



# BH Fitness Service and Repair Manual:

## S1Ti, T300i, T500i

**S1Ti**

**T300i**

**T500i**



# **S1Ti Service Manual**

## Table of Contents

1.	Warnings.....	pg. 3
2.	Current Compensation Procedure.....	pg. 4
3.	Test Mode.....	pg. 6
4.	Calibration Procedure.....	pg. 7
5.	No Display.....	pg. 9
6.	E1 Error.....	pg. 16
7.	E2 Error.....	pg. 18
8.	E3 Error.....	pg. 21
9.	E4 Error.....	pg. 24
10.	E6 Error.....	pg. 27
11.	E8 Error.....	pg. 34
12.	Table of Contents: Repair and Replacements....	pg. 35

## Warnings page

In these pages, you will experience 3 levels of warnings about the procedures you are about to perform. Understand the level of danger each sign signifies and use the proper amount of caution with each procedure.



When you see this sign, we will be performing a test that requires measuring line voltage or a similar voltage that could cause serious injury or death. Take precautions that include setting probes securely before applying line voltage, not touching bare energized terminals or parts of the circuit boards, checking insulation on wires before handling them, properly setting and maintaining test equipment, and following the procedure precisely. Never put yourself at risk regardless of how you interpret the instructions. Call BH

Support at 866-325-2339 if you have any questions or feel unsafe before trying any of the instructions.



When you see this sign, we will be performing a procedure with the parts of the unit moving. Take precautions that include: avoiding pinch points; keeping hair, jewelry, clothing, probe leads, tools and body parts out of possible entanglements. Serious injury could occur if precautions are not taken. Call BH Support at 866-325-2339 if you have any questions or feel unsafe before trying any of the instructions.



When you see this sign, we will be performing a procedure that may be a little challenging. An example would be laying over the treadmill to work underneath. Improper layover of the treadmill could damage furniture in the customer's home, scratch the floor, scratch the treadmill or cause the unit to fall on you. Use your good technician judgment when you perform these procedures in a way that is safe for you, the unit and the customer's home.

## S1Ti Current Compensation Procedure

This procedure can help you smooth out motor operation after replacing a new DC motor or controller or on an older DC motor or controller not working properly.

When the computer shows “ENTER WEIGHT”, remove the safety key and press and hold  and  while replacing the safety key. The computer will show “EN4 CURRENT COMPENSATE VALUE”.

Press  to see the current value. The default value is 25.

To reduce sluggishness or bogging down,

Increase the value by 5 counts using  and then press  to save the change. Press  2 times until the computer resets to the “ENTER WEIGHT” screen.

Start the unit and walk on the running belt at various speeds to see if the result is acceptable. Repeat these steps if necessary.

Turning up the value too high will make the running belt surge in speed. Reduce the value to eliminate surging.

To reduce surging in speed,

Decrease the value by 5 counts using  and then press  to save the change. Press  2 times until the computer resets to the “ENTER WEIGHT” screen.

Start the unit and walk on the running belt at various speeds to see if the result is acceptable. Repeat these steps if necessary.

Turning the value too low will cause the running belt to be sluggish and bog down too much under load. Increase the value to eliminate bogging.

## S1Ti Test Mode

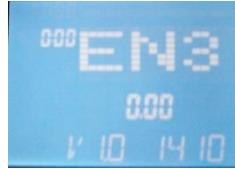
Enter this mode to check software version, get miles and hours, perform a display test or key test.

To enter test mode, turn on the power switch, remove the safety key and press and hold



and simultaneously while placing the safety key.

The computer shows:



The software version is scrolling across the bottom. The mileage is in the center and the hours are in the upper left.



Press , the computer shows:



Press and the computer will go through a scrolling display test. Press to end the test.



Press , the computer shows:



Press to start the test. The computer will display "PRESS ALL KEYS". When you press each key, its name will appear in the display. After all keys are pressed, the display will show "PASS"



Press and the computer shows



Press and the computer will show "WAIT" and then give a series of beeps. When the screen returns to "CLR EEP", the eeprom has been cleared and the mileage and hours are reset.



Press to exit test mode.

## S1Ti Calibration Procedure

From the “ENTER WEIGHT” screen, remove the safety key. Press and hold the  and  simultaneously while replacing the safety key



will select English units

until the computer shows

will select metric units



Press  and computer will show

If the value is not 60.00, use the  or  to set to 60.00

If this value is set inaccurately the speed of the treadmill will be off.

Press  and computer will show



If the value is not 1.0, use the  to set to 1.0

If this value is set too low, the motor may fail prematurely from high torque requirements.

Press  and computer will show



If the value is not 10.0, use the  or  to set to 10.0

If this value is set inaccurately, the controller may be unable to reach the requested speed.

Press  and computer will show



If the value is not 15, use the  to set to 15

If this value is not set correctly, the incline will be inaccurate and may show errors.

Press  and computer will show

EN1  
INC ON

If the computer shows

“INC OFF”, press  to turn the incline on

Press  and computer will show

EN1  
GS ON

If the computer shows

“GS OFF”, press  to turn the GS on

Press  and computer will show “**EN1 PRESS START TO CALIBRATE**”



**Do not stand on the tread belt when Quick Start is pressed. The treadmill will quickly go to top speed and will incline up and down during calibration.**

Press  and computer will display “**CALIBRATE**” while calibrating.

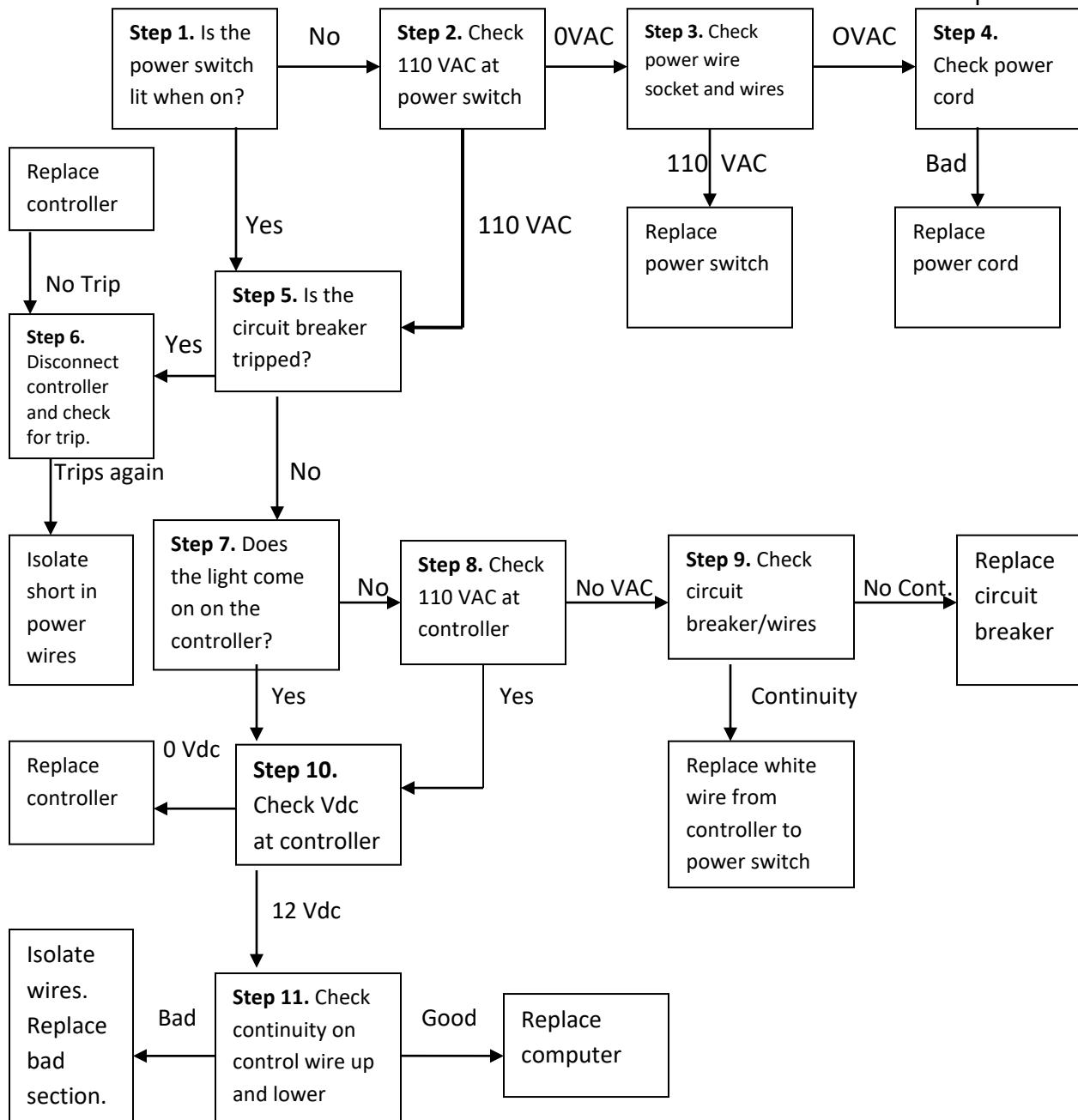
If the calibration is successful, the computer will reset to the “ENTER WEIGHT” screen.

If calibration cannot be completed, an error code will be displayed.

## S1Ti No Display Overview

**Tech Note:** The display shuts off to conserve energy after 4 minutes. Pressing a button will turn the display back on.

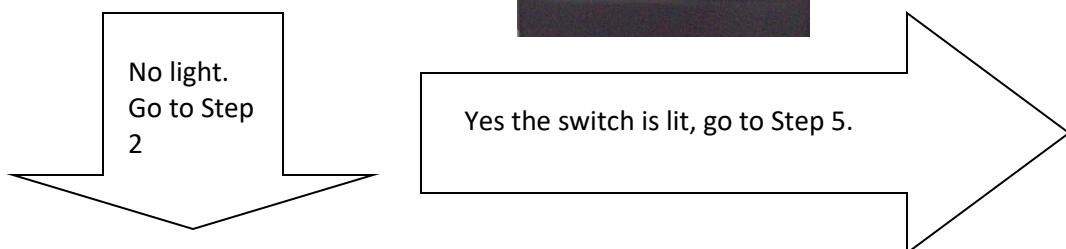
This procedure assumes proper power supplied to the unit. Check that first.



## S1Ti No Display

### Step 1: Visually check for power switch light

Turn the power switch on and if 110 VAC is present at the switch, the light in the center of the switch should be lit.



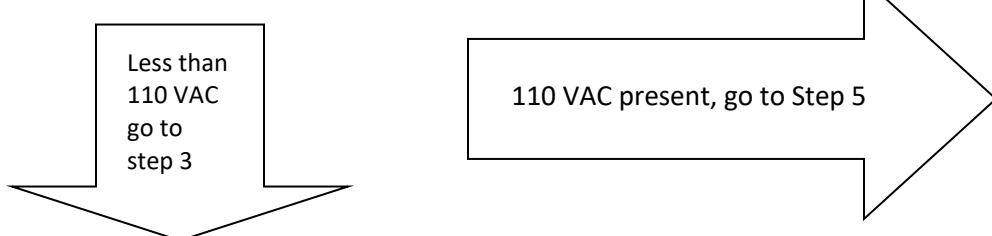
### Step 2: Check for 110 VAC at the power switch

Unplug the power cord from the unit .

Set the voltmeter for VAC.

Place 1 lead in the black wire and one lead in white wire on top of power switch as shown.

Plug power cord in and turn power switch on.

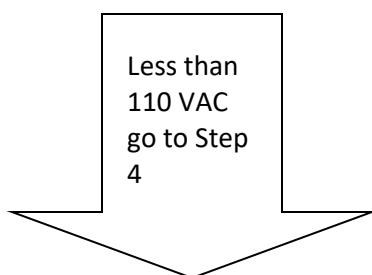
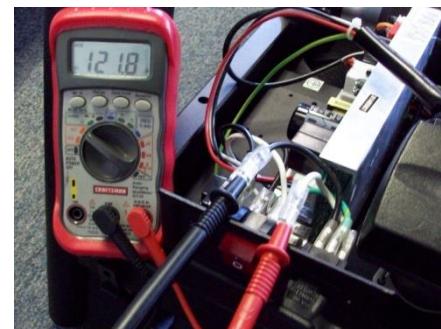


## S1Ti No Display

### Step 3: Check power wire socket and wires

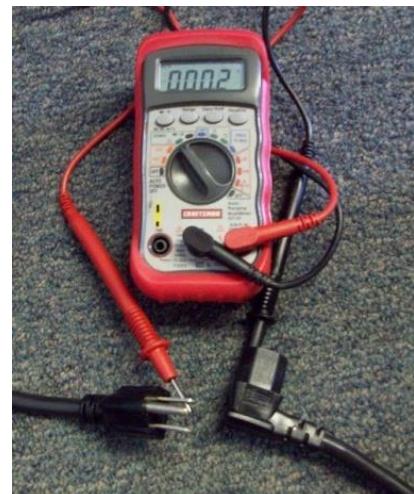


Unplug the power cord from the unit .  
Set the voltmeter for VAC.  
Detach black and white power wires  
from bottom of power switch.  
Place 1 lead in the black wire and one  
lead in white wire as shown.  
Plug power cord in.



### Step 4: Check power cord

Unplug the power cord from the unit and the outlet.  
Set the voltmeter for  $\Omega$ .  
Check each prong at both ends.  
Each should be less than  $.5 \Omega$ .



Greater than  $.5 \Omega$  on any lead – replace power cord

Continuity less than  $.5 \Omega$  on all three leads –  
check each wire on power wire socket and  
each terminal on the power wire socket.  
Replace defective part

## S1Ti No Display

### Step 5: Check for circuit breaker trip

Visually inspect circuit breaker for being popped out.

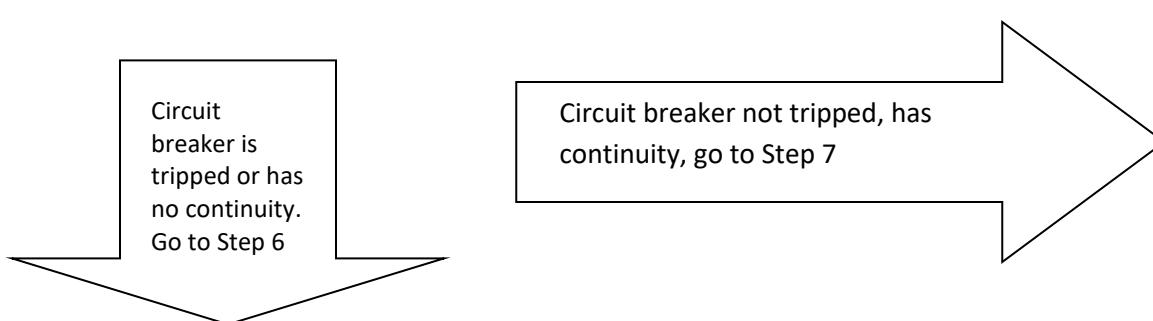
Unplug the power cord from the unit.

Set the voltmeter for  $\Omega$ .

Place 1 lead on each terminal of the circuit breaker.

The circuit breaker should measure less than 1

$\Omega$  if not tripped.



### Step 6: Isolate source of circuit breaker trip

Turn off the power switch and unplug the power cord

Wait for the light on the controller to go out.

Disconnect the black and white power wires from the controller.

Set the wires so the metal ends will not make contact with metal or each other.

Plug power cord in and turn power switch on.

Check for circuit breaker trip.



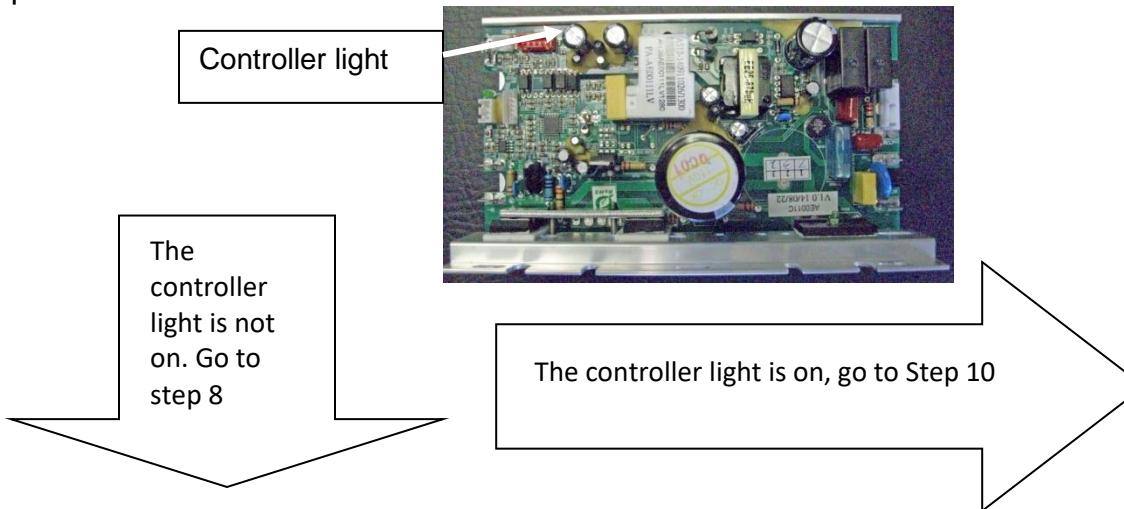
Circuit breaker did not trip. Replace controller

Circuit breaker trips again, unplug unit and find short in power wires

## S1Ti No Display

### Step 7: Visually check light on the controller

With the unit plugged in and turned on, the controller light should be on if 110VAC is present at the controller.



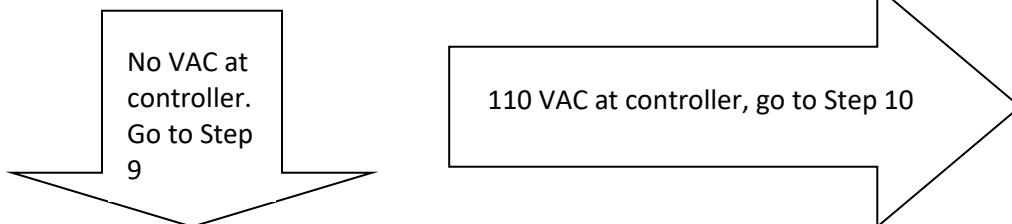
### Step 8: Check for 110 VAC at the controller

Turn off the power switch and unplug the power cord from the unit .

Set the voltmeter for VAC.

Place 1 lead in the black wire and one lead in white wire as shown.

Plug power cord in and turn power switch on.



## S1Ti No Display

### Step 9: Check circuit breaker and wires

Turn off the power switch and unplug the power cord from the unit.

Set the voltmeter for  $\Omega$ .

Place 1 lead in the black wire going to the circuit breaker and one lead into the black wire going from the circuit breaker as shown

The voltmeter should read around  $.3\Omega$ .



Greater than  $.3\Omega$  or OL, check each of wires and circuit breaker and replace defective part

$.3\Omega$  or less, replace the white wire from the controller to the power switch

### Step 10: Check for 12 VDC at the power switch

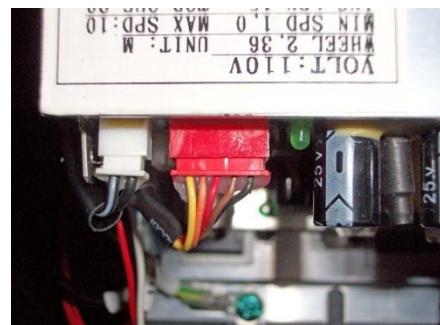


Set the voltmeter for VDC.

On the control wire lower, note pins 2 and 5 where the orange and black wires are located.

Place one meter lead on pin 2 and one on pin 5. You may have to remove some hot glue to get access to the metal pins.

Check for 12 VDC.



12 VDC present, go to Step 11

0 VDC or less than 10 VDC, replace controller



## S1Ti No Display

### Step 11: Check resistance on control wire up and lower

Turn the power switch off and unplug the power cord.

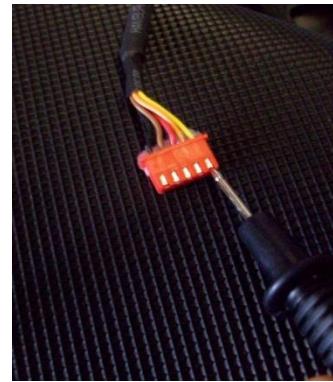
Set the voltmeter for  $\Omega$ .

Disconnect the control wire at the top and bottom.

Using the metal pads on the control wire connector check each wire at the top and bottom.

The resistance should be less than  $.5 \Omega$ .

You may need assistance to do this.



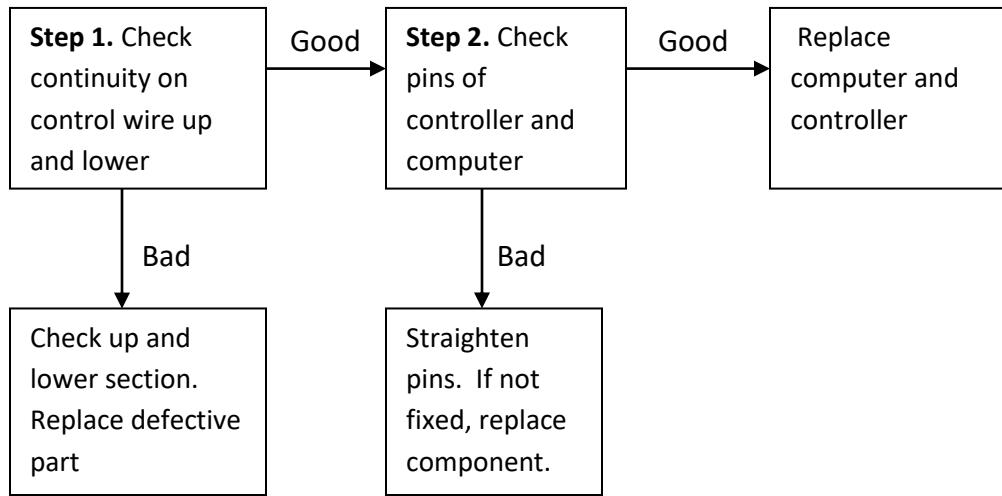
Less than  $.5 \Omega$   
on all wires,  
replace  
computer

Greater than  $.5 \Omega$  on any of the wires,  
check individual control wire sections.  
Replace defective section



## S1Ti E1 error overview

This error is a communication error between the computer and the controller. Loss of connection on the control wire up or lower will cause this error.



## S1Ti E1 error

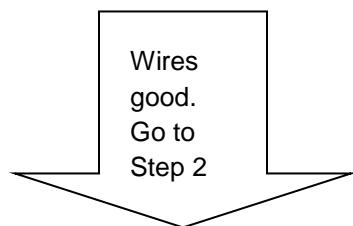
### Step 1: Check resistance on control wire up and lower

Turn the power switch off and unplug the power cord.

Set the voltmeter for  $\Omega$ .

Disconnect the control wire at the top and bottom.

Using the metal pads on the control wire connector check each wire at the top and bottom. The resistance should be less than  $.5 \Omega$ . You may need assistance to do this.



Resistance greater than  $.5\Omega$  on any of the wires: isolate which part of control wire is defective by performing the test on each part. Replace defective control wire.



### Step 2: Check control wire connection pins on controller and computer

Turn the power switch off and unplug the power cord.

Disconnect the control wire at the top and bottom. Check the connectors at the controller and computer. All the pins of the connectors should be straight and mate well with the connectors on the wires.

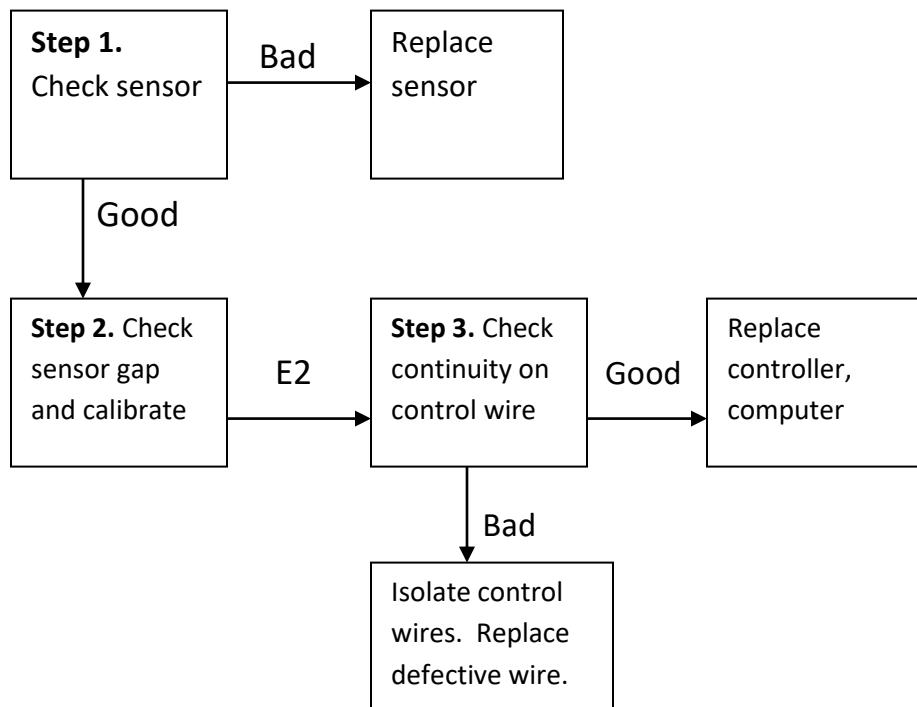


Bad pins found. Straighten pins if possible. If the connector is too damaged to take control wire, replace that component.

All pins good, replace controller and computer.

## S1Ti E2 Error Overview

This error is predominantly seen in calibration mode when the treadmill is determining speed values based on information from the speed sensor. In normal mode, the treadmill can run on saved values for speed control.



## S1Ti E2 Error

### Step 1: Check Sensor

Turn the power switch off and unplug the power cord.

Set the voltmeter for  $\Omega$

Disconnect the sensor wire from controller.

With the magnet in front of the sensor, the resistance should be less than  $.5 \Omega$

With the magnet not in front of the sensor, the resistance should be less than OL.



Voltmeter shows OL or less than  $.5 \Omega$  all the time.  
Replace sensor

Sensor tests good, go to Step 2

### Step 2: Check Sensor Gap

The sensor should be pointed toward the magnet on the front roller.

The sensor should be less than  $3/8"$  away from magnet.

If sensor is turned away or at wrong angle, loosen screw and pivot sensor to correct angle.

If sensor is too far from magnet, cut hot glue and adjust sensor closer to magnet. Reglue if needed.

Perform calibration as per S1Ti calibration procedure.



E2 in calibration,  
go to Step 3

## S1Ti E2 Error

### Step 3. Check resistance on control wire up and lower

Turn the power switch off and unplug the power cord.

Set the voltmeter for  $\Omega$

Disconnect the control wire at the top and bottom.

Using the metal pads on the control wire connector check each wire at the top and bottom. The resistance should be less than  $.5 \Omega$  You may need assistance to do this.



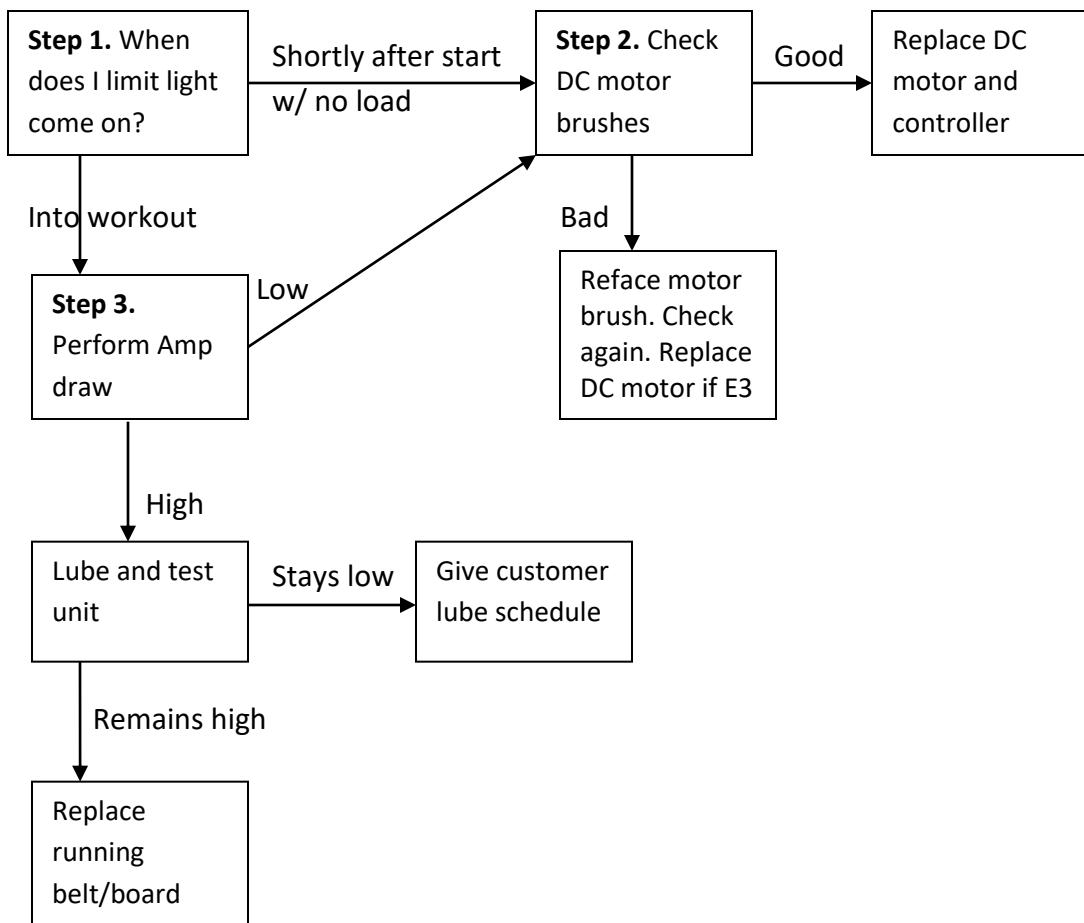
Wires good.  
Replace  
computer and  
controller

Resistance greater than  $.5\Omega$  on any of the wires: isolate which part of control wire is defective by performing the test on each part.  
Replace defective control wire.



## S1Ti E3 Error Overview

E3 is a current over limit error. This error can be caused by excessive friction in the belt and desk or a DC motor problem.



## S1Ti E3 Error

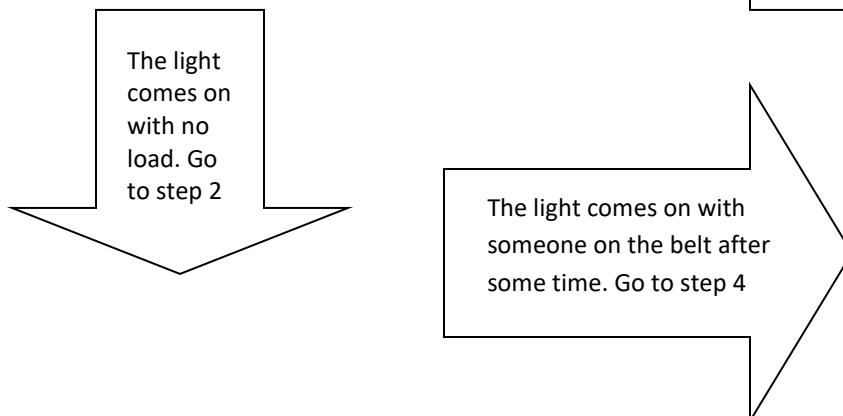
### Step 1: Visually check when the I limit light comes on

The I limit light is located on the controller as shown.

Remove the motor cover and note when the I limit light starts to light.

Does it come on at higher speeds with no load?

Does it come on only with someone on the belt after some time?



### Step 2: Check DC motor brushes

Turn off power switch and disconnect power cord.

Remove motor cover.

Unscrew black motor cover door with standard screwdriver.

Pull out motor brushes with spring.

Check faces of motor brushes and wire connection.



The motor brush face should be evenly worn and the wire connection not be loose at either end.

There should be no areas of black from arcing and no chips or cracks.



DC motor brush faces and wires check good – Replace DC motor and controller

DC motor brush faces bad – sand out rough areas with light grit sandpaper keeping curved shape and reinsert. If I limit light remains, replace DC motor. If wire connection to motor brush bad, replace DC motor.

## S1Ti E3 Error

### Step 3: Perform Amp draw



Set voltmeter to Amp AC

Clamp voltmeter around either black or white power wire.

Set speed at 2.5, check amps without load and while walking on the belt.

Values should be: without load – 1A

with load – 3A

Set speed at 5 mph, check amps without load and while walking on the belt.

Values should be: without load – 2A

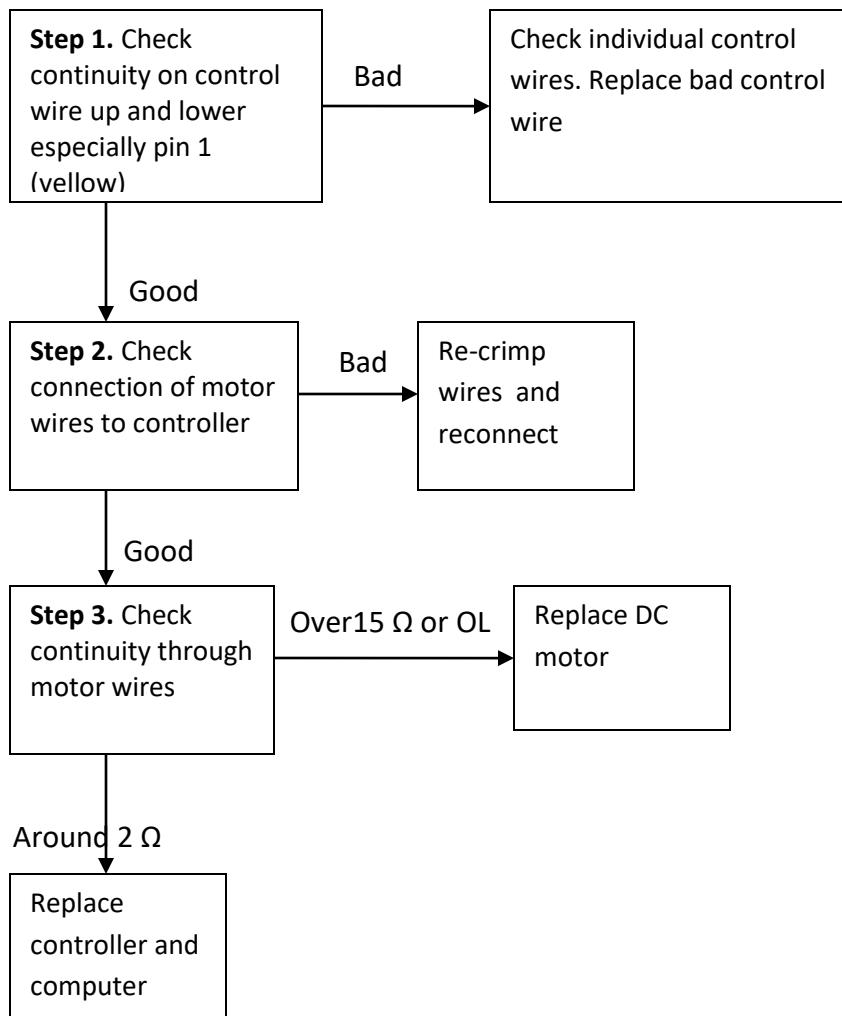
with load – 4-5A

If values are higher than expected, lube the running belt with silicone lube and test for 10 – 15 minutes.  
If amp draw gradually increases, replace running belt and running board.  
If amp draw stays steady, advise customer about lube frequency.

Values are as expected, go to Step 2

## S1Ti E4 error overview

This error is a speed command error. When the computer sends the command for speed, it looks for a connection to the controller and through to the DC motor. Any break in this chain creates an E4.



## S1Ti E4 Error

### Step 1: Check resistance on control wire up and lower

Turn the power switch off and unplug the power cord.

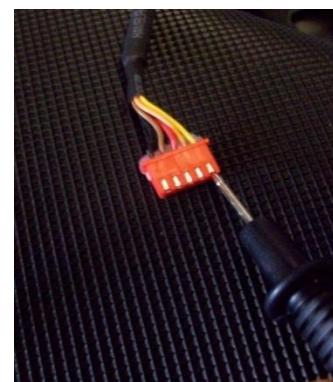
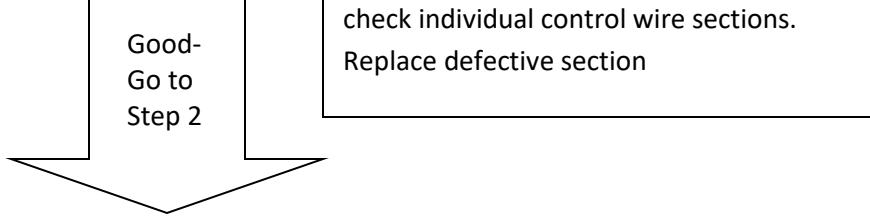
Set the voltmeter for  $\Omega$ .

Disconnect the control wire at the top and bottom.

Using the metal pads on the control wire connector check each wire at the top and bottom especially the yellow wire on pin 1.

The resistance should be less than  $.5 \Omega$ .

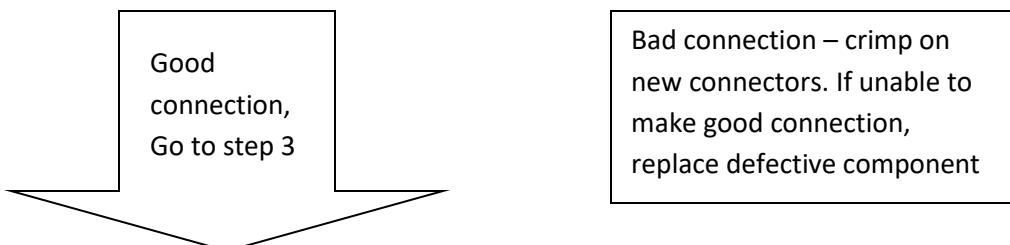
You may need assistance to do this.



### Step 2: Check connection of DC motor wires to controller

Turn off power switch and disconnect power cord.

When controller light goes out, check the DC motor wire connections to the controller by tugging to check for good mechanical connection of the wire to the connector and the connector to the controller spade.



### Step 3: Check resistance through DC motor wires

With power cord still disconnected, disconnect the DC motor wires checked above from controller.

Set voltmeter to  $\Omega$ . Place 1 lead in each wire.

The resistance should be around  $2\ \Omega$ .

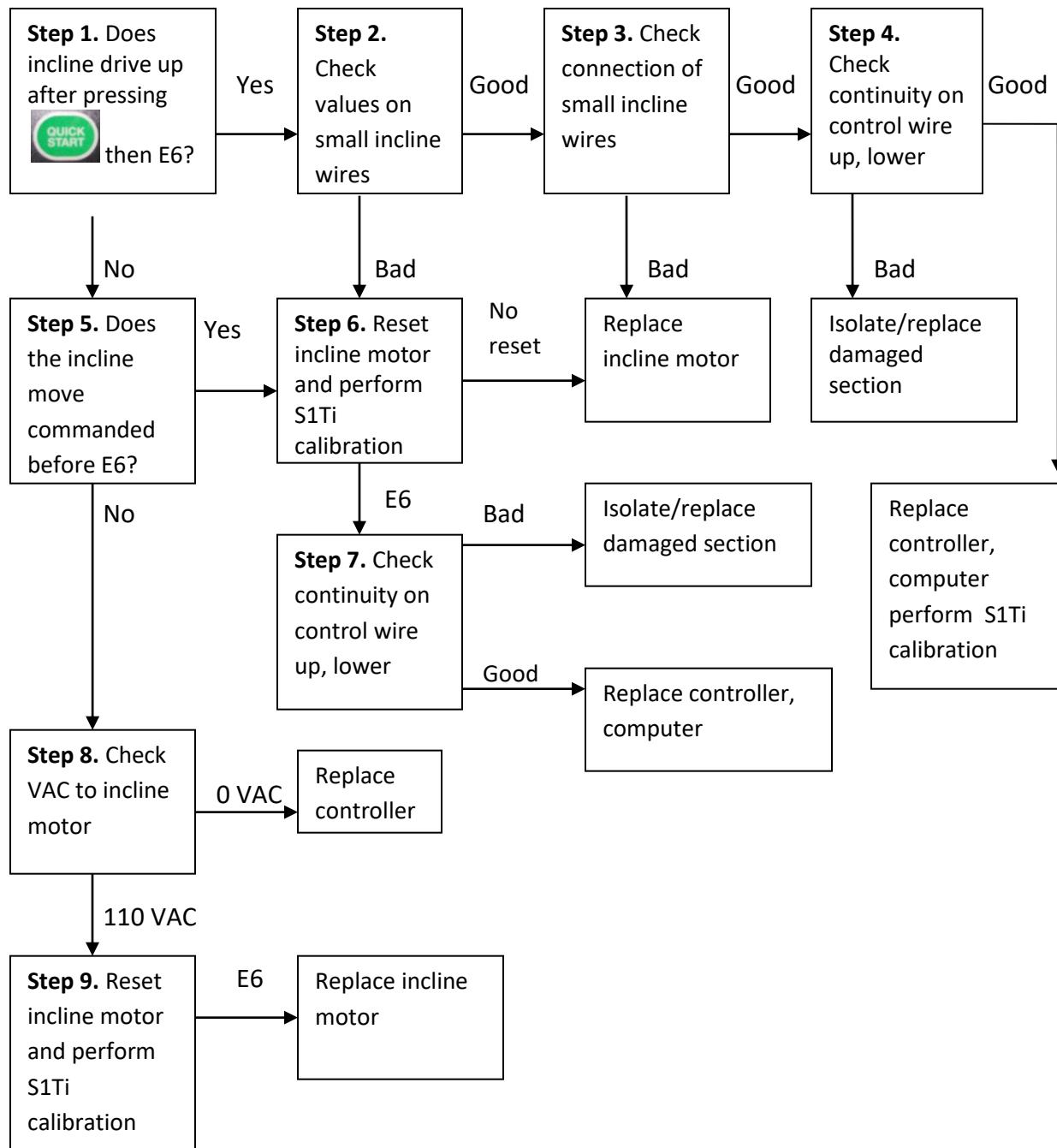


Resistance is around  $10-15\ \Omega$  or OL. Replace DC motor.

Resistance is around  $2\ \Omega$   
Replace controller,  
computer

## S1Ti E6 Error Overview

This error is related to the incline system. It is a general purpose error that can be caused by loss of communication to the incline motor, lack of movement, or out of position.



## S1Ti E6 Error

### Step 1: Check for incline movement up before E6

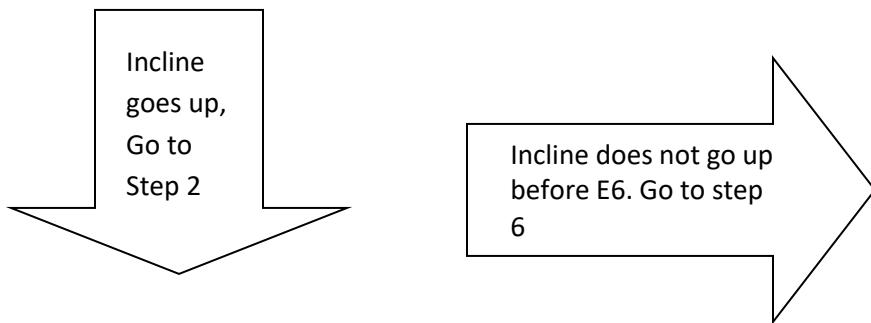
Verify that the treadmill is not at top incline. If incline is already at highest incline, go to step 6.



Turn the unit on. Press **QUICK START**.

Observe whether the incline goes up uncommanded then the E6 is appears.

This movement typically indicates loss of signal from incline position sensor.



### Step 2: Check values on small incline wires

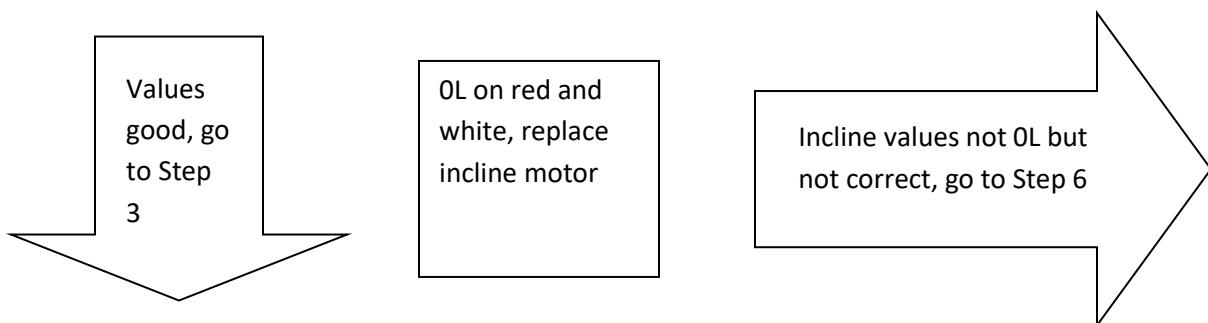
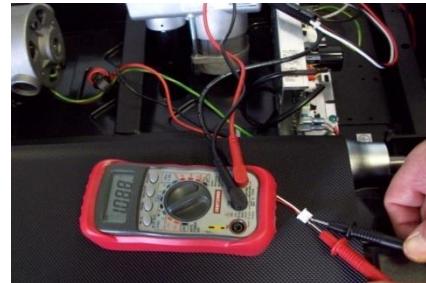
Turn off power switch and disconnect power cord.

Disconnect small incline wires from controller.

Set voltmeter to  $\Omega$ .

At 0% incline across the red and white wires approx.  $1000\ \Omega$

15% incline across the red and white wires  $7590\ \Omega$  approx.

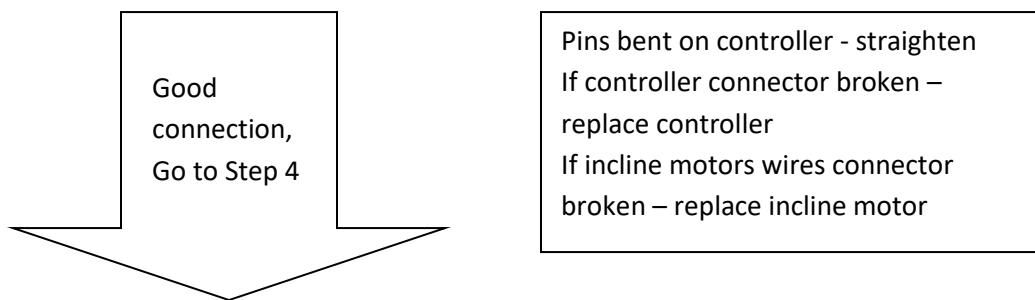


## S1Ti E6 Error

### Step 3: Check connection of small incline wires

Using small incline wires from above, disconnect small incline wires from controller.

Check all controller pins are straight and mate well with incline wires.



### Step 4: Check continuity on control wire up, lower

Turn the power switch off and unplug the power cord.

Set the voltmeter for  $\Omega$ .

Disconnect the control wire at the top and bottom.

Using the metal pads on the control wire connector check each wire at the top and bottom.

The resistance should be less than  $.5 \Omega$ .

You may need assistance to do this.



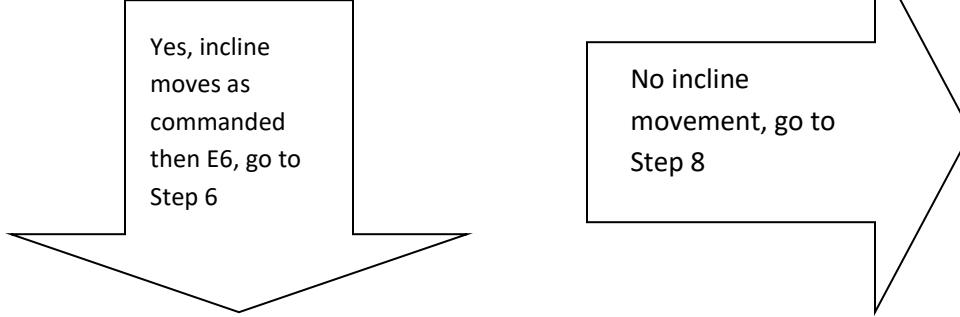
Less than  $.5 \Omega$  on all wires,  
Replace controller and  
computer and perform  
S1Ti calibration

Greater than  $.5 \Omega$  on any of the  
wires, check individual control  
wire sections. Replace  
defective section

## S1Ti E6 Error

### Step 5: Check for commanded incline movement before E6.

Turn the unit on, place the safety key and press   
Can the incline be commanded to move up or down and incline does move before E6 is displayed?



### Step 6: Reset incline motor and perform S1Ti calibration

Turn off unit at power switch and disconnect power cord

Fold the treadmill up and carefully lay the unit over on its side.



Remove the two R pins and take out the two incline bases. Test to see if incline motor shaft casing is free to spin or is jammed against incline motor. If jammed, free the casing using a channel locks.



Incline motor shaft casing

Motor shaft

Turn the incline motor shaft casing until 3/8" of incline motor shaft is showing.



## S1Ti E6 Error

### Step 6: Reset incline motor and perform S1Ti calibration continued

Reconnect the power cord and turn the treadmill on.

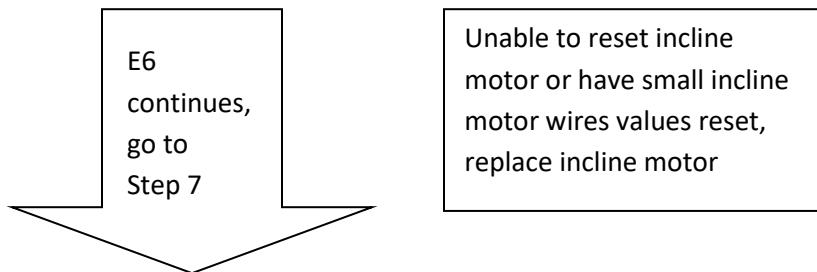


Press **QUICK START**. The incline motor should drive to the zero position. If it does not move, it is already set at zero.

Check values on small incline wires as shown in step 2 to verify it is at the values for 0%.



Perform S1Ti calibration procedure.



### Step 7: Check continuity on control wire up and lower

Turn the power switch off and unplug the power cord.

Set the voltmeter for  $\Omega$ .

Disconnect the control wire at the top and bottom.

Using the metal pads on the control wire connector check each wire at the top and bottom.

The resistance should be less than  $.5 \Omega$ .

You may need assistance to do this.



Less than  $.5 \Omega$  on all wires, Replace controller and computer and perform S1Ti calibration

Greater than  $.5 \Omega$  on any of the wires, check individual control wire sections. Replace defective section



## S1Ti E6 Error

### Step 8: Check VAC to incline motor

Turn the unit on.

Set voltmeter to VAC.

Insert voltmeter leads in black and white wire slots on incline motor power wire connector as shown.



Press . Check for 120 VAC.

Insert voltmeter leads in red and white wire slots on incline motor power wire connector as shown. Press



. Check for 120 VAC.



110 VAC  
on up and  
down, go  
to step 9

0 VAC  
Replace controller



## S1Ti E6 Error

### Step 9: Reset incline motor and perform S1Ti calibration

If the incline motor shaft casing has jammed against the incline motor, the incline motor may be getting AC voltage to move but may be unable to overcome the jam.

Turn off unit at power switch and disconnect power cord

Fold the treadmill up and carefully lay the unit over on its side.



Remove the two R pins and take out the two incline bases. Test to see if incline motor shaft casing is free to spin or is jammed against incline motor. If jammed, free the casing using a channel locks.



## S1Ti E6 Error

### Step 9: Reset incline motor and perform S1Ti calibration continued

Incline motor shaft casing

Motor shaft

Turn the incline motor shaft casing until 3/8" of incline motor shaft is showing.



Reconnect the power cord and turn the treadmill on.



Press **QUICK START**. The incline motor should drive to the zero position. If it does not move, it is already set at zero.

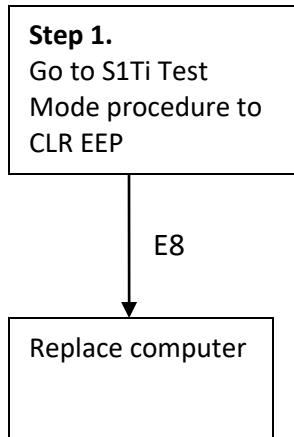
Check values on small incline wires as shown in step 2 to verify it is at the values for 0%.

Perform S1Ti calibration procedure.

E6 again.  
Replace incline motor

## S1Ti E8 Error Overview

E8 is a software error. The computer has failed a self-diagnostic test. Try to clear EEP and if no help, replace the computer.



## S1Ti Repair and Replacement Procedures

- 13. Controller .....pg 35
- 14. DC Motor .....pg 38
- 15. Belt 230J8.....pg. 43
- 16. Incline motor.....pg. 47
- 17. Front roller.....pg. 51
- 18. Rear roller.....pg 56
- 19. Running belt/running board.....pg. 57
- 20. Computer/ Keyboard 20 key.....pg. 63

## S1Ti Controller Replacement Procedure

Tools required: #2 Philips screwdriver, heat sink compound- Dow Corning 340 recommended

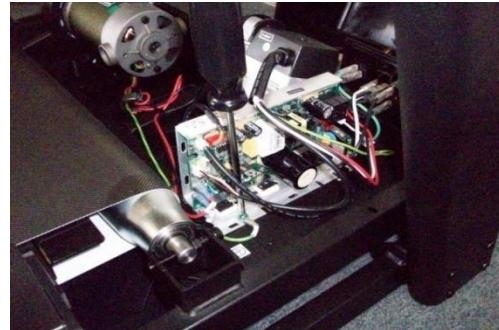
**Step 1.** Turn off unit at power switch and disconnect power cord.



**Step 2.** Remove motor cover by taking out 5 screws with phillips screwdriver then lift off motor cover



**Step 3.** Remove 2 screws from the base of the controller using phillips screwdriver.



**Step 4.** Make sure the light is off on the controller before disconnecting all wires and removing the controller.



## S1Ti Controller Replacement Procedure

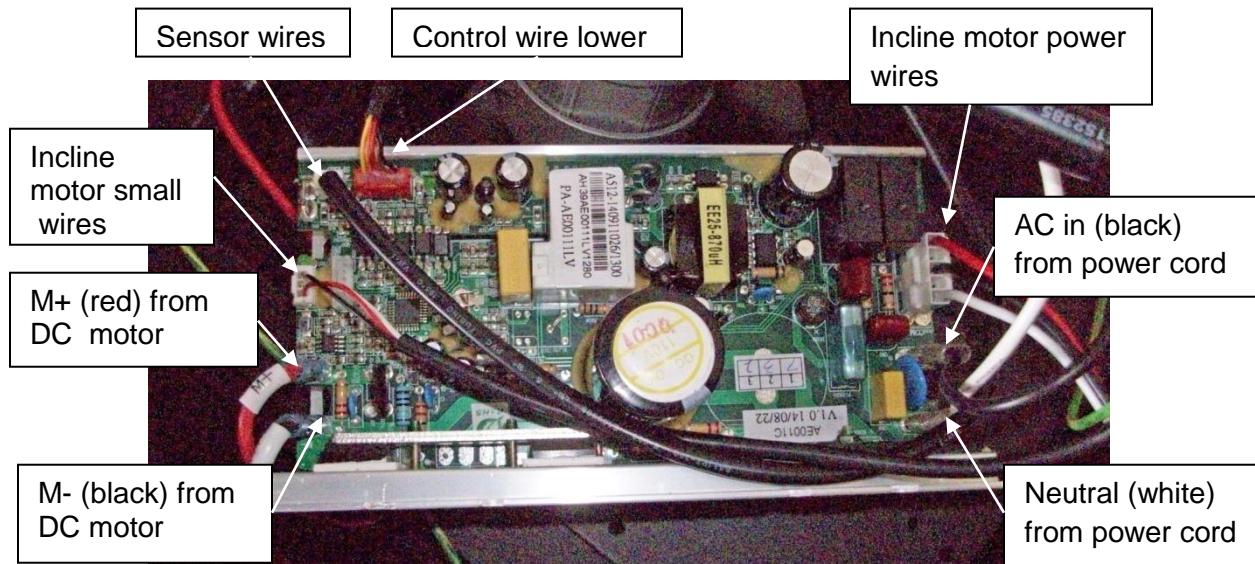
**Step 5.** Apply heat sink compound to the base of the new controller as shown.



**Step 6.** Set the new controller into place and connect all the wires according to Figure 1.



Figure 1 Controller wire connections



## S1Ti Controller Replacement Procedure

**Step 7.** Replace the screws in the controller base with a Phillips screwdriver. Be sure to use the green screw for the ground lead.



**Step 8.** Replace motor cover and 5 screws using Phillips screwdriver.



**Step 9.** Reconnect power cord and turn on at power switch



**Step 10.** Calibrate speed and incline as shown in S1Ti Calibration Procedure.

**Step 11.** If you experience the belt slowing under load too much or having a surging feel, adjust the current compensation as shown in the S1Ti Current Compensation procedure

## S1Ti DC Motor Replacement Procedure

Tools required: #2 Philips screwdriver, ratchet with 8mm allen socket and extension, 6mm allen socket

### **Tech Tip**

If the belt 230J8 tension is good, you can use the current DC motor bracket setting as a guide to install the replacement DC motor. Scratch a line on the motor pan where the motor bracket sits and set the replacement DC motor bracket back to that spot before testing belt 230J8 tension.

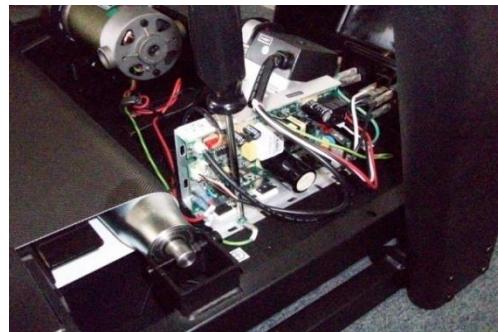
**Step 1.** Turn off unit at power switch and disconnect power cord.



**Step 2.** Remove motor cover by taking out 5 screws with Philips screwdriver and lifting off motor cover



**Step 3.** Cut the wire ties on the red and black motor wires and remove the ground lead by unscrewing the green controller screw.



## S1Ti DC Motor Replacement Procedure

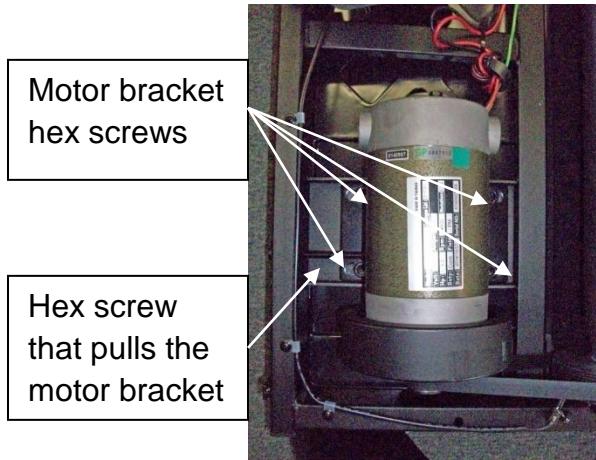
**Step 4.** Make sure the light is off on the controller before disconnecting M+ and M- wires from the controller. See figure 1.



Figure 1 Controller light and wire connections



**Step 5.** Reduce the belt 230J8 tension by loosening the 4 DC motor bracket hex screws using an 8mm allen. Then remove the hex screw that pulls the motor bracket forward using a 6mm allen. Push the DC motor toward the running belt.



**Step 6.** Remove the 4 DC motor bracket hex screws. Lift the belt 230J8 off the DC motor pulley and lift out the DC motor.



## S1Ti DC Motor Replacement Procedure

**Step 7.** Remove the motor bracket from the DC Motor and transfer it to the new DC motor using a 6mm allen socket.



**Step 8.** Remove the choke from the DC Motor wires and transfer it to the new DC motor wires by wrapping as shown.



**Step 9.** Set the new DC motor in place and thread in but do not tighten the 4 motor bracket hex screws and the hex screw that pulls the motor bracket forward.

Motor bracket hex screws

Hex screw that pulls the motor bracket



**Step 10.** Set the belt 230J8 in place on the DC motor pulley. Align the belt by measuring from the frame at the front roller and the DC motor pulley.



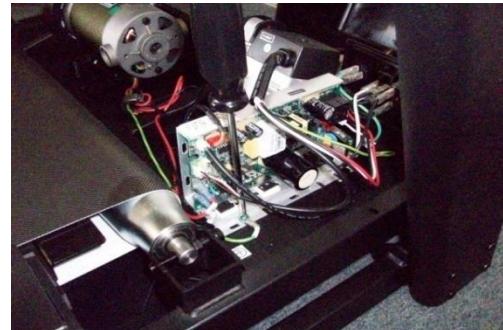
## S1Ti DC Motor Replacement Procedure

**Step 11.** Tension the belt 230J8 by tightening the hex screw that pulls the motor bracket forward. Set the tension until you can only push down 1/8" in the center of the belt with two fingers as shown.



**Step 12.** Tighten the 4 motor bracket hex screws using an 8mm allen

**Step 13.** Replace the wire ties on the red and black motor wires and reinstall the ground lead on the green controller screw.



**Step 14.** Connect new DC motor wires to controller as shown in Figure 1 above

**Step 15.** Replace motor cover and 5 screws using Phillips screwdriver.



**Step 16.** Reconnect power cord and turn on at power switch



**Step 17.** Calibrate speed and incline as shown in S1Ti Calibration Procedure.

**Step 18.** If you experience the belt slowing under load too much or having a surging feel, adjust the current compensation as shown in the S1Ti Current Compensation Procedure

## S1Ti Belt 230J8 Replacement Procedure

Tools required: #2 Phillips screwdriver, ratchet with 8mm allen socket and extension, 6mm allen wrench, 12 mm wrench

### **Tech Tip**

If the belt 230J8 tension is good, you can use the current DC motor bracket setting as a guide to install the replacement belt 230J8. Scratch a line on the motor pan where the motor bracket sits and set the DC motor bracket back to that spot before testing belt 230J8 tension. You can mark the bolt side of the front roller position on the frame in similar fashion to save running belt alignment time.

**Step 1.** Turn off unit at power switch and disconnect power cord.



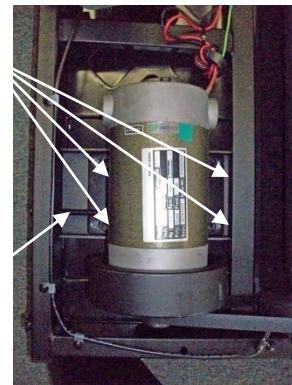
**Step 2.** Remove motor cover by taking out 5 screws with Philips screwdriver and lifting off motor cover



**Step 3.** Reduce the belt 230J8 tension by loosening the 4 motor bracket hex screws using an 8mm allen and then turning counterclockwise using a 6mm allen the hex screw that pulls the motor bracket forward.

Motor bracket hex screws

Hex screw that pulls the motor bracket



## S1Ti Belt 230J8 Replacement Procedure

**Step 4.** Push the motor toward the running belt and slide the belt 230J8 off the DC motor pulley

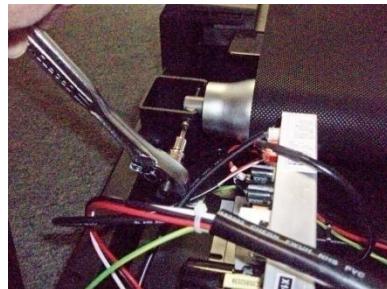


**Step 5.** Reduce the tension on the running belt by turning counterclockwise the rear roller bolts using a 6 mm allen.



Rear Roller bolts

**Step 6.** Remove the front roller bolt using a 6mm allen. Then pull the front roller toward the bolt side until it comes out of the frame hole and there is enough room to remove the belt 230J8. Remove the belt 230J8.



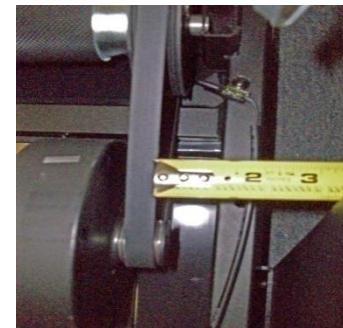
**Step 7.** Place the new belt 230J8 over the front roller pulley and slide the front roller into the frame hole. Replace the front roller bolt.



**Step 8.** Slide the belt 230J8 onto the DC motor pulley

## S1Ti Belt 230J8 Replacement Procedure

**Step 9.** Align the belt by measuring from the frame at the front roller and the DC motor pulley.

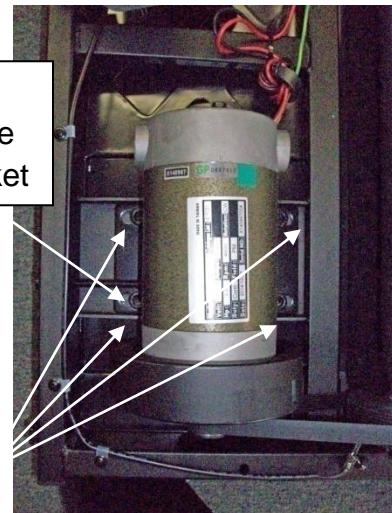


**Step 10.** Tension the belt 230J8 by tightening the hex screw that pulls the motor bracket forward. Set the tension until you can only push down 1/8" in the center of the belt with two fingers as shown.



Hex screw that pulls the motor bracket

Motor bracket hex screws



**Step 11.** Tighten the 4 motor bracket hex screws using an 8mm allen

**Step 12.** Restore the tension on the running belt by turning clockwise the rear roller bolts using a 6mm allen.

Reconnect power cord and turn on at power switch. Press



to start unit.

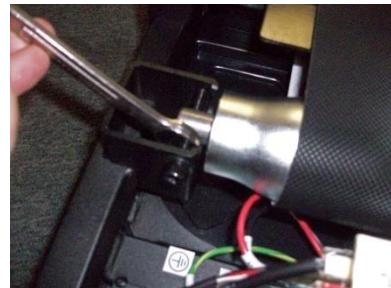
Continue to turn the rear roller bolts clockwise  $\frac{1}{4}$  turn at a time until the running belt does not slip as you walk or run on it.



Rear Roller bolts

## S1Ti Belt 230J8 Replacement Procedure

**Step 13.** Check the alignment of the running belt and adjust as needed by tightening or loosening the front roller bolt. When set, tighten front roller bolt jam nut



**Step 14.** Replace motor cover and 5 screws using a Phillips screwdriver



## S1Ti Incline Motor Replacement Procedure

Tools required: Phillips screwdriver, 8 mm socket/ratchet, 17 mm wrench, needle nose pliers

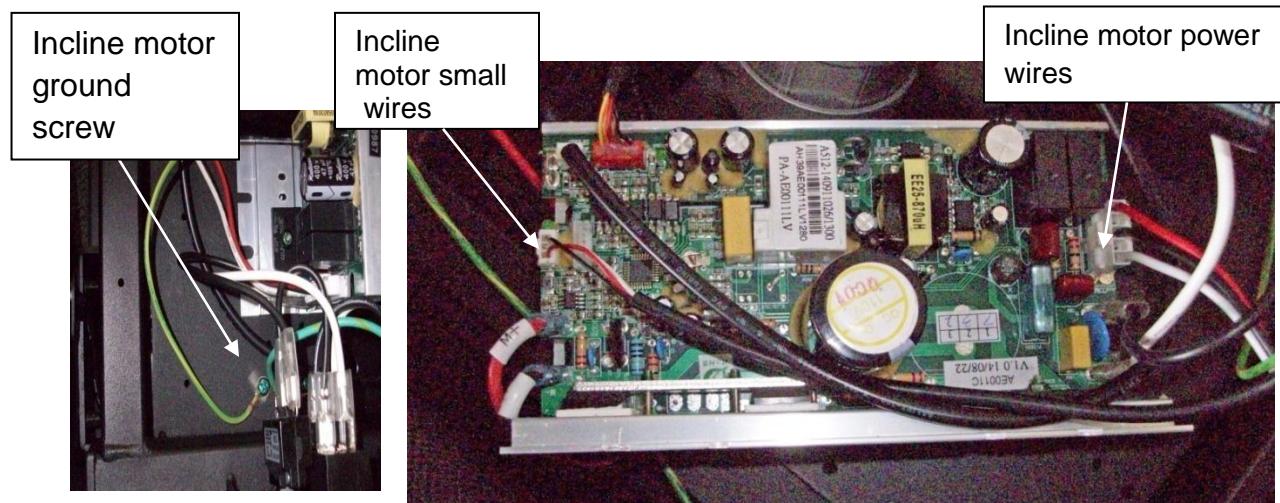
**Step 1.** Turn off unit at power switch and disconnect power cord.



**Step 2.** Remove the motor cover by taking out the 5 screws.



**Step 3** Disconnect the incline motor wires from the controller and remove the ground screw using the Phillips screwdriver.



## S1Ti Incline Motor Replacement Procedure

**Step 4** Fold the treadmill up and carefully lay the unit over on its side.



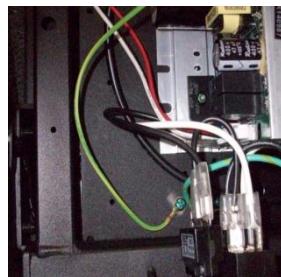
**Step 5** Remove the bolt and nut from the top of the incline motor using an 8 mm allen and 17 mm wrench.



**Step 6** Remove the two R pins and take out the two incline bases. Lift out the incline motor.



**Step 7** Connect the wires for the new incline motor as shown above and install the ground wire with the ground screw.



**Step 8** Set the incline motor on the frame as shown



**Step 9** Reconnect the power cord and turn the treadmill on.

Press



The incline motor should drive to the zero position. If it does not move, it is already set at zero.

## S1Ti Incline Motor Replacement Procedure

**Step 10.** Turn off unit at power switch and disconnect power cord.



Incline motor shaft casing

Motor shaft

**Step 11.** Turn the incline motor shaft casing until 3/8" of incline motor shaft is showing.



**Step 12.** Set the new incline motor in place and replace the bolt and nut at the top of the incline motor using an 8 mm socket and 17 mm wrench. Be sure to transfer the two plastic washers from the old incline motor.



**Step 13** Turning the incline motor casing as little as possible, replace the incline bases and R pins



**Step 14** Set the unit upright and lower the treadmill base



**Step 15** Reconnect the power and turn the unit on. Calibrate the treadmill as per the S1Ti Calibration Procedure.



**Step 16** Check that the unit is at zero by measuring at the front of the unit. The main frame should be approx, 4 ½ "off the ground



**Step 17** Replace motor cover with five screws.



## S1Ti Front Roller Replacement Procedure

Tools required: #2 Philips screwdriver, ratchet with 8mm allen socket and extension, 6mm allen wrench, 12mm wrench

### Tech Tip

If the belt 230J8 tension is good, you can use the current DC motor bracket setting as a guide to install the replacement belt 230J8. Scratch a line on the motor pan where the motor bracket sits and set the DC motor bracket back to that spot before testing belt 230J8 tension. You can mark the bolt side of the front roller position on the frame in similar fashion to save running belt alignment time.

**Step 1.** Turn off unit at power switch and disconnect power cord.



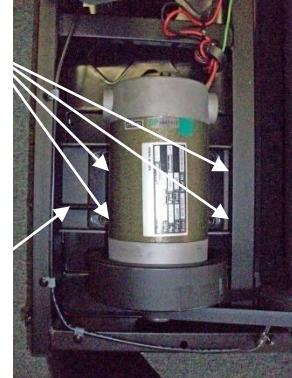
**Step 2.** Remove motor cover by taking out 5 screws with Philips screwdriver and lifting off motor cover



**Step 3.** Reduce the belt 230J8 tension by loosening the 4 motor bracket hex screws using an 8mm allen and then turning counterclockwise using a 6mm allen the hex screw that pulls the motor bracket forward.

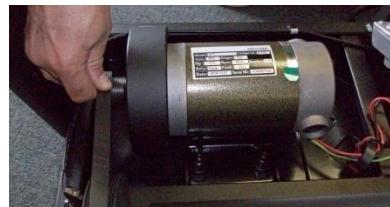
Motor bracket hex screws

Hex screw that pulls the motor bracket



## S1Ti Front Roller Replacement Procedure

**Step 4.** Push the motor toward the running belt and slide the belt 230J8 off the DC motor pulley

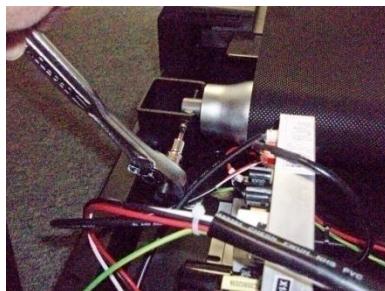


**Step 5.** Reduce the tension on the running belt by turning counterclockwise the rear roller bolts using a 6 mm allen.



Rear Roller bolts

**Step 6.** Remove the front roller bolt using a 6mm allen. Then pull the front roller toward the bolt side until it comes out of the frame hole. Slip the belt 230J8 off the front roller pulley and slide the front roller out of the running belt.



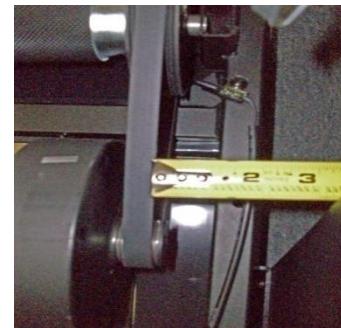
**Step 7.** Place the belt 230J8 over the front roller pulley and slide the new front roller into the frame hole. Replace the front roller bolt.



**Step 8.** Slide the belt 230J8 onto the DC motor pulley

## S1Ti Front Roller Replacement Procedure

**Step 9.** Align the belt by measuring from the frame at the front roller and the DC motor pulley.

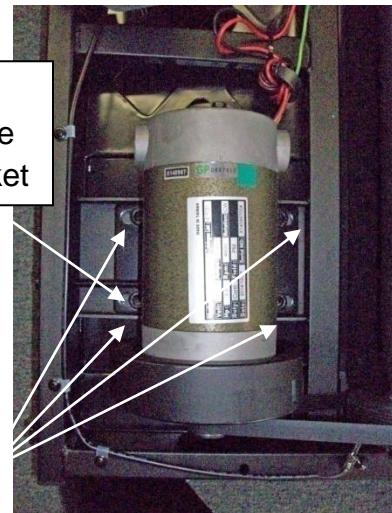


**Step 10.** Tension the belt 230J8 by tightening the hex screw that pulls the motor bracket forward. Set the tension until you can only push down 1/8" in the center of the belt with two fingers as shown.



Hex screw  
that pulls the  
motor bracket

Motor bracket  
hex screws



**Step 11.** Tighten the 4 motor bracket hex screws using an 8mm allen

**Step 12.** Restore the tension on the running belt by turning clockwise the rear roller bolts using a 6mm allen.

Reconnect power cord and turn on at power switch. Press



to start unit.

Continue to turn the rear roller bolts clockwise  $\frac{1}{4}$  turn at a time until the running belt does not slip as you walk or run on it.



Rear Roller bolts

## S1Ti Front Roller Replacement Procedure

**Step 13.** Check the alignment of the running belt and adjust as needed by tightening or loosening the front roller bolt. When set, tighten front roller bolt jam nut using the 12mm wrench



**Step 14.** Replace motor cover and 5 screws using Phillips screwdriver.



## S1Ti Rear Roller Replacement Procedure

Tools required: Phillips screwdriver, 6 mm socket/ratchet

**Step 1.** Turn off unit at power switch and disconnect power cord.



**Step 2.** Tilt the base of the treadmill up.



**Step 3.** Remove the 3 screws in each of the rear decorative covers right and left using a Phillips screwdriver and remove the covers



**Step 4.** Remove the screws in the underside of the pedals and lift them off. 7 screws per side, 6 large 1 small



**Step 5.** Unscrew completely the roller bolts using a 6 mm socket and slide the rear roller out of the running belt.

## S1Ti Rear Roller Replacement Procedure

**Step 6.** Slide in the new rear roller and replace the roller bolts



**Step 7.** Set the pedals on the deck and replace the screws from the underside



**Step 8.** Replace the rear decorative covers right and left using a Philips screwdriver to reinstall the screws.



**Step 9.** Tilt the base of the treadmill down.

**Step 10.** Restore the tension on the running belt by turning clockwise the rear roller bolts using a 6mm allen.

Reconnect power cord and turn on at power switch. Press



to start unit.

Continue to turn the rear roller bolts clockwise  $\frac{1}{4}$  turn at a time until the running belt does not slip as you walk or run on



Rear Roller bolts

## S1Ti Running Belt/Running Board Replacement Procedure

Tools required: Phillips screwdriver, ratchet with 8mm allen socket and extension, 6mm allen socket, 12mm wrench

**Step 1.** Turn off unit at power switch and disconnect power cord.



**Step 2.** Tilt the base of the treadmill up.



**Step 3.** Remove the 3 screws in each of the rear decorative covers right and left using a Philips screwdriver and remove the covers



**Step 4.** Remove the screws in the underside of the pedals and lift them off. 7 screws per side, 6 large 1 small



**Step 5.** Unscrew completely the roller bolts using a 6 mm socket and slide the rear roller out of the running belt.

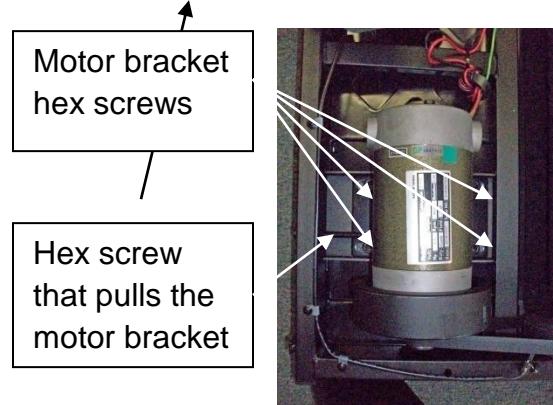
## S1Ti Running Belt/Running Board Replacement Procedure

**Step 6.** Tilt the base of the treadmill down.

**Step 7.** Remove motor cover by taking out 5 screws with Philips screwdriver and lifting off motor cover



**Step 8.** Reduce the belt 230J8 tension by loosening the 4 motor bracket hex screws using an 8mm allen and then turning counterclockwise using a 6mm allen the hex screw that pulls the motor bracket forward.



**Step 9.** Push the motor toward the running belt and slide the belt 230J8 off the DC motor pulley



**Step 10.** Remove the front roller bolt using a 6mm allen. Then pull the front roller toward the bolt side until it comes out of the frame hole. Slip the belt 230J8 off the front roller pulley and slide the front roller out of the running belt.



## S1Ti Running Belt/Running Board Replacement Procedure

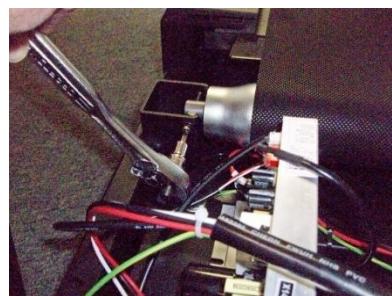
**Step 11.** Remove the running belt and running board by taking out the deck hex screws with a 5mm socket and 13mm wrench and lifting out the running belt and running board.

**Step 12.** Transfer running board brackets from old deck to new deck using a Philips screwdriver.

**Step 13.** Slide the running belt over the running board and install the new running belt and running board using the deck hex screws with a 5mm socket and 13mm wrench

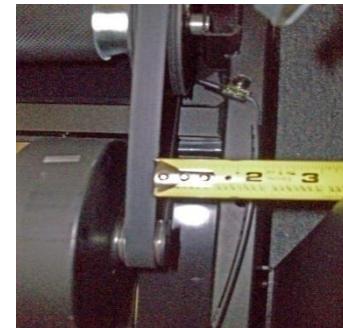
**Step 14.** Place the belt 230J8 over the front roller pulley and slide the front roller into the frame hole. Replace the front roller bolt and jam nut.

**Step 15.** Slide the belt 230J8 onto the DC motor pulley



## S1Ti Running Belt/Running Board Replacement Procedure

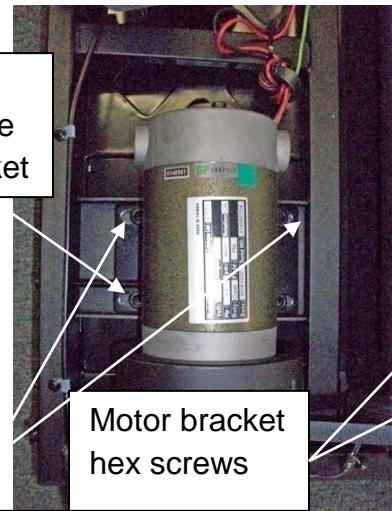
**Step 16.** Align the belt by measuring from the frame at the front roller and the DC motor pulley.



**Step 17.** Tension the belt 230J8 by tightening the hex screw that pulls the motor bracket forward. Set the tension until you can only push down 1/8" in the center of the belt with two fingers as shown.



Hex screw that pulls the motor bracket



Motor bracket hex screws

**Step 18.** Tighten the 4 motor bracket hex screws using an 8mm allen



**Step 19.** Tilt the base of the treadmill up.

**Step 20.** Slide in the rear roller and replace the roller bolts



## S1Ti Running Belt/Running Board Replacement Procedure

**Step 21.** Set the pedals on the deck and replace the screws from the underside



**Step 22.** Replace the rear decorative covers right and left using a Philips screwdriver to reinstall the screws.



**Step 23.** Tilt the base of the treadmill down.

**Step 24.** Restore the tension on the running belt by turning clockwise the rear roller bolts using a 6mm allen.

Reconnect power cord and turn on at power switch. Press



to start unit.

Continue to turn the rear roller bolts clockwise  $\frac{1}{4}$  turn at a time until the running belt does not slip as you walk or run on it.



Rear Roller bolts

## S1Ti Running Belt/ Running Board Replacement Procedure

**Step 25.** Check the alignment of the running belt and adjust as needed by tightening or loosening the front roller bolt. When set, tighten front roller bolt jam nut using the 12mm wrench



**Step 26.** Press . Turn off power switch and disconnect power cord.



**Step 27.** Replace motor cover and 5 screws using Phillips screwdriver



**Step 28.** Reconnect power cord.



## S1Ti Computer/ Keyboard 20 Key Replacement Procedure

**Step 1.** Turn off unit at power switch and disconnect power cord.



**Step 2.** Remove 11 screws from back of computer panel using a Phillips screwdriver and tilt forward the computer panel



**Step 3.** Disconnect wires from computer or keyboard 20 key.



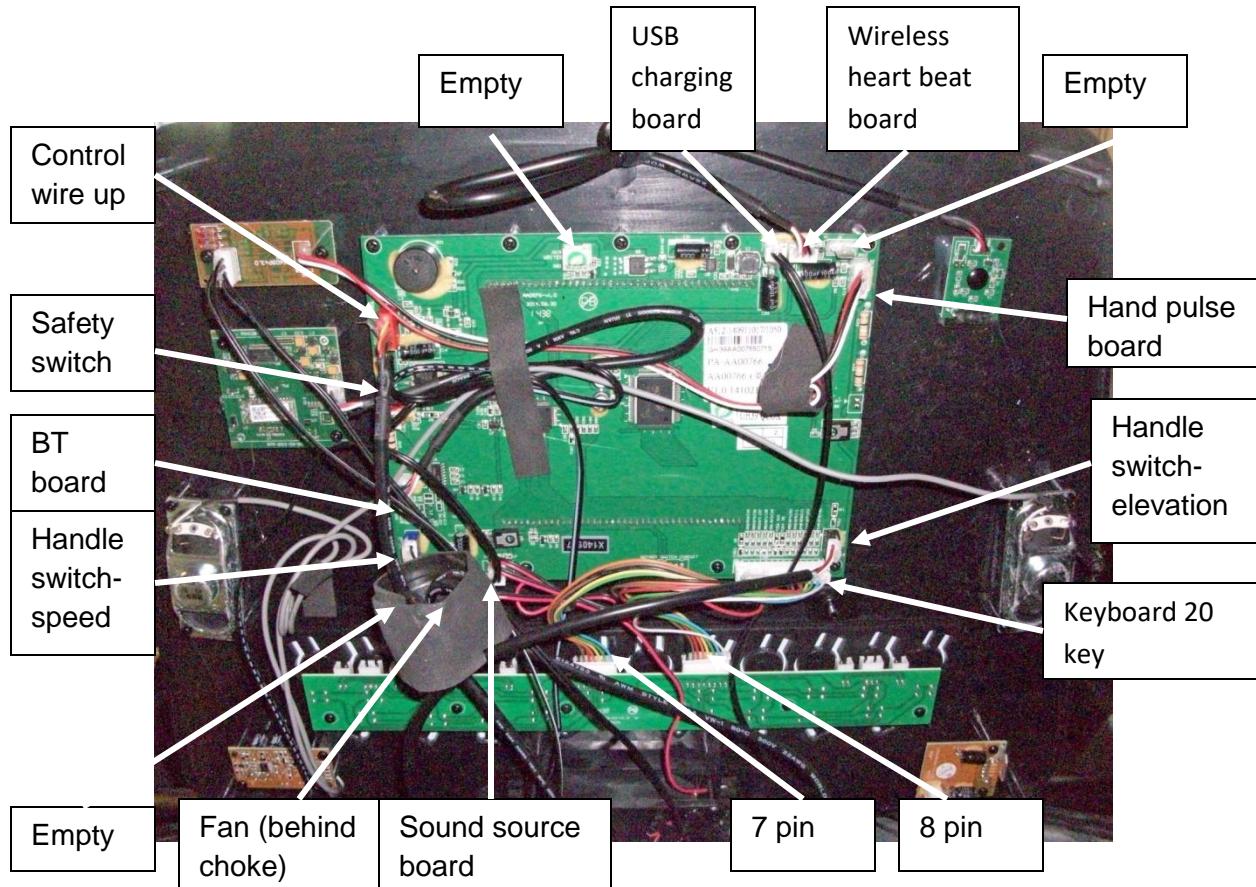
**Step 4.** Remove screws holding computer or keyboard 20 key and lift out.

**Step 5.** Install new computer or keyboard 20 key by replacing screws holding the part to the computer panel. Reconnect wires as shown in Figure 1.

**Tech Note:** Before touching the new computer or keyboard 20 key, ground any static electricity on yourself by touching metal on the frame. Handle the circuit boards by the edge and try to avoid touching the components when possible.

## S1Ti Computer/ Keyboard 20 Key Replacement Procedure

**Figure 1 Computer/ Keyboard 20 key wire connections**



**Step 6.** Set the computer panel in place and replace 11 screws into back of computer panel using a Phillips screwdriver.



## S1Ti Computer/ Keyboard 20 Key Replacement Procedure

**Step 7.** Reconnect power cord and turn on unit at power switch.



**Step 8.** Calibrate speed and incline as shown in S1Ti Calibration Procedure.

**Step 9.** If you experience the belt slowing under load too much or having a surging feel, adjust the current compensation as shown in the S1Ti Current Compensation Procedure

**Step 10.** After replacing the keyboard 20 key, you can test button function by entering the key test in test mode. See the procedure S1Ti Test mode.