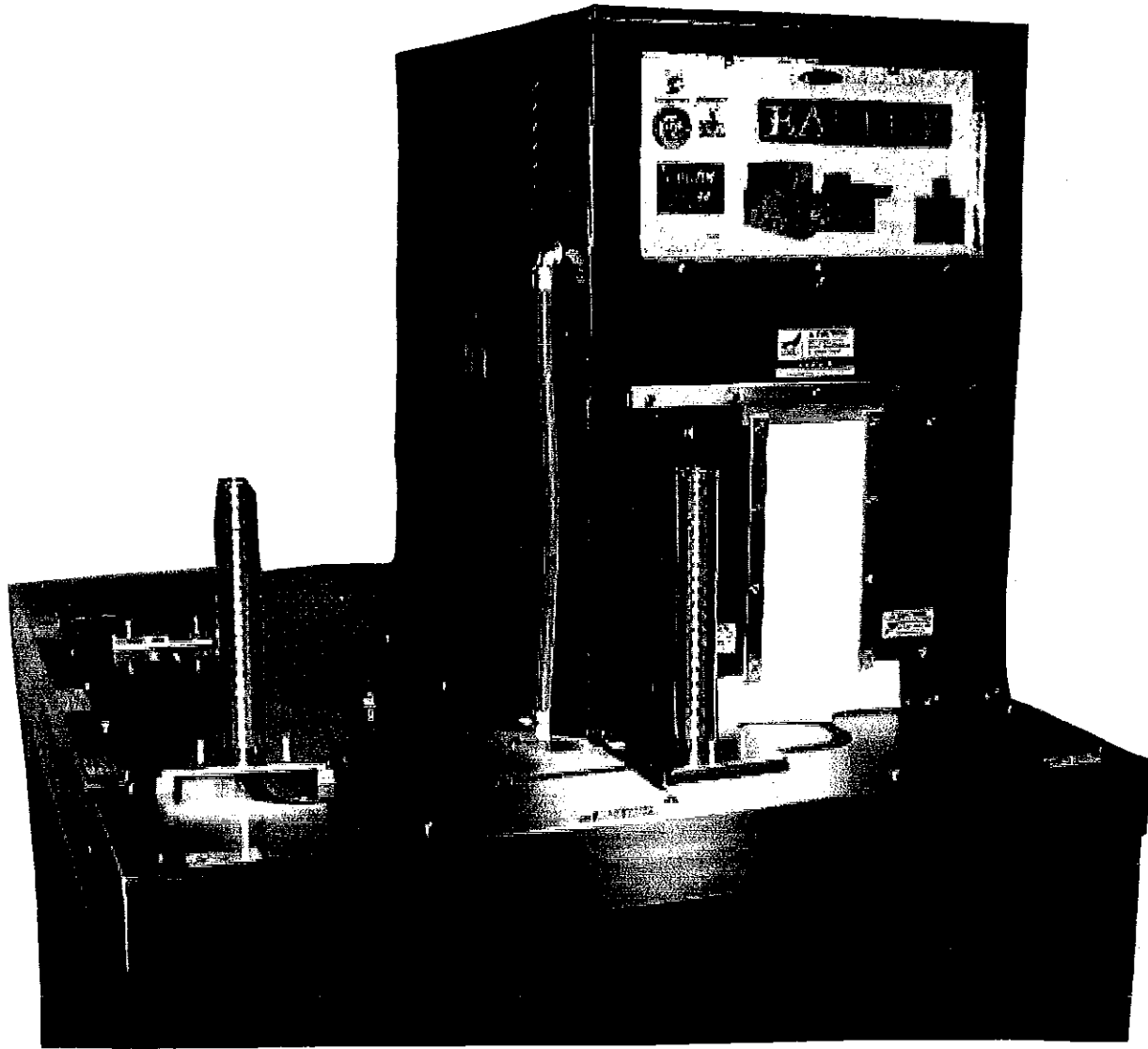


"EASTEY" SHRINK TUNNEL



MODEL ET1610-36CC SHOWN

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INTRODUCTION OF "EASTEY" SHRINK TUNNEL

General description of shrink tunnel:

The Eastey Shrink Tunnel

ET1610-36CC

E = Indicates that it is an Eastey

T = Indicates that it is an Eastey Shrink Tunnel

16 = Indicates that it has a 16" wide roller conveyor

10 = Indicates that it has a 10" high chamber opening

36 = Indicates that it has a 36" long chamber

C = Indicates that it has a custom conveyor

Model description

Model ET1610CC:

A simple yet reliable and extremely durable shrink tunnel. The strength and durability of this model are its' greatest features. Straightforward, easy manual operation is employed. Operator training should at the ultimate extreme be less than one work shift.

JEFF EASTEY ENTERPRISES, INC.

THE OPERATING AND MAINTENANCE MANUAL

This operating and maintenance manual has been prepared to provide the user information on installation, operation and maintenance of the Eastey Shrink Packaging Equipment.

Please read this manual carefully and refer to it for information on the care and use of your Eastey Shrink Packaging Equipment. It is recommended that additional copies be ordered for use by production, maintenance and supervisory personnel. Although the design of the Eastey Shrink Packaging Equipment incorporates safeguards to protect personnel, extreme care must be used in operating, adjusting and servicing the shrink packaging equipment.

Your attention is directed to the limited warranty which accompanies Eastey Shrink Packaging Equipment. The terms and conditions of the limited warranty apply only to unmodified units. Any unauthorized modifications to the equipment or misuse of the equipment automatically invalidates the limited warranty.

EASTEY®
LIMITED WARRANTY
EFFECTIVE JANUARY 1, 2009

JEFF EASTEY ENTERPRISES, INC. ("EASTEY") warrants each new product it manufactures to be free from defects in material and workmanship for a period of two (2) years from the date of shipment by Eastey.

Defective parts under warranty must be returned to EASTEY, freight prepaid. EASTEY's sole obligation and purchaser's sole remedy in the event of a breach of this warranty shall be, at EASTEY's option, to repair or provide replacement parts for the product or refund the purchase price paid to EASTEY for the product.

THIS WARRANTY SHALL NOT APPLY IF ANY MODIFICATION, ALTERATION OR ADDITION IS MADE TO THE PRODUCT WITHOUT EASTEY'S PRIOR WRITTEN APPROVAL. FURTHERMORE, THIS WARRANTY DOES NOT APPLY TO PRODUCT DEFECTS DUE TO MISUSE, ABUSE, NEGLIGENCE, OR FAILURE TO FOLLOW RECOMMENDED PROCEDURES. ANY PRODUCT REPAIRED OR ALTERED BY PERSONS OTHER THAN AUTHORIZED EASTEY REPRESENTATIVES WILL NOT BE COVERED BY THIS WARRANTY. THIS WARRANTY DOES NOT APPLY TO CONSUMABLE ITEMS. (SEE FOLLOWING PAGES FOR FURTHER DETAIL)

EXCEPT AS EXPRESSLY PROVIDED IN THIS WARRANTY, EASTEY MAKES NO REPRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED, WITH RESPECT TO THE PRODUCT, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY AS TO MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT OR ANY OTHER MATTER.

EASTEY SHALL HAVE NO LIABILITY TO ANY PERSON FOR INCIDENTAL, CONSEQUENTIAL, OR SPECIAL DAMAGES OF ANY DESCRIPTION WHETHER ARISING OUT OF WARRANTY OR OTHER CONTRACT, NEGLIGENCE OR OTHER TORT, OR OTHERWISE. NO AGENT, EMPLOYEE, OFFICER OR OTHER REPRESENTATIVE OF EASTEY ENTERPRISES, INC. HAS AUTHORITY TO BIND EASTEY TO ANY REPRESENTATION OR WARRANTY EXCEPT AS STATED HEREIN. UNDER NO CIRCUMSTANCES SHALL EASTEY'S LIABILITY HEREUNDER, FOR ANY REASON OR CAUSE EXCEED THE PRICE PAID TO EASTEY FOR THE PRODUCT.

EASTEY reserves the right to make changes, additions or improvements to the product with no obligation to make such changes in any previously shipped product covered by this warranty.

LIMITED WARRANTY - THE MINI BY EASTEY

The following parts are an exception to the warranty listed on the previous page. Each part listed below shall carry a 30 day warranty unless designated otherwise:

1. End Curtains
2. Conveyor Belt
3. Knurled Nuts

The following parts are considered to be consumable items and not under warranty:

1. Fuses
2. 1/4" x 3/4" Sponge Rubber
3. Copper Heat Sinks
4. .036 Nichrome Wire
5. 3/4" Teflon Tape
6. 1/2" Teflon Tape

**LIMITED WARRANTY - ECONOMY SEALERS
ET1622M/T and EM1636M/T**

The following parts are an exception to the warranty listed on the previous page. Each Part listed below shall carry a 30 day warranty unless designated otherwise:

1. Conveyor Belt
2. Knurled Nuts

The following parts are considered to be consumable items and not under warranty:

1. Fuses
2. 1/4" x 3/4" Sponge Rubber
3. .036 Nichrome Wire
4. 3/4" Teflon Tape
5. 1/2" Teflon Tape

LIMITED WARRANTY- SEALERS w/HOT WIRE

The following parts are an exception to the warranty listed on the previous page. Each part listed below shall carry a 30 day warranty unless designated otherwise:

1. Termination Post
2. Conveyor Belt
3. Hole Punches - Ball and Die
4. Knurled Nut

The following parts are considered to be consumable items and not under warranty:

1. Fuses
2. 1/4" x 3/4" Sponge Rubber
3. Copper Heat Sinks
4. .036 Nichrome Wire
5. 3/4" Teflon Tape
6. 1/2" Teflon Tape

**LIMITED WARRANTY - SEALERS,
SLEEVEWRAPPERS/ BUNDLERS w/DUO
SEAL®, & AUTOMATIC SEALERS**

The following parts are an exception to the warranty listed on the previous page. Each part listed below shall carry a 30 day warranty unless designated otherwise:

1. Felt Pad
2. Conveyor Belt

The following parts are considered to be consumable items and not under warranty:

1. Coated Seal Bars, (Mushrooms Inserts, poly inserts, arrow inserts, pancake inserts, and cutting rules) if they have been scratched.
2. Fuses
3. 1/4" x 3/4" Sponge Rubber
4. 3/4" Teflon Tape
5. 1/2" Teflon Tape

**LIMITED WARRANTY - ECONOMY TUNNEL
ET1608 AND EET2010**

The following parts are an exception to the warranty listed on the previous page. Each part listed below shall carry a 30 day warranty unless designated otherwise:

1. Silicone Tubing (Roller Covering)
2. End Curtains

**LIMITED WARRANTY - SMALL TUNNEL
ET1610-36 and ET1610-48**

The following parts are an exception to the warranty on the previous page. Each part listed below shall carry a 30 day warranty unless designated otherwise:

1. Silicone Tubing (Roller Covering)
2. End Curtains

The following parts are considered to be consumable items and not under warranty:

1. Fuses

LIMITED WARRANTY- ALL OTHER TUNNELS

The following parts are an exception to the warranty listed on the previous page. Each part listed below shall carry a 30 day warranty unless designated otherwise:

1. Silicone Tubing (Roller Covering)
2. End Curtains

The following parts are considered to be consumable items and not under warranty:

1. Fuses

WARNING

EVERY EFFORT HAS BEEN TAKEN TO INSURE SAFETY WHILE OPERATING THIS MACHINE, HOWEVER, THERE STILL REMAINS CERTAIN RISKS. DO NOT ALLOW THIS MACHINE TO BE OPERATED BEFORE INFORMING ALL PERSONNEL OF THE ATTACHED WARNINGS.

WARNING...

Do not tamper with electrical wiring. Use only licensed electrician's for maintenance. Always disconnect electrical power before attempting maintenance to any electrical or moving parts.

WARNING...

In order to prevent injury to machinery and/or personnel **DO NOT INCREASE SETTINGS ON EITHER ELECTRICAL OR MECHANICAL OVERLOAD SAFETY DEVICES.**

WARNING...

KEEP HANDS AWAY FROM MOVING CONVEYORS AND ASSEMBLIES. Conveyor belts that have become worn or frayed can be hazardous and should be replaced promptly.

WARNING...

NEVER OPERATE THIS OR ANY MOVING EQUIPMENT WITHOUT ALL COVERS AND GUARDS IN PLACE. The internal mechanism of most packaging machinery contains numerous shear, pinch, and in-running nip points, many of which are capable of causing severe injury and permanent disfiguration.

WARNING...

TO MINIMIZE POTENTIAL FOR PERSONAL INJURY, ALWAYS BE SURE THAT MACHINE OPERATORS AND OTHERS WORKING ON MACHINERY ARE PROPERLY TRAINED IN THE CORRECT USAGE OF THE EQUIPMENT AND PROPERLY INSTRUCTED REGARDING THE SAFETY PROCEDURES FOR OPERATION.

WARNING...

Heat sealing arms and jaws on packaging machinery can become very warm after a period of use. **KEEP HANDS AWAY WHILE IN OPERATION AND USE CAUTION IF THE MACHINE HAS BEEN RUNNING RECENTLY.**

WARNING...

DO NOT MAKE ANY MODIFICATIONS TO EITHER THE ELECTRICAL CIRCUITRY OR THE MECHANICAL ASSEMBLIES OF THIS MACHINERY. Such modifications may introduce hazards that would not otherwise be associated with this machinery. EASTEY CORPORATION will not be responsible for any consequence resulting from such unauthorized modification.

WARNING...

The use of certain types of plastic films in sealing and/or shrinking equipment may result in the release of **HAZARDOUS FUMES** due to the degradation of the film at high temperatures. Before using any plastic film in this equipment, the manufacturer or supplier of the film should be contacted for specific information concerning the potential release of hazardous fumes. **ADEQUATE VENTILATION SHOULD BE PROVIDED AT ALL TIMES.**

WARNING...

KEEP COMBUSTIBLE MATERIALS AWAY FROM THIS EQUIPMENT. THE EQUIPMENT MAY BE A SOURCE OF IGNITION.

UNPACKING

Thoroughly inspect immediately upon arrival!

Carefully remove the protective wrapper. Inspect machine for any damage that may have occurred during transit. If goods are received short or damaged condition, it is important that you notify the carrier's driver "before they leave your company" and insist on a notation of the loss or damage across the face of the freight bill of lading; otherwise no claim can be enforced against the transportation company. Please note this same piece of paper is attached to the outside of every crate.

If concealed loss or damage is discovered, notify your carries at once and request *INSIST* on an inspection. This is absolutely necessary. A concealed damage report must be made within 10 days of delivery of shipment.

Unless you do this the carrier will not entertain any claim for loss or damage. The agent will make an inspection and grant a concealed damage notation. If you give the transportation company a clear receipt for the goods that have been damaged or lost in transit, you do so at your own risk and expense.

All claims must be filled within FIVE months of delivery date or carrier will not accept them.

We are willing to assist you in every possible manner to help you collect claims for loss or damage, but this willingness on EASTEY'S part does not make EASTEY responsible for collection of claims or replacement of equipment.

SPECIFICATIONS AND DESCRIPTIONS OF SHRINK TUNNEL MODEL:

ET1610-36 AND ET 1610-48 CHAMBER SIZE

WIDTH	HEIGHT	LENGTH	VOLTS	AMPS	PHASE	WEIGHT
49	10	61	230	50	1	1000

DESCRIPTION

Eastey presents a shrink tunnel that is a conveyORIZED device employing electric heating combined with a recirculating air system, and a complete range of adjustment. The main components are the blower, the heater bank, the shrink chamber, and the package conveyor. Curtains cover the entrance and exit of the heat chamber to minimize a loss as packages travel through the tunnel. This is a chain operated conveyor tht has been designed to return the finished product to the operator.

INSTALLATION - BASIC SET UP

IMPORTANT

Read this manual carefully, and make it available to everyone connected with the supervision, maintenance, or production of this machine. Additional copies are available at your request - call 888-212-7715. Be very careful when operating, adjusting or servicing this equipment. If in doubt, stop and obtain qualified help before proceeding.

INSTALLATION OF ET1610 SHRINK TUNNEL

Place the tunnel in the desired position with the required electrical power source available, (see power requirements for each model). Make sure electric wiring is adequate to guard against low voltage. If the voltage is too low, the equipment will not perform.

Finding the proper location is a most important function of the initial set up. One must take several factors into consideration:

- 1). Adequate power source
- 2). Relationship to source of product
- 3). Convenience of operator
- 4). Avoid drafty area as heat may be unintentionally drawn from the tunnel and reduce its efficiency.

An electrician should install a plug on the end of the main power cord.

If there is any doubt, get qualified assistance to do your initial installation. Do not take chances!

Do not attempt to install, adjust, or operate this machine without first reading the contents of this manual. Although the design of this equipment incorporates safeguards to protect operating and maintenance personnel, care should be used in operating, adjusting and servicing.

SEQUENCE OF OPERATION

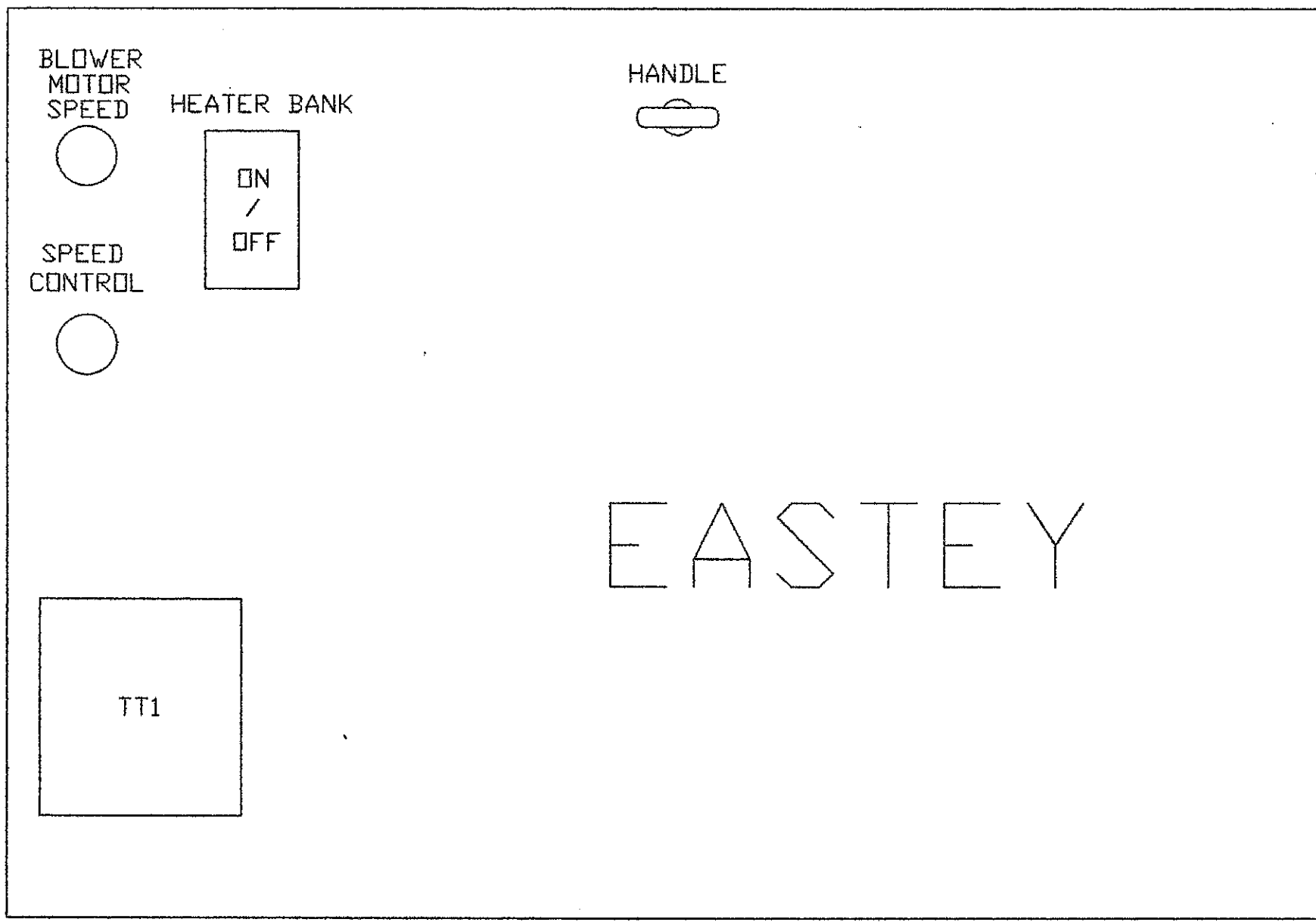
- A. Turn the tunnel on by switching the main disconnect switch to on, (temperature will be displayed on temperature control at this time).
- B. Turn heater bank switch to on position, (this switch also starts all motors).
- C. Set the conveyor speed control & blower motor speed to about mid-range until the exact desired conveyor speed is determined later, (based on package size).
- D. Set the temperature controller at the temp you believe will shrink your product. This temperature may need to be adjusted higher or lower until you have achieved the shrink you're happy with. As long as you are running the same product this temperature should not have to be adjusted again.
- E. **CAUTION:** When shutting down the tunnel, be sure to shut it off by means of the heater bank switch. The tunnel will automatically shut off at about 130 degrees, (temperature will be displayed on temperature controller at this time). Turn off main power switch.

Loading and running product

A. Product should be assembled with the bands put around product, at a work station by the tunnel. With conveyor running put assembled parts onto pegs on the conveyor. You may have product on everyother peg -depending on speed of conveyor.

B. When finished product comes out of tunnel, pull the full assembly off the peg and remove the product off to the side. Do not assembly or disassemble on the conveyor.

LOCATION OF CONTROLS ON FT1610 TUNNEL END PANEL



16

EASTEY

TT1

MAINTENANCE

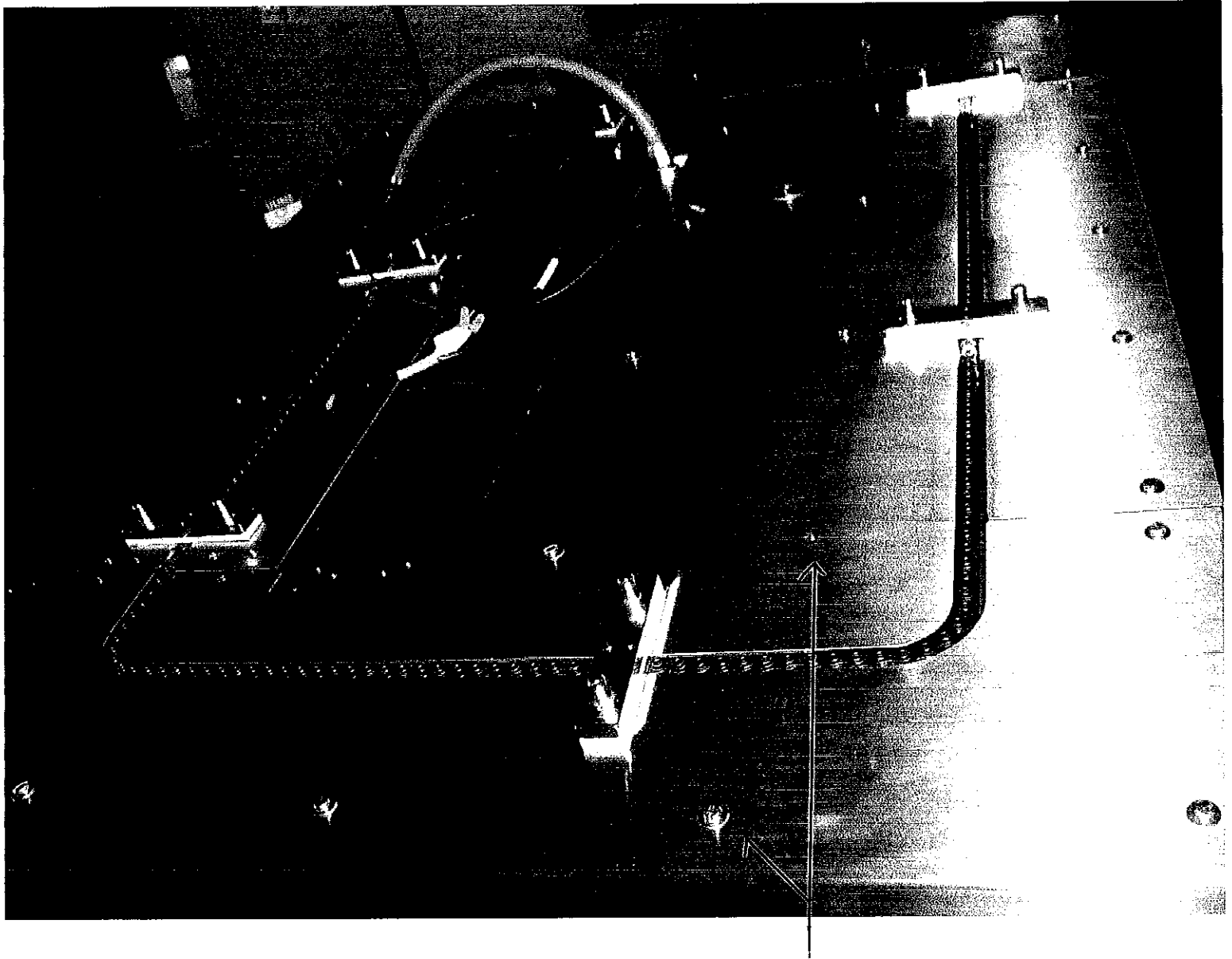
To aid in maintaining the high reliability to these shrink tunnels, the following maintenance should be provided.

Disconnect electrical before making any repairs. If unsure of anything, contact a qualified service man.

CAUTION: When replacing motors, if tunnel is below 130 degrees, heater bank switch may have to be turned on to apply power to motors.

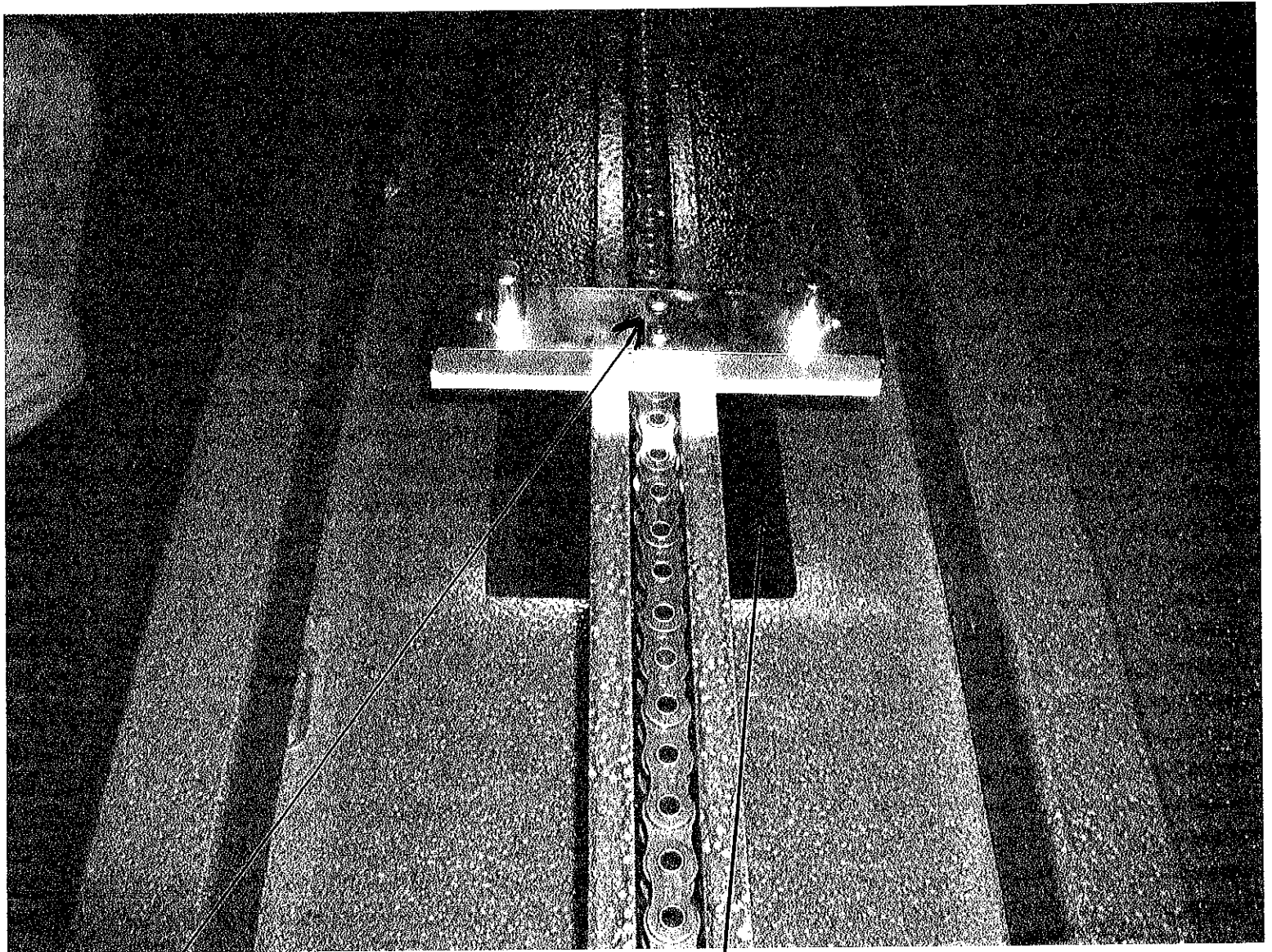
- A. The conveyor chain should be lubricated once every 60 hours with a high temp oil. The lubricant should be applied with a brush, with the conveyor running slowly.
- B. Replacement of idler sprockets and bearings.
1. Turn power to machine off.
 2. Remove stainless steel guarding, see photo page 19. Be careful not to bend these parts.
 3. Disconnect master link clips off drive chain. and remove chain from table. Inspect for wear. Note; If master link is going downwards, there is a access hole under the conveyor front side. See photo page 20.
 4. Take a measurement from table top to top of sprocket before removal of any sprockets.
 5. On exit end of the shrink tunnel loosen the idler bracket bolts on each end of idler bracket. See photo pages 21 & 22. Note: When retightening chains, do not over tighten. the tooling with Teflon wear pads help support the chain, so when tightening chain just bring chain up flat or parallel to guide rails. Retighten idler bracket, pull chain over by head, to make sure it's not jammed.
- C. Drive shaft, bearings, or sprockets replacement: In section "B" follow steps 1 - 5 before removal.
1. Remove motor guard.
 2. Loosen bolts on drive motor and remove chain. See photo page 23.
 3. Loosen set screws on bearings, there are 2.
 4. Loosen drive sprocket, there are 2 screws holding it in place.
 5. Push shaft upwards and remove from top, replace worn parts.
 6. Reassemble: Make sure drive shaft sprocket and motor sprockets are running parallel to motor mount before retightening any parts.
- D. Conveyor motor replacement.
1. Remove motor guard.
 2. Disconnect wires to motor.
 3. Loosen motor bolts.
 4. Disconnect chain.
 5. Remove sprocket.
 6. Remove motor mount bolts and replace motor.
 7. Reverse steps to reinstall motor.
- See photo page 23.

- E. Heater bank replacement. Shut off power to machine. Remove side panel cover. Pull insulation out. With a 3/8" nut driver remove wires on the heater bank. Set wires off to side, then remove heater bank. Remove heater bank terminal box from the heater bank. Place the heater bank terminal box on the new heater bank. Reassemble in the same manner as you disassembled.
- F. Temperature controller replacement. Shut off power to machine. Open main panel door on infeed end of machine. Disconnect wires 33,12, 8 & 9 and thermocouple wires from temp controller. Loosen hold down screws on side of controller itself, pull controller out of the front of the panel. Replace with new one. Refer to electrical schematic for placement of wires 33,12, 8 & 9 and thermocouple wires. CAUTION: Do not exceed 500 degrees.
- G. Blower motor replacement. Shut of power to machine. Remove top lid on hood of tunnel, disconnect wires on the blower motor, remove cooling fan motor (4 1/4-20 bolts). Next remove 4 1/4-20 bolts at motor mount base. Then remove insulation from top of hot air return box and remove top plate, this exposes the bottom two sheet metal screws holding blower housing in place. Once blower housing is on a bench, pull off inlet ring by removing 4 sheet metal screws. Next, there are 2 set screws holding the blower wheel in place, loosen them and remove blower wheel, (if force if necessary, apply it between the motor and the blower wheel hub). Now remove the motor mount bolts and remove/replace motor. Rotation on blower motor needs to be clockwise looking from the electrical inlet and the hub side. Reassemble new motor and blower wheel housing. (cont)
- NOTE:** this housing should be tested outside the tunnel to assure that it works. Reassemble in the same manner disassembled.
- H. Blower wheel replacement. Shut off power to machine and refer to "I" in this section.
- I. Replacing teflon guides on tool holders and drive chain lugs. See photos on pages 20.
1. Line drive lug up over top of the access opening under conveyor. Turn off power and remove lug. The wear pads are 1/4" thick if pads are worn down to mounting screws, replace immediately and reinstall in same holes.
 2. Turn power back on and move to next lug. Turn power off again and repeat step #1 again until done.
- J. Intake screen cleaning and replacement. Shut off power to machine intake screen located on drive end of machine inside the roof of heating chamber. This screen should be checked for debris. To remove intake screen remove 4 sheet metal screws and pull out screen, clean thoroughly, reinstall or replace and reassemble in the same manner you disassembled. If unsure of anything, contact a qualified service technician. Double check all of your work before starting the machine.



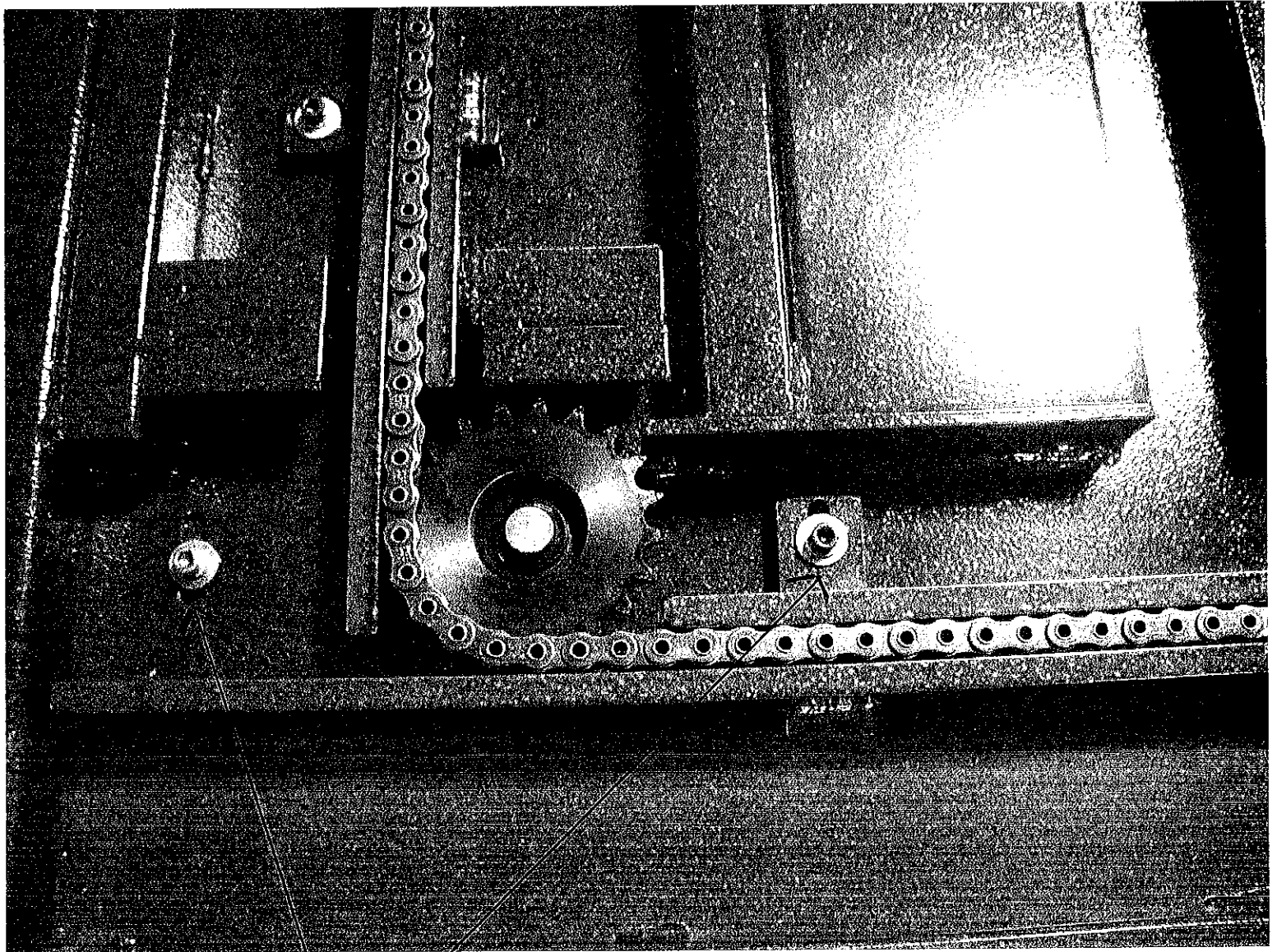
All mounting bolts for stainless steel guarding are located on top and are 1/4" -20 thread. Tapper head screws are 10 -32 threads.

Note tooling varies from tunnel to tunnel.

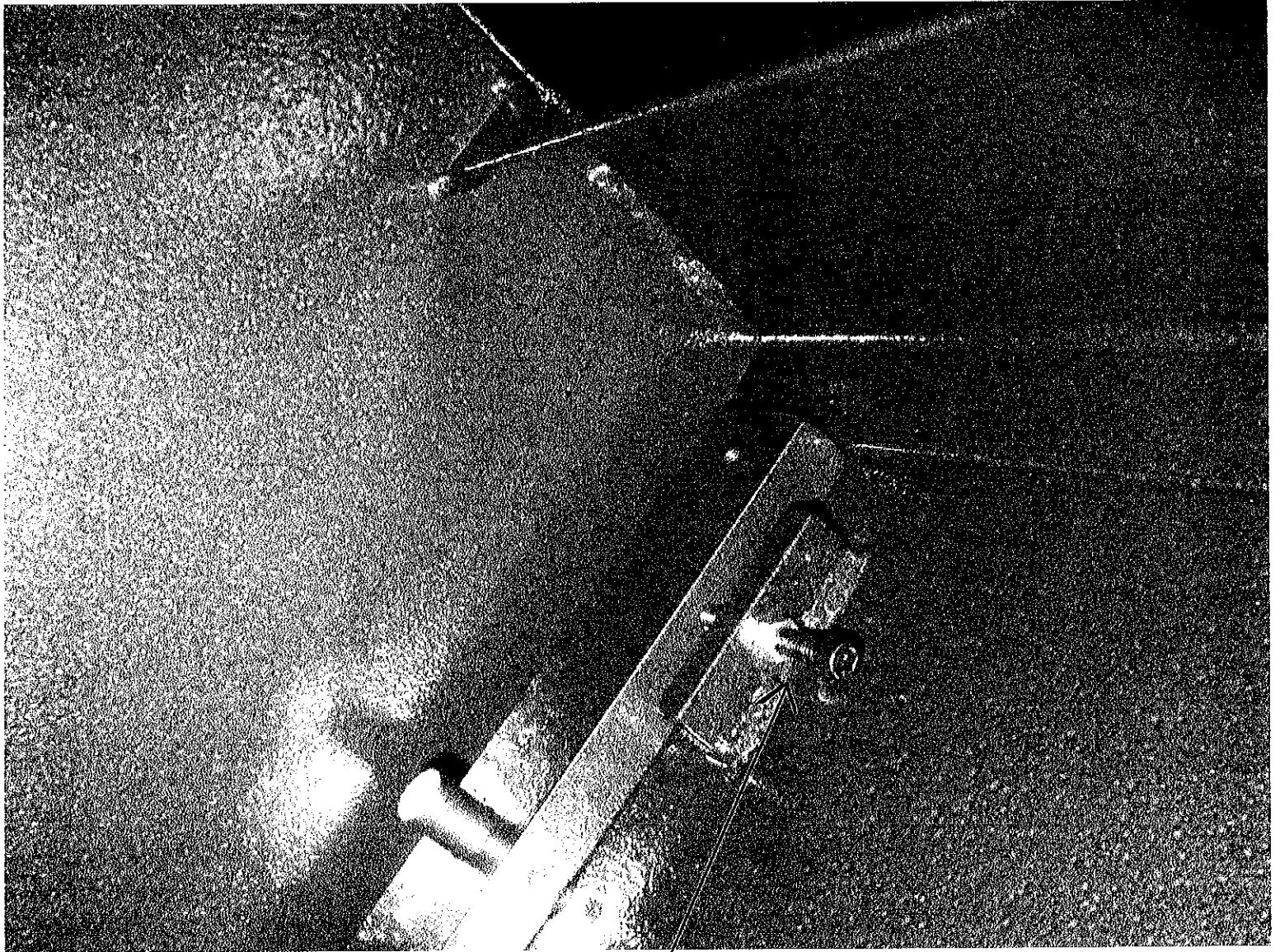


Access hole conveyor

- A. These 10-32 screws hold the lug to the chain, there is a 10-32 lock nut on the bottom. Make sure power is turned off before removal of lugs.
- B. Master link must be located over this hole before removal of link.
- C. Note tooling varies from tunnel to tunnel.



There are 4 bolts on top of machine, 2 on each side, just loosen them up, do not remove them. This allows for movement of idler bracket. When retightening make sure chain is not binding on wear rails.



These 2 adjusters are on each side of machine, and are used to tighten conveyor chain. Note: Do not overtighten the lugs, they help to support the chain. Pull chain over by hand to make sure chains are not binding.

Drive motor adjusting bolts.



TROUBLE SHOOTING CHART

The following trouble shooting chart is provided to aid in determining the source of any operation difficulties which may develop. In performing the tests and checks which follow, carefully inspect for any loose components, broken or loose wires, poor electrical connections, etc. while testing the various switches, controls, relays, transformers and so on. For checking electrical problems, use a voltage meter.

NOTE: While trouble shooting use caution to avoid danger of electrical shock. When power is not required for checking for the presence of value of voltages used, always have it disconnected.

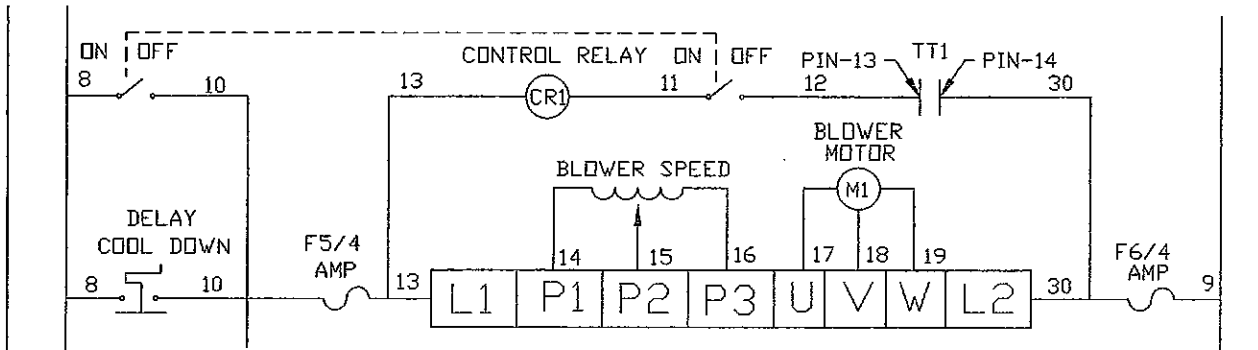
Refer to electrical components placement sheet and electrical schematic diagrams to assist you in your trouble shooting efforts. Disconnect electrical before making any repairs. Refer to electrical board layout and electrical schematic for location of electrical components.

Trouble Shooting

No Heat

1. When referring to "Turn Power On", the disconnect and the heater bank switch must be in the "ON" position.
2. Turn only the disconnect to the "ON" position (not the heater bank switch). The temperature controller display should come on. If the display comes on this means F1 and F2 (50 amps) and F3 and F4 (10 amps) fuses are good.
3. Turn power on. The blower motor and conveyor should run.
4. If blower motor does not run refer to "No Air Flow" in this section.
5. If you just put in a new blower motor, refer to item #8 in " No Air Flow" section to insure proper wiring of blower motor.
6. On your temperature controller, is the red "Out" light on? (This is an indicator light telling you the temperature controller is calling for heat.)
7. Is your S.V. display (set point) higher then your P.V. display (chamber temperature).
8. Chances are your problem is not the thermocouple. If the thermocouple wires break the temperature controller display would read open. If the thermocouple wires short out together. You would have runaway heat.
9. Checking to see if your heater bank is bad.
 - A. Turn power on. Check for 220 volts A.C. at CR1 contactor. Put one meter lead on L1, the other lead on L2 (wires # 1 & 2) voltage should be present if other tunnel components are running.
 - B. Check for 220 volts A.C. at CR1 contactor. Put one meter lead on T1 the other lead on T2. If voltage is present refer to maintenance section for disassembly and assembly of heater bank, to inspect heater lugs and heater bank. If voltage is not present on CR1 contactor (T1 & T2) read on.

10. Checking to see if the temperature controller or the CR2 contactor is bad.



Above is an EASTEY 220 volt A.C. heat control circuitry for this tunnel.

A. Turn only the disconnect to the "On" position.

(The temperature controller displays and the out light should come on.)

B. Turn power "On" (disconnect and heater bank switch). Normally you would hear the contactor contacts click (motors and conveyors should be running).

C. Looking for 220 volts A.C. put one meter lead on wire #13 of the contactor coil. The other meter lead on wire #11 of the contactor coil. If you have 220 volts A.C. replace contactor.

D. If you do NOT have 220 volts A.C. keep your meter lead on wire #13 and move your other meter lead from wire #11 on the contactor to wire #11 on the heater bank switch. You should not have voltage, if you have 220 volts A.C. turn power off and check for a broken #11 wire or loose connections.

E. If you do not have voltage. With power "On", keeping your one meter lead on wire #13 of CR1 contactor. Move your other meter lead from wire #11 to wire #12 on the heater bank switch. If you have 220 volts A.C. replace heater bank switch.

F. If you do not have voltage, with power "On". Keeping your one meter lead on wire #13 of CR1 contactor coil move your other meter lead from wire #12 on the heater bank switch to wire #12 (pin-13) on the temperature controller. You should not have voltage. If you do have

voltage, turn power off and check for a broken #13 wire or loose connections.

G. If you do not have voltage, with power "On", keeping your one meter lead on wire #13 of CR2 contactor coil move your other meter lead from wire #12 (pin-13) to wire #30 (pin-14) on the temperature controller. If you have 220 volts A.C. and the display and the out lights are on. Replace the temperature controller.

H. If you not have voltage, with power "On", keeping your one meter lead on wire #13 of CR1 contact coil, move your other meter lead from wire #30 on the temperature controller to wire #30 on F6 fuse (6 amp). If you have 220 volts a turn power off, check for a broken wire #30 or loose connections.

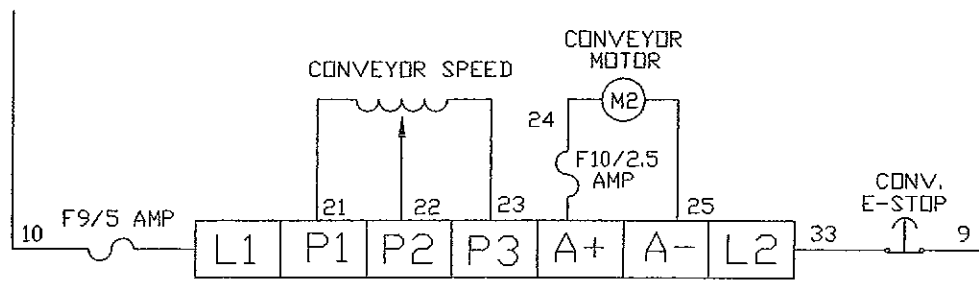
I. If you do NOT have voltage, with power "On", keeping your one lead on wire #30 of F6 fuse (4 amp). Move your other lead from wire #13 of CR2 contactor coil to wire #13 on the F5 fuse (4 amp). You should have 220 volts A.C. Check for a broken #13 wire or loose connections.

J. If you do not have 220 volts AC recheck fuses F5 & F6 (4 amp).

Conveyor Not Running

1. When referring to "Turn Power On", the power and the heater bank switch must be in the on position.
2. Turn power off, check for stuck product.
3. Have you oiled your changes lately?
4. Check set screws on drive motor and drive shaft. Make sure they are tight.
5. Turn on the disconnect only (Not the heater bank on/off switch) to the "On" position. The temperature controller display should come on. This means F1 & F2 (50 amp) F3 & F4 (10 amp) fuse are good. If the display does not come on check F1, F2, F3, & F4 fuses. (Through out these procedures if you have a bad fuse. We will ask you to replace the fuse.) Turn the power "On" to see if the fuse blows again. Fuses do get old and weak, and fuses can blow under normal conditions.
6. Turn power "On". Make sure blower motor is running. If is not, check your heater bank on/off switch.
7. Turn power off. On the D.C. board, there is a ceramic plug in horsepower resister, unplug resister. You have a .1 ohm resister. with the resistance of your meter leads you should read about .4 ohms. Your resister should read about .7 ohms. If you do not have a meter, pull resister out and put a jumper wire between terminals. Turn power "On", if conveyor runs replace resister. (Caution: Do not run the machine this way. This procedure is for testing only!)
8. Caution: Do not over fuse conveyor.
9. Is the conveyor E-stop pulled out?
10. Turn power "On". Look for a red light on the D.C. board, under normal operation the light is NOT on. (If light is ON you may go to section 10 below.)
 - A. Turn power off; check the input fuse (5 amp). If the fuse is bad, replace it. Turn power "On", if fuse blows and you have 220 volts A.C. on wires #10 & #33 going to the board, turn power off and replace board. If there is not voltage on wires #10 & #33 check E-stop for replacement.

- B. Turn power off; check the output fuses 2.5 amp. If the fuse is bad, replace fuse. Turn power on, if fuse blows again, turn power off and replace fuse. Disconnect wires #24 & #25 at motor, turn power "On", if fuse blows again look for a dead short between wires #24 & #25. With the fuses good you should have 90 volts DC Between wires #24 & #25. (With the speed control at 100%). If you do replace motor. (Hint: You could still have a bad motor with good fuses.) Motor windings could be open, standard motor (1/8 H.P.) with lead resistance should Ohm out at about 22 Ohms.
10. Turn power "On. Look for a red light on the D.C. board. If light is on. This means the motor is trying to pull more amps then the D.C. board will allow. Or your plug in horsepower resister is open (ref item 7 of this section).
- Turn power off; disconnect drive chain for conveyor motor.
 - Turn power "On". If red light comes on, turn power off and disconnect wires #24 & #25 at motor. Turn power on, the red light should not come on. Check for 90 volts D.C. on wires #24 & #25 (with speed control at 100%). If voltage is present replace motor.
 - Turn power "On". If red light does not come on and motor runs with drive chain disconnected, this does not necessarily mean your motor is good. It could be weak while pulling a load.
 - With Drive chain disconnected, pull conveyor over by hand in the direction of flow. The conveyor should pull freely with no sticking. If there is a sticky spots or conveyor does not pull over. Refer to maintenance section for adjustments, disassembly and assembly of conveyor to inspect idler drive bearings etc...



NO AIR FLOW

1. When referring to "turn power on". The disconnect and the heater bank switch must be in the ON position.
2. Turn only the disconnect to the ON position (NOT the heater bank switch). The temperature controller display should come on. If the display comes on this means F1 and F2 (50 amp) and F3 and F4 (10 amps) fuses are good.
3. Turn power ON. Conveyor should run. If your blower motor runs, check for a clogged intake screen inside the chamber of the hood.
4. If motor runs, refer to item #J in maintenance section to inspect blower wheel.
5. Blower motor does not run. Turn power OFF and check fuses F5 & F6 (4 amp). If fuses are bad replace and turn power ON. If fuses blow again. Replace A.C. inverter.
6. Turn power ON. If fuses were good, for the AC inverter there are 2 lights that come on? Under normal operation one light is a steady green on. The other light is a slow flashing green light. If the lights are a different color;
 - A. Turn power OFF and disconnect motor leads at the motor wires #14, #15, & #16.
 - B. Turn power ON and look if the lights go back to normal, if not consult your local service tech or EASTEY ENT. 800-835-9344.
7. With power on and normal lights on the A.C. inverter check for 220 volts AC on motor leads. At the motor, with blower motor speed at 100%, put one lead on wire #14 and one lead on wire #15. Then take lead from wire #14 to wire #16, then take lead from wire #15 to wire #14. If you have voltage on all these points refer to item "I" in maintenance section for blower motor replacement.
8. This is a 3 phase motor. If you put a new motor in, wire it exactly the same as the old motor.

Example 220 volts (low voltage),

 - #4, #5, & #6 leads tie together
 - #3, & #9, leads tie together with wire #14
 - #2, & #8, leads tie together with wire #15
 - #1, & #7 leads tie together with wire #16

IMPORTANT: The phase (rotation) of motor needs to be checked. Looking from the back of the motor, the rotation is clockwise. Failure to check phase (rotation) of motor could result in damaged components and equipment.

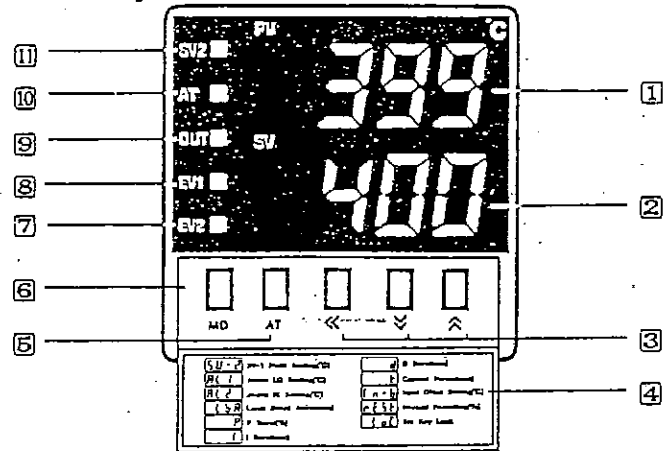
INSTALLATION INSTRUCTIONS TZ4 TEMPERATURE CONTROLLERS

TENOR CONTROLS COMPANY

17020 West Rogers Drive, New Berlin, WI 53151

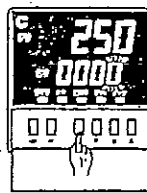
Phone: 800/468-4494

FAX: 414/782-0005



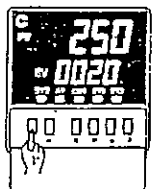
- ① PV: Processing value indicator (Red color)
- ② SV: Setting value indicator (Green color)
- ③ << : Key shifting the display.
↑ ↓ : Up/Down key.
- ④ Information for operation mode.
- ⑤ AT Key: The mode key to execute Auto tuning function.
- ⑥ MD Key: The mode key to change the items to be set, such as alarm value, etc.
- ⑦ EV2: EVENT2 Output signal lamp.
- ⑧ EV1: EVENT1 Output signal lamp.
- ⑨ OUT: Output signal lamp.
- ⑩ AT: Flashing signal lamp while Auto tuning is being executed.
- ⑪ SV2: Signal lamp for SV2 setting value.

TO CHANGE SET VALUE



- ① In case of changing the set value at status of RUN, push "<<" key.
- ② Push "<<" or ">>" key, and then the digit will be shifted step by step.

- ③ Push "↑" or "↓" at the flashing digit, and then change the set value.
- ④ Push MD key after setting the set value to be changed and then flashing of the digit stops and the re-set value is applied at status of RUN.



Packaging - Processing

Bid on Equipment

1-847-683-7720

www.bid-on-equipment.com

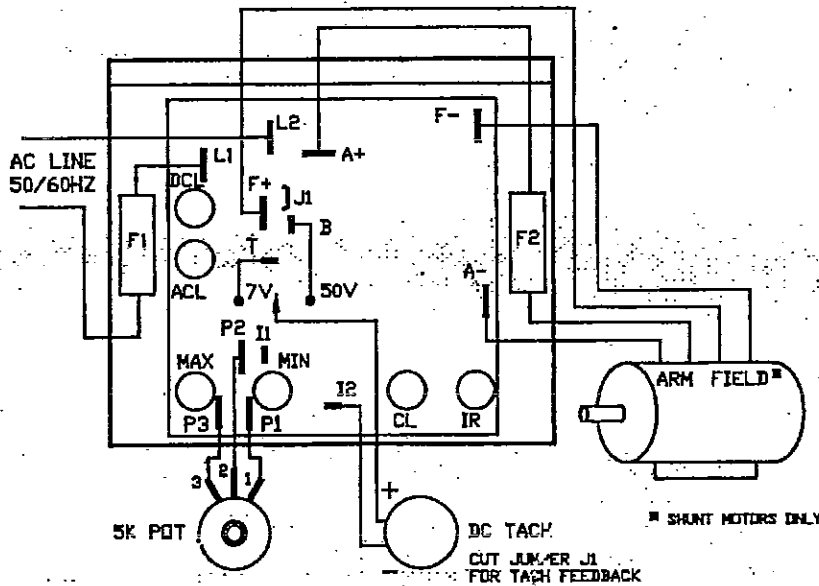
TABLE 5. MINIMUM SUPPLY WIRE SIZE REQUIREMENTS

MAX. MOTOR AMPS (DC AMPS)	MAX. MOTOR HP 90V	MAX. MOTOR HP 180V	MINIMUM WIRE SIZE (AWG) Cu Only	
			MAX. 50 FOOT RUN	MAX. 100 FOOT RUN
6.0	1/2	1	16	14
12.0	1	2	14	12*
16.0	1 1/2	3	12	12

*Maximum recommended wire size.

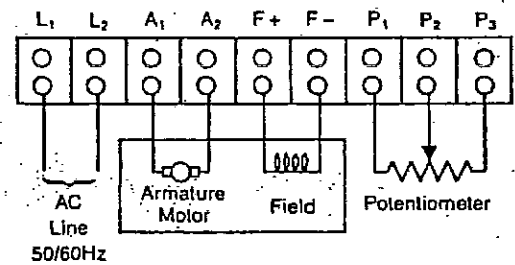
CONNECTION DIAGRAMS For 110 Volts

Fig. 3a. Basic KBMM Connection Diagram

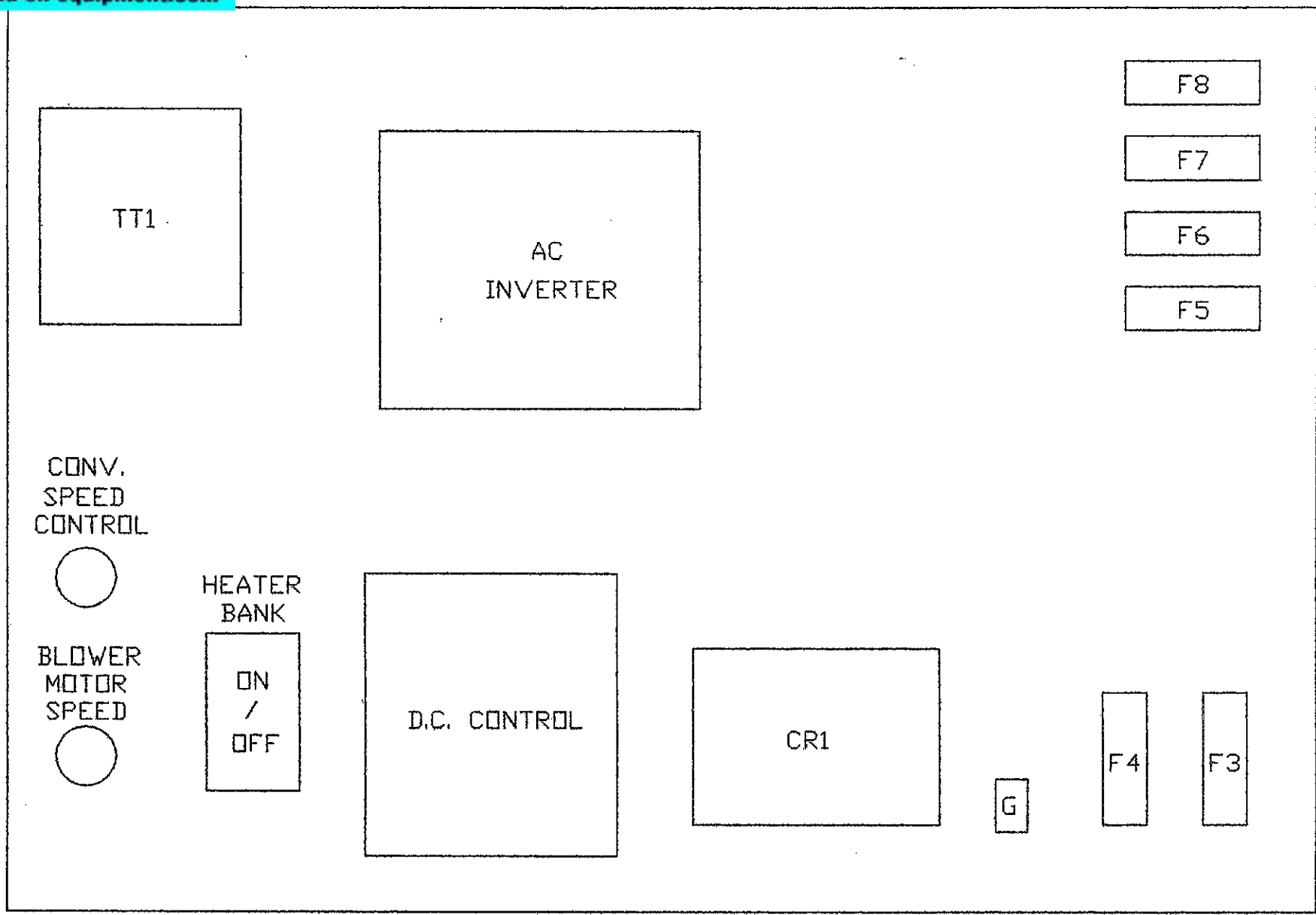


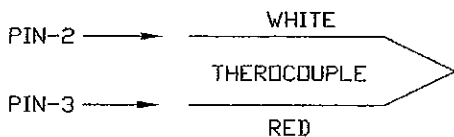
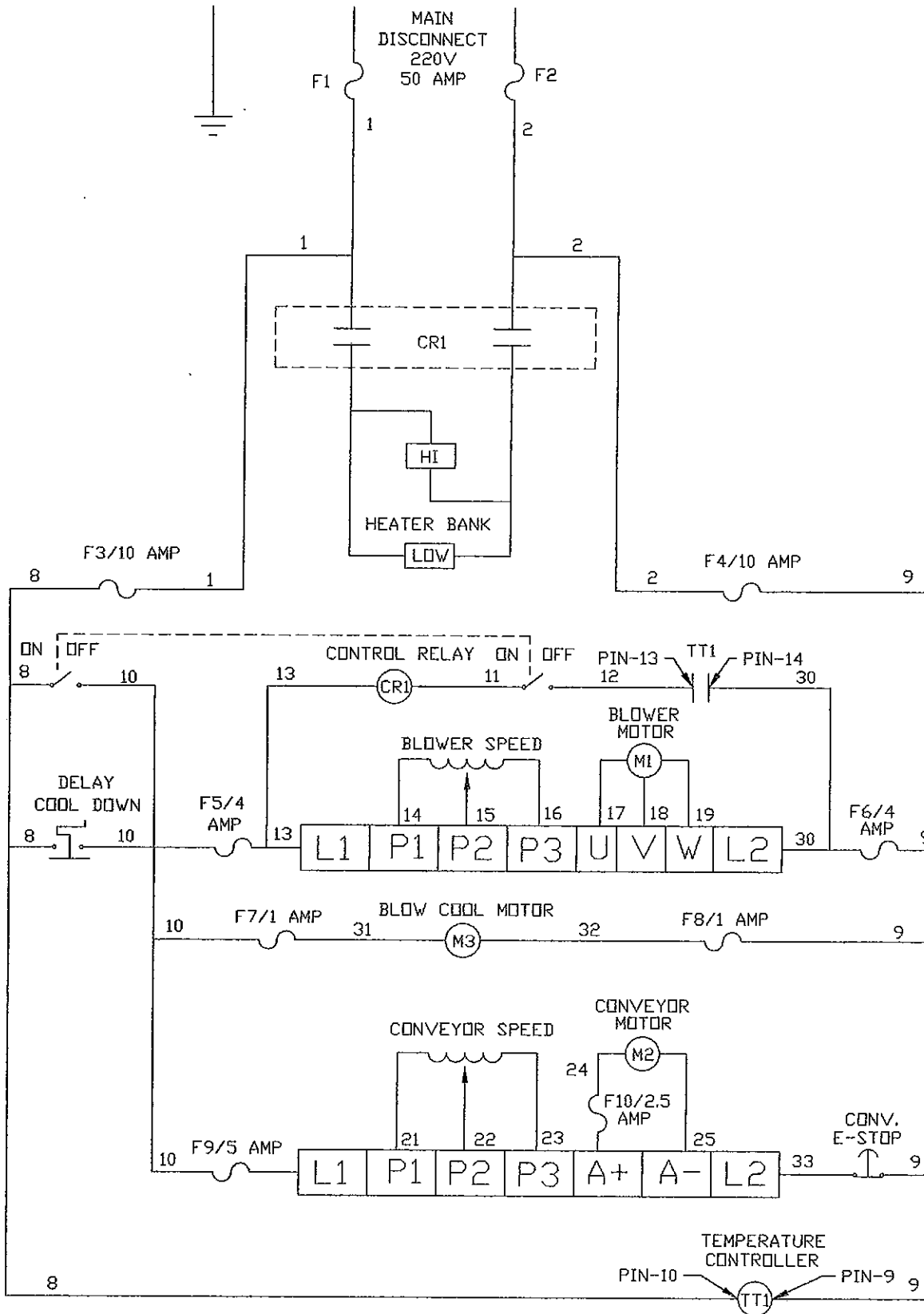
For 220 Volts Wire F+ To L2

Fig. 3b. KBMM w/Barrier Terminal Kit



* For More Information Refer To Manual





EASTEY Enterprises		
Title WIRING DIAGRAM		
Tolerance	Scale NONE	Material NONE
Drafter Tray,S	Part Numbers SB000488	
CHK By	Date	Blank size

ET1610-36CC

PART #	DESCRIPTION	QUANTITY
EAST0315	D.C. CONTROL BOARD	1
ETC00001	TEMPERATURE CONTROLLER	1
ETC00021	TEMPERATURE PROBE	1
ETC00125	2 POLE FUSE BLOCK	1
EAST0031	CONTACTOR 2 POLE 40 AMP	1
ET000301	10 AMP FUSE	2
ET000185	2.5 AMP FUSE	1
ET000186	5 AMP FUSE	3
ETC00204	GROUND LUG	1
ETC00210	T-HANDLE KNOB	1
ETC00305	COOL DOWN SWITCH	1
EE000500	BLOWER MOTOR 1/2 H.P.	1
ETC00185	CONVEYOR MOTOR	1
ETL00235	FUSE 50 AMP	2
EAST0210	1 AMP CERAMIC FUSE	2
EAST0077	SMALL FUSE HOLDERS	4
ETC00229	DELAY COOL DOWN SWITCH	1
ET000308	10 K.W. HEATER BANK	1
ETC00304	BLOW COOL MOTOR	1

Drive chain - 19" long

Easteys ET1610-36CC Tunnel Replacement Parts List

EASTEY ENTERPRISES, INC

21480 147th Ave. No.

Rogers, MN 55374

Phone: (763) 428-4846

Fax: (763) 428-8361

Toll Free: (800) 835-9344

<i>Our Item #</i>	<i>Item Name (Prices subject to change without notice)</i>
ESC00626	BEARING, 3/4" FLANGE
SB000501	BEARING, CONVEYOR IDLER
ET000300	BLOWER WHEEL (USED ON ET1610-36 & ET1610-48)
ETC00109	CHAIN - #40 MASTER LINK
ETC00096	CHAIN - #40 RIVETED - MOTOR TO DRIVE SHAFT
EB000502	CHAIN - #50 HOLLOW PIN
EB000503	CHAIN - #50 HOLLOW PIN MASTER LINK
SB000007	CHAIN GUIDE, FRONT & BACK
SB000006	CHAIN GUIDE, SIDE
EAST0031	CONTACTOR - 2 POLE, 40 AMP, 220 VOLT
ETC00313	CURTAIN MATERIAL, WHITE
ET000134	DISCONNECT BOX - 60 AMP, 2 POLE (COMBO UNIT)
EAST0210	FUSE - 1 AMP, 250 VOLT
ET000301	FUSE - 10 AMP, 250 VOLT
ET000185	FUSE - 2.5 AMP, 250 VOLT
ET000204	FUSE - 4 AMP, 240V, GLASS
ETL00235	FUSE - 50 AMP, 250 VOLT, (ET1610-48 & LARGE TUNNEL)
ETC00125	FUSE BLOCK - 30 AMP, 2 POLE, 250 VOLT
SB000005	GUARD, CONVEYOR MOTOR
SB000112	GUARD, SS CONVEYOR - FRONT
SB000111	GUARD, SS CONVEYOR - INNER
SB000110L	GUARD, SS CONVEYOR - LEFT SIDE
SB000110R	GUARD, SS CONVEYOR - RIGHT SIDE
SB000113	GUARD, TUNNEL - INNER
ET000309	HEATER BANK - 10 KW, 208 VOLT, 1 PHASE (ET1610-48)
ET000308	HEATER BANK - 10 KW, 230 VOLT, 1 PHASE (ET1610-48)
ETC00237	HOLE PLUG BUTTONS, 3/8" - ZINC
ETC00117	IDLER ADJUSTMENT BOLT
ECOS0054	KNOB, DWELL SPEED POT
ETC00210	KNOB, ELECTRICAL PANEL
ETC00203	LUGS, GROUND
ETC00303	LUGS, HI TEMP
SB000001	MASTER GUIDE PRODUCT CARRIER
SB000002	MOTOR MOUNT, CONVEYOR
ETC00185	MOTOR, 1/8 HP CONVEYOR DRIVE - LIVE ROLLER/SS MESH BELT
ETC00304	MOTOR, COOLING - FOR BLOWER
65000085AP	PAINT, BLACK EPOXY PART A - PINT
65000085BP	PAINT, BLACK EPOXY PART B - PINT
ESC00601	PALM BUTTON HEAD CAP, 60MM - RED
ESC00577	PALM BUTTON LEGEND PLATE, RED - STOP
ESC00600	PALM BUTTON OPERATOR - RESTART
ESC00604	PALM BUTTON SWITCH - NORMALLY CLOSED/STOP
65000056	PRIZM - CHAIN LUBRICANT

<i>Our Item #</i>	<i>Item Name (Prices subject to change without notice)</i>
ET000081	RESISTOR, DC MOTOR CONTROL - .10 OHM
SB000009	SHAFT, DRIVE
SB000008	SHAFT, IDLER
EAST0315	SPEED CONTROL - W/O DIAL KIT - DC CONTROL
BM000512	SPROCKET, #60 DRIVE
BM000513	SPROCKET, #60 IDLER
SB000003	SPROCKET, ADJUSTMENT BAR
SB000004	SPROCKET, IDLER BLANK
ETC00229	SWITCH, DELAY COOL DOWN
ETC00309	SWITCH, ON/OFF (COOLING FAN)
ETC00305	SWITCH, ON/OFF (HEATER BANK)
ET820000	SWITCH, PUSH/PULL
SB000301	TEFLON SLIDE PLATE, MASTER GUIDE
ETC00011	TEMPERATURE CONTROLLER - TENOR
ETC00097	TEMPERATURE CONTROLLER PROBE HOLDER
ETC00021	TEMPERATURE CONTROLLER THERMOCOUPLE "PROBE", TYPE J
ETC00302	WIRE, HIGH TEMP
ETC00232	WIRE, HIGH TEMP - 16 GA



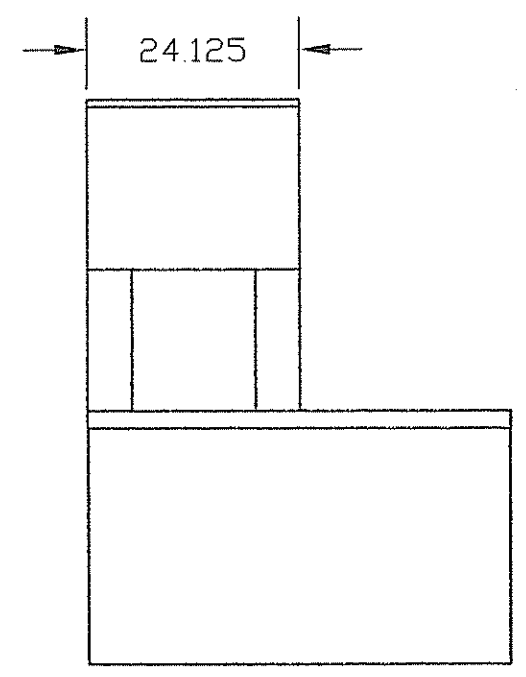
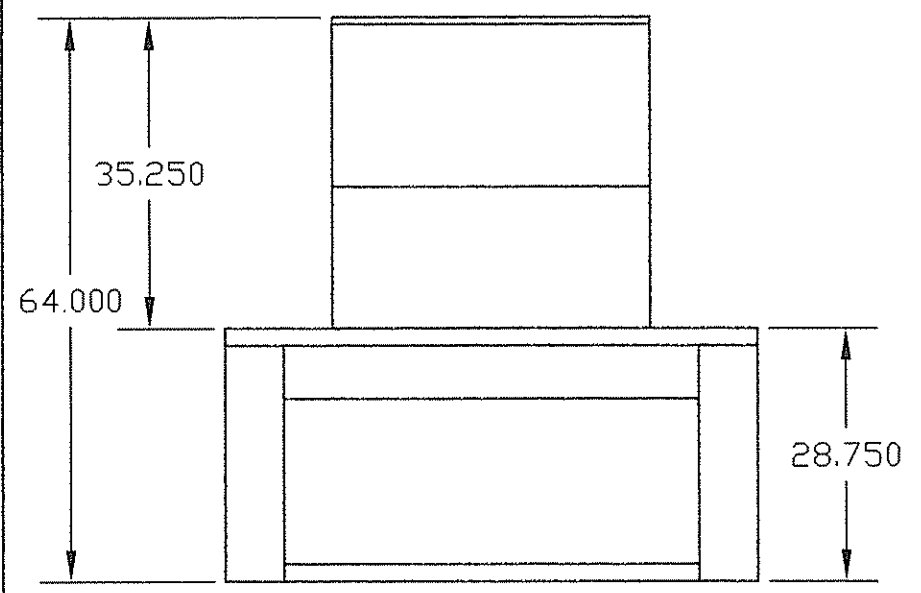
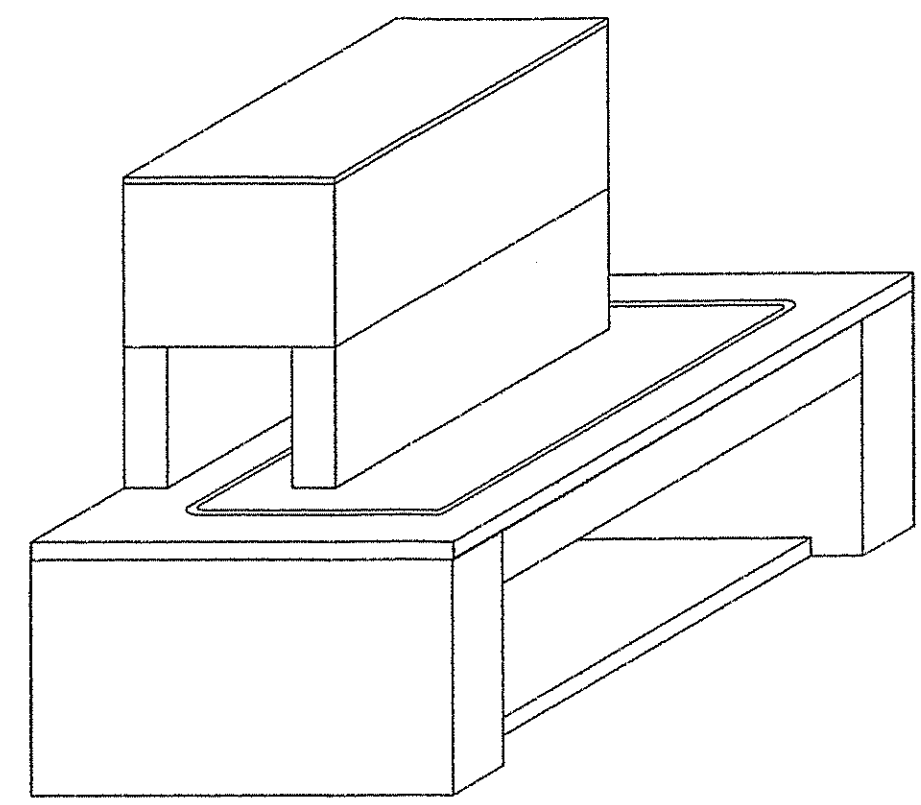
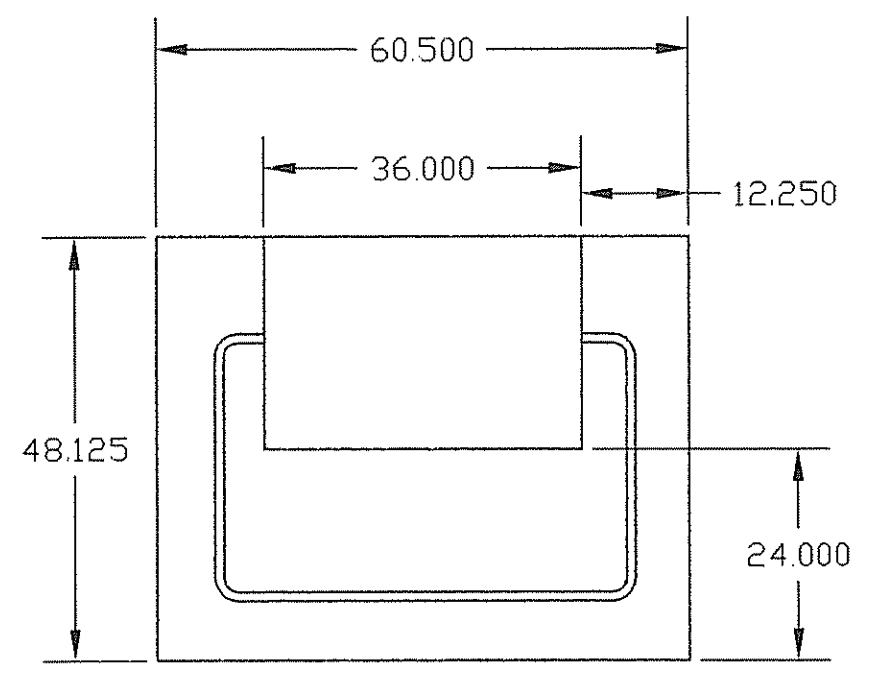
Shrink Packaging Equipment

PREVENTATIVE MAINTENANCE ALL TUNNELS

Once a month:

1. Check and clean the intake screens.
2. On live roller Tunnels clean and lubricate the conveyor chains, check the chains for the correct tension, adjust as needed.
3. Check the condition of the silicone covering on the rollers, repair/replace as necessary.
4. On mesh belt conveyors check the S.S. mesh for material stuck in or on the belt, check and adjust the belt tension as needed.
5. Check and clean the motor to conveyor drive chain, adjust tension as needed.
6. Check for loose fasteners tighten as necessary.
7. Check the condition of the power cord for wear (if it's exposed to traffic).
8. Check that the tunnel is able to maintain the set temperature, if not refer to your owners manual for instruction.
9. Check that you are able to vary the conveyor speed, if not refer to your owners manual.
10. Check for overall wear on live roller guide rails, and starter rails, repair as needed.
11. On meshbelt conveyors check the condition of the teflon wear rails, replace as needed.
12. Check the condition of all warning and instruction labels, replace as necessary.

REV DESCRIPTION		REVISIONS		DATE	APPROVED



ALL DIMENSIONS ARE IN INCHES	EASTEY ENTERPRISES	Title CHOO CHOO 1610-36	
	Tolerance ±.010 (UNLESS SPECIFIED)	Scale 1:20	Material N/A
ALL TOLERANCES TO BE ±.01 UNLESS OTHERWISE SPECIFIED	Drafter TROY S.	Part Numbers CHOCHO1610-36	
FINISH - NONE	CHK By	Date 12-1-05	Part size 0.000 x 0.000