



OPERATING MANUAL & PARTS LIST

9683120 & 9683121

PALMGREN®

20" TOOL ROOM SAWS



Read carefully and follow all safety rules and operating instructions before first use of this product.



GETTING STARTED

STRUCTURAL REQUIREMENTS

Make sure all supporting structures and load attaching devices are strong enough to hold your intended loads. If in doubt, consult a qualified structural engineer.

ELECTRICAL REQUIREMENTS

The power supply to Model 9683120 needs to be 220 volt/ 6.5 amp, three phase, 60 Hz. The standard allowable voltage variation is plus or minus 10%.

The power supply to Model 9683121 needs to be 440 volt/ 3.25 amp, three phase, 60 Hz. The standard allowable voltage variation is plus or minus 10%.

TOOLS NEEDED:

Standard mechanic's hand tool set.

UNPACKING

Carton should be handled with care to avoid damage from dropping, bumping, etc. Store and unpack carton with correct side up. After unpacking Band Saw, inspect carefully for any damage that may have occurred during transit. Check for loose, missing or damaged parts. If any damage or loss has occurred, claim must be filed with carrier immediately. Check for completeness. Immediately report missing parts to dealer.

IMPORTANT: Table is coated with a protectant. To ensure proper fit and operation, remove coating. Coating is easily removed with mild solvents, such as mineral spirits, and a soft cloth. Avoid getting solution on paint or any of the rubber or plastic parts. Solvents may deteriorate these finishes. Use soap and water on paint, plastic or rubber components. After cleaning, cover all exposed metal surfaces with a light coating of oil. Paste wax is recommended for table top.

Palmgren model 9683120 and 9683121 are shipped complete in one box. The band saw comes assembled as one unit.

After unpacking the unit, carefully inspect for any damage that may have occurred during transit. Check for loose, missing or damaged parts. Shipping damage claims must be filed with the carrier.

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All tools should be visually inspected before use, in addition to regular periodic maintenance inspections.

Be sure that the voltage labeled on the unit matches your power supply.

UNPACK:

Do not discard packing materials until after machine has been inspected for damage and completeness. Locate loose parts and set aside.

INSPECT:

After unpacking the unit, carefully inspect for any damage that may have occurred during transit. Check for loose, missing or damaged parts. Shipping damage claims must be filed with the carrier.

All tools should be visually inspected before use, in addition to regular periodic maintenance inspections.

Be sure that the voltage labeled on the unit matches your power supply.

SAFETY RULES

WARNING: For your own safety, read operating instructions manual before operating tool.

PROPOSITION 65 WARNING: Some dust created by using power tools contain chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.

Some examples of these chemicals are:

- Lead from lead-based paints
- Crystalline silica from bricks and cement and other masonry products.
- Arsenic and chromium from chemically treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals; work in a well ventilated area and work with approved safety equipment. Always wear **OSHA/NIOSH** approved, properly fitting face mask or respirator when using such tools.

WARNING: Always follow proper operating procedures as defined in this manual even if you are familiar with the use of this or similar tools. Remember that being careless for even a fraction of a second can result in severe personal injury.

BE PREPARED FOR JOB

- Wear proper apparel. Do not wear loose clothing, gloves, neckties, rings, bracelets or other jewelry which may get caught in moving parts of machine.
- Wear protective hair covering to contain long hair.
- Wear safety shoes with non-slip soles.
- Wear safety glasses complying with United States ANSI Z87.1. Everyday glasses have only impact resistant lenses. They are **NOT** safety glasses.
- Wear face mask or dust mask if operation is dusty.
- Be alert and think clearly. Never operate power tools when tired, intoxicated or when taking medications that cause drowsiness.

PREPARE WORK AREA FOR JOB

- Keep work area clean. Cluttered work areas invite accidents.
- Do not use power tools in dangerous environments. Do not use power tools in damp or wet locations. Do not expose power tools to rain.
- Work area should be properly lighted.
- Proper electrical receptacle should be available for tool. Three-prong plug should be plugged directly into properly grounded, three-prong receptacle.
- Extension cords should have a grounding prong and the three wires of the extension cord should be of the correct gauge.
- Keep visitors at a safe distance from work area.
- Keep children out of workplace. Make workshop childproof. Use padlocks, master switches or remove switch keys to prevent any unintentional use of power tools.

SAFETY RULES (CONTINUED)**TOOL SHOULD BE MAINTAINED**

- Always unplug tool prior to inspection.
- Consult manual for specific maintaining and adjusting procedures.
- Keep tool lubricated and clean for safest operation.
- Remove adjusting tools. Form habit of checking to see that adjusting tools are removed before switching machine on.
- Keep all parts in working order. Check to determine that the guard or other parts will operate properly and perform their intended function.
- Check for damaged parts. Check for alignment of moving parts, binding, breakage, mounting and any other condition that may affect a tool's operation.
- A guard or other part that is damaged should be properly repaired or replaced. Do not perform makeshift repairs. (Use parts list provided to order repair parts.)

KNOW HOW TO USE TOOL

- Use right tool for job. Do not force tool or attachment to do a job for which it was not designed.
- Disconnect tool when changing the blade.
- Avoid accidental start-up. Make sure that the tool is in the OFF position before plugging in.
- Do not force tool. It will work most efficiently at the rate for which it was designed.
- Keep hands away from moving parts and cutting surfaces.
- Never leave tool running unattended. Turn the power off and do not leave tool until it comes to a complete stop.
- Do not overreach. Keep proper footing and balance.
- Never stand on tool. Serious injury could occur if tool is tipped or if blade is unintentionally contacted.
- Know your tool. Learn the tool's operation, application and specific limitations.
- Use recommended accessories. Use of improper accessories may cause risk of injury to persons.
- Handle workpiece correctly. Protect hands from possible injury.
- Turn machine off if it jams. Blade jams when it digs too deeply into workpiece. (Motor force keeps it stuck in the work.) Do not remove jammed or cut off pieces until the saw is turned off, unplugged and the blade has stopped.
- Maintain proper adjustment of blade tension, blade guides and thrust bearings.
- Adjust upper guide to just clear workpiece.
- Hold workpiece firmly against table.
- Direction of feed: Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.

WARNING: The operation of any power tool can result in foreign objects being thrown into the eyes, which can result in severe eye damage. Always wear safety goggles complying with United States ANSI Z87.1 (shown on package) before commencing power tool operation.

SPECIFICATIONS

	9683120	9683121
Blade Length	157"	157"
Blade Width	1/4" – 3/4"	1/4" – 3/4"
Blade Thickness	.032"	.032"
HP	3 HP	3 HP
Voltage	220 V	440 V
Amperage	6.5 A	3.25 A
Phase	3 PH	3 PH
Cutting Capacity Rectangle	12"×20"	12"×20"
Cutting Capacity Round	12"	12"
Cutting Capacity Square	12"	12"
Table Height	38.5"	38.5"
Table Tilt	45° right; 15° left	45° right; 15° left
Blade to Frame	12"	12"
Electric Welder	4.2 kVA	4.2 kVA
Grinder Motor	1/8 HP	1/8 HP
Machine Dimensions	46.5"×38.5"×77"	46.5"×38.5"×77"
Weight	1300 lbs	1301 lbs
Speeds	0–2500 SFPM	0–2500 SFPM
Table Dimensions	21.5"×23.5"	21.55"×23.5"
Blade Wheels Diameter	20"	20"

INSTALLATION**POWER SOURCE**

Model 9683120 is wired for 220 volt, 60 Hz power source.

Model 9683121 is wired for 440 volt, 60 Hz power source.

The motor is designed for operation on the voltage and frequency specified. Normal loads will be handled safely on voltages not more than 10% above or below the specified voltage.

Running the unit on voltages which are not within the range may cause overheating and motor burn-out. Heavy loads require that the voltage at motor terminals be no less than the voltage specified. Power supply to the motor is controlled by a single pole toggle switch.

WARNING: Improper connection of equipment grounding conductor can result in the risk of electrical shock. Equipment should be grounded while in use to protect operator from electrical shock.

- Check with a qualified electrician if grounding instructions are not understood or if in doubt as to whether the tool is properly grounded.
- Inspect tool cords periodically, and, if damaged, have repaired by an authorized service facility.

WARNING: Do not permit fingers to touch the terminals of plug when installing or removing from outlet.

INSTALLATION (CONTINUED)

EXTENSION CORDS

- The use of any extension cord will cause some drop in voltage and loss of power.
- Wires of the extension cord must be of sufficient size to carry the current and maintain adequate voltage.
- Running the unit on voltages which are not within $\pm 10\%$ of the specified voltage may cause overheating and motor burn-out.
- Use the table to determine the minimum wire size (A.W.G.) extension cord.
- Use only 3-wire extension cords having 3-prong grounding type plugs and 3-pole receptacles which accept the tool plug.
- If the extension cord is worn, cut or damaged in any way, replace it immediately.

Extension Cord Table						
Ampere Rating		Volts	Total Length of Cord in Feet			
More Than		120	25	50	100	150
Not More Than		240	50	100	150	300
		Minimum Gage for Cord				
0	6		18	16	16	14
6	10		18	16	14	12
10	12		16	16	14	12
12	16		14	12	Not Recommended	

OPERATION

CONTROLS

Refer to Figures 1, 2 and 3.

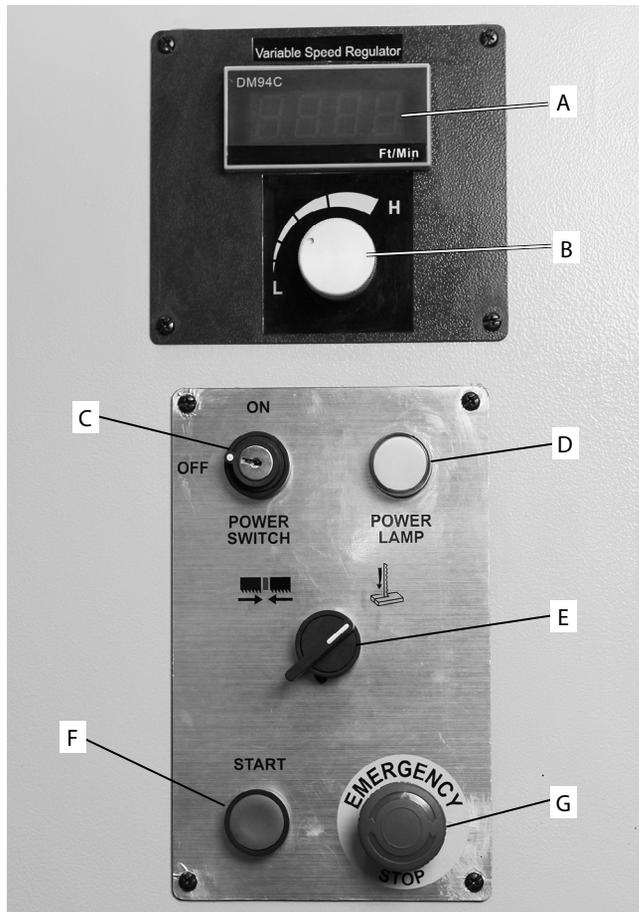


Figure 1 - Controls



Figure 2 - Controls

- H. Blade Guide Up and Down Handwheel
- I. Blade Guide
- J. Blade Tension Handwheel

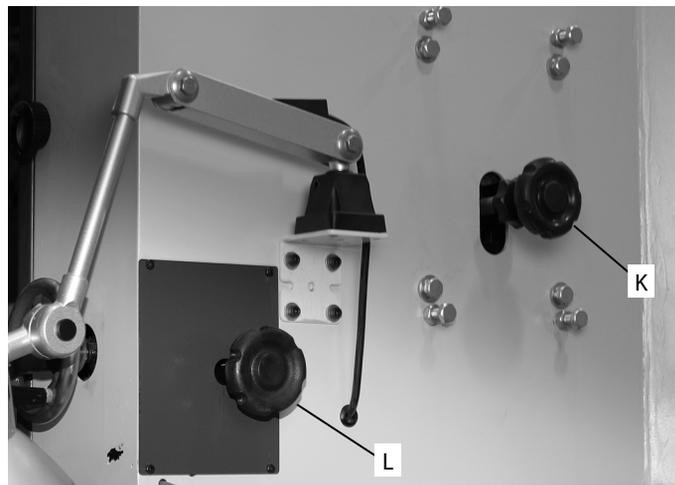


Figure 3 - Controls

- K. Blade Tracking Knob
- L. Blade Guide Lock Knob

OPERATION (CONTINUED)**INSTALLING/REPLACING BLADE**

WARNING: Ensure the saw is disconnected from power supply, so there is no possibility of saw activation!

WARNING: When handling blades always wear thick work gloves.

REMOVE SAW BLADE

1. Open upper and lower cabinets
2. Loosen Blade tension handle "J". Beware the blade does not spring off the wheel
3. Start with the upper section and remove the saw blade from the top of the wheel
4. Work the saw blade out of the blade guide "I"
5. Slide the saw blade through the table slit
6. Remove the rest of the saw blade from around the lower wheel.

INSTALL NEW SAW BLADE

1. Start by wrapping the new saw blade around the lower wheel. Ensure the blade teeth are facing towards you and down towards the table..
2. Slide the new blade through the table slit
3. Slide the new saw blade through the long slit in the blade guide "I"
4. Wrap the new blade around the top of the upper wheel.
5. Finish by re-tensioning the upper wheel using the handwheel "J".

BLADE WELDING

The control panel for the blade welder is shown in Figure 4. The welding circuitry is energized independent of the band saw circuitry. To operate the welder, plug in the line cord to a proper power source.

CAUTION: Do not operate the band saw and the welder at the same time.

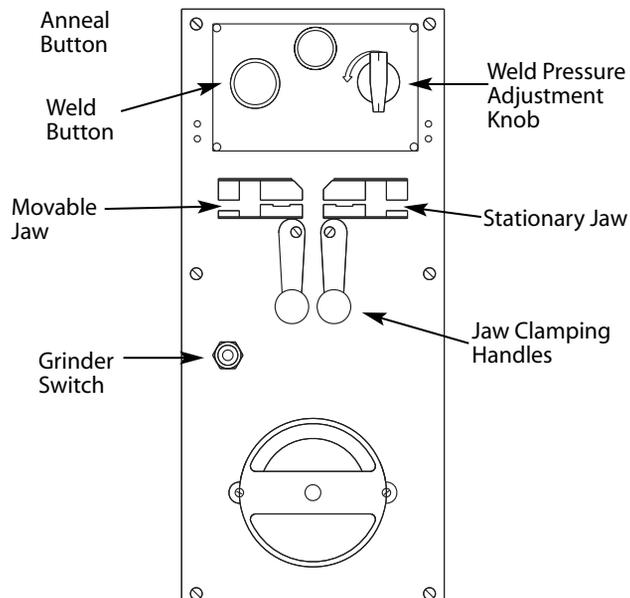


Figure 4 – Blade welder controls.

PREPARING BLADE FOR WELDING

1. A properly prepared blade is essential in producing a high-quality, long lasting band saw blade.
2. The blade must be cut to proper length.
3. Blade ends should be cut and ground square.
4. Any rust, oil or dirt must be removed.
5. Some teeth must be ground off blade ends depending upon the pitch of the blade.

BLADE CUTTING

Refer to Figure 5.

1. Cut the blade ends flat, square and smooth using the blade shear.
2. Lean the back of blade against the shear blade guide when cutting blade ends (See Figure 5).
3. Use grinder, as needed, to make blade ends flat, square and smooth.

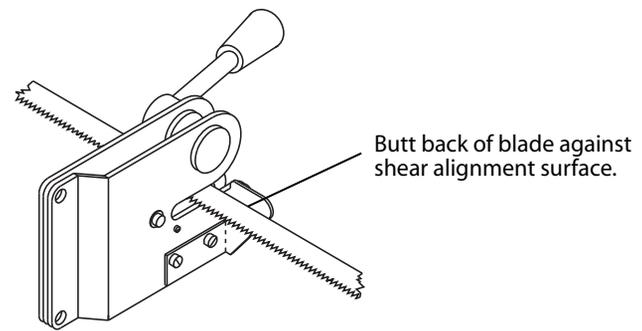


Figure 5 – Blade cutting.

OPERATION (CONTINUED)**BLADE MOUNTING**

Refer to Figure 6.

1. Clean welder jaw of any scale, oil, rust or dirt. Clean blade ends which contact welder jaws to provide proper electrical contact.
2. Set weld pressure adjustment knob to "0" (released).
3. Insert one end of blade into stationary jaw with teeth facing out and blade end centered between jaws.
4. Firmly set back of blade against back alignment surface of welder jaw and clamp blade tight with the jaw clamping handle (See Figure 6).
5. Insert other end of blade into movable jaw; butt the blade ends together and clamp tight.

IMPORTANT: The blade ends should butt against each other over the full width of the blade and should not overlap (See Figure 6).

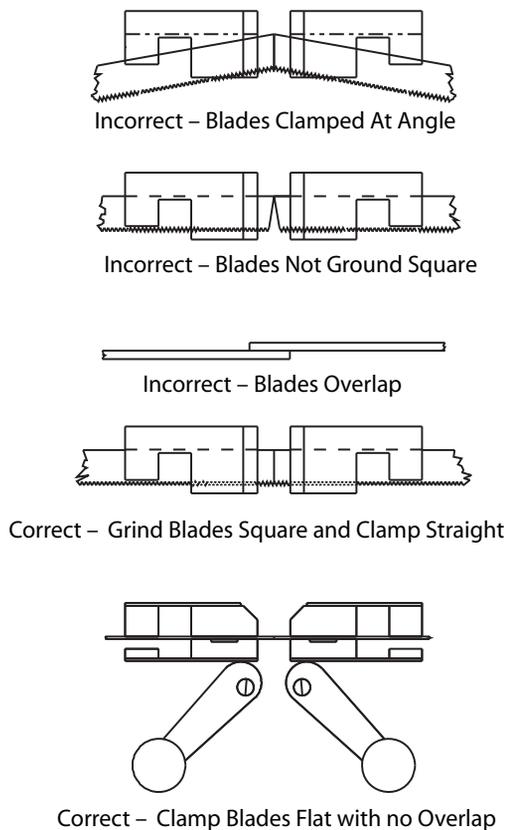


Figure 6 - Blade mounting and clamping.

TOOTH SPACING

Refer to Figure 7.

1. Approximately 1/8" of blade will be consumed during the welding process. This blade loss must be taken into account.
2. All blades must have some of the teeth ground off so that the tooth spacing will be uniform after welding.
3. Tooth grinding procedure must be done carefully in order to grind the proper number of teeth and not to grind below gullet which would weaken the blade.

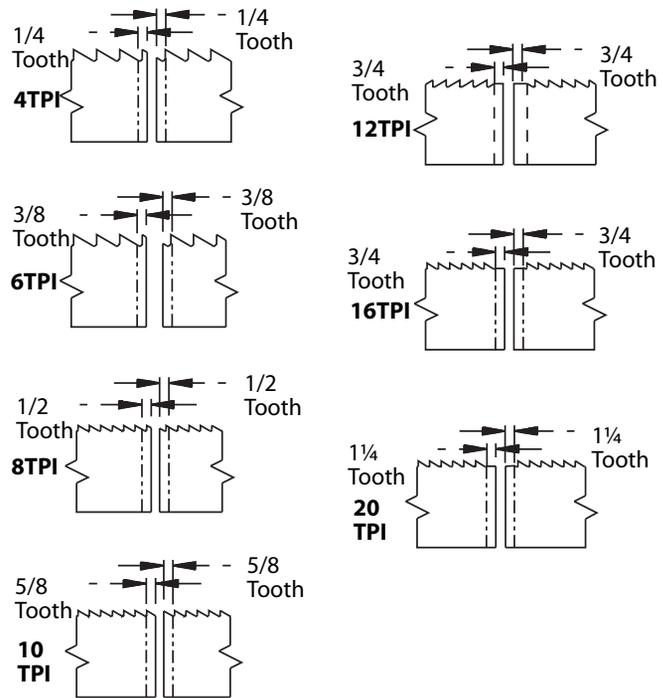


Figure 7 - Tooth spacing (TPI = teeth per inch).

BLADE WELDING

Refer to Figure 8.

1. To set weld pressure adjustment knob, turn the knob counterclockwise to increase the pressure. The pressure adjustment knob controls force applied to the movable jaw.

NOTE: Weld pressure adjustment knob must be reset to "0" after each welding.

2. Wider blades and thicker blades need more weld pressure to force the blade ends together during welding. If too little pressure is applied, the blade ends will melt. Too much pressure may cause the blades to overlap.

For example, for 1/2" wide blades, turn the pressure adjustment knob counterclockwise until the pointer is at 6 (See Figure 8).

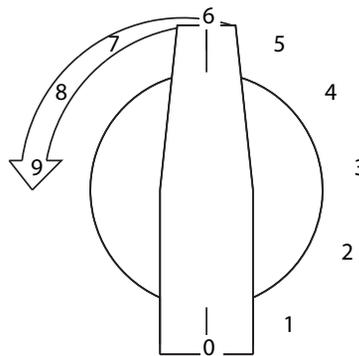


Figure 8 - Weld Pressure Adjustment

3. If blade melts, increase pressure. If there are "blow holes" in the weld, increase pressure.
4. If blade overlaps, decrease pressure.
5. Wider blades need more pressure and thinner blades need less pressure. Weld pressure is also affected by blade material.

OPERATION (CONTINUED)

WARNING: Welding operation produces sparks at blade intersection. Step away to left side of welder during welding operation.

WARNING: Always wear ANSI approved safety glasses during welding. Sparks from welder can cause serious injury to eyes.

6. Press weld button and hold down. The blade ends will become red hot and soft. The movable jaw will force the blade ends together creating a bead of metal and the limit switch will automatically cut power to jaws.
7. Release weld button and wait 10 seconds to allow blade to cool.
8. Reset weld pressure adjustment to "0".
9. Heat build-up in the tool can cause serious damage to the tool. Allow transformer to cool down to room temperature between each welding or each annealing operation. It is a safe procedure to let the transformer be idle for at least 3 minutes between successive welding/annealing operations.

BLADE ANNEALING

1. After the blade has been welded, the weld area will be very hard and brittle. Before the blade can be used, it must be annealed and the flash removed.
2. The blade weld is annealed by heating the blade just under the melting temperature and then slowly cooling the weld.

NOTE: Reset weld pressure adjustment knob to "0" prior to annealing. Failure to do so can cause damage to transformer.

3. Press the anneal button until the weld area glows a cherry red and then release the anneal button.

CAUTION: The blade weld will melt, destroying the weld, if the anneal button is not released as soon as the weld glows cherry red.

4. Let the blade cool for several seconds.
5. Press the anneal button again, but release the button before the weld glows as brightly as the first time.
6. Wait several seconds until the blade cools further.
7. Repeat the anneal process 6 or 7 times, decreasing the anneal temperature each time.
8. The weld flash must be ground from the blade. See "Grinding Blade".

GRINDING BLADE

1. After annealing the blade, the metal buildup or flash must be ground from the blade.
2. Toggle grinder switch to the ON position.
3. Flip the grinder guard open, exposing the top of the grinding wheel.
4. Weld should be ground to same thickness as blade.
5. Grind flash off under-side of blade taking care not to grind into blade.
6. Turn blade inside out and grind other side of blade same as first side (or, flip the grinder guard to the closed position and use the bottom of the wheel).
7. Take care not to grind into blade.
8. Turn blade inside out again (to original shape).
9. Turn grinder off when grinding is completed. The blade must be annealed again.

ANNEAL BLADE AFTER GRINDING

1. After flash has been removed, anneal the blade a second time. The weld may have been hardened by heat created during grinding. Repeat "Blade Annealing" step.
2. After second blade annealing operation, the blade is ready for installation onto band saw. Follow band saw instruction when installing and adjusting blade.

MAINTENANCE

Steps required to keep the saw in optimum operating condition have been described under "Operating Instructions." The Safety Precautions should be performed before operation.

For proper maintenance:

- Keep saw clean and dry. Sweep off spots where chips have collected.
- Lubricate the unpainted surfaces with a light application of medium consistency machine oil to prevent corrosion after cleaning.
- Replace dull blades and blades from which teeth have been stripped. A clean saw with a sharp blade will yield the best cut.
- Internal parts of the band saw have been completely lubricated at the factory and do not need to be relubricated.

WARNING: Make certain that the saw is disconnected from the power source before attempting to service or remove any component.

220 V ELECTRICAL DIAGRAM

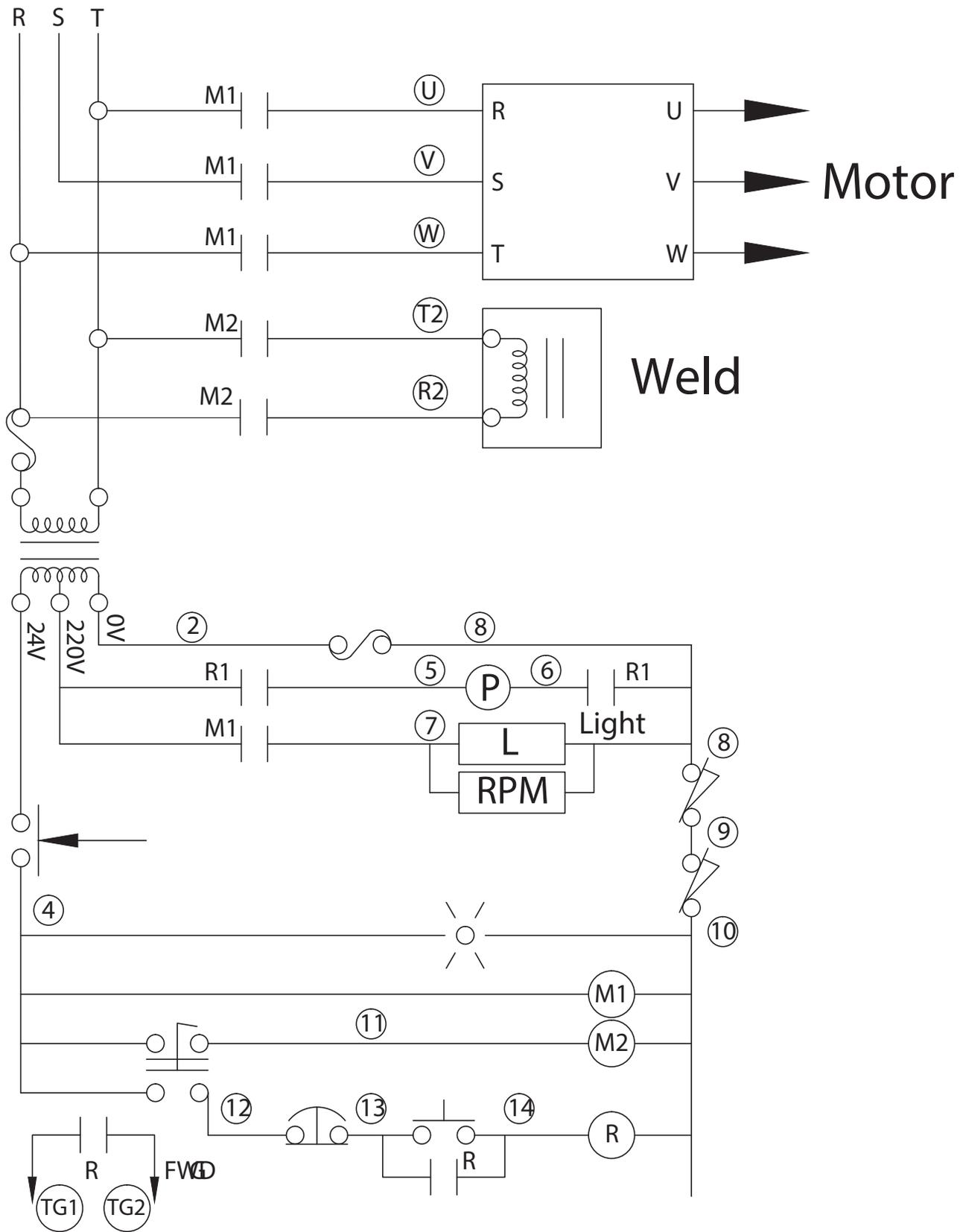


Figure 9 – 9683120 electrical diagram, 220 V.

440 V ELECTRICAL DIAGRAM

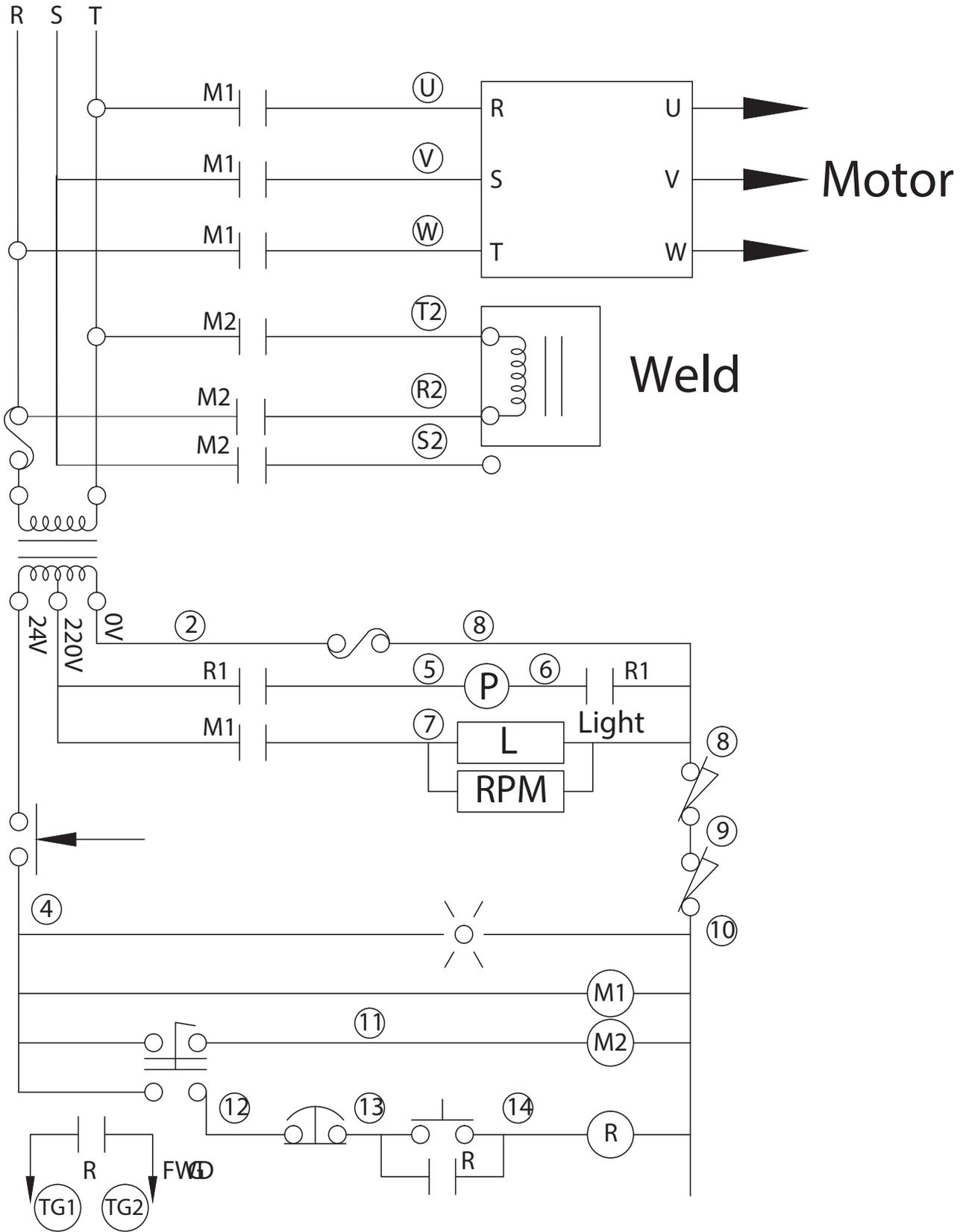


Figure 10 – 9683121 electrical diagram, 440 V.

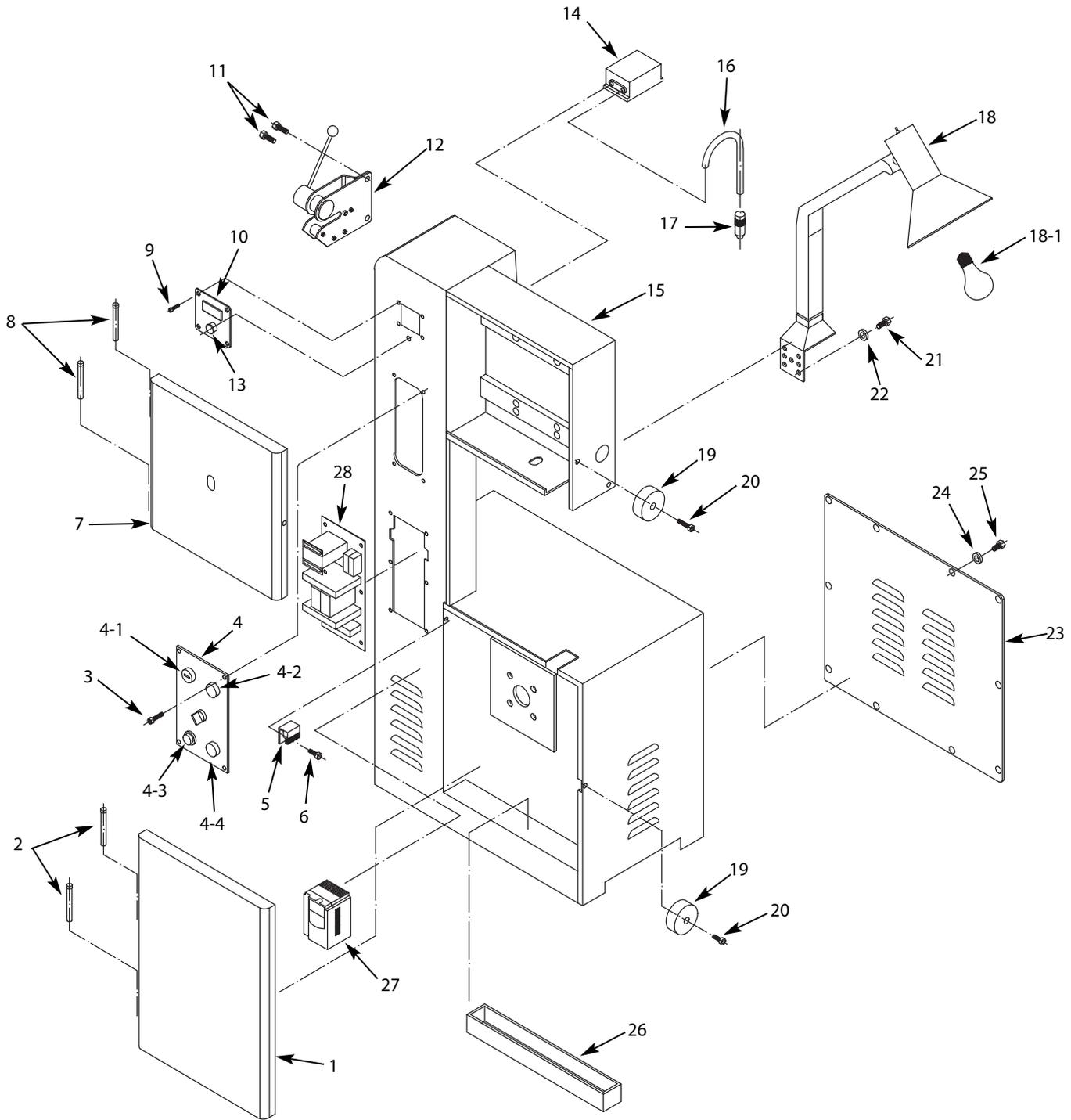


Figure 11 – Repair parts illustration for cabinet.

REPLACEMENT PARTS LIST FOR CABINET

Ref. No.	Description	Part Number:	Qty.
1	Wheel Door Lower	9645365.01	1
2	Hinge Pin Lower	9645366.01	2
3	Phillips Head Screw M5×0.8×8mm	*	4
4	Control Panel	9645367.01	1
4-1	Power Switch On/Off Button	9645368.01	1
4-2	Power Lamp	9645369.01	1
4-3	Selector Switch Button	9645370.01	1
4-4	Motor On/Off Button	9645371.01	1
4-5	Emergency Stop Button	9645372.01	1
5	Blade Cleaning Brush	9645373.01	1
6	Phillips Head Screw M6×1.0P×25mm	*	1
7	Wheel Door Upper	9645374.01	1
8	Hinge Pin Upper	9645375.01	2
9	Phillips Head Screw M5×0.8×8mm	*	4
10	Digital Display Bracket	9645376.01	1
11	Cap Screw M8×1.25P×16mm	*	2
12	Blade Shear	9645377.01	1
13	Variable Speed Dial	9645378.01	1
14	Air pump	9645379.01	1
15	Band Saw Cabinet	9645380.01	1
16	Air Hose 4×6mm	N/A	1
17	Air Nozzle	9645381.01	1
18	Work Lamp 220V	9645382.01	1
18-1	Light Bulb 220V	9645383.01	1
19	Door Knob	9645384.01	2
20	Phillips Head Screw M6×1.0P×15mm	*	2
21	Cap Screw M6×1.0P×15mm	*	4
22	Flat Washer 6mm	*	4
23	Motor Access Panel	9645385.01	1
24	Flat Washer 6mm	*	10
25	Hex Bolt M6×1.0P×10mm	*	10
26	Chip Pan	9645386.01	1
27	Inverter	9645416.01	1
28	Control Panel 2	9645417.01	1

(Δ) Not shown.

(N/A) Not available as repair part.

(*) Standard hardware item, available locally.

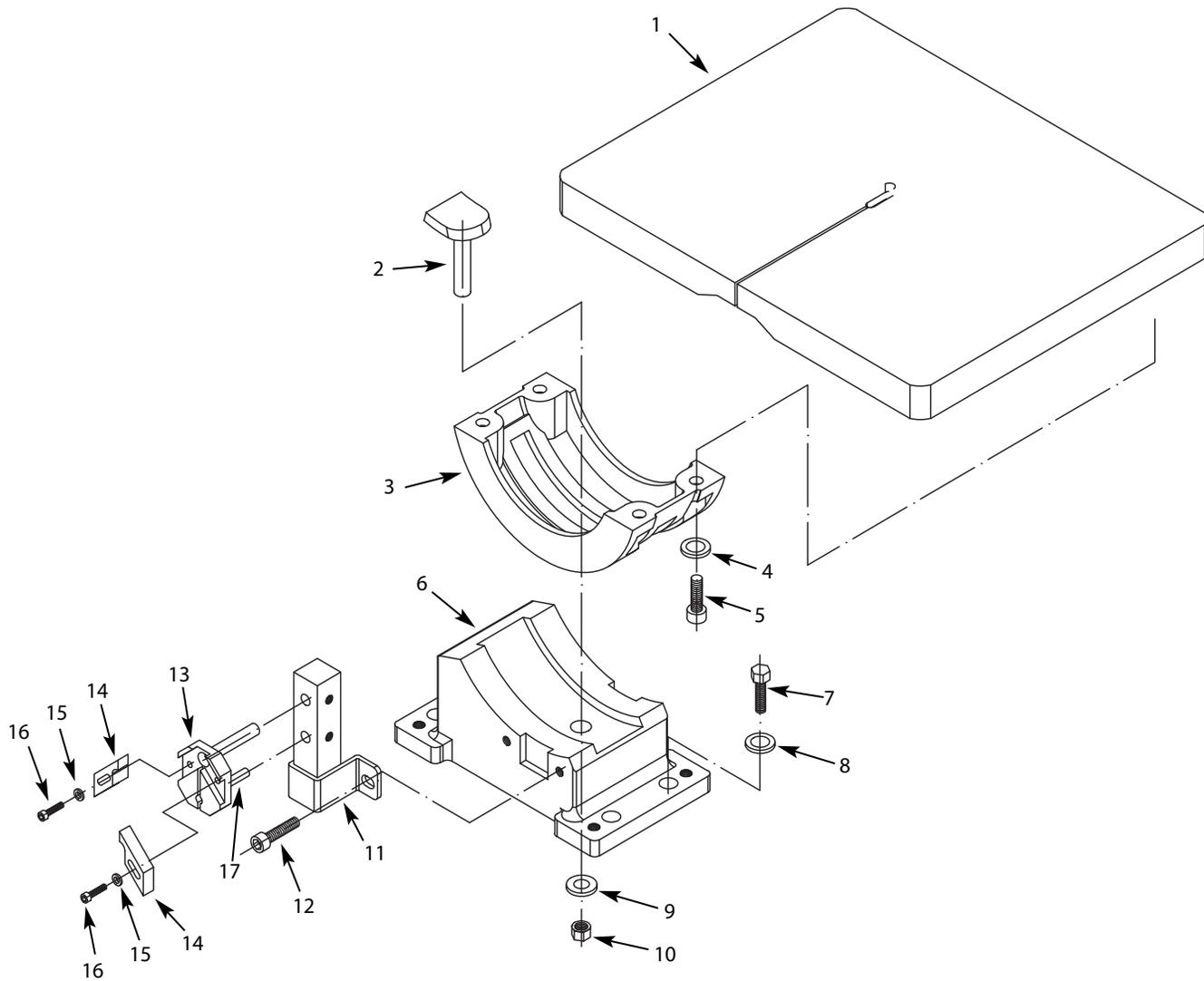


Figure 12 – Repair parts illustration for table and lower guide.

REPLACEMENT PARTS LIST FOR TABLE AND LOWER GUIDE

Ref. No.	Description	Part Number:	Qty.
1	Table	9645387.01	1
2	Fixing Screw	9645388.01	1
3	Tilting (Seat L.R)	9645389.01	1
4	Washer M8	*	4
5	Hex Socket Cap M8×1.25P×20mm	*	4
6	Trunnion Base	9645390.01	1
7	Hex Bolt M8×1.25P×20mm	*	4
8	Washer M8	*	4
9	M10 Washer	*	4
10	Hex Nut M10×1.5P	*	4
11	Lower Guide Rod	9645391.01	1
12	Hex Socket Cap x2 M6×1.0P×25mm	*	2
13	Guide Seat (Lower)	9645392.01	1
14	Tungsten Support	9645393.01	2
15	M6 Washer	*	2
16	Hex Socket Cap M6×1.0P×20mm	*	2
17	Blade Support	9645394.01	1

(Δ) Not shown.

(N/A) Not available as repair part.

(*) Standard hardware item, available locally.

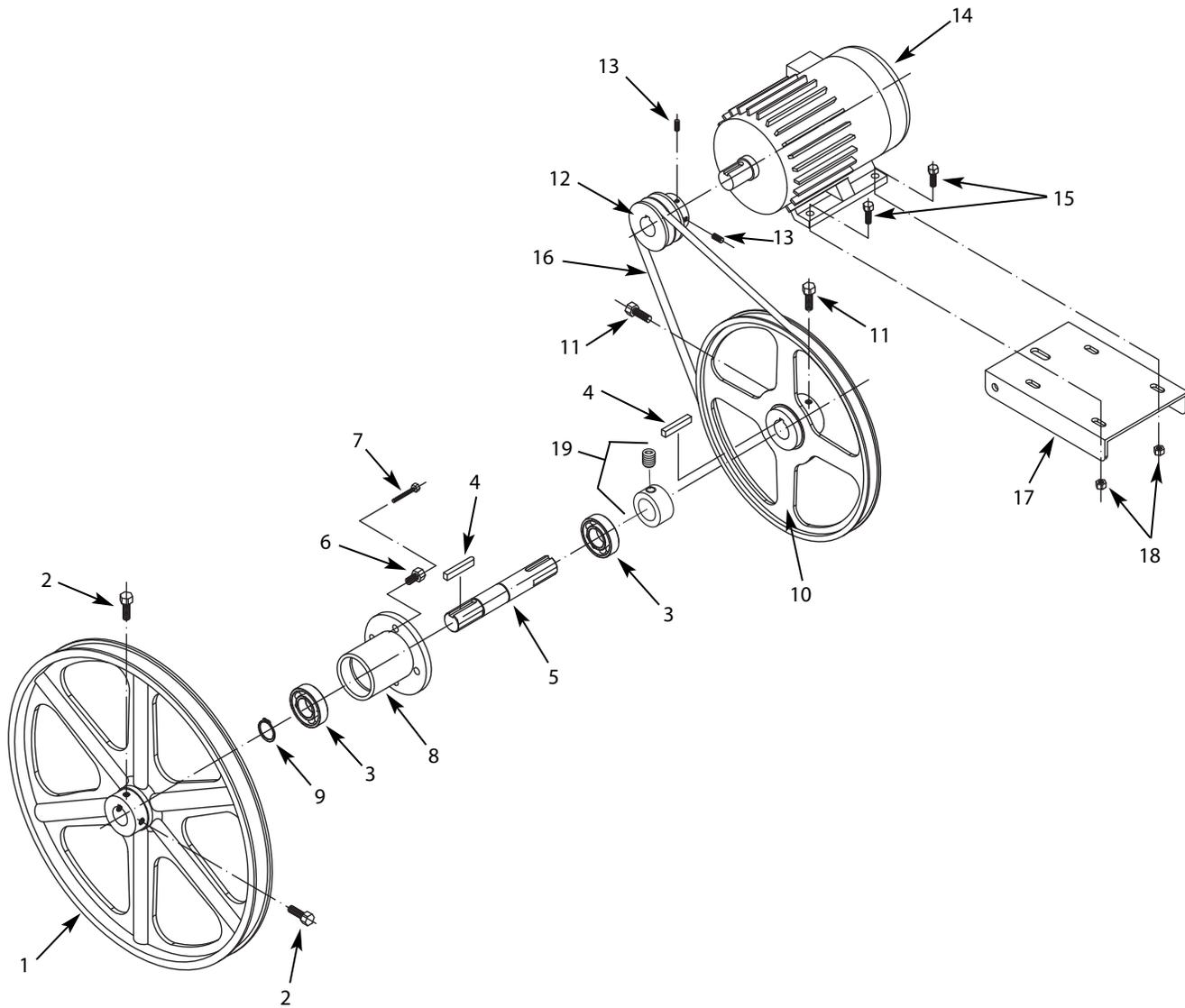


Figure 13 – Repair parts illustration for motor and lower wheel.

REPLACEMENT PARTS LIST FOR MOTOR AND LOWER WHEEL

Ref. No.	Description	Part Number:	Qty.
1	Wheel Lower	9645395.01	1
2	Hex Bolt M10×1.5P×10mm	*	2
3	Bearing 6206	*	2
4	Key 8×8×20	*	2
5	Lower Wheel Shaft	9645399.01	1
6	Special Screw	9645398.01	1
7	Hex Bolt M10×1.5P×50mm	*	1
8	Bearing Housing	9645397.01	1
9	Retaining Ring STW30#	*	1
10	Wheel Pulley	9645400.01	1
11	Set Screw M12×1.75×35mm	*	2
12	Motor Pulley	9645401.01	1
13	Set Screw M8×1.25P×10mm	*	2
14	Motor 2HP 220v 3ph	9645402.01	1
14	Motor 2HP 440v 3ph	9645465.01	1
15	Hex Bolt M8×1.25P×25mm	*	2
16	V-Belt A57 x2	9645403.01	1
17	Base of Gear Reducer	9645404.01	1
18	Nut M8×1.25P	*	2
19	Collar and M8-1.75×8 Set Screw	9645466.01	1

(Δ) Not shown.

(N/A) Not available as repair part.

(*) Standard hardware item, available locally.

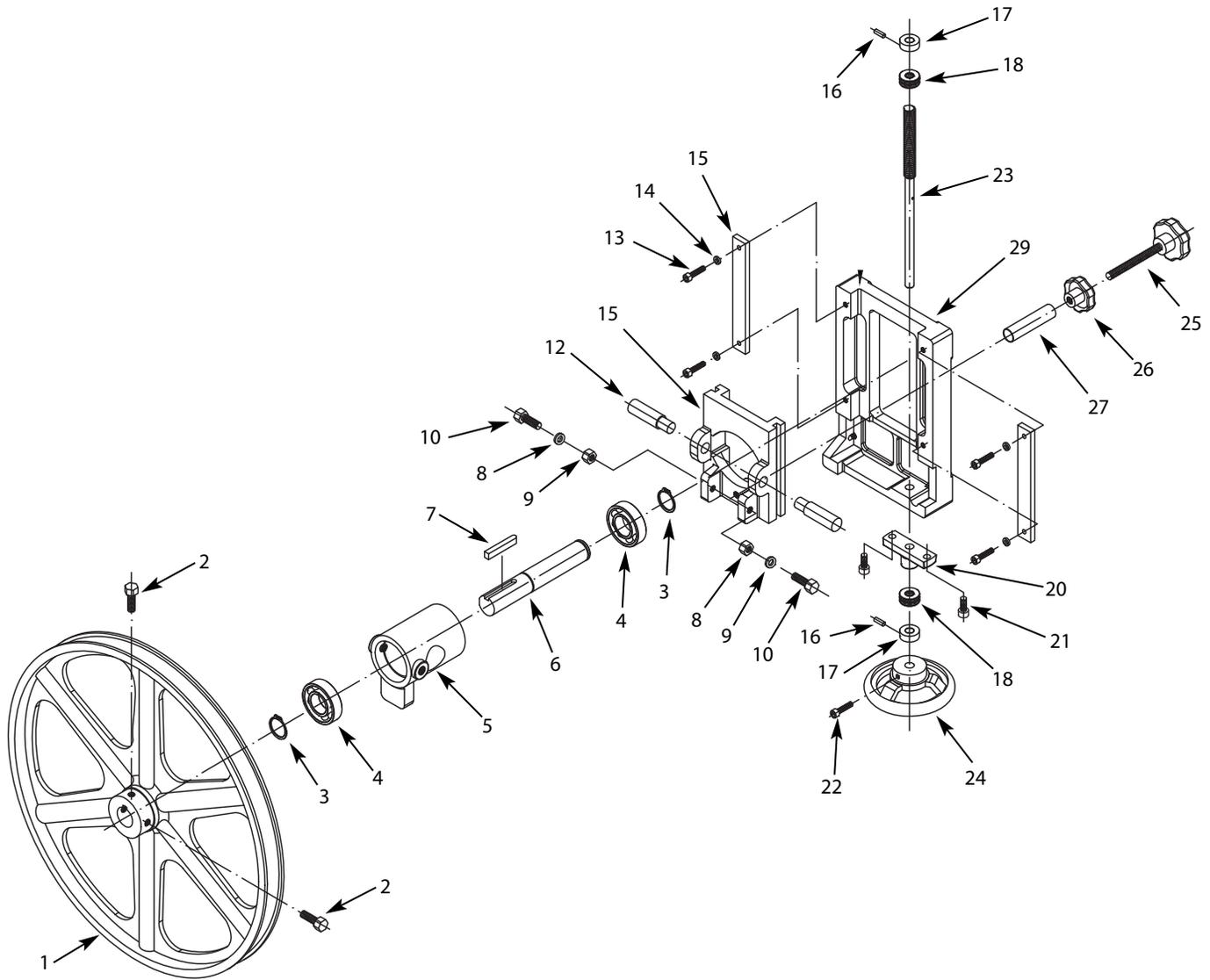


Figure 14 - Repair parts illustration for upper wheel.

REPLACEMENT PARTS LIST FOR UPPER WHEEL

Ref. No.	Description	Part Number:	Qty.
1	Wheel Upper	9645405.01	1
2	Hex Bolt M10×1.5P×10mm	*	2
3	Retaining Ring STW-30#	*	2
4	Bearing 6206	*	2
5	Bearing Housing	9645406.01	1
6	Upper Wheel Shaft	9645407.01	1
7	Key 8 x 8 x 20	*	1
8	Lock Washer 3/8	*	2
9	Hex Nut 3/8	*	2
10	Hex Bolt 3/8-16×1-1/2	*	2
11	Upper Wheel Bracket	9645409.01	1
12	Pivot Pin	9645408.01	2
13	Hex Bolt M8×1.25P×25mm	*	4
14	Flat Washer 8mm	*	4
15	Bracket Plate	9645410.01	2
16	Set Screw M6×1.0P×6mm	*	2
17	Collar	9645412.01	2
18	Thrust Bearing 2901	9645413.01	2
19	Tensioning Bracket	9645411.01	1
20	Leadscrew Bracket	9645415.01	1
21	Hex Bolt M8×1.25P×25mm	*	2
22	Hex Bolt M8×1.25P×10mm	*	1
23	Tension Leadscrew	9645414.01	1
24	Tensioning Handwheel	9645418.01	1
25	Lock Knob (Large) M10×1.5P	9645421.01	1
26	Lock Knob (small) M10×1.5P	9645420.01	1
27	Tube	9645419.01	1
28	Bearing Bracket	N/A	1
29	Tension Bracket	N/A	1

(Δ) Not shown.

(N/A) Not available as repair part.

(*) Standard hardware item, available locally.

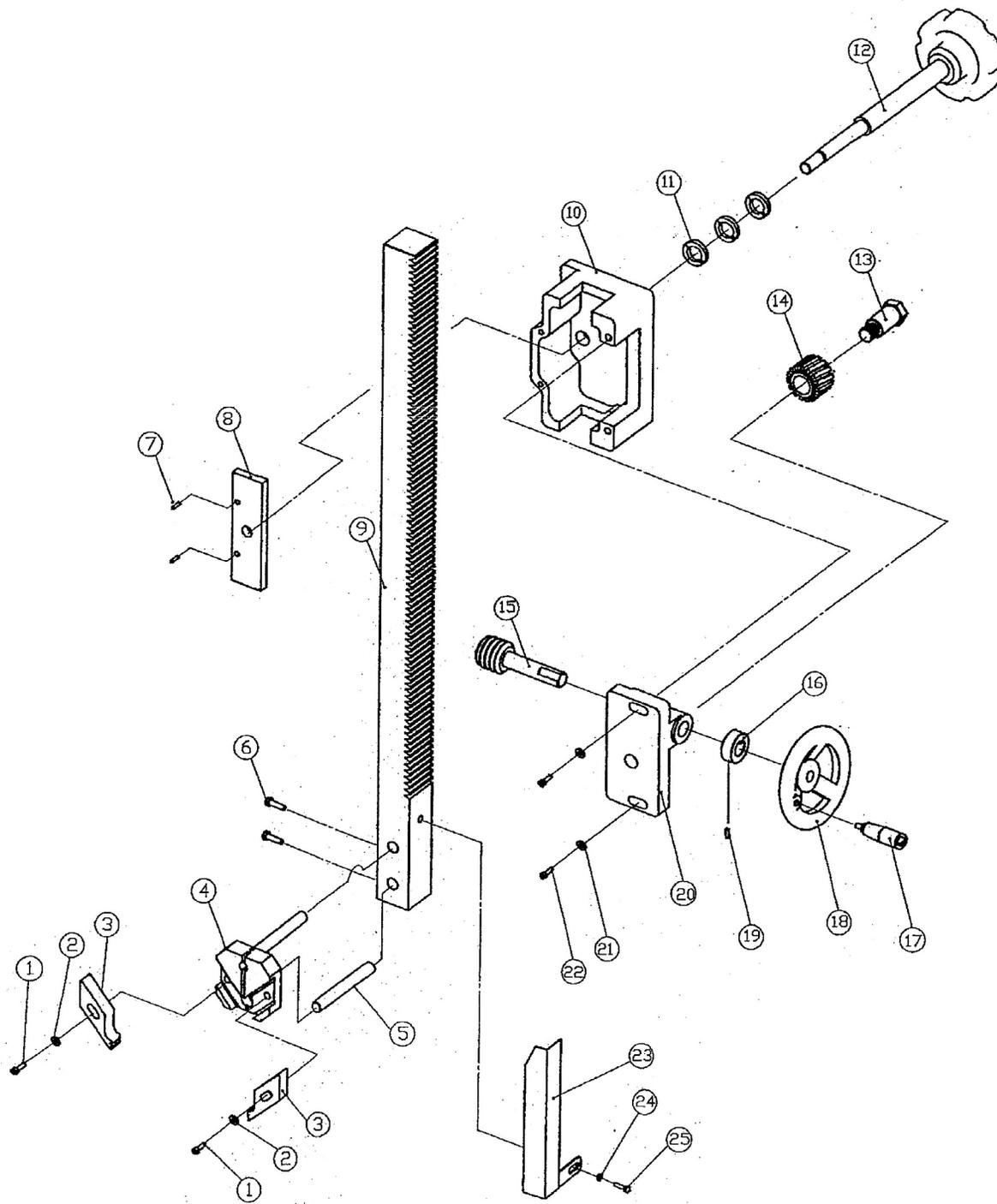


Figure 15 - Repair parts illustration for guide post.

REPLACEMENT PARTS LIST FOR GUIDE POST

Ref. No.	Description	Part Number:	Qty.
1	Hexagon Socket Bolt M6×1P×20L	*	2
2	Flat Washer 6mm	*	2
3	Tungsten Support	9645422.01	2
4	Guide Seat (Upper)	9645423.01	1
5	B1 Tungsten Bar Crown (Upper)	9645424.01	1
6	Hexagon Socket Bolt M6×1P×20L	*	2
7	Pin 4×6	*	2
8	Ascending/Descending Fixing Plate	9645425.01	1
9	Ascending/Descending Guide Rod	9645426.01	1
10	Ascending/Descending Bracket	9645427.01	1
11	Lock Washer 14mm	*	3
12	Lock Knob	9645428.01	1
13	Screw Worm	9645429.01	1
14	Gear Worm	9645430.01	1
15	Worm Shaft	9645431.01	1
16	Collar	9645432.01	1
17	Handle	9645433.01	1
18	Handwheel	9645434.01	1
19	Pin Spring	*	1
20	Support Worm Gear	9645435.01	1
21	Spring Washer	*	2
22	Hexagon Socket Bolt M6×1P×20L	*	2
23	Guard Blade Upper	9645436.01	1
24	Washer Flat, 8mm	*	1
25	Cap Screw M8-1.25×115	*	1

(Δ) Not shown.

(N/A) Not available as repair part.

(*) Standard hardware item, available locally.

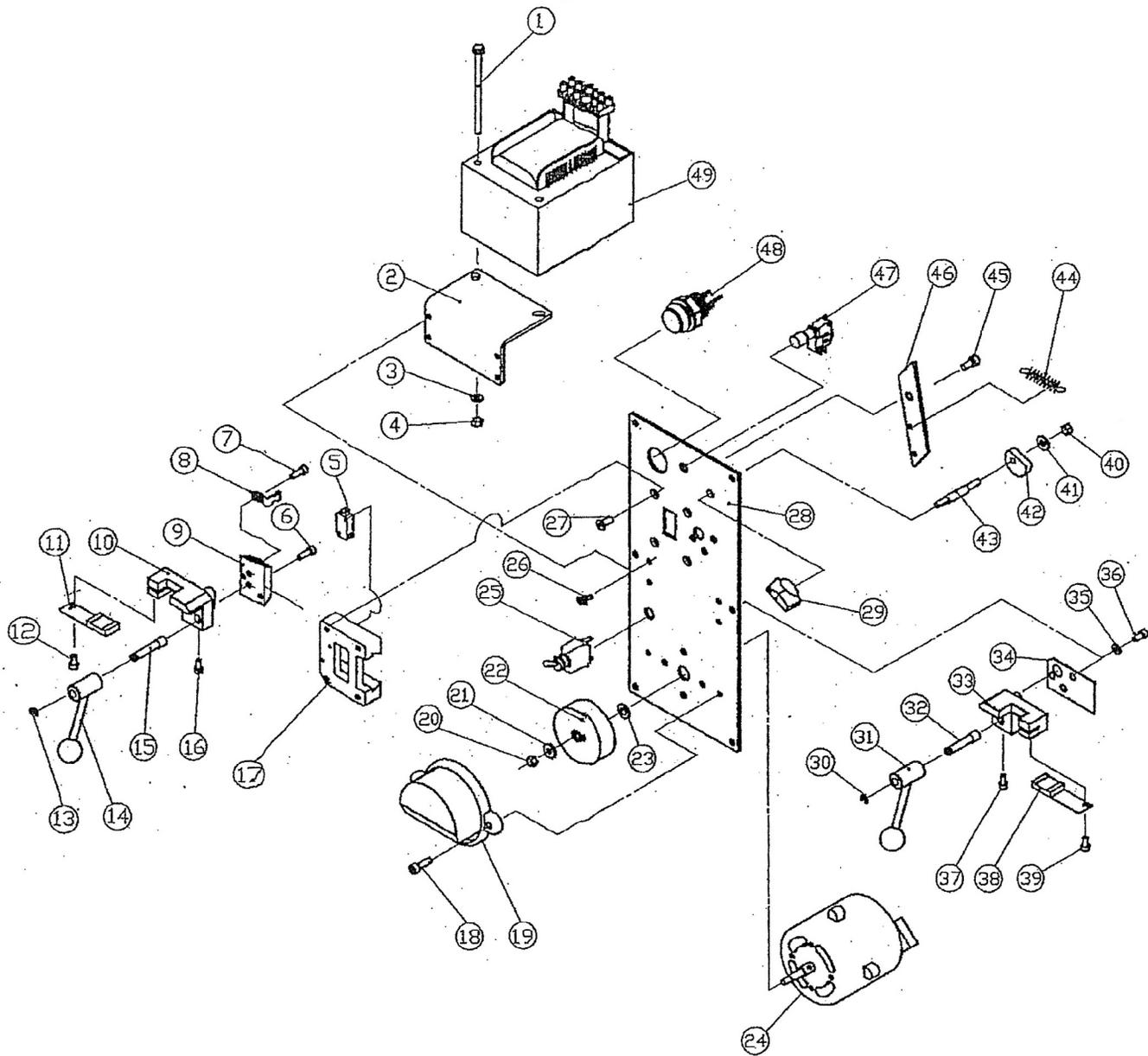


Figure 16 – Repair parts illustration for welding station.

REPLACEMENT PARTS LIST FOR WELDING STATION

Ref. No.	Description	Part Number:	Qty.
1	Hex Nut, M6 x 9	*	2
2	Bracket Transformer	9645437.01	1
3	Washer M6	*	2
4	Nut M6	*	2
5	Sensor	9645438.01	1
6	Hexagon Socket Bolt M6*1.0P*25L	*	1
7	Hexagon Socket Bolt M6*1.0P*10L	*	1
8	Base Limit Switch	9645439.01	1
9	Block Sliding	9645440.01	1
10	Left Welding Base	9645441.01	1
11	Left Pad Jaw Movable Welding Fixed Blade	9645442.01	1
12	Hexagon Socket Bolt M6*1.0P*12L	*	1
13	Retaining Ring	*	1
14	Handle B Centerless	9645443.01	1
15	Shaft Centerless Handle	9645444.01	1
16	Hexagon Socket Bolt M6*1.0P*12L	*	1
17	Pad Sliding	9645445.01	1
18	Hexagon Socket Bolt M6*1.0P*16L	*	2
19	Grinder Cover	9645446.01	1
20	Nut M6	*	1
21	Washer Flat M6	*	1
22	Grinding Wheel	9645447.01	1
23	Washer M6	*	1
24	1/8 HP Motor Grinder	9645448.01	1
25	ON/OFF Switch	9645449.01	1
26	Screw AP M6*1.0P*16L	*	1
27	Screw AP M6*1.0P*20L	*	1
28	Panel Welding	9645450.01	1
29	Clamp Pressure Bottom	9645451.01	1
30	Retaining Ring	*	1
31	Handle A Centerless	9645452.01	1
32	Shaft Centerless Handle	9645453.01	1
33	Right Welding Base	9645454.01	1
34	Insulating plate	9645455.01	1
35	Washer Flat M6	*	1
36	Hexagon Socket Bolt M6*1.0P*20L	*	1
37	Hexagon Socket Bolt M6*1.0P*20L	*	1
38	Right Pad Jaw Movable Welding Fixed Blade	9645456.01	1
39	Hexagon Socket Bolt M6*1.0P*20L	*	1
40	Nut Hex M6	*	1
41	Washer Flat M6	*	1
42	Pressured Cam	9645457.01	1
43	Shaft Cam	9645458.01	1
44	Spring	9645459.01	1
45	Screw Pressure Cross	9645460.01	1
46	Plate Pressure Cross	9645461.01	1
47	Annealing Push-Button Switch Red	9645462.01	1
48	Welding Push-Button Switch Green	9645463.01	1
49	Transformer 4.2 kVA	9645463.01	1

(Δ) Not shown.

(N/A) Not available as repair part.

(*) Standard hardware item, available locally.

PALMGREN WARRANTY

C.H. Hanson / Palmgren warrants their products to be free of defects in material or workmanship. This warranty does not cover defects due directly or indirectly to misuse, abuse, normal wear and tear, failure to properly maintain the product, heated, ground or otherwise altered, or used for a purpose other than that for which it was intended.

The warranty does not cover expendable and/or wear part (i.e. v-belts, screws, abrasives, jaws), damage to tools arising from alteration, abuse or use other than their intended purpose, packing and freight. The duration of this warranty is expressly limited to the terms noted below beginning from the date of delivery to the original user.

The Palmgren branded items carry the following warranties on parts:

All vises, clamps, positioning tables, tombstones, jack screws and vise accessories - LIFETIME.

All bench grinders, drill presses, tapping machines, band saws, lathes, milling machines, arbor presses, abrasive finishing machines and work stands - 3 YEARS.

The obligation of C.H. Hanson / Palmgren is limited solely to the repair or replacement, at our option, at its factory or authorized repair agent of any part that should prove inoperable. Purchaser must lubricate and maintain the product under normal operating conditions at all times. Prior to operation become familiar with product and the included materials, i.e. warnings, cautions and manuals.

Failure to follow these instructions will void the warranty.

This warranty is the purchaser's exclusive remedy against C.H. Hanson for any inoperable parts in its product. Under no circumstances is C.H. Hanson liable for any direct, indirect, incidental, special or consequential damages including loss of profits in any way related to the use or inability to use our products. This warranty gives you specific legal rights which may vary from state to state.

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