EZ SANDER
HARD WORK MADE EZ

by APEX MACHINE GROUP

Operation Manual
Machine Model EZ3760M
Metal

E Z Sander

BY APEX Machine Group

Warranty and Service

APEX Machine Group warrants every product it sells. If you need service or repair, contact us or one of our Service Dealers

WARRANTY

Apex Machine Group machines carry a limited warranty which varies in duration based upon the product.

WHAT IS COVERED?

This warranty covers any defects in workmanship or materials subject to the exceptions stated below.

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WHO IS COVERED?

This warranty covers only the initial purchaser of the product.

WHAT IS THE PERIOD OF COVERAGE?

The APEX Machine Group warranty for a One **Year Period** (2000 hours) from the date of purchase.

WHAT IS NOT COVERED?

This warranty does not cover defects due directly or indirectly to misuse, abuse, negligence or accidents, normal wear-and-tear, improper repair or alterations, or lack of maintenance. Also the warranty does not cover those consumable item such as graphite canvas, platen felt, mistrack switch tips, fuses or other normal wear items.

HOW TO GET SERVICE

Contact APEX Machine Group at (855-500-7263) (952-224-2899) www.apexmachinegroup,com or the dealer you purchased the machine from.

Manufacture or Distributor is not responsible for, and will not pay for, work done, material furnished, or repairs made by others unless agreed to in writing prior to performing work. All express delivery charges, repair labor and expenses are the responsibility of the customer.

Parts repaired or replaced under warranty are covered for the balance of the original machine warranty, or a standard 90-day parts warranty, whichever is longer.

Except as stated above, there are no warranties, expressed or implied, including the warranties of merchantability and fitness for a particular purpose.

HOW STATE LAW APPLIES

This warranty gives you specific legal rights; you may also have other rights which vary from state to state.

Caution : Please read and understand this manual prior to operation of this machine.

Machine Warranty Registration

By e-mail at : **www.ezsanders.com**

Or mail a registration card to :

E Z Sanders
% Apex Machine Group
4700 Olson Memorial Highway
Golden Valley, Minnesota 55422

Warranty Registration Card

Model No. _____

Serial No. _____

Date Purchased : _____

Company Name : _____

Address : _____

_____

Phone No . _____

E-mail Address : _____

Table of Contents

Parts List Model EZ3760M Metal

Warnings

Please note: You can be badly injured working on or around a Sander. Only do service work for which you have the knowledge and proper equipment. If you have any doubt about your ability to perform a service job, please call our toll free line at 877-754-7266 or 855-500-7239 or contact an authorized dealer to schedule a qualified technician.

1. Read and understand the entire owner's manual before attempting assembly or operation.

2. Read and understand the warnings posted on the machine and in this manual. Failure to comply with all of these warnings may cause serious injury.

3. Replace the warning labels if they become obscured or removed.

4. This sander is designed and intended for use by properly trained and experienced personnel only. If you are not familiar with the proper and safe operation of a sander, do not use until proper training and knowledge have been obtained.

5. Do not use this sander for other than its intended use. If used for other purposes, Apex Machine Group disclaims any real or implied warranty and holds itself harmless from any injury that may result from that use.

6. Always wear approved safety glasses/face shields while using this sander. Everyday eyeglasses only have impact resistant lenses; they are not safety glasses.

7. Before operating this sander, remove tie, rings, watches and other jewelry, and roll sleeves up past the elbows. Remove all loose clothing and confine long hair. Non-slip footwear or anti-skid floor strips are recommended. Do **not** wear gloves. Steel toed shoes are recommended because heavy parts can fall off the conveyor table onto feet.

8. Wear ear protectors (plugs or muffs) during extended periods of operation.

9. Some dust created by power sanding, and other construction activities contain chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- Lead from lead based paint.

- Crystalline silica from bricks, cement and other masonry products.

 Arsenic and chromium from chemically treated lumber.
Your risk of exposure varies, depending on how often you do this type of work. To reduce your exposure to these chemicals, work in a well-ventilated area and work with approved safety equipment, such as face or dust masks that are specifically designed to filter out microscopic particles.

10. Do not operate this machine while tired or under the influence of drugs, alcohol or any medication. and make sure nothing is on the conveyor bed before starting machine.

11. Make certain control switch is **OFF** before connecting the machine to the power supply.

12. Make certain the machine is properly grounded.

13. Remove adjusting keys and wrenches. Form a habit of checking to see that keys and adjusting wrenches are removed from the machine before turning it on.

14. Keep safety guards in place at all times when the machine is in use. If removed for maintenance purposes, use extreme caution and replace the guards immediately.

15. Check damaged parts. Before further use of the machine, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.

16. Provide for adequate space surrounding work area and non-glare, overhead lighting.

17. Keep the floor around the machine clean and free of scrap material, oil and grease.

18. Keep visitors a safe distance from the work area. **Keep children away.**

19. Make your workshop child proof with padlocks, master switches or by removing starter keys.

20. Give your work undivided attention. Looking around, carrying on a conversation and “horse-play” are careless acts that can result in serious injury.

21. Remove loose items and unnecessary work pieces from the area before starting the machine.

22. Maintain a balanced stance at all times so that you do not fall or lean against the conveyor belt or other moving parts. Do not overreach or use excessive force to perform any machine operation.

23. Keep hands clear while feeding workpieces onto the conveyor table. The workpiece will be forced down as it begins to feed into the machine, causing a pinching action between workpiece and conveyor table.

24. Stand to one side of the conveyor table and do not let anyone else stand in line with the table while a workpiece is being fed through the machine.

25. For wood sanders do not attempt to sand stock shorter than 12 inches long without butting a board of equal thickness behind it to help it through the machine. Do not sand stock less than 1/8" thick.

26. Never reach into a running machine. Turn off and disconnect from power source before attempting to retrieve parts from within the machine.

27. Use the right belt at the correct speed and feed rate. Do not force a sanding belt to do a job for which it was not designed. The right belt will do the job better and safer.

28. Use recommended accessories; improper accessories may be hazardous.

29. Turn off the machine and disconnect from power before cleaning. Use a brush or compressed air to remove chips or debris — do not use your hands.

30. Do not stand on the machine. Serious injury could occur if the machine tips over.

31. Never leave the machine running unattended. Turn the power off and do not leave the machine until all parts come to a complete stop.

Familiarize yourself with the following safety notices used in this manual:

⚠CAUTION This means that if precautions are not heeded, it may result in minor injury and/or possible machine damage.

⚠WARNING This means that if precautions are not heeded, it may result in serious injury or possibly even death.

Introduction

This manual is provided by APEX Machine Group covering the safe operation and maintenance procedures for an E Z Sander Wide Belt Sander. This manual contains instructions on installation, safety precautions, general operating procedures, maintenance instructions and parts breakdown. This machine has been designed and constructed to provide years of trouble free operation if used in accordance with instructions set forth in this manual. If there are any questions or comments, please contact either your local dealer or APEX Machine Group who can also be reached at our web site: www.apexmachinegroup.com or www.ezsanders.com
(855-500-7263) or (952-224-2899)

Specifications

Model Number.....EZ3760M

Working Width (in.) 37

Maximum Thickness (in.).....5

Minimum Part Length (in.).....12

Table Height from Floor (in.) .....31-3/8 to 37-3/8.

Main Drive Motor ..... 10 HP, 1 Ph, 230 V .. ..15HP, 3 Ph, 230/460V

Power Feed Motor .....1HP, 1Ph 1HP, 3Ph

Sanding Belt Size (in.) .....37 x 60

Dust Ports ..... one @ 6” diameter

Dust Collection CFM Required.....1000

Required Air Pressure (PSI).....75 to 80

Gross Weight (lbs.).....1,760

Net Weight (lbs.).....1,650

- **NOTE:** The sander is pre-wired 230V.single or three phase. Conversion to 460V requires the purchase and installation of additional parts. Or if ordered at 460 V.

The above specifications were current at the time this manual was published, but because of our policy of continuous improvement, APEX Machine Group, reserves the right to change specifications at any time without prior notice.

Unpacking

Open shipping container and check for shipping damage. Report any damage immediately to your distributor and shipping agent. Do not discard any shipping material until the sander is installed and running properly. Compare the contents of your container with the following parts list to make sure all parts are intact. Missing parts, if any, should be reported to your distributor. Read this instruction manual thoroughly for assembly, maintenance and safety instructions.

Contents of the Shipping Container

1 Sander
1 Sanding belt
1 Platen pull hook (wood sander only)
1 Open wrench for leveling bolts
3 Open-end wrenches, 8-10, 12-14, 17-19
1 Set of hex wrenches
1 Owner's manual
1 Warranty card (located in manual)

Read and understand the entire contents of this manual before attempting set-up or operation! Failure to comply may cause serious injury.

Assembly

The sander should be placed on a level, sturdy floor, preferably concrete, with plenty of space surrounding it for on- and off-loading of stock, and general maintenance work.

Open the two lower side panels and use the leveling screws inside the cabinet (Figure 1) to level the sander. The machine can also be secured to the floor with high quality lag screws (not provided) through the four mounting holes inside the cabinet.

Remove the protective coating from exposed metal surfaces with a soft cloth moistened with kerosene or a good commercial solvent. Do not use acetone, gasoline or lacquer thinner, as these have a low flash point and can be a fire hazard, as well as damage the paint finish. Do not get solvents on rubber or plastic areas of the machine.

Figure 1

Air Supply Connection

The sander must be connected to an air supply unit. The recommended working pressure is 75 to 80 PSI.

The air connection is on the Filter/Regulator unit located at the back of the sander (Figure 2). Attach the incoming air supply to the connector with a flexible hose.

The working pressure can be adjusted with the pressure regulator. Lift up on the adjustment knob and rotate it clockwise to increase air pressure, or counterclockwise to decrease air pressure. When the desired pressure is shown on the pressure gauge, push down the adjustment knob to lock the setting.

Figure 2

Installing/Replacing Sanding Belt

1. Machine should be disconnected from power source.
2. Turn the air valve switch (A, Figure 3) to Off position.
3. Remove the lock screw (B, Figure 3) by turning it counterclockwise and lifting up.
4. Remove the spacer block (C, Figure 3).
5. Inspect the sanding belt for defects such as chipped or torn edges. Do not use a belt if it is damaged.

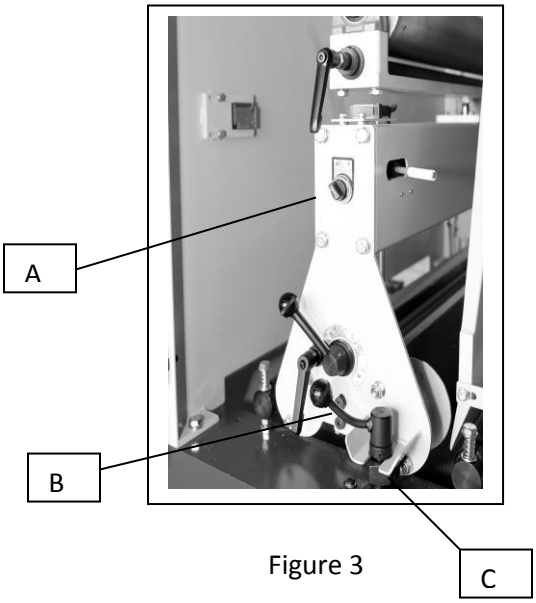


Figure 3

⚠CAUTION Make sure the direction of the arrows on the inside of the sanding belt matches the rotation of the machine. See Figure 4.

6. Install the new belt by placing it first over the upper roller, then over the free and contact rollers, and slide the belt all the way onto the rollers.
7. Center the belt while avoiding contact with the limit switch fingers that are located on each side of the belt.
8. Re-install the spacer block (C, Figure 3) and lock screw (B, Figure 3) and tighten the lock screw by turning clockwise.
9. Turn the air valve switch (A, Figure 3) to ON to tension the sanding belt.
10. Make sure there is clearance between sanding belt edges and the limit switch fingers on either side. If there is not, make the appropriate corrections (with the air valve turned OFF).

NOTE: The sander will not start if a limit switch is engaged.

11. Before doing any sanding, the sanding belt should be tested for proper tracking and oscillation. See the appropriate sections in this manual.

Grounding Instructions

⚠ WARNING Electrical connections must be made by a qualified electrician in compliance with all relevant codes. This machine must be properly grounded while in use to help protect the operator from electrical shock and possible fatal injury.

In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock to the operator.

Improper connection of the equipment grounding conductor can result in risk of electric shock.

Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded.

The sander should be connected to a dedicated circuit with a minimum 100 Amp service. The sander has been factory wired to run at 230 volt operation.

230 Volt Operation

The sander may be fitted with a 230 volt cord, or may be “hard-wired” directly to an electrical control panel.

If hard-wired to a panel, make sure a disconnect is available for the operator.

Refer to the diagram inside the sander’s electrical box for clarification of electrical connections.
These diagrams are also shown on pages (42, 43 and 45) of this manual.

Figure 5

1. Make sure the machine is always disconnected from the power source. If it will be hard-wired, make sure the fuses have been removed or the breakers have been tripped in the circuit to which the sander will be connected. Place a warning placard on the fuse holder or circuit breaker to prevent it being turned on while the machine is being wired.
Always follow proper Lock Out/Tag Out procedures when performing any wiring on this machine. Follow local codes.

2. Make sure the power source corresponds to the specifications of the sander as recorded on the sander's motor plate.

3. Open the sander's electrical box and connect the incoming power leads to the proper marked terminals.
See Figure 5.
Connect the green ground wire to grounding terminal.

4. Connect the machine to power (or install the fuses or reset the breaker at the power source).

5. Press the Reset and Turn Drum Set-Up Switch first to check that the contact drum is rotating in the proper direction(counter clockwise for wood and clockwise for metal). Figure 6 or 18

6. If the contact drum rotates in the wrong direction, turn off the machine and **disconnect from power**. Switch any two of the power leads .

7. Re-connect power to the sander once drum rotation is confirmed.

Figure 6

Table Readout

460 Volt Conversion

To convert the sander to 460V:

Contact APEX Machine Group or your local dealer for parts and instructions.

Adjustments

Sanding Belt Tracking and Oscillation

The sanding belt should oscillate left and right without a tendency to slide off the rollers. If the sanding belt runs outside of the normal track, it will contact a limit switch and the machine will stop automatically.
The oscillation settings have been made at the factory, but should be checked by the operator.

NOTE: When a new sanding belt is installed, there may be a slight length tolerance between the right and left sides of the sanding belt which may result in incorrect tracking. If this occurs, the oscillation timing can be set to compensate.

1. Turn off belt tension switch and center the sanding belt , turn belt tension switch back on. Now turn the Head Set-Up switch to the right, oscillation adjustment is done while abrasive belt is running. (see Figure 6).

2. The upper roller will pivot left and right. The duration of the sanding belt's oscillation to the right side and to the left should be equal. For example, if the oscillation time to the right is one second, then the oscillation time to the left should also be one second.

3. If oscillation time is unequal when comparing right and left sides, adjustment is needed. To adjust, turn the tracking lever either right or left. This will adjust the tracking movement right or left; Do this until proper timing is achieved.
(see Figure 7)

4. It is possible that when changing to new belt or changing to a belt that has a heavier backing which is different from 50 to 180 grit, you may have to follow the above instructions.

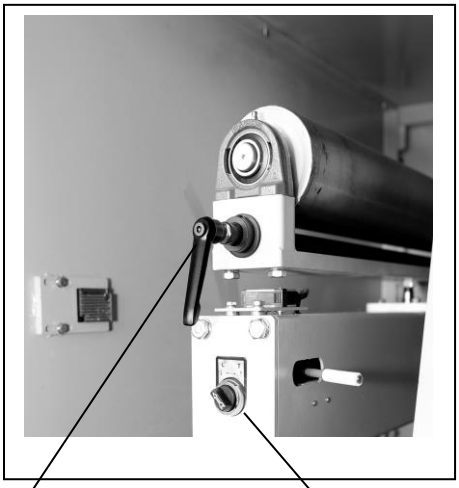
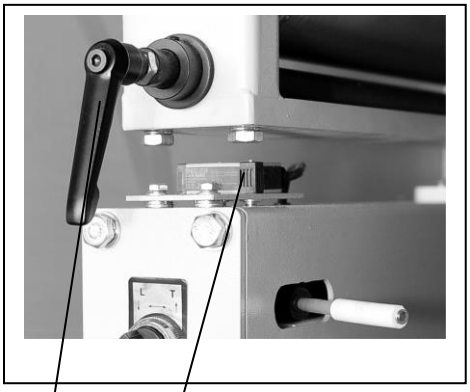


Figure 7

Sanding Belt Oscillation



Belt oscillation is done with a photo electric tracking eye and a air solenoid valve. When the sanding belt is operating the edge of the belt will pass across the light beam , which will them activate a solenoid valve that will allow air to pass to the tracking cylinder and pivot the upper idler roll. This will cause the belt to travel in the opposite direction on the Idler roll. This process will continually repeat itself.

If the idler roll does not pivot, check the photo eye for dust or other blockage. If that does not resolve the problem, check to see that the solenoid has power to allow air to pass to the tracking cylinder itself.

Release the sanding belt tension and slide the belt so you know the light from the photo eye can reach past the edge of the belt. Make sure that no dust is blocking the photo eye. If photo eye light can pass across, put something in the light path and see if the idler roll will move. If it still does not, remove air line from tracking cylinder and see if air is passing through the line to the cylinder. (When you block the light path air should change from this line.) Last check the solenoid, if you manually move the piston in the solenoid the air should shift in the air line to the tracking cylinder.

If at this point you can not determine problem contact your local dealer or call Apex Machine Group for service.

Frequently inspect photo eye and make sure it is clean and clear of obstructions.

Oscillation Speed

To adjust the speed of the oscillation, there are two speed valves (Figure 9), on the tracking cylinder. Loosen jam nut and adjust the air flow to control belt speed and travel. Top valve controls the speed of the belt oscillation on the idler roll, and the larger valve controls how far the belt travels on the idler roll. When finished make sure jam nuts are tight.

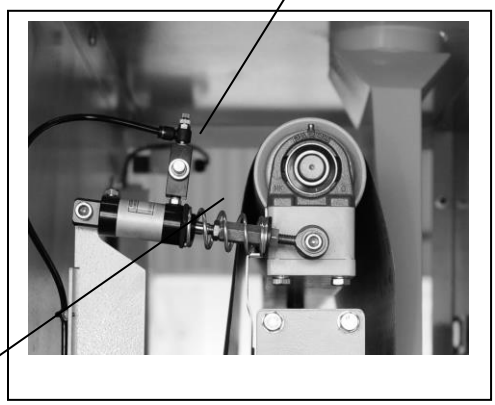


Figure 9

EZ6037M Metal Sander
Adjusting Contact Drum for Abrasive Belt Thickness

If using sanding belts that vary a lot in thickness (Example : 220 cloth back to a scotchbrite belt) Follow the procedure below to “raise or lower” contact drum depending on abrasive belt or scotchbrite belt. So you maintain the same hold down roller pressure.

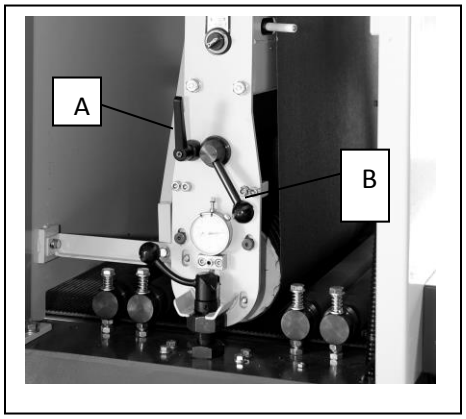


Figure 10.1

1. First determine the difference in thickness from the belt you were using to the one you will put on the machine. Use a calipers to measure the difference or check with your belt supplier.

2. Loosen locking lever (A figure 10.1)

3. Rotate drum adjustment lever (B figure 10.1) to raise or lower the contact drum using the dial indicator to check the amount of movement of the drum per the distance you determined in step 1.

4. Tighten locking lever (A figure 10.1)

5. Now follow the instructions on page 14 for **Sanding Belt Oscillation Adjustment** and adjust the new belt so it oscillates properly.

Caution: Abrasive belt or Scotchbrite belt must be a minimum .040 / 1 mm higher than the hold down rollers for proper feeding pressure. Failure to do so could cause possible improper feeding of the product and/or possible kick out.

V-Belt Tension and Replacement

For the first few days of operation new belts should be checked occasionally and adjusted for tension as necessary until the belts are properly "worn in."
The v-belts on the main motor should be checked for proper tension.

Tighten any of the v-belts as follows:

1. Disconnect sander from power source.

2. Loosen the lower hex nut (A, Figure 11) on the motor base.

3. Tighten the top hex nut (B, Figure 11) to lower the motor plate until proper tension is achieved.

4. When the belt is properly tensioned, you should be able to push in the belt approximately 3/4" at a point midway between the pulleys using moderate finger pressure.

5. Re-tighten the bottom hex nut (B, Figure 11) against the bottom of the motor plate.

If installing a new v-belt, use the hex nuts to raise the motor plate enough to remove the old belt and mount the new one.

NOTE: When replacing v-belts on the main motor, replace the entire set simultaneously. Preferably a matched set is best.

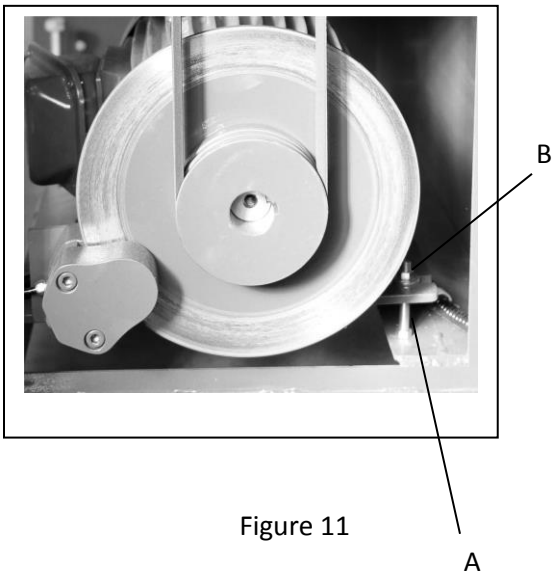


Figure 11

Conveyor Belt Tension

Check the tension of the conveyor belt on the infeed and outfeed rollers – the conveyor belt should be tight enough that you cannot shift it with your hands. If the conveyor belt needs tightening, proceed as follows.

1. When running conveyor belt.

2. Rotate the adjustment screws (the left one is shown in Figure 12) as needed with a 19mm wrench. Rotate clockwise to increase tension, or counter-clockwise to decrease tension.

NOTE: Do not over-tighten the screws as this will hasten wear of the conveyor belt. However, new belts will stretch in the first couple of weeks.

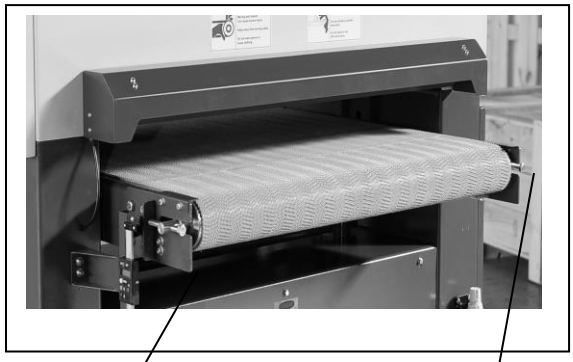


Figure 12

Conveyor Belt Tracking

The conveyor belt should remain centered upon the rollers during operation. If it approaches to either the left or right side, adjustment is necessary.

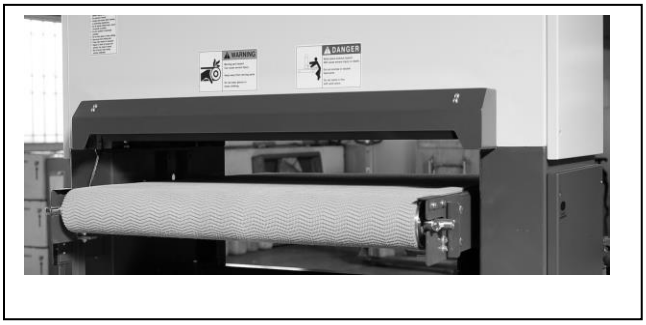
First check that the conveyor belt tension is correct. If the tension needs adjustment, do this **first** before you adjust the tracking (see "Conveyor Belt Tension"). Then proceed as follows.

Conveyor belt tracking should be adjusted while the conveyor belt is running. Make adjustments in increments (¼ turn at a time)and allow the conveyor belt time to respond to each change.

Keep hands away from the moving conveyor belt.

1. Turn on the conveyor belt.

2. Adjust tracking using the same adjustment screws that were used for tensioning in Figure 12.



4. If the conveyor belt is moving to the right side, turn the right screw clockwise. This will return the tracking toward the left. Conveyor generally run to the loose side.

5. If the conveyor belt is moving to the left side, turn the left screw clockwise. This will return the tracking toward the right.

6. A positioning wheel (Figure 13) has been provided on the right and left sides of the conveyor belt to limit the belt tracking. When adjusting the tracking, the conveyor belt should be moved until its edge just touches the positioning wheels.

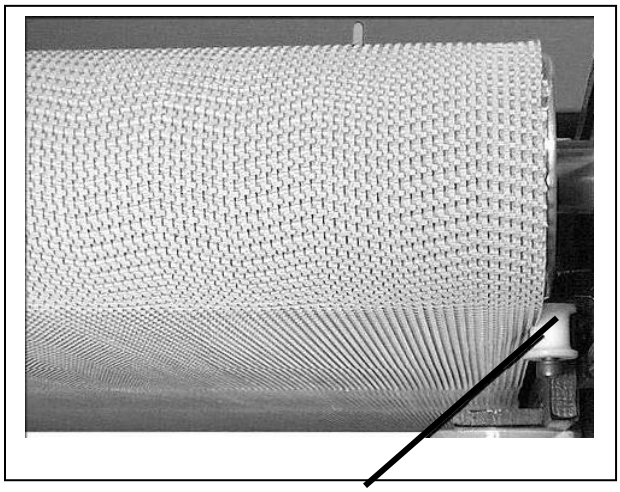


Figure 13

7. Allow the sander to run for several minutes while observing the conveyor belt tracking and readjust if necessary.

Feed Rate

The feed rate is infinitely variable within the provided range, in order to meet the sanding requirements of a wide variety of materials. Selecting a proper feed rate is largely a matter of experience. In general, soft woods require a higher feed rate, while hard woods require a lower feed rate.

Change the feed rate while the conveyor belt is running.

Adjust the feed rate with the conveyor speed adjustment knob on the control panel. Turn the adjustment knob clockwise to increase the conveyor belt speed, or counterclockwise to decrease it.

Pressure Roll Adjustment

The front and rear pressure rolls have been factory adjusted. This setting should, however, be checked before operating the sander.

The pressure rolls should be parallel to the conveyor table with equal pressure on each end, and are set slightly below the level of the sanding belt. (.040 / 1 mm below contact drum)

If the ends of the work piece are sniped or dubbed the front pressure rolls are too low. The pressure should be enough to firmly hold the work piece against the conveyor, but not so hard that the ends of the work piece spring up after clearing the roll.

To raise or lower each pressure roller.

1. Disconnect sander from power source.

2. The sanding belt should be installed, and the air tension valve turned ON.

3. Place a sanded panel or set up block with even thickness on the conveyor table and under the pressure roller.

4. Raise the table manually using the handwheel (Figure 14) until the panel or set up block contacts the pressure roller.

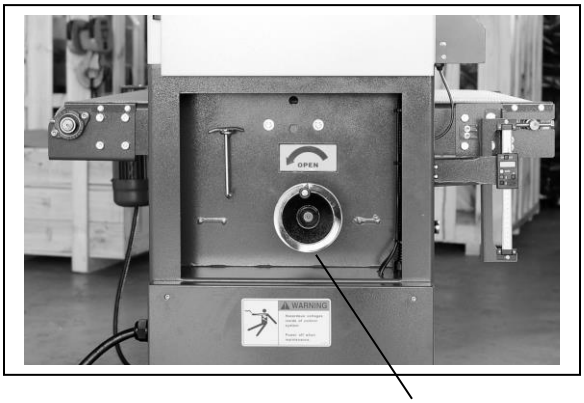


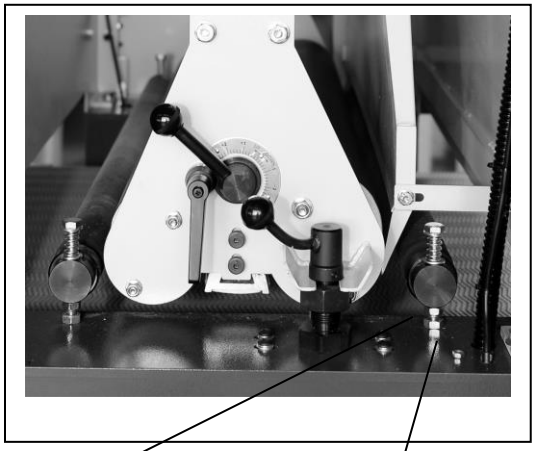
Figure 14 Handwheel

5. Make sure the pressure at the right and left side of pressure roller is even.

6. If adjustment is needed, release the lock nut (Figure 15) with a 14mm wrench.

7. With another 14 mm wrench (Figure 15) adjust other hex nut . Rotate the hex nut clockwise to raise that side of the pressure bar, or counterclockwise to lower it.

8. When finished, re-tighten lock nut (Figure 15).



Hex nut

Figure 15

Lock nut

Table Parallelism

Parallelism of the conveyor table to the contact roller has been factory-set and **should not** require further adjustment. However, as the machine receives extended use, this setting should be checked.

First look at contact drum for wear and then inspect parallelism by one of two methods:

1. Use a sanded board of equal thickness. Pass the board several times through the machine at a sanding depth of approximately 1/64”, then measure the

thickness of the board at different points along the edges with calipers. If excessive variation occurs, the table needs adjusting. OR, remove the sanding belt and place a gauge of some kind at one side of the conveyor table and below the contact roller. Raise the table manually using the handwheel until the gauge just touches the contact roller. Repeat at the other side of the table and compare the gauge readings. If the readings are different, the table needs adjusting.

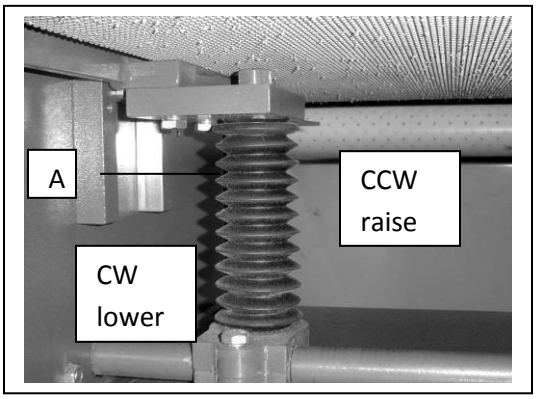


Figure 16

2. Disconnect sander from power source.

3. At the area of the table that needs adjustment, loosen the screws (A, Figure 16) on the bracket of the lift screw, and rotate the lift screw as needed. (The lift screw is protected by the dust guard below.) Turn the lift screw clockwise to lower the table in that area, or counterclockwise to raise the table (see Figure 16).

4. Tighten screws (A, Figure 16).

5. Re-connect sander to power, and make further test runs. Make additional adjustments as needed, **with the machine disconnected from power**.

Operating Controls

Figure 18 shows the control panel functions.

1. The emergency stop button shuts down all machine operations. The button remains engaged after being pushed. To disengage, rotate the ring until the emergency stop button pops back out.
The emergency stop cover has a plate (shown in Figure 17) which shuts down all machine operations when it is pushed.

Figure 17

2. Stop / Reset button shuts off the sander during normal operation and also resets the brake for checking abrasive belt tracking adjustment or setting up a part to be sanded.

3. Conveyor belt speed adjustment knob, turning to the right increases the speed and to the left decreases the conveyor speed.
Adjust while conveyor belt is running.

4. Set-Up Selector switch has two functions, when turned left it will run the conveyor belt for setting up a part. Turning to the right will run the sanding head to allow you to adjust the tracking of the sanding belt.

5. Green run button will turn on the sander once it has been set up and you are ready to run parts. Turns on both sanding head and conveyor belt.

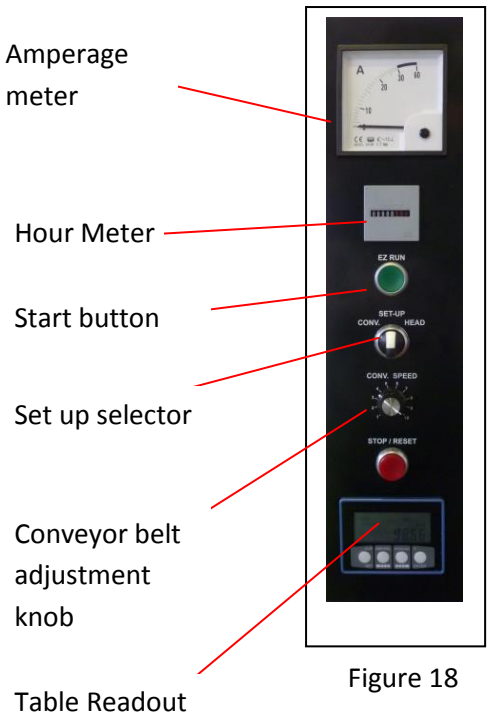


Figure 18

Amperage Meter

The amperage meter (Figure 18) continually monitors the load upon the sander. To avoid tripping of the circuit breaker and the overload relays, reduce the load immediately when the amperage meter indicates excessive amperage pull.

Calibration or Part Set-Up

To establish the distance between conveyor table and sanding belt, proceed as follows:

1. Connect power and air to the sander, and turn the air valve switch on to tighten the sanding belt.

Operation

Before operating the sander, make sure that:

1. The dust collection system is turned on.

2. Sanding belt tracking and oscillation are working properly.

3. Conveyor belt tracking is correct.

4. All screws and handles are tightened securely.

5. Working air pressure is correct. (Normal working pressure is 75 to 80 PSI.) Do not operate sander until normal pressure is reached.

6. Thickness is correctly determined.

7. Feed rate is correctly set.

8. Workpiece is free of nails, knots and other obstructions.

Braking System

The sander will not start or will halt operations if any of the following occur:

 No air supply to the machine.

 No sanding belt installed.

 Improper belt tension.

 Sanding belt runs out of track.

 The emergency stop button on outfeed panel is pressed.

 The emergency stop over thick part on top of the conveyor table is pushed.

If the sanding belt breaks, all movement will be stopped, conveyor table can be raised or lowered manually to remove any part or parts.

Once the machine has stopped, the operator should find why the braking system was tripped, and make the necessary adjustments. The machine can then be re-set and started.

Maintenance

Please note: You can be badly injured working on or around a Sander. Only do service work for which you have the knowledge and proper equipment. If you have any doubt about your ability to perform a service job, please call our toll free line at 877-754-7266 or 855-500-7239 or contact an authorized dealer to schedule a qualified technician.

Before doing any maintenance on the sander, disconnect it from the electrical supply by pulling out the plug or switching off the main switch. Failure to comply may cause serious injury.

The interior of the machine should be thoroughly cleaned each day after using the sander. Remove the sanding belt before cleaning and re-install it when finished.

Blow dust off the conveyor belt with compressed air or use a dust collector vacuum attachment.

The bearings should be greased after every 150 work hours.

The water should be removed daily from inside the filter cups. On the filter/regulator at the back of the cabinet, press the drain cock (see Figure 2). On the filter inside the cabinet, unscrew the cup to empty it.

The oil inside the gear reducer should be replaced after the first 100 work hours and every 2500 work hours thereafter. Recommended oil is ESSO S220 (Shell S320) or equivalent. See Figure 19.

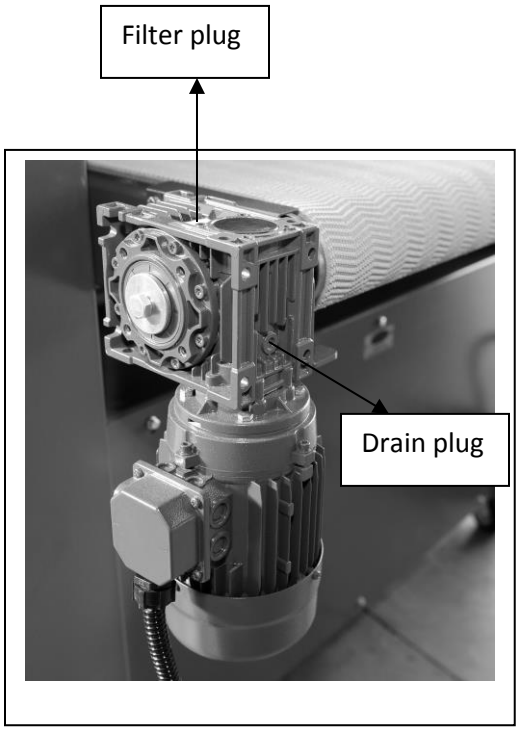
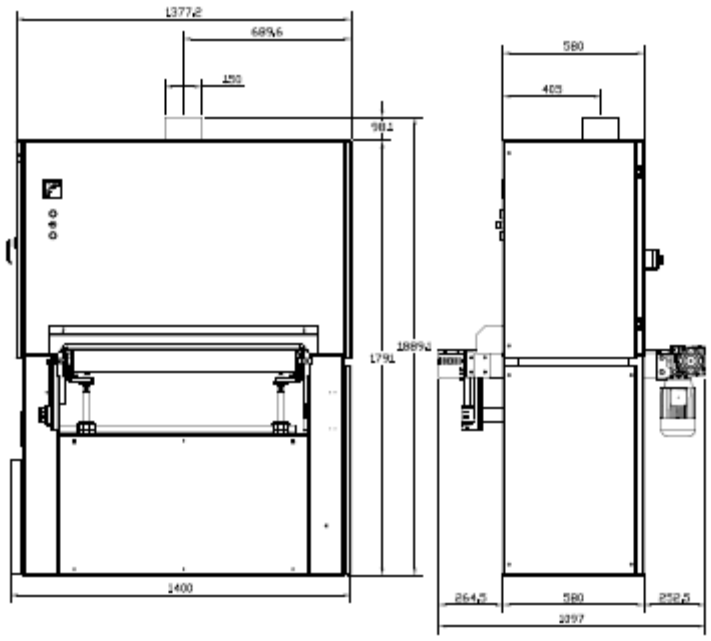


Figure 19

Dust Collection

Connect a dust collection system (not provided) to the dust ports at top the sander cabinet with 6” dust pipe and clamps. Make sure your dust collector has sufficient capacity for this machine, metal sander with HOT dust. Always turn on the dust collector prior to operating the sander.



EZ37603M

Troubleshooting the Sander

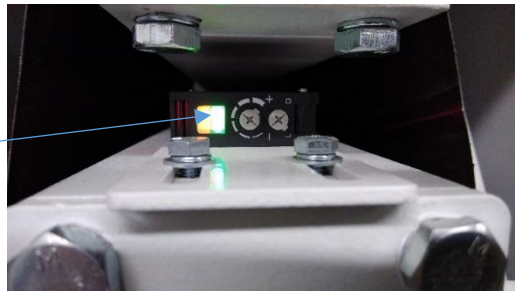
Trouble	Probable Cause	Remedy
Sander will not start.	No incoming power.	Check that sander is connected to power, fuses are not blown or circuit breakers are not tripped.
	Low voltage.	Check voltage at power source.
	Loose wiring.	Inspect and remedy any loose connections on sander.
	Starting switch is defective.	Replace switch.
	Motor is defective.	Replace motor.
Sanding belt clogs too quickly.	Grit of sanding belt is too fine.	Choose a larger grit of sanding paper.
	Too much material being sanded off.	Reduce the amount of material being removed.
	Wood is too oily.	Choose different stock.
	Too much dirt or glue on the wood.	Choose cleaner stock.
	Wood is too moist.	Allow wood to dry before sanding.
Sanding belt will not run, or slips on roller.	Emergency stop button is engaged	Disengage the stop button.
	Limit switches are activated.	Position sanding belt so it is between the limit switches.
	Insufficient air pressure causing belt to slip on rollers.	Make sure air pressure regulator is set at 75 to 80 PSI (page 9).
	Dust or debris on conveyor rollers.	Clean conveyor rollers.
Sanding belt keeps tripping limit switch.	Tracking adjustment/oscillation is not correct.	Set tracking correctly.
	Dust covering photo eye	Check and clean dust from photo eye
Machine takes too long to stop after emergency switch is activated.	Air pressure is too low.	Set air pressure to 75 to 80 PSI.
	Brake pads are worn.	Replace brake pads
Grinding noise when brake is activated.	Brake pads are worn.	Replace brake pads (rotor may need turning also).
Too much rounding	Too much material is being removed, too tightly.	Reduce the amount of material making the contact drum press being removed.
The front end of stock is thinner than the rear.	Rear hold down roller is too low in relation to the contact drum.	Raise rear pressure bar (page 16-17)
The rear end of stock is thinner than the front.	Front hold down roller is too low in relation to the contact drum.	Raise front pressure bar(page 16)

Trouble	Probable Cause	Remedy
Uneven thickness between the left and right sides of the workpiece.	Table not positioned correctly in relation to contact drum.	Adjust table until it is parallel left to right (pages 17-18).
	Front hold down roller not in correct position in relation to contact drum.	Adjust front hold down roller so parallel. (See page 16)
	Graphite strip and felt pad are won out.	Replace graphite strip and felt pad. (See page 14).
	Conveyor belt is worn.	Replace conveyor belt (contact APEX Service Tech)
Uneven thickness between the front end rear ends of the workpiece.	Feed rate is too high.	Reduce feed rate. (See page 16)
	Too much stock removal.	Reduce amount material being removed.
	Grit of sanding belt too fine.	Use larger grit sanding belt.
	Unequal position of hold down rollers.	Adjust hold down roller to produce pressure on stock.
	Table not parallel front to back.	Adjust table until it is parallel front to back (pages 17-18).
Workpiece slips on conveyor belt.	Not enough pressure between hold down roller and workpiece.	Increase pressure between hold down roller and workpiece.
	Too much dust or debris on conveyor belt.	Clean conveyor belt with compressed air.
	Rear pressure bar too low, halts the work piece.	Raise rear hold down roller until proper contact is achieved
Straight strip of notches or grooves in the workpiece.	Dirty hold down rollers.	Clean hold down rollers.
	Contact drum is scratched.	Replace contact drum.
	Graphite strip and felt pad are worn	Replace graphite and pad.
“Snake” marks on workpiece.	Local damage to the sanding belt.	Replace sanding belt.
Straight parallel running stripes over entire width of workpiece.	Joint of the sanding belt is too thick or is open.	Repair joint or replace sanding belt.
Glossy spots on the wood.	Sanding belt is too old.	Replace with new sanding belt.

Problem Machine will Not Start

1. If machine will not start first check to make sure there is power to the machine. Open the sanding belt loading door and see if the tracking photo eye is lite ? May need to slide sanding belt onto the contact drum a little to make sure the light is passing to the reflector. If not double check income power source. (Be careful not to touch any higher voltage wire)

Photo Eye has light on



2. If light does illuminate , press the red reset button and with belt loading door open check if sanding belt will turn ? You should hear a click and the brake should release so drum will freely turn.

3. During normal operation the machine should reset and brake will be free to turn. There are two belt miss track switches ,E-Stop on outfeed, and a over thick bar at infeed with a switch.
   All these switches need to be closed to allow power to pass thru for machine to reset. Note: Belt miss track switch on back side of machine has a trip arm so check that this is not holding switch open. Without belt tensioned or with low air pressure this switch could be open.

4. With all switches in normal operating position and closed the power should be to the relays and when you push the Red reset button the brake should release and sanding belt turn freely.

5. If at this point the machine still does not reset first be sure that you have proper power to all legs of the main contactor on the machine. If you do have proper power into the machine you need to check. If the control relay and other relays are working properly

Have Proper Power now have to determine my machine will not reset

(Note : If you are not experienced and have proper instruments it is best to call an certified electrician .) HIGH VOLTAGE can be DANGEROUS

1. First you have two fuses **FU-1** use a voltage meter and make sure you have power to the photo eyes and relays. If you have a bad control relay CR-2 this could be the problem.
2. If relays were working properly with the belt loading door closed or open and you press the red rest button you should hear a click and the brake should release.
3. There are three relays on the machine electrical panel (CRM) Master control relay , (CR-I) relay that allows power to the feed VFD and (CR-2) which is the main control relay that makes everything happen.
   See photo below

CR-2 Control Relay

CR-1 Conveyor Relay

CRM Master Power Relay

4. To determine is you have a bad relay the following relays will have a red light if working properly.
5. With belt loading door closed and you reset the machine the left relay CRM should have a red light.
6. With the belt loading door open and you have reset the machine the left CRM relay and the right CR-2 relay also should be lite. Both lite at the same time.
7. If you have check all these item the machine should reset and run fine other then making adjustment for the tracking.
8. Last if the conveyor does not operate first thing is to check CR-1 and this can be done by exchanging CRM and CR-1 as they are the same relay.
9. One thing to note is the conveyor is run by a VFD, when ever the machine Looses power or after you have to reset the controls, it takes 5 to 10m seconds for the VFD to power up again . So if you reset the machine and push the run button to soon only the drum will start. Need to stop the drum and then start the machine over again as this should have gave the VFD enough time to power up.

At this point if you still do not have any success call the service department at APEX at the phone number listed in the manual for service.

Problem Abrasive Belt **Does Not Track**

1. First thing is we need to confirm Idler roll will move left to right .
   A. Check that the light from the photo eye is passing to the reflector and is not blocked by dust or dirt ? (wipe off dust or dirt)
   B. For Metal machines abrasive belt runs clockwise and when the photo light is blocked the top idler roll should move to the right (proper belt rotation or sanding belt will not track).
   C. For Wood machines abrasive belt runs counter clockwise and when the photo light is blocked the top idler roll should move to the left . (proper belt rotation or sanding belt will not track).

2. If there is no movement of the idler roll at this point check for air pressure to the tracking cylinder. Remove air line from cylinder (see figure 3) below. With airline off and you have light going from the photo eye to the reflector. You should be able to block the light passage and the solenoid should shift and air will either stop or pass to the cylinder, then as you let the light pass across and block it again the air should change back and forth.

3. At this point if you still do not get have to the cylinder , we need to determine If the solenoid is shifting. The photo eye directly powers the solenoid valve so as you block the light beam or let the light pass across the solenoid should change also. If this does not happen check with a meter if you are getting power to the solenoid valve. Before checking for power you can use a nail or small pencil , on the opposite end of the coil on the solenoid you can push the spool in and out to see then if air changes to the tracking cylinder . (spool in valve might be stuck) If air changes this way now check if you are getting power to the solenoid valve from tracking photo unit.

Idler roll moves but belt still does not track properly.

1. When the sanding belt runs to one side or the other and the roll has shifted but the belt does not return this mean the idler has not gone far enough to force the belt to return.

2. First go to adjustment section below and turn the tracking adjustment lever In figure 1 and see if this amount of adjustment does not work. If not then changing the position of the tracking cylinder is required. In figure 3 you need to lengthen or shorten the length of the cylinder positon to move the idler roll more to the left or right depending on which way the idler roll has to go to get the belt to return and have even travel of the sanding belt.
   Note. When doing this adjustment move the tracking lever to it center position of its travel so you will have more adjustment later.

3. One last thing be sure the fork on the back miss track switch is not preventing the idler roll from moving over. Could be the sanding belt is on the wrong side of the fork and stopping the cylinder from pushing the idler over

Adjustment

Sanding Belt Tracking and Oscillation

The sanding belt should oscillate left and right without a tendency to slide off the rollers. If the sanding belt runs outside of the normal track, it will contact a limit switch and the machine will stop automatically.
The oscillation settings have been made at the factory, but should be checked by the operator.

NOTE: When a new sanding belt is installed, there may be a slight length tolerance between the right and left sides of the sanding belt which may result in incorrect tracking. If this occurs, the oscillation timing can be set to compensate.

1. Turn off belt tension switch and center the sanding belt , turn belt tension switch back on. Now turn the Head Set-Up switch to the right, oscillation adjustment is done while abrasive belt is running. (see Figure 6 in manual)

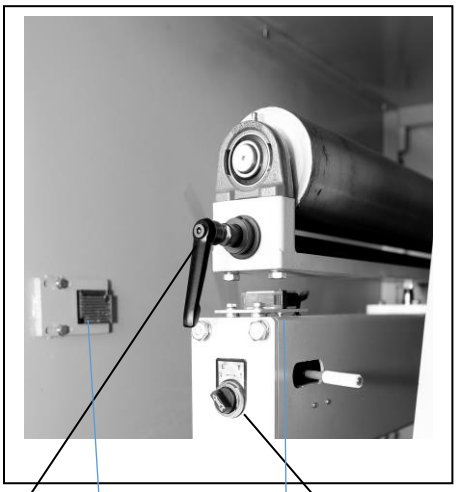


Figure 1

2. The upper roller will pivot left and right. The duration of the sanding belt's oscillation to the right side and to the left should be equal. For example, if the oscillation time to the right is one second, then the oscillation time to the left should also be one second.

3. If oscillation time is unequal when comparing right and left sides, adjustment is needed. To adjust, turn the tracking lever either right or left. This will adjust the tracking movement right or left; Do this until proper timing is achieved.
(see Figure 1)

4. It is possible that when changing to new belt or changing to a belt that has a heavier backing which is different from 50 to 180 grit, you may have to follow the above instructions.

5.Also if using a film or extra light backing sanding beltIt is possible the strength of the light beam is too strong.
Then you can adjust the sensitivity down on the phot eye.
(See figure 1 above)

Oscillation Speed

To adjust the speed of the oscillation, there are two speed valves (Figure 3), on the tracking cylinder. Loosen jam nut and adjust the air flow to control belt speed and travel. Top valve controls the speed of the belt oscillation on the idler roll, and the larger valve controls how far the belt travels on the idler roll. When finished make sure jam nuts are tight.

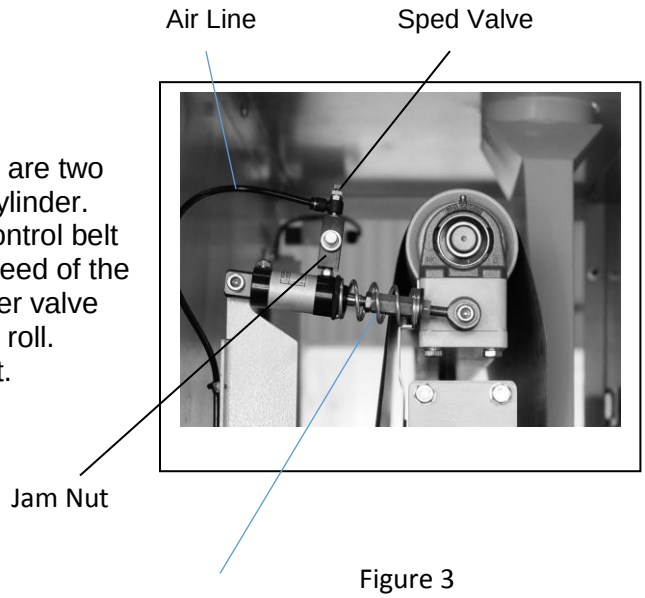


Figure 3

If at this point you can not determine problem contact your local dealer or call Apex Machine Group for service . Frequently inspect photo eye and make sure it is clear of obstructio

Replacement Parts

Replacement parts are listed on the following pages, use these pages to find the parts you need to order and follow the instructions listed below.

How to Order Parts

APEX Machine Group
4700 Olson Memorial Highway
Golden Valley, MN 55422
E Z Sander (855) 500-SAND (7263)
Local (952) 224-2899
www.ezsanders.com

To process your order request correctly please provide the following information:

- **Your Company Name**
- **Shipping Address**
- **Your Name**
- **Telephone number, include extension**
- The exact method of delivery you want (air mail, Federal Express, UPS Red, DHL, motor freight, rail freight, etc.)
- Machine **Model** & **Serial Number**; found on the ID plate attached to the machine.
- Item Number; found on the Bills of Material in the Operator's Manual.
- Part Number; found on the Bills of Material in the Operator's Manual.
- Quantity Needed
- Description; found on the Bills of Material in the Operator's Manual.
- Reference Drawing Number; found on the Bills of Material in the Operator's Manual.

Replacement Parts List

These are parts we recommend you purchase. These are replacement parts that will normally be needed during the service life of your machine. By having these on hand your machine down time will be minimized.

Qty Description

4.....Pinch Roll Bearings
4.....Pinch Roll Springs
4.....Bearings, Flange
42 " ... Graphite Canvas
1.....Felt Pad for Platen
1.....Brake Puck
1 .....Solenoid Valve
2 .....Limit Switch Tip kit (includes: ceramic tip, spring, & fasteners)
(Use ceramic tips or tips that do not spark, steel may cause sparks)
1 .....Tracking Eye w/Reflector
1 .....Tracking Spring

APEX MACHINE MAINTANCE

Continual, scheduled maintenance by trained personnel is advised to keep the Apex machine functioning as safely and effectively as possible. To avoid unnecessary wear and the potential breakdown of the machine, the following scheduled maintenance procedures should be performed on the machine regularly. The maintenance of the Apex sanders is based on the sander running a full 8 hour shift per day.

Daily:

- Normal daily cleaning; clean out machine by blowing all excess grindings from conveyor bed, around photo eyes for belt tracking and hold down rollers, make sure machine is clean and dry for next work shift.

Weekly:

- Thorough cleaning, including blowing out inside of machine & conveyor belt.
- Check to insure conveyor belt is centered on sander.
- The machine should be checked for loose parts and bolts, and tightened if loose.
- Check abrasives for wear.

Monthly:

- Thorough cleaning & conveyor belt.
- Inspect control box for dust, if excessive dust, vacuum dust on electrical components.
- Check to insure conveyor belt is centered on sander.
- The machine should be checked for loose parts and bolts, and tightened if loose.
- Grease all bearings at grease points including bearings on conveyor.
- V-belts should be inspected and tightened if necessary.
- All air fittings and valves should be checked for leaks.
- Emergency stops should be tested.
- Check abrasives for wear.
- Inspect conveyor belt for excessive wear

Yearly:

- Extensive cleaning, including controls panels, switches & conveyor belt.
- Repeat daily, weekly and monthly maintenance at 12 month point.
- Inspect and replace oil for conveyor gear drive unit (90 weight gear lube).
- Inspect brake pads on disc calipers need to be checked every six months and replaced if needed.
- Conveyor bed level side to side, if bed is not level then re-level machine side to side.

If you need assistance with these or any other machine issues please call Apex Machine Group at (855) 500-2739 or email info@apexmachinegroup.com

Machine number_____ Serial#_____

Scheduled maintenance performed by_____ Date_____

Scheduled maintenance performed by_____Date_____

Scheduled maintenance performed by_____Date__

Scheduled maintenance performed by_____Date_____

Scheduled maintenance performed by_____ Date_____

Scheduled maintenance performed by_____Date_____

Scheduled maintenance performed by_____Date_____

Scheduled maintenance performed by_____Date_____

Scheduled maintenance performed by_____ Date__

Notes_____
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To load new origin on M-10:

1. Press and hold “F Enter” until “Origin” is displayed
2. Press and hold “F Enter” again (should display a flashing “0” before the value)
3. Press “MM/Inch --→” to move cursor to value to be changed
4. Press “CLR Set” to change value (scrolls 0-9)
5. After completing all changes press “F Enter” (origin)
6. Press “CLR Set” loads original value
7. Press and hold “F Enter and then CLR Set” ***at the same time*** to load new value

To change Positive / Negative reading direction:

1. Press and hold “F Enter” until “Origin” is displayed
2. Press and hold “F Enter” again (should display a flashing “0” before the value)
3. Press “CLR Set” to change between “o and –“
4. After completing all changes press “F Enter” (origin)
5. Press “CLR Set” loads original value
6. Press “F Enter and then CLR Set” ***at the same time*** to load new value

Note :

If an additional complete manual is required call Apex Machine Group at

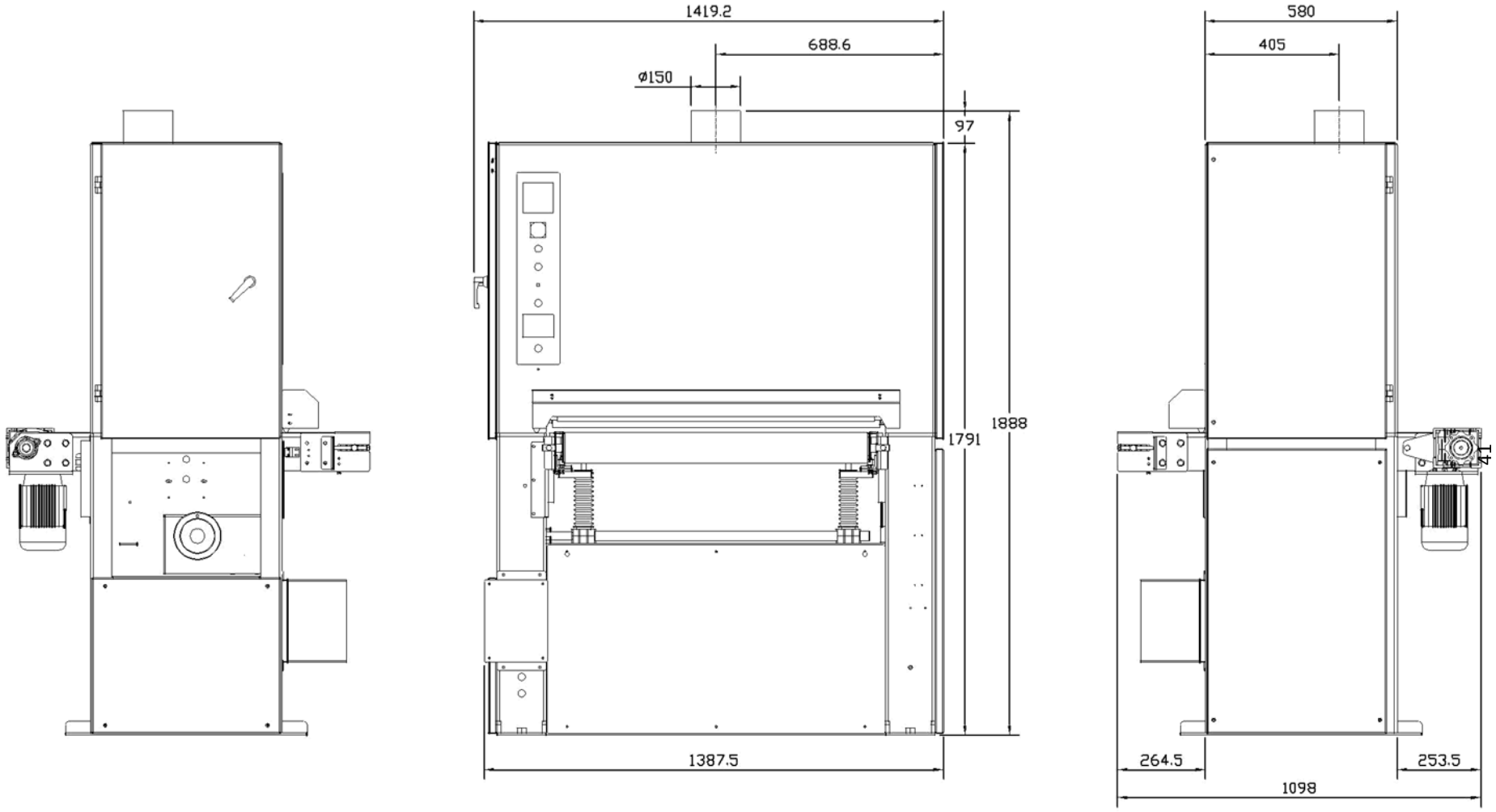
855-500-2739 or e-mail info@apexmachinegroup.com Attn: Service Department

EZ3760M-230V (10HP 1PH) 06-22-2018

EZ3760M-230/460V (15HP 1800 RPM 3PH)

Serial No：

ITEM	Number	Description
1	GCP-7390020035	DIMENSIONAL
2	GCP-7390019021	COVER ASSEMBLY
2-1	GCP-7390042024	UPPER FRAME SUB-ASSY
2-2	GCP-7390002009	FRAME ASSY
3	GCP-7390006005	CONVEYOR ASSY
3A	GCPD1-0023-46	Conveyor Belt 915X2250X5T
4	GCP-7390004016	CONVEYOR SUPPORT ASSY
5	GCP-7390010029	DRUM HEAD ASSY
5-1	GCP-7390055011	IDLER ROLL ASSY
6	GCP-7390009006	Dust Hood Assembly
7	GCP-7390008025	Hold Down Rolls Assembly
8	GCP-7390003062	ASSY,MOTOR PLATE,DRUM HEAD (10HP 1800RPM 1PH)
9	GCP-7390003008	ASSY,MOTOR PLATE,DRUM HEAD (15HP 1800RPM 3 PH)
10		
11		
12		



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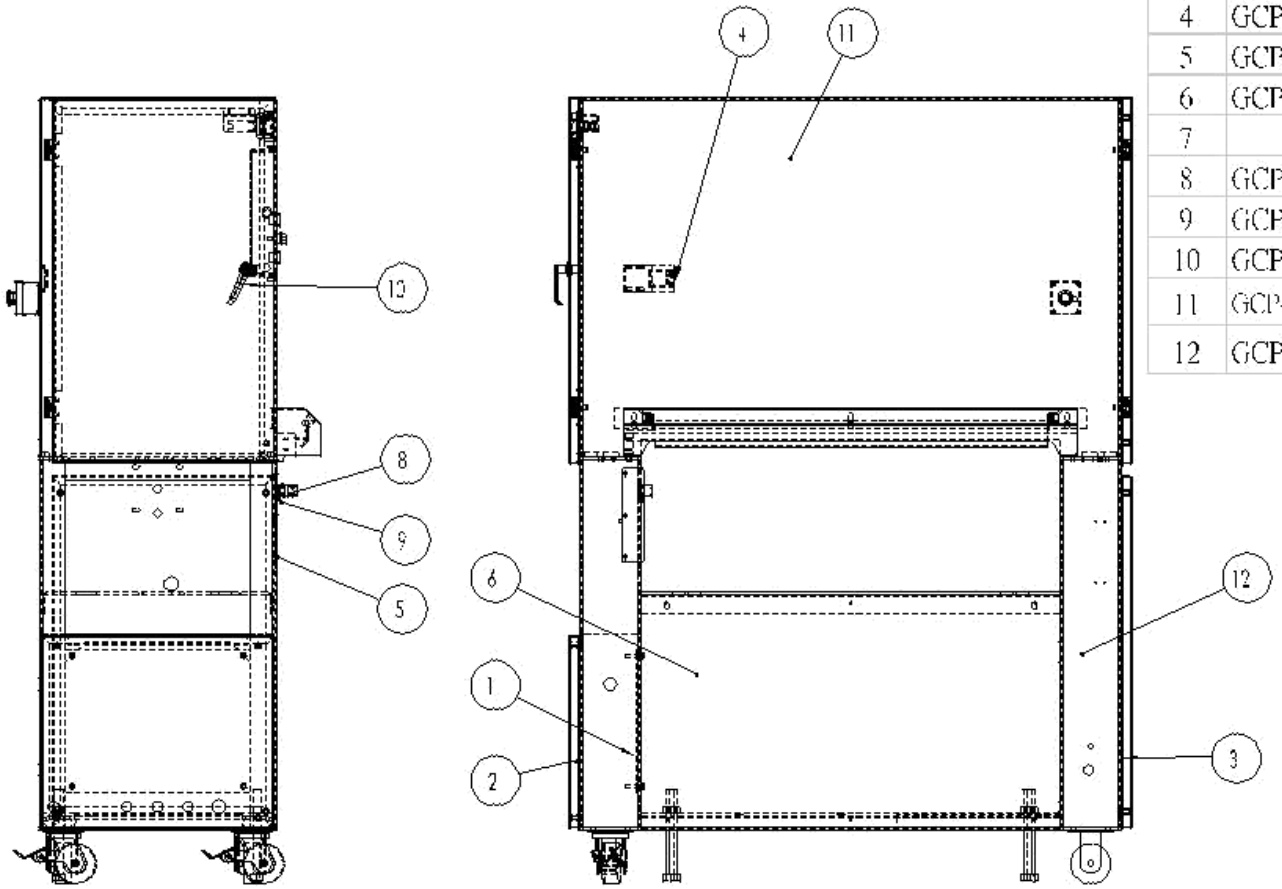
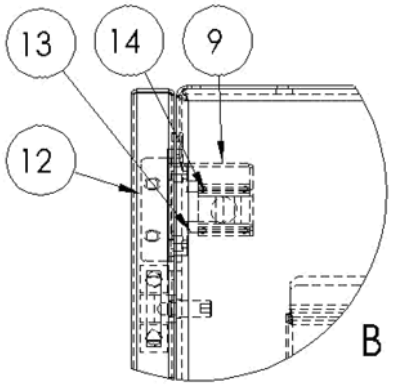
MATERIAL							
		TITLE DIMENSIONAL EZ3760M			NUMBER	GCP-7390020035	REV: 01

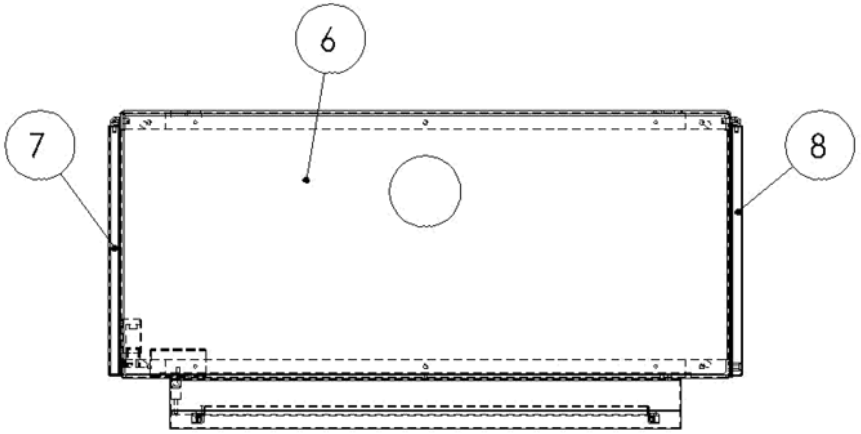


Item:	Part number	Description
1	GCPP4-1035900	Electrical wiring panel
2	GCPP4-1014600	Outboard lower door
3	GCPP4-1014700	Inboard lower door
4	GCPP4-1014800	Bracket, photo sensor
5	GCPP4-1055000	PLATE, SENSOR STRIP
6	GCPP4-1015000	Infeed/Outfeed lower panel
7		
8	GCPP4-1079400	SENSOR MTG. BRACKET
9	GCPDIGITAL-42	DIGITAL READOUT
10	GCPB1-00015	Door handle
11	GCP-7390020024	EZ3760M, Upper Frame SUB-ASSY
12	GCP-7390002009	EZ3760W, Frame Assy

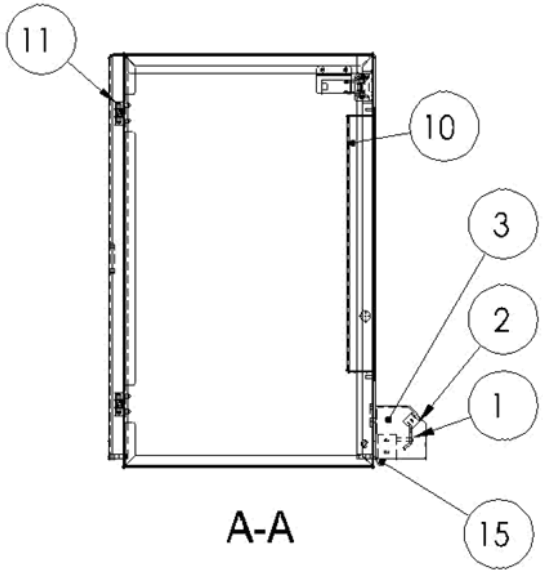
COVER ASSEMBLY
EZ3780M

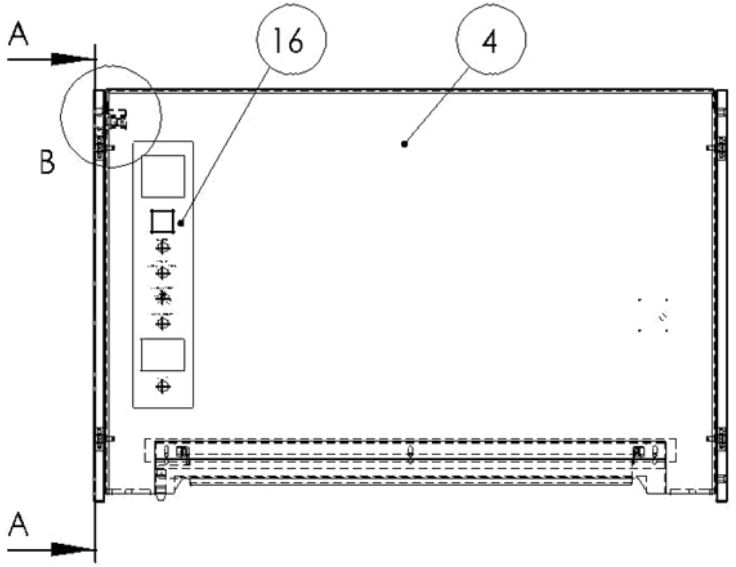
GCP-7390019021

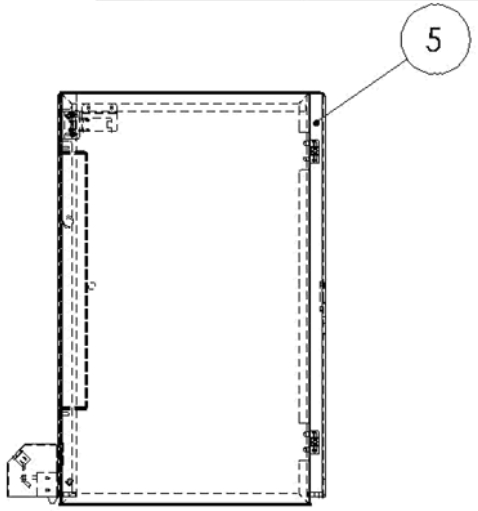




Item	Part number	Description	Qty
1	GCPP3-34631	overthickness trip bar	1
2	GCPP1-3468	bracket, trip bar	2
3	GCPP3-3475	guard, trip bar	1
4	GCPP4-1157200	infeed upper door	1
5	GCPP1-1015700	outfeed upper door	1
6	GCPP4-1015800	top cover	1
7	GCPP4-1036102	outboard upper door	1
8	GCPP4-1009800	inboard upper door	1
9	GCPP1-1011900	brakcet, door switch	1
10	GCPP1-1157100	guard, amp meter	1
11	GCPX4-1019200	door hinge	4
12	GCPP1-83672	bracket, door switch	1
13	GCPA1-0110-5	key, door switch	1
14	GCPA1-0110-6	interlock door safety switch	1
15	GCPA1-0119-1	Limit switch	1
16	GCPM3-1157000	Control Panel	1







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UNIT	mm			01-23-2015			
MATERIAL							
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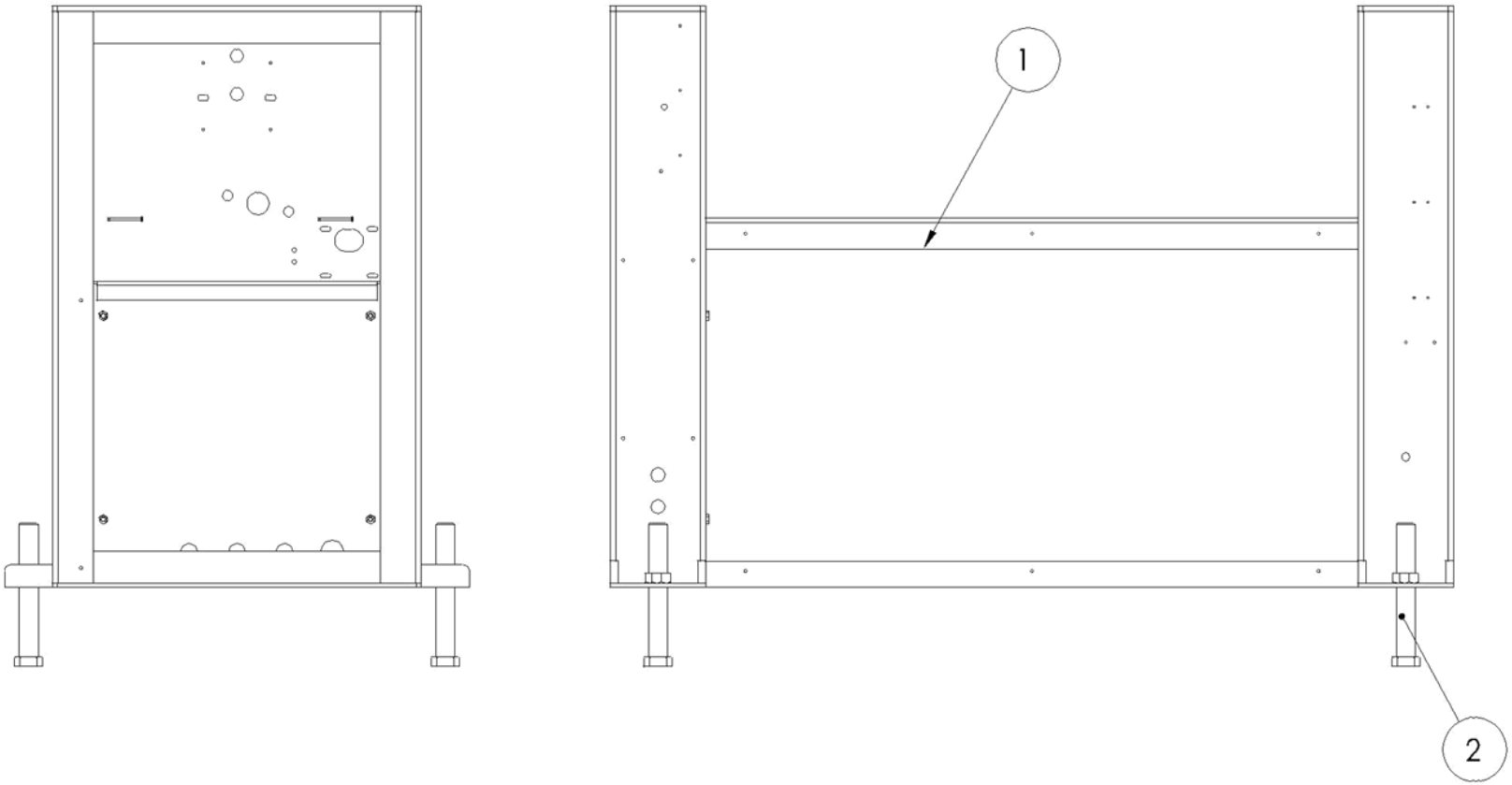
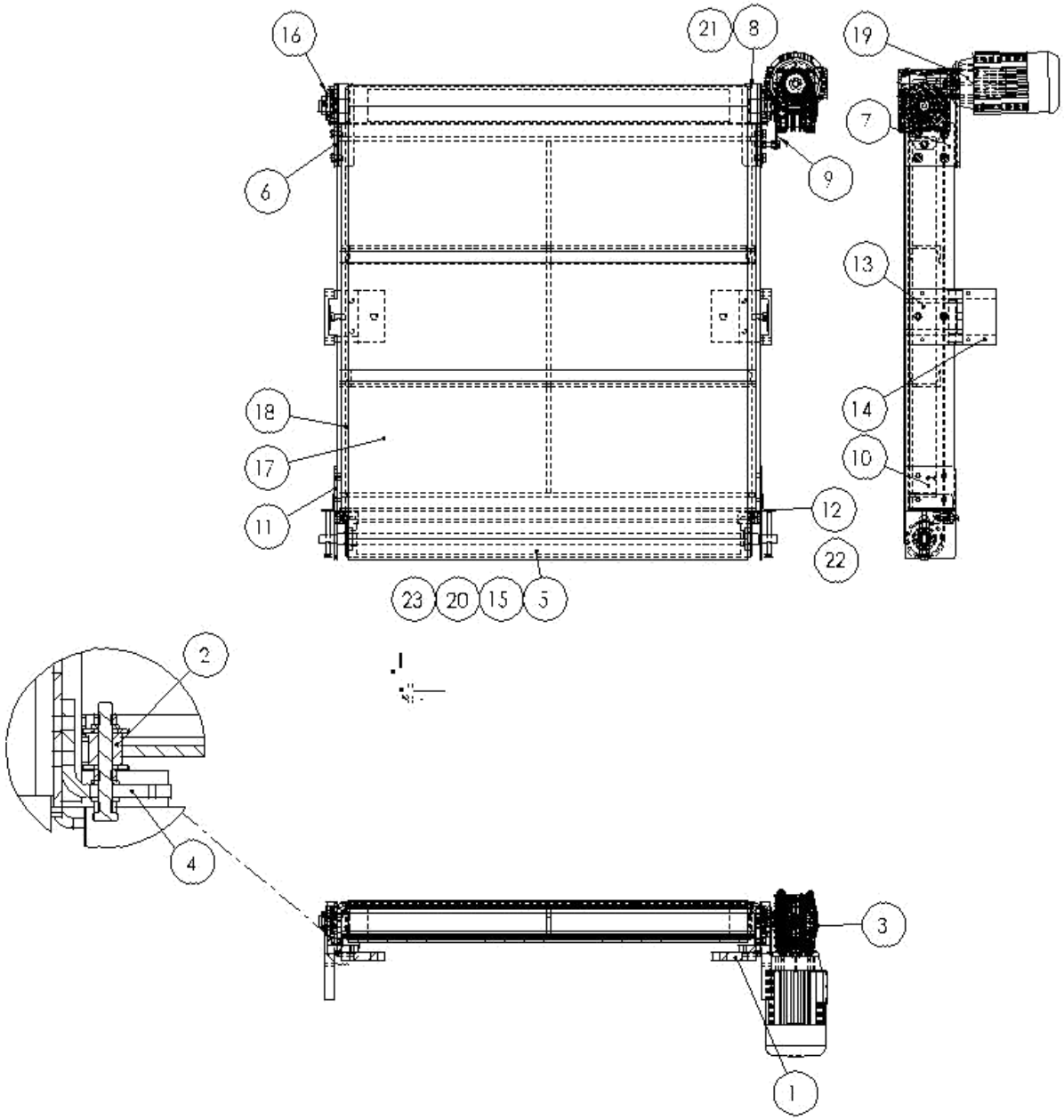


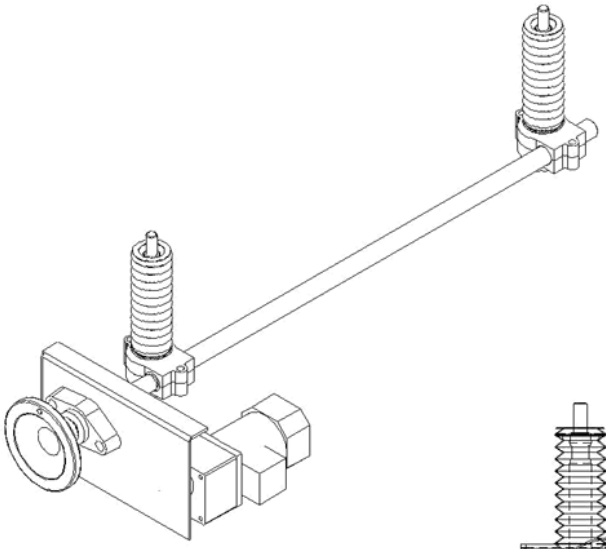
Item	Part number	Description	Qty
1	GCPX4-1159000	Frame	1
2	GCPW4-1017700	Level bolt M20xP2.5x210L	4

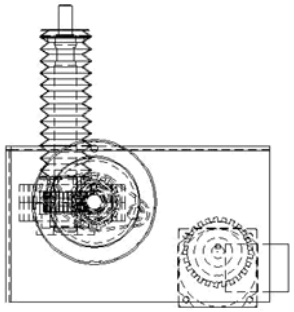
SCALE	1:15			DATE			DRAFT
UNITS	mm			01-23-2015	DWG. NO.		DES
MATERIAL							
		TITLE : FRAME ASSY EZ3760M			NUMBER	GCP-7390002009	REV 01

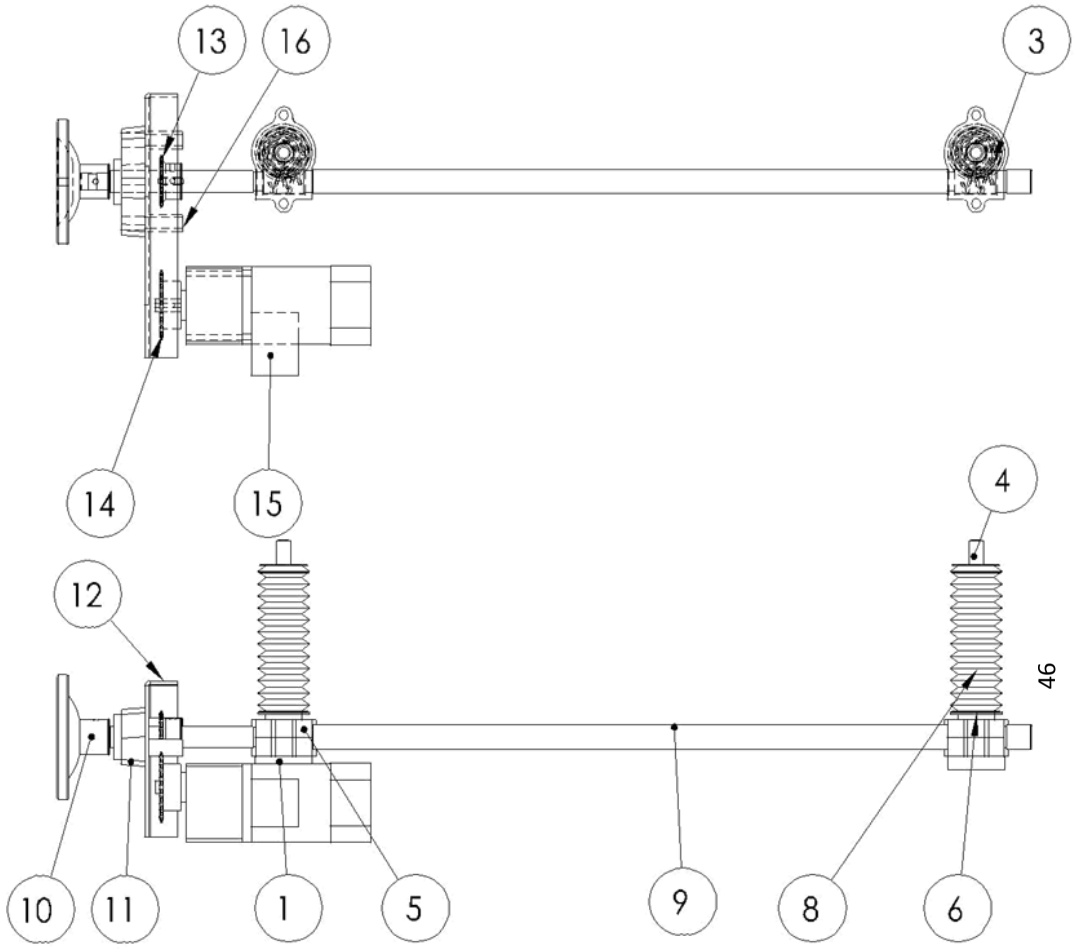


Item	Part number	Description	Qty
1	GCPP4-3951	support, bracket, bed	2
2	GCPR4-24501	guide roller	2
3	GCPP1-4045	cover, gear reducer	1
4	GCPP4-4358	bracket,take up roll	2
5	GCPR4-1012500	take up roll	1
6	GCPP4-1012100	OB bracket, drive roll	1
7	GCPP4-1012200	IB bracket, drive roll	1
8	GCPR4-1012500	drive roll	1
9	GCPP4-1035700	adjuster	1
10	GCPP4-1036600	IB bracket, take up roll	1
11	GCPP4-1036500	OB bracket, take up roll	1
12	GCPP4-1012900	stopper ,take up roll	2
13	GCPX4-2154100	inner slider	2
14	GCPX4-2154200	outer slider	2
15	GCPS4-1012600	shaft,take up roll	1
16	GCPD_0280.88	bearing, BLT205	2
17	SEE BOM	conveyor belt 915X2250X5T	1
18	GCPX4-1101100	conveyor bed	1
19	GCPA1-0356-54 GCPA1-0297-53	gear reducer, feed drive NMRV 050 1/60 motor 1/2HPx4P B14	1
20	GCPD_0253	Bearing,6205LLU	1
21	GCPB1-0420.7	Double round key 8X7X100	1
22	GCPB1-0499-25	hex bolt M10xP1.25x100L	2
23	GCPB1-0480-3	snap ring	2
24			

		CONVEYOR ASSY EZ3760W/EZ3760M			GCP-7390038005		01

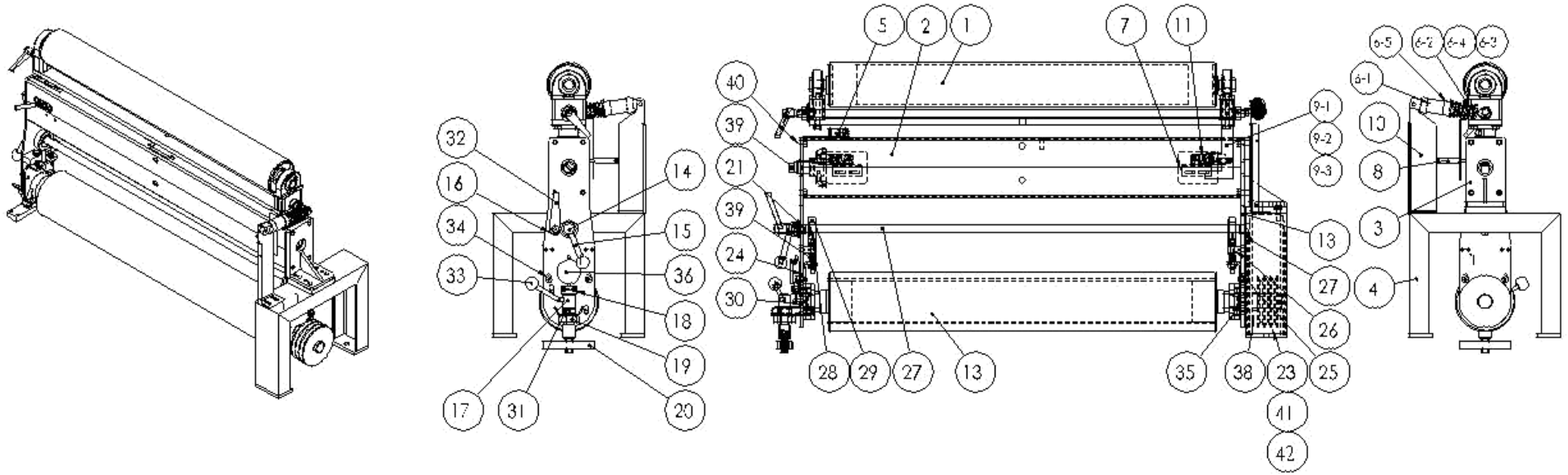






Item	Part number	Description	Qty
1	GCPF4-1032	bearing case	2
2	GCPD1-0276	Bearing 2907	2
3	GCPG4-3294	Nut, bed lift	2
4	GCPX4-1027	jack, bed lift	2
5	GCPF4-1030	cap, bearing case	2
6	GCPX4-1387	bottom cover, rubber screw	2
7	GCPX4-1386	top cover, rubber screw	2
8	GCPB1-0030	rubber boot	2
9	GCPF4-4438	Hand wheel	1
10	GCPD1-0267	Bearing UCFL-205	1
11	GCPG4-1153200	jack screw, drum lift	1
12	GCPP4-1152900	fix bracket, motor	1
13	GCPC4-1153000	sprocket,jack screw	1
14	GCPC4-1152800	sprocket,motor	1
15		gear reducer, motor	1
16	GCPX4-1153100	bracket, fix bracket	2

SCALE	1:1		NAME	DATE			DEF:
UNITS	mm	ENGINEER		01-23-2015			
MATERIAL							
		TITLE : CONVEYOR SUPPORT ASSY EZ3760W/EZ3760M			NUMBER	GCP-7390004016	REV: 01

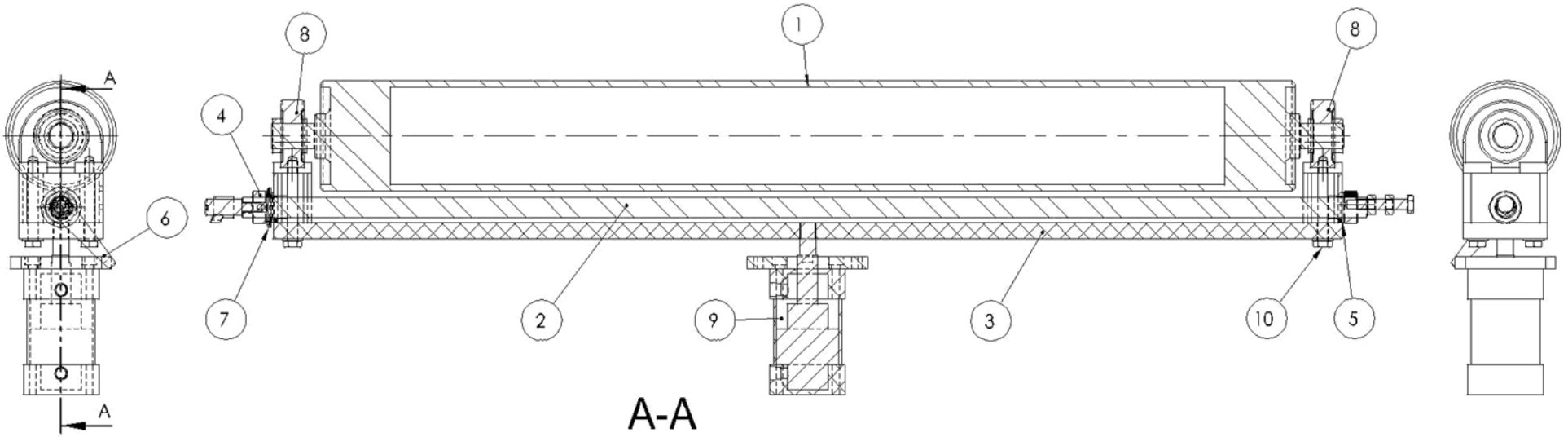


item	part number	Description	Qty
1	GCPF4-[illegible]	[illegible] ASSY	
2	GCPF4-101060	center bar	1
3	GCPF4-110C300	Film breaker assembly	1
4	GCPF4-110160	Support bracket, center bar	1
5-1	GCPF4-113700	bracket, plate cover	1
5-2	GCPF4-[illegible]-7	hose eye	
5-	GCPF4-113[illegible]20	Hook up cylinder	
5-3	GCPF4-113[illegible]00	SPRING	1
5-4	GCPF4-113[illegible]00	WASHER	1
5-5	GCPF4-113[illegible]00	NUT	1
5-6	GCPD1-[illegible]4	tension spring	
5-6	GCPD1-[illegible]3	BEARING	1
7	GCPF4-[illegible]7	bracket, limit switch	2
8	GCPF1-[illegible]5	cover, limit switch	2
9-	GCPF4-11[illegible]10	Roller, film breaker	
9-3	GCPF4-11[illegible]30	Film breaker plate, film separator	1
9-4	GCPF4-113[illegible]00	Film breakage plate, limit switch	1
10	GCPF4-101[illegible]00	bracket, rubber cylinder	1
11	GCPD1-[illegible]-1	[illegible]	1
13	GCPD1-[illegible]2	[illegible]	

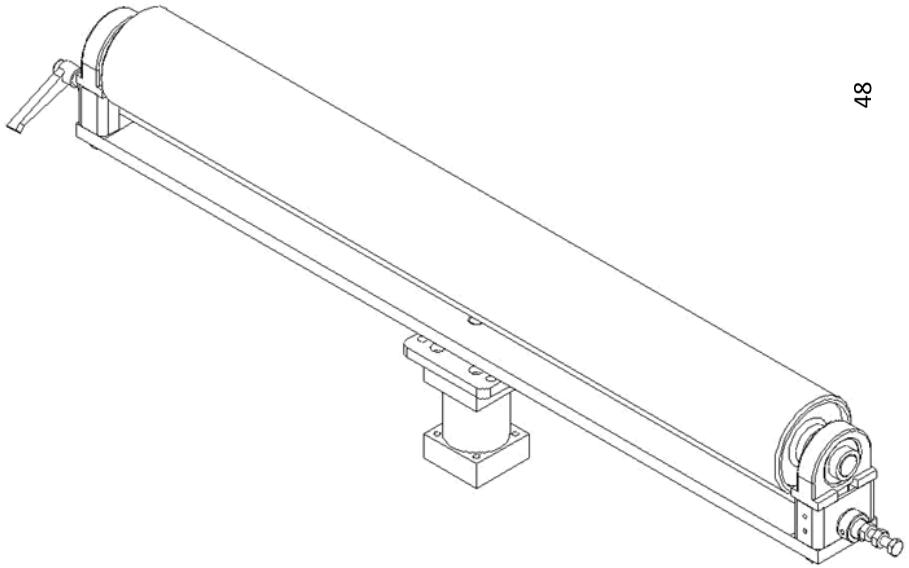
item	part number	Description	Qty
15	GCPF4-10[illegible]600	[illegible]	
14	GCPF4-[illegible]2	bushing	1
16	GCPF4-[illegible]05	handle shaft	
17	GCPF4-[illegible]08	[illegible]	
27	GCPF[illegible]-600	bushing	1
28	GCPF4-101[illegible]00	bracket, film holder	1
29	GCPF4-[illegible]006100	adjuster	
30	GCPF4-[illegible]01150	locking Nut	
31	GCPF4-101[illegible]00	spacer, bolt	1
32	GCPF4-103[illegible]00	LS bracket, center bar	1
33	GCPF4-[illegible]1300	pulley 50	
34	GCPF4-[illegible]1100	OB bracket, cam	
35	GCPF4-101[illegible]00	LS locking cap	1
36	GCPF4-101[illegible]00	adjusting bracket	4
38	GCPF4-101[illegible]00	adjusting rod	
39	GCPF4-101[illegible]00	adjusting ring	2
40	GCPF4-101[illegible]00	eccentric wheel	2
41	GCPF4-101[illegible]00	rod, film indicator	1
42	GCPF4-[illegible]0350	bushing	
43	GCPF4-[illegible]0005	frame, film holder	

item	part number	Description	Qty
33	GCPF4-[illegible]35	frame, film holder	1
34	GCPF[illegible]-112	Cam screw [illegible]	4
35	GCPD[illegible]-2	bearing, [illegible]	2
36	GCPD[illegible]-1	film adjuster [illegible]	1
37	GCPD[illegible]-18	bearing	2
38	GCPF[illegible]-[illegible]5	bushing	1
39	GCP[illegible]-[illegible]2	spring	2
40	GCPW4-[illegible]10	OB bracket, center bar	1
41	GCPD[illegible]-10	NUT M30	2
42	GCPF[illegible]-10	KEY 10x8x50	1

ZI	1:5			Z			[illegible]
[illegible]				[illegible]-09-2008	[illegible]		[illegible]
[illegible]							
		DRUM HEAD ASSY EZ3780M		[illegible]	GCP-7390010029		[illegible] 01



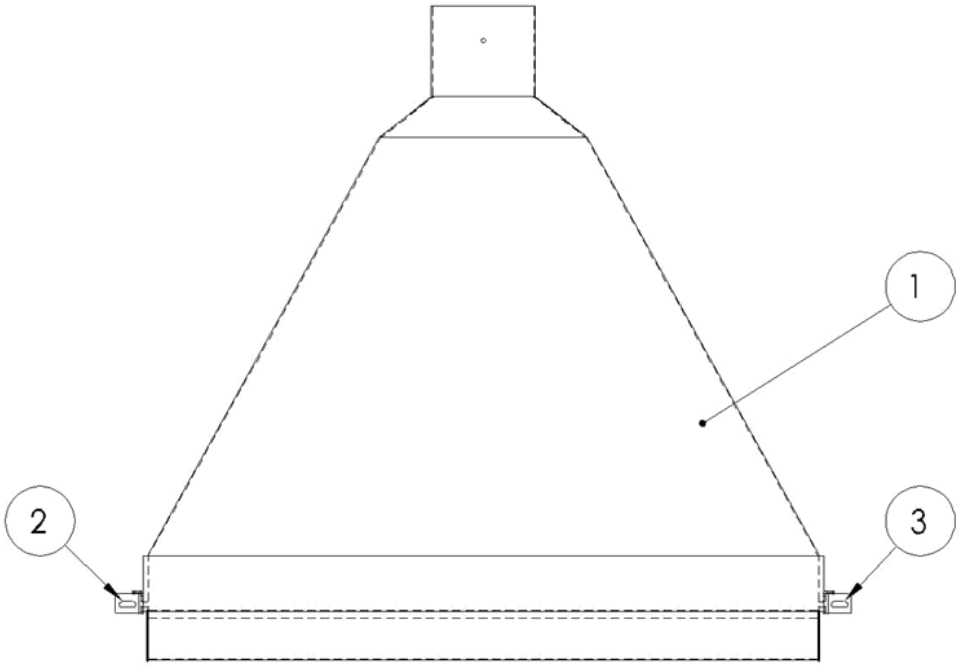
A-A

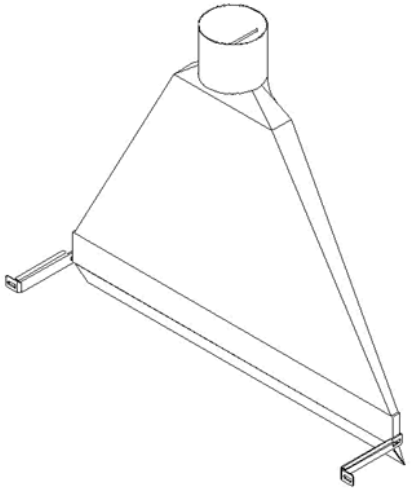


Item	Part number	Description	Qty
1	GCPR3-4463	idler roll	1
2	GCPS4-1009000	shaft, tracking	1
3	GCPP4-1011600	idler yoke	1
4	GCPX4-66390	bushing	2
5	GCPD1-0280-18	bearing	2
6	GCPB1-0006-1	handle M10xL25	1
7	GCPB1-0393	Spring	2
8	GCPD1-0257	bearing, idler roll UCPA205	2
9	GCPD1-0201-2	tension cylinder 63x30	1
10		HEX HEAD CAP SCREW M10x80L	4

	1:5						
				03-23-2005			
			IDLER ROLL ASSY EZ3780W			GCP-7390055011	01

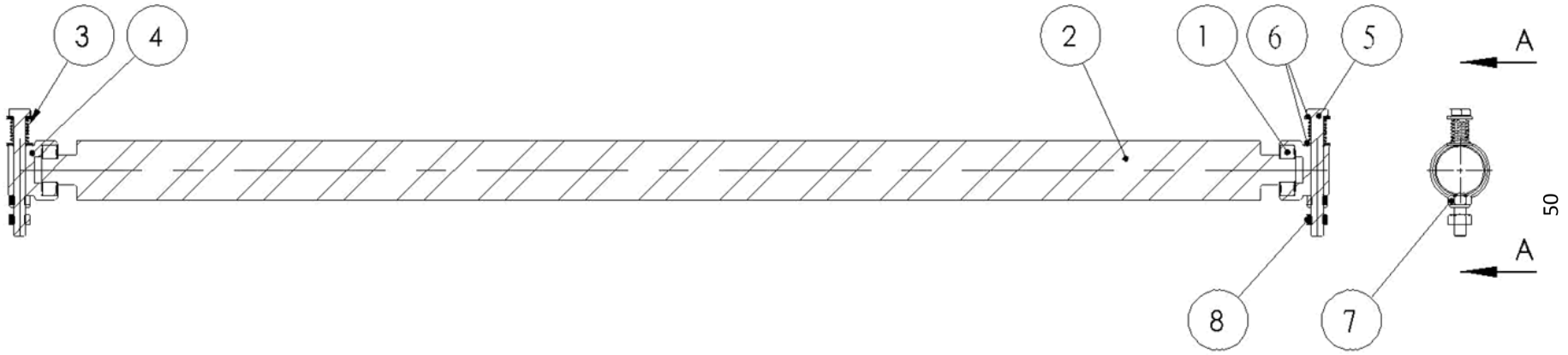
Item	Part number	Description	Qty
1	GCPP4-1015900	dust hood	1
2	GCPP4-101600	IB bracket,dust hood	1
3	GCPP4-1016100	OB bracket,dust hood	1





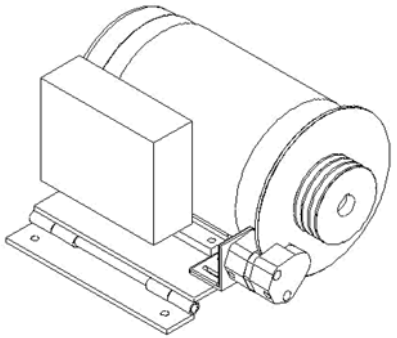
SCALE	1:10			DATE			SHEET
UNITS	MM			01-23-2015	DWN		OF
MATERIAL					CHK		
		TITLE : Dust Hood Assembly EZ3760M			NJMBEP	GCP-7390009006	REV 01

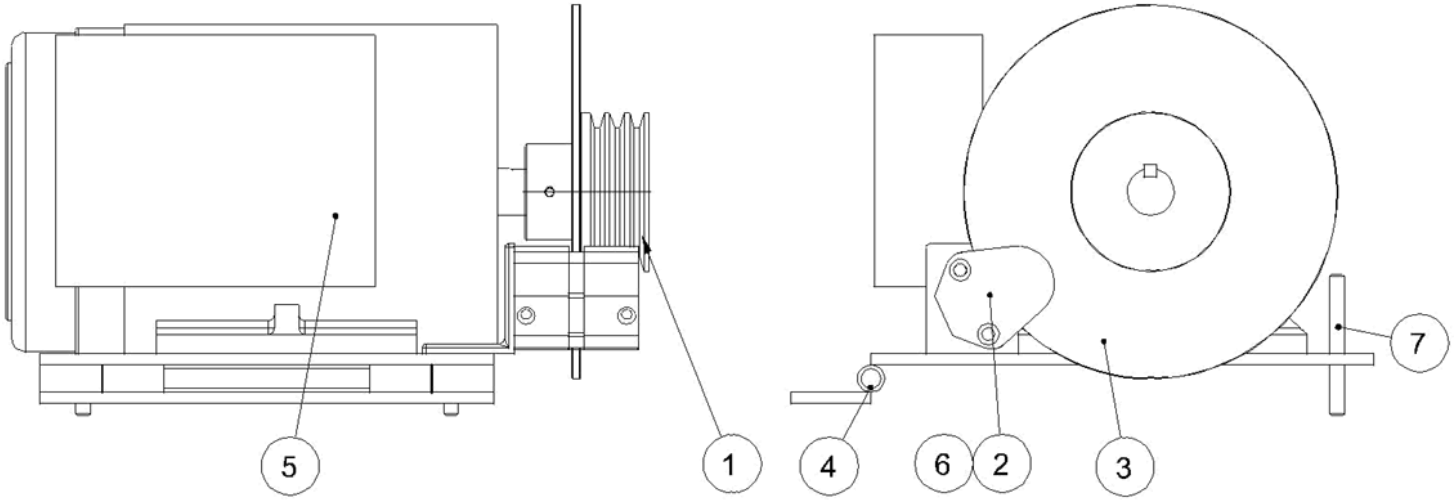
Item	Part number	Description	Qty
1	GCPD1-0251-1	bearing, 6004LLU	2
2	GCPR3-1456-01	pinch roll	1
3	GCPX4-2627	spring	2
4	GCPX4-1015100	bearing holder, pinch roll	2
5	GCPB1-0499-84	hex bolt M10xP1.5x110L	2
6	GCPB1-0424-51	FLAT WASHER	4
7	GCPB1-0397-2	HEX-NYLOCK NUT	2
8	GCPB1-0405	Hex Nut	2



SCALE	1:10						
UNITS	mm			01-23-2015			
MATERIAL							
		Hold Down Rolls Assembly EZ3760M				GCP-7390008025	01

Item	Part number	Description	Qty
1	GCPV4-121500	motor pulley	1
2	GCPBKCY	brake caliper	1
3	GCPX4-1067900	brake disc(ϕ 80* ϕ 305)	1
4	GCPX4-1014200	motor base	1
5	GCPA1-077-1	head motor 7.5HPx4P(1PH)	1
6	GCPF4-1014100	left bracket, brake caliper	1
7	GCPX4-1954	adj bolt,main motor	2





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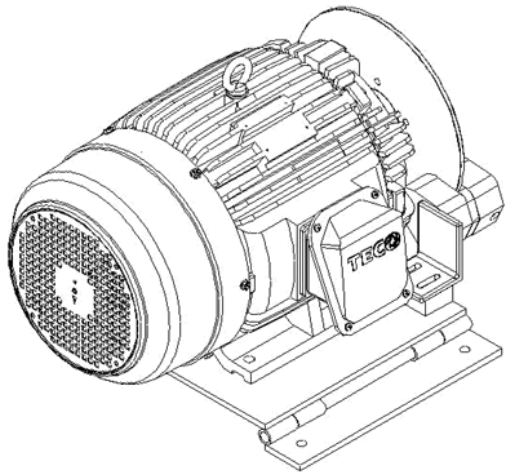
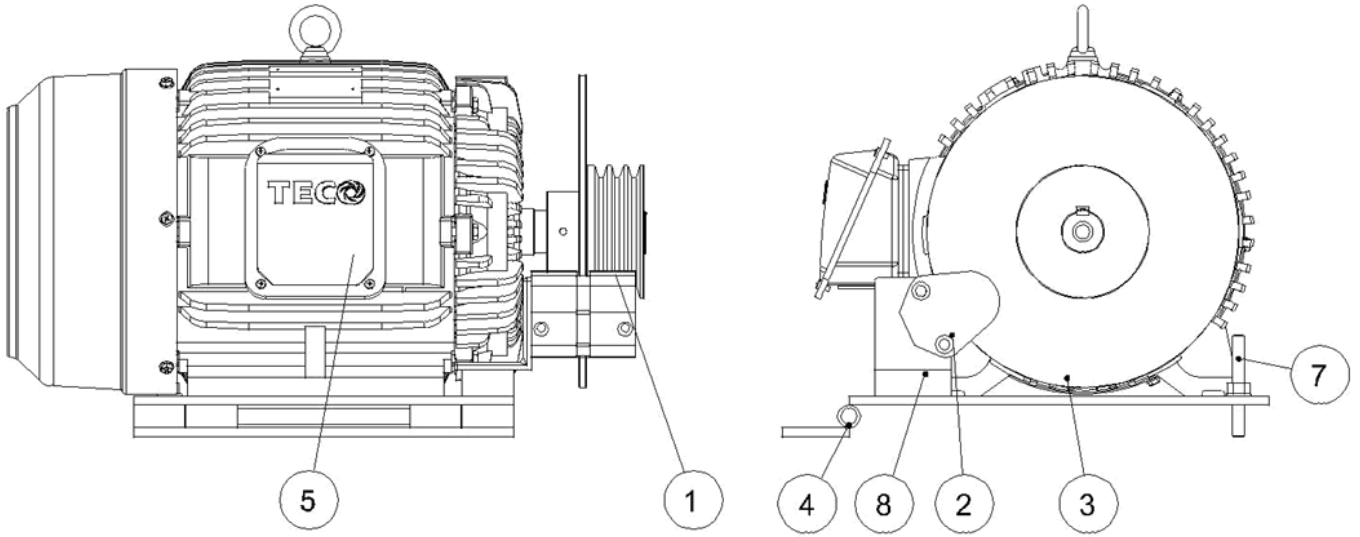
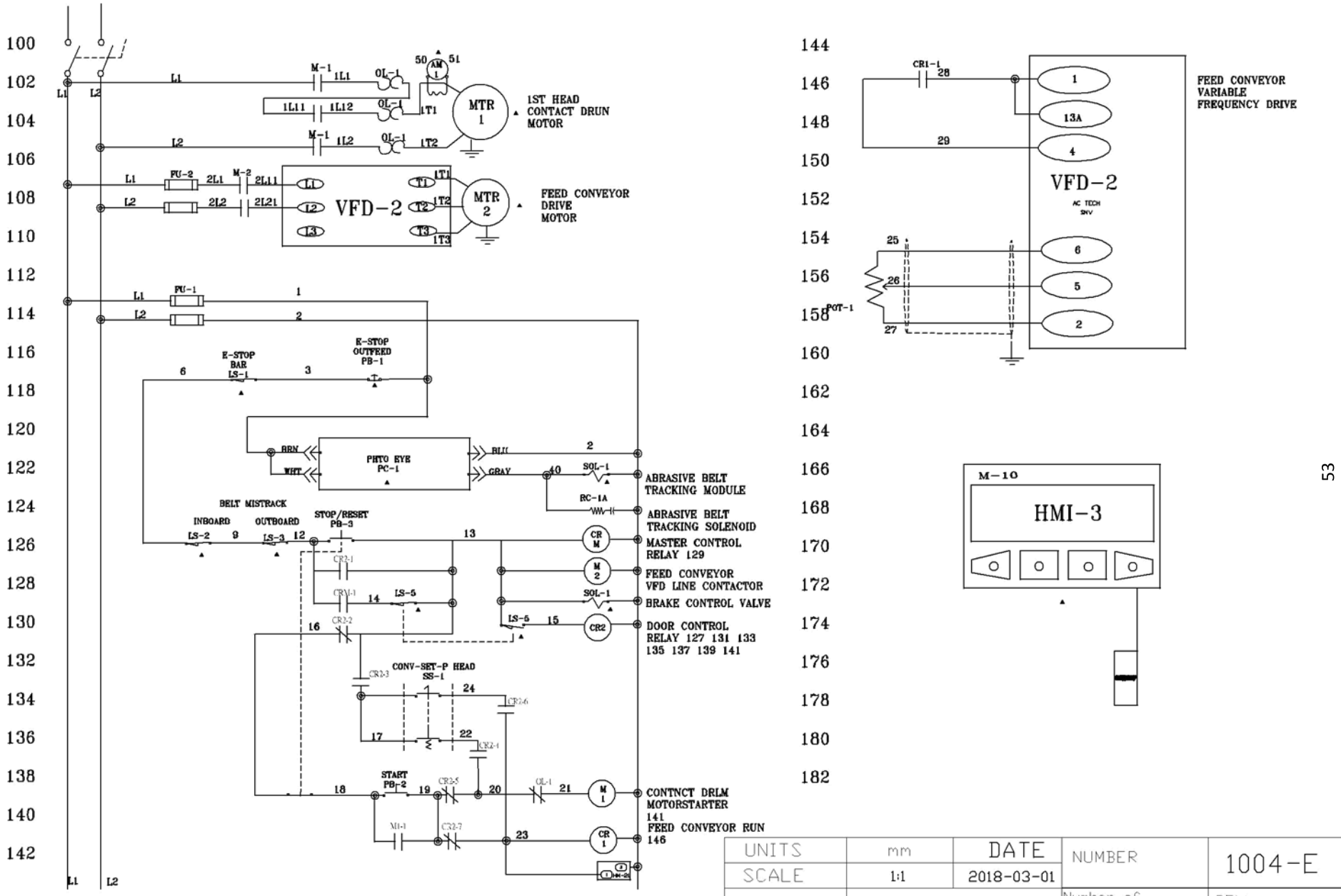
				06-22-2018			
		ASSY,MOTOR PLATE,DRUM HEAD EZ376DM				GCP-7390003062	01

Item	Part number	Description	Qty
1	GCPV4-1171401	motor pulley	1
2	GCPBKCY	brake caliper	1
3	GCPX4-1067900	brake disc(ϕ 80* ϕ 305)	1
4	GCPX4-1072900	motor base	1
5	GCPA1-0228	head motor 15HPx4P	1
6	GCPF4-1014100	left bracket, brake caliper	1
7	GCPX4-1954	adj bolt,main motor	2
8	GCPX4-1072200	Block, brake caliper bracket	1





	1:5						
				04-23-2015			
		ASSY,MOTOR PLATE,DRUM HEAD CZ3760M				GCP-7390003008	01



UNITS	mm	DATE	NUMBER	1004-E
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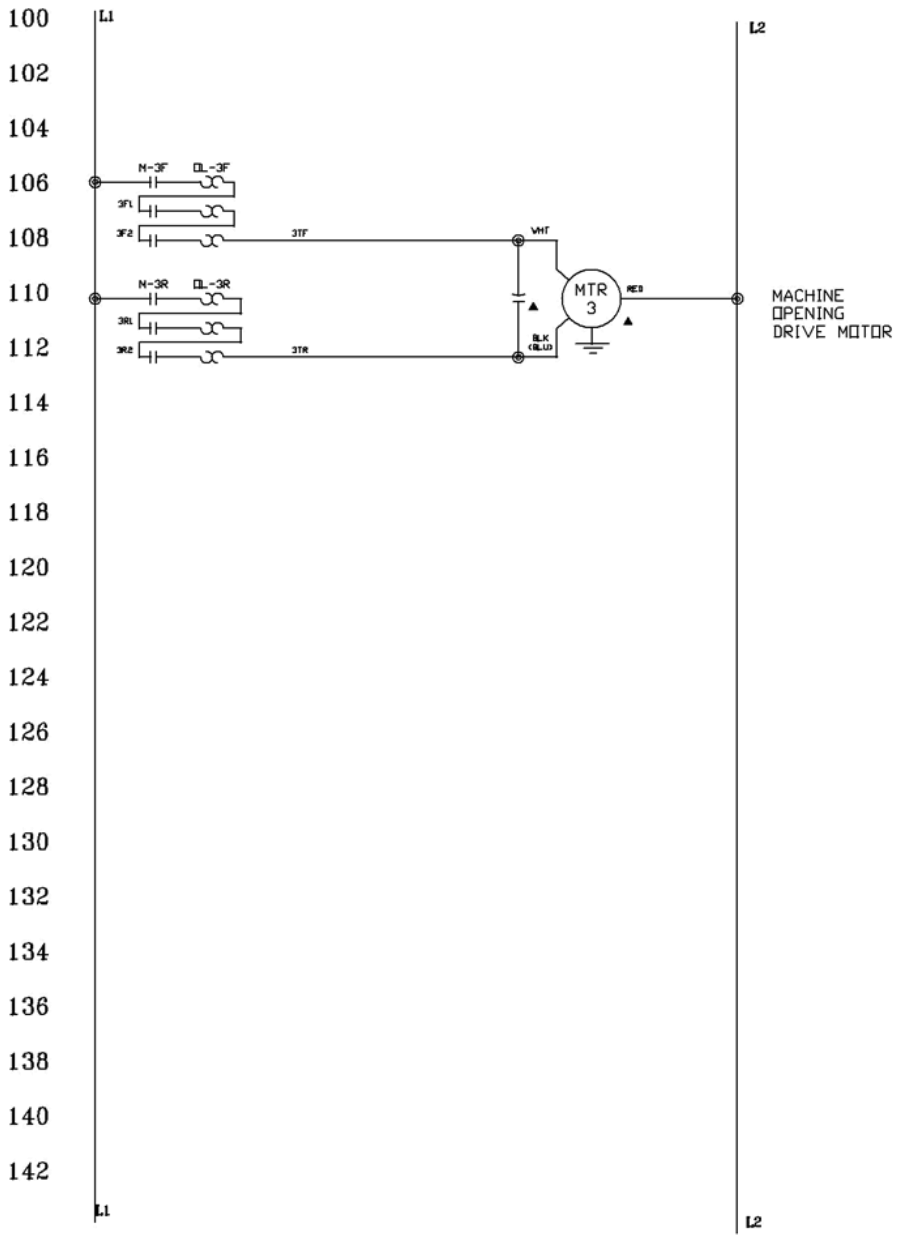
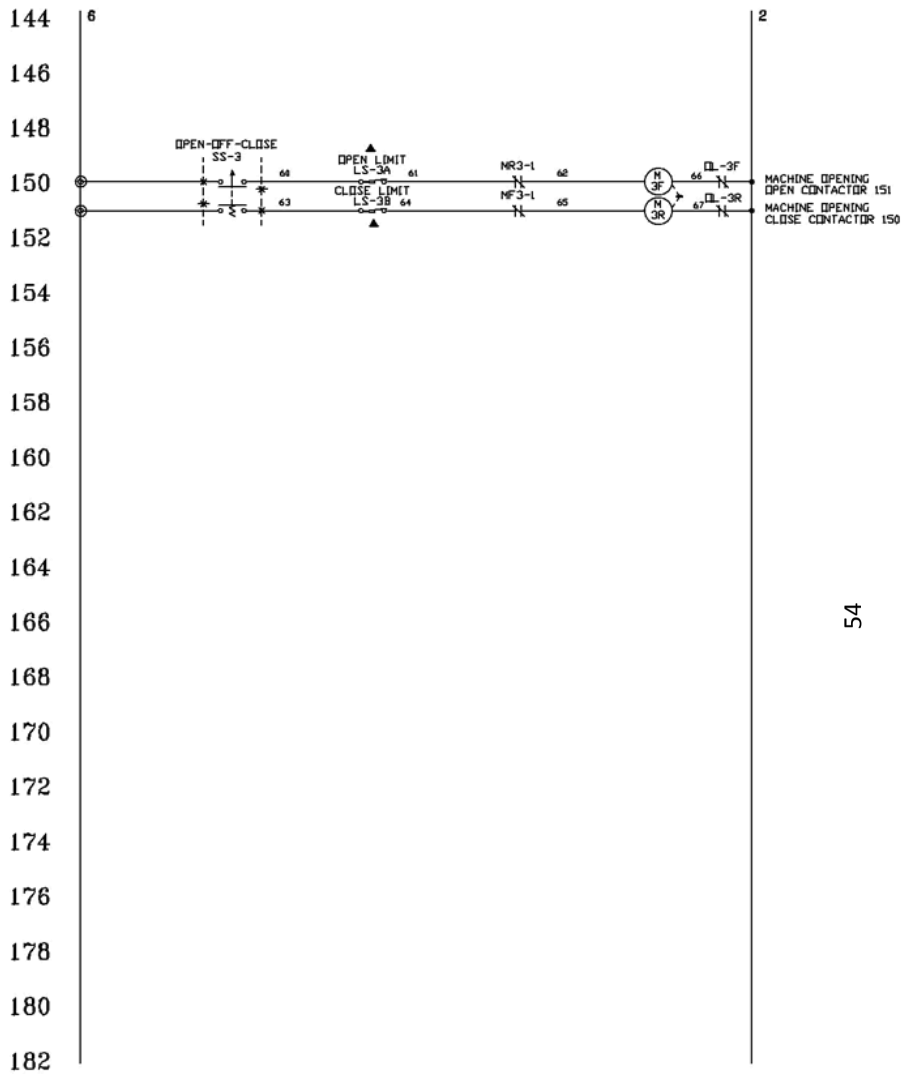
TITLE	EZ 3760M230-1		Number of drawing sheets: 1-1	REV: 00





54

UNITS	mm	DATE	NUMBER	EZ002-E
SCALE	1:1	2014-09-01		
TITLE	MOTORIZED LIFT		Number of drawing sheets: 1-1	REV: 00

E Z Sander | **EZ3760M230-1(170333)**

ELECTRICAL PARTS LIST | **10HP**

2018-03-01 | **230/1/60**

Leo

Description	Symbol	q'ty
ELECTRICAL DIAGRAM	1004-E	1
CONTROL RELAY, OMRON LY2NJ-AC220/240	CR-M,1	2
CONTROL RELAY SOCKET, OMRON PTF08A	CR-M,1	2
CONTROL RELAY, OMRON LY4NJ-AC220/240	CR-2	1
CONTROL RELAY SOCKET, OMRON PTF14A	CR-2	1
FUSE CARRIER TE DF102	FU-1	1
OR BUSSMANN FNM-5	FU-1	2
FUSE CARRIER TE DF102	FU-2	1
FUSE BUSSMANN KTK-R-15	FU-2	2
LIMIT SWITCH TEND 7310	LS-1	1
LIMIT SWITCH TEND 8167	LS-2.3	2
SWITCH LIMIT OMRON D4DS-1AF	LS-5	1
SWITCH LIMIT KEY OMRON D4DS-K3	LS-5	1
TAHSING SR-96 100:5 / TAHSING CURRENT COIL 100:5	AM/CT-1	1
MOTORSARTER TECO CU-50 3A2a2b 220VAC	M-1	1
MOTORSARTER TECO CU-11 3A1a 220VAC	M-2	1
10 HP 1800 230/1/60 FLA 54A	MTR-1	1
0.5HP 1800 230/3/60 60:1 FLA 2.2A	MTR-2	1
OVERLOAD RELAY TECO RHU80/603 (45A~60A)	OL-1	1
PB E-STOP MOELLER M22 -PVT/KC01/IY1	PB-1(BOX)	1
MOELLER M22-D-G/K10	PB-2	1
MOELLER M22-DH-R/K11	PB-3	1
MOELLER M22-WK3/K20	SS-1	1
SOLENOID VALVE. MAC 111B-291JA 220VAC	SOL-1.2	2
VFD AC TECH ESV751N02YXB 1HP 230V 8.8A	VFD-2	1
POTENTIOMETER RB24YN20SB 5K OHM	POT-1	1
SUPPRESSOR POWERMATION 12859-009	RC-1A	1
PHOTO ELECTRIC CONTROL OMRON E3JK-RR11-C	PC-1	1
RELFECTOR#E39-L7 COMES WITH PHOTO-EYE	PC-1	1
MOUNTING BRACKET#39-R2 COMES WITH PHOTO-EYE	PC-1	1
INPUT POWER WIRE. PORTABLE POWER CABLE TYPE W. 4AWG. 3 COND. BLACK		1
GROUND BAR 10P		1
HOUR METER FRITZ KUBLER H57 220V AC	HM-21	1
M-10 ENSOR-3M	HMI-3	1

MOTORIZED LIFT (OPTION)		
ELECTRICAL DIAGRAM	EZ002-E	1
90W 230/1/60 FLA0.85A	MTR-3	1
MOELLER CI23E-150	(BOX)	1
MOELLER M3-CI23		1
MOELLER DILM9-01(220V50/60HZ)	MF-3,MR-3	2
MOELLER DILM12-XMV	MF-3,MR-3	1
MOELLER ZB12-1(0.6A~1A)	OL-3F	1
MOELLER ZB12-1(0.6A~1A)	OL-3R	1
TEND TZ-7311	LS-3A,LS-3B	2
MOELLER M22-WK3/K20	SS-3	1

Apex Machine Group
4700 Olson Memorial Highway
Golden Valley, Minnesota 55422

Model:	**EZ3760M230-1**
Serial Number:	**170333**
Main Voltage:	**230/1/60**
Diagram Number	**1004-E,EZ002-E**

Head #1:	**10**	**HP**	**FLA:**	**54**	**Amps**
Conveyor Drive:	**1**	**HP**	**FLA:**	**8.8**	**Amps**
Motorized Lift :	**90**	**W**	**FLA:**	**0.85**	**Amps**
Control amperage		**VA**	**FLA:**	**3**	**Amps**
		Total Full Load Amps:		**66.65**	**Amps**
		Wiring Diagram N0.		**1004-E,EZ002-E**	

Apex Machine Group

Model:	**EZ3760M230-1**	
Serial Number:	**170333**	
Date:	**2018-03-01**	
Main Voltage:	**230/1/60**	
Total Full Load Amps:	**66.65**	**Amps**
ISC Current:	**5KA**	**Amps**
Diagram Number	**1004-E,EZ002-E**	
MAIN CIRCUIT:	**80.15**	**Amps**
MAIN GROUND:	**147.7**	**Amps**

E Z Sander

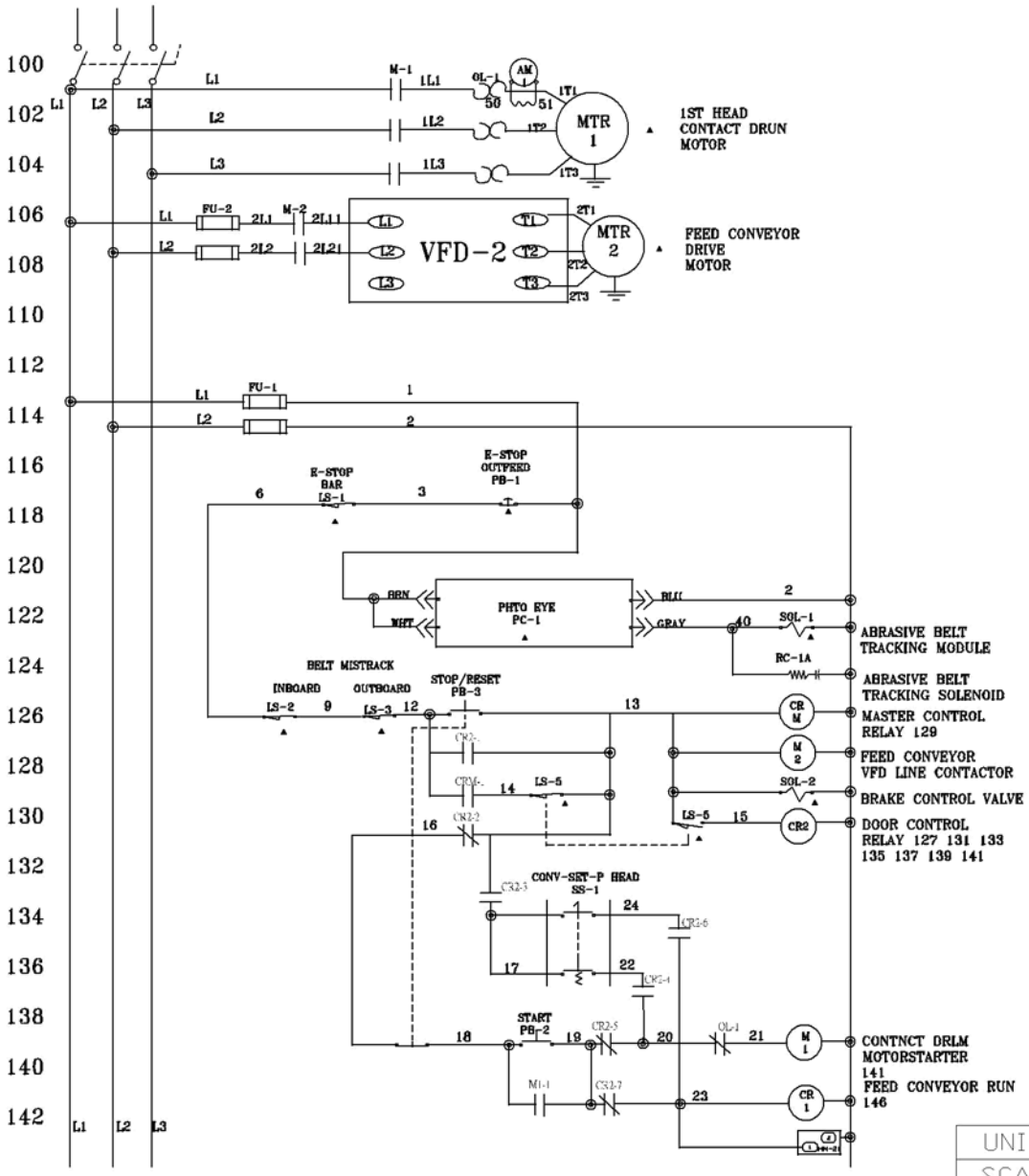
VFD PARAMETER TABLES

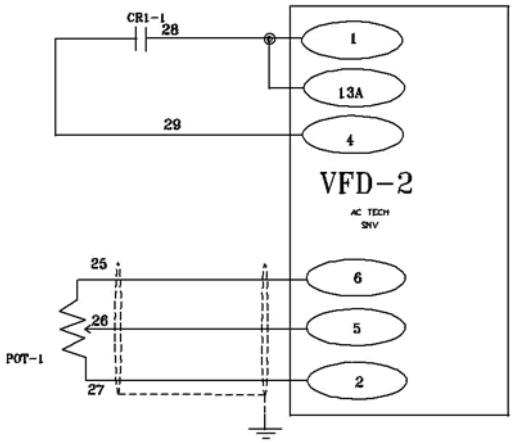
2018-03-01

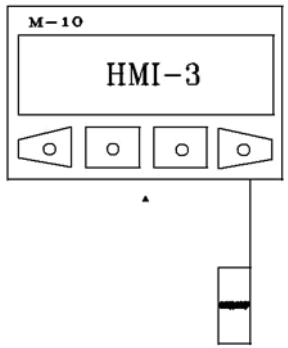
Leo

EZ3760M230-1(170333)

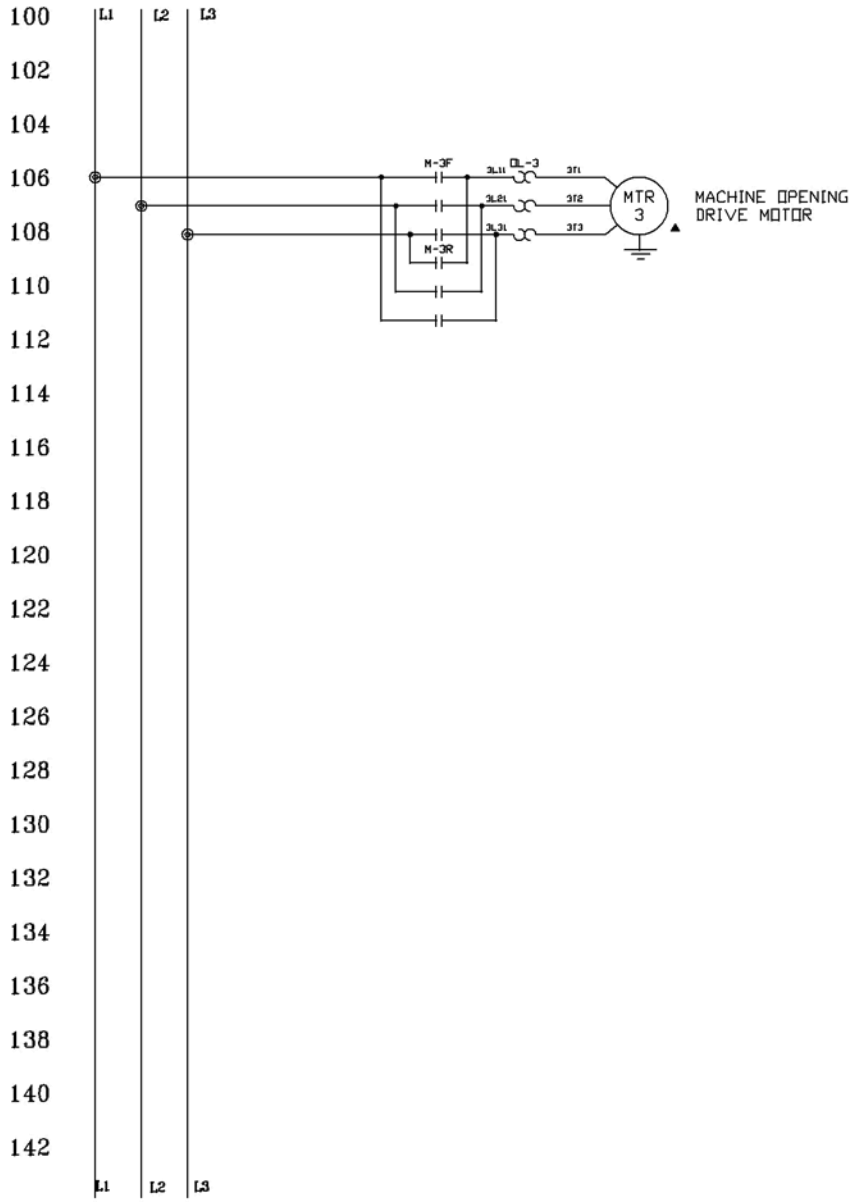
	PARAM	SETTING	PARAMETER DESCRIPTION
FEED VFD	P199	**3**	RESET TO 60HZ DEFAULTS SETTINGS
VFD-2	P100	**1**	START/STOP FROM TERMINAL STRIP
AC TECH	P101	**1**	0-10VDC SPEED REFERENCE
SMV	P103	**80**	MAX FREQ
OUT PUT	P104	**6.0**	ACCEL TIME
3/PE AC	P105	**1.0**	DECEL TIME
0-230V	P108	**46**	**(MOTOR AMPS / VFD RATED OUTPUT AMPS) X 100 %**
4.2A	P111	**2**	RAMP TO STOP
0.75KW/1HP	P121	**13**	TB-13A INPUT FUNCTION
0-500HZ	P140	**3**	RELAY IS ENERGIZED WHEB DRIVE IS NOT FAULTED
10-30 FPM	P160	**22**	MIN FREQ AT 0V POT INPUT
60:1	P161	**67**	MAX FREQ AT 10V POT INPUT
95mm			
1800RPM MOTOR			
	P170	**5.6**	**(1800 - NAMEPLATE SPEED / 1800) x 100 = SLIP (%)**

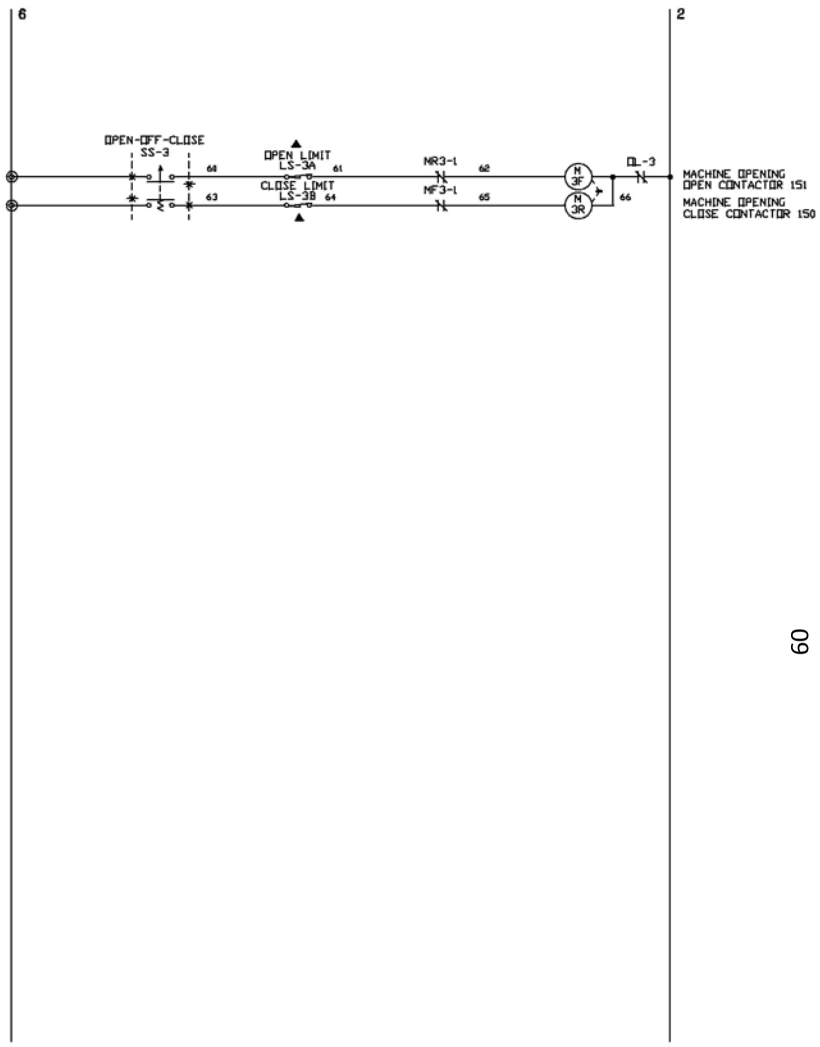






UNITS	mm	DATE	NUMBER	3007-E
SCALE	1:1	2016-09-21		
TITLE	EZ 3760M230-3		Number of drawing sheets: 1-1	REV: 02





60

UNITS	mm	DATE	NUMBER	EZ003-E
SCALE	1:1	2014-09-01		
TITLE	MOTORIZED LIFT		Number of drawing sheets: 1-1	REV: 00

E Z Sander

ELECTRICAL PARTS LIST

2018-02-22

Leo

EZ3760M230-3(170332)

15HP

230/3/60

Description	Symbol	q'ty
ELECTRICAL DIAGRAM	3007-E	1
CONTROL RELAY, OMRON LY2NJ-AC220/240	CR-M,1	2
CONTROL RELAY SOCKET, OMRON PTF08A	CR-M,1	2
CONTROL RELAY, OMRON LY4NJ-AC220/240	CR-2	1
CONTROL RELAY SOCKET, OMRON PTF14A	CR-2	1
FUSE CARRIER TE DF102	FU-1	1
OR BUSSMANN FNM-5	FU-1	2
FUSE CARRIER TE DF102	FU-2	1
FUSE BUSSMANN KTK-R-15	FU-2	2
LIMIT SWITCH TEND 7310	LS-1	1
LIMIT SWITCH TEND 8167	LS-2.3	2
SWITCH LIMIT OMRON D4DS-1AF	LS-5	1
SWITCH LIMIT KEY OMRON D4DS-K3	LS-5	1
TAHSING SR-96 75:5 / TAHSING CURRENT COIL 75:5	AM/CT-1	1
MOTORSARTER TECO CU-40 3A1a1b 220VAC	M-1	1
MOTORSARTER TECO CU-11 3A1a 220VAC	M-2	1
15 HP 1800 230/3/60 FLA 42A	MTR-1	1
0.5HP 1800 230/3/60 60:1 FLA 2.2A	MTR-2	1
OVERLOAD RELAY TECO RHU80/47A2 (35A~47A)	OL-1	1
PB E-STOP MOELLER M22 -PVT/KC01/IY1	PB-1(BOX)	1
MOELLER M22-D-G/K10	PB-2	1
MOELLER M22-DH-R/K11	PB-3	1
MOELLER M22-WK3/K20	SS-1	1
SOLENOID VALVE. MAC 111B-291JA 220VAC	SOL-1.2	2
VFD AC TECH ESV751N02YXB 1HP 230V 8.8A	VFD-2	1
POTENTIOMETER RB24YN20SB 5K OHM	POT-1	1
SUPPRESSOR POWERMATION 12859-009	RC-1A	1
PHOTO ELECTRIC CONTROL OMRON E3JK-RR11-C	PC-1	1
RELFECTOR#E39-L7 COMES WITH PHOTO-EYE	PC-1	1
MOUNTING BRACKET#39-R2 COMES WITH PHOTO-EYE	PC-1	1
INPUT POWER WIRE. PORTABLE POWER CABLE TYPE W. 6AWG. 4 COND. BLACK		1
GROUND BAR 10P		1
HOUR METER FRITZ KUBLER H57 220V AC	HM-21	1
M-10 ENSOR-3M	HMI-3	1

MOTORIZED LIFT (OPTION)		
ELECTRICAL DIAGRAM	EZ003-E	1
90W 230/3/60 FLA0.84A	MTR-3	1
MOELLER CI23E-150	(BOX)	1
MOELLER M3-CI23		1
MOELLER DILM9-01(220V50/60HZ)	MF-3,MR-3	2
MOELLER DILM12-XMV	MF-3,MR-3	1
MOELLER DILM12-XRL	MF-3,MR-3	1
MOELLER ZB12-1(0.6A~1A)	OL-3	1
TEND TZ-7311	LS-3A,LS-3B	2
MOELLER M22-WK3/K20	SS-3	1

Apex Machine Group
4700 Olson Memorial Highway
Golden Valley, Minnesota 55422

Model:	**EZ3760M230-3**
Serial Number:	**170332**
Main Voltage:	**230/3/60**
Diagram Number	**3007-E,EZ003-E**

Head #1:	**15**	**HP**	**FLA:**	**42**	**Amps**
Conveyor Drive:	**1**	**HP**	**FLA:**	**8.8**	**Amps**
Motorized Lift :	**90**	**W**	**FLA:**	**0.84**	**Amps**
Control amperage		**VA**	**FLA:**	**3**	**Amps**
Total Full Load Amps:				**54.64**	**Amps**
Wiring Diagram N0.	**3007-E,EZ003-E**				

Apex Machine Group

Model:	**EZ3760M230-3**
Serial Number:	**170332**
Date:	**2018-02-22**
Main Voltage:	**230/3/60**
Total Full Load Amps:	**54.64** **Amps**
ISC Current:	**5KA** **Amps**
Diagram Number	**3007-E,EZ003-E**
MAIN CIRCUIT:	**65.14** **Amps**
MAIN GROUND:	**117.6** **Amps**

E Z Sander

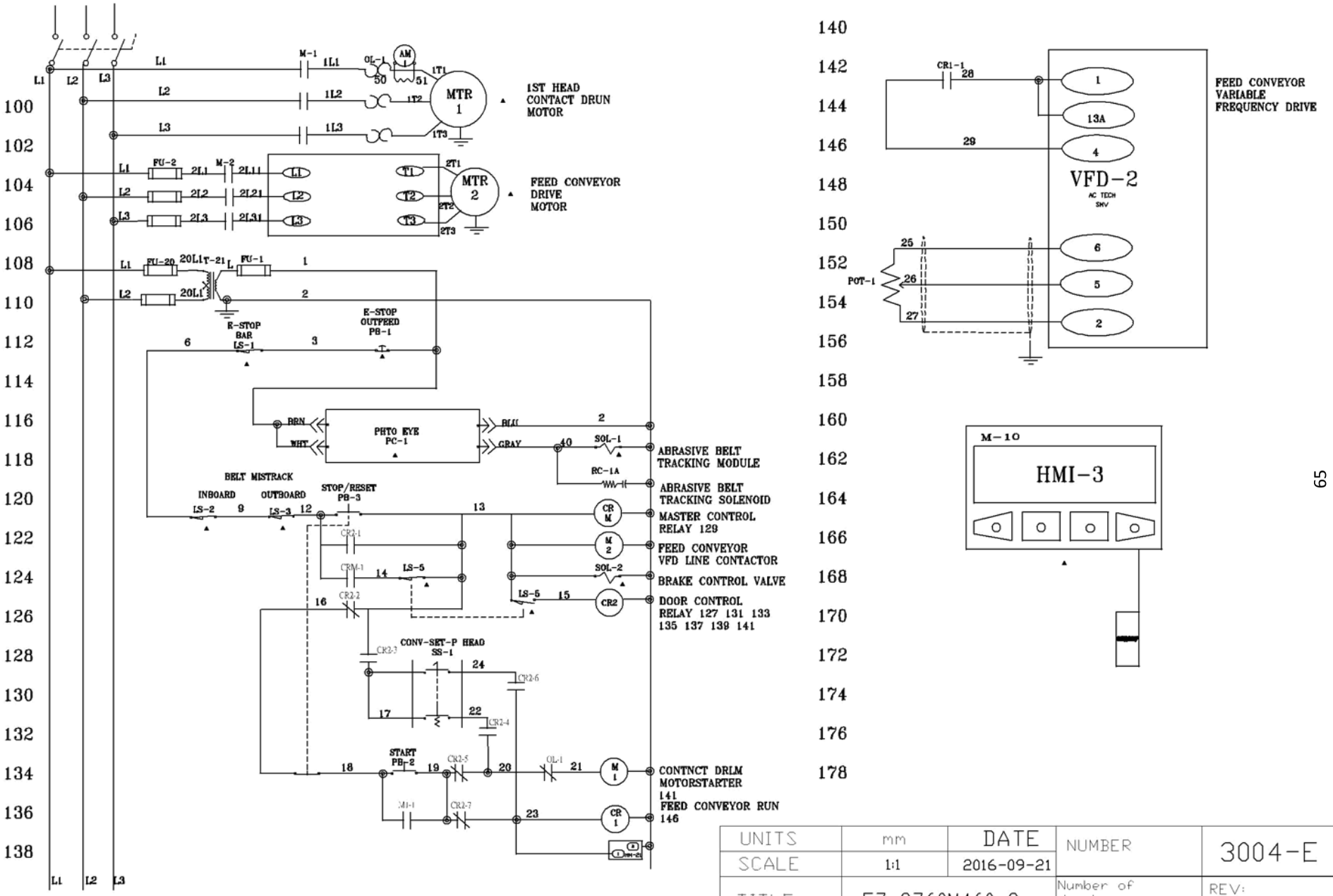
VFD PARAMETER TABLES

2018-02-22

Leo

EZ3760M230-3(170332)

	PARAM	SETTING	PARAMETER DESCRIPTION
FEED VFD	P199	**3**	RESET TO 60HZ DEFAULTS SETTINGS
VFD-2	P100	**1**	START/STOP FROM TERMINAL STRIP
AC TECH	P101	**1**	0-10VDC SPEED REFERENCE
SMV	P103	**80**	MAX FREQ
OUT PUT	P104	**6.0**	ACCEL TIME
3/PE AC	P105	**1.0**	DECEL TIME
0-230V	P108	**46**	**(MOTOR AMPS / VFD RATED OUTPUT AMPS) X 100 %**
4.2A	P111	**2**	RAMP TO STOP
0.75KW/1HP	P121	**13**	TB-13A INPUT FUNCTION
0-500HZ	P140	**3**	RELAY IS ENERGIZED WHEB DRIVE IS NOT FAULTED
10-30 FPM	P160	**22**	MIN FREQ AT 0V POT INPUT
60:1	P161	**67**	MAX FREQ AT 10V POT INPUT
95mm			
1800RPM MOTOR			
	P170	**5.6**	**(1800 - NAMEPLATE SPEED / 1800) x 100 = SLIP (%)**



UNITS	mm	DATE	NUMBER	3004-E
SCALE	1:1	2016-09-21		
TITLE	EZ 3760M460-3		Number of drawing sheets: 1-1	REV: 03

E Z Sander | EZ3760M460-3(170328)

ELECTRICAL PARTS LIST | **15HP**

2018-02-22 | **460/3/60**

Leo

Description	Symbol	q'ty
ELECTRICAL DIAGRAM	3004-E	1
CONTROL RELAY, OMRON LY2NJ-AC220/240	CR-M.1	2
CONTROL RELAY SOCKET, OMRON PTF08A	CR-M.1.	2
CONTROL RELAY, OMRON LY4NJ-AC220/240	CR-2	1
CONTROL RELAY SOCKET, OMRON PTF14A	CR-2	1
FUSE CARRIER TE DF101	FU-1	1
OR BUSSMANN FNM-1	FU-1	1
FUSE CARRIER TE DF103	FU-2	1
FUSE BUSSMANN KTK-R-10	FU-2	3
LIMIT SWITCH TEND 7310	LS-1	1
LIMIT SWITCH TEND 8167	LS-2.3	2
SWITCH LIMIT OMRON D4DS-1AF	LS-5	1
SWITCH LIMIT KEY OMRON D4DS-K3	LS-5	1
TAHSING SR-96 30:5 / TAHSING CURRENT COIL 30:5	AM/CT-1	1
MOTORSARTER TECO CU-18 3A1a1b 220VAC	M-1	1
MOTORSARTER TECO CU-11 3A1a 220VAC	M-2	1
15 HP 1800 460/3/60 FLA 21A	MTR-1	1
0.5HP 1800 460/3/60 60:1 FLA 1.1A	MTR-2	1
OVERLOAD RELAY TECO RHU80/251 (17A~25A)	OL-1	1
PB E-STOP MOELLER M22 -PVT/KC01/IY1	PB-1(BOX)	1
MOELLER M22-D-G/K10	PB-2	1
MOELLER M22-DH-R/K11	PB-3	1
MOELLER M22-WK3/K20	SS-1	1
SOLENOID VALVE. MAC 111B-291JA 220VAC	SOL-1.2	2
VFD AC TECH ESV751N04TXB 1HP 460V 2.9A	VFD-2	1
POTENTIOMETER RB24YN20SB 5K OHM	POT-1	1
SUPPRESSOR POWERMATION 12859-009	RC-1A	1
PHOTO ELECTRIC CONTROL OMRON E3JK-RR11-C	PC-1	1
RELFECTOR#E39-L7 COMES WITH PHOTO-EYE	PC-1	1
MOUNTING BRACKET#39-R2 COMES WITH PHOTO-EYE	PC-1	1
INPUT POWER WIRE. PORTABLE POWER CABLE TYPE W. 10AWG 4 COND BLACK		1
GROUND BAR 10P		1
HOUR METER FRITZ KUBLER H57 220V AC	HM-21	1
XFMR 208-230-400-460-575/220-230 100VA SUENN LIANG 0.2A	T-21	1
OR BUSSMANN FNQ-R-1	FU-20	2
FUSE CARRIER TE DF102	FU-20	1

M-10 ENSOR-3M	HMI-3	1
MOTORIZED LIFT (OPTION)		
ELECTRICAL DIAGRAM	EZ003-E	1
90W 460/3/60 FLA0.45A	MTR-3	1
MOELLER CI23E-150	(BOX)	1
MOELLER M3-CI23		1
MOELLER DILM9-01(220V50/60HZ)	MF-3,MR-3	2
MOELLER DILM12-XMV	MF-3,MR-3	1
MOELLER DILM12-XRL	MF-3,MR-3	1
MOELLER ZB12-0,6(0.4A~0.6A)	OL-3	1
TEND TZ-7311	LS-3A,LS-3B	2
MOELLER M22-WK3/K20	SS-3	1

Apex Machine Group
4700 Olson Memorial Highway
Golden Valley, Minnesota 55422

Model:	EZ3760M460-3
Serial Number:	170328
Main Voltage:	460/3/60
Diagram Number	3004-E,EZ003-E

Head #1:	15	HP	FLA:	21	Amps
Conveyor Drive:	1	HP	FLA:	2.9	Amps
Motorized Lift :	90	W	FLA:	0.45	Amps
Control amperage	100	VA	FLA:	0.2	Amps
Total Full Load Amps:			24.55		Amps
Wiring Diagram N0.	3004-E,EZ003-E				

Apex Machine Group

Model:	EZ3760M460-3	
Serial Number:	170328	
Date:	2018-02-22	
Main Voltage:	460/3/60	
Total Full Load Amps:	24.55	Amps
ISC Current:	5KA	Amps
Diagram Number	3004-E,EZ003-E	
MAIN CIRCUIT:	29.8	Amps
MAIN GROUND:	56.1	Amps

E Z Sander

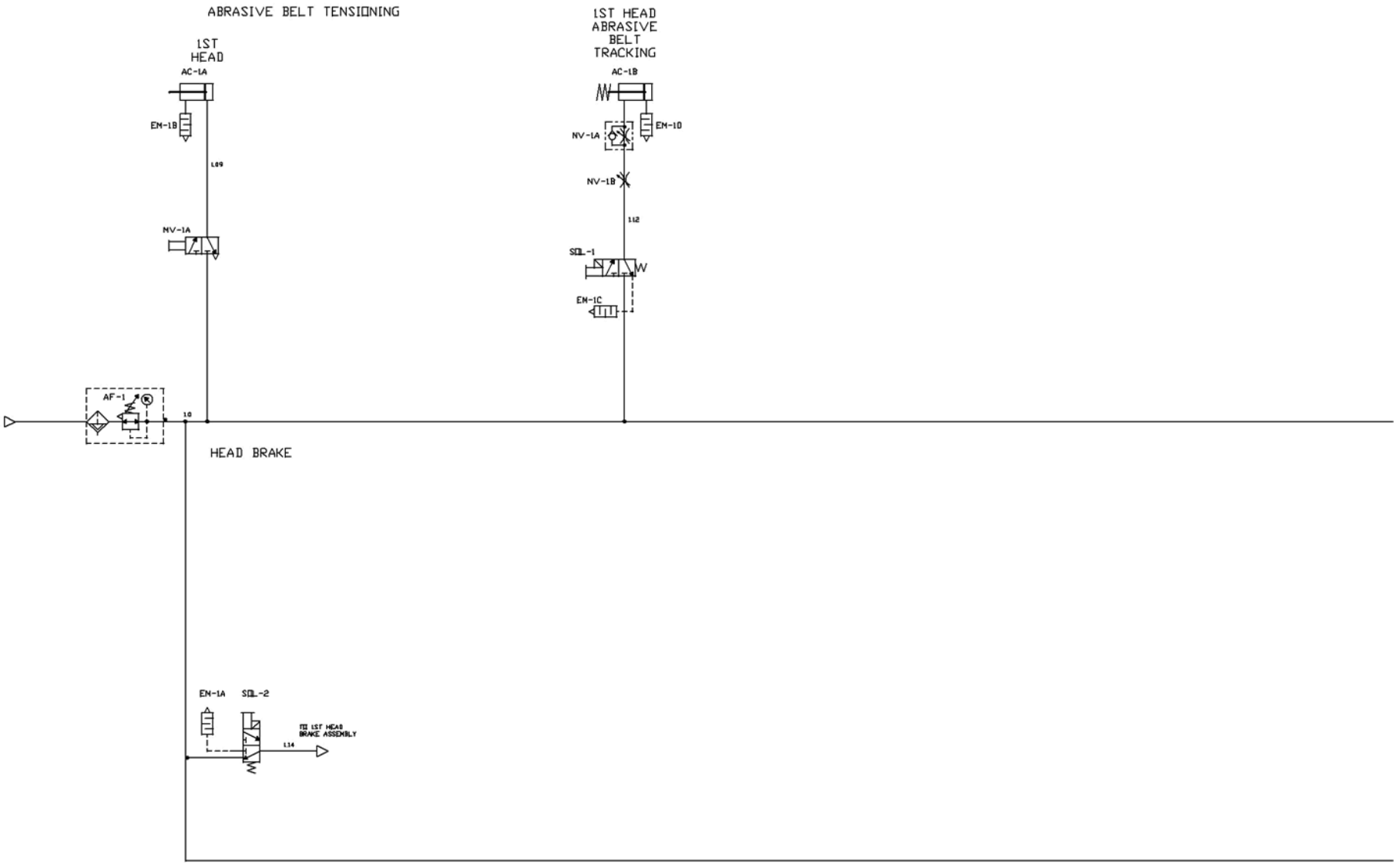
VFD PARAMETER TABLES

2018-02-22

Leo

EZ3760M460-3(170328)

	PARAM	SETTING	PARAMETER DESCRIPTION
FEED VFD	P199	**3**	RESET TO 60HZ DEFAULTS SETTINGS
VFD-2	P100	**1**	START/STOP FROM TERMINAL STRIP
AC TECH	P101	**1**	0-10VDC SPEED REFERENCE
SMV	P103	**80**	MAX FREQ
OUT PUT	P104	**6.0**	ACCEL TIME
3/PE AC	P105	**1.0**	DECEL TIME
0-400/460V	P108	**58**	**(MOTOR AMPS / VFD RATED OUTPUT AMPS) X 100 %**
2.4/2.1A	P111	**2**	RAMP TO STOP
0.75KW/1HP	P121	**13**	TB-13A INPUT FUNCTION
0-500HZ	P140	**3**	RELAY IS ENERGIZED WHEB DRIVE IS NOT FAULTED
10-30 FPM	P160	**22**	MIN FREQ AT 0V POT INPUT
60:1	P161	**67**	MAX FREQ AT 10V POT INPUT
95mm			
1800RPM MOTOR			
	P170	**5.6**	**(1800 - NAMEPLATE SPEED / 1800) x 100 = SLIP (%)**



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UNITS	mm	DATE	NUMBER	D002-P
SCALE	1:1	2012-04-09		
TITLE	EZ 3760M460-3		Number of drawing sheets: 1-1	REV: 00

E Z Sander **EZ3760M all voltages**

PNEUMATIC PARTS LIST

2018-02-22

Leo

Description	Symbol	q'ty
PNEUMATIC SCHEMATIC	D003-P	1
AIR FILTER/REG PARKER P31EA12EGBBNNP-P31KA00MW	AF-1	1
AIR CYLINDER, SM P/N D1-0201-4, WIN-KEY 50X50	AC-1A	1
AIR CYLINDER, SM P/N D1-0234, WIN-KEY CM30X5SD	AC-1B	1
EXHAUST MUFFLER 1/8" NPT, OR SM P/N D1-0055-5 COPOR	EM-1A,1C	2
EXHAUST MUFFLER COPOR SM P/N D1-0055-3	EM-1B	1
EXHAUST MUFFLER, 1/8" NPT, SM P/N D1-0055-5	EM-1D	1
MANUAL VALVE SM P/N D1-0050 KUNG CHUNG VM104	MV-1A	1
FLOW FITTTING, SM P/N D1-0049-11 MINDMAN MSC-6A-PT 1/8"	NV-1A	1
FLOW FITTING, SM P/N D1-0049-2 PISCO JSC6-01 1/8"	NV-1B	1
SOLENOID VALVE. MAC 111B-291JA 220VAC	SOL-1.2	2