12" Band Saw
(Model 28-190)

INSTRUCTION MANUAL

DATED 5-6-98

PART NO. 1345385

DELTA

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SAFETY RULES

Woodworking can be dangerous if safe and proper operating procedures are not followed. As with all machinery, there are certain hazards involved with the operation of the product. Using the machine with respect and caution will considerably lessen the possiblity of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may result. Safety equipment such as guards, push sticks, hold-downs, featherboards, goggles, dust masks and hearing protection can reduce your potential for injury. But even the best guard won't make up for poor judgment, carelessness or inattention. Always use common sense and exercise caution in the workshop. If a procedure feels dangerous, don't try it. Figure out an alternative procedure that feels safer. REMEMBER: Your personal safety is your responsibility.

This machine was designed for certain applications only. Delta Machinery strongly recommends that this machine not be modified and/or used for any application other than that for which it was designed. If you have any questions relative to a particular application, DO NOT use the machine until you have first contacted Delta to determine if it can or should be performed on the product.

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(IN CANADA: 644 IMPERIAL ROAD, GUELPH, ONTARIO N1H 6M7)

WARNING: FAILURE TO FOLLOW THESE RULES MAY RESULT IN SERIOUS PERSONAL INJURY

1. **FOR YOUR OWN SAFETY, READ INSTRUCTION MANUAL BEFORE OPERATING THE TOOL**. Learn the tool's application and limitations as well as the specific hazards peculiar to it.
2. **KEEP GUARDS IN PLACE** and in working order.
3. **ALWAYS WEAR EYE PROTECTION**.
4. **GROUND ALL TOOLS**. If tool is equipped with three-prong plug, it should be plugged into a three-hole electrical receptacle. If an adapter is used to accommodate a two-prong receptacle, the adapter lug must be attached to a known ground. Never remove the third prong.
5. **REMOVE ADJUSTING KEYS AND WRENCHES**. Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it "on."
6. **KEEP WORK AREA CLEAN**. Cluttered areas and benches invite accidents.
7. **DON'T USE IN DANGEROUS ENVIRONMENT**. Don't use power tools in damp or wet locations, or expose them to rain. Keep work area well-lighted.
8. **KEEP CHILDREN AND VISITORS AWAY**. All children and visitors should be kept a safe distance from work area.
9. **MAKE WORKSHOP CHILDPROOF** - with padlocks, master switches, or by removing starter keys.
10. **DON'T FORCE TOOL**. It will do the job better and be safer at the rate for which it was designed.
11. **USE RIGHT TOOL**. Don't force tool or attachment to do a job for which it was not designed.
12. **WEAR PROPER APPAREL**. No loose clothing, gloves, neckties, rings, bracelets, or other jewelry to get caught in moving parts. Nonslip footwear is recommended. Wear protective hair covering to contain long hair.
13. **ALWAYS USE SAFETY GLASSES**. Wear safety glasses (must comply with ANSI Z87.1). Everyday eyeglasses only have impact resistant lenses; they are not safety glasses. Also use face or dust mask if cutting operation is dusty.
14. **SECURE WORK**. Use clamps or a vise to hold work when practical. It's safer than using your hand and frees both hands to operate tool.
15. **DON'T OVERREACH**. Keep proper footing and balance at all times.
16. **MAINTAIN TOOLS IN TOP CONDITION**. Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
17. **DISCONNECT TOOLS** before servicing and when changing accessories such as blades, bits, cutters, etc.
18. **USE RECOMMENDED ACCESSORIES**. The use of improper accessories may cause hazards or risk of injury to persons.
19. **REDUCE THE RISK OF UNINTENTIONAL STARTING.** Make sure switch is in "OFF" position before plugging in power cord.
20. **NEVER STAND ON TOOL**. Serious injury could occur if the tool is tipped or if the cutting tool is accidentally contacted.
21. **CHECK DAMAGED PARTS**. Before further use of the tool, a guard or other part that is damaged should be carefully checked to ensure that it will operate properly and perform its intended function - check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.
22. **DIRECTION OF FEED**. Feed work into a blade or cuttter against the direction of rotation of the blade or cutter only.
23. **NEVER LEAVE TOOL RUNNING UNATTENDED**. **TURN POWER OFF**. Don't leave tool until it comes to a complete stop.
24. **DRUGS, ALCOHOL, MEDICATION**. Do not operate tool while under the influence of drugs, alcohol or any medication.
25. **MAKE SURE TOOL IS DISCONNECTED FROM POWER SUPPLY** while motor is being mounted, connected or reconnected.
26. **WARNING:** The dust generated by certain woods and wood products can be injurious to your health. Always operate machinery in well ventilated areas and provide for proper dust removal. Use wood dust collection systems whenever possible.

ADDITIONAL SAFETY RULES FOR BAND SAWS

1. **WARNING:** Do not operate your band saw until it is completely assembled and installed according to the instructions.

2. **IF YOU ARE NOT** thoroughly familiar with the operation of band saws, obtain advice from your supervisor, instructor, or other qualified person.

3. **ALWAYS WEAR EYE PROTECTION**.

4. **NEVER** turn the machine **"ON"** before clearing the table of all objects (tools, scrap pieces, etc.).

5. **NEVER** start the band saw with the workpiece contacting the saw blade.

6. **ADJUST** the upper guide assembly about 1/8" above the material being cut.

7. **MAKE SURE** the blade tension and blade tracking are properly adjusted.

8. **ALWAYS** keep hands and fingers away from the blade.

9. **CHECK** for proper blade size and type.

10. **DO NOT** attempt to saw stock that does not have a flat surface, unless a suitable support is used.

11. **HOLD** material firmly against the table and feed into blade at a moderate speed.

12. **TURN OFF** machine if the material is to be backed out of an uncompleted cut.

13. **MAKE** "release" cuts before cutting long curves.

14. **DO NOT** remove jammed cut-off pieces until blade has stopped.

15. **STOP** the machine before removing scrap pieces from the table.

16. **NEVER** perform layout, assembly, or set-up work on the table while the machine is operating.

17. **ALWAYS** hold the workpiece firmly against the table.

18. **AVOID** awkward hand positions where a sudden slip could cause a hand to move into the blade.

19. **DO NOT** cut material that is too small to be safely supported.

20. **MAKE SURE** the blade teeth point downward toward the table.

21. **ALWAYS** maintain proper adjustment of blade tension, blade guides, and blade support bearings.

22. **SHUT OFF** the power and clean the table and work area before leaving the machine.

23. **SHOULD** any part of your band saw be missing, damaged, or fail in any way, or any electrical component fail to perform properly, shut off switch and remove plug from power supply outlet. Replace missing, damaged, or failed parts before resuming operation.

24. **THE USE** of attachments and accessories not recommended by Delta may result in the risk of injuries.

25. **ADDITIONAL** information regarding the safe and proper operation of this product is available from the National Safety Council, 1121 Spring Lake Drive, Itasca, IL 60143-3201, in the Accident Prevention Manual for Industrial Operations and also in the Safety Data Sheets provided by the NSC. Please also refer to the American National Standards Institute ANSI 01.1 Safety Requirements for Woodworking Machinery and the U.S. Department of Labor OSHA 1910.213 Regulations.

26. **SAVE THESE INSTRUCTIONS**. Refer to them often and use them to instruct others.

SPECIFICATIONS

Motor:	1/2 H.P., 120V, Single Phase
Speed:	2700 SFPM
Table:	14" x 14"
Table Groove:	3/8" x 3/4"
Table Tilt:	46° right / 3° left
Blade Width:	1/8" minimum, 1/2" maximum
Blade Length:	82"
Capacities:	Blade to Frame 12"
	Table to Frame 6"
Height on Stand:	64"
Width:	31"
Depth (front to rear):	22-1/2"
Weight:	120 lbs.

UNPACKING

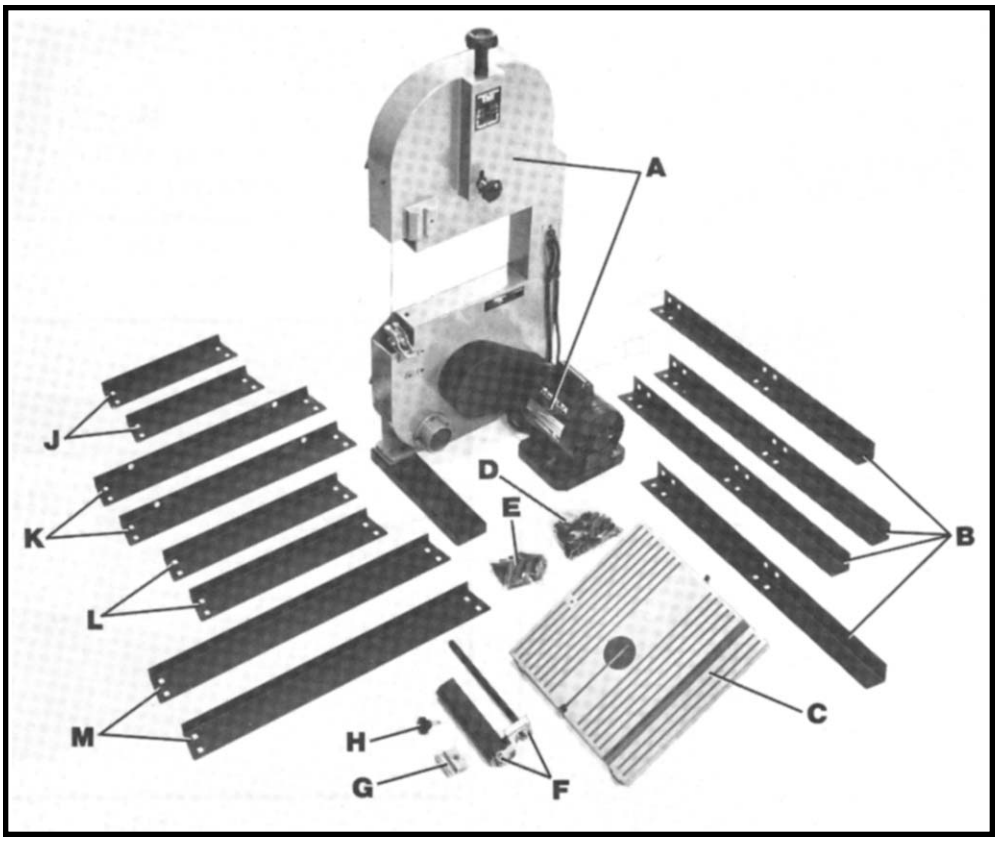


Fig. 2

Your new Band Saw is shipped complete in one container. Carefully unpack the saw and all loose items from the shipping container. Fig. 2, illustrates the contents of the container.

A - Band Saw with Motor and 82" long, 1/4" wide saw blade

B - Four legs - 26-1/4" long

C - Table Assembly

D - Hardware Pack

E - Four Rubber Feet

F - Blade Guide Assembly

G - Lock Plate for Blade Guide Assembly

H - Lock Screw for Blade Guide Assembly

J - Two Upper Braces for Stand - 12-3/4" long

K - Two Upper Braces for Stand - 21-1/2" long

L - Two Lower Braces for Stand - 17" long

M - Two Lower Braces for Stand - 25-3/4" long

ASSEMBLY INSTRUCTIONS

WARNING: FOR YOUR OWN SAFETY, DO NOT CONNECT THE BAND SAW TO THE POWER SOURCE UNTIL THE MACHINE IS COMPLETELY ASSEMBLED AND YOU HAVE READ AND UNDERSTOOD THE ENTIRE OWNERS MANUAL.

ASSEMBLING STAND AND RUBBER FEET

1. Assemble the stand, as shown in Fig. 3, using the 32 carriage bolts, flat washers and nuts supplied. The two 12-3/4" long upper braces (J); 21-1/2" long upper braces (K); 17" long lower braces (L) and 25-3/4" long lower braces (M) should be fastened to the four 26-1/4" long legs (B). **IMPORTANT:** The top lips of the upper braces (J) should be on top of the top lips of upper braces (K).

2. Assemble the four rubber feet (E) Fig. 3, to bottom of each leg (B) as shown.

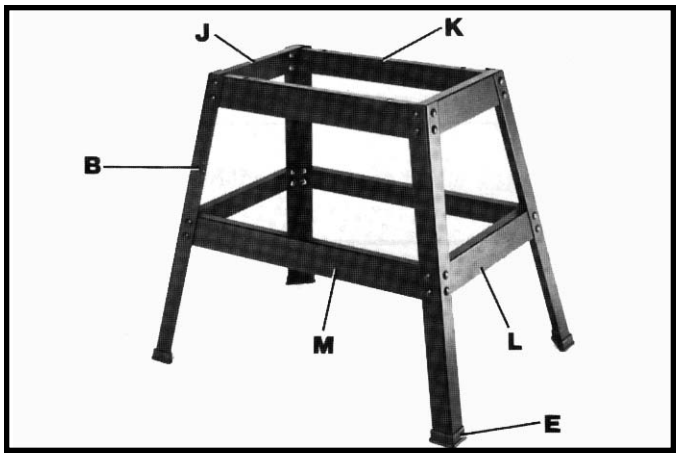


Fig. 3

ASSEMBLING BAND SAW TO STAND

1. Fig. 4 illustrates the two through holes (A) and two threaded holes (C) which will be used to secure the band saw to the stand.

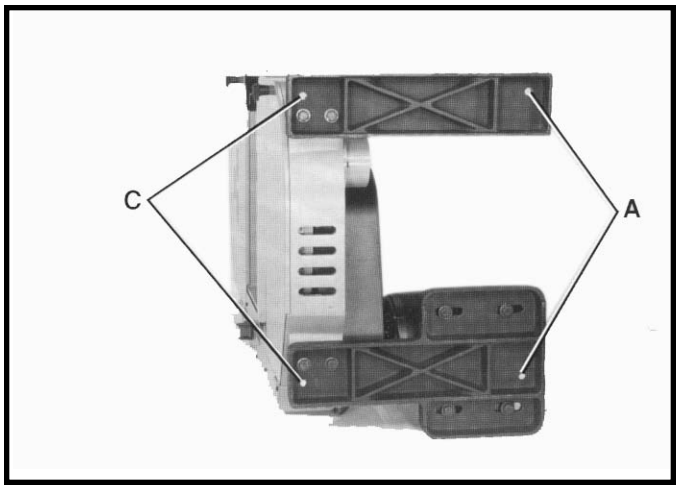


Fig. 4

2. Place the band saw on top of stand and line up the two threaded holes (C) Fig. 4, with the two holes (D) Fig. 5, on upper brace of stand.

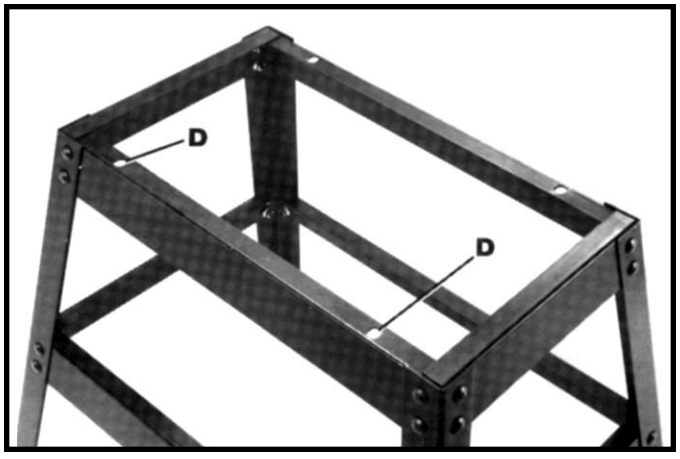


Fig. 5

3. Using the two 45mm (approximately 1-3/4" long) screws (E) Fig. 6, and flat washers supplied, fasten the band saw to the stand by threading the two screws (E) into the tapped holes in bottom of saw as shown.

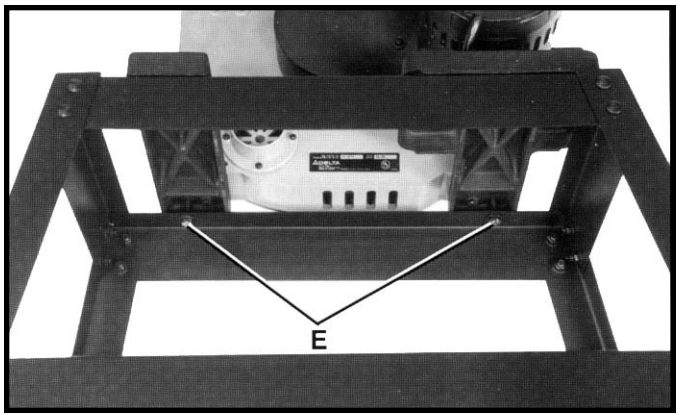


Fig. 6

4. Fasten remaining end of band saw to top of stand using two 45mm (approximately 1-3/4″ long) hex head screws (F) Fig. 7, four flat washers (G), and two hex nuts (H) supplied as shown. **NOTE:** On the foot end of band saw the screw and flat washer (F) and (G) are inserted from the top and the nut and remaining flat washer are under the upper brace of the stand. On the motor end of band saw, the nut and flat washer (H) and (G) will be located on the top of the motor mounting plate, as shown.

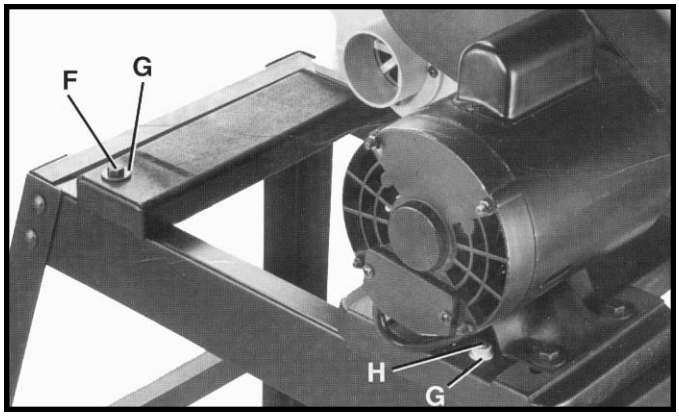


Fig. 7

ASSEMBLING TABLE

1. Remove the screw (A) Fig. 8, flat washer (B) and wing nut (C) from slotted end (D) of table and slide table (E) into position on band saw as shown.

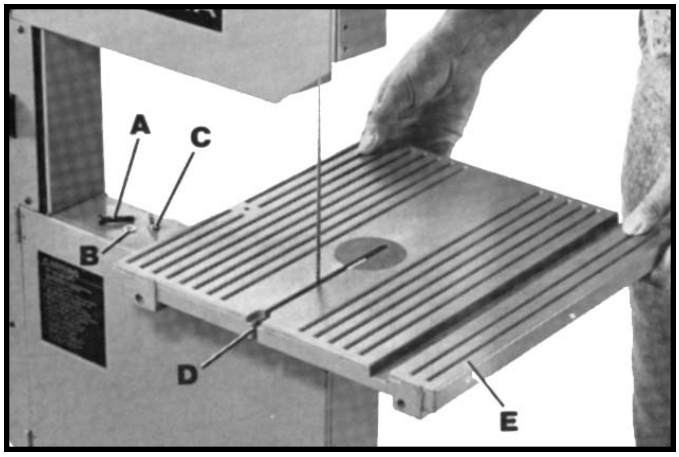


Fig. 8

2. Fasten table bracket (F) Fig. 9, to band saw frame using the 70mm (approximately 2-3/4" long) screw (G) and flat washer and the two 15mm (approximately 5/8" long) screws (H) and flat washers as shown.

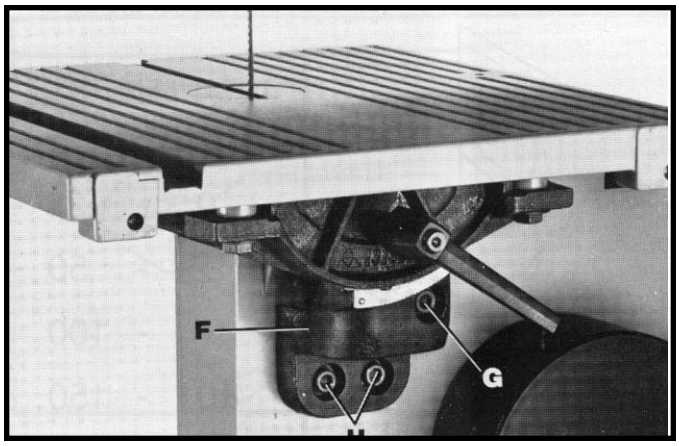


Fig. 9

3. Replace screw (A) Fig. 10, flat washer (B) and wing nut (C) that was removed in **STEP 1**.

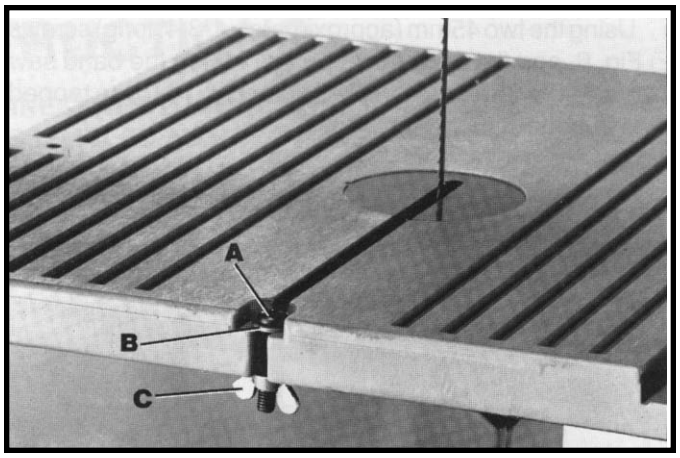


Fig. 10

ASSEMBLING UPPER BLADE GUIDE ASSEMBLY

1. Fasten the upper blade guide assembly (A) Fig. 11, to the side of the band saw using the lock plate (B) and lock screw (C) as shown.

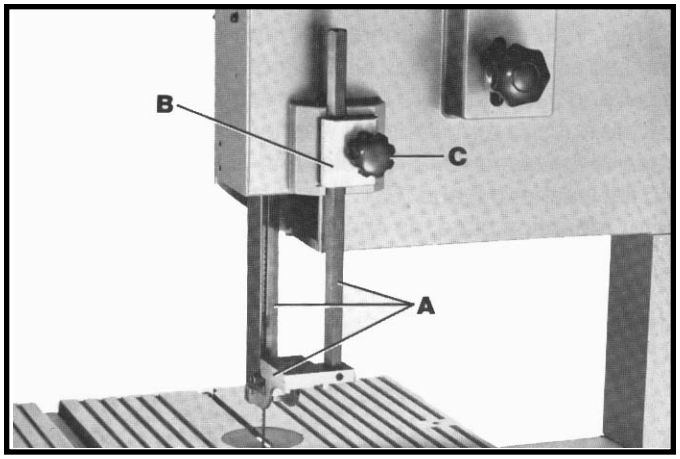


Fig. 11

EXTENSION CORDS

Use proper extension cords. Make sure your extension cord is in good condition and is a 3-wire extension cord which has a 3-prong grounding type plug and a 3-pole receptacle which will accept the tools plug. When using an extension cord, be sure to use one heavy enough to carry the current of the band saw. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. Fig. 12, shows the correct size to use depending on cord length and nameplate ampere rating. If in doubt, use the next heavier gage. The smaller the gage number, the heavier the cord.

TOTAL LENGTH OF CORD IN FEET	GAGE OF EXTENSION CORD TO USE
0 - 25	16 AWG
26 - 50	16 AWG
51 - 100	14 AWG
101 - 150	12 AWG

Fig. 12

CONNECTING BAND SAW TO POWER SOURCE

POWER CONNECTIONS

A separate electrical circuit should be used for your tools. This circuit should not be less than #12 wire and should be protected with a 20 Amp fuse. Have a certified electrician replace or repair a worn cord immediately. Before connecting the motor to a power line, make sure the switch is in the “OFF” position and be sure that the electric current is of the same characteristics as stamped on the motor nameplate. Running on low voltage will damage the motor.

WARNING: DO NOT EXPOSE THE TOOL TO RAIN OR OPERATE THE TOOL IN DAMP LOCATIONS.

GROUNDING INSTRUCTIONS

CAUTION: THIS TOOL MUST BE GROUNDED WHILE IN USE TO PROTECT THE OPERATOR FROM ELECTRIC SHOCK.

In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This tool is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.

Do not modify the plug provided - if it will not fit the outlet, have the proper outlet installed by a qualified electrician.

Improper connection of the equipment-grounding conductor can result in risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment grounding conductor to a live terminal.

Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded.

Use only 3-wire extension cords that have 3-prong grounding type plugs and 3-hole receptacles that accept the tool's plug, as shown in Fig. 13.

Repair or replace damaged or worn cord immediately.

This tool is intended for use on a circuit that has an outlet and a plug that looks like the one shown in Fig. 13. A temporary adapter, which looks like the adapter illustrated in Fig. 14, may be used to connect this plug to a 2-pole receptacle, as shown in Fig. 14, if a properly grounded outlet is not available. The temporary adapter should be used only until a properly grounded outlet can be installed by a qualified electrician. **THIS ADAPTER IS NOT APPLICABLE IN CANADA**. The green-colored rigid ear, lug, and the like, extending from the adapter must be connected to a permanent ground, such as a properly grounded outlet box, as shown in Fig. 14.

CAUTION: IN ALL CASES, MAKE CERTAIN THE RECEPTACLE IN QUESTION IS PROPERLY GROUNDED. IF YOU ARE NOT SURE HAVE A CERTIFIED ELECTRICIAN CHECK THE RECEPTACLE.

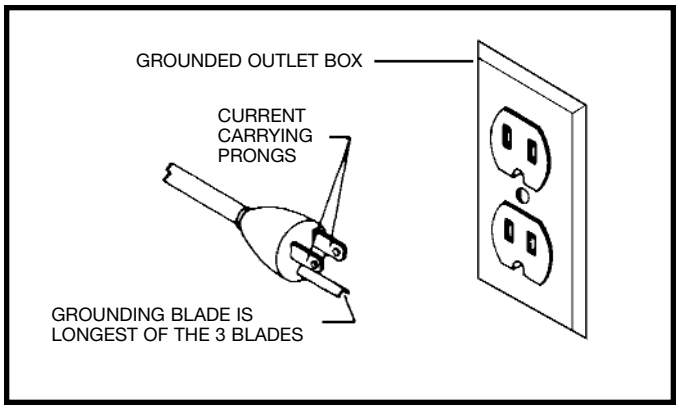


Fig. 13

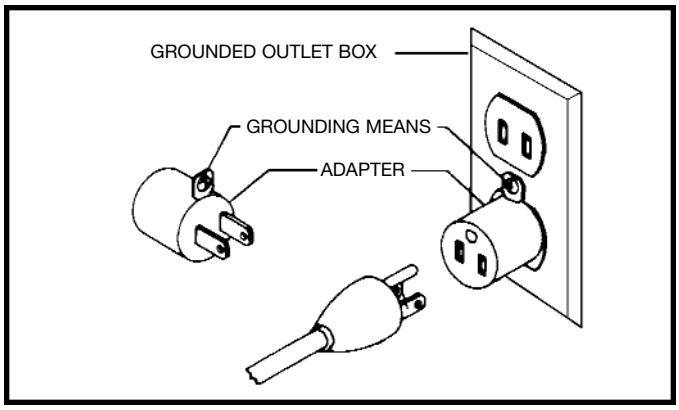


Fig. 14

OPERATING CONTROLS AND ADJUSTMENTS

STARTING AND STOPPING SAW

The switch (A) Fig. 15, is located on the front side of the band saw. To turn the saw “ON” move the switch (A) to the up position. To turn the saw “OFF” move the switch (A) to the down position.

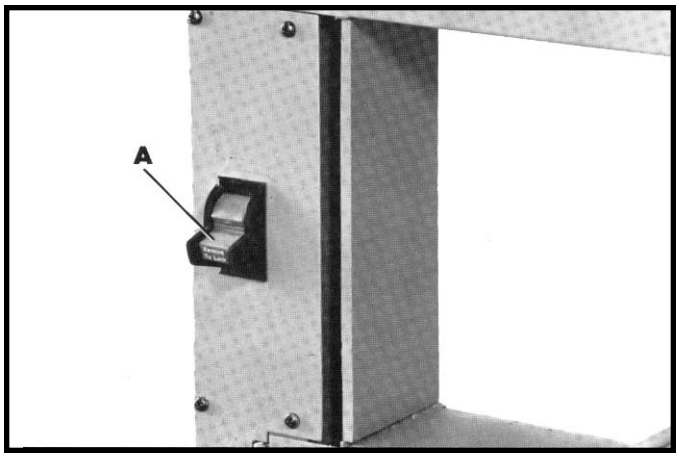


Fig. 15

LOCKING SWITCH IN THE “OFF” POSITION

We suggest that when the saw is not in use, the switch be locked in the “OFF” position. This can be done by grasping the switch toggle (B) Fig. 16, and pulling it out of the switch, as shown. With the switch toggle (B) removed, the switch will not operate. However, should the switch toggle be removed while the machine is running, the switch can be turned “OFF” once, but cannot be restarted without inserting the switch toggle (B).

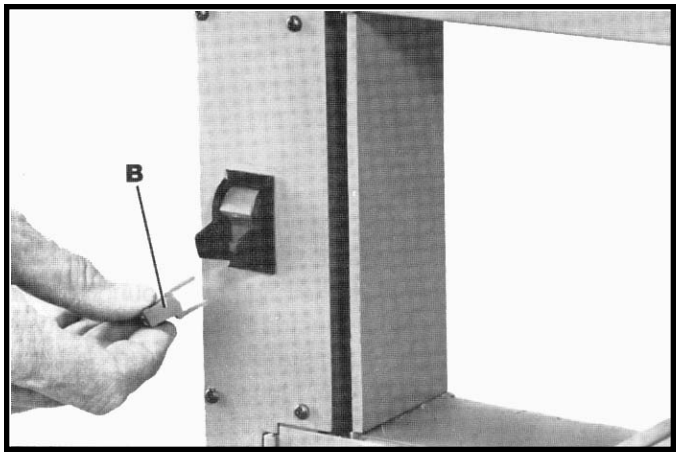


Fig. 16

ADJUSTING BLADE TENSION

With the saw blade centered on the two band saw wheels, slightly loosen wing nut located behind knob (D) Fig. 17. Turn the tension knob (A) Fig. 17, clockwise to increase blade tension or counter-clockwise to decrease blade tension until the indicator (B) lines up with the corresponding blade width on scale (C). Tighten wing nut located behind knob (D). **NOTE:** The scale is correct for average work, and is not affected by use of re-brazed saw blades. We urge you to use the scale until you have become familiar enough with the operation of the band saw to vary the tension a little for different kinds of blades or work. Over-tensioning is a common cause of blade breakage and unsatisfactory blade performance. When the band saw is not in use, it is good practice to release tension to prolong the life of the blade.

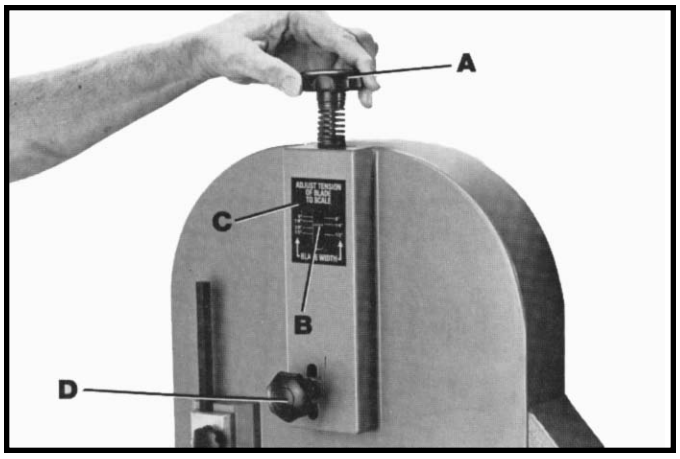


Fig. 17

TRACKING THE BLADE

For accurate work and maximum blade life, it is important that the blade be centered on the upper band saw wheel. When this adjustment is properly made, the blade will “track”, that is, it will run steady in the same line. To “track” the blade, proceed as follows:

1. **DISCONNECT THE SAW FROM THE POWER SOURCE**.

2. Make sure the correct blade tension is applied to the saw blade and make sure the blade guides and blade support bearings are clear of the blade so as not to interfere with the tracking adjustment.

3. Rotate the upper wheel (A) Fig. 18, slowly by hand to determine if the blade is riding on the center of the wheel.

4. If the blade is not riding on the center of the wheel, loosen wing nut (B) Fig. 19, and while turning the upper wheel by hand, turn tracking knob (C) slightly clockwise or counter-clockwise. You will notice that the saw blade will move to the right or left on the wheel. **NEVER RUN THE SAW TO TRACK THE BLADE**.

5. When the blade is tracking properly, tighten wing nut (B) Fig. 19.

6. Close both upper and lower wheel covers.

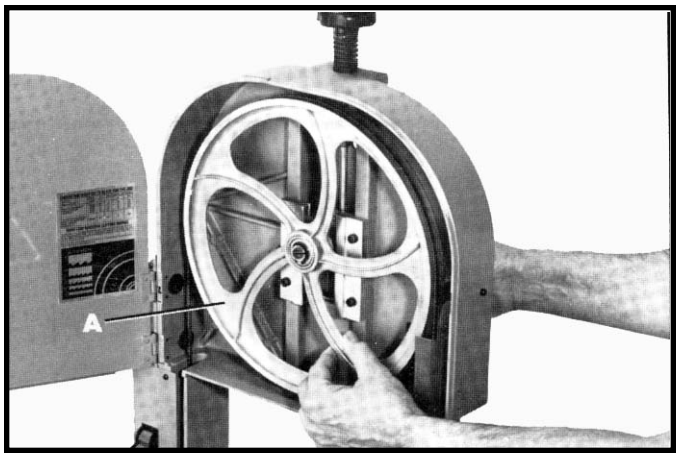


Fig. 18

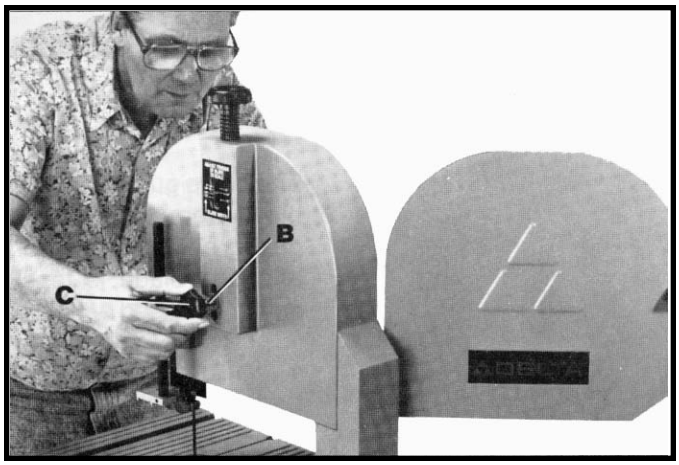


Fig. 19

ADJUSTING UPPER BLADE GUIDE ASSEMBLY

The upper blade guide assembly (A) Fig. 20, should always be set about 1/8" above or as close as possible to the top surface of the workpiece being cut. Loosen lock screw (B) and position the guide assembly to the desired height and tighten lock screw (B).

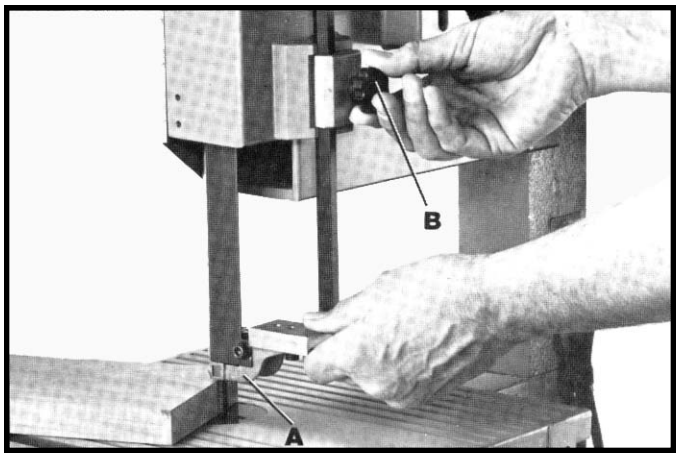


Fig. 20

ADJUSTING UPPER BLADE GUIDES AND BLADE SUPPORT BEARING

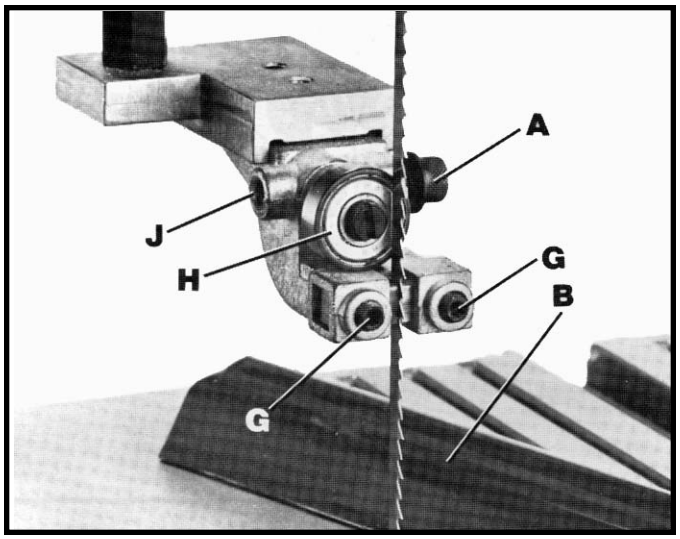


Fig. 21

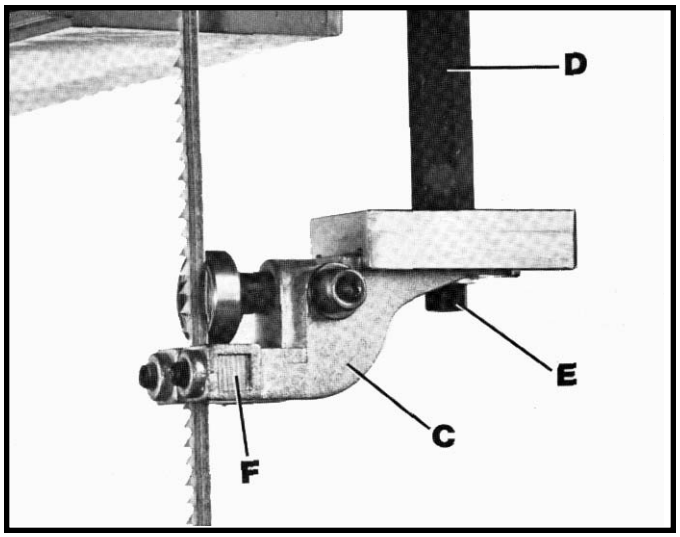


Fig. 22

The blade guides must be properly adjusted to prevent the blade from twisting during operation. The upper blade guides and blade support bearing should be adjusted only after the blade is tensioned and tracking properly. To adjust, proceed as follows:

1. **DISCONNECT THE SAW FROM THE POWER SOURCE**.

2. Loosen screw (A) Fig. 21, and remove blade guard (B) from guide assembly.

3. The upper guide bracket (C) Fig. 22, is assembled to the lower end of the guide post (D) by screw (E). Loosen screw (E) and move the guide bracket (C) in or out until the front edge of the guides (F) are just behind the blade "gullets" (bottom of saw teeth) while making sure the guides are flat with the blade then tighten screw (E).

4. The upper blade guides are held in the guide bracket with set screws (G) Fig. 21. Loosen set screws (G) and adjust blade guides as close as possible to the sides of the saw blade being careful not to pinch the saw blade. Then tighten screws (G).

5. The upper blade support bearing (H) Fig. 21, prevents the blade from being pushed back too far while cutting which could damage the set in the saw teeth. The upper support bearing (H) should be adjusted approximately 1/64" behind the blade by loosening set screw (J), moving the support bearing in or out until it is 1/64" behind the back of the blade and tightening set screw (J).

6. **MAKE CERTAIN TO REPLACE BLADE GUARD THAT WAS REMOVED IN STEP 2**.

ADJUSTING LOWER BLADE GUIDES AND BLADE SUPPORT BEARING

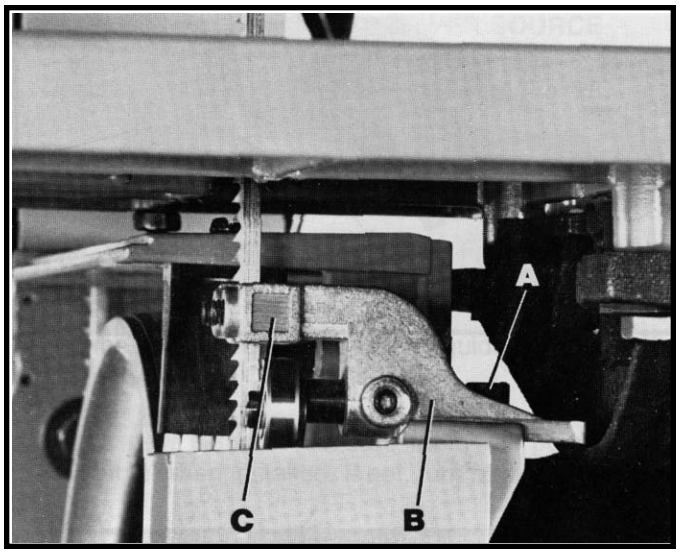


Fig. 23

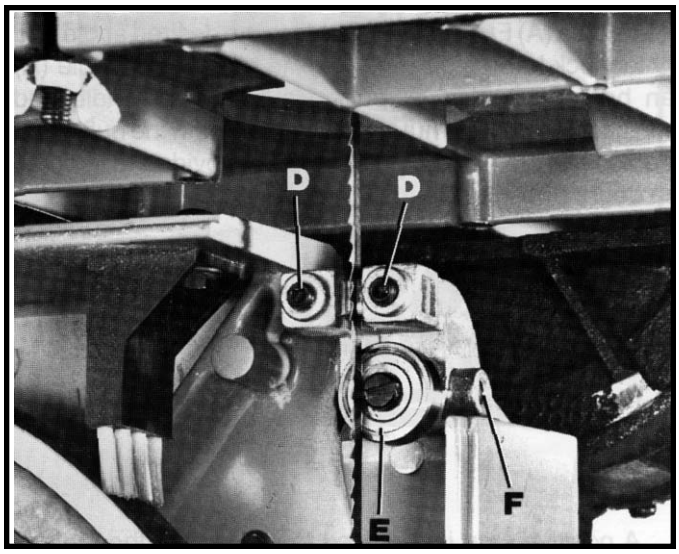


Fig. 24

The lower blade guides and blade support bearing should be adjusted at the same time as the upper guides and bearing as follows:

1. **DISCONNECT THE SAW FROM THE POWER SOURCE**.

2. Loosen screw (A) Fig. 23, and move the guide bracket (B) in or out until the front edge of the guides (C) are just behind the blade “gullets” (bottom of saw teeth) while making sure the guides are flat with the blade then tighten screw (A).

3. The lower blade guides are held in the guide bracket with set screws (D) Fig. 24. Loosen set screws (D) and adjust blade guides as close as possible to the sides of the saw blade, being careful not to pinch the saw blade. Then tighten set screws (D).

4. The lower blade support bearing (E) Fig. 24, prevents the blade from being pushed back too far while cutting which could damage the set in the saw teeth. The lower support bearing (E) should be adjusted approximately 1/64" behind the blade by loosening set screw (F) and moving the support bearing in or out. When adjusted, tighten set screw (F).

TILTING THE TABLE

1. The table can be tilted 45 degrees to the right and approximately 3 degrees to the left. To tilt the table, loosen lock handle (A) Fig. 25, tilt the table to the desired angle and tighten lock handle (A). **NOTE:** The table lock handle (A) can be repositioned by pulling out on the handle and repositioning it on the nut located underneath the hub of the handle. A scale (B) and pointer (C) is provided to indicate the degree of table tilt.

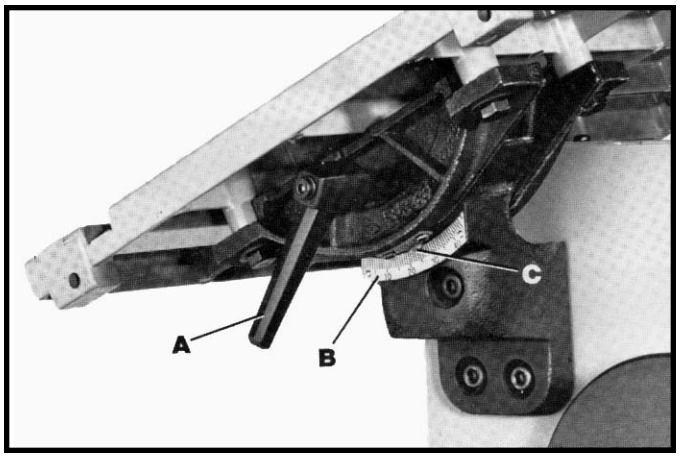


Fig. 25

2. A positive stop is provided to insure that the table is returned 90 degrees to the blade after tilting. Place a square (D) Fig. 26, on the table and against the blade and check to see if the table is 90 degrees to the blade as shown. If an adjustment is necessary, loosen lock nut (E) and turn screw (F) with wrench (G) until table surface is 90 degrees to blade, and screw (F) is contacting the frame. Then tighten locknut (E).

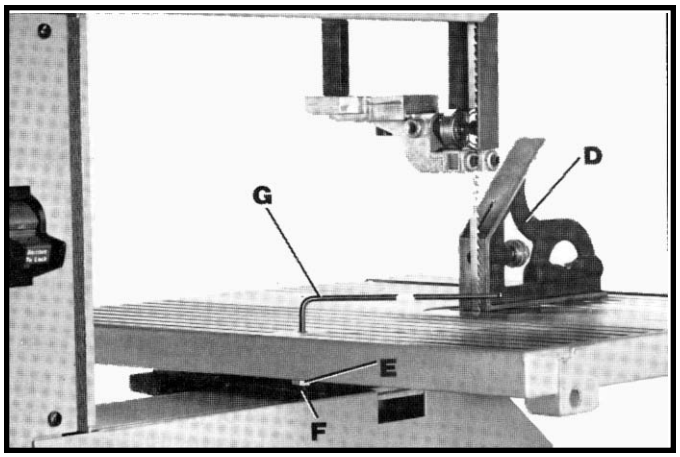


Fig. 26

BAND SAW MINIMUM CUTTING RADIUS

Turning radius may vary depending on the type of blade and amount of set. Each blade, however, depending on its width, can cut continuously without back tracking any curve having a radius as much or more than the specified minimum turning radius of the blade, as shown in the chart (A) Fig. 27, located inside top wheel cover.

Always use the widest blade possible and limit use of narrow blades for sawing small, abrupt curves and for fine delicate work.

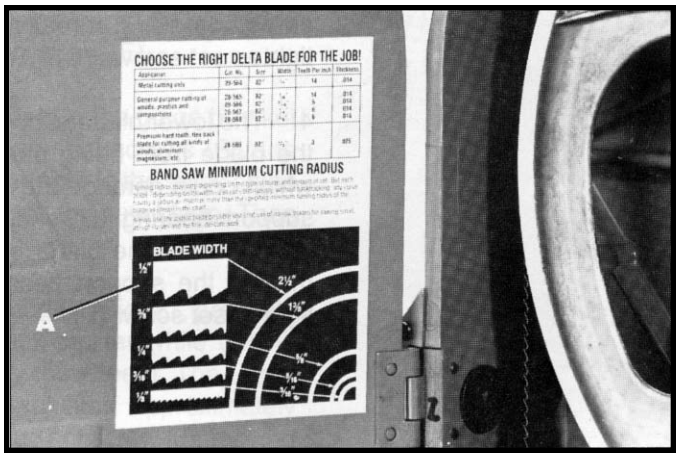


Fig. 27

CHANGING BLADES

To change blades, proceed as follows:

1. **DISCONNECT SAW FROM POWER SOURCE**.

2. Open upper and lower wheel guards (A) Fig. 28.

3. Release tension on the band saw blade by turning tension knob (B) Fig. 28, counter-clockwise.

4. Remove table alignment screw (C) Fig. 28, and table insert (D).

5. Slip the blade off both wheels and guide it out through the slot in the table.

6. Check new blade to be sure teeth will point down towards table when installed. If not, turn blade inside out.

7. Place new blade on wheels and adjust tension, guides and tracking as previously described.

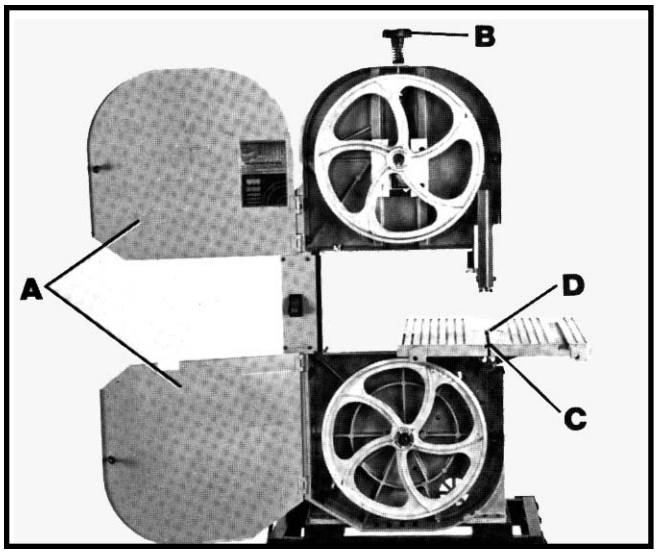


Fig. 28

ADJUSTING BELT TENSION

If the drive belt on your band saw is slipping, check and adjust as follows:

1. **DISCONNECT SAW FROM POWER SOURCE**.

2. Remove screw (A) Fig. 29, and belt and pulley cover (B).

3. A poly V-belt (C) Fig. 30, drives the saw pulley (D) from the motor pulley (E). Correct tension of the belt (C) is when there is approximately 1/4" deflection in the center span of the belt (C) using light finger pressure. If belt tension needs to be adjusted, loosen motor mounting hardware and slide motor forward or backward until correct tension is obtained. Then tighten motor mounting hardware.

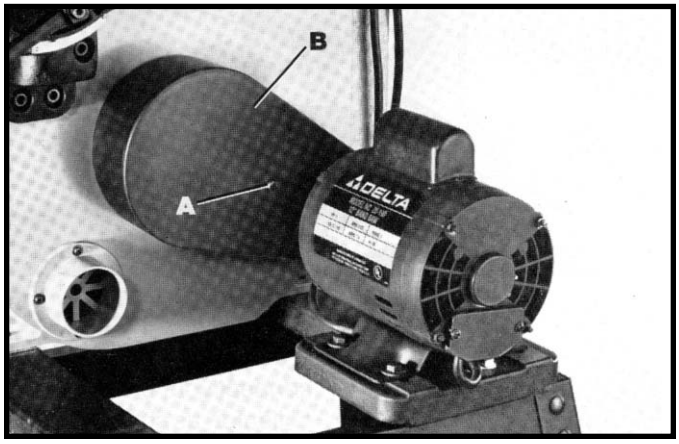


Fig. 29

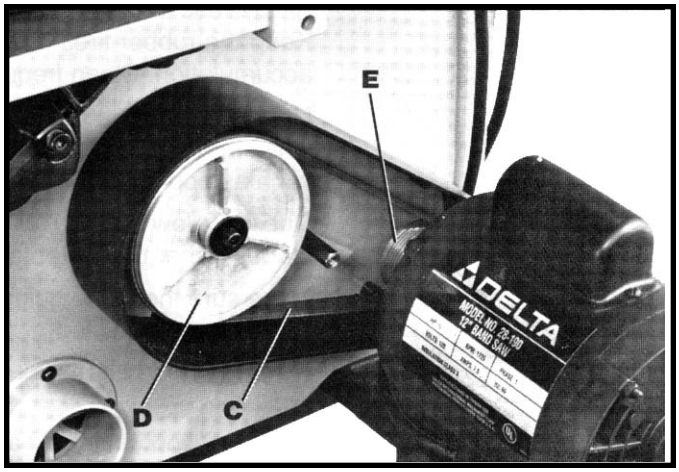


Fig. 30

BLADE BRUSHES

Two blade brushes (A) and (B) Fig. 31, are provided to keep the blade and tires clean and free of any build-up of chips. Brush (A) cleans the tire and brush (B) cleans the blade. Adjustment of the brushes can be made by loosening the mounting hardware and adjusting the brushes accordingly.

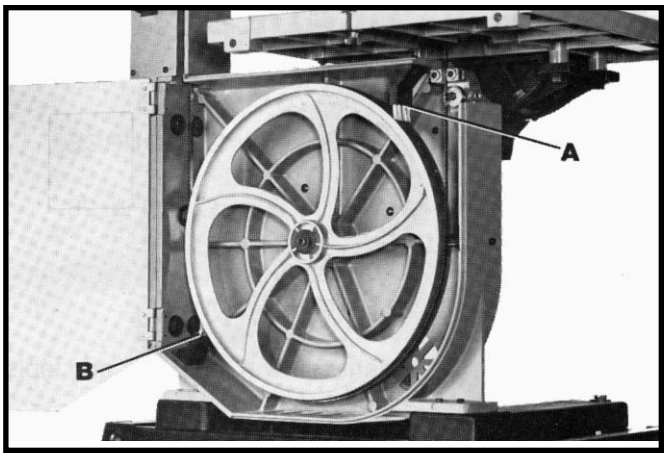


Fig. 31

DUST CHUTE

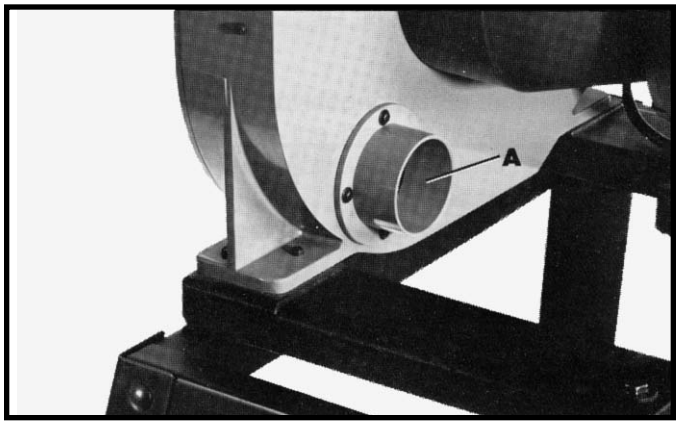


Fig. 32

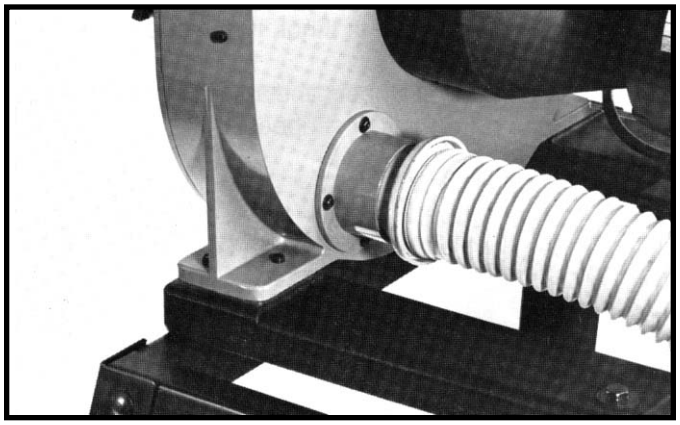


Fig. 33

A dust chute (A) Fig. 32, is provided which enables you to connect your band saw to a standard shop vacuum or dust collector, as shown in Fig. 33. The opening of the dust chute is 2-1/4" I.D.

BLADES

Always use a sharp blade. Keep it free from gum and pitch. Keep the rubber tires free of sawdust and gum and pitch accumulation. Clean frequently with a stiff fiber brush.

Narrow blades are used for cutting small circles or curves while the wider blades are best suited for straight cutting such as ripping.

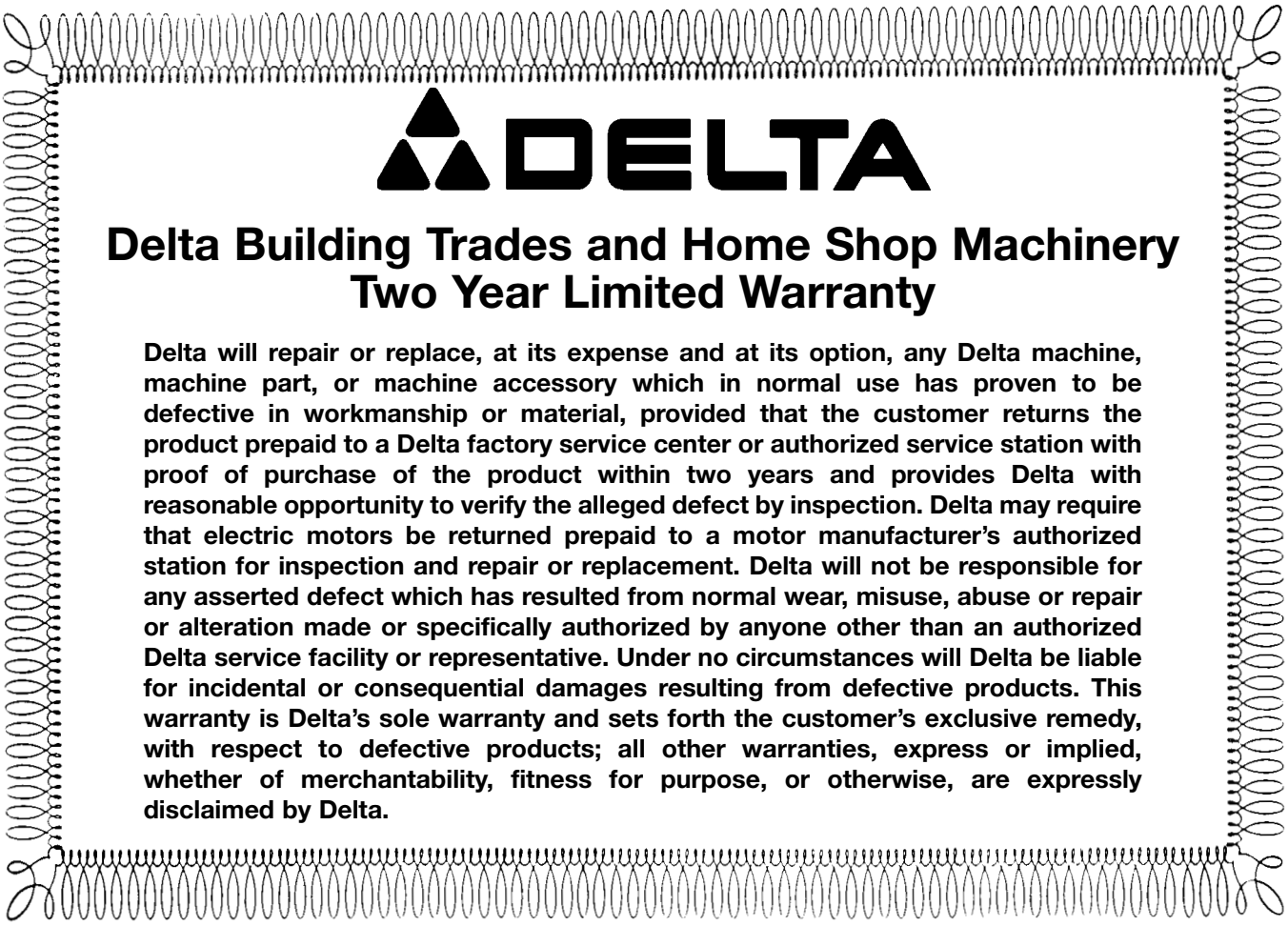
Due to the low cost of blades it is advisable to purchase new blades rather than attempt to have them sharpened.

Make sure the blade guides are always adjusted properly as previously outlined.

Do not force or twist the blade around a curve or a very short radius.

Feed the work uniformly allowing the blade to cut - do not feed too fast.

Do not apply excessive tension on blades. The tension is only necessary to drive the blade without slipping on the wheels. Narrow blades require more tension than wider blades.



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