

AGP[®]

High Frequency Concrete Chain Saw & Converter

CS18 / P8K



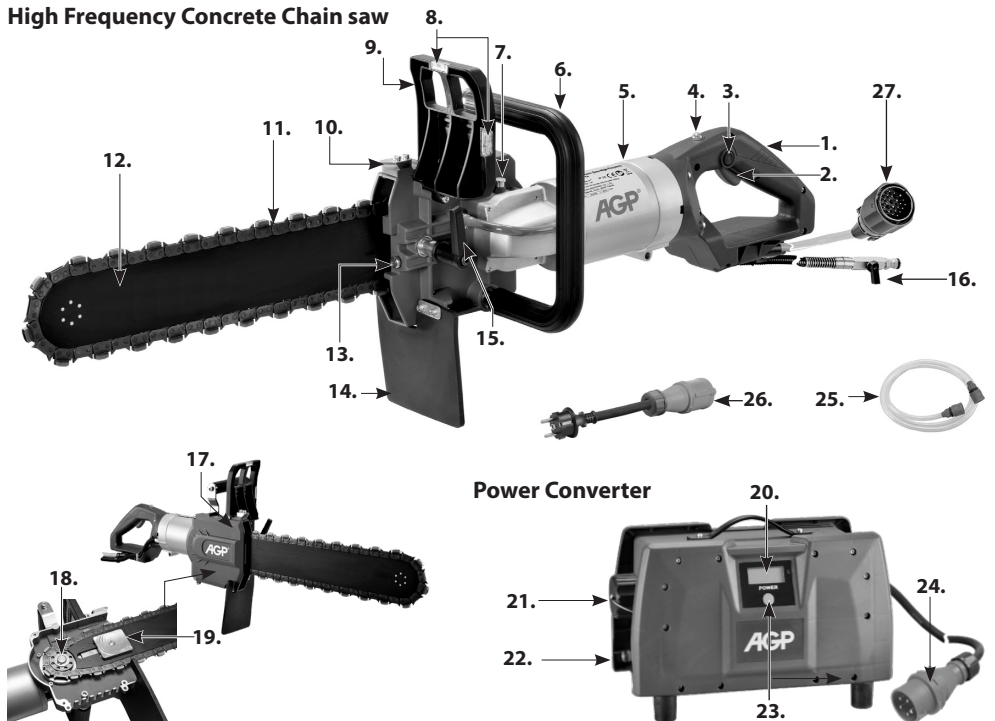
Instruction Manual
CE CB



SPECIFICATIONS

High Frequency Concrete Chain saw		Power Converter
Power:		Power : Input (maximum)
1Ø~ 200-240V	5500 W (32 A), 3600 W (16 A)	32 A
3Ø~ 380-480V	6200 W	16 A
No Load RRM	8500 /min	-
Linear Speed	20.7 m/s (3/8"), 25.7 m/s (0.444")	-
Pitch	3/8" or 0.444"	-
IP Class	IP55	-
Guide Bar (nominal)	12", 14", 16", or 19"	-
Max. Cutting Depth	470 mm (w/ 19" Bar)	-
Min. Water Flow (25°C)	-	3.5 L/min (1 gpm)
Max. Water Pressure	-	7 bar (100 psi)
Dimensions (L x W x H)	635 x 250 x 316 mm	460 x 220 x 260 mm
Weight	8.85 kg (19.5 lb)	7.1kg (15.6 lb)

High Frequency Concrete Chain saw



- | | | |
|-----------------------|----------------------|---|
| 1. Main Handle | 10. Bumper Spike | 19. Bar Clamp Plate |
| 2. Trigger Switch | 11. Diamond Chain | 20. LCD Display |
| 3. Trigger Release | 12. Guide Bar | 21. Motor Coupling Socket |
| 4. LED Load Indicator | 13. Tension Adjustor | 22. Water Supply Inlet / Outlet |
| 5. Motor | 14. Splash Flap | 23. Power Button |
| 6. Side Handle | 15. Bar Clamp Lever | 24. Power Supply Cable |
| 7. Spindle Lock | 16. Water Feed Valve | 25. Water Coupling Hose |
| 8. Levels | 17. Side Cover | 26. Single Phase Adaptor Cable (optional) |
| 9. Hand Guard | 18. Drive Sprocket | 27. Motor Coupling Cable |

GENERAL SAFETY INSTRUCTIONS



WARNING Read all safety warnings and all instructions. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.

Save all warnings and instructions for future reference.

The term "power tool" in the warnings refers to your mains-operated (corded) power tool.

1) WORK AREA SAFETY

- a. **Keep work area clean and well lit.** Cluttered or dark areas invite accidents.
- b. **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** Power tools create sparks which may ignite the dust or fumes.
- c. **Keep children and bystanders away while operating a power tool.** Distractions can cause you to lose control.
- d. **Never leave the electric power tool unattended.** Only leave the machine when the tool in use has come to a complete standstill.

2) ELECTRICAL SAFETY

- a. **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools.** Unmodified 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 power tool will increase the risk of electric shock.
- d. **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. 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 power tool in a damp location is unavoidable, use a residual current device (RCD) / ground fault circuit interrupter (GFCI) protected supply.** Use of an RCD / GFCI reduces the risk of electric shock.

3) PERSONAL SAFETY

- a. **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.** A moment of inattention while operating power tools may result in serious personal injury.
- b. **Use personal protective equipment. Always wear eye protection.** Protective equipment such as 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 power tools with your finger on the switch or energising power tools that have the switch on invites accidents.
- d. **Remove any adjusting key or wrench before turning the power tool on.** A wrench or a key left attached to a rotating part of the power tool may result in personal injury.
- e. **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.
- f. **Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts.** Loose clothes, jewellery 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) POWER TOOL USE AND CARE

- a. **Do not force the power tool. Use the correct power tool for your application.** The correct power tool will do the job better and safer at the rate for which it was designed.
- b. **Do not use the power tool if the switch does not turn it on and off.** Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
- c. **Disconnect the plug from the power source and/or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools.** Such preventive safety measures reduce the risk of starting the power tool accidentally.
- d. **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** Power tools are dangerous in the hands of untrained users.
- e. **Maintain power tools. 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 power tool repaired before use.** Many accidents are caused by poorly maintained power tools.
- 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 power tool, accessories and tool bits etc. in accordance with these instructions, taking into account the working conditions and the work to be performed.** Use of the power tool 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 power tool serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the power tool is maintained.

Symbols used in this manual

V.....volts

A.....amperes

Hz.....hertz

W.....watt

~.....alternating current

n_0no load speed

min^{-1}revolutions or reciprocation

per minute



.....warning of general danger



...with electrical earth



.....Always use with water cooling



.....read these instructions



.....always wear a dust mask.



.....wear eye, ear and head protection.



.....Do not expose to rain.



.....Remove plug from the mains immediately if the cable is damaged or cut.



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

GENERAL CHAIN SAW SAFETY WARNINGS

- a. **Keep all parts of the body away from the saw chain when the chain saw is operating. Before you start the chain saw, make sure the saw chain is not contacting anything.** A moment of inattention while operating chain saws may cause entanglement of your clothing or body with the saw chain.
- b. **Always hold the chain saw with your right hand on the rear handle and your left hand on the front handle.** Holding the chain saw with a reversed hand configuration increases the risk of personal injury and should never be done.
- c. **Hold the chain saw by insulated gripping surfaces only, because the saw chain may contact hidden wiring or its own cord.** Saw chains contacting a "live" wire may make exposed metal parts of the chain saw "live" and could give the operator an electric shock.
- d. **Wear eye protection. Further protective equipment for hearing, head, hands, legs and feet is recommended.** Adequate protective equipment will reduce personal injury from flying debris or accidental contact with the saw chain.
- e. **Do not operate a chain saw in a tree, on a ladder, from a rooftop, or any unstable support.** Operation of a chain saw in this manner could result in serious personal injury.
- f. **Always keep proper footing and operate the chain saw only when standing on fixed, secure and level surface.** Slippery or unstable surfaces may cause a loss of balance or control of the chain saw.
- g. **Carry the chain saw by the front handle with the chain saw switched off and away from your body. When transporting or storing the chain saw, always fit the guide bar cover. Proper handling of the chain saw will reduce the likelihood of accidental contact with the moving saw chain.**
- h. **Follow instructions for lubricating, chain tensioning and changing the bar and chain.** Improperly tensioned or lubricated chain may either break or increase the chance for kickback.
- i. **Cut concrete, masonry, and similar materials only. Do not use chain saw for purposes not intended. For example: do not use chain saw for cutting wood, metal, or plastic materials.** Use of the chain

saw for operations different than intended could result in a hazardous situation.

CAUSES AND OPERATOR PREVENTION OF KICKBACK

Kickback may occur when the nose or tip of the guide bar touches an object, or when the workpiece closes in and pinches the saw chain in the cut. Tip contact in some cases may cause a sudden reverse reaction, kicking the guide bar up and back towards the operator. Pinching the saw chain along the top of the guide bar may push the guide bar rapidly back towards the operator. Either of these reactions may cause you to lose control of the saw which could result in serious personal injury. Do not rely exclusively upon the safety devices built into your saw. As a chain saw user, you should take several steps to keep your cutting jobs free from accident or injury. Kickback is the result of chain saw misuse and/or incorrect operating procedures or conditions and can be avoided by taking proper precautions as given below:

- a. Maintain a firm grip, with thumbs and fingers encircling the chain saw handles, with both hands on the saw and position your body and arm to allow you to resist kickback forces.** Kickback forces can be controlled by the operator, if proper precautions are taken. Do not let go of the chain saw.
- b. Do not overreach and do not cut above shoulder height.** This helps prevent unintended tip contact and enables better control of the chain saw in unexpected situations.
- c. Only use replacement guide bars and saw chains specified by the manufacturer.** Incorrect replacement guide bars and saw chains may cause chain breakage and/or kickback.
- d. Follow the manufacturer's sharpening and maintenance instructions for the saw chain.** Decreasing the depth gauge height can lead to increased kickback.

INTRODUCTION

This tool is specifically designed for wet cutting of concrete, masonry and similar materials. It must not be used for cutting wood or felling trees. Although it is similar in appearance to a wood chain saw, it has significant differences in principles and techniques which will be detailed throughout this instruction manual. This chain saw must not be converted or modified for any other use, other than as specified in these operating instructions. The user shall be liable for damages and accidents due to incorrect use.

This machine is a special, high frequency PMSM (permanent magnet synchronous motor) power tool which must be used in conjunction with its high frequency power converter for its power supply. This converter takes 220 to 480V, 50Hz or 60Hz, single or three phase supply and converts it to up to 600Hz for use with the motor. Connection between the converter and motor is made by a motor coupling cable with special plug. The converter has a three phase power supply plug and a single phase adaptor plug for use with single phase supply. Maximum performance is obtained using 380V to 480V, three phase power supply. Performance will be reduced when using 220V to 240V three phase or single phase supply due to electrical current limitations.

This machine is equipped with two handles and a hand guard. It has an integrated water feed system as required for cooling and diamond cutting. The power converter has a built-in residual current device (RCD) for electrical safety as well as overload, thermal, under voltage and over voltage protection. It must only be used with a diamond chain. It is intended for cutting masonry, stone, concrete, reinforced concrete and similar materials. All other uses are prohibited.

CARTON CONTENTS

- Chain Saw Motor Head
- T-Wrench
- Power Converter
- Water Coupling Hose
- Single Phase Adapter Cable

SAFETY DEVICES

- 1. Hand Guard:** Protects the hand from debris and helps to block a broken chain. Never operate without the hand guard in place. Replace if damaged.
- 2. Splash Flap:** Protects from thrown debris and slurry. Never operate without the splash flap in place. Replace if damaged.

ELECTRICAL CONNECTION

The network voltage must conform to the voltage indicated on the tool name plate.

Under no circumstances should the tool be used when the power supply cable is damaged. A damaged cable must be replaced immediately by an authorized Customer Service Center. Do not try to repair the damaged cable yourself. The use of damaged power cables can lead to an electric shock.

WARNING: Never operate a damaged machine. Always tag a damaged machine and take it out of service until repairs can be made.

The connection between the power converter and the motor is by a special motor coupling cable. To connect, unscrew the cap, align the tangs, push in, and screw on the collar. Take care to avoid bending the pins. Keep the cap on when not in use. Do not alter this plug in any way.

3 Phase Power:

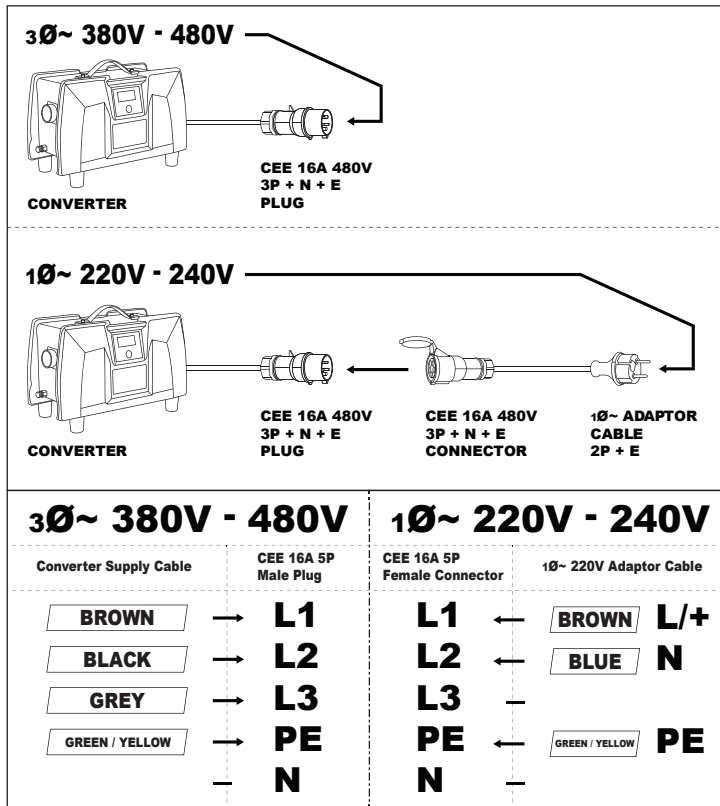
Ideally, the power converter should be supplied with 380V to 480V three phase power for maximum performance. If the plug does not match the available outlet, a suitable plug can be mounted by a qualified electrician.

Single Phase Power:

In situations where 3 phase power is not available, this machine may also be run on 220V to 240V single phase power with slightly reduced power. Use the single phase adaptor cable. Using the single phase adaptor cable, the current is limited to 16A. If more power is needed, and a 32A or larger breaker is available, the main plug may be removed, and the converter's main power supply cable may be directly wired to the breaker. In this case, connect the L1 and L2 wires to the breaker, leaving the L3 wire unconnected. Then connect the earth (ground) wire to the earth connection.

NOTE: The above action may only be performed by a qualified electrician.

Power Supply Connections: Three Phase and Single Phase



INSTALLING THE GUIDE BAR AND CHAIN

1. With the side cover removed, and the bar clamp plate removed, slacken the tension adjustor by turning anticlockwise.
2. Slip the guide bar into position with the hole engaged with the adjustor pin. (the bar is symmetrical and may be installed with either side up)
3. Install the bar clamp plate and thread on the bar clamp lever, but leave the bar clamp lever loose for now (to allow the tension adjustor to be adjusted) . It will be tightened fully only after tensioning the chain according to the instructions "TENSIONING THE CHAIN" below.
4. Place the chain around the drive sprocket first, ensuring that the drive links engage the sprocket teeth.
5. Starting from the drive sprocket end, loop the chain around the guide bar nose sprocket, ensuring that the drive links engage with the guide bar groove and remain engaged with the sprocket.
6. Install the side cover.

TENSIONING THE CHAIN

Note: Proper chain tension with a concrete chain saw is much looser than with a wood chain saw. It must be loose enough to run freely with only water as its lubrication.

- An over tensioned chain will give unnecessary load to the motor and will lead to premature chain stretch, sprocket damage, and spindle bearing damage.
 - An overly slack chain could fly off the guide bar and could also jump teeth on the drive sprocket, leading to premature wear of the sprocket and the chain's drive links.
 - In use, the chain must be readjusted if it hangs below the guide bar 10mm or more
1. To tension the chain, first loosen bar clamp lever to allow free movement of the adjustor mechanism.

CAUTION: attempting to turn the adjustor without loosening the bar clamp lever could result in damage to the adjustor mechanism.

2. While holding the guide bar upward from the nose end, turn the tension adjustor clockwise to tighten.
3. Rotate the chain by hand, grabbing the chain by its diamond segments, to ensure the chain rotates freely.

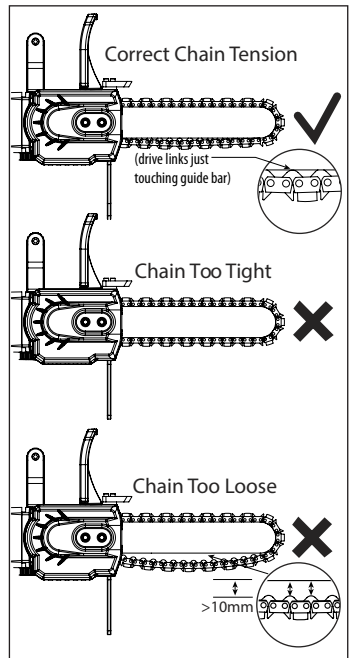
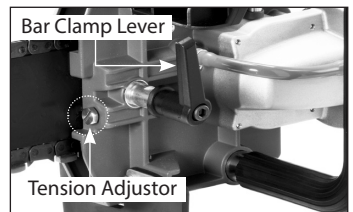
WARNING: Wear gloves when handling the chain and bar. Keep fingers away from the edges of the guide bar rails. When worn, they will have a very sharp edge.

When the associated parts have some wear, there will be some positions where the chain is looser and other positions where it is tighter. Find the tightest point, and make the final adjustment at that position.

4. Tension is correct when the chain is free to run around the guide bar, and the chain will hang with the drive links just barely engaging the guide bar groove at the bottom center position.
5. Once adjustment is satisfactory, the bar clamp lever may be tightened. While still holding guide bar upward, tighten the bar clamp lever firmly.

CAUTION: Running the saw with the bar clamp lever loose will cause a hazardous situation and could lead to damage to the tension adjustor mechanism.

NOTE: The spindle lock is not normally used. It is only needed when removing or replacing the sprocket arbor (left-hand thread)



WATER SUPPLY

This tool must always be used with a supply of clean water at a minimum pressure of at least 1.5bar (20 psi). The water serves as a coolant for the motor and converter as well as for the chain to avoid the working surface of the diamond segments from overheating and since it is not possible to use oil, the water also serves as the only lubricant available for the chain and guide bar. Sufficient water pressure will maximize chain life.

To connect the water supply, attach the quick-release water coupling to a water hose and regulate the water flow by adjusting the water feed valve.

The converter has 2 water connections. Connect the water supply to either connection on the converter first and then connect the other connection to the motor using the water coupling hose.

CAUTION: NEVER OPERATE THIS TOOL WITHOUT WATER FLOW THROUGH BOTH THE CONVERTER AND THE MOTOR. This system is designed to be water cooled and would quickly overheat without water.

CAUTION: WHEN OPERATING IN FREEZING WEATHER CONDITIONS, ALWAYS ENSURE THAT THE WATER IS DRAINED COMPLETELY FROM THE MOTOR AND CONVERTER AFTER USE, Water freezing inside the machine will lead to severe damage!

CAUTION: Ensure that the supply water is clean. If you find that there is no water flow to the guide bar, then clean out the water feed system on the machine with compressed air. Contaminants in the water supply can easily plug up the motor, converter, or the water passages in the guide bar.

CAUTION: Never use this tool without water, the diamonds will overheat and the O-rings in the chain will fail from the excessive heat.

WARNING: Check all connections of the water feed system to ensure there are no leaks. Inspect hoses and other critical parts which could deteriorate.

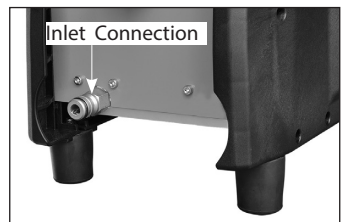
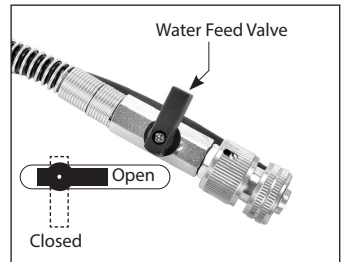
WARNING: The maximum water pressure should not exceed 70 psi (4 bar).

CAUTION: Always use a clean water supply. Never remove the strainer from the water supply hose coupling.

NOTE: Use a wet vacuum to collect cooling water if nearby objects could be damaged by water.

DIAMOND SEGMENTS

The diamond impregnated segments on a diamond chain operate on a principle of controlled erosion. The bond matrix holding the diamonds is continually worn away by abrasion with the work piece, exposing the



harder diamonds to stand proud from the bond matrix. Without adequate water, the segments would overheat and be destroyed. With not enough feed pressure, there would not be adequate erosion of the bond matrix and the segments will smooth over and become dull. This is called glazing. If the chain seems to refuse to cut anymore, it is glazed. See below: **“SHARPENING A NEW OR GLAZED CHAIN ”**

Don't feed too gently or the diamond segments will become glazed. If you push too hard, the motor will overload. Find the sweet spot to keep the chain steadily working.

If the cut is very deep, the work material may be obstructing the flow of cooling water. Expect increased chain wear in this situation.

NOTE: A new chain will not have its diamonds exposed yet. They will be hidden in the bond matrix. To open up the diamonds, sharpen in the same manner as a glazed chain below.

SHARPENING A NEW OR GLAZED CHAIN

If the chain is new, or if the chain's diamond segments become glazed, sharpen by making a few cuts into an appropriate alumina oxide or silicon carbide dressing stone. Simply make shallow plunge cuts into the stone as many times as necessary to restore its cutting performance. If a dressing stone is not available, cutting into a highly abrasive work material, such as cinder block will also work.

CHOOSING A DIAMOND CHAIN

This tool uses diamond chains only. There are different lengths of guide bar and chain available, in both 3/8 pitch and 0.444 pitch. The chain, guide bar, and sprocket must be matched as a set. Match the pitch of the chain to the sprocket, and match the length of the chain to the length of the guide bar. Chains with different types of diamond segments are available for different applications.

- Choose a chain with soft bond segments for hard materials, such as reinforced concrete. Trying to use a chain with hard bond segments to cut hard materials will lead to unsatisfactorily slow cutting and the chain will need to be resharpened many times.
- Choose a chain with a hard bond segments for softer, more abrasive materials. Using a chain with soft bond segments to cut soft materials will lead to unnecessarily shorter segment life. By choosing the correct chain for the application, cutting will be more effective and economical.

OVERLOAD PROTECTION, OVERHEAT PROTECTION

Overload & Load Warning Lamp

Whenever the motor is energized, and when it is operating comfortably within its load range, the load warning lamp will be lit green.

When the motor is operating near its full load range, the load warning lamp will flash red. If full load is exceeded and sustained for too long, the motor will shut down and the load warning lamp will glow solid red. In this case, the motor must be first shut off and then restarted.



NOTE: If the motor does not start when the switch is pressed:

A: If the lamp flashes green, this indicates a problem with the switch.

B: If the lamp glows solid green, this indicates a problem with the motor.

NOTE: When using single phase 16A power, the operator must be very careful not to use too much force. One must make note of the load warning lamp and try to keep within the the green range. Too much load will draw too much current and easily trip the supply circuit breaker.

Overheat Thermal Protection

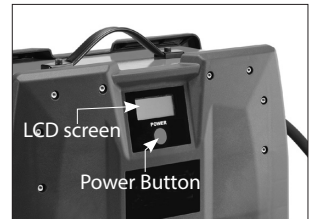
If the temperature of the motor gets too high, the thermal protection will shut the motor down. The switch must be first shut off and then restarted. When this happens, do not immediately start cutting. Always allow cooling water to flow through the motor for a few minutes to return to a normal operating temperature before continuing.

SET UP

- Connect the water supply from the converter to the motor using the water coupling hose
- Connect the converter to the water supply
- Check for water leaks
- Connect the motor coupling cable to the converter
- Connect the converter to the power supply

OPERATION

- When the power converter power supply cable is plugged in, the supplied voltage will be displayed on the LCD screen
- Press the **POWER** button on the power converter to energize the motor. "ON" will be displayed on the LCD screen and the Load Warning Lamp on the motor will be lit green. This indicates that the motor is now live and may be operated by its trigger switch.

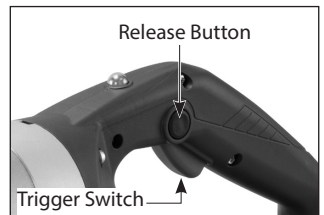


STARTING AND STOPPING THE TOOL

The Switch:

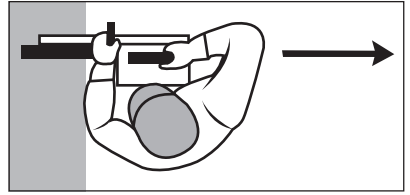
To start the machine, first press the Release Button, then press the Trigger Switch.

To stop the machine, release the Trigger Switch, then press the Power Button on the power converter to de-energize the machine.



HOW TO HOLD THE MACHINE

- Always hold the machine with both hands, with the right hand on the main handle and with the left hand on the side handle. (This applies even if the operator is left-handed)
- Do not stand directly in line with the chain. Rather, stand in such a way that, if it kicks back, you will not be in the path of the chain.
- Never lean over the cutting path. That would put your body in line with the chain if it kicks back.
- Do not cut above shoulder height.
- Never cut while standing on a ladder or other unstable platform.

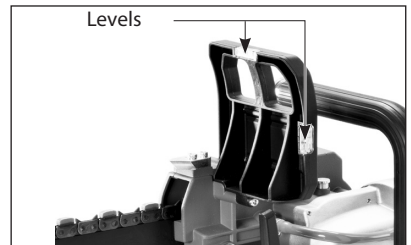


BEFORE CUTTING

- Check the area where the cut is to be made to ensure that it is clear of objects which could cause the operator to stumble.
- Before cutting, it is sometimes useful to mark the line of cut with chalk or the like.
- Ensure that all bystanders are at a safe distance.
- Ensure that all safety equipment is in place.

LEVELS

There are two spirit levels on the tool which allow the operator to align the tool in the vertical and horizontal planes



OPERATION

a. Before operating, first check for:

- Proper chain tension and ensure the bar clamp lever is tight
- Good condition of the chain, guide bar, and drive sprocket
- Connect the water supply, check for leaks and for proper water flow to the chain
- Ensure all safety equipment is in place and functioning normally
- Mark the line of cut before beginning.

WARNING: A new operator should perform some practice cuts under controlled conditions to become familiarized with concrete chain saw techniques. Experience with a wood cutting chain saw does NOT qualify an operator to use a concrete chain saw.

WARNING: Position the power supply cord so that it will not become caught on worksite obstacles.

CAUTION: Do not attempt to enter a kerf which is narrower than the chain. This will damage the

diamond segments.

CAUTION: Avoid the chain being pinched in the kerf. Plan the cut, and support the workpiece if necessary, to avoid the kerf closing down on the chain as cutting progresses.

NOTE: When cutting concrete with embedded rebar, always cut in such a way that the chain is cutting both concrete and rebar at the same time. The concrete will help to keep the diamond segments sharp.

b. Begin the cut with the nose of the guide bar:

When beginning the cut, start with the nose of the guide bar, since the nose contains a sprocket, which will offer the minimum friction for the chain. Since there is less water flow into the kerf with the nose of the bar, the remainder of the cut should be performed by cutting with the guide bar fully plunged into the kerf.

NOTE: The cutting technique for concrete is very different from a wood cutting chain saw, where cutting with the nose of the guide bar must be avoided. With a wood cutting chain saw, the hook-shaped saw teeth can easily grab the wood fibers, leading to a kickback hazard. Diamond segments which are cutting concrete do not behave in the same way. They simply abrade the workpiece without grabbing so aggressively. Still, always hold the saw firmly with both hands to resist kickback forces.

c Beginning the cut:

With the chain running at full speed, slowly approach the workpiece with the nose of the guide bar and plunge in. Hold the saw as straight as possible.

Start by making a shallow, 10 to 20mm outline cut along the entire cutting line with the nose of the guide bar. Then plunge in deeper and complete the cut.

While cutting, keep steady feed pressure on the tool to prevent the chain from chattering and bouncing.

Use enough pressure so that the motor audibly slows by about 20-30%. This will keep the diamonds sharp. Use the bumper spike for leverage to assist in keeping pressure on the cutting face.

d Square cut-outs:

When performing large square cut-outs, after the initial shallow outline cut, carefully hold the saw as squarely as possible and plunge cut each of the corners all of the way through.

Make the bottom horizontal cut first, then drive some wedges into kerf of the bottom if the cut section is large and heavy. Next, perform the 2 side vertical cuts. Make the top horizontal cut last.

This cutting sequence will avoid the chain being pinched by the workpiece.

WARNING: Ensure that appropriate bracing is in place to control falling of the concrete as the final cut is completed. Concrete is extremely heavy and could lead to severe injury if it falls in an uncontrolled manner.

e Pipe cutting:

When cutting a concrete pipe, support the pipe so that it will not pinch the chain. Plunge straight through the pipe, leaving a tab of uncut material at the very top, which will keep the pipe stable while cutting. Cut this tab last to complete the cut.

WEARING PARTS

1. Diamond Chain

The diamond segments will wear away with normal use. In addition, the chain itself will stretch due to accumulated wear of each joint of the chain. Inspect each segment of the chain before each use, noting any segment damage or undue wear.

2. Guide Bar

The guide bar rails will wear from abrasion with the chain. If the saw tends to cut to one side, the rails have worn unevenly. The guide bar rails can be re-squared by carefully sanding on a bench mounted belt sander. If the chain's drive links are touching the bottom of the guide bar grooves, the guide bar must be replaced. Running a good chain on worn out guide bar will prematurely wear out its drive links and the motor will overload easily from the excessive friction.

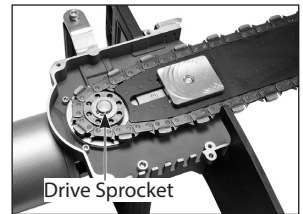
Extra life can be had from the guide bar by flipping it over to the other side, since the bottom wears faster than the top. It is a good practice to flip the guide bar each time you replace a chain. Generally, the guide bar will need to be replaced after about 3 chains.

3. Drive Sprocket

Running a good chain on a worn out sprocket will prematurely wear out its drive links. After about 3 chains, the drive sprocket will wear away and need replacement.

CHANGING THE DRIVE SPROCKET

To change the drive sprocket, first remove the side cover, chain, and guide bar. Using circlip pliers, remove the circlip, then the washer which retain the drive sprocket, then lift the sprocket off the splines. Replacement is the reverse of removal.



MAINTENANCE

This machine operates in a harsh environment with water and slurry. At the end of each work day, thoroughly clean the machine with water, then oil the bar and chain with a water displacing spray such as WD-40 to prevent rust. Ensure that the water feed ports are clear. Chain tension should be checked frequently and readjusted immediately when necessary. Inspect all parts of the saw for proper function before each use. Pay special attention to the condition of the chain, inspecting each diamond segment for wear or damage.

WARNING: 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 service center. Incorrectly performed repairs could lead to injury or death.

Do not throw electric power tools into the household waste!

In accordance with the European Directive 2002/96/EG on Waste Electrical and Electronic Equipment and transposition into national law, used electric power tools must be collected separately and recycled in an environmentally friendly manner.

POWER CONVERTER LCD SCREEN CODES

OFF: When the converter is plugged in, the screen will display the supply voltage. The voltage displayed will depend on the voltage of the supply

ON: When the converter power button is pressed, the screen will display “ON” The connected tool is now live

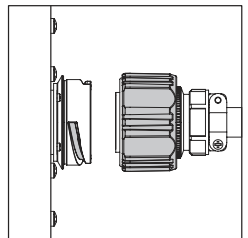
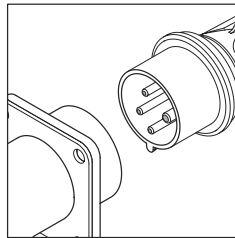
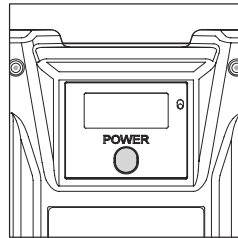
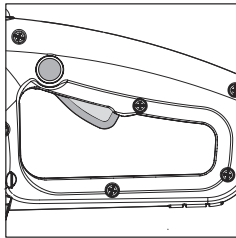
CORRECTIVE ACTION KEY

A:
Restart Tool by turning the switch OFF, then ON again

B:
Restart Converter by pressing the power button OFF, then ON again

C:
Unplug and Replug the Converter power supply cable

D:
Unplug and Replug the Coupling Cable (between converter & tool)

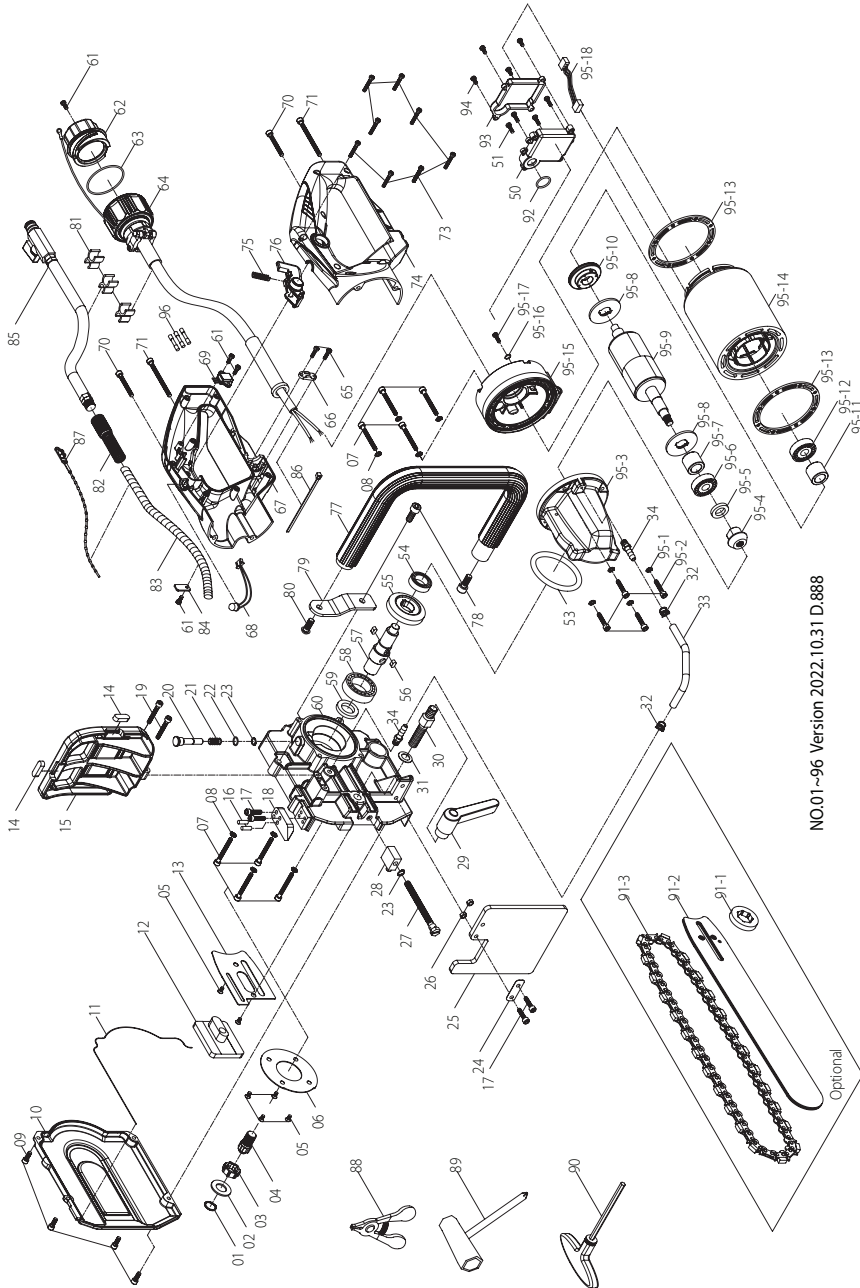


ERROR CODES

Error Code	Description	Corrective Action	Further Explanation
8888	Loss of communication between the motor electronics board, the converter electronics board and the LCD module when powering up	D	Check the connection of the coupling cable
E1	Overload of the converter.	A	At the tool, turn the switch OFF and then ON again
E2	Overheat of the converter	A	Ensure that water is flowing. As soon as temperature returns to normal, at the tool, turn the switch OFF and then ON again
E3	Under voltage	A	As soon as supply voltage returns to normal, at the tool, turn the switch OFF and then ON again
E4	Over voltage	A	As soon as supply voltage returns to normal, at the tool, turn the switch OFF and then ON
E5	Excessive back voltage from the motor brake to the converter	B	At the converter, press the POWER button to turn the power OFF and then back ON again (If the problem persists, bring the unit to an authorized service center for repair)
E6	RCD current leak detection between the converter and the voltage supply	C	Check connections and then, unplug and replug the power supply cable, then restart the converter.(If the problem persists, bring the unit to an authorized service center for repair)

E7	Hall effect sensor error	B	At the converter, press the POWER button to turn the power OFF and then back ON again (If the problem persists, bring the unit to an authorized service center for repair)
E8	Motor overheat	A	Ensure that water is flowing and wait 20 seconds. Then, at the tool, turn the switch OFF and then ON again (If the temperature has still not dropped sufficiently after 20 seconds, wait longer for the temperature to drop to the acceptable range)
E91	Loss of communication between the converter electronics board and LCD module during operation	B	At the converter, try pressing the POWER button to turn the power OFF and then back ON again. (If the problem persists, bring the unit to an authorized service center for repair)
E92	Loss of communication between the motor electronics board and the LCD module during operation	B	Check the connection of the coupling cable. Then, at the tool, try turning the switch OFF and then ON again (If the problem persists, bring the unit to an authorized service center for repair)
E10	Poor connections of power supply cable -single phase	C	Check the connections of the power supply plug and cable
E11	Voltage leak between the converter and the tool	C	Check connections and then, at the converter, press the POWER button to turn the power OFF and then back ON again (If the problem persists, bring the unit to an authorized service center for repair)
E12	Poor connections of power supply cable –three phase	C	Check the connections of the power supply plug and cable
E15	Internal problem in the converter electronics board circuit	C	At the converter, try pressing the POWER button to turn the power OFF and then back ON again (If the problem persists, bring the unit to an authorized service center for repair)
E16	No signal from the motor temperature sensor	A	At the tool, try turning the switch OFF and then ON again (If the problem persists, bring the unit to an authorized service center for repair)
E17	Motor temperature sensor short circuited	A	At the tool, try turning the switch OFF and then ON again (If the problem persists, bring the unit to an authorized service center for repair)

EXPLODED VIEW

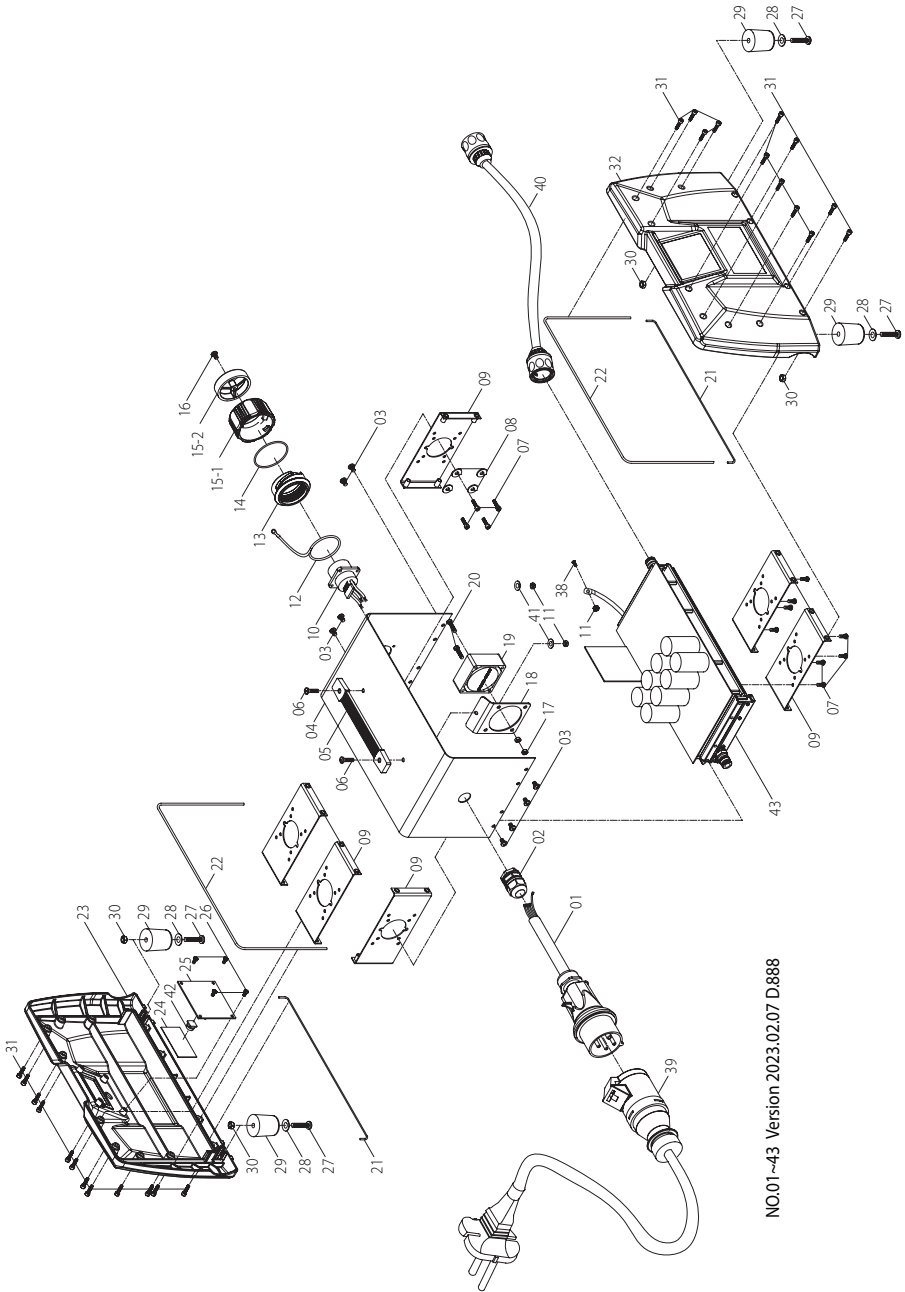


NO.01~96 Version 2022.10.31 D.888

PARTS LIST

NO.	Parts Name	QTY	NO.	Parts Name	QTY
1	EXTERNAL CIRCLIP (S10)	1	66	CORD CLIP	1
2	FLAT WASHER (Ø10xØ25x2)	1	67	MAIN HANDLE HALF-RIGHT	1
3	SPROCKET ARBOR	1	68	LED INDICATOR LIGHT	1
4	SPROCKET ARBOR SET	1	69	HALL EFFECT SWITCH	1
5	TORX FLAT HEAD MACHINE SCREW (M4x10)	6	70	SOCKET CAP SCREW (M5x40xP0.8)	2
6	COVER PLATE	1	71	SOCKET CAP SCREW (M5x65xP0.8)	2
7	SOCKET CAP SCREW (M5x45xP0.8)	8	73	PANHEAD TAPPING SCREW (M4x25)	8
8	SPRING WASHER (M5)	8	74	MAIN HANDLE HALF-LEFT	1
9	SOCKET CAP SCREW (M5x16xP0.8)	4	75	SPRING (Ø0.8 x Ø6.4 x Ø8 x 9T x 26L)	1
10	SIDE COVER	1	76	SWITCH ACTUATOR	1
11	MOLDED GASKET (Ø1 x 35cm)	1	77	SIDE HANDLE	1
12	BAR CLAMP PLATE	1	78	SOCKET CAP SCREW (M8-1.25 x 16)	2
13	ADJUSTOR PLATE	1	79	HANDLE BRACKET	1
14	TUBULAR SPIRIT LEVEL	2	80	FLAT HEAD SOCKET CAP SCREW (M8x16xP1.25)	1
15	HAND GUARD	1	81	HOSE JOINER (Ø12xØ14.4)	3
16	PIN (Ø4x15.8)	2	82	SPRING	1
17	SOCKET CAP SCREW (M5x20xP0.8)	4	83	CABLE PROTECTOR (Ø10x80CM)	1
18	BUMPER SPIKE	1	84	CLAMP PLATE	1
19	SOCKET CAP SCREW (M5x25xP0.8)	2	85	WATER FEED CONNECTOR KIT	1
20	SPINDLE LOCK PLUNGER	1	86	ZIP TIE (2.5x200MM)	1
21	SPRING (Ø1xØ9xØ11x5Tx15L)	1	87	ZIP TIE (KTV-150BK)	1
22	O-RING (Ø6x1)	1	88	SNAP RING PLIERS	1
23	EXTERNAL CIRCLIP (S-8)	2	89	T-WRENCH	1
24	RETAINING PLATE	1	90	HEX KEY (M4)	1
25	SPLASH FLAP	1	91	CHAIN, BAR, & SPROCKET SET	1
26	NYLOCK NUT (M5xP0.8)	2	92	O-RING (Ø18x2)	1
27	TENSION ADJUSTOR SCREW	1	93	COVER (BLACK)	1
28	ADJUSTOR BLOCK	1	94	PANHEAD TAPPING SCREW (M4x12)	4
29	RATCHET LEVER KNOB	1	95	MOTOR UNIT	1
30	FIXING STUD	1	95-1	SPRING WASHER (M5)	4
31	FLAT WASHER (Ø12.2xØ23x2)	1	95-2	SOCKET CAP SCREW (M5x25xP0.8)	4
32	CLIP	2	95-3	GEAR HOUSING	1
33	TUBE (Ø6.4xØ10x0.15M)	1	95-4	BEVEL PINION GEAR (M2.0x13T)	1
34	HOSE BARB	2	95-5	OIL SEAL (Ø15xØ25.4x4.6)	1
50	ELECTRONICS UNIT	1	95-6	BALL BEARING (6202)	1
51	SOCKET CAP SCREW (M4x12xP0.7)	4	95-7	SPACER (Ø15.9xØ25x22)	1
53	O-RING (Ø85x2)	1	95-8	ROTOR END PLATE	2
54	BALL BEARING (6201)	1	95-9	ROTOR	1
55	BEVEL GEAR (M2.0x28T)	1	95-10	MAGNET HOLDER	1
56	PARALLEL KEY (5x5x10)	2	95-11	SPACER (Ø15.9xØ21.8x28.5)	1
57	SPINDLE	1	95-12	BALL BEARING	1
58	BALL BEARING (6204)	1	95-13	WATER SEAL	2
59	OIL SEAL (Ø20xØ32x5)	1	95-14	MOTOR HOUSING UNIT	1
60	GEAR PLATE	1	95-15	MOTOR TAIL COVER	1
61	PANHEAD TAPPING SCREW (M4x12)	4	95-16	EXTERNAL STAR WASHER (M4)	1
62	PLUG CAP	1	95-17	SOCKET CAP SCREW (M4x8xP0.7)	1
63	O-RING (AS-137)	1	95-18	ELECTRONICS HARNESS	1
64	MOTOR COUPLING CABLE SET	1	96	HEAT SHRINK BUTT CONNECTOR	3
65	PANHEAD TAPPING SCREW (M4x14)	2			

EXPLODED VIEW (Power Converter)



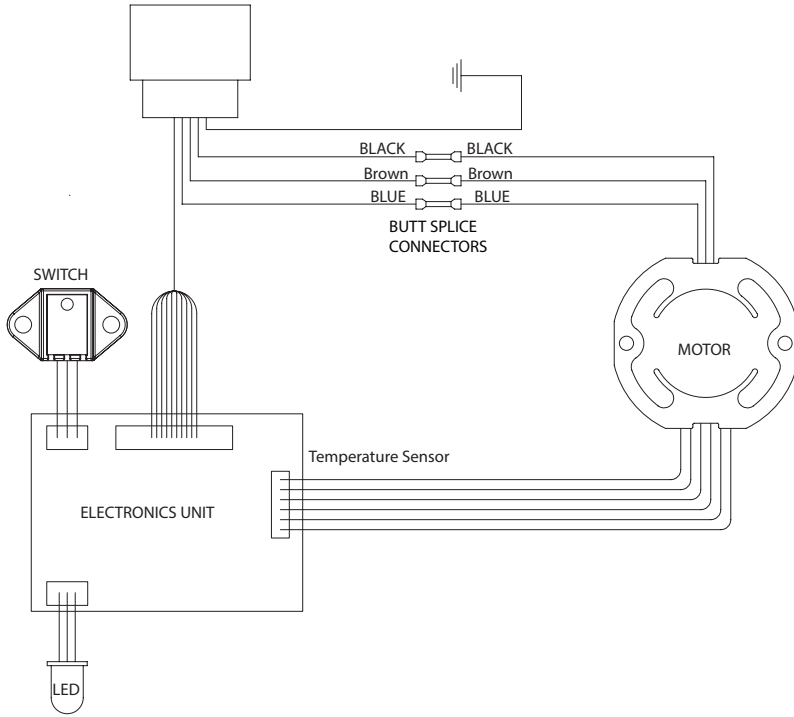
NO.01~43 Version 2023.02.07 D.888

PARTS LIST (Power Converter)

NO.	Parts Name	Q'ty
1	POWER SUPPLY CABLE	1
2	CABLE GLAND	1
3	PANHEAD TAPPING SCREW (M5x12)	8
4	ENCLOSURE	1
5	STRAP	1
6	SOCKET CAP SCREW (M5x20xP0.8)	2
7	SOCKET CAP SCREW (M4x10xP0.7)	12
8	SPRING WASHER (M4)	4
9	BRACKET	6
10	MIL-SPEC SOCKET RECEPTACLE	1
11	NYLOCK NUT (M5xP0.8)	3
12	TETHER	1
13	BAYONET COLLAR	1
14	O-RING (Ø52.07x2.62)	1
15	CAP	1
16	PANHEAD TAPPING SCREW (M4x12)	1
17	NYLOCK NUT (M4xP0.7)	2
18	FAN BRACKET	1
19	FAN	1
20	SOCKET CAP SCREW (M4x12xP0.7)	2
21	MOLDED GASKET (Ø2 x 33cm)	2
22	MOLDED GASKET (Ø2 x 63cm)	2
23	COVER - PANEL	1
24	WINDOW (65x35x1)	1
25	LCD MODULE	1
26	PANHEAD TAPPING SCREW (M4x8)	4
27	SOCKET CAP SCREW (M6x35xP1.0)	4
28	FLAT WASHER (Ø6.5xØ13x1)	4
29	FOOT	4
30	NYLOCK NUT (M6xP1.0)	4
31	SOCKET CAP SCREW (M4x20xP0.7)	24
32	COVER - PANEL	1
38	PANHEAD MACHINE SCREW (M5-0.8 x 8)	1
39	ADAPTOR CABLE	1
40	DRAIN HOSE	1
41	RUBBER WASHER (Ø4xØ11x1)	2
42	BUTTON	1
43	ELECTRONICS UNIT	1

WIRING

High Frequency Concrete Chainsaw:



Power Converter:

