

How was it for you? Cleaning and servicing a 'LOMO' MBR-1

Some observations on the servicing of a 1963 Progress MBR-1, the Biolam 70's ancestor with some notes and alternative lubricants.



(Photo from Science museum)

Note the wooden packing piece under the arm to protect the fine focus mechanism when in transit.

Firstly while I was reasonably dextrous I am not one of those mechanically gifted types who can see exactly how things were put together and hence – usually – how they will come apart without a lot of thought and then somehow remember how it all goes back together *and* in which order! Neither do I have much natural affinity with metal so much so that my metalwork teacher advised me to stick to woodwork which I understood so much better. I still do, but did manage to learn the basics in the metal workshop and remember them to this day.

The desire or developing need for a horizontal stage without losing the inclined eyepiece combined with the wider availability of parts and accessories for the LOMO range as opposed to my ancient ex university (and hence severely 'studented') Watson finally pushed me into buying a LOMO stand, servicing and restoring it. The worry was doing it with my less than perfect hands.

But it wasn't as hard as I feared and all ended well with no swearing directed at the MBR-1. The Dodderly Old Fool doing it was a different matter. Take notes and photos *before* you need them although most of what you will need is on the web – somewhere.

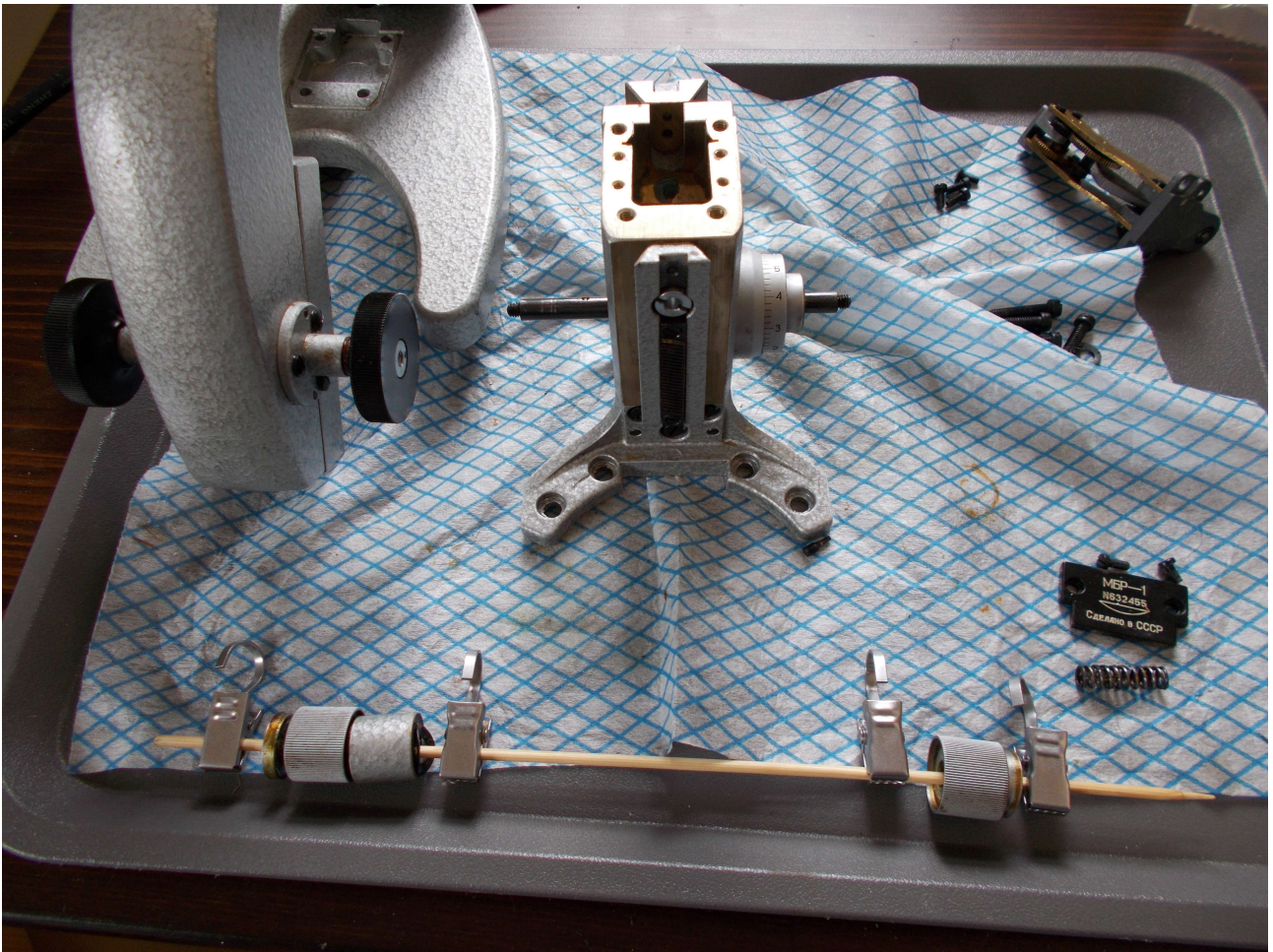
There are many articles on the Biolam 70 series both here and elsewhere on the Web, most of which apply equally to the MBR-1 although there are minor differences most of the afflictions and the solutions are the same. Some materials have been changed like the condenser focussing rack which is metal on my version but in practice there were no real surprises. Just be careful, read safety notes and remember this is what happened to me and is neither a manual nor recommendations!

The only potentially difficult part of any of the work involved is finding the right screwdrivers because they really do need to fit the screws. Not close but actually fit properly. Nothing on my stand was murder tight but some screws (in particular the lens turret) would have been damaged or even irremovable if the driver had not fitted properly. The slots in the LOMO like quite a lot of screws around in the middle of the last century and before are narrower than they seem to make them now. I needed to dress a couple of screwdriver tips to fit properly. Time well spent even if it did take me almost as long as stripping the entire stand down. They need to fit length and width with the tip seated on the bottom of the screw slot with no slop anywhere.



Someone had used too narrow a blade here probably because it was available and went into some of the slot. Please don't and take a head like this as a warning that it could be very tight. Using a well fitted screwdriver it came undone without drama.

I used a diamond sharpening plate to do this by hand as it would not groove as a stone would and not overheat the screwdriver on a high speed grinding wheel as always seems to happen when the dog/cats/wife or whatever distracts you. I've come round on these diamond plates as well as water stones finding I do so much better with them than the Carborundum or India and Arkansas stones that we were taught to use at school. No oily mess either. Diamond plates are also quite usable on glass if needs be. Jewellers or watchmakers screwdrivers on the other hand are readily available in the correct sizes. Just make sure they are good quality ones because some of the screws will be 'firmly' in place. Working in a tray, pots / double sided tape or pots for bits and all the other general hints are covered in numerous articles on the web.



While talking about grinding, occasionally someone mentions the difficulty in obtaining small quantities of grinding powders for the odd job. I have seen lapidary suppliers including craft shops selling small quantities of these and car and glass finishers sometimes have cerox polishing and aloxite smoothing powders. Rouge is really, really messy and yes, it does produce a truly beautiful optical polish but only very slowly. It's also messy, far worse than pitch or cerox. You have been warned! Oh and don't wash any used carbo down the sink especially if you have a waste disposal unit. This is why if you ever lap anything flat on a glass plate with carbo you have to clean it all off completely afterwards. Outside. You can't prove it was me and you have no witnesses. Sorry digressed a little there.

The focussing and condenser stages were naturally stuck, the fine movement immovable by hand. Soaking in solvent and an ultrasonic tank did not do the job. I ended up driving it off with a light hammer and a piece of soft metal. This worked fine even if it does seem all wrong just be very careful not to miss or mark anything after removing all the delicate bits first.

The dovetails themselves were actually very good with no corrosion or obvious wear judging from the machining marks present, just hardened grease. After cleaning and drying carefully I re lubricated them with Servisol silicone grease from a tube. This is a slightly sticky grease intended for damp and weatherproofing of electrical connections so ought to be safe on brass. This has been so successful over the 40 odd years I've used it without it ever hardening or causing corrosion I hope it will be no problem in this application. Also proved very good on slide rules and fishing reels. It's stated in the guff to be a good lubricant and while they would say that wouldn't they, I've never had any reason to complain - but neither am I a tribologist.

The rotating stage came apart with little difficulty exactly as described by Ian Walker. The centring and locking screw threads are 3.5mm metric and the same as the electrical sockets now used in the U.K. so that may be a possible simple source of replacements and taps to clean up the threads in the table. Mine were lightly bent but fine after straightening. I had a watch screw case opening tool to hand which made the job of removing the locking ring very easy. I'm not keen on oiling closely fitting surfaces like this so I used an aerosol solid PTFE lubricant sold for bicycle chains which proved to be excellent. It's also very good for plastic curtain rails, hinges, zips and many other things about the house. Any excess just brushes off when dry, just be careful the solvent cum propellant is safe with any plastics or other materials it could contact. Removing any lenses from the firing area is a good idea too.

Sadly the condenser diaphragm did not want to work dry due to roughness, possibly corrosion (also visible on the lower edge of the mirror) evident on the slotted control ring. It looks to me- not that I'm an expert on this stuff- as if you'd have to dismantle it to get the lens out or de grease it fully and re assemble the diaphragm (remind me, which layer of Hell was this one?) Washed and greased with a conventional lubricant it's OK and I have a spare anonymous 'Aplanat 1.4' that fits the condenser carrier perfectly and is running dry and light so I felt it wasn't worth the trouble at the present. I also presume LOMO greased them for a good reason even if I have no idea what that was.

One solvent I've seen recommended for working on cameras and the like is lighter fuel or petrol stove / lamp fuel. Over the years I've used those in preference to white spirit which I found on occasions to leave a greasy residue. Ronson or Coleman fuel not so and the can with handy spout is so easy to use. Maybe I've just been unlucky – or cheap with the white spirit. All of them are highly flammable and not at all good for your health.

The clockwork fine focussing gearbox appeared fine but a surprising amount of dirt came out in the ultrasonic tank. The pin that drives the dovetail slide was wired on in my version which made re assembly straightforward enough but do be careful not to loose it. I pretended it was a clock and having degreased and cleaned it put a miniscule amount of 5W30 synthetic oil on the pivots only.

The spring and ball bearing clutch in the fine focus knob had one bent spring. This was straightened out with fine pliers after fitting it onto a screwdriver blade as a combined holder and former or better reformer. Lining up the spring, ball and recess on the cover and compressing it into the knob to keep the spring and ball in place in the hole while screwing it on by the other end of the shaft got it back together simply enough. I used circlip pliers to loosen and final tighten the discs. I did need to jiggle the gearbox and fine focus into engagement too. It's wise to ensure this all works **before** screwing the arm and all the mechanisms back onto the base, but *you* wouldn't be that stupid of course.

The objectives were of a different and simpler construction. No external cover sleeve like the more modern ones and they dismantle by removing the plastic ring at the mounting end. I found these a bit tight for my old fingers and as there are no holes for a pin spanner used the old 'double sided tape wrench' trick often used on camera lenses.

Apply double sided tape to plastic ring.

Remove backing.

Apply another ring or in this case a finger to sticky second side of tape.

Unscrew.

Why all the extra parts on the later ones? Anyone know, not very Russian ie keep it simple, less to go wrong, easier to fix etcetera?

Some folk use a rubber gasket or double sided tape stuck to the end of a tube or rod but the tape trick helps keep hold of the ring. Beware the spring of the sprung mounting. Not that strong but could fly out and get lost or stood on. Or go in your eye if not wearing protection. Bad outcome.



Once dismantled a dry lubricant could be applied and any solvent allowed to disperse safely before re assembly. Or not as it all still seems OK after 57 years! They were surprisingly clean unlike the eyepieces. Those are simple Huyghens types, so simple to clean. The ominous rattle in the 10x proved to be a bonus micrometer scale, although this wasn't at all obvious before cleaning it!

Dismantling and PTFE in the case lock got that working nicely and the case cleaned up surprisingly well. It's solid wood rather than plywood and a little easing of the door was needed. A clean and rub over with Danish oil left the case looking very respectable. Better than I did at 57 for sure.

And that's it really. Nothing terrible or difficult, no vast array of special tools needed and the lubricants are useful for other things too if you don't have them around already. I have come away from the job impressed with the instrument overall. Not quite the finish or feel of the best but more than adequate and a lot of microscope for your money. The condenser stage was slightly off centre. Not enough to stop the condenser being centred but that's all I could find awry. I already used LOMO lenses as they were as good as anything else of the same type I've used- only more widely available and affordable especially as a good achromatic does everything I need or want.

Oh, did you know the thread in the top of the circular dovetail for the dome with the eyepiece tube and prism was M42 x0.75mm the same as the T2 mount? OK it's a slightly shorter thread and I'm certainly not advocating you use it to hang a camera or anything else off of course but.....

Also an Olympus binocular head slotted straight in to the dovetail and appears near enough parfocal with the monocular tube. Rather heavy mind, although not more than the LOMO trinocular head. It may not be good for the focussing mechanisms in the long term.

Have fun, stay safe and maybe have a go at that old Progress or LOMO stand.

They aren't that hard to work on- honestly.

Main sources:

Micscape's LOMO resources compendium.

Mikroskopfreunde Nordhessen - Mostly in German of course but comprehensive.

Rick Oleson's Camera pages Camera orientated but useful information (and entertaining too).

Comments to the author David Stephens are welcomed, email dstepsss AT gmail DOT com .

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