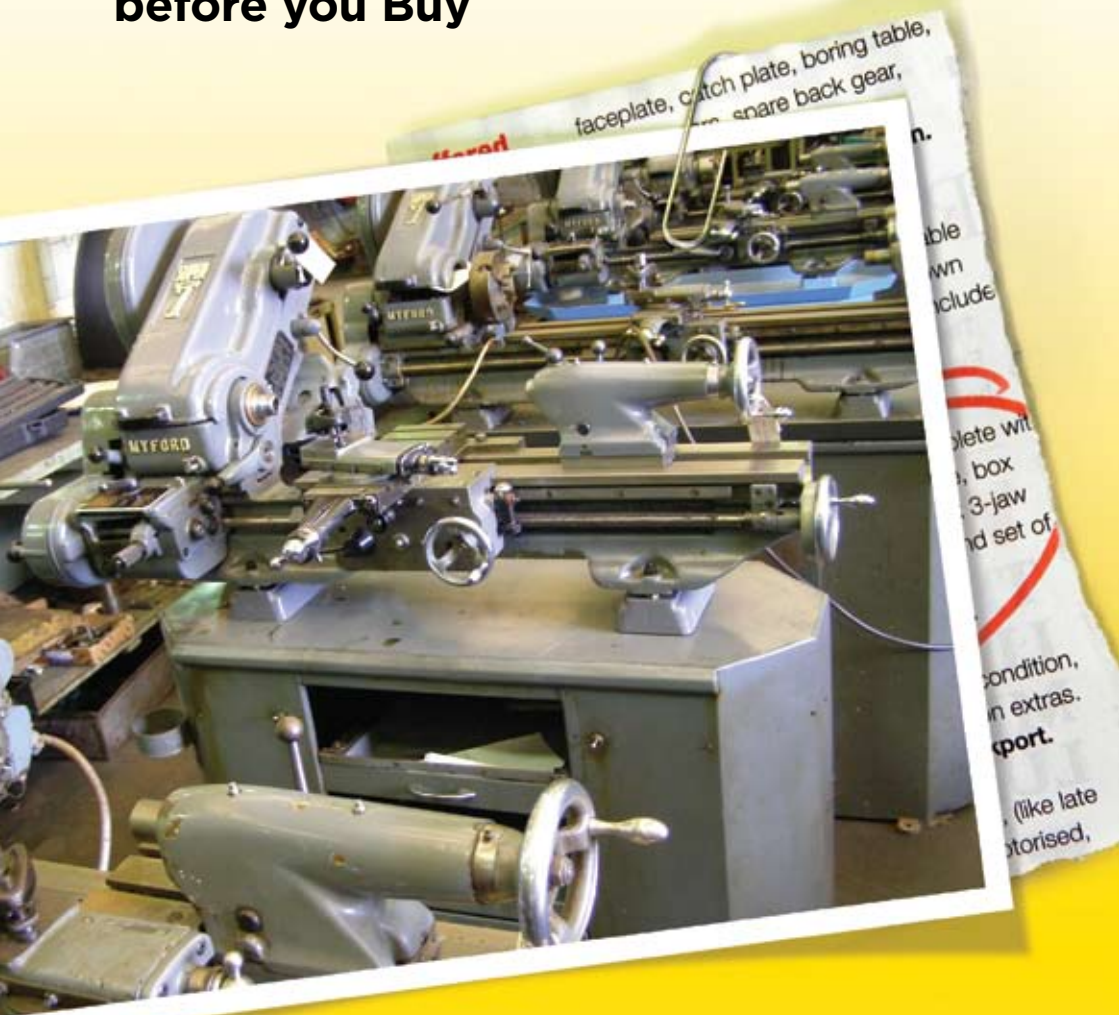


Myford

Pre-owned Lathes

A Guide to Inspecting
before you Buy





myford
Limited
Machine Tool Manufacturers

Myford Limited
Wilnot Lane, Chiswell Road
Beeston, Nottingham
NG9 1ER, England
Tel: (0115) 925 4222
Fax: (0115) 943 1299

Hardly a day passes when we don't receive a call from somebody somewhere around the world who has purchased a used Myford Lathe, often unseen at that. Subsequently they have come to appreciate that their good purchase was not really as good as they had anticipated, and it had dawned upon them that to bring their lathe back to Myford standards could be more complicated and costly than originally budgeted for.

Henry Royce said "the best is the cheapest in the end, the quality will remain when the price is forgotten".

This short Guide is intended to help people inspect and evaluate a Myford Lathe before buying. Almost every used Myford Lathe is capable of being returned to its original specification, it's a matter of time, skill and access to genuine Myford components. Here we tell you how to carry out a basic inspection and how faults are rectified when we carry out a Factory Rebuild.

I hope it will help you find your Myford Lathe.

Regards

Chris Moore
Managing Director
Myford Ltd

Manufacturers & Suppliers of Cylindrical Grinding Machines, Screw Cutting Central Lathes, Wood Turning Lathes, Milling Machines
Registered Office: As above. Registered in England Number 1012881

Pre-owned Lathes

A guide to Inspecting before you Buy

Myford have been building Lathes since 1934, during our most productive period our output was about 500 lathes a month and to our knowledge most of these Lathes are somewhere around the globe, many still working hard for their owners.

The fate of old Lathes depends on how hard they have worked and how well they've been treated; some are broken for spares, others are sold on the used machinery markets. Some come back to us for Rebuilding and returning to full service. This Guide is an inside view of how and where our Lathes wear and what we do to reinstate their working accuracies.

Myford Lathes that have worked hard will have wear in differing areas depending upon their history. So during inspection one or more faults will be detected.

This Guide takes you through this inspection process and explains how wear is detected and accuracy reinstated. We start with the Headstock of a Myford Super 7, the footnotes explain Rebuild procedures and the differences across the model range.

But first run the Lathe...

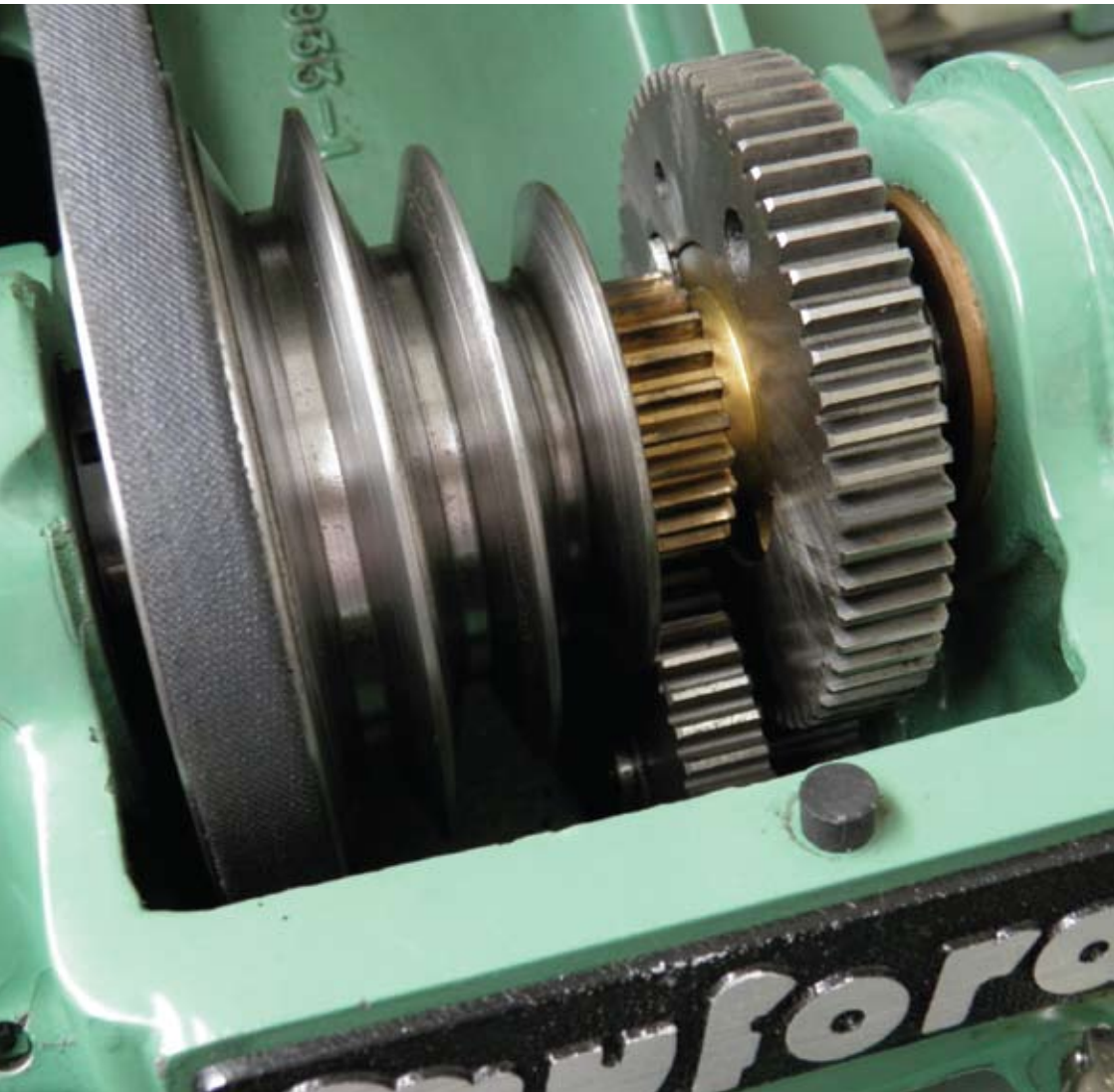
Run the Lathe

Wherever possible run the Lathe under power. Check that the Lathe will run comfortably at both its highest speed in the open drive range and its lowest speed in the back geared range.

If the machine is fitted with a countershaft clutch check that this engages smoothly, there is no slippage and that there are no alarming noises. Pay particular attention to the countershaft clutch unit on early Super 7 Lathes, manufactured up to

June 1958 S/N SK8128. The clutch is an expanding sleeve operating in the 4 step countershaft pulley. At times they proved temperamental in service and spares are now difficult. It is not a straight forward job to fit the current clutch.

Check that the main drive belt between the countershaft and headstock spindle is in good condition. Belt replacement involves dismantling the headstock on all but 254 Lathes.




The Headstock Spindle


Visually inspect both the bull wheel on the headstock spindle (mandrel) and the back-gear cluster for broken teeth. Check the condition of the pulley and the bronze gear that forms part of the back gear mechanism. Check that the rear angular contact bearings have not had grease pumped into them as it will mean dismantling and de-greasing. All the lubrication nipples on Myford Headstocks are for oil with the exception of the two nipples on Series 10 Lathes fitted with taper roller bearings which should be greased.

Now you will need a 0.0001" (0.002mm) Dial Test Indicator with magnetic stand set to read off the spindle register face (see photo) Release the belt tension from the countershaft to headstock spindle and revolve the spindle gently by hand. You would expect to see a reading of between 0.0003" and 0.0004" (0.008 and 0.01mm) Anything greater indicates that attention is necessary.


Procedures used in Factory Rebuilding ML7 Headstocks

 We reassemble the headstock to the bed. Re-scrape the headstock bearing to the spindle. Refit the spindle assembly complete with new vee belt to the headstock. Re-shim the headstock bearing caps for correct running clearance. Adjust end collar to give correct loading on thrust race and correct axial float to the spindle. Check and correct, if necessary, the spindle alignments.


Myford Super 7 and ML7-R Headstocks

 We re-scrape headstock front bearing to spindle and refit headstock to the bed. Fit a new pair of angular contact bearings to the rear of headstock. Refit the spindle assembly complete with new vee belt and wick to the headstock. Adjust the end collar to give correct pre-load on the angular bearings and make axial adjustment to the spindle to give correct running clearance at the front bearing. Check the spindle alignments and correct if necessary.


Myford 254S and Plus Headstocks

 We run the headstock prior to dismantling the lathe to check for bearing wear and undue noise and if required replace. Flush the headstock to clean and refit the headstock to the bed, reset pre-load on taper roller bearings. Replace cone pulley clamp washers, check headstock for alignment and if required correct.

Myford ML10 Plain Bearing Headstock

 We refit headstock to bed. Check spindle in bearings for running clearance if excessive wear fit replacement spindle. Refit spindle assembly with new vee belt and thrust race. Adjust end collar to give correct loading on thrust race and correct axial float to the spindle. Check headstock for alignment.

Myford ML10, Speed 10 and Diamond 10 Headstocks

 We refit headstock to bed, wash excessive grease from the bearings, check for bearing wear and if required replace. Refit the spindle assembly complete with new vee belt to the headstock, adjust the end collar to give correct pre-load on the taper roller bearings, check headstock for alignment.





The Lathe Bed and Saddle

Along with the Headstock these are the key components that form the basic structure of the Lathe. First make a visual inspection concentrating on the area to the right of the gap. If the bed has indentations, hack saw marks and generally looks untidy it will indicate hard use.

There are two types of bed for the Series 7 Lathes. The earlier bed, referred to as a narrow guide bed was discontinued in 1972 at S/N K107657 for ML7 Lathes and S/N SK108891B for Super 7 Lathes.

Check these and 254 Lathe beds with a 0-1" (0-25mm) micrometer to measure for wear on

the thickness of the bedways (shears). A 1-2" (25-50mm) micrometer to check for wear across the front bed ways on narrow guide beds and a 4-5" (100-125mm) micrometer to measure across the bedways of a wide guide Series 7 Lathe bed. Finally a 5-6" (125-150mm) micrometer to measure across the bedways of a 254 Lathe.

To establish what the bed measured when new take measurements at the extreme right hand end of the bed as this rarely gets used. Make a comparison with a measurement taken approximately 6-8" (150-200mm) from the spindle nose at the point where the saddle is most often used. If the variation in thickness of the bed shears is more than 0.005" (0.127mm) or the variation in the width across the front shear or both shears is more than 0.003" (0.076mm) then the bed will most definitely require a bed and saddle regrind.

Note: It is not possible to do a full bed and saddle regrind on an ML10, Speed10, or Diamond 10 Lathe. At best the top of the bed can have 0.005" (0.127mm) removed, a once only operation, so your visual inspection is crucial.




The Carriage

Again the visual inspection is very important. First check the top slide of the saddle where the cross slide sits. On Super 7 and 254 Lathes the saddle is scraped to the cross slide, look at the condition of the scraping marks. If the cross slide has worn a groove in the saddle then the saddle will be scrapped, as we cannot hold it in our jig to regrind the underside, as in bed and saddle grinding.

Take a firm hold of the toolpost stud, to determine if there is back to front movement in the cross slide (see photo). This will indicate the backlash in the feed screw and nut. If there is excessive movement you may not be able to adjust it out and a new feed screw and nut will be required (if the toolpost stud is loose in the top slide top a replacement casting will be required). Visually inspect the condition of the cross slide and top slide tops, check the condition of the tee slots. Look at the jib adjusting screws, if in poor condition it may also indicate a hard life.

Procedures used in Factory Bed & Saddle Regrinding


All Lathe models

 The nominal thickness of the shears (bedways) on a finished new Myford bed is approximately 0.5" (12.70mm). The maximum that may be removed from the top of the bed is 0.025" (0.635mm) before complications occur in aligning the apron with the rack and leadscrew.

During a Myford Factory Bed and Saddle Regrind metal removal is kept to a minimum, however it may be necessary to reduce the thickness of the shears between 0.005 (0.127mm) and 0.010 (0.254mm) to get back to a sound top surface. In theory it's possible to regrind a bed between 2 and 5 times. Indeed, as our records show, this has been done for a number of customer owned lathes.

Procedures used in Factory Carriage Rebuilding

All Lathe models

 Regrind the tops of both cross slide and top slide. Refit the toolpost stud and fit a new anti torque in a new position. When re-assembled check for facing cut against alignment jig. The nominal thickness of the shears



The Leadscrew and Apron

A visual inspection is all that's needed. Compare the leadscrew's centre section where most of the work is done with that at the back of the machine. Are the threads worn or are they becoming 'sharp'? If there appears to be too much play in the saddle when the leadscrew is engaged a pair of half nuts will often bring the play back within tolerances.

Procedures used in Factory Re-assembly of Apron

Super 7 & ML7 Non-Powerfeed



Fit new rack pinion and hand traverse pinion if worn and new Oilite brushes where required. Check leadscrew, half

nut and replace where necessary. Refit half nuts and complete assembly. Refit apron to lathe, check and adjust rack pinion for meshing with rack.

Super 7 Powerfeed



Fit new rack pinion, hand traverse pinion and Oilite bushes as required. Check leadscrew, half nut and replace as necessary. Refit half nuts and check for closing balance on jig. Refit apron to lathe, check and adjust rack pinion for meshing with rack.

254S & Plus



Fit new rack pinion, hand traverse pinion and Oilite bushes as required. Check leadscrew half nut and replace as necessary. Refit apron to lathe. Check and adjust rack pinion for meshing with rack.

ML10, Speed 10 & Diamond 10



Fit new hand traverse pinion and counter pinion as required. Check leadscrew half nuts and replace as necessary. Refit half nuts and complete assembly. Refit apron to lathe.

Gearboxes and changewheels

Engage the tumbler reverse lever

and check that the drive train to the leadscrew functions properly. If the Lathe is fitted with a quick change gearbox run this through the 8 speed selections on the front of the gearbox to ensure that neither the tumbler selector gear nor the gears on the cone or layshaft are damaged, these can be complex to replace. Remember you must stop the Lathe before moving the selector lever. Check that the selector lever on top of the gearbox also functions correctly. (This can be done with the gearbox running.)



Procedures used in Factory Rebuild Super 7 and ML7 Changewheel



Check and refit leadscrew, checking bushes in right hand and left hand brackets, set engagement of half nuts. Refit changewheel guard and drive train from headstock spindle to leadscrew fitting standard set of changewheels.

Super 7B and ML7B Gearboxes



Remove Quick Change Gearbox lid and flush out. Refit gearbox to lathe. Check and refit leadscrew checking bushes in the right hand bracket and setting engagement of half nuts. Refit gearbox guard, backplate and drive train to spindle.

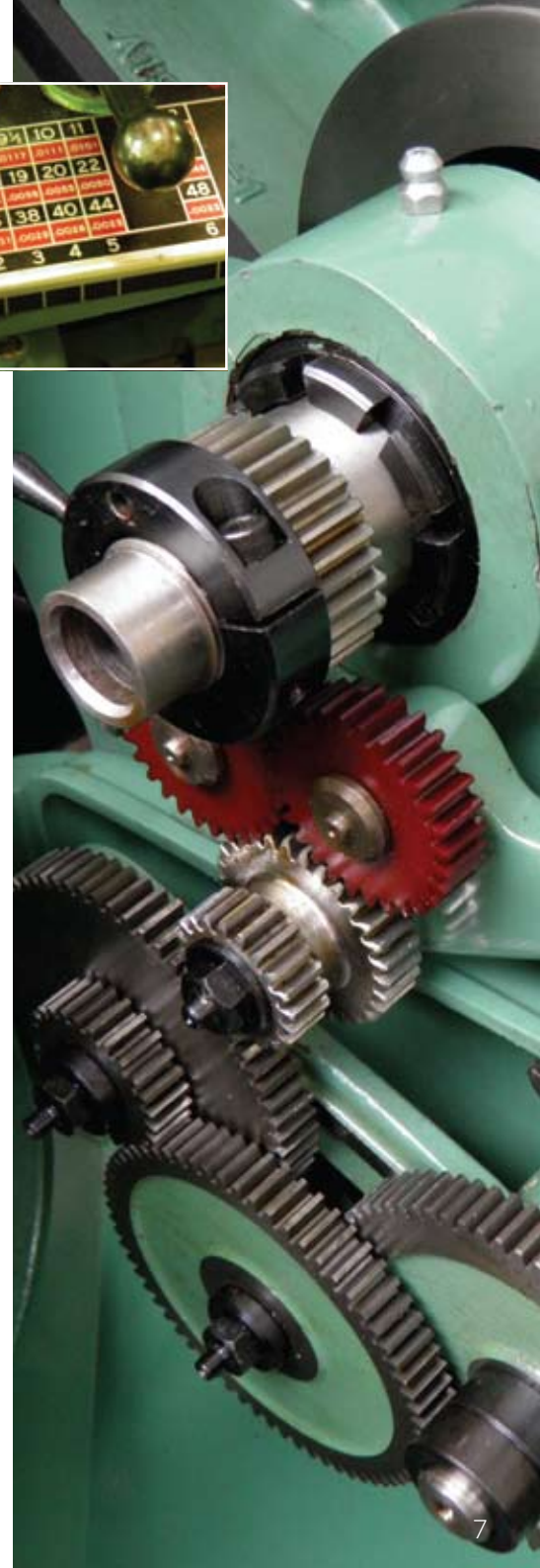
254S and Plus, Gearboxes



Flush gearbox, check for any obvious wear or damage and rectify as necessary. Refit gearbox to lathe. Check and refit leadscrew setting half nut engagement and checking bushes in right hand bracket. Refit drive guard and backplate and drive train to spindle.

ML10, Speed 10 and Diamond 10 Changewheel

Check and refit leadscrew, setting engagement of half nuts. Refit changewheel guard and drive train from headstock spindle to leadscrew fitting standard set of changewheels.





The Tailstock Barrel

On the ML10, Speed 10, Diamond 10 and ML7 Lathes check the condition of the running fit between the tailstock handwheel and barrel. If there is a lot of play, new parts will be required. Extend the tailstock barrel as far as is practical and check for movement, (see Photo). Excessive play means that the front of the barrel bore in the body has worn 'bell mouthed' and will ultimately mean that a complete new tailstock will be required.

Procedures used in Factory

Rebuild of Tailstock

Super 7 & 254S & Plus



Check front of bore for bell mouthing, fit new tailstock body if required. Check barrel, feedscrew and nut for excessive wear and replace as required. Replace barrel key and refit barrel etc. Replace tailstock body set over screws if damaged, refit tailstock base and refit tailstock to lathe setting clamping lever and base gib strip. Check and adjust tailstock alignments relating to headstock. Check tailstock barrel height relative to headstock spindle and fit a new tailstock base as a corrective measure if required.

ML7, ML10, Speed 10 & Diamond 10



Check front of bore for bell mouthing, fit new tailstock body if required. Check barrel, keep plate, and handwheel for excessive wear and replace as required. Replace barrel key, refit barrel etc. Replace tailstock, refit tailstock to lathe, resetting clamping lever and base gib strip. Check and adjust tailstock alignments and alignment relative to the headstock. Check tailstock height relative to the headstock spindle and fit a new tailstock base as a corrective measure if required.

The Chuck

Check that the jaws are parallel and not 'bell mouthed' and that there is no sign of abuse; is the chuck key present? Is it smooth in operation and are the internal threads in good condition? Hold something that is known to be round in it and rotate the spindle by hand, using the DTI to check that it's concentric. A good chuck should read no more than 0.003" (0.76mm) three inches from the jaws and less at the jaws.

Also be aware there are currently no spares available for British made Pratt Burnerd chucks, if the chuck shows serious signs of wear it is best avoided.



The Motor

For use in a private workshop use single-phase electrics so that the motor can run on domestic 240V supply via a three-pin plug. Also check that the motor is the correct size for the Lathe and runs at the correct speed. Disengage the motor to countershaft drive belt, or in the case of the 254 Lathe, the drive belt. Run the motor on its own and check for noisy uneven running. Myford have only ever recommended resilient mounted motors as the mountings tend to smooth out inherent single phase vibration.

Procedures used in Factory Rebuild for motorising

Super 7



Re-assemble motorising unit. Refit countershaft arm and motor platform. Check bearings in outboard pulley, check condition of push rod, push bar, thrust race and camshaft, replace as required. Re-assemble, reconnecting new headstock vee belt and realign pulleys. Re-adjust clutch for correct clearance.

ML7



Re-assemble motorising unit. Refit countershaft arm and motor platform. Check countershaft and bushes for excessive wear and replace if required. Re-assemble, reconnecting new headstock vee belt and realign pulleys.

254S and Plus



Re-assemble motor platform. Refit motor and pulley. Realign pulleys. Fit new drive belts.

ML10, Speed 10 And Diamond 10



Re-assemble motorising unit. Check countershaft and bushes for excessive wear and replace if required. The Lathe is fitted with one piece left hand raising block that carries countershaft arm, refit motorising unit.



The Electrics

Check the general condition of the wiring and the switch gear. Many older Lathes were fitted with Dewhurst & Partners drum type switches and/or M.E.M. Push Button Starters. The drum type switch can be problematic with contacts arcing, spares for both are no longer available. If you are looking at a machine on an older industrial stand with an inbuilt electrical panel, beware as most of these left our Factory suitable for 3 phase supplies. Conversions are often bodged and the correct replacement parts are not easy to come by.

Procedures used in Factory Rebuild for Electrics

All Lathes except 254



Test and either refit or replace motor. If current style reversing push button starter originally fitted tests correctly, refit. If alternative type of switch fitted, i.e. drum type reversing, Krause & Naimer rotary switch, M.E.M. push button starter etc. remove and replace with current switch fitting. If Mk 1 or Mk 2 style industrial stand renew and overhaul existing built in control panel.



254S and Plus

Overhaul and where necessary renew existing electrical equipment.



A word about Myford Factory Rebuilds

Pre-owned Myford Lathes are purchased by us specifically for Rebuilding. Our production schedules allow for a small quantity to pass through our Works alongside our building of new machines. The process takes about three weeks from start to finish, they then go through the same inspection tests as the new machines. After which they are certificated, plated and Guaranteed exactly as the new machines.

We sell Factory Rebuilt Lathes all over the world, they are identified from our records and, more recently, by the addition of the plate above that carries the date on which that particular Lathe left our Factory for the second time.

When a Rebuild is carried out by us it will be Guaranteed to meet the same specification it was originally built to, this means that, as the new owner, you will have the Myford standard of reliability and accuracy to support your turning requirements for years to come. You will also have access to spares, tools and accessories as well as the support we offer to our new machines.

“
A Myford Factory Rebuild is the next best thing to a New Myford
”

The Paintwork

A good quality Lathe will have a good quality finish, it protects and assists in keeping the machine clean and free of oily deposits. Every Rebuild we undertake is inspected and surface finishes are reinstated where practical.

Serial Number Search

Before you buy a pre-owned Myford Lathe take the serial number and ask us about its history, if it has been returned to our works at any time we will have a record, we will also be able to tell you its age and to whom the Lathe was supplied when new. Knowing as much as possible about the Lathe you are thinking of buying will make owning a Myford a more rewarding experience.

Email us at support@myford.com and we will happily answer any questions.



Myford



Myford Limited, Wilmot Lane, Chilwell Road, Beeston, Nottingham NG9 1ER

For further help and advice please email support@myford.com

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