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CAR AND OFF-ROAD COMMUNITY

Support Team Recovery Training Session

What to Expect… What will we learn?

This session is designed to equip Support Team off-roaders with the knowledge, skills, and mindset required to safely and effectively perform vehicle recoveries in the desert.

This session focuses on:

- Safety-first decision making
- Controlled recovery techniques
- Leadership and communication
- Emergency response and survival skills

Core Principle:

Human safety always takes priority over vehicle recovery.

Recovery Mindset & Leadership

Successful recoveries depend as much on mindset as technical skill.

Key Principles

- Remain calm, composed, and in control at all times
- Avoid unnecessary risks or impulsive decisions
- Do not prioritize speed over safety
- Be open to input — but take clear leadership when required

Leadership in Recovery

- Only **one person should lead** the recovery.
- Conflicting instructions create risk and confusion.
- Communicate clearly and confidently.

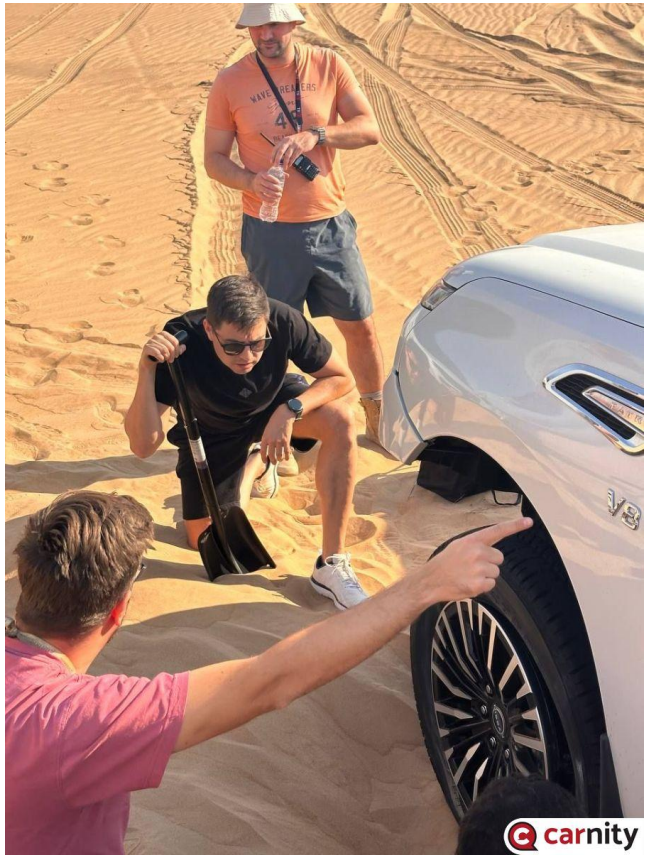
Safety Fundamentals

Before any recovery:

Personal Safety
- Ensure all participants are at a safe distance
- Maintain clear communication
- Never stand near a loaded rope or recovery line

Vehicle Safety
- Position recovery vehicle securely
- Inspect tow points for:
  - Rust
  - Loose bolts
  - Structural weakness

Equipment Safety
- Inspect all gear before use:
  - recovery ropes
  - Shackles
  - Dampers / support ropes



Recovery Equipment

- Kinetic Rope (made of nylon and has about 20-30% stretch). Never use a polyester webbing sling for recovery. (*For towing a vehicle it can however be used)*.

- Always use a soft shackle. If only a D shackle is available, make sure it is a rated one and inspect it before use.
- Shovel – procure a decent size shovel with a handle.

Important: Knots in ropes significantly reduce strength and must not be used.

Polyester webbing sling strap

Kinetic recovery rope (nylon)

D Shackle

Soft Shackle

Tow Points – Recovery Points

1.Rated recovery point.
If installed properly this is the strongest option.

2. Original tow point.
Very strong on a proper 4x4 but can be very weak on soft-roaders / SUV's.

2. Screw-in tow point.
Quite common on SUV's and soft-roaders. Straight pull-strength only. (on an angle it breaks immediately). Meant for towing.

3. Rear towbar with hitch.
Very strong and suitable but ensure there is no towball mounted!

Never use a tow ball!

Self-Recovery Techniques

Self-recovery should always be the first attempt before assisted recovery.

Standard Self-Recovery Procedure

- Engage low gear (LO).
- Activate differential locks (if available).
- Turn steering fully left and right (5 times) without acceleration if possible.
- Apply gentle throttle (1500~2000 RPM)
- Attempt controlled forward or reverse movement.

Your presence matters…

- Often a driver gets nervous, anxious, or confused when getting stuck. Receiving multiple instructions over the radio at that time might make things worse. If you notice the driver is not in a comfortable state of mind, approach and comfort them and only resume the instructions once they are calm and collected.

- Convoy members rely on you. Be the calm reassuring voice and project confidence, even when you are a bit unsure or nervous yourself. If you are in doubt yourself about performing an action, approach your expert or marshal on the drive and discuss together to work out the best plan of action.

- If the member has the ability to exit from the vehicle, do allow him and walk around the stuck vehicle together to show him your plan of action.

- A 5 min break with a laugh and joke can bring him back to his senses and will improve the chance of a successful recovery.

Sand Recovery Techniques

Key Concepts

- Always recover **with gravity, not against it**
- Identify the **heavier side** of the vehicle
- Reduce resistance before applying force (clear the sand as much as possible before a recovery)
- The stuck vehicle should help by applying gentle throttle.
- Before starting a recovery, inspect from all angles to find the points of highest resistance.

Digging Guidelines

Dig at **points of resistance** (not randomly)
Clear:

- Bumpers
- Tow points
- Fuel tanks
- Chassis (when possible)

Do NOT dig under free-spinning wheels — it is ineffective.

Kinetic Rope Recovery

Setup

- Identify and verify **recovery points**
- Secure rope using:
  - Shackles
  - Support rope / damper /bridle if the vehicle is seriously stuck.

Communication Protocol

- Radio comms is key during every recovery and helps to involve and update spotters and shovelers so they are aware they should steer clear.
- Agree on signals (countdown… 3…2….1).

Execution

Start with a **gentle tug**
Increase force gradually only if required

Aggressive initial pulls increase risk of equipment failure.

In which direction should i put my vehicle when i recover someone ?

This will depend on a case-to-case basis:

- When during the recovery you want to have FULL visual of the car that you are recovering, it will make more sense to attach your rope to your front recovery tow points.

- In the case the recovery needs a bit more force, and you have a towbar or stronger recovery points at the back, then it makes more sense to attach your rope to the rear towpoints or tow bar.

- In the case that you really want to see where your own car is going (in difficult terrain with bushes for example), it will also make sense to perform the recovery by attaching the rope to the back of the car.

Advanced Recovery Scenarios

No Tow Points or Heavy recovery on single recovery point

- Identify alternative structural anchor points. Solid rear axle works fine as well. Lower arms can work but only minimal force should be applied.
- Use **bridle setup** to distribute load. A webbing sling can be used for that.

Side Slope Recovery

- Stabilize vehicle first
- Proceed with caution using minimal force

Soft Sand Recovery

- Compress sand by driving back and forth
- Create a flat path (5–50 meters depending on severity)

The use of a safety strap

Popout Repair

- Bring the vehicle to level ground first and apply the parking/hand brake. Put the gear in Neutral(N), then switch off the vehicle. If possible go to 2WD as well.
- Install a wooden board (scaffolding plank) underneath the vehicle and position it properly.

Lifting points:

- Chassis: Strong but will require a lot of lift to clear the wheel as the suspension will relax. Extra wooden blocks can be used to fill the gap.
- Rear solid axle: a good choice.
- Front or rear lower arm: make sure your floor jack is properly installed underneath the arms. This option requires the least amount of lift the clear the tire.

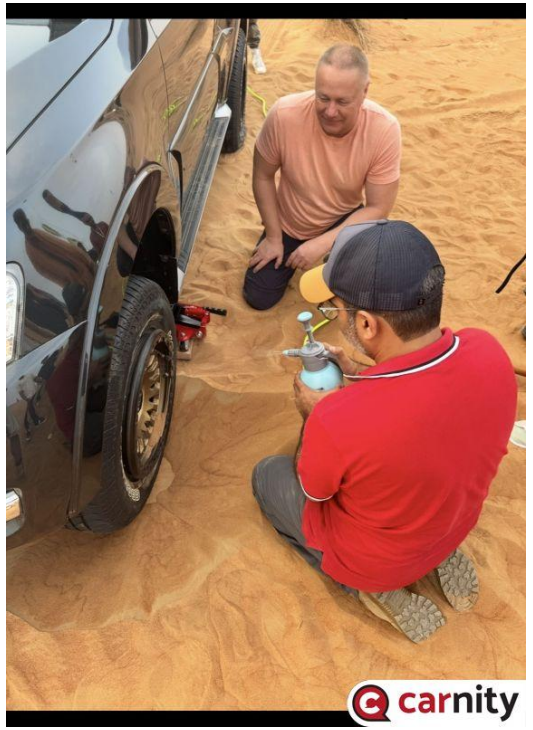
Reseating the tire:

Once the wheel is lifted and free, inspect the tire for damages or cuts first.

Spray water and/or compressed air around the bead of the tire to avoid having sand between the tire and rim.

Start to inflate the tire with a good compressor (+100 lpm). You might need to pull the tire towards the rim. Either by hand or with a strap.

Once reseated (POP), inflate to 40psi and drive 50-100m, then deflate again to normal tire pressure.



Winching Operations

Safety Rules

- Always wear gloves
- Keep at least **5 wraps of rope** on drum
- Never stand near a loaded winch line

Best Practices

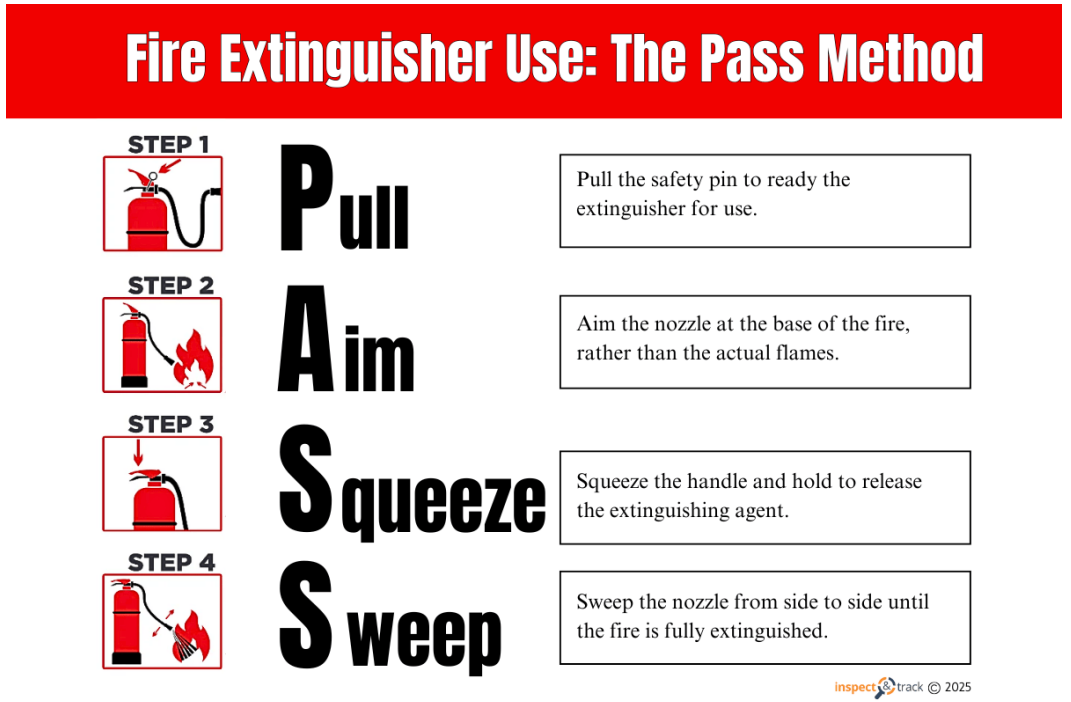
- Operate winch in **short intervals**
- Allow motor to cool between pulls
- Keep engine running during operation
- Never attach a kinetic strap to extend a winch line.

- The Basics of Winching - Off-road - Carnity.com

Emergency & Incident Response

Vehicle Fire Response

- Move the convoy members and other vehicles away from the fire (+30m)
- Only try an extinguisher for a **very small, just-started fire**, from a safe distance. Portable extinguishers are for small fires/escape, not an out-of-control vehicle fire. Few team members can help to approach with their extinguishers.
- You can also throw sand on the fire to try to extinguish.
- Do not enter the vehicle during any fire. Phones and belongings are less important than your life!



Rollover incident

- Switch engine off immediately.
- Focus on the person(s) first. Sit them down and provide water. Check for cuts/bruises/ or any head injuries. Check how they speak/react. Apply first aid when needed. Call an ambulance if required.
- Set up a plan with your supporting members. If the vehicle is still upside or sideways, use a winch to bring the vehicle back on its four wheels.
- Try to get the 4x4 to drive again. If not possible, pull it to the nearest road. Call the police and ask them to visit as you will be needing a police report. If they refer to using the police app you will need to report the case as “no second party involved”.
- Call your insurance if you have road recovery to collect the car. You can call a tow truck or use the Towr app to do this yourself.

Survival Techniques

Navigation Without GPS

- Move to high ground for visibility
- Use compass direction consistently
- Identify landmarks (roads, pylons, lights)

Hydration Guidelines

- Light activity: ~0.5L/hour
- Heavy activity: ~1L/hour

Energy Conservation

- Work in intervals (15 min work / rest cycles)
- Avoid peak heat hours
- Dates and salt packs can help to re-energize.

Basic Mechanical Troubleshooting

Engine Overheating

- Stop vehicle immediately
- Allow engine to cool (15–20 minutes) with an open hood.
- Never open radiator cap while hot!

Transmission Overheating

- Keep engine idling.
- Open hood for airflow
- Cool transmission cooler if needed with spray bottle

Electrical issues

- Vehicle not starting, cranking is weak: inspect battery terminals and fuses. With a small multimeter or tester you can check battery voltage (should be around 12.5 volts).
- Often while offroading the battery connections can get loose.
- If the vehicle is running but not charging, measure the voltage of the battery terminal. It should be +13Volts. If not this would mean your alternator is not working properly.
- And OBD scanner can be used to check if any errors are active (orange Check Engine Light on the dash is already something to investigate).

As we are not professional vehicle mechanics, it is not our responsibility to repair them. We can and should only assist to bring the vehicle to nearest tarmac so it can be collected by recovery truck.

Post-Recovery

As a supporting member it can be physically demanding to be involved in recoveries. After the recovery take all the time you need to stow away your gear and rehydrate yourself. There is never a need to rush. Stay in touch with the trip lead and update him when you are good to go.

Last but not least…

You are not alone!

- In a convoy you will always have experienced people but also people that will rise to the occasion. The Newbie in your convoy might be a doctor, firefighter, or automotive engineer. Get to know your convoy members and team.
- Use your resources wisely and work as a team. Share the load and keep a positive spirit at all times!
- Keep an eye out for each other. The heat can take its toll. Don’t allow anyone to get overworked. Take regular breaks, stay hydrated, and protect yourself from the elements.