



**centre de  
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pédagogique**

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**Working document**

**List of documents included in this  
collection**

- **Safety in the machine-tool room of high school workshops**
- **Safety instructions in the machine-tool room**
- **The press drill**
- **The band saw**
- **The disk and band sander**
- **Machine-tool usage guide (student's document)**

**March 2011**

# SAFETY IN THE MACHINE-TOOL ROOM OF HIGH SCHOOL WORKSHOPS

## NOTE TO THE SCHOOL BOARD

The safety of machine-tool users and the people likely to be in their vicinity requires an in-depth analysis. The school board is invited to consult a specialist to whom they will entrust the mandate of examining the various types of users of the machine involved and the nature of the work they will carry out, in order to identify potential accident risks. Within this mandate, the specialist will ensure that the design and installation of the machine will prevent, as much as is possible, potentially dangerous phenomena and as necessary, that the machine is equipped with the appropriate safety devices.

A risk analysis normally includes the following elements:

- The identification of the people likely to use the machine (regular-stream students, professional-stream students, teachers, specialised personnel, etc.);
- The identification of possible types of use (light work on small wooden parts, heavy work on large parts, etc.);
- The identification of dangerous phenomena and danger zones (cuts, abrasions, entanglement, etc.) or projection zones (solid object, liquid, gas, smoke, etc.) specific to each machine;
- The identification of potential accidents (dangerous events);
- The definition of acceptable risk based on the users of the machine;
- The evaluation of various available protective systems;
- The installation and break-in of the retained protective systems.

In order to successfully carry out this process, we recommend that the school board call upon a specialised firm to help with the safe installation of the device.

The *Act respecting occupational health and safety* (L.R.Q., Chapter S-2.1) confers the responsibility for verification and approval of machine installation to the Commission de la santé et de la sécurité du travail du Québec (CSST) inspectors. This document may satisfy a large range of situations, but it is possible that the inspector in your area requires modifications or additional protection on the machine being inspected. This is justified by the fact that each situation is unique and that it is important to ensure that students and personnel using your institution may do so safely. Before proceeding with the installation of a machine, even if you have followed the recommendations of a safety specialist, it is recommended that you contact the CSST to submit your work plan. This will avoid the problem of having to refit installations which costs time and money to all those involved.

# SAFETY INSTRUCTIONS FOR THE MACHINE-TOOL ROOM

## General instructions

- Have at least one fire extinguisher and one first aid kit. These safety elements must be clearly labeled and accessible to everyone in the workshop. Periodic verification of this equipment must take place (cleanliness, product expiration, resupply, inspection).
- Keep aisles clean and clear at all times.
- Ensure that students wear appropriate clothing and footwear and that long hair is tied back.
- Remind students that drinking or eating in the room is forbidden.
- Plan an appropriate area for storing unused tools.
- Before every machine use, check the correct and functional installation of all parts and protectors (e.g. : bit, blade, support table, casing).
- Ensure that a single operator at a time is within the prescribed perimeter around the work station.
- Put individual protection (e.g. safety glasses) at the users' disposal.
- Never operate a machine if the operator is overtired or under the influence of drugs, alcohol or medication.
- Ensure that cutting tools are properly sharpened (e.g. bits, blades)
- Ensure that a telephone is accessible close to the workshop and that emergency numbers are posted (e.g. : 9-1-1, ambulance, fire station, Poison Center, CSST).

## Instructions for the operator

- The operator must, at all times, keep fingers away from cutting tools or abrasive surfaces.
- The operator must never leave a machine in operation unattended.
- The operator must wait for a machine to be completely stopped before leaving the work station.

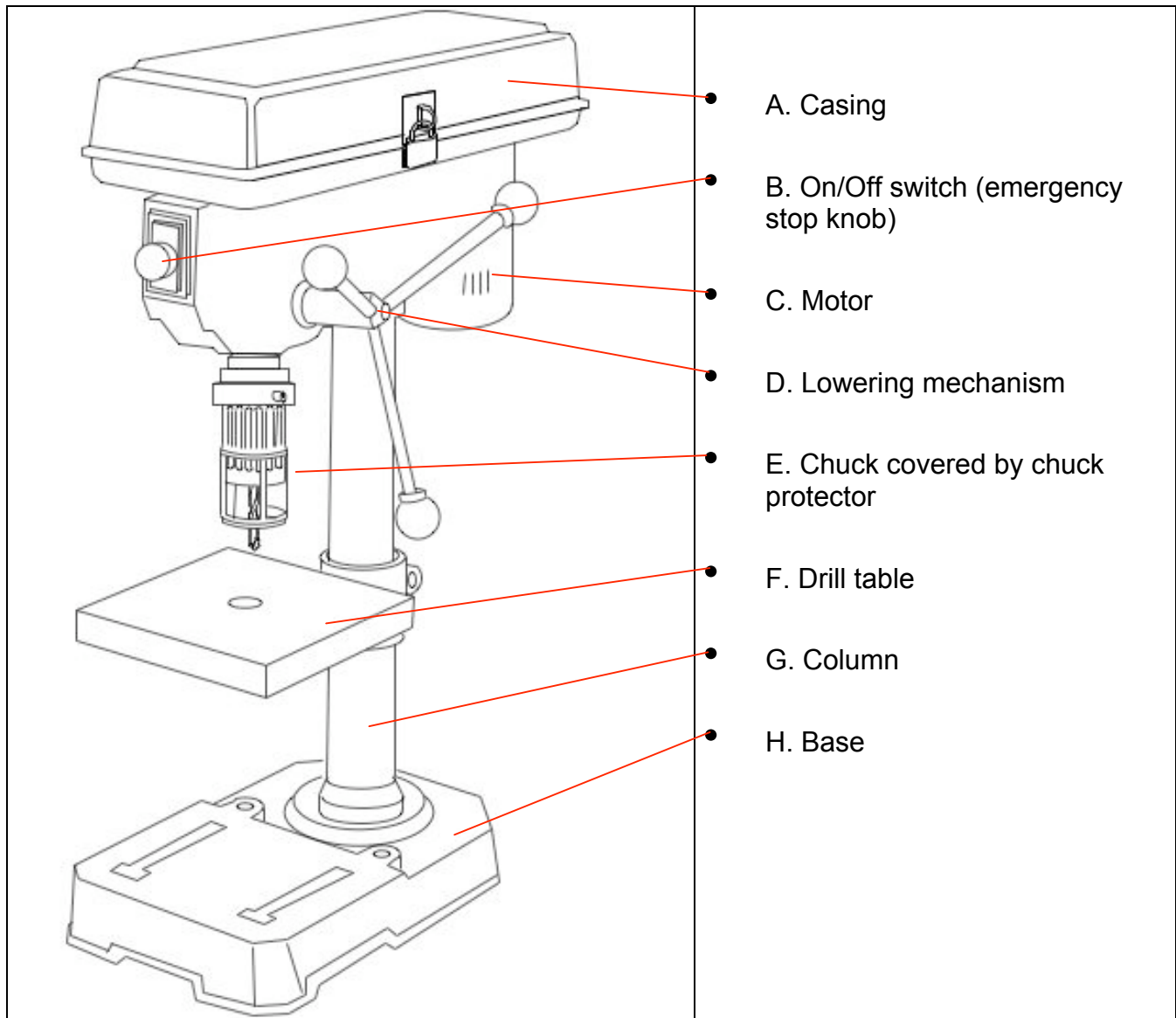


## POTENTIAL RISKS IN THE MACHINE-TOOL ROOM

- Injury by an article of clothing getting caught in a mobile part of a machine.
- Amputation, cuts, lacerations or burns on hands or arms.
- Eye or face injury resulting from the projection of chips or debris.
- Abrasion due to the rotation of abrasive surfaces.
- Falling or slipping.

# IDEAL INSTALLATION AND SAFETY INSTRUCTIONS REGARDING A PRESS-DRILL IN THE MACHINE-TOOL ROOM

## A. PRESENTATION OF THE PRESS-DRILL



## **B. RISKS ASSOCIATED TO THE USE OF THE PRESS-DRILL**

- Injury by an article of clothing getting caught due to the rotation of the bit or chuck.
- Laceration, cut or burn to hands or arms due to the rotation of the bit or chuck.
- Eye or face injury resulting from the projection of chips or debris.

## **C. RECOMMENDED OR COMPLIANT INSTALLATIONS**

The information regarding the installation of this type of machine are in the user's manual supplied by the manufacturer.

### **Machine placement**

The machines must be placed so as to allow the space necessary for maintenance and safe handling of materials and waste.

### **Danger zone**

This is an area located in or around a machine which presents a risk for the health, safety or physical integrity of the operator.

### **Work station**

This is the space occupied by the operator to carry out his work. It includes enough space between machines or installations so the operator can carry out his work safely. This space must not be less than 600 mm on each side of the machine and must be delimited by lines on the floor. The work station must be free from debris at all times and located on a non-slip surface.

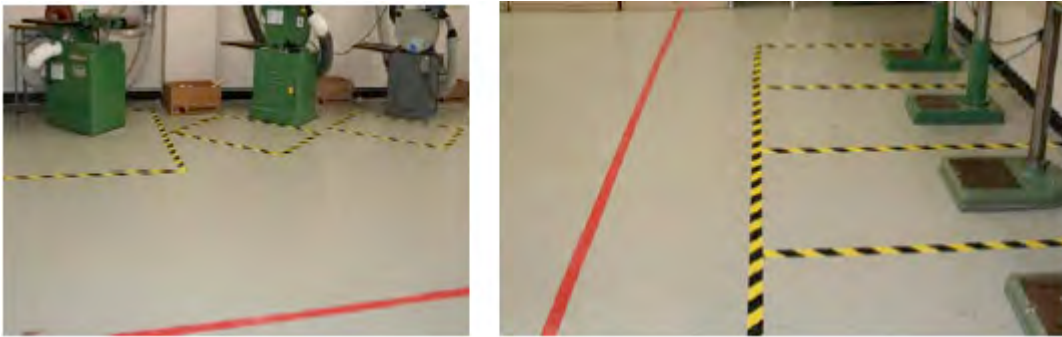


### **Aisle**

This is a space that is kept free at all times and is sufficiently wide to allow for the safe passage of people. It must be delimited by lines on the floor and present a width of not less than 600 mm. If this space leads directly to an exit, the width must not be less than 1100 mm.

## Safety zone

This is an area inside which students wait for a machine-tool to become free. It may be delimited by a red line on the floor.



## Anchoring to the floor

The base of the drill must absolutely be anchored to the floor. In the case of table models, the drill must be affixed to the support surface (e.g. stand, workbench). If that surface tends to move during use, it too, must be anchored to the floor.



## Lighting

The minimum lighting required for the use of the drill is 400 lux.

## Electrical connection

The drill must be connected to an electrical plug with a cover, equipped with a ground in compliance with CSA standards. Damaged power cords must be repaired in a timely fashion. The electrical panel must allow the power to a machine to be interrupted<sup>1</sup>. In the absence of a workshop supervisor, it is recommended to adopt a locking procedure.

## On/Off switch

The on/off switch must be recessed or flush to avoid accidentally starting the machine.

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1. Ideally, a main circuit breaker should control the power to all the machine-tool room circuits.

### **Emergency stop device**

The drill must be equipped with a mechanism designed to immediately and completely stop the machine. It must be clearly labeled, in plain sight and close to the operator. This switch must be red on a yellow background, have a shape that makes it easy to activate and be easily accessible. When it is reset after having been activated, the emergency stop device must not restart the machine.



### **Casing for pulley and belt compartment**

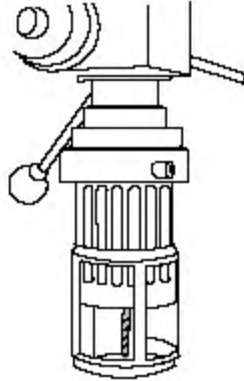
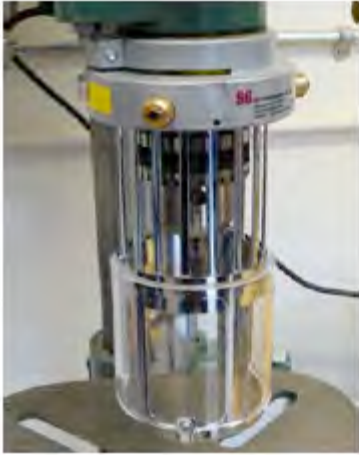
A casing must completely cover the pulleys and belt. This fixed device must require the use of tools to be removed. It may be locked or closed using bolts.





## Chuck protector

The chuck must be surrounded by a removable protector. Its role is to limit access to the bit and chuck, and to prevent the projection of debris by covering the front and sides of the chuck facing the work station.



## Storage of the chuck key

The drill must be equipped with a device that keeps the key far from the chuck (e.g. key with a spring mechanism). The key must never be affixed to a chain (cord, string) fixed to the drill, in order to prevent it being wound around the chuck in rotation.

## Drilling speed

It is important to respect the recommended speed for a particular hole. It is established based on the diameter of the tools and the type of material used.

## Waste containers

Waste containers must be provided in various locations to receive waste, sweepings and other residue removed from work stations.

## D. INSTRUCTIONS RELATIVE TO THE MAINTENANCE OF THE PRESS-DRILL<sup>2</sup>

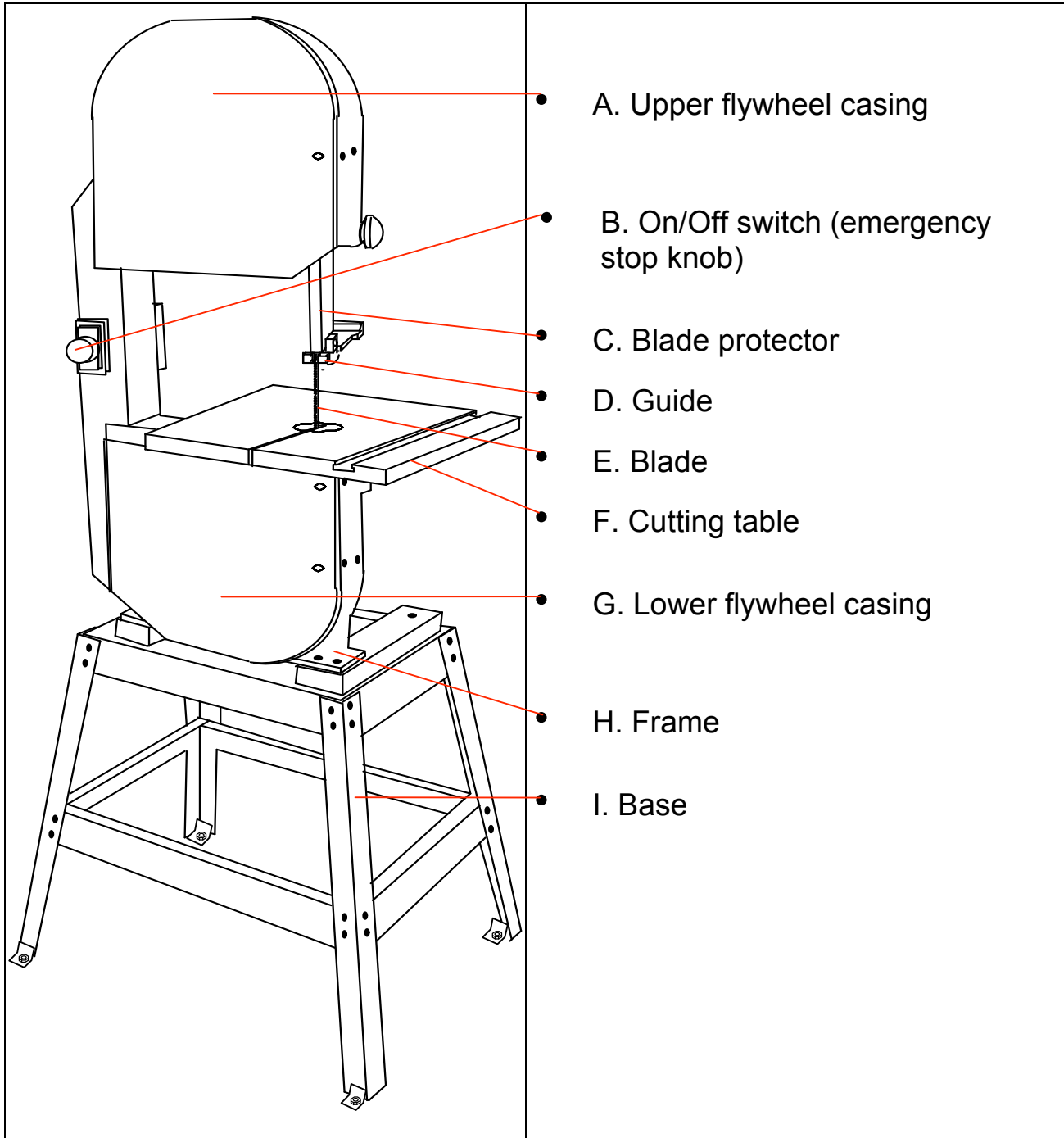
- Periodically carry out the maintenance operations recommended in the user's manual.
- Switch the machine off using the power switch and unplug it before installing or removing accessories, or before proceeding to maintenance operations or maneuvers.

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2. For more information relative to the maintenance of this type of machine, refer to the user's manual supplied by the manufacturer.

# IDEAL INSTALLATION AND SAFETY INSTRUCTIONS REGARDING A BAND SAW IN THE MACHINE-TOOL ROOM

## A. PRESENTATION OF THE BAND SAW



## **B. RISKS ASSOCIATED TO THE USE OF THE BAND SAW**

- Amputation of or cuts on hands or arms due to the movement of the blade.
- Eye or face injury resulting from the projection of chips or debris.

## **C. RECOMMENDED OR COMPLIANT INSTALLATIONS**

The information regarding the installation of this type of machine are in the user's manual supplied by the manufacturer.

### **Machine placement**

The machines must be placed so as to allow the space necessary for maintenance and safe handling of materials and waste.

### **Danger zone**

This is an area located in or around a machine which presents a risk for the health, safety or physical integrity of the operator.

### **Work station**

This is the space occupied by the operator to carry out his work. It includes enough space between machines or installations so the operator can carry out his work safely. This space must not be less than 600 mm on each side of the machine and must be delimited by lines on the floor. The work station must be free from debris at all times and located on a non-slip surface.

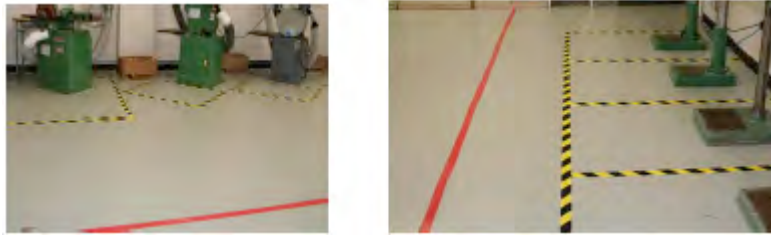


### **Aisle**

This is a space that is kept free at all times and is sufficiently wide to allow for the safe passage of people. It must be delimited by lines on the floor and present a width of not less than 600 mm. If this space leads directly to an exit, the width must not be less than 1100 mm.

## Safety zone

This is an area inside which students wait for a machine-tool to become free. It may be delimited by a red line on the floor.



## Anchoring to the floor

The frame of the band saw must absolutely be anchored to a support surface (e.g. stand, workbench). If that surface tends to move during use, it too, must be anchored to the floor.



## Lighting

The minimum lighting required for the use of the band saw is 400 lux.

## Electrical connection

The drill must be connected to an electrical plug with a cover, equipped with a ground in compliance with CSA standards. Damaged power cords must be repaired in a timely fashion. The electrical panel must allow the power to a machine to be interrupted<sup>3</sup>. In the absence of a workshop supervisor, it is recommended to adopt a locking procedure.

## On/Off switch

The on/off switch must be recessed or flush to avoid accidentally starting the machine.

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3. Ideally, a main circuit breaker should control the power to all the machine-tool room circuits.

### **Emergency stop device**

The drill must be equipped with a mechanism designed to immediately and completely stop the machine. It must be clearly labeled, in plain sight and close to the operator. This switch must be red on a yellow background, have a shape that makes it easy to activate and be easily accessible. When it is reset after having been activated, the emergency stop device must not restart the machine.



### **Flywheel casings**

A casing must completely cover the upper flywheel and the lower parts of the saw and blade. These fixed devices must require the use of tools to be removed. It may be locked or closed using bolts.



### **Blade**

It is important to respect the characteristics of the blade recommended for a specific use (gauge, shape and width). The diameter and width of the blade must not exceed those specified by the saw manufacturer.

## **Blade protector**

The saw must be equipped with a protective device which prevents access to the blade over its entire length, except the part where the cut takes place. The adjustable height guide must be equipped with a blade protector (“J” or “U” shaped). The guide and its blade protector must be adjusted to about 6 mm (1/4 inch) above the upper extremity of the part to be cut.



## **Dust collector**

The band saw must absolutely be connected to a dust collection system. The only dust the dust collector must receive is dust coming from ligneous materials (e.g. wood, laminates) and plastics. No metallic residue should be vacuumed. The fill level of the integrated bag or of the dust collection bin must be checked regularly.

## **Waste containers**

Waste containers must be provided in various locations to receive waste, sweepings and other residue removed from work stations.

## **D. INSTRUCTIONS RELATIVE TO THE MAINTENANCE OF THE BAND SAW<sup>4</sup>**

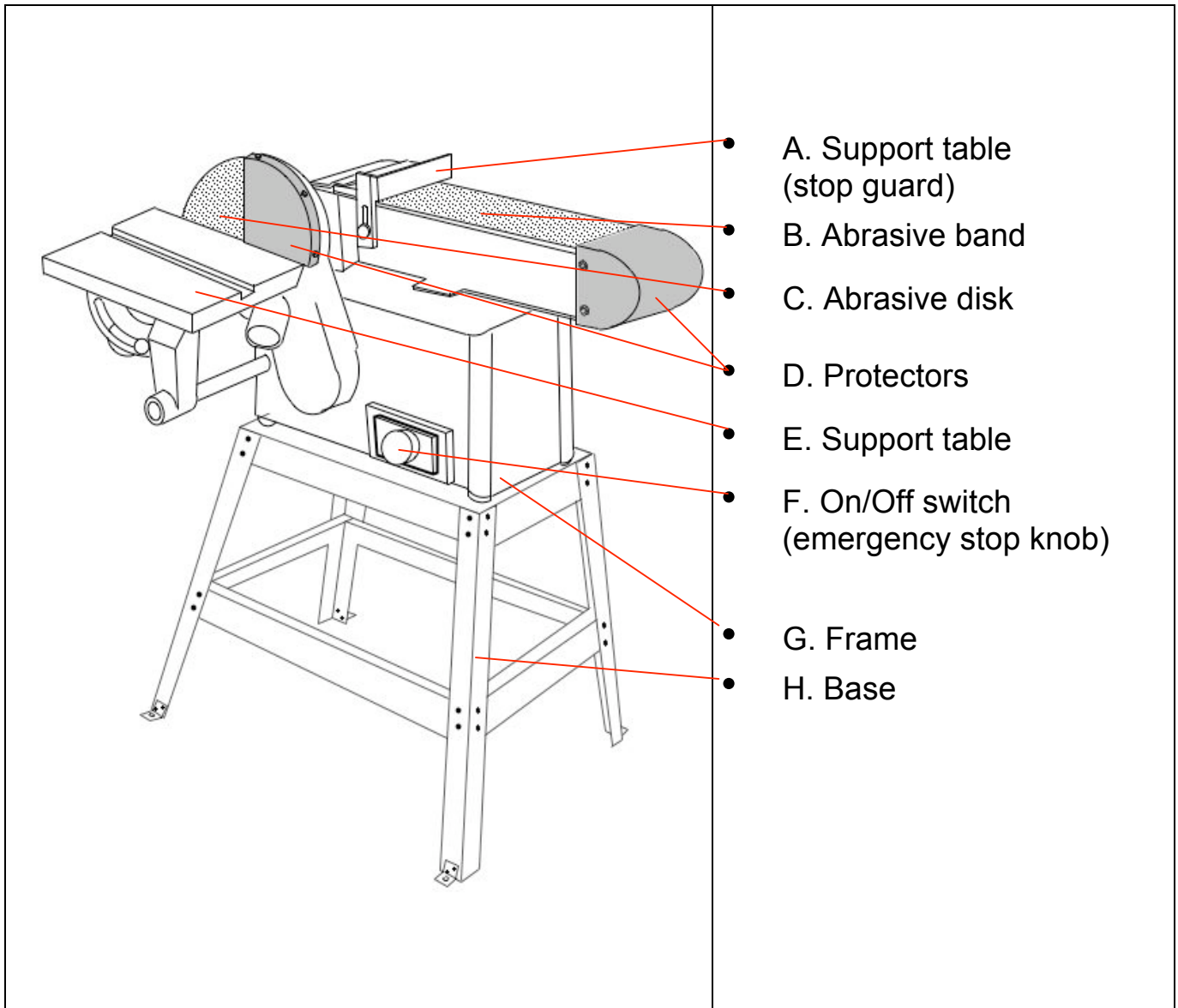
- Regularly check the condition of the blade.
- Periodically carry out the maintenance operations recommended in the user’s manual.
- Switch the machine off using the power switch and unplug it before installing or removing accessories, or before proceeding to maintenance operations or maneuvers.

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4. For more information relative to the maintenance of this type of machine, refer to the user’s manual supplied by the manufacturer.

# IDEAL INSTALLATION AND SAFETY INSTRUCTIONS REGARDING A DISK OR BAND SANDER IN THE MACHINE-TOOL ROOM

## A. PRESENTATION OF THE DISK OR BAND SANDER



## **B. RISKS ASSOCIATED TO THE USE OF THE DISK OR BAND SANDER**

- Abrasion due to the movement of abrasive surfaces.
- Eye or face injury resulting from the projection of chips or debris.

## **C. RECOMMENDED OR COMPLIANT INSTALLATIONS**

The information regarding the installation of this type of machine are in the user's manual supplied by the manufacturer.

### **Machine placement**

The machines must be placed so as to allow the space necessary for maintenance and safe handling of materials and waste.

### **Danger zone**

This is an area located in or around a machine which presents a risk for the health, safety or physical integrity of the operator.

### **Work station**

This is the space occupied by the operator to carry out his work. It includes enough space between machines or installations so the operator can carry out his work safely. This space must not be less than 600 mm on each side of the machine and must be delimited by lines on the floor. The work station must be free from debris at all times and located on a non-slip surface.



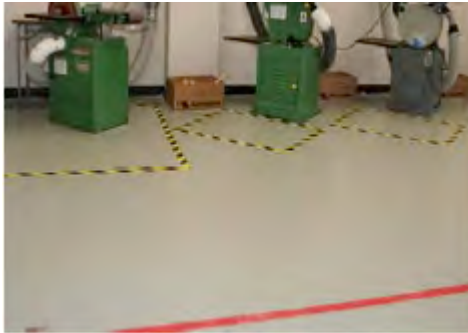
### **Aisle**

This is a space that is kept free at all times and is sufficiently wide to allow for the safe passage of people. It must be delimited by lines on the floor and present a width of not less than 600 mm. If this space leads directly to an exit, the width must not be less than 1100 mm.



## Safety zone

This is an area inside which students wait for a machine-tool to become free. It may be delimited by a red line on the floor.



## Anchoring to the floor

The frame of the disk or band sander must absolutely be anchored to a support surface (e.g. stand, workbench). If that surface tends to move during use, it too, must be anchored to the floor.



## Lighting

The minimum lighting required for the use of the band saw is 400 lux.

## Electrical connection

The sander must be connected to an electrical plug with a cover, equipped with a ground in compliance with CSA standards. Damaged power cords must be repaired in a timely fashion. The electrical panel must allow the power to a machine to be interrupted<sup>5</sup>. In the absence of a workshop supervisor, it is recommended to adopt a locking procedure.

## On/Off switch

The on/off switch must be recessed or flush to avoid accidentally starting the machine.

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5. Ideally, a main circuit breaker should control the power to all the machine-tool room circuits.

### **Emergency stop device**

The sander must be equipped with a mechanism designed to immediately and completely stop the machine. It must be clearly labeled, in plain sight and close to the operator. This switch must be red on a yellow background, have a shape that makes it easy to activate and be easily accessible. When it is reset after having been activated, the emergency stop device must not restart the machine.



### **Space between support tables**

The space between the support tables and the abrasive surfaces must not exceed 3 millimeters (1/8 inch).



### **Adjustment of the abrasive band**

The abrasive band must be adjusted so that it does not move laterally relative to the drive drums. The tension must be adjusted so that the band turns at the same speed as the drums when it is in contact with the part to be sanded.

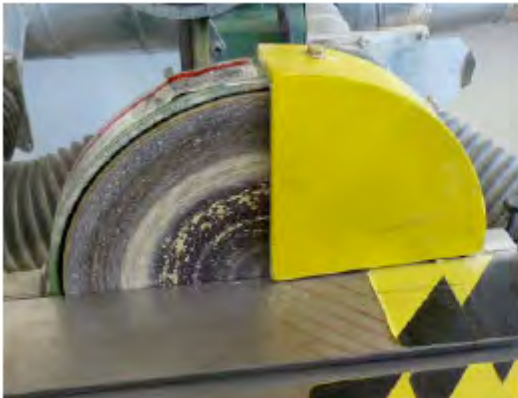
### **Band protector**

It is necessary to equip the sander with a fixed protector which reduces the risk of projecting the part to be sanded or debris. This device also avoids the risk of anything becoming entangled in the entrance angle. In addition, the unused portion of the abrasive band must entirely covered by a fixed protective device.



### **Disk protector**

It is necessary to equip the sander with a fixed protective device which limits the access to the ascending part of the disk. This device reduces the risk of the part to be sanded or debris being projected.



### **Dust collector**

The sander must absolutely be connected to a dust collection system. The only dust the dust collector must receive is dust coming from ligneous materials (e.g. wood, laminates) and plastics. No metallic residue should be vacuumed. The fill level of the integrated bag or of the dust collection bin must be checked regularly.

## **Waste containers**

Waste containers must be provided in various locations to receive waste, sweepings and other residue removed from work stations.

### **D. INSTRUCTIONS RELATIVE TO THE MAINTENANCE OF DISK OR BAND SANDER<sup>6</sup>**

- Regularly check the condition of the band and the disk.
- Use bands whose width is compliant with the sander manufacturer's recommendations.
- Periodically carry out the maintenance operations recommended in the user's manual.
- Switch the machine off using the power switch and unplug it before installing or removing accessories, or before proceeding to maintenance operations or maneuvers.

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6. For more information relative to the maintenance of this type of machine, refer to the user's manual supplied by the manufacturer.

## REFERENCES

QUEBEC. *Act respecting occupational health and safety : L.R.Q., chapter S-2.1*, Québec, Éditeur officiel du Québec, 1995, 148 p. [Online, in French], [[http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=2&file=/S\\_2\\_1/S2\\_1.html](http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=2&file=/S_2_1/S2_1.html)] (Consulted September 15, 2010.)

QUEBEC. *Règlement sur la santé et la sécurité du travail<sup>7</sup> : LRQ, chapter S-2.1, r. 19.01*, Québec, Éditeur officiel du Québec, 2001, 172 p. [Online, in French], [[http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=2&file=%2F%2FS\\_2\\_1%2FS2\\_1R19\\_01.htm](http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=2&file=%2F%2FS_2_1%2FS2_1R19_01.htm)] (Consulted September 15, 2010.)

*Mise à niveau des locaux pour les cours du deuxième cycle du secondaire pour répondre aux besoins liés au renouveau pédagogique*, Direction générale du financement et de l'équipement, Direction de l'équipement scolaire, 2006, Québec, 51 p.

*Ergonomic Checkpoints - Practical and easy-to-implement solutions for improving safety, health and working conditions*, Bureau international du travail, Genève, 2006, 276 p. [Online, in French], [<http://www.irsst.qc.ca/files/documents/PubIRSST/Manuel-128-Points.pdf>] (Consulted September 15, 2010.)

*Sécurité des machines : Prévention des phénomènes dangereux d'origine mécanique - Protecteurs fixes et distances de sécurité*, Commission de la Santé et de la Sécurité du travail et Institut de recherche en santé et sécurité du travail, 2008, 72 p. [Online, in French], [[http://www.csst.qc.ca/publications/200/Documents/DC200\\_16002\\_1web.pdf](http://www.csst.qc.ca/publications/200/Documents/DC200_16002_1web.pdf)] (Consulted September 15, 2010.)

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7. Amendments to the law and regulation respecting occupational health and safety are published in La Gazette officielle du Québec, Publications du Québec.



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**Working document**

# **SAFETY IN THE MACHINE-TOOL ROOMS OF HIGH SCHOOL WORKSHOPS**

## **STUDENT DOCUMENT**

### **POTENTIAL RISKS IN THE MACHINE-TOOL ROOM**

- Injury by an article of clothing getting caught in a mobile part of a machine.
- Amputation, cuts, lacerations or burns on hands or arms.
- Eye or face injury resulting from the projection of chips or debris.
- Abrasion due to the rotation of abrasive surfaces.
- Falling or slipping

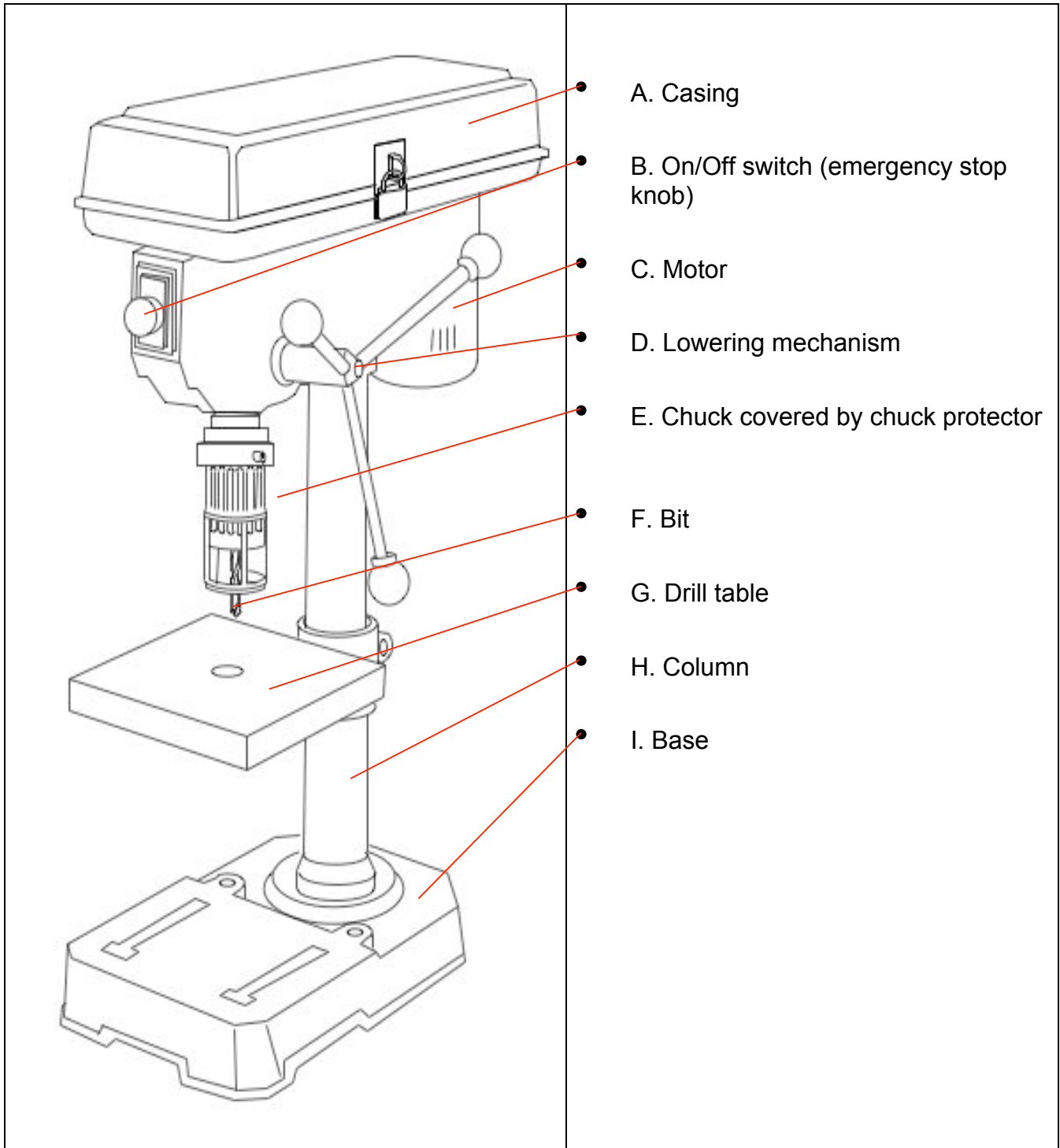
## GENERAL SAFETY INSTRUCTIONS IN THE MACHINE-TOOL ROOM

- Locate the fire extinguisher and the first-aid kit. These safety elements must be clearly identified and accessible to everyone in the workshop.
- Keep the aisles clean and clear at all times.
- Wear appropriate clothing and footwear, tie long hair back and remove jewelry and other clothing accessories (e.g. tie, bracelets).
- Never eat or drink in the room.
- Put unused tools away in an appropriate place.
- Ensure that all parts and protectors (e.g. bit, blade, support table, casing) are correctly installed before each use of a machine, and that no mobile parts are in the vicinity of parts in movement.
- Ensure that you are the only user inside the safety perimeter around the work station.
- Use the required protective equipment (e.g. safety glasses).
- Never operate a machine if the operator is overtired or under the influence of drugs, alcohol or medication.
- Keep fingers away from a cutting tool or abrasive surfaces at all times.
- Never leave a machine in operation without supervision.
- Maintain a stable, comfortable position when a machine-tool is operating. Do not lean over the tool.
- Remain concentrated and attentive at all times when using a machine-tool.
- Wait for the machine to be completely stopped before cleaning the work surfaces and leaving the work station.



# SAFE USE OF THE PRESS-DRILL

## A. PRESENTATION OF THE PRESS-DRILL





## **B. SAFETY INSTRUCTIONS RELATIVE TO THE USE OF THE PRESS-DRILL**

### *Before use*

- Always work in the presence of the person responsible for the machine-tool room.
- Ensure that you are aware of the safety rules relative to the use of this machine-tool.
- Wear appropriate clothing and footwear, tie long hair back and remove jewelry and other clothing accessories (e.g. tie, bracelets).
- Wear safety glasses at all times.
- Ensure that all parts and protectors (e.g. chuck protector, casing) are correctly installed before each use, and that no mobile parts are in the vicinity of parts in movement.
- Clean off the drill table if necessary.
- Stop the drill before installing or removing a sharp tool (e.g. bit, jigsaw).
- Immediately remove the chuck key after having installed or removed a sharp tool in the chuck.
- Affix the part using a vise or clamp, or use a drilling template. Solidly affix the part when using a jigsaw or sharp tools more than 13 mm (1/2 inch) in diameter.
- Set the drill table at a height that avoids drilling the plate and damaging the bit.
- Ensure that you are the only operator inside the safety perimeter which delimits the work station.

### *While in use*

- Start the drill before putting the bit in contact with the part to be drilled.
- Start drilling only once the bit has reached its maximum speed.
- Reduce the drilling pressure when the bit is through the part, if necessary.
- Keep fingers away from the bit at all times.

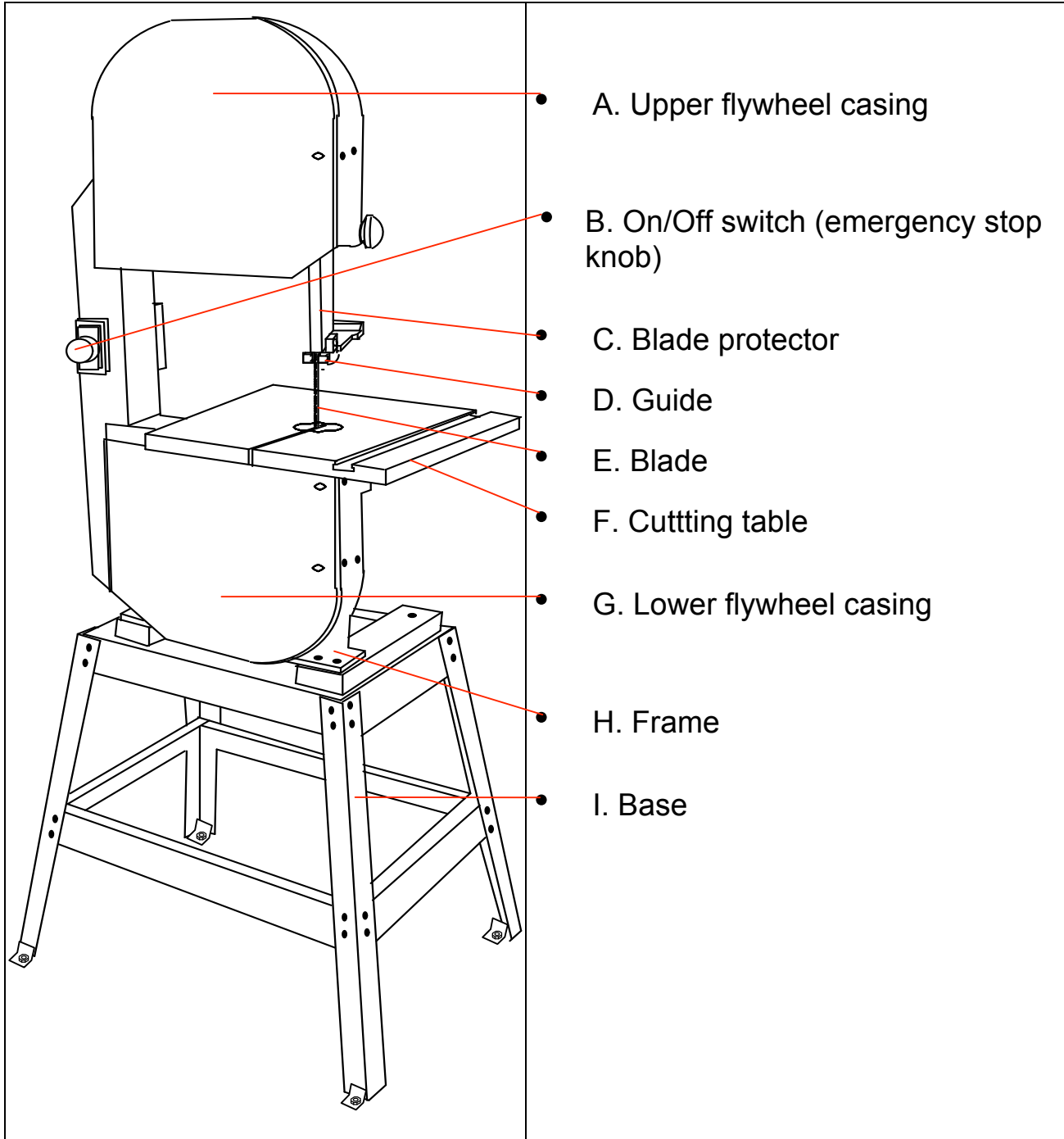
### *After use*

- Stop the drill and wait for the chuck to come to a complete stop before removing the part.
- Clean off the drill table with a whisk after each use.
- Ensure that the drill has come to a complete stop before leaving the work station.

**The student is never authorised to change the settings or open casings without the express permission of the workshop supervisor.**

# SAFE USE OF THE BAND SAW

## A. PRESENTATION OF THE BAND SAW



## **B. SAFETY INSTRUCTIONS RELATIVE TO THE USE OF THE BAND SAW**

### *Before use*

- Always work in the presence of the person responsible for the machine-tool room.
- Ensure that you are aware of safety rules relative to the use of this machine-tool.
- Wear appropriate clothing and footwear, tie long hair back and remove jewelry and other clothing accessories (e.g. tie, bracelets).
- Wear safety glasses at all times.
- Ensure that all parts and protectors (e.g. blade protector, casing) are correctly installed before each use, and that no mobile parts are in the vicinity of parts in movement.
- Clean off the cutting table if necessary.
- Ensure that you are the only operator inside the safety perimeter which delimits the work station.
- The only materials that may be sawed are ligneous materials (e.g. wood, laminates) and plastics. If in doubt, find out from the workshop supervisor.

### *While in use*

- Start the dust collector before starting the band saw.
- Start the saw before placing the part to be sawed in contact with the blade.
- Start cutting only once the blade has reached its maximum speed.
- Hold the part to be cut firmly and flat on the cutting table.
- Keep your hands on each side of the blade.
- Keep your fingers away from the blade at all times. Use a feeder stick when your hands risk coming too close to the blade.
- Push the part towards the saw with moderate force, without causing the blade to slow.
- Stop the saw before removing a partly sawed part.
- Stop the saw if the blade becomes jammed; always hold the part with one hand.
- Stop the machine immediately if the blade breaks and warn the workshop supervisor.

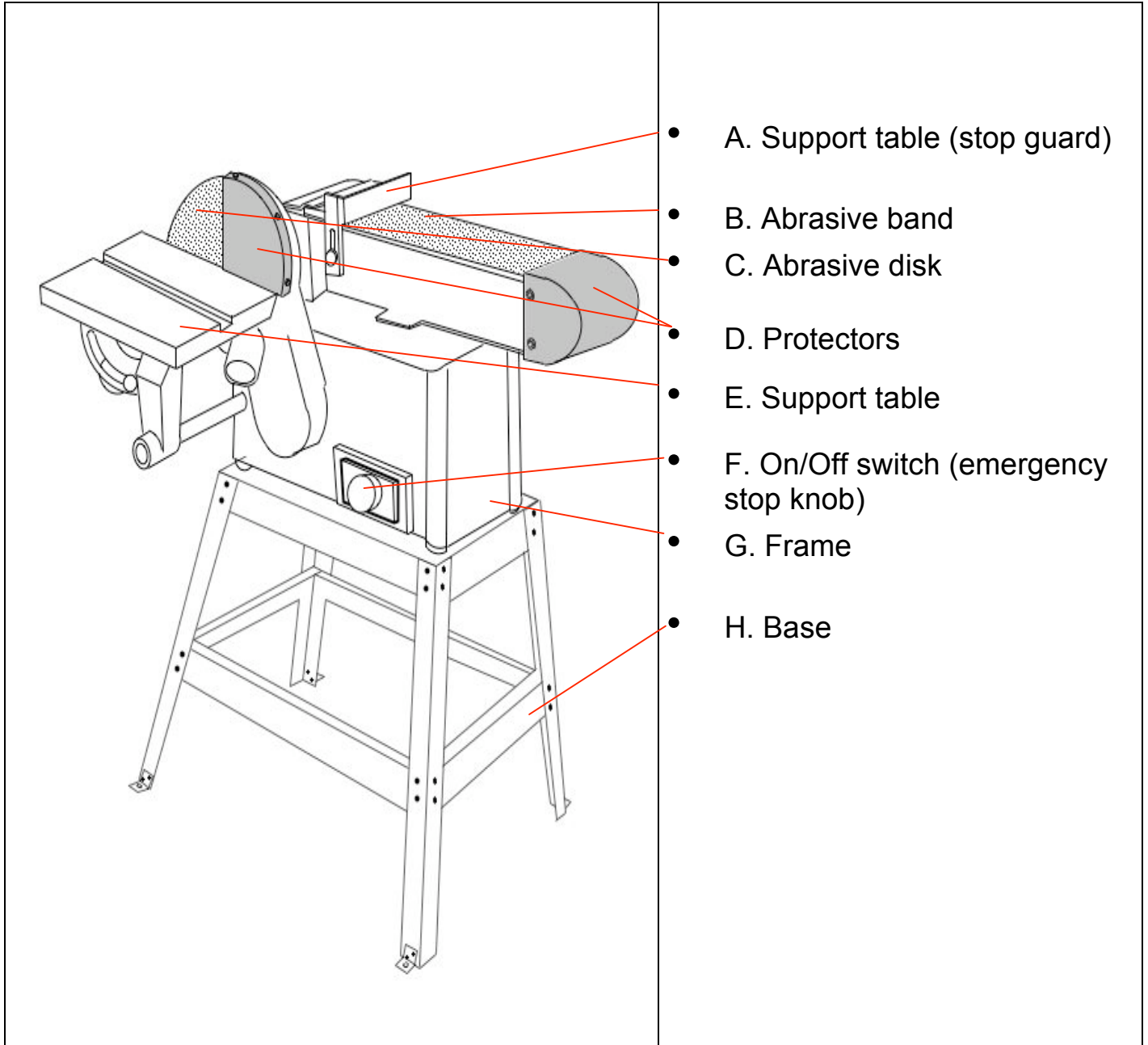
### *After use*

- Stop the saw and wait until the blade comes to a complete stop before removing the part.
- Clean off the cutting table with a whisk after each use.
- Ensure that the saw has come to a complete stop and that it is turned off before leaving the work station.

**The student is never authorised to change the settings or open casings without the express permission of the workshop supervisor.**

# SAFE USE OF THE DISK OR BAND SANDER

## A. PRESENTATION OF THE DISK OR BAND SANDER



## **B. SAFETY INSTRUCTIONS RELATIVE TO THE USE OF THE DISK AND BAND SANDER**

### *Before use*

- Always work in the presence of the person responsible for the machine-tool room.
- Ensure that you are aware of safety rules relative to the use of this machine-tool.
- Wear appropriate clothing and footwear, tie long hair back and remove jewelry and other clothing accessories (e.g. tie, bracelets).
- Wear safety glasses at all times.
- Ensure that all parts and protectors (e.g.: casing, disk protector) are correctly installed before each use, and that no mobile parts are in the vicinity of parts in movement.
- Clean off the support table if necessary.
- Ensure that you are the only operator inside the safety perimeter which delimits the work station.
- Ensure that you are only using materials that are allowed to be sanded, namely ligneous materials (e.g. wood, laminates) and plastics. If in doubt, find out from the workshop supervisor.

### *While in use*

- Start the dust collector before starting the sander.
- Ensure that the support tables are adjusted to 3 millimeters (1/8 inch) from abrasive surfaces.
- Start the sander before putting the part to be machined into contact with abrasive surfaces.
- Start sanding only once the band or disk has reached its maximum speed.
- Hold the part to be sanded firmly and flat on the support table. Use a part holder to hold smaller parts.
- Avoid sanding very thin, cylindrical or very small parts.
- Keep your fingers away from abrasive surfaces at all times.
- Push the part towards the abrasive surface with moderate force, without causing the band or disk to slow.
- Stop the sander immediately if the band or disk breaks and warn the workshop supervisor.

### *After use*

- Stop the sander and wait until the machine comes to a complete stop before leaving the work station.
- Clean off the support tables with a whisk after each use.

**The student is never authorised to change the settings without the express permission of the workshop supervisor.**