Dt Tension Manual

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Dt Tension Manual

Reproduced with permission of DT Swiss. Document includes German, French and. See More DT Swiss Spoke Tensiometer Manual Published on Feb 13, 2011 This is the usage manual for the DT Swiss Spoke Tensiometer. See More prolite Follow Advertisement See More Go explore. In this article I take a close look at spoke tension and the tensiometers from DTSwiss, Park Tools and FSA. When I started building wheels the subject of tensiometers never entered my thought process, in fact I didnt even know of their existence. Along comes the Internet and it brings us tensiometers. Today there are dozens of discussions covering all aspects of the wheelbuilding process and this information overload leaves many people slightly concerned about the quality of the wheel theyve just built and in particular is it tight enough. Building wheels in the 80s was so much easier! Not just ordinary riding, back then I rode a lot of cyclo cross, including five finishes in the Three Peaks Cyclo Cross a long tough race with mountains and lots of rocky trails The wheels worked perfectly and the tension was miraculously correct. Why, because theres a broad range of acceptable tension and its easy to drop into this zone and end up with a good wheel. Going to higher tensions does not lead to stiffer or better wheels. Loosely tensioned wheels can be problematic. As you build the wheel a loose wheel feels loose as the spokes squish together when squeezed and the spoke wrench turns easily, then after a little more tightening and stress relieving the spokes firm up and become taught, then you try for a little more tension and you reach the stage when its noticeably harder to turn the spoke wrench and the spokes start twisting a little all this assumes youve correctly lubricated the spokes and rim. Then you decide to stop and call it done.http://www.kwiaciarnia-eden.pl/userfiles/daewoo-espero-manual-pdf.xml

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Jobst described a method of obtaining the correct spoke tension which was was the maximum the rim can withstand without buckling by incrementally tensioning and stress relieving the spokes until the stressing operation caused the rim to lose its shape and buckles, at which point you back off half a turn on the nipples and call it done. Its not a technique that can be used today because the rims are too strong and you will never be able to make the spokes tight enough to cause the buckling effect, but back then with shallow section single cavity road rims it was possible to use this technique to achieve maximum tension on lightweight road rims. I was fortunate to know one of the UKs legendary wheelbuilders, Joe Thompson who lived nearby who often called in the workshop and we drank tea and chatted about cycling and wheels. Joe built his wheels tight and even now I can still hear him saying nice and tight, and of course Joe never used a tensiometer. So along with Jobst Brandt and Joe I became accustomed to tight wheels, but as youll see later when I eventually took a tensiometer to them the tension value was 125kg which is the norm for a good wheel. The wheels I built for myself met my requirements and if they were good enough for me they would be good enough for paying customers. I rode my wheels hard and couldnt break them I tried and customers never had any problems with them paying customers will always get in touch if anything goes wrong and my confidence level was pretty high. Any lingering doubt was finally put to rest as I used the same techniques for building the wheels for several high profile cycling teams mountain bike downhill race. These people should concentrate on the important aspects of the build which is uniform tension, fully stressed and with no residual spoke twist, and theres no ambiguity when it comes to achieving this.http://www.dmkaudit.sk/101/upload/daewoo-espero-service-manual-free.xml

The spoke tension lies into the good zone and they have a perfect wheel that meets their

requirements and their confidence level is high. This first wheel is a benchmark for all the other wheels you build and youll no doubt be comparing this to other wheels you see. Wheelbuilding is all about accumulating knowledge.Some could do with a little tension increase but its not a big deal. I see plenty of wheels when doing race service and often ask myself the question how does this wheel still hold up.If your wheel works then great. If you didnt get your spokes tight enough then one or two spokes will lose tension and the wheel will lose its lateral trueness, solution increase the tension. Youll soon know what is good and what is bad. People are paranoid about rims cracking and eyelets ripping out yet in my experience this doesnt happen. Occasionally Ill see a forum post about someone with a cracked rim but since I dont know much about the original build its difficult to draw any conclusions. Ill wait until the rims in my wheelbuilds start cracking then Ill give it some more thought. In the book Ive shown a cracked MTB rim from a wheel that Id built and I asked the manufacturer who claimed said it was due to inappropriate use, it was a lightweight mountain bike rim and the customer used a narrow tyre with very high pressure and rode LOTS of miles, if it were used as intended with a larger tyre at a lower pressure it would have been okay. Current rims are well designed and cracked rims are rare, although some rims that are not well designed with insufficient spoke bed thickness can crack, but these are soon identified and the manufacturer gets a revised design out. Mountain bike riders should pay close attention to recommended maximum tyre pressures because over inflating a large volume tyre will cause the rim to crack, not necessarily at the spoke eyelets but the surfaces of the rim channel often hidden under the rim tape.

They werent all this high, but generally they far exceeded the rim specification. You would have difficulty obtaining this tension by hand but its quite easy for a wheelbuilding machine which built the one shown in this example. These particular wheels were very popular and I did think they would eventually fail but there was not a hint of any problems and if there were problems then the MTB forums would be alive with comments. On this one I backed off the tension but there will be other examples like this being used at the higher tension. Errors in wheels you build for yourself are not an issue because its your fault and your problem. In the commercial world poorly built wheels will tarnish your reputation and lead to costly rectification work. All the customer wheels I built without a tensiometer over many years were fine and I had no concerns about reliability until I started to build on Stans ZTR rims. I could just build up a set as my normal builds and go ride but it would take a long time to show up any issues related to over tensioning.As soon as it arrived I took it to a pair of mountain bike wheels Id just built. Both rear drive and front disc tensions were all around 125kg and since the wheels were tension balanced by tone there was never going to be any tension variation between the spokes. So the wheels were perfect. All my experience told me the tension was right yet the DT tensiometer said it was way too low. It took a while to figure it out and the reason was the spokes were made undersize at 1.75mm instead of 1.8mm this is probably within the spoke manufacturing tolerances. There was no way of telling the true tension because the readings from the DT tensiometer are cross referenced to tables and the table assumes your DT Competition is made to 1.8mm. If you tightened your undersize spokes according to the chart the result would be over tensioning them.

I started to measure the diameter of the spokes all spokes in the same box were made the same and used this to make compensations, i.e. if they were undersize then Id take this into account when looking up readings in the tables all very hit and miss. The Sapim Race spoke is dimensionally the same as a DT Competition and the Sapim Laser same as a DT Revolution and the steel has to be very similar. I needed to assess the tension in the wheels I built with Sapim spokes. Better ask Sapim at their Belgium factory and their reply was Best is that you send us the meter and that we calibrate it for you on Race and Laser spokes. I couldnt figure out why they needed to physically check it because all the DT tensiometers must be identical since DT does not issue customised cross

reference charts for each of their tensiometers. I didnt pursue this one. He sent me a copy of his chart. Whether its good for my or your DT Tensiometer is anyones guess and Im not bothered because its just another chapter in tensiometer guesswork. For information here is the chart supplied by Sapim, the marks around the 120140Kg were written on by the guys at the wheelbuilding factory, however there seems to be an error in the chart since the figures for the G13 Strong spoke are the same for the super light Laser spoke. I purchased one just to see what this low cost tensiometer is capable of. Compare this with DT who supply a chart for their own spokes and how Sapim say that chart is incompatible with their spokes yet the Park happily covers both manufacturers. I think the low precision of the Park tensiometer would not be able to differentiate between the different spoke manufacturers. Ric describes the FSA tensiometer on his site. The analogue tensiometer shown here has now been replaced with a digital version using the same design. Jobst Brandt discusses it here on an Internet discussion group.

Ive seen use too large a test load, one that will affect tension ofMy impression was that theyI use mine with every wheel I build toI pluck spokes to make the wheel uniformThe Avocet units had metric dials by Starrett. Mine has an inch dialThe spoke manufacturer is not a factor so moving between Sapim and DT is not an issue. Then take a tensiometer reading deflection measurement which turned out to be 0.013 on the rear and 0.025 on the front, then for subsequent builds using the Mavic MA2 just aim for these figures. This page is taken from the FSA tensiometer user manual Here are some of the reasons why For instance, butted spokes are made by swaging. The center section can vary by 5% as a consequence of the shaping process. Without exact dimensions, tension measurements will vary. Due to the lacing pattern, spokes often have a compound bend. This bend directly affects tension measurement. Moving a tension gauge over a spoke shows how the reading can change. A spoke is stiffer at its ends. We recommend centering the gauge between the rim and the spokes first cross if any. Stay on a constant section of a butted spoke.Our solution This toolss repeatability is unmatched. A strong spring, as used by too many gauges that are available, will be less accurate becauseThanks to the rims inherent stiffness and imperfections, a perfectly true wheel can contain spoke tension imbalances which makes the wheel less stable in the future. Thus, it is acceptable to tradeoff perfect trueness to achieve consistent spoke tension to produce a more stable and lasting wheel.The spokes in this wheel are DT Competition that measure exactly 1.8mm meaning there is no lookup error when using the DT charts. All tensiometers indicated a tension of around 130Kg. However it doesnt work too well and its a technique I would never use or trust.

Interleaved spokes, therefore, have a complex tone that has multiple modes, the primary mode not containing the most energy but rather a mode that resonates in the free span of the spoke. Seen on an oscilloscope, the spectrum is dirty and not repeatable. Using tone by exciting the higher modes of the spoke is useful for balancing tension but practically useless to gauge absolute tension. By plucking spokes near the nipple, the higher modes are excited which largely avoids the problem of interleaved spokes.The acoustic resonance of the wooden stand was excellent and the tuner responded instantaneously, but the read out in musical notes and flashing bar graphs was confusing and I found the tuner of little use. Using my ears I can hear the notes and its more than accurate enough and a lot quicker. Basically they all apply a preset tension to a spoke the same spoke and desired tension required for the particular wheel build, then a tensiometer reading is taken. The reading is just a number, thats all, and you tension the spokes in the wheel to the same number. Their tensiometer and calibration device are shown in this Shimano factory tour. All wheels are handbuilt and they use tensiometers that look identical to the DT tensiometer. Other things to note, they use oil on the spoke threads and no adhesives, each wheelbuilder takes 6 months to train and then they build 60 wheels per day! The solution is provided by Dan Burkhart who has designed this very elegant calibration tool and Im very impressed by it. Instead of a digital scale used by Dan Burkhart, it uses an S type load cell attached to a digital display, but essentially both calibration

devices are the same, although this one is a lot more expensive, but more accurate because digital scales sometimes are heavily damped making fine adjustment difficult. Does this mean Mavic rims are a poorer design or made from weaker material or does it mean they havent a clue and just made a guess.

Those Mavic figures are even lower than the figures quoted for Stans ZTR superlight rims. To see the 7090kg figure in print, go to www.techmavic.com Username maviccom Password dealer. Select any rim then see the General Points. If your wheels are not working as intended then read the previous point! The best and most accurate is the Wheel Fanatyk Jobst Brandt design. Id also like to use my Park tensio instead of buying the DT one which is quite expensive, but Im not sure on how to get it right, thats why Im here asking. DT manual page 62 is saying Front Wheel Max 1200N, min 950N, Average 11501000N Rear Wheel Max 1300N, min 1050N, Average 12501100N DT XR1501 spokes have 1.8mm of diameter in the middle and 2.0mm near the hub and near the nipples. When riding trails, roads,.Id love to go back 365 days and take note of the spokes tension when I unpacked the wheels but I guess I cant do that. Id like to have your opinion; am I doing it right. This is not the first wheelset Im checking spokes but this time I feel a little bit unsure on how to do it right. Is there anyone who went thru this process with this same wheelset. I hope I wrote all the needed info. Thanks for your time.Ive built a handful of wheels but Im no expert. Maybe park tools can tell you which table to use for those spokes. Failing that I would just measure them all and I think you will see that most of them are pretty close to some reading on the park tools gauge I mean the spokes on same side of a wheel. Front and rear and left and right tensions may be different. And then just tension them all close to that number so theyre as even as possible while with the wheel being true. Sent from my iPhone using TapatalkI wouldnt ignore the manual, go for even tension and average the drive side spokes near the maximum recommendation from the rim manufacture.You have a tension meter but you havent used itIve built a handful of wheels but Im no expert.

And then just tension them all close to that number so theyre as even as possible while with the wheel being true. As a result I got a perfectly trued wheel with even spoke tension different on each side. The drive side tension is obviously higher, but Im starting to think that when I measured the spoke tension, it was lower then the tension applied by DT when they built my wheels, and that would explain why Im feeling like the rear disc side is a little bit loose and noisy, thats why I was saying that Id love to go back one year and take note of the spokes tension when my wheels where brand new; I feel like Ive done a nice job but with a average tension that is lower than it should, and thats because Ive been riding those wheels for a year. In order to double check my job I took the DT manual that you can see in my first post and checked the recommended tension. According to my TM1, the average spoke tension of the rear drive side was pretty much 22.5, that on the park table, column Steel Round 1.8mm, means between 117 and 131KGF and pretty much 11701310N. According to DT my spoke tension was correct but I think that my spokes shouldnt make that noise with the correct tension, right. Ill write to Park tool and ask for some help but Im quite sure theyll answer me as DT did. Those wheels should be quite popular, isnt there anyone else who tried to true them and check their spoke tension I wouldnt ignore the manual, go for even tension and average the drive side spokes near the maximum recommendation from the rim manufacture. You have a tension meter but you havent used it Could it be a disc rubbing or a quick release ors, or the rollers perhaps. Often wheel noises can be tricky to isolate because they can vibrate through the wheel so can sound like theyre coming from somewhere theyre not.

I would just wait for park tools reply and compare your tension readings to the chart they recommend then leave it Ive used my park tools TM1 with dtswiss aerolites with out problems. But I know which table to use for them. Sent from my iPhone using TapatalkCould it be a disc rubbing or a quick release ors, or the rollers perhaps. I would just wait for park tools reply and compare your tension readings to the chart they recommend then leave it Ive used my park tools TM1 with dtswiss

aerolites with out problems. But I know which table to use for them. The wheel is firm, no side movements or noises even when pulling it from side to side; Im sure the noise come from the disc side spokes, Ive just put some cardboard in between spokes where they cross each other, started hitting every spoke on the wheel with my finger nails and the noise didnt pop up. Meanwhile I wrote to Park, asking for some advices on which table column would work with my wheels.The wheel is firm, no side movements or noises even when pulling it from side to side; Im sure the noise come from the disc side spokes, Ive just put some cardboard in between spokes where they cross each other, started hitting every spoke on the wheel with my finger nails and the noise didnt pop up. Meanwhile I wrote to Park, asking for some advices on which table column would work with my wheels. The wheel is firm, no side movements or noises even when pulling it from side to side; Im sure the noise come from the disc side spokes, Ive just put some cardboard in between spokes where they cross each other, started hitting every spoke on the wheel with my finger nails and the noise didnt pop up. Meanwhile I wrote to Park, asking for some advices on which table column would work with my wheels.

Proper tension for comp spoke was somewhere around 20 on the Park tensiometerI guess theres nothing wrong with my wheels then, but Id love to find someone with my same wheels and ask him to hit the spokes with his fingernails and see if his wheels make the same noise. Im planning to visit another one as soon as possible. Proper tension for comp spoke was somewhere around 20 on the Park tensiometer Are they similar That said, I think that 20 is way to low for my rear drive side; if I remember right, the front non disc side tension was a little below 20 and the spokes felt quite loose.Id lever each pair of spokes against each other and adjust true and tension. I bet the wheel is quiet then.Im planning to visit another one as soon as possible. Sounds to me like your problem was a little different from mine and Ill try to explain why I think so. If I got it right, the noise you hear is the same that the spokes make when you destress your wheel after tensioning them; mine is different. Ive been climbing some serious hundreds kms of trails in the last year and never heard a noise; I guess mine is caused by vibrations produced by the rear tyre when riding super smooth terrain, as the rollers drums. Im almost sure that riding on rollers with a slick rear tyre would almost fix my problem but given that I do ride on rollers approximately one hour per week, its not worth getting a second wheel with slick tyre. That said, a little bit of grease in between spokes could help. Thanks for the tip! Id lever each pair of spokes against each other and adjust true and tension. I bet the wheel is quiet then. Do you mean I should put something like a cardboard where the spokes cross each other and true the wheel with those things in between. I think it shouldnt be destressed for two reasons I did it when I tensioned the spokes and the pinging noise that I hear isnt the one that I hear when trying to slide two tensioned spokes one against the other.

Ill try to take a clip with my phone and post it here in a few hours, hoping to better explain whats the noise I do hear. I went there already in weekend mode with my brain turned off. Definitely a stupid move by me. Thank you all for your help!Reading other threads on this forum made me think about tires; my Continental Race King seemed to fit really tight on the wheel and given that I do inflate them a little bit over 30psi, it could be that the spoke tension lowers because of the tire super tight fit plus the air pressure, and then the rear wheel disc side spokes tension goes down and make them produce that noise. Ill take note of the spokes tension when Ill replace the tires and Ill surely do few tests to see how much the tension increases when I deflate the tires. Thanks for your help. So worth checking. Ive never seen spoke get so loose that they rattle though. It couldnt be loose disc bolts, valve or cassette sprocket could itSo worth checking. Ive never seen spoke get so loose that they rattle though. It couldnt be loose disc bolts, valve or cassette sprocket could it Theyre all tight and firm, I do regularly check them as every part of my bike. Ill try to hit the spokes with my fingers when Ill replace the tire, Im curious to see if theyll still make that noise without the tire on. Thanks for your help. Ill try to keep this thread updated so that someone with the same problem will easily find the fix.Where did you read that tip. I couldnt find it on the park website.

ThanksConsumerREVIEW.com, a business unit of Invenda. We will send you the document shortly. An allaround machine that cuts most materials used in the flexible packaging market. To avoid waste caused by oil leaks, the Comexi S2 DT is fully electrical. Thanks to its ergonomic design, it adjusts and handles the slitting after passing the material.

Changing from blade to circular slitting is very fast, as shafts need not be disassembled nor the material input rate changed to change from one to the other. The horizontal layon roller ALTS rewinding system guarantees precision rewinding. With the Comexi S2 DT quality and quantity are not incompatible, thanks to the acceleration ratios the S2 DT achieves high productivity by rapidly reaching top speed. Moreover, the nonstop operational capability provided by the doubleturret system enables working unit several output reels. It also incorporates the automatic rewind taper recommendation. Subscribe to our newsletter to get important news. The running material is contacting the measuring roller. Release the trigger slowly and the instrument is in measuring mode Tension Meter DTS In measuring mode with material to be measured threaded Tension Meter DTS Front view to the measuring head and guide rollers Online Mounting Code MH To mount the gauge for online use, the housing can be equipped with mounting threads. There are to bolts with M5 female thread on the rear side. This feature cannot be installed afterwords. DT Series View at the rubber coating of the handle and the USB interface 12 Tension ranges available from 1 200 cN up to 0.6 60 daN Application in textile industry up to max. 60000 tex Application in wire industry copper wire 0.05 up to 3.0 O mm and other materials Electronic tension meter for applications in textile and wire industry. Versatile applicable handheld unit. Calibration Report Inspection Certificate 3.1 according DIN EN 10204 including a calibration report is optional available. In many countries we are represented by exclusive agents, in the others by dealers only. Our measuring instruments are used in production as well as in laboratory for checking and measuring. Field of use Flexible materials up to max. O 9 mm Flat material up to max,.

10 mm width Feature Professional unit with additional functions 5 Memory modes with statistics Large internal memory USB interface, WiFi optional Tension Meter DTSL 4 Tension ranges available from 150 2500 cN up to 2 20 daN Applications Cables, ropes, wires, buffer tubes, fibre strands, tapes etc. O 9 mm Flat material up to max,. 10 mm width Feature Basic unit for easy operation and general use Tension Meter DTXF 4 Tension ranges available from 1 200 cN up to 20 2000 cN Applications Optical fibres, glass fibres and technical fibres etc. Field of use for fragile filaments up to max. 1.5 mm O Feature Professional unit with additional functions 5 Memory modes with statistics Large internal memory USB interface, WiFi optional Tension Meter DTSF 4 tension ranges available from 1 200 cN up to 20 2000 cN Applications Optical fibers, glas fibers and technical fibers etc. Field of use for fragile filaments up to max. 1.5 mm O Feature Basic unit for easy operation and general use Tension Meter DTXE 4 Tension ranges available from 1 200 cN up to 20 2000 cN Applications Textile and fine wire industries Field of use where access space is limited or where filaments run close together Feature Professional unit with additional functions 5 Memory modes with statistics Large internal memory USB interface, WiFi optional Tension Meter DTSE 4 Tension ranges available from 1 200 cN up to 20 2000 cN Applications Textile and fine wire industries Field of use where access space is limited or where filaments run close together Feature Basic unit for easy operation and general use About us SCHMIDT is represented in more than 40 countries around the world. The ER610DT project ensured unequalled combinations of operator safety, yet huge productivity improvements and reduced machine download times. The screen provides input for the most frequently used functions such as machine speed, tensions ranges, layon pressures, length and diameters, etc.

Once desired parameters are set, this information can be saved in a Material file and can be recalled at any time for fully automatic setting of the running parameters. The operator can make a new Material file for each product run and a Job file for every customer which saves significant time for

setting the parameters to run the machine. Laser Core Positioning A linelaser guided core positioning system enables the operator to reload new cores quickly and accurately minimising setup time and restarts due to improper alignment. Individual laser alignments can be set as low as 25mm The turrets are of cantilevered design eliminating the need for CENTRE cross shafts. The winding takes place on two rewind shafts whilst the other two shafts can be loaded with cores enabling a fast changeover on completion of winding. The operator can set the mode either to Manual mode.Titan ER610DT Web Path Options This roller orientates and prepares the material for slitting eliminating creasing, web expansion and wrinkle removing before reaching the knives. 6 Secondary Contact Roll Enables the setup time to be reduced 7 Contact Rolls The Contact roll arms provide more precise contact, which enables higher quality rewind reels. Enquire about the Titan ER610DT. It has a dial for reading measured displacement directly.Thus, the rod may not move with the displacement when the transducer is mounted upward. In such a case, detach the probe and fix the rod to the steady point using a nut. Please use the English version in advance. Thank you for your understanding. We use cookies to personalize your visit to www.cube.eu. By using this website you agree to the use of cookies. Download Manual RACE PEAK Instruction manual for CUBE computer RACE PEAK. Download manual RACE TRAIN Instruction manual for CUBE computer RACE TRAIN. Download manual Pumps RACE Hybrid Instruction manual for CUBE pump RACE Hybrid. Download Manual RACE CO2 Instruction manual for CUBE pump RACE CO2.