Phoenix Stems Review

-ThereminGoat, 3/11/2020

Well, if you are reading this now the website to host my reviews is officially off the ground and likely hosting this exact review! Thank you not only to those who have supported me along the way but been okay with the fact that there may have been a skipped week of reviews in order to get the website together and in working fashion. As well, I've been busy getting my collection up to show quality as the Columbus Mechanical Keyboard Meetup is here on March 14th. If any of you reading this *haven't* been to a meetup yet, you should absolutely go – it is honestly one of the most exciting days of the year for me.

As well, I want to make a note here before starting the review in that I have been lucky to be close with Gazzew for quite some time and consider him a friend within the community. Regardless of this fact, and the fact that I have been decently in line with the changes made to the design of these stems as time has progressed, I am delivering an honest and open opinion of these stems and how they feel.

Switch Background

Honestly, I could probably write multiple pages about the history and timeline of these stems given that I've been talking with Gazzew about them for months upon months and through several revisions. Initially setting out to make a 'new and improved' Aristotle stem, Gazzew started back in Q3 of 2019 with his design which would now come to be known as the 'Phoenix' stems, which was a play on the concept of a new Aristotle-like stem rising from the grave, paying homage to the namesake mythical bird which rises from the ashes to be reborn again. Throughout the process they have seen three total revisions to the sale process. The design path for these pieces can be traced as follows:

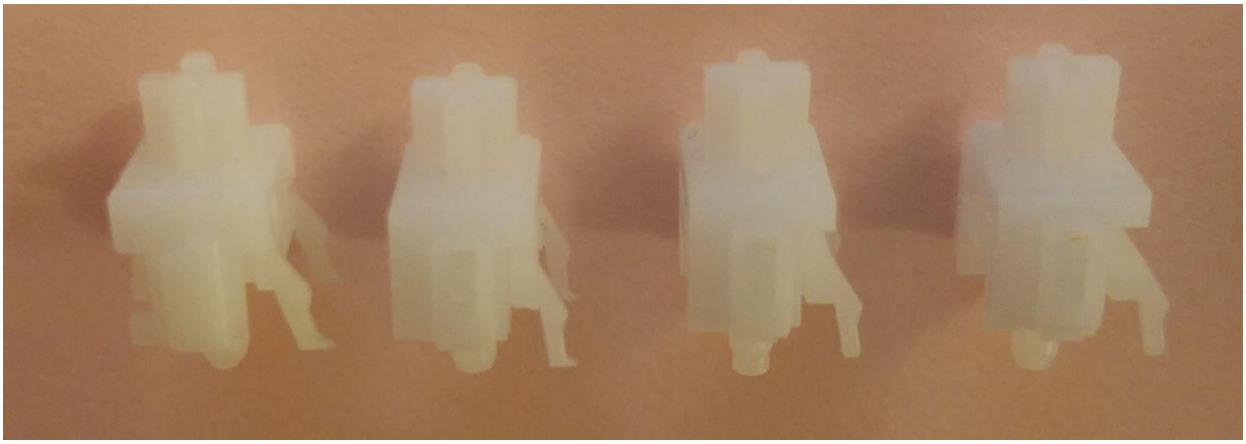

Figure 1: Picture of Phoenix Stem progression starting with an original Aristotle Stem on the left followed by Rev. 1 through 3 going left to right.

-Phoenix Stem Rev. 1

- At this point, the Phoenix stems didn't even bare their iconic name, and were simply referred to in conversation as 'Aristotle 2.0'. This design most closely resembles its inspiration, with the built in, movable click jacket, and the iconic pointy feet that move across the leaf on activation. Unlike the Aristotle stems, though, these stems featured a standard MX cross as well as thinner components for the mounting point of the cross to the stem and for the click jacket. As well, there was a much harsher bump on the Phoenix stems than the original Aristotle stems.

-Phoenix Stem Rev. 2

- Midway through the testing and prototyping of this revision, the Phoenix name was born and adopted to the project. A couple of major changes were made to this revision as a result of the testing from Rev. 1. After having tested the Rev. 1 stems for an extended length of time, it was discovered that the pointed feet that were similar to classic Aristotle stems had potential for damaging the leaves over an extended period of time. Thus, these feet were removed from the legs of the stem for these molds. (In fact, during initial testing of Rev. 1 stems, these feet were manually clipped off with a nail clipper in order to see if it reduced these problems.) Secondly, the sharpness of the bump was reduced from the first revision yet still remained more angular than the original Aristotle stem. Finally, the plunger for this revision was tapered toward the bottom rather than a straight pole.

-Phoenix Stem Rev. 3

- The final revision of the Phoenix stems saw yet again some minor changes made, but much less drastically than between Rev. 1 and Rev. 2. Again, the feet of the stem were modified in terms of overall shape but kept quite close to the same angularity in the bump as the Rev. 2 stems. Additionally, the tapering of the plunger on the stems was reduced, being more tapered than Rev. 1 and less tapered than Rev. 2. As well, manufacturing issues with splayed inward rail arms from Rev. 2 were fixed in Rev. 3. Finally, locking in the material of POM for these stems, Phoenix Rev. 3 became the finalized revision and are what the common public knows of as Phoenix stems.

Shortly after concluding that these were in fact 'the switch for him', Gazzew sent these out for sale in February of 2020, with a running price of $0.35 per stem. To the best of my memory, they sold extremely well, and he has high hopes for how they will continue to sell in the future.

Phoenix Stem Performance

Being that these stems are sold standalone aftermarket, much like UHMWPE stems, I've chosen to reformat the performance section such that I can compare how these stems feel in various different manufacturer housings. (Also, I don't think its entirely necessary to point out the appearance of these stems, as they are always white, plain and simple.) My choice in switches is aimed at providing a wide range of options in terms of both manufacturer as well as difference in housing material/thickness per manufacturer.

Gateron Yellow Switch (Black Bottom, Clear Top)

Push Feel:

The actual stroke itself falls quite well over the aforementioned angular bump of the stem. It progresses quite well in terms of the stroke and has comparable down and upstroke clicks. The second click, on the upstroke, may have a slight bit more of a pop to it than the downstroke, but overall, it is not an unpleasant feel. As well, these are surprising smooth for no lubrication. While there is some scratch, of course, it is not to the same amount that other stems from Gazzew in the past have had without any sort of lubrication.

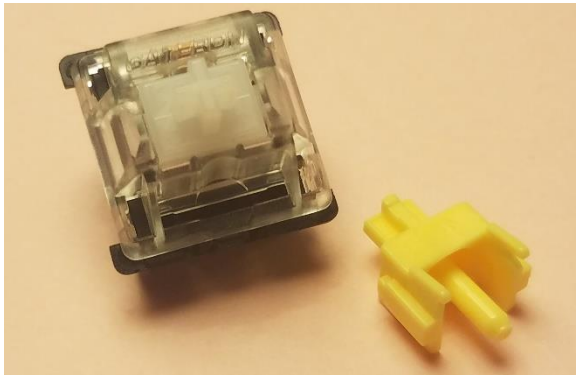

Figure 2: Gateron Yellow switch with Phoenix Stem.

As well, worth mentioning as a slightly objective 'metric' for the rest of this review, I will discuss where the click actuates with respect to the downstroke as a function of a percentage (0-100%) where 0% is

completely untouched stroke and 100% is complete bottom out. The click activation for this switch feels somewhere around 40-45% of the way through the stroke.

Sound:
The downstroke sound has a very peculiar ‘tink’ type sound, with a high pitched, almost bell like tap to it whereas the upstroke has a much more solid ‘tunk’ type sound. Again, since no lubrication has been added to the switch, it does sound as if there is a pinging noise in the spring between the up and down strokes, those this can most certainly be reduced with lubrication.

Wobble:
There is a fairly decent amount of N/S wobble in these housings with a slightly lesser amount in the E/W direction. Overall, I don’t think its personally that it is all that much, but it may be bothersome to some.

C^3 Tangerine V1.5 (Milky Housing)
Push Feel:
As compared to the Gateron Yellow switch, this feels like a much better alternative, with a slightly earlier switch actuation (~35%) and the same expectable level of scratch. The upstroke and downstroke clicks feel comparable to that of the Gateron Yellows, and overall is a mildly better, if not comparable feel.

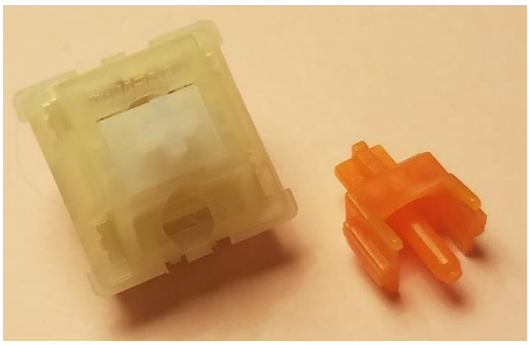
Figure 3: Milky C^3 Tangerine Switch with Phoenix Stem

Sound:
Whereas in the previous mentioned Gateron Yellow one could hear a difference between the upstroke and downstroke clicks distinctly, this has a much less differentiable upstroke and downstroke difference. Working around the obvious spring ping that is still present, there is a deeper sound with a slightly tinny overtone to it as compared with the Gateron Yellow. Altogether, though, not an unpleasant sound in the slightest.

Wobble:
I would venture to say that this has a significant amount of wobble in the N/S direction and a comparable, but lesser wobble in the E/W direction. The wobble, especially in the N/S direction, may almost be too great to overcome with the addition of a switch film or a potentially higher weight spring, which is a shame given its other qualities.

Laseron Cyan Switch (Opaque Purple Housing)
Push Feel:
The most noticeable aspect of placing the Phoenix stems into the Laseron switches is the increased scratch noise, which must certainly be a result of the housing. Working past this, the click activation resides around the midpoint (~50%) of the stroke and the same slightly more poppy upstroke is noticed in terms of feel.

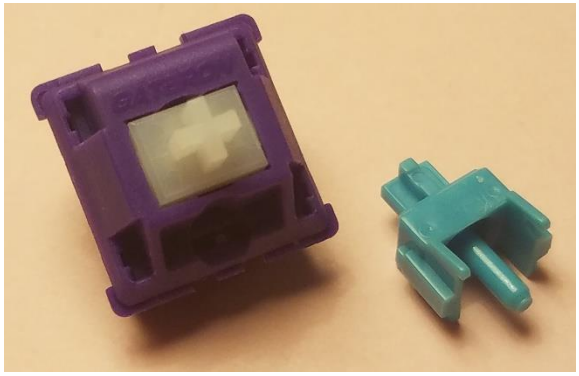
Figure 4: Cyan Laseron with Phoenix Stem.

Sound:
As compared to the other Gateron pieces, this certainly has the deepest sounding of up and downstroke clicks. Getting rid of the tinny overtones, the click on the upstroke has a much more muted but solid sound yet is

distinguishable from the downstroke. The spring ping, again, is an issue of note but can be remedied.

Wobble:
There is N/S wobble in this switch that is noticeable, but it straddles that line of potentially unnoticeable given a full board with caps on it. In addition, there is even less E/W wobble which is a pleasant surprise given the above mentioned Gateron pieces.

TTC V2 Brown (Yellow-Clear Top, Opaque Orange Bottom)
Push Feel:
In a truly ironic turn of events, the housing for the TTC Brown appears to have less scratch in it than the Laseron switches. The click activation is a bit before the midway point of this switch (~40-45%), though what certainly is most interesting is that something about this housing produces a '3-Click Mechanism' in that when one bottoms out completely they are met with a 'pop' and resistance feeling that briefly shoots up before hitting true bottom out. While certainly cool from an unexpected standpoint, this is definitely something to be wary of for actual usage.

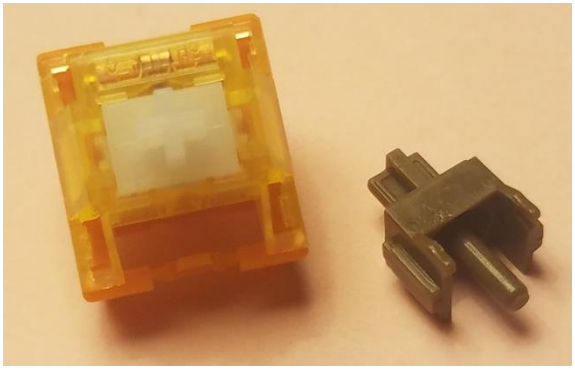

Figure 5: TTC V2 Brown with Phoenix Stem.

Sound:
The sound of this switch is a much more rough or 'jagged' sound in both the up and downstroke clicks than the other aforementioned clicks. While the downstroke is higher in tone than the upstroke sound, it may be due to the fact that it features a less 'jagged' sound. The upstroke sound is quite jagged and not at all pleasant in my opinion. In addition to these clicks, the 'third click' makes almost no noise as it is more of a tactile bump than an audio bump.

Wobble:
This housing is the first on the list to feature wildly different magnitudes of wobble on its axes. The N/S wobble is significant and is definitely going to be noticeable with caps on. The E/W wobble, on the other hand, is nearly completely negligible and not an issue at all.

Cherry MX Blue (Opaque Black Housing)
Push Feel:
In no surprise, even to myself, the Cherry MX Blue is certainly going to be one of the worst options on this list for feel. The click activation is quite high in the stroke around 35% and there is both a scratch and rattle that physically affects the stroke to a great extent. In addition, and worth noting, the upstroke has a coin-toss chance of sticking and catching about 5% of the way from the end of the upstroke making for a strong discontinuity in the stroke. Don't use these if you buy Phoenix stems.

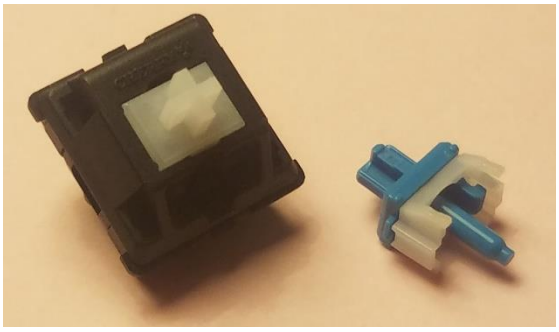

Figure 6: Cherry MX Blue with Phoenix Stem.

Sound:
This is the first switch on this list to have a pretty much identical downstroke and upstroke click sound. In fact, the sticking of the stem on the upstroke actually causes a louder and slightly higher pitched sound. To be honest, its not entirely that bad of a sound, but when paired with the sticking feeling it completely makes it intolerable.

Wobble:
There is a comparable amount of N/S wobble in this housing, though its likely that it may become unnoticeable given a full build with a set of caps. Much like the TTC V2, there is a quite small E/W wobble that would honestly be preferable aside the other issues of the switch.

Aliaz 60g (Clear Housing)
Push Feel:
Out of the switches tested on this list, this is among the best of them in terms of feel. There is a minor amount of scratch that can be felt in the stroke, but like some of the options towards the top of the list, it is easily fixable. As well, the bump and click in both directions feels quite good and doesn't have any characteristics that jump out as super distinguishable. The click activation sits pretty firmly around the middle of the stroke at ~50% as well.

Figure 7: Aliaz 60g with Phoenix stem.

Sound:
This is the first housing combination that I've tested this far along that actually *sounds* like a clicky switch in an idealistic sense. The clicks are well rounded, clear but not sharp, and well match the magnitude of the feel of these pieces. As well, the upstroke click feels a bit flatter than the other options discussed on this list, but still has a solid body to the sound. Altogether, I'm very happy with how this housing sounds with the Phoenix stems.

Wobble:
While there is some amount of N/S and E/W wobble, I would say that both of them fall within the realm of potentially unnoticeable given a full build with caps on them – especially caps that sit taller.

YOK Mint Panda (Opaque Mint Green Housing)
Push Feel:
While it feels mildly repetitive to say, there is some level of scratch present with this switch that initially detracts from its stroke feel. That being said, though, this also does have a pretty decent feel in terms of stroke. The click-activation rides a bit high in the stroke ~40% but the clicks on both the down and upstream feel pretty clear and solid.

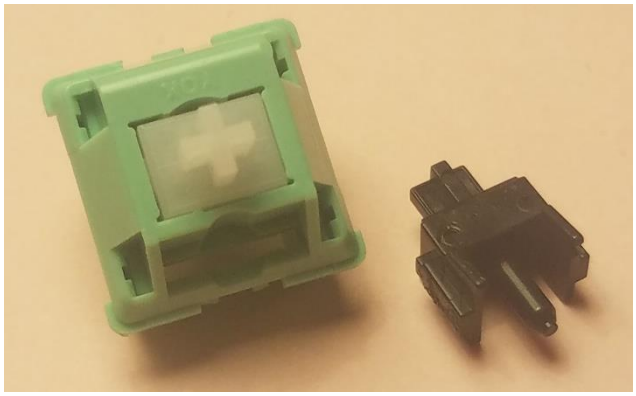

Figure 8: YOK Mint Panda with Phoenix Stem.

Sound:
The sound of this switch is honestly quite good, featuring a nice sharpness to the downstroke click but a solid and muted 'thunk' to the upstroke click. On this list I would say it is most comparable to the C^3 Tangerine V2 Milky Housing in terms of sound without much of a deviation. Overall, the sound of the YOK housing definitely makes the worth of the likely necessary lubing and/or filming of these switches much more reasonable.

Wobble:
The N/S and E/W wobble of this housing are both pretty similar in that they are starting into that zone that potentially would be noticeable even with caps on. That being said, I feel that this easily may be able to be reduced with a higher spring weight and/or thin switch films.

KBDFans Smoky T1 Housing (Smoky Black, Polycarbonate Housing)

Push Feel:

There is a surprising lack of scratch on these housings and the out-of-box feel of the Phoenix stems in this are pretty nice. With a click activation riding somewhere around 45-50%, the downstroke has a short, sharp bump to it whereas the upstroke has a much similarly short, flatter, and deeper feel to it. As well, its worth noting that there is pretty much no spring ping and the stroke feels consistent in its force before and after the bump.

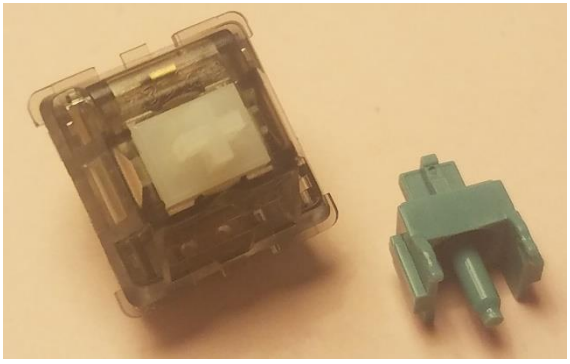

Figure 9: KBDFans T1 with Phoenix Stem.

Sound:

When comparing the sound of the Phoenix stems in this housing to the other ones on this list, it is surprising to me that this is the first solid choice that has sharp downstroke click to it in terms of sound. The upstroke, though, sounds a bit shorter than the other option on this list, and has a bit of a flat 'pop' to it rather than a click noise. In addition to this, there was no noticeable spring ping to the ear.

Wobble:

There is a decent amount of N/S wobble on this switch, but I feel it would fall within the realm of acceptable for a large amount of people. The E/W wobble is pretty much negligible. However, unlike the other options on this list the top housings of these switches do have a tiny bit of give to it.

Mauve (Opaque, White, Nylon Housing)

Push Feel:

As compared to the other KBDFans T1 switch above, the Mauve has a decently more noticeable amount of scratch in the stroke. In addition, the click activation falls a bit later in the stroke than the T1, sitting somewhere around 55-60%. While it's not altogether an unpleasant feeling in terms of both up and downstroke, though it certainly falls towards the middle of quality of the housings in this list.

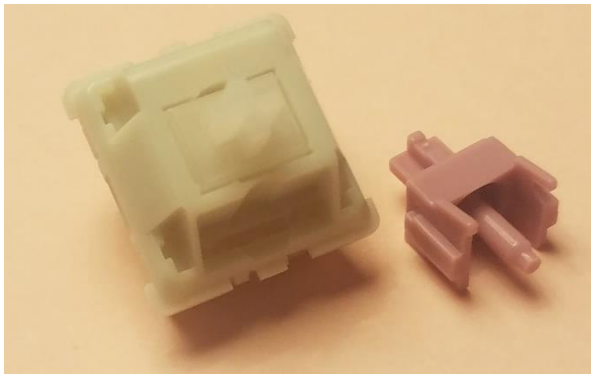

Figure 10: Mauve switch with Phoenix Stem.

Sound:

Unlike the other opaque housings on this list, the sound of the clicks from this housing are much sharper and higher pitched. The downstroke is quite sharp and has almost a metallic click to it whereas the upstroke has a higher pitched flat bump than other options. Personally, it's a bit sharp for what I look for in click jacket clicky switches, but its definitely unique for opaque housings.

Wobble:

While there is very little E/W wobble with respect to these housings, there is a significant amount of N/S wobble with respect to these housings – and likely enough that would be noticeable on

***Please note, any claim about the material of the switch housings is based on marketing only – it has not been verified by me nor to my knowledge by anybody beyond a reasonable doubt.*

Comparison to Aristotle Stems at Large

With respect to all of the above combinations, I also tried original Aristotle stems in these housings as a comparison to the Phoenix stems. I had found though that nearly unanimously across all of the housings that the inclusion of an Aristotle stem rather than a Phoenix stem produced the following qualities:

- A much sharper, and often crunch like sound on the upstroke.
- Much less smooth, flowing switch stroke. Especially with regards to the upstroke, the sharpness of the feet on the Aristotles makes the bump much harsher, and often unpleasant, as compared to the Phoenix stems.
- Aristotle stems, given the point to the very end of the legs makes them a complete bitch to try and get into housings easily.
- Due to these same feet, the Aristotle stems also had a much more frequent chance of becoming caught on the leaves during use than the Aristotle stems which I don't recall doing noticeably at all.

Final Conclusions

Overall, I would say that the Phoenix stems ultimately succeed on nearly all fronts with respect to their original plan to be a 'new and improved' version of the Aristotle stem. These stems are easier to swap in than Aristotles, produce a less harsh noise, and produce an overall much better stroke feeling through the up and downstroke clicks. While I am not personally a fan of clicky switches, I would most certainly be tempted to explore these as an option in the future given their pretty reasonable price setting at $0.35 each.

Further Reading:

Phoenix Rev. 2 Type Test by Alessio
Link: https://www.youtube.com/watch?v=yL0FBOENLzQ

Phoenix Rev. 3 Type Test with 75g Springs by Brain&Force
Link: https://www.youtube.com/watch?v=XgE-5CVfH88

Phoenix Mechmarket Sale Post
Link:
https://www.reddit.com/r/mechmarket/comments/ez4y9s/uscahphoenix_doubleclick_stems_aka_aristotle_v2_w/
Wayback:
https://web.archive.org/save/https://www.reddit.com/r/mechmarket/comments/ez4y9s/uscahphoenix_doubleclick_stems_aka_aristotle_v2_w/

Amazing set of photos done by u/Basecase01
Link: https://imgur.com/a/wQhhnEW
Wayback: https://web.archive.org/save/https://imgur.com/a/wQhhnEW

u/Otakkee Small Sound Test Post:
Link:
https://www.reddit.com/r/MechanicalKeyboards/comments/ez6b5d/phoenix_aristotle_clone_stem_sound_comparison/
Wayback:
https://web.archive.org/save/https://www.reddit.com/r/MechanicalKeyboards/comments/ez6b5d/phoenix_aristotle_clone_stem_sound_comparison/

Original Interest Check post by u/hbheroinbob (Gazzew)
Link:
https://www.reddit.com/r/mechmarket/comments/9lp4yu/ic_new_production_of_aristotlestyle_click_stems/
Wayback:
https://web.archive.org/save/https://www.reddit.com/r/mechmarket/comments/9lp4yu/ic_new_production_of_aristotlestyle_click_stems/