

# TROUBLE SHOOTING

If the base of the Larkin Rescue Frame, near the loadline redirection pulley, slips, try this:

1. Remove the soft ground feet (base plates) to expose the rock spike in the base of the hinge, and
2. Pick a small hole using a drill or cold chisel to contain the spike.

or

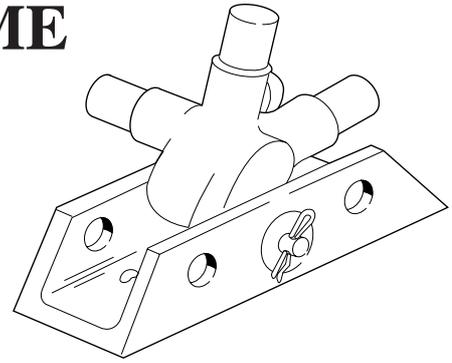
Locate the Larkin Rescue Frame so that the rock spike is in a crack in the rock surface or behind a lump.

or

Tie the hinge forward to a solid object (e.g. a tree, a rope pack full of rocks or a bolt).

# THE LARKIN RESCUE FRAME

The Larkin Rescue Frame is supplied with a carrier. For ease/ speed of assembly The Larkin Rescue Frame is partially assembled. It is recommended that you also store/ transport it partially assembled.

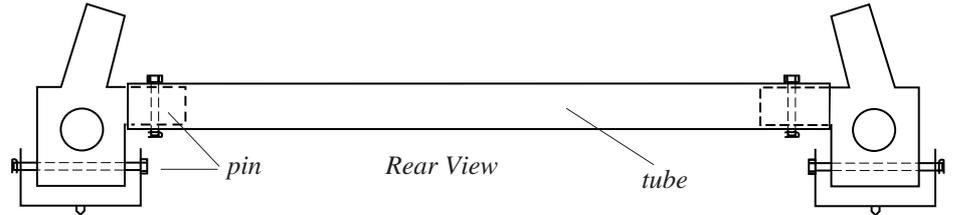


## ABREVIATED ASSEMBLY INSTRUCTIONS

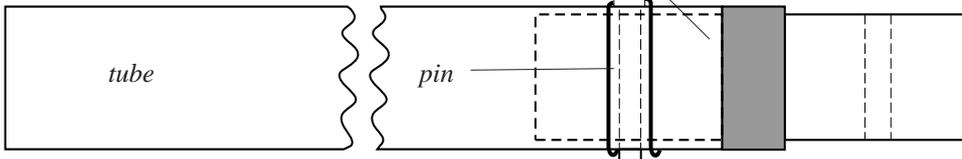
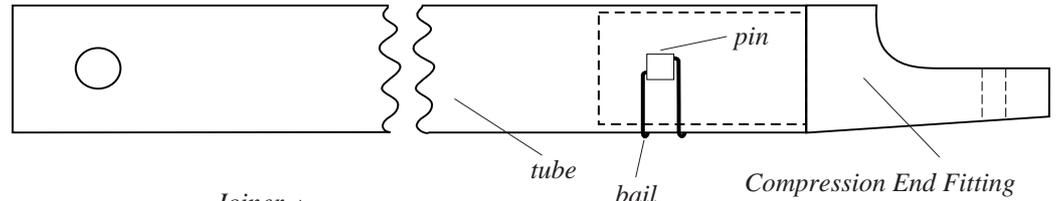
If any instruction in this section is unclear read the full instructions for clarification. Heed the WARNINGS given.

### 1. Construct TWO HINGE ASSEMBLIES

2. Construct HINGE and place parallel to drop in clear working area with spigots which are on the ground pointing away from the drop.

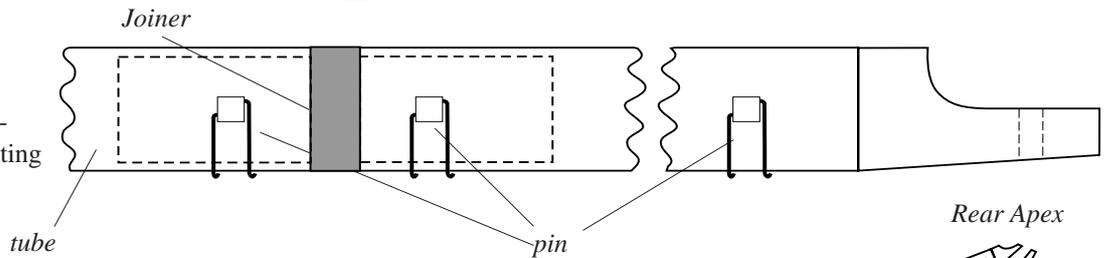


3. Take the four assembled compression end fittings from the carrier. Ensure the bail of pin is "inside" of the assembly.



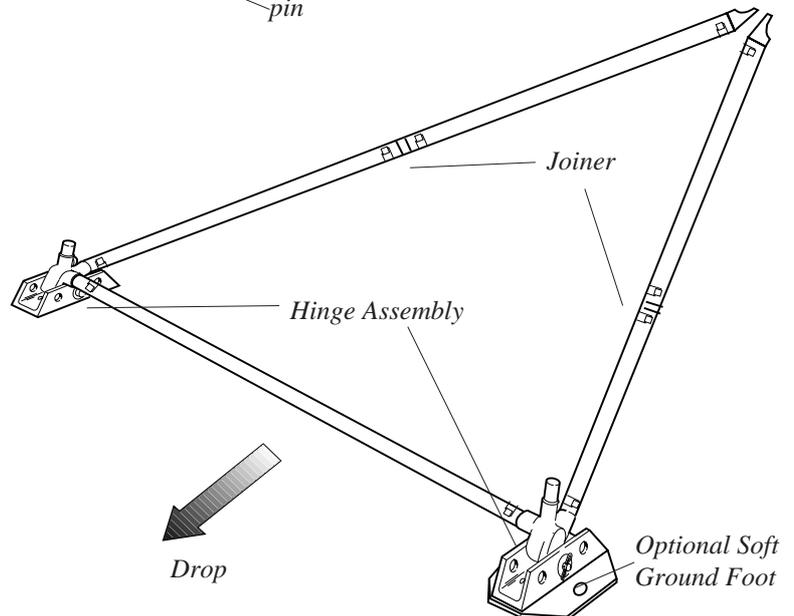
4. Take the four assembled joiners and tubes from the carrier.

5. Assemble TWO COMPRESSION LEGS - tube+joiner+tube+end fitting

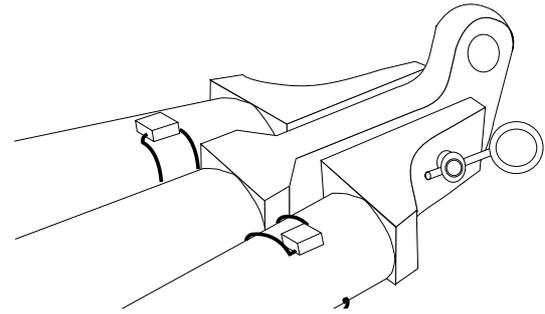
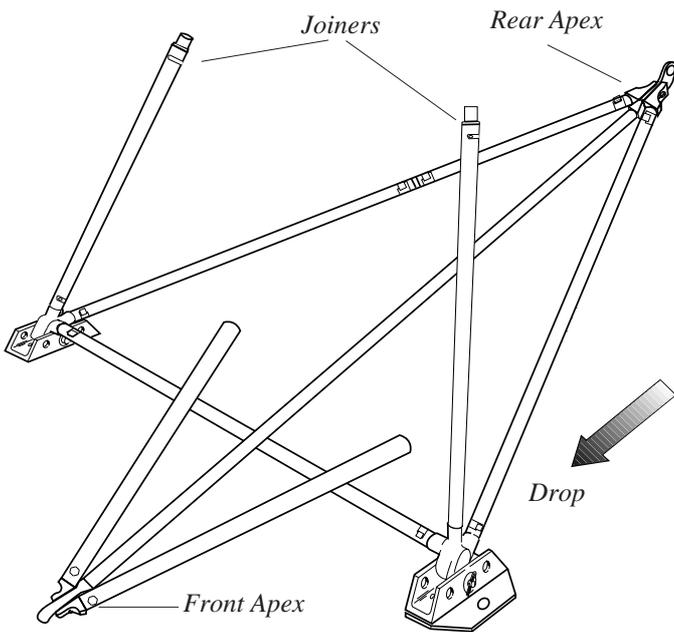
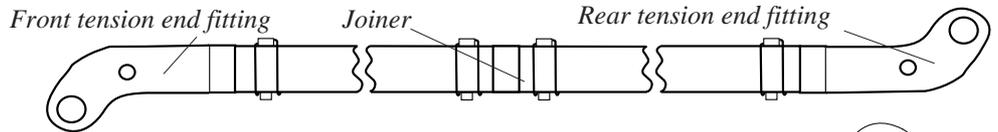


6. Attach the two compression legs to the HINGE spigots which are on the ground. These are the REAR COMPRESSION LEGS

- Check all rear compression leg pin heads are on the TOP of the tubes and the bails are on the inside.



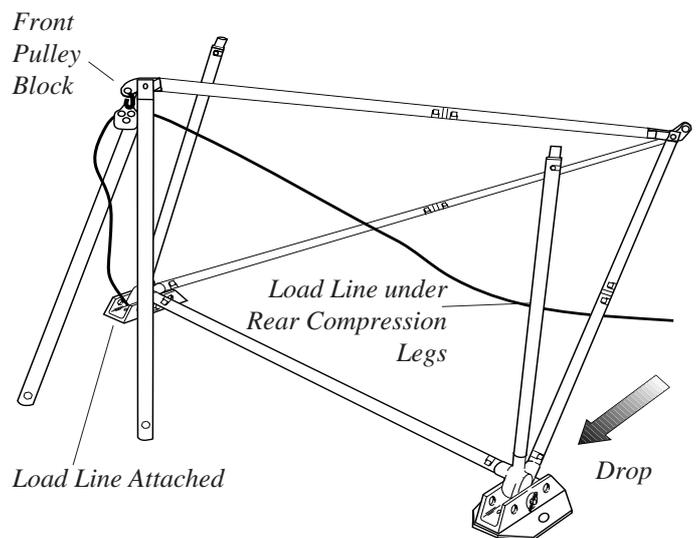
**7. Assemble TENSION LEG - fitting+tube+joiner+tube+fitting.**  
 - Check that one fitting points UP and one points DOWN.



**8. Connect TENSION LEG to REAR COMPRESSION LEGS with an APEX PIN and large spring clip.** This forms the REAR APEX.  
 - Check that the tension end fitting connected points UP.

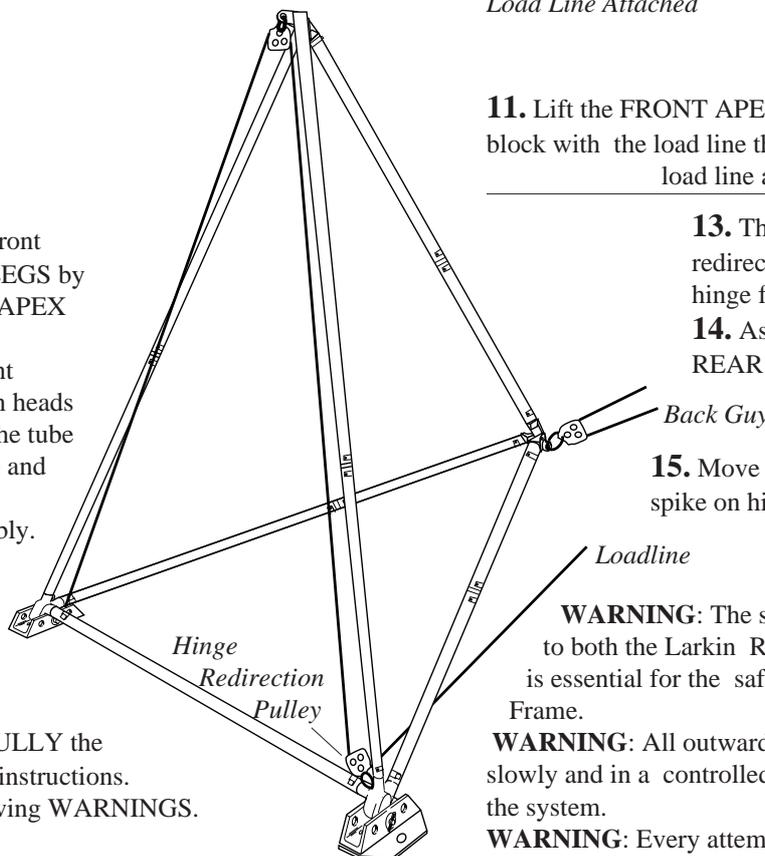
**9. Attach remaining two tubes with joiners to the vertical spigots on the HINGE -** Check that joiners are assembled in the top of these tube sections.

**10. Connect the remaining two tubes with compression end fittings to the TENSION LEG with an APEX PIN and large spring clip to form the FRONT APEX.** - Check that all rear compression leg pin heads are on the side of the tube away from the drop and the bails are on the inside of the assembly.



**11. Lift the FRONT APEX and connect the front pulley block with the load line through it.** Secure both ends of the load line at ground level!

**12. Assemble the front COMPRESSION LEGS by lifting the FRONT APEX onto the joiners**  
 - Check that all front compression leg pin heads are on the side of the tube away from the drop and the bails are on the inside of the assembly.



**13. Thread load line through hinge redirection pulley and attach pulley to one hinge fitting.**

**14. Assemble back guy and connect to REAR APEX**

**15. Move to point of usage. Pick hole for spike on hinge to stop rotation.**

**16. READ CAREFULLY** the usage section of the instructions. Note well the following WARNINGS.

**WARNING:** The line of the back guy must be at right angles to the hinge tube or the Larkin Rescue Frame may tip sideways, however, it is more likely to rotate to correct the alignment.

**WARNING:** The secure attachment of the back guy to both the Larkin Rescue Frame and to a secure anchor is essential for the safe usage of the Larkin Rescue Frame.

**WARNING:** All outward tilting should be undertaken slowly and in a controlled manner to prevent shock loading the system.

**WARNING:** Every attempt should be made to ensure that the descent takes place at right angles to the hinge tube to prevent tipping. If an out of line descent is planned the Larkin Rescue Frame should be guyed from the large hole in the tension end fitting to compensate.

# THE LARKIN RESCUE FRAME

- \* Fits into a Stokes Litter or Ferno Washington
- \* Weighs only 40 kilograms
- \* Full size reach is 2.5 metres (Half size 1.2 metres)
- \* Constructed of high tenacity aluminium alloy
- \* Safe working load of 400 kilograms
- \* Australian Patent 624496, US Patent 5,135,119, European Patents 0 395 297, P690 12 875-08

In any lowering or lifting job the top edge is likely to present problems. The solutions are many and varied but perhaps the most elegant and sophisticated solution is the Larkin Rescue Frame.

The Larkin Rescue Frame is designed and constructed to give rescue personnel the maximum versatility for the minimum weight and cost.

Two operators can readily assemble the full size Larkin Rescue Frame in less than TEN Minutes.

## USING THE Larkin Rescue Frame

Because of the cunning design of the Larkin Rescue Frame it is possible to place it right at the edge of the drop. Any slippage on a firm surface can be minimised by picking out a small locating hole for each hinge spike. On soft ground the optional soft

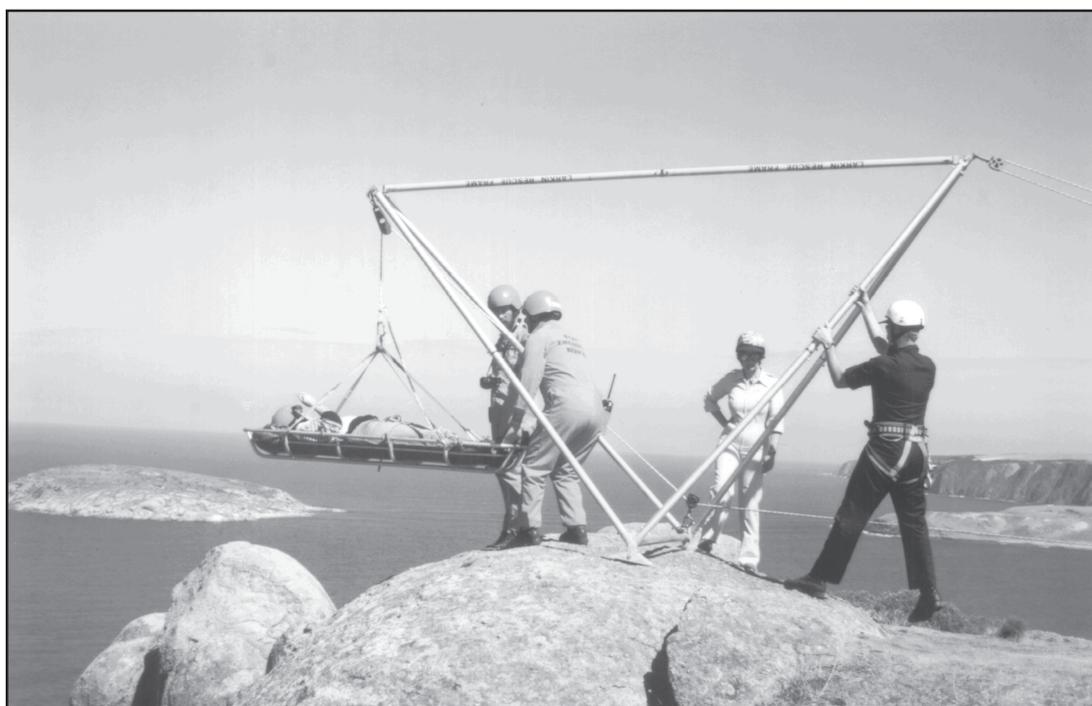
base will always be AWAY from the drop. It fails safe!

It is not necessary to leave any space between the edge and the Larkin Rescue Frame for landing the

stretcher and out-rider. The Larkin Rescue Frame is designed so that the stretcher and out-rider can be landed within the frame.

## VARIATIONS

In addition to its use full size the design of the Larkin Rescue Frame permits it to be assembled half size for use in confined spaces, or where a long reach is not required. It can also be used as



ground feet can be fitted and a star picket driven through the triangular hole. If for any reason the hinge spike cannot be used the Larkin Rescue Frame is still very stable and any slippage of the

a tripod or as an A frame support for tarpaulin or similar.

## COMPONENTS

- 1 x 2 Section Tension Leg
- 4 x 2 Section Compression Legs
- 5 x Joiners
- 2 x Tension Leg End Fittings
- 4 x Compression Leg End Fittings
- 1 x Full Size Hinge Tube (identical to compression leg section)
- 1 x Half Size Hinge Tube
- 25 x Linch Pins with bail (including 3 spares)
- 2 x Apex Pins with Spring Clips
- 2 x Hinge Channel fitted with spike, hinge pins and spring clips
- 2 x Hinge Fitting
- 1 x Transport Pack
- 2 x Base Plates with 4 Large Spring clips

## ACCESSORIES

A separate leaflet is available with details.



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# THE LARKIN RESCUE FRAME

## INSTRUCTIONS

Before you start, check the contents of the delivery box to ensure that all of the components listed have been received and removed from the delivery box. All the components should be there as each Larkin Rescue Frame is assembled prior to shipping and is individually proof loaded to the working load limit.

NOTE: There are two sets of instructions - the full and detailed ones given below (which will take longer to read that a Larkin Rescue Frame takes to assemble!) and the attached brief instructions with diagrams. It is suggested that the brief instructions be read prior to starting to assemble the Larkin Rescue Frame.

### Assembly

This assumes you have pulled the Larkin Rescue Frame completely to pieces.

#### Hinge Assembly:

Select the two hinge channel sections with hinge pins and spring clips attached and the two hinge fittings (the large fittings with three spigots).

: Locate a hinge fitting in each channel section.

: Assemble each hinge by pushing a hinge pin through the channel section and the hinge fitting so that the hinge fitting can rotate on the pin.

Secure the assembly by fitting the spring clip to the hinge pin.

#### Complete Frame Assembly:

Decide where the Larkin Rescue Frame is to be used. Locate an area (preferably flat) slightly behind the point of usage. In this area assemble the full size Larkin Rescue Frame as follows:

1. Identify the shortest tube section (half size hinge tube) and place to one side as it will not be used.
2. Identify the two longest pieces of tube (the tension leg sections) and place near where the Larkin Rescue Frame is to be assembled.
3. Take two hinge assemblies (see above) and one of the remaining sections of tube (there should be nine the same).
4. Fit the tube section between the two horizontal spigots of the hinge assembly so that the spike of the hinge assembly points to the ground and the tube is horizontal. Line up the holes in each spigot and the respective tube end and insert a pin from the top and clip the bail around the tube.
5. In the assembly area place the hinge parallel to the edge of the drop.
6. Identify the compression end fittings, there are four (4) of them. Insert one in one end of each of four of the remaining sections of tube.

7. Line up the holes in the fitting and the tube, insert a pin so that the bail is on the same side of the tube as the flat on the fitting.

8. Insert one black joiner piece in one end of each of the remaining four sections of tube.

9. Line up the holes in the joiner piece and the tube, insert pin and secure with bail.

10. Assemble TWO compression legs.

NOTE: All pins should be put in from the same side of any assembly and all bails should be on the same side. For each of the required TWO compression legs take one tube section with a joiner and one tube section with a compression end fitting. Insert a joiner into the end of the tube with a compression fitting, line up the holes in the joiner piece and the tube, insert a pin and secure.

11. Take the two compression legs to the hinge, fit each open end of the compression legs to the hinge fitting spigots furthest away from the drop, with the two compression legs on the ground, their apex pointing away from the drop and with pin heads UP, line up the holes in the end of the compression leg and the hinge fitting, insert a pin from above and secure with bail.

NOTE: All pin heads should be on the TOP of the tube with the bail on the inside. If they are not they should be fixed now.

12. Insert one tension end fitting into the end of each of the tension legs (long tubes), line up the holes in the fitting and the tube, insert a pin in each and secure with the bail.

13. Insert the remaining joiner into one of the open ends of the tension leg tubes, line up the holes in the joiner and the tube, insert a pin and secure with the bail.

14. Insert the joiner just connected into the open end of the other tension leg tube. Check that one tension end fitting is pointing DOWN and the other is pointing UP, line up the holes in the joiner and the tube, insert a pin and secure with the bail.

15. Take the assembled tension leg to the rest of the partly assembled Larkin Rescue Frame. Lay the tension leg on top of the hinge with the tension fitting nearest the apex oriented so that it points AWAY from the ground. Place the tension end fitting between the compression end fittings and using one of the two apex pins connect the three end fittings. Secure with the large spring clip connected to the pin.

16. Take the two sections of compression legs with joiners inserted and stand one on each of the spigots on the hinge fittings. Line up the holes in the tube and the fitting and insert a pin so that its head is away from the drop, secure with the bail.

17. Take the two remaining sections of compression legs

to the nearly assembled Larkin Rescue Frame. Lay them over the hinge so that the tension end fitting is between the two compression end fittings. Using the remaining apex pin connect the three end fittings together. Secure with the large spring clip.

18. Lift the apex, just constructed, so that the compression leg tube sections stand vertically on the ground supporting the tension leg.

19. Connect the front pulley block with the load line threaded through it to the large hole in the tension end fitting, ensure that the karabiner is oriented so that any vibration will cause it to close. Secure the front end of the load line with a karabiner to an attachment point of a hinge fitting.

20. Standing with your back to the drop, lift both the compression leg tube sections from the ground, walk forwards and place the open end of the tubes over the joiners on the other half of each of the front compression legs. Line up the holes in the tube and the joiner and insert a pin so that its head is away from the drop, secure with the bail.

21. Connect the hinge redirection pulley block to the load line and connect the pulley block to one of the attachment points on the hinge fittings.

22. Connect the rear pulley block to the rear tension end fitting with the back guy line threaded through it to the large hole in the fitting, ensure that the karabiner is oriented so that any vibration will cause it to close.

23. Move the assembled Larkin Rescue Frame to the point of usage. Pick a hole for the spike on the base of the hinge channel to stop the Larkin Rescue Frame rotating.

NOTE: If the base plates are used, a star picket should be driven through the triangular hole.

## The Half Size Larkin Rescue Frame.

Where space is limited a half size version of the Larkin Rescue Frame may be used. Assembly is similar to the full size version, however, all five (5) joiners and eight pins with small spring clips are not required.

Assembly commences with taking the shortest piece of tube and using it to connect the hinge assemblies to form a half size hinge. The remainder of the assembly and disassembly procedure is as for the full size version but half the tension leg and the lower half of each compression leg is not used.

## Disassembly

Broadly disassembly is the reverse of assembly. The correct procedure makes disassembly very quick and simple.

NOTE: Whenever possible pins should be removed when the tube they pass through is laying on or parallel to the ground.

1. Disconnect the load line and hauling system.
2. Move the assembled Larkin Rescue Frame back to the assembly area, disconnecting the back guy line as it becomes necessary.
3. Remove the hinge pulley block and rear pulley block.
4. Remove the pins from the front compression leg joiners so that the top section of the compression legs can be removed by lifting. The joiners should still be in the bottom section of the front compression legs.
5. Lower the front apex and rest the tension legs on the ground.
6. Remove the front pulley block.
7. Lay the front apex on the ground with the remaining section of the compression legs over the hinge.
8. Remove the apex pin and re-insert the large spring clip.

NOTE: At this point it is necessary to decide if full disassembly is planned, assembly time can be drastically reduced if joiners and end fittings are left in place in the ends of tubes. These assemblies will easily fit into the standard carrier.

9. If appropriate fully disassemble front compression legs.
10. Dismantle the other apex by removing the large pin, returning the large spring clip to the pin.
11. Dismantle the rear compression legs to the extent required (see note above).
12. Dismantle the tension leg completely.
13. Dismantle the hinge to the extent required.
14. Count the bits - ensure that nothing has been lost.
15. Pack components. Place the tension leg joiner in one of the pouches of the carrier. Slide each of the tension tubes into the sleeves of the carrier. Place one hinge fitting at one end of the base of the carrier. Place the hinge tube with the other hinge fitting attached in the carrier. Place the tube sections with the compression ends attached in the carrier. Place the compression tubes with joiners attached in the carrier. Place the half size hinge tube with tension ends attached in the carrier. Place the two hinge channel sections (with base plates attached) in the carrier. Place the loose pins in the pouch of the carrier and seal the Velcro closure. Fold in pouches, tuck in the flap, secure carrier closed with the three buckles.
- NOTE: It is advisable to place the tension ends and pins in each end of the half size hinge tube.
16. The whole frame can be placed in a rescue stretcher, if one is available, for transport and/or storage.

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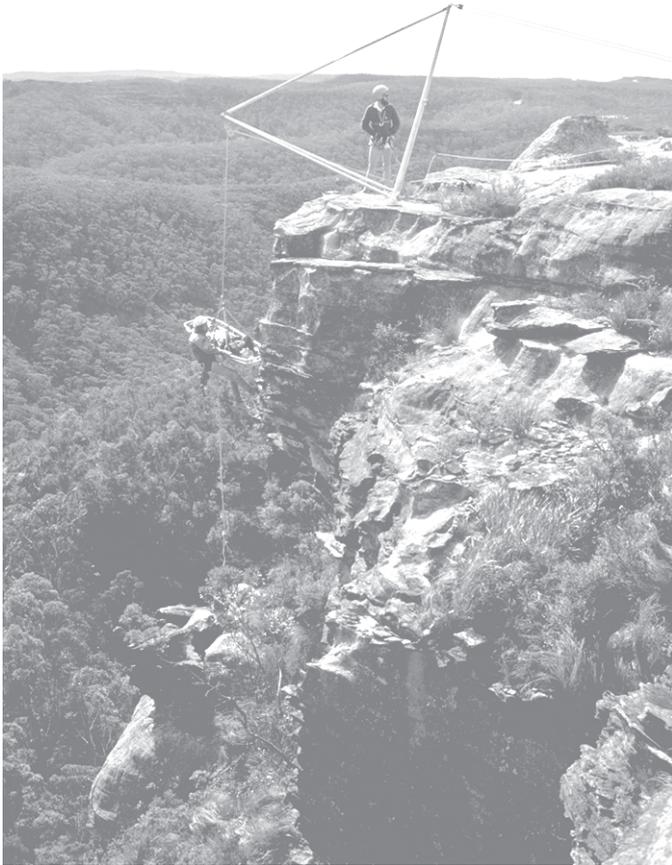
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# THE LARKIN RESCUE FRAME

## USAGE



The assembled Larkin Rescue Frame can be moved into position at the edge of the drop when a suitable anchor for the back guy has been identified.

With the Larkin Rescue Frame oriented with the front compression legs towards the drop and the rear compression legs parallel to the ground pick up the Larkin Rescue Frame and move it carefully towards the edge of the drop. Place the Larkin Rescue Frame on the ground with the hinge pipe at right angles to the line of the back guy and preferably with the hinge pipe parallel to the edge of the drop.

*WARNING: The line of the back guy must be at right angles to the hinge pipe or the Larkin Rescue Frame may tip sideways, however, it is more likely to rotate to correct the alignment.*

If the ground is hard, two small holes should be made to locate the hinge spikes at the operating position. This will minimise rotation of the frame about the base. If the base plates are being used they should be attached to the hinge channel with the large spring clips provided. The triangular (star picket) holes should be to the outside of the hinge.

If the Larkin Rescue Frame is to be rested on the surface, rather than located in spike holes or secured with star pickets, the hinge channel will need to be secured near the edge of the drop. A reasonable solid attachment point or counterbalance weight can be used. Only the side where the hinge redirection pulley is attached will need securing.

**NOTE:** The tendency of the Larkin Rescue Frame to rotate can be minimised by centring the redirection pulley on the hinge by using both hinge fitting attachment points. However, the ability to land a stretcher within the Larkin Rescue Frame is diminished.

### Presetting the Angle

1. Secure one end of the back guy line to the chosen anchor, which should be at least 3 metres behind the line of the hinge.

The line passes from the anchor, through the pulley block and back to the anchor.

2. With one person attending the back guy line and one person attending the Larkin Rescue Frame tilt the Larkin Rescue Frame forward (over the drop) until the front compression legs are at an angle of 30-35 degrees above horizontal.

3. Secure the back guy line so that the Larkin Rescue Frame can be easily tilted to this preset angle under load.

*WARNING: The secure attachment of the back guy to both the Larkin Rescue Frame and to a "bomb proof" anchor is essential for the safe usage of the Larkin Rescue Frame.*

4. Tilt the Larkin Rescue Frame back so that the rear compression legs are on the ground.

## Preparing to Lower

At this stage the front end of the load line should be attached to a hinge fitting, pass from there through the front pulley and back down to the hinge redirection pulley. The load lowering/lifting system can now be connected to it.

**NOTE:** A lot of time can be saved if a knot is tied in the load line before it passes through the front pulley block to prevent the end of the line ending up out of reach. If a suitable knot, such as an alpine butterfly, is used the stretcher can be attached at that knot and the outrider can travel on the remaining tail.

The load, presumably a stretcher (with or without patient) can be connected to the load line. The load should then be lifted to a height which just permits it to pass between the front compression legs. The outrider can attach at this time.

The load lowering/lifting system should be locked off securely.

Using the 2:1 mechanical advantage provided by the back guy, control the outward tilt of the Larkin Rescue Frame. The tilting is initiated by one person lifting the rear of the Larkin Rescue Frame and continued until the Larkin Rescue Frame is at the preset angle with both sides of the back guy in tension.

**WARNING:** All outward tilting should be undertaken slowly and in a controlled manner to prevent shock loading the system.

The load can then be lowered.

**WARNING:** Every attempt should be made to ensure that the descent takes place at right angles to the hinge pipe to prevent tipping. If an out of line descent is planned the Larkin Rescue Frame should be guyed from the large hole in the tension end fitting to compensate.

**WARNING:** Great care is needed for any out of line descent.

## Lifting

1. The Larkin Rescue Frame should be tilted outward to the preset angle of 30-35 degrees (see above). The load line passes as described above but the front end goes to the bottom of the drop rather than being attached to a hinge fitting.
2. The lifting system is attached to the load line and the load lifted in line (see above) until the attachment point for the load approaches the front pulley block (the exact distance will depend on the size and shape of the load and should be established in practice).
3. The lifting system should then be securely locked off.

**WARNING:** If the load attachment point is allowed to hit the front pulley block and lifting is permitted to continue, the geometry of the system changes **DRASTICALLY** and the Larkin Rescue Frame will take a **STEP** away from the edge of the drop. This is not dangerous but is **VERY** disconcerting for all involved.

4. The Larkin Rescue Frame is tilted inwards using the 2:1 mechanical advantage of the back guy to assist a person who tilts the rear compression legs away from the drop until the point of balance is reached. Beyond the point of balance the person tilting the rear compression legs will need to support them and lower them slowly until they rest on the ground.

**NOTE:** The tilting of the Larkin Rescue Frame as described in the previous paragraph will result in the load being swung over the hinge.

5. Once the back guy is secured the load may be lowered.



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