



Was Your Aerator Up To Par?

With fall aerification out of the way, now would be a great time go over those aerifiers to keep them in good working order for the next time you aerate. Let's face it, when it comes down to it, these machines take a beating no matter what we do. They are bound to fail when you need them the most. Although we use aerators infrequently, we still need to do some necessary preventive maintenance on them. Because we use aerators infrequently, we don't know the signs. There are signs that might have given us a clue that a failure was about to happen. So let's see if I could point out some preventive maintenance that could save you from a drastic, untimely, time-consuming breakdown.

Although there are many different brands, models, and types of aerifiers, the one I would like to go over, is the one I know the best, the Cushman GA60.

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Preparation

Since these units do not accumulate the designated hours of service, it is a good idea to do the following either before or after each use. Always follow all safety guidelines as described in the operator's manual provided to you by the manufacturer. The first item on the list is to see if the unit will start. If it starts, let it run for a while to warm up a bit. Stop the engine. Drain the engine oil, and remove the oil filter. Don't forget to replace the drain plug after the oil has drained out and before you refill with the correct type and quantity of oil. Check the air filter and the fuel filter; replace as necessary. Check engine coolant, drain if necessary, and replenish with a fresh 50/50 water/antifreeze mix. I prefer the premixed antifreeze; you don't have to worry about mixing it yourself or your water quality.

The ignition system needs to be checked to insure proper operation, especially with the heavy loads required on this unit. I find the best way to inspect the ignition distributor is to remove it from the engine. Inspect the cap, the rotor, and replace if necessary. Check the breaker points (if so equipped) for any pitting or wear. If necessary, replace both points and condenser together. Be sure to adjust the points to the proper gap. Lube the distributor lobes. This helps to prevent premature failure of the point contact arm. Reassemble the distributor and reinstall on the engine. Check the spark

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plug wires for fraying or oil-saturated insulation; replace if necessary. Remove the spark plugs and inspect the electrodes for wear, carbon fouling, or breakage of the insulator. Replace if necessary, but, **DO NOT CLEAN WITH A SANDBLASTER OR SPARK PLUG CLEANER.** Start engine; allow engine to reach operating temperature; check engine ignition timing; and set according to manufacturer's specs.

Now that your engine is all tuned up and running properly, you're ready to inspect the aerating head for signs of wear and tear. Begin at the back of the unit where the coring tines are located. On the GA60 there are eight individual arms. Each pair of arms is connected to a reversing gear box. With each of the arms that are connected to one of the gear boxes, pushing and pulling both arms in the same direction will give you an idea of how much play, if any, is in that specific gear box. If too much play is evident, it's time to remove that gear box and rebuild it or replace it.



The next item is to see if there is any bearing or shaft wear in the upper end of the coring head. This will include the crank arm and all connecting parts. The way to test this is by placing a 2x4 piece of lumber under the coring tines and gently lifting up on them. If any movement is felt, you can bet that there is a worn bearing, shaft, or both. It will be necessary to make any repairs before going on with the inspection.

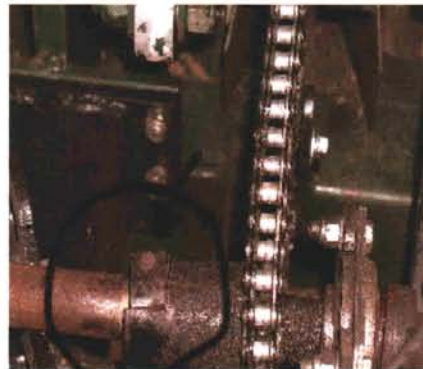
Next move back into the engine compartment. Check the drive chains for wear, damage, and proper tension. If there is any wear or damage evident, you will need to replace the drive chain. A simple kink or twist in the chain can cause severe damage to all sprockets associated with that chain. Chain tension is important because a loose chain will cause a slapping motion that, in turn, will

cause damage to the chain and sprockets. A chain that is over tightened can break and cause damage due to heat-build-up during operation. It is important to operate the machine with the proper chain tension.



A chain with a damaged link.

When checking the drive chains, it's a good time to check the chain sprockets. It's easiest to detect damage to the idler sprocket because it is made of a composite, plastic material. If it has any damage on it you will know it. The drive sprocket, which is the smaller of the remaining two sprockets, can have damage, not only on the teeth, but also on the area that clamps to the jackshaft. It's important to look closely. Be aware that the slightest crack in this area is an indication of an eventual failure. It should be replaced immediately.



The driven sprocket, which is the largest on the coring head assembly, is best checked by removing the drive chain. While the chain is removed, it's easy to check the bearings in the sprocket support housings. Finding damaged teeth on the sprocket demands immediate replacement.



A sprocket with damaged teeth.

Once the chains, sprockets, and bearings have been checked and everything is restored to good, or better than, condition, check the coring-head timing and adjust as necessary. To do this, you will need to follow the procedures in the service manual. Don't forget to lube the drive chains with a good quality chain lube.

The next item to check is the slip clutch. The slip clutch is part of the large pulley (See figure A) that is connected to the jackshaft, which drives all the chains and sprockets. The pulley is driven by a belt connected to a drive-unit off the engine. The components of the slip clutch consist of the pulley, two friction plates, a friction disc, springs, and the spring plate (See figures A-C).



Figure A



Figure B



Figure C

Remove the drive belt and inspect for damage; replace if necessary. Remove the spring plate, friction plate, disc, and the other friction plate. The plates should be cleaned up with a steel wool pad. Check the friction disc for wear, and replace if needed. To ensure proper operation, replace the plates and disc if any scoring is evident. Speaking of operation, the way the slip clutch works is this: if you were to come across a hard solid object, such as concrete, and try to aerate it, the slip clutch would sense this, and cause the clutch to slip, thus preventing either severe damage to the coring head or knocking the timing out of adjustment. That's why it's important to maintain this mechanism.

Once the slip clutch disc and plates have been cleaned, spray a little WD-40 on the surface to help prevent rust. Install the springs, spring plate, and flange nuts. Tighten the nuts to the specification length of the springs as shown in figure D. Reinstall the drive belt. Adjust the spring tensioner according to the specifications found in your service manual.

Now that you've looked at most of the major portions of the machine, there are just a few more items that should be checked. Check the clutch and governor for proper adjustment. The turf guards should be adjusted so that the coring tines clear the fingers. Last but not least, it's necessary to lube all grease fittings on the machine. The coring-head axle fittings should be greased with the coring-head down. If you don't have a lift to raise the machine up off the ground, it would be a good idea to remove the tines before lowering the unit. Lowering the unit relieves pressure and allows the grease to flow freely.

A good coat of wax on the sheet metal will keep that machine looking new for a long time to come. Happy aerating!!!



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