



Parks and Open Space Management

*Saskatchewan Parks and
Recreation Association Inc.*

Tree Removal 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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Tree Removal Introduction



This morning we were heading out to a municipally owned site where we had to remove a couple of mature trees. The pruning crew had brought these particular trees to our attention. Apparently both of them were dead and needed to be removed for safety reasons.

We pulled up to the site and got out of the truck. “Well that’s one of them for sure,” Eddie said pointing toward our first target. “I don’t see the other one yet,” I said as I headed toward a tree and shrub bed near the building. When I arrived at the bed I let out a low whistle, “This is going to be interesting.” I could hear Eddie coming up behind me. He walked around the tree and shrub bed and looked at the dead poplar tree from every angle. The tree was amongst other mature trees, we had to be careful when we were cutting it down as not damage the surrounding trees with our equipment or the falling limbs and branches.

We began to discuss where we would park the truck. I could tell that Eddie didn’t think it was going to be too much of a challenge. That put my mind at ease; he had been doing this for years. “Let’s get the truck backed in here and leveled, then I’ll get ready to go up in the bucket,” Eddie said confidently. I have to admit I was relieved. I had cut down large trees before, but I preferred the ones that had nothing around them. This was my first season on this crew and my confidence was not yet as high as Eddie’s.





Tree Removal Introduction Continued....

Well, from start to finish, the first tree took us all of half an hour to do. Eddie was already moving on to the second tree before I was done cleaning up from the first. I was marvelled by how he made it look so easy. After Eddie removed all the branches and limbs he made a number of snap cuts about every foot down the trunk of the tree. In no time at all the tall poplar had been reduced to a stump.





Tree Removal Overview



Some may think that removing a tree might be a drastic step, but there are circumstances when it is necessary. Removal is essential when a tree is dead or diseased, considered hazardous, causing an obstruction that cannot be corrected through pruning, crowding or causing harm to surrounding trees, or is being replaced for a more desirable specimen.

You will learn that there is more to taking down a tree than hacking away with a saw. Consideration must be given to the structure of the tree, the weight and size of limbs, proximity to adjacent structures and power lines, accessibility for the equipment, and most important, the safety of everyone involved in or around the operation.

The equipment that you will use is dependent on a number of things; it depends on the size of tree, its location and its surroundings. Before beginning to remove a tree you must survey the situation and consider any obstructions that are in your work area. For instance, if you are on a residential street there may be parked cars, fences and items that residents have used to



landscape their yards. If you are in one of our parks there may be other trees in the area that could be damaged in the process i.e. by falling limbs, etc.





Your Day Begins...



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.

Safety Gear	
	Hard Hat - Required <i>(never worn backwards or over another hat)</i>
	Safety Vest - Required <i>(wear on all roadways)</i>
	CSA Approved Safety Boots - Required
	Safety Glasses - Required
	Work Gloves - Required
	Ear Plugs - Recommended
	Overalls - Recommended
	Chainsaw Chaps - Required <i>(when operating the chainsaw)</i>
	Chainsaw Gloves Required <i>(when operating the chainsaw)</i>
	Safety Harness - Required <i>(when in aerial lift bucket)</i>



Site Safety

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 usually 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 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. 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 will 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.

Your crews should *not* to do any pruning within 5 meters of power lines.



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 have found 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, whether you are cutting or performing maintenance, you need to be focused and alert.

- ✓ ALWAYS wear the proper safety gear.
- ✓ 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 lose your balance.
- ✓ When walking with the saws, have the chain brake on or shut the motor off.
- ✓ When you are transporting the saws, make sure you put the scabbard on. 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 cutting, always consider ahead of time where you want the limb to fall.





Circle Checks

Trucks

Before leaving the depot for your day of tree pruning, you should perform a circle check on all your equipment. Most open space management divisions 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.

Check your vehicle for any safety items that you will require throughout the day like barricades, safety vests, safety chaps and the chainsaw gloves as well as any tools.

Saws





Saw Maintenance Check

Understand the importance of maintaining the equipment used by the Parks and Open Space Management Division. While performing your maintenance checks on specific pieces of equipment, if you find that the equipment is damaged or in need of regular maintenance, let your supervisor know about it so it can be booked in for maintenance.

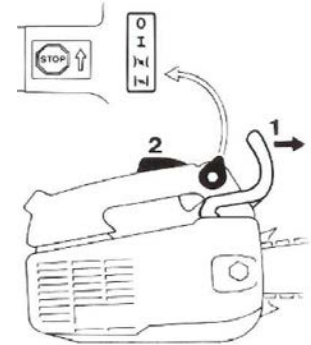




Procedure for Starting the Chainsaw

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.
2. 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.

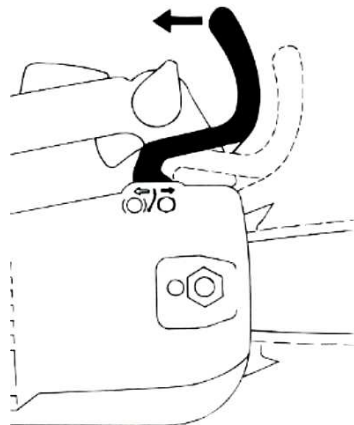
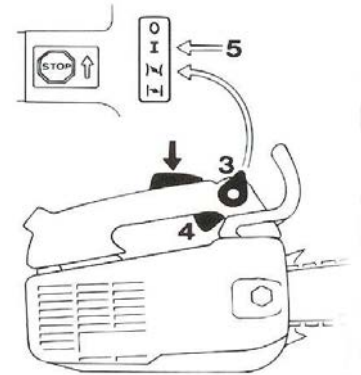


Normally, the chainsaw would not be in the bucket while you are removing the limbs and branches for there really isn't any sufficient room for it. If you are in the bucket and you are going to need the chainsaw for some of your cuts, the crew member on the ground will start/warm it up for you. You will 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.



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.



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.





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 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.

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.



Procedure for Aerial Lift Trucks Continued....

3. 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:



Procedure for Aerial Lift Trucks Continued....

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.





Procedure for Aerial Lift Trucks Continued....



5. 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”.





Procedure for Aerial Lift Trucks Continued....



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.
9. 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.

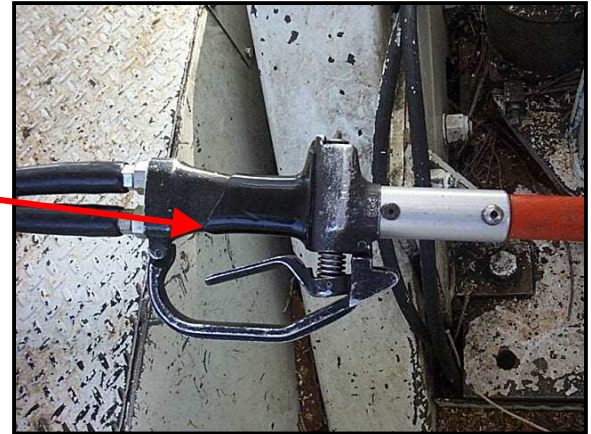
There, now you are all set and ready to begin removing the tree.



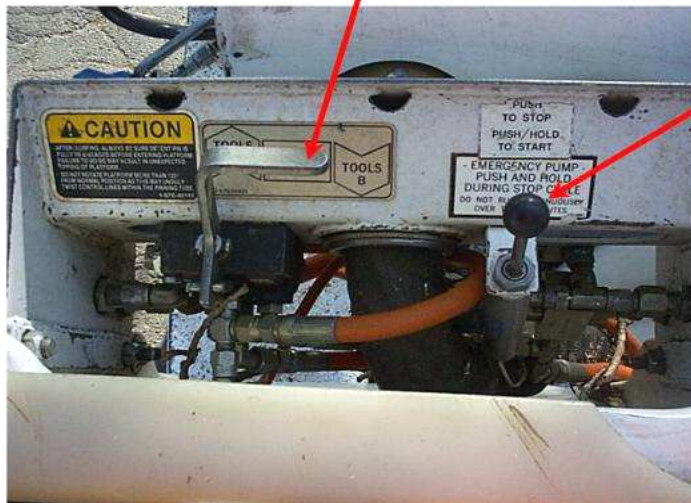
Hydraulic Saw

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.





Procedure for Removing a Tree



As a courtesy to the homeowners and or the general public, municipal owned trees that are scheduled for removal are “posted” a week or so prior to their removal. The posting will be nailed to the tree and it will provide a removal date along with a number that can be called should there be any questions or concerns.

In cases where trees are damaged by weather, high winds and storms and they are creating a danger to the public they are removed immediately – without posting.

At the beginning of your shift your supervisor will give you a list of trees to be removed for the day. When you have arrived at the removal site, the truck is set up and your crew is ready, you can begin cutting down the tree.

Beginning Your Cuts

1. The first thing that you will need to do is remove the branches and limbs. This is referred to as “limbing the tree”. You really don’t have to worry about what sort of cut you make to the branches and limbs, after all – in 15 or 20 minutes it’s not going to matter, right? Instead, 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.



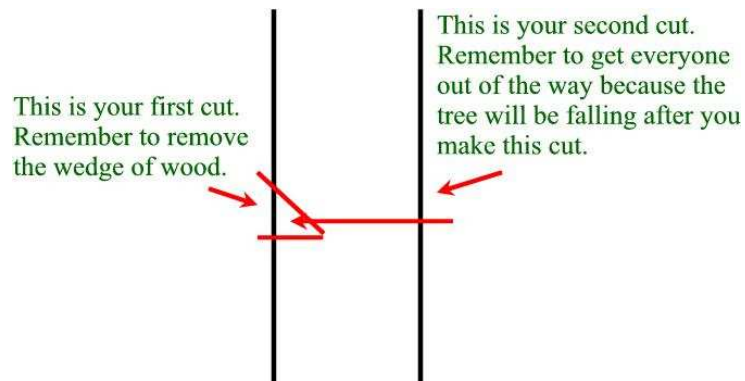


Beginning Your Cuts Continued....

2. Now you are ready to remove the limbs, one at a time. If a limb is large, you will have to cut it in sections beginning towards the end of the limb, working your way toward the trunk of the tree. What size of section you ask? There really is no specific size or length; it depends on the diameter of the trunk. Ultimately, what you want to achieve is a log that is manageable and easy to lift and carry when it is being loaded on the truck. Large limbs that could damage property when they are cut will need to be lowered by rope.
3. For the most part, the hydraulic saw will cut the branches and limbs. From your experience in the ground pruning crew, you have already learned to operate the power pole pruner, the hydraulic saw is no different except that is run by hydraulics instead of gas.
4. Once all the limbs have been removed, it's time for the grand finale. Now this is where it might become a bit dicey. Ask yourself how much room you have and where you want the tree to fall.
5. If you are working in a park like area and you have the extra room, you will be able to cut a notch out of the trunk of the tree about 1 ½' – 2' above ground level. You will need the chainsaw for this. Just like with other saws, you have already gained experience on the chainsaw while you were on the ground crew. You want to cut the notch on the side of the tree that you want it to fall towards. To begin cutting the notch, you will first make a level cut about 1/3 of the way into the trunk. Your next cut will be 4" or 5" above your first cut but you will cut on an angle so that you meet with the end of your first cut. You need to be able to remove the wedge of wood you have created.



Beginning Your Cuts Continued....



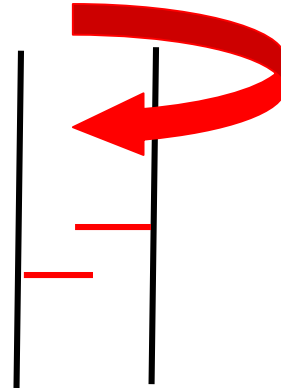
6. Your next cut will be on the opposite side of the trunk, between where you made your first cut and second cut. You will make this cut all the way through the trunk. Crew members around the base of the tree can give the trunk a push if need be and guide it to the ground. Timber! Now you are left with 1 ½' – 2' of tree trunk. Using the chainsaw again, you will cut this 1 or 2 more times, until it is about 1" from ground level.



Beginning Your Cuts Continued....

7. If you are in an area where there are some obstructions and your space is limited, you will have to use “snap cuts” to remove the tree trunk in sections. A snap cut is done by cutting into the trunk to the middle and then making another cut 1” – 2” above the first cut, on the opposite side of the tree trunk, stopping close to the end of the first cut. Set down your saw and if you “hug” the trunk above the cuts, you should be able to “snap” that section of the tree trunk off. You will then drop it safely to the ground. You will repeat this procedure about every 1 ½’ – 2’ down the trunk.

Once you have made these cuts you will “hug & then snap” the tree trunk above where you made the cuts.



8. The remaining stump is cut as close to ground level as possible, without cutting into the ground.



If the logs are too large to handle safely, let your supervisor know and arrangements can be made for a front-end loader to be sent out to help with the clean up. There may be another crew that is following you and grinding out the stumps of the trees that you have removed.



Sharpening the Blades

Trying to cut branches with a dull chain isn't fun. A dull chain will not only 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 - 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.



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.

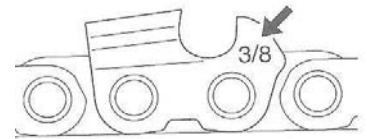




Sharpening the Blades Continued....

To sharpen the blades you will perform the following steps:

1. 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.
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, 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.

Be conscious of this...

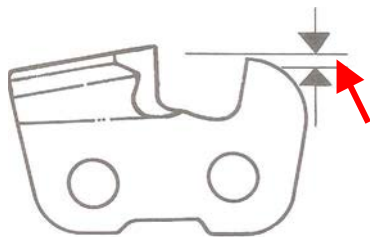
File the cutter sides the same number of strokes and with the same amount of pressure.



Sharpening the Blades Continued....

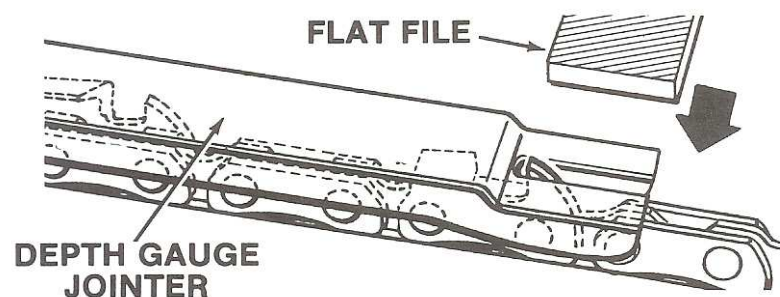
6. Every once and awhile you will have to tap the file gently on a hard surface in order to clean out the small metal filings.
7. Once you have finished sharpening both sides of the cutters you will check the depth gauge clearance using a Filing Gauge.

Checking Depth Gauge Clearance



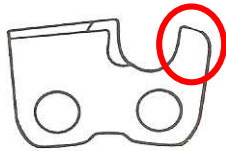
The depth gauge clearance on cutters will control the “bite” of the chain into the wood of the tree. We have shown you the proper clearance here. If the cutters have been filed back so far that the clearance is noticeably reduced you can restore the clearance by filing depth gauges.

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, which 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.

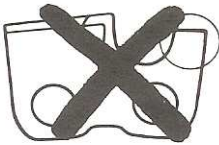


Checking Depth Gauge Clearance Continued....

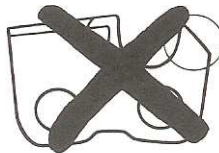
Now you want to try and restore the original shape of the cutter by using the file to round off the front of it.



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

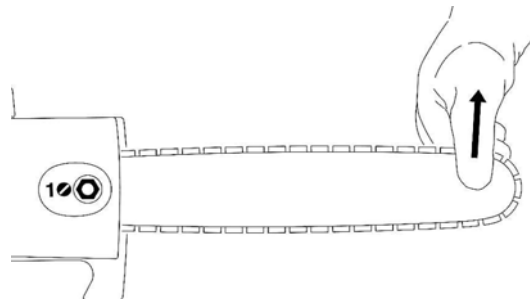
It is imperative that your chain on these saws is set to the proper tension. If it's not, you could risk injuring yourself and others if the chain comes flying off!

Checking Chain Tension

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

Setting Chain Tension

1. Again, the first thing that you will do is shut down the engine.
2. Then you will have to loosen the nut on the front of your saw; you won't have to remove it. 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.



4. 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 to reduce chance of tripping on a branch while you are pruning.

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

1. 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 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, piling them 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, 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 barricading off a road, remember to collect the signage, barricades or pylons that you used.





At the End of the Day

The last tree that we removed today was an elm that had Dutch Elm Disease. The homeowners had arrived home just as the last few snap cuts were being made. They had been notified previously and were aware that the tree would have to be removed. Still, it was sad. They had obviously landscaped their yard around the big elm tree. There weren't going to be anymore lazy, shady afternoons on the front deck.



The unfortunate part to this story is that the elm bark beetles had likely penetrated the trunk of the elm where the homeowners, over time, had caused wounds with the weed whacker.





Tree Removal – Job Aid

Safety Gear and Site Safety

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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.
- 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. Once you have come up with a “plan of attack”, put it into action.
- 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 will 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.
- Crews are not to do any pruning within 5 meters of power lines.



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Tree Removal – Job Aid Circle Check

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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.

Check your vehicle for any safety items that you will require throughout the day like barricades and/or pylons, safety vests, safety chaps and the chainsaw gloves as well as any tools.

Saws

A clipboard with a silver clip at the top, holding a white sheet of paper. The paper has the title 'Circle Check List' in green, underlined text. Below the title is a list of four items, each preceded by a red checkmark in a square box.

Circle Check List

- ☒ Inspect the overall condition of the saw
- ☒ Inspect the chain for tension, damage and sharpness
- ☒ Check fuel level
- ☒ Check chain lubricant





Tree Removal – Job Aid Saw Maintenance Check

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From your experience you understand the importance of maintaining the equipment used in the maintenance of 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.

A graphic of a green clipboard with a yellow clip at the top. A red and white striped ribbon is tied around the top left corner. The text 'Maintenance Check List' is written in a bold, green, sans-serif font. Below the title is a list of six items, each preceded by a red checkmark in a square box.

- ☒ Clean Entire Saw
- ☒ Sharpen Chain
- ☒ Lubricate Sprocket of Power Tip Bars
- ☒ Clean Air Filter
- ☒ Tighten All Accessible Fasteners
- ☒ Clean Oil Openings





Tree Removal – Job Aid Procedure for Aerial Lift Trucks

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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.
3. 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:



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Tree Removal – Job Aid

Procedure for Aerial Lift Trucks

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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.

- 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, the 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.



- 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.
- 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".



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Tree Removal – Job Aid Procedure for Aerial Lift Trucks

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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.



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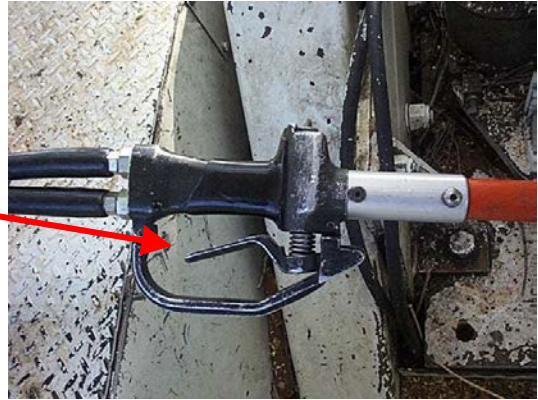


Tree Removal – Job Aid Hydraulic Saw

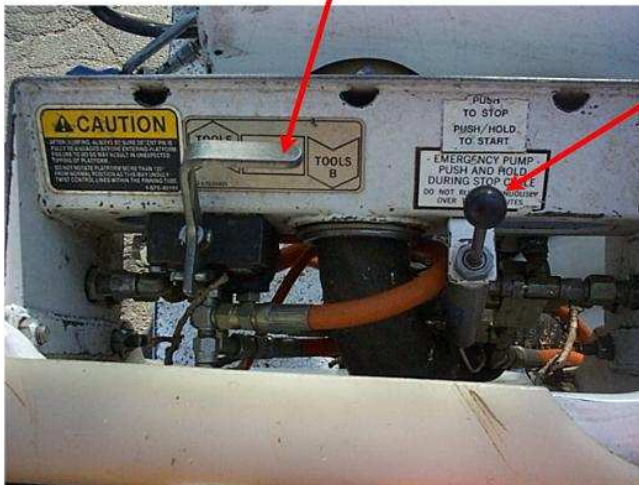
38

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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Tree Removal – Job Aid

Hydraulic Saw Handling Tips

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- 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.



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Tree Removal – Job Aid

Procedure for Removing a Tree

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1. The first thing that you will need to do is remove the branches and limbs. This is referred to as “limbing the tree”. You really don’t have to worry about what sort of cut you make to the branches and limbs, after all – in 15 or 20 minutes it’s not going to matter, right? Instead, 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.



2. Now you are ready to remove the limbs, one at a time. If a limb is large, you will have to cut it in sections beginning towards the end of the limb, working your way toward the trunk of the tree. What size of section you ask? There really is no specific size or length; it depends on the diameter of the trunk. Ultimately, what you want to achieve is a log that is manageable and easy to lift and carry when it is being loaded on the truck by the chipper crew. Large limbs that could damage property when they are cut will need to be lowered by rope.
3. For the most part, the hydraulic saw will cut the branches and limbs. From your experience on the ground pruning crew, you have already learned to operate the power pole pruner, the hydraulic saw is no different except that is run by hydraulics instead of gas.
4. Once all the limbs have been removed, it’s time for the grand finale. Now this is where it might become a bit dicey. Ask yourself how much room you have and where you want the tree to fall.
5. If you are working in a park like area and you have the extra room, you will be able to cut a notch out of the trunk of the tree about 1 ½’ – 2’ above ground level. You will need the chainsaw for this. Just like with other saws, you have already gained experience on the chainsaw while you were on the ground crew. You want to cut the notch on the side of the tree that you want it to fall towards. To begin cutting the notch, you will first make a level cut about 1/3 of the way into the trunk. Your next cut will be 4” or 5” above your first cut but you will cut on an angle so that you meet with the end of your first cut. You need to be able to remove the wedge of wood you have created.



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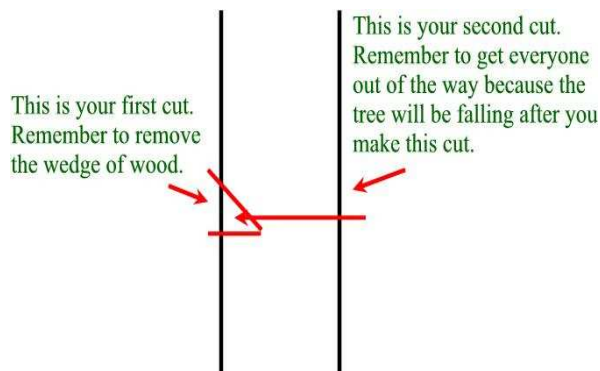




Tree Removal – Job Aid

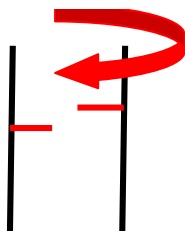
Procedure for Removing a Tree

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6. Your next cut will be on the opposite side of the trunk, between where you made your first cut and second cut. You will make this cut all the way through the trunk. Crew members around the base of the tree can give the trunk a push if need be and guide it to the ground. Timber! Now you are left with 1 ½' – 2' of tree trunk. Using the chainsaw again, you will cut this 1 or 2 more times, until it is about 1" from ground level.

Once you have made these cuts you will "hug & then snap" the tree trunk above where you made the cuts.



7. If you are in an area where your work area has some obstructions and your space is limited, you will have to use "snap cuts" to remove the tree trunk in sections. A snap cut is done by cutting into the trunk to the middle and then making another cut 1" – 2" above the first cut on the opposite side of the tree trunk, stopping close to the end of the first cut. Set down your saw and if you "hug" the trunk above the cuts, you should be able to "snap" that section of the tree trunk off. You will then drop it safely to the ground. You will repeat this procedure about every 1 ½' – 2' down the trunk.
8. The remaining stump is cut as close to ground level as possible, without cutting into the ground.

If the logs are too large to handle safely, let your supervisor know and arrangements can be made for a front-end loader to be sent out to help with the clean up.

There will be another crew that is following you and grinding out the stumps of the trees that you have removed.



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Tree Removal – Job Aid

Safety When Using the Saws

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

- **Always** wear the proper safety gear.
- **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 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 the scabbard on. 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.



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