

PRODUCT INSTRUCTIONS

Thanks for purchasing this product from RMW.

In this manual you find all the information you need to assemble and paint the model.

PRODUCT DESCRIPTION

| | |
|---|--|
| Container straddle carrier | Product No: 0302 |
| A straddle carrier is a non-road going vehicle for use in port terminals and intermodal yards used for stacking and moving ISO standard containers . Straddles pick and carry containers while straddling their load and connecting to the top lifting points via a container spreader . These machines have the ability to stack containers up to 4 high. These are capable of relatively low speeds (up to 30 km/h or 18.6 mph) with a laden container. The workers that use this machinery sit at the very top seated facing the middle as they can see behind them and in front of them. Straddle carriers can lift up to 60 t (59 long tons; 66 short tons) which equals up to 2 full containers. (Wikipedia) | Scale: 1:87 / H0 |
| This kit contains all 3D printed parts to make a straddle carrier. Not included: <ul style="list-style-type: none"> - Cabin glazing (make from transparent plastic sheet) - Cable (use thin black/grey yarn, approximately X meters needed) For the cabin glazing sizing and decals and cable routing, refer to the downloadable decals sheet as mentioned to the right. | Type: kit assembly & painting required |
| Driver and container as seen in the model photos are not included. | |
| Example information: e.g. http://www.kalmarglobal.com/equipment/straddle-carriers/ More information can be found via Google (images): www.google.com.my/search?q=straddle+carrier | Material: semi transparent plastic (Shapeways 'Frosted (Ultra) Detail') |
| Decals: refer to file "RMW 0302 container straddler decals v0.1 1_87" which can be downloaded from our website. Available in PDF or PNG file format. <i>Print yourself.</i> | Danger! Small parts included |
| Example photos: | Model v1.5 |



PRODUCT COMPONENTS LIST

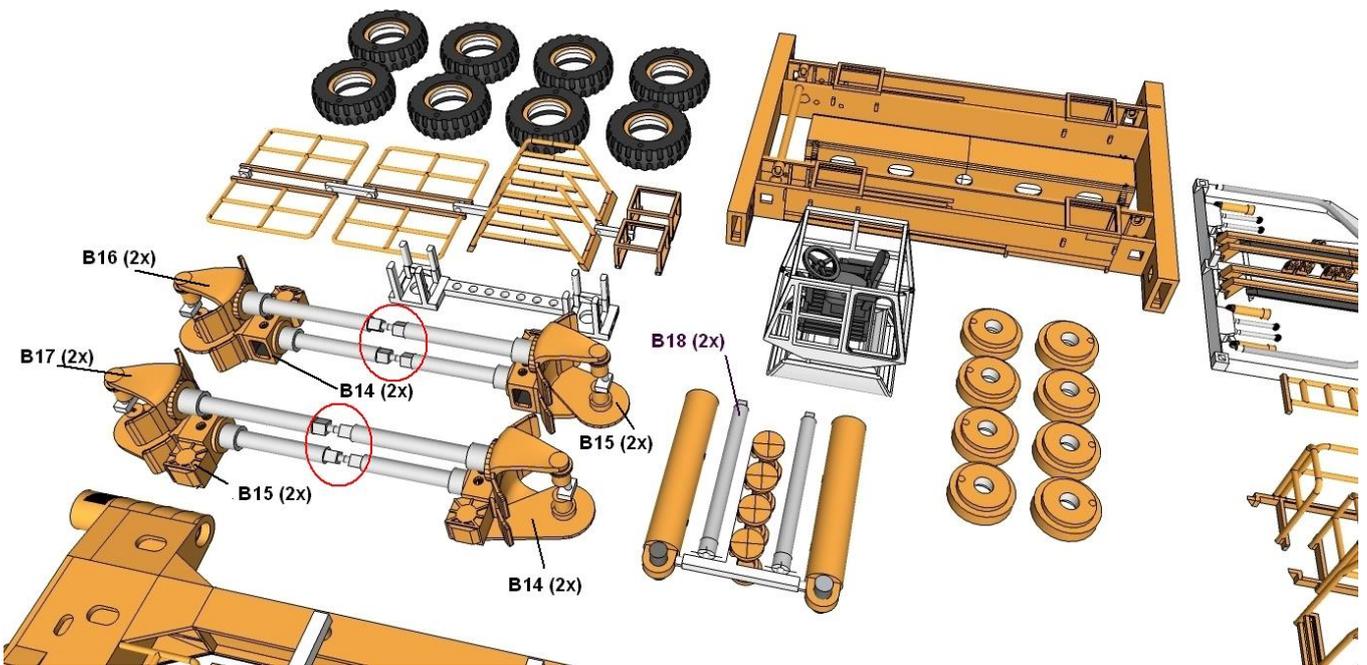
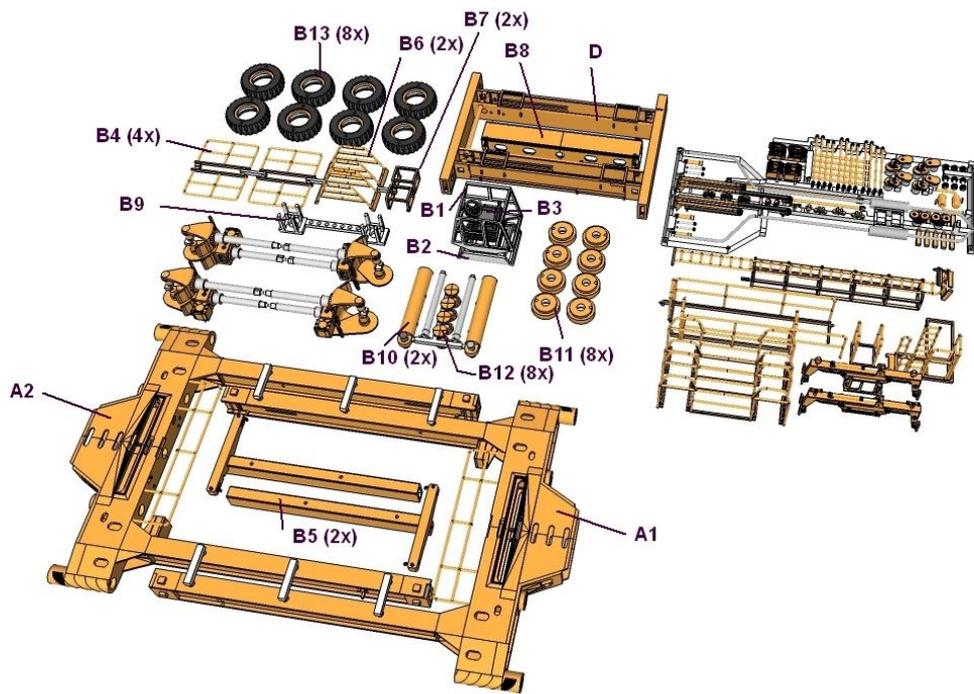
| This product consists of: 123 parts; Base color is any color (e.g. yellow, red) | | |
|--|--|---------------------|
| No | Description | Paint advise |
| A | - | |
| A1 | Frame | Base color |
| A2 | Frame (note the difference as circled) | Base color |
| B | - | |
| B1 | Cabin | White |
| B2 | Cabin roof | White |
| B3 | Chair assembly | Black |
| B4 | Railing (4x) | Base color |
| B5 | Spreader, beam, yoke beam (2x) | Base color |
| B6 | Underside Frame (2x) | Base color |
| B7 | Pedestal (2x) | Base color |
| B8 | Spreader, mid frame | Base color |
| B9 | Cylinder movement support tool | any |
| B10 | Cylinder shaft (2x) | Base color |
| B11 | Wheel rim (8x) | Base color |
| B12 | Hubcap (8x) | Base color |
| B13 | Wheel (8x) | Black |
| B14 | Wheel suspension, powered (2x) | Base color |
| B15 | Wheel suspension, powered (2x) | Base color |
| B16 | Wheel suspension (2x) | Base color |
| B17 | Wheel suspension (2x) | Base color |
| B18 | Cylinders (2x) | Silver + Base color |
| C | - | |
| C1 | Railing (2x) | Base color |
| C2 | Railing | Base color |
| C3 | Railing | Base color |
| C4 | Ladder | Base color |
| C5 | Railing + ladder | Base color |
| C6 | Railing | Base color |
| C7 | Spreader | Base color |
| C8 | Spreader | Base color |
| C9 | Exhaust pipes (2x) | Grey |
| C10 | Cable boom (extended) (2x) | Base color + black |
| C11 | Cable beam (2x) | Base color + black |
| C12 | Filter (2x) | Base color |
| C13 | Cog-wheels (2x) | Base color |
| C14 | Cog-wheels (2x) | Base color |
| C15 | Cable boom | Base color |
| C16 | Cable boom | Base color |
| C17 | Drive train pipes (5x, of which 1x spare part) | Base color |

| | | |
|-----|--|------------|
| C18 | Cable end connectors (2x) – integrated in part D | Base color |
| C19 | Cylinder shaft (4x, of which 2x spare parts) | Base color |
| C20 | Cylinder (4x, of which 2x spare parts) | Silver |
| C21 | Gear wheel (3x, of which 1x spare part) | Grey |
| C22 | Gear wheel (4x, of which 2x spare part) | Grey |
| C23 | Cover plate small (5x, of which 1x spare part) | Base color |
| C24 | Cover plate big (5x, of which 1x spare part) | Base color |
| C25 | Drive train connectors long (6x, of which 2x spare parts) | Base color |
| C26 | Drive train connectors short (6x, of which 2x spare parts) | Base color |
| C27 | Drive train connector (3x, of which 1x spare part) | Base color |
| C28 | Drive train connector (2x) | Base color |
| C29 | Drive train connector (3x, of which 1x spare part) | Base color |
| C30 | Drive train connector (3x, of which 1x spare part) | Base color |
| C31 | Drive train connector (2x) | Base color |
| C32 | Drive train connector (4x) | Base color |
| C33 | Drive train connector (4x) | Base color |
| D | Frame | Base color |
| | | |

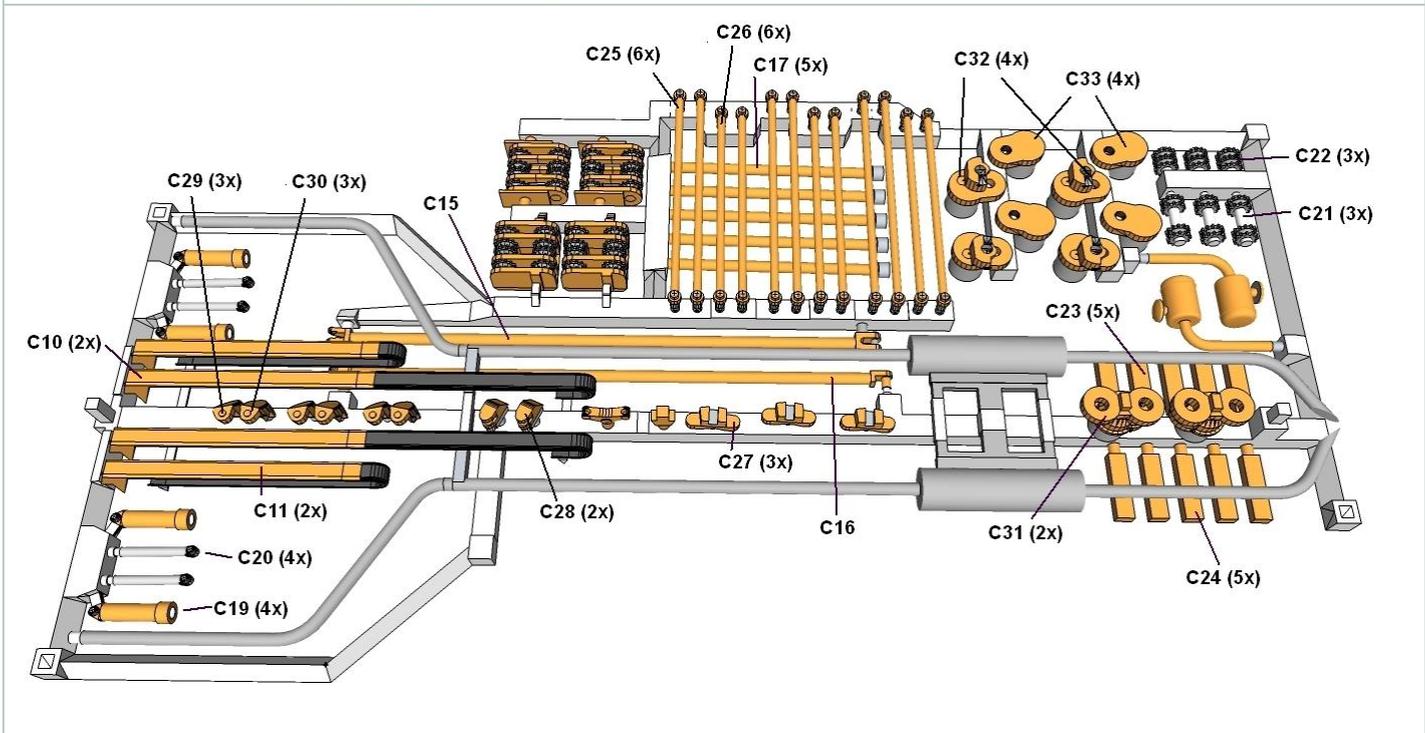
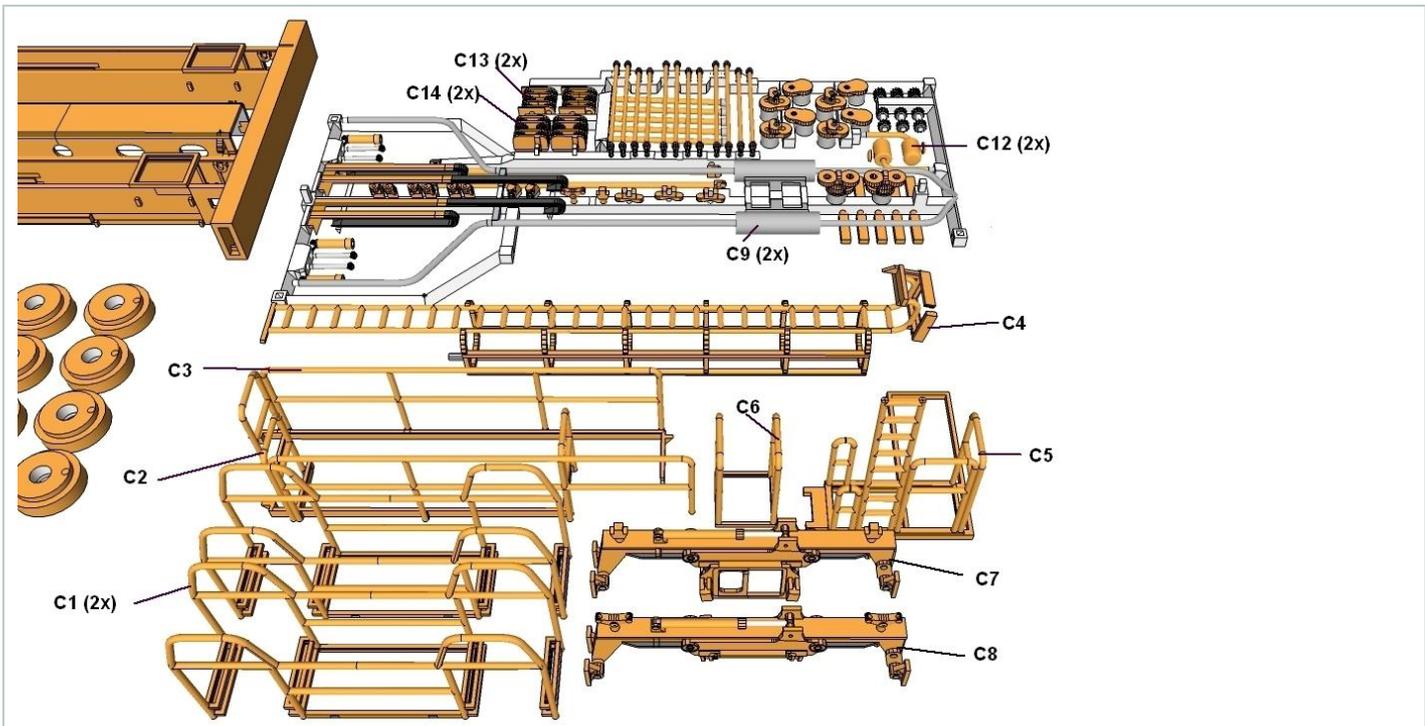
PRODUCT PHOTO:



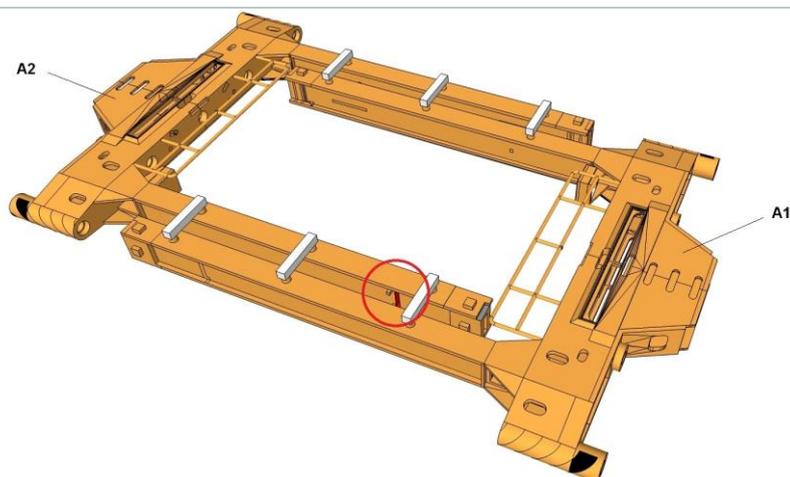
Driver not included; product shown in diorama



Note orientation within red circles for parts B14-B17 !



Note that part A2 has an opening for the cabin attachment



GENERIC INSTRUCTIONS

Cleaning:

If you have an ultrasonic cleaner (like from Conrad or Harborfreight), use that one with cold or luke-warm water to which you have added some dish-washing liquid to clean the parts for **3** minutes.

Alternative, clean the parts by hand in water with dish-washing liquid.

You can use a soft toothbrush.

For ultrasonic cleaners, refer e.g. to:

<http://www.conrad.de/ce/de/overview/0601120/Ultraschallreiniger>

<http://www.harborfreight.com/catalogsearch/result?q=ultrasonic+cleaner>

Separating parts:

To separate/cut off all parts from the sprue, you either use a hobby-knife or a small scissors.

If you remove the complete sprue from the parts, you might find it more difficult to hold them for painting; so leaving a piece of the sprue to each part might be beneficial (only remove the remaining sprue piece after painting); however, you will not be able to do a test assembly if you leave a piece of the sprue to the part.

Painting:

Ordinary paint as found in car shop accessories can be used. Hobby acrylic paint should also be fine.

First (spray) paint a white base layer. Then multiple layers of your preferred color. After assembly and finishing (decals), use a clear lacquer layer of paint to seal.

For White Strong and Flexible plastic material, you will have to use quite a few layers of paint, as the material is porous, so will absorb a lot of paint.

Glue-ing:

Only use 'super-glue' (cyancrylat)

Storage:

Dust-free at room temperature, protect from UV radiation

Working order:

First clean the product carefully. Remove remaining oil, grease and wax.

Separate parts from the sprue before or after painting. Followed by the assembly and finishing.

Safety guidelines:

During cleaning, painting and assembly of the product, use gloves to protect your hands and goggles to protect your eyes. The product might contain oily grease and wax like support material.

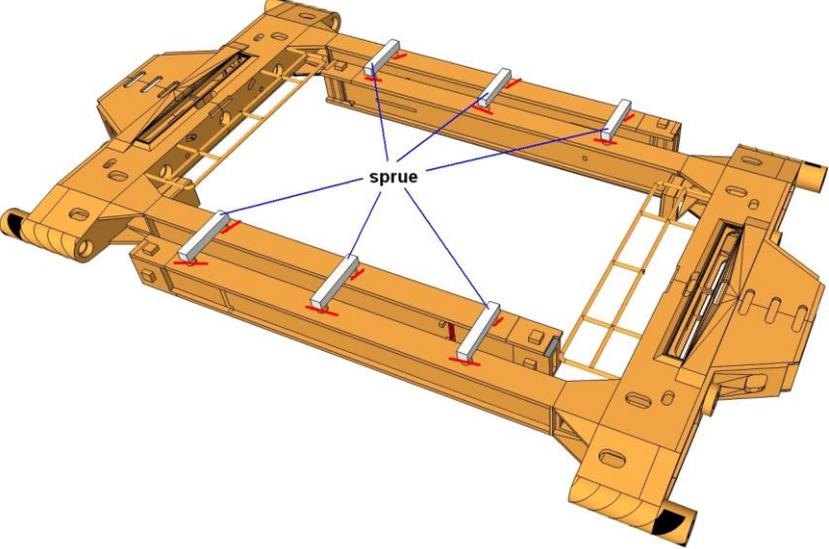
If in contact with your skin, clean your skin with abundant water and soap.

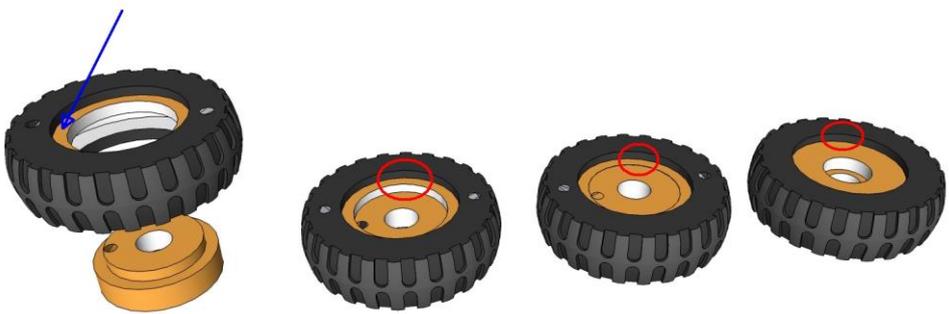
Before eating or drinking, always clean your hands thoroughly if you have touched the product.

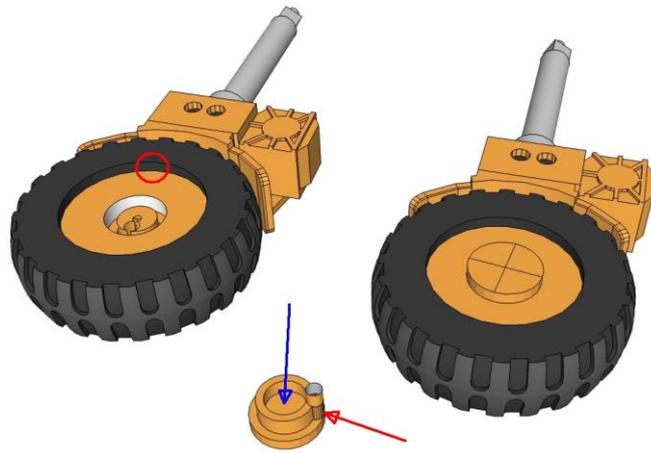
ADDITIONAL INFORMATION

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ASSEMBLY AND PAINTING INSTRUCTIONS

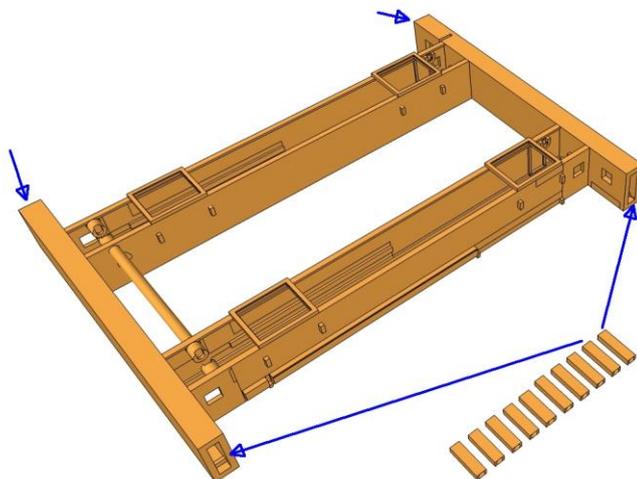
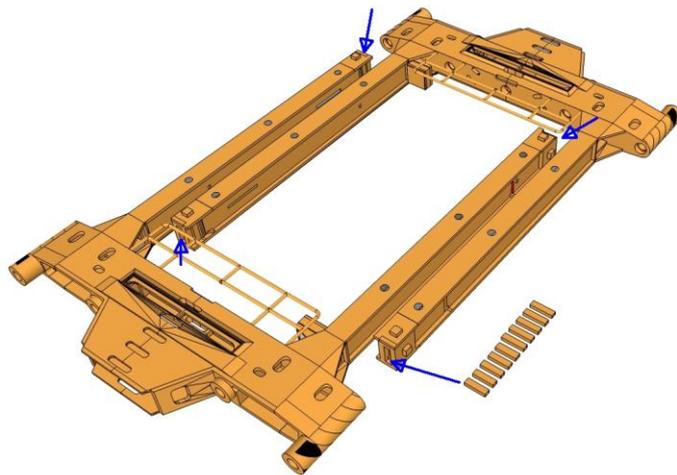
| | |
|---|--|
| 1 | <p>Follow the generic instructions on cleaning and separating parts Clean the parts while still attached to the sprue.</p> <p>Make sure to especially clean also the inside of the listed parts to remove all inside grease:</p> <ul style="list-style-type: none">- cylinders C19 and B10- spreader parts B5 and B8- frame parts A1 and A2 and D <p>Part B3 (chair assembly): remove all wax between the floor bars</p> <p>Split parts A1 and A2 (remove the sprue completely).</p> <p>Spray paint all parts in white primer.</p> <p>Cut off part groups with a hobby knife or small scissors for separate painting:</p> <ul style="list-style-type: none">- White: cabin parts (B1 & B2)- Black: all wheels & chair (B3 and B13); optionally paint the inner rim of the wheel in your base color (see blue arrow in first diagram of step 3)- Grey: exhausts (C9), bottom attachment of shaft (B14, B15, B16, B17), gear wheels (C21, C22 including parts in C13, C14)- Silver: cylinder shaft (C20, B18) <p>Spray paint all remaining parts in your base color of choice.</p> |
| |  |
| ! | <p>Only after painting and thorough drying continue. Cut out the needed parts when needed, and touch up the sprue connecting side.</p> |

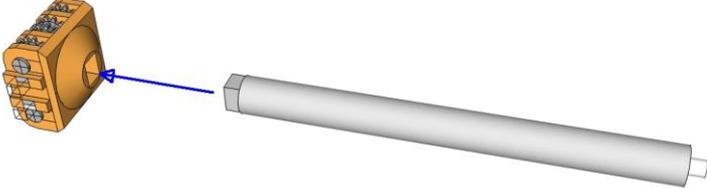
| | |
|---|--|
| 2 | <p>Assembly</p> <p>Follow the order as stipulated below:</p> <ol style="list-style-type: none"> 1. Wheel assembly 2. Frame 3. Cylinders & gear wheels 4. Spreader 5. Cabin (with glazing) 6. Wheel & Steering assembly 7. Decals I 8. Cable routing 9. Railing (apply grid decals before assembly!) 10. Decals II |
| 3 | <p>Wheel assembly</p> <p>Lay B11 flat on table, with the smaller part up Press B13 with the widest part down onto it (note blue arrow) Press B11 slightly more into B13, aligning the inside (see red circle) Rotate B11+B13 assembly Repeat 8x</p> |
| |  |
| | <p>Push B11+B13 assembly onto the axles on B14, B15, B16, B17 Remove the sprue attachment from B12 (see red arrow) Rotate the cap and push it onto the axle (apply a tiny amount of super glue to the inside first, see blue arrow) <i>Make sure the wheel can rotate properly!</i> Repeat 8x</p> |

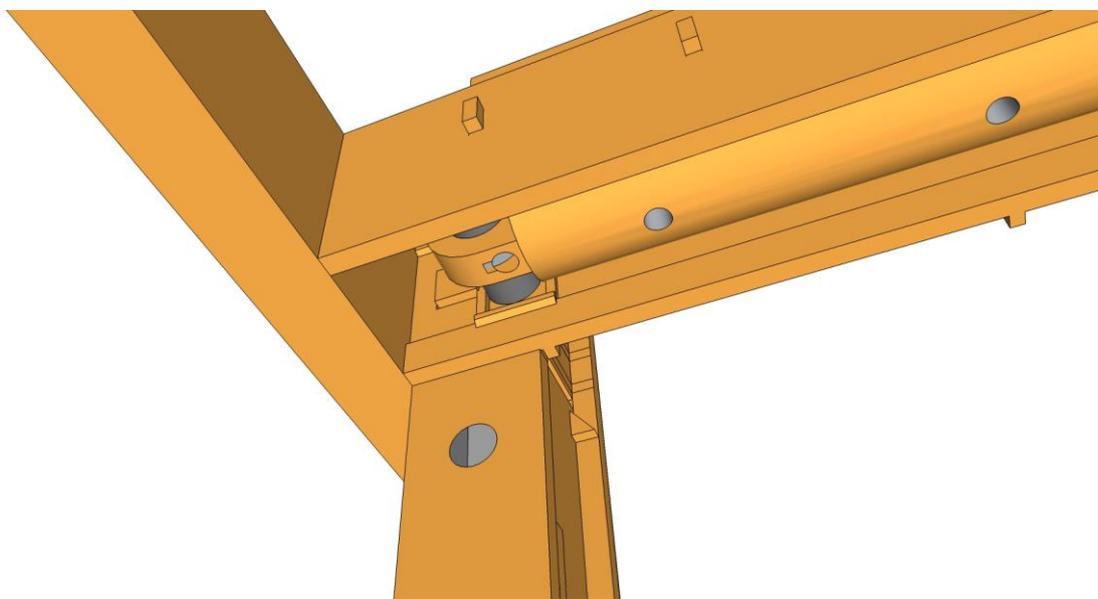
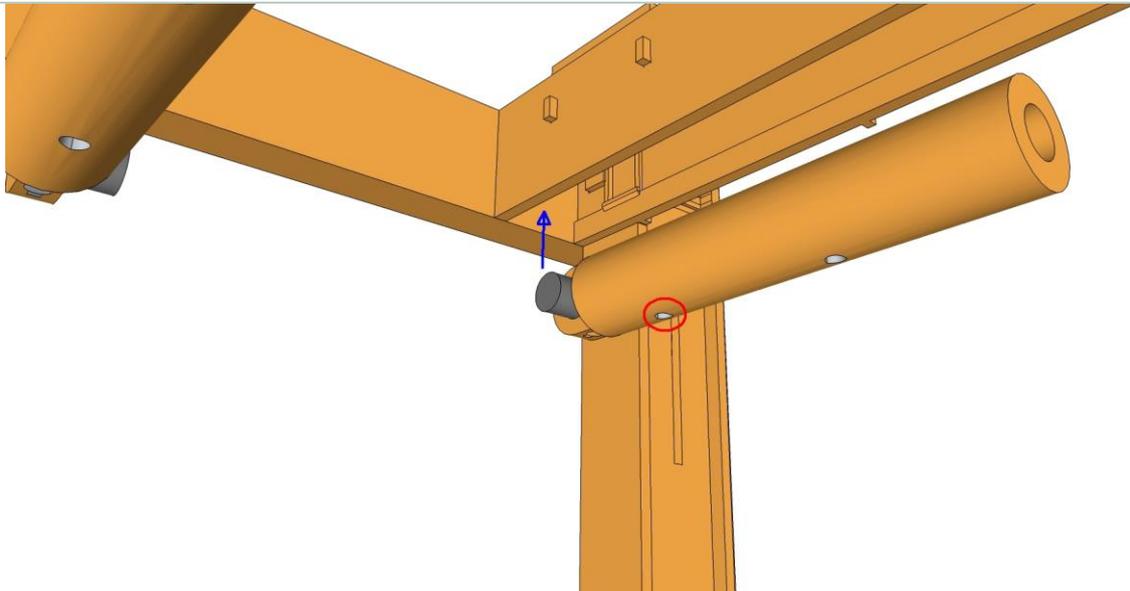


4 **Frame**

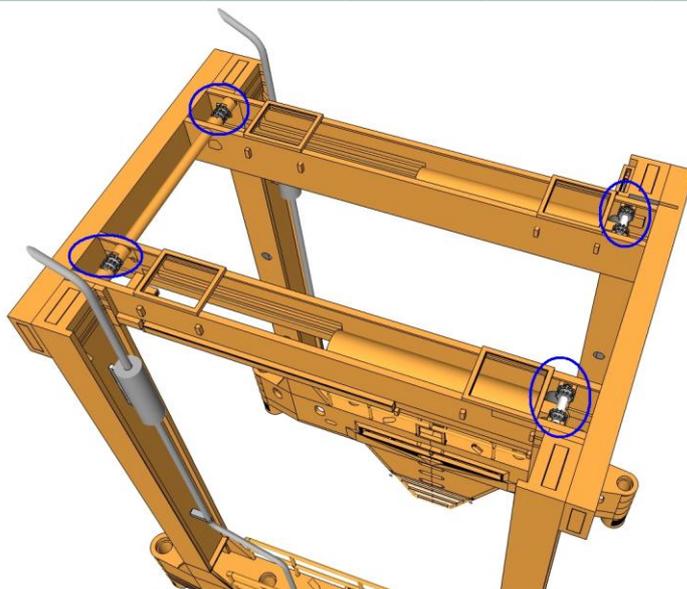
Push 4 parts C23 onto A1 & A2 and 4 parts C24 on D



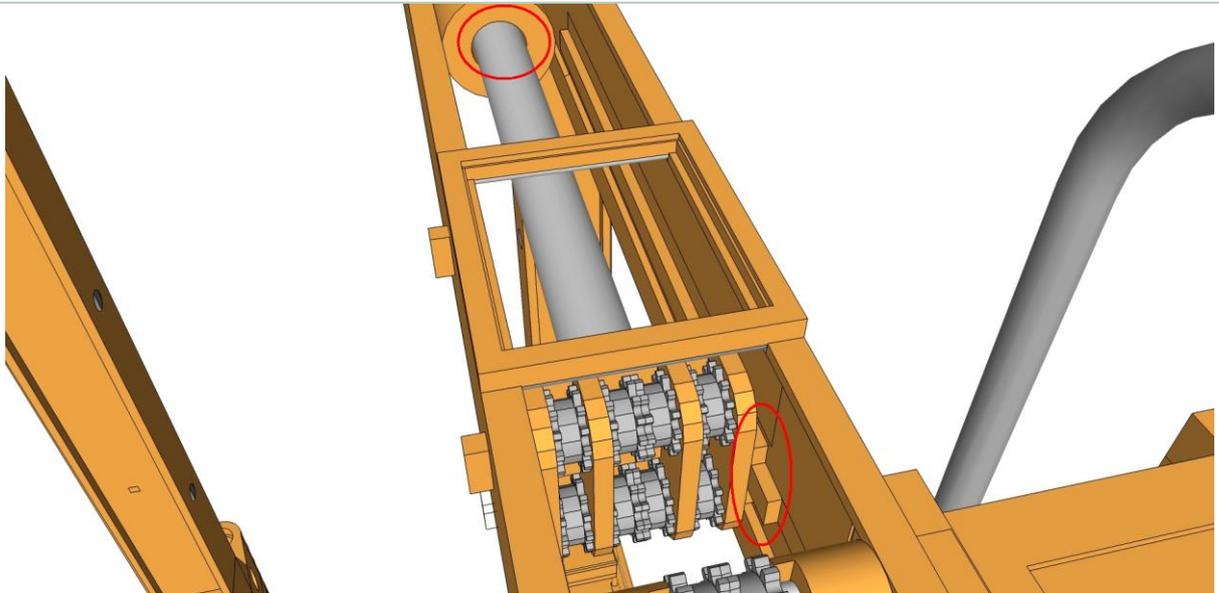
| | |
|---|---|
| 5 | Cylinders & gear wheels Glue B18 to C14 (2x) |
| |  |
| ! | Install B10 from below into part D (do NOT glue) Note that the opening in B10 should be pointing downward (see red circle) |



Push C21 into place on part D (from above) –front side
 Push C22 into place on part D (from above)-back side (=exhaust side)



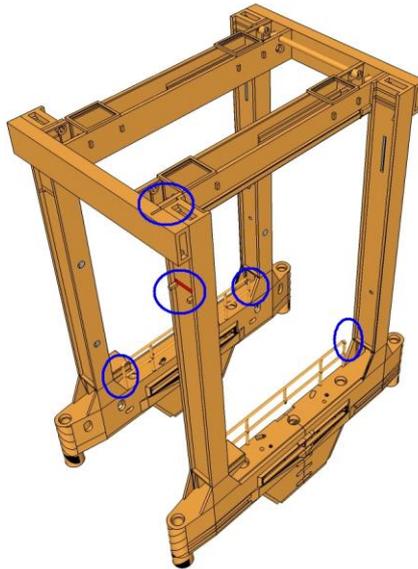
Install B18 into B10 and position into part D (do NOT glue)



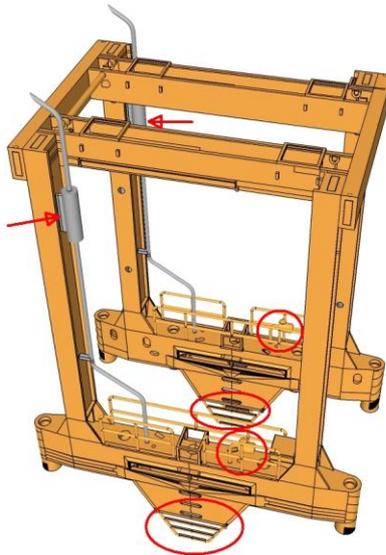
Test if C13 fits in D

Attach part D to A1 and A2 (you might want to apply some glue at the connectors) – align properly vertical

! Make sure that the railing of A1 and A2 is facing to the inside of the model, and the cabin attachment opening is at the correct side.
Refer to the blue circles



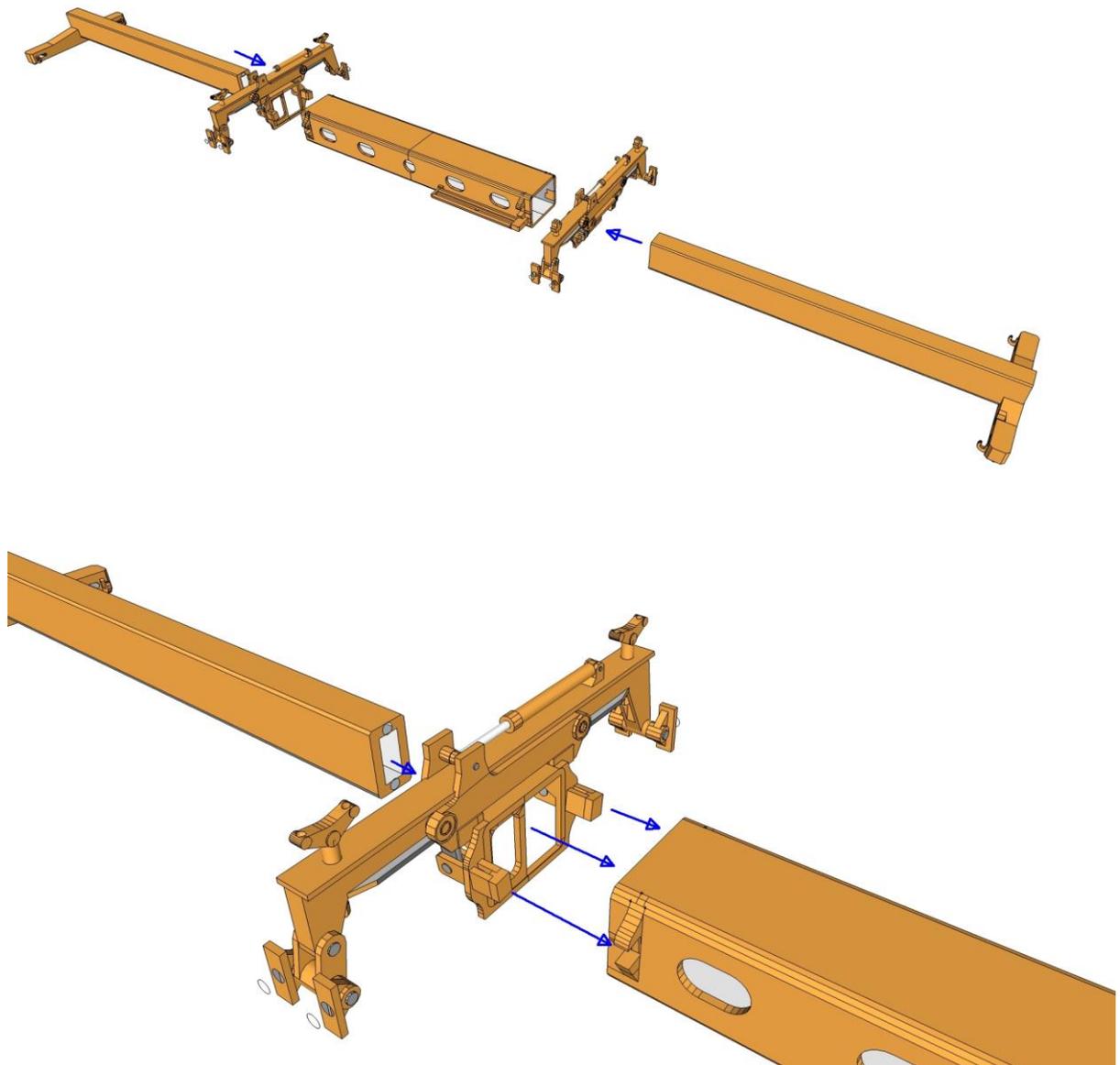
All parts to be glued in place onto A1 and A2:
Install the exhausts C9 (2x)
Install filters C12 (2x)
Install B6 (2x)



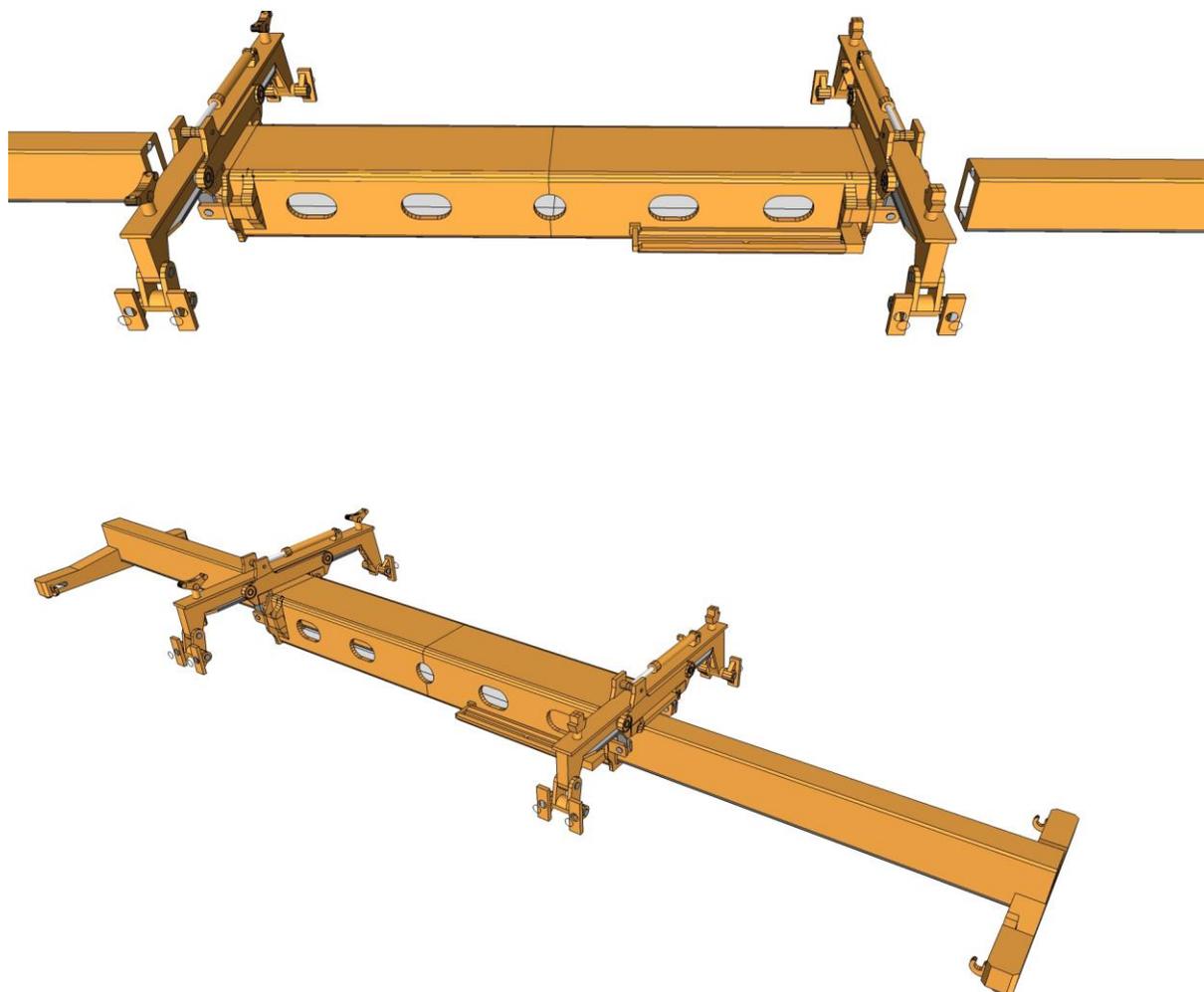
Spreader

6

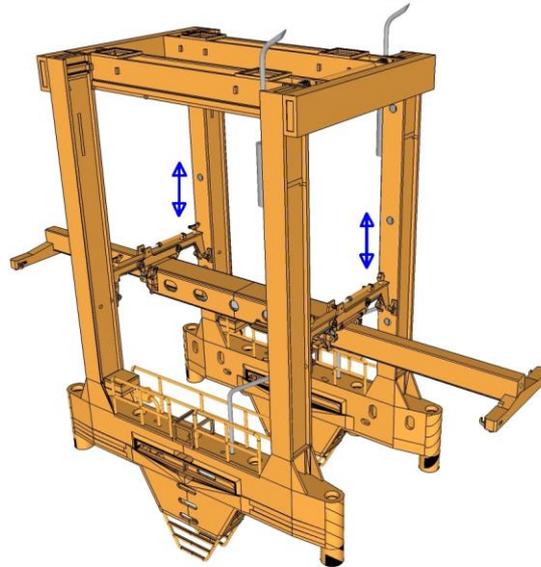
Make sure that both parts B5 can slide freely in B8
 Make sure that both parts B5 can slide through parts C7 and C8



Install C7 and C8 on B8 (you might want to apply some glue)
Slide B5 into B8 (do NOT glue)
Note that the hooks are pointing correctly upwards



Make sure this assembly can move vertically between A1 and A2 (some light friction is good) without glueing (cables will be attached later to hold the spreader in place)
Note that C7 is at the back

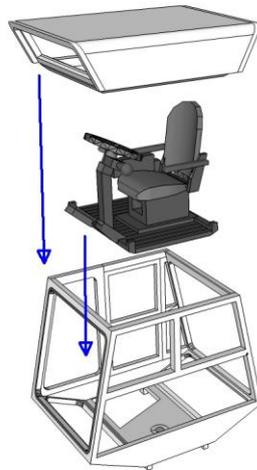


Cabin (with glazing)

7

Cut out the glazing from clear plastic sheet; use the sizes as on the decal sheet as guide
 Install parts 'a' to the insides of part B1
 Install part 'b' to the floor of the cabin (from inside) to B1
 Install the front and rear windows 'c' to the inside: the smallest part goes to B2, the other two to B1

Install the seat B3 into B1 -> make sure the seat is facing the correct direction (see figure, entrance door is at right hand side of driver) (Insert a driver figure –not included- if required now!)
 Glue B2 on top of B1

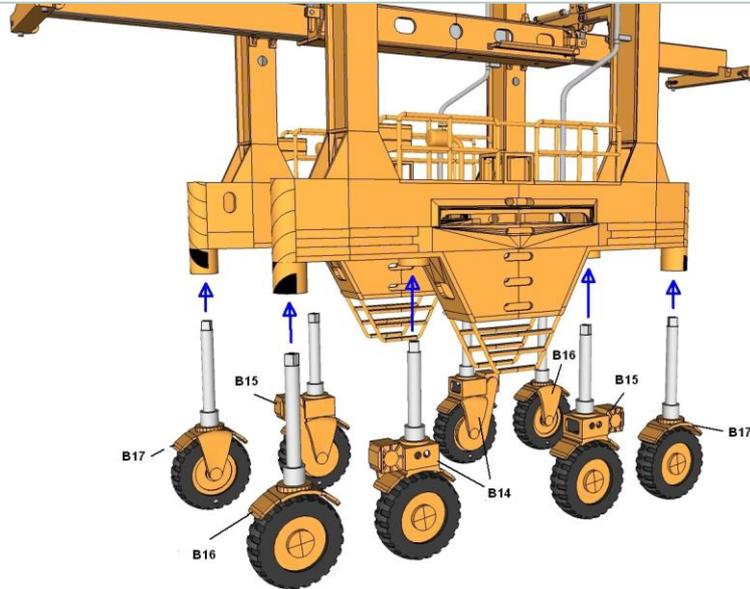


Wheel & Steering assembly

8

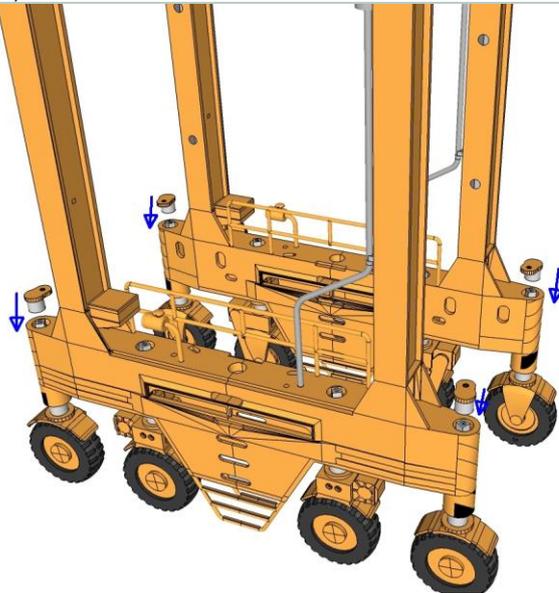
Do NOT use glue unless stated!

Insert the assemblies of B14, B15, B16 and B17 into part A1 and A2 from the bottom.



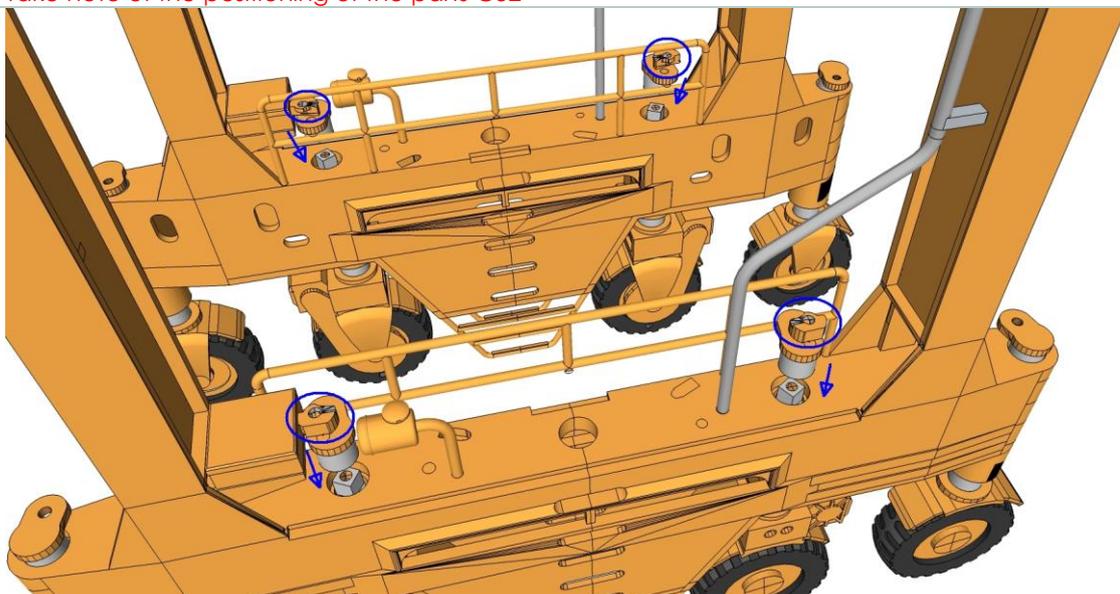
Fragile

Push the 4 caps C33 on top of the wheel assemblies (some glue might be required)
 Make sure parts C33 are pointing slightly inwards (towards the center of the model), and all wheel assemblies can freely rotate



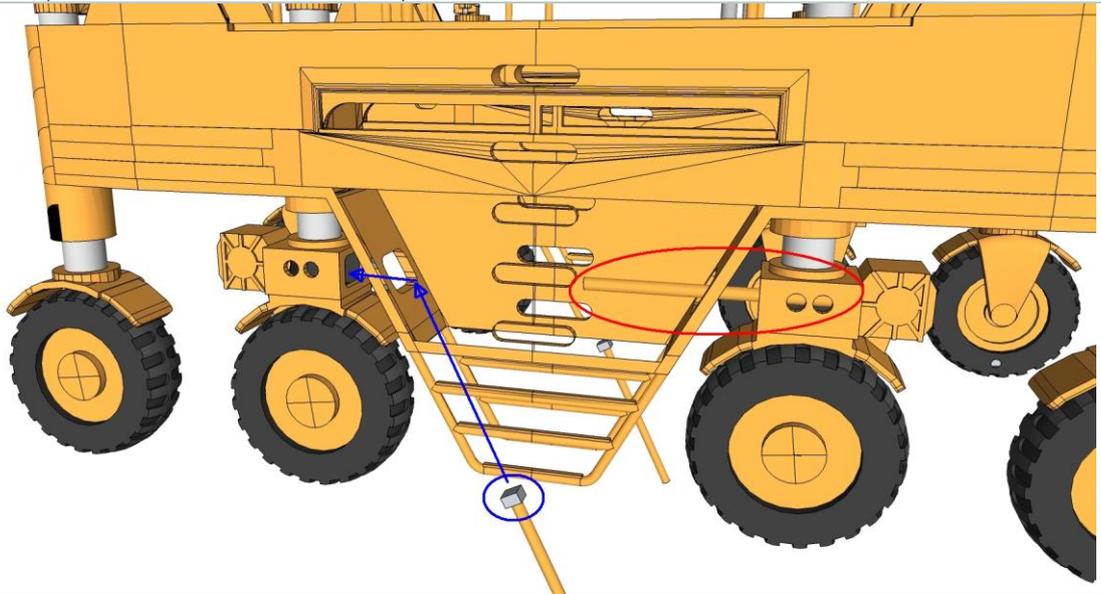
Fragile

Push the 4 caps C32 on top of the wheel assemblies (some glue might be required)
 Take note of the positioning of the parts C32



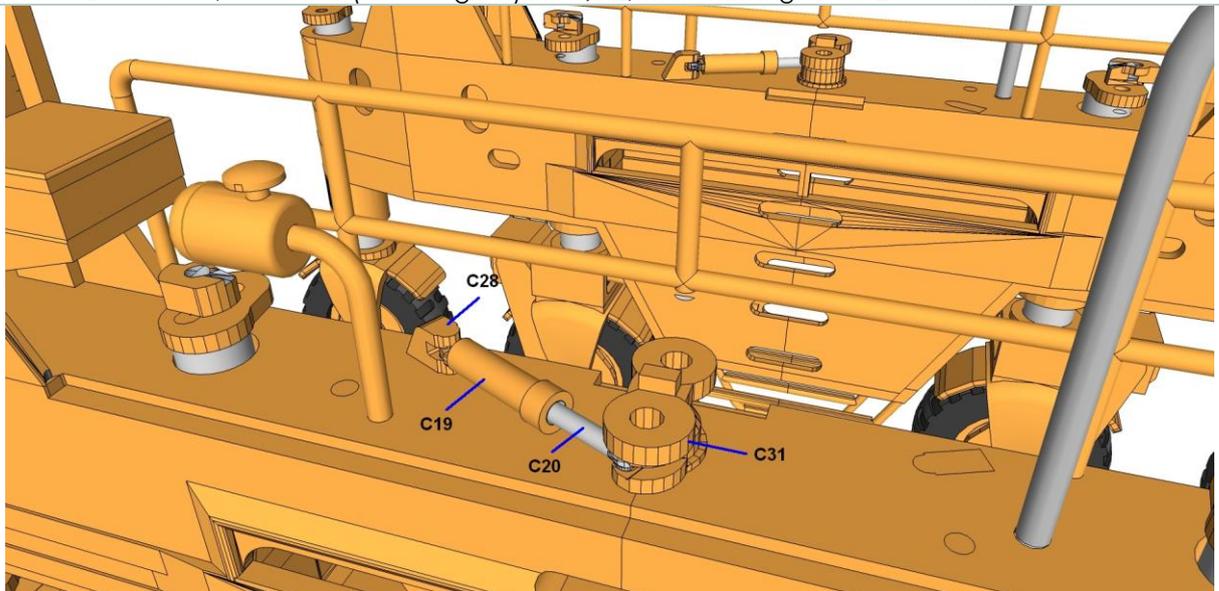
Fragile

Install the drive shafts C17: apply some glue to the top (see blue circle), and insert in place via parts A1 and A2. Final position as in the red circle. Repeat 4x



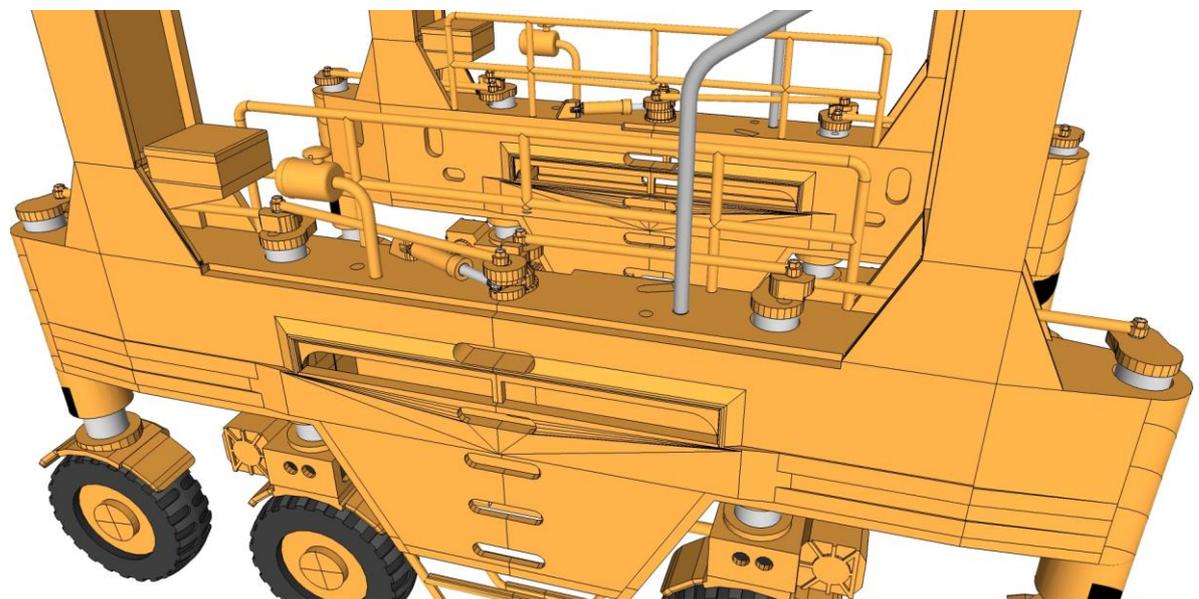
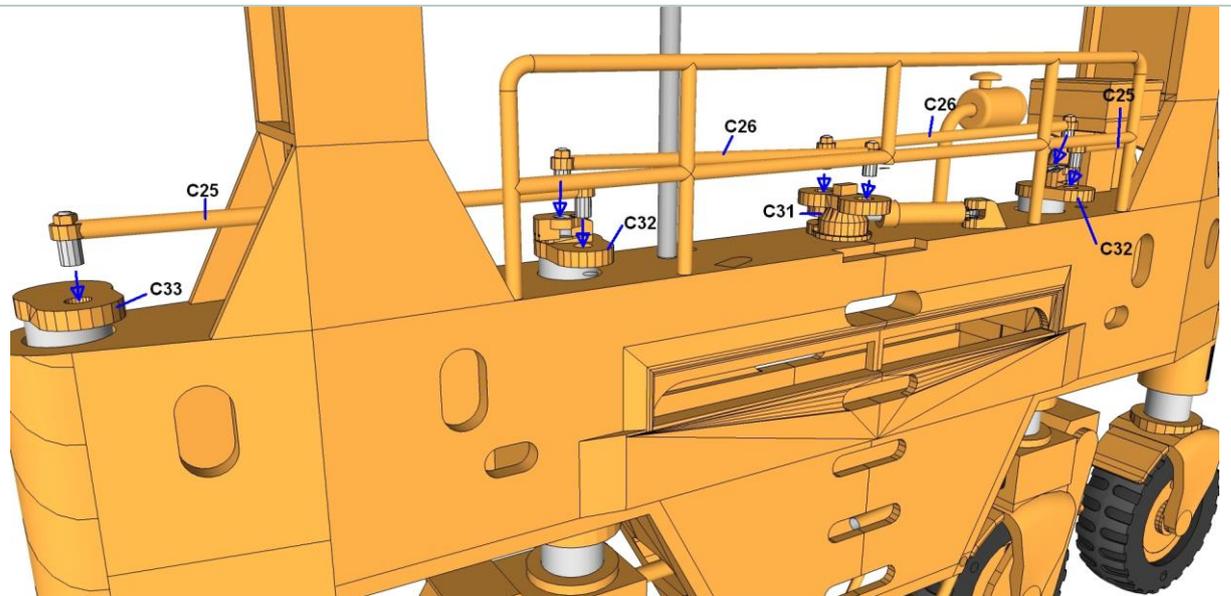
Fragile

Push C19 into C28, and push C28 onto A1/A2 (you might need to glue C28 in place into A1/A2)
Push C20 into C31, install C31 (do NOT glue!) in A1/A2, while making sure C20 is inserted into C19



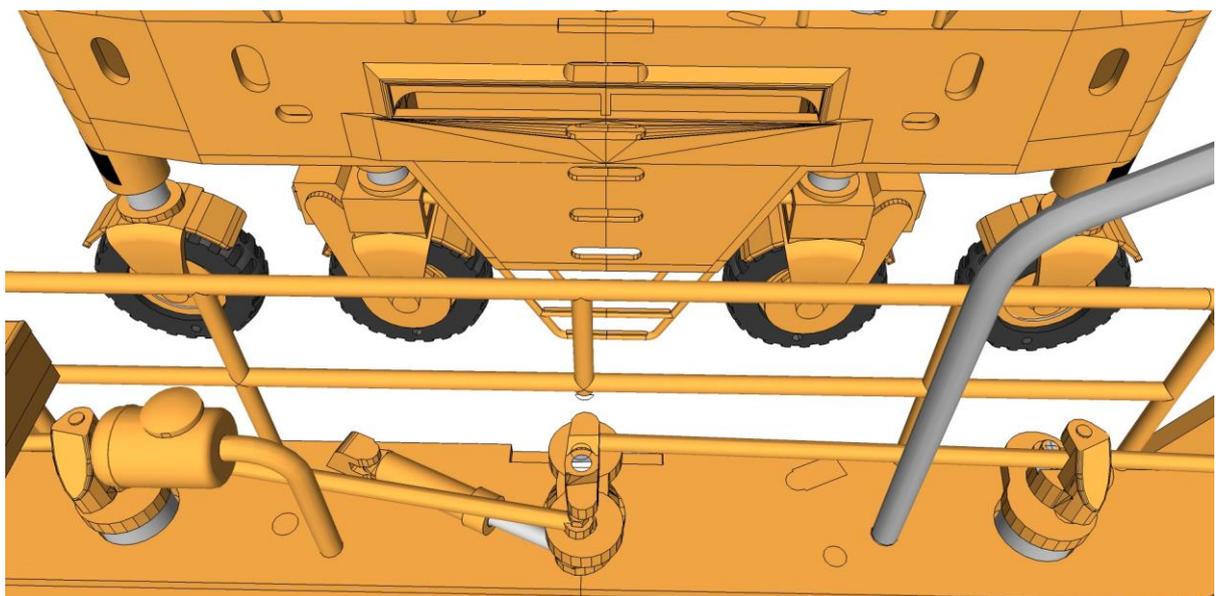
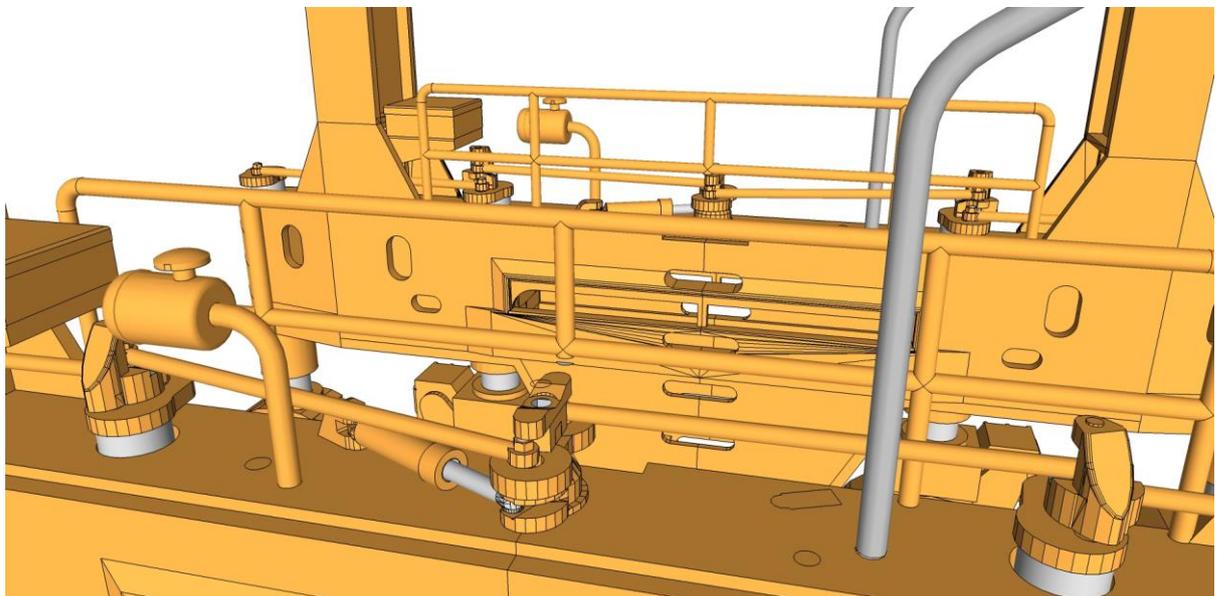
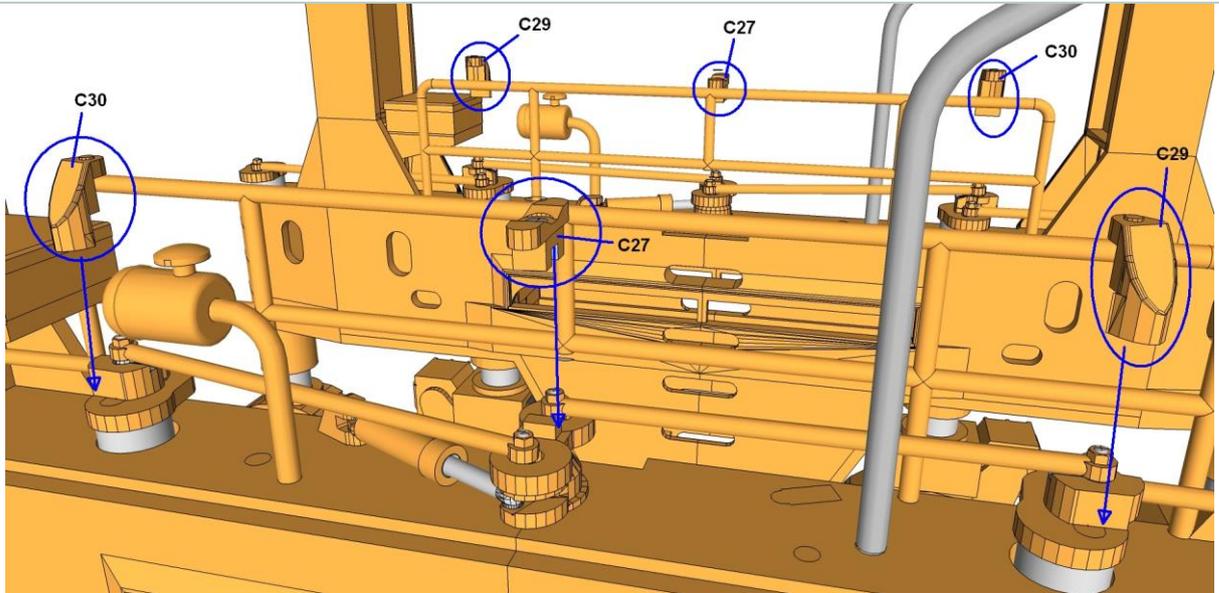
Fragile

Lay one end of C25 into C33 and the other end in C32 lower part (repeat at both outer ends)
Lay one end of C26 into C32 upper part, and the other end in C31 (repeat twice)
Do NOT glue



Fragile

Install (use glue) C27 on top of C31
 Install (use glue) C29 and C30 on top of C32 -> note which number is at which side on A1/A2!
 Make sure the shafts C25/C26 can freely move, but not fall out



Fragile

The result should be that you can slightly turn the wheels, do this careful!

Cable routing

For each side/cylinder, both 2xA (outer) and 2xB (inner) side need to be routed. I.e. in total 8 cables.

Push B18+C14 piston assembly as much as possible into cylinder B10

Place C7+B8+C8 (the spreader) on 'ground level', in between the wheels.

Position C13 in the middle of C14 and C22 while applying the cabling (as easier).

Cut **8** cables of *thin* (black) yarn, each 40 to 45 cm in length.

Glue one cable end to start (part C8) for cabling schema A, repeat 4x

Glue one cable end to start (part C7) for cabling schema B, repeat 4x

After the all cabling is applied, **but before the cable ends are glued in place to part C18**, position all parts in the right starting positions:

- 1) move C13 near C22 (see pictures later) and glue in place
- 2) move C7+B8+C8 (the spreader) **up** as much as possible, while maintaining piston assembly B18+C14 in position; do this by pulling the cabling at the same time at the loose end (not yet glued to C18)

'Test run' the cabling, still not glued in place to part C18, but just fixate it temporarily, and try if you can lower the spreader sufficiently down - vertical displacement-, to place a container on the ground level. Do this by moving the piston assembly B18+C14 towards part C22.

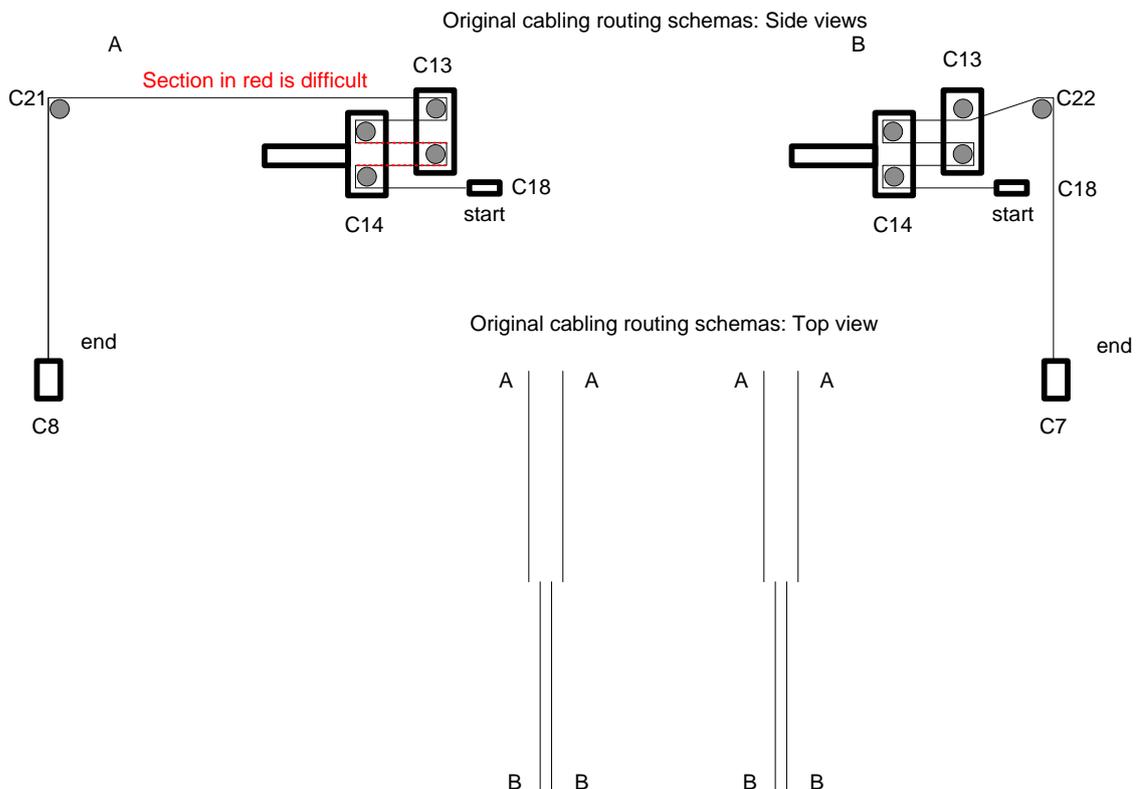
If you are satisfied with the result, cut the cables to length, and glue the cable ends to part C18 (8x). Part C18 connects both cable ends of routing 'A' (outer connectors) and routing 'B' (inner connectors).

If you are not satisfied, tweak the cabling by pulling the loose cable ends and pushing the spreader up until the minimum height you want to maintain (e.g. pick up a container from a truck), then fixate the cable ends temporarily, and by moving the piston assembly inwards in the cylinder B10, double check if the height you can reach is sufficient enough for your purposes. If satisfied, glue the cable ends in place to C18.

9

The original cabling schema is as below.

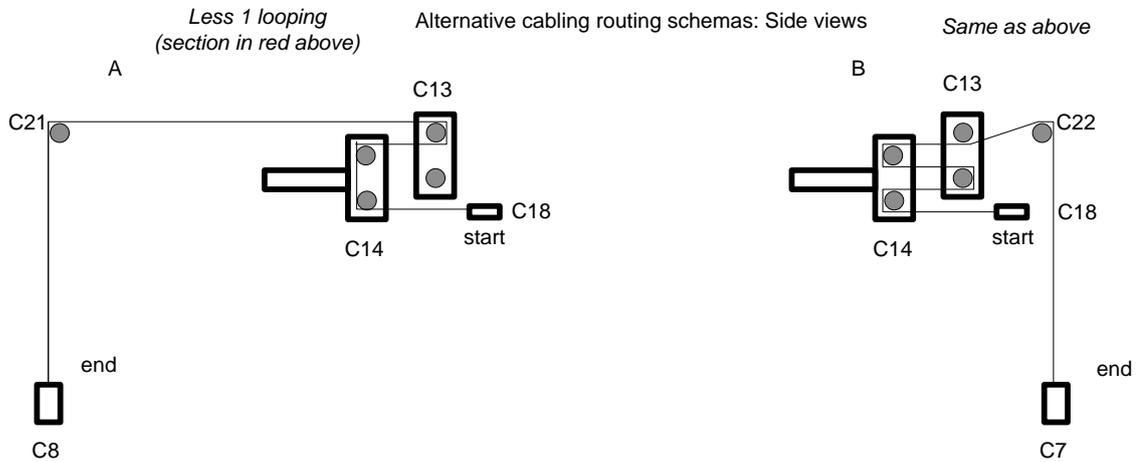
Note that this schema might cause a lot of friction (depending on the yarn thickness used), and certain areas (shown in red) of schema A are quite difficult.



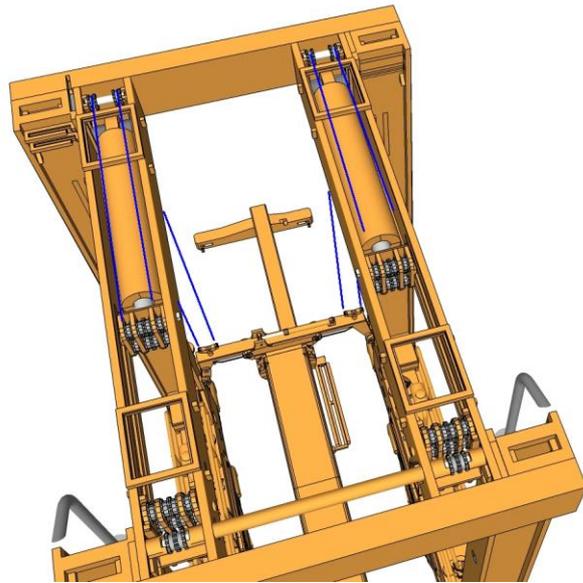
An **alternative** cabling schema is shown also below.

This will cause less friction, as less cable is used/1 loop less, but as a result the available cable length in the system is more limited, thus reducing the vertical displacement of the spreader. You will however be able to pick up a container from a truck, and place on top of another container.

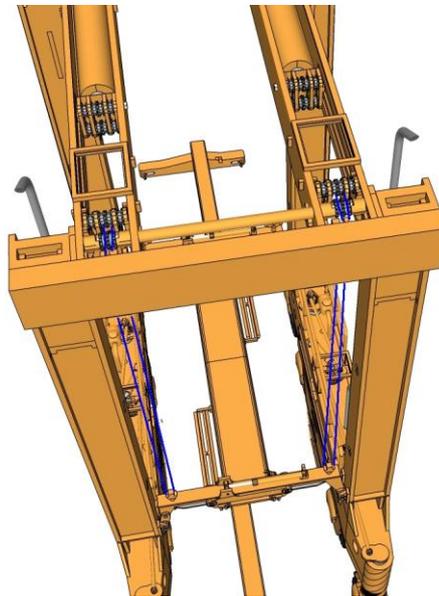
If you choose for this alternative, follow all steps as mentioned above and below, except the loop which is not included in this alternative. Don't forget to do a test run of the cabling before fixing in place!



12a

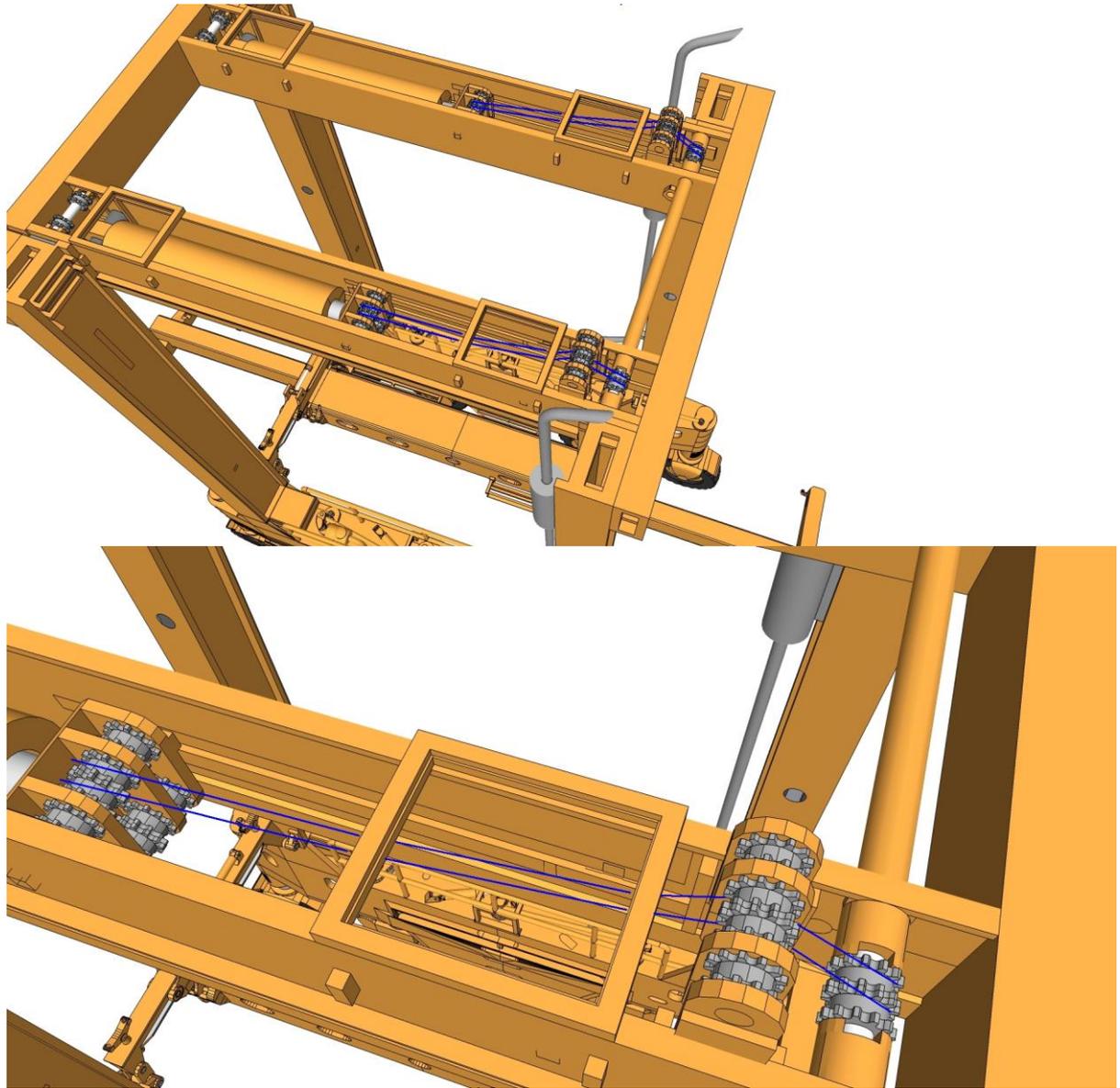


12b



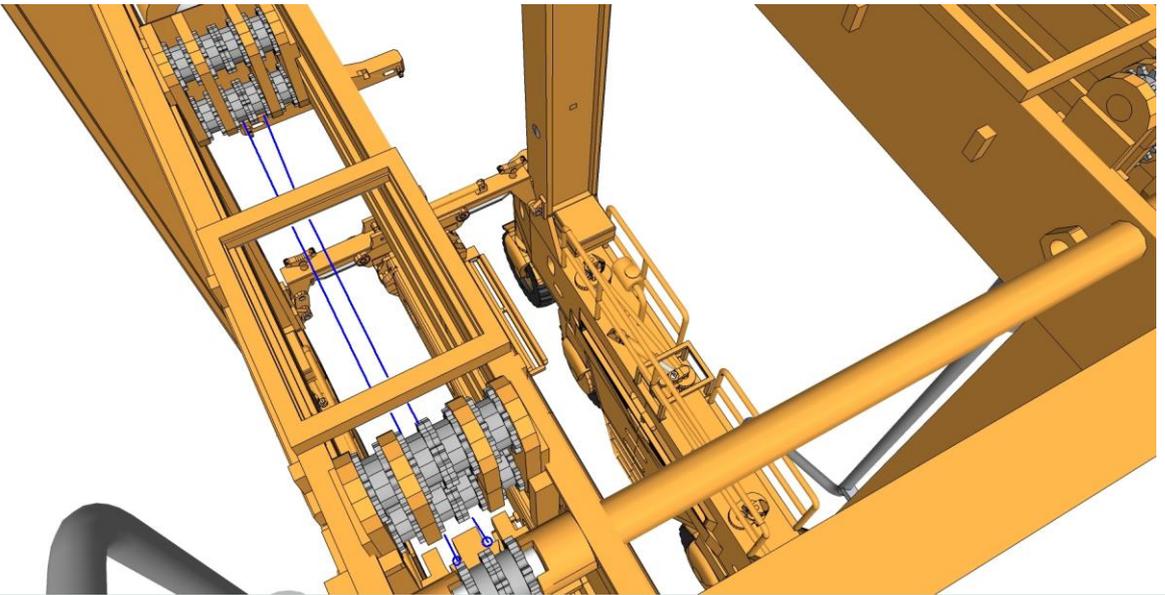
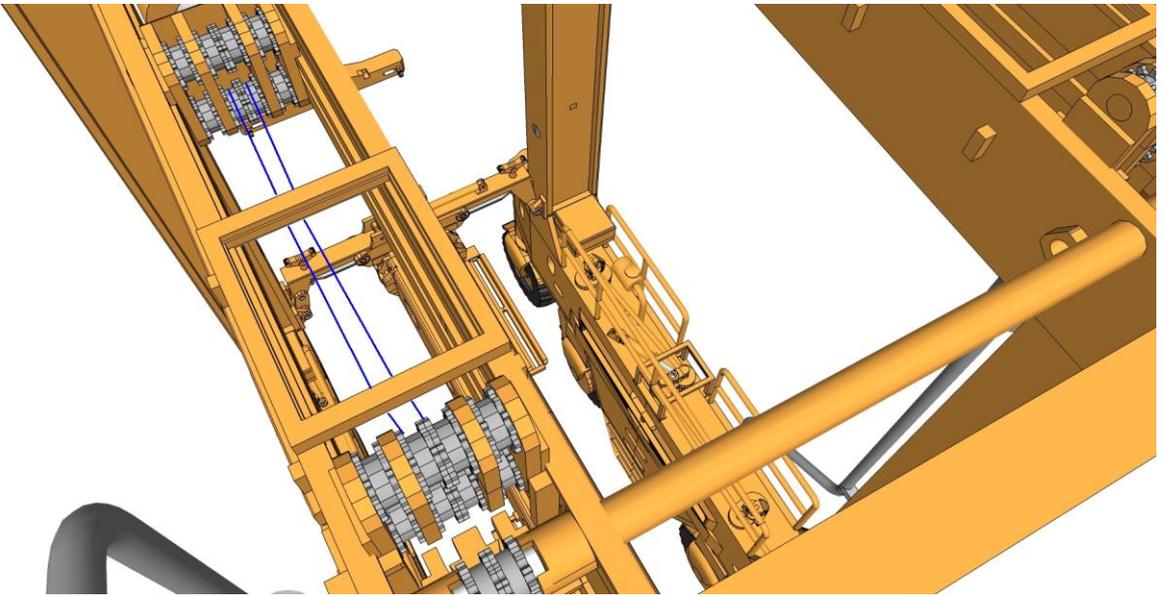
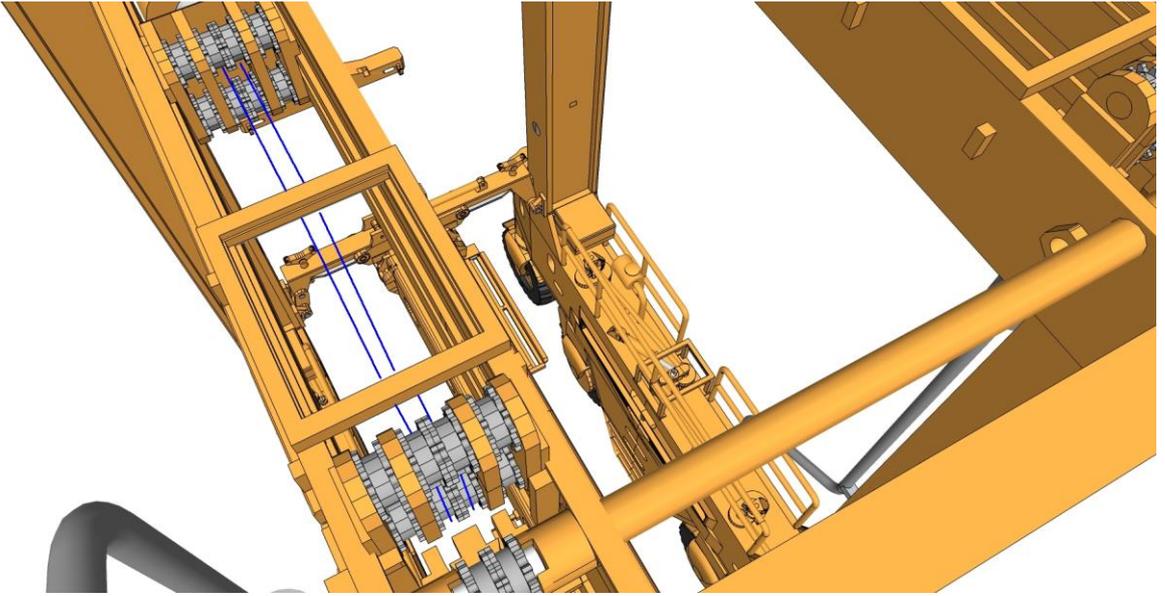
Note that C13 is pulled up from its' final position during cabling!

B routing:

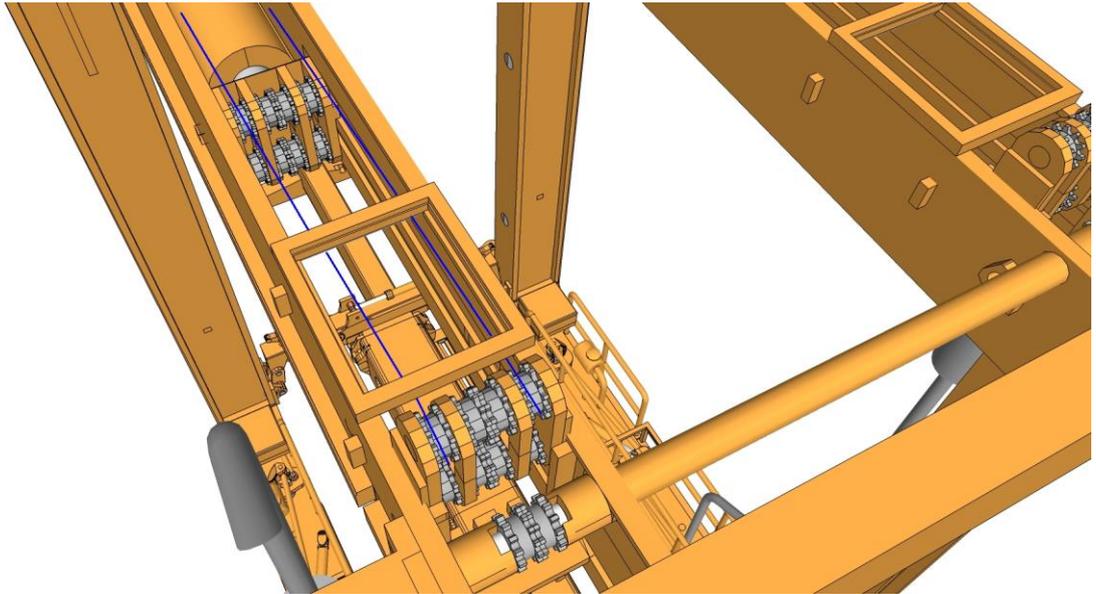


12c
12d

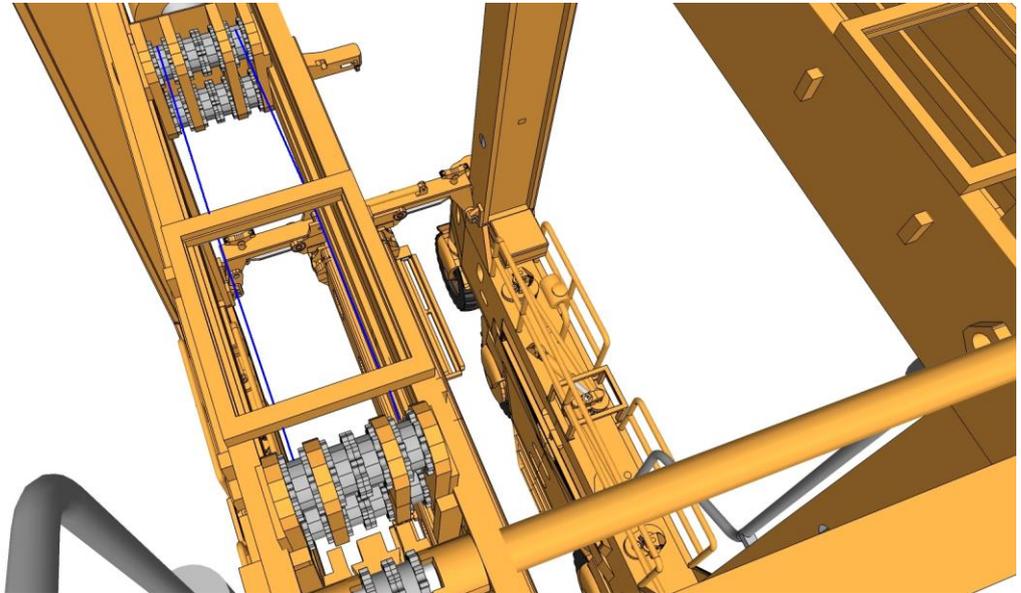
12e1
12e2
12e3



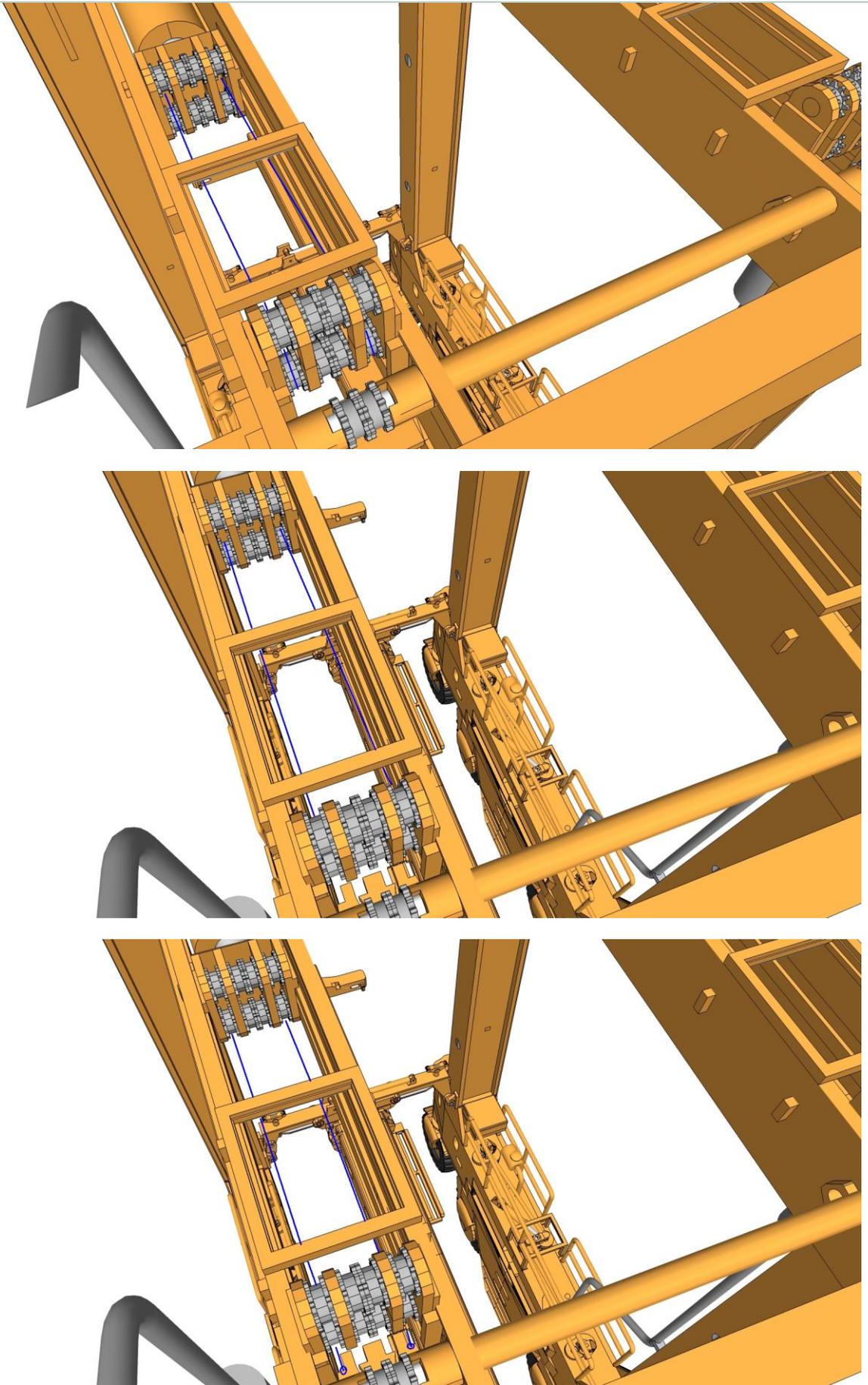
A routing:



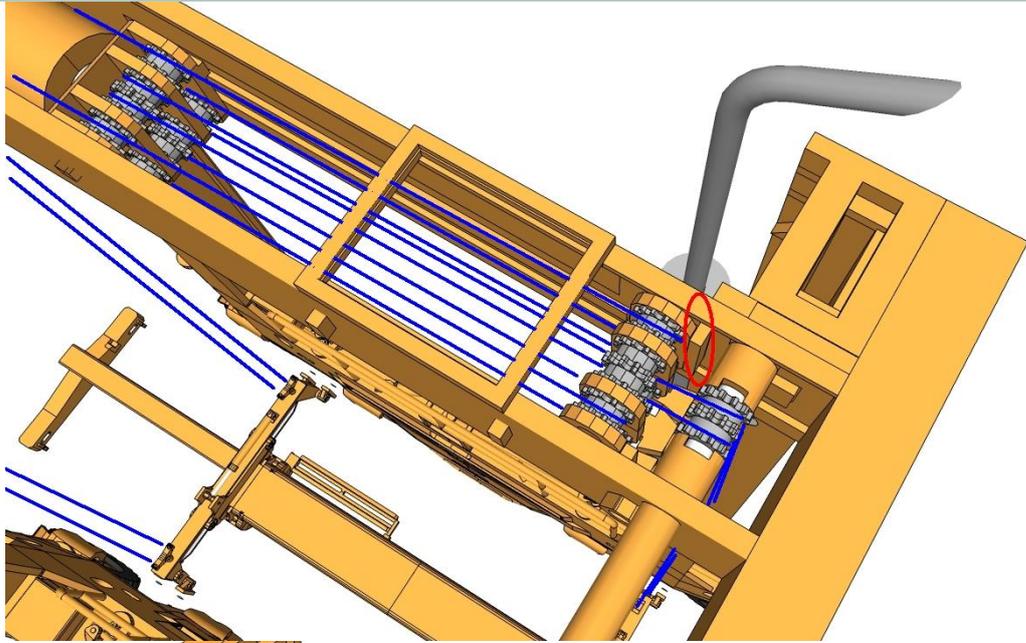
12h
12i



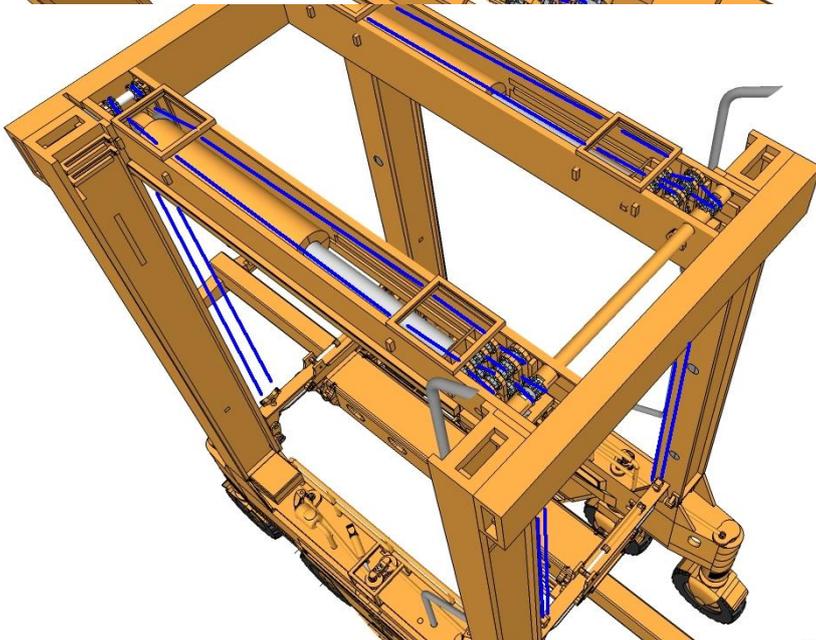
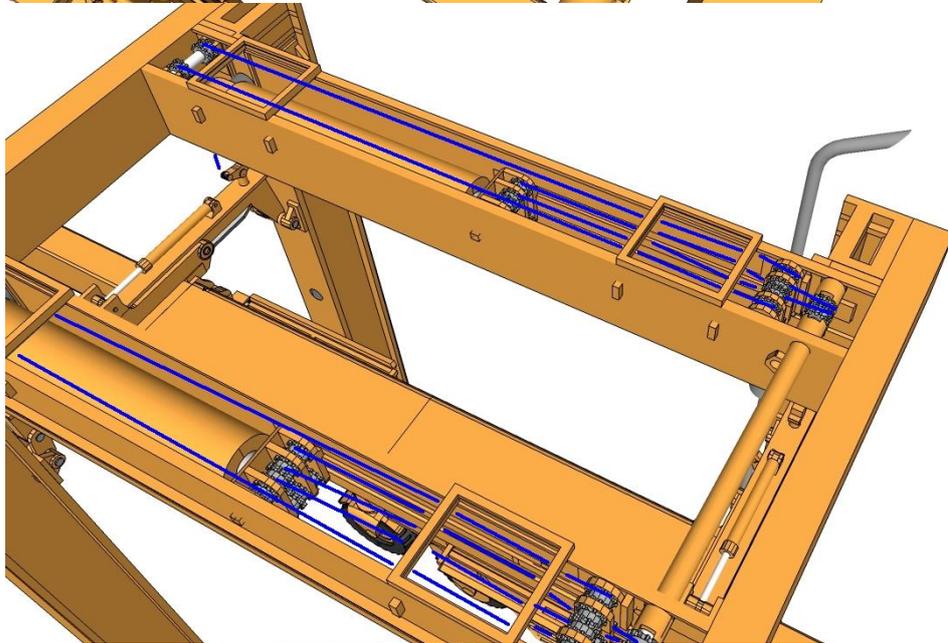
12j
12-i4
12-i5



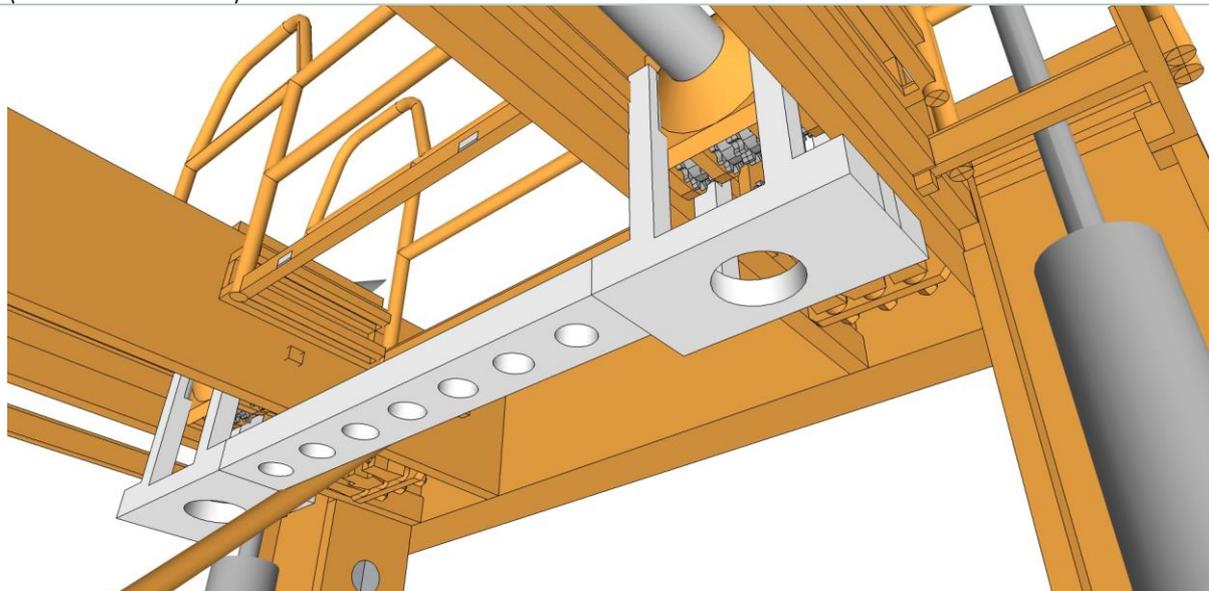
When done, move C13 down in place. (glue optionally)
(in diagrams below not all cables are shown!)



12-k
12-l
12-m



To move the cylinders back and forth, and thus the spreader up and down, use tool B9 (slide in from below)



Decals I

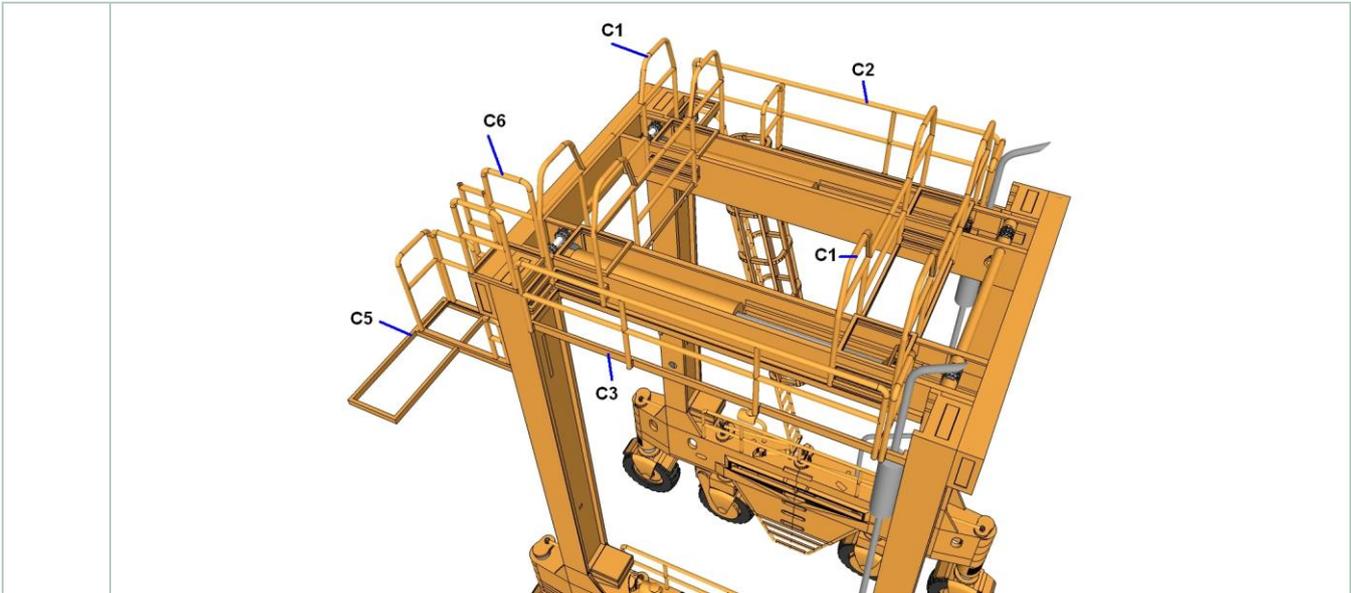
Print out all grill decals and cut.
Cut from clear plastic sheets the same size as the decals.
Try fit these plastic sheets in place first, cut to fit if required, before applying the decals on these sheets.

- 10
- Install plastic sheet + decal 4 onto part C3
 - Install plastic sheet + decal 5 onto part C2
 - Install plastic sheet + decal 6 onto part C1 middle section (2x)
 - Install plastic sheet + decal 7 onto part C6
 - Install plastic sheet + decal 8 onto part D (4x)
 - Install plastic sheet + decal 9 onto part B7 (2x)
 - Install plastic sheet + decal 10 onto part C4
 - Install plastic sheet + decal 11 onto part C5
 - Install plastic sheet + decal 12 onto C1 (optional, as very small)

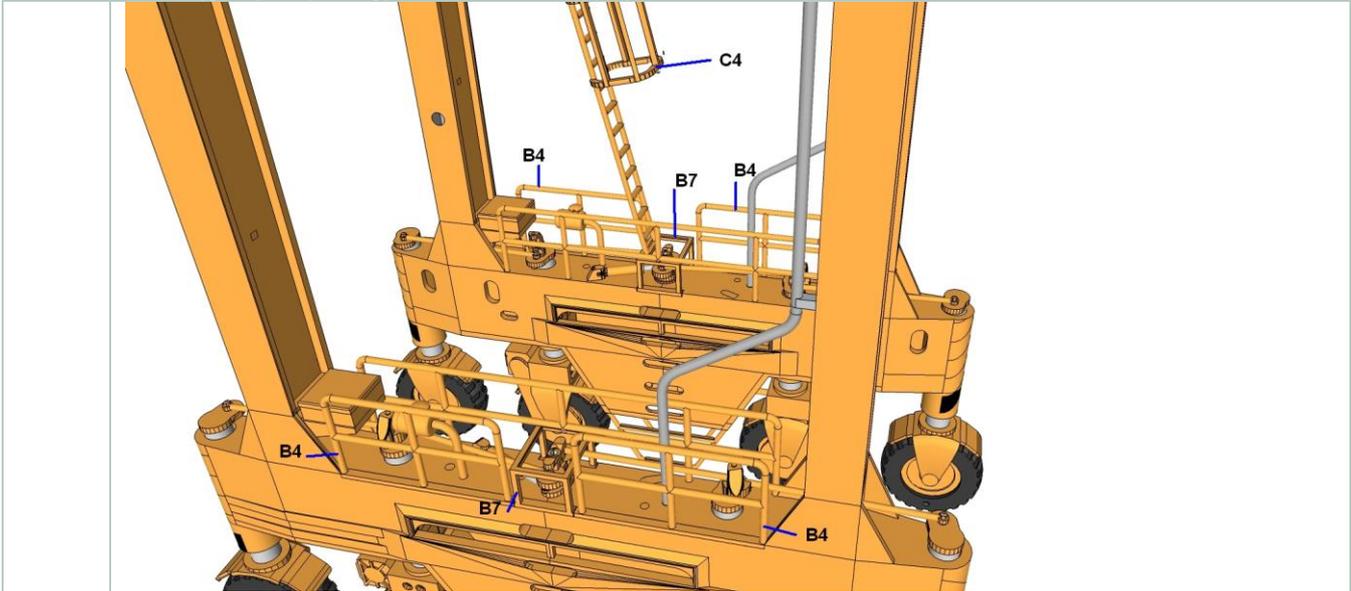
Railing

All glue in place:

- 11
- Install part C1 onto A1/A2 (2x)
 - Install part C2 onto A1
 - Install part C3 onto A2
 - Install part C5 (with the small ladder) onto A2
 - Install part C6 onto A2



Install B7 onto A1/A2 (2x)
 Install (glue) part C4 (ladder) onto A1
 Install (glue) B4 (railing) onto A1 and A2 (4x)



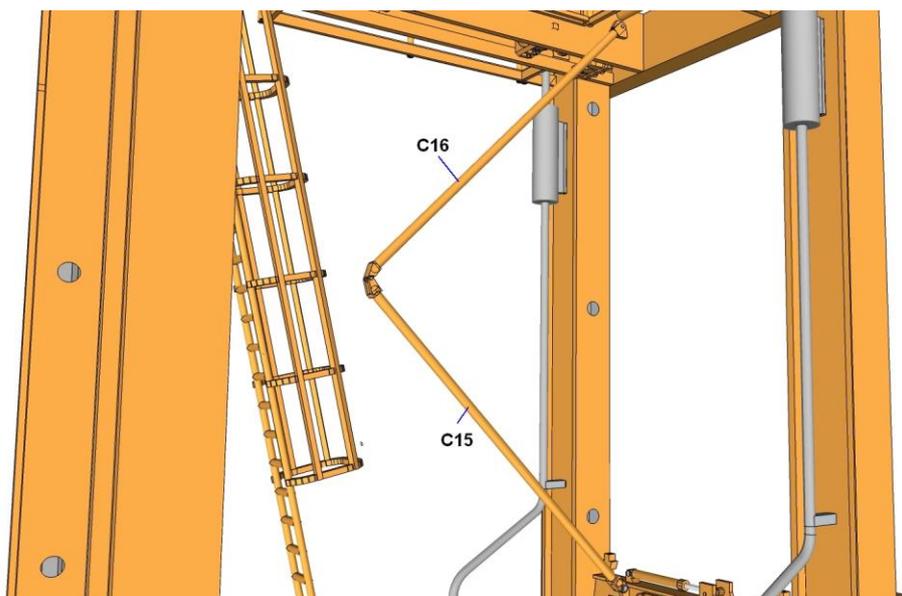
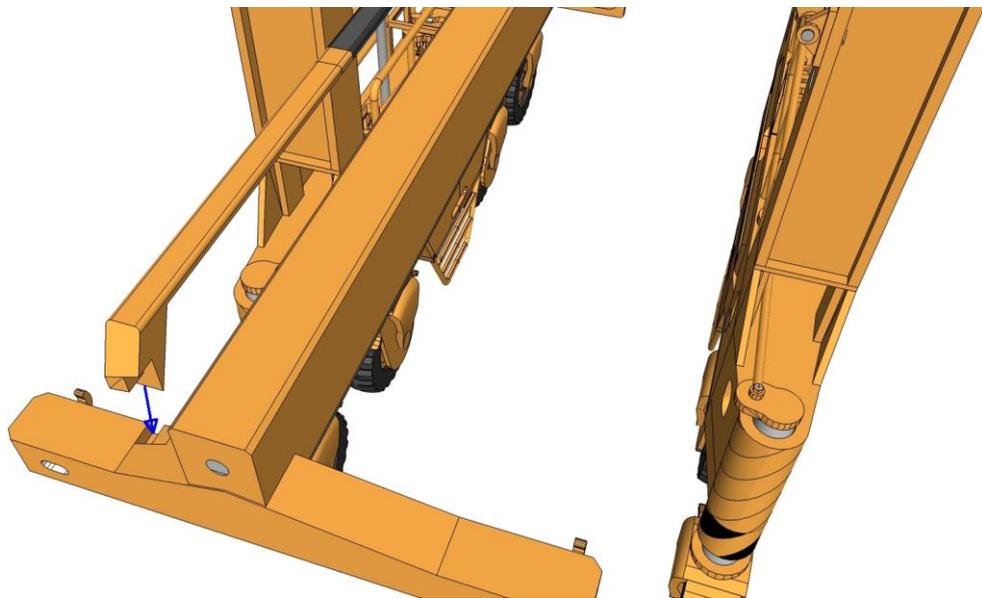
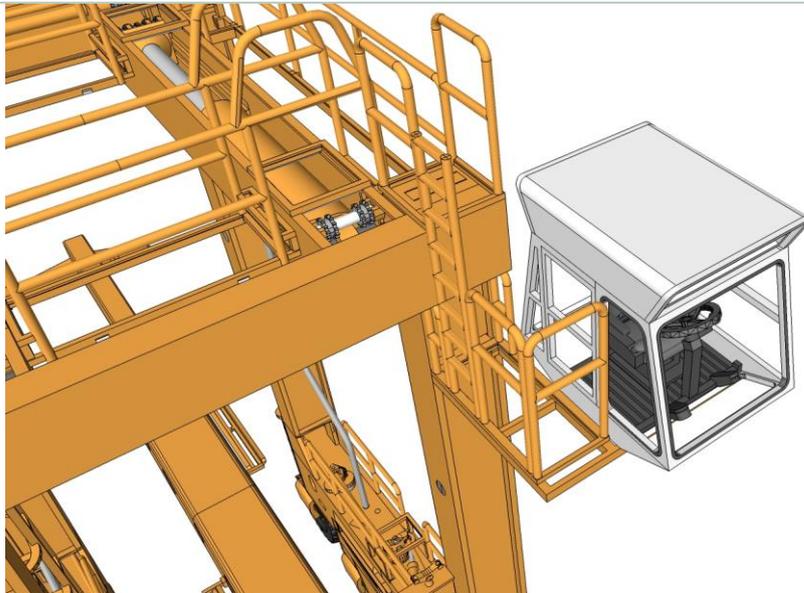
Finalisation

Install (glue) cabin on C5

12

The cable booms C10 and C11 are not to be glued, but used interchangeable, based on if 20" or 40" containers are hoisted.

The cable guider C15 and C16 should not be glued, and only installed after the cabling to spreaderbeam B8 is in place. C15 fits into C7.

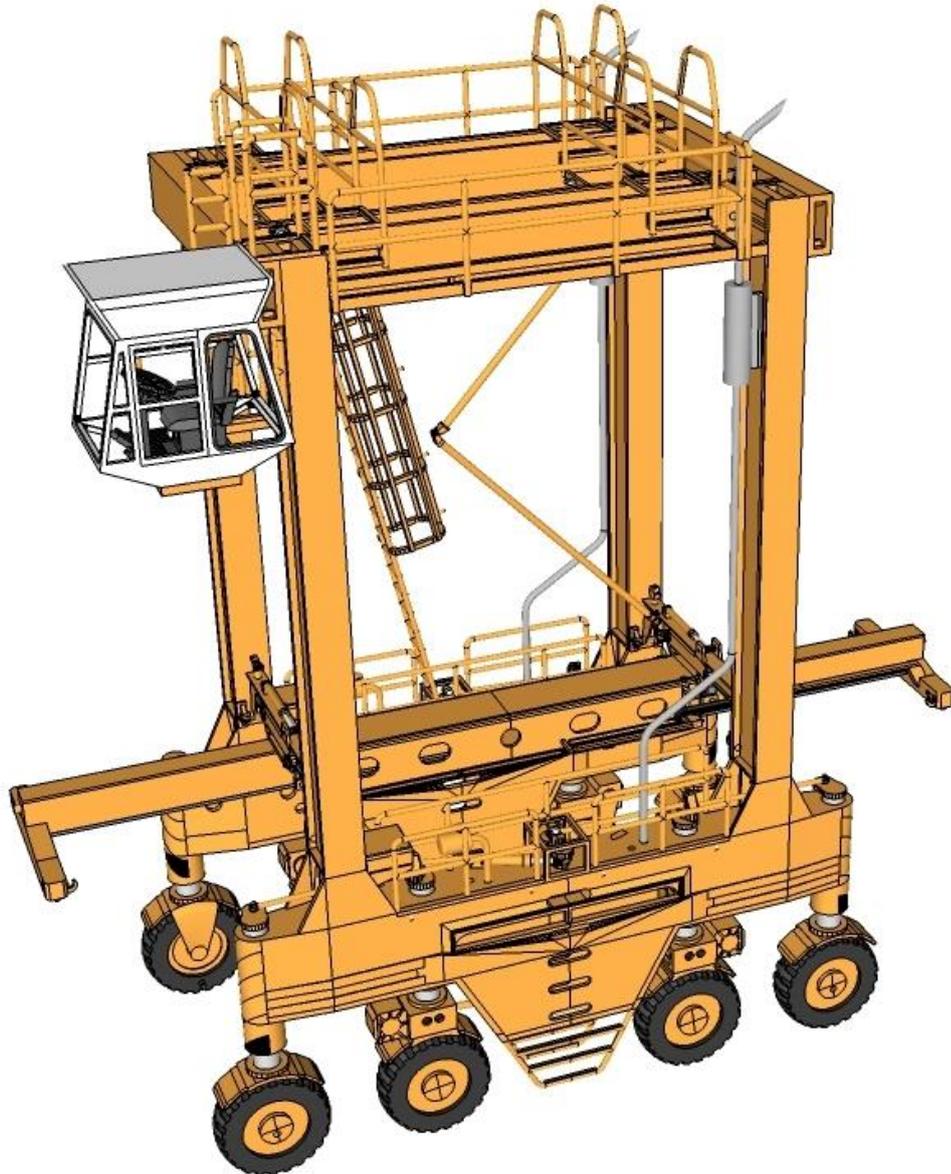


Decals II

13

You may wish to apply some warning lining to the wheel shafts, front and back. (decals 1, 2 or 3)

Apply final touch paint –up. Result:



14 Spray paint all parts with clean lacquer (protective layer).

Note

Containers of Herpa brand will fit; use some 'bluetag' temporary sticking paste to fix them

ADDITIONAL INFORMATION

| | |
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| | |

PRODUCT PAINTING EXAMPLES

Example with colors Applied in diorama setting



Refer to our website for more product photos

For any questions/suggestions or additional information, contact us at

Customer Service Department, email us: support@robs-mw.com

Website: robs-mw.com

Facebook: facebook.com/robsmw

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DISCLAIMER



Not included is paint, glue, tools.

Decals –if applicable for this product - should be self-printed on suitable material.

This product is only suitable for the experienced scale modeler (adults, 14 years up). Small parts included!

Warning:

Please note that the 3D printing materials we use for manufacturing the products make the products suitable only for decorative purposes and they are not suited for any other purpose. The products are not suited to be used as toys, to be given to children. The products should not come in contact with electricity or food & drinks and should be kept away from heat.

Due to the new technologies used to fabricate these products, different procedures might need to be used to achieve similar results as for products produced with conventional technologies.

Photographs and drawings can show pre-production samples.

Subject to alterations in assortment, printing, shape and colors.

Technical details information about the example provided 'as-is'