

Code of practice for

Safeguarding woodworking machines —

Part 5: Narrow band sawing machines

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- Advanced Manufacturing Technology Research Institute
- British Furniture Manufacturers' Federation
- British Railways Board
- British Woodworking Federation
- Department of the Environment (Building Research Establishment)
- Department of Trade and Industry
- Federation of British Hand Tool Manufacturers
- Furniture Industry Research Association
- Furniture, Timber and Allied Trades Union
- Health and Safety Executive
- Institute of Machine Wood Working Technology Ltd.
- National Sawmilling Association
- Saw Association
- Timber Research and Development Association
- Union of Construction, Allied Trades and Technicians
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Contents

	Page
Committees responsible	Inside front cover
Foreword	ii
1 Scope	1
2 Definition	1
3 Machine description	1
4 Statutory requirements	1
5 Design recommendations for safeguards	1
6 Safe working practices	10
7 Training and supervision	20
8 Noise	21
9 Maintenance of machines	26
10 Provision of information	26
Figure 1 — A narrow band sawing machine	2
Figure 2 — A narrow band sawing machine mounted on a cabinet base with built-in rollers for easy positioning of the machine	3
Figure 3 — Saw blade tension indicator on a narrow band sawing machine	4
Figure 4 — Band saw blade guides above and below the table	5
Figure 5 — A power feed device on a narrow band sawing machine	6
Figure 6 — Table insert	6
Figure 7 — A multi-roller split level fence for use with a power feed on a narrow band sawing machine	7
Figure 8 — Interlocking enclosure and adjustable guards on a narrow blade sawing machine	8
Figure 9 — Fully adjustable blade guard beneath the table, providing full protection at all angles of table tilt	9
Figure 10 — Warning notices on a narrow band sawing machine wheel guards to indicate the hazard	10
Figure 11 — Tooth form	11
Figure 12 — Tooth set and tooth nomenclature	12
Figure 13 — Coiling band saw blades	14
Figure 14 — Checking blade tension on narrow band sawing machines without a tension indicator	15
Figure 15 — Tracking a band saw blade	16
Figure 16 — Freehand cutting	17
Figure 17 — Straight cutting using a fence	18
Figure 18 — Cutting deep stock against a fence	19
Figure 19 — Bevel cutting using a tilting table	20
Figure 20 — Jigs for cutting diagonally	21
Figure 21 — Cutting tenons on a narrow band sawing machine using a fence and back stop	22
Figure 22 — Wedge cutting holder	23
Figure 23 — Curved cutting	23
Figure 24 — Cutting irregular shapes on a narrow band sawing machine using a template and guide	24
Figure 25 — A simple made up jig for disc cutting	25
Figure 26 — Disc cutting using the jig shown in Figure 25	25
Figure 27 — Disc cutting using a circle cutting attachment	26

	Page
Table 1 — Recommended minimum set for both narrow and wide blades	13
Table 2 — Recommended widths and thicknesses of narrow band saw blades for minimum cutting radius	13
Table 3 — Recommended thickness of narrow band saw blades for use on different wheel diameters	13
Table 4 — Recommended pitches for narrow band saw blades	13
Publications referred to	Inside back cover

Foreword

This Part of BS 6854 has been prepared under the direction of the Machine, Engineers and Hand Tool Standards Policy Committee.

It is Part 5 of a series of Parts and contains particular recommendations concerning the safeguarding of band sawing machines. It should be used in conjunction with Part 1 which contains general recommendations. Other Parts are as follows:

- *Part 2: Circular sawing machines;*
- *Part 3: Vertical spindle moulding machines;*
- *Part 4: Planing machines.*

The background to this code of practice is the high accident incidence rate encountered by woodworking employees and that an estimated 14 % of all machinery accidents occur on woodworking machines. Although the safeguarding of woodworking machines in this code is mainly directed at stationary machines, the same general principles apply to portable and transportable machines. Account has been taken of the fact that woodworking machines may be used for working on bone, plastics, and materials other than wood or wood products. The guidance provided is also relevant to all woodworking machines designed for domestic use but used for industrial purposes.

This code should be of use to designers, manufacturers, suppliers, importers and users alike since in its development account has been taken of practical aspects of safeguarding woodworking machines together with the legal requirements contained in the Health and Safety at Work etc. Act 1974, the Factories Act 1961, and the Woodworking Machines Regulations 1974. The principles of safeguarding given in BS 5304 have also been incorporated.

The term “reasonably practicable”, used in the Health and Safety at Work etc. Act 1974, and adopted by this code, implies starting from the current state of the art and takes into account the cost of what is done in relation to the improvement secured. A manufacturer or supplier who sells goods produced to a British Standard specification and who makes clear the conditions of use for which they are intended will thereby, to the extent that the standard is adequate and appropriate for the particular workplace, be able to indicate compliance with his general duty under Section 6 of the Health and Safety at Work etc. Act 1974. To a similar extent employers, those in charge of premises and employees will be assisted by the provisions of this code of practice.

The code stresses the importance of built-in safety at the design stage, thus encouraging the concept that safeguarding should be viewed as a prime feature of a woodworking machine and not something which is an afterthought. Guidance is given to manufacturers and suppliers on identifying, eliminating or reducing both mechanical and non-mechanical hazards (e.g. noise, dust) which have a bearing on health and safety of persons when the machines are used.

This code will also be of help to purchasers and users when selecting machines, and provides practical guidance on safe working practices including the use of safeguards and safety appliances (e.g. push sticks). Successful implementation of the guidance given in this code of practice requires discussion between supplier and user, and the provision of adequate information.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 26, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This Part of BS 6854, which should be used in conjunction with BS 6854-1, is concerned with the safeguarding of the saw blade and other dangerous parts of narrow band sawing machines.

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definition

For the purposes of this part of BS 6854 the definitions in BS 6854-1 apply together with the following.

narrow band sawing machine

a machine, with a fixed or tilting table, fitted with a saw blade, not exceeding 50 mm in width, in the form of a continuous band, the cutting portion of which runs in a vertical direction. It does not include a log band sawing machine or a band resawing machine

3 Machine description

A narrow band sawing machine normally has two wheels, one vertically above the other, although there are some small machines with three wheels to support the blade. The bottom wheel is driven and the top wheel acts a straining wheel which can be adjusted for tracking and tensioning the saw blade. Some wheels may be spoked but more normally on modern machines they are solid discs. The wheels have tyres of resilient materials fixed to the rims (see Figure 1). Narrow band sawing machines should be secured to a foundation (see Figure 2).

4 Statutory requirements

The general statutory requirements relating to the supply and use of woodworking machines are set out in BS 6854-1.

Statutory requirements relating to the provision and construction of guards for narrow band sawing machines are contained in Regulations 5 to 8 and 22 of the Woodworking Machines Regulations 1974.

5 Design recommendations for safeguards

5.1 General

The design recommendations for safeguards given in BS 6854-1 apply together with the recommendations given in 5.2 to 5.4.

5.2 Elimination or avoidance of hazard (including measures to reduce the scale of possible injury)

5.2.1 Toolholding design. On narrow band sawing machines the top wheel should be provided with a tensioning device to adjust the tension of the blade correctly. Machines may have a blade tension indicator, which gives a guide to the correct blade tension (see Figure 3, see also Figure 14). A means of tilting the top wheel is provided to ensure that the blade can be correctly tracked.

NOTE In practice the strain indicator is used only as a useful guide. Correct working of the saw is the only check.

Narrow band sawing machines should be equipped with one saw blade guide above and, preferably, another below the table. The top and bottom guide normally consists of rotating thrust wheels which support the blade when cutting and two side supports to guide the blade laterally. The side supports may be wooden, fibre, graphite, or metal pads, or steel rollers. The top guide should be adjustable so that it can be moved as close to the workpiece as is practicable (see Figure 4). The adjustment of the guides and blade tension and tracking device is of utmost importance to enable the machine to perform effectively and safely (see 6.2).

BS 4411 specifies dimensions of band saw blades, together with material and hardness requirements, and makes recommendations for suitable running speeds.

5.2.2 Access for adjustments, lubrication and maintenance. Controls, such as those associated with blade tracking tensioning, and the vertical adjustment of the top saw blade guide, should be positioned so that they can be operated without danger while the blade is running (see Figure 1, Figure 3 and Figure 5).

5.2.3 Power feed. Power feed systems should be used wherever reasonably practicable as this will eliminate many of the hazards arising from hand feeding.

Power feed units, such as feed rollers, should be effectively guarded.

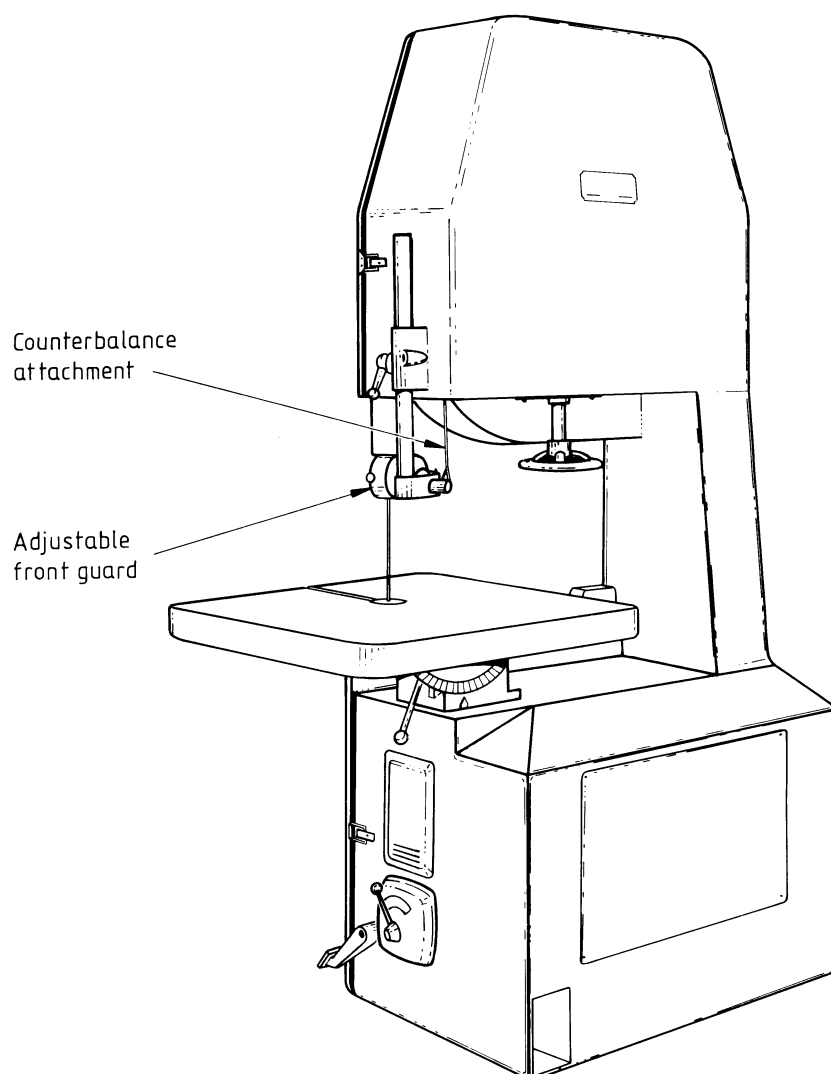


Figure 1 — A narrow band sawing machine

Narrow band sawing machines equipped with a removable power feed device should be designed and constructed in such a way that the stopping of the machine automatically stops the feed device. The power feed device should be capable of being stopped independently (see Figure 5).

5.2.4 Work guides. The opening in the table for the saw blade should be fitted with an insert of wood, plastic, soft metal or other suitable material, which will not damage the saw blade. It should be fitted flush with the table surface (see Figure 6).

Provision should be made for the fitting of an adjustable fence to allow for straight cutting. On narrow band sawing machines with tilting tables the fence should be so designed that it may be used on either side of the blade. A multi-roller fence will assist when power feeding (see Figure 7).

Other fences, for mitring and cross-cutting and attachments such as circle cutting attachments and depth stops for tenoning, are available (see clause 6).

5.2.5 Controls. Where the speed of the blade is variable the linear speed for each setting should be clearly indicated on the machine.

See also 5.2.3.

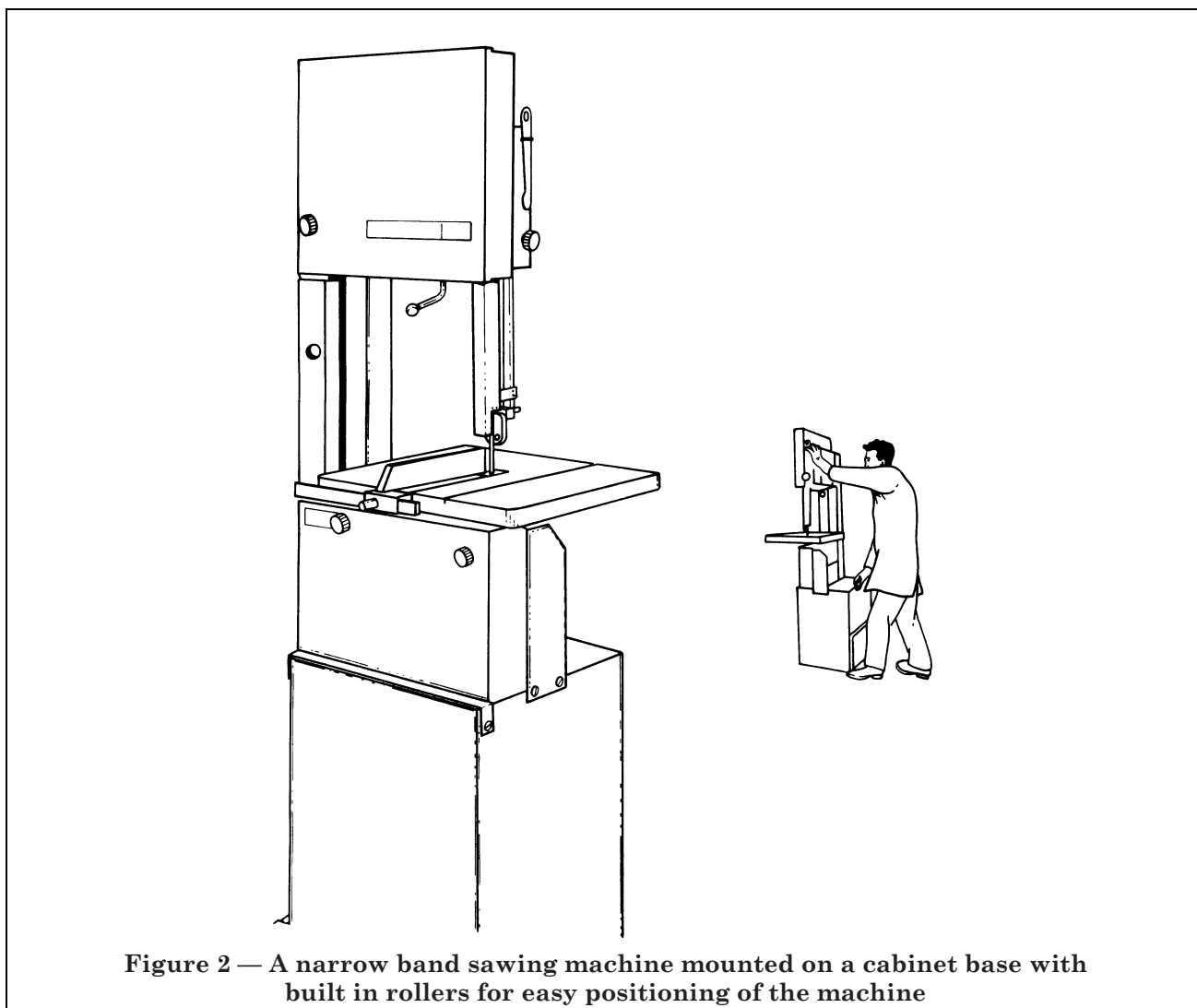
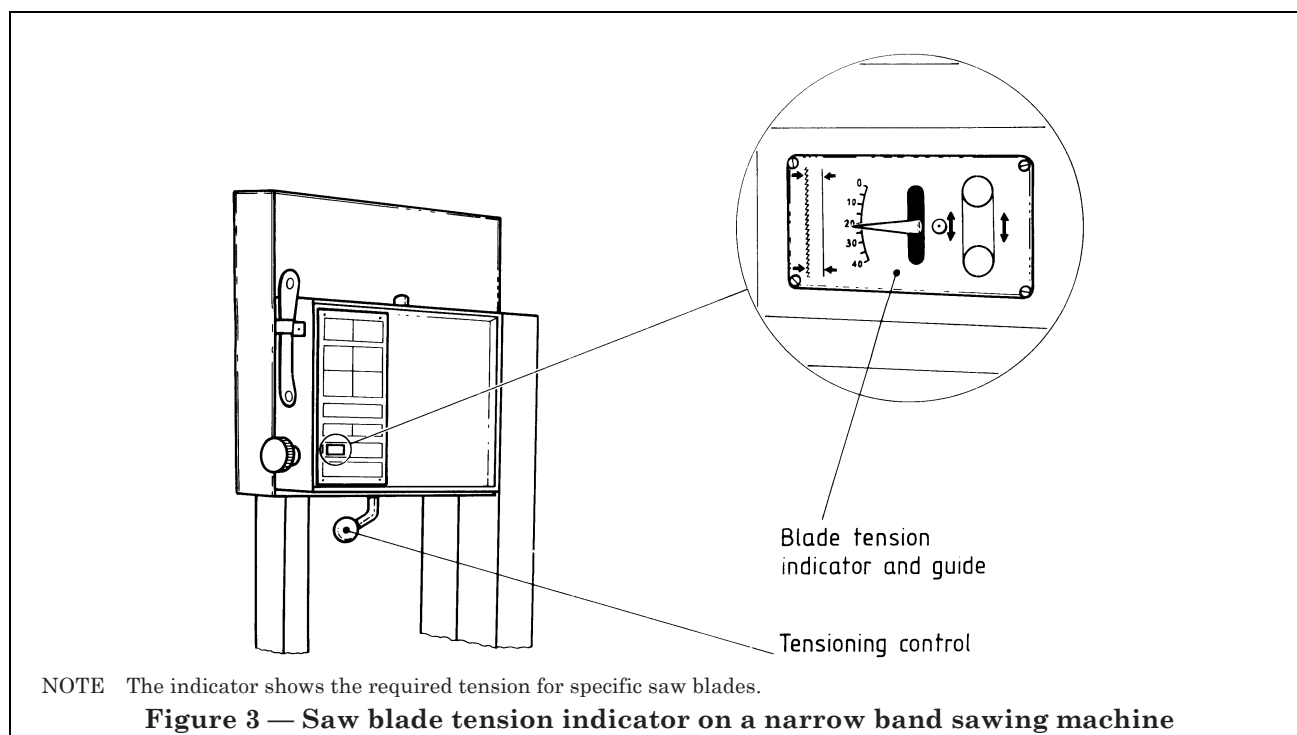


Figure 2 — A narrow band sawing machine mounted on a cabinet base with built in rollers for easy positioning of the machine

5.2.6 Braking systems. The stopping time of a narrow band sawing machine should be minimized and should not be more than 10 s where reasonably practicable. This objective can be achieved by provision of either an effective braking device which is automatically applied when the machine is switched off, or a mechanically operated foot brake, which automatically isolates the power.

5.2.7 Guard locking. Where reasonably practicable wheel guard interlocking should be incorporated into the design of narrow band sawing machines (see Figure 8). Opening of a guard should automatically isolate the power to the machine and the machine should not restart except by operation of the start button after all guards have been closed. The recommendations given in BS 5304:1988 should be adopted in the design of interlocks.

5.2.8 Stability. Where necessary to ensure stability a machine should be secured to a foundation or the floor. For a mobile machine, with floor mounted rollers, arrangements should be made to ensure that the machine does not move when sawing is taking place (see Figure 2).



5.3 Physical safeguards

5.3.1 Guards and their construction. The guards in use on narrow band sawing machines are usually of the fixed enclosure and adjustable type, although interlocking enclosures are sometimes used.

5.3.2 Selection of safeguards. The saw wheels of the machine and the whole of the blade, excepting the part which runs downwards between the top wheel and the machine table, should be enclosed by a guard or guards of substantial construction (see Figure 9).

That part of the down-run of the blade above the table not used for cutting should be provided with a guard which can be adjusted to suit the height of the workpiece. This guard should be attached to and moved with the top saw blade guide, guarding that part of the saw blade between the top guide and the top wheel (see Figure 9). It should be capable of being easily adjusted and firmly secured in any position. The use of a counterbalance to assist in making adjustments may be considered appropriate.

The part of the blade between the underside of the table and the lower guide should be guarded. A fully adjustable lower blade guard (see Figure 9) caters for all angles of table tilt.

The guards should be robust enough to contain a broken blade so far as is reasonably practicable.

It is recommended that a permanent and indelible warning notice be fixed at the outside of the wheel guards indicating the nature of the danger behind them (see Figure 10).

5.4 Safety devices

Safety devices available for use on narrow band sawing machines include rollers tables and/or extension tables, (for accommodating large workpieces), guide blocks, push blocks and push sticks, also wedge supports for cutting round stock but see 6.3.

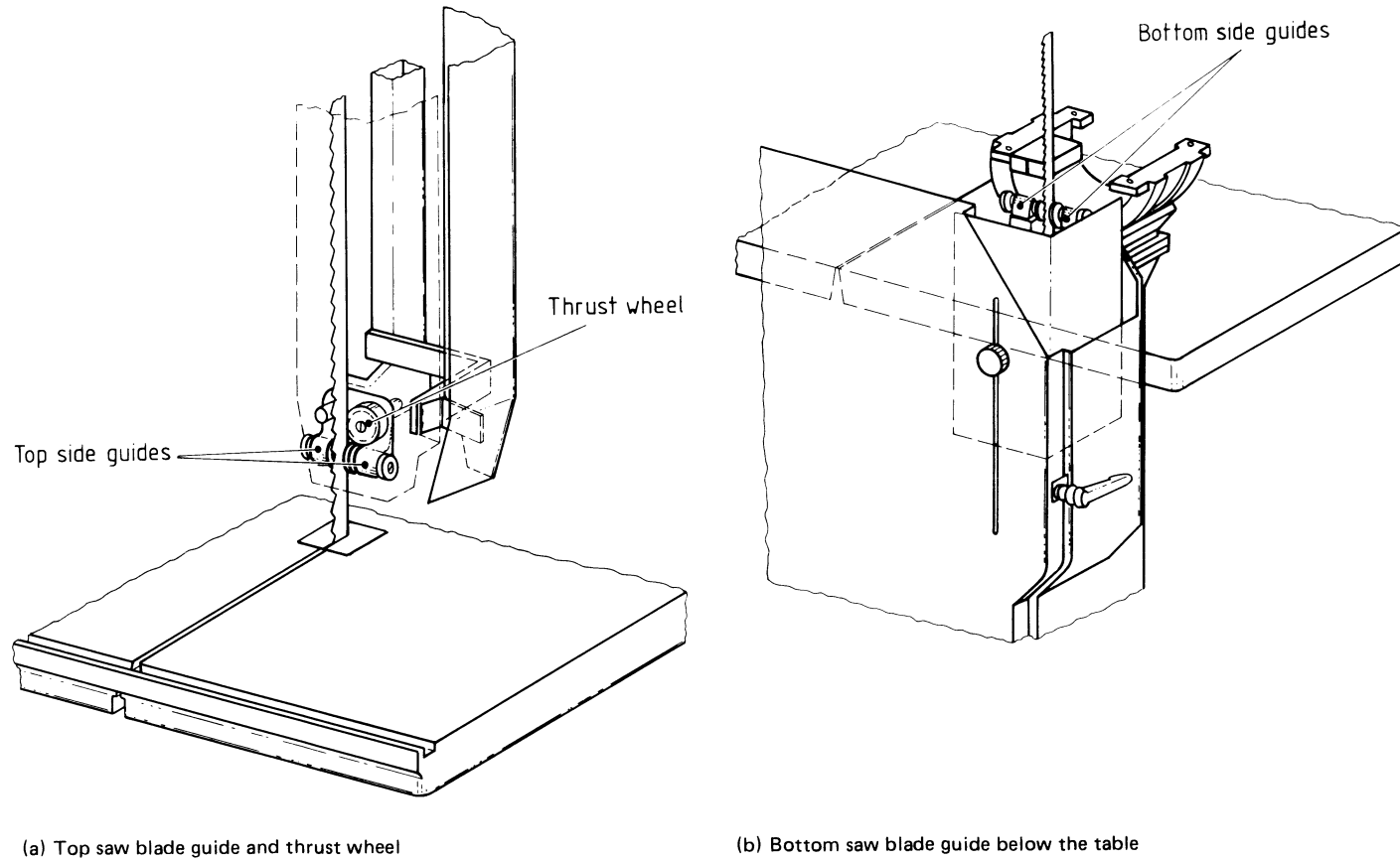


Figure 4 — Band saw blade guides above and below the table