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Troubleshooting Tips

- When checking continuity both ends of the harness to be tested should be unplugged. If either end is connected, the results may be inaccurate.
- The freezer's temperature control can be found on a small rectangular box that is mounted behind the right, rear corner of the freezer. Turn the screw clockwise to make the freezer colder, and counter-clockwise to make it warmer.
- The F631 uses many of the same parts in different locations. These parts may be swapped when troubleshooting to determine if the suspected part is faulty. These parts include the 115V motors (used in 4 locations), the encoders (3 locations), and reed switches (4 locations).
- Always keep a small jumper wire or paperclip in your toolbox.
- Unless otherwise noted, always remove power from the machine before testing any wires to avoid electrical shock.
- Anytime the display reads "Out of Order", press the "#" key to access the error message.
- When checking continuity, make sure the power is off. Both ends of the wire harness should be unplugged for an accurate reading. Always plug the meter lead into the back of the connector beside the wires. Pull gently on the wires to ensure the pin is fully inserted into the connector.
- If you require assistance in troubleshooting, please have the serial number, error code and a description of the problem available before calling. The toll free number is 1-888-441-3278.

* Although this manual uses a format similar to standard flowcharts, the shapes and intended uses for them do not follow standard flowchart protocol. The shapes selected for this manual allow the most amount of information in the smallest amount of space. This is done to keep the manual as thin as possible, so it may be easily carried to any location service is required.

Adjusting the vacuum pressure

The vacuum box is located under the freezer in the center of the cabinet. The vacuum box is designed with six rows of pressure relief holes, with four holes in each row. The adjustment plate may cover some of the rows on the right. The vacuum box is set up at the factory with three rows open. This should be the proper setting based on 115VAC. If your location has more than 115V, you may need to decrease the pressure by opening more holes. If your location has less than 115V, you may need to close some holes to increase the pressure. The following procedure will help adjust your vacuum pressure correctly.

- 1) Locate the vacuum pressure switch (48 in/wtr), and disconnect one wire from it.
- 2) Check your product bins and identify one selection that is at least half empty.
- 3) Press the “FREE VEND” button on the service keypad and vend the selection.
- 4) Watch the picker hose as it lifts the product.
 - a) If the vacuum shuts off immediately after turning on, close one row of holes and attempt another vend from the same bin. If the vacuum still shuts off too early, the problem may be unrelated to pressure, see the section on “Vacuum Out of Order”.
 - b) If the hose “bounces” while lifting the product, open one row of holes and attempt another vend from the same bin. If the hose still bounces open another row of holes until the bounce is gone. If the hose hesitates on the way up but does not bounce, that is acceptable. At this point reconnect the wire that was removed from the vacuum switch. The pressure is now set correctly.
 - c) If the hose raises the product smoothly with little or no hesitation, but no “bounce”, the pressure is acceptable. Reconnect the wire that was removed from the vacuum switch. If the problem persists, replace the lower (48 in/wtr) vacuum switch.

Adjusting With A Vacuum Pressure Gauge

If you have a vacuum pressure gauge that measures in inches of water, disconnect the lower vacuum switch and vend a selection. When the robot starts lowering, place the gauge attachment in a position where the hose will attempt to “vend” it. The pressure on the gauge should be approximately 55 in/wtr. If it reads higher open one row of holes and retest. Repeat until the gauge shows approximately 55 in/wtr. If the gauge reads below 55, close one row of holes and repeat until the gauge reads approximately 55 in/wtr. Reconnect the lower vacuum switch and test the pressure again. The pressure should read between 48-50 in/wtr. If the pressure reads higher than 50 or lower than 48, use a .050” allen wrench to adjust the vacuum switch.

COIN MECH ERROR

The F631 Frozen Merchandiser will not operate without a coin mech. If no mech is connected, a "Coin Mech Error" will appear. If a mech is installed, continue with troubleshooting.

What type of money system is in the machine?
MDB (24V) or micro-mech (110V)?

24V

110V

With the power off, check the connector on the computer board labeled J3. The connector at J3 should have 3 wires. If this connector has more than 3 wires, unplug J3 and locate the plug near the computer board that is the same size with 3 wires. Plug this connector into J3. Locate J7 on the computer board. There should be a 4-pin connector with 1 wire at J7. If not, locate and connect the 4-pin plug to J7. Locate the transformer mounted to the left side of the power box, at the bottom of the door. The short harness from this transformer should be plugged into J7 on the power board. If it is not plugged in, unplug the connector that is in J7 and tie wrap it out of the way. Plug the short transformer harness into J7.

With the power off, check the connector on the computer board labeled J3. The connector at J3 should have 10 wires. If the connector has only 3 wires, then the machine is setup for MDB (24V). To convert the machine to 110V, Unplug the connector from J3 and find the white connector hanging from the bundle with 10 wires. Plug this connector into J3. If there is a connector at J7, unplug it and tuck it out of the way. Locate the power board in the silver box at the bottom of the door. Locate the connector labeled J7 on the power board. The wires from this connector should lead to a bundled harness that leads to the computer board. If the wires from J7 lead to a transformer on the left side of the power box, unplug J7 and find a similar plug coming from the bundled harness. Plug that connector into J7. Turn the power on to check for another coin mech error.

If the problem persists, or if the harnesses are already installed correctly, continue troubleshooting.

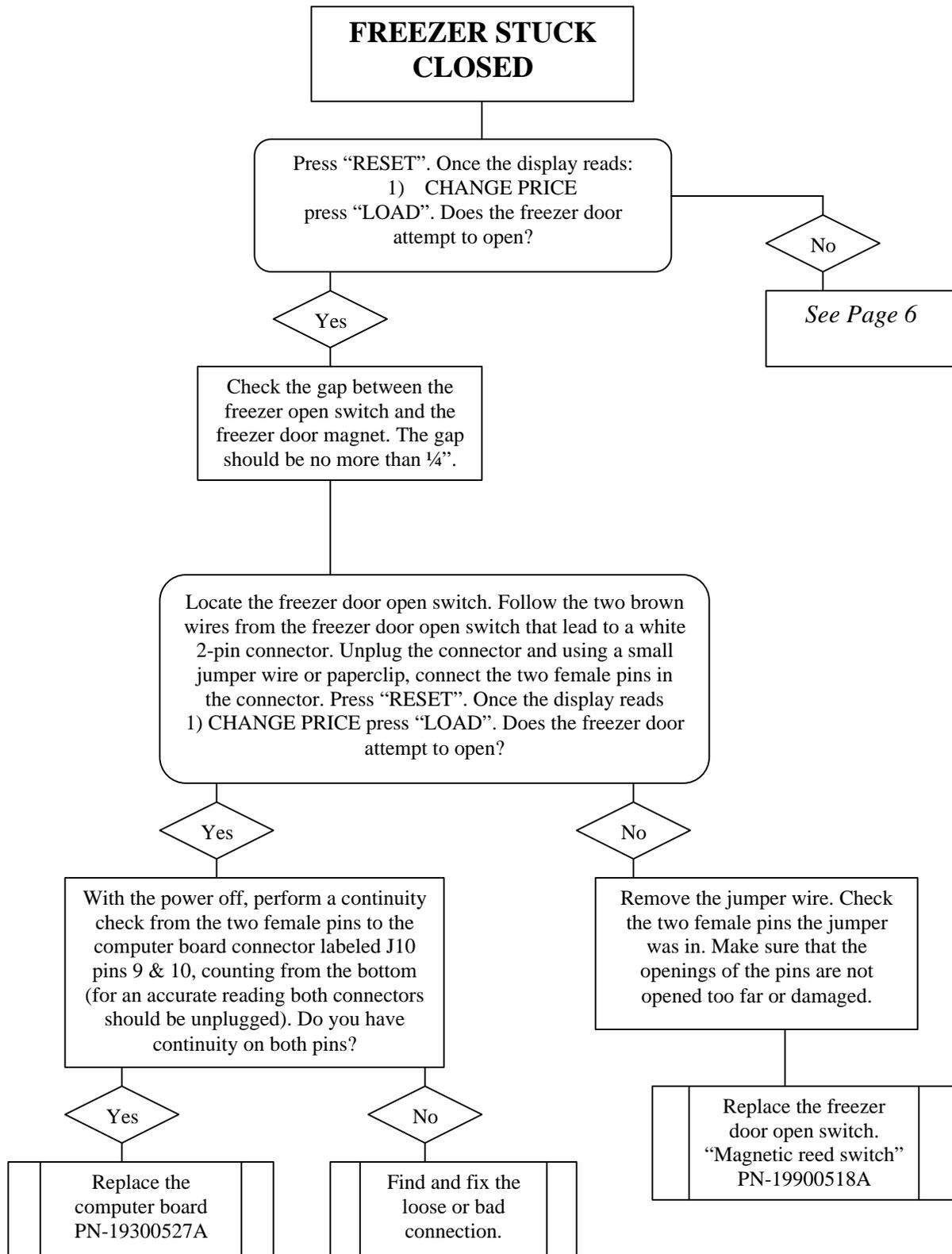
With the power off, unplug J3 from the computer board. Using a jumper wire or paperclip, connect pins 4 and 11 on the J3 connector. The jumper must be in the back of the connector wire the existing wires. Reconnect J3 to the computer board. Restore power to the machine. Does the coin mech error return?

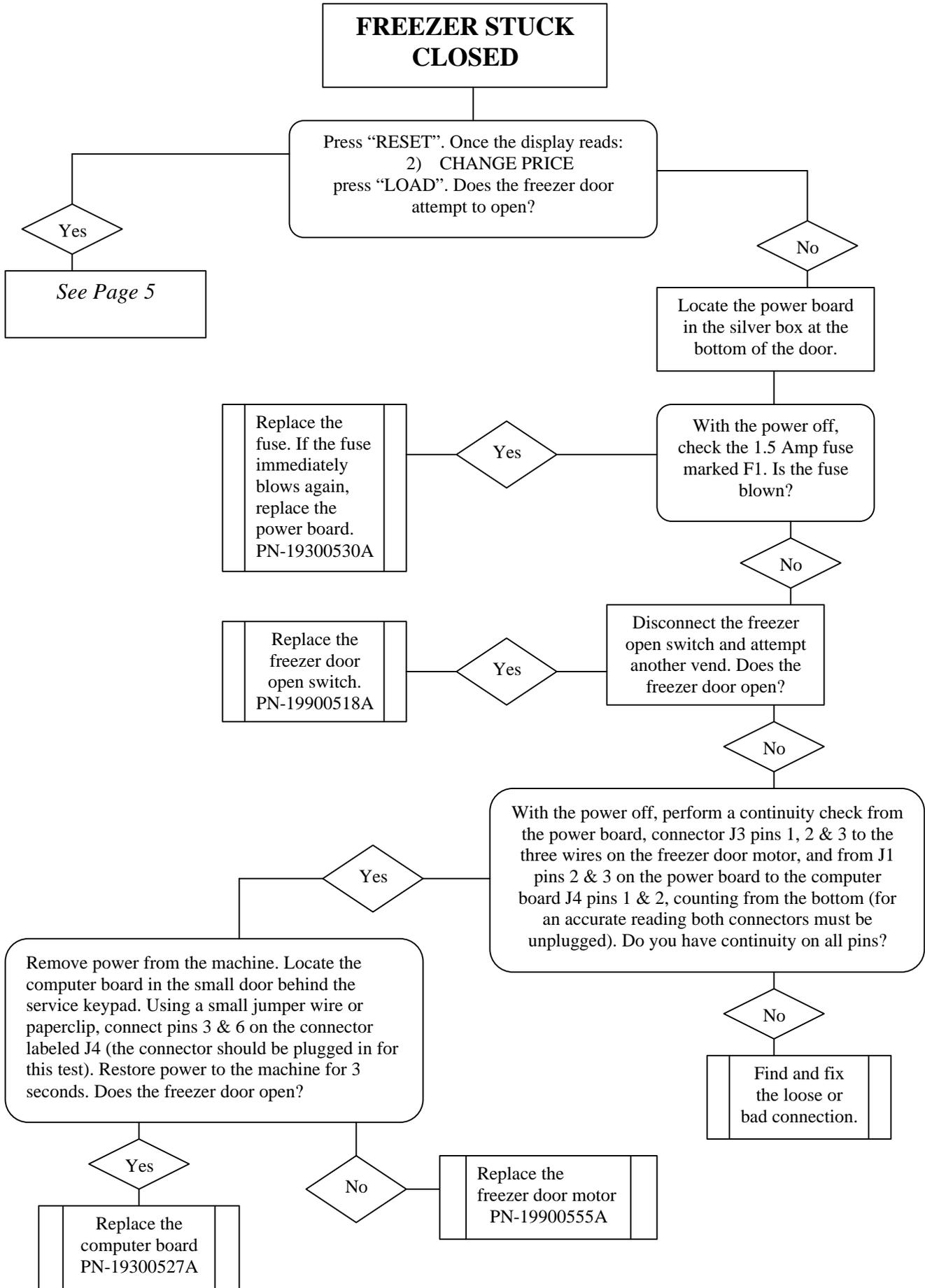
Yes

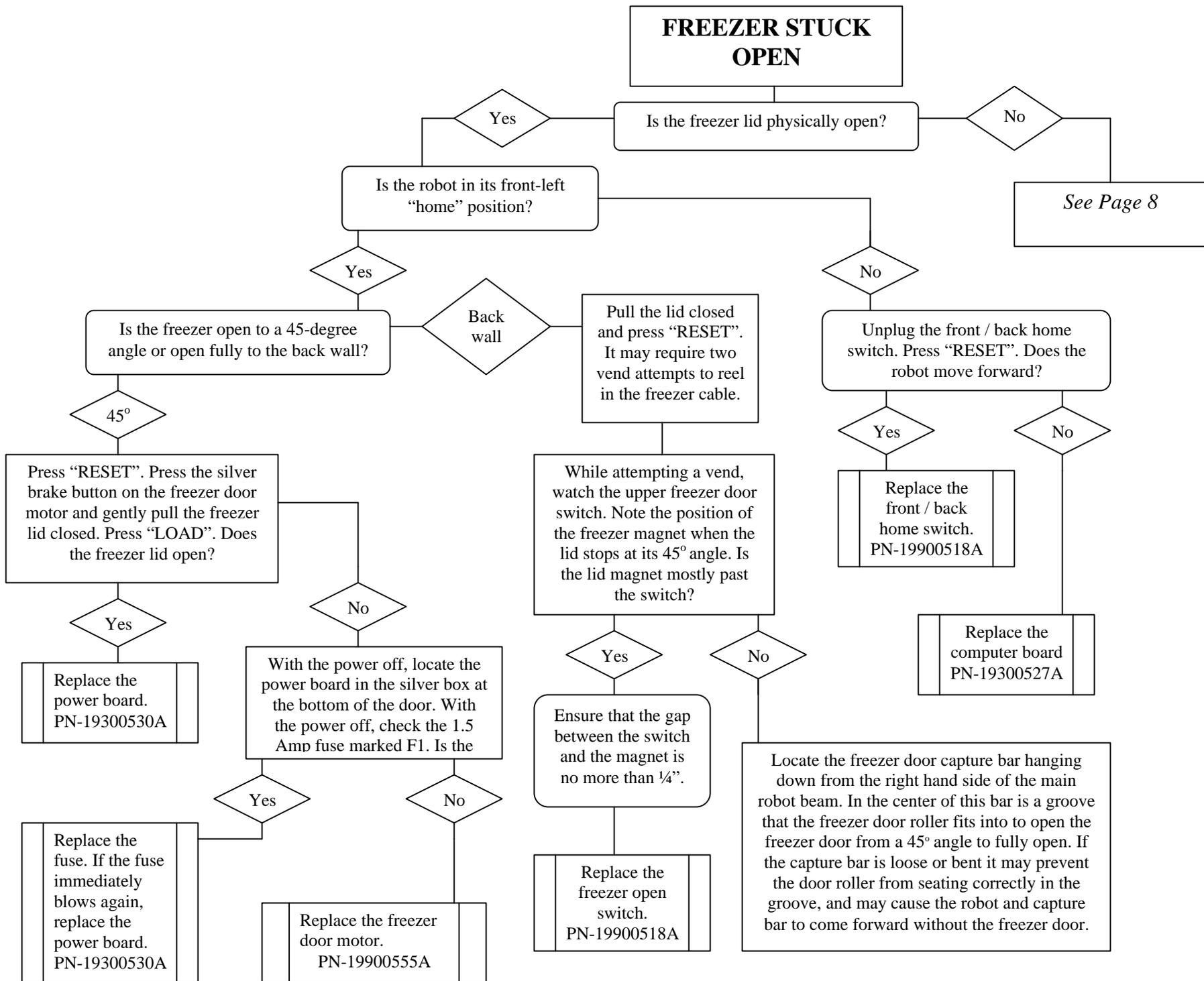
No

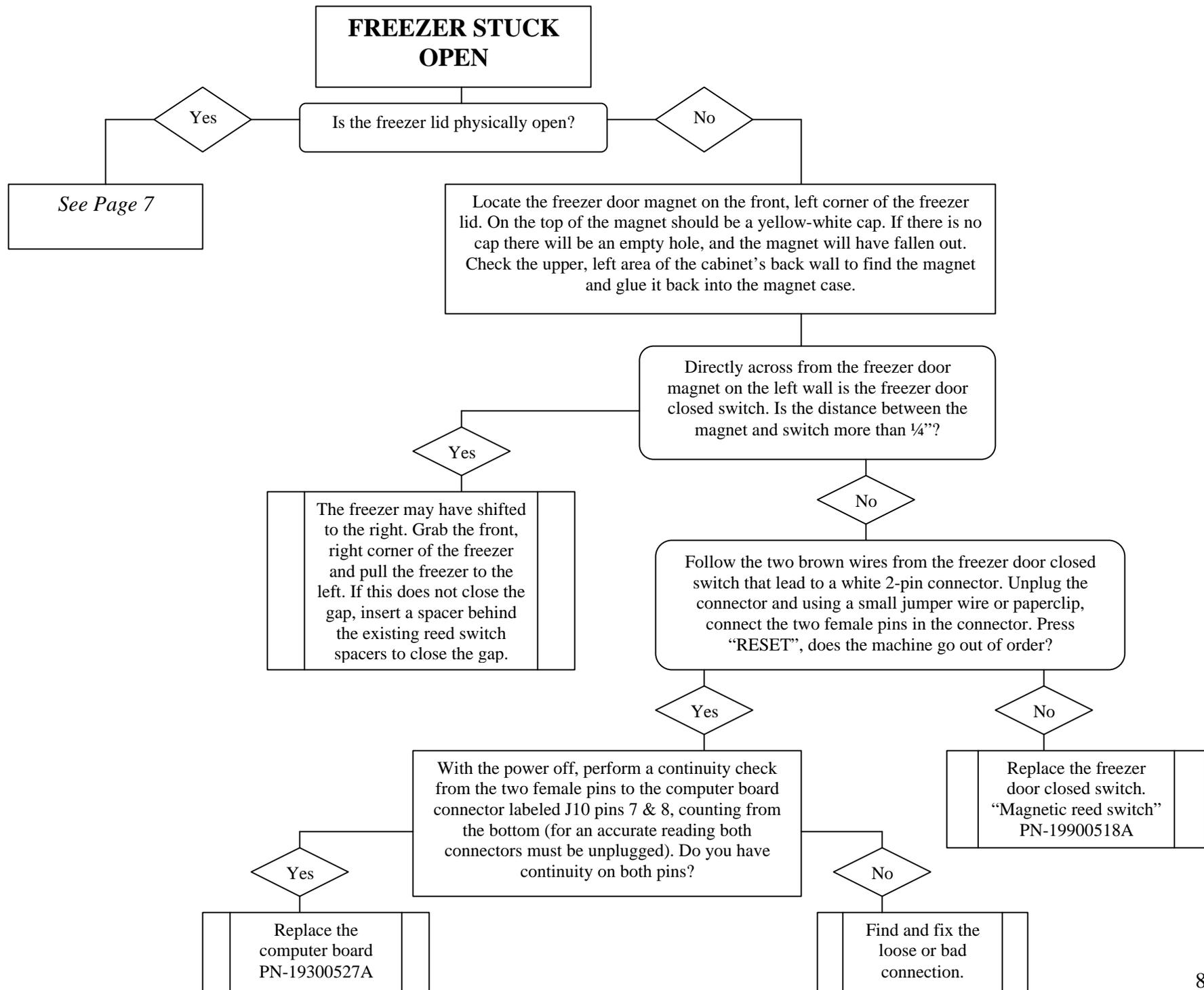
Replace the computer board (PN-19300527A)

Replace the coin mech.

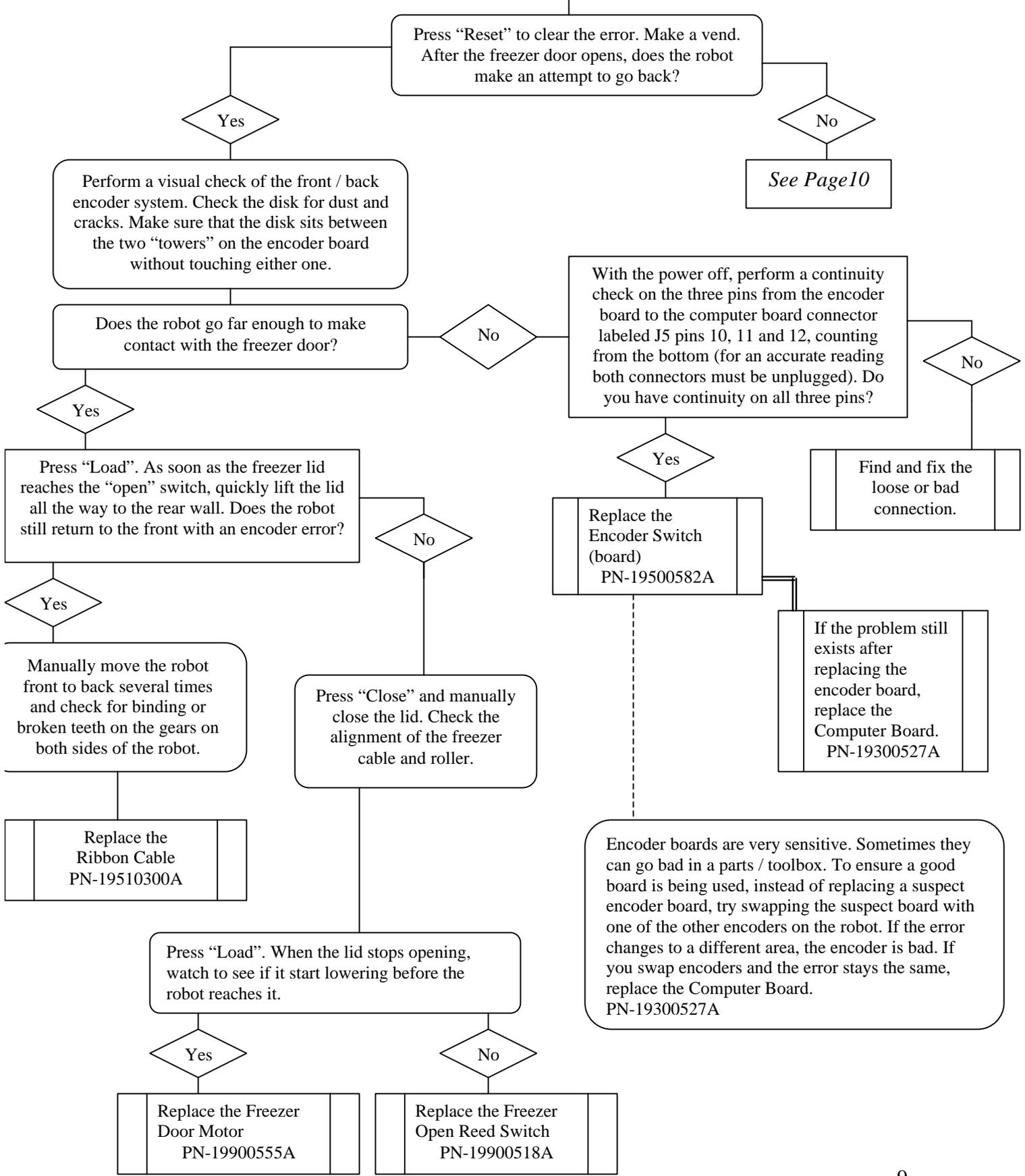




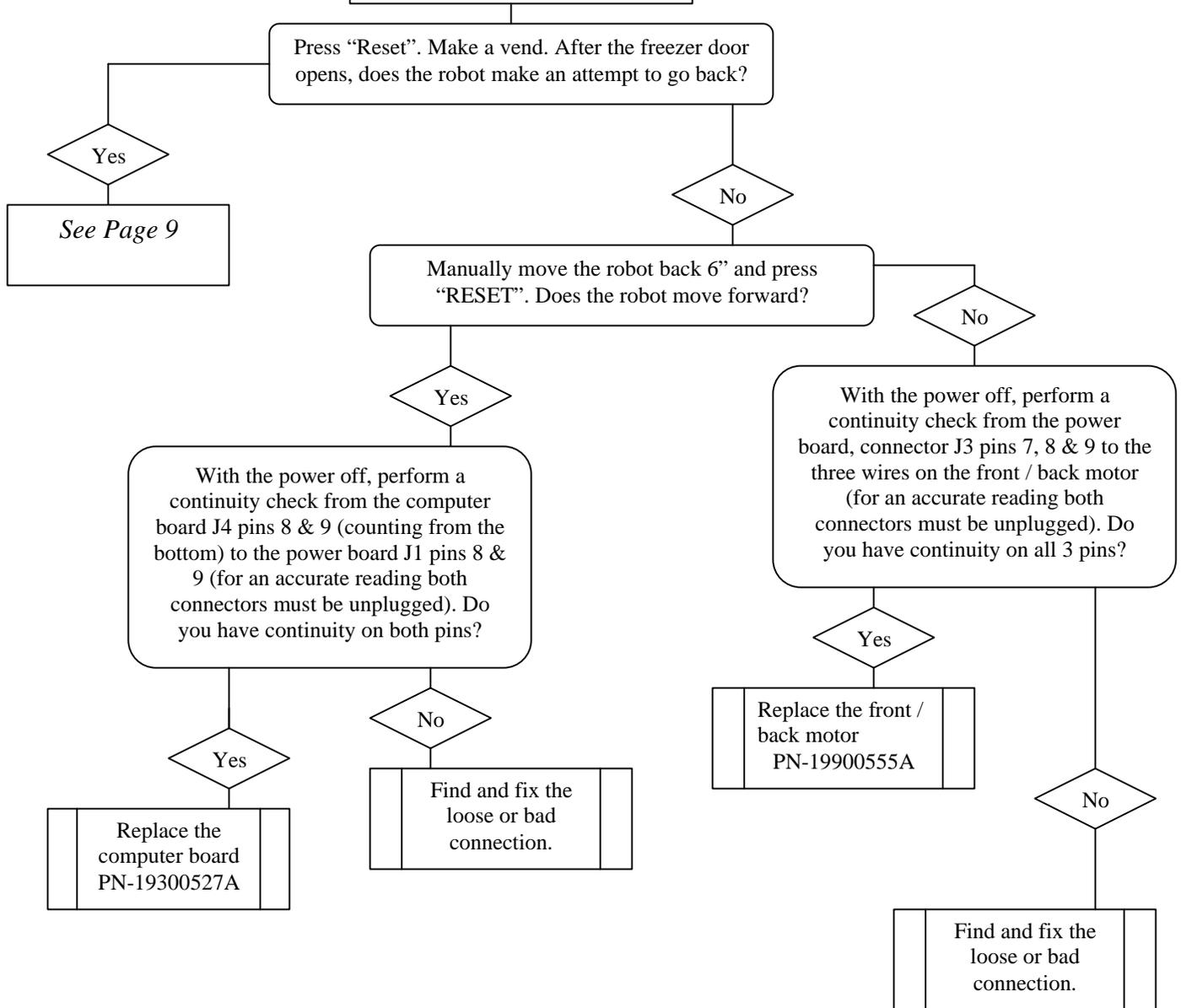




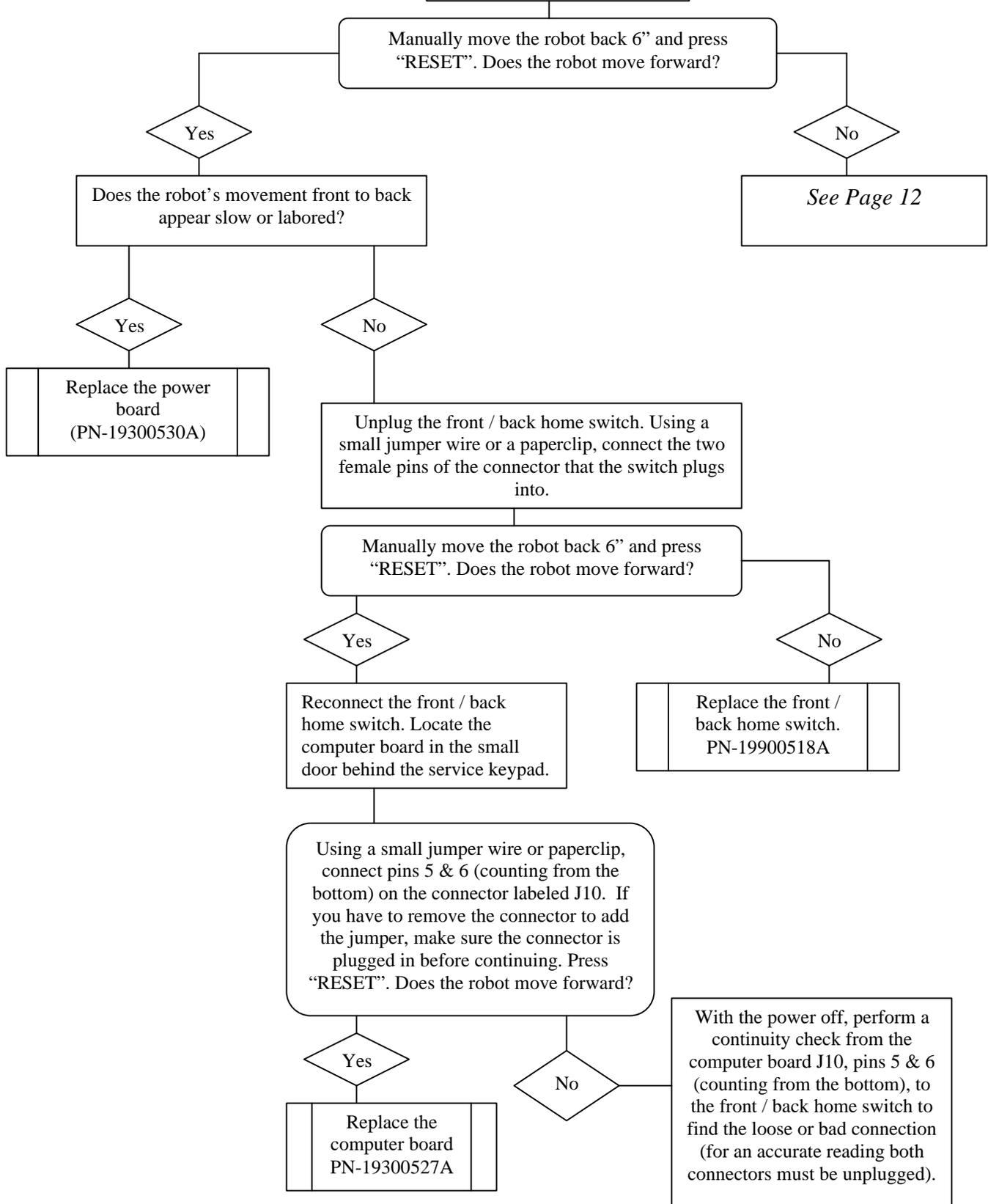
FRONT / BACK ENCODER ERROR



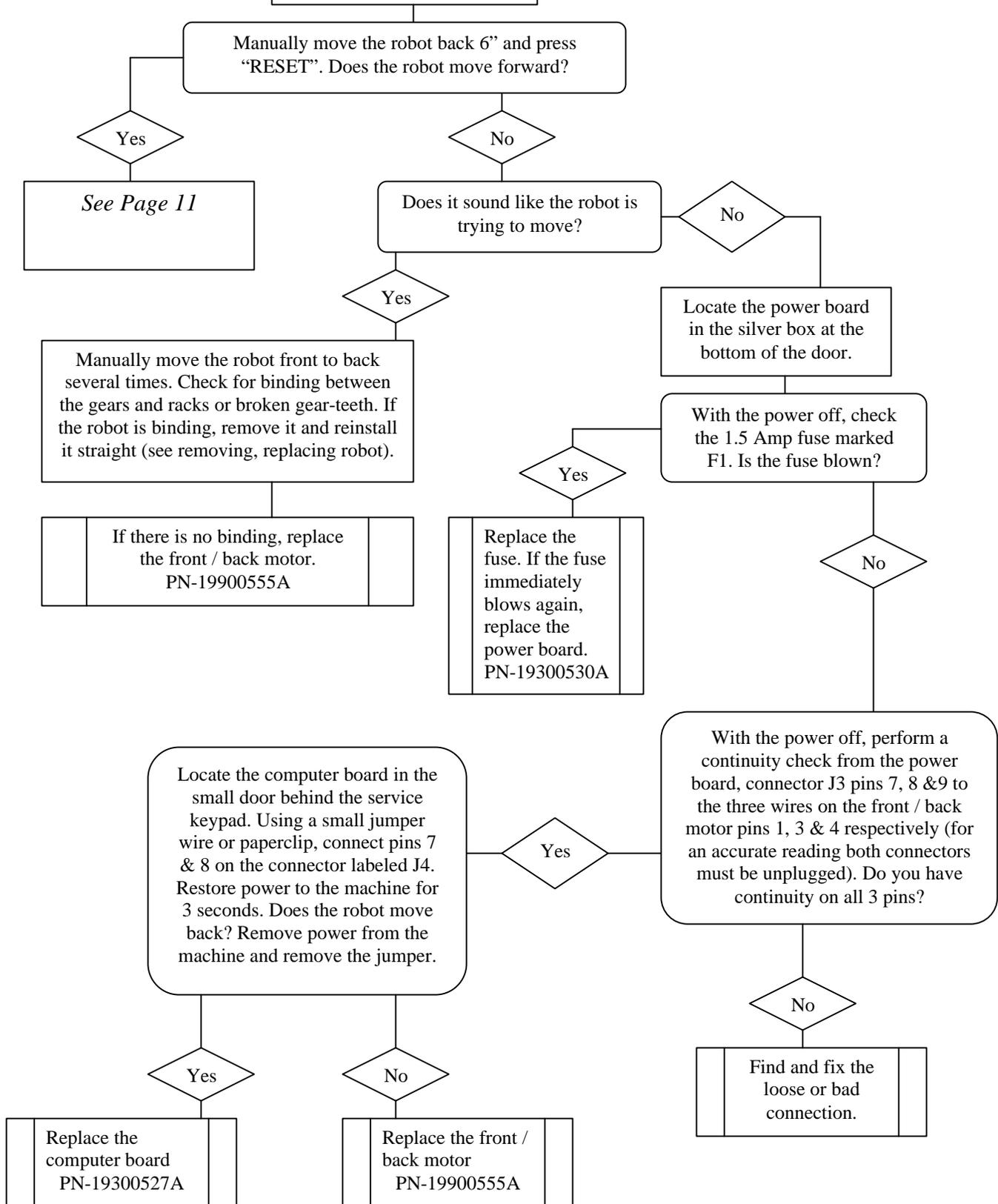
FRONT / BACK ENCODER ERROR



FRONT / BACK MOTOR STUCK

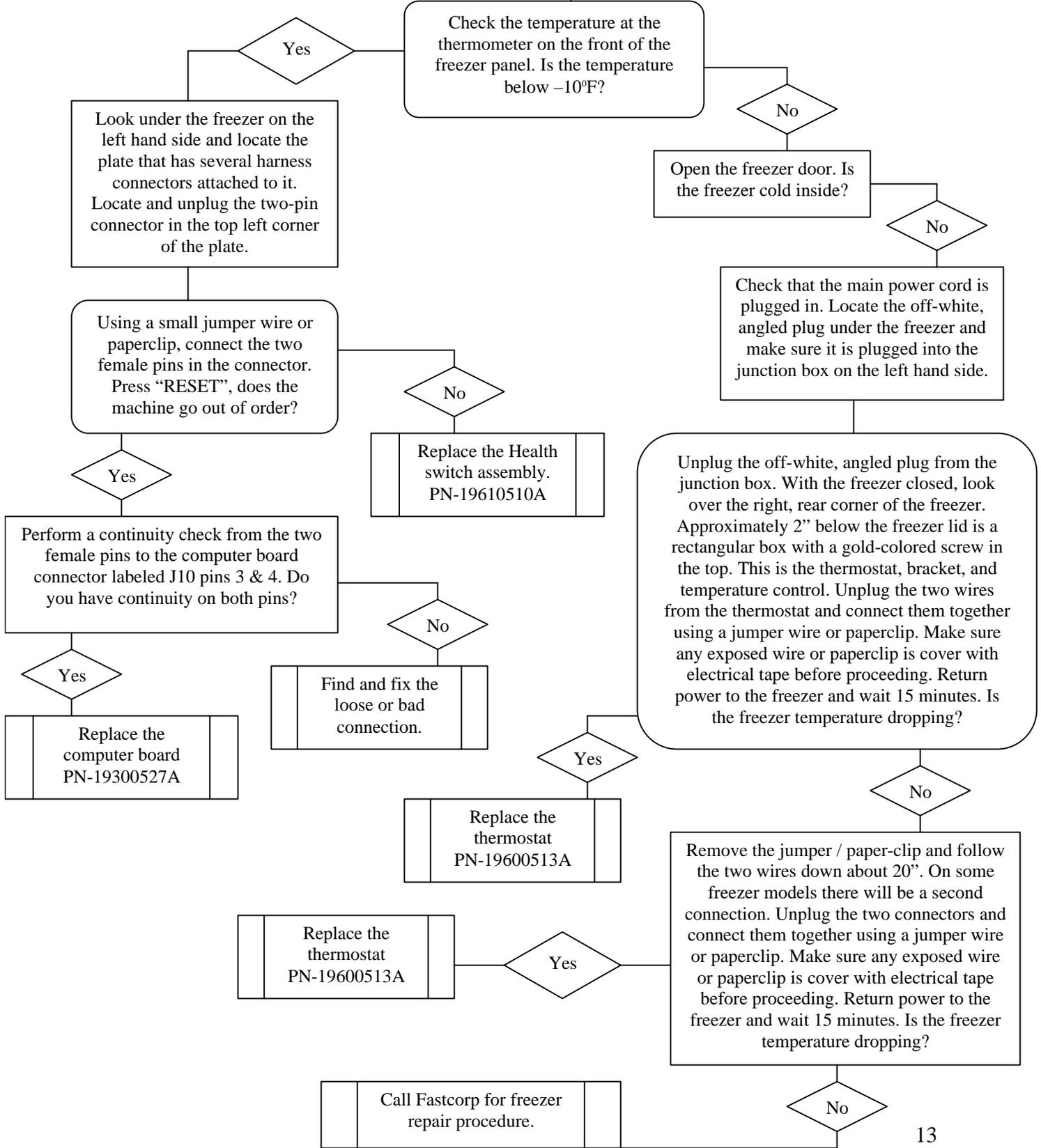


FRONT / BACK MOTOR STUCK



HEALTH SENSOR ACTIVE

A Health sensor active occurs when the temperature in the freezer rises above 15°F/-9°C.



LEFT / RIGHT ENCODER ERROR

Press "Reset". Make a vend.
Does the robot attempt to go to the right?

Yes

No

See Page 15

Manually move the robot left to right several times. Check for binding or broken teeth on the left / right motor gear and rack.

Perform a visual check of the left / right encoder system. Check that the the-pin connector is firmly connected. Make sure that the disk sits between the two "towers" on the encoder board without touching either one.

With the power off, perform a continuity check on the three pins from the encoder board to the computer board connector labeled J5 pins 13, 14 & 15, counting from the bottom (for an accurate reading both connectors must be unplugged). Do you have continuity on all three pins?

No

Find and fix the loose or bad connection.

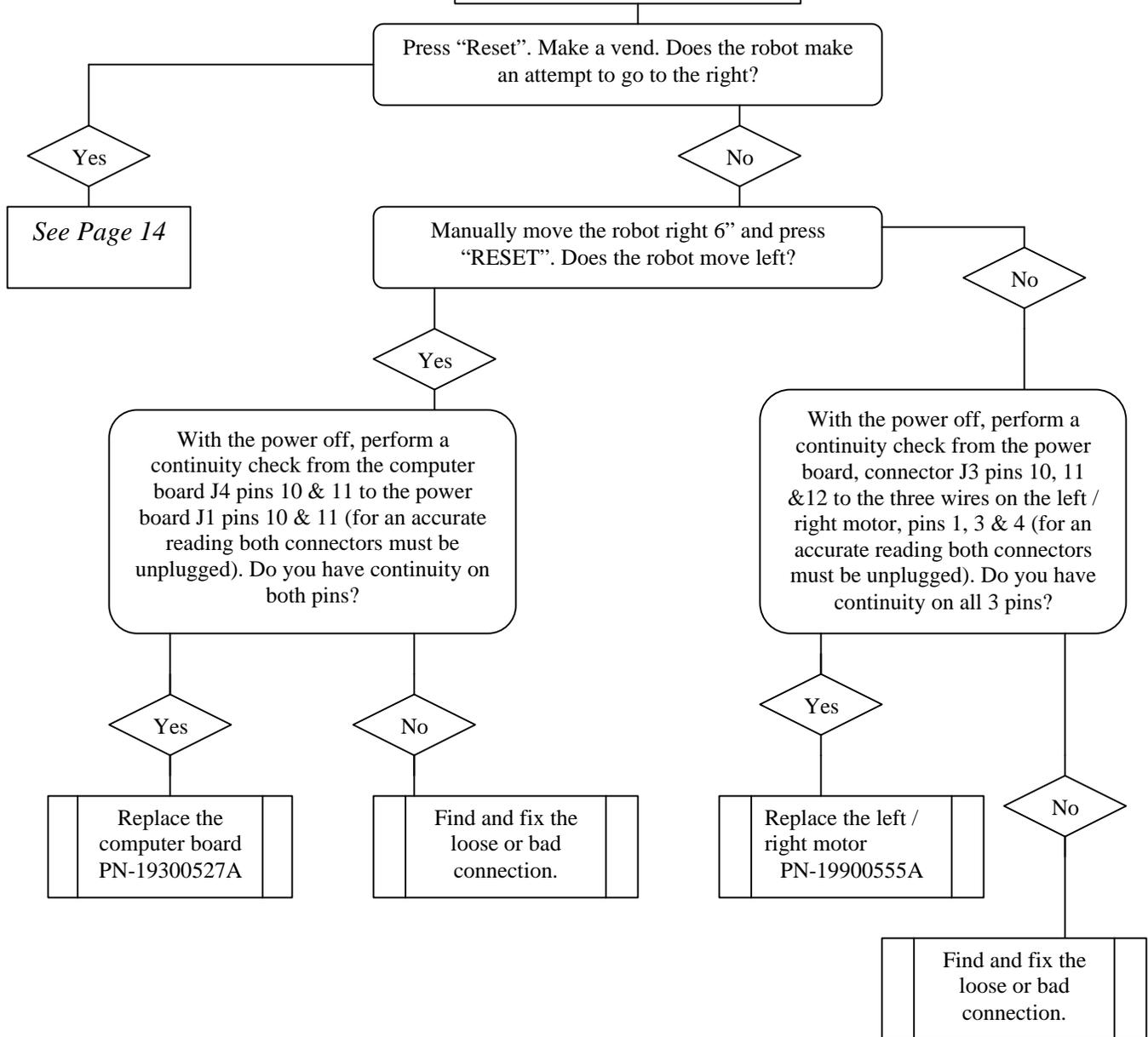
Yes

Replace the Encoder Switch (board)
PN-19500582A

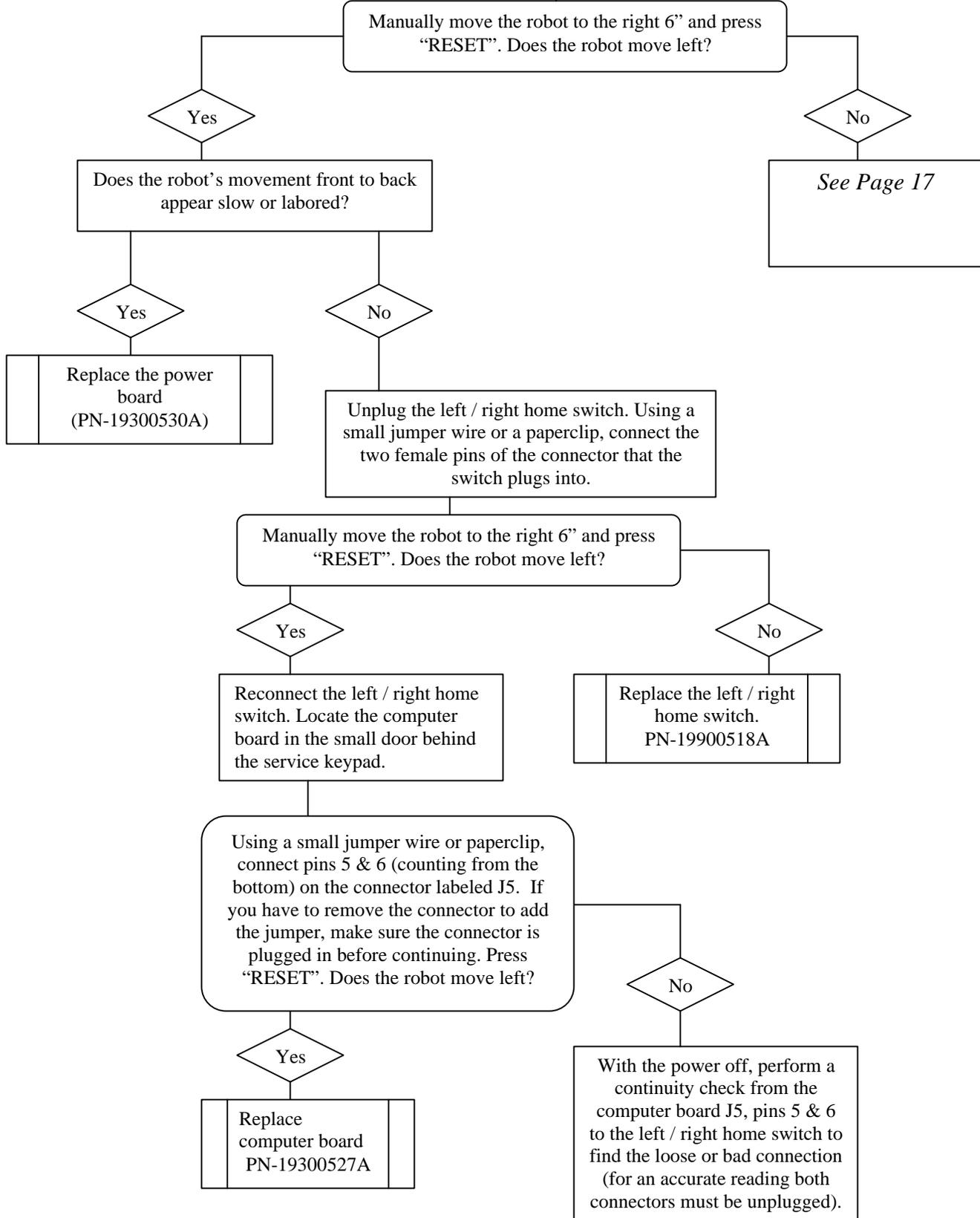
If the problem still exists after replacing the encoder board, replace the Computer Board.
PN-19300527A

Encoder boards are very sensitive. Sometimes they can go bad in a parts / toolbox. To ensure a good board is being used, instead of replacing a suspect encoder board, try swapping the suspect board with one of the other encoders on the robot. If the error changes to a different area, the encoder is bad. If you swap encoders and the error stays the same, replace the Computer Board.
PN-19300527A

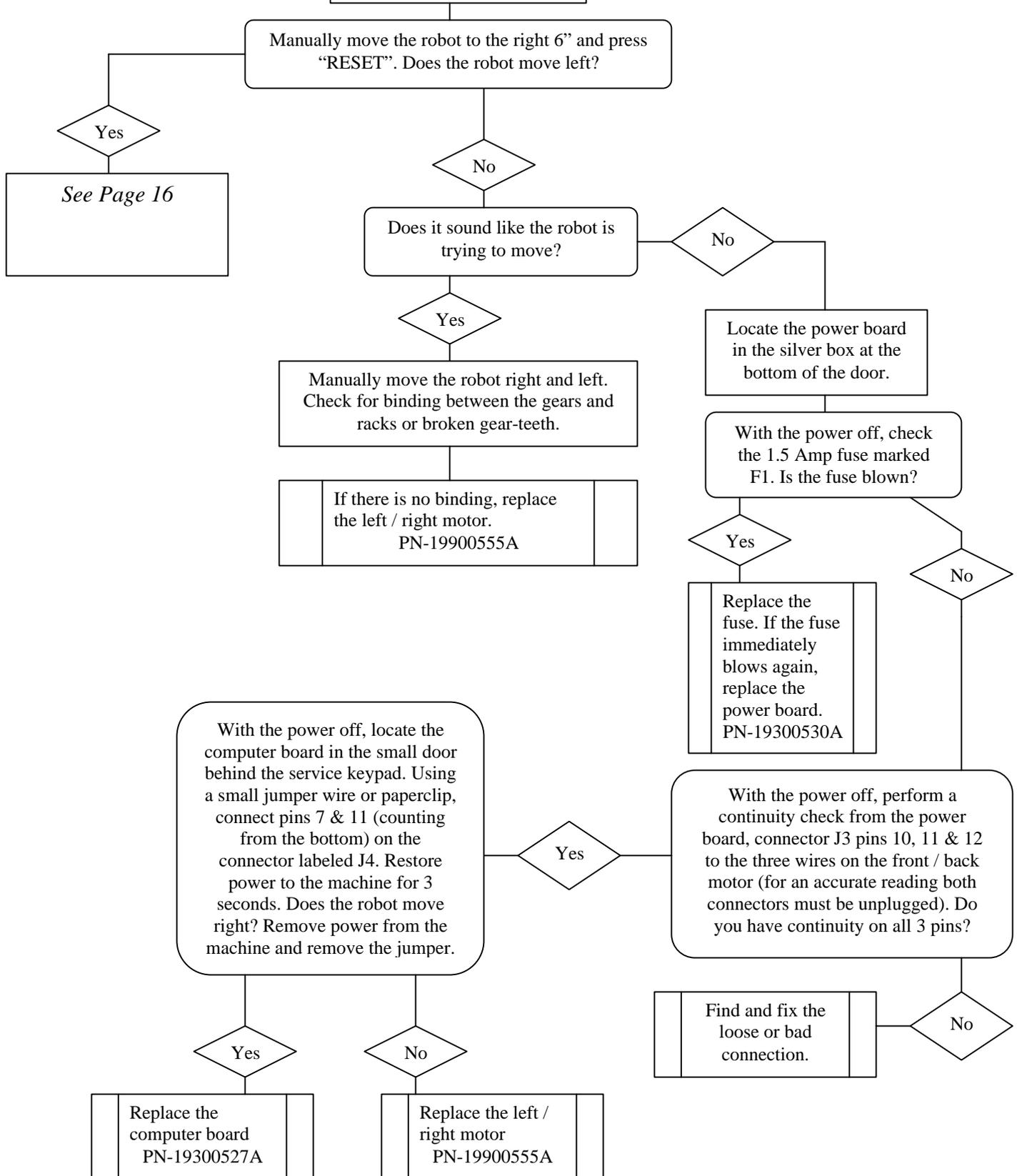
LEFT / RIGHT ENCODER ERROR



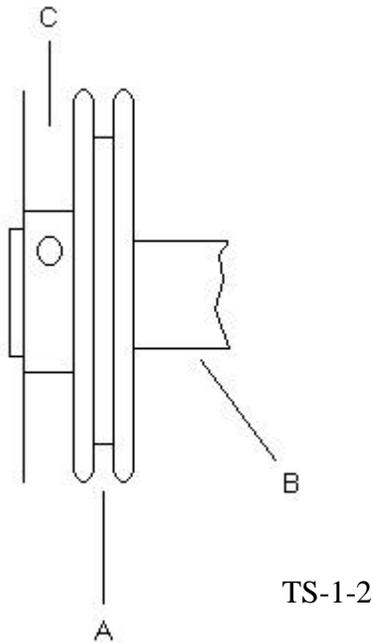
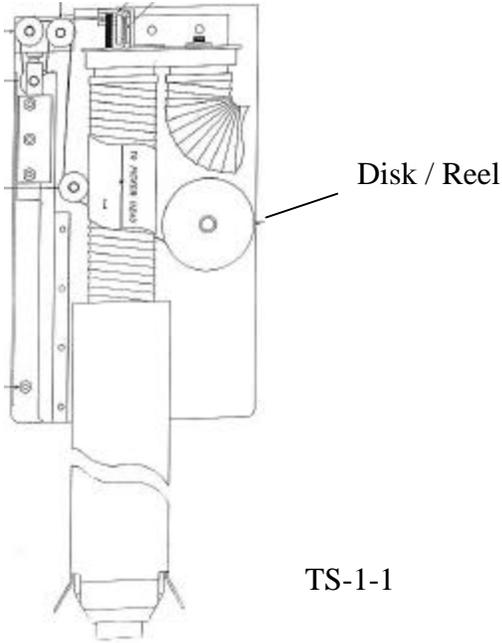
LEFT / RIGHT MOTOR STUCK



LEFT / RIGHT MOTOR STUCK



An Out Of Product error is given when all bins are flagged as being empty, or inactive. Immediately after pressing "RESET" the display will list all out of product bins and bin errors that have occurred since the last Load. Check the bins listed to see if they are empty. If there are more than 3 products in the bins listed, proceed with troubleshooting.



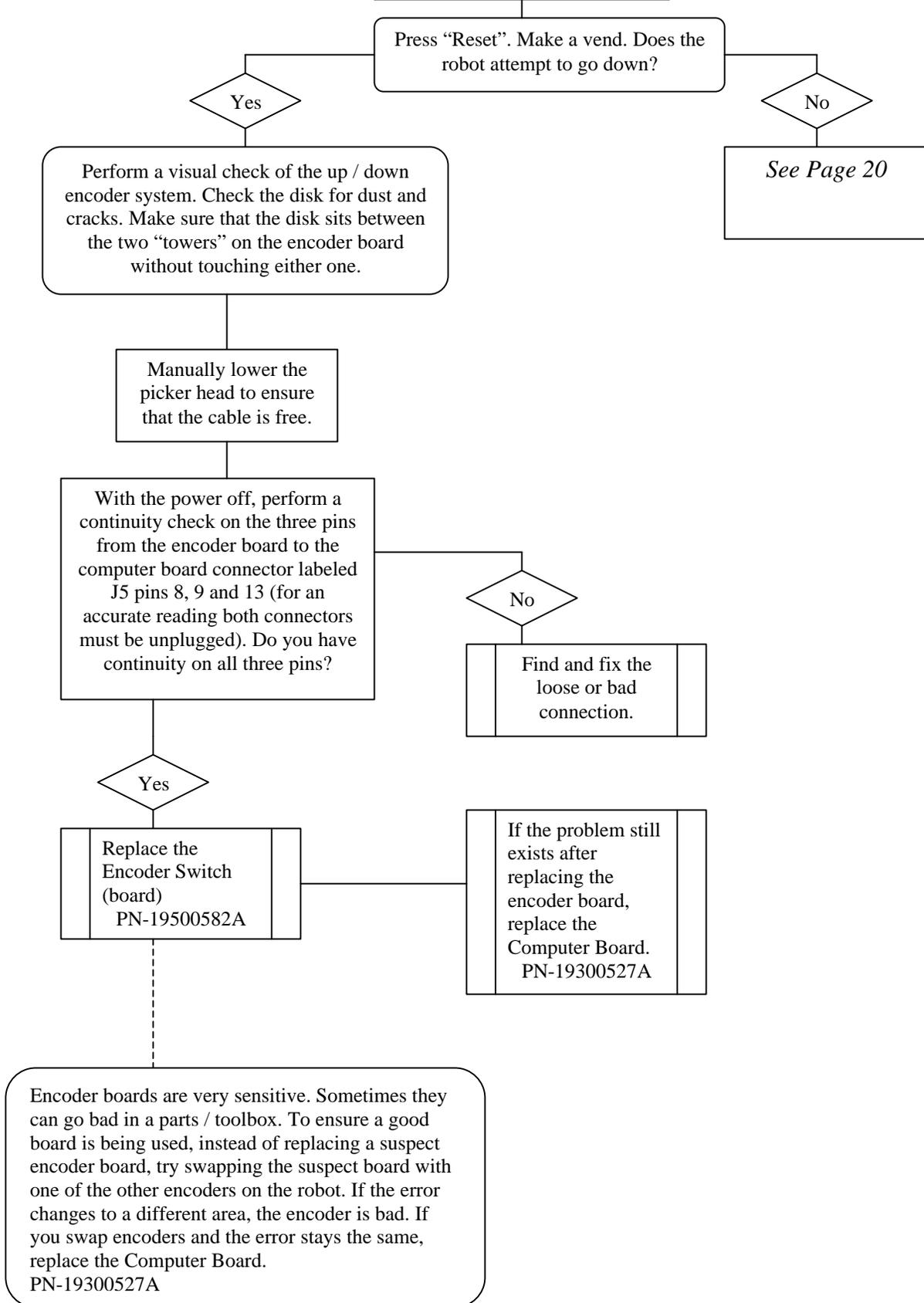
OUT OF PRODUCT

Scroll through the Main Menu to
3) EDIT SELECTION
Enter the selection for one of the bins labeled as out of product. Press the (*) key twice so that the display reads:
"Edit Bins"
Press the (#) key
The display will show "Program bin #1"
Press the (#) key
The freezer lid will open and the robot will move to the location.
The display will show "Move the robot"
Press the (#) key
The robot will home and the display will read "Bin height: Short? (Tall).
Make sure that if the bin is tall that it shows tall on this screen. Press the (#) key to accept and then exit this menu.

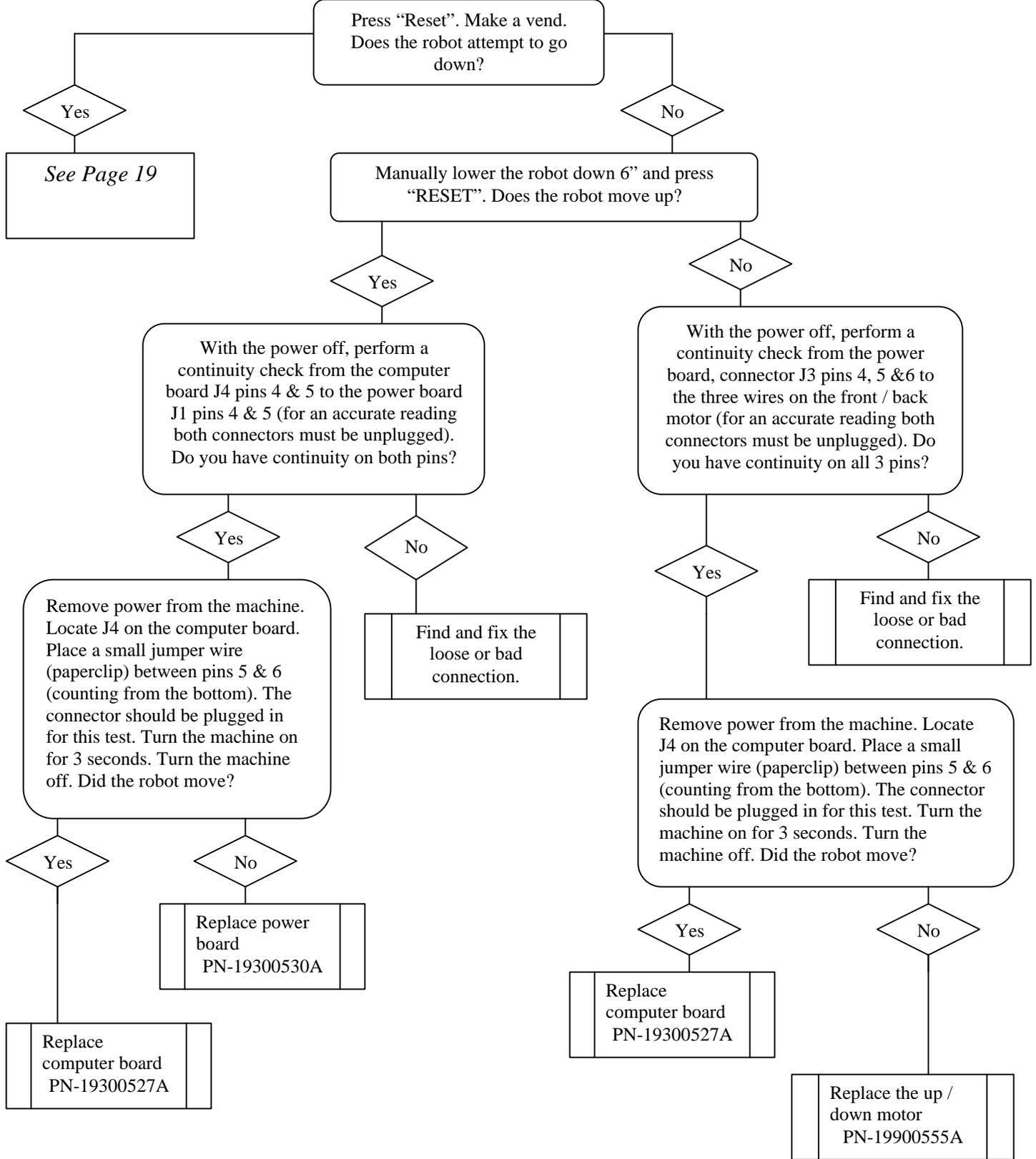
If the location is programmed correctly, locate the up / down encoder disk / reel assembly (shown in Figure TS-1-1 & TS-1-2).
The up / down cable should wrap around the reel counter-clockwise. The cable should be wrapped around the pulley part of the reel (A) not behind the reel on the motor shaft (B) or the reel "neck" (C).

Remove power from the machine. If the cable is wrapped around the motor shaft or the reel "neck", pull the robot all the way forward until it hits the stopper screws at the front of the left wall and right wall racks. Press the small silver brake button on the up / down motor and allow the picker head to drop until the cable is completely unwrapped from the reel (you may have to gently pull down on the picker hose while holding the brake to fully unwind). It may be necessary to remove the up / down encoder disk / reel assembly if the cable is caught behind it. Restore power to the machine. The robot should wind the cable correctly on the reel although the machine will go out of order. Manually slide the robot back 6" and press "RESET". The robot should home and the machine should be back in service. Press "LOAD" to clear any out of product bins.

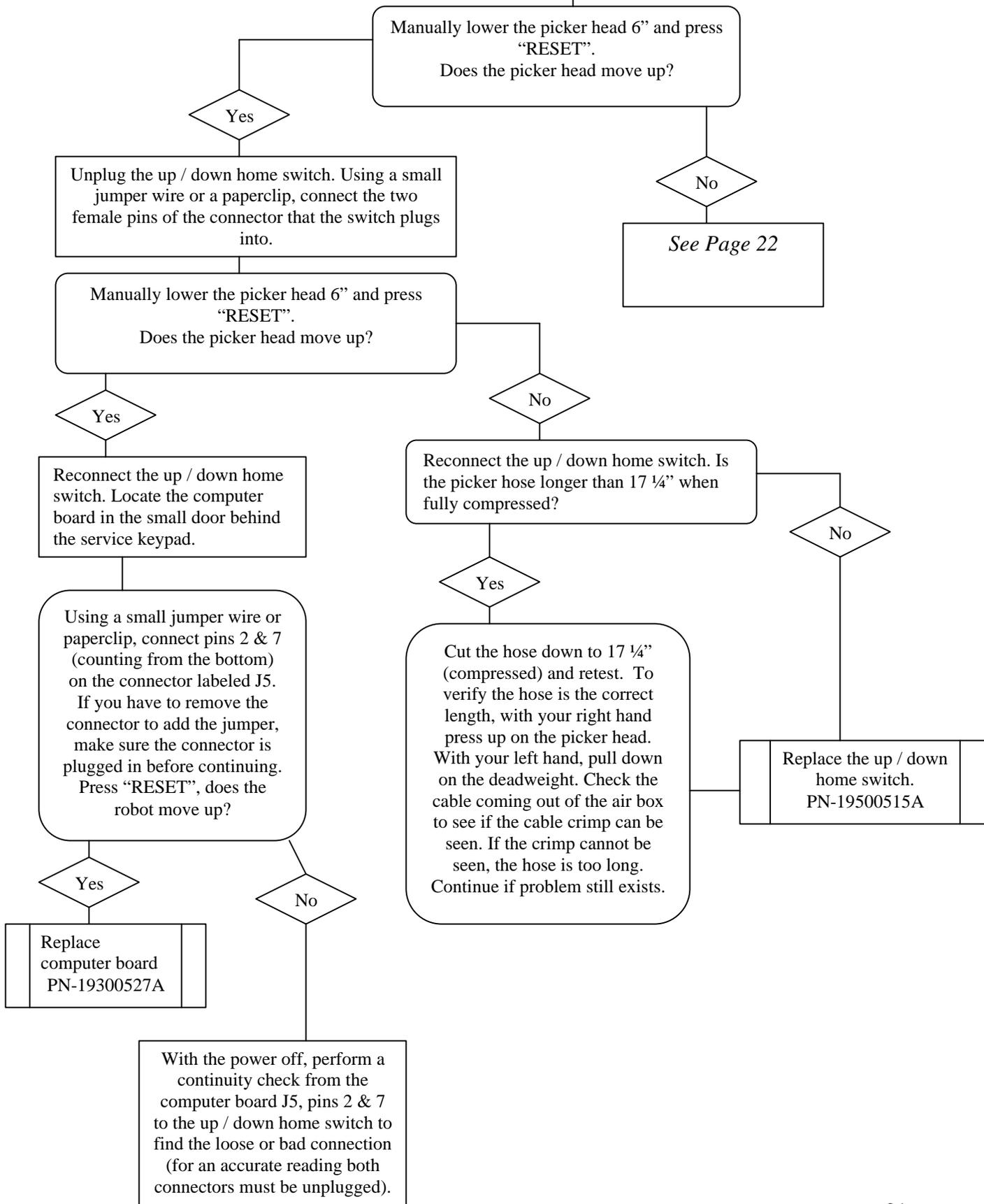
UP / DOWN ENCODER ERROR



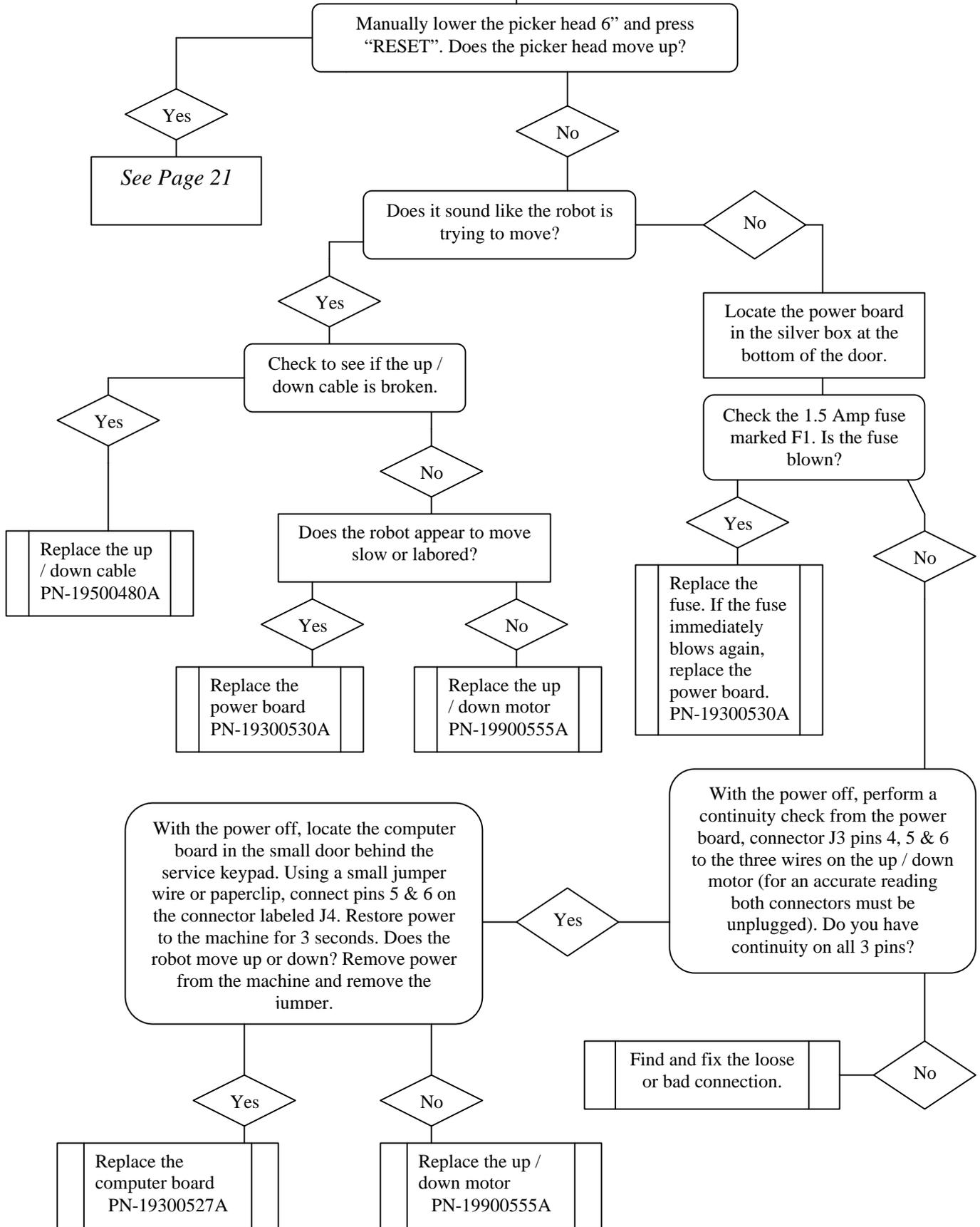
UP / DOWN ENCODER ERROR



UP / DOWN MOTOR STUCK



UP / DOWN MOTOR STUCK



VACUUM OUT OF ORDER

A Vacuum Out Of Order is caused by three consecutive bin errors. Immediately after pressing "RESET" the display will list all bin errors that have occurred since the last Load. Make a note of these bins and press the star (*) key to so that the display shows: 1) CHANGE PRICE then press "LOAD and "CLOSE" to clear the bin errors.

Attempt to vend one of the items that was listed as a bin error. Does the vacuum turn on?

Yes

No

Does the picker tip land fully on the product in a way that would allow a good seal?

See Page 24

Yes

No

Check the Voltage coming into the machine. The easiest place to get a voltage reading is under the freezer on the left side, in the junction box. If necessary, remove one of the light fixture (black) plugs. Is the voltage at least 110VAC?

Refer to the F631 Operator's Manual section labeled 3) EDIT SELECTION for information on adjusting the bin locations. Check the other bins also as it takes three bin errors to create a Vacuum Out of Order.

No

Yes

The F631 requires a 115V-15A dedicated circuit. Anything less than 110V may not provide enough power to properly run our vacuum motor. Try moving the machine to a better outlet or unplug or move anything sharing the power at this outlet.

Disconnect one of the wires from the lower (48") vacuum switch. Attempt a vend. Does the machine vend correctly?

Yes

No

Leave the 48" vacuum switch unplugged and see Adjusting The Vacuum Pressure on page 41 of the Operator's Manual. When possible replace the lower (48") vacuum switch.

Search the entire vacuum hose for holes. Follow the vacuum hose from the vacuum box up to the robot. Cut the tie wrap holding the hose to the robot. Pull the hose off the robot and stretch the last 2 to 3 inches of the hose. Are there any holes in the hose?

No

With the power off, perform a continuity check from the computer board J5, pins 4 & 7 to the 38" vacuum switch (for an accurate reading both connectors must be unplugged). Do both wires have continuity?

Yes

Using a pair of cutting pliers, cut the end of the hose off from the point of the hole. Reconnect the hose to the robot and secure with a tie wrap.

Yes

Replace the top (38") vacuum switch. PN-19500557A

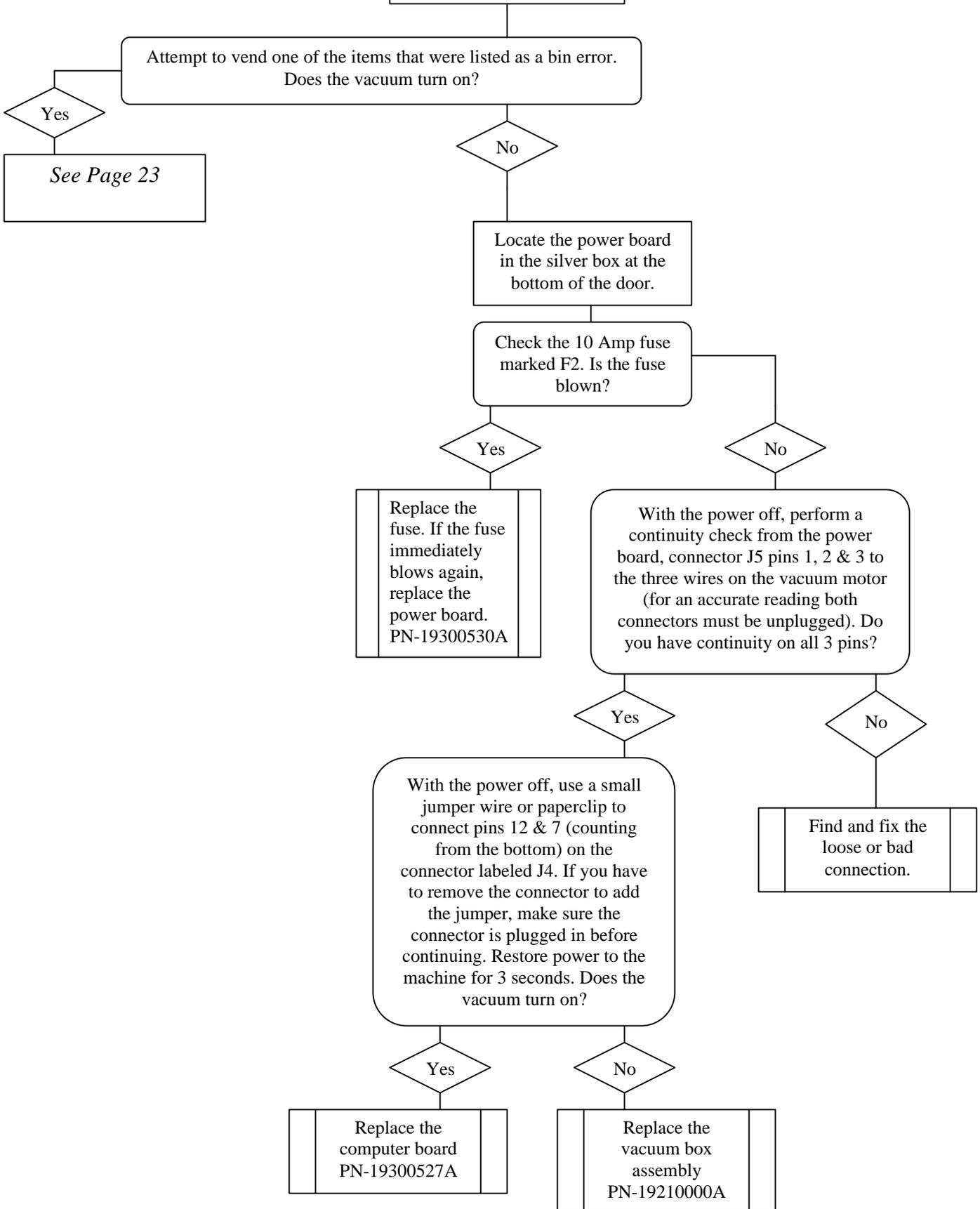
No

Find and fix the loose or bad connection.

NOTE

Holes in this part of the hose are generally caused by insufficient length between the robot and the hose clamp on the right wall. To prevent a recurrence of this problem, slide the robot to the right rear corner. Loosen the clamp on the right wall and pull some extra hose through. When you have enough that there is a little play, retighten the clamp.

VACUUM OUT OF ORDER



VACUUM SENSOR ERROR

Perform a visual inspection of the slack removal system for the up / down cable. Look for obvious signs of problems such as the cable being off a pulley, or the slack switch arm being under the deadweight arm (see diagram below). The deadweight should press up on the slack switch arm. Correct any faults found and attempt a vend.

Locate the snap action (slack) switch at the top right of the robot. Make sure that the two sets of wires (1-blue pair, 1-white pair) are connected to pins 1 & 3.

With the power off, disconnect pins 1 & 3 of the slack switch and perform a continuity check across them. Do you have continuity across pins 1 & 3 on the slack switch?

Yes

Replace the slack switch
PN-19500566A

No

Locate the computer board in the small door behind the service keypad. Unplug the connector labeled J5.

With the power off, perform a continuity check from the blue to the white wires that were connected to the slack switch. Do you have continuity?

Yes

Locate the 38" vacuum switch. To find the switch, cut the tie wrap holding the right hand hose to the robot.

With the power off, unplug both wires from the 38" vacuum switch. Perform a continuity check across the two pins at the bottom of the vacuum switch. Do you have continuity?

Yes

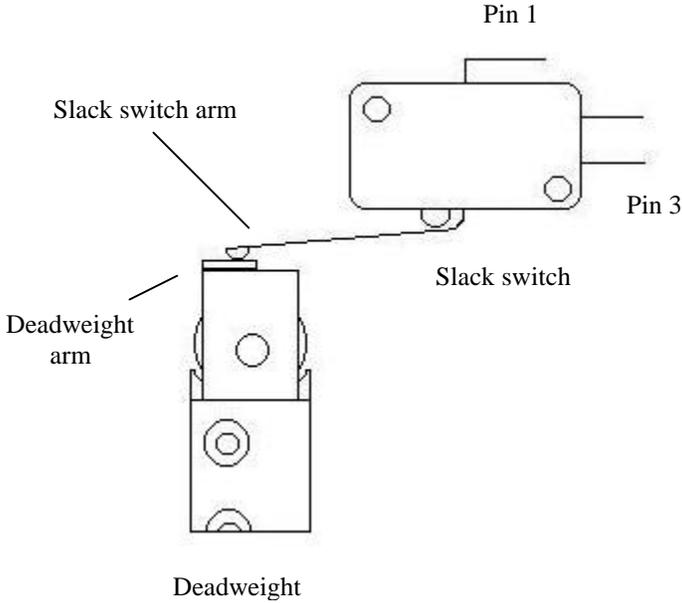
Replace the 38" vacuum switch
PN-19500557A

No

Replace the computer board
PN-19300527A

No

Find and fix the short in these two wires.



A Vacuum Out Of Order is caused by three consecutive bin errors. Immediately after pressing "RESET" the display will list all bin errors that have occurred since the last Load. Make a note of these bins and press the star (*) key so that the display shows: 1) CHANGE PRICE then press "LOAD and "CLOSE" to clear the bin errors.

VACUUM SHUTS OFF WHILE ROBOT TRAVELS UP

Yes

Does the picker tip land fully on the product in a way that would allow a good seal?

Yes

Check the Voltage coming into the machine. The easiest place to get a voltage reading is under the freezer on the left side, in the junction box. If necessary, remove one of the light fixture (black) plugs. Is the voltage *at least* 110VAC?

Yes

Disconnect one of the wires from the lower (48") vacuum switch. Attempt a vend. Does the machine vend correctly?

Yes

Leave the 48" vacuum switch unplugged and see Adjusting The Vacuum Pressure on page 41 of the Operator's Manual. When possible replace the lower (48") vacuum switch.

No

No

Refer to the F631 Operator's Manual section labeled 3) EDIT SELECTION for information on adjusting the bin locations. Check the other bins also as it takes three bin errors to create a Vacuum Out of Order.

The F631 requires a 115V-15A dedicated circuit. Anything less than 110V may not provide enough power to properly run our vacuum motor. Try moving the machine to a better outlet or unplug or move anything sharing the power at this outlet.

Search the entire vacuum hose for holes. Follow the vacuum hose from the vacuum box up to the robot. Cut the tie wrap holding the hose to the robot. Pull the hose off the robot and stretch the last 2 to 3 inches of the hose. Are there any holes in the hose?

No

With the power off, perform a continuity check from the computer board J5, pins 4 & 7 to the 38" vacuum switch (for an accurate reading both connectors must be unplugged). Do both wires have continuity?

No

Find and fix the loose or bad connection.

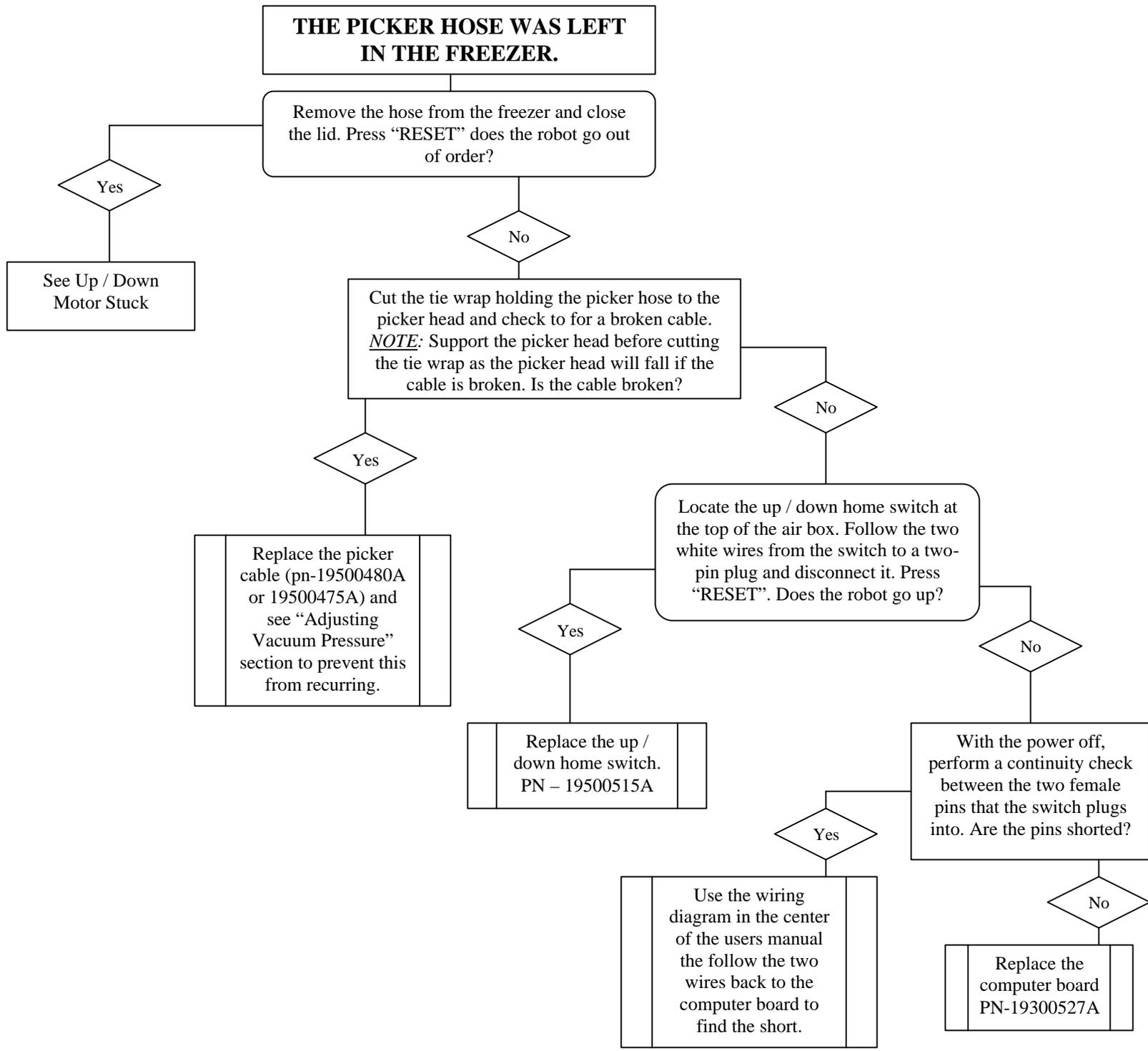
Yes

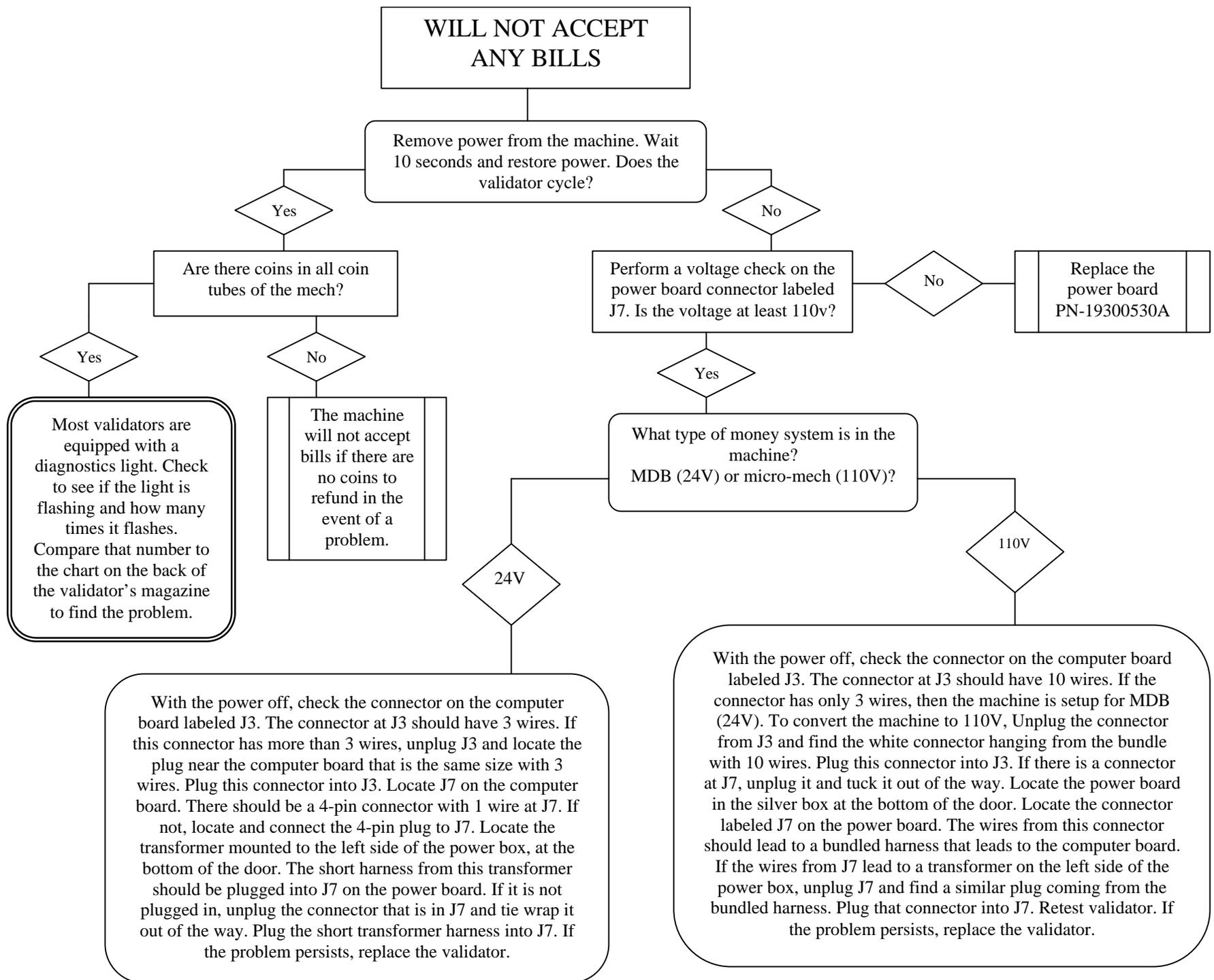
Using a pair of cutting pliers, cut the end of the hose off from the point of the hole. Reconnect the hose to the robot and secure with a tie wrap.

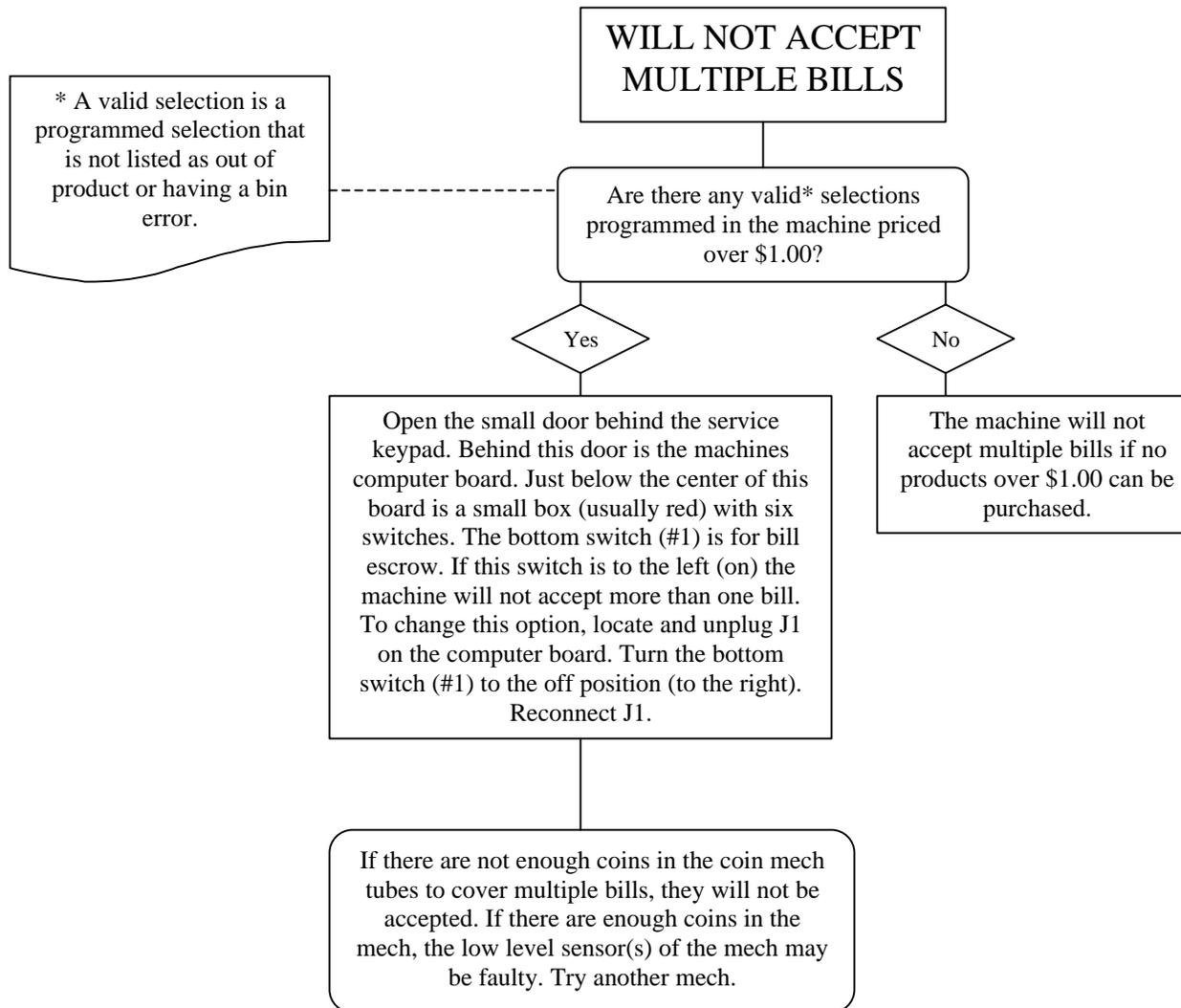
Replace the top (38") vacuum switch. PN-19500557A

NOTE

Holes in this part of the hose are generally caused by insufficient length between the robot and the hose clamp on the right wall. To prevent a recurrence of this problem, slide the robot to the right rear corner. Loosen the clamp on the right wall and pull some extra hose through. When you have enough that there is a little play, retighten the clamp.







NON-FATAL ERRORS

Problem: Blown fuse.

Troubleshooting: Make sure there is no power to the power (TRIAC) board before replacing fuses. Try replacing the fuse. If the fuse blows immediately upon restoring power to the board replace the power board (PN-19300530A).

Problem: Buzzer not working.

Troubleshooting: Replace computer board (PN-19300571A).

Problem: Cable is wrapped around the up / down encoder, disk and reel.

Troubleshooting: Locate the brake on the front / back motor. Release the brake and pull the robot forward until it makes contact with the screws on the front / back racks. Locate the brake on the up / down motor. Release the brake and pull down on the picker head until it is past the bottom of the freezer and all of the cable is off the encoder and reel. If the head will not go all the way down, it may be necessary to remove the encoder, disk / reel and cover to unwrap the cable. Pull out the service switch and the robot will wind itself up the correct way. The machine will then go out of order with a “fwd / bck motor stuck”. Locate and release the front / back motor brake and slide the robot back about six inches. Press “RESET”. The robot should “home” itself and the display should read either PLEASE INSERT MONEY or 1) CHANGE PRICE. Although most cable problems are related to high vacuum pressure (see adjusting the vacuum pressure). This type of problem may be caused by a faulty slack switch. Vend a selection. If the robot goes to the location, drops down to the product and continues to let out more cable, **immediately turn off the power** and replace the slack switch (pn-19500566A).

Problem: Cannot pass the “1) CHANGE PRICE” menu option.

Troubleshooting: Possible causes for this problem include:

- If the computer boards memory fails, it may be necessary to press the “*” key to access the menu.

- The customer keypad may be connected upside down on the computer board (J8).
- On several Coin-Co validators, such as the BA30SA, there is a polarity conflict with the F631. On the BA30SA, remove the validator from the machine. Slide the control board out of the plastic case. Locate the connector labeled P14. Unplug P14, turn it 180° so that the wires are reversed and plug it back in. Slide the computer board back into its plastic case. Reinstall the validator and retest.

Problem: Display always reads “PLEASE INSERT MONEY”

Troubleshooting: Locate the service switch and unplug both wires from it. Jump the two wires together with a small jumper wire or paper clip. Does the display read 1) CHANGE PRICE?

YES: Reconnect the two wires to the two pins facing down on the service switch and retest. If the problem persists replace the service switch (pn-19300543A)

NO: Locate the computer board and find the connector labeled J10. Using a small jumper wire or paperclip, connect pins 1 & 2 together (counting from the bottom). If you have to pull the connector off the board to insert the jumper make sure to add the jumper to the back of the connector with the wires already in the connector. Plug the connector in.

Does the display read 1) CHANGE PRICE?

YES: There is a bad pin or a break in one of the two wires going from J10 to the service switch. Find and fix the break.

NO: Replace the computer board (PN-19300527A).

Problem: Display blank / Display illegible

Troubleshooting: Possible causes for this problem include:

- a faulty display (pn-19310520A for before SN-8018 or pn-19300521A for SN-8018 and later)
- a faulty computer chip (pn-19301334A)
- or a faulty computer board (pn-19300527A)

- A bad harness or loose connection between the display board and the computer board connector labeled J2.

Problem: Freezer door left fully opened and the robot is at its front home position.

Troubleshooting: Check the space between the upper freezer door switch and the magnet on the freezer lid. If the gap is too large or if the switch is too weak, the switch may pick up the magnet too late. If this happens the capture bar hanging from the robot on the right may miss the roller on the freezer lid. This would allow the robot to push the lid open but the capture bar would not be able to pull the freezer lid closed (switch PN-19900518A).

Problem: How can I exit FREE VEND / TEST VEND?

Troubleshooting: FREE VEND and TEST VEND are both entered and exited in the same way. Press the button one time to enter and one time to exit.

Problem: Keeps money and vends nothing.

Troubleshooting:

- a) Ensure that there is nothing obstructing the airflow in the picker head. Drop the picker head down about 20". Bend the hose up and look into the picker head for obstructions.
- b) If the vacuum pressure is extremely high, the machine may not be able to tell when the product falls off. If the vacuum stays running without product, the vacuum pressure should be reduced. See adjusting vacuum pressure. Also, the lower (48") vacuum pressure switch should be replaced.

Problem: Keypad not working (If using a Coin-Co BA30SA see below*).

Troubleshooting: If the keypad does not work at all, or if certain rows or columns of buttons don't work, the problem is either in the keypad or the computer board. To

determine which unplug the questionable keypad and connect the other keypad plug in its place. Do all the keys work on the second keypad?

YES: Replace the faulty keypad (PN-19310350A for the service keypad and 19300571A for the insert for the customer keypad).

NO: Replace the computer board (PN-19300527A)

**COIN-CO BA30SA:* If using a Coin-Co BA30SA, unplug the validator and retest. If the machine works without the validator there is a polarity conflict with the F631. On the BA30SA, remove the validator from the machine. Slide the control board out of the plastic case. Locate the connector labeled P14. Unplug P14, turn it 180° so that the wires are reversed and plug it back in. Slide the computer board back into its plastic case. Reinstall the validator and retest.

Problem: Keypad works incorrectly.

Troubleshooting: The reason for improper keypad function is the reversal of the keypad connectors or installing the connectors upside down. The ribbons used to connect the keypads have writing stamped on only one side. When installing the plug, the writing should be to the left side of the board. The service keypad on the inside of the door should be the upper of the two connectors with the customer keypad on the lower.

Problem: Machine loses memory.

Troubleshooting: See “Machine must be setup”.

Problem: Motor continuously runs until overheating.

Troubleshooting: Replace the power board (pn-19300530A).

Problem: Motor keeps blowing fuse.

Troubleshooting: Replace the power board (pn-19300530A).

Problem: Motor runs very slowly in one direction.

Troubleshooting: Replace power board (pn-19300530A).

Problem: Not accepting coins.

Troubleshooting: a) Check for coins that may be jammed in the tubes or the receiver.
b) Locate the connector labeled J8 on the power board. Perform a voltage check (**DC**) at the two wires in the connector (J8). Does the meter read 110-115 volts **DC**?

YES: Check the connector on the computer board labeled J3. If the coin mech is a micro-mech (110v), the connector should be white. If the coin mech is MDB (24v), the plug should be red. If the wrong connector is plugged into J3, the other end of the harness should also be checked. Locate the power box, the silver box at the bottom of the door. Remove the cover from the box. If the machine is setup to offer MDB, there will be a transformer mounted to the left side of the power box. To use MDB, the short harness from the transformer should be connected to J7 on the power board (labeled AC to lights). If another plug is already there, disconnect it a tie or wrap it out of the way. If you are using a 110v mech, the transformer should not be plugged in, instead use the plug from the bundled wires at J7. If the mech still does not accept coins, replace the mech.
NO: Replace the power board (pn-19300530A).

Problem: Picker cable is coming off pulleys, stripping or breaking.

Troubleshooting: a) These are all caused by very high vacuum pressure. See adjusting the vacuum pressure. Also, to help reduce the possibility of the cable being damaged or broken, Fastcorp has added a 1/2" x 1" piece of Velcro to the pulley z-bracket which holds the first two pulleys. When the Velcro is attached to the bracket above the first pulley, it prevents the cable from jumping off the first and keeps any slack inside the picker hose. This allows the cable outside the hose to remain on all the pulleys regardless of pressure and slack. However, if the bouncing is not corrected, the weight of the picker head alone may cause cable to break.

b) The second reason a cable may come off a pulley is if the deadweight (that slides up and down on the left side of the robot) cannot slide freely. The weight is

designed to keep the slack out of the system. If the weight cannot slide down for any reason, the slack it causes would push the cable off the pulleys.

Problem: Picker head bounces when lifting product.

Troubleshooting: The vacuum pressure is too high. See adjusting the vacuum pressure.

Problem: Picker head drops after completing a vend.

Troubleshooting:

a) If the picker head drops slowly:

The up / down motor brake may be bad. Grab the picker head and lightly pull down. If the picker goes down easily replace the up / down motor (pn-19900555A)

b) If the picker head drops quickly:

If the vacuum pressure is very high, the pressure inside the picker hose will pull the hose up faster than the up / down motor can turn. This will keep any cable slack inside the picker hose. When the vacuum finally shuts off after delivering the product, the picker head will drop until the cable is taut. To fix this problem, see adjusting the vacuum pressure.

Problem: “PLEASE CLOSE FREEZER DOOR”

Troubleshooting: Locate the freezer door magnet on the front left corner of the freezer lid. Look at the top of the magnet. There should be a small white-yellow cap on the top of the magnet. If there is a hole in the top of the magnet, the cap has fallen off and the magnet has fallen out. Check the upper, left area of the back wall of the cabinet to see if the magnet is stuck on the wall. If you find the magnet, drop it back into the case with some glue and allow it to dry. If there is a cap on the magnet, check the space between the magnet and the switch on the wall directly across from the magnet. If the gap is larger than ¼” the freezer may have shifted to the right. To close the gap either pull the front of the freezer to the left and secure (if it appears to have shifted), or add a spacer behind the switch. If the gap is ¼” or less see the troubleshooting section labeled “FREEZER STUCK OPEN” for further instructions.

Problem: Product is too hard / too soft.

Troubleshooting: The temperature control / adjustment is on the thermostat behind the freezer. With the freezer lid closed, look over the right rear corner of the freezer. Just below the top of the freezer a small rectangular shaped piece with a gold colored screw in the top center. The rectangular piece is the thermostat and mounting bracket. The screw is the temperature adjustment. Turn the screw *clockwise* to make the freezer colder and *counter-clockwise* to make the freezer warmer.

Problem: Robot binds with the freezer lid.

Troubleshooting: Locate the freezer door magnet on the front, left corner of the freezer lid. Manually open the freezer door to a 45-degree angle. At this point on the left wall of the machine is the freezer open switch. Close the door and press “LOAD”. Does the magnet stop below or before the freezer open switch?

YES: Replace the Freezer open switch (pn-19900518A).

NO: Press close to end the load procedure. Press “LOAD” again and watch the freezer lid. Does the freezer lid appear to be closing or lowering as the robot starts to go back?

YES: The freezer door motor has a bad brake. Replace the freezer door motor (pn-19900555A)

NO: Check the gear teeth on the robot to ensure that none are broken. Check the path of the gears on the rack for any obstructions that may be preventing the robot from smooth travel.

Problem: Robot only goes halfway to the bin.

Troubleshooting: Check the cable path from where the cable leaves the air box and winds through the series of 6 pulleys. If the cable is off any pulley put it back on. The cable ends at the up / down reel. Check the reel to ensure that the cable is wrapped on the reel and not behind it. If the cable is wrapped behind the reel, locate the brake on the front / back motor. Release the brake and pull the robot forward until it makes contact with the screws on the front / back racks. Locate the brake on the up / down motor. Release the brake and pull down on the picker head until it is past the bottom of the freezer and all of the cable is off the encoder and reel. It may be necessary to remove the encoder, disk /

reel and cover to unwrap the cable. Pull out the service switch and the robot will wind itself up the correct way. The machine will then go out of order with a “fwd / bck motor stuck”. Locate and release the front / back motor brake and slide the robot back about six inches. Press “RESET”. The robot should “home” itself and the display should read either PLEASE INSERT MONEY or 1) CHANGE PRICE.

Problem: Takes a \$5.00 bill but only credits 2 or 3 dollars.

Troubleshooting: Remove the validator from the machine. Check the switch settings on the side of the validator and ensure that it is set for short pulse communication. If the problem persists, replace the bill validator.

Problem: Tries to lift an empty bin from the freezer.

Troubleshooting: If the robot is trying to lift:

- a) The short bins – Use the 3) EDIT SELECTION option in the main menu to change the bin height of the affected bins to short.
- b) The cone bins – At the bottom of the cone bins is a triangular shaped wedge to help level the sharp angle the cones would normally stack with. The robot may think this wedge is another product. To correct this use the 3) EDIT SELECTION option in the main menu to adjust the product height to (at least) 3-inches.
- c) Check under the affected bin for ice. If ice builds up around the edges of the freezer and must be cleaned, place something over the bins to prevent the ice from falling into the freezer. If it does fall into the freezer it may settle under the bins and force the bottom of the bin into the vending area. The robot will “assume” anything in the vending area is a vendable product.

Problem: Vacuum will not turn on.

Troubleshooting: see vacuum out of order page 2.

Problem: Vends / delivers multiple products (makes multiple attempts).

Troubleshooting: Locate the vacuum pressure adjustment on the face of the vacuum box under the freezer. Loosen the screws holding the adjustment plate and slide the plate to the left covering one row of holes. Vend a selection. Does the machine vend correctly?

YES: Leave the machine with its new setting.

NO: Disconnect the right-hand hose from the air box on the robot. Inside of the air box is the 38-in/wtr vacuum pressure switch. Between the two wires at the bottom of the switch is a small allen screw used for adjustment. Using a .050" allen wrench, turn the screw very slightly counter-clockwise. Reattach the hose and vend a selection. Does the machine vend correctly?

YES: Leave the machine with its new setting.

NO: Disconnect the right-hand hose from the air box on the robot. Inside of the air box is the 38-in/wtr vacuum pressure switch. Remove the two wires from the bottom of the switch. These wires are signal wires, they can be handled without risk of shock. Vend a selection. When the vacuum turns on, press and hold these two wires together. Keep them together until the vacuum shuts off. Did the vacuum stay running all the way to the delivery bin?

YES: Replace the 38 in/wtr vacuum pressure switch (PN-19500557A).

NO: Replace the ribbon cable (PN-19510300A).

Problem: Vends / delivers multiple products (makes single attempt).

Troubleshooting: If there is moisture on the product when it is loaded, the product may freeze together. In some cases this will lead to bin errors as the product will be too heavy or awkward for the robot to lift from the bin. If the product is very light and frozen together, the machine may be able to lift several and vend them all together as one. It may be necessary to eliminate any plain paper wrapped products. If the problem persists it may be necessary to review your transporting and loading procedures to cut down on the amount of moisture allowed on the product or in the freezer.

Appendix A

Parts Order Form

Common Parts Identification

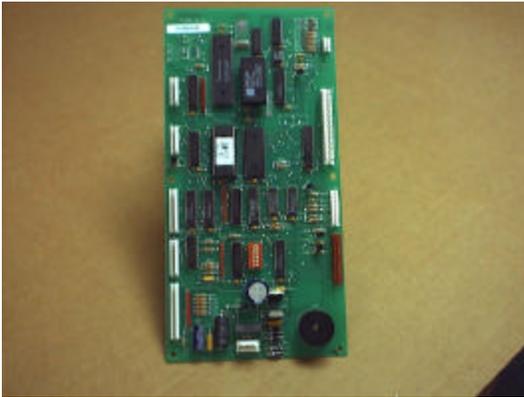
Parts / Price List



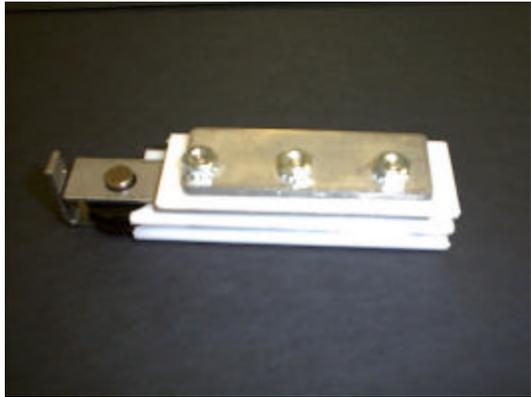
CABLE, FREEZER DOOR
PN - 19100081A



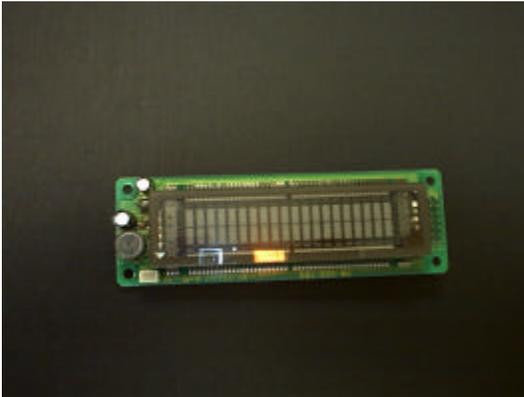
CABLE, UP / DOWN
PN - 19500480A



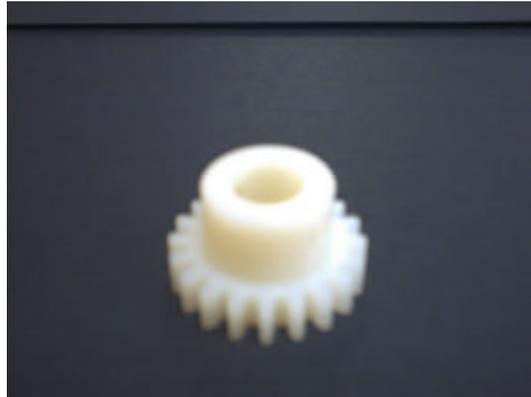
COMPUTER BOARD
PN - 19300527A



DEADWEIGHT ASSEMBLY
PN - 19510119A



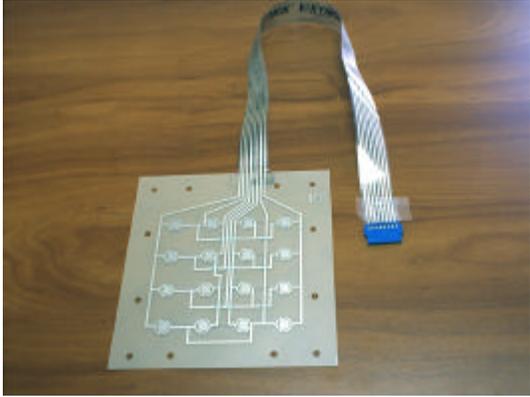
DIGITAL DISPLAY BOARD
(AFTER SN-8018)
PN - 1919300521A



GEAR W/ HOLE
PN - 19500406A



HEALTH SWITCH ASSY
PN – 19500582A



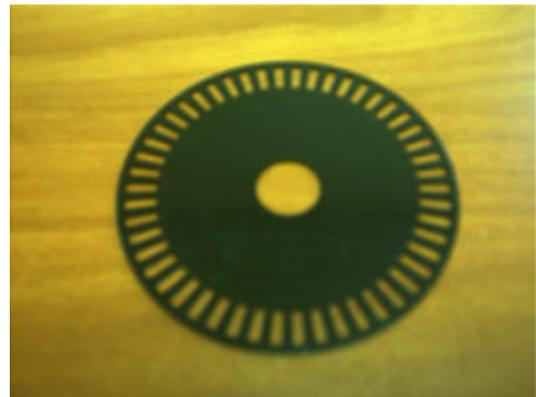
KEYPAD INSERT
PN – 19300571A



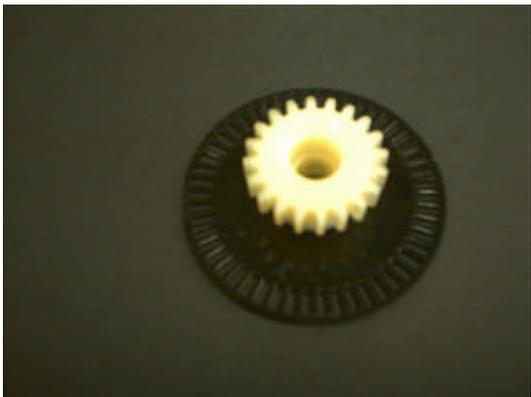
MENU HOLDER, 12-CARD
PN – 19380127A



MOTOR 115V
PN – 19900555A



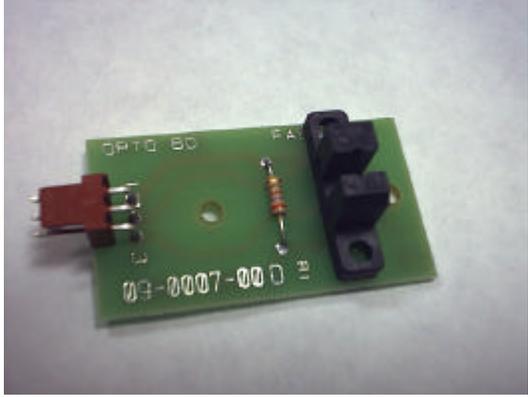
OPTO ENCODER DISK
PN – 19500492A



OPTO ENCODER DISK/GEAR
PN – 19510153A



OPTO ENCODER DISK/REEL
PN – 19510117A



OPTO ENCODER SWITCH
PN – 19500582A



PICKER TUBE ASSEMBLY
PN – 19510113A



POWER BOARD
PN – 19300530A



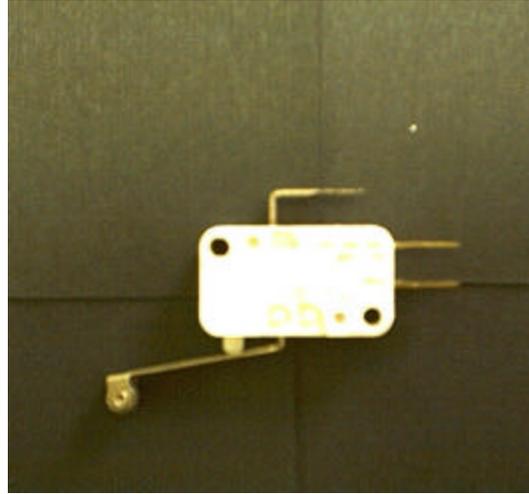
REED SWITCH, MAGNETIC
PN – 19900518A



REED SWITCH, UP/DOWN
PN – 19500515A



RIBBON CABLE
PN – 19510300A



SLACK SWITCH
PN – 1919500566A



THERMOMETER
PN – 19600738A



THERMOSTAT
PN – 19600513A



VACUUM PRESSURE SWITCH
38" (TOP)
PN – 19500557A



VACUUM PRESSURE SWITCH
48" (BOTTOM)
PN – 19200558A

