



AC120 SuperBrute

Magnetic Drill Press



**RUGGED &
HIGH CAPACITY**

INDUSTRIAL PERFORMANCE
For Extreme Steel Fabrication
Large Diameter Holes &
Thick Steel Drilling

OPERATING MANUAL



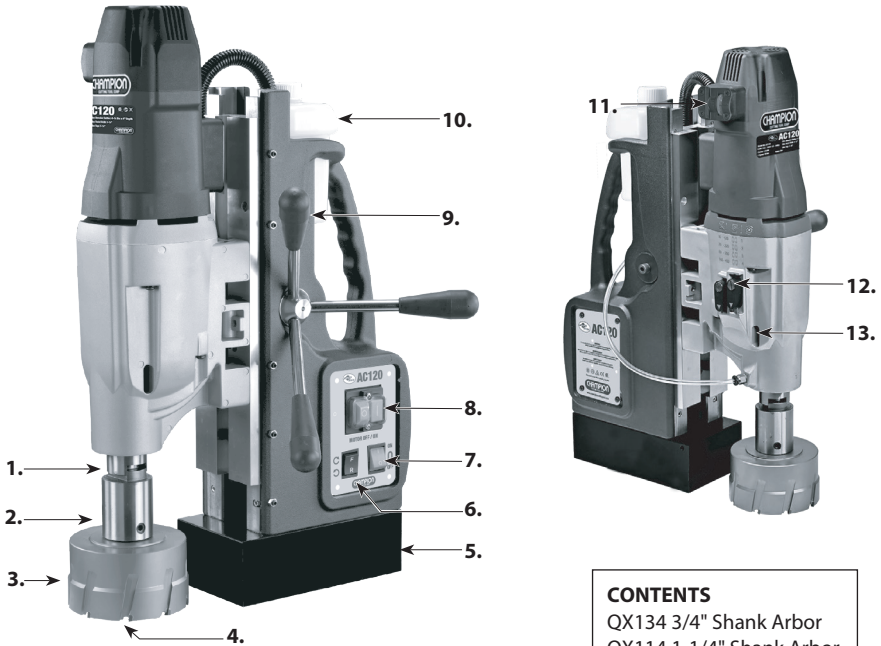
TECHNICAL DATA

Power Input	1700 W (110-120 V)	
Voltage	110-120 V~ 50-60 Hz	
Rated Load Speeds RPM	Speed 1	35 - 115
	Speed 2	70 - 210
	Speed 3	80 - 250
	Speed 4	140 - 450
Capacity	Annular Cutters	Up to 4-3/4" Dia, Up to 4" Depth*
	Twist Drills (3MT Shank)	Up to 1-1/4" Dia
	Stroke (3MT Cutting Tools)	8-3/16"
	QX1235 Drill Chuck Capacity	Accepts up to 5/8" Shank
	Reamers	Up to 1-1/4" Dia
	Taps	1/4" to 1-1/4" Dia **
Magnetic Adhesion	7,200 lbs	
Overload Protection	Standard	
Net Weight	64.6 lbs	

Due to the constant speed design, the no load and the rated load speeds are roughly the same.

* Must purchase additional arbor for large diameter (2-3/8" and larger), up to 3" depth capacity - QX1400 sold separately

** Must purchase additional tap collet for tapping capabilities



- | | |
|----------------------------------|----------------------------|
| 1. Spindle | 8. Motor Switch |
| 2. Arbor | 9. Crank Handle |
| 3. Annular Cutter (Not Included) | 10. Coolant Tank |
| 4. Pilot Pin (Not Included) | 11. Variable Speed Control |
| 5. Magnetic Base | 12. Gear Selectors |
| 6. Forward / Reverse Switch | 13. Drift Key Slot |
| 7. Magnet Switch | |

CONTENTS

- QX134 3/4" Shank Arbor
- QX114 1-1/4" Shank Arbor
- QX1235 Drill Chuck
- Handles (3)
- Safety Strap
- Chip Guard
- Coolant Tank Assembly
- L-Hex Key (M2.5)
- L-Hex Key (M5)
- Wrench (M8)
- Drift Key

GENERAL MAGNETIC DRILL PRESS SAFETY WARNINGS



WARNING Read all safety warnings, instructions, illustrations and specifications provided with this power tool. Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.

Save all warnings and instructions for future reference.

1) WORK AREA SAFETY

- a. **Keep work area clean and well lit.** Cluttered or dark areas invite accidents.
- b. **Do not operate magnetic drill presses in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** Magnetic drill presses create sparks which may ignite the dust or fumes.
- c. **Keep children and bystanders away while operating a magnetic drill press.** Distractions can cause you to lose control.

2) ELECTRICAL SAFETY

- a. **Magnetic drill press plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) magnetic drill presses.** Standard plugs and matching outlets will reduce risk of electric shock.
- b. **Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.
- c. **Do not expose power tools to rain or wet conditions.** Water entering a magnetic drill press will increase the risk of electric shock.
- d. **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the magnetic drill press. Keep cord away from heat, oil, sharp edges or moving parts.** Damaged or entangled cords increase the risk of electric shock.
- e. **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** Use of a cord suitable for outdoor use reduces the risk of electric shock.
- f. **If operating a magnetic drill press in a damp location is unavoidable, use a residual current device (RCD) protected supply.** Use of an RCD reduces the risk of electric shock.

3) PERSONAL SAFETY

- a. **Stay alert, watch what you are doing and use common sense when operating a mag drill. Do not use a mag drill while you are tired or under the influence of drugs, alcohol or medication.** A moment of inattention while operating magnetic drill presses may result in serious personal injury.
- b. **Use personal protective equipment. Always wear eye protection.** Protective equipment such as a dust mask, non-skid safety shoes, hard hat or hearing protection used for appropriate conditions will reduce personal injuries.
- c. **Prevent unintentional starting. Ensure the switch is in the off-position before connecting to power source and/or battery pack, picking up or carrying the tool.** Carrying magnetic drill presses with your finger on the switch invites accidents.
- d. **Remove any adjusting key or wrench before turning the magnetic drill press on.** A wrench or a key left attached to a rotating part of the magnetic drill press may result in personal injury.
- e. **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the magnetic drill press in unexpected situations.

- f. **Dress properly. Do not wear loose clothing or jewelry. Keep your hair and clothing away from moving parts.** Loose clothes, jewelry or long hair can be caught in moving parts.
- g. **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** Use of dust collection can reduce dust-related hazards.
- h. **Do not let familiarity gained from frequent use of tools allow you to become complacent and ignore tool safety principles.** A careless action can cause severe injury within a fraction of a second.

4) MAGNETIC DRILL PRESS USE AND CARE

- a. **Do not force the magnetic drill press. Use the correct magnetic drill press for your application.** The correct magnetic drill press will do the job better and safer at the rate for which it was designed.
- b. **Do not use the magnetic drill press if the switch does not turn it on and off.** Any magnetic drill press that cannot be controlled with the switch is dangerous and must be repaired.
- c. **Disconnect the plug from the power source and/or remove the battery pack, if detachable, from the magnetic drill press before making any adjustments, changing accessories, or storing mag drill.** Such preventive safety measures reduce the risk of starting the magnetic drill press accidentally.
- d. **Store idle magnetic drill press out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** Magnetic drill presses are dangerous in the hands of untrained users.
- e. **Maintain magnetic drill press and accessories. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the magnetic drill press repaired before use.** Many accidents are caused by poorly maintained magnetic drill presses.
- f. **Keep cutting tools sharp and clean.** Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
- g. **Use the magnetic drill press, accessories and cutting tools in accordance with these instructions, taking into account the working conditions and the work to be performed.** Use of the magnetic drill press for operations different from those intended could result in a hazardous situation.
- h. **Keep handles and grasping surfaces dry, clean and free from oil and grease.** Slippery handles and grasping surfaces do not allow for safe handling and control of the tool in unexpected situations.

5) SERVICE

Have your magnetic drill press serviced at a Champion Cutting Tool Corp authorized repair center using only identical replacement parts. This will ensure that the safety of the magnetic drill press is maintained.

TERMINOLOGY USED IN THE MANUAL

1. **Warning:** This term means that there is a risk of physical harm or death to the operator or people nearby.
2. **Caution:** This term means that there is a risk of damage to the magnetic drill press, cutting tool or other equipment.
3. **Note:** These terms offer useful information relating to the operation of the magnetic drill press or its maintenance.

Symbols used in this manual

V.....volts

A.....amps

Hz.....hertz

W.....watt

~alternating current

n_0no load speed

rpmrevolutions or reciprocation
per minute



.....warning of general danger



.....with electrical earth



.....read these instructions



.....always wear eye protection



.....always wear hearing protection



.....wear safety-approved hard hat



do not dispose of electric tools,
accessories and packaging together
with household waste material

MAGNETIC DRILL PRESS SAFETY WARNINGS

- a. **The drill must be secured.** A drill that is not properly secured may move or tip over and may result in personal injury.
- b. **The workpiece must be clamped or secured to the workpiece support. Do not drill pieces that are too small to be clamped securely.** Holding the workpiece by hand during operation may result in personal injury.
- c. **Do not wear loose gloves.** Gloves may be entangled by the rotating parts or chips, leading to personal injury.
- d. **Keep your hands out of the drilling area while the tool is running.** Contact with rotating parts or chips may result in personal injury.
- e. **Make sure the accessory is rotating before feeding into the workpiece,** otherwise the accessory may become jammed in the workpiece, causing unexpected movement of the workpiece and personal injury.
- f. **When the accessory is jammed, stop applying downward pressure and switch off the tool. Investigate and take corrective actions to eliminate the cause of the jam.** Jamming can cause unexpected movement of the workpiece and personal injury.
- g. **Never remove chips from the drilling area while the tool is running. To remove chips, move the accessory away from the workpiece, switch off the tool, and wait for the accessory to stop moving. Use tools such as a brush to remove chips.** Contact with rotating parts or chips may result in personal injury.
- h. **Accessories with speed ratings must be rated at least equal to the maximum speed marked on the magnetic drill press.** Accessories running faster than their rated speed can break and fly apart.
- i. **Always use safety strap.** Mounting can release.
- j. **WARNING: While operating, only hold the crank handles, not any other part of the machine.** Placing the hand on the machine may result in an electric shock in the event of a voltage leak or if the machine cuts its own power supply cable.
- k. **Always ensure that the workpiece is a minimum of 1/2" thick.** The magnet's adhesion depends on the thickness of the workpiece.

- l. Do not operate the machine on a workpiece while it is being welded.** This may lead to damage to the machine and/or personal injury.
- m. Never position machine on a workpiece between the electrode and the ground of any arc type welder.** The welder's current will ground through the earth wire in the machine's power supply cable, causing it damage.
- n. Do not exceed 90 degrees from horizontal.** It is hazardous to use the drill upside-down.
- o. Always ensure that the magnet is clean and free of rust and scale.** Metal chips and other debris will hamper magnetic adhesion.
- p. Always use the tool alone on the workpiece.** Other units used on the same workpiece could cause uneven voltage that could lead to the magnet releasing.
- q. Ensure that the magnet has properly adhered to the workpiece before beginning drilling.** Proper magnet adhesion is essential for safe drilling.
- r. Do not operate with dull or damaged cutting tools.** This may overload the motor.
- s. Avoid operating annular cutters without cutting fluid.** Always check fluid level before operating. Annular cutters require cutting fluid for proper operation and long life.
- t. Protect the motor. Never allow cutting fluid, water, or other contaminants to enter the motor.** This could lead to electric shock or motor damage.
- u. When drilling stacked work materials, always stop to clear the slug after the first layer is drilled.** The loose slug will interfere with proper drilling.
- v. CAUTION: Never attempt to use machine with incorrect current or abnormally low voltage.** Incorrect voltage could lead to motor damage.
- w. This machine is not intended for production-line type use.**

MAGNETIC BASE INFO

Do not leave the magnet base activated continuously for more than 60 minutes. If the magnet base is overheated, allow it to cool for 30 minutes before continuing.

CAUTION: Turn the magnet base off when not in use. Leaving the magnet base on continuously will damage it.

PARTS ASSEMBLY

Coolant tank assembly. First attach clear tube to the bottom of the coolant tank. To do this, first loosen the nut and slide nut onto the tube. Then slide tube onto the nipple. Then tighten the nut. Slide tank hanger over the screw on the upper right hand side of slide and tighten. Finally insert the other end of the tube into the quick-release connector in the gearbox. Just directly push in to install. **(To remove, first firmly push the red collar of the connector and pull the tube out.)** Cutting coolant fluid is always required when using annular cutters. Open tank cover and fill. Check coolant fluid level often. Keep coolant tap closed when not in use.

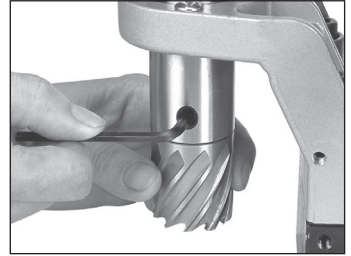
Chip guard must be used. To attach the chip guard, use the supplied butterfly bolts to bolt to the magnet. It is not necessary to remove guard to clean chips. Simply raise guard to its upper position.

Safety strap must be used. Loop strap around the workpiece, feed strap through the magnetic drill press's handle, and tighten strap using the ratchet mechanism.

MOUNTING ANNULAR CUTTERS

CAUTION: Never use a cutting tool that is larger than the maximum rated capacity of the machine.

1. To insert an annular cutter, first insert the pilot pin into the cutter. Then slide the cutter into the arbor, align the proper flat with the locking screw(s) and tighten securely with the supplied hex wrench.



CAUTION: Ensure that the locking screw is on a flat of the cutter and not just against the rounded shank.

2. Ensure that the oil feed tap is on and coolant feeds properly by pushing the pilot pin. If it feeds too quickly or slowly, adjust the tap accordingly. Keep the tap closed when not in use.

OPERATING INSTRUCTIONS

WARNING: Always ensure that the magnet is adhered properly to the workpiece before beginning drilling.

WARNING: Avoid operating at more than 90 degrees from horizontal. When drilling at such an angle take precautions to prevent cutting coolant from entering the motor.

Wax coolant should be used.

1. First fit tool into arbor and line up with intended center of cut. Then switch magnet on.
2. Press green motor on button to start motor. Use the crank handle to feed to work. Always use very light pressure when beginning the cut and just as the tool is breaking through. The crank handle offers tremendous leverage; so do not use too much force. Allow the cutting tool to determine the pace. With experience, the operator will be able to determine the best pace to feed to the work. There should be some degree of audible slowing of the motor but not bogging in the cut. Correct cutting speed with a properly sharp annular cutter will produce long unbroken chips, which produce a “bird’s nest” shaped bundle of chips around the cut.



NOTE: Always ensure that the cutting tool is sharp. A dull cutter typically will have finer and/or choppy shavings.

WARNING: ALWAYS clear chips when there is too much build-up. Excessive chip build-up could result in a jammed cutter or other hazardous situation.

WARNING: The slug ejects at end of cut and is very hot. Always provide a method of catching the slug, where the ejected slug may cause injury to people below.

NOTE: Lock the slide lock on the side of the machine in the fully raised position when at rest to prevent the slide from accidentally slamming down. Remember to unlock it again before commencing drilling.

CAUTION: Never attempt to cut half-circles or to stitch drill (drill overlapping holes) with a carbide tipped annular cutter. This may destroy the cutter.

CAUTION: Never attempt to re-enter a half-finished cut if the magnet has been turned off and the machine shifted in the interim. This may destroy the cutter.

CHANGING TOOLS & ADAPTORS WITH MT3 SHANK

To insert a tool, turn the tool until the tang lines up and firmly push into place. It is helpful to tap with a soft-faced mallet to fully engage the taper. If it is properly in position, one will not be able to pull it back apart by hand. To remove, line up the ejector slot of the arbor with the ejector port in the gear case, slide the ejector drift into the slot and tap with a hammer to eject the tool.

CAUTION: When removing, be careful that the cutting tool does not crash down and injure anyone below.



MT3 ANNULAR CUTTER ADAPTOR

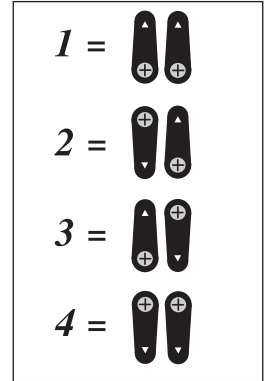
This machine is equipped with a unique annular cutter adaptor system with built-in coolant directly to the gearbox. No stop bar is needed.

1. To install the annular cutter adaptor, first insert the taper end of the adaptor into the arbor of the machine as described above.
2. Attach the coolant tank to the slide and ensure that the tube is attached properly.
3. To insert an annular cutter, first insert the pilot pin. Then slide the cutter into the adaptor, align the proper flat with the locking screw(s) and tighten securely with the supplied hex wrench.
4. Ensure that the oil feed tap is on and coolant feeds properly by pushing the pilot pin. If it feeds too quickly or slowly, adjust the tap accordingly. Keep the tap closed when not in use.

OPERATION

CAUTION: Machine is equipped with a forward/reverse switch. Always ensure that direction of rotation is correct before operating. Operating in the wrong direction could result in damage to the cutter.

Select desired gear range by first popping the tab out of its detent and then sliding selectors up or down in the proper combination. Refer to the chart to achieve the correct combination for the desired speed. (It may be necessary to turn the arbor slightly in order for the gears to mesh properly). Follow the recommended speed ranges on the cutting speed chart to set the proper speed and gear range.



4 SPEED GEAR CHART

GEAR	MAX. SPEED rpm	MIN. SPEED rpm	CUTTERS	TAPS
1	115	35	Up to 120mm (4-3/4")	≤ 32 mm (1-1/4")
2	210	70	55mm-70mm (2-1/8 to 2-3/4 in.)	N/A
3	250	80	35~55mm (1-3/8 to 2-1/8 in.)	N/A
4	450	140	35mm or less (1-3/8 in.)	N/A

NOTE: These speeds are general recommendations only. The material and annular cutter type should determine actual speeds.

NOTE: The left and right side gear selectors have a different internal engagement design:

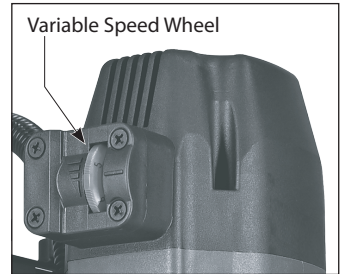
The operator must ALWAYS ensure that the machine is FULLY STOPPED before attempting to change gears! NEVER change the Left hand slider gears on a running machine!

CAUTION: Ensure that that gears engage fully.

VARIABLE MOTOR SPEED

The electronic variable motor speed control allows the motor speed to be lowered for further flexibility for adjusting the cutting speed to suit the size of cutter and type of material. Simply turn the thumb wheel to raise or lower the motor speed electronically.

NOTE: Whenever possible, it is always preferable to lower the speed by changing the gear rather than lowering the motor speed. A slower motor speed will have less cooling and somewhat less torque so always try to keep the motor going as fast as possible. Only lower the motor speed if you have no other option. (For example: If you need the speed at about 100 RPM, it is much better to use 1st gear at full motor speed than to use 3rd gear at minimum motor speed.)



AVOID OVERHEATING THE MOTOR

When using the machine at or near maximum capacity with a slow motor speed the motor will be at maximum stress and very hot. After each cut is finished, **ALWAYS** cool the motor by running at no load at the maximum motor speed for a few minutes.

CUTTING SPEEDS

The type of material to be drilled, its hardness and thickness will all greatly affect the recommended cutting speed. It is generally ideal to run smaller cutters at higher speeds and larger cutters at slower speeds. Follow specific cutting tool speed guidelines for optimal and proper operating procedures.

FORWARD/REVERSE SWITCH

Select desired direction of rotation. This switch has 3 positions: up is forward, middle is neutral, and down is reverse rotation.

WARNING: If the motor is switched on with the direction switch in the neutral position, the machine will not turn but will be “live”, as soon as either forward or reverse is selected, the arbor will begin turning! Take due care to avoid this situation.



SAFETY CLUTCH

This tool is equipped with a safety clutch which is designed to slip when the maximum torque value is exceeded. This clutch is not a tapping clutch and bottoming taps in blind hole is to be avoided.

TWIST DRILL USE

If using MT3 twist drills, fit directly in arbor.
For standard shank twist drills, use QX1235 drill chuck adaptor.

MT3 Morse Taper Shank



Drill Chuck Adaptor



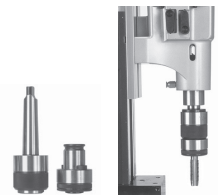
TAPPING

CAUTION: To avoid damage to the tap, always very carefully line the tap up with the hole and ensure that the size of the hole is correct for the tap to be used.

CAUTION: To avoid damage to the tap or machine, be very careful to stop the machine in time to NOT allow the tap bottom out. The motor continues to coast for a while after being shut off, so plan for this and anticipate. This machine does NOT have a tapping clutch.

CAUTION: To avoid damage to the machine, ALWAYS allow the machine to come to a full stop before reversing rotation.

1. Select the proper speed according to the chart for the size of tap used.
2. Begin with forward direction of rotation with standard right hand threads. (Opposite with left-hand threads)
3. Allow the tap to determine the feed rate. A light touch on the feed handle is all that is needed once it is started in the hole.
4. When the desired thread is tapped, hit the red motor stop switch. Allow the machine to come to a full stop. Then reverse direction and restart machine by pressing the green motor switch to remove tap. Guide the tap back out with the feed handle. Proper order of operations for normal tapping is as follows:
magnet: on. direction: forward. motor: on. motor: off. THEN: direction: reverse. motor: on. motor: off - magnet: off.



MAINTENANCE

Every 50 hours of operation blow compressed air through the motor while running at no load to clean out accumulated dust. (If operating in especially dusty conditions, perform this operation more often.)

1. Keep the machine clean and free of chips.
2. Check for loose fittings and tighten as needed.
3. Ensure that the ventilation slots are clear so that motor can be cooled normally. Blow low-pressure compressed air through the ventilation slots with the motor running to keep motor clean.

THE ARBOR SHAFT

Keep the arbor shaft free of dirt and lightly grease as needed. If the arbor support bearing is noisy, it may be dirty or have a chip lodged in it. Remove the arbor shaft to clean and re-grease the arbor support bearing.

THE GIBS (DOVETAIL SLIDES)

The gibs require adjustment if too loose. To adjust, loosen the lock nuts and adjust the adjustor screws evenly while moving the handle up and down. Adjust so that there is no free play, yet any binding anywhere in its range of travel. Then retighten the lock nuts. Periodically check, lubricate, and adjust as needed.



THE CARBON BRUSHES

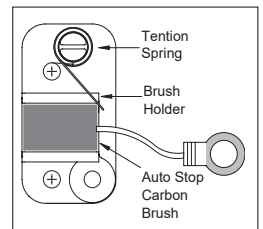
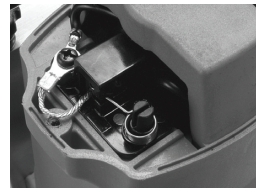
The carbon brushes are a normal wear part and must be replaced when they reach their wear limit.

NOTE: This mag drill had an auto stop feature which engages when the carbon brushes are running low.

CAUTION: Always replace the brushes as a pair.

To replace

1. Remove the 4 screws and remove the motor tail cover.
2. Using pliers rotate the brush spring out of the way and slide the old carbon brush out of the brush holder.
3. Unscrew the screw to remove the brush lead. The old carbon brush may now be lifted away.
4. Install a new brush. Installation is the reverse of removal.
5. Replace the motor tail cover.



MAGNET TROUBLESHOOTING

Full magnet performance is absolutely essential for magnetic drill operation. If the magnet works, but does not hold well, it is likely that one of the coils has failed. If the magnet does not work at all, it is likely to be a failed rectifier. (It is highly unlikely that both magnet coils would fail at the same time)

NOTE: A faulty magnet coil can also damage the rectifier, so whenever there is a magnet problem, BOTH the magnet coils and rectifier must be checked.

WARNING: Never attempt to operate a magnetic drill with a faulty magnet!

CHECKING THE MAGNET (qualified technicians only)

If the magnet is not working well, it must be checked. Separate the wires of each individual coil and test the resistance of each coil separately (note that 110V models are wired in parallel).

The resistance of the coils of different sizes of magnets varies, but it should be in the region of hundreds of ohms. Most importantly, both coils must have very nearly the same resistance. If one of the coils has zero resistance, it means that it is shorted. If one of the coils has infinite resistance, it means that the circuit is broken. If either coil has a problem, the magnet must be replaced. A faulty magnet may also cause damage to the rectifier. Also check the rectifier when replacing a faulty magnet. (see below)

CHECKING THE RECTIFIER (Qualified technicians only)

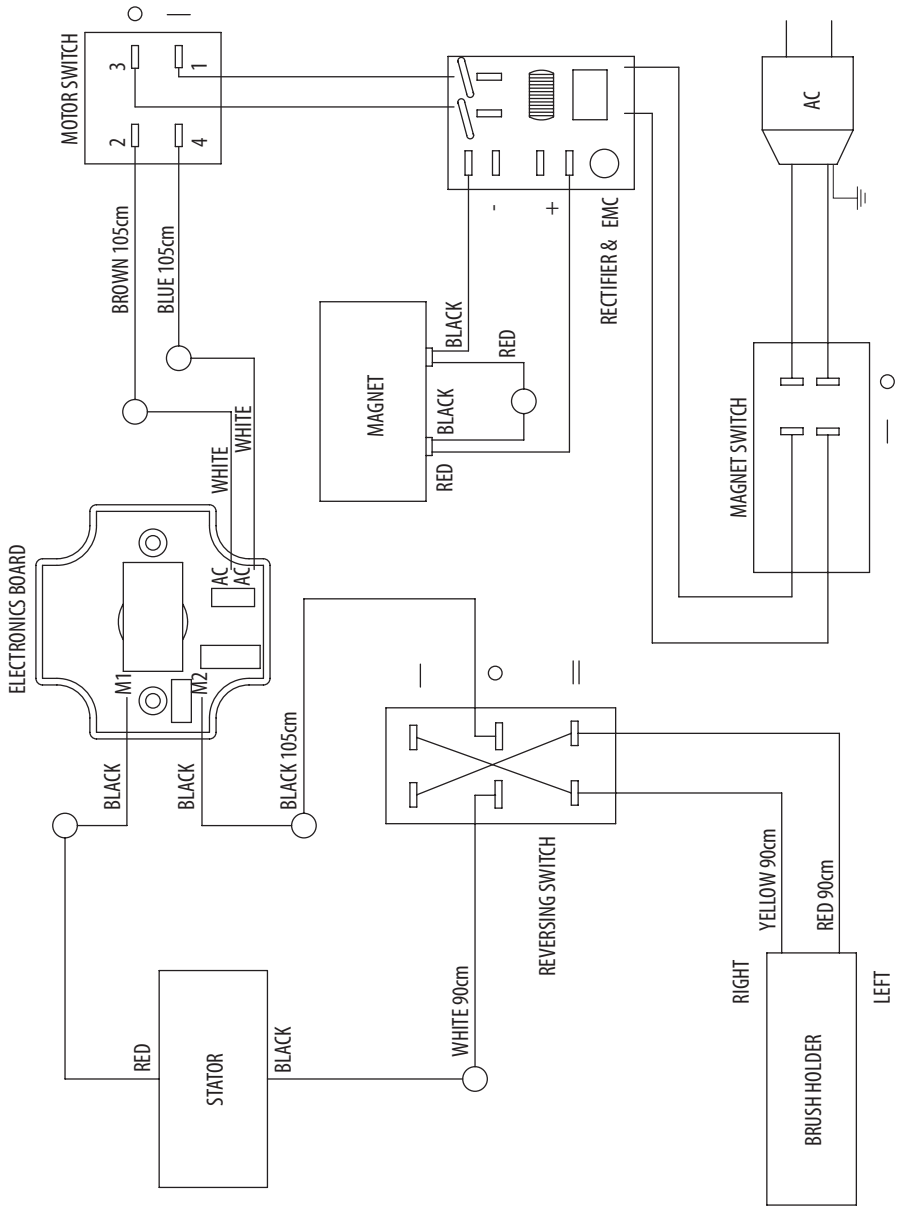
The rectifier takes the AC household current and converts it to DC to power the magnet. If it fails, the magnet coils will not receive power.

Disconnect the rectifier and test the resistance of both circuits of the rectifier between the AC and the DC sides. Note that polarity matters, so you can only take a reading if test probes are oriented correctly. Each side will be the opposite of the other. Both circuits should have very nearly the same resistance reading. If one of the circuits has zero resistance, it means that it is shorted. If one of the circuits has infinite resistance, it means that the circuit is broken.

If the replacement of the power supply cord is necessary, this has to be done by the manufacturer or their agent in order to avoid a safety hazard.

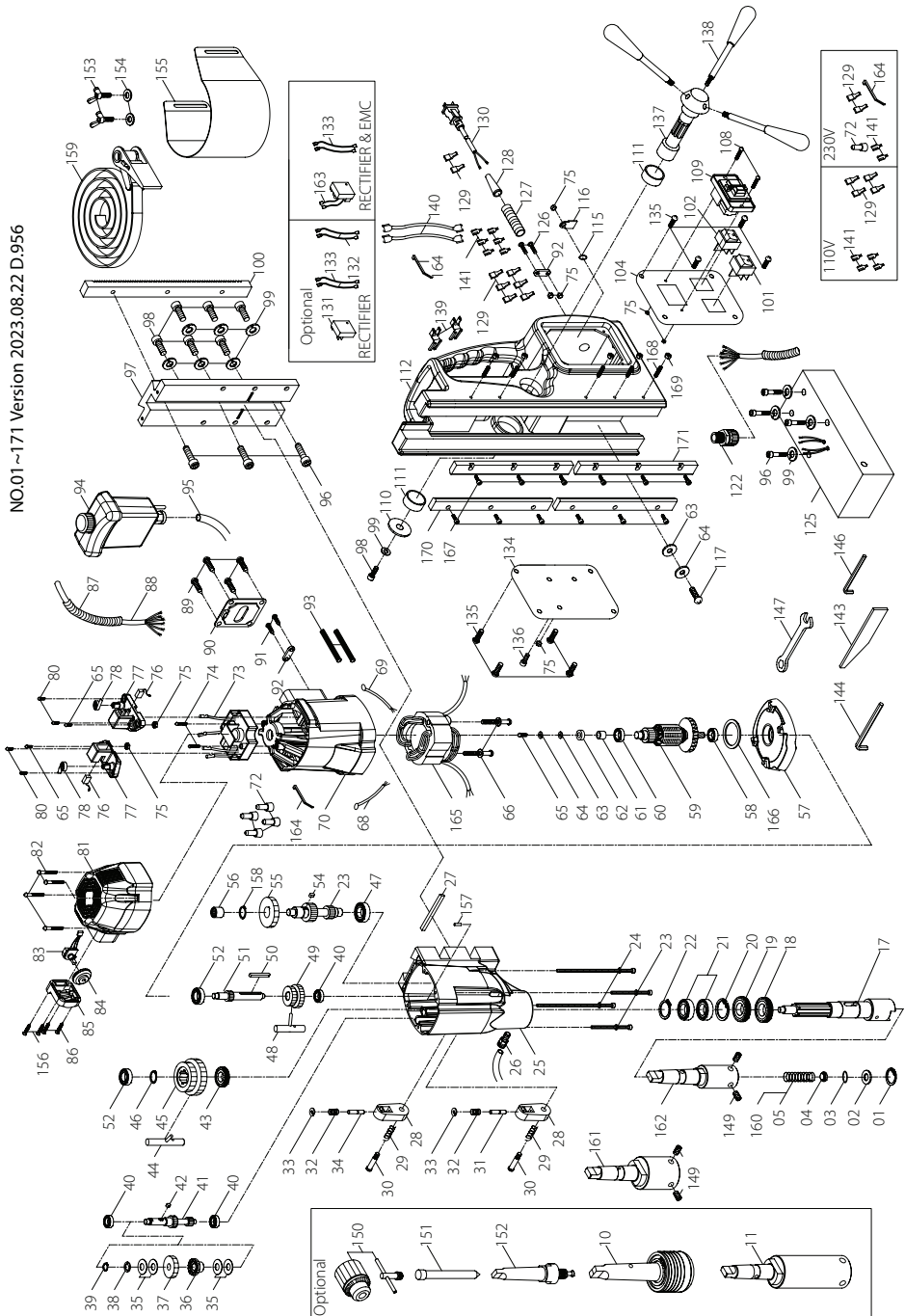
WARNING: All repairs must be entrusted to an authorized Champion Cutting Tool Corp service center. Incorrectly performed repairs could lead to injury or death.

WIRING



EXPLODED VIEW

NO.01 ~171 Version 2023.08.22 D.956



EXPLODED VIEW & PARTS LIST

NO.	Parts Name	Q'TY	NO.	Parts Name	Q'TY
AC120-1	INTERNAL CIRCLIP (R-19)	1	AC120-49	LAY GEAR (M1.25x27Tx32T)	1
AC120-2	FLAT WASHER (Ø10xØ18.5x0.8)	1	AC120-50	PARALLEL KEY (5x5x45)	1
AC120-3	O-RING (Ø12x4)	1	AC120-51	COUNTERSHAFT (M1.25x13T)	1
AC120-4	WATER SEAL (Ø12x15)	1	AC120-52	BALL BEARING (6200)	2
AC120-5	SPRING (Ø1.2xØ10xØ12.4x15Tx100L)	1	AC120-53	IDLER SHAFT (M1.75x17TxM2.0x9T)	1
			AC120-54	PARALLEL KEY (5x5x8)	1
			AC120-55	IDLER GEAR (M1.25x43T)	1
AC120-17	SPINDLE	1	AC120-56	NEEDLE BEARING (HK 1212)	1
AC120-18	OIL SEAL (Ø40xØ58x8)	1	AC120-57	GEAR PLATE	1
AC120-19	OIL SEAL (Ø40xØ55x7)	1	AC120-58	BALL BEARING (6202)	1
AC120-20	INTERNAL CIRCLIP (R-55)	1	AC120-59	ARMATURE (110V/220V-94x54x45)	1
AC120-21	BALL BEARING (6006)	2	AC120-60	BALL BEARING (6200)	1
AC120-22	EXTERNAL CIRCLIP (S-30)	1	AC120-61	SPACER (Ø8xØ12x10.5)	1
AC120-23	PANHEAD TAPPING SCREW (M5x80)	2	AC120-62	PICKUP MAGNET (Ø8xØ15x5)	1
AC120-24	PANHEAD MACHINE SCREW (M5x150xP0.8)	2	AC120-63	RUBBER WASHER (Ø4xØ11x1)	2
AC120-25	GEAR HOUSING	1	AC120-64	FLAT WASHER (Ø4xØ10x1)	2
AC120-26	PUSH LOCK FITTING (PT1/8"xØ6)	1	AC120-65	PANHEAD MACHINE SCREW (M4x10xP0.7)	3
AC120-27	PARALLEL KEY (4x4x60)	1	AC120-66	PANHEAD TAPPING SCREW (M5x60)	2
AC120-28	SELECTOR TAB	2	AC120-68	WIRE LEAD (1015-16#26CM)	1
AC120-29	SPRING (Ø1xØ9xØ11x11Lx4T)	2	AC120-69	WIRE LEAD (1015-16#30CM)	1
AC120-30	SHOULDER SCREW	2	AC120-70	MOTOR HOUSING	1
AC120-31	DETENT PIN (Ø5x27)	1	AC120-72	CRIMP CAP CONNECTOR (C4)	5
AC120-32	SPRING (Ø0.6xØ5.3xØ6.5x17Lx5T)	2	AC120-73	ELECTRONICS UNIT (110V)	1
AC120-33	E-CLIP (E-3)	2	AC120-74	PANHEAD TAPPING SCREW (M4x25)	2
AC120-34	DETENT PIN (Ø5x22.5)	1	AC120-75	HEX NUT (M4xP0.7)	8
AC120-35	DISC SPRING (Ø12.4xØ27.9x1)	4	AC120-76	CARBON BRUSH (7x17x17)	2
AC120-36	TOOTH CLUTCH	1	AC120-77	BRUSH HOLDER (7x17)	2
AC120-37	CLUTCH GEAR	1	AC120-78	BRUSH SPRING (0.4x4x3.5T)	2
AC120-38	THRUST WASHER (Ø12.1xØ18x1.6)	1	AC120-80	PANHEAD TAPPING SCREW (M4x12)	4
AC120-39	E-CLIP (E-10)	1	AC120-81	MOTOR TAIL CASTING	1
AC120-40	BALL BEARING (608)	3	AC120-82	PANHEAD TAPPING SCREW (M4x30)	4
AC120-41	INPUT SHAFT (M1.25x15Tx10T)	1	AC120-83	SPEED CONTROL (110V&220V)	1
AC120-42	PARALLEL KEY (5x5x10)	1	AC120-84	THUMB WHEEL	1
AC120-43	OIL SEAL (Ø28xØ38x7)	1	AC120-85	SPEED ADJUSTOR COVER	1
AC120-44	FIRST SELECTOR FORK (Ø12x64 / Ø4.8x30.8)	1	AC120-86	FLAT HEAD TAPPING SCREW (M4x16)	2
AC120-45	OUTPUT GEAR (M1.75x27TxM2.0x29T)	1	AC120-87	CABLE PROTECTOR (3/8"x65CM)	1
AC120-46	EXTERNAL CIRCLIP (S-25)	1	AC120-88	WIRE LEADS	1
AC120-47	BALL BEARING (6202)	1	AC120-89	FLAT HEAD TAPPING SCREW (M5x10)	4
AC120-48	SECOND SELECTOR FORK (Ø12x56 / Ø4.8x35.2)	1	AC120-90	MOTOR COVER PLATE	1

NO.	Parts Name	Q'TY	NO.	Parts Name	Q'TY
AC120-91	PANHEAD TAPPING SCREW (M4x16)	2	AC120-136	PANHEAD MACHINE SCREW (M4x25xP0.7)	1
AC120-92	CABLE CLIP	2	AC120-137	CRANK SPINDLE (Ø32)	1
AC120-93	WIRE SLEEVE (Ø4x14CM)	2	AC120-138	CRANK HANDLE	3
AC120-94	COOLANT TANK ASSEMBLY	1	AC120-139	THREE WIRE PUSH IN CONNECTOR	2
AC120-95	TUBE (Ø4xØ6x40CM)	1	AC120-140	WIRE LEAD (1015-16#9CM)	2
AC120-96	SOCKET CAP SCREW (M8x20xP1.25)	7	AC120-141	FEMALE SPADE TERMINAL	10
AC120-97	SLIDE PLATE	1	AC120-143	DRIFT	1
AC120-98	SOCKET CAP SCREW-PARTIAL THREAD (M8-1.25 x 16)	7	AC120-144	HEX KEY (M5)	1
AC120-99	SPRING WASHER (M8)	11	AC120-146	HEX KEY (M2.5)	1
AC120-100	GEAR RACK	1	AC120-147	WRENCH (M8)	1
AC120-101	REVERSING SWITCH (110V&220V)	1	AC120-149	SOCKET SET SCREW (M10x10xP1.5)	4
AC120-102	MAGNET SWITCH (110V&220V)	1	QX1235	DRILL CHUCK ADAPTOR (MT3-5/8")	1
AC120-104	SWITCH PANEL (130.5x90.5x1.5T)	1			
AC120-108	PANHEAD MACHINE SCREW (M4x20xP0.7)	2			
AC120-109	MOTOR SWITCH (110V)	1	AC120-153	BUTTERFLY SCREW (M6x10xP1.0)	2
AC120-110	FLAT WASHER (Ø8xØ40x2.5)	1	AC120-154	FLAT WASHER (Ø6xØ13x1)	2
AC120-111	BUSHING (Ø32xØ38x12)	2	AC120-155	CHIP GUARD	1
AC120-112	STAND BODY	1	AC120-156	FLAT HEAD TAPPING SCREW (M4x20)	2
AC120-115	EXTERNAL STAR WASHER (M5)	1	AC120-157	PIVOT PIN	1
AC120-116	EARTHING MARKING	1	AC120-158	EXTERNAL CIRCLIP (S-20)	1
AC120-117	PANHEAD MACHINE SCREW (M4x16xP0.7)	1	AC120-159	SAFETY BELT	1
AC120-122	CABLE GLAND (3/8")	1	AC120-160	SPRING (Ø1.2xØ10xØ12.4x24Tx140L)	1
AC120-125	ELECTROMAGNET (210x116x68)	1	QX114	ARBOR (MT3-Ø31.7)	1
AC120-126	PANHEAD MACHINE SCREW (M4x30xP0.7)	2	QX134	ARBOR (MT3-Ø19)	1
AC120-127	CABLE PROTECTOR (5/16"x7CM)	1	AC120-163	RECTIFIER & EMC (110V&220V)	1
AC120-128	CORD ARMOR	1	AC120-164	ZIP TIE (2.5x100MM)	3
AC120-129	SPADE TERMINAL BOOT	12	AC120-165	STATOR (110V-94x54X45)	1
AC120-130	POWER SUPPLY CABLE (UL-14Ax3Cx3.5M-SJTW)	1	AC120-166	O-RING (Ø35x1.5)	1
AC120-131	RECTIFIER (110&220V)	1	AC120-167	SOCKET CAP SCREW (M4-0.7 x 12)	12
AC120-132	WIRE LEAD (1015-16#18CM)	2	AC120-168	SOCKET SET SCREW (M5-0.8 x 20)	5
AC120-133	WIRE LEAD (1015-16#18CM)	2	AC120-169	HEX NUT (M5xP0.8)	5
AC120-134	SIDE PANEL (130.5x90.5x1.5T)	1	AC120-170	DOVETAIL GIB, LEFT	2
AC120-135	PANHEAD MACHINE SCREW (M4x8xP0.7)	8	AC120-171	DOVETAIL GIB, RIGHT	2

