Helicopter Support for Big Wall Rescues

Charley Shimanski
USA Delegate to ICAR
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USA Delegate to ICAR Air Rescue Commission
Mountain Rescue Program Coord., Flight For Life Colorado
25+ years; Alpine Rescue Team

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**PART 1**
Yosemite National Park

**PART 2**
YOSAR

**PART 3**
Yosemite Offset Technique

Yosemite National Park

One of the world's greatest climbing areas. Climbers here can enjoy an endless variety of challenges, including multi-day climbs on the big walls of Yosemite Valley.
25,000 to 50,000 climber days each year, mostly in spring, summer and fall.

More than 100 climbing accidents occur each year. 15-25 parties require a rescue.

Fatalities
10% from rockfall
25% from being deliberately unroped
40% from mistakes with gear.

EL CAPITAN
900 m / 3,000 ft. vertical of granite

Yosemite National Park averages 2 climber fatalities each year.

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**Yosemite Search and Rescue**

“YOSAR”

Yosemite National Park created Yosemite Search and Rescue (“YOSAR”) in the 1970’s.

**YOSAR workers are paid during SAR calls.**

**YOSAR’s Helicopter Rescue Team (“HRT”) is entirely paid Park staff.**

**Bell 205 A1++**

**H125/AS350 B3e**

Bell 205 A1++ (May to October)
Call sign is “H551”
• **Live loads:** heli-rappel and short-haul (up to 300 feet).
• **Cargo:** short-haul, lower, and sling-load (longline).
• **No hoist.**
• Main-rotor diameter = 15m / 48 ft.

For short-haul and heli-rappel, the crew consists of one pilot, a lead crew member, and one or more assistants as needed.

California Highway Patrol (CHP) H125/AS350 B3e

All year

Crew: one pilot and one crewmember
Main-rotor diameter = 11m / 35 ft.

• **Only hoist.** Normal working length 40m / 130 ft. Max load 225 kg/500 lb
• No Short-haul, no heli-rappel, no sling-load and longline

John Dill

Leader of Yosemite rescue work for more than 40 years. He has played a critical role in the development and evolution of YOSAR and the HRT.
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“Offset”

When the helicopter must hover TO ONE SIDE of the site.

The load must be pulled across that distance to reach the site.

NPS policy requires a minimum main-rotor clearance of 20 feet.

A video of the Offset Technique

The problem.....

NOT a solution...
The Nose, El Capitan, September 2011.

Start of short-haul extraction of rescuer and patient.

The offset is 45-50 feet.

Crewmember and partner

Attendant and Patient

Crewmember throws a “throw bag” with 1.5mm “pilot line” attached to an 8mm cord.

Throw Bag

Pilot line
If the helicopter has to leave unexpectedly and a line is anchored to or tangled with people or rigging at the site, there’s a risk of injury, line entanglement with the rotors, and/or throwing the aircraft out of balance.

50 lb. Breakaway

Deflection line
Carabiner
Throw Bag
Pilot line

This breakaway connects the deflection line to the load. It isolates the site from the load and therefore from the aircraft.

The load can be a gear bag or a rescuer (with litter).

If a gear bag, it may include a cell phone, radio, clothes, and/or food.
Crewmember lowers the other end of the deflection line to the load at the end of the short haul line.

Throw Video

Deflection line drop video
The person on the wall pulls the load (or the rescuer on the line pulls him/herself).

Occasionally, the subject can self-rescue once receiving a gear bag that contains survival gear or replaces lost climbing gear.

Subjects or rescuer

Sometimes the rescuer on the short-haul line can throw the 8 mm cord directly to a person at the site.

Video of Throw from longline

The incoming rescuer pulls the deflection line while the party on the wall holds it (minimizes entanglement).

A second rescuer has already arrived by short-haul after receiving a cord toss from the first rescuer (on site).

The second rescuer, now patient attendant, is rigged for extraction with the litter.

The helicopter is delivering the short-haul line, which is visible left of center.

A telescoping pole may also be used to reach an unloaded short-haul line.
Telescoping pole grabbing the short-haul line for patient extraction.

The first rescuer will oversee the extraction and stay on scene and rappel to the ground with the patient’s partner...
...or be extracted by the helicopter on a later flight.

The connecting point is cut with a hook knife, and the litter/rescuer swing away from the wall.
One final look at the entire “Offset Technique”

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Thank You!
Charley Shimanski
charley.shimanski@gmail.com