



Oberon Arc Flash Suit User Guide

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OBERON INTRODUCTION

Oberon is the leading arc flash personal protective equipment (PPE) manufacture in the World. Located in New Bedford, Massachusetts, USA, Oberon manufactures arc-rated products used for protection from arc flash hazards. As a leader, Oberon provides innovative new shield and fabric technologies. Since manufacturing the first ever arc flash face shield in 1985, Oberon has continued to provide leading edge technologies including its True Color Grey (TCG) technology.

CARE & USE TRAINING

Standards for electrical safety in the workplace including NFPA 70E and CSA Z462 require care and maintenance of arc-rated clothing and arc-rated arc flash suits. Oberon has created this User's Guide to assist with training on care and use of its products.

Requirements include:

- Pre-Use Inspection
- Manufacturer's instructions
- Storage
- Cleaning

CAUTION

Flammable contaminants will reduce the thermal performance of any flame resistant arc-rated garment. Wash garments to ensure that no greases, oil, soiling or other flammable contaminants are present when the garments are worn. Repairs to the garments must be made with the same thread & fabric.

Do not reuse Oberon arc flash PPE after an arc exposure.

IMPORTANT WARNING

Oberon arc flash suits do not provide insulation from electric shock. Oberon arc flash suits when properly selected and worn are designed to provide protection from burn injuries resulting from an electrical arc flash in accordance with ASTM F1506 & NFPA 70E. It is important to note that Oberon arc flash suits will provide limited or no protection against sound, pressure, projectiles and respiratory hazards which may result from an arc flash incident. Face protective products which are effective against the arc flash hazard can reduce visibility. NFPA 70E calls for the use of additional lighting if work conditions require.

REMEMBER

Always perform an arc flash risk assessment to determine the potential arc flash incident energy exposure level. Only use arc flash PPE with an arc rating (ATPV or EBT) that is equal to or greater than your potential arc flash incident energy level.

COMPLIANCE

Oberon arc flash PPE is compliant with every applicable Standard necessary as per NFPA 70E and CSA Z462.

This includes:

- ASTM F2178, Standard Test Method for Determining the Arc rating of Face Protective Products
- ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection.
- ASTM F1506, Standard Performance Specification for Textile Material for Wearing Apparel for Use by Electrical Workers Exposed to Momentary Electric Arc and Related Thermal Hazards.
- ASTM F1959, Standard Test Method for Determining the Arc Rating of Materials for Clothing.

ARC FLASH SUIT HOOD

- Generous fit with the least possible resistance to movement and minimal discomfort while in use.
- Clear "True Color Grey" (TCG) hood shield window.
- Hood shield window made of polycarbonate material.
- Hood shield window provides high impact and high mass protection for maximum protection from shrapnel, projectiles and flying debris. ANSI Z87.1+ (plus symbol indicates high impact models).
- Optional hood ventilation system (HVS) for fresh air to optimize worker comfort. External components constructed of FR plastic to prevent component ignition in the event of an arc flash accident.
- Optional LED head lamp for task lighting necessary in most work tasks.

ARC FLASH SUIT COAT AND BIB-OVERALLS

- Constructed of 100% arc-rated inherently flame resistant fabric, see label for fiber breakdown.
- Compliant label includes:
 - Manufacturer
 - Arc Thermal Performance Value (ATPV) or EBT rating in calories per square centimeter
 - Care instructions
 - Fabric fiber content (e.g. oz weight/sq yard) (optional)

- Garment size
- Manufacturer tracking code
- Meets requirements of Performance Specification ASTM F 1506
- Each item (Hood, Coat & Bib-Overall) are labeled with individual serial numbers with numbers and corresponding bar code for inventory, tracking and total accountability.
- Coat includes double closure; Nomex® Velcro & Zipper Tape and High Temperature Delrin® Zipper.

INSTRUCTIONS ON STORAGE

- Use a storage bag or storage locker in a clean dry environment. Never store with sharp objects, or in dusty areas.
- To avoid color fading and loss of strength never store under direct sunlight or other UV light sources (UV radiation does not affect heat and flame protection)
- Front flap of the hood should be used to protect the window inside of the storage bag; otherwise hood storage bags are available.
 - When placing the hood inside of a storage bag flip up the front flap to cover the hood shield window.
- Recommend folding the arc flash suit coat, bib-overall or coverall before placing in storage.
- Be sure all powered components are turned off before storage including the fan unit and LED lamp.
- To ensure the hood ventilation system fan does not turn on while using a storage bag, disconnect the fan unit from the coupling (turn fan counter clockwise), open battery storage compartment cover and remove one battery. Replace the battery compartment cover and store in a pouch inside of the overall storage bag.

LAUNDRY INSTRUCTIONS

NOTE: Always follow the instructions on the care label found inside of your Oberon PPE.

GENERAL CLEANING REQUIREMENTS

- Wash Arc Flash PPE regularly.
- Repairs to the garment must be made with the same thread and fabric.
- Always completely disassemble your hood before laundering (see instructions below). Do not launder hood with window, hard hat, hood ventilation system and LED lamp in place.
- Close all hook & loop fasteners before laundering to avoid unwanted pilling or clogging the hook portion of the fastener.
- Suits shall be washed or cleaned separately from any other clothing.



WASHING PROCEDURES

The following instructions apply to domestic as well as Industrial washing. Load of washing machine 2/3 of volume of the drum in order to avoid crumples. Pre-washing at temperatures up to 40°C with a washing bath relation of 1:10. Main washing at temperatures up to 40°C with a washing bath relation of 1:10.

DETERGENTS

To wash PPE in a correct way, the bath should have a ph-value <10. General commercial detergents for colored clothing can be used and proportioned according to the detergent manufacturers` information. Full detergents contain brighteners and are therefore not suitable. Do not use bleaching agents or products which contain bleaching agents.

FABRIC SOFTENER

Do not use fabric softener.

RINSING

After washing, PPE shall be rinsed carefully in order to remove all remains of alkaline and/or possibly flammable residues of the detergent. Up to 2-3 rinsing cycles may be necessary.

DRYING

Garments may be spin-dried and dried in a cylinder drying machine with low or normal temperatures until a remaining humidity of 10-20%.

IRONING

Do not iron.

DRY (CHEMICAL) CLEANING

Chemical drying is recommended when clothing becomes very dirty by e.g. oil or grease. Dry cleaning shall be done according to the care labeling by usual 2-bath procedure. Boosters should only be used in extreme situations and only with reduced mechanism. Dry cleaning shall only be executed by experts. Before PPE is re-used it shall be completely free of solvents. Therefore the clothing should ventilate for at least one day after being cleaned.

Cleaning vs. Disinfecting

In all situations where PPE, tools and equipment are used by workers, employers must ensure all surfaces that can be touched by workers have been cleaned and disinfected. However, cleaning is not the same as disinfecting. The Centers for Disease Control and Prevention (CDC) defines cleaning vs. disinfecting as follows:

- Cleaning refers to the removal of germs, dirt, and impurities from surfaces. Cleaning does not kill germs, but by removing them, it lowers their numbers and the risk of spreading infection.
- Disinfecting refers to using chemicals to kill germs on surfaces. This process does not necessarily clean dirty surfaces or remove germs, but by killing germs on a surface after cleaning, it can further lower the risk of spreading infection.

The important distinction to be made here is that cleaning your PPE is *not* enough to kill germs and viruses. To protect your workers you must also disinfect it between each use. When it comes to Arc Flash PPE this is a complicated process as we have both porous and non-porous surfaces. For example, a face shield is considered a non-porous surface and can be easily cleaned. The fabric portion of an Arc Flash Suit would be considered a porous surface and is much more difficult to disinfect.



How to Clean and Disinfect a Face Shield

To clean the inside of an Oberon TCG™ shield or hood window use a damp soft cloth. If the shield has dirt or grit, flush it off with room temperature tap water. If in a hood, remove the window from the hood and then rinse it off.

Once clean, the shield can be disinfected by applying a soft cloth with Isopropyl Alcohol or a Lysol® wipe. This process may leave streaks as the surface dries. Once dry, use a soft clean cloth and lightly wipe off any streaks or film left on the shield from impurities in the wipes.

For any plastic parts without coatings gently wash with a 10% solution of Clorox Bleach and allow it to evaporate until dry.



How to Disinfect an Arc Flash Suit

From time to time, the fabric portion of an Arc Flash Suit needs to be disinfected in between uses. As the fabric portion of the suit is very porous this is a very challenging proposition. One method currently available is done by spraying an approved disinfectant on the inside of the hood and suit. While this will not kill 100% of all bacteria and viruses, it is one of the best defenses currently available. When spraying the inside of the suit and hood, be careful not to get any spray on the outside of the suit. It is also important to let the suit dry completely before putting it back into service.

As an alternative option, consult your local commercial laundering facility and inquire what options are available that will clean and disinfect Arc Flash PPE according to ASTM F1449 Standards.

***Caution: When consulting your commercial laundering facility it is important that they adhere to the washing guidelines on the label of the arc flash suit. Any deviation from the washing instructions has the potential to damage the protective properties of the suit. Please consult your local Oberon representative for further guidance on this topic.**

How to Perform a Visual Pre-Inspection of an Oberon Arc Flash Suit Coat, Bib-Overall, Hood, Ventilation System

Suit Pictured: TCG40 Series

Hard Cap: Check shield adapters, ensure no cracks and correctly fitted inside cap side slots. Inspect for cracks, shell expiration date and that the suspension adjusting mechanism works.

Ventilation System: Perform system check by turning fan on. Replace batteries if needed. Check fan connection to coupling, ensure fully engaged into locked position. Fan unit fully secured inside pocket, loop or strap (located at back).

Hood: Inspect hood window inside/out and look for excessive scratching, cracks or other damage; replace if necessary. Ensure snaps are securely attached to the fabric and shield. Ensure fabric inside/out does not have rips, tears, or holes. Look for stains or other types of damage from contamination. Look for excessive fading of material.

Bib-Overalls: Ensure fabric inside/out does not have rips, tears, or holes. Look for stains or other types of damage from contamination. Look for excessive fading of material. Check suspenders, inspect for signs of excessive wear and confirm no visible signs of damage. Confirm buckles are operable and suspender strap is flat inside of the adjustment mechanism. Inspect cinch strap(s) for hook and loop seal.

Coat: Ensure fabric inside/out does not have rips, tears, or holes. Look for stains or other types of damage from contamination. Look for excessive fading of material. Check zipper and/or hook and loop closure; confirm no visible signs of damage.



HOW TO PUT ON (DONNING)

NOTE: Oberon products shall be used in accordance with all labeling and applicable Standards. The following “How to Wear” instruction is only an example. Worker instruction is the sole responsibility of their Supervisor & Employer.

HOOD PREPARATION

- Open storage bag, remove hood, and perform visual inspection.
- If the hood is equipped with a hood ventilation system, perform a battery check by turning the fan switch to “ON”. If the fan does not operate, change the batteries and repeat this step. Switch fan to “OFF” before proceeding to the next step.
- Remove the can of Disinfectant spray and soft cloth from inside of the storage bag.
- Holding the can 18” away from the hood surface, lightly spray the inside of the hood with the can of Disinfectant being careful to never spray the outside of any part of the arc flash suit or over spraying creating pooling on the inside of the hood and hard hat.
- Avoid spraying the inside of the hood window.
- Using a clean, lint free soft cloth, clean the outside of the hood window to ensure best possible visibility (remove any dirt, finger prints, etc.). Using the same cloth, wipe out the inside of the hood window (lens).
- Place the hood down on a clean surface with the hood opening facing up, allowing the inside of the hood to completely dry before use.

BIB-OVERALLS

- Remove bib-overalls, perform visual inspection.
- Optional: Don arc flash cooling vest over top of Daily-Wear and underneath the bib-overalls.
- If bib-overall suspender buckles are open, close buckles.
- Don bib-overalls by using a bare wall or chair to take the weight of your legs, once balanced, place one leg through the pant legs at a time.
- While donning the bib-overalls point your toes to the floor allowing your work boots to slide through the opening. If your work boots are excessively soiled remove them before putting on the bib-overalls.
- Once both legs are through stand up and pull the suspender straps over your shoulders and adjust the tension for a comfortable fit, removing any excess slack in the suspenders.
- If possible, close the side cinch straps with hook and loop closures.
- Close the lower cinch straps using the hook and loop

tabs at your ankles to ensure the suit legs do not fall down under your heels, avoiding a potential tripping hazard.

COAT

- Remove the coat from the storage bag, perform visual inspection.
- Put on the coat over top of the bib-overalls.
- Place the can of Disinfectant spray and soft cloth back inside of the storage bag, stow bag in a safe location.
- Completely zip up the front coat closure and seal the zipper using the hook and loop placard, including the strap at the neck to ensure all open areas have been fully sealed.

Other Personal Protective Equipment, worn before the Hood:

- Don approved Safety Glasses or Goggles.
- Don appropriate Hearing Protective Device(s).
- Don any other PPE that is appropriate for the hazard (respiratory protection, over boots, etc.).

HOOD

- Pick up the hood and inspect inside using your bare hand touching the surfaces to ensure the Disinfectant spray has completely dried.
- Don the hood by first turning the hard hat ratchet suspension knob opening the suspension so the hard hat will generously fit on top of your head.
- Place the hood over top of your head. While holding the bottom of the lens pull the window/shield close to your mouth and reactivate the anti-fog coating on the inside of the hood by breathing over the entire inside surface of hood window.
- Once the hood is on, reach your hand up inside the back of the hood and tighten the ratchet suspension knob to the point at which the hard hat does not slip or easily pull off your head

GLOVES

- Complete visual inspection, air testing and pre-use procedures.
- Put on the gloves one hand at a time, ensuring the cuff of the suit coat or coverall is well inside of the inner most gloves, ie. Rubber insulating (Voltage Rated) or Arc-rated gloves, lying flat in a natural position and not rolled or bunched up.

FINAL CHECK

- After the hood is on and the hard hat suspension is properly adjusted, make sure the lower hood flaps are

not folded inwards and are lying flat over top of the coat. Do not tuck the hood inside of the collar.

- Double check all closures, sealing any gaps and inspecting for correctness of fit. Reach your hand around to the back of the hood and switch the fan back to “ON” before proceeding to use your arc flash suit.

HOW TO TAKE OFF (DOFFING)

HOOD

- Remove hood, turn fan switch to “OFF”.
- Retrieve the suit storage bag; remove the can of Disinfectant spray and soft cloth.
- Holding the can 18” away from the hood surface, lightly spray the inside of the hood with the Disinfectant being careful to never spray the outside of any part of the arc flash suit or over spraying creating pooling on the inside of the hood window.
- Always avoid spraying the inside of the hood window.
- Immediately wipe accidental spray off the inside of the hood window using soft cloth.
- Place the can of Disinfectant spray and soft cloth back inside of the storage bag.
- Place the hood down on a clean surface with the hood opening facing up, allowing the inside of the hood to completely dry before storing.

COAT

- Remove your coat and fold lengthwise before placing back inside of the storage bag.
- Proceed to removing the bib-overalls by opening the cinch straps on the sides and at the ankles, then pulling the suspender straps over your shoulders.

BIB-OVERALLS

- Find a bare space on a wall or by sitting on a chair, balance your weight and pull your legs through the bib-overalls. It is helpful to use your opposite hand to hold the bottom of the bib-overall pant legs allowing your work boot to easily pull through. Remember to point your toes down. If your work boots are excessively soiled remove them before removing the bib-overalls.
- Once the bib-overalls are removed fold them lengthwise and place them on top of the coat inside of the suit storage bag.

STORAGE

- Pick up the hood, using the lower flap from the front, fold up and over the outside of the hood window to prevent shield damage while being stored.

- Fold the back of the hood including the fan unit inside of the hard hat and place the hood into the storage bag.
- Zip closed the storage bag and store in a safe dry location.

INSTRUCTIONS ON STORAGE

- Use a storage bag or storage locker in a clean dry environment. Never store with sharp objects, or in dusty areas.
- To avoid color fading and loss of strength never store under direct sunlight or other UV light sources (UV radiation does not affect heat and flame protection)
- Front flap of the hood should be used to protect the window inside of the storage bag; otherwise hood storage bags are available.
 - When placing the hood inside of a storage bag flip up the front flap to cover the hood shield window.
- Recommend folding the arc flash suit coat, bib-overall or coverall before placing in storage.
- Be sure all powered components are turned off before storage including the fan unit and LED lamp.
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