

Review: 42009 Mobile Crane MK II

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Pictures by LEGO® System A/S and Jetro



Set: Mobile Crane MK II
Set number: 42009
Parts: 2606

This year's flagship in the Technic theme is the 42009 Mobile Crane MKII. Mobile cranes have been a favourite subject for Technic sets, both small and large. Not only have there been quite a number of different mobile cranes (starting with the mythical 855/955 Mobile Crane in 1978/9), but the

Pneumatic Mobile Crane from 1995 was such a winner that it was re-released in 2002 and again in 2003. However, things changed in 2005 with the 8421 Mobile Crane XL. Not only was it the biggest LEGO Technic set ever (with 1884 pieces) but it remained so until 2011 when the 8110 Unimog took over the title. Prices for the set on the secondary market have remained high over the years and the set is a fixed reference in Technic circles.

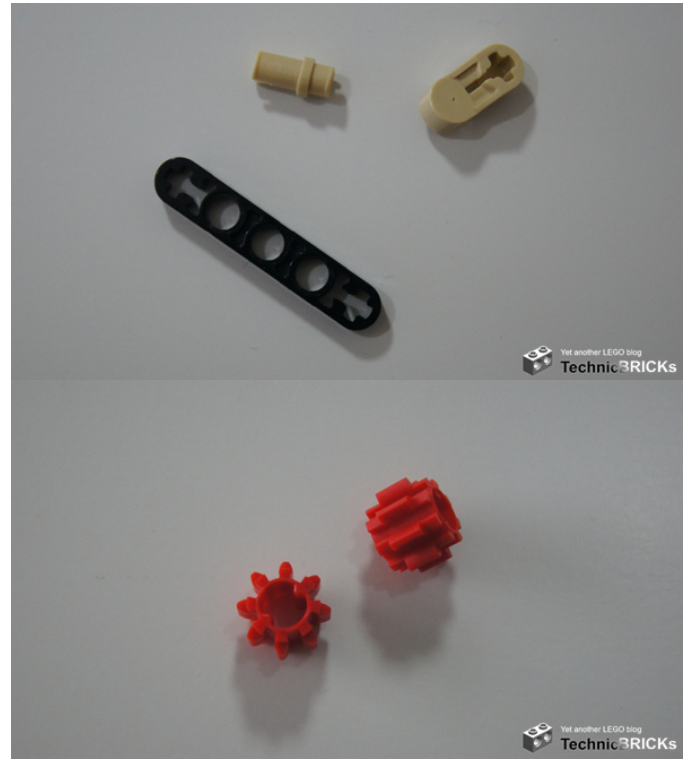
It is no wonder therefore that the announcement of the Mobile Crane MKII sparked a lot of excitement and speculation. The name is a clear reference to the 8421, and it sounded like LEGO® thought it could outdo that hugely successful set.

So did it? Well, let's have a closer look at the set to determine to what extent it has succeeded.

Visual Impact

As the first images of the Mobile Crane MKII became available, it was immediately clear this set was indeed going to be bigger, at least in size: while the 8421 chassis has four tightly packed together axles, the 42009 has 5, the front one of which is placed at some distance from the remaining four. This translates into the fact that the set is 57 cm long and the





extended boom reaches a total height of 75 cm. Other details that stood out where the double LA's for lifting the arm where the 8421 had two opposed Pneumatic cylinders and a clearly visible function selector in the chassis, but more about that later.

Packaging

Before going into the more technical aspects of the set, let's take a step back and have a look at the box and its contents. In true Technic style, the cardboard of the box feels almost too weak for the size and weight of it. The front indicates the set is motorized with the still rare PF L-Motor that came out last year, the four functions that can be accessed from the function selector on the side of the top structure and the overall dimensions of the set with the arm fully extended. The front also features a flap that can be lifted up to see more of the technical specifications of the finished model. LEGO® has done a great job of giving this set a more Technic look by including such information as the turning angles of the four steering axles, the maximum angle of the arm, and the fact that one of the four functions mentioned on the front splits up in two separate functions for the outriggers.

The rear of the box illustrates the secondary model for this set. Whereas the secondary model for the 8421 consisted of a different superstructure for the crane (a scissor arm with a platform), the secondary model for the 42009 is a real alternative: a container stacker with an extending arm, a truck and a container.

The box is quite heavy – over 4kg – and even though the instruction booklets for the main model weigh about 600gr, that is a considerable amount of LEGO. The box is really quite full and this adds to the sensation that you get a really big LEGO set. So how big is it? With 2606 parts it is almost 40% bigger than its predecessor the 8421 and a whopping 27% bigger than the previous champion, the Unimog!

As usual in these large sets, the 6 instruction manuals come in a sealed package with cardboard backing, together

with stickers and string. The parts come in more than 20 bags (except a few of the larger ones), although these are only numbered 1-3 and correspond to the chassis, the superstructure and the arm.

So what's inside? Come and take a look!

The parts

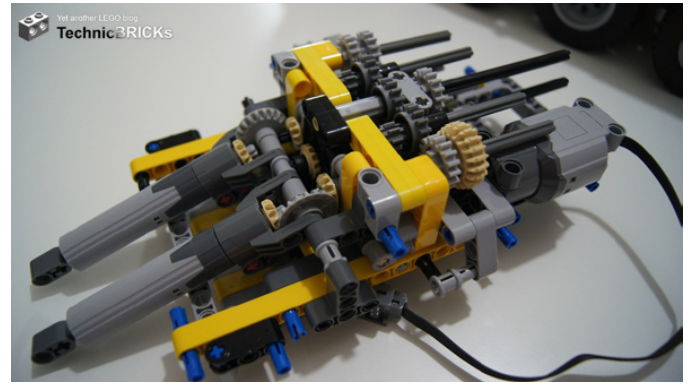
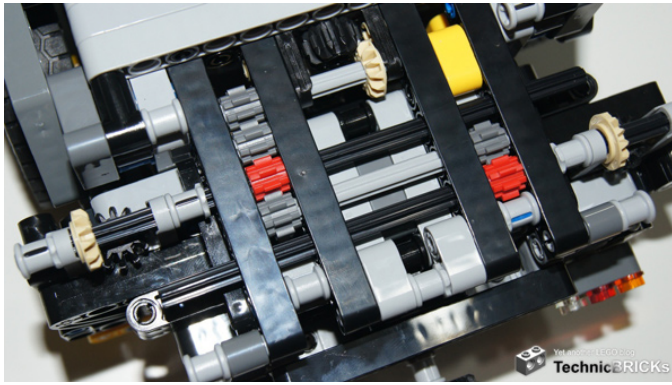
The 42009 Mobile Crane MKII comes with very few really new parts or exclusives. Some of the other sets this year already included the new 1x5 thin liftarm with axle holes in the ends and the new colour (tan) for the Pin $\frac{3}{4}$ and the Crankshaft Center, and this set is the first to include the existing 16L axle and the Axle and Pin Connector Perpendicular Triple (63869) in Black as well as the new 11x3 Technic panel in yellow, which was first introduced in the LEGO MINDSTORMS EV3 Education Expansion kit in black.

The new arrival and an element that has sparked quite some interesting discussions is the new version of the 8t gear. Not only does it have wider teeth like the new generation of 8t gears that make it easier to keep it from sliding out of place, it is also capable of the complete opposite: instead of four ridges in its interior it only has two, allowing it to easily slide over an axle, while still driving it.

Let's see how this interesting new piece is used.

The Main Model

Building the Mobile Crane MKII is a lengthy process that requires attention: exactly what an adult LEGO fan loves. While there are still many occasions where 2 or more steps could have been combined into one, there are also a number of steps where casual building or taking the building process in strides can get you into serious trouble. As mentioned before, the model features 4 motorized functions, the last of which is broken down into two stages. The outriggers first extend sideways and after changing the selector in the chassis the mini LAs will extend down. This double mechanism is



made possible with the help of the new sliding 8t gear. The mechanism didn't appear to be working in my case until I went over the construction step by step and found I had placed the bevel gears on the second set of mini Las the wrong was round.

Due to the large number of gears in the transmission it is also vital to make sure that each gear is carefully placed to avoid any unnecessary build-up of friction. After doing so, all the mechanism can be turned perfectly by hand and the powerful L-motor of course has no trouble making them work either. The new design of the standard 8t gears (as well as the sliding 8t gear) turns out to be crucial here. In each of the outrigger sections there is a sequence of 4+2 such gears. The new design helps to better align the gears, although you still need to make sure they are well centred to avoid unnecessary friction

The construction of the upper structure reminded me a lot of that of the 8043 Motorized Excavator: rather than building a shape you spend some considerable time stacking up gears and it takes a determined effort to figure out what is connected to what and how each function is accessed. All the more fun! A 'new element' I haven't mentioned in the corresponding subheading is the string. The string used in the 8421 was quite thin and tended to get stuck/not unroll as expected. Part of the problem was the string itself; part was the fact that even though the model had a metal hook, this hook still was not heavy enough to ensure the proper functioning of the mechanism. LEGO® appears to have discontinued the use of this metal hook; it was substituted by a hook made up of small LEGO parts in the 8053 Mobile Crane and the 42009 Mobile Crane MKII has a similar hook. The string used in this crane is a lot thicker, and instead of coming in the traditional little carton box, it is packaged with the instruction manuals and stickers. The quality of the string is a lot better and it doesn't stick quite as much as the standard string. Unfortunately the weight of the hook is very low to keep the string tense and so it occasionally needs some additional help to function properly.

The three-stage extendible boom works perfectly, and although it doesn't extend quite as much as you might expect from the individual stages (quite a bit of each subsequent stage stays inside the previous one to ensure stability) it extends and retracts very smoothly. The battery box – which doubles as a counter weight for the top structure – is easily accessible and can be detached from the model as a complete module so putting in fresh batteries is a breeze.

Overall the model has all the mechanisms you might expect and the playability it needs to securely take over as the best LEGO Mobile Crane ever.

The secondary model

Rather than making a single secondary model, with this set LEGO offers a combination of two vehicles (a container stacker and a truck) and a container as an alternate for this set. The container stacker has a two-stage extending arm as well as a realistic mechanism for grabbing and placing containers that includes the use of the turntable for placing them at the right angle. The truck that receives the container appears to be a relatively simple construction at first sight. However, it features steering front and rear axles and a mechanism to lock containers in place. The combination results in a great play set and makes for an interesting alternative to a spectacular main model. Instructions for this combined model are available for download on the LEGO website.



The verdict/Final thoughts

It seems clear LEGO accomplished what it set out to do: it has created a great flagship for 2013, shattering previous records for highest piece count. A relatively smaller box (no wasted space), special string (better flow), a complex but perfectly working mechanical design, a very creative secondary model... The 42009 Mobile Crane MKII is a worthy successor to the 8421 and a new milestone in official LEGO Technic creations.

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