Lift two floors
C-6139

Check all parts before beginning assembly

Tools required to mount the lift 2 floors

1. Drill
2. Drill bit Ø1mm, Ø1.5 mm or punch
3. Drill Bit Ø2,2 or 2.5 mm
4. Drill Bit Ø3mm
5. Drill bit ø4.5mm or countersink
6. Lime
7. Sandpaper, 120 gr
8. Block sanding
9. Star screwdriver tip
10. Pliers
11. plier tips
12. Vise
13. fixed key or wrench
14. White glue wood or glue gun
15. Welder

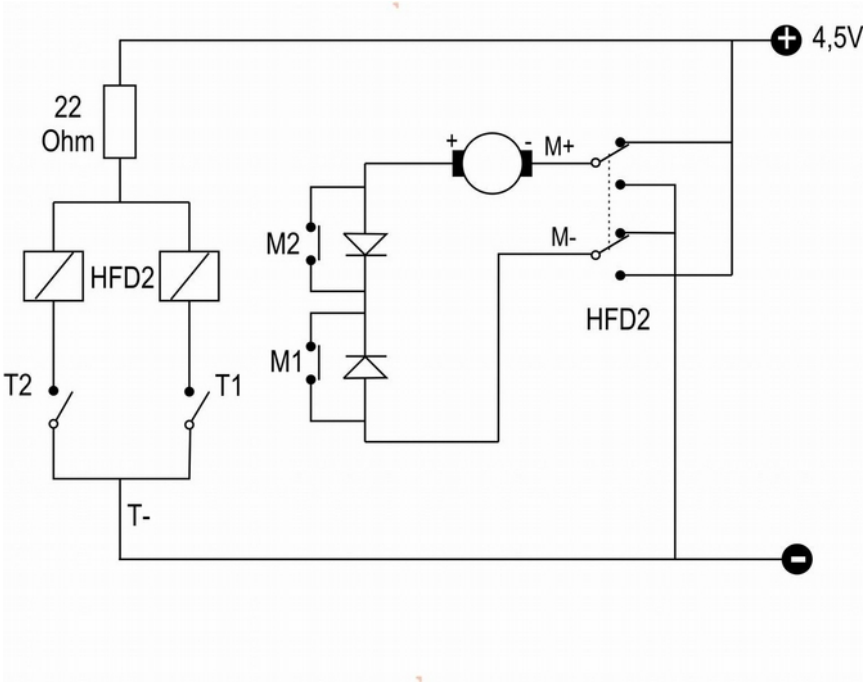
NOTE: You need 4.5V battery, NOT INCLUDED

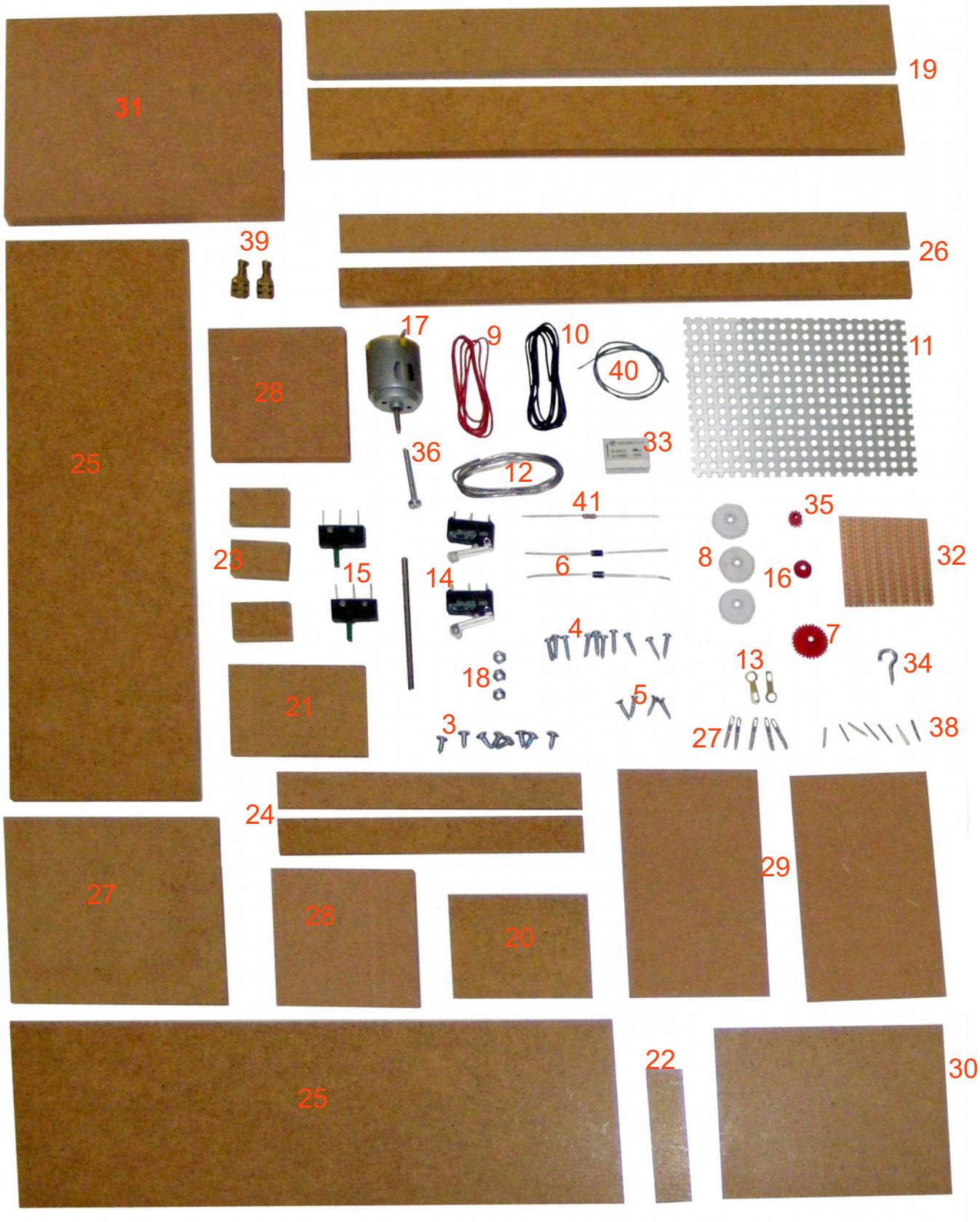
Materials included in the kit

Nº	Quantity	Description
2	1	Axe Ø3 x 60 mm
3	8	Self-threading 2,9 x 6,5 mm star countersunk head
4	10	Self-threading 2,2 x 9,5 mm star countersunk head
5	4	Self-threading 2,2 x 9,5 mm Flathead star
6	2	Diodes 1A

Nº	Quantity	Descripction
7	1	30/10 double gear, 0.5 module, 2.9 mm hole, red
8	3	30/10 double gear, 0.5 module, 3.1 mm hole, white
9	1	red wire Ø0,5mm 600 mm
10	1	black wire Ø0,5mm 800 mm
11	1	perforated metal sheet 100 x 75 mm
12	1	Tin 500 mm
13	2	Terminal welding closed loop
14	2	Roller microswitch (limit switches)
15	2	Micro-switches with long green plug
16	1	Mini-wheel flange Ø8,5 x Ø2,9
17	1	Mini-wheel flange
18	3	nuts M3
19	2	Board (DM) 270 x 33 x 6 mm (front side parts)
20	1	Board (DM) 45 x 59 x 6 mm (Front upper part)
21	1	Board (DM) 40 x 59 x 6 mm (central part front)
22	1	Board (DM) 16 x 59 x 6 mm (lower front)
23	3	Board (DM) 25 x 16 x 6 mm (And end brackets Leva race)
24	2	Board (DM) 125 x 16 x 6 mm (Ledges input)
25	2	Board (DM) 256 x 82 x 6 mm (lateral walls)
26	2	Board (DM) 256 x 16 x 6 mm (Rear edges sidewalls)
27	1	Board (DM) 82 x 92 x 6 mm (Cover)
28	2	Board (DM) 60 x 60 x 8 mm (Floor and ceiling cab)
29	2	Board (DM) 100 x 60 x 8 mm (cabin lateral parts)
30	1	Board (DM) 100 x 76 x 4 mm (cabin rear wall)
31	1	Board (DM) 125 x 100 x 8 mm (Wood base)
32	1	printed circuit board for prototyping with 8 tracks and holes 15x15
33	1	Bistable relay
34	1	small eyebolt
35	1	Pinion 10 teeth with 1.9 mm hole, red
36	1	Screw M3x25mm
37	5	Female connector Ø1mm
38	7	Male connector Ø1mm
39	2	Type connector faston 6,3mm
40	1	waxed cord 30 cm
41	1	Resistance 22 Ohm (red-red-black-gold)

Electric scheme




31
19
39
26
25
17
9
10
40
11
28
36
12
33
41
35
23
15
14
6
8
16
32
4
7
18
13
34
21
5
3
27
38
24
29
27
28
20
25
22
30

Mounting

NOTE: DM boards, has a thinner face is the one that has to go outside.

Mounting the front wall

A) We started the assembly, with the board on the left side of 270 x 33 x 6 mm. Mark with a pencil on the inside of 140 mm. View image

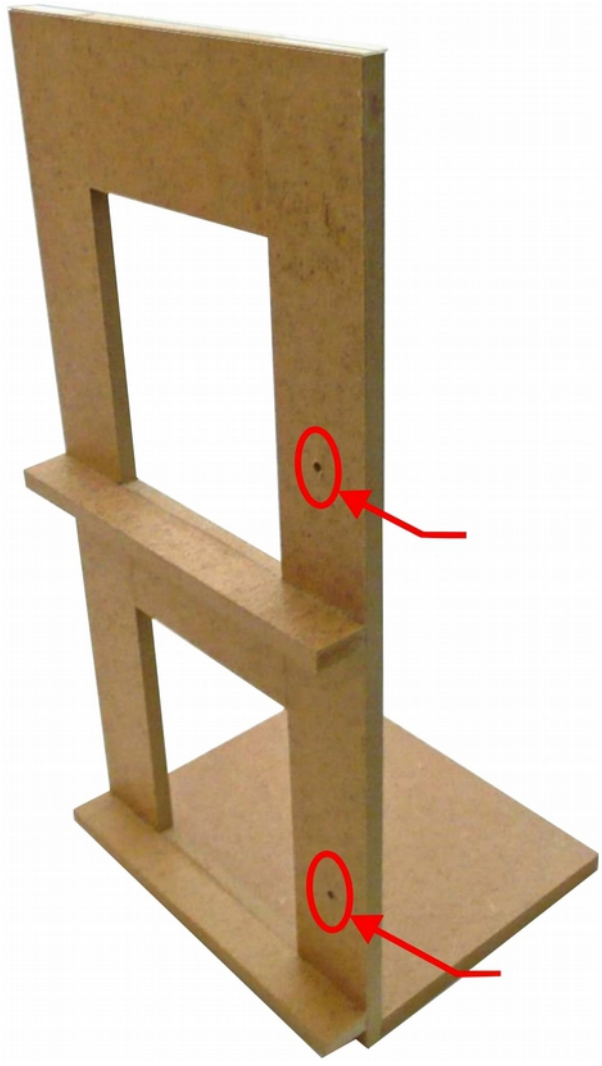
B) Glue the board 59x45x6mm at the top. 59x40x6mm board will stick it below the mark we've done before. The board 59x16x6mm at the bottom.

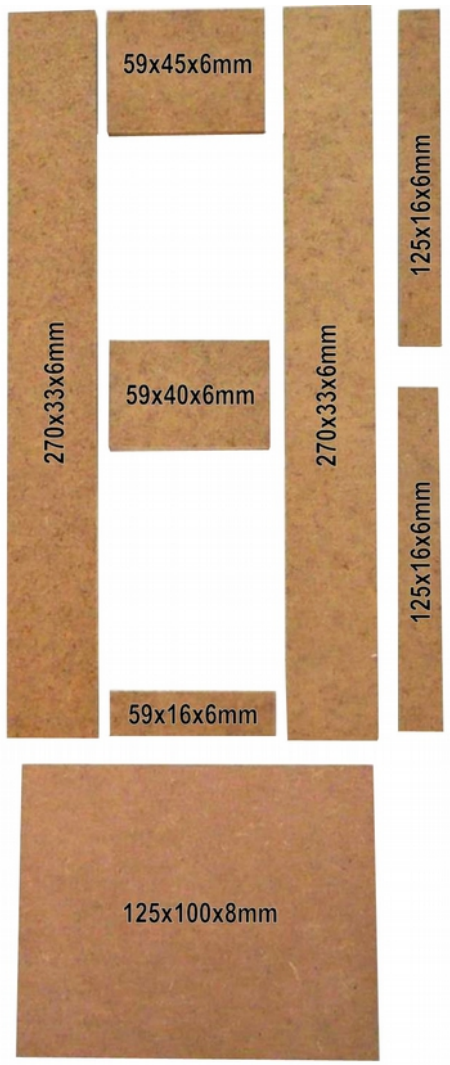
C) Then the other 270x33x6mm board is glued on the opposite side.

D) On the right side you have to make two holes Ø3mm for the two buttons. Youmake a vertical line on the right corner to 15 mm . Marks the site you have to make two holes 175mm and 50mm from the ground.
You'll have to be very precise in making holes, but the buttons are not adjusted.

E) In the bottom of the front panel must paste the x6mm 125x16 input.
Note: you have to put it right flush with the top of the board 59x16x6mm.

F) I just need to paste the base plate 125x100x8mm. This board itself that rests on the floor. The remaining step is to place the floor of the elevator car.





Cabin assembly

A) The two boards are 60x60x8mm for the roof and floor. The two lateral parts are formed by boards 100x60x8mm. Paste boards together, considering that the floor and ceiling are between the two side walls. The walls must be well squared.

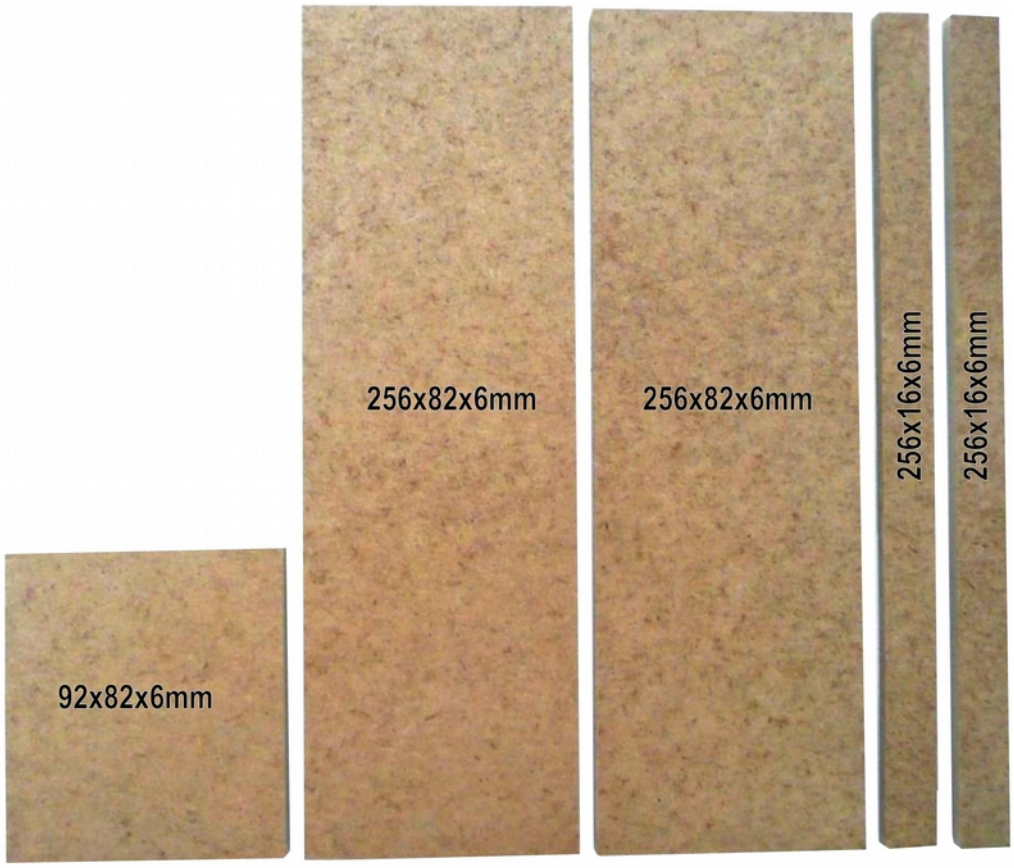
B) Paste now backsplash 100x76x4 mm, enduring the cabin.

C) Once the glue dries, mark the center of the cabin ceiling (see picture), and place the eyebolt.

D) Attach the eye bolt to a waxed cord ends.

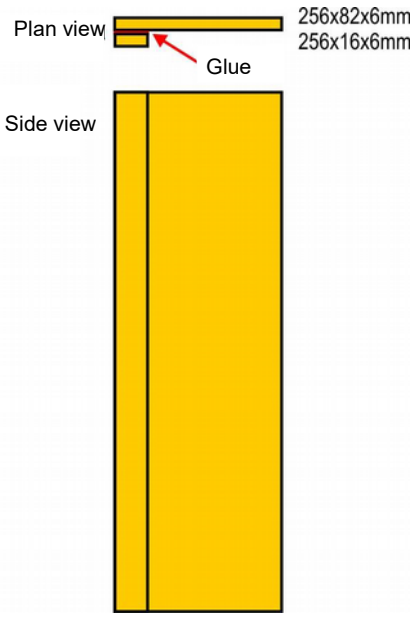
Construction elevator gallery

These boards will come together to mount the gallery.



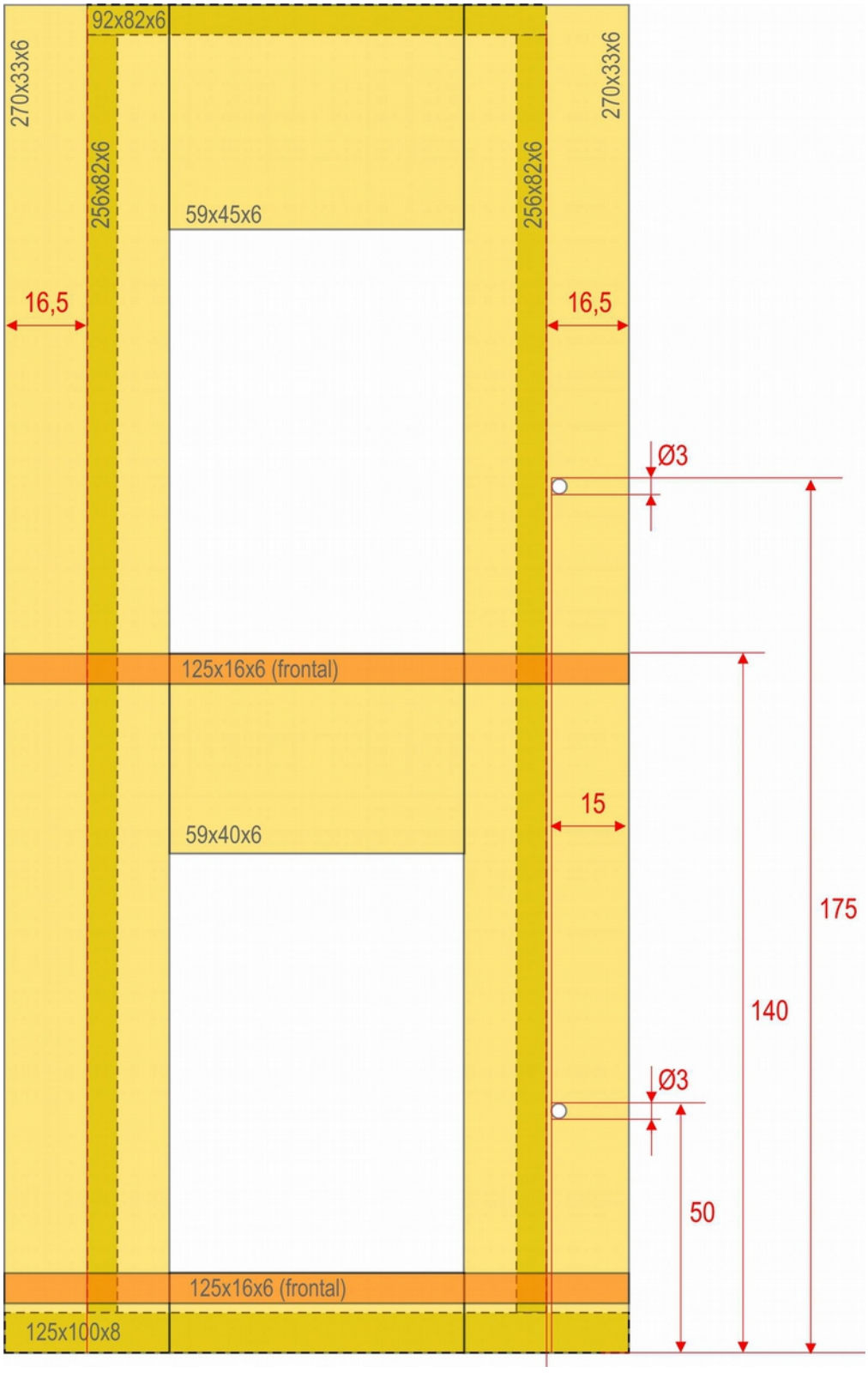
A) Once the front wall is dry, use board 256x82x6mm to form the sides of the cabin.
We will slash 16 mm long corner, one of the edges of the side panels.

B) will glue the 256x16x6mm narrow boards, corniny where we have drawn the line.
They are to be stuck on the inside, single corner. See diagram.

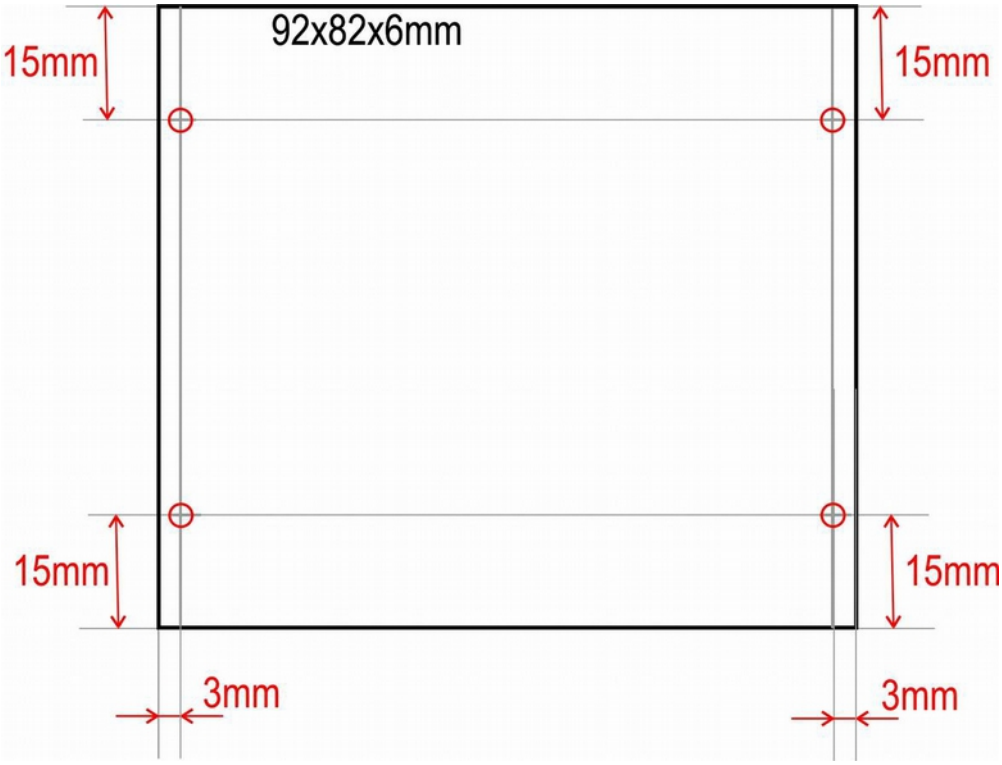


C) On the side where the buttons go with long pin, we will slash 16.5 mm ridge wall.
We will take the same distance to another line on the opposite side.
Before proceeding, check that the distance between the two marked lines is 92mm, if correct will the extension of this line on the floor of the gallery. This will guide us to make it the wall well squared.

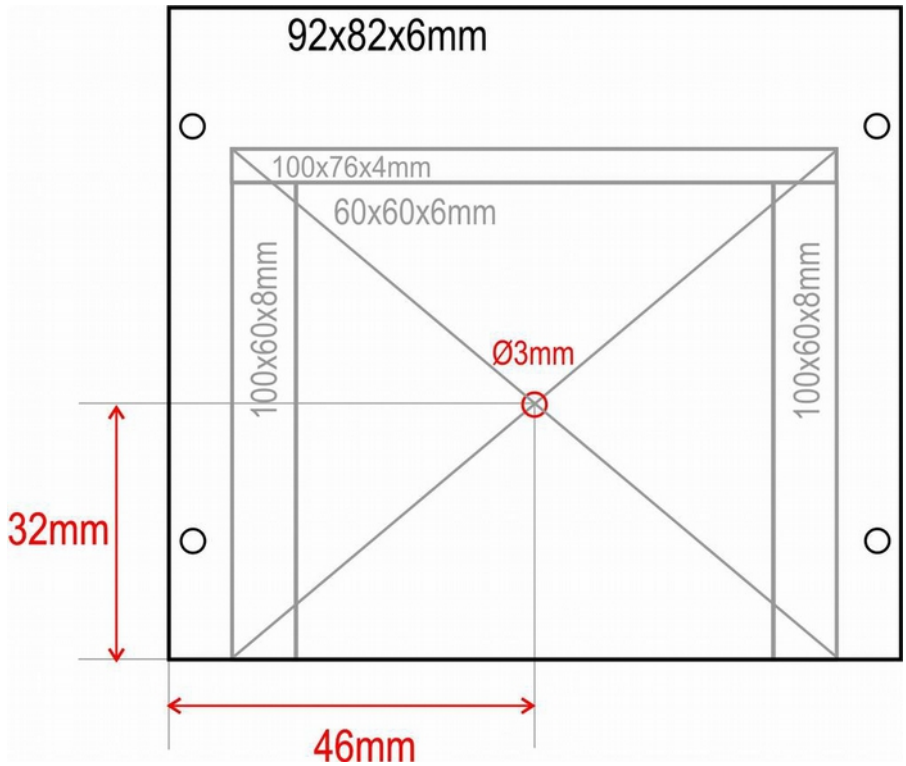
D) On the lines we have done, we will stick the two side walls 256x82x6mm, considering that the part where we stuck strips will be looking 256x16x6mm (side of the cabin).



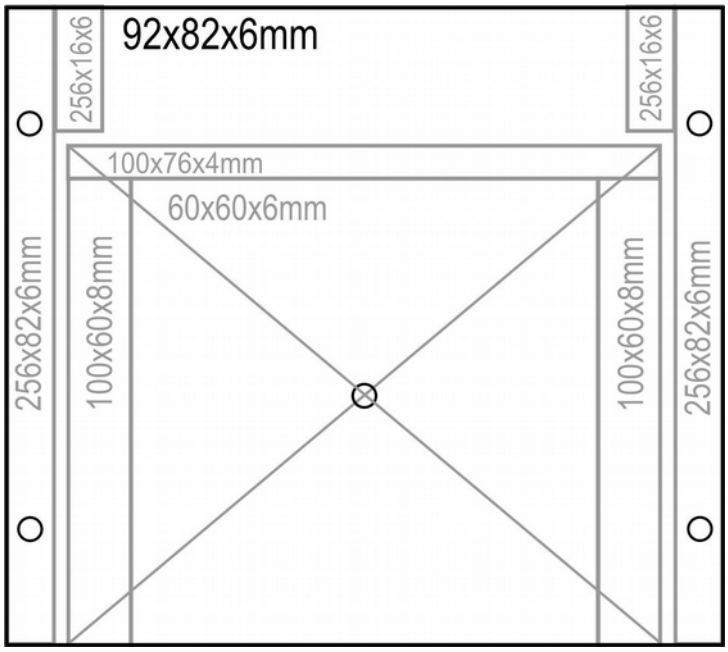
E) We will prepare the cover 92x82x6mm .
We will line 3 mm parallel to each of the short sides. Mark a point 15 mm from each corner. We will make a hole of 2.2 mm to fix the 4 countersunk screws 2.2 x 9.5 mm. The holes must meet at the center of thickness of the vertical plate 6mm. With a countersink, slightly deepen the hole so that the heads of the screws are threaded on the board.



F) You have to make the hole in the cover for the cable pulling the cab. The hole you have to do a bit of 3mm to 32mm in front and 46mm at the side (in the middle). See diagram:



G) Once the glue is dry walls, place the car in the hoistway. Note the correct position of the cab. It must move freely in its place.
The elevator must have a 2mm gap with respect to the gallery.

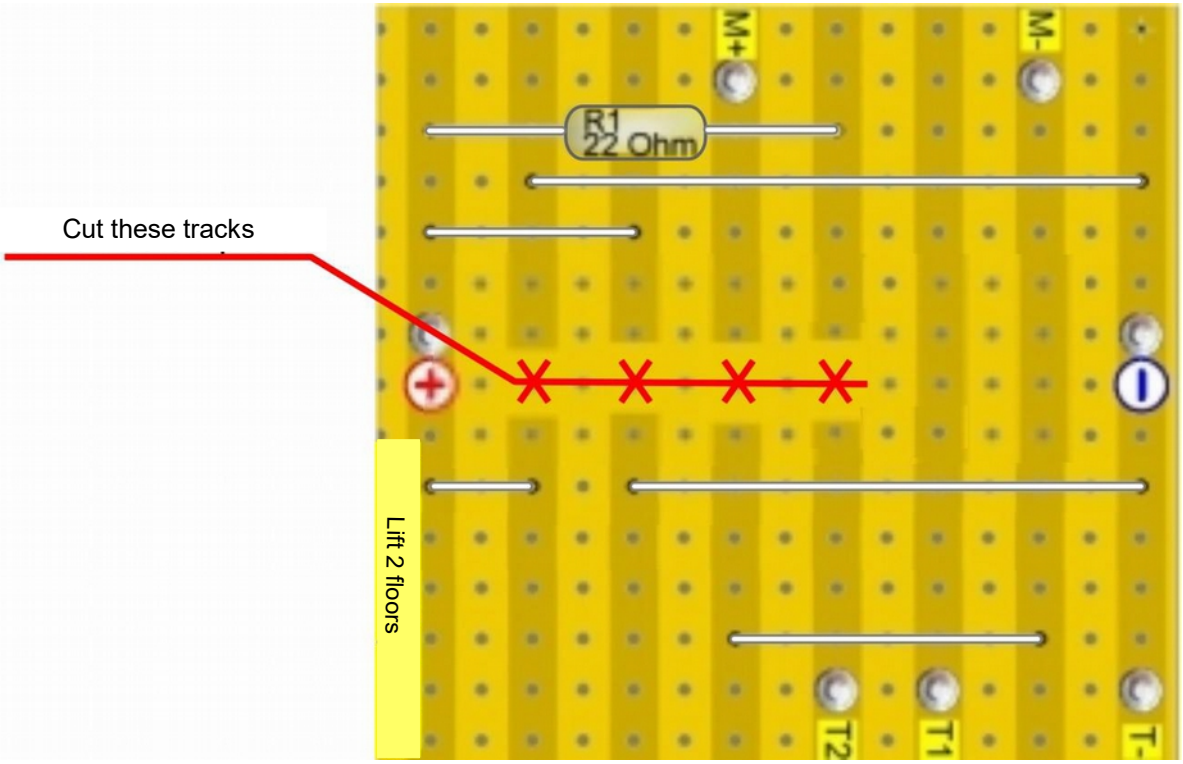


Plan view

H) Screwed cover gallery elevator with 4 screws 2.2 x 9.5mm, flathead ..
Rear view mounted group.

Printed circuit

NOTE: The drawing shows the printed circuit board component side.
The darker tracks represent the copper strips, but really are in the back.
The copper circuit No. 2, 3, 4 and 5 should be cut in the location shown in this drawing.



A) Cut the 4 tracks indicated. It can be done with a cutter.

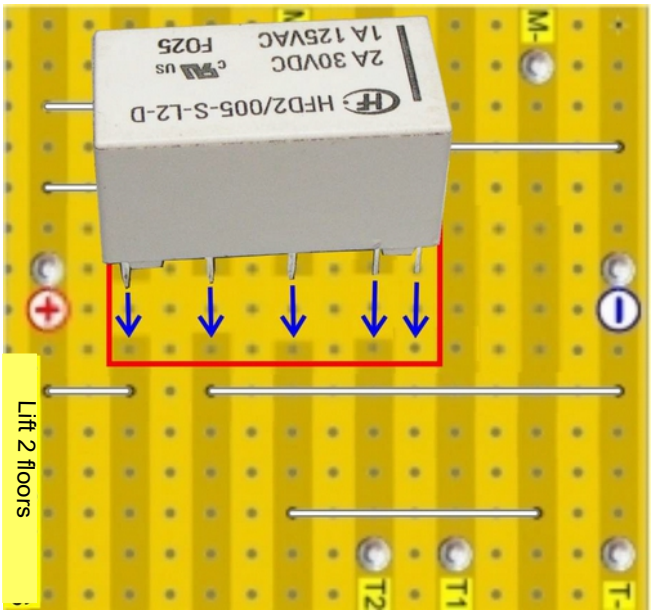
B) Preparation of black thread for the thread 5 bridges as indicated in the drawing. Peel both ends of the thread, enter the two corresponding holes, bend just a little to avoid falling and soldering. Having many care to avoid short circuits on the side of the tracks. Once soldiers, cut off the excess stalks.

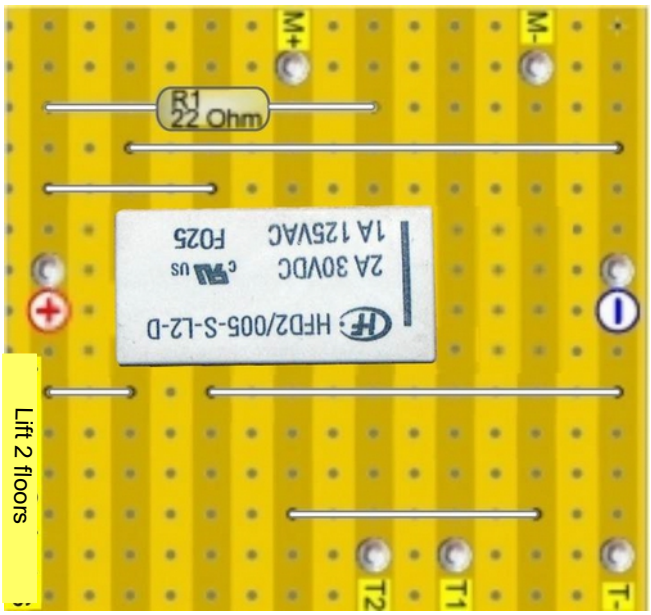
C) Place the resistance of 22 Ohm (red-red-black-gold). Weld and cut the excess stalks.

D) Place 7 male connectors (pin Ø1mm) at the points marked: M +, M-, T-, T1, T2, +, and -.
With a tip pliers the clench until it stops. The solder. Once soldiers is recommended to mark off each pin with a label or permanent fine tip marker. Marks: M +, M-, T, T1, T2, +, and -.

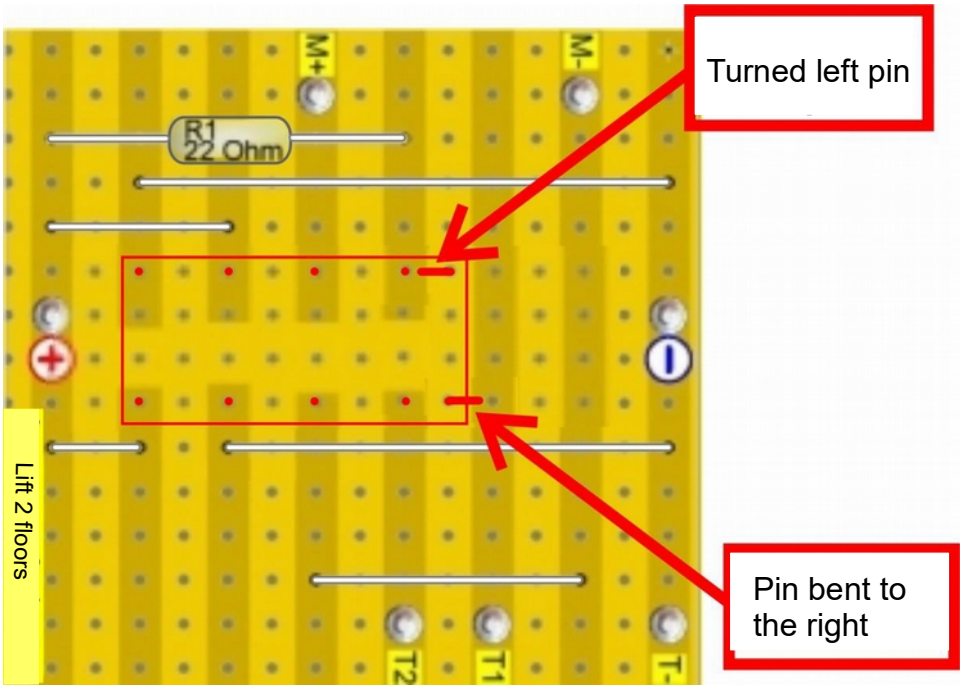
E) It is necessary to place the bistable relay. It has position. On the one hand are the 6 terminals of the contacts and on the other are the 4 terminals of the coils (thinner wire). Confused, observe the silkscreened signal (vertical black line). View image.

It is important to see that the two pins on the right are outside the copper tracks. Once we are confident that the relay is correctly positioned, the 6-pin solder contacts (the left).

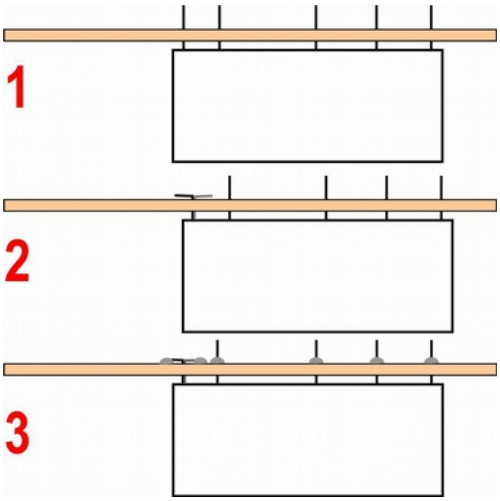




F) Now we will double the two pins that have been left out of the copper tracks.
The top to the center of the circuit and the bottom track T1. see diagram

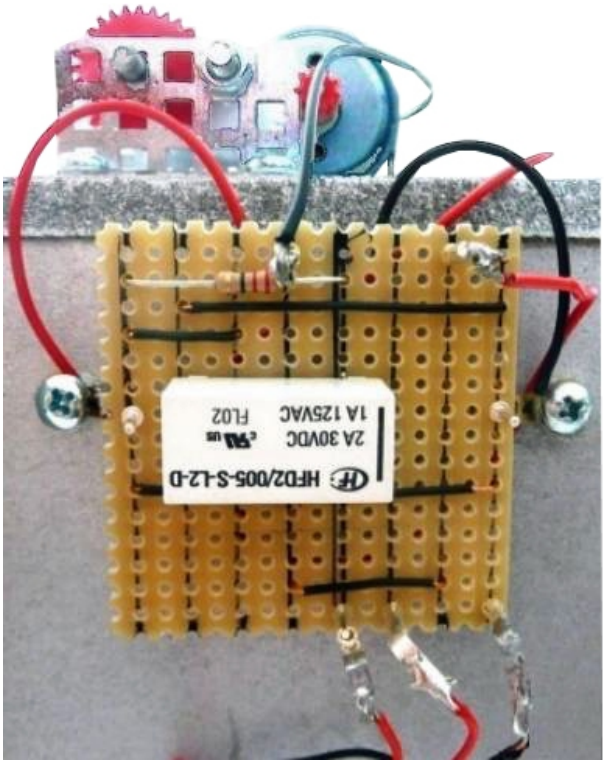


G) We will carefully these welds, avoiding short-circuiting.
Here is the three steps, side view:



H) There are now welded the two spade terminals. They are welded by the narrowest part of the terminal, so that the large ring remains outside circuit and serve to screw.

I) 2,9x6,5mm Using two screws to secure the circuit through the spade terminals at the top of the sidewall. See the end and bolted to the sidewall circuit.

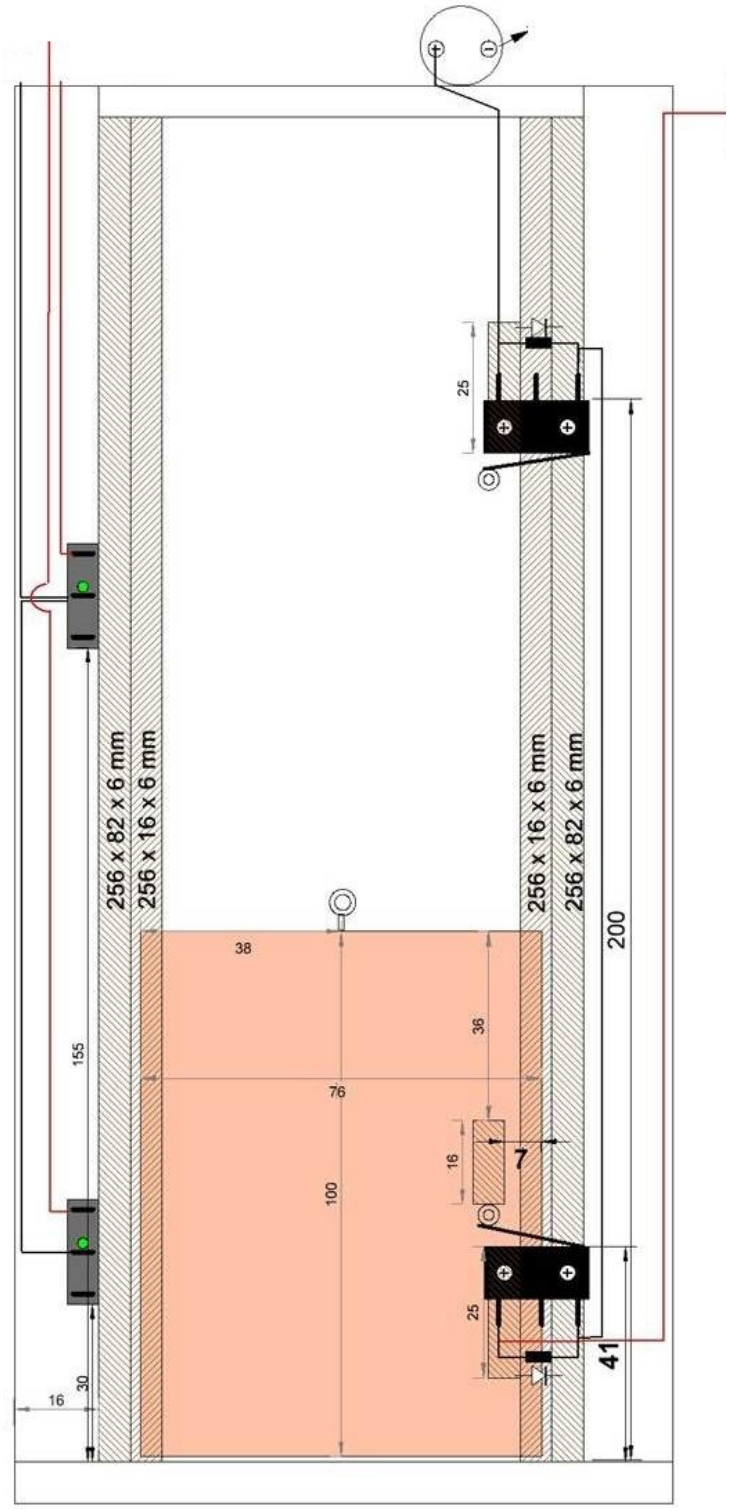


Placing the cam and supports micro-switches

A) Let's put the three pieces of 25x16x6mm remaining DM.
Two of them will be used to reinforce the wall where the limit switches will be located and to have room for the two screws. The third attach it behind the elevator car and which will act as a lever, activating and deactivating the micro-switch roller.

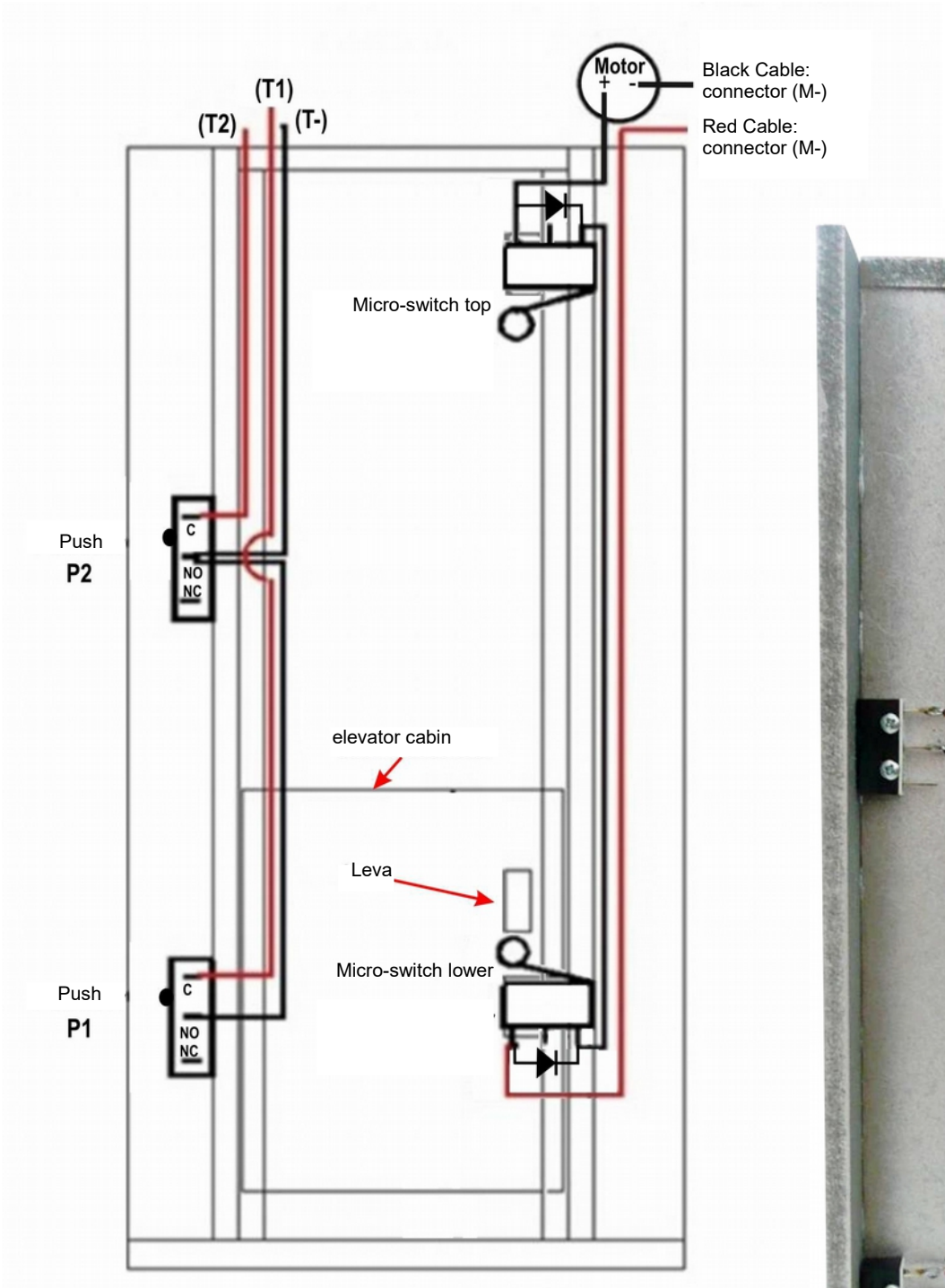
B) First we will stick the two pieces that reinforce the sidewall. We will stick greater than 200 mm and less than 41mm from the floor (see picture). They will be placed in the same direction 256x16x6 board. They must be at the same level of the current wall so that the micro-switch can be attached either plane.

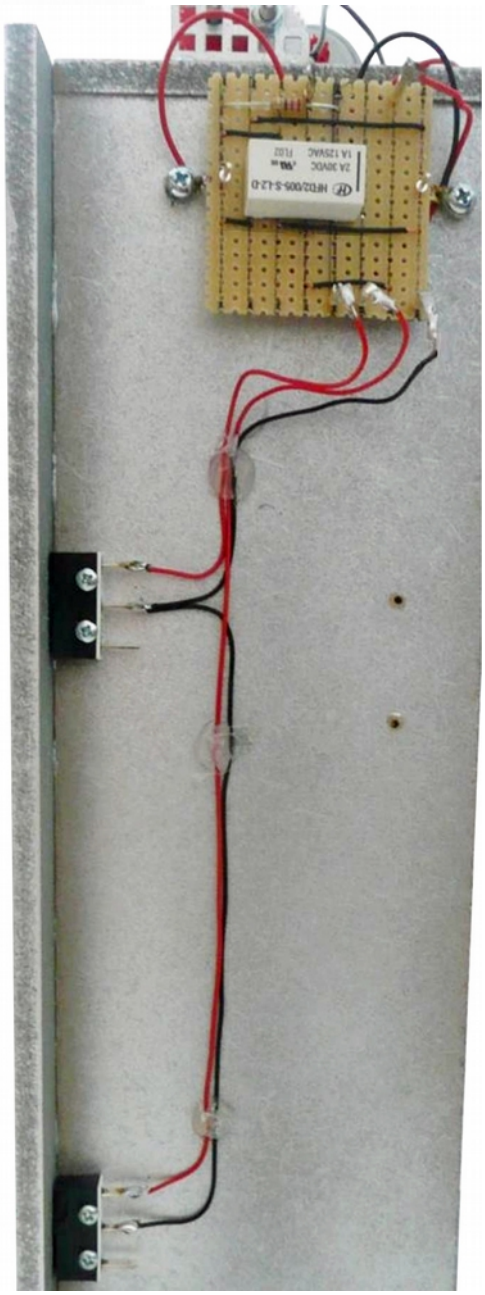
C) The cam piece that will attach it at the start of the rear cab frontally. It will be 36mm deck cabin and 7 mm of the side wall, to avoid friction with the board guides. View image.



Cabling

A) We prepare the micro-switches. We set the two 2,2x9,5mm screws, making sure that the axis of the push is centered on the hole in the wall. Note that the longest part of the structure is down, and that the leg marked with a "C" is at the top. Solder the black wire to the central legs and red threads in the upper pins each. See diagram and image.





B) Now we weld three sockets Ø1mm at the end of the three wires. There will plug them as follows:
Red thread, P2 = T2.
Red thread, P1 = T1.
Black thread (return) = T

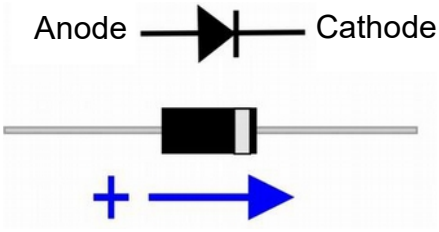
C) Now remount the two micro-switches with roller. They make the function of limit switches.

D) The micro-switch we fix it with the lower roller up. So when the roller is pressed by the cam, the entrance to the cabin is with the lower storey edge. You have to mark this position and time, we will post only the screw back.

E) Now let's pull the pull cord of the cabin to rise. Mount the micro-switch on the top with roll down. We climb the lift slowly until the cabin is flush with the floor of the first floor.
Post the micro-switch that is tight in this position. Then, mark the position and time, will fix only the screw back.

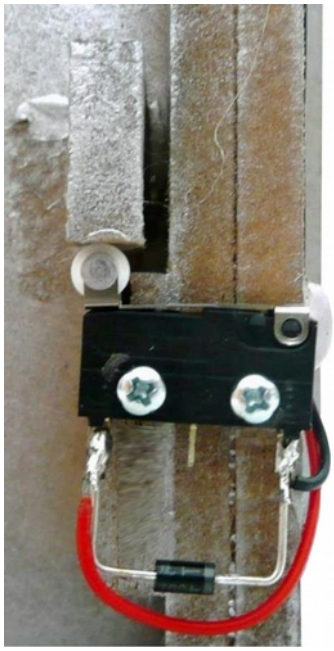
NOTE: Before attaching the second screw of each micro-switch operation test the running. If unemployment is too advanced or delayed, we can correct it by tilting the micro-switch up or down slightly. When we have verified the correct functioning is when we will post the second screw.

F) Weld now a diode in each of the micro-switches. It is very important the proper position of each diode. A diode current just passes (in the direction of the arrow) when the anode is positive



G) We soldered now the black thread linking the two cathodes.

H) Solder the red wire to the other leg of the micro-switch and lower socket (Ø1mm) at the other end of the cable. It will be connected to the M- terminal of the circuit board.
I) Now solder the black wire to the micro-switch terminal superior. Leave the long wire to connect the motor when installed (see diagram on the previous page and following photos).



Construction of the metal supports

A) The plate 100x75mm (19 x 14 holes) and cut to size with shears or scissors for cutting sheet metal.

NOTE: Remember that before beginning assembly and once cut all the pieces have to polish all the songs well, that ye do not cut.

We will cut the four corners of the strip diagonally, the puliremos and if necessary we will put it straight.

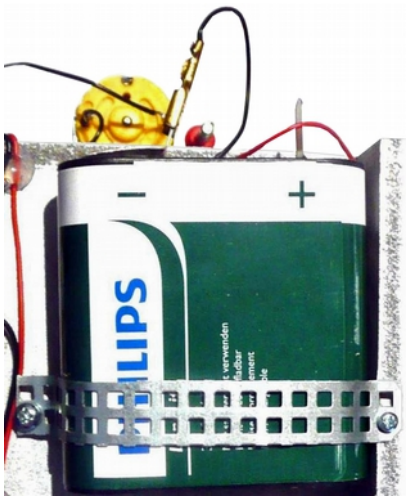
NOTE: Before you start cutting you need to plan.
Look at the best way to cut the plates to come out all the parts you need.
Between pieces always a row of holes is lost.

B) prepare the two perforated plates 5 x 4 holes. A rectangular cut the little time we encaste to remove a hole.

C) Mark now with a pencil along the dotted line (see pictures). Fix the first piece in the vise to the level of the line and bend 90 degrees.
Mark the second part, considering that is not the same, but symmetrical with the first. 90º bend the line.
We already have the support of the gears of the gear ratio of the engine. They are fastened with 2 screws 2,9x6,5mm.

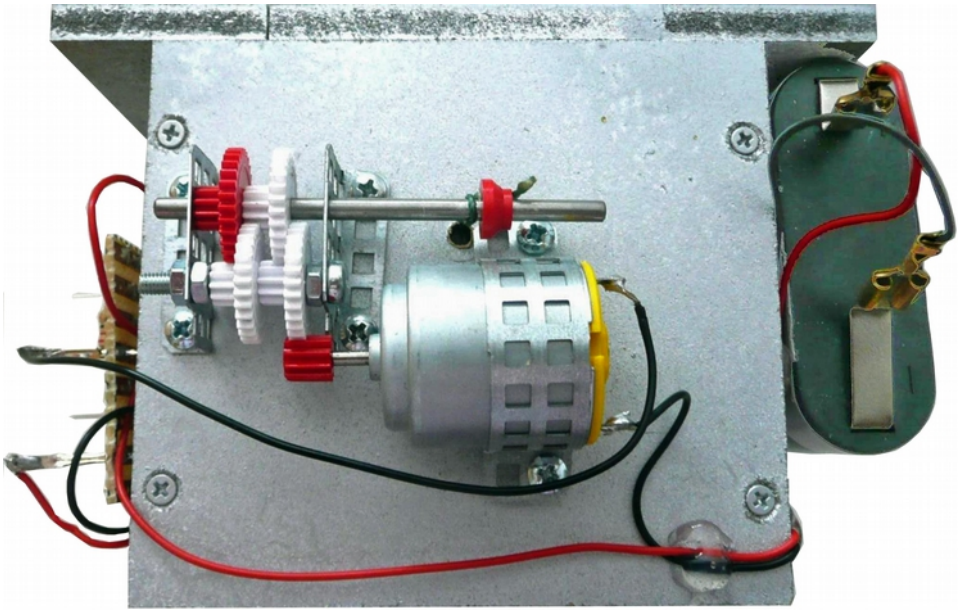
D) Cut the third perforated plate, which will measure 16x2 holes and will be the engine support. Once a clean burr put it above the engine and bend. At the end we will double in the opposite direction the last hole on each side to screw the motor. It is secured with 2 screws 2,9x6,5mm.

E) Trim the fourth perforated plate. This is the battery holder 4.5V. It should measure 17x2 cut. Once cut and polished, we will put up the stack, and give form. Attention, the left side is longer than the right side.
This bracket is attached with two screws 2,2x9,5mm



Mechanical assembly of traction elevator

Let's ride reduction motor. It is convenient to have to look at the picture of the assembled group.



A) We will place a double gear 30/10 RED (inner hole 2.9mm) on the shaft of 60 mm. It will press until between about 5mm. Then insert a double gear 30/10 color WHITE (inner hole 3.1mm) which rotate freely.

B) Will insert the shaft mounted in two brackets have mounted with the perforated plate. We will use the second hole up in the two plates.

C) M3x25mm now will place the screw in the first hole that is adjacent to the mating of the perforated plate. With a nut M3 on the other side of the plate we assure the screw, but loosely.
Then we insert a double gear 30/10 WHITE color (3.1mm inner bore) and then the other, so that it is on either side of the shaft gear white 60mm first. M3 place a nut and insert the screw M3x25 on the perforated plate. Finally we make sure the screw with another nut M3.

D) We check that gears rotate freely if problems.

E) Will post the two brackets holding the reduction, so that the spindle is in the center hole cover lift. The two plates are to be squared and parallel well. It is also important that the gears are tight not have to have a little lateral play. Fix the two brackets with screws 2,9x6,5mm. Once the set is fixed, check again that everything runs smoothly. It's time to tighten / loosen the nuts until everything rolls well.

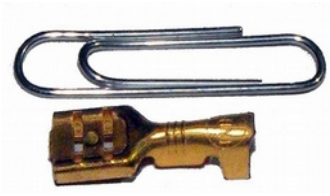
F) Insert the pinion on the motor shaft, pressing against the table.

G) It's time to fix the motor. We must face the pinion gear to the first double, but not tight. You need to have a slight play. Fix the motor with two screws 2,9x6,5. H) Raise the lift cord cabin through hole in the cover. Des catch up. Roll it up and secure the shaft by mini-flanged wheel Ø2,9 Ø8,5 x entering pressure.

I) We need only connect the motor and battery. Cut the black wire coming from the micro-switches with roller, to reach well to positive engine. What solder.

J) Solder a black wire to the engine. At the other end of the cable Ø 1 mm solder a socket connector, which enchufaremos the M + terminal of the circuit board.

K) Solder a black wire and a red thread a pair of connectors couple the stack. We can use 6.3mm faston type connectors or metal paper clips. Solder the other ends to a pair of sockets Ø1mm. Enchufaremos the red wire from the point + the printed circuit to the positive terminal of the battery (short end). And the point - the printed circuit to the negative terminal of the battery (long terminal).



L) It has been fully completed transmission and elevator installation with two floors.

NOTE: A few drops of engine oil at the points of friction and gears, the mechanism will operate with more finesse.

Educational Kit wood and metal:

Kit school a lift 2 floors. It will be necessary to polish and polish the pieces that form the housing or elevator shaft. Powered by an electric motor and two micro-switches, placed each on its floor. One at the beginning and at the end. It requires making small tin solders in some electronic components (diodes, resistors, ..).

NOTE: This kit is recommended for children from 12 years if accompanied by an adult.