

BRAKE IMPROVEMENTS

First of all I have to say that all of these tips have been gathered, mainly from RIMC over about four years so I can't claim credit for them. I felt it was about time someone gathered together everything in one place so this critically important Knowledge was not lost.

SIMPLE STUFF

Probably the first thing anybody with a communist block bike should do is replace the front brake cable. They are usually too thin and the spiral wrapped outer has a tendency to act like a long spring, soaking up brake lever travel. F2 Motorcycles sell them, I understand that Barnett in the US make a replacement. Many on RIMC say that a clutch cable from one of the new Hinckley Triumph fits and is the best solution as it is Teflon lined. The part number for the cable is T2047048 and the number for the barrel adjuster is T24046520. If you have older control levers, then you may have to thread them M8 x 1.25 to take an adjuster to make the cable fit. I havn't done this one but those who have are very positive. I am not aware of an improved Russian part. For those interested in making there own, then I would recommend The Vintage Motorcycle by Radco (ISBN 0-854429-472-4). This gives details on the job and is a goldmine of useful information, for example wheel building. I use a Jap moped front brake cable for raw material. Another thing to look out for is that you have a lock nut on the adjuster barrel where it goes through the lug on the brake plate. Over time with a stiffer cable, the threads can wear and tear out. A lock nut will support the threads and prevent brake failure should they do so. One either side would be better.



The next thing that I found effective was to replace the rod that goes between the arms on the front brake with something more substantial. This rod is loaded in compression and is only 6mm thick so bends under load. I used a stainless steel turn-buckle bought from a ship's chandlers. The cotter pin holes had to be bored out to 8mm to match the brake arms. Use NEW split pins when you re-assemble as the Russian one don't tolerate re-use well. This is in any case proper engineering practice. When fitting the new rod, adjust it so that it is the same length as the distance between the centres of the break arm nuts. The brake arms should now be parallel with each other. The picture shows the brake adjusted and not applied.

If you have an Ural then take a look at the bell crank assembly for the back brake. It has been known for these to be assembled incorrectly from the factory. You will need to get someone to sit on the bike and apply the back brake as hard as they can. Now look at the linkage and make sure the angle between the link and bell crank is 90 degrees or a little greater. If not then undo the nut on the brake lever shaft and move the arm a spline round till it is. The picture shows how things should look with the brake applied.



If you have cable operated back and side car brakes then these also should have their cables replaced with something more substantial. The Dnepr ones are pretty solid as standard but I would check and see if they suffer from the same problem as the front brake cable. Also remember that cables should be lubricated **REGULARLY!** I favour Teflon spray applied through a tool that clamps round the outer and connects to a aerosol can.

Now take a look at the arms on the back and side car brakes. Have your assistant apply the brake hard again and check the angle between the arms and brake rod / cable. This should be **JUST** less than 90 degrees. If it isn't then loosen of the nuts that hold the brake arms on and ease the arms off the splined shaft. Rotate to the next spline and recheck.

Some people swap bits of this linkage around to reduce the leverage. What this does is give you less pedal travel and less braking force. I understand they do this so that they don't have an uncomfortable angle on their foot under heavy braking. A better solution would be a wooden or rubber block fixed to the brake pedal. A brake pedal rubber from a car would be ideal. Hopefully after doing all this you have brakes that stop you rather than your heart.

DIFICULT STUFF

Not really that difficult, more time consuming, and you must take adequate safety precautions. Old brake shoes are asbestos based and this stuff is **VERY BAD** if you breath it in. Very cancerous. Your death should be handled like going to a party. Try to look good, arrive in style and be fashionably **LATE!** Nether will happen if you don't look after yourself. End Of Sermon. The safety stuff I used was a face mask I use for painting, a spray bottle full of water to damp down any dust and a pile of damp rags to clean up the dust. The damp rags and dud mask cannister were double wrapped in plastic bags and disposed of as industrial waste as the rules here require. Rich Maund pointed out during proof reading of this article that asbestos also causes skin cancer, which I must admit I didn't know, so its smart to wear some sort of disposable gloves too.

Before doing anything it is a good idea to look over the brake and assess it's condition. Some people have had to replace worn cam spindle bushes in the brake plate. To check them one must dis-assemble the brake plate. This is probably a good idea as you can now clean and properly grease the cam spindle. You should use copper grease for this and **DON'T** use too much. You don't want great gobs of grease getting onto the brake drums.

When putting the plate back together we need to make sure the brake cams are parallel to each other. If not you will need to remove one of the brake arms and re-position it on the splines. The cam that lifts a shoe the least is probably the best one to use. The next bit Dnepr riders can ignore. The Ural has adjusters on the shoes to adjust when they contact the brake drum. I first tightened up the front wheel bearing up so they didn't move, put the axle through the wheel and laid everything down brake drum up and axle vertical. Next I placed the brake into the drum and held it up so I could see the brake shoes contact the drum when operating the brakes. Operate the brakes and look to see which shoe JUST strikes the drum first. Note the distance the other shoe has to go to meet the drum. Now adjust the bolt on that brake shoe so that both shoes contact the drum at the same time.

Dnepr folks can start paying attention again. Now hold the brakes hard on and check the angle between a line through the brake arm pivots and the master brake arm. This should be ALMOST 90 degrees. Urals can adjust this by turning each shoe adjuster by equal amounts if its not too far out, otherwise the arms have to be re-positioned on the splines. Dnepr folks have to adjust the brake arms on the splines. similar process can be carried out for the back and side car wheels.

All the geometries should now be about right and the brake shoes should be synchronised. The problem now is that the friction material is seldom concentric with the drum. This means that when you apply the brakes they shuffle about to try and get concentric. This results in lots of lever travel before anything happens. To fix this you need to go on a little shopping trip. You will need to buy a packet of those sanding disk that are sticky on the back. The red aluminium oxide ones in about a medium grade should do, I used ones labelled P80. These should be cut into strips and stuck round the inside of the break drum. Now assemble the brake and wheel back on the bike with the wheel jacked off the ground. PUT YOUR MASK ON if you have not already done so. Turn the wheel and gently apply the brakes so that you start sanding the brake shoes, I stress gently here. Every so often you should take the brakes off to clean out the dust. Any friction material sticking to the oxide paper can be removed with a piece of wood or rubber. If one shoe shows little sign of contact, then screw out the shoe adjuster screw till it improves. When both shoes are sanded evenly your finished.

The next thing we can do is try and remove some of the ABS effect the Russian bikes, especially those with 'beer bottle' top wheels, suffer from. This probably won't completely cure it but will help. First clean the dust off the brake shoes with brake cleaner, acetone, methylated spirit or similar non-oily spirit. Now cut some long strips of oxide paper and stick

them on the friction material of the back brake shoes. Fit whichever wheel you are working on to back wheel and securely support the bike on blocks or then next bit can get embarrassing, painful and expensive. Start the engine and GENTLY apply the back brake so that you can here it contact. If you apply the brake too hard the oxide paper can be rubbed off the drum. Every couple of minutes stop the bike and take off the brakes and clean everything down. You should aim to have at least a continuous sanded ring round the hub. You will probably have deeper patches you can't get down to. You'll probably have to replace the oxide paper a few times before your finished. When you are happy clean all the dust and metal particles off the brakes and wheel hub.



OTHER FACTORS

I always used to be fed-up that my wife's bike always felt it had better brakes than mine. No matter what I did to my bike I could never get the brakes to lock as easy as hers locked. To cut a looong story short, one day I put some SAE 10 damper oil in her front forks (telescopic type) as she used to complain about the forks diving under braking. My bike had SAE 10 in from the start. I took her bike for a test run and what a difference. The brakes now no longer locked so easy! I noticed that when I trued up the wheels and balanced them the same thing happened. I used to think the Russian tyre were rubbish because the wheels would lock so easy, now I don't think they are that bad at all.

THE END

I hope that some of you can use this information to improve your breaking. One thing I will get round to some time is to have the brakes re-lined with something more modern. By all accounts this is very effective.

Finally I must stress that most of this information has come from the Russian Iron Motorcycle Club board. All I've done is to gather it together. So thanks to all of you who helped out. I won't name names in case I omit somebody by accident. You all know who you are.