



**REBUILDING
RECONTROLLING
& SERVICE**

QUALITY + PRECISION + ACCURACY



Established in 1995, MTB is dedicated to providing top quality, highly reliable solutions to the machine tool industry. Machine Tool Builders, Inc. is an engineer owned company built on complete customer satisfaction. A very unique mix of capabilities gives MTB a strong foundation for meeting your various needs—whether you're an OEM or a user of machine tools.

“A quality rebuild begins with solid engineering principles. Our engineers thoroughly study the application and question everything before beginning the design phase. This thoroughness is evident in the final product. The result is always a quality design and an extremely reliable and productive machine.”

Ken Flowers, President

REBUILD

REBUILD

Professionally rebuilt to your specifications

A rebuilt machine is fully disassembled and cleaned. All parts are inspected for wear and are either replaced or repaired as required. All the way surfaces are refinished either by hand scraping or grinding, all anti-friction coatings are checked and replaced if required. All bearings are checked and replaced as required, all seals are replaced. All new hydraulic, pneumatic and lubrication system components—like valves, pressure regulators, sensors pumps etc. are replaced. All electrical equipment—limit switches, push buttons, junction boxes, flexible conduit etc., are replaced. The entire electrical cabinet is replaced along with all the equipment inside. A new CNC of your choice is installed into the cabinet. You can choose from GE Fanuc, Siemens or NUM controls. Prior to reassembly, all the individual machine components are painted separately and allowed to dry. This allows us to insure there is good paint coverage under all items bolted to the machine, and that new



items being installed are not being painted over in the process. You can specify the paint color of your choice.

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During the rebuilding process mechanical machines can be converted to CNC machines by modifications to the drive train systems. MTB engineers will design the most effective method of axis drive for each machine by keeping the drive train as short as is feasible given the machine constraints. Axes motors are connected with anti-backlash shrink disc couplings wherever possible and in some cases belt drives and/or additional anti-backlash gear boxes may be required to adapt the motor to the load properly.

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RECONTROL

New life for your existing equipment

A recontrolled machine done by MTB will almost always come with a complete electrical cabinet replacement. We do this for a number of reasons—first is warranty. In order to offer a one year warranty and avoid issues with older equipment left inside the cabinet, we always install entirely new electrical equipment in the cabinet. This eliminates the uncertainty that occurs when something within the cabinet causes a problem. Second, the recontrol is done faster and cleaner by replacing the entire cabinet. On some machines this allows MTB to virtually plug in the cabinet to the old plugs as opposed to cutting them all off and terminating on terminal strips.



In the course of a typical recontrol, MTB will also replace all the servo motor power and feedback cabling, as well as all the encoder cabling on the machine. We will also install all new feedback systems—glass scales and encoders for all axes. There are a few cases where we can have your feedback devices rebuilt if installing new ones is not mechanically possible. The remainder of the machine wiring and electrical equipment, on the machine itself, usually remains unchanged unless you have requested that we replace all or part of the systems during the recontrol.

We offer a variety of CNC and PLC platforms for our recontrols, but generally there are three main CNC platforms used within the gear industry today—GE Fanuc, Siemens and NUM. For PLC's there are a whole host of platforms available like Allen Bradley, Siemens and Square D just to name a few. We are always open to your request for a particular brand of controls. If we feel that the controls you selected are not the best for the project, we will inform you of the reasons. Though of course, the final decision will be yours as to which platform you select. We strive to be as flexible as possible. Recontrols can be done either in the field or at our facility—whatever works best for your production, maintenance departments, and schedules.



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RETROFITTING

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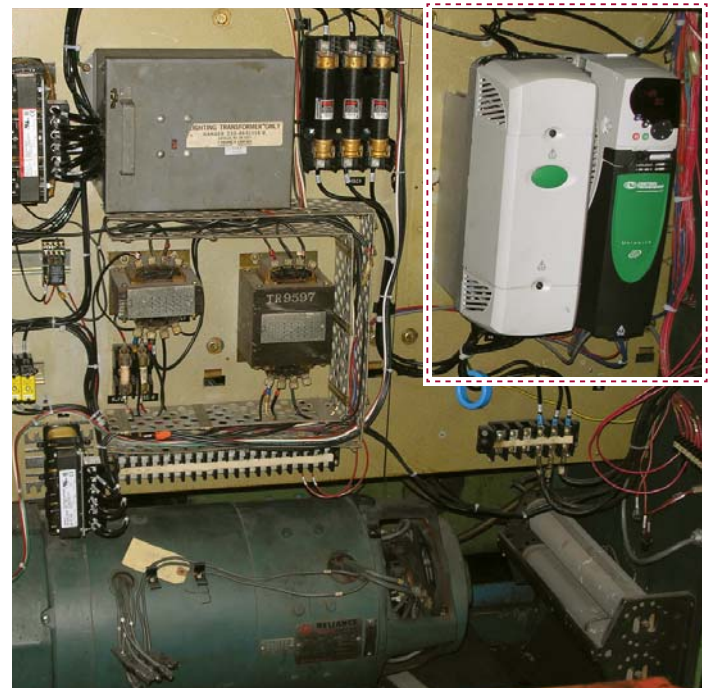
Done thoroughly, done efficiently



Unlike others in the business of recontrolling and retrofitting machinery, we recognize a distinction between these two terms. To MTB, a recontrol is the complete replacement of the control system, which to us means that the entire electrical panel is replaced. We categorize a retrofit as a partial replacement of one or more pieces of the control system, and not the entire control system. An example might be the replacement of one or more obsolete servo drives and motors, or replacement of the old CNC while reusing the original servo drives and motors.



Retrofitting is usually done in the field as opposed to our facility for two main reasons—cost savings and efficiency. We perform a variety of different retrofits on many different types of machines. Often times, we do not limit ourselves to gear machines, and have tackled everything from transfer lines, to hob sharpeners, cutter manufacturing machines, OD/ID grinders, and of course, gear machines. These types of selective component replacements can offer some additional life to a machine that is older, but not in terrible condition. Quite often, the component that failed is no longer available so newer equipment is substituted in its place. This usually entails some engineering and design changes to integrate the newer parts into the old machine. MTB always provides new drawings showing the new component and how it's connected into the machine, along with all the manuals and supporting documentation for the maintenance department.



:: CUSTOM SOFTWARE AVAILABLE

[see software section](#)

SOFTWARE

Custom software for your operation

Software is another one of our specialties. There are two basic types of software in every CNC controlled machine, PLC and Conversational Programs. The PLC programs run the machine functions like tailstock up/down, fault messages and safety interlocks etc.; while the Conversational Program software is the operator interface for entering the gear and process data. MTB excels in the development of robust PLC and HMI applications. Rarely do we produce a machine that requires the operator to program in M and G code format, and almost exclusively the machines are programmed with a question and answer session called Conversational Programming.

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Since we have recontrolled and rebuilt a variety of gear manufacturing equipment, we have had to develop software solutions for many gear manufacturing machines, and do it on a variety of control system platforms. This is a large undertaking but one which we have truly mastered. Whether it is a gear Hobber, Shaper or Grinder, PC based or not, we have a solution for you. In fact, our software is so sought after that we have begun replacing some of our competitor's software with ours to provide functionality—like automatic stock division and size correction via measurement over pins or balls that they are unable to offer.



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