Rob's Model Workshop
scale model accessories

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

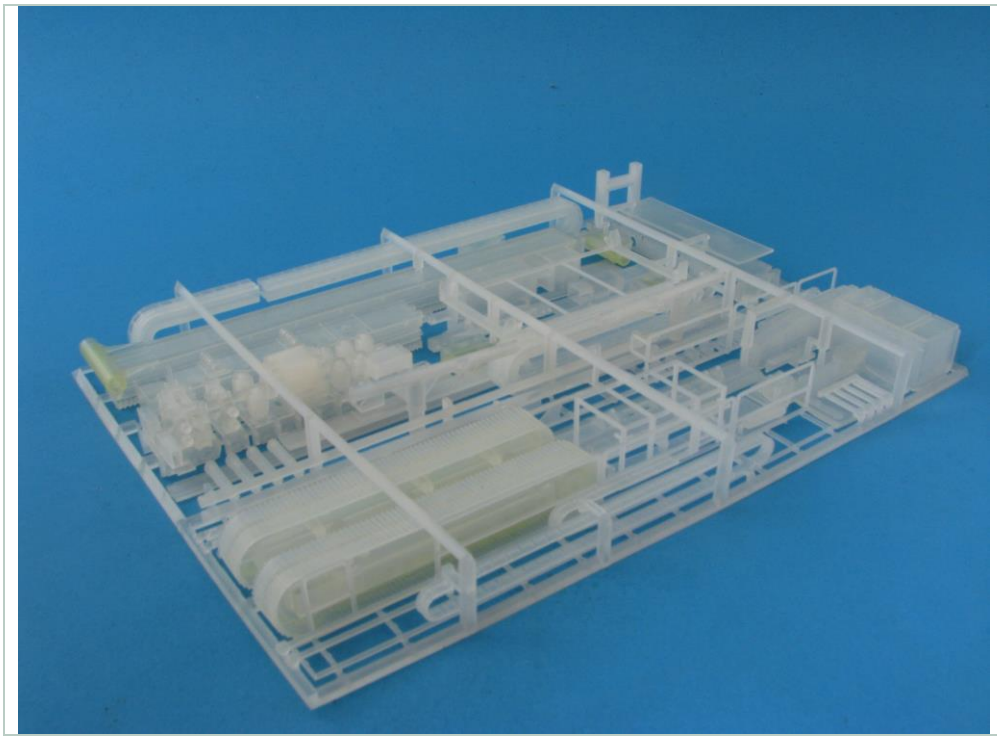
Horizontal Directional Drilling rig (crawler version)	Product No: **0303**
Horizontal directional drilling or HDD, is a steerable trenchless method of installing underground pipes, conduits and cables in a shallow arc along a prescribed bore path by using a surface-launched drilling rig, with minimal impact on the surrounding area.	Scale: **1:87** / H0
This model contains: All parts to build the hdd rig (crawler). You will also need a paper-clip or similar metal piece (diameter max 0.8mm) for the axles. This hdd rig can be used with and without crawler.	Type: **kit** assembly & painting required
Example information: e.g. http://prime-drilling.de/e_bohranlagen.html More information can be found via Google (images): Search for 'horizontal directional drilling'	Material: semi transparent plastic (Shapeways 'Frosted Ultra Detail')
Not included are drilling pipes; you can buy these separately (product no TBD).	**Danger!** **Small parts included**
Decals: refer to file "RMW-0303-Decals_hdd_rig_crawler-v0.1-1_87" which can be downloaded from our website. Available in PDF or PNG file format. *Print yourself.*	Decals available
Example photos:	V1.8
	

PRODUCT COMPONENTS LIST

This product consists of: **61** parts, loose and on **3** sprues		
No	**Description**	**Paint advise**
1	Frame	Black
2	Frame bottom plate	Black
3	Track	Black
4	Track	Black
5	Drill boom, lower part	Blue
6	Drill boom, upper part	Blue
7	Bottom plate drill boom, lower part	Blue
8	Bottom plate drill boom, upper part	Blue
9	Ground shield for drill boom	Black
10	Power pack unit	Blue (back silver/aluminum)
11	Power pack unit, bottom plate	Blue
12	Storage & equipment casing	Silver/Aluminum with frame black, doors blue and dark grey
13	Storage & equipment casing	Silver/Aluminum with frame black
14	Cable/pipe boom big, position up	Silver/Aluminum with pipes black
15	Cable/pipe boom big, position down	Silver/Aluminum with pipes black
16	Cable/pipe boom big, position middle	Silver/Aluminum with pipes black
17	Cable boom small, position down	Silver/Aluminum with pipes white
18	Cable boom small, position up	Silver/Aluminum with pipes white
19	Cable boom small, position middle	Silver/Aluminum with pipes white
20	Drilling engine	Blue
21	Pipe guider	Blue
22	Pipe guider	Blue
23	Ground shield for strut	Dark grey or black
24	Slurry pipes	Black
25	Power pack unit exhaust	Silver/Aluminum
26	Hydraulic piston holder for strut	Blue
27	Hydraulic piston holder for strut	Blue
28	Power pack unit air filter	Silver/Aluminum
29	Stabilizer holder	Black
30	Stabilizer holder	Black
31	Railing	Silver/Aluminum
32	Railing	Silver/Aluminum
33	Cable boom small guide	Silver/Aluminum
34	Bearing plate for drill boom frame	Blue
35	Drill boom frame	Black
36a,b	Hydraulic piston holder for drill boom frame (short/long) (4x)	Black
37a,b	Hydraulic piston (short/long) (4x)	Silver & Black
38	Big cable boom closures (6x)	Silver/Aluminum
39	Door	Blue

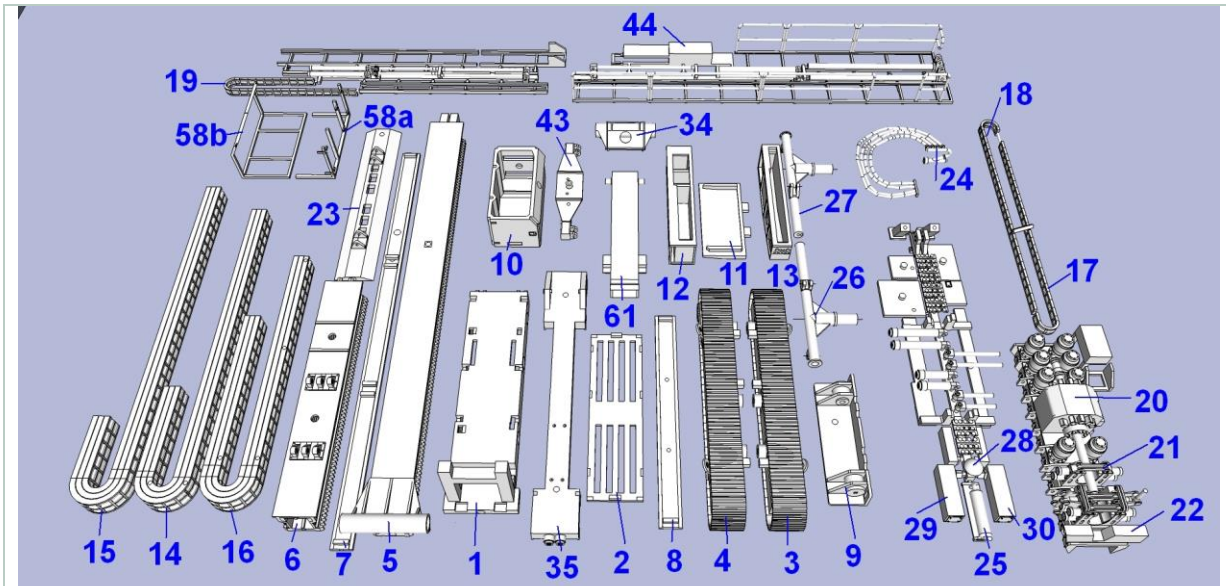
40	Air vent	Silver/Aluminum
41	Door	Blue
42	Air vent	Silver/Aluminum
43	Support bearing plate for drill boom frame	Blue
44	Control unit	Lite grey/silver
45	Stabilizers (2x)	Black
46	Drill boom frame piston holders	Black
47	Pivot point (2x)	Black
48	*Not used*	
49	*Not used*	
50	Hydraulic piston (2x)	Silver & Blue
51	Hydraulic piston holder (2x)	Blue
52	Hydraulic piston of strut (2x)	Silver & Blue
53	Cable boom big guide	Silver/Aluminum
54	Hydraulic piston (2x)	Silver & Blue
55	Cable boom big guide	Silver/Aluminum
56	Frame and bottom plate of Storage & equipment casing	Silver/Aluminum & Black
57	Frame and bottom plate of Storage & equipment casing	Silver/Aluminum & Black
58a,b	Power pack unit frame	Black
59	Hydraulic piston (2x)	Silver & Blue
60	Hydraulic piston holder (2x)	Blue
61	Drill boom frame	Black

PRODUCT PHOTO:

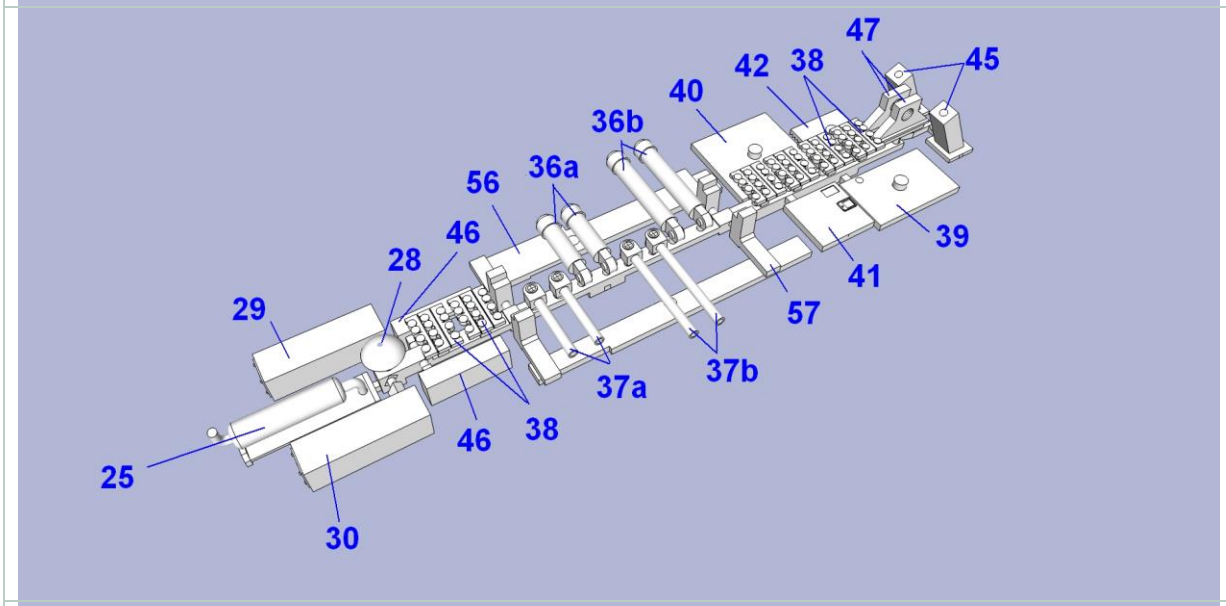


Beta version (still on sprue) shown, before painting & assembly

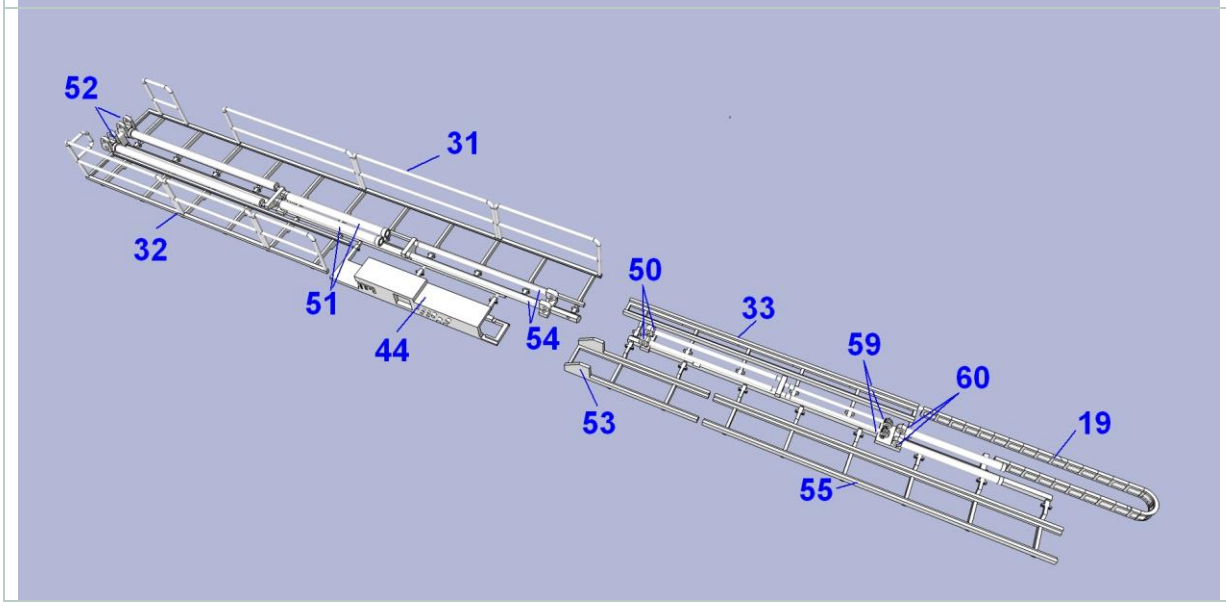
Production version has mostly separate parts



Part numbering



Part numbering



Part numbering

Cleaning:
If you have a 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 ultra sonic 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.

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 all parts from the sprue. Next do the 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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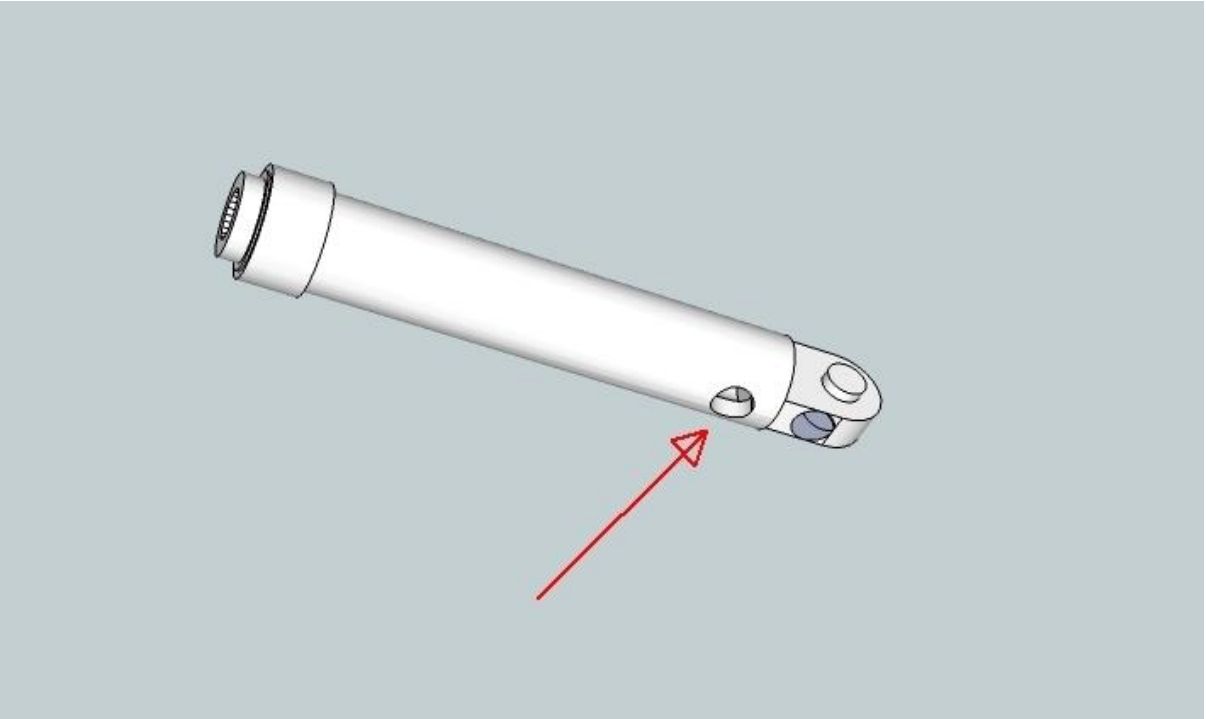
ASSEMBLY AND PAINTING INSTRUCTIONS

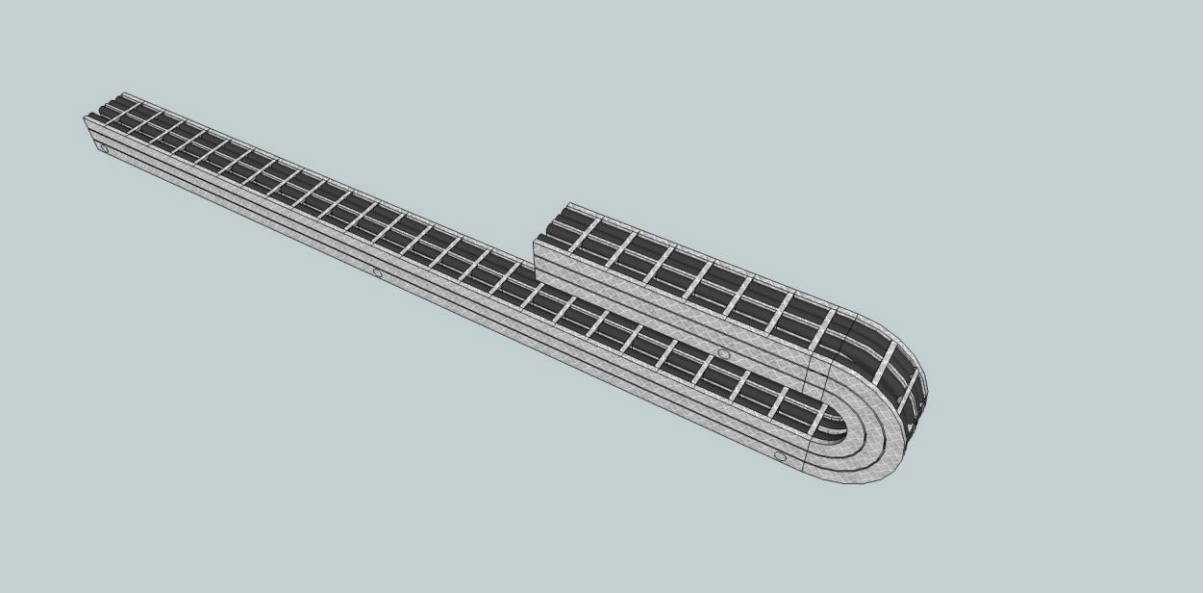
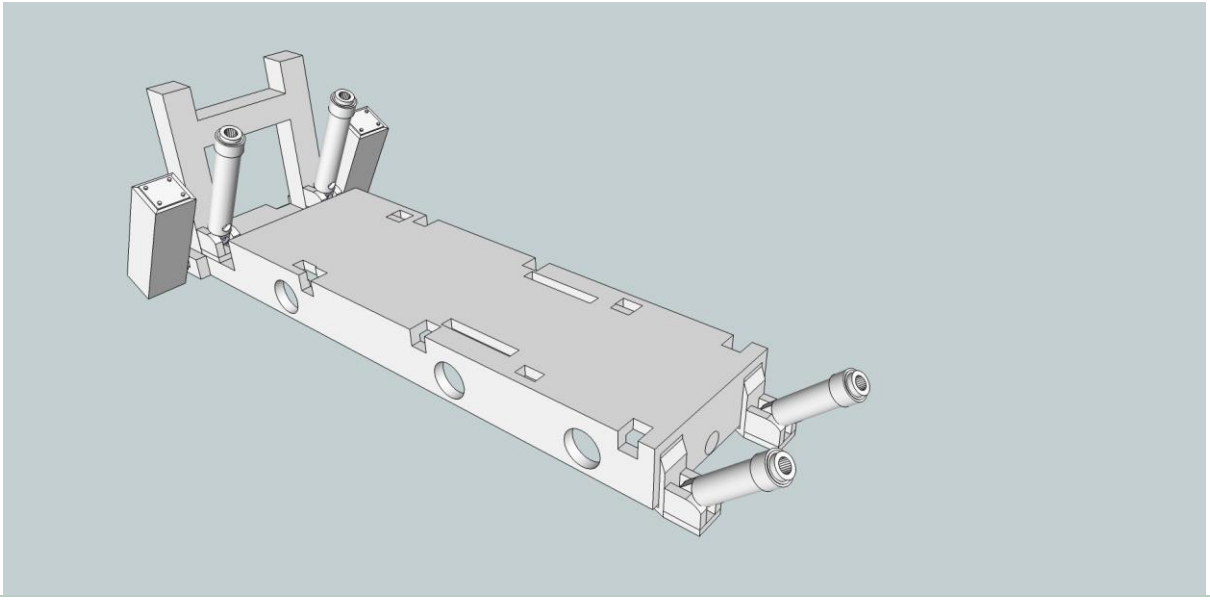
1

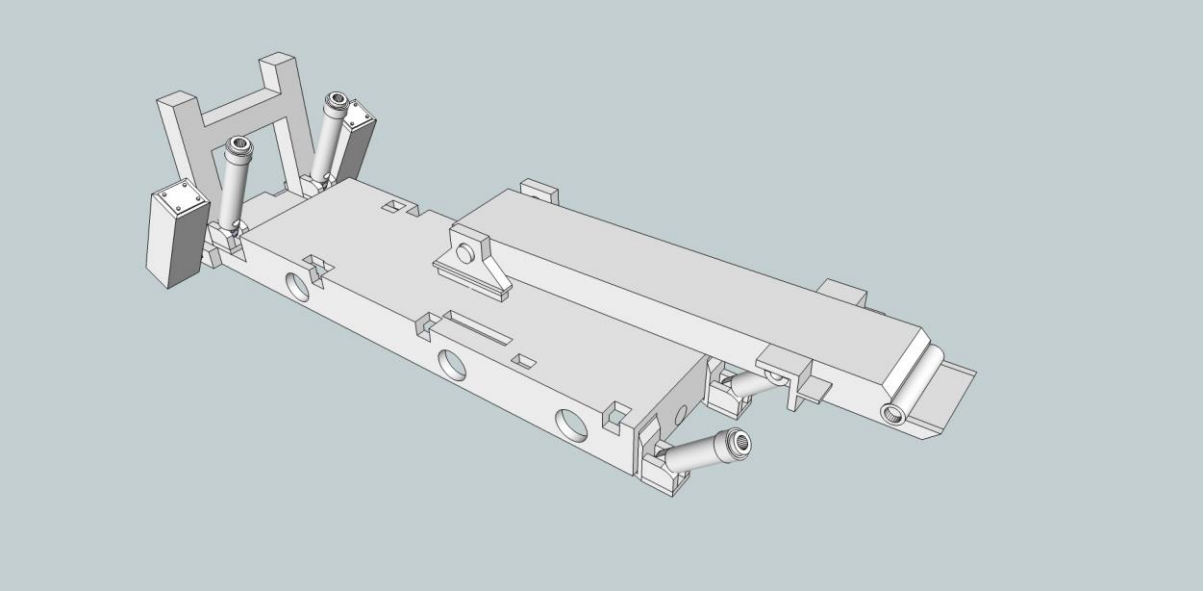
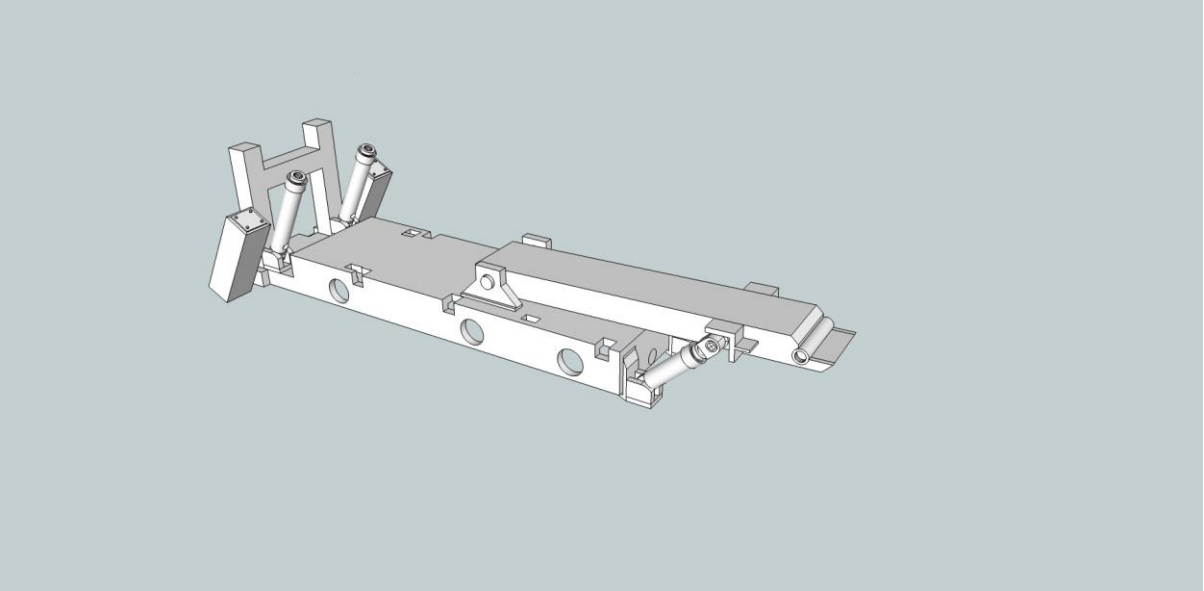
Follow the generic instructions on cleaning and separating parts

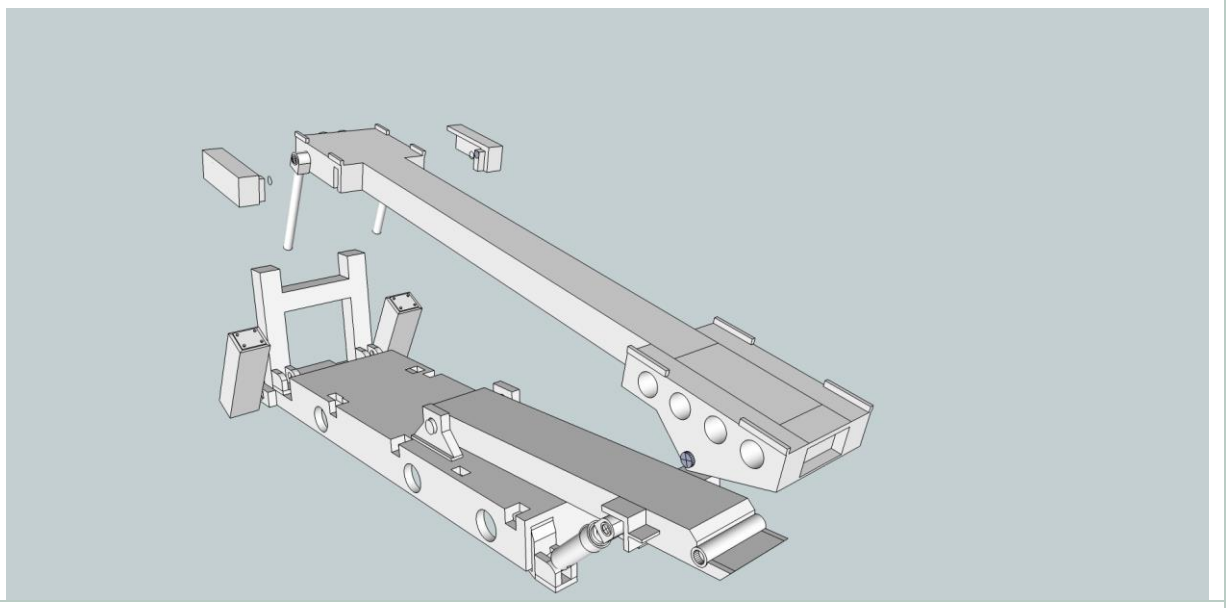
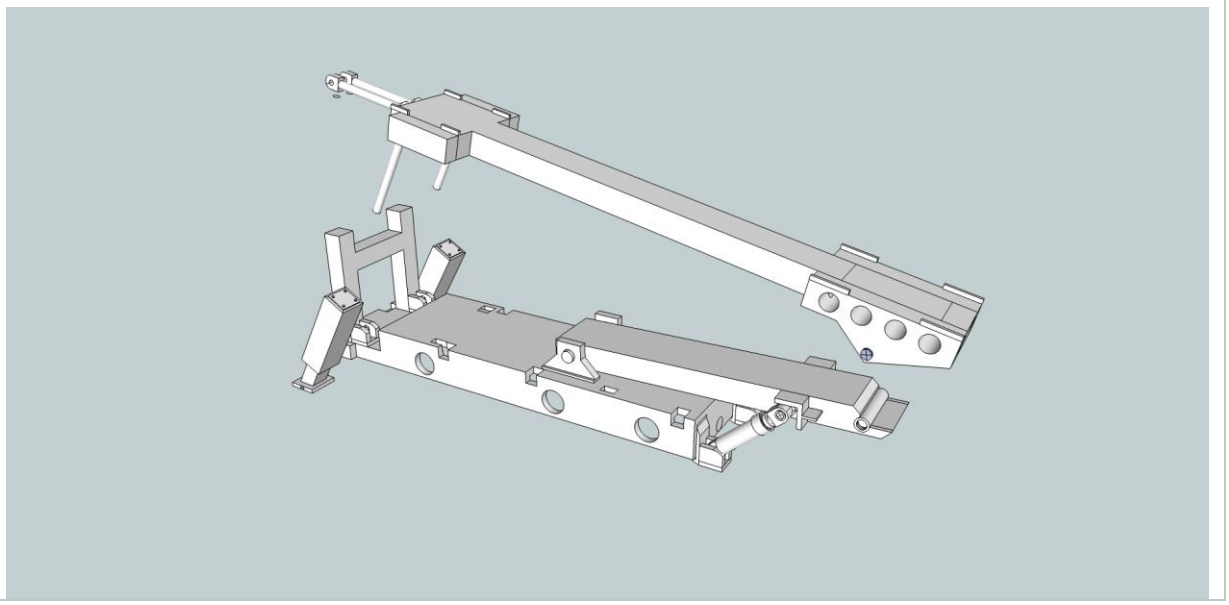
Clean the parts while still attached to the sprue.
Make sure the tracks and all piston holders are thoroughly cleaned of print wax.
Note that the piston holders have a small opening at the top, to let out the wax.
Use e.g. a tooth-pick to clean the inside of the piston holders.

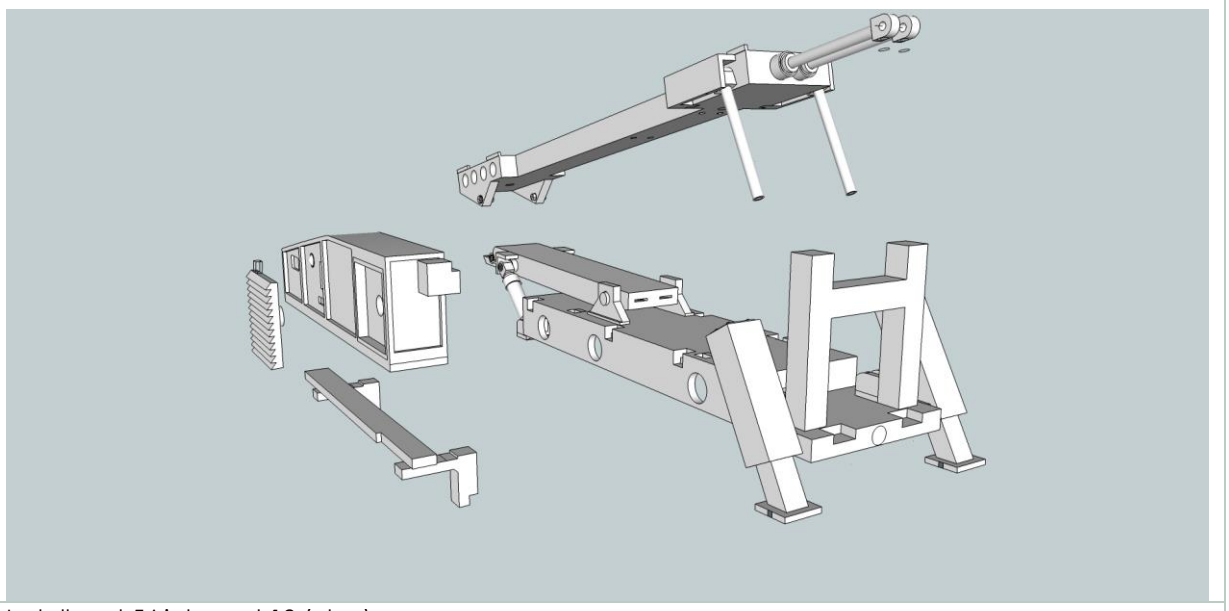
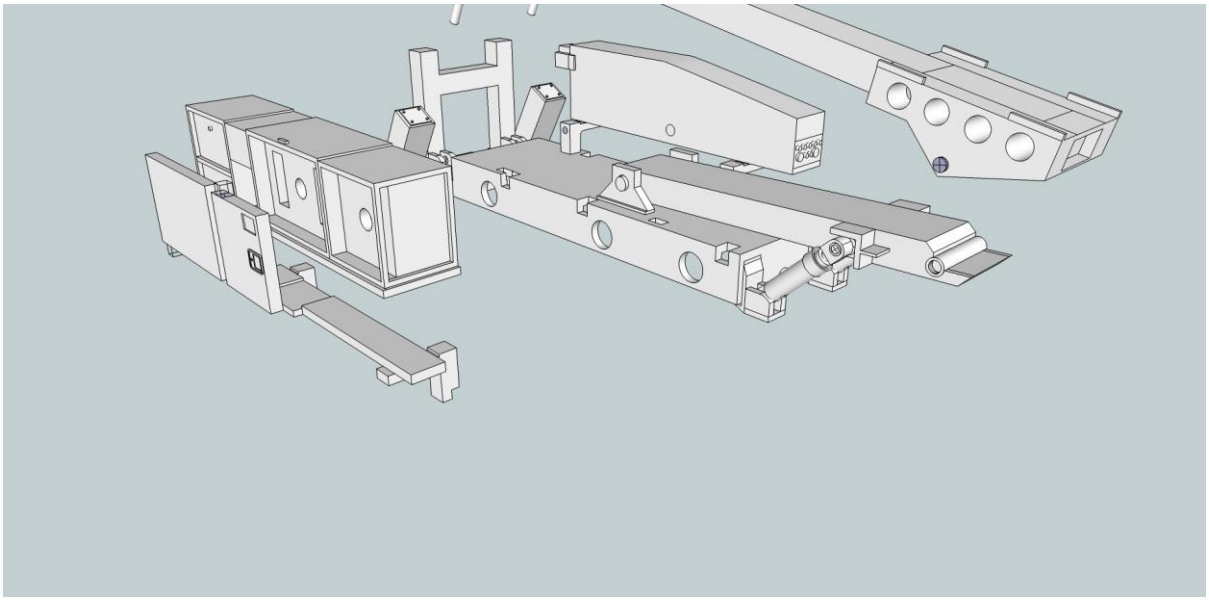


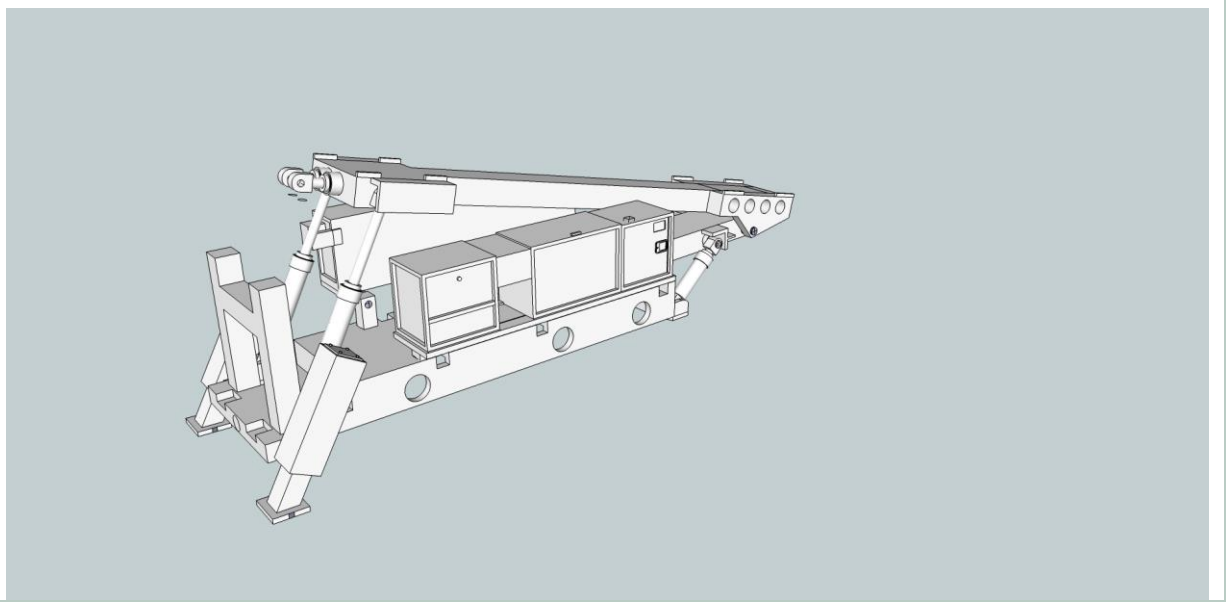
Cut off the separate parts with a hobby knife or small scissors:
Consider to leave pieces of the sprue on the parts, to simplify painting (use to hold the parts)

2	**Painting** Spray paint as many parts as possible. Painting of the cable booms (parts 14-16): Paint completely silver/aluminum first; then paint black the hoses; next paint silver/aluminum the cross ribs  Use e.g. a tooth-pick or straw to hold the product. *Only after painting and thorough drying continue.*
!	Make sure that the drill engine & guiders (parts 20-22) can freely move over the boom (parts 5-6) **after** painting. Make sure all pistons can -with only minimal friction- move within the piston holders **after** painting.
	CRAWLER ASSEMBLY
3	Install piston holders 36a (front) and 36b (rear) onto the frame 1 (do NOT glue, *push in gently*) Make sure the holes in the piston holders as indicated in step 1 are pointing downwards. Install stabilizers 29+30 onto frame 1 (glue in place) 

	Slide parts 47 onto part 61 (do NOT glue) and then install this assembly onto frame 1 (glue parts 47 in place on frame 1) 
4	Install pistons 37a onto part 61 holes (do NOT glue) and then slide them into piston holders 36a (do NOT glue) 

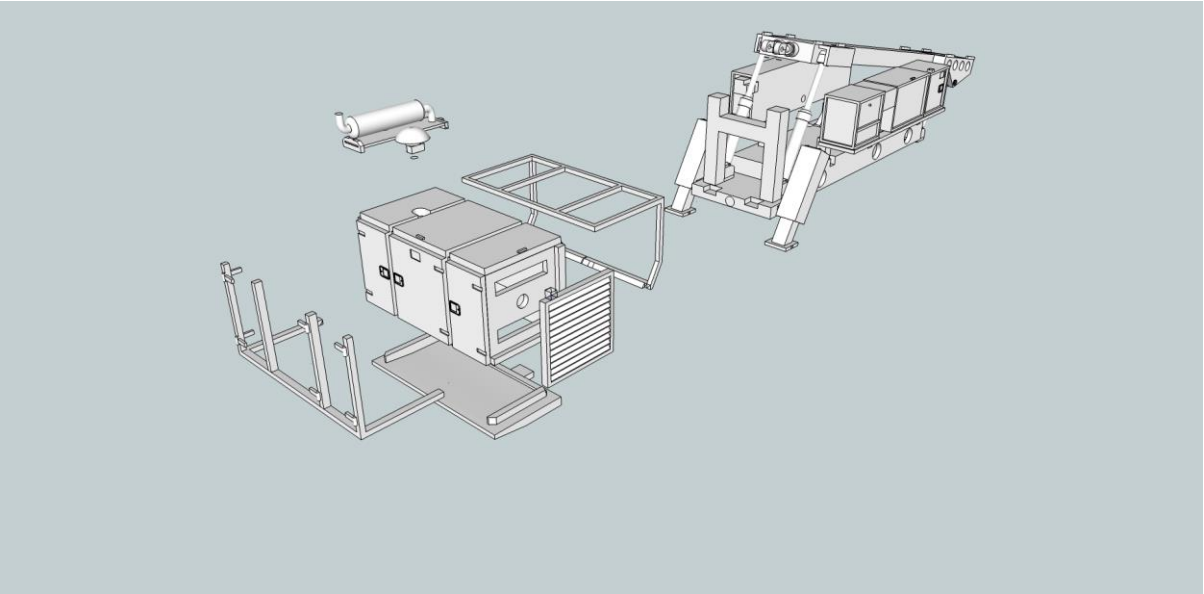
5	Install pistons 37b onto part 35 sides at end (do NOT glue) and then install parts 46 onto part 35 (glue in place) 
6	Slide pistons 54 Into part 35 end (do NOT glue) Slide parts 45 into the stabilizers 29 + 30 (do NOT glue) 

7	<u>Storage & equipment casings</u> Install part 57 into part 13 (glue) Install vent 42 onto part 13 (glue if needed) install this assembly onto frame part 1 (glue), see picture for which side 
8	Install part 56 into part 12 (glue) Install doors 39 and 41 onto part 12 (glue) Install this assembly onto frame part 1 (glue), see picture for which side 

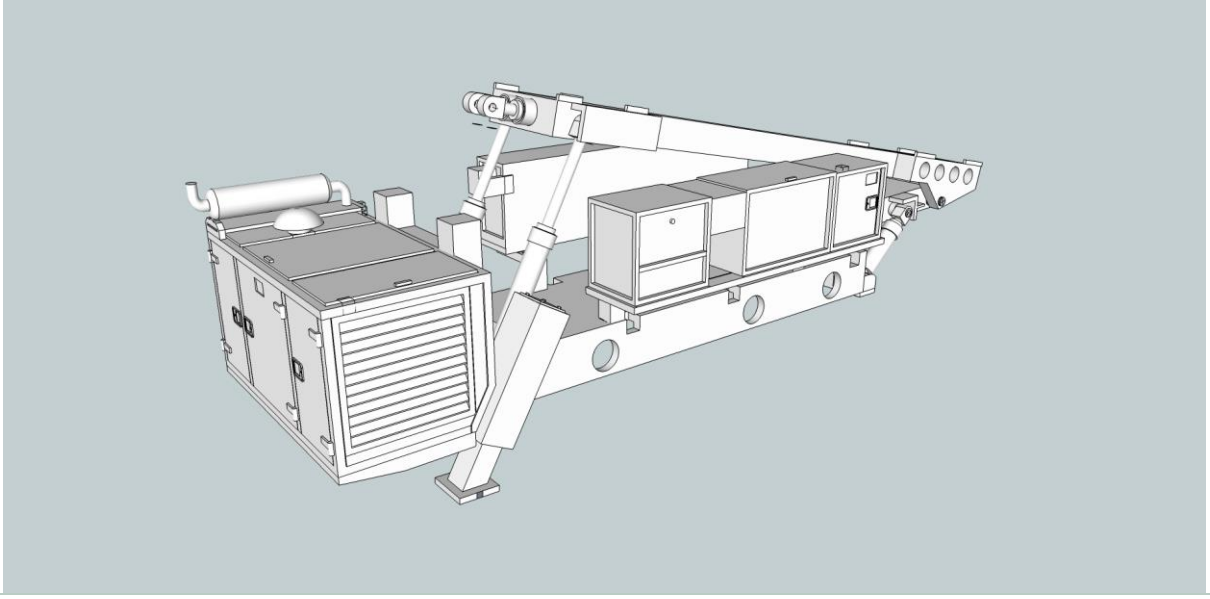
9	Click part 35 front onto part 61 front (do NOT glue), and slide the pistons 37b into piston holder 37a (do NOT glue) 

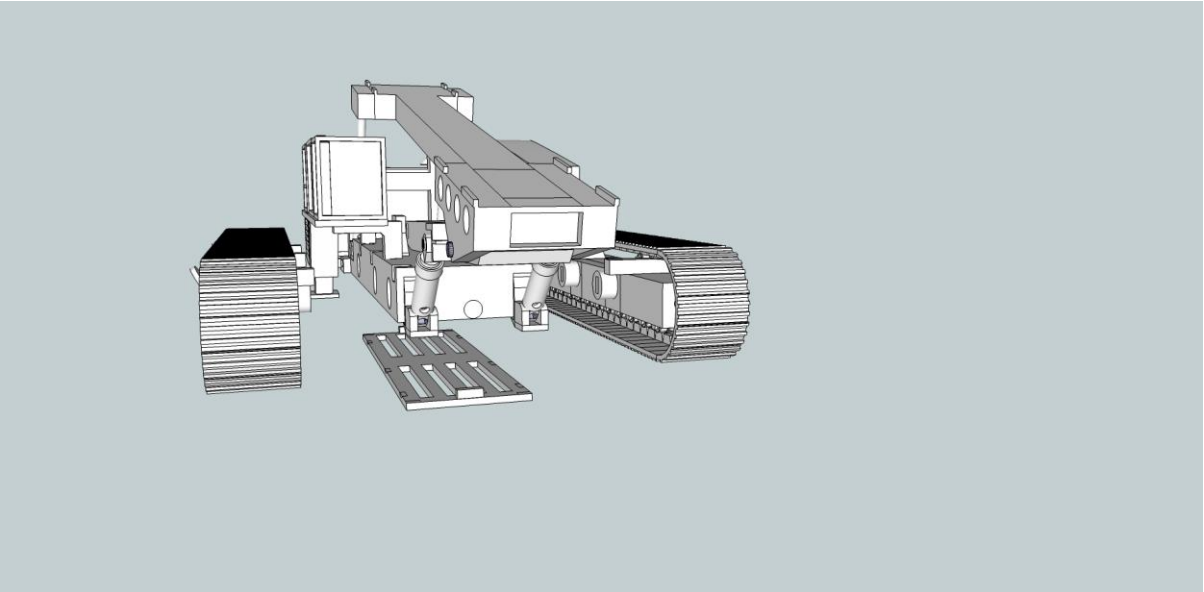
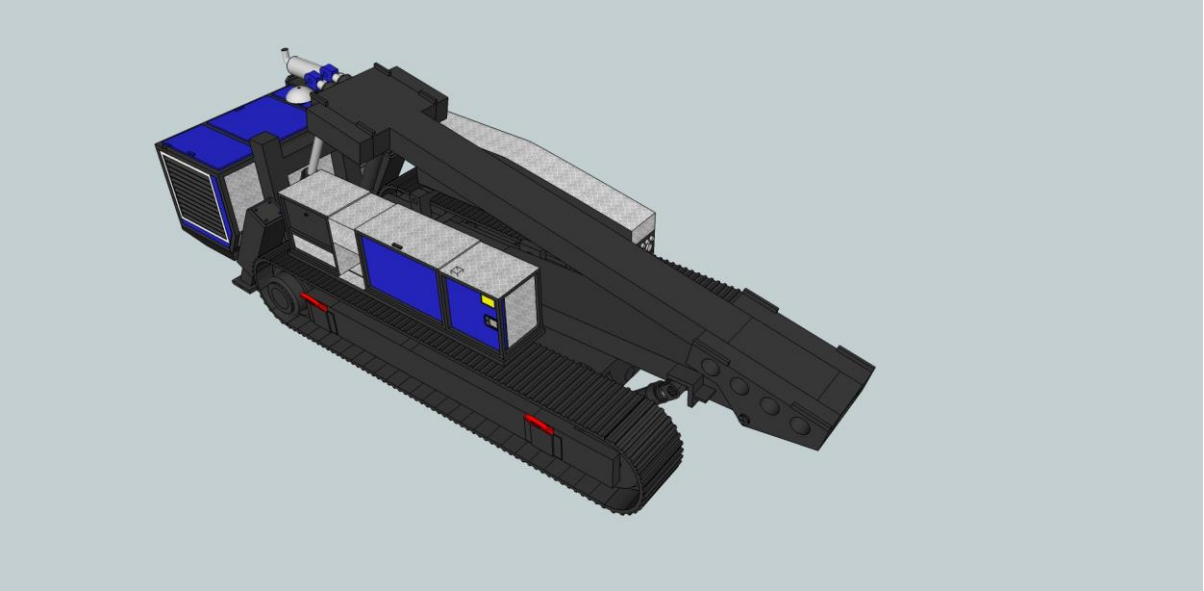
10

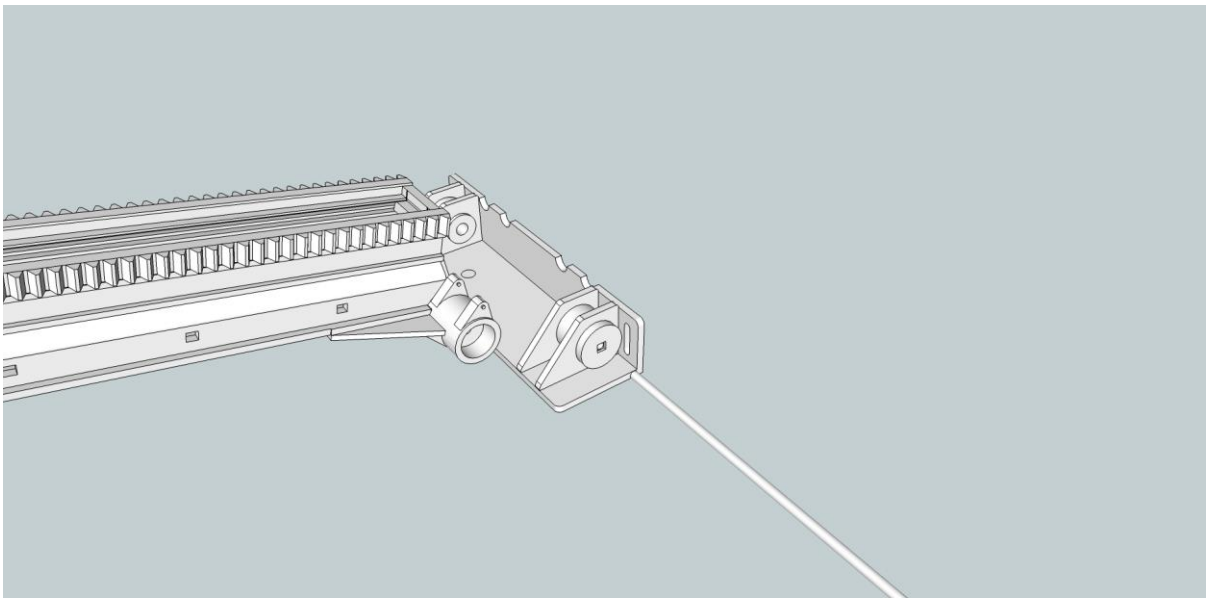
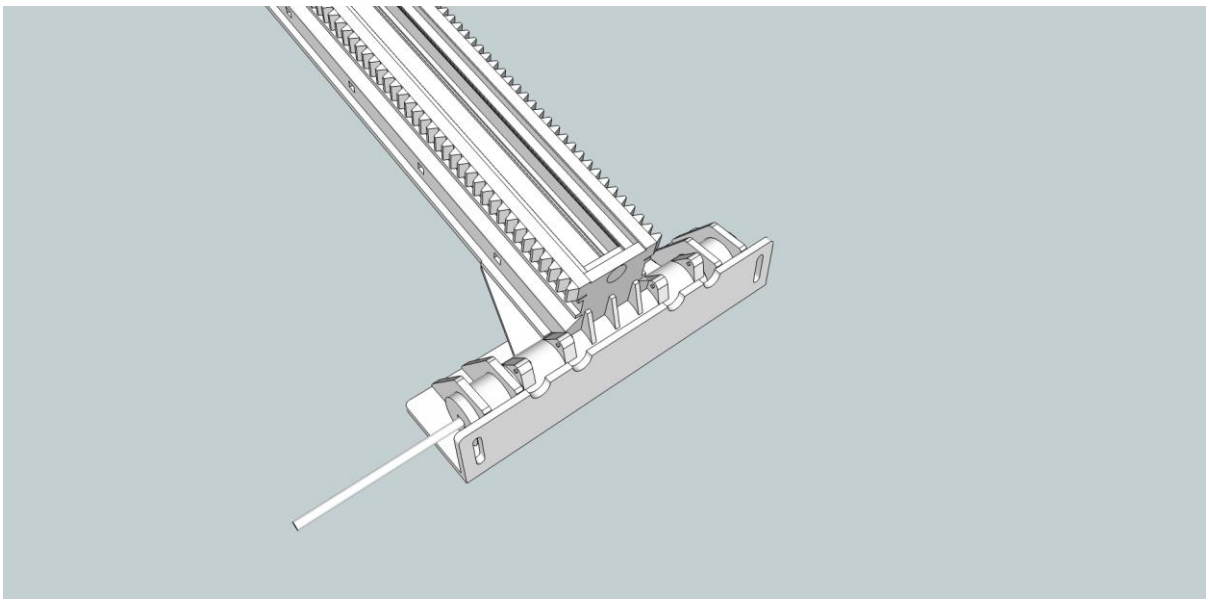
Power Pack
Install part 11 onto bottom of part 10 (glue)
Install vent 40 onto part 10 (glue if needed)
Install parts 58a and 58b onto part 10 (glue)
Install exhaust 25 onto part 10 (glue)
Install filter 28 onto part 10 (glue)

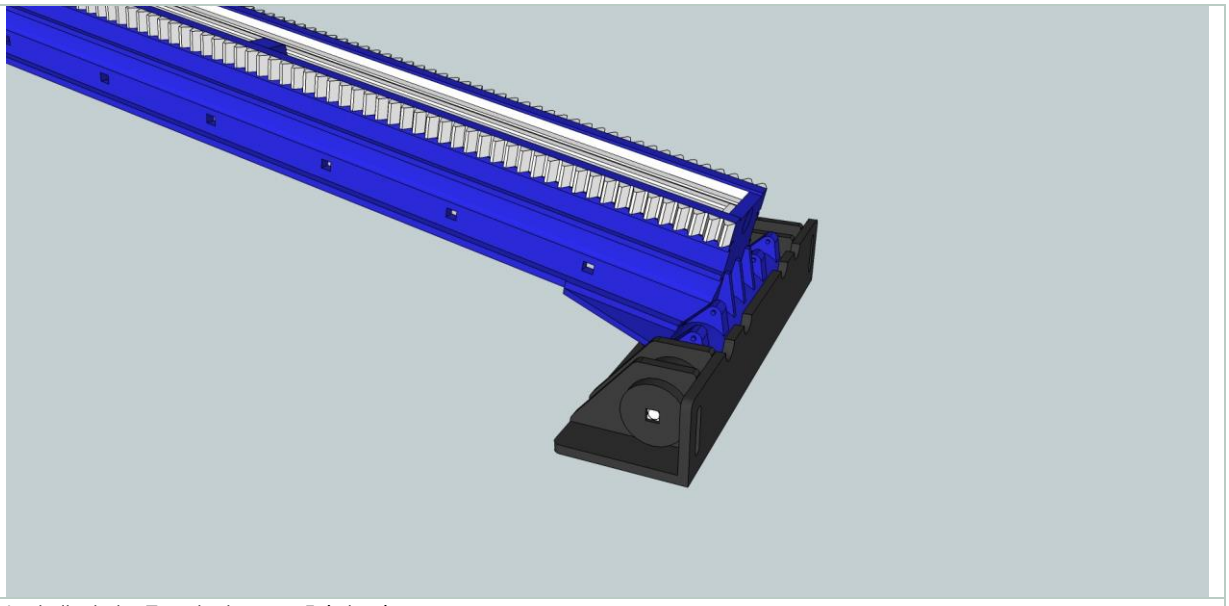


Install power pack onto frame 1 end (optional glue or not glue)



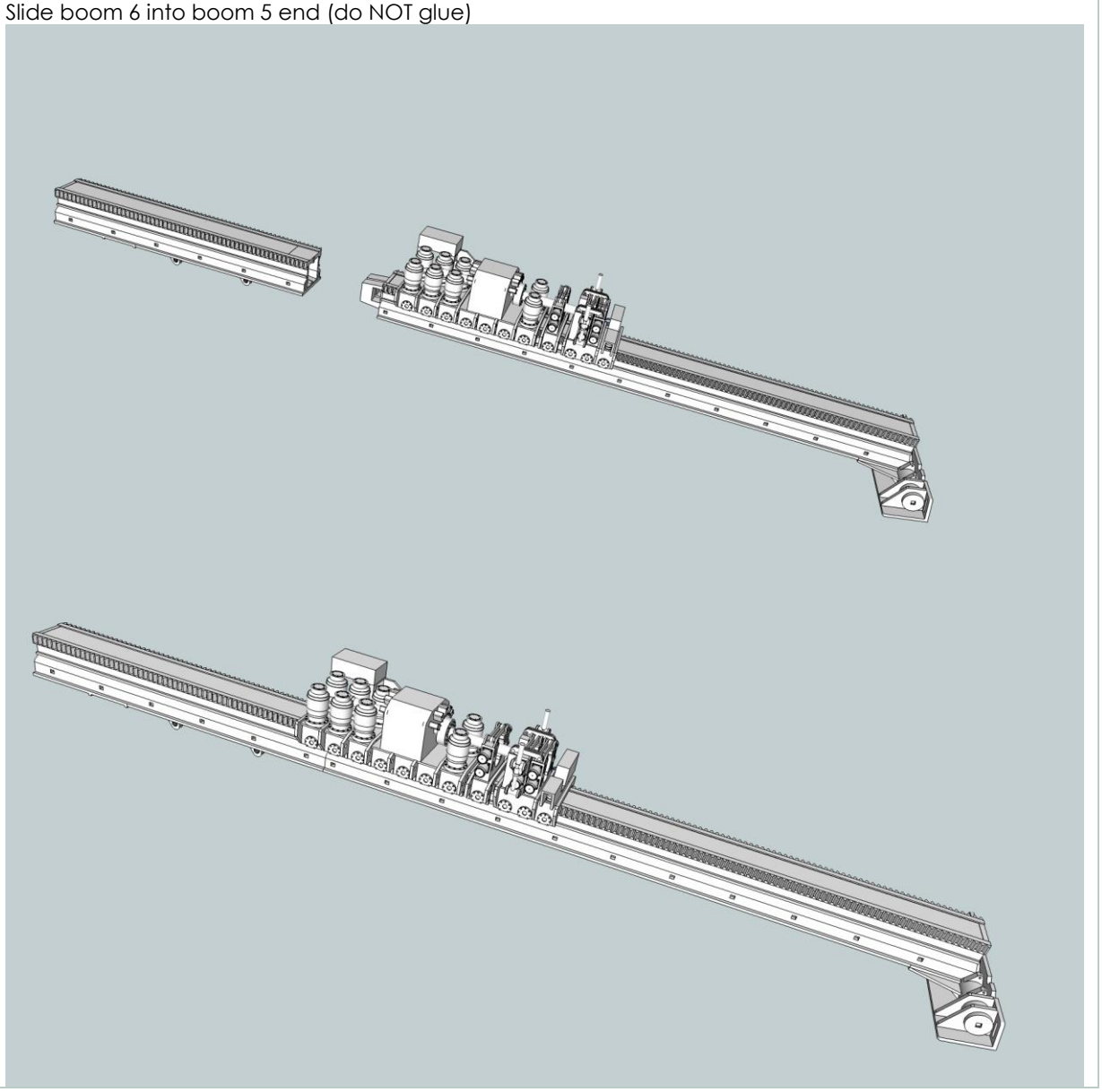
11	Tracks Install the tracks 3 and 4 into frame 1 (glue) -> you might have to remove some of the paint first where the track holders fit into the frame Install bottom plate 2 into frame 1 (glue)  Painted: 
	RIG ASSEMBLY

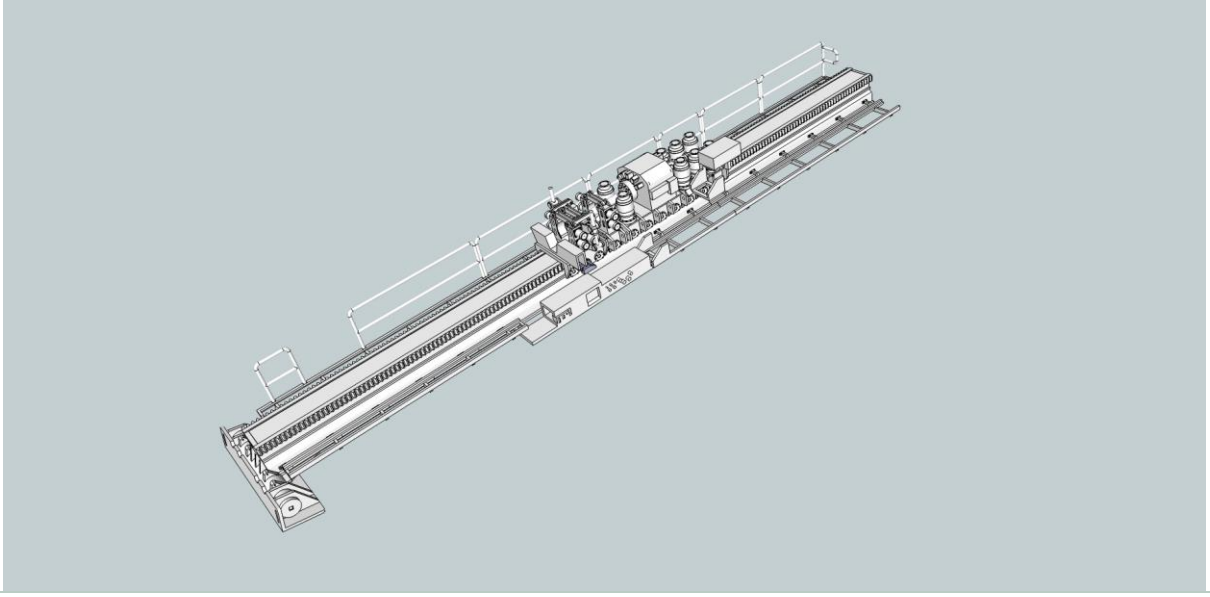
12	Cut the paperclip of 0.8mm diameter to either 1 straight rod of 30 mm, or 2x 10 mm Make sure the openings in part 9 and part 5 are clean and have an opening of 0.8mm (use a drill to verify/clear) Install part 9 onto boom 5 (do NOT glue), install the paperclip rod(s) from the sides (do not glue)  



13

Install plate 7 onto boom 5 (glue)
Install plate 8 onto boom 6 (glue)
Slide part 22, 21 and 20 onto boom 5 (do NOT glue)
Slide boom 6 into boom 5 end (do NOT glue)



14	Railing Press railing gently into the boom; make sure the holes in boom 5 & 6 are open. Install railing 31 onto boom 5 (glue if needed) Install railing 32 onto boom 6 (glue if needed) Install cable guider 55 onto boom 6 (glue if needed) Install control unit 44 onto boom 5 (glue if needed) Install cable guider 53 onto boom 5 (glue if needed) Install cable guider 33 onto boom 5 (glue if needed) 

15

Rig support

Cut the paperclip (diameter 0.8mm) to straight rods of the specified length:

- A: 8x 4 mm
- B: 1x 8 mm

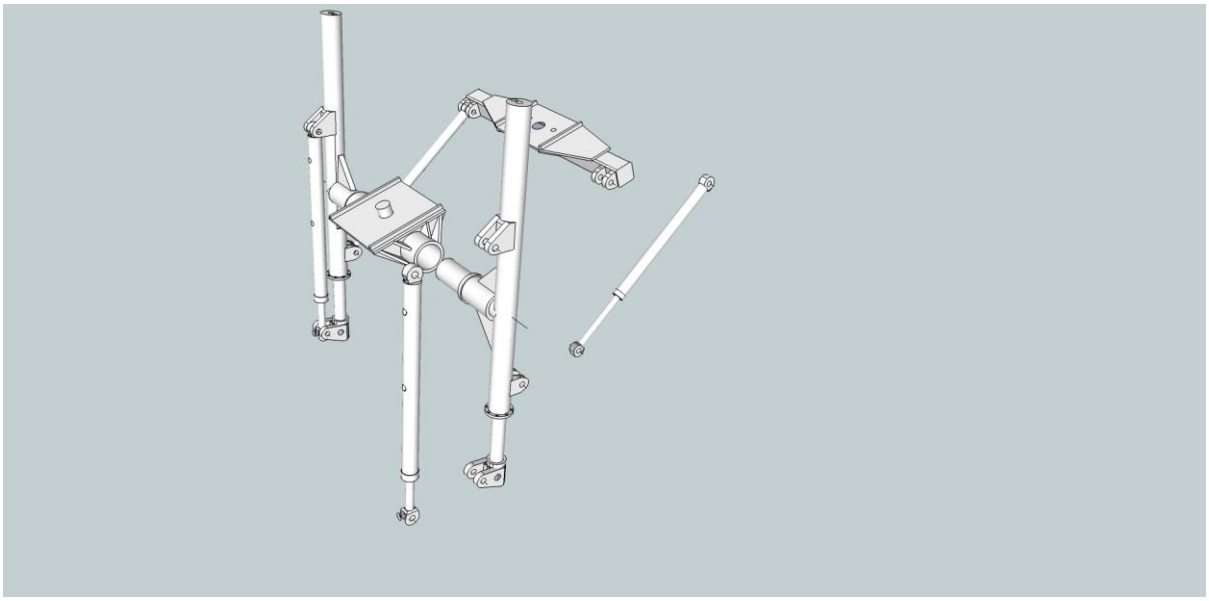
Make sure all openings in parts 23, 26, 27, 50, 51, 52, 54, 59, 60 are clean and have an opening of 0.8mm (use a drill to verify/clear)

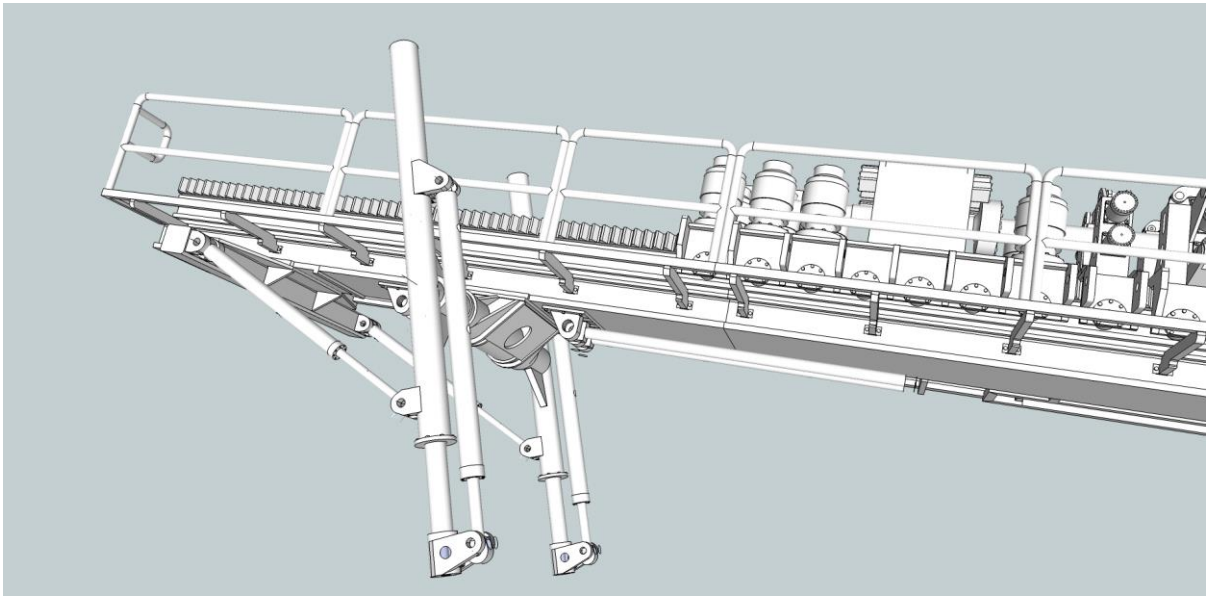
Pay attention to the orientation of the parts!

Install piston holder part 60 onto part 43, using 2x rod A (do NOT glue)
Install piston holder part 51 onto parts 26 & 27, using 2x rod A (do NOT glue)
Install pistons part 59 onto parts 26 & 27, using 2x rod A (do NOT glue)
Install piston parts 52 and 50 onto part 23, using 2x rod A (do NOT glue)
Slide parts 26 & 27 onto part 34 (do NOT glue)
Slide all pistons in their piston holders (do NOT glue)

Click parts 34 and 43 onto boom 5 (do NOT glue)

Connect pistons 54 to boom 5 via rod B (do NOT glue)

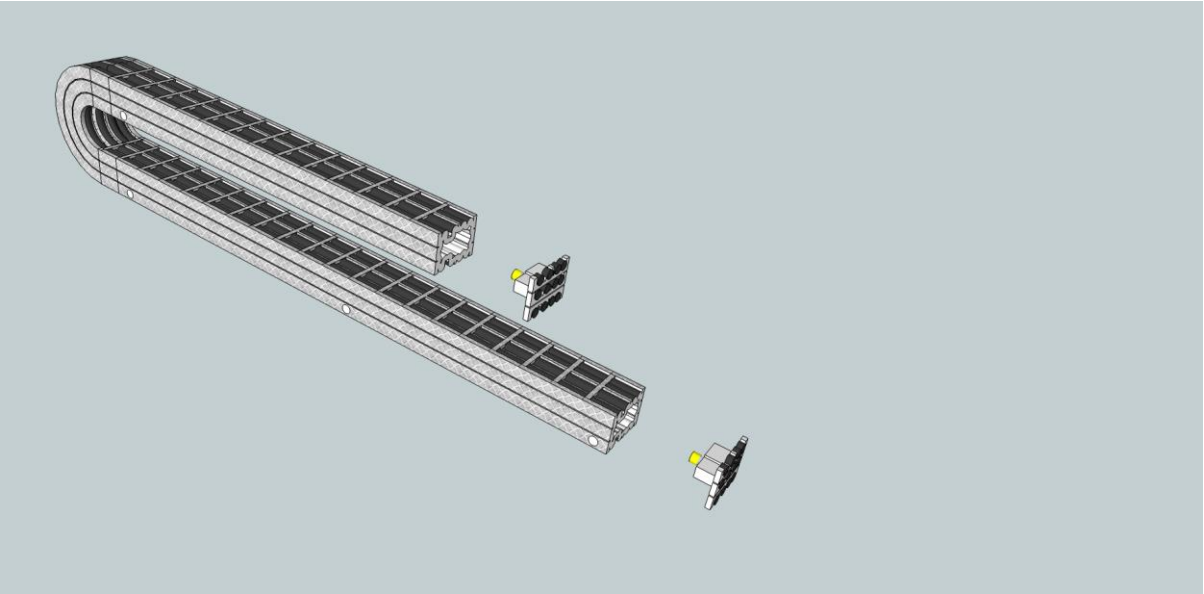




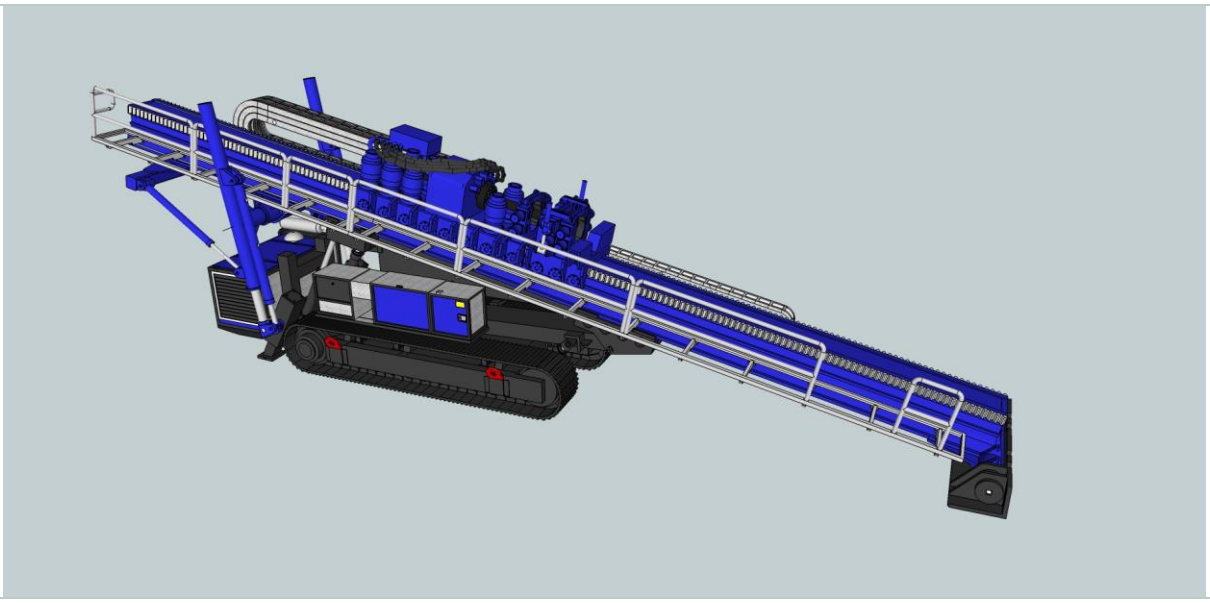
16

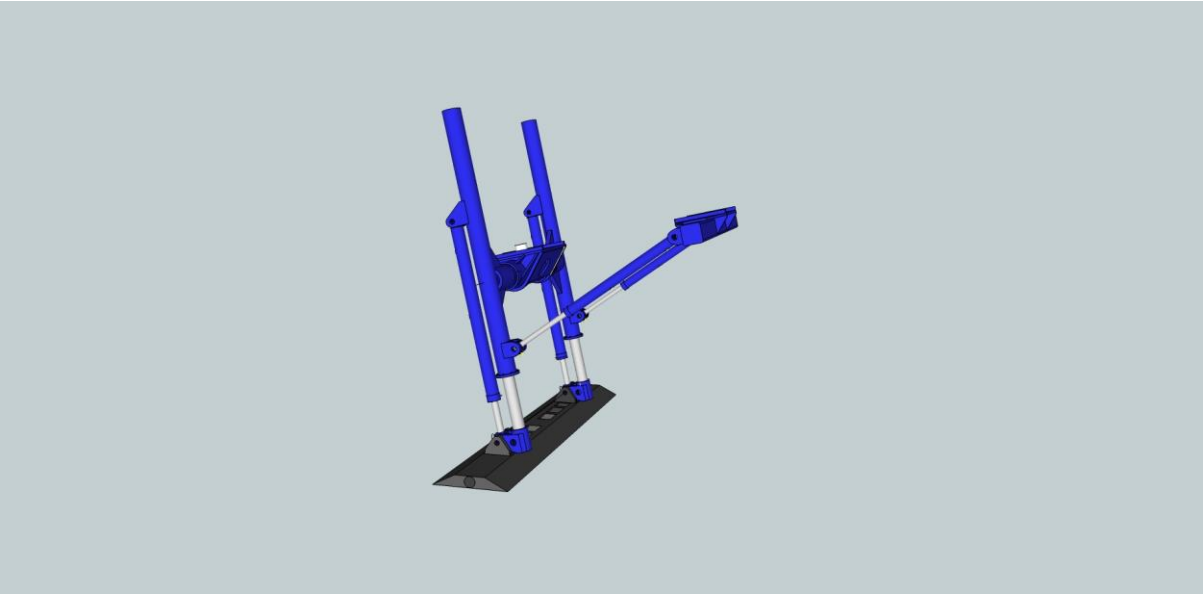
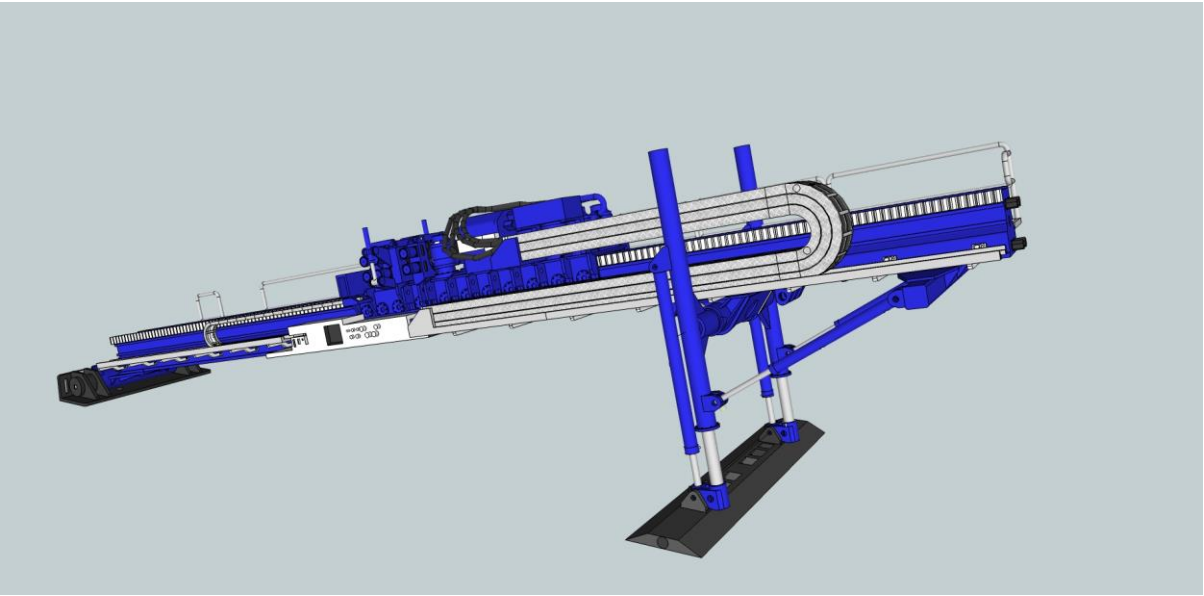
Cable Booms
These should not be glued, but separately laid on the cable guiders. 3 are provided, to depict different positions of the drilling engine.

Glue the cable covers 38 onto the end of cable booms 14-16
Choose the relevant booms (14-16 and 17-19) based on the position of your drill engine 20 on the boom.

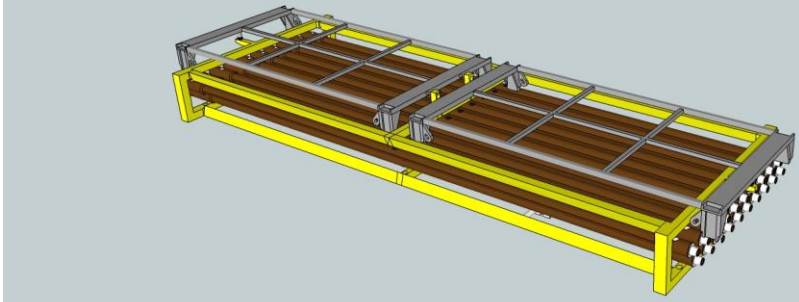


Install part 24 (slurry pipes) onto part 20 (optional glue or not glue)
Painted:



18	The HDD rig can be used with and without crawler; refer to pictures. In case of usage without crawler, you need to install part 23 onto parts 52. Cut the paperclip of 0.8mm diameter to 2 straight rods of 6 mm each. Make sure the openings in part 23 and parts 52 are clean and have an opening of 0.8mm (use a drill to verify/clear)  
	Decals Decals to simulate the walking grid at the side of the drill boom. 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.
	Apply final touch paint –up. Spray paint all parts with clean lacquer (protective layer).

Drilling pipes and storage racks can be obtained from a separate set (product number XXX)
Also holders, to hold the pipe in place, are provided that fit into parts 21 and 22.



ADDITIONAL INFORMATION

PRODUCT PAINTING EXAMPLES

Example with colors applied

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
Subscribe to our newsletter and/or product updates!	

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'