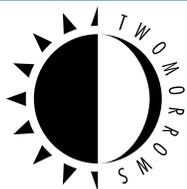


The Magazine for LEGO® Enthusiasts of All Ages!



\$9.95
in the US

Brick

Issue 62 • June 2020

Journal

people • building • community

LEGO® Trains Hit the Tracks!



***Cale Leiphart's
Blue Comet***

PENNLug's Train Roundhouse



AND MORE!



1 82658 00399 9



Contents

From the Editor.....2

People

Building the Future:
Keiichi Kamei's *Blade Runner* Models.....3

Building

Jack Carleson:
Building Big Birds8

A Tale of the *Blue Comet*16

Edward Chang:
The Princess Train24

Building the PennLUG Roundhouse30

Creating *Brick Model Railroader's* First
Custom Locomotive Kit:
The Reading T-1.....40

You Can Build It:
Crossing Shanty48

You Can Build It:
MINI Dornean Gunship.....56

Minifigure Customization 101:
The Child.....62

Community

Sizing up a Theme.....68

Community Ads.....78

Last Word.....79

Bricks in the Middle.....80



Keiichi Kamei with his diorama, "Deckard Chases Down Zhora" at Tchikawa Cinema City in Tokyo, Japan.

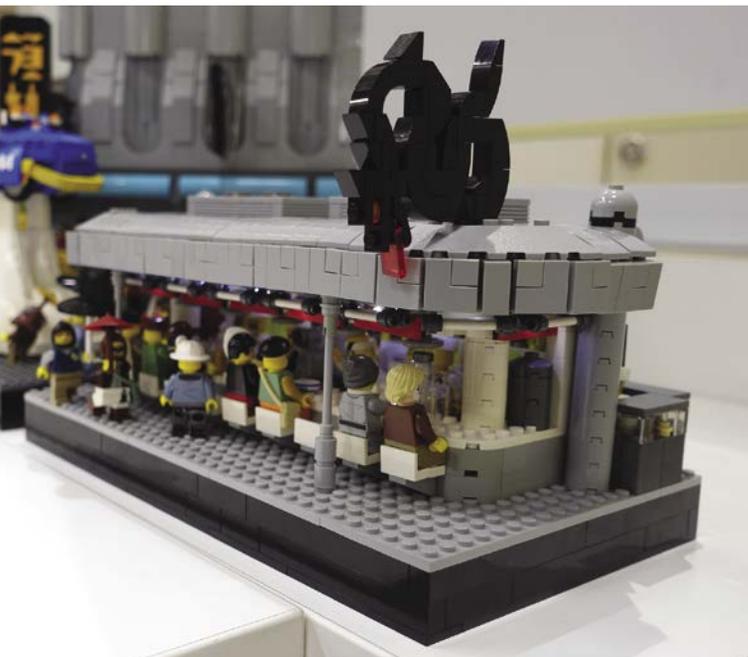
Keiichi Kamei is a devoted fan of the movie *Blade Runner* who returned to LEGO building 12 years ago. He played with LEGO growing up, but quit during his teenage years. His return was prompted when his son was born, and again he started playing with the bricks. When his son went to college he quit building, so Keiichi took the LEGO his son had and restarted his building.

In that time, Keiichi has built models of animals and buildings, including a rooster and wild boar. He also built a New Year's lion mask, a Shishimai. He also built his first version of the Spinner from *Blade Runner* in 2012. Since then, he has made improvements and rebuilt as new elements came out. Keiichi focused his Spinner building on four areas: functioning doors, places for two minifigures to ride, changing from ground to flight mode with minimal parts replacement, and a well-balanced form.

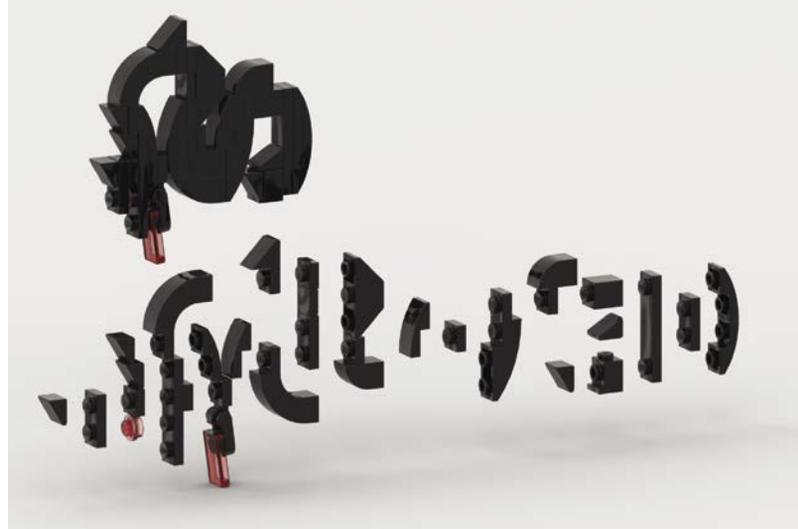
Other builders have made models of the Spinner, but Keiichi was also interested in the other vehicles and the architecture, as designed by futurist Syd Mead. Keiichi wanted to build more, so in 2017, he started to build dioramas based on the movie. At first, the diorama was only a pillar and a wall, but it eventually expanded. His resulting build is a full street scene from *Blade Runner*, complete with buildings and vehicles.

BUILDING THE FUTURE: KEIICHI KAMEI'S BLADE RUNNER MODELS

*Article and Photography
by Keiichi Kamei*



At the White Dragon, where Rick Deckard and Gaff first meet.



A breakdown of the dragon sign that is seen.



Deckard atop a taxi, looking for Zhora.

The diorama was essentially a LEGO-scale replica of one of the exterior sets of the movie, depicting an intersection in Los Angeles. With a library of minifigures and vehicles from the movie replicated, a scene from the movie could be done with the diorama. Keiichi chose a scene where Rick Deckard (the main character) is chasing Zhora (one of the antagonists). This was displayed at a theater in Japan to coincide with the run of the *Blade Runner* sequel.

For an event in Tokyo that took place in November 9-10, 2019 that presented a crowdsourced restoration of a Spinner—the “Police Spinner Restore Project”—Keiichi split his large diorama to create a smaller layout that depicted the liftoff of the Spinner from the streets of Los Angeles. The liftoff base was built using wedges and arches on a turntable, which could be rotated. He also had another diorama of the White Dragon (the noodle bar where Deckard and Gaff first meet). The original diorama of the chase was slightly expanded.

A closer look at the full diorama, with a stickered taxi cab and Deckard moved.





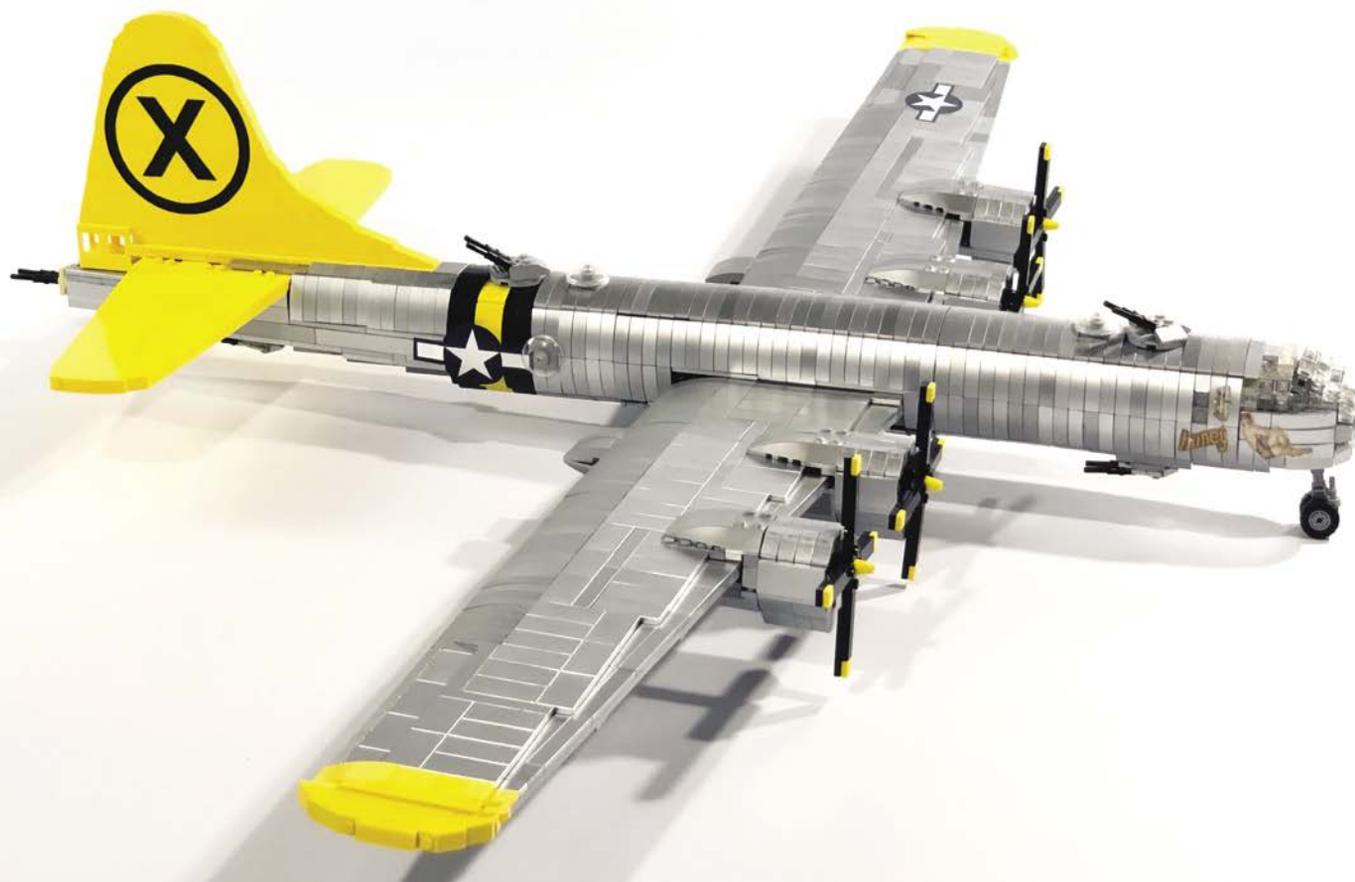
Forward view of the B-36D.

Jack Carleson: Building Big Birds!

*Article and Photography
by Jack Carleson*

Introduction

My name is Jack Carleson, more commonly known as “BigPlanes” on YouTube and Flickr. I’ve been building LEGO for about eight years as an amateur hobbyist. I started having an interest in aviation about five years ago after visiting a number of air museums and shows. Since that time, I have enjoyed combining the two hobbies together. When I started building aircraft models, I built primarily military. However, as my YouTube channel “BigPlanes” started growing in size, I started branching out to civilian aircraft models such as a Boeing 737 and 787. As my channel name would suggest, I build large planes. My B-36 has a wingspan of about 6 feet and the 747 weighs so much it damages the table I display it on. I try to do airplanes that have not been done by other builders and that are often neglected from history, such as the B-36. When building supermassive models, the sheer physics of the design become apparent. Due to this, my larger builds require a Technic substructure combined with standard system elements in order to not crumble under their enormous weight. Although I mostly build large-scale models, I do occasionally build smaller models. To be perfectly honest, however, large planes are what I’ve become more known for. I always try to include the little details that most people wouldn’t even notice such as the small antennae on the sides or top of the aircraft. I also try to design a functioning landing gear and flap system that is as close to the one found on the actual aircraft as possible. Building large LEGO aircraft is a mix of two of my favorite passions: aviation and LEGO.



B-29.



B-29 flight crew.



B-29 ("Superfortress")

The B-29 was one of the largest and most technologically advanced bombers of WWII. This massive bomber had a pressurized cabin and remotely operated guns. The B-29 was vital for the air war in Japan and even saw service after the war in Korea. My model is built using all authentic LEGO metallic silver pieces. Yup, none of these are custom paint jobs. Sourcing this much silver was not easy. Most stores on BrickLink only have a dozen or so of each piece, which makes finding any sizeable number of these a challenge. It basically came down to slowly accumulating silver pieces over the years and finally being able to build a bomber out of it. This plane isn't just show though. This model features fully functioning bomb bays and a retracting undercarriage. The yellow on the tail and wings was chosen because it contrasted well with the silver. The yellow was not seen as much on the B-29 as it was on other aircraft such as the B-17, but I thought it added good character. This model was not built overnight and is even still getting parts added to it as I can find them in silver. However, this model is pretty much done, which means I can focus on my next silver plane. Fun!



A Tale of the Blue Comet

“A Deluxe Class Train for a Coach Class Fare”

Article and Photography by Cale Leiphart

The *Blue Comet* has been called the “Seashore’s Finest Train.” The train, the brainchild of Central Railroad of New Jersey President R. B. White, whisked passengers from Jersey City to Atlantic City from 1929 to 1941. The *Blue Comet*’s route would take New York & Long Branch trackage to Red Bank, then follow the Southern Division Main Line to Winslow Junction, where it would travel over the Atlantic City Railroad’s (part of the Reading Railroad) tracks to Atlantic City.

Three brand new G3 Pacific locomotives were assigned to the train; numbers 831, 832 and 833, and the CNJ totally refurbished sixteen cars, inside and out, for *Blue Comet* service. Each train consisted of a baggage car, combine-smoker, coaches, and an observation car. The diner accompanied the early morning trip to Atlantic City and the evening return to Jersey City. The colors chosen for the *Blue Comet* were Packard Blue, which represented the sky; Jersey Cream, for the sandy coastal beaches; and Royal Blue, for the sea. Even the locomotives were painted for *Blue Comet* service. Each car was named for a comet. The diner carried the name *Giacobini*, the two combines carried the names *Halley* and *Encke*. The baggage cars were named for the comets *Olbers* and *Barnard*, and the coaches for *Tuttle*, *Holmes*, *Westphal*, *D’Arrest*, *Faye*, *Spitaler*, *Winnecke*, and *Brorsen*. The three observation cars were named for comets *DeVico*, *Biela*, and *Tempel*.

The *Blue Comet* was born from the CNJ’s need to compete with the Pennsylvania RR for the then lucrative Atlantic City passenger trade. The CNJ also wanted to eliminate a costly Pullman parlor car lease, in which the CNJ had carried a financial loss ten months of the year. The *Blue Comet* would offer extra accommodations at a regular coach fare, while having assigned seats so passengers knew exactly where they would sit. The competing Pennsylvania Railroad charged extra for its all parlor car Atlantic City Limited, and New York Limited trains. In addition, the PRR charged extra fees for parlor cars on its Nellie Bly train. The CNJ’s aim was to undercut the PRR’s ticket fares, attracting shore travelers with a better train service at a lower cost.



Original LIONEL “Tin Plate” train set inspired by the *Blue Comet*.



Initially, the *Blue Comet* was a huge success. The first train ran on February 21, 1929 with thousands of spectators along the line coming out to see the new train. The *Blue Comet* ran on schedule 97% of the time for the first five years. It was such a hit with train watchers that the CNJ placed a billboard on the Routes 33/34 overpass at Collingwood, NJ listing the times the train would pass that area.

Eventually, the Depression and the PRR's direct access to New York took the life out of the *Blue Comet*. The Central New Jersey soldiered on with the *Blue Comet* through the Depression, but the end would finally come in 1941. On September 27th of that year, the *Blue Comet* would make its last run. Though the Comet was gone, it has not been forgotten. The train made an indelible impact on all those who encountered it. One notable Comet fan was Lionel Trains founder Joshua Lionel Cowen, who was among those who frequently rode the *Blue Comet*. Inspired by the train's elegant beauty, speed, and the sublime power of its towering locomotive, Lionel offered a standard gauge model of the train in 1930. This model elevated the *Blue Comet's* status and has become part of the train's rich lore.

The *Blue Comet* lives on today in the imaginations of train fans everywhere. There have been multiple models of the train offered over the years, books written about the *Blue*

The full six car LEGO Blue Comet train set on display.

other, and to other non-moving assemblies. How all these moving bits interact with each other is something you can't model with Brick CAD programs—which is why I prefer my locomotives built the old fashioned way, by putting one brick together with another until I have something resembling and working like the real prototype.

This train would find me stepping far outside the ideals of "LEGO Purity" many times. I used third party brick parts like mono pods and u-clips from Brickarms. I modified several parts such as Technic pins used in the valve gear, painted a few LEGO parts I couldn't get in dark blue or metallic silver, and even made my own 3-D printed parts. I'm sure this might lessen this model's status in the minds of some LEGO fans, but I was never concerned about such views. I built this train for me, with the goal to be the best example of what scale modeling could be in LEGO trains. I did nothing an official LEGO designer wouldn't do when prototyping a new set or part, and I stayed as close to the spirit and aesthetic of LEGO as I could. This train is an example of how far you can take the hobby of LEGO trains, if you are willing to get creative.

The Locomotive

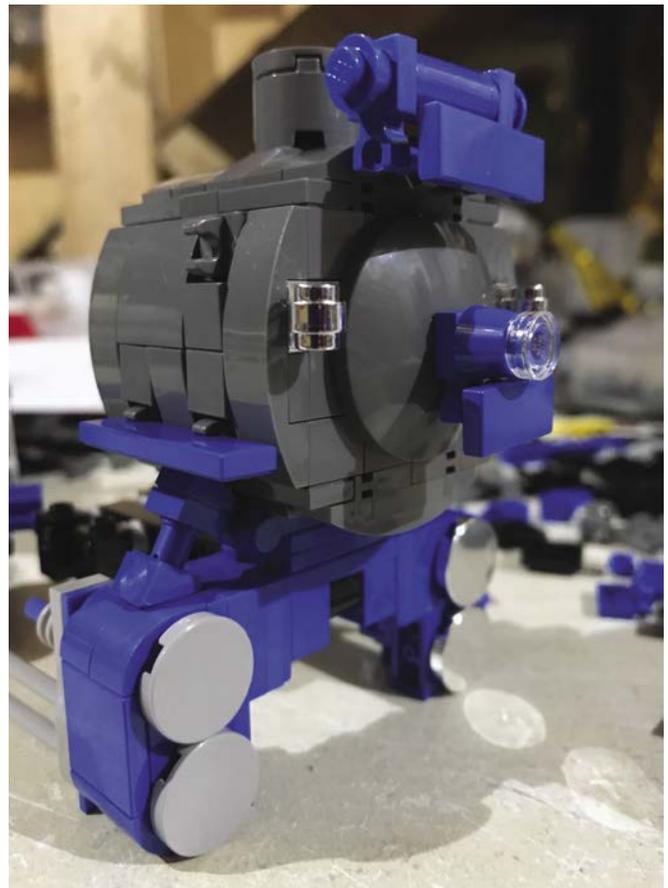
During the life of the *Blue Comet*, three brand-new G3s Pacific type locomotives would be assigned to the train, locomotives number 831, 832 and 833. The Central Railroad of New Jersey based their pacific design on the Reading's G1s locomotives, but with more weight, larger cylinders, and additional equipment, such as stokers, mechanical lubricators, feedwater heaters, and a narrower firebox. The class G3s had what were essentially copies of USRA 10,000 gallon tenders for coal and water. These tenders were a bit larger than the 9,000 gallon tenders that came with earlier CNJ Pacifics. The *Comet* locomotives were painted in Packard Blue to suggest the sea, and Royal Blue to represent the night sky. The locomotives' marker lights, headlights, handrails, coupler cut levers, cylinder head covers, and back valve chambers were nickel-plated, and side rods were polished to a high luster. The name of the train was painted in gold lettering on a blue nameboard that was mounted to the front of the smoke box just below the Elesco feedwater heater. The train was also known by its distinctive whistle. Mounted on the fireman's side of the steam dome, it was usually angled forward. While the manufacturer and cadence of the specific whistle has not been verified (none are known to exist), it is reported to have been a long-bell 3-chime steamboat whistle similar to a Hancock or Star Brass 6" long-bell 3-chime.

Engines 831-832 were painted in *Blue Comet* colors from the start of *Blue Comet* service in 1929, with 833 joining in 1930. All three locomotives would wear the *Comet* colors into the late 1930s. A sister engine, 834, would be painted in a dark green scheme briefly for service on another CNJ train, The Bullet. And the fifth and final member of the G3 class,

(Right) The first part of the locomotive to be built was the chassis and running gear. Getting this complex mechanical arrangement to work properly is crucial to building a good steam locomotive in LEGO.



The cab of the locomotive being decaled. Pin stripe tape in metallic gold was used to get the thin pin striping.



Early prototype of the locomotive smokebox, and cylinders.





Building



Merida driving the initial Princess Engine.

Edward Chang:

The Princess Train

*Article and Photography
by Edward Chang*

Once Upon a Time...

My first thoughts of a pink train originated some time after the launch of the Friends theme in 2012, as the world inside and outside the AFOL community was coming to terms with “Girl LEGOs.” I had the thought that perhaps people were too focused on the color and losing sight of the LEGO building experience. More pastel-colored bricks means more options in the builders’ palette.

And what better color than pink to break the grey-black monotone to which model railroading is so prone? Model railroading can be such a serious business, so this was another reason for me to build a pink train. I can be picky about pulling the right types of cars with the right era livery behind the right black steam engine, but I can also have some fun with the hobby, and build something that people haven’t seen before.

Or almost haven’t seen before. Lionel, in 1957, produced an infamously unsuccessful “Girls’ Train” featuring a uniformly pink steam engine and various pastel colored freight cars. My idea may have gone the same way. My earliest sketches and doodles were simply recolored trains based on my Nickel Plate Berkshire. My idea needed to develop a bit more.

The big spark came in 2014, with the launch of the Disney Princess licensed theme. Now my train could be more than just a pink train—it could be a princess train. *The Princess Train*. It was at this point that the train took on a unique “identity” instead of just being an obvious recolor, and that was what I needed to move from a vague idea to a design to a realized model.



The first Princess Train at the LEGO Brand Retail Store at Baybrook Mall, Friendswood, Texas.

The Original Princess Train

I was inspired specifically by set 41053 Cinderella's Dream Carriage, and one part in particular—the Slope, Curved 4x1 with Ornamental Starburst Pattern (Element ID 6063718 / Bricklink 61678pb061). Color blocking was one of the biggest challenges of the design. Ignore it, as Lionel did in their single-color engine, and the model would just look boring. But my early sketches using dark purple and magenta had too much of the rainbow-warrior appearance. The medium blue color of the curved slope was much better—subdued as a pastel color but providing plenty of contrast to pink and lavender to highlight specific parts of the train. In general, I used a theme of structural/chassis elements in medium blue, with panels and decorative elements in bright pink and medium lavender.

Additionally, the curved shape inspired me to move more toward more exaggerated, cartoony shapes, rather than trying to make essentially a recolored model. The ends of the cars could be rounded, the vertical lines tapered toward the roof. I still wanted to retain some degree of realism, though.

There were also some technical considerations in designing this train, especially the engine. First, it had

to be a steam engine. To me, the movement of the big driver wheels and rods is just much more interesting than small wheels hidden behind frames as on electric or diesel engines. At the time in early 2014, I had only one other working steam engine MOC, which had taken me two years to get right. So I focused on a short wheelbase design—a small engine, with a very simplified rod system. Using a simple 0-6-0 design (large sized driver wheels on three axles, without smaller wheels in front and behind), the engine would be small and agile enough to handle regular LEGO curve and switch tracks. The train would be driven from the tender, pushing the engine, since the small engine would not have space for the Power Functions (PF) components. I could also use the simpler and more efficient PF Train Motor, instead of a cylindrical PF motor.

The first Princess Train was finished in May of 2014 and was first displayed at an event at the Houston Children's Museum. The train consisted of an engine, a temporary unpowered tender, and an open carriage—with the shorter temporary tender needed to reduce the length of the train so I could display it in the LUG Showcase window at the LEGO brand retail store at Baybrook Mall later that month. Even as a static model, the train was an immediate hit, and once motorized, the train quickly became a main attraction at TBRR events later in the year.

More additions: Olaf's beach hopper, Elsa and Anna's refrigerator car, and Ariel's aquarium car.





The PennLUG Roundhouse lit up during Brickworld's World of Lights.

Building The PennLUG Roundhouse

*Article and Photography
by Cale Leiphart*

PennLUG (the Pennsylvania LEGO Users Group) has become widely known for its great LEGO train layouts. And one of the biggest structures on our layout is our steam era roundhouse, which is part of an even larger locomotive servicing terminal occupying one end of our railyard.

The roundhouse once occupied a very important role in the everyday railroad operations. In the era of steam locomotives, roundhouses were commonly found in rail yards across the country. With the exception of switching locomotives, steam locomotives were designed to run in one direction—forward. As a result, it was often necessary to turn a steam locomotive to point in the direction its train is to be hauled. This was done by either using a wye, a balloon loop, or a turntable. The combination of turntable and roundhouse proved very useful to both service and turn locomotives.

Many roundhouses were built around the turn of the 19th century. Roundhouses were built out of brick, stone, wood, or concrete. The roundhouse would be built around a turntable, a large device used to turn locomotives. Some would only have a few stalls while roundhouses on larger railroads could have as many as fifty. The roundhouses' main function was to store locomotives between runs and provide daily servicing such as lubricating the running gear, minor repairs, and inspections. Locomotives would typically be serviced with the front of the locomotive pointing outward and the tender of the locomotive facing the turntable. This was done in case a locomotive would start to drift unexpectedly. If the locomotive drifted toward the turntable, the locomotive's tender would fall into the turntable pit instead of the locomotive itself. This would cause less damage and the tender would be easier to remove from the pit. Each stall of the roundhouse included a vent that would allow smoke from the steam locomotive to be vented through the roof of the roundhouse. These vents can be clearly seen in most surviving roundhouses.

With the arrival of diesel locomotives, which could run equally well in either direction, the need for turntables (and roundhouses) waned. By the 1950s, as most steam locomotives had been replaced by diesels, the roundhouse became obsolete.

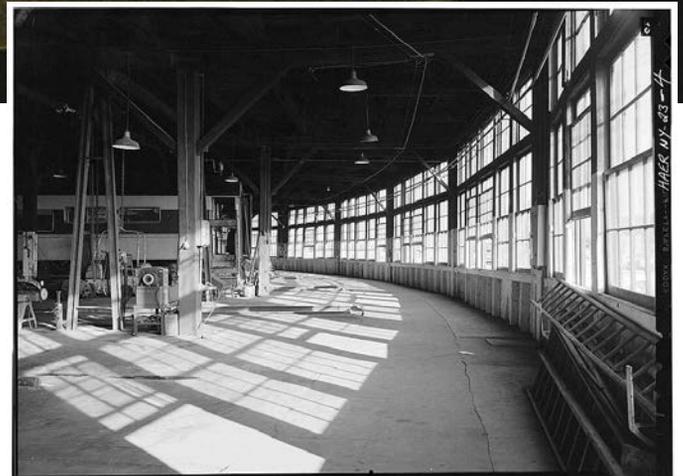
With several steam builders in our club, it was only natural that we would want a roundhouse, turntable, and engine



service terminal for the PennLUG train layout. The idea for the PennLUG roundhouse has its roots dating back to 2012. That year two shows would help to shape what our roundhouse and railyard would become.

The first was Brickworld, held annually in June in Chicago Illinois. There a good friend of ours, Jason Steinhurst, was running a little tank locomotive on our layout. As the little engine was a bit too slow to run on our main line, Jason decided to use it for some switching in our railyard. Switching is a type of operation done within the limits of a yard. It generally consists of making up and breaking up trains, storing and classifying cars, serving industries within yard limits, and other related purposes. These movements are made at slow speed under special yard rules. Switching is a core part of model railroad operation, just as it is in real life railroading. But like most LEGO train builders and clubs at the time, we only focused on running trains in continuous loops around their layouts. It's not something we in PennLUG had done much of, or even considered. However as my fellow club member Nate Brill and I watched Jason's little switcher moving cars back and forth, a seed was planted.

The second show to shape our future roundhouse plans was LEGO Kidsfest in Pittsburgh, Pennsylvania, held that December. The venue we were in had numerous skylights, providing natural light into the hall. Early one morning as the event was opening, we noticed that the sun was coming



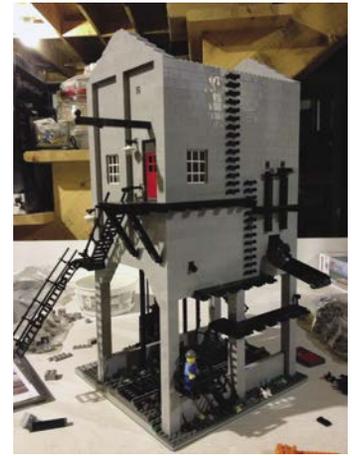
Roundhouse interior views used as inspiration for the PennLUG Roundhouse.



Since our roundhouse was going to have a detailed interior, and we were going to first show the project at Brickworld, where the World of Lights is a popular event, we wanted to have our roundhouse interior lit up. However, since we were building a roundhouse of the late 1940s/early 1950s era, we wanted to get the look of the lighting right for the period. This meant needing to replicate that orangish yellow tinted glow of incandescent lamps. Nate and I set about this in two separate ways. For the machine shop, Nate chose to use actual LEGO lights from the 4.5 volt era. These were 2x2 blocks with tiny incandescent bulbs inside. Nate used these to create recessed lighting inside the machine shop to excellent effect. For the main roundhouse, I felt the 4.5 volt lights would be too expensive to use, and also too bulky and cumbersome to achieve the right look. Nate was able to use the ceilings of the machine shop to conceal the wiring for the lights. In the main building we did not have that option, and here, because it was an older building, we actually wanted the wiring visible. We wanted it strung across the roof beams and very industrial looking. So here I turned to LED lighting from Brickstuff. They offer a warm white LED that matches an incandescent lamp well enough, and the wire used by Brickstuff is small and thin enough that it looks right in scale with the minifig environment. The LEDs were also small, and easy enough to place in brick-built overhead lamps that looked right for the era.

The roof of the roundhouse is made up of three sections per stall: the front roof, the cupola roof, and the back roof with the smoke jack (vent). Each section is easily removable to allow viewing into the interior of the roundhouse. Early on, Nate and I debated on how to treat the roof. We knew we wanted to show off the elaborate interior we were creating, but how to go about that was in question. We considered several options, such as leaving the roof off entirely, as some scale model railroaders do, or leaving portions of roof open. In the end we decided to use the removable roof panel idea to give us the most flexibility. With this we could easily remove any section we needed either for viewing, or for access, and have displayed the roundhouse at shows with the full roof, partial roof, and no roof at all, depending on our desires at the time.

Inside the machine shop can be found various heavy industrial tools for metal working.



Left is the real cooling tower that stood in York, Pennsylvania that the model was built after. Right is the tower model under construction.



Finished cooling tower.

One of the industrial facades that line the backdrop of the railyard.





Oil House under construction. The look of the building is designed to be older than the current roundhouse to show the evolution of the engine terminal, but the windows still tie the buildings together as being from the same railroad.



The Stores Manager's desk for the Oil House.

PennLUG Roundhouse with roof panels removed for viewing. On the backside of the roundhouse, one can see part of the pond from which the engine terminal draws its water supply. Also visible is the large overhead door at the back of the roundhouse.



The roundhouse was not the only thing we were working on. It was to be the centerpiece of a complete engine servicing terminal. The engine terminal was going to have everything needed to service steam and diesel locomotives. This included a coaling tower, sand facility, and water columns, ash pit, diesel fuel depot, and wash rack.

The coaling, sand, and water roles were filled by my model of the Pennsylvania RR coaling tower that stood in my hometown of York, Pennsylvania. The tower was a small, compact arrangement, capable of coaling two locomotives at a time, with built-in sand dryer (dry sand is used to gain extra traction for locomotives in slippery conditions), and two water columns in close proximity. For the diesel fuel depot, we again wanted to show a bit of historical progression. Nate constructed a small, more modern looking two track fuel depot that looked like it had been shoehorned into whatever available space there was available in the already existing terminal.

For the ash pit, where steam locomotives would dump the ash left over from burnt coal, we took advantage of the recessed tables the roundhouse was sitting on to build a pit under the track. Ash pits need to be emptied periodically, and for this Nate constructed a rail converted steam crane with a clamshell bucket based on an early model I built of an Erie model B2 steam shovel. This steam crane would be positioned near the pit where it would load ash into a waiting gondola.

Lastly there was the wash rack. This is where locomotives were washed between runs before being parked in the roundhouse. For this I built a simple concrete pad area



Creating Brick Model Railroaders First Custom Locomotive Kit: The Reading T-1

Article and Photography by Glenn Holland and Cale Leiphart

It's been quite a long road to get to here. By the time you are reading this, *Brick Model Railroader's* first full kit, and our first locomotive model, should be in the hands of eager customers. But how exactly did we get here? And why did it take so long? That story is full of twists and turns. So let's take a look back at the journey to create *BMR's* first locomotive kit.

The Story: Developing Our T-1 Model

Our story really begins with two entirely separate locomotives. Cale has always wanted to model a particular locomotive with plans to be sold as a full kit under his own name. We'll leave that locomotive unspecified for now, but this was our starting point. After some discussion, and before the first two bricks were assembled, Glenn had convinced Cale to switch to another locomotive; the Nickle Plate Road S-2 2-8-4 Berkshire (the operating Nickle Plate 765 is a notable example of this class). This locomotive was our primary task during the fall and early winter months of 2017, and during that time we were even able to photograph and ride behind the 765 in Ohio.

We had a running and presentable model at the Greenberg Train and Toy Show in Lebanon, Pennsylvania that December, where we tested it to work out bugs. A few were found, and the model was corrected and brought again to the World's Greatest Hobby on Tour (WGH) show in Monroeville, Pennsylvania in January 2018. After another trial, we found several more issues. Our main problems were the powertrain, which was not as

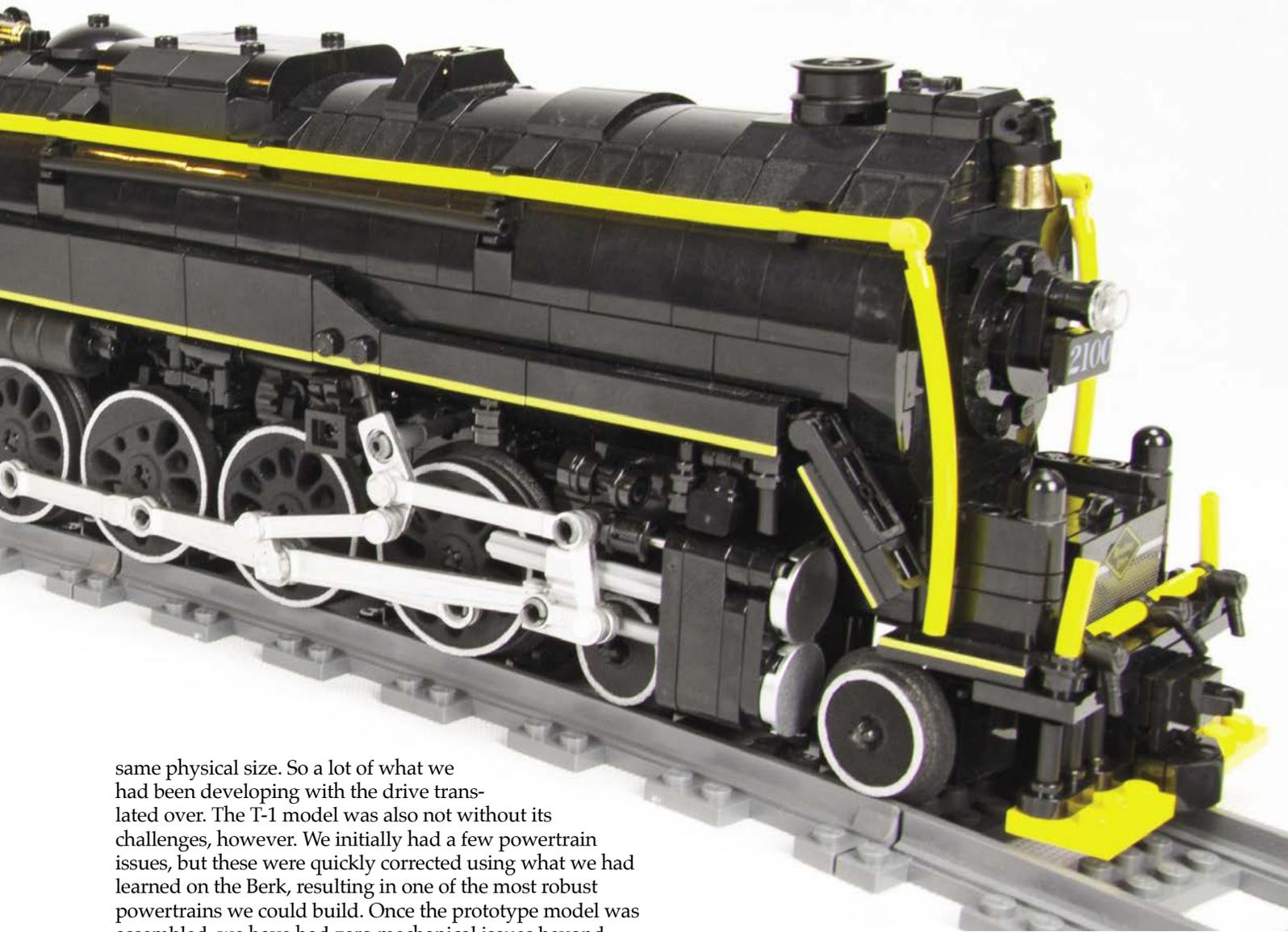
robust as we had intended. This, along with several other design choices we had made, really disheartened us. Thus our engine sat in a box for several months. At this point, Glenn was going through the most rigorous part of his college career, while Cale was busy with other *BMR* projects and we found we had no time to come back to our 2-8-4 model.

While we were at the WGH show that January, we had the privilege of speaking with Mr. Forrest Nace of the American Steam Railroad Preservation Association (ASR). The ASR is currently in the process of restoring Reading T-1 no. 2100, the first T-1 built, to operation. After talking with him throughout the weekend, while also mentioning the fact that we would like to model a T-1 at some point, Glenn showed him a mock-up T-1 he had designed on LEGO Digital Designer. Though we didn't realize it at the time, wheels had started turning in a new direction for our first locomotive project.

Later that year in May, we began talking about what to do for the stalled locomotive project. We had chosen the Berkshire due to its popularity. And while both of us are fans of the Berks, the locomotive just didn't feel right for us as our first *BMR* locomotive. The prospect of doing the T-1, however, started looking very good.

The Reading Railroad was located in the eastern part of the state of Pennsylvania, and the *BMR* Model Team (Cale and Glenn) are Pennsylvania residents, making the Reading a home road. The Reading T-1 felt like a natural choice for a prototype as it has been on both of our "to do" lists for a while, but other projects have taken priority since. It was a unique locomotive, with an iconic look, and loyal following. And with four surviving examples, two of which are under restoration to operation, there was a mountain of information on the locomotive available to us. The T-1 would fit well with all of our current transition-era Premium Instructions models, as all of them were used on the Reading and could very well have been seen behind a T-1 at any point during their service life.

Transitioning from the Berk to the T-1 didn't mean tossing out all our work done so far though. The Berk and T-1 both are eight coupled locomotives (eight driving wheels) and both used the same size drivers, and were roughly the



same physical size. So a lot of what we had been developing with the drive translated over. The T-1 model was also not without its challenges, however. We initially had a few powertrain issues, but these were quickly corrected using what we had learned on the Berk, resulting in one of the most robust powertrains we could build. Once the prototype model was assembled, we have had zero mechanical issues beyond routine maintenance. Next, we discovered a few traction issues and tracking issues. We quickly found that not enough weight was resting on the drive wheels, which is Steam Locomotive-101. Our prototype was designed and assembled in Cale's basement model shop leading up to the NMRA Train Show in Kansas City in August 2018. We even had our T-1 at the show, but there was never a good time to try it out. After the show, we began to sort out the remaining issues.

Cale took charge of the engine from this point on, working through all of the traction and running issues, strengthening the boiler assembly, cab, and tender, and adding some details (while Glenn had creative influence from afar).

In December of 2018 the T-1 prototype, along with some appropriate rolling stock, was boxed up and shipped to our friend Adam Stasiek of the Northern Illinois LEGO Train Club. The T-1 was going to make its debut at the annual Cantigny Park Christmas Train Show in Wheaton, Illinois on the NILTC layout. We tested the locomotive extensively that weekend, running with a total of ten heavy passenger cars at one point with no issues. Needless to say, we were quite happy with the results.

T-1 no. 2100 at the head of a Rambles train.





You Can Build It Build

Crossing Shanty

Design and Instructions

by Joe Meno



From the Whippanny Railway Museum website (whippanyrailwaymuseum.net):

Before there were automatic crossing gates, a crossing shanty or watch box would be placed at grade crossings. Crossing Watchmen operated the gates and used a stop sign to control traffic. The watchmen also inspected passing trains for defects, reported engineers who failed properly sound the whistle or ringing the bell at the crossing, and kept the crossing area clear of snow or other debris that could interfere with safe operation.

This model is based on a Pennsylvania Railroad Watch Box replica that was built in 2003. The gate is a simpler build, and both are built with separate bases so they can be placed on a 16x16 as seen above, or independently on a train layout.

And why is there an interior stud in the shanty? There is an interior for this shanty that can be built—which is why the roof is a loose part. You can find instructions on that at the *BrickJournal* website (www.brickjournal.com)!

Have fun building! 

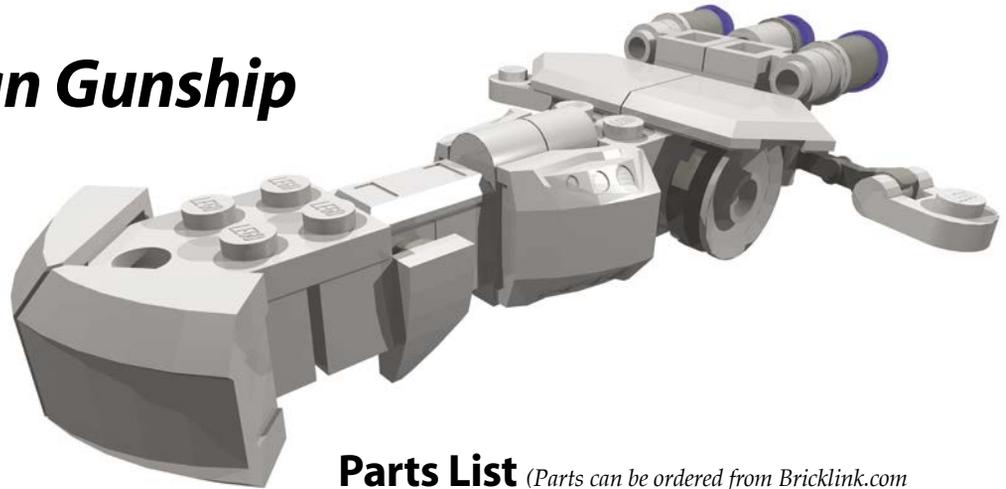
Parts List (Parts can be ordered from Bricklink.com by searching by part number and color)

Qty	Color	Part	Description
1	White	2431.dat	Tile 1 x 4 with Groove
1	White	3069bpw0.dat	Tile 1 x 2 with "Wanted - Flat-foot Thomsen" Pattern
2	White	62462.dat	Technic Pin Joiner Round with Slot
2	Red	62462.dat	Technic Pin Joiner Round with Slot
4	Reddish Brown	2453b.dat	Brick 1 x 1 x 5 with Solid Stud
1	Reddish Brown	3020.dat	Plate 2 x 4
4	Reddish Brown	3024.dat	Plate 1 x 1
1	Reddish Brown	41539.dat	Plate 8 x 8
4	Reddish Brown	54200.dat	Slope Brick 31 1 x 1 x 0.667
3	Reddish Brown	60592c01.dat	Window 1 x 2 x 2 without Sill w/ Trans-Clear Glass (Complete)
1	Reddish Brown	60596.dat	Door 1 x 4 x 6 Frame
9	Tan	3004.dat	Brick 1 x 2
13	Tan	3005.dat	Brick 1 x 1
8	Tan	3009.dat	Brick 1 x 6
6	Tan	3023.dat	Plate 1 x 2
8	Tan	3040b.dat	Slope Brick 45 2 x 1
2	Tan	3622.dat	Brick 1 x 3
5	Tan	3666.dat	Plate 1 x 6
1	Tan	11211.dat	Brick 1 x 2 with Two Studs on One Side
4	Tan	54200.dat	Slope Brick 31 1 x 1 x 0.667
3	Tan	87087.dat	Brick 1 x 1 with Stud on 1 Side
2	Yellow	32123b.dat	Technic Bush 1/2 Smooth with Axle Hole Semi-Reduced
2	Black	3004.dat	Brick 1 x 2
1	Black	3023.dat	Plate 1 x 2
2	Black	3024.dat	Plate 1 x 1
10	Black	3032.dat	Plate 4 x 6
44	Black	3068b.dat	Tile 2 x 2 with Groove
3	Black	3069b.dat	Tile 1 x 2 with Groove
2	Black	3070b.dat	Tile 1 x 1 with Groove
2	Black	3700.dat	Technic Brick 1 x 2 with Hole
1	Black	3737.dat	Technic Axle 10
1	Black	3937.dat	Hinge 1 x 2 Base
2	Black	4733.dat	Brick 1 x 1 with Studs on 4 Sides
1	Black	4740.dat	Dish 2 x 2 Inverted
2	Black	4865b.dat	Panel 1 x 2 x 1 with Rounded Corners
1	Black	6134.dat	Hinge 2 x 2 Top
1	Black	6141.dat	Plate 1 x 1 Round
2	Black	6143.dat	Brick 2 x 2 Round Type 2
2	Black	6541.dat	Technic Brick 1 x 1 with Hole
1	Black	6558.dat	Technic Pin Long with Friction and Slot
4	Black	54200.dat	Slope Brick 31 1 x 1 x 0.667
1	Black	60623.dat	Door 1 x 4 x 6 with 4 Panes and Stud Handle
1	Black	85984.dat	Slope Brick 31 1 x 2 x 0.667
1	Light Bluish Grey	32034.dat	Technic Angle Connector #2 (180 degree)



MINI Dornean Gunship

Design and Instructions
by Christopher Deck



Hello everybody, and welcome to this issue's mini model building session! First seen in a very short sequence during the final space battle in *Star Wars Episode 6: Return of the Jedi*, the Dornean gunship remained an unknown ship for a long time. With expansion of the *Star Wars* Universe it finally was identified, and made a return in the more recent *Star Wars* productions like *Rebels*, *Rogue One* and *Episode 9: The Rise of Skywalker*.

The Dornean gunship is a very compact attack craft with lots of greebly details, and thus pretty hard to build in a small scale. The crescent-shaped head of the gunship is an extraordinary challenge. The final result is pretty unconventional, but a lot of fun to build for sure, once the bricks slide into each other perfectly.

Another highlight is the engine block with the middle cylinder which only stands out halfway of the upper hull. The only possibility to obtain this shape was to build it studs-down. It works pretty well, and I am happy to have employed many of the 3x2 plate with hole (part 3176), one of the most versatile pieces of all time in my opinion.

Enjoy building, and I'll hopefully see you next time! 

Parts List (Parts can be ordered from Bricklink.com by searching by part number and color)

Qty	Color	Part	Description
2	Light-Bluish-Gray	2921.dat	Brick 1 x 1 with Handle
1	Light-Bluish-Gray	4070.dat	Brick 1 x 1 with Headlight
2	Light-Bluish-Gray	4733.dat	Brick 1 x 1 with Studs on 4 Sides
3	Light-Bluish-Gray	26604.dat	Brick 1 x 1 with Studs on Two Adjacent Sides
2	Light-Bluish-Gray	49307.dat	Brick 1 x 1 x 0.667 with Curved Top
1	Light-Bluish-Gray	30136.dat	Brick 1 x 2 Log
1	Light-Bluish-Gray	11211.dat	Brick 1 x 2 with Two Studs on One Side
2	Light-Bluish-Gray	4740.dat	Dish 2 x 2 Inverted
1	Light-Bluish-Gray	96910.dat	Gold Ingot
2	Dark-Bluish-Gray	59230.dat	Minifig Mechanical Arm Straight
1	Dark-Bluish-Gray	3024.dat	Plate 1 x 1
2	Light-Bluish-Gray	6141.dat	Plate 1 x 1 Round
3	Dark-Bluish-Gray	6141.dat	Plate 1 x 1 Round
3	Trans-Light-Blue	6141.dat	Plate 1 x 1 Round
2	Light-Bluish-Gray	26047.dat	Plate 1 x 1 Round with Horizontal Handle on Side
2	Light-Bluish-Gray	4081b.dat	Plate 1 x 1 with Clip Light Type 2
2	Light-Bluish-Gray	15573.dat	Plate 1 x 2 with Groove with 1 Centre Stud, without Understud
1	Light-Bluish-Gray	3710.dat	Plate 1 x 4
1	Light-Bluish-Gray	2444.dat	Plate 2 x 2 with Hole and Split Underside Ribs
3	Light-Bluish-Gray	3176.dat	Plate 3 x 2 with Hole
1	Light-Bluish-Gray	29120.dat	Slope Brick Curved 2 x 1 with Cutout Left
1	Light-Bluish-Gray	29119.dat	Slope Brick Curved 2 x 1 with Cutout Right
2	Light-Bluish-Gray	30602.dat	Slope Brick Curved Top 2 x 2 x 1
2	Light-Bluish-Gray	44675.dat	Slope Brick Curved Top 2 x 2 x 1 with Dimples
2	Dark-Bluish-Gray	18654.dat	Technic Beam 1
2	Light-Bluish-Gray	6541.dat	Technic Brick 1 x 1 with Hole
1	Light-Bluish-Gray	3700.dat	Technic Brick 1 x 2 with Hole
1	Light-Bluish-Gray	32000.dat	Technic Brick 1 x 2 with Holes
1	Dark-Bluish-Gray	3070b.dat	Tile 1 x 1 with Groove
2	Dark-Bluish-Gray	15535.dat	Tile 2 x 2 Round with Hole
2	Light-Bluish-Gray	22385.dat	Tile 3 x 2 with Angled End



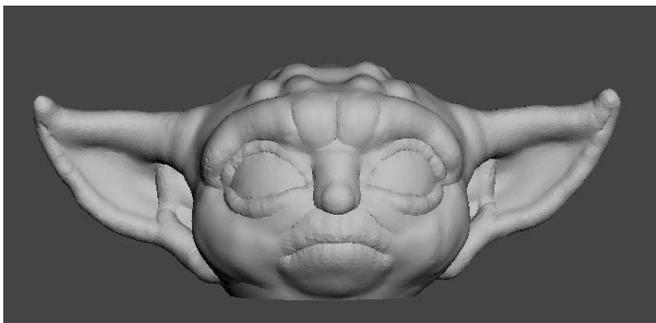
Building

Minifig Customization 101:



The Child

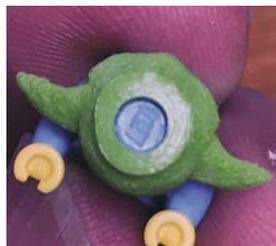
Article and Photography
by Jared Burks



The head.



First printing.



Testing stud fit.

Introduction

The Child! By this point, he may actually have a name. Seriously, who doesn't know what I am talking about? *The Mandalorian* is the most popular TV show on the planet, with 31.9 times more global basis, good world, according to Analytics. It out of *Thrones*, *The Crown*, and *The Crown*. It is largely due to The Child, or by fans of toy manufacture, a Baby Yoda by the name of The Child, to spoil the surprise and create our own. I am going to us a Baby Yoda, busy. I am going to and the whirlwind

IF YOU ENJOYED THIS PREVIEW, CLICK THE LINK TO ORDER THIS ISSUE IN PRINT OR DIGITAL FORMAT!

BRICKJOURNAL #62
LEGO TRAINS! CALE LEIPHART'S Blue Comet, GLENN HOLLAND introduces us to the L-Gauge Modular Building Standard, a look at PennLUG's Train Roundhouse, and many other train-related surprises! Plus a "Bricks in the Middle" comic by KEVIN HINKLE, "You Can Build It" instructions by CHRISTOPHER DECK, Minifigure Customization with JARED K. BURKS, and more!

(84-page FULL-COLOR magazine) \$9.95
(Digital Edition) \$4.99

http://twomorrow.com/index.php?main_page=product_info&path=98_78_166&products_id=1530

Design

Clearly, the LEGO body is out of scale to the head and I needed to see just how the head related the size of the body, using the official LEGO baby head as reference. I started with the basic shapes of his head and used the sculpting tools to create the design, two triangles for the ears and a ball for his head. This process is very similar to physical sculpting out of clay. Once I had the design close to what I wanted, I had to test print it. This is because the LEGO body is out of scale to the head and I needed to see just how the head related the size of the body, using the official LEGO baby head as reference.

When one tackles a project like this, you need to understand the limitations of your 3-D printer and know how to tweak the design. I am using an Ultimaker 3, which can be dialed down to 25 micron resolution, but for this project I took it down to 60 microns (due to the time constraints), which is still quite the feat. I am getting ahead of myself a touch though. I had to start by just getting the design to print properly and that took some work. Once the head was printing cleanly, the neck hole had to size and resize to get it to fit snugly onto the LEGO baby body neck. Oddly enough, I had some print failures and was able to photograph this snug fit. All 3-D materials have a shrinkage and the size of the neck hole is specific to the PLA material I used, which was Ultimaker Green PLA. I then had to work on resolution. Resolution improvements typically come from adjusting the speed of the printer. By slowing it down and using a smaller nozzle (0.25 micron), resolution improvements were achieved. This meant that every head took ~45 min to print on my Ultimaker.