The Semitechnical Rescue Handbook for FTMs

Created October 11, 2004 by MBJ

What is semi-technical rescue (SemiTech)?

It is a way to get the subject out as quickly and safely as possible from a slope using a combination of trained rescuers, rope belay systems, and patient litter handling.

Safety: 1. Helmets 2. Tie into litter with girth hitches 3. Commands from ANYONE in the system: a. "Rock!" b. "Falling!" c. "Stop!" d. "Vomit!"	**MINIMUM Personnel Needs:** 5 Litter Handlers 1 Litter Captain 3 Rope Handlers 1 Patient 1 Rescue Specialist 1 Medical Officer 1 Safety Officer
MINIMUM Equipment Needs: Litter and face shields (patient) Static Rope (200 Feet) 6 Harnesses (generally from webbing) 6 Personal Carabiners 2 Large steel Carabiners 6 Pieces of Perlon 9 Helmets Rope Pads Vacuum Splint (if necessary)	L ocate A ccess/assess S tabilize T ransport

Why semitech?

- You are in an inaccessible place to emergency vehicles. The patient needs to be transported to a better location: road, field, etc.
  (slope bad. road good.)
- Semitech is safe and efficient
- Plan your exit route and make it happen.
  (road up? road down? go.)

Who is in charge?

The rescue specialist is in charge of the overall operation
The safety officer is in charge of safety
The Litter Captain controls the situation when semitech happens. He/she is the final word – listen to them! Only person to communicate with all involved!
What do the ROPE HANDLERS do? Hint – their nicknames are "runners!"

When going **UPHILL**:

Downhill, Uphill, Belayer Acronym: **DUB**

"It's DUmB to go uphill, because it's hard"

When going **DOWNHILL**

Belayer, Uphill, Downhill Acronym: **BUD**

"After going downhill, you celebrate with a BUD. Or…downhill is your BUD"

ALL transitions between pitches have to be under 60 seconds. Your goal is 30.

So what is an UPHILL Rotation?

Downhill Rope Handler:

Before the Pitch:

Assist the belayer. Stay out of the way but be helpful.

During the Pitch:

Belaying uphill is difficult. Your job is to help to move the rope around the tree without putting your fingers between the rope and the tree. This is called "plucking," and you should make sure that you are crouched next to the tree and out of the way of the belayer.

After the Pitch:

Run to the Uphill Rope Handler position (safely) once you hear "BELAY OFF!" You are an uphill rope handler now and must go to find the new belay point…in 30 seconds!

Uphill Rope Handler:

Before the Pitch:

The URH gets rid of any uphill slack so it is not in the belayer's way by pulling the rope with him/her.

During the Pitch:

1. Keep slack out of the belayer's way
2. Chhose the path for the next pitch.

Both 1 and 2 are done by keeping slight tension on the rope while moving uphill. Remember that you are skinnier than a stokes (essentially 3 people walking shoulder-to-shoulder), so don't go through too narrow of spaces. Go straight up a slope so you can avoid pendulumming (swinging laterally on a hill). Upon hearing "TWO-OH!", the URH must have a new belay point. Echo the "TWO-OH!" and "ONE-OH!."

At all points in the pitch, make sure you have a belay site chosen for immediate use when needed.

After the Pitch:

You become the belayer upon hearing "BELAY-OFF!" Set up a belay point at your chosen tree in 30 seconds.

Belayer:

Before the Pitch:
Belayer should have a new system ready as soon as possible.

During the Pitch:
Belayer is responsible for the safety of the litter team and patient. When the team is on belay, the belayer should be able to stop all 7 from falling. If he/she is unable to do this at any time, the belayer calls "STOP!" hc waits for Litter Captain (LC) response and calls "OFF BELAY!" When the team is stable, the LC responds "BELAY OFF" and the belayer can adjust the system

If the team is going faster than the belayer can handle, call "UP SLOWER" or even stop the team to get out the slack. Slack can injure the team if they fall, and you can be thrown into the tree, a painful experience. Additionally, the belayer must keep track of the amount of rope remaining for the pitch. When 20 feet remain, the belayer must notify the URH by saying "TWO-OH," so he can select a new belay point. No need to call this to the litter team.

After the Pitch:
Get to the downhill rope handler position in 30 seconds.

So what is a DOWNHILL rotation?

Belayer:

Before the Pitch:
The belayer (previously the DRH) has a new belay system set up within 30 seconds

During the Pitch:
The belayer is responsible for the safety of the litter team. Whenever the team is on belay, the belayer should be able to stop them from falling. If unable to do so at any time, the belayer calls "STOP!" and follows the procedure for going off belay to fix the problem. The belayer MUST keep track of the amount of rope remaining on the pitch and notify the DRH to select a new belay point by yelling "TWO-OH," "ONE-OH," and "STOP!" The litter team should be locked off when 10 feet of rope remain.

After the Pitch:
In 30 seconds, the belayer becomes the Uphill Rope Handler, so scamper into position!

Uphill Rope Handler:

Before the Pitch:
The URH checks the litter's tie-in to belay the system. Make sure the Figure-8 knot is secure and backed-up properly and that carabiners are **opposite, opposed, and locked!**

During the Pitch:
The URH takes care of rope, padding where necessary and looking out for snags. He also relays commands between LC and belayer when necessary. YELL these out!

After the Pitch:
The URH becomes the DRH in 30 seconds

Downhill Rope Handler:

Before the Pitch:
The DRH analyzes the terrain below the litter to pick a route that is straight and obstacle-free and will not create pendulums.

During the Pitch:
The DRH shows the chosen path to the LC. He warns the team of upcomiong hazards that can't be moved. He moves any that can. He keeps talking with the LC to advise. The DRH has chosen a point for the next belay. Upon "TWO-OH," the litter stops.

After the Pitch:
When "BELAY OFF" is called, the DRH becomes the belayer and sets up the next belay at his chosen point in 30 seconds.

Take-Aways:
-Always remember that the Figure-8 must be checked for **opposite, opposed, and locked.**

-Make sure all commands are YELLED. Don't be shy, lives depend on this.

-Be efficiently quick – patient is likely in pain and would like to get off the slope and into an ambulance fast. So don't dilly-dally.

Additional Belay Advice:
An appropriate belay point is a tree that is:
-Big (more than 6 inch diameter)
-Alive
-In the right path

How to set up your belay:
- Stand with the rope between you and the tree, facing away from the tree (your back to the rope and to the tree)
- Stretch out both arms and grab the rope in each hand, running it behind your back.
- The uphill hand will become your brake hand (you may want to wear leather gloves to protect your hands).
- The rope runs around your backside.
- Move around the uphill side of the tree; your brake hand is on the far (uphill) side of the tree (In a correct stance your brake hand is NOT the arm closest to the tree)
- The more times you wrap around the tree, the more friction you will create in the rope system. Finding the balance between being stuck (too much friction) and having no control (too little friction) is the art of belaying.
- Establish secure footing with your "brake hip" (the hip on the side of your body with the brake hand) farthest from the tree. This is the only correct place to put this hip, otherwise you will face-plant into the tree when you try to save a falling team!
- How to Brake? Push your brake hand down between your legs, bracing yourself against the force of the litter team. Don't let your brake hand get too far from your body. Don't let your non-brake hand help brake.

- Before the litter can go anywhere, you must test the system with a **Preload.** A preload is when the team pulls on the litter with their full strength and weight and you must prevent them from moving by braking. If the preload fails and the team slips, you must go OFF BELAY and add more friction to the system by wrapping more around the tree. Then go back ON BELAY and try again. Keep preloading until you and the team are comfortable with how safe the system is.
- Always step completely out of the belay system and unwrap it from the anchor before calling BELAY OFF.

***** WHEN YOU ARE **ON BELAY,** YOU ARE RESPONSIBLE FOR THE SAFETY OF THE TEAM. YOU CAN NOT ADJUST YOUR SYSTEM (e.g. to increase or reduce friction) WITHOUT GOING **OFF BELAY** (you have called OFF BELAY and the litter captain has responded with BELAY OFF).

Knots to Know:

On the litter team:
ASRC HARNESS--used to secure litter handlers to the litter using biner and girth.
On the litter:
GIRTH HITCH--used to attach SAR personnel harnesses to the litter with perlon
Patient packaging:
TAUT LINE HITCH--used to secure patient into litter with webbing.
Rope Handler:
FIGURE-8 ON A BIGHT--used to attach litter to a rope and belay system.
Belayer:
TREE WRAP--used as a friction device to control speed of rope movement.

Appendix A (Commands):

Echo every command given to you to ensure that you have heard it properly.

BELAYING

On belay	Are you ready to belay me, am I ON BELAY? From LC to Belayer.
Belay on	Yes, I am ready to belay you. Your BELAY is ON. From Belayer to LC.
Off Belay	I (my team) no longer requires a BELAY. From LC to Belayer.
Belay Off	I am no longer belaying you and have stepped completely out of the rope system.
Preload	The LC wants to test the belay system. Belayer repeats, "PRELOAD," and should be able to stop the rope from moving when the team pulls.

ADJUSTING THE ROPE

Slack	The rope is too tight, give me three feet of slack. From LC to Belayer.
Tension (Up Rope)	Remove slack from the rope. From LC to Belayer.

MOVING

Down slow	Allow the litter to descend slowly. From LC to Belayer.
Down fast	Allow the litter to descend quickly. From LC to Belayer.
Up slow	Allow the litter to ascend slowly. From the LC to Belayer.
Up fast.	Allow the litter to ascend quickly. From LC to Belayer.
Stop	Command from anyone to halt system. Belayer should lock off immediately.

END OF PITCH

Two-oh	Roughly 20 feet of rope remain, the LC must find a safe place to stop and a next belay should be located.
One-oh	Roughly 10 feet of rope remain, the LC must stop.

SAFETY COMMANDS

Rock!	An object is falling on or near the litter, litter team should brace themselves leaning over litter to protect the patient, and belayer should lock off system. Anyone yells "rock."
Falling!	Any member of the litter team yells when they fall. Belayer locks off system.
Vomit!	The patient is going to vomit. Stop the litter, lock off the belay, turn the patient on his side (towards the medic) and remove the face shield.
Clear	The LC has determined that the danger has passed. Continue as usual.

LIFTING/LOWERING

Ready to lift?	LC asks the Litter Team, "are you READY TO LIFT?"
Ready	Team answers affirmative
Lift	LC commands team to lift the litter in unison.
Clear	Clear area beneath litter of rocks & debris before lowering patient
Ready to lower	LC asks the team, "are you READY TO LOWER?"
Lower	LC commands team to LOWER the litter in unison.

SPECIAL LITTER MOVEMENTS

Ready to ladder	LC asks the team, "are you READY TO LADDER?"
Ladder	LC commands team to LADDER the litter in unison.
Ready to toenail	LC asks the team "are you READY TO TOENAIL?"
Toenail	LC commands team to TOENAIL the litter in unison

Standby	Anytime you are not ready to respond to a command, say "STANDBY"

Appendix B (Team Roles):

Rescue Specialist (RS):

The Rescue Specialist is responsible for the overall coordination and execution of the evacuation. RS coordinates with Base, helps choose a general route, and oversees team composition, equipment, resources, etc. RS consults and briefs the Litter Captain, Safety Officer, Medic, and Litter Captain to do their job without incidents.

Safety Officer (SO):

The SO oversees the safety of everyone involved in the evacuation. SO must constantly review all decisions with specific regard to how each decision affects the safety of the team, patient, and personnel. This job includes ensuring sufficient relief, hydration, and rotation of team members. The SO might advocate for any number of specific actions throughout the course of an evacuation, but must be careful not to micromanage any one particular area, particularly if this might lead to neglecting other areas. The SO communicates with the Rescue Specialist, Medic, and Litter Captain to ensure a smoothly run evacuation.

Medic:

The Medic holds the highest functional medical certifications on an evacuation. Medic's primary responsibility is the care and well being of the patient being transported. The Medic must function at all times within their current medical training level and ASRC medical protocols. The Medic collaborates with the Rescue Specialist, Safety Officer, and Litter Captain to ensure that the well being of the patient is never compromised.

Litter Captain (LC):

A Litter Captain functions as the Field Team Leader for the Litter Team on a task. As such, LC must keep the team's safety, comfort, and well being in the forefront of his mind. A Litter Captain is responsible for communicating expectations to Litter Handlers, as well as to be the team's contact person for any concerns a Handler may have. LC is constantly coordinating with the Medic, Safety Officer, Rescue Specialist and Rope Handlers. The Litter Captain is the only person on the litter to communicate regularly with other members of the evacuation team.

Litter Handlers:

Litter Handlers participate as perhaps the most crucial component of a litter evacuation. They constitute the Litter Team and are concerned primarily with the safety of themselves and their teammates. They communicate directly with the Litter Captain. Six litter handlers (including the Captain) are needed on an evacuation, but adjustments may be made.

Rope Handlers:

A team of 3 Rope Handlers will rotate through various rope positions, transferring responsibilities with each consecutive pitch. Rotation is important for efficient movement up or down a hill. Efficient rotation also ensures rest and variation of tasks for handlers whose work is exacting and difficult. The specific roles of each rope handler position are detailed in the previous pages. *Each rope handler must be able to perform all 6 roles with precision.*