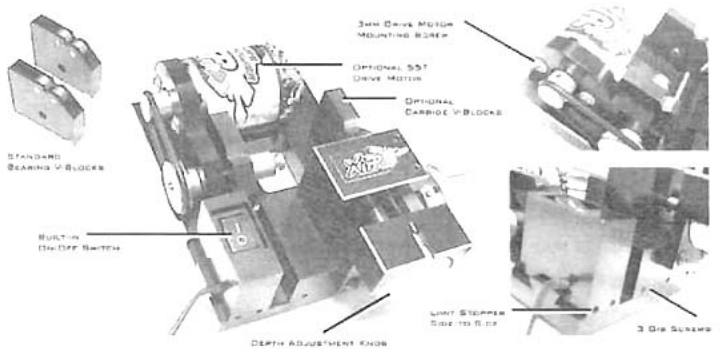
X-MOD SUPER LATHE

VERY IMPORTANT: READ INSTRUCTION MANUAL FIRST

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 Xipp modified lathe is the smallest precision trackside lathe in the world.

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

The lathe is design 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

clean finish on the commutator surface to archive maximum performance. It all comes down to practice...and patience.

Before you can true the commutator, disassemble your motor according to motor factory instruction. If you do not know how to remove the armature, please consult your local hobby shop. You must mount a low RPM motor on to the lathe as your drive motor using the two supplied 3mm steel screws. Then, mount the drive pulley on the drive motor using a 3mm hex screw. Secure the armature on the V-blocks or bearing blocks by using the black O-ring. You must wrap the o-ring around the drive pulley and the subject armature. You may power your lathe drive motor with a 4-cell pack or a power supply of your choice. Just remember that lower cutting speed is usually better than higher cutting speed.

Operating a motor lathe is very similar to operating any lathe machine, you may find detail information about operating and adjusting lathe machine in your local library. Certain details about operating and fine-tuning this kind of machine is highly complex and beyond the scope of what we can explain here. Smoothness of the commutator surface finish is highly critical and is a major factor in determining how fast your motor would run. Please research / study the following subjects to optimize the performance of this motor lathe.

1. Proper cutting speed (we suggest a 55T drive motor @ 6.0V-7.2V)
2. Proper cutting bit height (factory installed)
3. Proper cutting bit angle (factory installed)
4. Cutting fluid (we suggest MATRIX R391 or WD-40)
5. Cutting amount per pass (as little as possible)
6. Identify & compare different surface finishes (Why dull is better than shiny?)

Most hobby shops do not have knowledge about machining. If you need additional help, you may find a machine shops with your local telephone yellow page. Most machinists are willing to help with a small consultation fee.

Should your lathe be in need of more than routine cleaning, put the lathe and foam in its original carrying case. Pack it carefully and return it to Xipp. Our factory technicians will give it a complete tune-up, and will replace damaged parts as necessary, for $40.00 labor plus parts. The lathe will be shipped back immediately UPS COD within the U.S.. Oversea customers please contact Xipp local area agent.

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 to the commutator. Use the flat shim stock provided with your lathe and/ or make your own shims out of plain paper. If you don't have the instruments to measure cutting tool height and are eyeballing it you may err by a few thousands on the high side but never set the tool below center. It is best to experiment on an old stock armature until you get the quality of cut that pleases you.

The gibs are the plastic pieces in the dovetails on the carriage and cross-slide. The gibs both guide and take up slack, and they're designed to wear with use so the other parts of the lathe won't. In order for the lathe to work its best, all gibs should be kept clean, well oiled (use heavy silicone grease) and properly adjusted. The gib adjustments are the small socket head set screws found on the sides of both the carriage and cross-slide.

The gib adjustment for the carriage is located on the front of the lathe and below the cross-slide handwheel. 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 1/1000th-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.

Keep in mind that when cutting a circumference (like a commutator) a .001-inch cut actually reduces the diameter by .002-inch. A new commutator measures about .292-inch, and you should never cut a commutator smaller than .275-inch. At .275-inch the commutator is too thin. You can snag a commutator segment and ruin both the armature and your diamond-cutting tool. Making two .001-inch cuts per rebuild (thus reducing the diameter by .004-inch) you will get 4 rebuilds per motor. If you are able to clean the commutator with 2 or 3 cuts at .0005-inch each (instead of .001-inch) then you can get 7 to 8 rebuilds per motor. Just remember that the final cut must have a