

Incident Summary #II-1986500-2025 (#59015) (FINAL)

SUPPORTING INFORMATION	Incident Date	October 30, 2025	
	Location	Delta, BC	
	Regulated industry sector	Gas - Propane system	
	Impact	Qty injuries	3
		Injury description	Three workers were taken to the hospital after a propane explosion with several injuries including a fracture, burns and contusions.
		Injury rating	Major
	Damage	Damage description	A sudden explosion inside a camper forced the walls out and launched an air-conditioning unit off the top of the camper and blew debris outward.
		Damage rating	Major
Incident rating	Major		
Incident overview	Propane was inadvertently left on overnight and able to accumulate inside a camper parked in the wash bay of a commercial vehicle business. Three employees approached and smelled a gas odor. One entered to investigate and the others stayed just outside the camper.		
INVESTIGATION CONCLUSIONS	Site, system and components	<p>Camper Unit</p> <p>The incident happened inside a Northern Lites Model 9-6 Sportsman Plus Camper. It was manufactured in April of 2022, in British Columbia.</p> <p>The camper is a small living quarters designed to be loaded onto a pickup truck and often referred to as a recreational vehicle or “RV”. Campers require a truck with a cargo-bed to be transported and have manual or hydraulic legs that hold its structure high enough for loading and storage. Campers can be used for recreational camping or commercial applications like first-aid stations or security shelters etc. and can include different amenities like a kitchen facility, bathroom, dining and a sleeping area, along with essential systems for water, sewage, and electricity.</p> <p>The camper involved (Image 1) in the incident contained a Suburban Elite series stove as part of the kitchen amenities. Stoves in many RVs and Campers, as well as homes can have forward facing gas control knobs. The major difference in the home vs. RV stoves would be the small space being a notably a higher risk for rubbing items against the forward-facing knobs inadvertently by humans and pets which is captured in many safety articles and warnings.</p> <p>Unlike other gas appliances, these stoves don't have positive flame verification. For example, furnaces, boilers and fireplaces have a sensor (typically a flame rod) that must continuously verify the presence of a flame to allow gas through the gas valve for continued operation. Gas stoves, especially in RV's typically don't have this feature.</p>	

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When a camper or other recreational vehicle that's been used for commercial rentals in British Columbia is ready for a new owner, if it has propane, it will be examined by a certified RV Technician.

Propane and Tank Information

Propane is used in many applications like heating spaces, fueling stoves, barbeques, fireplaces and more.

Propane occurs naturally as a gas. However, at high pressure or low temperatures, it becomes a liquid. As a liquid, propane is 270 times more compact than as a gas, and it is transported and stored in its liquid state in pressurized containers. Propane becomes a gas again when a valve is opened to release it from its pressurized container, and it is then burned as a gas.

Should a rapid emptying of a propane tank happen, an intense evaporation chilling effect and gas expansion will occur. The escaping liquid propane will pull heat from the surrounding environment and frost, and condensation may occur ([Image 2](#)).

Propane in its concentrated form can mix with oxygen which results in a flammable range (the flammable range of propane in air is approximately 2.1% to 9.5% by volume).

Propane is given a distinct odor by adding mercaptans that typically have a powerful, foul odor resembling rotten cabbage or eggs.

Propane tanks should be kept in a manner to avoid damage in an upright position.

The 12-Volt Battery

12-Volt batteries are used to house the energy needed to power many things including in applications for RVs and campers when they are not plugged into a 120V power source.

Potentially if the RV is plugged into the 120V system all appliances requiring 120V can be used in the camper unit similar to a home. A 12V inverter can power other appliances requiring that amount of energy. Battery disconnect switch ([Image 6](#)) can turn off the power supply for the unit when power is not required.

Gas Stove

The gas valve knobs are positioned facing forward, creating a potential hazard during activities conducted in the confined space surrounding the stove. Tasks such as mattress replacement ([Image 5](#)) may result in inadvertent contact with the knobs. Even minor pressure combined with rotational movement can unintentionally engage the valve, releasing propane when the stove is not in use, but propane is left on.

Gas Alarm Information

Propane Gas Alarm – MTI Industries Safe-T-Alert Model 30-442-P

- Limitations: *Alarm will not function without power.*
 - Detects propane only at the sensor location; gas may be present elsewhere.
 - If you smell gas, immediately contact your propane supplier or fire department.
- Warnings: Connect only to wiring that cannot be turned off by a wall switch or ground fault protector.
- Installation: Power supply: 12V DC on a properly fused circuit.
 - Use UL® approved connectors.
 - Disconnect power until installation is complete.

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Failure scenario(s)

The incident occurred during the decommissioning of a single truck camper from a commercial rental fleet in preparation for private sale. The camper, equipped with propane appliances, had passed a pre-sale safety inspection by a certified RV Technician the previous day. It was parked under a wash bay with stabilizing jacks deployed and tied down, and a pickup truck was positioned underneath for added safety.

On the evening prior to the incident, employees were replacing a mattress inside the camper. Due to the confined space, the mattress being removed had to be maneuvered past the stove, which featured forward-facing gas valve knobs.

During this process, one knob was accidentally depressed into an “ON” position. Although an employee noticed it was on and turned it off at that point, the team was under time pressure and did not confirm whether the knob had been reactivated to the same “ON” position while they were maneuvering in the new mattress. The main battery was turned off despite the instructions posted for employees. ([Image 4](#)). The master switch (key like device) ([Image 6](#)), and one propane tank remained open. With the battery for power to the camper turned off, the gas detector alarm inside the camper had no power supply and when disconnected could not provide an alert for the propane leaking from the stove. Current RV safety standards do not require backup power for gas detectors.

Overnight, propane was left on and able to accumulate inside the camper through a valve that was left in an open position, likely when a mattress was replaced the night before. The following morning, three different employees arrived to finish some cleaning inside and before entering detected a strong gas odor. Two employees hesitated to enter and waited just outside the main rear entry door near the steps, ([Image 1](#)) but the supervisor fully entered the unit. Opening the main door allowed fresh air to mix with the propane, bringing the concentration within its flammable range (approximately 2.1%–9.5% by volume).

The stove’s gas valve knob was observed in the on position and turned off, and windows were being opened for ventilation. During this process, the master switch was re-engaged to restore power for lighting ([Image 6](#)). This likely introduced an ignition source. The gas ignited, causing an explosion and damage ([Image 7](#), [Image 8](#), and [Image 9](#)).

Two employees outside the unit were thrown back by the blast—one employee was thrown approximately 15 feet sustaining multiple injuries—and both the employee inside and the employee further from the door sustained injuries.

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Facts and evidence

Camper

- Northern Lite Mfg. Ltd.
- Model – 9-6 Sportsman.
- Serial # NL9-6014923R.
- Manufacture date – April 2022.
- Certification Standard – CSA -Z240 for plumbing, electrical and gas.
- [NorthernLites Camper Owners Manual](#)

Stove Manual

- Suburban elite.
- Suburban Model # SRNSQB3S2QAG3EC.
- Serial # 221015989 Stock # 3635.
- Burner inputs:
 - Front – 9,000 BTU.
 - Left Rear – 6,500 BTU.
 - Right rear – 6,500 BTU.
 - Oven – 7,100 BTU.
 - Manifold pressure 10"WC.

Propane Gas Alarm – MTI Industries Safe-T-Alert Model 30-442-P

- Replace every 60 months after retail sale (installed in 2022).
- Limitations:
 - *Alarm will not function without power.*
 - Detects propane only at the sensor location; gas may be present elsewhere.
 - If you smell gas, immediately contact your propane supplier or fire department.
- Warnings:
 - Connect only to wiring that cannot be turned off by a wall switch or ground fault protector.
- Installation:
 - Power supply: 12V DC on a properly fused circuit.
 - Use UL® approved connectors.
 - Disconnect power until installation is complete.

Instructions for Cleaners:

Posted instructions for cleaners indicated that before leaving, lights should be off and "Stove turned off" ([Image 3](#)).

Testing - Independent contractor hired by head office of the business ownership

The company submitted documentation from a Fleet Development Manager and an external Forensic Fire Investigator. A pressure test was conducted on the propane system by turning on the propane and listening at the regulator; no flow was detected.

A manometer test was then performed on the front range burner line, reading approximately 9 inches of water column and holding for 3–5 minutes, confirming no leaks in the closed system.

Analysis of the incident power switch compared to one in an exemplar camper revealed the direction of the subject switch was likely positioned neither fully "on" nor "off."

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Calculations of the estimated amount of propane within the unit:

- Propane Lower Explosive Limit (LEL): The LEL for propane is approximately 2.1% by volume in air.
- Camper Interior Volume: The Northern Lite 9-6 Sportsman Plus has an interior height of 6 feet 4 inches (which is approximately 6.33 feet). The floor length is 9 feet 2 inches (about 9.17 feet), and the exterior width is 8 feet 2 inches (about 8.17 feet). Plus, the sleeping area, which is approximately 8.17 feet wide by 6.66 feet long and 3.5 feet of headroom.
- There are 170 cubic feet of propane within one 20lb propane cylinder; therefore, this would be sufficient to create an environment between the LEL and UEL. It should also be noted that the witness stated that there was a frostline midway through the propane tank; therefore, at some point, it is probable that the propane level was above the UEL. Therefore, between the leakage within the trailer and the door opening, it would have brought it within the two levels.

Statements:

Workers on Site:

- The two propane tanks that fueled the camper were hooked up, with one bottle open, leading up to the incident ([Image 4](#)).
- It was half full after the incident. There was frost halfway down the bottle, indicating a consistent, outflow or leak leading up to the incident ([Image 2](#)).
- It was recorded as full the day before.

Worker near stairs:

- Was outside. Close to the door, early in the morning.
- Has worked there 15 years with no incidents but has smelled propane before but can't recall specific incidents.
- The crew cleaned on Wednesday afternoon. Thursday morning, asked supervisor to go inspect the unit before management comes in.
- Another worker moved a mattress Wednesday night and put mattress all the way into its place.
- Stove is very easy to turn on by bumping into it or passing a person in the small space.
- The propane smell was strong, and they are familiar with what propane smells like.
- They were concerned because of health and safety training and warnings they have gotten from her supervisors over the years regarding if they smell propane they need to leave the area.
- This smell was very strong, so they did not want to go in but the supervisor did go inside.
- Was by the stairs, and supervisor was inside.
- It's possible the supervisor turned on the lights.
- Boom, then air forced them 16 feet or 20 feet. Another coworker stayed outside as well.
- In the past, the knobs have been moved when two people are inside sometimes. Sometimes our bodies touch the knobs.
- The mattress that had been moved was heavy, large, and queen size. The replacement mattress was the same.

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Site Observations

- Where the fuel tanks are there is a copper tube with a brass nut.
- None were loose.
- No leaks found in between components.
- The propane tank was a standard 20lb, white tank.

RV Tech Statement:

October 29th RV Technician completed an LP gas certification and leak tests on camper No.223-128. *All RV dealers are required by the Motor Vehicle Sales Authority of British Columbia (VSA) to ensure that vehicles equipped with a propane system are safe before being sold.*

All systems were closed before turning off the main exterior gas shut-off valves.
October 29th cleaning and maintenance.

Other Investigation Reports

- When the cleaners opened the main door to enter the camper, fresh air was introduced into the enclosed space, allowing the propane concentration to return to within its flammable range (the flammable range of propane in air is approximately 2.1% to 9.5% by volume).
- Employee 2 was outside the camper stated they turned on the master power switch to the unit while Employee 1 was still inside the camper for power to lighting.
- The area of origin was determined to be the interior of the camper.
- Shared updates on injured workers.

Information Bulletins

- [Gas Safety Certification of Recreational Vehicles](#).
Reference Number: B-G5 051206 6 rev3 Code Clauses Z240-20
- [Information Bulletin Gas Safety B-G5 051206 6 Revision 3](#).

Causes and contributing factors

The cause of the incident was an inadvertent release of propane for an extended period that went unnoticed and eventually ignited.

Contributing factors:

- The stove knob was likely inadvertently turned on the night before when moving a mattress resulting in the release of propane.
- Despite written posted instructions staff did not check stove was off before leaving.
- A stove design which placed the knobs in a high traffic area and allows for easy depression and inadvertent activation.
- Wiring of the propane gas alarm through the battery disconnect, with no battery backup which deactivated the propane gas alarm when the master switch was turned off.
- The decision by staff to enter the camper after smelling a strong smell of propane, despite being trained not to do so.



Image 1 - Camper with debris on the ground after explosion (provided by Canda Dream).



Image 2 - A frost line was seen at this level after the leak.

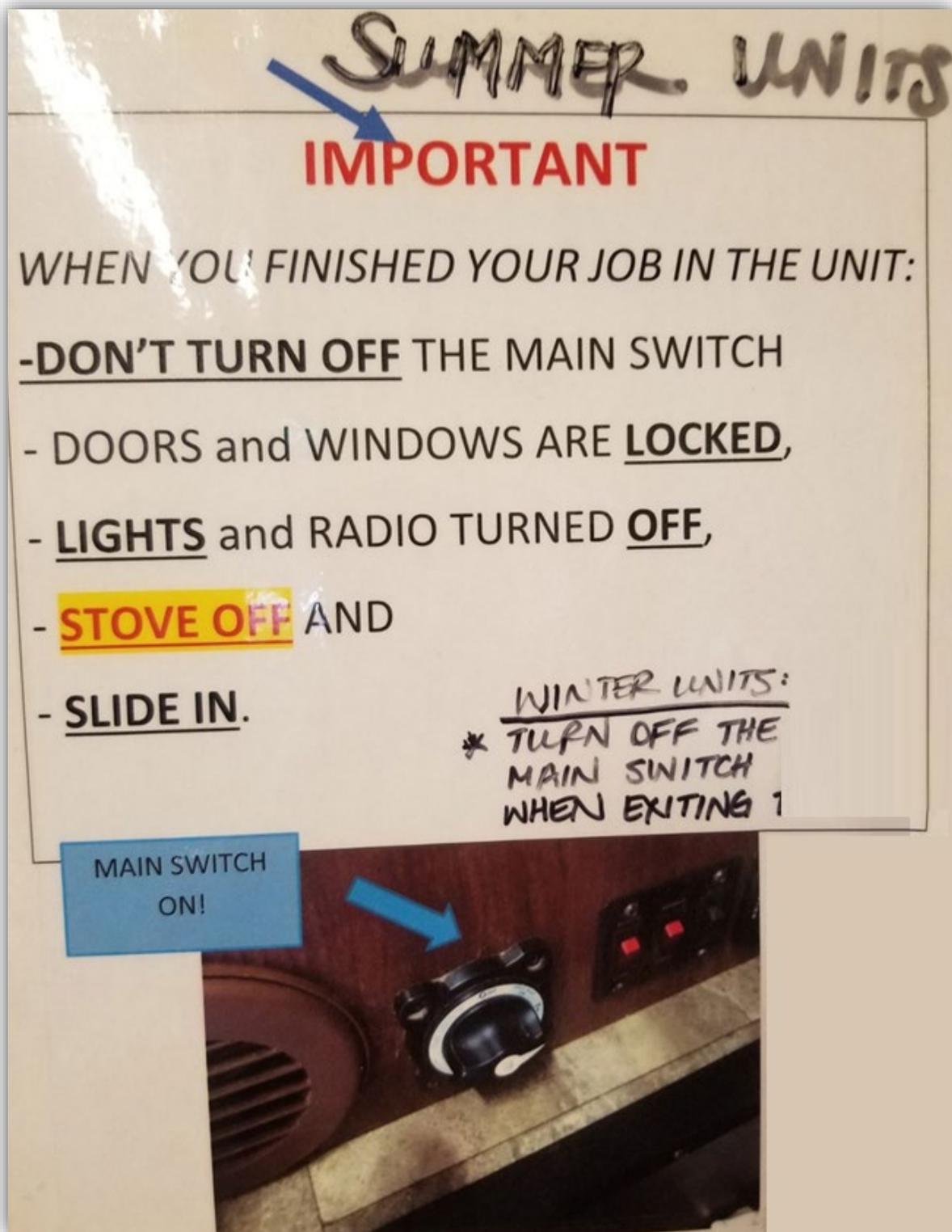


Image 3 – Instructions for employees (Provided by Canada Dream).

Propane System

The propane tanks in your new camper come already purged so they are ready to be filled.

Follow all safety warnings in the compartment that holds your propane tanks.

Before use, read all manuals provided with your appliances.

When purchasing a used camper, always have the propane system checked by a dealer before using camper.

DANGER

IF YOU SMELL PROPANE

1. Extinguish any open flames and all smoking materials.
2. Shut off the propane supply at the container valve(s) or propane supply connection.
3. Do not touch electrical switches.
4. Open doors and other ventilating openings.
5. Leave the area until the odor clears.
6. Have the propane system checked and leakage source corrected before using again.

Ignition of flammable vapors could lead to a fire or explosion and result in death or serious injury.

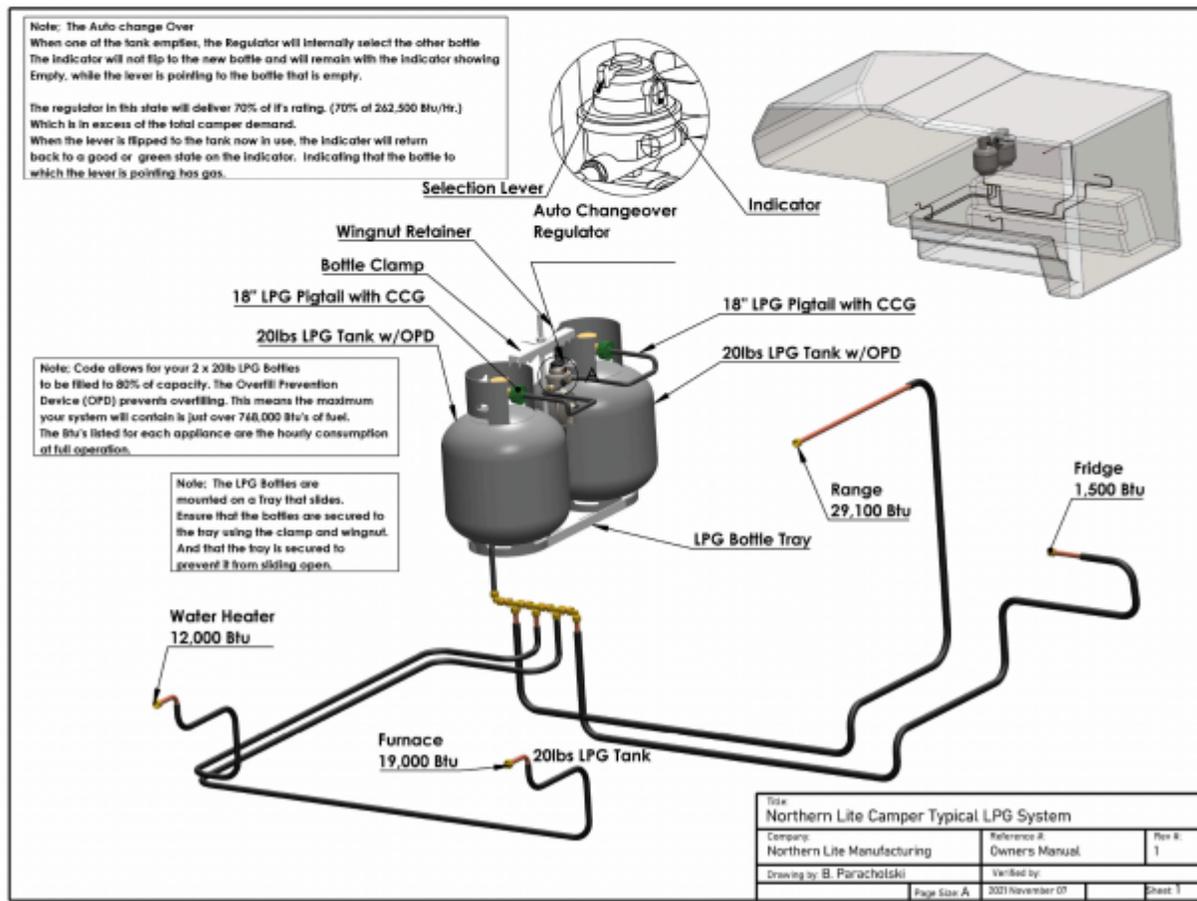


Image 4 - Propane system from the Northern Lites Manufacturers Owner's Manual.

Stove Top/Oven

See your Range Top/Oven Manual for safe operation instructions.

Never use portable fuel burning equipment inside your truck camper as this may cause fire or asphyxiation.

Never light the stove top with the range cover closed. Always have the stove top cover lifted and locked before lighting burners.

Shut off both propane tanks before moving bulky items such as mattresses in or out of the camper. Check knobs are in the off position once done.

LP Gas Detector

Each camper is equipped with a LP Gas detector which is hard wired into the camper's 12-volt wiring system and is located near the floor under the fridge. This unit will alert you to any potentially dangerous LP Gas that may be present from a defective appliance, gas pipe leak, or incorrectly adjusted appliance burner. In the event the propane detector goes off exit the camper and shut off both propane tanks and ventilate the camper by opening door and windows. DO NOT turn any lights on. Have gas system checked by a RV technician before using again.

Image 5 - Northern Lites Owners Manual. Sections discussing the Range and LP Gas Detector.



Image 6 – Inside camper where battery switch is located (reachable from inside and outside camper door).



Image 7 – Damage after explosion. Limited walkway where the stove is visible. The mattress can be seen at the back.



Image 8 – Damage and debris. Stove knob positioning is visible under the stove grate.

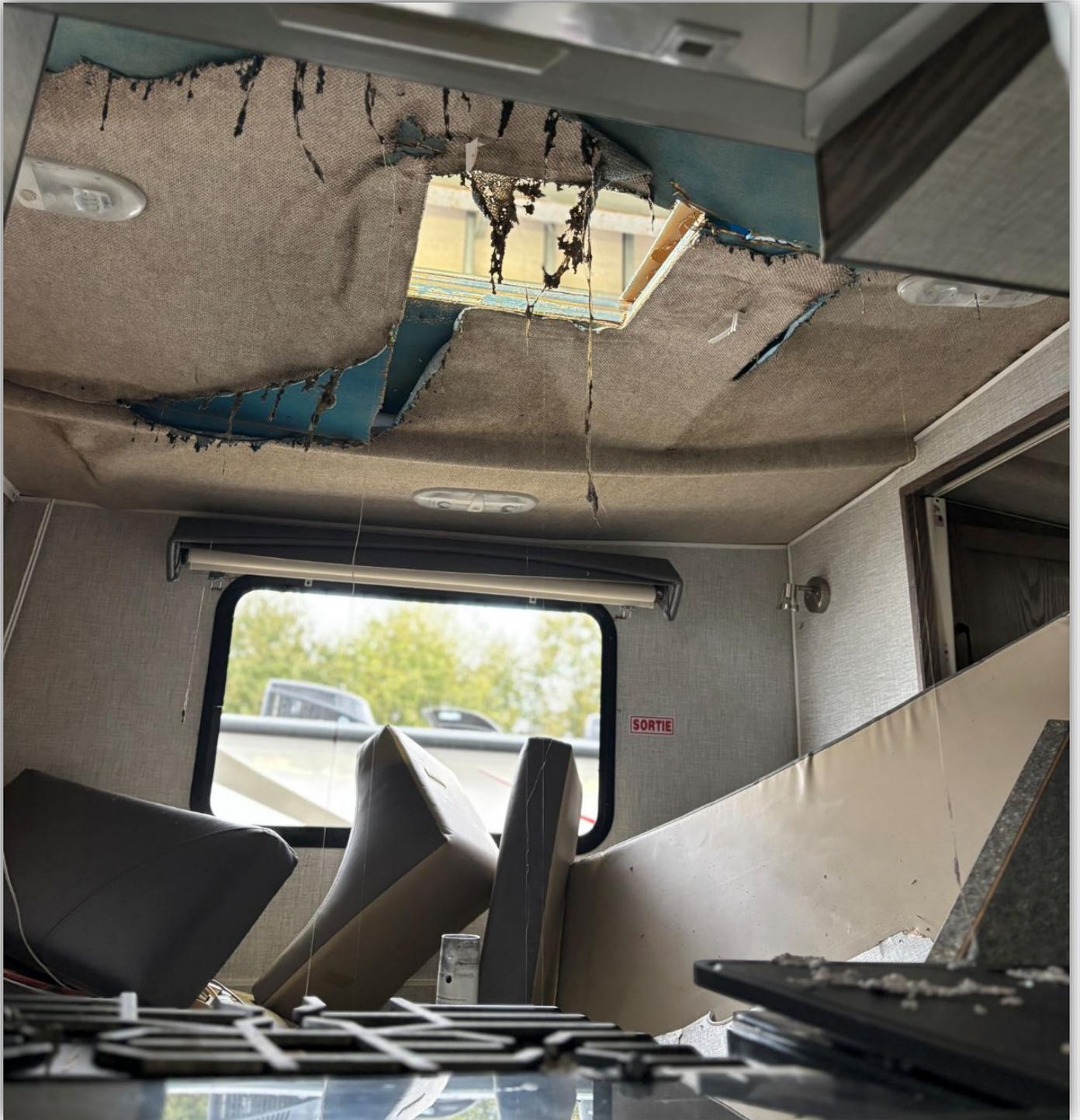


Image 9 – Damage to ceiling.