PALMGREN®

14.5” Vertical Column Cold Saw

9644664.01

PALMGREN®

PLEASE READ AND SAVE THESE INSTRUCTIONS. READ CAREFULLY BEFORE ATTEMPTING TO ASSEMBLE, INSTALL, OPERATE OR MAINTAIN THE PRODUCT DESCRIBED.

PROTECT YOURSELF AND OTHERS BY OBSERVING ALL SAFETY INFORMATION. FAILURE TO COMPLY WITH INSTRUCTIONS COULD RESULT IN PERSONAL INJURY AND/OR PROPERTY DAMAGE! RETAIN INSTRUCTIONS FOR FUTURE REFERENCE.

PLEASE REFER TO BACK COVER FOR INFORMATION REGARDING PALMGREN'S WARRANTY AND OTHER IMPORTANT INFORMATION.

Model #: _____

Serial #: _____

Purch. Date: _____

GETTING STARTED

Save this manual

You will need this manual for the safety warnings and precautions, assembly instructions, operating and maintenance procedures, parts lists and diagrams. Keep your invoice with this manual. Write the invoice number on the inside of the front cover. Keep this manual and invoice in a safe and dry place for future reference.

Structural requirements

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

Electrical requirements

This saw does not come with a plug, and can be wired to a plug or directly into the power main. Blue wire is neutral, brown is line wire, and yellow with a green stripe is ground.

The circuit must be configured to provide 230VAC at 14A, 3-phase, 60 Hz.

Tools needed

Standard professional mechanic's hand tool set.

UNPACKING

⚠ WARNING ***Be careful not to touch overhead power lines, piping, lighting, etc. if lifting equipment is used. Cold Saw weighs approximately 992 lbs (450 kg); proper tools, equipment and qualified personnel hould be employed in all phases of unpacking and installation.***

Carton should be handled with care to avoid damage from dropping, bumping, etc. Store and unpack carton with correct side up. Unpack all parts from the container. Check for damage as each piece is removed. Especially check the tubing located at the bottom of the motor for kinks, cuts, or other damage that would be detrimental to coolant flow.

⚠ WARNING ***Never use highly volatile solvents. Non flammable solvents are recommended to avoid possible fire hazard. Avoid getting cleaning solution on paint as it may tend to deteriorate these finishes. Use soap and water on painted components.***

Palmgren model 9683338 14.5" Cold Saw is shipped complete in one box. The saw comes assembled as one unit. Additional parts which need to be assembled or fastened to the saw should be located and accounted for before assembling.

IMPORTANT: Many unpainted steel surfaces have been coated with a protectant. To ensure proper fit and operation, remove the coating. Coating can be easily removed with mild solvents, such as mineral spirits, and a soft cloth. Avoid getting solution on paint or any of the rubber/plastic parts. Solvents may deteriorate these finishes. Use soap and water on paint, plastic or rubber components. After cleaning, cover all exposed surfaces with a light coating of oil.

Package Contents:

Main unit	1
Length stop assembly	1
• long rod	
• short rod	
• length stop rod	
Roller assembly	1
Roller stand legs	1
Manual	1

Unpack

Remove all the over packing materials, but leave unit attached to its pallet. Do not discard packing materials until after the 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.

See General Safety Instructions, Cautions and Warnings as shown.

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SAFETY RULES

⚠ WARNING ***Completely read and understand this owner's manual before assembly or tool operation. Read and understand the warnings shown on the machine and in this manual. Failure to comply with all of these warnings may cause serious injury or death.***

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 an **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.***

PREPARING FOR YOUR JOB

- Wear proper apparel. Do not wear loose clothing, neckties, rings, bracelets or other jewelry which may get caught up in moving parts of machine. Do NOT wear gloves.
- 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. Use guards and eye shields.
- Wear face mask or dust mask if operation is dusty.
- Wear ANSI approved ear protection for extended operation.
- Be alert and think clearly. Never operate power tools when tired, intoxicated or when taking medications that cause drowsiness.
- Focus your attention completely on your work. Looking around, careless actions and other distractions can result in serious injury.

Preparing the work area for your 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.
- 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.

Maintaining your tool

- Failure to follow the guidelines in this manual can result in serious injury.
- Disconnect the tool completely from its power supply before performing any servise, maintenance, repair or adjustments.
- Follow OSHA lock-out, tag-out procedures to prevent accidental machine starts.
- Consult this manual for the proper use, specific maintenance, and adjustment procedures.
- Keep tool lubricated and clean for safest operation.
- Read and understand warnings posted on the machine and in this manual. Replace the warning labels if they become obscured or removed. Failure to comply with all of these warnings can result in serious injury.
- Before using the machine, check for damaged parts. Check for alignment of moving parts, binding, breakage, mounting issues and any other conditions that may affect 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.)
- Use compressed air or a suitable brush to clear chips or debris — do not use your hands.
- Remove adjusting tools. Form habit of checking to see that adjusting tools are removed before switching machine on.

Know how to use your tool

⚠ WARNING ***The operation of any 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. before commencing power tool operation.***

Think safety! Safety is a combination of operator common sense and alertness at all times when tool is being used.

- 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 power switch 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.
- Adjust upper guide to just clear workpiece.
- Hold workpiece firmly against vise.
- DIRECTION OF FEED: Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.

SPECIFICATIONS

The saw features a solid cast iron vise to ensure durability. The saw is equipped with a miter gauge for performing many different operations.

Parameter	9683338
Description	14" Vertical Column Cold Saw
Blade Dimensions	14.5"
Blade thickness	.07-.12 in
Arbor diameter	1.26”
Blade speed	36-72 RPM
Machine dimensions	97”x39”x74”
Base footprint	25”x39”
Machine weight	992 lbs
Miter angle range	105°
Cutting degree	45° right - 60° left
Voltage	230V
Amperage	14Amps
HP	3.3HP
Motor RPM	1400-2800
Phase	3
Max vise opening	7.25"
Vise height from floor	36"
Coolant tank capacity	2 gal.

Round Tube Cutting Capacities
@90° (Straight Cut): 4.625”
@45° Left/Right: 4.625”
@ 60° Right: 3.5”
Square Tube Cutting Capacities
@ 90° (Straight Cut): 3.875”
@ 45° Left/Right: 3.5”
@ 60° Right: 3.5”
Solid Round Cutting Capacities
@ 90° (Straight Cut): 3.875”
@ 45° Left/Right: 3.875”
@ 60° Right: 3.5”
Rectangular Tube Cutting Capacities
@ 90° (Straight Cut): 3-1/2” x 6.625”
@ 45° Left/Right: 3-1/2” x 4.875”
@60° Right: 3-1/2” x 3.5”

ASSEMBLY/INSTALLATION

Location

The saw must be installed on a structurally stable floor. The coolant pump ouput and inputs may extend below the coolant tank when the saw is at rest. Ensure that coolant flow is not restricted throughout saw movement. The saw's rest position may be adjusted by changing the set bolt's height.

Position the saw on a clean dry floor that has no oil or grease stains.

Machine dimensions

The following figure shows the approximate dimensions of the saw and its parts. When determining a final location for your saw, ensure there is enough clearance for both the operator and for technicians who will servise the saw. Also,consider the size of large workpieces that may extend beyond the saw's table and require extra space.

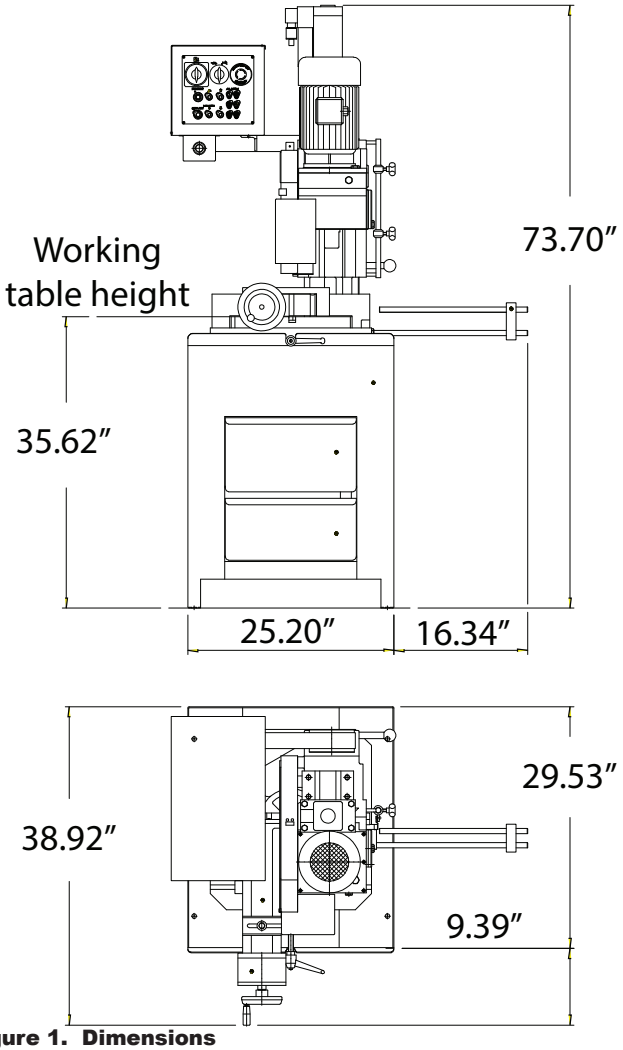


Figure 1. Dimensions

Lifting and setting up the saw

⚠ WARNING ***Make certain that slings, cables, chains, forklifts or other load suspending gear or machines used to move this saw are properly rated to handle the weight. The saw is heavy.***

⚠ CAUTION ***The saw must be properly secured and anchored before use. Make sure that it is supported equally on all four corners.***

1. Clear the space around the machine. Leave the machine attached to the pallet.

NOTE: The saw is heavy, see "SPECIFICATIONS" Be certain any machine or devises used to lift the saw are capable of handling this weight.

2. Ensure sufficient space is available for operation.
3. Remove all the nuts and/or bolts securing saw to the pallet.
4. The saw can be moved using a forklift or a hoist with the installed eye bolt, as shown in the following figure.

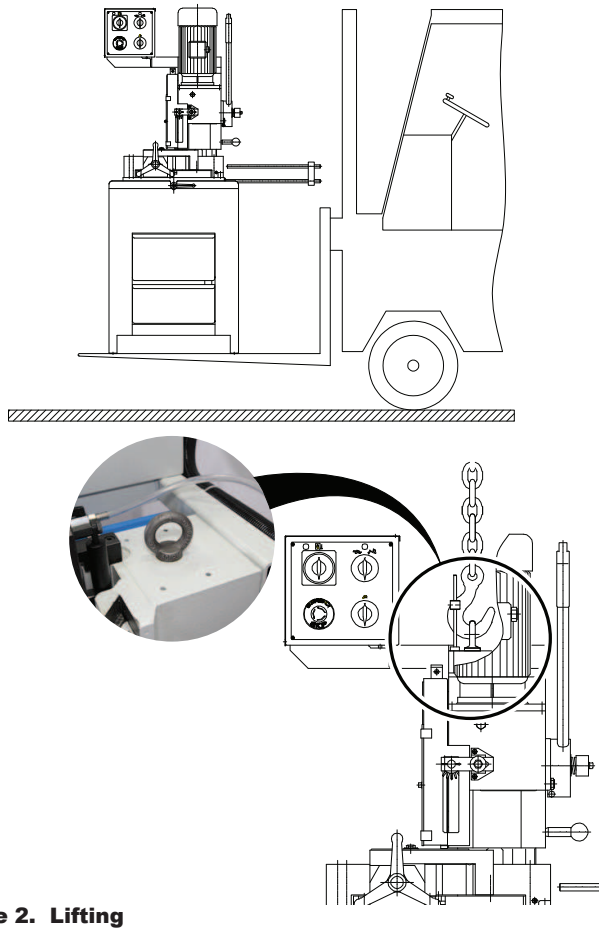


Figure 2. Lifting

5. Carefully lift the saw off the pallet. Lift it no higher than necessary to clear the surface on which it is to be installed and pull the pallet out of the way. DO NOT put your hands or feet beneath the saw while moving it or removing the pallet.
6. Place the saw into its final location.
7. Level the saw using shims under the corners needing them. A highly accurate spirit or digital level should used for leveling. It is very important that the saw be properly leveled for accurate performance.

Electrical Connection To The Mains

NOTE: Install a differential thermomagnetic switch with characteristics suited to the mains.

⚠ WARNING ***Before machine activation check motor for correct voltage wiring.***

Make sure that the power supply voltage corresponds to the voltage on the motor plate. Connect the cable to the power supply line observing the color codes of the individual wires, pay particular attention to the earth wire. Ensure that the rotation of the circular blade is in the direction shown by the arrow on the guard before first use.

Assembly: Handle

See “Maintenance/Repair” on page 14 for all part numbers shown in the procedure steps.

1. Connect the electric cable terminals 220 to the microswitch 218 and place it inside the handle.

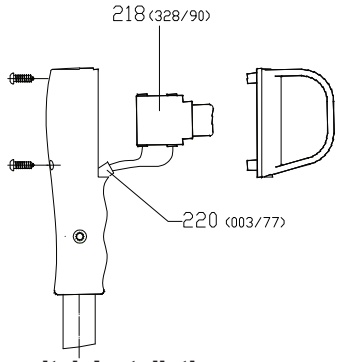


Figure 3. Microswitch Installation

2. Fit the supplied head lever 36, into position and fasten it by means of the nut 47.
3. Fasten the cover using the screws 221 and then by fastening the handle to the lever using the screw 219. Make sure that the cable is inserted into the lever slot, after having checked that there are no burrs or sharp edges in the slot

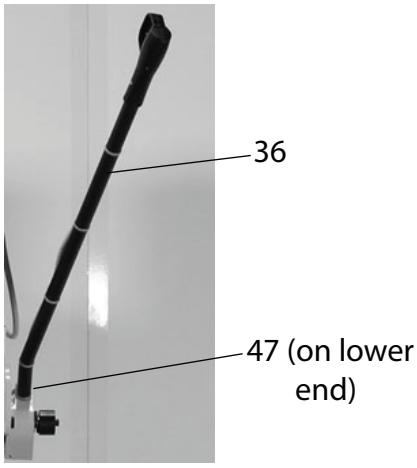


Figure 4. Handle

Length Stop

4. Slide the two rods into the bracket. Then fit the assembled rod into the matching hole on the right side of the vise platform.

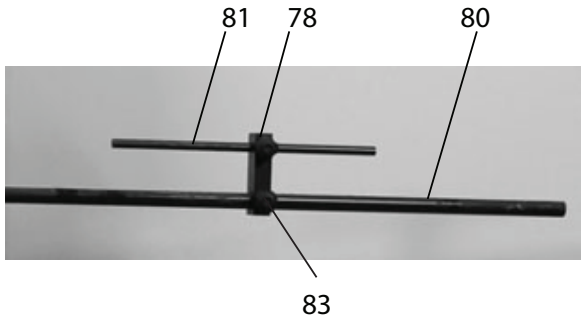


Figure 5. Length Stop

Roller Stand

1. Using the provided screws, attach the stand legs to the roller frames.

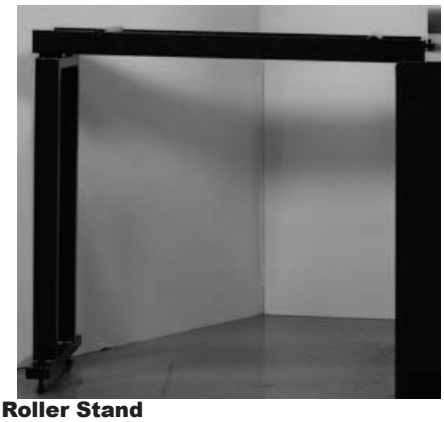


Figure 6. Roller Stand

2. Attach the whole assembly to the frame of the saw.
3. Fit the rollers into the roller frame.
4. Adjust the tilt/height of the roller stand by screwing/unscrewing the feet of the roller stand. Employ a level to assist if needed.

Saw Blade

Select the appropriate blade for the job as shown in “Blade Selection” on page 11.

1. Remove guard 121 exposing saw shaft and saw collars.

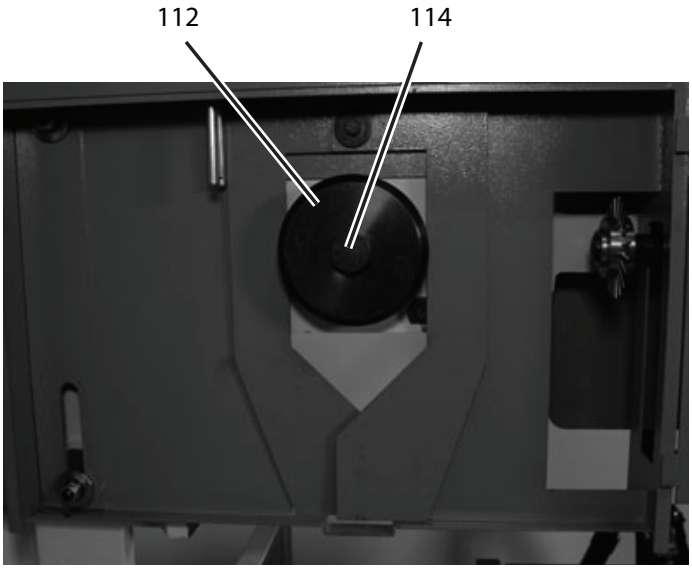


Figure 7. Saw Blade Mounting Hardware

2. Remove bolt 114 and outside flange 112.
3. Mount the saw blade on the arbor with teeth of blade oiented counterclockwise (the blade rotates counterclockwise in normal operation).
4. Replace outside flange 112 and bolt. Turn blade clockwise up against drive pins and securely tighten bolt.
5. Replace guard 121.

Cutting Coolant

For cooling of the circular blade, fill the tank with coolant consisting of a mixture of water and AGIP AQUAMET 700 EP oil with a percentage of 5-7%.

Lubrication

⚠ CAUTION ***Do not operate this saw before adding lubricant and ensuring proper oil level. Failure to comply may damage the saw.***

OPERATION

⚠ WARNING ***Always wear safety glasses complying with U.S. ANSI Z87.1 before beginning any power tool operation.***

⚠ WARNING ***To avoid injury from unexpected starting, whenever changing the saw blade or carrying out adjustments, switch the saw off and remove the power cord from the mains outlet. To avoid injury to hands when handling the saw blade, wear gloves whenever necessary.***

⚠ CAUTION ***Do not operate before properly lubricating the saw. Failure to lubricate before using can damage the saw.***

⚠ WARNING ***Power at the main power switch must be set to "O" (OFF) whenever the saw is not actively in use.***

⚠ WARNING ***Do not activate the saw if bolt (114) is not tightened.***

⚠ WARNING ***Do not use blades with chipped, missing or insufficiently sharp cutting edges***

This saw provides two modes of operation:

- Manual (see "Manual cutting operation:" on page 9)
- Semi-automatic (see "Semi-automatic mode cutting operation:" on page 10)

Safety checks to perform before each cut:

- Check the the blade's condition. It should have no chipped or missing teeth and the teeth should not appear dull. If required, changed the blade as outlined in "Changing Blades" on page 10.
- Make sure that screw 114 holding the blade is securely tightened.
- Verify cutting angle.
- Make sure that the piece to be cut is secured in the vise.
- Make sure that the coolant is circulating.
- Adjust the head stops so that the idle stroke is not too long.
- Position the clamp vise as close to the blade as possible.
- Verify that all safety guard screws are secured, especially the screws on the blade guard.
- Verify that the power microswitch and the emergency button are functioning correctly. Test them during a loadless machine cycle.
- Pay attention to environmental conditions. Do not use the saw if its work area is wet or damp,
- Ensure that all tools used for maintenance or adjustment have been removed and put away.
- Verify that all safety devises are in good working order.
- Verify that all moving parts are free to move throughout their normal operating range.
- Verify that no parts are damaged and that all the components are installed correctly and are functioning properly.

Control

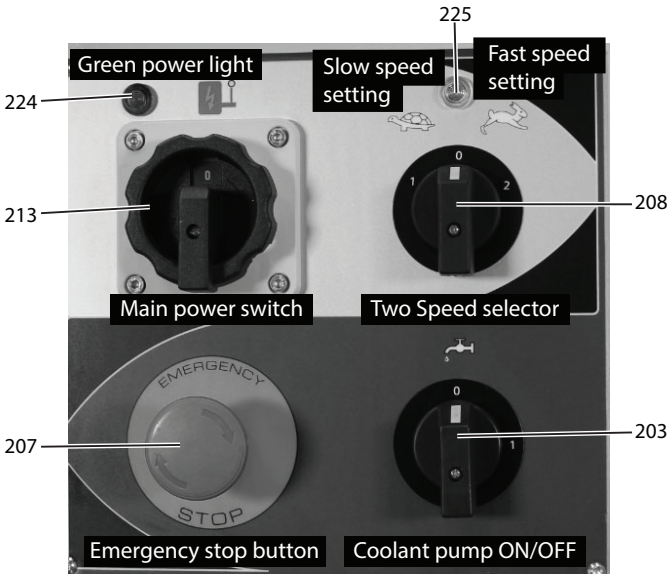


Figure 8. Controls

Manual cutting operation:

NOTE: Pushing the emergency stop button removes power from the blade motor. Releasing it, pulling it out, connects power to the microswitch (see "Parts List" on page 15) in the handle.

1. Select a suitable blade as outlined in "Blade Selection" on page 11.
2. Adjust the cut angle by raising the head to maximum height, loosening release lever 82 (see "Parts List" on page 15), turning the rotating plate 51 to the required angle. Tighten the release lever securely.
3. To make a series of cuts of the same length, set the bar-stop 78 at the required distance from the blade. Secure it with the knob.
4. Clamp the piece to be cut with handwheel 77.
5. Turn the main switch 74 to 1, the speed switch 153 to slow speed or fast , as required by the material to be cut, and the coolant pump switch to the desired positions.
6. Grasp the handle 37 of the head lever and press the microswitch. The blade starts turning.
7. Carefully lower the blade to the piece to be cut and slowly increase pressure in order to accelerate the cutting operation. Do not use excessive force, let the blade do the work.
8. When the cut is complete release the microswitch and allow the saw to return to its starting position.

Semi-automatic mode cutting operation:

NOTE: Pushing the emergency stop button removes power from the blade motor. Releasing it, pulling it out, connects power to the microswitch in the handle.

1. Select a suitable blade as outlined in “Blade Selection” on page 11.
2. Connect the machine to the central pneumatic system and position the manometer on 6-7 atm.
3. Adjust the head vertical stops so that the downward stroke does not allow the blade to contact the bed. Verify the head’s downward stroke stop adjustment by performing an idle cycle.
4. Adjust the cut angle by raising the working head to maximum height, loosening the fastening handle 82 (see “Parts List” on page 15) and turning the rotating plate 51 to the required angle, fasten the plate securely when angle is set.
5. To make a series of cuts of the same length, set the bar-stop 78 at the required distance from the blade. Secure it with the knob.
6. Clamp the piece to be cut with handwheel 77.

CHANGING BLADES

To remove and replace the saw blade:

1. Make sure the cold saw is disconnected from the power.
2. Hold the saw blade still, by lowering the blade into a piece of wood set in the vise.
3. Unhook the guard rod (A) from the guard.

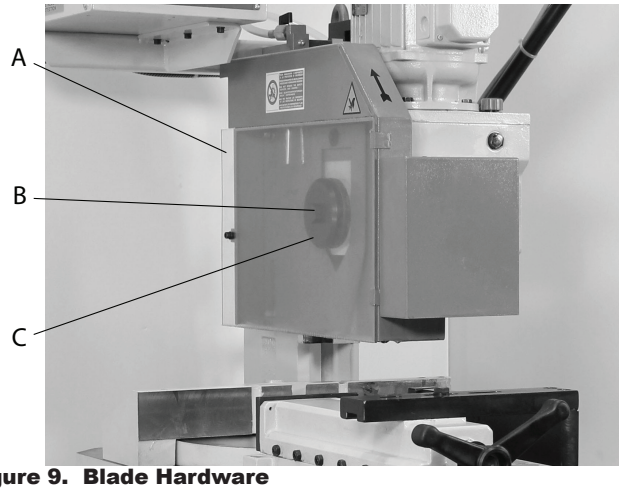


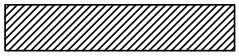
Figure 9. Blade Hardware

4. Remove disk fastening screw (B).
5. Remove the disk fastening flange (C).
6. Use gloves to safely remove the saw blade.
7. Follow these steps in the reverse order to install a new blade.

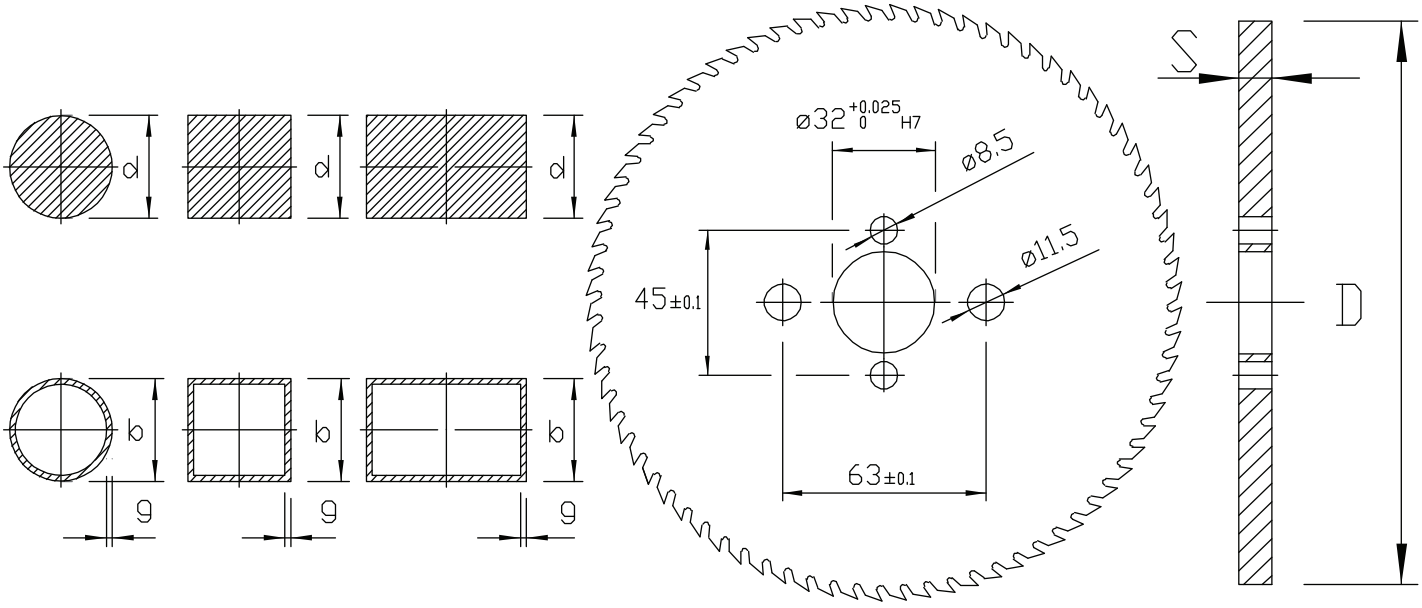
NOTE: The new blade will need to be broken in before full use. See “Blade not worn-in correctly” in “Troubleshooting Guide” on page 12.

BLADE SELECTION

NOTE: Best performance of worm screw worm wheel gearing is guaranteed when circular saw blades with drawing-holes are used.

Cutting Capcity (values in parentheses are in mm)				
Cut				
90º	1.18” (30)	2.56” (65)	2.17” x 2.17” (55 x 55)	1.77” x 2.76” (45 x 70)
45º	1.18” (30)	2.36” (60)	1.97” x 1.97” (50 x 50)	1.57” x 2.36” (40 X 60)

Blade Selection (values in parentheses are in mm)					
Diameter		**9” (229)**	**10” (254)**	**14” (356)**	**14.5” (370)**
Thickness		**0.07” (1.8)**	**0.08” (2)**	**0.12” (3)**	**0.12” (3)**
b=0.39”-3.15” (10-80)	t	0.12” (3)	0.12” (3)	0.12” (3)	0.12” (3)
g<0.08” (2)	z	230	250	350	370
b= 0.39”-3.15” (10-80)	t	0.20” (5)	0.20” (5)	0.20” (5)	0.20” (5)
g=0.08”-0.16” (2-4) d=0.39”-0.71” (10-18)	z	140	160	220	230
b= 0.39”-3.15” (20-80)	t	0.31” (8)	0.31” (8)	0.31” (8)	0.31” (8)
g=0.16”-0.39” (4-10) d=0.71”-1.18” (18-30)	z	90	100	140	150
d=1.18”-1.57” (30-40)	t	0.39” (10)	0.39” (10)	0.39” (10)	0.39” (10)
	z	70	80	110	120
d>1.57” (40)	t			0.47” (12)	0.47” (12)
	z			90	90
NOTE: t = toothing pitch, z = tooth count					



TROUBLESHOOTING GUIDE

Symptom	Possible Cause(s)	Corrective Action
Teeth breaking	Coolant flow problem	Ensure proper coolant flow; hoses unclogged; nozzles pointed correctly, etc. Make sure coolant type is suitable for the saw.
	Material too hard	Check the blade speed and the type of blade you are using. Also be aware of feed pressure.
	Blade not worn-in correctly	With a new blade it is necessary to start cutting at half feeding speed. After the wearing-in period (a cutting surface of about 300 cm^2 for hard materials and about 1000 cm^2 for soft materials) the blade and feed speeds can be raised to normal values.
	Blade with excessively fine tooth pitch	The swarf wedges into the bottom of the teeth causing excessive pressure on the teeth themselves. Use a blade with coarser tooth pitch.
	New blade inserted in a partially completed cut	The surface of the cut may have undergone work hardening. When starting work again, use a lower blade speed and reduced feed pressure. A tooth from the old blade may be left in the cut: check and remove before starting work again.
	Work piece not clamped firmly in place	Any movement of the work piece during cutting can cause broken teeth: check the vise, jaws and clamping pressure.
Rapid tooth wear	Feed speed too slow	The blade runs over the material without removing it: increase feed speed.
	Blade speed too high	The teeth slide over the material without cutting it: reduce the blade speed.
	Insufficient coolant	Check the coolant level and clean coolant lines and nozzles.
	Incorrect fluid concentration	Check and use the correct concentration.
	Material defective	The materials may present altered zones either on the surface, such as oxides or sand, or in section, such as under-cooled inclusions. These zones, which are much harder than the blade, cause the teeth to break. Discard or clean these materials.
Broken blade	Blade speed too high	Reduce blade speed.
	Teeth in contact with material before starting the cut	Always check the position of the blade before starting a new job.
	Insufficient coolant	Check the coolant level and clean coolant lines and nozzles.
Cuts not straight	Feed speed too high	Reduce feed speed.
	Blade not perpendicular to workpiece.	Adjust blade tracking according to instructions. If this proves unsuccessful, contact Palmgren technical support.
Green pilot lamp not lit when ON button pressed	No incoming power	Check connections at machine and power source.
	Lamp fuse or bulb is out	Replace fuse/bulb.

Symptom	Possible Cause(s)	Corrective Action
Motor will not turn	Emergency stop engaged	Rotate Emergency Stop button to disengage.
	Electrical power supply	Check: the phases; the cables; the plug; the socket. Also check that the motor connections are in place.
	Trigger switch not activating	Check that socket/plug connection from handle to motor is inserted correctly; check micro-switch in trigger.
	Transformer	Check that the voltages are present both on the input and output. Otherwise replace.
	Magnetic contactor	Check that the phases in it are present both on the input and output, that it is not jammed, that it closes when powered and that it is not causing short circuits. Change if any of these problems are found.
	Thermal relay	Make sure it is closed, i.e. check that the phases are present in input and output, that it is not causing short circuits and responds when the reset coil is closed. If it has tripped to protect the motor, check the amperage setting, reset, and check the motor. Change if necessary.
	Motor	Check that it has not burned out, that it turns freely and that there is no moisture in the connection terminal board box. The winding can be rewound or replaced by experienced motor repair personnel.

MAINTENANCE/REPAIR

Replacement of gear box oil

Place a container, labeled to indicate the contents for the purposes of disposal, beneath cap 22. Remove caps 95 and 22 (see “Parts List” on page 15), and let the used oil drain into the container. Replace cap 22. Pour 1 gal (0.2 liter) of oil (see “Lubrication” on page 8) into the oil feed hole located on the upper part of the gear box and then replace cap 95.

Lubrication of mobile parts of piece locking vise

Remove the vise (21) completely by turning hand wheel 11 (see “Parts List” on page 15). Clean and grease the parts worked by the counter-vise 75, the vise 21 and the vise gib 101. Put a drop of oil in the oil feed hole 19 located behind the handwheel. Then install the vise.

Cleaning of the coolant tank : Filter check.

The coolant tank can be cleaned by simply removing the crucible 87 (see “Parts List” on page 15). Empty the coolant from the tank and collect the coolant in a container for future disposal. Clean away the shavings and the metallic powder , taking care not to scatter this over the machine especially around the motor and the box containing the electrical equipment.

Fill the tank with 0.75 gal (3 liter) of coolant liquid:
water and 5-7% AGIP AQUAMET 700 EP oil.

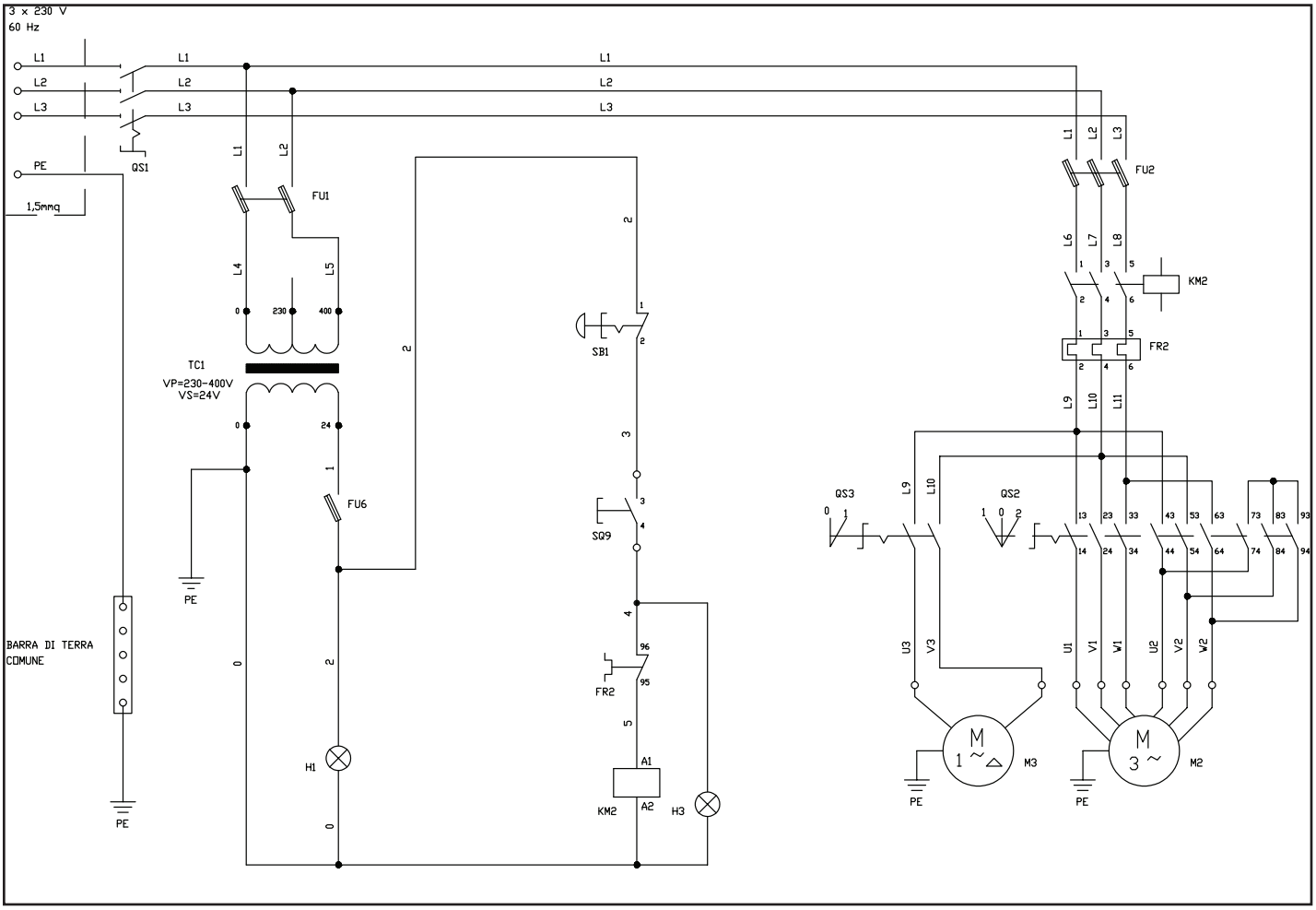
Checking of bench lever functioning

Check regularly that the rotation release - locking lever is working properly. If the lever does not lock correctly, loosen grub screw 91 (see “Parts List” on page 15), tighten nut 90 and tighten grub screw 91 again. Make sure that with the bench lever in position 2, arm 4 supporting the blade motor block can rotate freely.

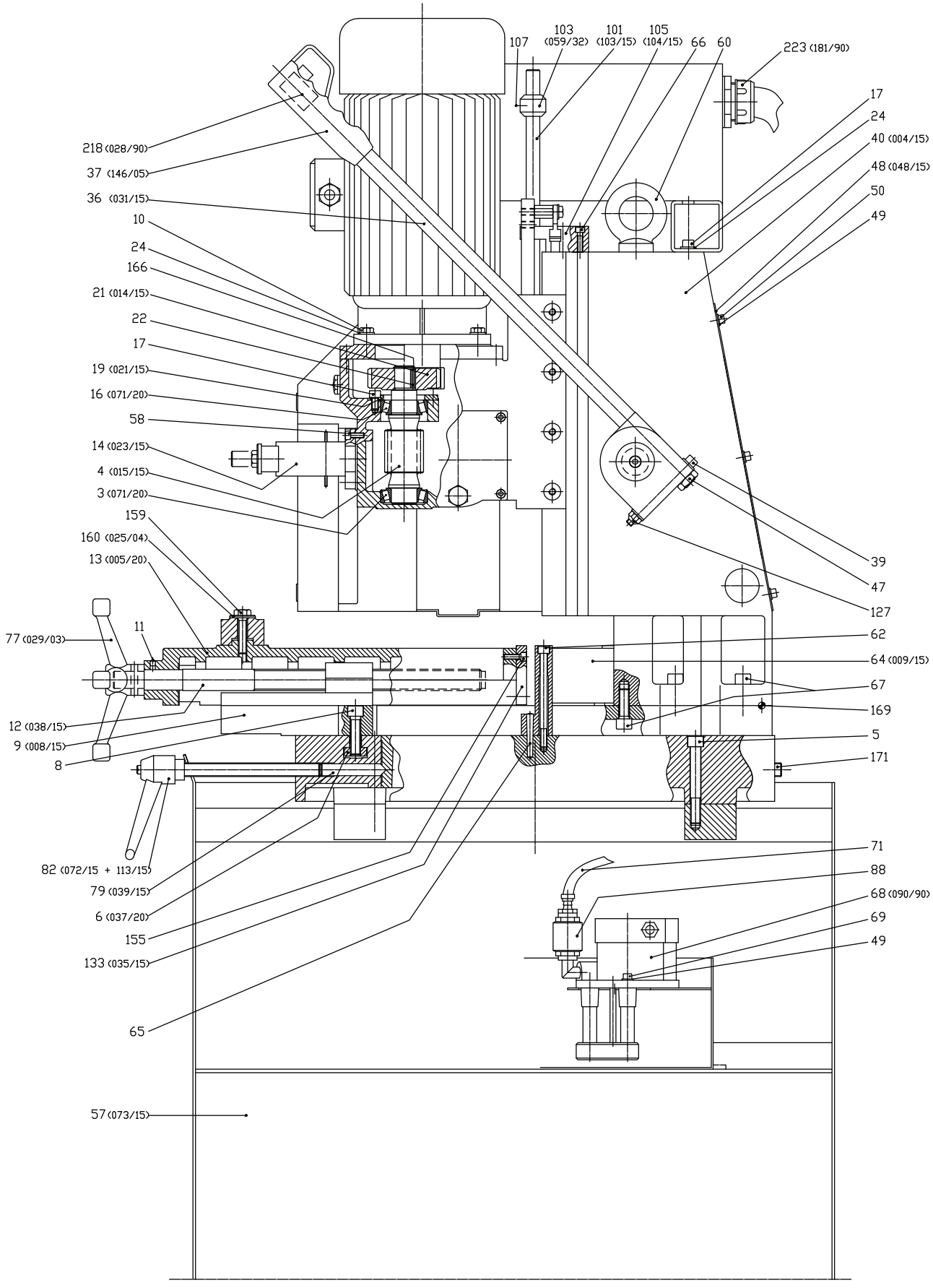
Suggested Maintenance Schedule

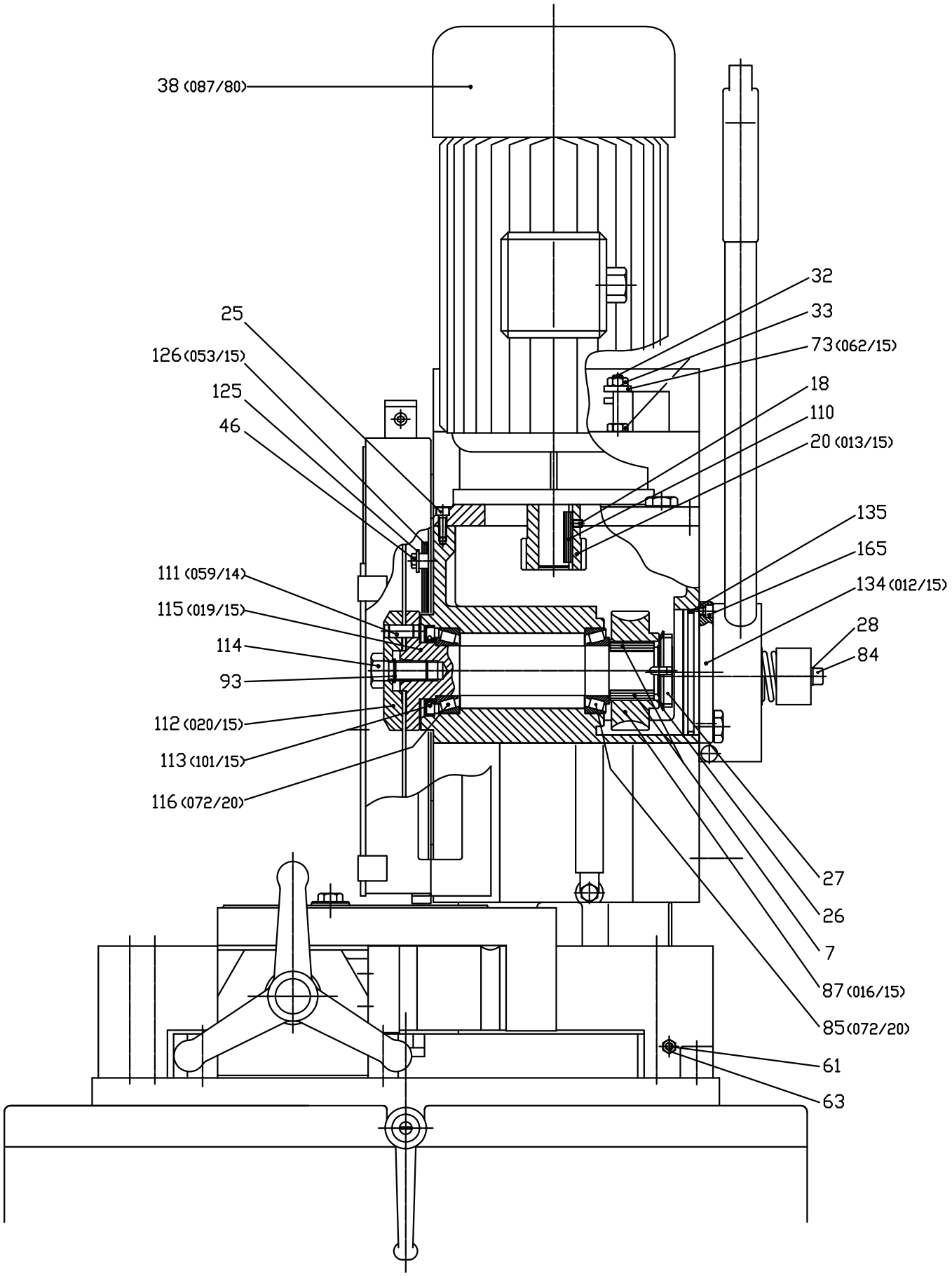
FREQUENCY (working hours)	OPERATION
1000 hrs or monthly	Replace the oil in the gear box with AGIP BLASIA 220 oil (0.2 liter) or equivalent.
1000 hrs or monthly	Lubricate mobile parts in the piece locking vise.
50 hrs or every 2 days	Clean coolant tank and check filter.

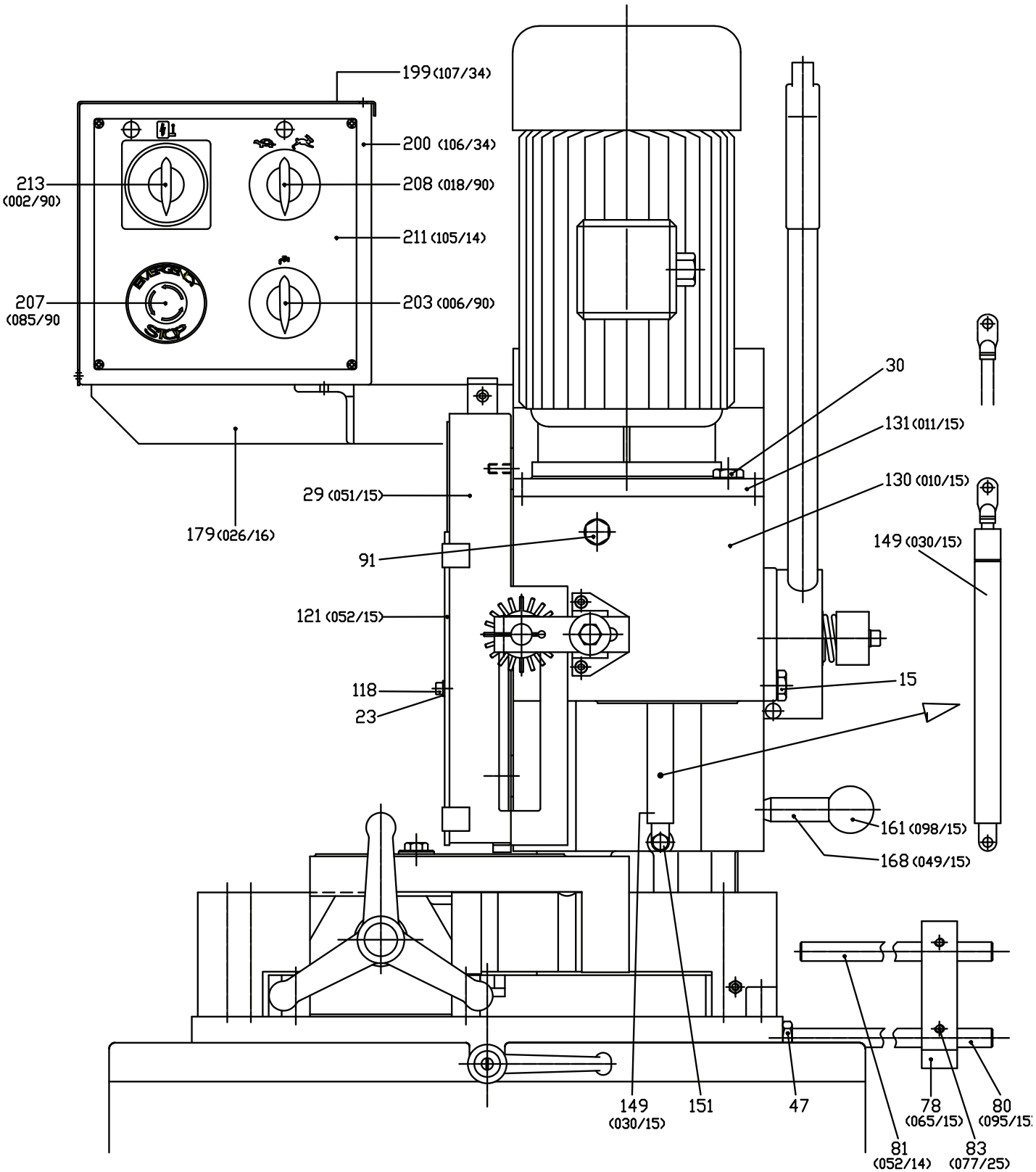
Wiring

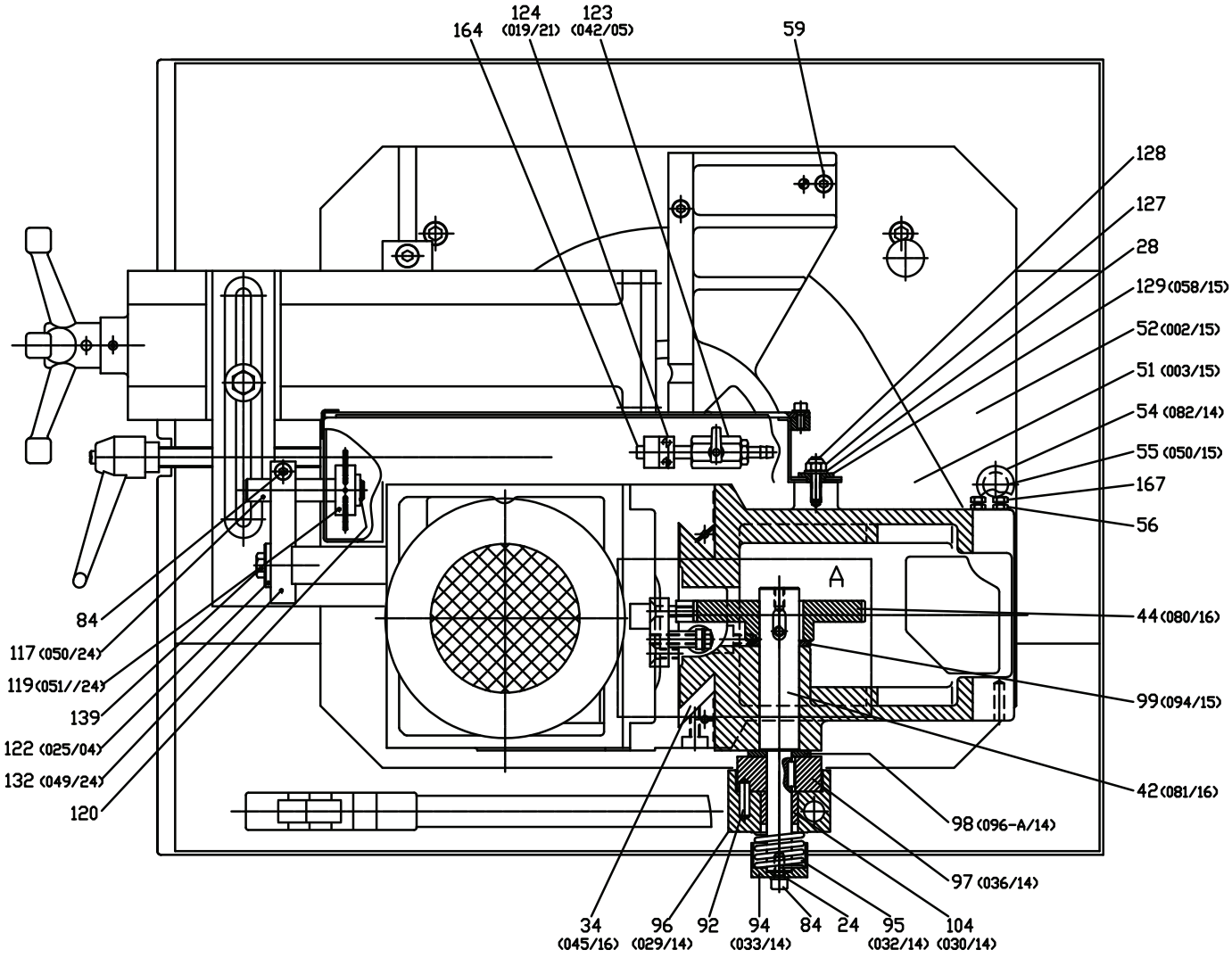


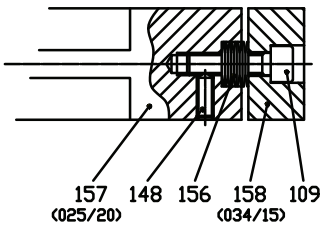
Parts List

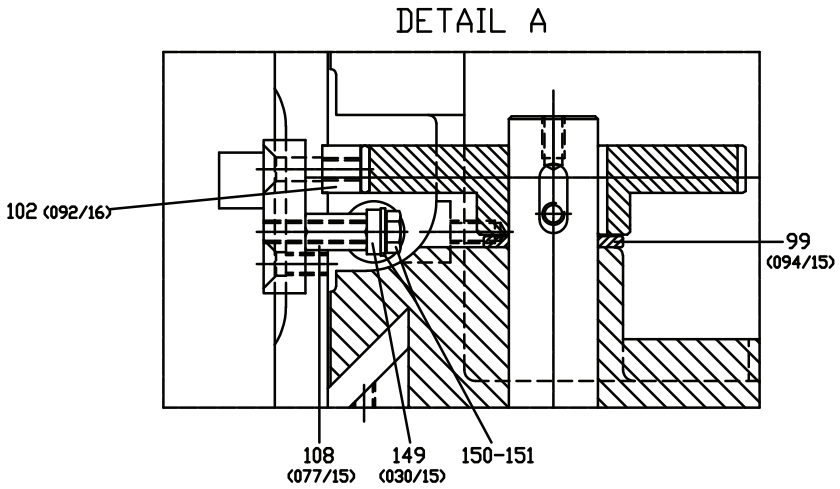

107
103 (059/32)
101 (103/15)
105 (104/15)
66
60
223 (181/90)
17
24
40 (004/15)
48 (048/15)
50
49
218 (028/90)
37 (146/05)
36 (031/15)
10
24
166
21 (014/15)
22
17
19 (021/15)
16 (071/20)
58
14 (023/15)
4 (015/15)
3 (071/20)
159
160 (025/04)
13 (005/20)
11
77 (029/03)
12 (038/15)
9 (008/15)
8
82 (072/15 + 113/15)
79 (039/15)
6 (037/20)
155
133 (035/15)
65
57 (073/15)
39
47
127
62
64 (009/15)
67
169
5
171
71
88
68 (090/90)
69
49

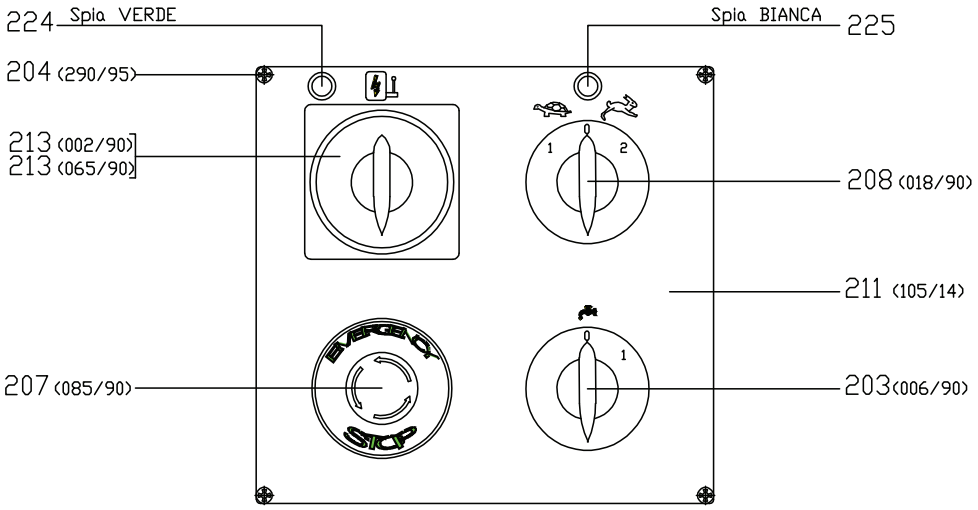

38 (087/80)
25
126 (053/15)
125
46
111 (059/14)
115 (019/15)
114
93
112 (020/15)
113 (101/15)
116 (072/20)
32
33
73 (062/15)
18
110
20 (013/15)
135
165
134 (012/15)
28
84
27
26
7
87 (016/15)
85 (072/20)
61
63

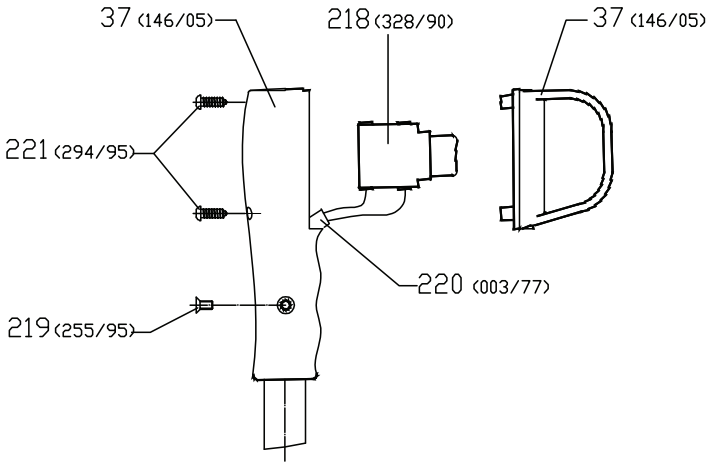

199 (107/34)
200 (106/34)
213 (002/90)
208 (018/90)
211 (105/14)
207 (085/90
203 (006/90)
30
131 (011/15)
130 (010/15)
29 (051/15)
179 (026/16)
91
149 (030/15)
121 (052/15)
15
118
23
161 (098/15)
168 (049/15)
149 (030/15)
151
47
78 (065/15)
80 (095/15)
81 (052/14)
83 (077/25)

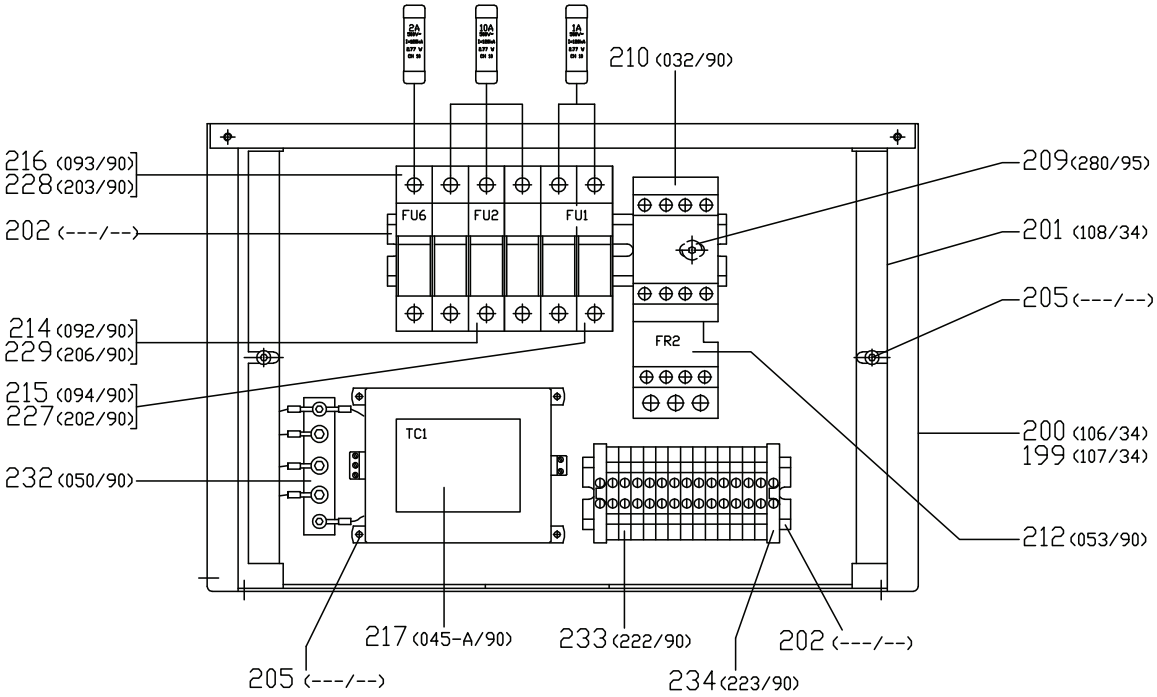

164
124 (019/21)
123 (042/05)
59
128
127
28
129 (058/15)
52 (002/15)
51 (003/15)
54 (082/14)
55 (050/15)
167
56
A
84
117 (050/24)
119 (051//24)
139
122 (025/04)
132 (049/24)
120
44 (080/16)
99 (094/15)
42 (081/16)
98 (096-A/14)
97 (036/14)
34 (045/16)
96 (029/14)
92
94 (033/14)
84
24
95 (032/14)
104 (030/14)


157 (025/20)
148
156
158 (034/15)
109


DETAIL A
102 (092/16)
99 (094/15)
108 (077/15)
149 (030/15)
150-151


224 Spia VERDE
Spia BIANCA 225
204 (290/95)
213 (002/90)
213 (065/90)
208 (018/90)
211 (105/14)
207 (085/90)
203 (006/90)
EMERG.
STOP


37 (146/05)
218 (328/90)
37 (146/05)
221 (294/95)
220 (003/77)
219 (255/95)


210 (032/90)
216 (093/90)
228 (203/90)
202 (---/--)
214 (092/90)
229 (206/90)
215 (094/90)
227 (202/90)
232 (050/90)
209 (280/95)
201 (108/34)
205 (---/--)
200 (106/34)
199 (107/34)
212 (053/90)
FU6
FU2
FU1
FR2
TC1
217 (045-A/90)
233 (222/90)
202 (---/--)
205 (---/--)
234 (223/90)

Pos.	Description	Part Number
1	Not used	
2	Not used	
3	Bearing 32006 X	*
4	Worm screw shaft	9644536.01
5	HSHC screw M12x90 DIN-912	*
6	Vise supporting dowel	*
7	Key 12x8x35 UNI-6204	9644537.01
8	HSHC screw M12x45 DIN-912	*
9	Vise support	9644538.01
10	HSFHC screw M8x25 DIN-7991	*
11	Oiler ø6 (M)	9644539.01
12	Vise screw	9644540.01
13	Vise	9644541.01
14	Chip breaker support	9644542.01
15	Oil drain cap ø3/8”	9644543.01
16	Bearing 32006 X	*
17	HSHC screw M8x16 DIN-912	*
18	Hexagon socket grub screw M6x10 DIN-914	*
19	Bearing support flange	9644544.01
20	Motor gear	9644545.01
21	Worm screw shaft gear	9644546.01
22	Key 6x6x20 UNI-6204	*
23	Washer for M6 DIN-125/A	*
24	Washer for M8 DIN-125/A	*
25	HSHC screw M6x16 DIN-912	*
26	Tab washer MB 40 DIN-5406	*
27	Self-locking ring-nut KM 40 DIN-981	*
28	Washer for M8 DIN-125/A	*
29	Disk guard	9644547.01
30	Oil filler cap ø3/8”	9644548.01
31	Grease nipple M6	*
32	Hexagon socket grub screw M8x70 DIN-913	*
33	Hexagon lock-nut M8 DIN-936	*
34	Head gib	9644549.01
35	Not used	
36	Head lever (M)	9644550.01
37	Head lever handle (M)	9644551.01
38	Motor	9644552.01
39	HSHC screw M8x100 DIN-912 (M)	*
40	Column	9644553.01
41	Not used	
42	Rack gear pin (M)	9644554.01
43	Not used	
44	Rack gear (M)	9644555.01

Pos.	Description	Part Number
45	Not used	
46	HH screw M6x12 DIN-933	*
47	Hexagon lock-nut M16 DIN-936	*
48	Column guard	9644556.01
49	Washer for M6 DIN-125/A	*
50	HSHC screw M6x12 DIN-912	*
51	Rotating plate	9644557.01
52	Bench	9644558.01
53	Not used	
54	Positioning pin knob. + ball ø30	9644559.01
55	Positioning pin	9644560.01
56	Hexagon lock-nut M6 DIN-936	*
57	Base	9644561.01
58	HSHC screw M6x16 DIN-912	*
59	HSHC screw M8x60 DIN-912	*
60	Lifting eye nut M 20 (M)	*
61	Hexagon socket grub screw M6x30 DIN-913	*
62	HSHC screw M8x110 DIN-912	*
63	Hexagon nut medium M6 DIN-934	9644562.01
64	Counter vise	9644563.01
65	Pin 8x40	*
66	HSHC screw M6x35 DIN-912 (M)	*
67	HSHC screw M12x25 DIN-912	*
68	Motor pump EZ/C	9644564.01
69	HSHC screw M6x18 DIN-912	*
70	Vise lever (M)	9644565.01
71	Water hose	9644566.01
72	Hexagon s. grub screw M8X25 DIN-914	*
73	Ring-nut	9644567.01
74	Main switch	9644568.01
75	Not used	
76	Spring pin 8x50 DIN-1481 (M)	*
77	Vise hand-wheel (M)	9644569.01
	Vise hand-wheel (S)	9644570.01
78	Bar stop	9644571.01
79	Cap	9644572.01
80	Bar stopping rod	9644573.01
81	Mobile bar stopping rod	9644574.01
82	Release lever M16 +	9644575.01
	Thread locking bench	9644576.01
83	Hand-wheel ø40 M8x25	9644577.01
84	HSHC screw M8x20 DIN-912	*
85	Bearing 32008 X	*
86	Not used	
87	Helical gear	9644578.01

Pos.	Description	Part Number
88	Check valve EUROPA	9644579.01
89	Not used	
90	Not used	
91	Oil level cap ø3/8”	9644580.01
92	Cyl. pin M8x25 (M)	9644581.01
93	Snap ring ø15 E DIN-471	*
94	Lever spring cover (M)	9644582.01
95	Lever spring (M)	9644583.01
96	Lever anchoring sleeve (M)	9644584.01
97	Hub anchoring lever	9644585.01
98	Outer spacer pinion head (M)	9644586.01
99	Spacer internal pinion head (M)	9644587.01
100	HSHC screw M8x16 DIN-912 (M)	*
101	Head stopping bar (M)	9644588.01
102	Rack (M)	9644589.01
103	Head stopping bush (M)	9644590.01
104	Lever anchoring bracket (M)	9644591.01
105	Head stopping bracket (M)	9644592.01
106	Solenoid valve + Spool (S)	9644593.01
107	Hexagon socket grub screw M8X10 DIN-914 (M)	*
108	Cylinder gas spacer (M)	9644594.01
109	HSHC screw M8x35 DIN-912	*
110	Key 8x7x40 UNI-6604	*
111	Pin ø8x20	*
112	Disk fastening flange	9644595.01
113	Oil retainer 45-72-8	9644596.01
114	Disk fastening screw HH screw M16x35 DIN-933	*
115	Disk shaft	9644597.01
116	Bearing 32008 X	*
117	Chip breaker pin	9644598.01
118	HSHC screw M6x16 DIN-912	*
119	Chip braket wheel	9644599.01
120	Snap ring ø16 E DIN-471	*
121	Disk guard cover	9644600.01
122	Washer ø10,5	*
123	Tap	9644601.01
124	Jet- breaker	9644602.01
125	Washer for M6 DIN-125/A	*
126	Mobile guard	9644603.01
127	Self-locking nut M8 DIN-982	*
128	Hexagon socket grub screw M8x20 DIN-913	*
129	Guard cover washer	9644604.01
130	Head	9644605.01
131	Head cover	9644606.01

Pos.	Description	Part Number
132	Chip breaker braket	9644607.01
133	Vise jaw	9644608.01
134	Side head cover	9644609.01
135	0-ring 4362	9644610.01
136	Vise cylinder (S)	9644611.01
137	Head cylinder (S)	9644612.01
138	Washer for M10 DIN-125/A	*
139	H.H. screw M10x35 DIN-933	*
140	Head cylinder support (S)	9644613.01
141	Washer for M8 DIN-125/A (S)	*
142	HH screw M8x35 DIN-933 (S)	*
143	Head stop (S)	9644614.01
144	Head stopping bar (S)	9644615.01
145	Micro-switch (S)	9644616.01
146	Hand-wheel ø40 M8x25 (S)	9644617.01
147	HSHC screw M6x45 DIN-912 (S)	*
148	Hexagon socket grub screw M6X10 DIN-914	*
149	Cylinder gas (M)	9644618.01
150	Washer for M8 DIN-125/A (M)	*
151	HH switch M8x45 DIN-933 (M)	*
152	Not used	
153	Not used	
154	Not used	
155	HSHC screw M6x14 DIN-912	*
156	Belleville washer 16x8,2x1,2 DIN-2093	*
157	Mobile burr-proof bracket	9644619.01
158	Jaw burr-proof bracket	9644620.01
159	HH switch M10x55 DIN-933	9644621.01
160	Washer ø10,5	*
161	Ball ø45 M14	9644622.01
162	Start button (S)	9644623.01
163	HSHC screw M6x30 DIN-912 (M)	*
164	HSHC screw M4x25 DIN-912	*
165	HSHC screw M6x12 DIN-912	*
166	Snap ring ø22 E DIN-471	*
167	HH screw M6x16 DIN-933	*
168	Head rotating lever	9644624.01
169	Spring pin 8x36 DIN-1481	*
170	Reset button (S)	9644625.01
171	Hexagon socket grub screw M16x25 DIN-913	*
172	Not used	
173	Micro-switch (S)	9644626.01
174	Vise front plate (M)	9644627.01
175	HSHC screw M8x25 DIN-912 (M)	*

Pos.	Description	Part Number
176	Not used	
177	Chip tank	9644628.01
178	Electric pump tank	9644629.01
179	Box bracket support	9644630.01
180	Box controller	9644631.01
181-198	Not used	
199	Box cover (M)	9644632.01
	Box cover (S)	9644633.01
200	Box (M)	9644634.01
	Box (S)	9644635.01
201	Plate (M)	9644636.01
201	Plate (S)	9644637.01
202	Omega raceway	9644638.01
203	Switch A1203/R03	9644639.01
204	TCCC screw M4x14 DIN-7981	*
205	HSHC screw M4x6 DIN-912	*
206	Contactor with auxiliary contact (S)	9644640.01
207	Emergency button	9644641.01
208	Switch A1209/R03	9644642.01
209	TBEI screw M4x6 ISO-7380	*
210	Remote controlled switch	9644643.01
211	Frontal (M)	9644644.01
	Frontal (S)	9644645.01
212	Thermical relais CGE	9644646.01
213	Switch VEMER CA0120003207	9644647.01
214	Fuse block PCH3x38	*

Pos.	Description	Part Number
215	Fuse block PCH 2x38	*
216	Fuse block PCH 1x38	*
217	Transformer 20 VA (M)	9644648.01
	Transformer 100 VA (S)	9644649.01
218	Micro-switch	9644650.01
219	TPSCEI screw M4x8 DIN-7991	*
220	Electrical cable 2x1	9644651.01
221	TCCC screw M2,9x13 DIN-7981	*
222	Not used	
223	Cable-holder	9644652.01
224	Green lamp 24V (M)	9644653.01
225	White lamp 24V (M)	9644654.01
227	Fuse gG 10x38 1A	*
228	Fuse gG 10x38 2A	*
229	Fuse aM 10x38 10A	*
230	Fuse aM 10x38 4A (S)	*
231	Fuse aM 10x38 6A (S)	*
232	Earth connection bar	9644655.01
233	Terminal COBUR CBD.2	9644656.01
234	Earth terminals COBUR TE.6/0 (G/V Terra)	9644657.01
Parts not visible on exploded view:		
	Filter unit (S)	9644658.01
	Solenoid valve unit NTS400/2 (S)	9644659.01
	Solenoid valve kit (S)	9644660.01
	Servo-valve (S)	9644661.01
	Zerk syringe (S)	9644662.01

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 is 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 elated to the use or inability to use our products. This warranty gives you specific legal rights which may vary from state to state.

PALMGREN®

Palmgren - a C.H. Hanson Company
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