

user manual

Instrukcja obsługi | Руководство пользователя
Manuel de l'Utilisateur | Betriebsanweisung
Bruksanvisning | Manual del Usuario
Betjeningsvejledning | Gebruikershandleiding
Käyttöohjeet | Manual de utilizare | Bruksanvisning
Manuale d'uso | Příručka uživatele | Navodila
za uporabo

Retain for future use
Zachować do przyszłego użytku
Сохраните для последующего
использования
A conserver pour une utilisation future
Für zukünftige Benutzung aufbewahren
Behold for senere bruk
Säilytä nämä käyttöohjeet tulevaa tarvetta marten
Opbevar manualen til fremtidig brug
Bewaren voor gebruik in de toekomst
Conservare il presente manuale a l'uso futuro
Păstrați acest manual pentru utilizare viitoare
Conservar para futuras consultas
Behall för framtida användning
Uchovejte pro další použití
Hranite za prihodnjo uporabo

Wood-Mizer®

Edger

Safety, Operation, Maintenance and Replacement Parts

EA3000

rev. A1.00



Safety is our #1 concern! Read and understand all safety information and instructions before operating, setting up and/or maintaining this machine.

Form #815

**This is the original language
for the manual.**

Table of Contents	Section-Page
SECTION 1 SERVICING THE EDGER	1-1
1.1 Safety & General Information	1-1
1.2 If You Need To Order Parts	1-1
1.3 Customer and Edger Identification.....	1-1
1.4 If You Need Service	1-2
1.5 EA3000 Edger Components	1-3
 SECTION 2 SAFETY	 2-1
2.1 Safety Symbols	2-1
2.2 Safety Instructions	2-1
<i>Observe Safety Instructions</i>	
<i>Wear Safety Clothing</i>	
<i>Keep Edger and Area Around Edger Clean</i>	
<i>Dispose of Sawing By-Products Properly</i>	
<i>Check Edger Before Operation</i>	
<i>Keep Persons Away</i>	
<i>Keep Hands Away</i>	
<i>Use Proper Maintenance Procedures</i>	
<i>Keep Safety Labels In Good Condition</i>	
<i>Safety Labels Description</i>	
 SECTION 3 OPERATION	 3-1
3.1 Pre-Operation Check	3-1
3.2 Control Overview	3-3
<i>Control Panel, EA3000</i>	
3.3 Edger Setup	3-6
<i>Tables and Saw Blades Alignment</i>	
3.4 Machine Start.....	3-13
 SECTION 4 EA3000 NETWORKS	 4-1
4.1 Auto Mode.....	4-7
4.2 Manual Mode.....	4-22
4.3 Cycle Restart	4-24
4.4 Service Mode.....	4-25
<i>PLC and Safety Controller Section</i>	
<i>LXM Servos Section</i>	
<i>Scanner Section</i>	
<i>ATV Drives Section</i>	
<i>DCS Section - Sensors/Limit switches/Valves</i>	
4.5 Alarm List.....	4-61
4.6 Messages Meaning	4-69
4.7 Attachments – Error Codes – Soft Starters, Drive Controllers, and Servos	4-71

Table of Contents

Section-Page

SECTION 5	MAINTENANCE AND ALIGNMENT (EDGER)	5-1
5.1	Lock-Out Procedure	5-1
5.2	General Maintenance Schedule	5-2
5.3	Common Troubleshooting Suggestions	5-3
5.4	Blade Drive Switches Alignment	5-4
	<i>Inner Switch Alignment</i>	
	<i>Outer Switch Alignment</i>	
5.5	Main Drive Belt Replacement	5-11
5.6	Adjusting the Edger Press Rollers	5-15
	<i>Adjusting the Infeed Press Roller</i>	
	<i>Adjusting the Outfeed Press Roller</i>	
5.7	Replacing the Blades	5-16
5.8	Tensioning the Chains and Belts	5-19
	<i>Main Drive Belt Tensioning</i>	
	<i>Drive Belt Tensioning</i>	
5.9	Lubrication and Cleaning	5-28
5.10	Blade Sharpening.....	5-29
5.11	Using the Blades.....	5-29
SECTION 6	SPECIFICATIONS	6-1
6.1	Overall Dimensions	6-1
6.2	EA3000 Edger Specifications.....	6-4

SECTION 1 SERVICING THE EDGER

1.1 Safety & General Information

Wood-Mizer is committed to providing you with the latest technology, best quality and strongest customer service available on the market today. We continually evaluate our customers' needs to ensure we're meeting current wood-processing demands. Your comments and suggestions are welcome.

The present documentation contains information that should be used when preparing the machine for operation, working with it and when servicing or repairing it, as well.

The EA3000 Edger is intended for sawing wood only. See Section Specifications for log size capacities of the machine. The machine must not be used for any other purposes such as cutting ice, metal or any other materials.

Using the machine correctly, you will obtain a high degree of accuracy and efficiency.

The Edger should be operated only by an adult (over 18 year old) who has read and understood the entire operator's manual. The Edger is not intended for use by or around children.

The machine is built to be durable and easy to operate and maintain.

1.2 If You Need To Order Parts

From Europe call our European Headquarters and Manufacturing Facility in Kolo, Nagórna Street, Poland at **+48-63-2626000**. Please have the vehicle identification number and your customer number ready when you call. Wood-Mizer will accept these methods of payment:

- Visa, Mastercard, or Discover
- COD
- Prepayment
- Net 15 (with approved credit)

Be aware that shipping and handling charges may apply. Handling charges are based on size and quantity of order. In most cases, items will ship on the day they are ordered. Second Day and Next Day shipping are available at additional cost.

1.3 Customer and Edger Identification

Each Wood-Mizer Edger has its own serial number. In addition, when you pick up your edger, you will receive a customer number. These two numbers will help expedite our service to you. Please locate them now and write them below so you have quick, easy access to them.

See Figure 1-1 An identification plate of the EA3000 Edger is described below.

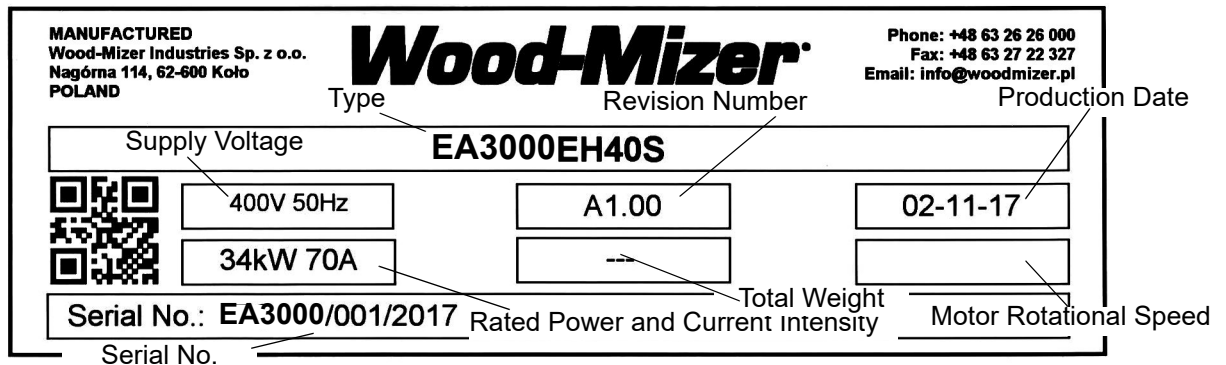


FIG. 1-1

See Figure 1-2 See the following figures for the serial number location.

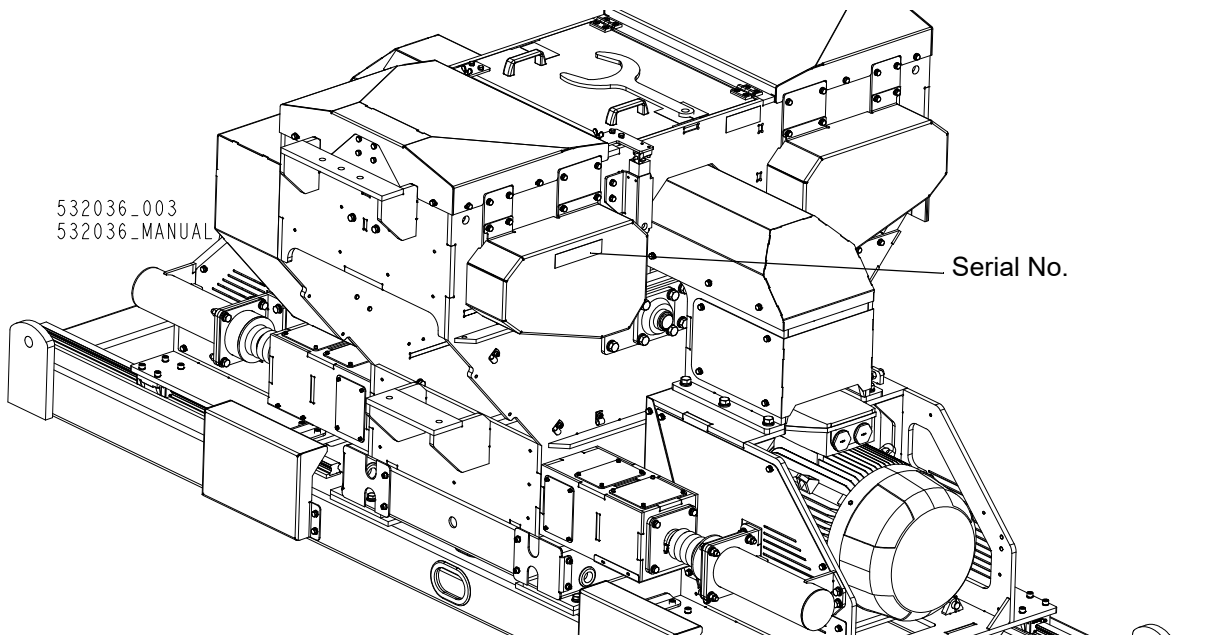


FIG. 1-2

1.4 If You Need Service

From Europe call our European Headquarters and Manufacturing Facility in Koło, Nagórna Street, Poland at **+48-63-2626000**. Ask to speak with a Customer Service Representative. Please have the vehicle identification number and your customer number ready when you call. The Service Representative can help you with questions about the operation and maintenance of your moulder. He also can schedule you for a service call.

Office Hours:

Country	Monday - Friday	Saturday	Sunday
USA	8.00 am - 5.00 pm	8.00 am - 12.00 pm	Closed
Poland	7.00 am - 04:00 pm	Closed	Closed

1.5 EA3000 Edger Components

See Figure 1-3 The major components of the EA3000 Edger are shown below.

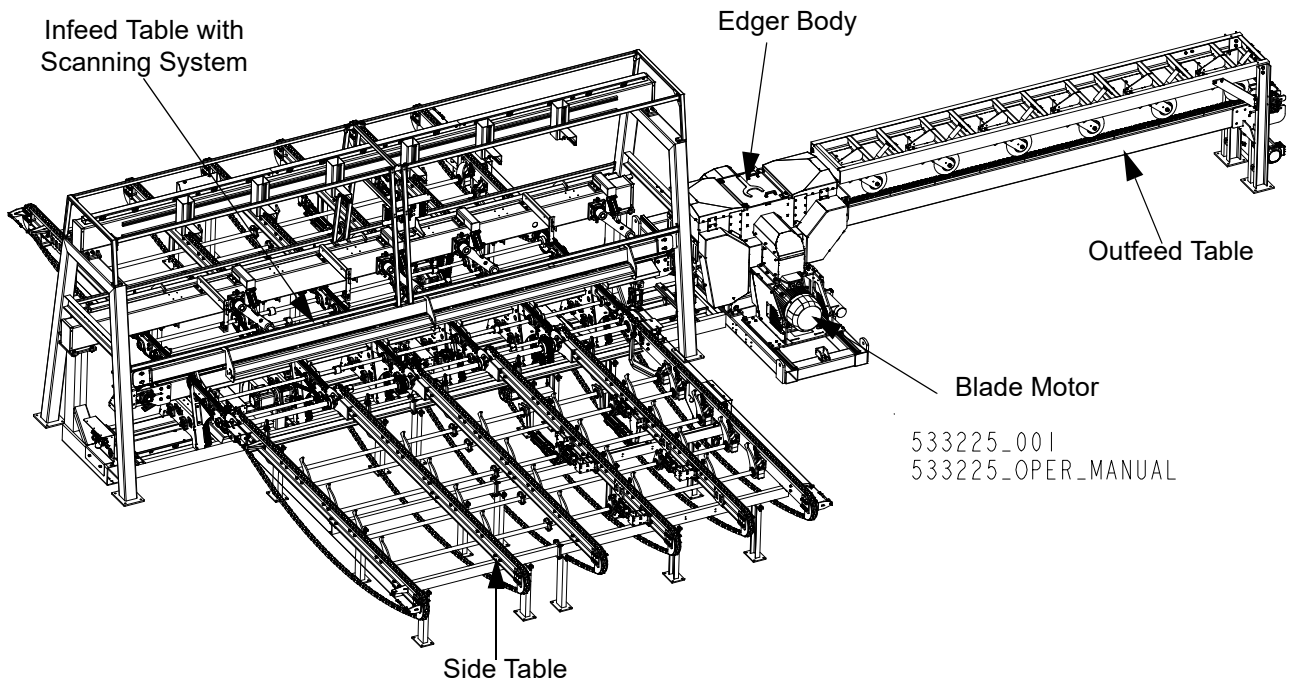


FIG. 1-3 EA3000

SECTION 2 SAFETY

2.1 Safety Symbols

The following symbols and signal words call your attention to instructions concerning your personal safety. Be sure to observe and follow these instructions.



DANGER! indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



WARNING! suggests a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION! refers to potentially hazardous situations which, if not avoided, may result in minor or moderate injury to persons or equipment.



IMPORTANT! indicates vital information.

NOTE: gives helpful information.



Warning stripes are placed on areas where a single decal would be insufficient. To avoid serious injury, keep out of the path of any equipment marked with warning stripes.

2.2 Safety Instructions

NOTE: ONLY safety instructions regarding personal injury are listed in this section. Caution statements regarding only equipment damage appear where applicable throughout the manual.

Observe Safety Instructions



IMPORTANT! Read the entire Owner's Manual before operating the Edger. Take notice of all safety warnings throughout this manual and those posted on the machine. Keep this manual with this machine at all times, regardless of ownership.

Also read any additional manufacturer's manuals and observe any applicable safety instructions including dangers, warnings, and cautions.

Only persons who have read and understood the entire operator's manual should operate the Edger. The Edger is not intended for use by or around children.

IMPORTANT! It is always owner's responsibility to comply with all applicable federal, state and local laws, rules and regulations regarding the ownership and operation of your Wood-Mizer Edger. All Wood-Mizer owners are encouraged to become thoroughly familiar with these applicable laws and comply with them fully while using the Edger.

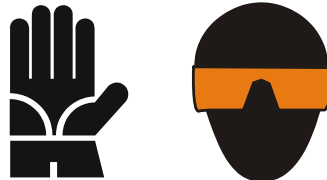


Wear Safety Clothing



WARNING! Secure all loose clothing and jewelry before operating the Edger. Failure to do so may result in serious injury or death.

WARNING! Always wear safety goggles and gloves when replacing the blade. Changing blades is safest when done by one person! Keep all other persons away from work area when changing a blade. Failure to do so may result in serious injury.



WARNING! Always wear eye, ear, respiration, and foot protection when operating or servicing the machine.



Keep Edger and Area Around Edger Clean



DANGER! Maintain a clean and clear path for all necessary movement around the Edger and lumber stacking areas. Failure to do so may result in serious injury.

Dispose of Sawing By-Products Properly



IMPORTANT! Always properly dispose of all sawing by-products, including sawdust and other debris.

CAUTION! The Edger’s work-stand should be equipped with a 4 kg or bigger dry powder extinguisher.

Check Edger Before Operation



DANGER! Make sure all guards and covers are in place and secured before operating the Edger. Failure to do so may result in serious injury.



WARNING! Always turn off the motor to stop the blade whenever the Edger is not in use. Failure to do so may result in serious injury.

WARNING! Do not for any reason adjust the motor/engine drive belts with the machine running. Doing so may result in serious injury.

Keep Persons Away



DANGER! Keep all persons out of the path of moving equipment and boards when operating the Edger. Failure to do so may result in serious injury.

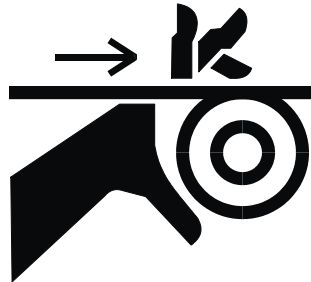
Keep Hands Away



DANGER! Engine components can become very hot during operation. Avoid contact with any part of a hot engine. Contact with hot engine components can cause serious burns. Therefore, never touch or perform service functions on a hot motor. Allow the motor to cool sufficiently before beginning any service function.

DANGER! Moving Parts Can Crush and Cut. Keep hands clear. Make sure all guards and covers are in place and secured before operating or towing the Edger. Failure to do so may result in serious injury.

DANGER! Always be aware of and take proper protective measures against rotating shafts, pulleys, fans, etc. Always stay a safe distance from rotating members and make sure that loose clothing or long hair does not engage rotating members resulting in possible injury.



WARNING! Always shut off the motor/engine and allow all moving parts to come to a complete stop before removing any guards or covers. Do NOT operate with any guard or cover removed.

WARNING! Kickback hazard. Stay clear of area during operation. Failure to do so may result in serious injury.



DANGER! Before changing the blades or performing any service to the machine, disconnect the power cord from the electric box.

IMPORTANT! The guards for the blades and drive are equipped with safety switches. As soon as you open the cover, the motor will get turned off and all moving parts will stop spinning. The safety switches should always be in proper working condition.

IMPORTANT! The cutting width setting system is equipped with two safety switches.

Use Proper Maintenance Procedures



DANGER! Make sure all electrical installation, service and/or maintenance work is performed by a qualified electrician and is in accordance with applicable electrical codes.

DANGER! Hazardous voltage inside the electric disconnect box, starter box, and at the motor can cause shock, burns, or death. Disconnect and lock out power supply before servicing! Keep all electrical component covers closed and securely fastened during Edger operation.



WARNING! Consider all electrical circuits energized and dangerous.

WARNING! Disconnect and lock out power supply before servicing! Failure to do so may result in serious injury.

WARNING! Never assume or take the word of another person that the power is off; check it out and lock it out.

WARNING! Do not wear rings, watches, or other jewelry while working around an open electrical circuit.



IMPORTANT! The Edger is equipped with two emergency stop buttons: one at the front, second at the rear control panel. They are used to immediately stop the motor and/or the Edger in hazardous situations. The e-stop buttons should always be in proper working condition.

Keep Safety Labels In Good Condition



IMPORTANT! Always be sure that all safety warning decals are clean and readable. Replace all damaged safety decals to prevent personal injury or damage to the equipment. Contact Wood-Mizer Customer Service or the Wood-Mizer distributor in your area to order a new decal.

IMPORTANT! If replacing a component which has a safety decal affixed to it, make sure the new component also has the safety decal affixed.

Safety Labels Description

See table 2-1 See the table below for descriptions of the safety labels placed on the machine.

TABLE 2-1

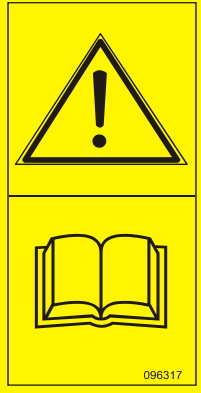

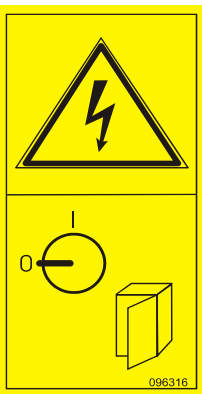




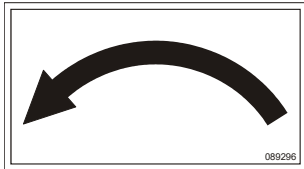
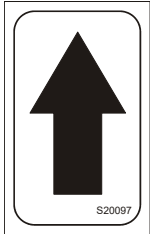
Decal View	Decal No.	Description
	096317	CAUTION! Read thoroughly the operator's manual before operating the Edger. Observe all safety instructions and rules when operating.
	099220	Close all guards and covers before starting the machine.
	096316	Do not open or close the electric box when the switch is not in the "0" position.

TABLE 2-1

	<p>096319</p>	<p>Always disconnect the power cord before opening the electric box.</p>
	<p>099540</p>	<p>CAUTION! Toothed gear - keep persons away!</p>
	<p>524992</p>	<p>Decal, kickback hazard warning (pictogram)</p>
	<p>S12004G</p>	<p>Always wear safety goggles when operating the Edger.</p>

TABLE 2-1

	<p>S12005G</p>	<p>Always wear protective ear muffs when operating the Edger.</p>
	<p>501465</p>	<p>CAUTION! Always wear safety boots when operating the edger!</p>
	<p>501467</p>	<p>Lubrication point</p>
	<p>P85070</p>	<p>CE safety certification</p>
	<p>089296</p>	<p>Rotation direction</p>
	<p>S20097</p>	<p>Motor rotation direction.</p>

SECTION 3 OPERATION

3.1 Pre-Operation Check

Prior to operating the Edger; always perform these basic checks:

1. Make sure the Edger is level. Secure the edger to the ground. A concrete foundation and 16mm anchored bolts are recommended.



CAUTION! Make sure the edger is level before operation. Failure to do so can and will affect machine operation and wear life.

2. Make sure the tables are level with the rest of the Edger.

Be sure the anti-kickback fingers are in proper working condition.



WARNING! Always ensure that there is a sharp point on the anti-kickback fingers before each use of the Edger.

Be sure the anti-kickback fingers are free from obstruction and are in their downward position with the lever released. Failure to do so may result in serious injury.



WARNING! In case of a drive belt break, wait until all rotating parts are completely stop. Failure to do so may result in serious injury or death.



WARNING! If edger is equipped with an optional sawdust removal belt, use extreme care not to trip over it.

See figure 3-1.



WARNING! Make sure anti-kickback lever (A) are in working position (in the notch marked "B"). Failure to do so may result in serious injury.

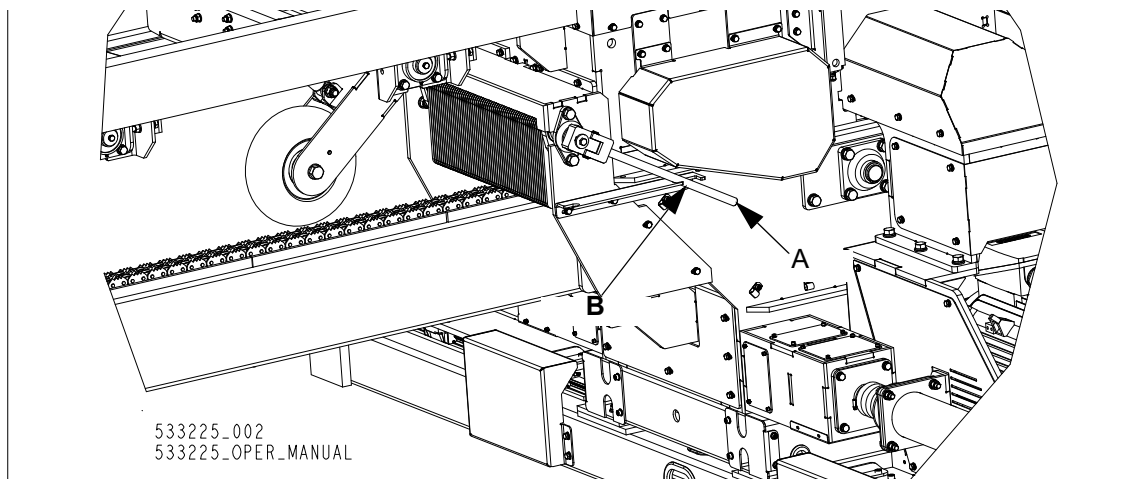




FIG. 3-1


3. Be sure all guards and covers are in place and secured.

 **DANGER!** Make sure all guards and covers are in place and secured before operating or transporting the Edger. Failure to do so may result in serious injury.

4. Also be aware that the blades are spinning whenever the motor is ON. Always turn off the motor to stop the blade whenever the Edger is not in use and ensure that all parts have stopped moving before removing any covers or guards.

 **WARNING!** Always shut off the motor and allow all moving parts to come to a complete stop before removing any guards or covers. Do NOT operate with any guard or cover removed.

WARNING! Always turn off the motor to stop the blade whenever the Edger is not in use Failure to do so may result in serious injury.

 **IMPORTANT!** If at any time you need to immediately stop the motor and/or Edger operation, press the Emergency Stop button located on the front and back control panel. To re-start the machine twist and release the emergency stop button.

See figure 3-2.

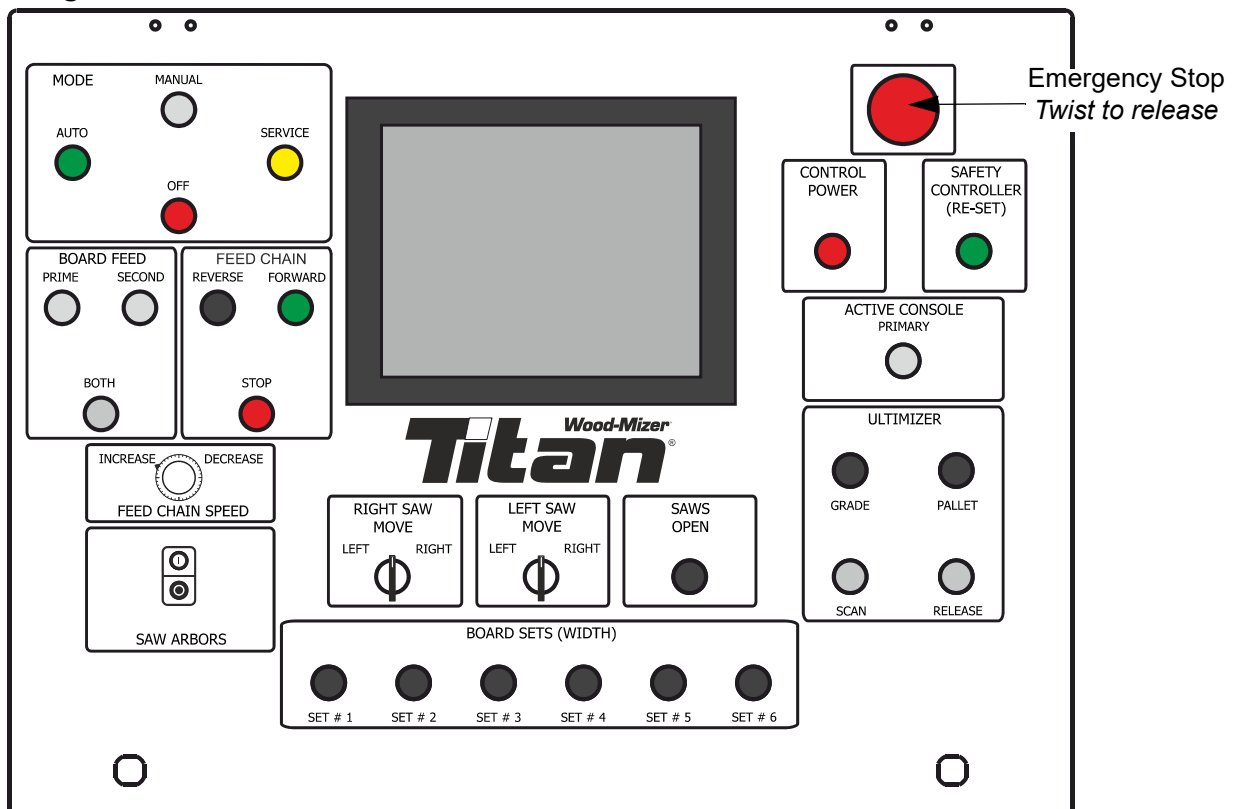


FIG. 3-2 EA3000 EMERGENCY STOP LOCATION

3.2 Control Overview

Control Panel, EA3000

See figure 3-3. The control panel includes touch display, buttons and switches. Its functions are described below.

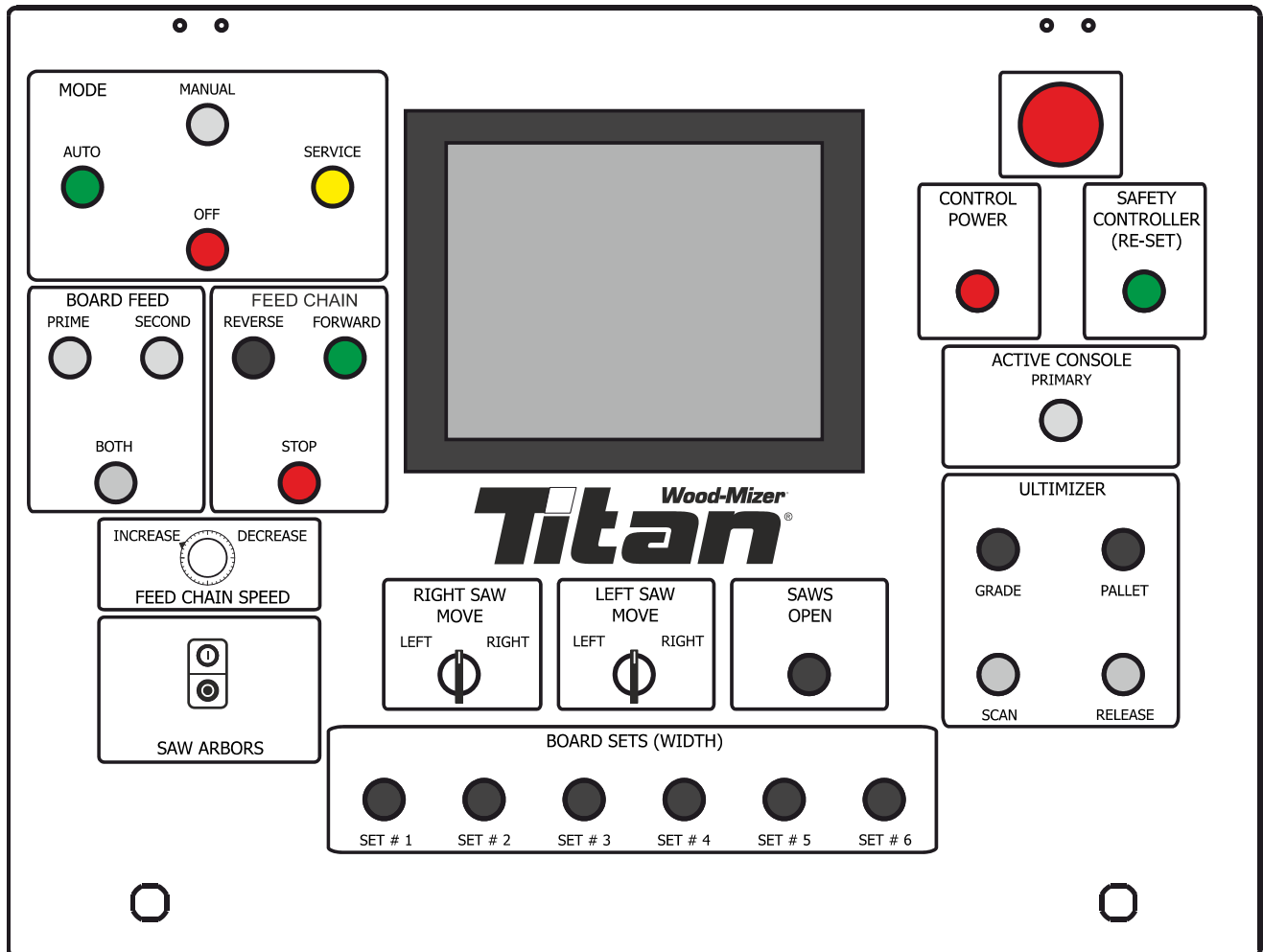


FIG. 3-3 SWITCHES ON THE CONTROL PANEL

1. MODE

AUTO - system is working in automatic mode. Log position, saw blades position and feed speed are set-up by the controller.

MANUAL - all parameters are set-up by the operator.

SERVICE - mode used by the service technicians.

OFF - turns off the controller

2. BOARD FEED

Starts side tables. PRIME button starts longer side table, SECOND button starts shorter side table.

BOTH button starts longer and shorter side tables.

3. FEED CHAIN

Starts and stops the feed chain. Press the FORWARD button to turn on the feed chain in forward direction, press the REVERSE button to change the feed direction to reverse. STOP button stops the feed chain.

4. FEED CHAIN SPEED

The feed chain speed switch controls the speed at which the feed chain moves. Turn the switch right to increase the speed, turn left to reduce the speed.

5. SAW ARBORS

Buttons allow to start (using white button) and stops (using black button) the saw blades.

6. RIGHT SAW MOVE

Allows to manually move the right saw blade in left or right direction.

7. LEFT SAW MOVE

Allows to manually move the left saw blade in left or right direction.

8. SAWS OPEN

Allow to move the saw blades to maximal width.

9. BOARD SETS (WIDTH)

Allows to pre-set 6 values of the board width to the buttons form 1 to 6.

10. EMERGENCY STOP

Push the emergency stop button to stop the blade and the track feed motors. Turn the emergency stop clockwise to release the stop. The machine will not restart until the emergency stop is released.

11. CONTROL POWER

Turns on the controller.

12. SAFETY CONTROLLER (RE-SET)

Resets the safety controller.

13. ACTIVE CONSOLE, PRIMARY/SECONDARY

Switches the active operator's console from primary to second and from second to primary.

14. ULTIMIZER

Grade - activates controller algorithm for grade sawing (sawing technique which maximize the yield).

Pallet - activates controller algorithm for cutting the material to dimensions suitable for pallet industry.

Scan - forces board scanning in manual mode.

Release - forces releasing the boards from scanning area.

3.3 Edger Setup



IMPORTANT! Before starting to use the Edger you have to meet the following conditions:

- Set up the Edger on firm, level ground.
- Under roof, the Edger should always be operated with the sawdust collection system.
- The edger must not be operated outdoors when it is raining/snowing and in case of rain/snow the edger must be stored under a roof or indoors.
- The machine can be operated in temperature range from -15°C to 40°C only.
- Illuminance at operator's position must be 300lx .¹
- The Edger's operator positions (two operators) is shown below.

See figure 3-4.

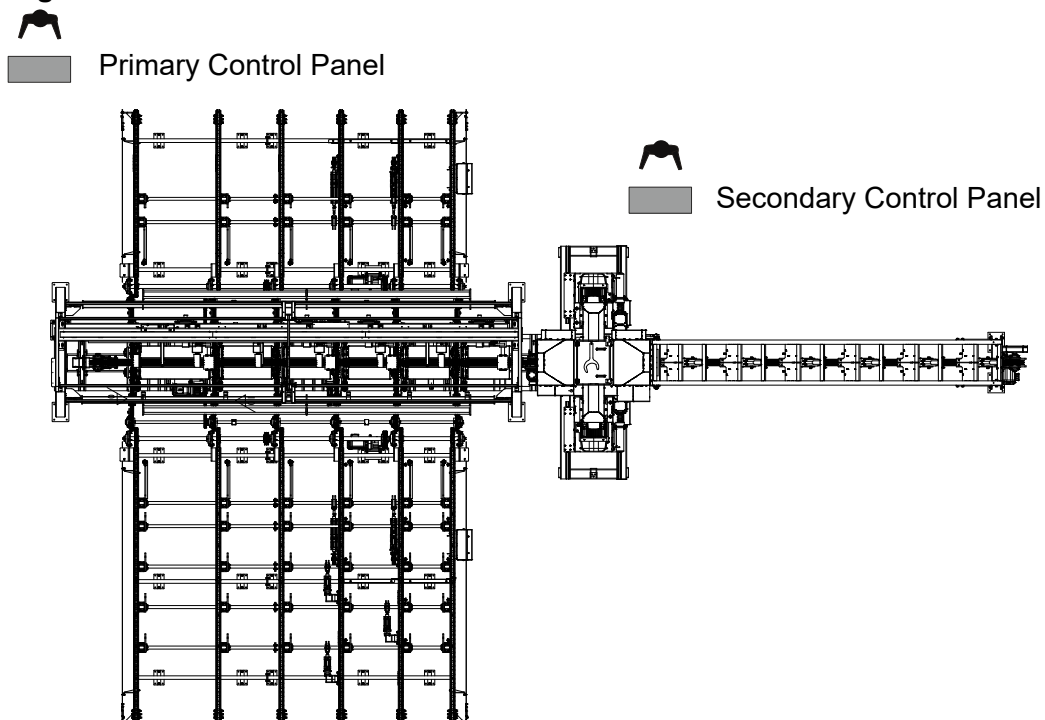


FIG. 3-4

- Have a qualified electrician install the power supply (according to EN 60204 Standard). The

¹ The light source can not cause stroboscopic effect. (PN-EN 12464-1:2012)

power supply must meet the specifications given in the table below.

3-Phase Volts	Fuse Disconnect bezpiecznikowy	Recommended Wire Size
400 VAC	C100	4 x16mm ² , up to 15 m long

TABLE 3-1



IMPORTANT! It is required that a 30mA Ground Fault Interrupter (GFI) be used.



IMPORTANT! When starting the machine for the first time, check that blade rotation direction is as indicated by the arrow located on the blades covers. If the rotation direction is incorrect, invert the phases in the phase inverter in the power socket (electric box). Setting the phases in the phase inverter correctly will ensure correct rotation directions of all sawmill motors.

- The Edger can be lifted using the forklift or crane. The forklift or crane must be rated for at least 3000kg (4409lb.). Attach four ropes (rated for 1000kg each) of equal length to the lifting brackets shown below.

See figure 3-5.

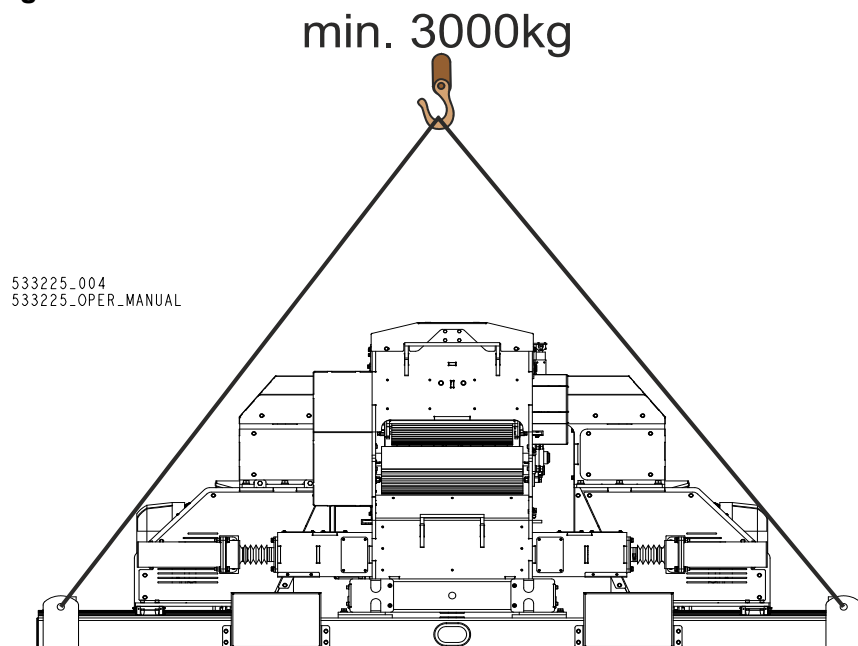


FIG. 3-5

Tables and Saw Blades Alignment

- Level the Edger body in length and width directions using spirit level.
- Level the infeed and outfeed tables in length and width directions using spirit level.
- Mount two string brackets (A) supplied to the front end and back end of the feed tables. Attach the string (B) to the brackets. Make sure that the spindle on the bracket is set in the middle and the distance (C) is the same on both brackets.

See figure 3-6.

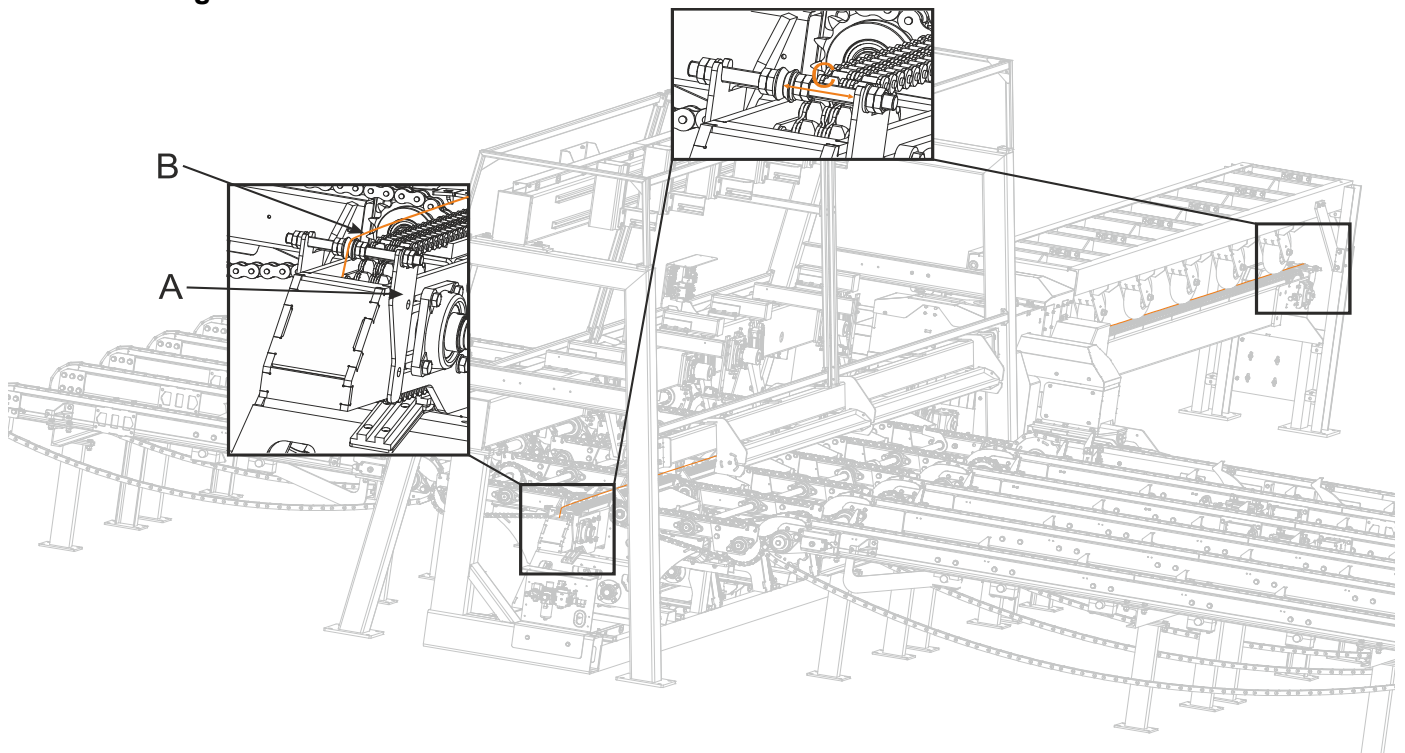


FIG. 3-6

- Adjust the infeed and outfeed tables in horizontal plane. Check the distances between the string and edge of the feed chain marked "A" and "B" in four places marked on the drawing below. Move the end of infeed and/or outfeed table so all four dimensions are equal. After that check the distance between saw blades and the string marked as "C" and "D". These distances should be the same.

See figure 3-7.

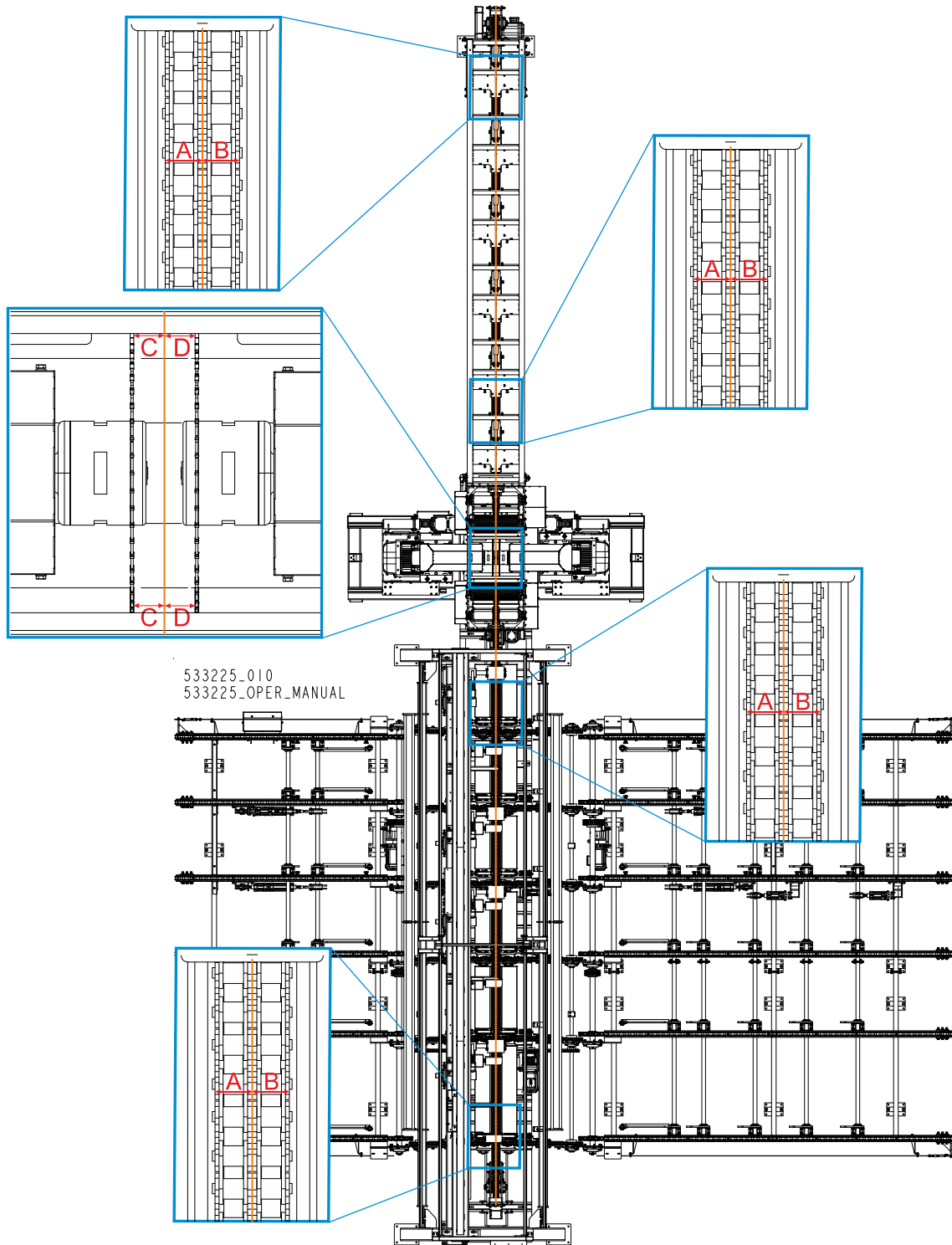
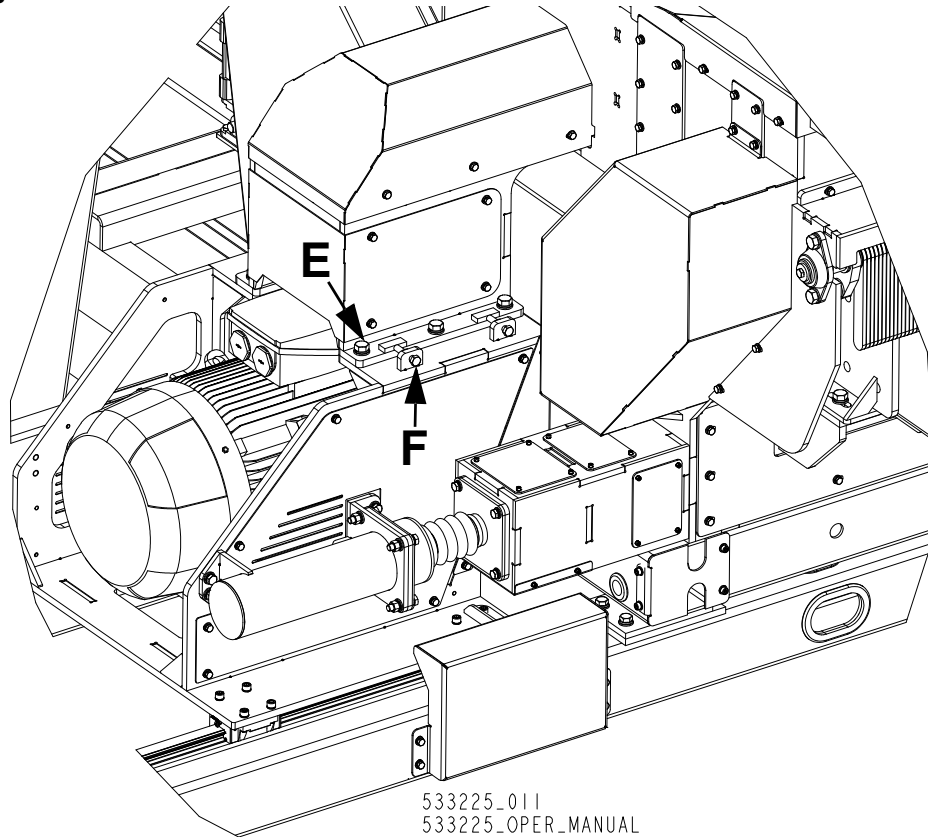


FIG. 3-7

- If the distances “C” and “D” are not the same, you need to re-adjust the moving arbor. To do this, loosen six mounting bolts “E” and adjust the moving arbor using bolts “F”.

See figure 3-8.



533225_011
533225_OPER_MANUAL

FIG. 3-8

- Adjust the infeed and outfeed tables in vertical plane. Check the distances marked below as “A”, “B”, “C”, “D”, “E” and “F” between the string and edge of the feed chain teeth. All distances should be the same. Place the shims under the legs of the infeed and/or outfeed table if necessary.

See figure 3-9.

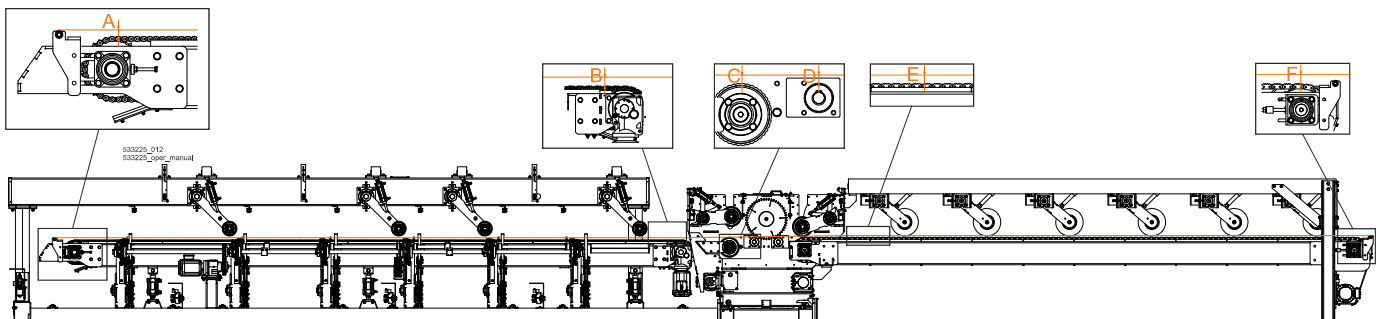


FIG. 3-9

3

Operation

Tables and Saw Blades Alignment

- Check if the hold-down rollers on the infeed table are perpendicular to the table. Measure the distances marked below as “A”, “B”. They both should equal 12mm. If not, use the adjustment bolts “C” to re-adjust the roller.

See figure 3-10.

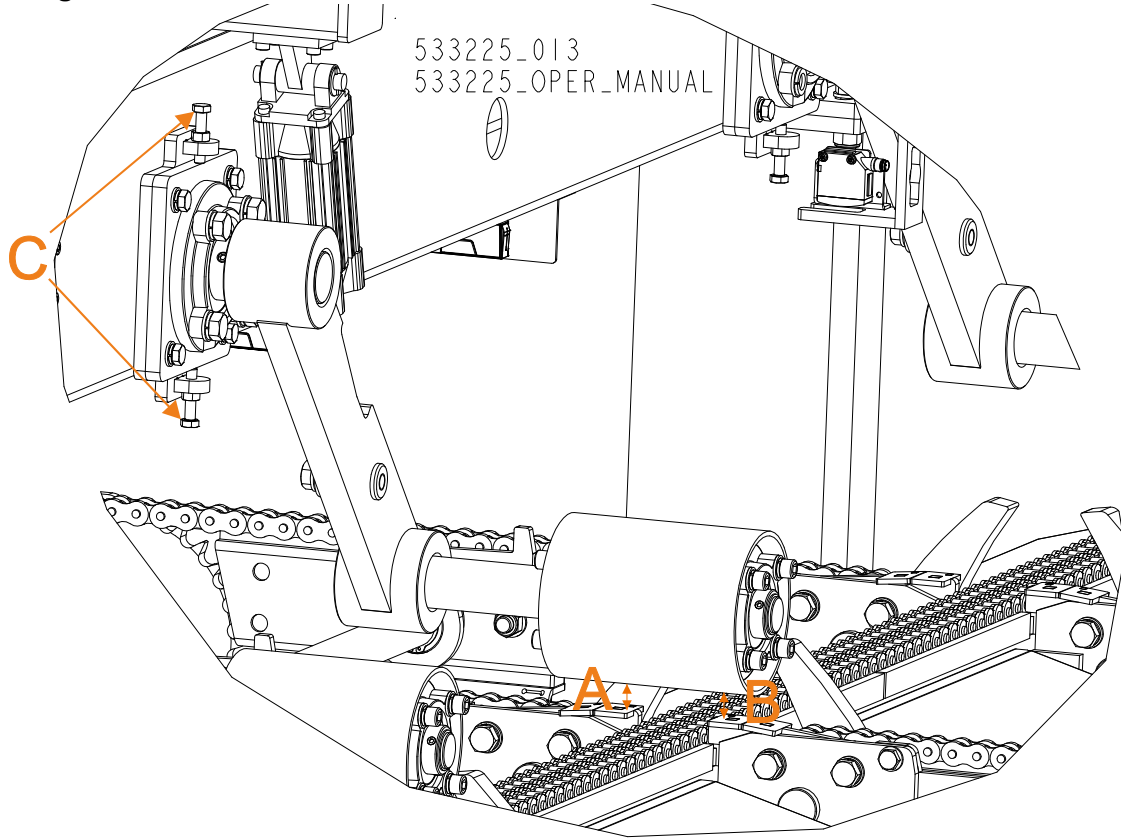


FIG. 3-10

- Check if the hold-down rollers “A” on the infeed table are in line with the feed chain. If necessary, use the adjustment bolts “B” to re-adjust the roller.

See figure 3-11.

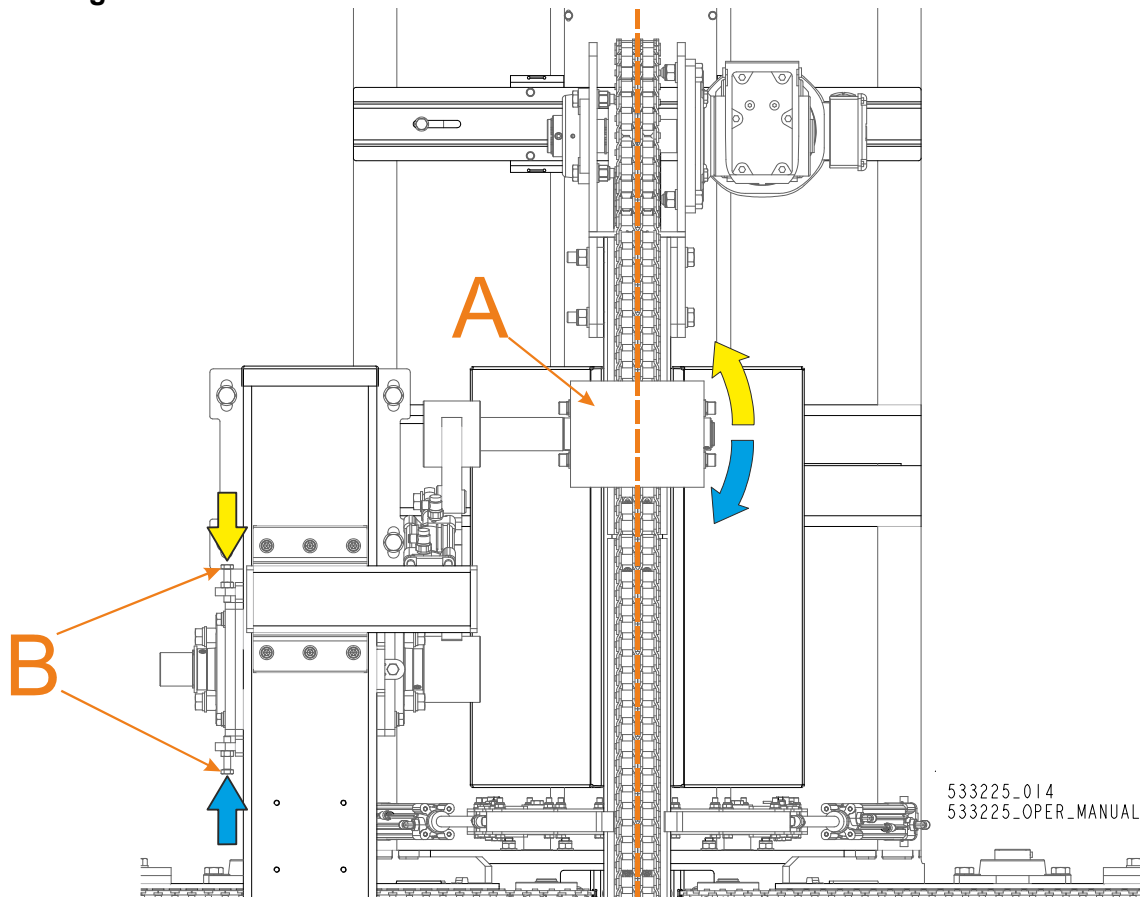


FIG. 3-11

3.4 Machine Start



DANGER! Before starting the machine, perform these steps to avoid injury and/or damage to the equipment:

- Close the blade housing covers and replace any guards removed for service.
- Check all conveyors table and remove all loose objects such as tools, wood, etc.
- Make sure all persons are a safe distance from the machine.
- Check that the emergency stops are released.

NOTE: The machine will not start if either of the emergency stops is on.

Before starting the blades, check that the main power switch on the electric box is on.

See figure 3-12.

1. To turn the Edger's power on, turn the main switch to the ON position.
2. Press the CONTROL POWER button to turn on the controller.
3. Choose the control mode using AUTO or MANUAL button.
4. Choose the ultimizer mode using GRADE or PALLET button.

5. Start the blade motors. To do this, use SAW ARBORS button.

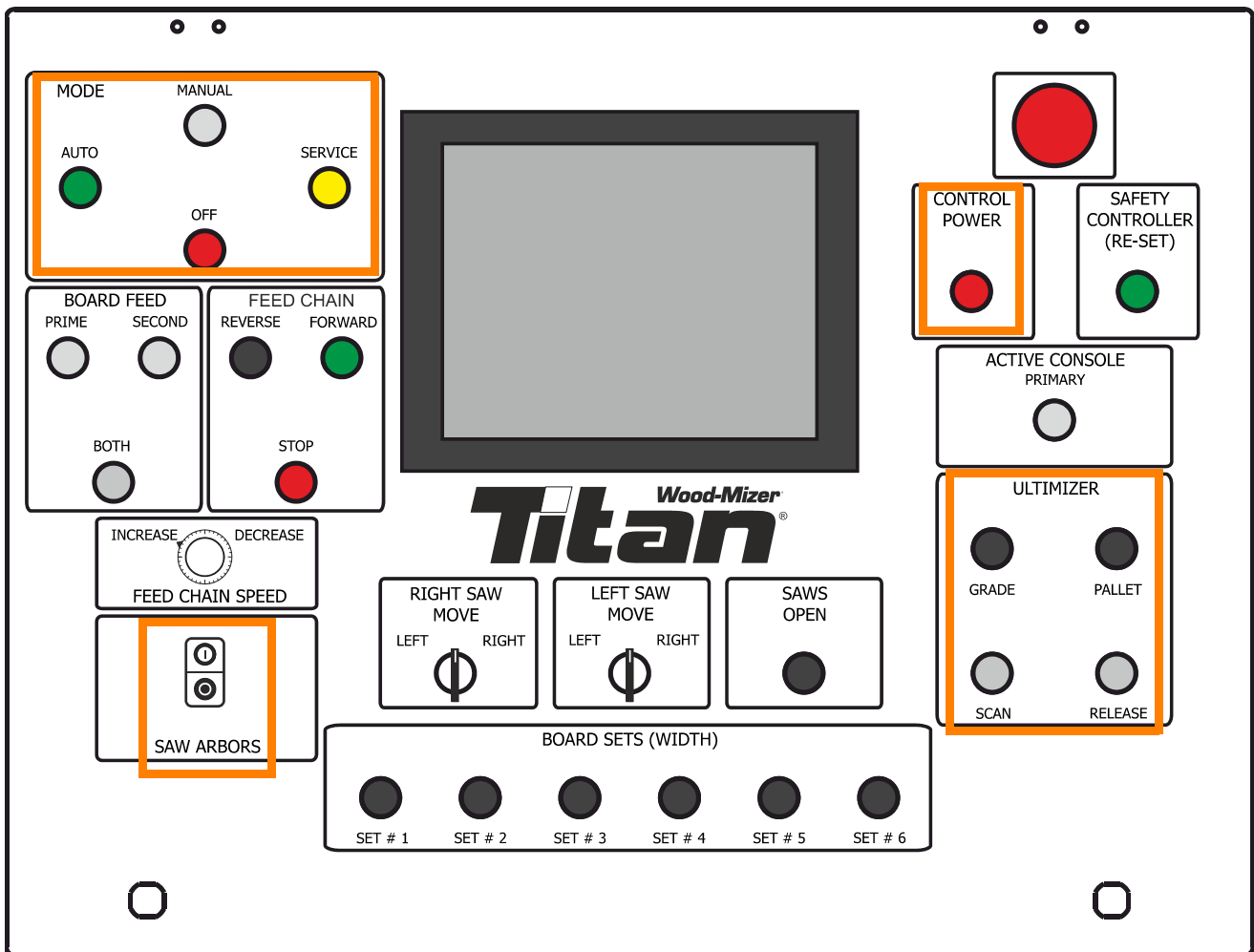


FIG. 3-12 SWITCHES ON THE CONTROL PANEL

To stop the blade motor, press the “0” button shown on the figure above. The motor also may be stopped by pushing the emergency stop button.

When working in MANUAL mode, the speed at which the feed chain is working is adjustable by dial located on the control panel, allows the operator to adjust the feed rate from 0 to ca. 678 ft per minute.

Turn the switch clockwise to increase the feed rate, counterclockwise to slow the feed rate down.

Factors determining what feed rate you can use include:

- Material thickness.
- Hardness of material to be cut. Some woods that are seasoned or naturally very hard will require slower feed rates.
- Sharpness of blades. Dull or improperly sharpened blades will require slower feed rates than sharp and properly maintained blades.

SECTION 4 EA3000 NETWORKS

Once the power has been turned on, the following screen will appear on the HMI panel.



FIG. 4-1

Either the ACTIVE CONSOLE PRIMARY or the ACTIVE CONSOLE SECONDARY button needs to be pressed on the console, depending on which console the operator is at.

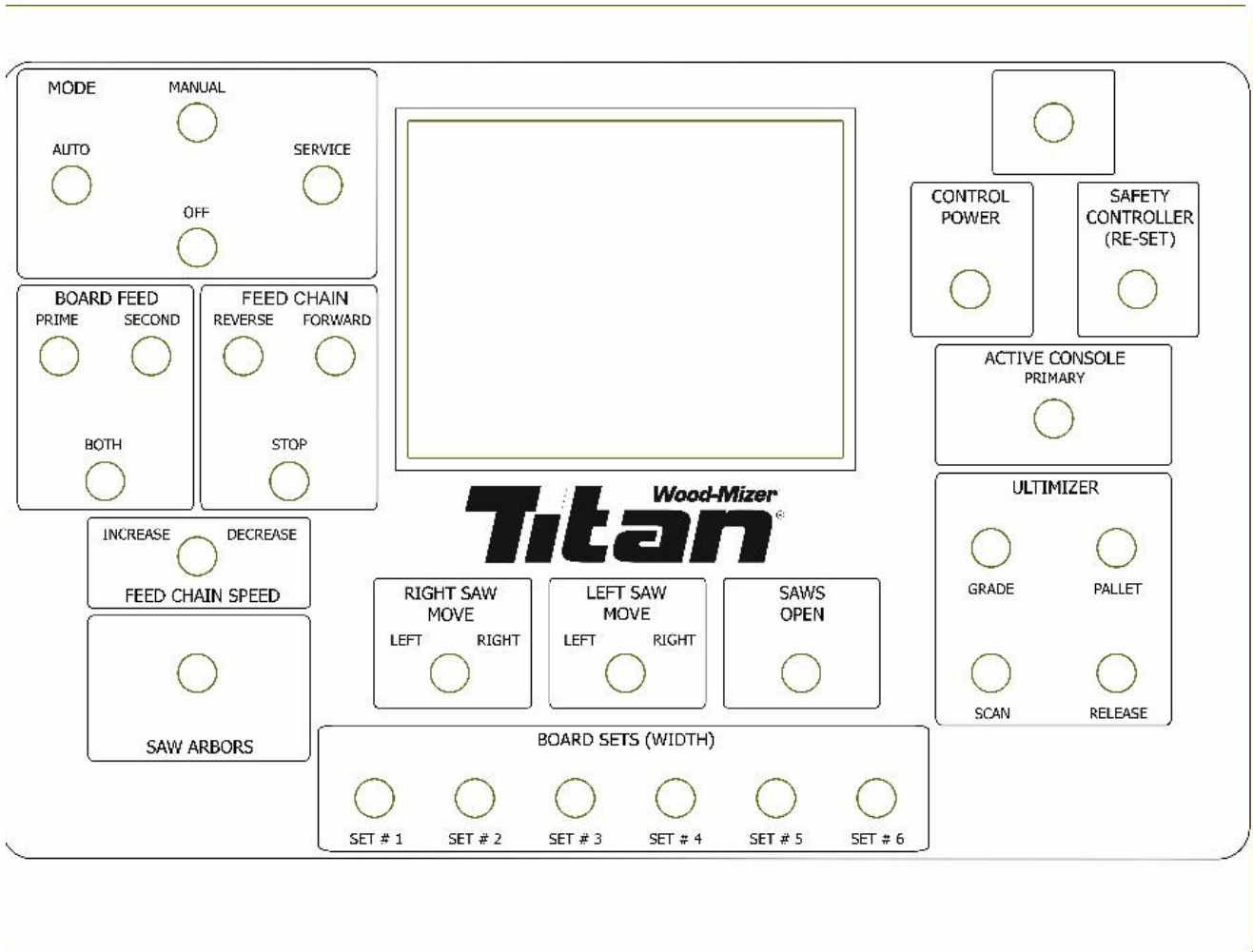


FIG. 4-2

At this point only one console is active. It does not concern the E-Stop emergency buttons.

After that, a safety controller needs to be reset. The safety controller monitors all the devices of the emergency stop (buttons, rope switches) and the interlock safety switch on the cover of the edger.

To reset the safety controller, the SAFETY CONTROLLER RE-SET button needs to be pressed. After that, the button should be lit green. If it is not, you need to check which safety function is active. In order to do so, you need to press the SERVICE button in the MODE section.

The following screen will appear on the HMI panel.

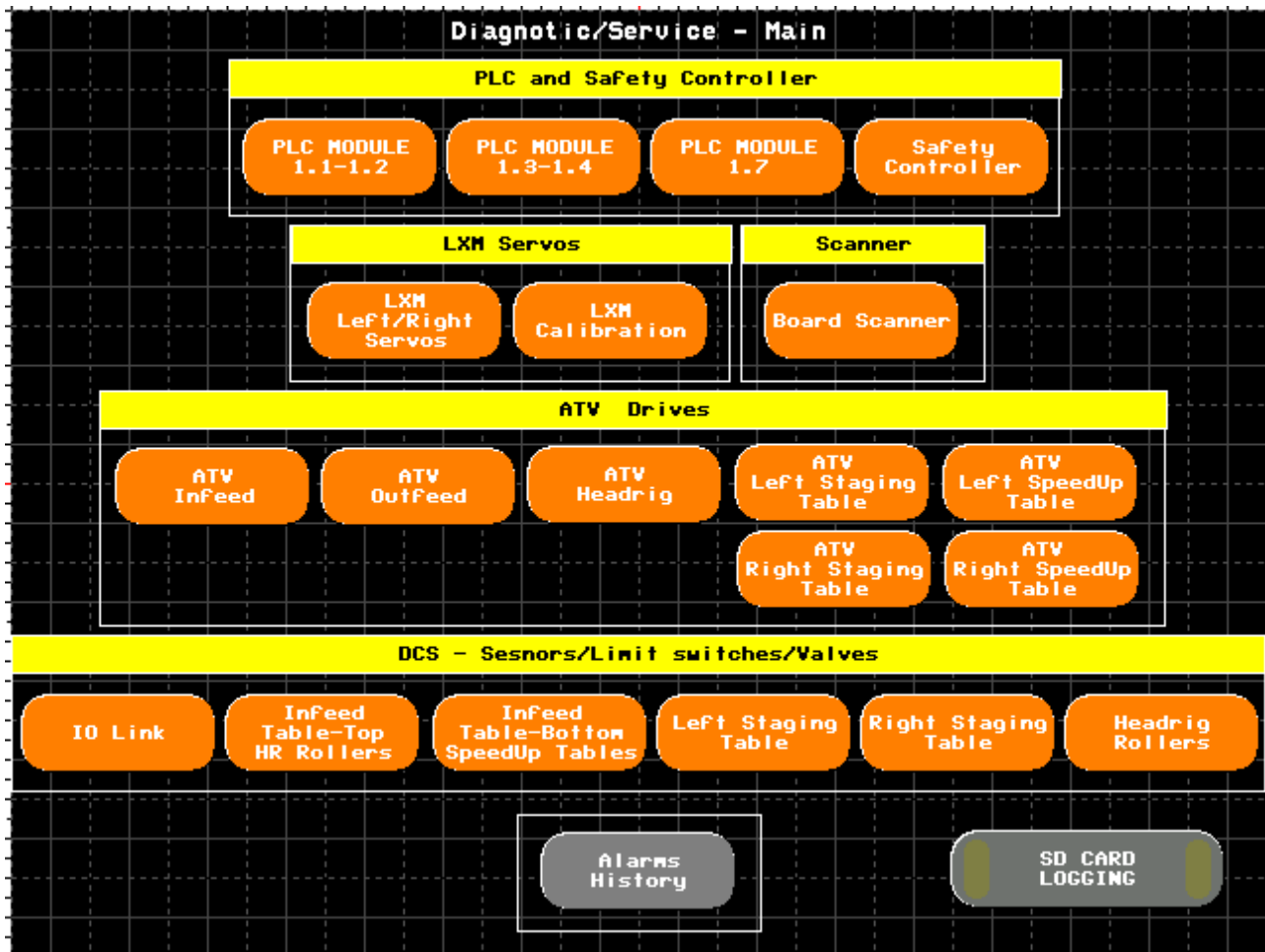


FIG. 4-3

The SD CARD LOGGING button is used for saving the chosen cutting parameters on a SD card. The SD card is placed in a slot in the PLC controller located in the main electrical box.

The logging cycle involves the part of the process that starts with lifting the infeed table and ends after the infeed table is lowered.

The following parameters are logged:

- date,
- time,
- board counter,
- current power of the left motor,
- current power of the right motor,

- the left servo position,
- the right servo position,
- the pre-set feed speed,
- the current feed speed,
- the infeed table motor current,
- the edger feed motor current,
- the outfeed table motor current,
- the operating mode: Auto, Manual,
- board thickness read
- the potentiometer on indicator in the Auto mode,
- the constant speed mode on indicator in the Auto mode,
- the current value of the multiplication factor for calculated cutting speed.

In the PLC and Safety Controller section, the Safety Controller button needs to be pressed:

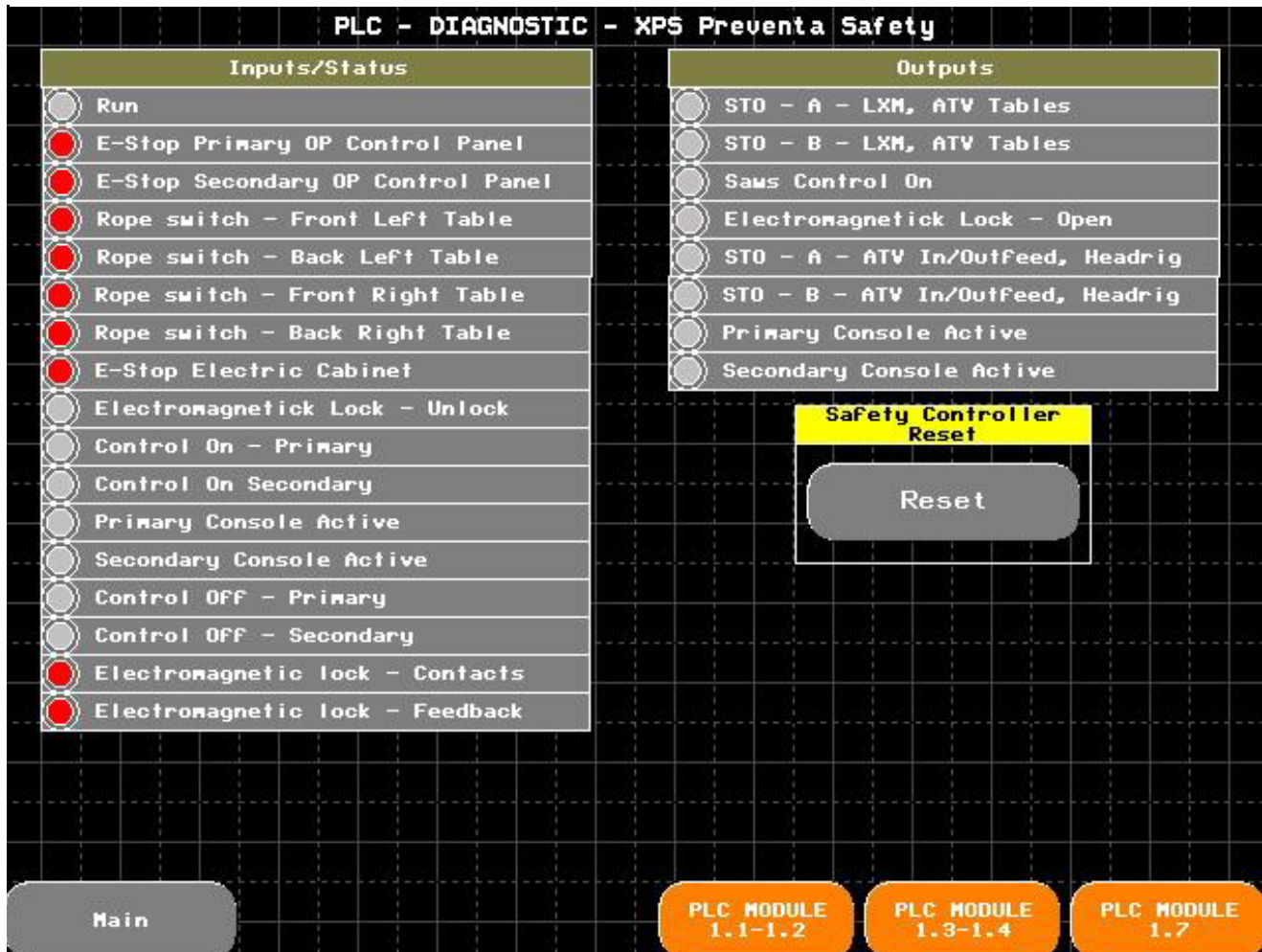


FIG. 4-4

In the left part of the screen, the line with a check light lit red needs to be localized.

Localization of the emergency stop devices:

E-Stop Primary OP Control Panel	Emergency stop button - OP Control Panel - Primary
E-Stop Secondary OP Control Panel	Emergency stop button - OP Control Panel - Secondary
Rope switch - Front Left Table	Rope switch - Left table - Front
Rope switch - Back Left Table	Rope switch - Left table - Back
Rope switch - Front Right Table	Rope switch - Right table - Front
Rope switch - Back Right Table	Rope switch - Right table - Back
E-Stop Electric Cabinet	Emergency stop button - Electric Cabinet
Electromagnetic lock – Contacts	Interlock safety switch - Moving arbor
Electromagnetic lock - Feedback	Upper cover interlock feedback contact - Moving arbor

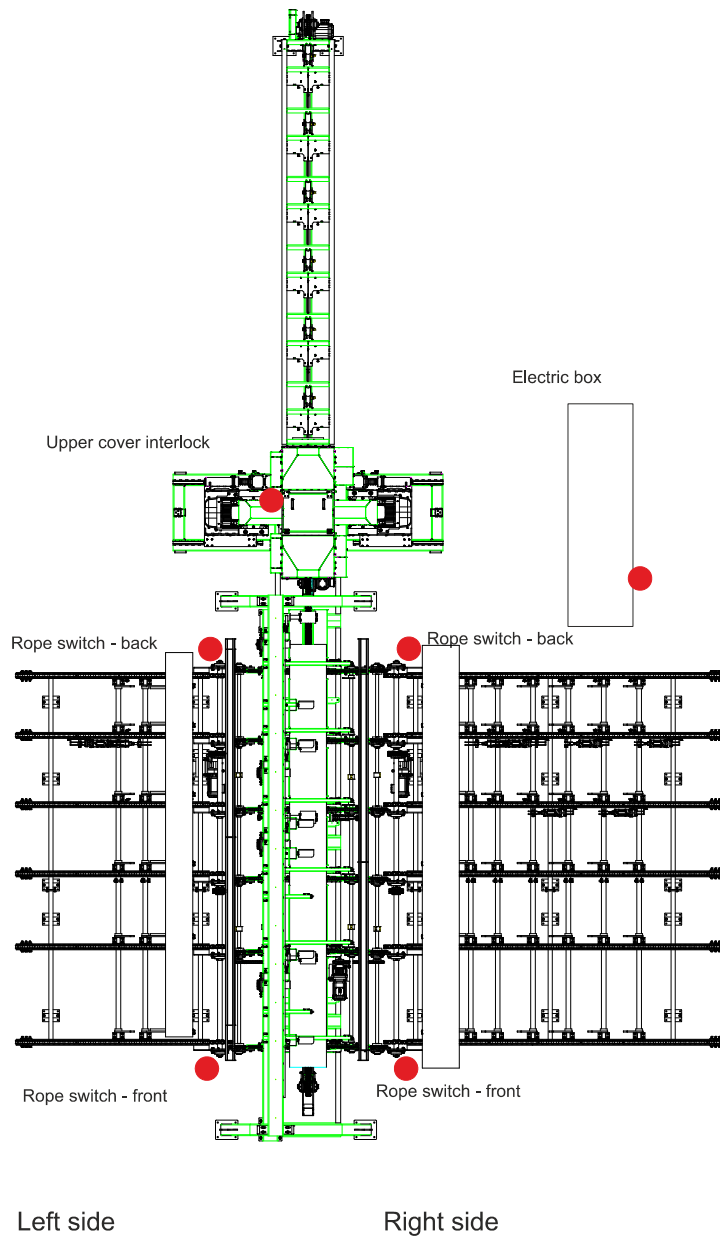


FIG. 4-5

Once the active safety device has been localized, make sure whether the entire area is safe, deactivate the device, and press again the SAFETY CONTROLLER RE-SET button on the OP control panel.

The control circuits are ready for operation. Then select the operating mode - the MODE section.

- AUTO,
- MANUAL,

- SERVICE.

To turn off the operating mode selection press the OFF button.

Then turn on the main motors by pressing the START button in the SAW ARBORS section.

After that, press the FORWARD button in the FEED CHAIN section that will start the feeds on all the tables.

4.1 Auto Mode

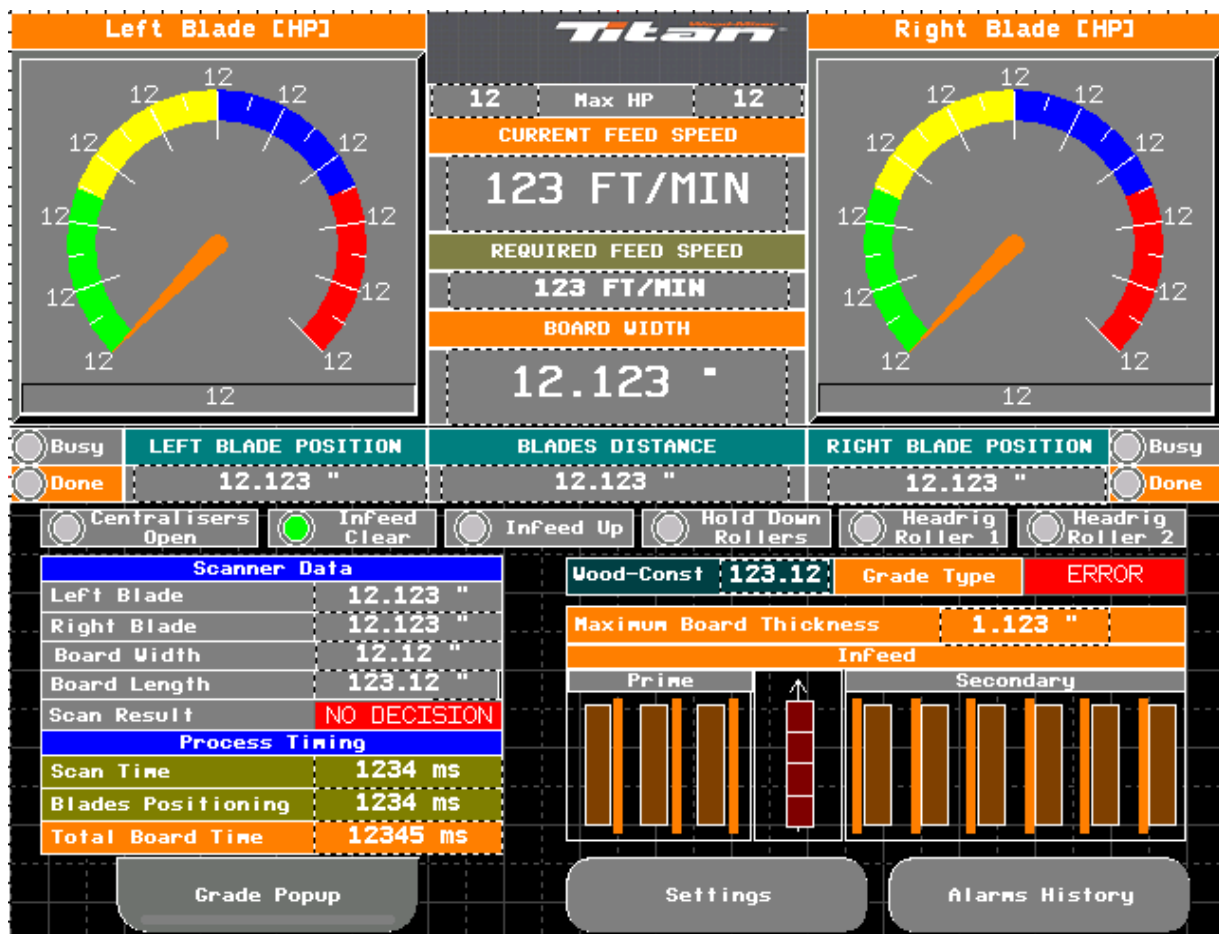


FIG. 4-6

Designed for fully automatic operation:

- The infeed table is automatically loaded from the left, right, or both sides.
- While the infeed table is being loaded, it is possible to ignore the scanner readings, it can be done by pressing one of the 1-6 buttons with set dimensions or the BLADES OPEN button. Once you have pressed one of the aforementioned buttons, the blades will be set in a given position and the scanner will not be active. After setting the blades, the process is continued in its usual way.

- After that, the board centralisation is performed, the proper number of centralisers that take part in this process is selected depending on the length of the board, the board length is measured in a segmental manner with the sensors placed above the hooks of the speedup table.
- Then the hold down rollers are lowered, their number is selected depending on the board length.
- The board is scanned using the illuminators on its one side, and then on its other side.
- The positions of the blades are sent to the controller that moves the blades to a requested position.
- The blades are moved to a requested position.
- The infeed table is lifted.
- The chain of the infeed table transports the board towards the headrig.
- The infeed rollers are being lifted at the moment the board leaves the table.
- The hold down rollers in the edger are being lowered at the moment the board reaches the position under them.
- The side edges of the board are cut.
- The board leaves the headrig, and then it is moved on the outfeed table.
- The infeed table is lowered.
- The cycle is repeated.

The BOTH mode - the priority is given to loading from the left side (the PRIMARY button).

If there is a board on the left speedup table, it is loaded.

If there is no board on the left speedup table, and there is a board on the right speedup table, then that board is loaded.

If there are boards both on left and right speedup tables, the staging table with hooks is fully loaded (the section #5 is full) and a board from the SECONDARY (right) side is there for a longer period of time than it is set in the SETTINGS menu, then the board from the right side is loaded.



FIG. 4-7

4 EA3000 Networks

Auto Mode

After loading the board from the right side, if there is a board on the last hook (the section #5), time is measured again (the timer is reset), and boards are loaded from the left side.

A description of the AUTO mode screen elements

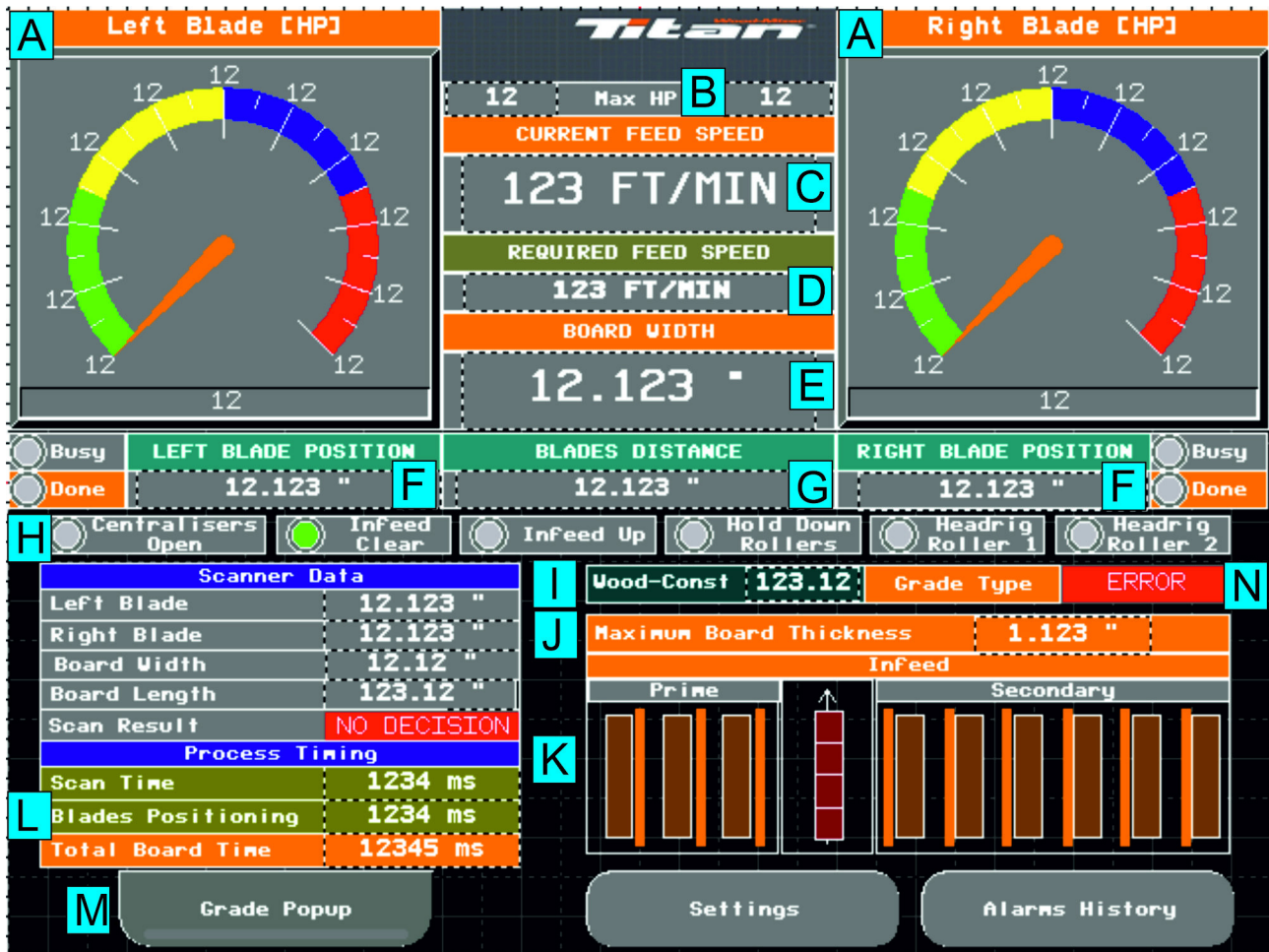


FIG. 4-8

A – Power consumption indicator of the left and right motor.

B – Maximum power consumption during a single cutting cycle.

C – Current linear feed speed (the infeed table/the headrig rollers, the outfeed table).

D – Required linear feed speed, this value varies for different board thicknesses or when the constant speed operation mode is activated. Current speed is the temporary speed that follows the required speed.

E - Required board width.

F - The actual position of the left and right blade, Busy controls - the blade is being moved, Done - the saw is already positioned.

G - The actual distance between the blades.

H - The individual machine components status check lights:

- Centralisers Open – Centralisers in the open position, the signal from the sensors is on the air cylinders,
- Infeed Clear - The infeed table is clear, ready for the next board. Infeed Up – The infeed table is in the upper position,
- Hold Down Rollers – The status of the hold down rollers on the infeed table,
- Headrig Roller 1 – The status of the infeed roller in the headrig,
- Headrig Roller 2 – The status of the outfeed roller in the headrig.

I - Wood density rate, determined on the basis of board thickness, feed speed, kerf, and motor power consumed during cutting. Currently not in use.

N - Grade Type - A check light for setting the scanning algorithm type, either the PALLET or the GRADE are available. The switch is possible via the buttons on the OP control panel in the ULTIMIZER section: PALLET, GRADE.

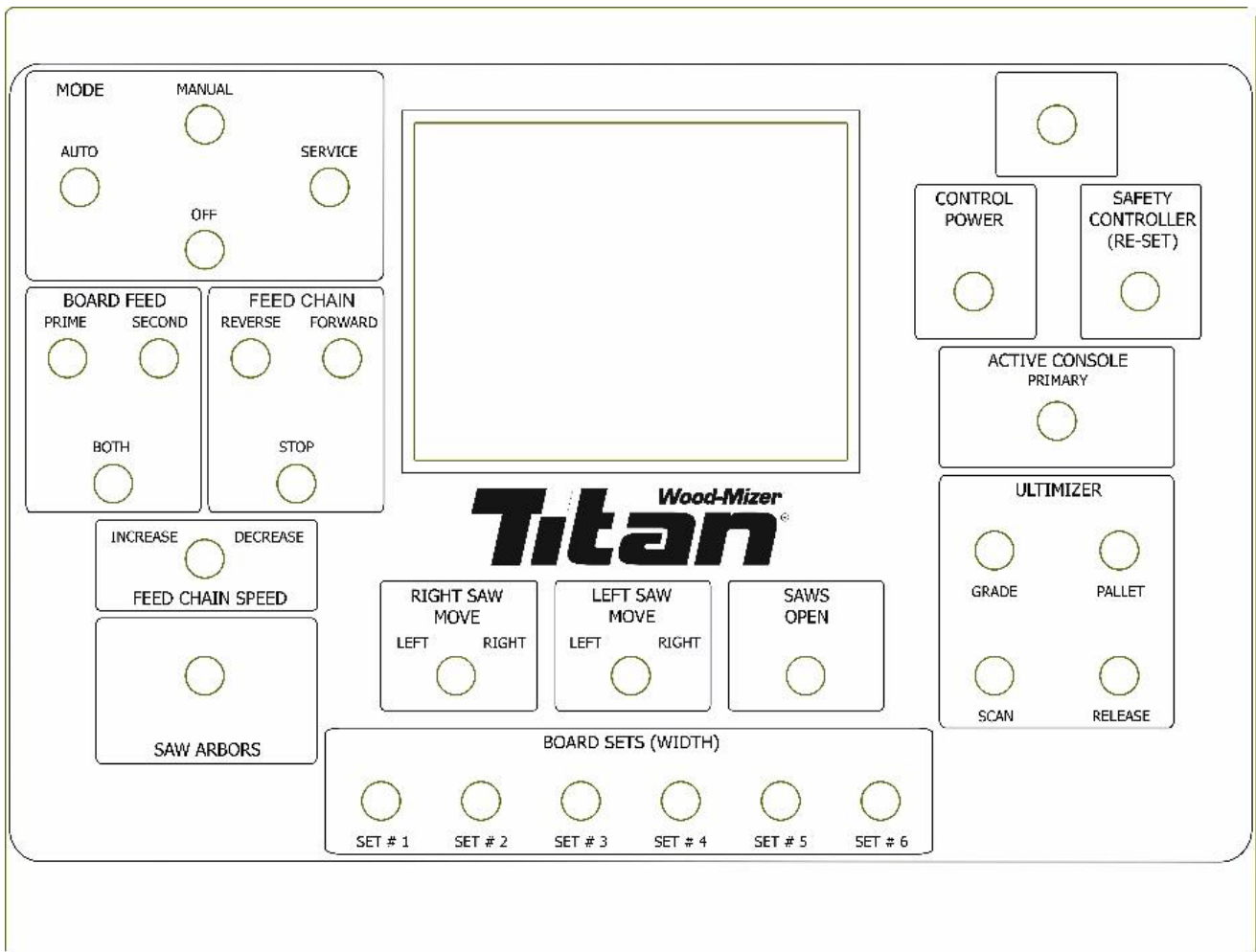


FIG. 4-9

Pressing the GRADE button briefly when the PALLET algorithm is on temporarily switches the cutting width algorithm to the GRADE one, after a board has been scanned, the algorithm is switched back to the PALLET one. Similarly, for the ongoing scanning process when the GRADE algorithm is on, if you press the PALLET button briefly, it results in a temporary switch to the PALLET algorithm, after scanning the algorithm is switched back to the GRADE one.

Pressing either the GRADE button or the PALLET button for longer than 2 seconds results in a permanent switch of the scanning algorithm to the one chosen by the operator

J – Maximum Board Thickness – value of the maximum board thickness read from the distance sensors located above the infeed table chain. There are 4 sensors. The value is the arithmetic mean of the maximum reading from the sensors.

K – A section showing the presence of a board / boards on individual elements of the side tables and the infeed table. The brown rectangle indicates the presence of the board in a particular section equipped with the hooks. The board is detected (appears on the screen) when two of the three limit switches located in each section (3 sections on the left table, 5 sections on the right table) are active. The narrow orange rectangle placed next to the board symbol represents the position of the stop hooks - if the rectangle is visible - the hooks are up and if the rectangle is invisible - the hooks are

down.

L – A section with the data concerning the Ultimizer scanner and the time of individual stages of the board width optimization.

Scanner data:

- Left Blade – The left blade position, calculated on the basis of the data from the scanner,
- Right Blade - The right blade position, calculated on the basis of the data from the scanner,
- Board Width – The board width read from the scanner,
- Board Length – The board length read from the scanner,
- Scan Result – The result of the scanning: 0 – No decision, 1 – Normal cutting.

Process Timing:

- Scan Time – Total scanning time (sending a scan command, scanning, decision, sending a decision from the scanner to the PLC controller),
- Blades Positioning – Blades positioning time (left and right blade),
- Total Board Time – Total time of the board processing (loading a board on the infeed table, centralization, scanning, blades positioning, cutting).

M - The button used for activating the window displaying the currently chosen cutting width algorithm (GRADE or PALLET). The window is displayed in the centre of the screen.

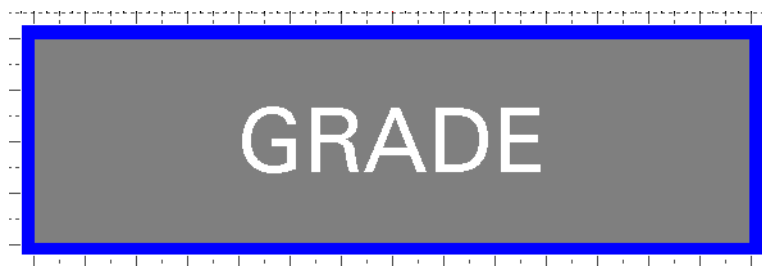


FIG. 4-10

4

EA3000 Networks

Auto Mode

The Alarm History button is used for displaying the history of the alarms. All the alarms since the last turning the power on are displayed. When the power is turned off, the machine history is deleted.



FIG. 4-11

The Settings button is used for switching to the screen with the settings:

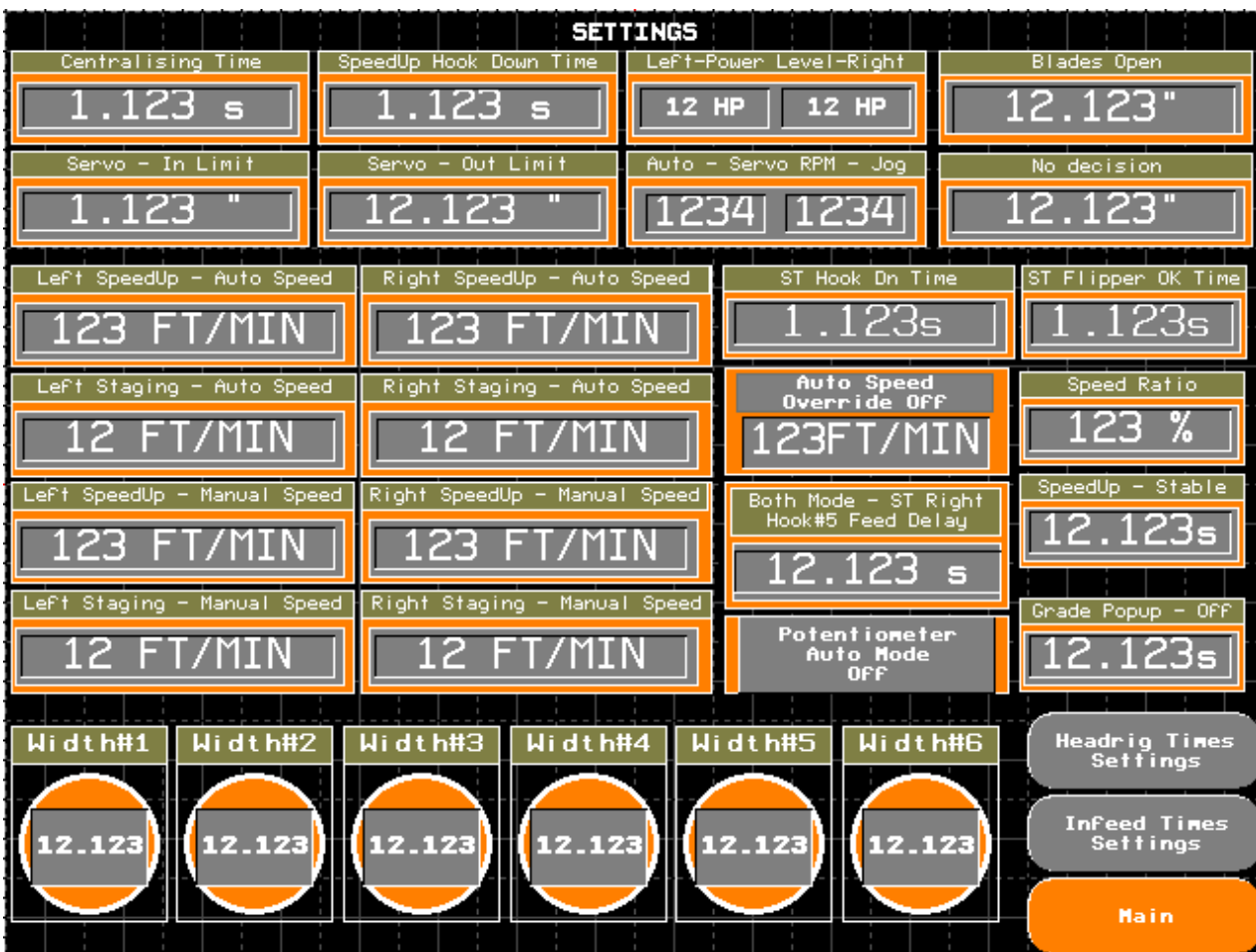


FIG. 4-12

Centralising Time – Time when the centralisers valve is on.

SpeedUp Hook Down Time – Time when the hooks on the speedup tables remain active (The hooks in down position).

Servo - In Limit – Limit position – Inner – It is a program position. The limit position is also secured with a limit switch. It is the position for one blade, measured from the centre of the machine.

Servo - Out Limit - Limit position – Outer – It is a program position. The limit position is also secured with a limit switch. It is the position for one blade, measured from the centre of the machine.

Left-Power Level-Right – Power limit, determined for the left and right blade motors. Used for checking if the material is still being processed by the blades. It is an additional protection against changing the position of the blades during cutting.

Auto - Servo RPM – Jog – Rotational speed of the servo motors, Auto - speed for operation in the Auto and Manual modes, but only after choosing the dimensions of the blades spacing with the buttons 1-6. Jog - The blades distance setting speed performed by the Left Saw Move and the Right Saw Move switches.

Blades Open – Blades position on which they are set after pressing the Blades Open button on the OP control panel.

No decision – Blades position on which they are set if the information from the scanner that it has made no decision regarding the position of the blades is received.

Left SpeedUp - Auto Speed – The left speedup table speed for the Auto mode.

Right SpeedUp - Auto Speed - The right speedup table speed for the Auto mode.

Left Staging - Auto Speed – The left staging table speed for the Auto mode.

Right Staging - Auto Speed - The right staging table speed for the Auto mode.

Left SpeedUp - Manual Speed - The left speedup table speed for the Manual mode.

Right SpeedUp - Manual Speed - The right speedup table speed for the Manual mode.

Left Staging - Manual Speed - The left staging table speed for the Manual mode.

Right Staging - Manual Speed - The right staging table speed for the Manual mode.

ST Hook Dn Time - Time when the hooks on the tables remain active (the hooks in down position).

ST Flipper OK Time – Time when the boards feeding is paused and the board is stabilized on the chains while it is being turned on the flipper.

Speed Ratio – Factor used for slowing down or speeding up the feed in the Auto mode. Its value is percentage. Speed is selected on the basis of the board thickness but in the end it is multiplied by the factor. For example the selected speed 500ft/min * 50% = 250ft/min.

Auto Speed Override Off/On – a button used for setting the constant feed speed for the Auto mode. If the option is enabled, the reading from the board thickness sensors is ignored, the feed for each board thickness value is constant and entered in this field.

Potentiometer Auto Mode Off - a function for enabling the feed speed adjustment with the potentiometer in the AUTO mode.

**CAUTION!**

Do not change the feed speed when a board has already been scanned or it is still being cut.

It is related to the rollers sequence in the headrig, the time needed for controlling the rollers is measured from the moment of lifting the infeed table and it is based on the current feed speed read

at that moment, a change in the feed speed may lead to a dangerous situation since the rollers will be lifted too early, then a board will not be pressed and it will be thrown away with a substantial speed.

SpeedUp - Stable - Time of stabilizing the board on the speedup table, it allows you to improve the alignment of the board before the hooks are lowered and the board is redirected to the infeed table.

Grade Popup Off - The time when the window with the chosen type of the cutting width algorithm is off. The displaying time is constant and it equals 1 second.

Width # 1- Width # 6 - fields for programming the boards width/ the blades spacing, which are assigned to the buttons located on the OP control panel - BOARD SETS (WIDTH).

In order to change the dimension, the dimension field needs to be pressed, then a numeric window will appear and the desired value should be entered in it.

Both Mode - ST Right Hook#5 Feed Delay - the time of feed delay; after that time, if there is a board on the right staging table with hooks (in the section #5), then that board is being loaded. The function is active only in the BOTH mode (loading from both sides).

Default parameters:



FIG. 4-13

Headrig Times Settings – this button is used for opening the screen with the settings concerning the time/distance of the headrig hold down rollers operation.



FIG. 4-14

The left column refers to the infeed roller of the edger, it is marked R1.

The right column refers to the outfeed roller of the edger, it is marked R2.

F1-F6 stands for the optical sensors located on the left and right side of the speedup tables, above the hooks.

The rollers are controlled on the basis of the distance from the F1-F6 sensors to the R1-R2 rollers. The time needed to lower and raise the appropriate roller is calculated on the basis of the distance and the current speed of the infeed table. The distance entered in the field and the actual distance on the machine differ from each other because the time needed to raise the infeed table, take the board by the chain and control the roller valve should be taken into account. Usually this distance is greater than the real one.

The numbering of the sensors and the rollers on the machine starts from the beginning of the infeed table:

Infeed table										Edger	Tailer
F1	F2	F3	F4	F5	F5_1	F5_2	F5_3	F6		R1	R2

The distance between F5-R1, F5_1-R1, F5_2-R1, F5_3-R1, F5-R2, F5_1-R2, F5_2-R2, F5_3-R2, F6-R1, F6-R2 influences the speed of lowering the R1 i R2 rollers. The F5, F5_1, F5_2, F5_3, F6 sensors determine the position of the end of the board on the infeed table. The distance between F1-F4-R1 F1-F4-R2 influences the speed of lifting the R1 i R2 rollers.

The F1-F4 sensors determine the position of the beginning of the board on the infeed table.

Default parameters:

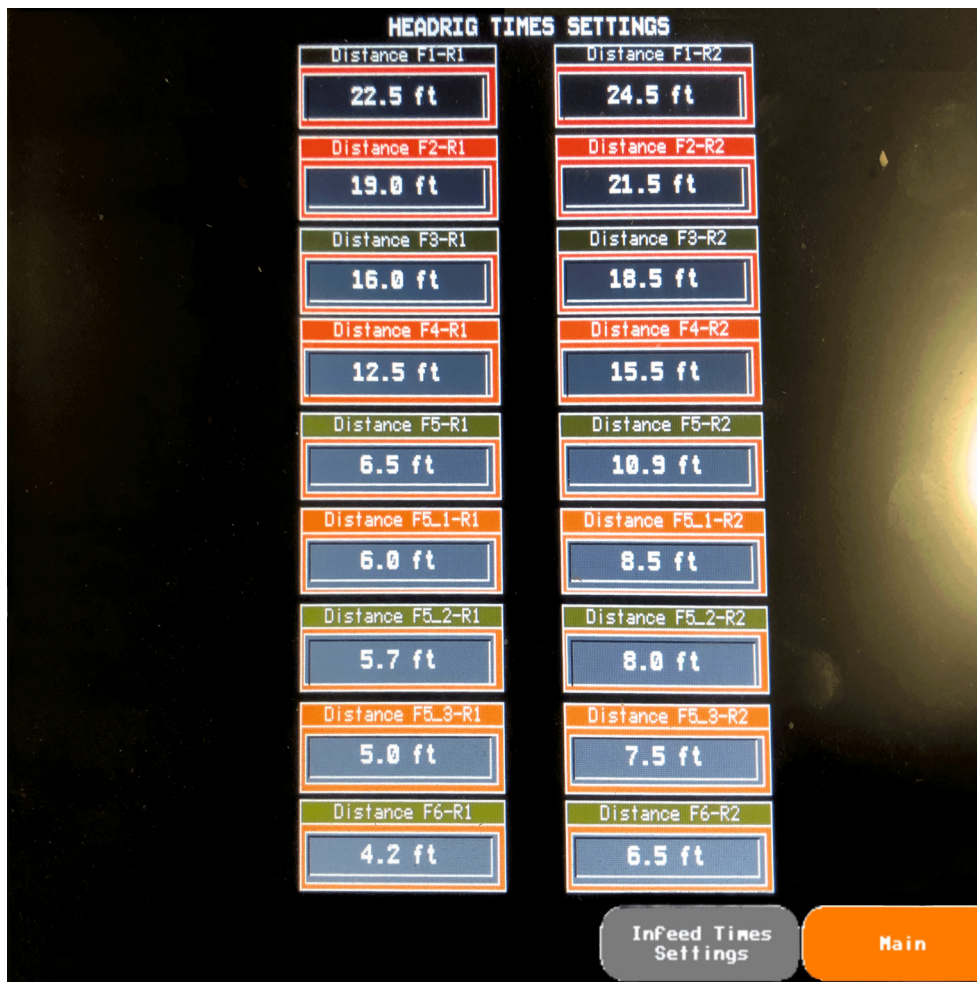


FIG. 4-15

Infeed Times Settings – this button is used for opening the screen with the settings concerning the time/distance of control the hold down rollers located on the infeed table in front of the edger.



FIG. 4-16

The hold down rollers on the infeed table are lowered depending on the length of the board detected by the optical sensors located above the hooks of the speedup tables. The proper number of the rollers is lowered on the board depending on the active signals from the sensors. It does not concern the last roller that is located in front of the entry of the edger. It is activated later on, after the infeed table is lifted and taken away by the chain.

As with the hold down rollers in the edger, the rollers on the infeed table are raised depending on the time selected on the basis of the distance of the individual sensors from the rollers and the current speed of the infeed table.

The numbering of the sensors and the hold down rollers on the infeed table.

F1 R1 F2 F3 R2 F4 R3 F5 F5_1 F5_2 F5_3 R4 F6 R5

Default parameters:



FIG. 4-17

4.2 Manual Mode

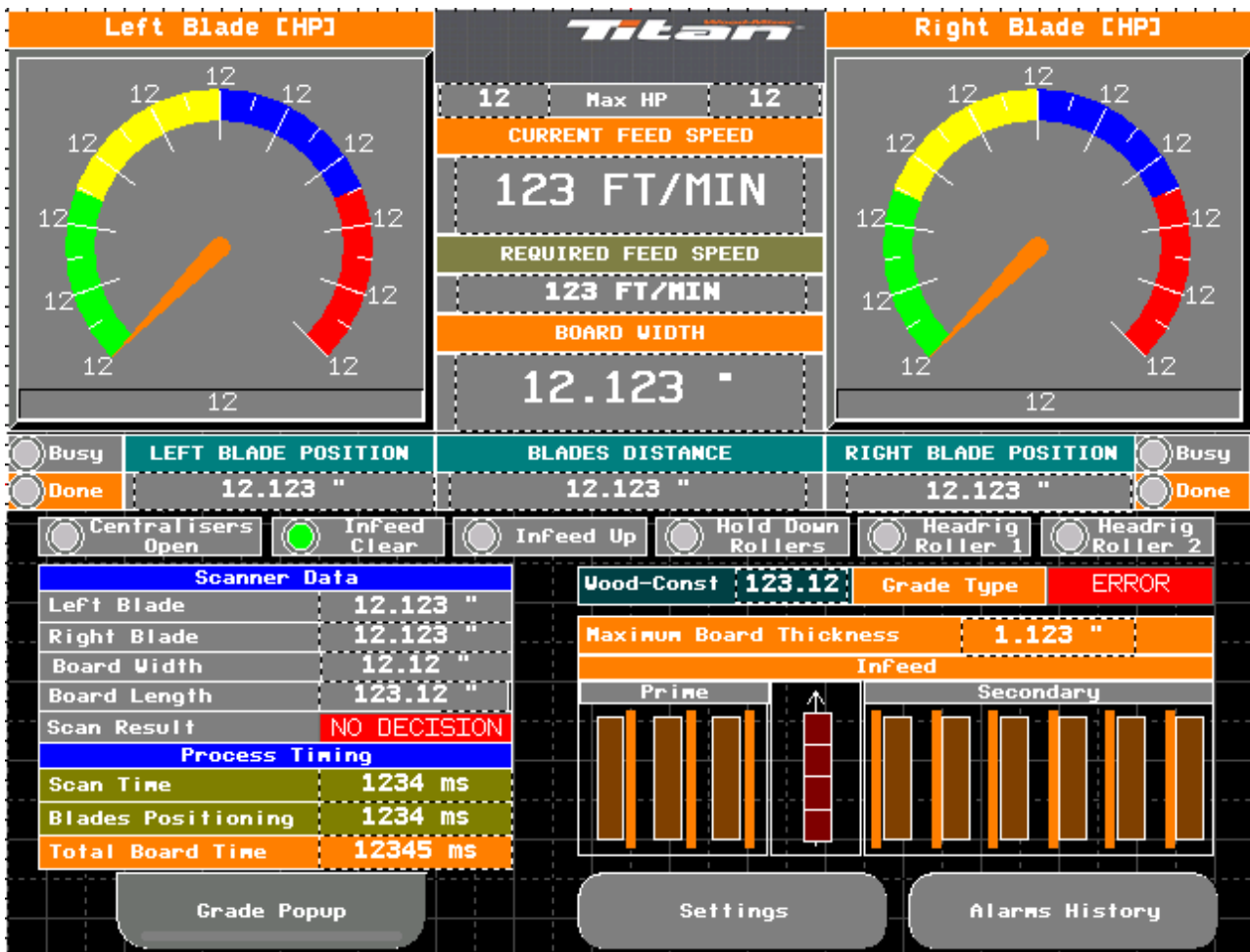


FIG. 4-18

Designed for manual operation:

- the infeed table is automatically loaded from the left, right or both sides, right after turning the feeds of the tables on (the FORWARD button in the FEED CHAIN section, the main motors need to already be working),
- the feed speed is manually set with the potentiometer located in the FEED CHAIN SPEED section,
- pressing the SCAN button from the ULTIMIZER section on the OP control panel,
- the board centralisation is performed, the right number of centralisers that take part in this process is selected depending on the length of the board, the board length is measured in a segmental manner with the sensors placed above the hooks of the speedup table,
- then the hold down rollers are lowered, their number is also selected depending on the board length,

- the board is scanned using the illuminators on its one side, and then on its other side,
- the positions of the blades are sent to the controller that moves them to a requested position,
- the blades are being moved to a requested position,
- after 3 seconds from the scan triggering, regardless of whether the data from the scanner has been returned or not, it is possible to set the blades position by choosing one of the six dimensions from the BOARD SETS (WIDTH) section or to set it manually with the switches in the LEFT RIGHT SAW MOVE sections,
- once the blades have been set, the RELEASE button from the ULTIMIZER section needs to be pressed,
- the infeed table is lifted,
- the chain of the infeed table transports the board towards the headrig,
- the infeed rollers are being lifted at the time the board is leaving the table,
- the hold down rollers in the edger are lowered the moment the board reaches the position under them,
- the side edges of the board are cut,
- the board leaves the headrig, and then it is moved on the outfeed table,
- the infeed table is lowered,
- the cycle is repeated.

4.3 Cycle Restart

The procedure of restarting the cycle in case of the centralisers fault or other faults causing that the board is already on the infeed table. The procedure covers both the AUTO and the MANUAL modes.

To initiate the restart procedure, you need to confirm the possible faults on the HMI panel by pressing one of the icons below:



The icon on the left confirms all the active alarms on the screen, the icon on the right confirms only the alarm that is selected by the operator on the HMI screen.

Additionally, to initiate it you need to turn the feed off - press the STOP button in the FEED CHAIN section.

After that, press the AUTO or the MANUAL button, depending on the preferred operation mode, for 3 seconds until the EMERGENCY RESET CYCLE command appears on a red bar at the bottom of the screen.

Then press the FORWARD button from the FEED CHAIN section, the centralisers will be activated for the AUTO mode and the rest of the process will be as described in the AUTO section. For the MANUAL mode, once the feed is activated, the process is normal, i.e. the operator needs to press the SCAN button from the ULTIMIZER section to activate the centralisers. Then the rest of the process is as described in the MANUAL section.

In the restart procedure for the AUTO mode, in order to disable the scanning process, the 1-6 dimensions buttons or the BLADES OPEN button need to be pressed before pressing the FEED CHAIN FORWARD button.

4.4 Service Mode

This mode is used for diagnostics, calibration, and service purposes.

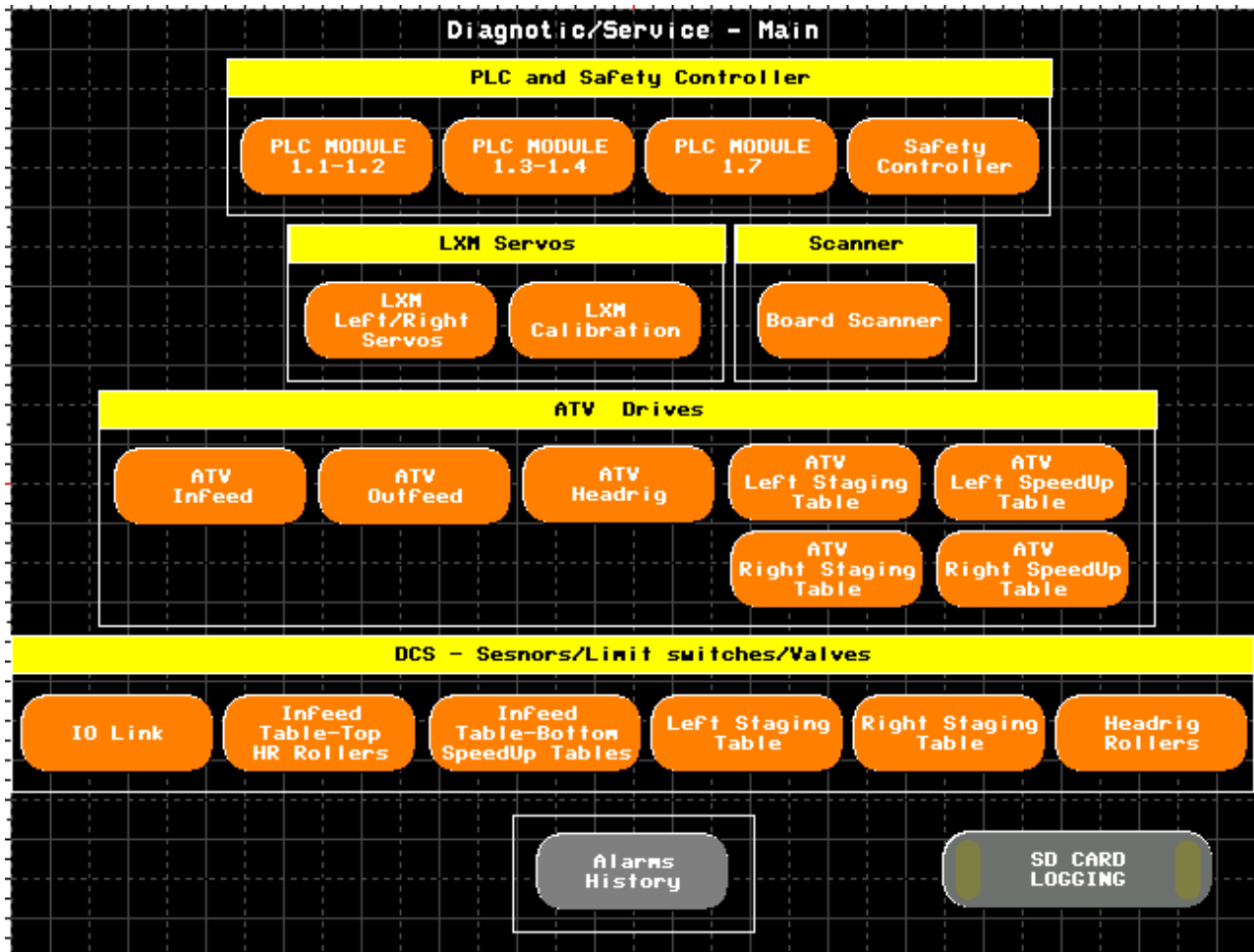


FIG. 4-19

4.4.1 PLC and Safety Controller Section

The PLC MODULE 1.1-1.2, PLC MODULE 1.3-1.4, PLC MODULE 1.7 buttons are used for displaying the states on individual PLC modules, both digital and analog inputs.



FIG. 4-20

PLC MODULE - 1.1 – DI:

- I0 - Pb - Auto Mode – Prim – The operator panel Prim – The AUTO button
- I1 - Pb - Manual Mode – Prim - The operator panel Prim – The MANUAL button
- I2 - Pb - Service Mode – Prim - The operator panel Prim – The SERVICE button
- I3 - Pb - Mode Off – Prim - The operator panel Prim – The MODE OFF button
- I4 - Pb - Board Feed - Prime – Prim - The operator panel Prim – The BOARD FEED PRIME button
- I5 - Pb - Board Feed Sec – Prim - The operator panel Prim – The BOARD FEED SEC button
- I6 - Pb - Board Feed - Both – Prim - The operator panel Prim – The BOARD FEED BOTH button

- I7 - Pb - Feed Reverse – Prim - The operator panel Prim – The FEED CHAIN REVERSE button
- I8 - Pb - Feed Forward – Prim - The operator panel Prim – The FEED CHAIN FORWARD button
- I9 - Pb - Feed Stop – Prim - The operator panel Prim – The FEED CHAIN STOP button
- I10 - Pb - Left Blade-Left – Prim - The operator panel Prim – The LEFT SAW MOVE LEFT button
- I11 - Pb - Left Blade-Right – Prim - The operator panel Prim – The LEFT SAW MOVE RIGHT button
- I12 - Pb - Right Blade-Left – Prim - The operator panel Prim – The RIGHT SAW MOVE LEFT button
- I13 - Pb - Right Blade-Right – Prim - The operator panel Prim – The RIGHT SAW MOVE RIGHT button
- I14 - Pb - Blades Open – Prim - The operator panel Prim – The BLADES OPEN button
- I15 - Pb - Ultimzer-Grade – Prim - The operator panel Prim – The ULTIMIZER GRADE button

PLC MODULE - 1.2 – DI:

- I0 - Pb - Ultimzer Pallet – Prim - The operator panel Prim – The ULTIMIZER PALLET button
- I1 - Pb - Ultimzer Scan – Prim - The operator panel Prim – The ULTIMIZER SCAN button
- I2 - Pb - Ultimzer Release – Prim - The operator panel Prim – The ULTIMIZER RELEASE button
- I3 - Pb - Board Set #1 – Prim - The operator panel Prim – The BOARD SET (WIDTH) SET#1 button
- I4 - Pb - Board Set #2 – Prim - The operator panel Prim – The BOARD SET (WIDTH) SET#2 button
- I5 - Pb - Board Set #3 – Prim - The operator panel Prim – The BOARD SET (WIDTH) SET#3 button
- I6 - Pb - Board Set #4 – Prim - The operator panel Prim – The BOARD SET (WIDTH) SET#4 button
- I7 - Pb - Board Set #5 – Prim - The operator panel Prim – The BOARD SET (WIDTH) SET#5 button
- I8 - Pb - Board Set #6 – Prim - The operator panel Prim – The BOARD SET (WIDTH) SET#6 button
- I9 - ATS U1 - Left – Fault – The signal from the left blade soft starter fault transmitter
- I10 - Fs - Flipper Left – Prim – The operator panel Left/Prim - The signal from the foot switch left button
- I11 - Fs - Flipper Right – Prim - The operator panel Left/Prim - The signal from the foot switch right button

I12 - Not used – Not used/reserve

I13 - Not used – Not used/reserve

I14 - Not used – Not used/reserve

I15 - Pressure sensor – The signal from the pressure sensor located next to the air preparation assembly.



FIG. 4-21

PLC MODULE - 1.3 – DI:

I0 - Pb - Auto Mode – Sec – The operator panel Sec – The AUTO button

I1 - Pb - Manual Mode – Sec - The operator panel Sec – The MANUAL button

I2 - Pb - Service Mode – Sec – The operator panel Sec – The SERVICE button

I3 - Pb - Mode Off – Sec - The operator panel Sec – The MODE OFF button

I4 - Pb - Board Feed - Prime – Sec - The operator panel Sec – The BOARD FEED PRIME button

- I5 - Pb - Board Feed Sec – Sec - The operator panel Sec – The BOARD FEED SEC button
- I6 - Pb - Board Feed - Both – Sec - The operator panel Sec – The BOARD FEED BOTH button
- I7 - Pb - Feed Reverse – Sec - The operator panel Sec – The FEED CHAIN REVERSE button
- I8 - Pb - Feed Forward – Sec - The operator panel Sec – The FEED CHAIN FORWARD button
- I9 - Pb - Feed Stop – Sec - The operator panel Sec – The FEED CHAIN STOP button
- I10 - Pb - Left Blade-Left – Sec - The operator panel Sec – The LEFT SAW MOVE LEFT button
- I11 - Pb - Left Blade-Right – Sec - The operator panel Sec – The LEFT SAW MOVE RIGHT button
- I12 - Pb - Right Blade-Left – Sec - The operator panel Sec – The RIGHT SAW MOVE LEFT button
- I13 - Pb - Right Blade-Right – Sec - The operator panel Sec – The RIGHT SAW MOVE RIGHT button
- I14 - Pb - Blades Open – Sec - The operator panel Sec – The BLADES OPEN button
- I15 - Pb - Ultimzer-Grade – Sec - The operator panel Sec – The ULTIMIZER GRADE button

PLC MODULE - 1.4 – DI:

- I0 - Pb - Ultimzer Pallet – Sec - The operator panel Sec – The ULTIMIZER PALLET button
- I1 - Pb - Ultimzer Scan – Sec - The operator panel Sec – The ULTIMIZER SCAN button
- I2 - Pb - Ultimzer Release – Sec - The operator panel Sec – The ULTIMIZER RELEASE button
- I3 - Pb - Board Set #1 – Sec - The operator panel Sec – The BOARD SET (WIDTH) SET#1 button
- I4 - Pb - Board Set #2 – Sec - The operator panel Sec – The BOARD SET (WIDTH) SET#2 button
- I5 - Pb - Board Set #3 – Sec - The operator panel Sec – The BOARD SET (WIDTH) SET#3 button
- I6 - Pb - Board Set #4 – Sec - The operator panel Sec – The BOARD SET (WIDTH) SET#4 button
- I7 - Pb - Board Set #5 – Sec - The operator panel Sec – The BOARD SET (WIDTH) SET#5 button
- I8 - Pb - Board Set #6 – Sec - The operator panel Sec – The BOARD SET (WIDTH) SET#6 button
- I9 - ATS U2 - Right – Fault - The signal from the right blade soft starter fault transmitter
- I10 - Fs - Flipper Left – Sec - The operator panel Right/Sec - The signal from the foot switch left button

I11 - Fs - Flipper Right – Sec - The operator panel Right/Sec - The signal from the foot switch right button

I12 - Not used - Not used – Not used/reserve

I13 - Not used - Not used – Not used/reserve

I14 - Not used - Not used – Not used/reserve

I15 - Not used - Not used – Not used/reserve



FIG. 4-22

PLC MODULE - 1.7 – AI:

AI0 - ATS Left – HP – RAW from the analog output of the left blade motor soft starter, values in the range of 0-10000.

AI1 - ATS - Right – HP - RAW from the analog output of the right blade motor soft starter, values in the range of 0-10000.

AI2- Feed Potentiometer – Prim – RAW value from the FEED CHAIN SPEED potentiometer of the left OP control panel - PRIM, value in the range of 0-10000.

AI3 - Feed Potentiometer – Sec - RAW value from the FEED CHAIN SPEED potentiometer of the right OP control panel - SEC, value in the range of 0-10000.

4.4.2 LXM Servos Section

4.4.2.1 LXM Left/Right Servos



FIG. 4-23

Below you can find the explanations concerning individual screen fields, there are the same descriptions for both left and right servo drives:

Communication OK – The Ethernet/IP communication correctness indicator.

Communication Search – The indicator of lack of communication/searching the device on the Ethernet/IP network.

Limit switch pos – The signal from the positive position/outwards limit switch.

Limit switch neg – The signal from the negative position/inwards limit switch.

FB Power Status – The MC Power block status indicator.

FB Fault Reset – The MC Reset block status indicator.

FB Jog Busy – The MC Jog Busy status indicator.

Velocity – The current servo drive speed in rpm.

Position – The current servo drive position in inches, a single blade position.

Fault – The current value representing the fault code, hexadecimal value.

Reset Drive – The button used for deleting the fault.

Service Control – Left In/Out – The left servo manual mode control, In – inward direction, Out – outward direction.

Service Control – Right In/Out - The right servo manual mode control, In – inward direction, Out – outward direction.

Jog Speed – The pre-set speed for manual control, it concerns the Service Control field and the LEFT/ RIGHT SAW MOVE switches on the OP control panel.

4.4.2.2 LXM Calibration

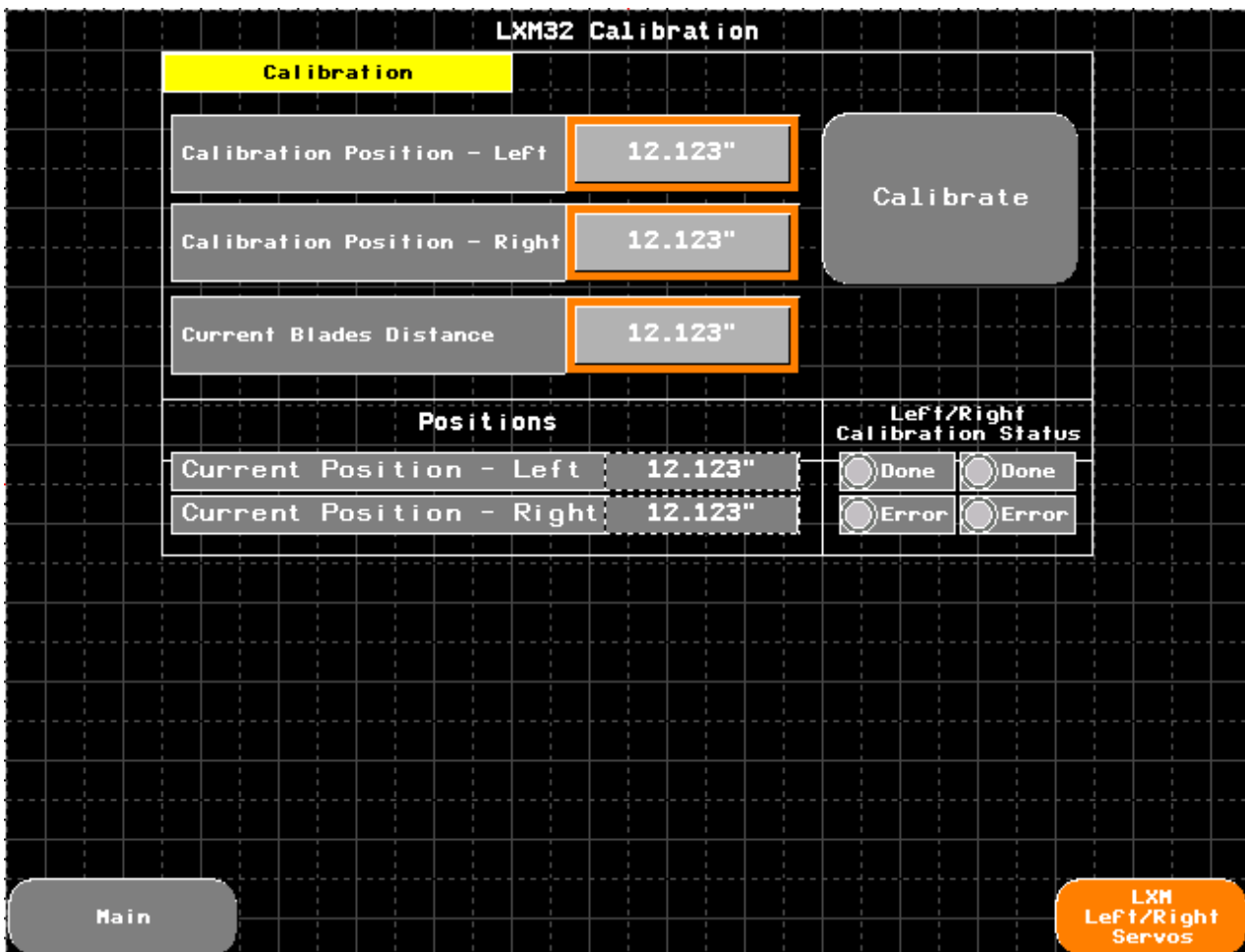


FIG. 4-24

Calibration Position Left – The distance measured between left blade and centre of the chain.

Calibration Position Right – The distance measured between right blade and centre of the chain.

Current Blades Distance – The current distance between the blades.

Current Position - Left – The current left blade position.

Current Position - Right – The current right blade position.

Calibrate – The button used for saving the Calibration Position.

The calibration procedure:

- Attach a string from the infeed table to the outfeed table through the edger.

- The string should be in the middle of the infeed and outfeed table chain [See Section Tables and Saw Blades Alignment](#)
- Set the blades in an equal distance from the string, e.g. 2" (the distance between the blades equals 4"). Two different distance values from the middle of the chain can be an alternative.
- To check the blades position, it is necessary to unscrew the bolts mounting the upper cover of the edger and to release the upper cover interlock.
- The upper cover interlock may be released on the Headrig Rollers screen, in the SERVICE mode, in the DCS -Sensors/Limit switches/Valves section.
- A change of a blade position is possible in the MANUAL and the SERVICE mode with the upper cover closed. In order to do that you always need to close the upper cover and reset the safety controller with the SAFETY CONTROLLER (RE-SET) button.
- Once the position has been set, enter its value in the Calibration Position - Left, Calibration Position - Right fields and press the Calibrate button.
- The values in the Current Blades Distance, Current Position - Left, Current Position - Right fields will change to the values set by the operator.
- Once the calibration procedure has been finished, verify if the value on the CURRENT BLADES DISTANCE field corresponds to an actual distance between the blades.

The remaining fields on the screen:

Current Position – Left – The current left blade position.

Current Position – Right – The current right blade position.

Left/Right Calibration Status – The servos calibration status:

- Done – Successfully completed,
- Error – An error during the calibration occurred, you need to check whether there was or still is an error on the screen or the LXM servo display. You need to delete the error and repeat the calibration procedure.

4.4.3 Scanner Section

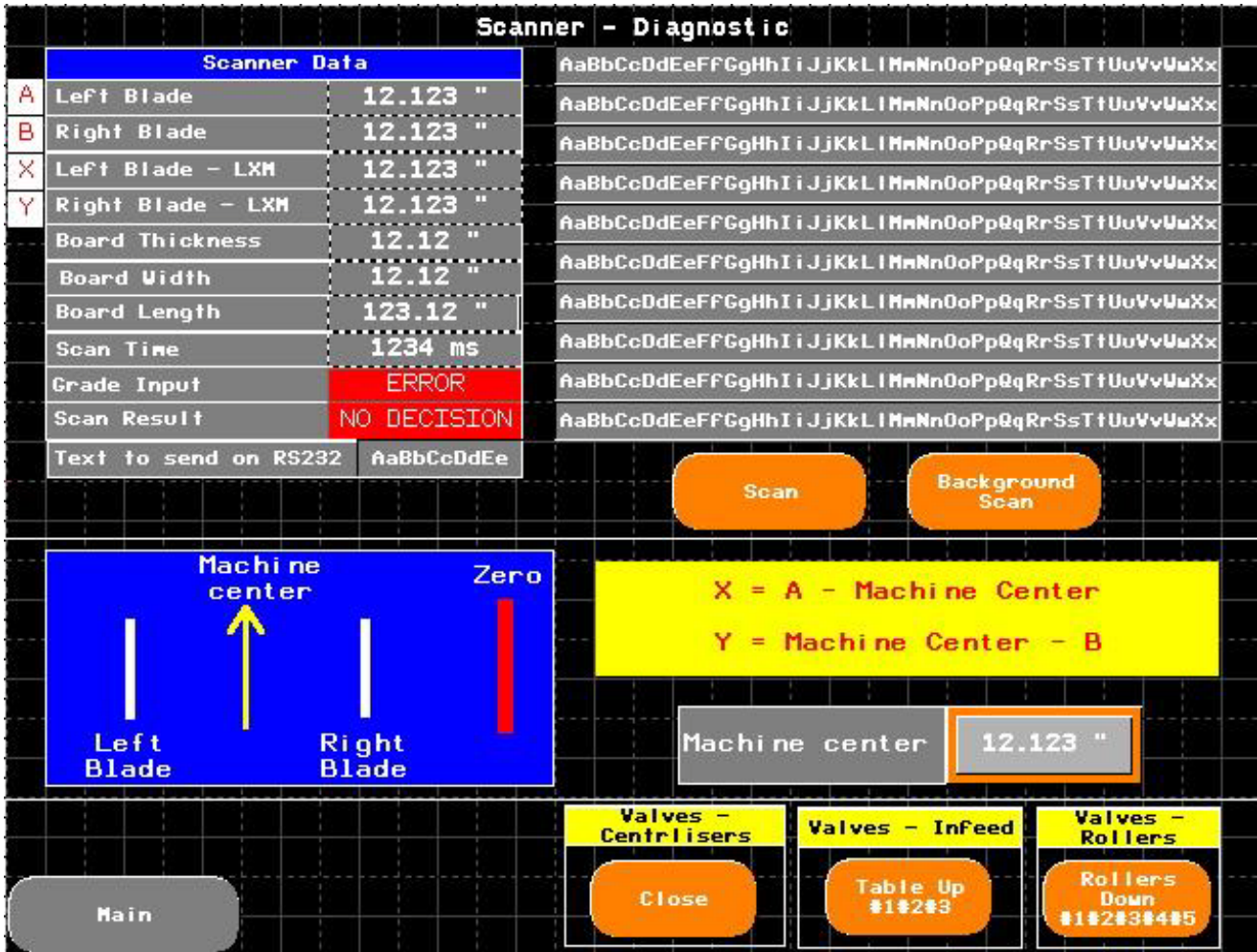


FIG. 4-25

Scanner Data

Left Blade – The left blade position – The scanner coordinate system.

Right Blade – The right blade position – The scanner coordinate system.

Left Blade – LXM – The left blade position – The edger coordinate system.

Right Blade – LXM – The right blade position - The edger coordinate system.

Board Thickness – This value is manually entered in the ULTIMIZER software, it is not a value coming from the machine sensors.

Board Width – The width of the board that is being scanned.

Board Length – The length of the board that is being scanned.

Scan Time – an inactive variable.

Grade Input – an algorithm for choosing the cut width : 2 – Grade, 1 – Pallet, choosing the algorithm is influenced by the buttons pressed on the OP control panel (the ULTIMIZER section, the GRADE, PALLET buttons) and by the mark applied on the board (marking specification agreed with the ULTIMIZER company), this sign causes ignoring the current settings of the algorithm for the current board, the next boards take the choice made with the buttons into account.

Scan Result – 1 – Normal cutting, 0 – No decision.

Text to send on RS232 – Text sent to the scanning system by the PLC controller.

10 text fields on the right side are the last communicative frames that have come from the scanning system.

A description of individual fields in string of characters:

Solution String

Code Digits Description

A	3	Board ID
B	3	Board thickness * 100, 2 decimal places
C	4	Board width * 100, 2 decimal places
D	5	Board length * 100, 2 decimal places
E	1	Grade input used, echoed from PLC console push buttons. 2=Grade, 1=Pallet
F	4	Scan Time mili seconds
G	1	Scan Result 0-No decision, 1-Normal cutting,
H	5	Right blade position * 1000, 3 decimal places. 50.0 is the machine center
I	5	Left blade position * 1000, 3 decimal places. 50.0 is the machine center
J	5	Skew * 1000, 3 decimal places

Example

A---B---C---D-----E-F---G-H-----I-----J-----

A015B120C0650D12200E1F0130G1H47200I51200J00000

A - Board ID = 15

B - Board Thickness = 1.20"

C - Board Width = 6.50"

D - Board Length = 122.00"

E - Grade used = 1 = Pallet, Echoed from the PLC input

F - Scan Time = 130 mili seconds

G - Scan Result = 1, normal cutting

H - Right Blade Position = 47.200"

I - Left Blade Position = 51.200"

J - Skew = 0

Buttons:

Scan – initiates manual scans, it can also be activated with the ULTIMIZER software.

Background Scan – a background scan initiation, performed in case of the lighting conditions change, mechanical configuration, etc. The details are in the ULTIMIZER company manual.

Machine Center Section

The Machine Center parameter affects the blades position in regard to the position determined by the ULTIMIZER system.

Two coordinate systems are used: the scanner system and the machine system..

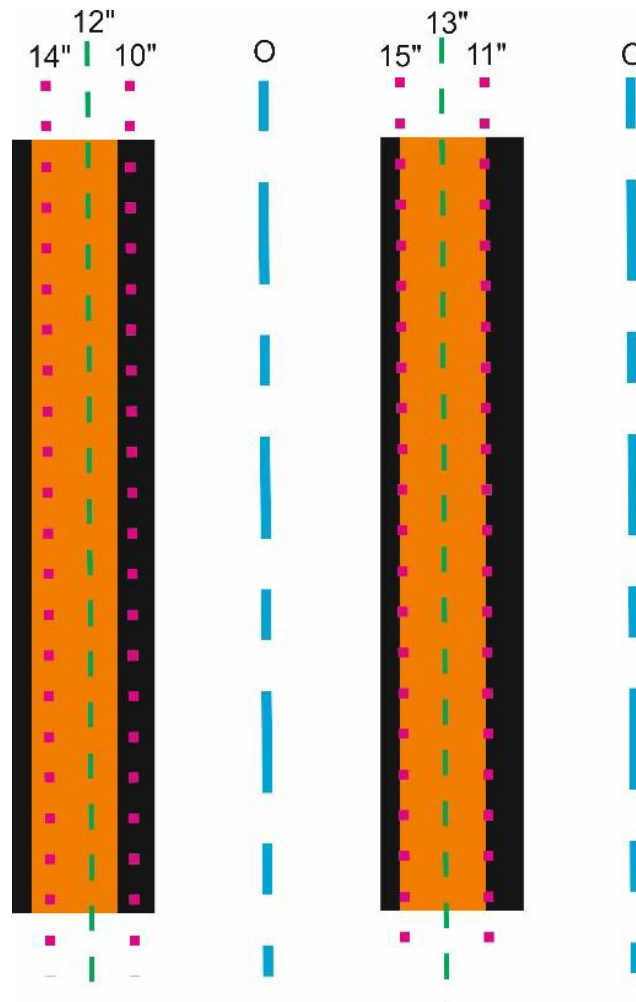


FIG. 4-26

The scanner coordinate system has its point 0 on the right side of the machine - a blue dashed line.

The scanner sends the positions of the right and left blade measuring these distances from the point 0.

The machine center is marked with a green dashed line, the value of this parameter is used to determine the position of the left and right blade in the machine coordinate system. The 0 point of this coordinate system is set in the middle of the infeed table chain. The blades take a position increasing in a positive outward direction.

Changing the Machine Center parameter is required if the position received from the scanner requires a certain offset. The figure above shows the situation when the machine center is changed. The picture on the left shows the situation when the value of the machine center is 12". The left blade received the 14" position from the scanner, whereas the right one received the 10" position. Assuming that the positions from the scanner are correct, to get a board without bark, you need to move the center of the machine. The situation after that is shown in the figure on the right. The center of the machine has been moved left to the 13" position.

The position of the blades is converted into the machine coordinate system according to the equation shown on the screen.

The left blade position = a value obtained from the left blade scanner - the Machine Center, in the example it is 2".

The right blade position = the Machine center - a value obtained from the right blade scanner, in the example it is 2".

The buttons at the bottom of the screen

Valves - Centralisers – Open/Close – used for opening and closing each of the 6 centralisers.

Valves - Infeed – Table Up – used for lifting and lowering the infeed table, it is done with 3 air cylinders, each of them is controlled by a separate valve.

Valves – Rollers - Rollers Down 1#2#3#4#5 – used for lifting and lowering each of the 5 hold down rollers on the infeed table.

These buttons are useful when testing the scanning system. The state at which the scan is taken:

- the centralisers are closed,
- the hold down rollers are lowered.

4.4.4 *ATV Drives Section*

This section contains the diagnostic screens for checking the drive controllers.

- ATV Infeed,
- ATV Outfeed,
- ATV Headrig,
- ATV Left Staging Table,
- ATV Right Staging Table,
- ATV Left SpeedUp Table,
- ATV Right SpeedUp Table.

Since all the screens look the same, the fields on them have been discussed on the example of the ATV Infeed screen:

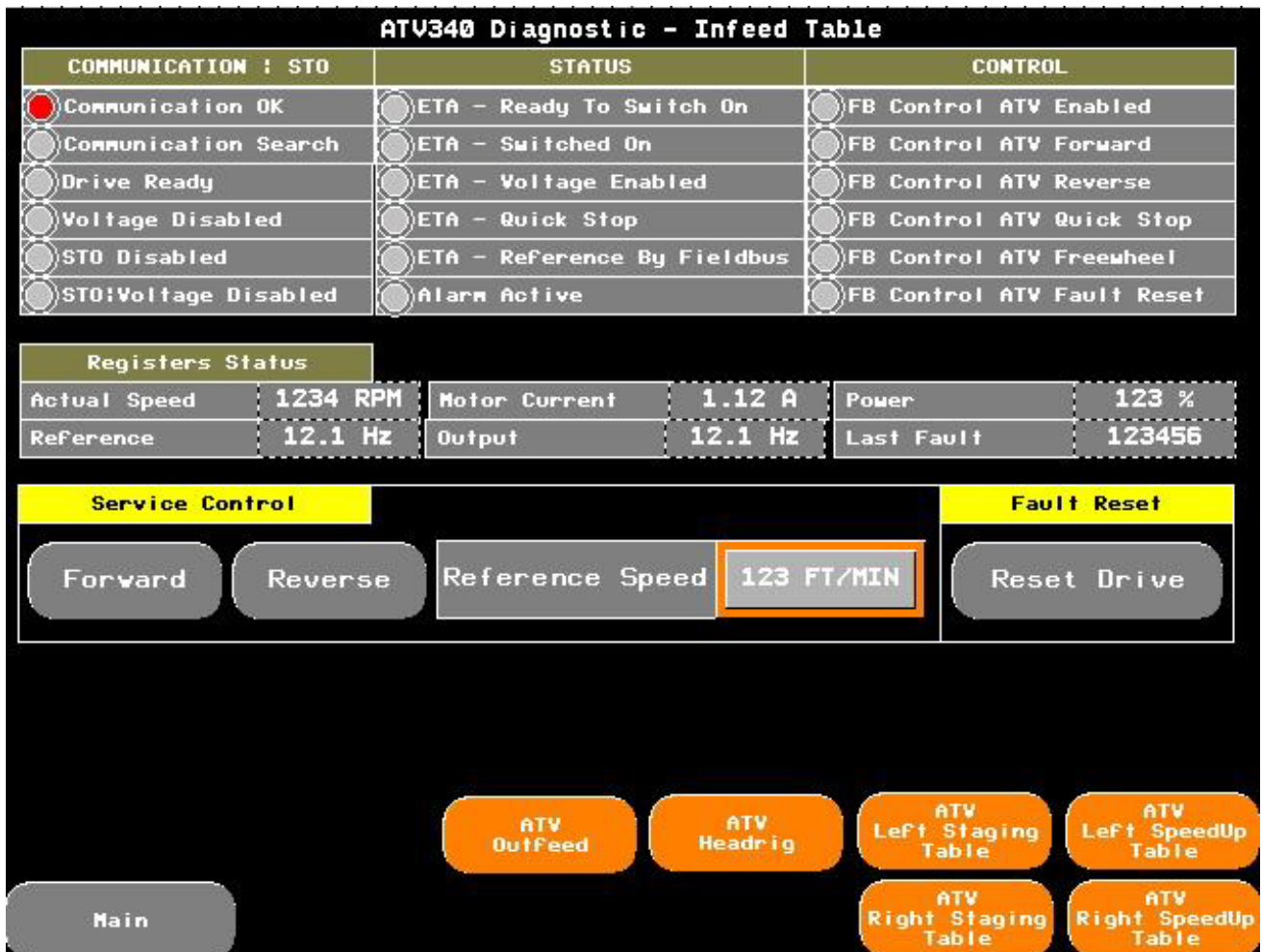


FIG. 4-27

Communication | STO:

Communication OK – The Ethernet/IP communication correctness indicator.

Communication Search – The indicator of a lack of communication/searching the device on the Ethernet/IP network.

Drive Ready – The drive is ready, the main power supply and the STO signal are present.

Voltage Disabled – A lack of the main power supply, the STO signal is present.

STO Disabled – The main power supply is present, a lack of the STO signal.

STO|Voltage Disabled - a lack of the main power supply, a lack of the STO signal.

STATUS:

ETA - Ready To Switch On ETA - Switched On.

ETA - Voltage Enabled – The power block is powered.

ETA - Quick Stop – 0 – Activated, 1 - Deactivated.

ETA - Reference By Fieldbus – The speed setting via the communication network.

Alarm Active - The alarm is enabled.

CONTROL:

FB Control ATV Enabled – The Control function block - Enabled FB Control ATV Forward - The Control function block – Forward FB Control ATV Reverse - The Control function block – Reverse

FB Control ATV Quick Stop - The Control function block – Quick Stop FB Control ATV Freewheel - The Control function block - Freewheel FB Control ATV Fault Reset - The Control function block – Fault reset

Registers Status

The registers status and the values read via the Ethernet/IP network from the drive controller.

- Actual Speed – The motor current rpm.
- Reference – The set frequency in hertz.
- Motor Current – The motor current in amperes.
- Output – The output drive controller frequency.
- Power – The active power – a percentage value, 100% of the drive controller power rating.
- Last Fault – The last drive controller fault.

Fault Reset – Reset Drive – the button for deleting the current fault.

Service Control:

Forward – activating the forward movement.

Reverse – activating the backward movement.

Forward movement is the movement/working direction that occurs during normal machine operation, for the infeed table, it is a movement towards the throat of the edger.

Reference Speed - the set speed is expressed in feet per minute.

4.4.5

DCS Section - Sensors/Limit switches/Valves

4.4.5.1

IO Link



FIG. 4-28

The screen is in preparation. It is used for reading the content of the BOD sensor readings - the distance of carrying out the board thickness measurement.

To measure the board thickness, the content of the two registers with indexes 202 (only data concerning the distances, without the signal quality indicator) and 189 - (a value of the measurement averaging filter) is changed.

Currently, any new sensor must be programmed using a USB communication adapter: BNI0073 - BNI USB-901-013-A50A50.

4.4.5.2 Infeed Table-Top HR Rollers

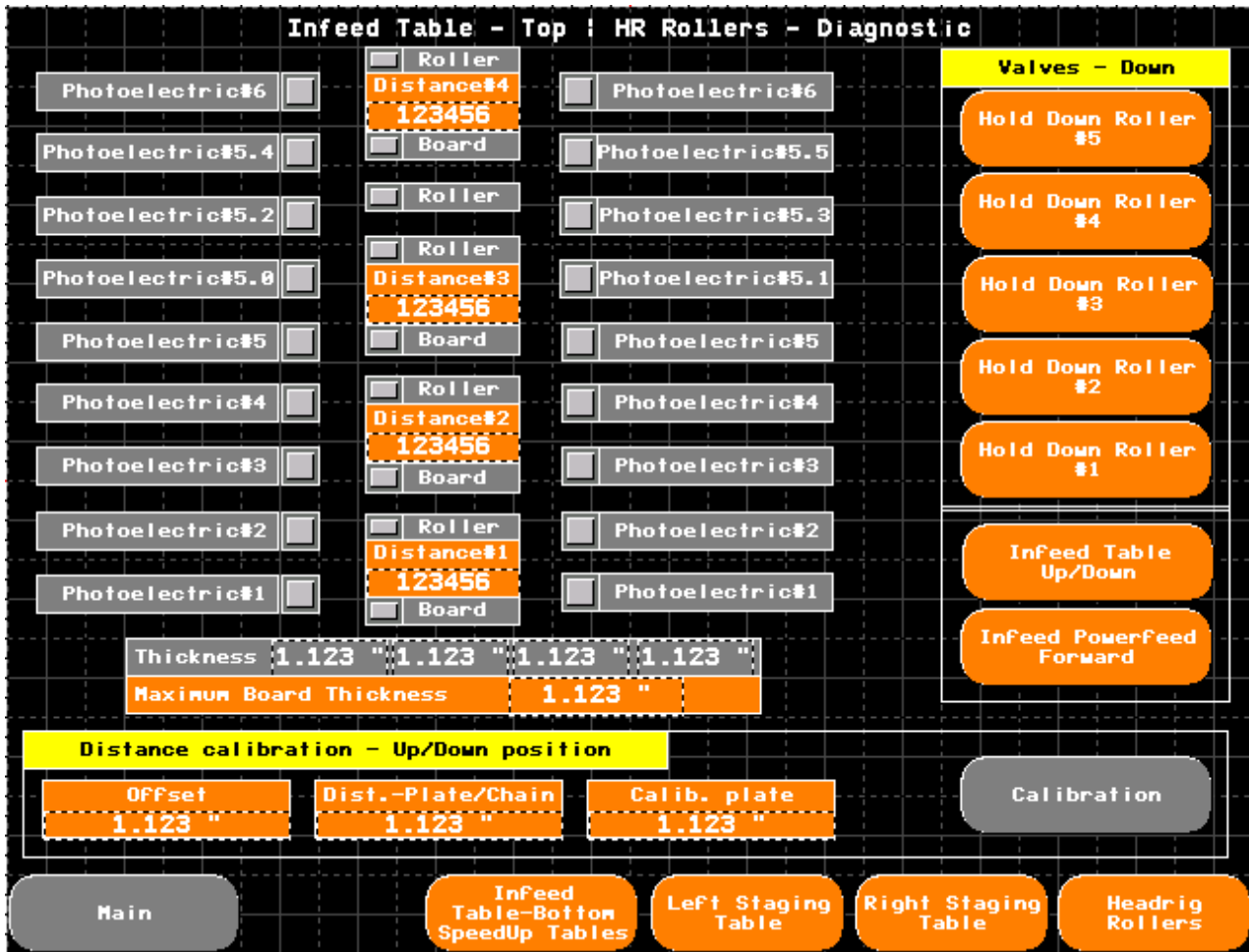


FIG. 4-29



FIG. 4-30

Photoelectric #1 - #6 – the signal indicators of the sensors located above the hooks of the left and right speedup tables.



FIG. 4-31

Roller – the hold down roller indicator - active (in down position).

Distance#1 - #4 – a RAW value from the distance sensor used for measuring the boards thickness.

Board – an indicator of the board presence under the sensor, when the infeed table is in its upper position, you need to calibrate the sensors to obtain the correct reading. The procedure has been discussed in the further part of this manual.



FIG. 4-32

The section concerning the board thickness reading, the upper Thickness fields refer to the readings of individual distance sensors.

Maximum Board Thickness - it is the maximum reading value of one of the four sensors.

The value section concerning calibration of the reading from the distance sensors determining the board thickness.

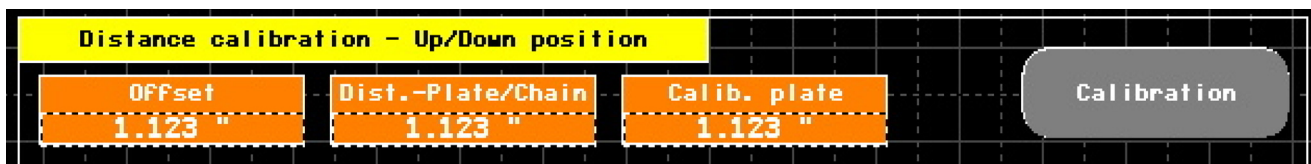


FIG. 4-33

Offset – a value of the distance from the chain – the deadband used to eliminate false signals from the moving chain and wood debris collected on the chain.

The button for lifting the infeed table.

Dist.-Plate / Chain - the distance between the wearstrips and the chain in down position, the board in down position lies only on the wearstrips, the sensor laser beam falls on the chain.

Calib. plate – The calibration plate/cardboard thickness.

The calibration procedure for the reading from the distance sensors:

- put the 10" x 10" cardboard plates on the infeed table chain in the places where the distance sensors are, the laser beam is red, set it the way in which the laser point is located approximately in the middle of the cardboard,
- the infeed table should be in its down position,
- press the Calibration button,
- lift the table with the Infeed Table Up/Down button,

- press the Calibration button,
- lower the table with the Infeed Table Up/Down button,



FIG. 4-34

- the procedure has been completed and the values have been saved.

The buttons section



FIG. 4-35

Hold Down Roller #1 - #5 – for activating the hold down rollers movement.

Infeed Table Up/Down – for lifting or lowering the infeed table.

Infeed Powerfeed Forward – for activating the forward feed of the infeed table.

4.4.5.3

Infeed Table - Bottom SpeedUp Tables

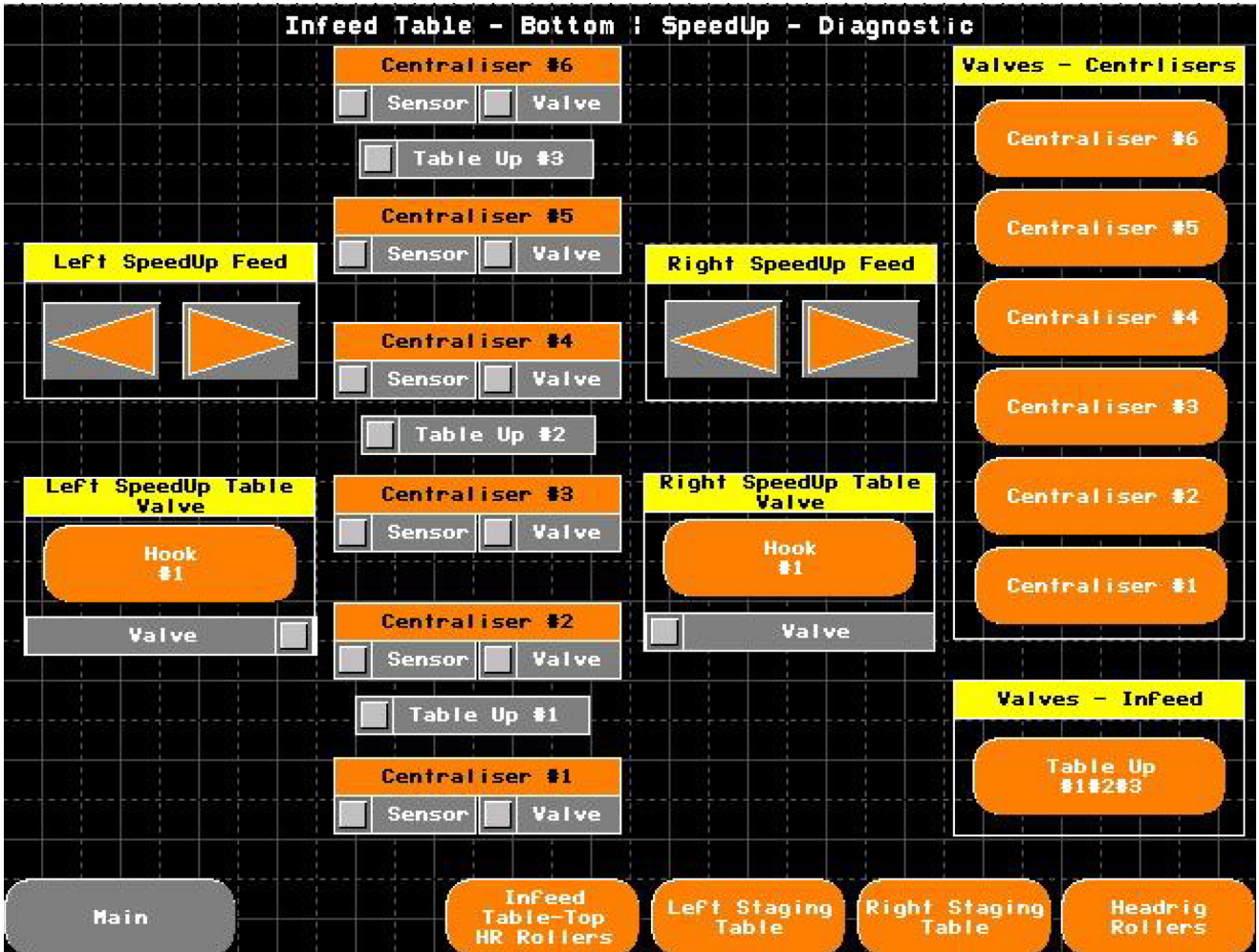


FIG. 4-36

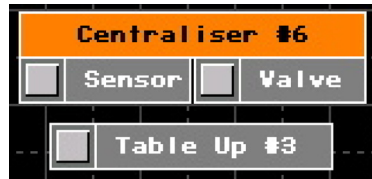


FIG. 4-37

Sensor – the sensor indicator on the air cylinder of a given centraliser, it should be active when the centraliser is open.

Valve – the indicator of the valve activity of a given centraliser.

Table Up #1-3 – the valve activity indicator of the air cylinder for lifting and lowering the infeed table

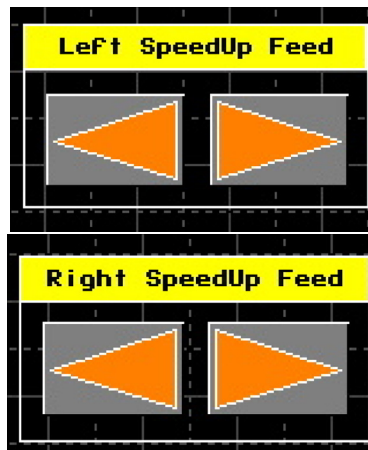


FIG. 4-38

The buttons are used for activating the chains movement on the speedup tables, left/ right.

The left direction means the outward movement, towards the staging tables.

The right direction means the inward movement, towards the infeed table chain.



FIG. 4-39

The buttons for activating the hooks located on the speedup tables.

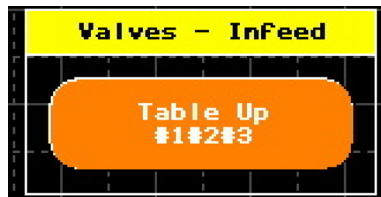


FIG. 4-40



FIG. 4-41

The buttons for activating individual centralisers, e.g. to check the correctness of the position reading by the sensor located on the air cylinder.

4.4.5.4

Left Staging Table

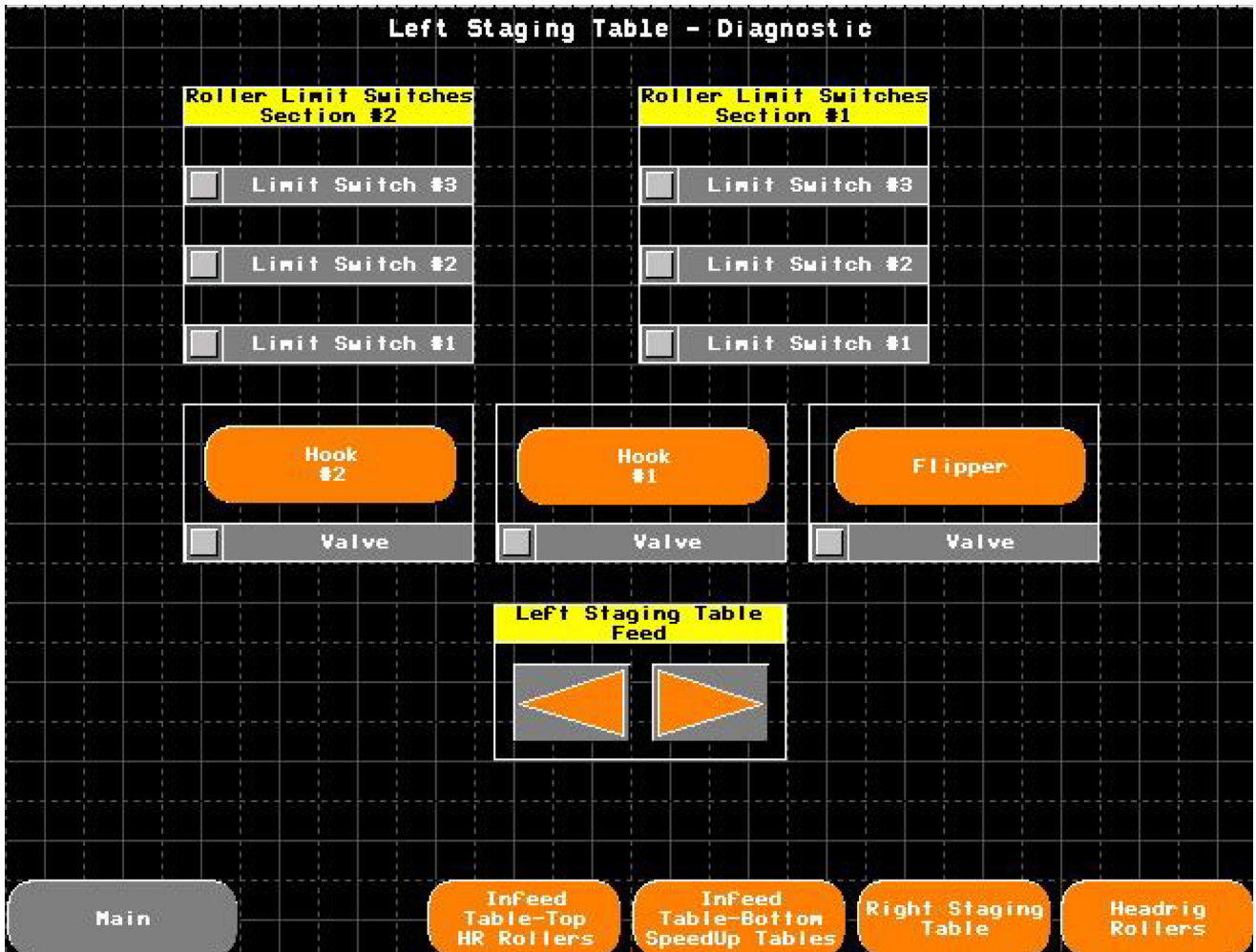


FIG. 4-42

A figure facilitating the numbering understanding

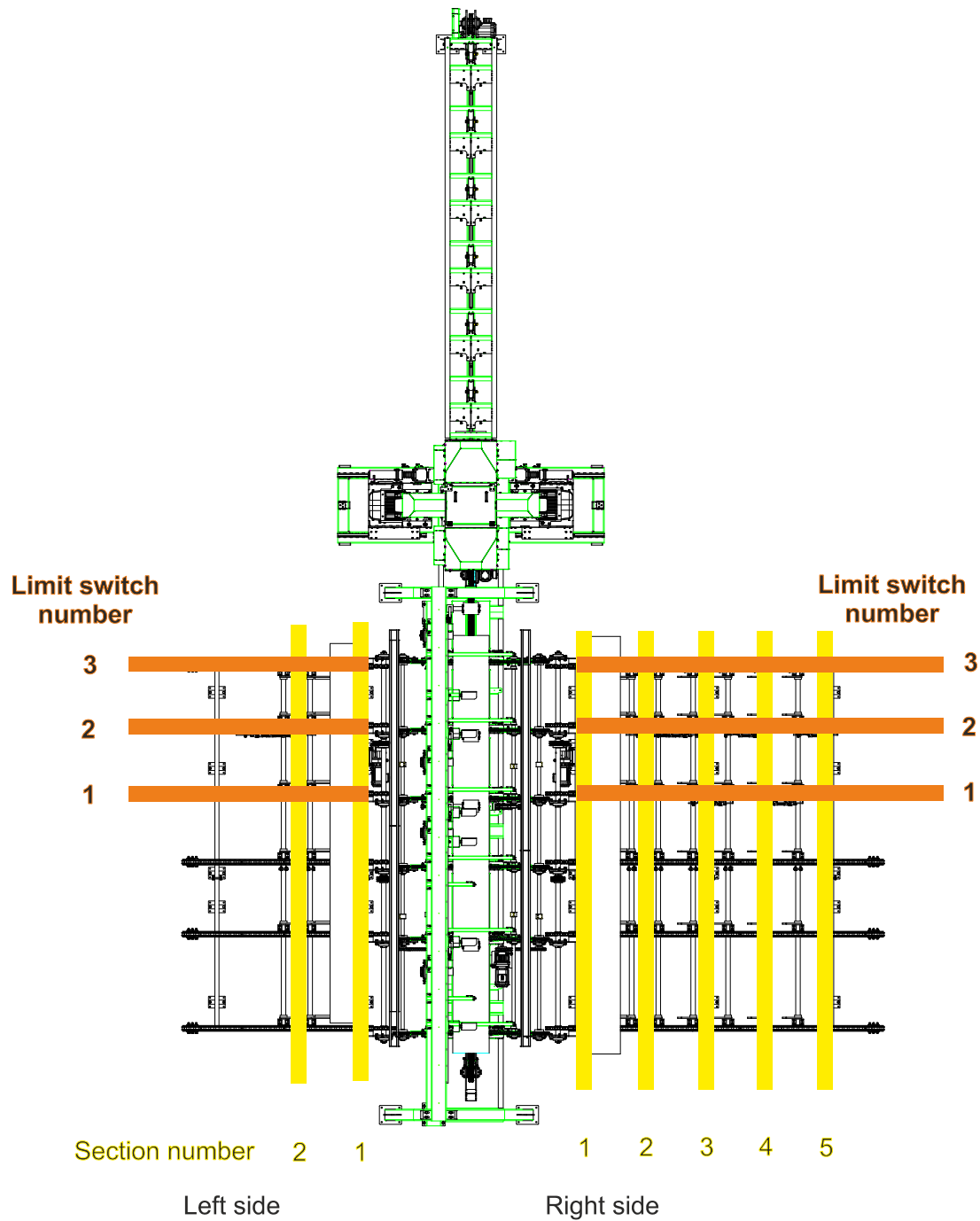


FIG. 4-43



FIG. 4-44

The indicators showing the status of individual limit switches in section 1 of the left staging table. The limit switches are connected in the NC configuration, i.e. they send a signal when they are not activated.

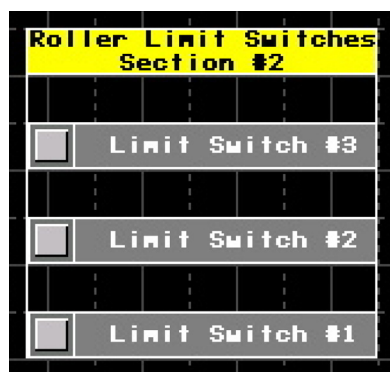


FIG. 4-45

The indicators showing the status of individual limit switches in section 2 of the left staging table. The limit switches are connected in the NC configuration, i.e. they send a signal when they are not activated.

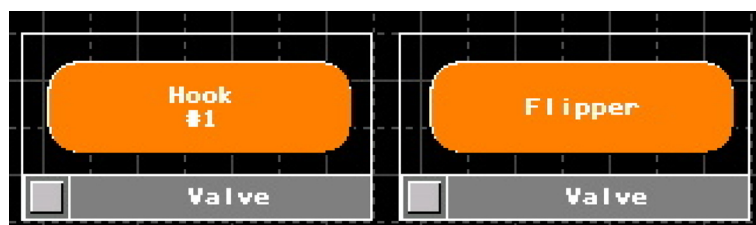


FIG. 4-46

The buttons for activating the hook in section 1 and the flipper used for turning the boards.

The flippers can also be activated with the foot switches located next to the OP control panels.



FIG. 4-47

The button for activating the hook in section 2

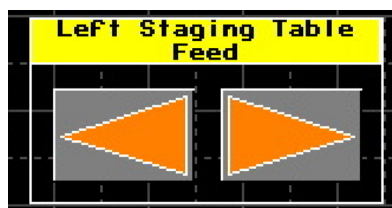


FIG. 4-48

These are the buttons used for activating the chains movement on the table, left/ right.

The left direction means the outward movement.

The right direction means the inward movement towards the infeed table chain.

4.4.5.5 Right Staging Table

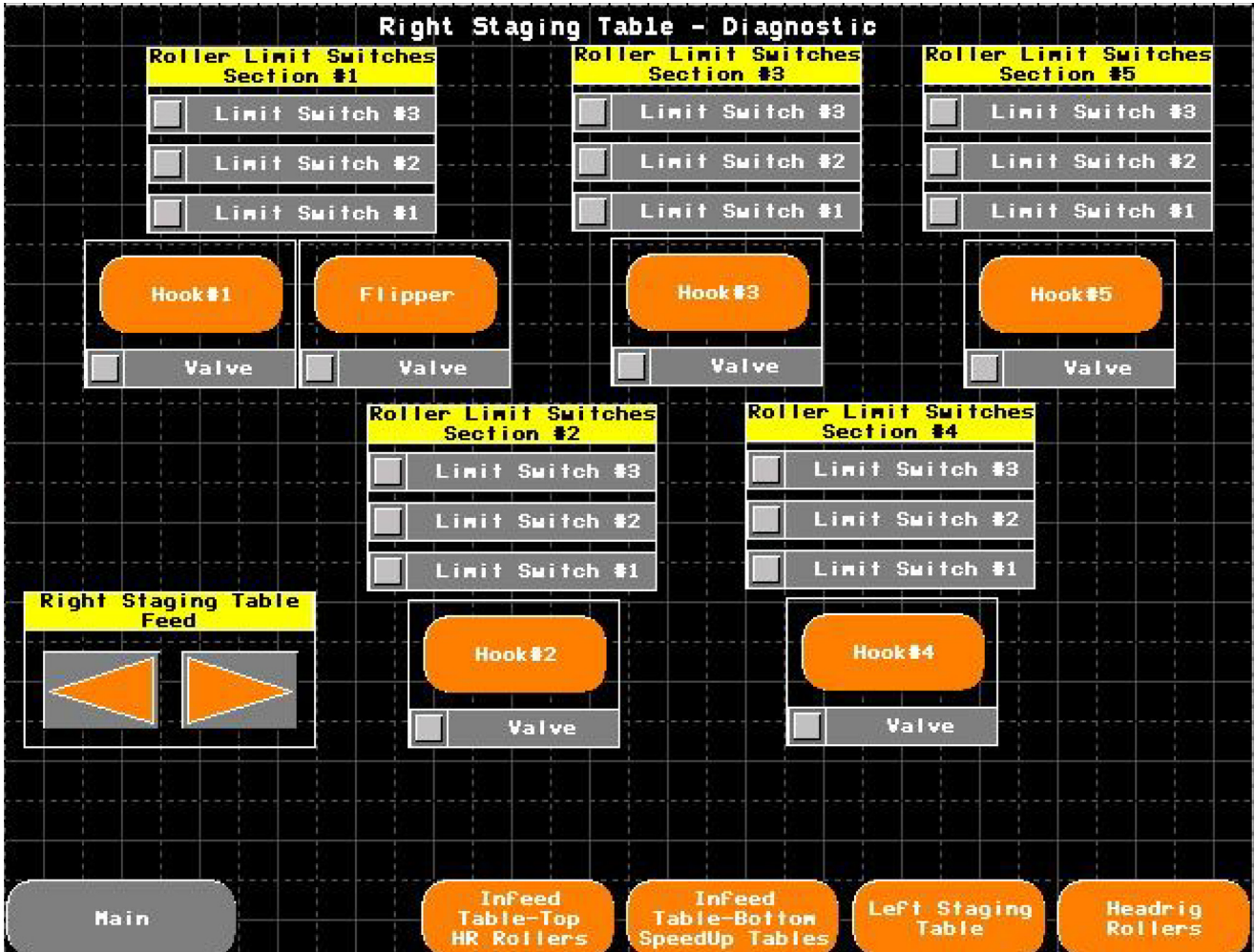


FIG. 4-49

The same description of the controls and the numbering as for the left staging table.

4.4.5.6 Headrig Rollers

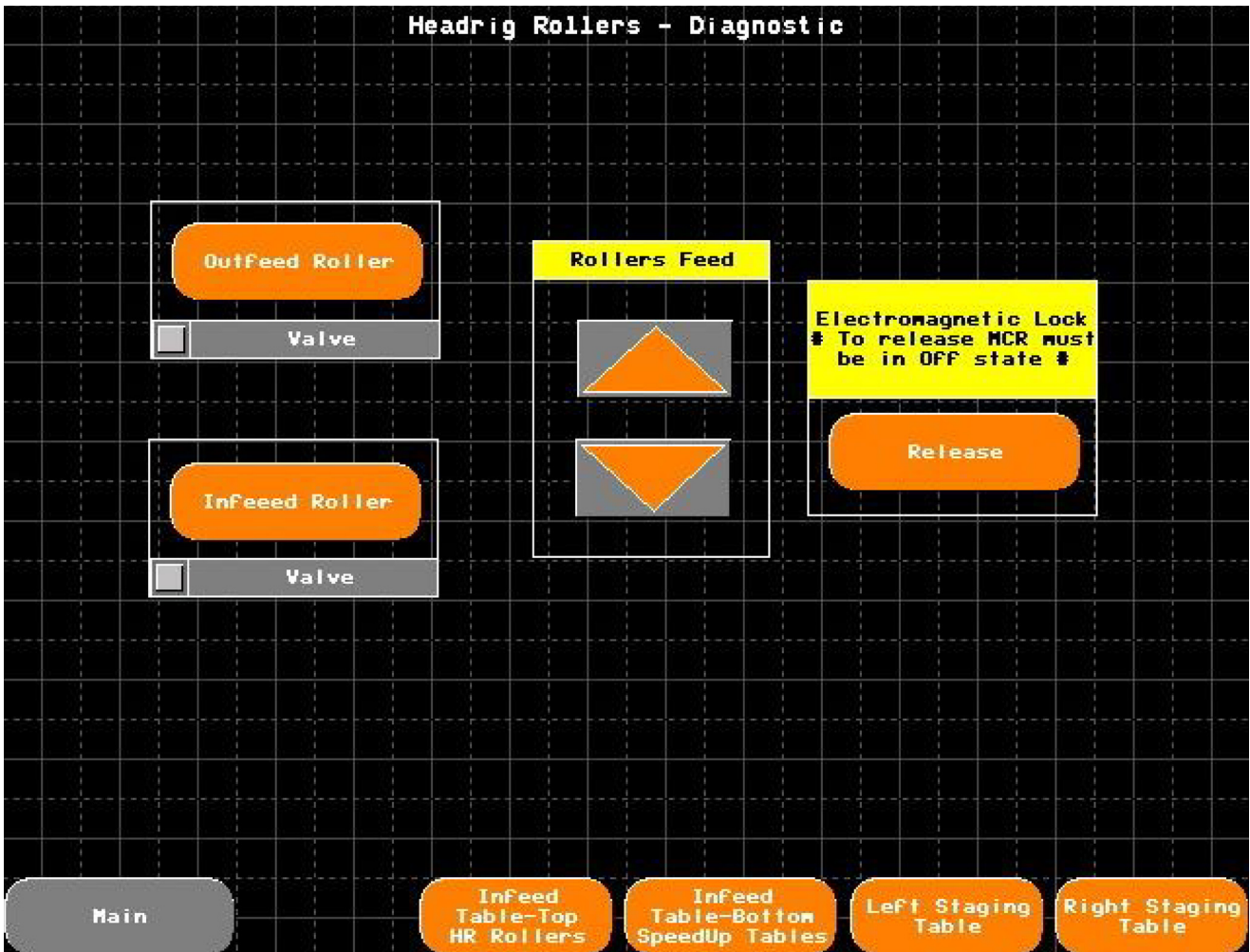


FIG. 4-50



FIG. 4-51

The button used for activating the outfeed roller - the upward movement



FIG. 4-52

The button used for activating the infeed roller – the downward movement

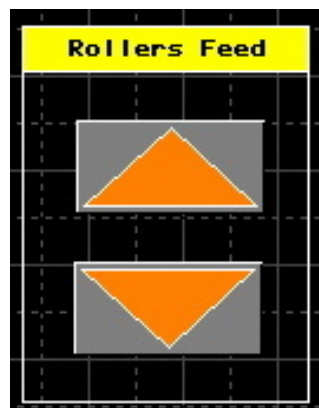


FIG. 4-53

The button used for activating the rollers feed in the edger - the forward and backward movement



FIG. 4-54

The button used for releasing the electromagnetic lock. The button is active at the moment the control circuits are turned off - the CONTROL POWER button on the OP control panel. Once the button has been pressed, 10 seconds are measured in order to make sure that the blades have been stopped.



FIG. 4-55

The LED indicators meaning

- Green – The key is inserted and locked.
- Orange – The key is not inserted.

In case of unlocking difficulties (a damage, a lack of voltage), a service key allowing manual unlocking is available.

It is located in the main electrical box.

The location of the soft starters in the main box:

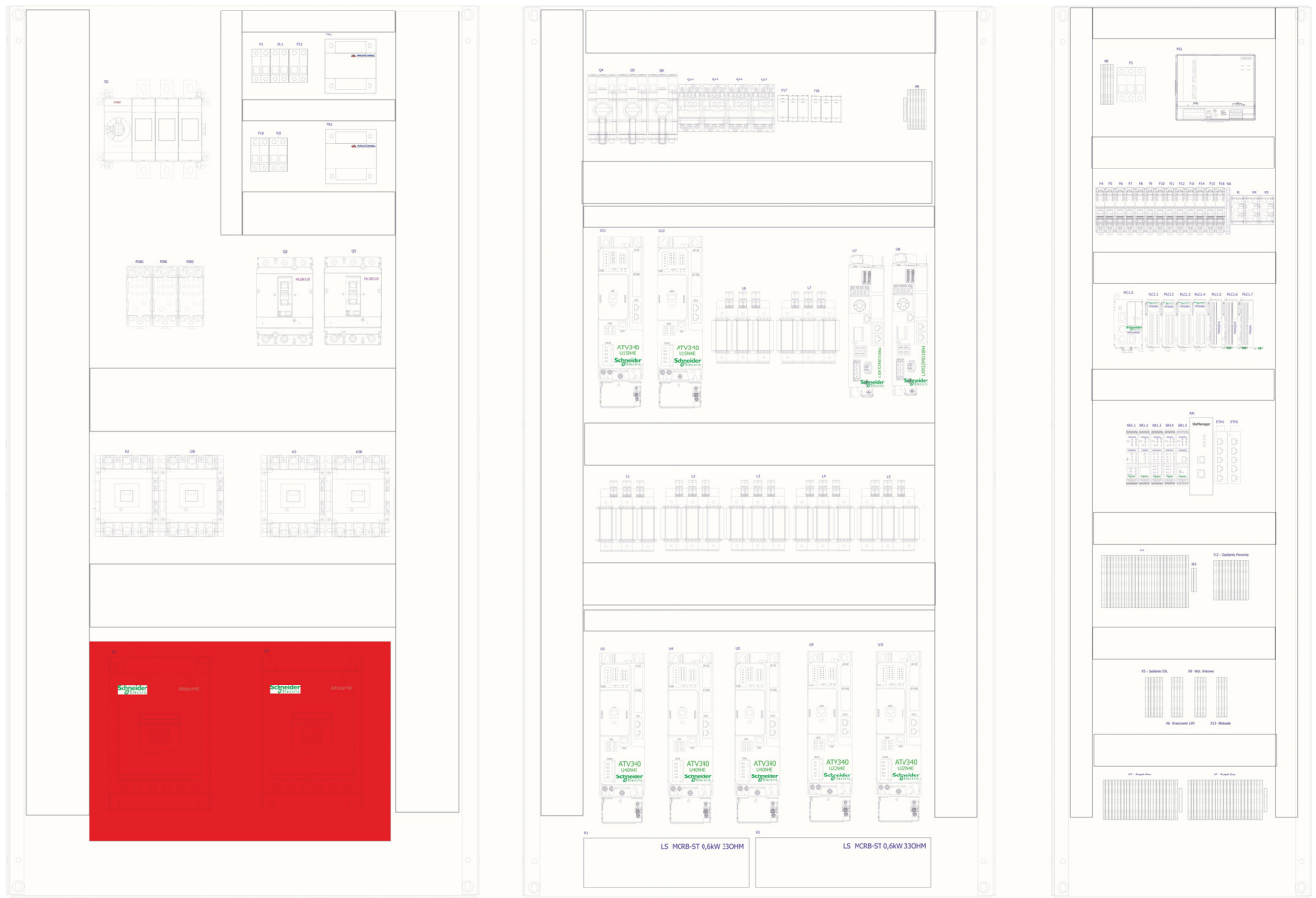


FIG. 4-57

Centraliser Out Position Fault – The centralisers base position fault, the material is jammed or the sensor is damaged. If the centralisers are not jammed, check if the diode located on the each centraliser air cylinder is on, if not, check the M12 connector, the sensor positions on the air cylinder, you can also use a magnet to do that.

The centralisers location:

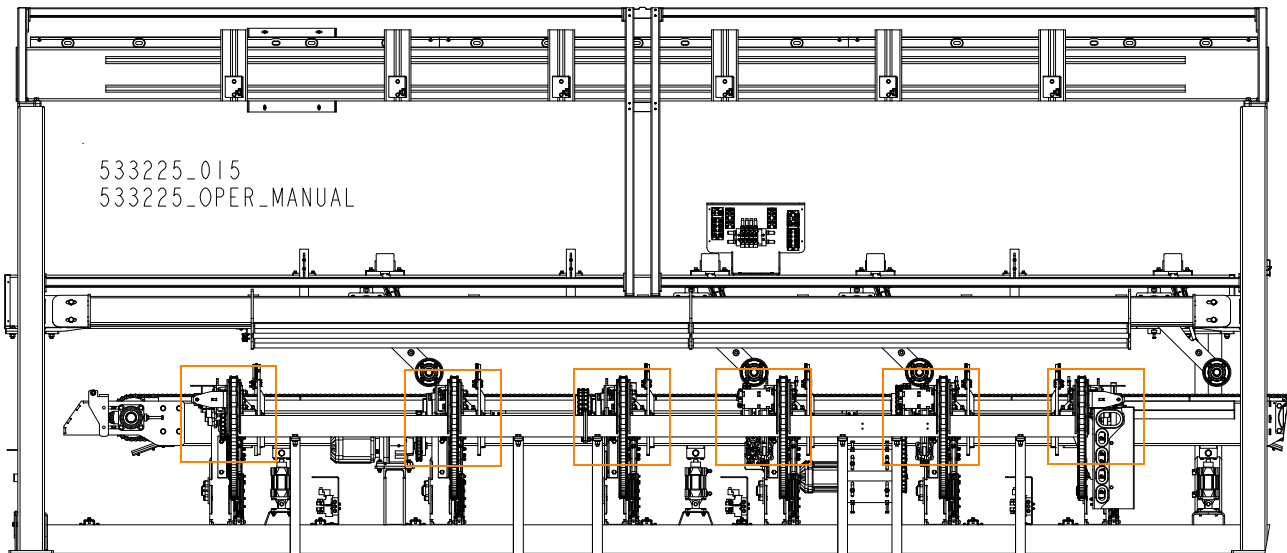


FIG. 4-58

Distance Sensors need to be calibrated - Up and Down - The distance sensors fault, the calibration is required, the description is in the manual.

Power Feed is disabled. Run Blade Motors - The feed fault, the feed is off, to enable the main motors, the feed needs to be turned on first.

Port#0 IOL Bottom Switch Disconnected - The device connected to the port#0 of the IO Link device located at the bottom of the infeed table is disconnected.

Port#1 IOL Bottom Switch Disconnected - The device connected to the port#1 of the IO Link device located at the bottom of the infeed table is disconnected.

Port#2 IOL Bottom Switch Disconnected - The device connected to the port#2 of the IO Link device located at the bottom of the infeed table is disconnected.

Port#3 IOL Bottom Switch Disconnected - The device connected to the port#3 of the IO Link device located at the bottom of the infeed table is disconnected.

Port#4 IOL Bottom Switch Disconnected - The device connected to the port#4 of the IO Link device located at the bottom of the infeed table is disconnected.

Port#5 IOL Bottom Switch Disconnected - The device connected to the port#5 of the IO Link device located at the bottom of the infeed table is disconnected.

Port#6 IOL Bottom Switch Disconnected - The device connected to the port#6 of the IO Link device located at the bottom of the infeed table is disconnected.

Port#7 IOL Bottom Switch Disconnected - The device connected to the port#7 of the IO Link device located at the bottom of the infeed table is disconnected.

Port#0 IOL Top Switch Disconnected - The device connected to the port#0 of the IO Link device located above the infeed table is disconnected.

Port#1 IOL Top Switch Disconnected - The device connected to the port#1 of the IO Link device located above the infeed table is disconnected.

Port#2 IOL Top Switch Disconnected - The device connected to the port#2 of the IO Link device located above the infeed table is disconnected.

Port#3 IOL Top Switch Disconnected - The device connected to the port#3 of the IO Link device located above the infeed table is disconnected.

Port#4 IOL Top Switch Disconnected - The device connected to the port#4 of the IO Link device located above the infeed table is disconnected.

Port#5 IOL Top Switch Disconnected - The device connected to the port#5 of the IO Link device located above the infeed table is disconnected.

Port#6 IOL Top Switch Disconnected - The device connected to the port#6 of the IO Link device located above the infeed table is disconnected.

Port#7 IOL Top Switch Disconnected - The device connected to the port#7 of the IO Link device located above the infeed table is disconnected.

The port#4 of the IO Link device located above the infeed table is not used, no device is connected there.

An arrangement of the ports on the IO Link device:

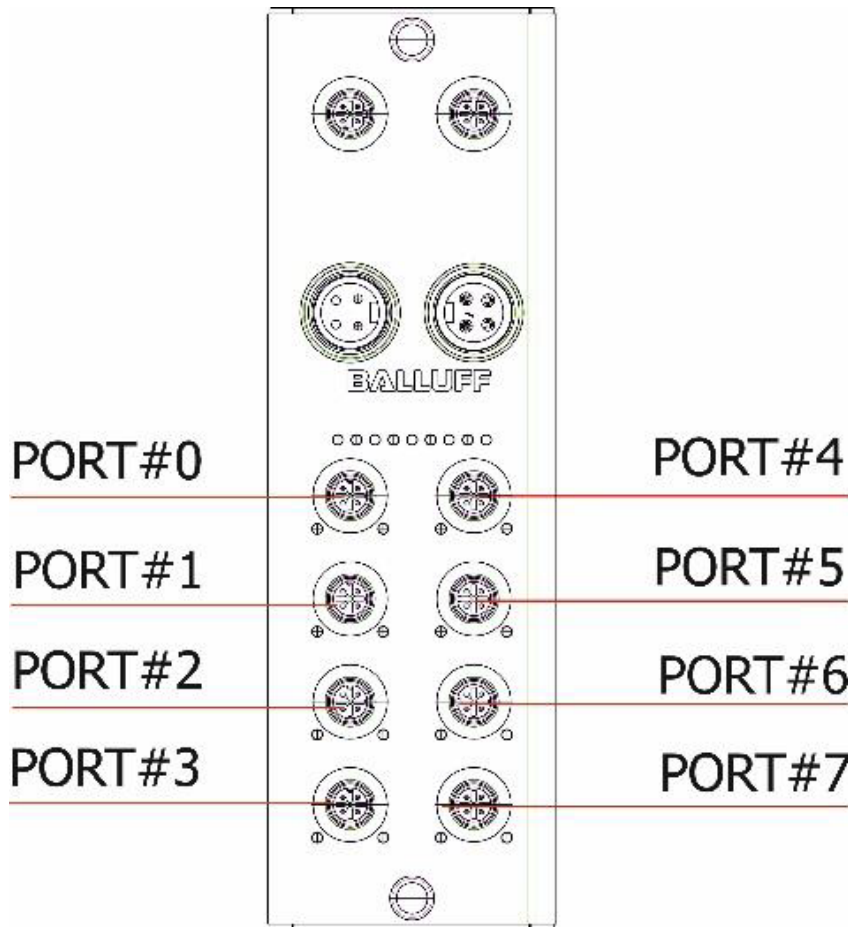


FIG. 4-59

The location of the device above the infeed table and under it.

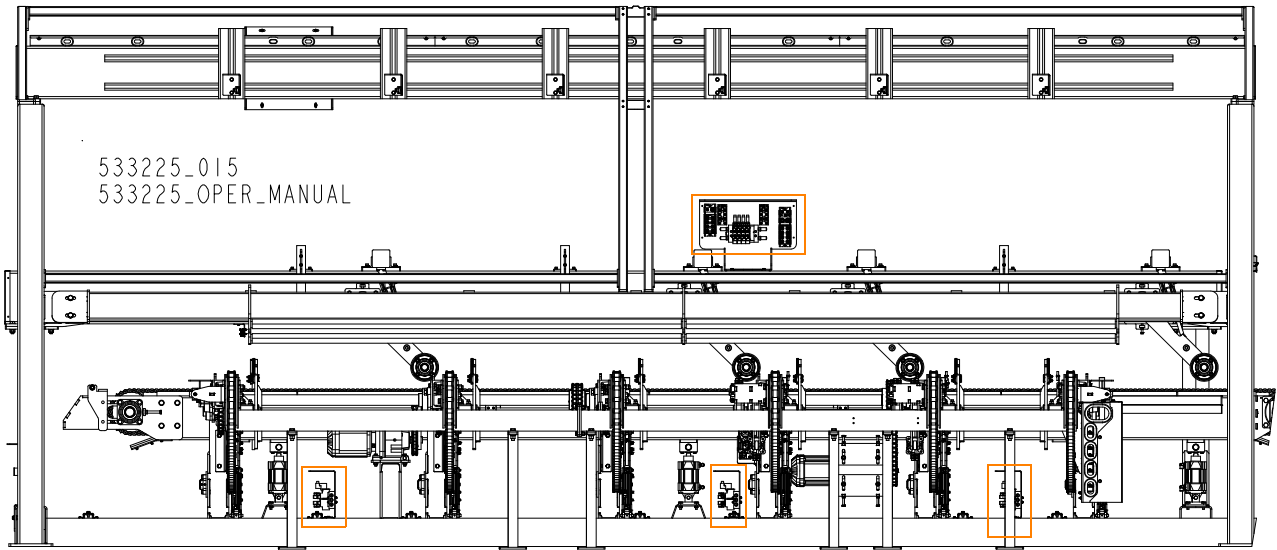


FIG. 4-60

Pressure Sensor Fault – The pressure sensor fault, a lack of or too low system pressure. If the manometer shows a correct pressure value, check the M12 connector and the wiring.

The sensor location:

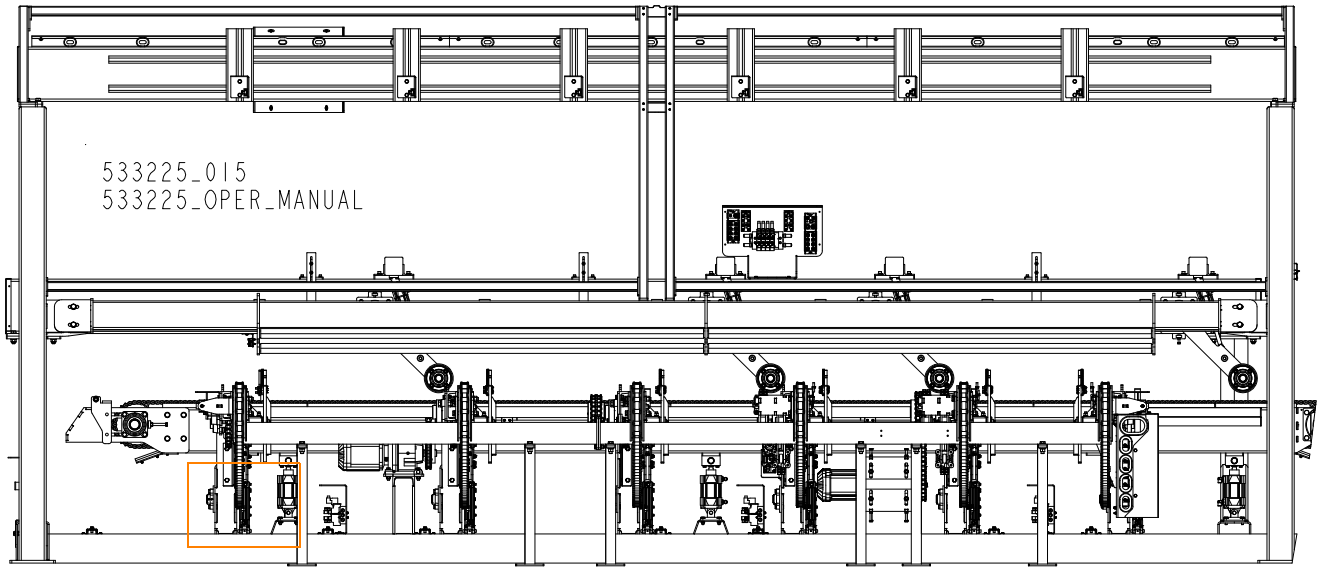


FIG. 4-61

Safety Controller Communication Fault - A fault of communication with the safety controller, check the Ethernet cable connecting the controller with the L1.W14 security controller.

The location of the controller and the safety controller in the main box:



FIG. 4-62

4.6 Messages Meaning

These are the messages displayed on a red background of the bottom bar.

Emergency Reset Cycle - The emergency cycle restart procedure is active, the machine is waiting for the feed to be started.

Headrig Drive Fault - The feed drive controller fault in the headrig, check the fault code in the window on the screen or in the main box on the drive controller display.

Infeed Drive Fault - The infeed table feed drive controller fault, check the fault code in the window on the screen or in the main box on the drive controller display.

Outfeed Drive Fault - The outfeed table feed drive controller fault, check the fault code in the window on the screen or in the main box on the drive controller display.

Left Speedup Drive Fault - The left speedup table feed drive controller fault, check the fault code in the window on the screen or in the main box on the drive controller display.

Right Speedup Drive Fault - The right speedup table feed drive controller fault, check the fault code in the window on the screen or in the main box on the drive controller display.

Left Staging Drive Fault - The left staging table feed drive controller fault, check the fault code in the window on the screen or in the main box on the drive controller display.

Right Staging Drive Fault - The right staging table feed drive controller fault, check the fault code in the window on the screen or in the main box on the drive controller display.

Left Servo Drive Fault - The left servo fault, check the fault code on the screen or in the main box, on the LXM32 motion servo drive screen.

Right Servo Drive Fault - The right servo fault, check the fault code on the screen or in the main box, on the LXM32 motion servo drive screen.

Ultimizer Receive Fault - A fault of communication with the scanner, no data was received within the given response time.

Operator Consoles Inactive - Neither of the consoles is active, to start operation you need to activate the consoles with the ACTIVE CONSOLE - PRIMARY or SECONDARY button.

E-Stop Active, Control circuits disabled - The emergency stop circuit is active or the safety controller has not been reset.

Mode Off - The console is active, but none of the operating modes (AUTO, MANUAL, SERVICE) has been selected.

Additionally, there is a warning in the form of the window that is displayed during cutting at the moment of lifting the infeed table.

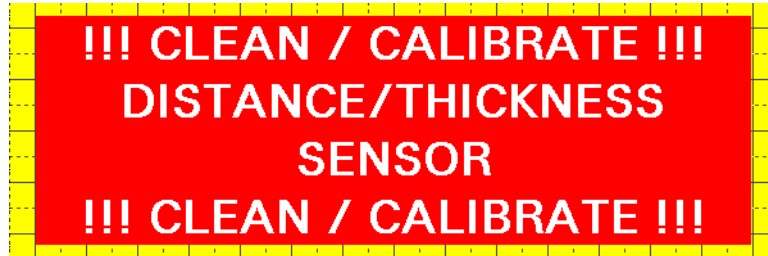


FIG. 4-63

The message informs about an incorrect board thickness reading and the need to clean the sensor (with a clean cloth or compressed air) or the need to calibrate the reading of the board thickness sensors. [See Section Infeed Table-Top HR Rollers](#)

4.7 Attachments – Error Codes – Soft Starters, Drive Controllers, and Servos

Soft starters– ATS48_Err.pdf – concerns U1, U2

Drive controllers – ATV340_Err.pdf – concerns U3-U6, U9-U12

Servos – LXM32_Err.pdf – concerns U7 i U8

SECTION 5 MAINTENANCE AND ALIGNMENT (EDGER)



WARNING! Before performing service near moving parts such as blades, pulleys, motors, belts and chains, set the main switch in the "0" position and disconnect the power cord.



WARNING! Always shut off the motor and allow all moving parts to come to a complete stop before removing any guards or covers. Do NOT operate with any guards or covers removed.



WARNING! Disconnect air supply and release compressed air from the air system before servicing the edger! Failure to do so may result in serious injury.

5.1 Lock-Out Procedure

"Lock-Out", or "Lock-out Tag-out" are terms that refer to procedures taken to prevent the unexpected start-up, or other release of energy by a machine, whenever anyone is required to remove or bypass safety devices, or whenever anyone is required to place part of his/her body in a hazard area.

In almost all jurisdictions, it is required that owners of industrial equipment establish and post lock-out procedures. Know and use the lock-out procedures of your company or organization. In the absence of such posted procedures, use the following.

Whenever work is to be performed on a machine, which requires bypassing of safety devices, or placement of part of anyone's body in a hazard area *and* in the absence of posted company procedures, the following steps shall be taken:

1. Position and support the head in a suitable position for the work to be done (for machines with movable heads).
2. Operator shuts down the machine.
3. The supervisor in charge of the machine must be informed of the intention to lock-out the machine.
4. The main power disconnect switch must be turned off, and locked in the off position by means of a padlock. The person performing the work on the machine must keep the key for this padlock. If more than one person is performing the work on the machine, then a multiple lock hasp shall be used, and each person shall apply his or her own lock to the hasp.
5. Prior to starting any work on the locked-out machine, the supervisor shall attempt to start the machine to ensure that the lock-out device provides adequate protection. Operating control must be reset to the "OFF" position after this test.
6. Work on the locked-out machine may now proceed.

5.2 General Maintenance Schedule

See Table. 5-1.

Item	Action	Frequency
Outfoxed section	Remove slivers	4 times per shift
Sensors	Clean, check	4 time per shift or as needed
Sawblades	change	As needed
Entire machine	clean and inspect	1 time per shift
Saw spindles	clean and inspect	1 time per shift
Electrics and motors	clean and inspect	1 time per shift
Air pressure	Check 6 bar	1 time per shift
Pneumatics	Check for leaks, drain filters	1 time per shift
Drive chains	inspect and lubricate	every 4 shifts
Hold down arms	check alignment	every 4 shifts
All bolts and grub screws	check and tighten	1 time per month
Gearboxes	Oil level	2 times per month
Spindle bearings	Grease	month (DO NOT OVERGREASE)
Electric connections	check all tight	every 3 months
Rollers	check for wear and play	every 3 months
Saw spindle	Check for alignment and wear	every 6 months
Pneumatic cylinders and valves	Full service	Annual shutdown

TABLE. 5-1

5.3 Common Troubleshooting Suggestions

See Table. 5-2.

Problem		Probable Cause		Solution	
1.	Blade stalls in cut	1a	Feed rate too high	1a	Decrease feed rate
		1b	Blade blunt	1b	Change blade
		1c	Blade set too small	1c	Increase blade set
2.	Saws start but feed will not run	2a	Potentiometer set on 0	2a	Set Potentiometer
		2b	Feed inverter tripped	2b	Reset power
		2c	Feed jammed	2c	Unjam feed
3.	Blade vibrates excessively	3a	Blades not level	3a	Change blades
		3b	Damaged arbour bearings	3b	Change arbour bearings
		3c	Damaged saw spacers	3c	Repair saw spacers
4.	Machine vibrates excessively	4a	Arbor nut loose	4a	Tighten Arbor nut
		4b	Damaged arbour bearings	4b	Change arbour bearings
		4c	Damaged saw spacers	4c	Repair saw spacers
5.	Saws will not start	5a	Motor overload tripped	5a	Reset overload
		5b	Main Breaker tripped	5b	Reset main breaker
		5c	E-Stop depressed	5c	Reset E-Stop

TABLE. 5-2

5.4 Blade Drive Switches Alignment

To adjust the inner and outer extreme positions of either of the moving arbors, perform the following steps:

5.4.1 Inner Switch Alignment

1. Unbolt switches cover (A) using bolts (B):

See Figure 5-1.

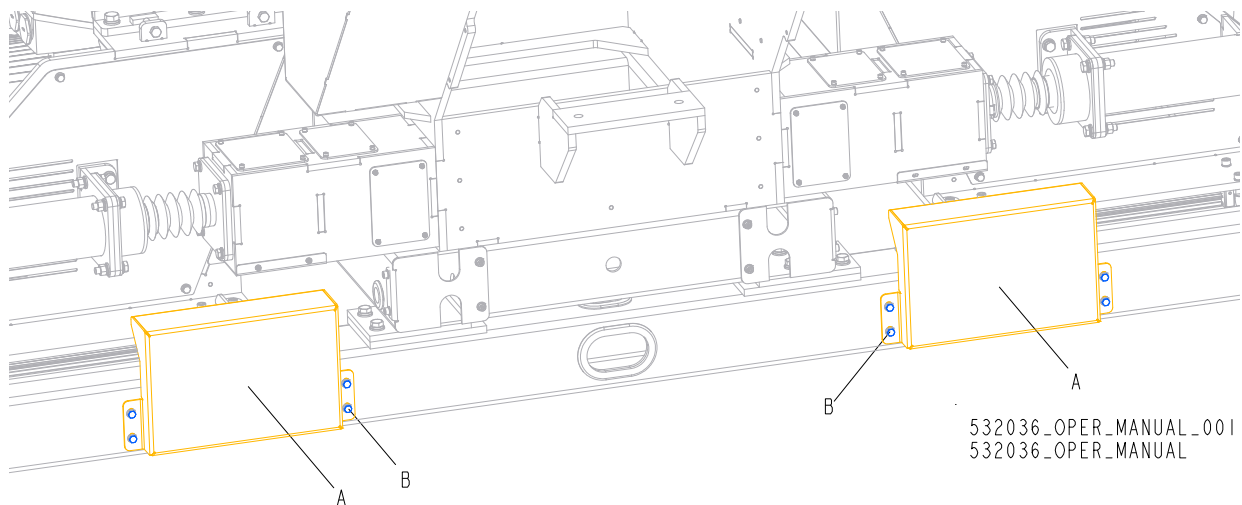


FIG. 5-1

See Figure 5-2.

2. Loose bolts (A)
3. Move out inner limit switch from trigger:
 - Move out the left inner limit switch mounting plate (B) from the trigger (C) to the right

- Move out the right inner limit switch mounting plate (D) from the trigger (E) to the left:

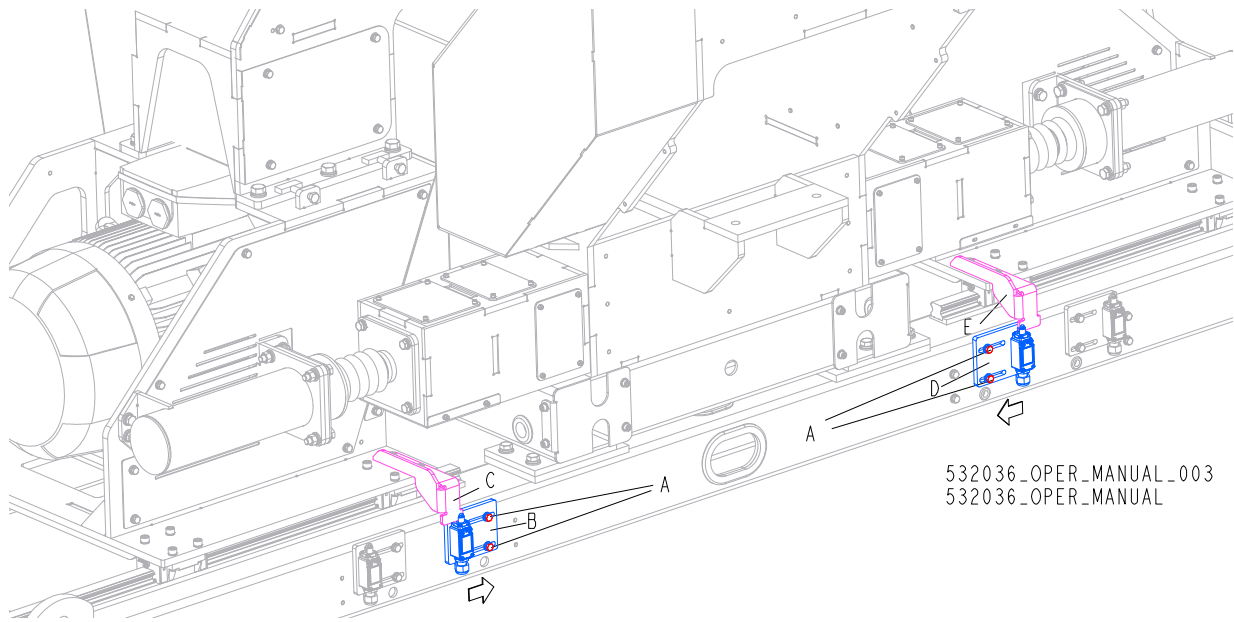


FIG. 5-2

- Set the distance between blades and axis of the frame as shown on the picture below (all dimensions are in mm).

See Figure 5-3.

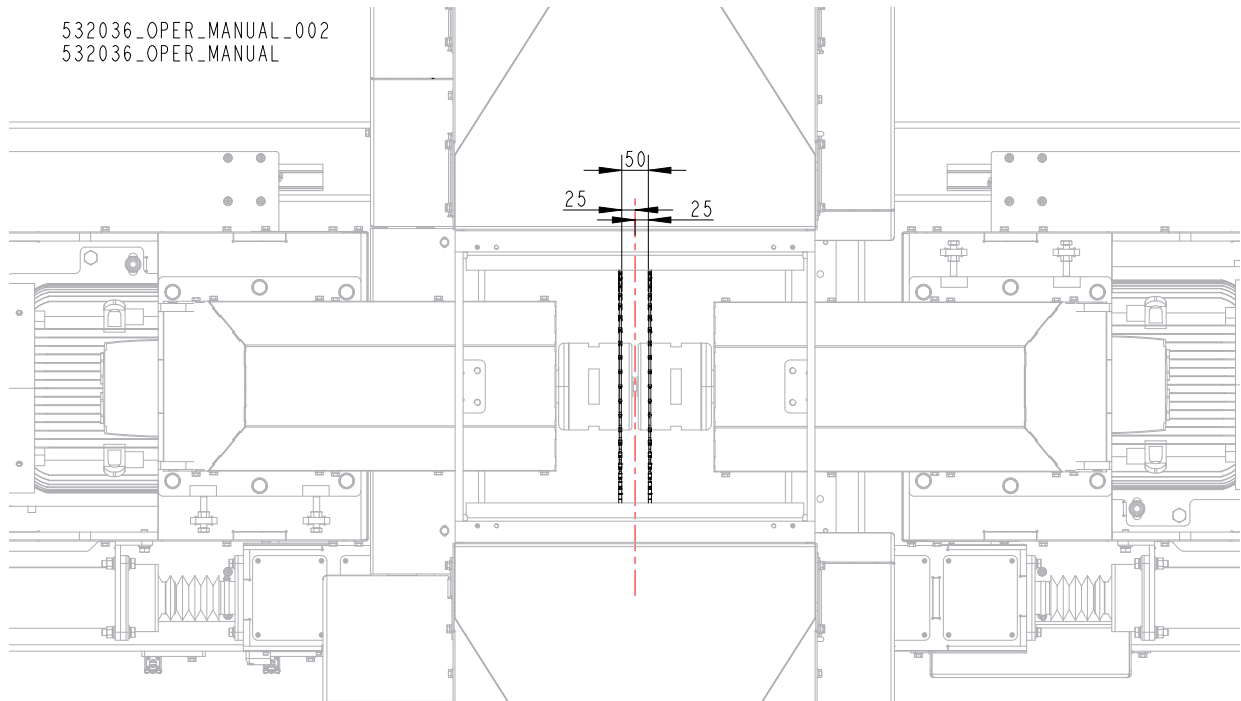


FIG. 5-3

- Move the limit switch mounting plate towards the trigger until the limit switch is activated:

See Figure 5-4.

- Move the mounting plate (B) towards the trigger (C) until the limit switch is activated
- Move the mounting plate (D) towards the trigger (E) until the limit switch is activated:
- Tighten firmly the mounting plates

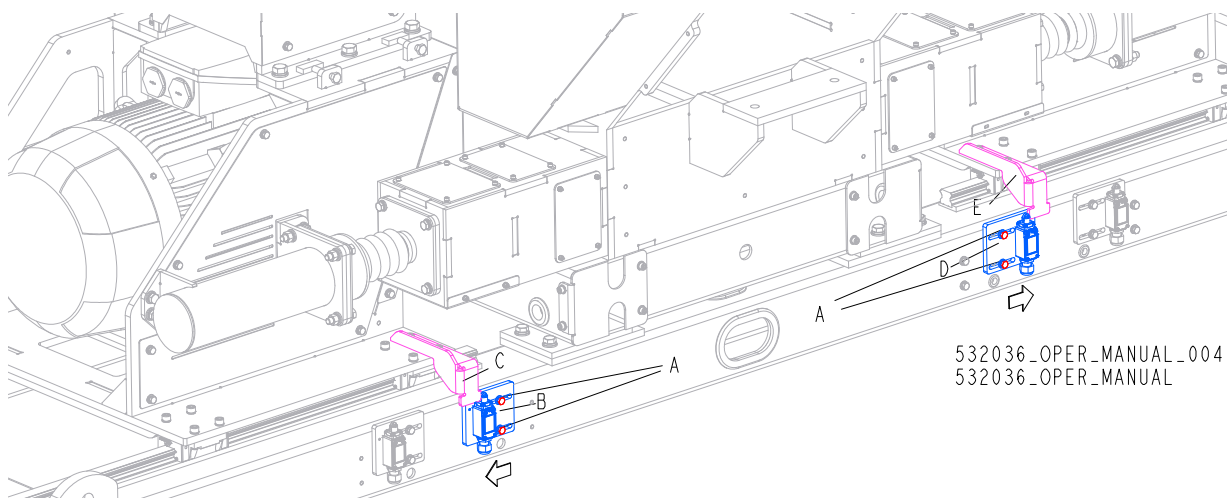


FIG. 5-4

6. Mount switches cover (A) using bolts (B) :

See Figure 5-5.

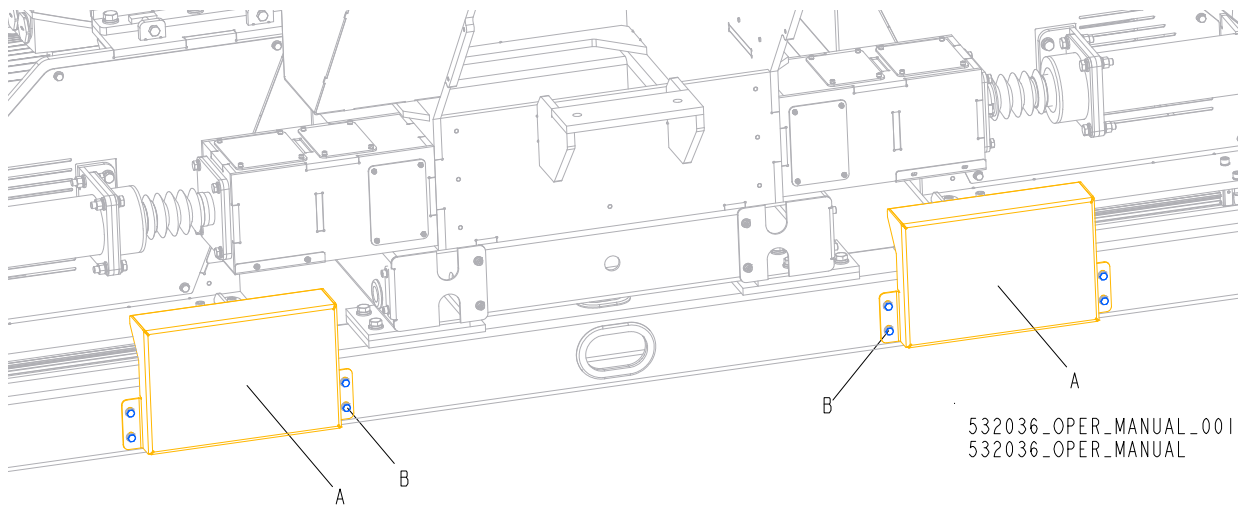


FIG. 5-5

5.4.2 Outer Switch Alignment

1. Unbolt switches cover (A) using bolts (B) :

See Figure 5-6.

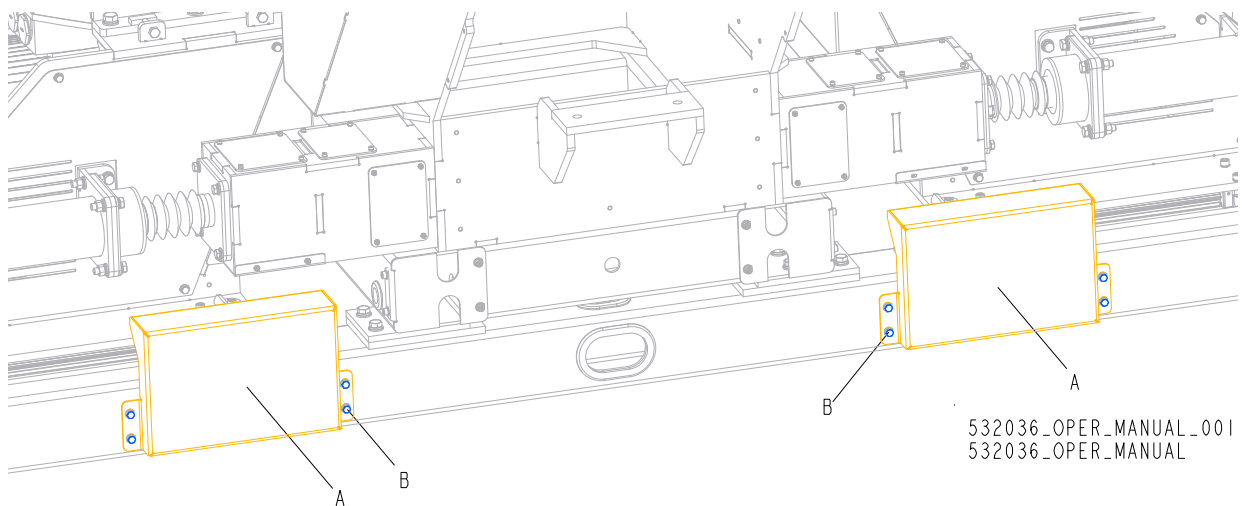


FIG. 5-6

See Figure 5-7.

2. Loose bolts (A)
3. Move out outer limit switch from trigger:
 - Move out the left outer limit switch mounting plate (B) from the trigger (C) to the left
 - Move out the right outer limit switch mounting plate (D) from the trigger (E) to the right:

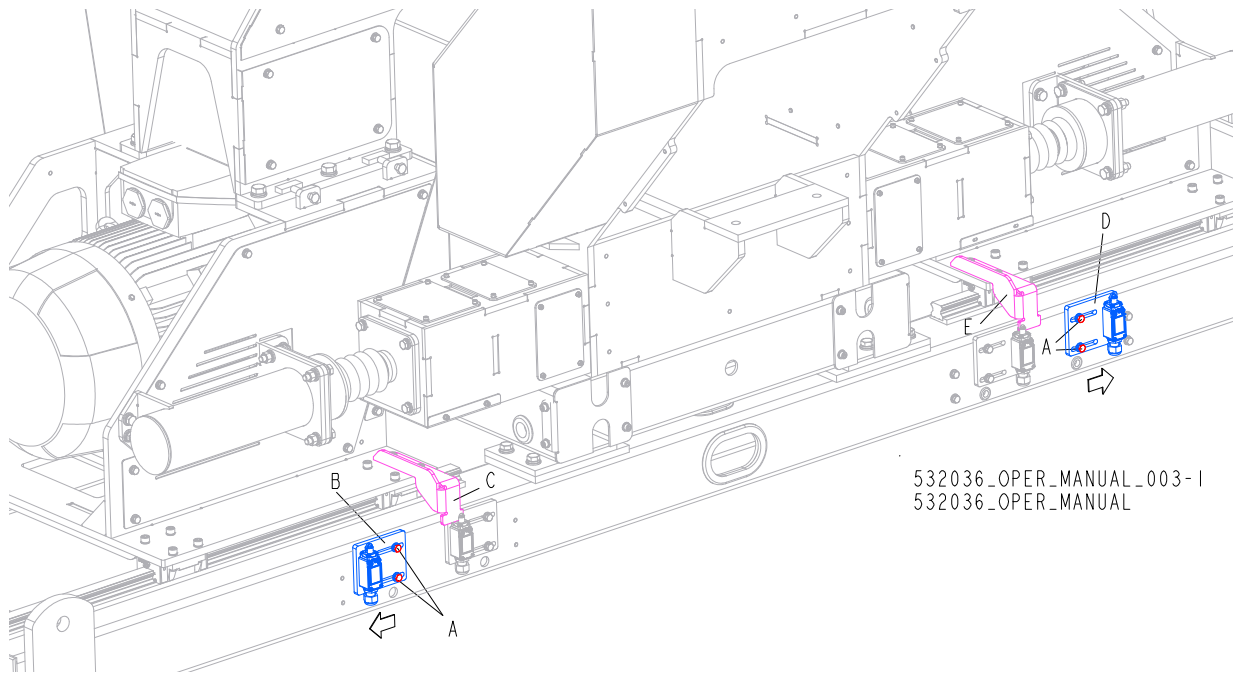


FIG. 5-7

4. Move the moving arbor out until the gap between the cover (A) and the side wall (B) is 5 mm.

See Figure 5-8.

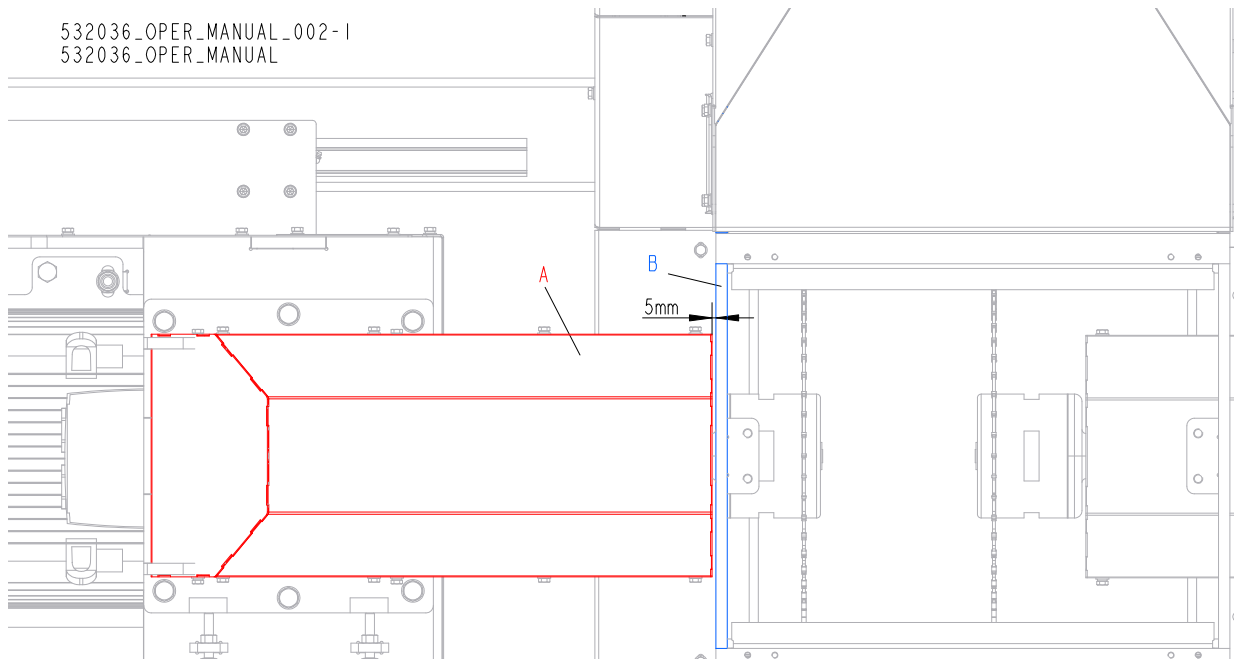


FIG. 5-8

5. Move the limit switch mounting plate towards the trigger until the limit switch is activated:

See Figure 5-9.

- Move the mounting plate (B) towards the trigger (C) until the limit switch is activated
- Move the mounting plate (D) towards the trigger (E) until the limit switch is activated
- Tighten firmly the mounting plates.

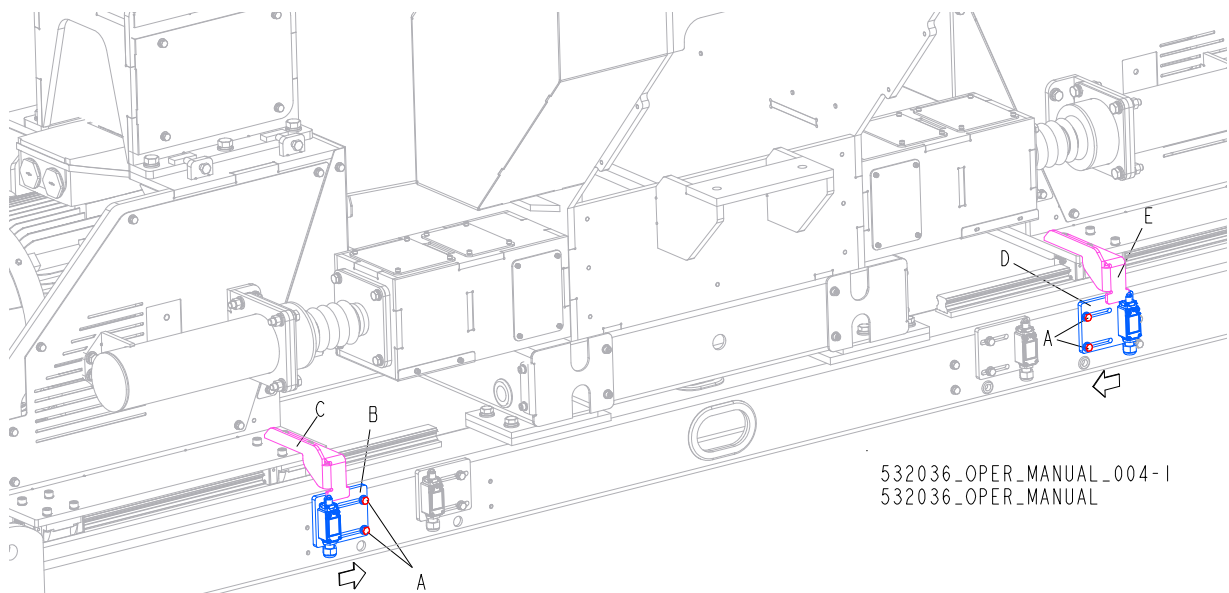


FIG. 5-9

6. Mount switches cover (A) using bolts (B) :

See Figure 5-10.

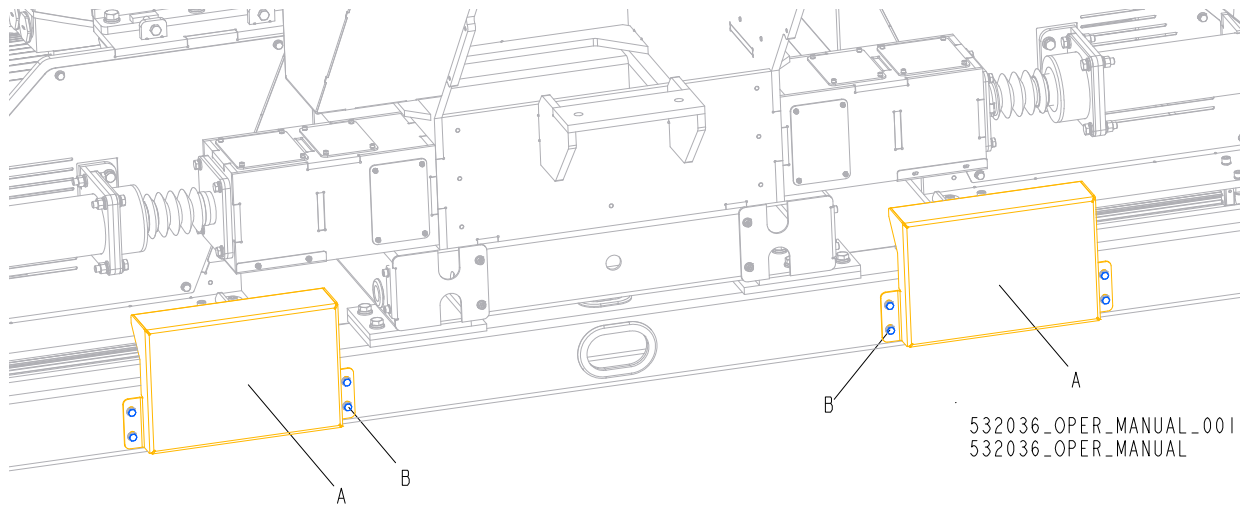


FIG. 5-10

5.5 Main Drive Belt Replacement

- 40 Check the new main drive belts tension after 40 hours of operation. Adjust the belts if necessary.
- 160 Check tension of the main drive belts every 160 hours of operation. Adjust the belts if necessary.

See Figure 5-11.

1. Move out the moving arbor.

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532036_OPER_MANUAL

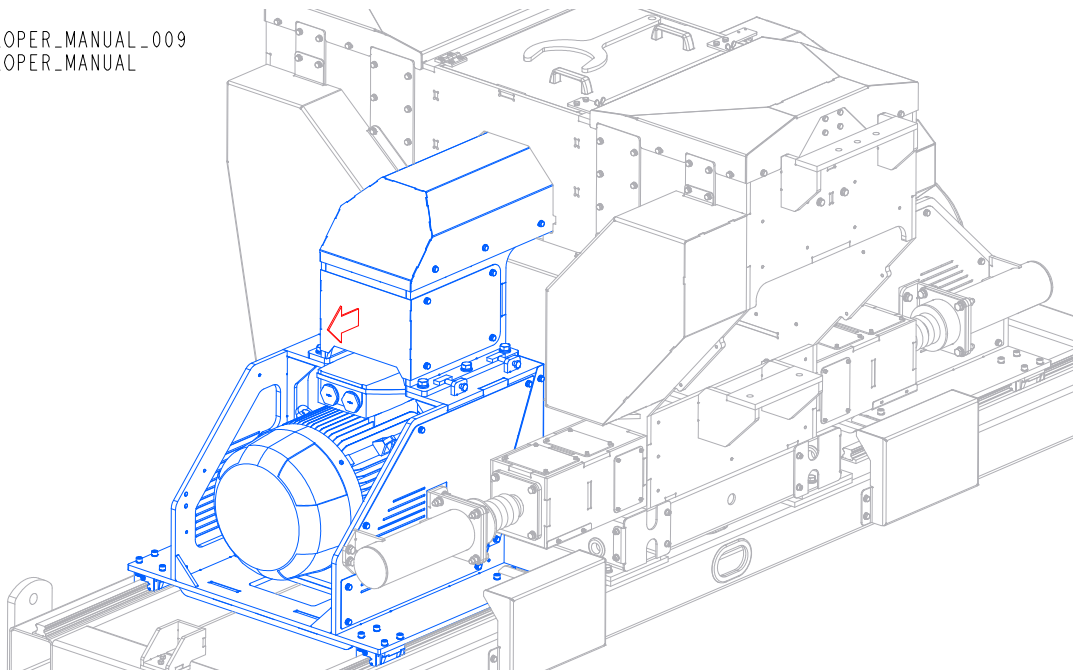


FIG. 5-11

2. Unbolt fasteners (A) and remove the Covers (B).

See Figure 5-12.

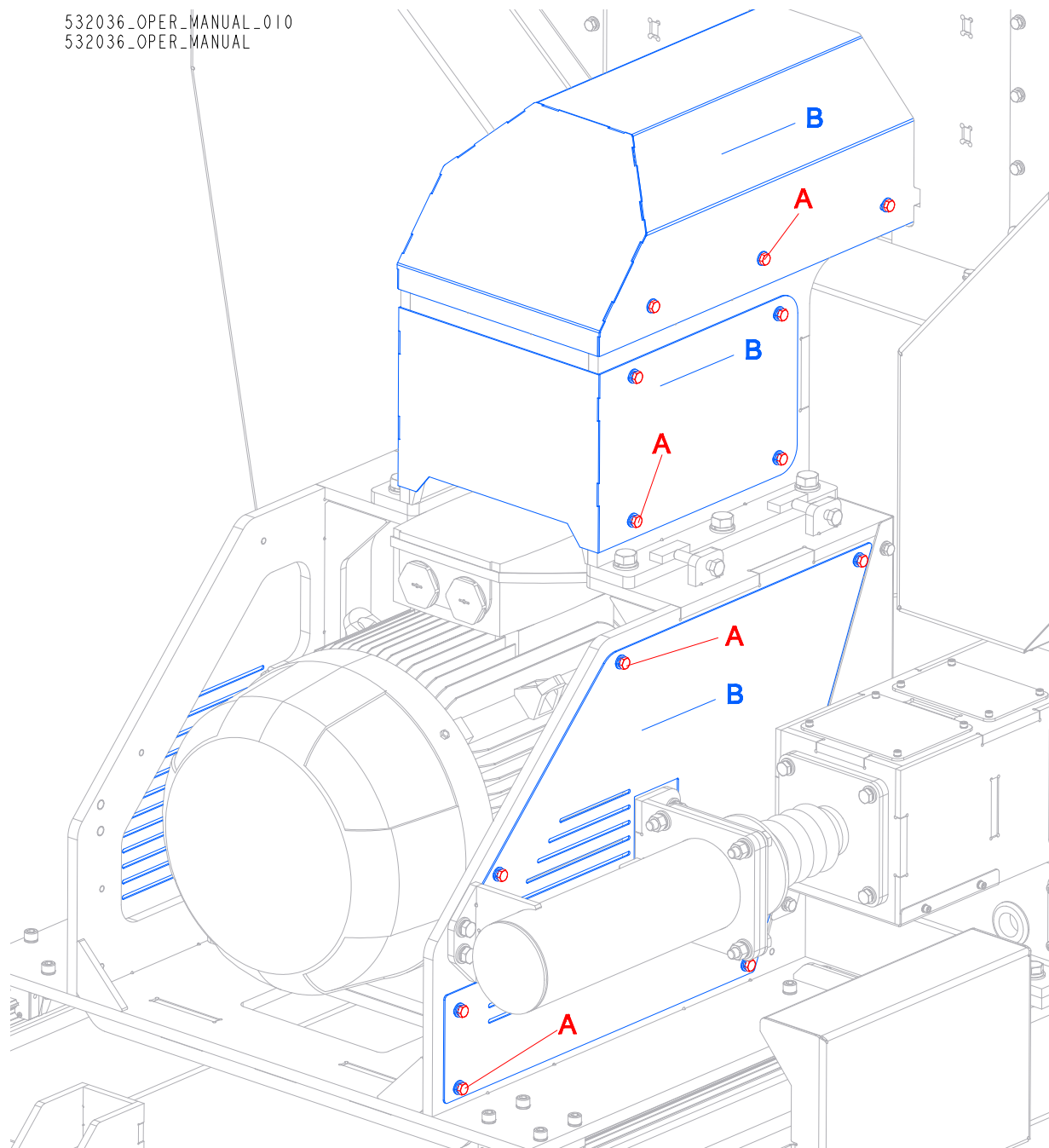


FIG. 5-12

See Figure 5-13.

3. Loosen nut (A)
4. Loosen bolt (B) to apply less tension to the driving belts.
5. Loosen bolts (C) of the bearing housings.

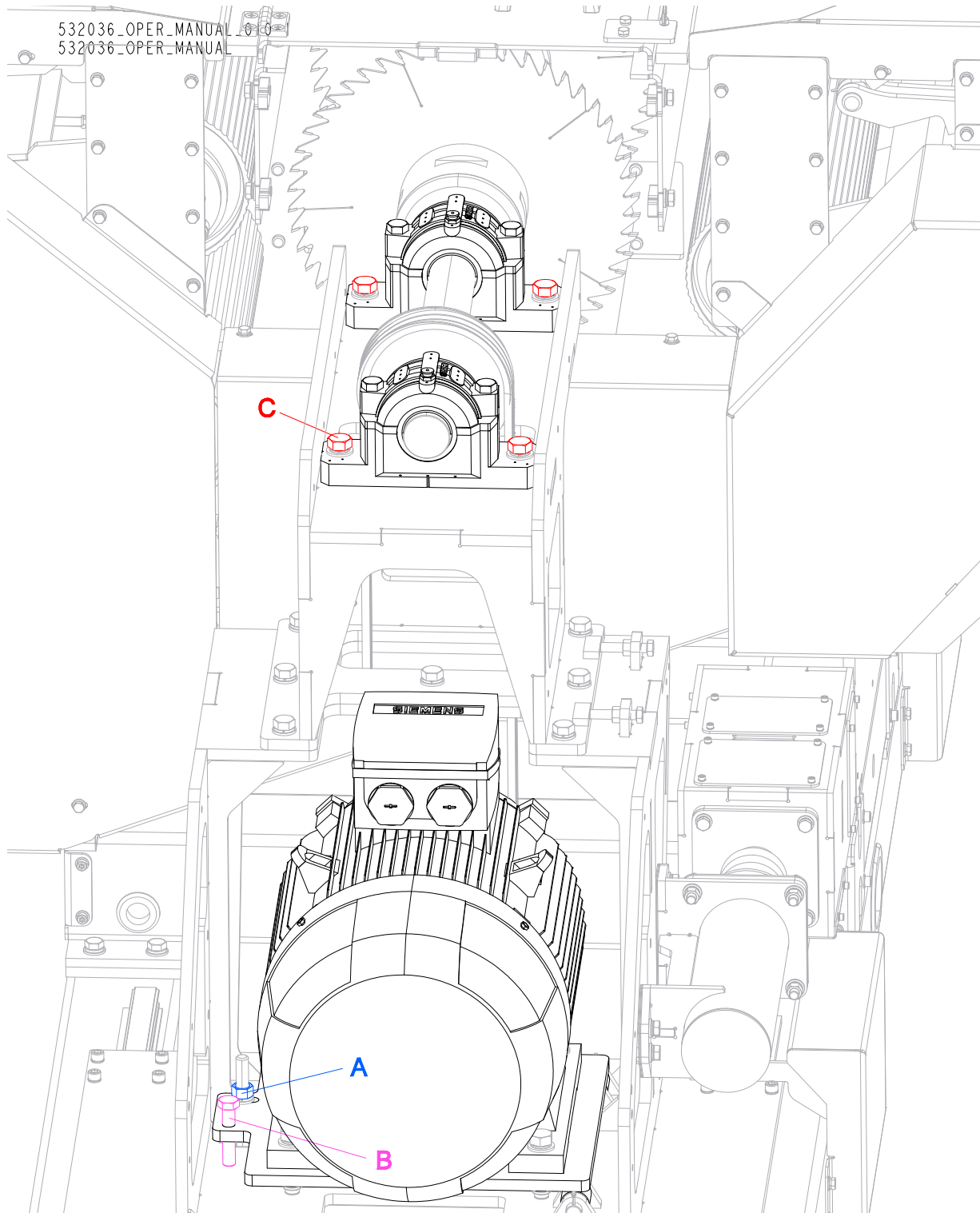


FIG. 5-13

See Figure 5-14.

6. Move up arbor assembly (A) to replace drive belts (B).

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532036_OPER_MANUAL

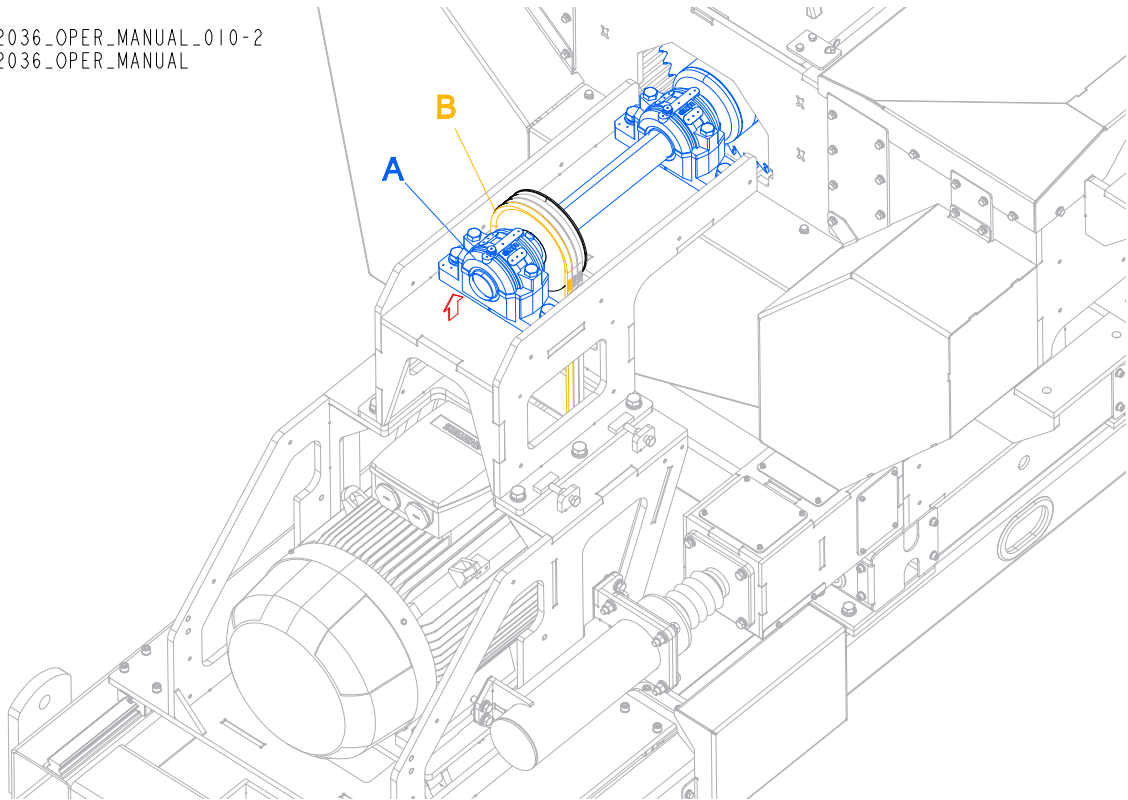


FIG. 5-14

See Figure 5-15.

7. Tighten bolts (C) of the bearing housings.

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532036_OPER_MANUAL

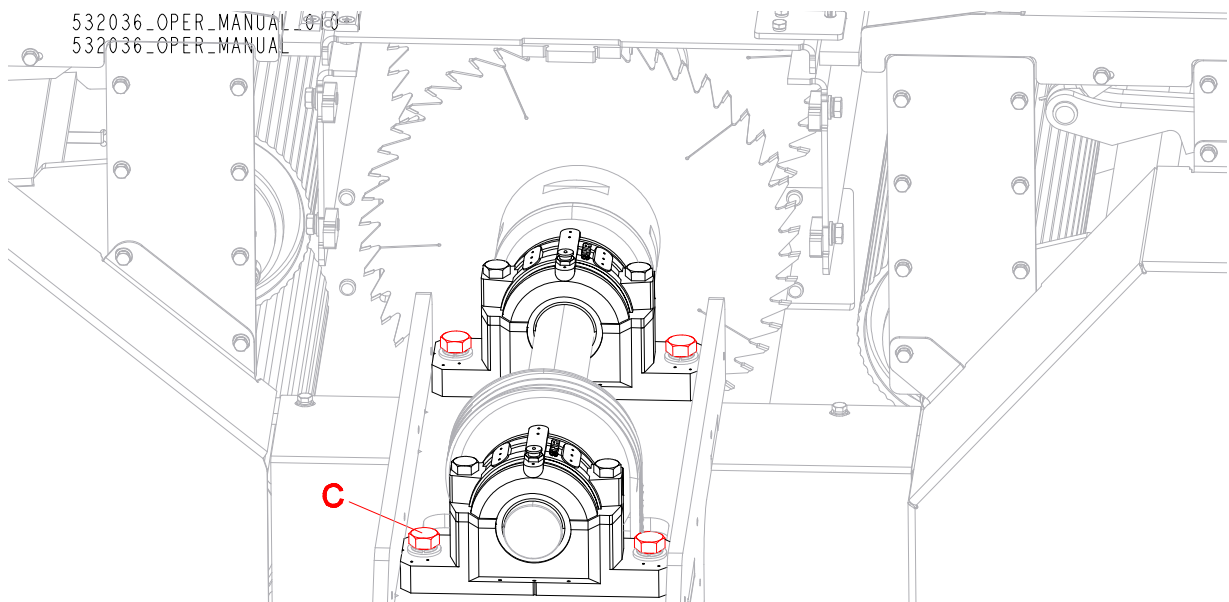


FIG. 5-15

8. Mount previously removed covers.
9. Adjust tension of the main drive belts. [See Section 5.8.1](#)

5.6 Adjusting the Edger Press Rollers

5.6.1 Adjusting the Infeed Press Roller

- To adjust infeed press roller (B), use the nut (A). Be sure the distance between rollers (B) is minimum **20 mm**.

See Figure 5-16.

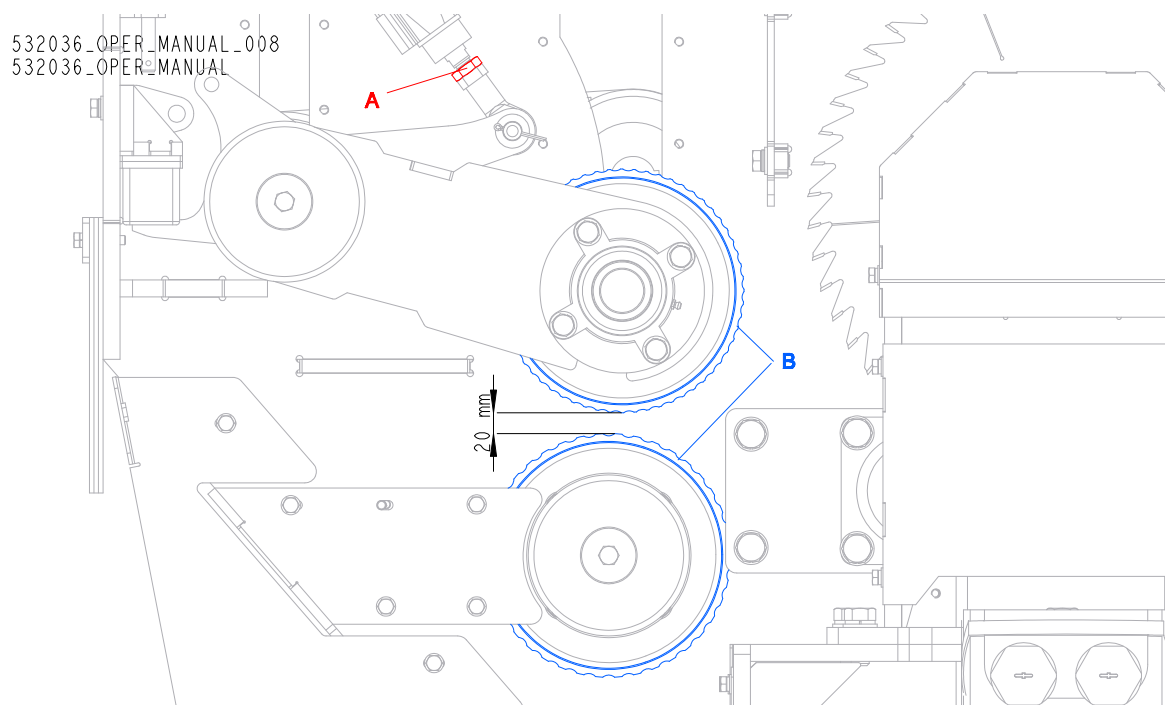


FIG. 5-16

5.6.2 Adjusting the Outfeed Press Roller

- To adjust outfeed press roller (B), use the nut (A). Be sure the distance between roller (B) and outfeed chain (C) is minimum **20 mm**.

See Figure 5-17.

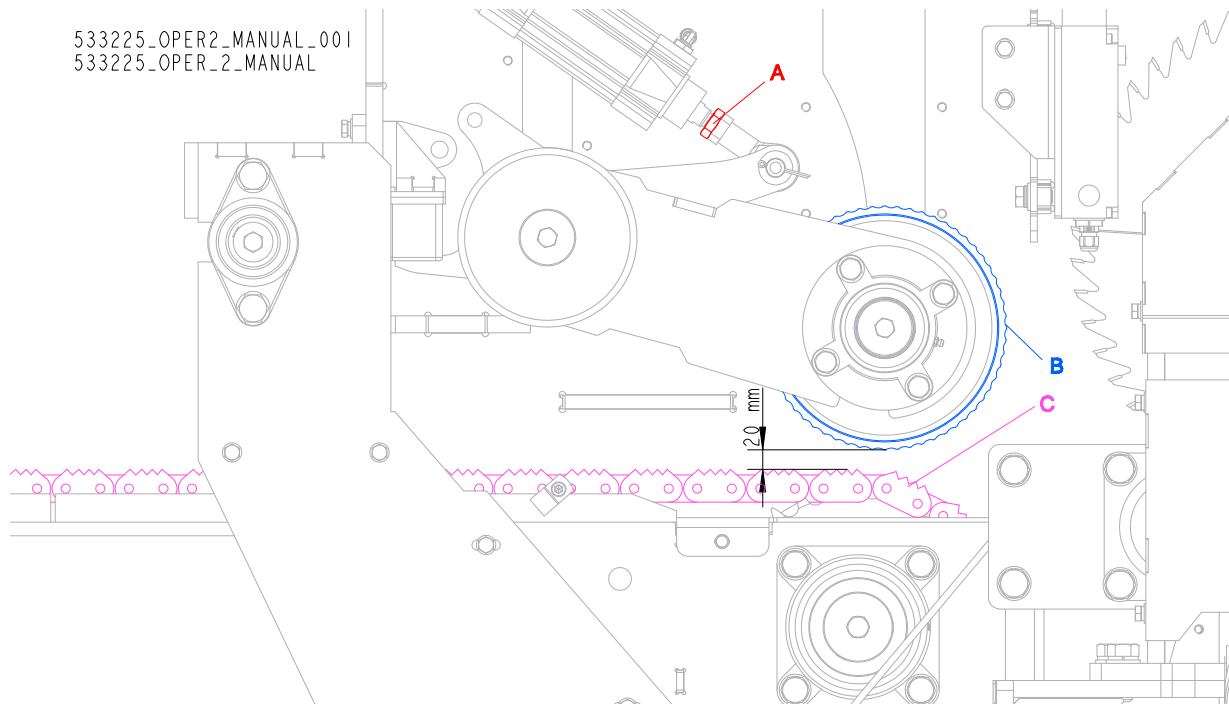




FIG. 5-17

5.7 Replacing the Blades

Replace the blades as necessary. Dull blades will cause the motors to work harder and will result in decreased cut quality and accuracy. Blade life will vary depending on maintenance of the machine, the operator, as well as species and condition of wood being sawn.

 **DANGER!** Before changing the blades, make sure all rotating parts have come to a complete stop and the motor is shut off completely. Turn the main switch to the "0" position and disconnect the power cord. Failing to do so can cause serious injury.

 **WARNING!** Always wear eye, glove and foot protection when handling the blades.

1. Move the blades all the way out (to the maximum cutting width)

See Figure 5-18.

2. Turn off the blade motors and wait until the solenoid interlock (A) is inactive. Then set the main switch in the "0" position and disconnect the power cord.

3. Unscrew fasteners (B)
4. Move the blade housing (C) to access the blades

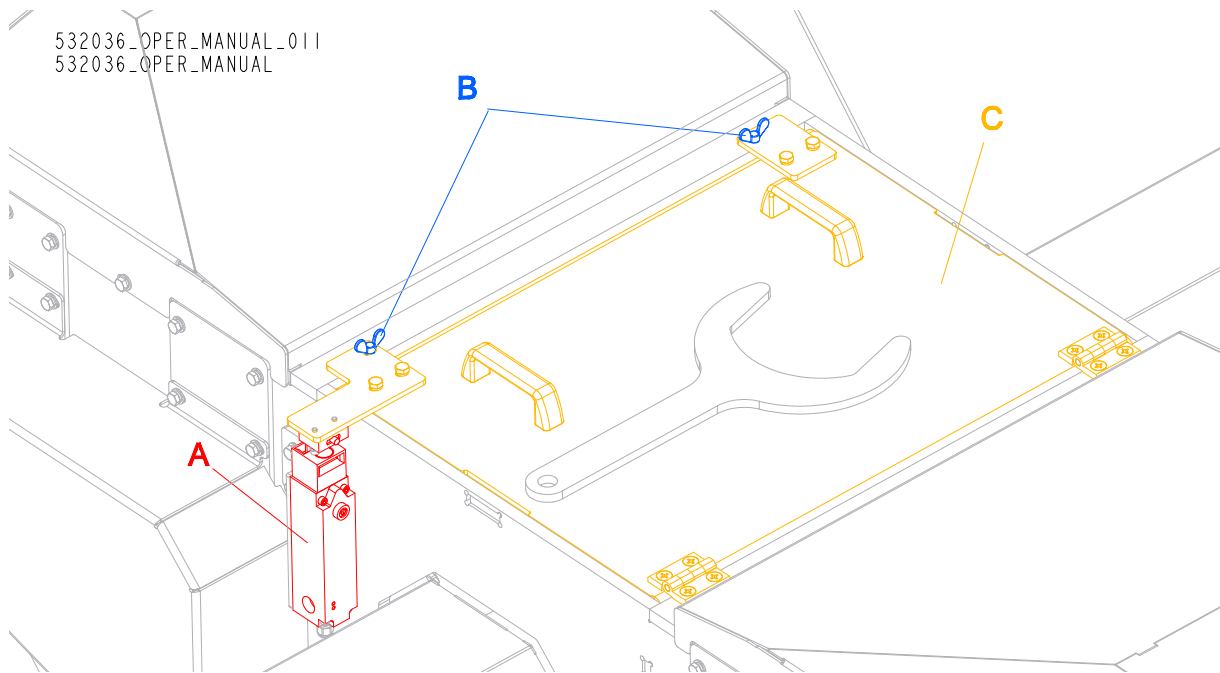


FIG. 5-18

See Figure 5-19.

See Figure 5-20.

5. Place the provided wrench (A) on the spacer (B).
6. Use allen wrench to loosen and remove the bolt (C). One of the bolts (C) has right and the other has left thread. Directions of turn to **loosen** or to **tighten** them are showed in Fig. 5-20.
7. Remove arbor cap (D) and replace the blade (E).
8. Refit arbor cap (D), mount and tighten allen bolt (C), remove wrench (A)

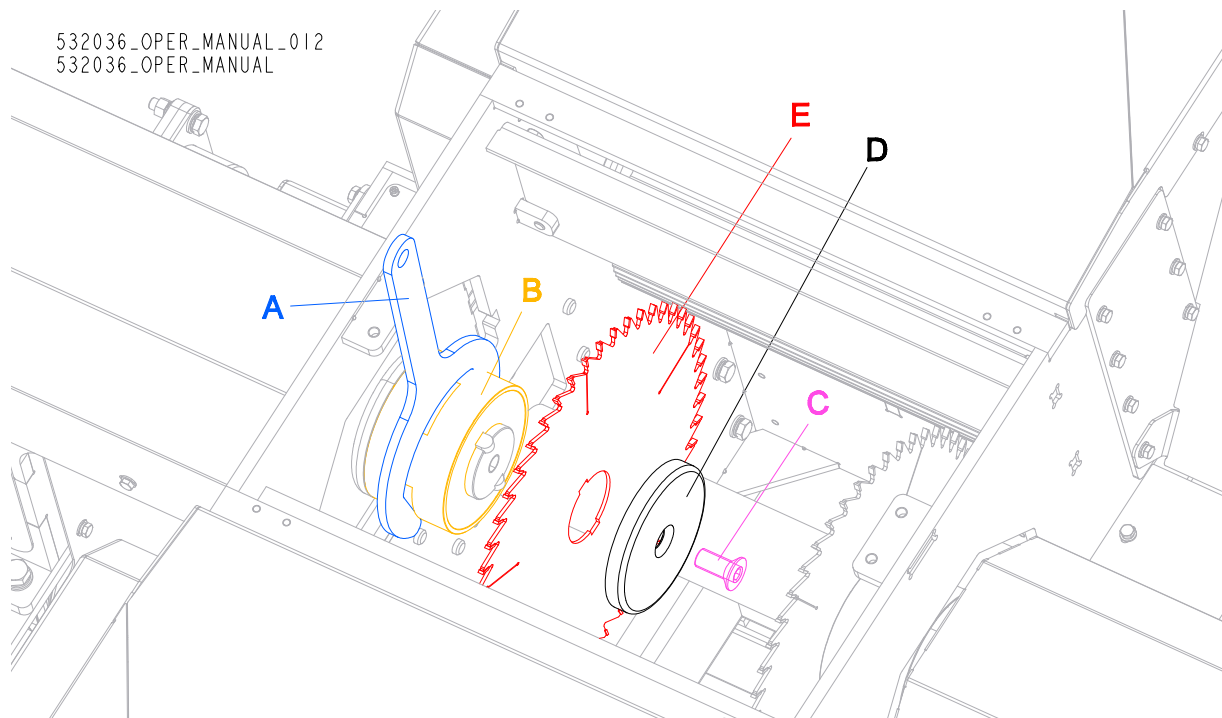


FIG. 5-19

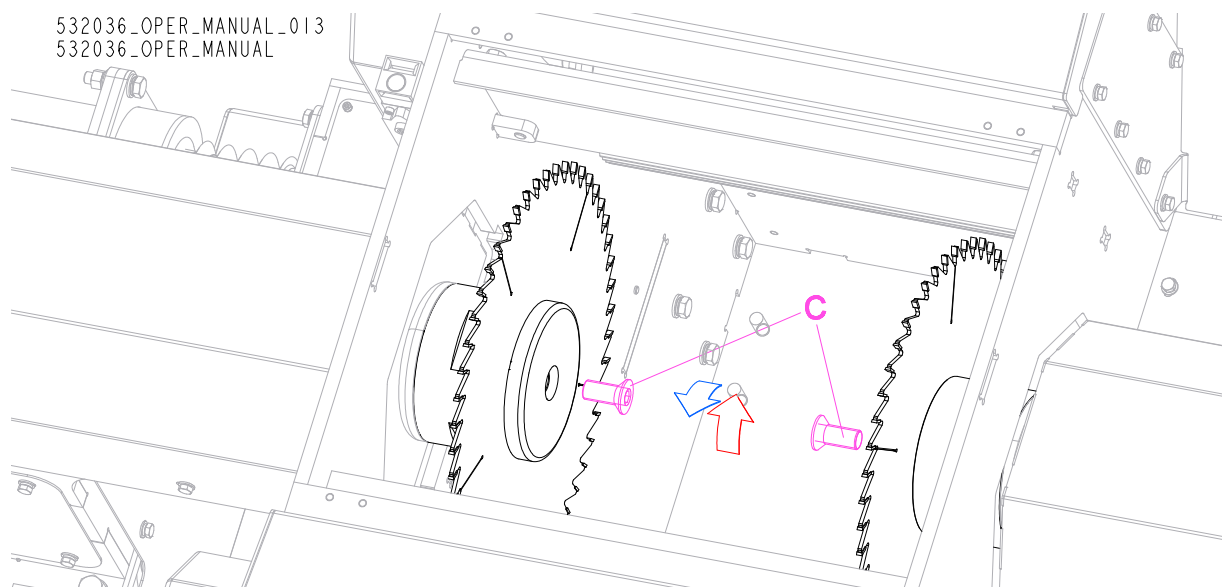


FIG. 5-20

See Figure 5-21.

9. Close blade housing (C) and secure it with screws (B).

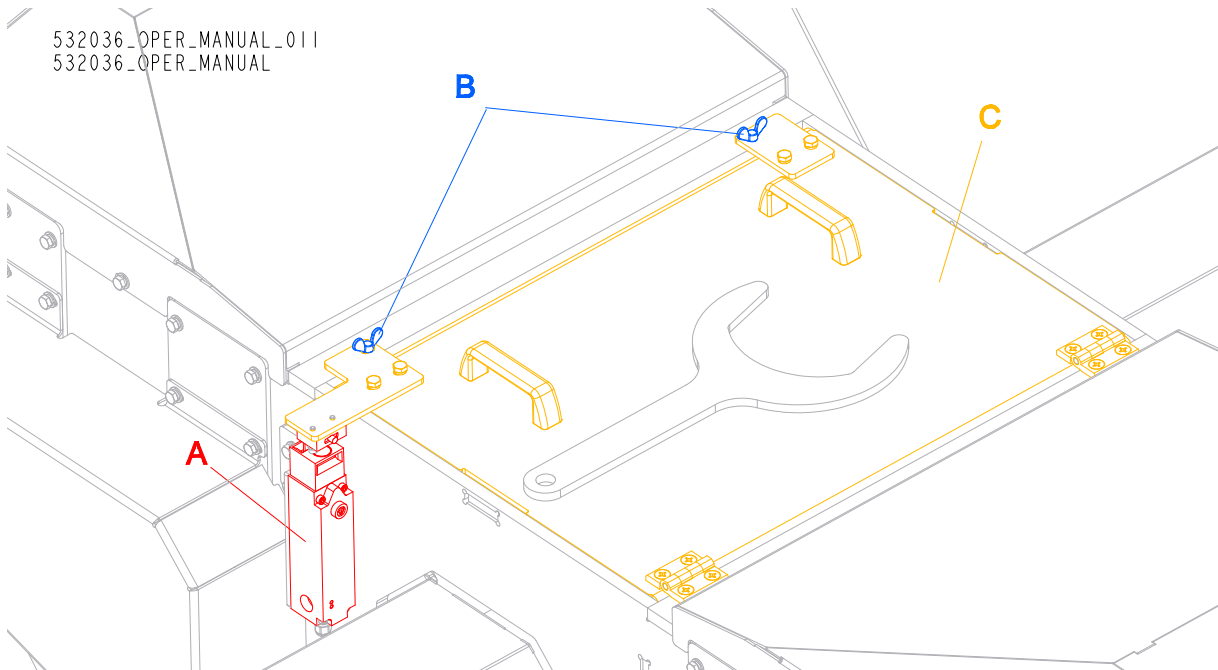


FIG. 5-21

5.8 Tensioning the Chains and Belts



DANGER! Always shut off the motor and allow all moving parts to come to a complete stop before removing any guards or covers. Failure to do so may result in serious injury.

Before tensioning the chains, make sure the motor is turned off and the main switch is in the "0" position. Disconnect the power cord. Failure to do so may result in serious injury.

5.8.1 Main Drive Belt Tensioning



Check the new main drive belts tension after 40 hours of operation. Adjust the belt if necessary.



.Check the main drive belts tension every 160 hours of operation. Adjust the belt if necessary.

See Figure 5-22.

1. Move out the moving arbor.

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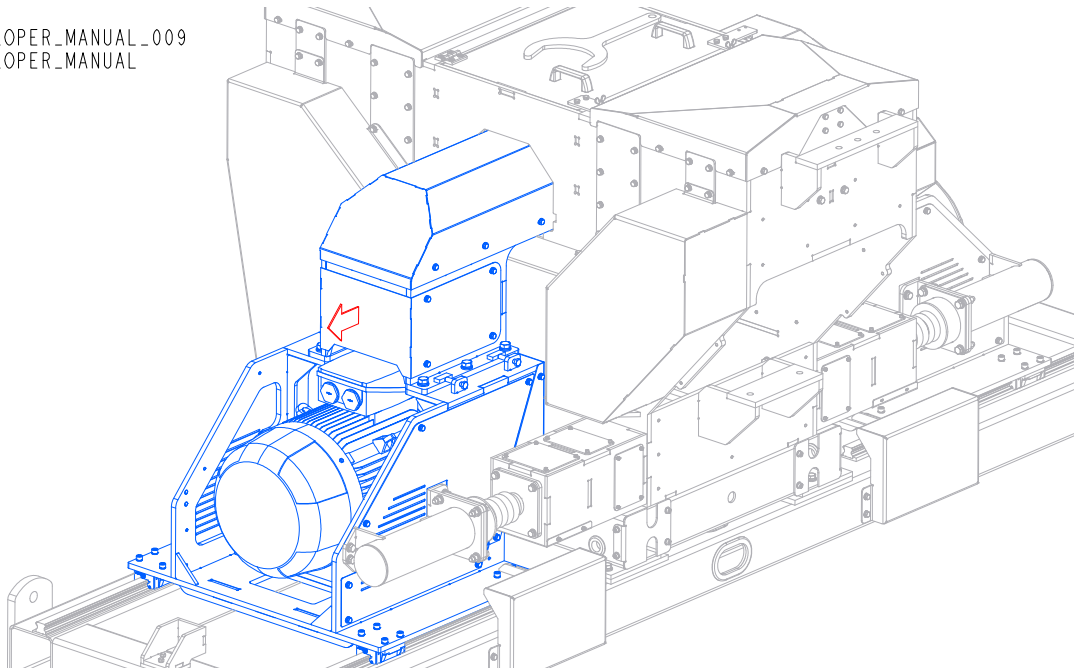


FIG. 5-22

See Figure 5-23.

2. Unbolt fasteners (A) and remove the guard (B).

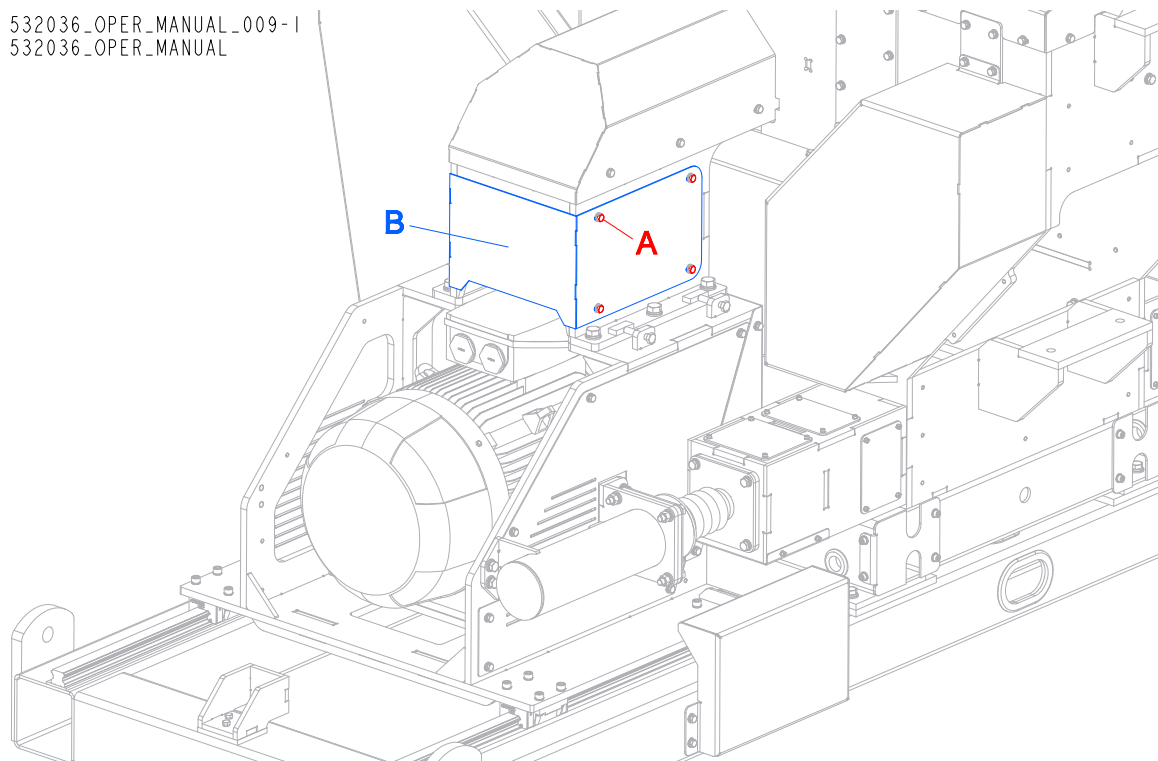


FIG. 5-23

See Figure 5-24.

3. Loosen the nut (A)
4. Using the bolt (B) rise or lower the motor to adjust tension of the belts. (C)
5. Tension the belts to have approximately 6 mm of deflection when applying the force: 1,4 kg (for new belt) or 1,2 - 1,3 kg (for used belt).
6. Tighten the nut (A).

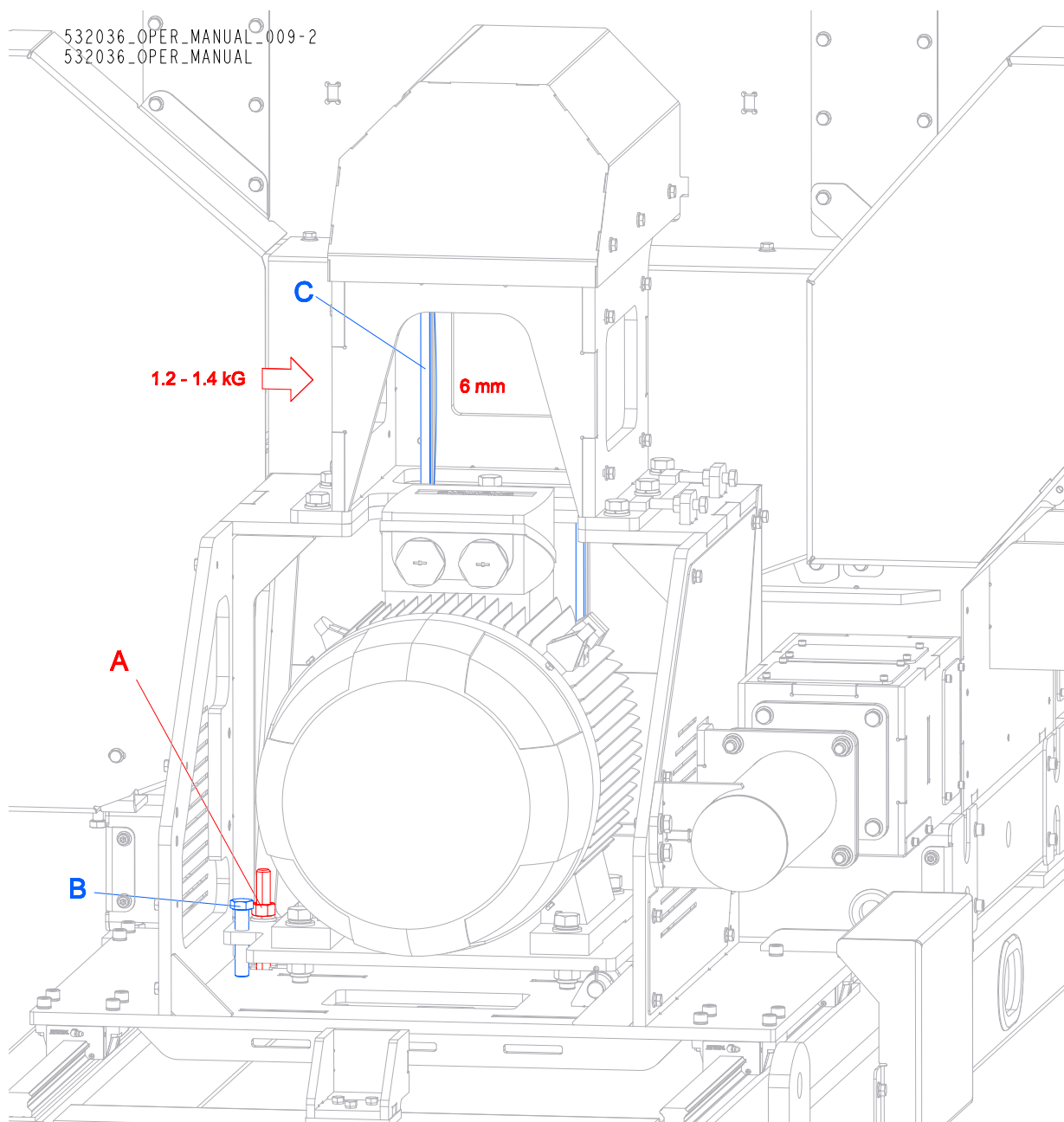


FIG. 5-24

7. Reinstall previously removed cover.

5.8.2 Drive Belt Tensioning

1. Unbolt fasteners (A) and remove the guard (B) shown below.

See Figure 5-25.

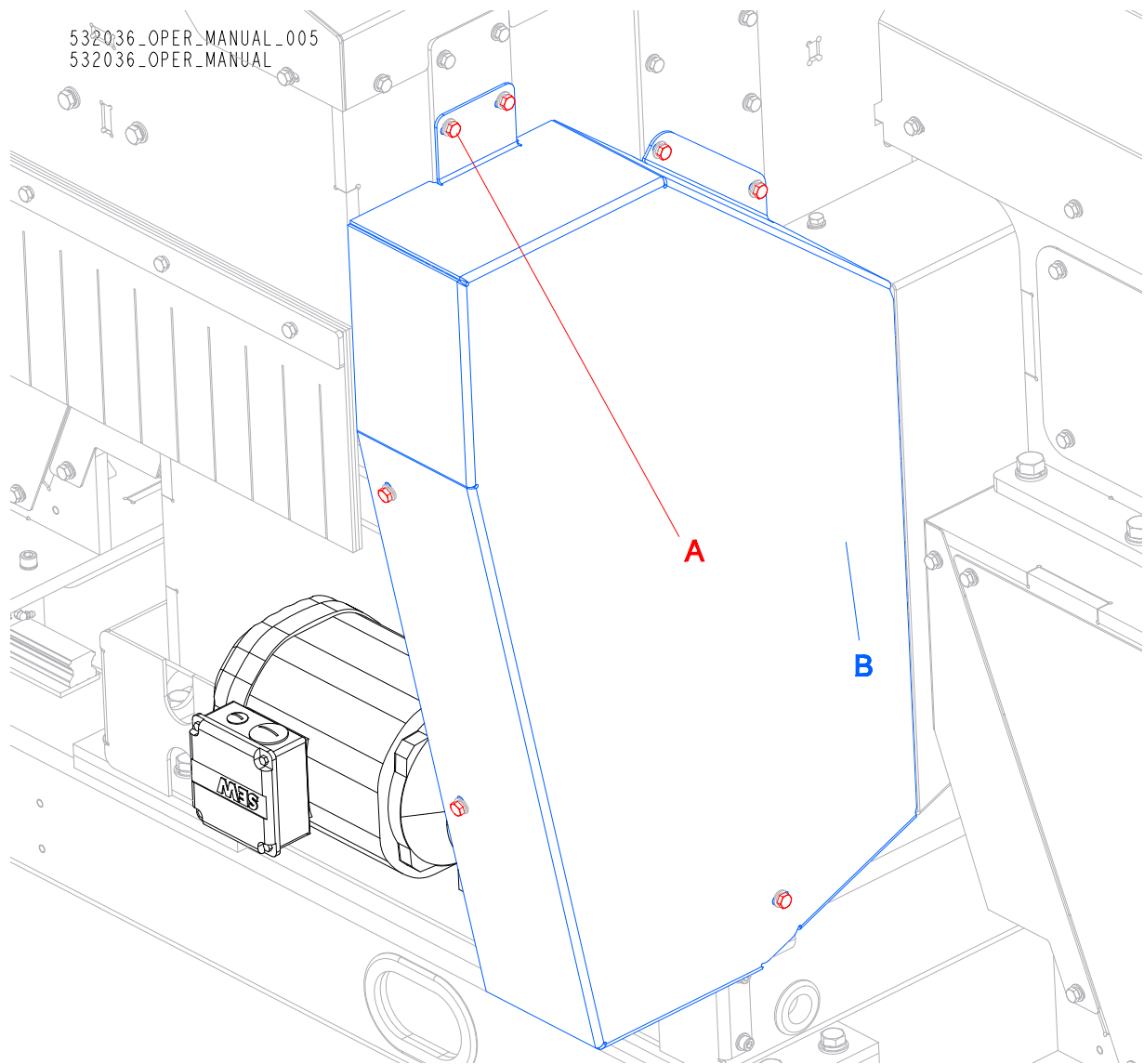


FIG. 5-25

2. Unbolt fasteners (A) and remove the guard (B) shown below.

See Figure 5-26.

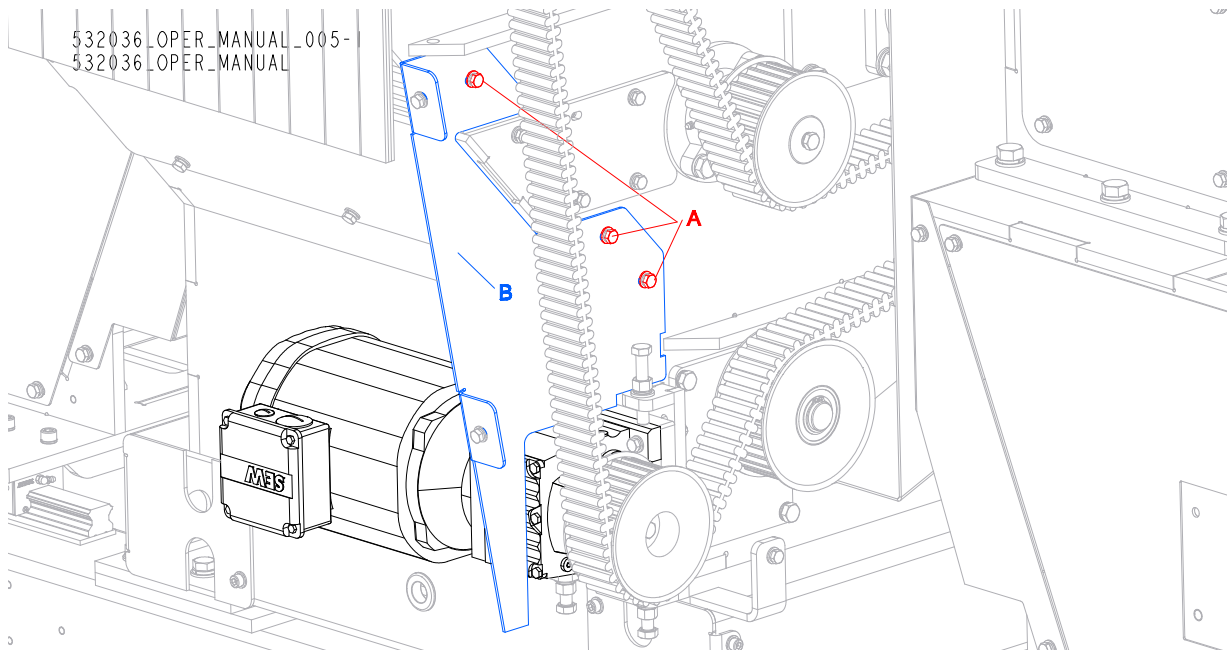


FIG. 5-26

3. Unbolt fasteners (A) and remove the guard (B) shown below.

See Figure 5-27.

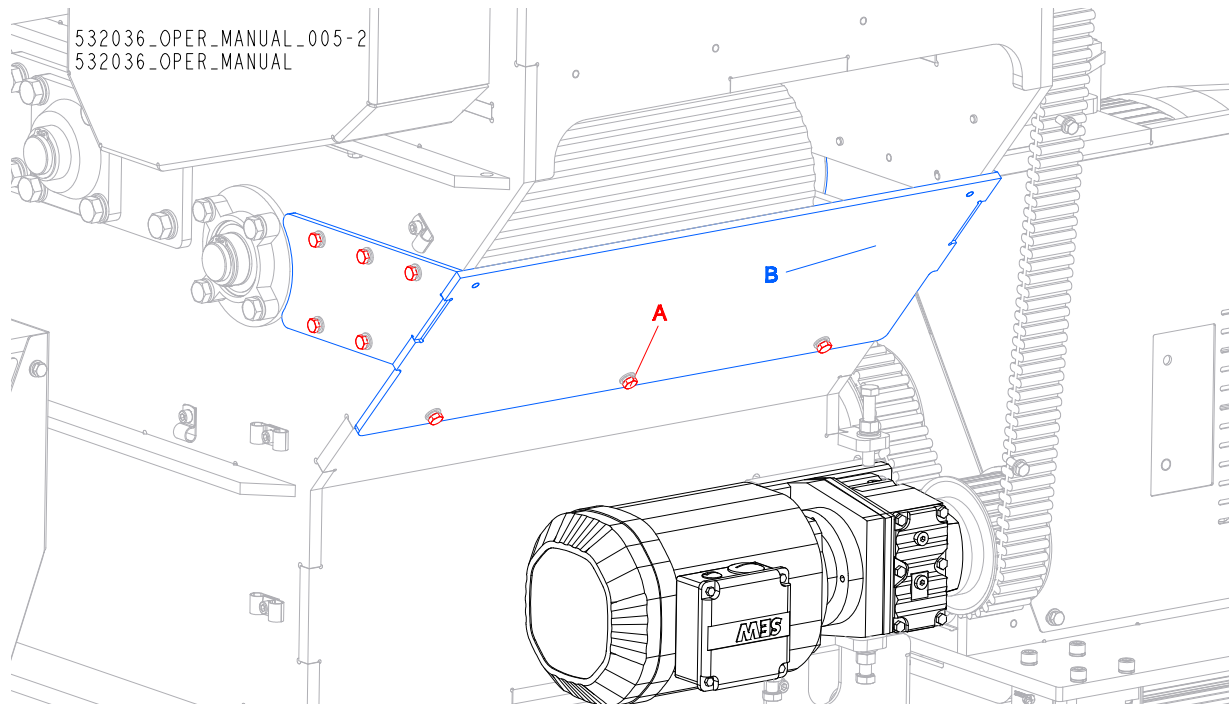


FIG. 5-27

See Figure 5-28.

- Loosen the motor mounting bolts (A).
- Using the bolts (B) and (C) tension the belts to have approximately 33 mm of deflection when applying 9 kg of force.

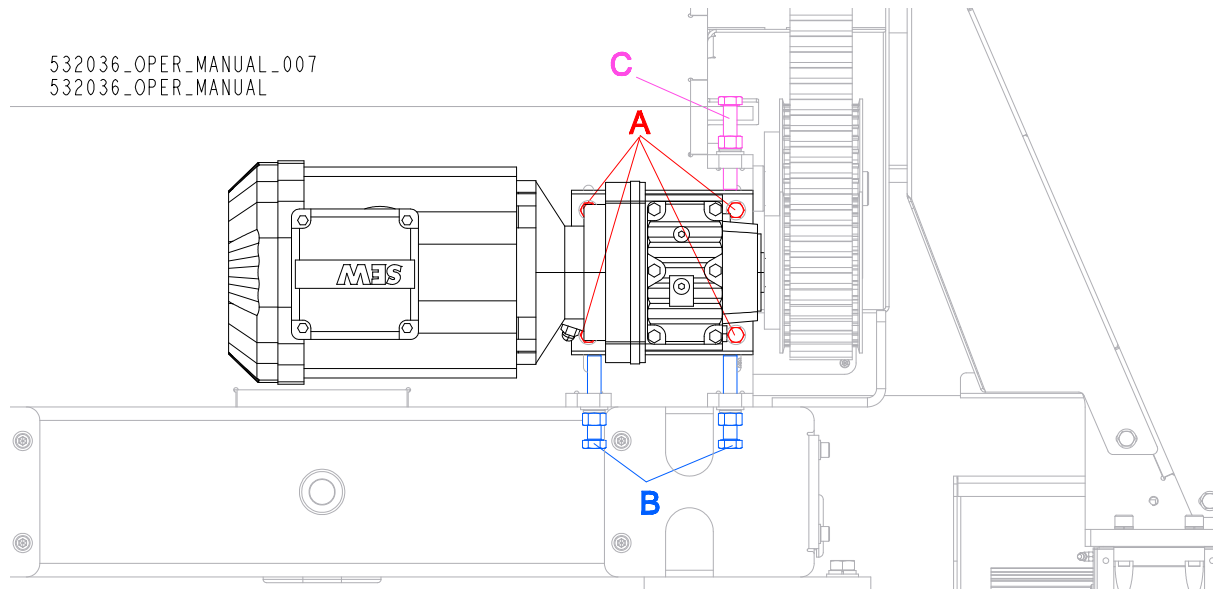


FIG. 5-28

See Figure 5-29.

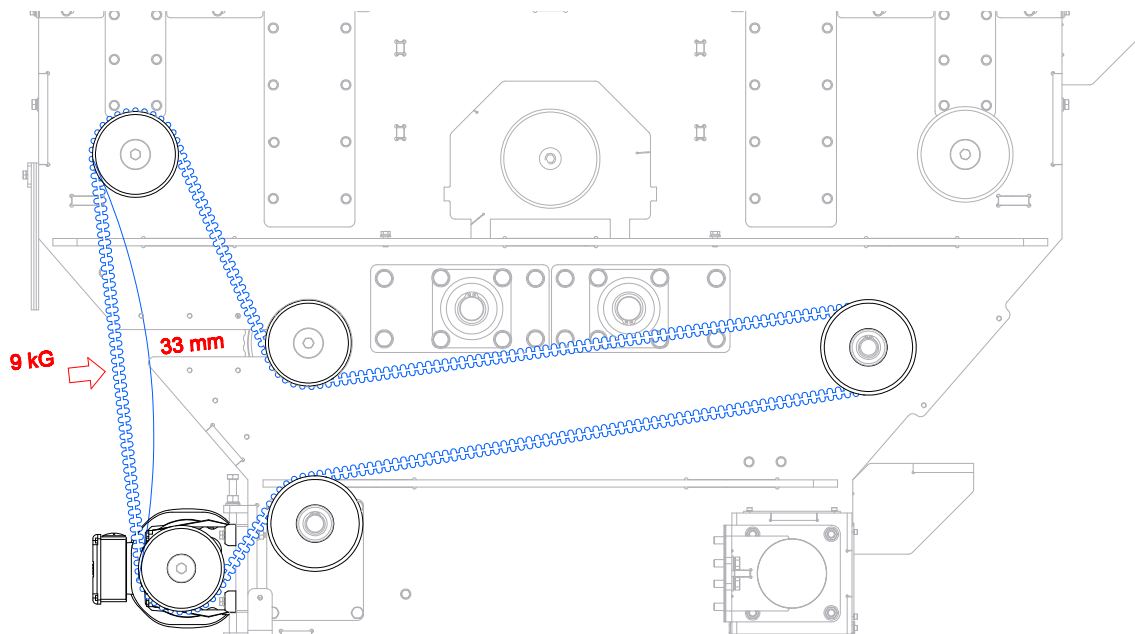


FIG. 5-29

See Figure 5-30.

6. Be sure that sprockets (C) and (D) are in line. If they aren't, correct it using bolts A and B.

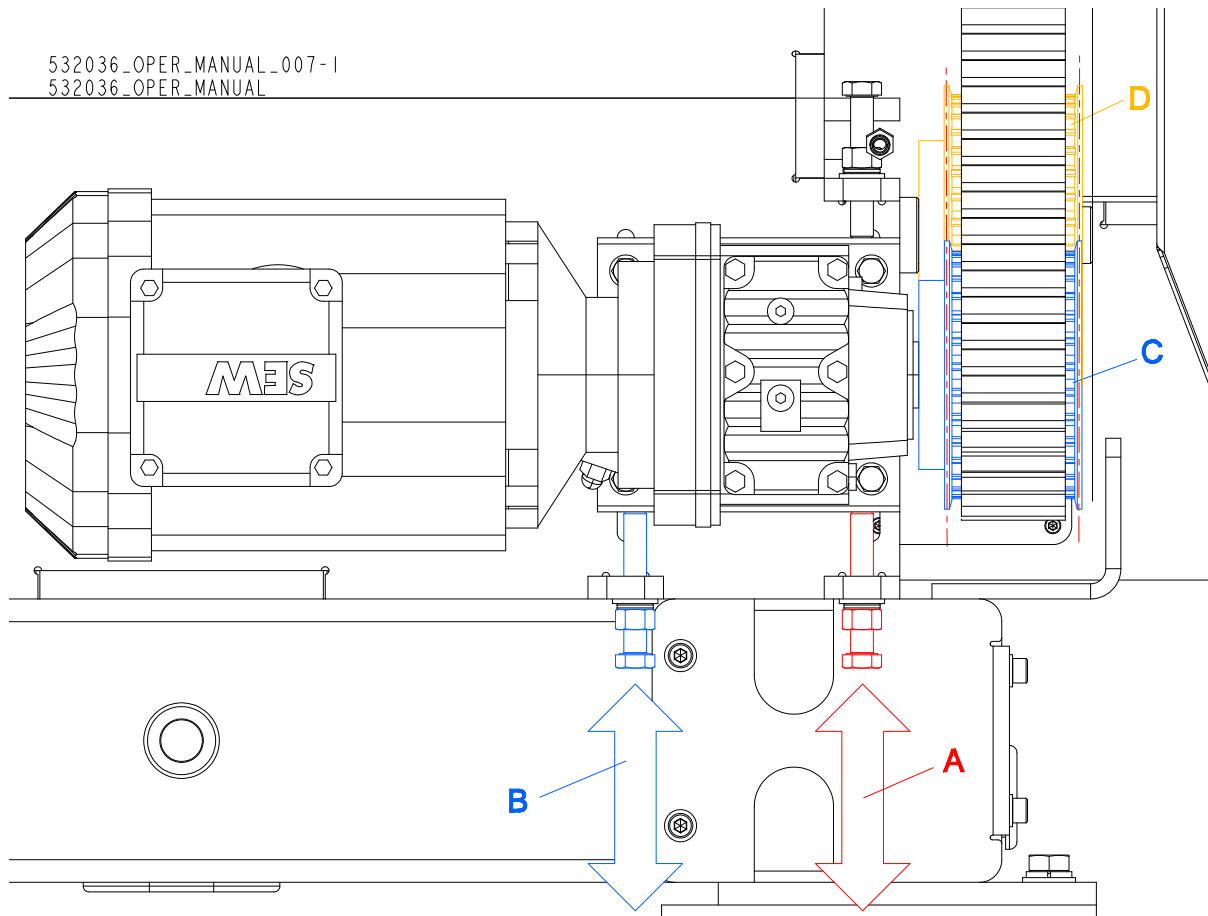


FIG. 5-30

See Figure 5-31.

7. Tighten the motor mounting bolts (A)

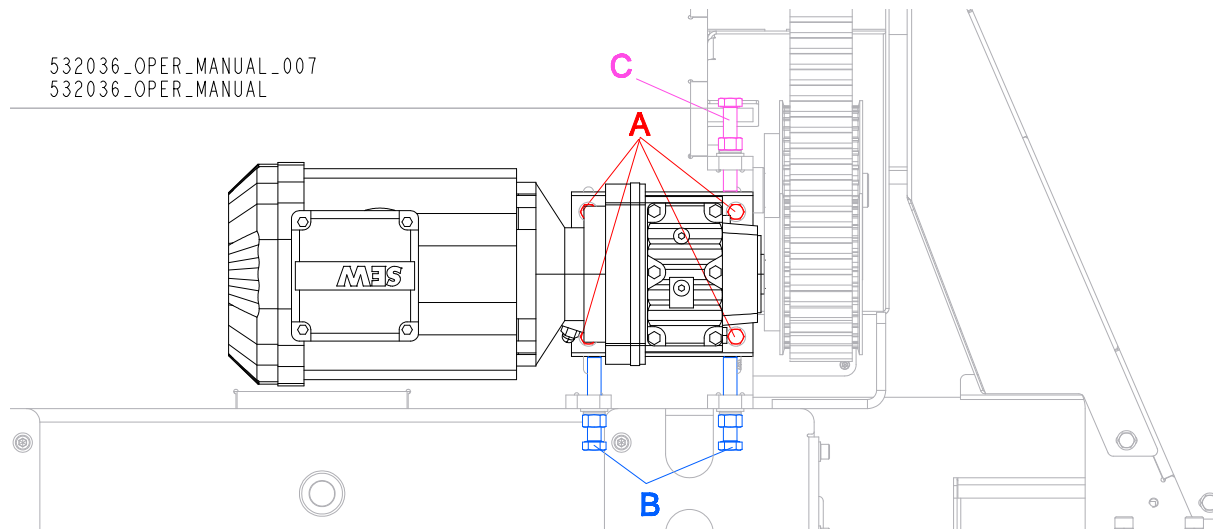


FIG. 5-31

8. Reinstall all previously removed covers.

5.9 Lubrication and Cleaning

1. Remove any debris from the blade drive shaft every 8 hours of operation. Use a soft cloth to apply a dry graphite daily to ensure resistance-free motion and to prevent surface corrosion.

8
2. Lubricate the bearings every 200 hours of operation with a lithium grease such as Shell Alvania No. 3. Do not over-grease.

200
3. Remove sawdust and debris from drive, feed chains and drive belts every 8 hours of operation.

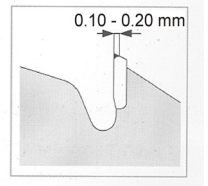
8
4. Lubricate the chains every 40 hours of operation with a mineral oil. Do not over-oil.

40
5. Check the press rollers every 4 hours of operation. Remove any dirt or debris from them and from their covers. Make sure the rollers spin freely, without much play.

4

5.10 Blade Sharpening

The blade teeth should be sharpened as soon as their dullness, measured as shown in the figure on the right, is .10 - .20 mm (0.0039 - 0.0078").

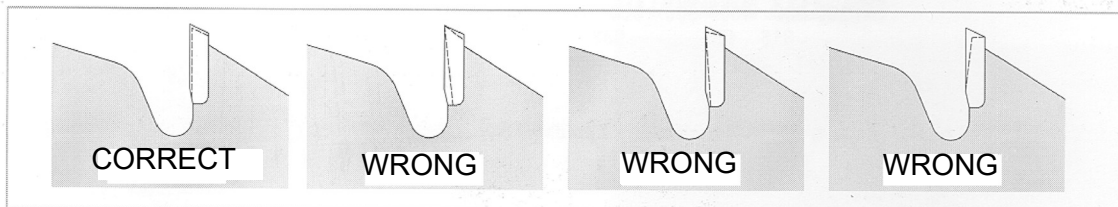
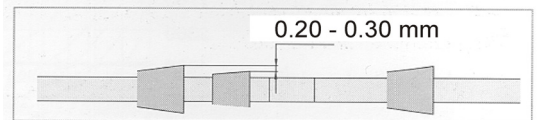


Use diamond grinding wheels for sharpening the blades. Apply intensive cooling during sharpening to prevent overheating and structural changes in the cemented carbide tips.

Blades with hard tips (GLOTECH series) must be intensively cooled with water during sharpening. Failure to do so will result in cracks in the tips.

In Multix type blades the carbide tips should be .4 - .6 mm (0.0157 - 0.0236") wider than the carbides in the wiper slots. (See the figure below.) If this difference is not kept, it will result in disk overheating and – in extreme case – in cracks in the blade gullets. The carbide plates in the wiper slots remove sawdust and splinters from the kerf. They also cause sawdust to be blown away.

When sharpening, maintain the proper tooth geometry as indicated in the figure below.



5.11 Using the Blades

The surfaces of spacers should be clean and flat against one another. The blade should not rotate on the shaft during sharpening as it will lead to its damage.

Do not set teeth with cemented carbide tips!

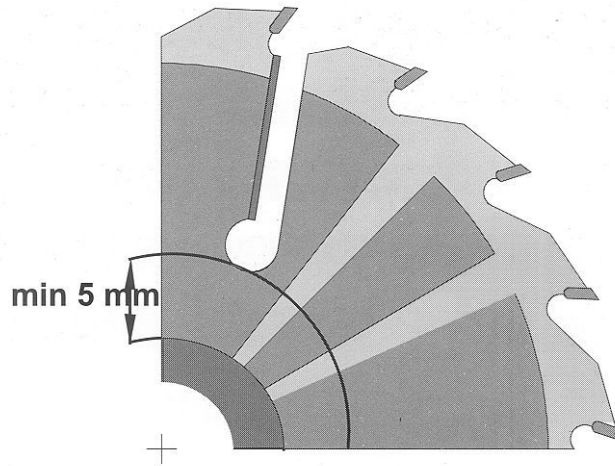
Do not make any modifications to the blade teeth!

Do not operate the machine if either of the blades is dull. Using dull blades causes stronger cutting resistance, decreased cut accuracy and may result in blade burning and even cracks in the gullets and the

wiper slots.

Do not exceed the maximum blade rotation speed recommended for a given type of material!

When using Multix type blades, keep at least 5 mm (0.197") spacing between the bottom of the wiper slot and the spacer outer diameter.



To remove any sawdust buildup from the blade disk, preferably use a solution of hot water and soda or another cleaner.

Any blades which are not used for a longer period of time should be properly maintained.

The blades should be used in accordance with safety rules and their application and on machines in good operating condition and equipped with suitable safety guards.

SECTION 6 SPECIFICATIONS

6.1 Overall Dimensions

See figure 6-1 The major dimensions of the EA3000 edger are shown below (all dimensions are in millimeters and inches).

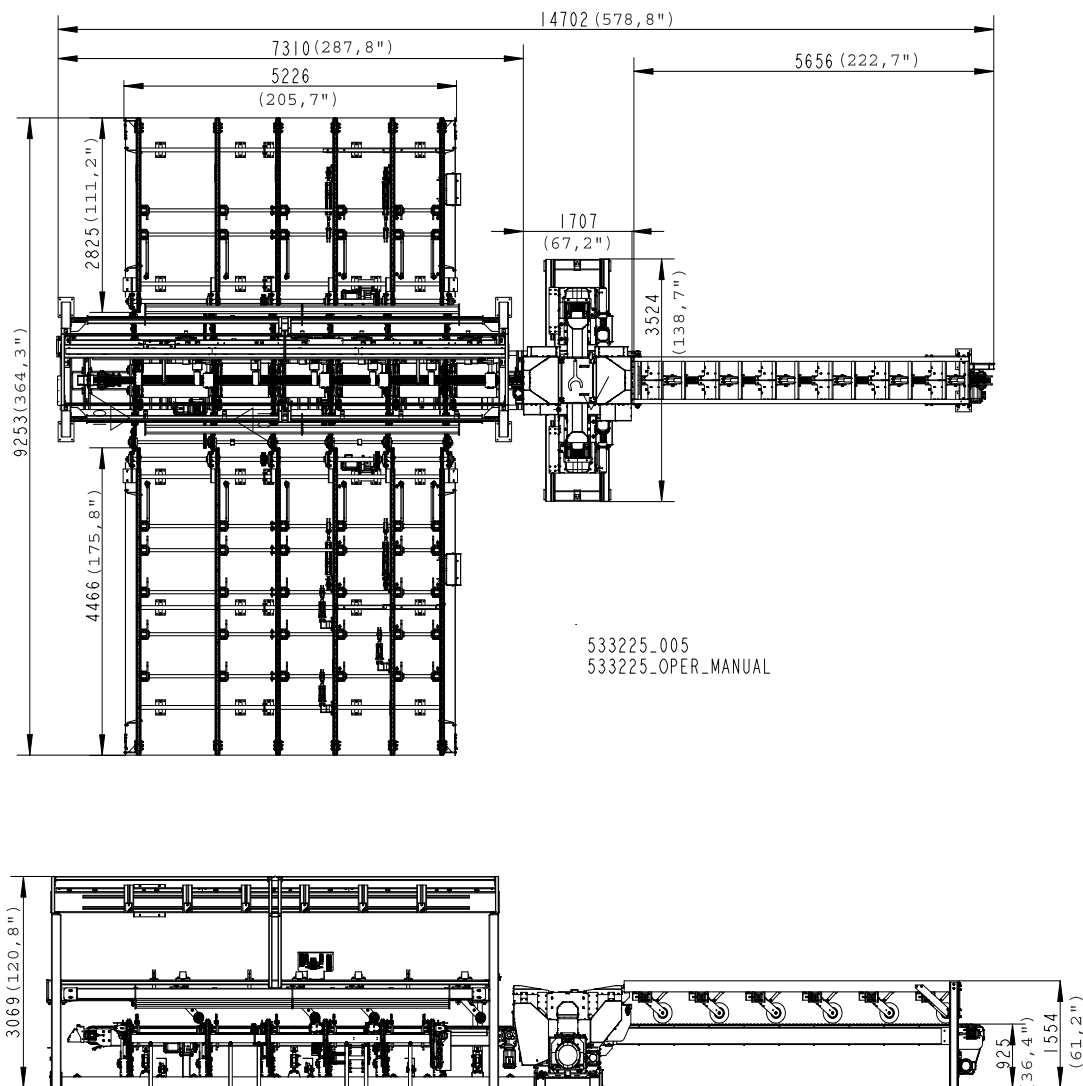


FIG. 6-1

6

Specifications Overall Dimensions

See figure 6-2 The feet layout with dimensions of the EA3000 edger are shown below (all dimensions are in millimeters and inches).

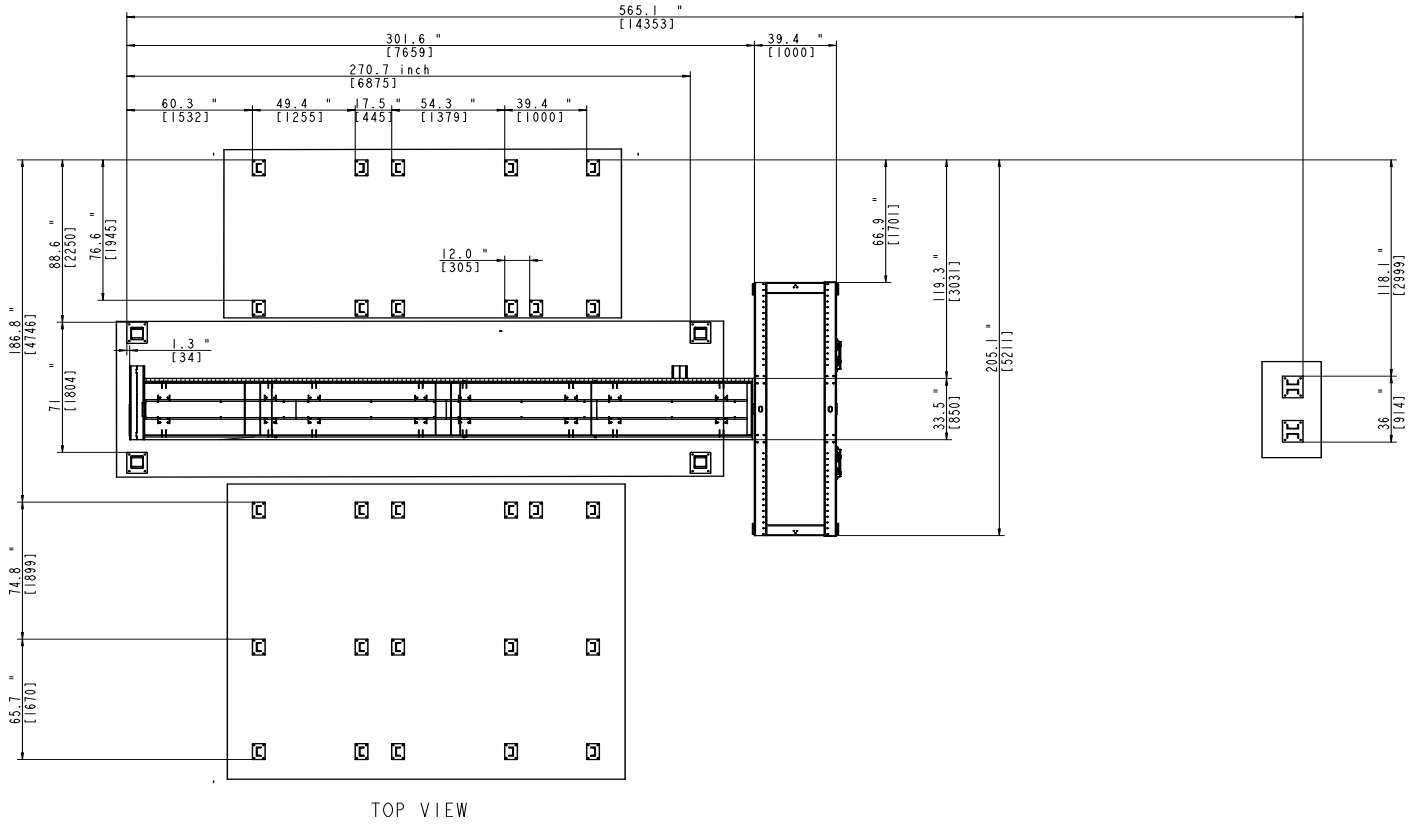


FIG. 6-2

See figure 6-3 Weight of each components of the EA3000 edger is shown below.

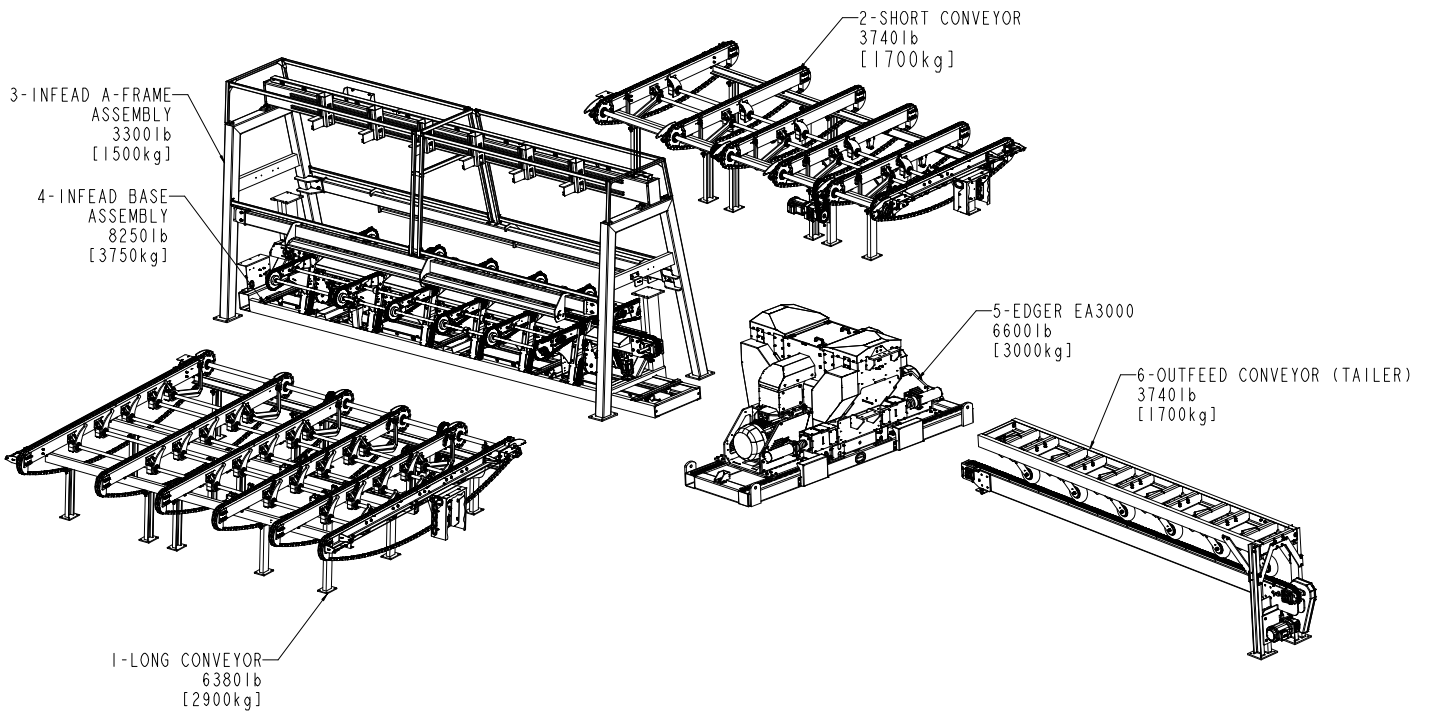


FIG. 6-3

6.2 EA3000 Edger Specifications

See table 6-1 See the table below for technical data of the EA3000 edger.

	Engine/Motor Specifications
Engine/Motor Type	E40 Electric Motor
Manufacturer	Siemens, Czech Republic
Voltage	400V 460V
Maximum Current	53 A@400V 52A@460V
Maximum Revolutions per Minute	2955 r.p.m. at 50Hz 3555 r.p.m. at 60Hz
Rated Power	30kW (40HP) at 50Hz 33,5kW (45HP) at 60Hz
Manufacturer Part No.	1LE1003-2AA43-4AA4-Z

TABLE 6-1

See table 6-2 Noise Level:^{1 23}

	Engaged
Edger Equipped with electric motor E40	107 dB (A)

TABLE 6-2

1. The noise level measurement was taken in accordance with PN-EN ISO 3746 Standard Value for associated uncertainty K=4dB.
2. The measured values refer to emission levels, not necessarily to noise levels in the workplace. Although there is a relation between emission levels and exposure levels, it is not possible to determine with certainty if preventives are needed or are not needed. The factors affecting a current level of noise exposure during work are inter alia room characteristics and characteristics of other noise sources, e.g. number of machines and machining operations nearby. Also, the permissible exposure level value may vary depending on country. This information enables the machine's user to better identify hazards and a risk.
3. The total value of hand-arm vibration the operator may be exposed to does not exceed 2.5 m/s². The highest root mean square value of weighted acceleration to which the whole operator's body is subjected does not exceed 0.5 m/s².

See table 6-3 Other specifications of the EA3000 edger are given below.

Number of blades	2
Blade diameter	450 mm
Blade Rotational Speed	3555 r.p.m.
Cutting speed	0 - 200 m/min
Minimum board length	1800 mm
Minimum board thickness	20 mm
Maximum board thickness	100 mm
Minimum cutting width	100 mm
Maximum cutting width	300 mm
Maximum material width	400 mm

TABLE 6-3