

MAINTENANCE TASK	RECOMMENDED FREQUENCY
Purge Water from PCU and Garment	Every 2 Weeks or prior to Storage
PCU Water Change	Bi-weekly
PCU Umbilical Water Filter Cleaning	Quarterly or if Unit has issue with Water Flow or Cooling
Clean Fill Bottle Red Filter	Semi-Annually or as needed
Flolok O-Ring Replacement	When Damaged or Missing
PCU Umbilical Replacement	When Damaged
Garment Cleaning	As Needed in Mesh Bag in Laundry Machine (Air Dry)

Purge Water from PCU and Garment

- Connect PCU to Fill Bottle and Shirt to Water Fill Bottle
- Invert Fill Bottle and Turn PCU ON
- Run PCU for 2 minutes or until liquid stops returning to fill branch in inverted Fill Bottle
- Must repeat step for each Cooling Shirt used with system.

PCU Umbilical Filter Cleaning

- Unscrew Clamp on Flolok Latch Connector on PCU
- Push Braided sleeving and Remove insulation cover
- Push pins out with tool to remove filter housing lid. Do NOT remove hose clamps.
- Remove filter screen basket inspect for holes and clean
- Insert filter back in housing, verify O-ring is installed and re-install lid and re-insert pins.
- Return insulation & braid over housing re-assemble Flolok



ISSUE	POSSIBLE CAUSE	SOLUTION
System does not start	Electrical interfaces not mated	a) Check connection at PCU and at terminating end of power leads b) Clean electrical connections and reconnect
	Damage to Power Cable	Replace Power Cable.
	PCS Control Switch or Pendant Switch is OFF.	Turn knob or pendant switch to the desired setting.
System turns on briefly and then shuts down	No water flow	a) Verify water connections between PCU and garment are mated b) Verify that PCU and garment were filled with water c) Clean water filter screen in PCU umbilical to ensure not clogged.
	Unit not operated in correct orientation	When installed in Mounting Tray fan should be oriented UP.
	Electrical High Voltage Safety is tripped	a) Verify that nominal 12 VDC voltage was supplied to system. b) Cycle switch or pendant switch to OFF position c) Disconnect from primary power source
System turns on but does not provide adequate cooling	Electrical Low Voltage safety is tripped	a) Verify that nominal 12 VDC voltage was supplied to system. b) Cycle switch or pendant switch to OFF position c) Disconnect from primary power source
	System not adequately primed with water	a) Fill PCU and Shirt with water using Fill Procedure. If no flow is visible depress priming bulb on Fill Bottle a 20 times or until flow is observed in Fill Bottle return branch. b) Check that water fill bottle internal tubes are connected and not detached.
	Low Water Flow	a) Check water connections are mated including shirt b) Clean water filter screen in PCU Umbilical c) Clean and purge Shirt / Vest.
	Low Airflow	a) Verify fan is obstructed and spinning freely. b) Ensure ducted air flow supply to inlet c) Make sure Exhaust outlet isn't blocked.

Contact RINI's Service Department if additional assistance is required. (407) 359-7138



- Driver Personal Cooling
- Cooling Shirt with Tubing Worn Under Fire Suit
- Runs Continuously
- Mitigates Heat Stress
- Enhances Driving Effectiveness



Operation & Maintenance Video

<https://vimeo.com/200669956>

SPECIFICATIONS

- Weight: 4 lbs.
- Size: 6.5" L x 5.0" H x 2.85" W
- Nominal Voltage: 14 VDC
- Operating Voltage: 12 to 16 VDC
- Low Voltage Cutoff: 12 VDC
- Power Draw: 6 Amp
- Cooling Levels: 5 Different Settings
- Chilled Water Temperature: 72°F Nominal (55°F to 72°F)
- Max Operating Air Temperature: 140°F

Personal Cooling System

Setup and Operation

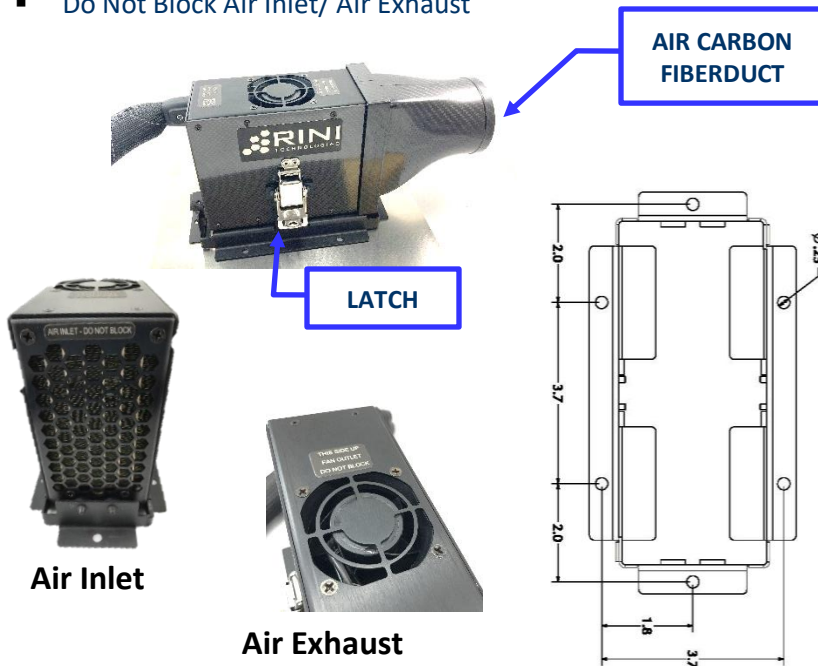
RINI Service Items



- PCU and Cooling Shirt MUST be primed with water prior to use.
- Add water to the Water Fill Bottle line and add ~ 2mL of golden solution to jar.
- Connect Shirt to latch side of fill bottle and unit to button side.
- Connect Power Cable to PCU and supply 14 VDC.
- Turn PCU knob to Level I or II and run for approximately 2 minutes or until no air bubbles are visible in return branch in the Water Fill Bottle.
- If no flow is visible push priming bulb on Water Fill Bottle several times to prime pump.
- Turn system knob to the OFF position
- Disconnect Water Fill Bottle (This should NOT be connected during operation).
- Cooling System is ready for operation.
- If multiple Cooling Shirts are used with one Cooling System repeat the entire process for each Cooling Shirt.

Installation

- Secure bracket to vehicle with screws in ¼" hole Locations
- Install PCU level with Fan side Up in Tray
- PCU is Fastened to Bracket with Hooks on Side and Latches
- Provide airflow to Inlet
- Do Not Block Air Inlet/ Air Exhaust



- Wear the Cooling Shirt next to skin Under Fire Suit.
- Connect the Cooling Shirt connector to the PCU connector. (Water Fill Bottle should NOT be connected during operation).
- Turn the Control Knob to the desired Cooling Setting.
- Cold water should be felt in the shirt within a few minutes. If it does not feel cold reference the troubleshooting guide.

ITEM DESCRIPTION	ITEM NUMBER	PRICE (2023)	PHOTO OF ITEM
FloLok, Push Button FloLok, Latch	100727 100924	\$180	
Mounting Tray	101800	\$160	
Golden Solution, 2 oz	102174	\$10	
Power Cable, M8	103065	\$95	
Service Kit: FloLok O-ring Replacement	102473	\$45	
Fill Bottle Replacement Filter	103141	\$25	
Water Filter Parts	102475	\$18	
Umbilical (4 ft – FloLok) Umbilical (2ft – FloLok)	102534 102739	\$468	
Garment Purge Assembly	102922	\$468	
Cooling Shirt	103507 to 103510	\$590	
Cooling Vest	103456- 103510 SM, MD, LG, X-LG XSM Custom order		
Carbon Fiber Duct	103504	\$250	

Driver Cooling System

Setup and Operation

RINI Service Items

Driver Cooling Unit (DCU)

- Water Fill Bottle
- Golden Solution
- Extension Hose
- Cooling Shirt



Installation

- Secure unit to vehicle using 10-32 Threaded Insert Mounting Holes
- Install Cooling Unit level with Fan side Pointing Up
- Provide airflow to Inlet
- Do Not Block Air Inlet or Air Exhaust



BOTTOM INTERFACE
(5X 10-32 Inserts)



SIDE INTERFACE
(4X 10-32 INSERTS PER SIDE)



Air Exhaust



Air Inlet

- DRCU and Cooling Shirt MUST be primed with water prior to use.
- Add water to the Water Fill Bottle line and add ~ 2mL of golden solution to jar.
- Connect black FloLok connector from Shirt to Mating Connectors on the Hose Extension.
- Connect Gray water connectors of the hose extension to Fill Bottle and the Cooling Unit. (Note color of heat shrink to match BLK/WHT).
- Connect DRCU Power Cable to supply 14 VDC (RED + / BLACK -).
- Turn DRCU knob to Level I or II and run for approximately 2 minutes or until no air bubbles are visible in return branch in the Water Fill Bottle.
- If no flow is visible push priming bulb on Water Fill Bottle several times to prime pump.
- Turn system knob to the OFF position
- Disconnect Water Fill Bottle (Bottle should NOT be connected during operation).
- Cooling System is ready for operation.
- If multiple Cooling Shirts are used with one Cooling System repeat the entire process for each Cooling Shirt.



- Wear the Cooling Shirt next to skin Under Fire Suit.
- Connect the Cooling Shirt connector to the DRCU Connectors. (Water Fill Bottle should NOT be connected during operation).
- Turn the Control Knob to the desired Cooling Setting.
- Cold water should be felt in the shirt within a few minutes. If it does not feel cold reference the troubleshooting guide.

ITEM DESCRIPTION	ITEM NUMBER	PRICE (2022)	PHOTO OF ITEM
FloLok, Push Button FloLok, Latch	100727 100924	\$180 \$180	
Golden Solution, 2 oz	102174	\$10	
Water Filter Parts	102475	\$18	
Umbilical (4 ft – FloLok)	102534	\$468	
Umbilical (2ft – FloLok)	102739		
Garment Purge Assy	102922	\$470	
Fill Bottle Replacement Filter	103141	\$25	
Cooling Shirt Vest X-Small Small Med Large X-Large	CUSTOM 103507 103508 103509 103510	\$590	
Cooling Vest X-Small Small Med Large X-Large	103456 103457 103458 103459 103460	\$590	
Replacement CPC connector set and hose clamps	103998	\$50	

Maintenance

Troubleshooting

MAINTENANCE TASK	RECOMMENDED FREQUENCY
Purge Water from PCU and Garment	Every 2 Weeks or prior to storage
DRCU Water Change	Bi-Weekly
DRCU Umbilical Water Filter Cleaning	Quarterly or if Unit has issue with Water Flow or Cooling
Clean Fill Bottle Red Filter	Semi-Annually or as needed
FloLok O-Ring Replacement	When Damaged or Missing
DRCU Umbilical Replacement	When Damaged
Garment Cleaning	As needed in Mesh Bag in Laundry Machine (Hang to Air Dry)

Purge Water from DRCU and Garment

- Connect DRCU to Fill Bottle and Shirt to Water Fill Bottle
- Invert Fill Bottle and Turn DRCU ON
- Run DRCU for 2 minutes or until liquid stops returning to fill branch in inverted Fill Bottle
- Must repeat step for each Cooling Shirt used with system.

DRCU Umbilical Filter Cleaning

- Unscrew Black Clamp on Hose Umbilical on DRCU
- Push Braided sleeving and Remove insulation cover
- Push pins out with tool to remove filter housing lid. Do NOT remove hose clamps.
- Remove filter screen basket inspect for holes and clean
- Insert filter back in housing, verify O-ring is installed and re-install lid and re-insert pins.
- Return insulation & braid over housing re-assemble Clamp.



ISSUE	POSSIBLE CAUSE	SOLUTION
SYSTEM DOES NOT START	Power Cable Interface	a) Check Power Leads are connected to Power Source
	Damage to Power Cable	Replacement Needed
	PCS Control Switch is OFF	Turn knob or switch to the desired setting.
SYSTEM TURNS ON BRIEFLY THEN SHUTS DOWN	No Water Flow	a) Verify water connections between DRCU and garment b) Verify that DRCU and garment were filled with water c) Clean water and filter screen in DRCU Umbilical to ensure not clogged
	Unit not operated in correct orientation	DRCU should be positioned with Fan facing UP
	Electric Safeties were Tripped • High Voltage (> 16.5V) • Low Voltage (<9.3V)	a) Verify that nominal 12 VDC was supplied to the system b) Cycle switch to OFF position c) Disconnect from primary power source
SYSTEM TURNS ON BUT DOES NOT PROVIDE ADEQUATE COOLING	System not adequately primed with water	a) Fill DRCU and Shirt with water using Fill procedure. If not flow is visible in Fill Bottle depress priming bulb on Fill Bottle 20 times or until flow is observed in Fill Bottle return branch b) Check that water fill bottle internal tubes are not detached
	Low Water Flow	a) Check water connections are properly mated with shirt b) Clean water filter screen in DRCU Umbilical c) Clean and purge Shirt / Vest
	Low Airflow	a) Verify fan is not obstructed and spinning freely b) Ensure air flow inlet is not blocked and has adequate air flow c) Ensure that Fan Exhaust is not blocked

Contact RINI's Service Department if additional assistance is required. (407) 359-7138



- Driver Personal Cooling
- Cooling Shirt with Tubing Worn Under Fire Suit
- Runs Continuously
- Mitigates Heat Stress
- Enhances Driving Effectiveness

SPECIFICATIONS

- Weight: 7 lbs.
- Size: 3.5" x 7" x 8"
- Nominal Voltage: 12 VDC
- Operating Voltage: 12 to 16 VDC
- Low Voltage Cutoff: 9 VDC
- Power Draw: 10 Amp
- Cooling Levels: 5 Different Settings
- Freeze Protection: 39°F
- Max Operating Air Temperature: 160°F

Operation & Maintenance Video

<https://vimeo.com/200669956>