



Ricochet Cleaning, Care, Inspection & Retirement Guide

Compliant with NFPA 1850 (Selection, Care & Maintenance) NFPA 1970 (Consolidated PPE Performance) 2025 Edition

Version: 1.0

Effective Date: January 2026

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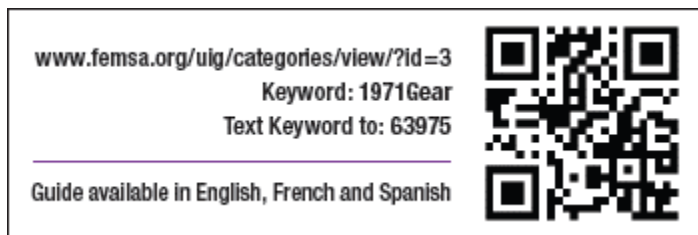
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This Guide replaces prior NFPA 1851 user guides and aligns all requirements and user instructions with NFPA 1850 (Selection, Care & Maintenance of Protective Ensembles for Structural and Proximity Firefighting and Open-Circuit SCBA) and NFPA 1970 (Consolidated PPE Performance Standard). It is specific to Ricochet garments and does not apply to helmets, footwear, gloves, SCBA, PASS, or interface components manufactured by other companies.

Ricochet highly recommends obtaining a copy of NFPA 1850 and NFPA 1970 2025 Edition standards. Copies may be purchased directly from NFPA at www.nfpa.org.

Important information regarding your structural or proximity firefighting gear is also contained in the [FEMSA Official User Information Guide](#), which is accessible on-line, or you can scan the QR code provided with your new Ricochet garment. The QR code is also shown here:



This guide also serves as the primary study material for the Ricochet NFPA 1850 (1851) 2025 Edition Online Training Exam, which certifies personnel to perform advanced cleaning and inspection on Ricochet gear.

1) Scope & Applicability

This Guide covers selection, care, cleaning, preliminary exposure reduction (PER), decontamination, inspection (routine, advanced, and complete liner), repair, storage, transport,



documentation, and retirement for Ricochet structural and proximity firefighting garments, liners, particulate-blocking hoods (structural), and drag rescue devices (DRDs). Program elements reflect NFPA 1850 (1851) 2025 Edition for departments and NFPA 1970 (1971) 2025 Edition performance/certification changes for PPE components. Ricochet recommends obtaining access to NFPA 1850 (1851) and NFPA 1970 (1971) via [NFPA LiNK®](#) for reference.

2) Key Compliance Updates (What's Changed)

- **Standards reference:** NFPA 1851/1852 have been consolidated into NFPA 1850; NFPA 1971/1975/1981/1982 have been consolidated into NFPA 1970.
- **Program roles:** Establish a Personal Protective Clothing (PPC) Manager and (optional) PPC Technician to oversee selection, care, maintenance, inspection scheduling, records, training, and coordination with Verified ISPs.
- **Hoods:** Under NFPA 1970, structural firefighting hoods must be particulate-blocking; proximity hoods are exempt.
- **Restricted substances & labeling (NFPA 1970):** Adds restricted substance testing and optional total fluorine (PFAS) concentration labeling. Do not apply aftermarket treatments that could alter certification.
- **Handling contaminated PPE:** Separate clean/dirty zones; bag, tag, and document contaminated items for transport to verified facilities to prevent cross-contamination.
- **Service life & retirement:** Retire structural ensemble elements no later than 10 years from date of manufacture; retire earlier if advanced inspections or contamination warrant. Proximity outer shells (aluminized) have program-level retirement guidance of a maximum of 5 years.

3) Program Roles (per NFPA 1850)

- **PPC Manager:** Owns the PPE program; ensures compliance, training, risk assessments, schedules inspections/cleanings, approves repairs/retirement, maintains lifecycle records, and liaises with Verified ISPs.
- **PPC Technician (optional or via ISP):** Performs advanced inspections/cleaning/repairs within training and verification limits; document all actions.

4) Recordkeeping (Lifecycle Documentation)

Maintain a lifecycle record for each ensemble element: assignee; issue date & condition; manufacturer & model; serial/lot ID; month/year of manufacture; dates/findings of advanced inspections; dates/findings of advanced cleanings or decontamination; reason for and who performed advanced cleaning/decon; dates and descriptions of repairs; retirement date; method of disposal. Electronic tracking is recommended. Excel template provided upon passing the training exam.



5) General Safety & Prohibitions

- **No home/public laundering:** Do not bring PPE into living spaces or launder in home/public machines. Use department resources or a Verified ISP.
- **No dry cleaning; no solvents:** Do not use chlorine, ammonia, oxidizers, abrasive agents, or solvents.
- **Follow manufacturer instructions:** Adhere to Ricochet garment labels and care guides for temperatures, machine types, and drying parameters.

6) Detergents, Water & Machines

- **Detergent:** Mild liquid detergent, pH 6.0–10.5. Avoid fabric softeners and aftermarket repellents.
- **Water temperature:** Follow manufacturer limits; if not specified, keep ≤ 105 °F (40 °C) for garments/liners to minimize shrinkage/material stress.
- **Washer type:** Use front-loading washer/extractors suitable for PPE; load sizes must permit free movement.

7) Routine Cleaning (Spot cleaning when no contamination is present)

- Empty pockets; remove liners and DRD to avoid cross-contamination.
- Brush/rinse debris; lightly scrub with soft bristle brush and mild detergent. Keep water ≤ 105 °F (40 °C) unless OEM permits higher.
- Rinse thoroughly; inspect cleanliness; re-clean if needed. If still soiled, submit for advanced cleaning.
- Drying (preferred): Hang to air-dry with ventilation; avoid direct sunlight (UV degradation). Machine “air-dry/no-heat” only if OEM approves; turn items inside out, fasten closures, place DRD in mesh bag.

8) Preliminary Exposure Reduction (On-scene)

Compliance Note: Preliminary Exposure Reduction, or PER, is required each time PPE is exposed to fireground contaminants per NFPA 1850.

After exposure to products of combustion, conduct Preliminary Exposure Reduction (PER) before doffing/transport: remove bulk contamination, rinse surfaces, and segregate gear for transport to cleaning. PER is required each time PPE is exposed to fireground contaminants. Document PER in lifecycle records.

9) Advanced Cleaning (Structural garments, liners & DRDs)

Compliance Note: Required at defined intervals and after exposure; may be performed by a Verified ISP or trained/verified organization personnel per NFPA 1850.

Triggers & Frequency:



- At least annually, and whenever gear is soiled/contaminated or post-incident exposure to products of combustion. Many departments adopt semiannual advanced cleanings based on risk.
- **Process Summary:** Empty pockets; remove liners & DRD; fasten closures; turn shells/liners inside out; put DRD in mesh bag; launder separately by like items.
- Use approved washer/extractor and OEM-approved settings; ensure adequate water levels and detergent dosing.
- **Rinse machines after laundering PPE:** run one empty cycle with detergent and water ≤ 125 °F (52 °C).
- **Drying:** Air-dry preferred; machine “no-heat/air-dry” only if OEM allows; avoid direct sunlight; reinstall DRD and liners after complete drying.
- **Verification:** Use Verified ISP or manufacturers verified in cleaning; document cleaning effectiveness per NFPA program requirements.

10) Proximity Garments – Outer Shell Care (Aluminized)

- Do NOT dry clean, machine wash, or machine dry proximity outer shells; no abrasive brushes. Clean by gently wiping/rubbing with soft cloth/sponge and mild detergent; rinse thoroughly.
- Advanced cleaning: Not applicable to proximity outer shells (outer shells are not machine washable). Use routine methods only and conduct advanced inspection and documentation per NFPA 1850.
- **Drying & storage:** Air-dry in shaded, ventilated area; avoid direct sunlight and do not store wet/damp/contaminated.

11) Buddy Wipe-Down Method (Proximity Outer Shells)

- While both users are wearing the ensemble, gently sponge with mild detergent and rinse with clean water (e.g., garden hose).
- Use only for routine cleaning when no contamination is present. If exposed to hazardous substances or combustion products, isolate, bag & tag, and route to a Verified ISP for specialized decontamination.
- After wipe-down, follow drying/storage precautions and submit gear for advanced inspection/recording if exposure occurred.

12) Inspections

Compliance Note: Advanced inspection and complete liner inspection must be performed ANNUALLY once in service.

- **Routine Inspection (User):** After each use and after cleaning—check for soiling/contamination, damage, missing hardware/closures, trim, seam integrity, and correct assembly (shell, liner, DRD). Document findings.

- **Advanced Inspection (Annual minimum):** Conduct at least annually or whenever routine inspection indicates a potential problem; use Verified ISP or trained personnel. Include complete liner inspection annually.
- **Structural Hoods (NFPA 1970):** Inspect particulate-blocking hoods for seam durability, barrier integrity after laundering/pre-conditioning, and proper fit.

13) Advanced Inspection Criteria & Field Tests

Compliance Note: *Advanced inspection and complete liner inspection must be performed ANNUALLY once in service.*

- Inspect separable layers individually for soiling, contamination, rips/tears/cuts/abrasions, damaged/corroded/missing hardware and closures, thermal damage (charring, burn holes, melting, discoloration), loss of seam integrity, broken/missing stitches.
- Evaluate system fit and coat/pant overlap; check label integrity/legibility, hook & loop functionality, liner attachment, closure systems, and any post-manufacture accessories.

Reflective trim evaluation (structural outer shell): Compare retro-reflectivity to a new trim sample at ~40 ft using a flashlight at eye level; replace if brightness is substantially reduced.

Field Test for Moisture Barriers (Bucket Test): For discolored or high-abrasion areas, mix 1 part isopropyl alcohol with 6 parts tap water; position liner over a 5-gallon bucket with moisture barrier facing up; pour 1 cup solution and check after 3 minutes for leakage. If leakage is observed, perform a complete liner inspection and repair or replace as needed. Test high-wear areas (coat shoulders/back waist; pant knees/crotch/seat).

Light Evaluation Test for Thermal Liners: Turn liner inside out and pass a cool fluorescent work light over the batting; non-uniform brightness may indicate thin spots or shifting of liner material—perform a complete liner inspection before returning to service. Check front/back panels, upper back, shoulders, underarms, sleeves; pant waist, knees, and crotch.

14) Complete Liner Inspection (Annual once in service)

Perform annually (or whenever advanced inspections indicate an issue). If the moisture barrier has been replaced, continue annual complete liner inspections. Open the liner to expose all layers; use hydrostatic (Suter) testing at 1 psi for 15 seconds on at least 6 areas (including seams) drawn from high-abrasion locations. No leakage is acceptable. Record all findings. If leakage or delamination is observed, send to a Verified ISP for repair.

15) Decontamination / Specialized Cleaning

- If PPE is known/suspected contaminated with hazardous materials, blood, or bodily fluids: isolate, bag and tag, document exposure, and route to a Verified ISP or facility with specialized decon capability.



- Maintain clean/dirty zone separation, wastewater handling per local requirements, and universal precautions. Evaluate for retirement if decon cannot restore to service.

16) Repairs

Repairs must be done by Ricochet, a Verified ISP, a Verified organization, or trained organization personnel per NFPA 1850 program rules. All repairs or alterations must use like materials/components and maintain compliance with NFPA 1970 performance. Only Ricochet is authorized to perform moisture barrier or thermal liner replacements.

- **Basic repairs (examples):** patch minor outer shell tears/char marks; repair skipped/broken/missing stitches; replace missing non-closure hardware; reclose liner after inspection.
- **Advanced repairs:** may be performed by Ricochet, a Verified ISP, or a Verified organization; use 100% Nomex thread (tex size 80 or higher); same stitch configurations; 7–8 stitches per inch.
- Do not stitch through moisture barrier except at edges/perimeter. After moisture barrier repairs, test the repaired area with hydrostatic testing to confirm waterproof integrity.
- **Reflective trim:** remove damaged trim before installing new trim; replace equal amounts; patches should not exceed 3 inches length and extend 1 inch beyond damaged area; max two patches per stripe.
- **Hardware installation:** secure through two layers or backed by compliant material; reinforcements and zippers double-stitched.

17) Use of Accessories

Do not add accessories that have not been tested to meet NFPA 1970 performance and design requirements. Unapproved accessories may void certification or reduce protection.

18) Storage & Drying

- Store PPE clean, dry, and protected from UV; segregate duty/off-duty storage; maintain separation during transport to ISP.
- Air-dry is preferred; machine “no-heat/air-dry” setting only per OEM.

19) Retirement & Disposition

Compliance Note: Structural elements must be retired no later than 10 years from manufacture; proximity outer shells at 5 years maximum.

- **Structural ensemble elements:** retire no later than 10 years from date of manufacture; retire earlier for damage, failed inspections, or contamination beyond effective cleaning.
- **Proximity outer shells (aluminized):** replace at a maximum of 5 years, or earlier if inspections indicate degraded reflectivity/coatings.



- **Record retirement date and method of disposal;** prevent reuse in emergency operations; follow local environmental regulations.

20) Ricochet Resources Provided Upon Exam Completion

- **Ricochet NFPA 1850 Training Exam Certification:** Ricochet offers organization personnel written verification of training in advanced cleaning and advanced inspection of Ricochet gear upon successfully completing the online NFPA 1850/1851 Training Exam. A Certificate of Completion documents authorization within your organization's program for performing advanced cleanings and inspections; keep copies in lifecycle records.
- **PPE Lifecycle Records Log Template:** Includes fields for Item ID, Manufacturer/Model, Date of Manufacture, Issue Date, Advanced Inspections, Advanced Cleanings, Repairs, and Retirement details.
- **NFPA 1850/1970 Quick Compliance Checklist:** One-page station poster with key cleaning, inspection, PER, and retirement reminders.
- **Visual Guide for Buddy Wipe-Down Method:** Illustrated step-by-step cleaning process for proximity outer shells.

For questions regarding your exam, certificate, or materials provided upon completing the exam, please contact our Customer Service Team at cs@ricochet-gear.com or 215-849-1971