



MTB Machine Tool Builders

REBUILDING • RECONTROLLING • SERVICE

We would like to take this opportunity to tell you a little more why MTB is a logical choice to support your manufacturing operations. Inside this booklet you will find a MTB company overview, information about our skills in Rebuilding, Retrofitting, and Recontrolling Machine Tools along with our Machine Tool Service. If you have any questions or would like to learn more about MTB, please contact us.

SINCERELY,
the MTB Team

Over 100 Years of Combined Experience in Rebuilding, Retrofitting and Recontrolling Machine Tools.



Machine Tool Builders

REBUILDING
RECONTROLLING
SERVICE



Over 100 Years of Combined Experience in Rebuilding, Retrofitting and Recontrolling Machine Tools.

Machine Tool Builders, Inc. is dedicated to servicing, rebuilding, retrofitting and upgrading machine tools. If you own or operate machine tools, MTB is a logical choice to support your manufacturing operations.

WE HAVE THE ANSWERS.

MACHINE TOOL BUILDERS, INC.

KNOWLEDGE...INNOVATION...SERVICE...AND ENGINEERING

Our current 18,000sf manufacturing facility in Machesney Park Illinois, offers sufficient space and an overhead crane to handle several large machines simultaneously, a machine shop area, a panel building area, a paint booth, plus several extra acres for future expansion.

Gear manufacturing machinery is one of our specialties, however we do offer services for all types of machine tools. We routinely rebuild, recontrol, retool, and service all major brands ... **Barber Colman, Fellows, Gleason, Modul, Liebherr,**

Lorenz, Red Ring, Pfauter and Mitsubishi ... just to name a few. Within North America, our Service Technicians can usually be in your plant within 24 hours. While we are comfortable with many different control platforms, **NUM, GE Fanuc, Siemens, Allen Bradley, Telemecanique and Square D** are a few of our specialties. Our goal is to get you, the customer, up and running quickly and reliably.



Machine Tool Builders

RETROFITTING: **1ST LEVEL OF UPGRADING**

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 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. Some examples might be replacement of one or more obsolete servo drives and motors, or replacement of the old CNC while reusing the original servo drives and motors etc. Retrofitting is usually done in the field as opposed to in 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. Often times, the component that failed is no longer available so newer equipment is substituted in its place. This of course 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 dept.

FEATURED RETROFITS

MODUL ZFW204 SYSTEM COMPONENTS



This hobbing machine was equipped with old East German controls that were unsupportable and no longer functional. MTB designed a replacement system around a NUM Axiom Power CNC and Indramat Servos to control two axes of motion on this machine, and in the process gave the customer the ability to crown and taper hob as a bonus.

REINECKER UHD4 GLEASON CUTTING TOOLS



This customer wanted to add an automatic infeed device to one axis. So we developed a single axis system, controlled by an intelligent drive to infeed one axis after each cutting pass, then to back the axis out after the cycle has stopped.

PFAUTER P250S SUNGEAR



This hobbing machine was equipped with a relay control system that contained parts which were no longer available. MTB installed a small PLC, with HMI display to operate the machine. All the original machine systems were operated exactly like before, but now accessed through the HMI instead of a push button panel.

WE HAVE THE ANSWERS.



Machine Tool Builders

RECONTROLLING: 2ND LEVEL OF UPGRADING

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 replacement of 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 be replacing all the servo motor power and feedback cabling, as well as all the encoder cabling on the machine. We will also be installing all new feedback systems like 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 mechanically not possible. The remainder of

the machine wiring and electrical equipment on the machine itself will usually remain 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 and those are 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. However, if we feel that the controls you selected are not the best for the project, we will inform you of the reasons, but as usual the final decision will be yours as to which platform you select.

Recontrols can be done both in the field and at our facility, whichever works the best for your production and maintenance departments and schedules.



FEATURED RECONTROLS

LIEBHERR LC-255 MILWAUKEE GEAR



This machine was already a 5 axis hobbing machine, with one spindle. It was equipped with a proprietary Liebherr CNC which was very difficult to support. So we installed a new GE Fanuc 18i-MB CNC and GE Fanuc HVi digital servos and spindle drive for the owner.

LIEBHERR LC-1002 MILWAUKEE GEAR



This Liebherr LC-1002 was in excellent mechanical condition, but the controls were very problematic. The old control was the proprietary Liebherr system, with little support or parts available. The controls we installed were GE Fanuc 18i-MB CNC with GE Fanuc Alpha HVi digital servos and spindle.

PFAUTER P900 LOVEJOY



This hobbing machine was a fully mechanical machine with both index and differential change gears. The customer needed to add crowning capability and had a relatively small budget, so we proposed a two axis conversion with a small NUM CNC, leaving the index and differential gears in place. So the machine was modified into a two axis and single spindle hobber with the axes being X (radial) and Z (Axial) and the programmable spindle speed. The control was a NUM Axiom Power with NUM MDLU2 digital servos and spindle.

WE HAVE THE ANSWERS.



Machine Tool Builders

REBUILDING: **MOST ADVANCED LEVEL OF UPGRADE**

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 like 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.

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 where ever 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.

FEATURED REBUILDS

FELLOWS 10-4 GUPTILL GEAR



This machine was a complete rebuild of a Fellows 10-2. We converted the machine into a 5 axis and one spindle machine, X (infeed), B (cutter rotation), C (table rotation), Z (elevation), W (Stroke length) and the programmable spindle speed. We increased the stroke length from 2.0" to 4.0" inches, making the machine a 10-4 model. In addition we mounted a hydraulically controlled tailstock, mounted on a manual slide for easy retraction to shape internal gears. The controls were Siemens 840D with PC front end.

PFAUTER P400H BUCYRUS INTERNATIONAL



This machine was a complete rebuild of a Pfauter P400H with a 4 meter long bed. This machine was originally a fully mechanical machine with index and differential change gears. We converted the machine to a full 5 axis CNC machine with one spindle, X (radial), B (cutter rotation), C (table rotation), Y (Tangential), Z (Axial), A (hob head swivel) and the programmable spindle speed. The controls were GE Fanuc 18i-MB with Alpha HVi digital servos and spindle.

FELLOWS FS400-125 CATERPILLAR



This machine was a complete rebuild of a Fellows FS400-125. This machine was a 6 axis and one spindle machine, X (infeed), B (cutter rotation), C (table rotation), Z (elevation), W (Stroke length), T (Tool magazine) and the programmable spindle speed. The machine had an 8 position tool turret and was designed to shape four consecutive surfaces by changing up to four tools in succession. The controls were Siemens 840D with PC front end.

WE HAVE THE ANSWERS.



Machine Tool Builders

MACHINE TOOL SERVICE: MECHANICAL AND ELECTRICAL SERVICE FOR YOUR MACHINERY

At Machine Tool Builders, we recognize that not all machines need recontrols and retrofits to solve their problems. So we also provide excellent mechanical and electrical service for your machinery. Our engineers have years of experience diagnosing very difficult or elusive problems. There can sometimes be a significant savings by repairing the equipment as opposed to a recontrol or retrofit. **Give us a call today to see if we can assist you with your machinery problems.**



Machine Tool Builders

Some of Our Valued Customers:

Accurate Gear and Machine
American National Can
American Precision Gear
Anderson Cook
Atlas Gear
B/E Aerospace
Barnes Aerospace
Black & Decker
Boeing
Brodie Meter Company LLC
Bucyrus International
Cargill Detroit
Caterpillar
Columbia Gear
DaimlerChrysler
Daniel Measurement and Control
Dana
Delphi Automotive Systems
Durst Corp. Div of Regal Beloit
Eimco Coal Mining Equipment

Emerson Power
Fairfield Manufacturing
Falk Corporation
Ford Motor Company
Forest City Gear
Foote Jones Illinois Gear
Funk Mfg.
Gear Technology
General Motors
Getrag
Haldex Barnes
Hamilton Sundstrand
Hub City
IMO Boston Gear
Ingersoll Milling Machines
JD Phillips
John Deere
Kimberly Gear
Kohler
Kop-Flex

Kurt Manufacturing
Lamb
Landis Gardner
Ledwell & Son
LeTourneau Inc.
Lovejoy
Marposs
Meritor Automotive
Michigan Production Machining
Morris Material Handling
Milwaukee Gear
Nachi
New Holland North America
Niagara Gear
Northern Gear
Panther Crankshaft
Parker Hydraulics
Quincy Compressor
Raybestos
RJ Link

Rockwell Automation
Rolls-Royce
Solar Turbines Superior Gear Div.
Snyder Corporation
Square D
Sungear
Team Industries
Toyoda GFI
Tritec Motors Brazil
Triumph Gear Systems
Tri-Way / Federal Mogul
TRW
Trane
Usach Technologies
White Hydraulics
Woodward Governor
WSK "PZL RZESZOW"
Xtek Inc.

"We at Machine Tool Builders pride ourselves in doing the job right the first time. When a customer gets into a jam, I want them to think of MTB as their first choice knowing that their problems will be quickly resolved. A customer telling me how grateful he is priceless".

- MTB Team

WE HAVE THE ANSWERS.



Machine Tool Builders

7723 Burden Road, Machesney Park, Illinois 61115

Phone: (815) 636-7502 Fax: (815) 636-5912

info@machinetoolbuilders.com

www.machinetoolbuilders.com