



Coimisiún na Scrúduithe Stáit
State Examinations Commission

JUNIOR CERTIFICATE EXAMINATION, 2019

METALWORK

TECHNIQUES AND DESIGN – PROJECT – ORDINARY LEVEL

300 marks

PROJECT MUST BE COMPLETED BY Friday 5th April, 2019

PLEASE READ CAREFULLY

General Instructions to candidates

The project you make and submit for examination, including the design element, must be **your own individual work**, carried out in the school under the supervision of the teacher.

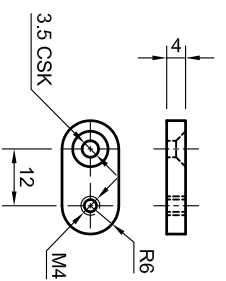
Your own individual work is intended to include the intellectual activity of design along with the practical activities of making the project.

Note: For further information on this project please see the video at the URL shown below.
<https://www.examinations.ie/video/index.php/metalwork2019>

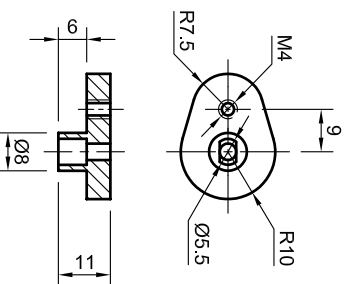
Instructions for making the project

1. Details of a **Model Robo Cart** are shown on the accompanying drawing.
2. Make and assemble the Project using the materials specified in the **Parts List**.
Note: Pop rivets may be used for assembly.
3. Design, make and attach a **Face and suitable Headgear** for the model.
(Note: 20% of the marks will be awarded for this section.)
4. You must drill and tap each **In-Line Motor Cam (Part 7)**.
5. Complete, **test** and **solder** the **Electric Circuit**.
6. Your **Examination Number** must be clearly engraved in the position indicated on the drawing.
7. Your completed project, clearly identified with your **Examination Number**, must be available to the visiting examiner **along with the necessary testing equipment**.

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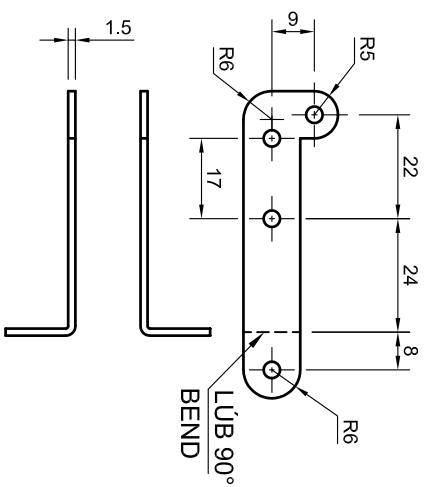


7 De dhíth - Curtha ar Fáil
2 OFF - As Supplied

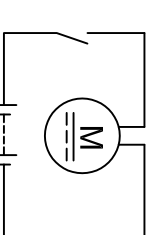
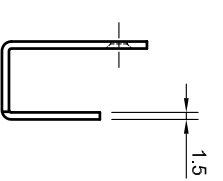
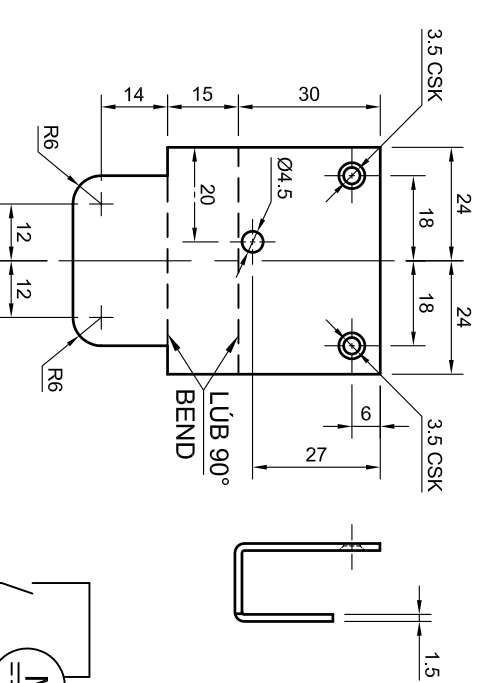


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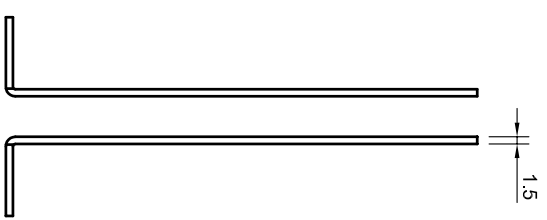


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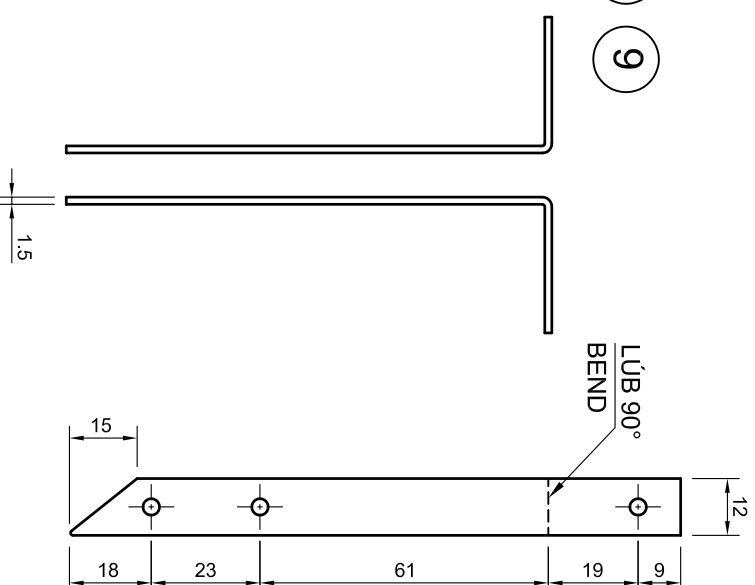
LÉARAÍD LEICTREACH
WIRING DIAGRAM

6

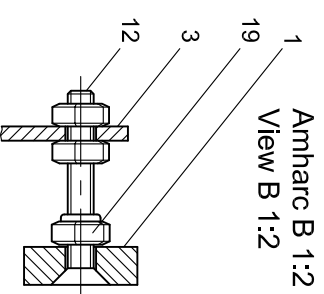


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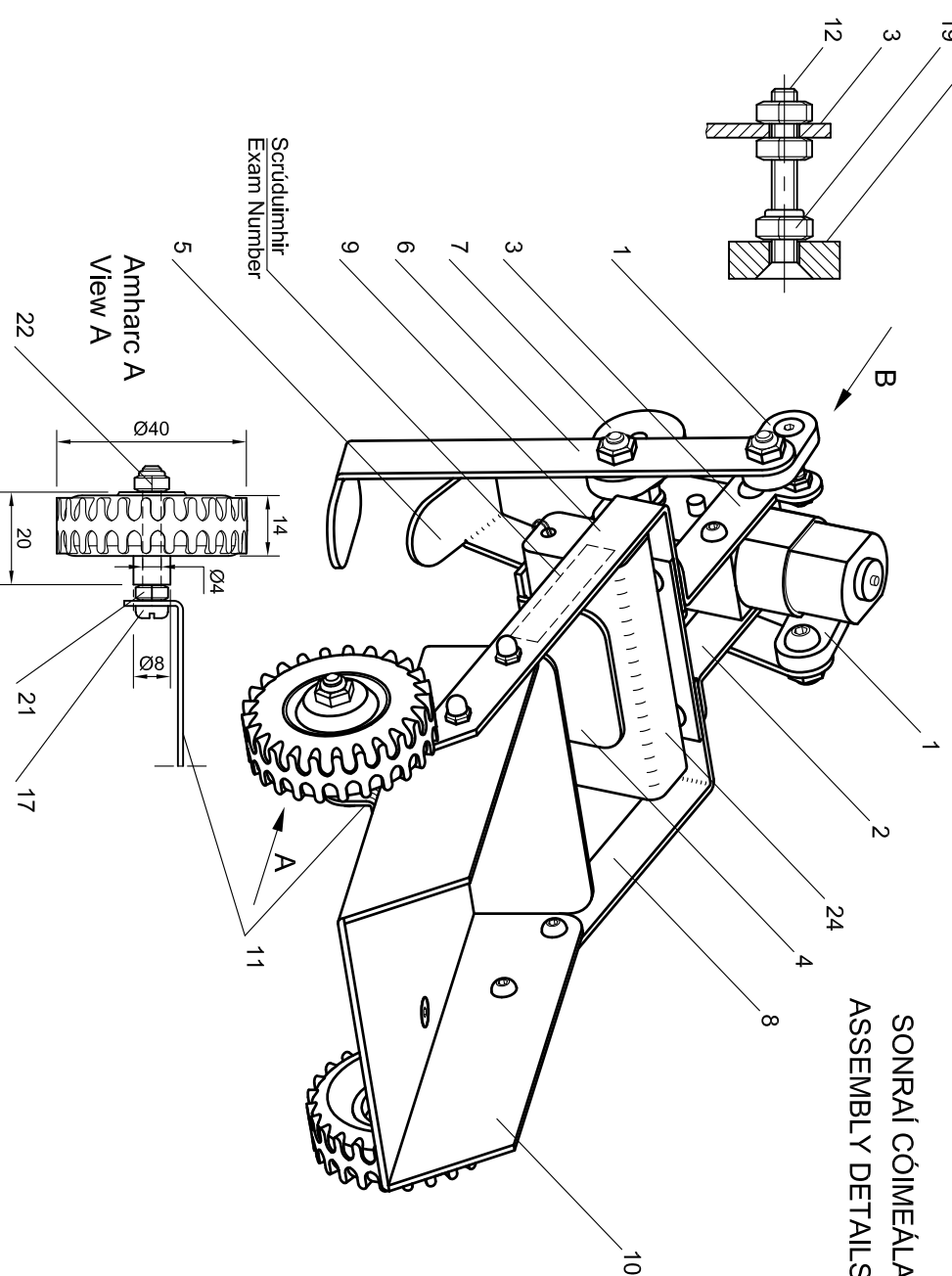
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Amharc B 1:2
View B 1:2



SONRAI CÒIMEALA
ASSEMBLY DETAILS

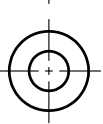
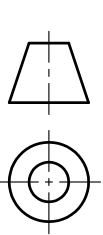
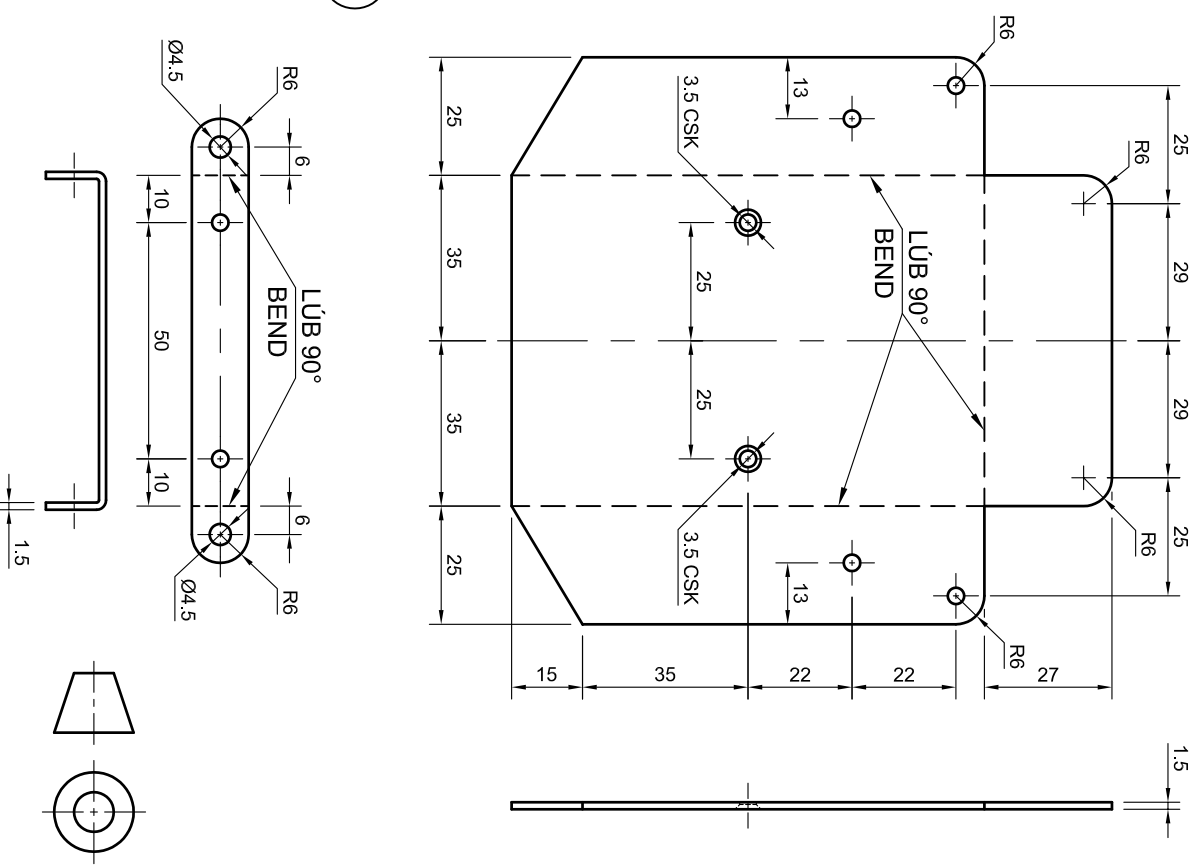


Poill gan toisi
Undimensioned holes Ø3.5

Nóta: Gabhann 20% de na marcanna
le Còimeáil, Bailchríoch agus Feidhmiú.

Note: 20% of the marks will be awarded
for Assembly, Finish and Function.

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PARTS LIST			
Part No.	Part Name	Req.	Material and Description
1	Arm Link	2	4 mm, Aluminium (polished)
2	Left Arm	1	1.5 mm, Aluminium (polished or painted)
3	Right Arm	1	1.5 mm, Aluminium (polished or painted)
4	Battery Box Support	1	1.5 mm, Aluminium (polished or painted)
5	Left Leg	1	1.5 mm, Aluminium (polished or painted)
6	Right Leg	1	1.5 mm, Aluminium (polished or painted)
7	In-Line Motor Cam	2	Plastic Cam - As supplied
8	Left Cart Arm	1	1.5 mm, Aluminium (polished or painted)
9	Right Cart Arm	1	1.5 mm, Aluminium (polished or painted)
10	Cart	1	1.5 mm, Aluminium (polished or painted)
11	Axle Support	1	1.5 mm, Aluminium (polished or painted)
As Supplied			
12	Screw (Arm Link to Arm)	2	M3 × 20, Allen CSK Head, Steel
13	Screw	4	M3 × 8, Allen CSK Head, Steel
14	Screw (Cart Arm to Cart)	4	M3 × 6, Allen Button Head or Pan Head, Steel
15	Screw (Motor)	2	M3 × 25, Allen Button Head or Pan Head, Steel
16	Screw (Arm Link & Cam)	4	M4 × 12, Allen Button Head or Pan Head, Steel
17	Screw (Axle)	2	M4 × 30, Allen Button Head or Pan Head, Steel
18	Nut	8	M3, Steel
19	Nylock Nut	2	M3, Steel
20	Cap Nut (Cart Arm)	6	M3, Steel
21	Nut (Axle)	2	M4, Steel
22	Nylock Nut	6	M4, Steel
23	3V Motorised Gearbox	1	In-Line Motor, Twin Shaft - Ratio 120:1
24	Battery Box	1	2 x AAA, Switched with Leads
25	Wheel	2	As per drawing or similar wheel with spacer
26	Insulated Wire		As Required

Note: 20% of the marks will be awarded for **Assembly, Finish and Function.**

Note: Pop rivets may be used for assembly.