



Rewarding Learning

General Certificate of Secondary Education
2024

Engineering and Manufacturing

Unit 3
assessing

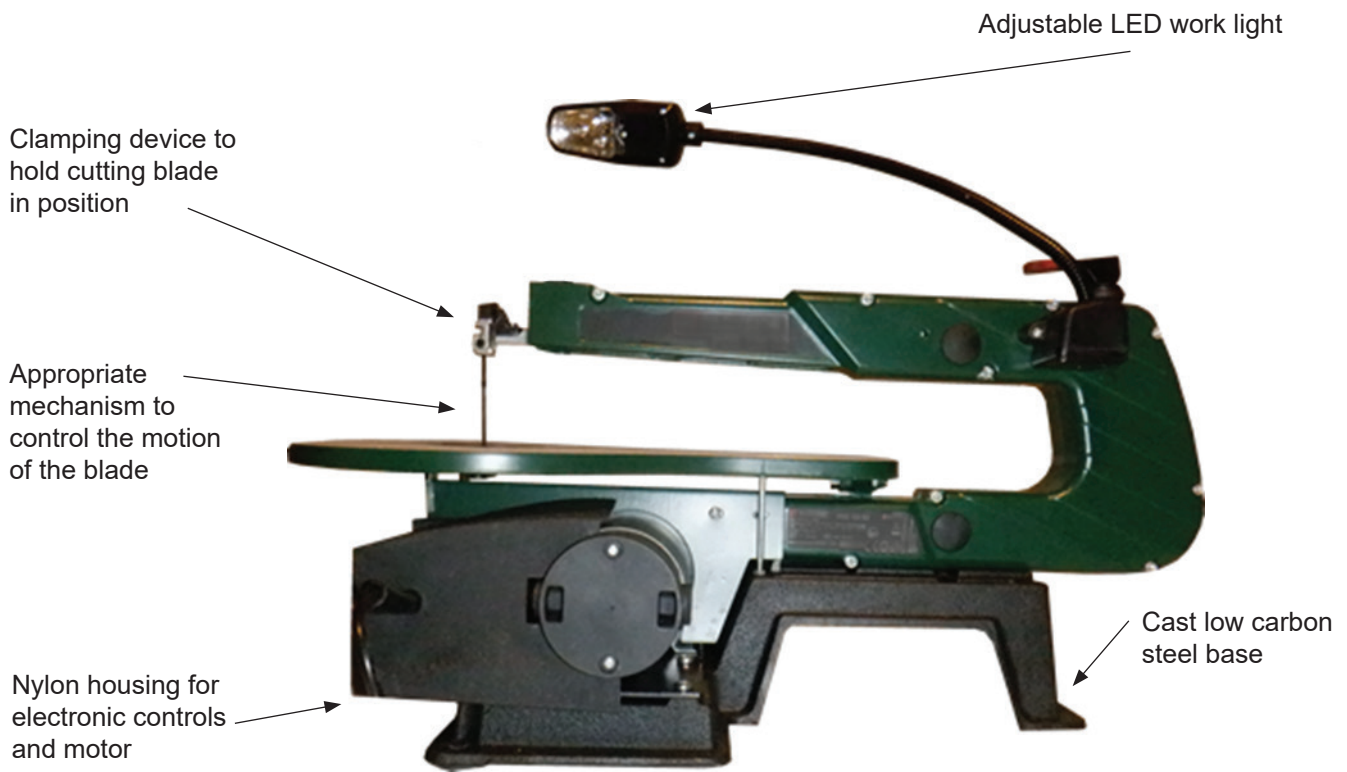
Materials, Processes and Systems

[GEM31]

**PRE-RELEASE
MATERIAL**

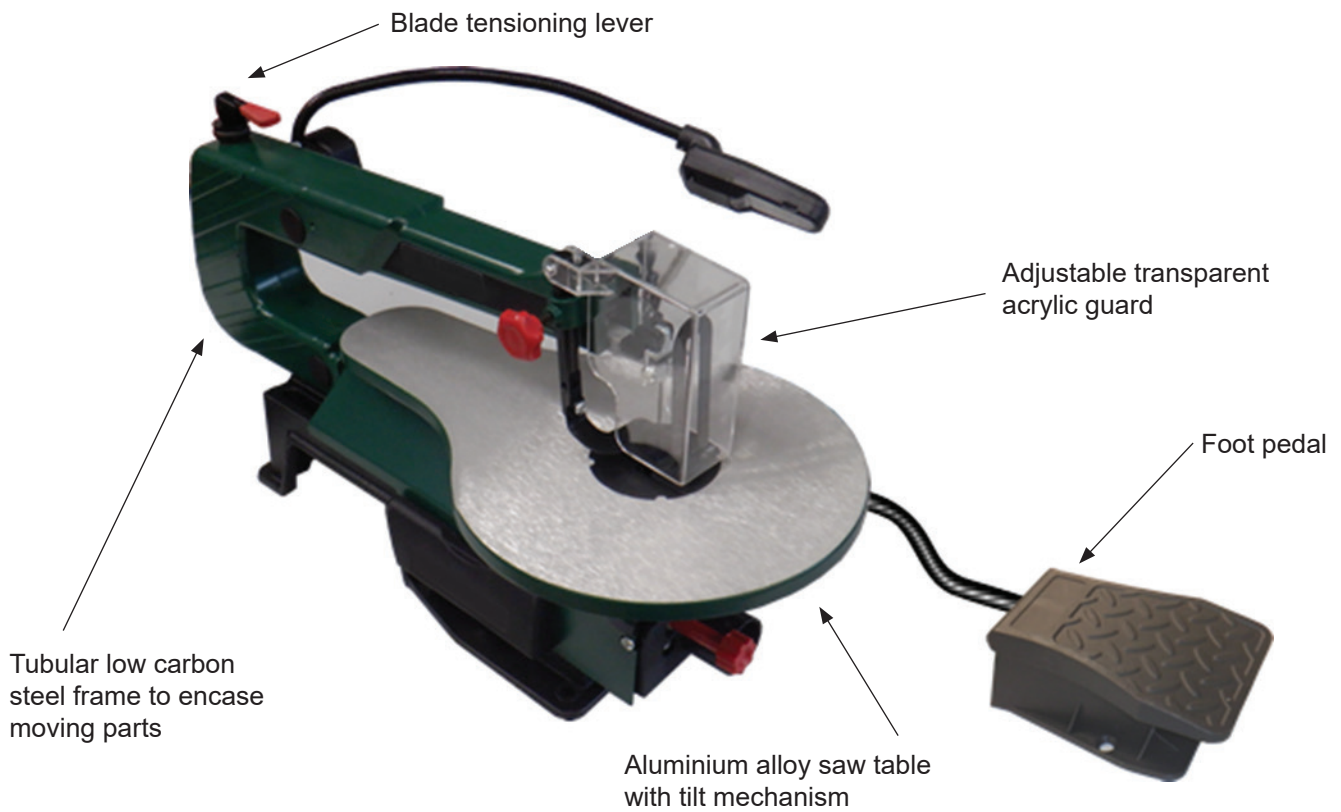
Released January 2024
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Fig. 1 and Fig. 2 show an electric scroll saw.



Source: Chief Examiner

Fig. 1



Source: Chief Examiner

Fig. 2

Product features include:

- Reciprocating mechanism;
- Die cast aluminium alloy saw table with tilt mechanism;
- Simple method to fit and remove cutting blades;
- Variable speed electric motor;
- Foot pedal and manual speed control;
- Robust construction with a low carbon steel base and frame;
- Dimensions Height (400 mm) – Length (650 mm) – Width (300 mm); and
- Adjustable transparent acrylic guard for the blade.

Pre-release investigation:

You should investigate the possible impact and use of the following where appropriate, in the design and production of the electric scroll saw:

- Materials and components: including application, properties, processes, form, supply and types of finish;
- Manufacturing processes: including CAD, CAM, robotics, casting and the use of jigs and fixtures;
- Quality control and quality assurance;
- Product safety; and
- Costing: including direct and indirect costs incurred in the manufacture of the electric scroll saw.

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