



# LEAF BLOWER

A Training Manual in the Proper Use of Leaf Blowers



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August 30, 2006

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***Introduction:***

A great deal is being said about leaf blowers these days and much of it is negative. That is, a vocal few have done everything they can to control and in some cases ban the leaf blower. The stated reason is noise! Landscapers respond that they would not be able to remain in the lawn care business without a leaf blower, because it would take too long to do their final cleanup. Thus, profits would be severely impacted.

The leaf blower has been in the spotlight, under the microscope so to speak, and has been singled out from all other forms of industrial equipment as being too loud. There are many other commercial and industrial machines or devices that make excessive noise yet suffer no objections from those that must listen to them. You can read about the leaf blower in the newspaper, see it on TV and even in movies, nearly always in a negative light. In some communities, city councils are talking about creating ordinances to eliminate leaf blowers. It can't be simply the volume that irritates. There must be more to this story than just the number of decibels emitted.

One primary factor in the leaf blower issue is none other than the operator himself. Some are uninformed, untrained or inconsiderate. As with everything, there is a right and wrong way to use a leaf blower. It is not always the right tool for the job.

The time of day one has to endure the sound, early morning or late in the evening, is often mentioned as being a problem. Some hate the way the engine is throttled up and down repeatedly. Maybe it is the proximity to a bystander and the rapid movement of air that irritates. It could even be what it does to a pet that pushes people to the limit of their tolerance, making dogs bark for example.

There is something to be said about the type of sound that a blower generates. It has to do with sound quality. Older blowers do tend to whine, which can be as difficult to ignore as a crying baby. Even at a moderate volume, this can be an issue.

Some say it is exhaust pollution or the dust that is kicked up by the airflow that is unacceptable.

So now you know that there is more than one reason why leaf blowers are considered irritating. It makes sense that it is more than just volume. Because of the mounting objection to leaf blowers, something had to be done to address this issue.

Echo has taken notice and has done many things to minimize if not eliminate the unwanted blower attributes. Part of this manual will point out what the physical improvements to leaf blowers are and what the facts are concerning dust, exhaust emission and noise, but the rest of this pamphlet talks about you, the operator.

In this guide you will learn the proper way to operate a leaf blower so as to avoid irritating your neighbor or a bystander. It will illustrate what the complaints are and what can be done to eliminate them. Finally, it will show you what could happen if leaf blower issues and community complaints are ignored.

### *The origin of the leaf blower:*



The leaf blower has been around for more than 35 years. The original blower was designed to spread fertilizers and pesticides over grain fields and fruit trees. A container was mounted above a centrifugal fan as the source for the chemicals that would be disbursed evenly over the area. Versions of this product are still in use today. Echo's name for this device was and is the "Duster-Mister". It was discovered, back in the 1970's that this blower, less the chemical container, would make an excellent leaf blower, which of course is where it got its name.



### *Leaf blower use:*

Today, there are many uses for the leaf blower, including the cleaning of driveways and sidewalks after cutting the grass and the removal of debris from parking lots, sports arenas, city parks and construction sites. It quickly became an important cleanup tool, saving time over alternative methods. It turns out that this product does a far better job than a rake or broom and at far less cost due to the speed in which it can clean up an area. The Department of Public Services for the City of Coronado, CA conducted a test comparing brooms to leaf blowers. To clean the perimeter sidewalk of a downtown park with a broom took 80 minutes where it took only 6 minutes to clean with a blower. The leaf blower has become indispensable. Clearly, it is not just a leaf blower. It is an all-purpose outdoor clean up tool.

**Note:** A leaf blower is **NOT** intended for use on gravel driveways, dry dirt or other potentially dusty surfaces.

### *How serious is the leaf blower problem?*

In recent years, there have been several cities around the United States that have taken steps to regulate blowers. In 1998, the city of Los Angeles passed an ordinance that prohibits the use of leaf blowers within 500 feet of a personal residence. There have been other attempts at banning in both large and small cities, but so far, most have failed. They either didn't get passed by the city council or after passing, could not be enforced. Still banning can be a serious problem depending on the penalty associated with violating the ban and the persistence of the local police force.

Powerful entities have looked into banning blowers. In 2000, the California State Legislature instructed the California Air Resources Board (CARB) to conduct a study on the environmental impact of leaf blowers based on information and test results available at the time. The report from this study made a clear statement that there are many individuals, organizations and municipalities deeply bothered by the leaf blower.

However, factual information was not available at the time to conclude one way or the other if leaf blowers are detrimental to the environment or hazardous to anyone's health. Since then, there have been reputable studies that prove leaf blowers to be benign.

The San Joaquin Valley Air Pollution Control District commissioned Dennis Fitz of the University of California at Riverside to study the potential for leaf blowers to generate dust. His published results show that the amount generated is actually insignificant. Comparing data compiled in the San Joaquin Valley, daily driving of automobiles generates 100 times more dust than leaf blowers. Interestingly enough, Mr. Fitz also proved that even brooms generate more dust than blowers because they dislodge caked dirt that a leaf blower leaves behind.

The Water and Power Department in Los Angeles spent millions on the design of an alternative battery powered leaf blower. They thought this would be the answer to leaf blower noise. It never made it to production. Performance was inadequate and couldn't compare with gasoline-powered units. But this is still disturbing because the next attempt, should there be one, could be successful and better performing gasoline powered blowers could be displaced.

There are several non-governmental organizations springing up around the country that are strongly opposed to the existence of the leaf blower. Their greatest influence has been in California, but because these groups use the Internet and influence columnists, there is talk about banning blowers all over the country. Even in foreign countries such as in Germany and Australia, leaf blowers have become a notable issue.

These activities should serve as a wakeup call. If ignored, bans could impact the future existence of the leaf blower and the livelihood of the landscape contractor.

### ***Leaf Blower Concerns:***

What are the actual concerns that make so many people upset about the leaf blower?

The primary issue is the sound that is generated by leaf blowers, typically in residential areas. It is the "noise". Most people just think a leaf blower is loud and complain only about that without understanding what the total problem really is. The whining sound typical of older designs also tends to irritate people. The sound of a leaf blower is historically uncomfortable to listen to.

There is also concern about **when** leaf blowers are used. There are many things one would rather not have to listen to after 8:00 PM or before 7:00 AM. Not surprisingly, the leaf blower is one of these.

Many operators do not know how to properly use a leaf blower. As with everything, there is a right way and a wrong way to use a blower and it is not always obvious. For example, because blowers at an idle are quieter than when run at high speeds, large blowers should rarely be operated at full throttle in a residential area.

Also, care should be given as to where debris is blown. It is imperative that the operator be courteous and conscientious.

Complaining on the basis of noise alone has not resulted in the kind of support needed to result in blower ban legislation as anti-blower activists had hoped. They had to expand their argument from a mere noise complaint, which is only a harmless irritation, to a potential health hazard. The result is their focusing on engine exhaust emission and the generation of dust. Intuitively, after listening to their argument, people tend to believe that blowers might be hazardous to your health, which helps their case. Of course, this has no foundation in fact, as the CARB report and others have indicated.

Exhaust emission was a problem many years ago, but not any more. Emissions have been reduced up to 90% to meet new stringent government Standards. Comparing actual emissions from a car to a leaf blower over the course of time, automobiles are considerably worse than leaf blowers. Think about it. Most households with one automobile run a tank of gasoline per week through a car (18 gallons on average) while a leaf blower's fuel consumption is measured in ounces per week, per household.

Test results show that dust is insignificant compared to other common sources as was proven by the University of California study for the San Joaquin Valley Air Pollution Control District mentioned earlier in this pamphlet.

There have been many efforts to place a "black cloud" over leaf blowers. Supporters of this view are truly disturbed by the seemingly loud, mostly irritating sounds generated by blowers and they feel compelled to do something about it. In their zeal, they are using every argument possible to paint the blower as an evil and unnecessary landscaping tool. Often they find someone that said something unflattering about the blower and then they quote this person as if what he said was fact. Although their argument is mostly anecdotal and unsubstantiated, this type of propaganda serves to reinforce those that are considering banning leaf blowers in other communities. You can find comments such as these on several web pages compiled and financed by dedicated and determined anti-leaf blower activists.

### ***Leaf Blower Ordinances:***

It should be pointed out that there really is no reason to create an ordinance to control blowers since by attrition; excessively noisy blowers will eventually disappear. New designs are inherently quieter. However, since this argument is often not accepted, one should consider the ramifications of introducing a leaf blower noise ordinance.

To begin with, the police will be expected to enforce this unenforceable law. The truth is, landscapers do not want to give up their leaf blower. In fact, where there is a ban such as in Los Angeles, many would rather risk paying the fine than have to use a time consuming and labor intensive broom or rake. The reason is obvious. It just takes too long. In most cities, an ordinance banning blowers has changed law-abiding citizens into clever violators. Most important, banning is not the answer!

If the ordinance is volume or sound magnitude limiting, sound meter readings turn out to be unreliable when taken by an untrained individual, which leads to disputes. Catching violators usually depends on receiving complaints and by the time the police arrive, the violator is nowhere to be found. And then there is priority. Should the police respond to a noise complaint or a domestic disturbance? What if there is a traffic accident, one with injury? And what about the cost of enforcement?

If there must be an ordinance, here's one that works. Require landscapers and homeowners to use only "Quiet" leaf blowers. What is a "Quiet" blower? It's one that is at least 70 dB(A) or less according to the ANSI Standard, B-175.2. Sixty-five is better, but really not necessary in most cases since the whine generated by the fan is no longer an issue. This type of ordinance is easy to enforce and therefore complied with voluntarily by landscapers. Why? **Because the manufacturer marks "Quiet" leaf blowers with its sound level per the industry Standard.** This allows the police to simply stop and look at the product at any time convenient to them, in order to catch violators. No need to wait for a complaint. No need to rush across town to catch a violator in the act.

### ***Leaf blower improvements:***

Echo Incorporated has taken the lead in the industry and has not been sitting by idly while anti-blower advocates complain about blower "noise". Engineers met with these activists to understand the problems created by leaf blowers and have been working to improve sound levels and sound quality to a point that is no longer perceived as an irritation. An innovative approach to leaf blower noise has resulted in the quietest leaf blower products in the industry. Sound levels have been systematically lowered from 77 dB(A) per the ANSI B175.2 Standard, to 65 dB(A) for a 75% reduction in sound intensity.

Typical changes include adding silencers to the air intake, modifying mufflers, incorporating special vibration resistant materials, changing the shape of the fan and fan housing, adding sound barriers and absorbing foams and improving vibration isolation.

***Note:*** *For every 6 dB(A) reduction in sound, the sound intensity is reduced by 50 % or half.*

Echo is the **leader** in the production of quiet blowers. Even their largest blower, the PB-751 is three dB(A) quieter than older designs.

Blowers pictured below are 65dB(A):



PB-200



PB-230LN



PB-260L



PB-460LN

Echo offers many sound reduced blowers:

<u>MODEL</u>	<u>dB(A)</u>	<u>MODEL</u>	<u>dB(A)</u>
PB-200	65	PB-460LN	65
PB-210	65	PB-610	72
PB-230L	65	PB-620	72
PB-260L	65	PB-651	74
PB-403	71	PB-751	74
PB-410	72		

**Note:** *Not only has the sound level been reduced by more than half, but also the sound quality of leaf blowers has been improved. On many new designs, the high-pitched whine or siren effect has been virtually eliminated. It's all in the design of the fan and fan housing.*



***Guidelines for proper leaf blower use:***

The primary solution to solving the leaf blower noise problem, after improving leaf blower design, is operator education. People must be made aware of the issues and become sensitive to the bystander's complaint. Once trained, the conscientious operator should help others to understand how to avoid generating complaints. The trained operator can even help in the organization of additional training programs within their own company and community. If at the present time there is no leaf blower sound or noise related issue in your area, that is the best time to implement the following guidelines. In other words, prevent the problem before it gets started. Once it reaches the point of pending legislation to control leaf blowers, it can be very difficult to reverse the trend. The leaf blower noise issue is best resolved at the source and before it becomes a problem.



**Guideline #1.**

**Always be considerate of bystanders and adjoining property.**

Debris should never be blown in the direction of people. No one wants to be pelted by particles of sand and debris. It can take one's breath away. It is almost a certainty that there will be a complaint. People have been known to become hostile. Some see it as a type of assault and have even called the police.

On the other hand, a neighbor or passerby will smile back at you when you idle down your blower and point the nozzle away. They usually realize that you are only doing your job and will give you credit for being courteous.

Respect other people's property. Do not blow material at automobiles or on neighbor's lawns and driveways. This could start retaliatory action. They may blow it back... with interest.



Watch out for open windows and doors. Pointing the blower nozzle at or toward an open door will not only send debris into someone's home, but it directs and increases the noise they must endure. Why call attention to what you are doing. Close the door.

Keep in mind that it is not only the neighbor and passerby that deserves consideration. If you are working on someone's property as a contractor, you should always be considerate of the owner, his or her property and everyone living there. Being inconsiderate here is a sure way to lose your contract.

The best practice is to be aware of who is around you at all times and know where the debris is being blown. Always be considerate, courteous and conscientious.

## **Guideline #2**

### **Know and observe your local noise ordinances.**

Sometimes, there are local ordinances in place to limit blower use to certain hours of the day and days of the week. As an operator, you should be aware of these times and make sure you do not violate them.

Even if there are no designated hours for blower use, common sense should prevail. Do not create a problem by using leaf blowers late in the day or very early before people are normally up and about.

## **Guideline #3**

### **Run blowers only at the revolutions per minute (RPM) needed.**

Only run the blower at throttle settings necessary to do the job. Rarely does a large backpack blower have to run at full throttle in a residential area. The faster the engine runs, the louder it will be and the more irritating the whine will be (older blowers).

## **Guideline #4**

### **Avoid using more than one blower at a time.**

Two blowers will probably do the job in half the time, but rarely is it necessary. One exception may be when moving large piles of leaves during fall cleanup. This condition is seasonal and normally will not upset anyone because people understand that this is not an ongoing practice. Never the less, if possible, use only one blower.



## Guideline # 5

### Minimize dust during normal cleanup operations.

There is a logical, yet incorrect conclusion that leaf blowers generate vast amounts of dust. Of course, they can, but when used properly, they contribute very little to the particulate matter in the air. It is all in the way one holds the nozzle and the amount of air generated.

To begin with, one should ensure that whatever dust is created should not be allowed to travel toward any nearby person or neighboring property. Understand that there are **times** when the blower simply should not be used. The job should be performed at a time when no one is around or when the prevailing wind is in a favorable direction.



To minimize the generation of dust, hold the nozzle above the ground and at a distance from the debris such that the airflow at the ground is **only** sufficient to move the material you want moved. In dusty areas and when using larger blowers, the nozzle must be held even higher above the ground with an aiming point farther away from the operator. Air velocity is what dislodges the material to be moved and air volume is what keeps it suspended once it is in the air. Practice this by starting with the nozzle well above the ground and then lower it to where it picks up the debris but not the dust.

You may think that dust is very light and easily lifted into the air. In reality, it is very heavy per unit volume. A good example is cement dust. One cubic yard of concrete is 1000 pounds heavier than one cubic yard of sand, yet because the particles of cement are very fine, a leaf blower can lift them if enough air movement is applied. A leaf, a blade of grass or a paper cup, on the other hand, has a weight or density hundreds of times lower than dust. One can find the correct airflow speed and volume to move only the leaf and not the dust with only a little practice.

The measured and published velocity of any commercial leaf blower is the highest value one can measure. That means it is measured at the end of the nozzle. The actual velocity at the ground can be much less without slowing the engine. The airflow speed falls off rapidly as it travels away from the nozzle and spreads out over a wide area. Skilled blower operators direct only enough air to move the unwanted debris, controlling the velocity, volume and position of the nozzle to avoid kicking up any dust.

The concept of a larger blower generating more dust is incorrect. Large blowers are intended for cleaning large areas and can be handled in such a way that very little dust is generated. It takes practice to do this, but it can and must be learned to avoid this complaint.

### **Guideline #6**

#### **Never deliberately use a leaf blower to move dusty materials.**

On occasion, the leaf blower is used to clean extremely dusty materials. A leaf blower, any blower, is not the proper machine for this job. It must be understood that there are occasions when the leaf blower is simply the wrong tool.

Heavy concentrations of gravel, construction dirt, plaster dust, pulverized cement, concrete dust and dry garden topsoil should never be moved with a leaf blower because these materials have excessive amounts of dust particles that **will** become airborne. In a residential area, this type of debris should be cleaned up with vacuums or with power brooms having water injected to control the dust. Even using a hand broom is incorrect for this job. Sometimes only a garden hose (water) will do the job courteously and safely.

### **Guideline #7**

#### **Replace your old leaf blower with a new low noise blower.**

There have been many changes in the design of leaf blowers resulting in a much quieter and less irritating product. See your local Echo dealer for the finest products available and do your part to eliminate the complaint generated by inconsiderate use of old noisy leaf blowers.

### ***Summary:***

The leaf blower issue is noise. Here are the main steps one should take to avoid irritating people when using a leaf blower:

- Purchase and use new quiet leaf blowers
- Run blowers at part throttle whenever possible
- Be a considerate and courteous operator
- Avoid generating dust
- Use only one leaf blower at any given time
- Know and observe leaf blower ordinances
- Do not use leaf blowers late in the evening or early in the morning



Using a Quiet Echo Leaf Blower  
In a Thoughtful and Courteous Way  
Will Put an End to  
Leaf Blower Complaints

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