

Gazzew's Boba U4 Switch Review

-ThereminGoat, 08/07/2020

While work has, for the better part, consumed the entire last month of my life, switches don't seem to care or stop coming at all. Over the last couple of weeks since my last document, I've been sucked into a couple of different groupbuys that have popped up on almost no warning as well as finally received several packages that have been waiting for me at my permanent residence. In total, the 7 packages forwarded on to my current location had another 25 switches to add to the collection, bringing me up to 736 at the time of publication – which is still a crazy thought to me. I could never have anticipated that that first switch tester would have led me down this rabbit hole I'm currently tunneling through at record speeds. Even crazier than that are some of the prototypes from various vendors, makers, etc. that I see popping up both in my hands and DMs. While 2020, itself, has already been pretty impressive with respect to the switch options that have exploded onto the scene even in spite of coronavirus, some of the more interesting things are still to come.

Of all of the new announcements and groupbuys in the last few weeks, the most interesting development in the keyboard part of my life hasn't even been switch related at all. At the time of posting this document on the website, I am proud to announce that I *finally* have my own logo developed by the one and only OneCreativeMind of the mechanical keyboard scene. Aside allowing me to finally stop slumming a logo off of GOAT Sneakers, OCM has been a big helping hand in this community for some time and has designed the artwork for many keycap novelty kits, including his own sets of Leviathan, Ferrous, and 2049. I honestly can't thank him enough not only for all of the work he put in to helping me get something to finally call my own, but also in just how awesome he was to work with as a fellow enthusiast and designer.



Figure 1: The new ThereminGoat logo made by the wonderful OCM.
(And that is just the primary logo too...)

Switch Background

I'm not going to lie – Gazzew's switch components have always been difficult not only to collect but to review as well. While he has been a great friend for some time as well as a massive contributor to my collection, his steadfast resilience for DIY components rather than completed switches makes tracking

all of his detail oriented changes quite difficult. Further compounding this issue is that even as his switches change branding, design, color, and even type, he is strongly committed to improving his designs based on the entirety of his portfolio. To try and accurately tell of the history of his newest creation – the Boba switches – as an amalgamation of changes he’s been striving towards for years would lead to me having to recount literally his entire, multi-year relationship with Outemu and everything he has ever worked on – starting all the way back when he was just salvaging MX Vintage Blacks.

That being said though, the latest development of Gazzew switches came in the form of an initial ‘pre-production sale’ that he hosted on r/mechmarket on July 7th of 2020, which is a bit outside of his normal procedure. While Gazzew is not opposed to spreading early release samples abound to certain people within the community, this is the first instance within my memory in which he has openly sold a bulk quantity of switches to the masses under the banner of ‘pre-production’. The rationale to this, however, is likely due to the insane amount of changes that he listed on this initial sales page – including changes to base color, housing material composition, and even leaf changes. The new, massively upgraded switches known as ‘Gazzew Boba U4s’, silent tactiles with 62g and 68g variants, sold better than nearly anything he had sold prior according to a conversation I had had with him afterwards regarding the switches, at their prototype price of \$0.55 per switch. While future runs past the initial pre-production sale have not yet been announced, they most certainly will happen due to the general reception surrounding the initial sale, but at a slightly higher price point to offset all of the tooling and manufacturing costs. I have complete confidence though that they will still be worthwhile at the price point he sets them at, as Gazzew has been quite reasonable with his past releases.

As well, worth noting before I delve into the technical aspects of this switch review is that the switches that I am reviewing for this document *are* slightly different than the pre-production sale switches which were recently shipped out to people. While the pre-production sale switches were marketed as having color matching top/bottom housings as well as an LED slot for the top housings, the switches which I have are samples that he has received prior to the pre-production manufacturing, and feature a slightly different bottom housing material as well as a no-slot top, rather than the LED slotted top. The reason for both of these was in order to verify the new mold and leaf specifications as well as make absolutely sure that the top housing tolerances were spot on to his specifications. That being said, my review of these switches will not be 100% true to form with respect to what are being released, but should be close enough to not make a significant difference.

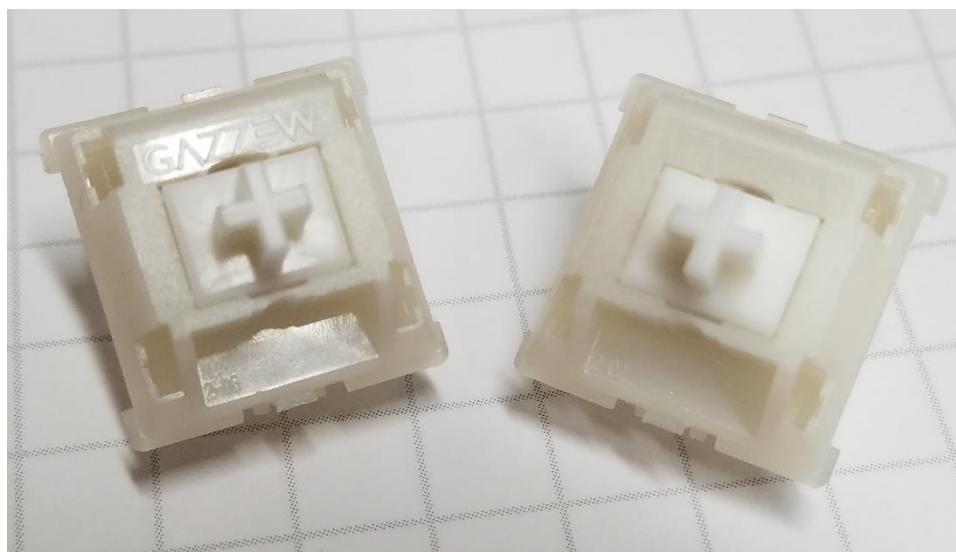


Figure 2: Picture of the 62g (Left) and 68g (Right) Boba U4 Samples in various lighting.

Boba Switch Performance

Appearance

As previously stated, the massive amount of changes regarding these switches hit me immediately upon opening the package from Gazzew and inspecting the Boba switches. The first thing that stuck out to me the most were the translucent to nearly opaque, “pearl” white top housings. Not only striking me as much more ‘milky’ in color than any of Gateron’s actual “Milky” switches, the top housings jumped out at me even more due to the fact that they now boldly emblazon ‘GAZZEW’ in a stylized font. While I have admitted in the past that I am quite the sucker for new nameplate designs, I genuinely like the look of the logo and think that it doesn’t feel tacky or over-the-top, and makes for a subtle homage to the man who put so much work into designing them.

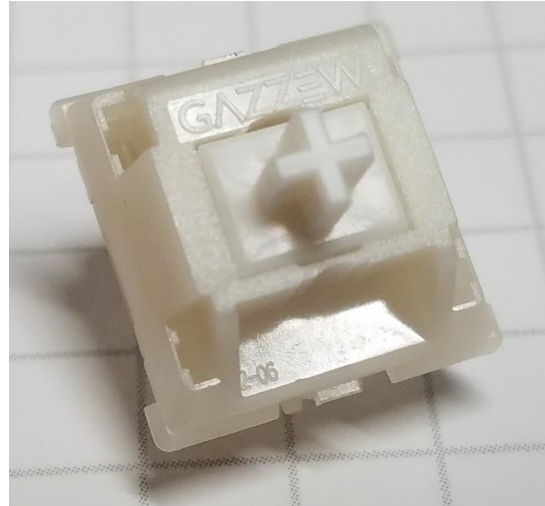


Figure 3: New 'GAZZEW' nameplate in stylized font.

Looking further into the details of the switch housing, I was met with the RGB, non-color matched bottom housing that is *only* going to be in the samples that I and a few others received. While there is no real point in mentioning the appearance to these simply because they are only going to be a different shade for the entirety of switches that the community will see, I chose to bring this up as it features another aspect of Gazzew’s switches that I have noticed for quite some time that I am not sure many people are aware of. Stretching as far back as his Blue Ice bases, and potentially further back than that, the bottom housings of all switches that Gazzew has dealt with feature a ‘yin and yang’ symbol between the metal pins. I have always found this little mark interesting and with ‘Gazzew’ finally being listed on the nameplate rather than simply ‘Outemu’, I felt as if it was complementary, for what it’s worth.



Figure 4: Zoomed in view of the 'Yin and Yang' on the bottom housing of the Boba switches.

The final thing worth mentioning regarding the switches is the change in color with respect to the U4 Silent Tactile stems which were featured in this sale. While the U4 Silent Tactile stem was created and released by Gazzew only a short time ago, its initial runs featured a slightly white-ish, clear colored stem rather than the now completely opaque white stem in the Boba housings. Even though I don’t necessarily think the old U4 stems would have been bad with respect to color and design of these

switches, this simply just stands as another minor detail that helps sell the reality of this being a brand new, complete switch for the pre-production sale.

Push Feel

Previously I have absolutely sworn off any feelings I've had for silent tactile switches as something I'd never be interested in using compared to just normal tactile switches. That being said, I feel like the newer silent tactiles that I am receiving are effectively challenging that belief that I had thought I was adamant about. Unlike the issues that Keebwerk Tacit's faced with respect to the push feel as a silent tactile, the Boba U4 switches absolutely seem to check off all of the major boxes. The stroke is decently smooth, free of variation from scratch, and doesn't have any weird catches pre or post tactile event. The bottoming out is solid but not overly strong compared to the rest of the downstroke force. Hell, even the topping out has a great feeling to it, hitting with a bit more of a stronger, yet still solid force than the bottoming out feeling, which is definitely outside of the norm for many of the switches that I have tested in the past. There is not a single aspect of the silent tactile part of this switch that is poor under normal activation speeds.

Of all of the positives regarding the push feel of these switches, I of course have to remain objective and to try and find some faults in it where they may be. After taking quite some time to look, there were only two aspects with respect to push feel in which this switch doesn't meet absolutely perfect standards. The first detriment is with respect to the post tactile event region of the stroke, which was originally billed in the first sale as having "no post bump [linear] travel". Being at my absolute pickiest, under very slow activation speeds, it may be noticeable that there is an ever so slight linear region to the stroke, but honestly this is stretching to the point that I almost feel it is pedantic. Even hunt-and-peck typists wouldn't activate a switch slow enough to notice this region while typing and it is completely unnoticeable at normal operating speeds.

The second area where this switch will suffer is not even objectively poor, but rather 'poor' by the way of the community standard. The tactile bump on both the original U4 stems, as well as the Boba U4 switches are both mid-range in terms of tactile strength. While I have previously mentioned that silent tactiles do lose some edge of tactility over their non-silent competitors in normal tactiles, these switches were never aimed at being the "most tactile switch that you've ever felt". And the reason that this is a detriment, unfortunately, is due to such a large part of the community deeming tactile switches as good if and only if they have a tactile event strong enough to beat you up for your lunch money. There is such a thing as good, mid-range tactile switches that provide tactile events that don't actively try and compete against Holy Pandas. (And yes, you are allowed to like them.) So with my grandstanding out of the way, while I truly think these are a great mid-tactility silent tactile switch in terms of push feel, I feel like some portion of the community will wrinkle their noses at it because it's not "tactile enough".

Sound

Creating a *good* silent tactile switch is always infinitely harder than creating a good silent linear switch, without a doubt. As I've mentioned previously in my Keebwerk Tacit review, the reason that this is because there is a significantly greater inability to remove sound from tactile switches while keeping them truly tactile due to the interaction between the stem leg and leaf often causing noise known as 'leaf ping'. That being said, it is almost as if Gazzew read my exact words regarding this difficulty and made it directly into a change under the listing of a "new leaf design."

According to the initial pre-production sales page, the new leaf design incorporated by Gazzew is not only tactile and linear friendly, but was designed specifically in order to reduce leaf ping due to contact with stem legs. And to that end, this new design does exactly that. Even under high activation speeds right next to my ear, I can not find leaf ping in a single one of my sample switches I had received. The same goes for spring ping, as well, which is completely eliminated by some combination of housing

material, spring quality, and lubrication activation. In fact, at arm's length such as in a normal typing scenario, none of the samples I received make any perceptible noises from the aforementioned sources or from scratch and truly live up to the "silent" tactile name.

Wobble

So the wobble on these switches is honestly what has surprised me more than anything – and not necessarily because they are leaps and bounds beyond what Gazzew has done before. One of the hallmarks of Gazzew's pride regarding his switch components have always been his Outemu, No-Slot tops which have insanely good tolerances with respect to wobble in both top housing as well as the stem. That being said, he's somehow completely outdone himself yet again.

To get it out as simply as possible: these top housings are pretty much pushing the absolute manufacturing limits of stem wobble. In hand, there is ever so slight stem wobble in both the N/S and E/W directions, but its such a miniscule amount that with caps on I'm almost certain that it would not be noticeable, even at taller profiles like MT3 or SA. I'm genuinely of the belief that there is not much more of a reduction in stem wobble that you could get between the top housing and the stems reliably through a manufacturing process such as injection molding, which most switch components are made with.

The top housing wobble, as well, is nothing to scoff at in its own right. While there is absolutely no give to the top housing in any direction on all of the samples that I have tried, this is slightly less impressive given that Gazzew's tops have been known for having this quality for some time. The consistency of the quality, though, is nearly as impressive as the leaps and bounds made in increasing the tolerances regarding the stem wobble in these switches.

Other

The biggest detail surrounding the Boba U4 switches that I was otherwise unable to analyze in any of my above categories was with respect to the discussion in the original sales post regarding a new plastic composition for the switches. Aside looking damn pretty in the sample top housings that I received, these are touted as being softer than Nylon *and* have a higher melting point temperature than Polycarbonate. As discussed previously in my Gateron Yellow document, this may be an attempt on his part to make them more beginner friendly with respect to soldering and/or usable in factory OEM style setups which use wave soldering techniques. While I *always* want to know every detail surrounding a switch, and especially about the mystery surrounding the housing material of so many modern switches, I will suffice to say that I am interested in how this material will be used in future Gazzew releases and will leave it to mystery for now.

Comparison Notes to Other Notable Silent Tactile 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 the Boba switches side by side. (Edited on 9/19/2020)



Figure 5: Candid photograph of Gazzew upon testing the tolerances of the Boba top housings.



Figure 6: Switches for comparison. (L-R, Top-Bot: Keebwerk Tacit V1, Aliaz 80g, Zilent V2 67g, Gateron Silent Brown, Outemu Sky Silent Tactile 68g)

Keebwerk Tacit V1

- The most obvious notable difference between these two switches comes in the comparison of sound, in which the Keebwerk Tacit is noticeably and significantly louder than the Boba U4.
- While there is more wobble on the Tacit than the U4, it is worth noting that they both well fit within the range of ‘likely unnoticeable difference’ to the average user who would be typing with them.
- Regardless of the difference in magnitude, both of these switches have a quite snappy feeling to the tactile bump with a quick, crisp return bump as the switch heads towards top out.

Aliaz 80g

- Aliaz housings, on their own, have long been a great staple for frankenswitch builders looking for a tactile leaf in general. That being said, there is a fair amount of wobble in the top housings that simply can’t compete with stock Boba U4 switches.
- When comparing the sounds of these two switches, the relative silence of the Boba U4 only makes it harder to ignore the spring ping that comes with Aliaz switches.
- The tactile event on the Aliaz switches sits noticeably lower in the stroke than the Boba U4 tactile event, which is situated at the very start of the downstroke.

Zilent V2 (67g)

- Surprisingly, the Zilent V2 tactile bump is only a hair stronger and more firm than the Boba U4 in a side by side comparison. The Keebwerk Tacit, for example, blows both of the water in terms of sheer tactility and is showing how much the tactile market has drifted over time.
- While these are supposed to be silent, there is a noticeable noise from the stem/leaf interaction of the Zilent that is simply not present in the Boba U4.
- Both Zilent V2s and Boba U4s have quite good tolerances with respect to stem wobble. That being said, the slight amount of N/S wobble and slightly larger E/W wobble in the Zilent V2 is significantly more noticeable when compared to the Boba U4.

Gateron Silent Brown

- Aside the noticeable amount of scratch in the sound of the Gateron Silent Brown and slight spring ping, these are the switch that comes closest to replicating that deep, muted sound quality that the Boba U4s have. (This is even further enhanced by swapping a solid black Gateron housing in place of the clear top housing.)
- In sort of a weird juxtaposition to the Zilent V2 comment, the Boba U4 actually feels quite a bit more tactile than the Gateron Silent Brown aside my commentary above about it not quite measuring up to current market expectations.
- Significantly greater stem wobble in both N/S and E/W directions compared to the Boba U4.

Outemu Sky Silent Tactile (68g)

- While these are also another Gazzew switch, the Silent Sky switches are still noticeable louder than the Boba U4s, which I would likely chalk up in large part to the ‘mysterious’ plastic compound used in the housing of these new switches.
- Even though there is a slight bit of wobble in the Silent Sky switches, its clearly noticeable that these switches were the predecessors to the Boba U4s as they still feature lesser wobble than a vast majority of switches out there.
- There is an ever so slight amount of ping in the spring of these switches that aren’t in Boba U4s, though I know from first hand experience that this disappears with a decent lubrication job.

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.

Gazzew Boba U4 (68g)		
28	/35	Push Feel
24	/25	Wobble
9	/10	Sound
15	/20	Context
9	/10	Other
85	/100	Total

Push Feel

While I did speak quite well of the push feel of these switches in my section above, I think that the biggest score detractors come from the not as strong tactile bump as well as the minor post travel linear section that is noticeable at slower speeds. Personally, I may have wanted an ever so slightly stronger tactile bump, though these are a great mid-range and deserve praise for fitting that category well for a silent tactile switch.

Wobble

I can't honestly speak highly enough about the wobble in regards to these switches. Both the stem and the top housing wobble are skirting the lines of perfection and this score easily reflects that. As well, the general usage of Gazzew's top housings on other bottom housings outside of Outemu in past iterations makes these even more useful outside of their own right.

Sound

With only a minor deduction due to a consistent scratch noise that may become more noticeable when placed into a full build that isn't proofed for sound, these switches really do justice to the 'silent' descriptor in 'silent tactiles'.

Context

Gazzew's unending desire to provide the best of DIY switches for the cheapest prices has honestly contributed a large portion to this context score. Getting to see *any* of these components for sale in the future will be huge not only for beginners, but for the frankenswitch scene alike. The main reason that this score isn't higher is because Gazzew is likely to outclass himself yet again in such a short period of time that these may not stay as relevant within the hobby for as long as they could on their own.

Other

I honestly love these samples. They've got a new, sleek look and scheme to them with an air of mystery surrounding this material which is likely not something we've seen attempted before due to the secrecy. The new branding with the Gazzew nameplates, as well, really ties up the look of these switches and firmly stamps the switch into my memory. Like or hate the man all you want, but you can't argue that these don't do well in carving their place in a very competitive modern switch scene.

Statistics

This is a new section that I will be implementing as I complete more and more scoring of switches in the near future (and stop working myself to death). The statistics shared in this section will be inclusive of the switch being reviewed, and *not* updated with time as it would become a nightmare to micromanage. Thus, the statistics posted from here onwards will be accurate as per the publishing date of this document.

Average Score			Gazzew Boba U4 (68g)		
27.5	/35	Push Feel	28	/35	Push Feel
19.5	/25	Wobble	24	/25	Wobble
7.5	/10	Sound	9	/10	Sound
15.5	/20	Context	15	/20	Context
8.5	/10	Other	9	/10	Other
78.5	/100	Total	85	/100	Total
Total Switches Ranked			#2		
Total Silent Tactiles			#1		
Gazzew Boba U4 Rank			#1 Overall, #1 Silent Tactile		

Final Conclusions

All things considered, I continue to be impressed by Gazzew and the work he has done not only to move his own products and designs forward, but also Outemu's designs as well. While I know quite a few people who have written off his products due to their DIY nature rather than being sold as cohesive, singular switches, his rationale and drive to make the best customizable keyboard switch is honestly something to be impressed by. In spite of all of the difficulty that may come with choosing to perfect each and every component independent of itself, I feel like the Boba U4 Silent Tactiles are only further proof that he is continuing to push his successes forward with each and every product iteration.

Aside the much more interesting (and palatable to some) nameplate on the Boba switches, the interesting color scheme and material choice of the housings will almost certainly see their usage in frankenswitches here in the future. As well, I really anticipate that he will be able to sell more than a fair bit of these switches as I have reviewed here, as they will mark off quite a few desirable boxes for beginners and experts alike. I may even be willing to go a step further and say that I honestly am considering using these someday in a build yet to be planned – though only time will tell where these switches, and Gazzew himself, will go.

Further Reading

Gazzew's Boba U4 Pre-Production Sale Reddit Post

Link:

https://www.reddit.com/r/mechmarket/comments/hm7vx2/uscah_preproduction_sale_gazzew_boba_u4_switches/

Wayback:

https://web.archive.org/web/20200807092947/https://www.reddit.com/r/mechmarket/comments/hm7vx2/uscah_preproduction_sale_gazzew_boba_u4_switches/

Toufusoup's Gazzew Boba U4 Switch Video

Link: <https://www.youtube.com/watch?v=xJuPdajcyKY>