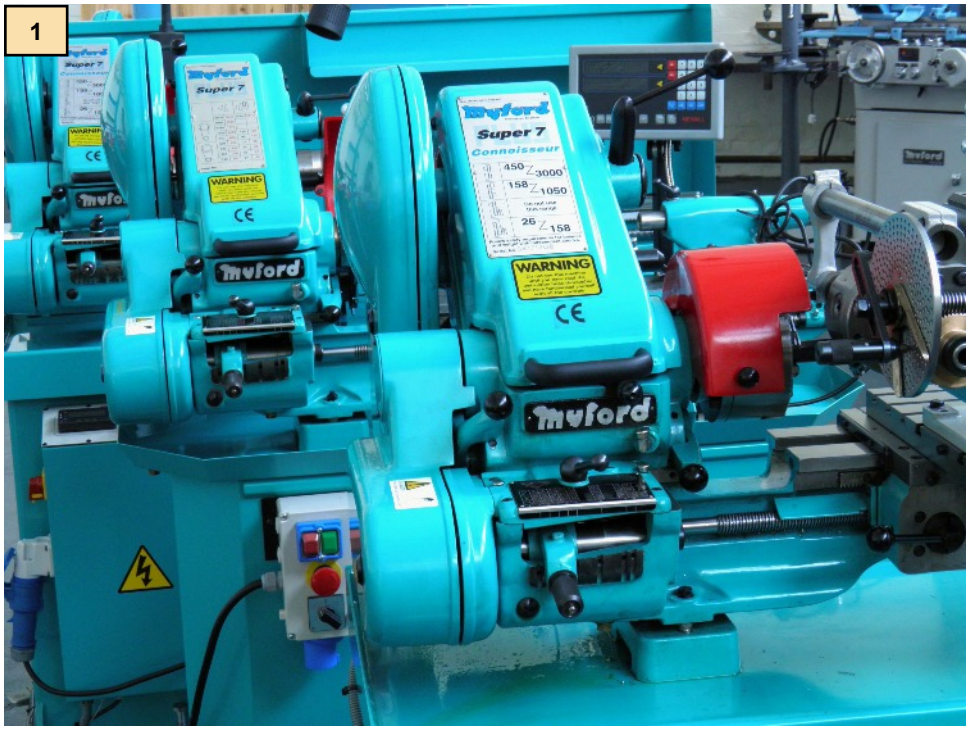


CARE AND LUBRICATION OF MYFORD SERIES 7 LATHES

David Haythornthwaite gets to the bottom of a question bothering many Myford lathe owners.

OVERVIEW

I have been asked by one or two Myford owners, the correct lubrication to use on the lathe, and indeed I have also been unsure about some lubrication aspects. At the recent (last ?) Myford Spring Show, I asked the technicians for clarification about the oils to use and the lubrication points to look out for. I hope that the information gleaned will help other owners.
At the time of writing this article, Myford have recently gone into Liquidation and all the stock of spares are now available from RDG tools. Where appropriate, however, I am still quoting original Myford part numbers.

General Care

Whilst this article is mainly about lubrication of your lathe, a few words about general care of the lathe may not go amiss. Following a few sensible rules in the daily operation of any lathe will help to keep it in an almost new condition.

1. When machining irregular shaped items, always turn the lathe by hand before engaging powered drive in order to ensure that the work has full clearance from the machine and will not damage either the lathe bed, slides or tool holders.
2. Keep the bed and working parts of the lathe clean and free of swarf, particularly after machining Brass or Cast Iron.
3. If the lathe is to be left in a damp atmosphere, ensure that all unpainted surfaces are liberally coated with rust preventative or preservation oil, particularly the bed and slide surfaces.
4. If abrasives or grinding wheels are used either on the lathe or nearby, then protective measures should be taken to protect the lathe and in particular the lathe bed from harmful abrasive dust which otherwise could become embedded into the slideways.

Cover your lathe after use to protect from dust and airborne contaminants. Myford used to offer waterproof, fitted covers Part No's 11574 or 11575 depending upon the bed length. Presumably now available from RDG tools..

Lubrication of the Lathe

Two lubricants are recommended for regular use on the lathe. These are :-

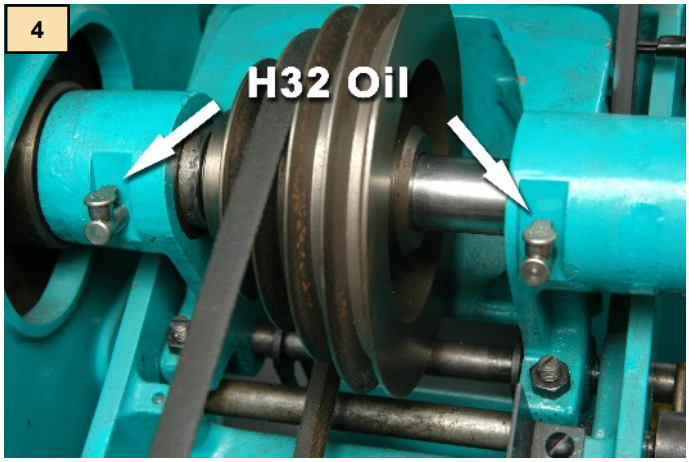
1. Esso Nuto H32 Oil – A thin, hydraulic oil for Headstock lubrication and to lubricate the majority of rotating parts. Myford Part No 80024. We shall call this simply H32.
2. Esso Febis K68 Oil – a heavier "sticky" oil for use in the gearbox, on gears and preferably on slideways. We shall call this K68.

Note :- the prolific lubrication points on your lathe are not grease nipples, but are oil nipples. Your lathe does not require grease in it's regular maintenance, but requires oil applied through the use of a Myford oil gun. If you bought your lathe new from Myford, then an oil gun will have been supplied with the machine. Many of the older oil guns, whilst being perfectly serviceable, did have an unfortunate tendency to leak oil all over the place. Myford recently offered a much improved oil gun as illustrated in **Photo.2** which has greater capacity and is guaranteed leak proof. Myford Part No 15472.
Safety Note :- The latest lathe models carry a safety warning as illustrated in **Photo.3** warning that you are advised to isolate the motor and ensure the lathe is at rest before opening any of the lathe guards for maintenance. Whilst some older lathes may not carry this warning, it is important that these precautions are carried out prior to opening any lathe guards with the possible exception of chuck or splash guards.

Headstock Lubrication

The most important lubrication point is the headstock main (front) bearing. This bearing is a tapered plain bearing for the lathe spindle and the spindle is lubricated by a spring loaded felt wick which sits in a small oil reservoir and bears onto the main spindle through a slot in the bearing, thus applying a continuous smear of oil whilst the lathe is running.
Photo.6 illustrates the oil cup which must be filled with H32 oil twice a day if the lathe is being run continuously.
Whilst using the lathe it is good practice to monitor the main bearing temperature occasionally with the hand.
The bearing will run warm, but should the bearing start to become overly hot, then the availability of oil in the cup should be checked. If a fully lubricated bearing still runs hot then the adjustment of the main bearing should be checked.
The rear bearing consists of twin angular contact ball bearings which need oil lubrication with H32 oil. Apply the oil gun and give two pumps to the nipple shown in **Photo.7** on a daily basis.

The coned V belt pulley which runs on the main lathe spindle gives 4 selectable speeds in direct drive by changing the position of the belt. When the lathe is run in direct drive – as opposed to running in back gear – the cone pulley is locked to the main spindle and lubrication is not a particular issue.
However, when the pulley is disconnected from the lathe spindle and the back gear is engaged, the pulley is then being driven by the belt at about 8 times the speed of the main spindle upon which it is rotating. Efficient lubrication of this pulley is crucial when running in back gear and the oil gun must be used on the oil nipple

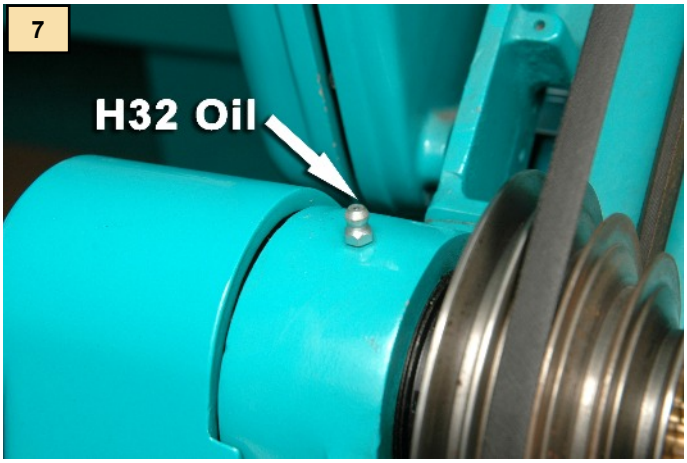


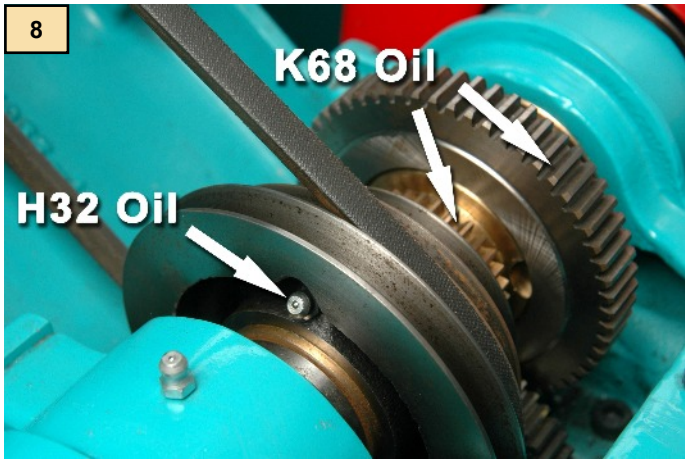
shown in **Photo.8** until oil just becomes visible on the joint at the back - gear end - of the pulley. You may have to rotate the spindle by hand in order to see and gain access to this oil nipple.The gears of the back gear mechanism should be sparingly lubricated with K68 oil as illustrated in **Photo.8** using an oil can. K68 is a sticky gear oil and will therefore remain in contact with the gears better than would
be achieved by the thinner H32 oil. The final oil point on the headstock is in the shaft centre of the back gear engagement handle as shown in **Photo. 9**. This is easily missed but is important as it lubricates the back gear layshaft. When the back gear is in use this shaft should be lubricated by the oil gun twice daily.

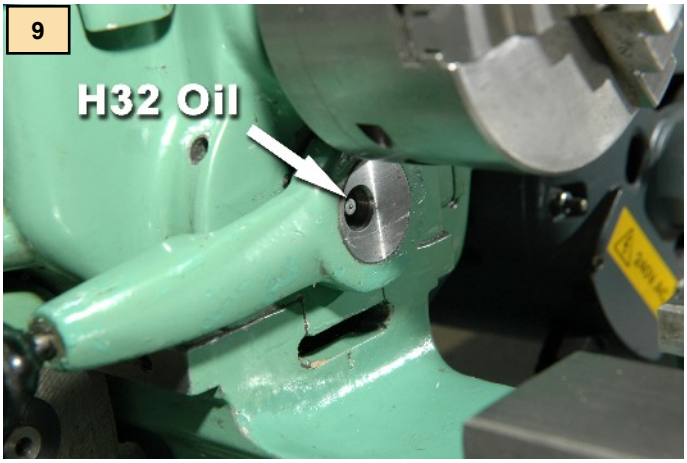
The photographic illustrations are taken from a variety of lathes, but all the lathes illustrated incorporate the quick change gearbox and a powered cross slide. Lathes with manual gear trains and without powered cross slides will vary slightly in their lubrication requirements, and these variations will be mentioned later.

Gear Train & Gearbox Lubrication

The method of driving the leadscrew from the headstock spindle will depend upon whether or not the lathe in question incorporates a quick change (Q.C.) gearbox and indeed whether or not the Myford metric
conversion quadrant has been fitted. However the photos in **Photo. 10** and in **11** illustrate the basic philosophy of lubricating the gear train whichever type is involved. Both the tumbler gears as shown in **Photo.10** and the main gear train as in **Photo. 11** have to be lubricated in two separate ways. The studs on which the gears are running must be lubricated with H32 oil, by oil gun if oil nipples exist on the studs, or by oil can if oil nipples are not present as in some older ML7 lathes or with the metric quadrant in use. The actual teeth of the gear wheels require oiling sparingly with K68 oil using an oil can. Just suffi-







cient oil is required to eliminate the friction without splashing oil all over the surrounding areas. For lathes fitted with a Q.C. gearbox the gearbox requires lubrication entirely with K68 oil which is a gearbox oil.

Photo. 12 shows the gearbox on one of the latest Super 7 Plus machines. The gearbox features an oil reservoir in the lower half of the gearbox, and this may be drained through the drain plug illustrated in **Photo. 13**. The filling / level plug can then be removed and the gearbox filled to the level of the plug with K68 oil. It may be filled to the level plug through the large aperture if preferred. From time to time the gearbox should be drained, flushed out with thin (H32) oil and then refilled with the correct K68 oil. On the top of the gearbox are two oil cups so that top up oil (K68) may be added by the use of an oil can and as the oil cups are over the gear shafts, the oil will circulate over the gears.

In **Photo.14** an older Q.C. gearbox is illustrated, and this has identical lubrication requirements. However the top up points have oil nipples in place of the current oil cups and if the owner has only one oil gun, as is likely, it will undoubtedly be full of H32 oil. However the more modern oil cups are available for a fairly nominal charge (Part No. 65009) and as both the oil nipples and the oil cups are a press fit into the gearbox, changing to the modern style is fairly easy. This seems a better solution than draining and refilling an oil gun each time it is necessary to lubricate the upper gearbox. **Photo. 13** illustrates the reservoir level and draining points.

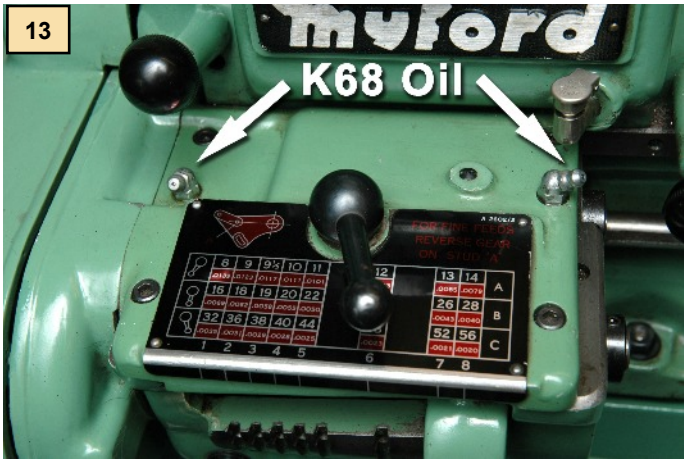
Leadscrew Lubrication

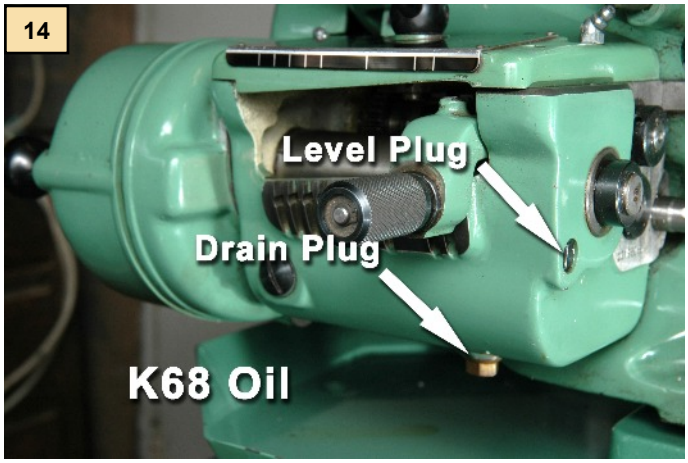
Photo. 15 shows the end support bearing which must be lubricated with H32 using the oil gun. Once per week should prove sufficient. On lathes without a Q.C. gearbox, there is an identical leadscrew support bearing on the left hand side which should be similarly treated. The leadscrew itself should be cleaned with paraffin and a stiff brush from time to time and oiled with K68 from an oil can. It is important for the accuracy of the leadscrew to keep the leadscrew thread both clean and well lubricated.

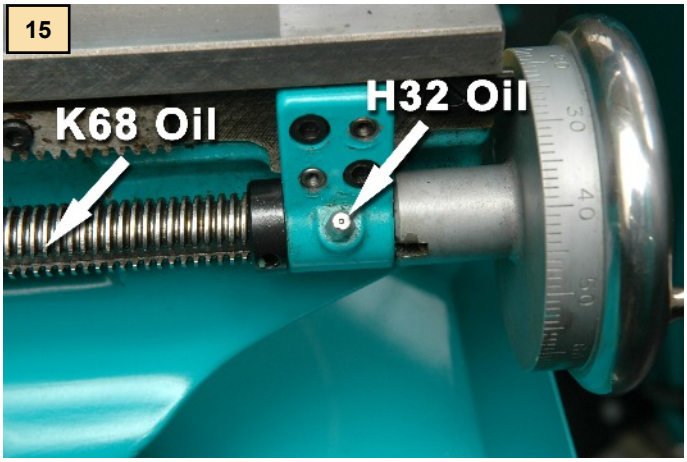
Saddle & Apron Lubrication

The saddle is lubricated through two oil nipples situated as shown in **Photo.16** and **17**. As illustrated, the rear shear is lubricated through an oil nipple situated on the rear edge of the saddle and it is hard to see from the top of the saddle how this may be effective. **Photo. 18** shows the saddle inverted and illustrates how there are long grooves on the underside of the saddle to distribute the oil evenly over the lathe bed slide ways. The front shear is not lubricated by the similarly placed nipple at the front, but is lubricated by the nipple placed on the top of the saddle. H32 oil is used for the saddle, but the more sticky K68 may be found to stay on the slides better if you do have two oil guns.

The saddle incorporates a felt wiper on the edge nearest to the headstock in order to retain oil inside the saddle and to stop swarf from becoming trapped underneath the saddle and causing wear to the lathe bed.







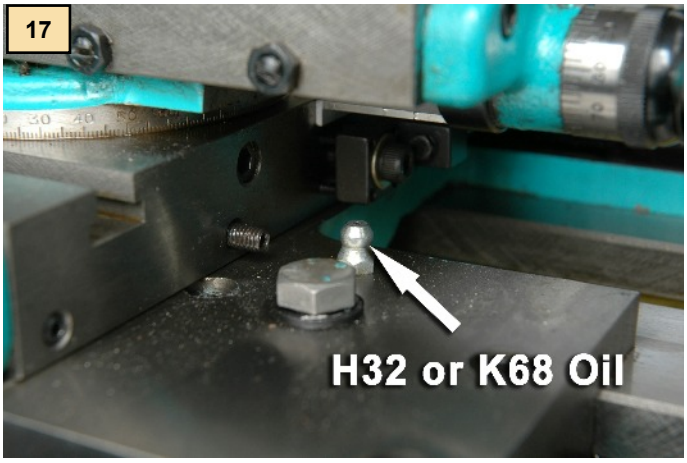
From time to time, the cover and wiper should be removed by removing the four retaining screws. If the existing wiper is still in good condition, it may be cleaned and soaked in H32 oil. The seating face on the edge of the saddle and the retaining cover should be cleaned with paraffin and the, oil soaked, wiper refitted.
It is a good idea to replace the felt wiper from time to time and this is being done in **Photo.19** where a new felt wiper part no. A8735 is ready for fitting. Older ML7 lathes will take a different design of wiper part no 70/1328. New felt wipers should be soaked in oil prior to fitting. Keeping the lathe bed clean and clear of swarf will help to extend the life of this part as well as the lathe bed itself.

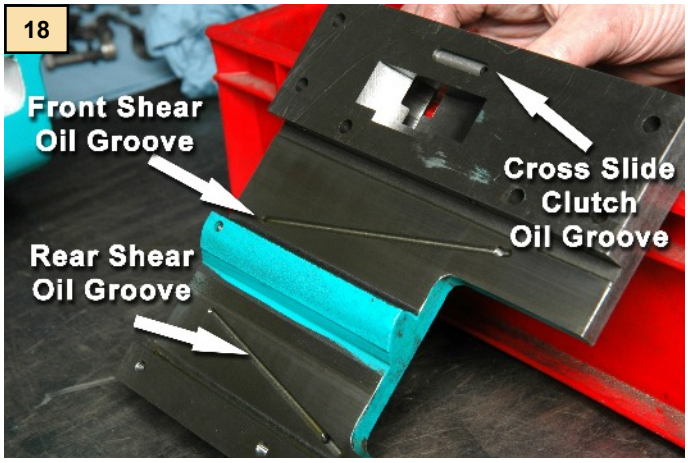
Saddle Apron Lubrication

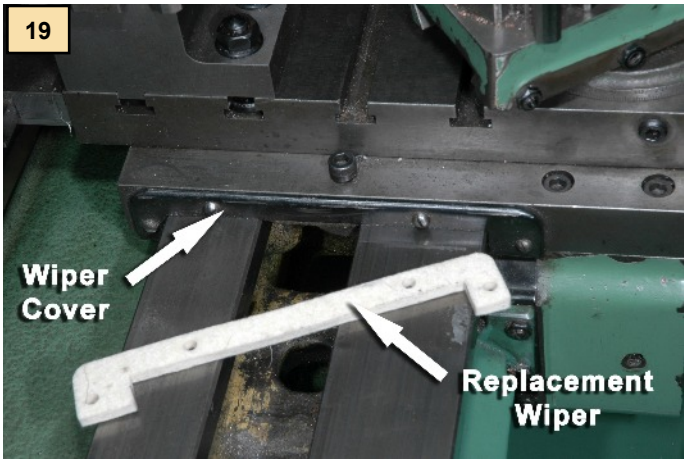
The lubrication points on the apron are illustrated in **Photo 20** and as it is always helpful to understand where the oil is going, **Photo.21** shows the apron removed from the lathe to illustrate the mechanisms that the apron contains and the lubrication required. This apron is from a machine with powered cross slide and machines without this facility will have a simpler style of apron and fewer lubrication points. The top oil nipple on the edge of the saddle plate lubricates the cross slide drive clutch spindle with H32 via the channel on the underside of the saddle shown in **Photo. 18**. The other two oil nipples also lubricate the cross slide drive mechanism with H32 through oil paths drilled into the apron casting. Obviously this arrangement differs on lathes without powered cross slides.
It is easy to miss the fact that the saddle carries an oil reservoir which should be filled with K68 gear oil through the level plug just to the left of the quick traverse handle. This lubricates the quick traverse mechanism.

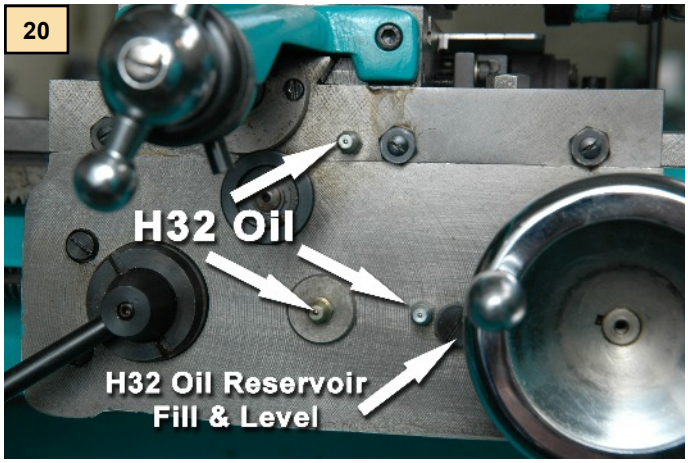
Tailstock Lubrication

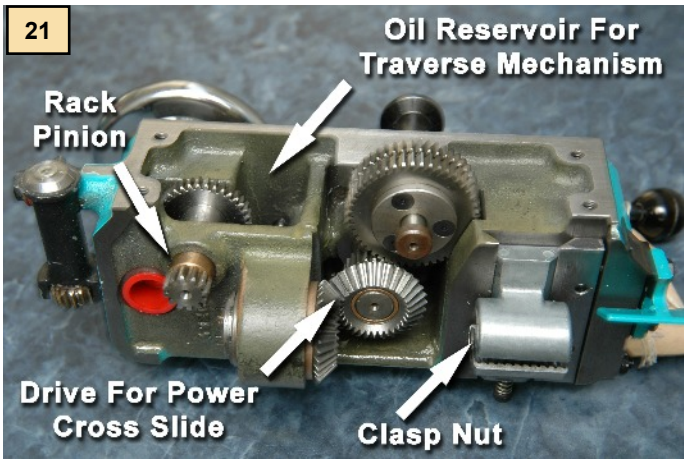
The sliding barrel and thread of the tailstock are lubricated with H32 through the two oil nipples shown in











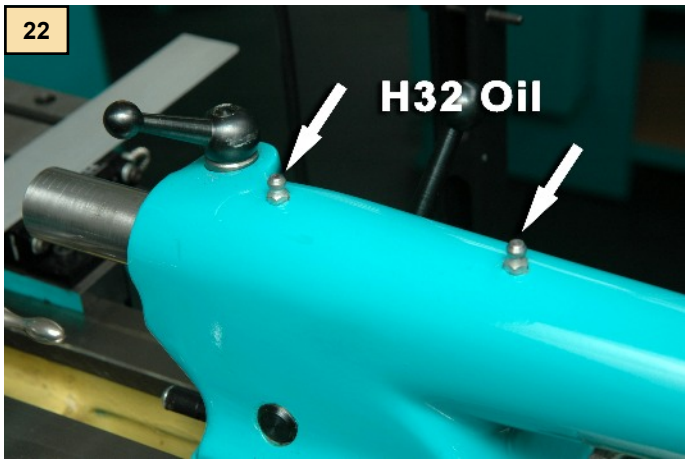


Photo. 22 whilst the thrust bearing on the Super 7 is lubricated through the oil nipple in **Photo. 23** again with H32

Cross Slide and Top Slide Lubrication

There are no formal lubrication points for the slides on the cross slide and the top slide. These are best lubricated with an oil can from beneath with K68 oil. Withdraw the slide as far as possible to reveal the sliding surfaces as illustrated in **Photo. 24** and apply the oil. Using the thicker K68 "sticky" oil will retain the oil better on the sliding surfaces, but H32 would be quite suitable if preferred. K68 should be liberally applied to the slide lead screws on a regular basis. The cross slide should be lubricated in a similar manner. With just a little care and attention, you can extend the life of your lathe by many years, and the number of Myford lathes which are still in use and producing quality work after more than 50 years constant use illustrates the potential of these superior British lathes. It is worth taking time to correctly lubricate your lathe and it will pay dividends in the long term.