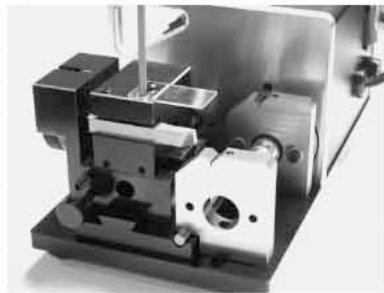
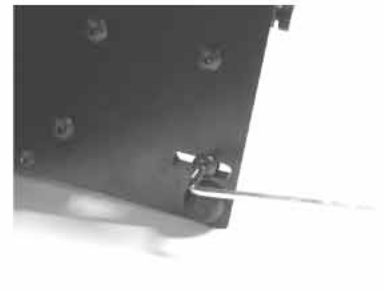




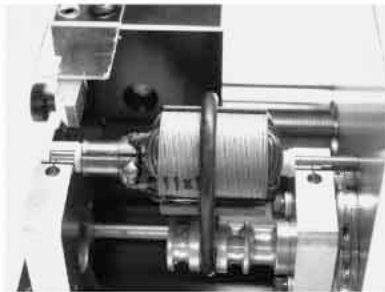
The unit comes with drive o-rings, carbide cutting bit, metal shims & Teflon washer for armature.



Start with installing two metal shims on the bottom and one metal shims on top of the cutting bit. Adjust as necessary.



You can adjust the width between the two v-blocks using this hex screw on the bottom of the unit.



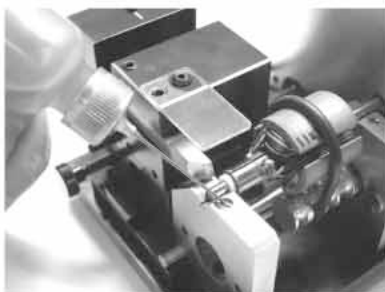
Use Teflon washers to take up spacing between the armature and v-blocks, connect input alligator clips to a 12VDC source.



With auto feed and drive motor off, back out the cutting bit and adjust where it stops using the right hand side knob.



Still with the drive motor off and cutting bit out, turn on the auto feed and do a test run. Make sure the bit doesn't hit arm. tabs.



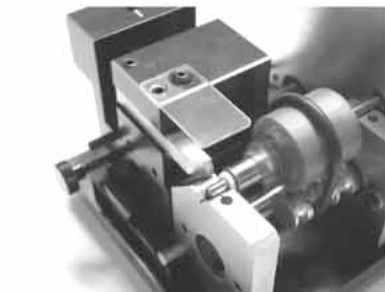
Put some lubricant in the v-block oil reservoirs and on the v-blocks. You can use WD40 or any motor oil.



You can now turn on the drive motor. Start with a slow feed speed first and slowly close in the cutting bit against the commutator.



In order to achieve to best possible cut, try to take off thin layers from the commutator. Take off as little material as possible.



You can damage the commutator easily if the lathe is setup to take off too much material. Practice using old armature first.



From time to time, you need to remove the drive pulley using a 1.5mm hex wrench and lube the drive motor support bearing.



Put a small dorp of oil as shown and put the drive pulley back in place. Good luck racing and visit us at www.integy.com

This is the most accurate modified lathe developed, CAD design drastically minimize harmonic vibrations, ultra fine threads provide unsurpassed accuracy, lowest possible CG, auto alignment technology eliminate "parallel adjustment". Your new Team Integy lathe is the smallest precision auto motor lathe in the world.

CAUTION: YOU MUST WEAR SAFETY GLASSES OR OTHER SUITABLE EYE PROTECTION WHENEVER OPERATING THIS LATHE. ***CAUTION*******

The Auto-Super Lathe is designed for re-cutting the commutator of your racing motor. Re-cut the commutator as soon as you notice any large decrease in motor performance. Usually, 27 turns stock motor should be re-cut between 5 to 20 runs. 7 to 11 turns motor should be re-cut every 2-3 runs. 12 to 14 turns motor should be re-cut every 4-5 runs. 15 to 17 turns motor can be re-cut every 10 runs. This machine comes standard with a carbide-cutting tool. It works well, but requires more frequent sharpening. The carbide-cutting tool will do a quality job, but it cannot match the finish of the cut or the durability you'll get from the optional diamond-cutting tool. Carbide replacement units are available from us directly. Also, we have developed a new type of diamond cutting tool (Xipp #90020) that cuts 3 times sharper than other diamond bits on the market.

If you bought a diamond cutting tool, take good care of it and it will last a long time. The diamond is extremely hard. That's what gives the commutator such an excellent finish. Its hardness also makes it very brittle and easy to damage. The diamond's hardness allows it to wear very well with almost no sharpening required.

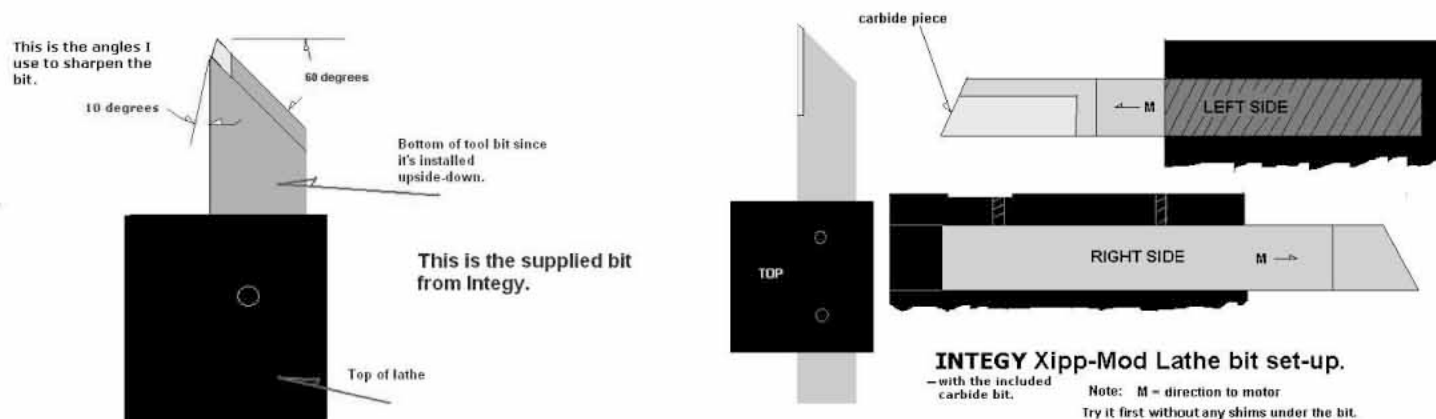
Whichever tool you use, its height is crucial. Diamonds are especially sensitive to changes in height and angle. A minor change can make a big difference in the quality of the surface finish.

In either case, the tool must be set dead center (or above) to the commutator. Use the flat metal shim stock provided with your lathe and/ or make your own shims out of plain paper.



The gib adjustment for the carriage is located on the front of the lathe and below the cross-slide. The carriage should be adjusted so that it is free of play, yet guides smoothly so you get a clean, even cut on your commutators. These adjustments will be properly set from the factory, but you must fine-tune the adjustments as the gibs wear with use.

As you become proficient with your lathe, you may want to take lighter and lighter cuts to extend the life of your race motor as much as possible. To this end, when making a second or third cut, try moving the cutting tool in only half of $1/1000''$ -inch. This is done by looking at the indicator lines on the handwheel and only turning the hand wheel half a line. It takes practice and a delicate hand to know when and how to do this. It all comes down to practice...and patience.



Sharpening Carbide Bits for Truing Comms

DIAMOND BITS VERSES CARBIDE

FOR YOUR PIT LATHE.

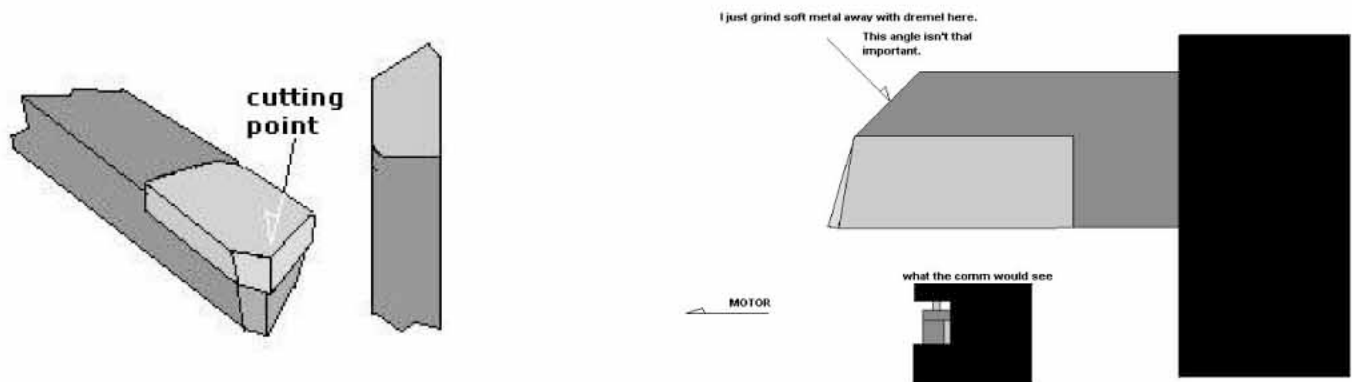
Choosing A Bit

First, the benefits of carbide supercede that of a diamond. Here's why. If you've never used a diamond tool bit before, you will probably chip it before you figure out how to set it up. Then you won't know it's chipped and you'll keep trying and trying and you'll look like Big Jim and Hank by the time you stop pulling your hair out. They chip very easily. Then you're out of a bit of money and have a whole lot of frustration ahead and behind you. Diamond bits are for experienced pit lathe users or machinists. I have been cutting toy motor comms for 30 years and I use carbide bits.

Diamonds can go bad if you take too big a cut, if you hit the tabs, even if it was cutting fine when you packed it away, a diamond bit can be bad the next time you take it out. Don't ask me why. I have even chipped a diamond just by using the wrong kind of brush to clear the chips away. I figured out later that the steel band around the small paint brush I was using must have hit the tip.

And no two diamond bits are the same as far as setup goes. Some bits need no shims. Others of the same brand and type will require 2 shims. Don't ask me why on that either. Carbide bits of the same brand always seem to setup the same. Another reason to use carbide is when it's dull, the finish looks like crap. A diamond will just start cutting out-of-round and you won't know it until your start putting your motors together because the finish looks fine.

Unless you are extremely experienced, stay away from diamond bits. Use carbide until you gain that experience. Then you can either buy a tool sharpener like I did to do the job right, keep honing the tip with a diamond file until it is so distorted it (you unintentionally change the angles a little each time if you won't work anymore then sharpen by hand), throw it away and start with a new bit or use a diamond. Here's the tool sharpener I use. I've had it since 1980 and it still works fine. www.glendo.com.



CHOOSING THE RIGHT CARBIDE BIT

To see if you need a left hand cutting or right hand cutting, see which way your lathe trues toward the tabs. But remember, your bit is installed upside-down so it will be backwards to what you have to order. Remember that most of the machining world cuts with bits right side up. So if your lathe cuts from right to left like my Integy Xipp or my old Cobra, you'll need a left hand bit. The old Twister lathes cut from right to left so they'll need a right hand bit.

HAND SHARPENING YOUR CARBIDE TOOL BIT

OK, the #1 rule when hand honing with a diamond file is, NEVER, EVER FILE THE TOP OF THE CARBIDE PIECE. If you get this part even slightly rounded, it will have to be sharpened with a tool sharpener because you can never cut it back far enough by hand to make it flat again. Even if you do, it will likely be at the wrong angle. There's no need to hone this part of the bit anyway.

The bit cuts from a sharp point formed by the convergence (coming together) of three angles on the bit. A new bit comes rounded on the point. It will work this way because it's uses the top sharp edge to cut with. But when this gets dull, you want to sharpen it to a point. When honing by hand, most of your work will be on the angled side (the part of the bit *not* 90 degrees from the commutator). However, you must lightly touch up the 90-degree side because of the burrs left from honing the angled side. Just a couple of strokes will do it (boy, I've heard that before, ha).

Try not to change any of the angles; file the bit with that in mind. If you have a good magnifying glass it's helpfully in inspecting the point during the sharpening process. Use the #400 grit file (available from McMaster-Carr) if you have some material to cut away and then touch it up with the #600 file. It may take a little practice to get it cutting the way you like it but just think of all the advantages you'll have over a diamond and if you screw anything up, *it's only 4 bucks!*

Happy Cutting!

BIG JIM