

# OPITEC

114.044

## Quadbike with electric drive motor



### Pencil & ruler:

Fretsaw  
File  
Drills 1.5dia, or 2mm dia, 3mm dia  
,6mm dia  
Metal shears  
Wood glue, hot glue  
Soldering iron, solder  
Crosshead screwdriver  
Spanner M3  
Paint, brush

### Please Note

The OPITEC range of projects are not intended as toys for young children. They are primarily designed as a teaching aid for teachers of Design Technology to encourage the development of young children in practical skills. These projects should not be attempted without a qualified adult. They are not suitable for children under 3 years old.

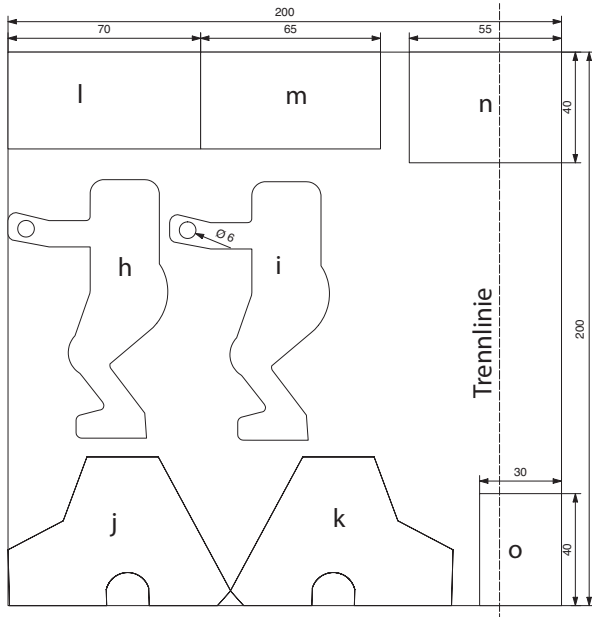
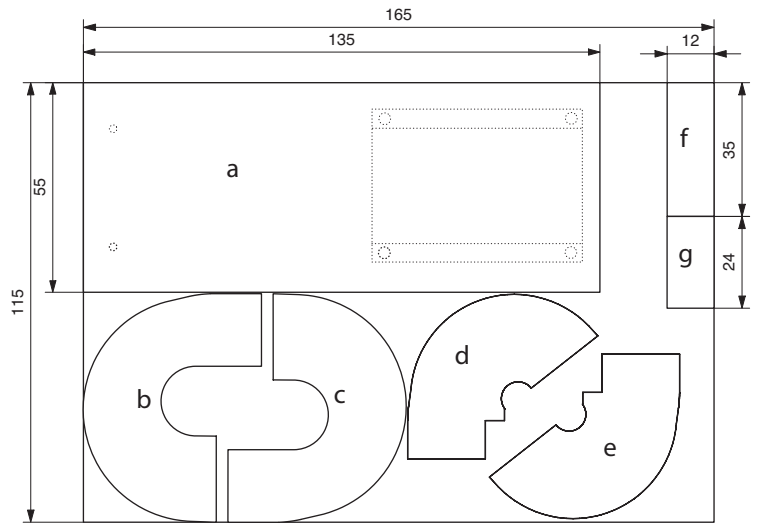
PARTS LIST				
			Description	
Plywood	1	165x115x8	Base & frame	1
Plywood	1	200x200x3	Bodywork, figure	2
Aluminium sheet	1	100x100x3	Mudguard	3
Dowel	1	150x6	Steering	4
Wheels	4	ø51	Wheels	5
Gearbox motor	1		Drive	6
Wood strip	1	100x15x15	Body, driver	7
Wood strip	1	200x5x5	Seat stand, strengthening	8
Battery holder	1	2xAA	Battery holder	9
Micro switch	1		On-Off-Switch	10
Cable	1		Cable	11
Threaded rod	1	150x3	Axles	12
Screws	4	10x3	Motor fixing	13
Screws	12	6,5x2,2	Mudguard fixing	14
Nuts	6	M3	Fixing	15
Washer	2	7/3,2	Fixing	16
Ring eye	2	10	Axle holders	17
Rubber bands	1	ø40	Rubber band drive	18
Pulley	2	ø15	Drive band	19
Reducers	1	4/3	Reducers	20
Wooden ball	1	ø25	Drivers head	21

# Instructions

## Step 1:

Trace the plans for the chassis(a), mudguards (b,c,d,e) joiners (f,g) on to the plywood sheet (1) Plans are on page 7

Saw them out with a fretsaw and sand the edges



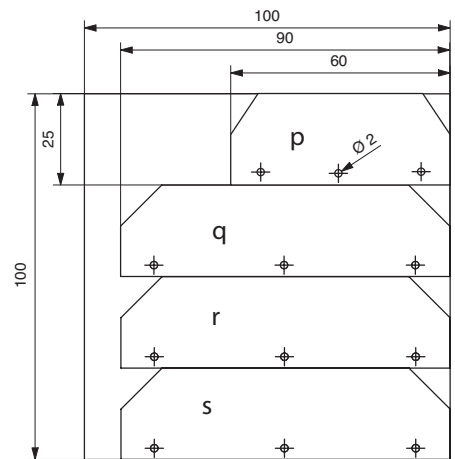
## Step 2:

Trace the plans ( Page 7+9) on the plywood sheet (2) . Join the plans together on the line. Saw out all the parts (h,i,k,l,m,n,o) with a fretsaw and sand to finish

## Step 3:

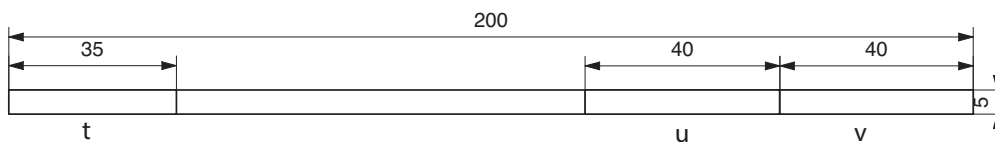
Trace the plans for the mudguards( Page5 ) on the aluminium sheet (3) (p,q,r,s) mark out and drill the holes with a 2mm drill

Cut out the parts with tin snips and remove the sharp edges with a file



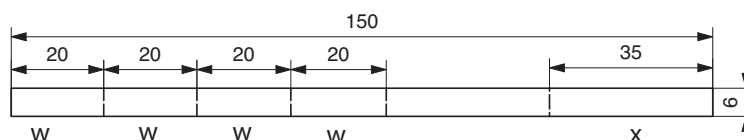
## Step 4:

Trace the parts (t,u,v) on the wood (8) and saw with a fretsaw. Sand to finish



## Step 5:

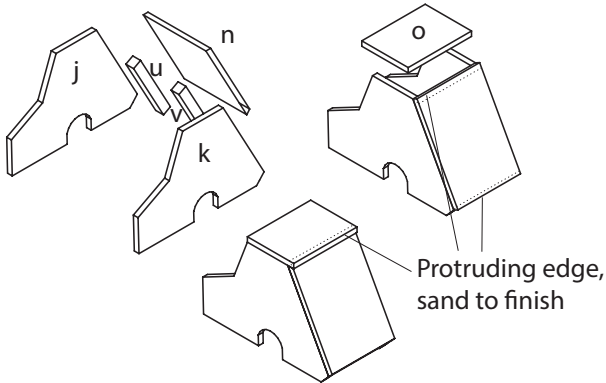
Saw from the dowel (4) the pieces w+x as shown. Sand to finish



# Instructions

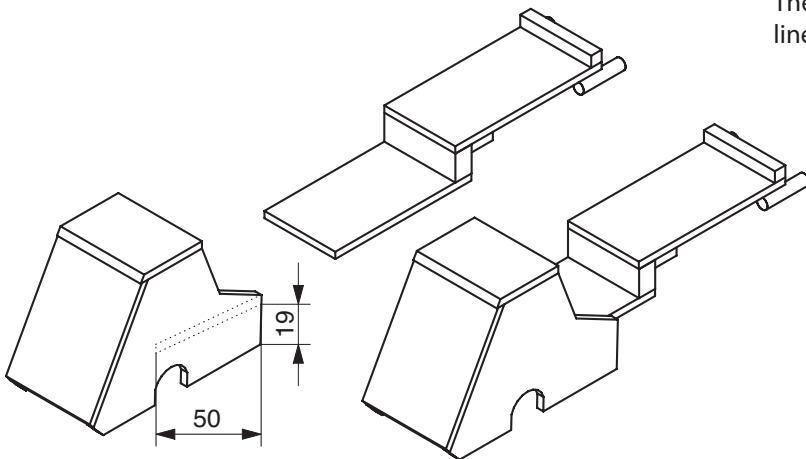
## Step 6:

Assemble and glue together (j,k) and (n) as shown. Glue the inner joiners (u+v) leave to dry thoroughly. Sand down any protrudence on part n and join to the (o) and leave to dry. Sand to finish



## Step 8:

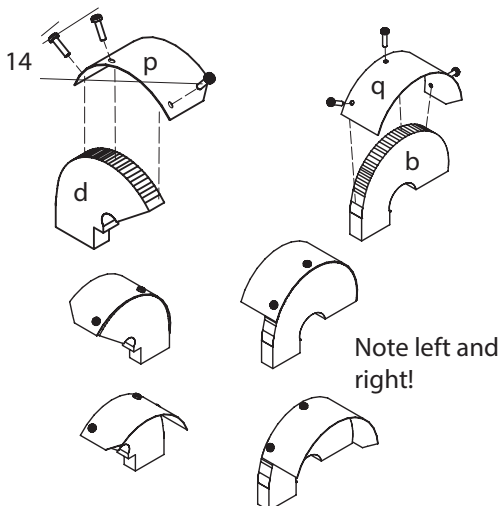
Mount the seat as in step 7 as shown in the bodywork, glue it in place using clamps until the glue sets.



## Step 10:

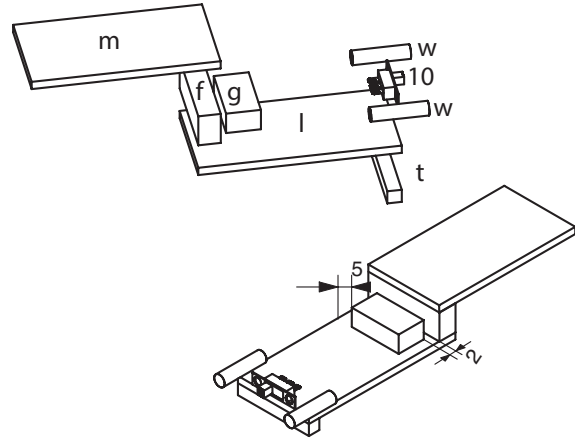
Screw the aluminium (p) as shown on to the plywood (d) with 3 screws (14). Screw part (q) to part (b). Also screw part (r) on part (e) and part (s) to part (c)

Note: The plywood pieces (b,c,d,e) must be drilled with pilot holes before inserting the screws ( 1,5-2mm dia )!



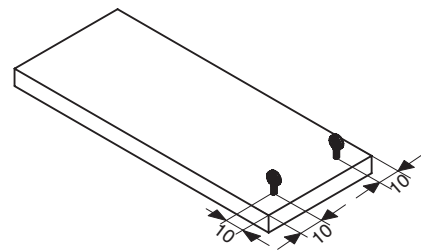
## Step 7:

Glue parts (l+m) to part (f) as shown. Add part (g). Mount the two exhaust parts (w) at the back and glue, so that they protrude 10mm. Add part (t) to the back of the plywood piece (e) Fix the switch (10) between the exhausts (w) with a hot glue gun



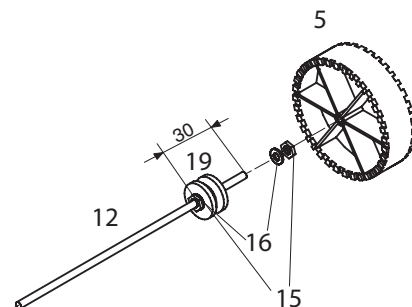
## Schritt 9:

Insert the two scw eyes (17) in the chassis (1) as shown  
Note  
The scw eyes must be lined up ( The eyes should be in line )



## Schritt 11:

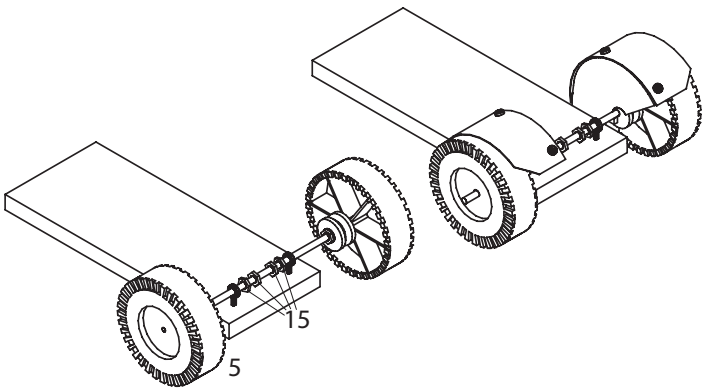
Shorten the threaded rod (12) to 120mm. Remove burr with a file. From the right screw on a nut (15) about 30mm. Add a washer (16)  
The add a pulley (19) and the another washer (16) and then another washer. Tighten the two nuts to trap the pulley (19). The add a wheel (5)



# Instructions

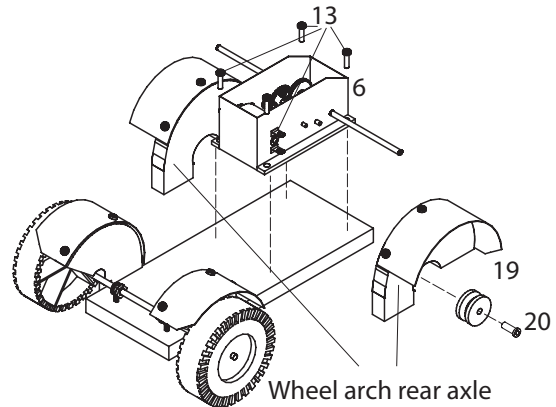
## Step 12:

Insert the axle through the right hand screw eye (17) Between the two screw eyes (17) screw on 4 nuts (15) and insert the axle further through the second screw eye. Add the left hand wheel. Adjust the nuts (15) so that the axle (12) is held centrally between the two screw eyes  
Add the two wheel boxes ( Front axle d+e) on the chassis so that the axle can run free and does not rub. Fix these with modelling clamps whilst they are drying!



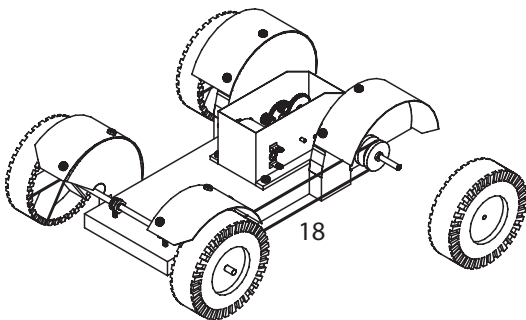
## Step 13:

Mount the gear box and motor (6) in position as shown in the plan ( page 5)  
Mount the two wheel boxes so that the motor axle can run free. Clamp them in position whilst glue is drying. Insert the reducer (20) in the hole of the pulley (19) and the pulley to the motor axle



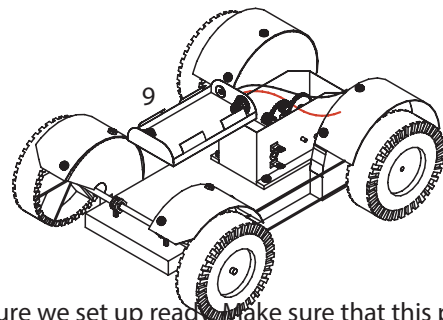
## Step 14:

Place the rubber band (18) on the pulley (19) as shown  
Mount the rear wheels (5) on the axle



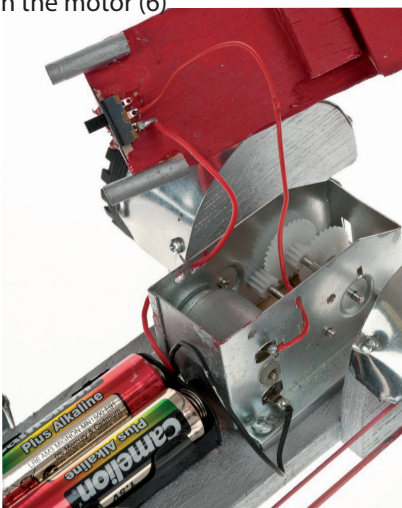
## Step 15:

Mount the battery holder (9) in place as shown .Use a hot glue gun.



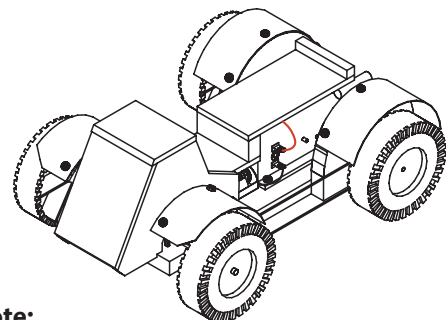
## Step 16:

The black cable of the battery holder (9) connects to the lower (6) contact on the gearbox and motor, solder in place. The red cable is soldered to the outer contact on the switch(10) Cut off 100mm from the cable (11) Strip the ends. One end is soldered to the middle connection on the switch(9) and the other end to the top contact on the motor (6)



## Step 17:

The structure we set up ready. Make sure that this part (g) engages in the housing of the geared motor (6), it ensures the secure fit of the structure! Function control: 2 batteries in the holder insert and operate the switch. This quad is moving forward. If not, the connections must be swapped on the engine.



## Please note:

In the pack with the motor and gearbox are two plastic shrink sleeves. These can be placed over the joints of the motor cable. Once they are soldered in place use a hot air gun to shrink them in place.

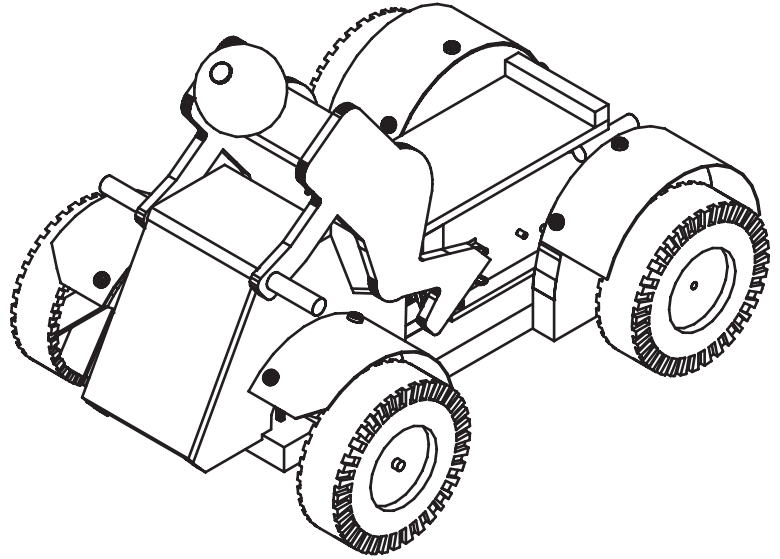
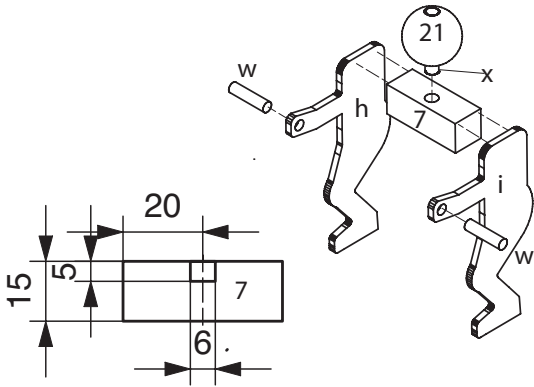
# Instructions

## Step 18:

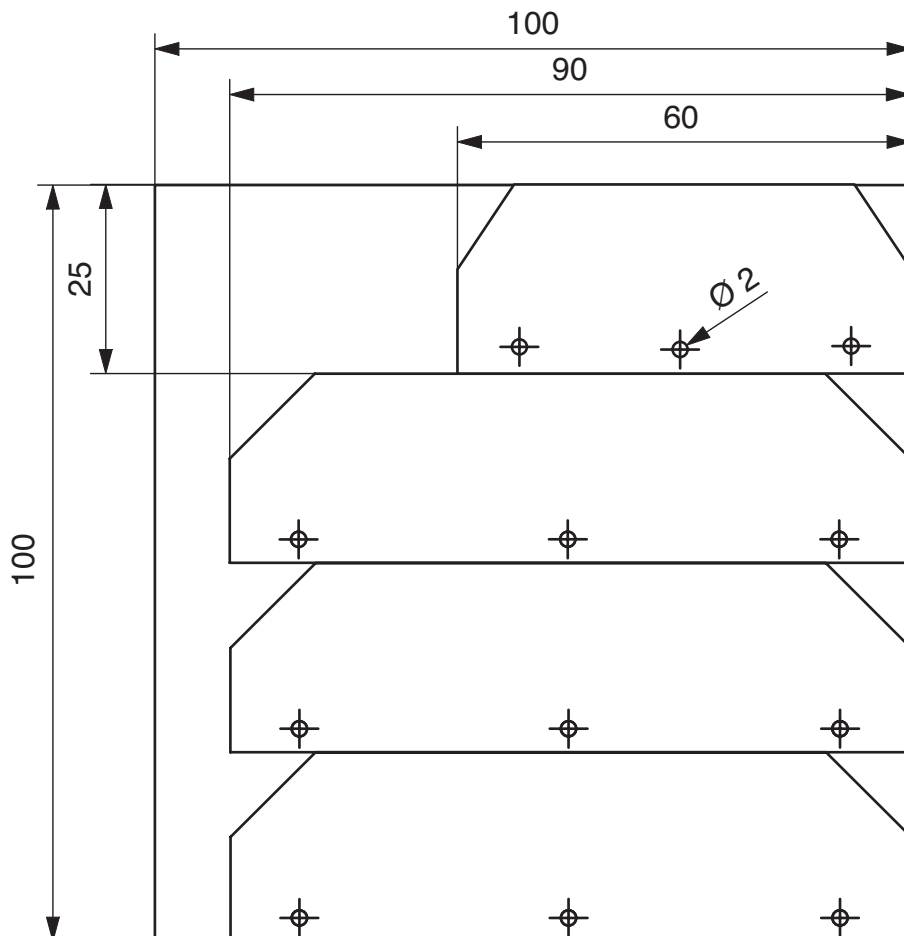
The dowel at point (x) must be mounted with the wooden ball (21). The wooden strip (7) cut to 40 mm. Glue both (h+i) pieces to the end of the wooden strip as seen the diagram. With dowels (w) fix into the holes of (h+i).

## Step 19:

The figure can be placed on the Quad as shown in the picture. Colour as desired. Finished.



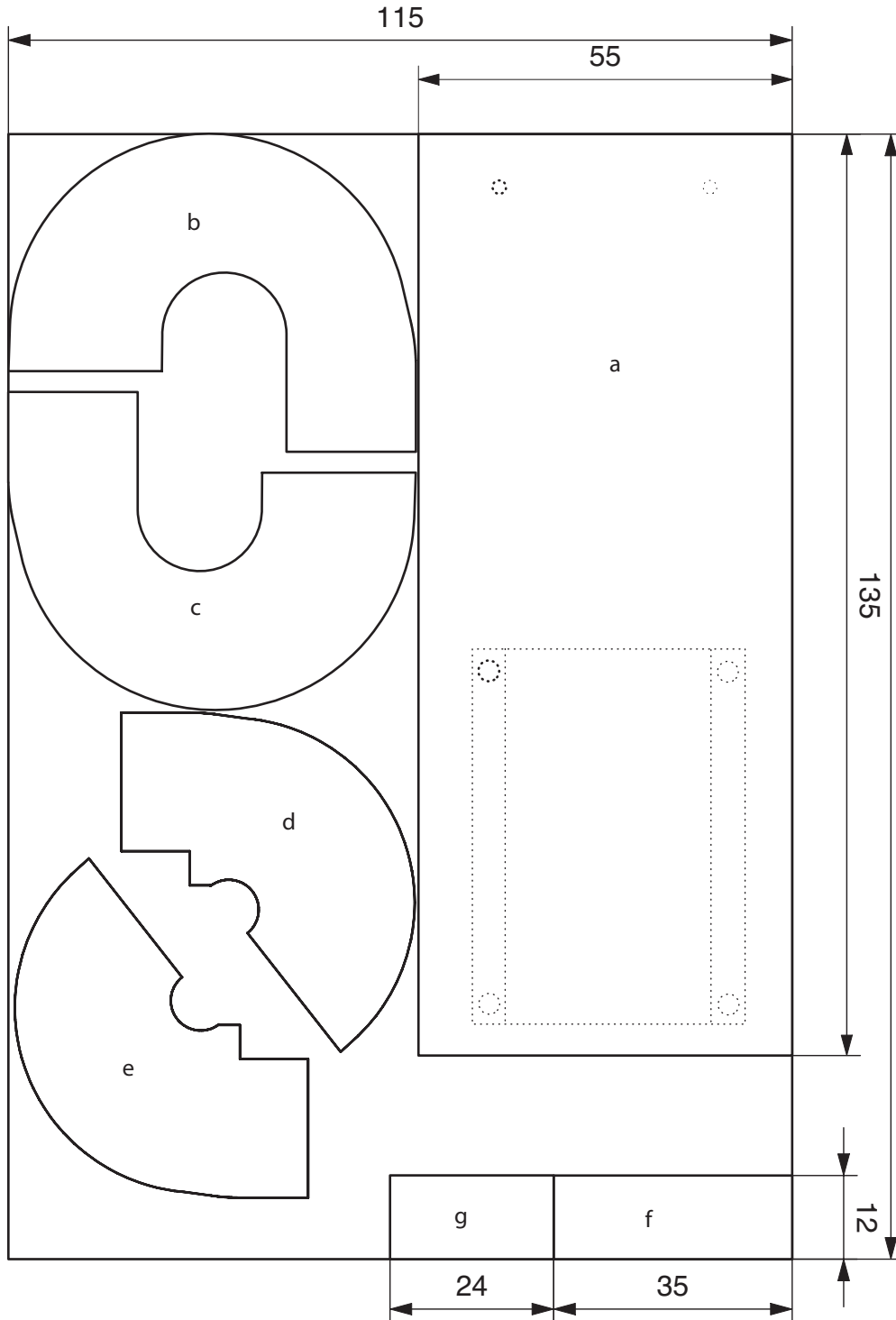
## Plan for the Aluminium sheer Scale 1:1



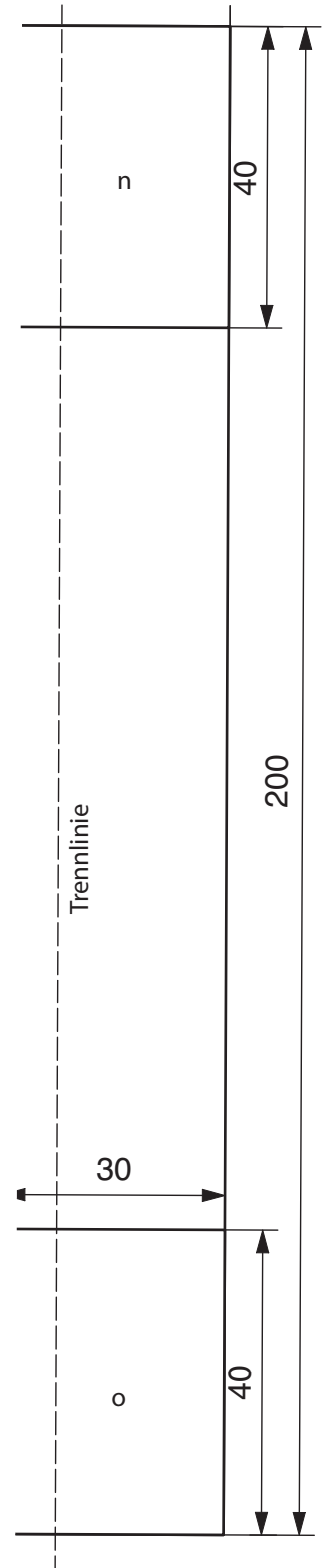


# Instructions

Plans for the chassis, and wheel boxes (1)  
Scale 1:1



Plan for the figure and structure (2)  
Scale 1:1







# Instructions

Plan for the figure and structure (2)  
M1:1

