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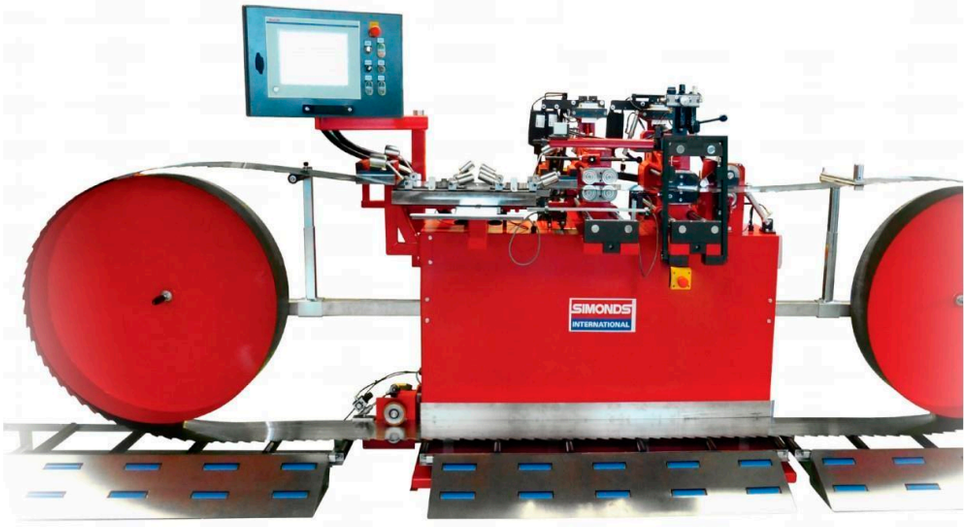

MODELS 090 & 095 AUTOMATED BENCH

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SIMONDS AUTOMATED BENCH
BASIC OPERATION CONCEPT

The electronic sensors on the Simonds 090/095 Automatic Bench (A-B Unit) measure deviation on the saw blade +/- and send a signal to the PCB (printed circuit board). At the same time the measuring wheel measures the distance (not the time) from the deviation at the dial indicator point to the memory cell for the tensioning rolls on the Tensioner Head, as well as the proper set of leveling rolls (up/or down) on the Leveler Head.

On the Tensioner Head the rolls are activated when called for by the Tensioning or Back sensors.

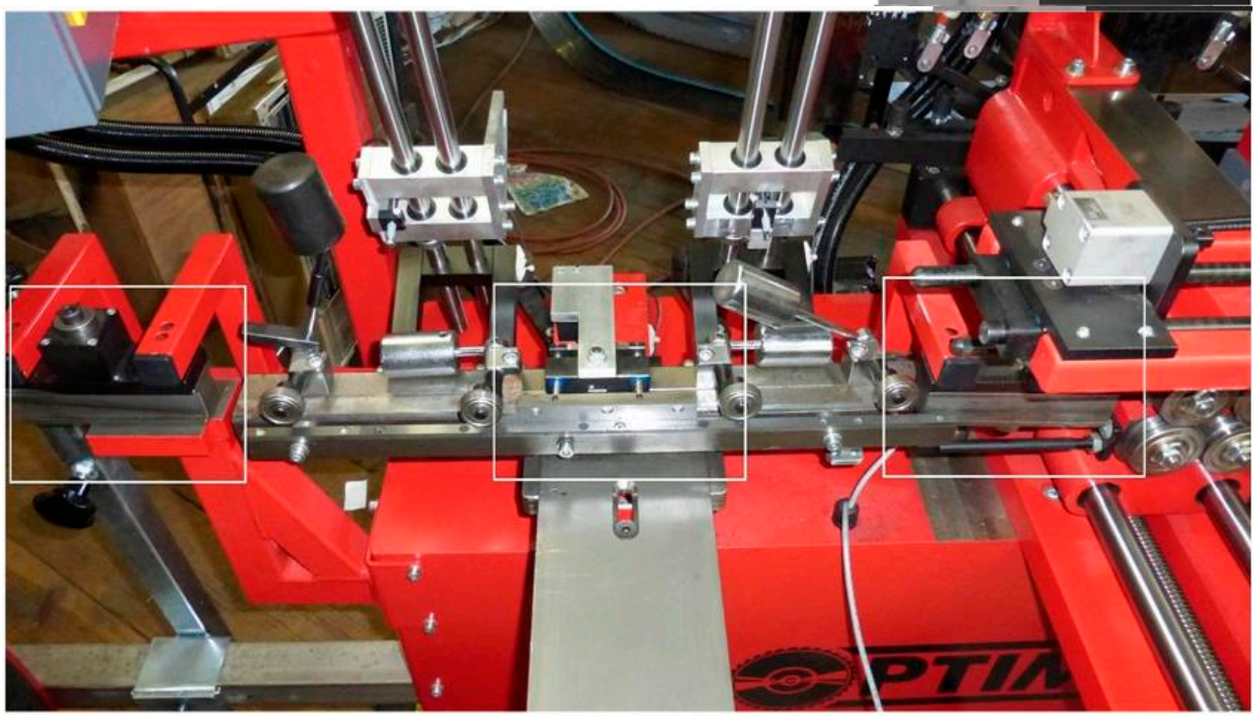
The Leveler Head sensor activates the rolls at the correct distance to bend the deviation in the opposite direction. Bending is less severe than hammering the blade as no stretching occurs (i.e. tension), and no radial stress occurs from the point of hammer impact.

SETUP INSTRUCTIONS

LOADING THE SAW

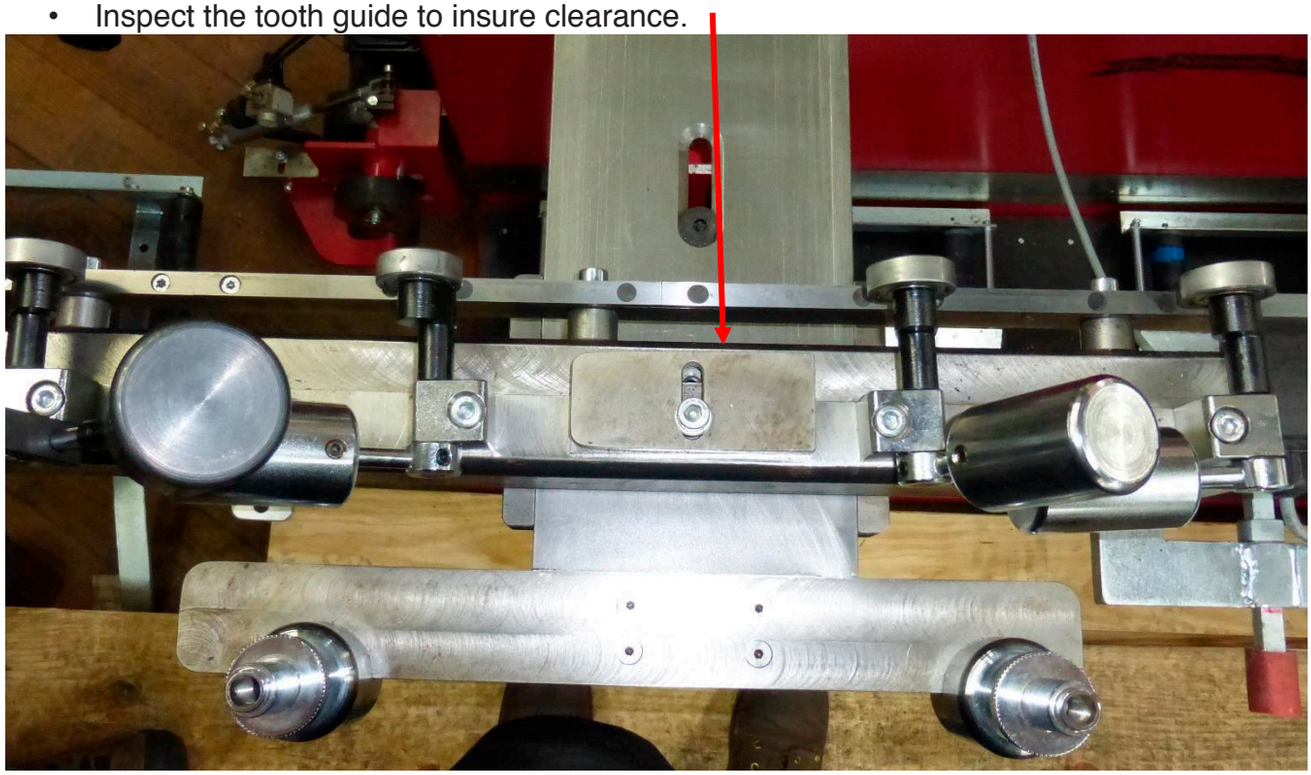
Load blade taking care that the hold down rolls and the distance-measuring unit had been previously lifted out of the way. It is best to leave the infeed turn - a - round roll (to the operators left) in a fixed position and move the out feed roll to facilitate loading a saw. The bottom of the saw should be loaded first. Position the saw lift arm (to expose the tension drop) so the saw enters the infeed carbide backrest at the top left corner and exits at the bottom right corner. Then lift the top of the saw to rest on the top of the saw support table with the back of the saw up against the backrest. Slide the saw between the drive roll and the hold down roll. The hold down roll must be in the UP position to load the saw.

The back of the saw should be up against the carbide backrest on the far left position and touching the floating guides (See color photo below).



- Looking at the rear carbide rail, you should be able to see approximately 1/16” of the carbide rail under the saw.
- Position the outside carbide rail so the burr from grinding the gullet is just off the outside edge of the rail.

- Inspect the tooth guide to insure clearance.



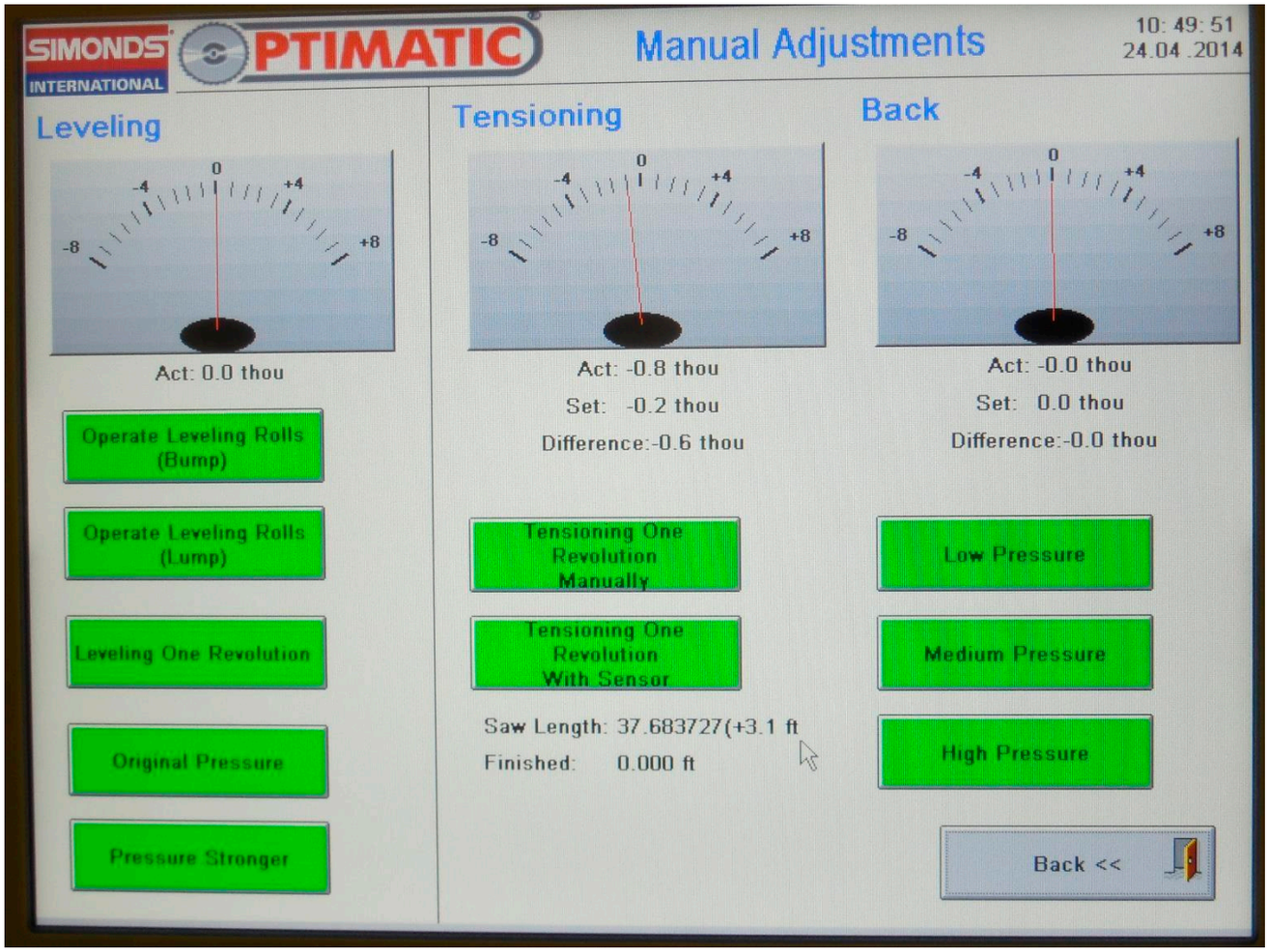
Secure both palm handle screws on the bottom of the outside carbide rail assembly. **Be aware of a pinch point on each of your thumbs as you slide the rail assembly back toward you.** Lower all guide rolls.

Now confirm the saw tracks properly. While the saw is in motion, it should stay against the carbide guide on the infeed side. It should also run toward the machine at the bottom of the saw. You can influence the way the saw tracks by skewing the bottom support rolls to constantly lead the saw toward the machine. As the bottom of the saw moves from right to left, the bottom support rolls should have their left hand edge closer to the machine than the right hand edge.

To test to see if the saw is pulling back toward the rests while the Tensioner and/or the Leveler rolls are firing, follow these steps.

Push the “Start Button” on the control panel to turn the drive motors on.

On the Touch Screen, select the “Manual Adjustments” screen from the main menu and push the “Tension One Revolution Manually” icon to engage the Tensioning rolls.

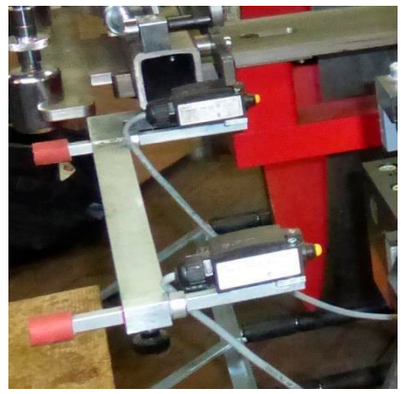


Observe the carbide guide on the left hand side of the machine to insure the saw remains tight against the carbide guide. Also, check movement on the right hand side next to the drive motor. Due to the fact this machine has a “floating” guide system, slight movement in or out on the right hand side is acceptable (not more than ¼”).

Repeat the process with the “Operate Leveling Rolls” and observe the results.

If in both cases the saw remains against the infeed carbide guide, fire both the Tensioner buttons and the leveler buttons simultaneously and observe the results. The saw should remain against the carbide guide on the infeed side.

LIMIT SWITCHES

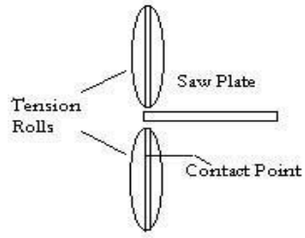


Once the blade has been properly loaded you will need to check the head travel. Limit switches should be set in position that protects the sensor stem. The Limit switches are spring loaded. At the point they are compressed they activate. The Tensioner limit switches measure the saws width, and reverses the head direction. On the Leveler they reverse the direction of the rolls (in the case of multiple cycles) or they shut the machine off (when the number of trips made across the saw equals the number of cycles you have selected on the Control Panel).

TENSIONER HEAD

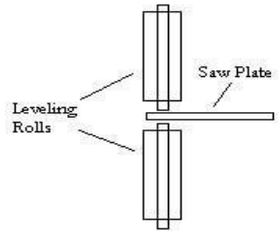
Position the tension sensor in the approximate center of the saw. Disconnect the Tensioning sensor from the slide shaft while setting limits. Detach the Tensioner sensor by pushing down on the rail lock knob and slide the shaft to the right of the machine. The tensioner sensor arm can also be detached by touching the “Measuring Sensor Manual Release” icon on the Setup screen.

Move the head to the outer limit switch and check the roll location for proper position. Limit switches should be set so the center of the crown in the tension rolls is half on and half off each edge of the saw. The roll should extend past the straight back or inside crown of sliver tooth saw. Detach the sensor from the shaft before setting the limit at the gullet edge. At the gullet edge of the saw half of the roll should be over the gullet. Push the Tension head positioning button on the Control Panel to bring the head to the gullet and position the limit switch as at the back. If more than half the roll is off the saw at either edge, when the rolls are activated they may push the saw away or into the back rests. This is not recommended.



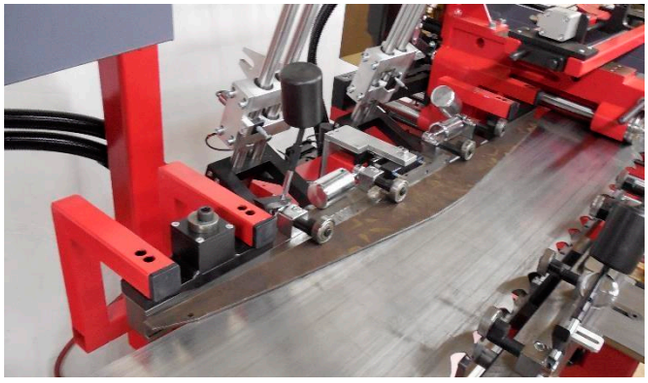
LEVELER HEAD

On the Leveler head this is best accomplished by letting no more than half of the outside 1/3 of the leveling roll go past the back edge or the gullet of the saw. The limit switches should be set at these points.

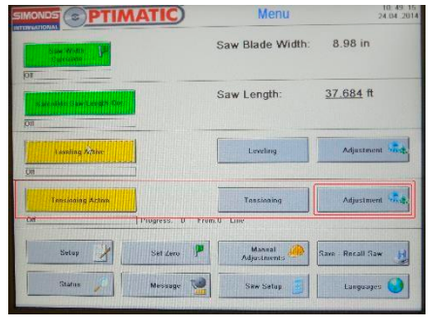


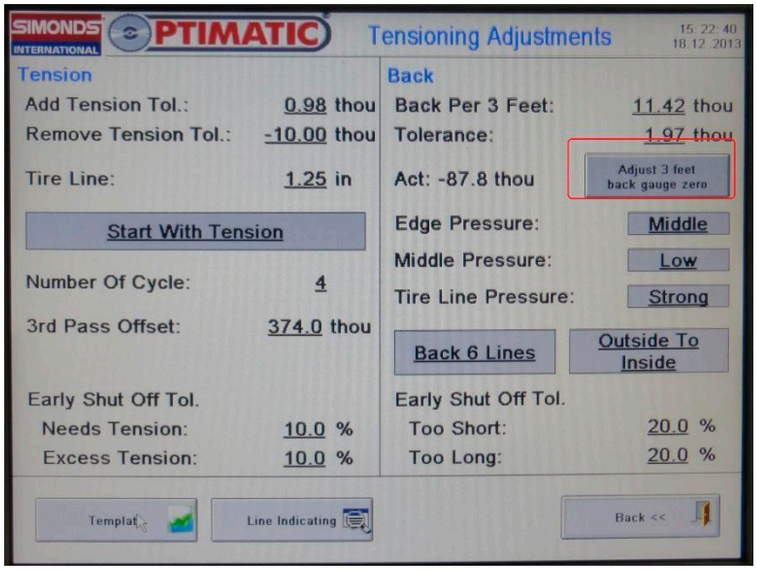
SETTING THE BACK GAUGE SENSOR

In order to establish a reference point for measuring the back in the saw, the back sensor must be calibrated and zeroed using a 3' precision straight edge. While the saw is off the machine and the drive motor OFF, back, lift the roller weights to allow the straight edge to slide under the rollers. Make sure the straight edge is in contact with the carbide guide, back sensor guide (middle) and the floating guide on the right side.



From the Main Menu, select the "Adjustment" icon in the Tensioning line (See picture to the right)





With straight edge against all 3 guide positions, press the "Adjust 3 foot back gauge zero" on the screen. Pressing the Icon will zero out the back gauge sensor, when a saw is loaded the back measurement will be visible on the "Status" screen.

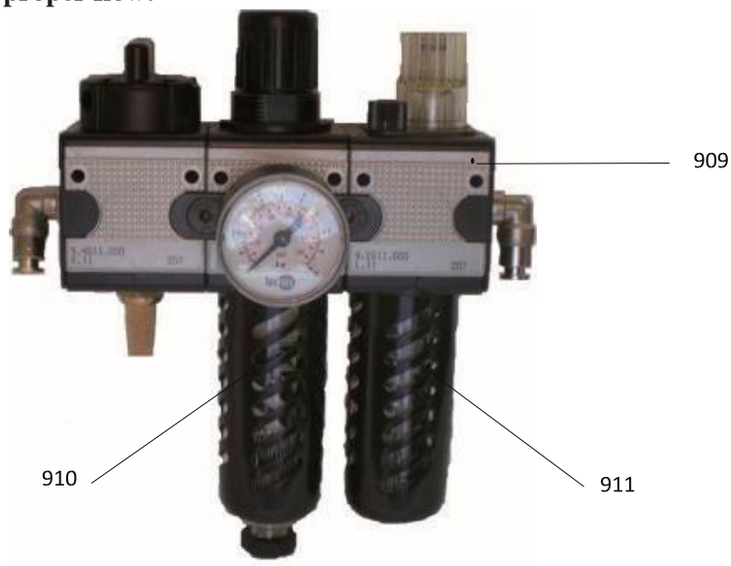
This procedure should only be performed while a straight edge is in place, do not use a Bandsaw to perform this operation.

AIR REGULATOR

Air pressure settings should be 50 lbs. Mill pressure is stepped down by the use of an airline filter regulator provided with the machine. To adjust the pressure, raise the black cap on the regulator and adjust the valve in the direction needed to either increase or decrease pressure. **Airline lubricant is to be an air tool quality oil only**. To refill the reservoir: turn air off, remove the Allen screw located on the top of the lubricator unit, and fill by using a funnel.

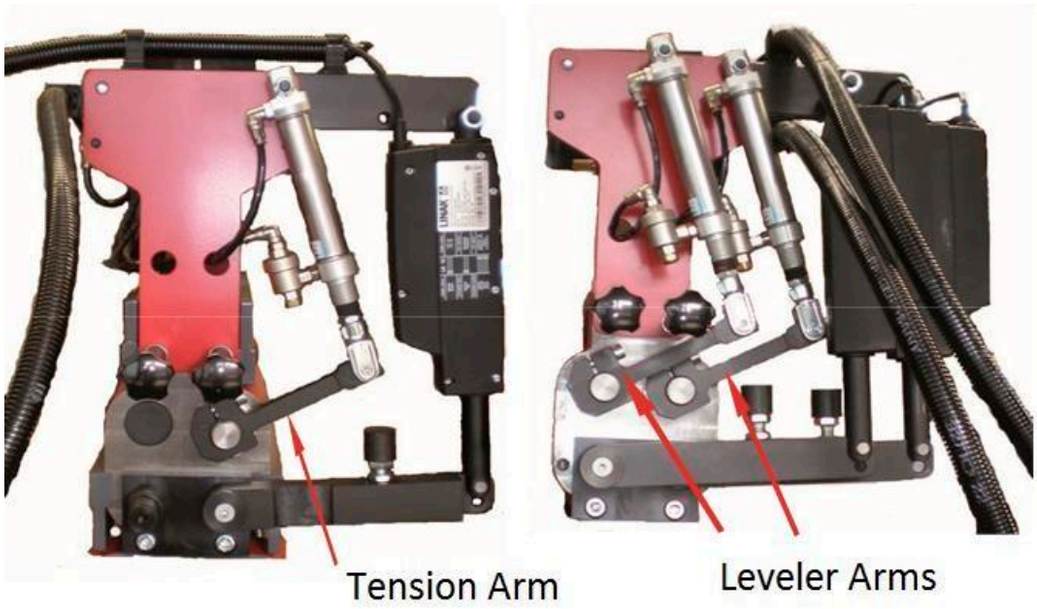
Using the screw at the top of the lubricator unit, tighten the screw until it is closed.

Re-open it 1/8th of a turn for proper flow.



SETTING TENSIONER AND LEVELING ROLL GAPS

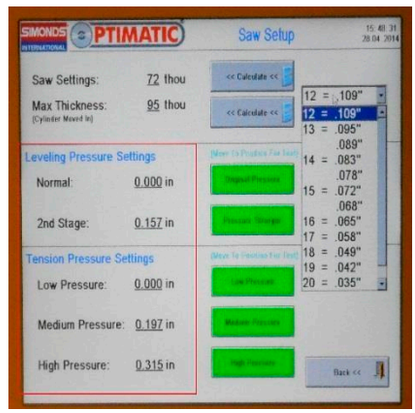
On the A-B we use an eccentric to control the amount to "work" the saw. A larger gap produces a more dramatic effect on the condition of the saw. The power of the Tensioner and Leveler is the gap setting. The air pressure setting delivers this force. However increasing the air pressure setting (which should be set @ 50#'s) will not increase the pressure.



The gap setting is the force, and air is the vehicle to activate that force. The more gap = the more force = quicker roll wear. To keep your machine operating in top form, inspect the Tension rolls on a regular basis after 1000 hours. Roll life may reach as many as 3000 hours on thin gauge saws. This is important to understand.

Adjusting the TENSION and LEVELER ROLL gap settings

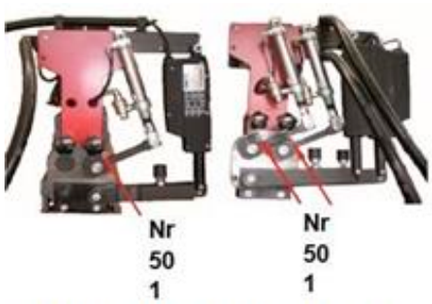
On the "Saw Setup" screen, adjust the "Normal" and "Low Pressure" settings on the Level and Tension pressure setup to 0" by selecting the value on the screen.



Make the following adjustments from the backside of the machine. Follow this procedure for each set of rolls.

Release the tensioning rod by loosening the Allen screw holding the rod. (See picture above) Move the rod down to rubber stop, the tension rolls should be in contact with the saw and the rod touching the rubber stop.

Manually engage the cylinder by pressing the manual over-ride button on the backside of the air control valve (See picture below).



Valve body located behind the red plate in the photo above. Manual trigger buttons are located on each control valve mounted to the manifold block.

With the pressure setting set to “0” and the engagement arm manually fired and pushing against the rubber stop, tighten the setscrew on the engagement arm to “lock” the arm to the eccentric shaft. You have now set the gap to “0” pressure, all pressure settings are performed on the screen. The pressure settings below are typical input settings at the time of initial setup. The actual pressures are based on the saws used in the individual mills. Pressure settings may be altered in order to customize the machine to a particular saw. When making changes, slight modifications are recommended, make small changes (no more than 5mm) in pressure and determine how the band reacts.

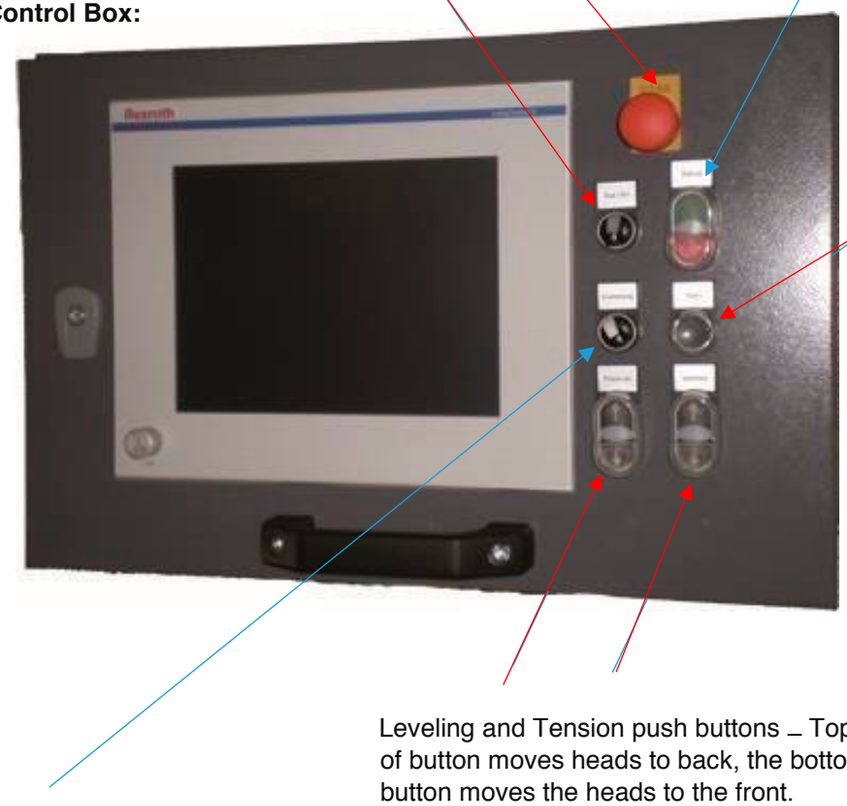
You can adjust the Tension and Leveler pressures on the screen, typical initial settings are: (Settings in Millimeters)

	Low	Medium	High
Tensioner	30	35	40
Leveler	Stage 2	Stage 1	
	20mm – 25mm	15mm – 20mm	

Once gap has been set for a selected gauge of saw, changing gauges of saw is easy. Simply select the saw gauge on the touch screen and run the machine. Observe the results. If it is determined that more pressure is needed, additional pressure can be added via the touch screen setting. (see adding pressure section in this manual) Mechanical adjustment may be required if there is a more than a 3 gauge change in saw thickness.

Control Panel Box

Control Box:



On Off knob

Kill switch: Turns the machine off

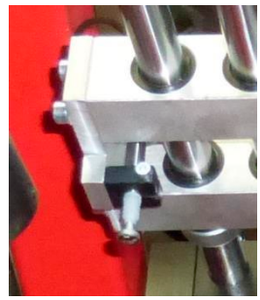
Cycle button: Top start button turns the machine on in automatic mode. Bottom of the Cycle button turns the automatic mode off but the drive will continue to run.

Start button: Runs the drive motor without automatic leveling or tensioning functions.

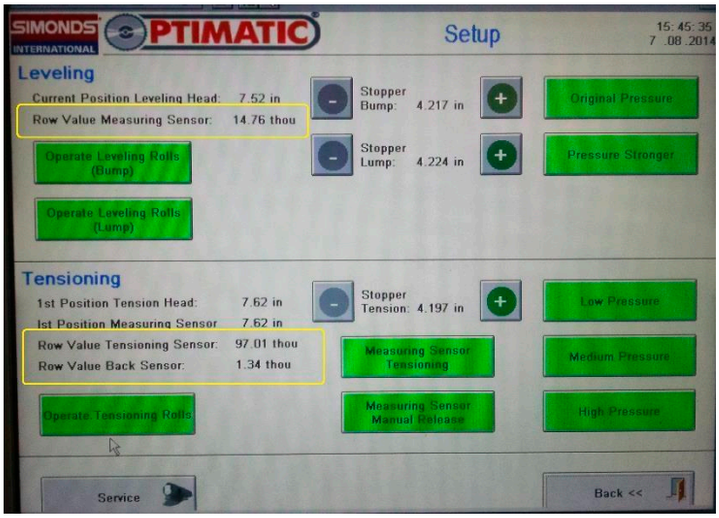
Leveling and Tension push buttons – Top of button moves heads to back, the bottom button moves the heads to the front.

Drive motor air clamp

SENSOR REPLACEMENT /CALIBRATION



All three sensors on the 090/095 are the same. If replacement is ever necessary, setting the height of the sensor is important. The sensor height is adjusted by loosening the Allen screw that clamps the sensor into the sensor mounting bracket. The sensor position can be determined by monitoring the location of the sensor on the “Setup” screen. (From the Main Menu select the “Setup” icon to get to the screen shown below). The sensor has approximately .250 of travel – approx. -.130 to +.120. Before proceeding, make sure the drive motor is off and the air clamp switch is in the off position. (When the air clamp switch is off the drive motor will not turn on). With the sensor mounted in the holder and the setscrew loose, lower the slide arm onto the saw. (THE DRIVE MOTORS MUST BE OFF FOR SAFETY REASONS).



Adjust the sensor height up or down to achieve a reading of “0” +/- .010 in the “Raw Value Measuring Sensor” or “Raw Value Back Sensor” or “Raw Value Tensioning Sensor” (depending on which sensor is being adjusted). Adjusting the sensor to a “0” position will put the range of motion in the center of its stroke.

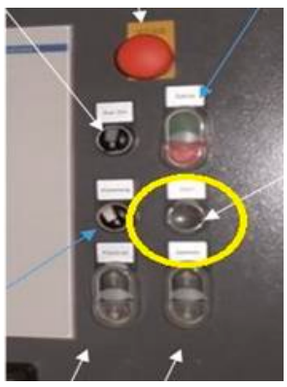
Bandsaw Blade Setup

1. After inserting the saw blade, closing indicator gates and setting limit switches, push "Saw Width Calculate" icon. The tension sensor will travel across the saw and calculate the saw width. The icon will change from Aqua to Green once width is calculated.

To calculate the saw length, place a reflective sticker on the saw blade in front of and in line with the tension sensor. The machine uses a UV sensor that shines a light onto to the reflective tape to calculate the length of the saw. The light barrier is mounted between the tensioning head and sensor holder. Once the tape is in place, push cycle button to begin the length calculation process (The light on the cycle button will illuminate). The display under the Calculate Saw Length icon will display "Waiting for reflector" until it detects the reflector. Once the reflector is detected, the message will change to "Calculating Length". Once the length has been calculated the machine will stop to allow you to remove the reflector from the saw.

If you know the exact length of the saw, you can manually enter the value by touching the "Saw Length" value and entering the length.

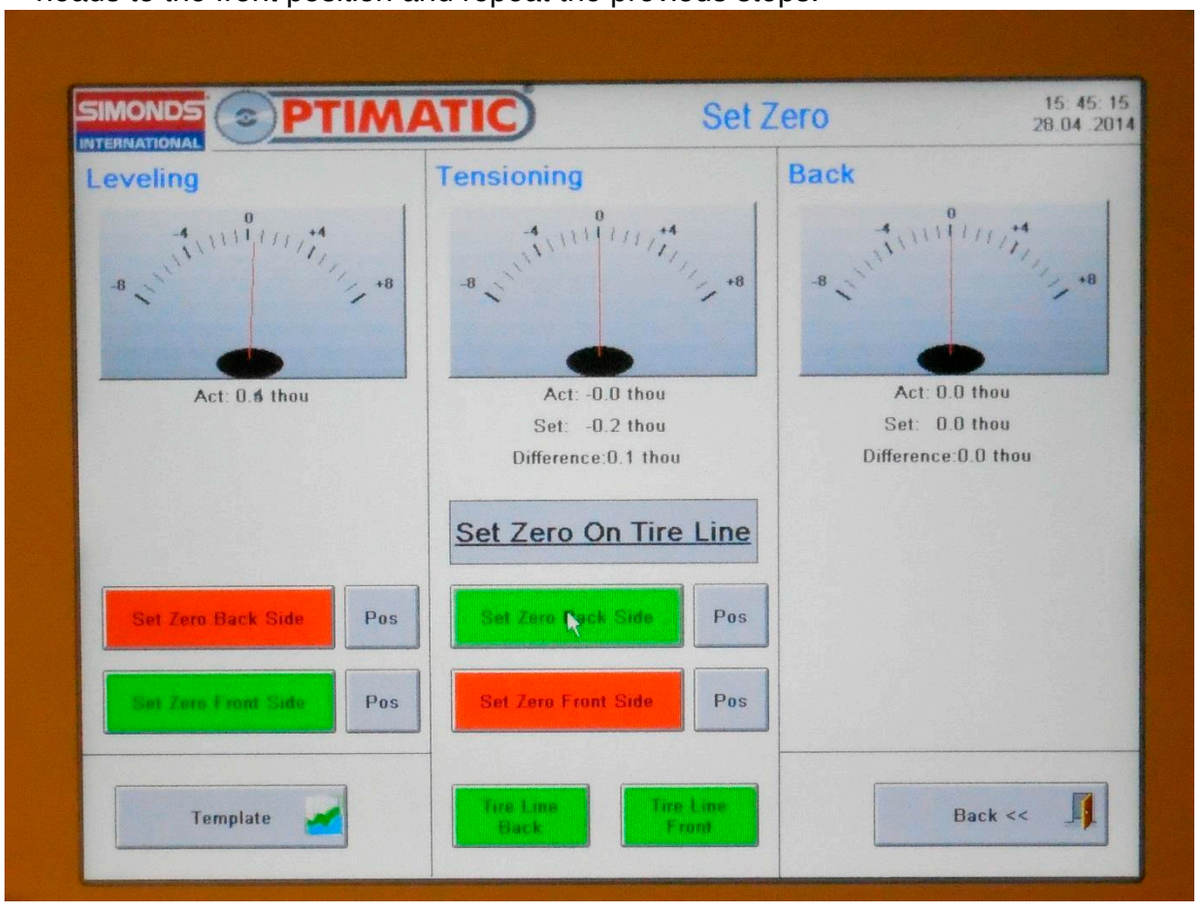
If you do know know the length of the band, while the drive is OFF, place a strip of reflective tape on the back of the Bandsaw at the infeed guide location (Place tape approx.. ½" from the back of the saw out to 2" from back of saw (see below). Once the tape is in place, press the "Start" button. The drive motor will start and the Length Sensor will "Look" for the reflective tape. The sensor detects the tape and then measures the distance traveled until it sees the tape again. The length of the band will be stored in the program.



In March of 2016, changes to the program added an “Automatic Zero” feature. All machines with the Auto Zero feature will not need to complete the manual process for setting zero’s.

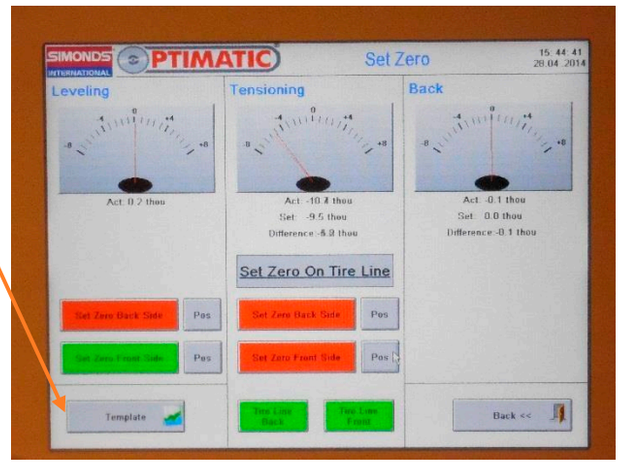
If your machine has not had the software upgraded, the following steps will need to be completed. For those machine that have had the software update, you can follow step 3 and set the zero manually but the machine will perform this same function when the “Cycle” button is engaged.

3. After setting the width and length, we need to establish a “Zero” setting for the indicators. In the Main Menu, press the “Set Zero” icon. The Set Zero menu will open and allow us to position the leveling and tensioning heads at the proper positions. Hit the “Start Button” on the front panel. While the band is moving, touch the “Pos” icons on the Back side icons (both level and tension) to move both the Leveling and Tensioning heads. When the heads are in the correct location, the icons will change from Red to Green. Hold the Green icon for 3 to 5 seconds to zero the gauge, the indicator on the screen will point to “0”. Touch the “Pos” icons on the Fronts side icons (both level and tension) to move the leveling and tensioning heads to the front position and repeat the previous steps.



Setting the Blade Tension, Tire Line and Back Settings

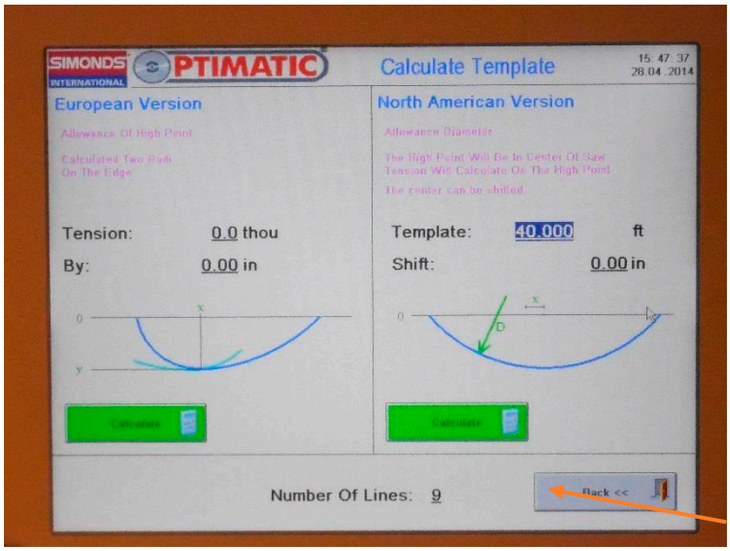
Tension settings are either input manually or VIA the Learn Mode.



Manually Setting the Desired Tension:

From the "Set Zero" screen select the "Template" icon.

The "Calculate Template" screen will open, this is where you will enter the tension amount desired in the bandsaw.



Touch the value next to the word "Template:", this will open a pop up box where you will enter the tension amount in your Bandsaws. Remember, you are not limited to a specific increment of tension, you can enter any value. If you like to run a 40' tension with a "crack of light", entering 37.5' can get you close to your actual tension.

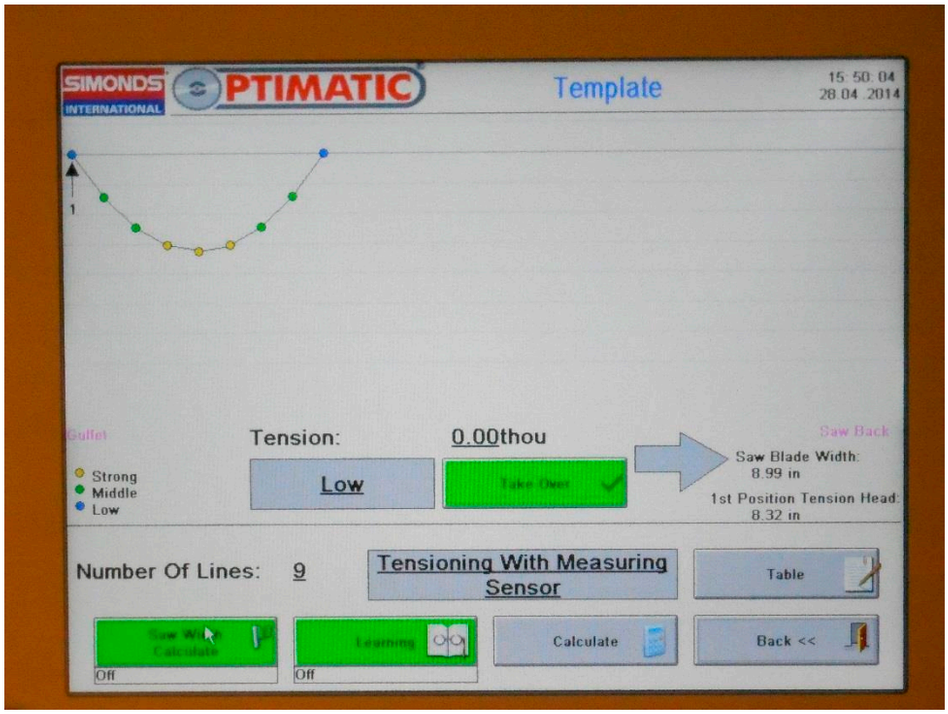
After entering the tension value, you MUST HIT CALCULATE in order for the tension value to be stored.

Hit the "Back" button 3 times to return to the Main Menu.

Setting the amount of Tension VIA the Learn Mode:

From the Set Zero screen, select the "Template" Icon, the Template screen will open. With a properly benched saw in place and all the setup procedures completed, hit the "Learning" icon and the bandsaw will be scanned.

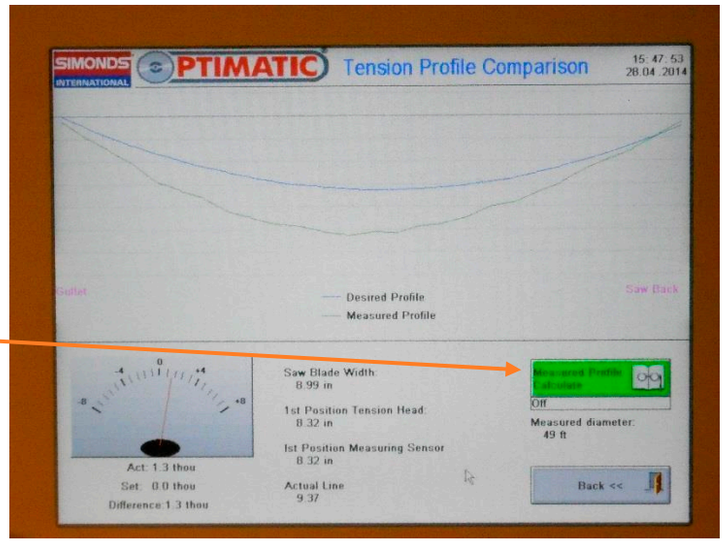
Hit the back button 3 times to return to the main menu.



Once the bandsaw tension and back have been measured you can see the tension profile.

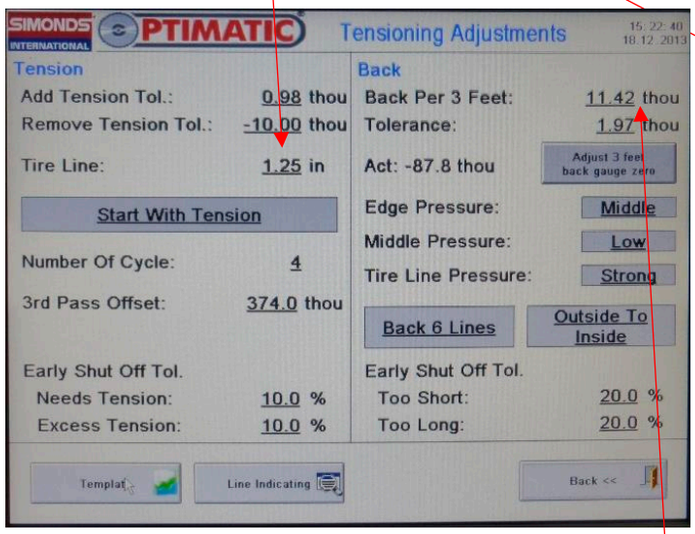
From the Main Menu, select the "Status" and then "Tension Profile" to get the Tension Profile Comparison screen.

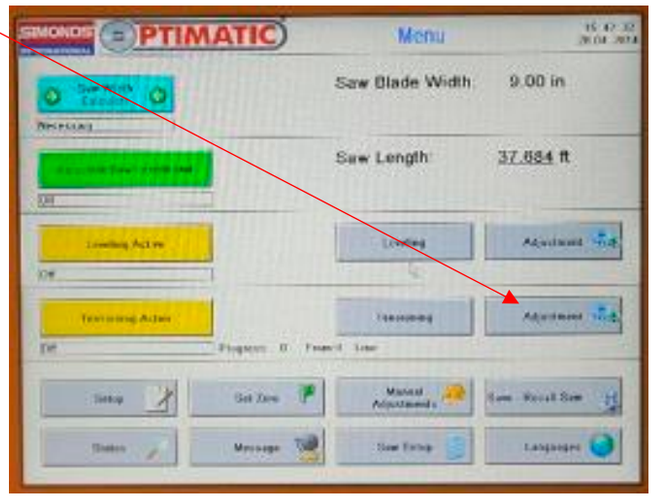
Select the "Measured Profile Calculations" icon and the machine will scan the tension profile and show you the actual Tension compared to the Desired Tension. The Desired Tension was either derived from the manual tension input or from the learning mode.



Entering the amount of Back and the Tire Line is entered VIA the “Tension Adjustment” icon on the Main Menu. Hit the “Adjustments” icon to see the “Tension Adjustments” screen.

To set the desired Tire Line, select the Tire Line Value and enter your desired Tire Line.





The Tension Tolerance values are adjustable. The typical value for adding tension is between 1.0 and 1.2 thousandths of an inch. The tolerance for removing tension is typically set at a greater value, most users accept a saw with slightly heavy tension and will let the mill “pull” the tension out of the saw over a few runs. For that reason, the Remove Tension Tolerance value is typically set at a value between 2.5 thousands and 8 thousands. (Most customers use 2.5 thousands)

To set the amount of “Back”, select the “Back per 3 feet:” value and enter your desired Back. Remember, this the amount of back in 3’, see next page for an amount of back based on various Back Gauge lengths. The “Tolerance” setting is the amount of deviation that the machine will allow before correcting errors. This value should be set to achieve desired results without over working the saws. (Typically 1.5 to 2.0 thousands of an inch)

Back Gauge Conversion Chart:

1. Determine the decimal equivalent of the desired chord height (the decimal equivalent of 1/64" is .0155", 1/32" = .031", 3/64" = .047");
2. Read down the chart under the column for the known chord length (e.g.: 5 ft) to find the known the chord height (e.g.: .0155");
3. Read across the chart to find the equivalent reading on a gauge (or chord) of a different length.

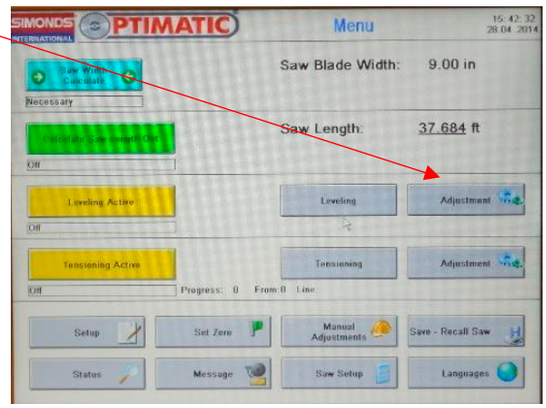
For example, to determine the readings on a saw with 1/64" back in 5 ft, read down the 5 ft gauge column to the line with the decimal equivalent of 1/64" (.0155"). A 4 ft gauge will read .010" and a 3 ft gauge will read .0055" on this saw.

3 ft Gauges	4 ft Gauges	5 ft Gauges
.004	.007	.011
.005	.009	.014
.0055	.010	.0155 (1/64" in 5 ft)
.006	.011	.017
.007	.012	.019
.008	.014	.022
.009	.016	.025
.010	.018	.028
.011	.020	.031 (1/32" in 5 ft)
.012	.021	.033
.013	.023	.036
.014	.025	.039
.015	.027	.042
.016	.028	.044
.017	.030	.047 (3/64" in 5 ft)
.018	.032	.050

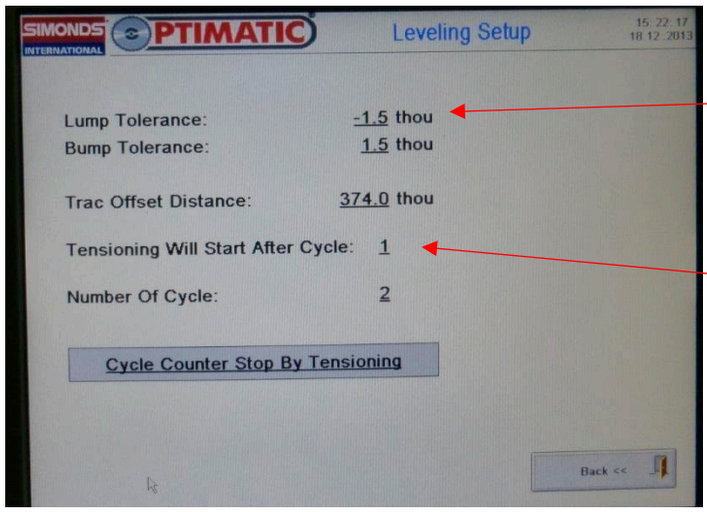
NOTE: Armstrong's standard "top-of-saw" No. 76 back gauge reads in reverse (e.g.: a 1/64 back in 5 ft reads -.010" on a 4 ft gauge)

Setting the Leveler Tolerance & Cycle Setup:

From the main menu, hit the “Adjustments” icon.



Touch the tolerance value and enter the desired tolerance. Typical tolerance is between 1.0 and 1.5 thousands of an inch, remember, less is not necessarily better. Use a value that will get the desired results without “chasing” bumps all around the saw.



For best results, we recommend setting the “Tensioning Will Start After Cycle:” setting to 1. The machine will run a full leveling cycle before starting the Tensioning Cycle. The “Number of Cycle:” setting determines how many leveling cycles the machine will run. For best results, it is ideal to set the leveling cycles to finish leveling after the Tensioning cycles are complete. If you run 1 tensioning cycle, running 2 Leveling Cycles will allow the machine to finish leveling after the machine has completed the Tensioning cycle.

The “Cycle Counter Stop By Tensioning” icon will tell the machine to stop after the Tensioning cycle has completed.

Setting the Band Thickness:

To set the band thickness, select the gauge of the saw from the drop down menu and hit the “calculate” button.

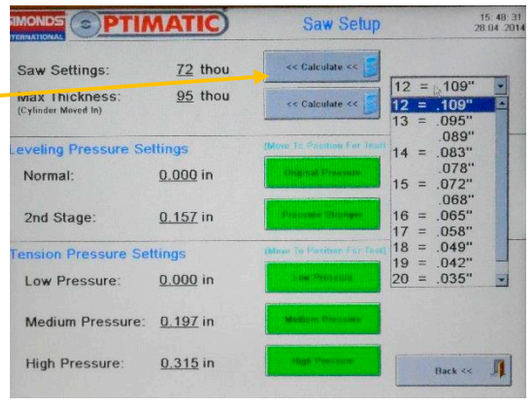
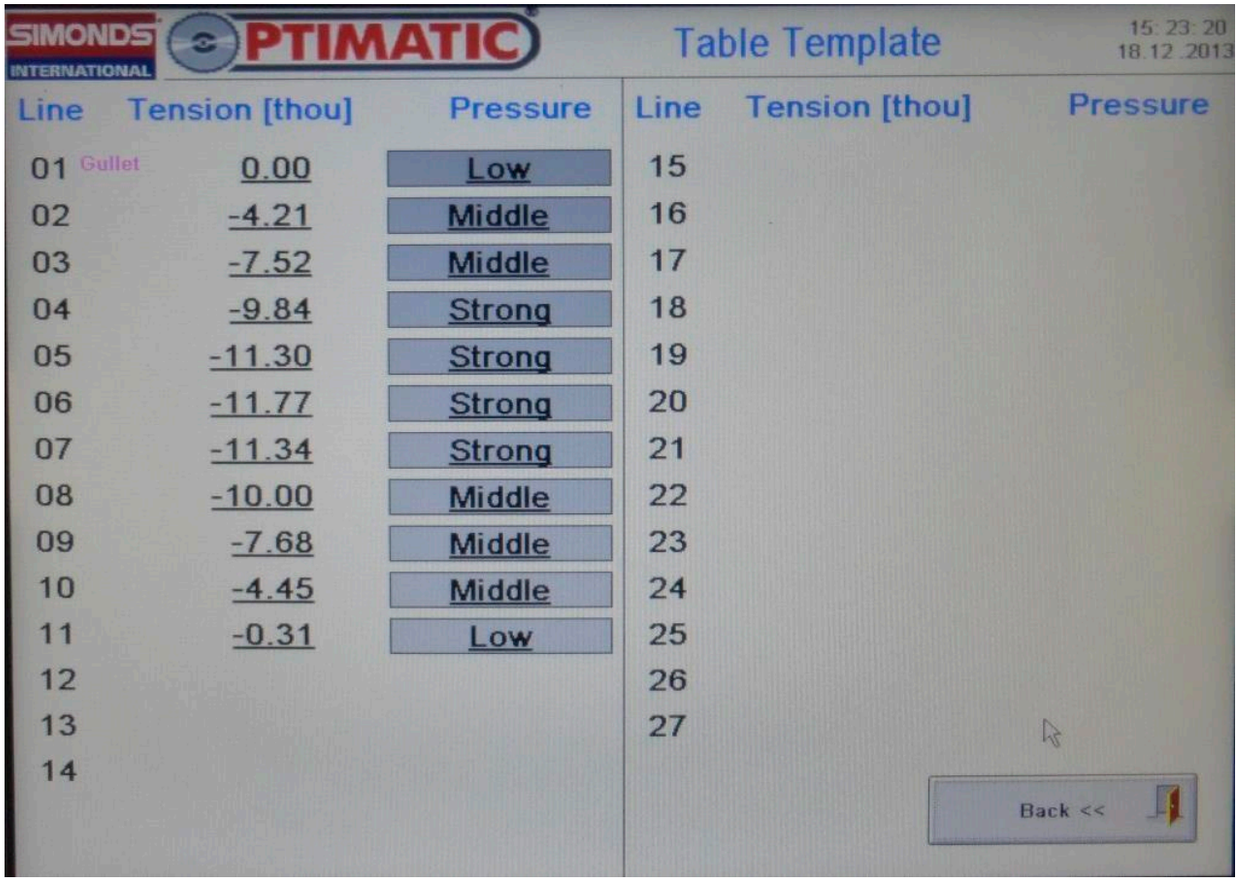


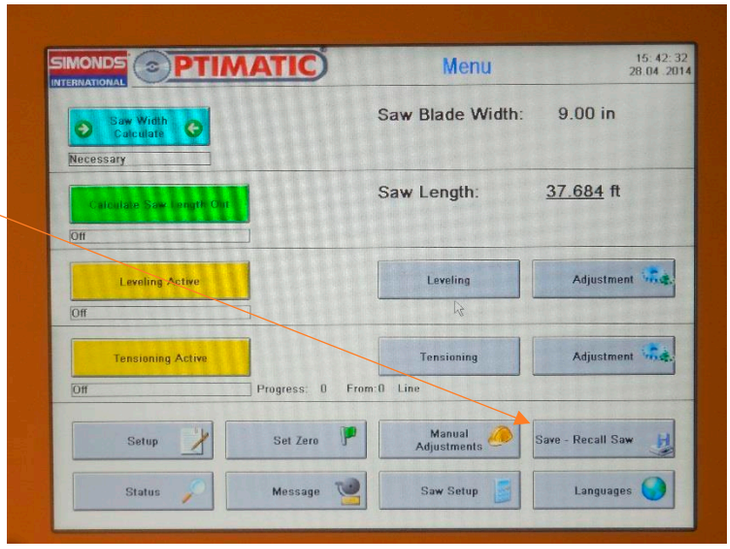
Table Template Screen:

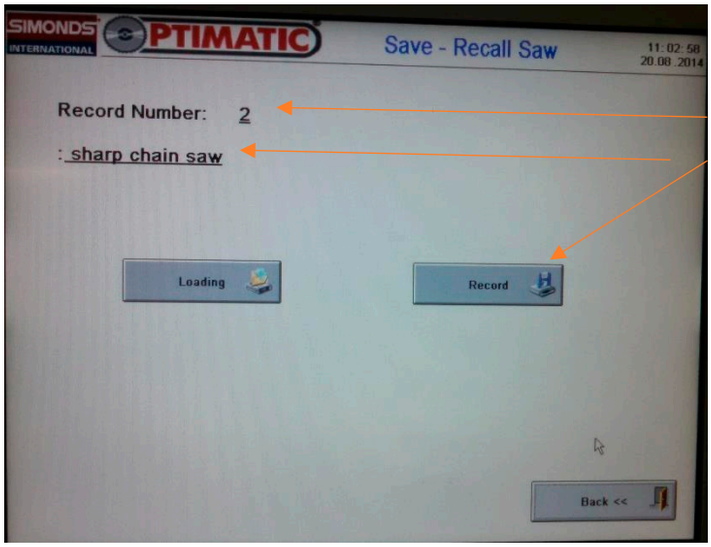
The Table Template Screen gives you a visual presentation to the values the sensor is looking for as well as a way to change the settings. The values for each line represent the amount of drop the sensor is looking for at each point across the saw.



Saving and Recalling a saw:

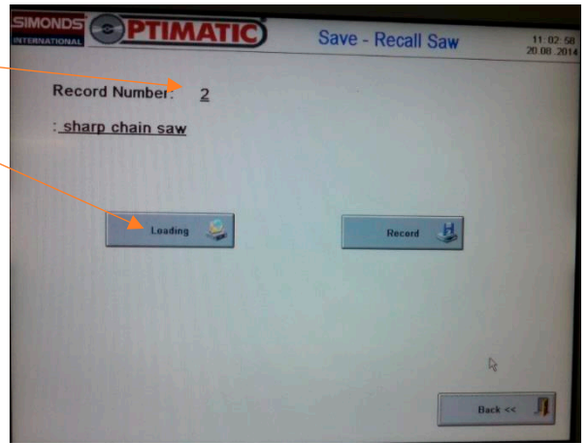
From the main menu, hit the “Save – Recall Saw” icon.





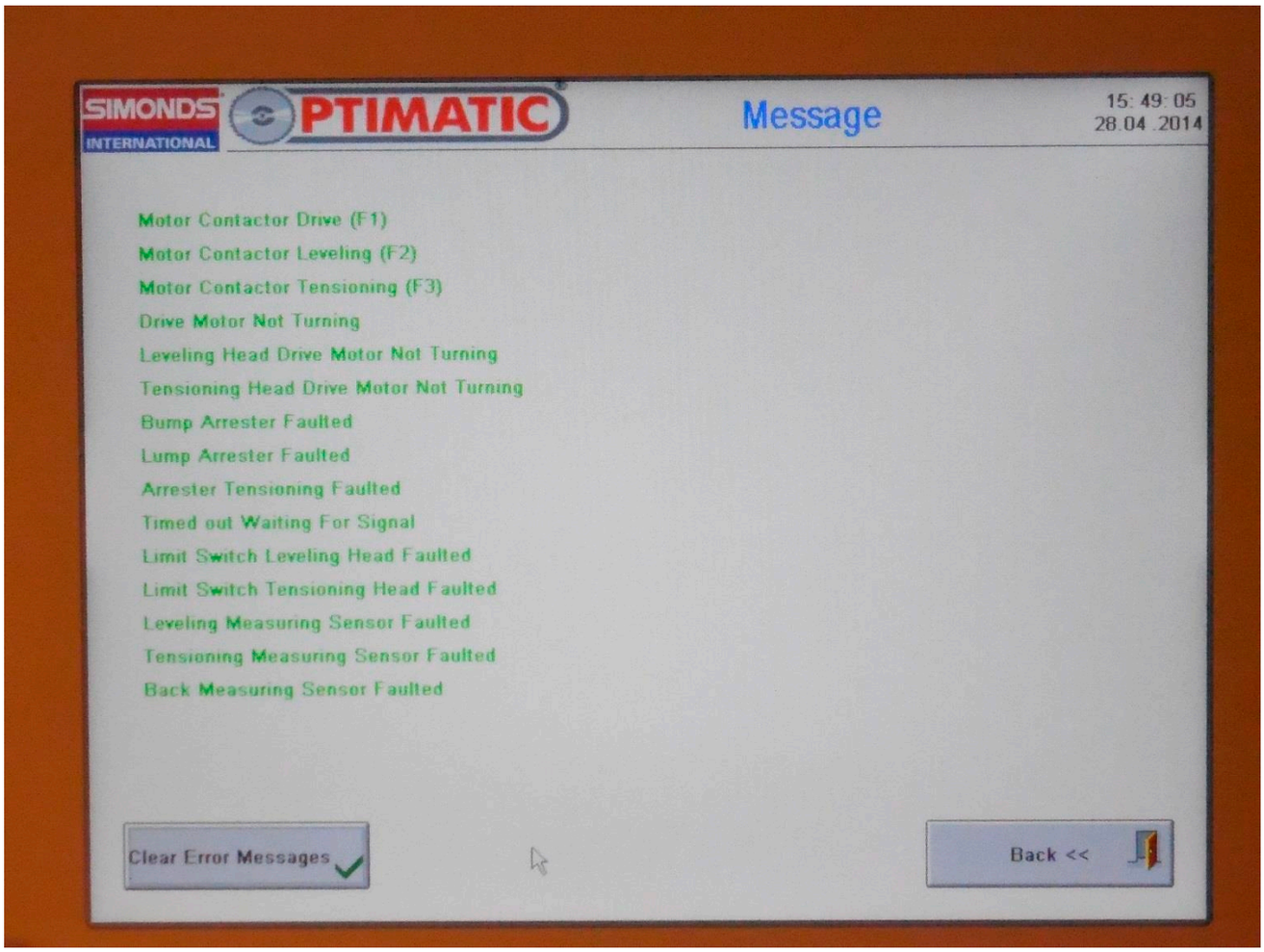
To save a saw, after all the tension and back settings have been input or “learned”, enter a number for the saw you want to save and a description of the saw and hold the “Record” button for a few seconds. When the saw is saved into memory, a confirmation message of “Record OK” will pop up.

To recall a saved saw, enter the saw number in the “Record Number” field and hit the “Loading” Icon.



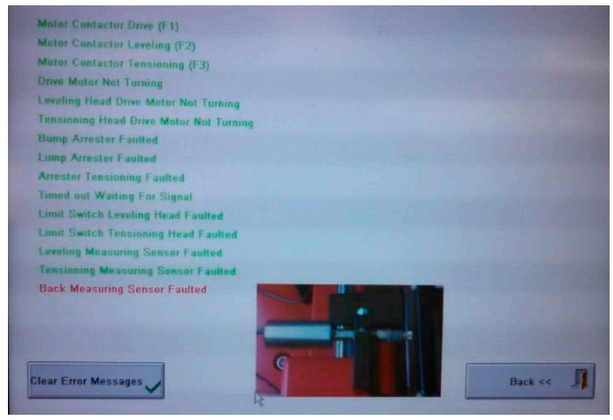
Message Center

The 090 has a built in troubleshooting system that displays the error message along with a picture of the area causing the error. During normal operation, the Message screen looks like the picture below:

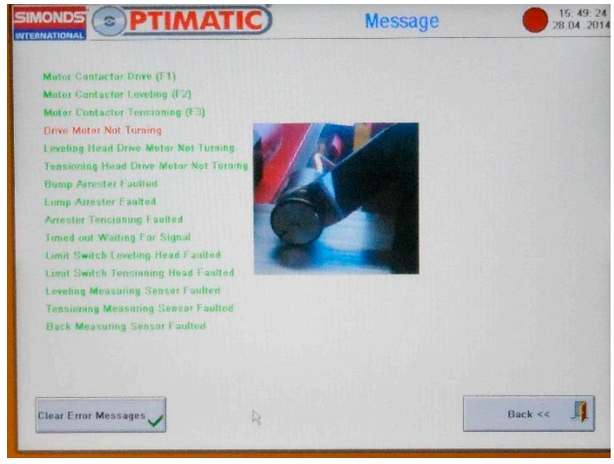


Error messages such as these are what you will see should you ever encounter an error message. The pictures will guide you to the point of trouble.

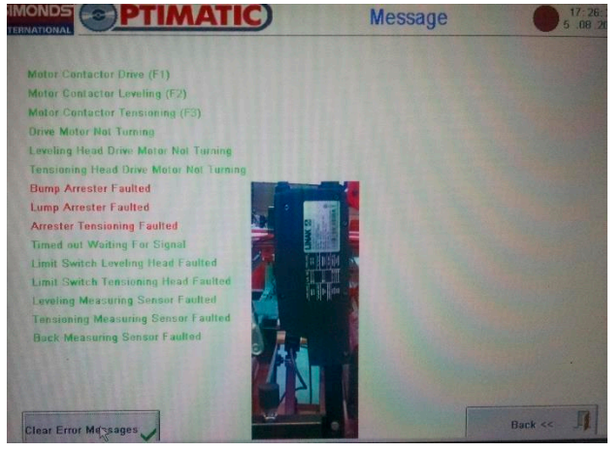
Back Measuring Sensor Faulted: Check to make sure the Back carbide guide is moving in and out properly. Make sure the carbide bandsaw guide is not catching on the roller wheel.



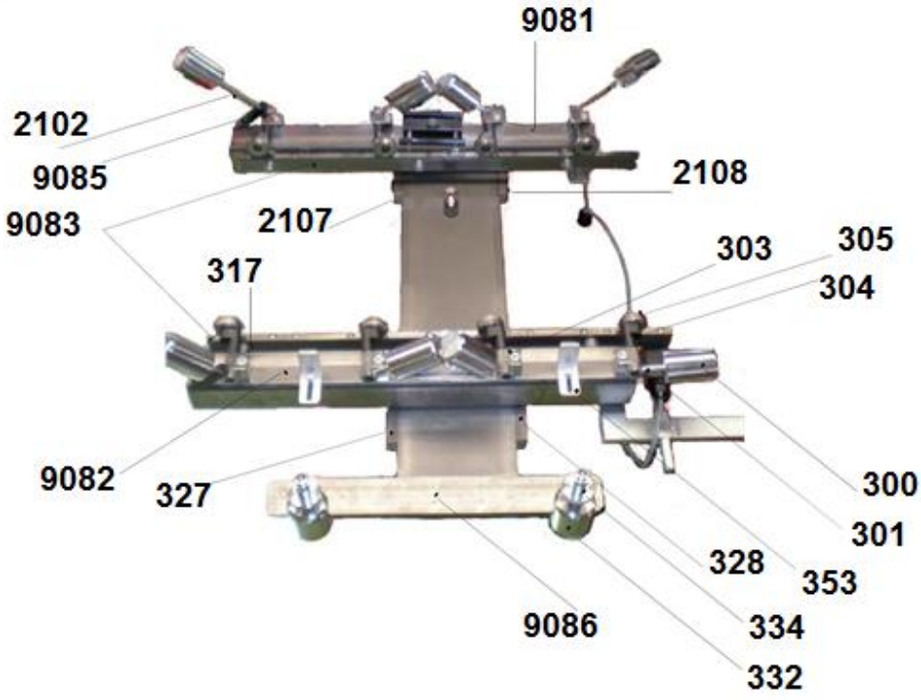
Drive Motor Not Turning: The encoder wheel has stopped turning which causes the machine to shut down. Possible problems are 1. The band is slipping on the drive rolls causing the band to slow down or stop (Clean the rubber wheels). 2. Drive motor failure: Motor is not turning the drive motor. 3. Encoder failed.



Bump Arrester Faulted: The stroke of the air cylinder has surpassed the maximum stroke. Check the gauge thickness settings to make sure the proper gauge and upper value settings are correct.



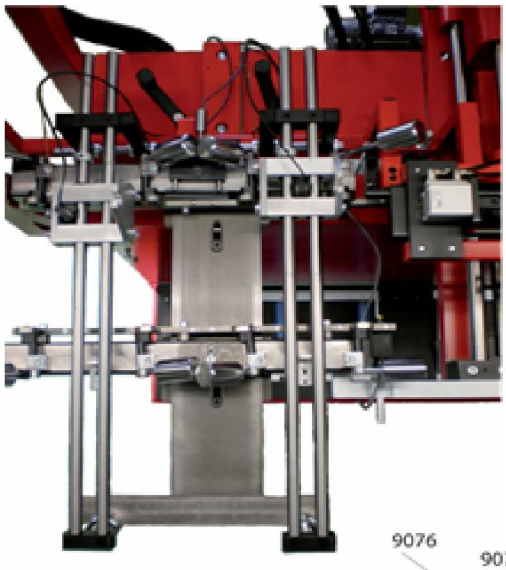
Parts Illustrations

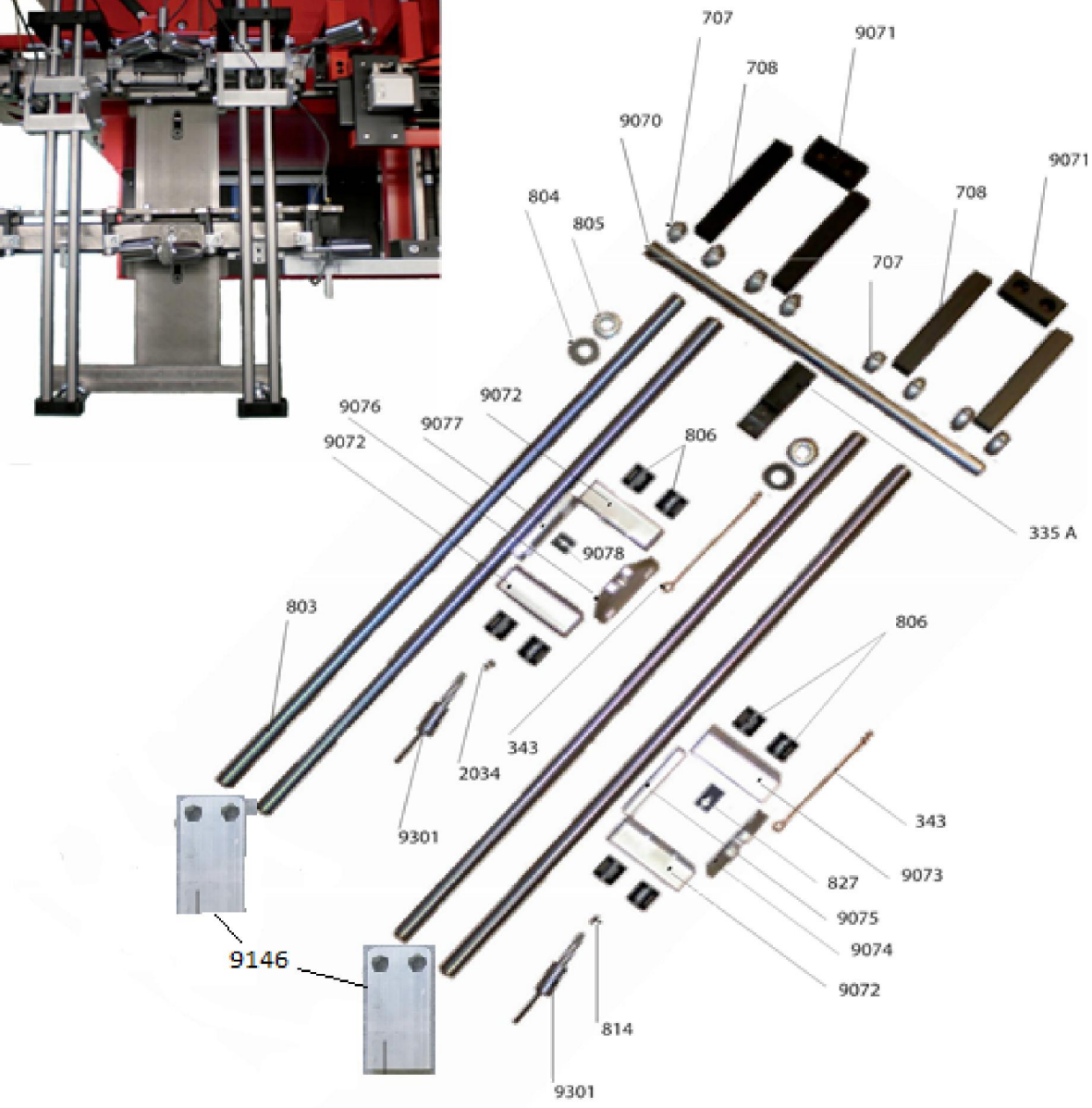


Saw Carriage Unit - Same for 090/095

Order #	Detail #	Description
SPT300	300	Weights
SPT301	301	Rods for weights
SPT303	303	Bracket for weights
SPT304	304	Eccentric bearing holder
SPT305	305	Bearing (6300 2RS)
SPT317	317	Bushing
SPT327	327	Guide Left
SPT328	328	Guide Right
SPT330	330	Copper plate
SPT331	331	Knob
SPT332	332	Clamp for indicator adjustment
SPT334	334	Adjuster
SPT353	353	Stop bracket for dial indicator
SPT2102	2102	Rods for weghts long
SPT2107	2107	Guide short Left
SPT2108	2108	Guide short Right
SPT9081	9081	Steel tubing back carriage Unit
SPT9082	9082	Steel tubing front carriage Unit
SPT9083A	9083	Saw support rails 700mm (Original 600mm)
SPT9085	9085	Stopper weights
SPT9086	9086	Base plate

Dial Gauge Unit

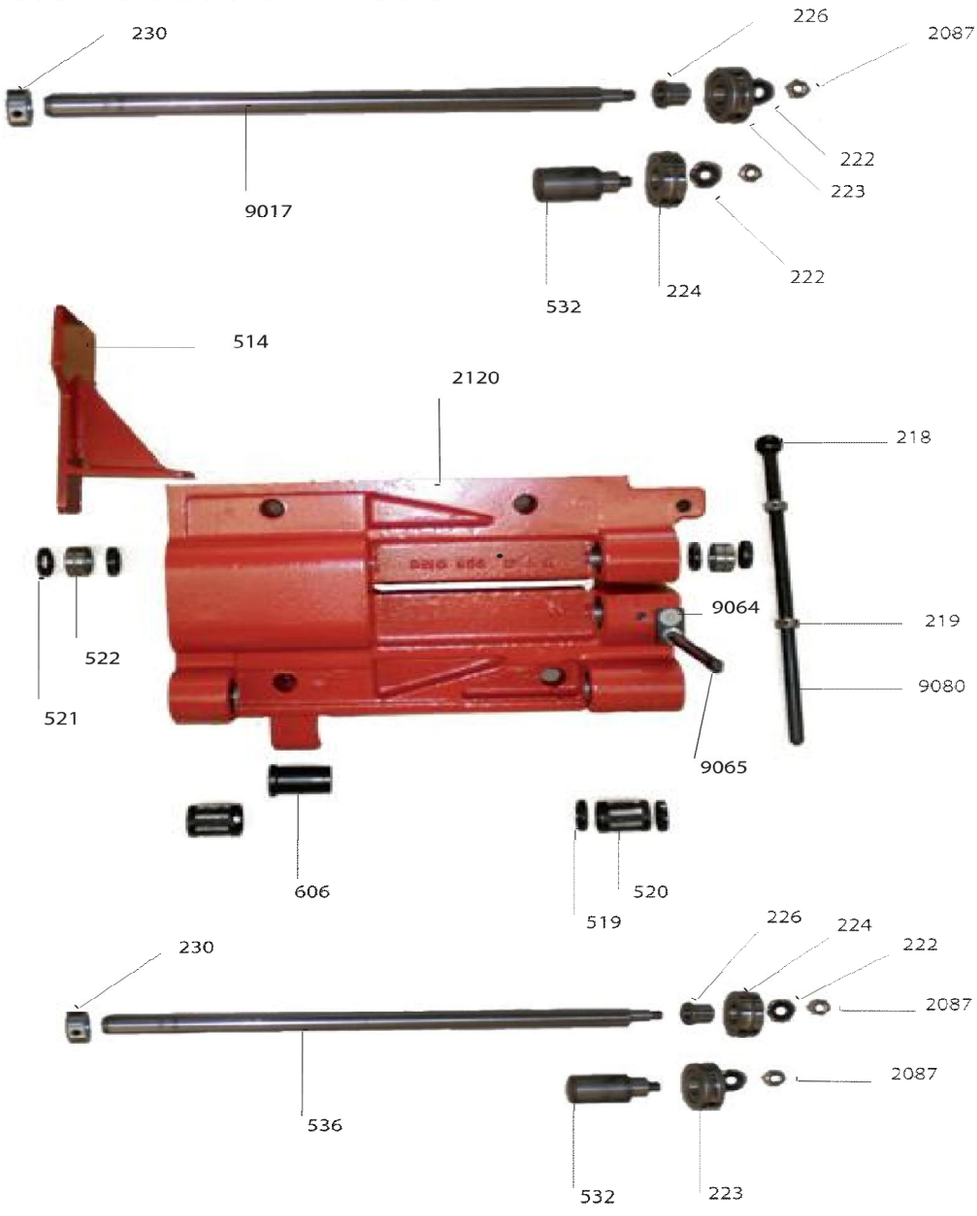




Dial Gauge Unit

090 Item #	095 Item #	Detail #	Description
SPT334	SPT334	334	Adjuster
SPT335A	SPT335A	335A	Bracket
SPT343	SPT343	343	Cable holder
SPT707	SPT707	707	Set collar 17mm
SPT708	SPT708	708	Flexi bracket
SPT801	SPT801	801	Support bolt
SPT803	SPT803	803	Guiding shaft
SPT804	SPT804	804	Rubber ring
SPT805	SPT805	805	Set collar 20mm
SPT806	SPT806	806	Sleeve bearing (LBBR 20-2LS)
91510000	91510000	814	Sapphire Replacement Tip
SPT827	SPT827	827	Holder for dial indicator
SPT2034	SPT2034	2034	Carbide feeler
SPT9070	SPT9070	9070	Fixing shaft
SPT9071	SPT9071	9071	Shaft binding block
SPT9072	SPT9072	9072	Holder for sleeve bearing
SPT9073	SPT9073	9073	Holder for sleeve bearing
SPT9074	SPT9074	9074	Fixing plate RMO
SPT9075	SPT9075	9075	Fixing plate RMO
SPT9076	SPT9076	9076	Fixing plate SMO
SPT9077	SPT9077	9077	Fixing plate SMO
SPT9078	SPT9078	9078	Measuring guide
SPT9079	SPT9079	9079	Shaft holder
SPT9146	SPT9146	9146	Sensor rail support
SPT9301	SPT9301	9301	Measuring sensor

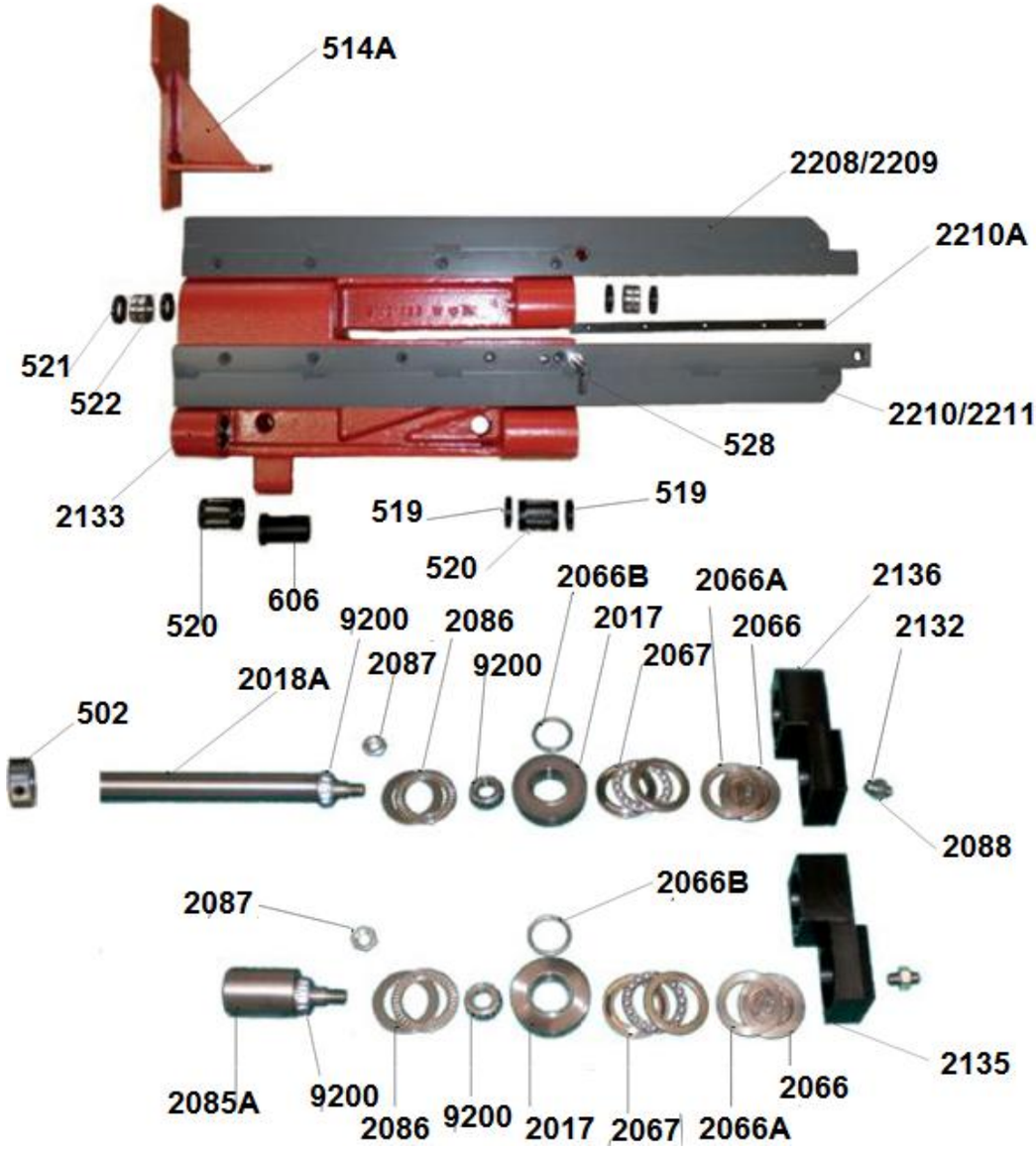
Leveler Cast Iron Head



Leveler Cast Iron Head

090 Item #	095 Item #	Detail #	Description
SPT218	SPT218	218	Plastic ring
SPT219	SPT219	219	Setting collar (ø15)
SPT222	SPT222	222	Washer ø12
SPT223	SPT223	223	Leveling roller (concave)
SPT223-1.4	SPT223-1.4	223	Optional deep groove Leveling roller (concave)
SPT224	SPT224	224	Leveling roller (convex)
SPT226	SPT226	226	Reduktion bushing
SPT230	SPT230	230	Setting collar (ø25)
SPT514	SPT514	514	Cylinder plate
SPT519	SPT519	519	Sealing colar (WD30/40/7)
SPT520	SPT520	520	Bearing sleeve (LFA30/40/50)
SPT521	SPT521	521	Sealing colar (WD25/38/7)
SPT522	SPT522	522	Bearing (NKI 25/20)
SPT532	SPT532	532	Bolt for leveling roller
SPT536	SPT503	536	Leveling shaft
SPT606	SPT606	606	Spindle nut
SPT2087	SPT2087	2087	Nut M12 0.5d
SPT2120	SPT541	2120	Cast iron head
SPT9017	SPT503	9017	Leveling shaft RMO right
SPT9064	SPT9064	9064	Stop for limit switch RMO part 1
SPT9065	SPT9065	9065	Stop for limit switch RMO part 2
SPT9080	SPT9080	9080	Base shaft for dial gauge

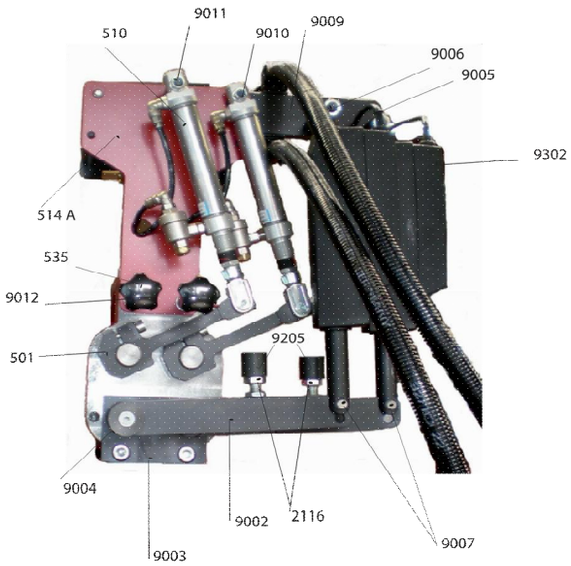
Tensioner Cast Iron Head

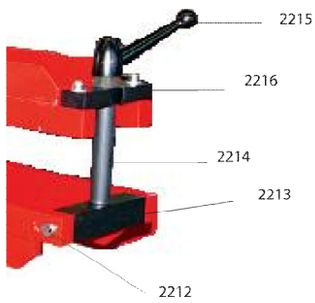


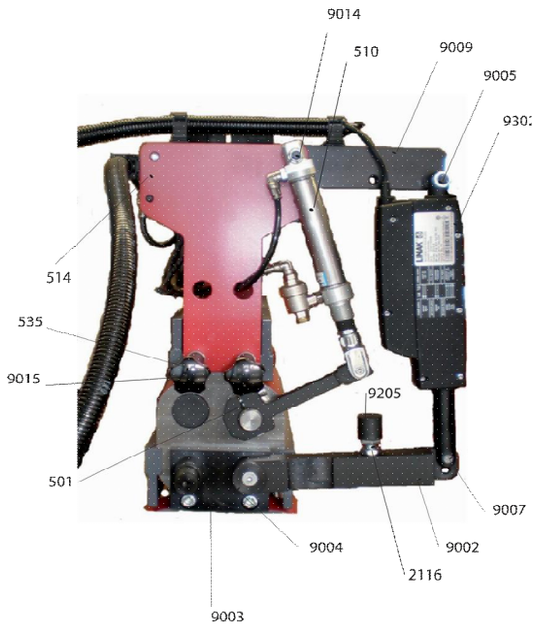
090 Item #	095 Item #	Detail #	Description
SPT502	SPT502	502	Set collar (ø25)
SPT514 A	SPT514 A	514 A	Cylinder plate
SPT519	SPT519	519	Sealing colar (WD30/40/7)
SPT520	SPT520	520	Bearing sleeve (LFA30/40/50)
SPT521	SPT521	521	Sealing colar (WD25/38/7)
SPT522	SPT522	522	Bearing (NKI 25/20)
SPT528	SPT528	528	Stop for limit switch
SPT606	SPT606	606	Spindle nut
91200090	91200090	2017	Carbide Tensioning rolls (Includes 2066B & 2 pieces 9200)
SPT2018 A	SPT2018 A	2018 A	Tensioning shaft
SPT2066	SPT2066	2066	Plate
SPT2066 A	SPT2066 A	2066 A	Collar (ø52)
SPT2266 B	SPT2266 B	2266 B	Collar (ø35)
SPT2067	SPT2067	2067	Bearing unit
SPT2085 A	SPT2085 A	2085 A	Eccentric bearing holder SMO
SPT2086	SPT2086	2086	Bearing unit (51107)
SPT2087	SPT2087	2087	Nut M12 0.5d
SPT2088	SPT2088	2088	Nut M10x1
SPT2112	SPT2112	2112	Setting screw
SPT2133	SPT2133	2133	Tensioner Cast iron head SMO
SPT2135	SPT2068	2135	Bearing block bottom
SPT2136	SPT2068.1	2136	Bearing block top
SPT2208	-	2208	Lock support top left
SPT2209	-	2209	Lock support top right
SPT2210	-	2210	Lock support bottom left
SPT2210 A	-	2210 A	Plastic wear strip
SPT2211	-	2211	Lock support bottom right
SPT9200	SPT9200	9200	Bearing (30202-A)

Backside of Cast Iron Heads

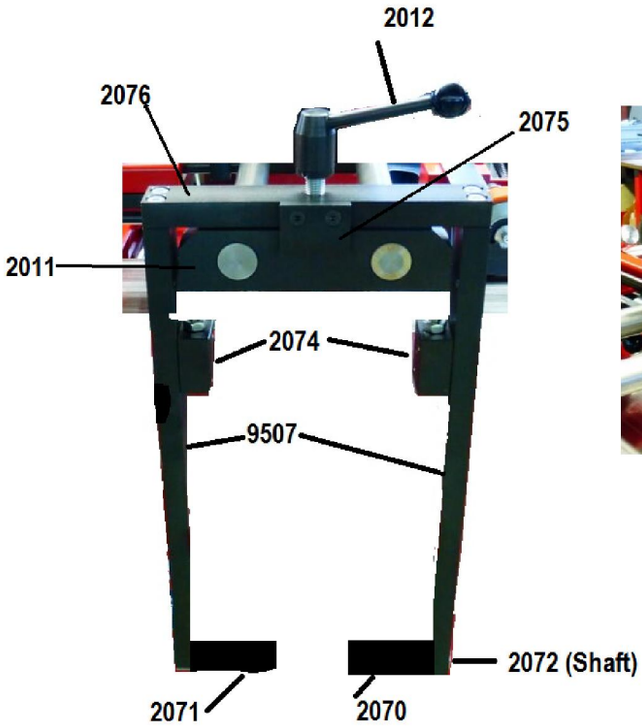
Gusskopf / *Cast Iron Head*





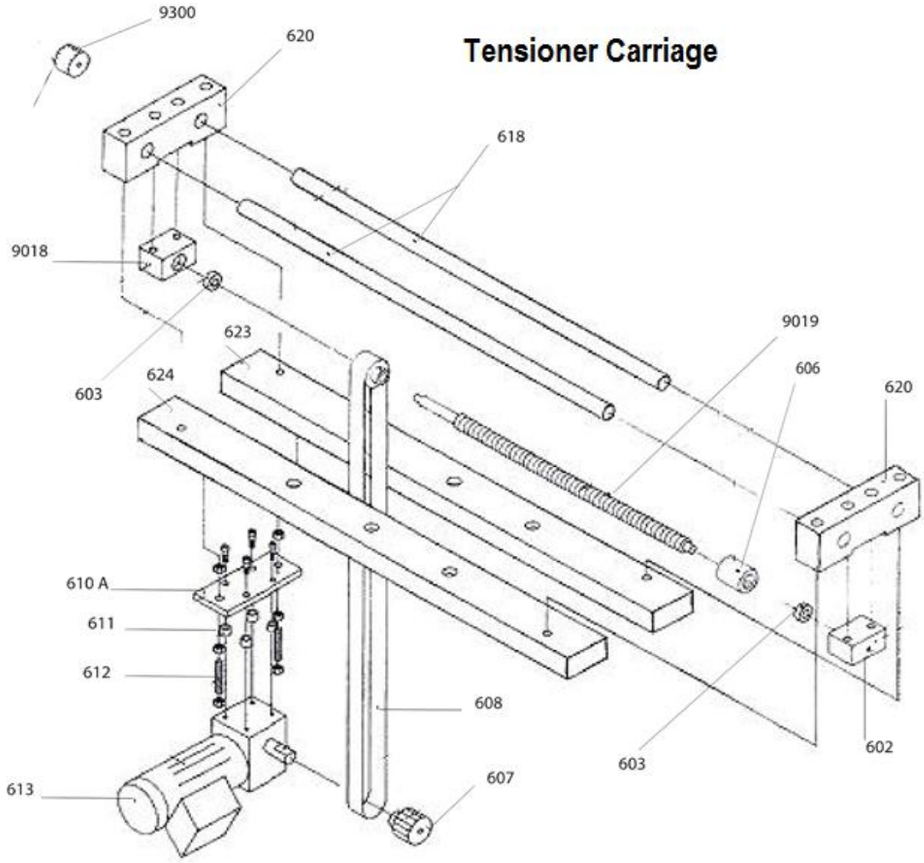


090 Order #	095 Order #	Print Detail #	Description
SPT501	SPT501	501	Setting rod
SPT510	SPT510	510	Pneumatic cylinder
SPT514	SPT514	514	Cylinder plate
SPT514 A	SPT514 A	514 A	Cylinder plate
SPT535	SPT535	535	Knob
SPT2116	SPT2116	2116	Stopping rubber SMO low
SPT2212	-	2212	Bolt
SPT2213	-	2213	Center bottom
SPT2214	-	2214	Tube
SPT2215	-	2215	Knob
SPT2216	-	2216	Center top
SPT9002	SPT9502	9002	Actuator Arm
SPT9003	SPT9003	9003	Stopper holder
SPT9004	SPT9004	9004	Washer stopper
SPT9005	SPT9005	9005	Bolt short
SPT9006	SPT9006	9006	Bolt long
SPT9007	SPT9007	9007	Cylinder bolt
SPT9009	SPT9009	9009	Holder Linak Cylinder
SPT9010	SPT9010	9010	Cylinder bolt short
SPT9011	SPT9011	9011	Cylinder bolt long
SPT9012	SPT9012	9012	Bolt for plastic cover RMO
SPT9013	SPT9013	9013	Plastic cover RMO
SPT9014	SPT9014	9014	Cylinder holder SMO
SPT9015	SPT9015	9015	Bolt for plastic cover SMO
SPT9016	SPT9016	9016	Plastic cover SMO
SPT9205	SPT9205	9205	Stopping rubber
SPT9302	SPT9302	9302	Electric cylinder



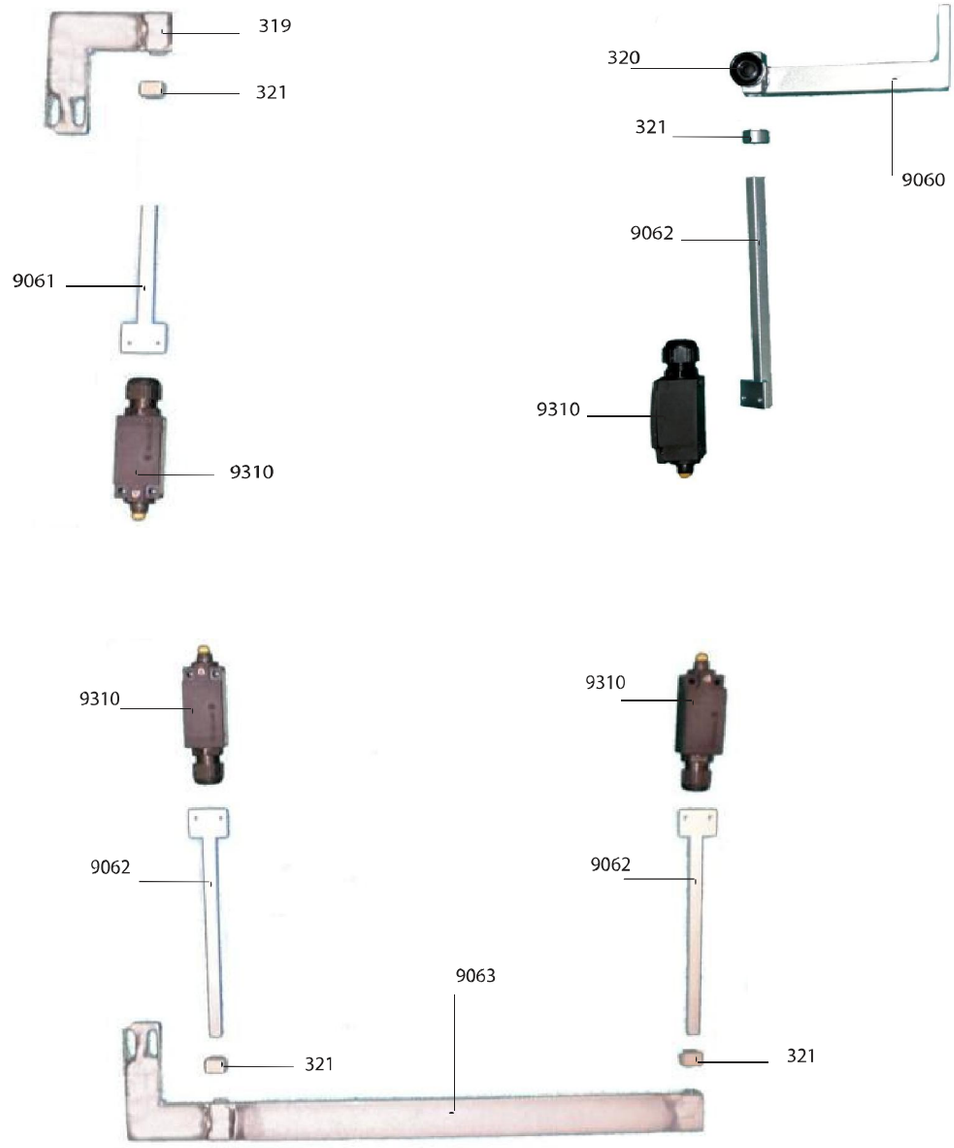
095 Tension Head Lock Arm

Order #	Detail #	Description
SPT2011	2011	Head holder plate
SPT2012	2012	Locking Knob
2068 G	2068 G	Bearing holder
SPT2070	2070	Bearing holder
SPT2071	2071	Fixing block
SPT2072	2072	guide shaft
SPT2074	2074	Base block
SPT2075	2075	Touch Plate
SPT2076	2076	Fixing block



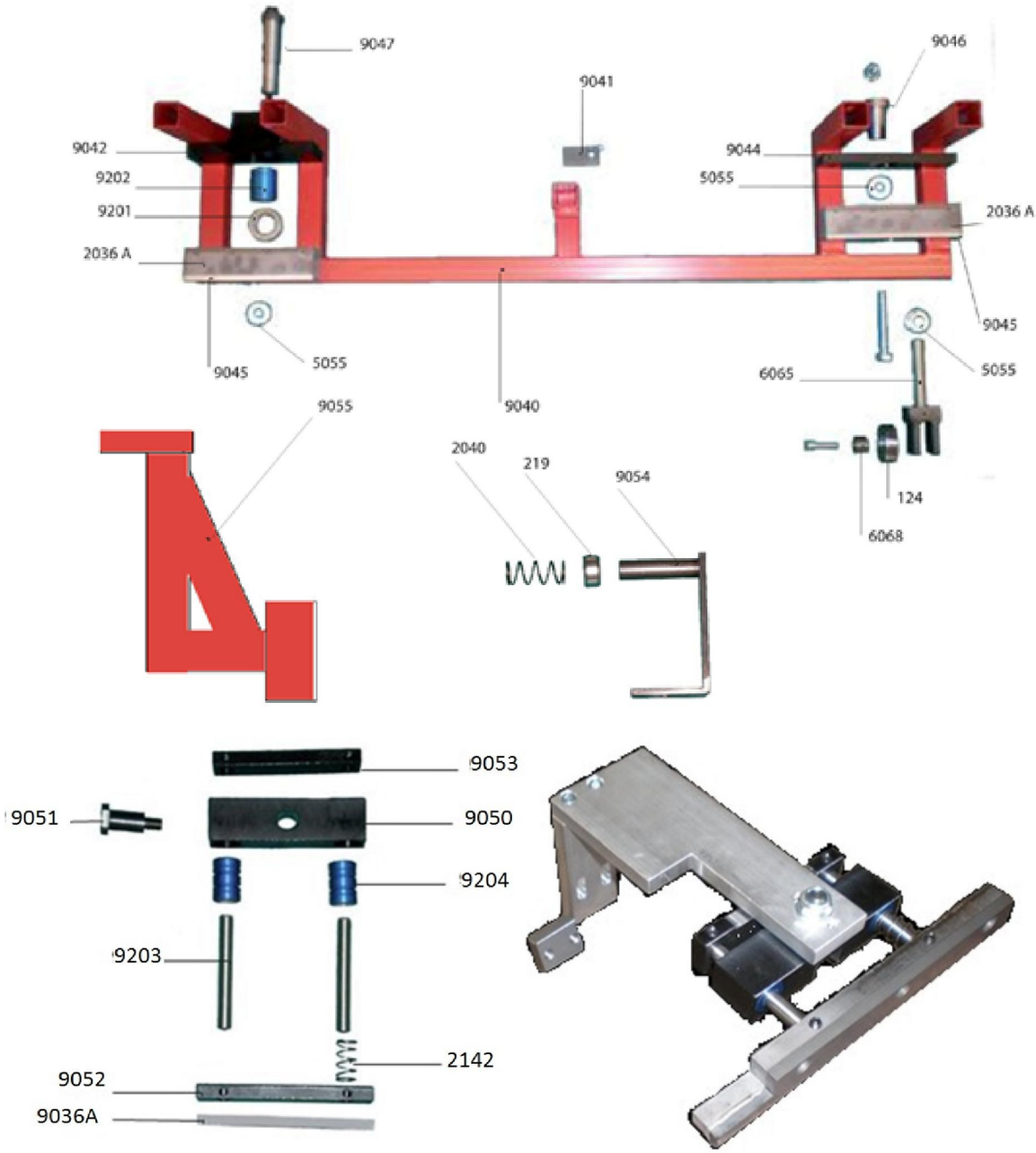
090 Order #	095 Order #	Print Detail #	Description
SPT602	SPT602	602	Bearing block
SPT603	SPT603	603	Bearing (6001 2RS)
SPT606	SPT606	606	Spindle nut
SPT607	SPT607	607	Toothed pulley
SPT608	SPT608	608	Toothbelt
SPT610A	SPT610A	610A	Mounting plate for motor
SPT611	SPT611	611	Spacer
SPT612	SPT612	612	Stud for motor
SPT613	SPT613	613	Motor
SPT618	SPT604	618	Guiding shaft
SPT620	SPT601	620	Fixing Block
SPT623	SPT619	623	Mounting block left RMO
SPT624	SPT617	624	Mounting block right RMO
SPT9018	SPT9018	9018	Bearing block
SPT9019	SPT9511	9019	Feed Screw
SPT9300	SPT9300	9300	Distance measuring unit

Limit Switch Parts - Same on 090/095



Order #	Detail #	Description
SPT319	319	Limit switch bracket back
SPT320	320	Set screw
SPT9060	9060	Limit switch bracket head SMO
SPT9061	9061	Limit switch adjusting rod back SMO
SPT9062	9062	Limit switch adjusting rod
SPT9063	9063	Limit switch bracket front
SPT9310	9310	Limit switch

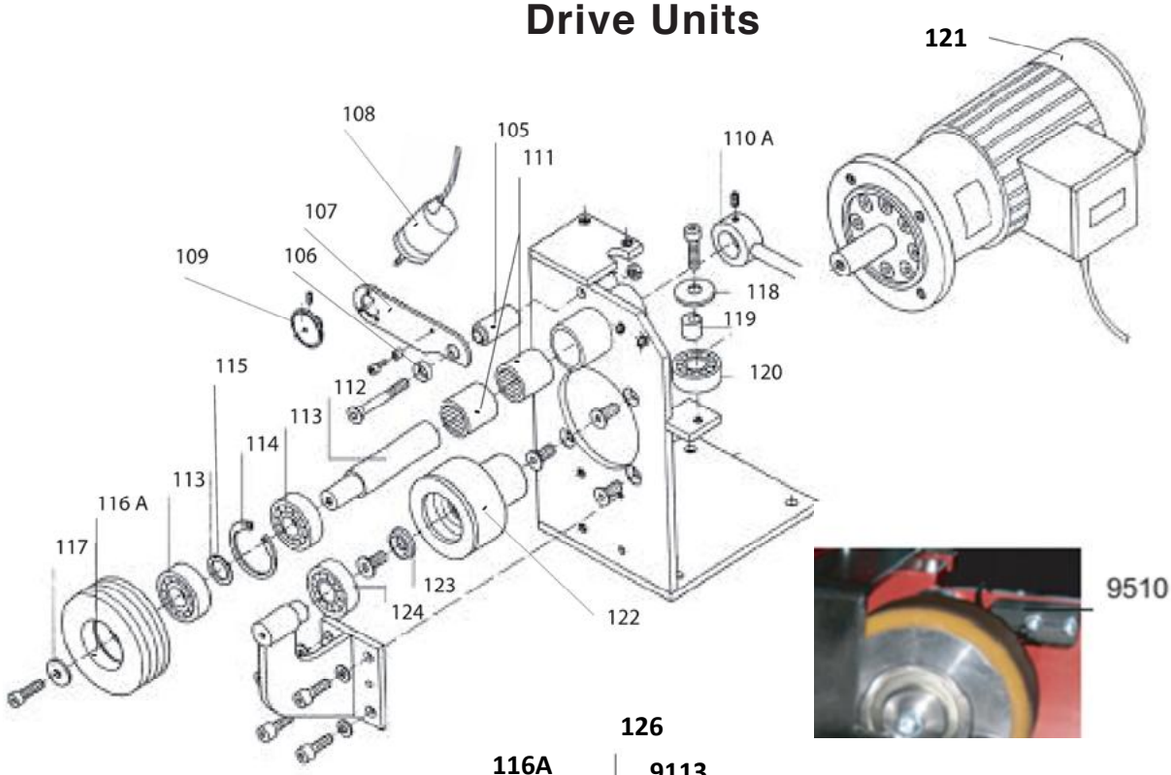
Back Gauge - Same on 090/095

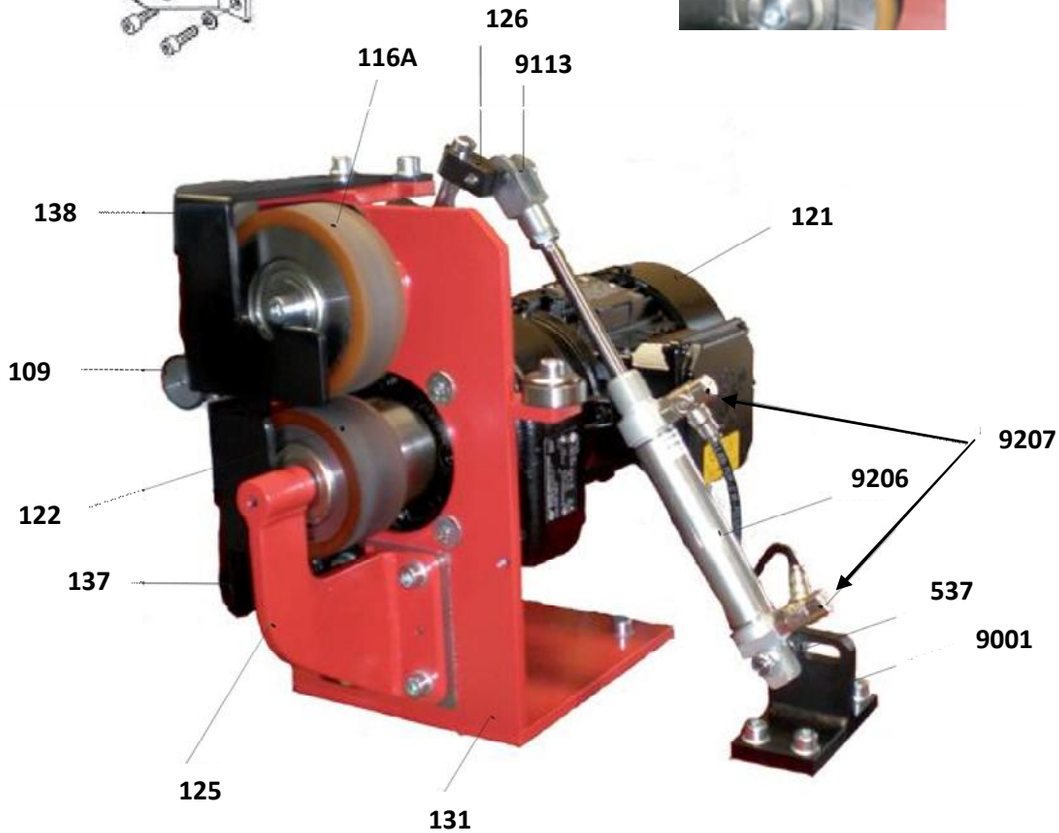


Back Gauge

Order #	Detail #	Description
SPT124	124	Bearing (6204 2RS)
SPT219	219	Set collar
SPT9036A	9036A	Replacement Carbide
SPT2040	2040	Spring
SPT2142	2142	Spring
SPT5055	5055	Thrust bearing (51201)
SPT6065	6065	Roll keeper
SPT6068	6068	Bearing bushing
SPT9036A	9036A	Replacement Carbide for 9052
SPT9040	9040	Main back gauge
SPT9041	9041	Feeler keeper
SPT9042	9042	Stopper plate left
SPT9044	9044	Stopper plate right
SPT9045	9045	Replacement Carbide Strip
SPT9046	9046	Eccentric bolt left
SPT9047	9047	Eccentric bolt right
SPT9050	9050	Measurement back
SPT9051	9051	Measuring bolt
SPT9052	9052	Back Gauge Carbide holder - middle
SPT9053	9053	Measuring back
SPT9054	9054	Spring holder
SPT9055	9055	Support back gauge
SPT9081	9081	Steel tubing back carriage Unit
SPT9082	9082	Steel tubing front carriage Unit
SPT9201	9201	Thrust bearing (51105)
SPT9202	9202	Sleeve bearing (FTM25)
SPT9203	9203	Guide
SPT9204	9204	Sleeve bearing

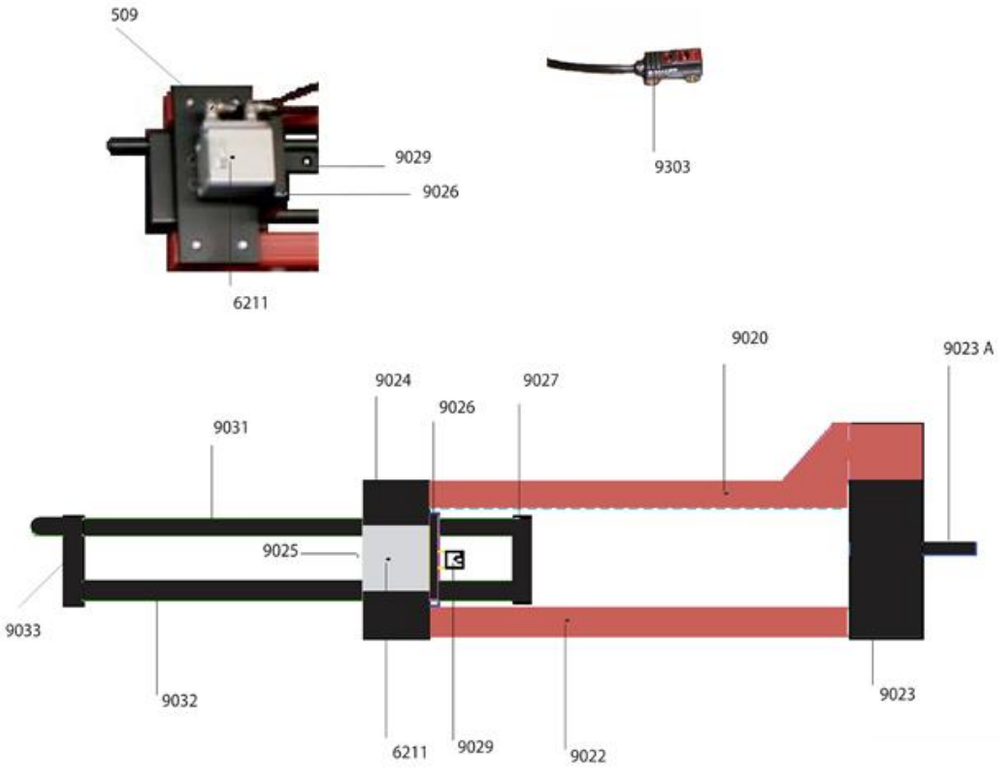
Drive Units


121
108
105
111
110 A
107
109
106
118
119
120
115
112
113
114
113
116 A
117
123
124
122
9510


126
116A
9113
138
121
109
9207
9206
122
137
537
9001
125
131

Drive Unit

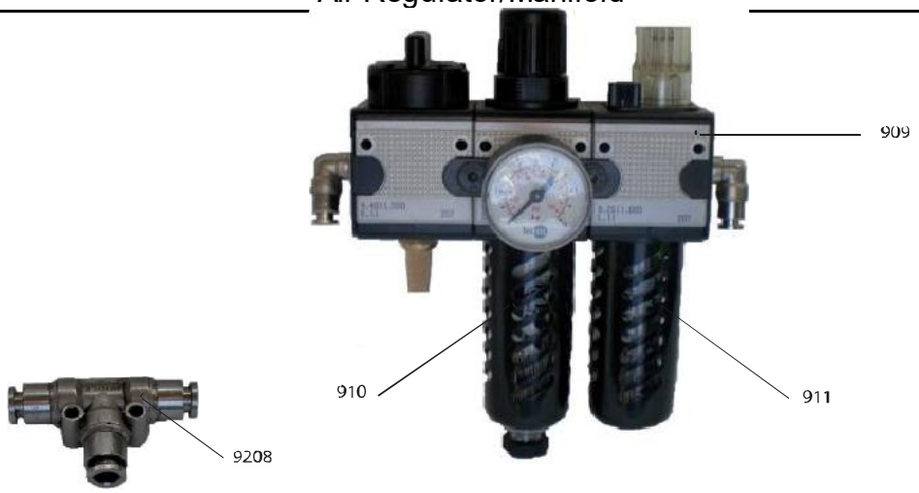
090 Item #	095 Item #	Detail #	Description
SPT105	SPT105	105	Spacer bushing
SPT106	SPT106	106	Centering washer
SPT107	SPT9509	107	Bracket for distance measuring
SPT108	SPT108	108	Distance measuring unit
SPT109	SPT109	109	Distance measuring unit wheel
SPT110A	SPT110A	110A	Counter weight shaft for drive unit
SPT111	SPT111	111	Bearing (HK2538)
SPT112	SPT112	112	Eccentric shaft for drive unit
SPT113	SPT113	113	Bearing (6304 2RS)
SPT114	SPT114	114	Snap ring (I 52)
SPT115	SPT115	115	Washer
SPT116A	SPT116A	116A	Top drive roll rubber
SPT117	SPT117	117	Washer 8mm
SPT118	SPT118	118	Washer 8mm
SPT119	SPT119	119	Eccentric shaft for drive roll
SPT120	SPT120	120	Bearing (6204 2RS)
SPT121	SPT121	121	Drive motor
SPT122	SPT122	122	Bottom drive roll
SPT123	SPT123	123	Washer 10mm
SPT124	SPT124	124	Bearing (6204 2RS)
SPT125	SPT125	125	Bracket for bottom drive roll
SPT126	SPT126	126	Top clamp for shock absorber
SPT131	SPT131	131	Drive unit console
SPT137	SPT137	137	Protection bottom
SPT138	SPT138	138	Protection top
SPT537	SPT537	537	Bolt for cylinder
SPT9001	SPT9001	9001	Cylinder mounting support
SPT9113	SPT9113	9113	Distance bushing
SPT9206	SPT9206	9206	Pneumatic cylinder
SPT9207	SPT9207	9207	Adjustable air connection
- - - - - - - -	SPT9510	9510	Encoder Bracket (095 Only)

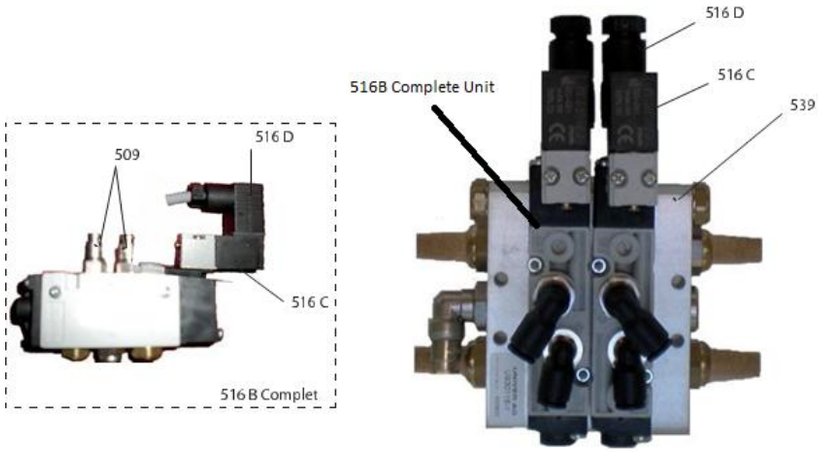


Tension Sensor Bolt Arm

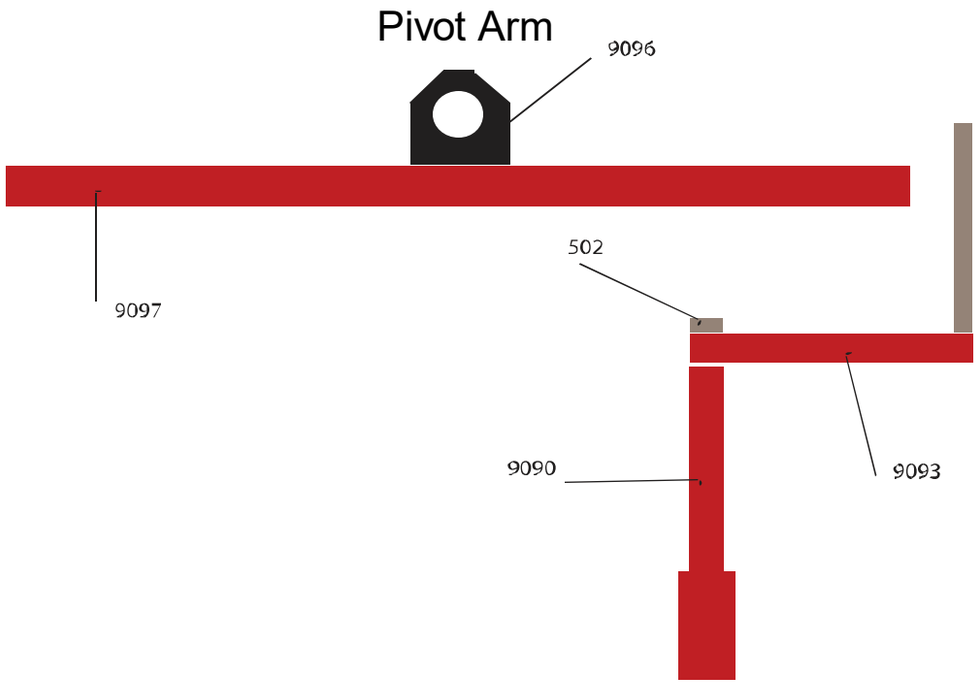
090 Order #	095 Order #	Print Detail #	Description
SPT509	SPT509	509	Air connection
SPT6211	SPT6211	6211	Pneumatic cylinder
SPT9020	SPT9505	9020	Sensor holder tube
SPT9022	SPT9506	9022	Sensor tube
SPT9023A	SPT9504	9023	Sensor Plate
SPT9023A	SPT9510	9023 A	Holder Balluff
SPT9024	SPT9024	9024	Sensor plate
SPT9025	SPT9025	9025	Sensor guide bolt
SPT9026	SPT9026	9026	Cylinder bracket
SPT9027	SPT9027	9027	Sensor holder
SPT9029	SPT9029	9029	Plate
SPT9031	SPT9031	9031	Radius shaft
SPT9032	SPT9032	9032	Sensor shaft
SPT9033	SPT9033	9033	Sensor guide bolt
SPT9303	SPT9303	9303	Sensor
SPT9304	SPT9304	9304	Sensor cover

Air Regulator/Manifold





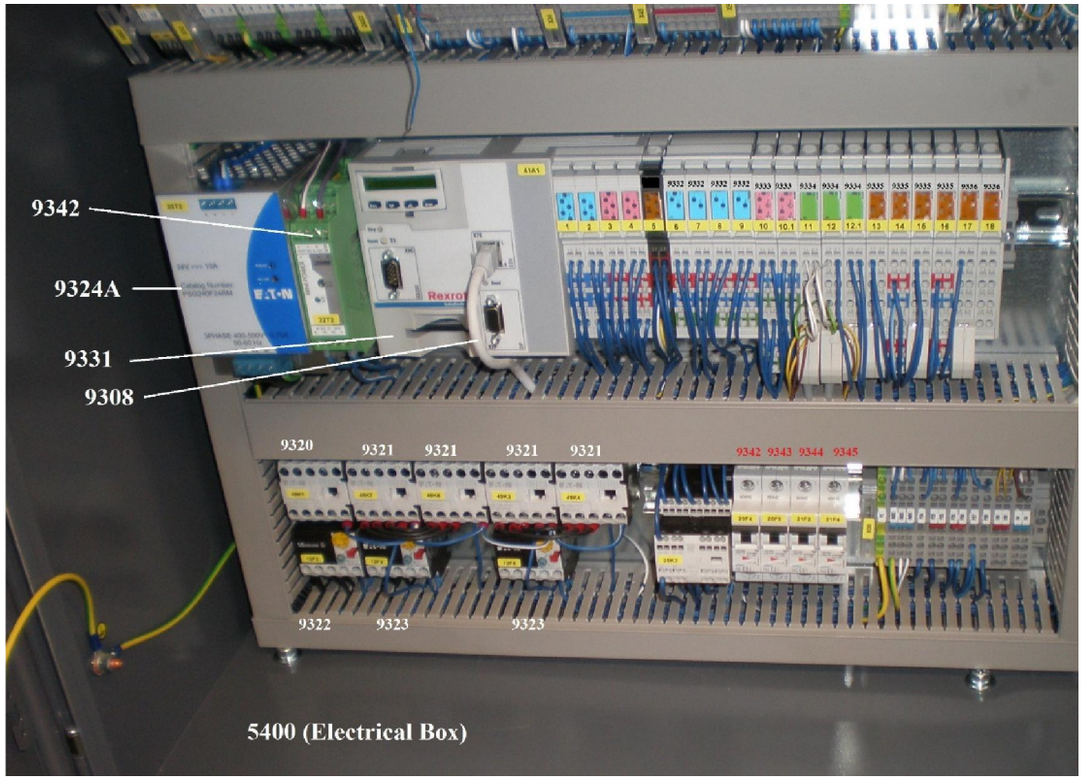
Order #	Detail #	Description
SPT509	509	Air connection
SPT516 B	516 B	Control valve
SPT516 C	516 C	Electric magnet for control valve
SPT516 D	516 D	Plug connector for control valve
SPT539	539	Manifold with control valves
SPT909	909	Air Oiler Unit
SPT910	910	Glass for water separator
SPT911	911	Glass for oiler
SPT9208	9208	T Connector



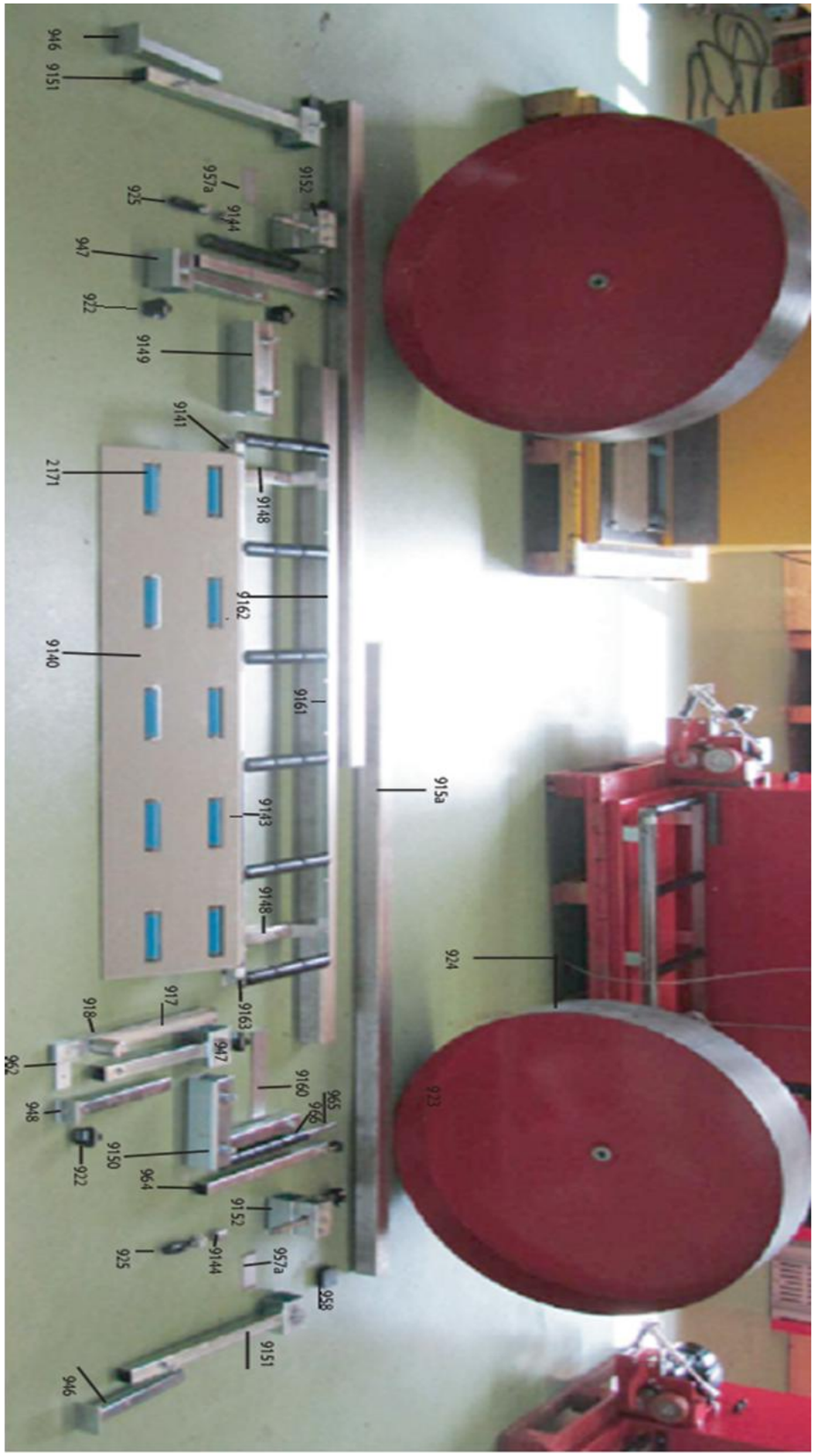
Order #	Detail #	Description
SPT502	502	Set collar ø 25 mm
SPT9090	9090	Operation box arm tube
SPT9093	9093	Operation box arm
SPT9096	9096	Operation box holder
SPT9097	9097	Operation box squate tube

Control Panel

Order #	Detail #	Description
SPT5150	5150	Handle
SPT9100	9100	Operator box CS-46/200
SPT9306	9306	Ethernet switch (inside box)
SPT9307	9307	Ethernet Cord 1m (Inside Box)
SPT9308	9308	Ethernet Cord 5m (Inside box)
SPT9312	9312	Kill Switch
SPT9313	9313	ON / OFF Power Switch
SPT9314	9314	Toggle switch
SPT9315	9315	Rubber Cover (Level / Tension)
SPT9316	9316	Air Clamp ON / OFF switch
SPT9317	9317	Drive Motor Start button
SPT9318	9318	Bottom cover
SPT9319	9319	Toggle switch for Head travel
SPT9330	9330	Display panel VEP 40.4



Order #	Detail #	Description
SPT5400	5400	Electric box KRO 600x600x300
SPT9308	9308	Cord 5m
SPT9320	9320	Control (10)
SPT9321	9321	Control (01)
SPT9322	9322	Thermal overload relay (0.8)
SPT9323	9323	Thermal overload relay (0.6)
SPT9324A	9324A	480V 3 Phase Power supply
SPT9331	9331	SPS controll
SPT9332	9332	Modul Nr. 6-9
SPT9333	9333	Modul Nr. 10/10.1
SPT9334	9334	Modul Nr. 11/12/12.1
SPT9335	9335	Modul Nr. 13-14/15-16
SPT9336	9336	Modul Nr. 17-18
SPT9340	9340	WSI 6
SPT9341	9341	Relay
SPT9342	9342	Transformer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9148
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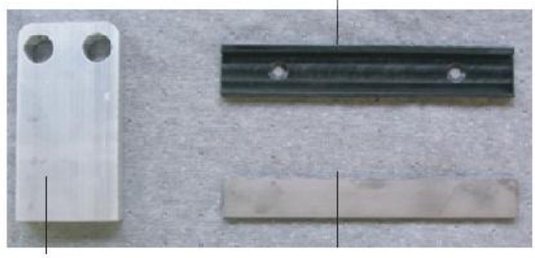
9147



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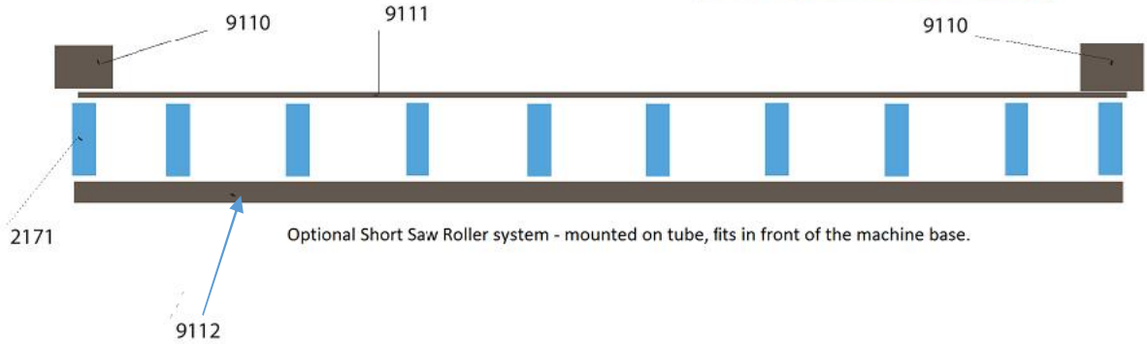
9146



Optional Short Saw Roller system - mounted on tube, fits in front of the machine base.

Order #	Detail #	Description
SPT915A	915A	6.5' foot long square tube (2 meters)
SPT917	917	Scissors for blade felt
SPT918	918	Upper felt wiper
SPT918	919	Bottom Felt wiper - Order 918
SPT922	922	Knob
SPT923	923	Wheel
SPT924	924	Rubber covers for wheel
SPT925	925	Handles for wheel
SPT940	940	Plastic holder
SPT946	946	Foot for tube end support
SPT947	947	Bracket for saw cleaner and plastic roller support
SPT948	948	Holder saw cleaner moveable
SPT950	950	Square roll case back
SPT951	951	Square roll case front
SPT952	952	Ramp roll case

Order #	Detail #	Description
SPT954	954	Plastic roll
SPT955	955	Bolt
SPT956	956	Distance bolt
SPT957	957	Square tube protection
SPT957A	957A	Square tube protection (100mm long)
SPT958	958	Square tube cover
SPT959	959	Nut M 20x1.5 0.5d
SPT960	960	Bearing (6204 2RS)
SPT961	961	Snap ring J47
SPT962	962	Bracket for bottom felt wiper
SPT963	963	Weight for saw cleaner
SPT964	964	Holder plastic roll
SPT965	965	Bolt for Plastic Roll
SPT966	966	Plastic roller 50mm
SPT966	966	Plastic roller for roll case
SPT967	967	Foot for Roll Case
SPT2171	2171	Plastic roller for loading ramp
SPT9140	9140	Steel Ramp for roll case
SPT9141	9141	Block to attach ramp to roll case
SPT9142	9142	Bolt for ramp
SPT9143	9143	Holder for ramp
sPT9144	9144	Wheel holder bushing
SPT9145	9145	Holder for carbide wear strip on front of machine
SPT9146	9146	Sensor Aluminum guide
SPT9147	9147	Adjustable holder
SPT9148	9148	Roll case leg
SPT9149	9149	LH Side Tube Connector for 2 meter tube
SPT9150	9150	RH Side Tube Connector for 2 meter tube
SPT9151	9151	Tube End Support without leg
SPT9152	9152	Adjustable Wheel holder (Without leg)
SPT9160	9160	Square tube protection (2500mm long)
SPT9161	9161	Steel roll case frame
SPT9162	9162	Steel roll case complete
SPT9163	9163	Complete Roll case with ramp

E L P E X A G

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KUNDE: *W.OPPLIGER*

ORT: *INDUSTRIESTR. 11, 3661 UETENDORF*

PROJEKT NR: *15033*

ANLAGE: *SAGEBLATT RICHTZENTRUM*

MASCHINEN-NR.: *RSMO 090*

ERSTELL-DATUM: 22.01.2015 DUN

REVISIONS-DATUM: 06.05.2015 DUN

ELPEX AG	W. OPPLIGER OPTIMATIC RSMO 090	DECKBLATT	Projekt: 15033 RSMO 090	Zeichnungsnummer:	Rev.: 06.05.2015	erstellt von:	
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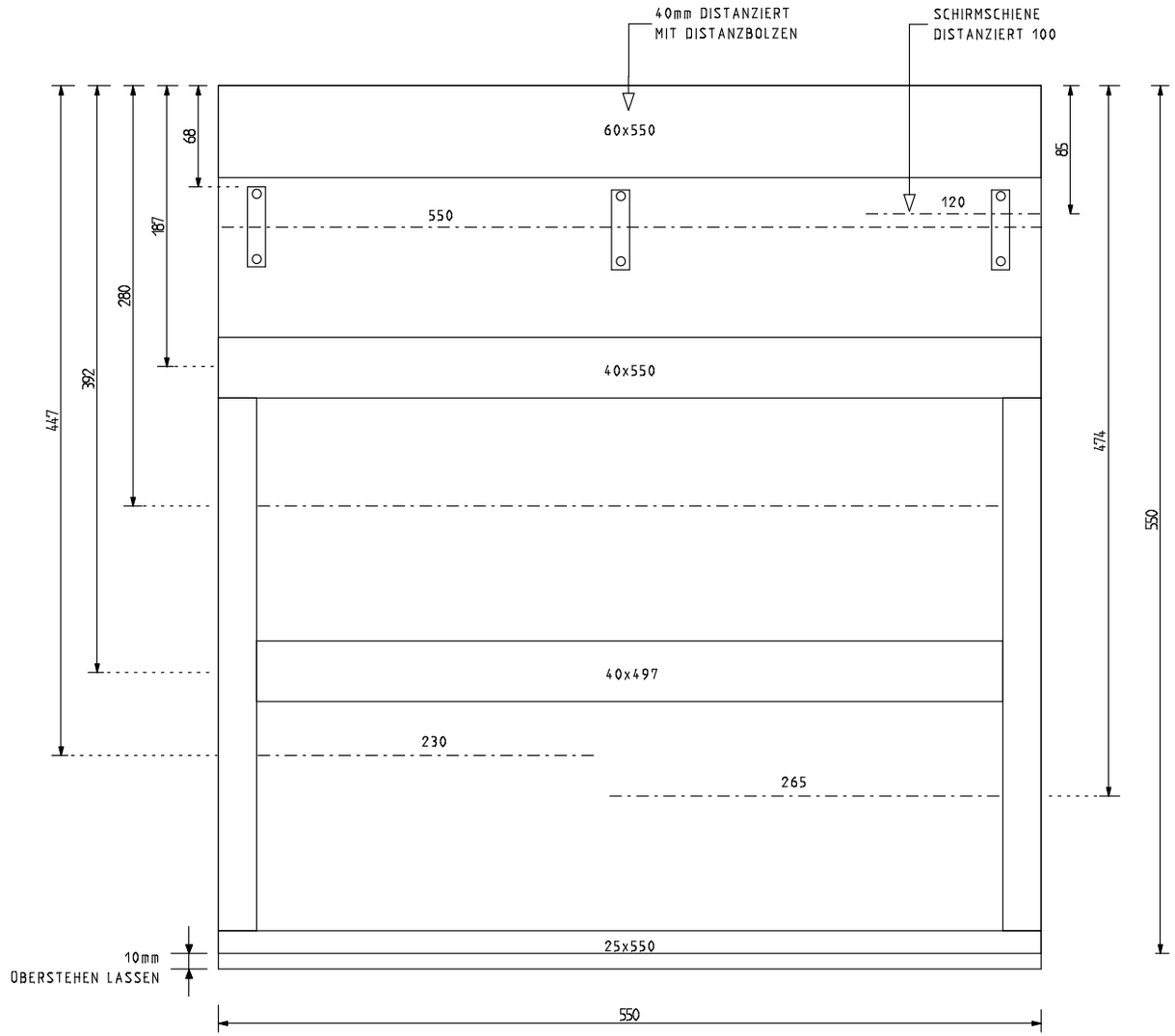

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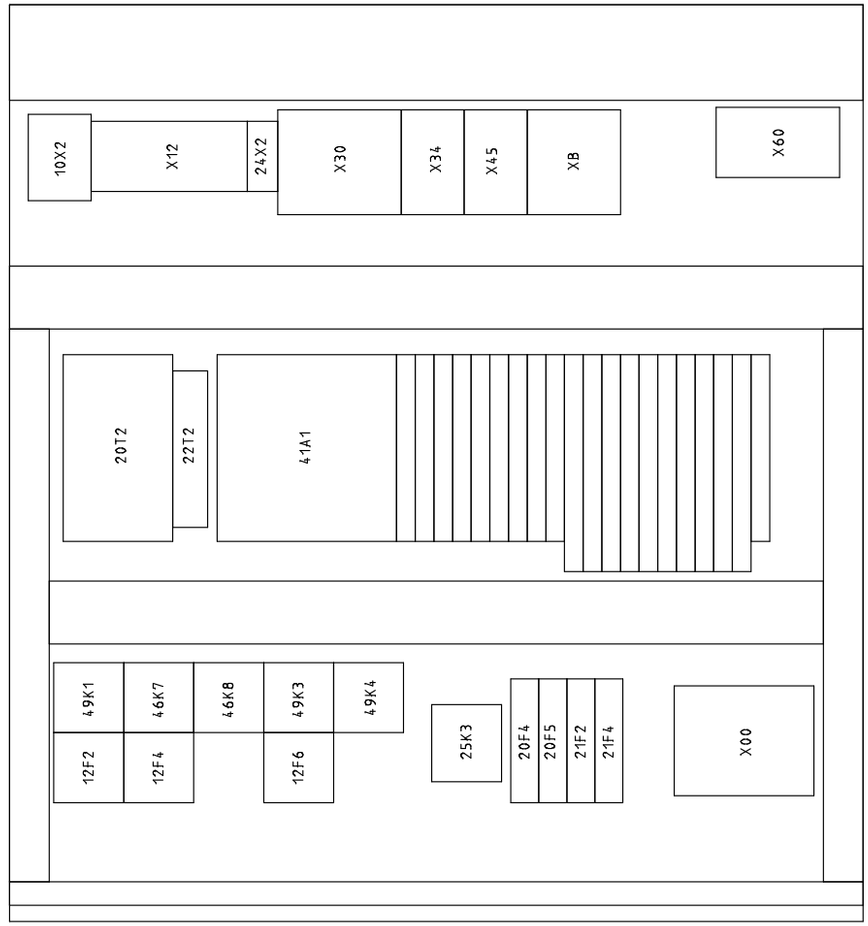
			Datum: 04.03.2015	Anlage:	Ort:	Blatt: 3



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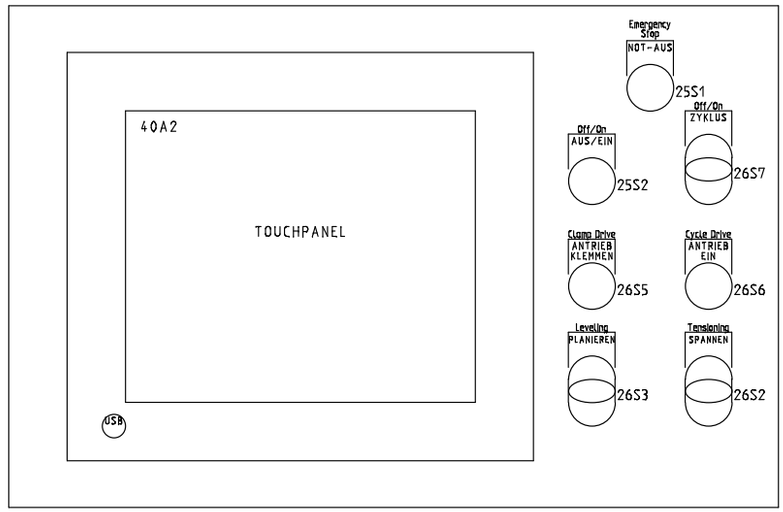
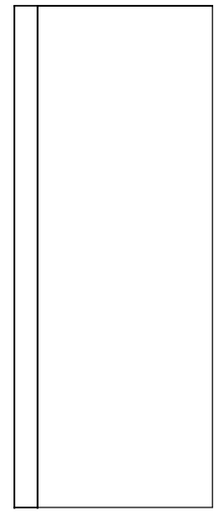
			Datum: 05.03.2015	Anlage:	Ort:	Blatt: 4





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			Datum: 22.01.2015	Anlage:	Ort:	Blatt: 5

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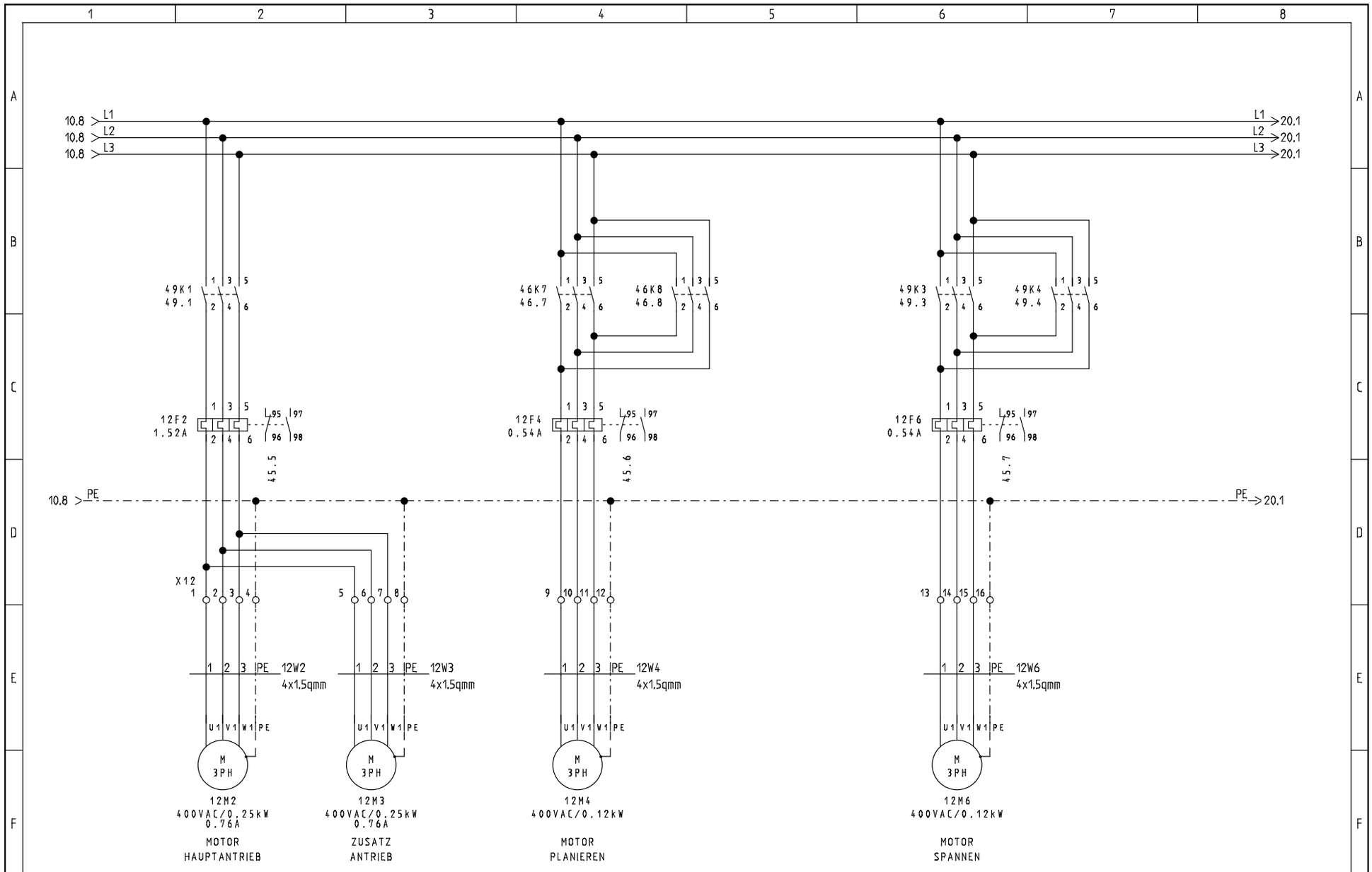

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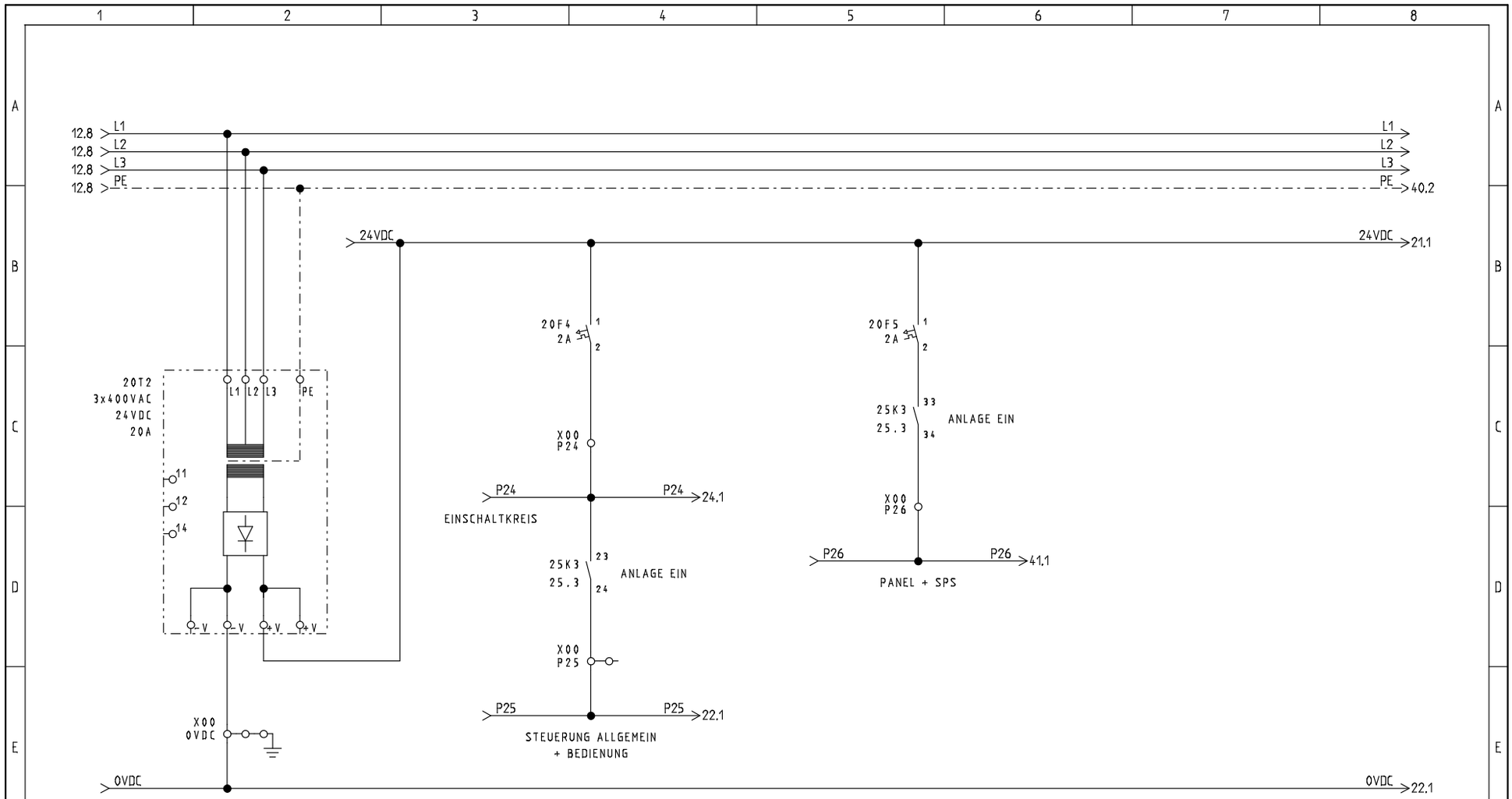

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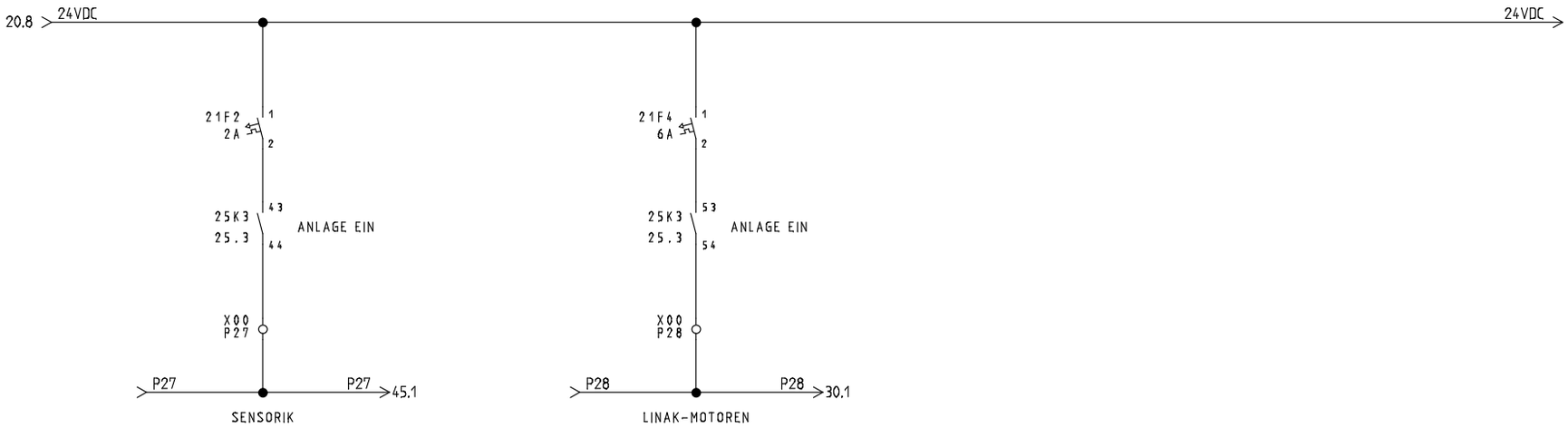

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			Datum: 22.01.2015	Anlage:	Ort:	Blatt: 21	

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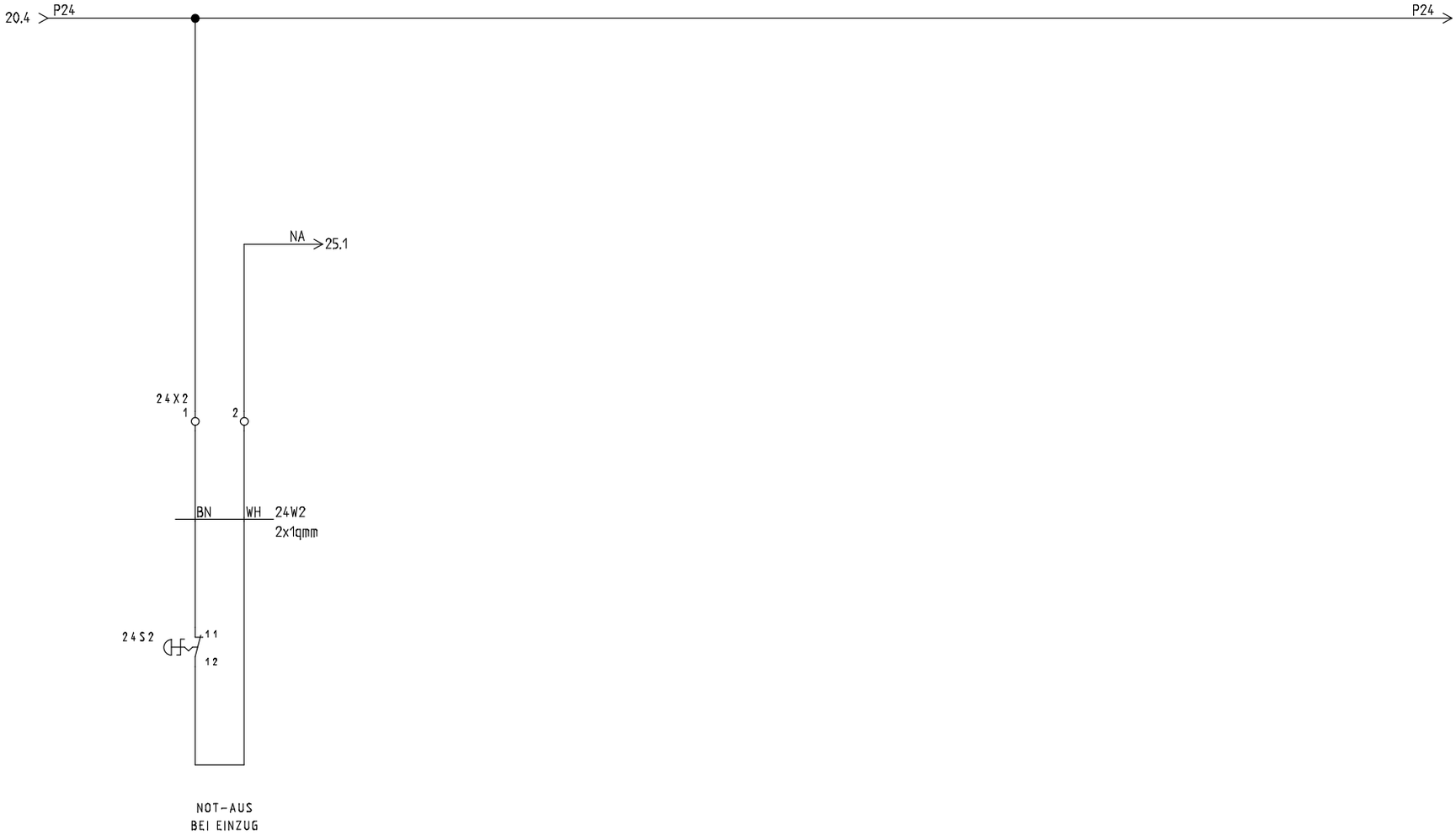

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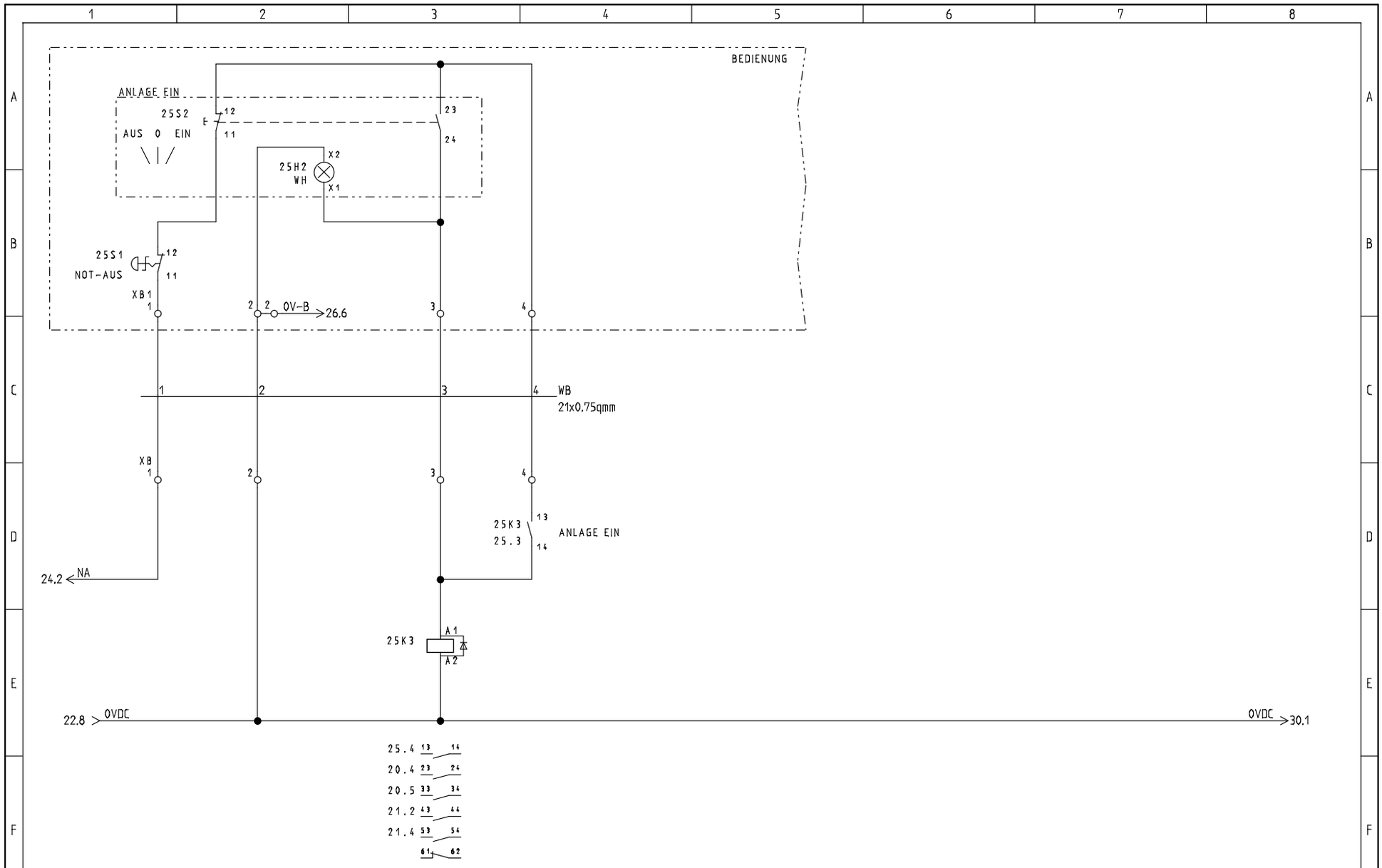

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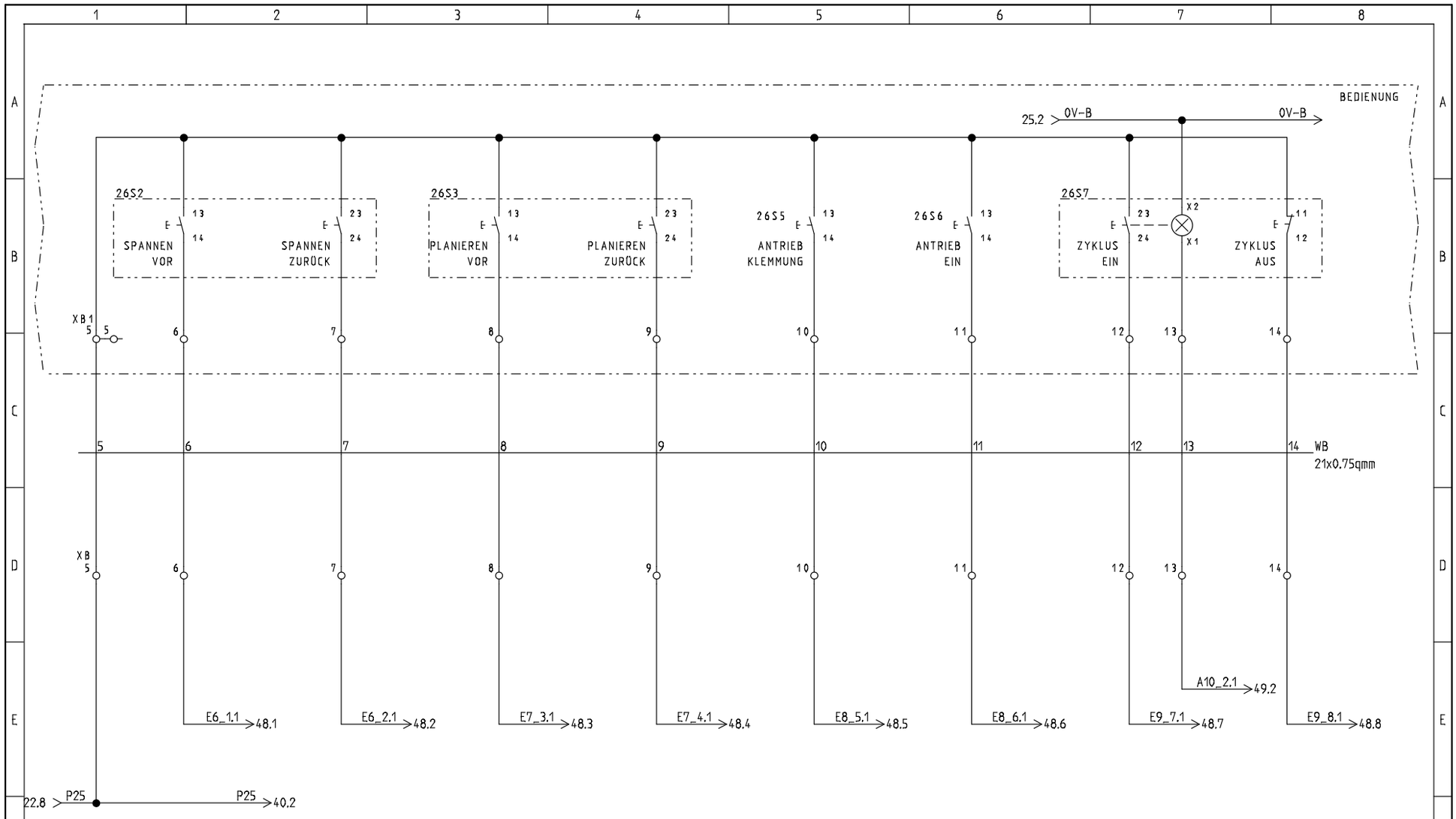

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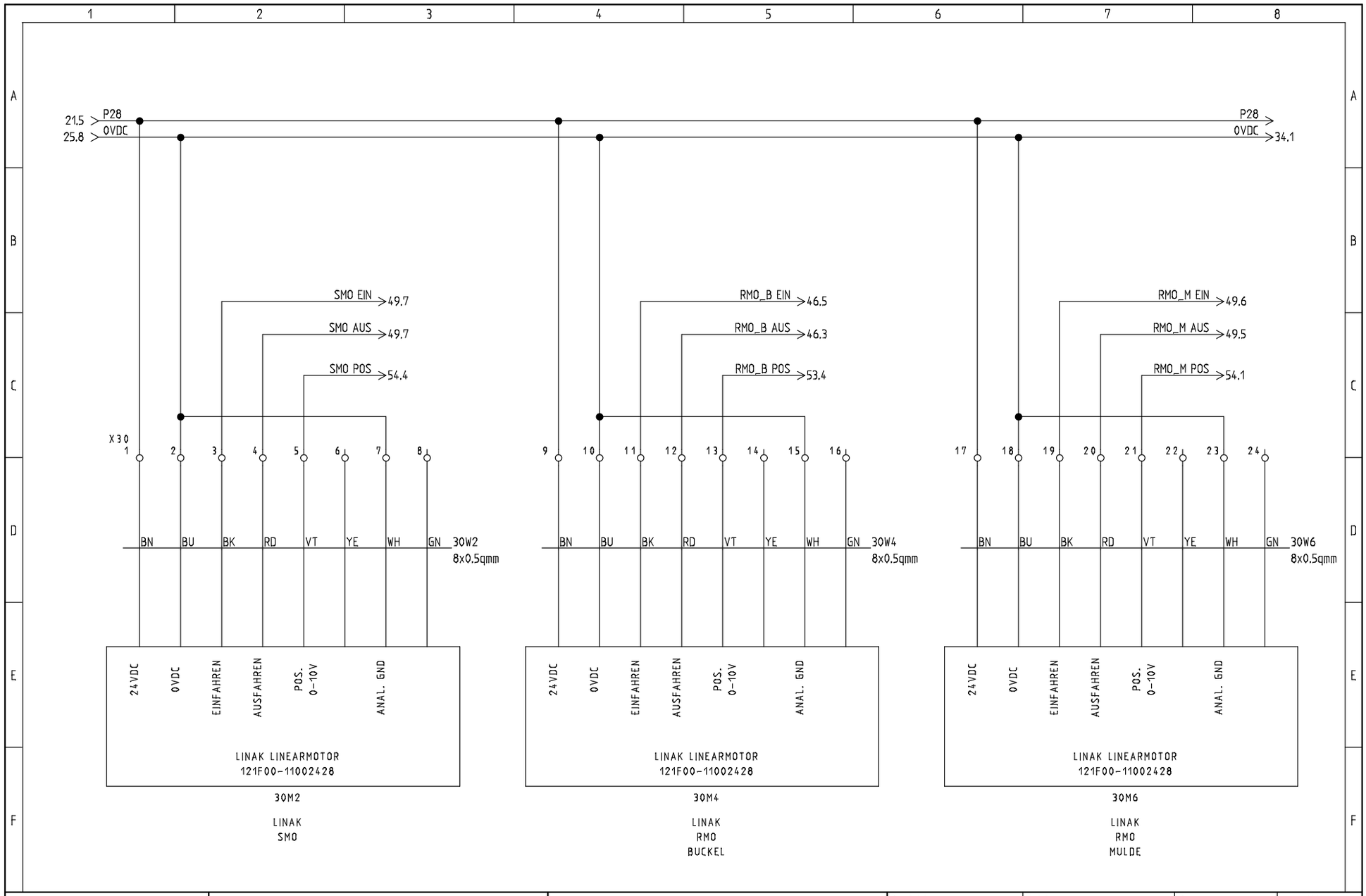

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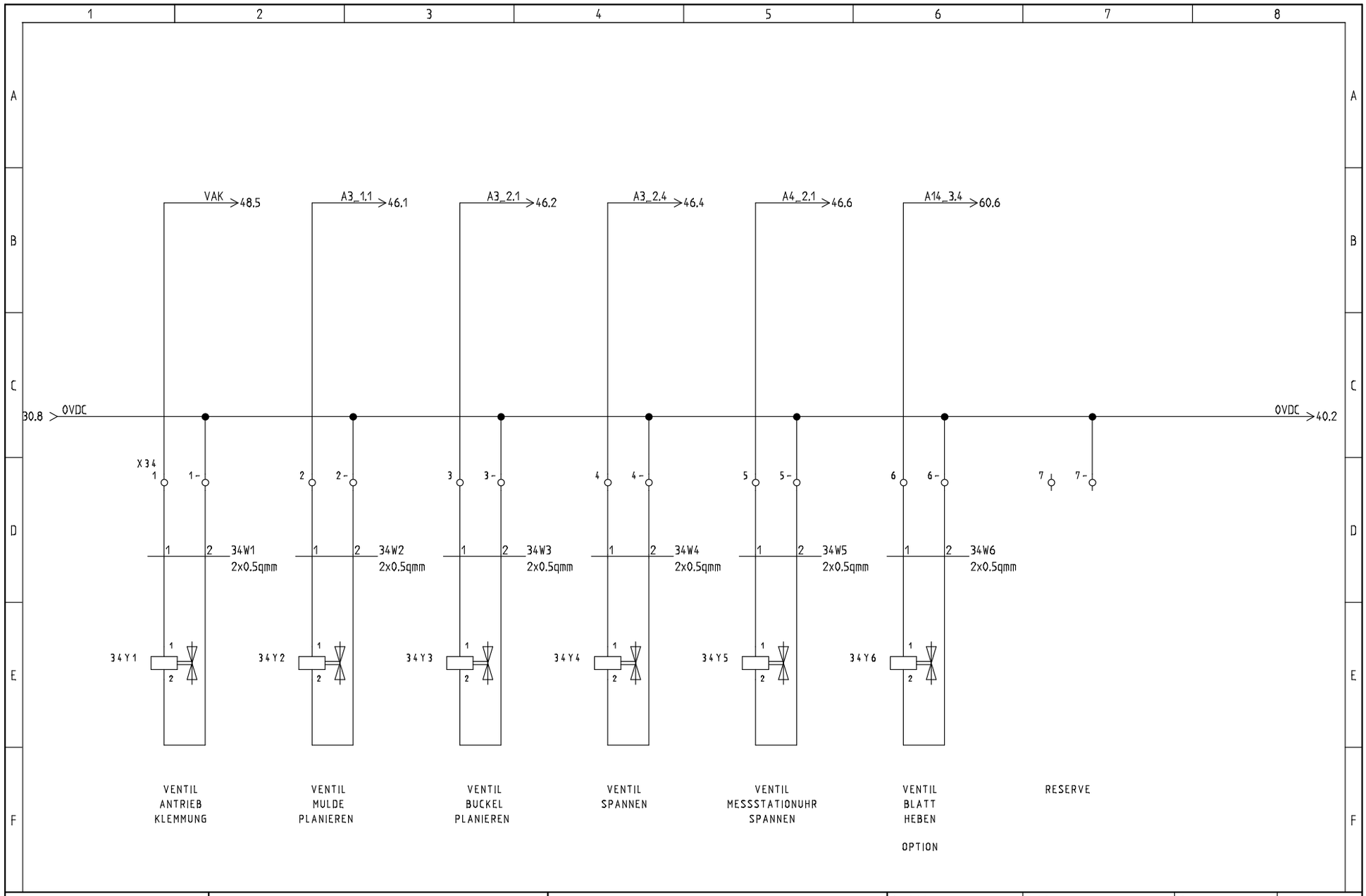

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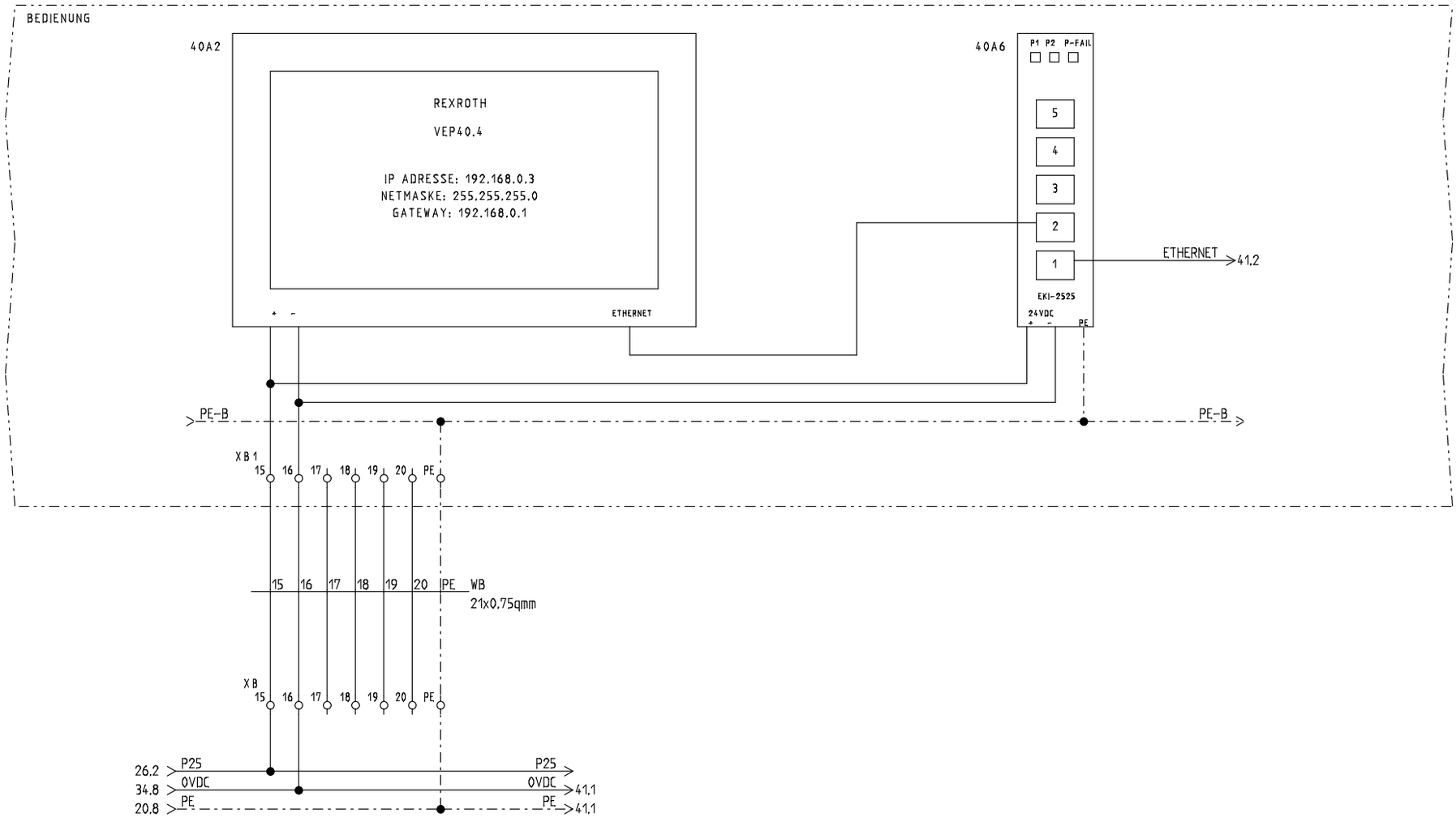

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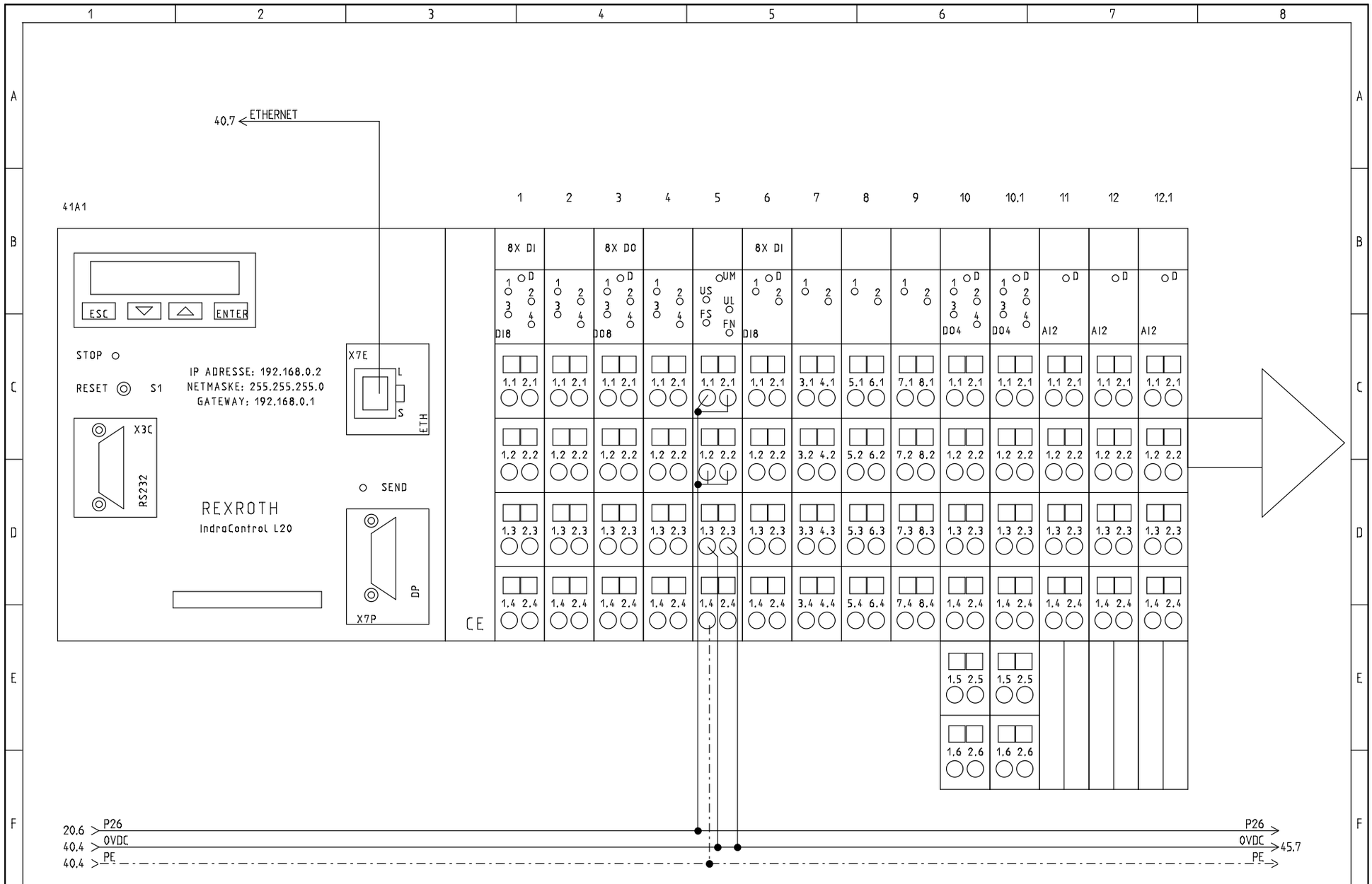
			Datum: 22.01.2015	Anlage:	Ort:	Blatt: 40



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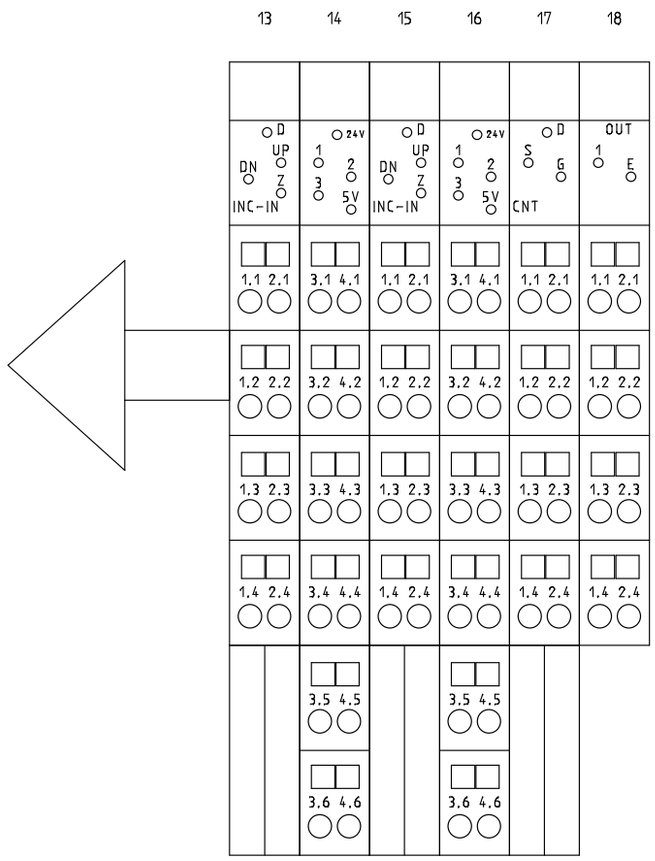

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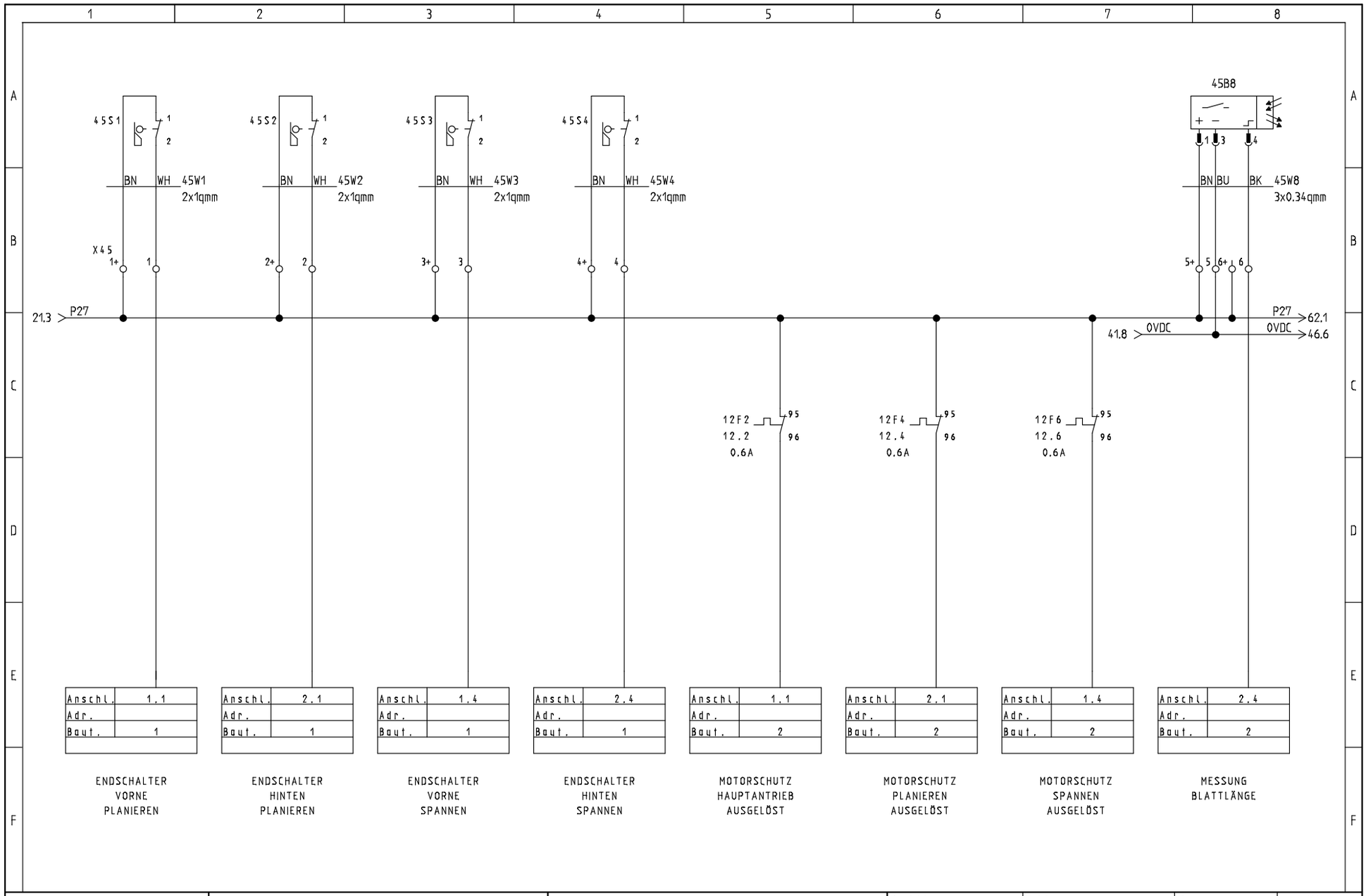

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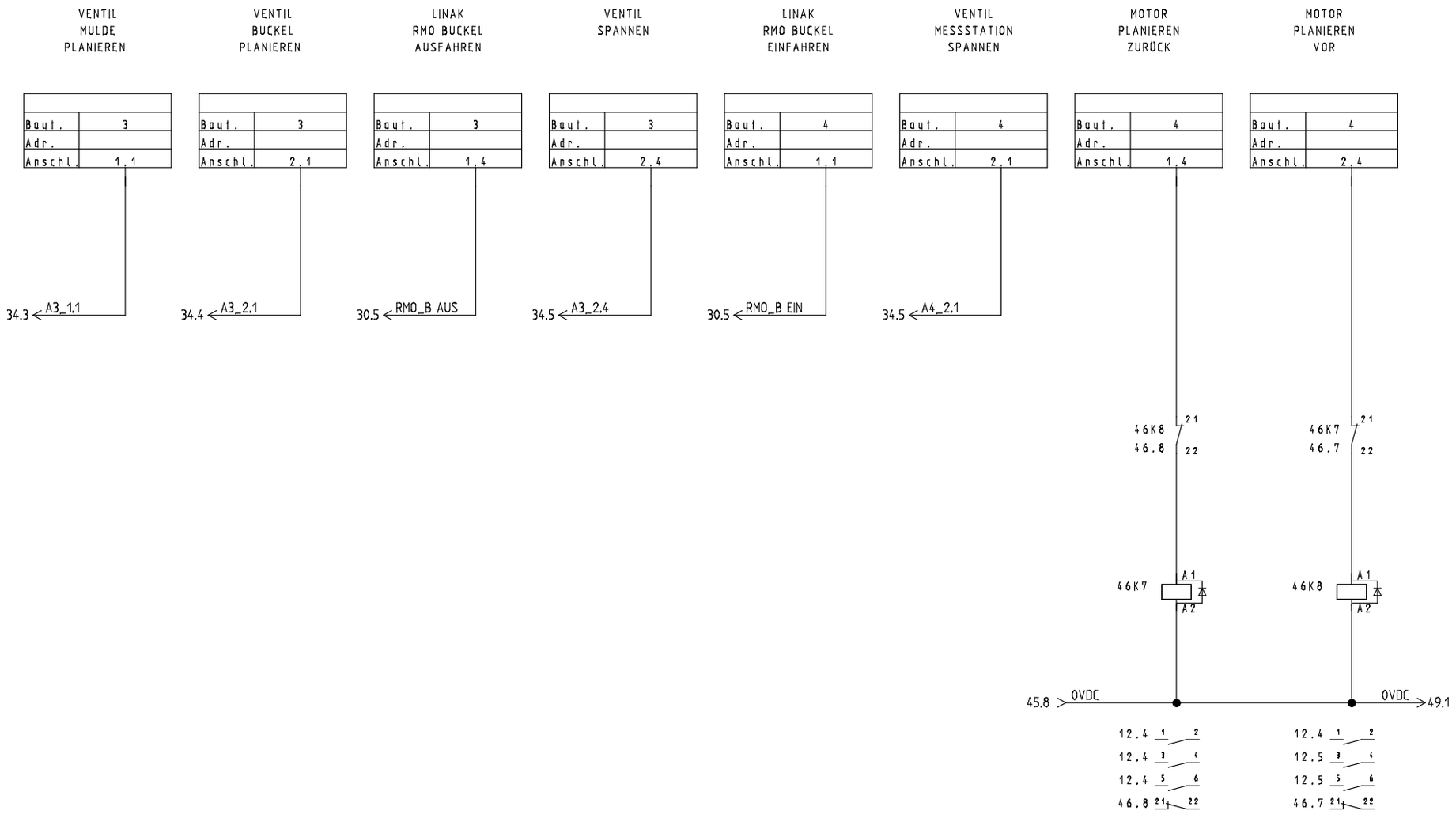

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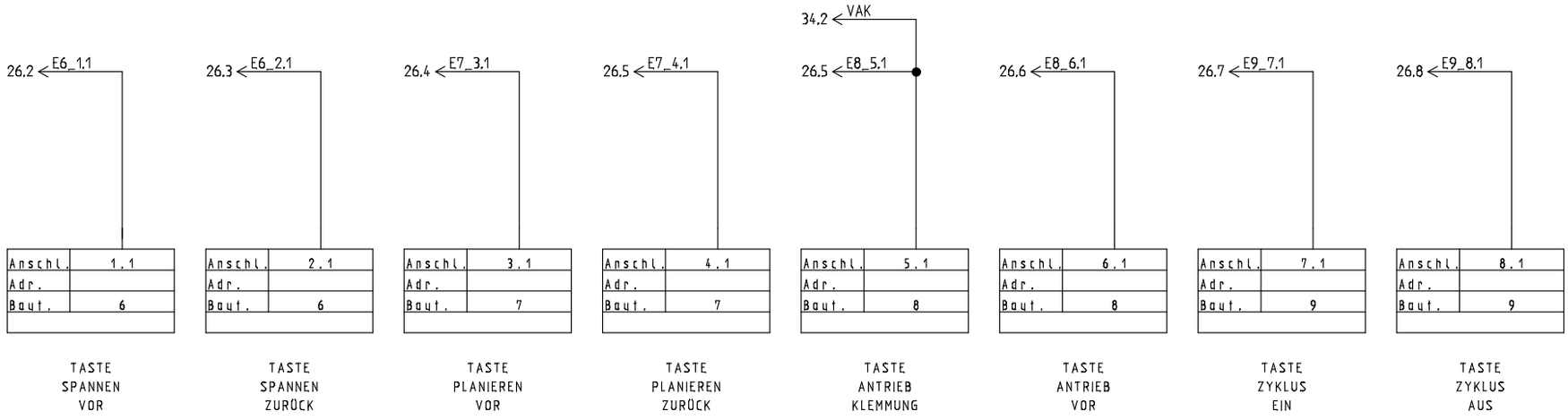

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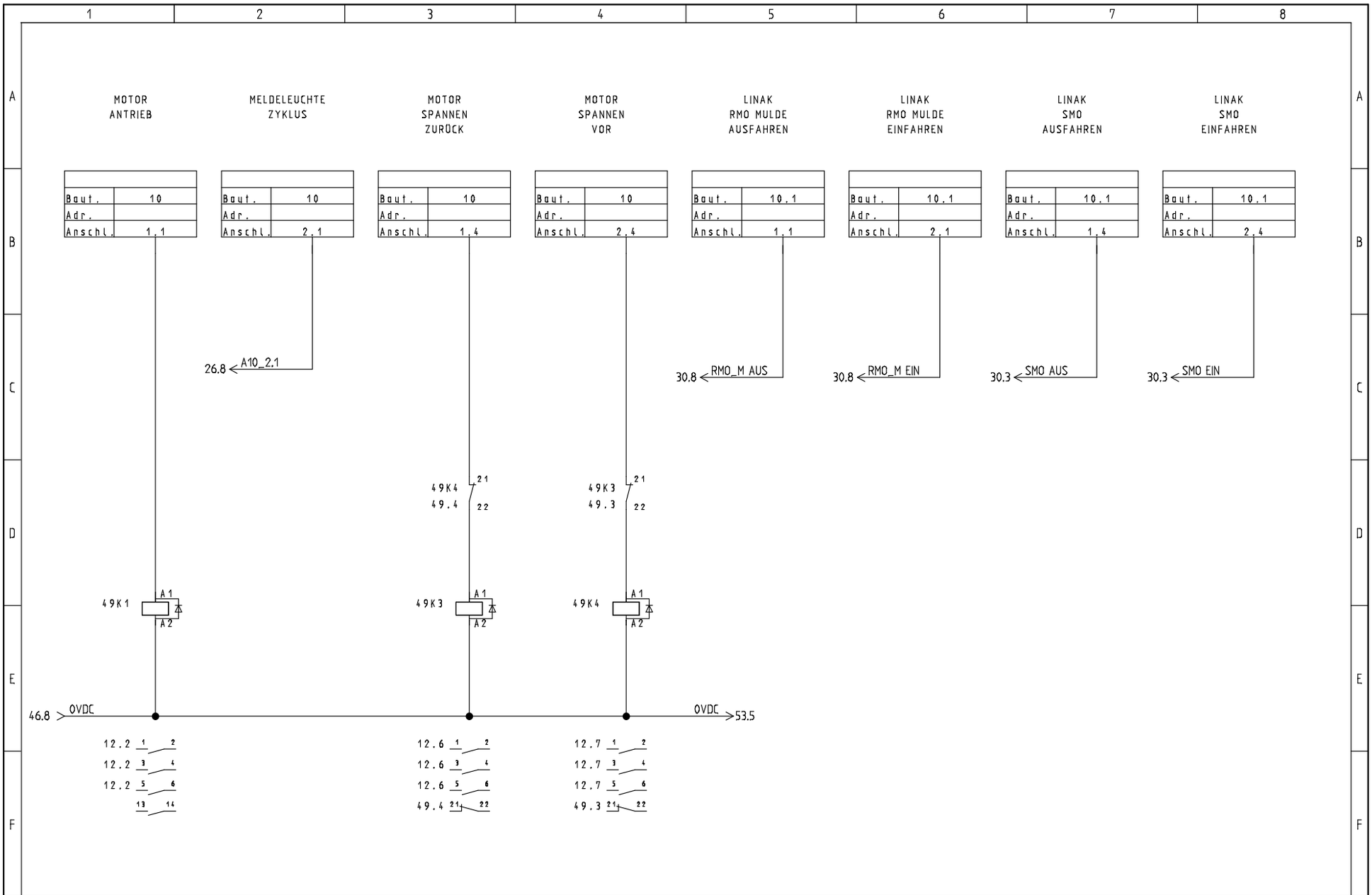

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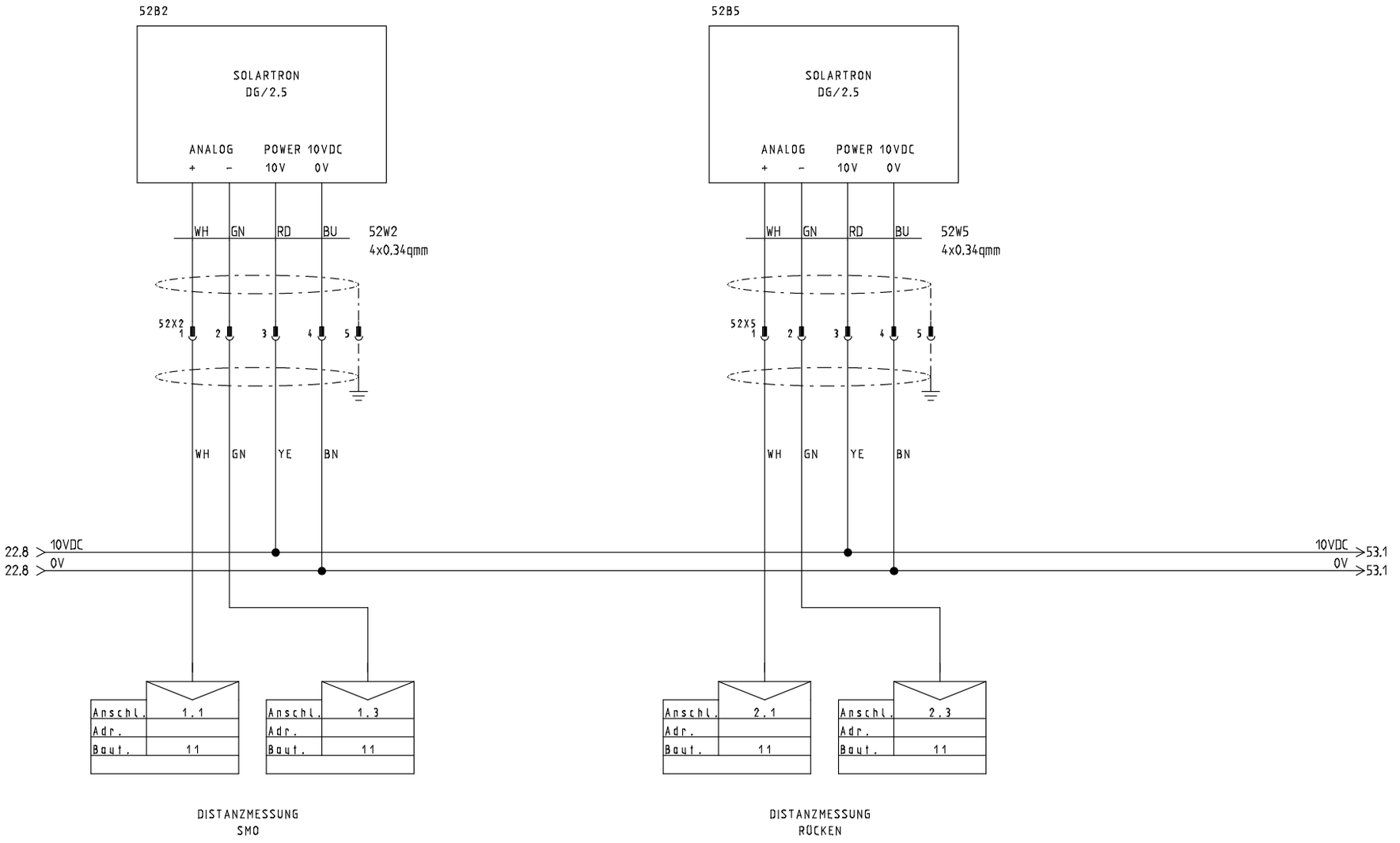

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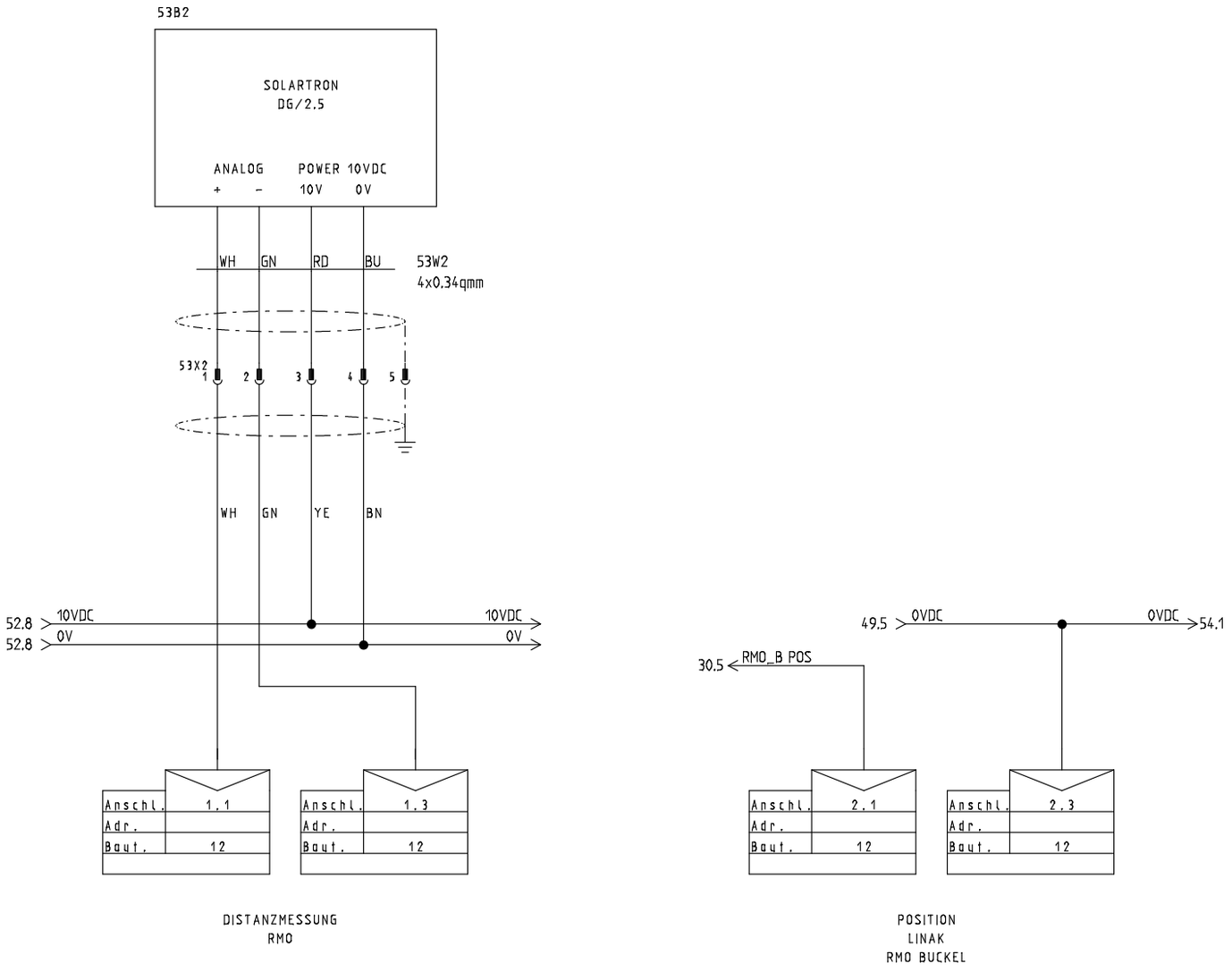

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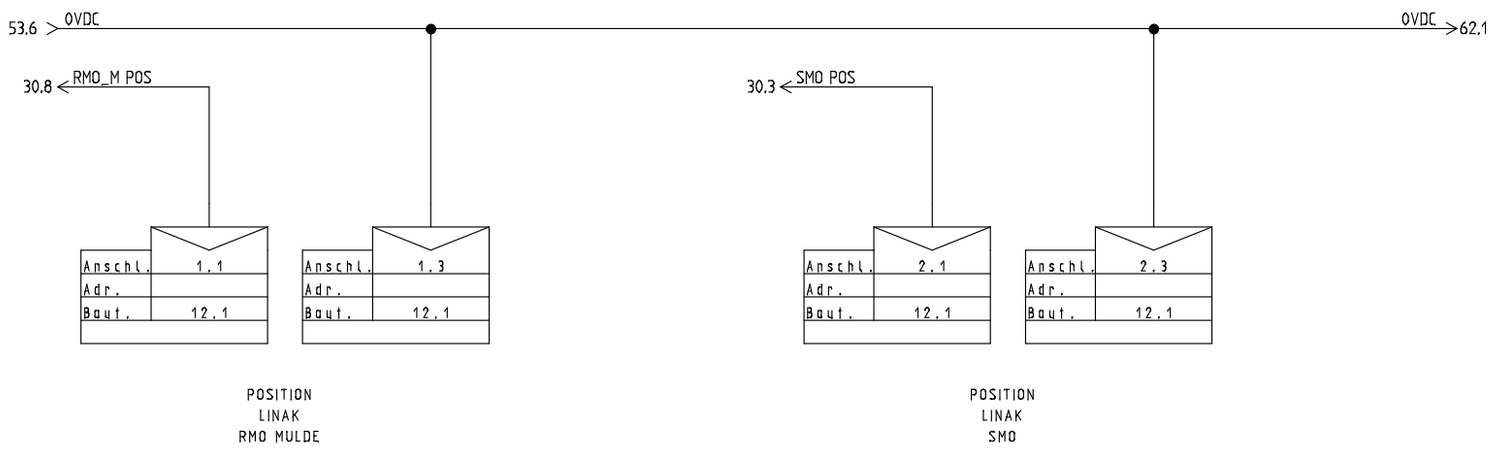

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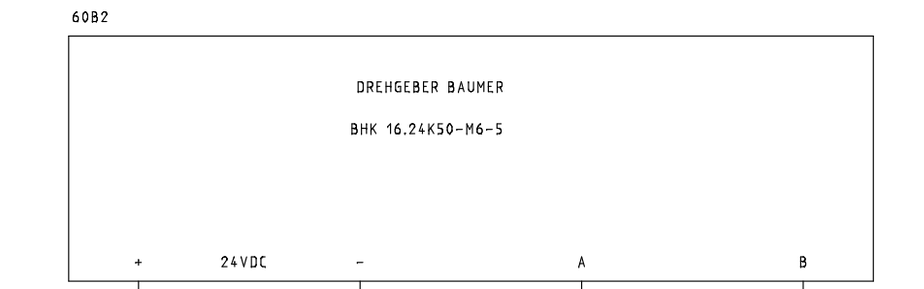

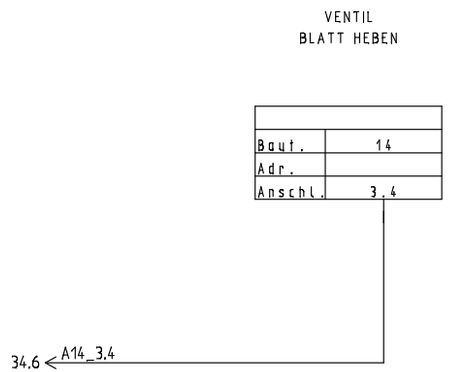

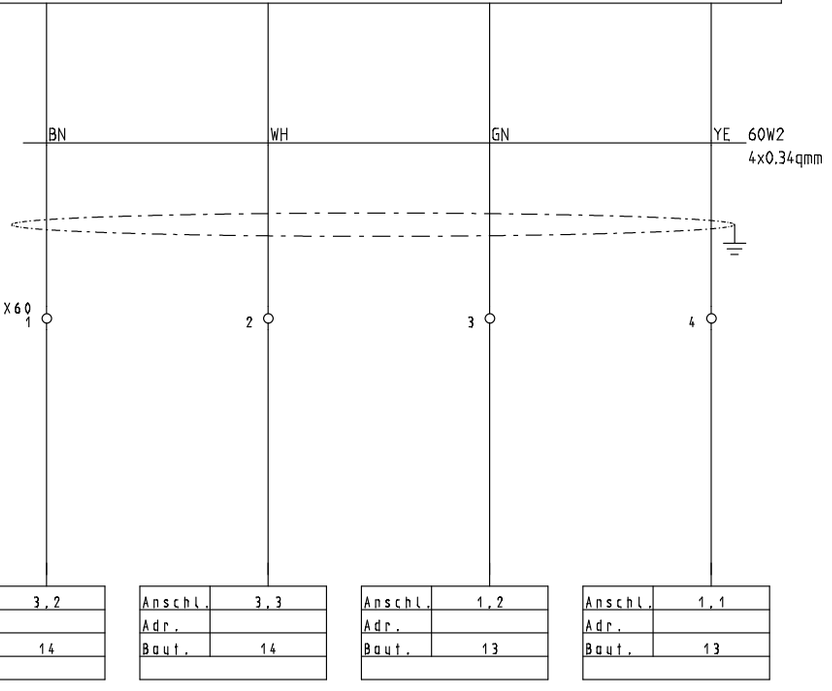

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Adr.	
Baut.	14

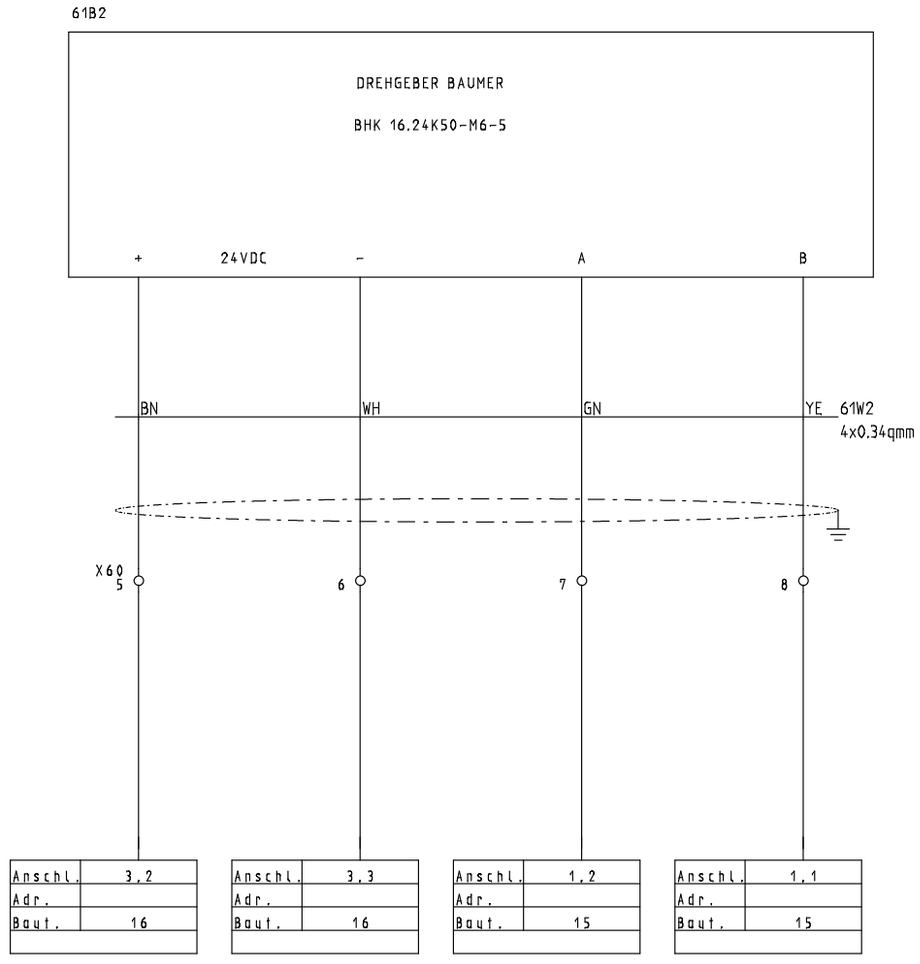
Anschl.	3.3
Adr.	
Baut.	14

Anschl.	1.2
Adr.	
Baut.	13

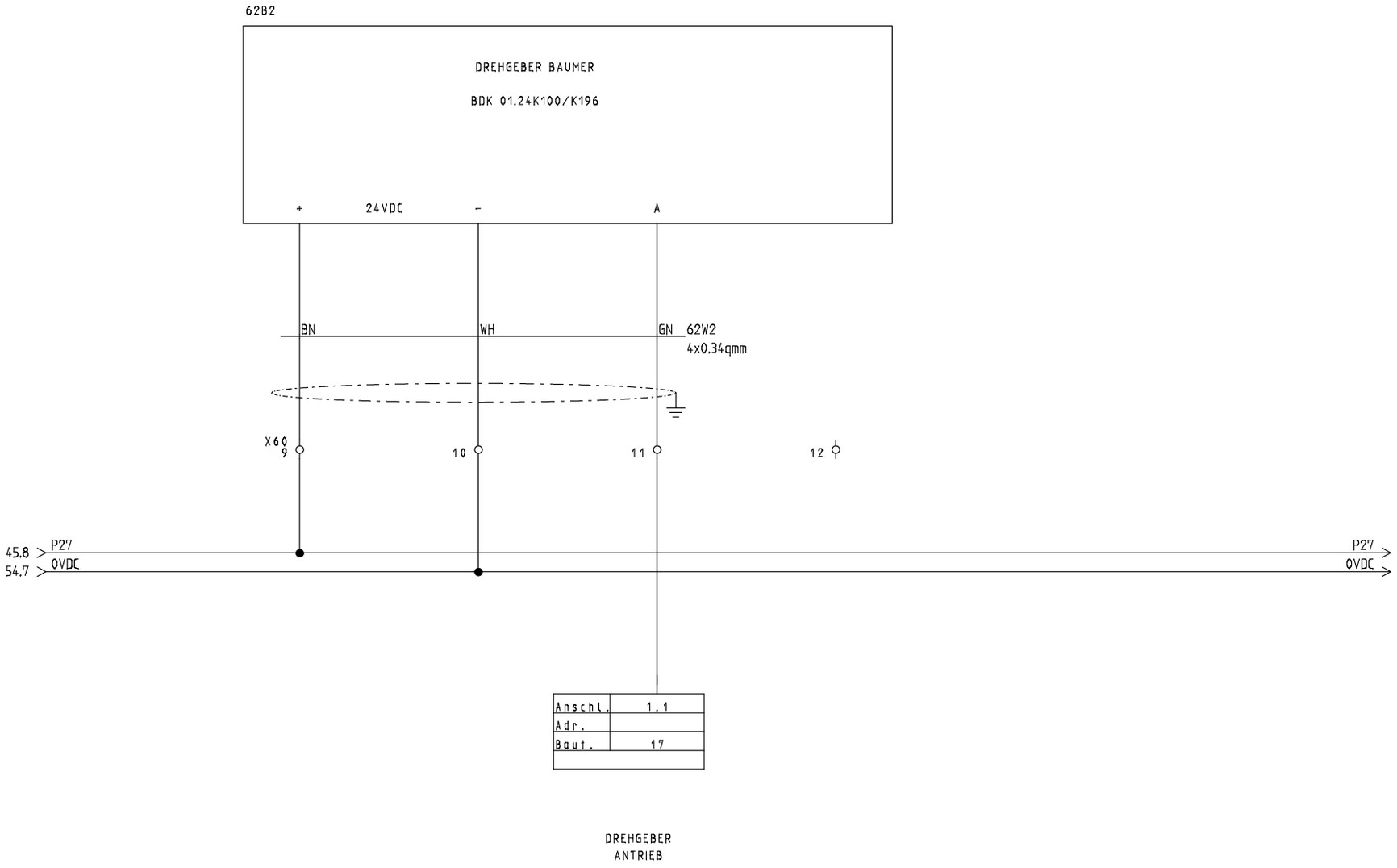
Anschl.	1.1
Adr.	
Baut.	13

DREHGEBER
RMO KOPF

ELPEX AG	W. OPPLIGER OPTIMATIC RSMO 090	INKREMENTAL EINGÄNGE MODUL 13 – 14	Projekt: 15033 RSMO 090	Zeichnungsnummer:	Rev.: 15.04.2015 / erstellt von:
			Datum: 22.01.2015	Anlage:	Ort: / Blatt: 60



ELPEX AG	W. OPPLIGER OPTIMATIC RSMO 090	INKREMENTAL EINGÄNGE MODUL 15 – 16	Projekt: 15033 RSMO 090	Zeichnungsnummer:	Rev.: 15.04.2015	erstellt von:
			Datum: 22.01.2015	Anlage:	Ort:	Blatt: 61



ELPEX AG	W. OPPLIGER OPTIMATIC RSMO 090	INKREMENTAL EINGÄNGE MODUL 17	Projekt: 15033 RSMO 090	Zeichnungsnummer:	Rev.: 20.04.2015	erstellt von:
			Datum: 22.01.2015	Anlage:	Ort:	Blatt: 62