A large photograph showing an aerial lift bucket extended high into the air. The bucket is positioned over a training area where several people are visible on the ground. The background shows a clear blue sky and some industrial or training structures.

Aerial Lift Training, Competence Building and Proficiency Development

By Ken Palmer and Juan Torres

Aerial lift evacuation training.

For the purpose of this article we'll define an aerial lift as a bucket or operating platform often mounted on a fully articulated set of booms that are in turn attached to a motor vehicle designed to give stability to the whole unit during operation. Aerial lifts can be operated by controls at the bucket or platform and on the turret for elevation, extension and rotation.

Aerial lifts can dramatically increase safety and productivity in many tree care and removal operations. However, aerial lift devices have the potential of delivering an unprepared tree worker into an environment that can repeatedly test the very edge of their knowledge and/or competence level. This can be a recipe for disastrous experiences.

General care and maintenance

Routine inspections can save costly mistakes. Be sure that:

- ◆ A daily, visual inspection and operational check of the entire unit is performed.
- ◆ A pre-trip and between job road-readiness inspection has been done for proper storage of the unit and anything in tow.
- ◆ All daily, weekly, monthly and yearly inspections are completed as outlined in the operating manual and according to company regulations.
- ◆ The aerial lift unit is current with regularly scheduled dielectric testing and maintenance.
- ◆ All D.O.T. licensing requirements, registration and necessary company paperwork is completed.



A fall-arrest system.

Photo courtesy Buckingham Manufacturing

Too often, tree workers make decisions based on personal experiences or a mixed bag of experiences of co-workers. Every company owner has heard this line: "I've done it before and it worked out OK." There are at least two problems with this type of decision making.

(1.) Though experience is an essential part of skill development, it can also be a very dangerous teacher. People sometimes experience way too much pain and suffering just to "*chalk one up for experience.*"

(2.) It is not correct to base our critical decisions on what we have gotten away with before. That would be flirting with disaster, because everything from the trees to the equipment changes from job to job – often from one cut to the next!

Think about it

Arborists have to be able to think on their feet and adjust to their surroundings. Accidents can be reduced dramatically and productivity increased dramatically when tree workers have the information and

knowledge to think first in order to make good sound decisions. The more they have developed the skill sets required to carry out challenging tree jobs safely and productively, the more successful they will be.

Safe, productive aerial lift operations require the operator to have thorough knowledge of its operational capabilities, limitations, restrictions and safety features.

Emergency preparedness and self-rescue

Though routine inspection and maintenance go a long way toward keeping equipment running properly, it is still very possible for a lift operator to become stranded or stuck while working aloft! Because of this potential, many

Hispanic workers

Along with a huge growth in the number of Spanish speaking workers in the tree care industry, there has been a large increase in the number of injuries and deaths among the non-English speaking workforce. Manuals, fact sheets, procedural information, warning decals etc. should be provided in Spanish and English. Check with manufacturers for help with Spanish manuals and warning decals. Also, Check with the Tree Care Industry Association about their broad array of Spanish-language training products at www.treecareindustry.org/content/buysell/prodsandsvcs.htm.



Deploying a bucket evacuation system.

Courtesy Buckingham Manufacturing

professional operators believe that a “self-rescue” or “evacuation kit” is as important to emergency preparedness as a well-stocked first aid kit.

Emergency preparedness on the job means being prepared to deal with emergency situations to the best of everyone’s ability. Training, preparation and planning ahead, are all

necessary in order to be ready to handle the unexpected. Safety is everyone’s responsibility.

Managing fall hazards

Professional tree climbers wear a climbing saddle that is designed to protect them in two very specific ways. The lower part

of the saddle is designed to suspend the climber with an arborist climbing line when sitting (*Suspension System*). The upper part or waist belt typically has two or more D-rings for use with a work-positioning lanyard similar to a lineman’s belt (*Work-Positioning System*).

Some professional lift operators wear a full-body harness with a dorsal attachment and a shock-absorbing lanyard that is connected to the upper boom and designed to bring a person to a gradual stop should they fall or be launched from the bucket or platform (*Fall-Arrest System*). An operator may wear a body belt and connect to the upper boom with a very short lanyard designed to prevent the operator from being able to fall from the bucket or platform at all (*Fall-Restraint System*).

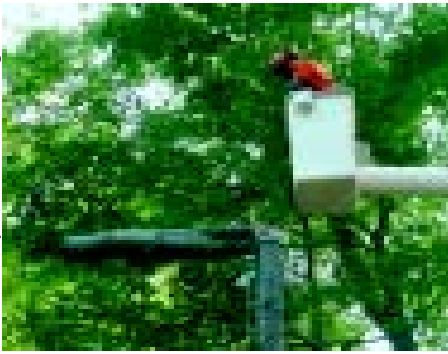
All four forms of *fall protection* must be used correctly in order to function properly and each will have advantages and disadvantages. Though the fall-restraint system is relatively simple and inexpensive, it will restrict body movement when working. However, if we were to lengthen the lanyard it would no longer be able to prevent a fall from occurring. Even with a shock-absorbing lanyard, a fall in a body belt could be catastrophic. This is why a *fall-arrest system* is often preferred.

Each system is designed to function in a very specific way and must be inspected daily and used properly!

Pruning, rigging and removal

Pruning a large tree from an aerial device may require multiple set-ups in order to do the job properly. In some cases, pruning without climbing is really not practical. There are also times when the lift cannot get close enough to the tree to be used at all, or the lift cannot reach high enough to remove the top of a tree safely or far enough to rig a large limb safely. As with all things, aerial lifts have their limitations.

However, since the operator is not attached to the tree, risks can be mitigated and productivity increased in many situations. It is important to remember that



Rigging down wood.

the trees and rigging equipment are still impacted by the decisions and actions of the tree worker. The whole tree or parts of a tree can still fail if the operator cuts a piece that is too big. The equipment can fail if it is pushed beyond its limits or if the rigging line is not allowed to run in order to decelerate the load and minimize the forces. Every time we overload rigging equipment, residual strength can be significantly reduced!

Until ten or 12 years ago, arborists utilized natural crotches for rigging points almost exclusively. Though this method has worked for many years and requires only basic equipment, it must be done properly. It also has its limitations. We have fewer choices of rigging points, which not only limits the workflow, it can also force us to cut a bigger piece than we want. In many ways, arborist rigging blocks (heavy rigging pulleys) can make rigging operations safer, easier and more efficient.

The use of friction points that are attached to the lift truck are very tempting to many people. There are at least two problems with this technique:

1. Because the rigging line is run away at an angle over to the truck, a bending moment (or sideways pulling force) can be added to the tree. In some situations, this could cause the tree to fail during the rigging operation.

2. If a large enough branch or piece of wood is dumped into the rigging line, it could move the whole truck. Not a good idea – especially if the aerial lift is attached to the truck!

There are a number of friction devices that can be attached easily to the

base of a tree, eliminating the hazards above yet adding superior control and performance.

It's always important to have a "boom position strategy." In other words, have a plan to keep the booms clear of rigging/removal operations. When in doubt stop, think again, move the booms or move the truck!

In most situations it's best to have the

lift truck as level as possible for stability of the whole unit, as well as to manage stresses to rotation gears, turret and booms.

Outriggers must be firmly planted on solid ground with appropriate outrigger pads to spread the load when necessary.

When safer more efficient methods and skills are developed and adhered to, incredible results can be achieved.

Training and professional development

In the tree care industry the arborist/lift operator must have a good working knowledge of trees and tree care or removal operations. Training must be an ongoing process in order to succeed.

Opportunities for professional development can yield huge results in employee development and retention. Most professional arborists want to help your company to grow, and they need opportunities to grow with the vision of a prosperous future.

Sometimes we have to step off of the treadmill hustle and bustle to see the big picture. If we truly want to attract and keep responsible, productive people – and gain the respect of the general public for the truly important and valuable work that we



Rigging for Removal class.



Emergency Preparedness Training.

do – then it's up to each of us to develop and build our industry and our respective companies from the ground up.

See you at the top!

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