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# Hole Digging Done Right

A simple tool for a simple job? Yes, but there's more to operating earth auger than meets the eye. Here are some helpful tips.

*By Dennis Von Ruden*

Job sites don't see too many machines more simple than an earth auger. A power head (the hole digger) provides the mechanical function and attaches to the auger itself, which drills and burrows into the ground. Manufacturers build earth augers so simply because there's just no reason to make them complex. Even an auger's purpose is simple—to dig holes.

But while the equipment and its function are not complicated, not everyone will achieve the same level of success with a hole digger. There are some basic operational hints—along with a list of mistakes to avoid—that should be considered in order to ensure safety and maximize productivity on the job.

Photos courtesy of General Equipment Co.

The risk of kickback may be present, but you can significantly minimize its effects through proper body positioning.

## Ready to dig?

There's no sense in getting started until both the equipment and operator are prepared to go to work. Assuming the hole digger itself has been properly maintained and is in good mechanical condition, the first thing you should do is examine the auger's common wear parts, such as the screw bit and teeth.

The screw bit is the very tip of the auger. If it is extremely worn, or perhaps even completely gone, the auger will not track straight as it digs. Augers can dig aggressively when their teeth are in good shape, but if not, the auger flighting must pick up the slack and absorb unnecessary wear. Worn teeth can also decrease digging capacity and force the auger to become stuck in the ground. Ultimately, poor screw bits or teeth might cause equipment damage or create safety concerns, but at the very least, failing to address these issues will severely limit equipment performance.

If the auger being used is an attachment, double-check the power source—usually a skid steer, backhoe loader or



210(3): 20-23

mini-excavator—to ensure that all hydraulic oil flow and pressure settings are correct. Also, make sure that the power source's controls are working properly.

Next, take time to read over the operator's manual. While this task may seem unnecessary to some experienced operators, it's still an important step, particularly if it's been a while since you've used a hole digger or if the equipment works a little differently than augers you're used to operating. Manufacturers cover just about everything there is to know about safe and efficient operation in their manuals. This information is invaluable for novices, and giving the manual a quick read might even teach an old dog a few new tricks.

Once the equipment is ready and you're confident about using it, consideration turns next to job site location and conditions. Any digging project could grind to a halt quickly if the auger happens to strike an underground utility line. Always call an underground locating service before you dig to identify the exact location of buried lines.

Even if a job site is free of buried cable and utility lines, there still may be natural obstructions like rocks or tree roots. Dense varieties of soil like soft shale, hardpan and caliche could also present an obstacle or necessitate additional power to dig the hole. Always know the limitations of your equipment. Stubbornly attempting to force an earth auger through tough soil classifications is not the way to get the job done. Even grass and other overgrowth could hamper an auger's digging ability by clogging the auger blade and screw bit, so be sure to clear the digging area to increase efficiency and overall productivity.

Normal use for a hole digger is on level ground. Other digging terrains can be dangerous and should be avoided. If a hole must be dug on a slope, be extremely careful to keep proper balance at all times. Likewise, when using an auger attachment in such a situation, make sure the power source has adequate footing and stability. Use outriggers or other stabilizers when available.

## Proper start-up

Once all the job site parameters have been established, it's time to get digging. Pay attention to the operating instructions for starting the hole digger's engine. The machine is designed to keep the operator away from the engine exhaust muffler. With an improper operating position, the operator runs the risk of serious injury

*Continued on page 22*

# Hole Digging *Done Right*

*Continued from page 21*

from coming into contact with the hot surface of the muffler or from inhaling high levels of carbon monoxide.

Allow the engine to properly warm up to the point where it will operate without the engine choke. Keep in mind that in cold weather, initial starting may require more pulls. Once running, if the hole digger or an individual component or accessory does not appear to be functioning properly, stop immediately and correct the problem before resuming work.

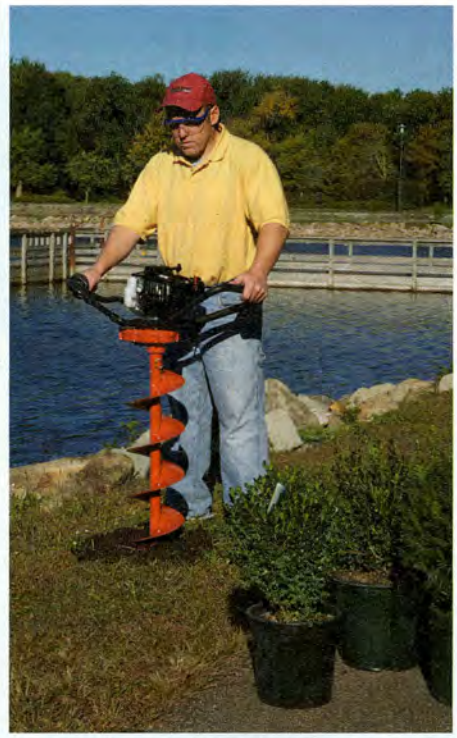
Normal operating procedure for a handheld hole digger is to dig with the engine going at full speed. This allows the unit's centrifugal clutch to become more firmly engaged, thus transmitting more usable power to the auger. When using a hole digging attachment, proper auger rpm will vary, but generally the operator should feed the auger as fast as soil conditions will allow.

## Kickback, don't relax position

When working in areas with rocks or other obstructions that could be struck by a handheld auger, an operator should be prepared for the occurrence of kickback force. If kickback is anticipated, the hole digger should be operated at less than full speed to ensure a more rapid release of the centrifugal clutch when an obstruction is encountered.

You can, however, minimize the effects of kickback through proper body positioning. Keep the left side of the equipment handle as close as possible to your left hip and leg area. Your upper arms should be kept close to the body to maximize mechanical leverage. Keep your back vertical by bending your legs as needed while digging, and position the left foot ahead of the right foot at a comfortable distance.

Experienced operators who understand kickback sometimes choose to absorb its effects while attempting to use the auger blade to "chip" their way around or through an obstruction. This technique usually involves holding up on the operator handle and establishing a minimum feed rate for the auger. Often the nature and size of a buried object will simply prevent the auger from passing by or going through it, forcing workers to find a more suitable tool to remove it. The main point is that kickback is manageable



Proper maintenance and operation of hole digging equipment make the job so much easier for landscape professionals.

> Operators would be well advised to wear gloves while running a hole digger and should always keep a firm and steady grip on the handles.

when proper operating position is maintained, but is equally challenging if the operator is not prepared for it.

Operators would be well advised to wear gloves while running a hole digger and should always keep a firm and steady grip on the handles. This helps to reduce fatigue, as well as increase productivity. If you ever realize that you're in the process of losing full control of the hole digger for any reason, you should push yourself free and clear from the handles.

## In the hole

Ideally an operator will always enjoy a smooth digging experience, but over time the art of digging a hole has produced a fair share of poor ideas that continue to persist. One example is the misconception that the best way to attack a large-diameter hole is to start by digging an initial hole with a smaller "pilot" auger, and then using a larger auger to ream the hole to the desired size.

In actuality, this method will not allow the auger screw bit to produce sufficient directional stability for the larger diameter auger during this reaming process. In addition to being ineffective, this procedure could result in equipment damage or even injury.

As a general rule, pressing down on the operator handles is not required to initiate or sustain the digging process. In lower density (soft digging) soils, it may be necessary to hold up on the handle to reduce the digging rate of the auger. In higher density (hard digging) soils, you might need to press down on the handles to establish acceptable digging rates. Operators should make judgments based on their individual levels of experience to prevent the auger from burying itself in the hole, which is typically the outcome when allowing the auger to feed at an excessive rate.

When you're finished with a hole, you must choose how to remove the auger. To minimize the amount of loose soil that remains in the bottom of the hole, you should stop the auger's rotation before removing it. On the other hand, the auger will retract with less effort if allowed to rotate at a slow speed—but more soil will be left behind. Ultimately, the method of choice for obtaining the cleanest, most usable hole for any soil condition is yet another aspect of hole digging that relies primarily on experience.

Occasionally operators will wind up stopping the engine while the auger rests in a partially or completely dug hole. Only a skilled operator should attempt to restart the engine while the auger remains in the hole. The more accepted procedure is to first remove the unit from the hole, and then return it to the hole with the engine running only at idle speed. One exception for this is during the utilization of auger extensions.

Extensions are often called upon when standard length augers are insufficient. Using extensions is a vastly superior alternative to feeble attempts to force a standard auger to drill down to extreme depths. This error in judgment usually ends with an auger buried in the ground. The mistake is commonly multiplied when operators try to back the auger out with pipe wrenches. When this exercise proves unsuccessful, some try yanking the auger out with a backhoe or skid steer, which almost always results in the auger bending and braking.

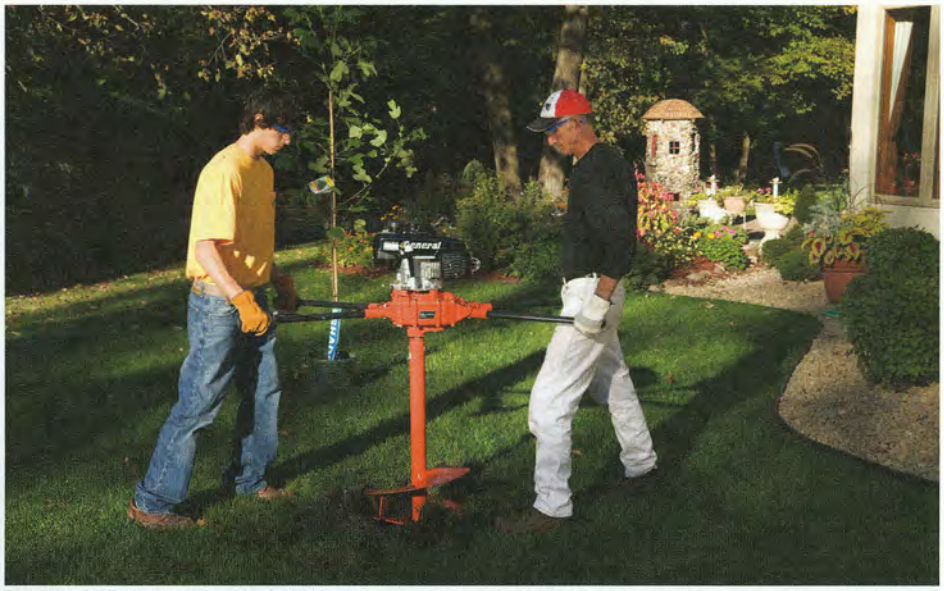
With the auger placed back in the hole, the engine is restarted and digging resumed to the desired depth. One word of caution with extensions: No more than one nonflighted auger extension should ever be used at a time, as this type of extension is not equipped with auger flighting to effectively elevate loose soil from the hole.

## Between holes

When moving from a completed hole to the next spot to dig, stop the engine to protect against the risk of injury. If the hole digger needs to be temporarily stored on the site, there are three options for doing so. The first is to leave the hole digger connected to the auger and simply dig it into a shallow hole. The second is to disconnect the auger and store the hole digger in a level configuration. The third option is to place the hole digger on the ground, while the auger remains attached, with the engine spark plug facing upward to minimize the potential for crankcase oil hydrolocking the piston.

## Dig no further

It's worth reiterating that no amount of operational advice can substitute for actual experience. Hole digging professionals develop a natural feel for their craft over time. But new equipment innovations are constantly hitting the market, which means it's always a good idea to peruse the manual or call the manufacturer for operating tips from time to time. With the right combination of experience, common sense and occasional re-education, auger operators can continue to hone their hole-digging skills to get the most out of their equipment on the job.



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