



CHAIN SHARPENER



MODEL # CS-BWM

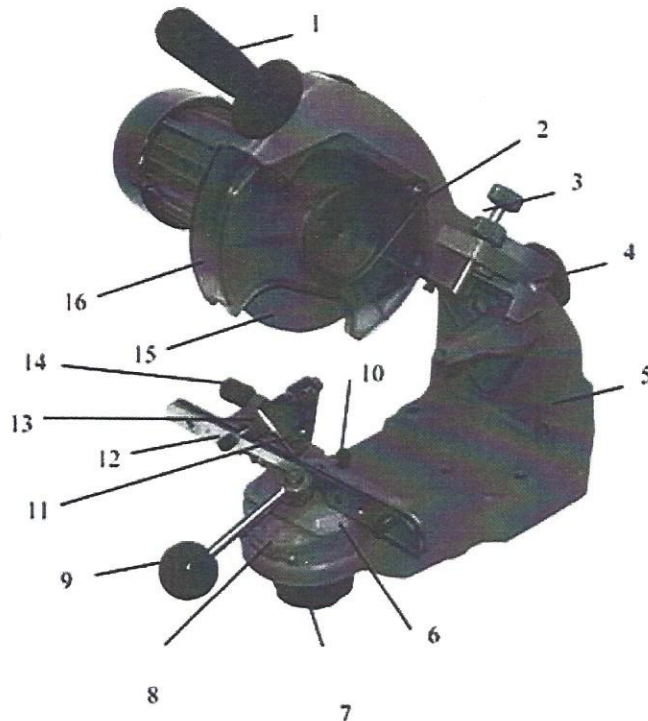


M8 0923A

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1. Parts Description



1. Handpiece
2. Grinding disk lateral guard
3. Depth of grind set screw
4. Cutting edge angle set-up wheel
5. Base
6. Screw clamp cradle
7. Cutting angle setting wheel
8. Scale
9. Clamping lever
10. Mean distance set screw
11. Guide flap valve
12. Screw clamp
13. Guide position set screw
14. Setting screw
15. Grinding disk
16. Grinding disk protective enclosure

FOR REPLACEMENT GRINDING WHEELS CALL:

PHONE: 218-943-6290

FAX: 218-943-6292

2. Technical Data

Supply voltage:	120 Volt/60 Hz
Motor input power:	P1 230 Watt
Maximum speed:	3580 rpm
Noise level:	< 70 dB (A)
Weight:	17.2lb
Product No.:	CS-BWM

3. Instructions Pertaining to a Risk of Injury

3.1 GROUNDING INSTRUCTIONS

1 All grounded, cord-connected tools:

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 a 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 plugs and 3-pole receptacles that accept the tool's plug.

Repair or replace damaged or worn cord immediately.

2 Grounded, cord-connected tools intended for use on a supply circuit having a nominal rating less than 150 V:

This tool is intended for use on a circuit that has an outlet that looks like the one illustrated in Sketch A in Figure 3.1. The tool has a grounding plug that looks like the plug illustrated in Sketch A in Figure 3.1. A temporary adapter, which looks like the adapter illustrated in Sketches B and C, may be used to connect this plug to a 2-pole receptacle as shown in Sketch B 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. 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.

3.2 GENERAL SAFETY WARNING

- 1 KEEP GUARDS IN PLACE and in working order
- 2 REMOVE ADJUSTING KEYS AND WRENCHES Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on
- 3 KEEP WORK AREA CLEAN Cluttered areas and benches invite accidents
- 4 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
- 5 KEEP CHILDREN AWAY All visitors should be kept safe distance from work area
- 6 MAKE WORKSHOP KID PROOF with padlocks, master switches, or by removing starter keys
- 7 DON'T FORCE TOOL It will do the job better and safer at the rate for which it was designed
- 8 USE RIGHT TOOL Don't force tool or attachment to do a job for which it was not designed

9 USE PROPER EXTENSION CORD Make sure your extension cord is in good condition When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating Table 3.1 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

10 WEAR PROPER APPAREL Do not wear loose clothing, gloves, neckties, rings, bracelets, or other jewelry which may get caught in moving parts Nonslip footwear is recommended Wear protective hair covering to contain long hair

Exception: The reference to gloves may be omitted from the instructions for a grinder.

11 ALWAYS USE SAFETY GLASSES Also use face or dust mask if cutting operation is dusty Everyday eyeglasses only have impact resistant lenses, they are NOT safety glasses

12 SECURE WORK Use clamps or a vise to hold work when practical It's safer than using your hand and it frees both hands to operate tool

13 DON'T OVERREACH Keep proper footing and balance at all times

14 MAINTAIN TOOLS WITH CARE Keep tools sharp and clean for best and safest performance Follow instructions for lubricating and changing accessories

15 DISCONNECT TOOLS before servicing; when changing accessories, such as blades, bits, cutters, and the like

16 REDUCE THE RISK OF UNINTENTIONAL STARTING Make sure switch is in off position before plugging in

17 USE RECOMMENDED ACCESSORIES Consult the owner's manual for recommended accessories The use of improper accessories may cause risk of injury to persons

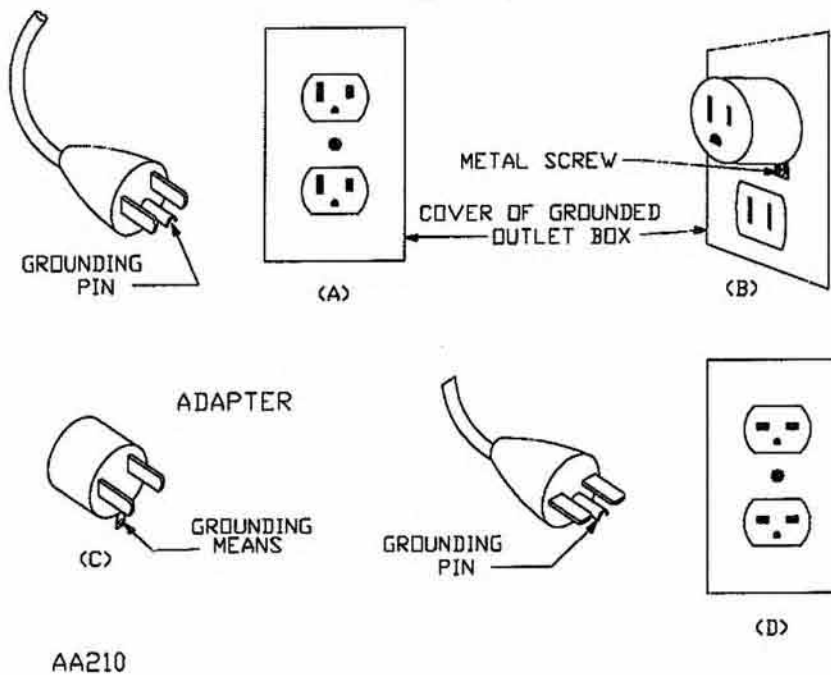
18 NEVER STAND ON TOOL Serious injury could occur if the tool is tipped or if the cutting tool is unintentionally contacted

19 CHECK DAMAGED PARTS Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine 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

20 DIRECTION OF FEED Feed work into a blade or cutter against the direction of rotation of the blade or cutter only

21 NEVER LEAVE TOOL RUNNING UNATTENDED TURN POWER OFF Don't leave tool until it comes to a complete stop

Figure 3.1
Grounding methods



AA210

Table 3.1
Minimum gage for cord^a

Ampere Rating		Volts	Total length of cord in feet			
		120 V 240 V	25 ft 50 ft	50 ft 100 ft	100 ft 200 ft	150 ft 300 ft
More Than	Not More Than	AWG				
0	6		18	16	16	14
6	10		18	16	14	12
10	12		16	16	14	12
12	16		14	12	Not Recommended	

^a Only the applicable parts of the Table need to be included. For instance, a 120-V product need not include the 240-V heading.

4. General Safety Precautions

Read the instruction manual carefully before using this machine. If you have any questions regarding the connection and operation of the machine, see the manufacturer's service department.

Protect the machine from moisture, rain and dust. The tool is only for indoor use.

FOR THE HIGHEST DEGREE OF SAFETY, CAREFULLY READ THE FOLLOWING INSTRUCTIONS:

- Use the machine only for the scope of work for which it has been designed.

- Wear hearing protection — the noise level in the work area can be above 85dB.
- Protect your eyes from flying chips and debris with protective safety goggles.
- Always wear a dust-protection mask.
- Wear work gloves to protect your fingers and hands from cutting injuries.
- Always unplug the machine before doing any work on the machine (cleaning, disc replacement, etc.)
- Take care to have the chain being sharpened secured so it doesn't slip out.
- Keep the machine clean, especially after grinding, and check for any damage.
- Do not use a caustic solution to clean plastic parts.
- Do not use the machine in the proximity of flammable liquids and vapors.
- Protect the power cord from damage by oil or acid.
- IMPORTANT: Observe all national safety regulations regarding installation, operation and maintenance.
- After completing a job, unplug the machine from its power source.
- Store the machine in a place inaccessible to children.
- Always hold the machine with both hands when working, keeping in mind safe footing and good posture.
- Replace cracked wheel immediately
- Always use guards and eye shields
- Do not overtighten wheel nut
- Use only flanges furnished with the grinder
- Frequently clean grinding dust from beneath grinder

CAUTION!

Abide by the essential safety measures protecting you from electric shock, accident and fire. Read all instructions before using this machine and follow them. Keep this manual in a safe place for future reference.

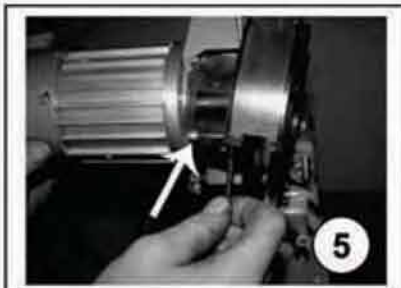
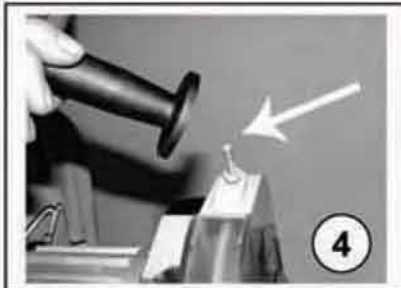
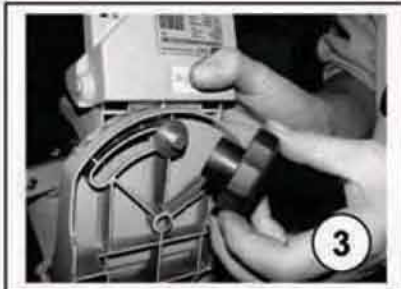
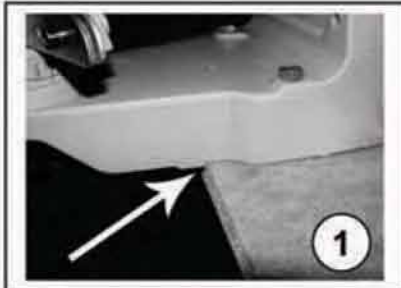
SAFE WORK

- Keep your workplace tidy — a messy workplace may cause an accident.
- Always make allowances for the environmental effects. Do not expose electric tools to rain or use them in moist or wet areas. Do not use them in proximity of flammable gases or liquids. Be sure you have sufficient lighting.
- Protect yourself from electrical shock. Avoid any bodily contact with grounded objects such as pipes, radiators, stoves and refrigerators.
- Prevent any unauthorized persons from entering the work area. Keep children from having access to the machine.
- Store the machine in a safe place. When not in use, the machine should be kept in a dry, locked place out of the reach of children.
- Do not overload the machine — work in a safe manner within the scope of the machine's capacity.
- Use the correct machine. Do not use a machine of lower capacity for heavy jobs. Do not use the machine for any purpose for which it is not intended. Use the machine only for the purposes described in this instruction manual.

- Wear proper work clothing. Do not wear any wide garments and jewelry that might be caught by moving machine parts. When working outdoors, rubber gloves and nonskid shoes are recommended. Keep long hair out of the way with a cap or hairnet. Wear protective goggles or safety glasses approved for the job.
- Do not use the power cord for carrying or hanging the machine. Do not use the cord to pull out the plug from the outlet. Protect the cord from excessive temperatures, oil, corrosive solutions and sharp edges.
- When working outdoors, use extension cords designated for outdoor use.
- Check the machine cord regularly; when it is damaged, have it replaced by a skilled electrician. Check the extension cords as well and replace them if damaged.
- Avoid any abnormal posture. Mind safe footing and keep your balance at all times.
- Keep the handle dry and free of dirt, oil and grease.
- Unplug the machine when not in use or before performing maintenance or disc replacement.
- Before turning on the machine, check to see that any wrenches and adjustment tools have been removed.
- Remove any spanners from the machine.
- Avoid turning the machine on unintentionally.
- Be attentive. Mind what you are doing. Start a job only when you feel good. Never use this machine when distracted.
- Before using the machine, check protective devices and parts for any damage that may not allow them to function as intended. Check to see that moving parts move freely, do not drag and are not damaged. All parts should be installed properly to ensure the machine's safe operation. Damaged protective devices and parts should be repaired by a qualified professional or replaced. Damaged switches should be replaced by a customer service workshop. **Do not use a machine with a defective ON/OFF switch.**

NOTE: This machine is in compliance with any respective safety provisions. Any repairs shall be done by professionally qualified technicians and only genuine spare parts should be used. If these provisions are not observed, the user is in risk of injury.

5. Assembly



4. Assembly

The saw-chain grinding machine is delivered partly assembled. One part consists of the base on which the chain guide is located. The other part is a bearing arm with the motor and handgrip.

Assembly must be performed with the machine unplugged!

The machine design provides for either a bench- or wall-mount installation. When installing it on a bench, put the machine on the edge of the bench to the stop (Fig. 1) and screw it to the desk using the holes in the base.

When mounting on the wall, use the respective holes in the vertical part of the base. NOTE: Install sharpener with some distance from the wall (use spacers) in order to retain access to the rear set screw.

After the benchtop installation, fit the arm in the base, inserting the pilot pin and securing it with a hexagonal screw (Fig. 2).

Now, fit a washer on the rear side screw and screw on the setting wheel (Fig. 3).

Screw the handpiece onto the bolt in the grinding disc body (Fig. 4).

Secure the grinding disc guard using the supplied screws and a wrench (Fig. 5).

Tip:

When mounting on the wall, take care to mount the machine at a height of about 50 inches to avoid working at eye level.

To be able to install the disc, it is necessary to unscrew the auxiliary flange (Fig. 6).



6. Grinding Disk Check

To avoid injuries and accidents, only use grinding discs free of defects.

Check the disc you are about to use for damages prior to installation.

Insert a pencil horizontally through the hole and allow the disc to swing freely. Carefully tap the disc edge with another pencil. **The disc should give a clear, high pitch sound.** If the sound is dampened or blank, the disc is defective and should not be used! **A dull or dampened sound indicates damage by cracks in the disc.**

Do not fit the disc on the hub by force.

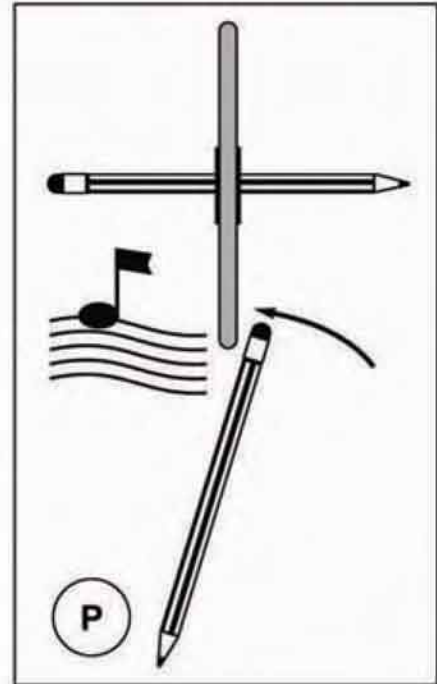
The central bore diameter should not be changed.

Only use matching discs.

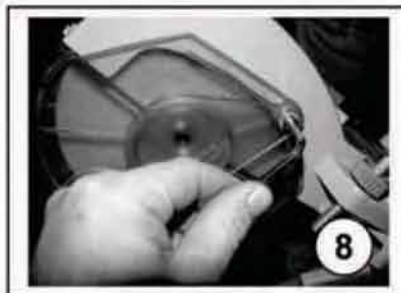
The smallest grinding disc diameter should not be less than 4".

Any adjustments should not be done unless the machine is switched off and unplugged.

No damaged discs should ever be used!



7. Grinding Disk Assembly



After you have removed the ancillary flange, you can insert the grinding disc in the body from below. See that the ancillary flange and the disc abut against each other (Fig. 7).

To avoid damage to the disc, do not overtighten screws.

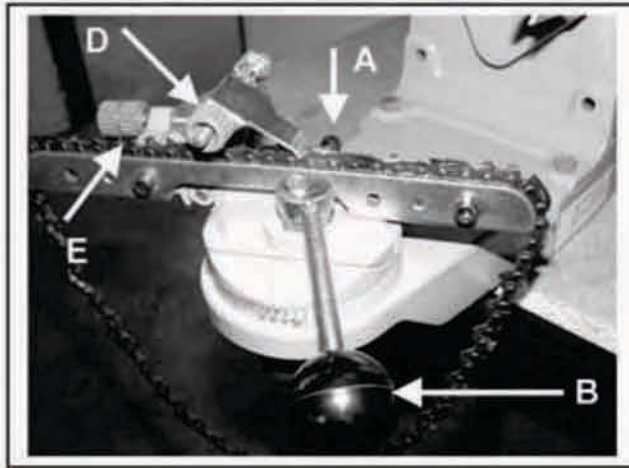
The grinding disc on the hub torque is 7 Nm. Where practical, use a torque spanner. Now, the grinding disc guard should be secured (Fig. 8).

After installing the disc, run the machine and make sure the disc is not vibrating or spinning incorrectly. If it is, promptly turn off the machine and unplug the power cord before attempting to correct the fault.

The machine has a zero voltage circuit breaker, which is disabled during an outage and will prevent any unexpected restarting of the machine after the power supply is restored.

Using the sharpening stone and clamping plate, sharpen the disc to obtain the required profile. As always, be careful while working.

8. Clamping the Screw Set Up

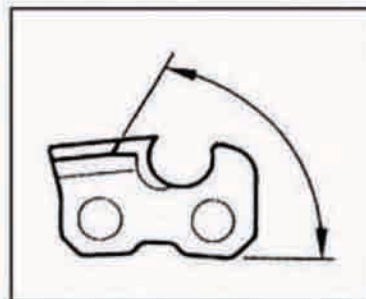
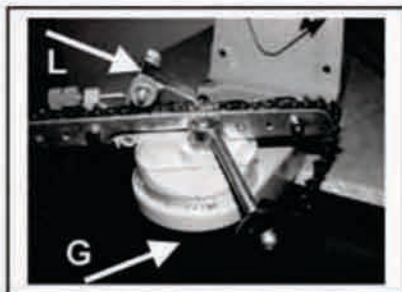
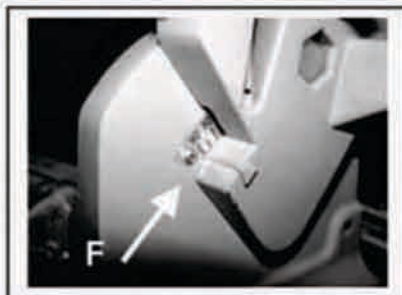


Before grinding begins, the chain should be secured between the guides. The tooth to be sharpened first should be placed against the stop. Watch that the sharpening angle corresponds to the guide position. The type of chain to be sharpened should be determined using the sharpening block (if provided) or the table on page 12, where you can find the cutting thickness, angle and dimensions.

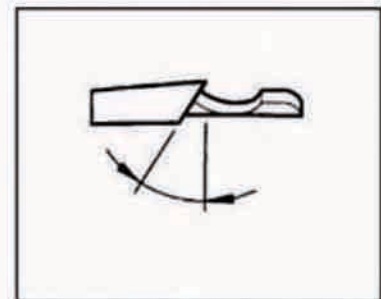
Set the guides to the chain width using the set screw (A) so that it is firmly fixed in the clamping screw by clamping the lever control (B).

Set the feed by adjusting set screw (E).

On severely worn chains, the lateral position of the chain guide should be secured with a set screw (D). Set the top plate angle by adjusting the set screw (pg. 3, pg 8) corresponding to the readout scale (F). The vise angle should be set up by adjusting the set screw (G).



Top Plate Angle



Vise Angle

9. Grinding



With the clamping screw adjusted, the vise angle set up (Note: RH and LH teeth to be differentiated) and the top plate angle preset, lower the grinding disc to the tooth. The grinding depth may be set by set screw (K).

With clamping lever loose (B), adjust the set screw (E) until the grinding disc touches the tooth. During the procedure, pull the chain through the guide (L) carefully. (Note: Wear gloves when performing this job!)

Some types of chains require that the clamping screw be tilted by 5°–10° (ref. Tilt Angle in Table on page 12).

Note the notches (Fig. 9).

Now, the machine may be switched on and the chain grinding may be started by gently pressing the disc on the chain. Adjust the pressure as necessary. Mark the start of grinding (with a piece of chalk) and grind all the teeth in one direction, then turn the clamping screw (mind the angle) and grind the teeth in the opposite direction.

With worn chains, the lateral guide position (Fig. 10, position M) should be set so the grinding disc doesn't touch the guide.

Avoid any strong thrusts as the teeth might collide and the chain would wear and tear too fast.

Notice: Never grind driven parts.

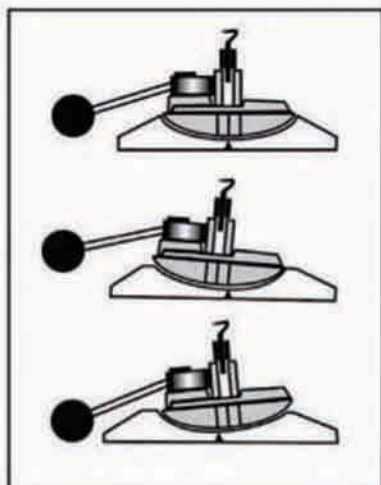
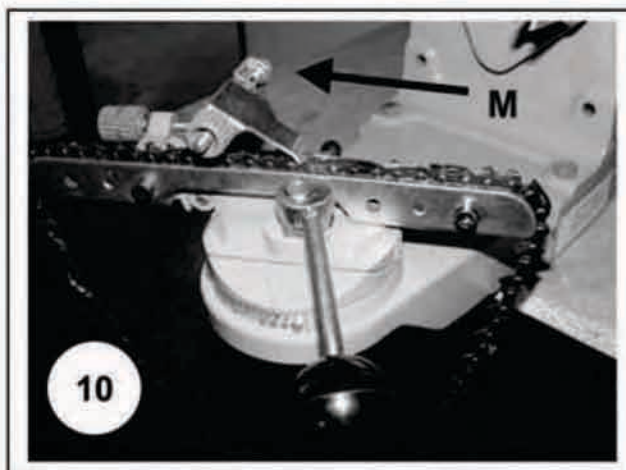
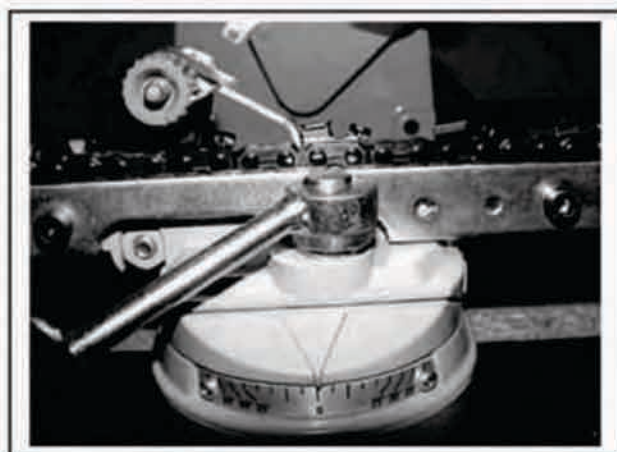


Fig. 9



10. Grinding Depth Delimiter

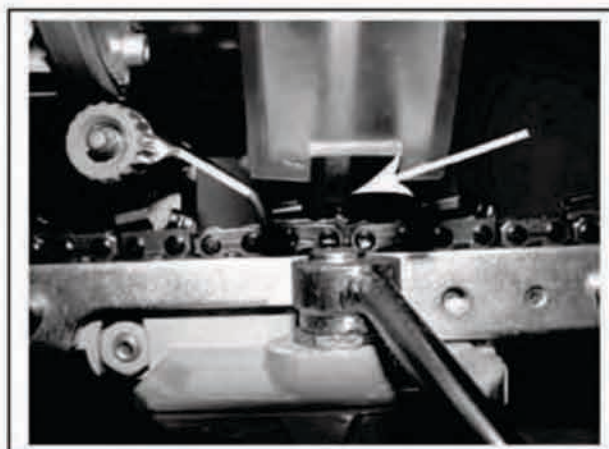


See Table on page 12 to determine the Depth Gauge (depth delimiter).

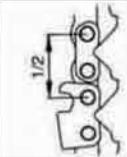

Grinding the depth delimiter, the screw clamp position should always be 0°.

Set the supporting strut and holder at 90° (Fig F, Pge.10).

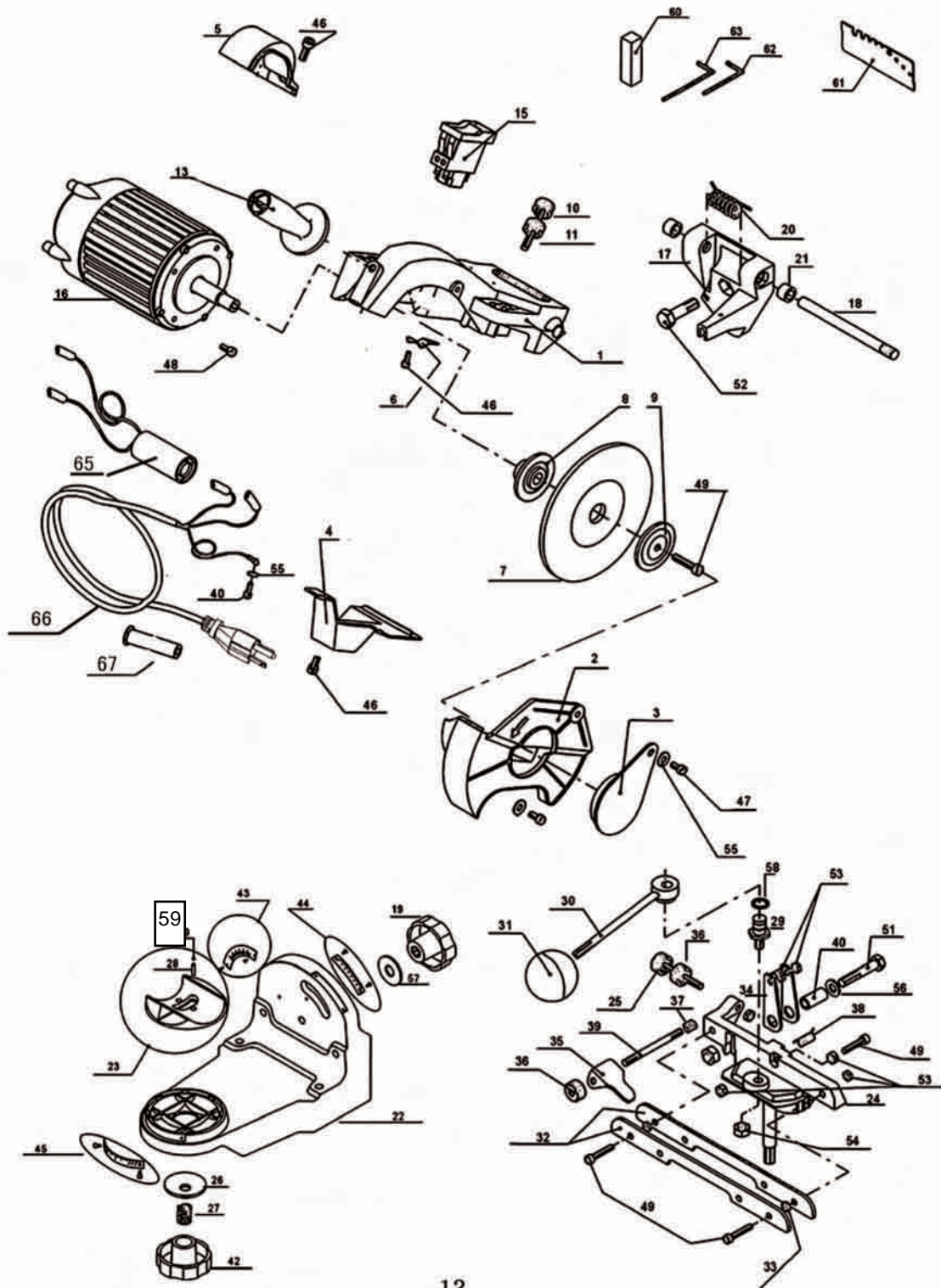
The grind depth may be set using the set screw (K, Pge.10)



11. Dimensions

Chain Pitch	Gauge	OREGON	STIHL	SANDVIK	CARLTON	Vise Angle	Top Plate Angle	Tilt Angle	Wheel Width	Depth Gauge
										
1/4"	0.0507/1.3mm	25AP	13RM	50K		30°	60°	10°	1/8" / 3.2mm	0.025" / 0.63mm
0.325"	0.0507/1.3mm	20LP	23RS	50JLG	K1L	25°	60°	10°	1/8" / 3.2mm	0.025" / 0.63mm
0.325"	0.0587/1.5mm	21LP	25RS	58JLG	K2L	25°	60°	10°	1/8" / 3.2mm	0.025" / 0.63mm
0.325"	0.0637/1.6mm	22LP	26RS	63JLG	K3L	25°	60°	10°	1/8" / 3.2mm	0.025" / 0.63mm
0.325"	0.0507/1.3mm	20BP	23RM	50J	K1C	30°	60°	10°	1/8" / 3.2mm	0.025" / 0.63mm
0.325"	0.0587/1.5mm	21BP	25RM	58J	K2C	30°	60°	10°	1/8" / 3.2mm	0.025" / 0.63mm
0.325"	0.0637/1.6mm	22BP	26RM	63J	K3C	30°	60°	10°	1/8" / 3.2mm	0.025" / 0.63mm
0.325"	0.0507/1.3mm	95VP			K1N	30°	60°	10°	1/8" / 3.2mm	0.025" / 0.63mm
0.325"	0.0507/1.3mm	95R				5°	50°	10°	1/8" / 3.2mm	0.030" / 0.76mm
0.325"	0.0587/1.5mm	M21LP				25°	60°	10°	1/8" / 3.2mm	0.025" / 0.63mm
0.325"	0.0637/1.6mm	M22LP				25°	60°	10°	1/8" / 3.2mm	0.025" / 0.63mm
3/8"	0.0507/1.3mm	72LG	33RS	50AL	A1LM	25°	60°	10°	1/8" / 3.2mm - 3/16" / 4.7mm	0.025" / 0.63mm
3/8"	0.0587/1.5mm	73LG	35RS	58AL	A2LM	25°	60°	10°	1/8" / 3.2mm - 3/16" / 4.7mm	0.025" / 0.63mm
3/8"	0.0637/1.6mm	75LG	36RS	63AL	A3LM	25°	60°	10°	1/8" / 3.2mm - 3/16" / 4.7mm	0.025" / 0.63mm
3/8"	0.0507/1.3mm	72LP	33RS	50ALG	A1L	25°	60°	10°	1/8" / 3.2mm - 3/16" / 4.7mm	0.025" / 0.63mm
3/8"	0.0587/1.5mm	73LP	35RS	58ALG	A2L	25°	60°	10°	1/8" / 3.2mm - 3/16" / 4.7mm	0.025" / 0.63mm
3/8"	0.0637/1.6mm	75LP	36RS	63ALG	A3L	25°	60°	10°	1/8" / 3.2mm - 3/16" / 4.7mm	0.025" / 0.63mm
3/8"	0.0507/1.3mm	72DP	33RM1	50AG	A1EP	35°	60°	0°	1/8" / 3.2mm - 3/16" / 4.7mm	0.025" / 0.63mm
3/8"	0.0587/1.5mm	73DP		58AG	A2EP	35°	60°	0°	1/8" / 3.2mm - 3/16" / 4.7mm	0.025" / 0.63mm
3/8"	0.0637/1.6mm	75DP	36RM1	63AG	A3EP	35°	60°	0°	1/8" / 3.2mm - 3/16" / 4.7mm	0.025" / 0.63mm
3/8"	0.0507/1.3mm	72RD				10°-15°	50°	10°	1/8" / 3.2mm - 3/16" / 4.7mm	0.025" / 0.63mm
3/8"	0.0587/1.5mm	73RD				10°-15°	50°	10°	1/8" / 3.2mm - 3/16" / 4.7mm	0.025" / 0.63mm
3/8"	0.0637/1.6mm	75RD	36RMX			10°-15°	50°	10°	1/8" / 3.2mm - 3/16" / 4.7mm	0.025" / 0.63mm
3/8"	0.0587/1.5mm	M73LP				25°	60°	10°	1/8" / 3.2mm - 3/16" / 4.7mm	0.025" / 0.63mm
3/8"	0.0637/1.6mm	M75LP				25°	60°	10°	1/8" / 3.2mm - 3/16" / 4.7mm	0.025" / 0.63mm
3/8(90)	0.0437/1.1mm	90SG	63PMN		N4C	30°	50°	0°	1/8" / 3.2mm - 3/16" / 4.7mm	0.020" / 0.50mm
3/8(91)	0.0507/1.3mm	91VS	63PM	50R	N1C	30°	60°	0°	1/8" / 3.2mm - 3/16" / 4.7mm	0.025" / 0.63mm
3/8(91)	0.0507/1.3mm	91VG	63PM1	50RG	NIC-BL	30°	60°	0°	1/8" / 3.2mm - 3/16" / 4.7mm	0.025" / 0.63mm
3/8(91)	0.0507/1.3mm	91R	63PMX			5°	60°	0°	1/8" / 3.2mm - 3/16" / 4.7mm	0.025" / 0.63mm
0.404"	0.0587/1.5mm	58L			B2LM	25°	60°	10°	3/16" / 4.7mm	0.025" / 0.63mm
0.404"	0.0637/1.6mm	59L			B3LM	25°	60°	10°	3/16" / 4.7mm	0.025" / 0.63mm
0.404"	0.0587/1.5mm	26/P	46RSF	58B	B2EP	35°	60°	10°	3/16" / 4.7mm	0.030" / 0.76mm
0.404"	0.0637/1.6mm	27/P	46RM	63B	B3EP	35°	60°	10°	3/16" / 4.7mm	0.030" / 0.76mm
0.404"	0.0637/1.6mm	59AC	46RM	63BC	B3S	35°	60°	0°	3/16" / 4.7mm	0.030" / 0.76mm
0.404"	0.0637/1.6mm	27R	46RMX	63BR	B3RM10	10°-15°	50°	10°	3/16" / 4.7mm	0.030" / 0.76mm
0.404"	0.0637/1.6mm	16H	46RMH	HC	B3M	35°	60°	10°	3/16" / 4.7mm	0.050" / 1.27mm
0.404"	0.0807/2.0mm	18H	49RMH	2HC	B5M	35°	60°	10°	3/16" / 4.7mm	0.050" / 1.27mm
3/4"	0.1227/3.1mm	11H			G7S	35°	60°	10°	1/4" / 6mm	0.070" / 1.77mm

12. Assembly Drawing



12 List of Spare Parts

Spare Part No.		Description	Spare Part No.		Description
Product No.	Position		Product No.	Position	
CS-BWM	001	Swing arm	CS-BWM	048	Screw
CS-BWM	002	Grinding disk enclosure body	CS-BWM	049	Screw
CS-BWM	003	Lateral guard	CS-BWM	050	Bolt
CS-BWM	004	Switch enclosure	CS-BWM	051	Screw
CS-BWM	005	Enclosure	CS-BWM	052	Screw
CS-BWM	006	Limiter	CS-BWM	053	Nut
CS-BWM	007	Grinding disk	CS-BWM	054	Nut
CS-BWM	008	Flange	CS-BWM	055	Washer
CS-BWM	009	Flange	CS-BWM	056	Washer
CS-BWM	010	Set screw	CS-BWM	057	Wide washer
CS-BWM	011	Counter-nut	CS-BWM	058	Plastic ring
CS-BWM	012	Plastic ring	CS-BWM	059	Cone
CS-BWM	013	Holder	CS-BWM	060	Pull-off stone
CS-BWM	014	Coupling	CS-BWM	061	Sharpening block
CS-BWM	015	Switch	CS-BWM	062	Wrench
CS-BWM	016	Motor	CS-BWM	063	Wrench
CS-BWM	017	Joint	CS-BWM	064	Lamp 120V E12 15W
CS-BWM	018	Axis	CS-BWM	065	Condenser
CS-BWM	019	Clamping wheel	CS-BWM	066	Cable
CS-BWM	020	Spring	CS-BWM	067	Column action protection
CS-BWM	021	Case			
CS-BWM	022	Base plate			
CS-BWM	023	Swing support			
CS-BWM	024	Clamping rod			
CS-BWM	025	Set screw			
CS-BWM	026	Wide washer			
CS-BWM	027	Spring			
CS-BWM	028	Small thrust spring			
CS-BWM	029	Axial bolt			
CS-BWM	030	Clamping lever rod			
CS-BWM	031	Ball holder			
CS-BWM	032	Chain support			
CS-BWM	033	Case			
CS-BWM	034	Connecting catch driver			
CS-BWM	035	Chain drive			
CS-BWM	036	Counter nut			
CS-BWM	037	Limiting spring			
CS-BWM	038	Spring			
CS-BWM	039	Threaded pin			
CS-BWM	040	Case			
CS-BWM	041	Plastic ring			
CS-BWM	042	Hand wheel			
CS-BWM	043	Scale			
CS-BWM	044	Scale			
CS-BWM	045	Scale			
CS-BWM	046	Screw			
CS-BWM	047	Screw			