



Coimisiún na Scrúduithe Stáit
State Examinations Commission

JUNIOR CERTIFICATE EXAMINATION, 2017

METALWORK

TECHNIQUES AND DESIGN – PROJECT – HIGHER LEVEL

150 marks

PROJECT MUST BE COMPLETED BY Friday 7th April, 2017

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.

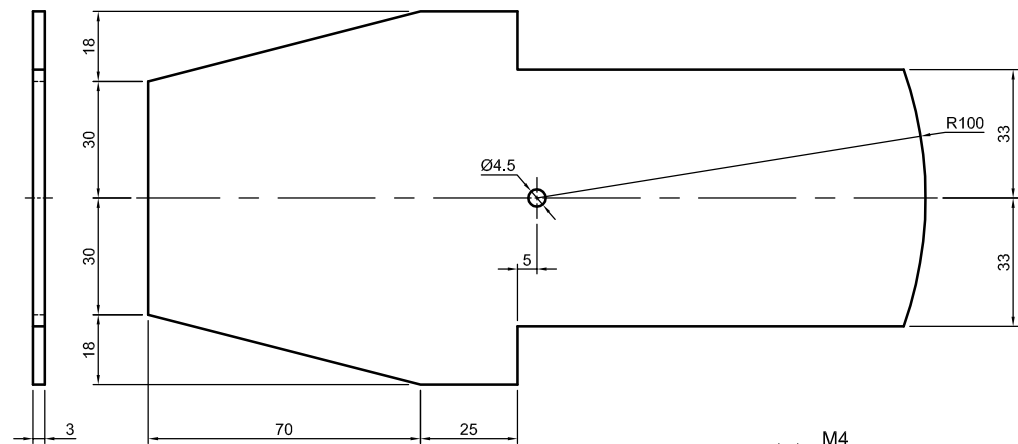
Note: For further information on this project please see the video at the URL shown below.

<https://www.examinations.ie/video/index.php/metalwork2017>

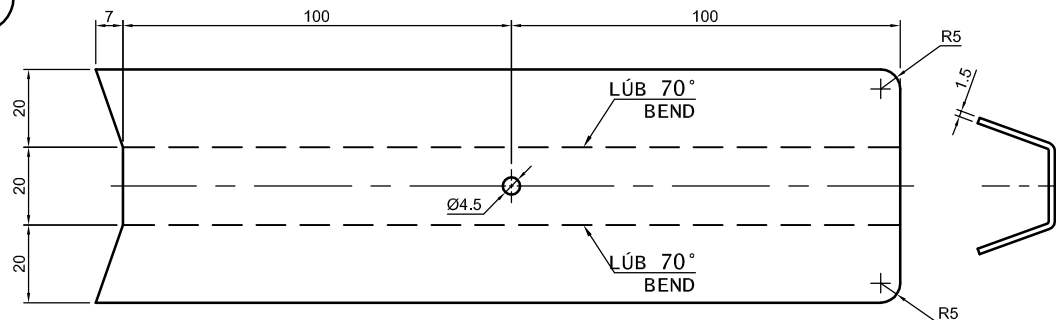
Instructions for making the project

1. Details of a **Model Autonomous Search Vehicle** are shown on the accompanying drawing.
2. Make and assemble the Project using the materials specified in the **Parts List**.
3. Design, make and attach a separate unit for each side of the model, which will securely hold the Battery Holder (Part 30) and act as a mudguard for the Wheel (Part 28).
(**Note: 20% of the marks will be awarded for this section.**)
4. Complete, **test** and **solder** the **Electric Circuit**.
Spade clips can be used with the micro-switch, if desired.
5. Your **Examination Number** must be clearly engraved in the position indicated on the drawing.
6. Your completed project, clearly identified with your **Examination Number**, must be available to the visiting examiner **along with the necessary testing equipment**.

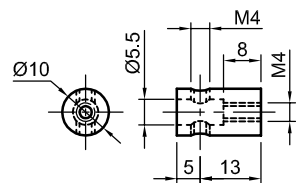
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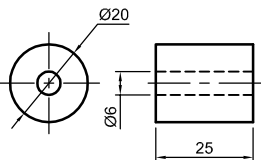
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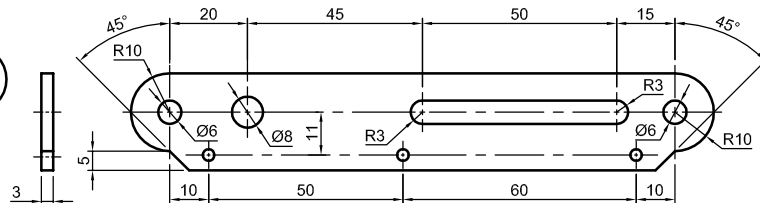
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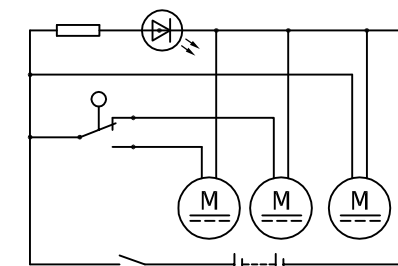
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2017. S57

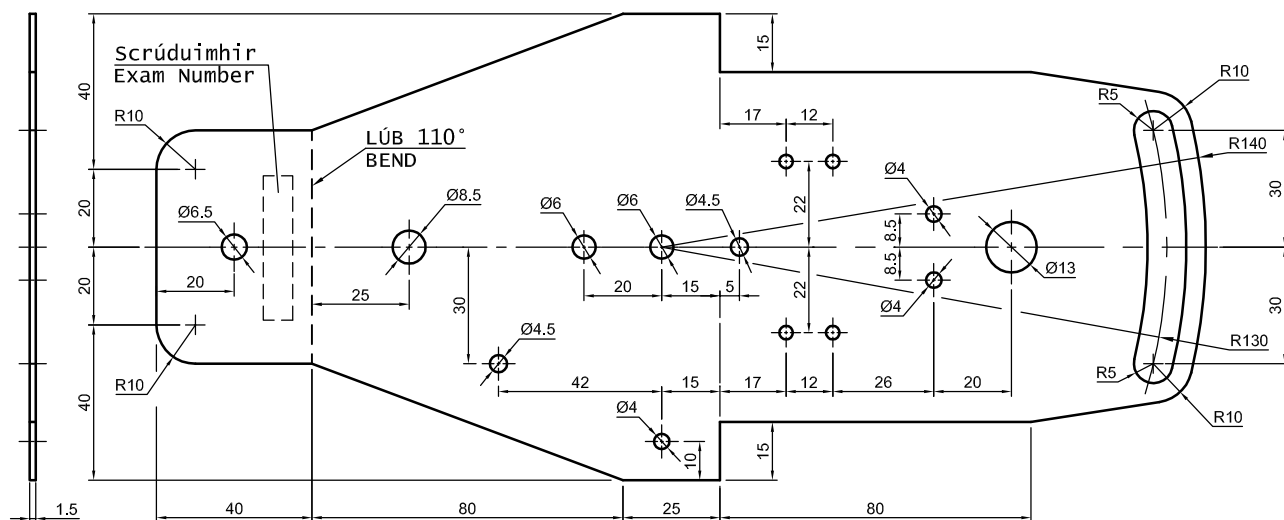


LÉARÁID LEITREACH
WIRING DIAGRAM

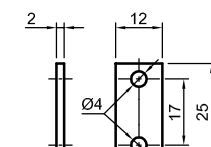
Poill gan toisí
Undimensioned holes Ø3.5

Nóta: Gabhann 20% de na marcanna le Cóimeáil, Bailchríoch agus Feidhmiú.
Note: 20% of the marks will be awarded for Assembly, Finish and Function.

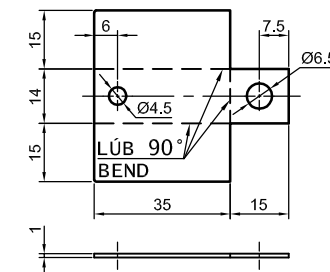
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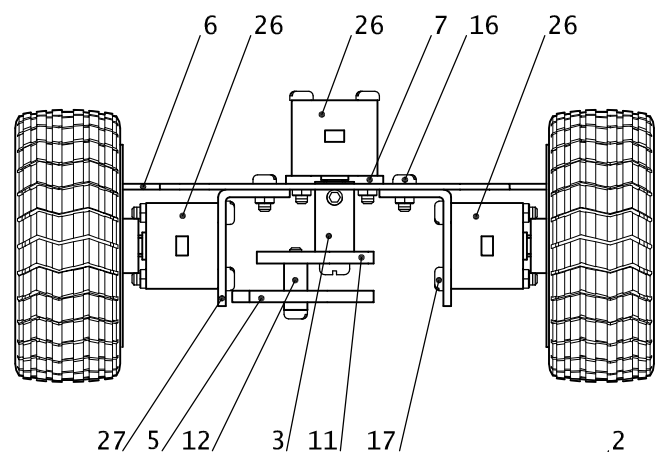
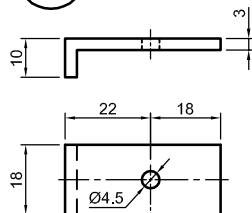
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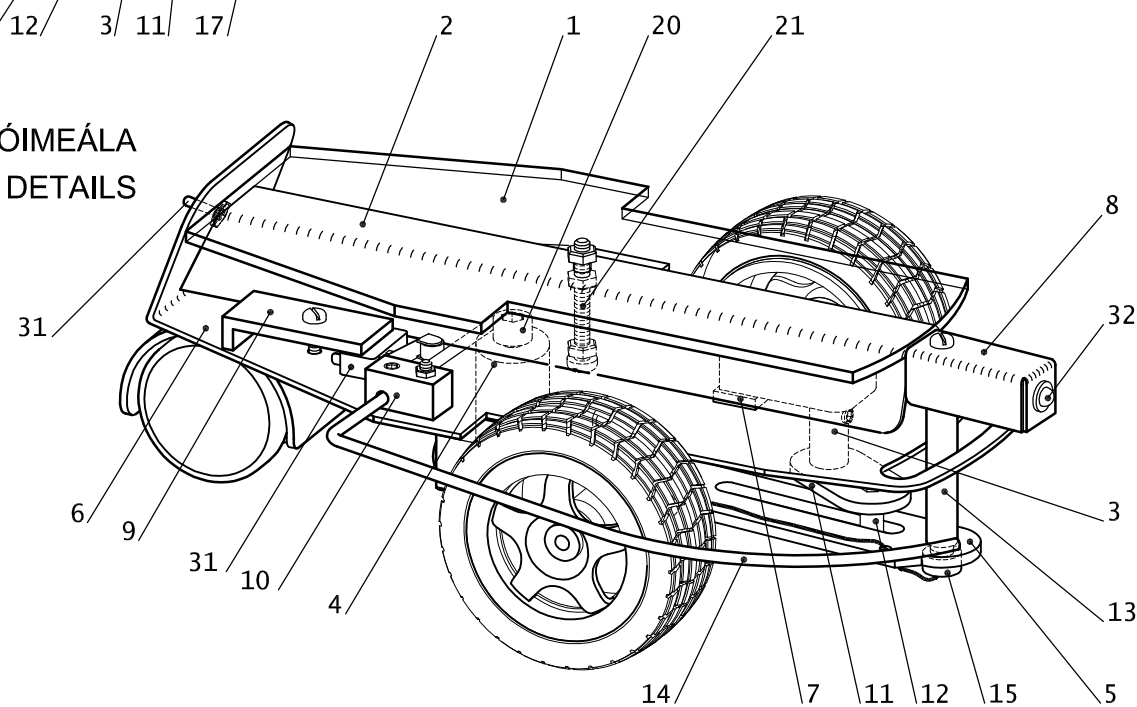
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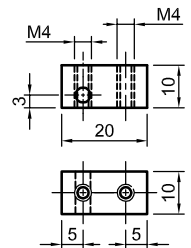
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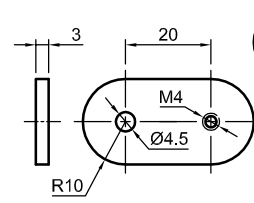
SONRAÍ CÓIMEÁLA
ASSEMBLY DETAILS



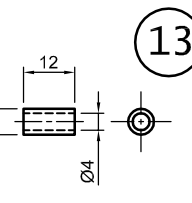
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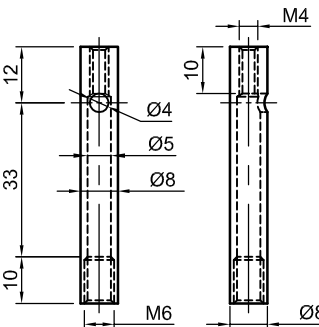
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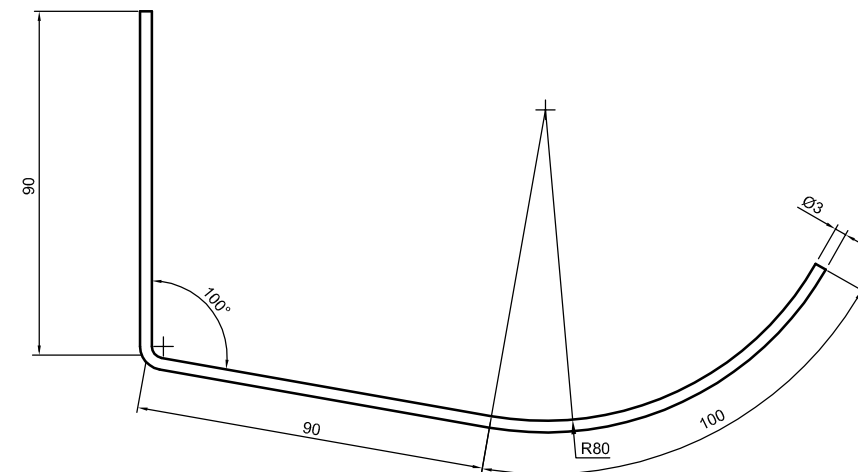
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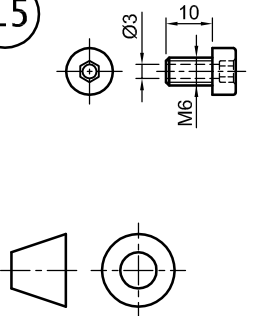
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PARTS LIST			
Part	Part Name	Req.	Material and Description
1	Top Cover	1	3 mm, Clear Acrylic (polished)
2	Central Cover	1	1.5 mm, Aluminium (polished or painted)
3	Gearbox Coupling	1	Ø10 mm, Brass (polished)
4	Slotted Link Support	1	Ø20 mm, Nylon (polished)
5	Slotted Link	1	3 mm, Aluminium (polished)
6	Chassis	1	1.5 mm, Aluminium (polished or painted)
7	Top Motor Spacer	1	2 mm, Aluminium (polished)
8	Search Light Holder	1	1 mm, Aluminium (polished or painted)
9	Micro-switch Clamp	1	Aluminium Angle (polished)
10	Sensor Arm Pivot	1	10 × 10 mm, Aluminium (polished)
11	Crank Arm	1	3 mm, Aluminium (polished)
12	Sliding Pin	1	Ø6 mm, Brass (polished)
13	Search Light Support Column	1	Ø8 mm, Brass (polished)
14	Sensor Arm	1	Ø3 mm, Aluminium Rod (polished)
15	Support Column Screw	1	M6 × 10, Allen Head, Note: Mild Steel
As Supplied			
16	Screw	4	M3 × 8, Pan Head or Allen Button Head, Steel
17	Screw	6	M3 × 25, Pan Head or Allen Button Head, Steel
18	Screw (Switch Clamp, Sliding Pin & Pivot)	3	M4 × 16, Pan Head or Allen Button Head, Steel
19	Screw (Crank Arm to Coupling & Light Support)	2	M4 × 10, Pan Head or Allen Button Head, Steel
20	Screw	1	M6 × 40, Allen Head, Steel
21	Screw	1	M4 × 35, Pan Head or Allen Button Head, Steel
22	Grub Screw (Coupling ×2, Pivot ×1)	3	M4 × 4
23	Nut	10	M3, Steel
24	Nut	5	M4, Steel
25	Nut	1	M6, Nylock
26	3V Motorised Gearbox	3	In-Line Motor / Ratio 110:1
27	Motor Bracket	2	As Supplied
28	Wheel	2	Ø68 mm × 25 mm, to suit gearbox spigot
29	Castor + M8 Nut	1	Ø40 mm, with M8 × 8 mm spindle
30	Battery Holder	2	AA × 1
31	Switch	2	Toggle & Micro-switch with Roller Lever
32	LED + Holder	1	As supplied
33	Resistor	1	330Ω
34	Insulated Wire		As required

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