

# TT-2000 & DTT-2000

## Ticket Eater™ with AP-100 Logic Board



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**NOTE: TICKET EATER™ MANAGER  
SOFTWARE IS SOLD SEPARATELY.  
PLEASE CALL 215-997-8616 TO ORDER.**

## Initial Setup

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This manual is for the TT-2000 Ticket Eater™ with an AP-100 logic board. Do not use this manual if you have an earlier version logic board. Earlier version boards lack a USB connector and are not labeled “AP100”.

As part of the initial setup there are several options in the Ticket Eater logic board that must be configured for your situation. These settings can be made with the DL Manager software or by using buttons inside the Ticket Eater. Later sections in this manual explain both methods.

The initial options that you must set are:

1. Printer Model. Refer to appendix A for more information on the printers. When using the buttons, this is option 17 in group 99 1.
2. If your sensor board is Rev. 1 to 4 then set the Rev to 4; otherwise set it to 5. Refer to appendix C for more information on the sensor boards. When using the buttons, this is option 31 in group 99 3.
3. The Barcoded / Holes-Only option must agree with your tickets and sensor board. If this setting is wrong the Ticket Eater will not count correctly. When using the buttons, this is option 30 in group 99 3.
4. If you are using barcoded tickets the Ticket Eater must learn the barcode pattern on the tickets. When using the buttons, use the options in group 99 4.
5. Receipt message (DL Manager software is required to change the message).

### ***Switching Door Displays***

The control signals for the 4 digit and 5 digit seven segment door displays are different than the control signals for the dot matrix door display. Since the normal procedures for changing options use the door display there is a special procedure for changing between the dot matrix and the seven segment displays.

1. Start with the power off.
2. Press and hold the SW1 button on the logic board and the red button in front of the logic board.
3. While holding the buttons turn the machine on.
4. Release SW1 and the red button. If the logic board was previously set for a dot matrix display it will now be set for a 5 digit display. If it was previously set for a 4 or 5 digit display it will now be set for a dot matrix display.

If you have a 4 digit display, first use this procedure to get the logic board into a 5 digit display mode. At this point you will be able to see the display. Then use the procedures explained in the chapter on Changing Options Without Software to change option 36 to 4.

## Handling Messages on the Door Display

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There are six messages that can appear on the display on the door. DL Manager software (sold separately) can change the wording of these messages. Card swipe equipped systems may have additional messages.

1. **Print**

This is a normal informational message.

2. **Printer Error**

Typical causes of this error are out of paper, printer turned off, paper improperly loaded, printer is off-line (does not apply to all printers), and a defective printer.

3. **Call For Help** or **OFFLINE**

The “Call for Help” message is usually caused by tickets stuck in the transport mechanism. After fixing the problem, clear the error by pressing the red button or by turning the ticket eater off and back on. It can also appear on a machine that has a seven segment door display and is fitted with a card swipe system if the card swipe system is not ready. Machines with the dot matrix display will show “OFFLINE” in this situation.

4. **Err**

This message is usually caused by tickets stuck in the transport mechanism. If tickets have been counted, “Err” will alternate with the ticket count. After fixing the problem, clear the by turning the ticket eater off and back on.

On firmware versions 2.14 and later, “Err *x*” (where *x* is a number) is displayed when cheating is detected. . The number indicates how the cheating was detected: 0 = blocked middle sensor (possible jam), 1 = bucket sensor, 2 = rear sensors, 3 = bad ticket length, 4 = direction of ticket movement. This message clears itself. Attendant attention is not required.

5. **Bad Tics / Bad Tickets**

This message is displayed when the Ticket Eater is expecting a barcode and the customer inserts tickets with the wrong barcode or without a barcode. On firmware versions before 2.14, this message is also displayed when the Ticket Eater detects cheating (it’s more polite than “CHEATER”). After several seconds the message clears itself.

6. **Bin Full**

This message means that the trash can needs emptied. If your Ticket Eater has a full-bucket sensor then emptying the trash can clears the error. In machines without a full-bucket sensor the message is triggered by the number of tickets that have been processed. Press the red button to clear the error and reset the count.

Option 25 in group 99 2 tells the ticket eater to use a full-bucket sensor. Option 26 in group 99 2 sets the capacity of the trash can.

If you set option 26 to 0 or 3 and you are not using a full bucket sensor, it will disable the “Bin Full” message.

If you empty the trash can before the full count is reached, reset the bucket count with Function Mode 3 (see the section “Performing Functions without Software”) or with the DL Manager software.

Machines with card swipe systems may also show these messages:

1. **Full Count – Scan Card or Print**

The maximum possible count is limited by the number of digits in the door display. When this count is reached, the Ticket Eater will stop and display this message. After the card is scanned or a receipt is printed the Ticket Eater will return to normal operation.

2. **Sending Data**

This is a normal informational message.

3. **Data Send Error – Call for Help**

Problems with the card swipe system or the communication between the card swipe system and the logic board will cause this message. Fix the problem and re-start the Ticket Eater.

## DL Ticket Eater Manager Software

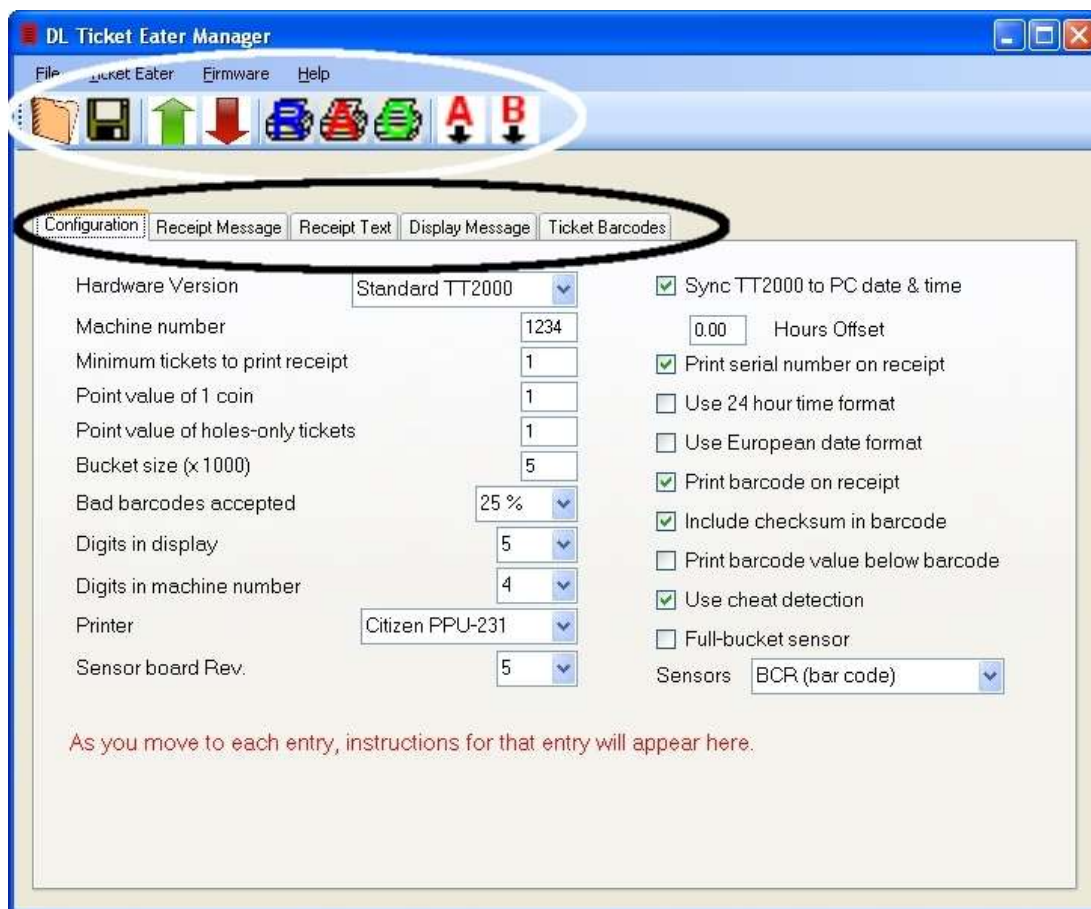
DL Ticket Eater Manager software is the preferred way to manage your TT-2000 Ticket Eater with AP-100 main logic board. This section of this manual covers that. Some management functions can also be done without the software by using buttons inside the TT-2000. The next section of this manual covers those procedures.

DL Ticket Eater Manager software requires Windows XP or later.

The software uses USB 2.0 to connect to the ticket eater. (USB 1.x is not supported.) To make this connection:

1. Open the top door of the Ticket Eater.
2. Pull out the safety switch. This turns the Ticket Eater on with the door open. The red and green LED's on the main logic board should be on.
3. Connect a USB cable between the computer and the USB jack on the main logic board.
4. Use the software to configure and manage the Ticket Eater.

The software has various entries organized into 5 tabs (circled in black). The toolbar (circled in white) has two buttons for opening and saving configuration files, two buttons for transferring configurations between the software and the Ticket Eater, and five buttons for controlling the Ticket Eater.



A Ticket Eater configuration can exist in 3 places:

1. In a Deltronic Labs Ticket Eater
2. In a configuration file on your computer.
3. In the entry blanks of the software.

Using the software you can:

1. Transfer a configuration between the program entry blanks and a Ticket Eater.
2. Edit a configuration.
3. Save a configuration to a file and retrieve a configuration from a file.
4. Perform management functions.
5. Install updated programming in a Ticket Eater.

### ***Transferring Configurations to and from a Ticket Eater***

First, connect a USB cable as described above. Then use the commands on the Ticket Eater menu or buttons on the toolbar to transfer the configuration.

### ***Editing a Configuration***

Use the entry blanks to edit a configuration. As you move to each entry blank, instructions for that entry appear. Some entries are applicable only to certain hardware.

### ***Save and Open Configuration Files***

Use the commands on the File menu or buttons on the toolbar to save and open configuration files. These operations transfer a configuration between the file and the entry blanks.

### ***Management Functions***

Use commands on the Ticket Eater menu or buttons on the toolbar to:

1. Print a duplicate of the last receipt printed.
2. Print an audit report on the Ticket Eater's printer.
3. Print an options report on the Ticket Eater's printer.
4. Reset the audit counters.
5. Reset the bucket counter (when not using a full-bucket sensor).

### ***Install Updated Programming***

Use the Upload New Firmware command on the Firmware menu to install new programming in the ticket eater logic board. You should do this only when instructed to do so by Deltronic Labs tech support.

## Changing Options Without Software

DL Ticket Eater Manager software (sold separately) is the preferred way to manage your TT-2000 Ticket Eater with AP-100 main logic board. The previous section of this manual covers that. Some settings can also be changed without the software by using buttons inside the TT-2000. This section covers those procedures. Changing any of the words printed on the receipt can only be done with the software.



These procedures use the red and black buttons mounted in front of the logic board, the **SW1** button on the logic board, and the display on the door. The **RUN/PRG** jumper is not used. It must stay in the **RUN** position. **Leaving the jumper in the PRG position will drain the battery.** To enter the options mode:

1. Open the top door of the Ticket Eater.
2. Pull out the safety switch. This turns the Ticket Eater on with the door open. The red and green LED's on the main logic board should be on.
3. Wait for the display to finish the power-up test.
4. Push the **SW1** button.
5. The display will show **99 0**. You are now in Options Mode.

In Options Mode the first number (99 in this case) shows the number of the option that you are working with. The second number (0 in this case) shows the option's value. Press the red or black button to change the value. Press both buttons at the same time to accept the currently displayed value and advance to the next option.

| Button | Function                                      |
|--------|---|
| Black  | Increase the value                            |
| Red    | Decrease the value                            |
| Both   | Accept the value & Advance to the next option |

The options are organized into groups. **99** is a special number which indicates that you are selecting a group of options to work with. When you select a group, the first option in that group is displayed. As you accept each option by pressing both buttons together, the next option is displayed. After the last option you are returned to **99** to select another group. If you turn off the machine before you return to **99**, your changes will be lost.

| Group 99 0    |          |                            |
|---------------|----------|----------------------------|
| Option Number | Function | Values                     |
| 1             | Year     | 0 to 99                    |
| 2             | Month    | 1 to 12                    |
| 3             | Date     | 1 to 31                    |
| 4             | Day      | 1 to 7(Sunday to Saturday) |
| 5             | Hour     | 0 to 23                    |
| 6             | Minute   | 0 to 59                    |



| Group 99 1    |  |  |
|---------------|--|--|
| Option Number | Function   | Values   |
| 10            | Print serial number on receipt   | 0 = No, 1 = Yes  |
| 11            | Time format  | 0 = 24 hour<br>1 = AM / PM   |
| 12            | Receipt<br>(The second copy is for store use. It does not have the message on it.) | 0 = 1 copy, no barcode<br>1 = 1 copy, middle barcode<br>2 = 1 copy, bottom barcode<br>3 = 2 copies, no barcode<br>4 = 2 copies, middle barcode<br>5 = 2 copies, bottom barcode |
| 13            | † Include checksum in barcode  | 0 = No, 1 = Yes (see Note)   |
| 14            | Print text below barcode   | 0 = No, 1 = Yes  |
| 15            | Date format  | 0 = mm/dd/yy<br>1 = dd/mm/yy   |
| 16            | Minimum tickets to print receipt   | 1 to 99  |
| 17            | Printer ID   | 0 = PPU-231<br>1 = Star TUP-482<br>2 = Custom VKP-80II   |

† Some swipe systems and some scan systems get ticket counts that are about ten times too small or too large if option 13 is not set to their preference.

‡ Option 24 also affects the barcode on the receipt. When set to 3, a 14 digit barcode is used. When set to 4, a 16 digit barcode is used.

| Group 99 2    |  |  |
|---------------|--|--|
| Option Number | Function                               | Values   |
| 20            | Machine number: Thousands              | 0 to 9   |
| 21            | Machine number: Hundreds               | 0 to 9   |
| 22            | Machine number: Tens                   | 0 to 9   |
| 23            | Machine number: Ones                   | 0 to 9   |
| 24            | * Number of digits in machine number   | 3 to 4   |
| 25            | * Full bucket sensor                   | 0 = No sensor<br>1 = Full and anti-cheat<br>2 = Full only<br>3 = Anti-cheat only |
| 26            | Bucket capacity (in 1000's of tickets) | 1 to 99  |
| 27            | * Bucket sensor anti-cheat tolerance   | 0 to 9   |

\* To catch cheating the full bucket sensor looks for chopped tickets falling into the trash. Occasionally the tickets can fall in a way that they miss the sensor. The anti-cheat tolerance option defines the number of consecutive misses that are permitted without being considered cheating.



Full Bucket Sensor mounted on Ticket Chute Cover

| Group 99 3    |                                   |  |
|---------------|-----------------------------------|--|
| Option Number | Function                          | Values   |
| 30            | Sensor Board                      | 0 = BCR-1000<br>1 = HO-1000<br>2 = BCR as HO (see Note 1)<br>3 = DS-2000 (see Note 2)<br>4 = BCR-2000<br>5 = HO-2000<br>6 = DS-2000 (see Note 2) |
| 31            | Sensor board revision             | 4 to 5   |
| 32            | Use sensor board cheat detection  | 0 = No, 1 = Yes  |
| 33            | Bad barcode tolerance             | 0 = 0% (most strict)<br>1 = 25%<br>2 = 50%<br>3 = 75%<br>4 = 100% (rejects nothing)  |
| 34            | Points value of Holes-Only ticket | 1 to 99  |
| 35            | Points value of one coin          | 0 to 99  |
| 36            | Digits in door display            | 4, 5, 8 (see page 3)   |
| 37            | Power Mains                       | 0 = 60 Hz, 1 = 50 Hz   |

**Note 1:** BCR sensor boards are used to count barcoded tickets. HO sensor boards are used to count holes-only tickets. Most barcode sensor boards can be configured by means of jumpers on the board to work as a holes-only sensor board. When using these boards for holes-only tickets set the jumpers to holes-only and choose HO for option 30.

BCR-1000 ver.2 rev. 5 sensor boards do not have holes-only jumpers. If you must use them to count holes-only tickets set option 30 to 2. In this configuration there is **NO SENSOR BOARD CHEAT DETECTION**, so it should only be used in an emergency.

**Note 2:** The DS-2000 sensor board has top and bottom barcode sensors for use with tickets that have barcodes on one side only. Sometimes graphics printed on the reverse side of tickets can cause counting problems. Setting option 30 to 6 causes the sensor reading the graphics to be ignored. This prevents the counting problems, but it also disables the detection of ticket movement direction. This makes cheating harder to detect.

| Group 99 4    |                             |         |
|---------------|-----------------------------|---------|
| Option Number | Function                    | Values  |
| 41            | Points value for barcode #1 | 0 to 99 |
| 42            | Points value for barcode #2 | 0 to 99 |
| 43            | Points value for barcode #3 | 0 to 99 |
| 44            | Points value for barcode #4 | 0 to 99 |
| 45            | Points value for barcode #5 | 0 to 99 |
| 46            | Points value for barcode #6 | 0 to 99 |
| 47            | Points value for barcode #7 | 0 to 99 |
| 48            | Points value for barcode #8 | 0 to 99 |

Group 99 4 sets the points value for barcoded tickets. When using barcoded tickets, the Ticket Eater accepts only tickets that have the correct barcode. To do this it must first learn the barcode pattern on the tickets. It can learn eight different barcodes, each with its own point value.

To teach the Ticket Eater a barcode:

1. Go to one of the option numbers in group **99 4**.
2. Use the black and red buttons to adjust the point value.
3. Feed the Ticket Eater a strip of seven tickets.
4. After reading the tickets the ticket eater will stop and display a series of numbers which represent the barcode pattern. (If these numbers are all zeros, the reading failed.)
5. To accept and record the reading, press both buttons together and advance to the 99 level. To reject the reading turn off the machine without pressing both buttons.

Group **99 5** performs the special function of clearing the audit counters. When you select **99 5**, the display continues to show **99 5**, but it blinks. At this point you can press the red button to clear the audit counters, or the black button to cancel clearing. Refer to the next page for instructions on printing an audit report.

Group 99 6 exits the options mode.

## Performing Functions Without Software

DL Ticket Eater Manager software (sold separately) is the preferred way to manage your TT-2000 Ticket Eater with AP-100 main logic board. A previous section of this manual covers the software. Some management functions can also be done without the software by a special Function mode. This mode uses buttons inside the TT-2000. This section covers the Function mode.

These procedures use the two buttons mounted in front of the logic board, the **SW1** button on the logic board, and the display on the door. To enter the Function mode:

1. Open the top door of the Ticket Eater.
2. While pressing **SW1**, pull out the safety switch. This turns the Ticket Eater on with the door open and starts the Function mode.
3. The display will show **FUNC0**.
4. Use the black and red buttons to change the function number.
5. Press **SW1** to select the function.

| Button | Function                     |
|--------|------------------------------|
| Black  | Increase the function number |
| Red    | Decrease the function number |
| SW1    | Select the function          |

| Function | Action   |
|----------|--|
| 0        | Exit the function mode   |
| 1        | Print a duplicate receipt  |
| 2        | Print an audit report<br>(see option group 99 5 to reset the audit counters) |
| 3        | Reset the bucket meter   |
| 4        | Print an options report  |

Beginning with firmware version 2.10, floor model Ticket Eaters without printers use the door display to show the audit report. Since the door display is too small to show all the information at once, it is shown in pieces. Each time you press the red or black button the next piece is shown. The report shows the information for holes-only tickets and for each of the eight ticket barcodes. For each of these nine categories a number identifying the category is shown first, and then the audit count for that category is shown. All audit counts are 12 digits long and are shown as 3 sets of 4 digits. All 12 digits are shown including all leading zeros.

| DESCRIPTION                | Example |
|----------------------------|---------|
| Holes-only ID number       | ---0    |
| Holes-only first 4 digits  | 0000    |
| Holes-only middle 4 digits | 0002    |
| Holes-only last 4 digits   | 3780    |
| Barcode #1 ID number       | ---1    |
| Barcode #1 first 4 digits  | 0000    |
| Barcode #1 middle 4 digits | 0059    |
| Barcode #1 last 4 digits   | 2771    |
| etc.                       |         |

## Managing Anti-cheat Features

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The Ticket Eater has several methods to detect attempted cheating. Various options control these methods.

### **Cheating**

There are two common ways that cheating is attempted. Some cheaters will rip the tickets in half the long way, and insert each half separately. The dual rear sensors protect against this by checking that both the left and right side of the ticket are present. The more common cheating method is holding on to the tickets and pulling them back out.

### **Mechanical Maintenance**

The first line of defense against pull-back cheating is good mechanical maintenance. A well-maintained machine will tend to grip and rip the tickets when pull-back is attempted. Pay attention to the condition of the O rings on the bottom rollers. Worn O rings should be replaced.

Check the condition of the flat metal roller springs that provide pressure on the top rollers. The big problem is bent springs. This happens when the guide assembly is not installed correctly. If the top roller shafts are not in the slots in the side plates before pushing down hard to lock in the assembly, it can bend the springs. As a temporary fix you can take the springs off and restore them to their original shape. Refer to the first page in the Mechanical Drawings section of this manual for guidance on the correct shape. If this occurs frequently the springs are weakened and should be replaced.

Check the side plates for wear. Worn side plates will not hold the top rollers in the correct position. Then the rollers don't provide enough pressure to fully grip the tickets. Roller misalignment can also cause jams by warping the tickets as they go through the rollers.

### **Rear Sensors**

The sensors at the rear end of the sensor board are used to detect cheating. They check that both sides of the ticket are present. Option 32 in group 99 3 controls whether they are used. Rev. 5 sensor boards have an extra middle sensor that helps them detect the direction a ticket is moving. They combine this cheat detection with the rear sensor cheat detection, so option 32 controls both for a rev. 5 board.

### **Full-bucket Sensor**

On Ticket Eaters with a full-bucket sensor, the sensor is briefly triggered by the cut-up tickets falling into the trash. These sensor flicks are used to detect cheating. No flicks = no tickets = cheating. But, occasionally a ticket will fall in a way that the sensor misses it, so there must be some tolerance for missed flicks. Option 25 in group 99 2 controls whether the full-bucket sensor is used for cheat detection. Option 27 in group 99 2 controls the missed-flick tolerance.

### **Barcoded Tickets**

Using barcoded tickets provides more security. If the barcode does not move past the sensor at a uniform speed, it will not read correctly. Sometimes a poorly printed barcode

may misread, so some tolerance for misreads is required. Option 33 in group 99 3 controls the tolerance.

#### **HO-2000, BCR-2000, DS-2000**

The HO-2000 sensor board has an extra middle sensor for detecting the direction a ticket is moving. It is not confused by any printing on the tickets because it uses light being blocked by the ticket rather than light reflected off the ticket. This is very effective and needs no tolerance. Option 30 in group 99 3 should be set to 5 when using this board. Setting it to 1 (HO-1000 setting) will disable use of the extra sensor and the enhanced performance it gives.

The BCR-2000 sensor board also has an extra middle sensor for detecting movement direction.

The DS-2000 sensor board has a top and a bottom barcode sensor. It is used with tickets that have barcodes on one side only. If the graphics on the reverse side of the tickets do not confuse the sensor, the signal from that sensor can be used to detect movement direction. In this case set option 30 to 3. If the graphics cause counting problems then set option 30 to 6 which causes the signal to be ignored.

#### **Err x Message**

On firmware versions 2.14 and later, “Err x” (where  $x$  is a number) is displayed when cheating is detected. The number indicates how the cheating was detected:

|   |   |
|---|---|
| 0 | Blocked middle sensor (possible jam)  |
| 1 | Full-bucket sensor  |
| 2 | Rear sensors  |
| 3 | Bad ticket length   |
| 4 | Direction of ticket movement<br>(requires HO-2000, BCR-2000, or DS-2000 sensor board) |

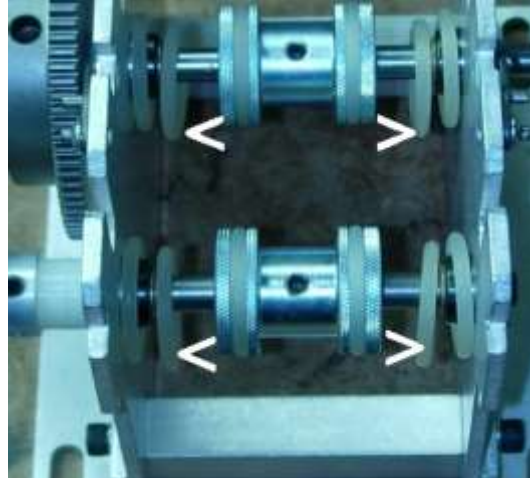
This message clears itself. Attendant attention is not required.

## Maintenance Checklist

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1. To avoid damaging the sensor board, remove it before releasing or removing the Guide Assembly.
2. When the Guide Assembly is released or the entire assembly is removed for servicing or cleaning, follow this procedure to replace it:

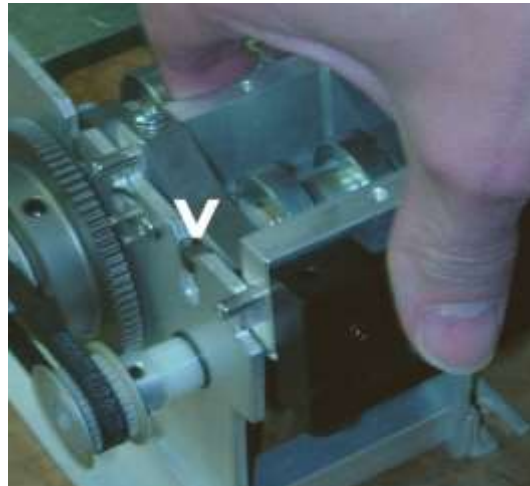
- a. The motor assembly has extra O rings installed on both the Lower Drive Roller Shaft and the Motor Shaft. Before replacing the guide assembly, make sure the O rings are not riding on the sides of the rollers. They should be next to the Side Plates and away from the rollers.



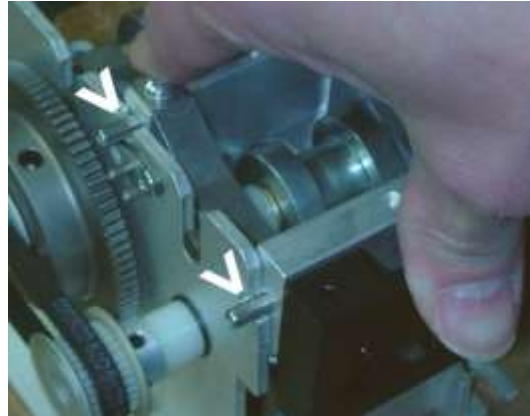
- b. Place the Rear Idler Roller (the one closest to the cutter) into its slots in the side plates.



- c. Let the Front Idler Roller Shaft drop into its slots in the side plates.



- d. Pull the **Guide Assembly** slightly towards you to allow the pins to drop into their slots.



- e. Push the **Guide Assembly** towards the cutter and away from you until it stops, and then press down firmly on the **Spring Spacer Block** (it has the Phillips head screws) to load the springs. The springs (black arrow) should lock the **Rear Pins** (white arrow) into their slots. See the mechanical drawings.



- 3. When replacing the **Cutter**, make sure that it is seated all the way down so that its gear meshes with the large gear on the **Driveshaft**.
- 4. Clean the optical sensors on the sensor board.
  - a. Carefully unplug the cable from the board.
  - b. Remove two thumbscrews.
  - c. Lift the board straight up.
  - d. Turn the board over. Carefully wipe the sensors with a soft cloth or alcohol swab.
  - e. Replace the board, thumbscrews, and cable.
- 5. Check that the **Cutter Blade** is tight on its shaft. The shaft has a flat. Tighten the cutter's set screw against the flat.
- 6. Check the **Cutter Blade** for a build-up of dirt or adhesive from the paper. Clean with an alcohol swab or solvent.



7. Check that the **Large Gear** is tight on the **Driveshaft**. The shaft has a flat. Tighten the gear's set screw against the flat.
8. Make sure the **Chute Cover** is pushed down all the way. The **Chute Cover** presses an interlock switch located under the shelf. The switch interrupts power to motor when the **Chute Cover** is open. A bent **Chute Cover** can fail to activate the switch.
9. Keep the entire shelf area clean of dust. The optical sensors are most affected by dust build-up.

While cleaning, **TURN OFF THE POWER.**

Do not use a metal ended vacuum to clean any circuit board. A can of compressed air or an air compressor is recommended for cleaning circuit boards.

After cleaning replace the covers. They are there for safety and to protect the circuit boards. Metal objects like tokens or tools dropped on the boards can cause short circuits and damage the boards.

10. Do not block the exhaust fan on the rear and the vents on the side. Allow at least 6 inches (15 cm) of clearance.
11. If you are getting a message on the display instead of a ticket count or the snake mode, refer to the section on "Handling Messages on the Door Display".

## Blade Adjustment & Replacement

### **Stationary Blade Adjustment**

The Ticket Eater blade is adjusted at the factory. As the blade wears, adjusting it so that it is closer to the cutter will extend its life. To adjust the blade, follow these steps:

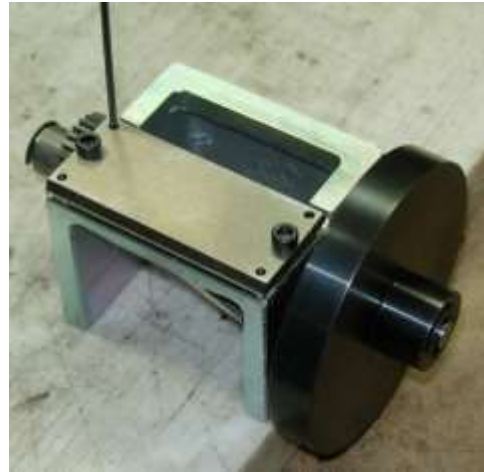
1. Make sure the **POWER IS OFF** and the cutter is not rotating.
2. Pull straight up to remove the cutter assembly from guide housing assembly
3. Set the cutter assembly on a spacer or the edge of your workbench so that you can access the blade screws and turn the flywheel.

**CAUTION:** Even a dull blade is sharp enough to cut your fingers. Keep them away from the cutter and the blade.

4. Use a 7/64 inch hex wrench to loosen the socket head attachment screws that hold the stationary blade. Loosen them so that they can be turned with your bare fingers, but do not remove them.



Socket Head Attachment Screw



Adjustment Set Screw

5. Insert a 1/16 inch hex wrench through the top clearance hole of the stationary blade into the set screw.
6. Turning the set screw clockwise will move the blade closer to the cutter. Slowly spin the flywheel while turning the set screw clockwise. As the blade nears the cutter edge you will start to hear and feel the blade touch the cutter as you rotate it. If you go too far the cutter will not turn freely. Adjust both the left and right sides so that you get no contact and can see no light between the cutter and the blade.
7. Slowly tighten the screws that hold the stationary blade while rotating the cutter and checking the contact adjustment. As the screws are tightened they will pull the blade away from the cutter. Use the adjustment screws to compensate.

8. Re-install the cutter assembly in the machine. Make sure that it is seated all the way down so that its gear meshes correctly with the gear on the guide housing assembly.

### ***Stationary Blade Replacement***

The Ticket Eater blade has two edges. When one edge has worn to the point that it can not be adjusted, it can be flipped around to use the other edge. To flip the blade or replace the blade, follow these steps:

1. Make sure the **POWER IS OFF** and the cutter is not rotating.
2. Pull straight up to remove the cutter assembly from guide housing assembly
3. Set the cutter assembly on a spacer or the edge of your workbench so that you can access the blade screws and turn the flywheel.

**CAUTION:** Even a dull blade is sharp enough to cut your fingers. Keep them away from the cutter and the blade.

4. Use a 7/64" hex wrench to remove the screws that hold the stationary blade (see photo on previous page).
5. Remove the blade, but leave the adjustment screws in place.
6. Flip the blade around to use the other edge, or use a new blade. Install the blade being careful not to get the bevel backwards. The wider side of the blade should be against the frame.
7. Follow the instructions on the previous page to adjust the blade.

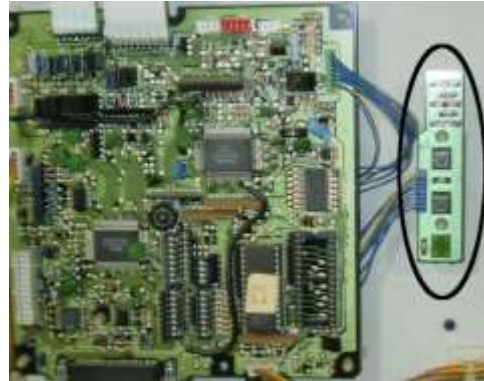
## Printers & Loading Paper

### ***Star thermal printer***

This printer is used in some older machines. The printer is mounted on the inside of the top door.

The printer control board (circled in photo) has 3 LEDs. The top LED is a green “power on” indicator. The middle LED is a red “error” indicator. It is lit when there is a problem such as out of paper.

The bottom LED is a green “on line” indicator. The printer control board has two switches. The top switch is an on-line / off-line toggle. The bottom switch feeds paper.



### ***Custom VKP80II thermal printer***

This printer has replaced the obsolete PPU-231. The printer sits on a shelf inside the cabinet. To load paper:

1. Start with the printer on.
2. Make sure the paper comes from the bottom of the roll.
3. Make sure the paper end has a clean square cut.
4. Insert the paper between the green guides in the back of the printer. The printer will detect the paper and load it.



### ***Citizen PPU-231 thermal printer***

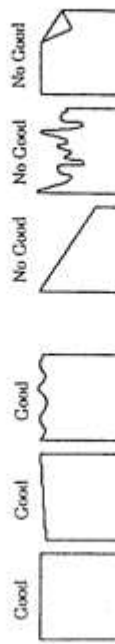
This printer sits on shelf inside the cabinet. On the side of the printer are a paper-feed switch and an on/off toggle switch (circled in photo). Please refer to the printer manual for further instruction on printer care and functions. Refer to the next page for paper loading instructions.



#### 4.3 Inserting the Paper

##### CAUTION:

- 1) Be sure to use the specified paper roll.
- 2) Use of non-specified paper may not guarantee the print quality, printing head life, presenter operation, and so on.
- 3) Do not insert a ragged or dog-eared end of the paper roll, because it could result in a paper jam or insertion error.



1. Cut the front end of the paper roll almost at a right angle.
2. Insert the paper roller of the paper holding unit into the core of the paper roll as shown in the figure on the next page.
3. Make sure the paper winding direction and put the paper roll onto the PHU.
4. Make sure that the power is turned on.
5. If there is still some paper remaining after a paper-out indication, eliminate the paper roll according to "4.4 How to Remove the Remaining Paper Roll."

6. Raise the head-up lever of the printer/presenter unit. (See the next page.)

7. Insert the front end of the paper roll straight into a paper insertion slot as shown in the figure on the next page, until the paper stops.

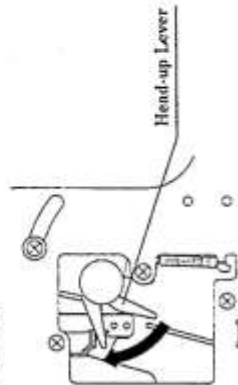
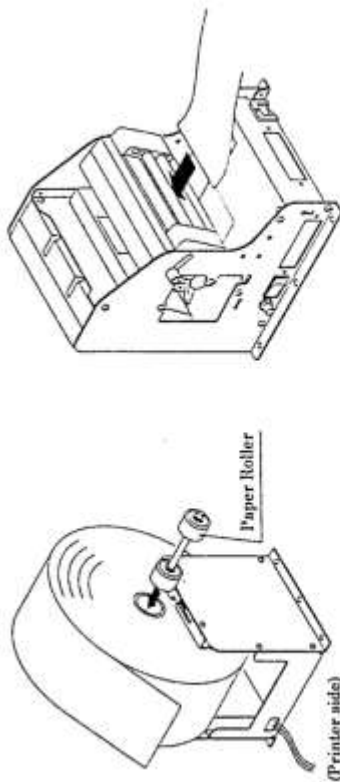
8. Put back the head-up lever. The paper is automatically pulled in by the platen roller to feed a constant amount of paper. (When auto-loading is enabled.) Remove the cut paper to enable printing.

##### CAUTION:

- 1) If the paper roll is still slack, rewind the paper to remove the slack.
- 2) If the paper roll is tilted, raise the head-up lever to correct the paper roll position, or pull out the paper roll and set it again.
- 3) Do not hold or press the paper roll while printing, because it could cause a paper jam.
- 4) After the paper is set, the printer is made ready to start printing. Note that if data is remaining in the buffer, the printer will start printing after the paper is set.

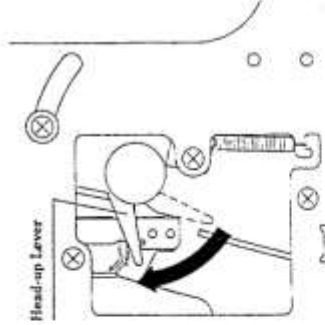
\*IMPORTANT\* PAPER WIDTH CANNOT EXCEED 3.125 in. THERMAL PAPER ONLY

\*NOTE\* IF USING PAPER WITH TICKET EATER LOGO, PAPER IS LOADED OPPOSITE OF ABOVE (FROM BOTTOM)



#### 4.4 How to Remove Remaining Paper Roll

1. Raise the head-up lever of the printer/presenter unit.
2. Gently pull out the paper from the printer/presenter unit. If the paper roll is still remaining, cut it just before the paper insertion slot before pulling it out.



##### CAUTION:

- 1) Never take out paper with the head-up lever lowered, because it could damage the printing head.
- 2) The printer mechanism may be very hot just after printing, so be duly careful.

## Ticket Specifications

The Ticket Eater is designed to count industry standard tickets. These tickets are 1 5/32" wide by 2" long. They have a 1/4" diameter hole in the middle of the ticket which is centered on the perforation between tickets. For use in ticket dispensers they will also have a 1/4" diameter half hole on each side of the ticket at the perforation.



Barcoded and Holes-Only Tickets photographed on 1/4" grid.



White Lines Show Reserved Center Area

The barcode on barcoded tickets is 4 digits of interleaved 2 of 5 code. This gives it 14 bars and 13 spaces. There are 18 thin bars/spaces and 9 thick bars/spaces. Thick bars/spaces are 3 times as wide as thin bars/spaces.

The overall length of the barcode should be 0.7 to 1 inch. A stripe in the middle of the tickets in line with the holes is reserved for the barcodes (see photo above). The barcode must be wide enough to fill this area, but it can be wider. Thus the minimum width of the barcode is the same as the hole diameter (1/4 inch). Other than a light red (no other color is allowed) sequence number, nothing (not even a border) should be printed in the center stripe area. No other color is allowed for the sequence number. Anything can be printed on the tickets outside of the reserved center area.

The barcode bars should be printed with a dark color (black is preferred). The ink should be dense enough that no background color shows through the bars

The barcode must be printed on both sides of the tickets.

The barcode background color should not be a dark color such as dark brown, dark blue, dark gray, etc.

Holes-only (non-barcoded) tickets should not have bold graphics or borders in the reserved center area. Other graphics can be printed there, but solid bold graphics can appear to be a hole to sensors which use light reflected from the tickets. This can cause in miscounts.



Tickets with Bold Printing in the Reserved Area



## Diagnostic LED's

The Ticket Eater has several diagnostic LEDs:

| Location          | Color | Indicates                             | Status                           |
|-------------------|-------|---------------------------------------|----------------------------------|
| Logic Board       | Red   | +5 V Power                            | Normally On                      |
| Logic Board       | Green | +12 V Power                           | Normally On                      |
| Motor Drive Board | Red   | Motor Control Signal from Logic Board | Motor should be on when it is on |

|                     |     |                 |                                       |
|---------------------|-----|-----------------|---------------------------------------|
| HO-1000 Rev. 1-4 D1 | Red | Ticket detected | Off when front sensor sees ticket     |
| HO-1000 Rev. 1-4 D2 | Red | Ticket detected | On when middle sensor sees ticket     |
| HO-1000 Rev. 1-4 D3 | Red | Ticket detected | Off when both rear sensors see ticket |

|               |     |                 |                                       |
|---------------|-----|-----------------|---------------------------------------|
| HO-2000 LED 1 | Red | Ticket detected | Off when front sensor sees ticket     |
| HO-2000 LED 2 | Red | Ticket detected | On when mid-front sensor sees ticket  |
| HO-2000 LED 3 | Red | Ticket detected | On when mid-rear sensor sees ticket   |
| HO-2000 LED 4 | Red | Ticket detected | Off when both rear sensors see ticket |

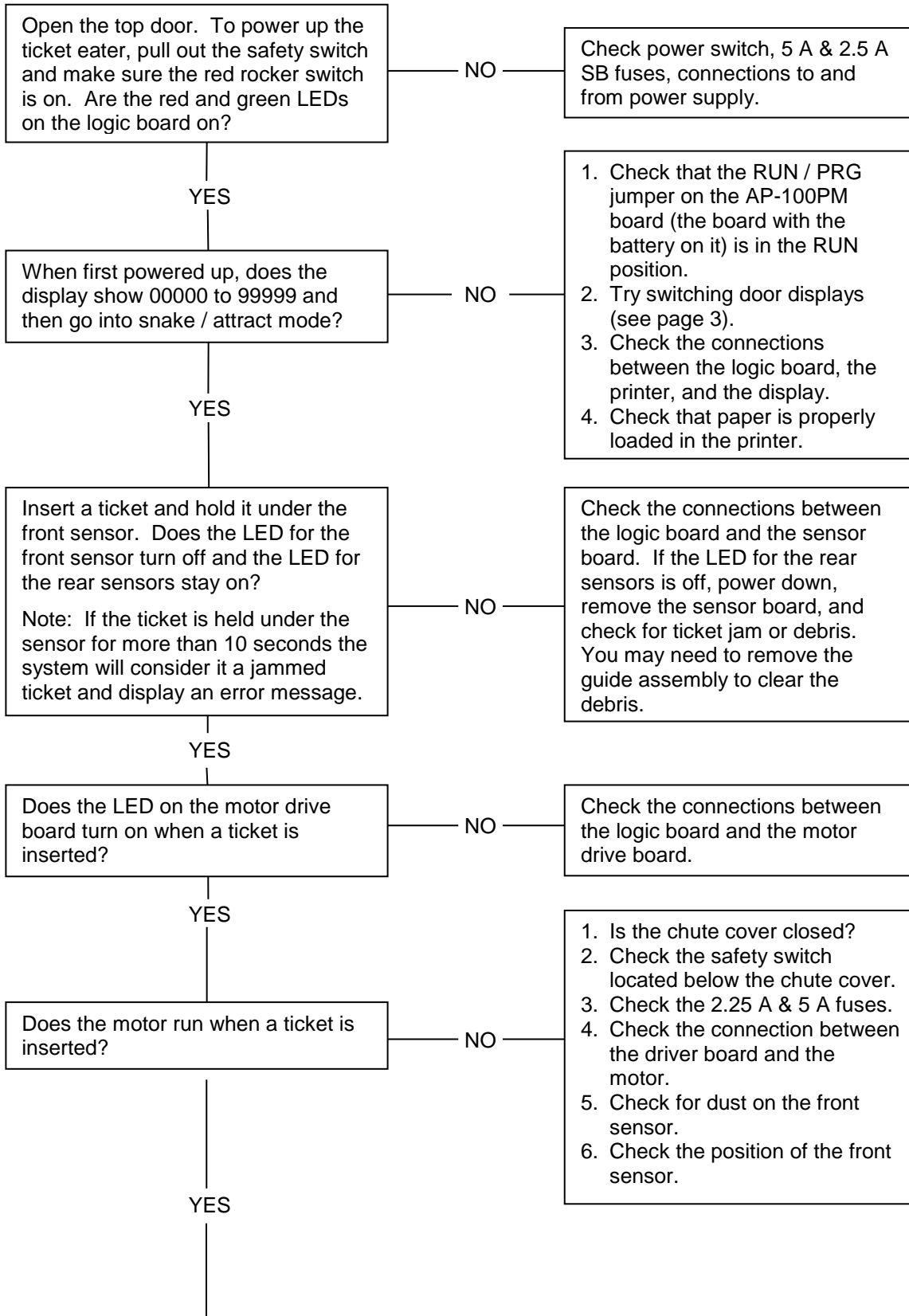
|                         |     |                 |                                       |
|-------------------------|-----|-----------------|---------------------------------------|
| BCR-1000 Rev. 1-4 Front | Red | Ticket detected | Off when front sensor sees ticket     |
| BCR-1000 Rev. 1-4 Rear  | Red | Ticket detected | Off when both rear sensors see ticket |

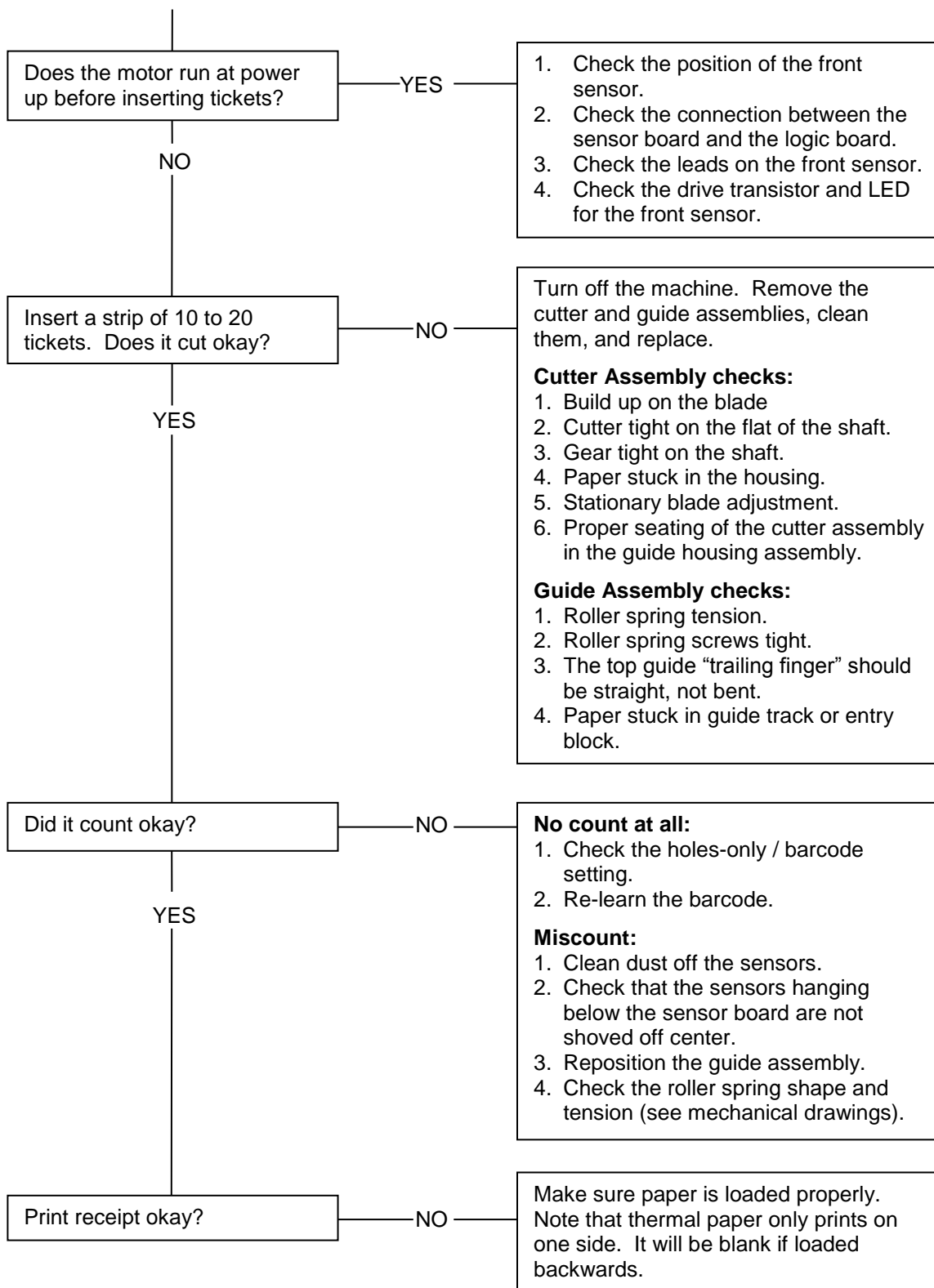
|                      |     |                 |   |
|----------------------|-----|-----------------|---|
| HO-1000 Rev. 5 LED 1 | Red | Ticket detected | On when middle front sensor sees ticket |
| HO-1000 Rev. 5 LED 2 | Red | Ticket detected | On when right rear sensor sees ticket   |
| HO-1000 Rev. 5 LED 3 | Red | Ticket detected | On when left rear sensor sees ticket    |
| HO-1000 Rev. 5 LED 4 | Red | Ticket detected | Off when front sensor sees ticket       |
| HO-1000 Rev. 5 LED 5 | Red | Cheating        | Flashes On when error is detected       |
| HO-1000 Rev. 5 LED 6 | Red | Ticket detected | On when middle rear sensor sees ticket  |

|                       |     |                 |   |
|-----------------------|-----|-----------------|---|
| BCR-1000 Rev. 5 LED 1 | Red | Cheating        | Flashes On when error is detected               |
| BCR-1000 Rev. 5 LED 2 | Red | Ticket detected | Off when front sensor sees ticket               |
| BCR-1000 Rev. 5 LED 3 | Red | Ticket detected | On when middle sensor sees a bar in the barcode |
| BCR-1000 Rev. 5 LED 4 | Red | Ticket detected | On when middle rear sensor sees ticket          |
| BCR-1000 Rev. 5 LED 5 | Red | Ticket detected | On when left rear sensor sees ticket            |
| BCR-1000 Rev. 5 LED 6 | Red | Ticket detected | On when right rear sensor sees ticket           |

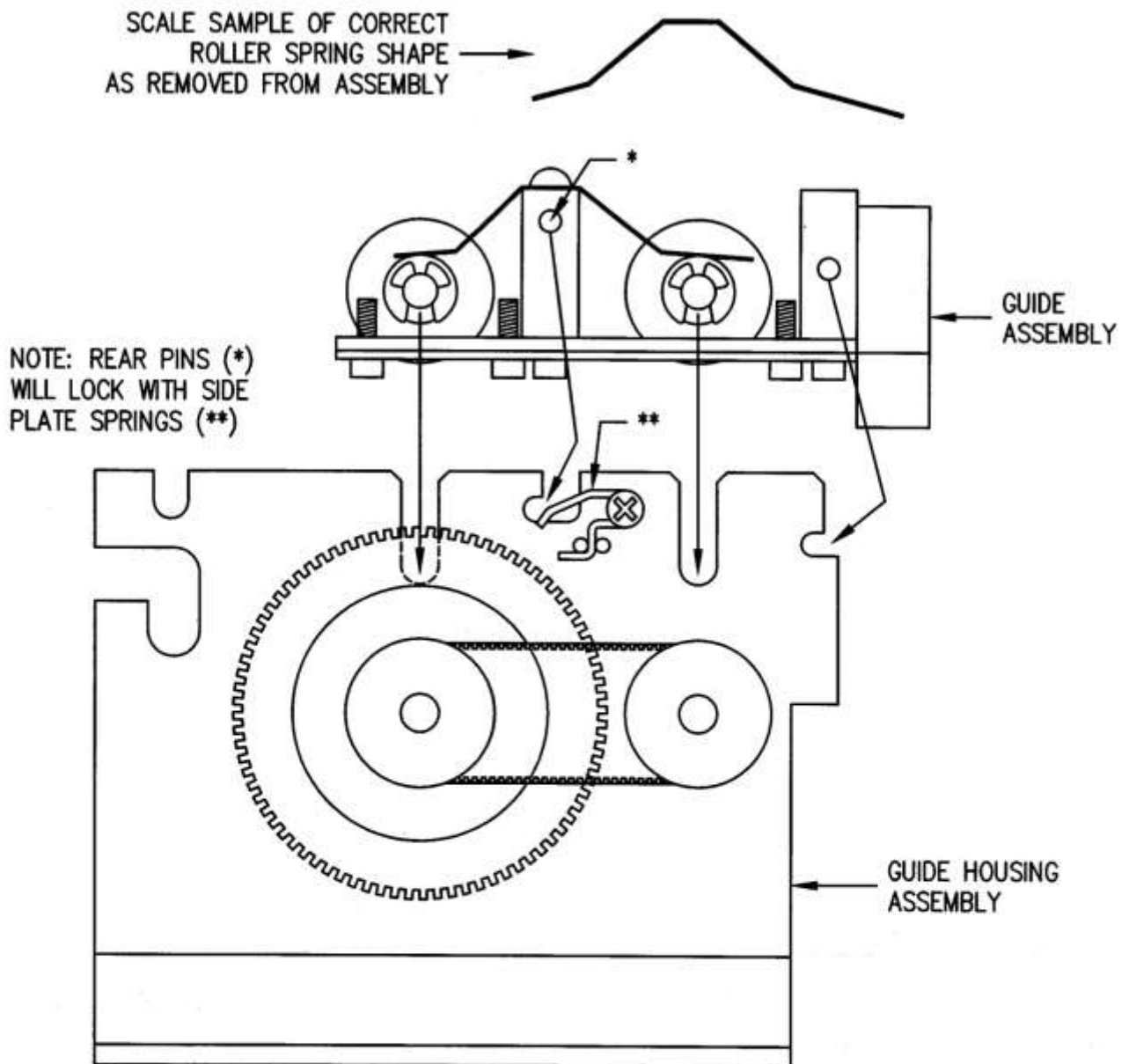


## Trouble-Shooting Flowchart





## Mechanical Drawings



### CAUTION!

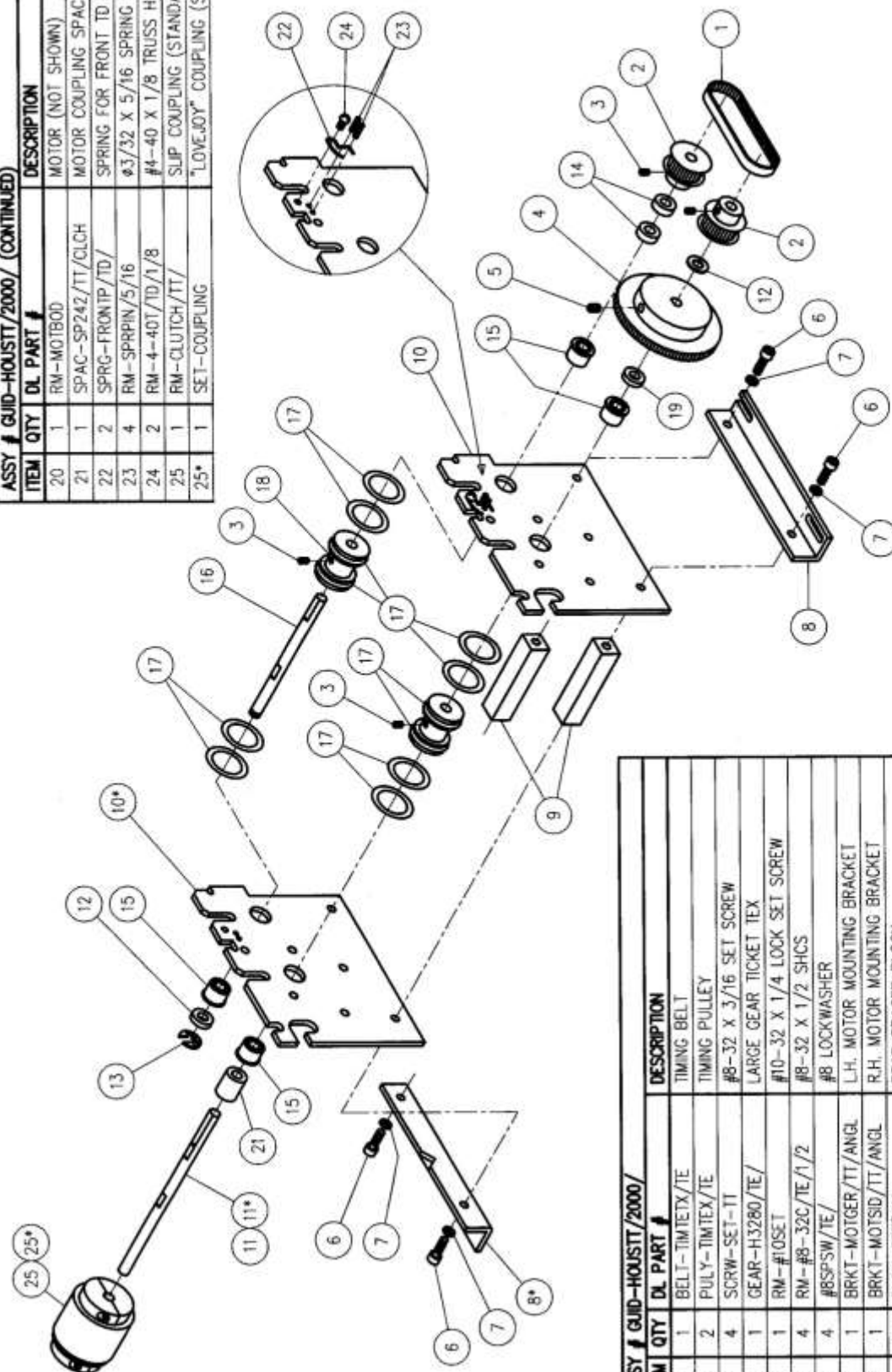
WHEN INSERTING GUIDE ASSEMBLY INTO GUIDE HOUSING ASSEMBLY, YOU MUST ALIGN THE TOP ROLLER SHAFTS IN THE APPROPRIATE SLOTS BEFORE PUSHING THE GUIDE ASSEMBLY DOWN AND FORWARD.

IMPROPER PROCEDURE MAY CAUSE DAMAGE TO THE ROLLER SPRINGS.  
REFERENCE THE MAINTENANCE TIPS AND TROUBLESHOOTING GUIDE.






| ASSY # GUID-HOUSTT/2000/ (CONTINUED) |     |                    | DESCRIPTION                        |
|--------------------------------------|-----|--------------------|------------------------------------|
| ITEM                                 | QTY | DL PART #          |                                    |
| 20                                   | 1   | RM-MOTBOD          | MOTOR (NOT SHOWN)                  |
| 21                                   | 1   | SPAC-SP242/TT/CLCH | MOTOR COUPLING SPACER              |
| 22                                   | 2   | SPRG-FRONT/TT/     | SPRING FOR FRONT TO PANEL          |
| 23                                   | 4   | RM-SPRPN/5/16      | Ø3/32 X 5/16 SPRING PIN            |
| 24                                   | 2   | RM-4-40T/TT/1/8    | #4-40 X 1/8 TRUSS HEAD SCREW       |
| 25                                   | 1   | RM-CLUTCH/TT/      | SLIP COUPLING (STANDARD)           |
| 25*                                  | 1   | SET-COUPLING       | "LOVEJOY" COUPLING (SPECIAL ORDER) |

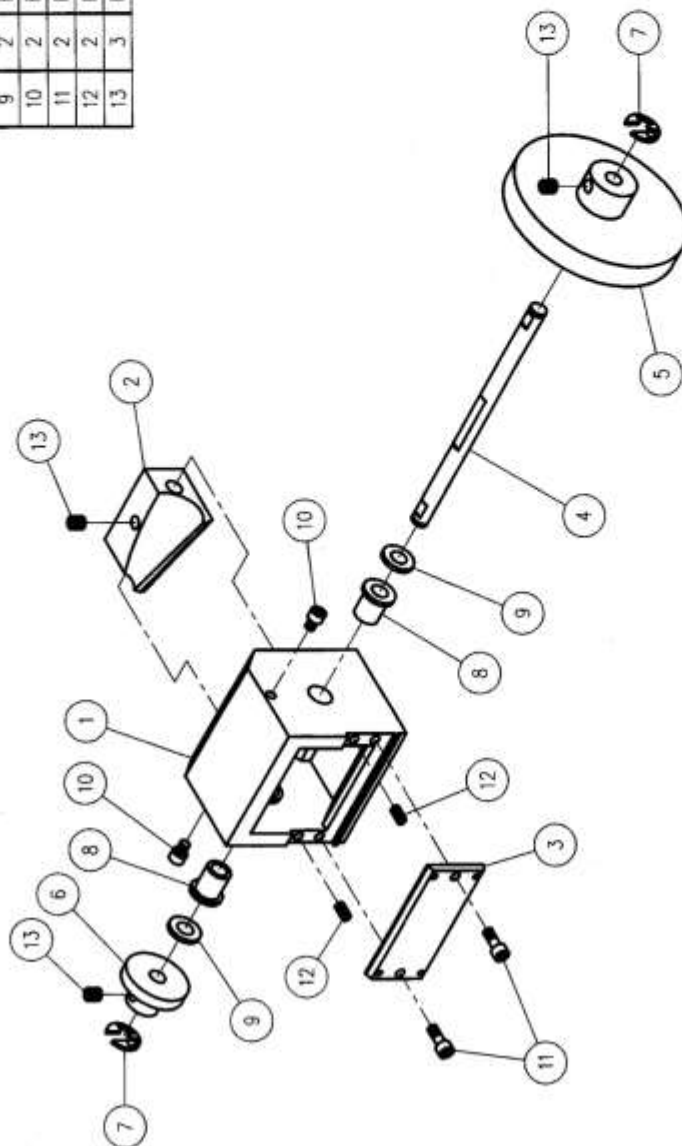


| ASSY # GUID-HOUSTT/2000/ |     |                    | DESCRIPTION                         |
|--------------------------|-----|--------------------|-------------------------------------|
| ITEM                     | QTY | DL PART #          |                                     |
| 1                        | 1   | BELT-TIMTEX/TE     | TIMING BELT                         |
| 2                        | 2   | PULY-TIMTEX/TE     | TIMING PULLEY                       |
| 3                        | 4   | SCRW-SET-TT        | #8-32 X 3/16 SET SCREW              |
| 4                        | 1   | GEAR-H3280/TE/     | LARGE GEAR TICKET TEX               |
| 5                        | 1   | RM-#10SET          | #10-32 X 1/4 LOCK SET SCREW         |
| 6                        | 4   | RM-#8-32C/TE/1/2   | #8-32 X 1/2 SHCS                    |
| 7                        | 4   | #8SPSW/TE/         | #8 LOCKWASHER                       |
| 8                        | 1   | BRKT-MOTGR/TT/ANGL | L.H. MOTOR MOUNTING BRACKET         |
| 8*                       | 1   | BRKT-MOTSD/TT/ANGL | R.H. MOTOR MOUNTING BRACKET         |
| 9                        | 2   | BLOK-TIFRAM        | REAR SPACER BLOCK                   |
| 10                       | 1   | RM-SOPTIL          | SIDE PLATE LEFT SIDE                |
| 10*                      | 1   | RM-SOPTTR          | SIDE PLATE RIGHT SIDE               |
| 11                       | 1   | SHIFT-CLUTCH/      | MOTOR DRIVESHAFT (SLIP COUPLING)    |
| 11*                      | 1   | RMSHFTDR/TT/       | MOTOR DRIVESHAFT (LOVEJOY COUPLING) |
| 12                       | 2   | SPAC-032/TT/WSHR   | SPACER WASHER                       |
| 13                       | 1   | RING-E25RET/TT/    | RETAINING RING                      |
| 14                       | 2   | PULY-SP212/TE/NYLN | NYLON SPACER                        |
| 15                       | 4   | PSB-250            | BRONZE PRESS-ALIGN BEARING          |
| 16                       | 1   | SHIFT-TTDRV/TE/    | TIC TEX DRIVE ROLLER SHAFT          |
| 17                       | 12  | RING-TICTEX/TE/    | URETHANE O-RING                     |
| 18                       | 2   | ROLR-DRIVE/TE/     | T/E DRIVE ROLLER W/O PARTS          |
| 19                       | 1   | SPAC-093/TT/WSHR   | SPACER WASHER                       |

| REV   | DATE     | DESCRIPTION       |
|---|----------|-------------------|
| B   | 10/17/02 | REVISED & REDRAWN |
| DRAWN DATE 2/2/00   |          |                   |
| CHECK DATE  |          |                   |
| APPR DATE   |          |                   |
| COMPUTER GRAPHICS   |          |                   |
| MANUAL CHANGES  |          |                   |
| RESTRICTED  |          |                   |
|  <b>Deltronic Labs, Inc.</b><br>120 Liberty Lane, Chalfont, PA |          |                   |
| TICKET EATER GUIDE HOUSING ASSEMBLY   |          |                   |
| EXPLODED VIEW   |          |                   |
| GUID-HOUSTT/2000/   |          | B                 |

ASSY # CUTR-TT2000 //

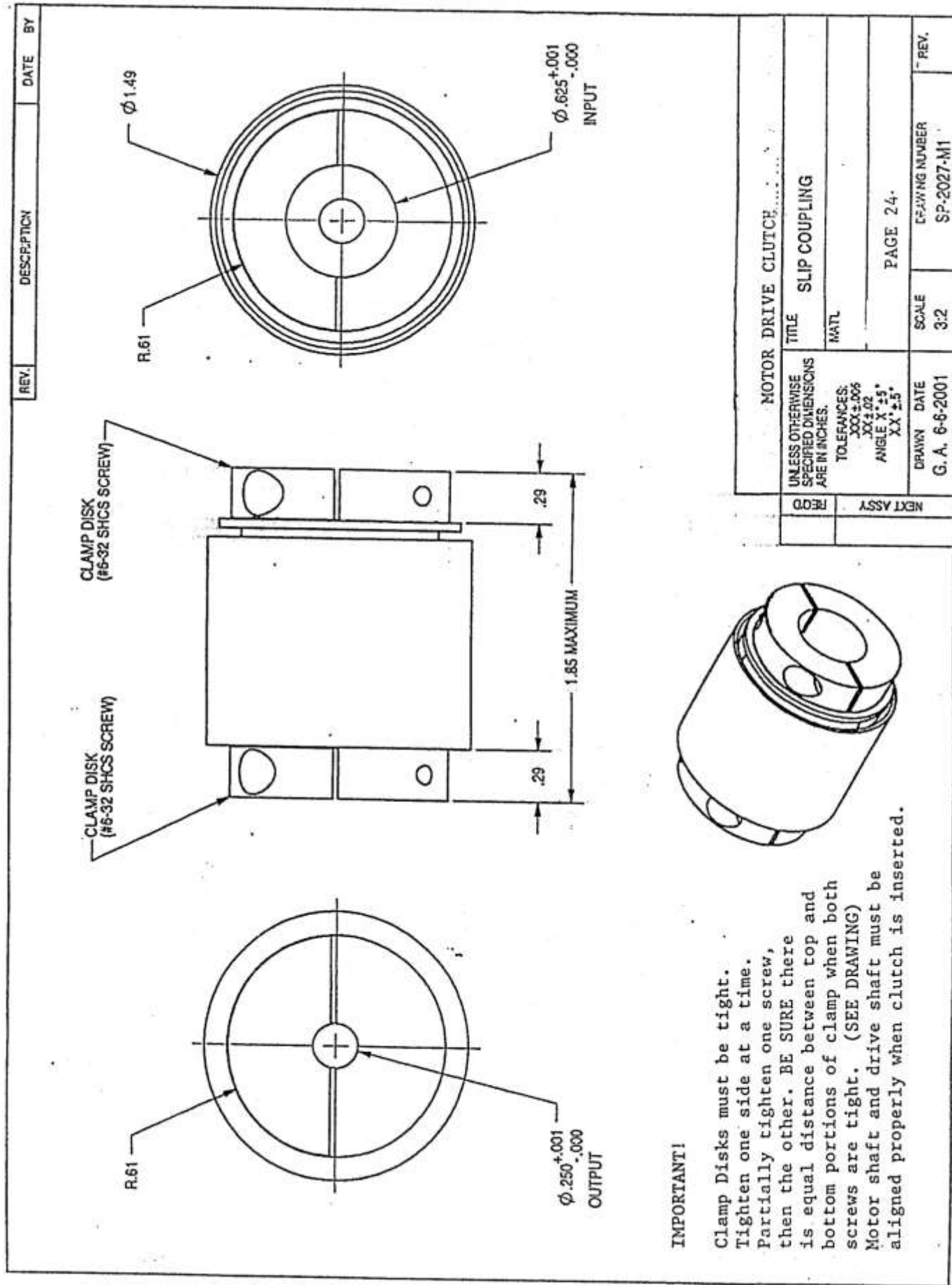
| ITEM | QTY | DL PART #        | DESCRIPTION             |
|------|-----|------------------|-------------------------|
| 1    | 1   | RM-HOUSING//     | HOUSING                 |
| 2    | 1   | RM-CUTBLD/TE     | ROTATING CUTTER         |
| 3    | 1   | RM-BLDSTN//      | STATIONARY BLADE        |
| 4    | 1   | SHFT-TT2CUT//    | SHAFT                   |
| 5    | 1   | CUTR-WHEEL//     | FLYWHEEL                |
| 6    | 1   | GEAR-H3232/TE//  | GEAR                    |
| 7    | 2   | RING-E25RET/TT// | RETAINING RING          |
| 8    | 2   | BRNG-FF312       | FLANGED BUSHING         |
| 9    | 2   | BRNG-TT504       | THRUST WASHER           |
| 10   | 2   | RM-#6-32C//3/16  | #6-32 X 3/16 SHCS       |
| 11   | 2   | RM-#6-32C/E/3/8  | #6-32 X 3/8 SHCS        |
| 12   | 2   | RM-#6SET//1/4    | #6-32 X 1/4 SET SCREW   |
| 13   | 3   | RM-#10SET//      | #10-32 X 3/16 SET SCREW |



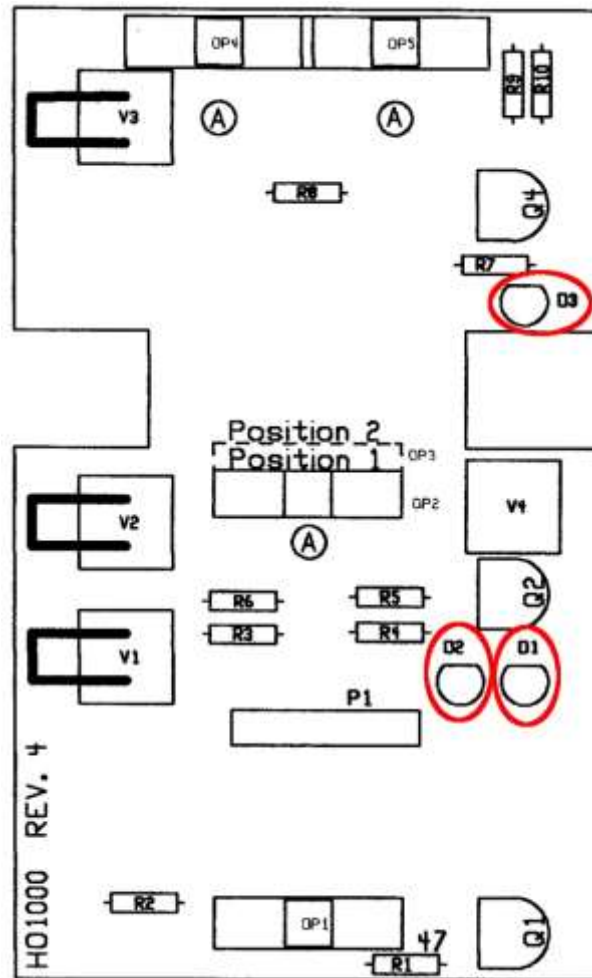
| REV  | DATE | DESCRIPTION |
|--|------|-------------|
| DRAWN  | DATE |             |
| 10/17/02   |      |             |
| CHECK  | DATE |             |
| APPR   | DATE |             |
| COMPUTER GRAPHICS<br>MANUAL CHANGES<br>RESTRICTED      |      |             |
| Deltronic Labs, Inc.<br>120 Liberty Lane, Chalfont, PA |      |             |
| TICKET EATER CUTTER ASSEMBLY<br>EXPLODED VIEW          |      |             |
| CUTR-TT2000 //   |      | A           |







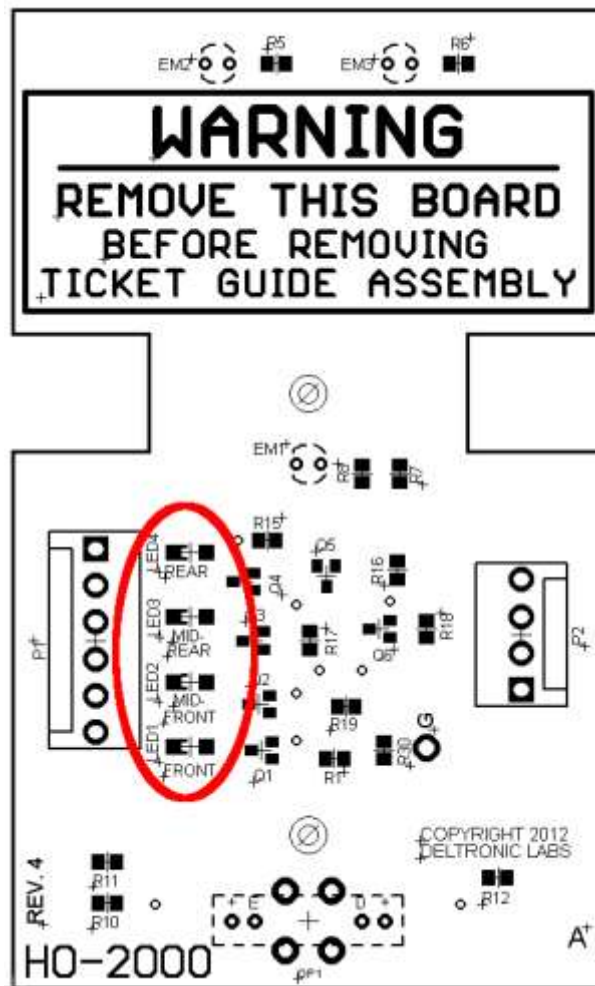
## Sensor Boards



### HO1000 Rev. 4

This drawing shows the HO1000 Rev. 4 sensor board. This board does not read barcodes. It has 3 LED's which are circled in red.

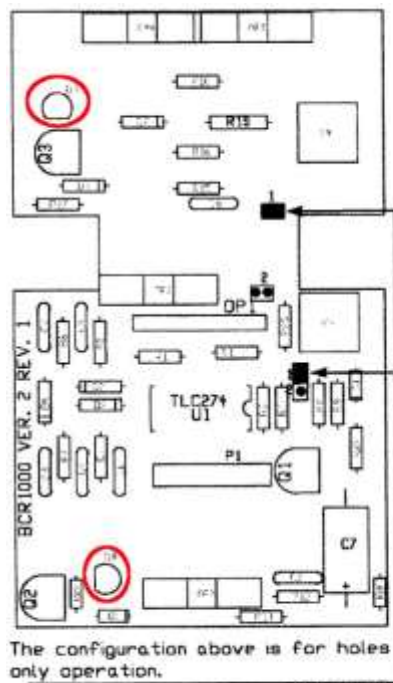
| SENSOR | LED | NOTES                            |
|--------|-----|----------------------------------|
| Front  | D1  | Off when sees ticket             |
| Middle | D2  | Off when sees ticket             |
| Rear   | D3  | Off when both sensors see ticket |



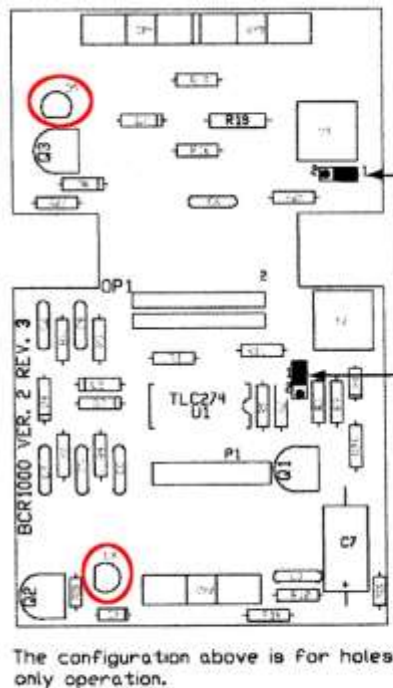
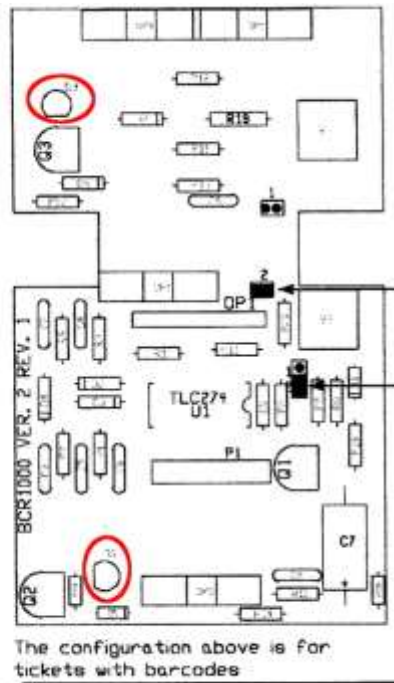
### HO2000 Rev. 4

This drawing shows the HO2000 Rev. 4 sensor board. This board works with the LS2000 board that mounts below the tickets. It does not read barcodes. The board has 4 LED's which are circled in red.

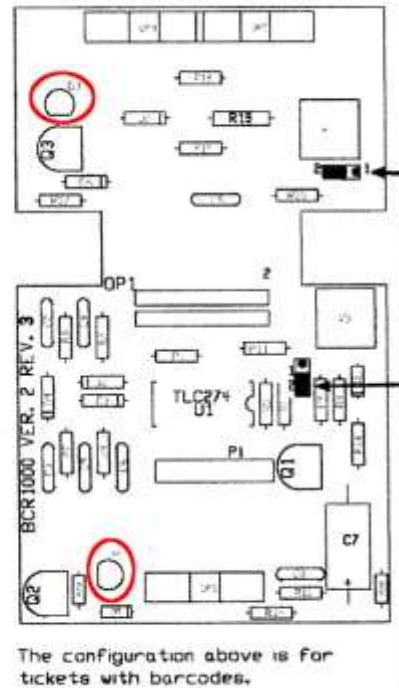
| SENSOR    | LED  | NOTES                            |
|-----------|------|----------------------------------|
| Front     | LED1 | Off when sees ticket             |
| Mid-front | LED2 | On when sees ticket              |
| Mid-rear  | LED3 | On when sees ticket              |
| Rear      | LED4 | Off when both sensors see ticket |



**BCR1000 Rev. 1**



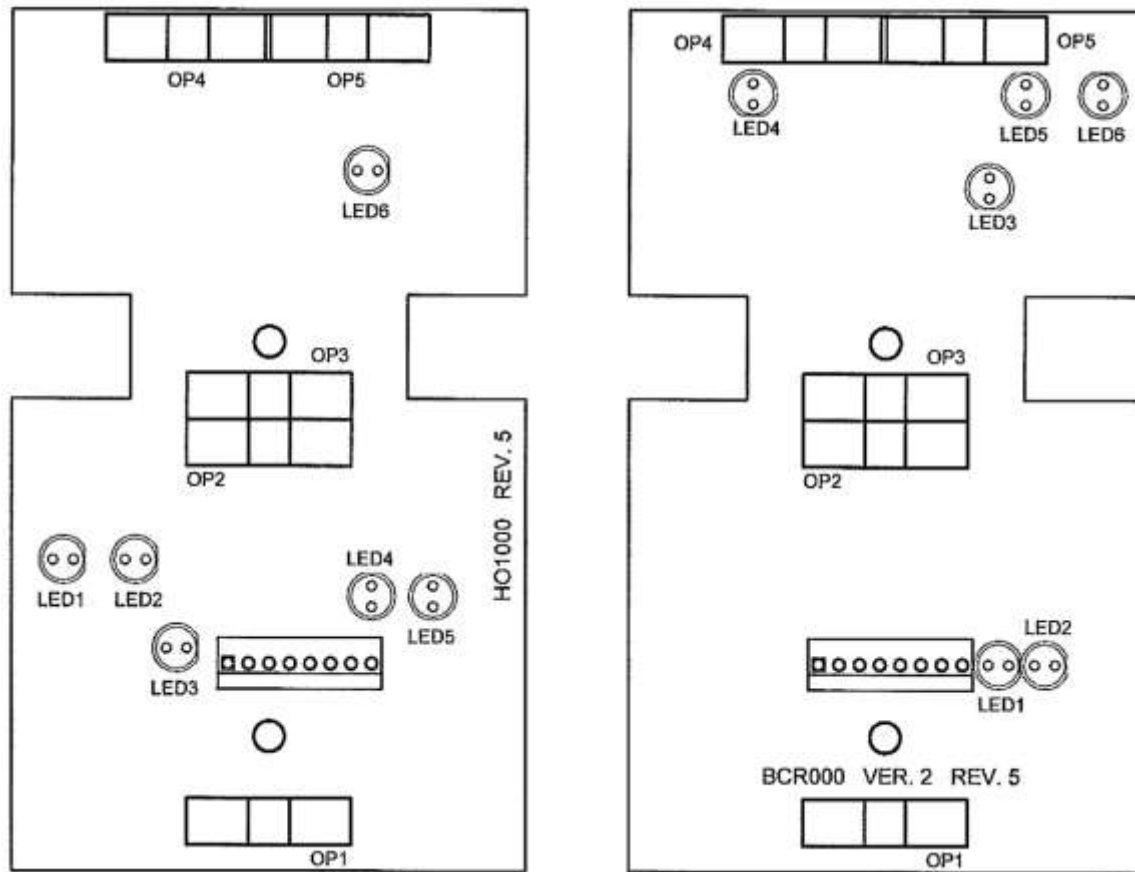
**BCR1000 Rev. 3-4**



These drawings show configurations for BCR1000 Rev. 1, 3 & 4 sensor boards. By moving jumpers these boards can be configured to read barcoded or holes-only tickets. The drawing on the right shows the jumper positions for barcoded tickets. The one on the left is for holes-only tickets. Note that the logic board options must also be changed to match the jumpers.

These boards have 2 LED's which are circled in red.

| SENSOR | LED | NOTES                            |
|--------|-----|----------------------------------|
| Front  | D8  | Off when sees ticket             |
| Rear   | D9  | Off when both sensors see ticket |

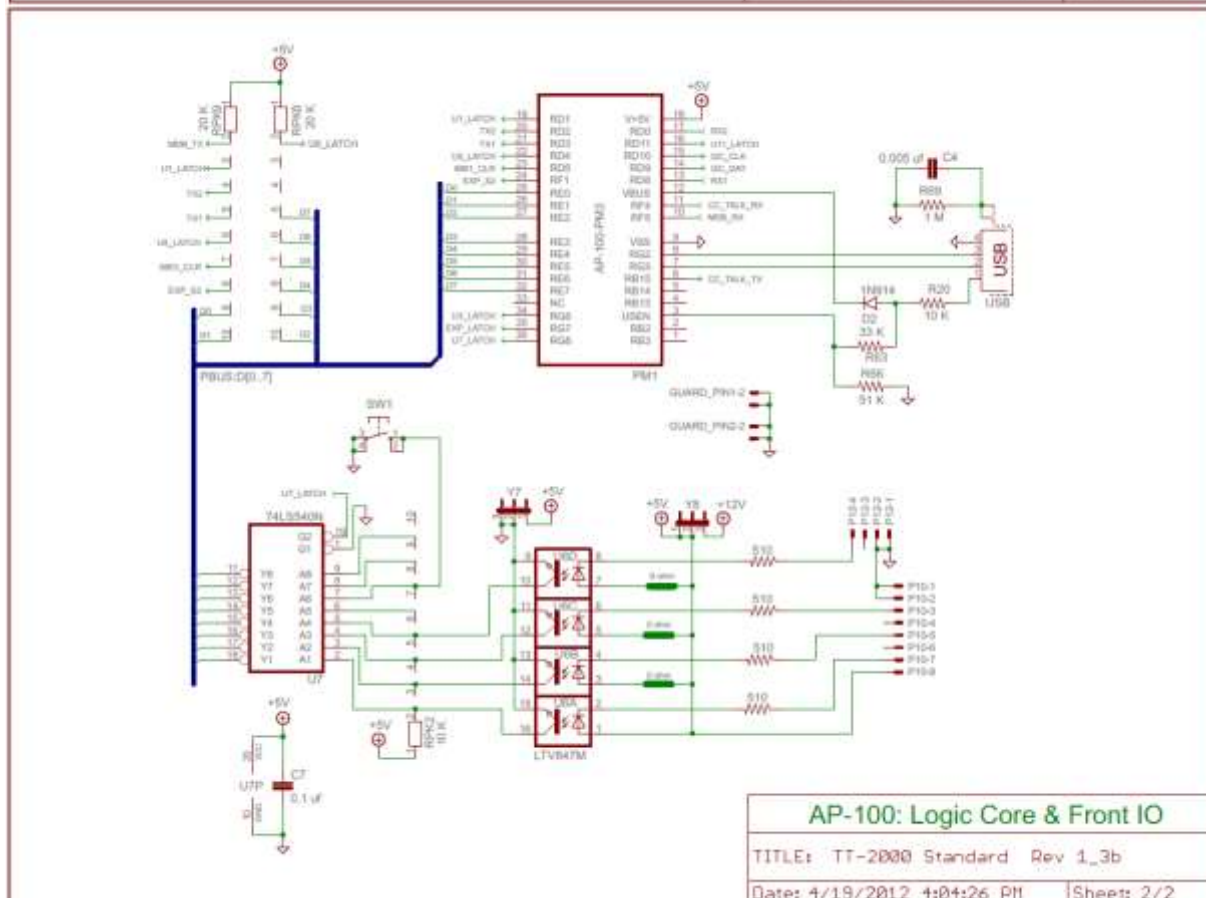
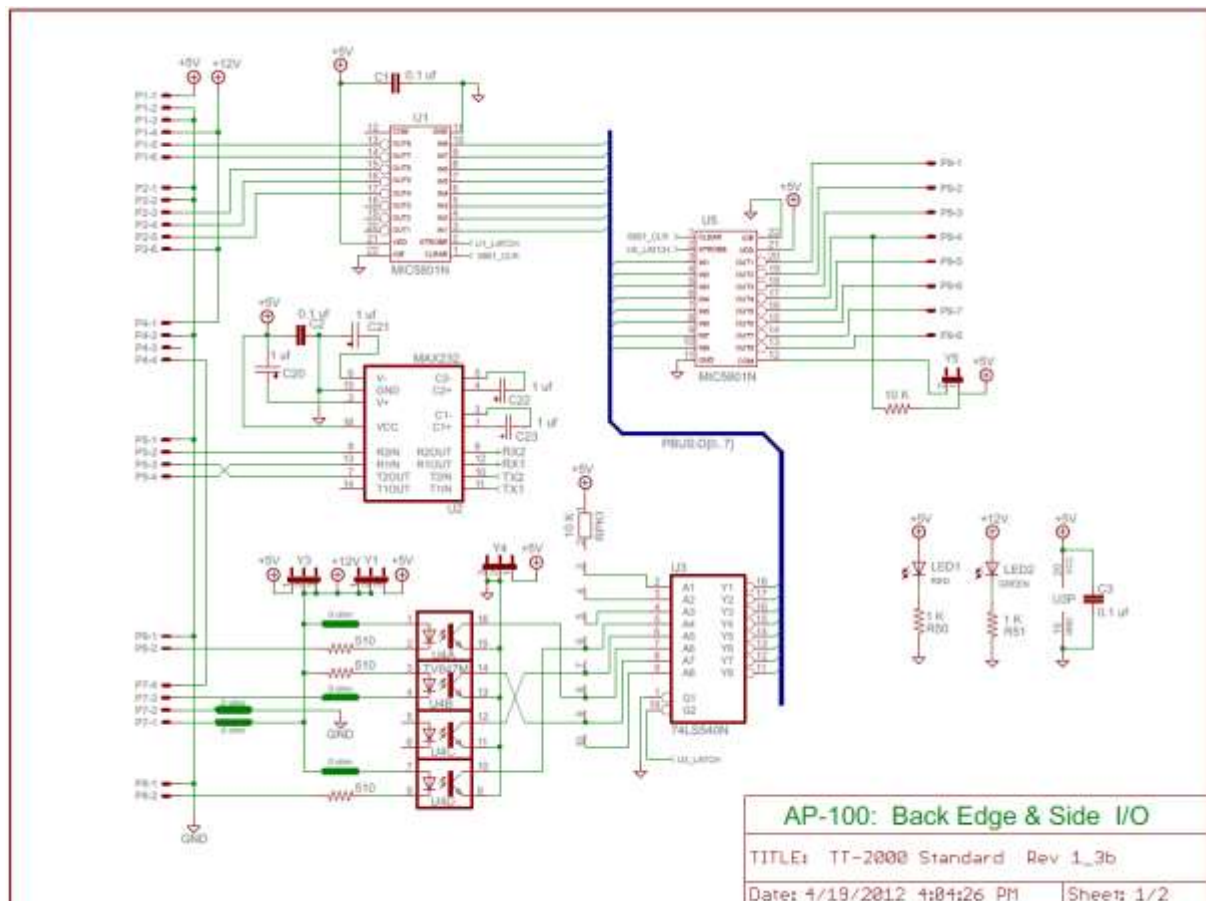


The Rev. 5 sensor boards have 6 LED's and 5 sensors. There is an LED for each sensor, and an LED to indicate a cheating or an error condition. The front sensor detects the ticket to turn the motor on. The middle sensors work together to count the tickets and detect cheating. The rear sensors provide additional cheat detection.

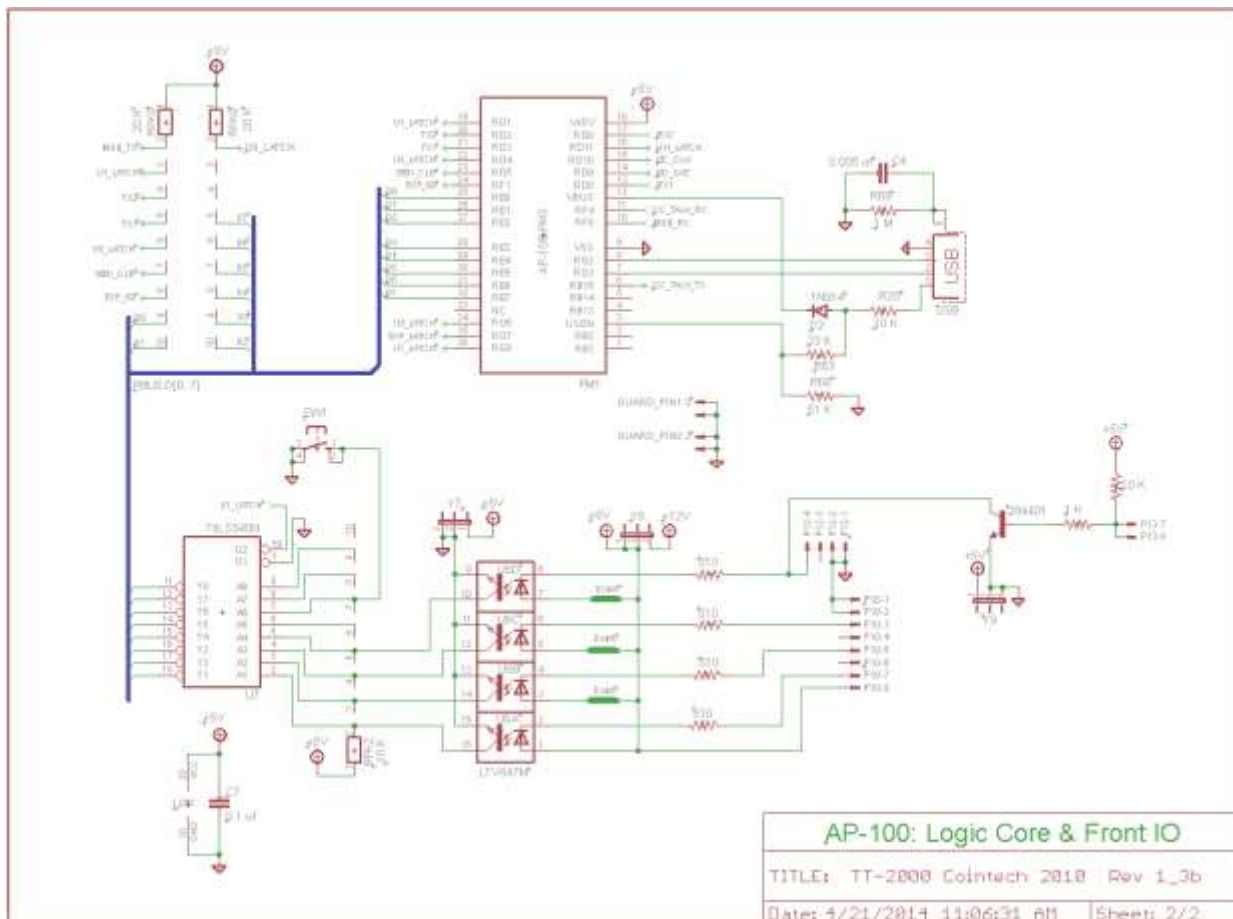
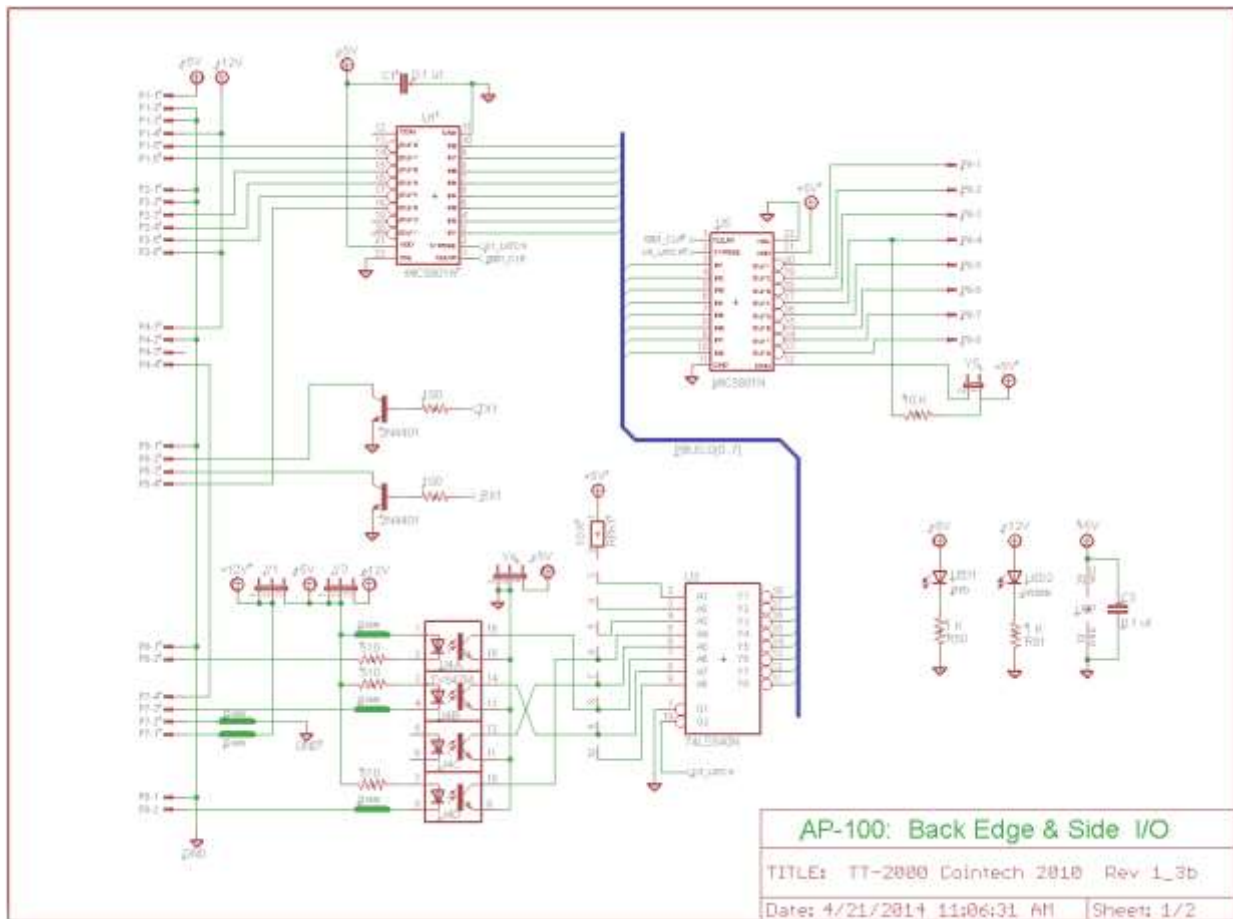
| HO-1000 Rev. 5 |     |                                  |
|----------------|-----|----------------------------------|
| SENSOR         | LED | NOTES                            |
| Front          | 4   | On when sees ticket              |
| Middle Front   | 1   | On when sees ticket              |
| Middle Rear    | 6   | On when sees ticket              |
| Rear Left      | 3   | On when sees ticket              |
| Rear Right     | 2   | On when sees ticket              |
|                | 5   | Flashes on for error or cheating |

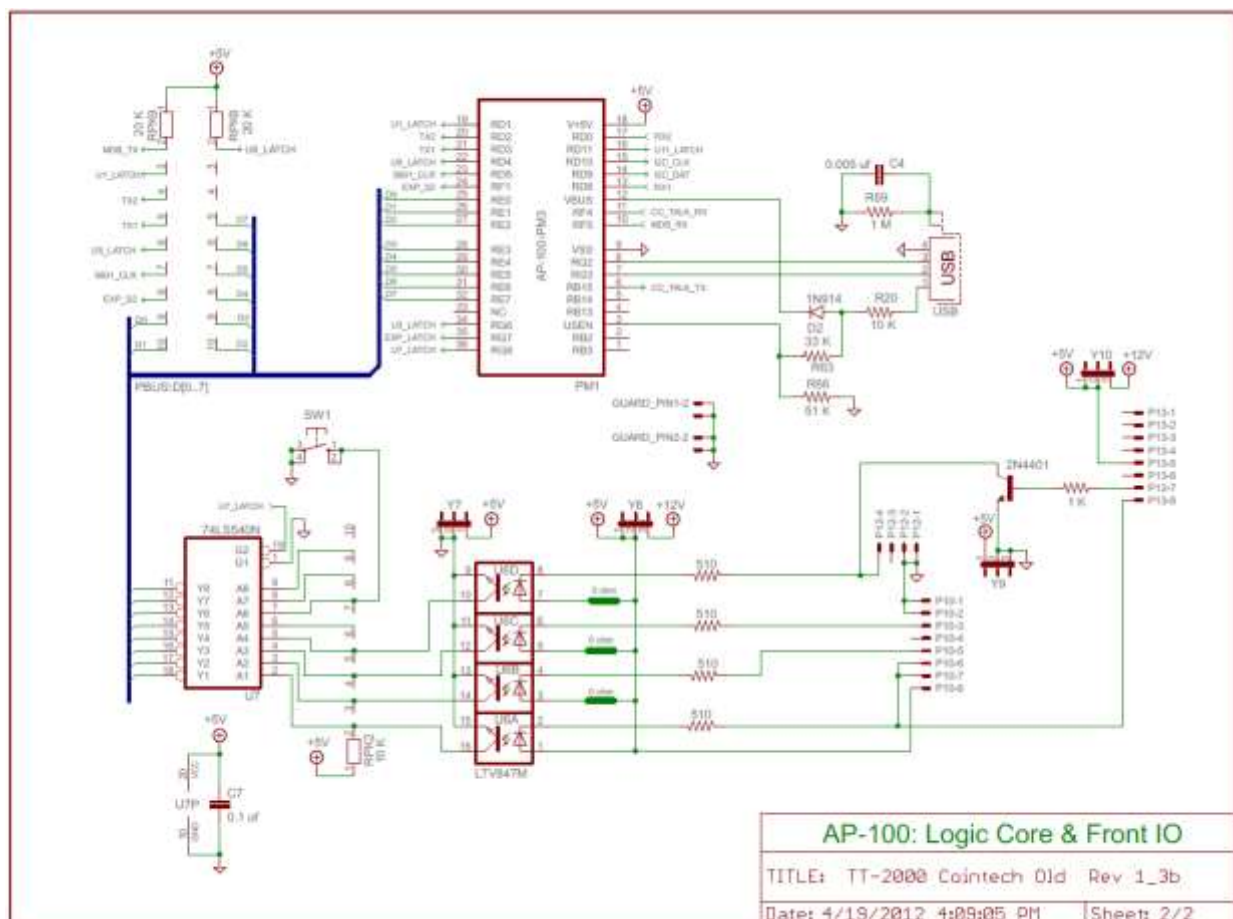
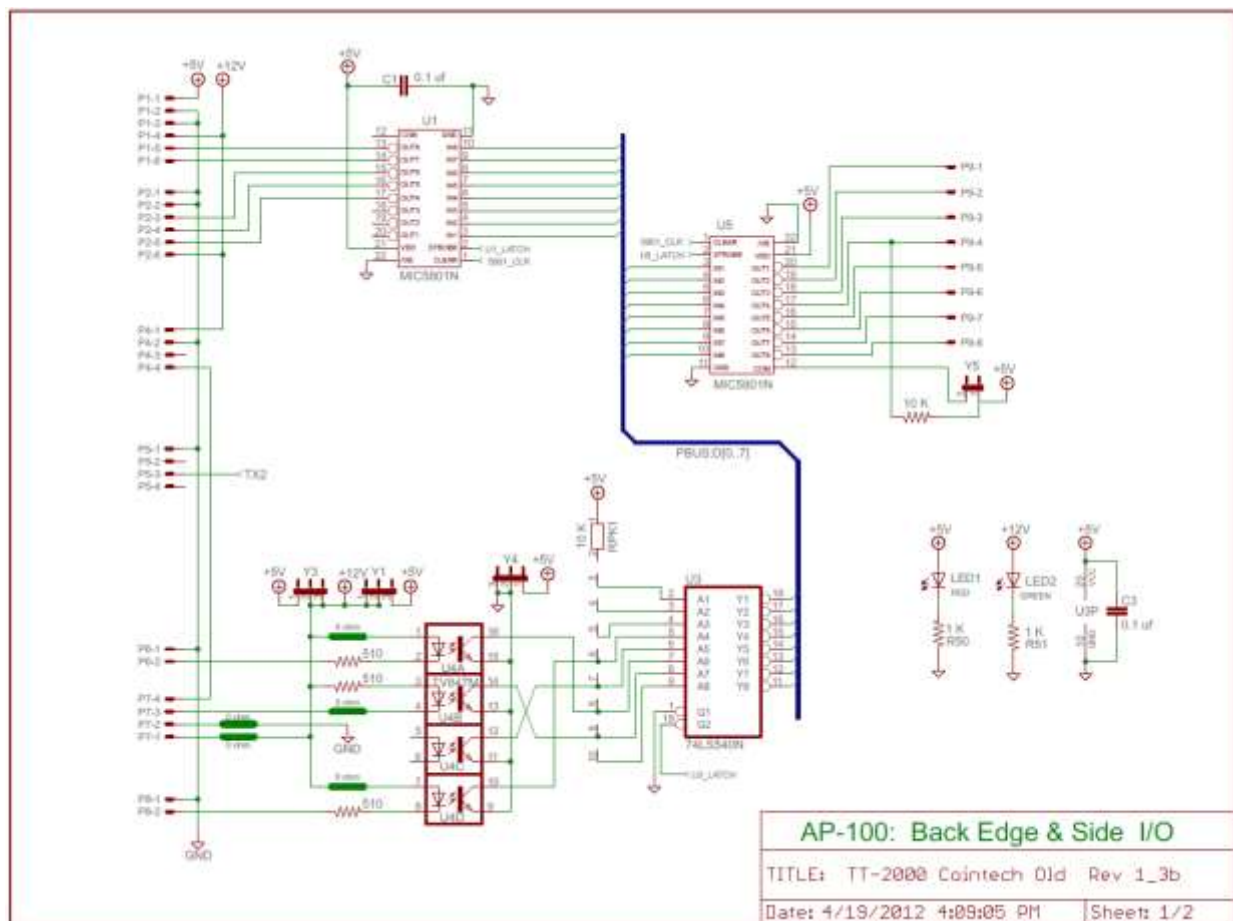
| BCR-1000 Rev. 5 |     |  |
|-----------------|-----|--|
| SENSOR          | LED | NOTES                                    |
| Front           | 2   | On when sees ticket                      |
| Middle Front    | 3   | On and off as it sees ticket and barcode |
| Middle Rear     | 4   | On when sees ticket                      |
| Rear Left       | 5   | On when sees ticket                      |
| Rear Right      | 6   | On when sees ticket                      |
|                 | 1   | Flashes on for error or cheating         |

# Electrical Schematics

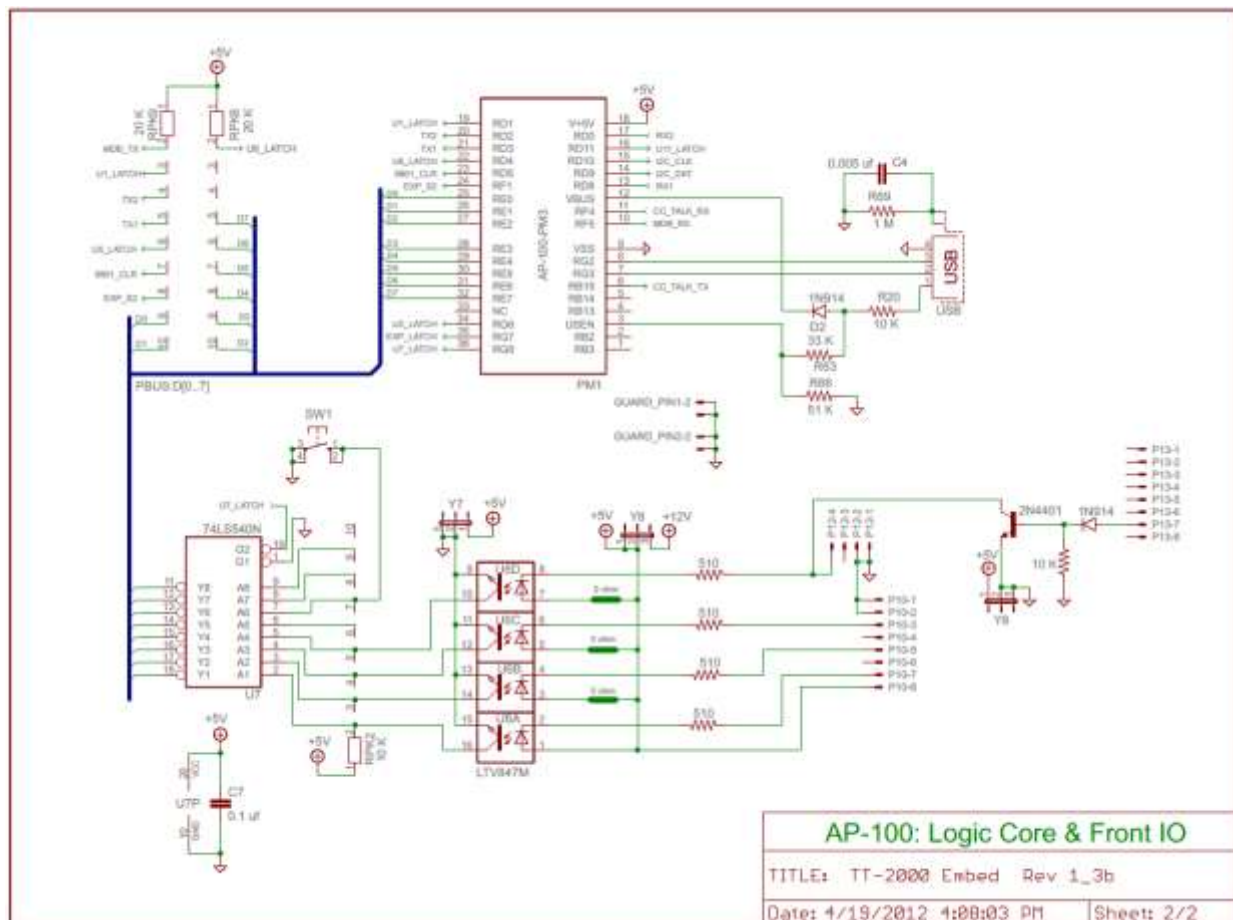
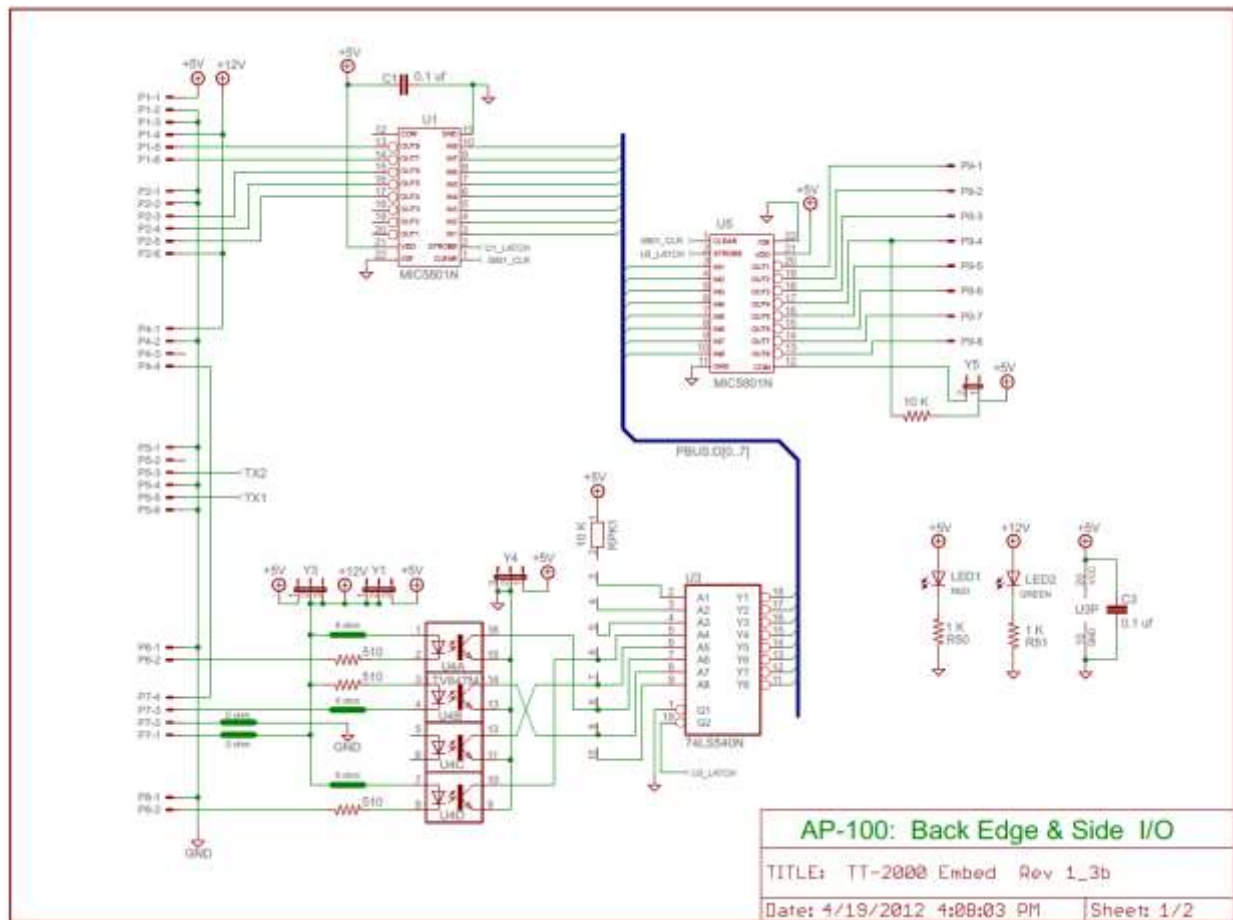


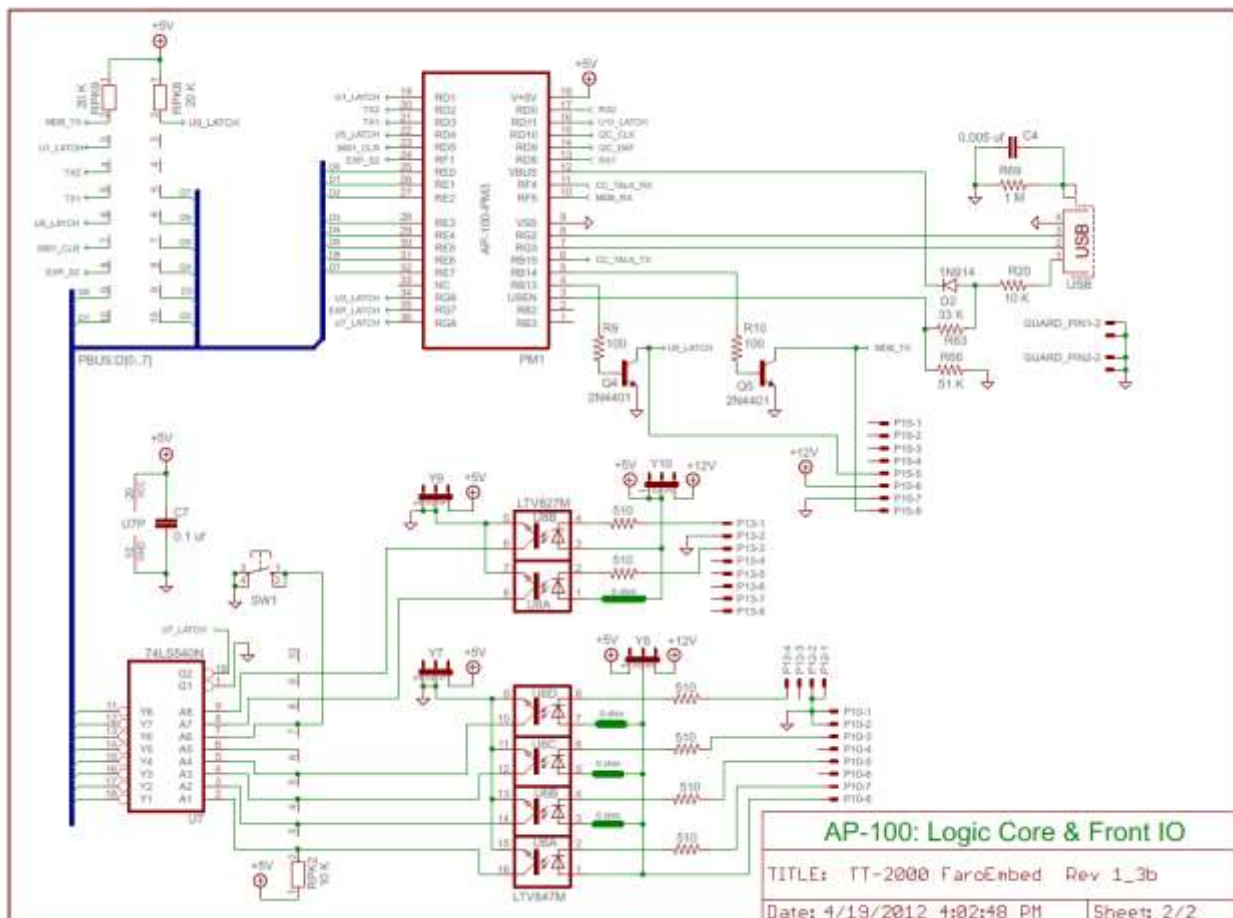
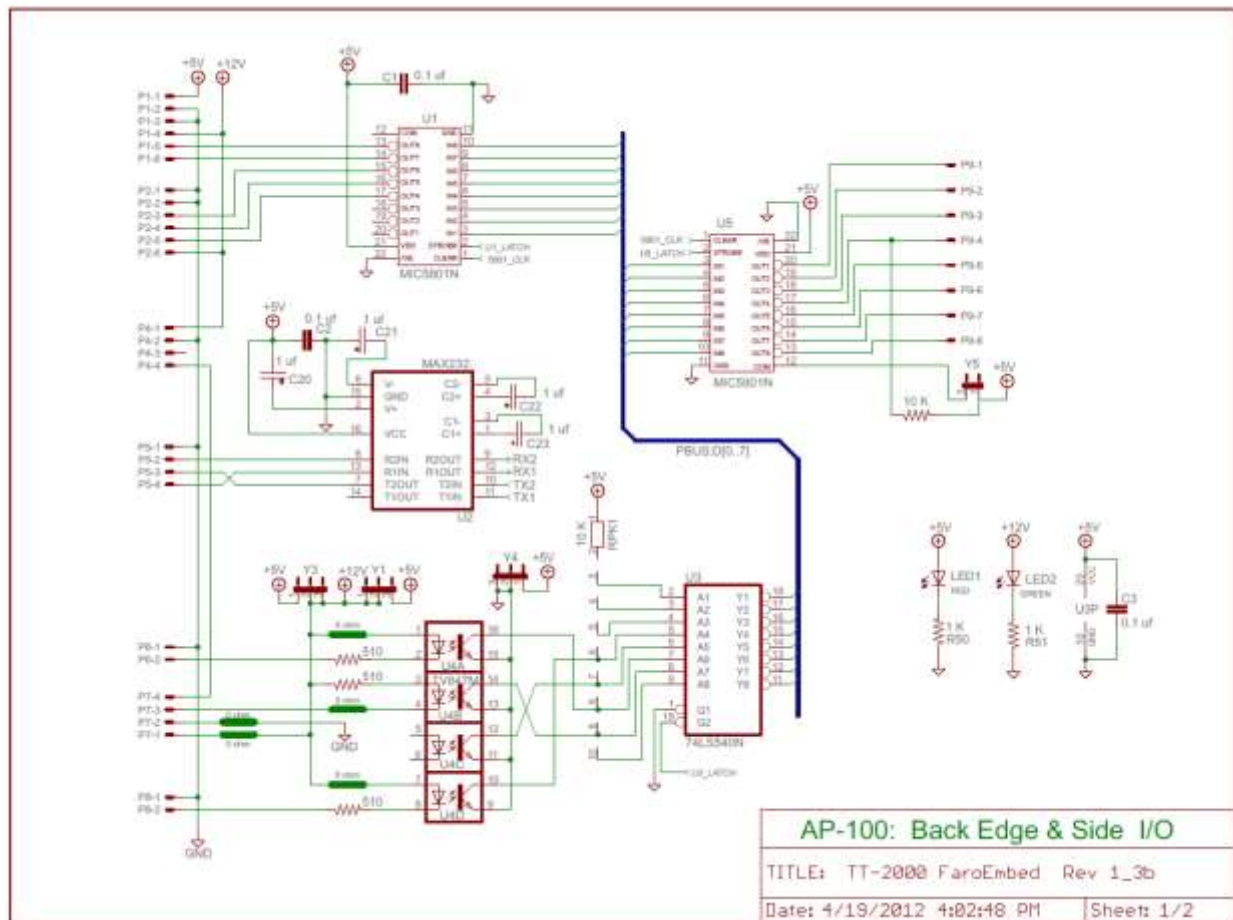


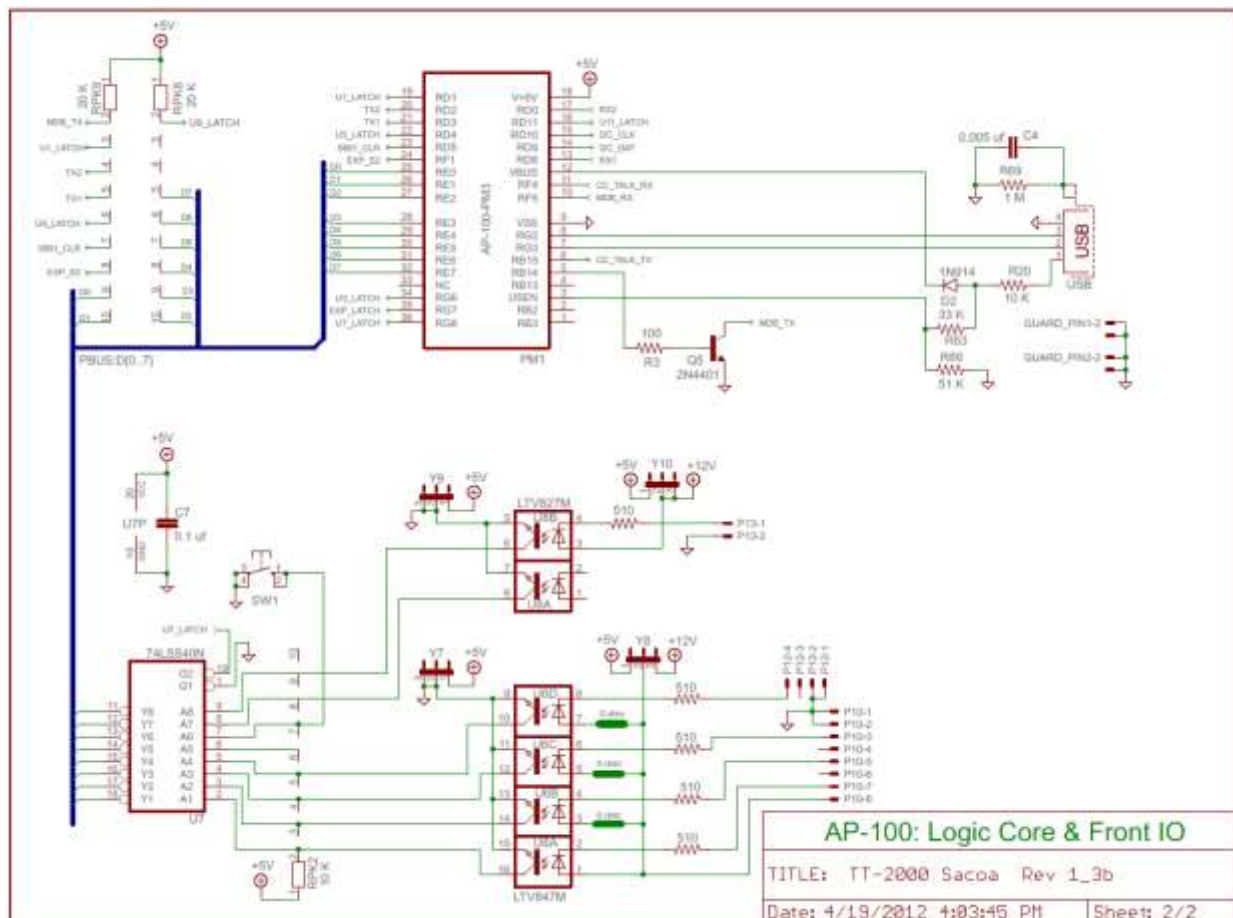
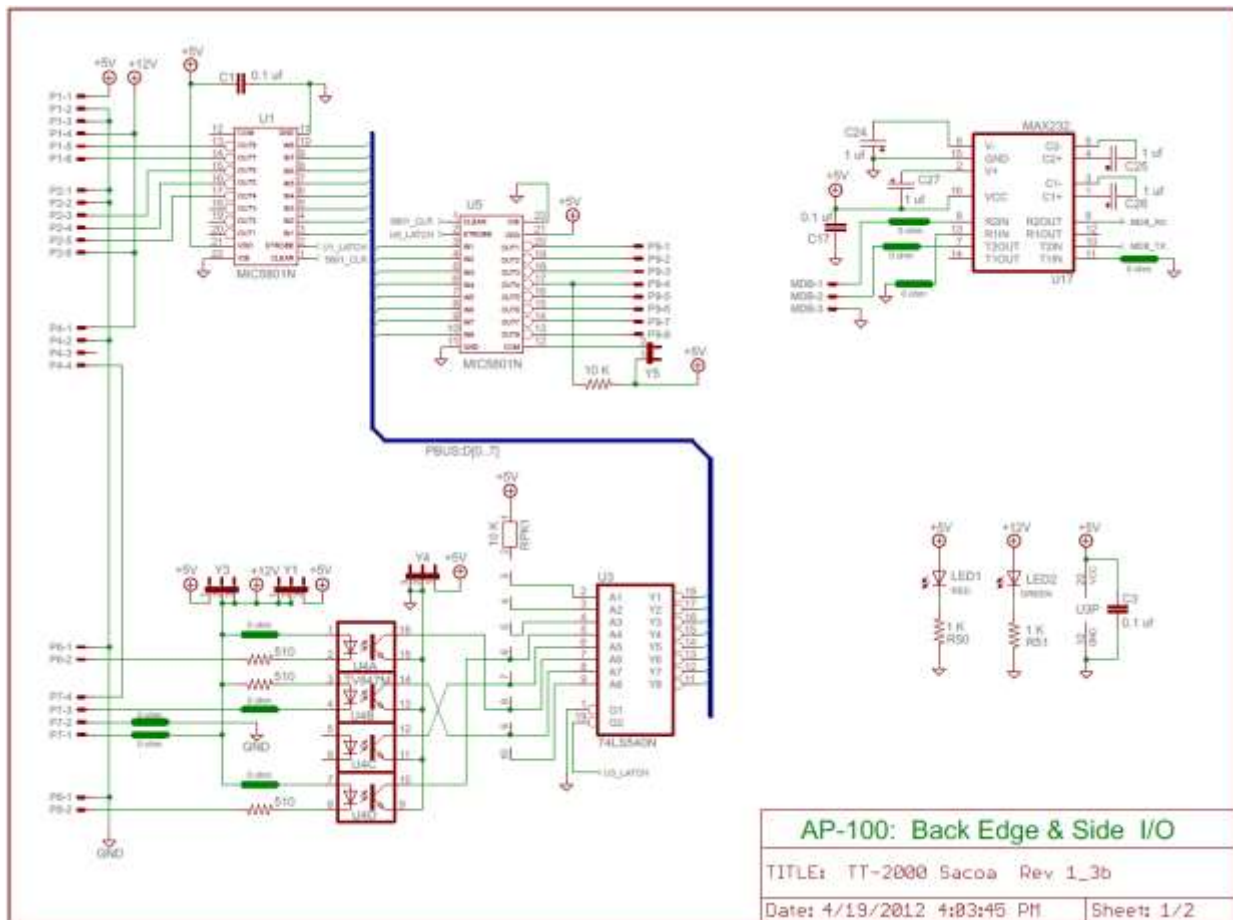






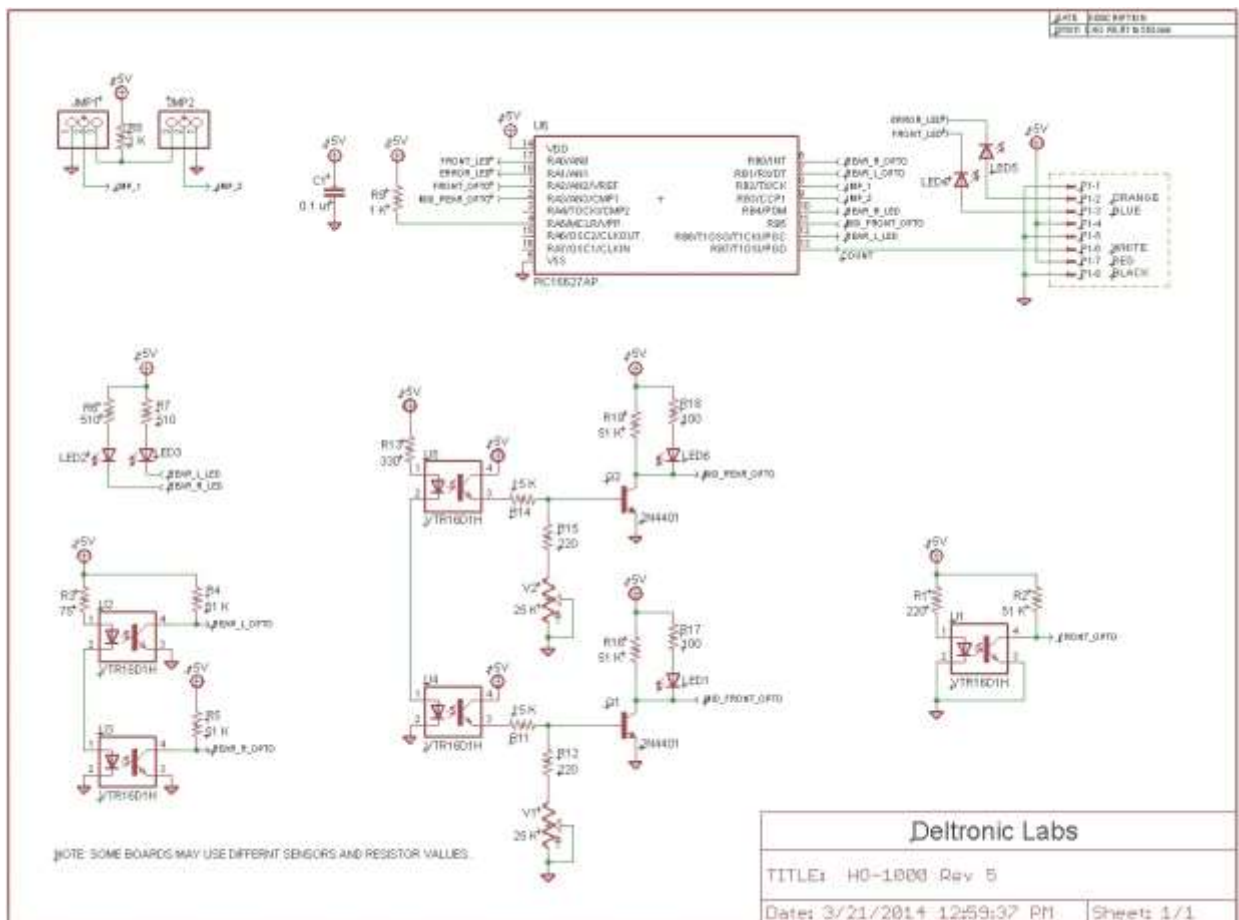
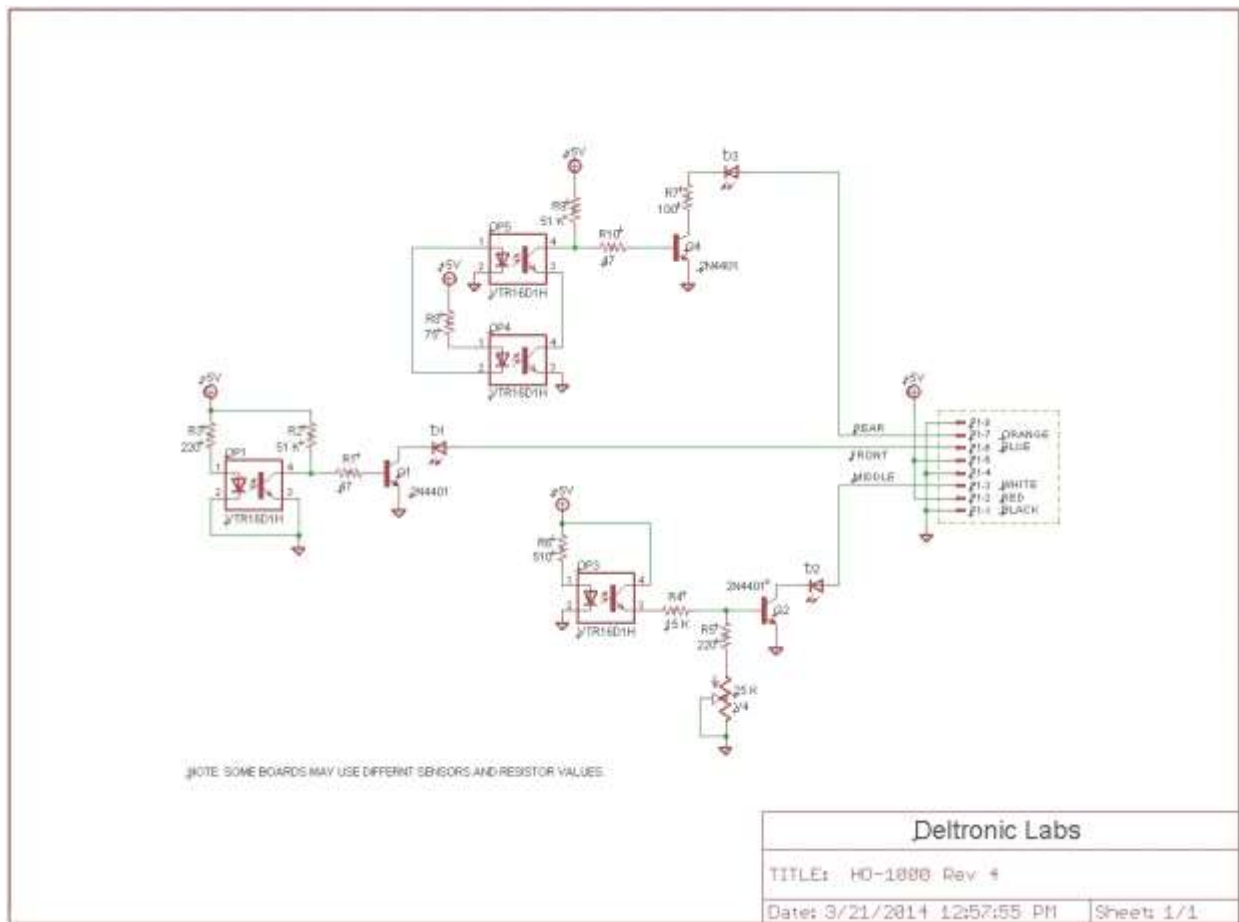






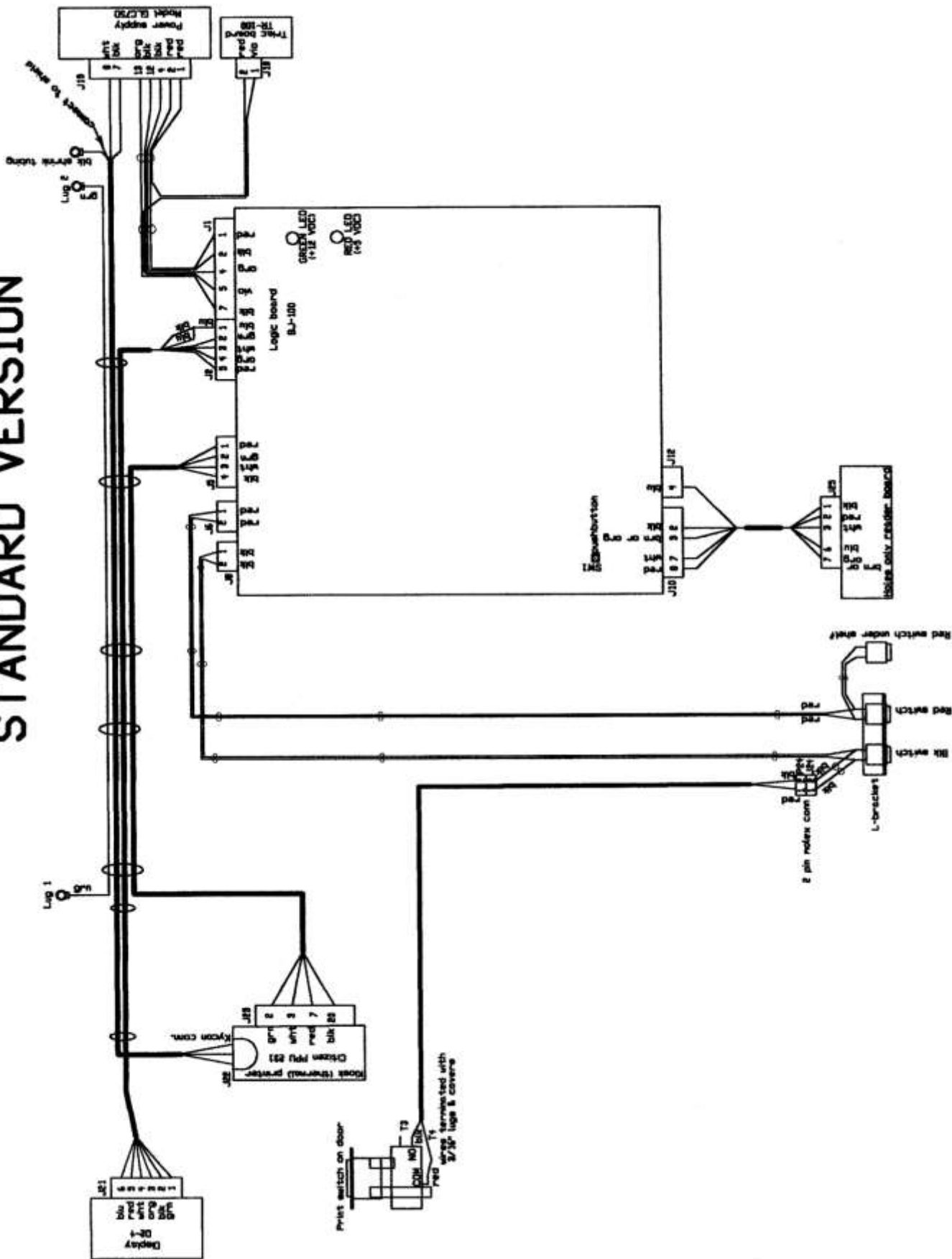






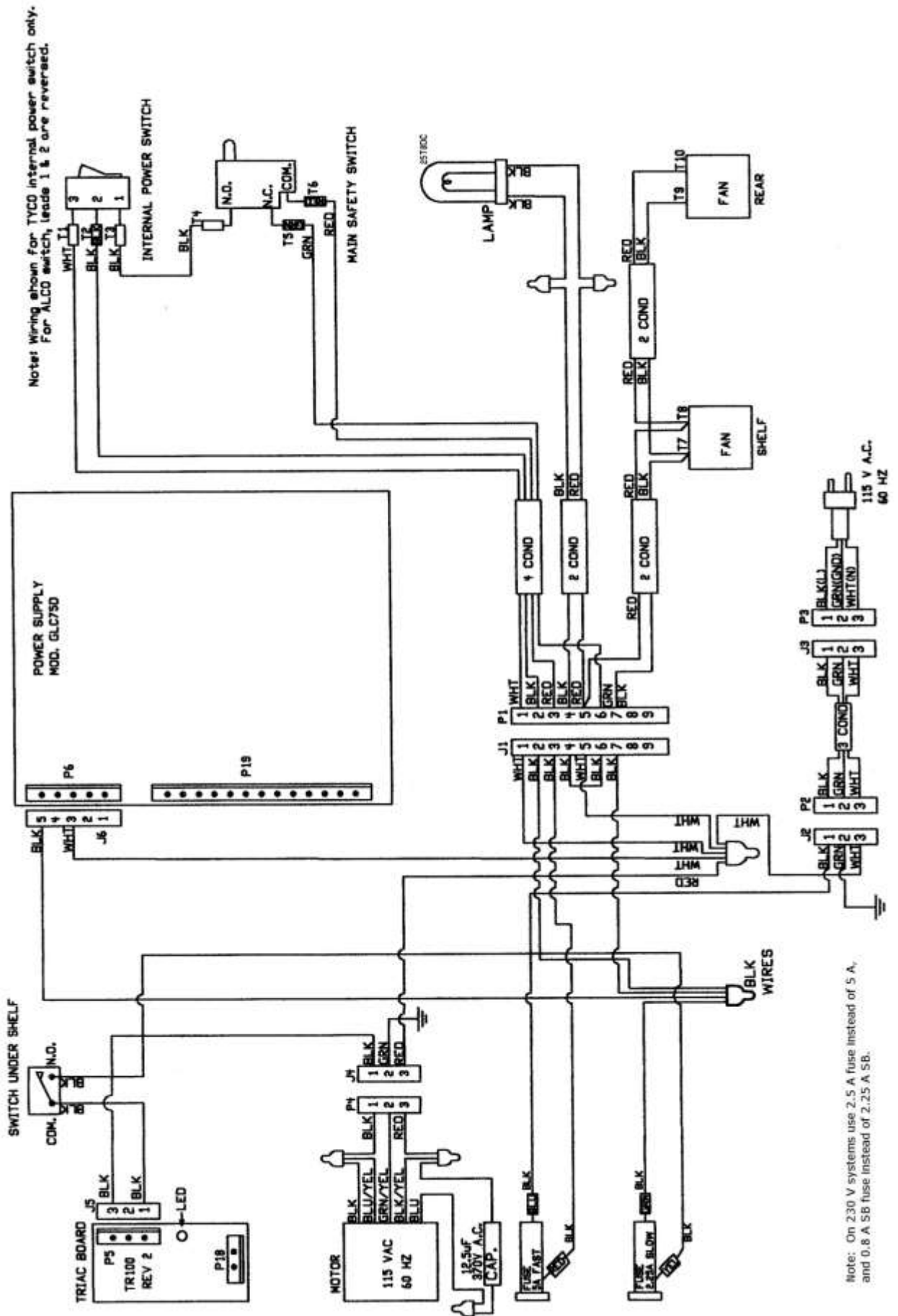


# TTEX DC HARNESS STANDARD VERSION



# TTEX AC HARNESS STANDARD & DKS VERSION

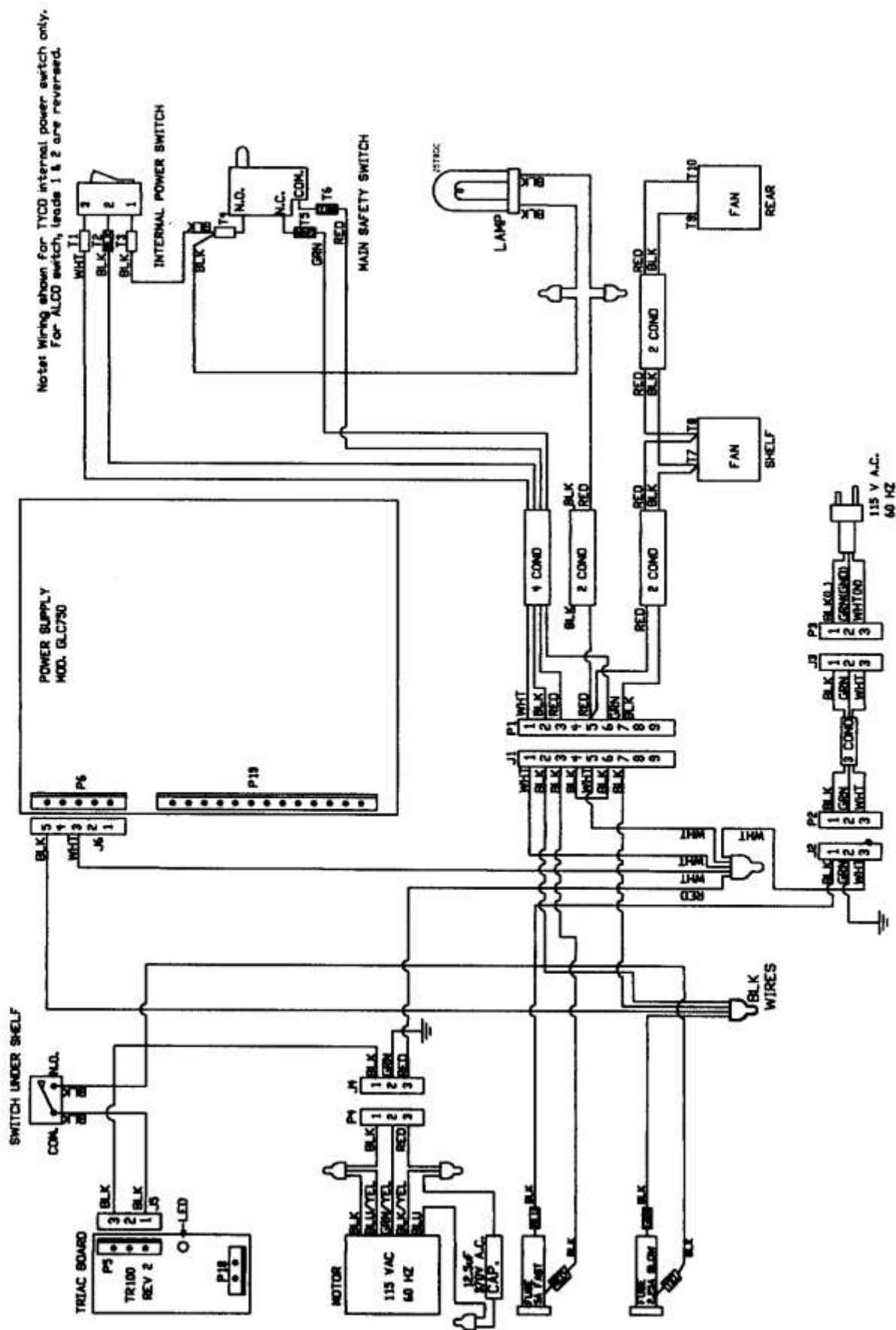
NOTE: WIRE COVERS ARE CLEAR EXCEPT WHERE NOTED





# TTEX AC HARNESS CEC VERSION

NOTE: WIRE COVERS ARE CLEAR EXCEPT WHERE NOTED



## Warranty Information

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Deltronic Labs, Inc. will replace or repair any mechanical or electronic parts damaged as a result of component or circuit failure. We will also repair or replace defects in parts or assembly caused by normal operations.

Deltronic Labs, Inc. will not, however, be responsible for damage caused by or due to misuse of operation or power requirements, including system overloads or modification and burn out of electronic boards. Nor will Deltronic Labs, Inc. be responsible for visible damage or broken or missing parts caused by tampering with the units or unauthorized servicing.

Warranties are as follows:

Electronic Components (boards, displays, power supplies, etc.) – One year warranty\*.

Mechanical Parts & Assemblies – 90 Day Warranty\*.

\*Please note that the warranty start date is the actual ship date.