



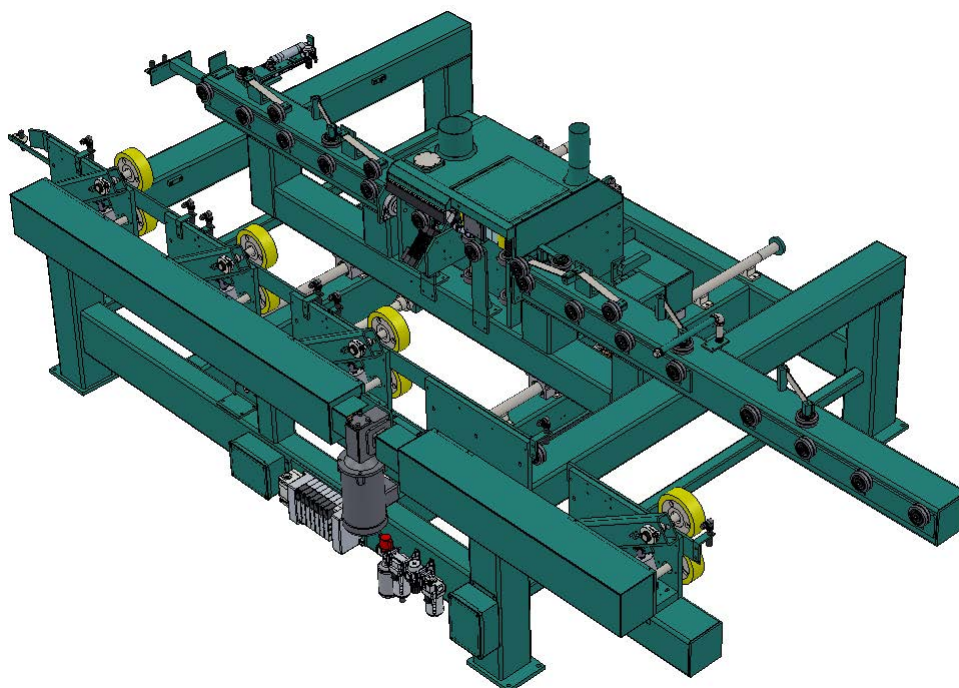
Operation Manual

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Innovation, Quality & Honesty

558 Door Sizer

558 Door Sizer Operation Manual



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Manual Part Number: DOC_201_2-OP

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CHAPTER 1 Introduction to the 558 Door Sizer

Chapter 1 at a Glance

This chapter provides an overview of the KVAL 558 Door Sizer and important safety information to follow

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Overview of the 558 Door Sizer

The KVAL 558 Door Sizer is designed to *resize* doors to the correct width and bevel. This machine features a 5” cutter head with 50 mm replaceable inserts. The cutter head is spindle driven with a 5 HP motor and adjusts from a 0 degree to 3 degree bevel. Separate drives supply corner easements and sands the edge of the door to smooth finish. The machine will accommodate both interior and exterior doors up to 4 ‘wide with raised moulding on one or both door faces.

The feed system features drive wheels above and below, which automatically adjusts for door thickness.

About this Manual

This manual is one of two manuals. The set includes this **Operation Manual** and a Service Manual.

The Operation Manual is directed toward operators of the machine. It includes identification of machine assemblies, power-up and power-down steps, operation and using the user interface.

The Service Manual is directed toward qualified service technicians. It includes maintenance and troubleshooting information.

TABLE 1.

Title	Part Number
558 Door Sizer Operation Manual	DOC-201_1-OP
558 Door Sizer Service Manual	DOC-201_1_SRV

Safety First!



This machine is a powerful electro-mechanical motion control system. You should test your motion system for safety under all potential conditions. **Failure to do so can result in damage to equipment and/or serious injury to personnel.**

Safety Sheet Sign-Off Sheet

At the end of this chapter, there is a safety sign-off sheet. It lists personnel and machine safety criteria to understand before operating the machine. It is highly recommended that personnel operating, working on a machine meet the criteria listed in this sheet. It is recommended the sheet be signed and kept for records. See “Safety Sign-Off Sheet” on page 1-17.

Safety Terminology of Labels

In addition to the nameplate, KVAL machines may have other warning labels or decals that provide safety information to operators. Safety labels should be clearly visible to the operator and must be replaced if missing, damaged, or illegible.

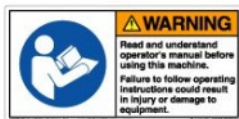
There are three types of warning labels or decals:

- **DANGER** means if the danger is not avoided, it will cause death or serious injury.
- **WARNING** means if the warning is not heeded, it can cause death or serious injury.
- **CAUTION** means if the precaution is not taken, it may cause minor or moderate injury.

Safety Guidelines

In addition to the caution and warning labels affixed to this machine, follow the guidelines below to help ensure the safety of equipment and personnel.

Training



Ensure that all employees who operate this machine are aware of and adhere to all safety precautions posted on the machine and are trained to operate this machine in a safe manner.

Protective Gear



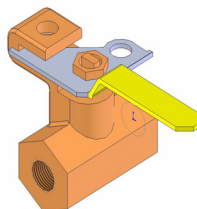
Never operate the machine without proper eye and ear protection.

When the Machine is ON



- **Never** reach hands beyond safety cage. Servo motors can unexpectedly move quickly.
- **Never** clear screws or hinges out of the machine while it is running.
- **Never** reach into the router area to retrieve a hinge. The router may still be running down after shut down.
- **Never** perform any maintenance unless machine is at zero state.
- **Never** clean the machine while it is running.
- **Never** walk away from the machine while it is running.

Compressed Air



The compressed air system connected to this machine should have a three-way air valve for shut-off and pressure relief.

All cylinders on machine are under high pressure and can be very dangerous when activated. Before performing any maintenance or repairs on this machine turn off the main air disconnect. **Lockout and tagout this connection.**

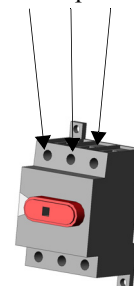
See “Lockout Tagout Procedure” on page 1-7.

Electrical



Electrical circuitry on this machine is protected by an approved lockable disconnect circuit. In addition to this equipment, you must install an approved disconnect for the electrical power supplying this machine.

Still has power
in OFF position



When opening the cabinet you must first turn off the disconnect switch. When the cabinet door is open there is **still power on the top side of the disconnect switch**. Some machines are powered by more than one supply located at different locations. Before performing any repairs or maintenance, lockout and tagout **must be installed at all locations**

All maintenance and repairs to electrical circuitry should only be performed by a qualified electrician.

Before Conducting Maintenance



Prior to performing any maintenance, repairs, cleaning or when clearing jammed debris, you must disconnect, tag out, or lock out the electrical and air pressure systems. This should be done in accordance with applicable state and/or federal code requirements.

Compliance with Codes and Regulations



KVAL advises that you request an on-site state safety review of your installation of this machine. This is to ensure conformance to any additional specific safety and health regulations which apply in your geographic area.

Other Hazard Control Action

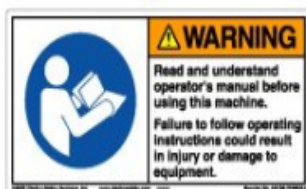
Report a Hazard Before You Report an Accident



If you believe any part or operation of this machine is in violation of any health or safety regulation, **STOP** production. It is your responsibility to immediately protect your employees against any such hazard.

Additional detailed safety guidelines are included in the operating instructions of this manual. KVAL will be pleased to review with you any questions you may have regarding the safe operation of this machine

Follow Your Company's Safety Procedures



In addition to these safety guidelines. Your company should have on-site and machine specific safety procedures to follow.

Lockout Tagout Procedure

This policy is required by OSHA regulation 1910.147 and Cal OSHA'S SB198 ruling of July 1991.

Use the following lockout procedure to secure this machine while it is powered down. During a lockout, you disconnect all power and shut off the air supply. Be sure to use the tagout guidelines noted below.

To Lockout the This Machine

1. Assess the equipment to fully understand all energy sources (multiple electrical supplies, air supply and pressure, spring tension, weight shifts, etc.).
2. Inform all affected personnel of the eminent shutdown, and the duration of the shutdown.
3. Obtain locks, keys, and tags from your employer's lockout center.
4. Disconnect power:
 - a. Turn the disconnect switches on the main electrical panel to the OFF position. Then pull out the red tab and place a padlock through the hole. Place your tag on the padlock, as per the tagout guidelines below. (see illustration below).



When multiple people are working on the machine, each person needs to have a lock on the handle in the extra holes provided.

- b. Turn the disconnect switch on the larger high-frequency panel to the OFF position. Then pull out the red tab and place a padlock through the hole. Place your tag on the padlock, as per the tagout guidelines below.

5. Turn the main air valve to the OFF position and place a padlock through the hole (see illustration below).



NOTE: Place your tag on the padlock, as per the tagout guidelines below.

6. Once the locks and tags are in place and all personnel are clear, attempt to operate the machine to ensure equipment will not operate.
7. Maintenance or repairs may now be completed. The person performing the work must ensure all tools, spare parts, test equipment, etc., are completely removed and that all guards and safety devices are installed.
8. Before removing the locks and tags, the person who attached them shall inspect the equipment to ensure that the machine will not be put in an unsafe condition when re-energized.
9. The lock and tag can now be removed (only by the person(s) who placed them), and the machine can be re-energized.
10. The tags must be destroyed and the locks and keys returned to the lockout center.

Lockout-Tagout Guidelines

- Place a tag on all padlocks. On a tag, each operator must put their own name and date. (These locks are only to be removed by the person who signs the tag)
- If more than one person is working on the machine, then each additional person places a lock and tag on each disconnect.
- Only each operator may remove their own lock and tag.



Important: When many people are all working on the same machine you will need a multiple lockout device, such as the one shown here.



Follow the P-R-O-P-E-R lockout rule of thumb.

- P.....** Process shutdown
- R** Recognize energy type (electrical, pneumatic, mechanical, etc.)
- O.....** OFF! Shut off all power sources and isolating devices
- P.....** Place lock and tag
- E.....** ENERGY: Release stored energy to a zero-energy state
- R** Recheck controls and test to ensure they are in the “OFF” state

Zero-Energy to Start-Up

Zero-Energy State to Start-Up to Operating State

Starting the equipment properly is just as important as the lockout/tagout guidelines in terms of safety.

Start-up Guidelines

The following guidelines below should be followed to start the equipment.

Inspect

The equipment must be inspected for proper adjustment before starting equipment.

Clean Up

All materials and debris must be cleaned up. Any combustible materials or old parts used during repairs must be cleaned up and/or properly disposed of.

Replace Guards

Replace all equipment guards. If part of equipment cannot be properly adjusted after start-up with guard on, contact the KVAL Service team. See “Getting Help from KVAL” on page 1-12.

Check Controls

Confirm that all switches are in the “OFF” position. Please be advised that some components of the machine may start automatically when energy is restored.

Remove Locks

Each operator must remove his or her own lock and tag. This will ensure that all operators are in a safe place when the equipment is started.

Perform Visual Checks

If the equipment is too large to see all around it, station personnel around the area and sound the personnel alarm before starting the equipment. If your operation is more complex, your company’s comprehensive safety procedure may involve additional steps. You will need to ask your supervisor about these procedures. The company’s lockout procedure should be posted at each machine. On larger or long-term maintenance or installation projects, the company’s procedures must be explained to all new operators and a copy of the company’s procedures should be posted on-site for the duration of the work.

The Company’s procedures should also include provisions for safely handling shift changes and changes in operators or new operators. Comprehensive lockout/tagout

may use a gang box or other system to ensure that locks are secure and not removed without authorization.

Remember, lockout/tagout procedures work because you are the only one with the key to your lock. Proper lockout/tagout can save lives, limbs, and money. Help make your work environment safe for you and your fellow workers. Be sure to follow the P-R-O-P-E-R lockout/tagout procedures, and that those around you do also.

Close the Cage Gate

Verify all cage gates are securely closed. Ensure all safety protocols are in effect.

**LOCKOUT
TAGOUT**



**YOUR LIFE MAY
DEPEND ON IT**

Getting Help from KVAL

Before you seek help, first try the troubleshooting procedures. Follow the procedures below.

If you are unable to resolve the problem:

1. Locate the machine's Specification Plate and record the serial number, 3 phase volts, electrical print number, and air print number.

Serial Number → SER. NO. _____

3 phase volts → 3 PHASE VOLTS _____ AMPS _____

_____ LARGEST 3 PHASE LOAD _____

_____ 1 PHASE VOLTS _____ AMPS _____

_____ LARGEST 1 PHASE LOAD _____

_____ FREQ. _____ FULL LOAD CURRENT _____

_____ SHORT CIRCUIT RATING _____

_____ 3 PHASE AMPS _____ 1 PHASE AMPS _____

Electrical Print → ELECTRICAL PRINT # _____

Air Print → AIR PRINT NO. A- _____ AIR G.P.M. _____

KVAL, INC. PETALUMA, CALIF. 94952

2. Contact our customer support team:

- In the U.S and Canada, call (800) 553-5825 or fax (707) 762-0485
- Outside the U.S. and Canada, call (707) 762-7367 or fax (707) 762-0485
- Email address is service@kvalinc.com
- Hours:

6:00 AM to 4:00 PM Pacific Standard Time, Monday through Thursday

6:30 AM to 1:30 PM Pacific Standard Time, Friday

On-Line Help

On machines with a Beckhoff® PLC and an internet connection, our service team are able to connect, run, and troubleshoot your machine. Ask about this procedure when calling are service team. See Chapter 3 “System IT Administration” on page 4-1, for more information.

Product Return Procedure

If you've contacted Kval for help and it is determined that a return is necessary, use the procedure below to return the machine or part.

Note: Non-Warranty returns are subject to a 15% restocking charge.

1. Obtain the packing slip and/or invoice numbers of the defective unit, and secure a purchase order number to cover repair costs in the event the unit is determined to be out of warranty.

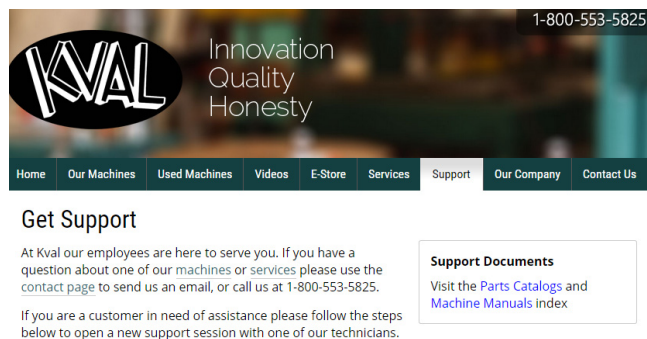
2. Reason for return: Before you return the unit, have someone from your organization with a technical understanding of the machine and its application include answers to the following questions:
 - What is the extent of the failure/reason for return? What are the relevant error messages or error codes?
 - How long did it operate?
 - Did any other items fail at the same time?
 - What was happening when the unit failed (e.g., installing the unit, cycling power, starting other equipment, etc.)?
 - How was the product configured (in detail)?
 - Which, if any, cables were modified and how?
 - With what equipment is the unit interfaced?
 - What was the application?
 - What was the system environment (temperature, spacing, contaminants, etc.)?
3. Call Kval customer support for a Return Material Authorization (RMA). When you call:
 - Have the packing slip or invoice numbers available.
 - Have the documented reason for return available.
4. Send the merchandise back to Kval.
 - Make sure the item(s) you are returning are securely packaged and well protected from shipping damage
 - Include the packing slip or invoice numbers.
 - Include the documented reason for return.
 - Include the RMA number with the parts package.

How to Download the Service Application

On machines with Windows (8.1 / 8 / 7 / Vista / XP) and an internet connection, our service team are able to connect, run, and troubleshoot your machine by way of the operator station.

Download Application

1. To download the application, go to the KVAL website (<http://www.kvalinc.com>)
2. At the KVAL website, select the **Support** tab. Follow the instructions on the Support web page.



3. Click the Download button to download the application that allows the KVAL technician to have access to the operator station.

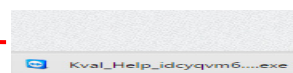
1 Download the support app
To initiate a support session first download our support app and save it to an easily accessible area on your hard drive (like your Desktop).
[Download](#)

4. After the download is completed, double-click the program icon.

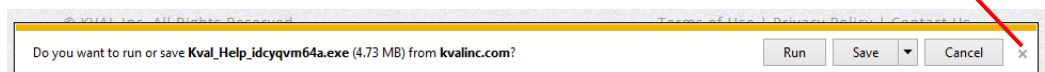
2 Open the app
Double-click on the **Kval_Help_idcyqvm64a.exe** you just downloaded to open the Kval support app.

Note: Web browsers have different methods of downloading programs. Below are samples of i.e Explorer and Google web browsers.

Sample of Google Browser: Located at the bottom left of the screen.

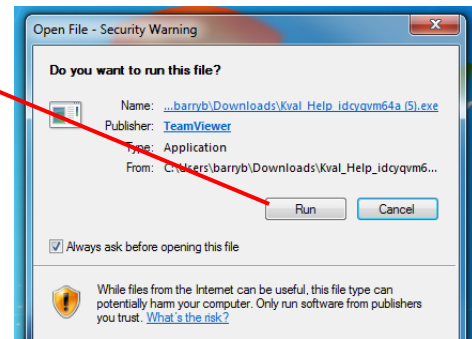


Sample of i.e Explorer: Located at the bottom of the screen. select the **arrow** and choose **Save and Run**



5. A pop-up window is displayed.
Accept the request to run the program.

Note: Security settings may differ from plant to plant. If issues occur, contact your IT department.



6. The interface of the **KVAL Support App** will be displayed. Enter your name in the **Your Name** field. The fields are described below:

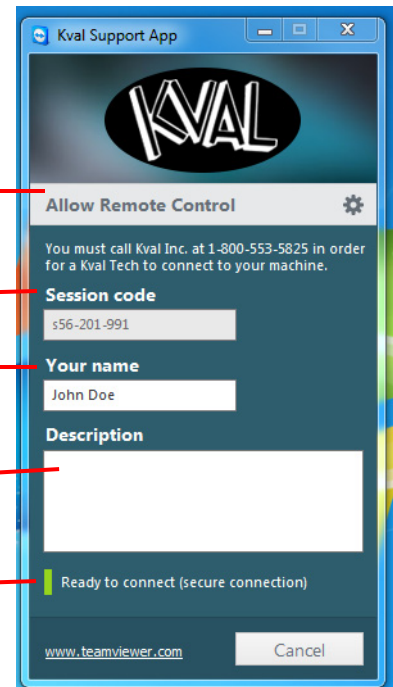
Allow Remote Control: Program is ready to allow technicians to access machine computer

Session code: An internal number to track this machine. It is auto filled.

Your Name Field: Enter your name. The KVAL technician will use this field to identify this machine.

Description: Enter machine Serial number and issue.

Indicator: Green indicates there is a good connection to the service center. If red, there could be an issue with a LAN connection. Check the connections in the plant.



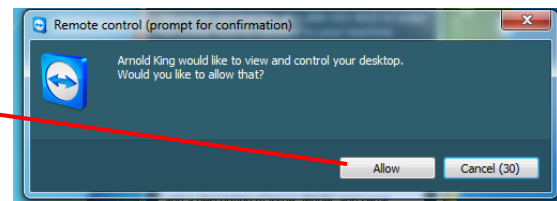
7. After the **KVAL Support App** is loaded and completed, call the KVAL service center(1-800-553-5825) and have the technician connect to the machine computer.

3

Give us a call

Dial 1-800-553-5825 and let us know you're ready and we'll take care of the rest!

8. Click the **Allow** button to give the KVAL service technician permission to access the operator station.
We are now ready to troubleshoot.



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Safety Sign-Off Sheet

Machine Model Number: _____

A Note to the Operator:

This machine can help you be highly productive only if you understand how to use it properly and follow the safe operating practices described in this document and the machine's manual. If you do not understand the machine's proper operation or ignore the safe operating practices, this machine can hurt or kill you. It's in your best interest to safely and properly operate this machine.

Personnel Safety Concerns:

- I have been properly trained in the operation of this machine.
- I will always wear ear protection when operating this machine.
- I will always wear eye protection when operating this machine.
- I will never wear loose clothing or gloves when operating this machine.
- I will watch out for other people. Make sure everyone is clear of this machine before operation.
- I will always follow my company's safety procedures. I have read and understand these guidelines.

Machine Safety Concerns:

- I have been given a tour of the machine and understand all the safety labels, E-Stops and the actions to take in case of an emergency.
- I will make sure all guards are in place before operation
- I will turn off the compressed air, before loading hardware (staples, screws, etc)
- I will turn off the electrical power, for setup
- If the machine should operate in an unexpected manner stop production I will immediately and notify a manager, a supervisor, or a qualified service technician.

I have read and understand this document and agree to operate this machine in a safe manner as described above.

Employee

Name (print): _____ Signature: _____ Date: ____/____/____

Supervisor/Safety Officer/Trainer

Name (print): _____ Signature: _____ Date: ____/____/____

Note: It is recommended you make a copy of this sheet for new operators. If a copy is needed, you may download a PDF at the KVAL website (<http://www.kvalinc.com>). You may also contact our Service Department at (800) 553-5825 or email at service@kvalinc.com.

CHAPTER 2 Operation of the 558

This chapter describes components, assemblies, and the user interface of the KVAL 558. The content is geared to help operators understand the basic operation of the 558. Included are instructions to calibrate the machine and run a door.

Note: For maintenance and troubleshooting information, refer to the “*KVAL 588 Service Manual*”

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Operator's Tour

This section identifies the basic components of the KVAL 558 Door Sizer system.

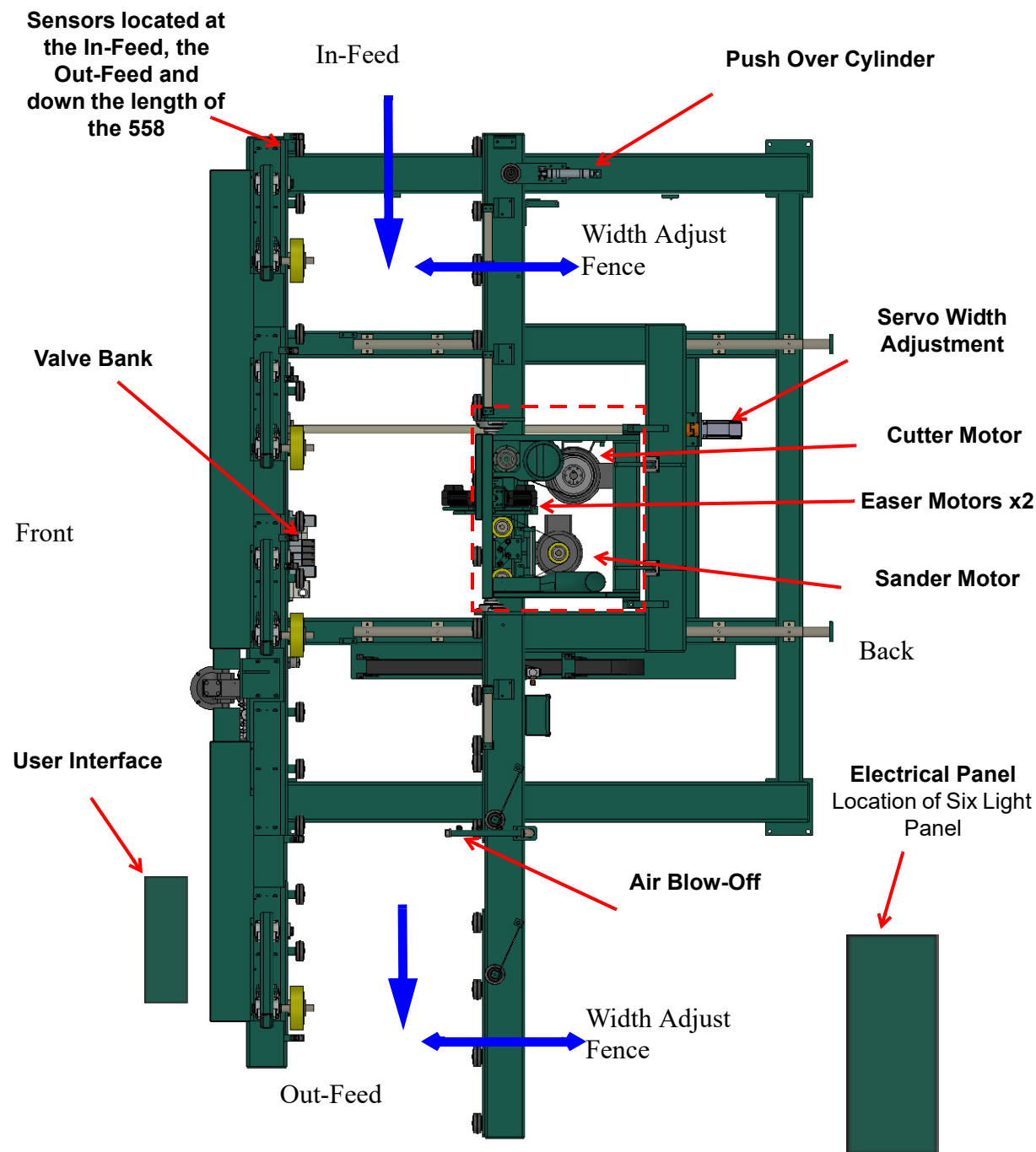


FIGURE 2-2. Top View of 558 Door Sizer System

Sensors

Optical (eye) sensors are located along the door path of the 558 to keep track of the door during the cut. When blocked, the sensors send signals to the computer to identify location of the door or process. Ferrous proximity sensors are also used. Ferrous sensors are magnetically triggered.

This section describes the locations and purpose of the sensors.

Important: Keep the photo eyes of the sensor clean and unblocked.

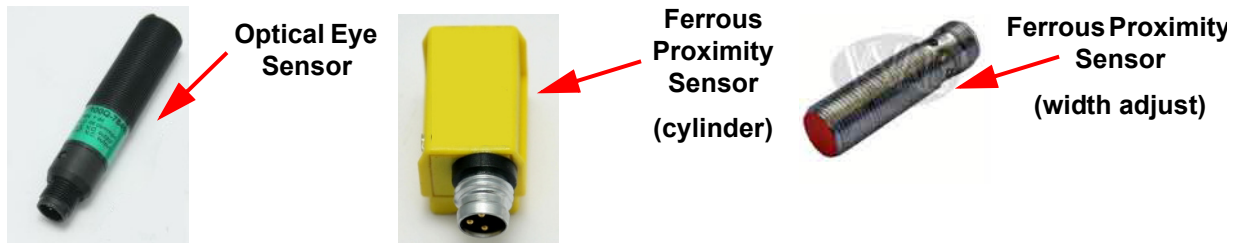


FIGURE 2-3. Examples of Sensors

In-Feed Eyes

The In-Feed eyes sense that a door is loaded. The eyes perform different functions.

- Door Sense Eye -- Senses a door is loaded.
- Movable Fence Inside Eye -- Senses door and sends signal to control inside fence
- Movable Fence Outside Eye --Senses the door and sends a signal to control the outside fence.

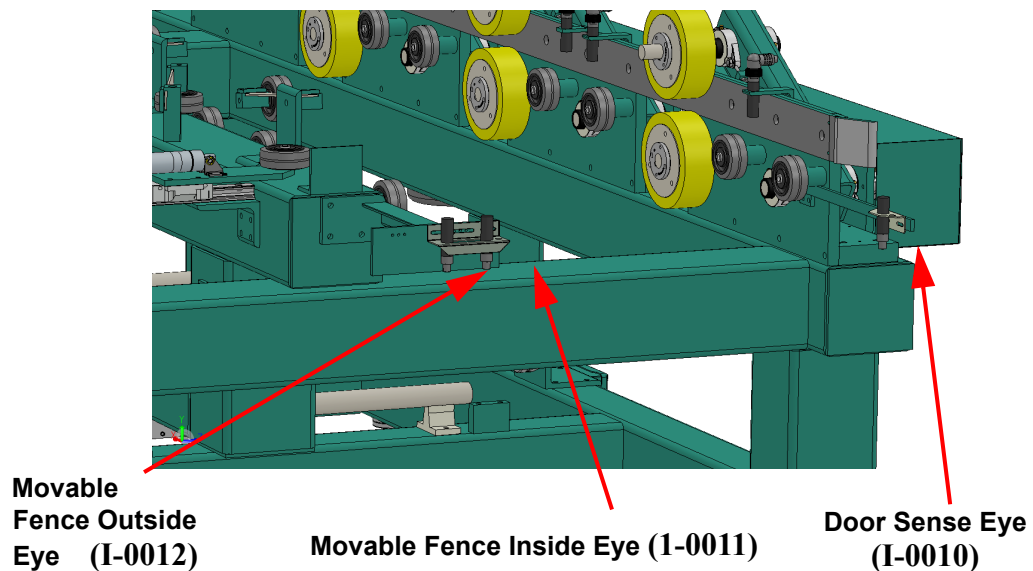
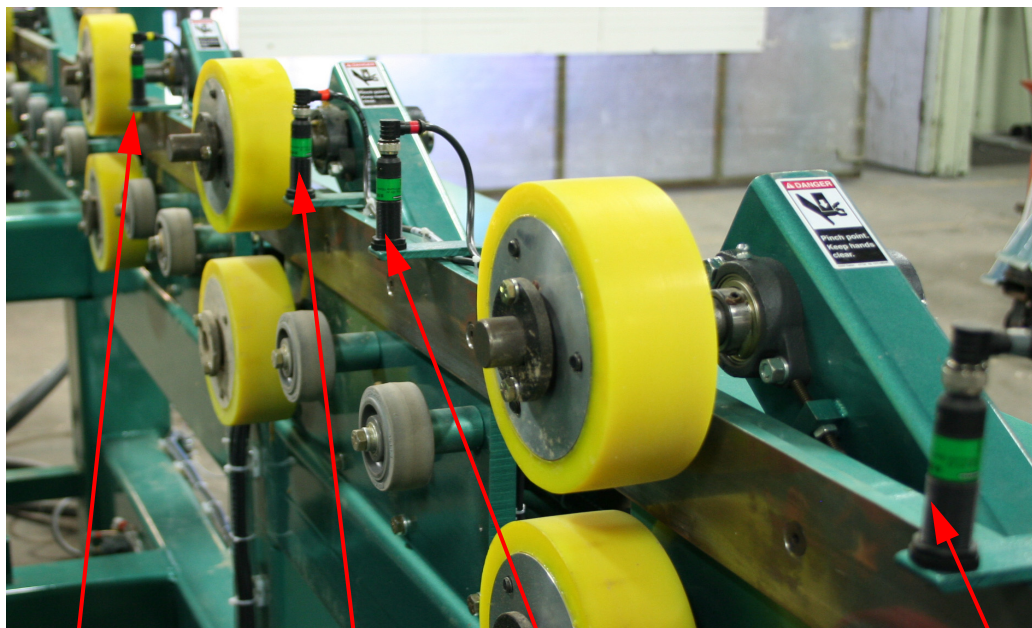


FIGURE 2-4. Location of Infeed Sensors

Machine Eyes

The machine eyes track the door through the cutting process.



Door Sense Eye
Before Wheel # 3
(I-0016)

Door Sense Eye
Before Wheel # 2
(I-0015)

Mid-Machine Eye
Before Wheel # 2
(I-0014)

Door Sense Eye
Before Wheel # 1
(I-0013)

FIGURE 2-5. Location of Mid Machine Eyes

TABLE 2. Description of Machine Eyes

Location	Call-Out Number	Description
Before Wheel 1	I-0013	Push over control when activated.
Before Wheel 2	I-0014	Stops door before cutter.
Before Wheel 2	I-0015	Brings Wheel # 2 down to secure door when blocked, wheel goes up when clear.
Before Wheel 3	I-0016	Brings Wheel # 3 down to secure door when blocked, wheel goes up when clear.

Out-Feed Eye

The Out-Feed eye is located after the last wheel on the operator side of the 558.

Door Sense Eye
After the Out-Feed
Wheel
(I-0017)

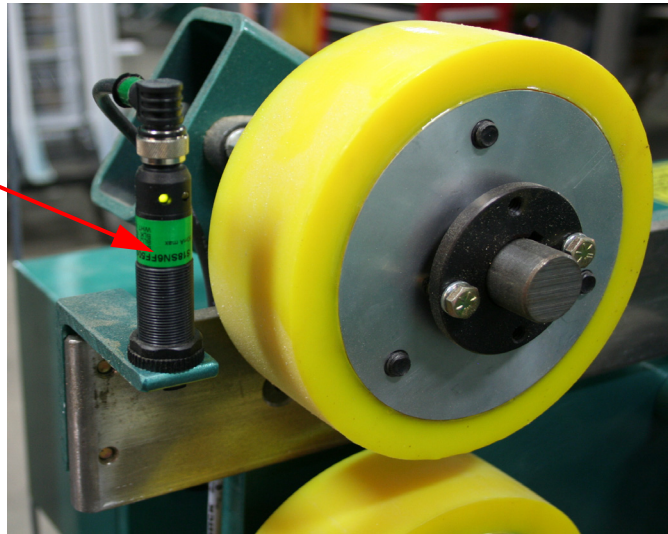


FIGURE 2-6. Location of Out-Feed Eye

Home Sensor, Width Limit Sensors

The width adjust is determined by ferrous proximity sensors. The home eye sets the zero reference of the calibration. The open and the close sensors set the minimum and maximum travel limits for that axis.

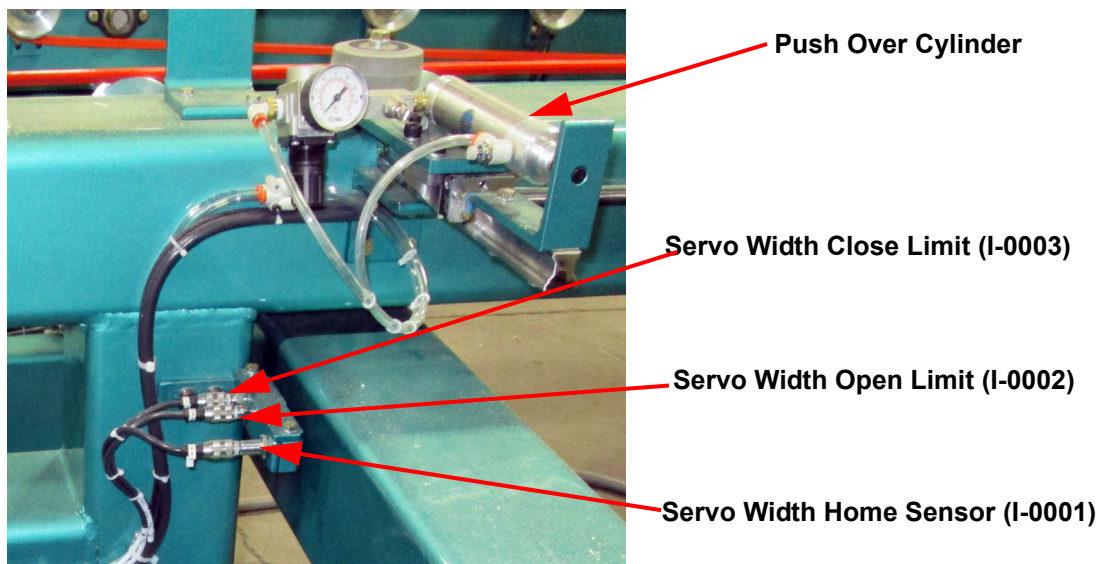


FIGURE 2-7. Location of Width Adjust Eyes

Three and Zero Degree Sensors

Two ferrous proximity sensors are attached to one of the **Three and Zero Degree** cylinders. The sensors are triggered by the position of the piston within the cylinder assembly.

Note: If the zero or three degree bolt needs to be adjusted, the sensor will need to be adjusted to correspond with the change. Refer to the “KVAL 558 Service Manual” for information on adjusting the Zero and Three Degree Bolt.

Zero Degree Sensor
Triggered when the Piston is extended (I-0004)

Three Degree Sensor
Triggered when the Piston is Retracted (I-0005)

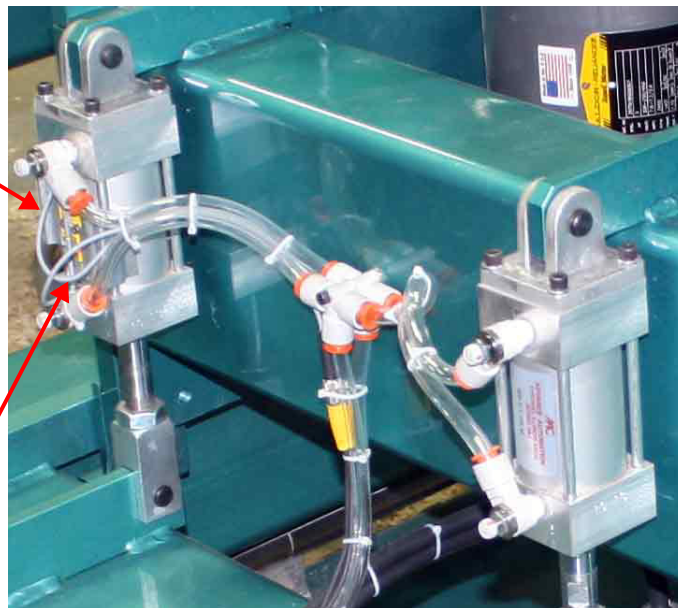


FIGURE 2-8. Zero Degree and Three Degree Sensors

Valve Bank

The valve bank consists of seven solenoid valves that control air flow to drive assemblies on the 558. The valves are attached to a manifold base. The terminal block supplies interfaces with digital-signals and supplies power.

When the Drive Wheel valves are activated, the top red lights will turn-on.

When the Three Degree valve is activated, the bottom green light will turn-on. When the Zero Degree valve is activated, the top red light will turn-on.

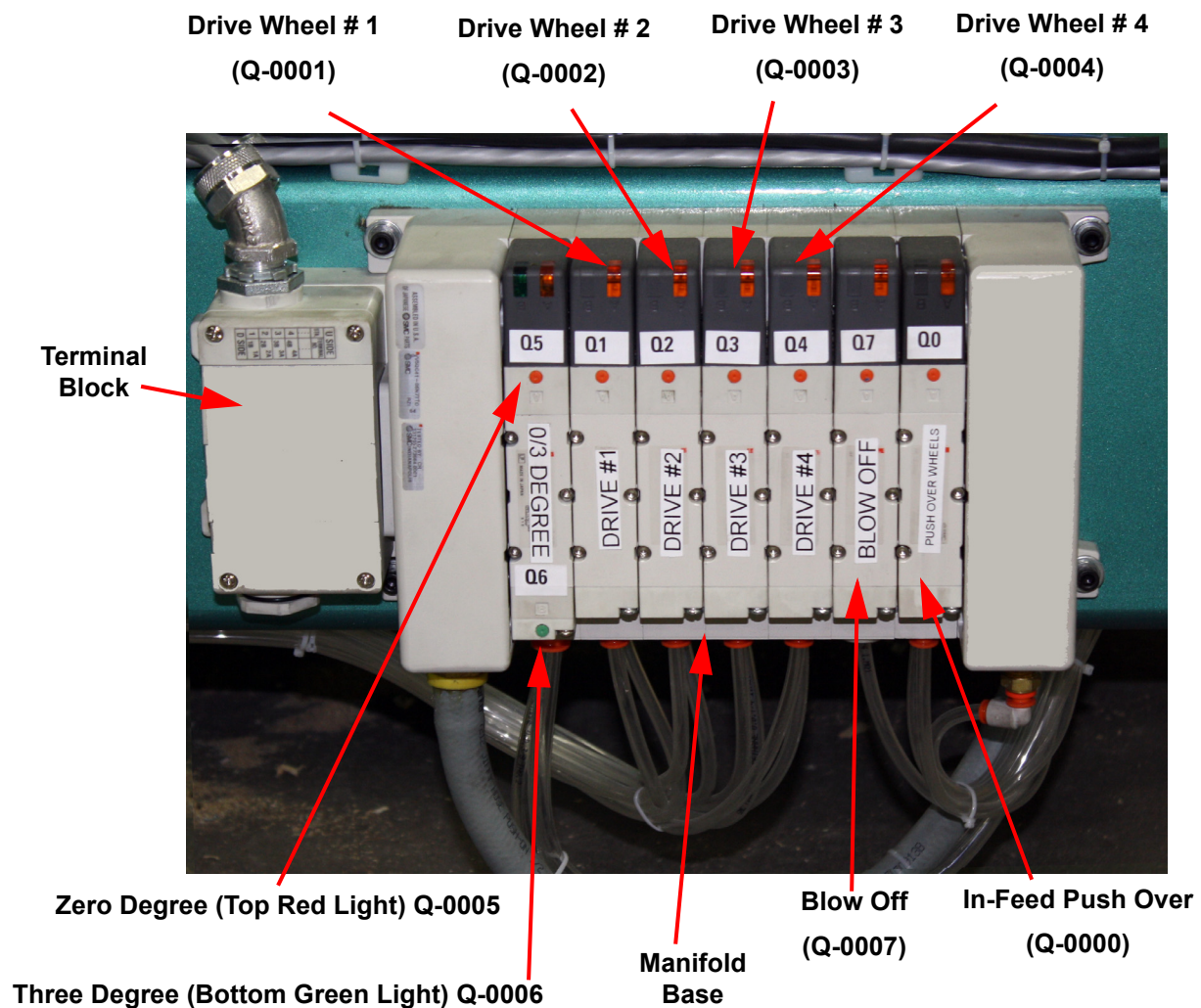


FIGURE 2-9. Part Identification of the Valve Bank

Cutter, Easer, and Sander

Below are the front and rear view of the Cutter, Easers(X2), and the Sander.

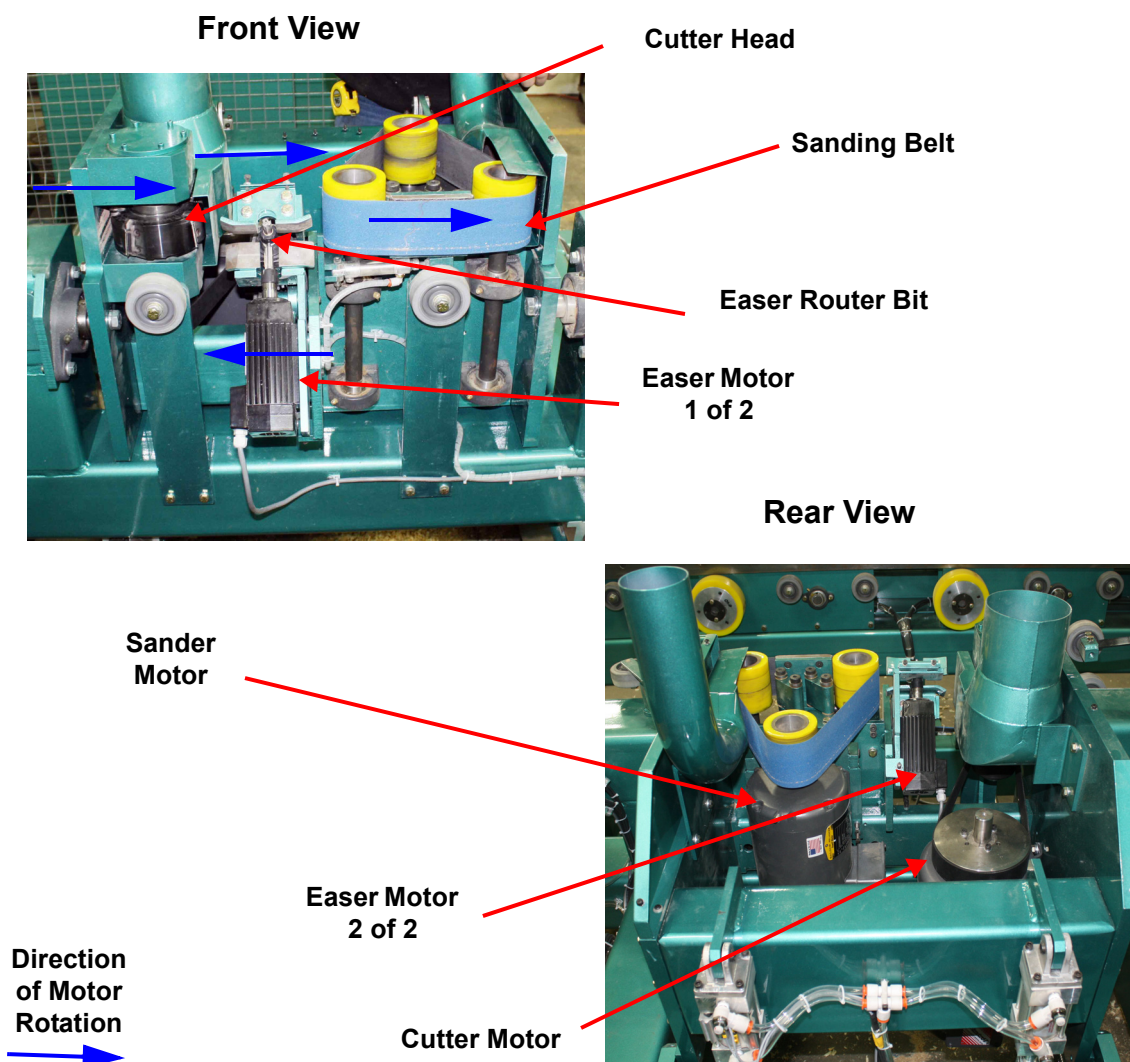


FIGURE 2-10. Front and Rear View of Cutting Assembly

Identification of Electrical Panel Parts

Refer to the figure below for assembly location and identification in the Electrical Panel.

Warning: High Voltage is present in this panel at the top of the Three Phase Input with the disconnect off. If working on the panel, follow safety protocol as described in Chapter 1.

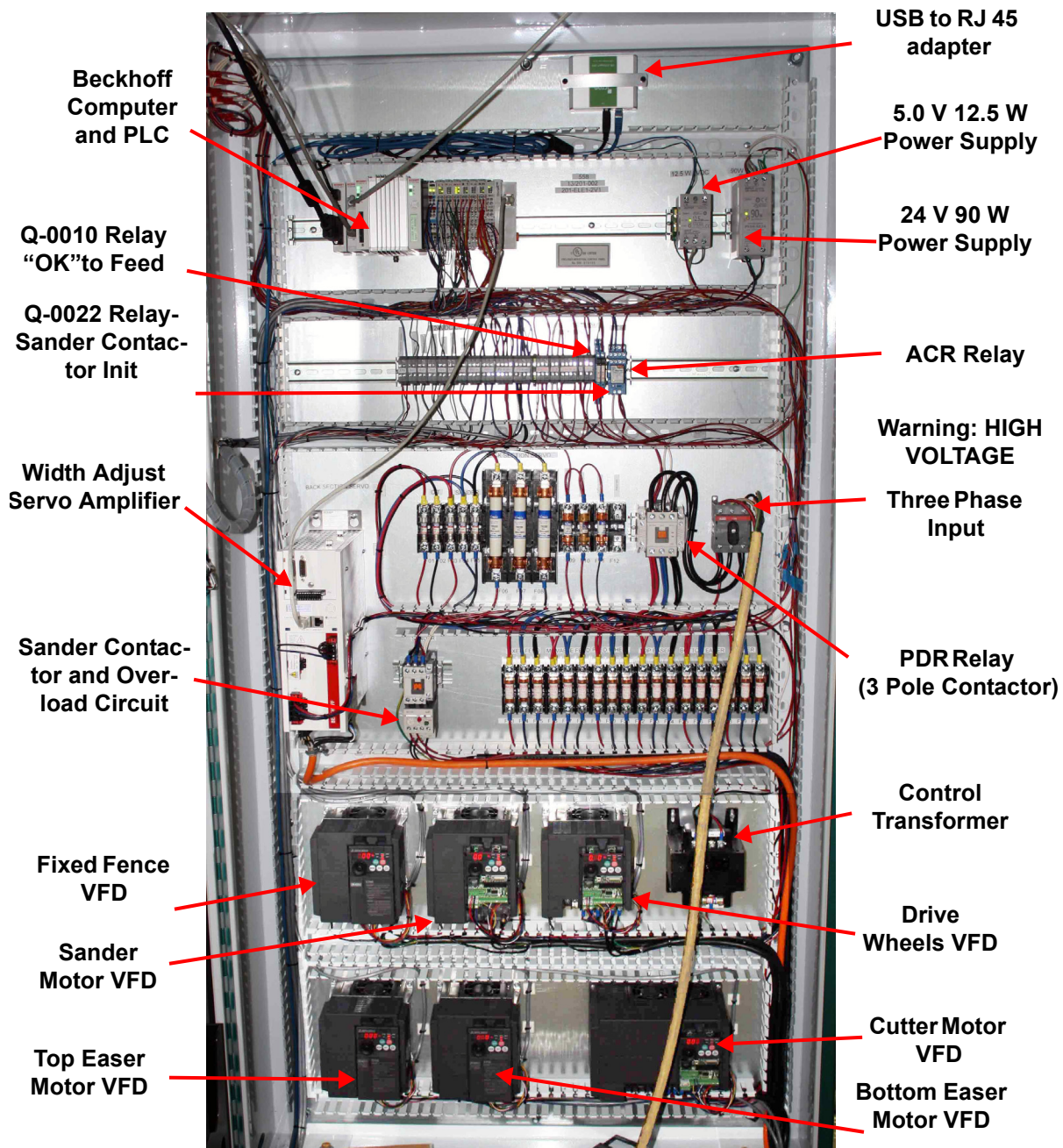


FIGURE 2-11. Assembly Description in the Electrical Panel

Description of the Six Light Panel

The six lights on this panel indicate the status of the 558 system.

Note: Refer to the “KVAL 558 Service Manual” for information on using the panel for troubleshooting.

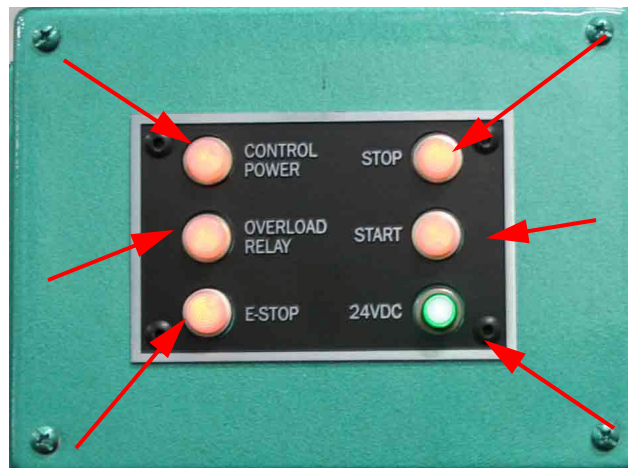
The Sequence that the lights activate is as follows:

1. Control Power
2. Overload Relay
3. E-Stop
4. Stop
5. Start
6. 24VDC

Control Power – light illuminates when the Control Transformer is pulled out and the power is working on secondary side-of

Overload Relay – The overload circuit for the Sander is working when light

E-Stop – The back gate is closed and Frame E-stop is not activated when this light is on.



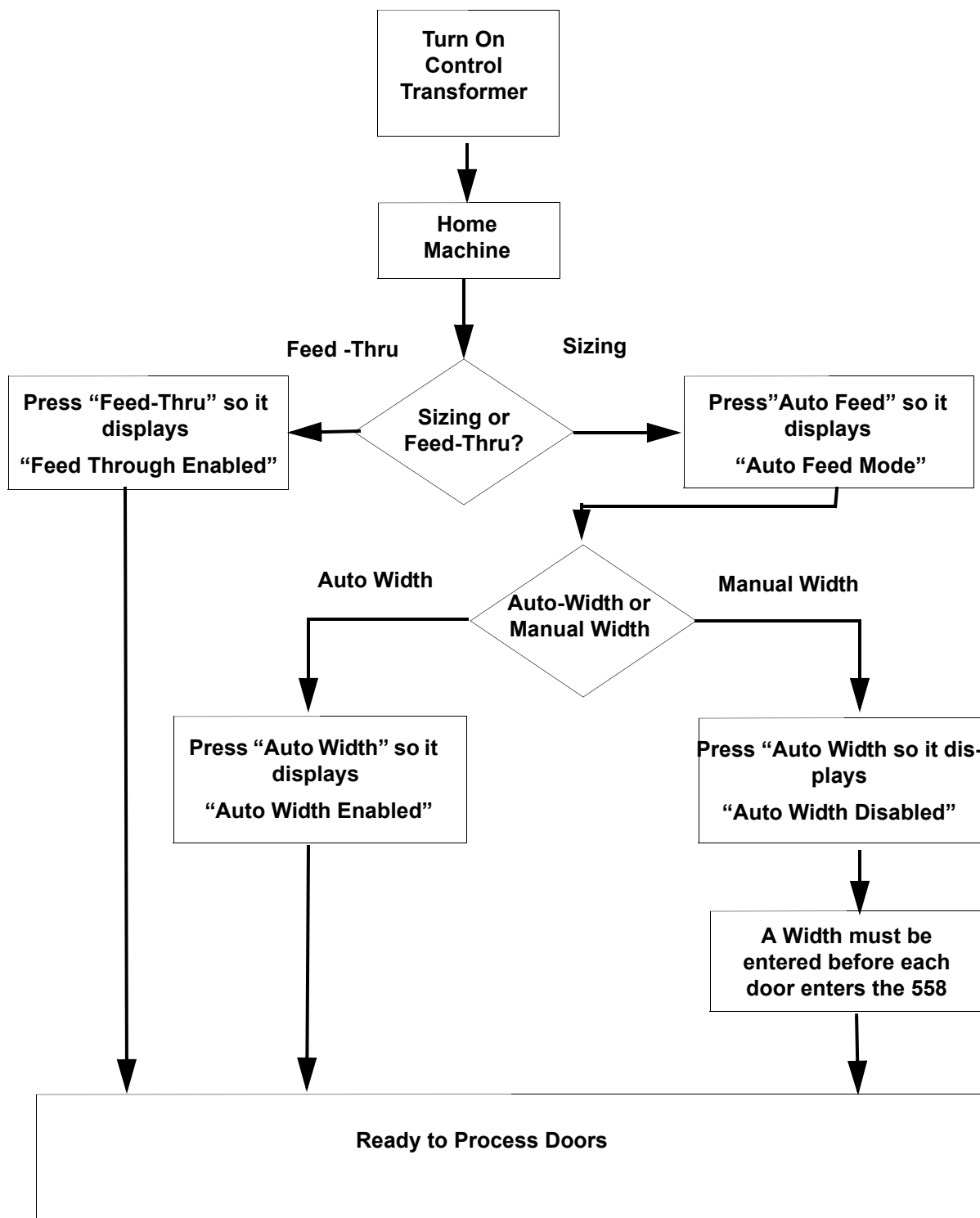
Stop – This light will be on if Machine Stop button is deactivated.

Start – This light will be on once the Machine Start button is pressed and the ACR Relay is latched.

24VDC – light comes on once the ACR is latch and the 24VDC power Supply

Snapshot of Door Cutting Process

This section describes the steps run a Door through the KVAL 558.



Basic Operation

This section describes the basic operation of the 558. This section includes:

- How to power up the 558
- How to power down the 558
- How to Use the Emergency Stop

How to Power up the 558

To start the machine, follow the steps below:

1. Pull out the Green Control Transformer Button to energize system.
2. Press the Machine Green Start Button.

Tip: The lights on the six light panel should all illuminate on a successful start-up.

3. Wait for the computer to boot up and the 558 **Start-Up** screen to display.
4. Remove any door in the feed system. Make sure area is clear.
5. Press the **Home Machine** button to home the machine and set the reference for the machine.

Step 1

Control Transformer – Pull out the control knob to turn energize the system.

Push the knob in to de-energize system.

Step 2

Machine – Start/Stop – Push the Green Start button to start the machine operation.

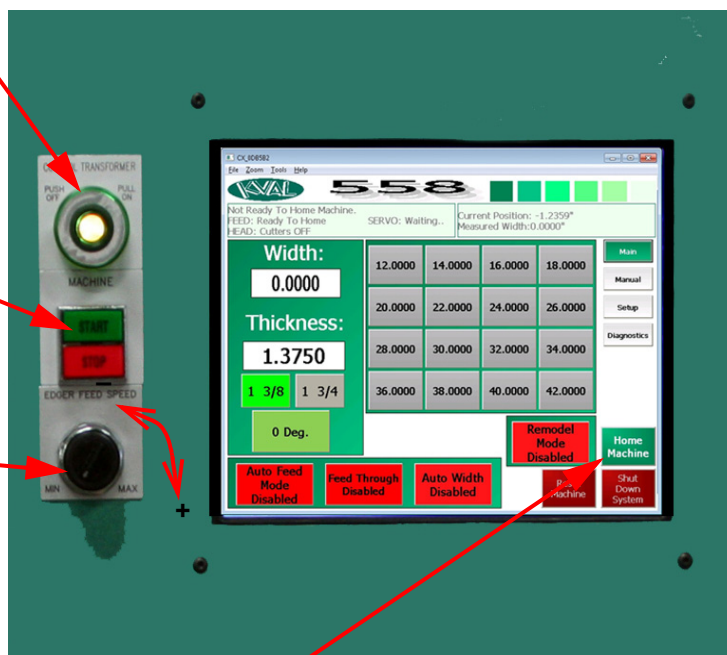
Push the Red Stop button to stop the machine operation.

Control Transformer must be pulled out.

During Process

Edger Feed Speed - To decrease the cutting speed, turn the Edger Feed Speed counter clockwise. To increase the cutting speed turn the knob clockwise.

Note: The slower the speed, the quality of the cut will be



Step 3

Home- press to Home Machine

About Homing of the 558

The 558 must go through a homing routine before any operations are performed. The homing routine sets a zero reference from which the 558 measures its movement and cutting process.

If power is lost or the 558 is re-set, the homing routine must be performed again to reset the zero reference

The routine is as follows:

1. Press **Home Machine Button**
2. Fence slowly opens, scanning for homing eye
3. When it finds the eye, it stops
4. The fence then very slowly starts closing, moving off the eye. The reference location is stored when it comes off the eye.
5. Fence then moves into position.

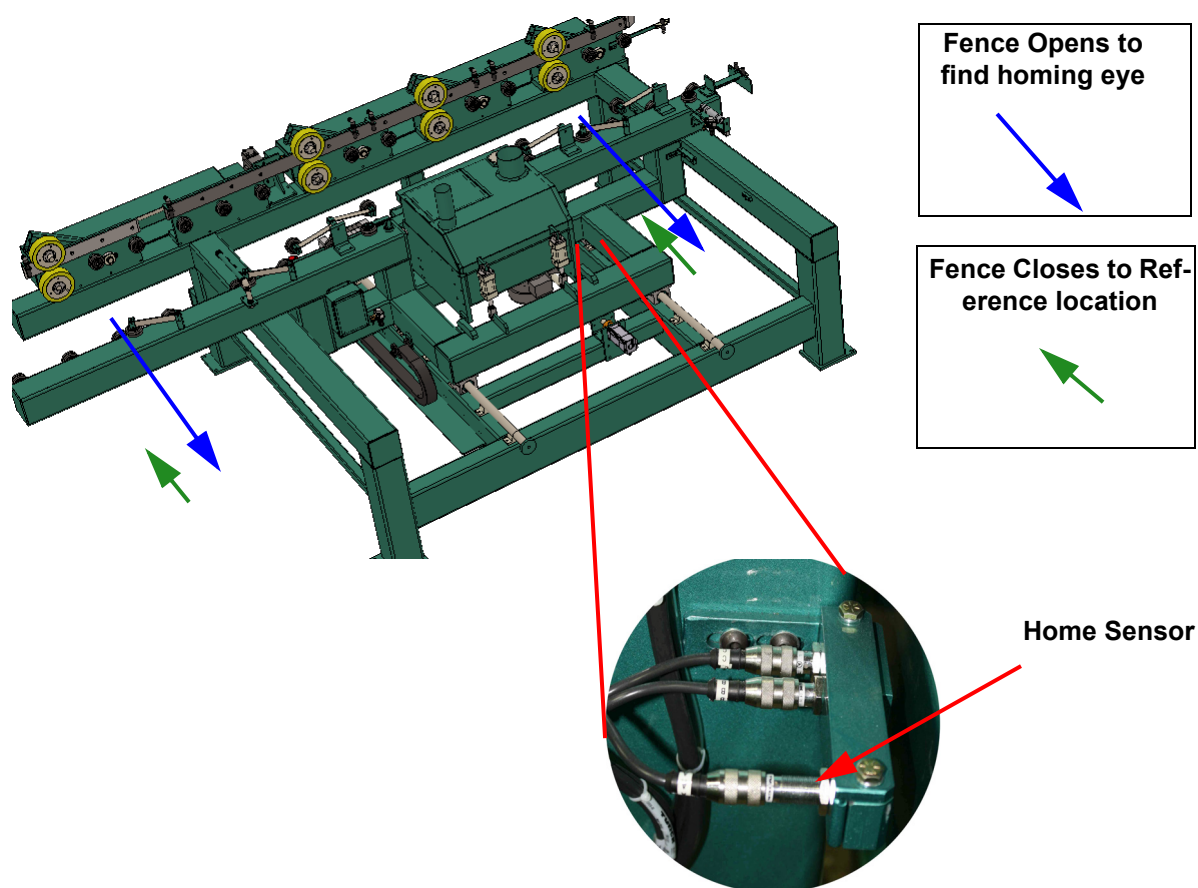
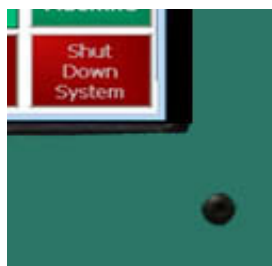


FIGURE 2-12. Homing Sequence

How to Power Down the 558

1. Turn off the Computer by pressing the **Shut Down System** button. Located lower right hand corner of the Main Screen



Step 1

2. After the computer has gone blank, on the front panel, push the **Control Transformer** button in to kill power to the entire system. All status lights should be off



Step 2

3. KVAL recommends that the disconnect switch on the electrical panel be turned to OFF: this helps reduce possible damage from a power surge resulting from an electrical storm.



Step 3

Emergency Shutdown and Recovery

In case of emergency push the **Control Transformer** button to stop the operation of the machine.

When an control transformer button is activated, cutting stops, the door un-clamps, all motors deactivate, and all I/O power is killed.

Warning: High Voltage is present in this panel at the top of the three phase input with the disconnect off. If working on the panel, follow safety protocol as described in Chapter 1. Location of the input can be seen on page 2-9. To fully cut power to the machine, turn power off at the factory main supply breaker.

Recovery

Use the following procedure to recover:

1. Make sure the cause of the emergency is resolved.
2. Pull out the **Control Transformer** button to apply power to machine.
3. Push the **START** button on the operator's station.
4. Home KVAL 558.

After this, the machine should be ready for normal operation

If Safety Gate is Opened During Run

At the back of the 558 is a safety gate on the security fence. If the gate is opened, the effect is the same as pushing the stop button or pushing the touch screen system off button. To recover, secure gate and restart machine.

Note: It is not necessary to Re-Home the machine if gate is opened.

Description of User Interface Screens

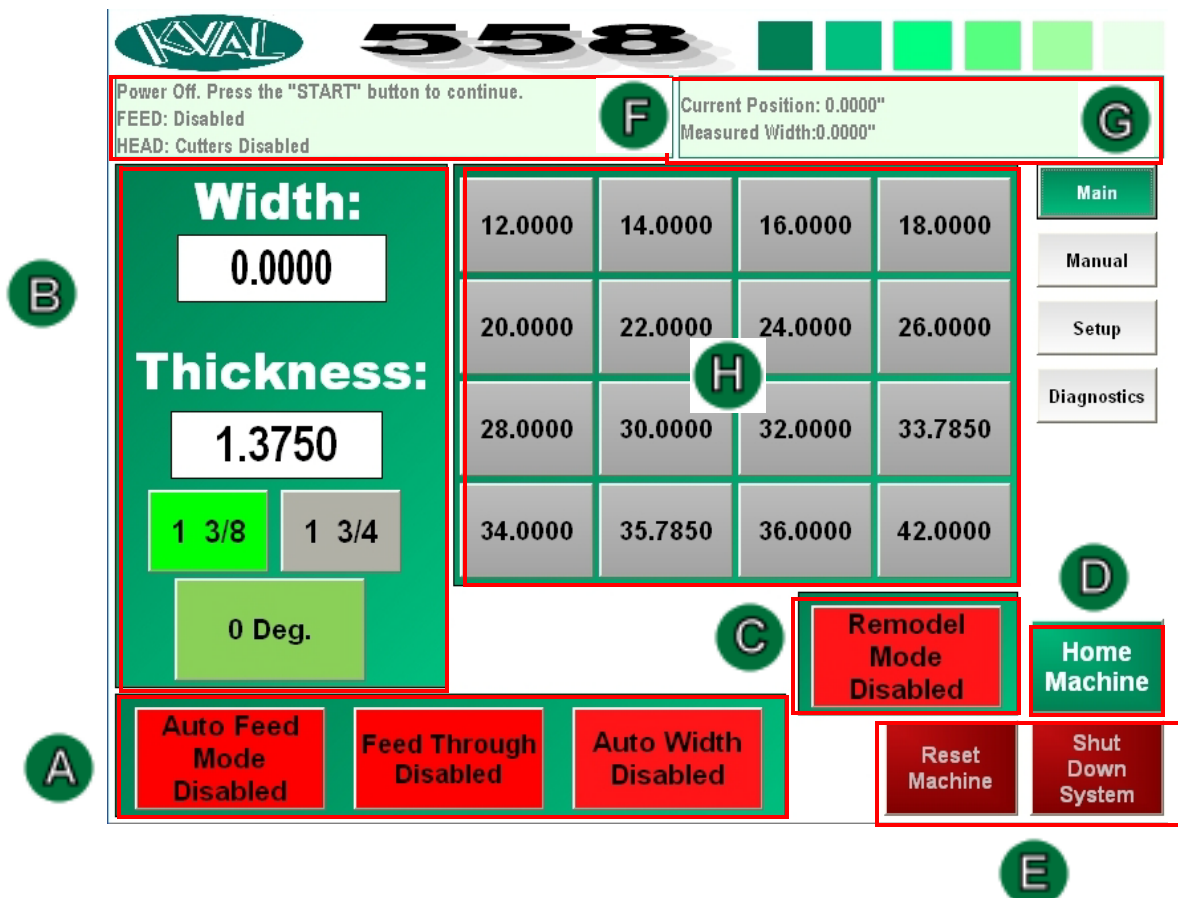
This section describes the user interface screens. The user interfaces allow the operator to control the door cutting process, auto-run and manually run the door, store door profiles, and use diagnostics to help troubleshoot the 558. The user interfaces include the following:

- Main Screen
- Manual Screen
- Setup Screen
 - includes Preset Screen
- Diagnostic Screen



Main Screen

The Main Screen is the start-up and primary interface for the operator. It contains the necessary controls to run a door through the cutting process.



Main Screen (With Cut Offsets)

Slight changes have been made to the **Main Screen** starting 2019.

- Cut Offsets User Window has been added to the Main Screen.(See Below)
- Cut Offsets Input Screen has been added to the Setup Screens. (See “Offset Setup” on page 2-32.)
- Input Window has been added to the Preset Screen. (See “Description of the Preset Setup Screen” on page 2-31.)

The screenshot shows the KVAL 558 Main Screen. At the top, there's a status bar with 'Power Off. Press the "START" button to continue.', 'FEED: Disabled', and 'HEAD: Cutters Disabled'. To the right, it shows 'Current Position: -0.0837"' and 'Measured Width: 0.0000"'. The main area is divided into several sections: a large green box on the left for 'Width: 0.0000' and 'Thickness: 1.3750', a grid of 16 preset buttons (e.g., 4-0, 3-10, etc.), a '0 Deg.' button, and three red buttons for 'Auto Feed Mode Disabled', 'Feed Through Disabled', and 'Auto Width Disabled'. On the right, there are buttons for 'Main', 'Manual', 'Setup', 'Diagnostics', 'Home Machine', and 'Reset Machine'. A red box highlights the 'Cut Offsets' section, which contains a 2x3 grid of buttons with values: 0.0000, 0.1250, 0.2500, 0.3125, 0.5000, and 0.8750.

Cut Offsets

Cut Offsets is a **Remodel Door** replacement. A positive number will result in a narrower door.

1. Enter desired offset values on the **Cut Offsets Setup** screen. The values will be displayed as active buttons on the main screen. See “Offset Setup” on page 2-32.
2. At the Main Screen, select the desired offset.
3. All Presets will be updated with the selected offset
4. Process the door.



Auto Feed Mode:

Click the button to toggle between Enable and Disable.

- **Enable:** Auto feeds a door through the 558
- **Disable:** Stop a door feeding through the 558

Feed Through Mode:

Click the button to toggle between Enable and Disable.

- **Feed Through Enabled:** Uses the Feed-through Offset data entered in the **Setup Screen**. (See “Feed-thru Offset:” on page 2-30.) The door will be fed through the 558 at this width without be machined.
- **Feed Through Disabled:** Uses the preset setting and width adjust Feed-through Offset set in the **Setup Screen** to open the width adjust by the offset amount so a door can be fed through the 558 without being machined.

Auto Width Mode:

Click the button to toggle between Enable and Disable.

- **Auto Width Enable:** will scan the door as the door feeds in and automatically snap to the closest matching *preset size*.
- **Auto Width Disabled:** The operator must type in the desired door width by clicking in the **Width** box and entering the desired width. See “Width” on page 2-19.

:



Width

The operator can bypass the Auto Width Mode and enter manual data. into the **Width** box.

To enter manual data:

1. Disable the **Auto Width Mode** (See “ Auto Width Mode:” on page 2-18.)
2. Click the white box under the **Width** title and enter the desired width of the door

Thickness

To enter measured thickness of the door, click the white box and enter the desired thickness of the door.

Note: The manual entered thickness number will override the 1 3/8 – 1 3/4 buttons.

To use standard thicknesses supplied by the interface, follow the steps below:

Click the 1 3/8 box if door thickness is 1 3/8” thick.

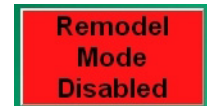
Click the 1 3/4 box if door thickness is 1 3/4” thick.

0 Deg and 3 Deg

0° Deg / 3 Deg : Click to toggle between 3 degree and 0 degree parameters.



Remodel Mode:



Click the button to toggle between Enable and Disable

- **Remodel Mode Disabled:** The Disable mode uses the widths linked to the preset buttons. (See “Preset Selections” on page 2-22.)
- **Remodel Mode Enabled:** The Enable mode combines the offset input in the **Remodel Door Offset** box located in **Setup Screen**. All Presets will be updated with this offset and the numbers will change in the **Preset Selection** matrix located on the Main Screen.

See “Description of the Setup Screen” on page 2-26.



Home Machine:



This button starts the home sequence on the machine, which causes the movable fence to slowly scan to find a physical reference point on the frame. When this point is found, its position is stored and then used to calculate the location of all moves after this. The home sequence must be performed every time the machines is turned on or reset. (See “About Homing of the 558” on page 2-13.)

E

Reset Machine:

If a fault occurs that cannot be cleared, press **Reset Machine** button. This button will reset the machine to the start position *before* homing.

Press **Home Machine** after the Reset Machine button is pressed.

**Shut Down System:**

This button only shuts down the computer.

F

Machine Status Feedback:

The top left corner box displays the status of the machine.

Tip: If the machine does not perform a function, look at this box first when trouble shooting.

- **Top Line:** indicates the machine status.
- **Feed:** indicates the condition of the feed circuit.
- **Head:** indicates if the Cutter is ON or OFF





Machine Position Feedback:

The top right corner box displays the position the machine and measured width of the door.

- **Current Position:** Shows the current position of the movable fence.
- **Measured Width:** Shows the measured scanned width of the incoming door.

Current Position: 0.0000"
Measured Width: 0.0000"

Tip: The measured width shown in the feedback box should be within 1/8" of actual width of the door as it feeds into the 558.

If the width displayed is more than 1/8" than the door, go to the Set-Up Screen and calibrate the **Auto Width Eye**. (See "Auto Width Eye:" on page 2-28.)



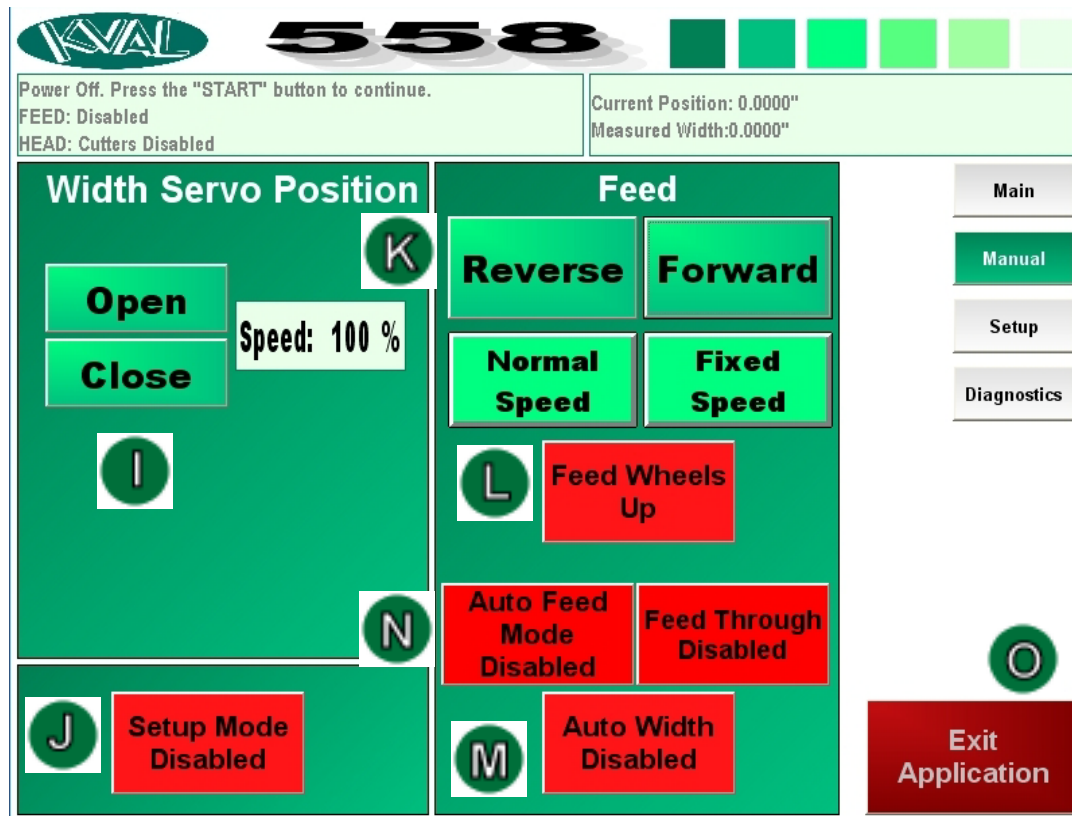
Preset Selections

This selection of buttons allows a quick way to load the preset widths of a saved door. The preset values are created in the **Preset Menu**. (See "" on page 2-30.)

12.0000	14.0000	16.0000	18.0000
20.0000	22.0000	24.0000	26.0000
28.0000	30.0000	32.0000	33.7850
34.0000	35.7850	36.0000	42.0000

Manual Screen

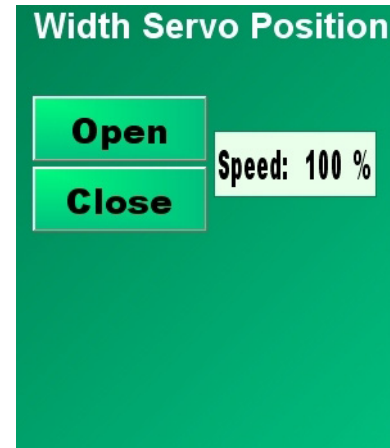
The Manual Button opens the Manual Screen. The Manual Screen interface allows the operator to manually control machine speed, direction and width servo position.





Width Servo Position:

- **Open:** Press and *hold* the **Open** button to open the width adjust carriage. To stop the carriage, release the button. The carriage will also stop if the positive travel limit eye is activated.
- **Close:** Press and *hold* the **Close** button to close the width adjust carriage. To stop the carriage, release the button. The carriage will also stop if the negative travel limit eye is activated.



Speed

Click the white box and enter the open and close speed of the carriage. The range is 1% to 100%. Use the number pad to enter the desired speed and press OK when finished.



Setup Mode:

Click the button to toggle between Enable and Disable

Setup Mode Disabled: Runs the cutter mode normally.

Setup Mode Enabled: This will open the width adjust carriage a half inch. The door feeds through the 558 normally, except all cutting motors turn off and **no** cutting, easier routing, and sanding is performed.

Note: Enabled mode is normally used to check the system.





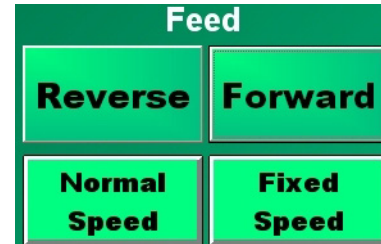
Feed Speed and Direction:

Reverse: Press and hold the **Reverse Button** to run the feed system in reverse. To stop, release the button.

Forward: Press and hold the **Forward Button** to run the feed system in reverse. To stop, release the button.

Normal Speed / Slow Speed: This button toggles between feeding the door at full speed and feeding at slow speed.

Fixed Speed / Cutting Speed: This button toggles between running at the fixed preset speeds and the cutting speed, set by the speed potentiometer



Feed Wheels

Feed Wheels Up/Feed Wheels Down:

This button toggles the Feed Wheels up and down.



Auto Width Mode:

Refer to “Auto Width Mode:” on page 2-18 for Auto Width description.



**Auto Feed Mode:**

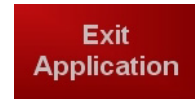
See “Feed Through Mode:” on page 2-18.

**Feed Through Mode:**

See “Feed Through Mode:” on page 2-18.

**Exit Application:**

Click the button to exit out of the 558 program and go back to the Windows CE® desktop.

**Description of the Setup Screen**

From the Setup Screen, the operator can make general adjustments and calibration adjustments.

558

Power Off. Press the "START" button to continue.

FEED: Disabled

HEAD: Cutters Disabled

Current Position: 0.0000"

Measured Width: 0.0000"

Auto Width Eye

+/- to Offset

0.000000

Base 0.000000

Combine with Base

0° Calibration

+/- to Offset

0.000000

Base 0.000000

Combine with Base

3° Calibration

+/- to Offset

0.000000

Base 0.000000

Combine with Base

Infeed Time

0.25

Sec.

Feed-thru Offset

1.2500

Remodel Door Offset

-0.075

Main

Manual

Setup

Diagnostics

Preset Setup

Auto Width Eye

+/- to Offset

0.000000

Base 0.000000

Combine with Base

0° Calibration

+/- to Offset

0.000000

Base 0.000000

Combine with Base

3° Calibration

+/- to Offset

0.000000

Base 0.000000

Combine with Base

Infeed Time

0.25

Sec.

Feed-thru Offset

1.2500

Remodel Door Offset

-0.075

Main

Manual

Setup

Diagnostics

Preset Setup



Auto Width Eye:

When the width adjust eye measures the door, it displays the measurement in the top right hand box under **Measured Width**.

Current Position: 0.0000"
Measured Width: 0.0000"

If the actual width of the door does not match the result from the feedback, follow the steps below:

1. Click the **Combine with Base**, to set base to 0 as a reference.
2. Once this number is combined with the Base number, click on **+/- to Offset**. A number pad will be displayed.
3. If the feedback (Measured Width) number is less than the actual door width, enter a **positive** number then click the check mark.
4. If the feed back (Measured Width) number is greater than the door width, enter a **negative** number then click the check mark.
5. Once this is done, click Main button and select the preset width and re-run the door. Repeat steps 3-5 until Measure Width is the same number as the door.
6. After calibration is completed, click **Combine with Base** to store data.





0 Degree Calibration:

Important: The Auto Width Eye Calibration number needs to be correct before calibrating the Zero or Three Degree Calibrations.

To check and perform the calibration at 0 degrees, set up a door to a desired preset and cut it at zero degrees. Once the door is cut on zero degrees, measure the width of the door. If it does not match the number in the white Width: Box on the Main screen, perform the following steps. Note the number in the box for calculation.

1. Click the **Combine with Base.** to set base to 0 as a reference.
2. Once this number is combined with the Base number, click on **+/- to Offset.** A number pad will be displayed.
3. If the width of door is narrower than the Width Number, take the difference and enter that as a **positive** number in the big white box under 0° Calibration.
4. If the door width is larger than the Width number, enter the difference as a **negative** number.
5. Once this is done, click Main button and select the preset width and rerun the door.
6. Repeat steps 3 - 5 until the preset width matches the finished width cut.
7. After calibration is completed, click **Combine with Base** to store data.

3 Degree Calibration:

Follow the same steps as in the 0 degree calibration except run a 3 degree door.

**Infeed Time:**

Sets amount of time to stop the door at mid machine (Eye 1-0014) before the cutter.

Note: This feature is rarely used and default time should be left in the box.

Infeed Time**0.25 Sec.****Feed-thru Offset****1.2500****Feed-thru Offset:**

Sets the offset amount of the fence to open during the feed-thru process. See “Feed Through Mode:” on page 2-18.

Note: This feature is rarely used and default offset should be left in the box.

Remodel Door Offset**-0.075****Remodel Door Offset:**

Click the white box under the title to enter the Remodel door offset number. This offset combines with all the presets when the Remodel Door Button is enabled. See “Remodel Mode:” on page 2-20.

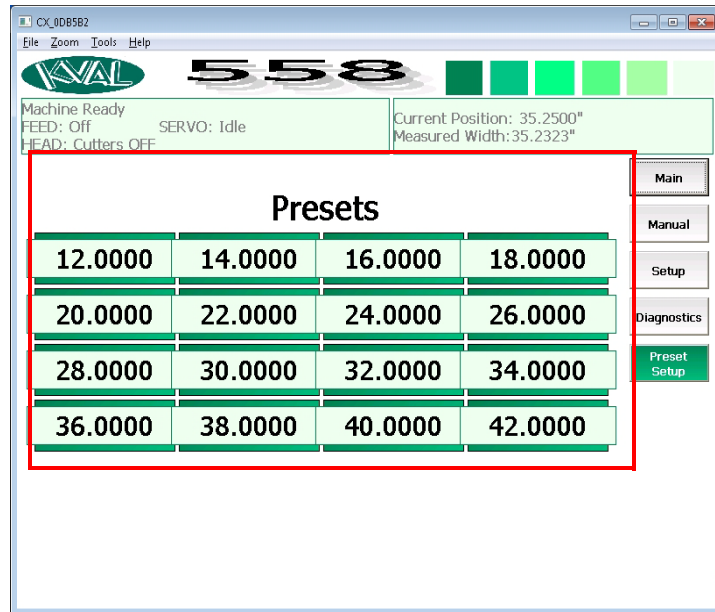
Description of the Preset Setup Screen

Click the Preset Setup button from the Setup Screen to open the Presets Screen. On this screen, the operator can create and store up to 16 door widths. The preset buttons are available for easy access on the Main Screen. See “Main Screen” on page 2-16.

Input or Change Presets

To change or setup a preset, follow the steps below:

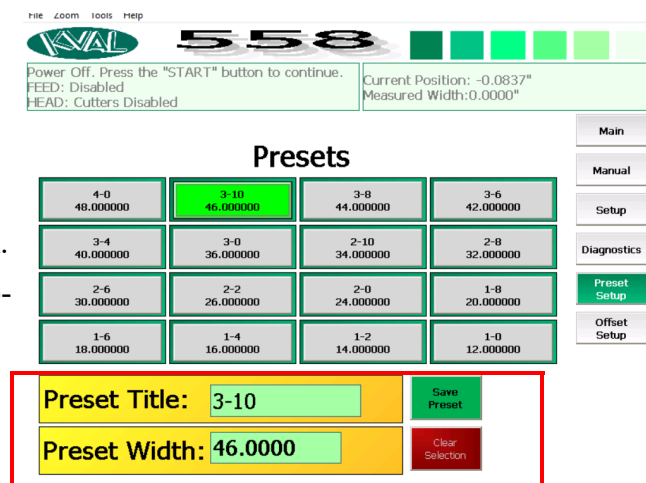
1. Click the preset button that needs to be updated.
2. A number pad will be displayed. Enter the desired door width number for that preset.
3. Click the OK button at the top right corner of the number pad.
4. The width amount will reflect on the title of the button.
5. The preset is now set to the new door width.
6. Follow steps 1 through 4 for each preset that needs to be updated.



Input or Change Presets (Input Window)

Interfaces starting in 2019 includes a Input Window at the bottom of the screen.

1. Select Preset Title
2. Enter desired Label.
3. Select **Preset Width**
4. Enter desired width value
5. Select the Save Preset Button.
6. The Preset button will be populated on the grid.



Offset Setup

Interfaces starting in 2019 includes a setup window to input **Offset Values**.

Offset Values

To change or setup an Offset value, follow the steps below:

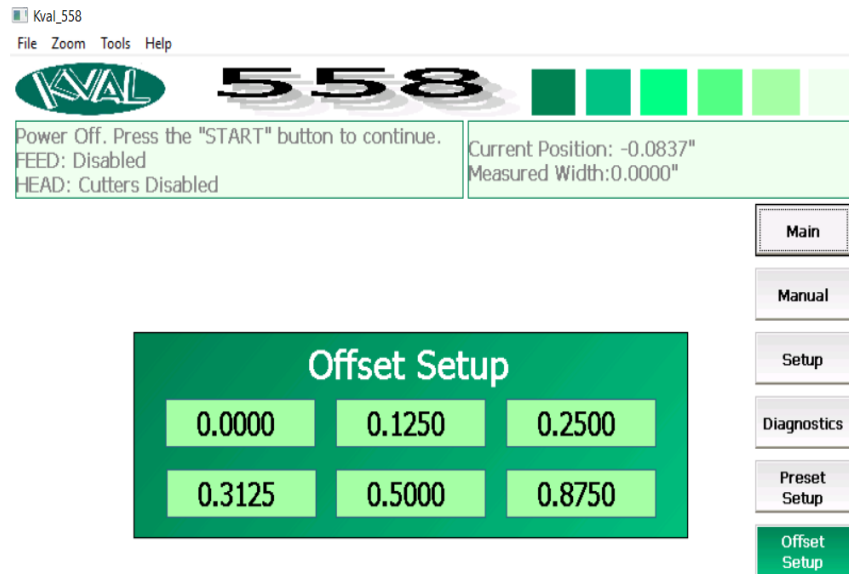
1. Click the offset button that needs to be updated.

2. A number pad will be displayed. Enter the desired offset.

3. Click the OK button at the top right corner of the number pad.

4. The offset value will be reflected on the buttons located on the Main Screen

5. Follow steps 1 through 4 for each offset that needs to be updated.

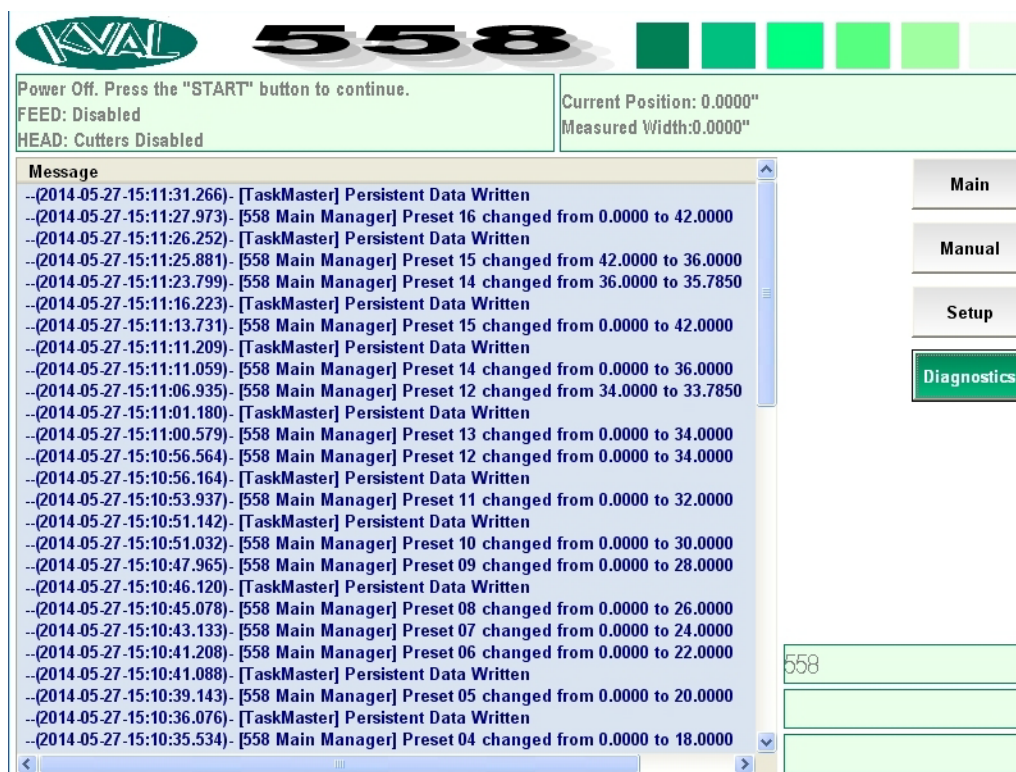




Description of the Diagnostic Screen

The Diagnostic Screen displays all the tasks the 558 performs. This screen will help with trouble shooting. The top line will have the most current routine that is running. Read the error and if the problem is not resolved, call KVAL Inc. (1-800-553-5825) and let the KVAL representative know the error code that is displayed on the machine so the down time can be very minimal.

Tip: In trouble shooting the machine, first look in the top left corner and read the status of the machine. If that doesn't solve the problem, then read through the diagnostics screen.





CHAPTER 3 System IT Administration

This chapter describes the KVAL 558 controller. The controller is an on board computer that supplies the user interface and controls the operation of the machine. With the controller, KVAL can remotely help troubleshoot your machine.

Chapter 3 at a Glance

System IT Administration	3-2
About the 558 Controller	3-2
Connections on the PLC Controller	3-2
Backing up the Computer	3-3
About Remote Connection to KVAL Service	3-3

System IT Administration

For optimum support, the 558 requires internet access. With internet access, KVAL Service Support will be able to access your machine through your company's intranet and help solve any issues that may occur. Connection to the intranet is achieved by interfacing with the 558 controller. The location of the intranet connection is identified in the figure below (RJ45 to intranet.)

About the 558 Computer

The 558 uses a Beckhoff® CPU module as a PLC (Programmable Logic Controller.) In addition to the CPU and the chipset, the module also contains internal main memory. The computer has a removable Compact Flash card from which it boots. The controller uses a Windows CE® operating system with TwinCAT 2® automation software to create the PLC and Motion Control method.

Interface modules include:

- A smart power supply to connect to EtherCat® terminals. This supply contains a LCD to display system and user messages.
- A DVI/USB module to connect to the user interface.
- An Ethernet module to connect to the servo amplifiers.

Connections on the PLC

The CPU module is located in the upper left corner of the Electrical Panel. See "Identification of Electrical Panel Parts" on page 2-9.

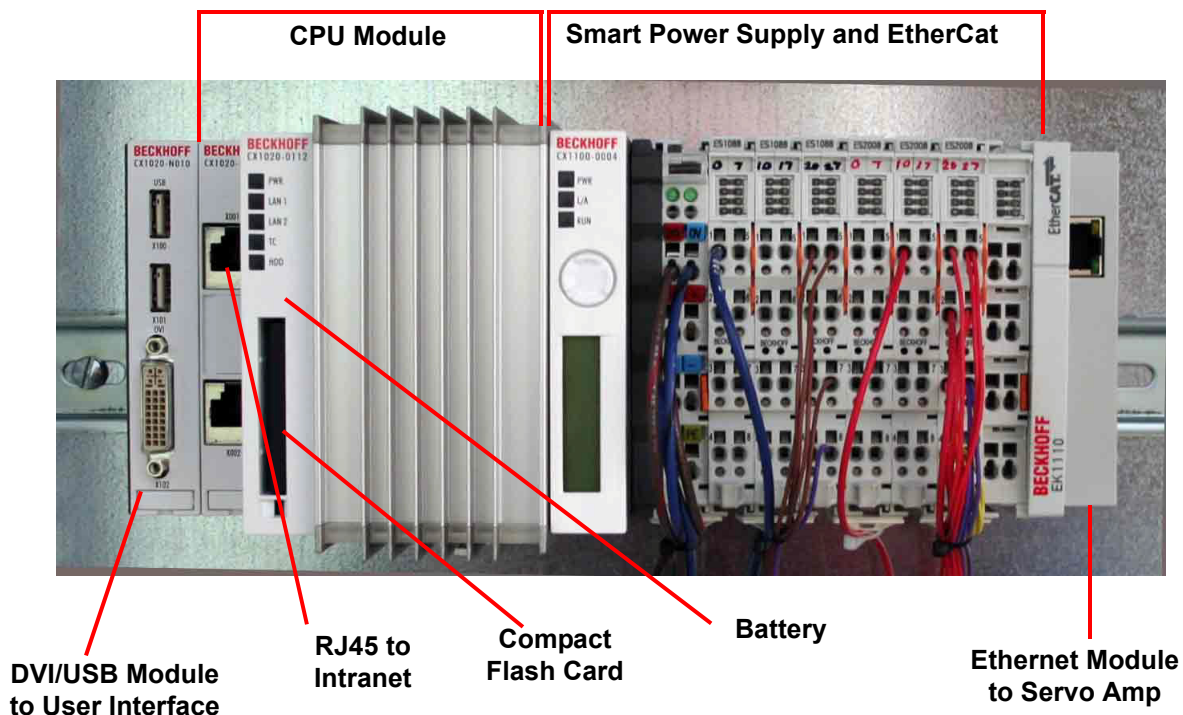


FIGURE 3. Connections on the Controller

Backing up the Computer

Backups keep your data archived in case of a rare system crash. Windows CE[®] is a powerful but compact operating system. Because the op-system is compact, it may take a higher level knowledge of computing to back up the data. It is a good idea to have your local IT personnel or engineering to back up the files. Also, the KVAL service team would be happy to help. If any questions occur, contact our service team at (800) 553-5825 or at www.kvalinc.com.

Some basic information for backing up the system are:

- Files are located in */HardDrive/TwinCAT/Boot*.
- Two recommended methods of backup
 - Remove and duplicate Compact Flash card at regular intervals.
 - Create a copy of */HardDrive/TwinCAT/Boot* folder

About Remote Connection to KVAL Service

Remote access is a powerful tool to help fix issues that occur with the 558 machine. With the remote access, our KVAL service technician is able to observe your user screen in real time, read and adjust programming code. For 558 access, a separate computer must have Beckhoff[®] software installed that is connected to the intranet connection on the machine controller.

For more in depth information on hooking up and running remote access, see the “*KVAL 558 Service Manual*.”

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Notes:



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