

OPERATION AND MAINTENANCE  
INSTRUCTIONS  
FOR  
WELDOTRON 7012/7112 SERIES  
SHRINK TUNNELS

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## CAUTION

THE SAFETY OF PERSONNEL INVOLVED IN THE OPERATION OF INDUSTRIAL EQUIPMENT CAN ONLY RESULT FROM A WELL-CONCEIVED AND RIGIDLY ENFORCED SAFETY PROGRAM DEVELOPED BY THE USER OF SUCH EQUIPMENT. WHILE WELL-DESIGNED EQUIPMENT INCLUDING PERSONNEL SAFETY FEATURES IS EXTREMELY IMPORTANT, OF EQUAL OR EVEN GREATER IMPORTANCE IS THE ROLE PLAYED BY USER MANAGEMENT INVOLVING PROPER INSTALLATION, GOOD MAINTENANCE PROCEDURES BY TRAINED PERSONNEL AND RIGIDLY ENFORCED SAFETY RULES FOLLOWING THE PRACTICES RECOMMENDED BY SUCH ORGANIZATIONS AS A.N.S.I. AND O.S.H.A.

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# 1 INTRODUCTION

## 1.1 DESCRIPTION OF MACHINE

The Weldotron 7112 Shrink Tunnel is a conveyorized heat-shrinking device employing electric heating combined with a recirculating air system, and a complete range of adjustments. The main components are the blowers, the heater bank, the shrink chamber, and the package conveyor. Teflon-fiberglass curtains cover the entrance and exit of the heat chamber to minimize heat loss as packages travel through the tunnel.

## 2 UNPACKING

Remove the Shrink Tunnel from its shipping crate and inspect for possible damage. **IF ANY DAMAGE IS NOTED, CONTACT CARRIER IMMEDIATELY. DO NOTHING FURTHER UNTIL CARRIER'S AGENT HAS MADE AN INSPECTION OF THE DAMAGE TO THE UNIT.** If no damage is present, check for the presence of the following items:

1. Hole Plugs, 3/8" Diameter (25 furnished), Part No. PG-0063.
2. Blower Motor fuses (F3 & F4) 10 amperes (2 furnished), Part No. FZ-1658.
3. Conveyor Motor fuse (F5) 1 ampere slo-blow (2 furnished), Part No. FZ-1216.
4. One-half pint can Thermolube, Part No. LU-0855.
5. Lubricant applicator brush.

**If any of these items are missing, contact the manufacturer immediately.**

### 3 SPECIFICATIONS

#### CONVEYOR

Continuously variable package speed adjustment by means of solid state speed control.

#### SHRINK TEMPERATURE RANGE

Continuously variable with thermostatic control up to 450 degrees Fahrenheit.

#### BLOWER

Equipped with 1/3 HP continuous-duty motor.

#### CONTROL

- a. Main power switch
- b. Conveyor Speed control
- c. Thermostatic heat control with indicating light
- d. Control of overall hot air velocity

#### SURFACE AREA REQUIRED

56 inches x 19 inches

#### POWER REQUIREMENTS

230 volts, 1 phase, 60 cycles, 34 amperes\*

#### HEATER BANK WATTAGE

7000 watts\*

- \* Special voltages, phases, frequencies, or heater bank wattages available on special order.

## 4 ORDERING INSTRUCTIONS

In order to avoid necessary delay in filling orders for parts, customers should follow the procedures recommended below:

- a. State the Machine Name, Model Number, Serial Number and F.W.O. number.
- b. List the Part Number and Part Name of required part exactly as shown on parts list.
- c. Specify the quantity desired.
- d. Specify when needed.
- e. Specify desired shipping method: Parcel Post, Truck, Air Express, etc.

### CAUTION

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.

## 5 INSTALLATION

Place the Shrink Tunnel in the desired location, with required electric power source available. Make sure the current-carrying capacity of the wiring is heavy enough to assure proper voltage to the tunnel. If the voltage is too low the power company can usually adjust it to the proper level, if the wiring capacity is adequate.

In choosing a location for the Shrink Tunnel, it is important to avoid a drafty area in the path of cooling or ventilation fans or air-conditioning ducts, as heat may be unintentionally drawn from the tunnel and reduce its efficiency.

- b. Shut off the in-house tunnel power-source switch, and throw the tunnel Main Circuit Breaker, (located at the top-left corner on the rear of the tunnel) to it's OFF position.
- c. Remove the four screws on the tunnel top and remove the top cover plate.
- d. Insert the in-house power supply cable-end through the tunnel cut-out and secure cable with the clamp provided. Wire the cable leads to the circuit breaker.
- e. Replace and secure the tunnel top cover plate. With the circuit breaker still in the OFF position, turn on the in-house power-source switch.
- f. On the rear of the tunnel, there are two power outlet sockets. Connect the conveyor drive motor's 4-prong power plug to the corresponding type polarized "twist lock" socket and turn the plug approximately a quarter-turn to lock the plug in place in the socket.
- g. Adjustable leveling pads are incorporated into the design of this model to permit desired alignment with the Sealer or an existing conveyor. The leveling pads (4) (located at the leg corners) allow a 4" change in the tunnel conveyor level.



## 6 OPERATION

Refer to Figure 6.1, at the rear of this section for location of controls and adjustments.

### 6.1 PRELIMINARY

- a. Throw the MAIN POWER switch to the ON position.
- b. Set the CONVEYOR SPEED CONTROL to about its mid-range setting on the scale until exact desired conveyor speed is determined later (based on package size and sealer speed). Note that the speed control scale is in arbitrary units, not in feet-per-minute.

### 6.2 OPERATION WITH ALL FILMS EXCEPT POLYETHYLENE

- a. Set the thermostat to the temperature recommended by the film manufacturer. Approximate settings for several popular films are as follows:

PVC: 300 degrees F

Polypropylene: 400 degrees F

D925: 300 degrees F

These approximate temperature settings are, of course, affected by the conveyor speed selected, the film gauge, and the package size and configuration. The temperature settings should be modified experimentally for best shrink results.

When the proper operating temperature has been reached, the indicator lamp on the thermostat will go out.

- b. Arrange the tunnel's heat-control hole plug patters as follows:
  1. At the bottom of the heat chamber, under the conveyor rollers, there is a group of holes extending further than the rest of the tunnel's heat control holes toward the package entrance end of the tunnel. Generally, these holes should remain unplugged to provide pre-shrink action and to pull the film seam downward, under the bottom of the package, for better appearance. However, these holes should be partially plugged, experimentally, if there is any film burning.

## 6.2 OPERATION WITH ALL FILMS EXCEPT POLYETHYLENE (cont'd)

2. Arrange the rest of the tunnel's hole plug pattern to suit the package configuration. The chamber's top, bottom, and side holes may be plugged to minimize shrinkage or unplugged to afford greater shrinkage. For low, flat packages with less than 1 inch side height, the side holes should be completely plugged. For somewhat higher packages, the holes may be only partially plugged to admit side air-flow as required. It is important to remember that, as top and bottom holes are plugged, air-flow is increased from the side air holes and vice versa.
3. Again, as a reminder, it is recommended that the setting of the thermostat be varied, in small increments, for best shrink results.

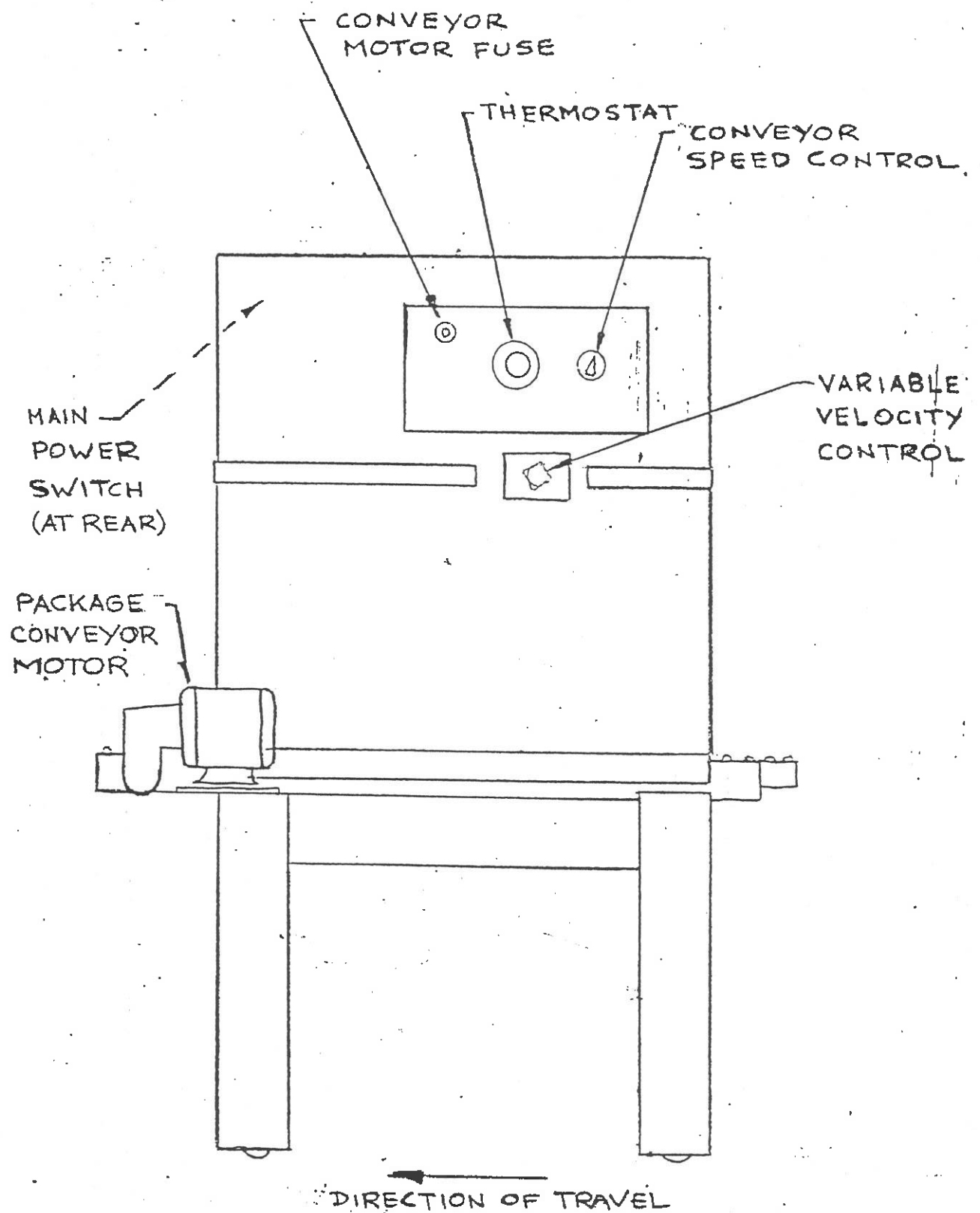


Figure 6.1 Location of Controls and Adjustments

LOCKOUT/TAGOUT PROCEDURE (OSHA Standard 1910.147)  
(THE CONTROL OF HAZARDOUS ENERGY)

## **WARNING**

This standard covers the servicing and maintenance of machines and equipment in which the unexpected energization or start up of the machines or equipment, or release of stored energy could cause injury to employees. This standard establishes minimum performance requirements for the control of such hazardous energy.

### APPLICATION

This standard applies to the control of all energy during servicing and/or maintenance of Weldotron machines and equipment.

### PURPOSE

This procedure establishes the minimum requirement for the lockout or tagout of energy isolating devices. It shall be used to ensure that the machine or equipment is isolated from all potentially hazardous energy and locked out or tagged out before employees perform any servicing or maintenance activities.

### RESPONSIBILITY

Appropriate employees (Maintenance employees and Machine set-up employees) must be instructed in the safety significance of the lockout (tagout) procedure. Each person transferred or newly hired into such positions shall be trained at time of hire or transfer.

### PREPARATION FOR LOCKOUT/TAGOUT

Identify all isolating devices to be certain which switches, valves, or other energy isolating devices apply to the equipment to be locked or tagged out.

1. Electrical boxes - Power off, remove fuses.
2. Air - disconnect air.
3. Placing a tag on machine, indicates the machine is disconnected from power and out of service.

## SEQUENCE OF LOCKOUT OR TAGOUT SYSTEM PROCEDURE

1. Notify all affected employees that a lockout or tagout system is going to be utilized and the reason therefore, i.e.: Foreman and operator.
2. Shut down equipment by normal stopping procedure.
3. Open switch, disconnect air, and unplug equipment isolating it from its energy source. Stored energy (such as that in springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, or water pressure, etc.) must be dissipated or restrained by methods such as repositioning, blocking, bleeding down, etc.
4. Lockout and/or tagout the energy isolating devices with assigned individual locks or tags. In the case of a disconnect switch tagout and/or lockout. In the case of a plug, unplug, and tagout.
5. After ensuring that no personnel are exposed and as a check on having disconnected the energy sources, operate the pushbutton or other normal operating controls to make certain the equipment will not operate.

### **CAUTION**

Return operating controls to "NEUTRAL" or "OFF" position after test.

6. The equipment is now in a lockout and /or tagout condition.

## RESTORING MACHINE OR EQUIPMENT TO NORMAL PRODUCTION OPERATIONS

1. After servicing and/or maintenance is complete and equipment is ready for normal use, check the area around the machine or equipment to ensure that no one is exposed.
2. After all tools have been removed from the machine or equipment, guards have been reinstalled and employees are in the clear, remove all lockout or tagout devices. Reinstall fuses and undo any other energy isolating devices to restore energy to the machine or equipment.

## PROCEDURE INVOLVING MORE THAN ONE PERSON

In the preceding steps, if more than one person is required to lockout or tagout equipment, each shall place his or her own personal lockout device or tagout device on the energy isolating device. Maintenance personnel will use multiple locks. When mechanic and electrician work together, each will tagout the plug and no one but the person installing the tag can remove it and equipment is not to be plugged in with any tagout on it.

## BASIC RULES FOR USING LOCKOUT OR TAGOUT SYSTEM PROCEDURE

All equipment must be locked out or tagged out to protect against accidental or inadvertent operation when such operation could cause injury to personnel. Do not attempt to operate any switch, valve, or other energy isolating device where it is locked or tagged out.

## 7 MAINTENANCE

To aid in maintaining the high reliability of these Shrink Tunnels, the following maintenance should be provided. Refer to Figure 7.1, at the rear of this section, for locations, as applicable.

### 7.1 LUBRICATION

#### 7.1.1 Main Blower Motor Bearings

The Main Blower motor bearings should be lubricated once every month by adding a small amount of high temperature machine oil to each of the two oil cups at each end of the motor. Access to the motor is gained by removing the tunnel's top cover plate by turning the 6 captive retaining screws a quarter-turn counterclockwise. See Figure 7.1.

#### 7.1.2 Package Conveyor Chain

The package conveyor chains of the roller conveyor tunnels should be lubricated once every 40 operating hours with Weldotron Thermolube LU-855. The lubricant should be applied liberally, with a brush, to either a hot or a cold chain with the conveyor running slowly. It is extremely important to use only Weldotron Thermolube LU-855, as this lubricant is especially formulated to withstand the high temperatures encountered within the shrink chamber.

#### 7.1.3 Conveyor Motor Output Shaft Bearings

The package conveyor drive motor's output shaft bearings are equipped with oiler caps. For normal duty, add oil every three months. Use 0.02 fluid ounces of Gulf Harmony 53 (or equivalent) in each cup.

#### 7.1.4 Points Not Requiring Lubrication

The following items are permanently lubricated and require no further lubrication:

- Cooling fan motor for cooling main blower motor.
- Package conveyor drive motor main bearings.
- Package conveyor shaft bearings.

## 7.2 CLEANING

### 7.2.1 Live Roller Conveyor

The silicone rubber covering on the live roller conveyor should be inspected regularly to assure that no scrap pieces of film are wrapped around the rollers to cause sticking or marring of packages. To clean, run the conveyor until the affected rollers are within the heated chamber. Allow the rollers and film residue to heat up to soften the film, then carefully advance the conveyor to stop the rollers outside the heat chamber for cleaning. Use a clean cloth and a detergent, such as Mr. Clean, and wipe the rollers thoroughly. Use a clean dry cloth to dry the rollers.

If the rollers have accumulated an excessive amount of film scrap which cannot be removed by the use of detergent, heat up the affected rollers within the heat chamber, as described above, then carefully advance the conveyor to stop the rollers outside the chamber for cleaning. Scrape the film residue from the rollers carefully, using a dull, blunt-edged tool to prevent damage to the roller covering.

# CAUTION

**DO NOT** use any sharp instrument, such as a razor blade or screwdriver blade, as nicking or splitting of the silicone rubber may result, requiring replacement of the roller covering.

## 7.3 PACKAGE CONVEYOR TENSION ADJUSTMENT

### 7.3.1 Roller Adjustment

The adjustment of package conveyor chain tension should be checked occasionally to insure that it is not excessive as this would cause unnecessary wear of the sprockets and the idler shafts upon which the sprockets revolve.

To check or adjust tension, shut off power to the tunnel. Lift both conveyor chains with the fingers and check the tension. It should allow lifting of the chains approximately one inch at a point about 6 inches from the sprockets at either end of the machine. Both chains should have approximately the same tension. If it is necessary to adjust the tension, refer to Figure 7.2. Loosen all 4 bolts "A". Extend or retract the extension frame to achieve proper tension of both conveyor chains. Tighten all 4 bolts to retain proper tension.

## 7.4 PACKAGE CONVEYOR REPLACEMENT

### 7.4.1 Roller Covering Replacement

Under conditions of heavy, continuous use, the silicone rubber covering of the conveyor rollers may eventually require replacement. To replace this covering proceed as follows:

- a. Remove the pal-nut retainers from the front end (end nearest the control panel side of the tunnel) of each conveyor chain spacer rod. Remove the spacer rods and discard the pal-nuts. With heat off, run conveyor, as required, for access to the rods. Spread the conveyor chains apart and remove the conveyor rollers.
- b. Remove the old roller-covering tubing from each roller and discard. If necessary, carefully slit tubing to remove.
- c. Thoroughly clean all rollers, using fine steel wool if necessary. Make sure all rollers are completely smooth and free of residue and burrs.
- d. Fit the new silicone rubber tubing onto each roller and work on, by hand, at least a half-inch. At the opposite end of the tubing fit on and hold, by hand, an air supply hose of moderate pressure. While the tubing is slightly expanded by the air pressure, push the tubing onto the roller and work it into final position on the roller. The rollers are now ready for reinstallation on the conveyor.
- e. Replace rollers on conveyor by inserting the roller-ends into the chains. Place a spacer rod at approximately every 12 inches along the conveyor. Use new pal-nuts to secure the spacer rods.
- f. Check conveyor tension. Tension should be such that it is possible to lift both conveyor chains approximately one inch at a point six inches from the sprockets at either end of the tunnel. Both chains should have approximately the same tension. If it is necessary to adjust the tension, adjust by using the procedure described in Paragraph 7.3.1.



## 7.5 REPLACEMENT OF IDLER SPROCKETS AND SHAFT

After long, continuous service the conveyor sprocket oilite bearings, or the idler shaft, may eventually require replacement due to wear. To replace either, proceed as follows:

- a. Locate the joining links on both conveyor chains. Run conveyor, as required, and stop the conveyor with the joining links positioned in an accessible location on the top side of the conveyor, near the infeed end and idler sprockets. The joining links can be distinguished by the presence of a connecting link retainer on the outside edge of both conveyor chains. Remove both retainers by spreading their split end and sliding them out of the groove in the pin.
- b. Remove the joining links from both chains. Both chains are now open. Refer to Figure 7.2. Using an Allen-wrench, loosen both screws "D" and raise idler roller "E" to a vertical position. Pass both conveyor chains under the roller and swing the ends of the chains down so the chains hang down the infeed end of the tunnel.
- c. Using a Phillips-head screwdriver, remove both end-plates "B" of Figure 7.2. Using a wrench, loosen and remove both bolts "C" and their locking jam-nuts from the idler shaft. Remove the entire shaft, sprocket, and idler-roller assembly from the tunnel.
- d. Remove the idler-roller mounting-support collars and both of the sprockets from the shaft. Examine the shaft for wear. If wear is excessive, replace the shaft. If wear is not excessive, loosen both Allen-head screws "F" and turn both roller skid assemblies 180 degrees from their original orientation and retighten both screws "F". By doing this, the shaft can now be replaced on the shrink tunnel 180 degrees from its original orientation for continued use without replacement.
- e. Examine the bearings in both sprockets. If required, replace both sprockets. Install all components of the shaft, in the manner shown in Figure 7.2.
- f. Replace the entire assembly on the shrink tunnel by means of bolts "C", reorienting 180 degrees (as mentioned in d. above) if required. Center both shaft-ends approximately equally in height at the center-range on both bolts "C". Do not tighten the locking jam-nuts yet.
- g. With idler-roller "E" in a vertical position, swing the conveyor chains up (under the idler-roller) and connect the joining links together with the connecting link retainers. Adjust chain tension using the procedure described in Paragraph 7.3.1.
- h. Check the leveling of both roller skid assemblies and, if necessary, adjust leveling by means of both screws "F" to assure firm contact with the underside of the top conveyor rollers for proper rotation of the rollers during tunnel operation.

## 7.5 REPLACEMENT OF IDLER SPROCKETS AND SHAFT (cont'd)

- i. Position both shaft-ends equally on bolts "C" to a height at which a straight-edge about 18 inches long, when placed on top of the conveyor rollers, will contact every roller equally at any point across the width of the rollers. This assures a completely level conveyor roller surface. Tighten the locking jam-nut on both bolts. Replace both end-plates "B".
- j. By means of screws "D" adjust the height of idler roller "E" so that its top surface will be identical in height of the top surface of the conveyor rollers, as measured with a straight-edge placed atop the rollers and the idler roller. When correct, tighten the adjustment by means of screws "D".

## 7.6 CONVEYOR-MOTOR BRUSH REPLACEMENT

The package conveyor drive-motor brushes should be inspected about two or three times a year to determine if brush replacement is required. Brushes should be replaced before their lengths are reduced to less than 1/4 inch.

The motor brushes are located at the rear end of the motor on opposite sides of the motor. To gain access to the brushes for inspection or replacement, unscrew the brush caps and withdraw the brushes and their compression springs.

## 7.7 CONVEYOR MOTOR POWER SUPPLY DIODE REPLACEMENT

If the package conveyor will not run, note if the Conveyor Motor Fuse holder is illuminated signifying that the fuse has blown (holder is located on the control panel). If the fuse has blown, replace it with a good one. If the conveyor fuse blows again, perform the checks and tests listed in trouble number 3 of paragraph 9 (Troubleshooting Chart). If this does not clear up the trouble, the probable cause is that the encapsulated power supply diode unit(s) are defective (REC1 and /or REC2 on the schematic diagram). To check the condition of the diode units, proceed as follows:

- a. Shut off the tunnel's MAIN POWER switch. To gain access to the diode units, remove the tunnel's top cover plate by turning the 6 captive retaining screws a quarter-turn counterclockwise. The rear of the tunnel's control panel is now visible. The diode units are located toward the bottom-rear of the panel and are the two 1-3/4 inch square by 3/4 inch thick units with 4 screw-terminals and wires attached to each unit. (Units are marked with the part number TB-1778).
- b. One each diode unit, using a screwdriver, disconnect one AC wire from its terminal and either the plus (+) or the minus (-) wire from its terminal. Let the wires hang free near their terminals without touching the terminals or any nearby items.

## 7.7 CONVEYOR MOTOR POWER SUPPLY DIODE REPLACEMENT (cont'd)

- c. Using a volt-ohmmeter (such as a Simpson Model 260 or equivalent) set to its R x 1 scale, connect the meter's minus (-) lead to the diode's plus (+) screw terminal, and connect the meter's plus (+) lead to the diode's minus (-) screw terminal. If the diode assembly is good, a meter reading of between 50 to 70 (approx.) ohms should be obtained. If, however, a reading of either approximately 12 ohms or 100 or higher ohms is obtained, the diode unit is defective and should be replaced. This test applies to both of the diode units.
- d. If a diode assembly is defective, note the wire numbers of the wires running to each screw terminal and remove and replace the diode unit with a new one. Replace the wires to the proper terminals.
- e. Replace the tunnel's top cover plate and secure by turning the captive screws clockwise a quarter-turn.

## 7.8 HEATER BANK REPLACEMENT

If the shrink tunnel will not develop or maintain proper operating temperature, the electric heater bank may be defective. Before the heater bank, however, the following tests should be made:

Refer to Figure 7.1 for component locations, and the circuit schematic. Remove the tunnel's top cover plate.

- a. Check that in-house power to the tunnel is on.
- b. Check that main circuit breaker is operative.
- c. Using an Amprobe (or equivalent clamp-on type ammeter) around one of the heater cables to the 2.5 KW heater, a reading of 11 (nominal) amperes should be obtained (at 230 volts input to the tunnel). If no reading, or a substantially lower reading is obtained, the 2.5 KW heater bank is open or defective and should be replaced.
- d. With the tunnel power on, turn the thermostat's knob to the highest temperature position. The thermostat's indicating lamp should light. If the lamp does not light, the thermostat is defective and should be replaced.
- e. Using an Amprobe (or equivalent) clamp-on ammeter) around one of the heater cables to the 4.5 KW heater, a reading of 19.5 (nominal) amperes should be obtained (at 230 volts input to the tunnel). If no reading, or a substantially lower, reading is obtained, the 4.5 KW heater bank is open or defective and should be replaced.

## 7.8 HEATER BANK REPLACEMENT (cont'd)

- f. To replace the heater elements, remove the tunnel's left-side access cover by unscrewing the retaining screws. Remove the sheet-metal screws on the cover of the connection box of the heater bank and remove the cover.
- g. Unscrew the terminal lugs and cables to the heater banks. Pull the four heater bank power cables out of the entrance hole.
- h. Pull out the heater bank from the tunnel.
- i. Push in the new heater bank. Orient the same way as the old heater. The two size banks may be distinguished by the fact that the 4.5 KW bank's heater element wire is a larger diameter than the 2.5 KW element. When replacing, be sure to push in fully as otherwise there will be an air leak which will prevent proper heating and will cause a drop in air velocity.
- j. Reconnect the heater bank cables.
- k. Replace the sheet-metal heater bank cover; and replace the tunnel's left side access cover.

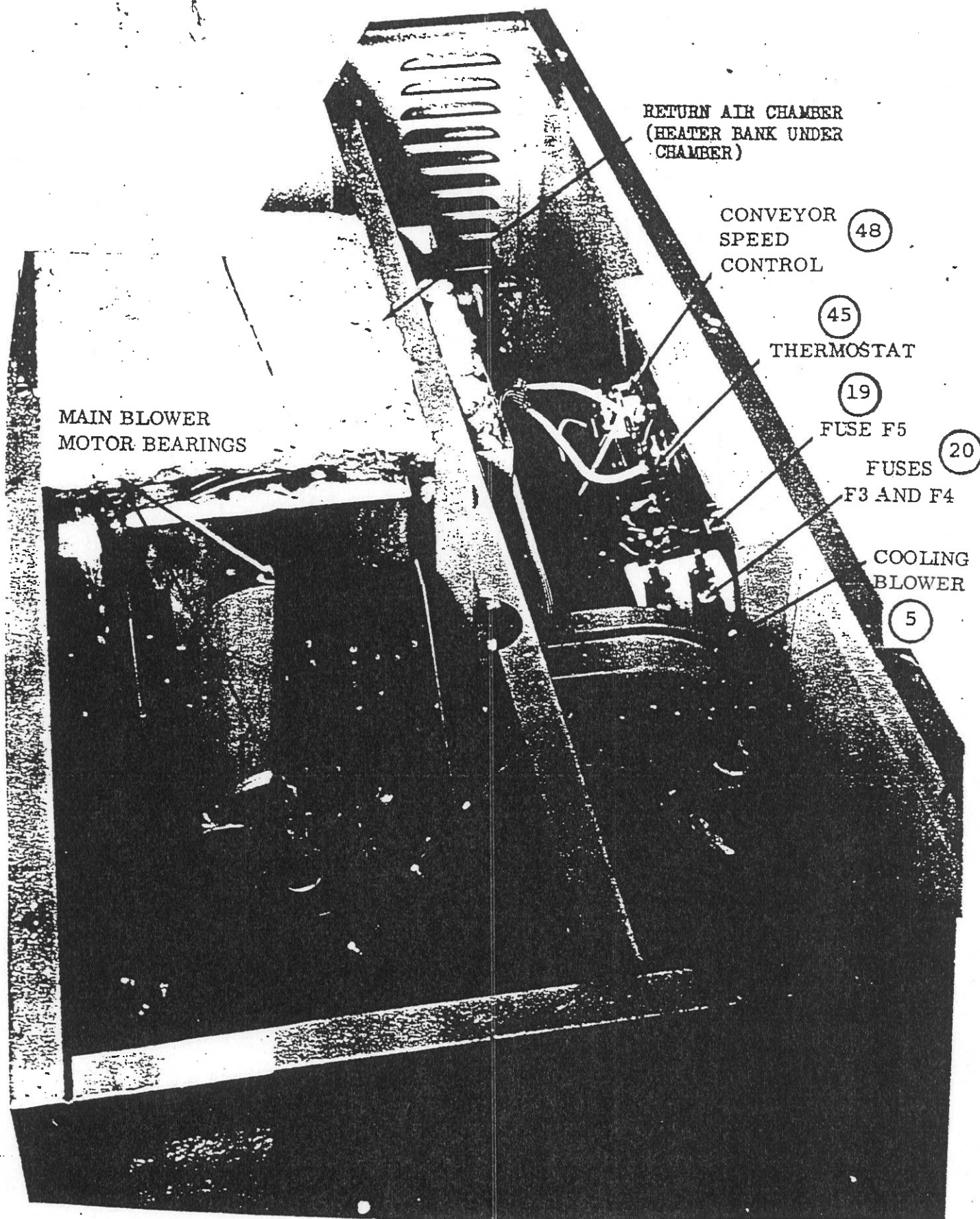


Figure 7.1 Interior View Showing Components

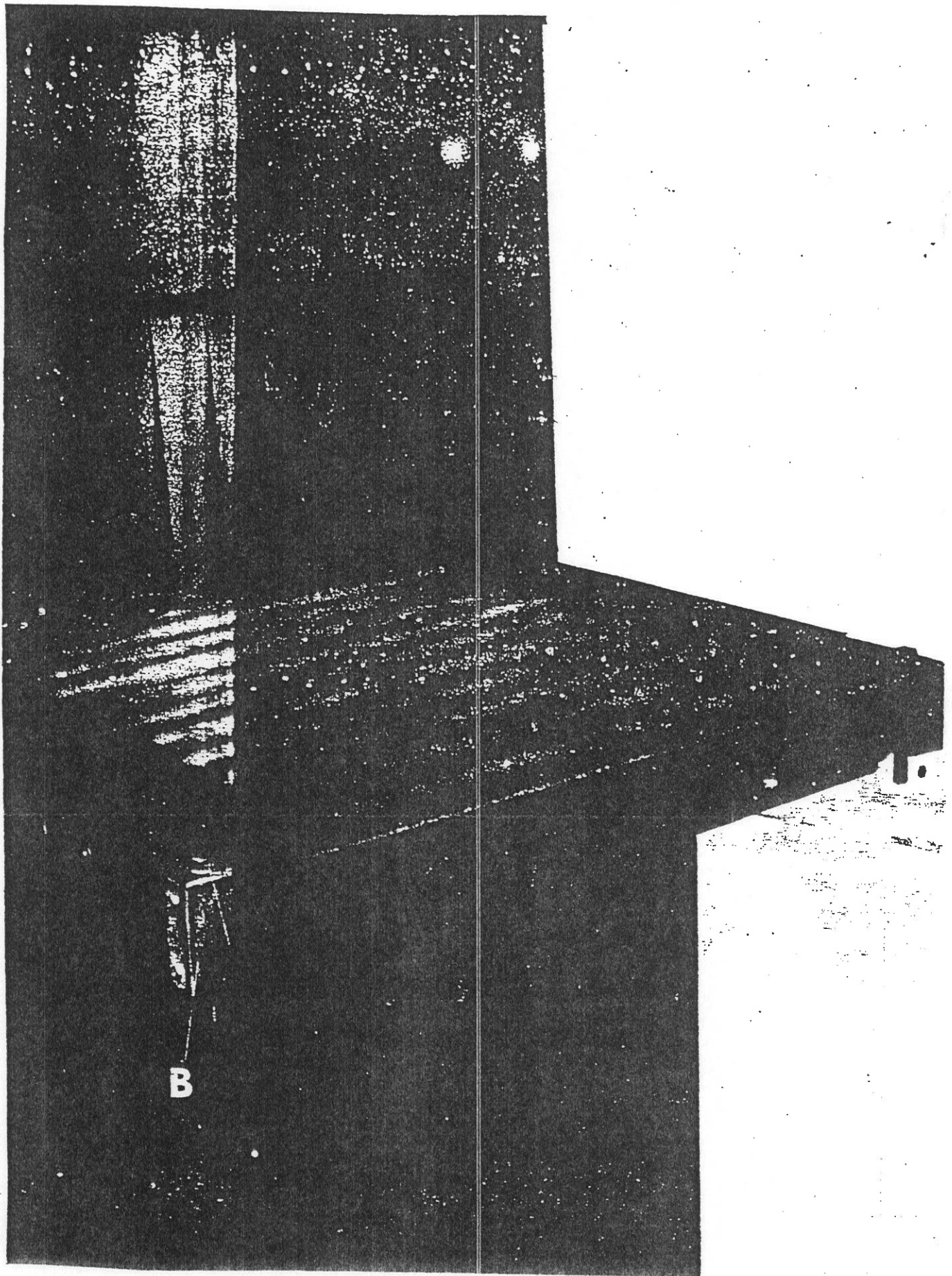


Figure 7.2 Conveyor Maintenance



## 8 TROUBLE SHOOTING CHART

The following Chart is provided to aid in determining the source of troubles which may be encountered. For checking any electrical troubles the use of test equipment such as a small volt-ohmmeter, and an Amprobe (or equivalent) clamp-on type ammeter is required.

In performing the tests and checks which follow, carefully inspect for loose components, wires touching moving parts, broken cables or wires, poor connections, etc. while testing the transformers, switches, motors, etc. Refer to Figure 6.1 for locations of controls and adjustments, Figure 7.1 for interior component locations, and the Schematic Diagram.

TROUBLE	PROCEDURE
1. Inadequate film shrinkage.	<p>a. Check that all adjustments are as described in Paragraph 6.1, 6.2 and 6.3 (as applicable).</p> <p>b. Check that tunnel is not in windy location near fans or other drafts which would lift curtains allowing heat to escape.</p> <p>c. Check for adequate voltage supply to tunnel.</p> <p>d. Check conveyor speed. May be too high for particular film and package. Also, temperature setting may be too low.</p> <p>e. Readjust dampers, temperature, etc. until proper combination is obtained for good shrink, as described in Paragraph 6. et al.</p> <p>f. Check for lack of heat or defective heater coils, as in Paragraph 7.8.</p>
2. Excessive film shrinkage with splitting of packages.	<p>a. Check for proper film type, gauge and condition.</p> <p>b. Check that all adjustments are as described in Paragraphs 6.1, 6.2 and 6.3 (as applicable).</p> <p>c. Check conveyor speed. May be too low for particular film and package.</p> <p>d. Poor film seal. Check quality of film seal prior to tunnel entry.</p> <p>e. Conveyor rollers not revolving properly. Check tension adjustment as per Paragraph 7.3 and lubrication as per Paragraph 7.1.2.</p> <p>f. Readjust dampers, temperature, etc. until proper combination is obtained for good shrink, as described in Paragraph 6. et al.</p> <p>g. Make sure that conveyor belt or roller covers are clean, as in Paragraph 7.2 film residue particles could cause film to stick and become cloudy if package movement through heat were erratic due to sticking to dirty rollers, or belt pitting.</p>

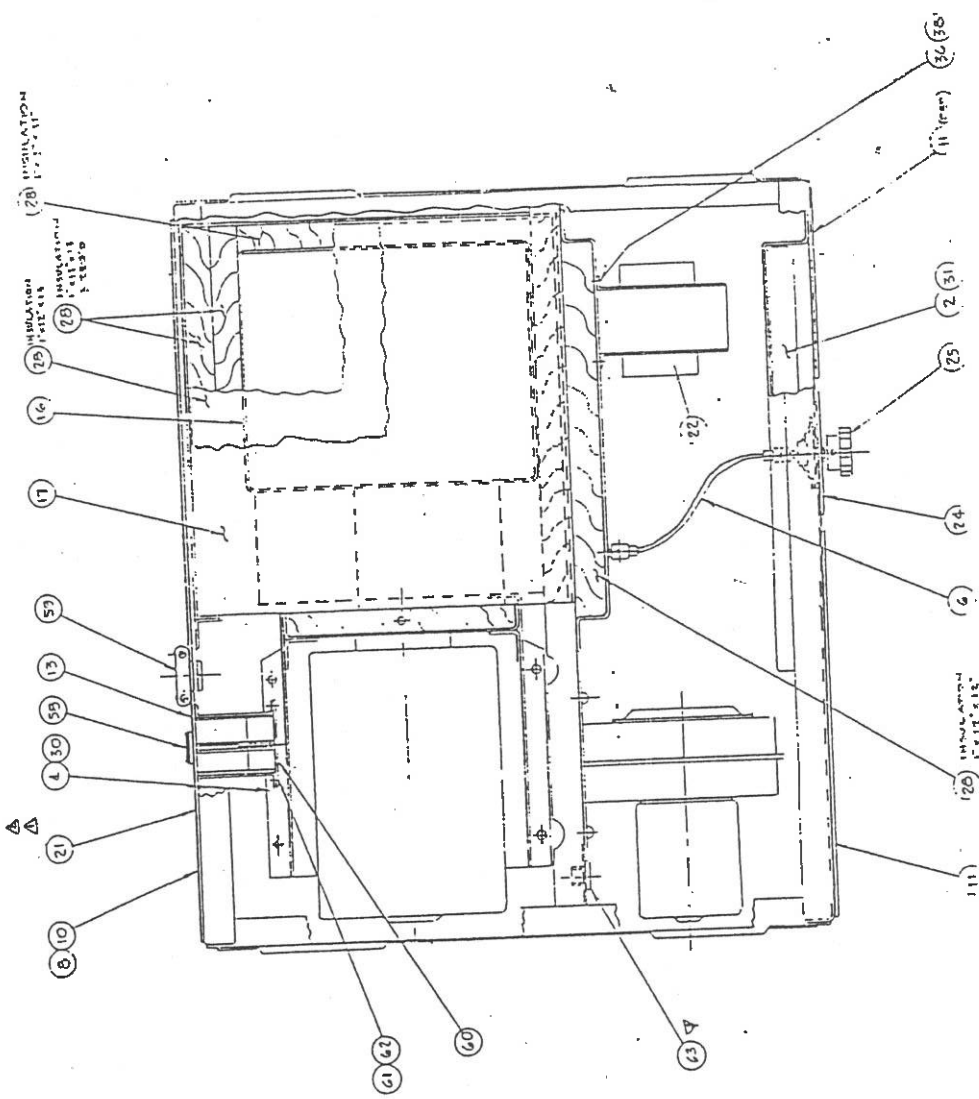
## 8. TROUBLESHOOTING CHART (cont'd)

TROUBLE	PROCEDURE
3. Conveyor speed erratic or too slow (with or without blowing of conveyor motor fuse F6 on control panel).	a. Loosen set-screw on conveyor drive motor coupling. Pull conveyor by hand. Conveyor should move very freely. If not, check for presence of foreign object jamming conveyor chain, conveyor rollers, or conveyor belt.
	b. Check lubrication as in Paragraph 7.1.2.
	c. Check conveyor chain tension as in Paragraph 7.3.
	d. Check condition of conveyor motor brushes, as in Paragraph 7.6.
	e. Check for worn or binding idler sprockets or shafts, as in Paragraph 7.5.
	f. Check tension of brush spring on speed control transformer TR-0611.
4. Conveyor does not run and/or blows conveyor motor fuse F6 on control panel.	a. Check all of #3 troubles above.
	b. Check for defective conveyor power supply diodes, as in Paragraph 7.7.
5. No tunnel heat, or low tunnel heat with air blowing.	a. Check for adequate power and voltage from in-house supply.
	b. Check and make tests as in heater bank replacement of Paragraph 7.8.

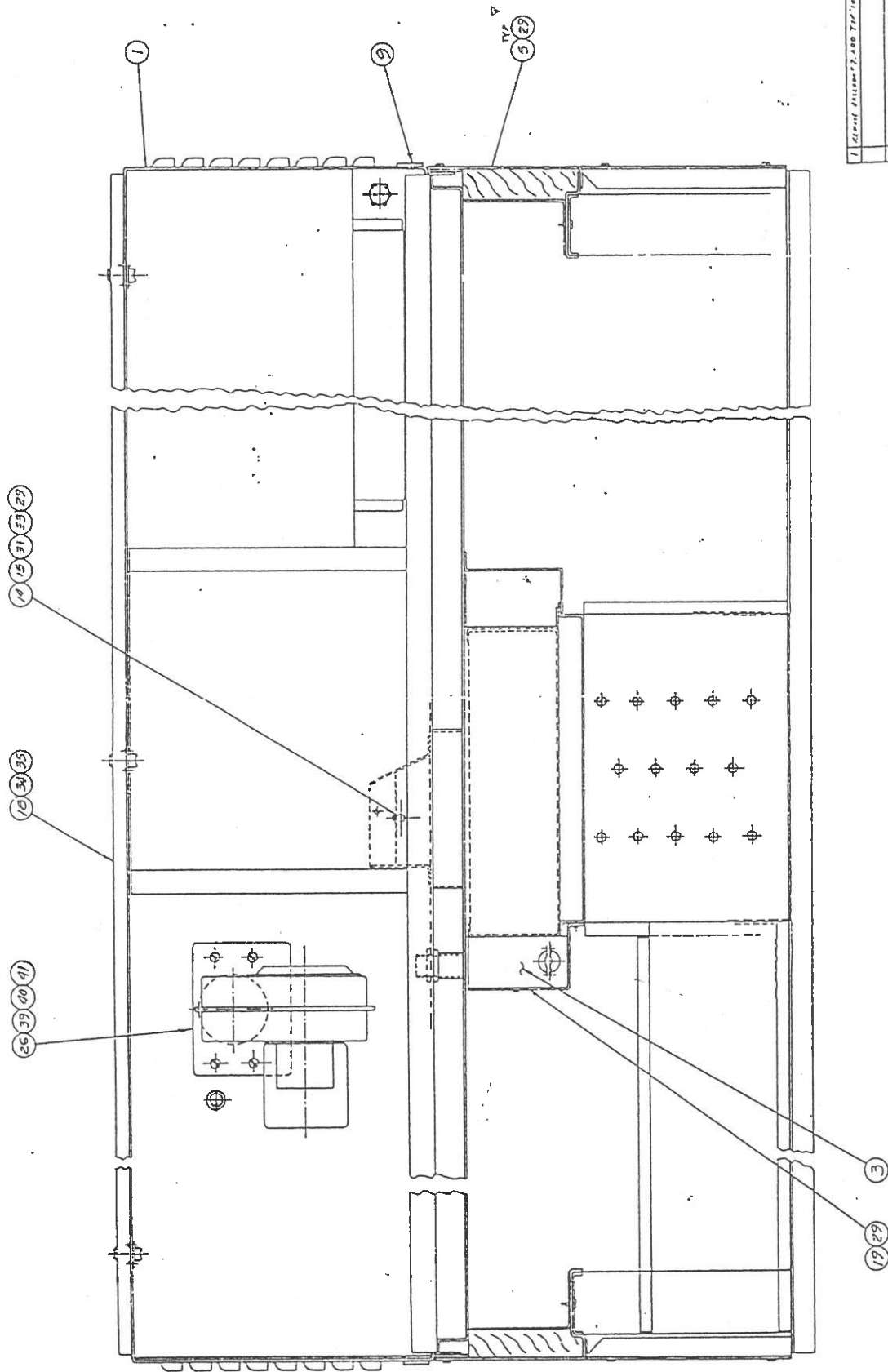




2. JAMES M. 412		516 5525	
1. PROJECT NO.	7012-0002 3	2. PROJECT NO.	7012-0002 3
3. PROJECT NO.	7012-0002 3	4. PROJECT NO.	7012-0002 3
SECTION		SECTION	
weldetren		weldetren	
TUNNEL		TUNNEL	
AUGASSEM B/L		AUGASSEM B/L	
(WELD SECTION)		(WELD SECTION)	



THE DRAWING IS A PRELIMINARY DESIGN. IT IS NOT TO BE USED FOR CONSTRUCTION. ANY MODIFICATIONS TO THE DESIGN SHALL BE MADE IN WRITING AND SHALL BE APPROVED BY THE DESIGNER.



1	Serial	710120002	710120002	1
2	Model			1
3	Part No			1
4	Ext			1
5	Int			1
6	Serial	710120002	710120002	1
7	Model			1
8	Part No			1
9	Ext			1
10	Int			1
11	Serial	710120002	710120002	1
12	Model			1
13	Part No			1
14	Ext			1
15	Int			1
16	Serial	710120002	710120002	1
17	Model			1
18	Part No			1
19	Ext			1
20	Int			1
21	Serial	710120002	710120002	1
22	Model			1
23	Part No			1
24	Ext			1
25	Int			1
26	Serial	710120002	710120002	1
27	Model			1
28	Part No			1
29	Ext			1
30	Int			1
31	Serial	710120002	710120002	1
32	Model			1
33	Part No			1
34	Ext			1
35	Int			1
36	Serial	710120002	710120002	1
37	Model			1
38	Part No			1
39	Ext			1
40	Int			1
41	Serial	710120002	710120002	1
42	Model			1
43	Part No			1
44	Ext			1
45	Int			1
46	Serial	710120002	710120002	1
47	Model			1
48	Part No			1
49	Ext			1
50	Int			1
51	Serial	710120002	710120002	1
52	Model			1
53	Part No			1
54	Ext			1
55	Int			1
56	Serial	710120002	710120002	1
57	Model			1
58	Part No			1
59	Ext			1
60	Int			1
61	Serial	710120002	710120002	1
62	Model			1
63	Part No			1
64	Ext			1
65	Int			1
66	Serial	710120002	710120002	1
67	Model			1
68	Part No			1
69	Ext			1
70	Int			1
71	Serial	710120002	710120002	1
72	Model			1
73	Part No			1
74	Ext			1
75	Int			1
76	Serial	710120002	710120002	1
77	Model			1
78	Part No			1
79	Ext			1
80	Int			1
81	Serial	710120002	710120002	1
82	Model			1
83	Part No			1
84	Ext			1
85	Int			1
86	Serial	710120002	710120002	1
87	Model			1
88	Part No			1
89	Ext			1
90	Int			1
91	Serial	710120002	710120002	1
92	Model			1
93	Part No			1
94	Ext			1
95	Int			1

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## 9 MODEL 7112 TUNNEL REPLACEMENT PARTS LIST

The replacement parts list on the pages which follow has been prepared to assist in the ordering and stocking of parts needed for normal replacement purposes.

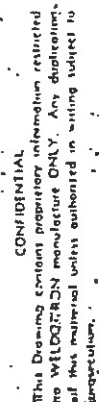
When ordering parts, state part number, part description and machine model number, one which part is to be used. Specify the quantity desired, when needed and desired shipping method.

### D-7012-0002 Tunnel Sub-Assembly

ITEM NO.	PART NO.	DESCRIPTION
1	7012-006	Tunnel Weldment
2	7012-007	Control Panel Assembly
4	7121-009	Blower, Motor & Motor Mount Assy
5	7121-010	End Cover Lower & Curtain Assy
6	7121-011	Damper Control Assembly
7	7012-010	End Cover Lower & Curtain Assy
14	7121-103	Butterfly Valve
15	7121-104	Shaft (Damper)
21	PG-1888	Recept. 4 wires, 20A, 250V. Leviton #5195
22	TR-0403	Transformer, PCR BMS-44
26	BW-0631	Blower
58	CU-1769	Circuit Breaker

### D-7012-003 Conveyor Assembly

2	7121-029	Take-Up Assy (Drive Roller)
3	7121-030	Roller Assembly
4	7012-031	Roller Support Assembly
5	7300-698	Bolt, Take-Up Assy (3-1/2lg)
11	7121-164	Shaft Drive
12	7121-165	Shaft Idler (End)
24	7012-231P1	Idler Roller Ext. RH
25	7012-231P2	Idler Roller Ext. LH
26	7121-232	Nut Plate
27	7121-233	End Cap
29	7121-235	Idler Roll, Intermed.
30	CH-0680	Chain
31	CH-0682	Chain Conn. Link
32	SK-1317	Sprocket (Drive)
35	SK-1062	Sprocket, Idler
36	PG-0065	Plug, 4 wire, 20A, 250V-Eagle #876
38	MR-2416	Motor-1/15 HP, 57RPM, 115Volt
39	CN-2487	Coupling, Code CN-2487 Modified
40	CR-2078	Line Cord 1814, Type SJ 300V
41	BU-0101	Bushing, Snap
42	BU-0636	Bushing Strain Relief



2 WAS FOR 50/60 HZ		T-201-7	
1		3-2-82	DATE 1/19
SYN		ECO	NO
DESCRIPTION			
REVISIONS			
DATE	DATE	DATE	DATE
3-2-82	3-2-82	3-2-82	3-2-82
CHG	CHG	CHG	CHG
APP	APP	APP	APP
MAT'L	MAT'L	MAT'L	MAT'L
FINISH			
TOL UNLESS SPECIFIED			
DEC. ANGLE			
0.05 1/2"			
Welded		CORPORATION	
SCHEMATIC		BENCH TUNNEL	
7112-7012 MODEL		230V, 1PH, 60 HZ.	
SCALE	SIZE	ALL PARTS NO.	DRY
B	7012	8000	1

	PART NO	7012	NEXT ASSEMBLY	VOL P.M.
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## LIMITED WARRANTY AND DISCLAIMER

WELDOTRON CORPORATION warrants to the original Buyer that, except as to expendable items such as elements, tapes, fuses, etc., all equipment and parts manufactured by WELDOTRON shall be free from defects in material or workmanship for a period of one year (1) from the date of shipment (the "warranty period"). The extent of WELDOTRON'S liability under this warranty is limited solely to the repair or replacement of any such defective part at no charge to Buyer, except for the costs of freight and installation which shall be borne by Buyer and provided that Buyer shall, if Weldotron so requests, return any such defective part to WELDOTRON, freight prepaid, for inspection and determination by WELDOTRON as to the nature of the defect.

Notwithstanding the foregoing, WELDOTRON shall be relieved of all liability and obligations under the warranty set forth herein if:

- a. The equipment is used, operated or maintained in any manner other than in accordance with Weldotron's instructions and recommended maintenance procedures as set forth in the operating manual which shall be shipped with the equipment;
- b. The equipment is misused, abused or neglected in any way;
- c. The equipment is altered, modified or changed, or any additional part is installed, unless WELDOTRON shall have previously consented in writing to such alteration, modification, change or installation;
- d. The equipment is operated with any additional accessory or part, whether or not WELDOTRON is the manufacturer thereof unless WELDOTRON shall have previously consented in writing to the operation of the equipment with such accessory or part;
- e. Any materials, packages, containers, pallets or loads which are to be conveyed and/or wrapped are not in a condition to permit their being properly handled by the equipment.
- f. The equipment is serviced or repaired by any person not previously approved by WELDOTRON in writing or,
- g. The Buyer fails to notify WELDOTRON in writing of any defect, breakdown, accident or malfunction of the equipment within seven (7) days of the discovery of such defect or the occurrence of such breakdown, accident or malfunction.

THE FOREGOING WARRANTY IS APPLICABLE SOLELY TO PARTS AND/OR EQUIPMENT MANUFACTURED BY WELDOTRON. WITH RESPECT TO COMPONENT PARTS NOT MANUFACTURED BY WELDOTRON AND AS TO WHICH WELDOTRON IS THE BENEFICIARY OF ANY WARRANTY, BUYER SHALL HAVE, FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF SHIPMENT OF THE EQUIPMENT TO BUYER, WHATEVER RIGHTS AND REMEDIES, IF ANY, THAT ARE AVAILABLE TO WELDOTRON WITH RESPECT TO SUCH WARRANTY, PROVIDED THAT BUYER SHALL FULLY REIMBURSE WELDOTRON FOR ALL COSTS OF ENFORCING SUCH WARRANTY.

Except for the express warranty set forth above that the equipment shall be free of any defects in material or workmanship during the warranty period:

- a. No affirmation of fact or promise by WELDOTRON with respect to the capacity, suitability or performance of the equipment, whether or not such affirmation or promise is set forth herein, shall constitute any type of warranty as to the equipment, and
- b. THERE ARE NO ADDITIONAL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTIES OF MERCHANT ABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.

Except as specified by WELDOTRON in writing, WELDOTRON does not warrant that the equipment, as manufactured, conforms to any particular insurance regulations or electrical codes or that the equipment contains any particular safety features. Buyer assumes full responsibility for compliance with all applicable statutes, codes and regulations, whether federal, state or local.

Under no circumstances shall WELDOTRON have any liability for any type of incidental or consequential damages arising from the use, loss of use or defective performance of the equipment. WELDOTRON'S liability is expressly limited to the repair or replacement of defective parts.

The Limited Warranty extends only to the original buyer and is not transferable to subsequent owners, purchasers or possessors of the equipment.

**weldotron**  
corporation

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Piscataway, NJ 08855