Helicopter Support for Big Wall Rescues
Yosemite National Park

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An unusual transition from a Big Wall anchor to a helicopter
Helicopter Support for Big Wall Rescues

PART 1
Yosemite National Park

PART 2
YOSAR

PART 3
Yosemite Offset Technique
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.

Photo: Cheyne Lempe
EL CAPITAN

900 m / 3,000 ft. vertical of granite
More than 100 climbing accidents occur each year. 15-25 parties require a rescue.

Photo: Cheyne Lempe
Yosemite National Park averages 2 climber fatalities each year.
Fatalities

10% from rockfall
25% from being deliberately unroped
40% from mistakes with gear.
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Yosemite Search and Rescue

“YOSAR”
Yosemite National Park created Yosemite Search and Rescue ("YOSAR") in the 1970’s
My thanks to 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.
YOSAR workers owe what they know to John Dill.
YOSAR’s Helicopter Rescue Team (“HRT”) is entirely paid Park staff.
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.
One pilot, one lead crew member, and one or more assistants for short-haul and heli-rappel
California Highway Patrol (CHP) H125/AS350 B3e All year
• **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

Main-rotor diameter = 11m / 36 ft.
Crew: one pilot and one crewmember
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Yosemite Helicopter Offset External-Load Operations

2011 Salathe Wall, gear drop to rescue subjects
When the helicopter must hover **TO ONE SIDE** of the site.

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

NOT a solution...
The line must be pulled over at an offset angle to the wall.
A video of the Offset Technique
VIMEO
2017 Offset video
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

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

Graphic courtesy “Big Walls, Swift Waters” by Charles R. “Butch” Farabee; Yosemite Conservancy
If the helicopter has to leave unexpectedly and a line is anchored to or tangled with people or rigging at the site...

50 lb. Breakaway
This breakaway connects the deflection line to the load. It isolates the site from the load and therefore from the aircraft.
Read This Now!
* Do not anchor this rope.
* Pull the cargo to you GENTLY, as we lower it.
(There is a weak link in the line.)
* When you get the cargo, clip it to your anchor.
* We are not in a hurry. Take your time.
See other side now!

This is what we will do.
See Other Side Now!
Crewmember lowers the other end of the deflection line to the load at the end of the short haul line.
The load can be a gear bag or a rescuer (with litter).

Graphic courtesy “Big Walls, Swift Waters” by Charles R. “Butch” Farabee; Yosemite Conservancy
If a gear bag, it may include a cell phone, radio, clothes, and/or food.

Graphic courtesy “Big Walls, Swift Waters” by Charles R. “Butch” Farabee; Yosemite Conservancy
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.

Graphic courtesy “Big Walls, Swift Waters” by Charles R. “Butch” Farabee; Yosemite Conservancy
Subjects or rescuer
This is a placeholder diagram.
Sometimes the rescuer on the short-haul line can throw the 8 mm cord directly to a person at the site.

El Capitan, October 2014. Leader fall with serious head injury

Photo: Tom Evans
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 arrived by short-haul after receiving a cord toss from the first rescuer (on site).
The second rescuer is rigged for extraction with the litter.
The helicopter is delivering the short-haul line.
A telescoping pole may also be used to reach an unloaded short-haul line.
Telescoping pole grabbing the short-haul line for patient extraction.
Video of telescoping pole
The first rescuer will usually oversee the extraction (then rappel with the patient’s partner).
The crux move
The connecting point is cut with a hook knife, and the litter/rescuer swing away from the wall.
Cutaway video
Cutaway video #2
Cutaway video from Rescuer Perspective
One final look at the entire “Offset Technique”
Grateful Appreciation:
• John Dill; Yosemite National Park
• Ken Phillips, National Park Service (retired)

Photo credits
• Friends of YOSAR
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