

# SHARP

- TROUBLE SHOOTING -

## 【I】 Grinding defects, Causes and Remedy

No.	Defects	Causes	Remedy
1-1	<b>Chatter marks appeared on the grinding surface.</b>	1) The foundation is not firm enough for the machine.	Please improve the foundation.
		2) The leveling screws (jack bolts) in machine base are loosened.	Check the leveling first and lock them tight.
		3) Work table does not run smoothly.	Check slideways have enough lubricant oil. And cylinders are smoothly running.
		4) Table is not fully supported.	Re-scrap the contacted surfaces of table and bed slideways.
		5) Grinding wheel does not sit firmly on the wheel flange.	Replace the intermediate washer between wheel and flange, make sure to tighten them well.
		6) Flange (with wheel) does not fit firmly on the grinding spindle taper nose.	Clean both taper contacted surfaces, make sure they are well contacted and fitted firmly.
		7) Wheel and flange are not well balanced.	Make sure the water-based fluid on the wheel is dried out <b>BEFORE</b> re-balancing wheel and flange.

		8) Wheel is asymmetrical.	If wheel and flange cannot be balanced well, dress the wheel on periphery and both sides before rebalancing again. If it still cannot reach the balance, please replace a new wheel.
		9) The usage of improper wheel.	Please select the proper wheel base on the material of the workpiece.
		10) Wheel is not dressed correctly.	The angles of the diamond dresser must be turned regularly in order to keep sharp. Replace with a new one when the diamond dresser gets dull.
			The diamond dresser is not firmly fixed.
		11) Too much play on the grinding spindle.	Re-adjust the spindle by a qualified technician.
		12) Too much play on the wheel head guideways.	Clean and adjust the gibs.
		13) Vibrations transferred to machine from outside, such as rough-running machines, traveling cranes inside the buildings, street vehicles etc	Improve the foundation, make it vibration free or place machine in a vibration-free location/position.

		14) Couplings of motor and spindle are loosened or rubber is broken.	Fix couplings well or replace with new rubber couplings.
		15) Unsteady running of grinding wheel.	The voltage of 3-phase power source may be unstable, please check and make it stable.
		16) Stock removal is too great.	Reduce infeed amount.
			Reduce cross feed movement.
		17) Grinding wheel gets too hard, dull or clogged.	Use softer or coarser wheel.
			Increase table speed.
			Reduce infeed amount.
			Roughen the wheel.
			Check the sharpness of the diamond dresser.
1-2	<b>Small and uneven flutter marks appeared on the workpiece surface.</b>	1) Traveling cranes or hoists inside the building.	Improve the foundation.
			Change the location/position.
		2) Traveling vehicles in the building or streets.	Improve the foundation .
			Change the location/position.
1-3	<b>Obvious ray pattern parallel lines that can be seen by naked eyes.</b>	1) Bearings of grinding spindle are defected.	Please see item No. <b>A-1</b> for more details.
		2) Too much play on wheelhead guideways.	
		3) Wheel is badly dressed.	Dressing the wheel again.
1-4	<b>Comma-shaped lines appeared when grinding is</b>	1) Coolant gets too dirty.	Clean coolant or use automatic paper strip filter.

	<b>getting a high surface finish.</b>		
		2) Grinding wheel chips off.	Clean the interior grits of the wheel cover.
			Choose proper wheel.
1-5	<b>Burned marks and grinding brunt caused by over-heating of the workpiece.</b>	1) Grinding wheel gets too hard or too thin.	Use softer or coarser wheel.
			Increase table speed.
			Reduce peripheral speed of the wheel.
		2) Grinding wheel gets dull or clogged.	Dressing the wheel to make it rougher and sharper.
		3) Stock removal is too great.	Reduce infeed amount.
			Reduce cross feed movement.
		4) Table speed is too low.	Increase table speed.
		5) Inefficient cooling.	Increase coolant water.
			Use stronger mixture coolant (filled up with fresh oil)
			Fill up new coolant.
1-6	<b>Grinding spark abnormally.</b>	Cannot be spark out.	Using spirit level to align the machine by adjusting the jack bolt.

## 【II】 Electronic-related defects, Causes and Remedy

### A. General (machines without CE)

No.	Defects	Causes	Remedy
A-1	<b>Rapid and auto cross-feed are not functioning.</b>	1) SA31 doesn't switch on to the right side.	Please switch it to the right position.
		2) SA3 and SA31 switches are defective or wires loose.	Fix wires well or replace new switch.
		3) MCU (motor control unit) is not working. Or fuse of MCU is defective. (no power is delivered because fuse is broken).	Check the terminal block as following: 1. Short 75 and 76 by a wire. 2. Turn SA3 to either the right side or the left one and stay in that position. (not let it turn back) 3. Check whether the voltage of 73 and 74 is around 220V±10% or not ; if not, it indicates that the MCU is out of order.
		4) Limit Switch LS1 or LS2 for max stroke safety control is defective or being pressed.	Check LS1 and LS2 throughout or replace with new switches.
		5) PL-4P (PNP) Proximity switch is too loose to engage directional cam or LS5 is not working.	Fix it well or replace a new one.

		6) The clamping plates for saddle are not taken off.	Please take off the clamping plates.
A-2	<b>Automatic cross feed does not reverse and runs to one direction ONLY.</b>	1) Limit Switch LS3 and LS4 are not working or the trip dog is too loose to control LS3 and LS4.	Fix trip dog or change to a new limit switch.
		2) Magnetic contactor for cross feed motor is not functioning.	Check contactor wires to make sure the switch is working; if not, please change to a new switch.
A-3	<b>Magnetizing doesn't work</b>	Fuse of chuck-control is burnt.	Change a new fuse.
		Fuse on TR1 is broken	Replace with a new one.
		Transformer TR1 is defect	<ol style="list-style-type: none"> <li>1. Check TR1 primary coil: take off wires from terminals a.b. if resistance show <math>\infty\Omega</math>, it means the coil is broken.</li> <li>2. Check TR1 secondary coil: same as above, if resistance between c.d. is <math>\infty\Omega</math>, the coil is broken.</li> <li>3. Any coil broken, TR1 must be replaced with new one.</li> </ol>
		Switch SA100 is defective	<ol style="list-style-type: none"> <li>1. Turn SA100 to right position(magnetizing), check terminals "C1" with "+", "C2" and "-", all of them must be in short circuit(<math>0\Omega</math>), otherwise the switch is defect.</li> <li>2. Turn SA100 to left position(demagnetizing), check terminal "C1" and</li> </ol>

			<p>“-“, “C2” and “DE”. all of them must be in short circuit(<math>0\Omega</math>), otherwise the switch is defect.</p> <p>3. Repair or replace with new switch</p>
		<p>The electro magnetic chuck is defective.</p>	<p>1. Check 2 wires of the chuck, it must be in short circuit “<math>0\Omega</math>”. If not, it indicates the chuck is broken. Please repair it.</p> <p>2. Check each wire with chuck body (earth), it must be <math>\infty\Omega</math>. Otherwise, it means the “insulation” is bad; dry the coil and improve its insulation.</p>



**B. General (machines with AD3)**

No.	Defects	Causes	Remedy
B-1	<b>Rapid and auto cross-feed are not functioning.</b>	1) SA31 doesn't switch on to the right side.	Please switch it to the right position.
		2) SA3 and SA31 switches are defective or wires loose.	Fix wires well or replace new switch.
		3) MCU (motor control unit) is not working. Or fuse of MCU is defective. (no power is delivered because fuse is broken).	Check the terminal block as following: <ol style="list-style-type: none"><li>1. Short 75 and 76 by a wire.</li><li>2. Turn SB31 or SB32 to either the right side or the left one and stay in that position.</li><li>3. Check whether the voltage of 73 and 74 is around <math>220V \pm 10\%</math> or not ; if not, it indicates that the MCU is out of order.</li></ol>
		4) Limit Switch LS1 or LS2 for max stroke safety control is defective or being pressed.	Check LS1 and LS2 throughout or replace with new switches.
		5) PL-4N (NPN) Proximity switch is too loose to engage directional cam or LS5 is not working.	Fix it well or replace a new one.
		6) The clamping plates for saddle are not taken off.	Please take off the clamping plates.

<b>B-2</b>	<b>Automatic cross feed does not reverse and runs to one direction ONLY.</b>	1) Limit Switch LS3 and LS4 are not working or the trip dog is too loose to control LS3 and LS4.	Fix trip dog or change to a new limit switch.
		2) Magnetic contactor for cross feed motor is not functioning.	Check contactor wires to make sure the switch is working; if not, please change to a new switch.
<b>B-3</b>	<b>Magnetizing doesn't work</b>	Fuse of chuck-control is burnt.	Change a new fuse.
		Fuse on TR1 is broken	Replace with a new one.
		Transformer TR1 is defect	<ol style="list-style-type: none"> <li>1. Check TR1 primary coil: take off wires from terminals a.b. if resistance show <math>\infty\Omega</math>, it means the coil is broken.</li> <li>2. Check TR1 secondary coil: same as above, if resistance between c.d. is <math>\infty\Omega</math>, the coil is broken.</li> <li>3. Any coil broken, TR1 must be replaced with new one.</li> </ol>
		Switch SA100 is defective	<ol style="list-style-type: none"> <li>1. Turn SA100 to right position(magnetizing), check terminals "C1" with "+", "C2" and "-", all of them must be in short circuit(<math>0\Omega</math>), otherwise the switch is defect.</li> <li>2. Turn SA100 to left position(demagnetizing), check terminal "C1" and "-", "C2" and "DE". all of them must be in short circuit(<math>0\Omega</math>), otherwise the</li> </ol>

			switch is defect. 3. Repair or replace with new switch
		The electro magnetic chuck is defective.	1. Check 2 wires of the chuck, it must be in short circuit “OΩ”. If not, it indicates the chuck is broken. Please repair it. 2. Check each wire with chuck body (earth), it must be $\infty \Omega$ . Otherwise, it means the “insulation” is bad; dry the coil and improve its insulation.

### C. Machines with AD1 or CE mark

No.	Defects	Causes	Remedy
C-1	<b>Rapid and auto cross-feed are not functioning.</b>	1) SA31 doesn't switch on to the right side.	Please switch it to the right position.
		2) SB31&SB32, SA31 switches are defective or wires loose.	Fix wires well or replace new switch.
		3) MCU (motor control unit) is not working. Or fuse of MCU is defective. (no power is delivered because fuse is broken).	Check the terminal block as following: 1. Short 75 and 76 by a wire. 2. Turn SA3 to either the right side or the left one and stay in that position. (not let it turn back) 3. Check whether the voltage of 73 and 74 is around $220V \pm 10\%$ or not ; if not, it indicates that the MCU is out of order.
		4) Limit Switch LS1 or LS2 for max stroke safety control is defective or being pressed.	Check LS1 and LS2 throughout or replace with new switches.
		5) PL-4NP (NPN) Proximity switch is too loose to engage directional cam or LS5 is not working.	Fix it well or replace a new one.
		6) The clamping plates for saddle are not taken off.	Please take off the clamping plates.

<b>C-2</b>	<b>Automatic cross feed does not reverse and runs to one direction ONLY.</b>	1) Limit Switch LS3 and LS4 are not working or the trip dog is too loose to control LS3 and LS4.	Fix trip dog or change to a new limit switch.
		2) Magnetic contactor for cross feed motor is not functioning.	Check contactor wires to make sure the switch is working; if not, please change to a new switch.
<b>C-3</b>	<b>Magnetizing doesn't work</b>	Fuse of chuck-control is burnt.	Change a new fuse.
		Fuse on TR1 is broken	Replace with a new one.
		Transformer TR1 is defect	<ol style="list-style-type: none"> <li>1. Check TR1 primary coil: take off wires from terminals a.b. if resistance show <math>\infty\Omega</math>, it means the coil is broken.</li> <li>2. Check TR1 secondary coil: same as above, if resistance between c.d. is <math>\infty\Omega</math>, the coil is broken.</li> <li>3. Any coil broken, TR1 must be replaced with new one.</li> </ol>
		Switch SA100 is defective	<ol style="list-style-type: none"> <li>1. Turn SA100 to right position(magnetizing), check terminals "C1" with "+", "C2" and "-", all of them must be in short circuit(<math>0\Omega</math>), otherwise the switch is defect.</li> <li>2. Turn SA100 to left position(demagnetizing), check terminal "C1" and "-", "C2" and "DE". all of them must be in short circuit(<math>0\Omega</math>), otherwise the</li> </ol>

			switch is defect. 3. Repair or replace with new switch
		The electro magnetic chuck is defective.	1. Check 2 wires of the chuck, it must be in short circuit “ $0\Omega$ ”. If not, it indicates the chuck is broken. Please repair it. 2. Check each wire with chuck body (earth), it must be $\infty \Omega$ . Otherwise, it means the “insulation” is bad; dry the coil and improve its insulation.

### 【III】 Hydraulic-related defects, Causes and Remedy

No.	Defects	Checkup	Remedy
3-1	<b>Hydraulic motor is not working</b>	1) Wire lose of hydraulic motor switch	Check the wire or change the motor switch.
		2) Magnetic switch/overload relay of pump motor are not working properly.	Check the connecting wires or change the whole set of magnetic switch.
3-2	<b>Table longitudinal movement is slowing down.</b>	<b>1) Check lubrication oil on the slideways</b> a. Lubricant outlet on the slideways or lubrication controlled switch is blocked. b. Not enough lubrication oil in the oil tank. c. Lubrication pump is in proper pressure of 3-4 bar (3~5kgf/cm <sup>2</sup> ). d. Filter inside the lubrication oil tank is blocked.	a. Clean up b. Add Mobil #2 or its equivalent as recommended. c. Adjust to proper pressure d. Clean the oil tank and add new oil
		<b>2) Move the table to the extremely end, turn on the flow control lever at full speed to see that the pressure indicator should stand still.</b> a. The pressure gauge indicator 'downward'	a. Replace the O-ring/seals of the cylinders.

		<p>movement which means the leakage inside the cylinders.</p> <p>b. Using a 5-mm hex key to adjust the pressure of the relief valve in clockwise direction to see if the pressure gauge indicator can be upward movement or it stands still without moving.</p>	<p>b. Should it stand still without moving which means the relief valve was broken. Please change the new one.</p>
		<p><b>3) Inside hydraulic tank.</b></p> <p>a. The color of hydraulic oil is creamy white.</p> <p>b. Abnormal noise from the pump.</p> <p>c. Filter block up.</p> <p>d. Not enough oil.</p>	<p>a. Change the hydraulic oil.</p> <p>b. Change the pump.</p> <p>c. Clean the oil tank and filter, then change the hydraulic oil.</p> <p>d. Add the oil till the upper limit.</p>



3-3	<b>The transverse movement of the table is vibrating or not stable.</b>	<p>a. The loose or bent of the cylinder.</p> <p>b. Not enough oil.</p> <p>c. The color of hydraulic oil is creamy white.</p> <p>d. Abnormal rotation speed of the motor.</p> <p>e. Abnormal noise from the pump.</p> <p>f. No lubrication oil on the slideways.</p>	<p>a. Re-adjust the parallelism of the cylinder. Or replace with new one if it is bent.</p> <p>b. Add the new oil till the upper limit.</p> <p>c. Change the new hydraulic oil.</p> <p>d. Change a new motor.</p> <p>e. Change a new pump.</p> <p>f. Examine it following the above 3-2.</p>
3-4	<b>The table can not reverse and runs to one side</b>	<p>a. Directional control arm is loose.</p> <p>b. The trip dogs (T1, T2) are loose.</p> <p>c. Unknown body blocks up inside the cylinder.</p> <p>d. Hydraulic oil:</p> <p>1) Brands.</p> <p>2) Not enough oil.</p> <p>3) Inferior oil.</p>	<p>a. Adjust directional control arm following inside manual.</p> <p>b. Tighten the trip dog at the proper position.</p> <p>c. Cleaning the unknown body inside the cylinder tank.</p> <p>- Use the recommended brands.</p> <p>- Add the oil till the upper limit.</p> <p>- Change new hydraulic oil and clean the internal and filter of the oil tank.</p>