

MC-275PV

Operation Instruction

SOCO MACHINERY CO., LTD.

#7, 14TH RD. TAICHUNG INDUSTRIAL PARK. TAICHUNG TAIWAN

TEL: 886-4-23591888 FAX: 886-4-23592386

E-MAIL: socomc@seed.net.tw

Website: <http://www.socomachinery.com>

SOCO Machines Model MC 275/PV Cold Sawing Machines come packed in two separate cases. The heavier one contains the saw head. The other one contains the base of the machine. Please follow these instructions in unpacking and assembly.

1. remove the base from its case. Inside the base you will find a box containing the tool kits and your optional accessory.
2. Unpack the case of saw head.
3. Remove the two nuts that hold the saw head to the wooden skid.
4. Take out all the parts and accessory from the inner of base.
5. Fix the air power line (L167) by Connector (L166)-- see fig 5
6. Lift saw head from skid and place on top of base. (using 4 holes on the side of the table to lift) Be sure that front side of the base is positioned on the front side of saw head. Front side of base is the side opposite electrical control box.
7. Secure saw head to base with (2) long 17mm Hex Head bolts (H162) provided.
8. In the parts box you will find 2-handles. The short black handle (D123) threads into the locking bolt located under the saw table. In the cut-out provided on the front side of the the saw table, insert this handle and thread into place securely. This handle locks the saw head. At this point move this handle all the way to the right unlocking the saw head. This will allow you to swivel the saw head to the right, lining it up with the 90° mark on the scale. After doing this, lock the saw head by moving the handle to the left. CAUTION : Do not use too much force in locking the saw head. Just bring it up snug, do not over tighten.
9. The remaining handle is now to be installed into the saw head itself, and is the operators handle to cause the machine to saw.
install this handle as follows:
 - a. Thread entire handle into gear box and secure with wrench tightening large hex nut.
 - b. The cable of this handle is your control cable. Besides the motor, there has a small electrical box. Remove the cover from this small electrical box. You will find a terminal strip and a connector on the back side of this bracket and connect to the terminal strip. Secure the connector.
10. Connect plastic coolant hose coming from base of machine into nozzle located on top of saw blade guard using the clamp provided.
11. With saw head in the upright position connect the spring assembly on the backside of saw head to the lower bracket provided.
12. Insert the air supply line (L167) to the connector on the cylinder of air vise. Make sure when the trigger on this air vise will close and trigger off the vise will open, if it not correct then exchange it-- on the purpose to pull out the air hose, must push the lip of the connector to the bottom and in the same time pull out air hose.

13. Your SOCO SAW is all pre-wired except connecting the cable from the base of the machine to the electrical box located on the right side of the main motor. Behind the base, a coiled up (6) wire cable. These (6) wires are marked, 4, 3, w, v, u, G. This cable is to be connected to the box mounted on the right side of the main drive motor. Remove the cover from this small electric box. You will find a terminal strip. Connector all (6) wires to their corresponding number or letter on the terminal strip. Tighten cable clamp and replace and secure lid on top of the box. CAUTION : Be sure all connection are tight and will not come loose during the operation of the machine.
14. Next step is to connect your power cable. Please note this power cable have 4 wires and green one is used for grounded.
15. You are now ready to test for rotation of the machine. At your disconnect box, turn on power to machine. On the front side of the small electric box located on the right of the main drive motor is the speed-selector switch. Turn this switch to "LOW". Next, close the trigger on the operators handle. Motor will start on low speed and saw arbor must turn in clock-wise direction. If saw arbor turns counter-clockwise, shut off machine and reverse any (2) power leads at your disconnect box. CAUTION : Do not change any wiring in the machine. Re-test for rotation and also change speed selector to "HIGH" and check for rotation.
16. COOLANT: Using Sawing Oil, (water soluble), mixed 10 parts water to 1 part oil, fill coolant tank by pour on the table approx. 3-gallons of the correct mixture. Next step is to turn on machine and make sure coolant is pumping. Be sure nozzle on top of saw blade guard is in the "open" position, to allow coolant to circulate.
17. The assembled machine should be located on a good level surface. It is advisable to anchor machine to the floor with the holes provided in the base of the machine.

YOUR SOCO MACHINE IS NOW READY TO OPERATE.

CAUTION !! CAUTION !!

SAFETY FIRST

1. Always wear eye protection when operating this machine.
2. This machine is a powerful circular sawing machine and must be treated with utmost respect. Do not take any foolish chances or attempt any operation of the machine in any manner other than the normal use that the machine was designed for.
3. Always make sure that the SAW BLADE SAFTY GUARD is working properly and do not re-move from the machine.
4. Never attempt to cut hardened material. This machine is designed to cut only metal in the soft condition. Heat-treated material must cut by another method.
5. Following all instructions regarding the mounting of the saw blades. If the saw blade is not mounted correctly, it could break during the cutting operation.
6. Always make sure that the material is well clamped in the unique double material clamping vise. This will help to insure the SAFTY of the cutting operation.

7. DO NOT use dull saw blades. Keep your saw blades sharp, by having them serviced by a qualified SERVICE CENTER in your area. If you need help in this area, call us at the factory.
8. Do not operate this machine wearing any loose clothes or long hair that could possibly get caught in the turning saw blade.
9. On the operators handle is located the "Operator's Switch." If something goes wrong during the operation, release this switch at once, and the machine will stop. Do not restart the machine until the difficulty has been corrected.
10. Above all, use good common sense and do not over-load or use the machine in anyway other than its intended use.

OPERATING INSTRUCTIONS

1. Saw Blade

Select the correct saw blade for the size and mass of material to be cut ---- ref to the saw blade select chart.

The saw blade selection table are for cutting mild steel. When cutting tough alloys or stainless steel use blade of finer pitch.

It is always best to use the smallest diameter blade that will clear the material. In other words, do not use a sledge hammer to drive a small tact. If you have any problems in the selection of the correct saw blade do not hesitate contacting your local dealer. Remember, the saw blade is the weakest link in this machine and we must use the correct blade to obtain efficient cutting.

After selecting the proper blade, remove the outside clamping flange from the saw arbor using the 10mm Allen wrench provided. With a rag, clean the inside clamping flange free from any dirt or chips. Also clean the clamping area on the saw blade itself. Mount the blade on the saw arbor with the teeth pointing down. Clean the outside clamping flange and mount it over the saw blade with the pins. Insert 12mm clamping bolt and washer and hand tighten. IMPORTANT* IMPORTANT* At this point, move the saw blade counter clockwise against the drive pins before tightening bolt with 10mm wrench. If you do not do this, there is a good possibility the blade will slip during the cutting operation and cause it to break. After turning saw blade up, against the pins, tighten saw arbor bolt with 10mm wrench.

2. Set depth adjustment which under the saw head of the machine (A131-Fig 1). Loosen lock nut (A132) and adjust this screw up or down to place saw head at proper depth for cutting. Adjust the saw head in such a manner as to allow the saw blade to cut through the material without cutting into the vise casting or lead screw. It is obvious that this adjustment must be made each time you change saw blades, because sharpening the saw blade changes the diameter.

3. CHIP BREAKER

Bring round cast iron chip breaker roller (E112) against rim of the saw blade and engage the spring. This is adjustable to accommodate saw blades of different diameters as follows:

- a. Loosen lock nut. E109.
- b. Using a screw driver adjust chip breaker spring so that cast iron chip roller just touches the saw blade. Tighten lock nut. NOTE: When this wheel is properly adjusted, the roller will not turn when the saw head is in the up position. When you bring the saw head down for cutting, roller will now turn. Use only light pressure on this spring to obtain maximum life from cast iron roller.

4. Saw blade speed

Model MC-275 H/PV has 2-speeds, low speed is for cutting mild steel tubing and structural shapes. High speed is for cutting non-ferrous metal and synthetic material, or very thin wall steel tubing.

Model MC-275 L/PV also has 2-speed, low speed is for cutting tough alloys, stainless steel and large sections of all grades of steel, mild or alloy. High speed is for cutting mild steel tubing, structural shapes and non-ferrous material.

5. Straight and mitre cutting

The saw head swivels 45° left and right for mitre cutting in both directions. The head also swivels 90° left for slotting or notching. To position saw head, unlock head by moving locking handle all the way to the right. Position saw head to the desired angle reading on the scale provided. Lock saw head in place by moving locking handle to the left. CAUTION : Do not use too much force in locking this head. Just bring handle up snug. Too much force will cause adjustment on bottom of machine head to come loose.

6. Clamping vise

This self centering double vise has four adjustable jaws. After saw head has been positioned to the proper cutting angle (straight or mitre), These adjustable jaws should be positioned close to the saw blade. Place saw head in the down position and adjust each jaw using 8mm allen wrench. During this operation be sure the vise is in approximate position it will be in when work piece is in place. It is important when cutting short pieces that a scrap piece of material of equal size be placed in the right hand vise to prevent work piece from "cocking" CAUTION : This machine has a unique double vise. However, work must be clamped securely for best results. Tighten vise so work piece cannot move. This will insure excellent cuts and long life of the saw blade.

7. Slotting

Position saw head to the left a full 90° . The saw blade is now parallel with the work piece. Set depth stop to restrict the depth of the cut. Clamp up and cut using coarse tooth blade. (clamp material in top of vise, normal) For cutting long slots it is necessary to position material, clamp up, cut slot, and repeat. Do not attempt to slide material into saw blade without clamping.

8. Depth adjustment

Just beneath the saw head is adjusting screw and lock nut. Loosen lock nut and adjust screw up or down so that saw blade just breaks through the material. Tighten lock nut. CAUTION : This adjustment is necessary each time you change blades or angle of cut. Otherwise you may not go all the way through the cut or you may cut into the base of the vise.

9. Actual cutting

After selecting the right blade and the correct speed, and the work piece is securely clamped move the saw head in a downward position toward the work piece. Before entering the material, squeeze the switch and make sure the coolant is flowing on the blade. Using light pressure bring saw blade through the cut. When saw blade breaks through the cut, release the switch stopping the motor and move the saw head to the up position.

MAINTENANCE

1. Main Gear Box

Your new machine is delivered with the proper amount of gear oil in the gear box. At least once a year this oil should be changed. Remove plug on bottom of gear box and drain. Flush gear box with light petroleum solvent and refill with 1.0 pint Texaco EP Gear Lube SAE 140 or equivalent. To fill gear box, remove the cap on the top of gear box. Note : If gear box overheats during continuous operation, check to see if too much oil has been added.

2. Vise

Keep vise clean at all times. Blow chips with compressed air if possible. Oil the guide bars and spindles on a regular basis.

3. Saw Blades

Keep blades sharp and avoid cutting with dull blades. Proper blade selection will always improve the overall operation of this machine. Remember the saw blade is the "weakest link."

4. Chip Breaker

In setting the chip breaker, do not put too much pressure against the blade. This will cause the cast iron ring to wear a deep groove. The principle of this unit is to bounce on and off the saw blade; thereby releasing chips that may be stuck in the gullet. When a deep groove is worn on this part, it should be turned around to use the other side.

5. Spare Parts

Please order spare parts by number from the enclosed drawings and parts list.

IMPORTANT !! SAW BLADE MAINTENANCE

This machine will perform only with saw blades that are sharpened properly, and always using right sawing oil.

TROUBLE SHOOTING

1. Machine will not start

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- a. Check Power Supply.
 - b. Check transformer , located in electrical control box on back-side of base of machine. CAUTION : Before removing this cover plate make sure the power is disconnected. Test with Volt Meter to make sure it is working.
 - c. In the small electrical box on the right side of main drive motor, check connections 4, 3, w, v, u, & G on both sides of terminal strip to be sure they are tight.
 - d. Check to make sure hand cable switch is working and is in proper adjustment.
 - e. Check overload circuit, located in electrical control box on back side of base of machine. Check relay and circuit with a continuity test to make sure coil in relay is not burned.

2. Motor will not start only makes "BUZZING NOISE"

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- a. Check main power supply to be sure all (3) legs of current are working and check main fuses. This condition is "single phasing" and motor is not receiving all (3) phase of current.
 - b. Check all leads and connections.
 - c. Check coil relay to be sure it is putting out all (3) phases.

3. MOTOR RUNS ON 1-SPEED ONLY

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- a. Turn off the power. Remove lid from small electric box on the right side of main drive motor. Check connections on 2-speed switch to be sure they are secured.
 - b. Check continuity on 2-speed switch. Replace if faulty.
 - c. Possibility of 1-side of motor burned out.

4. Coolant pump not working

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- a. Check all connections regarding coolant pump.
- b. Possibility of coolant pump burned out.

5. Saw Blades breaking or chipping

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- a. In mounting saw blades check step #1, page 3, Saw Blades, to be sure all slack has been removed between Drive Holes in the saw blade. Saw blade must be up against the drive pins to prevent slipping.
- b. Wrong blade selection - too many teeth or not enough teeth.
- c. Dull saw blades.
- d. Poor, incorrect saw sharpening. (Wrong geometry on teeth)
- e. Too much back-lash in gear box. Check for wear of Worm Gear. Replace if worn.

6. Machine cuts out of square

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- a. Front to back. Unlock saw head. Using machine square, position saw head (with blade) at right angles to clamping vise. Lock saw head. Re-set pointer shower degree of cut to the exact ZERO point on scale A-20.
- b. Top to bottom. Saw blade is dull. Saw blade is not straight. Also check base of vise for chips or dirt. Must be level.

7. Mitre Cutting

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- a. Square Tubing. Position tubing in the front of the vise to allow saw blade to enter the corner of the tube. Open vise wide. Place tubing in the front side of the vise. Place scrap piece of material behind the tubing on both sides of vise. Clamp and cut mitre.
- b. Be sure vise jaws are adjusted (all 4-jaws) up close to saw blade to eliminate vibration.
- c. Long Mitre cuts. To make long mitre cuts beyond 45 °, clamp material in the top of the vise to avoid cutting into machine casting. Also possible to remove all (4) vise jaws and open vise to maximum opening. Place work piece in center of vise and shim up front and rear, both sides of vise. Use small diameter saw blade and make long mitre cut.

8. Too much Vibration or Noise

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- a. Wrong blade selection.
- b. Part not properly clamped or vise jaws not positioned (all 4-jaws) up to the saw blade.
- c. Machine not level or not sitting on solid foundation. Bolt machine to the floor with holes provided in base.

ALL OTHER QUESTIONS OR PROBLEMS; REFER TO YOUR LOCAL DEALER.

Model : MC-275PV Trouble Shooting Guide

Problems	Sources	Solutions
1. Machine will not start	a. Main power cable is not connected to the power source. b. Feed lever switch is broken, or the control wire is disconnected. c. The transformer is shorted and broken. d. The Phase Converter is broken (if using Phase Converter).	a. Check power supply. b. Use multi meter to test the feed lever switch and the control wire. c. Use multi meter to test the transformer. If the output value is incorrect, the transformer is broken. Replace it when needed. d. Use multi meter to test the Phase Converter. Replace the Phase Converter when needed.
2. Motor will not start	a. One or more of the 3 phases of the main power is not connected. b. The Select Switch is shorted and broken. c. The Solenoid Switch is not well connected. (One or more of the connecting wires is not connected). d. The motor is shorted or broken. e. Single Phase Motor ON/OFF switch is broken. f. Single Phase Motor Centrifugal Switch is broken. g. The Capacitor is broken (Single Phase Motor) .	a. Use multi meter to test if all of the 3 phases are connected. b. The Select Switch controls the high or low speed. If one of the speeds is not working, the select switch is broken. To test, connect power supply directly to the motor to see if the select Switch is broken. Replace when needed. c. Use multi meter to test the Solenoid Switch. If one or more of the connecting wires is not connected, replace the Solenoid Switch. d. Use multi meter to test the 3 phases of the main power. If all 3 phases are normal, the motor may be broken. Replace it when needed. e. Use multi meter to test the Single Phase Motor switch. Replace it when needed. f. Open up the motor fan cover. The Centrifugal Switch is located in front of the fan. The Switch should be disconnected from the motor once the motor starts. If it is NOT disconnected from the motor, the Switch is broken. Replace when needed. g. Turn off the power and use multi meter to test the 欧姆 value. If the value is greater than 100 (multi meter does not react), the capacitor is broken and needed to be replaced.

3. Coolant Pump not working	a. Inadequate coolant. b. The Coolant Pipe Check Valve is clogged. c. The Coolant Nozzle is clogged. d. Coolant pump is reversed or burned.	a. Refill coolant (up to 8/10 of the tank). b. Clean Coolant Pipe Check Valve, or replace it. c. Clean Coolant Nozzle or replace it. d. If the coolant pump is reversed, switch any 2 of the 3 phases. Replace the coolant pump if it is burned.
4. Clamping Vise cannot be moved	a. The rail shaft is rusted. b. Accumulated metal fragments around the screw shaft or the nuts. c. The holes on the Clamping Vise are worn out, or the rail shaft is worn out.	a. Take off the rail shaft and clean up the rust. b. Take off the screw shaft and the nuts on the shaft. Clean up the metal fragments on these parts. c. Test by moving the whole Clamping Vise Set. If it is loose (the set is worn out), replace it with a new set.
5. Broken or Chipped Blade	a. Incorrect selection of the blade (incorrect number of teeth). b. The vise is worn out and loose. c. The gear inside of the machine head is worn out. As a result, the blade is loose (if moved by hand, the blade rotates too much). d. The blade is installed facing the wrong direction (The sharpened end of the teeth must face the same direction toward which the blade rotates). e. The blade is loose.	a. The selection of the blade and the number of teeth on the blade depend on the material of the work piece. Please consult our service centers for the correct selection of the blade. b. Replace the vise. c. Replace the gear. Please contact our service centers for replacement. d. When installing the blade, make sure the sharpened end of its teeth faces the correct direction. Please follow the arrow instruction. e. Make sure the blade is properly secured.
6. Inaccurate Cutting Angle	a. The blade vibrates too much. b. If the blade is too thin, it may not cut in the correct angle. c. The Clamping Vise Set is worn out and shakes. d. The handle on the rotary support is loose. e. The screws used to secure the vise body are loose.	a. Can be identified by looking at the blade or testing with measuring equipment. b. Replace with thicker blade. c. Replace the Clamping Vise Set. d. Push the handle to the right and tighten it. e. Readjust and tighten and screws on the vise body.

7. Clamping Vise is not working	a. The Solenoid Valve Control Wire is disconnected or the Solenoid Valve Coil is burned. b. The Solenoid Valve is clogged. c. One of the Solenoid Switch connecting points (b connecting point) is broken. d. Disconnected from air pressure or inadequate air pressure.	a. Check to see if the Solenoid Valve Control Wire is disconnected. If the electric voltage is normal, the Solenoid Valve is burned and needs to be replaced. b. Take off the Solenoid Valve and clean it. (May use air-spraying gun). c. Use multi meter to test the electric voltage. Replace the Solenoid Switch if broken. d. Connect to air pressure and adjust the pressure to 6-8 kg/cm.
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