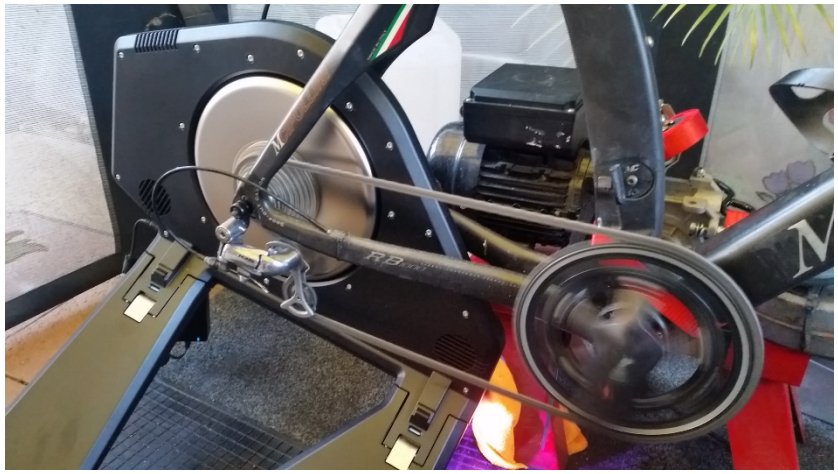
Zero Friction Cycling

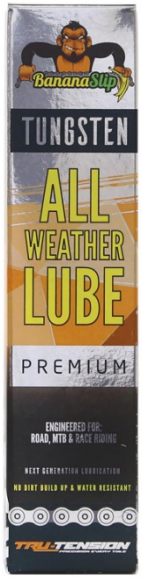


Lubricant On Test : Tru-Tension Tungsten All weather

Cost: $19.99 Aud from Zero Friction Cycling

Size – 50ml

Photo :



Manufacturers Description on package;

Tungsten All Weather Lube – A completely dry emulsion based coating that is also water resistant. Blended with our industry leading Tungsten compounds for the highest performing lubricants on the market. Perfect for chains, shifters, pedals and derailleurs. Engineered for;

Road, Mtb & Race Riding.

Next Generation Lubrication – Contains Tungsten Disulphide, which was developed for space projects to reduce friction compared with standard Ceramic based lubricants.

Tungsten applies a molecular layer to the surface of the chain during use, this smooths out imperfections in the surfaces of moving components.

Lower friction compared with other Ceramic lubricants

The hardened molecular layer reduces wear on moving components, especially on chains.

For a faster running chain, less lubricant application and a longer lasting drivetrain.

Directions on package

Degrease chain, chain ring and cassette thoroughly. Shake bottle well before application. Apply lubricant evenly to all parts of the chain and allow to set for 5 minutes. Wipe away excess with a cloth. Avoid contact with braking components.

Extra information from Manufacturer website

The first Tungsten infused lubricant, bringing space grade lubrication to the cycling industry! All weather durability, silky smooth running, no noise and extensive endurance.

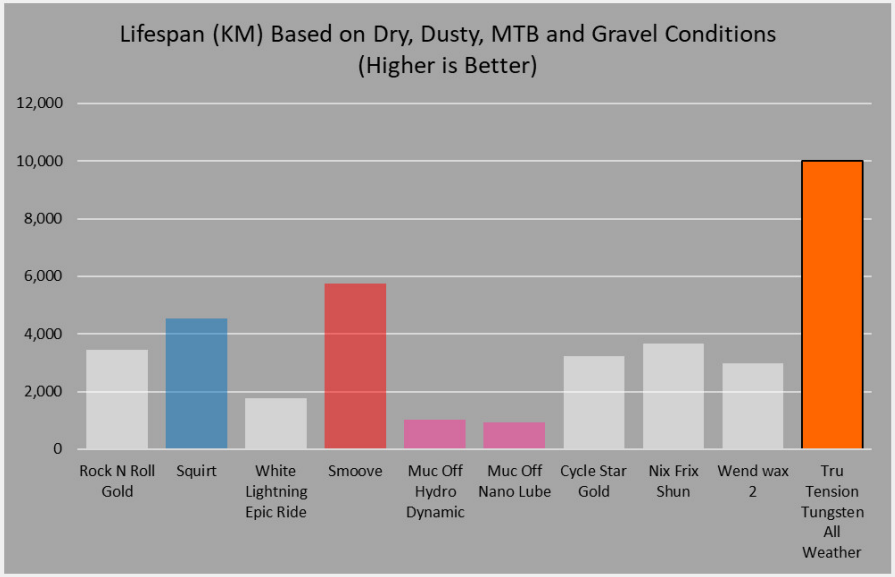
Tungsten as a friction modifier is superior to Ceramics, Teflon and PTFE, making it super fast while also significantly reducing wear. Our patent pending formulation is wax based, water resistant, completely dry and 100% biodegradable.

- Independently proven to reduce wear more than any other standard drip apply lube on the market.(Check out the graphs below)
- Super fast – Perfect for any riding conditions
- Dual viscosity – thin when applied for pin penetration
- Sets within 5-10 mins for instant riding
- Keeps your chain exceptionally clean
- Completely dry – dirt doesn't stick
- Repels moisture for wet riding
- Easy to clean
- Perfect for Road, MTB & E-Bikes

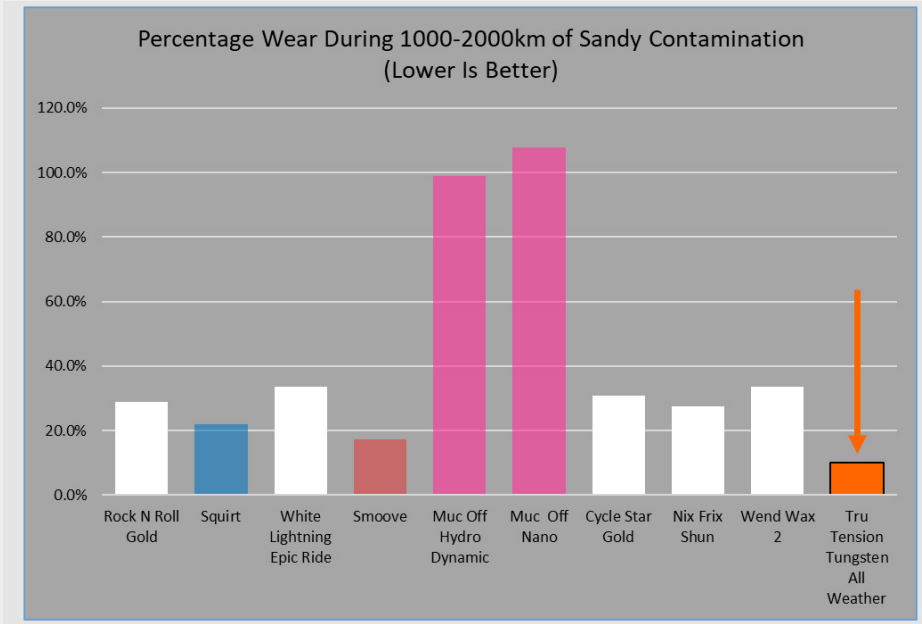
Any extra detailed information re application and usage from website;

Don't just take our word for it, check out the endurance data below provided by world renowned and fully independent test facility Zero Friction Cycling in Australia. Tungsten All Weather Lube is the only standard drip application lubricant to ever make it past 5,000km of extreme contamination testing without exceeding wear tolerance.

- Nearly double the lifespan of chain and rings for dry, dusty or gravel conditions compared to other brands.



- Less than half the chain wear compared with most brands in sandy and muddy conditions and extensively better than others.



Tungsten Disulphide was originally developed for space projects as a lubricant due to it having a lower coefficient of friction compared with Ceramics, Teflon and Graphite, as well as being more durable. Tungsten smooths out the surface of the metal to minimise surface imperfections, resulting in up to 40% less friction than Ceramics, up to 50% less than Teflon, and up to 60% less than Graphite. Not only is it faster, but it's also more durable, creating an atomic layer on the surface of the chain to reduce wear of the drivetrain and protect moving components.

Tungsten blended with our hi-tech water based All Weather Lube provides a silky-smooth and fast running ride like no other. Once applied it penetrates all parts of the chain before setting to a completely dry lubricating layer which is resistant to water and dirt ingress. As the lubricant is totally dry, it completely stops dirt building up into a grinding paste unlike all other conventional lubricants.

After the first couple off applications the Tungsten smooths out the small imperfections in the metal surfaces of the chain, creating a rock hard protective and slippery layer. This layer is created on pressure points within the drivetrain, only layer one atom thick to apply superior lubrication exactly where it's needed. The next generation formulation is designed to stick firmly to the surface of the chain which not only reduces wear, but also increase intervals between lubricant applications to save you money. It's also completely biodegradable with no nasty solvents, making it kind to you, the environment and your pride and joy.

The perfect lubricant for riding in any weather, unlike standard lubricants which quickly run off with water or attract dirt and dust. Ideal for road and off-road riding.

Bottles contain 50ml of lubricant. Bottles are oversized to ensure space for mixing the two complex compounds together when shaken before use.

Clean Chain Efficiency rating: - **TBA – had chain booked for testing with Wheel Energy however wheel energy have gone dark for 3 months with no communication re when test will be done. Have also requested with Ceramic Speed lab to test – albeit having a competitor test a competitor is always funny – they may be unlikely to prove a competitor matches own lubricants publicly. ZFC is working on building own FTT machine for new workshop.

Viscosity: Thin above 20dg Celsius, medium at lower temps – noticeably thinner viscosity vs other wax emulsion type lubes such as Squirt / Smoove. Tru Tension do not state this is a wax emulsion lubricant, however it presents as a Wax emulsion lubricant on application.

Main Test stops when net chain wear reaches 0.5mm+ NET WEAR

Tru-Tension Tungsten All Weather Main Test Results

Block (each 1000km)	Wear measure (mm)	Inc. On previous measure	% Wear for block (0.5mm=100%)	% Wear rate per 100km	Comments / Observations
0 – Initial check measure	**0.067**	**n/a**	**n/a**	**n/a**	**Shimano chains usually measure 0.1 to 0.15mm from new.**
1 – No contamination	**0.137**	**0.070**	**14.0%**	**1.4%**	This wear result is slightly higher than hoped showing that even though it is thinner viscosity than Squirt / Smoove, there is still some initial penetration issue's which have plagued all wax emulsion type lubes tested to date. The leading lubricant for block 1 is still Mspeedwax at 0.0%, followed by UFO Drip at 5.4%. Squirt and Smoove were both 19.1%. Worst on record for clean block 1 is Muc-Off Nano at 37.7% (ultrasonically applied) and Wend wax (advanced application technique) at 35.7%
2 – Dry contamination	**0.187**	**0.050**	**10%**	**1.0%**	With the wear rate decreasing vs clean block 1 despite 7 applications of 5grams of sandy loam throughout test block, we can see that this lubricant has an extremely high level of dry contamination resistance. This is the second best ever recorded result beaten only by UFO Drip – however it is important to remember that UFO drip was re-applied at double the rate. The result was just ahead of Mspeedwax which was 12% for this block, but remember that equates to 0.01mm difference only so would be within margin of error – realistically placing them as equal second best tested – however, this is clearly the best result for a drip lube tested at the standard application rate, and well ahead of the results recorded by Squirt etc.
3 – No added contamination	**0.247**	**0.06**	**12.0%**	**1.2%**	A basically identical result to block 3 – so far it has been demonstrating a similar and very low rate of wear overall from the

					start – so really very little contamination penetrated in block 2. At this stage total wear is only at 36% of allowance, which is the lowest wear rate of any drip lube to date at standard application protocol. Mspeedwax is still at only 12% at this stage as immersive waxing re-sets contamination. Smoove is very close overall wear rate at this point as well at 38.6%, all other notable competitors are well higher such as RNR gold at 57.9%, Nix Frix Shun at 54.3%, and Squirt at 61%. UFO drip also only at 12% but again at double the application rate.
4 – Wet contamination	**0.403**	**0.156**	**31.1%**	**3.1%**	Tru-Tension All weather did struggle a bit in the wet contamination block, I suspect based on field testing which showed that outright treatment longevity was relatively low – that the harsher conditions of this block took the lubricant past its treatment lifespan towards the end of each interval. This was observed during test with chain squeaking for approx. last hour-ish of intervals showing that the treatment was pretty much exhausted. Vs top lubes in this block – mspeedwax was at 8%, UFO Drip at double application rate at 15.7%, similar to NFS at 28.6%, but well ahead of smoove at 45.1% and squirt at 48.9%. I believe if Tru-Tension was applied at doubled rate such UFO drip it would have recorded a substantially lower wear rate.
5 – No added contamination	**0.491**	**0.089**	**17.7%**	**1.77%**	This measure is quite key as the majority of drip lubricants have shown basically zero ability to clear contamination – wet lubes can drop wear rate a little as ratio or lube to abrasive contamination may improve, but wax emulsion lubes like smoove / squirt demonstrated that contamination that penetrates into set lubricant is effectively land locked, and wear rates post wet contamination were still very high. Tru Tension All weather halving of wear rate back to just 18% which is not far above its initial clean block 1 wear rate is very impressive, and again backs observation that the higher wear rate in block 4 was less about contamination penetrating, but simply running out of lube in the harsh conditions intervals. Tru-Tension block 5 result post wet contamination is absolutely miles

					ahead of any other drip lube tested to date at standard application rate, only just beaten by UFO Drip at double application rate returning at 15% result, and mpseedwax again returning to 0.0% wear in block 5 due to immersive waxing re-setting any contamination.

Extrapolated wear based on first 5000km = 5882km (note this is a much harsher test than most real world riding).

Extreme Contamination Block

Start wear measure	500km measure	1000km or end of test measure & km	% Wear for block (0.5mm=100%)	% wear rate per 100km	Comments / Observations
6 – Extreme Contamination	**0.650**	**0.159**	**31.7%**	**3.17%**	Again this blocks result is quite fascinating in that it is almost identical to block 4 result, despite double the amount of water and contamination added. This again backs observation the wear rate was less about contamination penetrating vs the interval length in harsh conditions being beyond treatment lifespan, and most of the wear is simply from running out of lubricant. Had this been applied at double application rate as per UFO Drip, I believe the result would have been much lower, however – Tru-Tension claim long treatment lifespan for this lubricant so standard intervals applied, however these intervals did appear to find its limits. Users should apply more frequently indeed if riding in harsh conditions, and if the event is going to be a long and harsh conditions event – a longer lasting lubricant may be the better choice.

					However – it is well worth noting that his is the lowest ever recorded wear rate for the extreme contamination block 6, with it basically being same as wet contamination block 4. UFO Drip was very close at 34% - within margin of error, but Mspeedwax did suffer in this block at 78% showing that the sheer amount of abrasive contamination did abrade all of mspeedwax treatment off well before end of intervals (mspeedwax's lab grade paraffin base is a shedding type wax which keeps it extremely low friction until such time as all the wax is abraded off, then its quickly onto metal on metal so for some events one needs to weigh up choice carefully or plan swapping to fresh chain). Also note that only 3 lubricants have even made it to the extreme contamination test block, being Mspeedwax, UFO Drip at double application rate, and Tru-Tension Tungsten All weather, with all other lubricants tested to date surpassing 0.5% wear rate limit well before the end of block 4 or block 5, the worst lubes tested have zoomed past this wear rate allowance by the end of block 2. Suffice to say – an extremely impressive overall test result.

Single Application Longevity test (Chain Cleaned Prior to test – no added contamination – Cumulative wear checked every 250km) – allowed extra 0.25mm on top of end of block 1-6 wear measure

Start wear measure	% wear 250km	% wear 500km	% wear 750km	% wear 1000km	% Wear 1250km	% wear 1500km	Comments / Observations
0.650	0.736 17.1%	0.741 18.3% total, 1.2% for block	0.860 42.0% total, 23.7% for block	n/a	n/a	n/a	Chain is fully ultrasonically cleaned after main test and re-applied as per manufacturer instructions. As with most tests we tend to find the initial wear measure is a bit of match for clean block 1 measure of main test, however slightly higher as the chain no longer has any low friction coatings etc to help protect against wear. So again we do see that there is still some initial penetration issues despite the much lower viscosity, with a similar but higher initial wear rate, which drops off dramatically for second wear measure whereupon the lubricant has now penetrated properly and very low recorded wear ensued. Had the chain been re-lubed then this very low wear would have continued, however we can see in the single application longevity test that the wear rate had shot back up by the 750km mark, and the chains certainly sounded very dry and out of lube by the end of that block with chain being quite load and squeaking away by the end.

Test observations and review.

This is the first test of a true next generation (of what I believe to be) wax emulsion lubricant. Im not 100% certain that it is a wax emulsion lubricant that is a thinner viscosity vs Smoove / Squirt, and with a more impressive friction modifier in Tungsten Disulphide, or if it just looks like a wax emulsion lubricant but the base is something else entirely.

It is exciting times in Lubricant testing land at the moment, with not only the release and test of Tru-Tensions promising range of products, but at the time of writing this detail review, we have also seen the launch of Silca's new Super Secret Lube, and absoluteBlack's Graphene lube – all making some impressive claims, so ZFC is busy indeed. As David Rome said on a recent cycling tips Nerd Alert podcast – it appears we truly are entering into the golden age of chain lubes. ZFC has been involved with some brands prototype testing, and it has been pleasing to see (as will be discussed later in the review) that some long standing issues identified by ZFC's testing protocol are now being addressed vs manufacturers assuming customers will never notice (ie initial penetration issues).

Tru-Tension marketed fairly hard on social media (Insta etc) re their new Tungsten Lubricants making some pretty big claims, and I had a never ending stream of requests to test this lubricant which moved it right up the testing priority list. Also I was also very curious – with many claims re the amazing properties of WSO / WS2 (Tungsten Disulphide) as a friction modifier.

What I had initially replied to many requests was along the lines of until its tested (or until they test it and let me know how it works for them) – all claims are unfounded unless backed by data (preferably independent data). The base and carrier for a bicycle chain lubricant is always critical – otherwise anyone could simply get some cheap mineral oil, bung in some WSO, and claim the next Tungsten wonder lube. We have already seen what numerous lubes with supposedly astounding friction modifiers (Cyclestar Gold, Muc-Off nano or hydrodynamic) perform horrifically because the base is terrible, grabbing and holding every single particle of contamination and quickly becoming liquid sand paper

masquerading as a chain lubricant. Again this is where manufacturer testing results in a clean lab with no contamination holds absolutely zero representation re what performance a cyclist may expect to attain, I would be wary at this stage of various Tribology testing methods – fancy they may be, but how much relevance those test results hold for how cyclists will be using in the real world – ie dripping on more lube, wiping chain, and riding – much investigation still needs to be conducted to ascertain. I don't know anyone who only trains in a clean lab and fully ultrasonically cleans and ultrasonically re-applies their chain lube every 4 hours (Also some test results from other labs have efficiency data changing hour by hour like a Himalayan mountain peak which obviously raises other questions).

The Zero Friction Cycling test protocol will quickly ascertain the main manufacturer claims, typically along the lines of "repels dirt, dust and grime" and "cleans as it lubes" as well as many that claim to form protective layers to improve chain / drivetrain lifespan etc. ZFC test protocol is a blunt tool in one respect – but its simplicity makes the test protocol extremely robust – there is just no escaping the wear rate correlation – it just flat out takes a lot of friction to abrade through the hardened steel parts of a chain at a prodigious rate, so lubricants with a very high wear rate simply cannot be real world low friction after any notable period of time. Conversely, if extremely low to zero wear rates are occurring and the lubricant has a light viscosity / solid chain coating – then the odds of the lubricant being a very low efficiency loss lubricant are of course very high. The ZFC test protocol based on wear rate and with alternating clean and contamination addition block acts as a great goal keeper check vs other more fancy high tech lubricant testing – many of which have completely contradictory results to other fancy lab efficiency testing, making the current testing landscape quite messy. I believe the ZFC testing results perform a very important role in double checking other manufacturer or independent / tribology test claims.

The Tru-Tension Tungsten All Weather was an extremely pleasing test to conduct. It is always a great feeling to see fairly soon into a test that a manufacturer has indeed brought a genuinely great product to market, not just great marketing to market. We can see from the block by block wear rate performance break down that this lubricant is an extremely high performing lubricant that meets almost all of its marketing claims, setting extremely good or even best ever results in some test blocks (and a some best for drip lube results).

What was also great to see with this lubricant was just how much cleaner it is versus competitor drip lubes like Smoove or Squirt. Throughout the test Tru-Tension Tungsten All Weather remain exceptionally clean, there really was very little gunky build up until the very end of test where the extreme contamination block throws a lot of contamination in and there have been A LOT of re-lubes by this point – for the main test after every re-lube and wipe – it is the only drip lube to look as similarly clean for the first 5000km has been UFO drip – but at a vastly, vastly higher price point.

I knew from about halfway through the main test based on both its wear rate results and outstanding cleanliness that I was going to be stocking this lubricant and so also commenced field testing as well as initial emails to Tru-Tension with regards to stocking the All weather. Based on the All weather performance I also stated field testing their Tungsten Race Lubricant as odds were high that if they make a brilliant lube matching claims with their All weather, that I would see a similar result with Race Lubricant, and so discussed regarding stocking this product as well pending any surprises from field testing and initial control testing (currently underway and going very well).

So as an overall wrap, here are the overall pro's and cons of from exhaustive control and field testing for Tru Tension Tungsten All Weather.

In the pro column;

- Outstandingly low (even record setting for some blocks) wear rates across the brutal ZFC test protocol.
- Exceptionally good contamination resistance – a brilliant choice for non waxers who ride gravel / mtb as lube sets to a solid coating. Wet lubes & off road quickly = grinding paste.
- Exceptionally clean drip lube overall. Chain remained outstandingly clean throughout test with zero cleaning intervention, just adding more lubricant at specified re-lube intervals, working in with back pedalling, and wiping excess with microfiber cloth. There is no longer term gunking up that occurs over time with other wax emulsion lubes like Smoove / Squirt.
- Demonstrated a much higher ability to clear contamination that other drip lubes.
- Field testing has shown it also gets along very well with Mspeedwax, making this a top choice to complement waxers going on holidays or interstate stage races and able to simply start re-waxing again when get home without needing to clean chain.

- Easy to clean if wish to perform a full solvent flush clean, unlike squirt / smoove which are a much tougher clean.
- Very low total drivetrain running cost when factoring cost of lubricant as well as the very low rate of drivetrain parts wear.
- Do not yet have an outright friction loss number (working on it) – however the ZFC test protocol has proven a very reliable predictor. If the wear rate is very low and it is light bodied / solid lubricant – it is going to be fast.

In the con column;

- Despite its lower viscosity, there is still clearly some level of initial penetration issue with a relatively high initial clean block 1 wear result – which accounted for a fairly significant percentage of its overall wear across the test – had it recorded a very low wear rate in block one, its cumulative results across the test would have been even more exceptionally impressive, and it may have made it all the way to the end of the extreme contamination protocol without exceeding 0.5% wear rate allowance – something only UFO Drip has done but note UFO D was tested at double the re-application rate.
    - As such – highly recommend to still follow the same protocol of warming chain, warming lube as per advanced application recommendation for smoove if applying to a properly cleaned chain, better yet is to start with a MSW prepped chain and apply over the top of Mspeedwax, this will completely negate the initial penetration issue and accompanying wear, and so total chain lifespan on this lubricant will be very impressive.

- The control test showed that it was able to last the standard re-lubrication intervals however in field testing the lubricant does feel and sound dry much faster than the control test demonstrates (which is why field testing is also important for lubricants that show promise of being stocked). Tru-Tension claims that a very thin layer is left behind that is low friction and protective against wear, and the main test backs this claim, however it is definitely a dry feeling and sounding lubricant in real world riding. It feels after about 100km like an mspeedwax waxed chain feels after about 200 to 250km, and definitely by about 150 to 200km – you really want to re-lube and get back to a smoother feeling and sounding lubricant – even if actual friction and lubrication are still going great inside the chain. This is most notable initially, and the length of time it takes to feel and sound really dry does slowly increase over time, but for some - despite the low friction, despite the very low wear, and despite the awesome cleanliness – the feel may simply not be for them, and the longer period of silky smooth feeling from mspeedwax or smoove (or Nix Frix Shun for road riders) may simply be more to their preference. If it doesn't bother you much and real world re-lubing by adding approx. 3 ml every 200km ish is going to be ok, you will have a great time and enjoy a very low wearing and exceptionally clean chain – Especially those who ride gravel and need the contamination resistance of a solid lubricant.

- As such the real world cost to run will likely be higher than what is officially calculated for the control test results, but I need to do that calculation from the control test results – however it is likely you will re-lubricate more frequently than the rate that was done in the control test.
- I would like to see a larger bottle version. The existing bottle is 50ml, and at an average application of around 3ml, this will give approx. 15 to 17 applications, but at a likely re-lube rate of approx. 200km ish for most – this is not going to last that long for most. Many consumers are used to buy a single bottle of lubricant at a time, and so for those purchasing online and paying shipping fee – this will also bite into total cost to run. I think after one goes through first bottle fairly quickly they will purchase 2 or 3 at a time next order, however it would be handier to have a 100ml or 120ml bottle version / option – and this will also cut down on plastic waste.
- There will be events where a much longer lasting lubricant such as smoove will be a better choice, ie if going flag to flag in 6 to 12hr mtb race, then MSW / smoove is going to be a better choice as this is going to feel REALLY dry after a few hours offroad (more so of course if conditions are harsh). Probably the only marketing claim that didn't really match testing is the longevity per treatment – but not it feels and sounds very dry well before you actually start running out of low friction lubrication and protection inside the chain where it counts.

And so that's pretty much a wrap. Overall, I was extremely pleased with the testing and results as well as the real world cleanliness from field testing. In many ways this has been the drip lube I have been searching for over the last few years, one that delivers genuinely exceptionally low wear rates, contamination resistance, remains exceptionally clean, is easy to clean, and plays well with Mspeedwax, and is fairly priced for such a high performance lubricant – really the only aspects that need to be improved to make this a near perfect drip lube are initial penetration issues, and outright longevity per treatment / relatively dry feel quite quickly.

Unlike so many tested, it almost completely lives up to its marketing claims – and I am happy to back it as being truly one of the first genuine next generation drip lubricant releases, and one that I was very excited to be able to get on the blower to Tru-Tension and start stocking.

At the time of writing this detail lubricant review wrap, we have also seen the release of Silca's New Super Secret Lube, as well as the absoluteBlack Graphene lubricant, both with some big claims, and both high on the test priority list. I am currently wrapping up the testing for the Tru-Tension Tungsten Race Lube, and have quick pre booked test to complete, then its onto Silca and absoluteBlack.

Of note it is very interesting to see that Silca are / have released a container for an immersive application of their lubricant, and absoluteBlack also stress the importance of an initial immersive application of their new Graphene lube prior to then moving to a drip lube application from that point onwards. It is clear from the testing of Squirt and Smoove, both of which presented significant initial penetration issues, and the Tru-Tension Tungsten All Weather which presented with lesser but still easily measurable initial penetration issues – that we are now seeing some manufacturers tackle this issue head on vs turning a blind eye to it and assuming that as riders generally do not accurately track initial wear rates, that no one will notice.

I have had discussions with Tru-Tension on this front and whilst I cannot promise anything, I am hopeful that they will follow suit with regards to an efficient way of enabling an initial immersive application (in the interim please follow Advanced Application guide for Smoove on website, or apply over an Mspeedwax prepped chain), as well as a larger bottle size. On that note, Smoove / Squirt should also really be taking notice and moving quickly in the same direction – both of those lubricants can reduce the wear in the first 1000km by around 15% minimum with an immersive application vs current application instructions on bottle / website.

ZFC Overall Performance Ratings

Race Day Lubricant Road – 8/10

Awaiting being able to get some official FTT test results – I would rate it higher but it is currently competing against known quantities such as Mspeedwax and UFO Drip, and likely their own Tungsten Race Lubricant, so they are basically you 9/10 and 10/10 options –however this one is still going to be extremely good.

Race Day Lubricant MTB / CX – 8 to 9/10

Due to its outstanding contamination resistance for shorter events such as Cx, XC, gravel, and conditions dependent up to around 4hr is XC marathon events, it will be outstanding.

Everyday Lubricant – 8 to 9/10

Really only mspeedwax beats Tru-Tension all weather due to the inherent advantages of immersive waxing re-setting contamination each re-wax, no penetration issues, and longer treatment lifespan before feeling and sounding too dry, as well as mspeedwax's well proven real world chain and parts longevity. However for non waxers who can simply be fine to re-lube every approx. 200km (just run two training chains in rotation – great tip anyway for ensuring always get two chains to a cassette) – Tru Tension Tungsten All Weather is going to deliver as yet unparalleled day in day out performance, low wear and cleanliness – really only matched by UFO drip but for a bottled lube, but UFO Drip is obviously VASTLY more expensive as well as much harder to apply due to its viscosity issues at temps lower than 25dg. Non waxers will be extremely happy with this lubricant, and waxers have a best yet option to complement waxing for times when re-waxing is not possible (holidays etc).

Harsh Conditions Lubricant – 10/10

As long as event length does not exceeded treatment lifespan its performance is simply exceptional.

Single Application for Long event – 5/10

Its outright longevity per treatment was really the only aspect that fell a bit short. It will be perfectly fine and remain very low friction performance for even very long road events in dry conditions (ie 3 peaks that is 235km and 4,500m climbing) just note that it will feel and sound dry the last third. Although its performance in harsh conditions is outstanding, remember this is for as long as the treatment lasts, and harsher conditions shorten the lifespan of all lubricants – so if a 10 hour 200km road event was going to be wet – then a longer lasting lubricant choice will be better to ensure not riding the last half sans any lubricant left. Based on testing to date in "normal" dry conditions I would rate it to any road event that is up to around 250km and offroad up to around 4 hours – adjust if particularly dusty / wet etc.

Cost to lubricate (based on blocks 1-5)

**Note – if one overcome initial penetration issue then you should achieve much better results that ZFC obtained during testing, and with the very cheap price per bottle would make Squirt a very economical way to run drivetrain if willing to put in the time and effort*

Extrapolated drive train running costs table per 10,000km based on blocks 1-5.

(Cost per km of lubricant & assume 2 x chains @0.5mm wear per cassette & 6 x chains per set of chain rings. Australian online + Lbs store RRP prices of ultegra cassettes and chain rings) .

Lubricant cost per 10,00km - $19.99 per bottle – 3.4bottles	Chains per 10,000km ($40 per chain) – 1.7 chains	Number of cassettes worn per 10,000km & cost ($90 per cassette) – 0.85 cassettes	Chain rings cost per 10,000km ($195 set). 0.28 chainrings	Total Drive train running cost per 10,000km
$68	**$68**	**$76.5**	**$55.2**	**$267.70**

(1.7 bottles used for 5000km. 1.7 chains per 10,000km. 0.85 cassettes per 10,000. 6 chains per chainrings = 24,000km – 0.417 per 10,

Thanks for reading – stay tuned, Tru-Tension Tungsten Race lube is on test now, and Silca Super Secret lube is high on the list to be done asap (one more booked in test between Race lube and Silca's).

Pics from test

After first 1000km block 1;

After first 1000km block 1;

Chain ring at end of test – 6000km – End of extreme contamination block;

Considering how many applications of lubricant and the amount of contamination applied by this point with zero cleaning intervention it is actually quite clean. It was very impressively clean overall up to around the 4000km ish mark which is a decent cleaning maintenance service interval for most riders

Cassette at end of test – 6000km – End of extreme contamination block;

Considering how many applications of lubricant and the amount of contamination applied by this point with zero cleaning intervention it is actually quite clean. It was very impressively clean overall up to around the 4000km ish mark which is a decent cleaning maintenance service interval for most riders

Jockey wheels at end of test – 6000km – End of extreme contamination block;

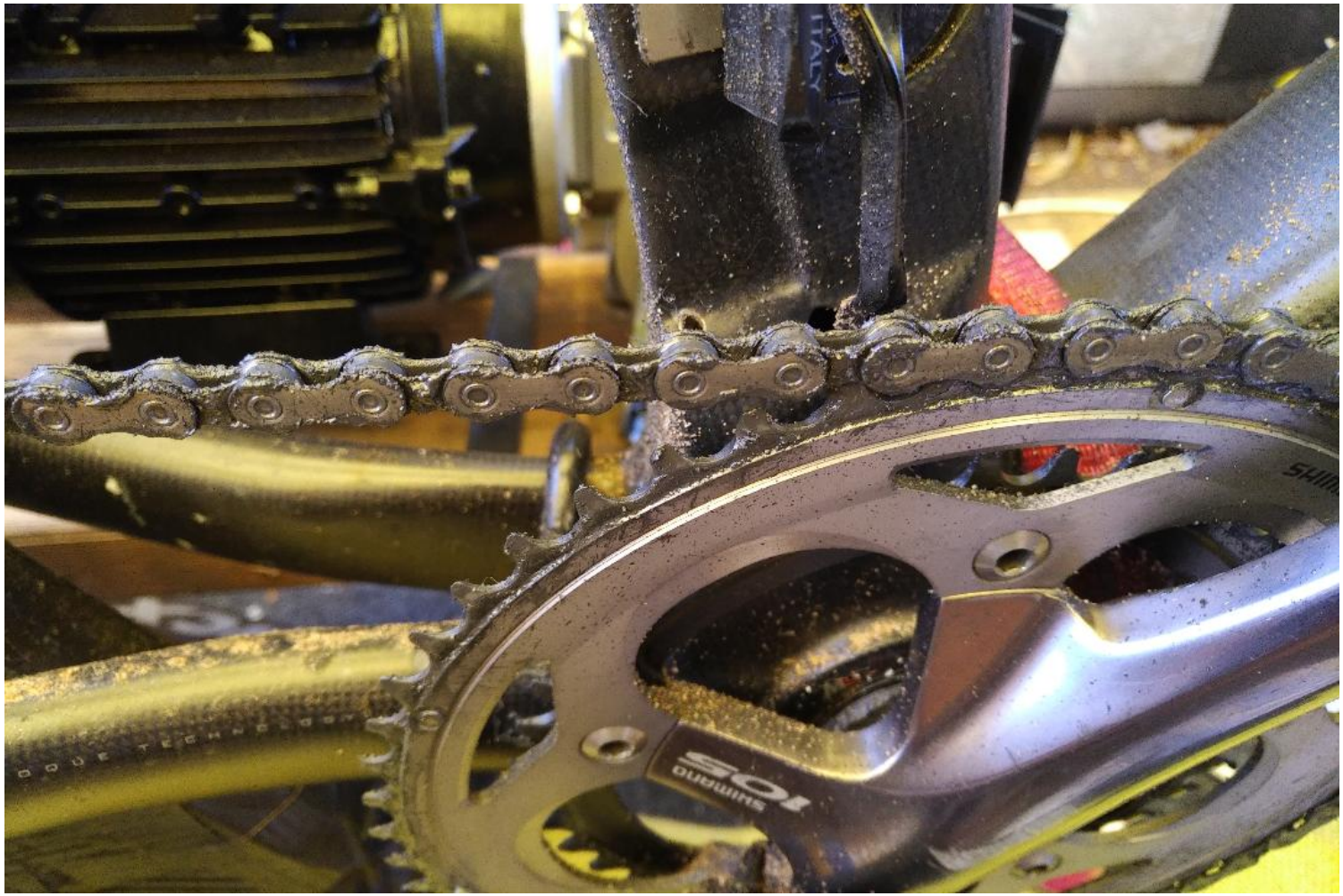
Considering how many applications of lubricant and the amount of contamination applied by this point with zero cleaning intervention it is actually quite clean. It was very impressively clean overall up to around the 4000km ish mark which is a decent cleaning maintenance service interval for most riders

For reference / reminder – here is Smoove after 4,600km

And Wend Wax after 3000km

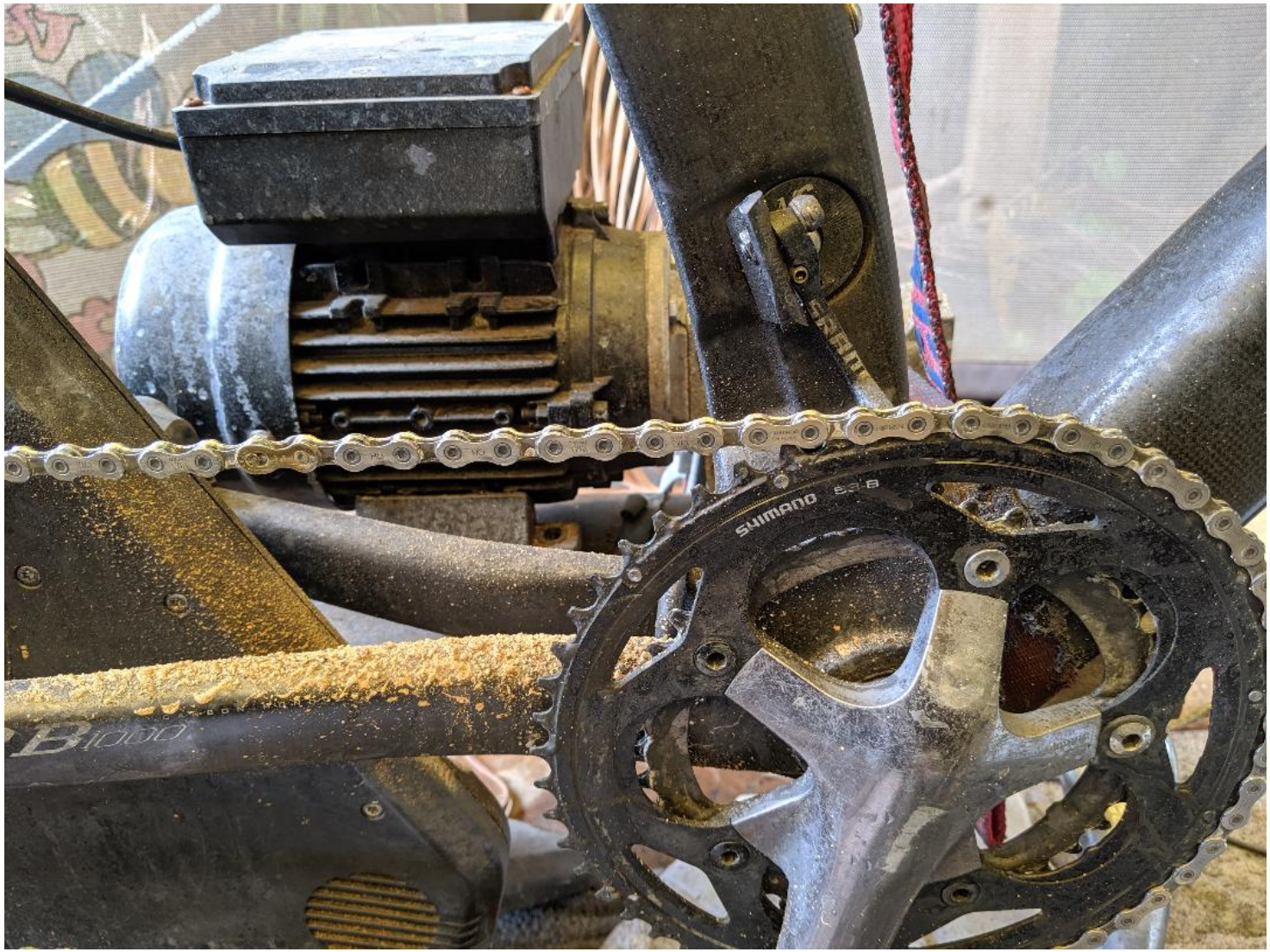
RNR gold after 3800km

Muc Off Hydro / Nano after 2000km

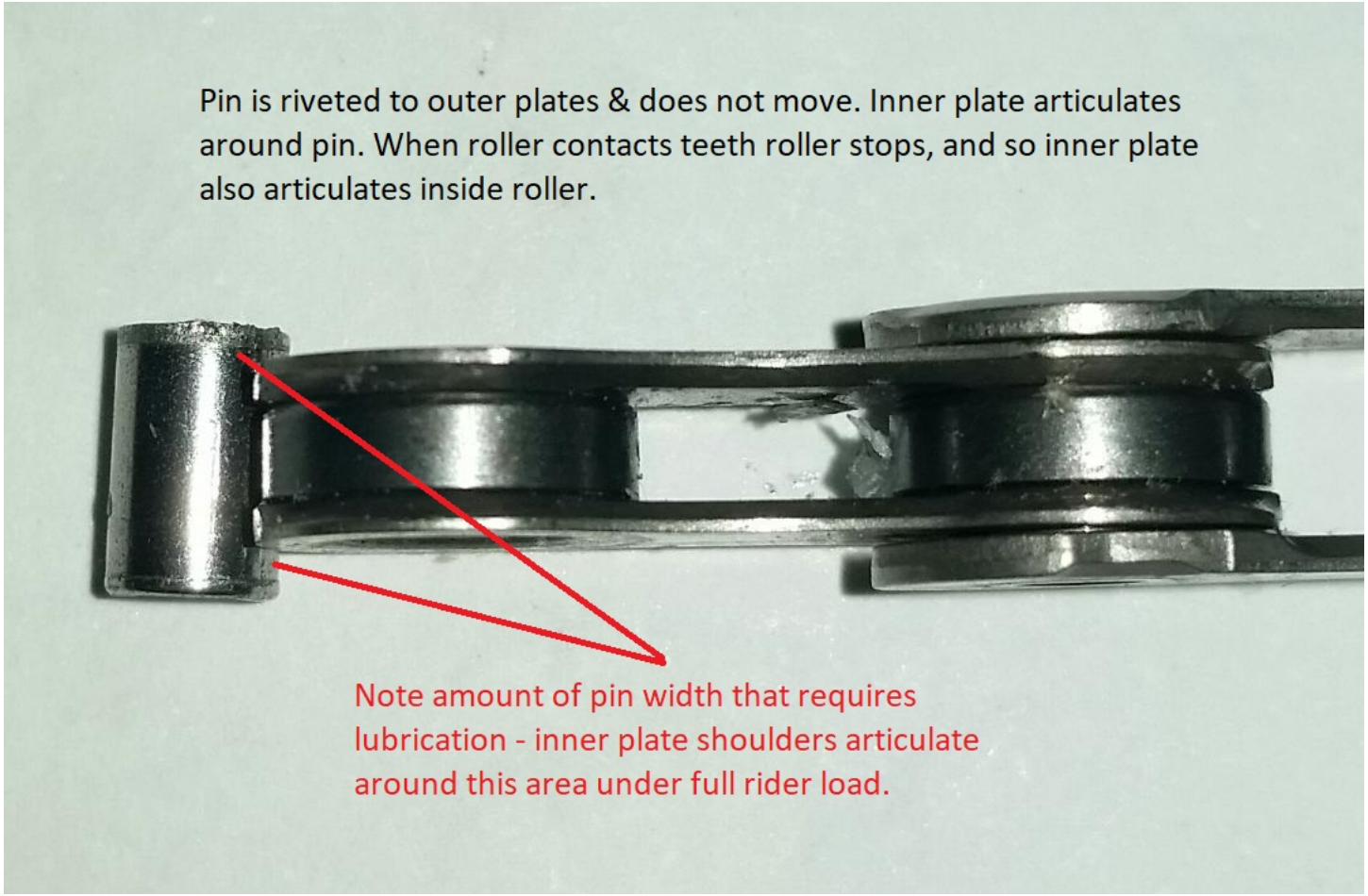


Still the benchmark due to immersive re-waxing in lab grade wax – Mspeedwax after 6000km;

UFO Drip after 6000km;

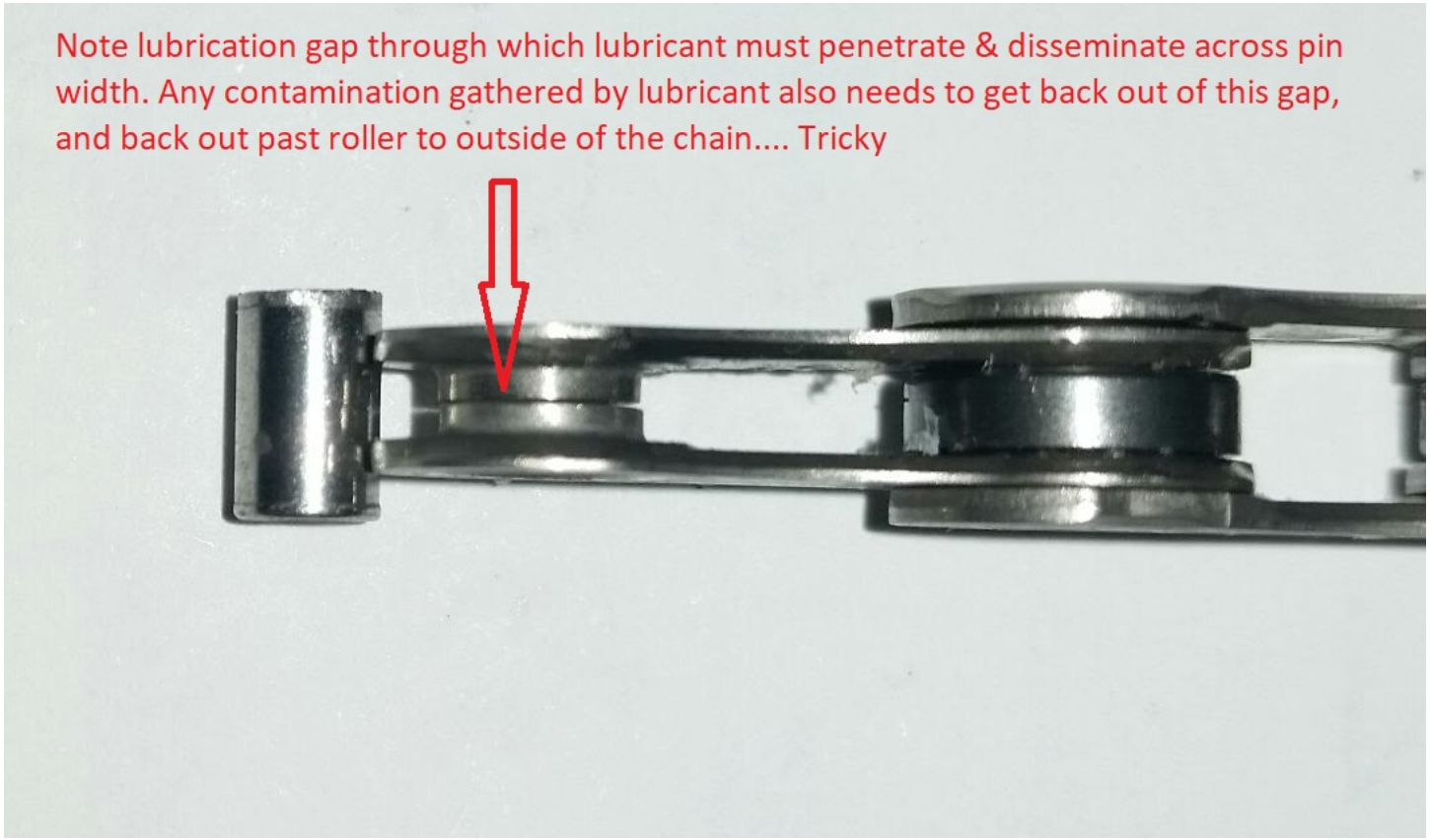


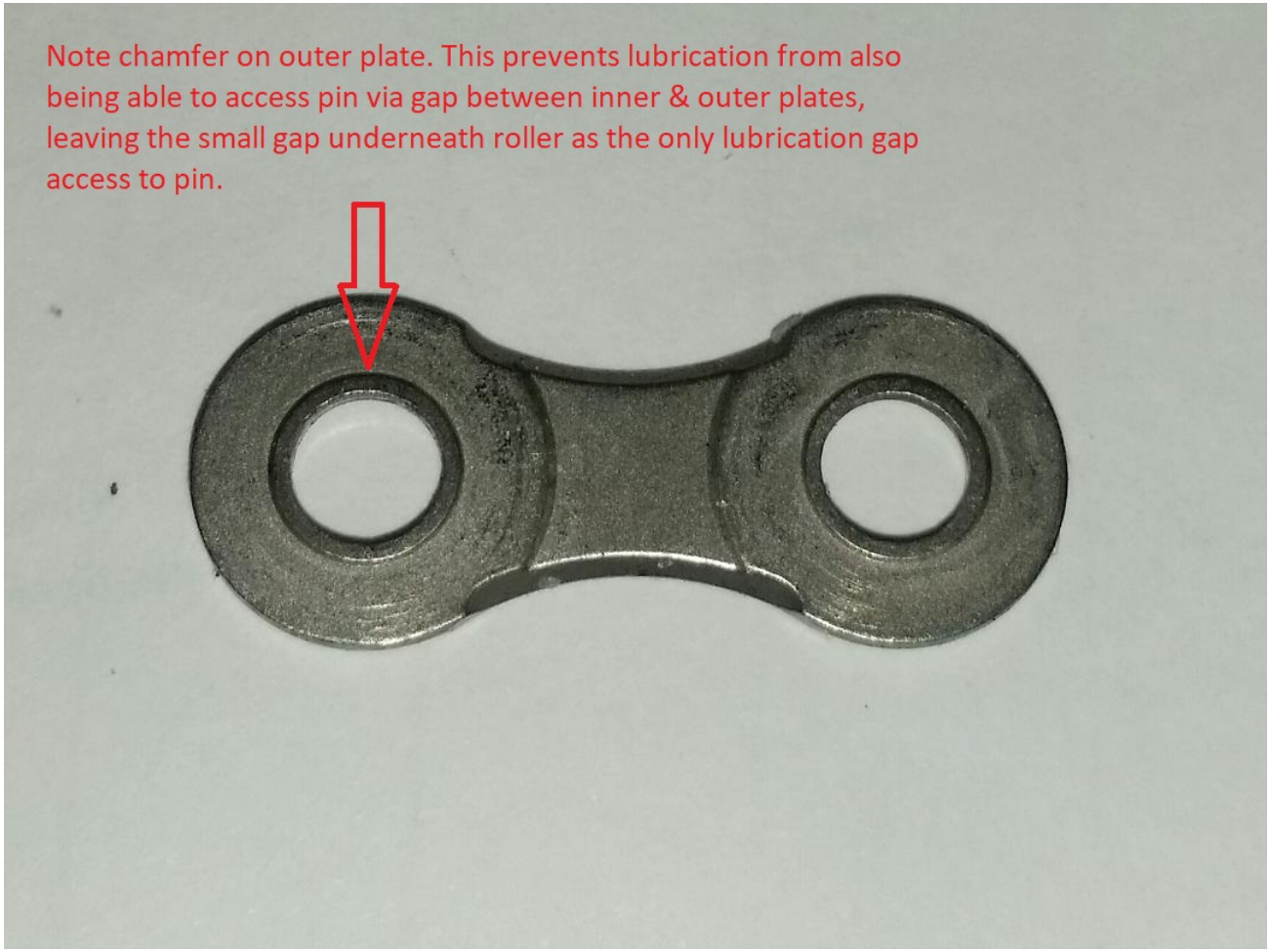
Finally, a quick re-cap on why many lubricants have an initial penetration issue, especially on narrower chains. *Note, you cannot try to negate this by applying over packing grease – packing grease is anti corrosion protection in case they sit on a shelf for two decades, you should never ride factory grease as a lubricant or add any decent lubricant over the top of it – step 1 it must be properly cleaned off, and depending on lubricant – take some care to negate initial penetration issues, or – start with an ultrasonically cleaned and mspeedwax prepped chain as you can add any lube straight on top of Mspeedwax.



Now with Roller removed

(Note width of inner plate shoulders – inside bore articulates around pin, outside of plate shoulders articulates inside roller.





Thanks for reading – stay tuned, Tru-Tension Tungsten Race lube is on test now, and Silca Super Secret lube is high on the list to be done as well as the just launched absoluteblackGraphene