



## Umbauten, Erneuerungen, Retrofit

Photo report collecting information WIAP 2016 WU500

### The WIAP has some remodeling done projects. Below are a few excerpts.

1. SBB conversion Heid Lathe Conventional CNC Page 1 to page 2
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3. RUAG vorm.KW Thun, Revision headstock spindle bearings Page 4
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Photo report remodeling Heid WU190

### 1. Conversion Retrofit railway wheel lathe



Finished machine after the conversion. WU5291



Old Conv. Machine before the conversion. WU5205

Task: The conventional copying lathe Heid should get a new control CNC. Through all the conversion it is to be a new CNC machine with automatic transmission shift, full enclosure and chip conveyor. There is a total overhaul. Very

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simple parametric programming designed and produced by CNC WIAP programs. New ball screws 63-ies in the Z axis and in the X axis he 50th the bed reground; Carriage newly scraped. New fixture with WIAP clamping concept, double clamping cylinder, which can feed voltage for the roughing and finishing with 2 clamping pressures working on the holding. New automatic lubrication system. 4-fold head turret for low in collision rotating the railway wheels. The machine produced in the Federal Railroad. WU5205



The machine at the customer placed. This is all a immerr delivery. Everything from A to Z is made of the WIAP. No third party, hence no coordination planning for the customer needed, which makes the cost more controllable. Here the machine is already in production. WU5290



Turn wheel flanges is particularly subject. But the CNC technology knows no bounds since. In contrast to the previous point turning certainly much easier. WU5287b



A conversion concept: Created and designed from A to Z of the WIAP without third support. This is possible because the WIAP manufactures own CNC lathes. And annual tithe experience in things turning. And today is the second generation of WIAP there which will be even better, which is getting easier thanks to the electronics. WU5290d

End conversion retrofit wheel lathe  
Report generated 07092016 hpw



Photo report remodeling MFD roll lathe WU120

## 2. Conversion Retrofit 1. rolling lathe



This sturdy, heavy, conventional roll lathe must be moved from the WIAP on CNC. WU4725

Task: The conventional copying roll lathe to get a new control CNC. With total revision. The surgeons had to copy it usual, so very simple, parameterized, conceived by WIAP and created CNC programs. Could be programmed only by the input of the R parameters after reconstruction everything.



New ball screws 80th in the X and Z axes. Bed reground; Carriage newly scraped. New automatic lubrication system. The 4 claws boxes were also revised. Insert strips made of spring steel, which we shared. WU54715

The Z-axis guide is designed for a very strong cross shank cut pressure. The machine had 4 steels, which simultaneously rotates the roll contour. This gives a very large management burden. The machine had insert strips made of spring steel, which we shared. WU4740

End conversion retrofit roller Endre machine 01



The machine consists of good, heavy cast, so this machine can turn vibration. WU4735

Photo report remodeling Heyligenstatedt headstock WU150

### 3. Repair Heyligenstatedt headstock



The shift rod of the shift forks is controlled by cylinders. A well thought out, intelligent switching solution. WU3420



Everything here is so laid from the headstock, thus all spacer rings come back to the right place. WU3490g



Here, the bearing is pressed with the press compounding pump. The process was a few years very popular. However, when such a pump is missing, which cost about 3000 CHF and the oil, then the removal cannot take place. And when the seat is a little damaged during installation and the seal is not OK, then disassembly is very complicated and requires some imagination to get to your destination. Because the pressure is enormous in the press compounding. For example, 2500 bar. In the case of interference fit oil terminal was at the front of the spindle nose. WU3490x



Second Repair of headstock bearing defect. View of the expanded main spindle of the machine Heyligenstaedt. WU3470

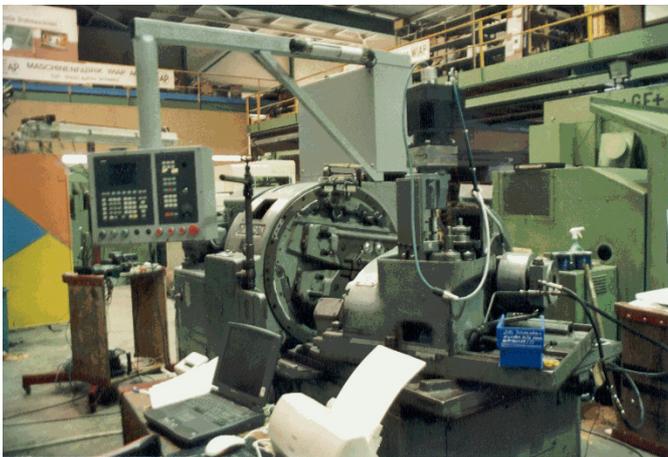
End repair Heyligenstaedt headstock bearing

Photo report Tag Gleason planer WU180

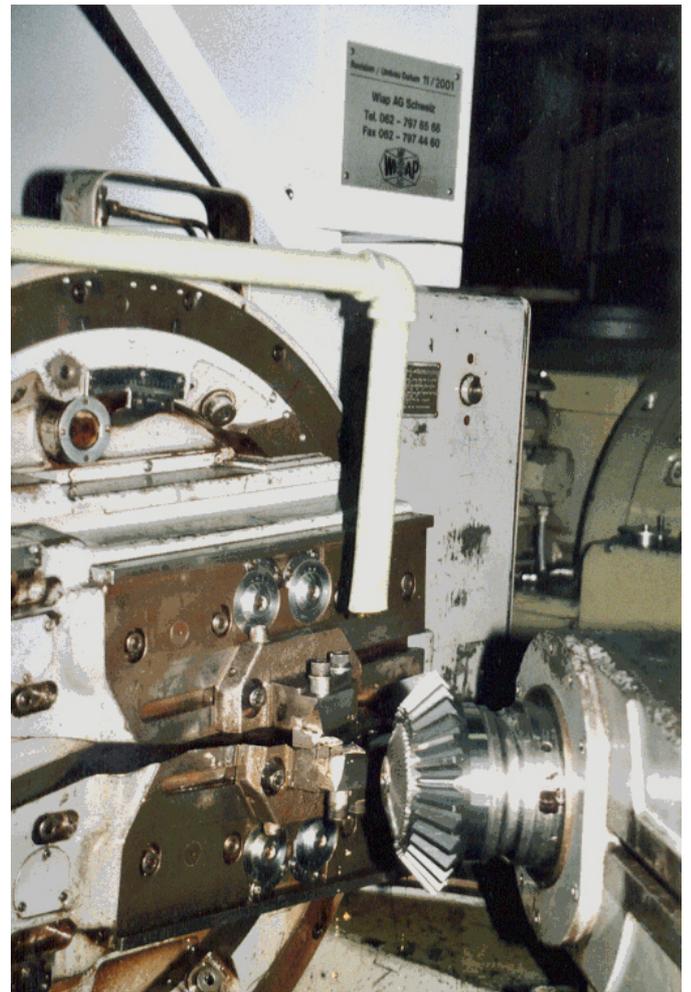
#### 4. Gleason Gear Machine CNC



The customer has an old, conventional Gleason Gear Shaper. He wanted upgrade this machine with a new CNC control. Assembly of the new CNC control on the machine. WU5400



3 new feed engines were grown. The compact electric cabinet, directly on the machine, attached. WU5410



Only a few parameters, the operator can enter the number of teeth of the module, etc. A simple, quick solution to produce bevel gears. WU5420

End conversion gear cutting machine Gleason

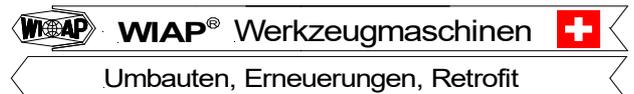


Photo report remodeling Heyligenstatedt headstock WU130

## 5. Repair headstock at large lathe Heyligenstaedt



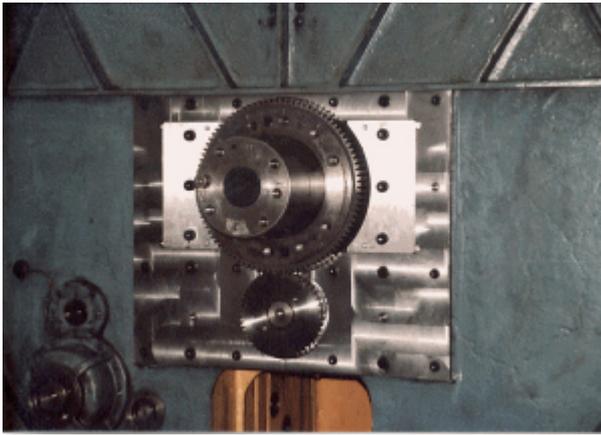
Client had clamped to large work piece on the machine. This has torn the headstock. Measures of WIAP: Spindle dismantled. Headstock casting repaired. New spindle bearing made. Instead bearings, the best NN storage in the existing main spindle installed. It with a 2-part box, so it was mounted. Construction, assembly and disassembly of WIAP AG. Processing the customer. Place of delivery of the project: in Switzerland.

Here we have penciled as we attach a new faceplate. The headstock had split a crack transversely. The large front panel we have prevented a further spreading. On a boring everything had to be milled clean and many great threads were needed to enable the pressing force coincides with the friction to continue loading large workpieces. WU3320

The first step is always dismantle these faceplates. WU3095



It takes a delicate handling of the crane, if such a face plate must be removed from the spindle nose. WU3020



The new plate. The spindle bearing, which was previously a slide bearing, we have replaced with a proven NN storage. The recessed spot where the slide bearing was in it, we have made a detailed 2-part sleeve so that the bearings are assembled and disassembled. This bearing is opposite spindle bearings, complicated to adjust, because the bias voltage can be, depending on the rotational speed are set. Thereby, also the vibration characteristics are regulated. WU3340

End repair Heyligenstaedt headstock

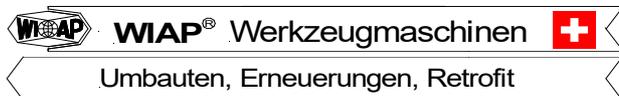


Photo report remodeling Megabore WU232

## **6. Converted Mega Bore large CNC lathes control exchange Fanuc 18i on Sinumerik 802D sl**



Machine weight of Mega Bore: over 20 tons.  
WU\_232\_190

A hole in the casing of the Mega Bore CNC machine has water damage to the Fanuc 18i causes. It was so complicated by the spare parts guarantee-performance and the support of the control manufacturer that we decided to replace the CNC controller incl. All engines with a new CNC control Sinumerik 802 D, because we have no spare parts for the Fanuc's stock and the controller for repair still did not work even after the third time in Fanuc. The respective repair costs with replacement and CPU screen did not lead to the goal. The stoppage was almost 3 months. After the conversion decision, the machine was running in 2 weeks. The electric plans everything in the Asian font to the PLC program text. It was still good thanks to the experience of many CNC machines that are already in use in Europe.

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Significantly fewer cables that hang around there. Sure, only about 30%. WU\_232\_290



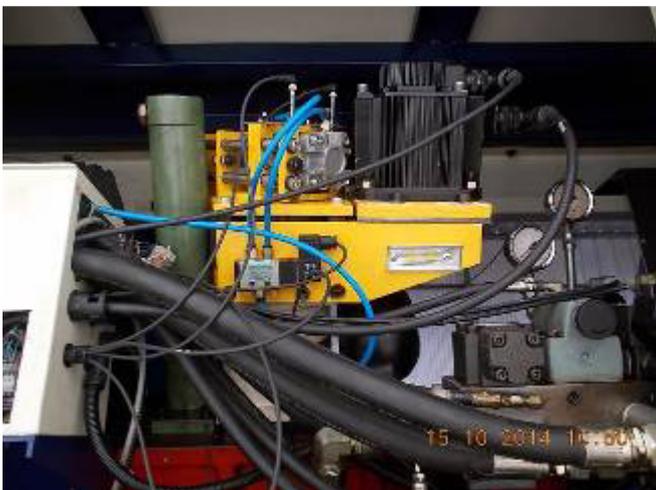
To ensure that all feed motors could be used without brakes, was from spare parts reasons, an external X brake produced, not in the engine.



All the Z drive was a submission 1: 2 Construction renewed WIAP.



Here soon the first tests are making with external 24V. WU\_232\_320



End tag Mega Bore CNC

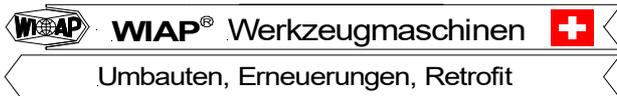


Photo report remodeling Wotan boring WU160

## 7. Photo report 01 Wotan boring machine



Scope: Dismantling the central drive and single axis drive. Roundtable also CNC controlled. Cultivation of ballscrews in the X, Y and Z axis and single-axis motors feed. Design and manufacture incl. Assembly of WIAP.

Here is the finished machine after reconstruction with the new Sinumerik CNC control. WU5009



3 linear axes, X, Y and Z and the rotary table. Moreover, even a linear axis W in the supplement to the Z axis. WU5010

End tag Wotan boring machine

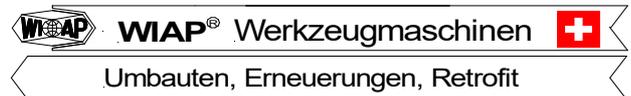


Photo report remodeling Waldrich planers WU170

## 8. Photo report Waldrich planers remodeling



Project Description: The Waldrich planing machine was rebuilt in 2001 by the WIAP, with a new control: Multitron.

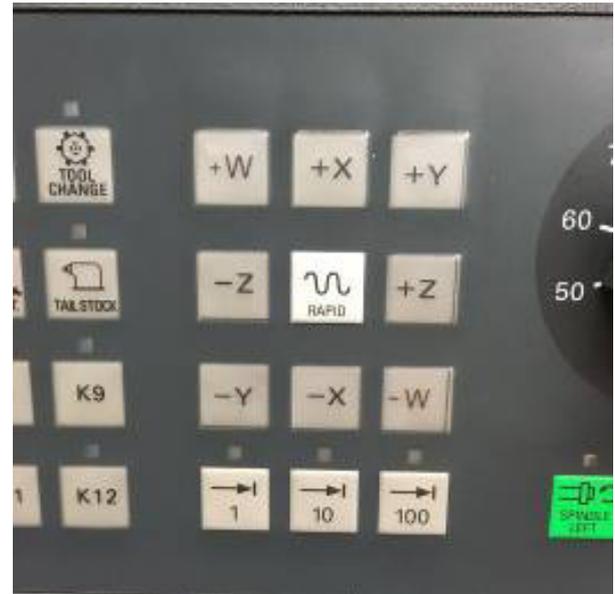
Since it is not easy in the market to find CNC planers, the customer has decided to re-grow a new controller. Ua also because the spare parts is warranty Obsolete for electronics usually after 10

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years. The finished rebuilt planer planning the first 2 bars with the new CNC control. There are 8 and 4 tools engaged simultaneously. WU5380



The planer with the shortened side column. First, we can drill 4 40 H7 pin holes on a boring machine in 0.01 mm accuracy. WU3120



The machine has 4 axes: X, Y, Z and W axis. Each 2 axes operate simultaneously. X and Y, and Z and W. WU5300



The new CNC control is the newest of the new. The customer can now again assume to be able to work for 20 more years. WU4020b



The surgeon, who 15 years has worked with the old CNC and is now learning the new. He also teaches a new man, because he is the end of the year in the board. WU3120a

End tag Wotan planer



Photo report remodeling roll lathe WU100

## 9. Photo Report Revision roll lathe 02



These professionals of skilled workers, which rotate these rollers, are unlikely talents. WU4420

Task: The roll lathe may get control no new CNC. Should, however, be totally revised. The surgeons had to copy itself usual, so no CNC. The transmission had a loss. The tailstock guidance was lowered by several mm and had to be scraped. Totally revise the cross-slide, all new sliding coating.

The machine could be only partially delivered to Switzerland for the revision. The breakdown of the 150 tons of machine was more expensive than to revise the spot. WU4424



The carriage was constantly loaded with a feed force of about 20 tons. WU4350

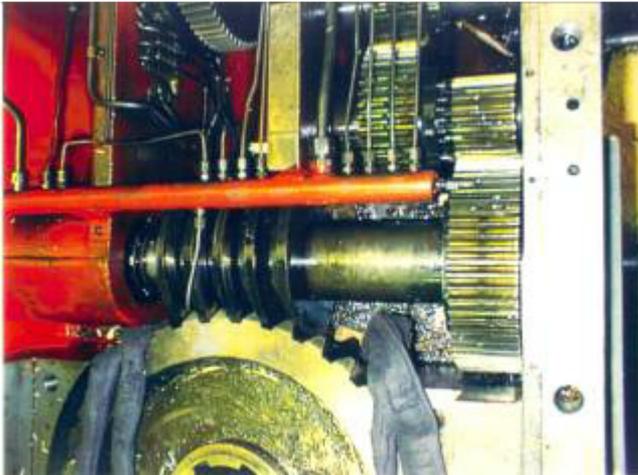


The machine has a spindle drive with 220 KW. The entire electrical system was renewed by us incl. Of the spindle drive. WU4415



The slide guide has been re-occupied by SKC. Improves the whole lubrication and renewed. The

entere carriage Revision in Switzerland lasted 6 weeks. WU4302



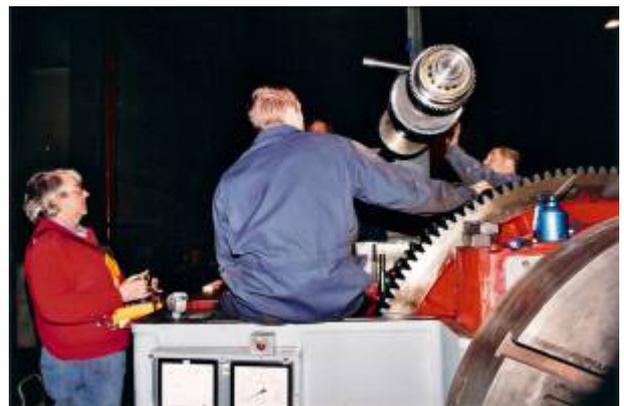
All the longitudinal slide feed drive, which drive the rack was completely expired. WU4310



This, more than 20 tons carriage was finally a revised carriage with new SKC shows new scrap gears, lubrication system ect. WU4324



Finally the main gear shaft could be lifted out. Then we were able to offer the defective gear. Thanks to a Swiss Gear Manufacturer we had quickly organized everything. The customer ordered ships within 1 day. Two weeks later, we had the gear to pattern. WU4125



The installation worked very well. The transmission of the MFD, hats off, we the producers only praise. Sensational, like the whole structure was made accessible from above. Perfect. Thanks to MFD. This is one of the best machines we've ever seen. WU4145

End tag roll lathe 02

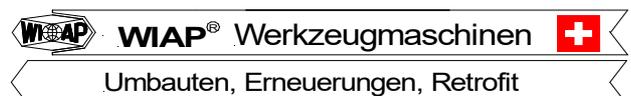


Photo report remodeling rounding machine  
Solma WU300

### **10.Photo report rounding machine** **Solma**



Move the units to a central location. Automate the machine. Simplified Operation. Smooth regulation. Compact. Replace. And much more. Conversion to new SPS and electrical cabinet. WU5150



This collective cable box was arranged in order to not always open at the interference electric cabinet must. Also all cable entries from below that in the highly-operated with oil features the oil inlet is not possible, which is now placed under the units. WU5130e



The panel in the final assembly phase. WU5130s



Soon finished panel of the machine. WU5130t

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3 wallpapers of the machine:  
Hand, semi-automatic and automatic, easy for the surgeon, for safe handling. WU5130u



On the side of the column to the terminals for the external panel. So that the cables break without having to solder, the cable can be replaced quickly. WU5140



WU5130w



For all motors of the units we have installed instead of protecting equal 5 St. Frequency a 0.75 KW, which can be infinitely adjusted. From 0 to 70 Hertz, the option of up to 100 Hz. That is double the speed. Above the S7-1200 is arranged. WU5140c

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Each unit has its own plug. Thus, each unit can be dismantled individually. There's no danger to the operator, as the unit by unplugging the connector safely unplugged. WU5140e

be done without electronics also by the surgeon. That is detecting whether the error source is electrically or mechanically. WU5140f



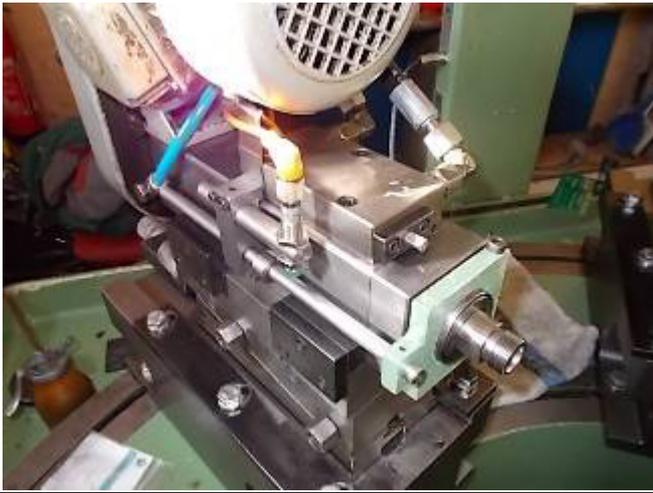
All units can continuously be regulated individually the speed. Thus, a simple adjustment by third parties is not inadvertently possible; we have installed a Plexiglas with the rotary knobs. WU5140h



All relays are additionally written on the cable channel that when troubleshooting is recognizable without wiring diagram, what is for what. All functions passing through relays, so that everything can be selected from an external telephone. If errors in the PLC are not recognized immediately, a preliminary diagnosis can already



The unit 1,2,3 and 5 had no front position switch. That this can work time with an excision; we have designed, manufactured and installed that when the switch forwards reports the input time of the Panel will wait to allow a cut of this scarf linkage. That is, this switch must never be set because the Hub, 20 or 40 mm is constant and only the switching point from rapid to feed with a screw as shown in Figure WU5140j can be adjusted. WU5140l



View of the lifting unit from above. The fact that the unit is back, we could use the old signal and had to install any additional switches. What would also have been a problem? Preparations are present. WU5140n

End tag Rundtackmaschine Solma

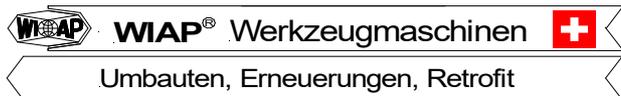


Photo report remodeling Heyligenstedt cockroaches WU140

### **11. Photo report Cockroaches Heyligenstaedt lathe**



The machine had a geometry error. The client asked us to correct this. Electrically were still contactors and relays in the machine, which were

for the museum. These were also replaced the same. WU3270



Now the problem with the shaving machine was corrected. As a rule, per scraping passage, depending on the pressure, about 0002-0005 mm away, i.e., when an error in the 0.1 mm range is, but a lot needs to be scraped. WU3130



The basic training for scraping the WIAP people have acquired at the company Georg Fischer. At that time had to be learned continuously scrape 3

months. This knowledge has been incorporated in the WIAP AG into instructional program. WU3100

Photo report remodeling MFD roll lathe WU110

## **12. Conversion Retrofit 3. roll lathe**



Put new so a terrible headstock for each measurement, is tedious, that it is worthwhile to know exactly how many hundredths are where removed by scraping. Thanks to the great experience through many renovations and the intensive training with lathe manufacturer all employees were able to learn a lot and can also experience USING to perform a good job. WU3025

Task: The conventional copying roll lathe to get a new control CNC. With total revision. The surgeons had to copy itself usual, so very simple parameterized, conceived by WIAP and created CNC programs. Only a few entries with R parameters could all be typed. New ball screws 80th in the Z axis. Bed reground, new scraped carriage. New automatic lubrication system. The 4 claws boxes were also revised.

End cockroaches lathe Heyligenstaedt

The machine during the rolling test turning. The Z ballscrew with 80x10. Covered thanks to WIAP ball screw cover system. WU4655



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The CNC Sinumerik 810T was made easy to use for operators, almost no switches were needed to work with the machine. WU4605



In Russia, if not boring was present also elements were separated. It is something that had to learn a machinist yet. WU4627



Although this work was for 1 day, it was once again a refresh this work. WU4628a



The roll lathe MFD was approximately 40 tons. The old feed gear portion was separated. WU4626



The roll lathe MFD was approximately 40 tons. The old feed gear portion was separated. WU4630

### **13. Conversion Retrofit Carousel turning machine TITAN**

Task: The conventional vertical lathe TITAN to get a new CNC control with ball screw spindles and feed motors and covers. Including a partial revision. The machine was ordered in Denmark at a machinery dealer. The dealer has then begun with the conversion but the control never grown nearly 1.5 years there have been delays because no man was Siemens Available for Angola. For commissioning and training. The WIAP then took over the job where Sven Widmer and Hans-Peter Widmer (WIAP) produced the work. When dismantling the WIAP was not involved which makes the structure complicated somewhat, but was well implemented despite the. The electric part has been completely prepared by WIAP. Planned and built won the Caroline Widmer and Jim Widmer in Switzerland. The cultivation goods were brought to Denmark and loaded into the container with the machine. In Angola Luanda established and cultivated the new CNC control with the motors. Commissioning performed first parts turned and people started school.



Setting up phase 2. WU\_240\_40



Now the 2nd side stand is mounted. WU\_240\_50



Former conventional TITAN VTL from Europe converted to CNC control to Angola. WU\_240\_550



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The side stabilizer below. WU\_240\_60



Previously a conventional turret lathe and now new a CNC controlled machine. WU\_240\_210



Start the cabling. Sven Widmer. WU\_240\_220



Programming on the machine. Harsh conditions: temperature above 30 degrees, now and then a sandstorm passing through the hall. WU\_240\_260



Sinumerik CNC. WU\_240\_240

End conversion retrofit roll lathe 03

