

Parallel Plaquettes: A Lightweight Rope Rescue System Using Common Climbing Equipment

Rope rescue is simply the conveyance of live loads over challenging terrain. The techniques and practices employed have changed over time as equipment and levels of understanding amongst practitioners have continued to evolve. While there does exist rope-rescue-specific equipment (e.g. litters, artificial high directionals), much of the gear used is somewhat generic in nature (e.g. pulleys, carabiners, ropes). It is through the combination of that generic equipment into specific systems for multi-person loads that uniquely differentiates rope rescue practices from recreational climbing systems.

Two key principles of a rope rescue system are the use of:

- (1) *Friction* in the form of a descent control device, and
- (2) *Auto-stop* that causes a lock-up of the system; ideally, without relying upon the initiation or reaction time of the operator

Many of the current systems in use today include both of these functions at some level within the overall system. For example, a standard single mainline and separate belay line system includes an adequate descent control device (DCD) on the mainline [*i.e. friction*] and a reliable belay device on the backup line [*i.e. auto-stop*]. However, few current systems include both principles on each of the primary and secondary systems, simultaneously.

The principals at *Rigging for Rescue* have had a long-held suspicion that those same key rope rescue functions may be achievable using common climbing equipment configured in a certain manner. The essence of the *Parallel Plaquettes* system is the use of an auto-locking climbing device (e.g. Black Diamond ATC Guide in plaquette-mode) on the running end tension of a suitable DCD (e.g. a Conterra Scarab or ATC in lowering mode). The DCD provides the friction and the plaquette device provides the auto-stop function. By combining the two devices in-series we are looking to offer a simple and lightweight system to the mountain rescue practitioner (*i.e.* $\leq 11\text{mm}$ rope) using commonly- carried equipment.

In the summer of 2009 we conducted a series of drop tests to examine our ideas. As expected, we observed some predictable results as well as some surprises. The drop tests conducted were by no means exhaustive; they definitely qualify as 'quick look' in nature. We look forward to sharing the results of the testing as well as conducting more thorough research in the coming months.