

Saskatchewan Parks and Recreation Association Inc.

Aerial Pruning Handbook





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Introduction and Disclaimer of Liability for Use of the Document

This Parks and Open Space Management Handbook, provides a description of procedures associated with maintenance activities performed within park settings.

The concept of maintenance standards requires the application of best practices within the local operation system. To assist with the establishment of such standards, this resource provides guidelines to aid staff in addressing their daily management operations. There are, however, situations where the standards outlined may require revision by those staff implementing the procedure, to best meet their needs. Specific site conditions, operating budgets, available human resources, and capacity to offer training associated with the practices outlined in this document may warrant alterations to the procedures.

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Aerial Pruning Introduction



Today we were pruning on a residential street where the canopies of the trees overlapped each other. I had my work cut out for me; these trees were in need of a good pruning!

I had pruned before on the ground crew but I didn't realize how different your perception is when you are stuck in the middle of the trees 20 feet or so in the air.

"How am I doing?" I called down to Kelly. Kelly began to circle the bottom of the tree, "Looks great from down here." Previous experience has taught that it's better to ask a crewmember that's on the ground if you are unsure about a particular branch. After all, if I make a mistake I can't just glue the branch back on and pretend it didn't happen.

As I was lowering my bucket so that I could position myself on the other side of the tree, I could see a lady that had wanted to turn down the street but couldn't because we had blocked it off. I could tell that she was frustrated. People just don't realize the dangers. They see me up here in the bucket and that's where they think the activity is; they don't seem to give much thought to the falling branches and limbs.



Once I finally got myself positioned on the other side of the tree I called down to Kelly, "Is it all clear down there?" Kelly was busy gathering and piling the branches. He stopped what he was doing and I could see him looking around in all directions. "It's clear down here," he shouted. I knew that once I was done this tree we would have to move the truck again. I looked back at the few trees that I had already pruned and was happy with the results. Next spring they would fill in nicely.









Aerial Pruning Overview

There are a number of different reasons for pruning the trees on streets and in parks and open spaces. Aerial pruning crews should prune for; safety reasons, health reasons, aesthetics and structural integrity.



Aerial pruning crews remove branches that could fall and cause injury or property damage, trim branches that interfere with lines of sight on streets or driveways, as well as removing branches that could grow into utility lines. When the crews are pruning for health reasons they remove diseased or insect-infested wood, thin the crown to

increase airflow, light penetration and reduce some pest problems, as well as remove crossing, rubbing and deadwood branches. Don't forget about our famous "Saskatchewan Winds", healthy trees develop a strong structure and that reduces the likelihood of damage during severe weather.

Aerial pruning crews are equipped with an assortment of tools as well as hydraulic saws and chainsaws. The equipment used varies depending on the circumstances and the size of the branch. The bulk of the pruning will be done with the hydraulic saw and the chainsaw so today you will learn about safety, running equipment, and the different cutting methods.

While you are pruning you should always keep an eye out for tree guards, wires or stakes that need to be removed or repaired, or bolts and cables in the tree, rodent damage or signs of disease. If you see that the health of the tree is being compromised for whatever reason, report it to your supervisor.

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Why We Prune

You have already learned the main reasons why you prune trees on our streets and in our parks and open spaces while being a part of the ground pruning crew. Let's look at them one more time.

Reducing Risk Of Failure:

Regular structural pruning can reduce risks to the tree's longevity by creating a structurally sound truck and branch system.

Provide Clearance:

Growth can be directed away from objects such as buildings, streetlights or power lines by reducing or removing branches on that particular side of the tree. Trees can also impede pedestrian and vehicular traffic.

Reduce Shade and Wind Resistance:

Grass, ground covers and smaller trees can get more sunlight when foliage is removed from the crowns of larger trees around them. The tree's resistance to wind can also be reduced with pruning.

Maintain Health:

The tree's health can be maintained by cleaning the crown area. Regular removal of dead, diseased and rubbing branches in the crowns will extend the life of any tree.

Improve Aesthetics:

A view can be enhanced or created by removing branches at the edge of the crown, at the top of the tree or on the lower side of the crown.

Disease Control:

Removal of infected branches to reduce or eliminate the spread of a disease.













When To Prune

The best time to prune deciduous trees is in the dormant season or following a growth flush after leaves harden and turn dark green in the summer. Light pruning (removing less than 10% of the foliage) can be performed at anytime.

If pruning in the summer, limit this to removal of dead wood, broken branches, diseased branches or rejuvenating plants. Pruning at this time allows the trees and



shrubs to begin healing early in their growth cycle.

Maple, Poplars, Willows and Birch trees are the exceptions to the early spring pruning rule. If these kinds of trees are pruned in the early spring they will leak high amounts of sap. The best time to prune them is in the mid to late summer. In addition, due to Provincial Regulations you are not allowed to prune Elm trees between the dates of April 1 – August 31. Many communities trim the elms over the winter months.



You can remove dead (excluding Elms during the ban), diseased or broken branches from trees at any time. In fact, if the tree is diseased, the sooner the better. This will stop it from spreading to neighbouring trees and shrubs. If the branch is diseased remember to disinfect your pruning tool or saw blade with methyl hydrate after every cut you make.









Pruning Methods

There are different reasons for pruning depending on the circumstances. Let's go over them now so you have a better idea for when you actually start pruning.

Pruning for Structure

Structural pruning is when you remove live branches to manipulate the orientation, spacing, growth rate, strength and size of branches and stems. Structural pruning is most effective on young to medium aged trees to help build a strong trunk and branch system. Waiting until the tree grows larger makes structural pruning much more difficult. Pruning to a single leader is done when the tree is small.



Pruning to Clean

When you are pruning to clean you are removing dead, diseased, detached and broken branches. This is done to reduce the risk of branches falling from the tree and to reduce the progress of decay, insects, and disease from dead or dying branches into the rest of the tree.

Pruning to Thin

When you are pruning to thin a tree out, you are removing smaller live branches to reduce the crown density. The majority of small branches are at the outside edge of the crown so typically thinning is focused in those areas. This method helps keep the crown's shape and provides an even distribution of foliage throughout the crown. Thinning also increases penetration from the sunlight and air movement throughout the crown. This helps to maintain that interior foliage of the tree.









Pruning to Raise

Pruning to raise is when you remove branches by shortening them to provide clearance for buildings, signs, vehicles and pedestrians. When you shorten a branch there is less weight to pull it down so there is less chance of it becoming an obstruction. As a rule, we prune branches so they are about 2.5 meters over walkways and 6 meters over streets.

Pruning to Reduce

When you are pruning to reduce, you are doing just that. You will remove branches and stems to decrease the height and/or spread of a tree. This method is done to reduce the risk of failure, to reduce size, to clear away from structures and to improve the general appearance of the tree.

Pruning to Restore

When you are pruning to restore you are removing branches, sprouts and stubs from trees and shrubs that have been topped, severely headed, vandalized, broken in a storm or otherwise damaged. This method is done to improve a tree's structure, form and appearance.









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Safety Gear

From your past experience you know the importance of wearing the correct clothing and safety equipment. You recall the standard safety gear used by Parks and Open Space Management workers.











Site Safety

You will arrive at your location and the first thing that you need to do is assess what is about to become your work area. There are a number of things that need to be taken into consideration. To ensure both personal and public safety, look for any obstructions such as, power lines, homes, vehicles, fences, landscaping items, other trees, people, pets – anything that could be hurt or damaged by the falling branches and limbs.

In some instances things can be moved out of the way. If residents are home, they may not mind moving their vehicles for the time being. Of course, some things cannot be moved, like the roof of a house, fences or other nearby trees. In those instances, you and your other crew member can brainstorm to arrive at the best possible way to deal with the obstruction. Once you have come up with a "plan of attack", put it into action.





Remember if you are on a busy roadway, you need to set out pylons or block the street off while you're pruning. Because you are moving as you prune it is sometimes difficult to set these barricades up, so check with your supervisor and get suggestions on what to do. You may want to make arrangements for the sign truck to meet you at your location. On occasion your supervisor may follow and park across the street

that you are pruning on so that traffic is unable to enter. When you are done pruning one street they will follow you to the next. The procedure for this varies depending on the area that is being pruned.









Safety When Using the Saws

Sometimes when we get "comfortable" with the equipment we have a tendency to not give what we are doing our full attention; maybe you find some of your own shortcuts and so on. If you do that while you are using the chainsaw or the hydraulic saw, someone is going to get hurt, or something is going to be damaged. When you are using this equipment you need to be focused and alert.

- ✓ ALWAYS wear the proper safety gear.
- You always cut while in a standing position. Never move your feet while cutting and be sure of your footing.
- ✓ Be aware of your surroundings and move anything from the area that could cause you to trip or lose your balance.
- ✓ When walking with the saws, either have the chain brake on or shut the motor off.



- ✓ When you are transporting the saws, make sure you put on the scabbard. Not only is this a safety requirement, it will save wear and tear on the blades.
- ✓ NEVER let the tip or top of the saws touch anything. This will cause the saw to kickback, which could result in serious injury.
- ✓ NEVER cut towards yourself with the top of the blade.
- ✓ Make sure that the wood you are cutting cannot move.
- \checkmark If the blade binds in the wood during the cut, shut the saw off before freeing it.
- ✓ When you are making a cut, always consider ahead of time where you want the limb to fall.



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Circle Checks

Before leaving the depot for your day of tree pruning, you perform a circle check on all your equipment. Many communities use a daily log book for any vehicle that you "ride in" or "ride on". Before leaving the depot at the beginning of your shift you are required to complete the circle check provided in the Operators Daily Log book.

Remember to check to make sure you have: safety vests, warning signs, barricades or pylons required to meet the safety standards when working on or near roadways.



Saws









Saw Maintenance Check

From your experience you understand the importance of maintaining equipment. While performing your maintenance checks on specific pieces of equipment, if you find that a piece of equipment is damaged or in need of regular maintenance, let your supervisor know so it can be booked in for maintenance.











Procedure for Starting the Chainsaw

First, remember to always check your chain for the proper tension and the sharpness of the blade.

- 1. Make sure that your hand guard is pushed forward and that the chain is locked.
- Now press your throttle trigger down and set your Master Control lever to either the Cold Start or Warm Start position depending on the temperature.



Normally, the chainsaw would not be in the bucket while you are removing the limbs and branches for there really isn't any sufficient room for it. If you are in the bucket and you are going to need the chainsaw for some of your cuts, the crew member on the ground will start/warm it up for you. You will lower your bucket and your crew member will shut off the chainsaw and hand it to you. You can then maneuver your bucket back into a working position. You will hold the chainsaw outside of the bucket, approximately waist height. Make sure you have a rope for your chainsaw so you don't drop it. Also ensure the hand guard is pushed forward and the chain is locked, then you can proceed to the next step.



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Procedure for Starting the Chainsaw Continued....

- 3. Pull the starter grip slowly until you feel it engage, and then give it a brisk strong pull. Don't let the starter grip snap back against the housing. Instead, slowly guide it back.
- 4. When the engine begins to fire, depress the Throttle Trigger. You will notice that the Master Control lever will jump by itself to the Engine Running position and the engine will settle down to idling speed.





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5. Now you have the chainsaw running, but remember that your hand guard is still in the locked position. To unlock your hand guard pull it back towards the top handle. Now you are ready to begin making your cuts. You have already taken the time to assess the tree and you know exactly where you are going to begin.

If the motor doesn't start, here are some things that you can try:

- Remove the fuel cap and let some air into the fuel tank and then pull on the starter grip again.
- If the fuel tank has been run dry and then refueled, you may have to pull the starter • grip several times until the fuel line is primed.







Chainsaw Handling Tips

- ✓ Use two hands on the saw at all times and make sure to wear certified chainsaw gloves or mitts.
- ✓ Never operate a chainsaw above shoulder height.



- Use your left hand on the front handle with your thumb wrapped around the grip, just like you would grip the handle bar on your bike.
- ✓ Keep your left hand straight with your elbow locked and your wrist straight.
- For added stability, when you are performing your cuts try to brace yourself. You
 may brace the saw against the tree trunk or maybe your right thigh. It would all
 depend on the type of cut you were making.
- ✓ Always start cuts using the full power setting.
- Regular maintenance will increase the performance of your equipment. Make sure your chain is sharpened as required and remember to always adjust the tension when needed.

Remember:

- Stay in control of the chainsaw at all times. At full throttle, the chain speed can reach 45 mph. so imagine what it could do to your flesh.
- ✓ NEVER attempt any maintenance or repair work without the saw being shut off first.
- NEVER touch a chain with your hand or any part of your body even when the engine is not running.



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Procedure for Aerial Lift Trucks

The first thing that you need to do when you will arrive at your location is assess what is about to become your work area. There are a number of things that need to be taken into consideration. Look for any obstructions such as, power lines, homes, vehicles, fences, landscaping items, other trees, people, pets – anything that could be hurt or damaged by the falling branches and limbs. In some instances things can be

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moved out of the way, if residents are home, most often they don't mind moving their vehicles for the time being.

And of course, some things cannot be moved, like the roof of a house, fences or other nearby trees. In those instances, you and your other crew member can brainstorm to arrive at the best possible way to deal with the obstruction. Remember to give consideration on what would be the best way to move the truck in. If you are on a busy roadway, you may want to block the street off while you remove the tree.

- Once you have come up with a "plan of attack", put it into action. Move the truck to the agreed spot. Once it is parked, set the truck hand brake securely as well as the auxiliary brake lock device.
- 2. Now the truck can be put in neutral, then you flip on the emergency brake and flashers. Don't forget to turn on the amber light beacon.







 The hydraulic system for the boom needs to be purged, which means you need to remove any air that may be in the hydraulic lines. You do this by engaging the PTO switch. (Some trucks need to idle which takes about 5 minutes, other trucks automatically do it.)



You will not have to worry about these next steps if you are using the truck that idles automatically. However, if you are using the truck that needs to be manually idled you will do the following:



This button needs to be flipped up before you begin purging the lines and then flipped down once the lines are purged.









4. Next, you lower the outriggers. Make sure that you start with the curb side first and continue around the truck until you have done all four. The outriggers do not necessarily need to be extended the same length, they key here is to make sure that the truck is level. If the outrigger is sitting on something that is soft, the soil in a tree bed, grass, etc., you need to put plywood pieces under the foot of the outrigger. This will add stability as well to prevent damage to the ground.



The controls for the outriggers are on both the driver's side and the passenger side of the truck.

They control both the front and back outriggers for each side of the truck.













- Now, between you and your partner, you can decide who will be going up in the bucket.
 Remember: if crew members are using the chainsaw, they must wear the special chainsaw chaps and the chainsaw gloves for added protection.
- 6. The crew member going up in the bucket will put on all of his safety equipment first, then undo the straps on the booms and flip down the mirror guards. Once this is done, one can prepare to get into the bucket. Make sure that you clip the lanyard to your safety harness. The lanyard is the safety strap that goes from the bucket to the harness you must wear. Just think of it as the strap that prevents you from "landing in the yard".













- 7. Once you are safely in the bucket, you want to get yourself into a comfortable working position and have the saw just resting on the wall of the bucket. Be careful of your footing, especially if the metal is wet from rain, or early morning dew; it can become quite slippery.
- 8. Now the person in the bucket will raise it using the controls located on its outside. You will raise the upper boom out of the cradle first, then the bottom boom. These are the same control valves that you will use to maneuver yourself to the left or the right when you are positioning yourself to begin cutting. Just remember to check with your crew member on the ground to make sure it's safe to start cutting.
- Meanwhile, to ensure everyone's safety the other crew member can be setting pylons out to block off your work area.



This lever controls the upper and lower boom. You will use this lever to maneuver your bucket up and down as well as from side to side.

There, now you are all set and ready to begin removing the tree.









Hydraulic Saw

The hydraulic saw is really no different from the power pole pruner you used when you were on the ground pruning crew. It runs off the hydraulics from the truck instead of gas. Your technique will be the same. The hoses will already be attached to the hydraulic saw. Move your Tool Lever to the ON position and then you will squeeze the trigger on the hydraulic saw and begin cutting.



This lever will turn on & turn off the air to your hydraulic lines for your saw operation.



This is the emergency pump. If you are having trouble with your hydraulic lines while you are in the bucket you would use this joystick to try and restore the air in the lines.









Hydraulic Saw Handling Tips

- ✓ Use two hands on the saw at all times.
- ✓ Start cuts using full power.
- Regular maintenance will increase the performance of your equipment. Make sure your chain is sharpened as required and adjust the tension when needed.



Remember:

- ✓ Stay in control of the saw at all times.
- ✓ NEVER attempt any maintenance or repair work without the saw being shut off first.
- NEVER touch a chain with your hand or any part of your body even when the engine is not running.







Pruning Procedures

This first thing you must do is visually inspect the tree, taking note of what needs to be pruned. For example, you will want to remove all dead wood, low overhanging limbs, inter-twining branches, rubbing branches and any broken limbs; you also want to develop a single leader.



Survey your work area taking into account the tree's

location. There may be obstacles, or should we say obstructions, that you are going to have to watch for. Some of those obstructions can be things like; other trees, fences, hedges, yard furniture, eaves troughs, roofs of homes and vehicles.

You will begin by pruning the lower limbs first and then working your way upward. It is important that you get the proper angle of cut and to leave a slight collar, which will help the tree to heal the wound quicker.

When you are pruning, with each cut you should follow the branch or limb with your eyes to the ground. Before making your next cut, have a look around the work area on the ground just to make sure that the general public, animals, etc. have not wandered into your work area. When these branches and limbs are falling to the ground they can sometimes bounce 2 or 3 times so keep that in mind. And please, watch out for your own vehicle. Consider where you want the branch to fall and make your cut accordingly. You will develop a knack for cutting the branch or limb and guiding it with the saw in the direction that you want it to go.

As you are making these cuts you must also be aware of the size of your cuts. Remember these branches and limbs have to be able to go through the chipper machine. As well, you may have to undercut the limb before you make your cut so that the weight of the limb doesn't tear the bark down the tree.









Pruning Procedures Continued....

Often, when you are cutting these branches down you will be trying to avoid one or more of those obstructions that we mentioned earlier. So you will want to "swing" the branch so that it falls in an alternate location. To "swing" a branch you cut through the limb until it starts to fall. As it is falling you complete the cut at the time you know it will fall in the alternative spot that you have chosen. There is a real knack to doing this and through experience you will acquire it. Large limbs that could damage property when they are cut will need to be lowered by rope.

Now let's take a more in-depth look at the two main cuts that you will be using.

Removal Cut

When you are removing larger limbs, be sure to use this procedure. Remember to leave a branch collar. Don't flush cut the tree.

Proper Cut:

At the base of every branch is a collar that contains a chemical zone which prevents the spread of decay to the trunk.

Make the cut just outside the branch bark collar (the swollen area where the branch meets the trunk). The branch bark collar contains chemicals that speed the formation of callus tissue that seals the wound.

When decay develops in a branch, it moves down the branch until it reaches the protective chemical zone. Once there, it stops and a callus forms after the branch is removed.

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Pruning Procedures Continued....

Improper Cut:

Don't cut too close to the trunk. This makes the surface area of the cut too large and will take longer to heal. As well, if you cut too close you will penetrate the inside of the bark on the tree trunk which in turn will delay the sealing of the wound and cause unnecessary stress to the tree.



And, while it's important not to cut too close to the trunk, you don't want to cut too far away from the trunk either. This will leave an ugly stub, which can cause decay back into a larger branch or stem and rot or decay can set in. It also can give insects or disease an entry point. The wound cannot seal until the stub is removed.

Here are the basic steps to follow for cutting on a large branch with a saw.

- 1. Make a shallow cut on the underside of the branch, about 4" or 5" from the trunk.
- 2. You can top side When the the initial peeling



cut the branch off starting on the about 2" to 3" from the initial cut.

cut keeps the bark from

weight of the unsupported branch causes it to fall,





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down the side of the trunk.

3. Now you can make your final cut

and remove the remaining







stub. Make this cut just outside the branch bark collar, the slightly swollen area where the branch and trunk are joined together.

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Heading Cut

This cut is made anywhere on a twig, between two nodes, or on branches or limbs. By using this cut to prune the trees you are encouraging growth below the cut and the result will be a fuller tree.

Proper Cut:

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To make a proper cut, make the cut about 1/4" above a bud. You choose a bud facing the direction you wish the new growth to follow, and angle the cut in the same direction.

Improper Cut:

When cutting back stems, you avoid making the cut halfway between buds. This leaves a long portion of the stem to wither and die which is unsightly and invites insects and disease.

Before Pruning



After Pruning



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Safety First!

If crew members are using the chainsaw, they must wear the special chainsaw chaps and the chainsaw gloves for added protection.







Sharpening the Blades

Trying to cut branches with a dull chain isn't fun. A dull blade will reduce power and cutting speed, you will burn more fuel and it will result in extra wear and tear on the equipment, not to mention how it will play you out. A properly sharpened chain will feed itself into a cut when only slight pressure is applied. If a chain has to be forced into a cut, the cutters are either damaged or too dull.



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The individual teeth on the chainsaw are referred to as "cutters". You will have to sharpen each of these cutters on the right side as well as the left side. Start with one side first and then when you are completely done you can do it all over again from the opposite side. It doesn't matter which side you start on, just that you can only do one side at a time.

You can tell if your chain is dull because your saw blade will be throwing sawdust; a sharp blade will throw coarse chips of wood. It is a good idea to get in the habit of sharpening your blade frequently. Try to remove as little of the chain as possible each time, unless of course the blade is badly damaged.

- Before you start sharpening, it is a good idea to take a look at the cutters and start with the one that is the worst, that way you will know how much you have to file off the others to keep them even. If the cutters are uneven, the chain will run roughly and it can cause the chain to break.
- 2. Put the guide bar of the saw in a vice. This will help to hold the machine in place while you sharpen the cutters. Now, make sure to push the hand guard forward to lock the chain.







Sharpening the Blades Continued....

- 3. To rotate the chain, pull the hand guard against the handle.
- 4. It is important to use the correct file size. To do that you will need to determine the chain pitch as shown here. The chain pitch on this cutter is 3/8". The chain pitch is marked on the depth gauge end of each cutter.



5. Be sure to use a round file and always direct your stroke at the proper angle and from the inside of the cutter to the outside. Make sure you apply light pressure and only sharpen on your forward stroke – your backward stroke should not come in contact with the cutter at all. If it does you just undid what you did. Normally it would take 3 or 4 strokes to sharpen one side of the cutter.

It is human nature to file heavier on one side than the other.

It depends on whether you are right-handed or left-handed.

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File the cutter sides the same number of strokes and with the same amount of pressure.

- 6. Every once and awhile you will have to tap the file gently on a hard surface in order to clean out the small metal filings.
- 7. Once you have finished sharpening both sides of the cutters, you will check the depth gauge clearance using a Filing Gauge.







Depth Gauge Clearance

The depth gauge clearance on cutters will control the "bite" of the chain into the wood of the tree. We have shown you the proper clearance here. If the cutters have been filed back so far that the clearance is noticeably reduced you can restore the clearance by filing depth gauges.

1. You will learn that it's best to use a flat file and a depth gauge jointer to lower all the gauges evenly. The depth gauge jointer fits on top of your chain and allows you to file one cutter at a time. This may sound like a slow process, but the depth gauge will also stop you from accidentally filing the adjoining link with the edge of the file.





2. Now you want to try and restore the original shape of the cutter by using the file to round off the front of it.



Top of the cutter is filed flat and the front half is rounded off.



Top of the cutter is filed flat and the front half is not rounded off.



Top of the cutter is filed flat and the front half is at too much of an angle.









Chain Tension

It is imperative that the chains on these saws are set to the proper tension. If it's not, you could risk injuring yourself and others when the chain comes flying off!

Checking Chain Tension

First, you will shut down the engine. While the chain should fit snugly against the underside of the guide bar you should still be able to rotate it with your hand.

Setting Chain Tension

- 1. Again, the first thing that you will do is shut down the engine.
- 2. Then you loosen the nut on the front of your saw. Now it is not necessary to remove the nut. This nut holds the guide bar secure and by just loosening it you are allowing for some movement in the guide bar.
- 3. Now hold the bar nose-up and using a screwdriver, turn the tensioning screw clockwise until the chain is fitting snugly against the underside of the guide bar.



Once the tension in the chain is set, you can tighten down the nut so that it's snug.
 If you over tighten this nut you will end up stripping it.







Cleaning Up the Site

You will have quite a pile of branches when you are finished pruning a tree. You may not think so when you are standing under one and looking up at it, but once you start pruning it, well let's just say that there are a lot of pieces. Cleanup is ongoing so as to reduce the chance of tripping on a branch while you are pruning.



Wait until your partner is done cutting before you begin the clean up. You have your hard hat on but if a falling limb hits you, it's going to hurt.

- The first step in beginning the clean up is to pile the branches on top of one another. When you are piling the branches it is important to have the cut end of the branches all at the same end.
- 2. While one crew member is gathering and piling up the branches, the other crew member can be gathering the limbs and logs and putting them into a separate pile nearby.







Cleaning Up the Site Continued....

Two things to keep in mind when gathering and piling the branches and limbs:

- Do **not** pile the branches to a ridiculous height. Pile them to between waist and shoulder height is perfect.
- Make sure that the limbs/logs that you have removed from the tree are of a manageable size, and put them in their own pile. If they aren't manageable, use the chainsaw to cut them again. It really doesn't take you any longer and it makes things go much more quickly for the chipper crew.
- 3. After you have piled the branches and limbs, you then use your rake and shovel to gather the miscellaneous smaller branches and twigs. The chipper crew will collect all of this.



4. Now you are all done! It's a good idea to take one last look around to make sure that all the tools have been put back on the truck. If you happen to be working on a site that required the barricading of a road, remember to collect the signage, barricades or pylons that you used.







At the End of Day

It was nearing the end of our shift and we had just finished cleaning up the street and were getting ready to head back to the shop. We had certainly done a full day of pruning. I looked back down the street we had just pruned. You could see a big difference. It was a bright sunny day and the amount of sunlight that was filtering through the trees now had doubled. Residents on this street were going to notice the difference when they were in their front yards. I felt like I had just given the street a facelift.









Aerial Pruning – Job Aid Safety Gear and Site Safety

From your past experience you know the importance of wearing the correct clothing and safety equipment. You recall the standard safety gear used by Parks and Open Space Management workers'.



Site Safety

- You will arrive at your location and the first thing that you need to do is assess what is about to become your work area.
- Look for any obstructions such as power lines, homes, vehicles, fences, landscaping items, other trees, people, pets anything that could be hurt or damaged by the falling branches and limbs.
- Some things cannot be moved like the roof of a house, fences or other trees nearby. In those instances, you and your other crew members can brainstorm to arrive at the best possible way to deal with the obstruction.
- If you are on a busy roadway, you need to set out pylons or block the street off while you're pruning.
- Crews are not to do any pruning within 5 meters of power lines.





Aerial Pruning – Job Aid Safety When Using the Saws

When you are using this equipment, whether you are pruning or performing maintenance, you need to be focused and alert.

- Always wear the proper safety gear.
- You always cut while in a standing position. Never move your feet while cutting be sure of your footing.
- Be aware of your surroundings and move anything from the area that could cause you to trip or lose your balance.
- When walking with the saws, either have the chain brake on or shut the motor off.
- When you are transporting the saws, make sure you put on the scabbard. Not only is this a safety requirement, it will save wear and tear on the blades.



- **Never** let the tip or top of the saws touch anything. This will cause the saw to kickback, which could result in serious injury.
- Never cut towards yourself with the top of the blade.
- Make sure that the wood you are cutting cannot move.
- If the blade binds in the wood during the cut, shut the saw off before freeing it.
- When you are making a cut, always consider ahead of time where you want the limb to fall.





Aerial Pruning – Job Aid Circle Check

Trucks

Before leaving the depot for your day of tree pruning, you perform a circle check on all your equipment. Your department may use a daily log book for any vehicle that you "ride in" or "ride on". Before leaving the depot at the beginning of your shift you are required to complete the circle check provided in the Operators Daily Log book.

Remember to check to make sure you have; safety vests, warning signs, barricades or pylons required to meet the safety standards when working on or near roadways.

Saws









Aerial Pruning – Job Aid Saw Maintenance Check

From your experience you understand the importance of maintaining the equipment used in maintaining parks and open spaces. When performing your maintenance checks on specific pieces of equipment, if you find that a piece of equipment is damaged or in need of regular maintenance, let your supervisor know so it can be booked in for maintenance.









Aerial Pruning – Job Aid Procedure for Aerial Lift Trucks

- 1. Once you have come up with a "plan of attack", put it into action. Move the truck to the agreed spot. Once it is parked, set the truck hand brake securely as well as the auxiliary brake lock device.
- 2. Now the truck can be put in neutral, then you flip on the emergency brake and flashers. Don't forget to turn on the amber light beacon.
- The hydraulic system for the boom needs to be purged, which means you need to remove any air that may be in the hydraulic lines. You do this by engaging the PTO switch. (Some trucks need to idle which takes about 5 minutes, other trucks automatically do it.)



The truck that idles up automatically looks like this one.

You will not have to worry about these next steps if you are using the truck that idles automatically. However, if you are using the truck that needs to be manually idled you will do the following:

Press to begin purging the lines

These three buttons control the boom and the bucket from ground level.

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This button needs to be flipped up before you begin purging the lines and then flipped down once the lines are purged.





Aerial Pruning – Job Aid Procedure for Aerial Lift Trucks



The controls for the outriggers are on both the driver's side and the passenger side of the truck.

They control both the front and back outriggers for each side of the truck.

4. Next, you lower the outriggers. Make sure that you start with the curb side first and continue around the truck until you have done all four. The outriggers do not necessarily need to be extended the same length, they key here is to make sure that the truck is level. If the outrigger is sitting on something that is soft, the soil in a tree bed, grass, etc., you need to put the plywood pieces under the foot of the outrigger. This will add stability as well as help to prevent damage to the ground.



- 5. Now, between the two of you, you can decide who will be going up in the bucket. Remember: if crew members are using the chainsaw, they must wear the special chainsaw chaps and the chainsaw gloves for added protection.
- 6. The crew member going up in the bucket will put on all of his safety equipment first. Then undo the straps on the booms and flip down the mirror guards. Once this is done, you are ready to get into the bucket. Make sure that you clip the lanyard to your safety harness. Let me back up for one moment...a lanyard is the safety strap that goes from the bucket to the harness you must wear. Just think of it as the strap that prevents you from "landing in the yard".







Aerial Pruning – Job Aid Procedure for Aerial Lift Trucks



- 7. Once you are safely in the bucket, you want to get yourself into a comfortable working position and have the saw just resting on the wall of the bucket. Be careful of your footing, especially if the metal is wet from rain, or early morning dew. It can become quite slippery.
- 8. Now the person in the bucket will raise the bucket using the controls on the outside of it. You will raise the upper boom out of the cradle first, then the bottom boom. These are the same control valves that you will use to maneuver yourself to the left or the right when you are positioning yourself to begin cutting. Just remember to check with your crew member on the ground to make sure it's safe to start cutting.



9. Meanwhile, the other crew member can be setting pylons out to block off your work area to ensure everyone's safety.



This lever controls the upper and lower boom. You will use this lever to maneuver your bucket up and down as well as from side to side.



There, now you are all set and ready to begin removing the tree.





Aerial Pruning – Job Aid Removal Cut

When you are removing larger limbs, be sure to use this procedure. Remember to leave a branch collar. Don't flush cut the tree.

A Proper Cut

At the base of every branch is a collar that contains a chemical zone which prevents the spread of decay to the trunk.

Make the cut just outside the branch bark collar (the swollen area where the branch meets the trunk). The branch bark collar contains chemicals that speed the formation of callus tissue that seals the wound.

When decay develops in a branch, it moves down the branch until it reaches the protective chemical zone. Once there, it stops and a callus forms after the branch is removed.



Here are the basic steps to follow when using a removal cut on a large branch, usually with a saw.



- 1. Make a shallow cut on the underside of the branch, about 4" or 5" from the trunk.
- 2. You can cut the branch off starting on the top side about 2" to 3" from the initial cut. When the weight of the unsupported branch causes it to fall, the initial cut keeps the bark from peeling down the side of the trunk.
- 3. Now you can make your final cut and remove the remaining stub. Make this cut just outside the branch bark collar, the slightly swollen area where the branch and trunk are joined together.







This cut is made anywhere on a twig, between two nodes, or on branches or limbs. By using this cut to prune the trees you are encouraging growth below the cut and the result will be a fuller tree.

Proper Cut

To make a proper cut, make the cut about 1/4" above a bud. You choose a bud facing the direction you wish the new growth to follow, and angle the cut in the same direction.





Before Pruning

After Pruning

If crew members are using the chainsaw, they must wear the special chainsaw chaps and the chainsaw gloves for added protection.



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Aerial Pruning – Job Aid Hydraulic Saw

The hydraulic saw is really no different from the power pole pruner you used when you were on the ground pruning crew. It runs off the hydraulics from the truck instead of gas. Your technique will be the same.

The hoses will already be attached to the hydraulic saw. Move your Tool Lever to the ON position and then you will squeeze the trigger on the hydraulic saw and begin cutting.



This lever will turn on & turn off the air to your hydraulic lines for your saw operation.



This is the emergency pump. If you are having trouble with your hydraulic lines while you are in the bucket you would use this joystick to try and restore the air in the lines.





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Aerial Pruning – Job Aid Hydraulic Saw Handling Tips

- Use two hands on the saw at all times.
- Start cuts using full power.
- Regular maintenance will increase the performance of your equipment. Make sure your chain is sharpened as required and adjust the tension when needed.



Remember:

- Stay in control of the saw at all times.
- Never attempt any maintenance or repair work without the saw being shut off first.
- **Never** touch a chain with your hand or any part of your body even when the engine is not running.



