from abuse, neglect, improper assembly, improper maintenance, alteration, collision, crash, or misuse.

EXCEPT AS EXPRESSLY SET FORTH ABOVE, SKYLINE ZIPLINES LTD DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PURPOSE. SKYLINE ZIPLINES LTD'S RESPONSIBILITY FOR WARRANTY CLAIMS IS LIMITED TO, AT SKYLINE ZIPLINES LTD'S SOLE DISCRETION, REIMBURSEMENT OF THE ORIGINAL PURCHASE PRICE, REPAIR OF THE PRODUCT, OR REPLACEMENT OF THE PRODUCT WITH THE SAME OR SIMILAR PRODUCT. NOT WITHSTANDING anything in THESE TERMS to the contrary, SKYLINE ZIPLINES LTD SHALL NOT be responsible or held liable for punitive, indirect, incidental or consequential damages, including without limitation, liability for loss of use, loss of profits, loss of Product or business interruption however the same may be caused, including fault or negligence of SKYLINE ZIPLINES LTD.

To exercise rights under this limited warranty, Customer must return the affected Product to Skyline Ziplines LTD (unless otherwise instructed by Skyline Ziplines LTD) to:

SKYLINE ZIPLINES LTD
6-1006 LYNHAM ROAD
WHISTLER, BRITISH COLUMBIA, CANADA **V8E 0S3**

Skyline Ziplines LTD will use reasonable commercial efforts to return all product in a timely manner to the designated location and will be responsible for all shipping costs. Skyline Ziplines LTD reserves the right to modify this limited warranty at any time, in its sole discretion.

Appendix A – Inspection Form

*Sample files available upon request

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INSPECTION FORM I-06

skyTECH Launcher



Inspection Information

Frequency: Daily Pre-Use

Models: Launcher

Performed By: Trained Staff Member

Manufacturer: Skyline Ziplines LTD.

Inspect all matching equipment in accordance with the inspect criteria listed below. At the bottom, record the equipment's disposition by marking the appropriate ID number. If the answer is YES to one or more of the following questions, the unit is deemed UNFIT for service.

1. Known Equipment History

- Has the unit been used by a person weighing more than 310 lbs?
- Has the unit received forces resulting from a fall or shock loading without a subsequent inspection?
- Has the unit been exposed to detrimental chemical products or an intensive source of heat?
- Has the unit NOT been formally inspected within the last year by a competent person?

2. Preliminary Observations

- Are any tags or labels detached or illegible?
- Has the product undergone modifications or alterations not performed or authorized by the manufacturer?

3. Body and Teeth Inspection

- Are there any visual indications of damage to the body and teeth: cracks, bent metal, or excessive wear?
- Is there any missing or loose hardware?
- Are there any visual indications of damage to the handle and grip?

4. Operation Inspection

- Are there any problems with the Launcher rotating freely?
- Are there any problems with the Launcher returning to the horizontal position?

5. Auto Controls Inspection

- *Only applicable to models installed with the Auto upgrade
- Are there any visual indications of damage to the actuator and actuator arm?
- Are there any issues with the actuator cycling through operation?

Disposition - Circle all Line numbers correlating with all units that have PASSED the inspection and are FIT for service

01 02 03 04 05 06 07 08 09 10

Failed Equipment - List all Line numbers for units deemed UNFIT for service. Consult the manual for proper Lock Out, Tag Out Protocol

Notes/Comments

Inspected By:

Date:

Appendix B – Maintenance Log

*Sample files available upon request

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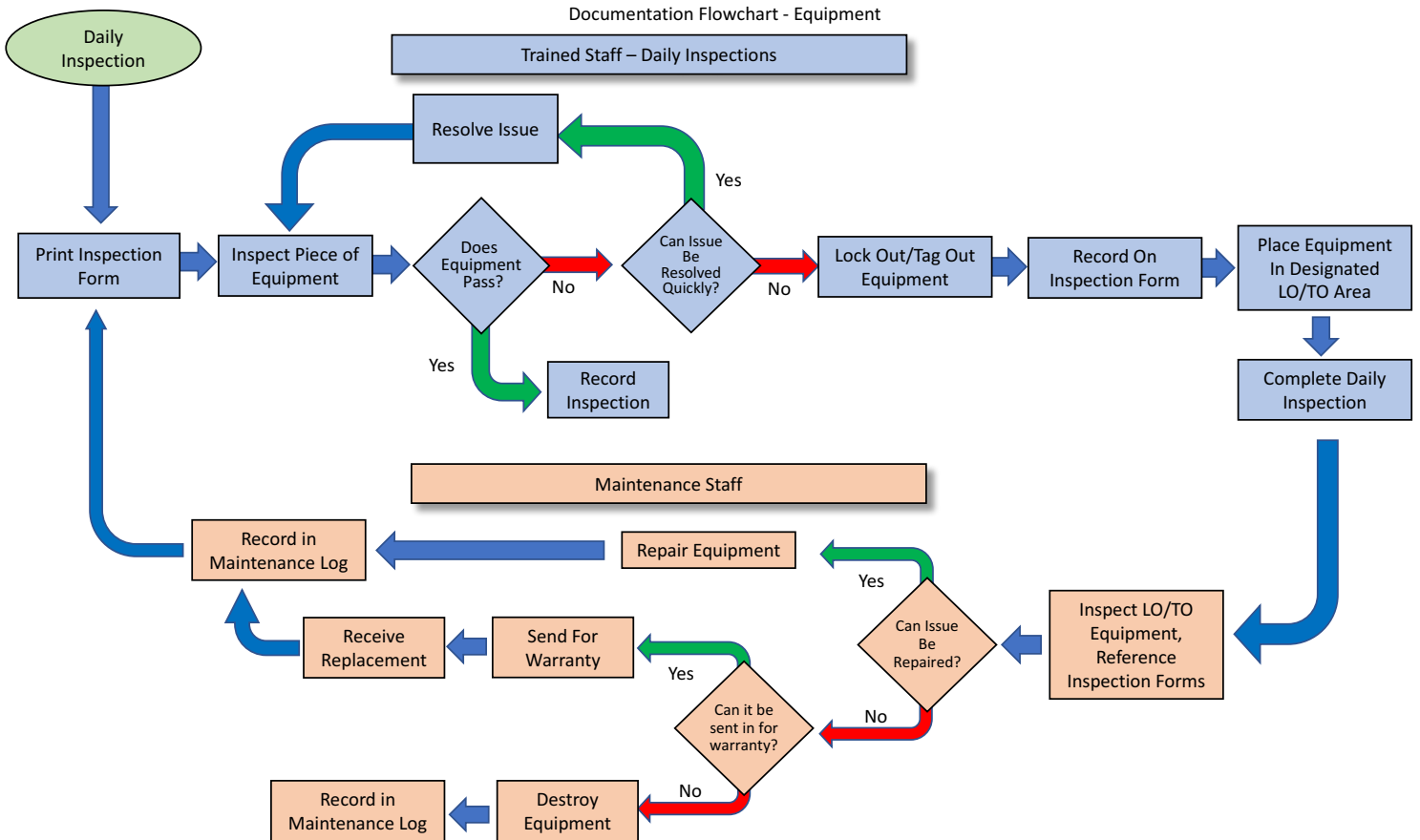
MAINTENANCE FORM M-05

skyTECH Launcher



Unit ID:	Performed By:	Date:
Work Performed:		Verdict (Circle One): FIT UNFIT RETIRED
Unit ID:	Performed By:	Date:
Work Performed:		Verdict (Circle One): FIT UNFIT RETIRED
Unit ID:	Performed By:	Date:
Work Performed:		Verdict (Circle One): FIT UNFIT RETIRED
Unit ID:	Performed By:	Date:
Work Performed:		Verdict (Circle One): FIT UNFIT RETIRED
Unit ID:	Performed By:	Date:
Work Performed:		Verdict (Circle One): FIT UNFIT RETIRED
Unit ID:	Performed By:	Date:
Work Performed:		Verdict (Circle One): FIT UNFIT RETIRED
Unit ID:	Performed By:	Date:
Work Performed:		Verdict (Circle One): FIT UNFIT RETIRED
Unit ID:	Performed By:	Date:
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Unit ID:	Performed By:	Date:
Work Performed:		Verdict (Circle One): FIT UNFIT RETIRED
Unit ID:	Performed By:	Date:
Work Performed:		Verdict (Circle One): FIT UNFIT RETIRED
Unit ID:	Performed By:	Date:
Work Performed:		Verdict (Circle One): FIT UNFIT RETIRED
Unit ID:	Performed By:	Date:
Work Performed:		Verdict (Circle One): FIT UNFIT RETIRED
Unit ID:	Performed By:	Date:
Work Performed:		Verdict (Circle One): FIT UNFIT RETIRED
Unit ID:	Performed By:	Date:
Work Performed:		Verdict (Circle One): FIT UNFIT RETIRED

Appendix C – Documentation Process Flowchart





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