

**Airswift Holdings Ltd.**

**GFCI Safety Program**

**Date:** July 20, 2023

**Version:** 02

**Owner:** HR & Contractor Services Director – North America



**Airswift Holdings Ltd.**

**HSE Management System**

**Ground Fault Protection (GFCI) Safety Program**

**REGULATORY STANDARD:**

OSHA – 29 CFR 1910.399

**Important Notice:**

1. This procedure is a Controlled Document and shall not be amended without the authority of the Operations Manager – North America.
2. Any queries or feedback concerning the contents of this Procedure should be addressed to the Operations Manager – North America.
3. This procedure is reviewed annually or when there is a change to business practices.
4. This document should be retained indefinitely and only removed should the procedure become obsolete.

Prepared	Reviewed	Approved	Effective Date	Issue Number
Carol Stallworth	Courtney Rife	Courtney Rife	07.20.2023	2
Signature	Signature	Signature		

**Airswift Holdings Ltd.**

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## **INDEX**

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**1.0 PURPOSE**

**2.0 GENERAL**

**3.0 PERSONAL PROTECTIVE MEASURES**

**4.0 HEALTH HAZARDS**

**5.0 SAFE WORK PRACTICES**

**6.0 HOUSEKEEPING**

**7.0 TRAINING**



## 1.0 PURPOSE

The purpose of this program is to provide a safe working environment during the use of electrical equipment by using ground fault circuit interrupters (GFCI). This procedure will outline the appropriate steps in order to verify that equipment is properly grounded.

- 1.1 This procedure specifies minimum requirements for the minimization of static electrical energy and should be used in conjunction with Airswift's Electrical Safety procedures.
- 1.2 When working at a client (host) site their GFCI policy will supersede our policy.

## 2.0 GENERAL

Only qualified personnel may work on exposed electrical equipment. The policy applies to all Airswift Contractors and Sub-Contractors working on behalf of Airswift.

All Airswift Contractors and Sub-Contractors are required to comply with the safe operating provisions of this policy and procedure when working with electrical equipment. Any deviation, unless spelled out specifically in the policy requires the permission of Airswift Safety Team or designee.

One or more competent persons must be designated (as defined in 1926.32(f)) to implement the program, at Airswift our Safety Specialist is responsible for the implementation of this program. When working at a Client (host) site, the Site Supervisor, or other assigned competent person is responsible for the implementation of their site GFCI/Electrical policy which outlines the hazards at that particular site.

OSHA 29CFR 1910.137 - Electrical Protective Devices 1.4 OSHA 29CFR 1910.333 - Selection and Use of Work Practices. 1.5 OSHA 29CFR 1910 Subpart S - Electrical.

**Qualified person.** One familiar with the construction and operation of the equipment and the hazards involved.

- Note 1: Whether an employee is considered to be a "qualified person" will depend upon various circumstances in the workplace. It is possible and, in fact, likely for an individual to be considered "qualified" with regards to certain equipment in the workplace, but "unqualified" as to other equipment. (See 29 CFR 1910.332(b)(3) for training requirements that specifically apply to qualified persons.)
- Note 2: An employee who is undergoing on-the-job training and who, in the course of such training, has demonstrated an ability to perform duties safely at his or her level of training and who is under the direct supervision of a qualified person is considered to be a qualified person for the performance of those duties.

### 2.1 DEFINITIONS

Ground Fault Circuit Interrupter (GFCI)

**Ground-fault circuit-interrupter.** A device whose function is to interrupt the electric circuit to the load when a fault current to ground exceeds some predetermined value that is less than that required to operate the overcurrent protective device of the supply circuit.



**Outlet.** A point on the wiring system at which current is taken to supply utilization equipment.

**Personal Protective Equipment (PPE)**

### 3.0 KEY RESPONSIBILITIES

**3.1 Site and Facility Managers** are responsible for the implementation and enforcement of their company policy, Where the Client (Host) does not have a policy, the following procedures will apply:

- Be aware of potentially hazardous conditions that may arise during the use of electrical equipment prior to starting any job, you must take measures to protect employees.
- Ensure that all employees are trained on related safety topics.
- Understand the importance of regularly scheduled maintenance for continued safe operation of electrical equipment by using GFCI
- Ensure that all employees comply with this policy and all other related policies.
- Ensure appropriate PPE is provided to authorized, and or qualified employees who work with electrical equipment.
- Ensure any equipment which has not met the requirements of this program shall not be available or permitted to be used. Damaged items shall not be used until repaired.

**3.2** Primary responsibility always falls back to the user of any such equipment to verify that grounding is properly done.

#### 3.3 Employees

- Must be familiar with the safe operating functions of GFCI's and when to be used on a job.
- Comply with all company policies.
- Have knowledge of hazards associated with electrical equipment, especially equipment over 120 – volt sing phase.
- Only trained and authorized/qualified individuals should carry out any repairs on electrical equipment.
- Use extension cords only as a temporary power source.
- Do not connect too many pieces of equipment to the same circuit or outlet as this could become overloaded.
- Never override safety devices such as electrical interlocks

**3.4** If proper grounding of the equipment in question is beyond the capabilities of the primary user, then the proper chain of authority shall be used to determine who is qualified to inspect or install the equipment in question.

#### Qualified Person:

Someone who is familiar with the construction and operation of the equipment and the hazards involved and are permitted to work on or near exposed energized parts.

#### Unqualified Person:

Someone who is working in the area of equipment with exposed energized parts but is not a qualified person.



## **4.0 PERSONAL PROTECTIVE MEASURES**

Personal Protective Equipment (PPE) such as safety glasses, rated rubber gloves, rated rubber sleeves, insulated boots, or face shield.

- 4.1 Employees working in areas where there are potential electrical hazards shall be provided with, and shall use, electrical protective equipment that is appropriate for the specific parts of the body to be protected and for the work to be performed.

NOTE: Personal protective equipment requirements are contained in subpart I of 29 CFR 1910.

- 4.2 Protective equipment shall be maintained in a safe, reliable condition and shall be periodically inspected or tested, as required by 29 CFR 1910.137.
- 4.3 If the insulating capability of protective equipment may be subject to damage during use, the insulating material shall be protected. (For example, an outer covering of leather is sometimes used for the protection of rubber insulating material.)
- 4.4 Employees shall wear nonconductive head protection wherever there is a danger of head injury from electric shock or burns due to contact with exposed energized parts.
- 4.5 Employees shall wear protective equipment for the eyes or face wherever there is danger of injury to the eyes or face from electric arcs or flashes or from flying objects resulting from electrical explosion.

### **4.5.1 General protective equipment and tools.**

- 4.5.1.1 When working near exposed energized conductors or circuit parts, each employee shall use insulated tools or handling equipment if the tools or handling equipment might make contact with such conductors or parts. If the insulating capability of insulated tools or handling equipment is subject to damage, the insulating material shall be protected.
- I. Fuse handling equipment, insulated for the circuit voltage, shall be used to remove or install fuses when the fuse terminals are energized.
  - II. Ropes and handlines used near exposed energized parts shall be nonconductive.
- 4.5.1.2 Protective shields, protective barriers, or insulating materials shall be used to protect each employee from shock, burns, or other electrically related injuries while that employee is working near exposed energized parts which might be accidentally contacted or where dangerous electric heating or arcing might occur. When normally enclosed live parts are exposed for maintenance or repair, they shall be guarded to protect unqualified persons from contact with the live parts.



## 5 HEALTH HAZARDS

- Direct contact with exposed energized conductors or circuit parts. When electrical current travels through someone's body, it can interfere with the normal electrical signals between the brain and muscles, potentially causing the heart to stop beating properly, breathing to stop, or muscles to spasm.
- When the electricity arcs from an exposed energized conductor or circuit part through a gas (such as air) to a person who is grounded (that would provide an alternative route to the ground for the electrical current).
- Thermal burns, including burns from heat generated by an electric arc and flame burns from materials that ignite from exposure to electrical currents or an electric arc flash.
- An arc blast can include a pressure wave released from an arc flash. The wave can cause injuries and create noise that can damage hearing.

Seek immediate medical attention if you encounter any of the following:

- loss of consciousness
- muscle spasms.
- numbness or tingling.
- breathing problems.
- headache.
- problems with vision or hearing.
- burns.
- seizures.

## 6 SAFE WORK PRACTICES

Onsite Client supervisors and/or company supervisors shall develop and ensure use of standardized safety-related work practices to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts. This will be accomplished whenever work is performed near or on equipment or circuits which are or may be energized. The specific safety-related work practices shall be consistent with the nature and extent of the associated electrical hazards.

All equipment grounding conductors shall be tested for continuity & shall be electrically continuous.

Each receptacle & attachment cap or plug shall be tested for correct attachment of the equipment grounding conductors.

The equipment grounding conductor shall be connected to its proper terminal:

- (1) Before each use.
- (2) Before equipment is returned to service following any repairs

**Airswift Holdings Ltd.**

**GFCI Safety Program**

**Date:** July 20, 2023

**Version:** 02

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- (3) Before equipment is used such as when a cord has been run over.
- (4) At intervals not to exceed 3 months,
- (5) Cord sets & receptacles which are fixed & not exposed to damage shall be tested at intervals not exceeding 6 month.
- (6) Inspect all equipment periodically for damage or defects
- (7) All cords that are worn, frayed, corroded or otherwise damaged must be replaced
- (8) Keep all cords away from heat, oil and sharp objects
- (9) Always follow the manufacturer's instructions for use and maintenance of all electrical tools and appliances
- (10) Be sure that ground fault circuit interrupters (GFCI) are used in high risk areas such as wet locations
- (11) Keep equipment operating instructions on file

**Personal Safety Measures:**

- Hands, shoes, and clothing shall be dry when any energized electrical equipment is handled. Jewelry shall be removed prior to working on energized electrical equipment.
- All protective equipment shall be inspected before each job.
- Do not touch the metal frame of a case if it is ungrounded and you are in contact with the ground or a grounded object.
- Only non-conductive hard hats (ANSI Z87 Class E) are allowed for use where there is a potential for injury from electric shock or burns due to contact with energized parts.
- Only insulated tools or handling equipment shall be used when working near energized equipment if the tools or equipment might come in contact with the parts. The insulating materials of the tools shall be protected against damage and rated for the voltage that may be encountered.

**Equipment Grounding:**

- The grounding of equipment is primarily for personnel protection and is required for all metallic housings, enclosures, and structures which contain electric conductors.
- Grounding shall be interconnected to the extent that a low potential difference is maintained between nearby metallic objects.
- Equipment grounding applies to motor frames, enclosures for controls, transformer cases, transformer back fences, metallic houses, etc.
- The National Electrical Code and National Electric Safety Code shall be referenced to verify equipment grounding requirements are met.



### **General - Equipment Inspection, Testing, and GFCI Use**

- Personnel shall follow all energy isolation requirements before working on any electrical equipment.
- Personnel shall verify that the manufactures grounding recommendations are followed when installing or using any electrical equipment or devices. No one shall bypass or defeat any of these safety devices or systems.
- The grounding conductor shall be the first to be connected and the last to be disconnected if the grounding conductor is separate from the power conductors.

### **Equipment Inspection, Testing, and GFCI Usage**

- Electrical equipment shall be protected by using either Ground Fault Circuit Interrupters (GFCI) or an assured grounding conductor program.
- Double insulated tools are not required to be grounded or tested.
- All permanent 120-volt single-phase receptacles with a potential to be exposed to water shall have a GFCI type or be protected by a ground fault breaker.
- GFCIs may be of the portable, receptacle, or circuit breaker type and shall be tested periodically (not to exceed three months) to confirm its operability.

### **Grounding - Assured Grounding Caution:**

When electrical equipment is used in potentially wet areas and connected to a circuit that does not have a GFCI incorporated, it shall be protected by a portable GFCI.

All electrical cord sets, portable electric hand tools, and any equipment connected by cord and plug shall be visually inspected prior to use and protected by using either ground fault circuit interrupters or an assured grounding conductor program. (Double insulated tools are not required to be grounded or tested.)

Tests performed as required by this program shall be recorded as to the identity of each receptacle, cord set, & cord & plug connected equipment that passed the test and shall indicate the last date tested or interval for which is was tested. This record shall be kept by means of logs, color coding, or other effective means & shall be maintained until replaced by a more current record. These records shall be made available at the job site for inspection.

- Personnel shall confirm that the manufacturer's grounding recommendations are followed when installing or using any electrical equipment or devices.
- The grounding conductor shall be the first to be connected and the last to be disconnected.

All 120-volt single phase receptacle outlets that are not part of the permanent wiring of the building or structure and that are in use with the referenced equipment shall have approved ground fault interrupter protection. GFCI's are to be used on all 120-volt, single phase 15 and 20 ampere temporary wiring on construction sites.



**Airswift Holdings Ltd.**

**GFCI Safety Program**

**Date:** July 20, 2023

**Version:** 02

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Note: Some receptacle outlets that are part of the permanent wiring of the building may not be required to have GFCI protection. However, it is intended that they be used with portable GFCIs and meet the provisions of this section.

**7 TRAINING**

All Airswift Employees, Contractors and Sub-Contractors will complete Ground Conductor and GFCI Protection training with content to include:

- Purpose & Policy
- Employee Responsibilities
- Ground-Fault Circuit Interrupters (GFCI)
- GFCI's Testing Procedures
- Assured Grounding Program
- Program Color Code
- Reporting & Documentation

Training Frequency – training shall be completed prior to starting the job and refreshed annually as part of Toolbox Safety Meeting.

**8 REPORTING AND RECORDKEEPING**

8.1 Airswift or designee shall be the custodian of all Ground Conductor and GFCI Training Records.

8.2 Control – Records associated with this program shall be handled in the following manner.

- 8.2.1 Inspection \* & Testing – Records shall be submitted to the site Supervisor. A copy of the latest inspections shall be kept on the jobsite as required by 29 CFR 1926.404(b)(1)(iii)(G). Inspection Records shall be forwarded to Airswift Site Contact promptly and retained for a period of 5 years.
- 8.2.2 Training Records – Training records shall be retained for a minimum of the employee's duration of employment plus 5 years.

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**Document Control – Revisions and Amendments**

Version Number	Effective Date	Author	Amendments	Reason for Amendments
1	01.09.2020	Carol Stallworth	New Policy	
2	07.20.2023	Kellie Tetley	None	Annual Review