From the Vault: Cherry ‘Nixie’ Review

-ThereminGoat, 11/07/2020

Reflective introductory sentence.
Summarization of recent switch releases.
Trite observation summarized in form of unreferenced meme photo.
Segue into article purpose.

Meta-critique of my own introductory style aside, this time the ‘recent explosion’ of switches has caught up to me and in all of my excitement to be on top of groupbuys, talking to vendors behind the scenes, and making trade plans months out in the future, it appears that I missed the sale for 43 Studios’ newer Opblacks, a modern switch paying homage to the famous meme switches Cherry Nixdorf Blacks, affectionately dubbed as ‘Nixies’ by the community and those that can afford a $7 per switch price tag. Having then fondly remembered one of the rarer switches from my earlier days of collecting, I decided to dive back into the vault to learn more about them. Unfortunately, I quickly found that there really wasn’t that many good, or at least descriptive, reviews about the actual *performance* of these switches, with many articles focusing on their surface level appearance or rarity. Thus, what I bring to you today is the small pile of information I gathered from the vault as well as my attempt to fill in the gaps with a bit more of a thorough performance evaluation of the famous Nixie switches.

Though before I get to that quickly, I am actually quite serious about keeping up with the explosion of new switches that are being released on a weekly, and even sometimes daily basis. While this seemingly ever increasing flow of switches could easily be chalked up to a relative ‘cracking’ of the Chinese market that was for the longest time a mysterious dark spot of switches for collectors in the west, nobody can deny that interest in switches by the hobby as a whole has increased in the Western market. As well, vendors seeing increased sales of various types of switches that vary month by month are starting to not be able to offer the same 10 switch pack deals that they started out on, choosing to most often opt for the Drop style of 70/90/110 packs of switches instead. And to be entirely honest with you, this absolutely sucks for collectors like me who are only seeking at most a couple of each new switch. Even though I have a massive support network of traders behind me that help hook me up with amazing stuff I wouldn’t have the time nor money to get otherwise, they aren’t always perfect nor can afford it themselves to keep up with this insane pace.

Thus, in order to help keep up with the sheer influx of switches both for my collection and more impactfully for reviews on my website, I've decided that its officially time to open a Patreon for donations. While this immediately is going to cause many of you panic in thinking that I am going to be shutting content behind a paywall, or requiring a monthly subscription to read my rant-filled articles, know that that could not be further from the truth. I am opening a Patreon with extremely low tiers simply as a means for you to help me buy switches for reviews and the collection, to aid in costs associated with the website, or simply to show more support than you already do by reading these articles. (Seriously, even just reading these articles whenever I post them is more than enough support.) Know that this will not change my content, the way that it is delivered, or literally anything else other than helping me continue this website and my collection with a little bit more ease and a little bit less of a Maruchan Ramen diet.

Link to Patreon: https://www.patreon.com/theremingoat

Figure 1: Hands down the absolute best flavor of Maruchan Ramen, and if you disagree, you're flat out wrong.

Switch Background

While the mechanical keyboard hobby is definitely not shy about its fascination with the latest, greatest, and shiniest thing out today, there still exists a sizeable amount of the hobby dedicated to collecting 'vintage' mechanical keyboards, from back in the days before 'Rubber Domes' were even thought of as a curse to bring upon your carpal tunnels. While this particular section of the community makes itself fairly well known to the larger portion through super famous brands such as IBM and Macintosh, there are plenty of older, less currently well-known names in the scene, such as Nixdorf. Nixdorf, short for Nixdorf Computer, was a rather large name in computing back in the day being founded in 1952 in West Germany and running up until 1990 with the later years fraught with mergers and name changes nearly as frequently current JWK recolors. Over the years, though, this company made both tremendous strides in computing as well as pushing of what was then just a 'calculator' towards the direction of the modern technology companies we see today.

Starting out when computers were still functionally just math machines and took up both an entire room for hardware and an entire other room of operators, engineers, and coders, progress at Nixdorf saw these computers shrinking and shrinking until in 1984 when they introduced the 8870/M10. While still stupidly massive by today's standards, the 8870 was small enough to take up only a couple of desks worth of space, and was able to connect 16 terminals through an office space to this one system running on its own proprietary OS known as NIROS, or the Nixdorf Interactive Real-time Operating System. Paralleling this decrease in hardware size from 1952 up until 1984 when the 8870 was released, we began to see keyboards used to interact with these terminals fundamentally change as well. While older models of hardware featured keyboards physically built into terminal, the shrinking of hardware and relative mobility of it saw a disconnection of the keyboards from the terminals, allowing them to eventually develop into the plug-and-play access like we are accustomed to now a days. It was somewhere in the timeframe of 1980 to 1988 that these specific keyboards from Nixdorf began to become 'interesting' for the sake of this article, and we saw the inception of the Nixdorf CT06-CT07/2 M 'Softkeys' keyboard.

Figure 2: Nixdorf CT06-CT07/2M 'Softkeys' Keyboard in nearly perfect condition.

Typically connected to the Nixdorf 8870 Quattro microcomputers of the time, in addition to the CT08 and CT11 keyboards, the CT06/07 looked quite similar in design scheme to other Nixdorf branded keyboards at the time, but instead featured a special kind of Cherry MX switch that was only since been almost entirely seen in the likes of these specific Nixdorf branded keyboards. (There is one instance of these being found in CT11s, linked at the end of this article.) If you haven't been read this bedtime story before, this certainly seems like a baffling choice as currently Cherry only does their OEM sets of switches and *never* produces custom switches for anyone. Rest assured, Cherry back in the day was not shy about doing custom switch designs, schemes, or layouts for particular companies, with one of the other most 'common' famous examples being the Cherry MX Olympia Whites. Moving back to the CT06/07, these particular Cherry MX style switches appeared to be just Cherry MX Blacks that would have been produced at that time, but with a translucent, milky top housing rather than an all-black getup. However, these vintage switches are particularly unique in that they contained the diodes for the PCB inside of the switches rather than in a through-hole fashion soldered underneath the switch. Interestingly as well, one of these boards specifically even came mounted with black o-rings underneath each of the keys which didn't happen often at the time for mechanical switches. The final remaining point of interest regarding the Nixdorf Black switches, commonly now shorted as 'Nixies', was that in addition to a full layout of these on the CT06/07, every board came with a differently weighted and colored spacebar switch like a lot of other vintage keyboards at the time. Rather than the famous black color, these one-per-board switches featured a white stem as well as a significantly heavier spring weight than the black Nixies.

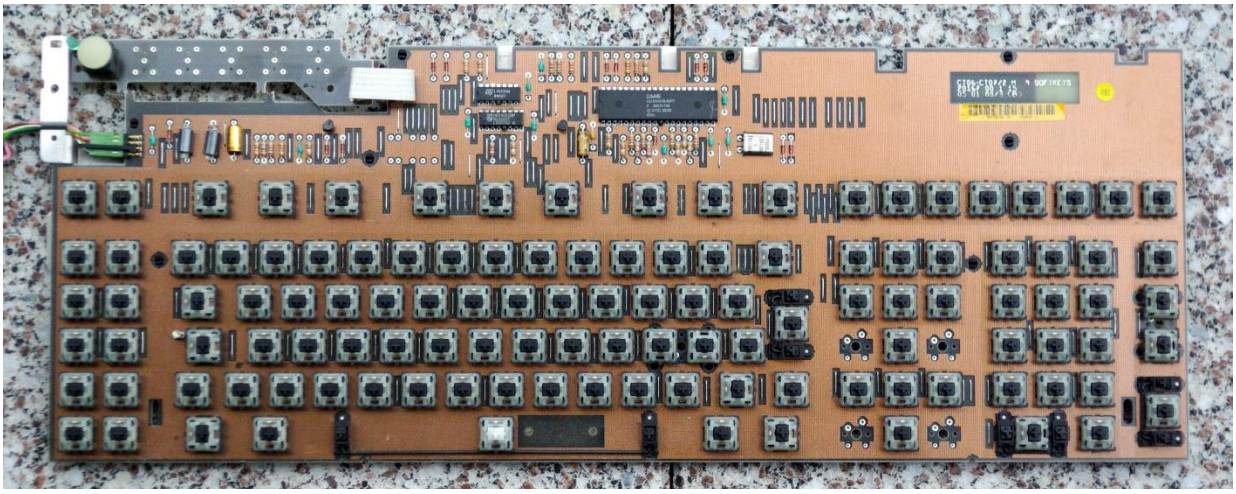

Figure 3: Nixie switches on a CT06/07 PCB.

Since the heyday of these switches and the CT06/07 keyboards, though, these have faded into a fairly strong obscurity. Even in the more dedicated vintage mechanical keyboard forums such as Deskthority, only a handful of articles discussing these switches and the 'finding' of them in keyboards has been made. As well, to interject with a bit of a fanciful rumor, its been discussed on these forum posts as far back as 2014 that *someone* back then was even going so far as to make a 60% layout keyboard entirely out of White Nixie switches, though I was unable to find further evidence of this at any other point in my digging through the vault. Most recently, Nixie Blacks have been seen in the occasional mechmarket posting or high end keyboard photoshoot, often pried at $7 per switch which is roughly the going rate that they've been throughout the entirety of their history in the hobby, with the aforementioned post from 2014 stating a very similar price per switch for a complete CT06/07 PCB.

Nixie Switch Performances

Given that I just alluded to not one but *two* different Nixie switches that I could review, I'm going to choose to score only the Nixie Blacks while still reviewing both in tandem. This is almost entirely because I don't think it would be fair to score the Nixie White given that literally nobody will ever see an entire board of these, nor will most people even get a chance to try them. In this respect, while still rare as all shit, the Nixie Blacks are much more likely to be something people would be interested in performance wise because they are feasibly obtainable for a full build.

Appearance

Obviously featuring a fair bit more dust than most switches, both internally and externally, both of these switches feature the same black bottom housing and milky-style top housing that is emblematic of the famous Nixie switches. While not entirely exact, the closest existing similarity to these switches as of the time of writing this article are the Gateron Milky switches which feature a slightly more opaque and whitish tinted top housing than the Nixies. Below, you'll see a comparison photo shot from one of the articles I dug up while researching, featuring this from left to right with a Gateron Clear top housing, a Gateron Milky top housing, and a Nixie Black top housing.

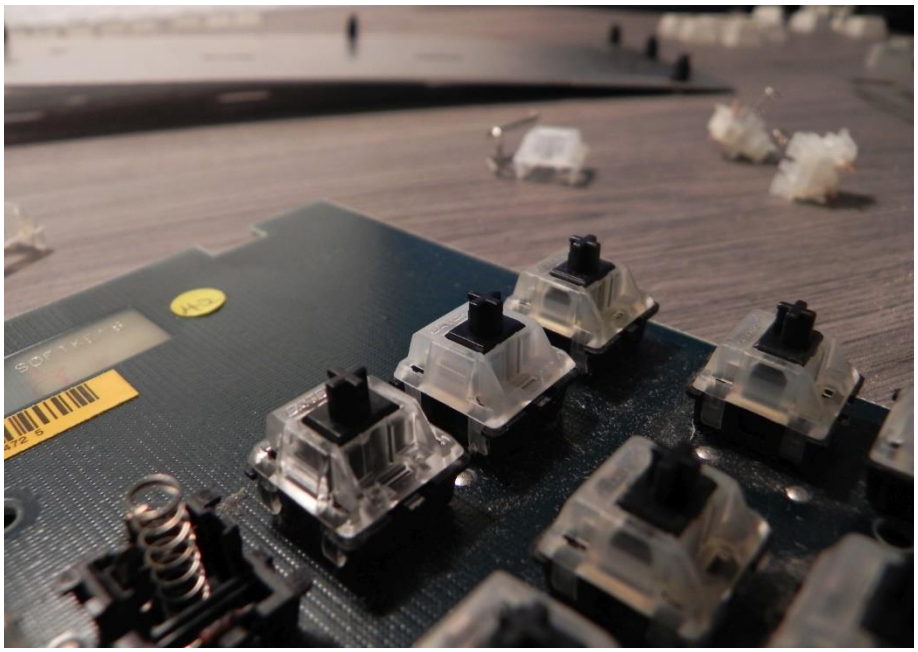

Figure 4: Comparison of tint in switch top housings. (L-R: Gateron Clear Top, Gateron Milky Top, Nixie Black Top.

Before moving on to the most interesting aspect of the appearance of these switches in the built-in diodes, it was surprising to me to note that the springs between Nixie switches *even in the same board* are not reported to have been consistent. While it is a bit tough to see due to the lighting conditions, the picture below from the same aforementioned article actually notes two different colored springs with the far right one featuring a more silvery tone with what appears to be four or five ending coils while the center and leftmost springs are a gold/coppery color and feature only two or three ending coils. Additionally, and much to my own personal enjoyment, below that photo you will find my pair of Nixie switches from my collection which demonstrate this strange difference as well. While they almost certainly didn't come from the exact same board, you'll note the that my Nixie Black has a silvery tone to it whereas my Nixie White features the coppery toned spring.

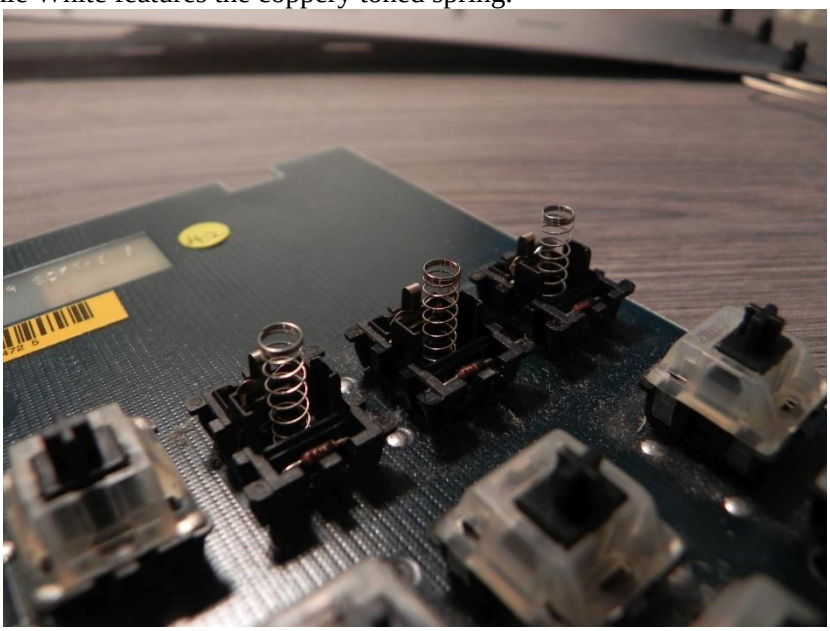

Figure 5: Picture of same board from Figure 4 but demonstrating switch to switch variation in springs.

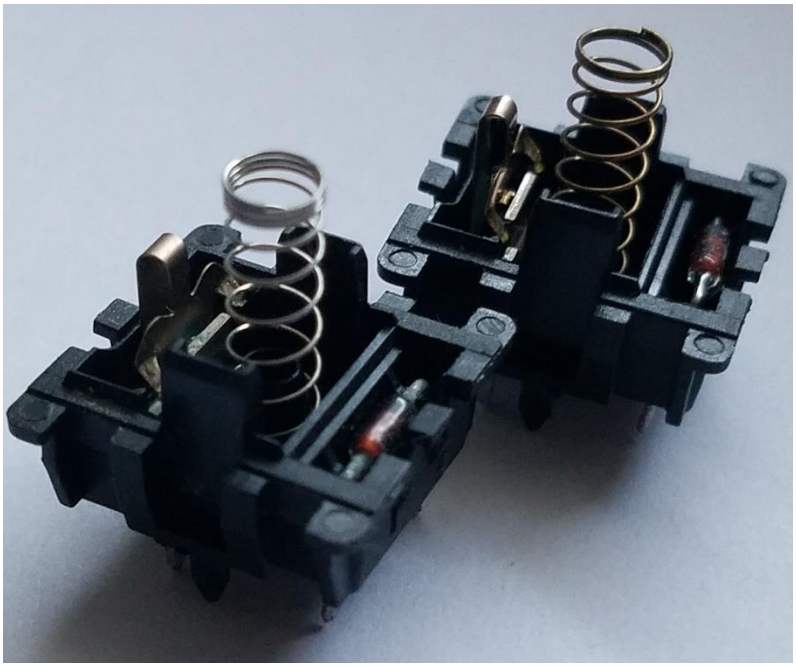

Figure 6: Better demonstrated color variation in springs with Nixies from my own collection.

Finally, one of the most unique and interesting design features of the Nixie switches is the built-in diodes to each switch. While this functionally allows for NKRO in the keyboard, this is the only instance in MX style switches that I am aware of, where the manufacturers chose to put the diode in the switch rather than directly onto the PCB underneath. Pictured below with a removed top housing, you'll also notice that this introduced an additional pair of pins that stuck out underneath the switch effectively making these '7 Pin' switches rather than the commonly seen 3 or 5 pin switches.

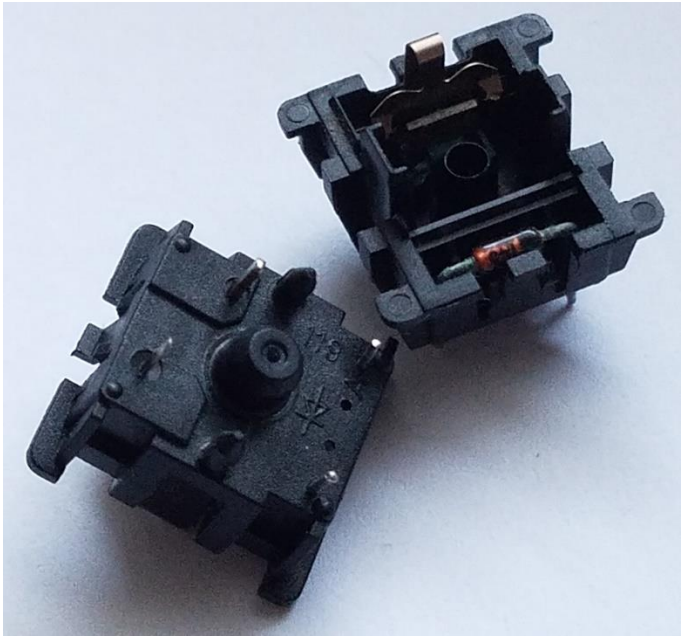

Figure 7: Nixie in-switch diode placement and associated underside pins.

Push Feel

One of the biggest reasons that the mystique, as well as the pricetag, has remained for Nixies for such a long time is strings of anecdotes that they are above and beyond smoother than most other switch options – both new and old alike. With that in mind, I am relatively underwhelmed when sitting down to write this section at the smoothness of both Black and White Nixies. Are they smoother than most Cherry options? Absolutely. Are they necessarily smooth and free from scratch though in their own right? No. In fact, I would go so far as to say that the smoothness of these in modern builds and repurposed usages almost certainly was improved by the addition of aftermarket lube by the person building the board. Unlike a lot of the reviews and documentation that exists out there surrounding Nixies, at the time of writing this I am uniquely situated in what many would consider the peak of JWK/Durock properties as well as shortly after the release of Cherry's MX 'Hyperglide' line, which have seen fairly strong yet sparse appreciation in the community thus far. Certainly, in the ever-increasing drive to produce, select, and use the smoothest linear switches, the sole reported performance strength of Nixies versus other vintage and modern Cherry options is certainly becoming less and less appealing for its price.

Other than the smoothness of these switches, these very much fit what would be expected of stock Cherry switches from that time in terms of bottoming and topping out feeling. Both the Nixie Blacks and Whites produce very solid, thick, and muted contacts with both the top and bottom housings. While certainly different in color and somewhat in composition due to the milky rather than opaque aspect of normal Cherry switches at the time, I am under the expectation that the majority component of these top housings is almost certainly a nylon or nylon-like material based on the feeling and sound of them.

Sound

Much in the same way that the bottoming and topping out of these switches pull no particular surprises, the sound of these switches both very much fits the expectations of what one would expect from nylon or nylon-like material top housings in addition to Cherry's line of switches as mentioned above. Both the Nixie Blacks and Whites produce a solid, muted, and deep bottoming out noise whereas the topping out noise is ever so slightly thinner and shifted toward a higher pitched sound. Particularly of interest, the heavier spring in the Nixie White does appear to cause it to collide with the top housing a bit more strongly on upstroke, adding to a noticeably louder and slightly higher pitched noise as well.

Wobble

Due to the fact that by and large the biggest 'selling point' for Nixies, other than sheer, unfettered flex value, has long been considered to be their smoothness, I was surprised to find that the wobble on both of these switches was almost substantially better than the majority of other Cherry produced switches. While there is an ever so slight play in the top housings of the switches in the N/S directions, the stem wobble on these is honestly incredible and more than makes up for this loose top housing. In both N/S and E/W directions for both colors of Nixies, there is so little wobble that it is almost assuredly not going to be noticed when used with caps on a keyboard. As well, the higher spring weight of the Nixie Whites actually aids in this impressive and underdiscussed feature, actually further noticeably reducing the N/S and E/W wobble of the stem.

Comparison Notes to Other Notable Linear Switches

Note – These are not aimed at being comprehensive comparisons between all factors of these switches as this would simply be too long for this writeup. These are little notes of interest I generated when comparing these pieces to Nixie Blacks side by side.

Figure 8: Switches for comparison. (L-R, Top-Bot: C3 Tangerine V2 (67g), Cherry MX Hyperglide Black, Tealio V2, Cherry Hirose Orange, ThicThock Marshmallow V1, Gateron Milky Black)

C3 Tangerine V2 (67g)

- Compared next to the deeper sound of both of the Nixies, the C3 Tangerines honestly begin to sound even *more* plasticky and thin, to the point where one would assume these are closer to the lower end of JWK switches as this is a feature commonly seen among them.
- The stem wobble on the C3 Tangerine V2s, which mind you have their own special molds for tighter top housing tolerances, is nearly identical to that of the Nixie Blacks and maybe marginally worse in the E/W direction as compared to Nixie Whites.
- Unlike the wobble, though, the Tangerine V2s definitely do edge out both of the Nixies in terms of smoothness of the overall stroke.

Cherry MX Hyperglide Black

- In terms of appearance, I think it is neat to point out the difference in the nameplates between these switches. While the newer Hyperglide Blacks have a thin script followed by a smaller Cherry logo, the Nixies as well as older Cherry switches in general tended to have a big, thick font for 'Cherry' followed by a much larger and more legible Cherry logo.
- Funny enough, while these Hyperglide Blacks are noticeably smoother than that of other, standard Cherry MX Blacks, they are just a tad bit scratchier than both of the Nixies.
- Even though the materials in both of these switches is presumed to be the same, the Nixies have a more muted, and slightly deeper sounding top out and bottom out than the Hyperglide Blacks.

Tealio V2

- While having similar E/W stem wobble to both of the Nixie switches, there is noticeably more stem wobble in the E/W direction in the Tealio V2s.
- Completely stock, I would say that these two switches also do have a fairly similar smoothness as well as scratch with respect to both push feel and sound.
- Much like with the Tangerine V2 switches, the Tealio V2s both feel and sound significantly 'thinner' and 'less substantial' than the solid feeling and sounding bottoming out of the Nixies.

Cherry Hirose Orange

- Keeping in mind that there is a fair amount of variability between Hirose switches given that they were produced at three different factories over a much longer timespan than Nixies, my Hirose Orange in my collection has a fair bit more scratch to it than either of my Nixies. Like the Nixies, though, Hirose switches improve incredibly with a proper aftermarket lube application.
- While there isn't much N/S stem wobble in the Nixies to start with, there is literally next to no N/S stem wobble in the Hirose Oranges, and so little so that this might be among the least N/S stem wobble I've ever seen in a switch.
- While definitely not nearly as flex worthy as an entire board of Nixies, in my opinion the Hirose Oranges are a fairly comparable performance, sound, wobble, etc. to the Nixies for only about 60% of the price at current market valuation.

ThicThock Marshmallow V1

- While the smoothness of the Marshmallow V1s is overall quite impressive for a modern switch, it still is just a slight bit scratchier than that of the Nixies, though definitely better than the Hyperglide Blacks which are in the same realm of smoothness.
- As well, there is a fair bit more wobble in the stem in both the N/S and E/W directions for the Marshmallows as compared to both the Nixie Black and the Nixie White.
- The one interesting comparable note between these switches, though, is that the Marshmallows have a similarly thick, and solid bottoming out feeling to that of the Nixies unlike the other JWK switch on this list.

Gateron Milky Black

- While ever so slightly louder in sound, the Gateron Milky Blacks have the most similar sounding topping out sound to the Nixies out of any of the switches on this list. I wouldn't be surprised, through this comparison, that opblacks might sound close to the same as well.
- Needless to say, the Gateron Milky Black has significantly more scratch throughout the stroke as compared to either of the Nixies and is more noticeable with respect to sound as well as with stroke feeling.
- Even though there is significantly more wobble in the stem in N/S and E/W directions for the Gateron Milky Blacks as compared to either of the Nixies, I want to say that they are still pretty 'good' on the wobble metric given their price and general availability.

Scores and Statistics

Note – These scores are not necessarily completely indicative of the nuanced review above. If you've skipped straight to this section, I can only recommend that you at least glance at the other sections above in order to get a stronger idea of my opinion about these switches.

Nixie Black		
29	/35	Push Feel
21	/25	Wobble
8	/10	Sound
14	/20	Context
9	/10	Other
81	/100	**Total**

Push Feel

Aside the slight bit of scratch in these switches, they are honestly incredible in all of the areas you'd look for in a push feel in a linear switch. They are for the most part smooth, have a very solid bottom out feeling, and a thick topping out feeling, which checks most of the boxes people look for these days in linear switches.

Wobble

As mentioned in my review of these switches, Nixies have incredible tolerancing on the top housing which lends to almost no perceptible stem wobble with keycaps on. If it wasn't for the ever so slight N/S wobble in the top housing, this score would be even higher.

Sound

Even as is with the slight bit of scratch in feel, these produce a muted, solid, and thick sounding bottoming and topping out feeling on an otherwise quiet downstroke and upstroke. These are incredible sounding linear switches.

Context

While the context section normally considers things like price and availability, the sheer rare and mystique of these vintage switches more than makes up for their limited, 'high roller' status in the

community currently. On top of that, they're interesting historical switches with a unique look from an otherwise shy-to-change company in Cherry.

Other

I'll make absolutely no qualms in saying that these are among my 'endgame' switches. With the few detriments these switches have being able to be improved with aftermarket care, these should be something that every person in the hobby gets the chance to experience at a meetup or in their own board one day.

Statistics

Average Score			Nixie Black		
25.4	/35	Push Feel	29	/35	Push Feel
15.5	/25	Wobble	21	/25	Wobble
6	/10	Sound	8	/10	Sound
11.9	/20	Context	14	/20	Context
5.8	/10	Other	9	/10	Other
64.6	/100	**Total**	81	/100	**Total**

Total Switches Ranked	34
Total Linears Ranked	17
Nixie Black Rank	2nd Overall, 1st Linear

Final Conclusions

Looking back through the entirety of this review, I find myself having actually shifted a fair bit from where I first stood on these prior to actually sitting down and writing this article. While there really isn't *that much* information out there surrounding these switches, I was truthfully unaware of the occasional difference in springs between Nixies as well as the fact that they have been found in another board besides the Softekys CT06-CT07. As well, when it comes to the modern perception of them, I would have also likely quoted that they are smoother than most Cherry stock switches and that their high price tag was more a matter of rarity than performance. While I still think that the modern aftermarket price of $7 per switch is a bit steep, the fact that these did appear, completely stock, to not only be smoother but to have a significantly reduced wobble as compared to most other modern switches options out there really did shift my perspective on these switches from both a performance and price focus.

While Nixies, both Black and especially White, will likely not be something that most people in this hobby get to readily experience in a build due to the rarity and prohibitively high cost of them, I

absolutely implore that you try and attend meetups when we are all able to again in the hopes of getting to find a board with Nixies in it. Even though I always have wanted to either have one of the CT06/07 boards myself or to own enough Nixies to actually be able to complete a build with them someday, this review has unfortunately only increased this desire further. To think that on top of all of this, that these are for the most part competitive with modern switches that are being produced nearly weekly in order to try and keep improving things that these switches really do well like smoothness, sound, and wobble is honestly incredible. Sometimes it's not about the newest switch put out by the newest manufacturer. Sometimes stuff *actually is* kind of reasonable for the given price tag that it fetches. And sometimes, the perfect component for your modern endgame board might actually be found deep within the vault.

Further Reading

Nixdorf CT06-CT07/2 M Softkeys Deskthority Entry
Link: https://deskthority.net/wiki/Nixdorf_CT06-CT07/2_M_Softkeys
Wayback: https://web.archive.org/web/20201107021802/https://deskthority.net/wiki/Nixdorf_CT06-CT07/2_M_Softkeys

Deskthority Forum Nixdorf CT06/07 Teardown
Link: https://deskthority.net/viewtopic.php?f=2&t=12866&start=
Wayback:
https://web.archive.org/web/20201107021721/https://deskthority.net/viewtopic.php?f=2&t=12866&start=

Nixie Switch Comparisons Imgur Album
Link: https://imgur.com/a/WopIO
Wayback: https://web.archive.org/web/20190414105820/https://imgur.com/a/WopIO

Nixdorf CT11 with Nixies Deskthority Post
Link: https://deskthority.net/viewtopic.php?f=2&t=14322&start=
Wayback:
https://web.archive.org/web/20201107021558/https://deskthority.net/viewtopic.php?f=2&t=14322&start=

Chyrosran's Nixdorf Softkeys Review
Link: https://www.youtube.com/watch?v=pONo-TSH_jE&ab_channel=Chyrosran22

Wodan's Duck Viper V2 Build with Nixies
Link: https://www.youtube.com/watch?v=H-Pqe_MPwAQ&ab_channel=Wodan

Taeha Types' TGR910 RE Build with Nixies
Link: https://www.youtube.com/watch?v=-62DSQ_Yq_M&ab_channel=TaehaTypes