

## CHIPPER KNIFE SCREW REMOVAL

### These Instructions Applicable to Chipper-Shredder-Vac and Chipper-Blower-Vac

If you install and remove enough chipper knives, or if you are really unfortunate it only takes one try, you will inevitably come across that one screw that you cannot remove. The following procedure is a simple, relatively inexpensive, and effective way for the average homeowner to remedy the situation.

#### Required Tools:

½” wrench to remove chipper cone

3/8” variable speed drill

\*5/16” drill bit (we recommend buying a cobalt bit)

\*7/64” drill bit (we recommend buying a cobalt bit)

\*No. 2 spiral screw extractor

Motor oil, cutting fluid, 3-in-1 oil or some other lubricant to use with drill bits

Small adjustable wrench for use with screw extractor

3/16” allen wrench to reinstall chipper knife screws

\*5/16”-24 x 5/8” flat head socket cap screws (one to replace each screw you remove)

\*1 oz. tube of anti-seize compound

Safety goggles or glasses (**WEAR AS APPROPRIATE THROUGHOUT PROCEDURE**)

*\* The asterisk identifies items that we anticipate you'll need to purchase. All items are readily available in most hardware stores or home improvement centers.*

#### Procedure:

1. Remove the spark plug wire from the spark plug and position the unit so that it is in a stable position for you to work on the knives.



2. Remove chipper cone using ½” wrench and rotate rotor so that chipper knife is visible through opening. If necessary, remove the spark plug to make it easier to rotate the rotor.



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3. Place 5/16" drill bit in 3/8" variable speed drill. The cobalt bit is recommended because the chipper knife screws are hardened and will ruin most bits. Using the hexagonal socket of the screw as your guide, begin to drill out the head of the screw. Do your best to drill down the centerline of the screw. For best results, run the drill slowly at 400 to 600 rpm and lubricate the hole frequently.



4. Continue drilling until the head of the screw "pops" off. It is fairly obvious when this occurs because you can literally hear the head separate from the screw shaft and you will also see the head spinning on the end of the bit.



5. Stop drilling and remove the head from the drill bit.

**NOTE: THE HEAD AND BIT WILL BE HOT!!**



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6. Repeat steps 3 through 5 for the other screw if necessary and remove the chipper blade. Be careful not to let the chipper knife fall into the bottom of the unit.



7. Place 7/64" drill bit in 3/8" variable speed drill. Again, the cobalt bit is recommended because the chipper knife screws are hardened and will ruin most bits. Do your best to drill down the centerline of the screw. For best results, run the drill slowly at 400 to 600 rpm and lubricate the hole frequently. The most important thing is not to damage the threads on the rotor. Drill completely through the screw shaft to allow proper insertion of the extractor.



**CAUTION: Do not be surprised if you actually end up removing the screw shaft while you attempt to drill this hole. However, if the screw shaft falls into the unit, take the time to locate and remove it before proceeding or it will become a future projectile that could hurt someone.**

8. Repeat step 7 for the second screw if necessary and insert the spiral screw extractor into the 7/64" hole.





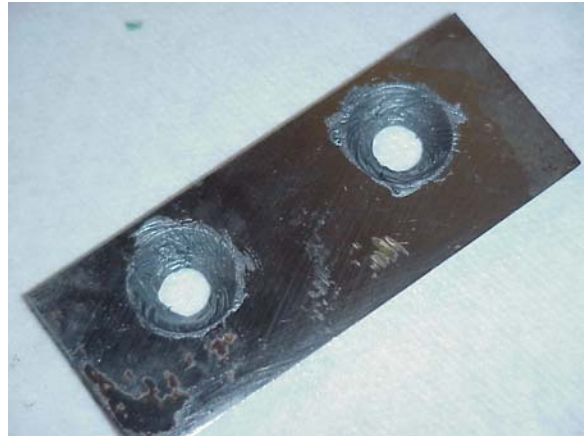
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9. Using an adjustable wrench, rotate the spiral screw extractor counterclockwise to remove the screw shaft from the rotor. We fully realize that an adjustable wrench is not the “proper” tool to turn the extractor with. However, these instructions are intended to be practical and the adjustable wrench will work just fine if used with care. Typically it is very easy to remove the screw shaft once the head is removed. However, if there is much resistance at all you should spray the screw shaft with penetrating oil and allow the penetrating oil to loosen the screw shaft before further attempts are made to remove the screw shaft. Trying to “muscle” the screw out will only cause the spiral extractor to break off in the screw shaft. Screw extractors are made of hardened steel and are very difficult to remove. If you do break off the screw extractor, it needs to be rotated clockwise to remove it from the screw shaft.



10. When you are ready to reinstall the chipper knife, apply a generous coating of anti-seize compound to the screw holes as shown. Also apply anti-seize compound to the threads of the 5/16”-24 x 5/8” flat head socket cap screws. This step should make it easier to remove these screws in the future.



11. Attach the chipper knife to the rotor using the 5/16”-24 x 5/8” flat head socket cap screws and the 3/16” allen wrench. We recommend tightening these screws from 14 to 17 ft-lbs.
12. Reattach the chipper cone and replace the spark plug wire. Your unit should now be ready for use.

