



HISPA BRICK
MAGAZINE

040

ENGLISH



SEPTEMBER 2026

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EDITORIAL

By Mark Favreau

What do people say about change? Change is good, change is bad, you can change sides, have a change of plans, change the channel, try for a change of pace.

While a leopard can't change its spots and it's unwise to change horses midstream, additional information may cause one to change one's tune or change their expression.

If you are tired of your current situation, you may look to change things up, go for a change of scenery, or try to change your life. You know the only thing constant in life is change. The more things change, the more they stay the same.

You can have a chunk of change, a pile of change, chump change, loose change, and spare change. Although I never understood “spare” change. How is change ever spare? If you have a transaction you expect “exact” change, and nobody ever intentionally gives you extra. If you are feeling generous you can offer the merchant to keep the change.

No doubt you have noticed the logo change. This is the fifth one; the fourth was fine until along came regime change.

What we encountered was a sea change and we were hoping for a change of heart. It was impossible to get someone to change their mind. This can happen when authority changes hands.

We got a message on the LAN. The message said we would have to change over our logo to a non-specific something else.

Quoting the message: *The red book design—with the current font, black and yellow outline, and white text in the centre—closely resembles the LEGO logo, which is why we need to address it. LEGO's visual identity including its logo, typography, color palette, and layout is protected by intellectual property and trademark laws. Replicating these elements too closely may unintentionally give the impression that the community is officially endorsed, authorized, or operated by the LEGO Group. While you are a brand Ambassador on the LAN, your Community is its own entity and thus needs its own individual branding and identity. . . (It's the individuality that we love to see from our creators!)*

This approach avoids legal complications, preserves the authenticity of fan-led initiatives, and allows the community to express its creativity without risking confusion with official LEGO communications.

Internally we questioned why the disclaimer at

the bottom of every page of the web site was insufficiently communicating the information that we were not LEGO Group. Also one would think that the HBM community is officially endorsed and authorized if we are RLFM for 18 years and no objection to the logo had been made in the past 3.5 years. Sounded like the lawyers were getting thrown under the bus.

We asked for the official current written guidelines for fan media branding, none were provided. We asked again, and again silence. We found the written guidelines that were in effect at the time of creation of the book logo and sent it to the LANisters. Could not find where *any* of the things they mentioned appeared in the document. Begged a few more times for updated guidelines and basically got stonewalled. Along with our lack of immediate compliance with the unwritten rules came the threat of offboarding.

There's no benefit in antagonizing the LANisters, but one must recognize it is a bit difficult for us affiliates to express our individuality when the demand is that we restrict our creativity to parameters they refuse to define. We requested a specific document to which we could refer so both our sides could come to agreement on what was and was not acceptable.

Yep. Not happening.

Then from the LAN:

The LEGO logo is trademarked, and even the font used is trademarked, if you can believe it. Please change the colors and font and share the new logo here 😊

You're right, these guidelines aren't published here on the LAN. Typically, we have logo conversations with a community before they join the program; however, as you might know we are building a new platform and I will ensure these rules are added there.

Okay. The guidelines aren't published, so after we change the logo (which the LANisters might or might not find acceptable) and after they do find a logo that is acceptable, then the specs and guidelines will be published. Eventually. For sure.

That is, in the vernacular, bullshit. When HBM went into the program the LAN didn't even exist, HBM had a logo that included a full minifig with a bullhorn. After some years we were asked to change that, which we did, to a minifig head on some nondescript shoulders inside a circle. Several years later new guidance prohibited the use of any minifig elements so the head was substituted by a round brick. All of this while on the platform and with multiple other communities changing their logos because of

THE LAN TEAM HAS DECIDED THAT, TO AVOID POSSIBLE CONFLICTS WITH THE LAWYERS, YOUR LOGO IS TOO CLOSE TO THE LEGO LOGO FOR THEIR LIKING.



THAT LOGO WAS APPROVED THREE-AND-A-HALF YEARS AGO AND *NOW* IT'S A PROBLEM!?



AS IT STANDS NOW IT NEEDS TO CHANGE. I HOPE THIS ISN'T TOO MUCH OF AN ASK.

I'M SORRY. WHOSE LIKING? THE LAN TEAM OR THE LAWYERS?



OH BOY! LOOK WHAT JUST CAME IN FOR US FROM IRVINE!



IT'S A PERFECT FIT!

THAT EXPLAINS EVERYTHING.



these new guidelines. Guidelines that were publicly available and shared. Then we had a member who created the second and third logo leave and he requested we retire that logo. Then came the red book logo. . . about which there was no bitching from the LAN at the time.

Just to put our change of logo request in context (and because I can't let things go) I reviewed 67 LEGO-related fan sites and here is how those logos and site color schemes fare compared to the unwritten rules list of violations.

- Six use the word "lego" in the site name or URL
- Three were unreachable; can't find server
- Two were apparently having some sort of server problem and showed no images where images would be expected. . . except for ads

- One timed out
- Seven use a black-yellow or black-yellow-white logo
- Four use outlined font, one uses straight up LEGO typeface treatment
- Four use yellow-black or red-white-yellow-black color schemes
- Ten were using plain text with no logos; Blogspot and Wordpress sites tended to be using basic templates (the individuality the LANisters love to see from their creators!)
- Four use black-white-red or red-white logos
- Five use actual photos of LEGO elements or minifigures
- One blatantly uses a LEGO line's theme's IP colors, logo, and elements

- Twelve use some sort of brick illustration
 - Two use cartoon minifigures
- That's about 27 out of 67 with potential issues. These findings suggest that the unwritten rules are not being applied evenly across the affiliated media sphere.

Somebody said to never argue with fools because they will drag you down to their level and beat you with experience.

We changed the logo.

Do we think we were singled out? No. Do we think we were treated fairly and with respect? No.

We hope the LAN guidance will change for the better, provide actual guidelines, and. . . gently. . . cooperate with the affiliates for change within the boundaries of consistent and fair application.

WHITENING YELLOWED BRICKS

Experiment by
Mark Favreau

I thought an experiment was in order. Not that the results would be in any way definitive, but just to provide a touchstone for comparison.

For years there have circulated in AFOL forums various questions and comments about whitening yellowed bricks, can it be done, how do you do it, should it be done, does it last, does it make the bricks brittle, and various other contemplations, musings, assertions, and cautions about the process and the results.

I have whitened bricks in the past with the process of putting bricks in hydrogen peroxide in a clear bowl and setting the bowl in a sunny window for various extended periods of time. The bricks did whiten. I did not track those bricks as to whether or not they again yellowed, they just went back into the stash and got used whenever the need arose.

I also had two old white horses that were yellowed to the point that they could be mistaken for tan. Also of note is the fact that the horse heads were discolored differently than the bodies. More than ten years ago I decided to whiten one of them using the process described above. The horse whitened. Over the years it has again yellowed, but not uniformly nor to the extent of the horse that was not whitened. My position on the whitening situation since then is that whitening results were a crapshoot.

Another unanswered question regarding my early experiments is the cause or causes of yellowing. Is the yellowing due to the chemical composition of the plastic, environmental conditions such as sun and air quality, or a combination of these things? As most of these

yellowed bricks had been acquired second hand the history is lost.

Encountering the whitening debate again more recently, and having acquired some decent UV lamps, I figured I would attempt a more controlled test and see for myself what happens. Here are the results of one test on a series of 2x3 inverted slopes. Why those particular bricks? Those were what I had in sufficient numbers that showed various different color shifts.

The process: bricks were assembled for a “before” photograph with a new white control brick on one end and a tan control brick on the other. Control bricks were removed and yellowed brick identities were noted using the various mold numbers on the undersides of the bricks so the sequence could be recreated later. Note the bricks had various mold marking differences so it should be safe to assume that they came from at least four different production runs.

Disassembled bricks were then put into a bowl filled with enough hydrogen peroxide to cover all the bricks. A 50W UV LED lamp was placed on top of the bowl and turned on. I checked on the progress after two hours. Many bricks had whitened, seemingly completely, by that point, but there were still several that, although being definitely lighter, were still not as all-white as the others. So I put the lamp back on the bowl for another two hours. After that all bricks seemed to the naked eye to be of roughly equivalent whiteness. Bricks were then dried, their sequence recreated and an “after” photograph was taken.

The assembled bricks were then put into a closed box and placed on the shelf. 156 days

later the box was opened and another photo was taken. Those photos appear on the next page.

Observations:

While the process definitely whitened the bricks, none were as white as the control brick, but very close.

There were still very subtle differences in color after whitening.

All bricks seem to display a very, very subtle yellowing after 156 days.

The brick immediately next to the tan control brick started off more pinkish in color and seemed to whiten best, and seemed to remain the whitest after 156 days.

Referring to the photos, counting the white control slope as number 0, slope number 7 and the last slope did not have the inter-stud supports and those two remained whiter than the bricks with the inter-stud supports.

What I think I can conclude:

1. Does the process work? Yes.
2. The results seem to persist reasonably well for at least half a year.
3. Does the process make the bricks more brittle? I could not say for certain. To me, they do not seem more brittle, but the sample size here is too small and I do not have the required tools to perform actual testing.
4. Results vary given the production run. Undoubtedly there have been changes in materials and processes over the years.
5. Should you do it? That’s up to you.
6. It’s a crapshoot.



Before whitening.



Immediately after whitening.



156 days after whitening.



At top is a white horse for reference, bottom left is the unwhitened horse, bottom right is horse whitened over ten years ago. The two bottom horses appeared identical prior to whitening.

If you weren't one of the lucky ones to get the Star Trek Shuttlepod Gift with Purchase when the Enterprise set debuted earlier this year, we have something for you.

While we can't help you with a Ro Laren minifigure, we can help you with a parts list and some printable sticker sheets to create your very own mostly similar shuttlepod.

Stickers were redrawn based on the LEGO sticker sheet for the set, but also with reference to Star Trek fandom's Memory Alpha web site. Actual Star Trek fonts were referenced there, along with all the various shuttlepod names and series art, to provide a perhaps slightly more accurate and complete presentation of graphics, at least to the extent that the graphics can be shrunk down to scale and still be legible.

From a technical perspective there are two sheets, one full-page sheet with multiple copies of all the graphics and another 4x6 inch sheet that is crafted to industry standard kiss-cut specs. The full sheet is provided as an addendum in A4 and 8.5x11" Letter sizes.

The full sheet is suitable for printing at home or at your local service provider. The 4x6 is suitable

for submitting to websites such as Stickermule. If you decide to print yourself be sure that the printer setup is set to print at 100% and not "size to fit" or the stickers will print too small.

The 4x6 includes a CutContour layer which is visible as an orange outline but should not print if sent to a service provider; it serves as a guide for an inline stylus to cut the sticker. If you decide to print the 4x6 yourself, the orange outline is going to print.

The LEGO sheet of stickers is printed on a transparent sheet, presumably because of the "white" situation with LEGO plastic, the clear sticker would not contrast with the brick white (and/or yellowing as time goes on) where a white sticker reasonably could.

I got a print from a commercial source of an early iteration of the sticker sheet as a proof of concept. It was laser printed on a fairly heavy white sticker stock used for bumper stickers and had repositionable adhesive. I also laser (Brother model L3770) printed the large sheet at home on a business grade glossy clear sticker paper sourced online. I also went commercial to get an inkjet print which took a month to get, and when it

arrived it was laser and not inkjet printed. After trying to source an inkjet print for more than two months I threw up my hands and got an old 4x6 photo printer out of mothballs, ordered up some fresh ink, and printed the 4x6 sheet on an uncoated (not shiny) white Avery label and on the aforementioned glossy clear sticker paper. Note the glossy sticker paper used at home is not particularly glossy compared to the commercial sheets, but it does have a non-porous surface.

It will come as no surprise that the commercial printing produced better images; the colors were more accurate and the resolution was better. The home-printed versions were not bad, and if I didn't have the commercial jobs as a point of comparison I would think that the home brews were perfectly adequate. The photos accompanying the article should give you a point of reference for some of the notes that follow.

Inkjet ink being transparent, I would recommend that if you are printing with an inkjet that you do print on a glossy sticker and then give the sticker a thin spray of fixative or clear coat to prevent ink from running... and the spray might also help with color permanence. I found that



Above: Feynman is home laser print on clear glossy sticker paper, Campbell is commercial laser on white bumper sticker stock, Onizuka is LEGO clear sticker.

printing on a stock with a harder surface yielded better color reproduction as the ink sits on top of the surface as opposed to being absorbed by the paper fibers on a non-glossy surface. Black was particularly weak on the uncoated sticker. Note, your mileage may vary and I'm going to say "might" because there is a wide variety of inkjet printers out there, some using three inks and others with up to eight. Also note that consumer ink formulations continue to change and may vary by manufacturer. By comparison, commercial inkjet printers may use more than the standard CMYK tanks and offer white ink and a UV coating.

I suspected that inkjetting onto a clear sticker would likely result in see-through ink and, while most stickers in this exercise are applied to white bricks, I feared the color might appear relatively thin. I found, however, that the inkjet print on the glossy sticker looked just fine against the white bricks in practice.

I had concerns that the control panel sticker applied to the black curved brick would likely just look overall dark when applied, and sure enough that was the case. Neither the inkjet ink nor the

home laser toner had sufficient opacity to overcome the transparency of their colors. With professional production printing a layer or two (or more) of white ink is usually applied first and color is then applied on top to combat the transparency problem. Unfortunately the home lasers and inkjets do not offer a white ink option. It probably makes more sense to print the stickers on white sticker paper if the control panel is important to you, but in the grand scheme of things the control panel is buried deeply enough in the model that it may not be worth the bother.

Note the files we have created do not carry a white layer so if that is needed you will need to edit the file and add a spot color layer for white. Talk to your service provider. But for reasonable results in this instance you probably do not need to go all hardcore.

Some words of caution: if you intend to print at home on a laser printer, do make sure to get laser-friendly sheets as inkjet sheets may melt or crumple in a laser printer.

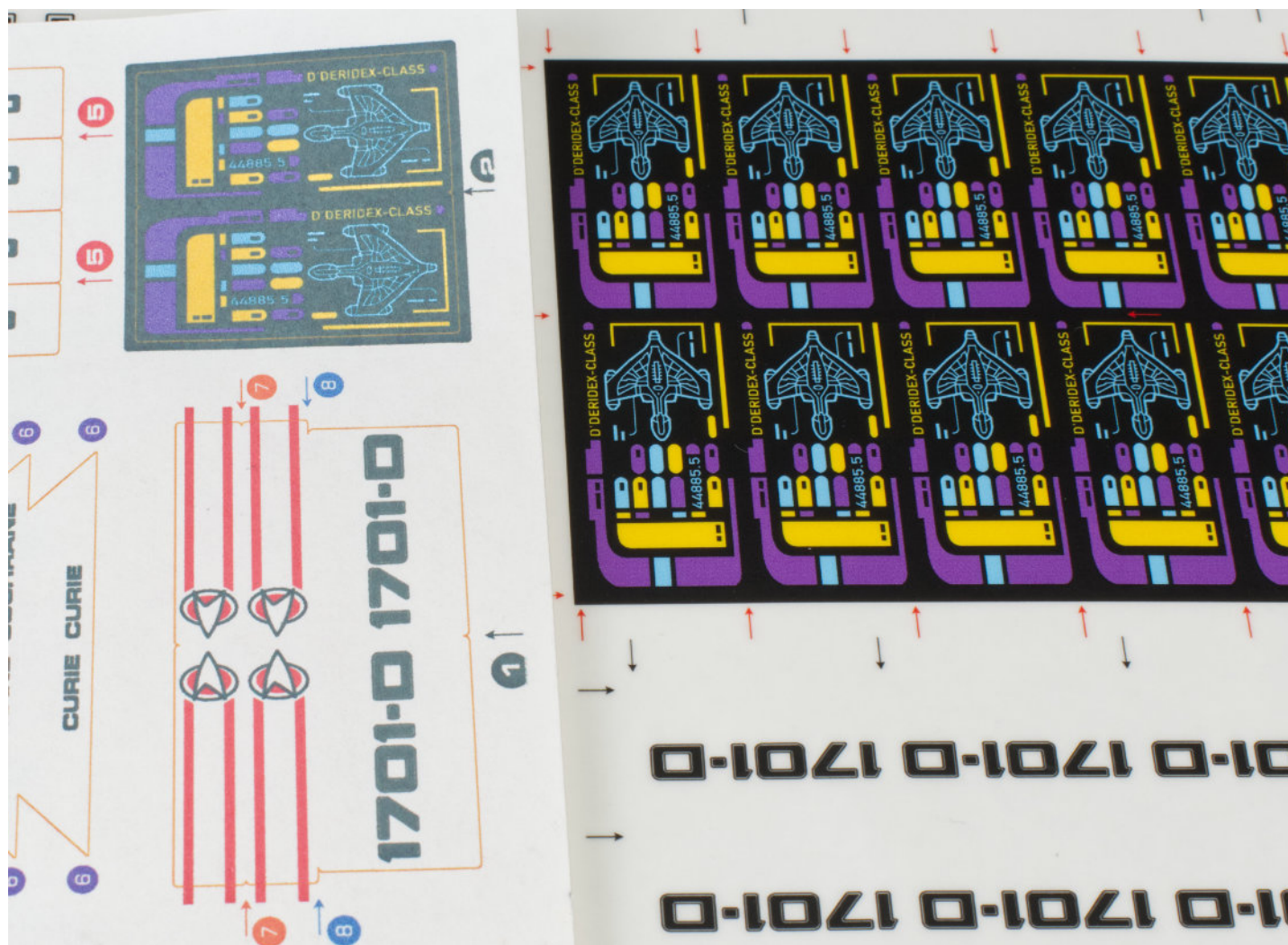
Now to the results when applied to the models. At average viewing distance I found the stickers

I had made actually read slightly better than the LEGO stickers. The LEGO printing process can result in a slight halo around the edges depending on how thick the ink may be with any one impression while laser and inkjet tend to be very sharp if the printer is capable of a resolution of 300dpi or above.

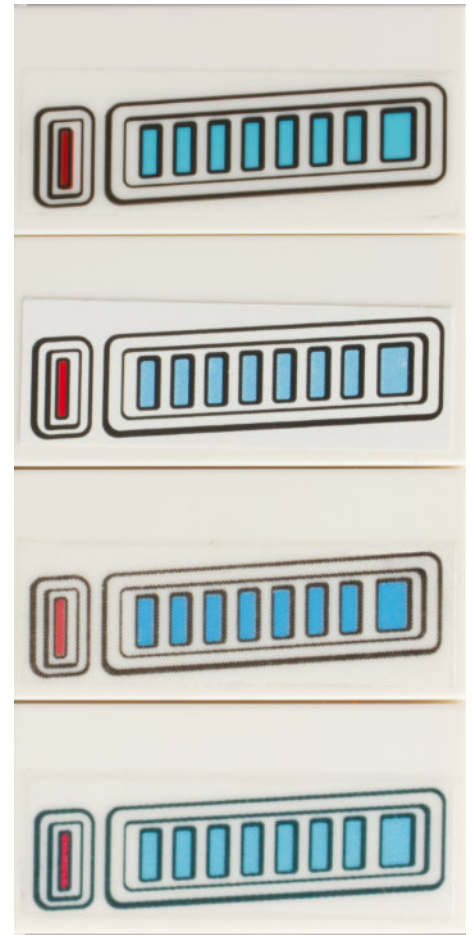
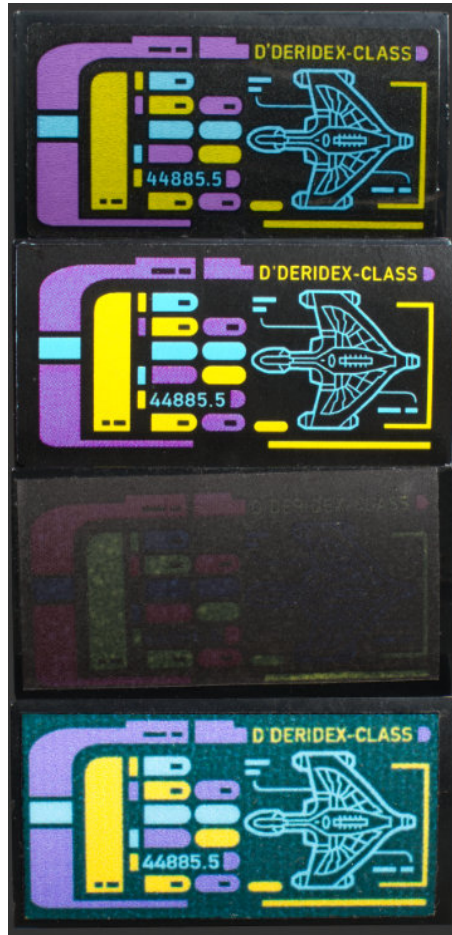
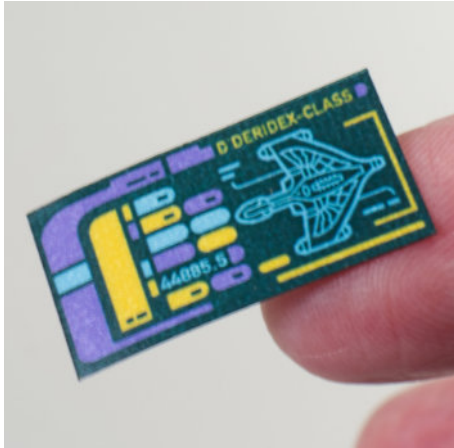
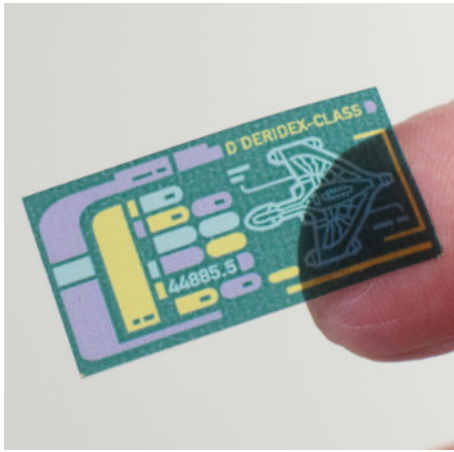
The letters on the side doors where U.S.S. Enterprise appears were definitely sharper and easier to read on the home brew stickers.

Color matching was close but not perfect. In my case, with a three-color (no black) ink cartridge in the inkjet printer, the blacks were weak. The inkjet did provide the appearance of a more uniform "solid" color where the laser displayed the usual halftone dot pattern where component CMYK colors are used to emulate blended solid ink colors. These specific traits are evident on close inspection, but at reading distance they are really not noticeable.

Following is comma-separated value (CSV) data for the entire LEGO 40768 Type-15 Shuttlepod set. You can copy the list from this page and paste into a text file and save with the .csv extension. The



Note the differences in color density. Above left is inkjet on uncoated consumer grade sticker stock, right is laser on glossy commercial stock.



Top: home inkjet on clear glossy sticker, note the transparency of the ink. Bottom: home inkjet on clear glossy sticker stuck on top of white sticker, note the apparent color density change.

Top to bottom: LEGO's sticker, commercial laser on white bumper sticker, home laser on clear glossy sticker, home inkjet on clear glossy sticker on top of white sticker.

Top to bottom: LEGO's sticker, commercial laser on white bumper sticker, home laser on clear glossy sticker, home inkjet on clear glossy sticker.

list is also included on the hispabrickmagazine.com web site under the HBM040 magazine listing.

The file has been tested on lego.com on the Pick a Brick page using the upload list button there. Note all elements may not be available. LEGO uses the column names Quantity,elementID.

The file has also been tested on brickowl.com on the wishlist page under the import tab. Brick Owl uses the column names Quantity,Item No.

The file was successfully tested on rebrickable.com using the LEGO column heads.

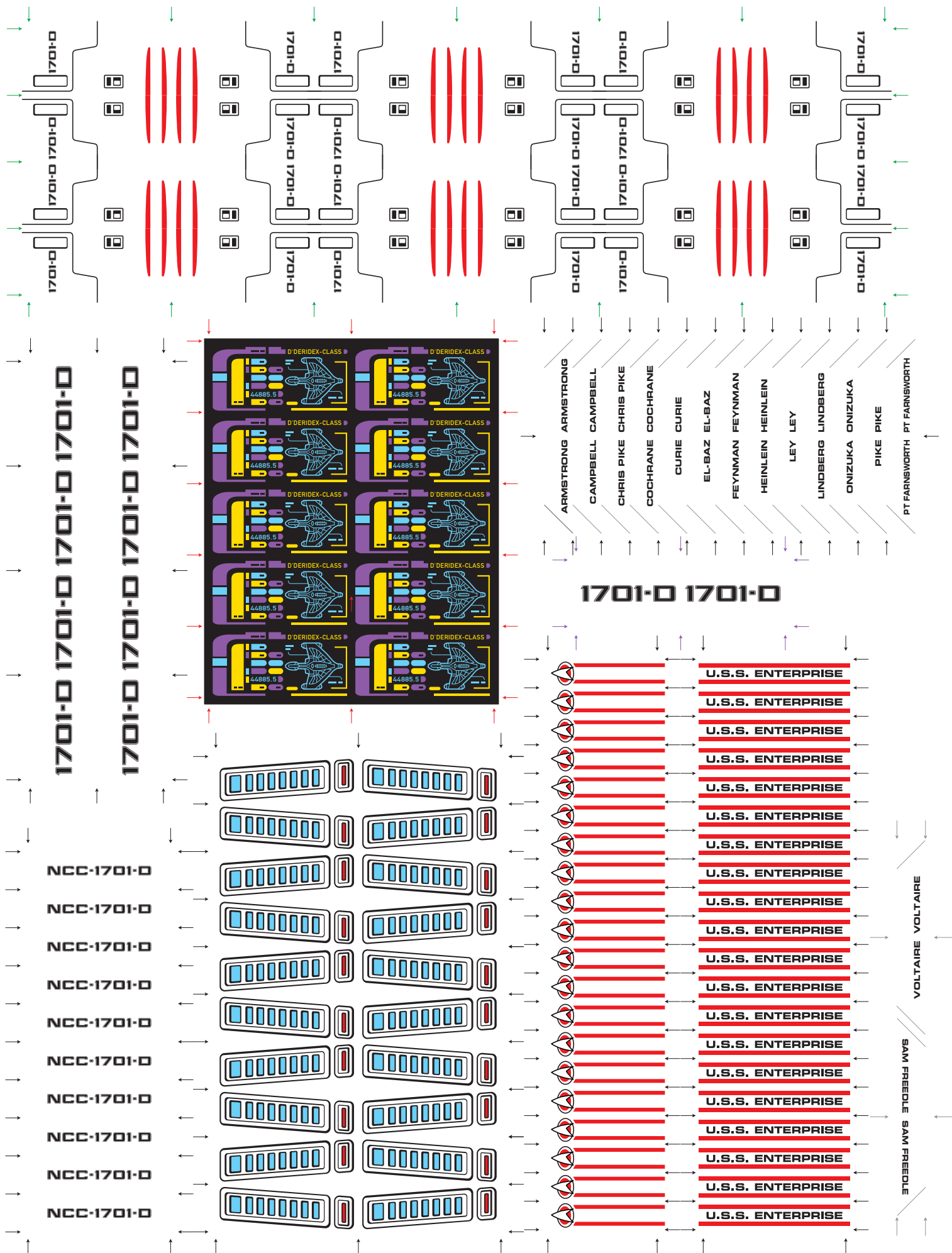
You are on your own to create a list for BrickLink which wants a .bsx, .ldr, .lxf, or .io file. Leave it to BrickLink to make uploading a wanted list a pain in the ass and require the use of third-party software. Remind me, how long has .lxf been dead?

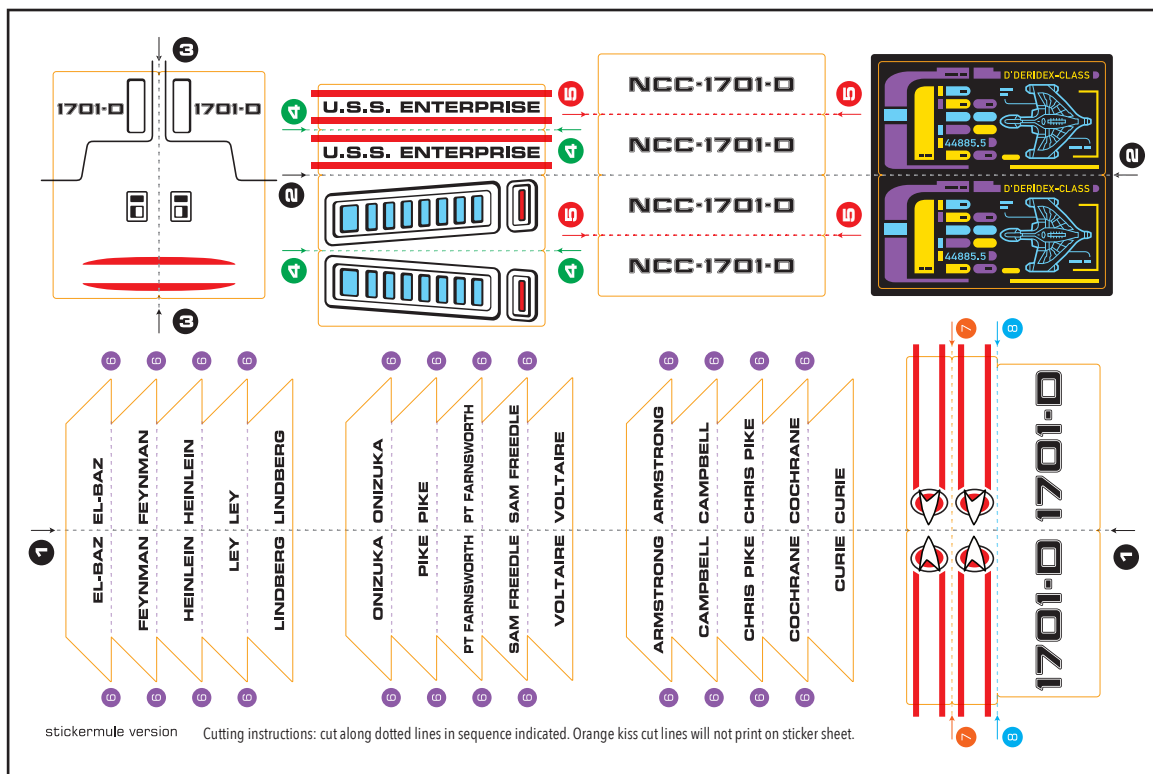
Type-15 Shuttlepod Parts List:

Quantity,Item No	4,6258135
Quantity,elementID	3,303401
2,6177114	2,307001
2,300501	2,6132203
4,6286834	2,6132204
8,4504369	1,4179875

1,4179874	3,6195371
16,4547489	1,6168618
2,6044601	3,302101
2,6310185	2,6156667
2,4667575	2,6539352
2,6218823	3,371001
7,302301	2,6554824
2,6176240	2,4143254
2,393701	1,6514504
2,393801	4,243101
6,306901	2,4515359
1,6034044	1,6104805
2,6117940	1,6482744
6,242001	4,4560178
2,6342970	1,6482745
2,6366391	1,6053026
2,6138740	2,366601
1,6047220	2,4508662
2,6058329	4,379501
2,6218822	1,416201
2,6469441	1,4144012
6,6547853	6,6378120
2,245001	2,654126
1,6476051	4,6279875

1,9339	2,4645412
2,6092585	1,4211396
2,6089119	1,4211441
2,362326	2,4612621
3,4558170	1,4211452
1,6570745	2,4211395
1,243126	1,4211393
1,4587844	1,4211438
1,303426	8,6296498
1,6513963	1,6039176
2,6448793	1,6307616
1,4211389	1,6413109
2,6267495	1,4210917
15,6248890	4,4210633
2,4550325	2,6025235
4,6134378	2,4504378
2,4211469	4,4211052
1,6015344	2,6146321
2,6319333	2,4521187
2,4654580	1,6568573
2,6258820	1,6420630
1,6212077	1,6119107
2,4211881	2,6514124
2,6469440	1,6514157





The sticker sheets shown on this and the previous page are available on hispabrickmagazine.com under the HBM040 magazine listing as separate individual files as print-ready 8.5x11 inch letter, A4, and 4x6 inch CMYK PDF documents.

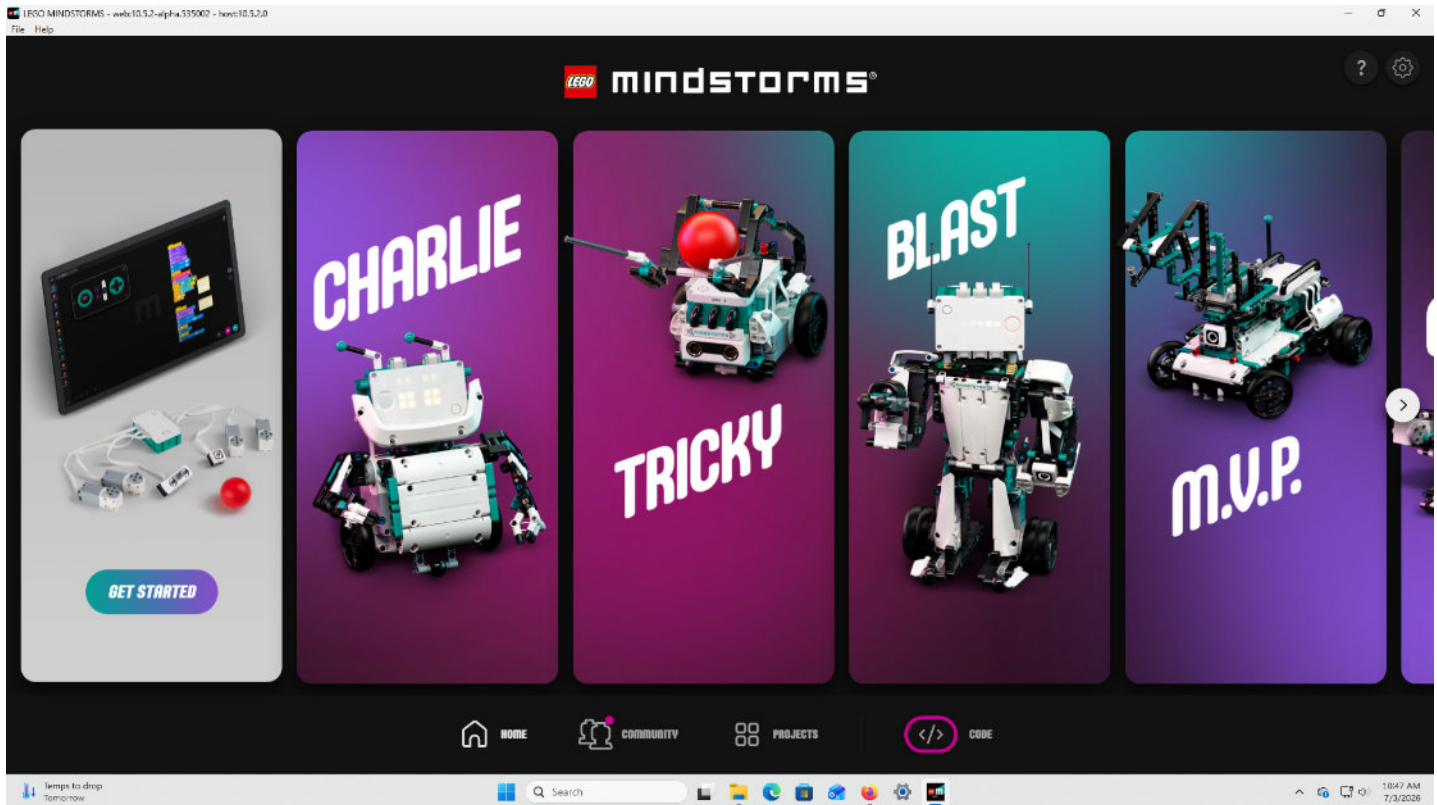
BEYOND THE SUNSET:

PRESERVING THE MINDSTORMS LEGACY

The LEGO® MINDSTORMS® Robot Inventor App will be discontinued on June 1, 2026, with no further updates or support. Resources on LEGO.com will guide you in transitioning your play experience to the LEGO® Education SPIKE™ Prime App. Note: A full 1:1 experience or firmware replacement cannot be guaranteed.

OK

Whether you're a child of the 80s, a future builder of tomorrow or anything in between, knowing your age will help us give you the best experience and help keep you safe online.



I'm a long-time fan of MINDSTORMS, all the way back to the original RC kits that came out over 25 years ago. As new kits came out, I have enjoyed exploring them and finding new ways to use the pBricks (which is what the programmable brains of LEGO robots are commonly called) and motors in new and inventive ways. It takes some doing to program a 25-year-old robotics system on a modern computer, but it can still be done, because without the programming a robotics kit is just a bunch of bricks and electronics.

The first LEGO Robotics set came out in 1998. Since then, the major platforms have been RCX, which was succeeded by NXT in 2006, NXT 2.0 in 2009 (same pBrick, new models), and EV3 in 2013. Eventually EV3 was replaced by MINDSTORMS Robot Inventor (or "RI") in 2020, only to be retired in 2023, signaling the end of MINDSTORMS just short of its 25th anniversary.

When you purchase a kit like the LEGO MINDSTORMS Robot Inventor (RI), you are not just buying parts; you are buying a complete experience—the programming environment, the building instructions, and the logic-driven "vocabulary" that makes these robots come alive.

It felt like a library being locked shut when the news hit that the RI app was being sunset. The official transition to the Spike app may seem logical on paper: same hardware platform though a different app, but in practice it is a lot more complex than that. Although RI and Spike share the same hardware, the firmware and coding

environments are fundamentally incompatible. Programs built in the RI environment do not simply "port" over; the rich library of building instructions and community models risked vanishing into the digital ether. There are also other functionalities that are lost, like Remote Control, Machine Learning, and the ability to control the RI hub with Scratch (using the Scratch Link extension) which allows it to work together



with other LEGO products that share the Powered Up wireless protocol, including such diverse products as Boost, CONTROL+, or LEGO Super Mario.

The RI app consists of a base program with instructions for the five hero models and downloadable content to explore these models created by members of the MINDSTORMS community. But when I moved to a new Windows computer and installed the RI app I found I couldn't even download the additional content because the app's internal links were broken. I was frustrated. A robotics kit isn't just hardware; the software and additional features of the program are an essential part of the equation. Taking that away devalues a product customers have already paid good money for.

The Power of "Making Noise"

My role in this wasn't technical—that credit belongs to others. My role was to be persistent. For three months, I repeatedly called LEGO Customer Service, determined to ensure the community's concerns were heard.

I shared my frustrations on EuroBricks and on the ROBOTMAK3RS Facebook groups, urging the community to make our case known. We needed answers: Would the app vanish? What happens to the custom blocks for each hero model? How do we preserve the work we've built?

The Technical Archaeologists

While I was busy making phone calls, the real

technical heavy lifting was being done by a member of the community. A EuroBricks user by the name of Sizlaq did the difficult work of uncovering the “why” and “how” behind the broken app ecosystem.

Sizlaq didn’t just point out the problems; he set up the repositories and tools necessary for us to take matters into our own hands. Through the ROBOTMAK3RS collective, we are now distributing these solutions so our community stays active.

Preserving the Ecosystem

The goal of these preservation efforts is simple: we want to ensure that our kits remain functional on our own terms, without relying on servers that are scheduled to go dark.

For those looking to restore or maintain their setups, Sizlaq’s work has been instrumental. He outlines how to handle the app and its data, two distinct pillars of the restoration process:

1. **The Installer:** This brings the application back to life.

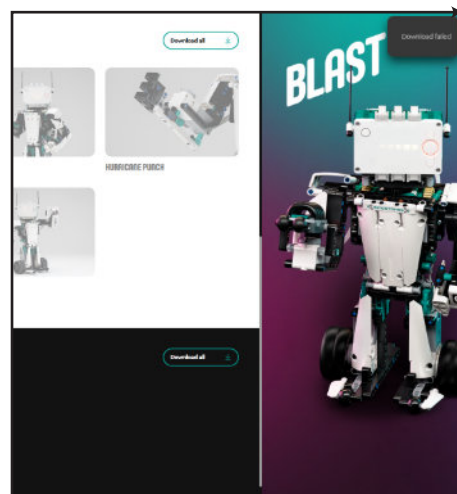
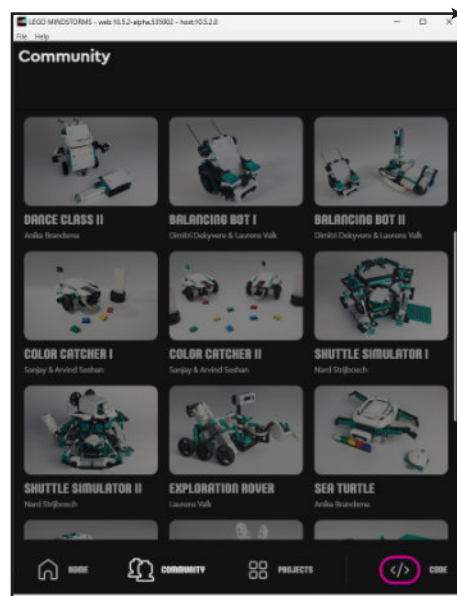
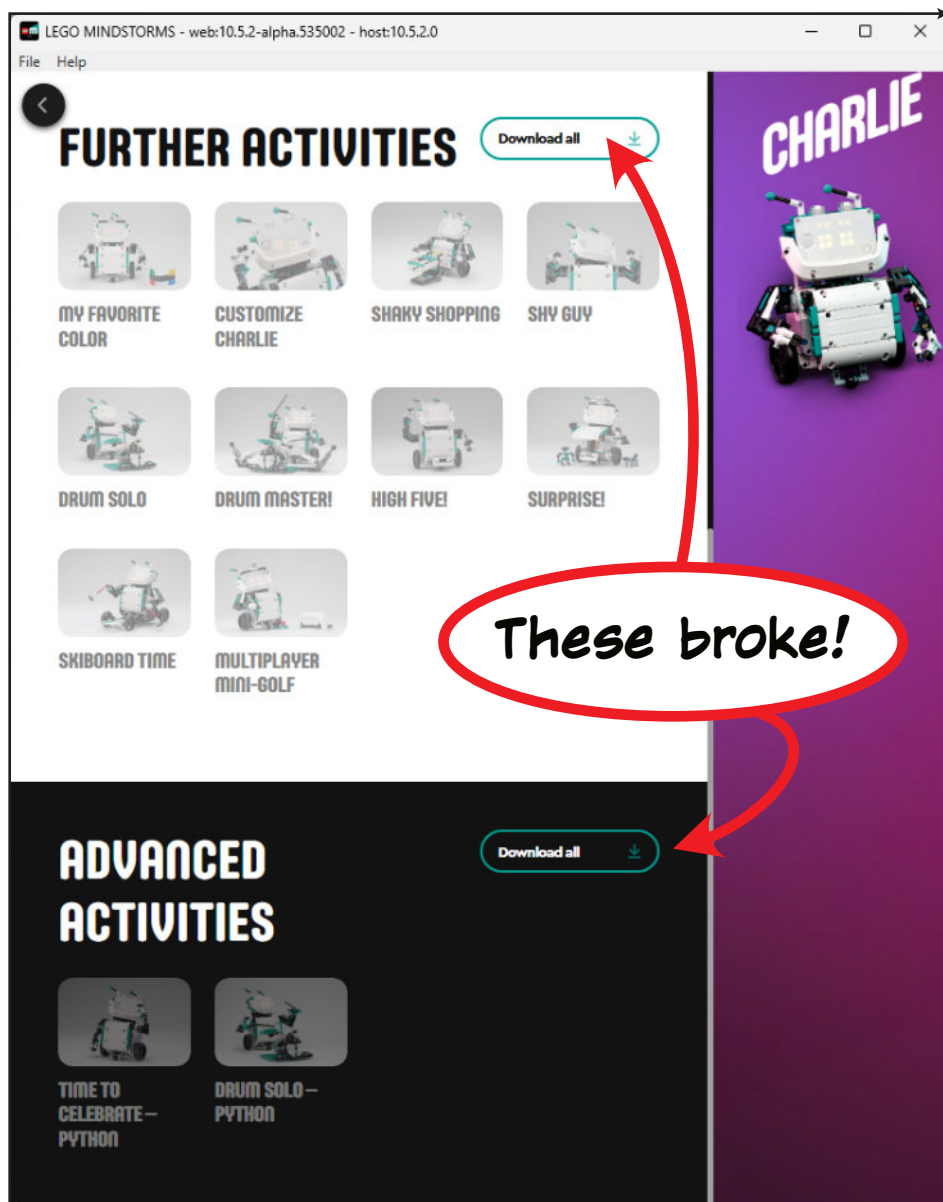
2. **The App-Data/Content:** This is the soul of the app—the saved tutorials, the community builds, and the specific programming blocks that make your models function.

If you are navigating this transition, you can find the technical roadmaps developed by the community to help preserve your setup by searching for “Restoring the LEGO MINDSTORMS App and Content” on the ROBOTMAK3RS Blog (<https://blog.robotmak3rs.com/>). There you will find a series of articles outlining how to accomplish this on Windows, Android and macOS.

LEGO’s response

It took persistence and restraint to get my case across. The people at LEGO Customer Service are excellent professionals. They really want to help their customers the best way they can, but what I was asking was well beyond their knowledge and it took many tries before I got to talk to that one representative who knew how to get my

questions and complaint to the next level. The result was another long and informative conversation with what I can only say seemed the right person for the job: someone with a passion for MINDSTORMS, enough internal knowledge to understand what is possible and what is not, and the willingness to go the extra mile to ensure the community is as happy as can be realistically achieved. LEGO MINDSTORMS Robot Inventor had been retired by LEGO some years ago but they kept the software “alive” well beyond what they were legally required to do. However, LEGO acknowledged our concerns. While they confirmed that keeping the MINDSTORMS RI app available past the sunseting date is not feasible, they did postpone that date to October 2026 so users can save a last copy of the complete app and download additional content before it all disappears from the app stores. LEGO reached out to me and told me their programmers will be fixing the Windows app before the October cutoff date, however as of this writing there is no visible



As of this writing, the Windows version remains unfixed; the MacOS and Android versions are once again functional.

progress. Functionality of the Android and MacOS apps has already been restored. In addition, LEGO is committed to ensuring the community is supported. They are finalizing a series of PDFs to act as a bridge, which will include instructions for all models, screenshots of the block-based programs, and, critically, guidance on the correspondence of these word blocks between the MINDSTORMS Robot Inventor and Spike apps.

Final Thoughts: We Are the Stewards

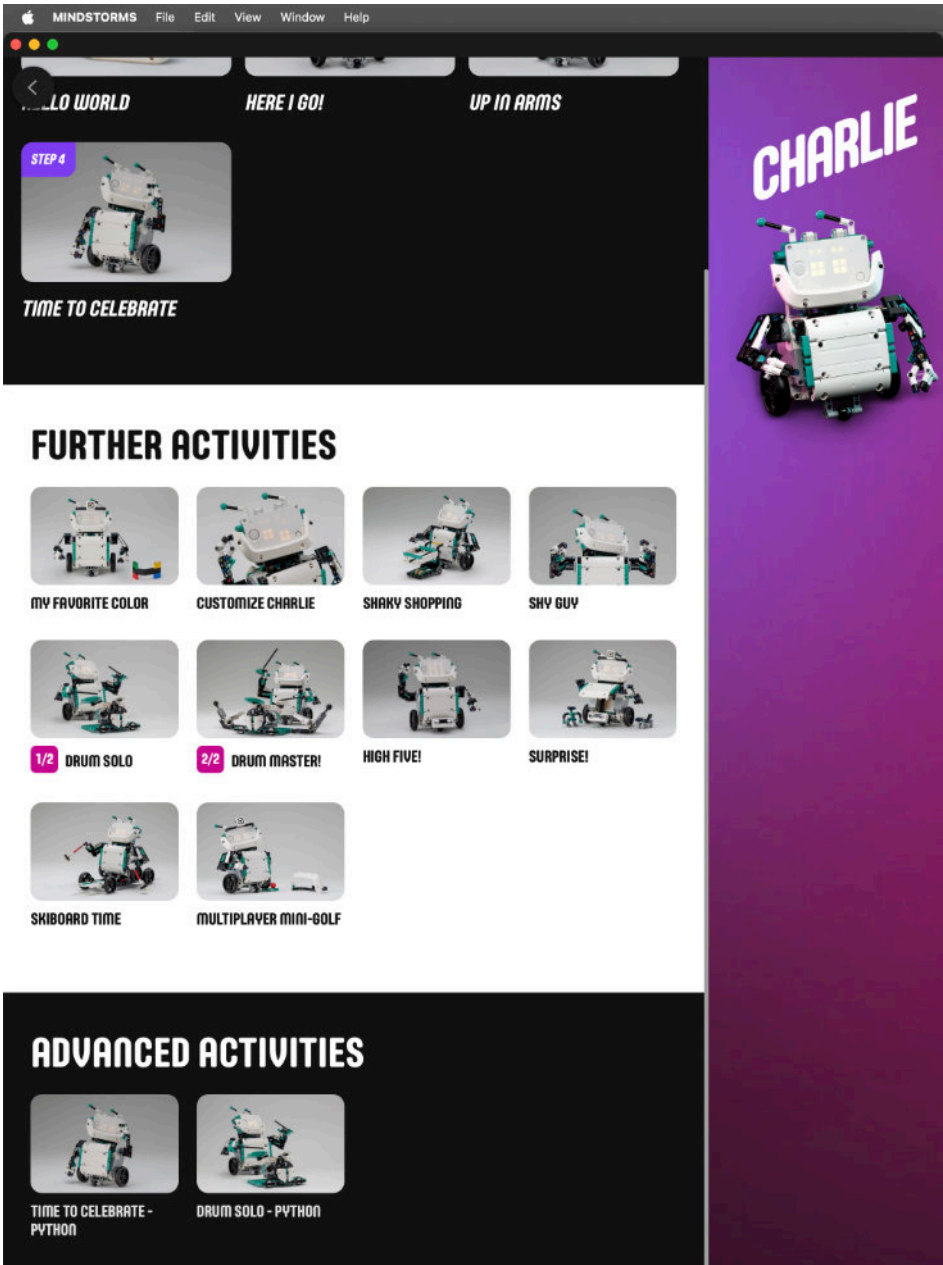
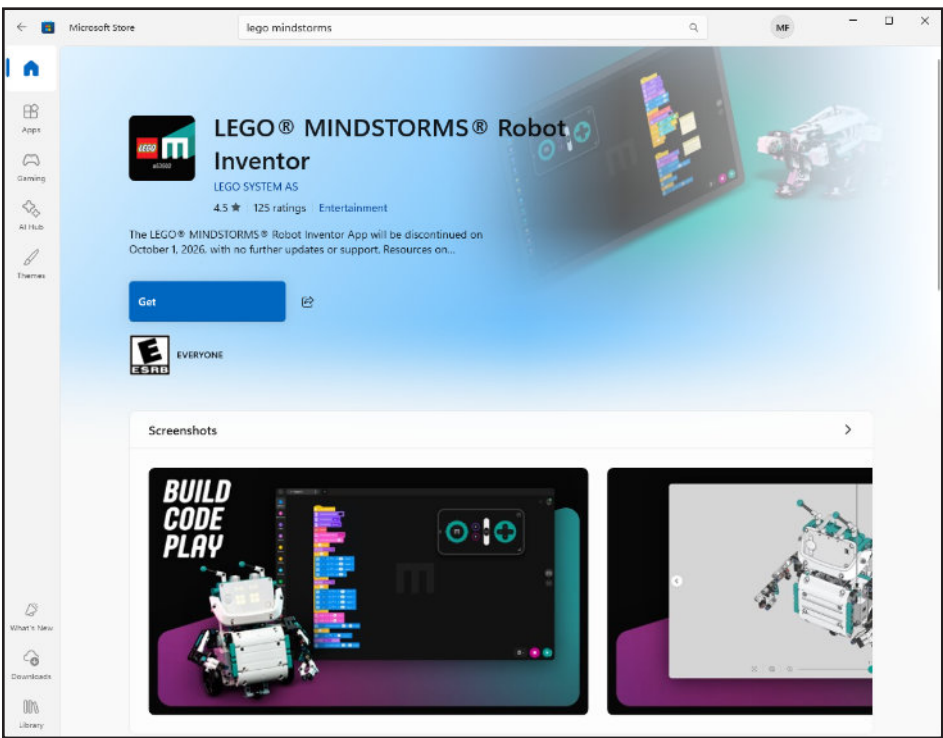
The LEGO Spike app will be maintained until June 30, 2031, so if you don't mind losing some of the functionality of the RI app and recreating your programs you still have a few years of support you can count on.

If you prefer a different approach, the MINDSTORMS community is amazing. It comprises hardcore fans who keep working on solutions well beyond the lifespan of the MINDSTORMS products. Thanks to the work of one dedicated fan, you can now save and restore a full working copy of the RI app on different hardware platforms. If you prefer a different approach, have a look at PyBricks (<https://pybricks.com/>). It supports all the hardware that uses the Powered Up wireless protocol (so from LEGO Super Mario to MINDSTORMS RI) and even includes its predecessor MINDSTORMS EV3.

Even open-source solutions, like the fantastic PyBricks, operate on their own development cycles. Nothing in the digital landscape is truly guaranteed to last forever. This is why the act of archiving our tools is so important: it transforms us from passive consumers waiting for a sunset notification into active stewards of our own creative environments.

We have learned that we cannot rely solely on "always-online" ecosystems for our hardware. By archiving the app and its data, we are ensuring that we remain the owners of our technology, rather than mere temporary tenants of a service provider.

Preserving these tools isn't just about nostalgia; it's about ensuring that the next generation of builders can pick up a set from 2026 and experience the same joy, logic, and creativity that we have enjoyed. I encourage you to check the ROBOTMAK3RS blog for the full technical tutorials, so you can lock in your own access. Keep building, keep sharing, and keep making noise.



Guess the Prompt



DiffusionBee,
what the
heck are
you
thinking?



AI seems to be all the rage at the moment. We thought it would be fun to see just how totally mind-blowing freakingly awesome it could be at generating some LEGO themed images.

We gave DiffusionBee, a flavor of Stable Diffusion, some simple prompts and told it to generate four images from each prompt. And we got some pretty ridiculous results.

Your mission is to guess which one of the four prompts following the series of images was the actual prompt used to generate the images.

Good luck. You will need it. On the other hand whatever you guess can't be any worse than what Stable Diffusion guessed.

Answers on the last page.



Guess the prompt: Knights

1. LEGO knights traveling a road into the mountains.
2. LEGO knights firing a cannon from a cliff overlooking a large LEGO army.

3. LEGO knights in a cliffside fortress overlooking the sea at sunset.
4. LEGO knights discover a mystic shrine in the mountains.



Guess the prompt: Pirates

1. LEGO pirates, carrying muskets, on a tropical island in a snowstorm. One pirate has a bird on his shoulder.
2. Two LEGO pirates carrying swords on a snow planet with islands in the sky.

3. A LEGO pirate ship in a storm with sails unfurled.
4. LEGO pirates going ashore on an island with a white sandy beach.



Guess the prompt: Spacemen

1. Three LEGO spacemen preparing for a mission.
2. LEGO spacemen playing a game in the mess hall on a space ship.

3. LEGO Classic Spacemen meeting an alien in a roadside diner.
4. LEGO spacemen returning to their ship after a mission on the moon.



Guess the prompt: Construction workers

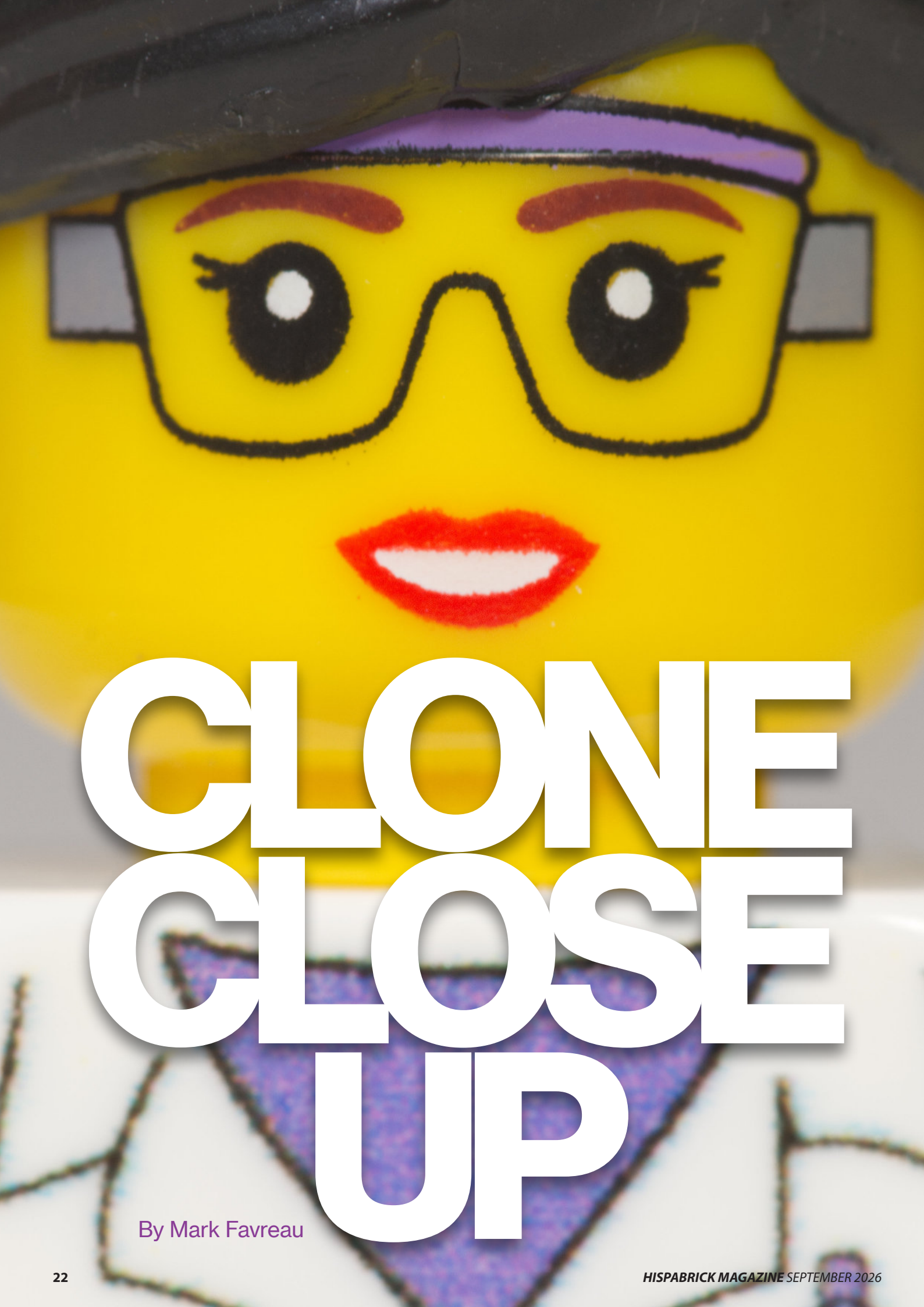
1. LEGO construction workers building a bridge over a river in a forest.
2. LEGO construction workers building a wooden bridge between two trees.
3. LEGO construction workers building a patio in a wooded back yard.
4. LEGO construction workers building a dock next to a lake in a forest.



Guess the prompt: Dragons

1. A LEGO princess summons LEGO dragons to a mountain castle.
2. Three LEGO dragons with red wings relax by a lake in the mountains.

3. LEGO dragons attacking villagers outside a castle.
4. Two LEGO princesses save LEGO knights from a winged LEGO dragon.



CLONE CLOSE UP

By Mark Favreau



RECENTLY

my brother sent me a couple packets of custom minifigures that he acquired through his job. These were trade show promo items or something of that ilk. Somebody spent some money on these things, but they did not spend it with LEGO. I suspect any non-hardcore fan would not take note or care, and the company handing out giveaways likely was more concerned with cost and getting their brand slapped on something than anything else.

I thought it would be interesting to take a close look at the clone product and see how it compared to a collectible minifigure. So here we go.

The clone figures came in tear-off-top, zip-lock style, frosted-finish pouches, ink-jet printed front-side on a white flood background with white flood again under the logo on the back. The bottom portion of the back was "clear" so you could see the parts which were inside another sealed packet.

I would not be surprised if the packaging was as expensive as the parts inside. Limited print runs of this nature are not cheap. Digital printing has made them affordable compared to the old technologies, but still... There is little doubt in my mind that whoever did the printing of the outer baggie was not the same entity that stuffed the parts into the inner baggie. One was sent to the other, or maybe even a third party, for the packaging to be completed.

Keeping in mind the clone is a promotional item and not a product for sale, the giveaway packet measures about 3.25 x 3.25 x .375 inches / 8.5 x 8.5 x 1 cm compared to LEGO's current CMF packaging at 3.75 x 4.125 x 1 inches / 9.4 x 10.5 x 2.6 cm. The downside of the clone packaging is that it is probably not recyclable or biodegradable, and being double-bagged it is doubly so, compared to LEGO's recyclable biodegradable cardboard. On the upside you can see exactly what you are getting as opposed to LEGO's current packaging which shows an incomplete selection of the potential contents. With the clone there is no need for a device with a scanner and an app and a decent wifi or cellular signal as there is with LEGO...which in my experience is generally not good at the LEGO store. While we are on the topic, hey, LEGO, how about providing in-store wifi.



I selected the scientist from CMF Series 11 for figure comparison because it seemed closest to the female clone figure. Additionally, various individual parts are used for parts comparison simply because they may photograph better than others.

Torso

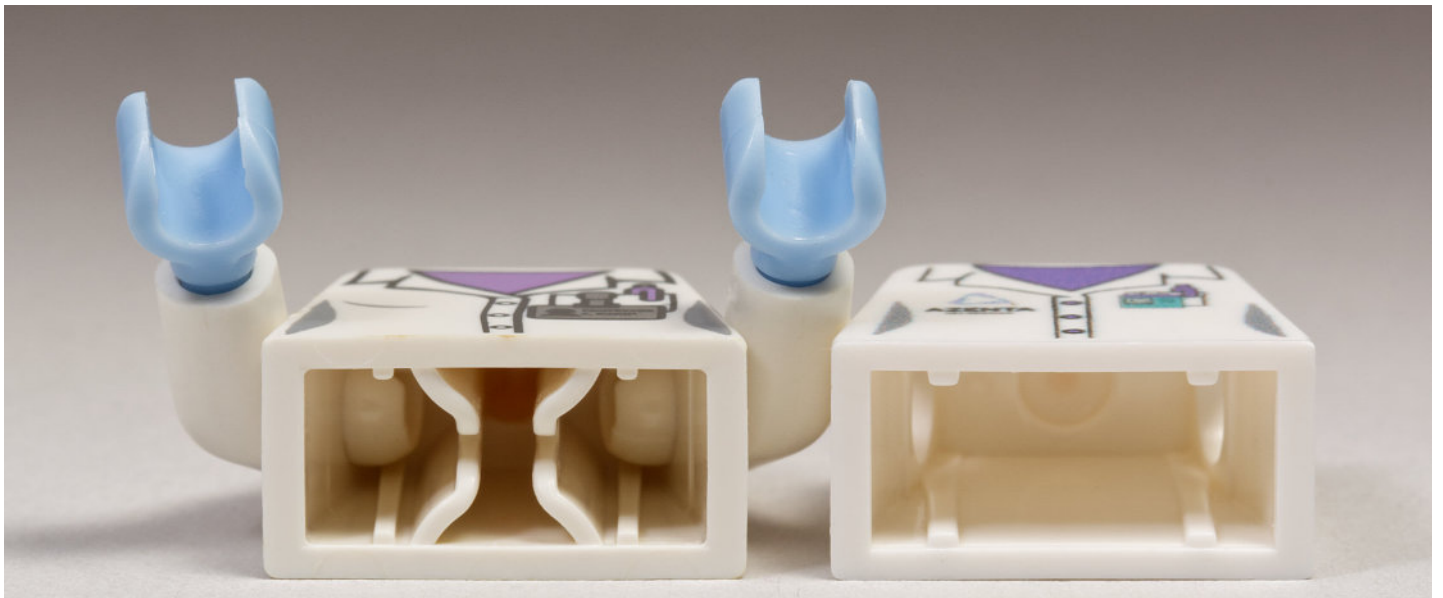
Moving onto specific parts, the torso printing was the most obvious point of difference between the LEGO figure and the clone. LEGO uses solid color inks with a pad printing process while the clone is using a form of ink jet printing providing a stippled finish and composite color composed from a few standard, likely CMYK or expanded gamut CMYK, base colors. This type of ink jet printing is what I believe LEGO is providing with their Minifigure Factory custom offering.

You can see that the torso print of the clone is pretty much a blatant ripoff of the LEGO design, but not of their execution, and the print quality is fuzzy due to the spatter nature of the ink jet process. I suspect that some RGB conversion or some other technical faux pas is at work as the AZENTA logotype is obviously using all the various color inks, as are the collar and button contours, to create the black on the torso instead of specifying only black ink which should result in a cleaner appearance.

Looking at the torso mold differences, the clone displays no logo on the neck stud and has a more simplified inside eliminating the central "X" ribs present on the LEGO piece.



Clone torso left and LEGO torso right. Note the stipple pattern nature of the composite colors on the clone. The purple of the clone shirt is composed of blues and magentas while the LEGO purple is solid purple. Clone blacks have a color halo around them and rough edges where LEGO black is black and has a crisp edge.





Arms

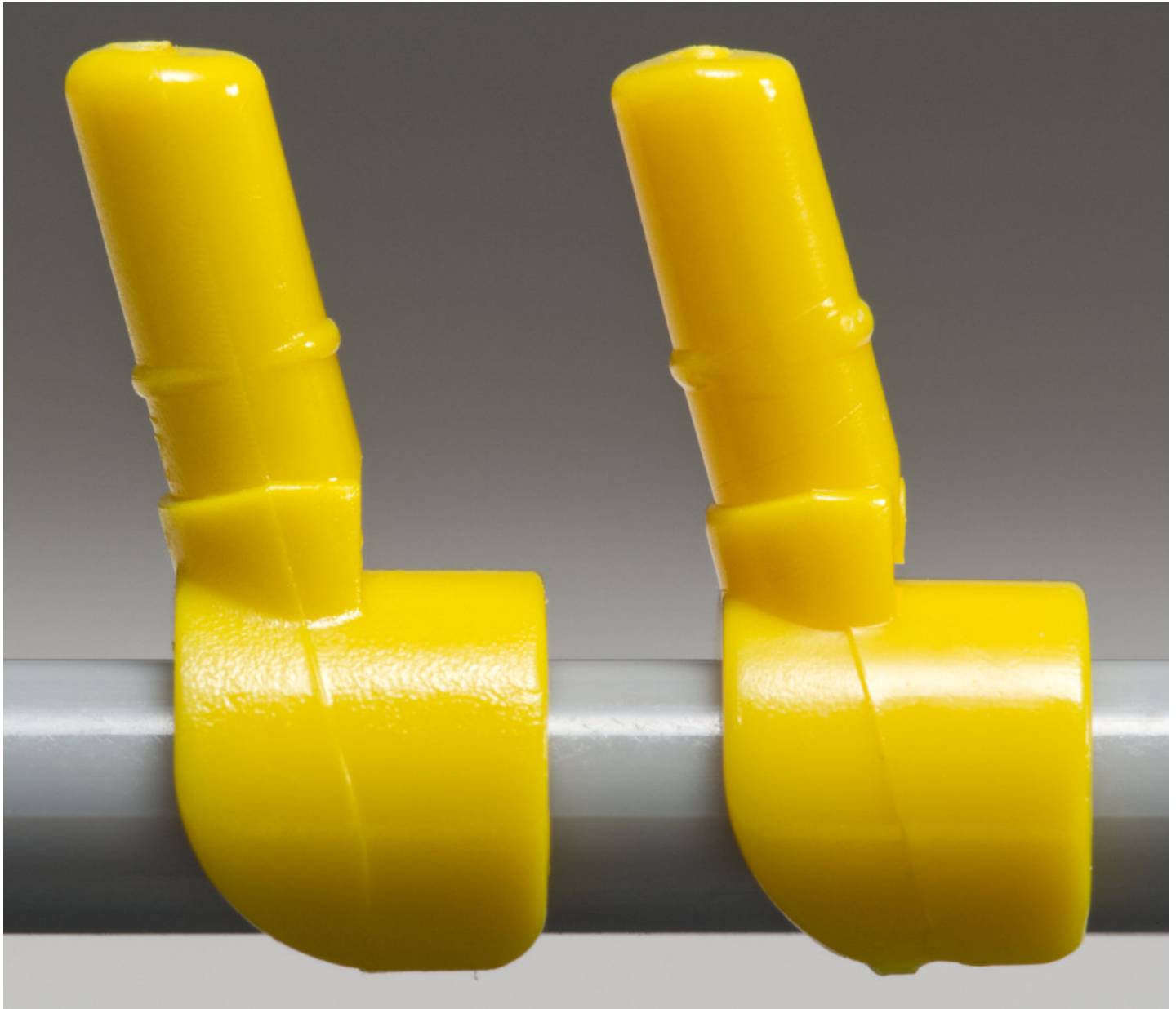
The clone arm studs are split all the way across while the LEGO arm studs have a center hole with a split on one side. Attaching and detaching the clone arms from the torso is significantly easier than with LEGO arms.

There is flashing at the wrist hole on the clone arms, and the arm contour steps and narrows noticeably at the wrist on the right arm and kind of hints at doing that on the left arm suggesting some molding or quality control issue. The LEGO arms have no flash and maintain a smooth contour for the entire length of the arms.

Noting the top picture on this page, the shadow in the wrist hole on the LEGO part is significantly darker than that of the clone part leading me to believe that the opacity of the LEGO part is significantly greater than that of the clone part. This is probably true for all the parts.

Clone arms have no embossed logo, nor do older LEGO arms, but more recent LEGO arms do have the logo embossed on the torso side of the elbow.





A LEGO hand, left, and the clone hand, right. This particular LEGO hand has an angled terminus of the bar, digits on the dorsal side of the angular wrist block, and digits on the bar between the wrist block and the rib on the ventral side of the bar.

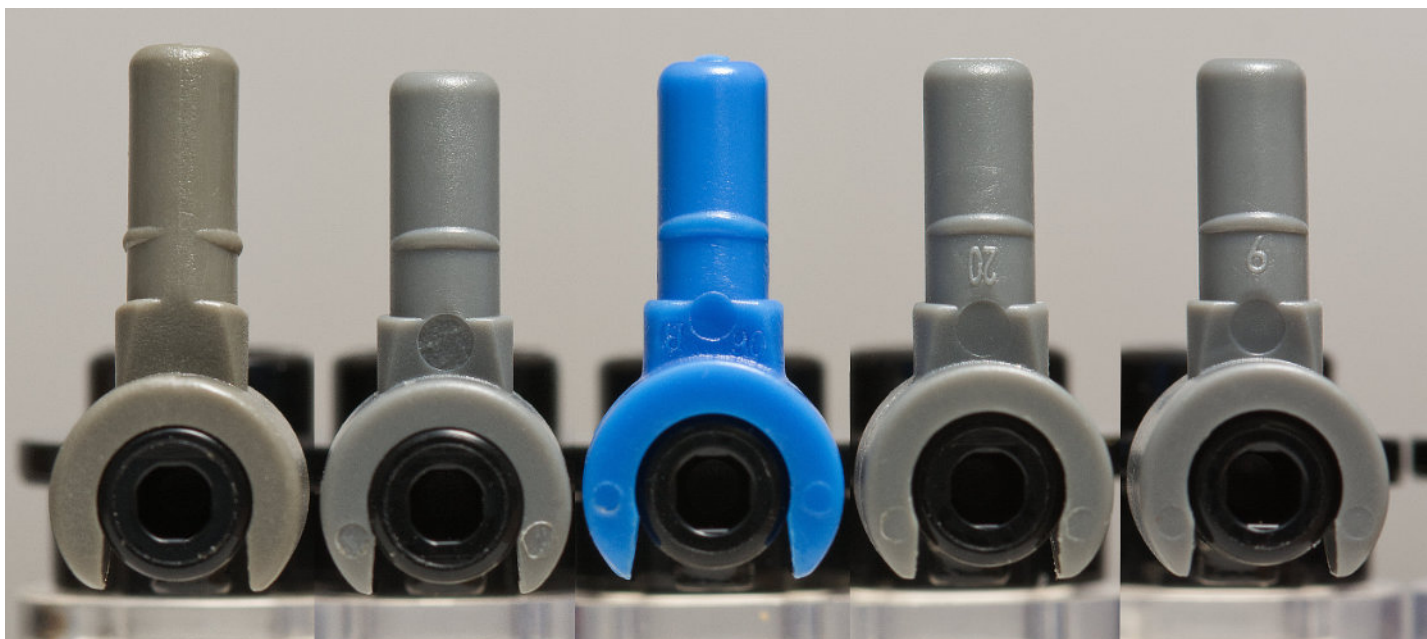
Hands

I wish I could say something definitive about the hands, and in the process of trying to find a hand that would photograph well to show some details I ended up looking at dozens of LEGO hands under the microscope. What I found was I could identify at least five design iterations. Not surprisingly, the older versions had no numbers molded into them. Later versions, in no particular order I want to try to identify, had:

- multiple digits molded on the ventral side of the bar, above the retaining rib
- varying molded digits on both the ventral and dorsal sides of the hand, between the angular wrist block and the rib
- characters on either side of the angular wrist block on the dorsal side and digits on the ventral



The clone hand (greenish) overlaid on the LEGO hand (yellow). Note higher rib placement, lower block placement, and thinner hand thickness on the clone compared to the LEGO hand.



Dorsal side top, ventral side bottom. LEGO hand parts showing various mold iterations.

side, between the wrist block and the rib. Within those groups there exist variations in the shape of the wrist block, variations in the contour of the rib, variations in the font, and probably variations in the ejection pin and injection point marks.

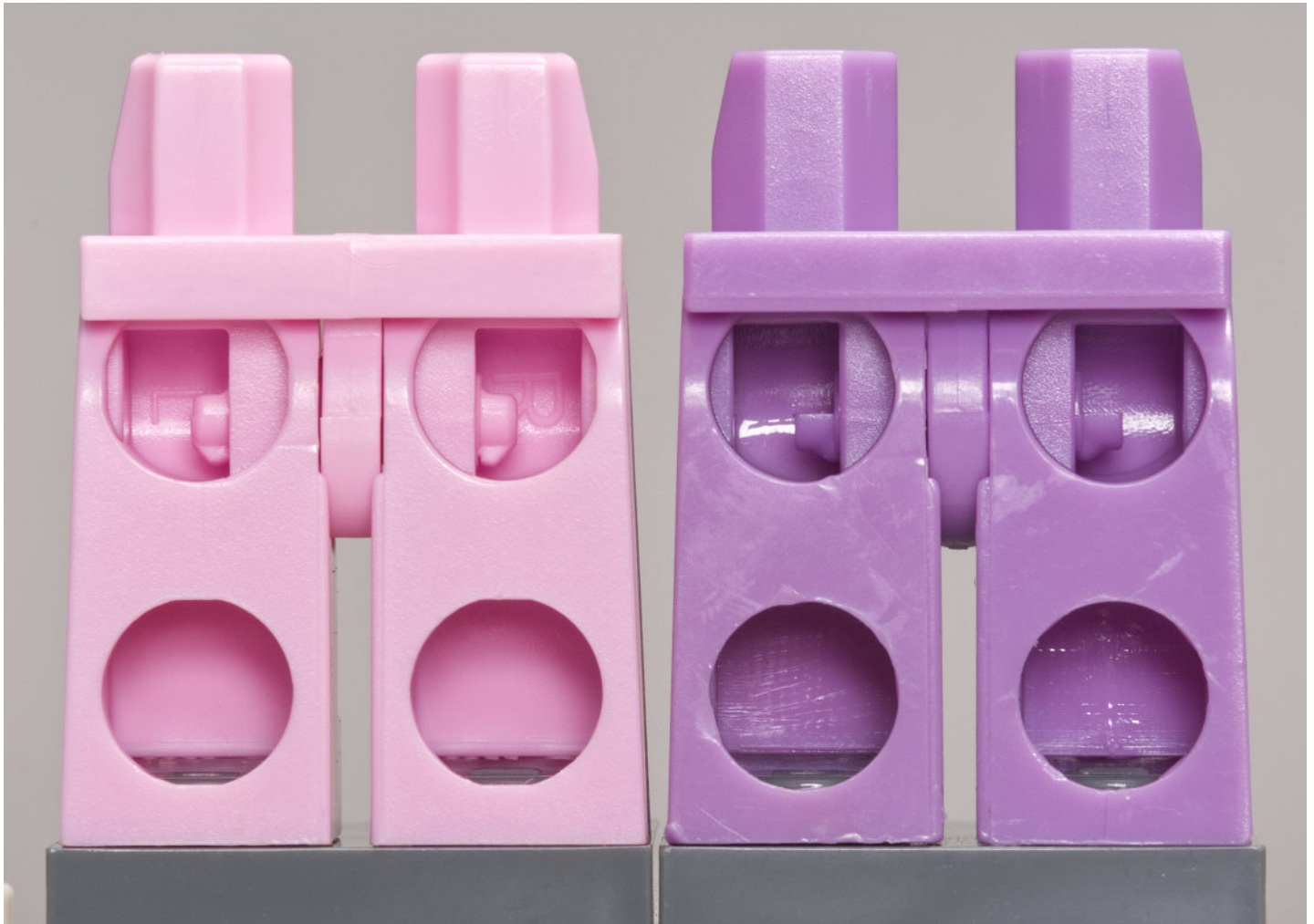
With all that noted, relative to the clone hand, the only things I think I can say for certain are that the plastics are different, the clone hand definitely has less fidelity at the “fingertips” than do the LEGO hands, and the LEGO hands seem to be about one-tenth of a millimeter thicker.

Legs and Hips

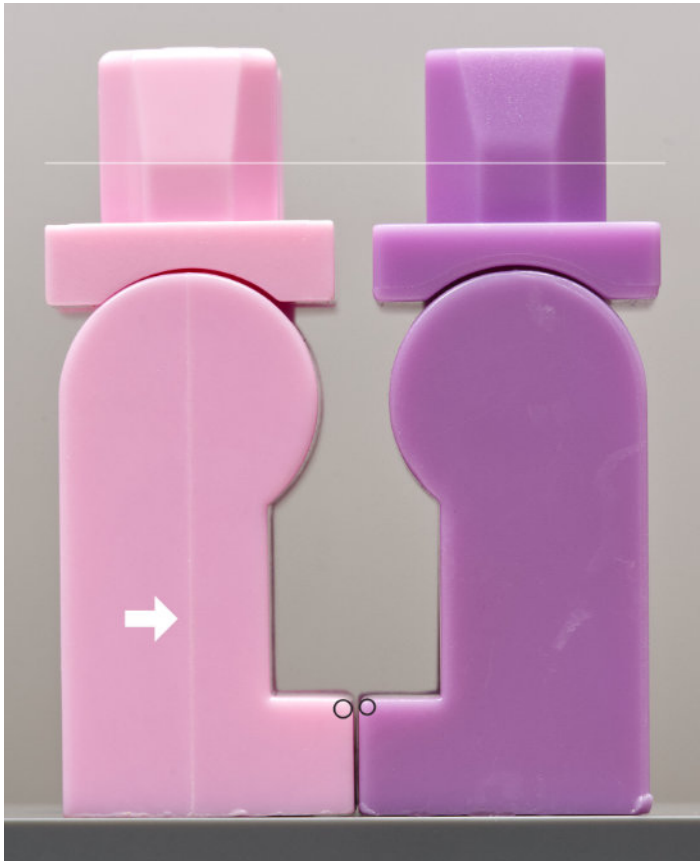
The legs themselves displayed minor differences from the LEGO versions. Notable differences were the inclusion of L and R molded into the respective

LEGO legs and a rectangular through-hole molded, oddly, into only the right leg of the clone. LEGO legs have a seam down the sides and the clone legs do not. The radius at the top of the toes is slightly larger on the LEGO legs than on the clone legs. The stud holes at the heels on the clone are round. Older LEGO legs also have round holes while more recent molds have flattened tops and bottoms of the holes.

The hips display differences on the torso connecting posts. LEGO posts have concave contours on the corners with straight sides; the clone maintains a straight octagonal perimeter all around. LEGO hips have a flattened side in the post holes while the clones maintain perfect circles. The bevel on the outer side of the LEGO posts is a bit deeper than those on the clone.



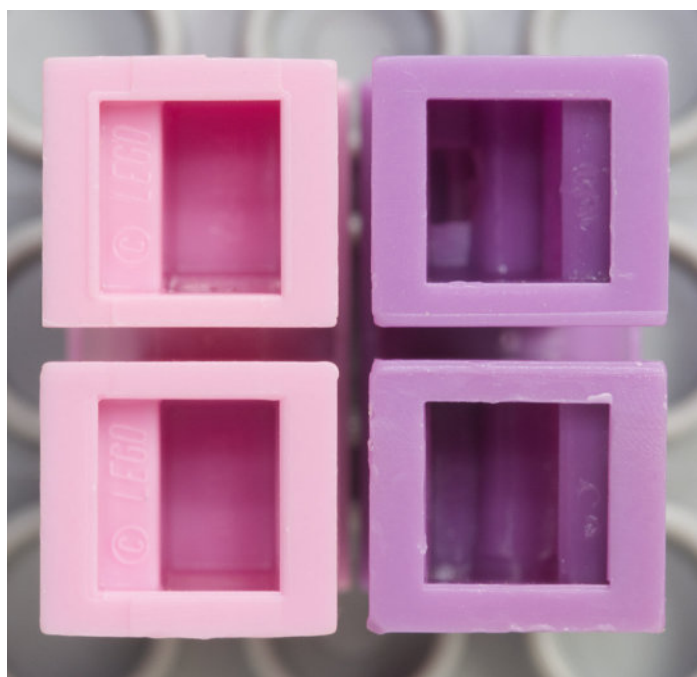
LEGO left, clone right. Top-to-bottom differences: bevel depths on torso posts, belt heights, L and R molded into respective parts on LEGO legs, shapes of the ends of the leg attachment bars, the flattened spots on the ankle holes on the LEGO legs.



This shot compares the post bevel heights, the belt heights, the seam on the LEGO legs, and the toe radii.



The through-hole molded only into the right leg.



LEGO hips display the logo between the posts whereas the clone has a mold number. Belt height on the clone is shorter than on the LEGO. The thin posts at the crotch where the legs attach to the hips have different shapes. Both have round posts with a projecting nodule to hold the legs in place. The clone's nodules being less prominent makes removal of the legs fairly easy, and I found in limited runs that there was no significant degradation in performance of the leg. As most readers probably know, removing

a LEGO leg from the hips is difficult and more-or-less game over as far as future reattachment and subsequent performance is concerned. The tips of the posts on the clone are split about halfway down with the top being removed, presumably to facilitate leg attachment. LEGO does the same thing but removes only about 20-25% versus 50% on the clone. Placing the clone hips into either the clone or the LEGO torso seems to evidence a greater degree of resistance both on insertion and removal.



Heads

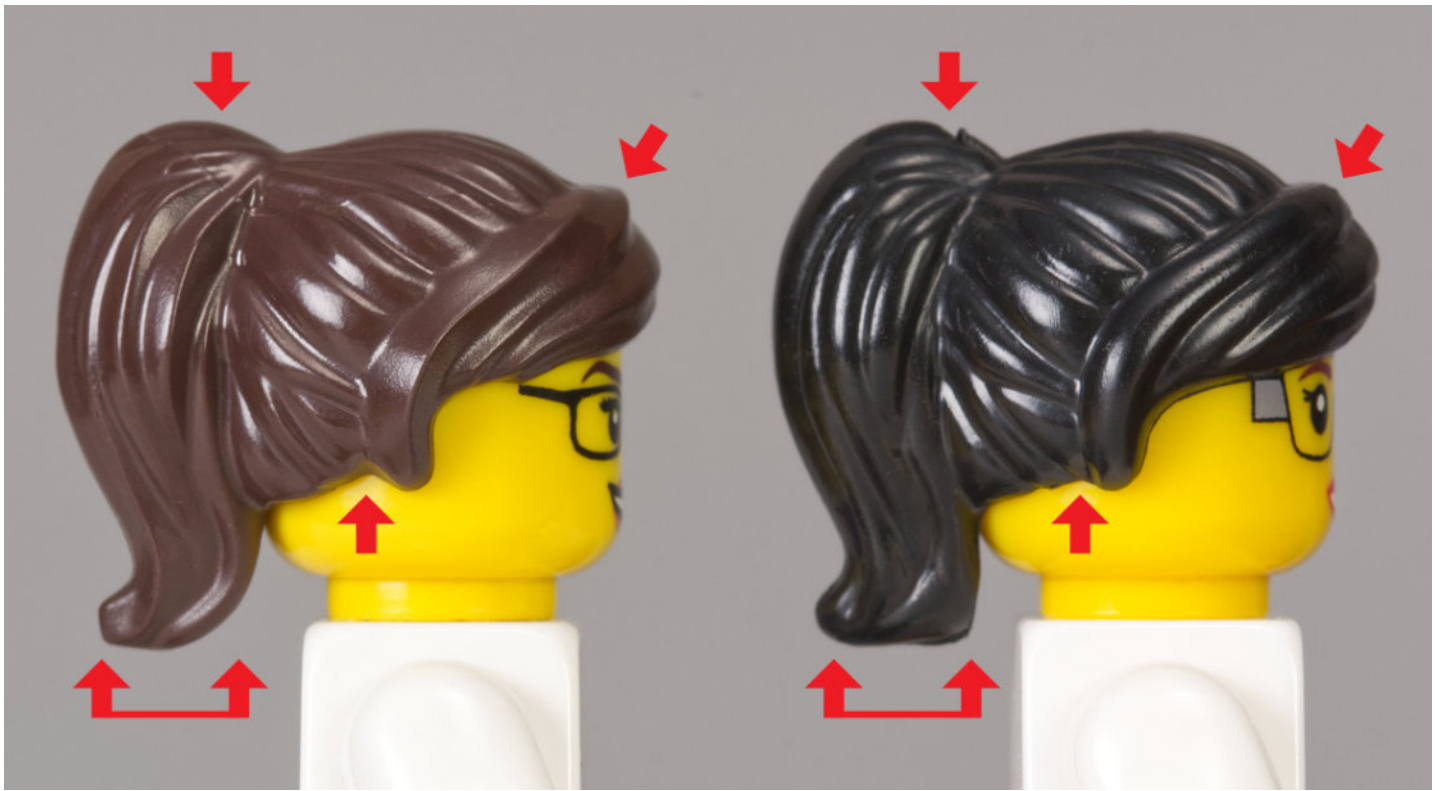
The clone head has a narrow radius on the top stud edge compared to a LEGO head with similar stud. Most AFOLs know LEGO heads have varying stud shapes—solid, Y-bar, tall recessed hollow, short recessed hollow, and I-bar—depending on their vintage. This clone uses a recessed hollow stud.

The printing process on the clone head appears similar to the torso, but a whole lot cleaner in execution. It does not appear to be pad printed, which makes me wonder a bit about the printing process as typically a pad printer is required to print on a non-flat shape. But maybe technology has progressed to the point that splat printers can now manage non-flat shapes as long as the depth change across the print area is minimal.

Colors appear without the halos, presumably

because it appears that the colors are probably solid applications of component inks. If there are ink hickies or voids they are not visible to the naked eye and registration of color appears superior to the registration of the pad printer. My initial reaction to the head printing was that it was clean and crisp and put the older LEGO head prints to shame.

Aesthetically the head is quickly identifiable as being not LEGO as the eye placement is too wide. The line work is also thinner and LEGO rarely contains color fields with thin black outlines. Clone eyelashes appear to abruptly poke out the sides of the eye where LEGO eyelashes tend to sit atop the eye with the lash appearing as a continuation of the contour of the eyelid as opposed to being a circle with a “v” jammed into the side.



Hair Pieces

Stylistically the hair piece is a copycat of a LEGO hair piece, although less refined. Contours are a bit less crisp and the underside antistud while functional is comparatively inelegant. One specific sculptural difference is the terminus of the clone ponytail which is solid and wide compared to LEGO's version which is hollowed out and tapered. Given the various blips, divots, and dings, I think this is easily identifiable as a less-than-LEGO-quality execution. One point for the clone, though. It does do a better job of hiding the molding seam in the contours of the hairstyle where LEGO's seam just is where it is.

Plastic

The plastic on all the clone parts is slightly glossier than the LEGO plastic and in some places some parts display a degree of flash that is absolutely absent on the LEGO pieces. The white of

the clone torso appears whiter than the white of the LEGO torso, and the colors in general have a touch more luminance where the LEGO colors are a bit more flat. I have the sense that the plastic of the clone may be more brittle and there is a brighter sound to the plastic when dropped on concrete.

The harder smoother finish of the clone plastic is more susceptible to scuffs and dings. The finish of the plastic in less visible areas like the insides of legs or the underside of the hair piece tended to be a bit rough or unrefined while the similar areas on LEGO pieces tended to be as pristine as the more visible areas. While shooting photos I noticed that the clone plastic was also more prone to attract dust.

The connections with the clone parts, being arm, hand, and neck movement or attaching the figure's feet to plate studs, tended to be stiffer than with the LEGO. Some of that behavior seems to be associated with the quality of the plastic itself and some of it is due to mold differences.





MY TREASURE

LEGO

BUSINESS

CARDS

by Stefano Debreri

Let me introduce myself. My name is Stefano Debreri, I'm 50 years old and from Rome.

I work in a bank – hence my nickname, Bankerbrick – I am a LEGO collector and builder.

I've always been enthusiastic about Danish bricks, and only after a long "dark age" did I start collecting and building again in 2020.

2020, from a LEGO perspective, was crucial for me... I set foot in BILLUND – the LEGO House – for the first time during COVID. There, I received my first business card from STUART HARRIS, and it was love at first sight.

The desire to learn more about this very unique object, characteristic of many Lego employees, immediately captivated me and set me on the hunt for other business cards.

Many came from meeting LEGO employees directly, others through connections or exchanges. Eventually, the first display was born, then the second, and so on, until I reached a "monster" display case containing 208 of the 250 total.

I found and collected, searched and bought, and before I knew it, mine had become the largest collection in Italy and one of the largest in Europe.

I'm proud to share it and present it in exhibitions under the BRICKOUT banner—the Italian LUG to which I belong.

Then, one day in September, I received a message, and before I knew it, I was on the Wall Street Journal page covering the economic/collecting phenomenon of LEGO BUSINESS CARDS.

The collection of 250 employees represents the entire board and top management, from KKK to all the CEOs who succeeded them, to the CFO, to the LAN manager, to the President of LEGO Italy, including factory directors and other employees.

Sometimes, when I clean the display case, I feel like I'm holding the world in my hands. Reading the names, I jump from one country to another, and above all, I wonder what that employee did.

Many are Danish, but then you find the German, the American, the Spanish, the Indian, the one from Bali Padda—the only non-Danish CEO—the Spanish, and even the only Italian.

The beautiful and funny thing is that each of us has always received a paper business card of this kind... which then ends up in the most disparate places until they get lost somewhere, but this one

enters into your heart, becoming a personal object, a TREASURE to be treasured, admired, and shown off.

A constantly evolving collection, but at a slow pace and with a few more difficulties, given that three years ago LEGO banned the distribution of Business Cards as a company policy.

The myth of these minifigures has become legendary because no one knows how many were produced and to whom they were given. There's an unofficial catalog of about 600 pieces with different names, but it is unrecognized, and LEGO doesn't release any data about it.

There are Duplo Business Cards too.

There are several collections around the world. Mine stands at 250 and, as mentioned, is currently the largest in Italy.

The torsos are mostly white, and the prints are pad-printed. This used to be synonymous with safety and certainty of origin; today, counterfeiters are increasingly expert, and therefore, some well-made fakes exist.

The next target is 300, then we'll see.

Flashback: 8891



How does it fare

35 years later?

by Oton Ribić

It is difficult to write about anything of age without facing risk of being declared a nostalgic lost case. These accusations are not totally unfounded, however; often enough one encounters the case of, if you let me paraphrase another author, “music peaked at the exact moment I was most vulnerable to trite love songs”. Hence I shall try to avoid claiming that LEGO coincidentally peaked right in the happiest period of my childhood. (Who knows, maybe the happiest period of my childhood is yet to come?)

With that overblown disclaimer out of the way, what could be an interesting take on historical material, especially for Technic veterans, is to look back at some principles from several decades ago and to consider them from today’s standpoint. Specifically, the Idea Books, which represented the ultimate in how many ideas could be crammed into a book. Four were published altogether in the eighties and early nineties, with the 8891 from 1991 representing some kind of flagship of the era. My own copy is thoroughly weather-beaten, and I still have enough old, studded Technic parts to build most of its models. But the question is, again – how does such literature fare after the later shift to studless? Is it worth revisiting, or even procuring, despite its part selection being obsolete to some extent?

There are several ways this question can be tackled, and let’s begin with some general observations. The 100-page book contains instructions for twelve models, ranging from fairly simple to pretty complex, with most in between. To be precise, one gets instructions for a rally car, a speedboat, a service truck, a two-seat glider, a dinosaur, a cable car, a mobile crane, a submarine, a mecha, a mechanical rodeo bull, an aeroplane, and a robot. All of them rely mostly on standard Technic building material from the time, though several also require somewhat more exotic parts, like excavator bowls, motors, and an electric controller.

Before diving into mechanics, let’s just stop and consider the fact that twelve models were crammed into a hundred pages, which include the intro and the full two-page photos. The instructions are compressed even by the standards of the time, let alone the current ones.

Due to such limitations, the principles of laying out steps in this book were pretty harsh: no parts list, and the absolute maximum possible number of new parts per step as long as the ambiguities can mostly be avoided. With larger builds, the aforementioned submarine being the perfect example, at every step there are many things

going on in parallel at several spots. That is how a sub with pneumatically controlled and swiveling manipulator arms, also with a pneumatically controlled bucket, and swiveling rear propulsion is built here in fifteen steps over eight pages!

All these nowadays seemingly crazy facts aside – are the ideas from this book we took for an example (and thus, by extension, from the Technic instructions from the era) relevant at the beginning of the 21st century’s second quarter? The answer is not a simple yes or no, but rather depends on the level – or rather, the depth – one wants to dive into.

Let us remember that the overall Technic part selection in the eighties and early nineties was very limited compared to today, and furthermore, that the studded Technic, which was the only available sort, naturally encouraged certain building techniques. Not that anything other than building from bottom upward was impossible, but doing so usually compromised the construction’s strength, reliability or simplicity.

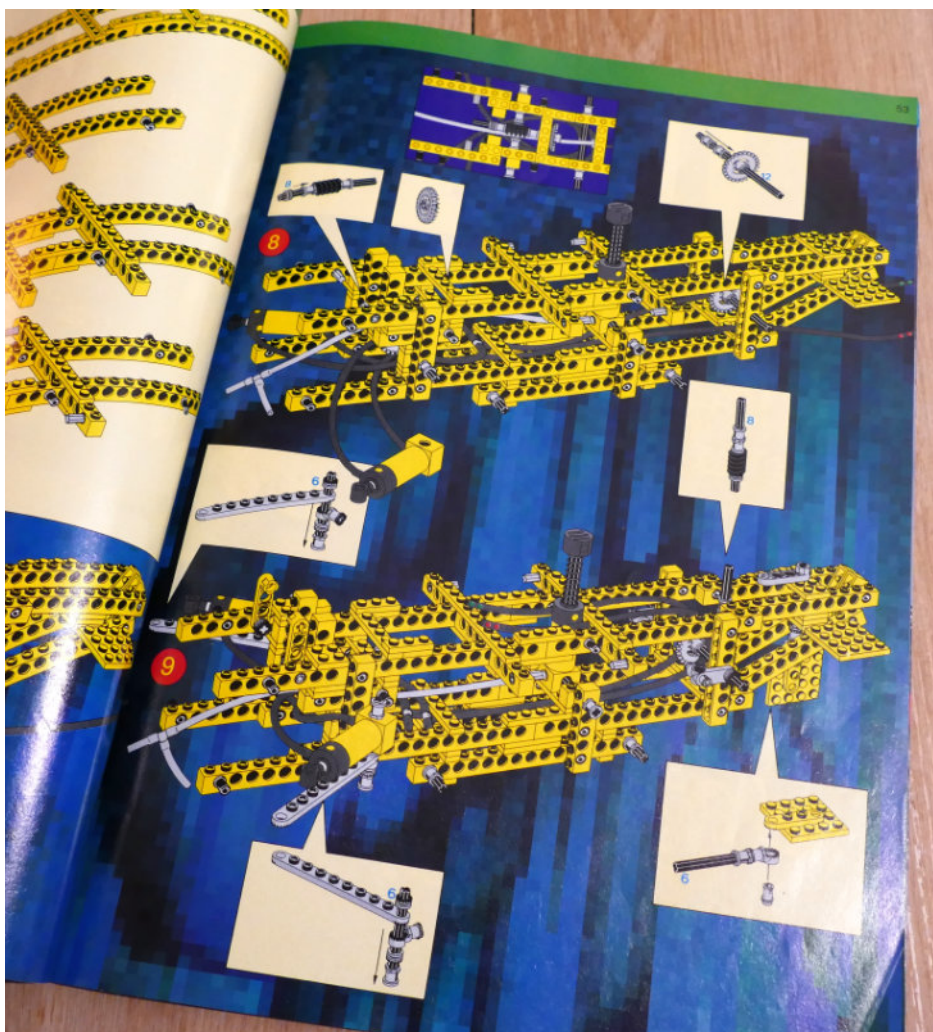
In that sense, the mechanical principles employed in the book, and the sets of the era in general, nowadays seem somewhat basic. With a narrower selection of mechanical parts and the “feature density” limited by the studded Technic

bricks themselves, mechanical functions revolved around several elementary ideas: liftarms, clever linkages, gears, axles, and occasional motorization and pneumatics.

And considered from that angle, the 8891 book, as well as its siblings and the contemporary Technic sets, still serve as excellent training grounds. Studded or not, the theoretical mechanical principles apply the same – though they may be necessarily larger in the older, studded Technic.

The newer, studless approach allowed for denser features and was freed from the concept of building upward, which in turn enabled more complex mechanics, but fundamentals remained the same. If one wants to learn how to build a good steering system, or a linkage, or how to convey rotation from one part of the model to another, both eras of Technic are effective. Or, one could argue that the studded era actually had to deal with stricter limitations and is therefore a better learning material. And many mechanical marvels, no matter how complex overall, are based on carefully orchestrated fundamental principles.

Where the 8891 and its contemporaries are lacking is in exact mechanical implementations



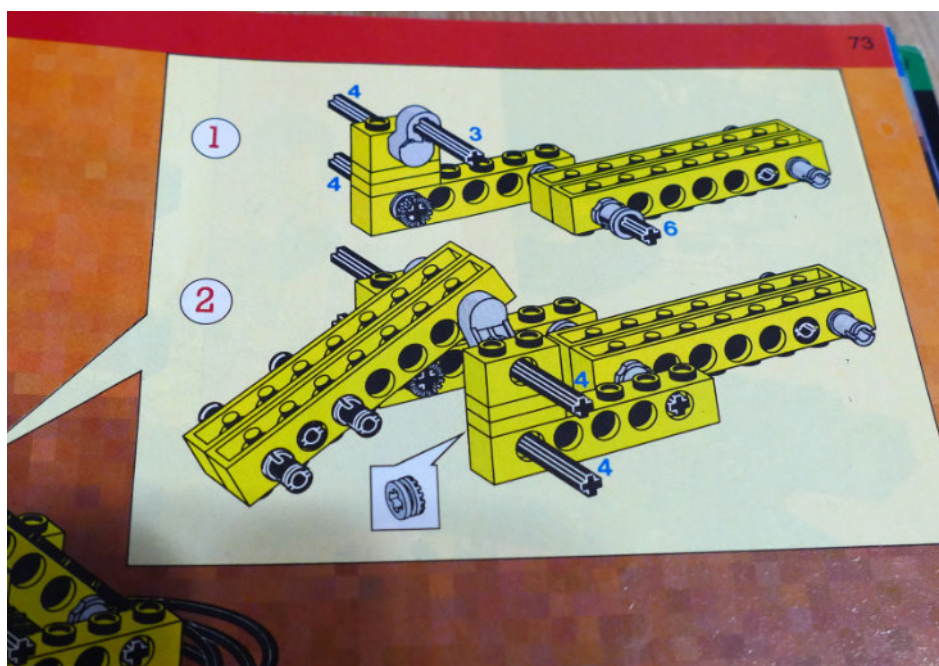
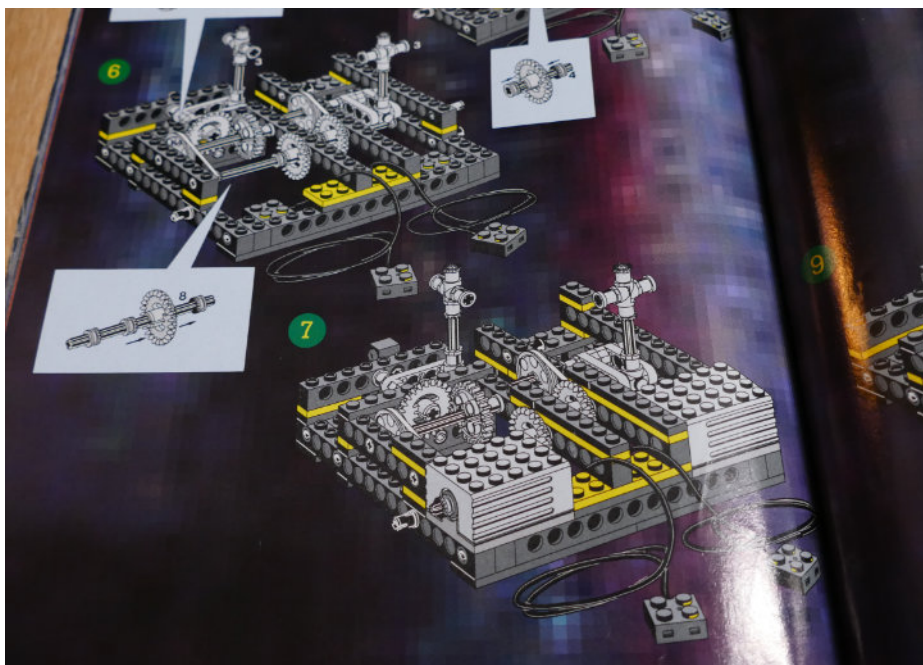
for the modern era. Whereas the fundamentals may remain the same, studless sets can teach how to build them using parts that are actually widely used right now, i.e., parts which you are likely to get as a standard building material in any Technic set from the turn of the millennium onward. If you are interested in exact modern solutions you can copy directly into your creation without any modifications (such as modern gearboxes, linear actuators, e.g.), the studded-era Technic books and sets simply do not have them.

Furthermore, there is a difference in fundamental approach to construction. Studded Technic bricks, with their axle holes between the studs (though there are some exceptions), naturally lean toward frames and distances of even values, i.e., even lengths. Studless, however, favors the odd lengths all around, and symmetric models such as cars almost always have a central beam. This “evenness” factor, which is most visibly demonstrated in the lengths of beams and dimensions of frames, influences the mechanical design built around them.

In my opinion, any Technic builder would benefit from being familiar with both. But if you do not want to commit to more than one, it is probably the studless sort you will want to lean toward. Yes, classic studded Technic bricks are still around and appear regularly even in the newest sets, but the fundamental thinking behind the modern models is studless and odd-number-oriented, as opposed to studded and even. Studless is also more readily available and generally allows for denser and more customizable mechanical design.

On a side note, apart from the acknowledged benefits of studless Technic, the studded still has an indisputable ace up its sleeve: usability beyond pure Technic models. It is much easier to integrate studded Technic into System MOCs, where it serves to provide an interesting mechanical trick without too much effort. Things like working triphammers or an automatically opening cargo bay in a space transporter much more often rely on studded Technic than studless. And it is not uncommon for us, Technic fans, to sometimes forget there are other megaworlds of LEGO out there (I’ll be the first to admit to doing this sin). Therefore, it is not only the question of inherent properties of studded and studless, but of the context where one intends to apply Technic.

And what about the Idea Books? Even if they are not interesting for you as learning material, think of them as nice little time machines to Technic history which look good on any bookshelf.



Guess the Prompt Answers

The actual prompts used in DiffusionBee to generate the images are shown below. How'd you do?



KNIGHTS

2. LEGO knights firing a cannon from a cliff overlooking a large LEGO army.



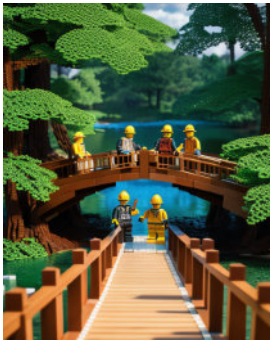
PIRATES

1. LEGO pirates, carrying muskets, on a tropical island in a snowstorm. One pirate has a bird on his shoulder.



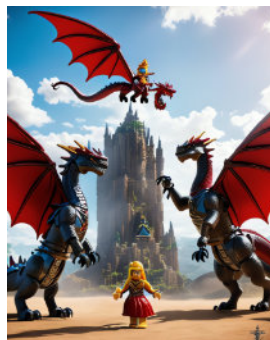
SPACEMEN

3. LEGO Classic Spacemen meeting an alien in a roadside diner.



CONSTRUCTION WORKERS

2. LEGO construction workers building a wooden bridge between two trees.



DRAGONS

4. Two LEGO princesses save LEGO knights from a winged LEGO dragon.



ISSN 1989-0982



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