



CX111

14" SLOW SPEED COLD SAW

User Manual

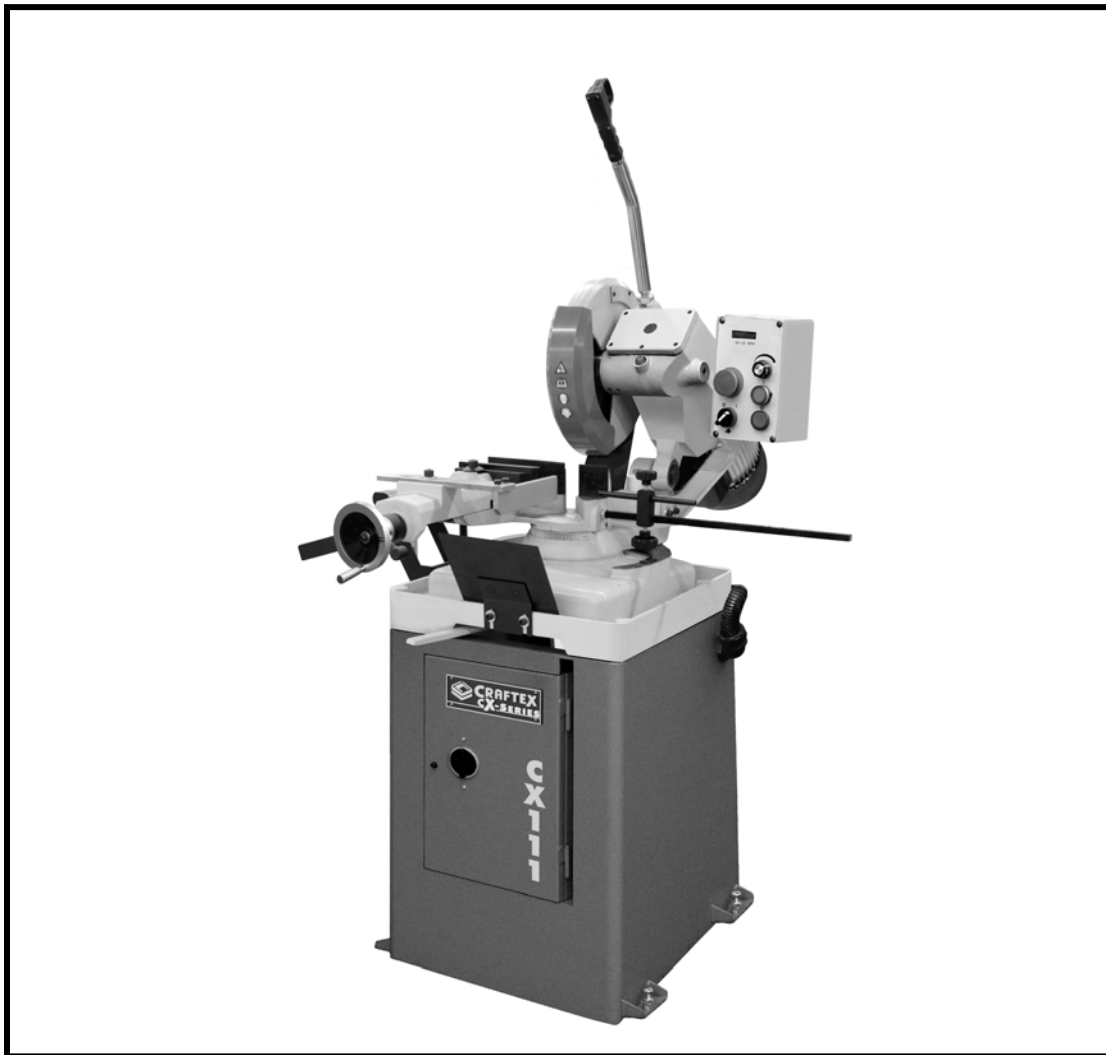


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SAFETY INSTRUCTIONS

Extreme caution should be used when operating all power tools. Know your power tool, be familiar with its operation, read through the owner's manual and practice safe usage procedures at all times.

- ✦ Always read and understand the user manual before operating the machine.
- ✦ Connect your machine only to the matched and specific power source.
- ✦ Always wear safety glasses when operating your machine.
- ✦ This machine is designed to cut metal construction materials of different shapes and profiles. The materials may be required for fabrication workshops, machinist shops, and general construction work.
- ✦ To obtain good running-in of the machine it is advisable to start using it at intervals of about half an hour. This operation should be repeated two or three times, after which the machine may be used continuously.
- ✦ Disconnect the power source when changing blade and / or making adjustments.
- ✦ Always check that the work-piece is securely clamped and that long pieces are suitably supported.
- ✦ All operations must be performed with the guards in place to ensure safety.
- ✦ Immediately release the start/run/trigger button if the blade should get stuck in a cut. Switch off the machine before raising the machine head. Then open the vise and remove the work-piece. Lastly, check the blade teeth for any damage. If any of the teeth are broken, replace the saw blade.
- ✦ Always make sure that any tools used for adjustments are removed before operating the machine.
- ✦ Make sure you have read and understood all the safety instructions in the manual and you are familiar with your CX111, before operating it. Failure to do so, could result serious personal injuries and damage to the machine.

WARNING!

The safety instructions given above can not be complete because the environment in every shop is different. Always consider safety first as it applies to your individual working conditions.



CX111 COLD SAW FEATURES

MODEL CX111 - 14" SLOW SPEED COLD SAW

As part of the growing line of Craftex CX-Series machineries, we are proud to offer the CX111 a 14" Slow Speed Cold Saw. By following the instructions and procedures laid out in this user manual, you will receive years of excellent service and satisfaction. The CX111 is a professional tool and like all power tools, proper care and safety procedures should be adhered to.

- Motor3 HP, 220 Volt, 4 Pole
- Coolant Pump1/8 HP
- Coolant Tank Size.....5 Liter
- Spindle Speed.....24~120 RPM
- Maximum Vise Opening.....4.7" (170mm)
- Saw Blade.....H.S.S 14" Diameter

CUTTING CAPACITIES AT 0°

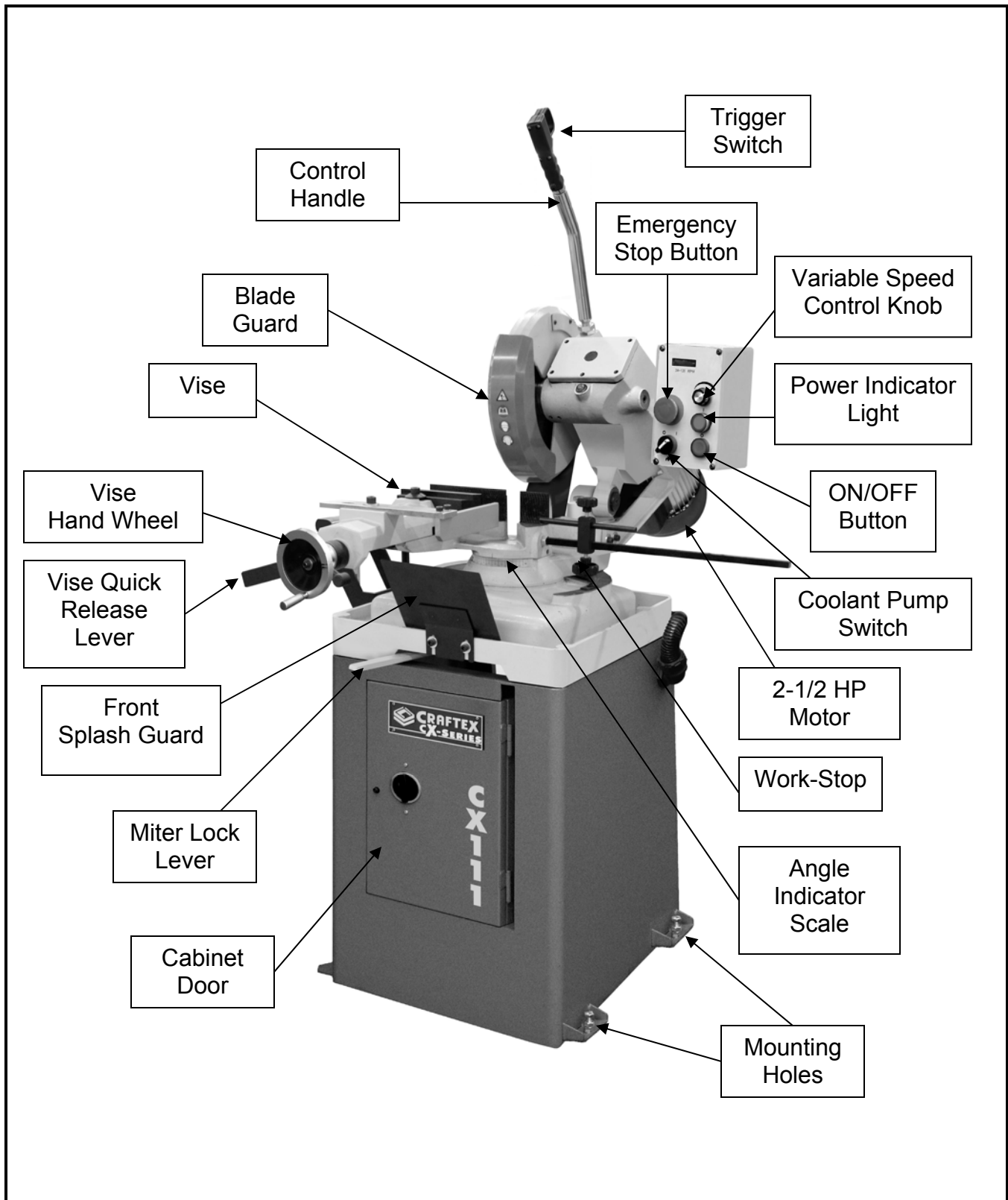
- Solid3.5" (85mm)
- Hollow4.7" (120mm)
- Square4" x 4" (105mm x 105mm)
- Rectangle.....6.3" x 3.5" (160mm x 90mm)

CUTTING CAPACITIES AT 45°

- Solid3" (75mm)
 - Hollow4" (100mm)
 - Square3.5" x 3.5" (85mm x 85mm)
 - Rectangle.....3.5" x 2.8" (85mm x 90mm)
-
- Dimensions47" Length x 39" Width x 68" Height
 - Approximate Weight.....250 Kg with Stand
 - Made inTaiwan
 - Warranty3 Years

CX111 - 14" SLOW SPEED COLD SAW

PHYSICAL FEATURES



UNPACKING

The machine is properly packaged in a crate for safe transportation. When unpacking, carefully inspect the crate and ensure that nothing has been damaged during transit.

While doing the inventory if you can not find any part, check if the part is already installed on the machine.

The CX111 is a very heavy machine. Use a forklift truck or other mechanical devices when transporting the machine.

SETUP

When setting up your machine, you will want to find an ideal spot where your cold saw will most likely be positioned most of the time.

Consider your complete work environment before placing your machine in the ideal spot.

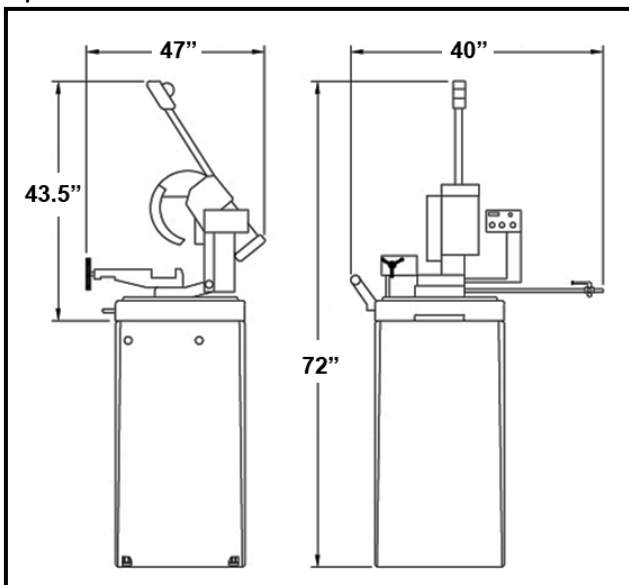


Figure-1 dimensions

MOUNTING

The CX111 cabinet stand comes with four mounting holes that allow you to mount the machine to the shop floor.

Lag shield anchors with lag bolts and studs are two popular methods for anchoring an object to a concrete floor.

To mount the machine:

Once the stand is completely assembled, position it in the desired location.

Mark the floor through the four holes on the stand and move the stand away.

Drill holes on the floor and install the mounting hardware into the floor using the method that best fits your specific application.

Place the stand over mounting hardware and secure it.

PROPER GROUNDING

Grounding provides a path of least resistance for electric current to reduce the risk of electric shock.

The machine should be wired by a qualified electrician according to C.E.C (Canadian Electrician Code).

WARNING!

Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded.

It is strongly recommended not to use extension cords with your CX111. Always try to position your machine close to the power source so that you do not need to use extension cords.

If you really find it necessary to use an extension cord, make sure the extension cord does not exceed 50-feet in length and the cord is 14-gauge to prevent motor damage.

ASSEMBLY

Follow the instructions below, to assemble your CX111:

Take the accessories and coolant tank out of the stand and set aside for later use.

Place the stand on the floor where you want to place your machine. Use lifting straps and position it around the collar of the moveable jaw and motor as shown in figure-2.

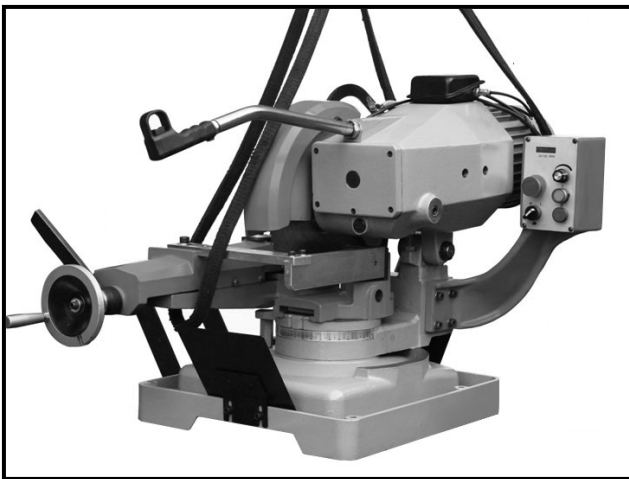


Figure-2 Lifting straps around the motor and the jaw of the

Once the lifting straps are properly positioned around the machine and the forks of the fork truck, lift the machine.

Align the four setscrews on the base of the machine with the four holes on the stand and lower the machine onto the stand.

Direct the setscrews into the holes and position the machine onto the stand. See figure-3.

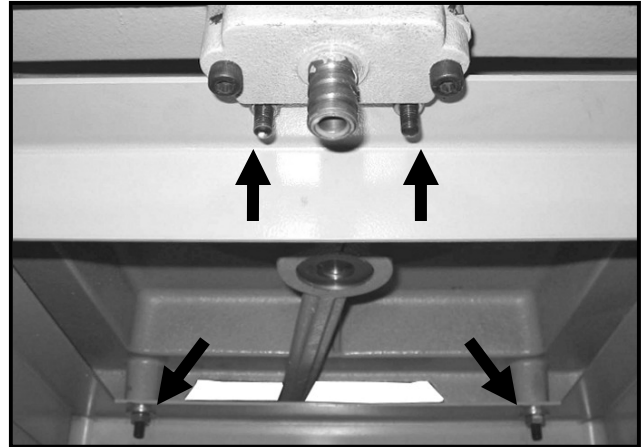


Figure-3 Securing the machine onto the stand

Attach the coolant tank bracket to the inside of the stand and secure it using screws and washers provided. See figure-4.



Figure-4 Installing the coolant tank bracket

Use a wrench and remove the hex head screw from the oil fill hole shown in figure-5.

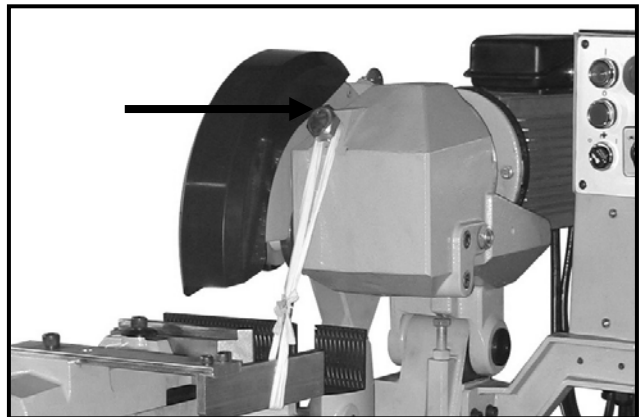


Figure-5 Removing the screw from the oil fill hole

Attach the control handle to the head assembly by threading its threaded end into the oil fill hole until it is a tight fit. Make sure that the trigger switch pointing upwards as shown in figure-6.

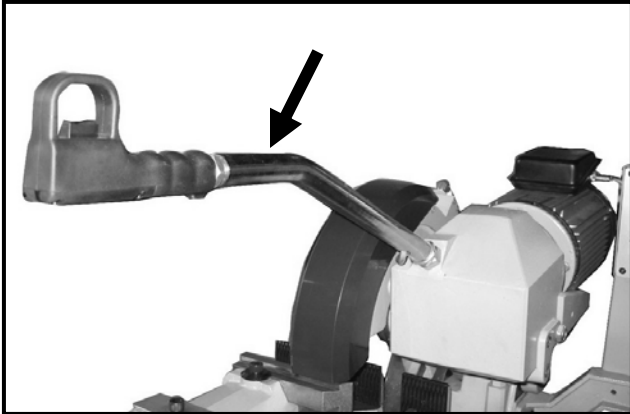


Figure-6 Installing the control handle

Locate the open socket at the side of the electrical box on the top of the motor and plug in the control handle cable into the open socket. Use a wrench to tighten the cable connector nut. See figure-7.

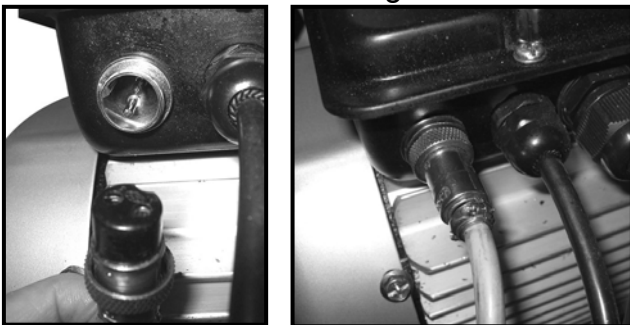


Figure-7 Connecting the cable to the socket

Attach the support roller to the left side of the base and align the two holes on the support roller with the two holes on the base of the machine. Secure the support roller using screws and washers, do not fully tighten the screws at this time.

Place a level across the mouth of the vise and support roller and raise or lower the support roller until it is level.

Once the support roller is level with the mouth of the vise, tighten the screws to secure the support roller in position. See figure-8.

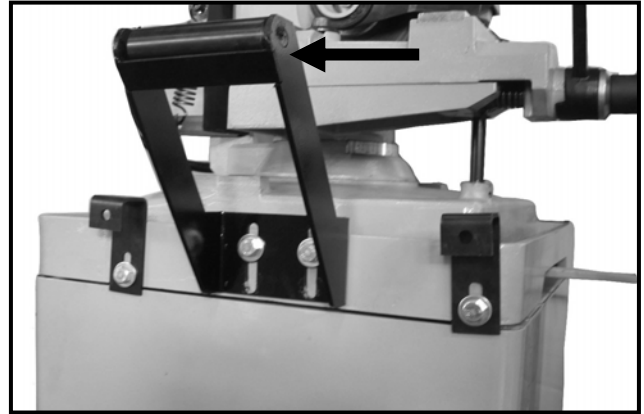


Figure-8 Support roller

Insert the threaded end of the stop bar into the hole on the side of the vise and turn it clockwise until snug. Secure the stop bar by tightening the hex nut counter-clockwise onto the stop bar.

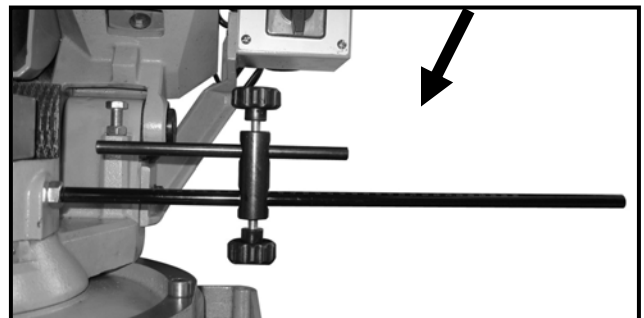


Figure-9 Installing the stop bar

Attach the coolant pump into the coolant tank and secure it using screws and washers provided.

Connect the flow tube to the coolant pump and secure it using a hose clamp provided. Use a flat head screw driver to tighten the screw on the hose clamp.



Figure-10 Coolant pump

Place the coolant pump with the coolant tank inside the stand onto the coolant tank bracket. The coolant tank has a divider which holds the tank.

Attach one end of the drain hose onto the hose connector, underside of the machine base and the other end into the coolant tank. See figure-11.



Figure-11 Coolant tank inside the stand

Install the rear stand cover and secure it using washers and screws provided.

Attach the splash guard to the front side of the machine and secure it using screws and washers provided. See figure-12.

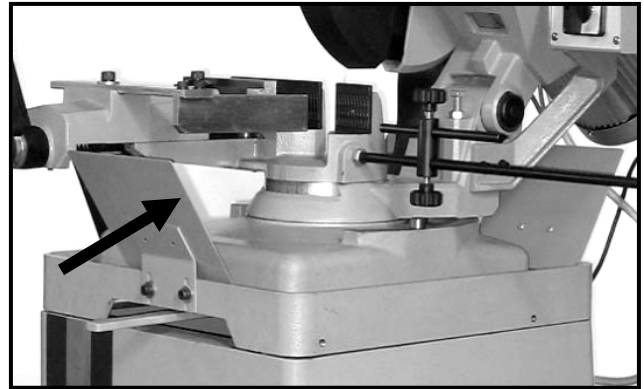


Figure-12 Installing the splash guard

Attach the longer splash guard to the rear of the machine as shown in figure-13. You do not need to secure this splash guard to the machine with the screws to allow free movement or convenient removal.

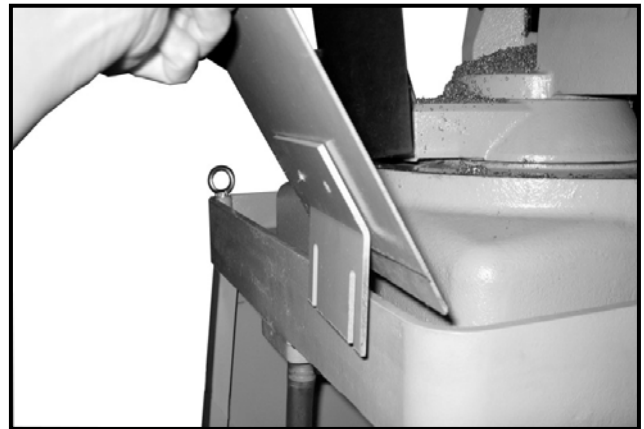


Figure-13 Installing the rear splash guard

WARNING!

Make sure the power cord is disconnected from the power source before making any adjustments to the machine.

TEST RUN

Once the machine is completely assembled, test run your machine to make sure it runs properly.

To test run the machine:

Make sure you have read and understood the instructions given in this user manual and the machine is set up properly.

Make sure that there is oil in the machine. See page-16 for details.

Make sure all the tools and objects used during assembly are removed from the machine.

Connect the cord to the power source and turn the machine ON.

The machine should run smoothly with little or no vibration.

If there is unusual noise or excessive vibration on the machine, shut off the machine immediately. Investigate and correct it before operating the machine. See page-17 for TROUBLESHOOTING.

Turn OFF the machine.

BASIC CONTROLS

The basic controls of the CX111 are described below. Use the following figures and description to get familiar with your saw.

ON/OFF SWITCH

Turns the machine power to the machine ON/OFF.

POWER INDICATOR LIGHT

Glows green when machine is turned ON.

VARIABLE SPEED KNOB

Controls the speed of the saw

COOLANT PUMP SWITCH

Turns the coolant pump ON/OFF.

EMERGENCY STOP BUTTON

Shuts off the machine incase of emergency

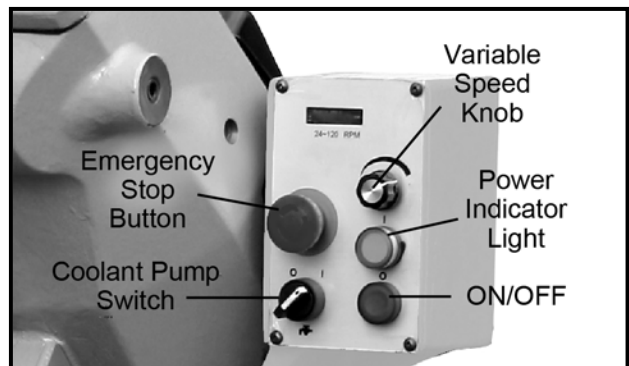


Figure-14 Control panel

TRIGGER SWITCH

Turns the motor ON, spinning the blade and activating the coolant pump.

MITER LOCK LEVER

Releases or locks the head in position for angled cuts.

WORK-STOP

Allows to set a particular distance from the blade, producing multiple same length cuts.

WISE HAND WHEEL

Opens and closes the vise jaw to clamp the work-piece.

WISE QUICK RELEASE LEVER

Quickly opens and closes the vise jaws for repetitive clamping procedure.

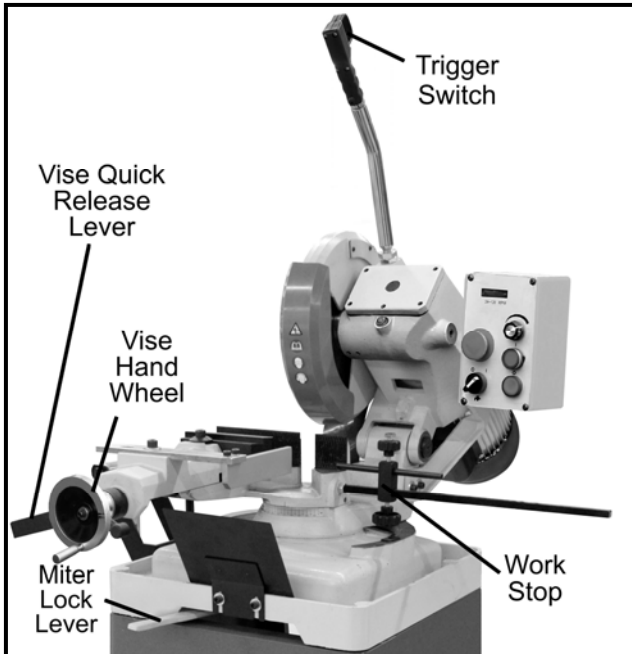


Figure-15 saw and vise controls

CUTTING ANGLE

To set the cutting angle:

Make sure the cord is disconnected from the power source.

Move the miter lock lever to the left releasing the saw pivot.

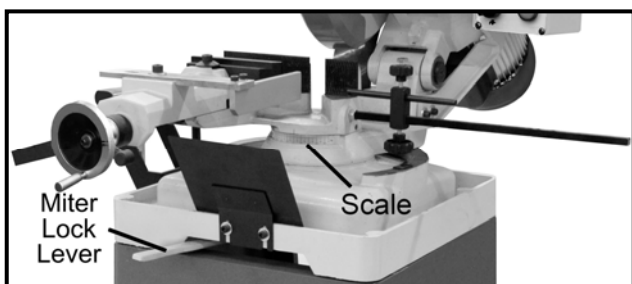


Figure-16 Miter lock lever

Rotate the saw to the desired angle, using the scale as guide shown in figure-16. Lock the head in position by moving the miter lock lever to the right.

Now, lower the blade and test the clearance. Make sure the blade is not touching the jaws of the vise when lowered. If the blade touches the jaws of the vise, adjust the vise so that the blade does not come in contact with the jaws of the vise.

WISE

The vise on CX111 can be adjusted, providing maximum support in different angles. It also features an auxiliary stability bracket for additional support during cutting operation.

WARNING!

Make sure to check the vise jaws for blade clearance before starting to cut. Failure to do so could cause the blade to come in contact with the jaws during operation and result in damage to the blade.

WISE JAW ADJUSTMENT

To adjust the vise:

Disconnect the cord from the power source.

Set the angle of cut by shifting the miter lock lever to the left and rotating the saw to the desired angle.

Lower the saw all the way to check for blade clearance.

If the saw blade lowers all the way without hitting the vise jaws or stability bracket, no adjustment is needed.

If the saw blade hits the vise jaw or the stability bracket, you will to adjust the vise.

Loosen the screw securing the jaw. See figure-17.

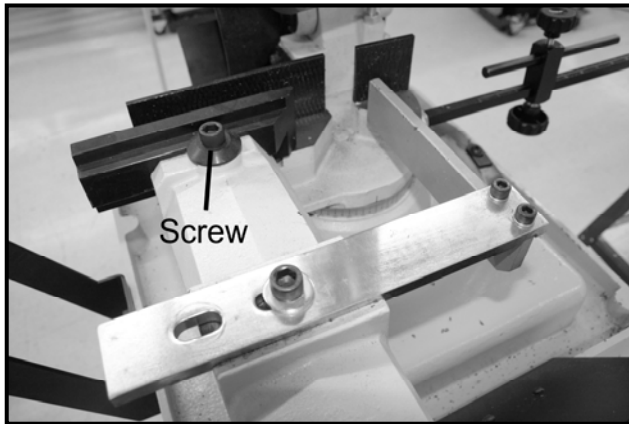


Figure-17 Sliding the jaw

Now, slide the jaw so that it is not touching the blade when the blade is lowered.

Retighten the screw to secure the jaw in place.

STABILITY BRACKET ADJUSTMENT

The stability bracket can be placed in two positions and can also be removed depending on the angle of cut.

To move the stability bracket:

Make sure the cord is disconnected from the power source.

Remove the screw securing the stability bracket and reinstall it in the position so that it does not come in contact with the blade when lowered.

Sometimes you will have to remove the stability bracket depending on the angle of cut.

WISE QUICK RELEASE LEVER

The vise on the is equipped with a quick release lever which allows releasing, repositioning and quickly re-clamping very easy.

To use the quick release lever:

Disconnect the cord from the power source.

Rotate the quick release lever to the upward position.



Figure-18 Quick release lever

Open the vise jaw wide enough and place the work-piece between the jaws.

Close the jaw within 1/8" of the work-piece.

Rotate the quick release lever counter-clockwise to secure the work-piece between the jaws.

Between cuts, rotate the lever clockwise to release the work-piece, reposition the work-piece and rotate the lever counter-clockwise to secure it again.

WORK-STOP

The is equipped with a work-stop which allows performing consistent length cuts.

To use the work-stop:

Disconnect the cord from the power source.

Loosen the lock knob securing the work-stop onto the rod and slide the work-stop to the desired position on the rod.

Tighten the lock knob. See figure-19.

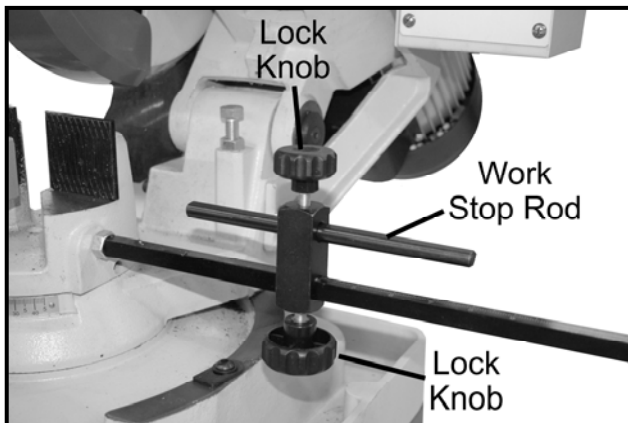


Figure-19 Adjusting the work-stop

Loosen the lock knob on the top of the work-stop and slide the work-stop rod in or out to the desired position.

Lower the blade and measure the distance between the end of the work-stop rod and the blade.

Adjust the work-stop rod until the distance between the end of the work-stop rod and the blade is equals to the desired length you want to cut on the work-piece.

Retighten the lock knob from the top and secure the work-stop rod in position.

Before making any cuts, slide the work-piece until it is against the work-stop-rod.

BLADE CHANGE

To replace the saw blade:

Disconnect the cord from the power source.

Remove the cap screw securing the blade guard. See figure-20.

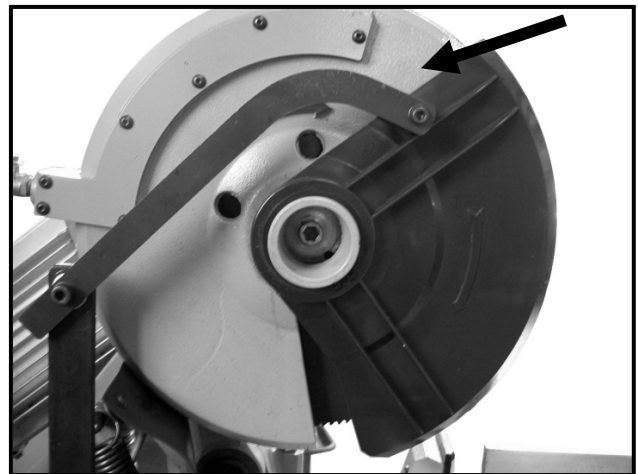


Figure-20 Removing the blade guard

Rotate the blade guard and the linkage out of the way.

Remove the arbor cap screw and remove the blade flange.

Place the blade flange on the new blade.

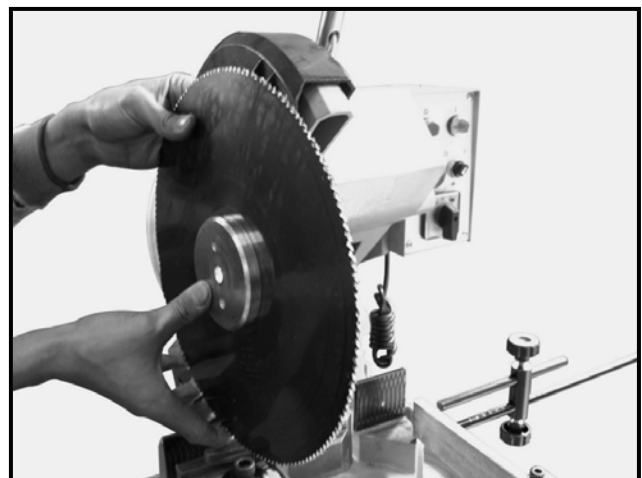


Figure-21 Replacing the blade

Place the new blade with the flange on the arbor and secure it with by tightening the cap screw.

Lower the blade guide and reconnect the blade guard, securing it with the cap screw.

WARNING!

The used cutting fluid presents hazard. Make sure to use personal protection when handling it.

CUTTING FLUID

To access and clean/fill the coolant tank:

Disconnect the cord from the power source.

Remove the rear stand cover to access the coolant tank.

Wear protective glasses equipments.

Remove the drain hose from the filter and take the coolant tank out of the cabinet.

Drain and dispose the cutting fluid following government approved disposal regulations for your area.

Use a rag to wipe out residual fluid.

Clean the cutting fluid screens in the machine base and the tank.

Wash out the dirt and debris from the filter.

Fill the tank with coolant solution 1:10 ration of coolant to water.

Replace the coolant tank in reverse order of removal.

OPERATION

Once you have read and understood the instructions given in this manual and you are familiar with the basic controls on your CX111, follow the instructions below for safe and efficient cuts.

Disconnect the cord from the power source.

Adjust the cutting angle.

Adjust the work-stop, if required for the operation being performed.

Adjust the vise and clamp the work-piece properly.

Check to make sure there is cutting fluid in the reservoir and the open the fluid valve behind the blade.

Make sure the saw is in the upright position.

Connect the cord to the power source.

Push the ON/OFF button to turn the saw ON and turn the coolant pump switch to the right to turn ON the coolant pump.

Press the trigger switch to start the blade. Once you see the cutting fluid on the blade, lower the saw to cut the work-piece.

Do not force the saw to complete the cut. Lower the saw slowly into the work-piece.

Once the cut is complete, raise the saw, release the trigger.

Let the blade come to a complete stop before proceeding.

MAINTENANCE

During the life of your machine, you will need to practice some regular maintenance to keep your lathe in peak performance condition.

Check your machine daily for the following before use:

- ✓ Loose mounting nuts and bolts
- ✓ Worn or damaged cord
- ✓ Cutting fluid level
- ✓ Blade damage
- ✓ Proper function of the blade guard
- ✓ Damaged parts
- ✓ Any other unsafe condition

CLEANING

Treat the machine with care, keep it clean and grease and lubricate it regularly. Only through good care you can be sure that the working quality of the machine will remain constant.

Oil, grease and cleaning agents are pollutants and must not be disposed off through the drains or in normal garbage. Dispose of those agents in accordance with current local environmental regulations. Cleaning rags impregnated with oil, grease and cleaning wool in a suitable closed vessel and disposed of in an environmentally sound way. Do not put them with normal garbage.

Vacuum excess metal chips and wipe off the remaining debris and cutting fluid with a dry cloth.

LUBRICATION

Disconnect the cord from the power source.

Clean the vise lead screw using a rag.

Apply multipurpose grease to the vise lead screw and distribute it by opening the closing the vise several times.

GEARBOX OIL

With regular use, the oil in the gearbox must be drained and replaced every six months.

To change the gearbox oil:

Disconnect the cord from the power source.

Raise the saw all the way up.

Remove the oil sight glass (B) shown in figure-22 and lower the saw forward allowing all the oil to drain out.

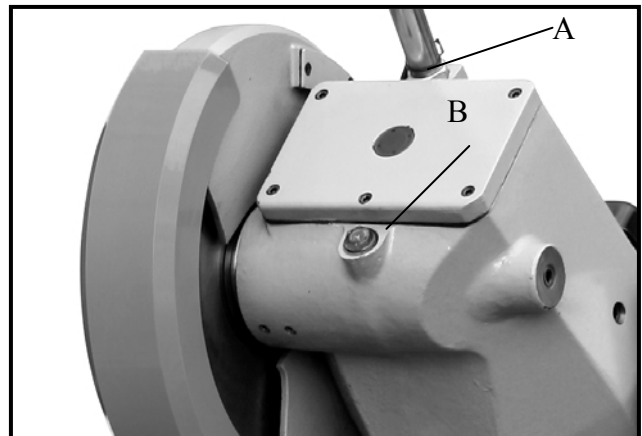


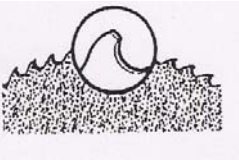
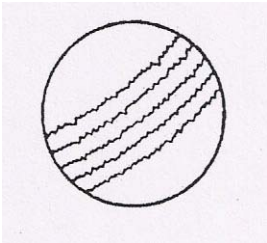
Figure-22 Oil fill / drain plug location

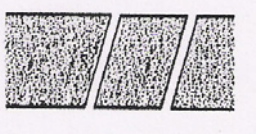
Raise the saw back all the way up and remove the control handle (A).

Pour in new oil from the fill plug (A) and reinstall the control handle.

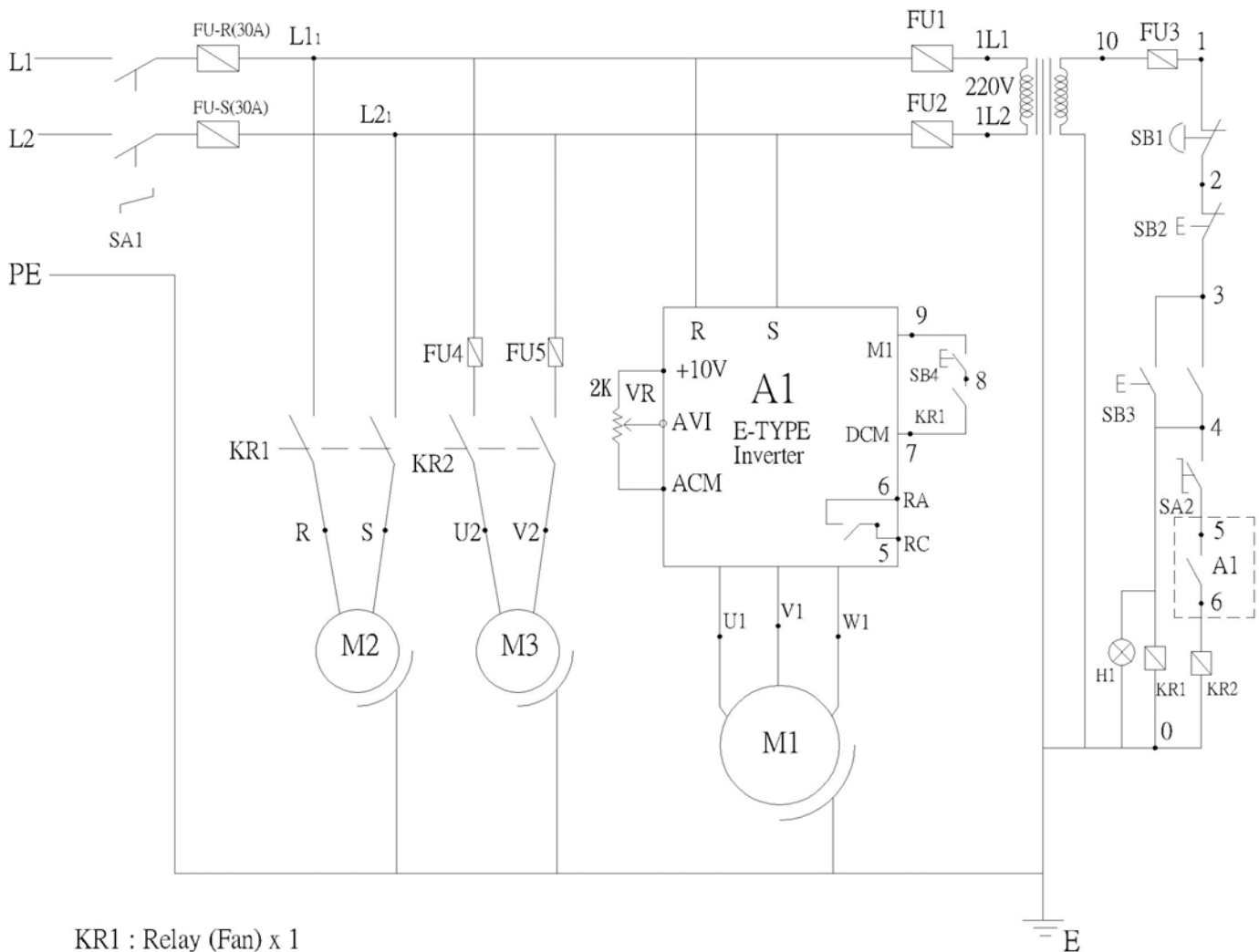
TROUBLESHOOTING

FAULT	CAUSE	REMEDY
TOOTH BREAKAGE	<p>Too fast advance</p> <p>Wrong cutting speed</p> <p>Wrong tooth pitch</p> <p>Low quality disk</p> <p>Ineffective gripping of the part in the vise.</p> <p>Previously broken tooth left in the cut.</p> <p>Cutting resumed on a groove made previously.</p> <p>Insufficient lubricating refrigerant or wrong emulsion.</p> <p>Sticky accumulation of material on the disk.</p>	<p>Decrease advance, exerting less cutting pressure.</p> <p>Change disk speed and/or diameter. See chapter “ Material classification and choice of disks” and the Table of cutting speed s according to disk diameter.</p> <p>Choose a suitable disk.</p> <p>See chapter “ Material classification and choice of disks”.</p> <p>Use a better quality disk.</p> <p>Check the gripping of the part.</p> <p>Accurately remove all the parts left in. Make the cut elsewhere, turning the part.</p> <p>Check the level of the liquid in the tank.</p> <p>Increase the flow of lubricating refrigerant, checking that the hole and the liquid outlet pipe are not blocked.</p> <p>Check the blend of lubricating coolant and choose a better quality disk.</p>
PREMATURE DISK WEAR	<p>Wrong running in of the disk .</p> <p>Wrong cutting speed.</p> <p>Unsuitable tooth profile.</p> <p>Wrong tooth pitch.</p> <p>Low quality disk.</p> <p>Insufficient lubricating refrigerant.</p>	<p>See chapter “ Material classification and choice of disks” in the paragraph on Running in the disk.</p> <p>Change disk speed and / or diameter. See Chapter “ Material classification and choice of disks” and the Table of cutting speeds according to disk diameter.</p> <p>Choose a suitable disk. See Chapter “ Material classification and choice of disks” in the paragraph on Type of disks.</p> <p>Choose a suitable disk.</p> <p>See Chapter “ Material classification and choice of disks”.</p> <p>Use a better quality disk.</p> <p>Check the level of the liquid in the tank.</p> <p>Increase the flow of lubricating refrigerant, checking that the hole and the liquid outlet pipe are not blocked.</p>

FAULT	CAUSE	REMEDY
<p>CHIPPED DISK</p> 	<p>Hardness, shape or flaws in the material (oxides, inclusions, lack of homogeneity, etc...) Wrong cutting speed.</p> <p>Wrong tooth pitch.</p> <p>Vibrations Disk incorrectly sharpened. Low quality disk.</p> <p>Incorrect emulsion of the lubricating Refrigerant.</p>	<p>Reduce the cutting pressure and/or the advance.</p> <p>Change disk speed and/or diameter. See Chapter "Material classification and choice of disks" and the Table of cutting speeds according to disk diameter. Choose a suitable disk. See Chapter "Material classification and choice of disks". Check gripping of the part. Replace the disk with one that is more suitable and correctly sharpened. Use a better quality disk. Check the percentage of water and oil in the emulsion.</p>
<p>DISK VIBRATION</p>	<p>Wrong tooth pitch.</p> <p>Unsuitable tooth profile.</p> <p>Ineffective gripping of the part in the vise.</p> <p>Dimensions of the solid section too large with respect to the maximum admissible cutting dimensions. Disk diameter incorrect and/or too large.</p>	<p>Choose a suitable disk. See Chapter "Material classification and choice of disks". Choose a suitable disk. See Chapter "Material classification and choice of disks" in the paragraph on Type of disks. Check the gripping of the part.</p> <p>Abide by the instructions.</p> <p>Decrease the disk diameter, adapting it to the dimensions of the part to be cut, the cutting part of the disk must not be too large for the shape of the part to be cut.</p>
<p>RIDGES ON THE CUTTING SURFACE</p> 	<p>Disk diameter incorrect and/ or too large.</p> <p>Ineffective gripping of the part in the vise. Too fast advance.</p> <p>Disk teeth are worn. Insufficient lubricating refrigerant.</p> <p>Teeth do not unload shavings well.</p>	<p>Decrease the disk diameter, adapting it to the dimensions of the part to be cut, the cutting part of the disk must not be too large for the shape of the part to be cut. Check the gripping of the part.</p> <p>Decrease advance, exerting less cutting pressure. Sharpen the tool. Check the level of the liquid in the tank. Increase the flow of lubricating refrigerant, checking that the hole and the liquid outlet pipe are not blocked. Choose a blade with a larger tooth pitch that allows better unloading of shavings and that holds more lubricating refrigerant.</p>

FAULT	CAUSE	REMEDY
<p>CUT OFF THE STRAIGHT</p>	<p>Too fast advance.</p> <p>Ineffective gripping of the part in the vise.</p> <p>Disk head off the straight.</p> <p>Disk sides differently sharpened.</p> <p>Disk thinner than the commercial standard.</p> <p>Dirt on the gripping device.</p>	<p>Decrease advance, exerting less cutting pressure.</p> <p>Check the gripping of the part which may be moving sideways.</p> <p>Adjust the head.</p> <p>Choose tool quality carefully in every detail as regards type and construction characteristics.</p> <p>Carefully clean the laying and contact surfaces.</p>
<p>BLADE STICKS IN THE CUT</p> 	<p>Too fast advance.</p> <p>Low cutting speed.</p> <p>Wrong tooth pitch.</p> <p>Sticky accumulation of material on the disk.</p> <p>Insufficient lubricating refrigerant.</p>	<p>Decrease advance, exerting less cutting pressure.</p> <p>Increase speed.</p> <p>Choose a suitable disk.</p> <p>See Chapter "Material classification and choice of disks".</p> <p>Check the blend of lubricating coolant and choose a better quality disk.</p> <p>Check the level of the liquid in the tank.</p> <p>Increase the flow of lubricating refrigerant, checking that the hole and the liquid outlet pipe are not blocked.</p>

CX111 - WIRING DIAGRAM



- KR1 : Relay (Fan) x 1
- KR2 : Relay (Pump) x 1
- SA1 : Start Button x 1
- SB1 : Emergency Switch x 1
- SB2 : Stop Button x 1
- SB3 : Start Indicator x 1
- VR : Speed Controller x 1
- A1 : Inverter x 1
- M1 : Motor x 1
- M2 : Motor Fan x 1
- M3 : Pump Fan x 1

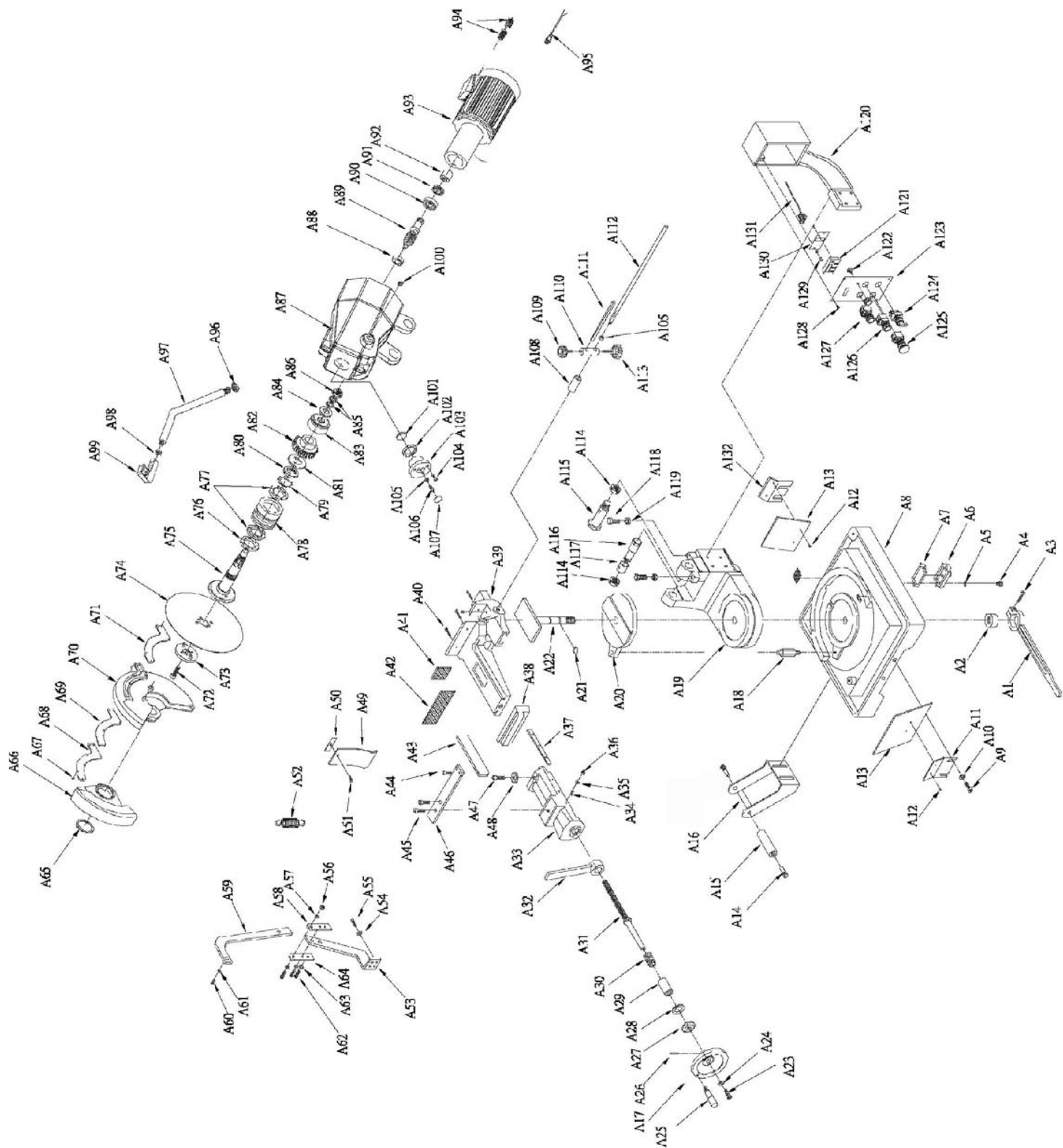
CX111 - CONTROL BOX PARTS LIST

ITEM NAME	DESCRIPTION & FUNCTION	TECHNICAL DATA	QUANTITY	REMARKS
FB	Fuse Base	380V/AC/DC 32A	2	CUS E300304 IEC 60947-3
FU-R	Fuses	10x38mm	1	
FU-S		250V 30A 250V 30A	1	
FB	Fuse Base	250V 6A	3	CE CUS UL CSA
FU1, FU2	Fuses	5x20mm	2	
FU3		250V 0.2A 250V 0.5A	1	
FB	Fuse Base	250V 6A	2	CE CUS UL CSA
T1 FU4	Fuses Base	5x20mm	1	
T2 FU5		250V 1A 250V 1A	1	
KR 1	Relay	250VAC 5A	1	CE CSA
KR 2			1	
A1 (VFD-E)	Variable speed AC Motor driver	230V 7A 2.2KW	1	CE CUS
TC	Transformer	35VA 230/24V	1	
SB1	Emergency Stop	250V 6A	1	CE CUS
SB2	Stop button	250V 6A	1	CE CUS
SB3	Start button		1	
SB4	Trigger switch	15A 1/2HP 125 250VAC 0.6A 125VDC 0.3A 250VDC	1	CE CUS
SA1	Main switch	16A440VAC	1	CE
SA2	Pump switch	250V	1	CE CUS
VR	Adjust-speed switch	5KΩ Max.	1	JIS
M1	Motor	220 V,230V/ (2.2kw) 3HP 3ph	1	
M2	Motor Fan (Ventilator)	220~240V 0.12 / 0.11A 380~400V 0.06 / 0.07A 415~460V 0.07 / 0.05A	1	IP55 CE
M3	Coolant pump	230V/1PH (0.09kw) 1/8HP	1	UL CSA

RECOMMENDED CUTTING PARAMETER

				Mild steel R=350-500 N/mm ²	Semi-hard steel R=500-700 N/mm ²	Hard steel R=750-950 N/mm ²	Extra-hare steel R=950-1000 N/mm ²	Hear-treated steel R=950-1300 N/mm ²	Austenitic stainless steel R=500-800 N/mm ²	Martensitic stainless Steel R=500-800 N/mm ²	Grey cast iron	Aluminium and alloys R=200-400 N/mm ²	Aluminium and alloys R=300-300 N/mm ²	Copper R=200-350 N/mm ²	Phosphor bronze R=400-600 N/mm ²	Hard bronze R=600-900 N/mm ²	Brass R=200-400 N/mm ²	Alloyed brass R=200-400 N/mm ²	Titanium and alloys R=300-800 N/mm ²	Tube and beams 0.05 D R=300-600 N/mm ²	Tubes and beams 0.025 D R=300-600 N/mm ²
CUTTING ANGLES		γ	20°	18°	15°	12°	10°	12°	15°	12°	22°	20°	20°	15°	12°	16°	12°	18°	18°	15°	
		α	8°	8°	8°	6°	6°	8°	6°	8°	10°	8°	10°	8°	8°	16°	16°	8°	8°	8°	
SECTION TO BE CUT (IN MM)	10-20	°T mm	5	4	4	3	2	4	4	4	6	5	6	5	4	5	5	4	3	2	
		Vt m/l'	50	30	20	15	9	20	20	25	1100	200	400	400	120	600	500	50	19	35	
		Av mm/l'	160	130	110	60	35	50	50	100	1800	400	600	800	160	1100	700	160	130	130	
	20-40	°T mm	7	6	6	4	3	6	6	6	8	7	8	7	8	6	7	4	4	3	
		Vt m/l'	45	30	20	15	9	19	19	23	1000	180	350	400	110	600	400	45	18	30	
		Av mm/l'	150	120	110	60	33	45	45	100	1700	400	600	700	150	1100	600	150	120	110	
	40-60	°T mm	10	9	8	6	4	8	8	8	12	10	11	10	8	10	10	6	5	4	
		Vt m/l'	45	25	18	14	9	18	18	22	900	160	300	350	100	550	350	45	18	30	
		Av mm/l'	140	110	100	50	30	45	45	90	1600	350	550	700	140	1000	600	140	110	110	
	60-90	°T mm	12	12	11	9	6	11	11	11	16	12	14	12	10	12	12	10	6	5	
		Vt m/l'	40	25	17	14	8	17	17	20	800	160	250	300	90	550	350	45	17	30	
		Av mm/l'	130	110	50	50	28	40	40	80	1400	300	550	600	130	900	500	130	110	110	
	90-110	°T mm	14	14	14	12	8	14	14	14	18	14	17	14	12	16	16	12	6	5	
		Vt m/l'	40	20	15	13	8	15	15	19	700	140	200	250	70	500	300	40	16	28	
		Av mm/l'	110	100	80	45	25	40	40	880	1300	300	500	600	110	900	500	110	100	100	
	110-130	°T mm	16	16	16	14	10	16	16	16	20	16	18	16	14	18	18	14	8	6	
		Vt m/l'	35	20	14	13	7	14	14	17	600	130	150	200	60	500	300	35	16	26	
		Av mm/l'	100	90	70	45	25	35	35	70	1100	250	500	500	100	800	400	100	90	90	
	130-150	°T mm	18	16	16	14	12	16	16	16	20	16	20	18	16	18	18	16	10	6	
		Vt m/l'	30	15	12	12	7	12	12	16	500	130	120	150	50	450	200	30	15	24	
		Av mm/l'	90	80	60	40	22	35	35	60	900	250	400	400	90	800	400	90	80	80	
RECOMMENDED LUBRICANTS			Emulsion – Cutting oil								Dry	Kerosene Dry	Emulsion		Cutting oil			Emulsion			

CX111 - PARTS DIAGRAM AND LIST



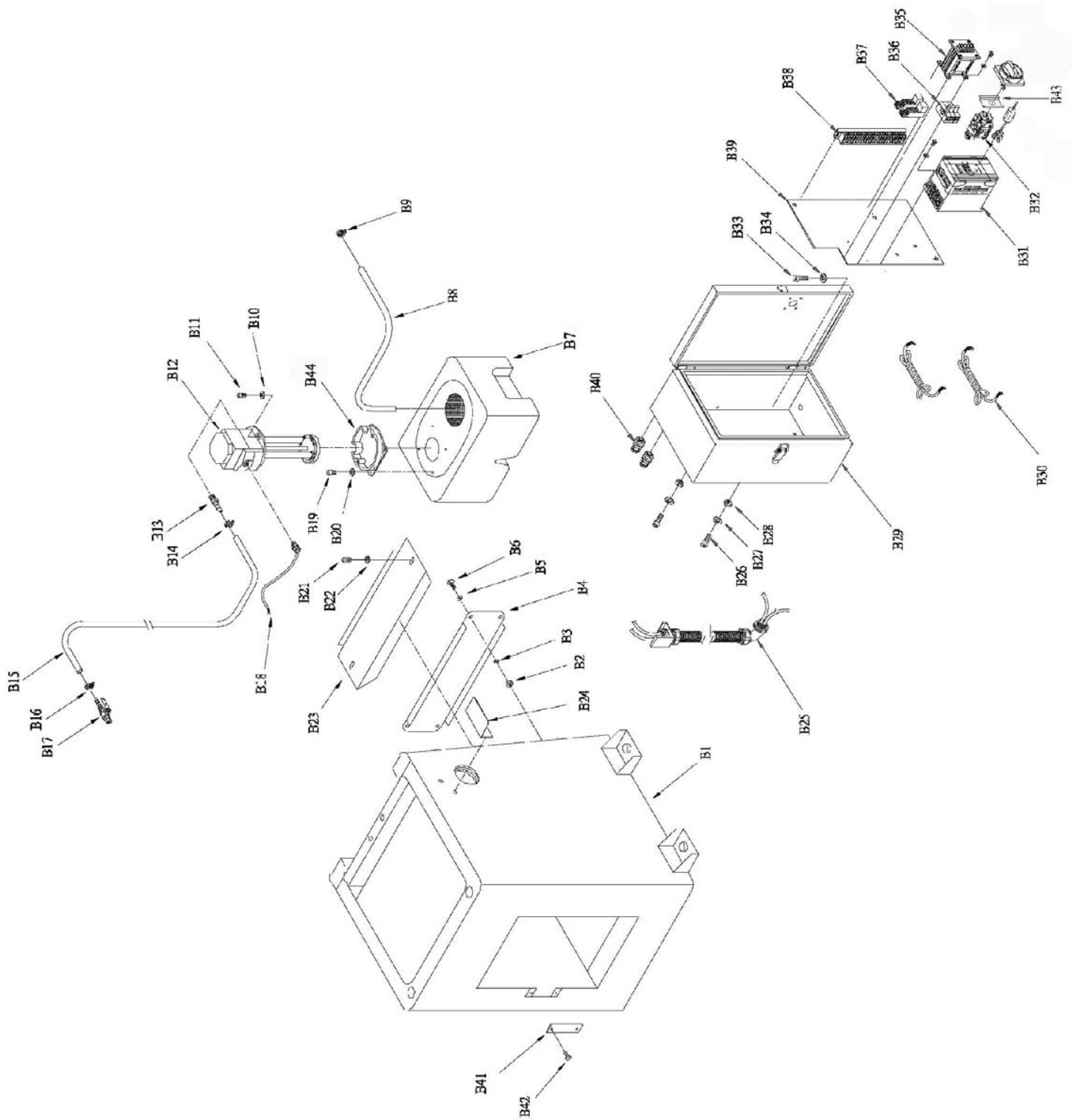
INDEX #	DESCRIPTION	SIZE	Q'TY
A1	Lock handle		1
A2	Lock Nut		1
A3	Hex socket cap screw		1
A4	Hex socket cap screw	M8x25	2
A5	Washer	5/16"	2
A6	Drainage		1
A7	Rubber		1
A8	Base		1
A9	Hex socket cap screw	M8x16	2
A10	Washer	5/16"	2
A11	Support plate		1
A12	Screw		2
A13	Anti-spray plate		2
A14	Hex head screw		2
A15	Roller		1
A16	Roller bracket		1
A17	Handle wheel		1
A18	Support rod		1
A19	Swing arm(base)		1
A20	Slide base		1
A21	C-clip		1
A22	Center shaft		1
A23	Hex socket cap screw	M8x20	1
A24	Washer	M10	1
A25	Grip		1
A26	Set screw		1
A27	Bearing cover		1
A28	Bearing		1
A29	Bushing		1
A30	Sping		1
A31	Leading screw		1
A32	Lock handle		1
A33	Slide vise		1
A34	Set screw		3
A35	Washer		3
A36	Nut		3
A37	Gib		1

A38	Vise clamp		1
A39	Vise bench		1
A40	Hex socket cap screw	M5x25	3
A41	Small grooved jaw		1
A42	Grooved jaw		1
A43	Stopper		1
A44	Hex socket cap screw	M8x20	2
A45	Hex socket cap screw	M8x25	2
A46	Plate (vise)		1
A47	Hex socket cap screw	M8x25	1
A48	Washer		1
A49	Anti-dust plate		1
A50	Holder plate		1
A51	Screw		1
A52	Spring		1
A53	Lower switching plate		1
A54	Washer		2
A55	Hex socket cap screw		2
A56	Nut		1
A57	Washer		1
A58	Joint plate w/thread		1
A59	Swing handle		1
A60	Hex socket cap screw	M6x12	1
A61	Washer	1/4"	1
A62	Hex socket cap screw	M8x20	3
A63	Washer	5/16"	2
A64	Joint plate		1
A65	C-clip		1
A66	Blade shield		1
A67	Screw	M5x10	7
A68	Plate (cover)		1
A69	Rubber		2
A70	Blade cover (casting)		1
A71	Plate (cover)		1
A72	Hex socket cap screw	M12x35	1
A73	Fixing flange		1
A74	Saw blade (optional)	350mm	1

A75	Spindle shaft		1
A76	Oil seal	50.72.8.	1
A77	Taper roller	32008	2
A78	Spindle sleeve		1
A79	Star washer		1
A80	Locking nut		1
A81	Spacer		1
A82	Worm gear		1
A83	Bushing		1
A84	Plate, stopper		1
A85	Disc spring washer		2
A86	Locking nut		1
A87	Machine head		1
A88	Ball bearing	6301	1
A89	Worm shaft		1
A90	Ball bearing	5305	1
A91	Oil seal	25x52x10	1
A92	Coupling		1
A93	Motor	3HP	1
A94	Wire relief		2
A95	Control wire		1
A96	Nut	M20	1
A97	Control handle rod		1
A98	Nut	M16	1
A99	Handle with trigger switch		1
A100	Oil pilot		1
A101	Gasket		1
A102	Oil ring	5x55	2
A103	Casting plug		1

A104	Hex socket cap screw	M6x20	3
A105	Nut	M10	1
A106	Set screw	M10x35	1
A107	Oil seal		1
A108	Bushing for length setting rod		1
A109	Lock bolt with knob	5x55	1
A110	Bracket, length setting		1
A111	Upper length setting rod		1
A112	Lower length setting rod		1
A113	Lock bolt with knob		1
A114	Locking nut		2
A115	Shaft (right)		1
A116	Shaft (left)		1
A117	Bushing		1
A118	Hex head screw		2
A119	Nut		2
A120	Control arm		1
A121	Digital display		1
A122	Speed control knob		1
A123	Control panel		1
A124	Pump selection switch		1
A125	Emergency switch		1
A126	Start button		1
A127	Stop button		1
A128	Screw		4
A129	Hex socket cap screw		2
A130	Support plate		1
A131	Transmission wire		1
A132	Support plate, rear		1

CX111 - STAND PARTS DIAGRAM AND LIST



INDEX #	DESCRIPTION	SIZE	Q'TY
B1	Stand,		1
B2	Nut	M6	4
B3	Washer	1/4"	4
B4	Suppot plate		1
B5	Washer	1/4"	4
B6	Hex cap screw	M6x15	4
B7	Coolant tank		1
B8	Hose		1
B9	Hose clamp		1
B10	Washer	1/4"	2
B11	Hex socket cap screw	M6x16	2
B12	Coolant pump		1
B13	Hose connector		1
B14	Hose clamp		1
B15	Hose	3/8"	1
B16	Hose clamp		1
B17	Valve		1
B18	Pump wire		1

B21	Hex cap screw	M6x15	2
B22	Washer	1/4"	2
B23	Suppot plate for tank		1
B24	Protector, plate		1
B25	Gooseneck tube		1
B26	Hex cap screw		4
B27	Washer		4
B28	Nut		4
B29	Electrical box		1
B30	Power cord		1
B31	Inverter		1
B32	Safety door switch		1
B33	Hex socket cap screw		2
B33	Washer		2
B35	Transformer		1
B36-FU-R,FU-S	Fuse	30A	2
B36-FU-RB, FU-SB	Fuse base	32A	2
B36-1,2	Fuse	0.2A	2
B36-3	Fuse	0.5A	1
B36-1B,2B	Fuse base	250V 6A	2
B36-3B	Fuse base	250V 6A	1
B36-T1,T2	Fuse	1A	2
B36-T1B,T2B	Fuse base	250V 6A	2
B37	Relay		2
B38	Terminal plate		1
B39	Circuit board		1
B40	Wire relief		2
B41	Screw		2
B42	Plate, cover		1
B43	Plate, supporter		1



WARRANTY

CRAFTEX 3 YEARS LIMITED WARRANTY

Craftex warrants every product to be free from defects in materials and agrees to correct such defects where applicable. This warranty covers **three years** for parts and 90 days for labour (unless specified otherwise), to the original purchaser from the date of purchase but does not apply to malfunctions arising directly or indirectly from misuse, abuse, improper installation or assembly, negligence, accidents, repairs or alterations or lack of maintenance.

Proof of purchase is necessary.

All warranty claims are subject to inspection of such products or part thereof and Craftex reserves the right to inspect any returned item before a refund or replacement may be issued.

This warranty shall not apply to consumable products such as blades, bits, belts, cutters, chisels, punches etceteras.

Craftex shall in no event be liable for injuries, accidental or otherwise, death to persons or damage to property or for incidental contingent, special or consequential damages arising from the use of our products.

RETURNS, REPAIRS AND REPLACEMENTS

To return, repair, or replace a Craftex product, you must visit the appropriate Busy Bee Tools showroom or call 1-800-461-BUSY. Craftex is a brand of equipment that is exclusive to Busy Bee Tools.

For replacement parts directly from Busy Bee Tools, for this machine, please call 1-800-461-BUSY (2879), and have your credit card and part number handy.

- All returned merchandise will be subject to a minimum charge of 15% for re-stocking and handling with the following qualifications.
- Returns must be pre-authorized by us in writing.
- We do not accept *collect* shipments.
- Items returned for warranty purposes must be insured and shipped pre-paid to the nearest warehouse
- Returns must be accompanied with a copy of your original invoice as proof of purchase. Returns must be in an un-used condition and shipped in their original packaging a letter explaining your reason for the return. Incurred shipping and handling charges are not refundable.
- Busy Bee will repair or replace the item at our discretion and subject to our inspection.
- Repaired or replaced items will be returned to you pre-paid by our choice of carriers.
- Busy Bee reserves the right to refuse reimbursement or repairs or replacement if a third party without our prior authorization has carried out repairs to the item.
- Repairs made by Busy Bee are warranted for 30 days on parts and labour.
- Any unforeseen repair charges will be reported to you for acceptance prior to making the repairs.
- The Busy Bee Parts & Service Departments are fully equipped to do repairs on all products purchased from us with the exception of some products that require the return to their authorized repair depots. A Busy Bee representative will provide you with the necessary information to have this done.
- For faster service it is advisable to contact the nearest Busy Bee location for parts availability prior to bringing your product in for repairs.