

BLSAWSP
Single Phase Blocksaw
20" Blade



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Introduction

Welcome

Congratulations for purchasing the BT Engineering Blocksaw and welcome to the family. BT Engineering has spent the last 50 years working with brickies like yourself to develop a product that will work as hard and as long as you do. This is the why we are the name brickies trust.

This operation manual contains important information relating to the safe operation and maintenance of your BT Blocksaw. Please take the time to carefully read this manual prior to using the equipment.

General Safety

The BT Blocksaw is designed to give you safe and reliable cutting if operated and maintained in accordance with this manual. Please ensure that the following general safety measures are taken prior to every cut:

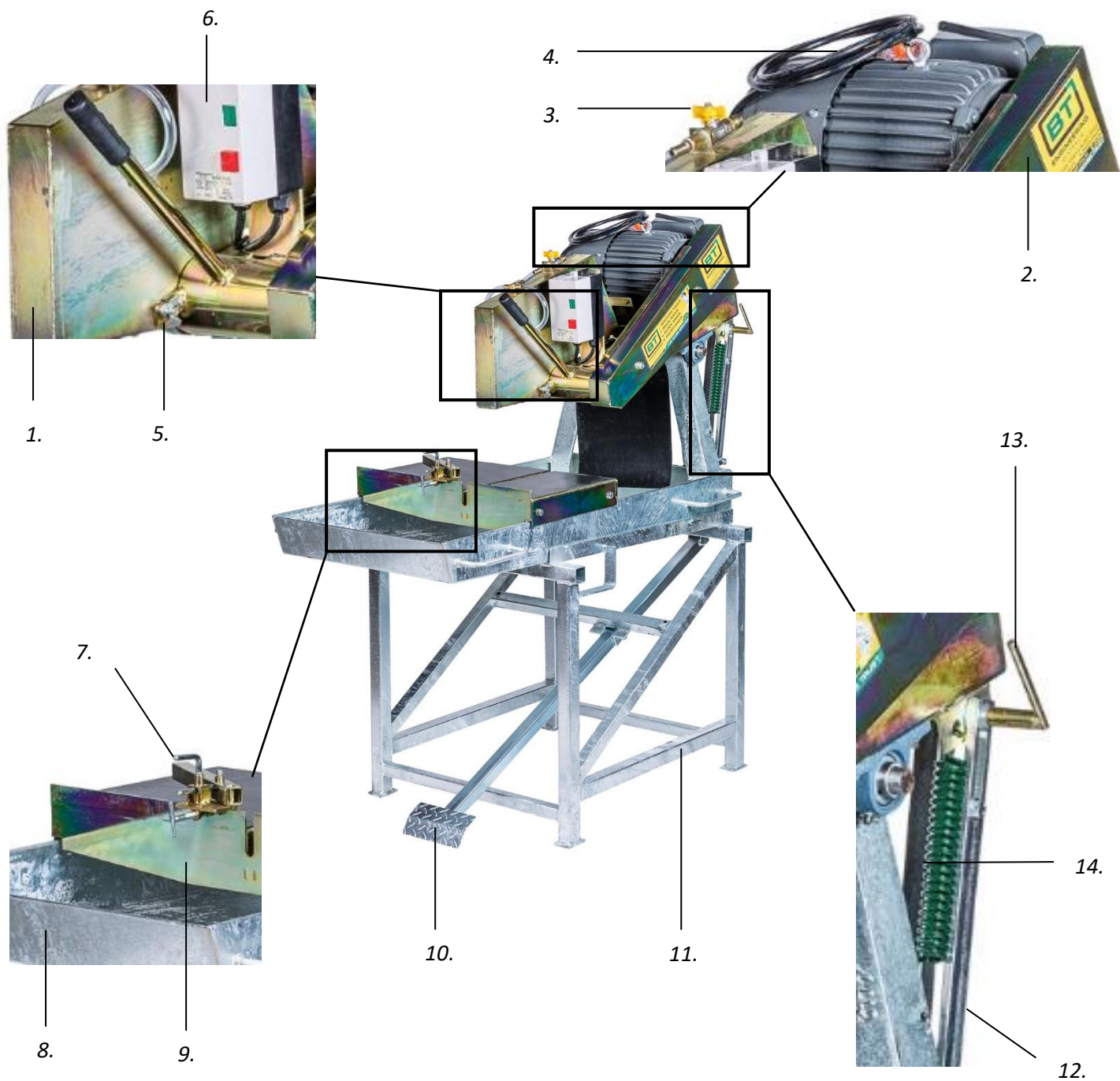
1. The stand is positioned on a flat and even surface.
2. The base is securely fastened to the stand.
3. The work area is well lit and free from trip hazards.
4. The blade and belt guards are in place.
5. The water hose is securely attached and there is adequate water supply.
6. Only 20" diamond impregnated blades are used and inspected for cracks or flaws that may render the blade unsafe.
7. You are familiar with the operation of the on/off functionality.
8. The saw is never left running unattended.
9. The use of appropriate personal protective equipment (PPE).
10. Compliance with any other local and or site-specific procedures.



About the BT Blocksaw

The BT Blocksaw has been designed to cut through cement blocks from one direction. There is no need to turn the block over to complete the cut. This heavy-duty saw is built to last, serving those who know what is needed to get the job done right.

Item	Specification
Blade diameter	510mm (20")
Blade bore diameter	25.4mm (1")
Blade cutting depth	200mm (8")
Carriage table size	560 x 350 (22"x 13.5")
Motor	Electric
Voltage (v)	240 (50 Hz.)
Plug	15amp
Current (Amp) Min / Nom / Max	5.7 / 13.3 / 75.81
Power Output (w)	2200
Assembled dim.	1450 x 700 x 1700 (57 x 28 x 67")
Packed / Transport dim.	1450 x 700 x 1070 (57 x 28 x 42")
Weight - Dry	150 kgs (330lbs)
Weight - Wet	160 kgs (355lbs)
Warranty – Motor	1 year
Warranty – Saw (BT Engineering)	1 Year



1.	Blade Guard
2.	Belt Guard
3.	Water tap and Hose connection
4.	Motor
5.	Blade Guard Wing nut
6.	On / Off Switch (Buttons)
7.	Mitre Guide
8.	Base
9.	Carriage
10.	Pedal
11.	Stand
12.	Pedal Push Arm
13.	Lock down nut
14.	Spring – Block Saw

Lifting

The BT single phase blocksaw is a heavy-duty unit weighing 150kgs (330lbs). Prior to moving the saw either on site or loading or unloading from transport you must check the following:

1. The motor is cool.
2. The motor switch is in the off position and the power cord is unplugged from the power source.
3. The water supply is off and removed from water tap connection.
4. The base is clean and dry.
5. The blade is raised to its max height and locked in place using the lock down nut.
6. The pedal push arm is disconnected from the arm and the pedal is raised towards the base.
7. The carriage is removed from base. This can be moved and secured independently of the base and stand.

Lifting - Manual

Ideally the block saw is maneuvered mechanically due to its weight. It can however be moved by a minimum of a four (4) person lift. To make the lift easier the base can be removed from the stand. By removing the T-screws on each side of the stand.



Be sure that you plan the lift. That is who is leading, the path to be taken and each stage of the lift, prior to commencing the lift.

Lifting - Mechanical

When conducting a mechanical lift, be sure that the base is securely fastened to the stand. As the lift will be done using the stand.

DO NOT attach lifting slings or chains to the four handles. These are not to be used for a mechanical lift.



Operation and Control

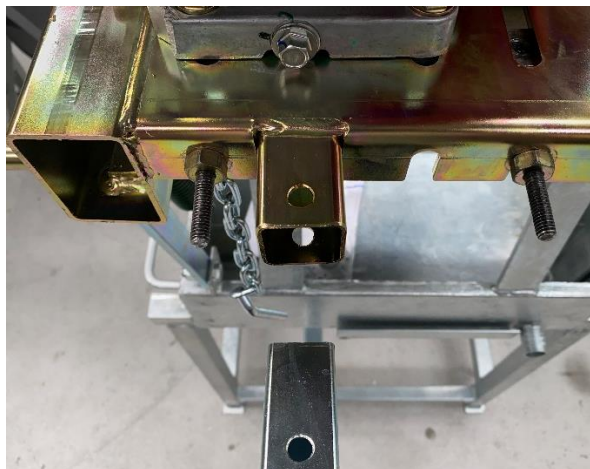
Set up

Making sure the saw is set up correctly is crucial for the operator's safety, those around the saw and the saw itself. The following steps must be taken prior to any prior to cutting.

1. The saw is on a flat and even surface.
2. The area is well ventilated and well lit.
3. The base is securely fastened to the stand.
 - I. Insert T screw through the stand and base.
 - II. Screw into the locking plate on the inside of the base.



4. The pivot arm is connected to the motor mount.
 - I. Insert the pedal push arm into the motor mount.
 - II. Insert pin through the motor mount.

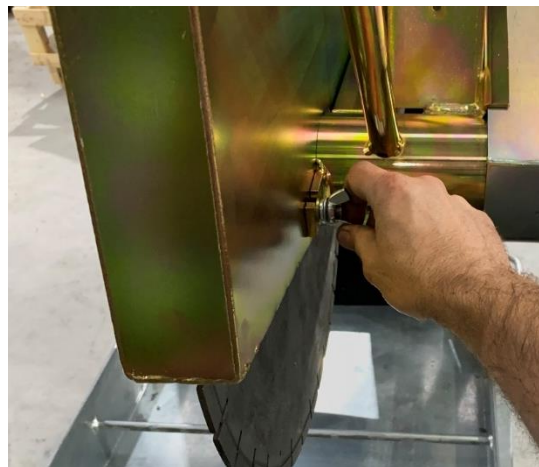


5. Check around the engine for signs of oil or petrol (gasoline) leaks.
6. Remove any excessive dirt or debris, especially around the muffler and recoil starter.

7. Check that the correct blade size and type is installed for that material to be cut.

Note: See the Blade Change steps in the maintenance section of this manual.

- I. Maximum blade size is 510mm (20")
 - II. Hard material (Concrete pavers / Terracotta / Granite) - Use a soft matrix blade. The soft blade leaves the diamond chips exposed allowing them to cut through the material.
 - III. Soft material (Cement block / Besa block / Sandstone) – Use a hard blade. The hard blade supports the diamond chips allowing them to cut through the material.
8. Check all guards are fastened securely in place.



9. Always use a BT carriage; check that it is running along the tracks smoothly.



10. A hose is connected to the water tap.

Power supply & generators

1. The Blocksaw is supplied with a 15amp plug & lead to for good power supply to the motor.
2. Ideally the Blocksaw should be as close as possible to a good 15amp power source.
3. The motor can draw a maximum of 75.81 Amps on start up.
4. Do not use an extension lead longer than 20 meters.
5. If using a generator,
 - a. Ensure that is adequately specified to take up to 76 Amps on startup
 - b. If other power tools are connected, please be aware that this will add extra load to the generator and may affect the available power to start the Blocksaw.
 - c. If unsure, please consult your generator supplier or electrician. BT will not recommend nor be responsible for sizing your generator.
6. Incorrect power supply can cause damage to your motor and void your warranty.

Start-up sequence

1. Ensure material and carriage is away from the blade.
2. Locate the switch and press RED OFF button.
3. Connect all plugs correctly and ensure R.C.D is used if required.
4. Locate the switch and press GREEN ON button.
5. Turn the water ball valve to the on position.

Cutting and Techniques

When cutting Remember to keep hands and fingers at least 50mm (2") away from the blade.

DO NOT:

1. Hold a brick or block you are cutting with your hand across the front of the blade.
2. Ever put your fingers inside the holes or slots of extruded brick or block.
3. Ever put your finger in front or behind the blade whilst it is running.
4. Ever cut more than one brick or block at once.
5. When making deep cuts. E.g., 190mm splits. Always apply downward pressure on the material being cut and do not push cut sections against the blade.
6. Force the blade through the material being cut.
7. Attempt to hold or grab a brick or block if it does jam on a blade.
 - a. Let go of the brick/ block immediately.
 - b. Turn off the saw immediately.
8. Cut material with cracks.

There are two cutting methods that are typically used when operating a block saw. These are the back cut and step cut.

Back Cutting

The safest was to cut because the blade is locked into position. Removing the likelihood of the block being caught by the blade. Causing the block to be thrown backwards through the splash guard or being lifted and jammed into the arm and blade cover. The downside to this method is it is a little slower and causes more wear to the blade because more of the blade is exposed to more friction for longer.

1. Set the block in position on the carriage.
2. Ensure the carriage is at the front of the base. *Closest to the operator.*
3. Loosen the lock down nut.
4. Set the blade in the lowered position. Making sure it is low enough to cut through the entire block.
Note: Just lower than the bearing surface of the carriage.
5. Lock the blade in place using the lockdown nut.
6. Turn the water on.
7. Turn the saw on.
8. Then slowly and steadily push the block through the blade.

Step Cutting

Is usually a quicker method, however there is more inherent risk as both the blade and block are moving. The operator must ensure the cut being performed from the back surface of the block to the front, so the likelihood of the block being caught by the blade is reduced.

1. Set the block in position on the carriage.
2. Ensure the carriage is at the front of the base. *Closest to the operator.*
3. Turn the water on.
4. Turn the saw on.
5. Loosen the lock down nut.
6. Leaving the blade in its raised position, push the block towards the blade.
7. Once the back 2 inches or so of the block is under blade.
8. Lower the blade to start the cut.

9. As the blade starts to cut through the block raise the blade.
10. As the blade is being raised push the block further into the blade.
11. Lower the blade to continue the cut.
12. Repeat steps 7 to 9. Stepping through the block until the cut is complete. It is important to keep even pressure on the blade as both the block is pushed in, and the blade is lowered.

Maintenance

It is critical for the health and safety of the operator and those around them that the saw is correctly maintained.

Before conducting any maintenance, make sure the motor is turned off and disconnected from any power source.

It is important that the saw is clean and dry to prevent any injury whilst handling the saw and its components. Below is the recommended minimum maintenance schedule.

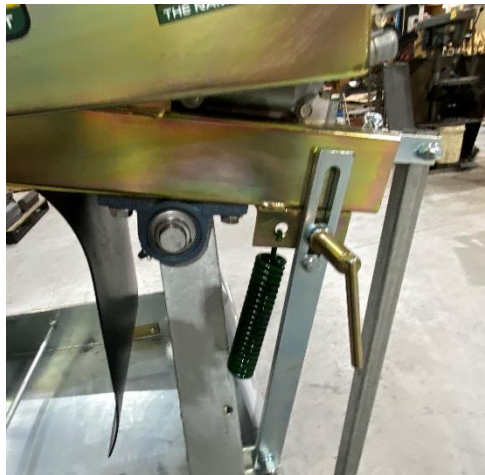
Item	Frequency	Every Use	After First Month OR 20 Hrs	3 Months OR 50 Hrs	6 Months OR 100 Hrs	Year OR 300 Hrs	Ref.
Carriage wheels	Clean	•					
	Replace					•	
Clean Saw		•					
Belts	Check	•	•		•		
	Replace					•	
Blade Alignment	Check			•			
Arm Bearings	Check			•			
	Grease					•	

Cleaning

1. Brush down the motor with a stiff bristle brush (for example a clean masonry brush) removing any built-up dust and dirt.
Note: Be gentle when brushing over and near the motor.
2. Make sure the drain hole in the back left hand corner of the base is clear, this will allow the water to drain out.
3. Loosen wing nut on the right-hand side of the blade cover.
4. Lift the blade cover to expose the blade.
5. Lift the blade cover exposing the blade and inside of the cover. – *See the blade change instructions.*
6. Flush both the blade and inside of the cover with water (DO NOT use a high-pressure hose), using a stiff bristle brush (for example a clean masonry brush) remove any dirt.
Note: DO NOT spray the motor with the hose as water can get into the air intake and cause damage to the motor.
7. Once dry, lower and lock the blade cover in place.
8. Wash down your carriage. Be sure to turn it upside down and make sure the wheels are free from any dirt build up.

Blade Change

1. Using the lock down nut, lock arm in the lifted position.



2. Loosen wing nut on the right-hand side of the blade cover.



3. Lift the blade cover to expose the blade.



4. Undo and remove the blade nut.



Note: This is a left-hand threaded nut. Turn in a clockwise direction to loosen.

5. Remove the outer blade collar. Do not remove the inner blade collar.



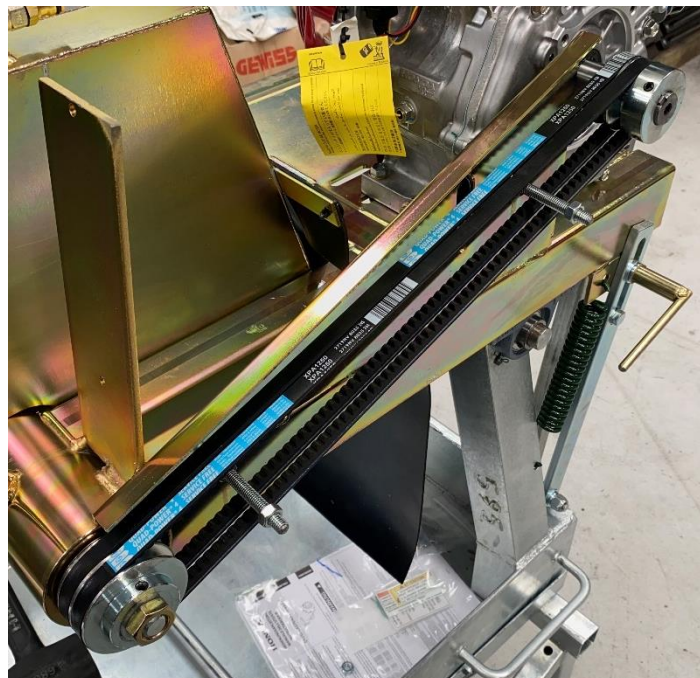
6. Remove the old blade.
7. Install new blade. Check the direction of rotation of the blade.
8. Slide on outer blade collar, checking that the shaft counter bore is closest to the blade.
9. Fasten blade nut.
Note this is a left-hand nut. Turn in an anti-clockwise direction.
10. Check that the blade is square and center to the carriage.
11. Lower the blade cover.
12. Fix in place by tightening the wing nut on the right-hand side of the blade cover.

Belt Replacement and Tensioning

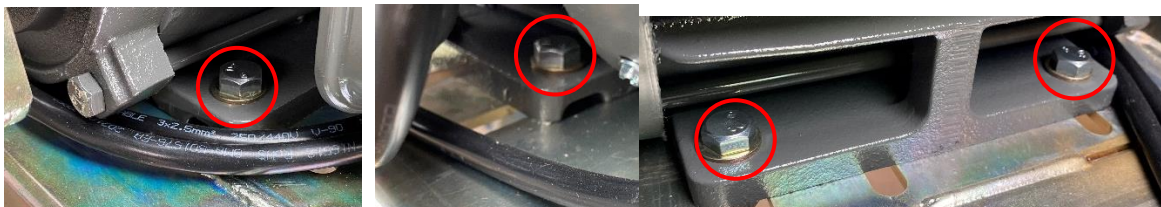
1. Unscrew the nuts on the outside of the belt guard.



2. Remove the belt guard. This will expose the two V-belts and pulleys.



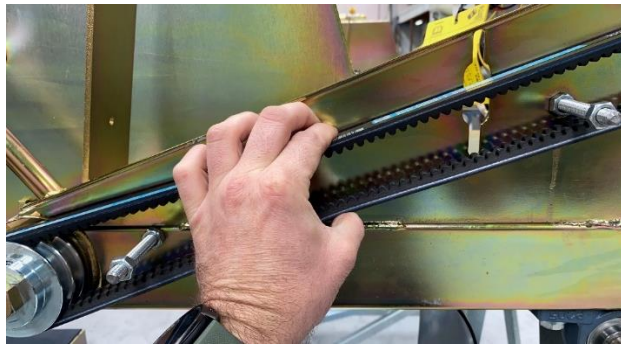
3. Loosen the four (4) motor mount bolts. Two at the front and two at the back.



4. Loosen the two (2) motor tension nuts. The motor will slide forward reducing the belt tension allowing you to remove the belts.



5. Remove the old belts.
6. Brush off any buildup of dirt using a stiff bristle brush (a clean masonry brush)
7. Fit new belts – XPA1370.
8. Tension belts by doing up the two motor tension nuts.
9. Continue to tighten until you can squeeze the middle of the belts inwards. The deflection should be no greater than 15mm (5/8")



Note: Excessive tension will shorten the life of the belts and pulleys.

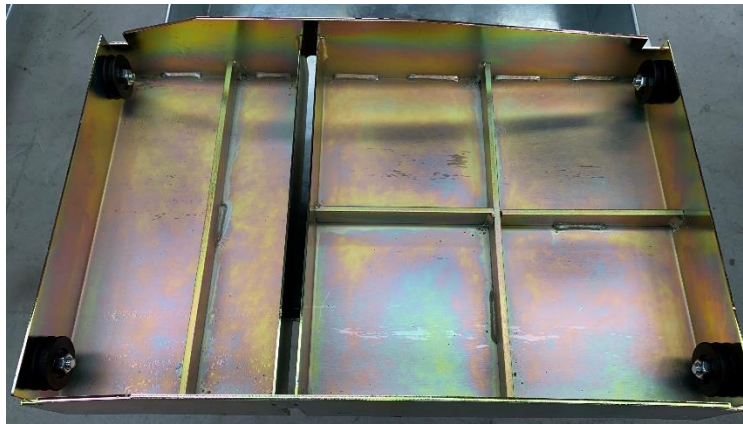
10. Once tension is correct, check belts are parallel.
11. Place a straight edge on the motor pulley and running it towards the blade pulley. You are looking for the pulleys to be parallel.



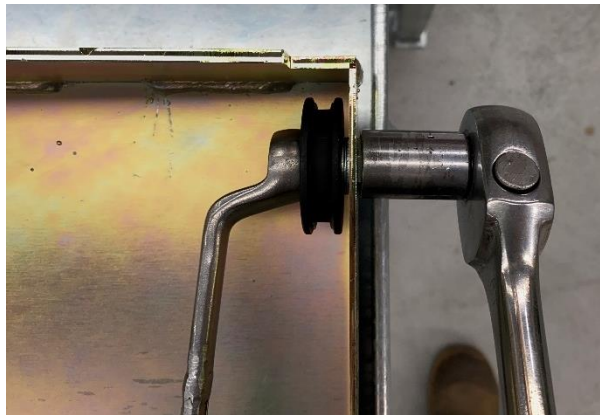
12. Adjust the tensioning nuts individually to make sure the belts are aligned.
Note: Check belt tension as you work to align the pulleys as you may need to loosen the nuts rather than tighten them.
13. Tighten the four motor mount bolts.
14. Fit the belt guard.

Carriage Wheel Replacement

1. Turn carriage over to expose the wheels.



2. Using a spanner and socket undo each bolt.



Note: Record the number and position of the packing washers between the carriage body and the wheel.

3. Replace old bolt with new. The head of the bolt is to be on the outside.
4. Replace the old packing washers between the inside face of the carriage and the new wheel.

Note: extra packing washers can be added to improve stability and blade alignment

5. Install the new wheels.
6. Screw on new nut and tighten with a spanner and socket.
7. Test stability and blade alignment. If not correct repeat steps 2-7.
8. Once carriage is stable and rolling smoothly, the carriage is ok to return to service.

Check Vertical Blade Alignment

1. Remove the carriage from the base.
2. Using the lock down nut, lock arm in the raised position.
3. Loosen wing nut on the right-hand side of the blade cover.
4. Lift the blade cover to expose the blade.
5. Place a straight edge across the top edges of the base.



6. On the left-hand side of the blade place one edge of the square on the straight edge and the other edge of the square on the blade.



7. When the blade is vertical there will be no variation between blade and the square.

Correcting Vertical Blade Alignment

1. Remove the pivot bearing nuts:
 - I. If the bottom of the blade is proud remove the right-hand side nuts.
 - II. If the top of the blade is proud remove the left-hand side nuts.



2. Place a washer between the motor mount and the pivot bearing.



Washers

Note: These are 1/2" x 1 1/2" Flat Washers.

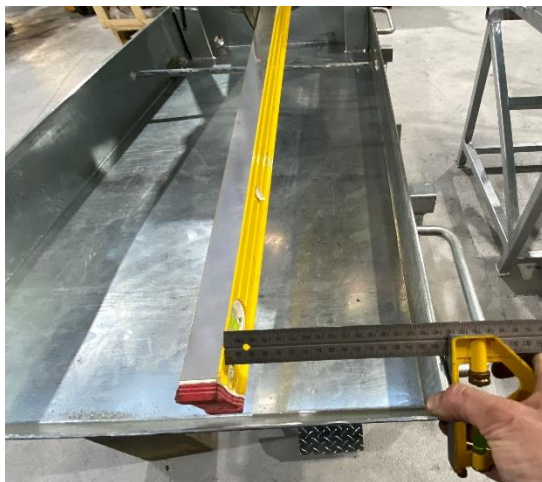
3. Tighten pivot bearing nuts.
4. Check vertical alignment.
5. If still out repeat steps 1-4.
6. If corrected, check horizontal alignment.

Check Horizontal Blade Alignment.

1. Remove the carriage from the base.
2. Using the lock down nut, lock arm in the lowered position.
3. Loosen wing nut on the right-hand side of the blade cover.
4. Lift the blade cover to expose the blade.
5. Clamp a straight edge to the right-hand side of the blade. Ensure the straight edge runs the entire length of the base.



6. On the right-hand side, measure the distance between the straight edge and the outer edge of the base.
7. The measurement should be the same at the front (Closest to the operator) and the back (Closest to the drain) the measurement should be within $\pm 1.00\text{mm}$ ($1/32''$).



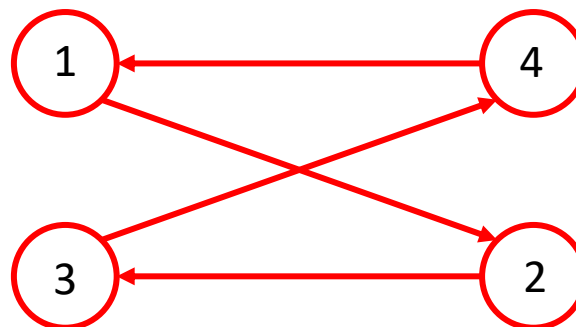
8. The blade is straight when the measurement is within the tolerance.

Correcting Horizontal Blade Alignment

1. Loosen wing nut on the right-hand side of the blade cover.
2. Lift the blade cover to expose the blade.
3. Remove the belt guard.
4. Loosen all pivot bearing bolts.
5. Using soft hammer gently tap the blade shaft until the measurement between the straight edge and the outer edge of the base is the same at the front and the back.



6. Gently tighten pivot bearing nuts in a star pattern to reduce the chance of moving the blade back out of alignment.



7. Check horizontal alignment:
 - I. If blade has moved repeat steps 2-4.
 - II. If blade has remained in place.
8. Replace the belt guard.

Spare Parts

The use of genuine BT spares is recommended to ensure the integrity of the parts and the life of the saw.

Part Description	Part number	Standard Qty per saw
Mitre Guide	BSAWMI	1
Blocksaw Single Phase Motor	BLMOTTECO2.2kW	1
Blocksaw Carriage – Electric	BLSAWC-E	1
Carriage Wheel – Set	SET - BSAWW-PE	1
Blade Shaft Assembly – Electric Block Saw	BLSAWBSK-E	1
V-Belt – Petrol Block Saw	BELTXPA1370	2
Water Ball valve kit – Block Saw	BLSAWBV	1
Tilt Guide	BSAWAG	0

Troubleshooting Guide

Issue	Cause	Solution
Electrical motor will not start.	<ul style="list-style-type: none"> • Power supply issue. • The plug or lead is damaged. • Faulty capacitors • The on/off switch is faulty. • The electrical terminals are either corroded or loose. 	<ul style="list-style-type: none"> • Inspect the power supply – for example the circuit or generator is not overloaded. • Have a qualified electrician inspect that 15Amp power is supplied. • Restart the saw as close to the power source, as extension lead maybe faulty. • If an extension cord is being used it is no greater than 20m long and is a heavy-duty industrial grade. • If using a generator, recheck amperage draw capacity. Needs to provide up to 76Amp • Have the plug or lead replaced by a qualified person. • Have a licensed electrician to check the capacitors in the terminal box. • Have the switch replaced by a qualified person. • Clean corrosion off terminals or push leads back on to terminals.
Electrical motor starts but trips thermal overload switch	<ul style="list-style-type: none"> • Power supply issue. • Faulty capacitors. • Air does not flow through the motor. • Mechanical issue. • “Clunking “sound on start up 	<ul style="list-style-type: none"> • Have a qualified electrician inspect that 15Amp power is supplied. • Restart the saw as close to the power source, as extension lead maybe faulty. • If an extension cord is being used it is no greater than 20m long and is a heavy-duty industrial grade. • If using a generator, recheck amperage draw capacity. Needs to provide up to 76Amp. • Have a licensed electrician to check the capacitors in the terminal box. • Check the fan cowl is clean and air can pass through easily. • Check the fan fins are broken. If so, replace fan. • Remove any built up debris. • Inspecting the glade guard, Vee-belts, areas around the pulleys, bearings, and collars. Refer to page 15 in this manual
Blade is not cutting satisfactorily	<ul style="list-style-type: none"> • Blade maybe blunt. • Blade with incorrect rotational direction. 	<ul style="list-style-type: none"> • Inspect the blade for diamonds. • Check rotation of the blade. See blade installation instructions. Pg 13

	<ul style="list-style-type: none"> • Blade may not be suitable for the material being cut. • Insufficient water supply 	<ul style="list-style-type: none"> • Check blade is appropriate for the material being cut. See blade chart from blade manufacturer. • Check water supply and increase flow either direct from the source or at the ball valve.
Issue	Cause	Solution
Blade is wobbling or vibrating	<ul style="list-style-type: none"> • Cracked or damaged blade. • Blades not compatible with the blade shaft Arbor.(25.4mm [1"]) • Blade fitted incorrectly. • Worn shaft, shaft bearings or collars 	<ul style="list-style-type: none"> • Inspect blade for damage and replace if required. • Ensure the blade is suited for a 25.4mm [1"]. If not replace with appropriate blade • Refer to blade installation. • Inspect and replace worn components.
Not cutting straight	<ul style="list-style-type: none"> • Saw carriage wheels worn or damaged. • Saw out of alignment. 	<ul style="list-style-type: none"> • Inspect carriage wheels and replace them if necessary. • Refer to "check horizontal alignment" Page20 of your manual.
Rotational speed of the blade is slow	<ul style="list-style-type: none"> • Vee belts slipping. • Build up of debris around rotating parts 	<ul style="list-style-type: none"> • Refer to "Belt change and tension" Page 15 of your manual. • Remove any built-up debris. Inspecting the glade guard, Vee-belts, areas around the pulleys, bearings, and collars.
Excessive noise from the saw	<ul style="list-style-type: none"> • Shaft bearings are worn. • Motor bearings are worn. 	<ul style="list-style-type: none"> • Inspect and replace worn components. • Replace motor.

Please note that all trouble should be caused with the motors and engines off and cold.

CONDITIONS OF WARRANTY

This BT Blocksaw is warranted free from defective workmanship and or materials for a period of Twelve (12) Months from the date of sale to the original purchaser.

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Our Liability hereunder is strictly limited to supplying replacements parts as abovementioned. BT shall not in any event extend to any consequential loss or damage whatsoever, or to any defect due to accident, misuse or any cause beyond our control.

To make a warranty query or claim, please contact your retailer and provide your proof of purchase and the saw serial number.

The Consumer will pay for freight costs and delivery charges to and from capital cities, if Blocksaw is to be returned to BT Engineering or Retailer for repair or replacement.

Warranty will not be covered in the event of damages or failures by the consumer for incorrect use.

These conditions of warranty exclusively compromise the warranty expressly given by us under the undermentioned BT Blocksaw.

Serial No: _____

Date of Purchase: ____/____/ 20____

Purchased from: _____

WARRANTY
BT BLOCKSAW
BT ENGINEERING
+61 2 9521 3041
www.btengpl.com.au
sales@btengpl.com

Please retain this half of the warranty. To be presented when any claim is made under Warranty.

Please complete this coupon and return to:

B.T Engineering Group Pty Ltd, 5 Marshall Rd, Kirrawee NSW 2232 or email to sales@btengpl.com

Model: BLSAWSP	Type: Single Phase
Serial Number:	Date of Purchase:
Name:	
Address:	
Contact Phone:	Email:
Purchased From:	Ph: