TOOL® SHOP

241-9895



18 GAUGE ELECTRIC METAL SHEAR

Operator's Manual

SAVE THIS MANUAL

You will need this manual for safety instructions, operating procedures and warranty. Put it and the original sales receipt in a safe dry place for future reference.

IMPORTANT SAFETY INSTRUCTIONS

WARNING: *When using electric tools, machines or equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and personal injury.*



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READ ALL INSTRUCTIONS BEFORE USING THIS TOOL

1. **KEEP WORK AREA CLEAN.** Cluttered areas invite injuries.
2. **CONSIDER WORK AREA ENVIRONMENT.** Don't use power tools in damp, wet, or poorly lit locations. Don't expose your tool to rain. Keep the work area well lit. Don't use tools in the presence of flammable gases or liquids.
3. **KEEP CHILDREN AND BYSTANDERS AWAY.** All children should be kept away from the work area. Don't let them handle machines, tools or extension cords. Visitors can be a distraction and are difficult to protect from injury.
4. **GROUNDED TOOLS** must be plugged into an outlet that itself is properly installed and grounded. Grounding provides a low-resistance path to carry electricity to ground away from the operator, should the tool malfunction electrically. Do not remove the grounding prong from the plug or alter the plug in any way. If in doubt as to whether the outlet is properly grounded according to code, check with a qualified electrician.
5. **OBSERVE PROPER PRECAUTIONS REGARDING DOUBLE INSULATION.** This tool is double insulated. It is equipped with a polarized plug. One blade is wider than the other, so it will fit into a polarized outlet only one way. If you have difficulty inserting the plug, try reversing it. If it still doesn't fit , do not alter the plug; have a qualified electrician install a polarized outlet.
6. **GUARD AGAINST ELECTRIC SHOCK.** Prevent body contact with grounded surfaces: pipes, radiators, ranges, and refrigerator enclosures. When your body is grounded the risk of electric shock increases. When working wherever "live" electrical wires may be encountered, try to ascertain whether there is a danger of shock. Even so, DO NOT TOUCH ANY METAL PARTS OF THE TOOL while using it. Hold the tool only by the plastic grip to prevent electric shock if you contact a live wire.
7. **DO NOT ABUSE THE CORD.** Never carry power tool by the cord or pull on the cord to unplug it. Protect the cord from potential sources of damage: heat, oil & solvents, sharp edges, or moving parts. Replace damaged cords immediately.
8. **WHEN WORKING OUTDOORS, USE AN OUTDOOR-RATED EXTENSION-CORD.** An extension cord rated for outdoor use must be marked "W-A" or "W".
9. **DO NOT EXPOSE ELECTRICAL POWER TOOLS TO MOISTURE.** Rain or wet conditions can cause water to enter the tool and lead to electric shock.
10. **ENSURE THE EXTENSION CORD YOU USE IS OF SUFFICIENT GAUGE FOR ITS LENGTH.**

Recommended Minimum Wire Gauge for Extension Cords

Amps from Tool Nameplate	25' length	50' length	75' length	100' length	150' length
0-2.0 amps	18 ga.	18 ga.	18 ga.	18 ga.	16 ga.
2.1-3.4 amps	18 ga.	18 ga.	18ga.	16 ga.	14 ga.
3.5-5.0 amps	18 ga.	18 ga.	16 ga.	14 ga.	12 ga.
5.1-7.0 amps	18 ga.	16 ga.	14 ga.	12 ga.	12 ga.
7.1-12.0 amps	18 ga.	14 ga.	12 ga.	10 ga.	-
12.1-16.0 amps	14 ga.	12 ga.	10 ga.	-	-
16.1-20.0 amps	12 ga.	10 ga.	-	-	-

11. **STORE IDLE EQUIPMENT.** Store equipment in a dry area to inhibit rust. Equipment also should be in a high location or locked up to keep out of reach of children.
12. **DON'T FORCE THE TOOL.** It will do the job better and more safely at the rate for which it was intended.

IMPORTANT SAFETY INSTRUCTIONS

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13. **USE THE RIGHT TOOL.** Don't force a small tool or attachment to do the work of a larger industrial tool. Don't use a tool for a purpose for which it was not intended.
14. **DRESS PROPERLY.** Don't wear loose clothing or jewelry; they can be caught in moving parts. Protective, non-electrically conductive gloves and non-skid footwear are recommended when working. Wear protective hair covering to contain long hair and keep it from harm.
15. **USE EYE PROTECTION.** Use a full-face mask if the work you're doing produc es metal filings, dust or wood chips. Goggles are acceptable in other situations. Wear a clean dust mask if the work involves creating a lot of fine or coarse dust.
16. **SECURE WORK.** Use clamps or a vise to hold the work. It's safer than using your hands and it frees both hands to operate the tool.
17. **DON'T OVERREACH.** Keep proper footing and balance at all times. Do not reach over or across machines that are running.
18. **MAINTAIN TOOLS WITH CARE.** Keep tools sharp and clean for better and safer performance. Follow instructions for lubricating and changing accessories. For safe performance, keep handles dry, clean and free from oil and grease.
19. **AVOID UNINTENTIONAL STARTING.** Be sure the switch is in the **OFF** position before plugging in.
20. **ALWAYS CHECK AND MAKE SURE TO REMOVE ANY ADJUSTING KEYS OR WRENCHES** before turning the tool on. Left attached, these parts can fly off a rotating part and result in personal injury.
21. **DO NOT USE THE TOOL IF IT CANNOT BE SWITCHED ON OR OFF.** Have your tool repaired before using it.
22. **DISCONNNECT THE PLUG FROM POWER BEFORE MAKING ANY AD-JUSTMENTS.** Changing attachments or accessories can be dangerous if the tool could accidentally start.
23. **STAY ALERT.** Watch what you are doing & use common sense. Don't operate any tool when you are tired.
24. **CHECK FOR DAMAGED PARTS.** Before using this tool, any 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, mountings, and other conditions that may affect its operation. Inspect screws and tighten any ones that are loose. Any part that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated elsewhere in the instruction manual. Have defective switches replaced by an authorized service center. Don't use the tool if switch does not turn it on and off properly.
25. **REPLACEMENT PARTS.** When servicing, use only identical replacement parts.
26. **SERVICE AND REPAIRS** should be made by qualified repair technicians at an authorized repair centre. Improperly repaired tools could cause serious shock or injury

SAFETY PRECAUTIONS



ALWAYS CHECK THE SPEED RATING OF ACCESSORIES. *This tool will spin accessories at up to* 1400 *rpm. Accessories not rated for speeds this high will very likely fly apart and could cause serious injury.*

SPECIFICATIONS

- Voltage: 120 volts AC, 60Hz.
- Current rating: 3.5 amps
- No load speed: 1800 rpm
- Max shear thickness: 18Gauge

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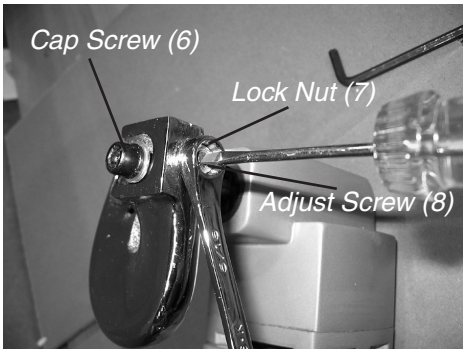
OPERATING PROCEDURES

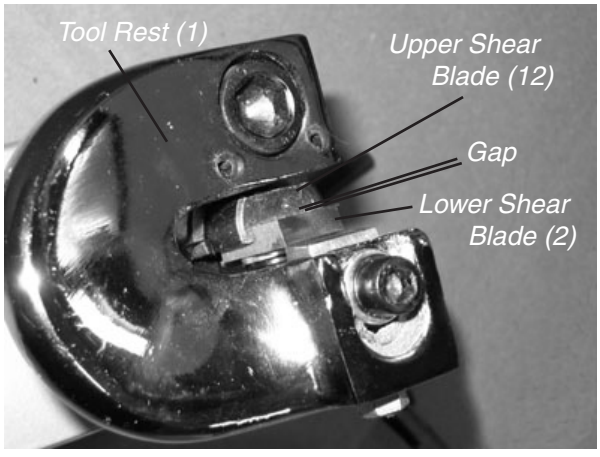
1. Following all safety requirements already listed, plug the Power Cord (54) into a circuit-breaker protected 120 V~, 60 Hz power outlet.
   WARNING: Do not turn on the tool until you have read this entire manual, and follow all safety information, notes, cautions and warnings provided.
2. To turn on the tool, slide the Power Switch (38) forward to the ON position. The Upper Shear Blade (12) will begin to move up and down at high speed.
   NOTE: It is a good idea to make a few practice cuts on scrap material before cutting your work piece.
3. To cut material, fit the Tool Rest (1) over the edge of the material, and move the tool slowly forward along the desired cut line of the material. As the Upper Shear Blade (12) moves up and down against the Lower Shear Blade (2), the material will be cut.
   WARNING: The edge of sheet metal is very sharp. Always wear protective gloves when handling sheet metal.
   CAUTION: Do not cut across a welded seam as this might damage the blades.
4. To stop cutting, slide the Power Switch (38) back to the OFF position. Unplug the tool.

Adjusting the cutting blades.

If the tool is operating properly, but is not cutting satisfactorily, you may have to adjust the blades.

1. Before attempting adjustment, unplug the tool.
2. Using a probe through the motor vents in the side of the Cover (48), turn the fan until the cutting blades are open to the maximum amount. You can measure the gap between the blades using an automotive feeler gauge (not included).
3. To determine the best spacing, use the formula: *Distance in mm (L) = 0.2 x thickness of thin steel plate in mm.* (This is the same as the gap being equal to the material thickness divided by 5.) For example, a thin steel plate which is 1 mm thick should be cut with a shear blade setting of .2 mm. This assumes a hardness of the material at 390N/mm. For softer material, reduce the gap. For harder material, increase the gap.





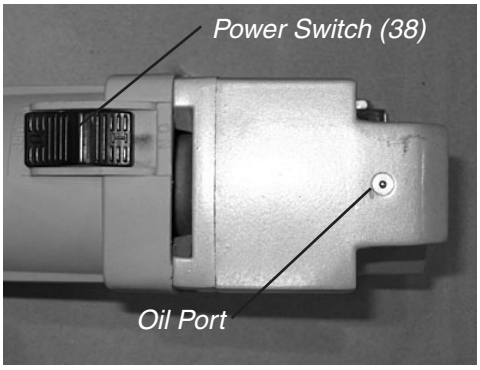
4. Loosen the Socket Head Screw (6) that holds the Upper Shear Blade (12) in place. Adjust the Upper Shear Blade until the space between the upper and lower cutting edge is between 0.1 mm and 0.6 mm. Then tighten the Socket Head Screw (6) to fix the Upper Shear Blade (12) in position.

MAINTENANCE

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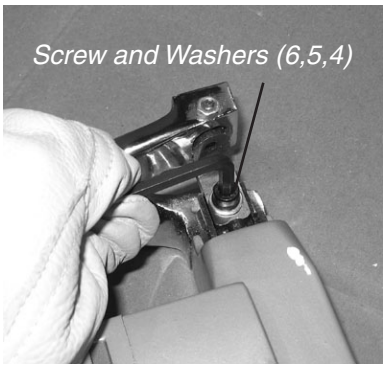
Check the condition of this tool every time before using it.

1. Before each use, plug in the tool, and turn it on to run freely for one minute.
2. After the toofl has run for one mfinute, turn fit off, and put 3 -4 drops of light machine oil in the oil port on the head of the tool. (See picture at right.)
3. Also apply a small amount of oil into the space between the Arbor (13) and the Shaft Sleeve (15).



To remove or replace the blades:

1. Unplug this tool before attempting any maintenance.
2. Remove the Screw and Washers (6,5,4) holding the Upper Shear Blade (12) & remove it as shown in the photo below left, using the included Hex Key.



3. Remove the Screw and Washers (6,5,4) holding the Lower Shear Blade (12) & remove it as in photo below right.

4. To reinstall sharpened blades or new blades, first reinstall the Lower Shear Blade (2) and tighten it. Then install the Upper Shear Blade (12) but leave it just loose enough to slide.

5. The Upper Shear Blade (12) has a Adjusting Screw (8) and Screw (6) that are used to adjust the blade's position. The Screw (6) should be loosened with a wrench. Then the Lock Nut (7) should be loosened and held using a box-end wrench (not included) and the Adjusting Screw (8) can be adjusted. The Upper Shear Blade (12) should be adjusted for different material types or thicknesses.

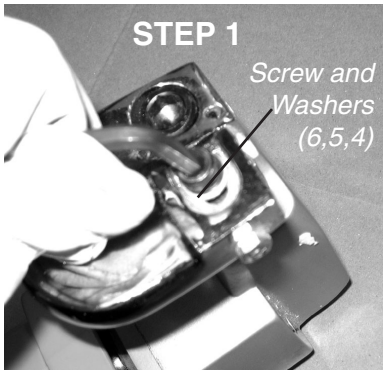
Adjusting The Upper Shear Blade (12)

For sheet steel the formula is:

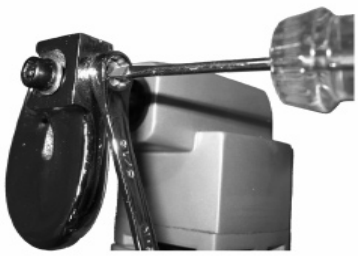
Gap = Steel Thickness / 5

(as discussed in item 3, page 7)

The gap will be slightly smaller for rubbery or soft materials. The gap should be slightly larger for hard materials.



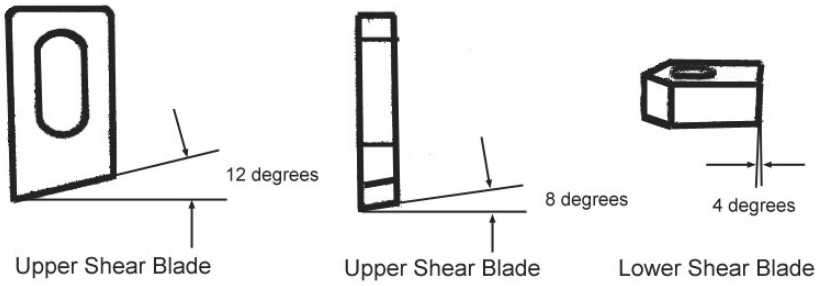
STEP 2

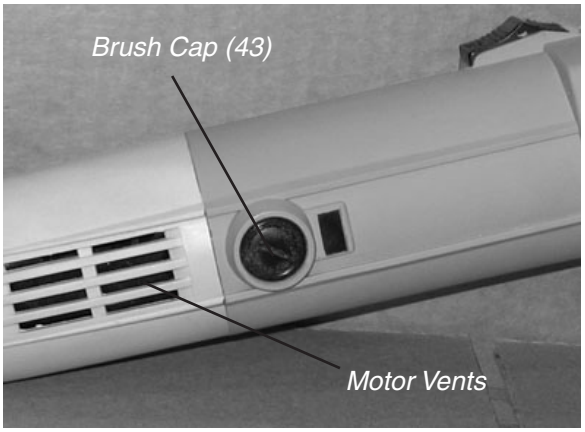


5 When the two blades line up with the proper gap, tighten and hold the Adjusting Screw (8) while you tighten the Lock Nut (7). Then, tighten the Screw (6).

6. Check that the blades will operate properly before use. The machine should always be tested on scrap material before use on final work material.

7. If you sharpen the blades, maintain the original dimensions of a 12 degree angle on the Upper Shear Blade (12) with a 8 degree angle across its thickness. Maintain a 4 degree angle on the butt of the Lower Shear Blade (2) as shown in the illustration below.





Replacing Carbon Brushes.

After considerable use, your Electric Metal Shear may not run as well as usual. If it starts or runs slowly, makes a grinding noise or will not run at all, the problem may be worn Carbon Brushes. An extra set of Carbon Brushes is included with your tool for replacement as needed.

1. Unplug your tool before beginning work.
2. To examine the condition of the brushes, unscrew each Brush Cap (43), and remove each Brush (42).

NOTE: Record the position of each carbon brush as you remove it, so you can replace them in exactly the same way. Carbon brushes wear into the armature. If they are replaced in a different orientation, they will have to undergo additional wear before they again fit properly.

3. If the Carbon Brushes (42) are severely worn (less than 1/8" carbon remaining) they should be replaced. Also, if either brush is cracked or chipped both brushes must be replaced. If they are glazed, but more than 1/8" in length, the glaze can be removed with a pencil eraser, and the brushes reused. If they are in good condition and more than 1/8" remains, replace the original brushes in the exact configuration they were removed.
4. To replace a Carbon Brush (42), insert it into the Brush Holder (41) carbon end first, with the spring end to the outside. Replace the Brush Cap (43) and tighten it by turning clockwise.

   NOTE: When replacing Carbon Brushes (42), do not replace only one brush. Always replace both carbon brushes at the same time.
5. After replacing the Carbon Brushes (42), let the tool run for 2 minutes before using it. This will allow the Carbon Brushes (42) to wear into the Armature.

   Caution: During use, do not obstruct the motor vents in the Cover (48). Obstruction may cause the motor to overheat during use, possibly damaging the tool.

PARTS LIST

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Part	Description	Q'ty
1	Tool Rest	1
2	Lower Shear Blade (Fixed)	1
3	Spring Pin m4 x 30	2
4	Plain Washer m6	2
5	Spring Washer m6	2
6	Socket Head Screw m6 x 12	2
7	Lock Nut m5	1
8	Adjusting Flat Head Screw m5 x 16	1
9	Spring Washer m4	6
10	Plain Washer m4	4
11	Lock Screw m4 x 15	1
12	Upper Shear Blade	1
13	Arbor	1
14	Straight Pin m8 x 18	1
15	Shaft Sleeve	1
16	Socket Head Screw m5 x 50	2
17	Gear Cover	1
18	Connecting Bar	1
19	Needle Bearing K121610	1
20	Eccentric Shaft	1
21	Straight Key 4 x 8	1
22	Ball Bearing 6201-2Z	1
23	Clip Ring	1
24	Bearing	1
25	Gear	1
26	Self Threading Screw ST3.9 x 19	4
27	Clip Ring	1
28	Intermediate Cover	1
29	Ball Bearing 628-2Z	2
30	Armature	1

Part	Description	Q'ty
31	Socket Head Screw m4 X 58	2
32	Stator	1
33	Ball Bearing 626-2RS	1
34	Rubber Washer	1
35	Housing	1
36	Socket Head Screw m12 x 30	1
37	Nameplate	1
38	Power Switch	1
39	Drawbar	1
40	Nut m4	2
41	Brush Holder	2
42	Carbon Brush	2
43	Brush Cap	2
44	Support	2
45	Screw ST 3.9 x 9.5	2
46	Switch	1
47	Oil Port	1
48	Cover	1
49	Screw ST3.9 x 16	6
50	Switch Cover	1
51	Switch Holder	1
52	Strain Relief	1
53	Cord Holder	1
54	Power Cord	1
55	Needle Bearing HK071109	1
56	Stem Gear	1
57	Straight Key	1
58	Gear	1
59	Ball Bearing 607-2Z	1
60	Description Plate	1

WARNING *Repairs should be made by an authorized repair center.Do not open or disassemble this power tool. Contact Sharp Group Development Limited at* 1-866-915-8626 *for questions regarding this power tool.*

SCHEMATIC DRAWING

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