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Brick Journal

Issue 15 • June 2011

people • building • community

Building Mecha!

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LEGO Staff Interviews
Mecha Instructions
AND MORE!

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Raleigh 2011

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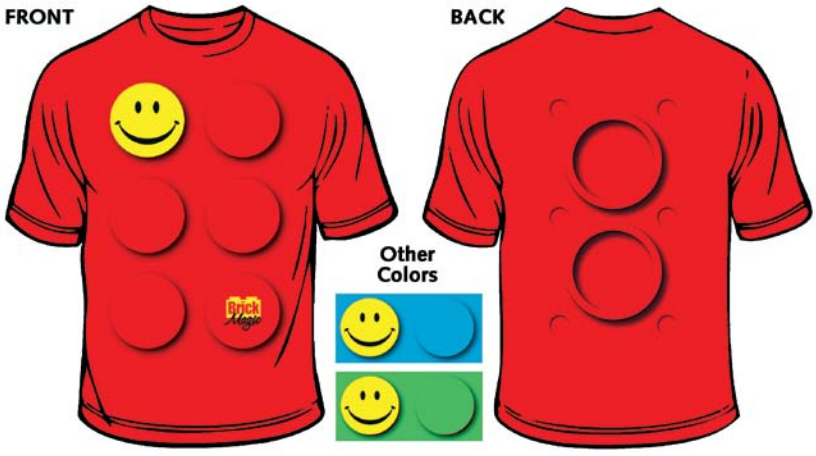

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Congratulations to Gordan Grguric, winner of $1000 and an Annual Pass to LEGOLand Florida!

Brick Magic CHALLENGE

Gordon's MOC won "Best of Show" in the BrickMagic Challenge at the 2011 BrickMagic Festival, and will be featured on the cover of an upcoming issue of BrickJournal! **Stay tuned to www.brickmagic.org for details on 2012 events and your chance to win!**

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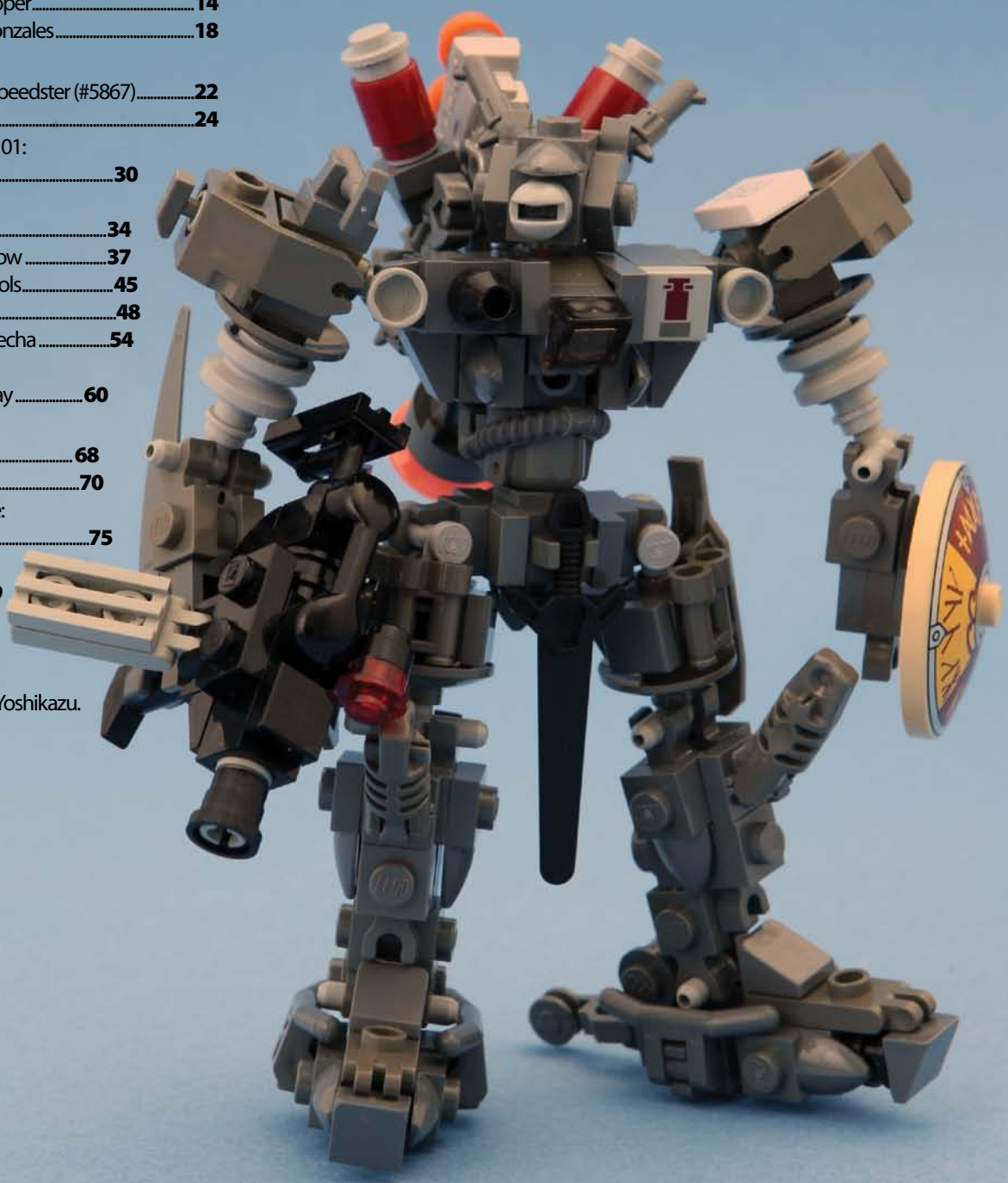
Contents



Right: A mecha from Saito Yoshikazu.

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About the Cover:
Left Top: Spacecraft by Saito Yoshikazu.
Left Center: mecha built by Takayuki Torii
Left Bottom: mecha built by Zizy
Right: Japanese builder Sukyu.

From the Editor:

Ever wanted to build one of those Japanese robots? The ones that have human pilots? I have, and I never understood how the best ones were made. Until now.

This issue is the Mecha Issue, with some photos and some thoughts on how to build those robots by the people who are known online for their work. There's also some other things in the mag, such as an interview with some people you may or may not know, and some instructions on how to build a pirate that you may recognize.

That's part of the fun of running this magazine — I can ask the best people in the LEGO fan community to help me explore their themes. And if I'm lucky, I'll pass on what I discovered with you.

Have fun reading!

Joe Meno
Editor

P.S. Have ideas or comments? Drop me a line at admin@brickjournal.com. I'm open to suggestions and comments and will do my best to reply.

P.P.S. Yes, *BrickJournal* has a website — www.brickjournal.com! Twitter? Yep, there too — http://twitter.com/brickjournal. Facebook? Yup — http://www.facebook.com/group.php?gid=58728699914&ref=mf. Or you can scan the bottom codes with a QR reader!

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Glossary

AFOL (Adult Fan of LEGO)
NLSO (Non-LEGO Significant Other)
MOC (My Own Creation)
TLG (The LEGO Group)
BURP (Big Ugly Rock Piece)
LURP (Little Ugly Rock Piece)
POOP (Pieces—that can be or should be made—Of Other Pieces)
SNOT (Studs Not on Top)
LUG (LEGO Users Group)
LTC (LEGO Train Club)

BrickJournal *and its staff would like to thank the LDraw community for the software it makes available to the community, which we use for making all of the instructions and renderings in this magazine. We would especially like to thank Kevin Clague for his continued upgrades of the LPub tool that is a part of the LDraw suite. For more information, please visit http://www.ldraw.org.*

In His Words:
Schneider Cheung

Article and Photography by Schneider Cheung

Name: **Schneider Cheung (Schfio/Schfio_factory)**
Age: **38**
Country: **Hong Kong**

I've been a diagnostic radiographer in a regional hospital since 1995. At the beginning, my main duty was taking general X-ray radiographs on patients. However, I'm now mostly involved in the field of Computed Tomography (CT) and Magnetic Resonance Imaging (MRI). As both specialties consider cross sections — either a transverse, sagittal or coronal cut — of a body, I gradually became interested in observing the change of the cross section along the contours of a body during the examination. Also, everything could be divided into voxels. All of these assist me on the "Legolization" of any object. As a result, my career made me interested in LEGO sculpture building.

As a child, my first LEGO sets were probably promotional gifts from powdered milk products, because a LEGO set was very expensive 30 years ago. I could only get LEGO pieces by asking my mum to buy a brand of powdered milk product. Although those gifts contained several simple LEGO pieces, it was easy for a child to be attracted by the toy. Perhaps my creativity started at that time.

Although I lost interest on this hobby during my high school ages, I returned from those Dark Ages 5 years later!

In 2004, I attended a local LEGO building contest in Hong Kong. Luckily, I won the champion through building a landmark of HK: the Peak!

Afterwards, I became totally immersed into "LEGO"! Apart from LEGO building, I'm a LEGO collector too. I collect LEGO keyrings, especially the rare old promotional ones.

At the very beginning after my championship, most of my MOC were buildings. Later on, I started to build some others like robots/mecha (2006–2008).

Since I'm inspired by Japanese animation, most of my robots are Japanese cartoon characters.

When was the actual time I started changing my building interest to sculpture? As I remember, it probably happened at my wife's birthday. I knew she loved a Japanese cartoon character. I wanted to present her a LEGO model of the character, but I was inexperienced in building a LEGO sculpture. I sent emails to an AFOL halfway around the world; however, I got no reply at all.

I promised to my wife that I would make one on her next birthday. I kept my promise and built her a monkey!

In fact, I built only one Lego monkey. With the help of my wife on the post-processing (Photoshop) of photos, a series of different characters were created! And this is the first time I gained my wife's help with my MOC!

Although it looks simple, it's my first sculptural LEGO MOC.

That same year (2006), I was delighted to be invited to build some LEGO displays at the LEGO booth in a local comic festival. I have participated every year since. My first display MOC was a 1-meter tall ExoForce robot sculpture.

In the next year, I started building things around specific topics:

In 2008, the topic was Traditional Chinese Cultural Items;

in 2009, the topic was LEGO Cafe Corner;

in 2010, the topic was Art & Culture.

I built using popularly-used conventional stud-up building techniques in sculptural building. It's even routine in LEGOLAND. Maybe I wanted to explore something special on building techniques, in any case, I started the use of "SNOT" techniques on my LEGO sculpture in 2007.

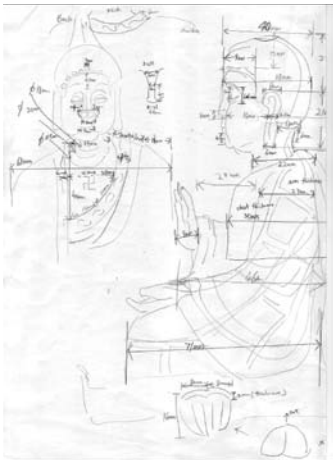
In the field of LEGO sculpture, SNOT is relatively hard to do. I knew there was computer software to help building LEGO sculptures with SNOT techniques. I learned about it from an article on the Internet. Anyway, I insisted on exploring the technique by myself without a computer. From my photos, you can discover the breakthroughs I made and the improvement on my building techniques, as well as the increasing complexity of the works through the years.

Each building breakthrough gives me satisfaction, and this satisfaction is perfect for me to improve my next work. But remember: frequent practice is always needed!

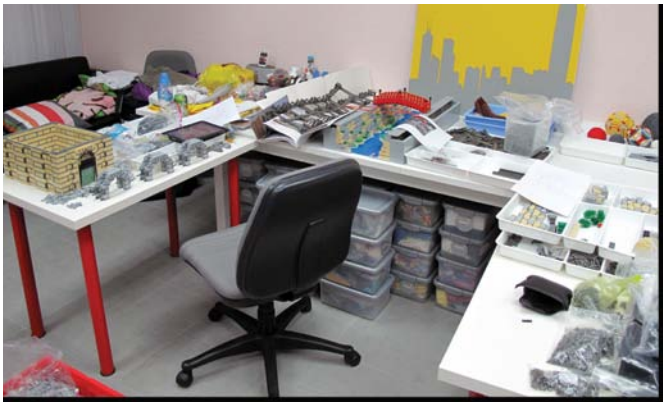
Most of my sculptural works are life-size. I think life-size models make a unique impression on people viewing it. One of my MOCs, a LEGO LECIA camera M8 is functional too!

In a special meeting with Mr. Kjeld Kirk Kristiansen in 2008, I presented a life-size LEGO electric guitar to him to autograph. I'm glad to have had the chance to see the reaction of my MOC from Mr. Kristiansen.

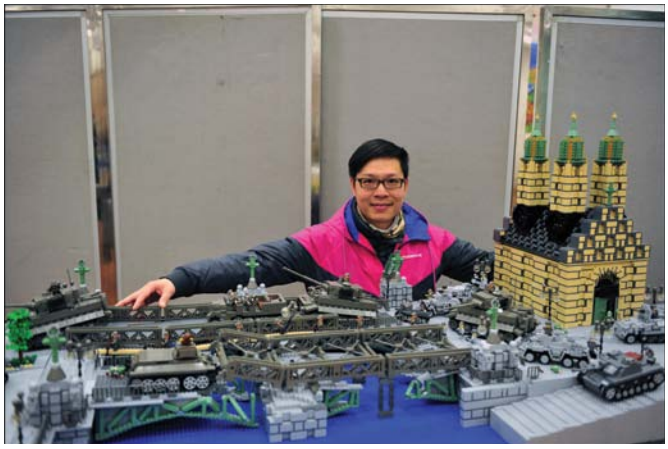
For every MOC, I need to prepare reference materials on my model. I always make simple sketches. A pencil and a ruler are important elements to my project. Sometimes, I buy the real object to optimize the realism of my MOC. Whenever I build a building, I need to take many photos of that building from its different sides. Beside the photos, I bought books for future reference use. Thus, I own my small library. To make a better MOC presentation, I got a better camera.



In the past, I built all my models on the floor (Not on a table!) at home. As a result, I have multiple–joint pain in my lower limbs. Nevertheless, I have had my personal LEGO studio since September 2010. It's about 10 minutes driving distance from my flat. Now, all the pain is gone! I can even enjoy my hobby on a 3m long table!



Besides, it's much more convenient for me to find the right part in a short period of time. Creation of much bigger scales is easier too. My WWII diorama was just prepared from there.



All in all, I just want to share my passion to other LEGO fans. Nothing is impossible in the LEGO world! The only limiting factor is TIME! Think more, imagine more!

Looking forward, I wonder if I will have a chance to use my professional knowledge on medical imaging with my building technique to do something unique. I don't know what it is at this moment, but I am still thinking about it.

I'm glad to share my hobby as well as my passion with all of you and to make friends with all of you!

You can see Schneider's works at www.mocpages.com/home.php/24930 or by scanning this QR code!

A Word With Jørgen

The CEO of the LEGO® Group speaks with *BrickJournal*

Interview by Geoff Gray

GEOFF GRAY: **Jørgen, as we have done every year with the magazine, it is time again to have a chat with our favorite CEO. It is good to get an insight into how the company itself is doing, and where the company is going. Thanks for taking the time to talk with us.**

JØRGEN VIG KNUDSTORP: Geoff, I am very grateful for the opportunity, and not least the comments that I get as a reaction to these interviews. I do believe it is very important for me and The LEGO Group to stay directly in touch with the "grassroots" so to speak. I always learn a lot from it, and it complements my understanding and appreciation of the company, its situation and products — and how these impact the relationships the brand enjoys with users all over the world.

LEGO Systems and NetDevil released LEGO Universe this fall. I was able to participate in the beta for many months prior to the release. It has come a long way since I first had a chance to discuss the project with the company back in 2005. I'd like to discuss this project for a bit.

The concept of a massive multi-player game designed around LEGO building seems to be a very cool concept. However, it seems to be a departure from the core line of business: the manufacturing of the actual LEGO sets. A few years back, the company made a great effort to get back to core business. With such a focus, how does this game fit into the company's business focus?

Yes, it is definitely a really crucial event in the "strategic development" of The LEGO Group. I do see it as a departure from the core business, and I will also evaluate it as such an adjacency to the core. I like to distinguish real LEGO® Playthings from LEGO fan products (and here I don't necessarily refer to AFOLs) such as towels and cups. These latter items do not pretend to be real LEGO true experiences. I don't think anybody would expect anything less than high quality from these products, yet they don't expect them to be part of a creative building system. On the other hand, LEGO Universe is a plaything, it is a genuine LEGO System experience, only not in the real, physical world.

Can you describe the roles that each of the companies is playing in the creation of this game?

The game is entirely a LEGO Game. NetDevil is an incredible, creative, and

competent developer of games, however they have done so on a contractual basis for the LEGO Group, and for good and for bad… we take full responsibility. The product is physically distributed by LEGO D2C channels (LEGO Brand Stores and Shop@Home) as well as by Warner Brothers, who take care of global retail distribution. The company NetDevil, then owned by Gazillion, has since been disbanded by Gazillion as they wished to shift their focus away from LEGO Universe. As a consequence, more than 70 NetDevil employees are now LEGO employees, based in NetDevil's facility in Colorado.

We do however still firmly believe that LEGO Group's digital offerings need to continue to be developed in partnership with companies with more relevant experience in the digital realm (than what the LEGO Group has in-house, being more than a digital pure-play company). NetDevil had done the majority of the work on the game, but there have been LEGO people on the ground all the time, and numerous management reviews of the products underway. So, it is fair to say that it is fully a LEGO product.

Last time we spoke *(last year's interview - Editor)*, there was still only a small amount of interest in LEGO Factory and the ability to design and sell custom kits. Has the interest in this picked up at all, and what efforts is the company making to expand this area of the product line?
Yes, indeed it is picking up now. I still think it will remain a niche product for us. The revised LEGO.com site is also doing a better job of advertising DesignByMe as we call it now.

One really cool feature of LEGO Universe is the ability to import creations from LDD into your personal property in the universe. This leads me to believe that there is going to be a place for using LEGO Universe as a way of expanding the LEGO Factory offerings. Can you tell us a little bit about how the two will be tied together?
I share your dream… but that's all I can say for now (smiles all over my face)

Focusing on a different area of the company, there are limitations put on model designs to ensure the quality of every set released, as well as the ease with which children can assemble and disassemble the elements. These limitations are made not only based on geometry, but also on the types of plastics used to manufacture different elements. For instance, many of the transparent pieces and pieces that need extra strength are made from PC plastic. This plastic has a tendency to have a great amount of friction between the pieces, causing the separation of the pieces to be difficult for kids.

Needless to say, with the different plastics involved and their behaviors/ tolerances/etc. there is a great need for chemical engineering knowledge and research. Does the company have its own research lab for this type of work, or is this done through an outside source?
Yes, we certainly do, and I would suggest that LEGO Group is a world leader in the understanding of the relationship between material, mold (tool), and clutch power (friction, if you like). There are chemical companies that know a lot more about materials and chemicals than we do, but our worldwide expertise is in the intersection of the three.

What other types of research work does the company do?
We are right now looking a lot at chemical mixes. There is a growing debate about plastics. Re-cycling, the energy involved in producing plastic (raw materials) and in moulding plastic, concerns about the chemical ingredients in plastics, and so on. We find it particularly important to be entirely on top of this since we produce products aimed at children.

Thanks again for your time. As a parting question (and you knew I would ask this one), what upcoming secret project can you tell us about to let our readers get a "first glimpse" into new things from the company?
Well, sometimes visiting fans' flicker posting I find photos of finished sets that I have hardly seen, ha, ha. I can say that we are very excited about the line up for 2011. But I won't reveal anything yet… and then since I am in NYC tonight, as I am writing this, I would encourage all LEGO fans to go visit the new LEGO store at Rockefeller Center and see if they can find any cool, relatively unique offerings there…

"LEGO Universe is a plaything, it is a genuine LEGO System experience, only not in the real, physical world."

Above: Kjeld at his office in Billund..

Kjeld Kirk Kristiansen: Growing with the LEGO Group (part 1 of 2 parts)

Interview by Joe Meno and Megan Rothrock
Photography by Joe Meno

The LEGO Group has within its staff a few people that are recognized outside of the company. The most well-known is Kjeld Kirk Kristiansen, the owner of the company. He is the third generation of Kristiansens that have grown and watched over the company since its beginning. BrickJournal's *editors, Joe Meno and Megan Rothrock, were able to have a conversation with him during the 2010 holiday in Billund.*

This interview is literally a look at Kjeld's career and how he grew with the company. Because of the length of the interview, this is part one of a two-part series, which covers his start in the '70s to the '90s.

Joe Meno: **You started work at the LEGO Group from your youth to the present.**

Kjeld Kirk Kristiansen: That's true. When I am asked about how I grew up with the LEGO Group and the LEGO® product, I always say that we grew up together. The LEGO Group was just starting to make plastic products when I was born and its focus on "LEGO System in Play" from the mid-'50s coincided with me being very eager to use the product. I spent a lot of time as a child and later on, during the '60s, building. I loved building.

To begin with, of course, it was very simple houses and structures we built because we didn't have the clutch power, we didn't have the combination possibilities, and we didn't have that many different elements. I still remember in the late '50s there were only a few elements.

I loved to build ships, for instance. I loved to build - after the first Sputnik was sent into orbit...

Megan Rothrock: **You built rockets!**

I built rockets and I was fascinated.

The big thing for me was in the early '60s when we invented the wheel.

JM: I was going to ask about that. As you were building, it was one of those things, where it was like, while you were building a house and other things, you were just thinking, "There's gotta be something else..."

Yes.

JM: There's more building, as we (LEGO Fans) do, " I wish there was another piece that could do this..."

Exactly, and of course I loved the possibilities there because then you could — I could — build a lot of different cars but I liked building big cars also. You probably have seen the big red one in the Idea House.

JM: Yeah, when exactly was that one built?

The picture that's there with my father and myself - it says 1976. I think it's actually a few years earlier. But still, the car was built already back in '63 or '64 while I was still going to school. When I came home from school, I went to the model department...

JM: 'Cause you could (smiles)...

...and worked on this project for quite a while. Actually, there were two different models that I made. The one on display is the second one.

I needed a lot of special elements also that weren't there at that time. So I cut and glued...

JM: You modified!

...and modified. Why not?

And in this sense, maybe, I think I gave some inspiration also to the developers. We didn't have a formal product development department at that time. There were those that were working with building models and so on and finding out which new component we needed. Maybe my father and these people were inspired by seeing what I was building.

JM: So when did the Product Development Department come into being then?

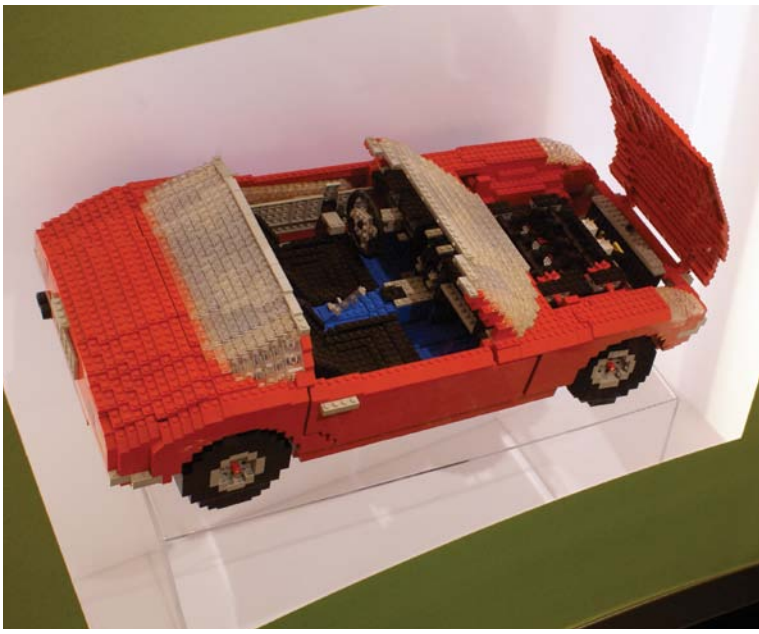
I remember when; it was in the late '60s. '67 - '68, yes, we made a formal product development department. It coincided also with when we had the wheels, we had the motor, and we had the trains. I think it was when we decided to go more into broadening the base...we used to have very limited assortments. We had gift boxes and supplementary sets.

And in the '60s, slowly but steadily, we moved more and more into model boxes also, which started from the mid '60s. The more we saw that it was growing, the more there was a need for a formal process for product development.

JM: By this time — mid-'60s to early-'70s — you were in college... about this time you were starting heading into getting a job here.

Well, that was in the 70s, yes. I finished my education in '72, with an MBA from the International Business School in Switzerland (IMD). I have maintained a strong relationship with my business school in the meantime, being on the board (of Directors) for many years. Now Jørgen Vig (Knudstorp, LEGO CEO) has taken over that seat. I think that IMD is a fantastic business school.

So I was in Switzerland and this coincided in 1973 with the fact that we had a building there which we had taken over that was too big for just the sales office for the company – so my father's idea was to move the technical head, who was in fact Swiss but had lived in Denmark for many years, back to Switzerland to this place where we had our office and start up a small



Kjeld's car model.

technical and research unit and tool shop and also a small pilot production where we used new molding technology.

I was the administrative part of that setup and it grew quite quickly to not only a small pilot production plant but a rather big molding operation.

JM: Would that have anything to do with the LEGO Futura offices?

No. The Futura offices were in Denmark.

JM: Was it where PMD (Product and Marketing Development) is now in Billund? Some call it Futura, who have been there since the '70s.

Actually, it was where the old factory was, where the Idea House is now.

In those years, in the '70s, I was very much involved with helping to set up our sales company in the United States. As you may know, we bought back the license from Samsonite. We were never satisfied with what they did to our brand in the US, so we started in early '73. I took part in that also. That was very exciting, So I had different good learning experiences and working experiences outside of Billund, but still I was very much involved in what was happening also here in Billund, especially in product development.

So when I moved back to Denmark in 1977, I was sort of better equipped to enter into senior management. In senior management I was responsible for marketing and product development. Two years later, our CEO at that time, Vagn Holck Andersen (sort of bridging between my father and I) decided that he would like to hand over the full responsibility for the daily running of the company to me. He left the company, but fortunately, we always kept a good relationship with him and he later on became head of our US operations (LEGO Systems Inc.) in Enfield, Connecticut for six years in the '80s.

So there have been different steps in our history. First, it was very static building. Then with the wheel and the gears and motors, it was possible to add movement to your creations. The minifigure certainly added a whole new dimension also in that you could also have much more social play and play with what you have built.

So we wanted to create the possibility to build behavior *into a model. It's sort of the ultimate.*

I became CEO in 1979.

JM: What were the programs in Product Development that you were responsible for?

When I came home in '77, it was like... we had a crisis in a way. Sales were stagnating in the US after some rapid growth years, in Germany too, and there was a lot of uncertainty in the organization. My first task was to lay out a strategy for the future. It wasn't the same type of crisis that we had seven-eight years ago...that was really heavy (smiles). Still, it was a crisis.

It is good to remember also, because things do not always follow a straight line. There have been some ups and downs also. For me, it was quite easy and natural to see what was needed to go forward. We needed to believe a lot more in our product, I think. We needed to divide it up so it was much clearer to the consumer. There were different product lines and there were different products suitable for different ages. By doing that it gave our own organization, especially our own product development team, a much clearer perspective on what they could do.

The development of the minifigure had just been going on there from '77-'78. That gave us fantastic opportunities to create all the play themes. Basically, the play themes were the driving force behind our growth during the '80s and up until now. The minifigure has become an icon, almost as strong as our brick, and it's fantastic what that did to our product range and our company. We also needed to utilize the potential in DUPLO more, by not just looking at it as double-sized LEGO bricks but also by giving it its own preschool program with more than just bigger bricks. And then we launched Fabuland and other lines. Not all of it successful (smiles), but at least they gave a big boost of energy to the company. So we had fantastic growth during the '80s and early '90s.

MR: Fabuland was so ahead of its time.

Fabuland was wonderful, wasn't it?

MR: Yes, absolutely.

We kept on for ten years trying, trying, trying to make it a commercial success. We simply couldn't do it. And we didn't have the resources we have today. I think that...

MR: It was ahead its time.

And still we hear a lot of consumers, a lot of parents and adults who grew up with Fabuland saying, "That's the best thing you ever had!" and "Why did you give up?"

JM: I only recently discovered Fabuland in the past four years. It's a very hidden secret in the US.

Yes, I think it never did much in the US.

JM: I think I got introduced to it through the Mickey Mouse theme because a lot of Fabuland parts were repurposed...

Exactly.

JM: which I was hoping would turn out well, but it turned out that that particular theme came out in a bad time.

This was just the beginning of our bigger crisis. (Laughs)

JM: We'll get to that, but just seeing all this happen, that makes one interesting story in itself. But about this time, you're talking late 80s, early 90s...what else is happening? I got back into the hobby in 1999. What that really means is that before then I knew only a little about themes: actually, my first set was a 1976 set, the Lunar Lander set (Moon Landing).

The Lunar Lander set was very popular.

It was the first set with a building figure, I think it was, wasn't it?

JM: Yes, the Homemaker figures!

You call them Homemaker figures. 'Course this was quite a popular theme in the United States. We had the Homemaker sets for some years from '74 to '78, something like that.

JM: I was actually in Germany. I'm an Army brat, so I was in Germany until 1976. So that's how I ended up discovering LEGO sets. My parents just got the sets at that time.

Getting out of college and getting back into the hobby, about that time was the late '90s which led to MINDSTORMS. I heard your story over at the MINDSTORMS Celebration. You're one of the real supporters of the system. What were your original thoughts on it back then?

By having LEGO Technic, we were able to keep the interest, especially of boys, longer and I liked that very much.

I was personally fascinated also with new technologies. I loved programming, I always loved programming and computers. One evening on Danish television, I saw a program with Seymour Papert, a Media Lab professor at MIT, and his Turtle. He created the LOGO language. I was simply fascinated with the LOGO language and the simplicity of it. It was so easy that children all around 5 or 6 six years old could easily learn "five steps forward, go right, then left," and it was very simple programming. They could make simple graphs and they could draw houses.

MR: I got to do that at school when I was young. It was really exciting.

And I was simply fascinated by Seymour and the way he was thinking on how to use technology to give children new learning opportunities. I thought, wow, he has some ideas that could benefit us and I would really like to get in contact with him. Two of my colleagues at that time had seen the same program on television, and I asked them to get in contact with him, and pretty soon, contact was established, and it turned out that he was already working with LEGO products to some extent, especially Technic, trying different things with motors and gears.

So it was really a fantastic cooperation we developed with MIT Media Lab. We just celebrated in August (2010) the formal 25-year anniversary of our collaboration. At that point in time Mitch Resnick, who is now the LEGO Professor at Media Lab, was already part of Seymours team. Brian Silverman also. It has been a long-lasting relationship and the mission was from the beginning to put intelligence into the brick. It was always the idea. By using computer technology in the brick, you could build behavior into your models.

So there have been different steps in our history. First, it was very static building. Then with the wheel and the gears and motors, it was possible to add movement to your creations. The minifigure certainly added a whole new dimension also in that you could also have much more social play and play with what you have built.

So we wanted to create the possibility to build *behavior* into a model. It's sort of the ultimate.

It was an idea that materialized over the late '80s and early '90s as our own product development work paralleled with MIT Media Lab. We also had a small development department in Boston for a while. We also had many interesting contacts with Microsoft to investigate possibilities of using their knowledge, know-how and software. And so we had many contacts during the '80s and early '90s.

At a fairly early stage, it materialized in some products for the Educational Department. With an interface you could control what you had built with motors and bricks from the computer.

Kjeld with a William Shatner bust, built by Sean Kenney.

But it was not until the LEGO MINDSTORMS product was launched in 1998 that we could really say, "Wow we have done it !"

We had taken a very important step.

Part II of this interview will talk about the beginnings of the MINDSTORMS sets and also with the financial crisis that shook the LEGO Group to its core. You'll see it in BrickJournal *#16!*

Many thanks to the LEGO Group and to Kjeld for opening his schedule for us.

Builder Spotlight: Brian Cooper

Article by Mark Neumann

Photography by Brian Cooper and Joe Meno

Above: A group photo of Brian's mecha.

I'd like to introduce a friend of mine. His name is Brian Cooper. Brian is a builder of some of the most amazing LEGO mecha creations I have ever seen. He is a man of few words and usually lets his bricks do the talking. He is probably best known for his gargantuan Gundam styled mecha sporting nondescript names, such as "zero-one," "zero-two," "zero-three," and … well I suppose you get the idea. We are fortunate enough that he is willing to break his cover of silence and talk with us today.

So first the basics; how did you get into LEGO? What keeps you building with LEGO brick?
Growing up, I messed with LEGO, Lincoln Logs, Tinker Toys, Erector Sets, modeling clay, balsa wood, etc. LEGO "stuck" because it offered the best system as a whole for shapes, colors, mechanicals, recyclability, plus one additional factor that can't be underestimated, minifigures. There was always something more involving about making a world for the minifigure guys, a little storyline that played out. You project yourself into the scenario by way of the minifig. Even now, when I'm making some big mecha, it is for the world of minifigs.

Why mecha building? What inspired you to go big and build gigantic complex LEGO robots?
My big mecha phase really began when anime started showing up on American TV, in particular, the translated *Danguard Ace/Starvengers/Grandizer/GaiKing* shows. About this time I had the LEGO Critical Mass (LCM) to start building big, and technical, with Technic. I made a good six iterations of a fully transformable minifig piloted *Danguard*

Ace, refining the structure with each version. All told, I must have made dozens of mecha up to two feet tall in this era, which generally met their demise in some imagined battle with a stronger opponent ripping off arms and such, a good motivation to make them stronger with each generation so that wouldn't happen. Then fast forward almost twenty years to the next wave of anime, and the *Gundam* phase.

What do you find the most challenging in building with LEGO?
Achieving structural strength with the desired esthetics and dimensions can be a challenge. I just don't like to make mecha models that explode/implode/disintegrate/shed when touched. I apply a sort of minifig scale calibrated sense of ruggedness. Say you can flick a minifig across a room with your finger. That's quite a wallop, but a mecha made for that minifig should be able to shrug off that flick. There's also the structural strength needed just to counter gravity, or maybe deal with a fall from a table, at the extreme. The tangible power of a mecha is measured by its physical strength. The imagined power comes from its array of weaponry.

I've made Power Functions (PF) battlebots that you could literally drop kick without impairing their function. LEGO can be built very tough. Sometimes I do think about custom milled metal parts, connectors, axles or gears. Someone offered to make me some, but I declined. I play by the rules. I'm not sure why, as there are no LEGO Police. Well, there are, but they can't catch me on their tiny little motorcycles.

Any advice for people wanting to build LEGO mecha?
Is bigger better? Not necessarily, but it takes more effort, planning, engineering and determination to complete a big project. Developing that industrial skill will serve you well, even as you're having fun. Maybe I did just say that bigger is better, in the broader sense.

Above, top right, and center right: some views of Agincourt, seen at Brickcon in 2009.

Right: Doublas M2 Teknomeka, seen at Brickcon in 2010.

Is mecha your favorite theme? What else do you build besides mecha?
I started out with land vehicles, boats, submarines, space ships, and such. (My *Millennium Falcon* in 2000 was my last big spacecraft.) All these models had detailed interiors for the crew. If you have nifty LEGO faucet parts, why not make a space bathroom, adjoining the bridge of your starship? And naturally it doubles as an escape pod. Would you want to escape in a pod without a bathroom? You have to think these things through. Nowadays, if I'm not building mecha, PF battlebots are trundling off my assembly line.

Do you have a favorite personal creation? What is it and why?
I'm still very pleased with my mechaGodzilla. The mechanization, motorization, modularity, esthetics, and hidden minifig interior make it complete creation. And it's just plain big.

Who do you look up to? Or what do you look to for inspiration?
Hmm... I don't know... Benevolent monsters from the id.

What do you like to do besides build with LEGO?
As for as sessile leisure activities, reading sci-fi. I currently like Taylor Anderson's *Destroyermen* series. Makes me want to build *USS Walker* DD-163, minifig scale, shot full of holes, on fire! I need to hurry and order lots of grey plates! And what can I use for Lemurian minifigures?! I forgot this question wasn't about LEGO.

For reference: http://www.taylorandersonauthor.com

What do you do professionally?
Caber tossing. That and software engineering. Haptic enabled CAD, in particular.

If you could jump up on a soap box and say anything to the LEGO building world, what would it be?
I guess bley is ok, now (in a quiet, subdued voice).

Teknomeka is an amazing set of directions allowing most anyone who can assemble the parts to make their own Brian Cooper style mecha. Making the model would be enough for most people, what inspired you to create and publish directions?
I realized that if I had been given something like these instructions twenty years ago, I would have been very happy indeed. Who wouldn't want a "LEGO Idea Book" from the future? That's sort of what it is.

Is Teknomeka Brian Cooper's final say as far as LEGO mecha building is concerned?
I've advanced beyond the geared technology of Teknomeka as I'm getting into the super heavy mecha realm. I would never rule out making more instructions if I think I've invented something generally applicable, and I have the free time.

Top left and left: mechaGodzilla.

I have personally seen several of your more recent works at Brickcon in Seattle. I notice that lights and motors are becoming a regular part of your building. What challenges came with incorporating action into your models?
"Powering up" a model adds to the fun. Larger mecha offer the advantage of more space to house electrical elements, but you need to plan ahead. There's still a need to build around the electric elements, rather then retrofitting, "snaking" them in. The new small lightweight (PF) rechargeable battery packs with the built-in speed control are a game changer as far as compact packaging, but I still do wish that LEGO had PF micro motors.

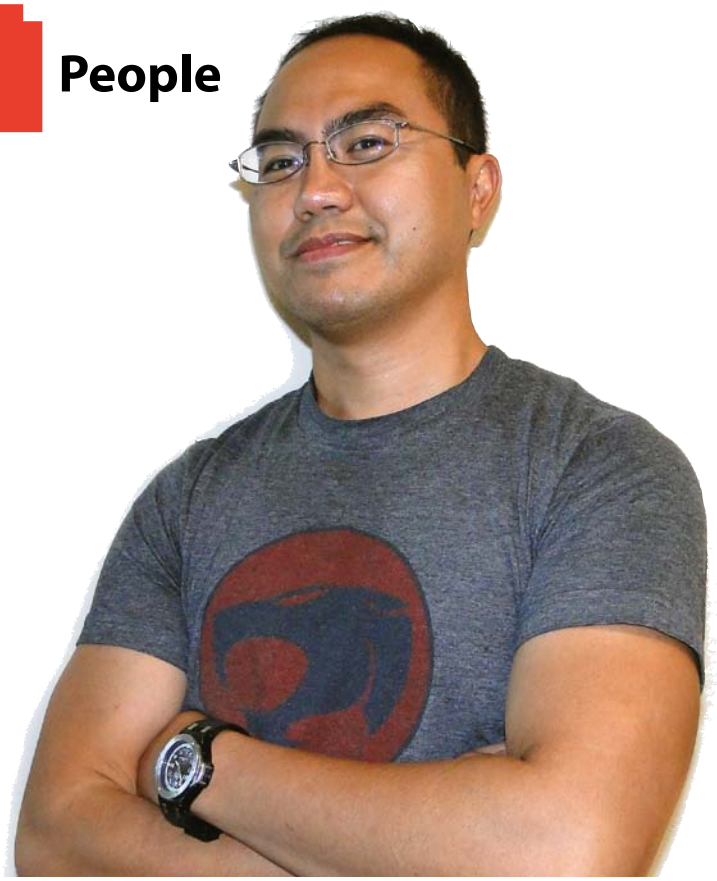
Any up-coming builds you want to tell us about?
I've been very excited about the LEGO linear actuators and I've been developing new joint designs using them. Linear actuators solve the gear tooth breakage problems for super heavy mecha which I keep running into. I can also solve a very old design problem having to do with holding mecha legs horizontal in a transformed flight mode. I guess that's a hint as to what I'm building.

You can order Teknomeka at this webpage.

Left: Access doors for mechaGodzilla.

Top: Corridor from "Moongrazer" story on www.brickshelf.com." (http://www.brickshelf.com/cgi-bin/gallery.cgi?f=112784)

Above: Removable mecha G control room module.



Builder Spotlight:

Fradel Gonzales: Mecha Builder

Article and Photography by Fradel Gonzales

I recall having been a LEGO fan ever since my first set back in the early '80s. There were some stints in my childhood, however, when Lego was not my focus such as during my Transformers/GI Joe phase or when the Nintendo Entertainment System came out. The Classic Space era transitioned into Futuron by the time I was in junior high school and by then I was into other hobbies. I missed out on all those new lines of that period. That would have to be the first "Dark Age" I experienced. I got back into LEGO building for a little bit when Ice Planet 2002 came out and during the Exploriens line but that was more as a set buyer, not as a MOC builder.

I guess I could say I became an AFOL in the modern sense when I joined LUGNET (LEGO Users Group Network, the first international online LEGO community) back in 1999. I was aware of the AFOL scene a few years prior when I would peruse the old AFOL web-ring and the RTL usenet group. During that time, I participated in Todd Lehman's Auczilla's to expand my collection. I stumbled upon a thread that mentioned LUGNET and the rest, as they say, was history.

By 2001, I was living in the Northern Virginia area of the Capitol Beltway. I had just discovered WAMALUG (Washington DC and Metropolitan Area LEGO Users Group), sadly after the '01 BrickFest had already passed. Finally meeting other AFOLs face-to-face was an interesting encounter. I was a little nervous and apprehensive at my first LUG meeting. These people had collections and skill levels that far surpassed mine. I was not sure if they would accept me with open arms or haughtily dismiss me as some "noob" amateur. It's amazing how far I have progressed as a builder and as a member of the community since those early days.

In the community scene, I am known as a "Spacer," someone who builds models in the sci-fi genre and who grew up with Classic Space, one of a lot of sub-genres under that classification. I build things inspired by the shows and anime I grew up with and whatever else has come along since then. Most of my MOCs are military sci-fi, Steampunk, futuristic, mecha, etc. I also really like building micro-scale warships that harken to the days of watching *Star Blazers*, *Macross*, and *Vehicles Voltron* team.

Because the core of my childhood was in the '80s, I was immersed in *Robotech*, *Voltron*, *Tranzor Z*, *Starriors*, *Zoids*, and *Battletech*, so I was a big mecha fan. I had already discovered various AFOL mecha builders on the web-ring around the '97–'99 era. I was greatly impressed by what was being built at the time. Some of the pioneers are long gone from the scene like Trevor Pruden *(http://home.cogeco.ca/~tpruden3/ALCindex.htm)*, Karim Nassar, Mladen Pejic *(http://www.brickshelf.com/cgi-bin/gallery.cgi?f=5984)*, and Colin Guttierez to name a few. Others like Mark Sandlin *(http://www.flickr.com/photos/grandadmiral/sets/)*, Bryce McGlone *(http://plasmicbricks.com/)*, and Soren Roberts *(http://www.flickr.com/photos/bricklovinfreakboy/)* are still around. There were also the Japanese builders like Sugegasa *(http://www.brickshelf.com/cgi-bin/gallery.cgi?f=87139)*, Moko *(http://www.brickshelf.com/cgi-bin/gallery.cgi?f=106337)*, and Padiru *(http://www.brickshelf.com/cgi-bin/gallery.cgi?m=PADIRU)*. Of those, I only know them by screen name.

The early mecha builders were able to pull off quite a bit of articulation with the pieces available at the time like technic pins and brick and finger hinges. I marveled at the latest achievements of ingenuity that would populate the mecha section of LUGNET. I wished that one day I could join those ranks, but I felt that I did not have the skill or collection to pull it off. After I had been able to socialize with a few mecha builders at BrickFest '04, I finally decided to take the plunge.

Beginnings

I constructed my first mecha chassis the month following BrickFest '04. By taking advantage of chatrooms and email, I was able to get good advice on shaping my initial mecha MOCs. Those colleagues helped me get over my construction dilemmas as they cared more about helping my craft develop rather than inserting their own aesthetic preferences. At the time, the joint technology available to me were the parts I

mentioned earlier as well as Pick A Brick-provided hinge plates, the technic articulated arms (used by many Classic Space sets and pre-minifig LEGO people), and a care package of parts sent from Keith Goldman, a fellow sci-fi builder (spotlighted in *BrickJournal #1* and writer to a tribute to Nnenn, a LEGO sci-fi builder, in Issue 13).

After developing the early mecha designs, I went back and cleaned up the color cohesion and started making variants on the base designs to try out different weapon packages and color schemes. The *Battletech* style was a big influence in making those changes. There was also a favorite American-made cartoon called *ExoSquad* that aired for two seasons in '94 and '95. Though the quality of the animation couldn't compete with anime, the stories were more compelling and the mecha designs were also memorable. *ExoSquad* made extensive use of colored variants. You can't always make everything you want in one mecha, but you can always make another one and try new weapons and color schemes with that one.

Aside from making squad of variants, I also make one-off designs. They tend to be larger because I can use more resources into making them since I am not concerned about mass producing them like the smaller ones. I can give them a more armored look and increase the weapons density. The heavier designs lend themselves to a more aggressive look and end up in assault or artillery roles. While I can appreciate the the lithe Japanese designs of the *Gundam* style, I am influenced more in the Western mecha aesthetic.

Maxwell.

Hoverquad mecha on patrol.

Variants of Myrmidon.

Easter Whambit.

Building mecha

The steps in creating mecha are pretty standard. How will it balance? How poseable do I want it to be? What scale/size will I shoot for? Poseability and balance affects the form versus function equation. I might have to sacrifice some range of motion on a specific joint area to achieve the look I am going for. You try your best to accommodate the X,Y, and Z axis of joint mobility, but there are times you need to limit the possibility to armor up the joint area. You can still get dynamic poses achieved by tweaking the equation and taking advantage of the strengths of one area versus the limitations of another. If you start building knowing the brick geometry of your parts selection, you can predict the optimal parts placement for range of motion.

Size and scale will determine what joint parts you can use. If you go non-piloted or microscale, you are pretty much using pneumatic-t's, taps, clips, bars, etc. You don't have to worry about overloading a joint too much because there is not a lot of weight focused on it. One-clip and one-stud connections are pretty much kosher against excessive strain at that scale. There are some builders out there like Paul Lee *(http://www.flickr.com/photos/artpoly/sets/72157601831124983/)* who can use frogs and other animals as pilots at that scale as well.

I like to make my mech at minifig scale because I like to have piloted mecha. Having pilots means you now have to figure out cockpit placement and accessibility and how it will affect balance of the mecha. Some builders like to use windows in their designs but I go for the closed-off armored cockpit. I also make the cockpit the starting point of the mecha design. It is core of the mecha and if I can't make that work, it affects the rest of the design. Next, I go for designing the foot and ankle area. The posability and load bearing of the foot is key to whether or not the mecha can balance.

Escrimador.

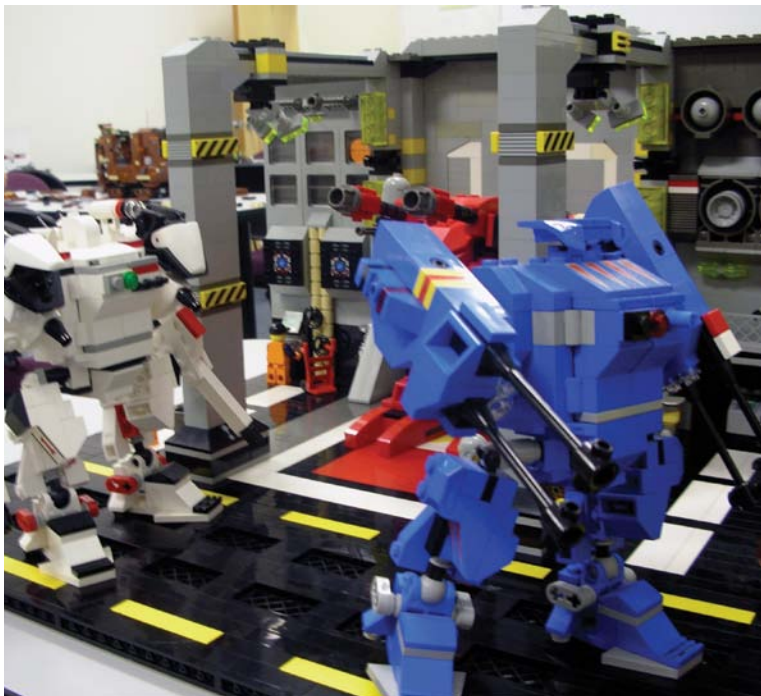
At the scale I work, I can make aggressive use of the latest joint tech that was not available to the early mecha builders. Crucial parts that I keep in my inventory are the click ball joints that came out in '04–'05 with the animal creator sets and Knight's Kingdom maxi-fig/action figure canisters. Bionicle parts were another boon to the mecha building community which showed up in the early 2000's. I also stockpile the ball and socket bricks that came about during the ExoForce line, which are still being produced in current sets.

Aside from making the mecha themselves, one good suggestion to potential mecha builders is to try and make backdrops — such as dioramas — to help set off the presentation of their MOC. That can go a long way in making your MOC stand out and be noticed. In 2005, I took that advice and made a 3 48-stud baseplate long mecha hangar based off of the old Revell model line called *Robotech Defenders*. That line has a large mecha hangar set called the Robotech Factory and several smaller ones that you could put together side by side. I lengthened it since the first inception and I still keep it together for displaying my mecha whenever transporting it to a convention is feasible.

You can see more of Fradel's models at http://www.flickr.com/photos/35774347@N00/sets/ or by scanning this QR code!

Bombardero.

Below: Carabao.
Bottom Right: Looking at Fradel's mech bay .

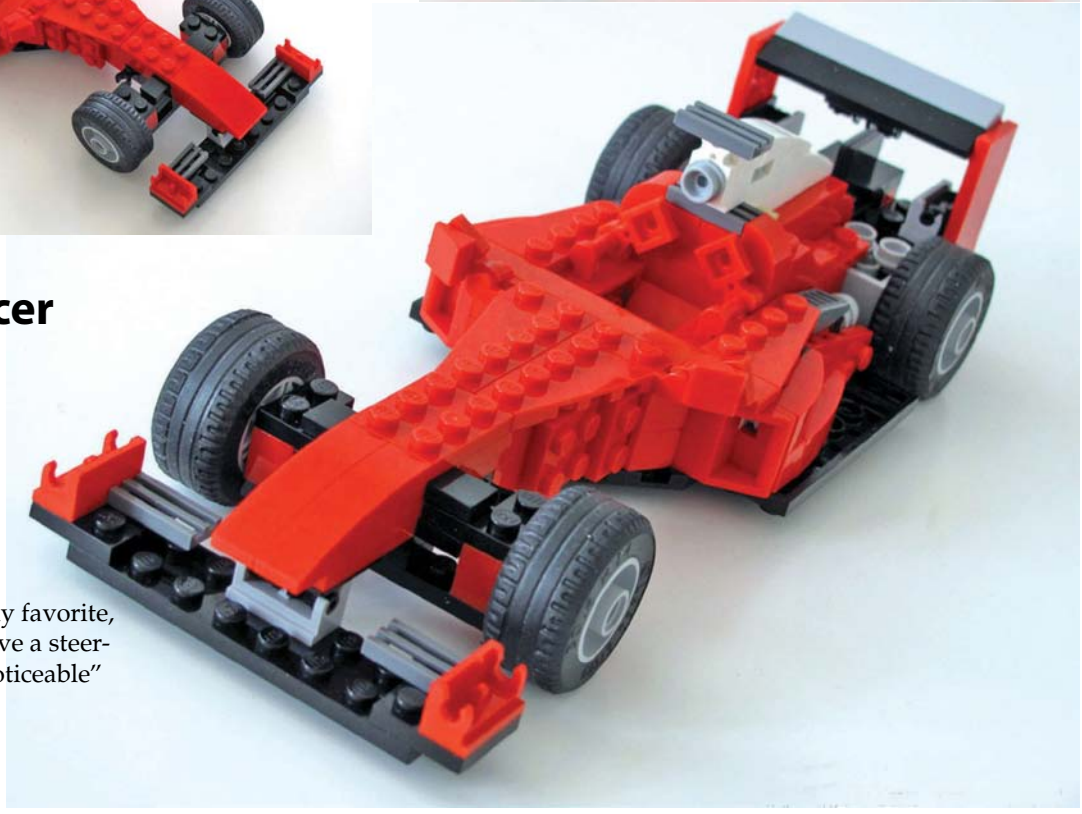


Alternate Building:
Super Speedster
(#5867)

Article and Photography by Nathanaël Kuipers

One of the features of the first few online issues of *BrickJournal* was a photo gallery of alternate models from a specific set. The main builder of these alternates was Nathanaël Kuipers, who went on to work at the LEGO Group and began his career as a designer.

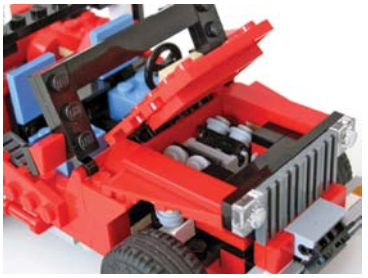
He hasn't stopped building alternates, though. In fact, here's a gallery of a few of his more recent models, all taken with parts from the Super Speedster set. So far, he has made nine alternates from this set!



Formula 1 Racer

From Nathanaël:
"The F1 car is probably my favorite, even though it doesn't have a steering wheel - it's not that noticeable"

Offroad Jeep



You can see all of Nate's alternates at http://mocpages.com/folder.php/839 or by scanning in the QR code at left!.

Quadbike

Again, from Nathanaël:
The Quadbike was more of an experiment with a working steering column, but it is the most fragile of all and doesn't use so many parts.

The Maersk Train Arrives!

Article and Photography by Geoff Gray
Additional art provided by the LEGO Group

When LEGO Systems announced the upcoming release of a new train set based on the Maersk line, the community got very excited. I immediately contacted the company and asked to have a copy to write a review for the magazine. I felt that this would be a great set, and I was basing that off of just a couple of photographs. I was not disappointed.

THE SET

I love the LEGO Train models and thoroughly enjoy building large layouts involving city/train. This is also one of the more popular themes for AFOLs to build combined layouts (In 2005, 13 different AFOL train clubs put together a display that was 50' by 70', had 30 different active train and monorail lines, and used an estimated 2.7 million elements. It was the largest LEGO train layout ever made at that time). I also love many of the promotional sets TLG releases. So when I got the news that a new train set was coming out that tied into Maersk, I was really excited. In the back of my mind, I had already set a high standard for what this set should be like, but after getting it, my expectations were well exceeded.

The box contains a number of sharp pictures of the train from many different angles. This gives you a very good idea about what the train will look like when finished. The details put into the locomotive and the truck are very well thought out. I have seen a number of diesel/electric locomotives by both TLG and very talented fans, but the realism of this one makes it the best diesel locomotive design I have personally ever seen. There were many things that caught my eye as I built the set and looked at the overall design and packaging.

The very first thing I noticed was that the instructions and sticker set came in a separate plastic bag, with a cardboard insert, to keep everything flat and unwrinkled. It may just be coincidence, but I mentioned my desire to see packaging like this in another review I did a couple years back because I was tired of getting stickers that had come off the sheet and dealing with instruction books that were crumpled or creased.

The next thing that I noticed was the quality of the stickers. I am usually hesitant to put stickers on my sets because I don't like how the sets look later when the stickers start to pull away or fall off. I cannot be sure, but I get the feeling with this set that the stickers will stay in place for a long while.

The "truck" under the front part of the locomotive uses a different build style and different wheels than the trucks under the back and the trucks under each car. As

I built the model, I realized this was to accommodate the use of the LEGO Train Power Functions motor. The wheels use TECHNIC axles so power will pass to the wheels, and the wheels have rubber flanges where they meet the track to provide extra grip. All of the other wheel sets use the common round metal axle, which rolls very smoothly and provides very little friction.

The locomotive is designed so that a few pieces can be removed and the power functions motor set can be inserted. Instructions for this are at the back of the second instruction book. The setup allows the motor under the train, the insertion of the battery pack in the engine compartment, and an IR receiver to hide just in front of the engine compartment. Also, since I have been playing with LEGO trains for a very long time, I still use the older 9V control system, so I decided to come up with a design to equip the train with that particular motor. I have included the instructions here.

There is a lot more than this to like about the set, and when all is said and done, I think it will be a very popular set, and one you should get your hands on. It is bound to be a collectable set down the road, and it is also one of the best non-TECHNIC sets I have built in many years.

"It will be a collectable set down the road, and it is also one of the best non-TECHNIC sets I have built in many years."

Size Comparison to Other LEGO Trains

One of the things that make this model so realistic is the scale, specifically the length of the engine. This is the longest locomotive base I have seen from the company, and I have a lot of their sets. I think the extended length really helps the locomotive stand out and allows the two trucks to be in proportion to the overall locomotive. The illustration below compares the length of the base of three different locomotives.

Scale diagram comparing the length of three different set bases.

"The train is inspired by an actual Maersk train that transported containers across the USA. Train fans had tracked its route for several years taking pictures and posting them in forums, so we knew the adult LEGO fans would be very interested in seeing a LEGO replica of the model."

***BrickJournal* spoke with Mads Nipper, Executive Vice President of Markets & Products, about the relationship between LEGO Systems and Maersk. We thank Mads for his time and input.**

Is there a strong partner relationship (such as LEGO Systems uses Maersk exclusively for all shipping across seas, and/or on land)?
We have a great and long standing relation to Maersk in general and we do work together, but the LEGO Group has no exclusive agreements with Maersk for shipping products or other services.

Is it the idea of Maersk or LEGO Systems that prompted the release of this set?
The idea of launching the Maersk train was prompted by LEGO System A/S. Maersk is a highly recognizable and emotional brand name to the adult LEGO consumers due to the long relationship between the LEGO Group and the Maersk Group. With the launch of the #10155 Maersk Line Container Ship in 2010, the blue color which is normally not part of the standard LEGO color palette was produced and we saw a rare opportunity of building further on the partnership by co-branding the LEGO train with Maersk.

The train is inspired by an actual Maersk train that transported containers across the USA. Train fans had tracked its route for several years taking pictures and posting them in forums, so we knew the adult LEGO fans would be very interested in seeing a LEGO replica of the model.

When the original Maersk container ship (#10152, not the set released in 1974) set was released, it was listed as the last time any set would be available in Maersk Blue. It was also listed as a limited run set (I think 75,000 copies). The set was re-released later, and now this set is also released. The public is rejoicing (so this was a good decision), but what prompted the change of heart?
The special color that is referred to as the Maersk blue is not part of the standard LEGO color palette. However, again due to the very special relationship between the two companies, the color has on rare occasions again been introduced to meet the request for a limited production of a LEGO Maersk co-branded product.

THE BUILD

The build was pretty straight forward. I got fooled for just a moment by the step 9 – page 13 – book 1 because the background color of the booklet is similar to the Maersk blue color. Although it is recognizably different, I happened to look at the step too quickly and thought that I had missed an earlier step that required two 2 x 2 tiles in Maersk blue. I quickly realized my mistake and moved on.

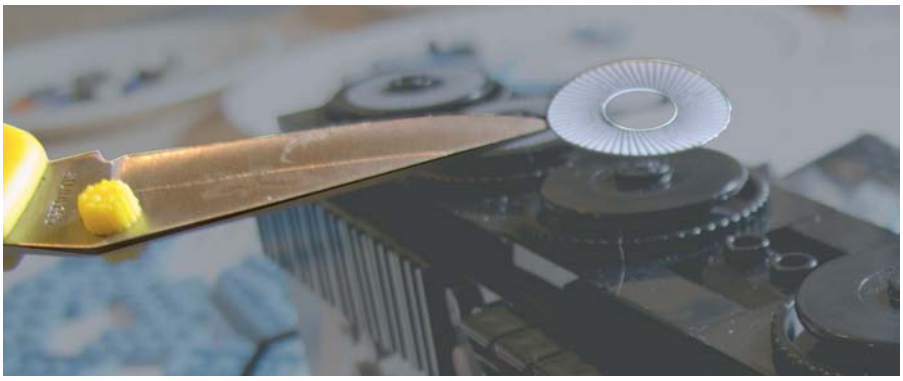
The next issue I had was trying to figure out the best way to apply the small stickers. The ones that really got me are the numbers that go on the slopes above the cockpit windows (step 7 – page 29 – book 1). I decided to use the tip of a pocketknife to hold the stickers for proper positioning. That made life so much easier.

The last issue of any concern that I had was a problem that I often face when building sets. There's a good chance that my age (I am 47) has a part in this, but I have trouble distinguishing the differences in dark element colors. For instance, step 4 – page 61 – book 1 shows a list for dark brown plates. At first glance I could not tell if these were dark brown or black. Because of the difficulty I have with some color detection, I use an Ott-Lite (http://www.ottlite.com), which helps quite a bit. I really do not have any type of solution to offer, and it may not be an issue for most, but by using a good clean light on the work area, I don't think anyone will have a problem.

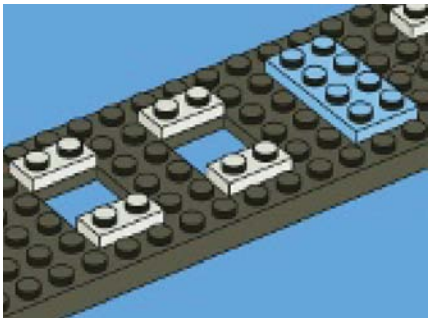
NEW PARTS

As with most sets that I review these days, I find a couple of new elements. Now to be fair, new elements usually get released in a few different sets simultaneously, so I do not claim these to be exclusive to this set. This just happened to be the first time I have seen these.

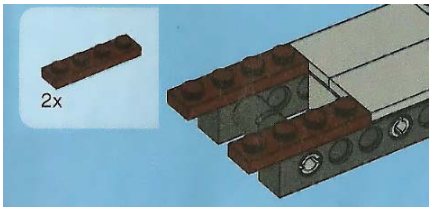
BUILD PICTURES



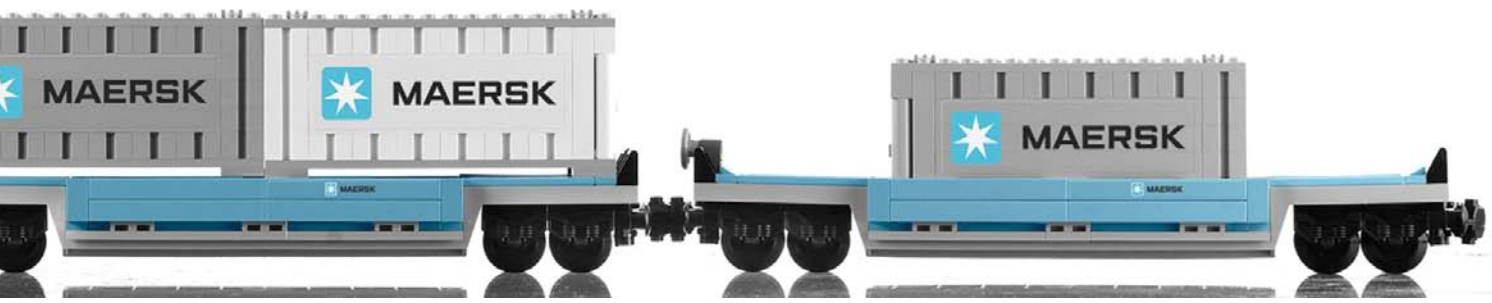
Using a knife to apply stickers to the set.



The color here fooled me for a second.



This is a sample scan showing where I have trouble distinguishing colors of elements. By using a good light when I build, I manage to get it right, but I am curious if there are ways of making better color contrasts in the instructions



The set is finally completed. You can also see where Mr. Maxifig is watching over the scene. He supervises all builds in my house.

You can see that the instructions and the stickers for this set are in a plastic bag with a piece of cardboard, to help keep everything neat.

Want more info on the LEGO Train Community? Visit http://www.railbricks.com/index.php

The MAERSK Set History

The LEGO Group has released a number of different promotional Maersk sets over the years. Many are extremely rare, and if you are lucky enough to find one to buy, it is usually very pricey. This is a list of the sets TLG has released:

#1650 - Released 1974, 220 pieces.

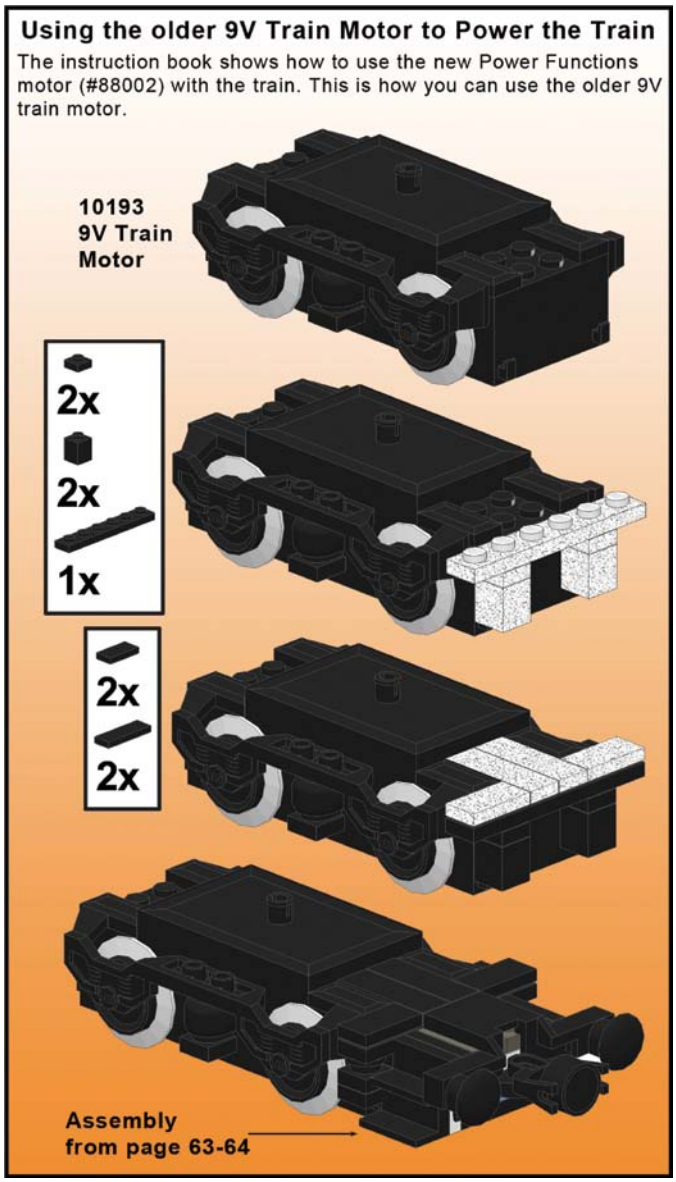
#1651 - Released 1980, 30 pieces, 1 minifig.

#1552 - Released 1985, 352 pieces, 1 minifig.

#1831 - Released 1995, 211 pieces, 1 minifig.
(later releases have "Maersk Sealand" stickers)

#10152 - Released 2004, 988 pieces.
(re-released in 2010 as set #10155)

#10219 - Released 2011, 1237 pieces, 3 minifigs.



1974

1980

1985

1995

2004

2011

Minifig Customization 101: Gray Market Accessories

Article and Art by Jared K. Burks

Figure 1: Examples of Hasbro parts for use with LEGO custom figures. Bouush Leia is created by using the helmet. I also made use of the Bouush weapon by cutting part of the Hasbro weapon and gluing it to some LEGO elements.

Before we had the Endor Rebel hat the Hasbro option was also available.

Figure 2: Jamie "Morgan19" Spencer's collection of Non-LEGO elements for use in custom figure building.

This series has been primarily concerned with teaching how to create custom figures and all the accessories needed to outfit your figure. This isn't always practical and until recently (with the creation of the Collectible Minifigure Series) LEGO accessories were fairly limited. So when you can't or don't want to create every part of the figure from scratch, it is time to look to the grey market of LEGO-compatible accessories. This is actually quite a large field with about 15 main contributors beyond the LEGO clones: Bestlock, Cobi, Megabloks, and Oxford.

To begin this discussion, please consider that many of the accessories created by the clone brick and action figure companies including: Bestlock, Cobi, Games Workshop, Hasbro, Medicom Kubrick, Megabloks, Oxford, Sidan, Stikfas, and many others are very compatible with LEGO figures. Several customizers have used hats, weapons, capes, and other odd parts to complete a custom figure. One of the easiest ways to make a LEGOized Star Wars Bouush Leia figure, for example, is to use the Hasbro action figure helmet over a LEGO head. This can be a very economical way to get the needed accessory, especially if you don't have the time to make it. Buy the action figure or yes, one of the other companies' sets. I know many wouldn't touch their inferior bricks, but get over it if you need that accessory item (Also you can use those bricks to build your molding boxes instead of destroying your LEGO bricks). Commonly, many of these "other" companies' accessories are sold on eBay and a few, like Sidan, are readily available on Bricklink (www.bricklink.com/store.asp?p=Minifig.Cat). Several of these other companies have themes in line with LEGO and where they succeed, in my opinion, is more artistic accessories. Instead of a plain straight spear it might have detailing or be slight crooked. This detail could help make your custom figure unique. One of the best customizers at using Action figure accessories is Jamie Morgan19 Spencer. Just check out his Flickr gallery: http://www.flickr.com/people/morgan19/. Also check out his stash of non-LEGO parts he pulls from (photo below).

With knowledge of the LEGO Clones and action figure market we turn to the Grey Market, manufacturers that specifically create accessories that are compatible with LEGO figures. To summarize, I have created a table below of all the vendors, their speciality, and their store location. This is not an exhaustive list of where you can buy items; many of these groups have distributors. To locate a distributor close to you, please check their websites or run a Google search for their names and you can find one in closer proximity to save on taxes and possible import fees. However, whenever possible I always try and buy directly from the manufacturer for the best service. Navigating these sites can be very time-consuming, so understanding your needs before visiting can be helpful. I suggest using search functions on the sites when possible.

Grey Market LEGO Compatible Manufacturers

Manufacturer	Owners	Web Address	Decals	Parts	Cloth	Mods
Amazing Armory	Hazel	bricklink.com/store.asp?p=AMAZING ARMORY		X		
Arealight	Bluce Hsu	Arealightcustoms.com		X		
BrickArms	Will Chapman	brickarms.com		X		
BrickForge	Kyle Peterson	brickforge.com		X		
Brickmodder/Lifelites	Rob Hendrix	brickmodder.net, www.lifelites.com				X
BrickTW	Kevin Chu	shop.bricktw.com		X		
Custom Brick & Minifig	Christo	myworld.ebay.com/christo7108		X	X	
Fine Clonier	Jared Burks	fineclonier.com	X	X		
Little Armory*	Jeff Byrd	littlearmory.com		X		
MinifigCustomsIn3d	Andreas Holzer	shpaeways.com/shops/MinifigCustomsIn3d		X		
MMCB	Mark Parker	mmcbscapes.servaus.net			X	
Roaglaan Stickers	Tim Fortney	roaglaanscustoms.com	X			
Saber Scorpion	Justin Tibbins	saber-scorpion.com	X			
The Little Arms Shop		thelittlearmsshop.com		X		
Unknown Artist Studio	Victor Sobolev	unknown-artist.com/product	X	X		

Amazing Armory

Amazing Armory offers a line of highly detailed military pieces that range from helmet accessories to highly-detailed weapons. Most with a Science fiction/video game twist.

Arealight Customs

Arealight Customs make fun and high quality custom accessory for anyone who enjoys customizing their own minifigure creation. Custom parts are made of high quality ABS and many are available pre-printed.

BrickArms

BrickArms sells WWII, modern, and sci-fi weapons, accessories, and helmets. All are made of injection molded ABS, and are available in multiple colors including gunmetal and electroplated chrome. BrickArms also sells custom-printed minifigures, complete with matching accessories. BrickArms sells over 100 different weapons & accessories, weapons packs, and custom minifigures.

BrickForge

BrickForge provides the community with a unique assortment of custom minifigure accessories. Their catalog of over 100 specialized elements and 20 vibrant colors spans many themes including fantasy, historical, modern, and sci-fi, allowing minifigure enthusiasts to construct a variety of impressive characters.

Brickmodder/Lifelites

Lifelites Custom LED lighting kits and accessories allow for lighting modifications to be added to your MOCs, minifigures, and other scale models.

BrickTW

BrickTW come from Taiwan who are partners with a deep emotion for LEGO. They hope to create a paradise and invite all LEGO fans to join. Their focus is in the Asian historical theme, but they have a lot of innovative items too. They offer 480 components in different colors, resulting in an amount around 288,000 items in their store.

Custom Brick and Minifig - Christo7108

Custom Brick and Minifig creates a very high quality of custom LEGO scale items. These items include custom capes, glow in the dark blades, head accessories and excellent custom figures. All our items are printed and are of a very high standard. Christo7108 is always ready to do new and exciting designs. Complete figures are available, but as they are only sold through eBay the price can vary from auction to auction, so be patient if you are after one of their parts or figures.

Fine Clonier Custom Minifigure Decals and Accessories

The Fine Clonier, my site, offers high quality waterslide decals for several genre as well as custom cast and ABS elements. We strive to incorporate a style similar to LEGO when appropriate and deviate where we deem necessary. We offer thousands of designs which can be combined in infinite number of ways with LEGO elements to create an endless supply of custom figures.

Little Armory

The Little Armory, which I believe is now closed, was the first ABS parts supplier on the grey market that I am aware of. They created simple yet elegant versions of the Star Wars weapons to outfit your custom figures. Many of these accessories are still highly sought after today.

MMCB

MMCB Custom Minifig Cloth Accessories specializes in making fabric accessories for standard Lego Minifigures. Their designs range from basic capes through to highly detailed pauldrons, holsters, and tents. Each piece is made from specially treated fabric closely matched to Lego colours. They currently have 90 different designs which are available in 33 colors. Most of these can have additional detailing (borders, emblems, camouflage) to make a total of 688 individual products.

Roaglaan Stickers

Most of Roaglaan designs are based on World War II and modern military themes, and they also have a few pirates and adventurers. The site's philosophy is to create decals and stickers in a style that complimentary to the LEGO design. Designs are provided as stickers or water-slide decals.

Saber Scorpion

Saber Scorpion's Lair offers sticker sheets to create your favorite custom figure across many different films and games.

The Little Arms Shop

There is a cloud of mystery around how this shop started. The owner use to be a distributor for the Little Armory and then suddenly cut the Little Armory out of the picture. They offer many of the same items that the Little Armory did, so if you are desperately looking for one of their items check here.

Unknown Artist Studio

Unknown-Artist-Studio is a hobbyist-owned and run online shop catering to AFOLs and customizers around the world. They offer intricately fitting fabric cloaks, coats, and holsters and sheaths that work with official and aftermarket elements. In addition to fabric, they also have resin cast accessories. Requests for custom colors and elements are always available.

PLEASE NOTE: This article and the author does not endorse or vouch for any of these manufacturers so if you have concerns please contact their customer support people before purchasing. Also note the author owns the Fine Clonier.

You can go to Jared's webpage by scanning this QR code!

MinifigCustomsIn3d

MinifigCustomsIn3d provides custom accessories in minifigure scale. The shop contains mainly hats for different topics (Napoleonic, Middle Age, Ancient, Fantasy, Military) and a small number of additional items like rifle, pistol, drums, mace, and more. Currently, the shop has nearly 150 different items.

It is readily apparent the Grey Market is a large and growing with many people making niche items. Understand your needs before shopping and buy only what is needed or you could go broke quickly, as many very interesting items are being produced.

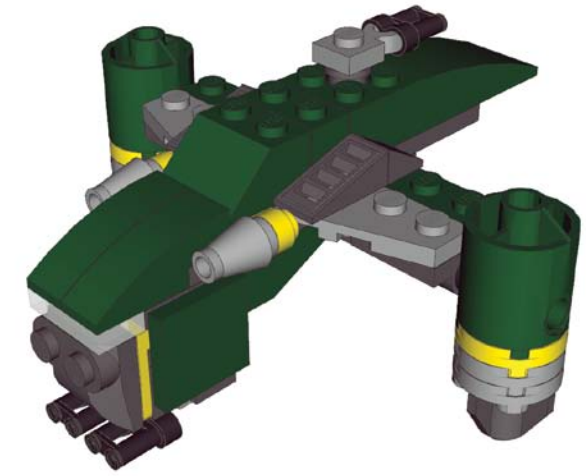
Next Time:

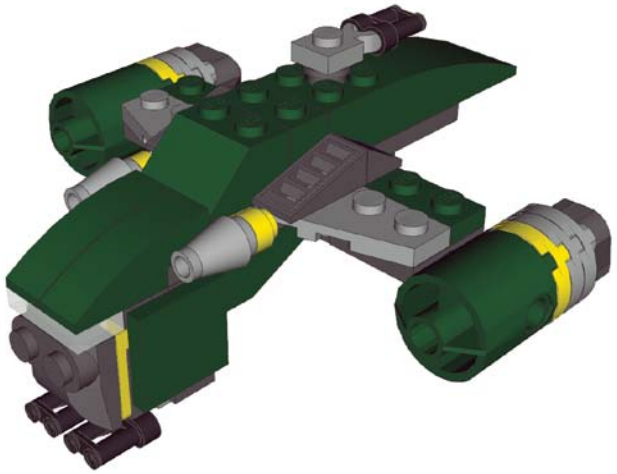
Minifig Customization 101 – Styling Your Minifigure's 'Do!

You Can Build It
MINI Model

MINI Bounty Hunter Ship

Design and Instructions
by Christopher Deck





Hello everybody, I am glad to join again for this great issue of *BrickJournal*. Today I want to build a new starship type which was introduced during the second season of the *Clone Wars* TV series in the episode "Bounty Hunters": the gunship *Havoc*. This vessel was originally a SS-54 light freighter, manufactured by Botajef Shipyards, who also built the AA-9 Coruscant Freighter seen in *Attack of the Clones*. The front sections of both starships are similar to each other.

The Bounty Hunter Gunship is a highly manueverable craft due to its large and flexible engine pods, a feature that is of course included in this MINI model. The smooth curves of the design have been realized using curved bricks and slopes. Some other important details are included — all six laser cannons! It was not easy to attach the two forward-mounted double laser cannons without exceeding the original dimensions. The model therefore uses an unconventional connection technique by sticking binoculars on 1 x 1 clip plates.

With that our little model is finished. I wish you happy building, and hopefully see you next time!

Yours, Christopher Deck.

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

Qty	Color	Part	Description
1	Yellow	44728.dat	Bracket 1 x 2 - 2 x 2
2	Dark-Bluish Gray	4588.dat	Brick 1 x 1 Round with Fins
4	Dark-Bluish Gray	87087.dat	Brick 1 x 1 with Stud on 1 Side
1	Dark Green	3004.dat	Brick 1 x 2
2	Light-Bluish Gray	4589.dat	Cone 1 x 1
2	Dark-Green	30361.dat	Cylinder 2 x 2 x 2 Robot Body
3	Black	30162.dat	Minifig Tool Binoculars Town
1	Light-Bluish-Gray	6141.dat	Plate 1 x 1 Round
2	Yellow	4081b.dat	Plate 1 x 1 with Clip Light Type 2
2	Light-Bluish-Gray	4085c.dat	Plate 1 x 1 with Clip Vertical Type 3
1	Trans-Clear	3023.dat	Plate 1 x 2
4	Dark-Bluish-Gray	3023.dat	Plate 1 x 2
1	Dark-Bluish-Gray	3794.dat	Plate 1 x 2 with 1 Stud
1	Dark-Green	3460.dat	Plate 1 x 8
1	Dark-Bluish-Gray	3022.dat	Plate 2 x 2
2	Yellow	4032b.dat	Plate 2 x 2 Round with Axlehole Type 2
4	Light Bluish Gray	4032b.dat	Plate 2 x 2 Round with Axlehole Type 2
2	Dark-Bluish-Gray	2444.dat	Plate 2 x 2 with Hole
1	Dark-Bluish-Gray	3021.dat	Plate 2 x 3
1	Dark-Bluish-Gray	3795.dat	Plate 2 x 6
2	Dark-Bluish-Gray	61409.dat	Slope Brick 18 2 x 1 x 2/3 Grille
2	Dark-Bluish-Gray	50746.dat	Slope Brick 31 1 x 1 x 2/3
2	Dark-Green	4287.dat	Slope Brick 33 3 x 1 Inverted
1	Dark-Green	3039.dat	Slope Brick 45 2 x 2
1	Dark-Bluish-Gray	47457.dat	Slope Brick Curved 2 x 2 x 2/3 Triple with Two Top Studs
2	Dark-Green	50950.dat	Slope Brick Curved 3 x 1
1	Dark-Green	44126.dat	Slope Brick Curved 6 x 2
1	Dark-Bluish-Gray	32000.dat	Technic Brick 1 x 2 with Holes
2	Black	2780.dat	Technic Pin with Friction and Slots
2	Dark-Green	3068b.dat	Tile 2 x 2 with Groove
1	Light-Bluish-Gray	43723.dat	Wing 2 x 3 Left
1	Light-Bluish-Gray	43722.dat	Wing 2 x 3 Right

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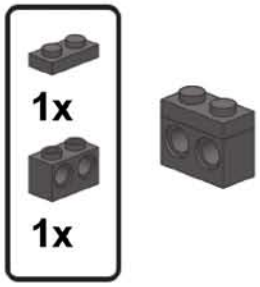

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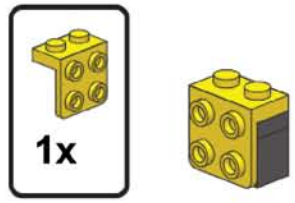

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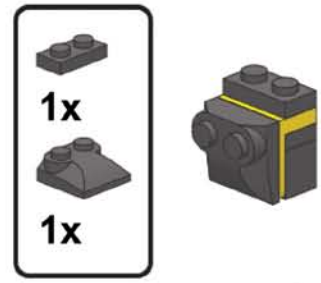

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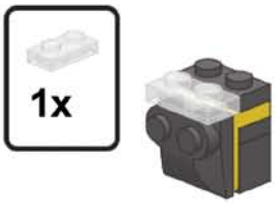

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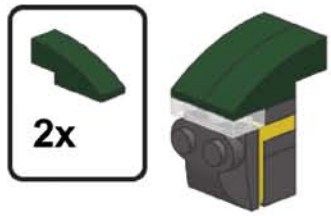

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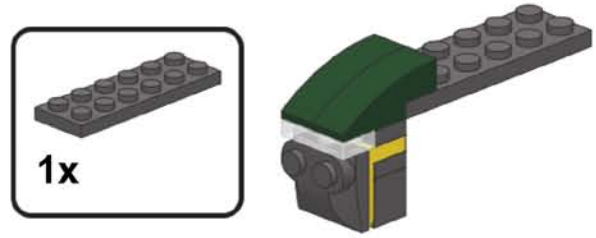

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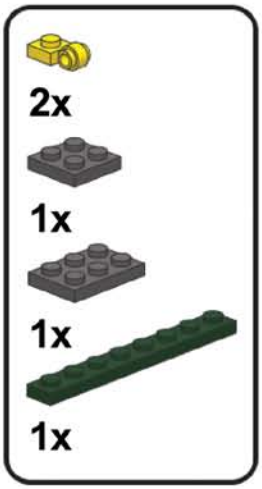

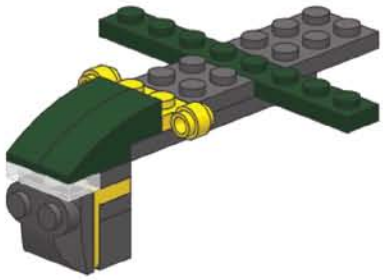

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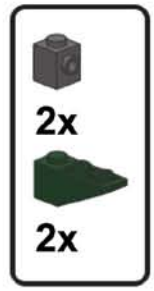

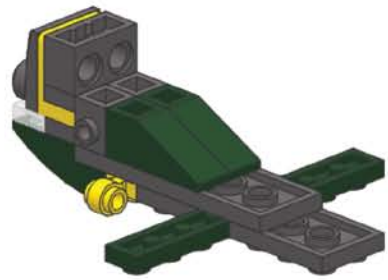

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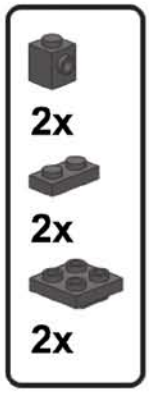

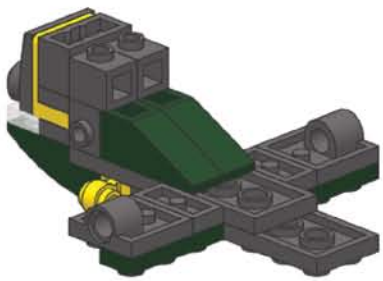

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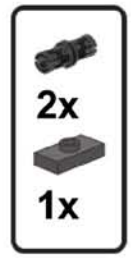

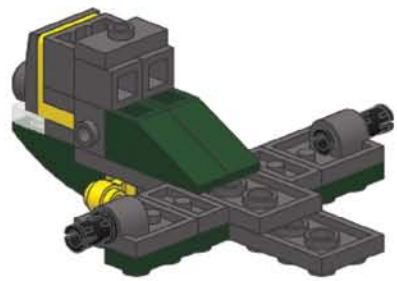

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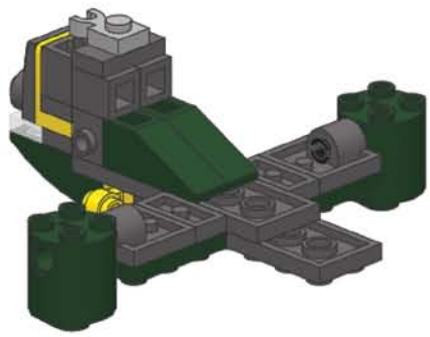

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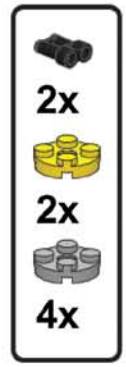

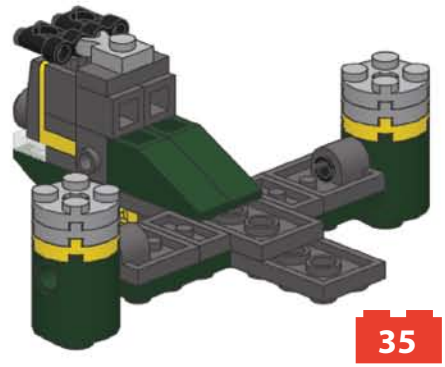

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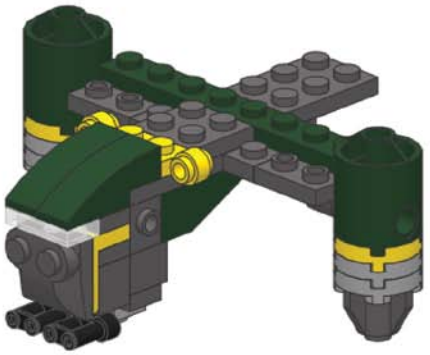

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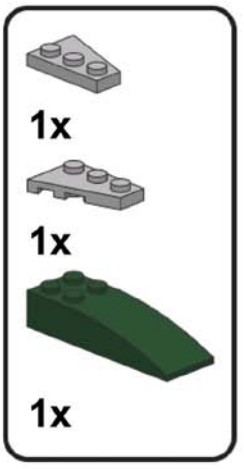

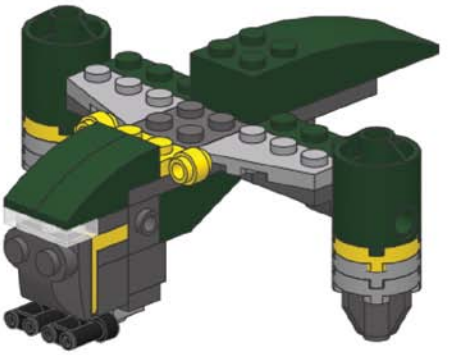

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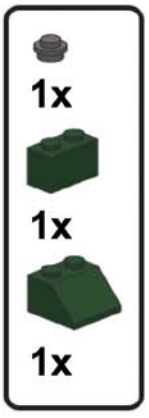

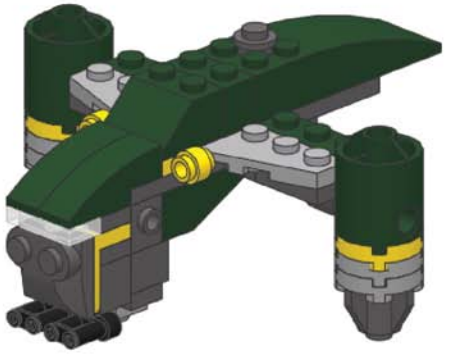

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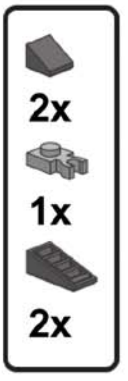

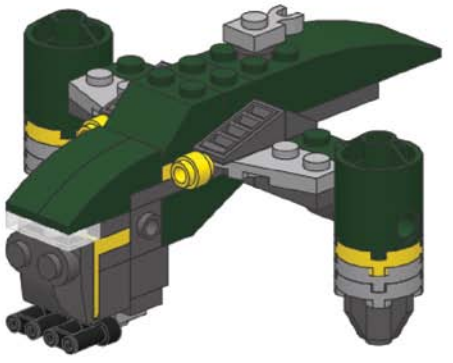

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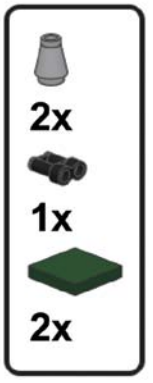
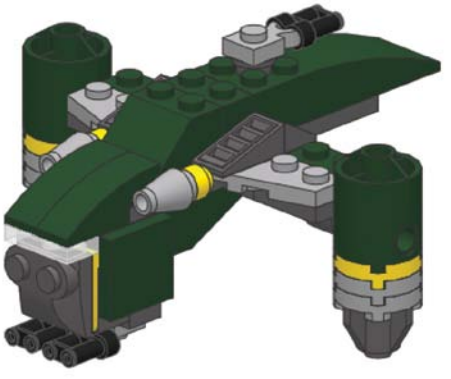




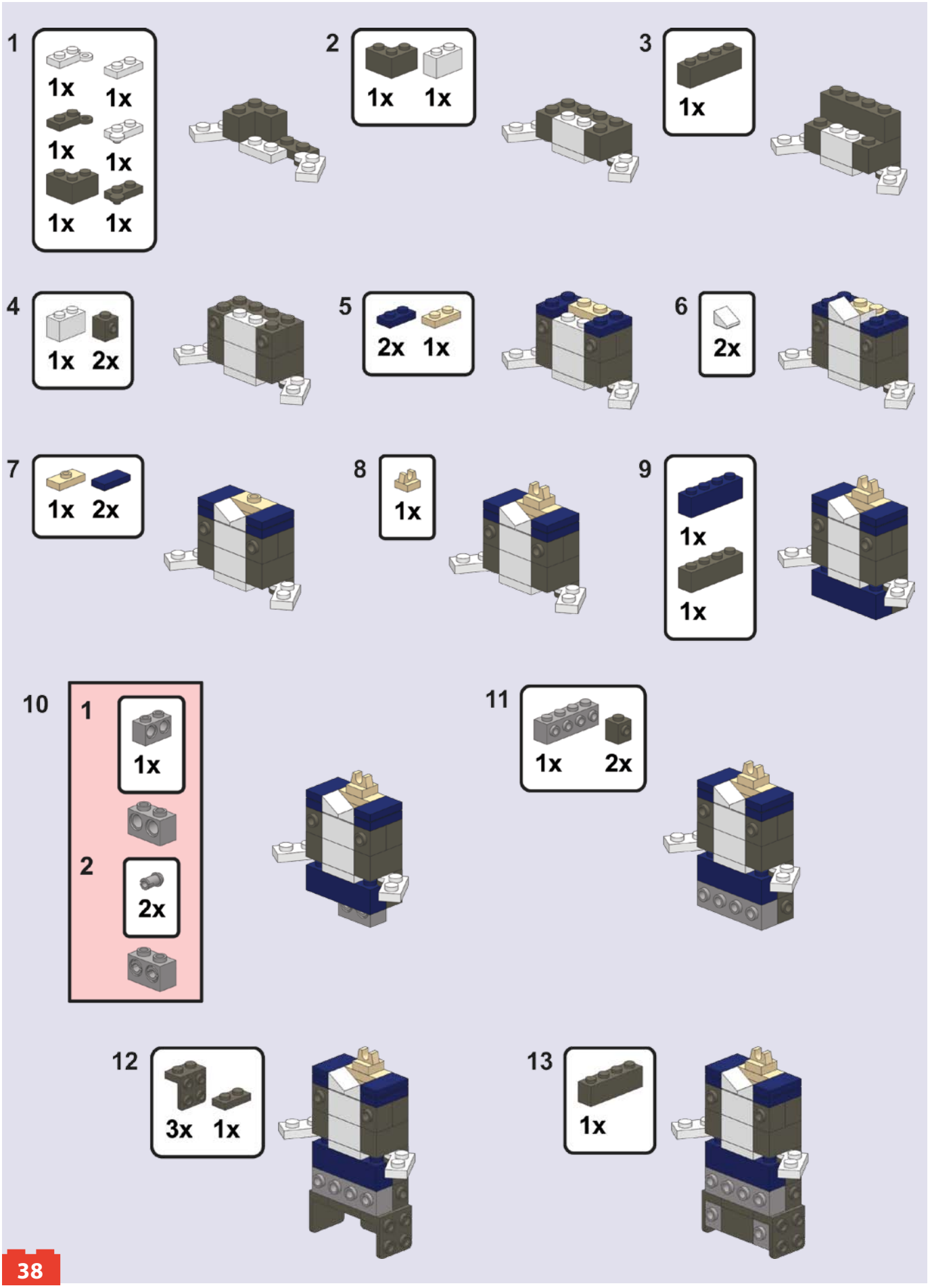
Parts List

Qty	Part	Description	Color
1	3024.dat	Plate 1 x 1	Black
1	4073.dat	Plate 1 x 1 Round	Black
4	3069b.dat	Tile 1 x 2 with Groove	Black
1	2555.dat	Tile 1 x 1 with Clip	Black
1	59230.dat	Minifig mechanical Arm Straight	Black
1	30039.dat	Tile 1 x 1 with Groove	Black
1	3794.dat	Plate 1 x 2 with 1 Stud	Black
3	30377.dat	Minifig mechanical Arm	Black
1	4529.dat	Minifig Saucepan	Black
6	3068b.dat	Tile 2 x 2 with Groove	Black
1	48336.dat	Plate 1 x 2 with Handle Type 2	Black
1	4085b.dat	Plate 1 x 1 with Clip Vertical Type 2	Black
1	3958.dat	Plate 6 x 6	Black
1	4032b.dat	Plate 2 x 2 Round with Axlehole Type 2	Red
1	3022.dat	Plate 2 x 2	Red
2	3040b.dat	Slope Brick 45 2 x 1	Brown
1	3069b.dat	Tile 1 x 2 with Groove	Brown
2	3820.dat	Minifig Hand	Brown
2	3819.dat	Minifig Arm Left	Brown
1	3794.dat	Plate 1 x 2 with 1 Stud	Brown
1	3023.dat	Plate 1 x 2	Brown
2	3005.dat	Brick 1 x 1	Brown
2	3688.dat	Slope Brick 75 2 x 2 x 2 Quadruple Convex	Brown
1	2431.dat	Tile 1 x 4 with Groove	Brown
1	30414.dat	Brick 1 x 4 with Studs on Side	Light Gray
6	32028.dat	Plate 1 x 2 with Door Rail	Light Gray
6	87087.dat	Brick 1 x 1 with Stud on 1 Side	Light Gray
1	3069b.dat	Tile 1 x 2 with Groove	Light Gray
2	4274.dat	Technic Pin 1/2	Light Gray
1	32000.dat	Technic Brick 1 x 2 with Holes	Light Gray
1	6019.dat	Plate 1 x 1 with Clip Horizontal	Light Gray
1	3710.dat	Plate 1 x 4	Light Gray
1	2431.dat	Tile 1 x 4 with Groove	Light Gray
2	3622.dat	Brick 1 x 3	Dark Gray
2	2357.dat	Brick 2 x 2 Corner	Dark Gray
1	4085c.dat	Plate 1 x 1 with Clip Vertical Type 3	Dark Gray
2	3062b.dat	Brick 1 x 1 Round with Hollow Stud	Dark Gray
1	2430.dat	Hinge Plate 1 x 4 Top	Dark Gray
1	59229.dat	Minifig Sword Saber with Clip Pommel	Dark Gray
1	2429.dat	Hinge Plate 1 x 4 Base	Dark Gray
1	3023.dat	Plate 1 x 2	Dark Gray
2	3665.dat	Slope Brick 45 2 x 1 Inverted	Dark Gray
2	3005.dat	Brick 1 x 1	Dark Gray
2	3068b.dat	Tile 2 x 2 with Groove	Dark Gray
3	44728.dat	Bracket 1 x 2 - 2 x 2	Dark Gray
1	3004.dat	Brick 1 x 2	Dark Gray
1	3010.dat	Brick 1 x 4	Dark Gray
1	2431.dat	Tile 1 x 4 with Groove	Dark Gray
2	87087.dat	Brick 1 x 1 with Stud on 1 Side	White
2	3040b.dat	Slope Brick 45 2 x 1	White
4	30071.dat	Brick 1 x 1	White
1	2430.dat	Hinge Plate 1 x 4 Top	White
1	2429.dat	Hinge Plate 1 x 4 Base	White
1	3023.dat	Plate 1 x 2	White
8	50746.dat	Slope Brick 31 1 x 1 x 2/3	White
2	3004.dat	Brick 1 x 2	White
2	2555.dat	Tile 1 x 1 with Clip	Tan
3	3794.dat	Plate 1 x 2 with 1 Stud	Tan
3	3023.dat	Plate 1 x 2	Tan
2	50746.dat	Slope Brick 31 1 x 1 x 2/3	Tan
2	6019.dat	Plate 1 x 1 with Clip Horizontal	Tan
1	6265.dat	Minifig Skeleton Arm	Tan
4	50950.dat	Slope Brick Curved 3 x 1	Dark Blue
4	87079.dat	Tile 2 x 4 with Groove	Dark Blue
4	3069b.dat	Tile 1 x 2 with Groove	Dark Blue
2	3023.dat	Plate 1 x 2	Dark Blue
1	3010.dat	Brick 1 x 4	Dark Blue

Jack Sparrow

Design and Article by Tommy Williamson
Instructions by Joe Meno

Over the past two decades in the film industry I've had plenty of adventures. But none of them compare to my swashbuckling time in the United Kingdom for the making of *Pirates of the Caribbean: On Stranger Tides*. For nine months I was away from family, friends, home and my LEGO collection. To commemorate my job as stereoscopic supervisor and to pass the time in the evenings, I decided to build Captain Jack Sparrow and Captain Barbossa. For several months, they slowly took shape as I built and rebuilt them. Being so far from my LEGO collection made this a bit of a challenge. While I was gathering a fairly respectable collection in my little flat, it's nothing compared to my bins upon bins at home. My wife was very patient while I sent lists of parts I wanted and she diligently dug through my LEGO bins to send me parts in care packages. Thankfully through her, my connections with the Brickish Association, Bricklink, and my good friend Peter Reid I was able to find all the parts I needed. Finally in March 2011, I was ready to reveal them to the AFOL community and the world. Now you can build one of these infamous pirates for yourself!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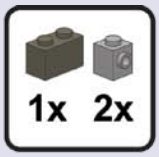

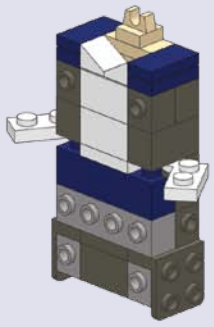

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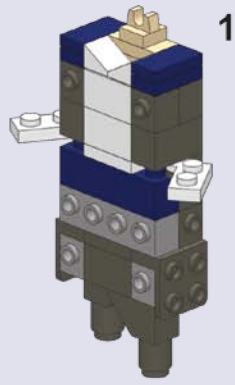

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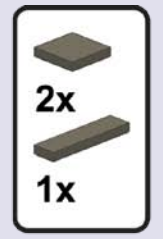

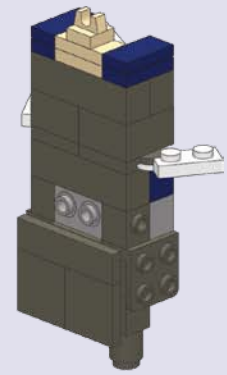

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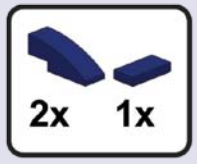

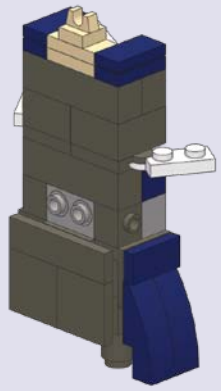

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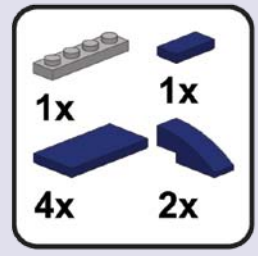

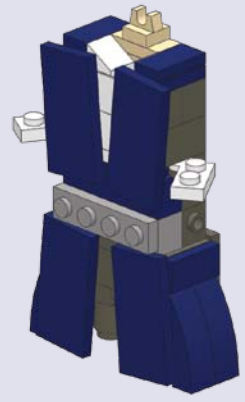

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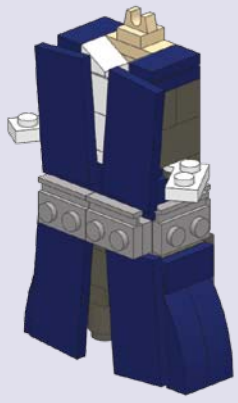

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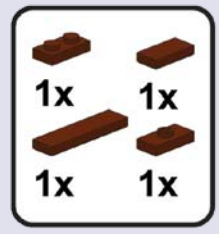

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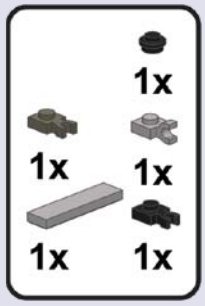

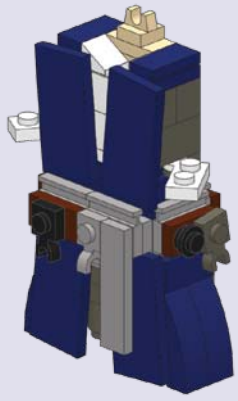

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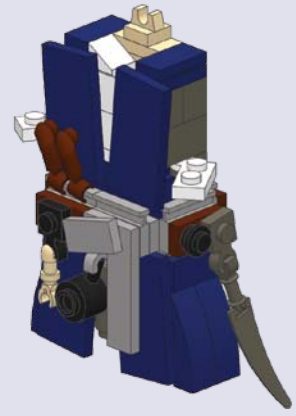

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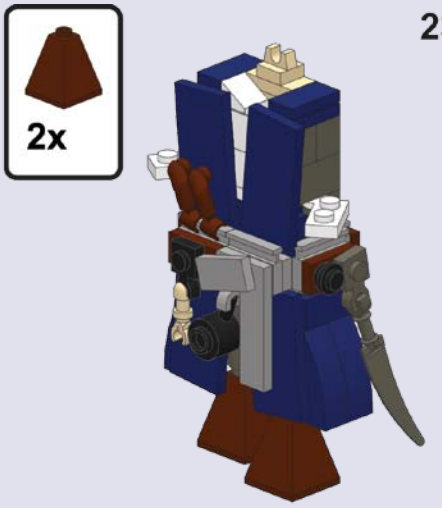

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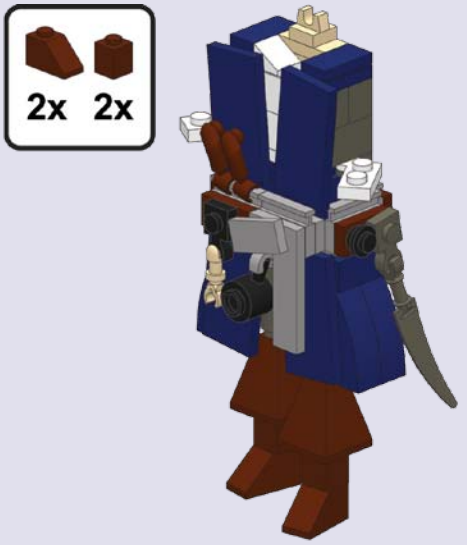

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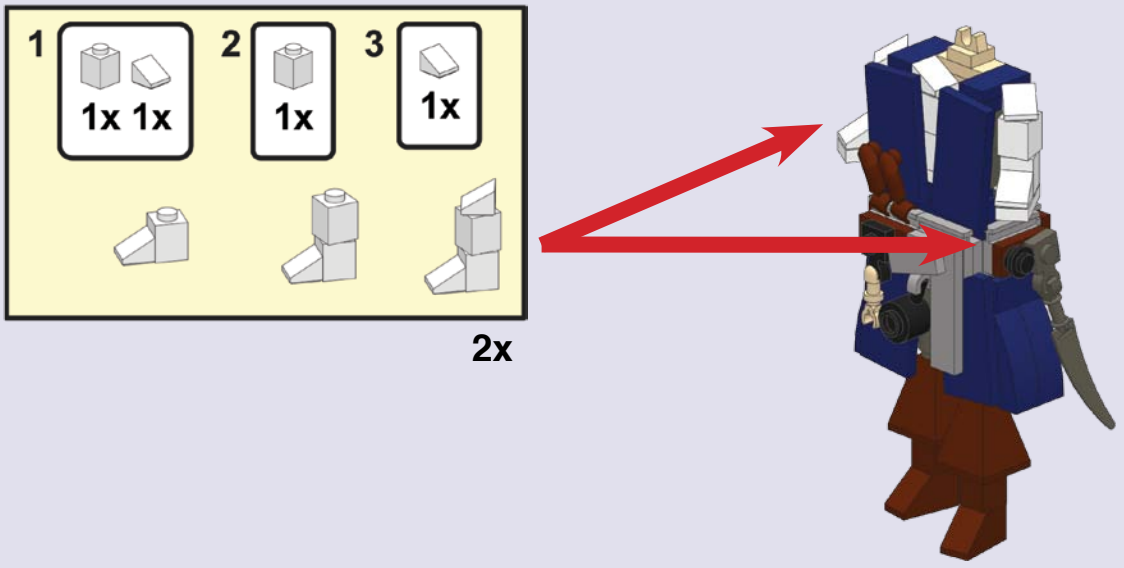

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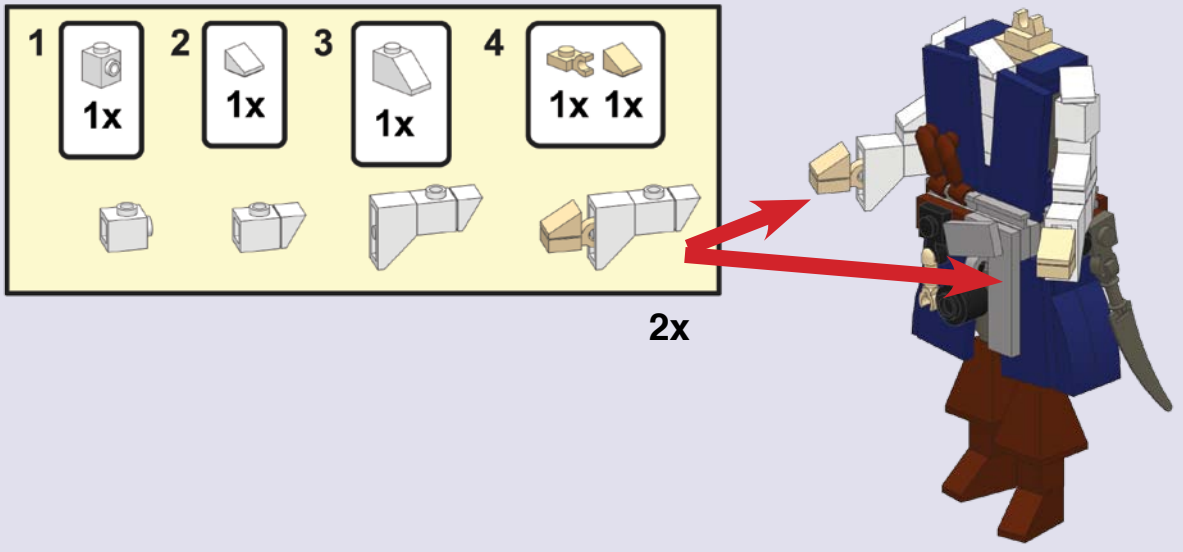

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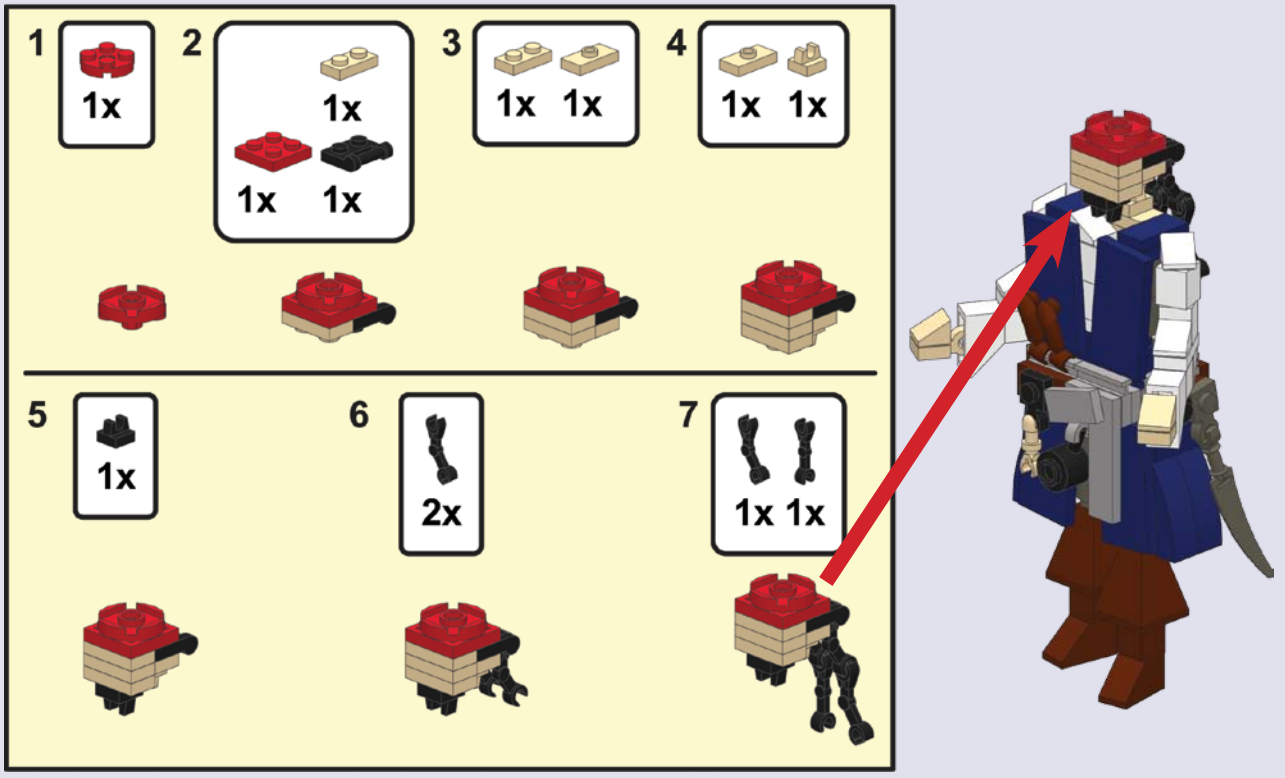
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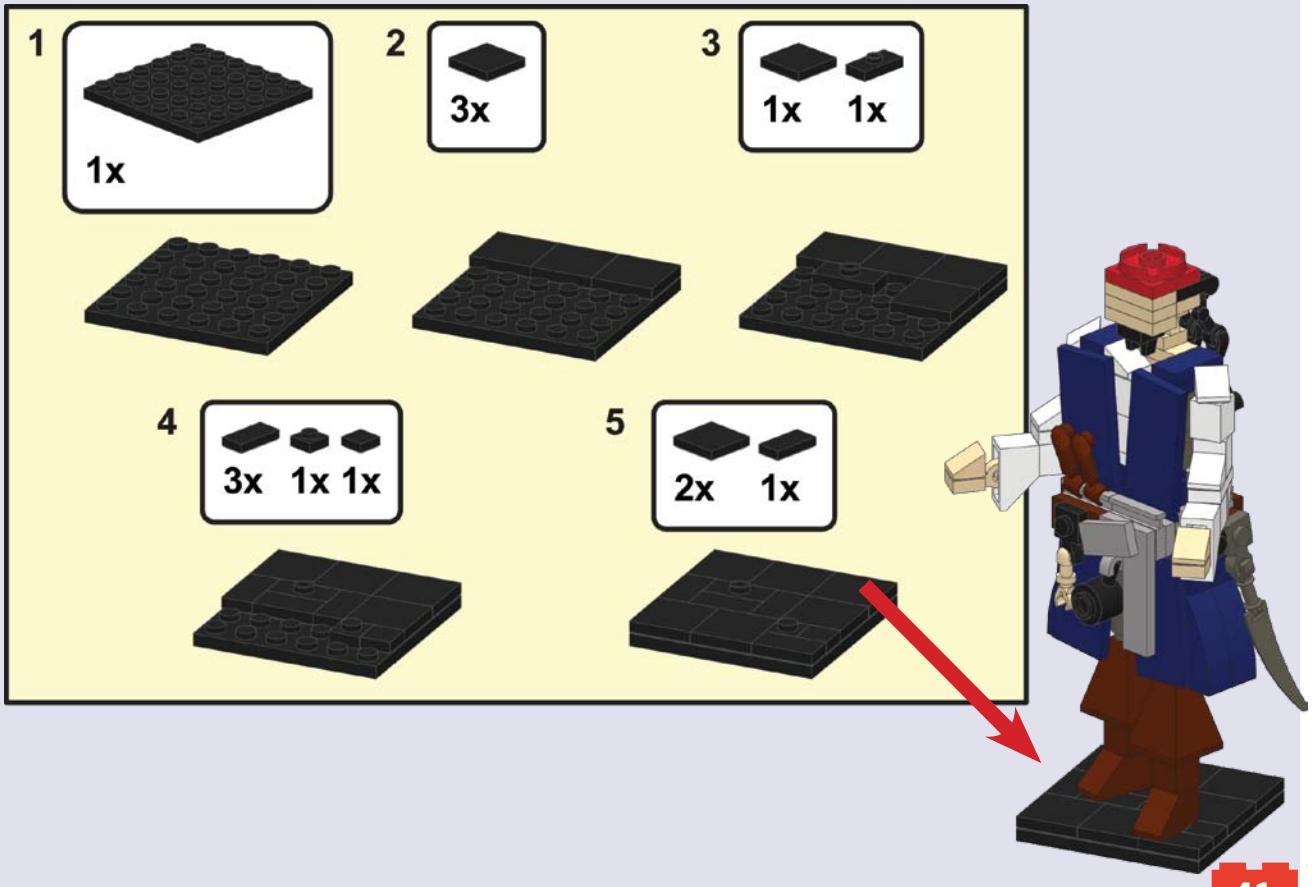
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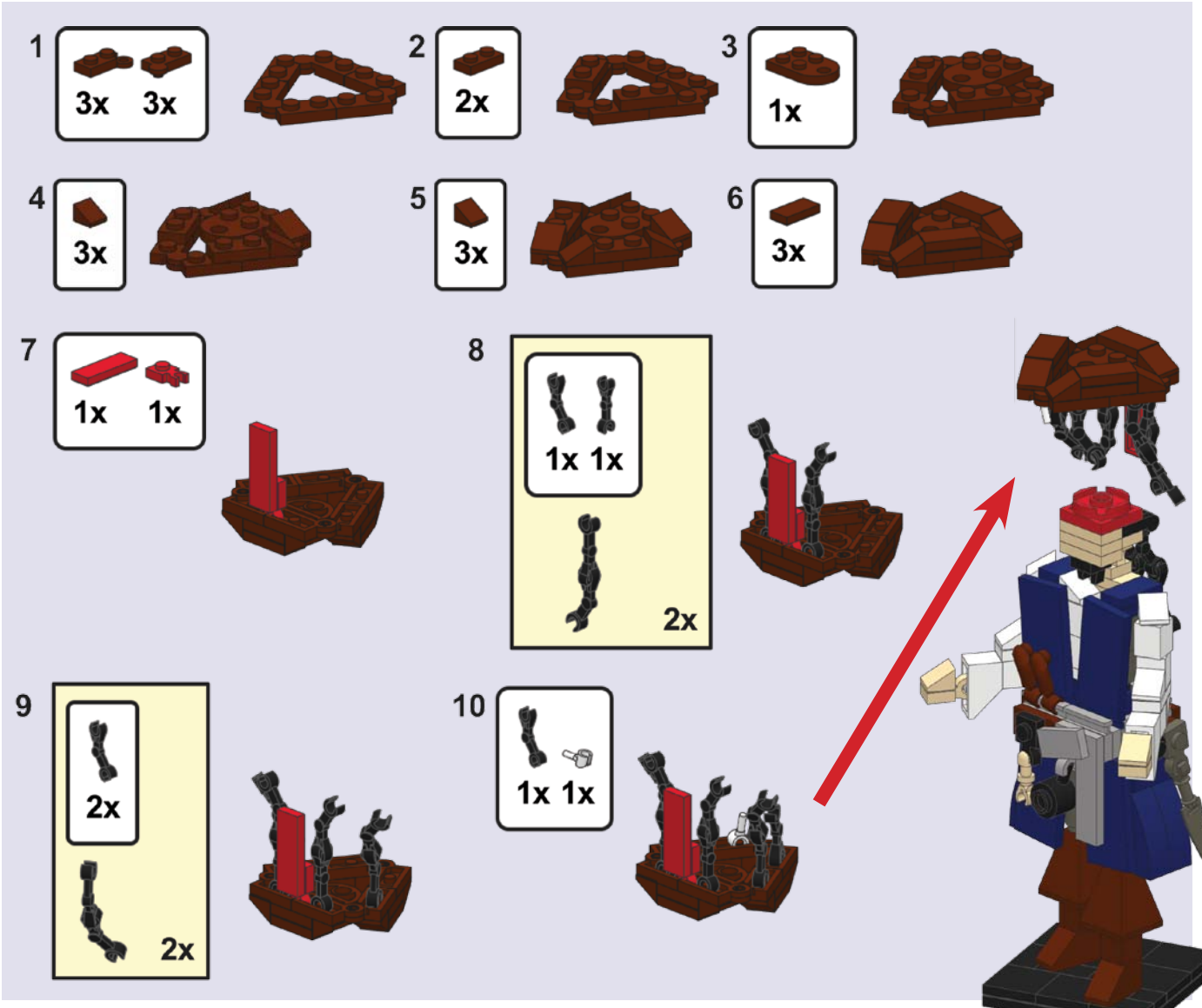
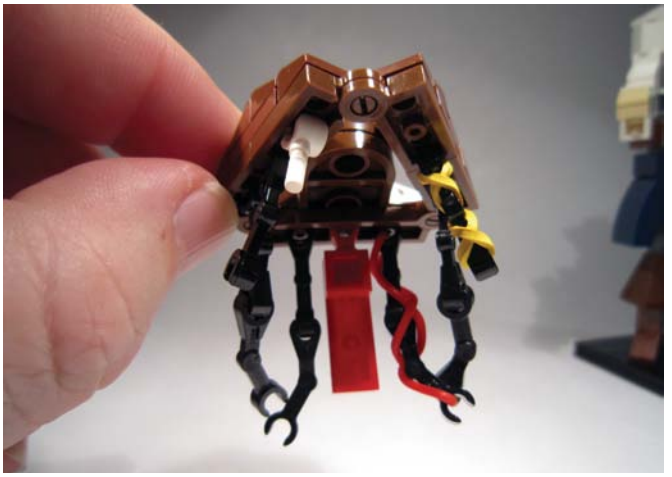
There's a few rare elements and somewhat difficult techniques involved but don't let that stop you. If you don't have quite the right colors or parts, make your own pirate and prepare to get your timbers shivered... Arrrgg!



Hat Parts List

Qty	Part	Description	Color
2	59230.dat	Minifig mechanical Arm Straight	Black
7	30377.dat	Minifig mechanical Arm	Black
1	4085c.dat	Plate 1 x 1 with Clip Vertical Type 3	Red
1	63864.dat	Tile 1 x 3 with Groove	Red
6	50746.dat	Slope Brick 31 1 x 1 x 2/3	Brown
2	3023.dat	Plate 1 x 2	Brown
3	2429.dat	Hinge Plate 1 x 4 Base	Brown
3	3069b.dat	Tile 1 x 2 with Groove	Brown
1	3176.dat	Plate 3 x 2 with Hole	Brown
3	2430.dat	Hinge Plate 1 x 4 Top	Brown
1	3820.dat	Minifig Hand	White



Use LEGO rubber bands to braid Jack's hair.

One detail that could not be placed in the instructions was the mummy head hanging from Jack's belt. Here are instructions for this special decoration.

Mum's Parts List

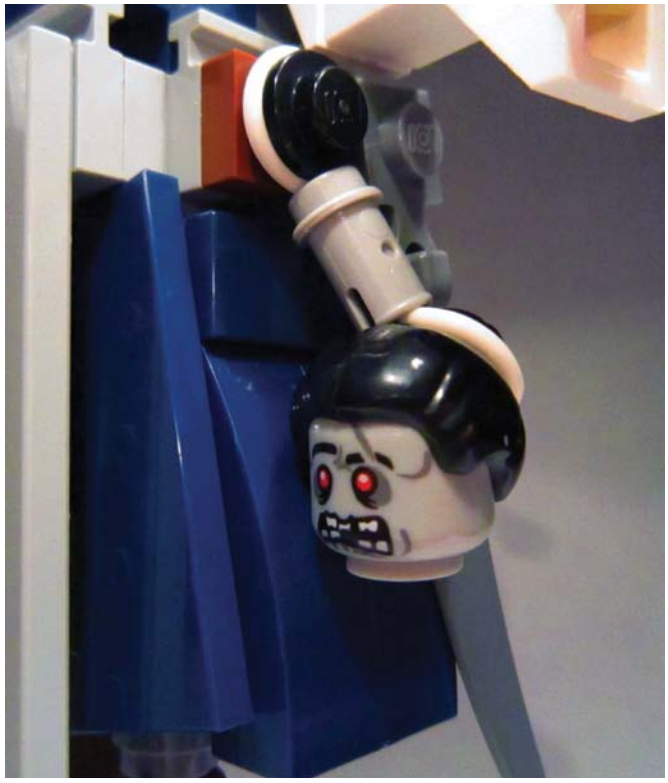
Qty	Part	Description	Color
1	4274.dat	Technic pin 1/2	Light Gray
1	x37	Rubber Belt Medium (Round Cross Section)	White
1	3626bpb436	Minifigure Zombie Head	Light Gray
1	93217	Minifigure Hairpiece with Top Knot Bun	Black

1. Loop a band through a half pin.

2. Wrap one end around a pip (from the belt/body assembly seen at Step 21)

3. Capture band by sandwiching it between 1 x 1 with clip and pip

4. Stretch the other end around the bun of the hair. You have to keep the band out of the notches in the half pin for there to be enough tension to hold the hair. Reattach to body.



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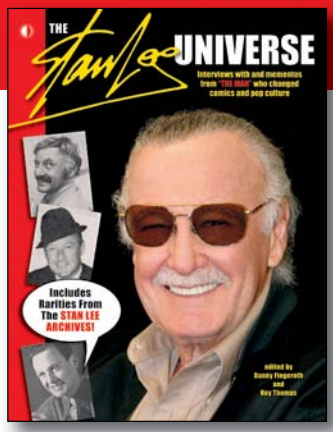

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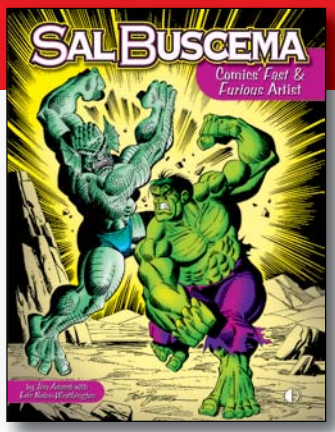

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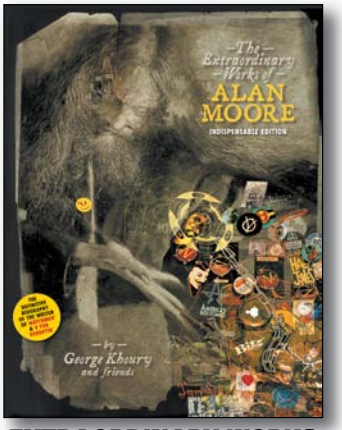

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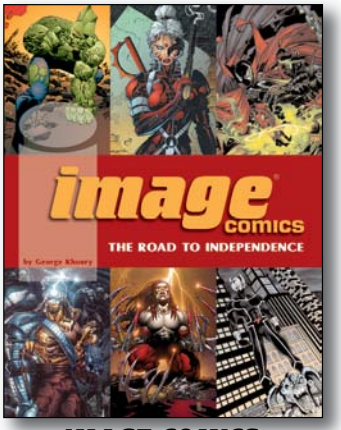

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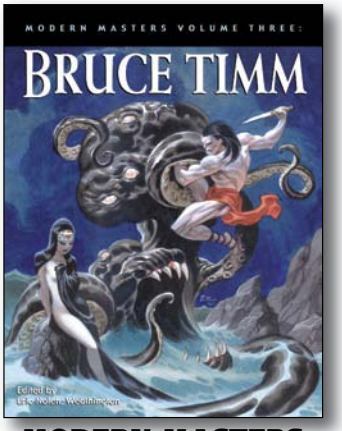

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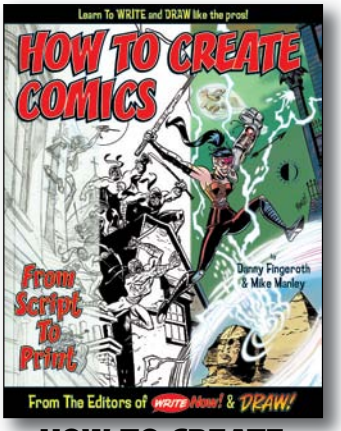

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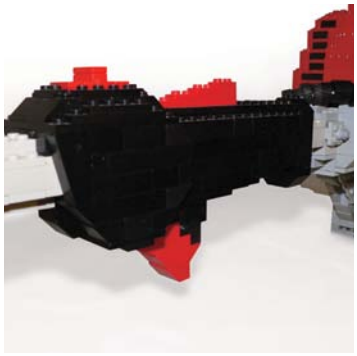
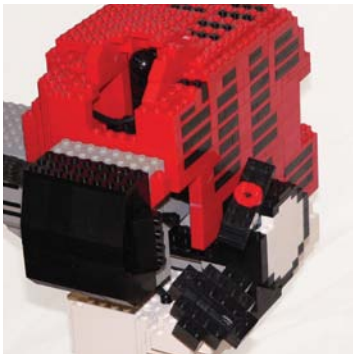


Kevin Hall

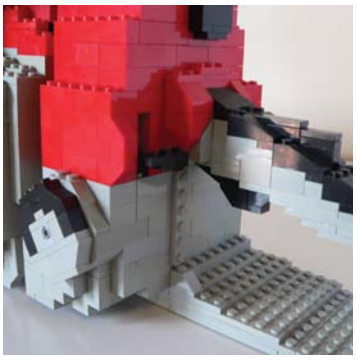
Producing Plastic Power Tools

Known for his immensely detailed castles and website Andrastavia, Kevin Hall also is a graphic designer and builds LEGO models for advertising campaigns. Recently Kevin was asked to build some power tools for a print ad campaign for Stihl and talks to us about this fun project.

Here you can see the clips and plate hinges used for the chain.



The casing on the line trimmer uses black plates evenly spaced to look like the vents



The throttle lever can move into an up or down position.

Draft one of the mini chainsaw for the shelf talker

Final model for the mini chainsaw for the shelf talker

As Kevin has been a creative person his whole life, it was only natural for him to become a graphic designer. With around thirty years building and collecting LEGO, and over twenty years in the creative industry, Kevin's creative skills and experience have allowed him to take on commissioned work to build various LEGO models. One such commission was by an agency called The Foundry in Melbourne, Australia to build a life size chainsaw and line trimmer for an advertisement campaign for Stihl.

The initial contact by the agency asked if it was possible to build the chainsaw and line trimmer. "With LEGO, almost anything is possible," Kevin responded. After the briefing with the Art Director, photographer, and production company, Kevin was given a real chainsaw and line trimmer to copy from and instructions to make the models as real as possible. The only catch was that he only had two weeks to produce both models as the photo shoot had already been booked!

Chainsaw Model

The first model that was built was the chainsaw. With the real chainsaw sitting in front of him, Kevin went straight to work building. The guide bar and chain were first to be constructed after the real item was measured and calculated into LEGO brick studs. Using hinge plates and black tiles, modified 1 x 1 with clips, the chain took shape and as you can see wraps around the bar easily, giving it a realistic look.

The body of the chainsaw was built from the ground up. Setting up the footprint with plates, the bulk of the body was built up with the details added as it progressed. Trying to get the vent on the side to look similar to the vent of the real chainsaw was a challenge. The actual holes in the grill were far smaller than a LEGO plate, so Kevin created something that people would recognise as a vent using black tiles for the holes. Working to the same measurements as the real chainsaw, the main body of the chainsaw curved and lined up in the same way, thus producing a very realistic look.

The covering of the chainsaw was built as a casing, which covered the motor and internal parts. Using red LEGO was an economic choice as orange parts would have made the models too expensive. The finishing touches included the starter handle, throttle, main handle, and the hand guard that has been built on an angle with hinges and technic pins. Taking five days to build and weighing in at around three kilograms, the final model was glued together.

Line Trimmer Model

Having built the chainsaw and put it aside, the next mode was the line trimmer. Kevin stared with measuring the real line trimmer, working out the conversion to LEGO studs and separating the build into six sections.

The shaft was worked on first using plates and bricks overlapping to give it some strength. The guard at the bottom was built next and attached to the shaft with a 2 x 4 hinge plate, glued in place for the correct angle. Attached to the shaft was the handle, glued on at the same position as the real trimmer. The grip and buttons were built next and glued in place.

The final print ads using the chainsaw and line trimmer. Note the red has been digitally changed to orange using Photoshop. There was also a poster produced of the top image.

Finally the motor and casing were built as a separate section. This took the most time to build as every curve and part were measured and built to match the original line trimmer. This was built in two parts, the base including the fuel container and the motor, and then casing was built over it in red. Once again the vents were tricky and created to look like slits to match the original and give the overall look that it was a casing. Through the cut away sections in the casing, the internals can be seen including hoses, switches, and even nuts and bolts!

Mini Chainsaw Model

A very simple smaller version of the chainsaw was constructed to be placed onto shelf talkers that were displayed along the shelves at distributors. There were a few drafts for this model, but a final very simple version was selected and photographed.

Post Production and the Final ads

Once the models were photographed by Hugh Peachey Photography on location in a backyard shed, the models were cleaned up and the red bricks were digitally changed to orange to match the real power tools. The final images were used in the advertisement campaign that appeared in Power Equipment Australia magazine as well as various posters and in-store images.

Kevin's work can be found online at:
creative art network: *www.creative-art-network.com.au*
Andrastavia: *www.creative-art-network.com.au/Andrastavia*
Email: *lego@creative-art-network.com.au*

Japanese mecha: A Gallery

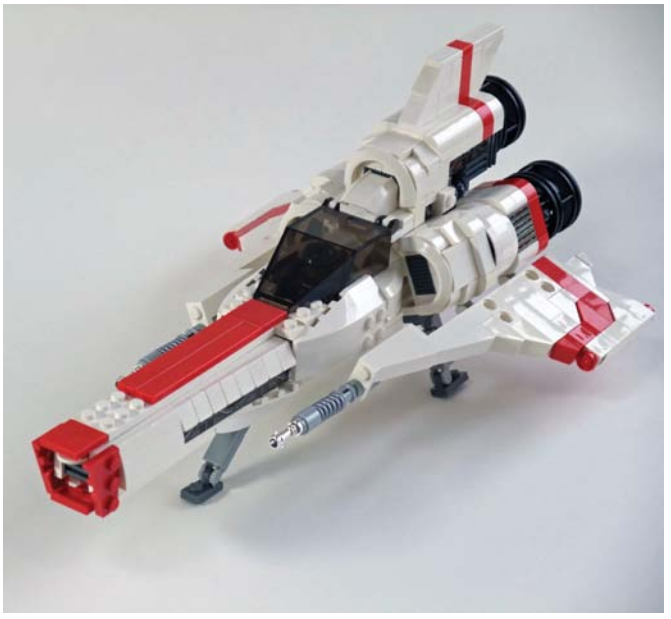
Compiled by Saito Yoshikazu (Japanese LEGO Ambassador)

Translated by Nathan Bryan, (www.brickzen.com)

Japan is home to most of the best mecha builders in the world. BrickJournal's *Japanese Bureau went out and contacted them to show their work. Here's a gallery of models along with some thoughts on mecha building from the builders.*

Some builders say to "Not be too concerned with scale" or "focus on movement" but more important that that is just to "build as much as one can on a regular basis." Find your own style and then build as much as possible and you will find new possibilities.

—*zizy (mecha at left)*



When building original models, I try to think about the "overall balance" and "volume" of the silhouette. In selecting parts, I look at the "natural flow of the surface" and making "compelling details." Using LEGO one can make "rigid" models.

—*SHINOBU TSUNEKI (Viper above)*

Only in LEGO are these mecha Possible.

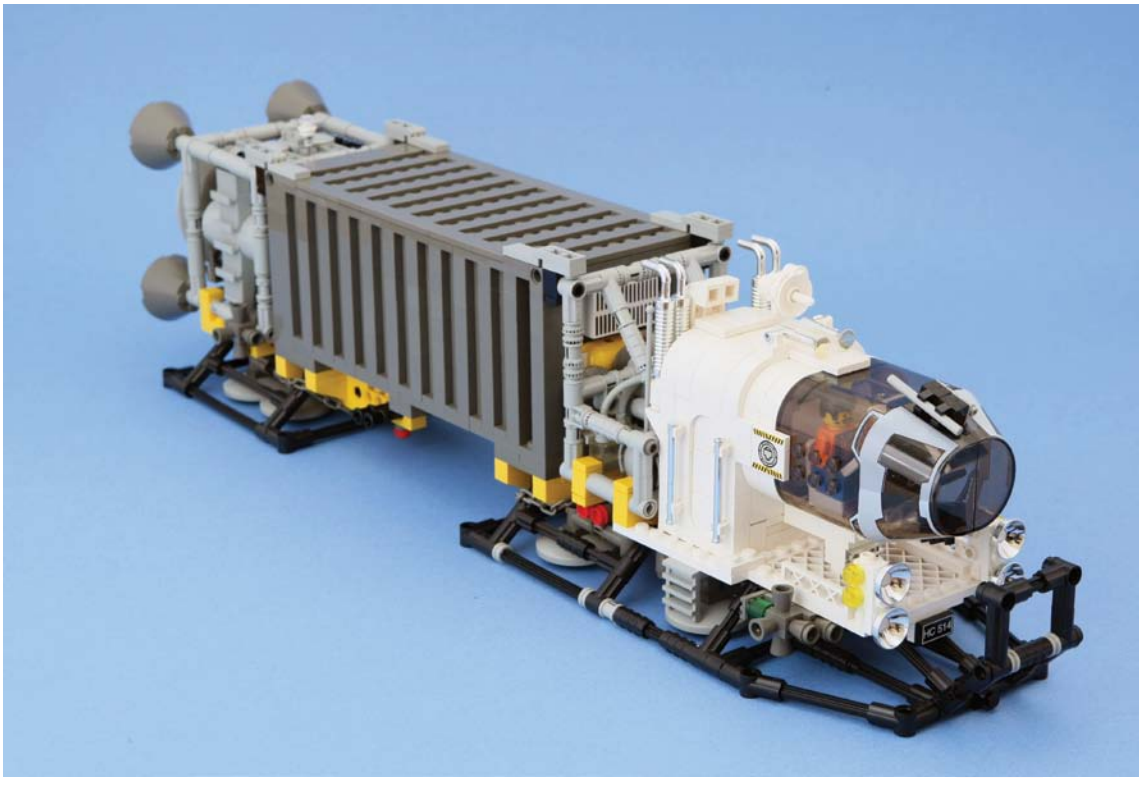
—TOSHIYA TANAKA (mecha above)

When I am creating my own models with LEGO, I try to be careful of the shape of the parts, and how natural I can make the details. Always try to make "Something only you can make" and not copying other builders.

—YUTAKA MINOWA (Hardsuits above)

My style, even through "mecha" is to reproduce an object realistically. Even if it comes from a fantasy world, with LEGO parts one can reproduce it and then add additional parts to emphasize the reality of the model.

—SHINYA FUJITA (Spacecraft left)



Above left and right: mecha by Saito Yoshikazu.

Plan the total design to fit within your own resources and not to buy additional parts, as resources are limited.

—*KEN TAKEUCHI (Spacecraft below)*

All: Spacecraft by Saito Yoshikazu.

UFO Interceptor by Saito Yoshikazu.

Above left and right: Spaceraft by Saito Yoshikazu.

In making mecha, I try to not spend too much time on the minor details. I try to keep it to the minimum number of details that express what I want to show. The most important thing is the overall balance.

—RYOICHI TAKAGAKI (mecha below)

Make sure to use hinges and moving parts for areas with movability, don't just use single stud connections as an axis.

—*KUNIMASA FUJISAWA (mecha above)*

LEGO is the best "Gift." Even for someone that is clumsy with plastic models, with LEGO one can build any mecha or Monster that you like. There is no need to paint colors, and it is even easy to do over and over any mistakes.

—*SunBow (mecha above)*

I try to have a good sense of scale and the flow (and connections) of the outline of the model. Then I concentrate and put all my effort into the details for that scale.

—*KWI-CHANG (Aircraft above)*

Building Japanese-Style Mecha

Introduction

In order to talk about Japanese mecha building techniques, one must first understand the special environment of the builders. Japan is a world-renowned anime powerhouse, however there are no science fiction dramas for adults such as *Star Trek, Babylon 5*, or *Battlestar Galactica*. Mainly, just kids programs like *Gamen Rider* are made.

So in Japanese Anime what kind of mecha appear? In American mecha, ships such as the X-Wing from *Star Wars* or the bodysuits of the *Matrix* or *Avatar* are standard. However, for the Japanese, robots that are humans ride in and control (In Japan they are called "Real Robots") mainly appear. The"Real Robot" boom started with the Mobile Suits that appeared in *Gundam*. From there suits that could "transform" and

Article and Photography by Saito Yoshikazu (Japanese LEGO Ambassador)
Translation by Nathan Bryan (BrickZen.com)

mecha taking flight to save the planet (again!)

Every mecha needs a little friend.

change their shape came out in *Macross* and many new design elements became established. It is this environment that most Japanese builders are inspired and it is inevitable that this became the base they used for building.

Design

Before thinking about the how-to-build, here are a few things to be careful about when building Real Robots.

First is the ratio of each part. This is not an absolute, but the body to leg ratio should follow the golden ratio (1/1.618) or the silver ratio (1/1.1414). In other areas, this same ratio should be used. Next is considering range of movement for making poses. In Japan there is a mecha designer named Katoki Hajime. Most of the robots he draws have them standing with their legs positioned a bit more than shoulder width. Fans have named this pose the Katoki-Tachi (Katoki Stand) and it is very popular. Therefore it can be said that the in most magazines, this Katoki-Tachi pose is used. Hence, when building Japanese style Real Robots, the legs must be able to not only move forwards and backwards, but open up to the sides as well.

One more feature is that along with having a human form, the human form should be "armored." The best reference would be that of an American football player. Shoulder pads, elbow and knee protection as well, any "additional armor" to enhance protection when fighting, is good. That is the basic design aesthetic about Japanese Real Robots.

Robot Construction: Head

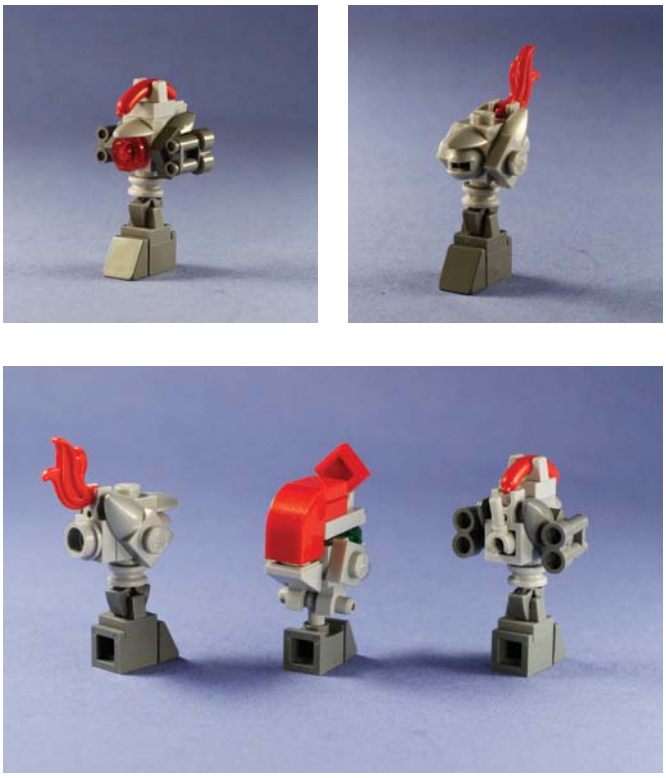
Similar to building an animal, when building a robot, it is best to start construction from the head. The reason is simple. It is fairly obvious, but when finishing the build and attaching the head to the body, what do you do if the body proportion is too large? What if it is too small? One would need to remake one or the other. Since many people pour their energy and heart into making a original head that stands out, the only thing to do is remake the body. To keep this problem from occurring, it is better to start building from the head.

In designing the head, the first thing to think about is the area of the eyes. In anime, the "Main Camera" is expressed by either a Twin Eye or Mono Eye area. Either one can be used, but generally the main characters (and their allies) use a Twin Eye construct, and the Mono Eye is used for the enemies (especially underlings). This is because the Twin Eye type gives the impression or being technically or financially of a higher quality.

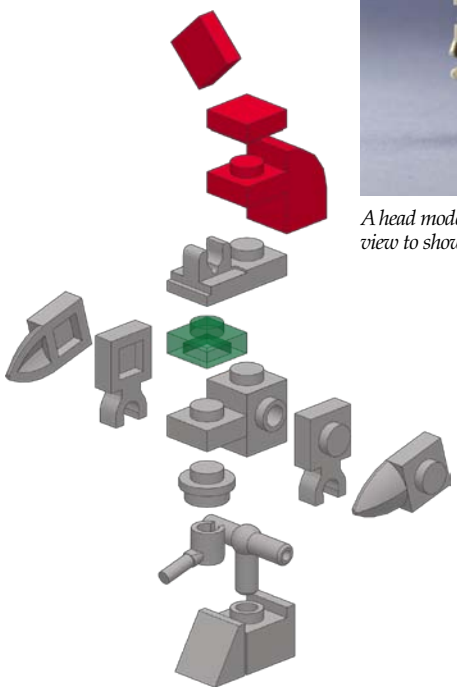
In the actual build, for a Mono Eye, a good starting place is a 1 x 1 round plate (#4073) or Round 1 x 1 with Towball (#3614). Especially the #4073 is good because it can be used vertically or horizontally. Personally, I also find the car lever (#4592) to be handy.

A Twin Eye build is a bit more difficult. The larger one makes it the easier it is, but for small builds the choices are limited. For example a standard way to express the Twin Eye is have facing forward at the corner of 1 x 1 plate (#3024) or 1 x 1 tile (#3070) on each side.

Note that if you use the 1 x 1 plate (#3024) or 1 x 1 tile (#3070) for a Mono Eye design, you run the risk of having a flat design The design outside of the eyes will become one of the core aspects of your model, so use your best creative freedom to create something really original. Areas such as the ears and jaw help highlight the facial characteristics. An easy to use part is the 1 x 1 plate modified with tooth (#49668).



Some different head models, with rear views above.



A head model above, and an exploded view to show part placement at left.

Body models above.

A more sophisticated body above, with rear view at right. Exploded views of the core body is at bottom left, and with should and waist parts at right,

Robot Construction: Body

For the construction of the body, it is central for each to be a moving part. Therefore, it is a good idea to build with clips or pieces with holes in the studs. First, it is preferable to use a T-bar for connecting the neck. This allows the head to move up and down as well as to turn. The arm (shoulder) should also not just rotate, but be able to hold a pose and not have the arm drop. Also the arm will probably be holding weapons and firearms and can become quite heavy, so one must be careful in giving it connection strength. Specifically, two 1 x 1 plates with a clip on top (Tile, Modified 1 x 1 with Clip #2555) and a T-Bar (Pneumatic T Piece New Style #4696a) make the best connection.

It is acceptable to have the upper and lower body connected with just one stud. However interlocking loose parts is not good. For the hips, we want something that strongly holds together without restricting the range of movement. In that way, it is good to use #2555 and#4696a for the connection.

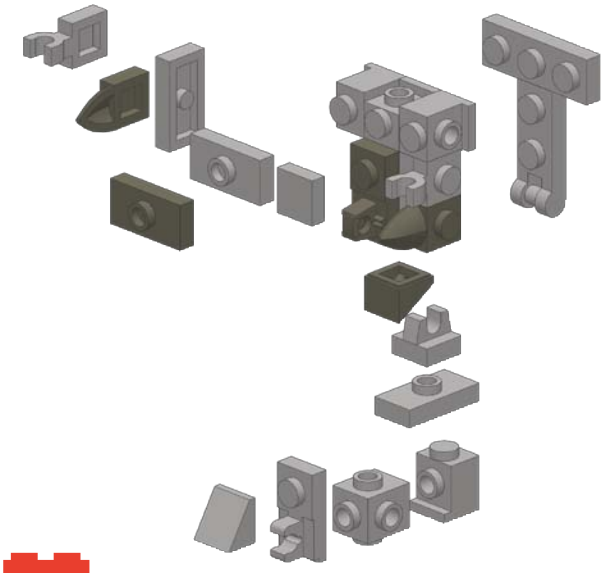
Once the core is built, it is time to really start on the design. Points to keep in mind are the thickness of the chest, waistline, and adding armor to the lower body.

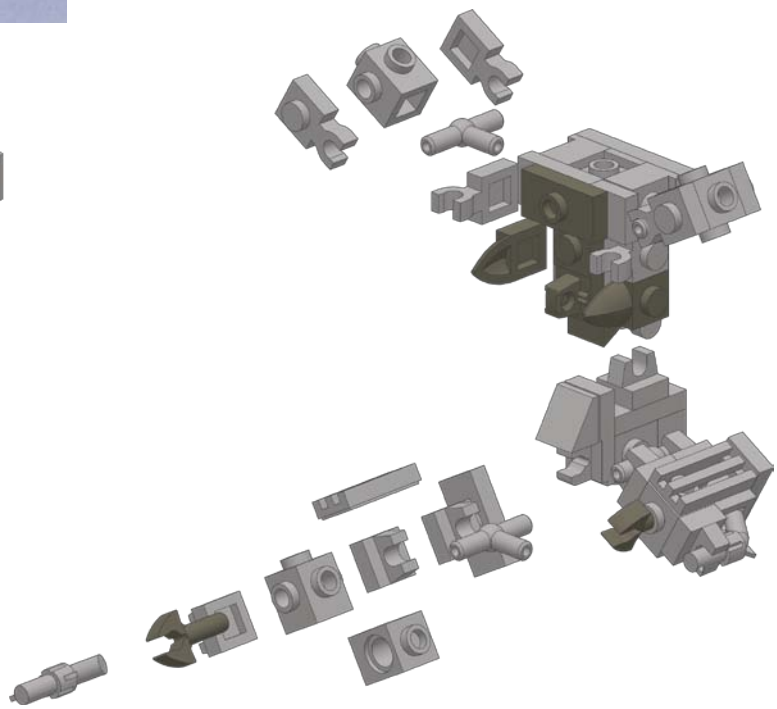
For the thickness of the chest, slope blocks are good. By attaching them at various angles, one can create and express a very complex shape. In various places, using plates with clips to attach tiles at various angles also creates interesting angles.

The taper of the waistline is very important. If there is a straight line from the upper body to the lower body the design does not look cool.

In creating armor for the lower body, make something that works with the motion of the legs, such as a skirt, so it won't interfere with posing. Using a bar and clip style here is a good way to handle this.

Of course there are many interesting designs that do not need armor here.





Robot Construction: Arm

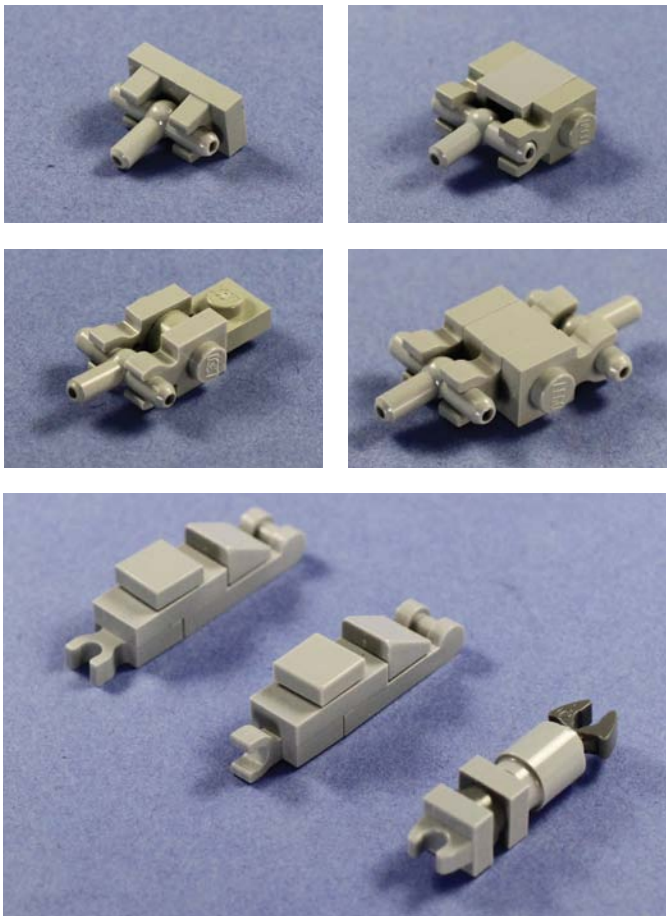
The arm should be divided and thought about in three parts: the shoulder, arm, and hand. If one does not need to rotate the hand, a 1 x 1 plate modified with a horizontal clip (#6019) or a plate modified with a clip vertical (#4085) are fine. Clips should be used so that weapons can be held.

If one wants to have the hand rotate, a 1 x 1 tile modified with clip (#2555) can be used by connecting it with just one stud. For the arm, the elbow can be made with a clip and bar. Hinges can also be used, but this unfortunately does not allow the elbow to rotate. Since this limits the type of posing that can be done, I do not recommend this style.

For the shoulder a 1 x 1 brick, modified with studs on four sides
(#4733) is good to use because it is easy to add original elements at a later time.

Once the core is completely built, it is time to work on the design. Besides the shoulder, there is not a lot of freedom with the arm. This is because if one makes the arm too large, the model loses its sleek look. Of course if one is making a robot that is similar to a Sumo wrestler, that is another story.

For the shoulder, one should first think about how much volume the design will have. If the robot one is building is for outer space, then a 1 x 1 cone with top groove (#4589) is good for creating accents that look like small thrusters. If one is thinking of military use, then taking things up a notch and putting missile flares or tubes on the shoulders is good. For missile flares a Technic liftarm 1 x 3 thick (#32523) is a possibility. The Minifig Utensil Binoculars Town (#30162) also works well.



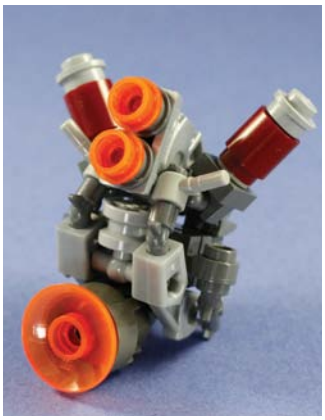
Top and center row: Shoulder joints.
Above: Elbow and wrist joints with clips for hands.

Robot Construction: Leg

For the leg, except for the foot, the construction can be done similar to the arm. However, please keep in mind the "Katoki-Tachi" (Katoki Stand) that I mentioned in the Design section previously and try to have the thigh contacted with just one stud so that the legs can be opened to the sides for posing. Knees can also open to the sides, but since this is not very natural in posing, I do not recommend it.

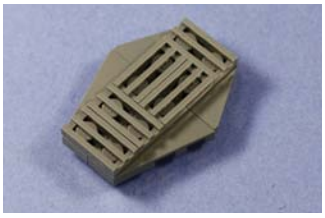
In thinking about the leg connection, one must take into consideration movement in the ankle. A clip and bar might work for some models, but if the connection is loose it might not hold the weight of the model. Another part of the design to watch is the knee area. Knee armor with a sharp angle is very standard in Japanese Anime. Slope parts work very well for this. From the calf to the ankle, there should not be a straight line. Even if one uses just a single plate, the calf should be made. That makes for a much sharper and faster impression in the model. Having toes and a heel on the foot make the model even more real. But depending on one's design and how the model stands, this should be designed freely.

Different knee and ankle designs.

Backpack designs.


Above: A propane tank.
Above right: Tanks attached to backpack.

Above: Radar dishes that can be used as shields.
Above right: A built shield.


Above: A built sword.
Above right: A built gun.


Gun designs.


Robot Construction: Backpack

Real Robots should be strong moving weapons. Therefore they are often equipped with backpacks that have thrusters. Although any design is good, instead of using tiles to make it smooth, it looks more mecha to use minifig accessory parts. I also recommend grill parts, like the 1 x 2 Modified Grill tiles (#2412) and slope parts, like the 18 2 x 2x2/3 Slope with four slots (#61409), for use.

Dark grey parts look the most realistic. For thrusters, car wheels and Technic gear arrangements work best. Although those would make for a great backpack, adding propane type fuel tanks type of designs makes it even better. Keeping in mind the model's use in outer space, this gives it more of a sense of reality.

Here is a simple build. Take a white cone block and a round block to make the unit, then add a red 1 x 1 round plate, and last add a white 1 x 1 round plate. This red gives becomes a nice accent line. You can see the result at the left.

Robot Construction: Weapon and Armor

There are many ways to make weapons. Personally, I prefer to create all "black" firearms. One reason is that the very useful 1 x 1 Tap (#4599) does not come in dark grey; also firearms are easier to imagine in black. One does not need to design anything too unusual. There are many actual firearm pictures that one can refer to as a basis; just make some slight modifications or arrangements and one can create something that looks quite real.

Swords on the other hand can be quite a hassle. In particular, something like a lightsaber, while very real as a robot's sword, finding the LEGO parts to make it can be difficult. If one is not too particular, using something like a 1x8 tile (#4162) can work just fine. A light bluish grey works best. If one is using 1x6 tiles, the metallic silver is a good choice.

There are two ways to make a shield. The first is to use a radar dish larger than a 3x3 (#43898). The printed (decorated) ones especially allow for very interesting designs. The other way is to make a shield on your own. When making one, instead of creating it out of plates, one can make a nicer design by using stacked blocks. Be careful though, it is very easy for them to get to be too large.

Shield mounted on arm.

Adding Originality

This about wraps up the how to make a Japanese-style mecha robot, but for those that want to add even more originality to a MOC, here are some ideas to spice it up. In the beginning, I talked about the "balance" in creating a robot, but this also might give an image of mass production and lack individuality. One way to differentiate would be to deliberately destroy this balance and emphasize a certain part or point of the model. Another way would be keep the balance normal but to accent certain features to give the MOC its own look. One easy way out that I do not recommend is just using stickers.

MOCs in a Larger Size?

In creating a MOC of a larger size, remember to maintain the balance as you change the size and length. One problem that one will encounter is the area around the joints. The above explanations work well for smaller robots, but when they get larger, those types of joints might not be able to hold the weight of the model.

One way to get around this is to use ExoForce or Bionicle joints. If one wants to use just standard parts though, using a double set of hinges is one way to take care of this. Of course, if one is making a model that is not going to move, or one that will be displayed in a certain pose, than I think just simply building it is best.

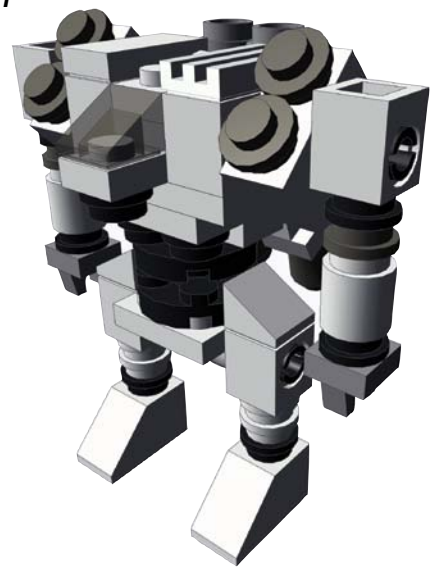
Above: An example of armor and shield use.

A Sample Frame

If you want to build your own frame, here is a sample frame to build. While it looks complex, most of the parts are pretty common and easy to find. Use the previous photos and diagrams to figure out the model, then create your own armor and weapons to make you own mecha!

You Can Build It

Micro Model



Micro Mecha and Repair Bay

Design and Instructions by Joe Meno

This set of designs was done a few years ago, when I was exploring microbuilding. I have always enjoyed the challenges in building so small, and also liked that the size of these models made them very easy to ravel.

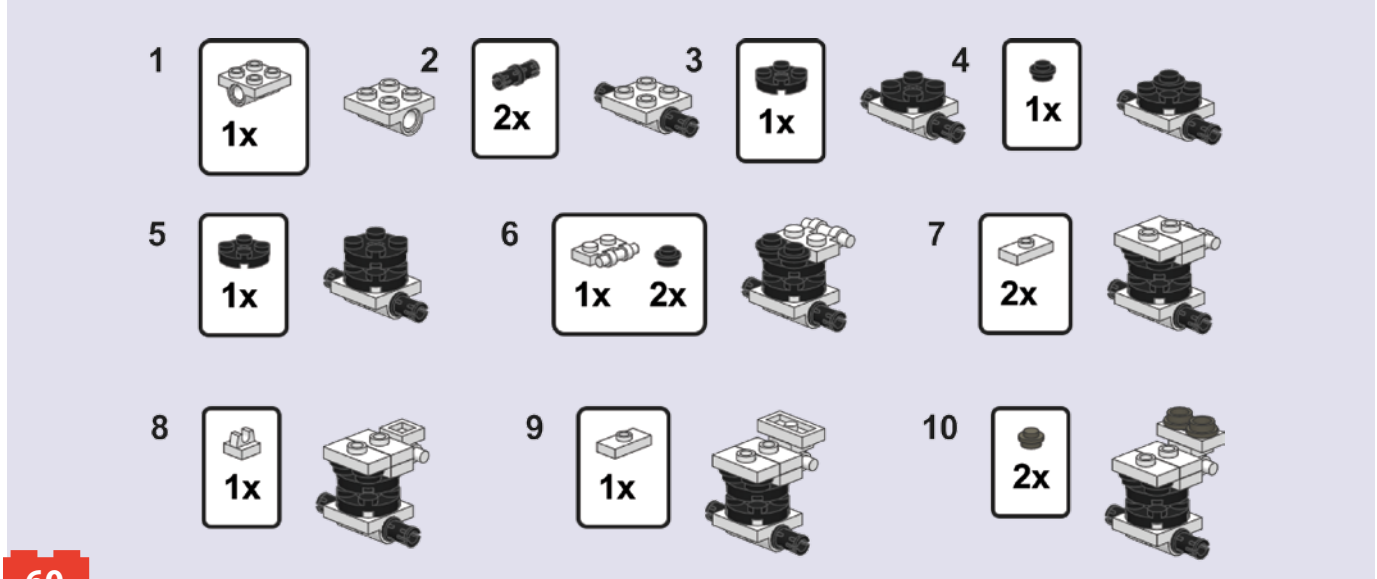
This mecha was the first humanoid mech I built in this scale, and uses parts that are pretty easy to find. With the use of the Technic pins, I was able to articulate the shoulders and legs, and the waist, knees, elbows and wrists all rotate. The shoulder rockets and rear jumpjets pivot, so the mecha has a lot of posability for its size.

You can customize this by changing the color or adding weapons — have fun!

Micro mecha Parts List *(Parts can be ordered through Bricklink.com by searching by part number and color)*

Qty	Part	Description	Color
2	4459.dat	Technic Pin with Friction	Black
5	4073.dat	Plate 1 x 1 Round	Black
5	6141.dat	Plate 1 x 1 Round	Black
2	6558.dat	Technic Pin Long with Friction and Slot	Black
2	4032a.dat	Plate 2 x 2 Round with Axlehole Type 1	Black
2	2555.dat	Tile 1 x 1 with Clip	Light Gray
2	6141.dat	Plate 1 x 1 Round	Light Gray
6	4073.dat	Plate 1 x 1 Round	Dark Gray
4	6141.dat	Plate 1 x 1 Round	Dark Gray
2	4589.dat	Cone 1 x 1	Dark Gray
1	4081b.dat	Plate 1 x 1 with Clip Light Type 2	White
1	3024.dat	Plate 1 x 1	White
3	2555.dat	Tile 1 x 1 with Clip	White

Qty	Color	Part	Description
1	3623.dat	Plate 1 x 3	White
4	6141.dat	Plate 1 x 1 Round	White
1	3021.dat	Plate 2 x 3	White
4	3700.dat	Technic Brick 1 x 2 with Hole	White
2	54200.dat	Slope Brick 31 1 x 1 x 2/3	White
1	3069b.dat	Tile 1 x 2 with Groove	White
2	2540.dat	Plate 1 x 2 with Handle	White
1	2817.dat	Plate 2 x 2 with Holes	White
3	3794.dat	Plate 1 x 2 with 1 Stud	White
4	6541.dat	Technic Brick 1 x 1 with Hole	White
2	3040b.dat	Slope Brick 45 2 x 1	White
2	3062b.dat	Brick 1 x 1 Round with Hollow Stud	White
1	54200.dat	Slope Brick 31 1 x 1 x 2/3	Trans Black
1	2412b.dat	Tile 1 x 2 Grille with Groove	Chrome Silver



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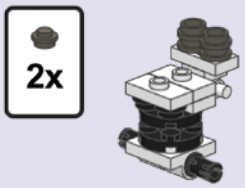

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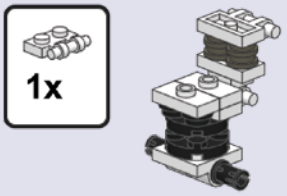

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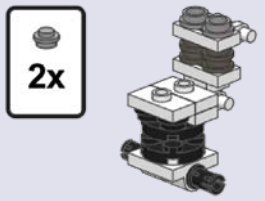

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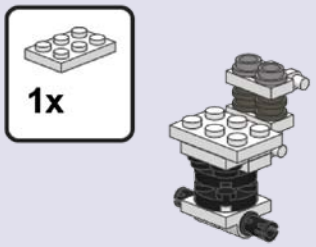

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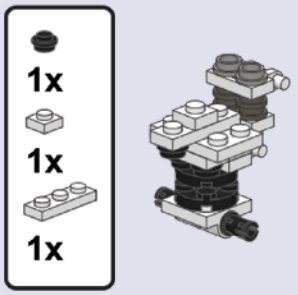

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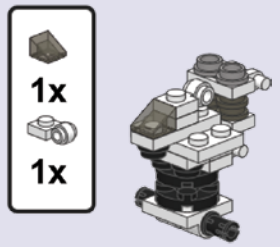

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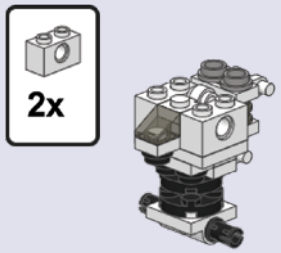

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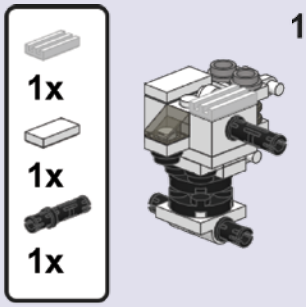

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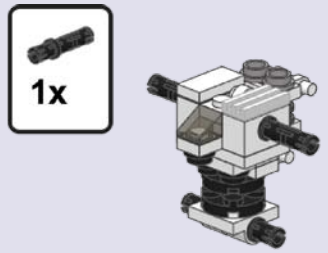

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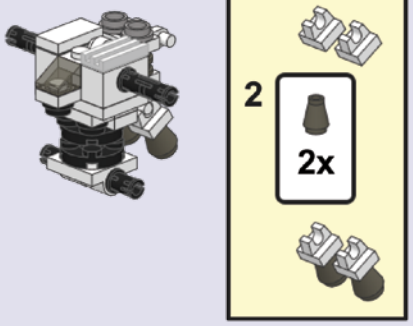

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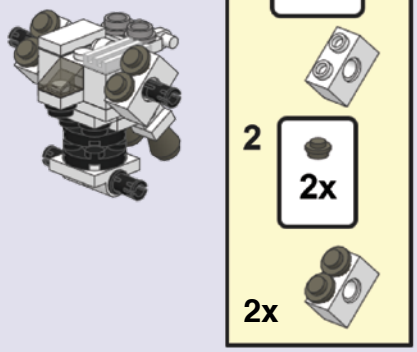

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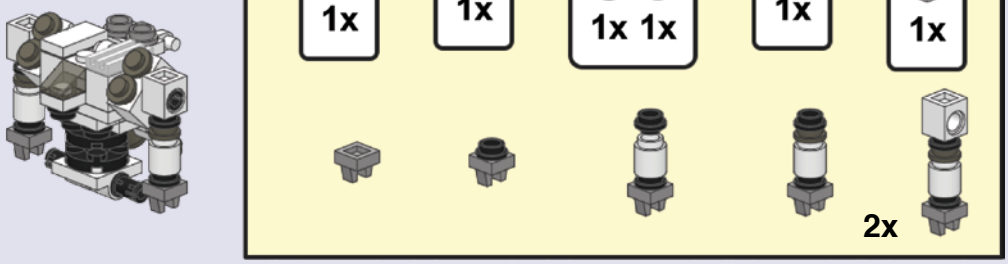
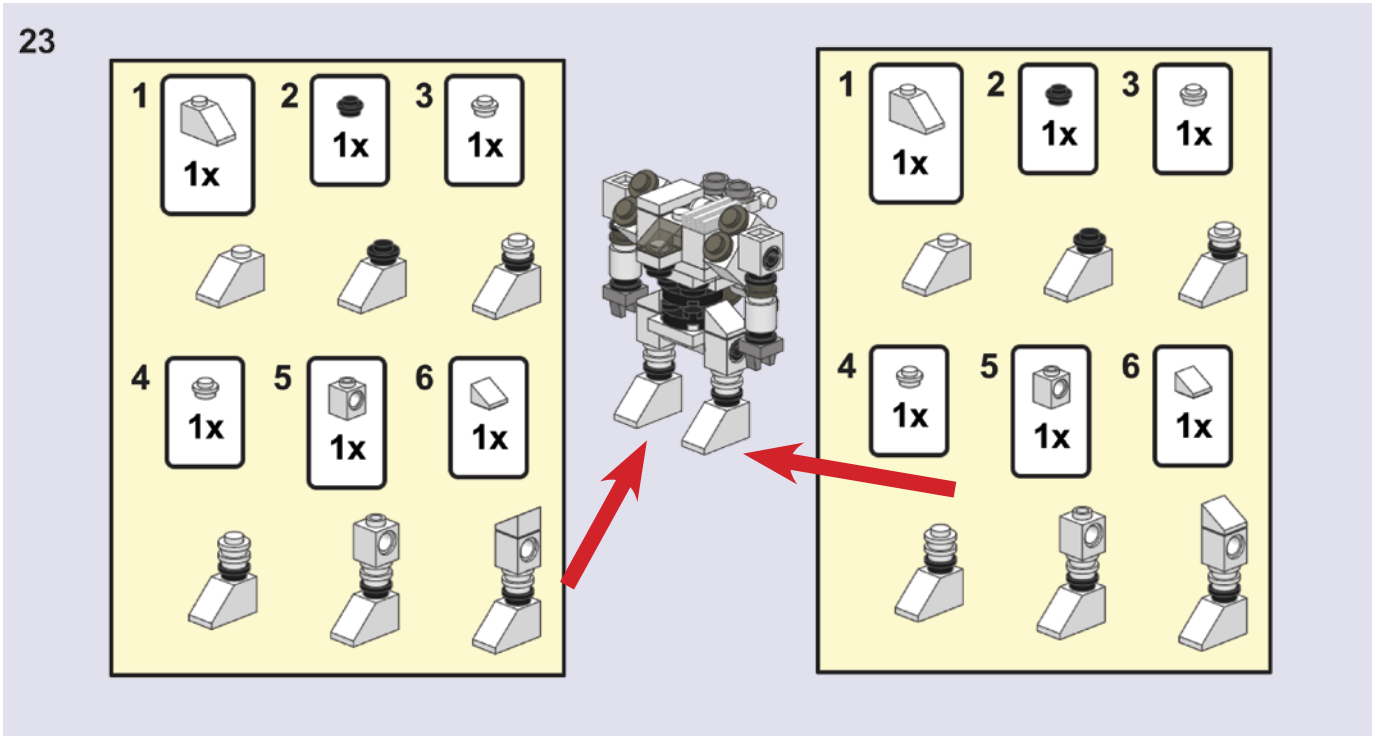


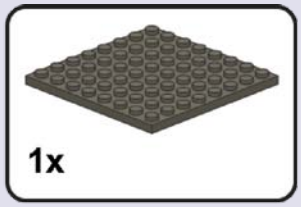


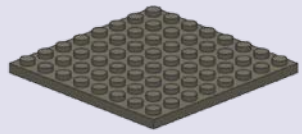
The mech bay was actually inspired by Fradel Gonzales' work. Again, this uses basic parts and can be customized by building different vehicles and changing the wall and floor elements. The bay is also modular, so other bays can attach to it using Technic pins.

Mecha Bay Parts List *(Parts can be ordered through Bricklink.com by searching by part number and color)*

Qty	Part	Description	Color
1	50746.dat	Slope Brick 31 1 x 1 x 2/3	Black
1	3024.dat	Plate 1 x 1	Black
2	4073.dat	Plate 1 x 1 Round	Black
1	4162.dat	Tile 1 x 8	Black
2	3068b.dat	Tile 2 x 2 with Groove	Black
1	3958.dat	Plate 6 x 6	Black
2	3794.dat	Plate 1 x 2 with 1 Stud	Black
2	3069b.dat	Tile 1 x 2 with Groove	Black
3	3673.dat	Technic Pin	Black
1	3034.dat	Plate 2 x 8	Black
1	3460.dat	Plate 1 x 8	Black
2	4073.dat	Plate 1 x 1 Round	Blue
2	4081b.dat	Plate 1 x 1 with Clip Light Type 2	Red
1	3024.dat	Plate 1 x 1	Red
2	3710.dat	Plate 1 x 4	Red
1	3021.dat	Plate 2 x 3	Red
1	3069b.dat	Tile 1 x 2 with Groove	Red
1	3023.dat	Plate 1 x 2	Red
2	4073.dat	Plate 1 x 1 Round	Light Gray
2	2555.dat	Tile 1 x 1 with Clip	Light Gray
2	3004.dat	Brick 1 x 2	Light Gray
2	3008.dat	Brick 1 x 8	Light Gray
4	3700.dat	Technic Brick 1 x 2 with Hole	Light Gray
2	3001.dat	Brick 2 x 4	Light Gray
2	3062b.dat	Brick 1 x 1 Round with Hollow Stud	Dark Gray
10	3004.dat	Brick 1 x 2	Dark Gray
1	4162.dat	Tile 1 x 8	Dark Gray
4	2412b.dat	Tile 1 x 2 Grille with Groove	Dark Gray
1	3710.dat	Plate 1 x 4	Dark Gray
2	4070.dat	Brick 1 x 1 with Headlight	Dark Gray
2	3700.dat	Technic Brick 1 x 2 with Hole	Dark Gray
1	4032a.dat	Plate 2 x 2 Round with Axlehole Type 1	Dark Gray
1	3023.dat	Plate 1 x 2	Dark Gray
6	30071.dat	Brick 1 x 1	Dark Gray
2	3622.dat	Brick 1 x 3	Dark Gray
8	3040b.dat	Slope Brick 45 2 x 1	Dark Gray
3	41539.dat	Plate 8 x 8	Dark Gray
1	3034.dat	Plate 2 x 8	Dark Gray
1	4073.dat	Plate 1 x 1 Round	Yellow
1	2412b.dat	Tile 1 x 2 Grille with Groove	Yellow
2	4070.dat	Brick 1 x 1 with Headlight	Yellow
1	3008.dat	Brick 1 x 8	Yellow
3	3069b.dat	Tile 1 x 2 with Groove	Yellow
1	4032a.dat	Plate 2 x 2 Round with Axlehole Type 1	Yellow
2	2540.dat	Plate 1 x 2 with Handle	Yellow
4	30071.dat	Brick 1 x 1	Yellow
2	3460.dat	Plate 1 x 8	Yellow
1	30039.dat	Tile 1 x 1 with Groove	Trans Yellow
2	4073.dat	Plate 1 x 1 Round	Trans Clear
2	3023.dat	Plate 1 x 2	Trans Clear

1





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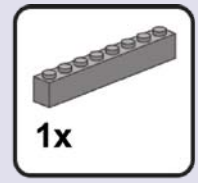

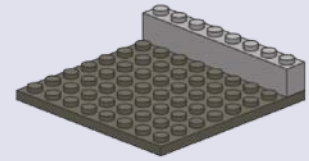

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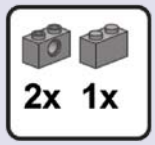

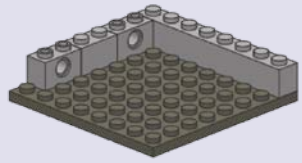

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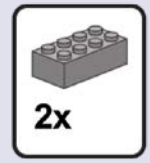

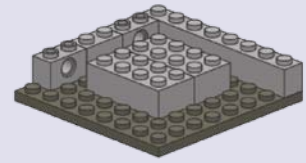

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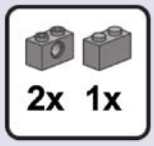

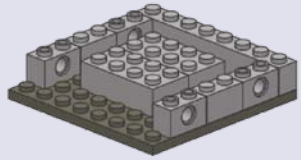

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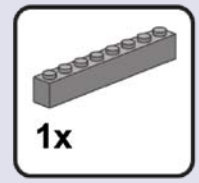

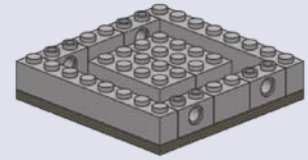

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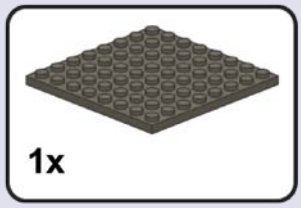

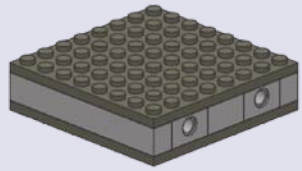

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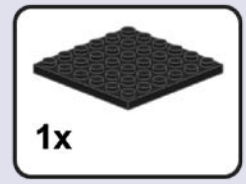

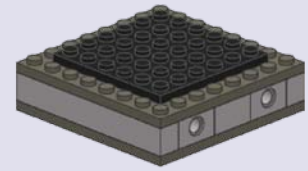

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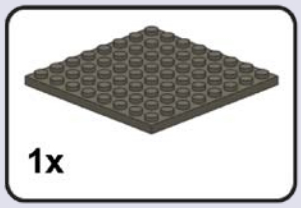

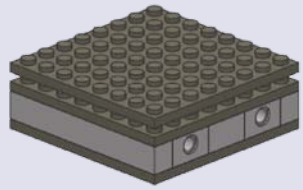

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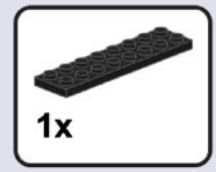

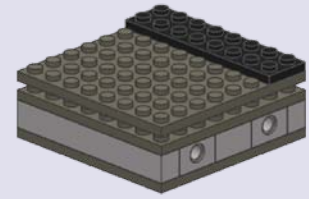

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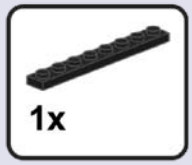

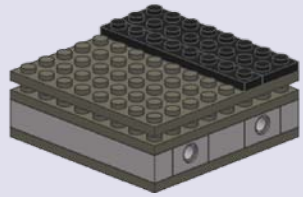

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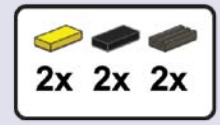

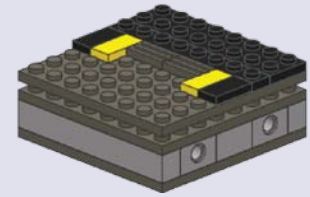

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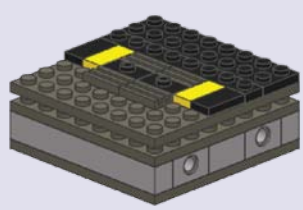

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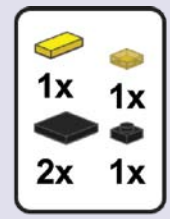

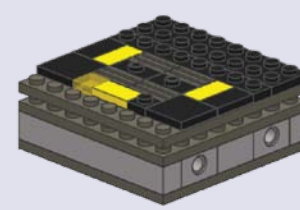

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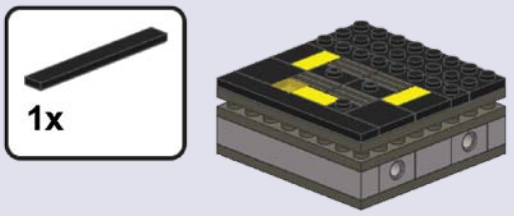

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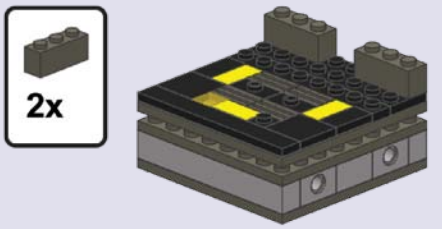

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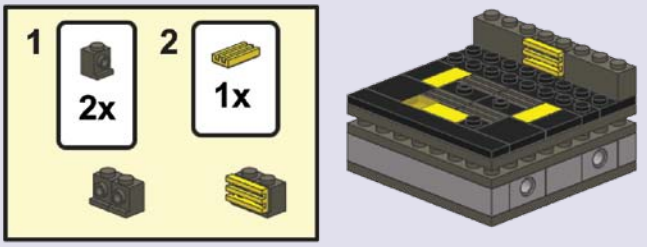

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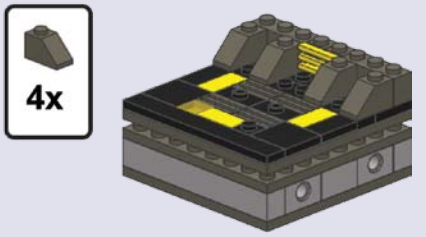

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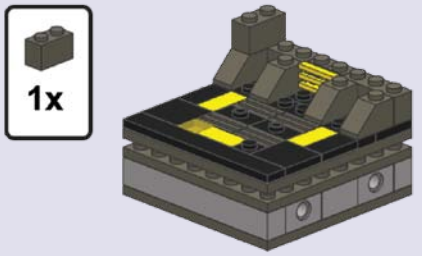

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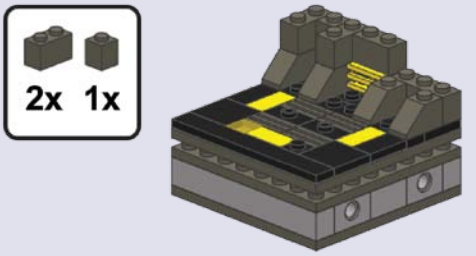

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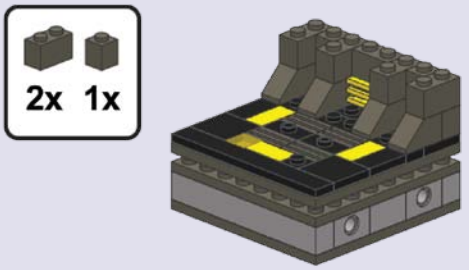

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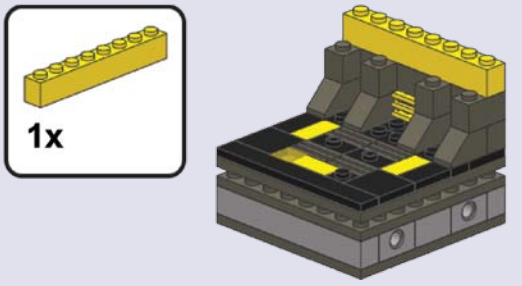

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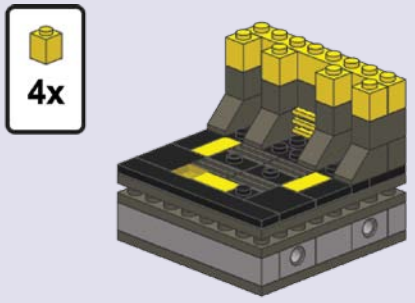

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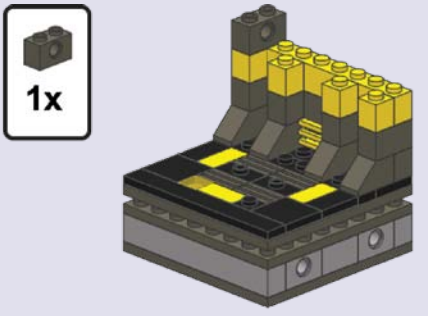

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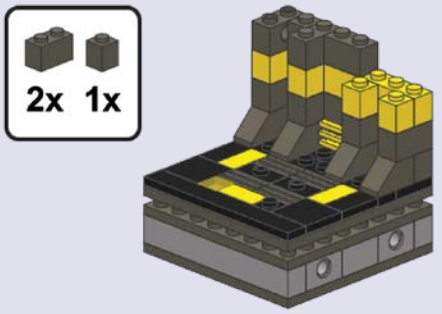

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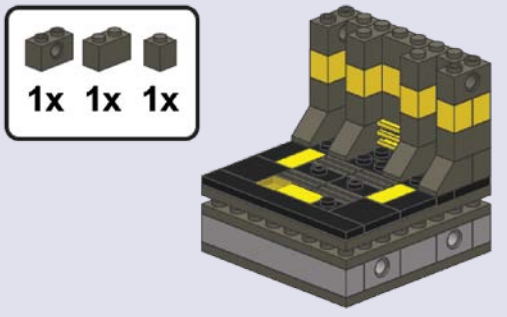

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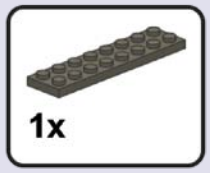

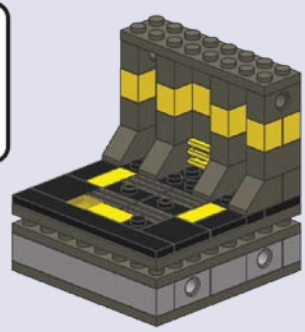

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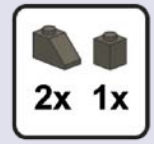

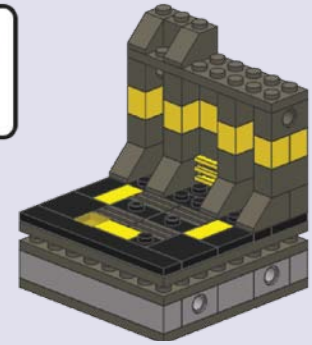

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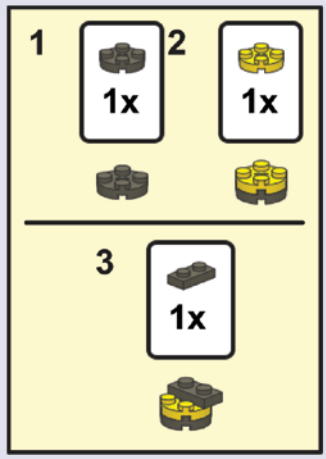

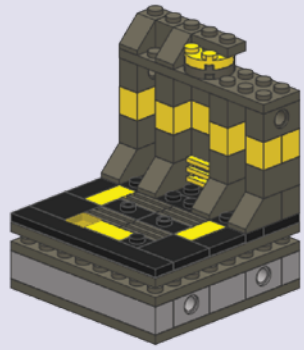

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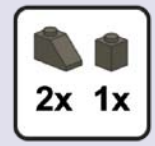

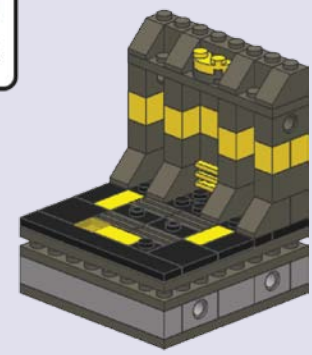

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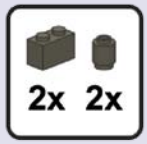

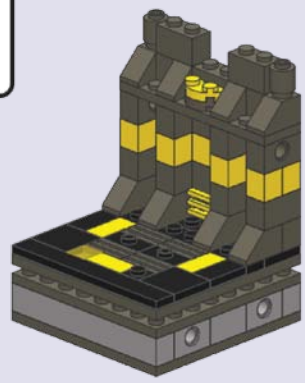

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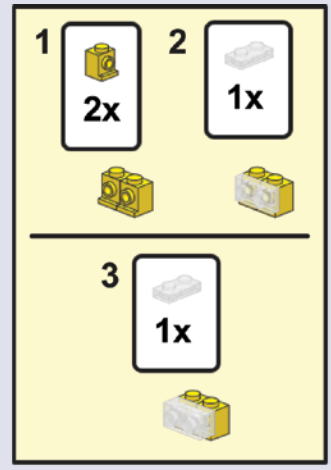

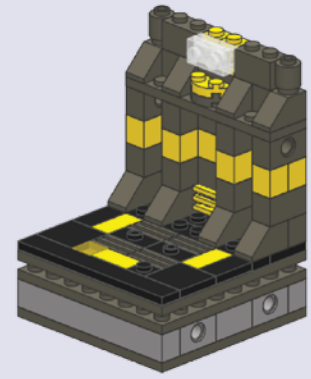

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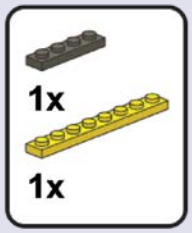

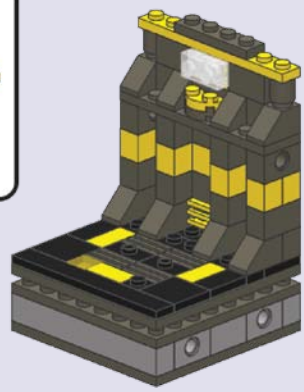

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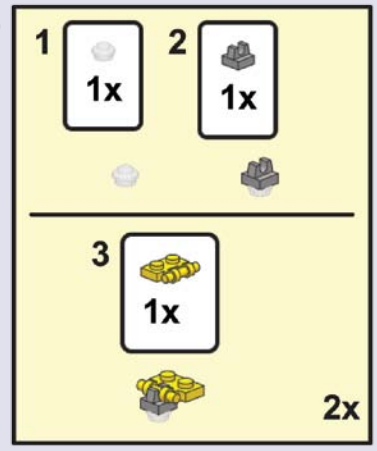

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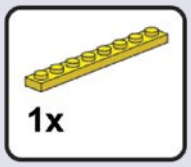

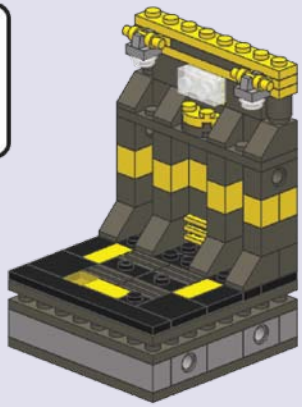

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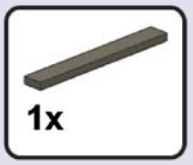

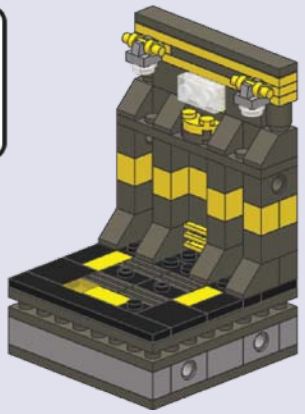

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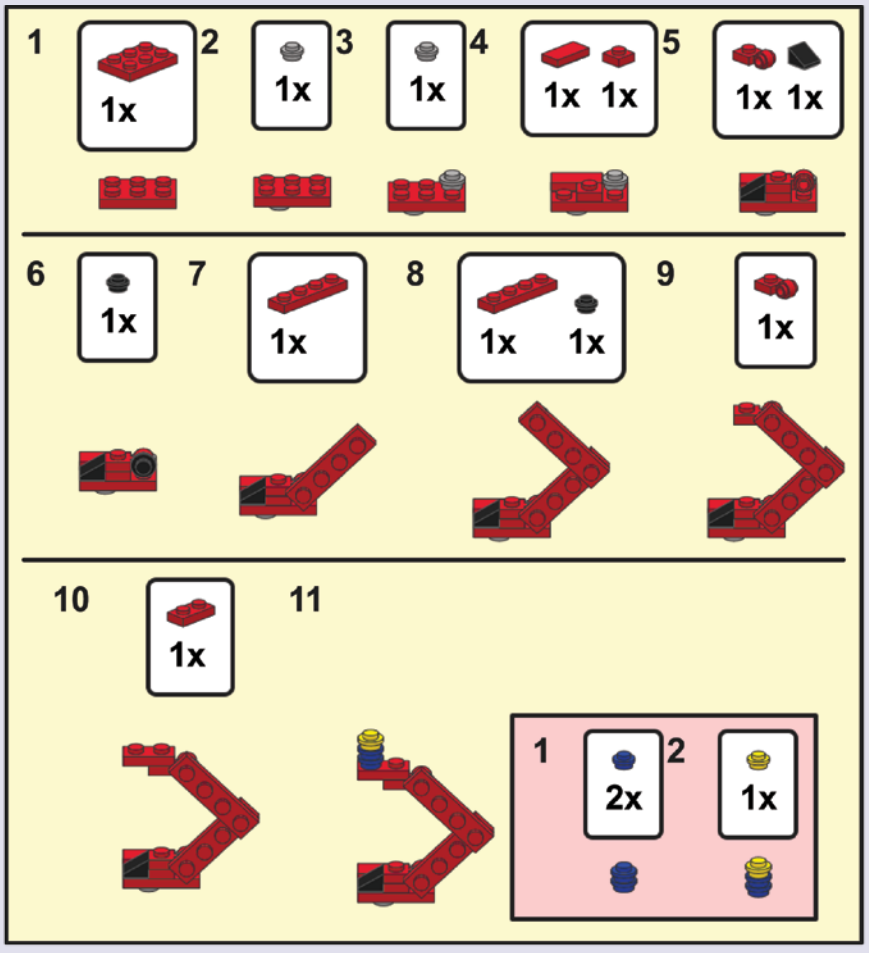
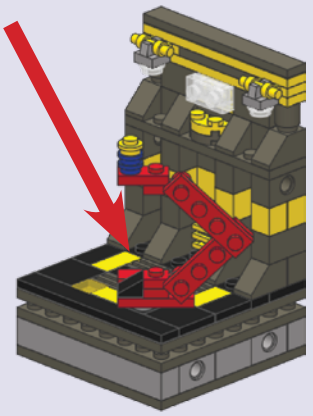


This is a "cherry-picker" used to repair a mech. A maintenance officer is on the top. You can change the color of his uniform or the cherry picker.



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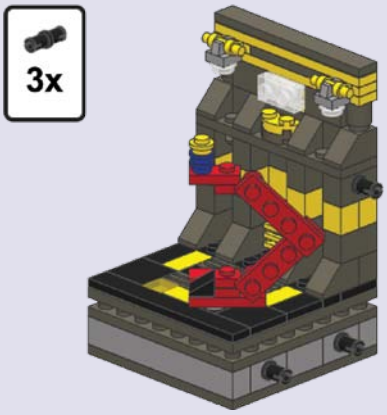
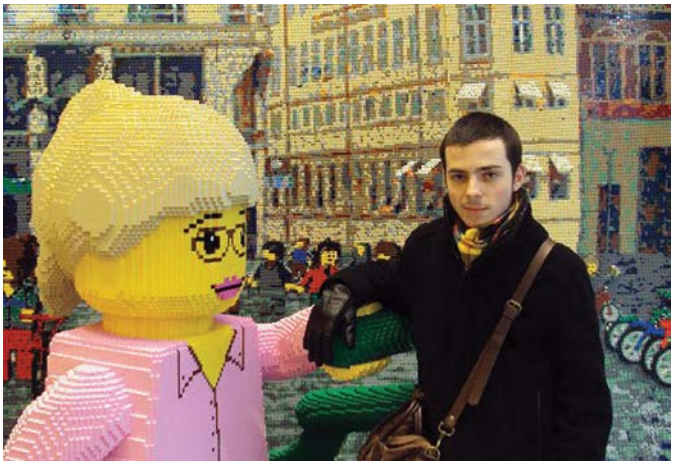


Your mecha can be attached at any of the open studs on the floor to secure it. You can also build more vehicles and personnel to place on the module. The Technic pins are for attaching the module to another.

Building in Billund!

Article and Photography by Jordan Schwartz

Welcome to Billund, Denmark: population: 6,000 — home of endlessly flat pastures, thirty-plus roundabouts, the blandest overcast skies you've ever seen, and the headquarters of everyone's favorite plastic brick manufacturer. BrickJournal recently had the opportunity to ask contributor Jordan Schwartz about his latest endeavor — working as an intern with The LEGO Group in Denmark.



Top: The street signs for the LEGO Group's PMD building. Above: Jordan at the LEGO store in Copenhagen.

So, how did you come to be hired by TLG?
My tale begins at a LEGO convention in June 2010, during which some friends reminded me that The LEGO Group was looking to hire new product designers. Despite the fact that I had just gotten out of high school, their words of encouragement provoked me to compile a formal portfolio post-haste, and soon after returning home from the convention, I had my application in the mail, bound for the humble town of Billund. Just a mere few weeks later, I learned that I was one of the lucky chosen ones selected to attend a workshop and interview in Denmark. And shortly after said workshop, I was offered a one-year internship as a "starting point." Overjoyed about the good news, I took a leave of absence from the art school in Boston I had just begun attending and prepared myself for what is turning out to be the next great chapter of my life.

What can you tell us about the work that you are doing with TLG?
Naturally, there aren't too many specifics I can talk about, since all of my work so far is confidential. But here is what I can tell you:

I am working with the Creator and LEGO Direct design team. It's a great place to be, and every last member of the team is a true pleasure to collaborate with, all exceptionally talented and friendly to boot. (Are you interested in learning a little about my colleagues? If so, you are in luck! If you head on over to the Creator pages on LEGO.com [www.creator.lego.com] you can read the bios of and watch videos featuring some of the designers I have the privilege of working with.) That is not to discount the other design teams working in PMD [Product Marketing and Development] — they are incredible as well. And I would like to make a special note of my fellow AFOLs who are working here — I find it quite nice to chat about what's new in the fan community with people who came from it as I had.

As an intern, what kinds of things are you learning?
Over the few months that I have been here so far, I am learning a lot, and in the process, learning that I didn't know as much about LEGO product design as I thought I knew. The correlation between building MOCs and designing sets is not as strong as I assumed it was. Building in the AFOL fashion and building in the official fashion are two completely and utterly separate animals. From a fan perspective, it might not seem that way, but trust me, it is. At first I found it a little difficult to quell my burning desire to build in the ways I was used to, but as other designers in the company will tell you as well, you learn quickly. Before coming here, I bought up plenty sets and studied the building instructions as I put them together, and there were still so many things that I would have never thought of in relation to how a set is designed, why certain elements and colors are chosen over others, etc. Learning the minute essentials of set design is not only vital and practical, but also fascinating. As different designers pass their little design secrets on to me, I can't help but give a sincere smile and nod. It's a like some grand revelation every time.

Has anything particular struck you as odd or unusual, given your social and cultural background?
One thing has jumped out at me as "out of the ordinary" more than anything else — having the treat of being surrounding by like-minded people all day. Assuming you are not an active

The LEGO Idea House.

member of a LUG in your community, you probably know what I mean. When I was back home, in school let's say, I discovered that no matter how much explaining, elaboration, or elucidation, some people will still cock their heads at you and haughtily ask "why?" at the statement: "I like LEGO products." (Especially in high school, let me tell you!) But here, people get it. And not only do they appreciate your work for its overall aesthetic, but also for the nitty-gritty things, like color choice, technique, and even the thought processes behind it. Maybe I am over-evaluating and over-appreciating something insignificant, but being in such an imaginative and spontaneous place is good. It is really, very good. I do not take it for granted.

How are you finding life in Billund?
Now, let's talk about Billund itself. What to say… well, it's small. Really small. We've got a couple restaurants. A market. A bank. Oh, even a new tourism office! That's exciting I guess…

…OK, in all seriousness, Billund is a pretty sleepy little place, but it has turned out to be nothing like how people described it to me before I came. We've essentially got one of everything we need, and that's enough for me. Plus, a forty-five minute bus ride to the neighboring towns of Vejle or Kolding provide enough of an "escape" for me. There are always ample opportunities to get out of town for a little while, and ample people to go with. I know I've had countless fun and exciting experiences so far, and I have not even been here that long!

How do you feel about living by yourself for the first time? After all, you are only 18 years old.
For me, it is rather strange to think just how quickly I ended up in a foreign country all by myself for the first time. Before moving to Denmark, the only other time I had been in Europe was for the workshop that landed me the position. Also, my residency in Denmark is not only my first time living in a different country, but also my first time living away from home altogether. Being thrust into such a different culture so quickly had left me a little bit disoriented at first; but now, I've warmed up to my colleagues, the country, and my newly-earned independence; for now, I'm happy. This is my dream job, after all, and having achieved it this early in life really highlights the prospects of the future in my eyes. I am lucky.

That's all for now, thanks very much for your time Jordan!

My pleasure; thank you!

Jordan will be writing about his adventures in Billund in upcoming issues of BrickJournal. *His website is www.brickstud.com.*

You can jump to Jordan's website by scanning this QR code!

The Pod Races Return!

Article by Hadley Scrowston
Photography by Mark Stafford and the LEGO Group.

Recently BrickJournal *had a chance to interview* Star Wars *set designer Michael Fuller, and discuss his latest set: Anakin's and Sebulba's Podracers (#7692).*

Hi Mike, it's good to meet you. How long have you worked for the LEGO Company?
Around two-and-a-half years, with one year spent as an intern during my industrial design studies before being hired as a designer straight out of university.

Have you always developed for *Star Wars?*
No, I spent my first eight months learning the ropes in CITY, a great platform that gave me a real headstart in terms of building; I actually learnt most of the tricks from the same guys that designed my childhood toys. I was then part of a three-man design team that put together the second year of the Indiana Jones theme. I was responsible for 7195 Ambush in Cairo, 7682 Shanghai Chase, 7197 Venice Canal Chase, and 7198 Fighter Plane Attack. Since I returned to the company, I've been on *Star Wars* and building for licensed themes has occupied most of my time.

Cool sets! So what have you done for *Star Wars?*
The podracers were my moment of glory, one of the only sets I really had a burning desire to build since I had joined the project — they were my LEGO brick unicorn. I was actually the one who pitched the idea when brainstorming the 2011 sets, and developed it like a mother to a child. Whilst developing those I was also building the Interior Hoth playset, before that, 7929 Droid carrier, and 7968 Mace Windu's starfighter, then — hang on a minute when's this being printed — erm, I develop and work on a lot of products, but of course only the best makes the cut.

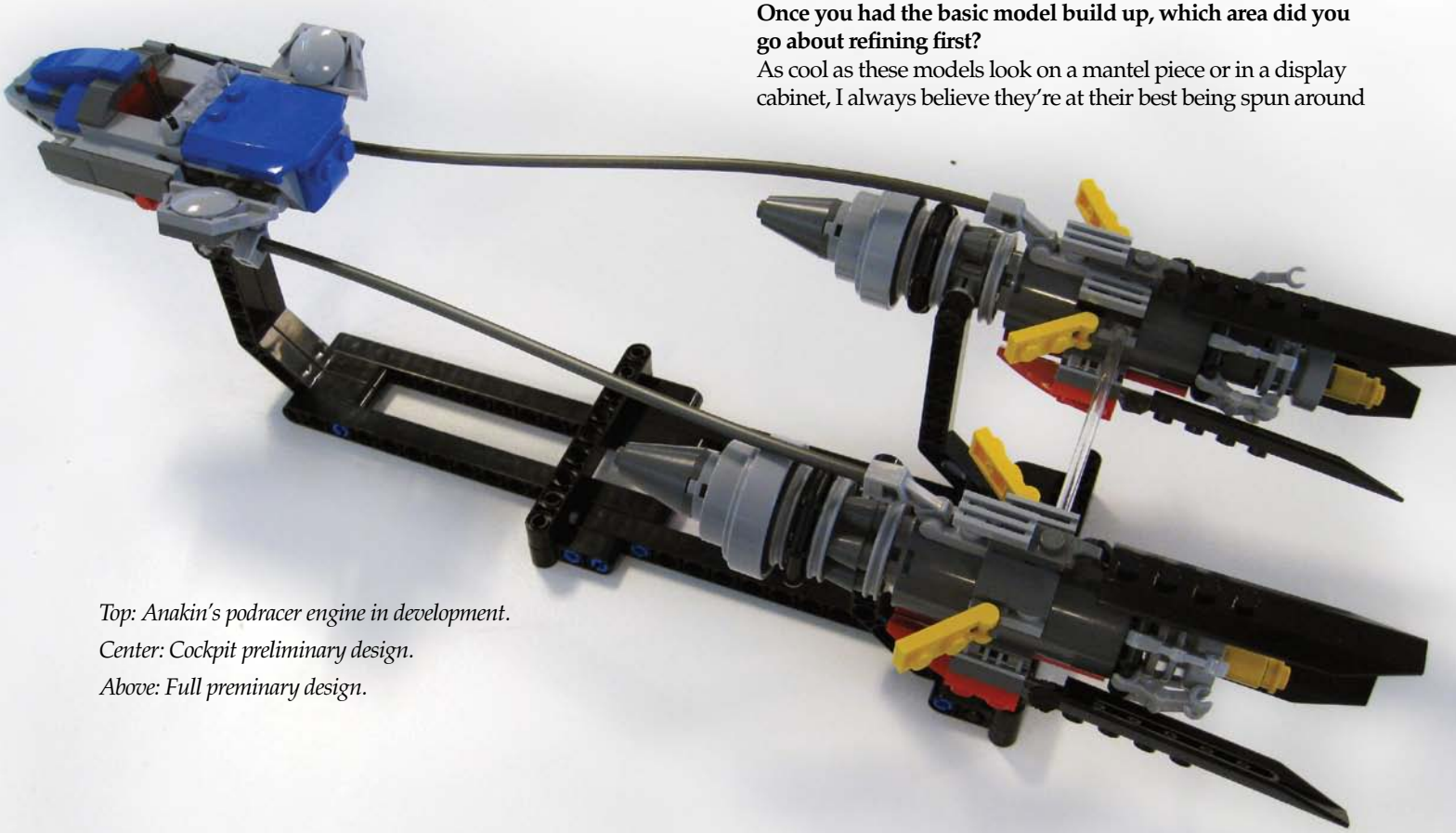
Watto (left) and Waid (right) are a couple of the minifigures included in the set.

The podracers set looks awesome! It's been a while since the last LEGO *Star Wars* podracers too, so did you have a chance to build the original set before you started?
That's one of the reasons I was so excited to get the opportunity, they were launched way back in the early days of LEGO Star Wars and hadn't been touched since. However "with great power comes great responsibility"; people would be expecting a lot from the update and I really wanted to do them justice. Not only that but I'm a massive motorhead and motorbike enthusiast — there's something about the pods that really appeals from a design point of view.

I referred to the original instructions, and was pretty confident I could get a closer resemblance to the real thing, but the main issue was always going to be stability. Lucasfilm doesn't tend to think about us builders when they draw these far-out ships. For me, there were obvious areas to improve on, to better achieve the impression of hovering, making them easier to handle, and piling on as much geeky detail as I could get away with.

What were your initial thoughts when starting the design process?
"Hell yeah, I'm designing the podracers!"... Then I gathered myself and began work. From step one I could see this needed to be a modular build. The form of the pods is awesome, but they are also complicated, awkward as a build, and to top it off, floating in midair. If these large, intimidating motors are broken down into smaller subassemblies, the construction becomes easier, meaning a higher level of accuracy can be achieved by a younger builder. Sections can be repeated for reflected elements, which occurs a lot in a model like this, and a large brick volume can be assembled quickly, delivering a model that rapidly takes form. It all comes down to the assembly, so long as the final construction of the various pod elements can be clearly depicted then an intimidating task becomes kid's stuff.

Once you had the basic model build up, which area did you go about refining first?
As cool as these models look on a mantel piece or in a display cabinet, I always believe they're at their best being spun around



Top: Anakin's podracer engine in development.
Center: Cockpit preliminary design.
Above: Full preminary design.

and around, in a circle repetitively by an eight-year-old kid. This is where the stands come in, which are by no means an easy element of the design. The original method really let the previous model down. I wanted them to disappear, but knew they still had to provide the rigid skeleton for the model in play. A detachable base that reveals a handle was one of the most important innovations in keeping this model in one piece. The idea being that if you provide a handle, there is less chance a model is grabbed in less stable sections. Essentially you can control where the model will be handled and therefore design a solid structure based around this assumption.

These stands rely a lot on the fact that they are well-balanced. Even though a stable system can be confirmed early in the process, it will always need tweaking as other areas of the model evolve.

Is it a challenge to build such a detailed set for kids? How do you make sure it's not too difficult?
Yes, it is; the design process is full of challenges and we actually moved the age mark up on this model as we didn't feel it was achievable for an eight-year-old, not if we wanted to do it justice and deliver good play values. The level of detail and accuracy against the ease of the build is always one of the biggest challenges, and is a delicate balance, especially when replicating such icons.

Making sure the kids have a good experience is always top priority — it really comes down to the designer's skill, creativity, and experience to deliver something that's simple and stable, but still visually impressive. When you're very dedicated to your work you also become attached to your designs, so forcing yourself to alter the style to produce a better product is often one of the hardest challenges.

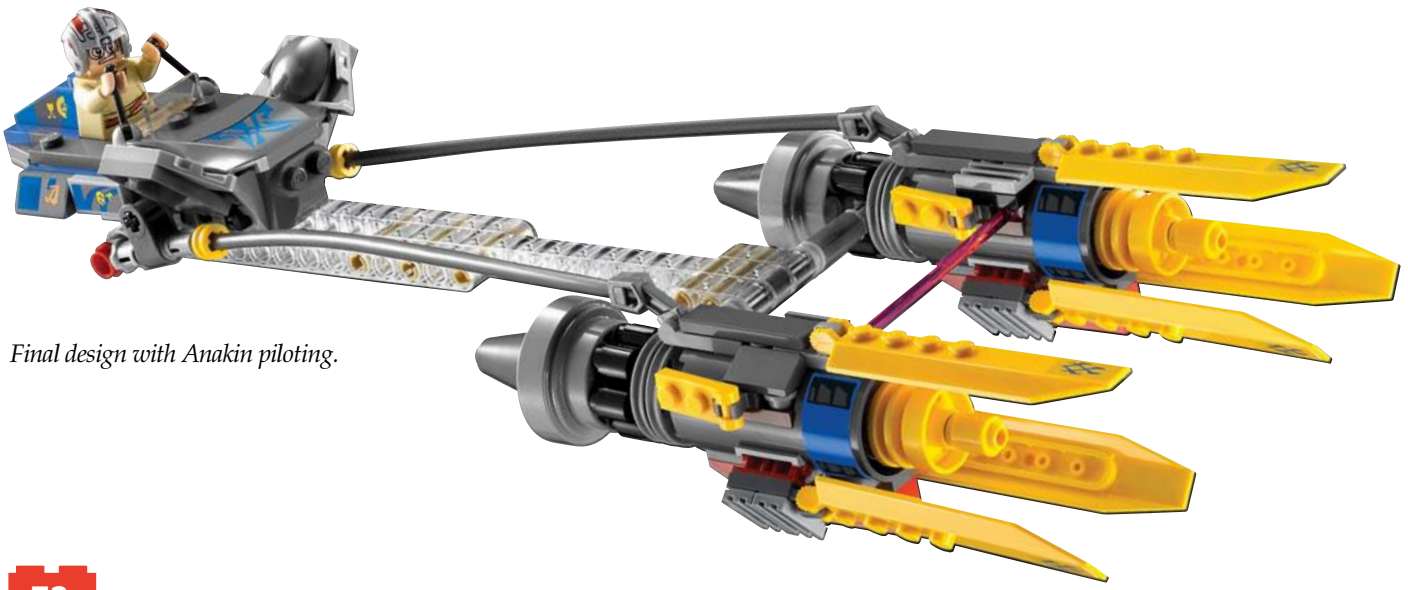
What kind of input do you get from Lucasfilm?
They deliver us all our reference material to ensure we're building the most current ships. Remember, we're working a year in advance so whenever we can get one step ahead, we gain an advantage. They provide future material from the *Clone Wars* series and gaming platforms, but they're pretty tight on what they let us see.

All our models have to be approved by Lucasfilm to ensure they both correctly represent the brand, and accurately replicate the original designs. Sometimes these checks leave us replacing a lot of the detail we decided to scrap — things can often change and we have to adapt. We have close communication, collectively ensuring we turn out only the most exciting toys. We have a good relationship and looking after each other is in all of our interests.

The minifigures are a huge improvement from the original versions. How much do you as a model designer have to do with this aspect of the set?
To be honest, not much. Those detailed little fellas take a fair proportion of my brick budget, so if I had my way, it would be Battle Droids and Gonks all the way! The minifigures are almost as important as the model in terms of set appeal and a lot of work goes into keeping them fresh and exciting. If new characters are being developed, I need to keep track of them to insure they'll work in conjunction with the model, fit in the seat/cockpit etc, but also follow their developing price so I can budget for them.

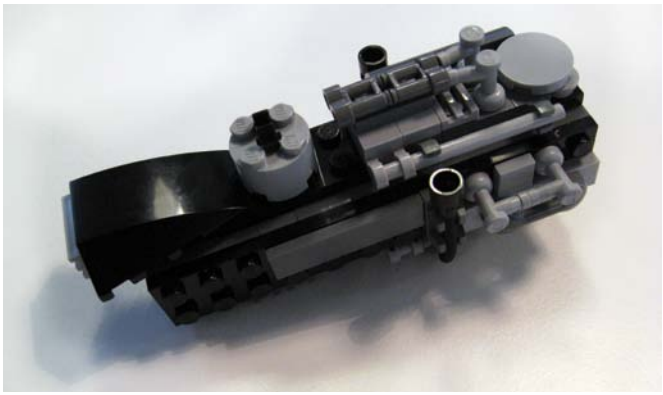
As always with LEGO product's "only the best is good enough" credo, a great team of sculptures, element designers, graphic guys, and engineers spend a lot of time ensuring the mini-figures are manufactured to the highest standard, whilst also delivering a well-executed design in terms of form and character resemblance. A lot of focus is always put around correctly representing a well known hero whilst still keeping a clear LEGO identity, which is another careful balance with a lot of input from a lot of people.

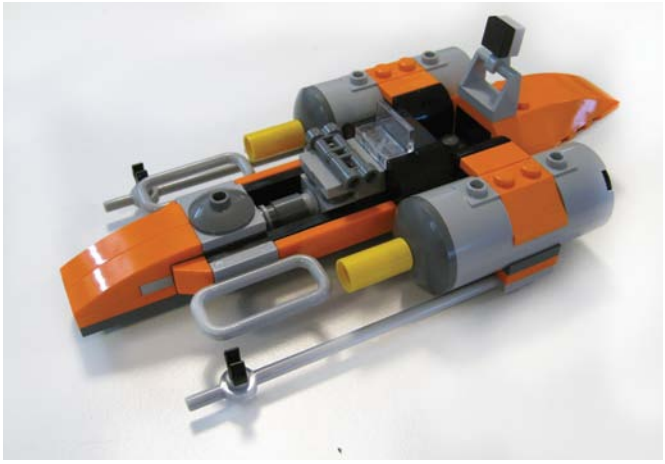
So we know from previous interviews with LEGO Designers that every part has an internal price and you have a budget you have to come in under — was there any part of the set you had to take off to hit the target you really wished you could have kept?
I always want more money, however much I've got, but to be honest if my budget was bigger, it would have been a third pod. These are a pretty realistic size, and I'm pretty happy with the level of detail...this is not a cheap set.



Final design with Anakin piloting.

In an ideal world, I wouldn't use any of the larger moulded plastic elements; I'd build all the forms up, which would of course cost more. This is a wicked way to really show your talents, pushing the system to create organic forms whilst staying within confines of the bricks strains and capabilities. As cool as some of these sketch models can look, they're no easy task for a young builder and would only cause frustration and disappointment.





Top: Sebulba's podracer core preliminary design.

Center: Cockpit preliminary design.

Above: Final cockpit design with 3D printed Sebulba figure and without color changed parts.

Right: Sebulba minifigure.

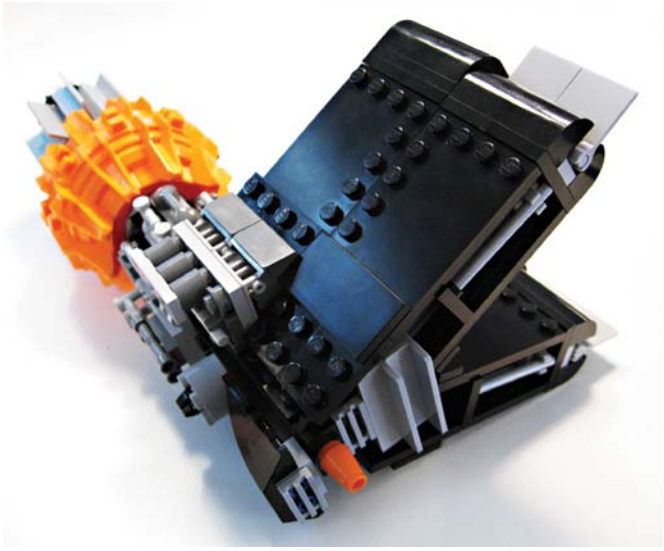
If you could have included a third pod racer in the set, which one would it have been? (And any idea how you would have built it?)

Probably the BT310 driven by Ben Quadinaros — the thing's got four engines with crossover energy binders. I've got no idea where I'd start, but I know I'd be working them around the same structure as the two in the set. I'm a big fan of consistency, and the design principles work.

I'd do each and every pod if I thought we could sell them... I'd call it Mike's Pod Legacy... now that certainly would be a great way to spend the next couple of years!

Would you like to stay in LEGO *Star Wars*?

I'm one of LEGO *Star Wars* biggest fans, but also always keen to try new things. I love the interest and appreciation that comes with working for *Star Wars*, but in many ways, a lot of the tasty design work is already done. By working on themes that aren't attached to a license, you get far more freedom in terms of creativity, and more space to really put your mark on a design.



Top and above: Engine designs.

This doesn't however take away from the fact that *Star Wars* has got some of the most creative builders within the company contributing. To replicate these abnormally shaped vehicles you have to think "out of the box", and try constantly to use new techniques in order to achieve, what can seem like, impossible forms.

What LEGO set would you like to develop if money and time were no object?
I'd really love to do Anakin's pod as an Ultimate Collectors model. There's so much fun to be had there, I'd lock myself away.

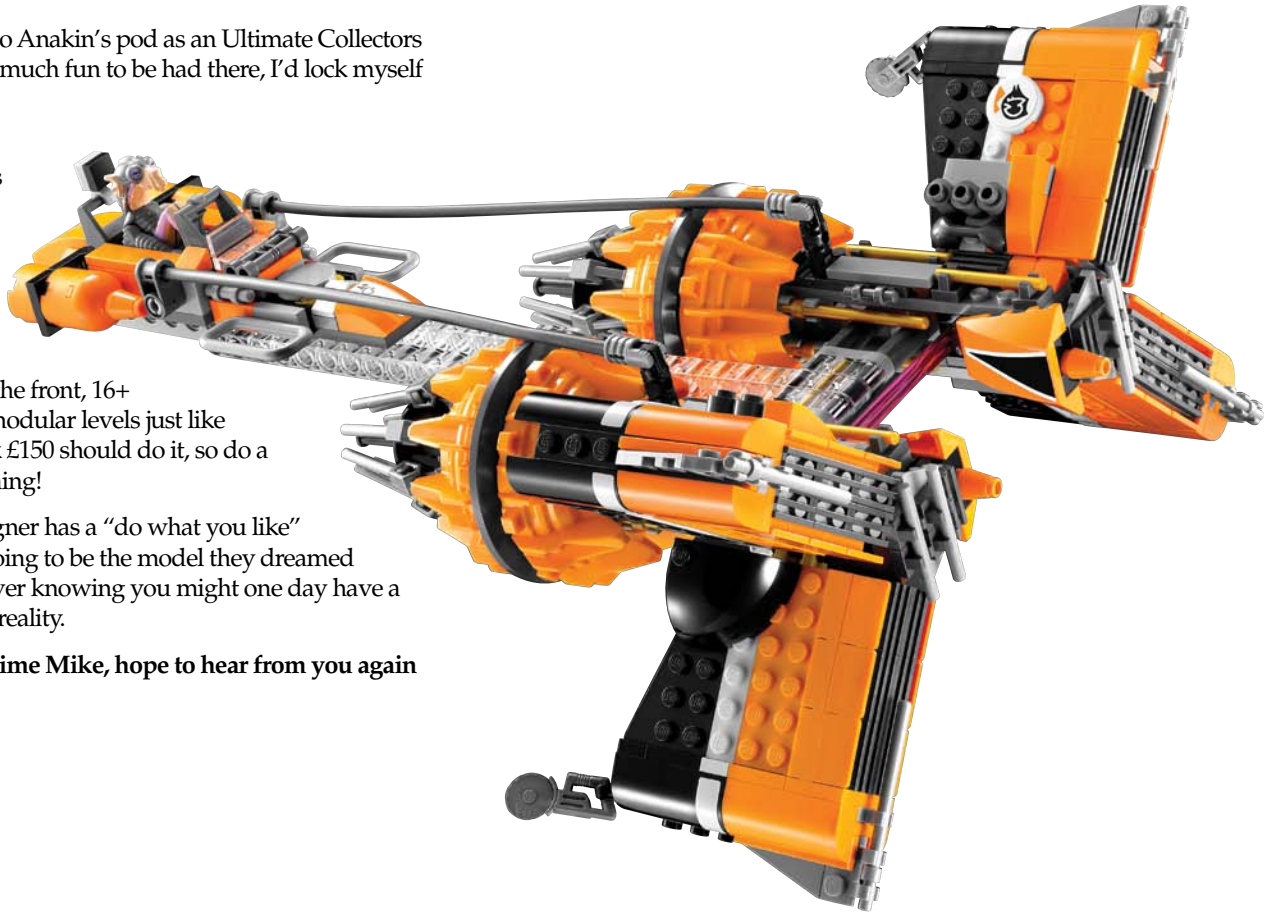
Outside of *Star Wars*... I've always wanted to do a Direct model for City: a luxury yacht, hot tub, helipad, jet skis out the back, sun loungers out the front, 16+ studs wide with modular levels just like in Monaco. I think £150 should do it, so do a petition or something!

I think if any designer has a "do what you like" brief, its always going to be the model they dreamed about as a kid, never knowing you might one day have a chance to make it reality.

Thanks for your time Mike, hope to hear from you again soon!

Above: Final designs on revised bases.

Below: Final model of Sebulba's podracer.



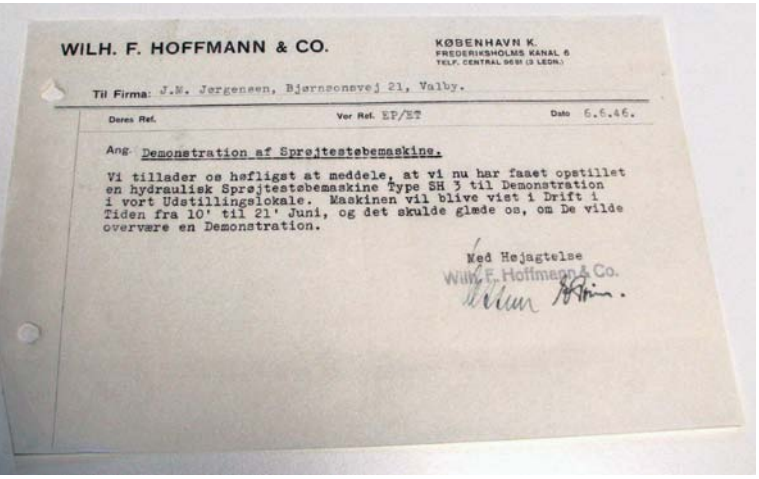
The Beginning of Plastics

By Kristian Hauge,
The LEGO Idea House
Photography by the LEGO Idea House and Megan Rothrock

Ever wonder when the LEGO Group started to produce plastic toys? Here The LEGO Idea House shares their story.

The LEGO Group's journey into plastic started in 1946 when the founder of the LEGO Group Ole Kirk Kristiansen placed an order for a plastic injection molding machine. The machine was delivered in 1947 and kicked off the LEGO Group's adventure into the world of plastic.

From the very beginning in 1932 until the late 1940s, the LEGO Group only produced toys made of wood. But LEGO® founder Ole Kirk Kristiansen was always looking for new materials that he could use to produce toys. Mainly due to World War II, it became increasingly more difficult to find wood that could reach the high quality standards of the LEGO Group. Because of the lack of wood, Ole Kirk had an even bigger incentive to satisfy his curiosity towards new materials to be used for producing toys.



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Ang. Demonstration af Sprøjtestøbemaskine.

Vi tillader os hørligst at meddele, at vi nu har faaet opstillet en hydraulisk Sprøjtestøbemaskine Type SH 3 til Demonstration i vort Udstillingslokale. Maskinen vil blive vist i Drift i Tiden fra 10' til 21' Juni, og det skulde glæde os, om De vilde overvære en Demonstration.

Med Hejagtelse
Wilh. F. Hoffmann & Co.

Above: The actual invitation sent to the LEGO Group inviting them to come to Copenhagen for a demonstration of a plastic injection molding machine.

Three Different Machines

Ole Kirk and the LEGO Group had the opportunity to buy three different plastic injection molding machines: one from the Danish company Johannesen & Lund, Copenhagen with a capacity of 35 grams of moulding material; a machine from a British company E. H. Windsor, London with a capacity of 85 grams of moulding material; and one from the American company Reed – Prentice, Corp. New York with a capacity of 115 grams of molding material. The Danish machine was scrapped very quickly as it did not have the capacity needed.

The First Plastic Injection Molding Machine

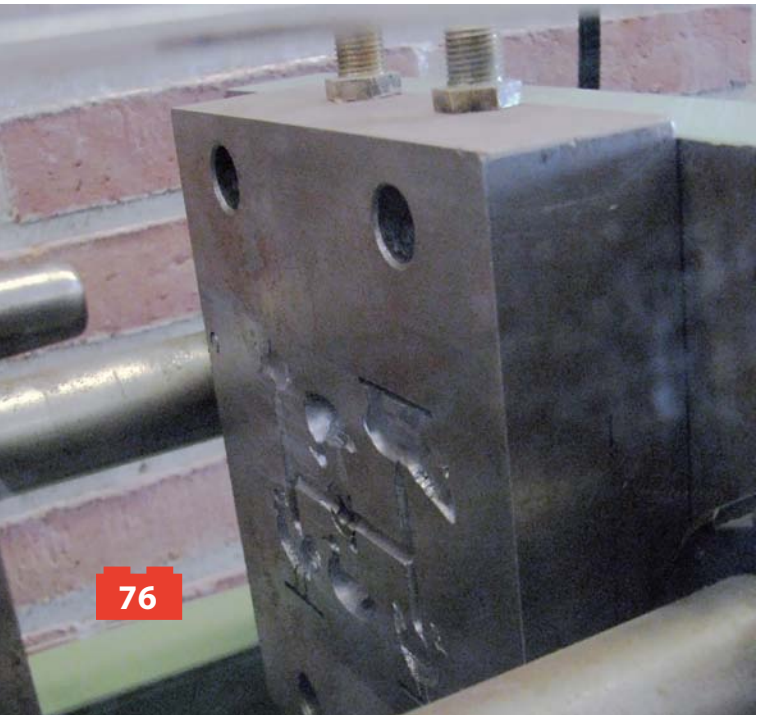
Ole Kirk turned his attention to plastic. Invented in the middle of the 19th century, plastic had been on the market for quite a while, but in the mid-1940s it had reached a level of quality that made it suitable for producing toys. In June 1946, Ole Kirk, together with many other Danish toy manufacturers, attended a demonstration of a plastic injection molding machine in Copenhagen. Ole Kirk was so enthusiastic about the potential of the machine that he placed an order through the Danish company Wilh. F. Hoffmann & Co for a British machine soon after. The machine was produced by E. H. Windsor, London.

In August/September 1946, he travelled to Stockholm to see yet another demonstration of a plastic injection molding machine. After the second demonstration, Ole Kirk Kristiansen was even more convinced by the potential of the material and soon after he placed an order for another machine, this time an American model. Unfortunately due to restrictions on obtaining currency, the purchase of the American machine was never realized.

The British molding machine arrived in Billund in the summer of 1947 and the same year the LEGO Group began preparations to produce plastic toys.

Below: This once-busy molding machine now sits quietly at the production facilities at Kornmarken, Billund. This is one of the first injection molding machines the LEGO Group purchased. The arm on the front would be lifted up by hand to open and close the molds. Plastic granulate goes into the triangular box on the top.

Below left: Ready to go — molding plates in the machine, in this case LEGO animals from the 1950s.

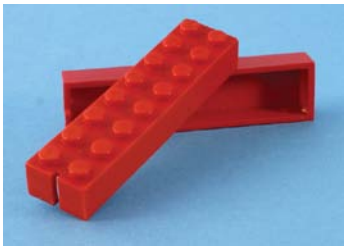


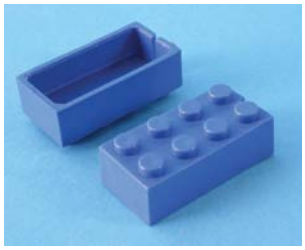
A Great Example

By 1949 the plastic division of the LEGO Group was producing a lot of different plastic toys. Among the new products to compete with the old wooden toys were the first LEGO bricks, named the Automatic Binding Bricks. The English phrase 'Automatic Binding Bricks,' printed on the box, was meant as a goodwill gesture to the American and British troops liberating Europe and ending World War II.

According to legend, the idea of the Automatic Binding Bricks can be traced back to the demonstration of the plastic injection molding machine in Copenhagen in 1946. The British salesman showed the attendants some plastic bricks to serve as an example of what could be produced on the machine. In a later interview for a Danish toy museum, a Mrs. Willumsen who also was present at the demonstration explained that Ole Kirk was the only visitor who took the plastic bricks with him. Mrs. Willumsen was married to Poul Willumsen, the founder of PUWI, which became one of the LEGO Group´s competitors as they started producing plastic bricks in 1958. Ole Kirk also brought home with him coins made out of plastic. They were used for inspiration when working on developing Monypoli, a LEGO board game launched in January 1948.

Due to a prohibition of using plastic for toy manufacturing in 1947, it is uncertain exactly when the production of plastic toys began, but experiments started immediately after receiving the plastic injection molding machine in the basement of Godtfred Kirk Christiansen´s home in Billund. Ole Kirk Kristiansen and his son Godtfred started to redesign the plastic bricks Ole had brought home and eventually in 1949 they came up with the Automatic Binding Bricks. Even though the brick was fairly successful it wasn't a top seller at the time and the full potential of the product was still to be discovered… b





Above: Examples of the Automatic Binding Bricks, including the 2 x 8 (left) and 2 x 4 (right). The bricks initially did not have tubes on the bottom.

Below: A house built with the Automatic Binding Bricks.

Community Ads

Last Word

Well, there were some things that I wanted to get in this issue that we ran out of space on....but I can show some pics here - some LEGO items that got a lot of attention in the media...

Above: Actress Emily Mortimer, who voices Holly Shiftwell in *Cars 2*, is presented with a custom LEGO version of her character at a *Cars 2* toy event in New York City during Toy Fair.

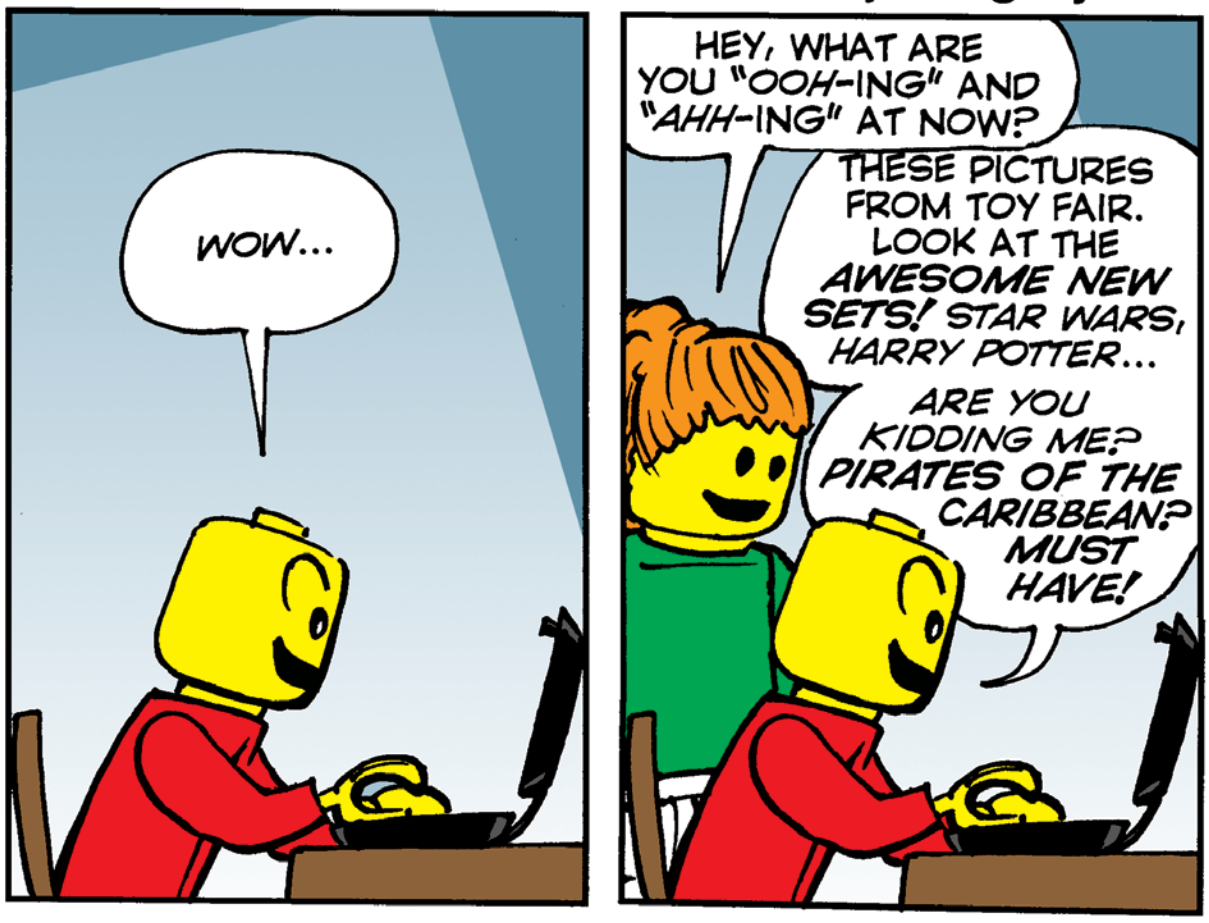
Center: Erik Varzsegi, LEGO Master Model Builder, poses with two examples of his work at Toy Fair: Jack Sparrow, done in bricks, and Lightning McQueen, done with even more bricks!

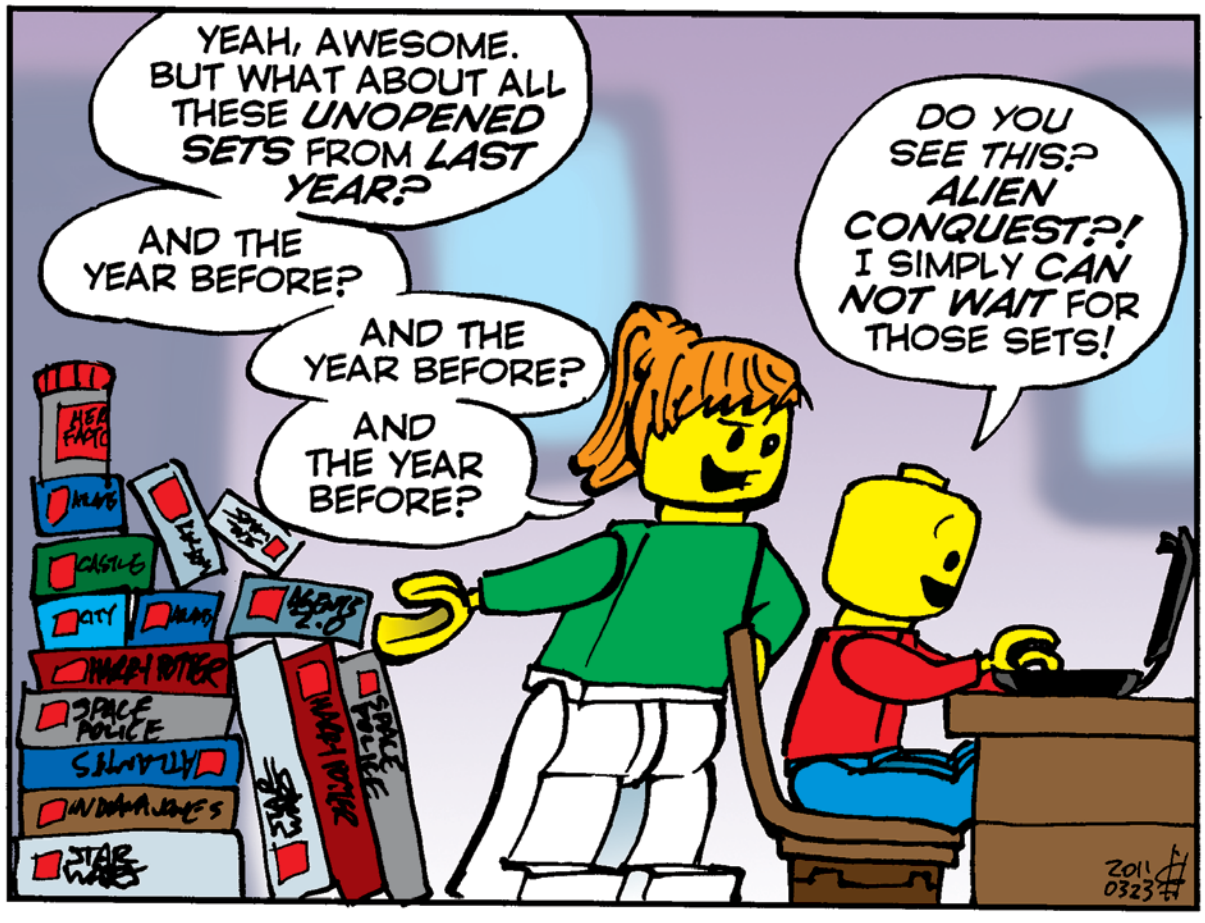
Above: Not getting near as much attention as the others is the editor to this magazine... trying a new uniform!

See you next issue!!!

AFOLs

by **Greg Hyland**





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BRICKJOURNAL #4

Interviews with **LEGO BUILDERS** including cover model builder **ARTHUR GUGICK,** event reports from **BRICKFAIR** and others, touring the **LEGO IDEA HOUSE,** plus **STEP-BY-STEP BUILDING INSTRUCTIONS** and **TECHNIQUES** for all skill levels, **NEW SET REVIEWS,** and an extensive report on constructing the Chinese Olympic Village in **LEGO!**

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BRICKJOURNAL #5

Event report on the **MINDSTORMS 10th ANNIVERSARY** at **LEGO HEADQUARTERS,** Pixar's **ANGUS MACLANE** on LEGO in film-making, a glimpse at the LEGO Group's past with the **DIRECTOR OF LEGO'S IDEA HOUSE**, event reports, a look at how **SEAN KENNEY**'s LEGO creations ended up on **NBC'S 30 ROCK** television show, instructions and spotlights on builders, and more!

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BRICKJOURNAL #6

Spotlight on **CLASSIC SPACE SETS** and a look at new ones, **BRANDON GRIFFITH** shows his **STAR TREK MODELS,** LEGO set designers discuss their work creating the **SPACE POLICE** with **PIRATE SETS, POWER FUNCTIONS TRAIN DEVELOPMENT,** the world's **TALLEST LEGO TOWER, MINI-FIGURE CUSTOMIZATION,** plus coverage of **BRICKFEST 2009** and more!

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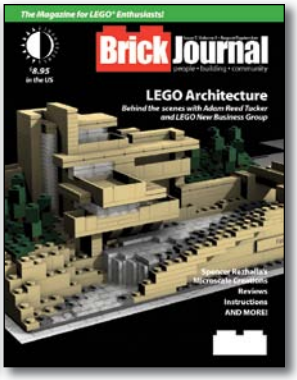

BRICKJOURNAL #7

Focuses on the new **LEGO ARCHITECTURE** line, with a look at the new sets designed by **ADAM REED TUCKER,** plus interviews with other architectural builders, including **SPENCER REZKALLA.** Also, behind the scenes on the creation of **POWER MINERS** and the **GRAND CAROUSEL,** a **LEGO BATTLESHIP** over 20 feet long, reports from LEGO events worldwide, and more!

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BRICKJOURNAL #8

We go to the Middle Ages, with a look at the LEGO Group's **CASTLE LINE,** featuring an interview with the designer behind the first LEGO castle set, the **YELLOW CASTLE.** Also: we spotlight builders that have created their own large-scale version of the castle, and interview other castle builders, plus a report on **BRICKWORLD** in Chicago, ands still more instructions and building tips!

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BRICKJOURNAL #9

BrickJournal looks at **LEGO® DISNEY SETS,** with features on the Disney LEGO sets of the past (**MICKEY** and **MINNIE**) and present (**TOY STORY** and **PRINCE OF PERSIA**)! We also present Disney models built by LEGO fans, and a look at the newest Master Build model at **WALT DISNEY WORLD**, plus articles and instructions on building and customization, and more!

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BRICKJOURNAL #10

BrickJournal goes undersea with looks at the creation of LEGO's new **ATLANTIS SETS,** plus a spotlight on a fan-created underwater theme, **THE SEA MONKEYS,** with builder **FELIX GRECO!** Also, a report on the **LEGO WORLD** convention in the Netherlands, **BUILDER SPOTLIGHTS, INSTRUCTIONS** and ways to **CUSTOMIZE MINIFIGURES, LEGO HISTORY,** and more!

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BRICKJOURNAL #11

"Racers" theme issue, with building tips on race cars by the **ARVO BROTHERS,** interview with **LEGO RACERS** designer **ANDREW WOODMAN, LEGO FORMULA ONE RACING, TECHNIC SPORTS CAR** building, event reports, instructions and columns on **MINIFIGURE CUSTOMIZATION** and **MICRO BUILDING,** builder spotlights, **LEGO HISTORY,** and more!

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BRICKJOURNAL #12

A look at school sculptures by **NATHAN SAWAYA**, builder **MARCOS BESSA**'s creations, **ANGUS MACLANE**'s CubeDudes, a Nepali Diorama by **JORDAN SCHWARTZ**, instructions to build a school bus for your LEGO town, minifigure customizations, how a **POWER MINERS** model became one for **ATLANTIS,** building standards, and much more!

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BRICKJOURNAL #13

Special **EVENT ISSUE** with reports from **BRICKMAGIC** (the newest US LEGO fan festival, organized by *BrickJournal* magazine), **BRICKWORLD** (one of the oldest US LEGO fan events), and others! Plus: spotlight on BIONICLE Builder **NORBERT LAGUBUEN,** our regular column on minifigure customization, step-by-step "You Can Build It" instructions, spotlights on builders and their work, and more!

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BRICKJOURNAL #14

Discover the world of stop-motion **LEGO FILMS,** with brickfilmer **DAVID PAGANO** and others spotlighting LEGO filmmaking, the history of the medium and its community, interviews with the makers of the films seen on the **LEGO CLUB SHOW** and **LEGO.com,** and instructions on how to film and build puppets for brick flicks! Plus how to customize minifigures, event reports, step-by-step building instructions, and more!

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BRICKJOURNAL #15

Looks at the **LEGO MECHA** genre of building, especially in Japan! Feature editor **NATHAN BRYAN** spotlights mecha builders such as **SAITO YOSHIKAZU, TAKAYUKI TORII, SUKYU** and others! Also, a talk with **BRIAN COOPER** and **MARK NEUMANN** about their mecha creations, mecha building instructions by **SAITO YOSHIKAZU,** our regular columns on minifigure customization, building, event reports, and more!

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BRICKJOURNAL #16

Focuses on **STEAMPUNK!** Feature editor **GUY HIMBER** gives a tour with a look at his work, **DAVE DeGOBBI**'s, **NATHAN PROUDLOVE**'s, and others! There's also a look at the history of LEGO Steampunk building, as well as instructions for a Steampunk plane by **ROD GILLIES**! Plus our regular columns on minifigure customization, building tips, event reports, our step-by-step "You Can Build It" instructions, and much more!

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Brick Magic

Festival for LEGO® Fans

Don't miss our own BrickMagic Festival, May 2011 (in Raleigh, North Carolina) and Summer 2012 (in Orlando, Florida)! For more information, go to: www.brickmagic.org

BRICKJOURNAL COMPENDIUMS

Before it was a print magazine, there were nine original **DIGITAL** issues of BrickJournal, only released online from 2005-2007. Those first nine digital-only issues are finally available in **PRINT FORM FOR THE FIRST TIME** in our **BRICKJOURNAL COMPENDIUMS!** Each full-color trade paperback offers a wealth of information and building tips on all things **LEGO®! (NOTE:** These are **DIFFERENT ISSUES** than BrickJournal #1-16 shown on this flyer.) **QUANTITIES ARE LOW: ORDER SOON TO PREVENT FURTHER SELL-OUTS!**

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Features interviews with LEGO car builder **ZACHARY SWEIGART** (showing his version of the time-traveling Delorean from the movie Back to the Future), **JØRGEN VIG KNUDSTORP** (CEO of LEGO Systems, Inc.), Mecha builders **BRYCE McGLONE** and **JEFF RANJO,** paraplegic LEGO builder **SCOTT WARFIELD, BOB CARNEY** (LEGO castle builder extraordinaire) and **RALPH SAVELSBURG** (LEGO plane builder), **REVEREND BRENDAN POWELL SMITH** (author of the LEGO version of the Bible), NASA Astronaut Trainer **KIETH JOHNSON, JAKE McKEE** (Global Community Director for The LEGO Group), **JASON ALLEMANN** on recreating the spacecraft from 2001: A Space Odyssey and 2010: The Year We Make Contact, features on the **BIONICLE** universe, how to make your own custom bricks, plus instructions and techniques, and more!

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Features interviews with **MIKE WILDER** (about using a Mindstorms robot to film a 3-D documentary) and **MARK LARSON** (creator of the Fabuland Housewifes online comic strip), **ALBAN NANTY** on his LEGO-based Star Wars® film, plus features on LEGO character sculptures, tutorials on LCad software for creating projects, an examination of LEGOLand's history, behind the scenes at a LEGO factory, building big with LEGOs (from castles and rollercoasters to ships and skyscrapers), creating custom minifigures, instructions and building techniques, and more!

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COMPENDIUM 4

Spotlights a Lego art show, building a larger-than-life Yoda, an interview with LEGOLand builder **GUY BAGLEY** and a top LEGO Star Wars set designer, how to build a **DROID STARFIGHTER,** a **LEGO POKÉMON** character gallery, a look at the **POWER FUNCTIONS** electric building system, a visit to an amazing **STAR WARS LEGO DISPLAY** in the United Kingdom, coverage of the 75th Anniversary celebration at the LEGO headquarters in Denmark, LEGO event reports, building instructions and techniques, and more!

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But all nine of the original digital issues in the Compendiums are available online as **DIGITAL EDITIONS** for **$3.95 each.**

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Compiles step-by-step instructions by some of the top custom builders in the LEGO fan community! **BOOK ONE** is for beginning-to-intermediate builders, and features instructions for creations from a fire engine and Christmas ornaments to miniscale models from a galaxy far, far away! **BOOK TWO** is for intermediate-to-advanced builders, with more detailed projects to tackle, from a miniscale yellow castle and miniland people, to a mini USS Constitution! Together, they take you from novice to expert builder, teaching you key building techniques along the way!

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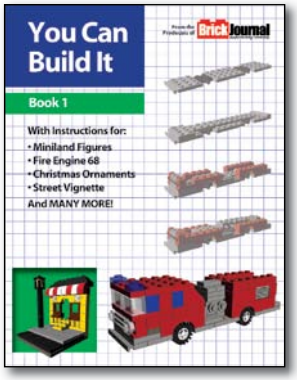

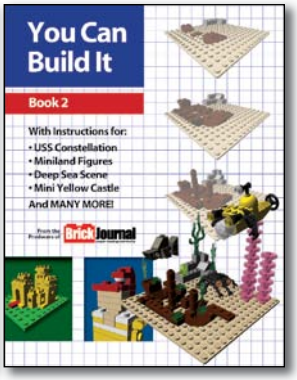

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