

Assembly Instructions

Liebherr Excavator

By Retunga

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2: Few Notes

BEFORE YOU BEGIN:

Look at the Assembly pictures if available. They show how to put the model together in the order that works best.

Assembly should take at least twice as long as you think. If you build it faster (you can) you're rushing the build and your model will look better if you slow down. It always does. The best thing to do is read these instructions first then start building the model.

SUPPLIES NEEDED:

Sheets of cardstock ISO A4 (297mmx210mm) (>80 g/mm. bond) -- may be labelled as cover weight, cover stock, Cardstock, etc. It is readily available at any office supply store, and it runs though your computer printer without issue, however you should check your printer settings as it probably has a 'thick paper type' that will work better.

Sturdy ruler, Craft knife (e.g. X-Acto® or equivalent) and/or scissors, I prefer the break-away blade box cutter style. You always should work with a sharp blade.

White PVA glue, and use it very sparingly!!!! Always apply glue to paper with a toothpick or unrolled paper clip, never directly from the bottle.

Markers to colour the edges of your model. I use a grey mostly but you can colour match .any extra tools to roll and form paper is also useful.

Please refer to the list of tools that should be a part of any paper modelling, in this model one may not use all of the tools shown in the tools document as a separate document with photos of the tools in question.

NOTES:

Avoid cutting out parts before you're ready to assemble that particular portion of the model -- whole sheets are harder to lose than little tiny parts.

Score along folding lines before cutting out shapes. To score parts run your craft knife VERY LIGHTLY over the line to be scored, one can also use scoring tools to help with a more consistent mark.

Cut out inner shapes (like the pass through holes for the solar array arms) before cutting the outer edge.

Remember there is no rush to complete the model you are the only one that can set the pace and how good you want the model to turn out.

PRINTING AND GENERAL INSTRUCTIONS:

Print out the model parts on cardstock.

Keep everything at the same scale, i.e., print at 100%, it is not recommended to print as 'shrink to fit' or the parts won't go together correctly.

Make sure the cardstock is compatible with your printer -- office supply stores may have several different types, depending on whether you are using a laser or inkjet printer.

If the printer won't accept the cardstock (paper jams or other mishaps during printing), print on regular paper and glue to cardstock or very thin cardboard -- spray glue is ideal for this, as other types may not hold correctly, and might cause the paper to buckle.

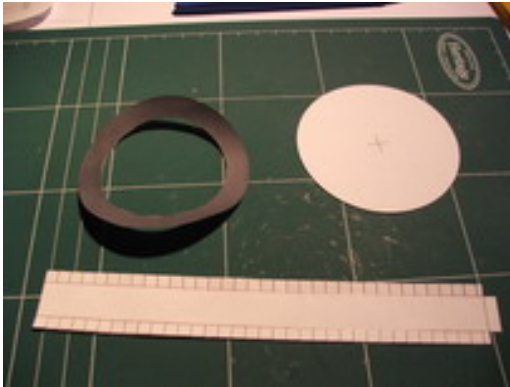
Score along all folding lines (centre of panels, interior lines on tabs, etc.)

Have fun with the model! Don't be afraid to try building the shape. In the worst case, you'll have to reprint the sheet and try again!

SAFETY!!!!

Be sure you're working with sharp knives, dull knives are unpredictable; Work on a flat, stable surface, and keep body parts out of the way of the knife!

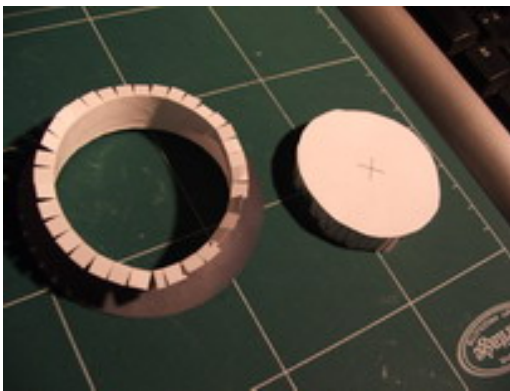
3: Rotary Assembly



Cut items 1, 2, 3.



Roll item 3 and glue, and then attach item 2.



Cut Item 10.



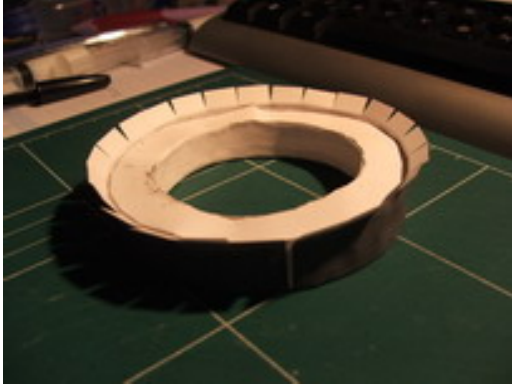
Attach item 10 in the to rotary assembly
Make sure that the top of rotary assembly and item 10 are level, glue item 1 at the bottom of rotary assembly.



Cut Item 7



Roll and fold as above, take the inner and glue it on the inner side, work very carefully as this part needs to move freely around item 3.

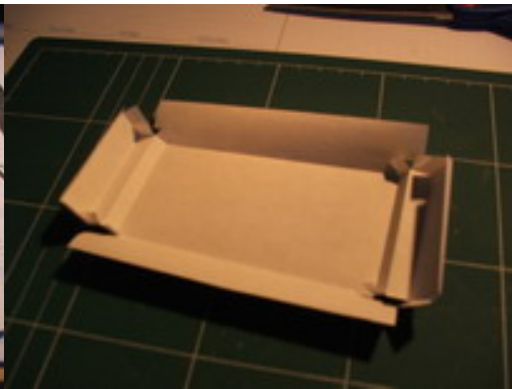


Cut and glue item 5 around the spacer ring.

4: Chassis Assembly



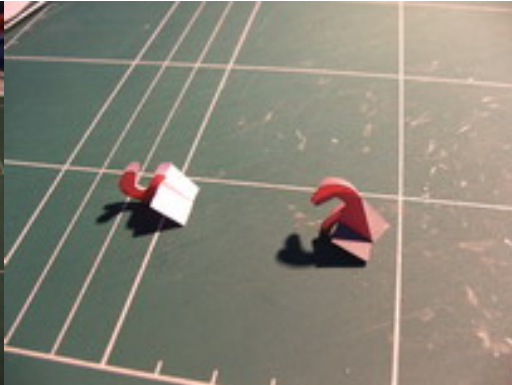
Cut out items 11, 12, 13, 14, 15, 16, 17.



Bend and fold item 12 as above.



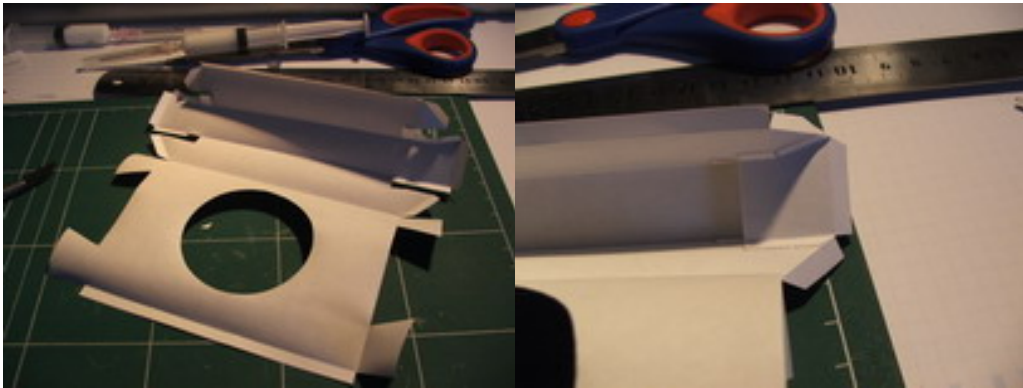
Glue all parts together as above.



Cut and glue item 16 hocks as above.
2 off required

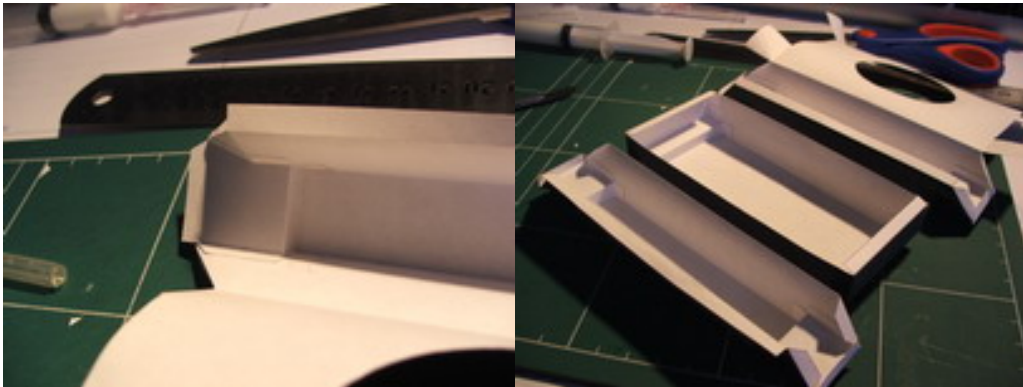


Cut and fold item 13 as above, work carefully.

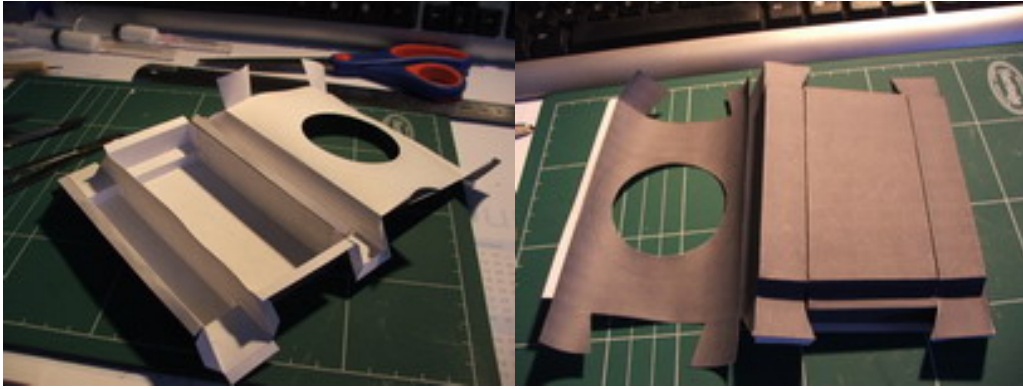


Cut and fold item 11 as above.

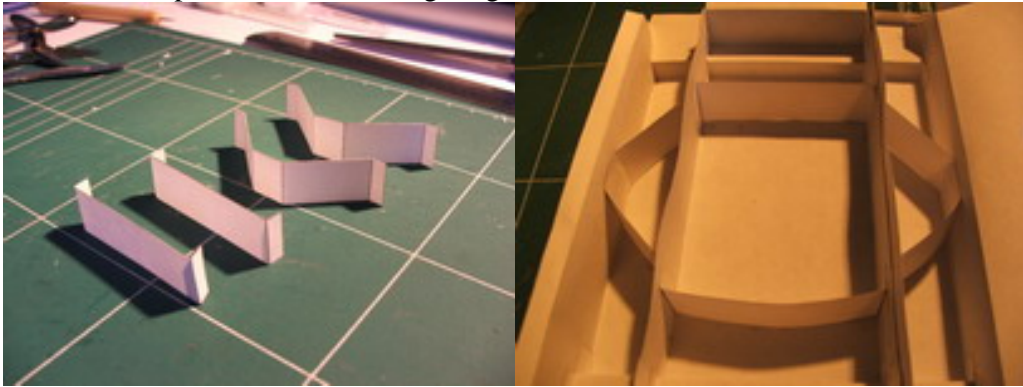
Glue the outer faces as shown, this part
This similar to item 13.



Bring items 11, 12 and 13 together as
Shown with item 13 make sure that the
flap is on the outside.

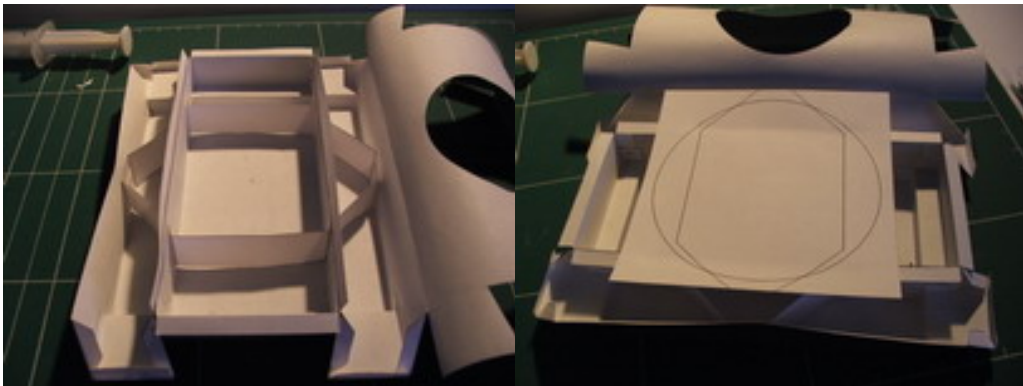


Make sure all parts are level when gluing.



Cut and fold items 14 (2), 15 (2)

On the inside of chassis body, glue items 14 and 15 as above.



When items 14 and 15 are glued fold the Inner tabs in for the gluing of item 17.

Cut and glue item 17 as above.

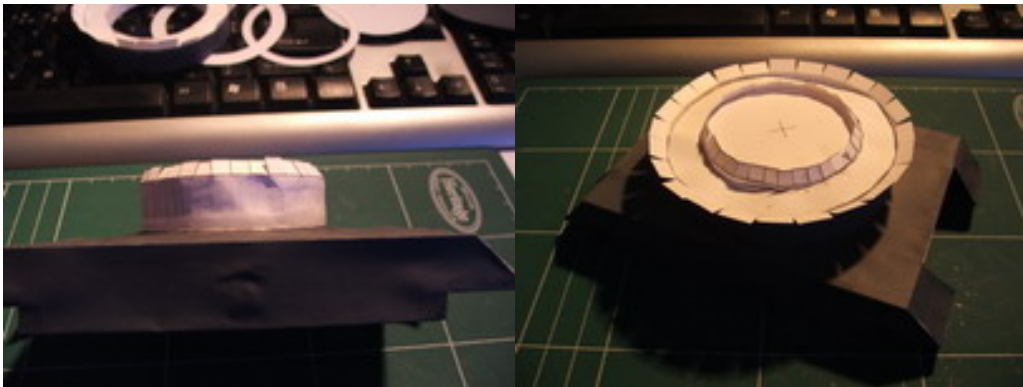
5: Rotary and Chassis Assembly



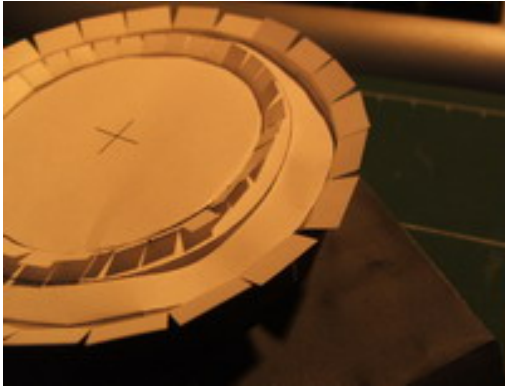
Insert the rotary part made in the rotary assembly and glue it to Item 11 as above.



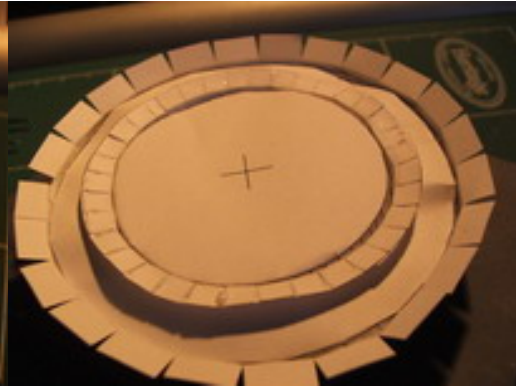
Add glue as above to the chassis to seal the assembly up as above.



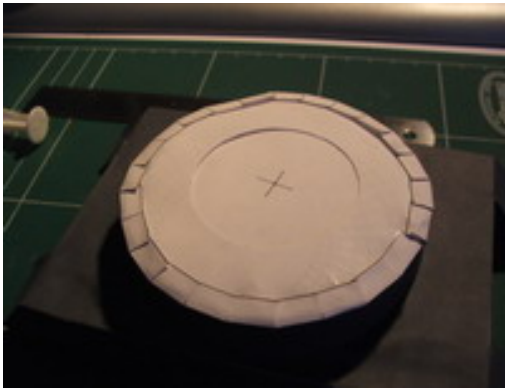
Locate item 7 spacer on top of the chassis and make sure that the part moves freely as above.



Cut and insert item 8 as above.



Glue item 8 to the inner rotary part and then glue item 4 on top of item 8.



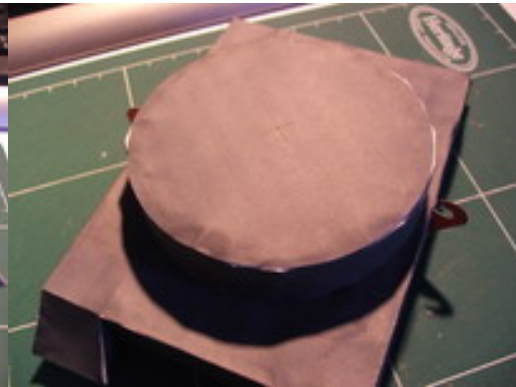
Cut and insert item 9 around the outer spacer as above.



Cut and glue item 6 as above.

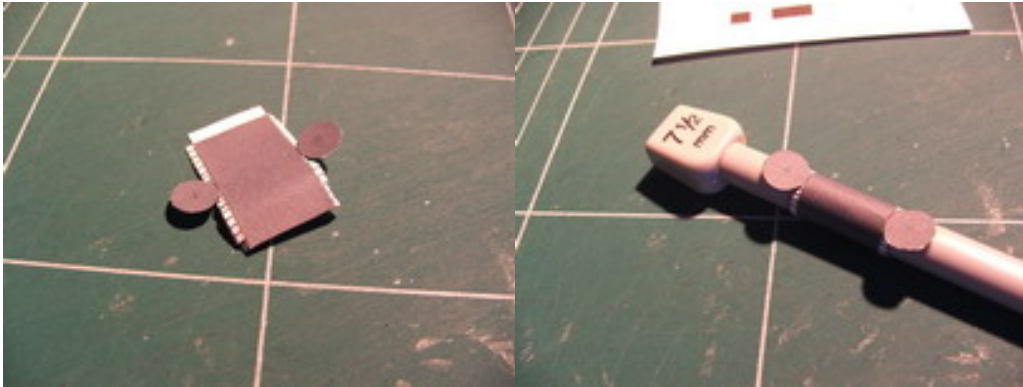


Finished assembly of the rotary to chassis.



Glue items 16 to the of the chassis as Above.

6: Tracks Assembly

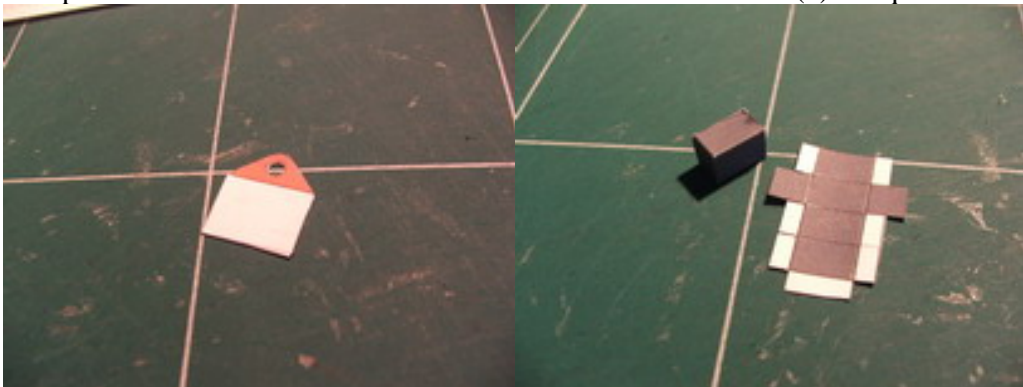


Cut item 28 (4), to assemble form the part around a 7 ½ mm knitting needle and glue to make a cylinder. 4 required.



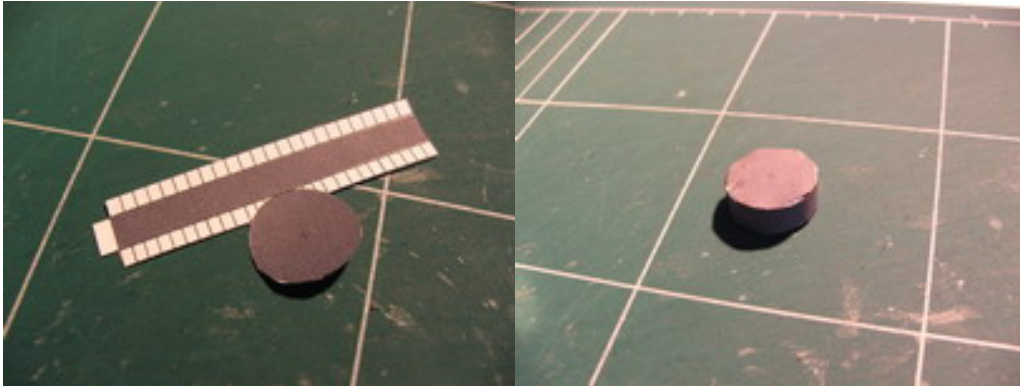
Completed item 28.

Cut and fold item 31(2) 2 required.



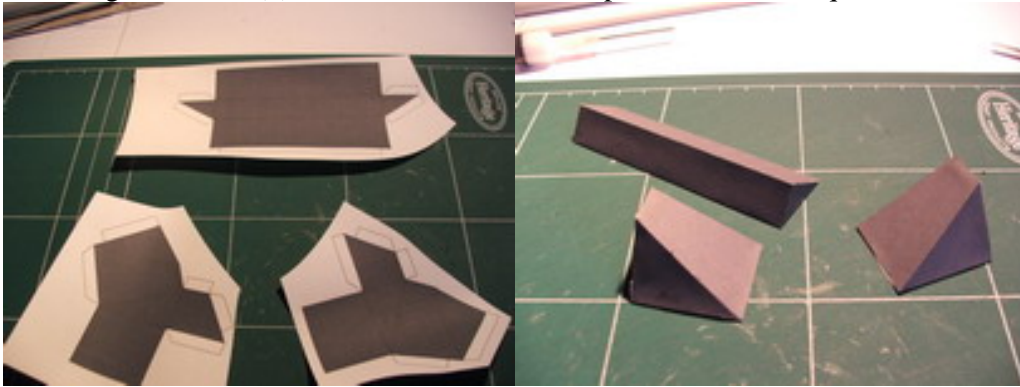
Glue item 31 as above.

Cut and glue item 27(4) into blocks as Above. 4 required.

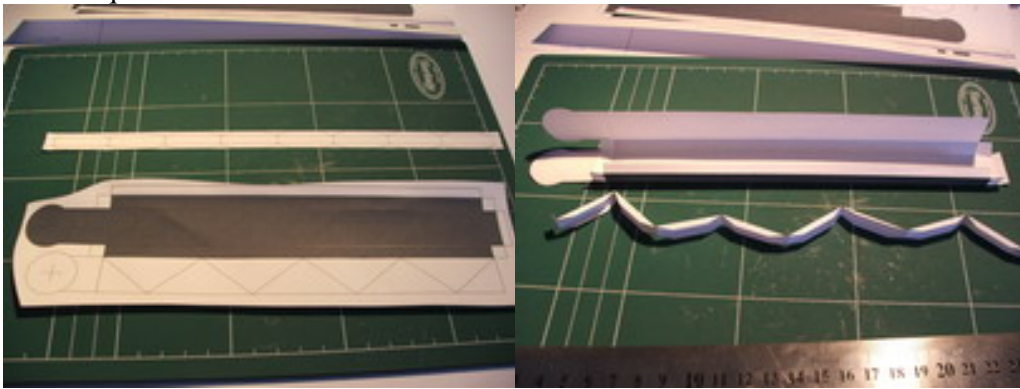


Cut and glue item 26(2) as above.

Complete item 26. 2 required.



Cut and glue items 29(2), 30(2), 31(2) as above.
2 sets required.



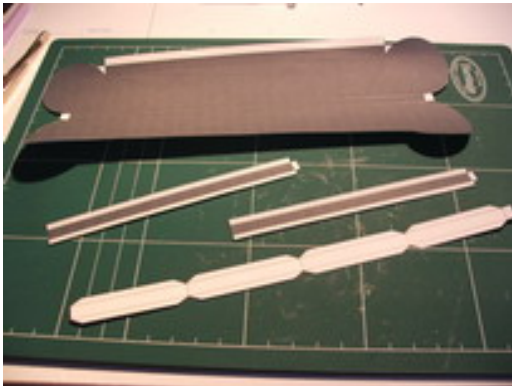
Cut and fold item 21(2) and 22(2). 2 required.



Glue item 21 as above and leave it open so that item 22 can be inserted as above.



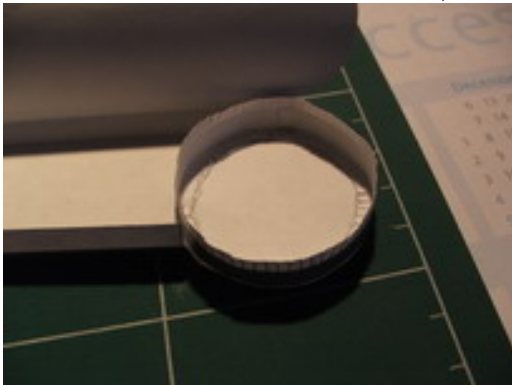
Once item 22 is glued in place glue item 21 closed.



Cut and fold items 18(2), 19(4), 20(2) as above. 2 required.



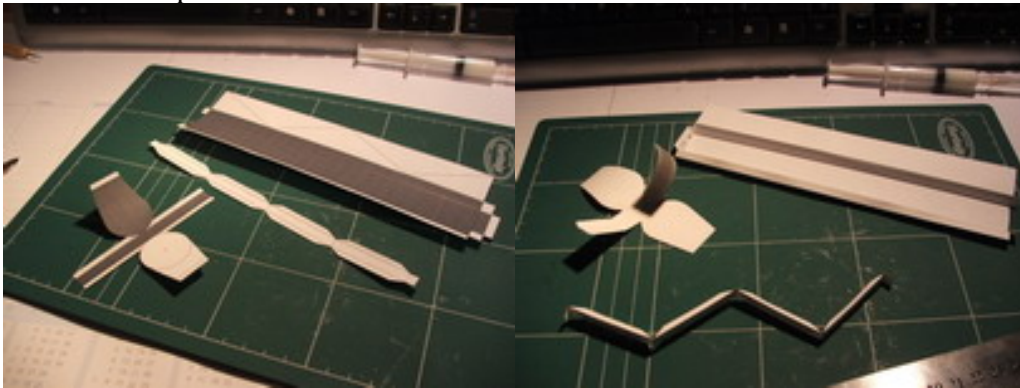
Glue item 19 on to item 18 as above, be sure to glue it clear fully.



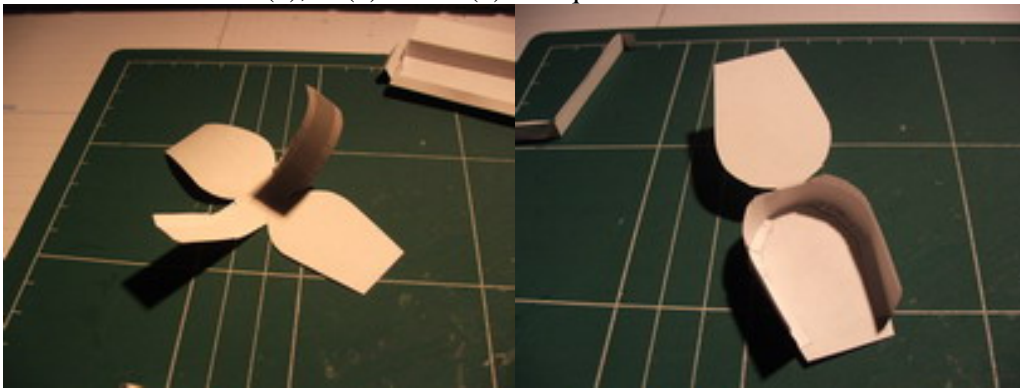
Glue item 20 into item 18 as above.



Once items 19 and 20 are glued in place,
Seal item 18 up.



Cut and fold items 23(2), 24(2) and 25(2). 2 required.



Formed item 24 above.

Glue the one half of item 24 as above.

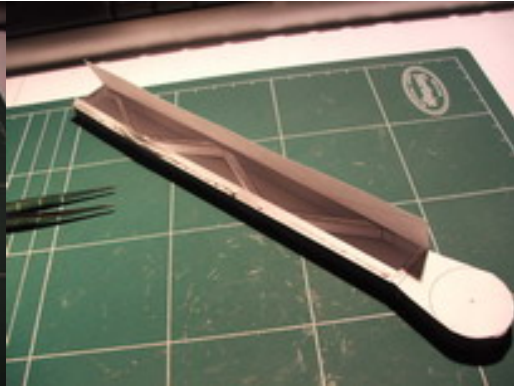


Glue item 23 as above.

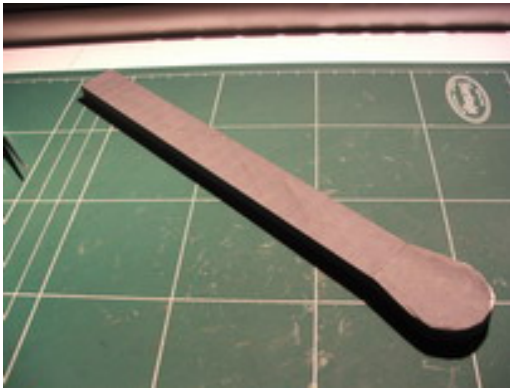
Glue item 23 and 24 as above.



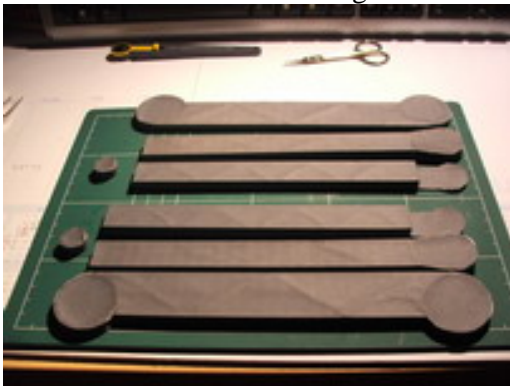
Glue item 25 as above.



Seal item 24 after item 25 is glued in place.



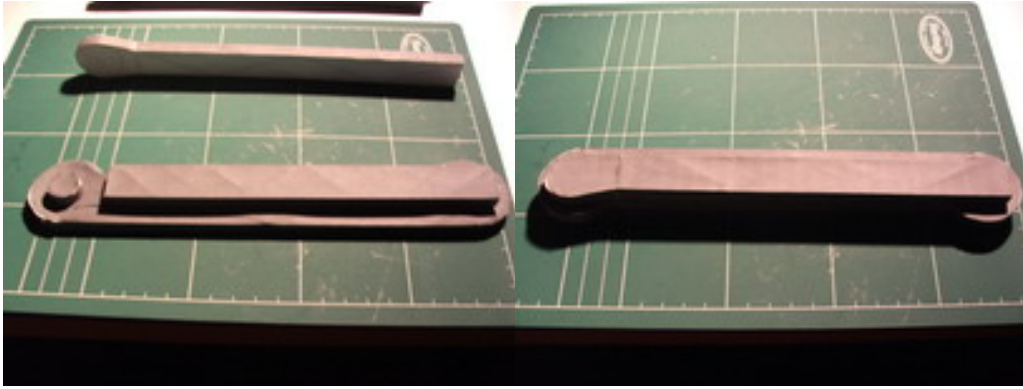
Seal item 23 once item 24 is glued closed.



For the assembly of the tracks, lay the parts out as above to ensure that the correct parts are assembled together.



assemble track 1 as above, take your time with this assembly.



Add item 26 to item 21.

Then add item 18 to the assembly.

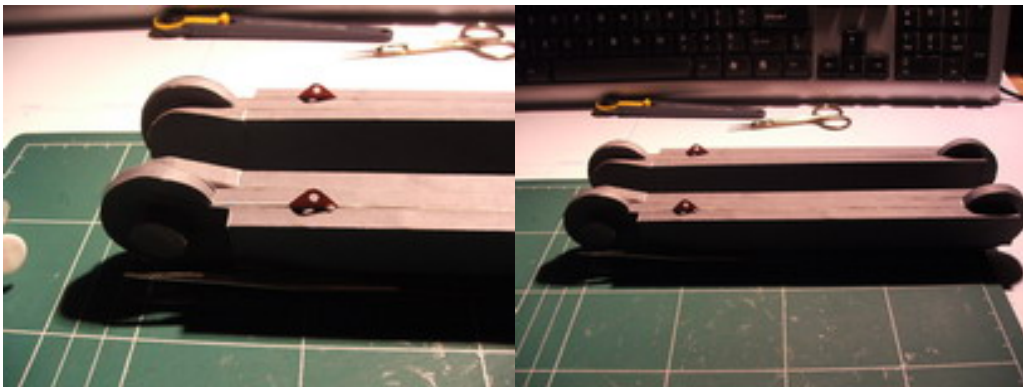


Track 1 complete.

Track 2 assembly start. Again take your time with the assembly

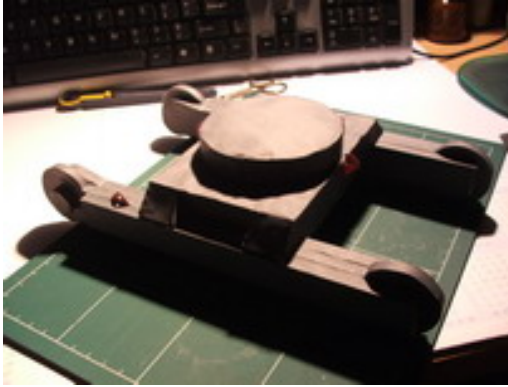


Add item 26 to item 21.

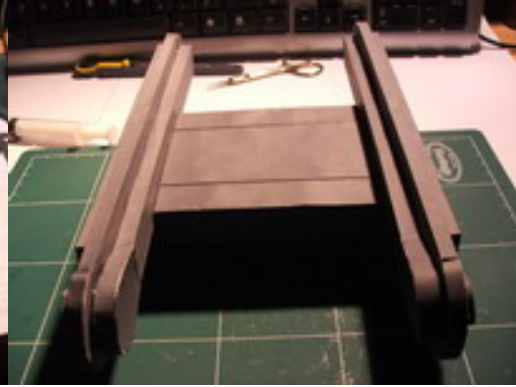


While assembling the track insert items 31 to the assembly.

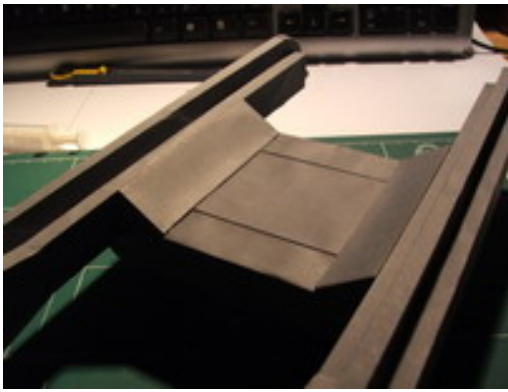
Completed tracks.



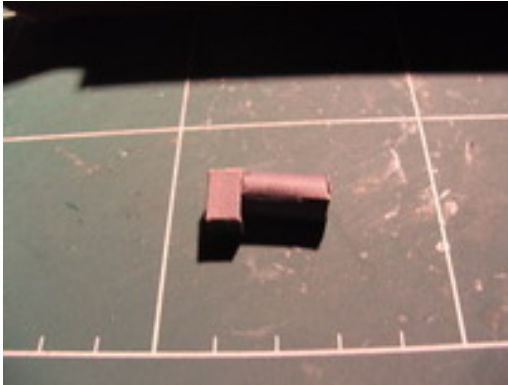
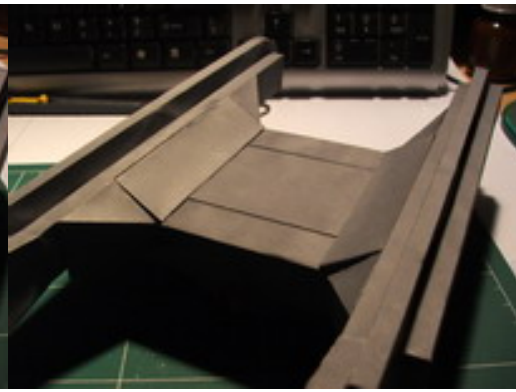
Assemble the tracks to the chassis as above.



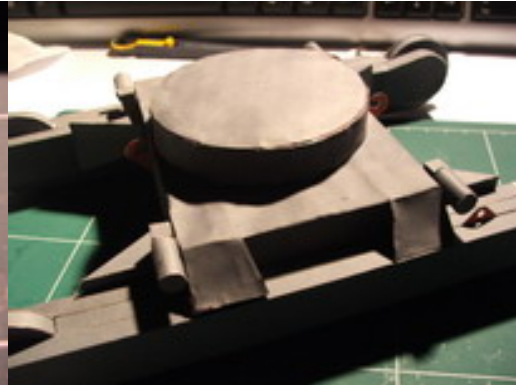
Bottom view of the track assembly.



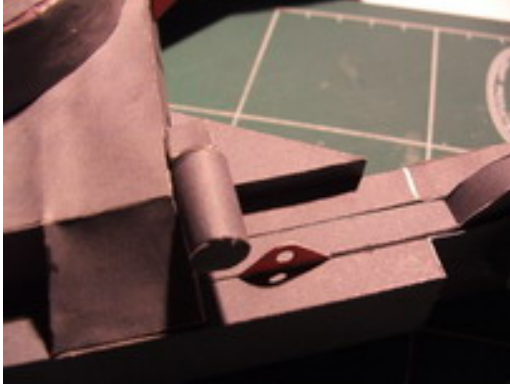
Assemble items 29, 30 and 31 as above.



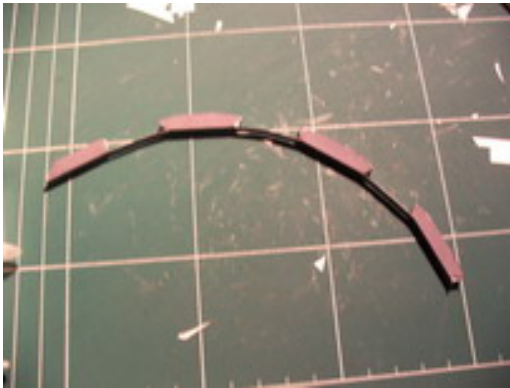
Assemble items 27 and 28 as above.
4 required.



As assemble 27 and 28 to the chassis
As above.



Cut and fold items 35(2) and 36(2).
2 required.



Glue items 35 and 36 as above.



Glue items 35 and 36 to the tracks as
Above.

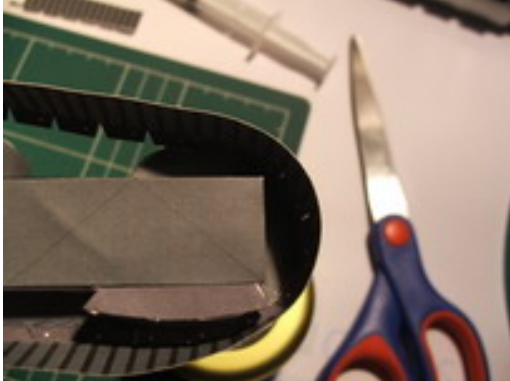
7: Drive Chain Assembly



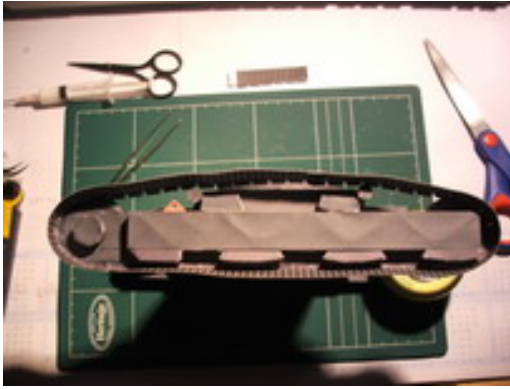
Cut out items 32, 33, 34 make sure that you keep the same numbers together. Glue all of the same number parts together as a long piece before continuing to the next step. Glue the bottom edge and place item 32 as shown above. Make sure that it is flush on the bottom edge, run glue along the outer edge as to glue the chain sides.



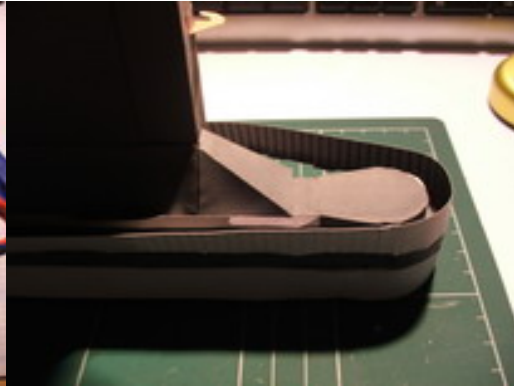
Place the chain as above on the edges of the chassis, place the part carefully.



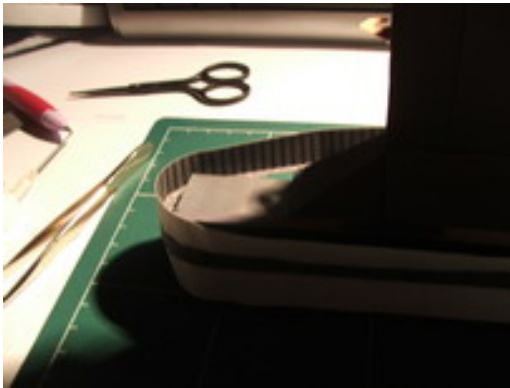
Once both sides are complete cut and Join the two halves together as above.



Complete outer chain assembled.



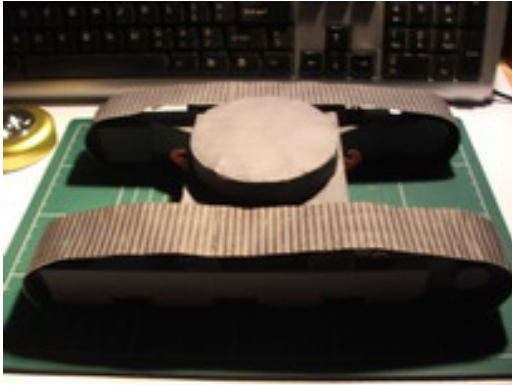
Repeat the above steps to place item 34 the inner chain in the same manner.



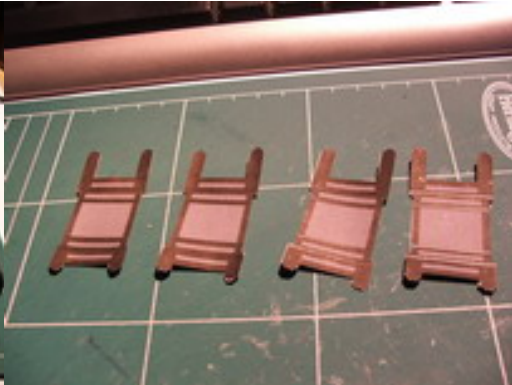
Place item 33 over items 32 and 34 as above to complete the chain assembly.



The completed chain assembly on one Side.



Completed chain assembly on both sides.

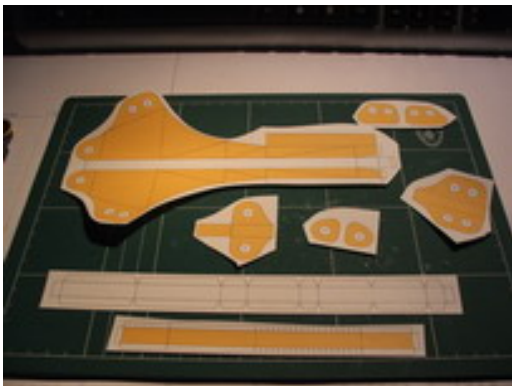


Cut and fold items 165 (4) as above.

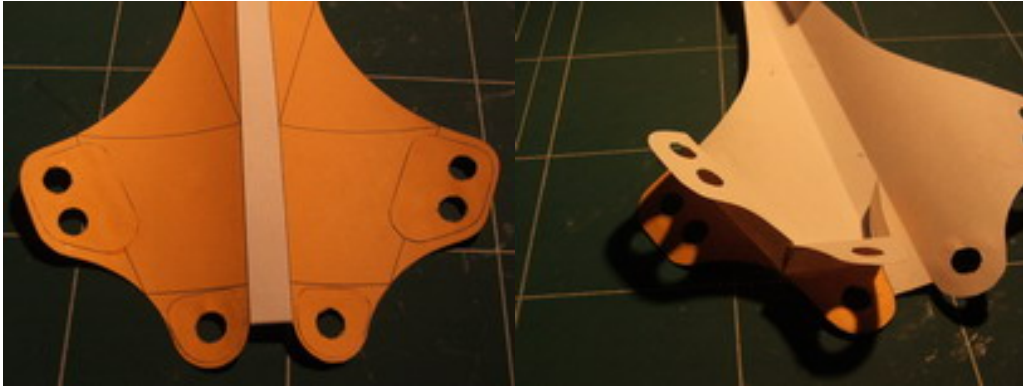


Glue items 165 to chassis as shown above on both sides,

8: Backbone Assembly



Cut and Fold parts 37(2), 38(2), 39(4), 40(2), 41(4), 42(2) and 43(2) as above.
Note, when cutting the holes in the parts that need it, cut the hole first then the outside pattern.



Glue items 39 and 41 on top of item 42 as above.

Glue items 41 and 43 as above.



Glue item 38 as above.

Glue item 37 as above.



Close the assembly up as be sure to make it a straight as possible.

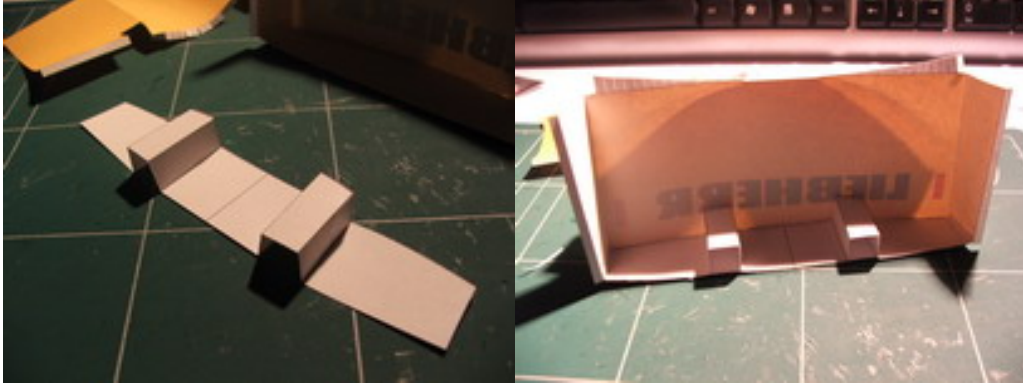


Completed pair of back bones as above.

9: Counter Weight Assembly

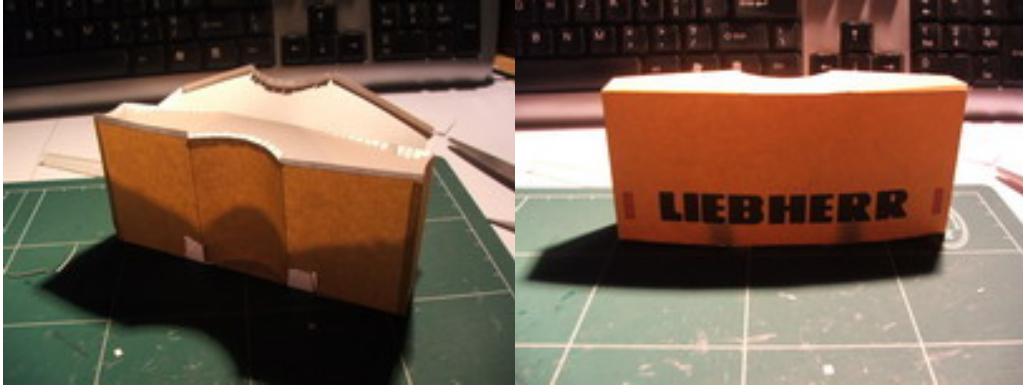


Cut and fold items 45, 46 and 47 as above. Glue sides of item 44 together as shown.



Fold item 46 as above.

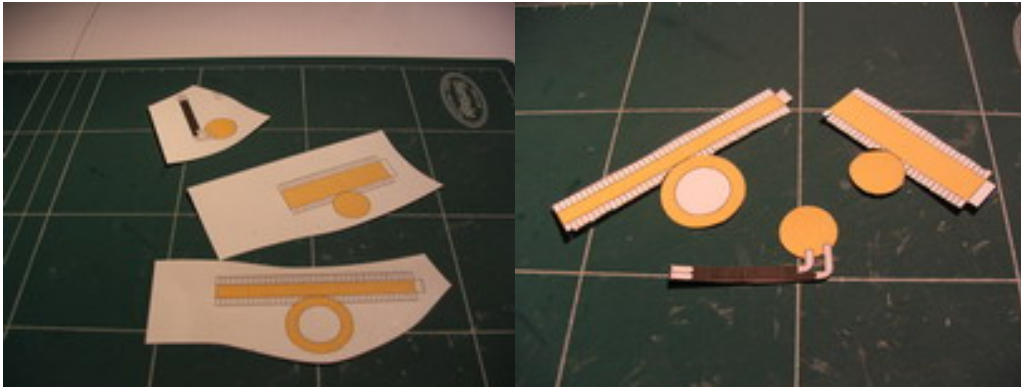
Glue item 46 to item 44 as above.



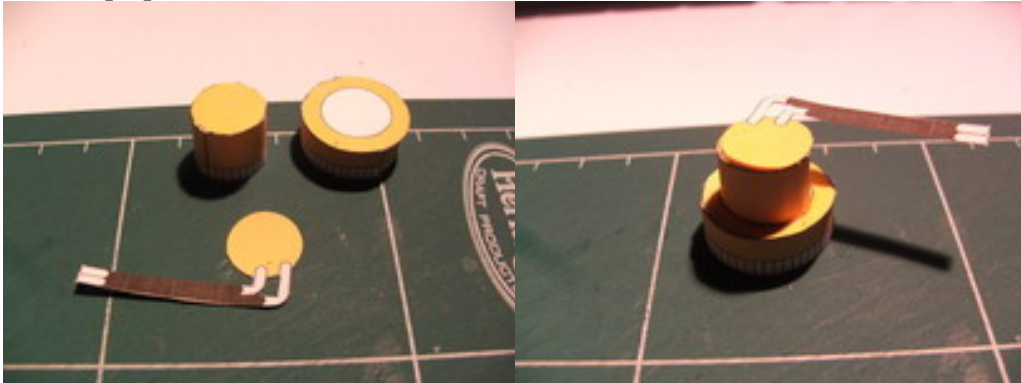
Fold and glue item 45 as above, make sure That the back bone will fit inside the Openings for later assembly.

completed counter weight assembly, do not glue the counter weight completely closed yet.

10: Hydro block



Cut and prepare items 55, 56 and 57 as above.



Roll and glue items 55 and 57 as above.

Glue items 55, 56 and 57 as above.

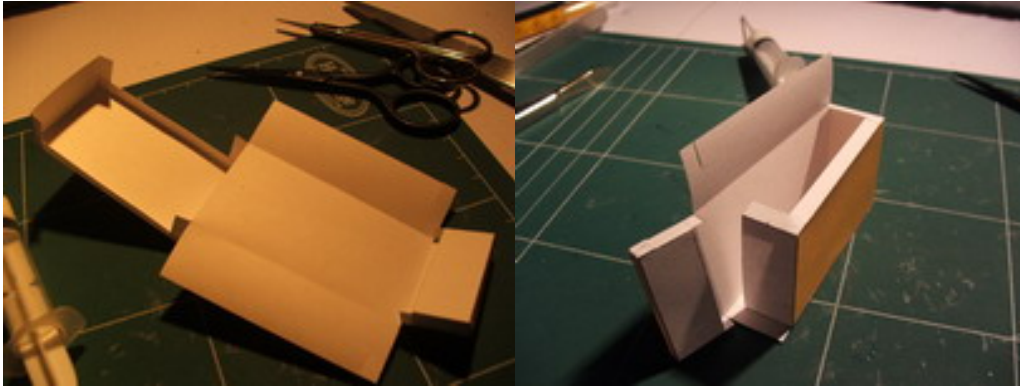


Cut and fold item 126 as above.

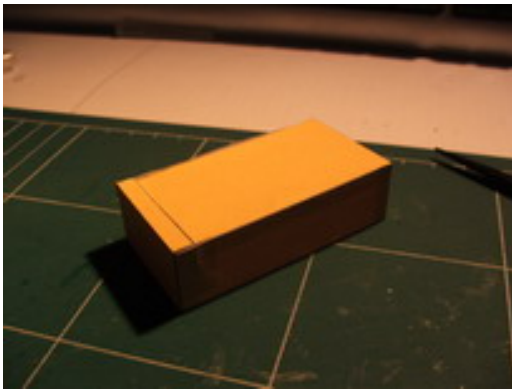


Glue the small side of the block together

Glue the opposite side as above.



Fold and glue the box together, make sure that the slot is cut in the paper as it will required later for assembly and that the two ends of the are not glued at all facing towards the inside.

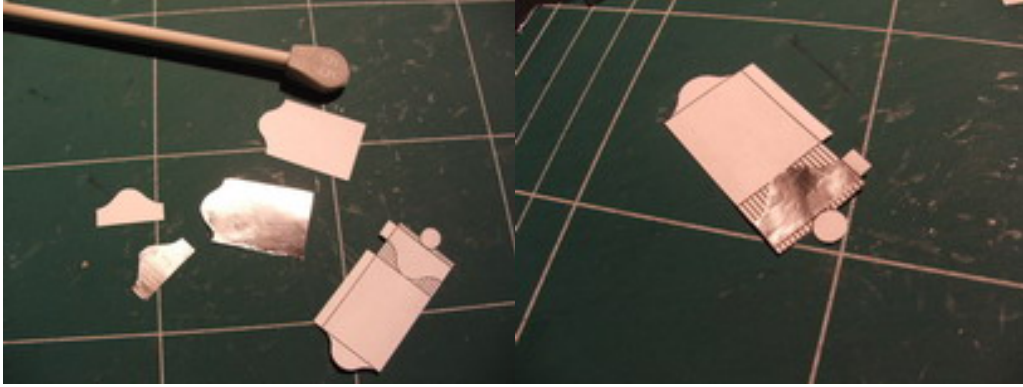


Complete item 126.

11: Exhaust

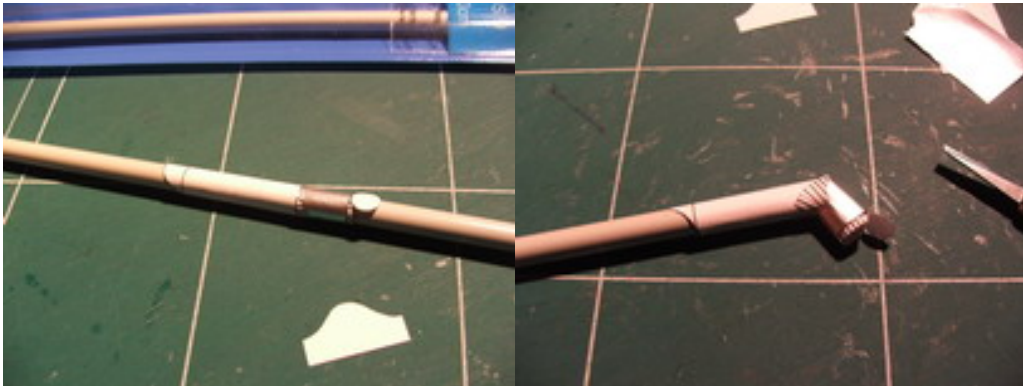


Cut carefully items 127, 129, 130 and 131 out, also for better metal look get some thin house hold thin foil as above.



Use items 130 and 131 as the templates to Cut the tin foil to the correct size.

Glue the small tin foil piece to the item 129 as above.



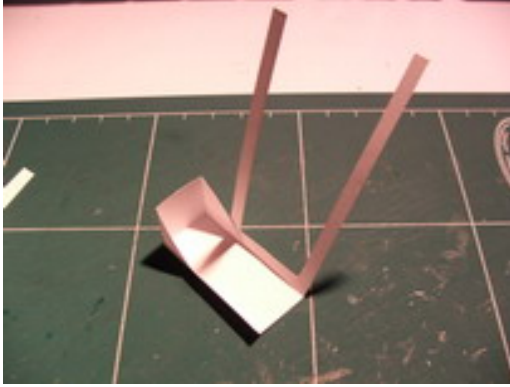
Roll and glue item 129 with a 5.5mm Knitting needle, be careful when gluing And let the glue set before continuing.

Glue the item 129 as above, and let it set again before continuing.



Glue the larger piece of tin foil around Item 129 as above, use the 5.5mm needle as extra support.

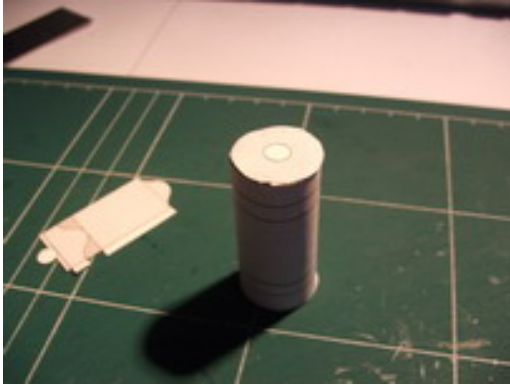
Completed item 129.



Cut and glue item 128 as above.

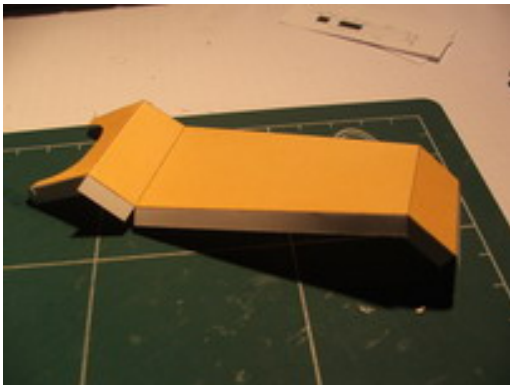


Cut, roll and glue item 127 as above.

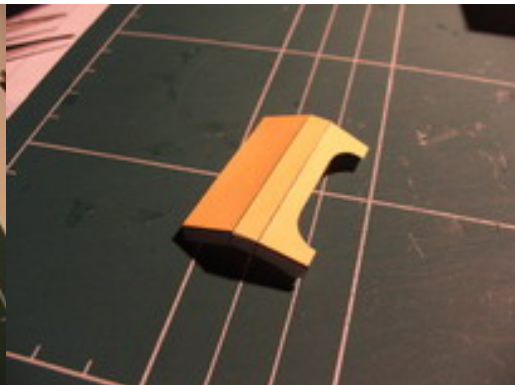


Glue items 129, 127 and 128 together as above.

12: Castings



Cut and fold item 48 as above.



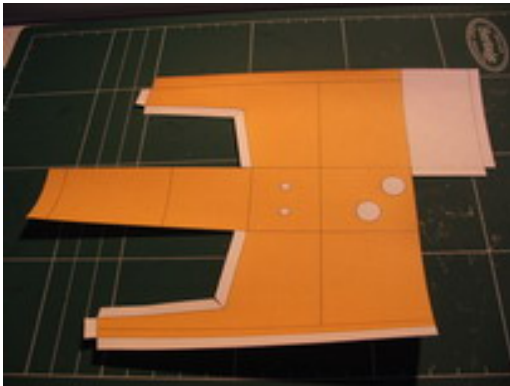
Cut and fold item 54 as above.



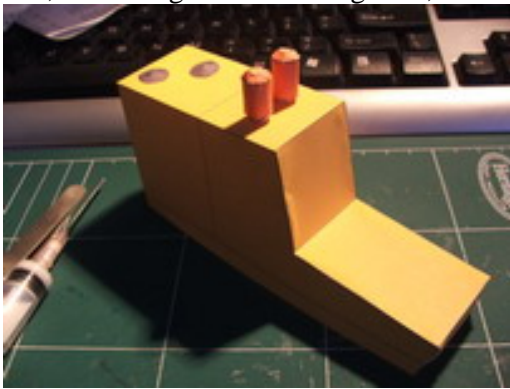
Cut and glue item 66(2) as above.



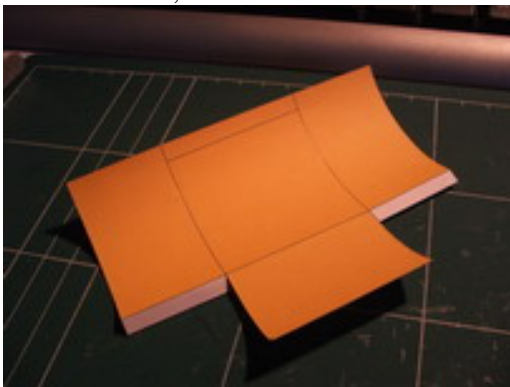
Cut, roll and glue item 64 and 65 as Above.



Cut, fold and glue item 67 together, make sure all side are square and straight.

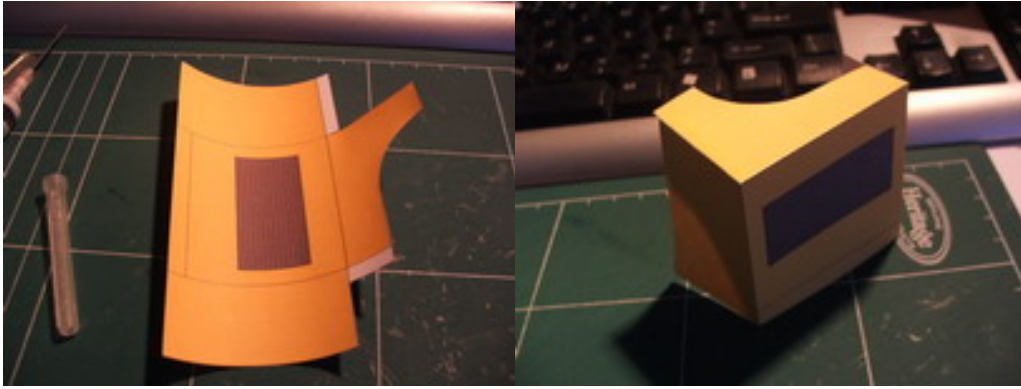


Glue items 66, 64 and 65 to item 67 as above.

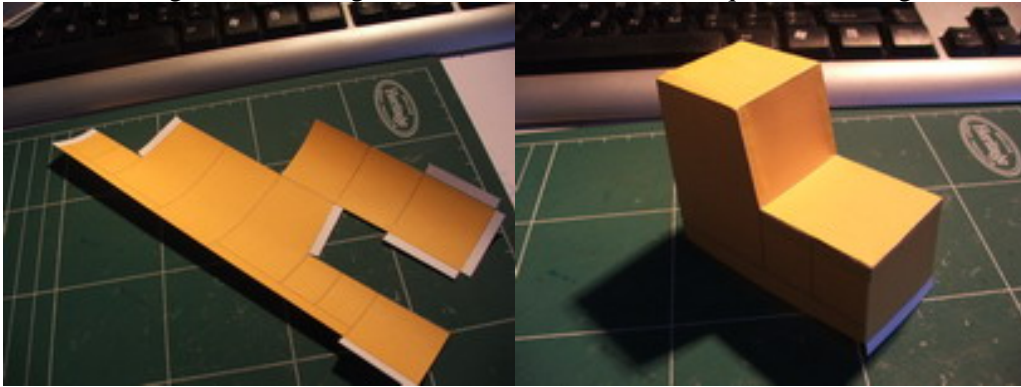


Cut, fold and glue item 60 together, make sure all side are square and straight.

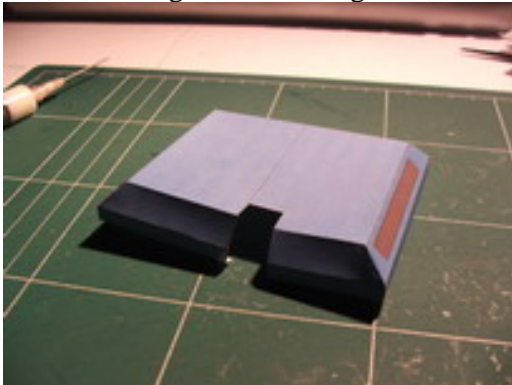




Cut, fold and glue item 59 together, make sure all side are square and straight.



Cut, fold and glue item 58 together, make sure all side are square and straight.

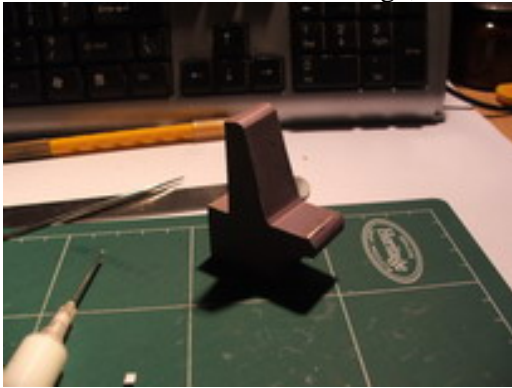


Cut, fold and glue item 69 together, make sure all side are square and straight.

13: Cabin

This part is optional, it is up to you if what to have your model to look cool, or just a model. Should you not want to do the steps below, then cut, fold and glue item 70, make sure that one assembles it square and straight.

For those who want the challenge, lets start:



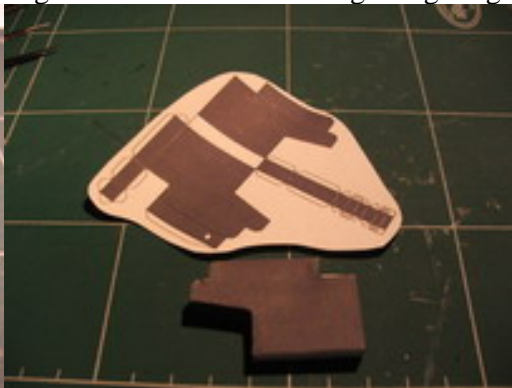
Cut, fold and glue item 73 as above.



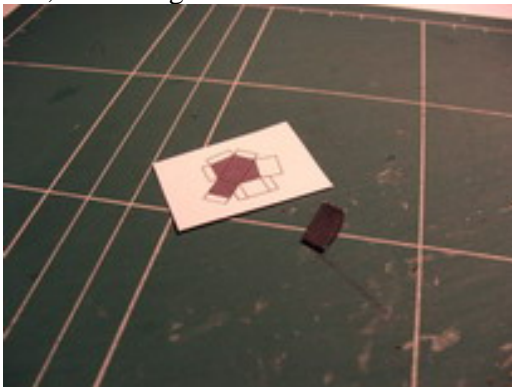
Cut, fold and glue item 74 as above, remember to work slowly and let the glue set before final cutting and gluing.



Cut, fold and glue item 78 as above.



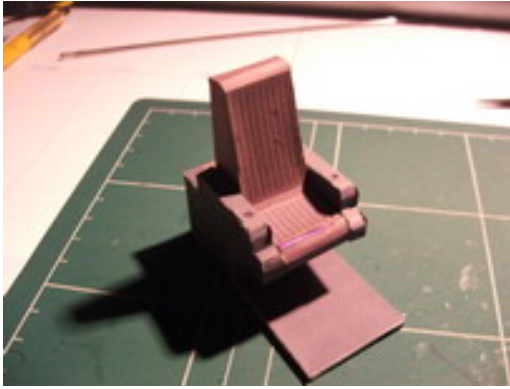
Cut, fold and glue item 77(2) as above.



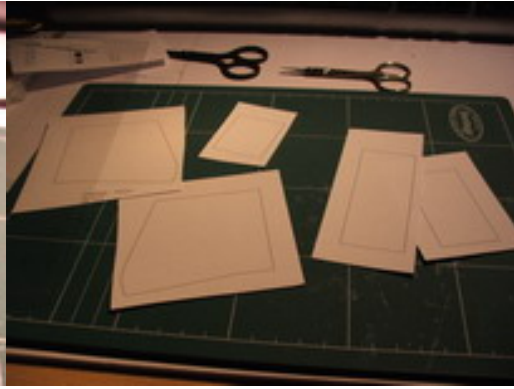
Cut, fold and glue item 75(2) as above.



Glue item 75 to 74 as above.



Glue items 73, 77, 78 together as above.



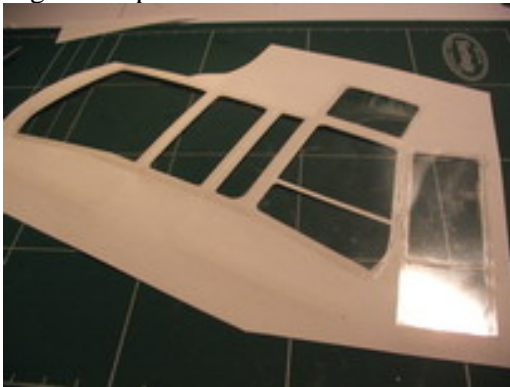
For the windows cut items 79, 80, 81, 82 and 83 out carefully, then use the templates with clear thin plastic to cut windows.



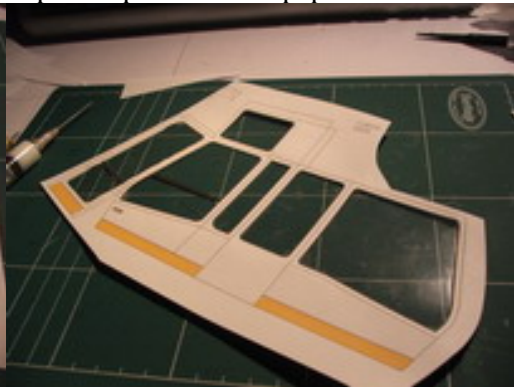
Pre-cut item 70 out, then cut clear fully the Light blue panels out for the windows.

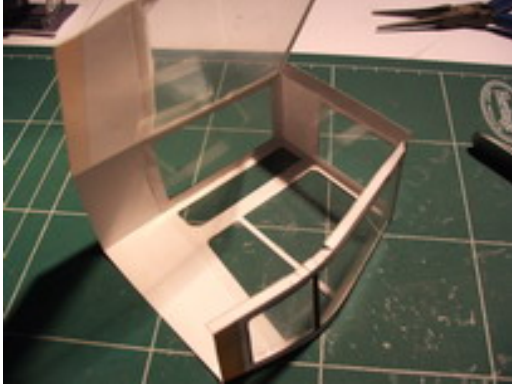


Use a good plastic to paper glue to the plastic panels to the paper.

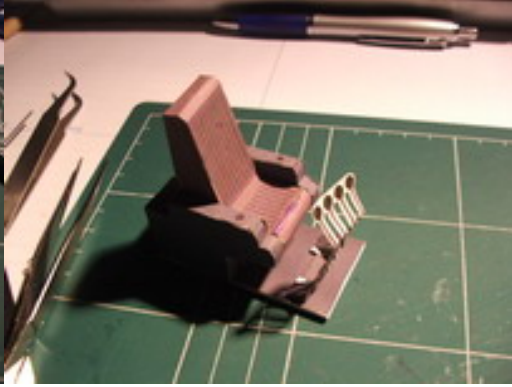


All the panels in place and glued.





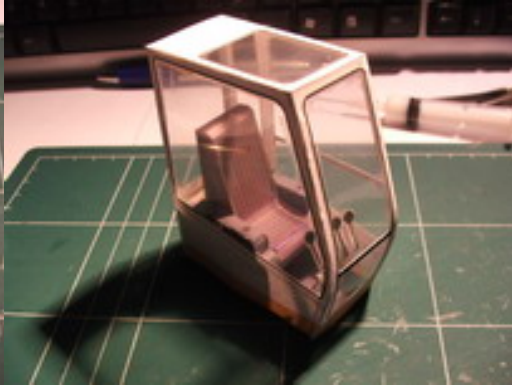
Fold the and glue item 70 care fully and leave the one side panel open as above.



Glue 75 to the rest of the seat assembly as above.



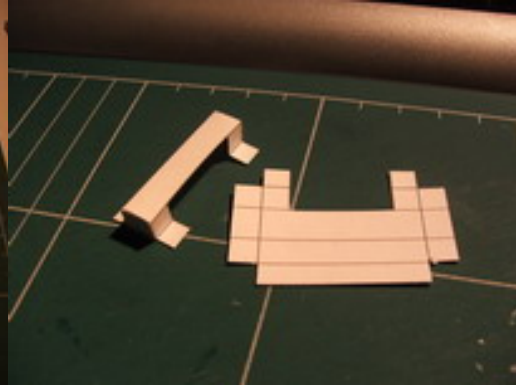
Glue the seat assembly in item 70 as above and then seal the cabin up and be careful with the assembly.



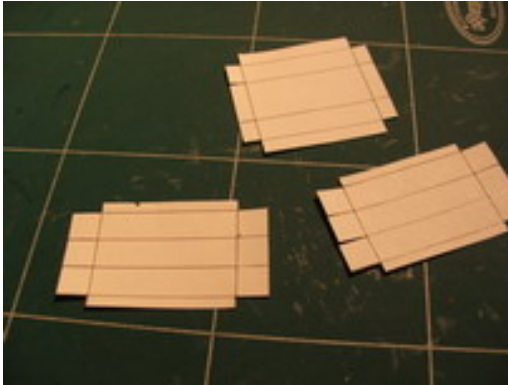
14: Main Body Assembly



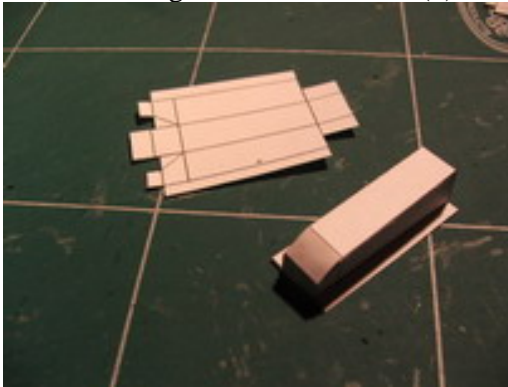
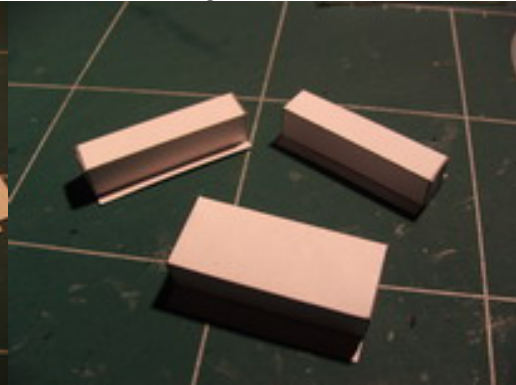
Cut and fold item 53 as above.



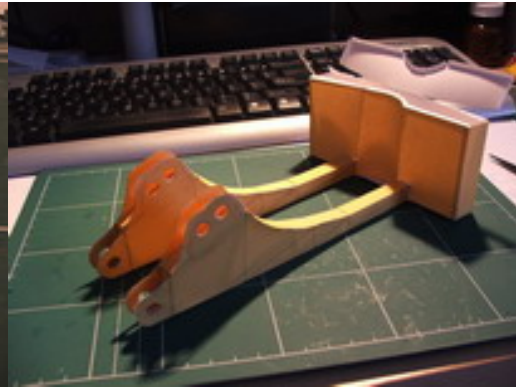
Cut, fold and glue item 50(2) as above.



Cut, fold and glue items 49 and 52(2) as above.



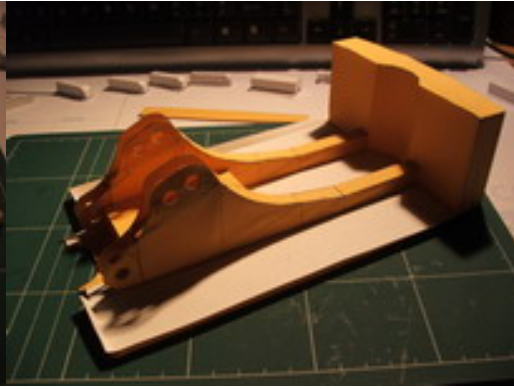
Cut, fold and glue item 51(4) as above.



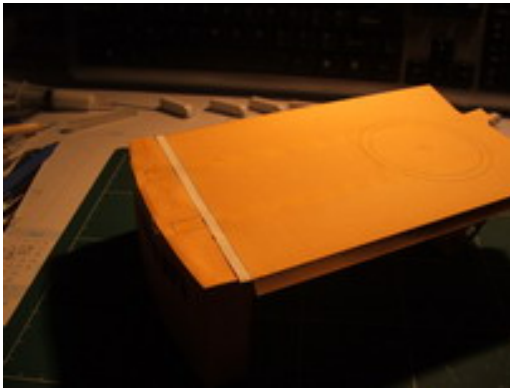
insert the 2(two) backbones into the counter weight and glue as above.



Glue item 48 and 53 as above.



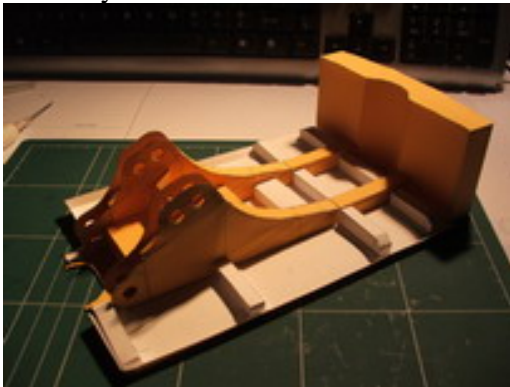
Glue the backbone assembly to item 53 as above, glue the counter weight closed.



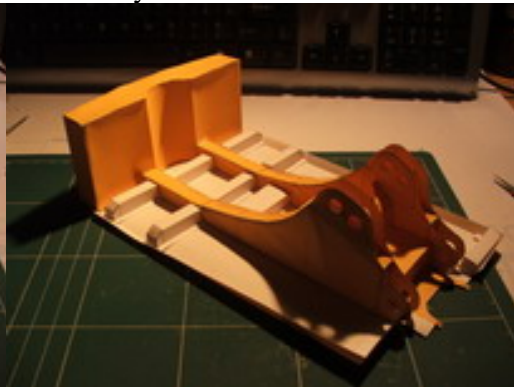
make sure that item 53 and the backbone assembly are flush.

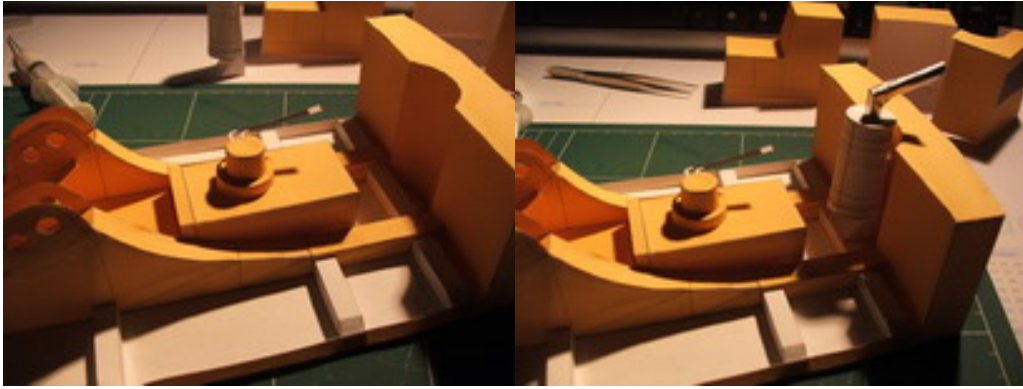


Cut and glue item 47 to seal the assembly as above.

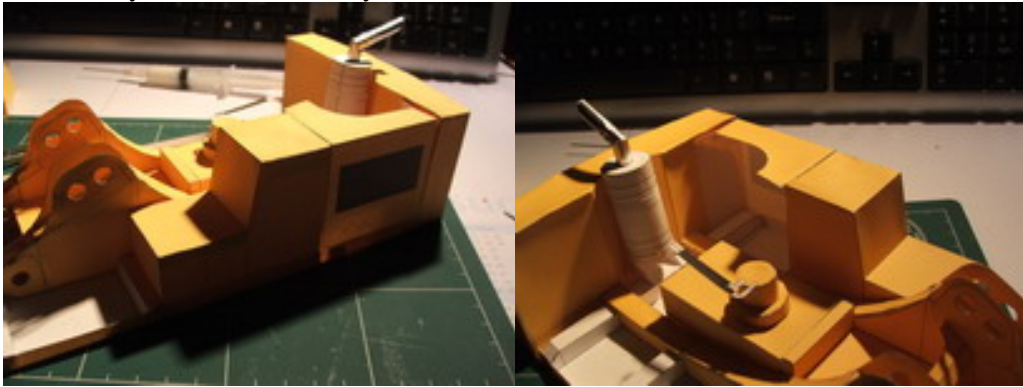


Glue items 49 and 52 in the center of the backbones, items 51 on the sides of the backbone towards the counter weight side, glue items 51 to the front of the assembly

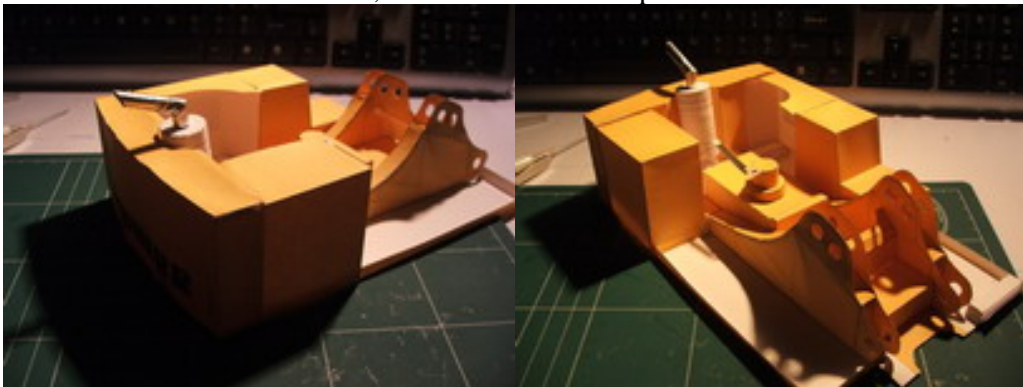




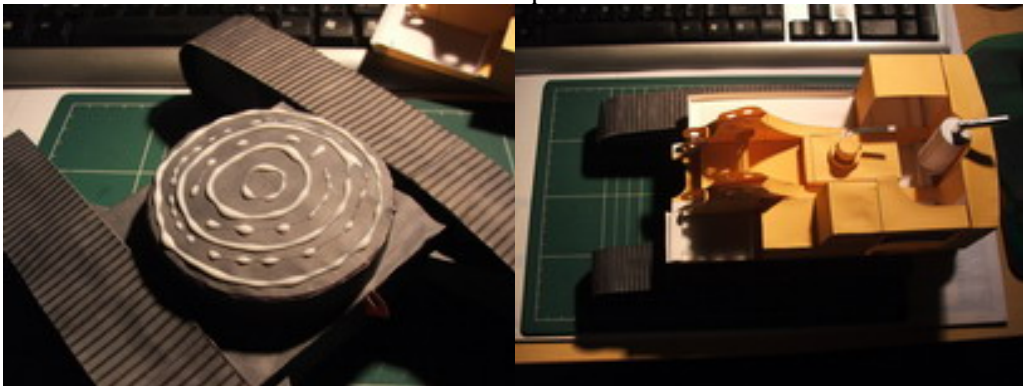
Glue the hydro block assembly and the exhaust as above.



Glue items 58 and 59 as above, make sure that the top of the item faces are level.



Glue item 60 as above make sure that the top item faces are level.



Glue the rotating assembly as above to the main body assembly, remember to support the under side of the main body assembly.



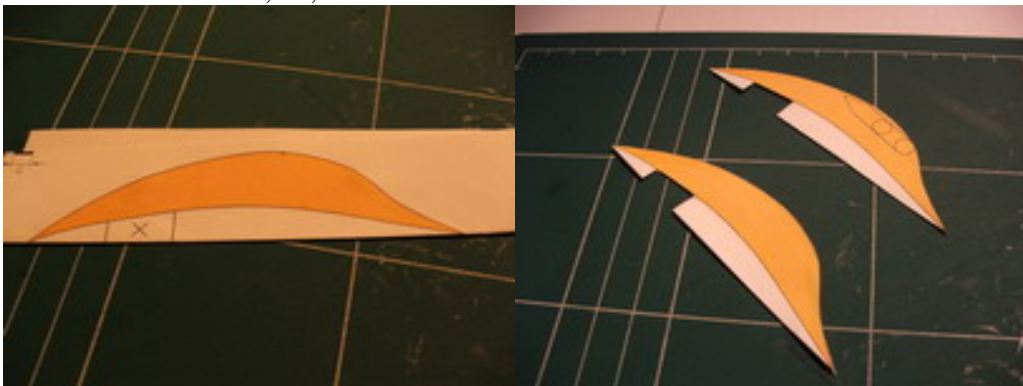
After you have let the glue set you can test the rotation of the body and chassis.
DO NOT GLUE the cabin and items 67 and 69 in place yet.

15: Excavator arm 1

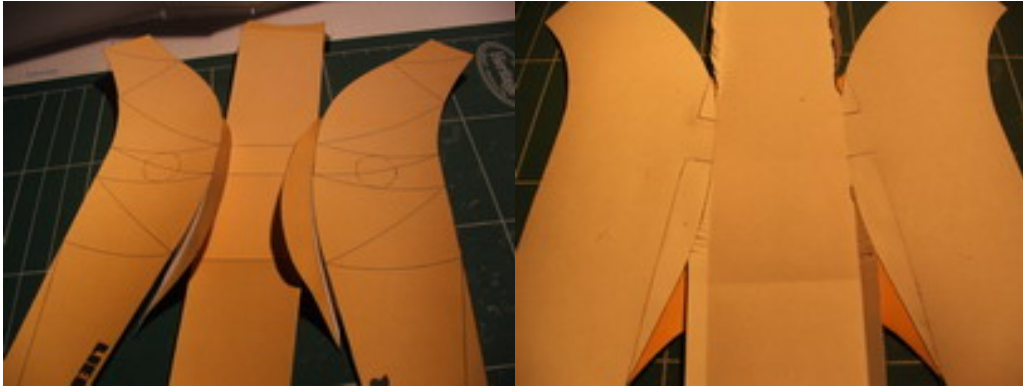


Cut and fold items 84, 85, 86 and 87.

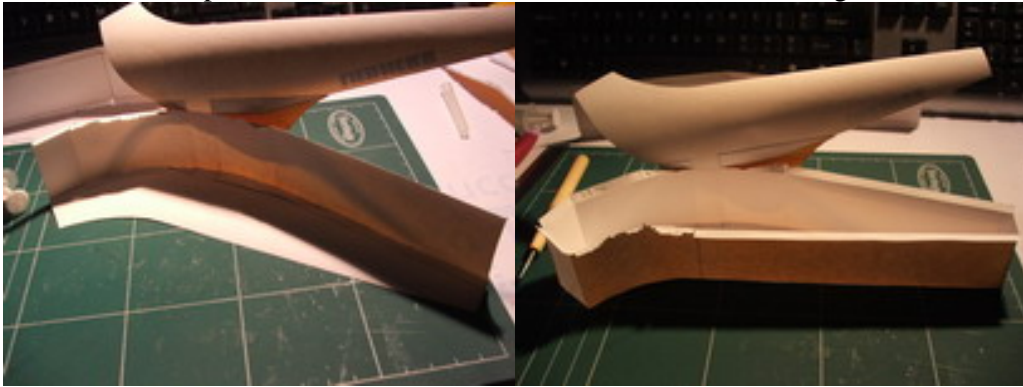
Cut items 88 and 89 as above.



Fold and glue items 88 and 89, and then cut the X marking out as above.

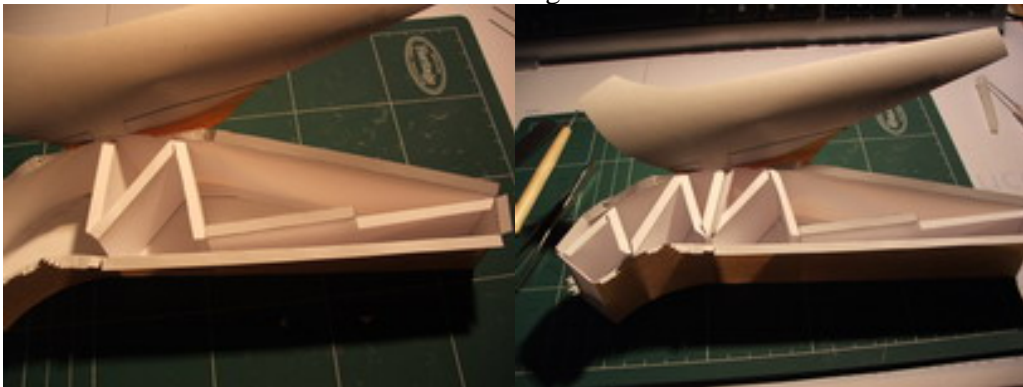


Cut item 84 and place items 88 and 89 in item 84 as above, and then glue.



Glue item 84 as above.

glue item 87 to item 84 as above.

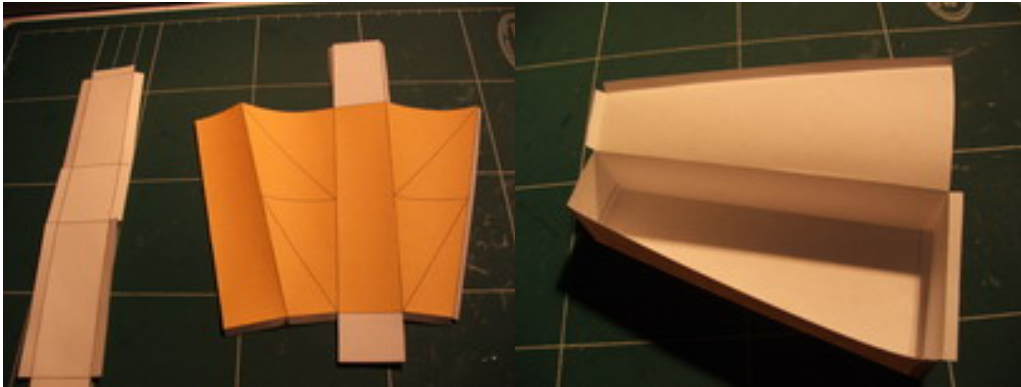


Glue items 85 and 86 into the assembly as above. take your time to get all parts in set square and straight.



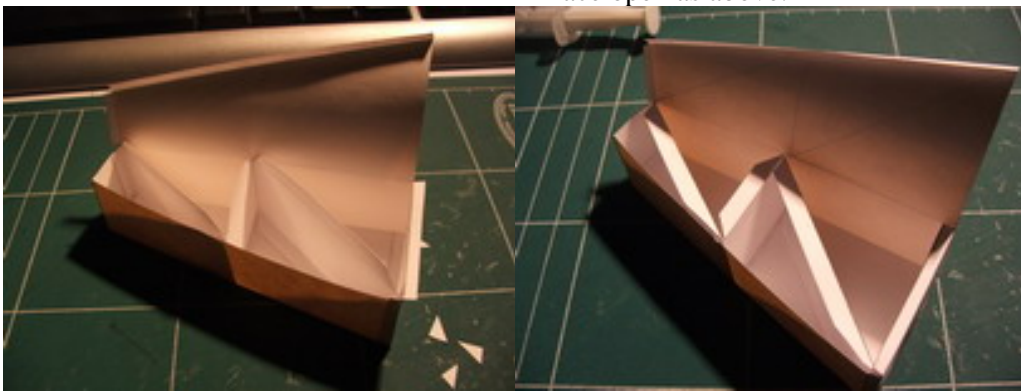
Glue the assembly closed care fully and make sure that this square and straight.

16: Excavator arm 2

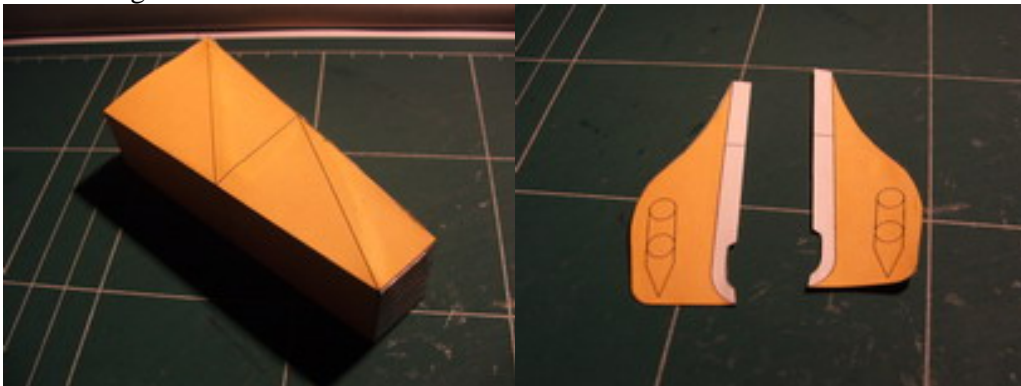


Cut and fold items 104 and 105 as above.

glue item 105 together and leave one Face open as above.



Insert and glue item 104 as above.



Glue the assembly closed.

Cut and glue items 106 and 107 as above.

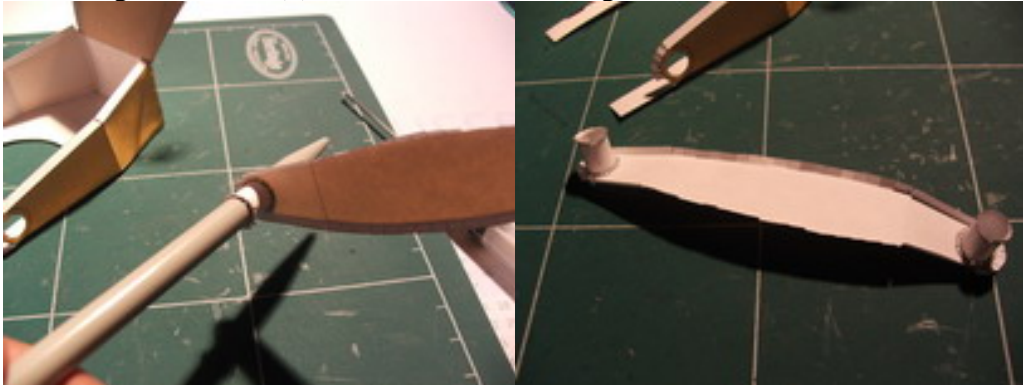
17: Hinge 1



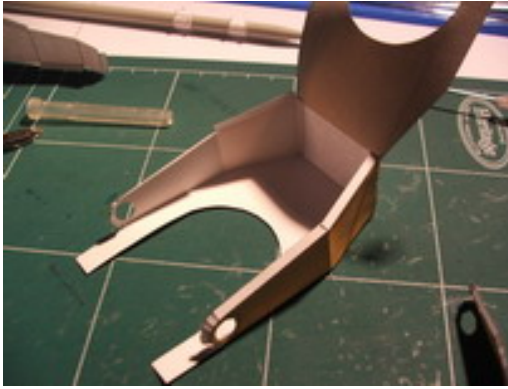
Cut and fold items 92, 93, 94, 95 and 96 as above.



Roll and glue items 93(2) around a 7.0mm knitting needle as above.



Glue items 93 to 96 as above, use the 7.0mm needle as a guide.



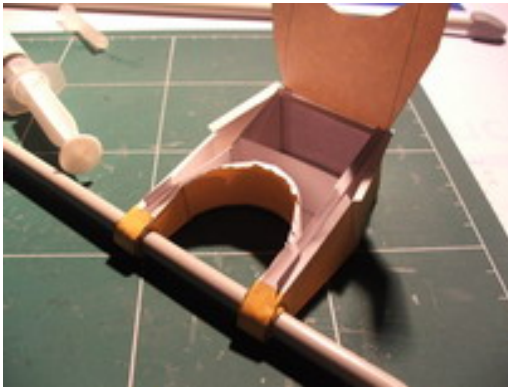
Glue item 94 as above.



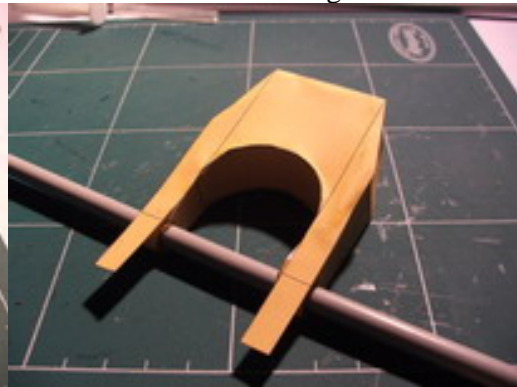
Glue the item 93, 96 assembly to item 94 as above, again use the 7.00mm needle as a guide.



Glue items 92 and 95 together as above.



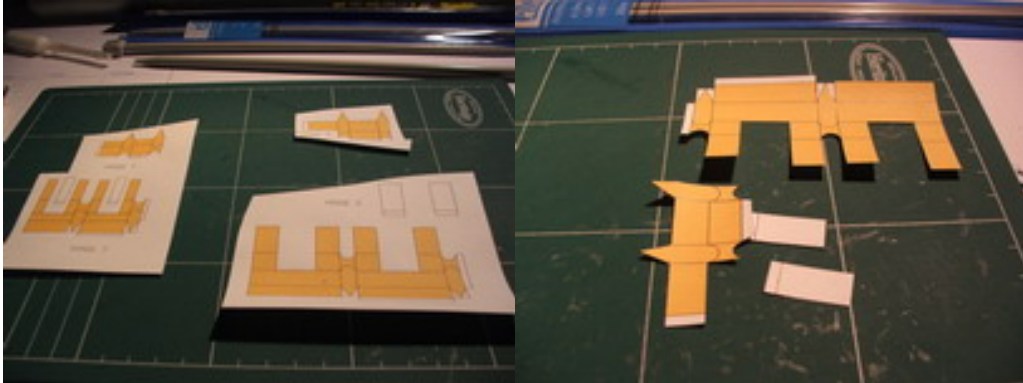
Insert the item 92, 95 assembly into item 94 assembly.



Glue the item 94 closed, take your time to glue it closed. Trim as needed.



18: Hinge 2 and 7

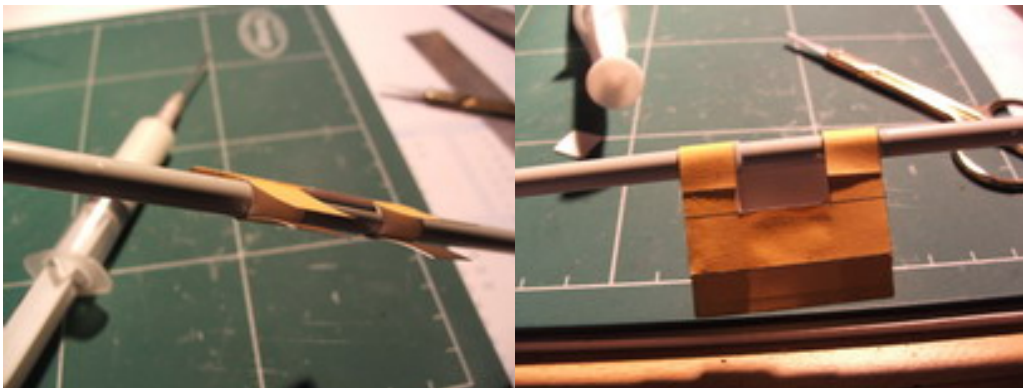


For hinges 2 and 7, you will do the assembly the same, just that the size of the hinge differs. For hinge 2 cut and fold items 101, 102 and 103. For hinge 7 cut and fold items 108, 109 and 110.

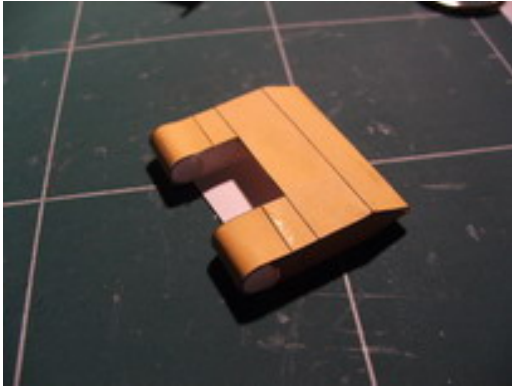


Roll and glue items 103, 110 with a 5.5mm knitting needle.

Fold and glue items 101, 102, 108 and 109 as above, insert item 101 into 102 and item 108 and 109.

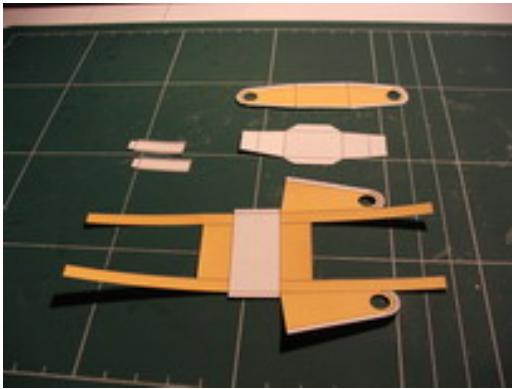


Glue items 103 onto 102 and 110 and 109, then trim items 102 and 109 as needed.



Completed hinge(s).

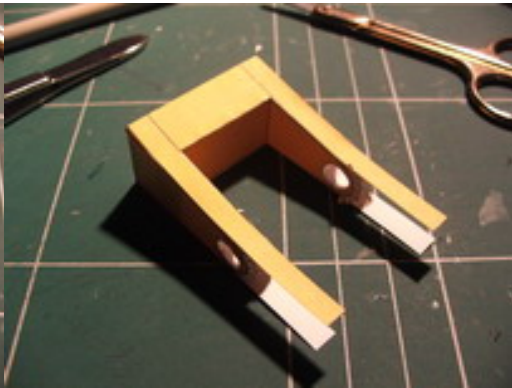
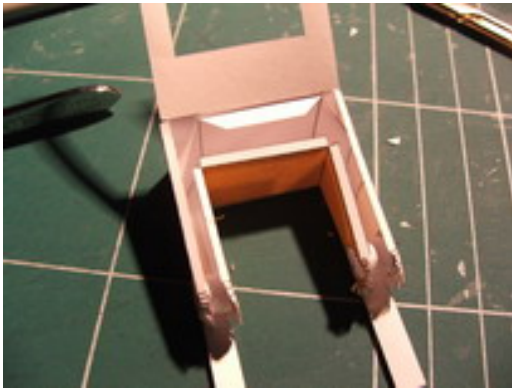
19: Hinge 3



Cut and fold items 97, 98, 99 and 100 as above.



Roll item 98(2) around a 6.5mm knitting needle.



Glue items 97, 98, 99 and 100 together and trim item 97 as needed, see above. Remember to use the 6.5mm needle as a guide.



Complete Hinge 3.

20: Hinge 4



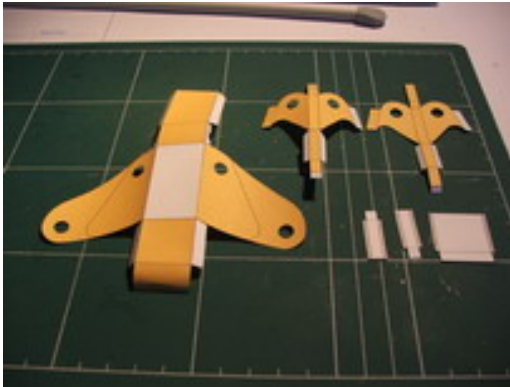
Cut, roll and fold items 90 and 91 as above.(2)



Glue item 91 into item 90 as above.

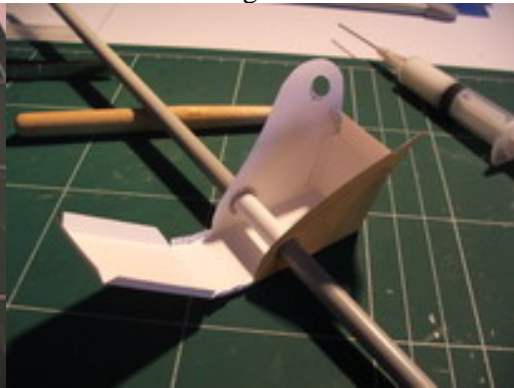
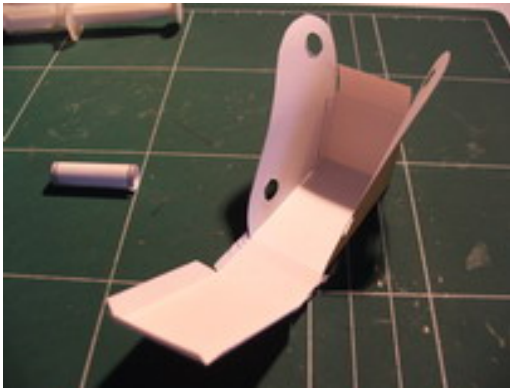
glue item 90 closed as above.

21: Hinge 5



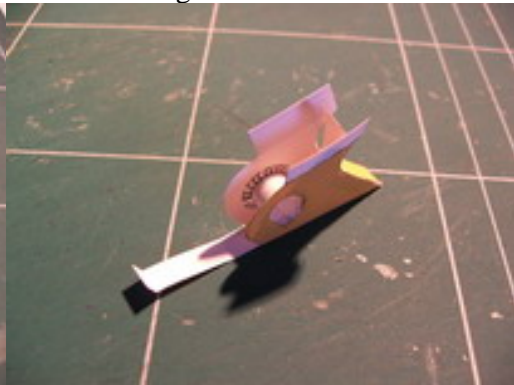
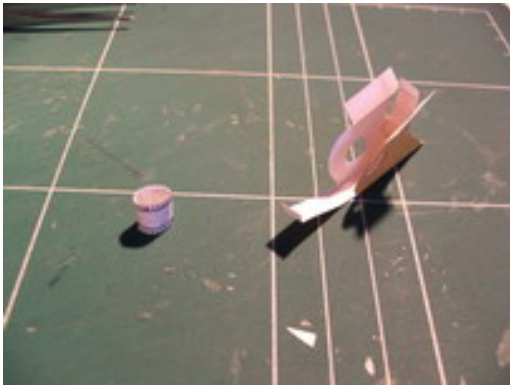
Cut and fold items 116, 117, 118, 119, 120 and 121

Roll and glue items 117 and 118 around an 6.5mm knitting needle.



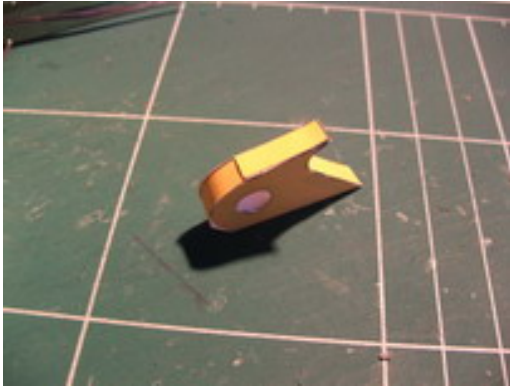
Pre-cut item 119 first, then cut the holes out.

Glue item 118 into item 119 as above use Glue item 119 as above. Use the 6.5mm needle as a guide.

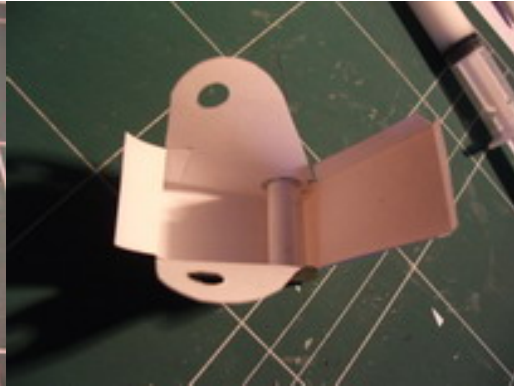


Cut and glue item 116(2) as above.

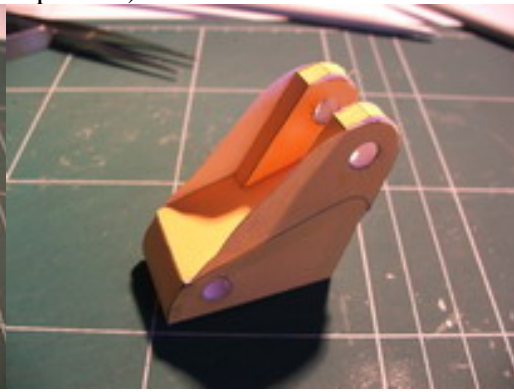
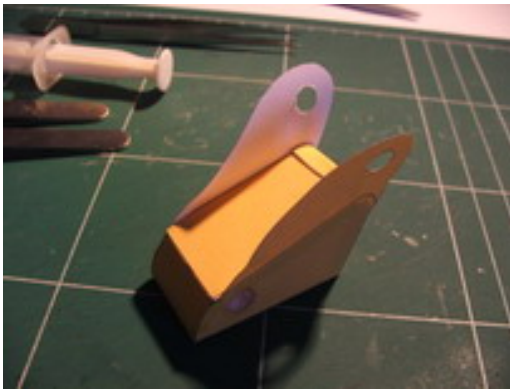
Glue item 117 into item 116 as above. Use the 6.5mm needle as a guide.



Complete item 116.

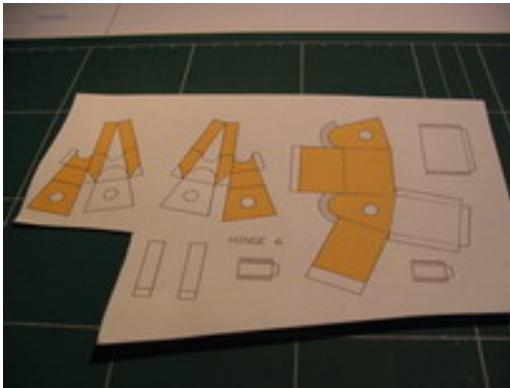


Glue item 119 closed, also glue items 120 and 121 in place(not shown in picture.)

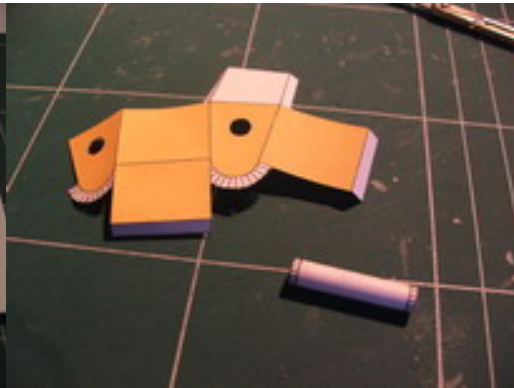


Glue items 116 onto item 119 above.
Use the 6.5mm needle for lining up the Holes.

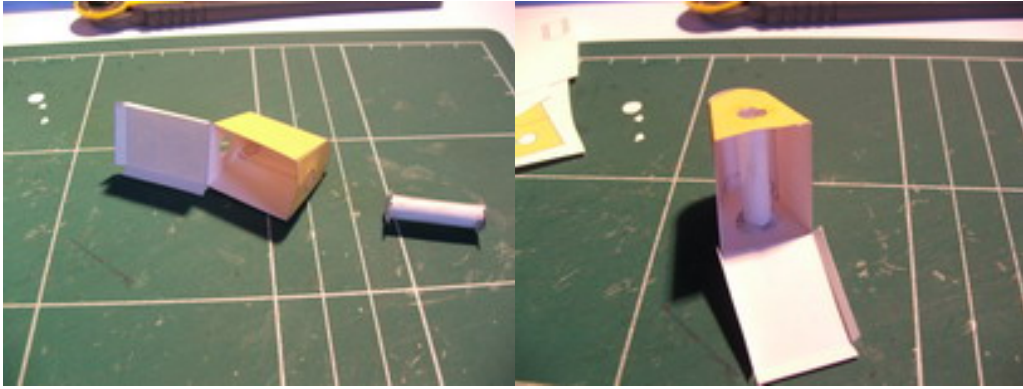
22: Hinge 6



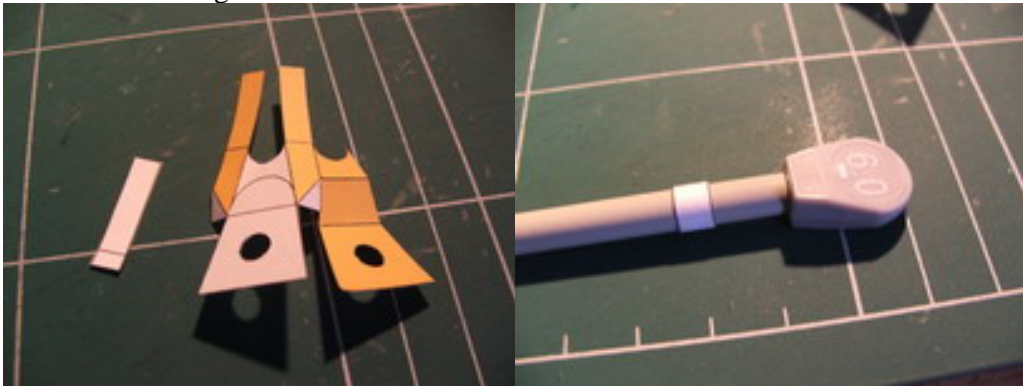
Cut and fold items 111, 112, 113, 114 and 115. cut the holes into items 111, 112 and 114 first before cutting the pattern out.



Fold item 114 and roll item 113 with an 6.0mm knitting needle as above.

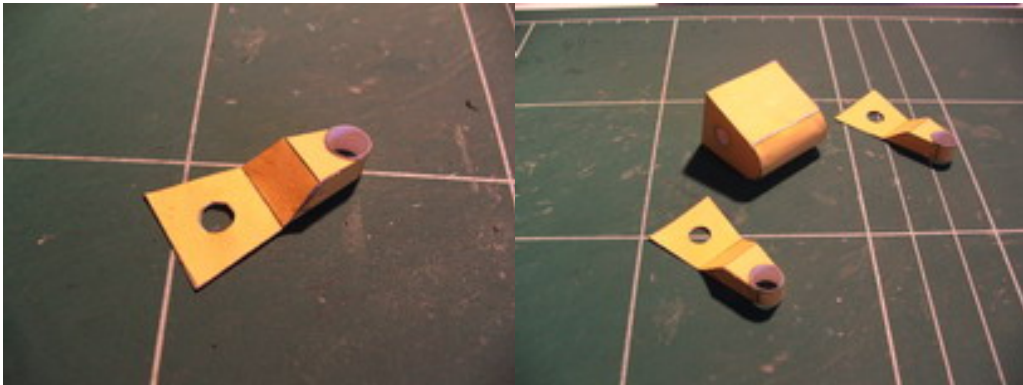


Glue item 114 together and leave back face open, insert item 113 into 114, use the 6.0mm needle as guide.



Cut and fold item 111 and 112 as above. Remember to cut the holes out first.

Roll item 115(2) around a 6.0mm needle.

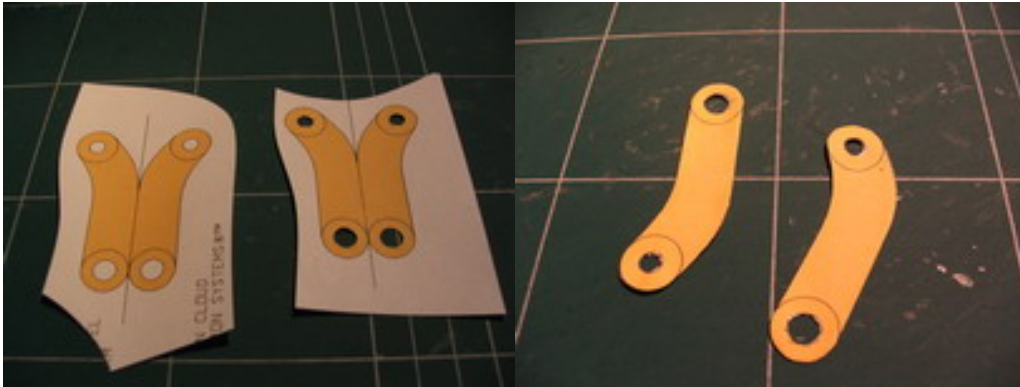


Glue items 111 and 112 together as above.

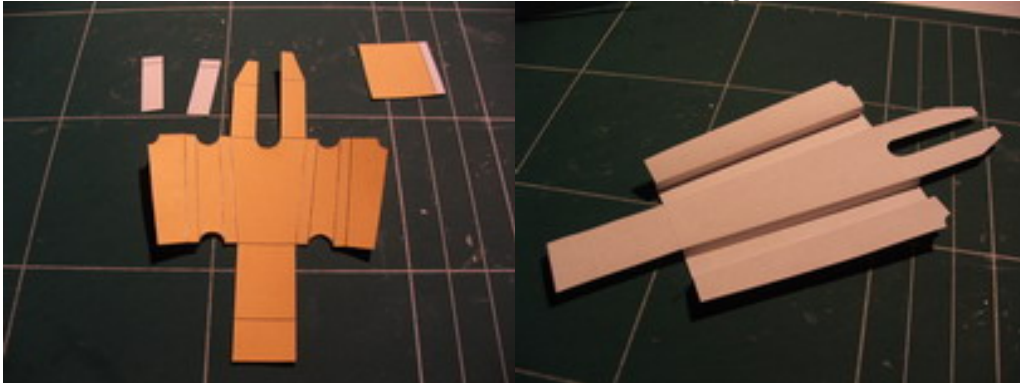
Glue items 114, 111 and 112 together to make hinge 6, as below.



23: Shovel Arm



Pre cut items 122(2), then cut the holes, from there fold and glue as above.



Cut and fold items 123,124 and 125 as above, make sure that the folds of item 123 is done as above.



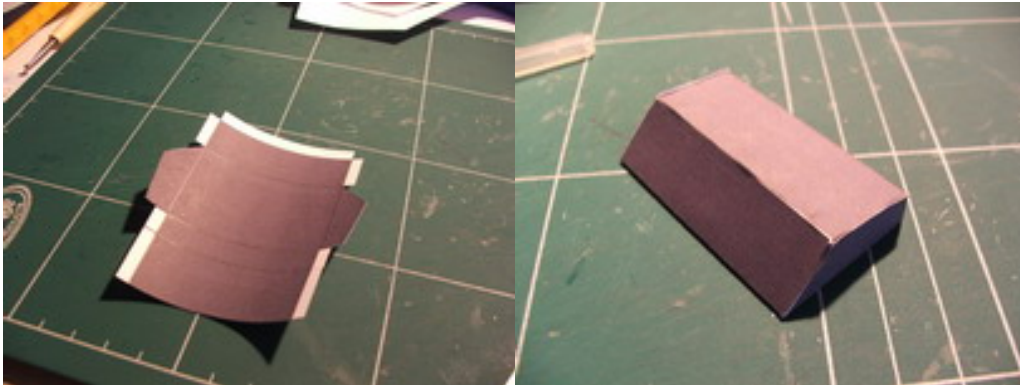
Roll items 124 and 125 around a 6.5mm Knitting needle.

Glue items 123, 124 and 125 as above.

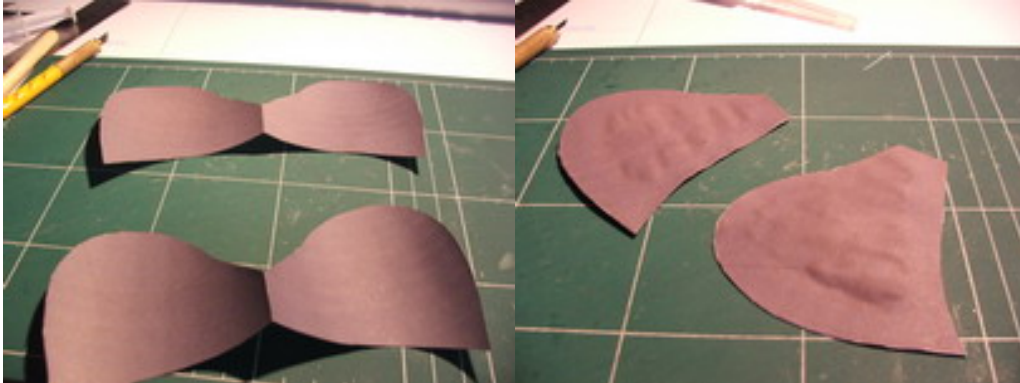
24: Shovel Assembly



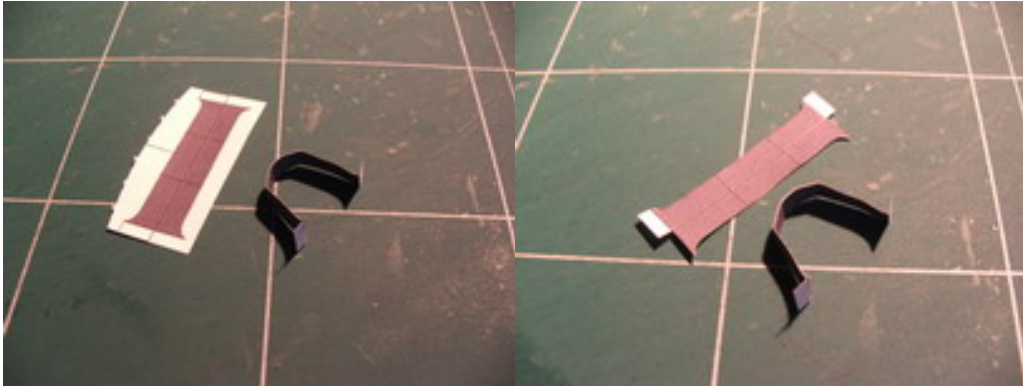
The shovel is made up of two(2) pages of Parts, work slowly and read the instructions. The middle for later assembly, cut and Fold item 144 as above.



Cut, fold and glue item 136, make sure that the part is square and straight as above.



Cut, fold and glue items 142 and 143, make sure that the part is flat as possible as above.

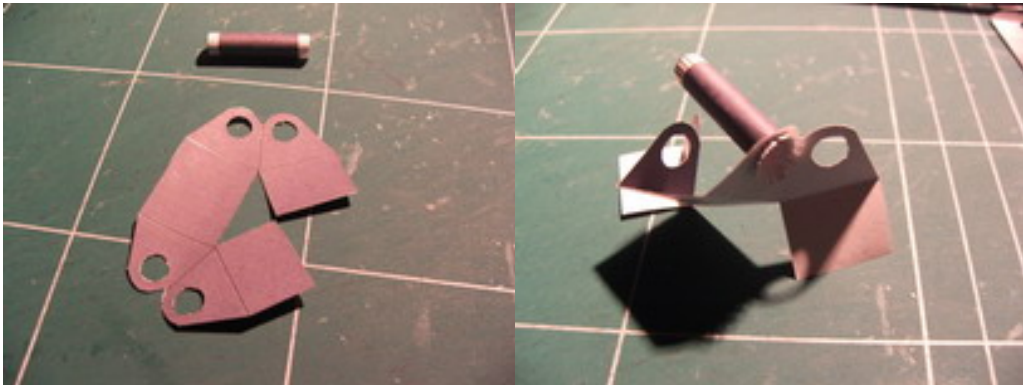


Cut, fold and glue item 145(2) as above.



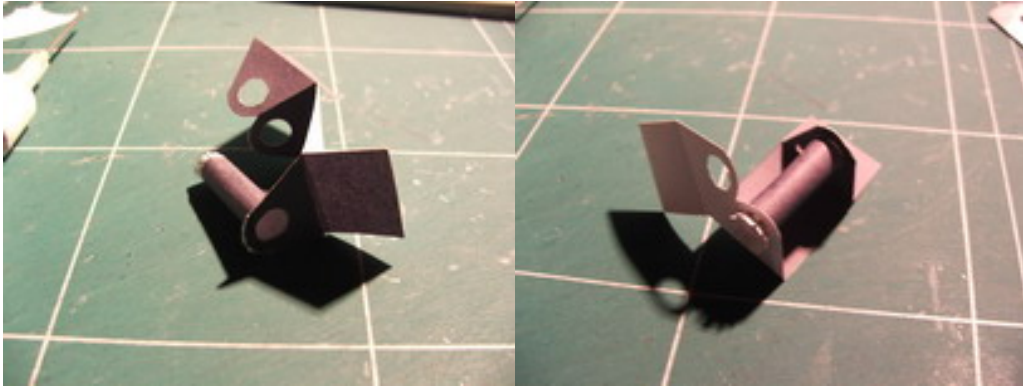
Cut, fold and glue item 146 and 147 as above.

Roll and glue item 149 around a 6.0mm
As above.

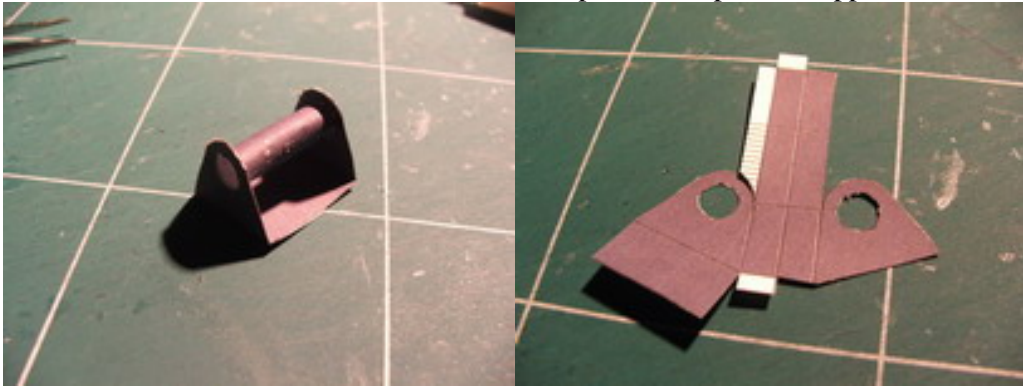


Cut and fold item 148, make sure to cut the
Holes first before cutting the pattern as
above.

Glue item 149 into item 148 as above.

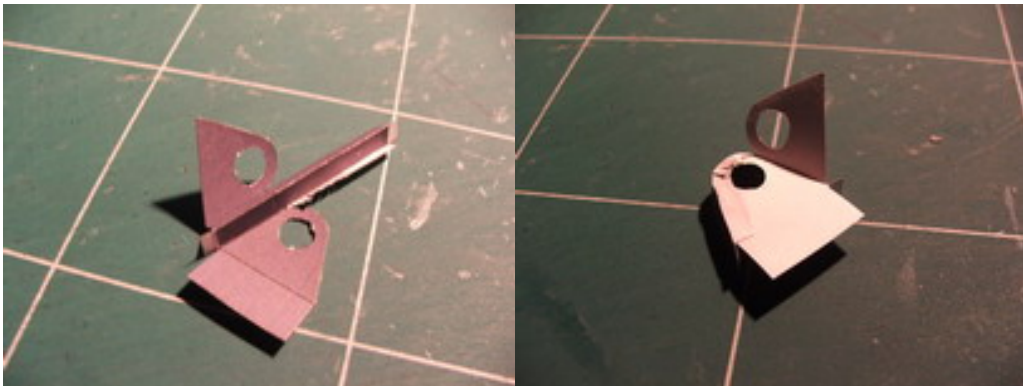


Glue the face of item 148 closed as above. Repeat the step on the opposite side.

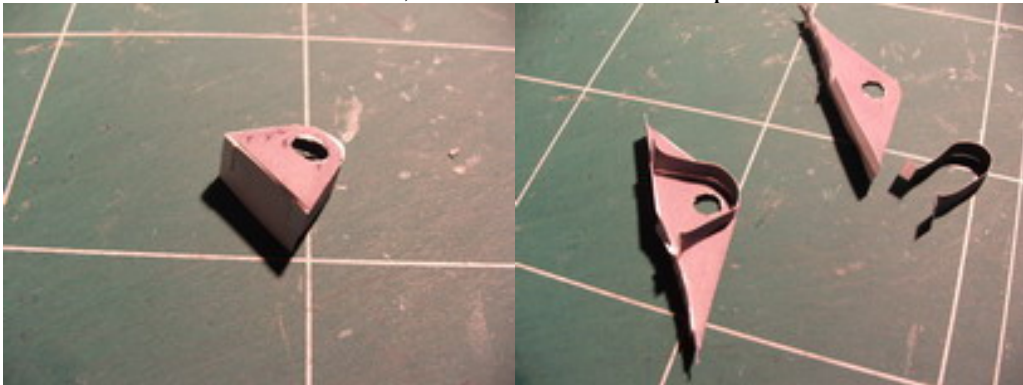


Complete item 148 assembly.

Cut item 150 and 151, remember to cut the holes out first.

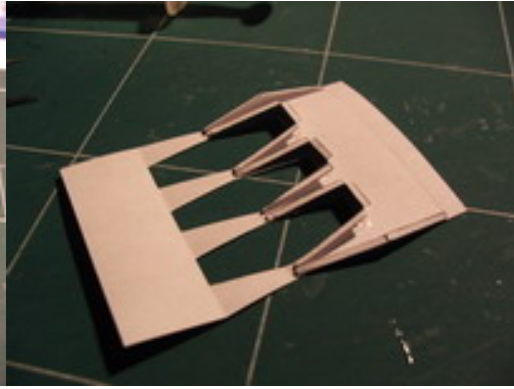
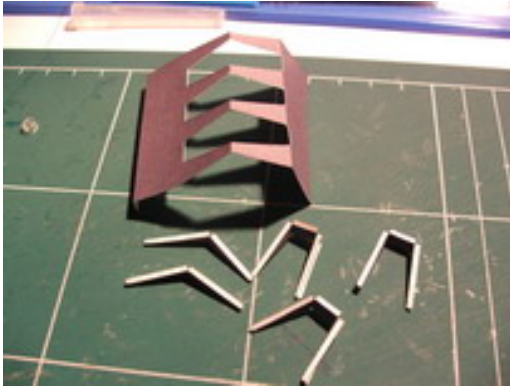


Glue items 150 and 151 as above, make sure it is as flat as possible.



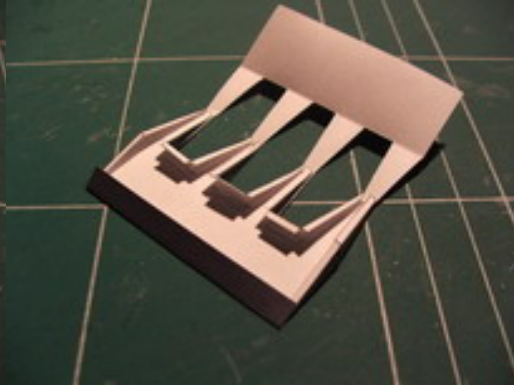
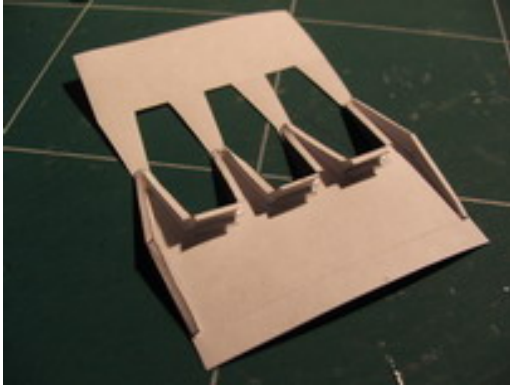
Complete item 150 and 151.

glue items 146, 147 together with item 145 as above.

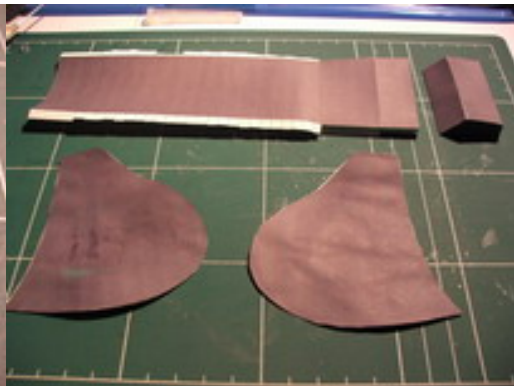


Cut and fold items 137, 140(2) and 141(3) as above.

Glue items 140 and 141 to item 137 take your time when gluing.

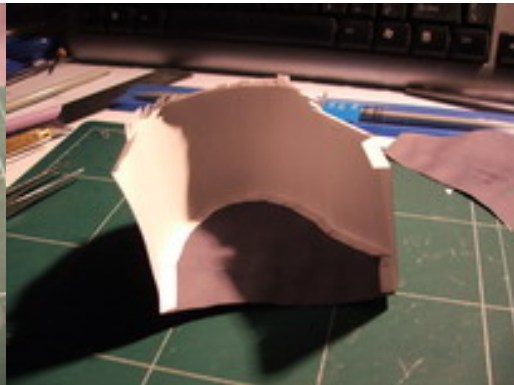
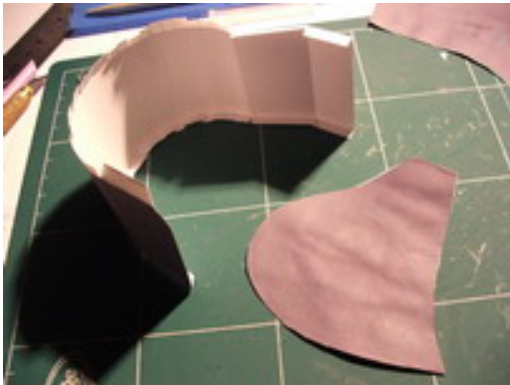


Views of the items 140 and 141 glued to item 137.



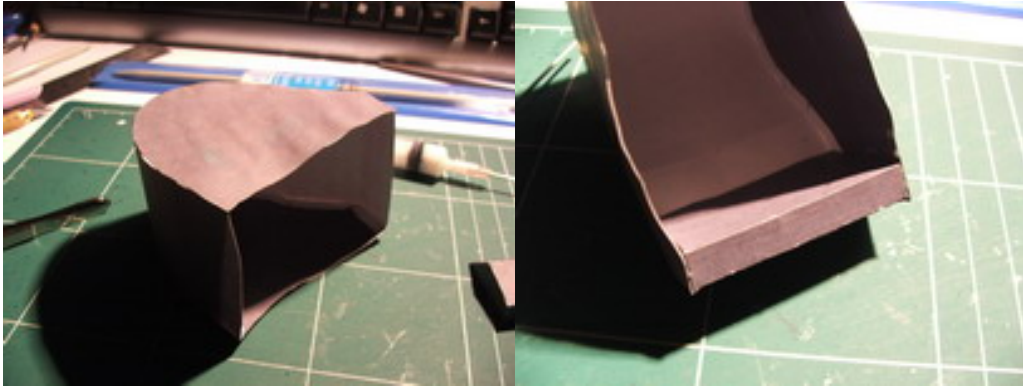
Glue the item 137 closed as above.

Glue items 132 to items 142 and 143

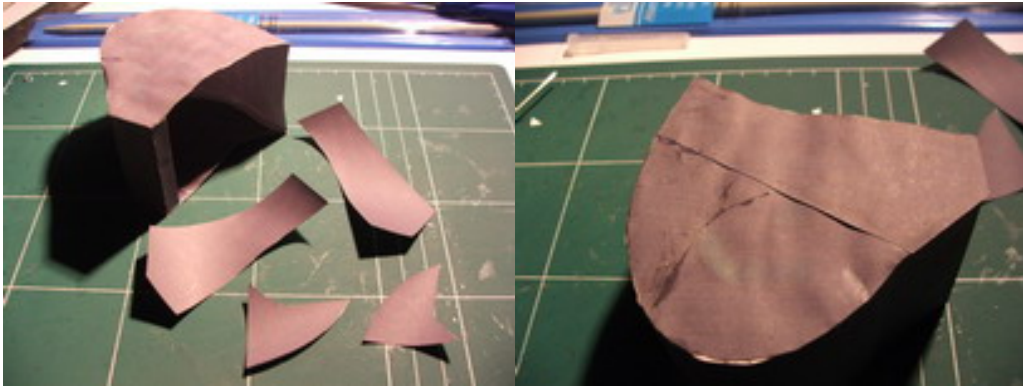


Bend and fold item 132 so that the grey Colour shows towards the inside.

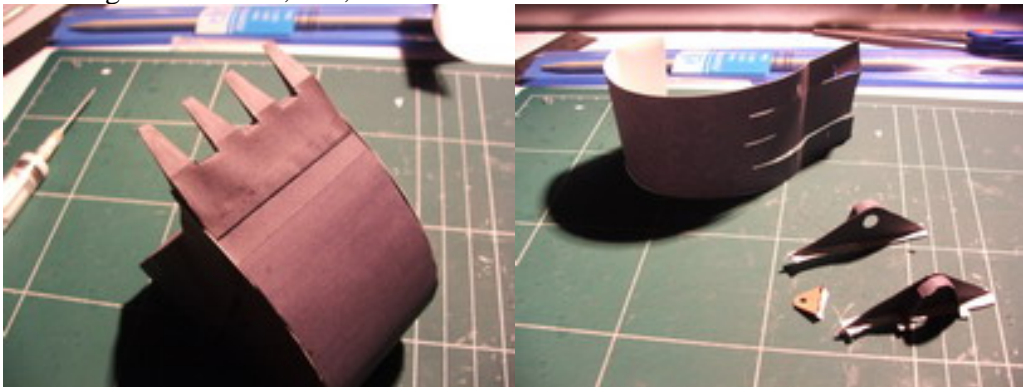
Glue items 142 and 143 as above.



Glue item 136 to item 132.

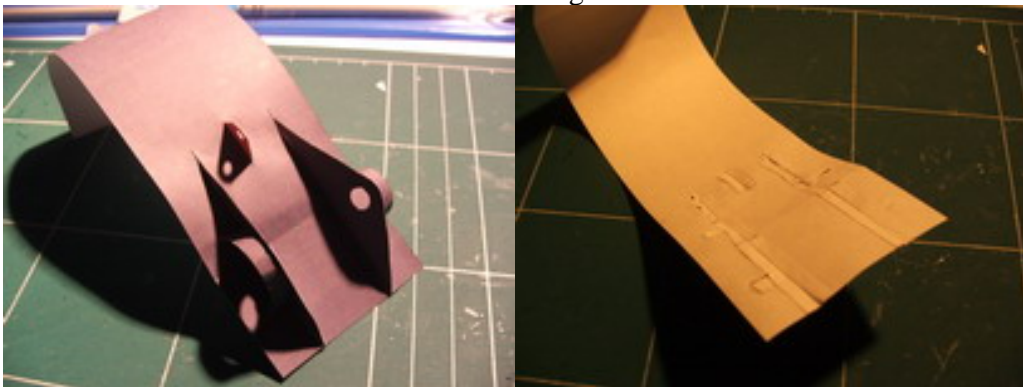


Cut and glue items 134, 135, 138 and 139 to the outsides of items 142 and 143.

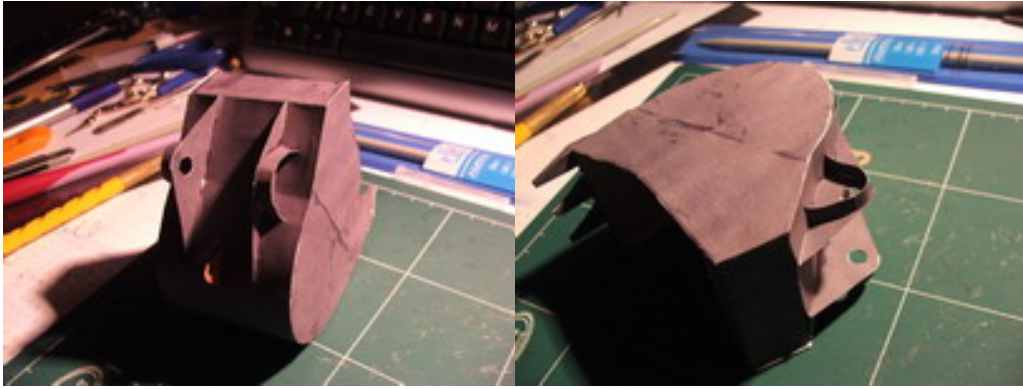


Glue item 137 assembly to the bottom of Item 132 as above.

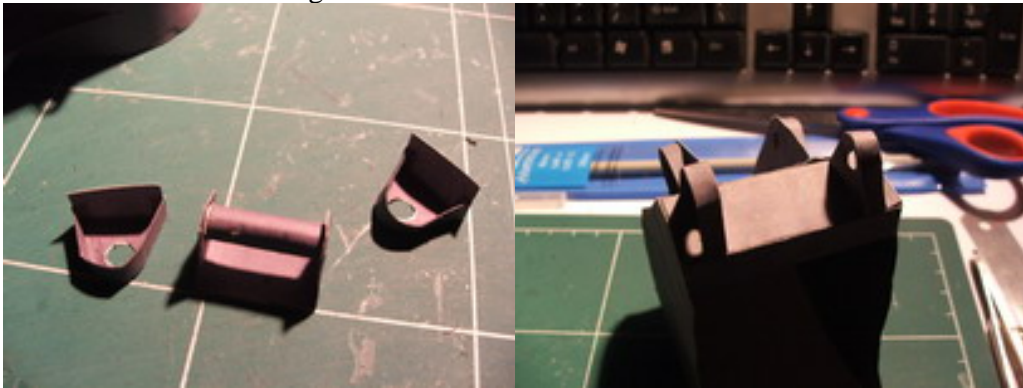
Glue items 133, 146, 147 and 144 together.



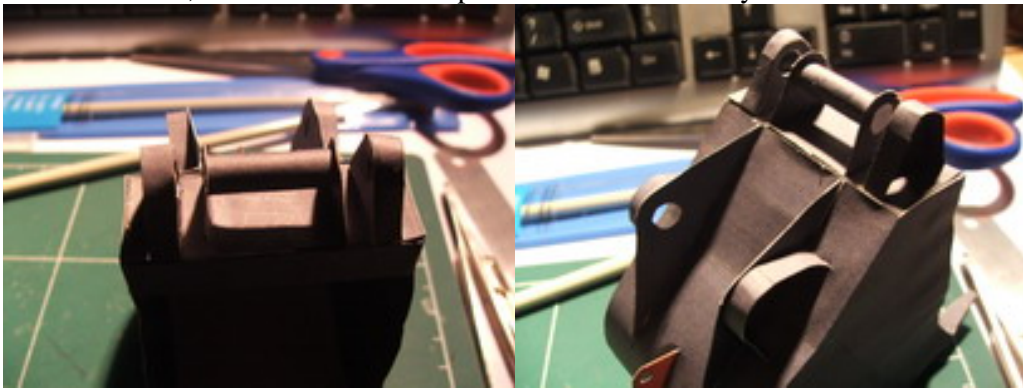
Make sure all parts are glued flat as possible as above.



Glue the item 133 assembly to the outside of the shovel assembly as above, let the Glue set before continuing.



Glue items 148, 150 and 151 to the top of the shovel assembly as above.

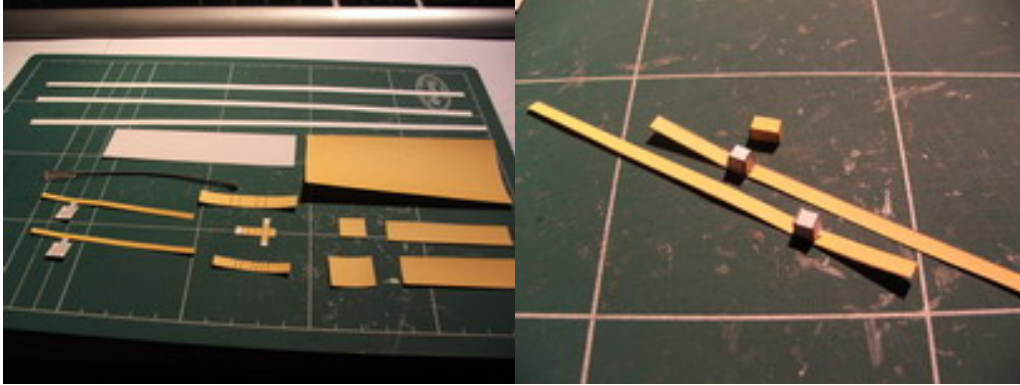


Completed top assembly of shovel.

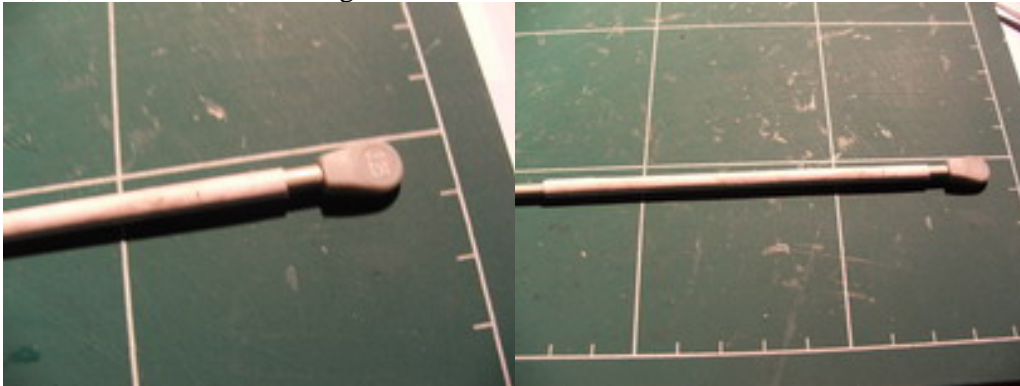
25: Main Hydraulic Cylinders

For the 4 main hydraulic cylinders the two main arms are the same and do not make use of items P and O but the rest of the assembly process is the same.

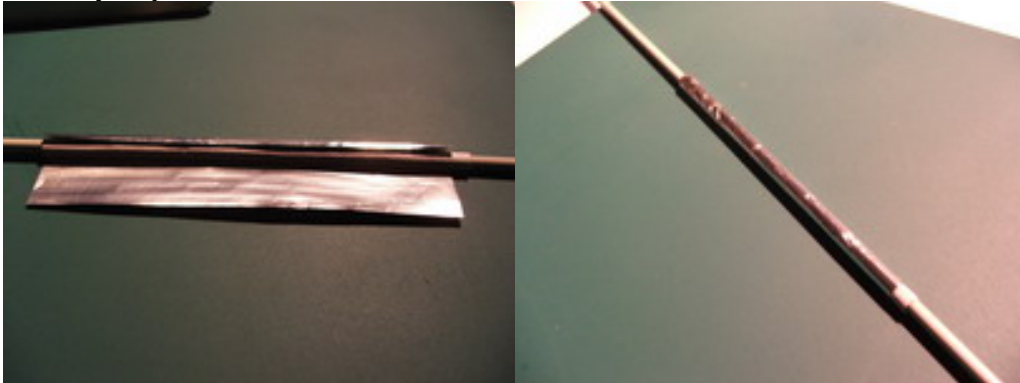
When gluing and let the glue set for a good amount of time as the parts will be stronger and it will keep it's shape. Take your time when building the cylinders and have a ruler to measure some parts with as it does fit into other parts. Look at page 33 for the assembly picture as an assembly reference guide.



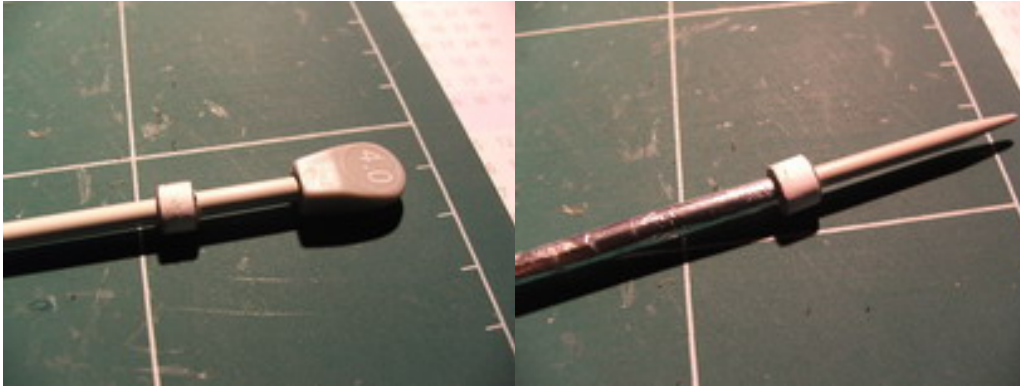
Cut items A, B, C, D, E, F, G, H, I, J, K, L, Fold and glue items H, N and O as above M, N, O and P out fold and glue item P.



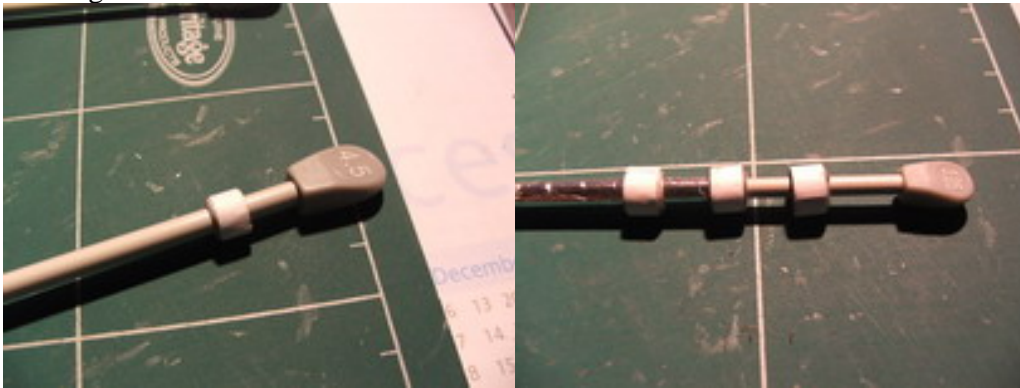
Take a 3.25mm knitting needle and roll and glue item A around the needle do this as carefully as possible.



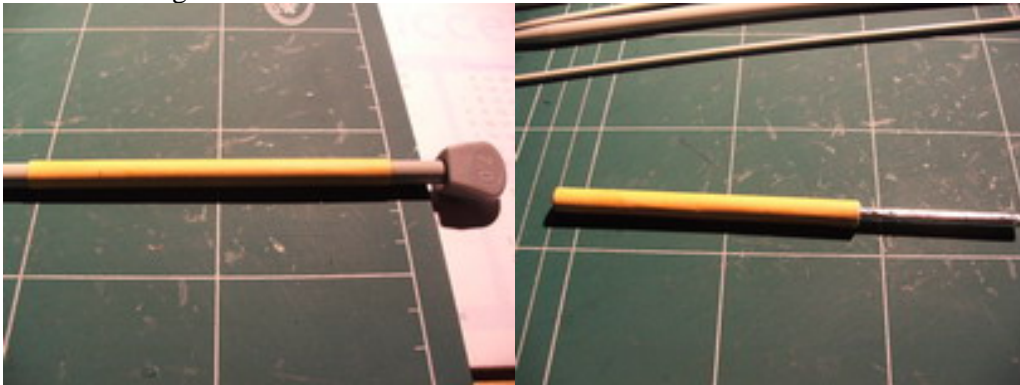
Get some house hold thin tin Foil and use item B as the template to cut the size of the tin foil, roll and glue the tin foil onto item A and set the foil to be flush with the one side of item A. let the glue set before construction continues.



Take item E roll and glue around a 4.0mm Knitting needle as above. Glue item E to Item A as above.



Roll and glue items F and I around a 4.5mm knitting needle as above. Fit items F and I to item A as above.



Before rolling Item L measure the diameters of items F and I to make sure that item L is the same diameter, as item L is to fit over items F and I to make sure that it is glued at the ends of item L as above. let the glue set before and be glued. The exmple that is shown was continuing the assembly.
Rolled and glued around a 7.0mm knitting Needle, but one can use a 7.5mm or 8.0mm Needle and crimp fold item L to suite.



Roll and glue items C and J around a 5.5mm knitting needle as above.



Glue item J to the back of item L as above.



Glue item C to the end of item a as above.



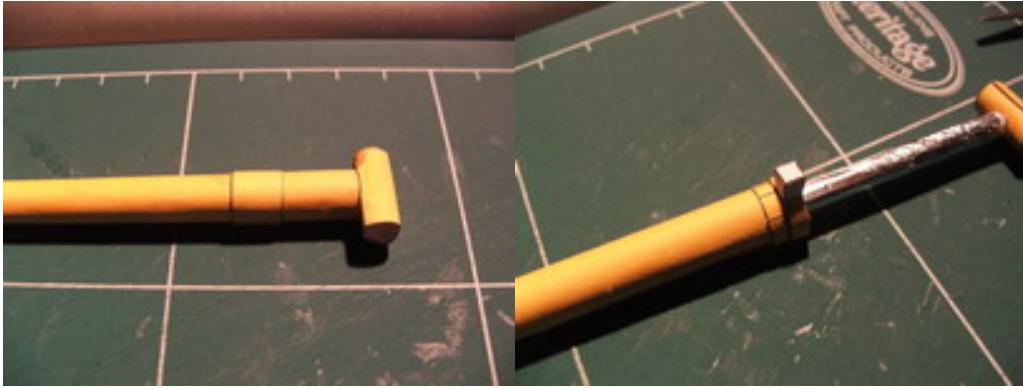
Glue items D and K to the outside of Items C and J after the glue has set as above.



Prepare items G, H, M, N, O and P for assembly.

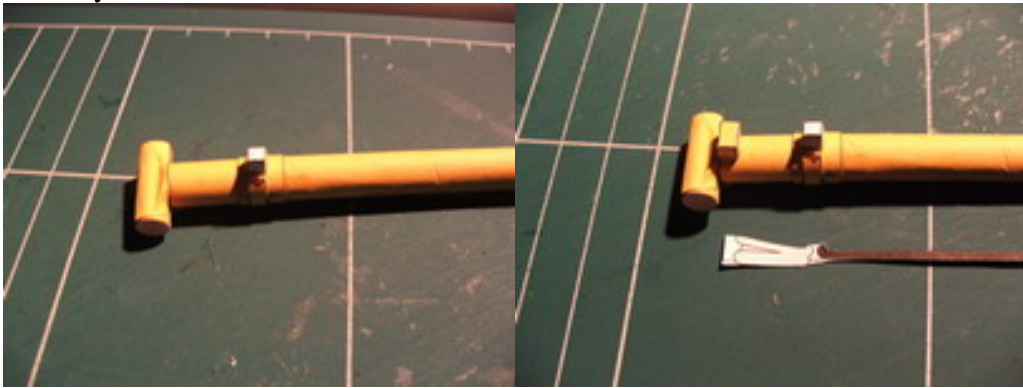


Glue item G to the end of the cylinder as above.



Glue item M to the opposite end of the cylinder as above. When items O and P are not used, glue item M at the very end of the cylinder.

Glue item H on top of item G.



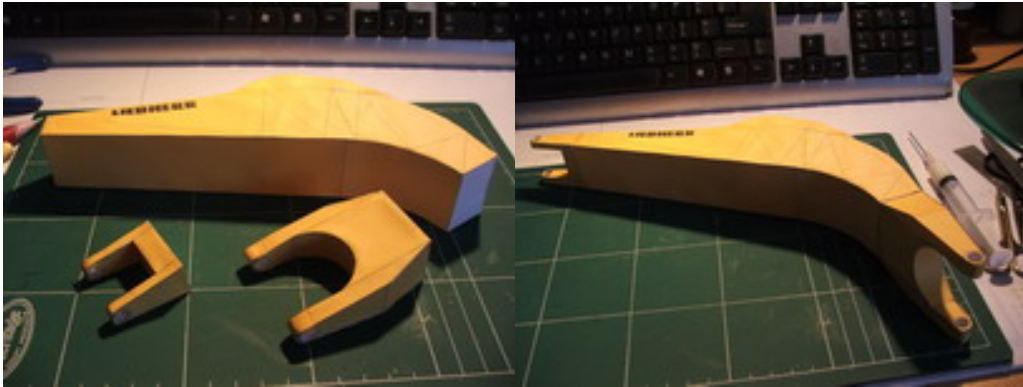
Glue item N on top of item M.

Glue item O at the end of the cylinder
And glue item P on top of items O, N
And H as above.



The completed hydraulic cylinder.

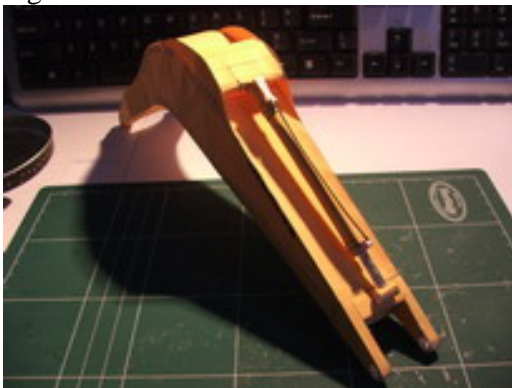
26: Excavator Arm 1 Assembly



Use the following assemblies to build the excavator arm 1: Excavator arm 1, hinge 1 and 3. glue the hinges to the ends of the arm and make sure that the part are glued square and straight.

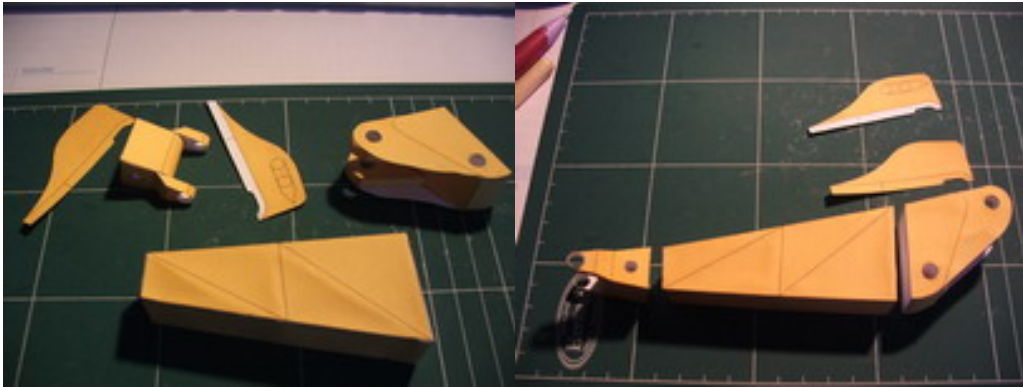


Make use of the cylinder 4 and hinge 2 with item 177 of which you roll around a 5.5mm knitting needle, and loosely fit and connect the hinge 2 and cylinder 4 together.

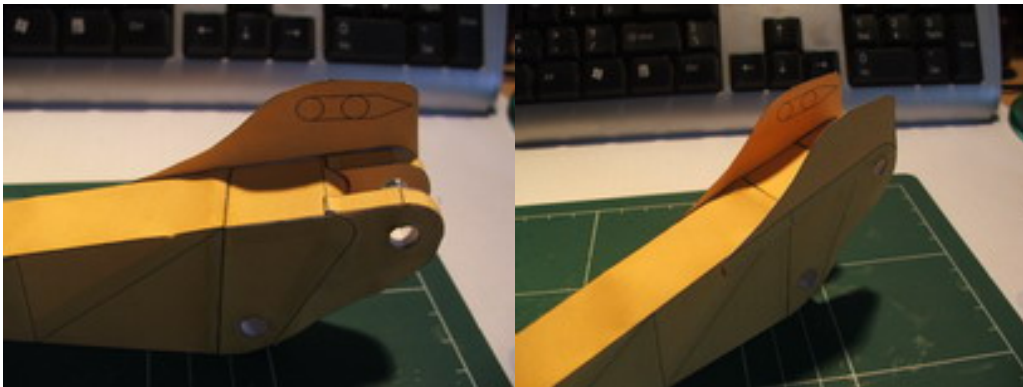


Glue hinge 2 to excavator arm as above/

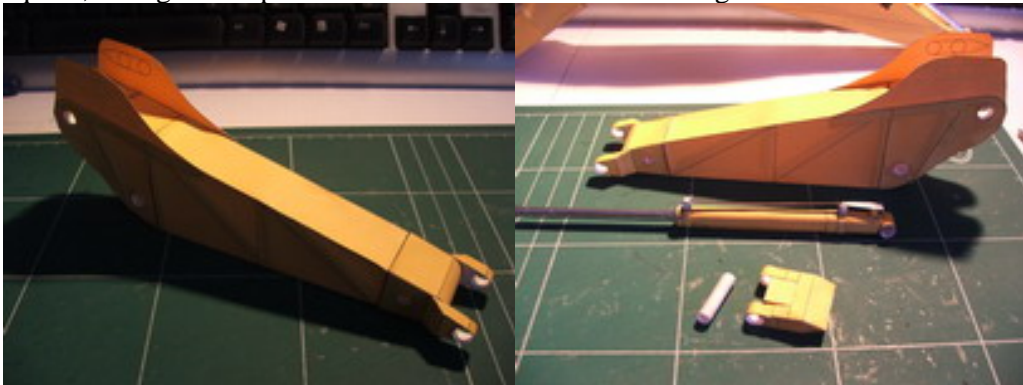
27: Excavator Arm 2 Assembly



Use the following assemblies to build the excavator arm 2: excavator arm 2, hinges 5 and 6.

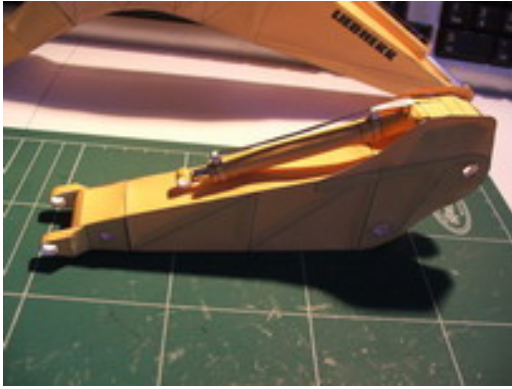


Glue the hinge 5 on the side of the arm and make sure that it is glued straight and square, then glue the panels on the sides of the arm and hinge as above.



Completed excavator arm 2.

Make use of cylinder 3 and hinge 7 along with item 175 and roll around a 5.5mm knitting needle.

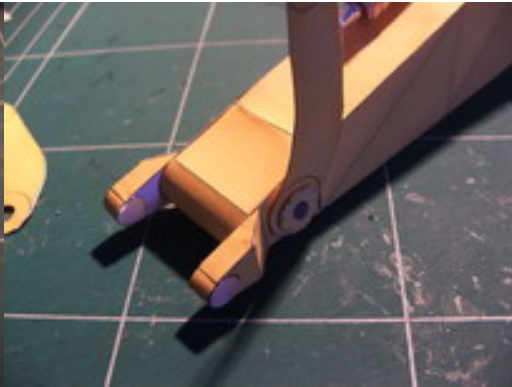


Attach hinge 7 and cylinder together with Pin 175 loosely, then glue hinge 7 to excavator Arm 2 as above.

28: Shovel to Excavator Arm 2 Assembly



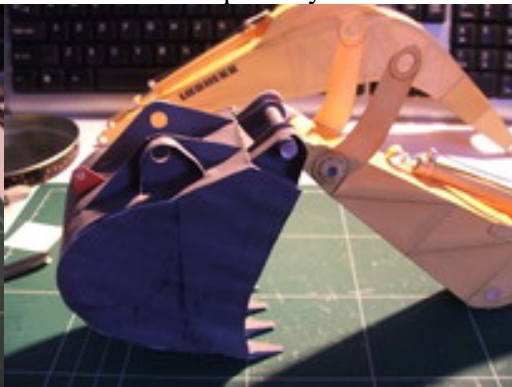
Roll item 173 around a 5.0mm needle and Fit to excavator arm 2 as above.



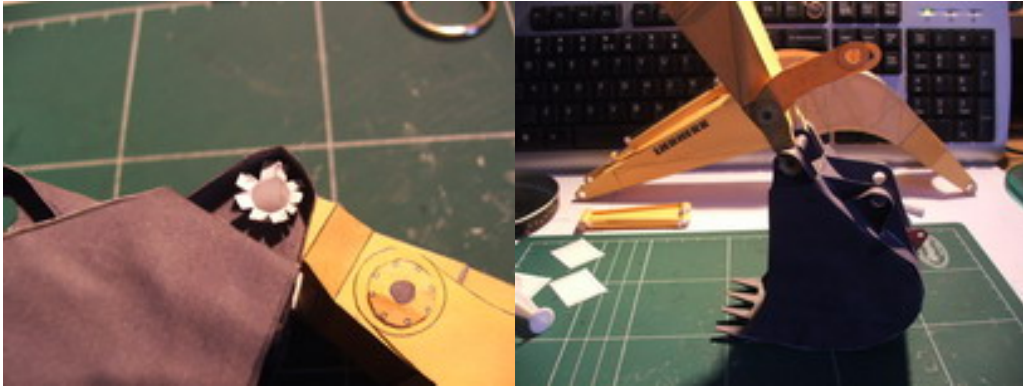
fit arm 122 loosely on the hinge and glue item 164 to the pin only as above.



Repeat the step on the opposite side As above.



Fit the shovel to the excavator arm 2 and use item 172 which is rolled around a 5.0mm needle as above.



Flair the pin and glue item 164 to the pin of both sides.

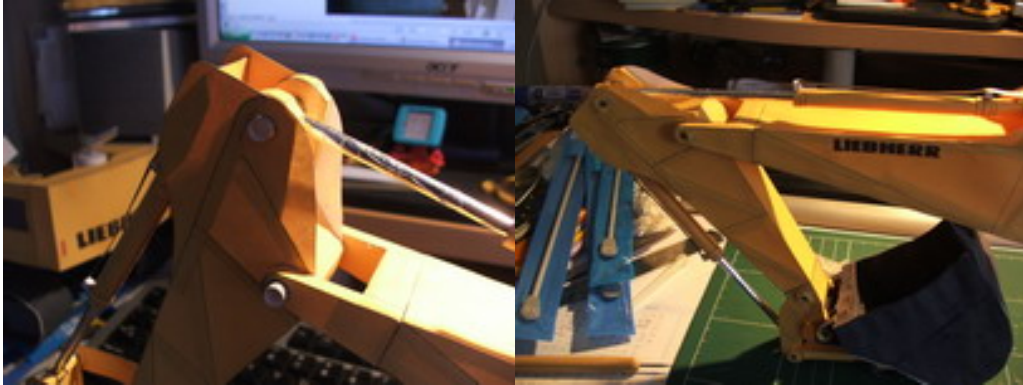


Fit the shovel to the bucket and issue item 171 which is rolled around a 5.0mm needle, Then flair the ends and glue item 164 on both ends as above.



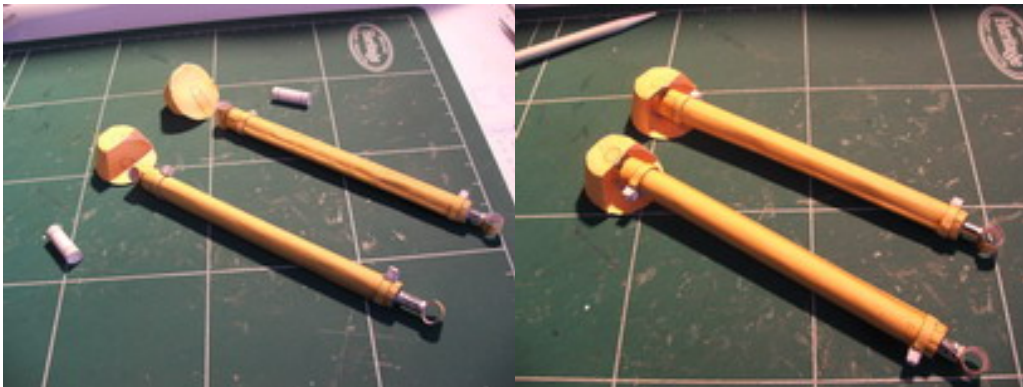
Use item 170 to bring cylinder 3 and the three(3) shovel arms together, then flair the ends and use item 164 to seal the ends off as above.

29: Excavator Arm 2 to Excavator Arm 1 Assembly



Use items 169 and 175 which are rolled around a 5.5mm needle to locate the two arms together, then flair the pins, then glue item 164 on all flaired pins.

30: Cylinders to Excavator Arm 1 Assembly

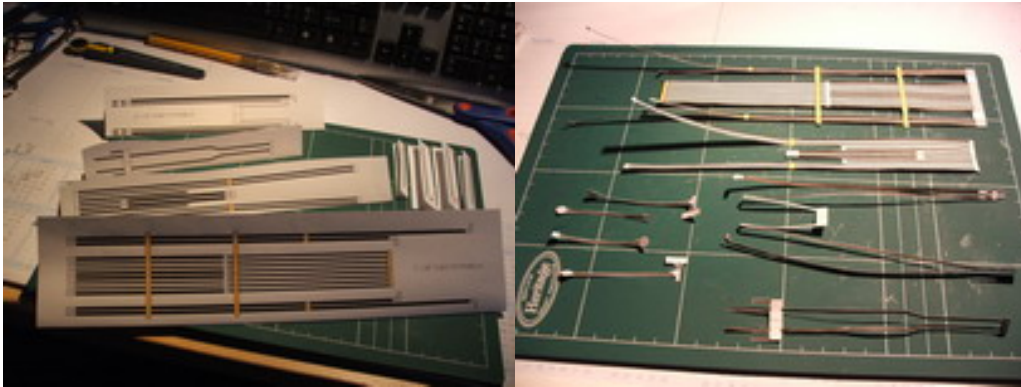


Use item 178(2) and rolled around a 5.0mm needle and glue the pins with the cylinders 1 and 2 to hinge 4 as above, make sure that the each hinge and piston.

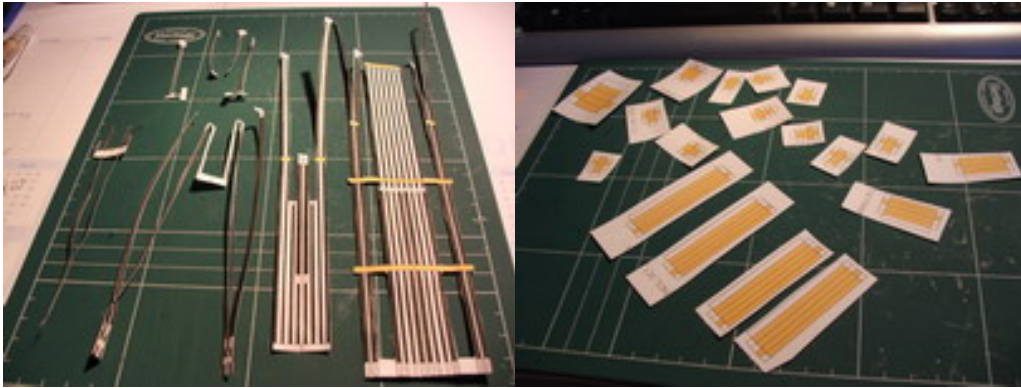


Glue the assembly to excavator arm 1 over the circles that are given as above.

31: Hydraulic lines Assembly

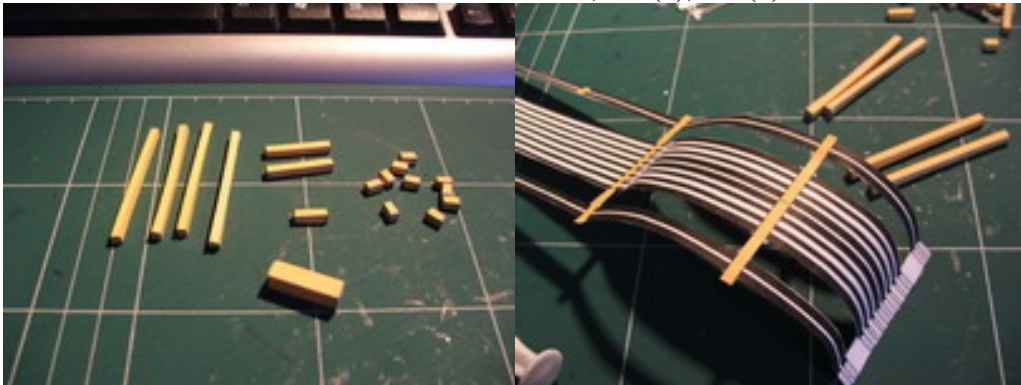


Cut, fold and glue items 141, 158, 159, 160, 161, 162 and 163 together, glue the parts Together and let the part set for a good well before trimming and cutting the parts As above.



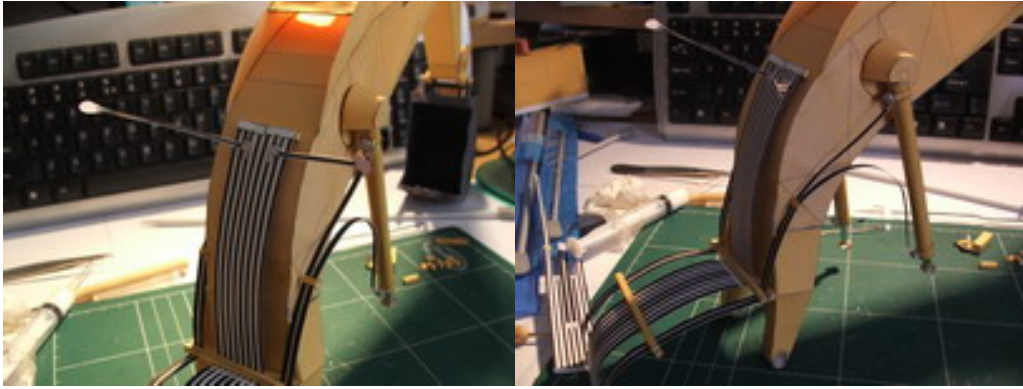
Extra view of the hydraulic lines.

Cut, fold and glue items 152, 156(10), 157, 154(4), 155(2).

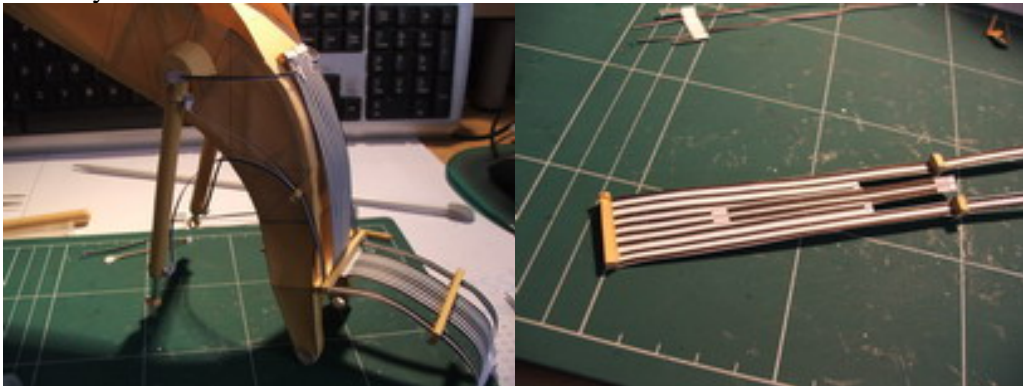


Completed parts glued together, make sure All parts are square and straight.

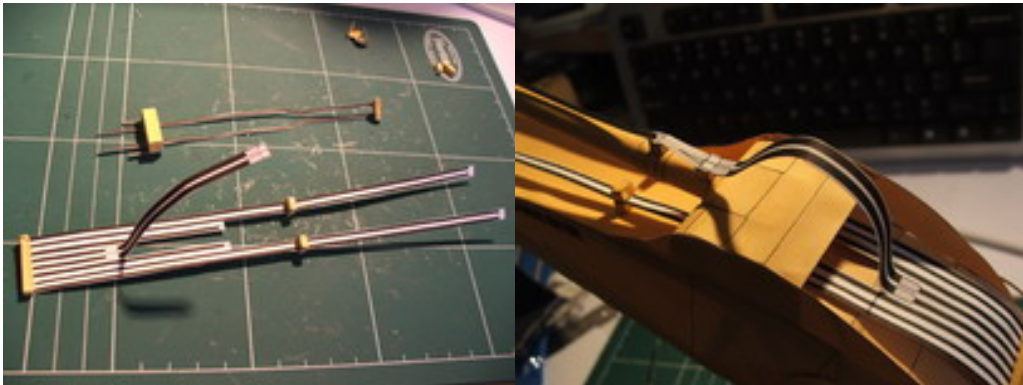
Roll the end of the hydro line 1 as above. Glue the items 154 on all long lines.



Glue the items 160 and 161 to hydro line 1 as above. then connect the side hydro lines to the cylinders 1 and 2 as above.



Connect the items 160 and 161 to cylinders 1 and 2 as above. Cut item 162 as above, and glue 1 item 155 and 2 item 156 on item 162.



Bend item 162 as above, glue item 157 and 152 to 141 as above. Fit item 162 as above, and also glue it to the cylinder as well.



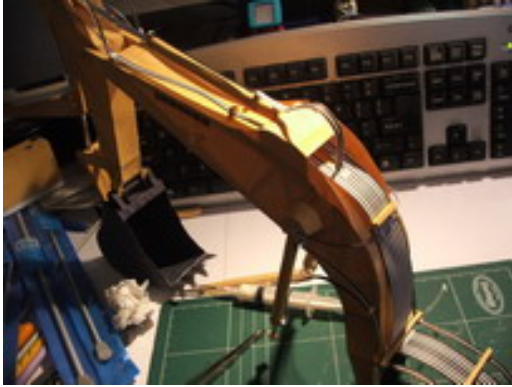


Glue items 156 to item 162 along excavator Fit 141 to excavator arm 2 as above.
Arm 1.



Fit item 158 as per the following photos which will also include adding item 156
along the way.





Completed hydraulic piping work.

32: Final small pieces.

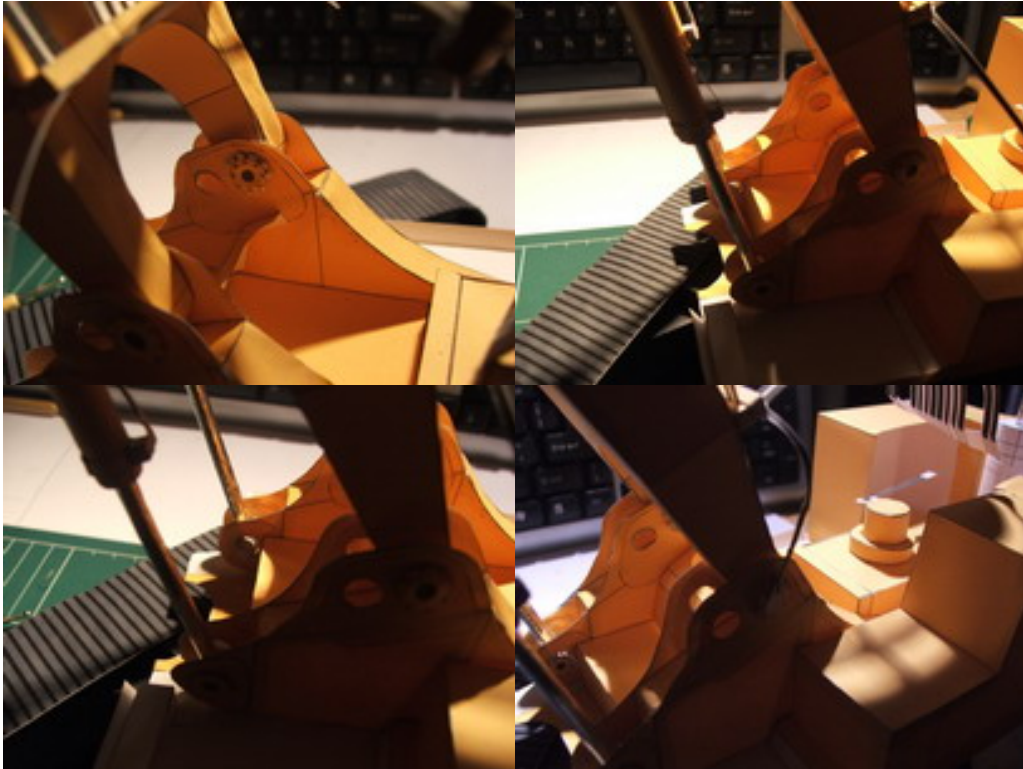


Cut and glue item 153(2) together as above. Fit item 153 to the side of the excavator arm 1 as above.

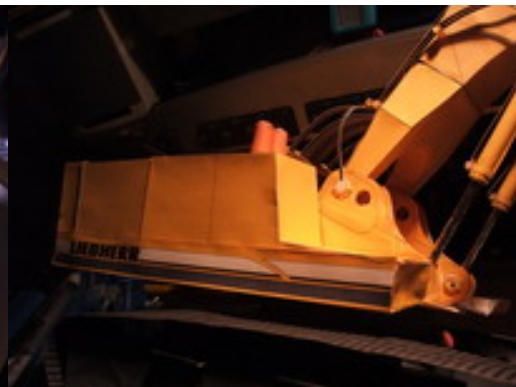
33: Final Model Assembly.



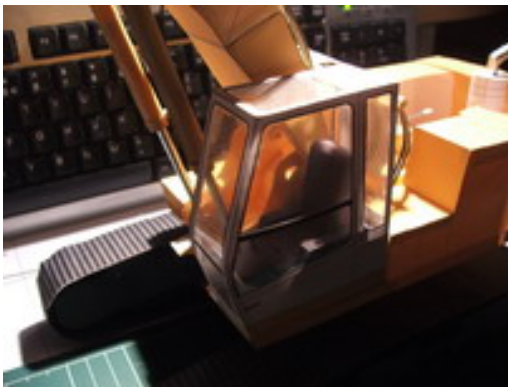
Take the complete arm assembly with items 180 which is rolled around a 5.5mm needle and locate the arm in the backbone holes and flair the pins and then glue item 164 on both sides of the pin to hold the arm in place. For the cylinders use item 179 and also roll the pin around a 5.5mm needle and insert it into the backbone and flair the ends and then use item 164 to seal the ends off.



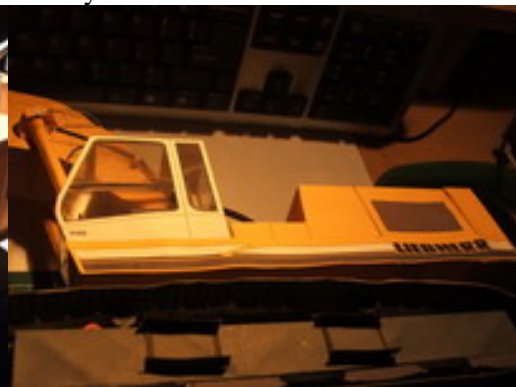
Insert item 163 into the hydro block as above.

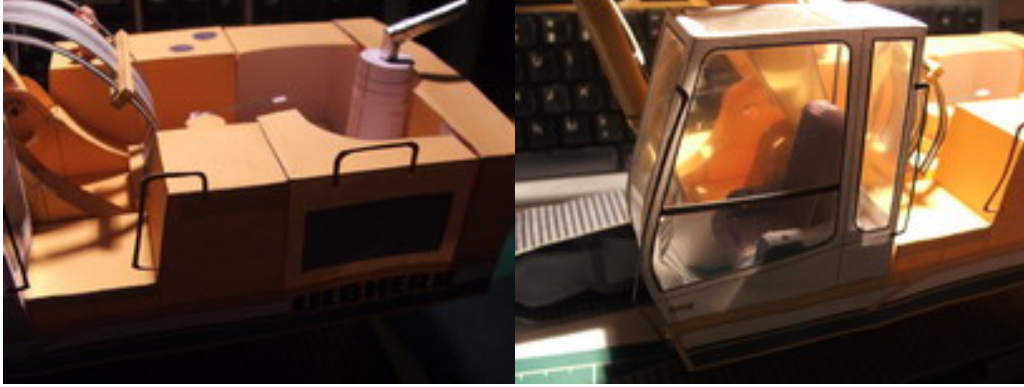


Glue the completed item 67 to the body. glue item 166 and 168 to the side of body as above.



Fit the cabin to the body, make sure the bottom of the cabin is flush with the top of body. Then fit items 167 and 168 to the side of the body as above.

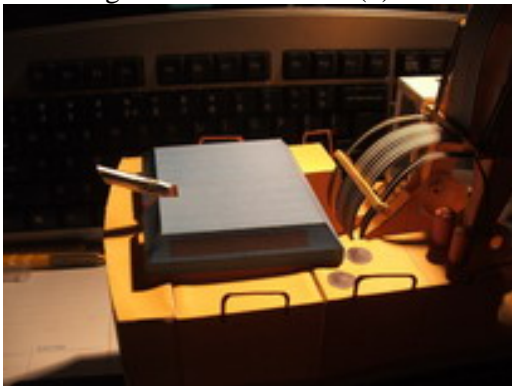




Cut and glue item 61 and 62 to the side of item 58 and 59. Cut and glue items 71 and 72 to the sides of the cabin.



Cut and glue items 68 and 63(2) to the sides of the body as above.



Glue item 69 to the top of the body by the exhaust as above.

34: Finished Model





35: Version Details

0.10	- 28 November 2009	- Project started, research begins.
0.20	- 1 January 2010	- Development work started, first model started.
0.21	- 28 February 2010	- First complete working model done.
0.30	- 1 March 2010	- First CAD design complete.
0.40	- 3 March 2010	- Revised design started.
0.41	- 17 April 2010	- Revised design complete.
0.50	- 6 May 2010	- Test pieces checked for workability.
0.51	- 8 May 2010	- Test pieces check complete.
0.60	- 4 July 2010	- First render work started
0.61	- 4 July 2010	- Final development model started.
0.62	- 5 July 2010	- Final development changes started.
0.63	- 16 July 2010	- Render work complete.
0.64	- 15 August 2010	- Final development changes completed.
0.65	- 15 August 2010	- Final development model complete.
0.70	- 22 August 2010	- Lock down render work started.
0.71	- 23 August 2010	- Lock down render work complete.
0.80	- 23 August 2010	- First written instructions started.
0.81	- 4 September 2010	- First written instructions complete.
0.90	- 4 September 2010	- Instruction proof reading started.
0.91	- 4 September 2010	- Instruction proof reading complete.
0.92	- 4 September 2010	- Project complete.
1.00	- 4 September 2010	- Build Instructions Released and Locked Down. Design Released and Locked Down.
1.10	- 21 February 2012	- Minor Updates.
1.11	- 1 March 2012	- Update to artwork part 58