

GE Healthcare

**T2100-ST1**  
Treadmill, 110V

**T2100-ST2**  
Treadmill, 220V

**Service Manual**

2097937-002 Rev G



T2100-ST1 Treadmill, 110V / T2100-ST2 Treadmill,  
220V  
English  
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## Publication Information

The information in this manual applies only to the T2100-ST1 (GE PN 2097357-001) and T2100-ST2 (GE PN 2097357-002) treadmills. It does not apply to earlier versions. Due to continuing product innovation, specifications in this manual are subject to change without notice.

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This product complies with the regulatory requirements concerning medical devices from the following bodies:



The T2100-ST1 and T2100-ST2 treadmills meet the following safety and regulatory standards for FDA Class 1 motor operated physical medicine machines. They have been tested by Intertek Testing Services N.A Inc., and are listed by Engineering Testing Laboratories (ETL). However, the ultimate conformance to IEC 6060-1 2005-3<sup>rd</sup> edition is the responsibility of the system integrator when combined with other equipment. Additionally, all motorized equipment is potentially dangerous if used incorrectly. Before using the T2100-ST1 or T2100-ST2 treadmill, follow all precautions listed in this manual and read the entire operator's manual thoroughly. Use the T2100-ST1 and T2100-ST2 treadmills only as described.

## Revision History

The document part number and revision appear at the bottom of each page. The revision identifies the document's update level. The revision history of this document is summarized in the following table.

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G	22 January 2019	Added EMC Declaration and 4 <sup>th</sup> Edition Configuration

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# Contents

<b>1</b>	<b>Introduction .....</b>	<b>9</b>
	Intended User.....	9
	Indications for Use .....	9
	Prescription Device Statement.....	9
	<b>Regulatory and Safety Information.....</b>	<b>9</b>
	Safety Conventions.....	10
	Safety Hazards.....	10
	Classification of Medical Device.....	13
	Regulatory and Safety Conformance.....	13
	Table 1: Guidance and Manufacturer’s Declaration - Emissions .....	14
	Table 2: Guidance and Manufacturer’s Declaration – Immunity All ME Equipment and ME Systems .....	15
	Table 3: Guidance and Manufacturer’s Declaration – Immunity ME Equipment and ME Systems that is NOT Life-supporting .....	16
	Table 4: Recommended Separation Distances between portable and mobile RF Communications equipment and the T2100-ST Series ME Equipment and ME Systems that is NOT Life-supporting .....	17
	Responsibility of the Manufacturer .....	17
	Responsibility of the Customer .....	18
	Product and Package Information .....	20
	Symbols.....	20
	<b>Equipment Identification .....</b>	<b>23</b>
	Product Label .....	23
	<b>Service Information .....</b>	<b>24</b>
	Service Requirements.....	24
	Warranty Information.....	24
	Additional Assistance .....	24
	<b>Manual Information.....</b>	<b>25</b>
	Manual Purpose.....	25
	Document Conventions.....	25
	Related Documents .....	26
<b>2</b>	<b>Product Overview .....</b>	<b>29</b>
	<b>Safety Systems .....</b>	<b>30</b>
	Treadmill .....	30
	Drive System .....	30
	Speed Range.....	30
	Incline Range.....	30
	Running Surface .....	30
	Communication Ports.....	31

	Floor Surface Footprint .....	31
	Operating and Storage Condition Recommendations .....	31
	Power Requirements .....	31
3	Assembly and Setup .....	35
	Safe Handling Guidelines .....	35
	Initial Setup .....	36
	Location .....	37
	Electrical Safety Tests .....	38
	AC Line Voltage Test .....	38
	Power Cord and Plug .....	39
	Ground Continuity Test.....	39
	Conducting Leakage Tests .....	40
	Leakage Test Diagrams .....	41
	Secure Cables.....	42
	Running Belt Tracking Adjustment .....	42
	Running Belt Tension Adjustment.....	42
	Drive Belt Tension Adjustment .....	43
	Test Plug Procedure .....	43
	Communication Ports.....	43
	Using the test plug .....	44
	Setup and Connection to Host.....	45
	CASE connection and setup:.....	45
	CardioSoft/CS connection and setup: .....	47
	MAC 5500 ST connection and setup:.....	53
	MAC 2000 ST connection and setup:.....	54
4	Preventive Maintenance.....	57
	Daily Maintenance .....	57
	Weekly Maintenance .....	58
	Monthly Maintenance .....	58
	Semiannual Maintenance .....	58
	Belt Cleaning and Inspection .....	58
	Running Belt Tracking Adjustment .....	59
	Running Belt Tension Adjustment.....	60
	Drive Belt Tension Adjustment .....	60
	Exterior Care .....	62
	Elevation Screw Lubrication.....	62
	Running Deck Maintenance .....	63

5	Theory of Operation .....	65
	Scope .....	65
	T2100-ST Series Block Diagram .....	66
	Smart Power Supply (PCB) Overview .....	67
	Software Requirements .....	68
	Speed Control.....	68
	Elevation Control.....	68
	ESTOP.....	69
	Communication Hardware (RS-232 Configuration) .....	69
	Communication Hardware (USB Configuration).....	70
	Self-Test Mode .....	70
	Calibration .....	71
	DIP Switch Settings .....	71
	Electrical Inputs.....	71
	Electrical Outputs.....	72
	Electrical Connections.....	72
	Physical Requirements and Restrictions .....	73
6	Troubleshooting .....	75
	Troubleshooting Guidance Base on Error Code .....	76
	Incoming Power 110-240VAC Flow Chart 1A .....	78
	Incoming Power Inline Filter Flow Chart 1B .....	79
	Incoming Power Drive PC2303-012-N Flow Chart 1C.....	80
	Smart Power Supply Incoming Power 110-240VAC Flow Chart 1D .....	81
	Emergency Stop Flow Chart 1E .....	82
	Pull Tether Flow Chart 1F.....	83
	Communication RS232 Flow Chart 1G .....	84
	Communication USB Flow Chart 1H .....	85
	Smart Power Supply Error Code Identification Flow Chart 1I .....	86
	Smart Power Supply Error Code 1 Flow Chart 1J “Bad Calibration Error (1)”	87
	Smart Power Supply FGLF0495-1 Error Code 2 Flow Chart 1K “Elevation Error (2)” .....	88
	Smart Power Supply FGLF0495-03 Error Code 2 Flow Chart 1KK “Elevation Error (2)” .....	89
	Smart Power Supply Error Code 3 Flow Chart 1L “Zero Speed Motor Controller Error (3)” .....	90

	Smart Power Supply Error Code 4 Flow Chart 1M "Over Speed Motor Controller Error (4)" .....	91
	Smart Power Supply Error Code 5 Flow Chart 1N "Over Speed External Sensor Error (5)" .....	92
	Smart Power Supply Error Code 7 Flow Chart 1P "Speed Compare Error (7)" .....	94
	Smart Power Supply Error Code 8 Flow Chart 1L "Motor Controller Fault Signal (8)" .....	96
	Smart Power Supply Error Code 9 Flow Chart 1R "Belt Start Reject Error (9)" .....	97
	Drive PC2303-012-N status LED CODE list .....	98
	Running Belt High Speed Application .....	98
	System Flash Log Retrieval .....	98
7	Field Replaceable Units.....	100
	Final Assembly.....	100
	Final Assembly Circuit Board Connection .....	101
	Deck Assembly.....	104
	Frame Assembly .....	106
	Motor Pan Assembly.....	108
	Motor Pan Assembly Wiring.....	111
	Motor Mount Assembly.....	115
	Circuit Board Assembly FGLF0495-1 .....	116
	Circuit Board Assembly FGLF0495-3 .....	117
	Pull Tether Assembly.....	119
	Emergency Stop Assembly.....	120
	Communication Cables .....	120
	Calibration Software.....	121
8	Component/FRU Removal and Replacement .....	123
	Established Component Replacement Times .....	123
	Comprehensive Tool List.....	124
	Replacing the Hood.....	125
	Replacing the Drive Motor.....	126
	Replacing the Drive.....	129
	Replacing the Front Roller .....	131
	Replacing the Rear Roller .....	132
	Replacing the Running Belt .....	134

	Replacing the Running Deck .....	137
	Replacing the Deck Cushion.....	138
	Replacing the Motor Drive Belt.....	140
	Replacing/Adjusting the Elevation Actuator .....	142
	Replacing the Smart Power Supply Relay Board .....	143
	Replacing the Circuit Breaker .....	145
	Relocating the ESB and STS Assembly .....	146
	Replacing the Emergency Stop Button (ESB) .....	148
	Replacing the Stop Tether Switch (STS).....	150
	Replacing the Right or Left Handrail .....	151
	Replacing the Center Handrail .....	153
	Removing and Reinstalling the Handrails for Moving.....	154
	Replacing the Main power switch .....	155
	Adjusting the Run Belt Tracking and Tension.....	156
	Adjusting belt tracking.....	156
	Adjusting belt tension .....	157
	Replacing the Power cord.....	157
	Replacing the CE filter .....	158
	Replacing the Relay .....	159
9	Calibration.....	161
	Installing the T2100-ST Series Calibration Software.....	161
	Installing the Serial Drivers.....	163
	Software Interface Instruction T2100-ST Series Calibration .....	167
	Calibrating Speed .....	168
	Calibrating Elevation.....	171
	Elevation Chart.....	174
	Elevation Actuator .....	174
	Calibration Software Tabs.....	175
	Basic Control Tab .....	175
	Advanced Control Tab.....	176
	Speed Cal Tab.....	177
	Grade Cal Tab.....	178
	Error Code Tab.....	179
	System Log Tab .....	179
10	Functional / Post Repair / Preventative Maintenance Checkout Procedures .....	181
	Tools Required .....	181
	Checkout Procedures .....	181

	Visual/Functional Checks .....	182
	Operational Checks .....	182
	Speed Calibration .....	182
	Elevation Calibration .....	183
	Test Plug Check.....	183
	Walking Belt Tension / Tracking.....	183
	Walking Belt Speed Verification .....	183
	Host Communication.....	184
	Electrical Safety Checks.....	184
	Preventative Maintenance Visual/Functional Checks .....	185
	Procedural Lists .....	185
	FRU Repairs / Exchange .....	186
	Final Checkout Preventative Maintenance Test.....	188
A	Maintenance Log .....	189
B	Reference Documents.....	191

# 1

## Introduction

This document describes the T2100-ST1 and T2100-ST2 treadmills also referred to as the “system”, “device”, or “product”. The document is intended to be used by service personnel.

This chapter provides general information required for the proper use of the system and this manual. Familiarize yourself with this information before using the system.

## Intended User

This manual is intended for service personnel responsible for the maintenance and repair of the T2100-ST1 and T2100-ST2 treadmills.

## Indications for Use

The T2100-ST1 and T2100-ST2 treadmills are designed for cardiac stress testing.

## Prescription Device Statement

### CAUTION:

United States federal law restricts this device to sale by, or on the order of, a physician.

## Regulatory and Safety Information

This section provides information about the safe use and regulatory compliance of this system. Familiarize yourself with this information, read and understand all instructions before attempting to use this system. The system was designed and manufactured to the appropriate medical regulations and controls.

**NOTE:**

Disregarding the safety information provided in this manual is considered abnormal use of this system and could result in injury, loss of data, and void any existing product warranties.

## Safety Conventions

A Hazard is a source of potential injury to a person, property, or the system.

This manual uses the terms DANGER, WARNING, CAUTION, and NOTICE to point out hazards and to designate a degree or level of seriousness. Familiarize yourself with the following definitions and their significance.

### Definition of Safety Conventions

Convention	Definition
DANGER	Indicates an imminent hazard, which, if not avoided, will result in death or serious injury.
WARNING	Indicates a potential hazard or unsafe practice, which, if not avoided, could result in death or serious injury.
CAUTION	Indicates a potential hazard or unsafe practice, which, if not avoided, could result in moderate or minor injury.
NOTICE	Indicates a potential hazard or unsafe practice, which, if not avoided, could result in loss or destruction of property or data.

## Safety Hazards

The following messages apply to the system as a whole. Specific messages may also appear elsewhere in the manual.

**WARNING:**

The T2100-ST1 and T2100-ST2 treadmills are manufactured to exacting standards both in physical form and in component selection. The components used in our products have been selected with performance and medical safety in mind. The treadmills have been engineered and certified to conform to the list of medical and safety regulatory standards which appear on the next page. Modification or part substitution of any kind is strictly forbidden. Any deviation in component replacement, physical or electrical modification will result in loss of medical safety certification and warranty of this product. Modifications to this equipment may put the patient at risk of electrical shock or hardware malfunction.

Contact GE Healthcare Service department for all your repair part needs.

**WARNING:**

The T2100-ST1 and T2100-ST2 treadmills must be grounded to reduce the risk of electrical shock. If a malfunction occurs, grounding provides a path of least resistance for an electric current. Ungrounded connections must not be used.

No other equipment may be used on the electrical circuit with the treadmills. Do not use extension cords. Using a shared or unreliable circuit can also cause the treadmills to unexpectedly shut off, potentially resulting in injury to the patient.

Ensure the master power switch is in the off position before plugging in the T2100-ST1 or T2100-ST2. A power surge could damage the sophisticated electronic system of the treadmills.

**WARNING:**

Before permitting anyone to use the T2100-ST Series, do the following:

- Warn each user about the risk of falling while the belt is in motion.
- Stress the need for caution.
- Demonstrate the proper mounting and dismounting methods.
- Show each user how to use the T2100-ST Series as described in this manual.
- Ask each user to perform a supervised "test usage" at minimum belt speed to review and practice usage techniques.
- Observe all the precautions listed under "Customer "on page 18 to reduce the possibility of serious injury as a result of falling or a loss of balance.

**WARNING:**

Serious injury or death could result from electrical shock. To reduce the possibility of electrical shock, carefully observe the following precautions.

- To disconnect the treadmill, set the power switch to the OFF position, and remove the plug from the outlet. When the power is off, the green light on the power switch is dark.
- Never operate the unit with a damaged power cord or plug.

- Power cord should be routed through frame-mounted clamp and kept clear of the elevation mechanism.
- Communication cable should be routed through the communication cable clamp and kept clear of the elevation mechanism.
- Keep the power cord and communication cable out of traffic areas and away from heated surfaces.
- Never use extension cords.
- Never operate the unit when it is wet.
- Never operate the unit if it is not operating properly.
- Always unplug the machine before service or maintenance is performed.
- Treadmill should be serviced by authorized technicians only.
- Operator should report any electrical shock when touching the treadmill and discontinue use immediately.
- Never use the treadmill outdoors.
- Immediately discontinue use and unplug the treadmill if you smell the distinctive odor of hot electrical components.

**WARNING:**

Serious injury or death could result from electrical shock occurring during defibrillation. Never allow patient or operators near treadmill during defibrillation.

**WARNING:**

Consult your physician prior to using this appliance to determine the patient's physical readiness and capabilities. Stop exercising immediately and seek medical attention if the patient experience chest pain, dizziness or shortness of breath or if you experience symptoms of overexertion.

**WARNING:**

Serious injury or death could result from operating the treadmill in the presence of explosive or flammable vapors and antiseptics.

**WARNING:**

The potential for foot crush injury at frontal end of treadmill at lift mechanism (landing gear) when treadmill is descending. Keep feet and hands away from this area at all times.

Potential foot crush injury at rearward side rail, rear of side rail and rear roller exists when treadmill approaches full elevation. Keep feet and hands away from this area at all times.

## Classification of Medical Device

This device is classified as follows, according to IEC 60601-1:

### Medical Device Classification

Category	Classification
Type of protection against electrical shock	Class I motor operated physical medicine machine.
Degree of protection against electrical shocks	Type B external application applied part.
Degree of protection against harmful ingress or water	Ordinary equipment (enclosed equipment without protection against ingress of water).
Degree of safety of application in the presence of a flammable anesthetic mixture with air or with oxygen or with nitrous oxide	Equipment is not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or with nitrous oxide.
Method(s) of sterilization or disinfection recommended by the manufacturer	Not applicable
Mode of operation	Continuous operation.

## Regulatory and Safety Conformance

T2100-ST1 and T2100-ST2 treadmills meet FDA Class 1 motor operated physical medicine machines. They have been tested by Intertek Testing Services N.A Inc., and are listed by Engineering Testing Laboratories (ETL). However, the ultimate conformance to IEC 60601-1 is the responsibility of the system integrator when combined with other equipment. Additionally, all motorized equipment is potentially dangerous if used incorrectly. Before using the T2100-ST1 or T2100-ST2 treadmill, follow all precautions listed in this manual and read the entire Operator's Manual thoroughly. Use the T2100-ST1 and T2100-ST2 treadmills only as described.

### NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause

harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at owner's expense.

**Table 1: Guidance and Manufacturer's Declaration - Emissions**

The T2100-ST Series is intended for use in the electromagnetic environment specified below. The customer or user of the T2100-ST Series should ensure that it is used in such an environment.

Emissions Test	Compliance	Electromagnetic Environment - Guidance
RF Emissions CISPR 11	Group 1	The T2100-ST Series uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF Emissions CISPR 11	Class B	The T2100-ST Series is suitable for use in all establishments, including domestic, and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonics IEC 61000-3-2	Class A	
Flicker IEC 61000-3-3	Complies	

## Table 2: Guidance and Manufacturer's Declaration – Immunity All ME Equipment and ME Systems

The T2100-ST Series is intended for use in the electromagnetic environment specified below. The customer or user of the T2100-ST Series should ensure that it is used in such an environment.

Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment - Guidance
ESD IEC 61000-4-2	±8kV Contact ±15kV Air	±8kV Contact ±15kV Air	Floors should be wood, concrete or ceramic tile. If floors are synthetic, the r/h should be at least 30%
EFT IEC 61000-4-4	±2kV Mains ±1kV I/Os	±2kV Mains ±1kV I/Os	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1kV Differential ±2kV Common	±1kV Differential ±2kV Common	Mains power quality should be that of a typical commercial or hospital environment.
Voltage Dips/Dropout IEC 61000-4-11	>95% Dip for 0.5 Cycle  60% Dip for 5 Cycles  30% Dip for 25 Cycles  >95% Dip for 5 Seconds	>95% Dip for 0.5 Cycle  60% Dip for 5 Cycles  30% Dip for 25 Cycles  >95% Dip for 5 Seconds	Mains power quality should be that of a typical commercial or hospital environment. If the user of the T2100-ST Series requires continued operation during power mains interruptions, it is recommended that the T2100-ST Series be powered from an uninterruptible power supply or battery.
Power Frequency 50/60Hz Magnetic Field IEC 61000-4-8	30 A/m	30 A/m, 50/60Hz	Power frequency magnetic fields should be that of a typical commercial or hospital environment.

**Table 3: Guidance and Manufacturer’s Declaration – Immunity ME Equipment and ME Systems that is NOT Life-supporting**

The T2100-ST Series is intended for use in the electromagnetic environment specified below. The customer or user of the T2100-ST Series should ensure that it is used in such an environment.

Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment - Guidance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3V, 6V at ISM + (Amateur Frequencies)	Portable and mobile communications equipment should be separated from the T2100-ST Series by no less than the distances calculated/listed below:  $D=(3.5/V1) (\text{Sqrt } P)$ 150kHz to 80MHz  $D=(3.5/E1) (\text{Sqrt } P)$ 80 to 800 MHz  $D=(7/E1) (\text{Sqrt } P)$ 800 MHz to 2.5 GHz  where P is the max power in watts and D is the recommended separation distance in meters.  Field strengths from fixed transmitters, as determined by an electromagnetic site survey, should be less than the compliance levels (V1 and E1).  Interference may occur in the vicinity of equipment containing a transmitter.
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.7 GHz	3 V/m at 80 - 2,700MHz, AM Modulation  9-28V/m, 385 - 6,000MHz, FM or Digital Modulation	

#### Table 4: Recommended Separation Distances between portable and mobile RF Communications equipment and the T2100-ST Series ME Equipment and ME Systems that is NOT Life-supporting

The T2100-ST Series is intended for use in the electromagnetic environment in which radiated disturbances are controlled. The customer or user of the T2100-ST Series can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF Communications Equipment and the T2100-ST Series as recommended below, according to the maximum output power of the communications equipment.

Max Output Power (Watts)	Separation (m) 150kHz to 80MHz $D=(3.5/V1)(\text{Sqrt } P)$	Separation (m) 80 to 800MHz $D=(3.5/E1)(\text{Sqrt } P)$	Separation (m) 800MHz to 2.5GHz $D=(7/E1)(\text{Sqrt } P)$
0.01	0.11667	0.11667	0.23333
0.1	0.36894	0.36894	0.73785
1	1.1667	1.1667	2.3333
10	3.6894	3.6894	7.3785
100	11.667	11.667	23.333

#### Responsibility of the Manufacturer

Full-Vision, Inc., is responsible for the effects of safety, reliability, and performance of the treadmill only if the following conditions are met:

- Assembly operations, extensions, readjustments, modifications, or repairs are carried out by GE Healthcare which is authorized for service and installation.
- The electrical installation of the relevant room complies with the requirements of the appropriate local, state, and other government regulations.
- The equipment is used in accordance with the instructions for use.

## Responsibility of the Customer

The customer is responsible for providing appropriate desks, chairs, electrical wall outlets, network connections, and analog phone lines, and for locating any of the system components described in this manual in compliance with all local, state, and national codes.

The customer is solely responsible for the training, instruction, supervision and safety of all users of the T2100-ST Series treadmill, and to use it as intended by the manufacturer. This device is intended to be used as a motion appliance to facilitate cardiac or VO<sub>2</sub> medical evaluation.

- Read the operator's manual before operating the T2100-ST Series Treadmill.
- Assist in off-loading the patient in the event of abnormal or unexpected operation of the treadmill.
- If the treadmill is not responding properly, stop the treadmill, assist in removing the patient off the running belt, unplug the treadmill power supply, and seek factory authorized repair before attempting to restart the treadmill.
- Never allow children or pets near the machine without qualified adult supervision.
- Note the location of stop and/or emergency stop controls and their operation before starting a test or workout.
- This device is not intended for use by persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Verify the Patient and Operator both know how to stop the machine in the event of malfunction or emergency.
- Patient should not wear loose fitting nylon material when exercising on this treadmill to avoid generating electro-static discharge.
- Never attempt to remove any article of clothing while the running belt is moving.
- All persons on and around the treadmill must wear enclosed, protective footwear. Shoe laces must be tight and not drape as to cause a trip or catch hazard. Sandals, flip flops, slippers and the like are not considered enclosed, protective footwear.
- Walk in the center of the running belt. Contact with the side rail and the moving belt could cause injury.

- The Patient must always wear the stop tether lanyard wrist strap while operating the T2100-ST Series Treadmill.



- Place the treadmill on a hard, level and unobstructed surface. See Chapter 3, "Assembly and Setup".
- Check input power cord connection and location for hazardous pinch points before use.
- Check input communications cord connection (if equipped) for proper interface with all equipment.
- Keep all cords clear of patient to avoid trip hazards.
- Never attempt to remove the motor pan hood or do electrical repairs yourself. Repairs should only be done by a factory authorized repair provider.
- Always unplug the T2100-ST Series Treadmill when servicing, inspecting or cleaning the treadmill.
- Routinely inspect the treadmill for loose parts.
- Inspect handrails and ensure they will support the patient properly.
- Always start the running belt at its slowest speed before starting the patient test.
- Do not step onto belt when it is moving.
- Always slow the running belt to its minimum speed before stopping.
- Keep hands, feet, and clothing away from any moving parts.
- Verify no one is near the elevation mechanism before operating. Never put any part of the body under any part of a running treadmill.
- Never drop or insert objects into any opening.
- Never drape garments, hook-up leads, or other equipment over the side rails or drop objects on the belt while the T2100-ST Series Treadmill is running.
- Do not allow moisture or oils to accumulate on equipment, creating a slip hazard.

## Product and Package Information

This section describes the location of the labels used on your device and its packaging. It also describes the symbols used on the labels.

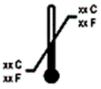
### Symbols

The following symbols may appear on the device or its packaging. Familiarity with these symbols assists in the safe use and disposal of the equipment. For equipment symbols not shown, refer to the original equipment manufacturers (OEM) manuals.

Symbols are used to convey warnings, cautions, prohibitions, mandatory actions, or information. Any hazard symbols on your device or packaging with markings in color indicates there is certain danger and is a warning. Any hazard symbols on your device or packaging that is in black and white indicates a potential hazard and is a caution.

### Symbols

Symbol	Description
 REF ABC123	Catalog or Orderable Part Number Indicates the manufacturer's catalog or part number.
 SN ABC123	Serial Number Indicates the manufacturer's serial number.
 YYYY-MM	Date of Manufacture (Year-Month) Indicates the original manufacture date for this device.
 Company Address	Manufacturer Name and Address Indicates the name and address for the manufacturer of this device.
	<b>CAUTION:</b> <b>CONSULT ACCOMPANYING DOCUMENTS</b> - There may be specific warnings or precautions associated with the device that are not otherwise found on the label.  Consult the accompanying documentation for more information about safely using this device.
	<b>CAUTION:</b> <b>ELECTRIC SHOCK</b> - Indicates the presence of hazardous energy circuits or electric shock hazards.  To reduce the risk of electric shock hazards, do not open this enclosure. Refer servicing to qualified personnel.
	Reading of the Owner's Manual is mandatory.

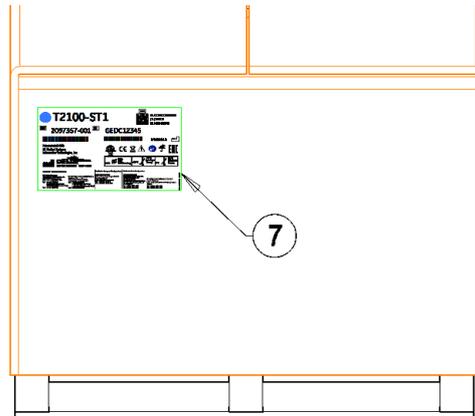
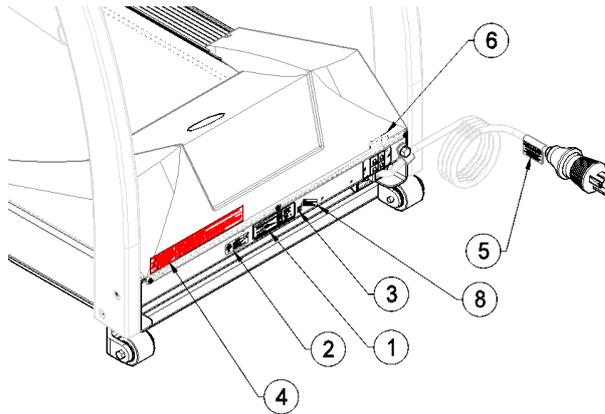
Symbol	Description
	<b>Upper Temperature Limit</b> Indicates the maximum temperature for transportation and handling of this package.
	<b>Temperature Limits</b> Indicates the upper and lower temperature limitations for the transportation and handling of this package.
	<b>European Union Disposal Requirements</b> This equipment complies with the EU WEEE marking requirement for proper disposal of electrical and electronic waste in accordance with the European Directive 2011/65/EE. This directive calls for separation and recovery or reuse of used electrical or electronic equipment upon end of life EEE disposal.  The T2100 must not be disposed of as unsorted municipal waste. Electrical or electronic components must be collected separately and disposed of in accordance with your local requirements and sources. The EEE program minimizes any potential effects on the environment and user health by eliminating the potential presence of hazardous substances in the waste stream. Customers should contact their local authorities or T2100 Distributor for guidance in complying with the directive.
	<b>Keep Dry</b> Indicates that you need to keep the container away from rain and other sources of moisture.
	<b>CE Mark</b> Indicates the device or product conforms with applicable EU (European Union) directives.
	<b>Eurasian Conformity mark</b> Conformity to applicable technical regulations of Customs Union.
	<b>Electrical Testing Laboratories</b> Indicates the device or product has been tested by an accredited third-party testing laboratory and meets applicable safety standards for sale and distribution within North America.
	<b>PCT (GOST-R) Mark</b> Indicates the device or product conforms with applicable Russian Gosstandard technical and safety standards.
	<b>Protective earth (ground).</b>
	<b>Alternating current.</b>

## Introduction

Symbol	Description
	Device is suitable for the external application of the type "B" applied parts.
	Unique Device Identification is a unique marking of the medical device

### Label Locations

This section identifies the labels and their locations on the product and packaging.



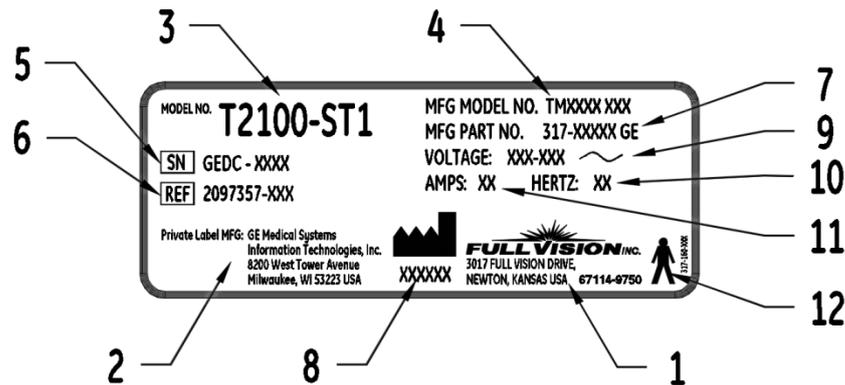
Refer to the previous illustrations for the locations of the labels identified in the following table. For detailed descriptions of the symbols that appear on the labels, refer to "Symbols" on page 20.

Item	Label	Location	Description
1		Front of device	Identifies the product model.
2		Front of device	Identifies Listing Standards

Item	Label	Location	Description
3		Front of device	Contains the disposal.
4		Front of device on Hood	Identifies the Caution Electrical shock hazard.
5		On Power Cord	Identifies DC Hi-Pot Caution.
6		Front of device	Identifies Power switch.
7		Shipping Package	Identifies the following information for shipping: <ul style="list-style-type: none"> <li>• Model number</li> <li>• Reference number</li> <li>• Serial number</li> <li>• Storage conditions</li> <li>• Regulatory compliance</li> <li>• Country of origin</li> <li>• EC Representative information</li> </ul>
8		Front of device	Identifies Unique Device Identifier

## Equipment Identification

### Product Label



### Product Label Format

Item	Name	Description
1	Manufacturer	Full Vision Inc.
2	Private Label Manufacturer	GE Medical Systems Information Technologies, Inc

Item	Name	Description
3	Model Number	Identifies model of treadmill
4	Manufacturer Model Number	Identifies manufacturing model of treadmill
5	Serial Number	Manufacturer assigned serial number
6	REF	GE Medical Systems reference part number
7	Manufacturer Part Number	Manufacturing part number
8	Manufacturer Date	Manufacturing date code
9	Voltage	Specifies operating voltage of treadmill
10	Hertz	Specifies the electrical hertz of treadmill
11	Amps	Specifies amperage of treadmill
12	Type B Equipment	Device is suitable for the external application of type "B" applied parts

## Service Information

This section provides information pertaining to the maintenance and servicing of the system. Familiarize yourself with this information before requesting service from GE Healthcare or its authorized representatives.

### Service Requirements

Failure on the part of the responsible individual, hospital, or institution using this equipment to implement a satisfactory maintenance schedule may cause undue equipment failure and possible safety hazards.

Regular maintenance, irrespective of usage, is essential to ensure that the components of this system are always functional when required.

### Warranty Information

This device is considered GE Healthcare-supplied hardware. Only authorized GE Healthcare service personnel should service the device. Any unauthorized attempt to repair equipment under warranty voids that warranty. It is the user's responsibility to report the need for service to GE Healthcare or to one of their authorized agents.

### Additional Assistance

GE Healthcare maintains a trained staff of application and technical experts to answer questions and respond to issues and problems that may arise during the installation, maintenance, and use of this system.

Contact your local GE Healthcare representative to request additional assistance.

## Manual Information

This section provides information for the correct use of this manual.

Keep this manual with the equipment at all times and periodically review it. You should request training assistance from GE Healthcare, if needed.

### Manual Purpose

This manual provides information necessary for the configuration and safe operation of this equipment in accordance with its function and intended use. It is not intended as a replacement for, but a supplement to, thorough product training. Keep it with the equipment at all times. Additional manuals may be ordered by contacting GE Healthcare.

### Document Conventions

This document uses the following conventions.

#### *Typographical Conventions*

The following table identifies the typographical conventions used in both this document and GE Healthcare Diagnostic Cardiology product documents.

Convention	Description
<b>Bold Text</b>	Indicates keys on the keyboard, text to enter, or hardware items such as buttons or switches on the equipment
<i><b>Italicized Bold Text</b></i>	Indicates software terms that identify menu items, buttons, or options in various windows.
KEY1+KEY2	Indicates a keyboard operation. A plus (+) sign between the names of two keys indicates that while holding the first key, you should press and release the second key. For example, Press CTRL+ESC means to press and hold the CTRL key and then press and release the ESC key.
<space>	Indicates that you must press the spacebar. When instructions are given for typing a precise text string with one or more spaces, the point where you must press the spacebar is indicated as: <space>. This ensures that the correct number of spaces are inserted in the correct positions within the literal text string. The purpose of the <> brackets is to distinguish the command from the literal text within the string.
Enter	Indicates that you must press the Enter or Return key on the keyboard. Do not type Enter.

Convention	Description
>	<p>The greater than symbol, or right angle bracket, is a concise method to indicate a sequence of menu selections.</p> <p>For example, the statement "From the main menu, select <i>System</i> &gt; <i>Setup</i> &gt; <i>Options</i> to open the <i>Option Activation</i> window" replaces the following:</p> <ol style="list-style-type: none"> <li>1. From the main menu, select <i>System</i> to open the <i>System</i> menu.</li> <li>2. From the <i>System</i> menu, select <i>Setup</i> to open the <i>Setup</i> menu.</li> <li>3. From the <i>Setup</i> menu, select <i>Options</i> to open the <i>Option Activation</i> window.</li> </ol>

### Illustrations

All illustrations in the document are provided as examples only.

### Notes

Notes provide tips or additional information that, while useful, are not essential to the correct operation of the tools. They are called out from the body text through a flag word and indentation, as follows:

#### NOTE:

The tip or additional information appears indented below the NOTE flag word.

### Related Documents

The following documents are referenced in this manual and provide additional information that may be helpful in the installation, configuration, maintenance, and use of this product.

Part Number	Title
2097937-001	T2100-ST1 /T2100-ST2 Operator's Manual, English
2097937-021	T2100-ST1/T2100-ST2 Operator Manual, S. Chinese
2097937-051	T2100-ST1/T2100-ST2 Operator Manual, Danish
2097937-061	T2100-ST1/T2100-ST2 Operator Manual, Dutch
2097937-091	T2100-ST1/T2100-ST2 Operator Manual, French
2097937-131	T2100-ST1/T2100-ST2 Operator Manual, Indonesian
2097937-151	T2100-ST1/T2100-ST2 Operator Manual, Japanese
2097937-171	T2100-ST1/T2100-ST2 Operator Manual, Korean
2097937-211	T2100-ST1/T2100-ST2 Operator Manual, Portuguese Brazil
2097937-271	T2100-ST1/T2100-ST2 Operator Manual, Spanish
2097937-011	T2100-ST1/T2100-ST2 Operator Manual, Bulgarian
2097937-031	T2100-ST1/T2100-ST2 Operator Manual, Croatian
2097937-041	T2100-ST1/T2100-ST2 Operator Manual, Czech

Part Number	Title
2097937-071	T2100-ST1/T2100-ST2 Operator Manual, Estonian
2097937-081	T2100-ST1/T2100-ST2 Operator Manual, Finnish
2097937-101	T2100-ST1/T2100-ST2 Operator Manual, German
2097937-111	T2100-ST1/T2100-ST2 Operator Manual, Greek
2097937-121	T2100-ST1/T2100-ST2 Operator Manual, Hungarian
2097937-141	T2100-ST1/T2100-ST2 Operator Manual, Italian
2097937-161	T2100-ST1/T2100-ST2 Operator Manual, Norwegian
2097937-181	T2100-ST1/T2100-ST2 Operator Manual, Polish
2097937-201	T2100-ST1/T2100-ST2 Operator Manual, Portuguese EU
2097937-191	T2100-ST1/T2100-ST2 Operator Manual, Romanian
2097937-221	T2100-ST1/T2100-ST2 Operator Manual, Russian
2097937-231	T2100-ST1/T2100-ST2 Operator Manual, Serbian
2097937-241	T2100-ST1/T2100-ST2 Operator Manual, Slovak
2097937-261	T2100-ST1/T2100-ST2 Operator Manual, Swedish
2097937-251	T2100-ST1/T2100-ST2 Operator Manual, Turkish
2097937-281	T2100-ST1/T2100-ST2 Operator Manual, Vietnamese
2097937-311	T2100-ST1/T2100-ST2 Operator Manual, Lithuanian
2097937-291	T2100-ST1/T2100-ST2 Operator Manual, Kazakh
2097937-301	T2100-ST1/T2100-ST2 Operator Manual, Latvian
2097937-321	T2100-ST1/T2100-ST2 Operator Manual, Slovene
2097937-331	T2100-ST1/T2100-ST2 Operator Manual, Ukrainian

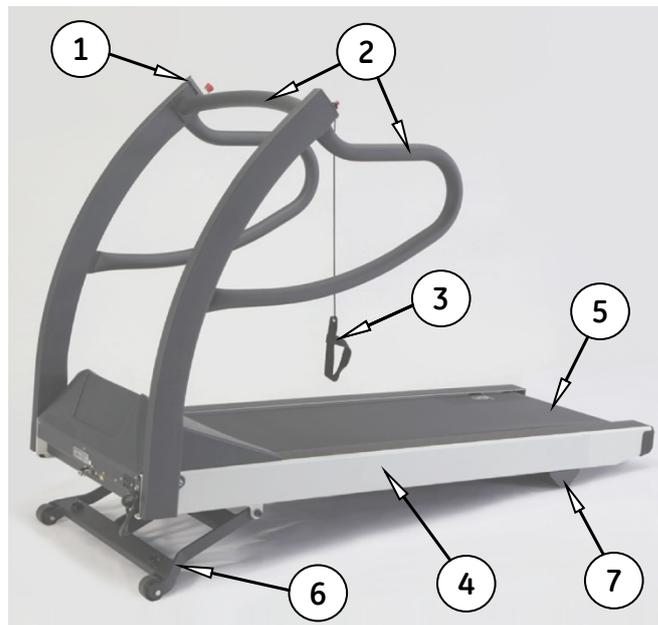


# 2

## Product Overview

The T2100-ST1 and T2100-ST2 treadmills are designed and built to withstand the extraordinary demands of medical devices and are compatible with CASE, CardioSoft/CS, MAC 5500, and MAC 2000.

References to left, right, front, and rear assume that you are standing on the treadmill, facing the handrails. All parts listed below are considered Patient Applied Parts except where noted.



Item	Description
1	Emergency Stop Button
2	Patient Handrails
3	Stop Tether
4	Side Rail
5	Running Belt
6	Elevation Landing Gear (Non-Applied Part)

Item	Description
7	Rear Foot (Non-Applied Part)

## Safety Systems

- Dual comparative speed sensors
- Auto runaway shutdown
- Auto communication loss shutdown
- Manual twist lock Emergency Stop button
- Manual Stop Tether
- Braking system for safe patient off-loading
- Fire-rated motor pan hood enclosure

## Treadmill

- Patient weight capacity 500 lb., 227 kg
- All steel construction with powder-coat finish
- Treadmill net weight: 425 lb., 193 kg

## Drive System

- Heavy-duty 6-peak hp. brushless, DC servo motor
- T2100-ST1 110-120VAC, single-phase, 60 Hz, 20-amp power supply
- T2100-ST2 200-240VAC, single-phase or split phase, 50-60 Hz, 15-amp power supply

## Speed Range

0.1 to 15.0 mph, 0.2 to 24.0 km/h, self-calibrating and adjustable in 0.1 mph 0.1 km/h increments.

**NOTE:**

The T2100-ST2 maximum speed (15.0 mph) will deteriorate at lower voltages (210VAC or below).

## Incline Range

0 to 25%, 0.5% incremental movements, self-calibrating.

## Running Surface

- 22in. x 63in. / 56cm x 160cm

- MasterTrack® running belt tracking system
- Cushioned running deck absorbs shock of foot falls
- Self-lubricated and reversible running deck
- Step-up height (7 in. / 18cm from floor)

## Communication Ports

- RS232 Female Serial port
- USB 1.0 "B" port

## Floor Surface Footprint

33.0 in x 78.5 in, 84cm x 200cm level surface. (See "Location" on page 37.)

## Operating and Storage Condition Recommendations

- Operating Temperature Range: 4.5° to +38° C (+40° to +85° F)
- Storage Temperature Range: -40° to +70° C (-40° to +158° F)
- Operating and Storage Relative Humidity Range: 10% - 90%, non-condensing
- Altitude: -50 to 9,842 feet (-15m to 3000m); derate performance by 5% per each additional 500 feet (152m) above 5,280 feet (152m)

## Power Requirements

The T2100-ST1 is designed to operate on dedicated 100-130 VAC 20-amp power, and the T2100-ST2 is designed to operate on dedicated 200 to 264 VAC 13-amp power. Make sure that the treadmill is connected to an outlet that looks like one of the following illustrations.

- T2100-ST1 Power Consumption: 1934 watts (6600 BTU), 20 amps
- T2100-ST2 Power Consumption: 2580 watts (8804 BTU), 13 amps

This product is equipped with a three-wire grounding-type plug. The plug will only fit into a grounding-type outlet. This safety feature must not be disabled. Contact a qualified electrician if you are unable to insert the plug into your outlet, or uncertain if the outlet meets local electrical codes. Polarized outlets such as NEMA 5-20, CEE7/7, and BS1363 must be verified for proper polarity configuration before plugging in the T2100-ST1 or T2100-ST2. Incorrect polarization of the outlet could cause failure of onboard electrical components or cause electrical

shock. Proper grounding is necessary for the equipment to meet acceptable current leakage standards consistent with the standards to which it was certified.



110-120 VAC  
NEMA 5-20R  
Single Phase



220/240 VAC  
NEMA 6-15R  
Split Phase



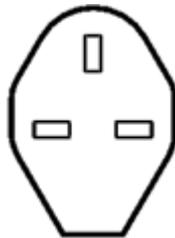
230 VAC  
AS/NZS 3112



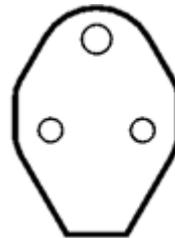
220/240 VAC  
CEE 7/7 EURO



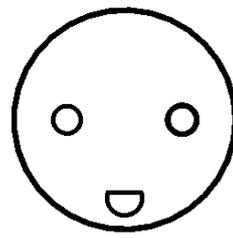
250 VAC  
Type N BRAZIL



230 VAC  
BS1363



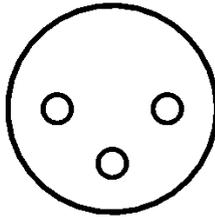
240 VAC  
BS546 3 PIN



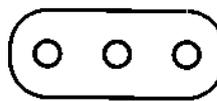
250 VAC  
Type K DANISH



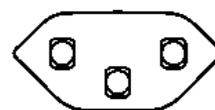
240 VAC  
GB 1002



250 VAC  
Type H ISRAEL



250 VAC  
Type L ITALY



250 VAC  
Type J SWISS

**WARNING:**

The T2100-ST1 and T2100-ST2 treadmills must be grounded to reduce the risk of electrical shock. If a malfunction occurs, grounding provides a path of least resistance for an electric current. Ungrounded connections must not be used.

No other equipment may be used on the electrical circuit with the treadmills. Do not use extension cords. Using a shared or unreliable circuit can also cause the treadmills to unexpectedly shut off, potentially resulting in injury to the patient.

Ensure the power switch is in the off position before plugging in the T2100-ST1 or T2100-ST2. A power surge could damage the sophisticated electronic system of the treadmills.

**NOTE:**

The T2100-ST1 and T2100-ST2 Treadmills must have their own dedicated power outlet.



# 3

## Assembly and Setup

The T2100-ST1 and T2100-ST2 treadmills are shipped fully assembled and packaged in a folded condition. They are designed to pass through a standard 36" door opening measuring at least 35½". It will be necessary to remove the door from the jam in most cases if the door is not capable of opening fully parallel to door opening. After you have unpacked the treadmill and secured the handrail assembly to the frame, move the treadmill to the area by rolling it on its front wheels. If your treadmill must pass through a door opening less than 36" wide, additional disassembly by removal of the handrails is required. Refer to "Removing and Reinstalling the Handrails for Moving" on page 154. This task should be performed by an authorized service provider to ensure that the T2100-ST1 and T2100-ST2 are properly reassembled and functioning correctly.

## Safe Handling Guidelines



### WARNING

The T2100-ST1 and T2100-ST2 treadmills each weigh 425 lbs. When lifting the rear of the treadmill and rolling it on its front wheels, you are moving 132 lbs. This can be accomplished by one person, but each installer must evaluate whether he or she is capable of moving this

amount of weight without causing strain or injury. If in doubt, a second person should be recruited to assist.

If you are moving the treadmill over rough surface, such as pavement, use a dolly under front of the treadmill to prevent damage to the wheels and lift mechanism.

- Do not attempt to move the treadmill with the handrails in the shipping position due to the possibility of cutting the internal wiring. You must either fully secure the handrails in their proper position or secure handrails with 3/8-16 bolts and 3/8 lock washers in the folded position.
- Lift the end of the bed assembly to a comfortable height, keeping knees bent and back straight as you lift.
- Rotate the treadmill in the direction you want to go (the treadmill will pivot on its wheels) and push forward.
- When you have maneuvered the treadmill into its location, gently lower the end of the bed assembly to the floor.

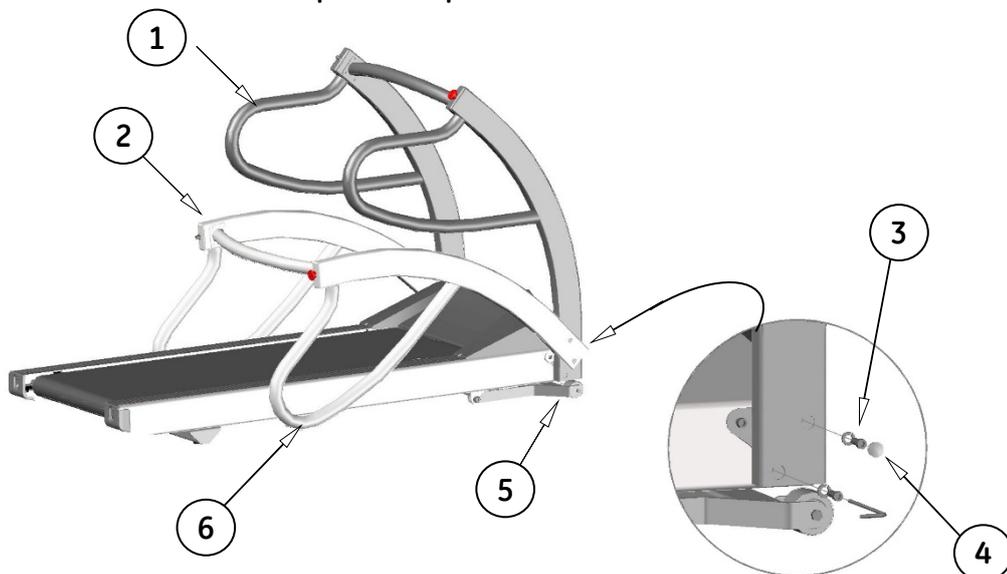
## Initial Setup

Tools required for assembly:

- 5/16 Allen wrench (supplied)

The treadmill is shipped with the handrails loose, straddling the treadmill frame. It is advised that you secure the handrails in their proper location before removing the treadmill from the base of the crate. This prevents the internal wires running down the handrail mount to the motor pan from being cut.

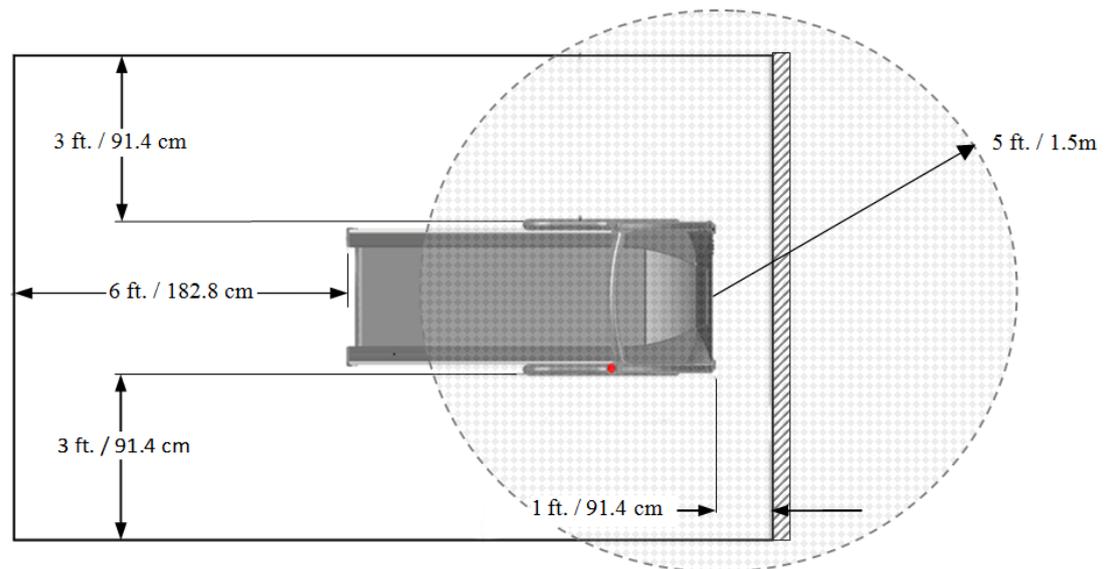
1. Swing the handrail assembly into the operating position and insert (2) 3/8-16 bolts and 3/8 lock washers on each side and tighten securely.
2. Install (2) plastic caps each side for a finished look.



Item	Description
1	Operating Position
2	Shipping Position
3	Insert (2) washer and bolts each side
4	Insert (2) caps each side
5	Pivot Point
6	When folding handrails apply cardboard between frame and handrail to prevent handrail damage.

## Location

Place the T2100-ST1 or T2100-ST2 on a firm and level hard surface that is free of tile grout lines. The illustration below shows the minimum recommended clearances from the treadmill edges to any obstruction for dismount and safety purposes. Observe that the operator should be stationed by the Emergency Stop Button (ESB).



### WARNING:

The T2100-ST1 and T2100-ST2 treadmills conform to FCC class B rating for electromagnetic emissions. It is recommended not to place the treadmill closer than 5ft. (1.5m) from sensitive electronic devices within the room or in an adjacent room. If an interference problem occurs, move the treadmill farther away from the sensitive device or relocate either device to another area, or consult with an EMI specialist for ways to shield the room from electromagnetic radiation.

Do not place it on thick or long-pile carpeting. Such carpeting could cause instability or static build-up, and

carpet fibers could get caught in the belt and damage the unit.

Ensure that power cords do not cross traffic areas. Exposed power cords can cause a fall, resulting in injury.

Keep it away from sources of moisture, such as spas or fountains. Moisture can cause the electronic circuitry to malfunction.

## Electrical Safety Tests

Except where noted, the following electrical safety tests are optional at the time of install.

You must conduct the following electrical safety tests after any service is performed or if the hood was removed.

### AC Line Voltage Test

This test verifies that the wall outlet supplying power to the equipment is properly wired. For international wiring test, refer to the internal standards agencies of that particular country.

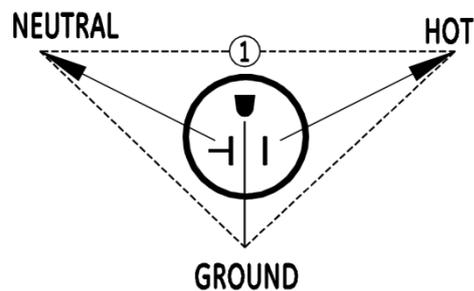
#### NOTE

The AC Line Voltage test is required at the time of installation.

#### *100 to 130 VAC, 60 Hz*

Using a digital voltmeter set to measure at least 200 VAC to check the voltage of the NEMA 5-20R AC wall outlet (U.S. only or applicable international connection; dedicated 20-amp service). If the measurements are out of range, have a qualified electrician repair the outlet. The voltage measurements should be:

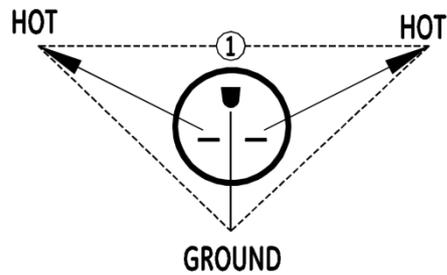
100 to 130 nominal VAC between the “neutral” and “hot” contacts.



#### *200 to 264 VAC, 50/60 Hz*

Using a digital voltmeter set to measure at least 300 VAC to check the voltage of the NEMA 6-15R AC wall outlet (U.S. only or applicable international connection; dedicated 13-amp service). If the measurements are out of range, have a qualified electrician repair the outlet. The voltage measurements should be:

200 to 264 nominal VAC between the two “hot” contacts.



## Power Cord and Plug

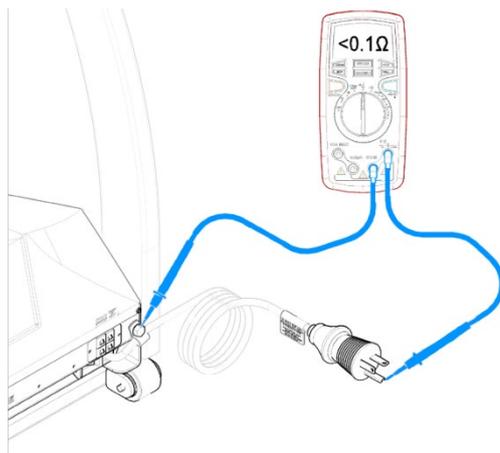
Verify the power cord being used with the treadmill is good:

- Verify that the line, neutral (if applicable), and ground conductors are properly connected to the power cord plug and are not short-circuited. Replace the power cord if necessary.
- Failure of the power cord strain relief is very common. Often users of the equipment pull on the power cord itself, rather than the power cord plug, to unplug the unit from a wall receptacle. If in doubt, test for continuity through each.
- Perform the Ground Continuity Test, below, or the test method that is required by your Country/Local governing safety organization. For international power cords, refer to the internal standards agencies of that particular country.

## Ground Continuity Test

This test verifies that there is continuity (less than 100 mΩ resistance) between exposed metal surfaces, which have the potential to become energized, and the ground prong on the mains AC power cord. Look for an exposed metal screw, or, if the metal surfaces are anodized or painted, scrape off a small area in an inconspicuous area on the aluminum casting, for the probe to make direct contact with the metal.

1. Disconnect the power cord from wall outlet with the T2100-ST Series treadmill power switch in the “ON” position.
2. Use a digital multimeter to check metal surfaces of the equipment as illustrated below. Make adjustments for any resistance in the test leads.



If the measurements are significantly out of range, check for breaks in the power cord or in the internal connections within the units.

### Conducting Leakage Tests

The leakage tests are safety tests to ensure that the equipment poses no electrical health hazards. Use the table below to determine which tests apply to the unit under test and the maximum allowable leakage currents. For international leakage limits, refer to the internal standards agencies of that particular country.

If the unit under test fails the leakage tests, do not allow the customer to use the equipment. Call Tech Support for assistance.

GE Healthcare recommends that you perform these tests:

- Before applying power for the first time
- Whenever internal assemblies are serviced

#### NOTE:

The accuracy of the leakage tests depends on a properly-wired wall outlet. Do not proceed until you verify the integrity of the power source.

Earth/Chassis Leakage Current to Ground					limits
1.	Forward Polarity (L1, L2)	NC	_____μA	Pass/Fail	500μA
2.	Neutral (L2) open, Forward Neutral Polarity	SFC	_____μA	Pass/Fail	500μA
3.	Ground open, Forward Polarity	SFC	_____μA	Pass/Fail	500μA
4.	Ground open, Reverse Polarity	SFC	_____μA	Pass/Fail	500μA
5.	Neutral (L2) open, Reverse Polarity	SFC	_____μA	Pass/Fail	500μA
6.	Reverse Polarity (L2, L1)	NC	_____μA	Pass/Fail	500μA
Ground Continuity					Resistance
1.	AC mains power cord ground prong to exposed metal surface (ground lug)	N/A	_____mΩ	Pass/Fail	100mΩ

**WARNING:**

Total system leakage current must not exceed 500 microamperes.

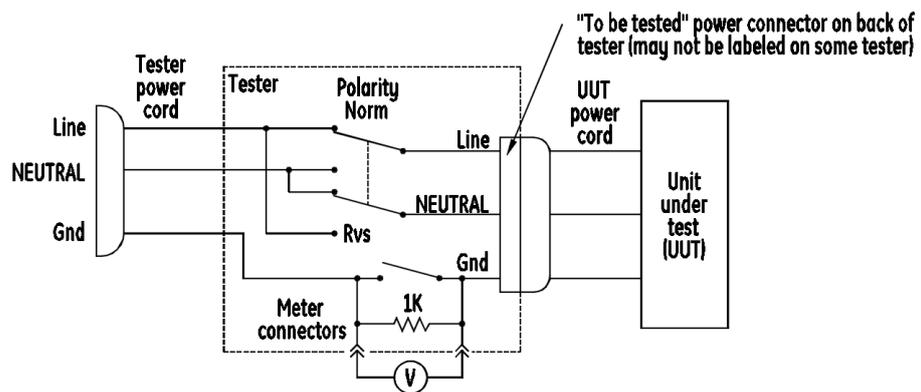
**Leakage Test Diagrams**

These diagrams show only a representation of how a typical leakage current tester functions. Follow the instructions provided with the leakage current tester that you use.

**Test #1**

**Ground-Wire-Leakage-to Ground**

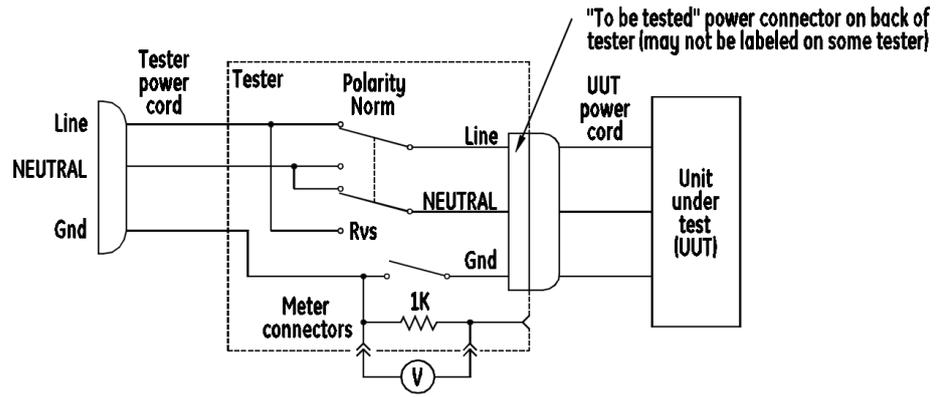
Make sure the UUT power switch is in the ON state without running belt running.



**Test #2**

**Chassis-Leakage-to-Ground (Exposed Chassis)**

Make sure the UUT is in the ON state with running belt running at 2.0mph.



## Secure Cables

Tie down cables to ensure they do not get caught in the wheels or the elevation racks.

## Running Belt Tracking Adjustment

**NOTE:**

This adjustment is not covered under your warranty after installation. It is important that you review these instructions thoroughly before proceeding with belt tracking adjustment. Uneven floors accelerate belt misalignment. This situation may require more frequent adjustment to prevent belt damage.

The patented MasterTrack® Belt Tracking System significantly reduces the need to adjust the belt on your T2100-ST1 or T2100-ST2 treadmill. However, when you operate your treadmill for the first time, you may need to adjust the tracking of the belt to conform to your floor. You may also need to adjust the tracking if you move the machine to another location. (See "Running Belt Tracking Adjustment" on page 59 for details.)

## Running Belt Tension Adjustment

Your running belt has been pre-tensioned at the factory and run for 16 hours prior to shipment. It may, however, be necessary to adjust the belt tension when the treadmill is run in its final location. A loose belt tends to hesitate or stick with a heavy foot plant. If your belt needs tensioning, the adjustment procedure can be found in "Running Belt Tension Adjustment" on page 60.

**NOTE:**

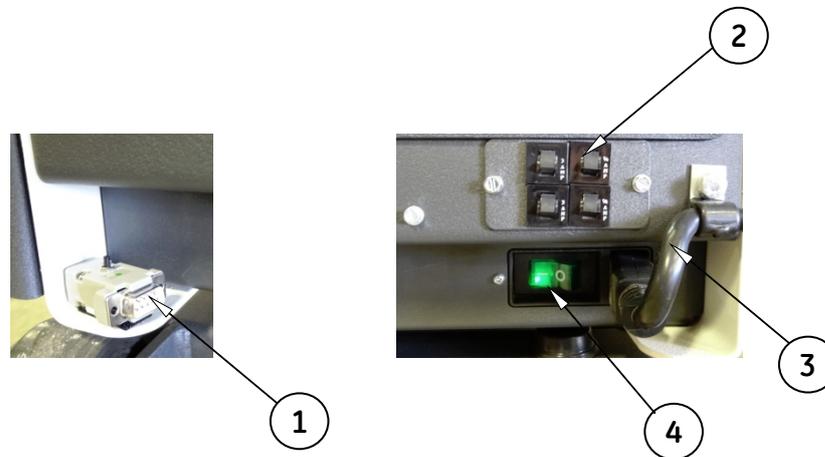
Improper adjustment could cause the treadmill to hesitate and cause a trip and fall hazard. This adjustment is not covered under your warranty after installation. It is important that you review these instructions thoroughly before proceeding.

## Drive Belt Tension Adjustment

The drive belt tension has been pre-set at the factory to minimize maintenance. If there are indications that the drive belt has stretched and become loose, refer to "Drive Belt Tension Adjustment" on page 60. Symptoms of a stretched drive belt could include increased noise.

## Test Plug Procedure

Each T2100-ST1 and T2100-ST2 treadmill includes an RS-232 test plug that enables you to test the operation of the treadmill without the host controlling device attached. The plug is located on the left side of the treadmill secured to the frame by Velcro®. The plug is to be used only for testing the treadmill. Do not stand on or use the treadmill while testing.

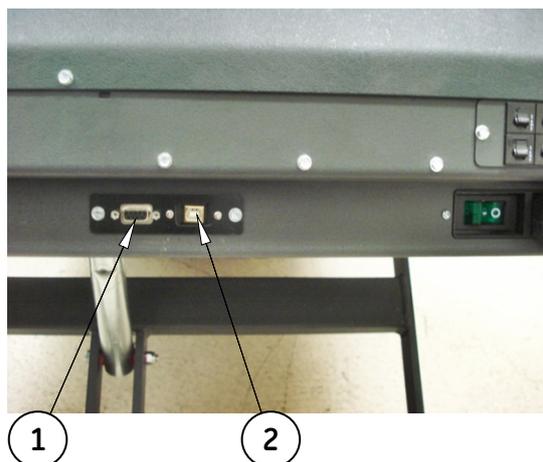


Item	Description
1	Test Plug Location on Left
2	Circuit Breaker Array
3	Incoming Power Cord
4	Main Power Switch

## Communication Ports

The communication ports are located at the very front of the treadmill near the center of the unit.

Two ports are offered with equal communication capability. The standard female RS232 port and a USB Type B port offer connectivity diversification.



Item	Description
1	RS232 Port "Female"
2	USB "B" Port

## Using the test plug

1. Turn the power "OFF" at the treadmill.
2. If connected, remove the RS232 or USB interface cable from the treadmill and plug in the test connector into the RS232 port.
3. Press and hold the button on the test connector and turn the treadmill power "ON". Continue holding until the treadmill begins to elevate.
4. When the treadmill begins to raise, repeatedly press the button to cycle through the different phases of the test.

The following table shows the sequence of self-test stages:

Stage	Incline	Speed (mph)
1	5%	0.0
2	10%	0.0
3	15%	0.0
4	20%	0.0
5	20%	1.0
6	20%	2.5
7	20%	5.0
8	20%	7.5
9	20%	10.0
10	15%	7.5
11	10%	5.0
12	5%	2.5

Stage	Incline	Speed (mph)
13	0%	1.0
14	0%	0.0

**NOTE:**

Successful completion of the preceding testing procedure ensures that the treadmill is fully functional and responsive to command signals.

**NOTE:**

Unsuccessful completion of the preceding testing procedure indicates a problem with the setup. Call GE Medical Systems Information Technologies to trouble shoot failure of test plug procedure.

5. Turn the power "OFF" at the treadmill.
6. Remove the test connector.
7. Reconnect the RS232 or USB interface cable from the host computer.

You are ready to begin the set-up procedure prescribed by your medical test equipment supplier.

## Setup and Connection to Host

Currently, four GE host stress systems can connect to the T2100-ST series treadmill and are used as controlling devices: CASE CardioSoft/CS, MAC 5500, and MAC 2000.

### CASE connection and setup:

1. Connect one end of the RS232 serial cable (GE part number 2097829-109) to the RS232 COM port located on the lower front panel of the T2100-ST series treadmill and run it through the communication cable clamp, as shown in the following photograph.



2. Connect the other end of the RS232 serial cable (GE part number 2097829-109) to a COM port on the CASE unit (it is suggested to use COM1 or COM2).

Referencing the CASE rear I/O connector panel label, take note of the COM port number plugged into.

3. Make sure the treadmill is connected to AC power and turned on.
4. If necessary, turn on CASE with the power button on the side panel.

The program will start up automatically and the Windows screen opens.

5. Log in when prompted.  
Refer to the CASE Operator's Manual for logon instructions.
6. If not already in the software application, double-click the CASE icon.

The CASE initial screen opens.



CASE Initial Screen

**NOTE:**

Depending on the version of software and user preferences, the initial screen will vary.

7. On the upper right side of the screen, click the *System Configuration* button.

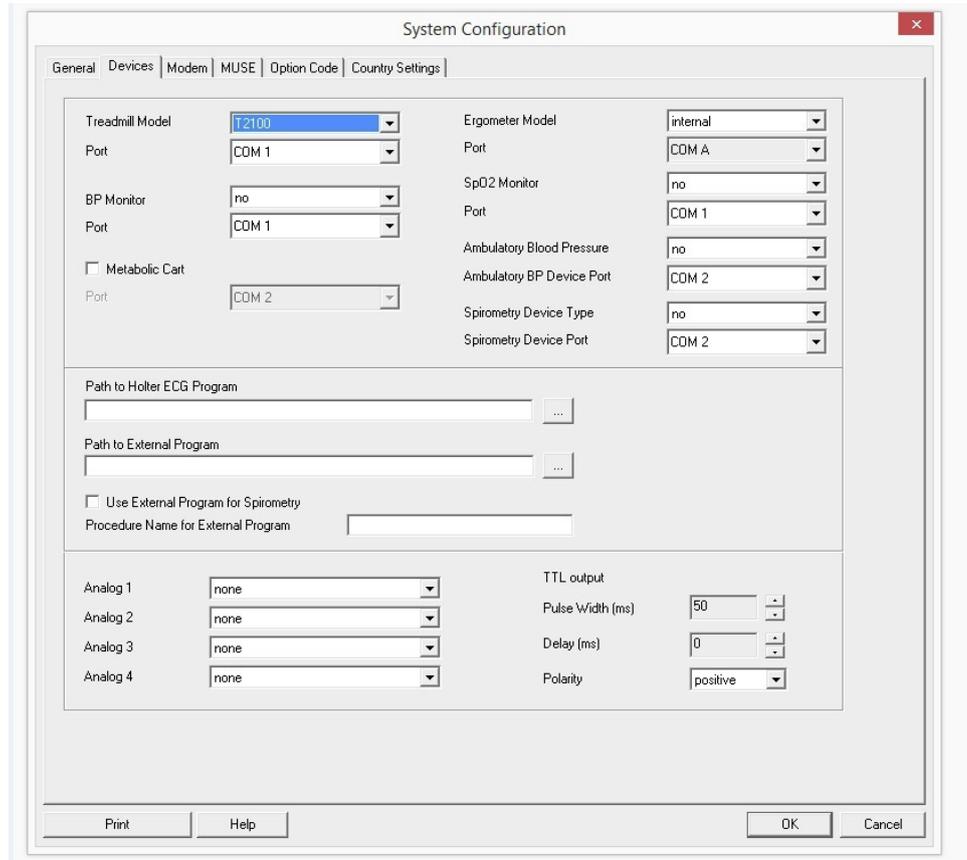
Depending on the version of software the button may look like one of the following:



The *System Configuration* window opens.

8. Click the *Devices* tab.

The COM port number is displayed in the *Port* field, as shown in the following screen.



9. Ensure the *Treadmill Model* is set to *T2100*.
10. Ensure the COM port number is set to the one physically connected to in step 2, above, and, if necessary, change to match.
11. Click *OK* to close the *System Configuration* window and return to the CASE initial screen.

If needed, the CASE device operating instructions should be referenced for controlling the treadmill with the CASE application.

### CardioSoft/CS connection and setup:

To communicate to the T2100-ST1 or T2100-ST2 treadmill using the USB port, you will need to install the appropriate USB driver software on your host computer. The USB driver is supplied on the provided flash drive. When connecting to the USB port, ensure port configuration is congruent with your software port identification.

#### *First Time Installation of the Serial Driver Software on the CardioSoft/CS PC*

This section installs the USB Serial Driver on the PC which has the CardioSoft or CS application installed.

**NOTE:**

Do not plug any hardware, including the treadmill USB cable, into the CardioSoft/CS PC until directed to do so.

1. If necessary, turn on the CardioSoft/CS PC and log on when prompted.

Refer to the *CardioSoft/CS Operator Manual* for logon instructions.

2. Locate the flash drive (PN 317-160-313) shipped with the T2100-ST series treadmill and insert into a USB port of the CardioSoft/CS PC.
3. Browse the flash drive and locate the file named CDM21218\_Setup.exe and double-click it to start the installation.

**NOTE:**

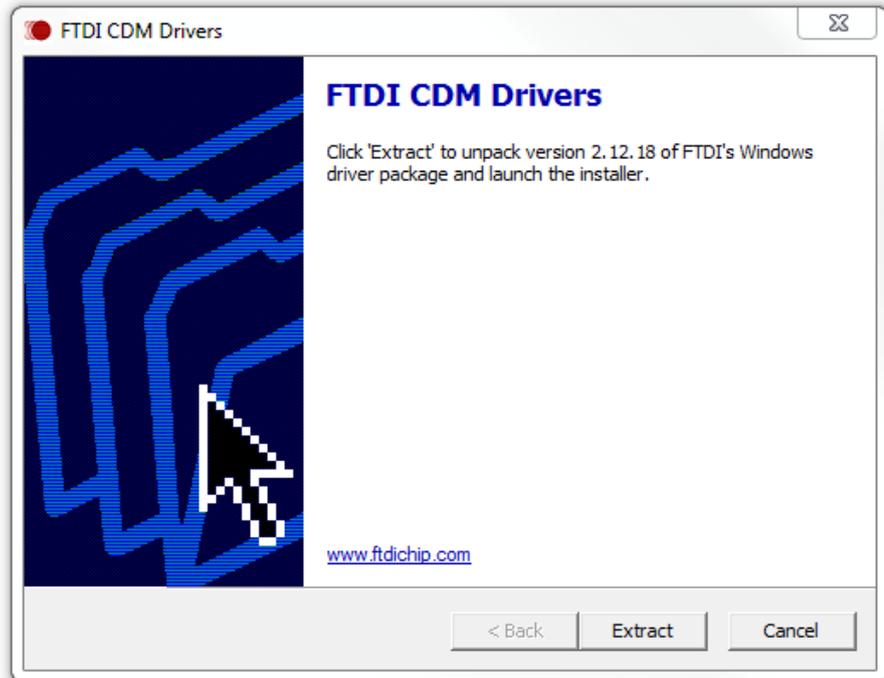
Do not download the driver from the FTDI website.

**NOTE:**

The following instructions are for a PC running Windows 7. The basic instruction flow should be the same for Windows 8 and 10, although the screens may vary. If necessary, refer to Appendix B, "Reference Documents", for a list of reference documents that contain helpful OS-specific guidance.

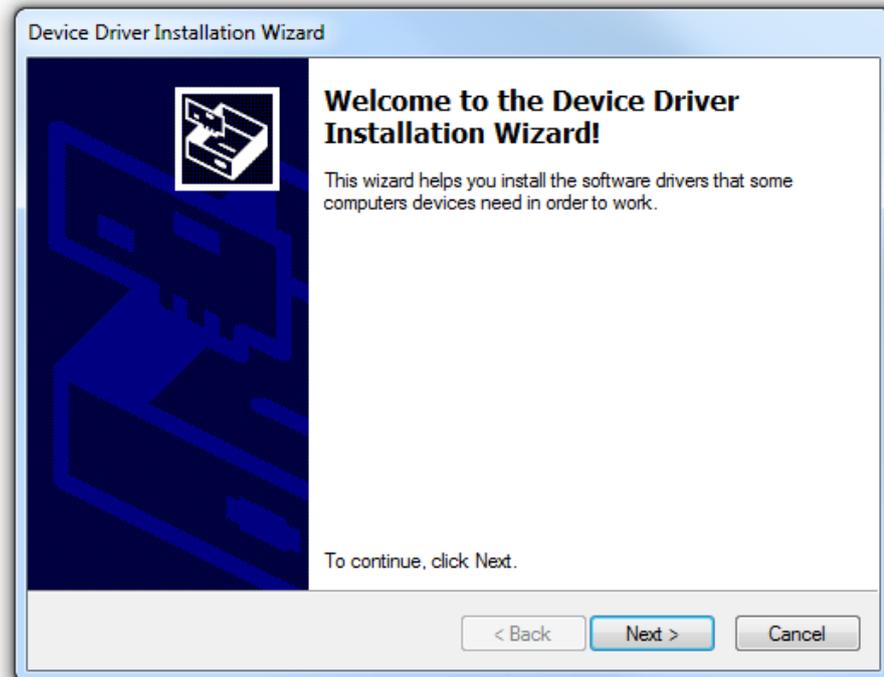
4. If you receive the prompt "*Do you want to allow the following program to make changes to this computer?*", verify the program name, CDM21218\_Setup.exe, and publisher, Future Technology Devices International Ltd, and click *Yes*.

The *Driver Extract* window opens.



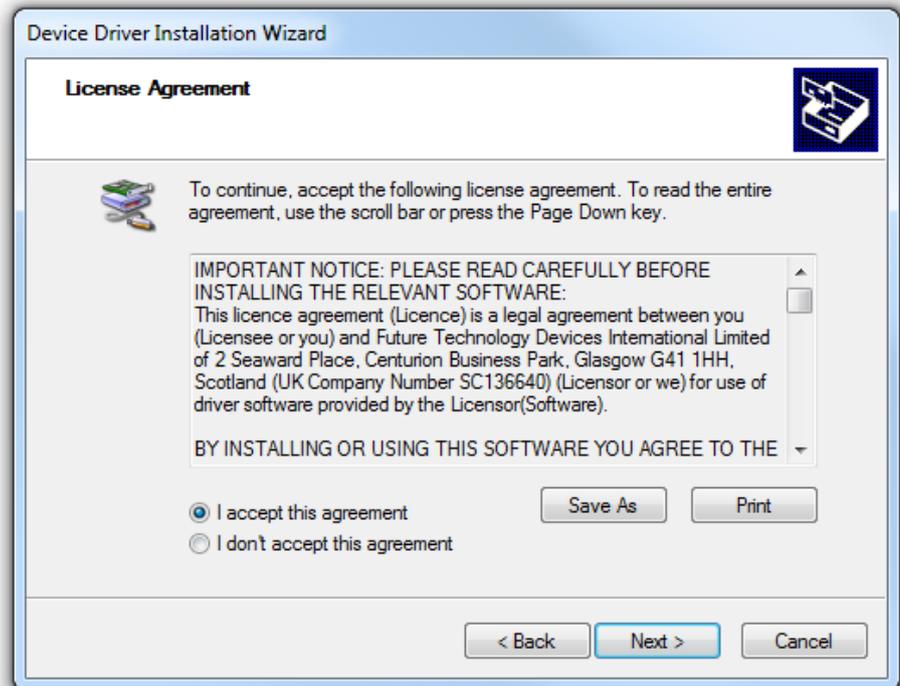
5. Click *Extract*.

The Device Driver Installation Wizard opens.

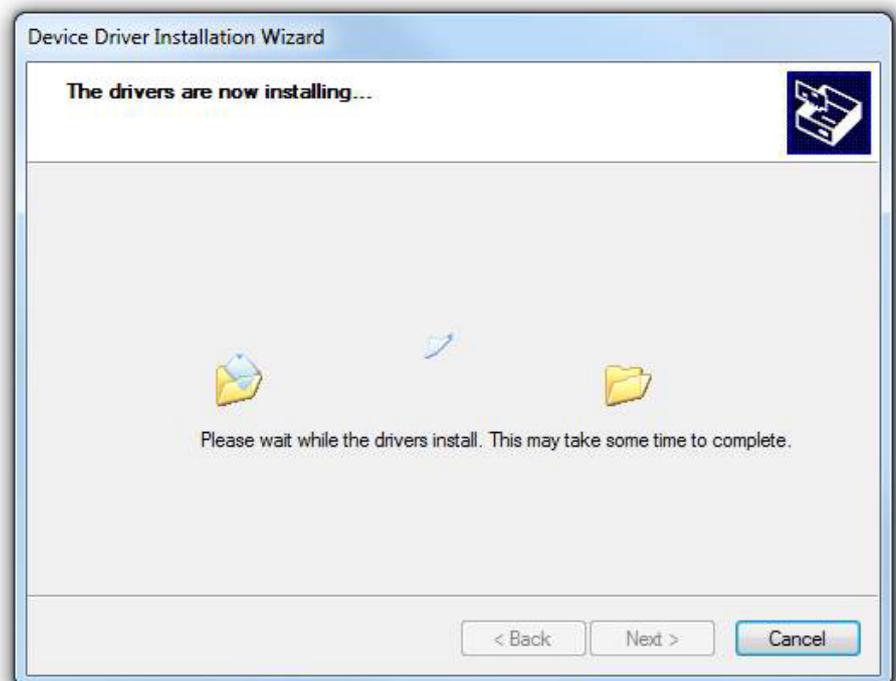


6. Click *Next*.

The *License Agreement* window opens.



7. Select *I accept this agreement* and click *Next*.  
An installation progress window opens.



The installation process should take less than a minute. When the installation is complete, the *Device Driver Installation Wizard* window opens confirming a successful installation.



8. To close the window, click *Finish*.

#### *Communication Port Identification and CardioSoft/CS setup*

1. Connect a USB cable (GE part number 2044095-001) between the CardioSoft/CS PC and the T2100-ST series treadmill.
2. Connect AC power to the treadmill.
3. Power on the treadmill.
4. If necessary, turn on the CardioSoft/CS PC and the monitor.
5. On the CardioSoft/CS PC, determine the COM port that the USB Serial Port is using by doing the following:

- a. On the CardioSoft/CS PC click *Start* and in the *Search programs and files* field, type: *Device Manager* and press *Enter*.

The *Device Manager* window opens.

- b. Scroll to *Ports (COM & LPT)*.
- c. Find the *USB Serial Port* in the list

The port number is given in the parenthesis.

**NOTE:**

This may take a minute or so to display.

- d. Make note of this port and port number, you will use it later when selecting the COM port in the *System Configuration* window of the CardioSoft/CS application software.

- e. Close *Device Manager* window.
6. If not already in the software application, double-click the CardioSoft or CS icon.

The CardioSoft or CS initial screen opens.



*CardioSoft Initial Screen*

**NOTE:**

Depending on the version of software and user preferences, the initial screen will vary.

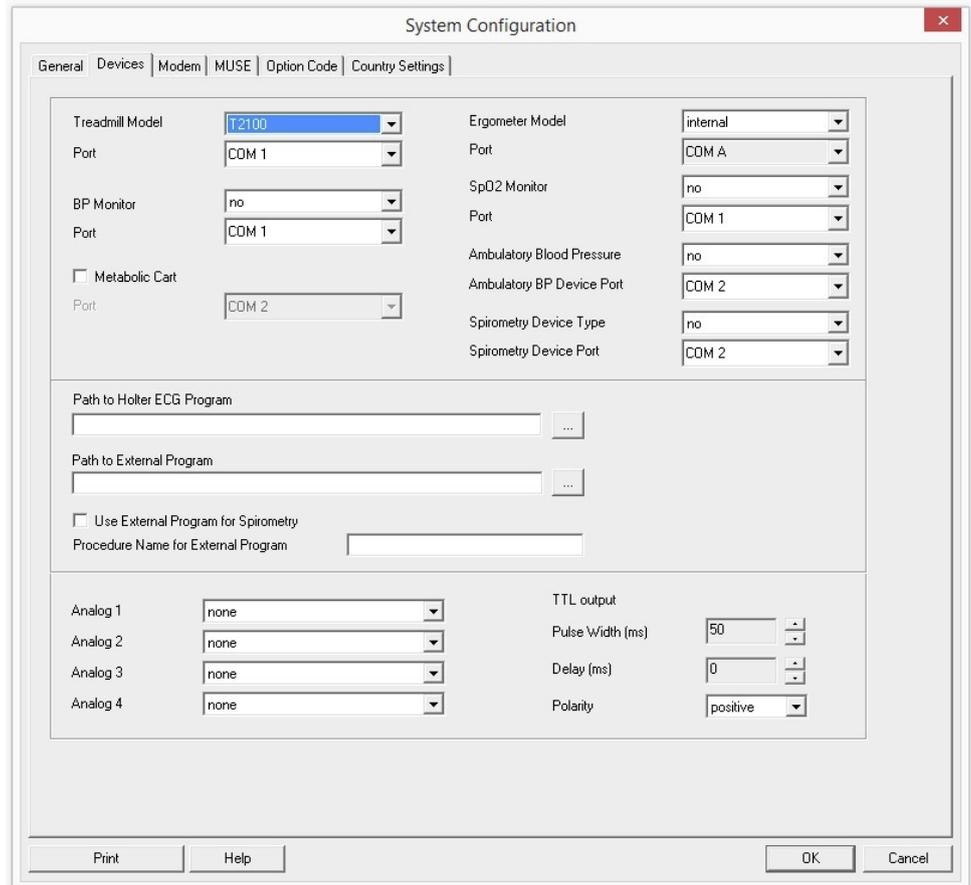
7. On the upper right side of the screen, click the *System Configuration* button.

Depending on the version of software the button may look like one of the following:



The *System Configuration* window opens.

8. Click the *Devices* tab.
9. The COM port number is displayed in the *Port* field, as shown in the following screen.



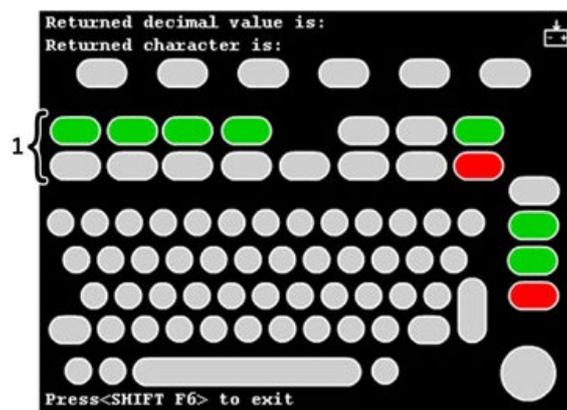
10. Ensure the *Treadmill Model* is set to T2100.
11. Ensure the COM port number is set to the port number as identified in step 5.d, above.  
If necessary, change the number to match.
12. Click *OK* to close the *System Configuration* window and return to the CardioSoft or CS initial screen.

If needed, the CardioSoft/CS operating instructions should be referenced for controlling the treadmill with the CASE application.

### MAC 5500 ST connection and setup:

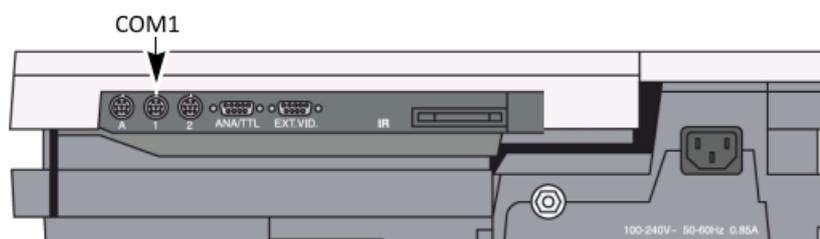
**NOTE:**

Prior to starting this section, confirm the MAC 5500 device contains the ST (Stress Test System) option. The device can be identified by the two additional rows of keys on the keyboard, as shown (1) in the following illustration.



MAC 5500 ST (Keyboard)

1. Turn the power OFF at the treadmill.
2. Connect the 9-pin D-Sub end of the communication cable (GE part number 2097829-108) to the RS232 COM port located on the lower front panel of the treadmill.
3. Connect the 8-pin mini DIN of the communication cable (GE part number 2097829-108) to the COM1 port on the MAC 5500 ST unit.



MAC 5500 Rear View

4. Make sure the treadmill is connected to AC power.
5. Turned the power ON at the treadmill.
6. If necessary, turn on the MAC 5500 ST device with the power button on the keyboard.

Refer to the MAC 5500 operator's manual for instructions on conducting an exercise stress test.

### MAC 2000 ST connection and setup:

**NOTE:**

Prior to starting this section, confirm that the MAC 2000 device contains the ST (Stress Test System) option. The device can be identified by the two additional rows of keys on the keyboard, as shown (1) in the following illustration.



MAC 2000 ST (Keyboard)

1. Turn the power OFF at the treadmill.
2. Connect one end of the RS232 serial cable (GE part number 2097829-110) to the RS232 COM port located on the lower front panel of the treadmill.
3. Connect the other end of the RS232 serial cable (GE part number 2097829-110) to the COM B port on the MAC 2000 ST unit.



MAC 2000 Rear View

4. Make sure the treadmill is connected to AC power.
5. Turn the power ON at the treadmill.
6. If necessary, turn on MAC 2000 ST with the power button on the keyboard.

Refer to the MAC 2000 operator's manual for instructions on conducting an exercise stress test.



# 4

## Preventive Maintenance

Regular cleaning and maintenance is essential to keep your T2100-ST1 and T2100-ST2 treadmills operating at their best for many years. We recommend that you record all maintenance and service in a log (as shown in Appendix A).

### CAUTION



Before cleaning the T2100-ST1 and T2100-ST2 treadmills, turn the main power switch to OFF, and disconnect the treadmill from its power outlet. Never use wet cleaning materials near a power source.

To preserve the condition of your warranty, make sure that all repair procedures (other than normal maintenance) are performed by an authorized and qualified service provider. Contact your local GE customer support representative.

Use only authorized replacement parts. Using other parts may void your warranty and may cause your T2100-ST1 or T2100-ST2 treadmill to malfunction.

## Daily Maintenance

- Wipe the treadmill to remove soil, moisture, and perspiration.
- Disinfect the hood and handrails with a soft cloth, dampened with a solution of containing up to 70% alcohol.
- Remove stubborn stains and scuff marks with a nonabrasive, industrial strength cleaner, such as Formula 409®. Spray all cleaners on a terrycloth-type cloth (avoid spraying cleaner directly onto the treadmill).
- Ensure that the treadmill is functioning properly.
- Visually inspect the treadmill and walking belt for damage and wear.

## Preventive Maintenance

- Press the Emergency STOP Button (ESB) and the treadmill will coast to a stop. To release the emergency stop switch, turn the push button ¼-turn in counter clockwise direction. The treadmill will return to 0.0% elevation.
- Pull the Safety Tether System (STS) and the treadmill will have a controlled stop. To re-attach the pull tether, attach clip to the original position on the switch. The treadmill will return to 0.0% elevation.

## Weekly Maintenance

- Vacuum around and under the treadmill. Clean all exposed surfaces with a vacuum cleaner. Avoid moving the treadmill from its original position as moving it will compromise the original belt tracking setting.
- Check running belt tension.
- Observe running belt tracking and correct as required.

## Monthly Maintenance

Inspect and clean the running belt.

## Semiannual Maintenance

- Evaluate the condition of the deck and running belt.
- Adjust the running belt to assure proper alignment.
- Check the running belt adjustment.
- Check the drive belt tension adjustment.
- Clean and lubricate the treadmill elevation screw.
- Clean the interior of the motor electrical enclosure as needed.

## Belt Cleaning and Inspection

1. Turn the treadmill main power switch ON.
2. Start treadmill at 0.5 mph (0.8 km/h).
3. With a damp small towel wipe excessive dirt from running belt keeping the towel in the center of the length of the treadmill. Avoid getting the towel near the rear roller.
4. When belt is clean, stop the treadmill.
5. Inspect the running belt for tears or nicks. If damaged, replace the belt.
6. Perform the Running Belt Tracking Adjustment and Belt Tension Adjustment.

## Running Belt Tracking Adjustment

This procedure requires the following tool:

¼" Allen wrench

**NOTE:**

Because this adjustment is not covered under your warranty, it is important that you review these instructions thoroughly before proceeding.

The patented MasterTrack® Belt Tracking System significantly reduces the need to adjust the belt on your T2100-ST1 or T2100-ST2 treadmill. However, when you operate your T2100-ST1 or T2100-ST2 treadmill for the first time, you may need to adjust the tracking of the belt to conform to your floor. You may also need to adjust the tracking if you move the machine to another location.

Your running belt should remain centered, although a slight amount of movement to the left or right is normal during use. Do not allow the running belt to travel all the way to either side.

To adjust the belt tracking, do the following:

1. Turn the treadmill's power switch to ON.
2. Increase the speed to 3 mph (4.8 km/h)
3. Observe the left side of the running belt as it travels over the rear roller. If the belt runs to the right side of the roller, turn the right bolt 1/8 turn clockwise, and turn the left bolt 1/16 turn counterclockwise.

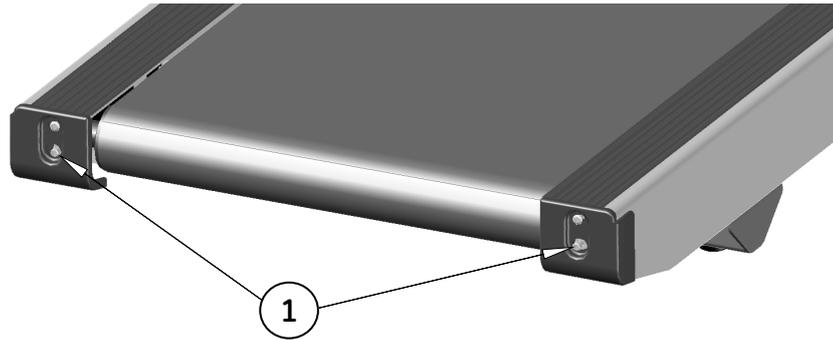
**NOTE:**

When tightening one side of the belt, always loosen the opposite side one-half as much. This procedure provides finer control, with a smaller impact on the belt tension.

Check the belt after 2 minutes, with the treadmill running at approximately 7 mph (11.3 km/h). If the belt does not correct itself, continue with slight turns until the belt is in the center of the rear roller. If the belt runs toward the left side of the roller, reverse the adjustments.

**NOTE:**

Uneven floors accelerate belt misalignment. This situation may require more frequent adjustment to prevent belt damage.



Item	Description
1	Adjustment Bolts

**NOTE:**

When operating the treadmill at a High Speed Application may cause hesitation/slippage of the running belt with each foot plant. This could be a sign of the backing of the running belt breaking down causing a premature failure. For troubleshooting refer to "Running Belt High Speed Application" on page90.

## Running Belt Tension Adjustment

The running belt may stretch and loosen with regular use. This looseness is noticeable when the belt tends to hesitate or stick. Adjust the tension on the belt by following the procedure and referring to the illustration above.

1. Turn the treadmill's power switch to ON.
2. Start the treadmill and increase to 1 mph (1.6 km/h).
3. Start walking on the treadmill, grabbing side handrail and applying pressure with your foot to create resistance on the running belt.
4. If the running belt hesitates or slips on the front drive roller, tighten both tension bolts ½ turn (clockwise).
5. Repeat steps 2 through 4 until the running belt stops slipping.

**NOTE:**

When the running belt is too tight, the edge of belt will curl, causing premature running belt failure.

## Drive Belt Tension Adjustment

This procedure requires the following tool:

- 1/8" Allen Wrench

- ¾" Socket or Box Wrench
- ¾" Wrench
- Tape measure

**NOTE:**

The drive belt may stretch and loosen with regular use. This looseness may result in a flapping noise under the hood.

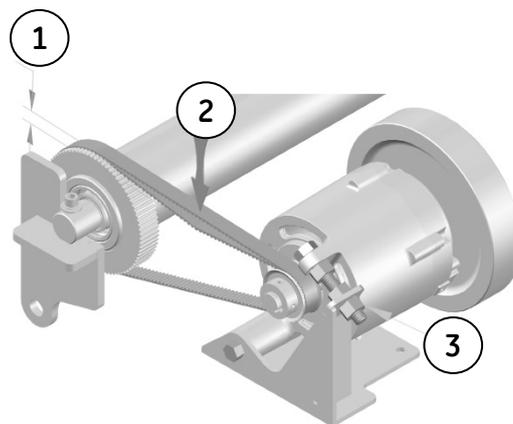
If there are indications that the drive belt has stretched and become loose, contact your in-house biomedical technician, or contact GE Medical Systems *Information Technologies, Inc.*, and open a customer service call.

1. Remove the (5) #10-32 screw located on the bottom hood with 1/8" Allen wrench.
2. With the ¾" socket and wrench loosen the TENSION ADJUSTMENT back nut.
3. Press down on drive belt between motor and front roller with approximately 5lbs of force to achieve ¼" to 3/8".
4. If adjustment is need using a ¾" wrench turn the TENSION BOLT clockwise to tighten. To loosen, turn the wrench counter clockwise.
5. Make small adjustment until the drive belt deflects approximately ¼" to 3/8", tighten the TENSION ADJUSTMENT back nut.

**NOTE:**

Failure to lock the TENSION ADJUSTMENT back nut will allow the drive belt tension to become loose.

6. When the treadmill is properly adjusted, reinstall the hood with (5) #8-32 screws.



Item	Description
1	¼ to 3/8 Deflection
2	5 lbs down force

3	Tension adjustment back nut
---	-----------------------------

**NOTE:**

When drive belt is over-tensioned, the belt tension will cause motor noise. This could result in premature motor life failure.

## Exterior Care

The powder-coat finish on your T2100-ST1 or T2100-ST2 treadmill is an extremely durable finish and requires minimal care. Do not allow perspiration to build up on your treadmill. Wipe the unit daily.

- Use a moist cloth to wipe the surface clean; do not allow liquids to enter the system. All cleaning agents and disinfectants used in hospitals and containing up to 70% alcohol are suitable. If liquids have entered the system, notify service to have the system inspected for damage before it is used again.
- DO NOT use disinfection with a phenol base or peroxide compound to disinfect the external surface.

## Elevation Screw Lubrication

The Elevation Screw must be cleaned and lubricated every 6 months to maintain proper operation of the treadmill. Failure to perform this maintenance function will result in premature wear and ultimate failure of the lift mechanism.

This procedure requires the following tools:

- Service Grease, 6oz tube (GE part number 2097829-072)
  - Clean, lint-free cloth
  - Small paint brush
1. Raise the treadmill to its maximum elevation.
  2. Turn the main power switch to the OFF position, and unplug the treadmill from its outlet.
  3. Using a lint-free cloth, remove the old lubricant and accumulated dust from the elevation screw.
  4. Use a small brush to reapply a thin coat of grease to the threads of the elevation screw. Do not use too much grease (less than 1 ounce required)—the excess could squeeze onto the floor and create a slip-and-fall hazard.
  5. Return the unit to service.

## Running Deck Maintenance

The treadmill's running deck is maintenance-free and offers two running deck surfaces for double the life of ordinary treadmills.

**NOTE:**

Do not use any silicone or lubricating sprays during preventative maintenance on your treadmill deck. Using such sprays may void the warranty. Using such sprays can bring about surface changes that may result in hesitation or excessive belt slip.

Prolonged use in high speed running may cause hesitation/slippage on each foot plant. Inspect the running deck for factory lubrication on running surface. For troubleshooting refer to "Running Belt High Speed Application" on page90.

If the running deck surface becomes grooved due to wear, it can be renewed by flipping the deck to the opposite side. Notify your in-house biomedical technician, or contact GE Medical Systems *Information Technologies*, Inc., and open a customer service call.



# 5

## Theory of Operation

The T2100-ST1 / T2100-ST2 Universal Power Supply (UPS) treadmill control provides a means of controlling belt speed and elevation for the treadmill through the use of either an RS-232 serial port or USB port. The communication protocol is based on the industry standard. In addition to the physical interfaces with the controlling system (PC), the motor controller and elevation motor, the UPS also includes an interface to an emergency stop switch and an SD card.

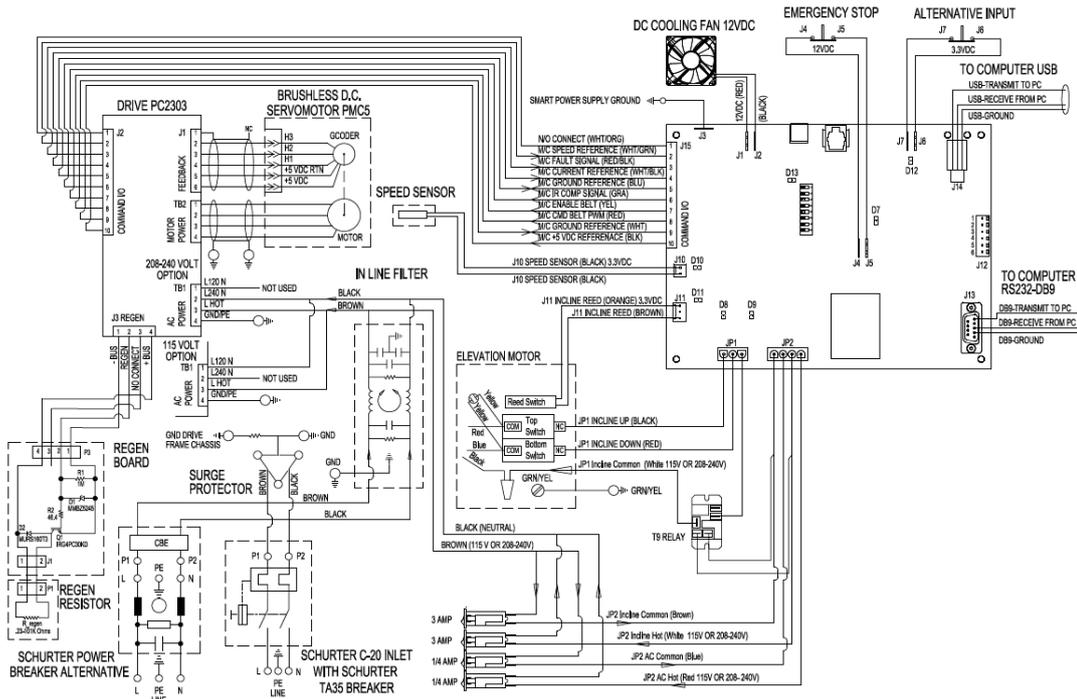
## Scope

This chapter applies only to the electronic control for the T2100-ST1 and T2100-ST2 treadmills. Specifications for the mechanical treadmill, elevation motor assembly, belt motor, and motor controller are not covered.

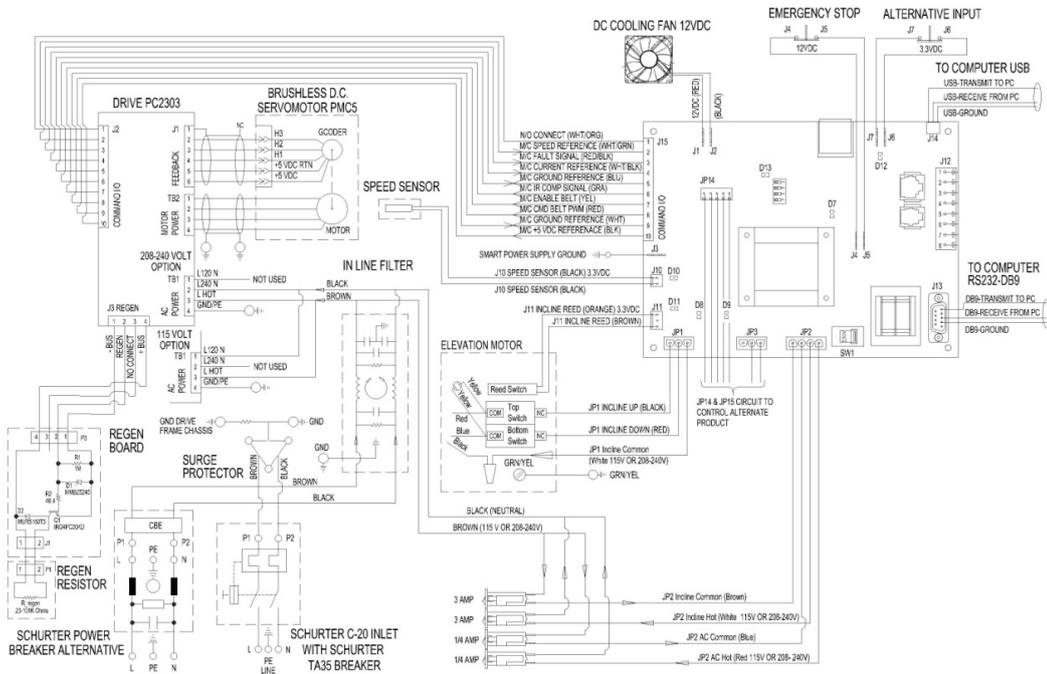
# Theory of Operation

## T2100-ST Series Block Diagram

### 4th Edition Smart Power Supply FGLF0495-3



### 3.1 Edition Smart Power Supply FGLF0495-1



## Smart Power Supply (PCB) Overview

When power is applied to the unit, the UPS reads the contents of the non-volatile memory and verifies the calibration contents with a checksum. If the contents are not valid, the calibration constants are set to non-operational values and the unit is put into a state where operation is suspended pending recalibration.

If the contents are valid, the unit enters a startup mode where the system checks to see if it should enter self-test mode (described in the “Self-Test Mode” on page 70) and begins to find the zero elevation point by turning on the elevation motor in the down direction. If motion is not detected for two seconds, the system assumes that the lower elevation limit has been reached. During the “elevation zeroing” time, if a command to start the belt is received from the PC, it is assumed that the PC is not aware of the UPS power cycle and the unit will enter a non-responsive state (waiting for either a communication timeout or a stop command). If the elevation limit is found without receiving a start belt command, the UPS enters the operational mode with a set speed and set elevation of zero.

In operational mode, the unit continuously controls the belt speed output, the belt-enable output, and the outputs to raise or lower the elevation based on the current set points for speed and elevation. Through the use of either communication port, the unit accepts commands to modify the belt state, the belt speed, and the deck elevation. The current state of the control may also be queried through the use of this serial port. As commands are received to change the set point speed or set point grade, they are checked for format and range. Pending approval, the new set points are adopted and adjustments are made to the state of the outputs.

Speed control is done in a closed loop that monitors the belt speed using two different speed references. The first is a magnetic reed switch located on the motor side of the belt pulley, and the second is a speed reference supplied by the motor controller. A speed calibration is required to provide a target speed output for a given set point. After the initial target is reached, the speed inputs are constantly monitored to make adjustments to the speed output and to detect over speed, zero speed, or speed sensor comparison fault conditions. In the case of a fault condition, the belt is stopped and operation is suspended.

Elevation position control is done using relays to turn on the elevation motor in the up or down direction depending on the current set point. A micro-switch input is used to determine the position of the elevation motor by counting revolutions of the elevation motor’s internal gearing. An elevation calibration is required to provide an accurate number of counts from zero to

full elevation. No closed loop control is done for positioning elevation.

Power may be removed from the unit by opening the normally closed switch connected to the emergency stop input, or by removing AC power from the system. In both cases, the outputs will be put into a non-energized state that will correspond to the belt being shut off and the elevation motor being disengaged.

## Software Requirements

The following sections describe the software commands that the hosts system uses to control the T2100-ST series' speed and elevation.

### Speed Control

The host will send a speed command "SXXX0<CR>" to the processor board. The firmware in the micro controller will translate this command into a data frame, enable the drive if it is not already enabled at this moment, and send the frame through its drive serial interface. The drive will interpret the data frame and will answer with data ACK or NACK, depending on the transmission condition. The speed range is 0.0 to 15.0 mph (0.1 to 24.14 km/h).

Two outputs are required for speed control. The belt enable output must be energized to put the belt into a run mode. The speed control output is a 4kHz 1024 count pulse width modulated (PWM) output supplied directly to the motor controller. Based on calibration, the speed is controlled by outputting a PWM speed reference to the motor controller and enabling the belt run output. The speed inputs are averaged over a two-second period to provide measured speed accuracy of 0.01mph or less.

If the speed of either input is measured to be more than 0.5mph over the set point, or the difference between speed inputs is measured to be more than 0.5mph, the belt will shut off automatically. If the speed measured is more than 3mph over the set point, the belt enable signal will be turned off immediately. If the motor controller activates a fault signal to the UPS, the system will shut down immediately.

If the measured speed is within range, it is used to make minor adjustments to the speed output when it is determined that the actual speed and measured speed differ by more than 0.08 mph. These small adjustments (1:1024) are only allowed to be at 4 second intervals to provide for the settle time of the motor and heavily averaged speed input.

### Elevation Control

The elevation control process works as follows: The host will send an elevation command "GXXX0<CR>" to the processor

board. The micro controller will interpret this data in order to enable the elevation subsystem by asserting EN\_ELEV signal on J11 and, based on the actual elevation status, assert/deassert the UP/DOWN signal on J11 until the requested elevation is achieved. The elevation range is from 0 to 25% grade.

The elevation position is constantly monitored by counting and recording changes in the state of the elevation micro switch sensor. Each debounced state is counted as positive if the elevation motor is engaged in the up direction and negative if it is engaged in the down direction. Using this count and the calibration numbers, the elevation position is controlled by turning on the motor in the desired direction and counting until the target number of counts has been reached. At that time, the elevation motor is disengaged until another set point position is requested.

## ESTOP

The emergency stop switch will remove power from the treadmill control board to guarantee a stop condition. When this occurs and the emergency stop button is subsequently released, the control will be in the same state as when the unit is powered up using the main power switch. Therefore, it is necessary in either power up state to guard against inadvertent restarts if the host doesn't recognize the situation and is continuously sending out belt start commands. The method used to guard against this situation is to reject any start command received within 3 seconds of powering up and finding the zero elevation position. If a start command is rejected, all further start commands will also be rejected until the unit is reset or a stop command is received or communication ceases for 20 seconds.

## Communication Hardware (RS-232 Configuration)

- DB9 Connector 9 pin PC/AT Style

Pin	Description
2	Transmit Data
3	Receive Data
5	Signal Ground

- RS232 (+/- 10V)
- 9600 Baud
- No Parity
- 8 Data Bits
- 1 Stop Bit
- Full Duplex

## Communication Hardware (USB Configuration)

- PC USB Host Port
- UPS USB Peripheral Port Mini-B Connector
- FTDI FT232RL Virtual Communication Port Driver required
  - 9600 Baud
  - No Parity
  - 8 Data Bits
  - 1 Stop Bit
  - Full Duplex

## Self-Test Mode

On power up, the UPS sends out a special test character 'T' and checks to see if it is returned. This is a check for a shorting jumper across the transmit and receive lines of the RS-232 serial port. Note that it is not possible to enter self-test using the USB port. If the RS-232 lines are determined to be shorted, the UPS enters the self-test mode. During the self-test mode, 14 stages of speed and elevation set points are used to exercise the inputs and outputs. Upon completion of each new set point, another character is sent out and the process is repeated to advance to the next stage. In this way, the shorting jumper can be removed at any point to stop the staging process. The following table shows the sequence of self-test stages:

Stage	Incline	Speed (mph)
1	5%	0.0
2	10%	0.0
3	15%	0.0
4	20%	0.0
5	20%	1.0
6	20%	2.5
7	20%	5.0
8	20%	7.5
9	20%	10.0
10	15%	7.5
11	10%	5.0
12	5%	2.5
13	0%	1.0
14	0%	0.0

## Calibration

Both a speed and an elevation calibration method are provided in the UPS software. The elevation calibration requires manually adjusting the deck to find the sensor counts for 7 fixed elevation positions and is not recommended for field adjustment without special treadmill interface software. During speed calibration, the speed reference output is swept across its range and speed measurements are made at 15 points. This function is also only available through the use of special treadmill interface software.

## DIP Switch Settings

A dip switch is located on the UPS at location SW2. An arrow indicates the "ON" position, and each switch is numbered 1-4. Currently, only two of the switches are read by the UPS, and both are only checked on power up so changing the switches while the system is running will not have an effect until power is cycled. Switch 1, 2, and 4 are in the "OFF" position, and switch 3 is in the "ON" position. This configuration is compatible with the GE Protocol (Firmware Version 1.57 and later FGLF0495-1 Smart Power Supply).

Additional dip switch on UPS (Firmware Version 1.1812 and later FGLF0495-03 Smart Power Supply). This configuration has 1-6 number switch. Switch 1,2,4,5,and 6 are in the "OFF" position and switch 3 is in the "ON" position. When retrieving system flash log file switch configuration 1,2,3,4 and 6 are in the "OFF" position and switch 5 is in the "ON" position. Refer to "System Flash Log Retrieval" Troubleshooting section under Chapter-6 Troubleshooting.

## Electrical Inputs

- A. *Instrument Power*: 230VAC or 120VAC supplied through two 1/4-amp breakers in parallel for control board power. 230VAC or 120VAC supplied through two 3-amp breakers in parallel for elevation motor power.
- B. *Elevation Sensor Input*: A two-wire interface for detecting the presence of a closed micro-switch on the elevation motor.
- C. *Speed Sensor Input*: A three-wire interface for detecting the state of a hall effect sensor on the motor shaft (only two conductors are used).
- D. *Serial Port Input*: An electrically isolated RS-232 serial port from the host controller.
- E. *USB Port Input*: An electrically isolated USB port from the host controller.

- F. **Motor Controller Fault:** Fault signal supplied from motor controller.
- G. **Voltage Selection Switch:** The onboard input voltage selection switch allows the unit to be factory set to 115VAC or 230VAC.
- H. **Emergency Stop Switch:** A normally closed switch input used to switch power to the UPS control must be rated at 24 Volts DC and 3 Amps continuous duty.

## Electrical Outputs

- A. **Elevation Motor:** AC Common is permanently provided to the elevation motor. In addition, the 120/230VAC hot input for motor elevation power is switched through a 10-amp relay to either the up or down input to the elevation motor.
- B. **Motor Controller Drive Enable Output:** An optically isolated output is provided to switch on the start input circuit for the belt drive. This output is to provide no more than 2mA.
- C. **Speed Output:** A PWM signal for speed is provided to the motor controller. The signal is toggled between the motor controller's signal reference voltages (5Vdc). The maximum current for this output is 2mA and the maximum voltage is 15Vdc.
- D. **Serial Port Output:** An electrically isolated RS-232 level (not to exceed +/- 10VDC) is provided to the host controller.
- E. **USB Port Output:** An electrically isolated USB port to the host controller not to exceed 5V or 100mA.

## Electrical Connections

- A. **Input Power Header:** An amp - 641968-1 four-pin MATE & LOCK header is provided for instrument power.
- B. **Elevation Output Header:** An amp 641968-1 three-pin MATE & LOCK headers is provided for output power to the elevation motor.
- C. **Elevation Input Header:** A 3 pin 0.156" pitch header is provided for the input from the elevation sensor.
- D. **Speed Input Header:** A 2-pin 0.156" pitch header is provided for the input from the magnetic reed switch speed sensor.
- E. **Motor Controller Interface:** A 10-pin 0.1" pitch header is provided for interfacing to the motor controller.
- F. **RS-232 Interface:** A DB9 Connector 9-pin PC/AT Style is provided for interfacing with the host controller.
- G. **USB Interface:** A Mini-B right angle USB Connector is provided for interfacing with the host controller.

- H. *Emergency Stop Switch*: Two 0.187" quick-connect blade terminals are provided for an emergency stop switch input.

## Physical Requirements and Restrictions

- A. The printed circuit board should be a rigid 1/16" thick, FR4, SMOBC circuit board with 2-ounce copper.
- B. Galvanic isolation between the AC power circuits and the low voltage electronic circuits should be guaranteed.
- C. Outer Dimensions: 6" T x 9" W x 2.5" D (max).
- D. *Mounting position*: The board shall be capable of being mounted with the PCB either parallel or perpendicular to the bottom pan of the treadmill.
- E. *Environment*: 0 - 70 °C ambient temperature.
- F. High level vibrations from adjacent equipment may be present.
- G. After installation into the treadmill, expect the board to experience moderate shock impulses during shipment.



# 6

## Troubleshooting

### The T2100-ST Series Calibration

Software is design to assist in gathering information when troubleshooting the T2100 ST1 and T2100-ST2 treadmill.

For information on how to connect the T2100-ST Series Calibration Software and retrieve error codes, refer to “Calibration” starting on page 161. A description of the *Error Code Tab* can be found on page 179.

When you receive an error code from the T2100-ST series treadmill, use the flowcharts in this chapter to help you identify and resolve the error. Descriptions of the error codes are provided in this chapter.

There are two methods for using the flowcharts.

If you know the failure mode causing the issue, scan the flowchart titles for that failure mode and review the corresponding flowchart.

If you are receiving an error code, locate the error code in the “Troubleshooting Guidance Base on Error Code” table, below, and then refer to the referenced flowchart(s).

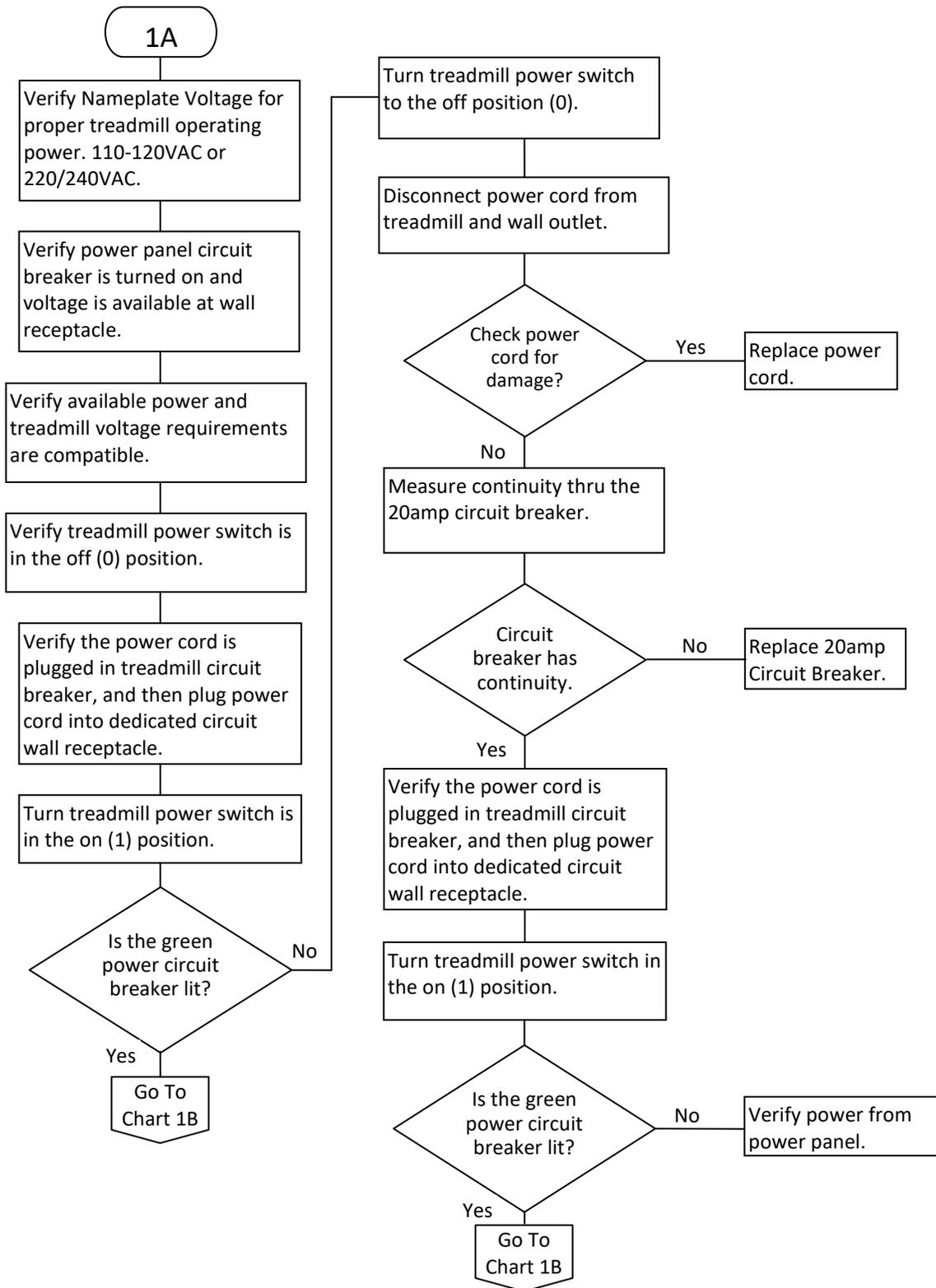
If you still cannot identify or resolve the error, contact local GE customer support representative.

## Troubleshooting Guidance Base on Error Code

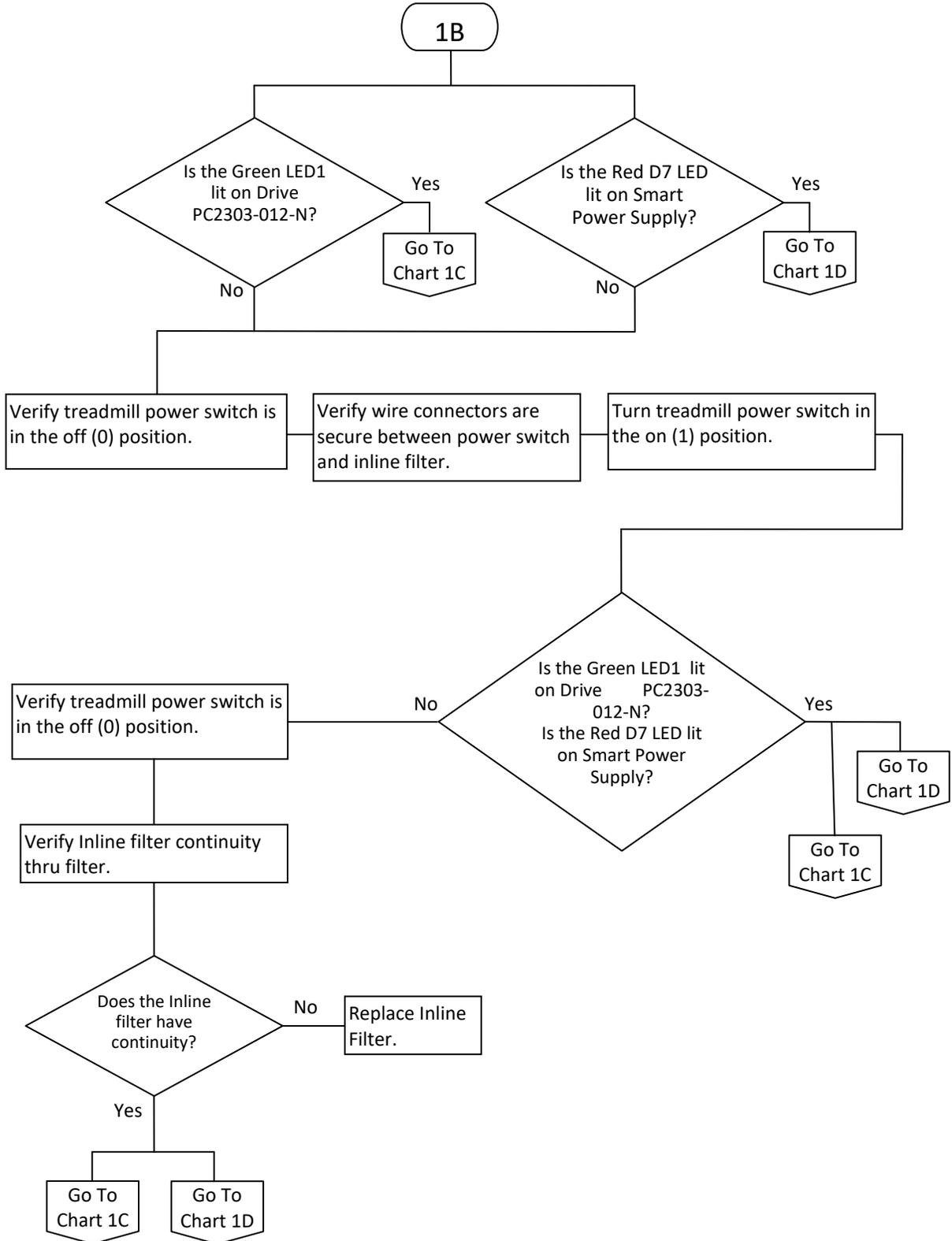
Error Code Reference	Possible Failure Mode / Possible Root Cause	Related Troubleshooting Guidance
01, 08	Running belt will not move / elevation reaches target	<ul style="list-style-type: none"> <li>Smart Power Supply Error Code 1 Flow Chart 1J "Bad Calibration Error (1)" on page 87.</li> <li>Smart Power Supply Error Code 8 Flow Chart 1L "Motor Controller Fault Signal (8)" on page 96.</li> </ul>
02	Treadmill would not elevate / "No power to actuator"	<ul style="list-style-type: none"> <li>Smart Power Supply FGLF0495-1 Error Code 2 Flow Chart 1K "Elevation Error (2)" on page 88.</li> <li>Smart Power Supply FGLF0495-03 Error Code 2 Flow Chart 1KK "Elevation Error (2)" on page 89</li> </ul>
02	Treadmill would not elevate and return to park position / "Not receiving count"	<ul style="list-style-type: none"> <li>Smart Power Supply Error Code 2 Flow Chart 1K "Elevation Error (2)" on page 88.</li> <li>Smart Power Supply FGLF0495-03 Error Code 2 Flow Chart 1KK "Elevation Error (2)" on page 89</li> </ul>
02	Treadmill will increase elevation but will not decrease elevation / "Smart Power Supply Relay Activation"	<ul style="list-style-type: none"> <li>Smart Power Supply Error Code 2 Flow Chart 1K "Elevation Error (2)" on page 88.</li> <li>Smart Power Supply FGLF0495-03 Error Code 2 Flow Chart 1KK "Elevation Error (2)" on page 89</li> </ul>
02	Treadmill would not elevate under heavy load.	<ul style="list-style-type: none"> <li>Smart Power Supply Error Code 2 Flow Chart 1K "Elevation Error (2)" on page 88.</li> <li>Smart Power Supply FGLF0495-03 Error Code 2 Flow Chart 1KK "Elevation Error (2)" on page 89</li> </ul>
03, 05	Treadmill will not increase speed during stress test.	<ul style="list-style-type: none"> <li>Smart Power Supply Error Code 3 Flow Chart 1L "Zero Speed Motor Controller Error (3)" on page 90.</li> <li>Smart Power Supply Error Code 5 Flow Chart 1N "Over Speed External Sensor Error (5)" on page 92.</li> </ul>
04, 06	Treadmill speed will not increase above minimum speed.	<ul style="list-style-type: none"> <li>Smart Power Supply Error Code 4 Flow Chart 1M "Over Speed Motor Controller Error (4)" on page 91.</li> <li>Smart Power Supply Error Code 6 Flow Chart 1O "Over Speed External Sensor Error (6)" on page 93.</li> </ul>

Error Code Reference	Possible Failure Mode / Possible Root Cause	Related Troubleshooting Guidance
04	Treadmill running belt shutdowns around 2 mph.	<ul style="list-style-type: none"> <li>Smart Power Supply Error Code 4 Flow Chart 1M "Over Speed Motor Controller Error (4)" on page 91.</li> </ul>
06, 07	Treadmill running belt shutdown above 6 mph.	<ul style="list-style-type: none"> <li>Smart Power Supply Error Code 6 Flow Chart 1O "Over Speed External Sensor Error (6)" on page 93.</li> <li>Smart Power Supply Error Code 7 Flow Chart 1P "Speed Compare Error (7)" on page 94.</li> </ul>
09	Treadmill will start belt after cycling the Emergency Stop Button.	<ul style="list-style-type: none"> <li>Smart Power Supply Error Code 9 Flow Chart 1R "Belt Start Reject Error (9)" on page 97.</li> </ul>

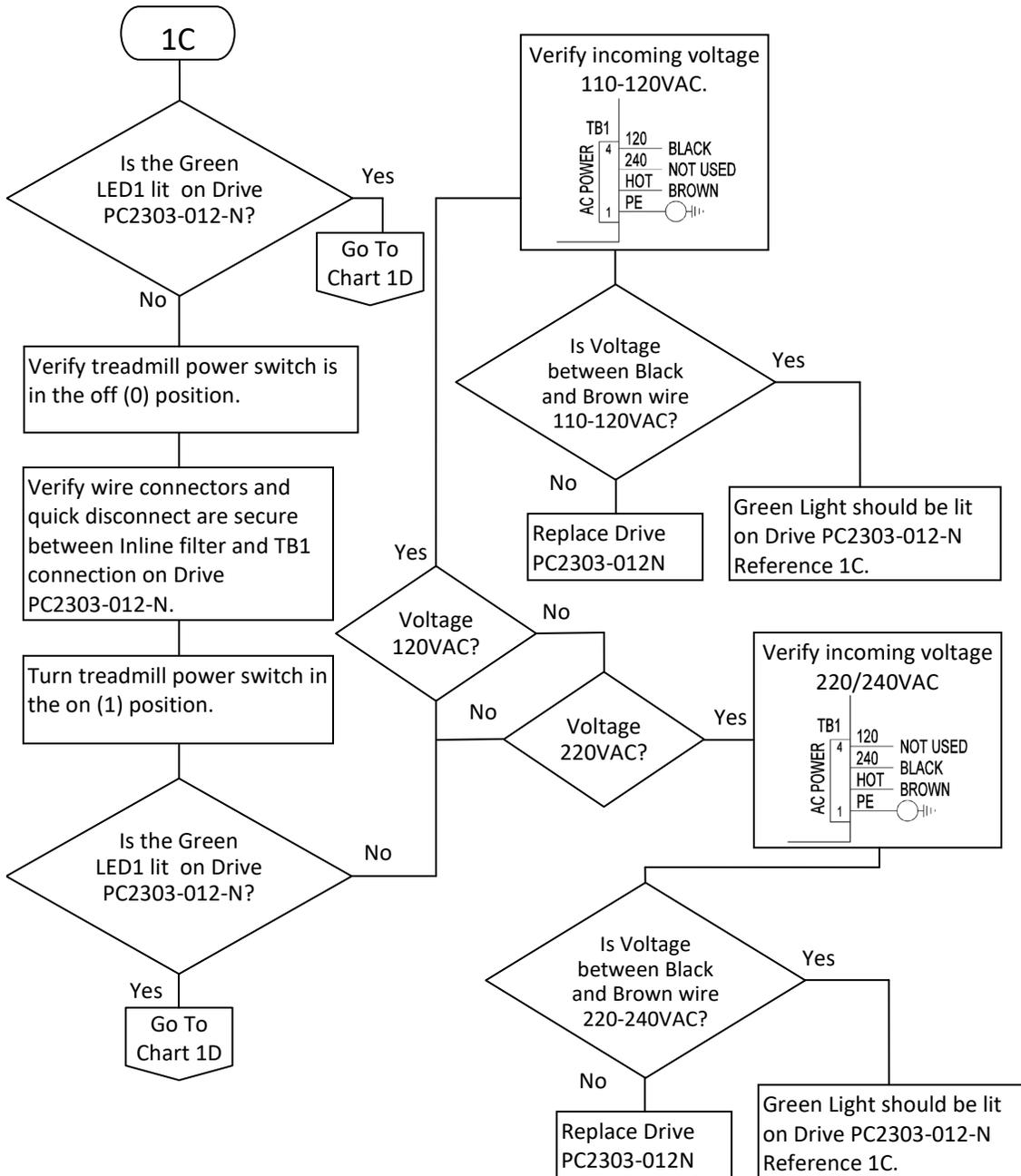
## Incoming Power 110-240VAC Flow Chart 1A



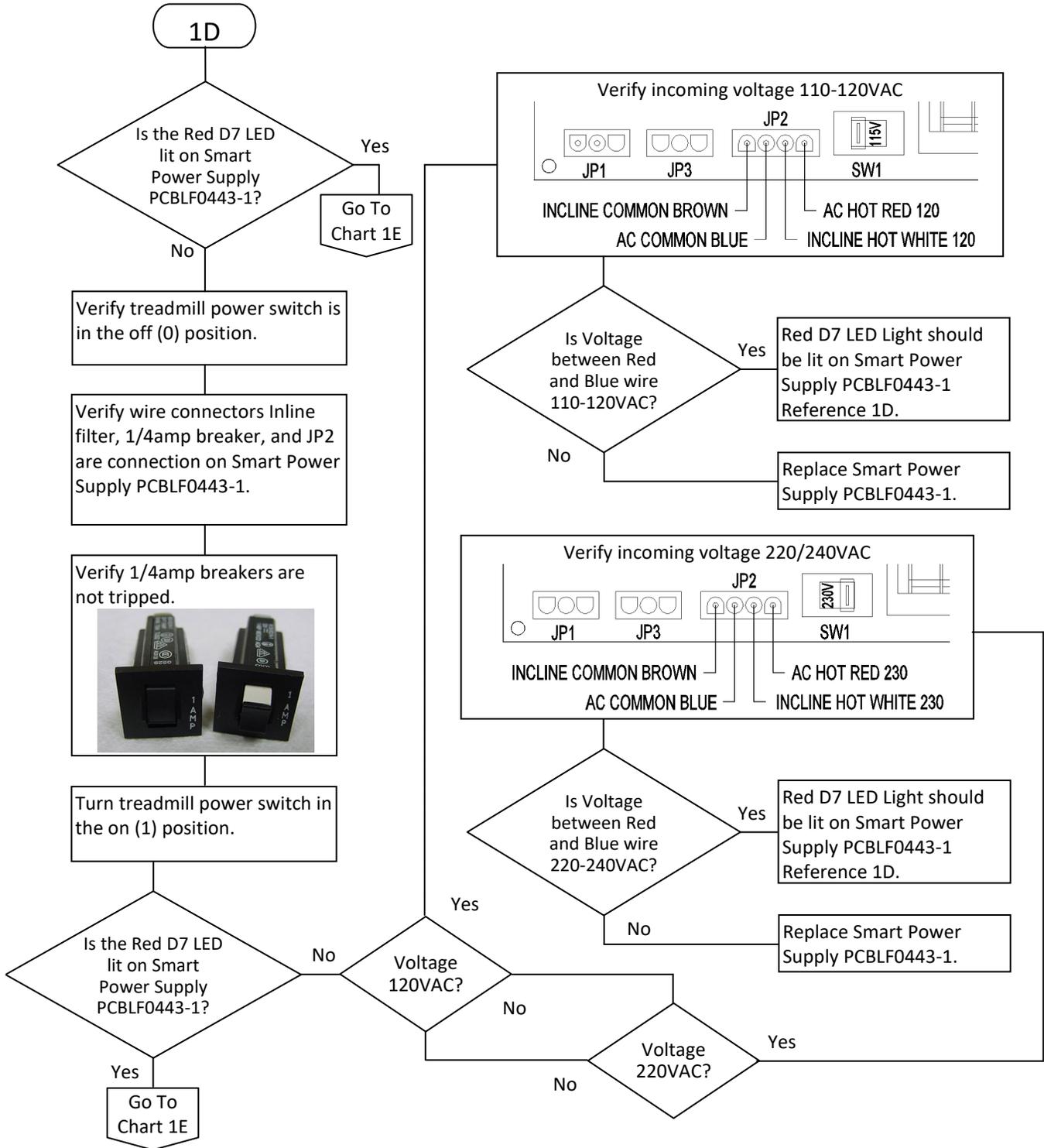
## Incoming Power Inline Filter Flow Chart 1B



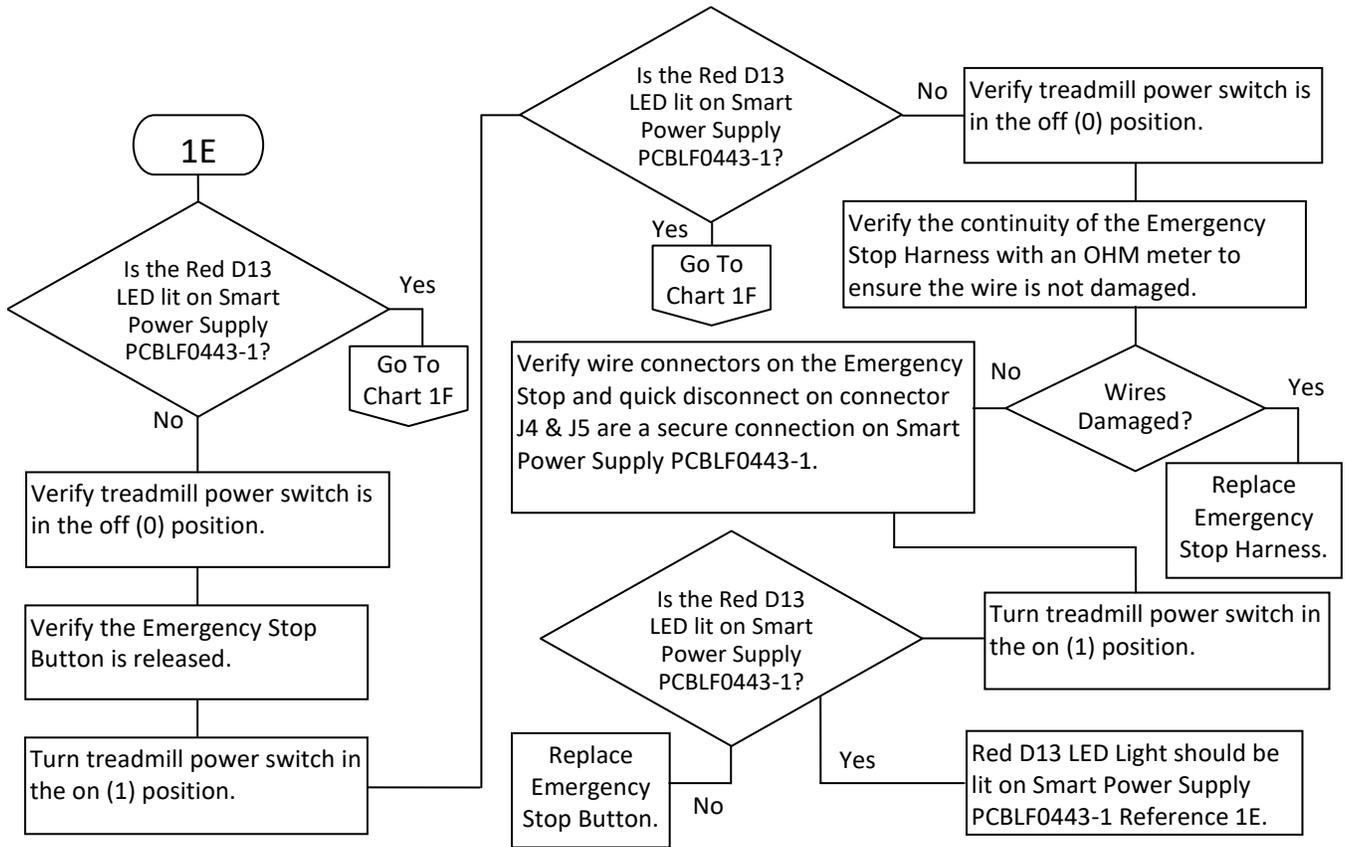
## Incoming Power Drive PC2303-012-N Flow Chart 1C



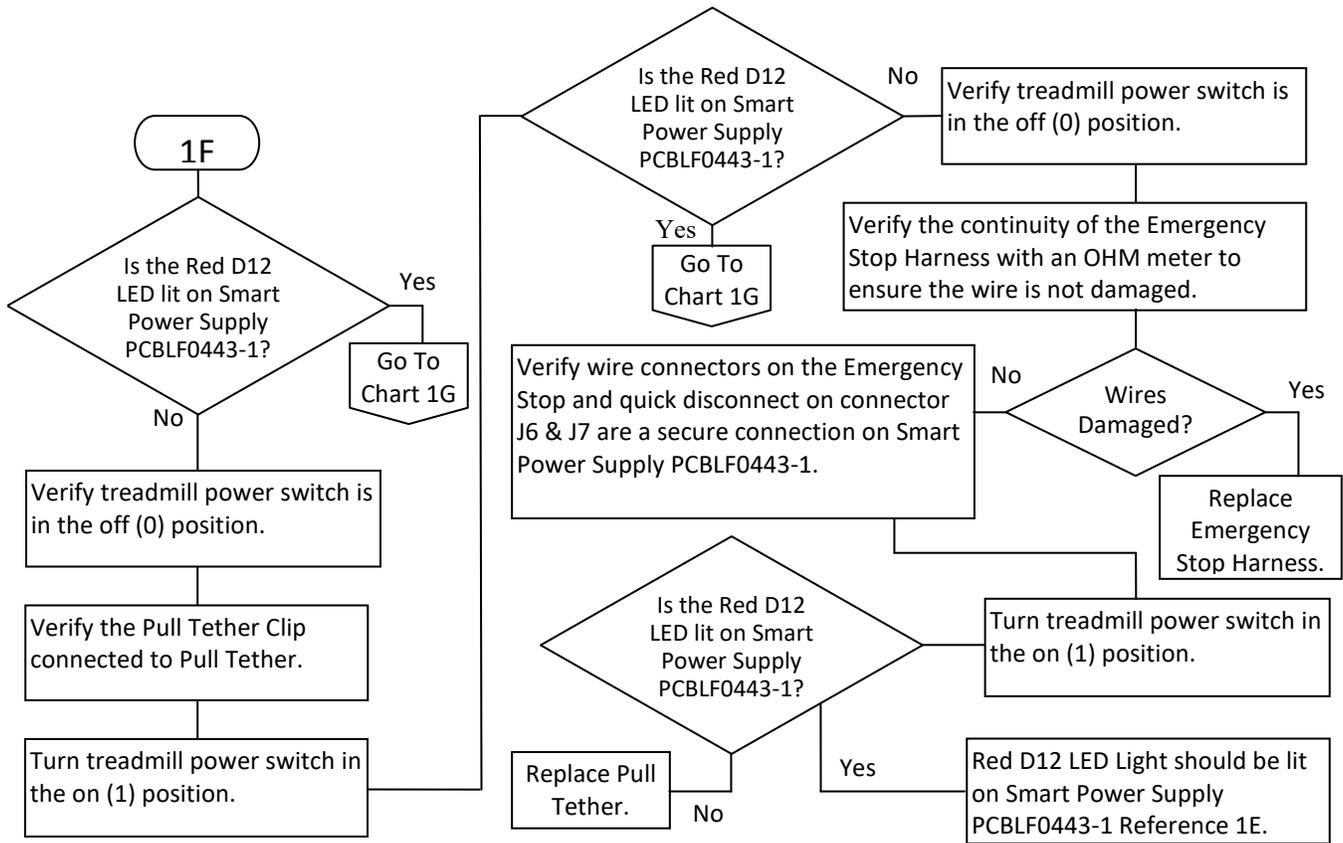
# Smart Power Supply Incoming Power 110-240VAC Flow Chart 1D



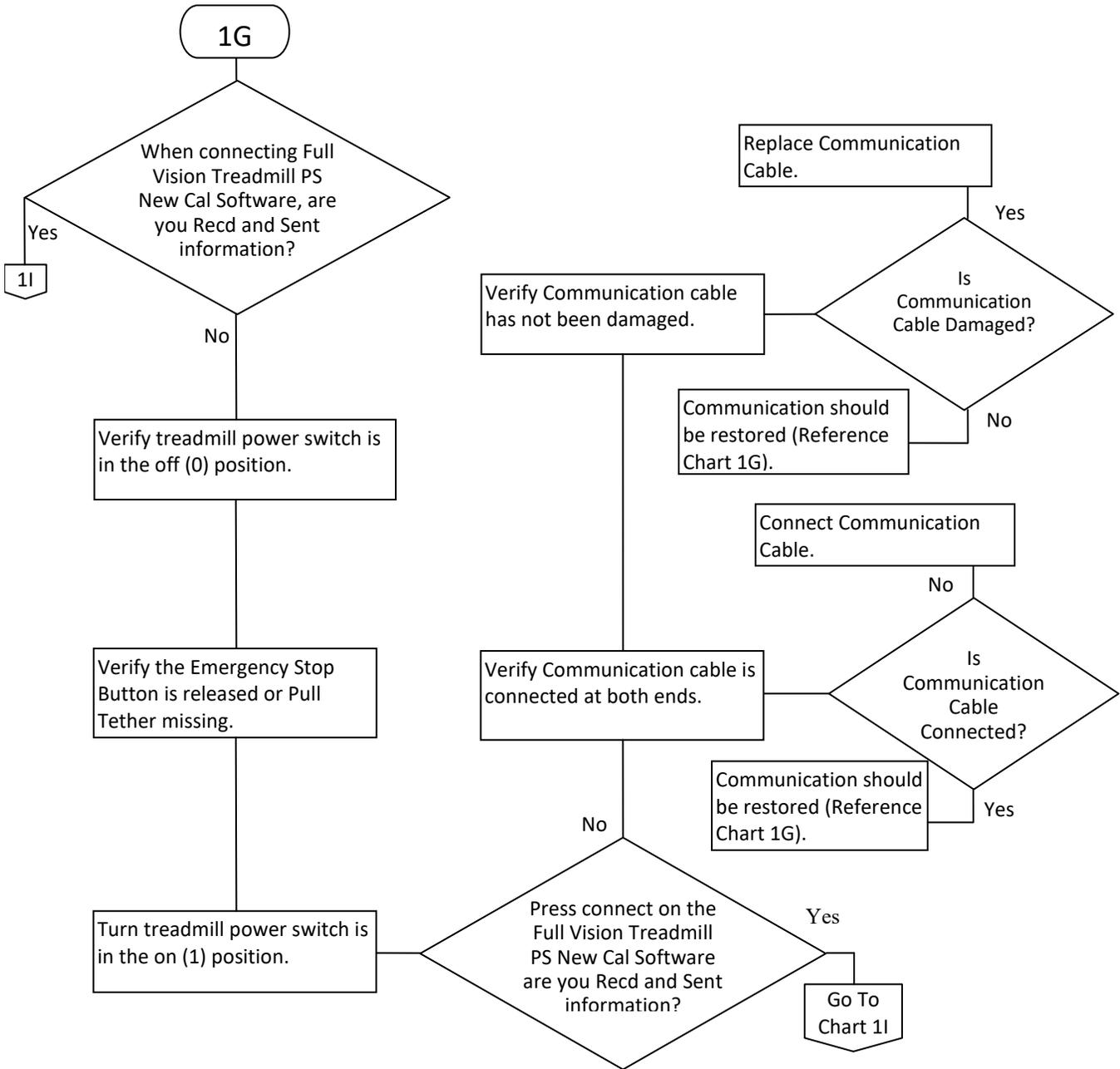
## Emergency Stop Flow Chart 1E



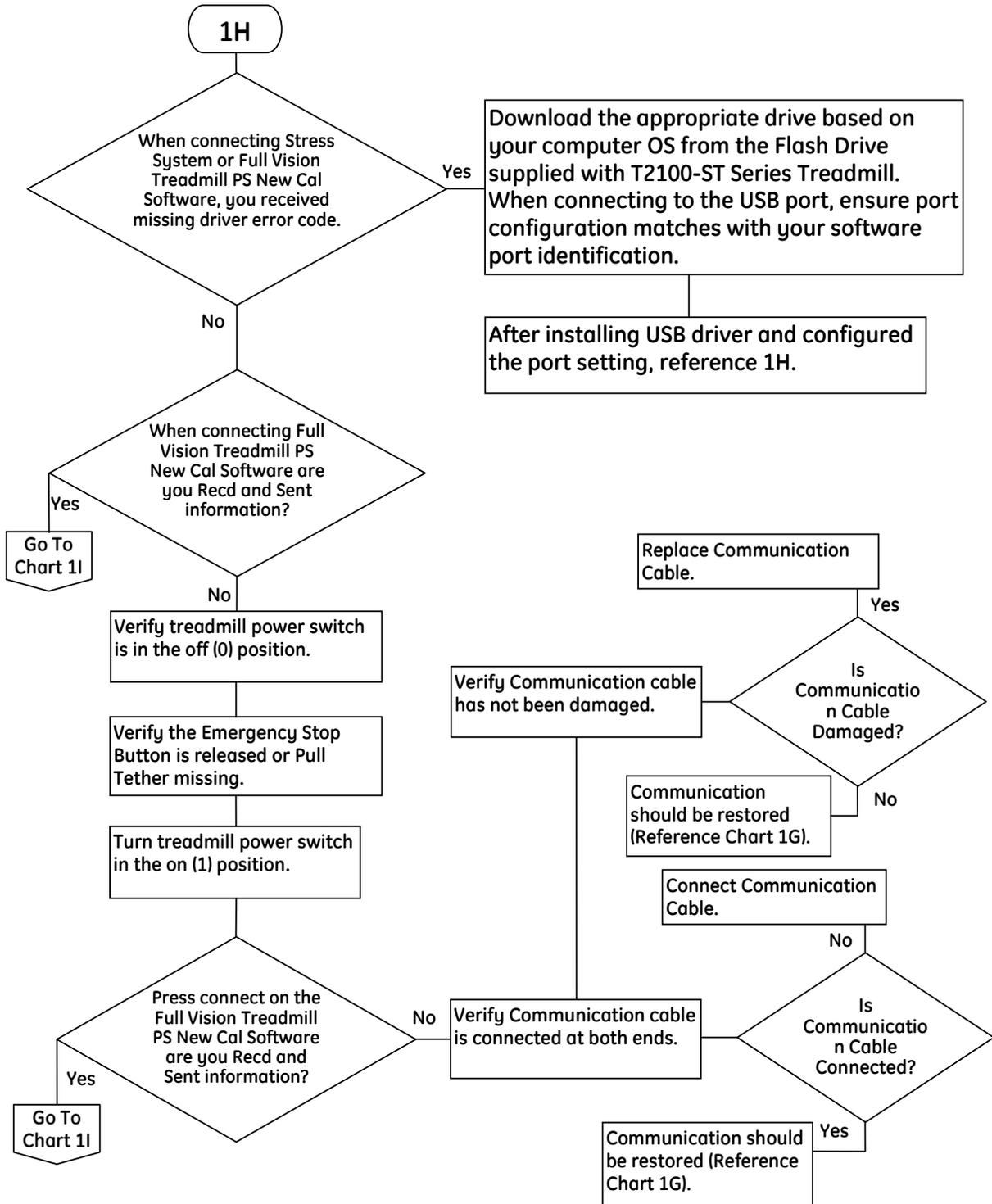
## Pull Tether Flow Chart 1F



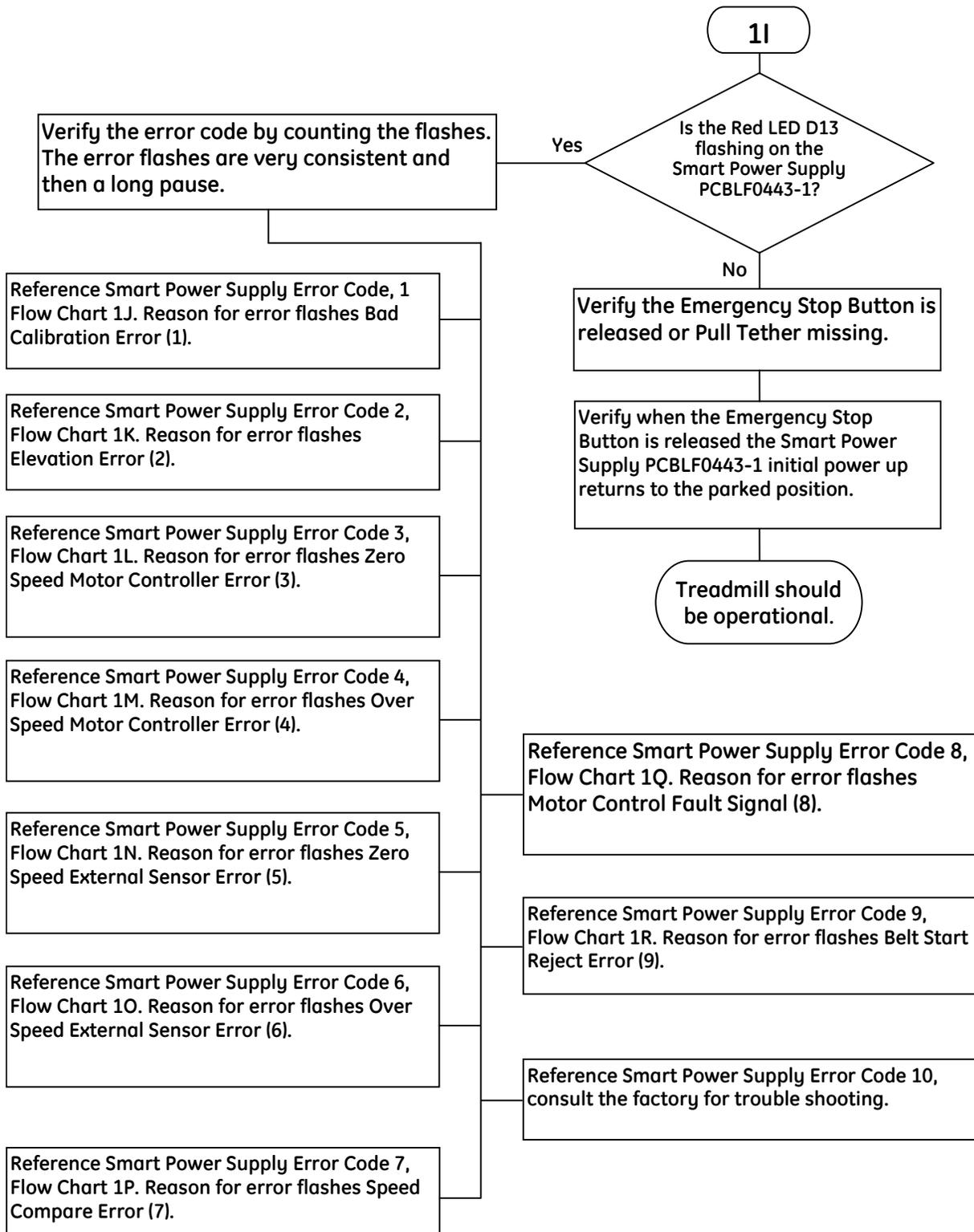
## Communication RS232 Flow Chart 1G



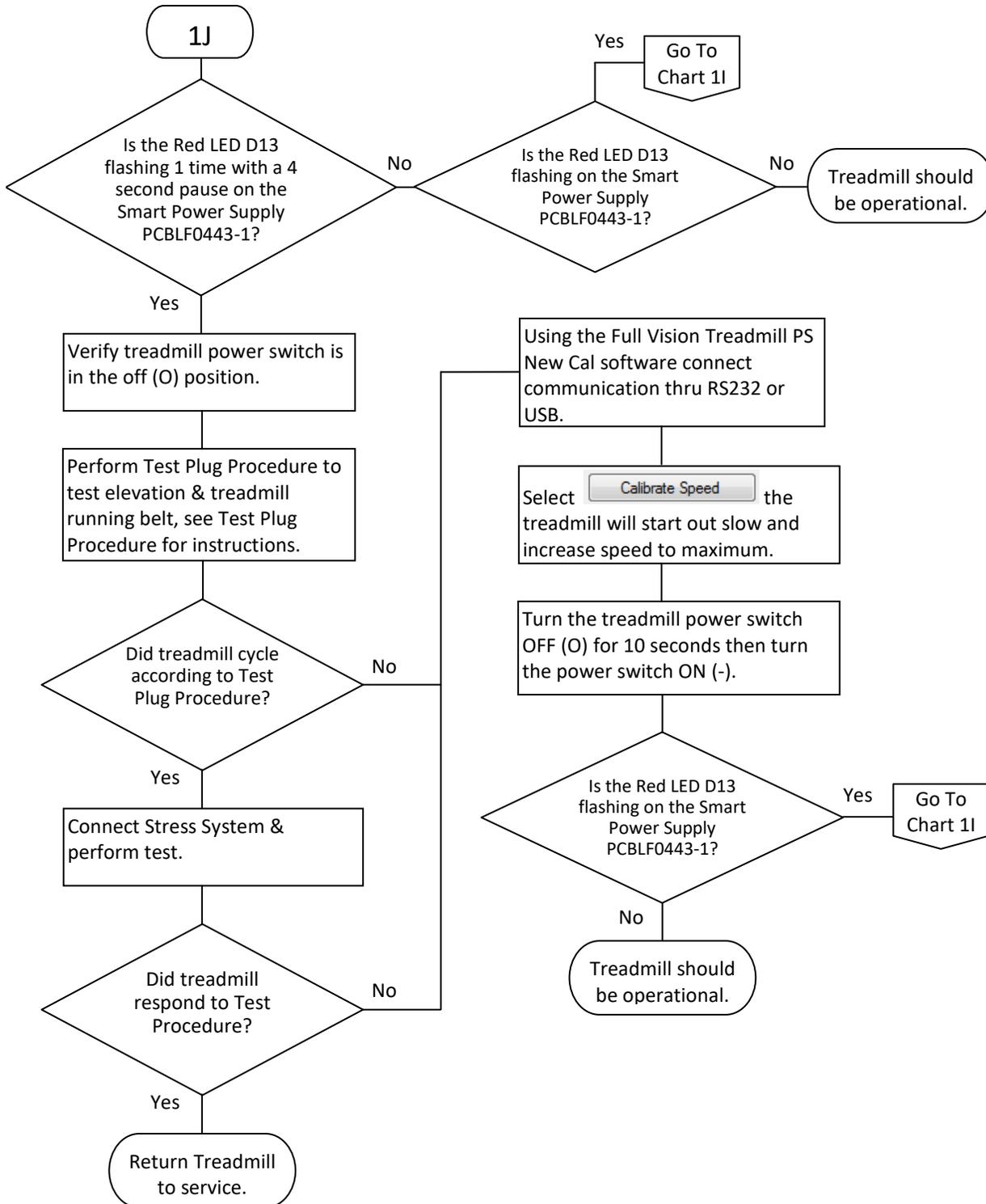
## Communication USB Flow Chart 1H



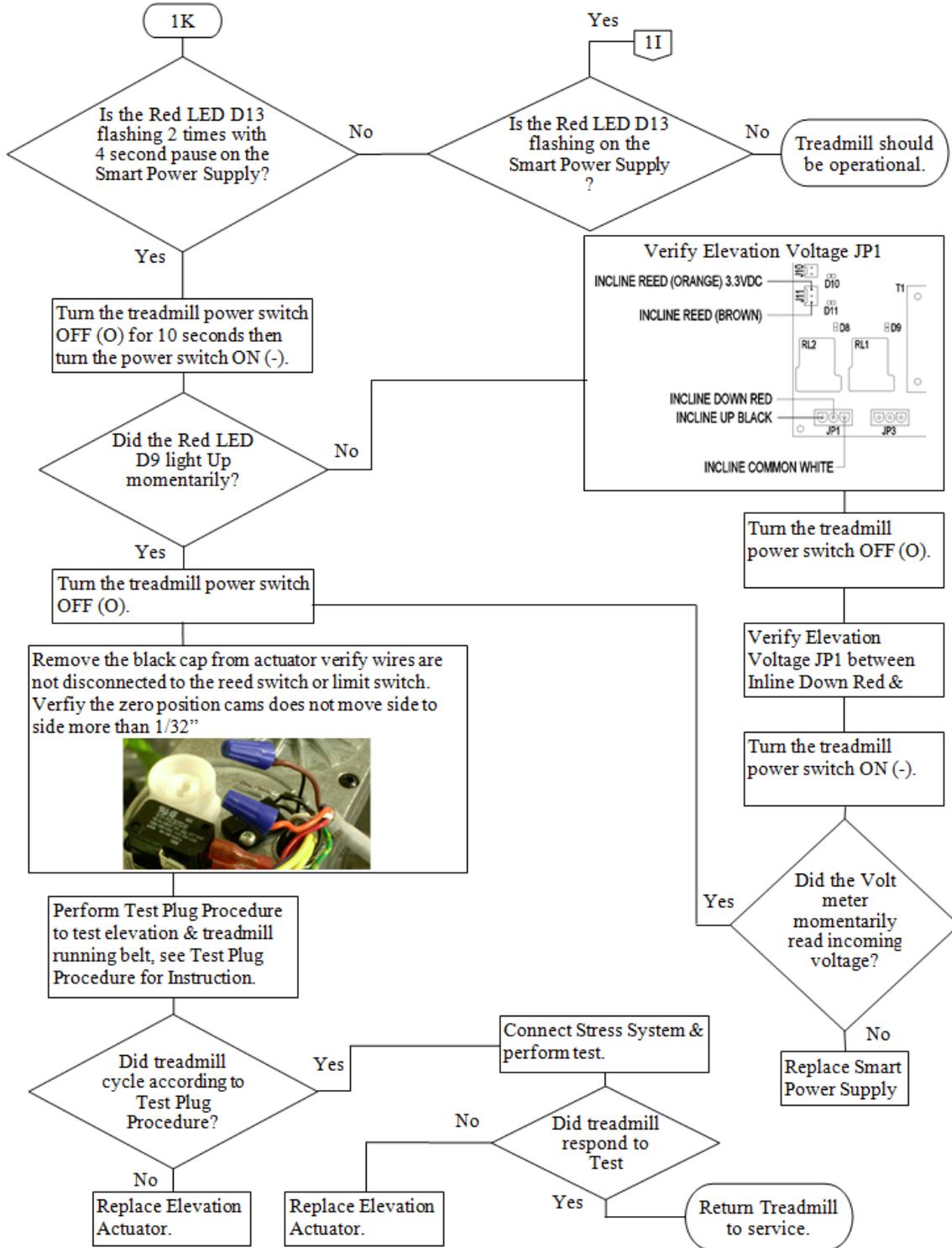
## Smart Power Supply Error Code Identification Flow Chart 1I



## Smart Power Supply Error Code 1 Flow Chart 1J “Bad Calibration Error (1)”

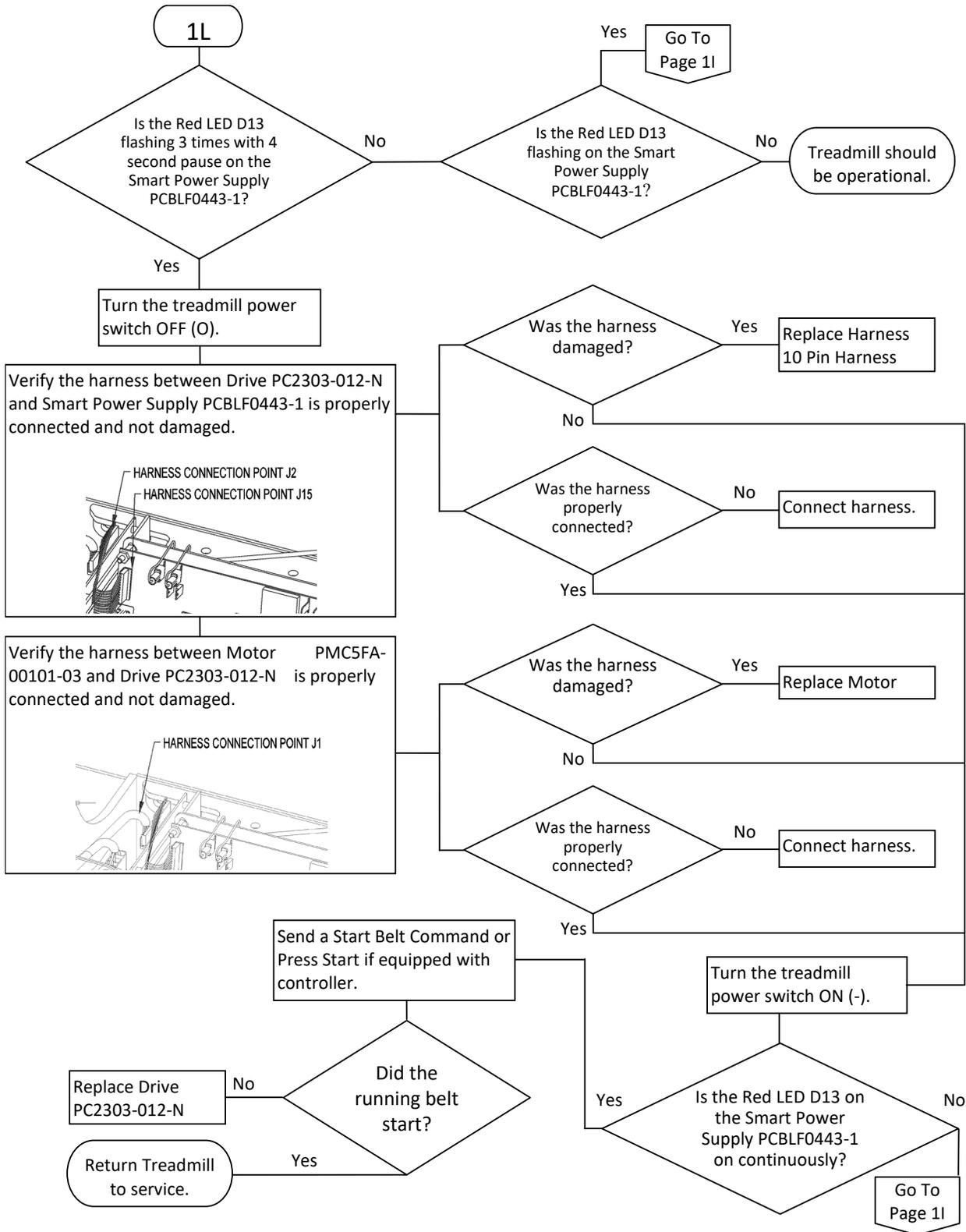


## Smart Power Supply FGLF0495-1 Error Code 2 Flow Chart 1K "Elevation Error (2)"

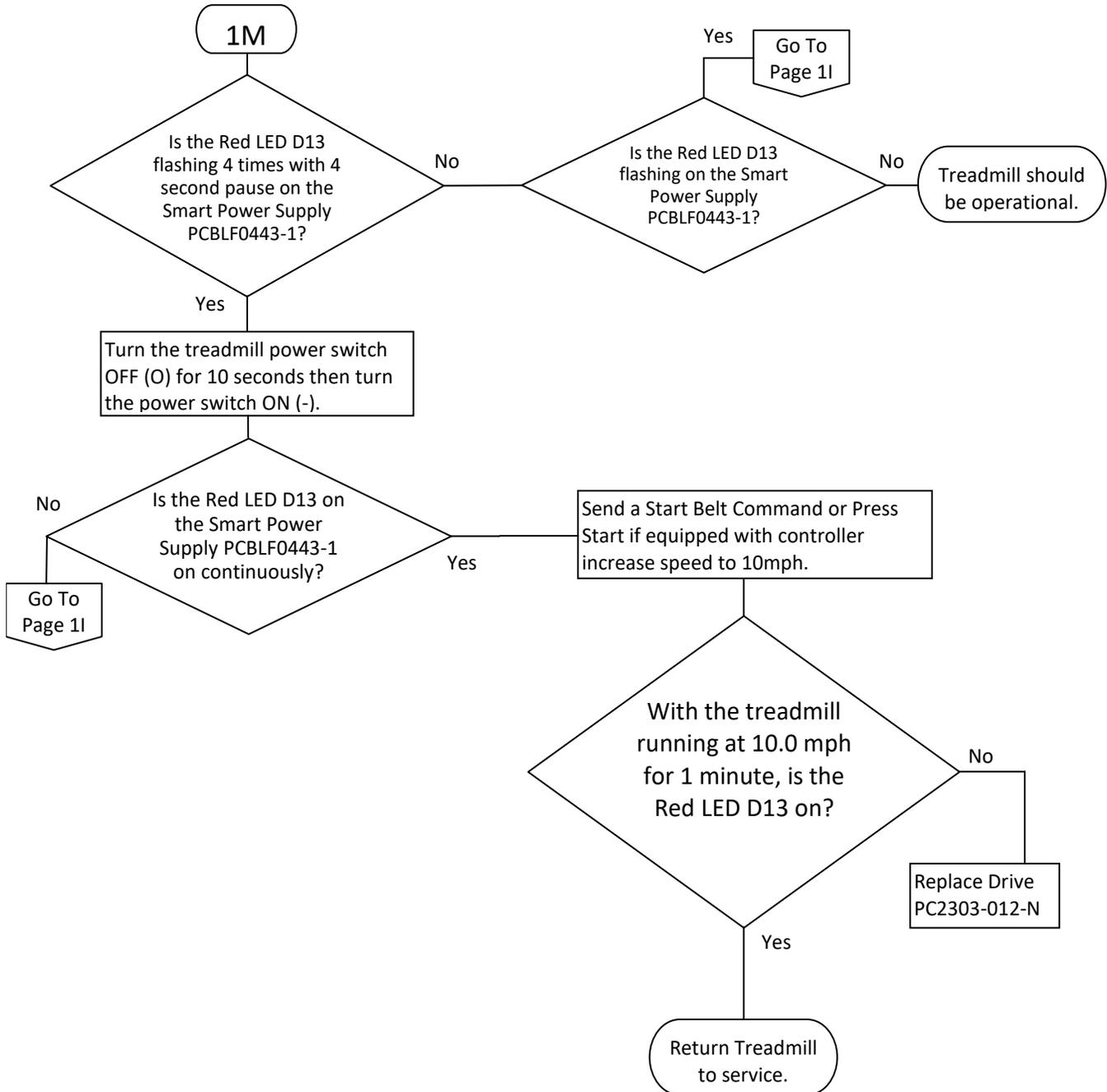




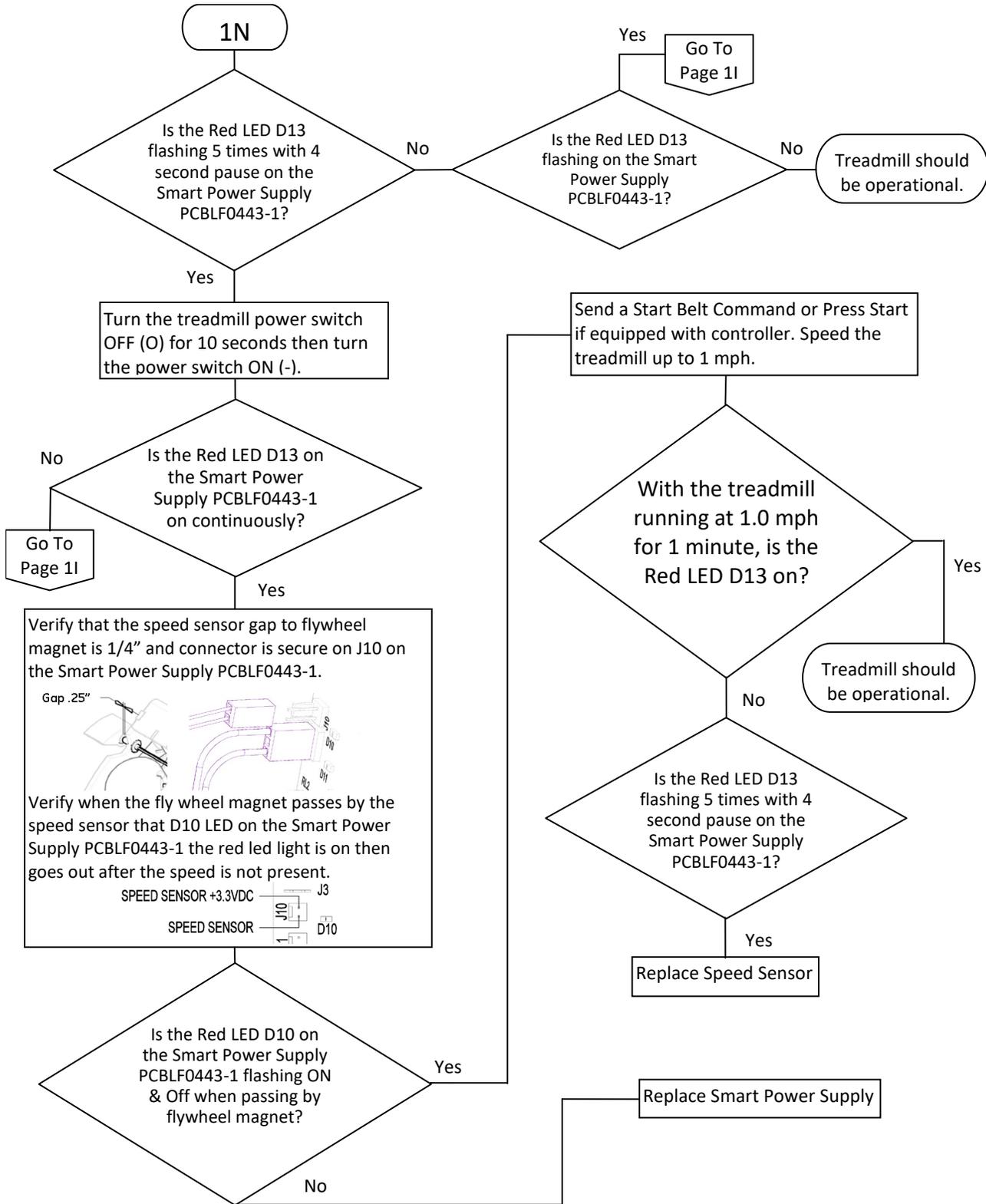
## Smart Power Supply Error Code 3 Flow Chart 1L “Zero Speed Motor Controller Error (3)”



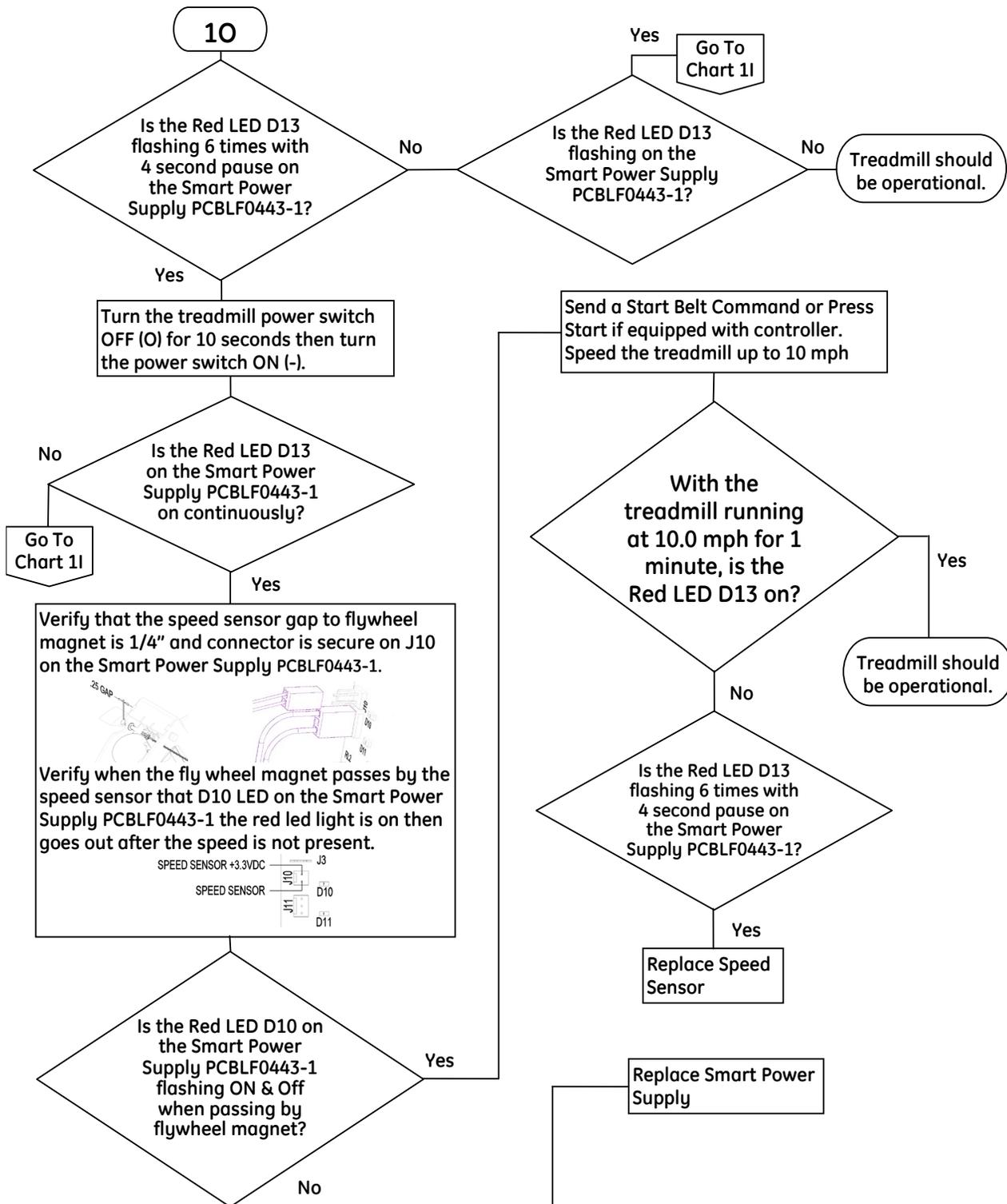
## Smart Power Supply Error Code 4 Flow Chart 1M “Over Speed Motor Controller Error (4)”



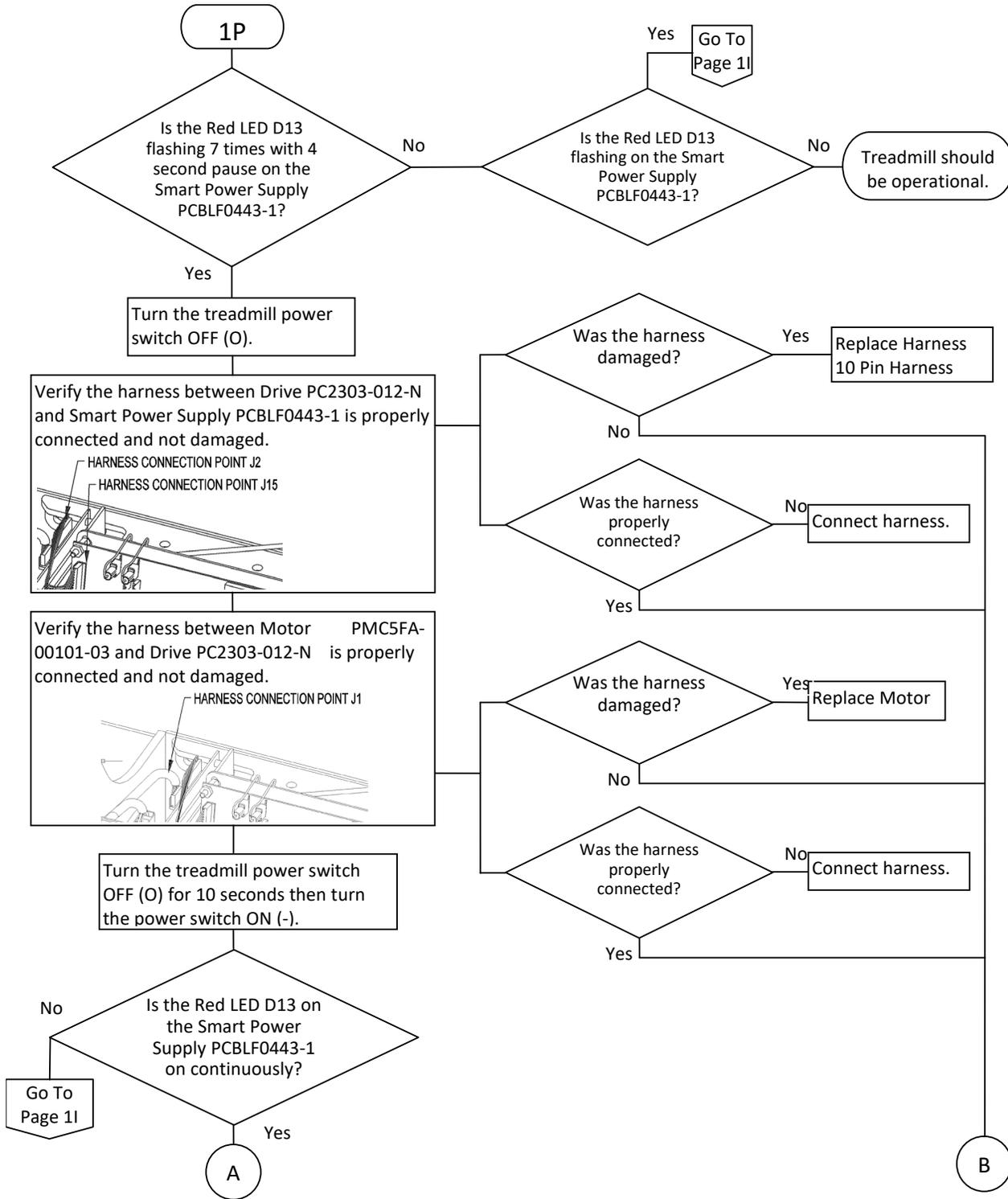
## Smart Power Supply Error Code 5 Flow Chart 1N "Over Speed External Sensor Error (5)"

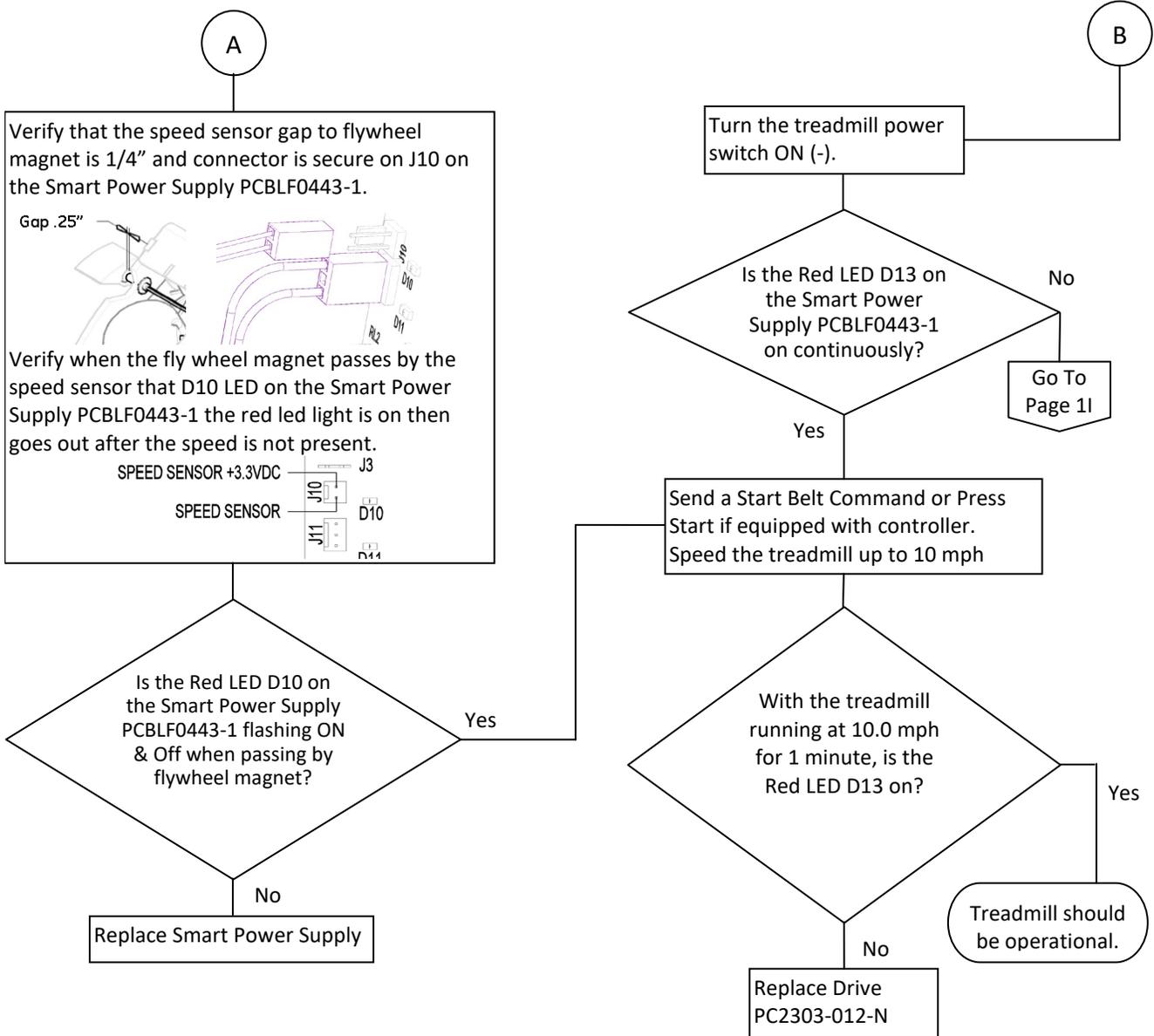


## Smart Power Supply Error Code 6 Flow Chart 10 "Over Speed External Sensor Error (6)"

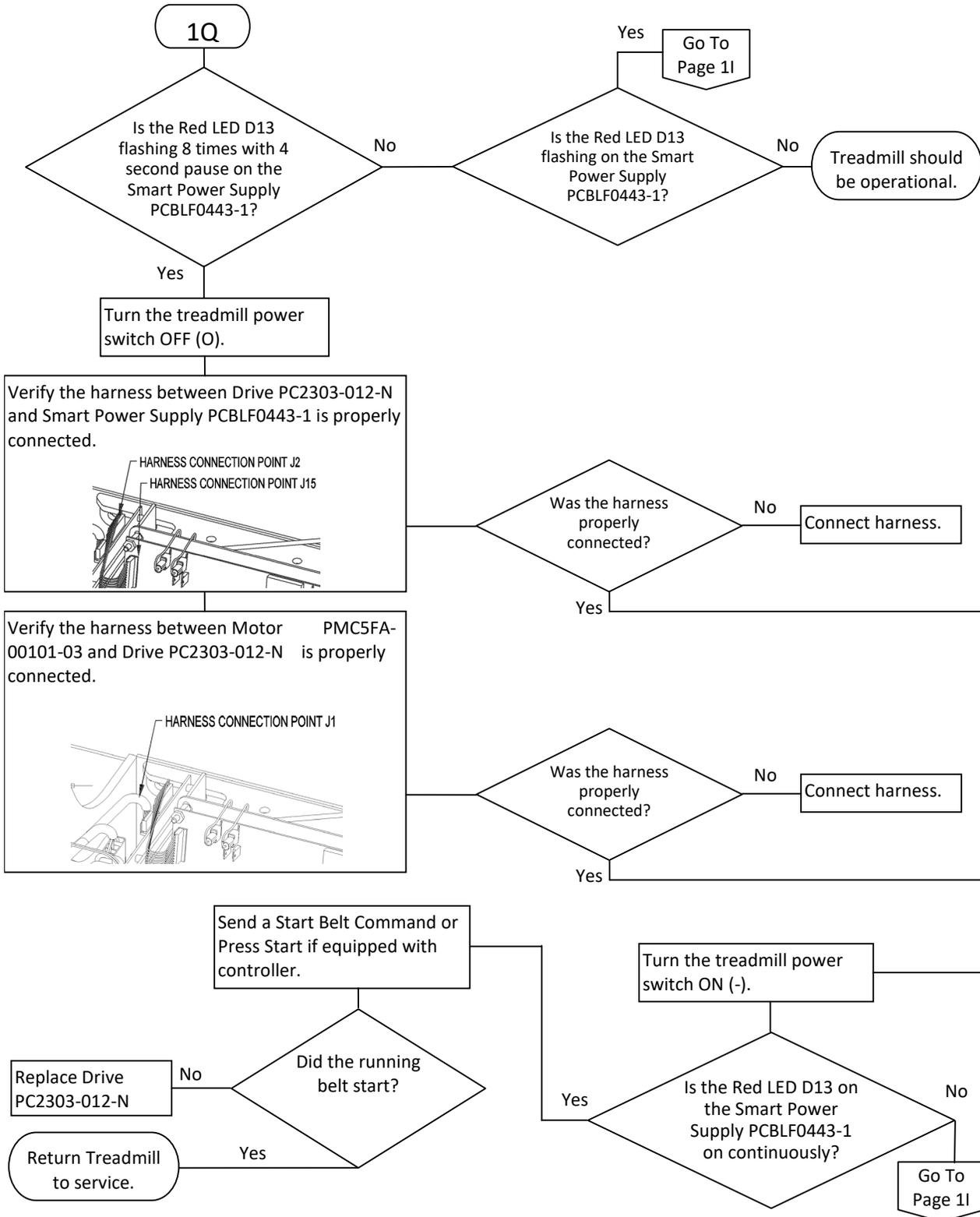


## Smart Power Supply Error Code 7 Flow Chart 1P “Speed Compare Error (7)”

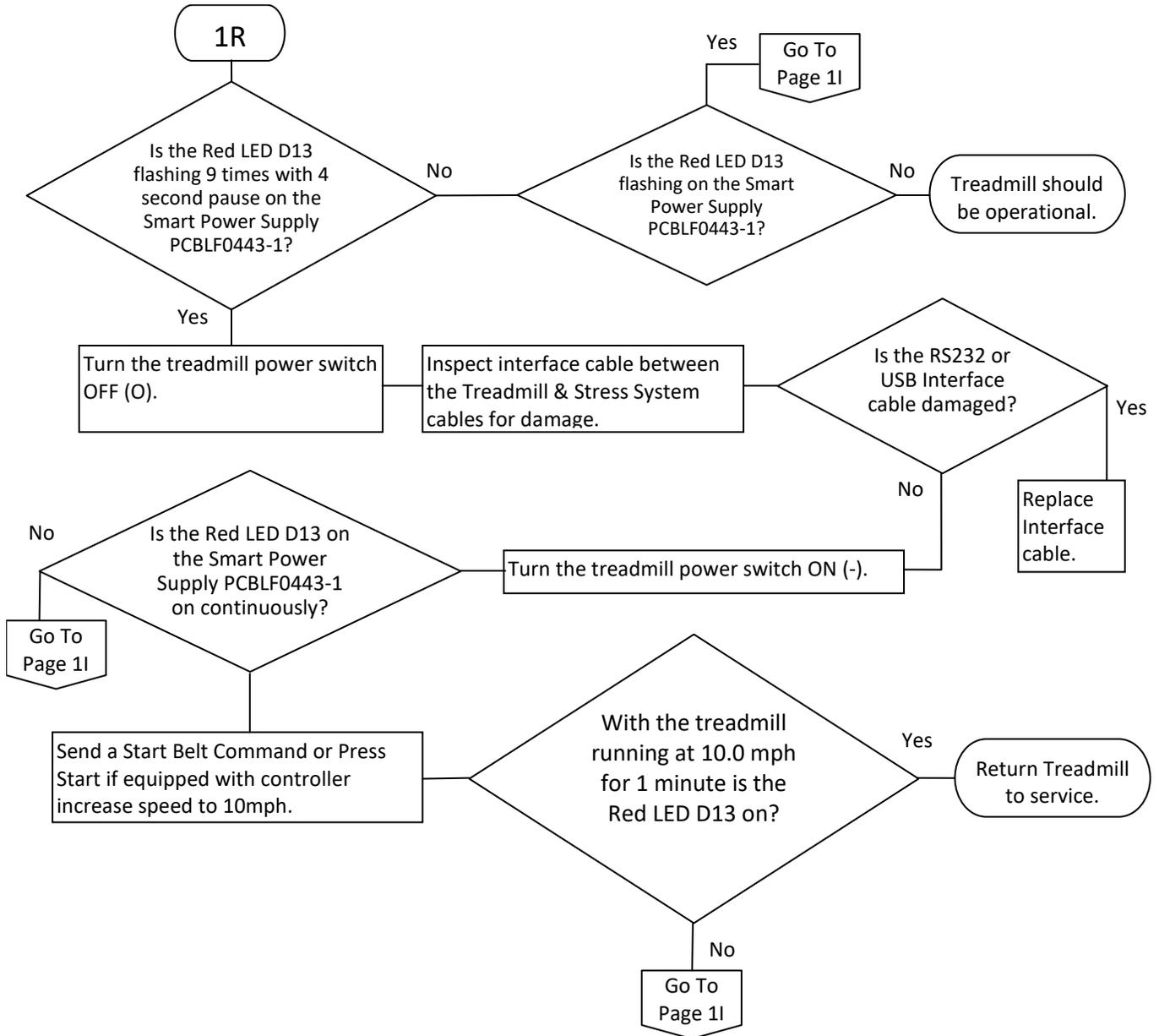




## Smart Power Supply Error Code 8 Flow Chart 1L “Motor Controller Fault Signal (8)”



## Smart Power Supply Error Code 9 Flow Chart 1R “Belt Start Reject Error (9)”



## Drive PC2303-012-N status LED CODE list

When the drive is faulted, the Status LED blinks out the fault code. The Status LED blinks the proper number of times, pauses with the Status LED off, and then repeats the blink code.

Status Code	Description	Fault Retention
No Blink	No faults, power stage enabled	-
Fast Blink	No faults, power stage disabled	-
LED Off	Ac line power insufficient	-
1 Blink	PWM_CMD Stuck Low	Latched (See Note 1)
2 Blink	Gcoder Feedback Error	Latched (See Note 1)
3 Blink	Not Used	-
4 Blink	Output Over Current	Latched (See Note 1)
5 Blink	Control Supply Under Voltage	Self-Resetting
6 Blink	Drive Over Temperature	Latched (See Note 1)
7 Blink	Bus Over Voltage	Self-Resetting
8 Blink	Output Short Circuit	Latched (See Note 1)

Note 1: Contact local GE customer support representative for possible Drive PC2303-012-N replacement.

## Running Belt High Speed Application

When operation the treadmill at a High-Speed Application. The running belt is displaying hesitation/slippage of the running belt with each foot plant. The following may be detected:

- Inspect the backing of the running belt for a fabric breakdown, replace the running belt and flip running deck.
- If grooves are found on the running deck. Inspect the running belt fabric. If running belt backing exhibits abnormal wear replace running and flip running deck.

### NOTE:

The running deck is reversible providing a new running surface. If both sides of the running deck have been used replace running deck.

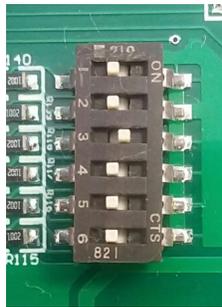
## System Flash Log Retrieval

When retrieving on UPS (Software Version 1.1812 and later FGLF0495-03 Smart Power Supply system flash log file power the

treadmill down. Set switch configuration 1,2,3,4 and 6 are in the “OFF” position and switch 5 is in the “ON” position.



Insert a blank micro SD card into IC3, then powerup the treadmill. Depending on the number of records to be written, it can take up to 2 minutes to finish. When complete the treadmill begins to initialization by turning the down relay on. Once that is done, power the treadmill down and retrieve the micro SD card. Then reset the switch configuration 1,2,4,5 and 6 are in the “OFF” position and switch 3 is in the “ON”.



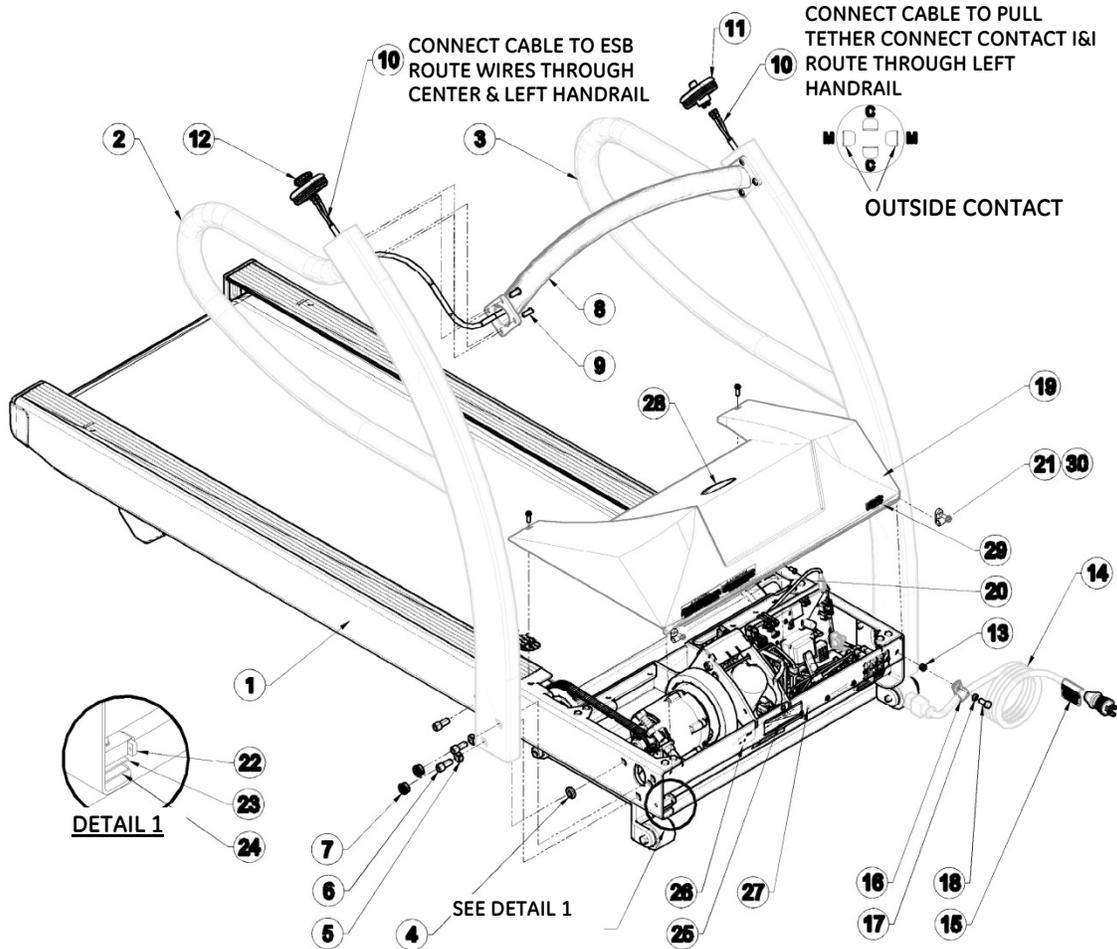
**NOTE:**

The system flash log does not exist on FGLF0495-1 Smart Power Supply.

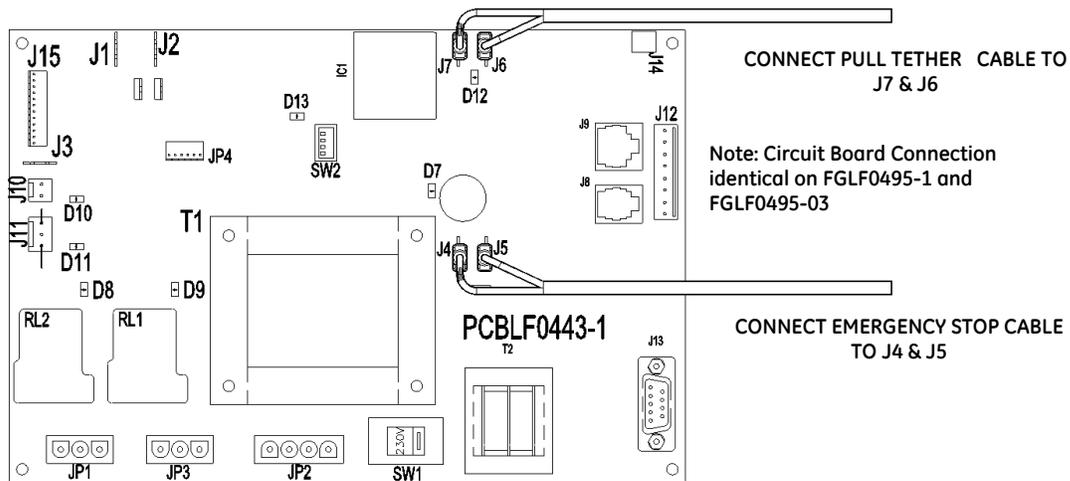
# Field Replaceable Units

This chapter lists the parts that can be replaced onsite, identifies their locations, and provides their orderable part numbers.

## Final Assembly



## Final Assembly Circuit Board Connection



### Orderable FRUs

Item	Description	GE Orderable Number	Qty
2	Handrail RH	2097829-066	1
3	Handrail LH	2097829-067	1
8	Handrail Center	2097829-068	1
10, 12	Emergency Stop with Guard Assembly	2097829-011	1
10, 11	Pull Tether Assembly	2097829-026	1
19, 20, 21, 28, 29	Hood Kit Assembly	2097829-069	1
30	Comm Cable Clamps	2097829-074	1
22, 23, 24	Test Plug	2097829-070	1
4-7, 9, 13, 16-18, 23, 24	Final Assembly Hardware Kit	2097829-071	1

## Field Replaceable Units

Item	Description	GE Orderable Number	Qty
14	POWER CORD 125V C19 NEMA 5-20P	2097829-101	1
	POWER CORD 250V C19 NEMA 6-15P	2097829-102	
	POWER CORD 250V 16A C19 CEE 7/7	2097829-103	
	POWER CORD 250V 13A C19 BS1363	2097829-104	
	POWER CORD 250VAC 15A C19 BS546 3 PIN	2097829-105	
	POWER CORD 250VAC 15A C19 AS/NZS 3112	2097829-106	
	POWER CORD 250VAC 16A C19 GB 1002	2097829-107	
	POWER CORD 250VAC 13A TYPE K-DANISH	2097829-112	
	POWER CORD 250VAC 16A TYPE J-SWISS	2097829-113	
	POWER CORD 250VAC 16A TYPE H-ISRAEL	2097829-114	
	POWER CORD 250VAC 15A TYPE L-ITALY	2097829-115	
	POWER CORD 250VAC 15A TYPE N-BRAZIL	2097829-116	
Not shown	Grease-tube	2097829-072	1

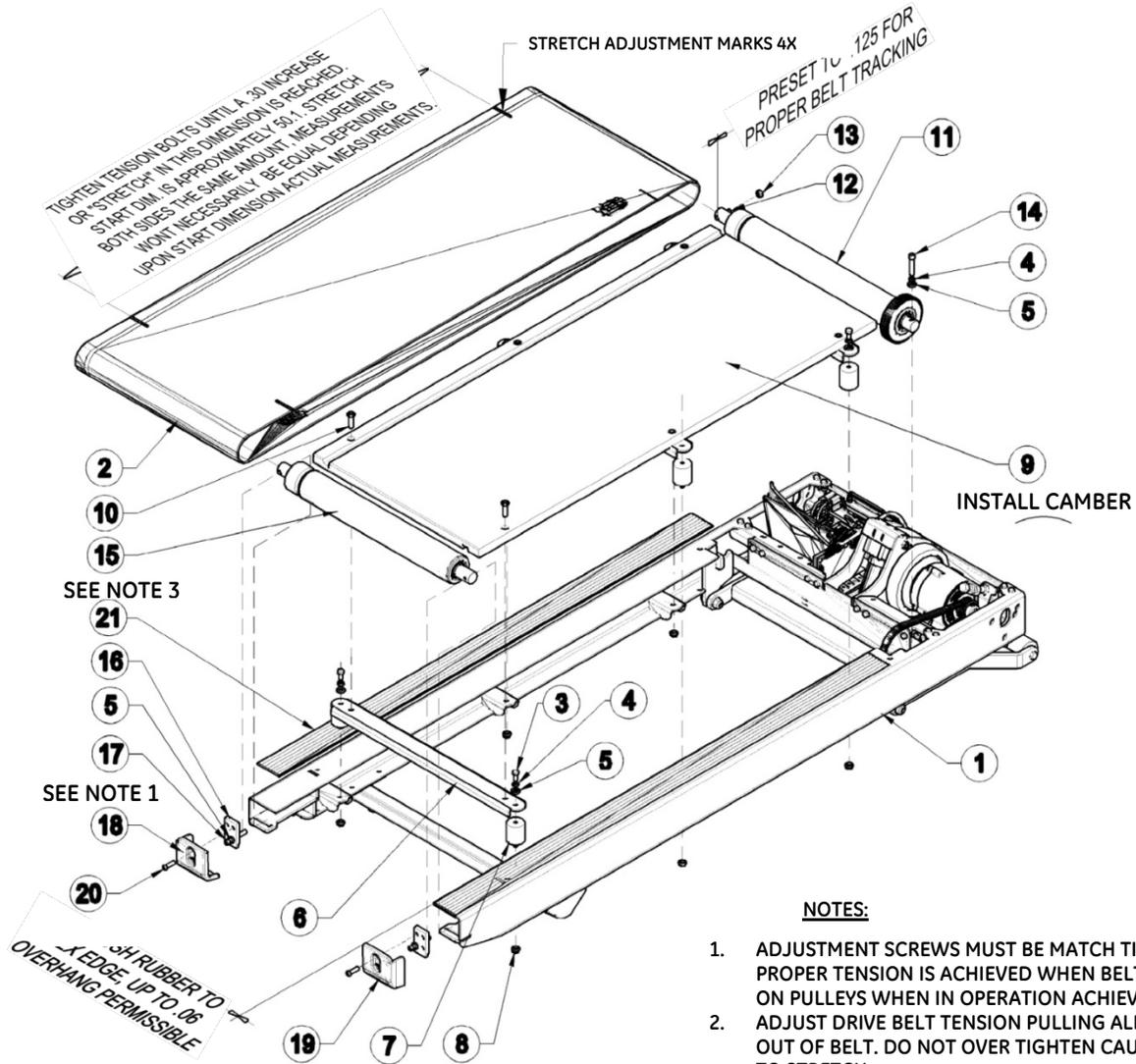
### For Reference – Manufacturer's Description for individual items

Item	Manufacturer's Description	Qty
2	Handrail RH	1
3	Handrail LH	1
4	Washer Nylon	2
5	Lock Washer 3/8"	4
6	Screw HSHCS 3/8"-16 x 1" Lg PLTD	6
7	Dome Plug	4
8	Handrail Center	1
9	Screw HSBHCS 1/4"-20 x 3/4" Lg	8
10	Harness ESB & Pull Tether	2
11	Pull Tether Assembly	1
12	Emergency Stop Assembly IDEC	1

Field Replaceable Units

Item	Manufacturer's Description	Qty
13	Riv-Nut ¼"-20	1
14	POWER CORD 125V C19 NEMA 5-20P POWER CORD 250V C19 NEMA 6-15P POWER CORD 250V 16A C19 CEE 7/7 POWER CORD 250V 13A C19 BS1363 POWER CORD 250VAC 15A C19 BS546 3 PIN POWER CORD 250VAC 15A C19 AS/NZS 3112 POWER CORD 250VAC 16A C19 GB 1002 POWER CORD 250VAC 13A TYPE K-DANISH POWER CORD 250VAC 16A TYPE J-SWISS POWER CORD 250VAC 16A TYPE H-ISREAL POWER CORD 250VAC 15A TYPE L-ITALY POWER CORD 250VAC 15A TYPE N-BRAZIL	1
16	Clamp Support	1
17	Lock Washer ¼"	1
18	Bolt HHCS ¼"-20 x ¾" Lg Gr 5	1
19	Hood T2100-ST Series with GE 80mm Logo	1
20	Decal Caution	1
21	Screw HHWHTS #8-32 x 3/8" Lg	5
22	Test Plug	1
23	Velcro Hook Backing 1" lg.	1
24	Velcro Backing 1" Lg.	1
28	DECAL GE LOGO 80 MM	1
29	STOP DECAL	1
30	Comm. Cable Clamp	2
1, 15, 25, 26, 27	Not orderable as FRU	

## Deck Assembly



**NOTES:**

1. ADJUSTMENT SCREWS MUST BE MATCH TIGHTENED. PROPER TENSION IS ACHIEVED WHEN BELT CAN'T SLIP ON PULLEYS WHEN IN OPERATION ACHIEVED
2. ADJUST DRIVE BELT TENSION PULLING ALL FREE PLAY OUT OF BELT. DO NOT OVER TIGHTEN CAUSING THE BELT TO STRETCH.
3. MOVE REAR PULLEY SIDE TO SIDE IN CHANNELS TO OBTAIN FRONT TO REAR BELT ALIGNMENT AND TRACKING.

**Orderable FRUs**

Item	Description	GE Orderable Number	Qty
2	Belt Running with V-Guide	2097829-057	1
7	Deck Isolator 1.75" Dia with Stud	2097829-058	1

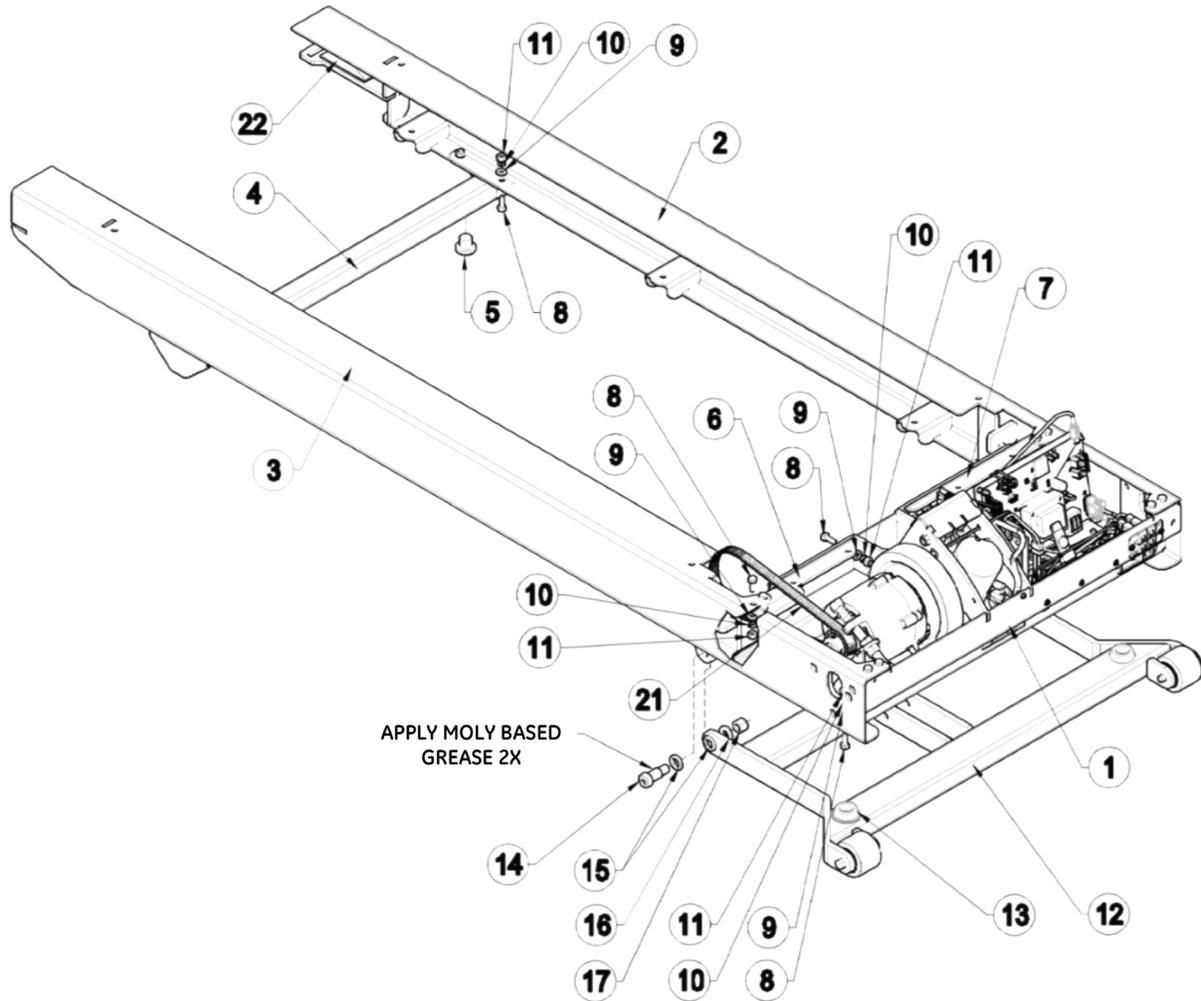
Field Replaceable Units

Item	Description	GE Orderable Number	Qty
9	Deck Running Board	2097829-059	1
11	Roller Front	2097829-060	1
15	Rear Roller	2097829-061	1
18	End Cap LH	2097829-062	1
19	End Cap RH	2097829-063	1
21	Extrusion Anti-Skid Rubber 60" LG	2097829-064	1
3-6, 8, 10, 12-14, 16, 17, 20	Deck Assembly Hardware Kit	2097829-065	1

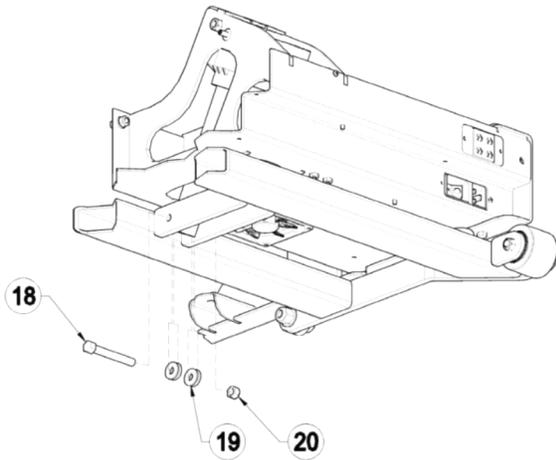
For Reference – Manufacturer's Description for individual items

Item	Manufacturer's Description	Qty
1	Not orderable as FRU	
2	Belt Running with V-Guide	1
3	Bolt HHCS 5/16-18 x .75" Lg	6
4	Lock Washer 5/16" Dia	7
5	Flat Washer 5/16" Dia	9
6	Deck Support Channel Weldment	3
7	Deck Isolator 1.75" Dia with Stud	6
8	Flange Lock Nut HNS 5/16-18	6
9	Deck Running Board	1
10	Screw HSFCHCS 5/16"-18 x 1.5" Lg PLTD	6
11	Roller Front	1
12	Set Screw 5/16"-18 x 1.75" Lg	1
13	Nut FHNZ 5/16-18 Grade 5	1
14	Bolt HSHCS 5/16"-18 x 2" Lg PLTD	1
15	Rear Roller	1
16	Belt Tension Plate	2
17	Screw HSHCS 5/16"-18 x 3" Lg PLTD	2
18	End Cap LH	1
19	End Cap RH	1
20	Screw HSBHCS 5/16"-18 x 1" Lg PLTD	2
21	Extrusion Anti-Skid Rubber 60" LG	2

## Frame Assembly



## Field Replaceable Units



### ACTUATOR INSTALLATION NOTES:

1. PRIOR TO INSTALLATION OF BOLT, TURN ACTUATOR END CLOCKWISE UNTIL IT STOPS. NEXT TURN COUNTER CLOCKWISE 1 ½ TURN OUT PLUS ANY ADDITIONAL REVOLUTION TO ALLOW BOLT ALIGNMENT.
2. WHEN TIGHTENING ELEVATION BOLT AND NUT, THE WASHERS MUST MOVE FREELY.

### Orderable FRUs

Item	Description	GE Orderable Number	Qty
5	Stem Bumper	2097829-052	1
13	Bumper 1.8" Dia Black	2097829-053	1
21	Belt Drive	2097829-054	1
14-17	Landing Gear Pivot Hardware Kit	2097829-055	1
8-11, 18-20, 22	Frame Assembly Hardware Kit	2097829-056	1

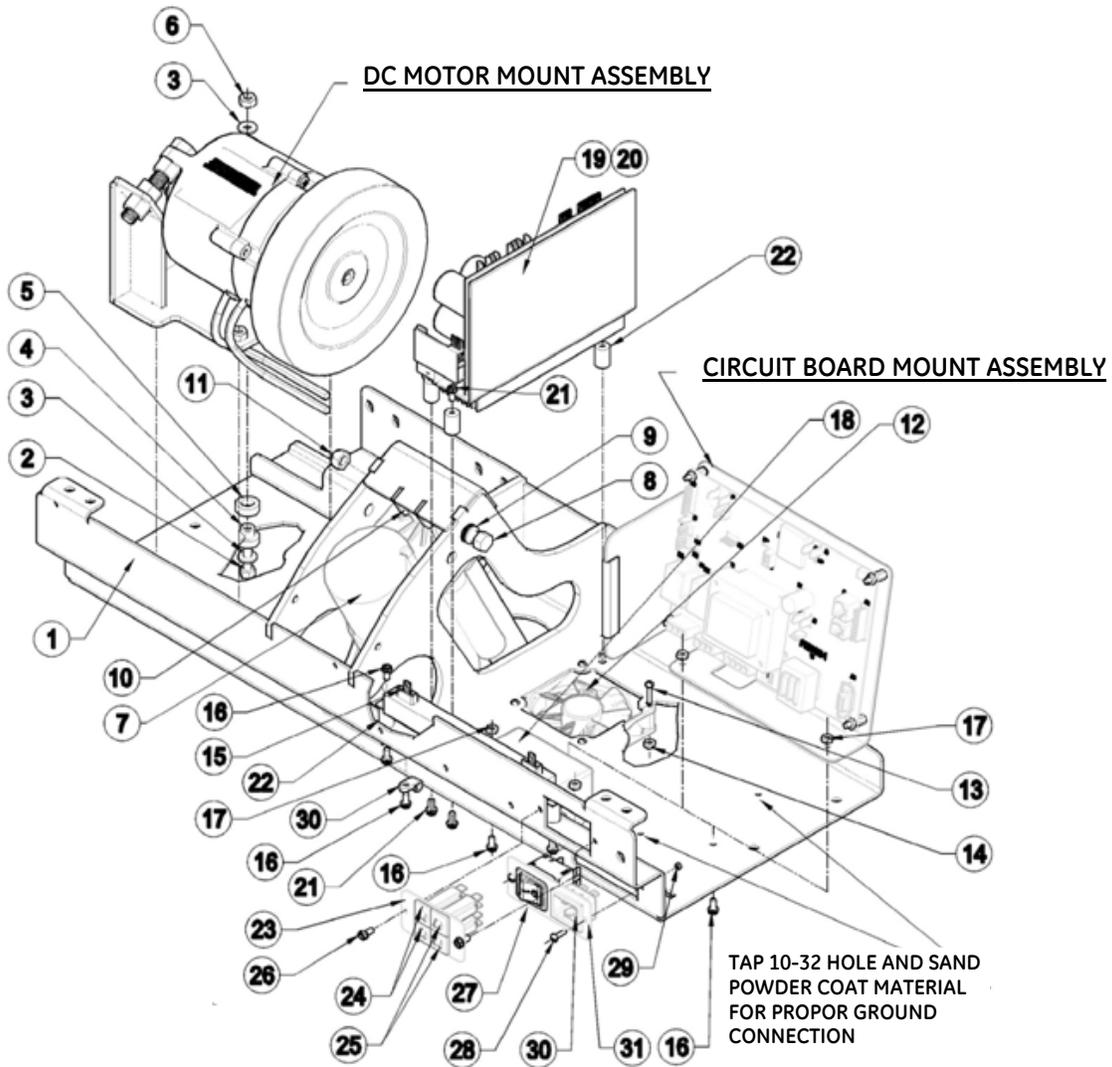
### For Reference – Manufacture's Description for individual items

Item	Manufacturer's Description	Qty
5	Stem Bumper	2
8	Bolt HHCS ¼-20 x .75" Lg Gr 5	26
9	Flat Washer ¼" Dia	26
10	Lock Washer ¼" Dia	26
11	Nut HN ¼-20 Grade 5	26
13	Bumper 1.8" Dia Black	2
14	Shoulder Bolt HSHSS 5/8" Dia x 1" Lg	2
15	Elevation Delrin Spacer	4
16	Flat Washer ½" Dia	2
17	Nylon Lock Nut NLN ½"-13	2
18	Bolt HHCS 3/8-16 x 3" Lg Grade 5	1
19	Washer Nylon	4
20	Nylon Lock Nut 3/8-16	1
21	Belt Drive	1

## Field Replaceable Units

Item	Manufacturer's Description	Qty
22	Anti-Slip Safety Walk "Cut 1.5" x 4"	2
1, 2, 3, 4, 6, 7, 12	Not orderable as FRU	

## Motor Pan Assembly



## Orderable FRUs

Item	Description	GE Orderable Number	Qty
7	Actuator 115V or Actuator 115V MSI (for T2100-ST1 only)	2097829-028 or 2097829-088	1

Field Replaceable Units

Item	Description	GE Orderable Number	Qty
7	Actuator 220V or Actuator 220V MSI (for T2100-ST2 only)	2097829-029 or 2097829-089	1
12	Fan Assembly DC W/Connector	2097829-030	1
15	Resistor Omite 85/150MJ40R0DE	2097829-031	1
18	Filter CorCom F4635 Or, Filter CorCom 10EHT1	2097829-032  2097829-082	1
19, 20	Drive DC Servo PC2303-012-N with Regen Model RA2302	2097829-033	1
24	Breaker 3 amp	2097829-034	1
25	Breaker 1/4 amp	2097829-035	1
27	Switch TA35-C324-L200C0	2097829-036	1
30	Power Cord Inlet C-20 4793.4000	2097829-037	1
4, 5, 21, 22	Motor Pan Isolation Kit	2097829-038	1
2, 3, 6, 8-11, 13, 14, ,16, 17, 21, 22, 23, 26, 28, 29, 31,	Motor Pan Hardware Kit	2097829-039	1

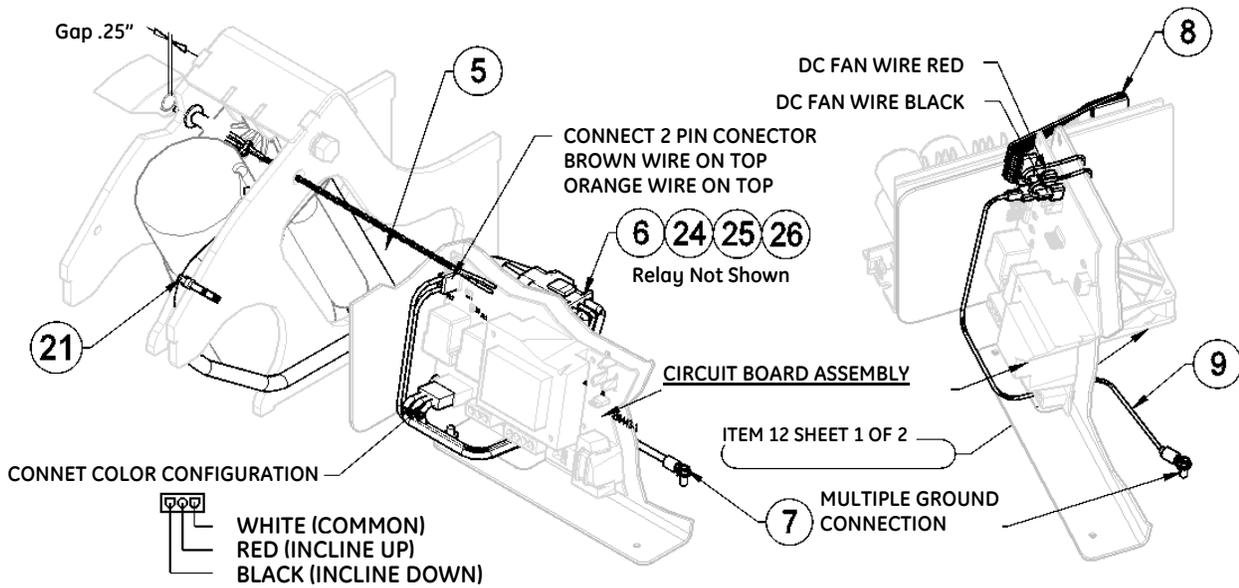
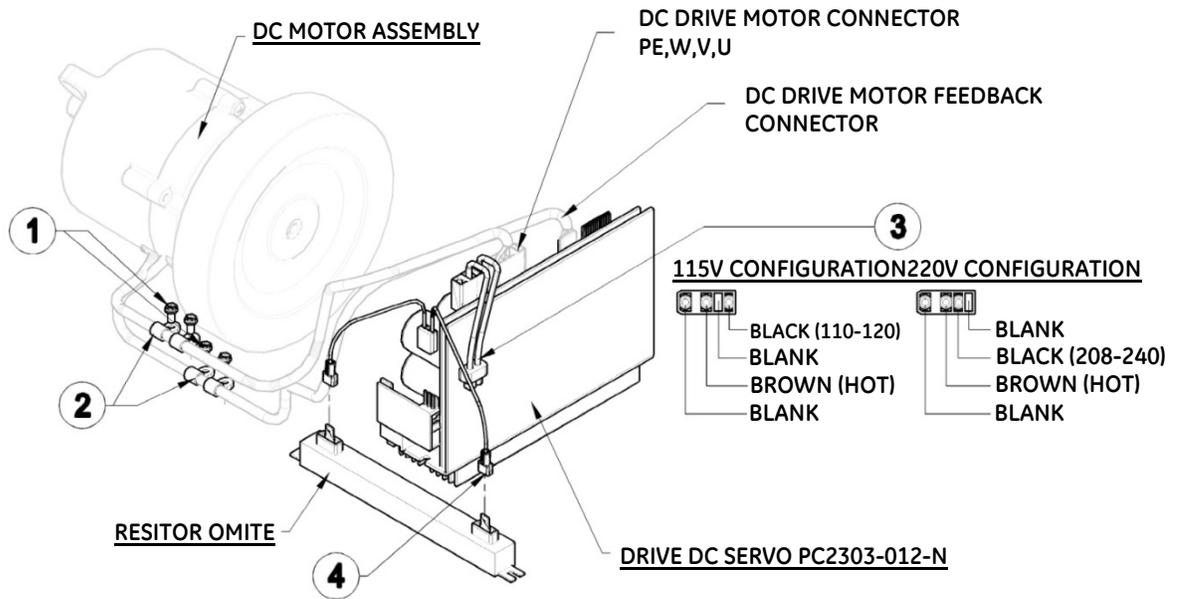
For Reference – Manufacture’s Description for individual items

Item	Manufacturer’s Description	Qty
2	HHCS ¼-20 x 1.25 Lg Gr 2	3
3	FW ¼” Dia ( <i>above</i> ) and Fender Washer ¼” Dia 1” OD ( <i>below</i> )	4
4	Motor Isolation Stem	4
5	Motor Isolation Spacer	4
6	NLN ¼-20	1
7	Actuator 115V (for T2100-ST1 only)	1
	Actuator 220V (for T2100-ST2 only)	1
8	HHCS 3/8-16 c 5.0” Lg Gr 5	1
9	FW 3/8” Dia	3
10	Washer Nylon	3
11	NLN 3/8-16	1
12	Fan Assembly DC W/Connector	1

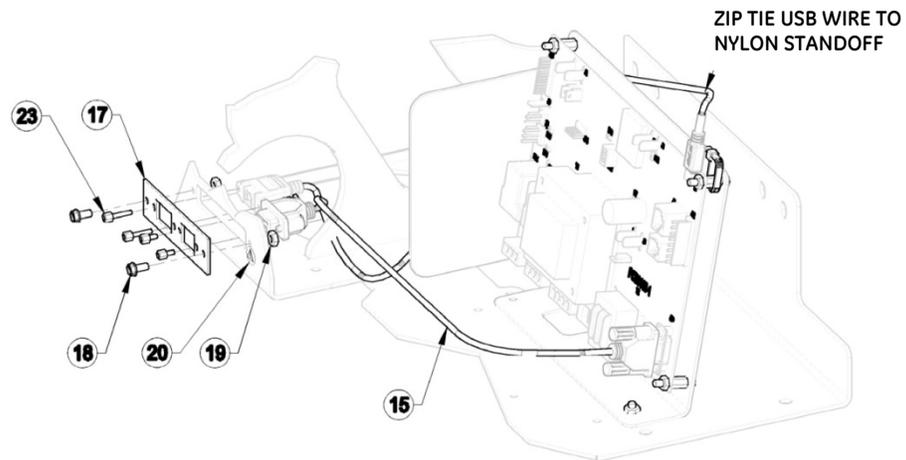
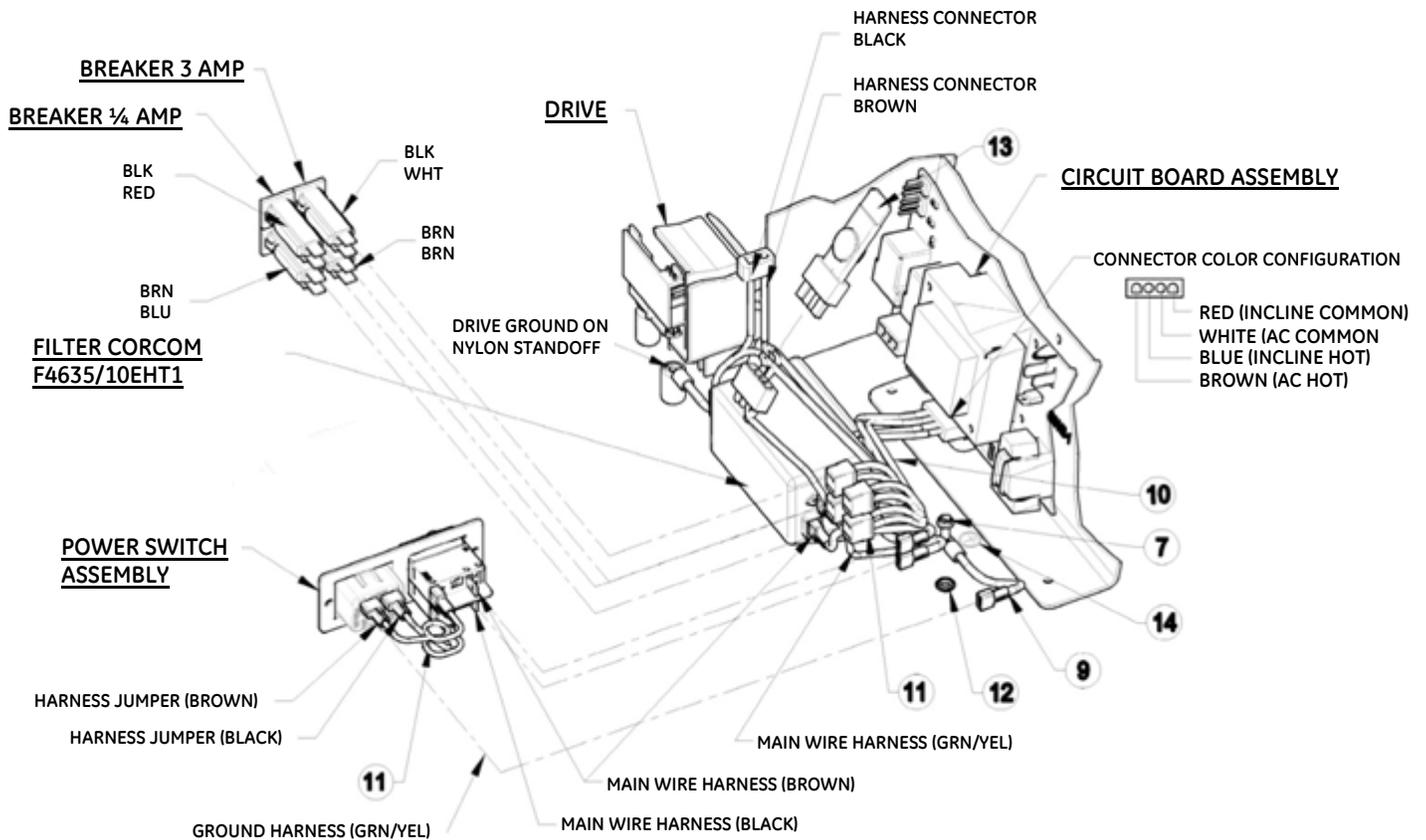
## Field Replaceable Units

Item	Manufacturer's Description	Qty
13	RHMS #6-32 x .50" Lg	4
14	K-Lock Nut #6-32	4
15	Resistor Omite 85/150MJ40R0DE	1
16	HNS #8-32 Flange	7
17	HHWHTS #8-32 X .50" Lg	7
18	Filter CorCom F4635 or 10EHT1 NOTE: F4635 is being replaced by backward compatible 10EHT1 part.	1
19, 20	Drive DC Servo PC2303-012-N with Regen Model RA2302	1
21	RHMS #10-32 X .375 LG	6
22	NYLON ISOLATOR #10-32	5
23	Plate Breaker Trackmaster	1
24	Breaker 3 amp	2
25	Breaker ¼ amp	2
26	HHWHTS #8-32 x .375" Lg	2
27	Switch TA35-C324-L200C0	1
28	RHMS #6-32 x .50" Lg	2
29	K-Lock Nut #6-32	2
30	POWER CORD INLET C-20 4793.4000	1
31	PLATE SWITCH	1
1,	Not orderable as FRU	

# Motor Pan Assembly Wiring



## Field Replaceable Units



## Orderable FRUs

Item	Description	GE Orderable Number	Qty
3	Harness 110V DC Treadmill (for T2100-ST1 only)	2097829-040	1
	Harness 220V DC Treadmill (for T2100-ST2 only)	2097829-041	1
4	Harness Resistor	2097829-042	1

Item	Description	GE Orderable Number	Qty
5	Speed Sensor Hall Effect	2097829-043	1
	Harness Speed Sensor Hall Effect	2097829-044	1
6	Harness Elevation FGLF0495-1 Or, Harness Elevation FGLF0495-3	2097829-045 2097829-083	1
	8	Harness Motor Controller	2097829-046
10	Harness Main DC Treadmill FGLF0495-1 Or, Harness Main DC Treadmill FGLF0495-3	2097829-084 2097829-047	1
	13	Surge Suppressor	2097829-048
15	Cable RS232 Panel Mount	2097829-049	1
16	Cable USB Panel to USB B	2097829-050	1
1, 2, 7, 9, 11, 12, 17-23	Motor Pan Assembly Wiring Hardware Kit	2097829-051	1
24, 25, 26	Relay 110V (For T2100-ST1 only) includes Velcro hook/loop	2097829-085	1
24, 25, 26	Relay 220V (For T2100-ST2 only) includes Velcro hook/loop	2097829-086	1
25	Velcro Hook x 1" wide (included in the relay kit)	NA	
26	Velcro Loop x 1" wide (included in the relay kit)	NA	

**NOTE:**

When replacing old elevation or main wire harness with the new ones, replace both item 6 and 10 with the correct voltage relay.

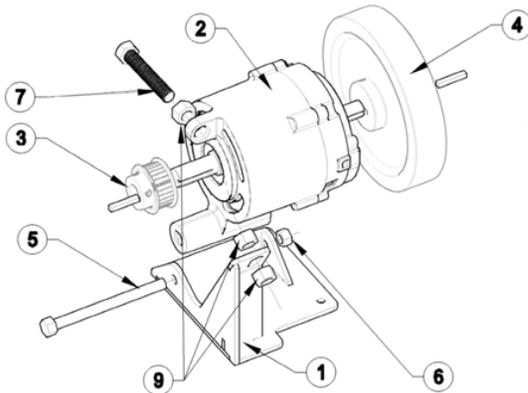
**For Reference – Manufacture’s Description for individual items**

Item	Manufacturer’s Description	Qty
1	Screw HHWTS #8-32 x .375 Lg	4
2	Clamp Plastic ¼" ID	4
3	Harness 110V DC Treadmill (for T2100-ST1 only)	1
	Harness 220V DC Treadmill (for T2100-ST2 only)	1

## Field Replaceable Units

Item	Manufacturer's Description	Qty
4	Harness Resistor	1
5	Speed Sensor Hall Effect	1
	Harness Speed Sensor Hall Effect	1
6	Harness Elevation	1
7	HH Screw #10-32 x .375 Lg GRD	2
8	Harness Motor Controller	1
9	Harness Ground	2
10	Harness Main DC Treadmill	1
11	Harness Jumper	2
12	LW #10 EXT Tooth	1
13	Surge Suppressor	1
15	Cable RS232 Panel Mount	1
16	Cable USB Panel to USB B	1
17	Plate RS232 & USB	1
18	HHCS #8-32 x .50 Lg	2
19	HNS #8-32 Flange Nut	2
20	Decal Caution	2
21	Zip Tie 8" Lg	1
22	Zip Tie 4" Lg	1
23	RMHS #4-40 x .375 Lg	2
14	Not orderable as FRU	
24	Relay 110V (for T2100-ST1 only)	1
	Relay 220V (for T2100-ST2 only)	1
25	Velcro Hook 1" x 2"	1
26	Velcro Loop 1" x 2"	1

## Motor Mount Assembly



**NOTES:**

1. WHEN INSTALLING THE FLYWHEEL & DRIVE SPROCKET, TIGHTEN SET SCREWS ON KEY WAY FIRST, AND THEN TIGHTEN THE SECOND SET SCREW TO MOTOR SHAFT.
2. WHEN TIGHTENING ITEMS 5 & 6, CONTINUE TIGHTENING UNTIL MOTOR CANNOT MOVE SIDE TO SIDE.

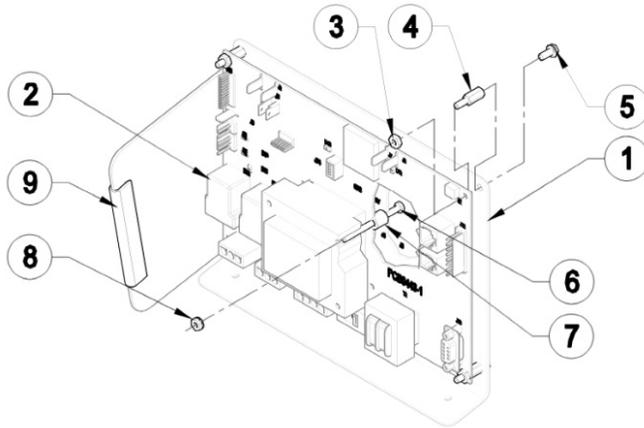
**Orderable FRUs**

Item	Description	GE Orderable Number	Qty
1-7	DC Motor Assembly	2097829-020	1
5, 6, 7, 9	Adjustment Hardware Kit	2097829-021	1

**For Reference – Manufacture’s Description for individual items**

Item	Manufacturer’s Description	Qty
1	DC Motor Base	1
2	Motor DC Servo PMCFA-00101-03	1
3	Sprocket Drive 530-5MGT-15	1
4	Flywheel DC W/Magnet .50 dia	1
5	HHCS 7/16-14 x 5” Lg	1
6	NLN 7/16-14	1
7	HHCS 1/2-13 x 3” Lg All Thread	1
9	HN 1/2-13 Gr5	1

## Circuit Board Assembly FGLF0495-1



**NOTES:**

APPLY BLUE LOCKTITE  
THREADLOCKER TO ITEM 8

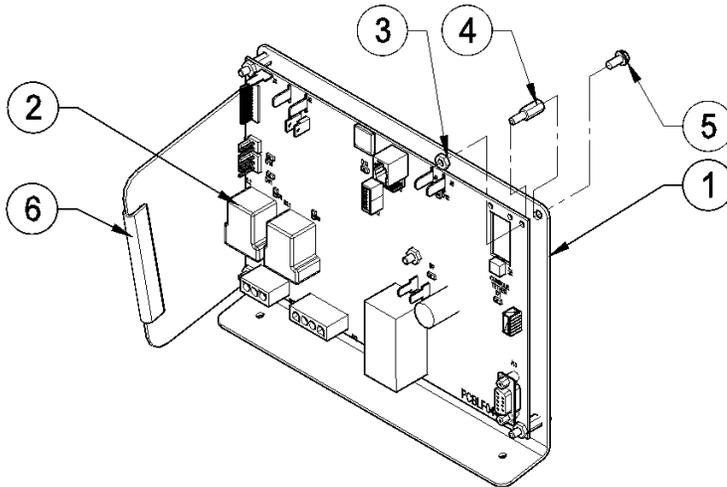
### Orderable FRUs

Item	Description	GE Orderable Number	Qty
2	Board FG0495-1 Universal Power Supply FW V1.66	2097829-022	1
3-8	Circuit Board Assembly Hardware Kit for FG0495-1	2097829-023	1

### For Reference – Manufacturer’s Description for individual items

Item	Manufacturer’s Description	Qty
2	Board FG0495-1 Universal Power Supply	1
3	HN #8-32 Nylon	4
4	Mount Inverter Isolation	4
5	HHWHTS #8-32 x .375	4
6	RHMS #6-32 x 2.5” Lg	1
7	Standoff Round .50 Lg .166 ID	1
8	K-Lock Nut #6-32	1
1, 9	Not orderable as FRU	

## Circuit Board Assembly FGLF0495-3



### Orderable FRUs

Item	Description	GE Orderable Number	Qty
2	Board FG0495-3 Universal Power Supply	2097829-080	1
3-6	Circuit Board Assembly Hardware Kit for FG0495-3	2097829-081	1

### NOTE:

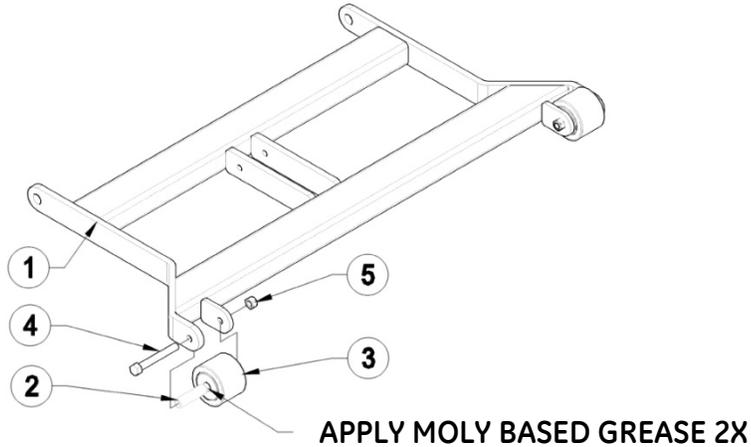
When replacing FGLF0495-1 universal power supply with FGLF0495-3 new circuit board assembly hardware kit 2097829-081 may be needed.

### For Reference – Manufacture’s Description for individual items

Item	Manufacturer’s Description	Qty
2	Board FG0495-3 Universal Power Supply	1
3	HN #8-32 Nylon	5
4	Mount Inverter Isolation	5
5	HHWHTS #8-32 x .375	5
1, 6	Not orderable as FRU	

## Field Replaceable Units

### Elevation Assembly



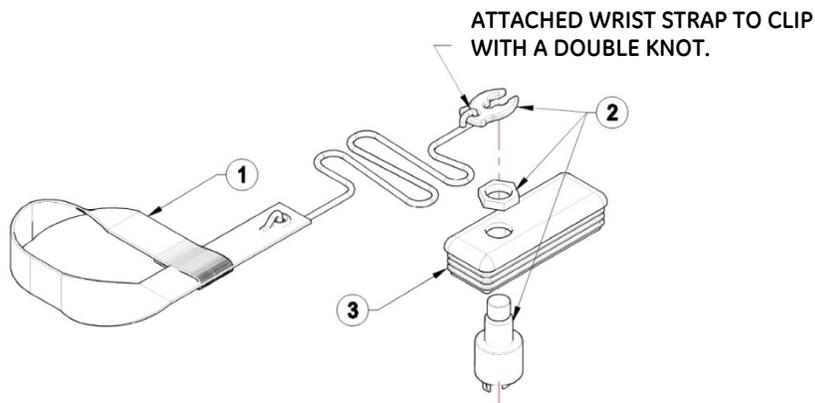
#### Orderable FRUs

Item	Description	GE Orderable Number	Qty
3	Wheel Landing Gear	2097829-024	1
2, 4, 5	Elevation Assembly Hardware Kit	2097829-025	1

#### For Reference – Manufacturer's Description for individual items

Item	Manufacturer's Description	Qty
2	Spanner Wheel	2
3	Wheel Landing Gear	2
4	HHCS 3/8-16 x 3.25 Lg Gr5	2
5	NLN 3/8-16	2
1	Not orderable as FRU	

## Pull Tether Assembly



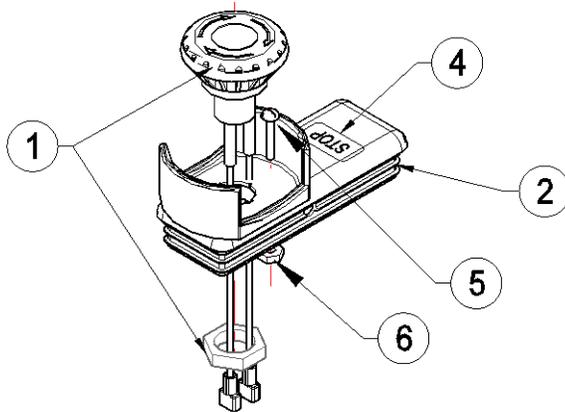
### Orderable FRUs

Item	Description	GE Orderable Number	Qty
1-4	Pull Tether Assembly	2097829-026	1

### For Reference – Manufacture’s Description for individual items

Item	Manufacturer’s Description	Qty
1	Tether Pull w/Wrist strap	1
2	E-Stop Kill Switch LS500	1
3	Cap 1.50 x 4.00 LPDE BLK Modified	1
4	Harness ESB & Pull Tether (Not shown)	1

## Emergency Stop Assembly



### Orderable FRUs

Item	Description	GE Orderable Number	Qty
1-6	Emergency Stop with Guard Assembly	2097829-011	1

### For Reference – Manufacturer’s Description for individual items

Item	Manufacturer’s Description	Qty
1	Emergency Stop IDEC	1
2	Cap 1.50 x 4.00 LPDE BLK Modified	1
3	Harness ESB & Pull Tether (Not shown)	1
4	Decal Stop	1
5	RHMS #6-32 x ½” Long	1
6	K-Lock Nut #6-32	1

## Communication Cables

### Orderable FRUs

Item	Description	GE Orderable Number	Qty
1	USB CABLE 5M A TO B (INTERFACE T2100-ST TO CARDIOSOFT/CS)	2044095-001	1
2	CABLE RS232 INTERFACE T2100-ST TO CASE/PC (contains 2097829-009)	2097829-109	1
3	SPARE CABLE ANALOG INTERFACE T2100-ST TO MAC5500ST (contains 2097829-008)	2097829-108	1

Item	Description	GE Orderable Number	Qty
4	SPARE CABLE RS232 INTERFACE T2100-ST to MAC2000ST (contains 2097829-010)	2097829-110	1

## Calibration Software

### Orderable FRUs

Item	Description	GE Orderable Number	Qty
1	T2100-ST Calibration Software Version 1_0_1_8.Zip	2097829-087	1



# 8

## Component/FRU Removal and Replacement

This chapter provides information for removing and replacing field replaceable parts, including required tools, estimated repair duration, and detailed step-by-step instructions.

### Established Component Replacement Times

Procedure	Est. Duration
Replacing the Hood	10 min
Replacing the Drive Motor	1hr 30 min
Replacing the Drive	45 min
Replacing the Front Roller	40 min
Replacing the Rear Roller	45 min
Replacing the Running Belt	1 hr 30 min
Replacing the Running Deck	30 min
Replacing the Deck Cushion	1 hr 00 min
Replacing the Motor Drive Belt	1 hr 20 min
Replacing/Adjusting the Elevation Actuator	1 hr 30 min
Replacing the Smart Power Supply Relay Board	1 hr 15 min
Replacing the Circuit Breaker	20 min
Relocate ESB and STS	1 hr 00 min
Replacing the Emergency Stop Button (ESB)	30 min
Replacing the Stop Tether Switch (STS)	30 min
Replacing the Right or Left Handrail	30 min
Replacing the Handrail Center	30 min
Removing and reinstalling handrails for moving	45 min
Replacing the Main power switch	25 min
Adjusting the Run belt tracking and tension	25 min
Replacing the Power cord	10 min

## Component/FRU Removal and Replacement

Procedure	Est. Duration
Replacing the CE filter	30 min
Replacing the Ohmite resistor	30 min
Replacing the Rear Foot	30 min
Replacing the Isolator (6 isolator & belt tracking)	2 hrs 15 min
Replacing the Main wire harness FGLF0495-1	30 min
Replacing the Main wire harness FGLF0495-3	30 min
Replacing the Elevation wire harness FGLF0495-1	20 min
Replacing the Elevation wire harness FGLF0494-3	20 min
Replacing the Speed Sensor	15 min
Replacing the End Cap	15 min
Replacing the Rubber Stripping on Side Channel	15 min
Replacing Both Wheels	10 min
Replacing the RS232 Harness	30 min
Replacing the USB Harness	30 min
Replacing the Relay 110V or 220V	20 min
Recalibrating Speed, includes time to download software	30 min
Recalibrating Speed	20 min
Recalibrating Elevation, included time to download software	40 min
Recalibrating Elevation	30 min

## Comprehensive Tool List

### Tools:

- Flat head electronics screw driver - 3/32" wide
- Flat head screw driver - 1/4" wide
- Flat head screw driver - 3/8" wide
- T15 Torx Screw Driver
- 1/8" Allen wrench
- 5/32" Allen wrench
- 1/4" Allen wrench
- 3/16" Allen wrench
- 5/16" Allen wrench
- 3/32" Hex socket
- 3/16" Hex open ended wrench and Hex socket
- 1/4" Hex open ended wrench and Hex socket
- 5/16" Hex open ended wrench and Hex socket
- 7/16" hex open ended wrench and Hex socket
- 1/2" hex open ended wrench and Hex socket
- 9/16" (2X) hex open ended wrench and Hex socket
- 3/4" hex open ended wrench and Hex socket

- Ratchet
- Ratchet extension 6"
- (2X) Medium length long nose pliers
- Wire Cutters or Utility knife
- Pliers or adjustable wrench

### Accessories

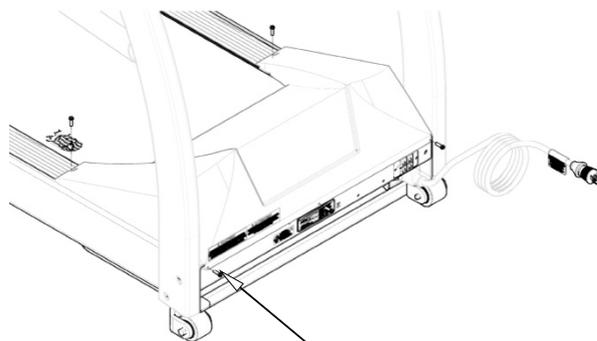
- Grounded wrist strap
- Service Grease (PN 2097829-072 tube received with treadmill)
- Tape measure
- Computer or laptop
- Calibration Program (T2100-ST Series Calibration Software)
- Stop watch or watch with a second hand
- Chalk or some other temporary marking device
- Serial or USB Communication Cable

## Replacing the Hood

### Tools Required

- 1/4" Hex Socket or Flat Blade Screw Driver
- Approximate time to complete: 10 min

1. Turn the treadmill's power switch to the OFF position.
2. Unplug the treadmill from the wall receptacle.
3. Allow the treadmill to discharge for 1 minute.
4. Remove the 5 hood-securing screws (2 on the front and 3 on the back side of the treadmill).
5. Remove the hood and set it aside.
6. Reverse the procedure to reinstall hood.



(5) Screw HHWHTS #8-32 x 3/8" Long

## Replacing the Drive Motor

### Tools Required

- 1/4" Hex Socket or Flat Blade Screw Driver
- 7/16" wrench and socket
- 9/16" wrench and socket
- 3/4" wrench and socket
- 3/16" Hex wrench or Hex socket
- 3/32" Hex wrench or Hex socket
- Grounding Wrist Strap

Approximate time to complete: 1. hr and 30 min

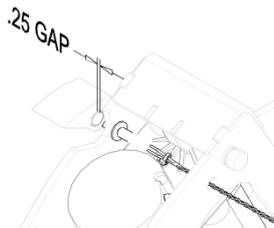
1. Elevate the treadmill with the test plug to approximately 15% grade.
2. Turn the treadmill main power switch to the OFF position.
3. Unplug the treadmill from the wall receptacle.
4. Allow the treadmill to discharge for 1 minute.
5. Remove the (5) hood securing screws.
6. Remove the hood and set it aside.

### CAUTION:

Use ESD precautions, including wearing a grounding wrist strap that is connected to an exposed metal connection point on the treadmill chassis.

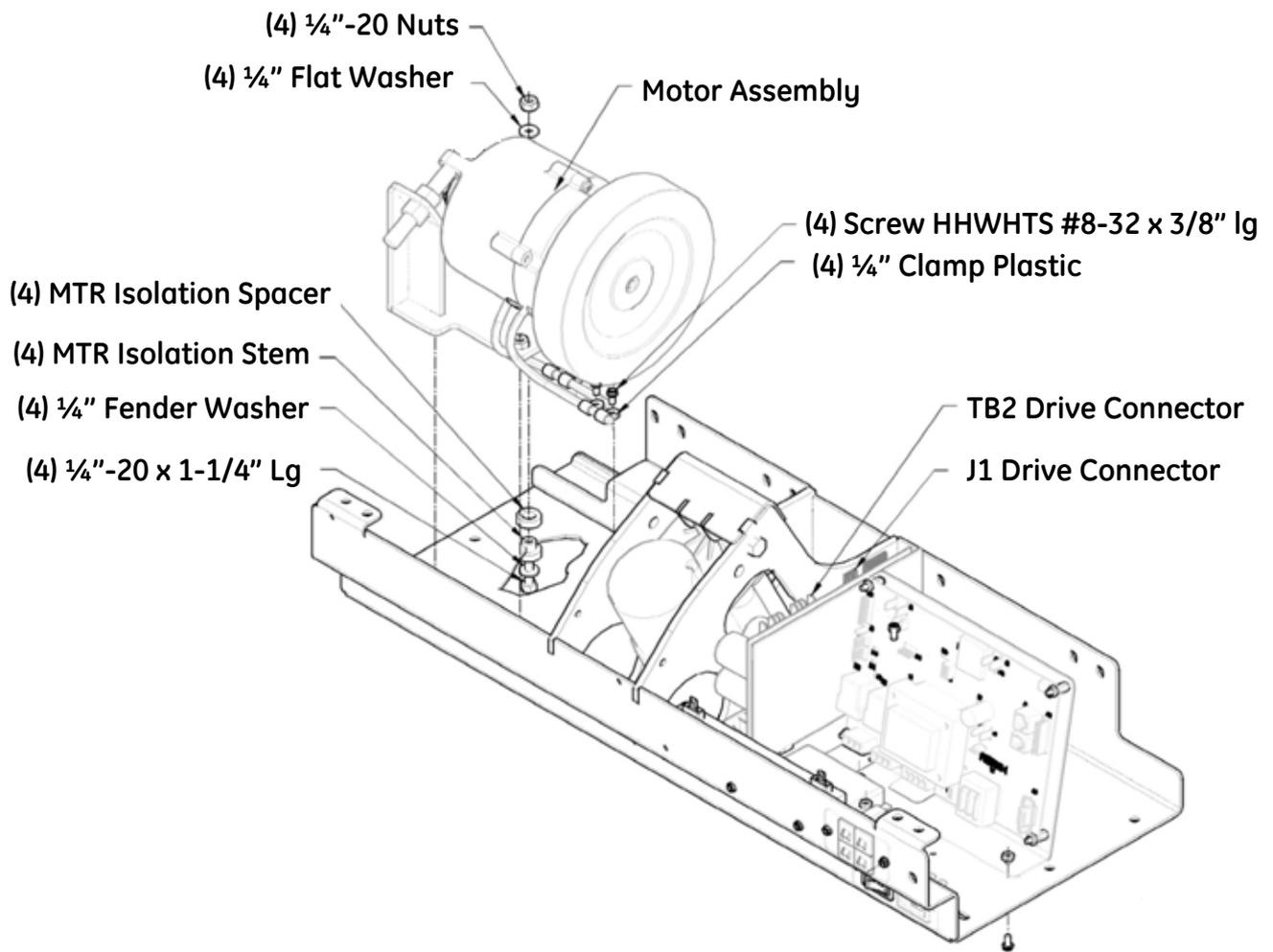
7. Remove the Motor Feedback 6 pin cable on J1 from the drive.
8. Remove the Motor Power 4 pin cable on TB2 from the drive.
9. With the 3/4" wrench and socket, loosen the belt tension and slide the belt off the sprocket, allowing the motor to pivot, gaining access to the motor mount bolts.
10. With the 1/4" hex socket or flat blade screw driver, remove the (4) 1/4" plastic clamps on the Motor Feedback & Power wires.
11. With the 7/16" wrench and socket, remove the 4 bolts securing the motor mount to the frame.
12. Lift the motor assembly out of the treadmill.
13. With the 9/16" wrench and socket, remove the pivot bolt.
14. Remove drive sprocket from the motor shaft by loosening the two 3/32" set screws on its hub, then slide it off.
15. Remove the flywheel from the motor shaft by loosening the two 3/16" set screws on its hub, then slide it off.

16. Slide the flywheel and 1/8" key on the new motor shaft.  
Make sure the flywheel does not rub the plastic housing, creating a motor noise.
17. Slide the drive sprocket and 1/8" key on the motor shaft approximately in the same location from old motor.
18. Tighten the setscrews on the hub, first the one with the key, then the other one.
19. Install the new motor to the existing motor base plate.
20. Tighten the pivot bolt until free movement of the motor is removed.
21. Reinstall the motor, making sure the isolator mounts are in place.  
When tightening the 4 bolts, tighten equally without over tightening.
22. Adjust the speed sensor to the magnet on the flywheel to approximately 1/4".



23. Reinstall (4) 1/4" plastic clamps on the Motor Feedback & Power wires.
24. Reconnect the Motor Feedback 6 pin cable to J1 on the drive.
25. Reconnect the Motor Power 4 pin cable to TB2 on the drive.
26. Adjust the tension the drive belt.  
See "Drive Belt Tension Adjustment" on page 60.
27. After installation, run the treadmill and check for excess vibration and noise from the motor area.
28. Replace the hood and (5) screws.
29. Calibrate the drive speed.  
See "Calibrating Speed" on page 168.

## Component/FRU Removal and Replacement



## Replacing the Drive

### Tools Required

- 1/4" Hex Socket or Flat Blade Screw Driver
- 5/16" Hex Socket with 6" Extension or Nut Drive
- Grounding Wrist Strap

Approximate time to complete: 45 min

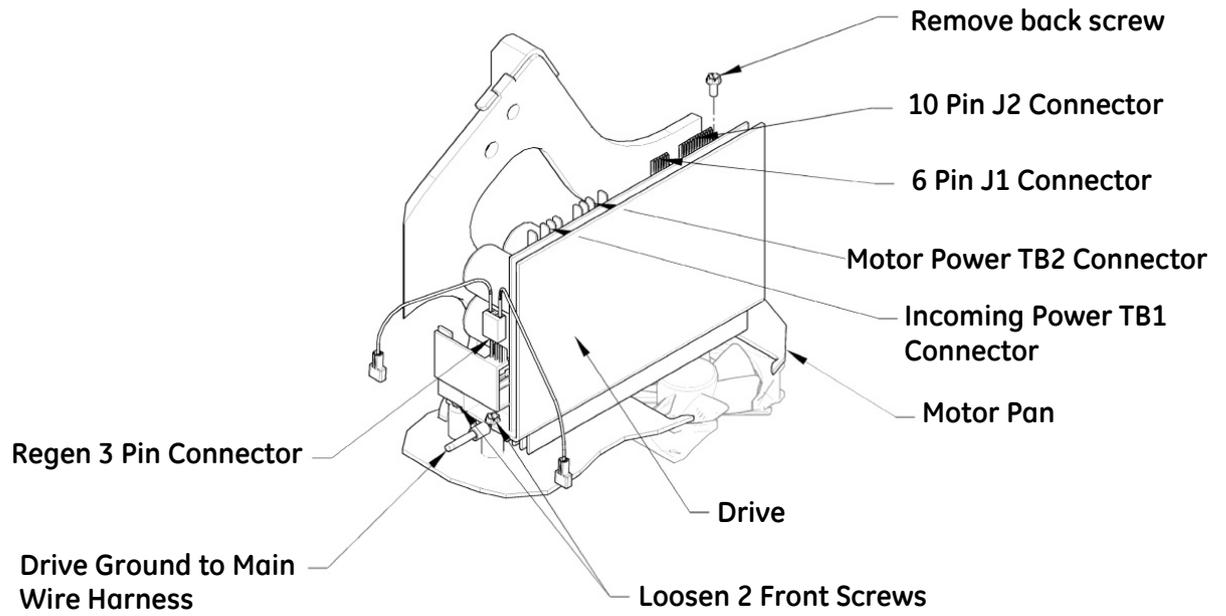
1. Elevate the treadmill to approximately 15% grade.
2. Turn the treadmill main power switch to the OFF position.
3. Unplug the treadmill from the wall receptacle.
4. Allow the treadmill to discharge for 1 minute.
5. Remove the (5) hood-securing bolts.
6. Remove the hood and set it aside.

### CAUTION:

Use ESD precautions, including wearing a grounding wrist strap that is connected to an exposed metal connection point on the treadmill chassis.

7. Remove the Motor Feedback 6 pin cable on J1 from the drive.
8. Remove the 10-pin communication cable on J2 from the drive.
9. Remove the Incoming Power 4-pin connector on TB1 from the drive.
10. Remove the Motor Power 4-pin cable on TB2 from the drive.
11. Remove the 3-pin connector from the Regen Circuit board on the front side of the drive.
12. With the 5/16" socket, loosen the front two screws and remove the back screw.  
The drive will slide back allowing the drive to be removed.
13. Reverse the procedure to reinstall the drive.
14. Calibrate the drive speed.  
See "Calibrating Speed" on page 168.

## Component/FRU Removal and Replacement



## Replacing the Front Roller

### Tools Required

- 1/4" Hex Socket or Flat Blade Screw Driver
- 3/16" Hex Wrench or Hex Socket

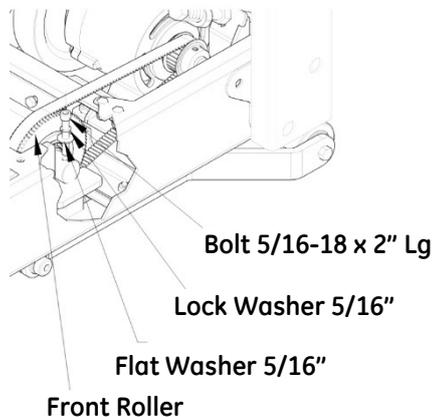
Approximate time to complete: 40 min

1. Turn the treadmill main power switch to the OFF position.
2. Unplug the treadmill from the wall receptacle.
3. Allow the treadmill to discharge for 1 minute.
4. Remove the (5) hood-securing bolts.
5. Remove the hood and set it aside.
6. With the 3/16" Allen wrench or socket, remove the button head Allen bolt securing the left and right end caps from the rear of the treadmill.
7. Remove the end caps and set them aside.
8. With the 1/4" Allen wrench or socket, completely remove the left and right tension bolts from the rear roller.

When removing the tension bolts, maintain equal tension on the bolts to avoid stripping the threads on the tension bolt or roller.

9. Push the rear roller forward as far as it will go.
10. With the 1/4" Allen wrench or socket, remove the bolt securing the front roller to the treadmill frame.
11. Push the front roller from the right side of the treadmill to the left side, lift the roller up; slip the timing belt off the front roller, and lift the front roller up and out of the treadmill.

Use caution to avoid pinching the timing belt.



12. Slide the front roller between the running belt, place the timing belt over the sprocket of the front roller between the running belt, and place the timing belt over the sprocket of the front roller.
13. Replace the front roller.
14. Verify the guide for the belt deck and rollers is to the left during installation.
15. Verify the timing belt goes around the front roller sprocket and is not pinched.
16. Replace the securing bolt and tighten.
17. Align the bolt holes on the rear roller with the access hole of the end caps.
18. Start the tensioning bolts on the rear roller but do not tighten.
19. Replace the left and right end caps and replace the securing screws.
20. Adjust the tension of the running belt.  
See "Running Belt Tension Adjustment" on page 60.

## Replacing the Rear Roller

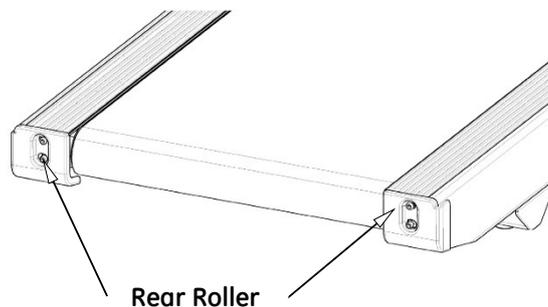
### Tools Required

- 1/4" Hex Socket or Flat Blade Screw Driver
- 3/16" Hex Wrench or Hex Socket

Approximate time to complete: 45 min

1. Turn the treadmill main power switch to the OFF position.
2. Unplug the treadmill from the wall receptacle.
3. Allow the treadmill to discharge for 1 minute.
4. Remove the (5) hood-securing bolts.
5. Remove the hood and set it aside.
6. With the 3/16" Allen wrench or socket, remove the button head Allen bolt securing the left and right end caps from the rear of the treadmill.
7. Remove the end caps and set them aside.
8. With the 1/4" Allen wrench or socket, completely remove the left and right tension bolts from rear roller. When removing the tension bolts maintain equal tension on the bolts to avoid stripping the threads on the tension bolt or roller.
9. Push the rear roller forward as far as it will go.

10. With the ¼" Allen wrench or socket, remove the bolt securing the front roller to the treadmill frame.
11. Push the front roller from the right side of the treadmill to the left side, lift the roller up; slip the timing belt off the front roller, and lift the front roller up and out of the treadmill.  
Use caution to avoid pinching the timing belt.
12. Push the rear roller from the right side of the treadmill to the left side and lift roller up and out to remove it.
13. Replace the rear roller.
14. Slide the front roller between the running belt, place the timing belt over the sprocket of the front roller between the running belt, and place the timing belt over the sprocket of the front roller.
15. Replace the front roller.
16. Verify the guide for the belt deck and rollers is to the left during installation.
17. Verify the timing belt goes around the front roller sprocket and is not pinched.
18. Replace the securing bolt and tighten.



19. Align the bolt holes on the rear roller with the access hole of the end caps.
20. Start the tensioning bolts on the rear roller but do not tighten.
21. Replace the left and right end caps and replace the securing screws.
22. Adjust the tension of the running belt.  
See "Running Belt Tension Adjustment" on page 60.

## Replacing the Running Belt

### Tools Required

- ¼" Allen wrench or socket
- 3/16" Allen wrench or socket
- ½" Wrench or socket with extension
- Jack stand or block capable of supporting the weight of the rear of the treadmill

Approximate time to complete: 1 hr 30 min

1. Elevate the treadmill to 12%.
2. Turn the treadmill main power switch to the OFF position.
3. Unplug the treadmill plug from the wall receptacle.
4. Allow the treadmill to discharge for 1 minute.
5. Remove the (5) hood-securing bolts.
6. Remove the hood and set it aside.
7. Lift the rear of the treadmill and place jack stands or a block to support it.
8. With the 3/16" Allen wrench or socket, remove the bolt securing the left and right end caps from the rear of the treadmill.
9. Remove the end caps and set them aside.
10. With the ¼" Allen wrench or socket, completely remove the left and right tension bolts from the rear roller.  
  
When removing the tension bolts, maintain equal tension on the bolts to avoid stripping the threads on the tension bolt or roller.
11. Push the rear roller forward as far as it will go.
12. Lift the edge of the running belt up and use the 3/16" Allen wrench or socket to remove the (4) flat head Allen screws that secure the running deck cross braces.  
  
There are (4) screws total, (2) on the left side and (2) on the right side.
13. Push the deck to one side of the treadmill and, from the other side, lift the edge of the deck up and out over the rail and set it aside.
14. With the ¼" Allen wrench or socket, remove the bolt securing the front roller to the treadmill frame.
15. Push the front roller from the right side of the treadmill to the left side, lift the roller up, slip the timing belt off the

front roller and lift the front roller up and out of the treadmill.

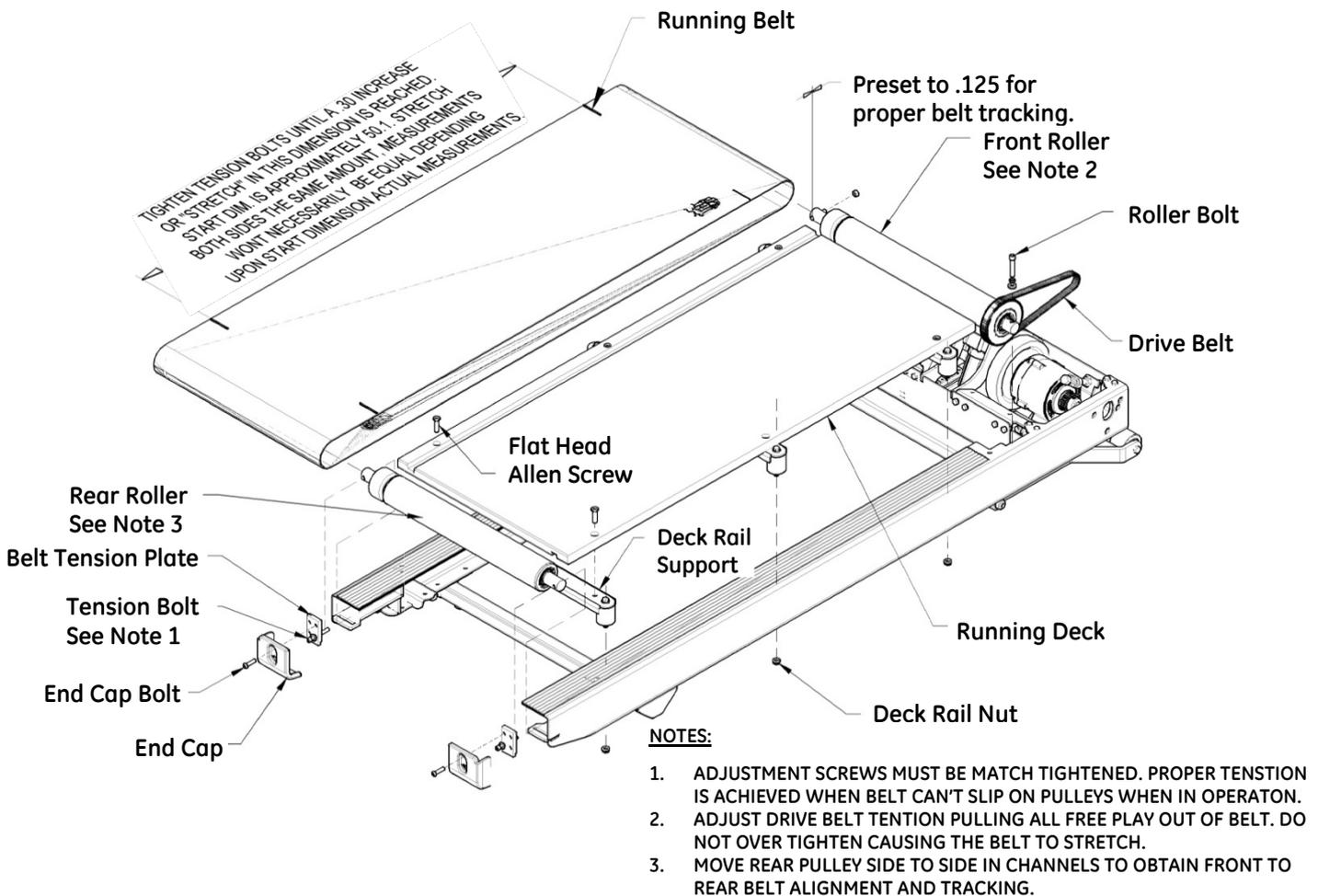
Use caution to avoid pinching the belt.

16. Slide the rear roller out of the rear of the treadmill side rails and remove from the treadmill.
17. With the ½" wrench or socket with extension, remove the (4) bolts securing the deck cross braces to the treadmill side channels.
18. Using caution to avoid damage to the antistatic tinsel run between the (2) front bolts, remove the cross braces from the treadmill and set the cross braces and the tinsel aside.
19. Verify all pieces of the deck cushions are accounted for and set aside.
20. Remove the old running belt and replace with the new running belt.
21. Verify the guide for the belt deck and rollers is to the left during installation.
22. Replace the (2) deck braces and deck cushions; start the deck braces securing bolts but do not tighten them.
23. Replace the antistatic tinsel using the (2) from deck brace bolts.
24. Replace the rear roller, pushing the rear roller as far forward as possible.  
  
Do not replace or start the tensioning bolts at this time.
25. Verify the guide for the belt deck and rollers is to the left during installation.
26. Slide the front roller between the running belt, place the timing belt over the sprocket of the front roller between the running belt, and place the timing belt over the sprocket of the front roller.
27. Replace the front roller.
28. Verify the guide for the belt deck and rollers is to the left during installation.
29. Verify the timing belt goes around the front roller sprocket and is not pinched.
30. Replace the securing bolt and tighten.
31. Lift the edge of the running belt and slide the deck onto the deck braces.
32. Tighten the cross brace securing bolts.

Use caution to avoid over tightening the bolts.

## Component/FRU Removal and Replacement

33. Align the bolt holes on the rear roller with the access hole of the end caps.
34. Start the tensioning bolts on the rear roller but do not tighten.
35. Replace the left and right end caps and replace the securing screws.
36. Adjust the tension of the running belt.  
See "Running Belt Tension Adjustment" on page 60.
37. Reinstall the hood.



## Replacing the Running Deck

### Tools Required

- ¼" Allen Wrench or Socket
- 3/16" Allen Wrench or Socket
- ½" Wrench or Socket with Extension
- Jack stand or block capable of supporting the weight of the rear of the treadmill

Approximate time to complete: 30 min

1. Elevate the treadmill to 12%.
2. Turn the treadmill main power switch to the OFF position.
3. Unplug the treadmill plug from the wall receptacle.
4. Allow the treadmill to discharge for 1 minute.
5. Remove the (5) hood-securing bolts.
6. Remove the hood and set aside.
7. Lift the rear of the treadmill and place jack stands or a block to support it.
8. With the 3/16" Allen wrench or socket, remove the bolt securing the left and right end caps from the rear of the treadmill.  
  
See the Running Belt Replacement assembly drawing on page 136.
9. Remove the end caps and set aside.
10. With the ¼" Allen wrench or socket, completely remove the left and right tension bolts from rear roller.  
  
When removing the tension bolts, maintain equal tension on the bolts to avoid stripping the threads on the tension bolt or roller.
11. Push the rear roller forward as far as it will go.
12. Lift the edge of the running belt up and use the 3/16" Allen wrench or socket to remove the six flat head Allen screws that secure the running deck cross braces.  
  
There are (6) screws total: (3) on the left side and (3) on the right side.
13. Push the deck to one side of the treadmill and, from the other side, lift the edge of the deck up and out over the side rail.

The deck is now ready for maintenance, replacement, or to be flipped.

14. Lift the edge of the running belt and slide the deck onto the deck braces.
15. Replace the screws securing the deck to the deck braces and tighten.
16. Verify the guide for the deck is to the left during installation.
17. Tighten the cross brace securing bolts.  
Use caution to avoid over tightening the bolts.
18. Align the bolt holes on the rear roller with the access hole of the end caps.
19. Start the tensioning bolts on the rear roller but do not tighten.
20. Replace the left and right end caps and the securing screws.
21. Adjust the tension of the running belt.  
See "Running Belt Tension Adjustment" on page 60.
22. Reinstall the hood.

## Replacing the Deck Cushion

### Tools Required

- ¼" Allen Wrench or Socket
- 3/16" Allen Wrench or Socket
- ½" Wrench or Socket with extension
- Jack stand or block capable of supporting the weight of the rear of the treadmill

Approximate time to complete: 1 hr 00 min

1. Elevate the treadmill to 12%.
2. Turn the treadmill main power switch to the OFF position.
3. Unplug the treadmill plug from the wall receptacle.
4. Allow the treadmill to discharge for 1 minute.
5. Remove the (5) hood-securing bolts.
6. Remove the hood and set it aside.
7. Lift the rear of the treadmill and place jack stands or blocks to support it.
8. With the 3/16" Allen wrench or socket, remove the bolt securing the left and right end caps from the rear of the treadmill.
9. Remove the end caps and set them aside.

10. With a ¼" Allen wrench or socket, completely remove the left and right tension bolts from rear roller.  
When removing the tension bolts, maintain equal tension on the bolts to avoid stripping the threads on the tension bolt or roller.
11. Push the rear roller forward as far as it will go.
12. Lift the edge of the running belt up and use the 3/16" Allen wrench or socket to remove the (2) flat head Allen screws that secure the running deck cross brace with the damaged deck cushions.
13. With the ½" wrench or socket with extension, remove the (2) bolts securing the deck cross brace to the treadmill side channels.
14. Remove the cross braces from the treadmill.
15. With the ½" socket, remove the rubber deck cushion(s) from the brace.
16. Replace the damaged deck cushion and use the ½" socket to remove the bolt securing the rubber deck cushion(s) from the brace.
17. Verify the placement of the deck cushion(s).  
Refer to the Running Belt Replacement assembly drawing on page 136.
18. Replace the deck brace and deck cushions  
Start the deck brace securing bolts, but do not tighten them.
19. Lift the edge of the running belt and slide the deck onto the deck braces.
20. Replace the screws securing the deck to the deck braces and tighten.
21. Verify the guide for the deck is to the left during installation.
22. Tighten the cross brace securing bolts.  
Use caution to avoid over tightening the bolts.
23. Align the bolt holes on the rear roller with the access hole of the end caps.  
Start the tensioning bolts on the rear roller but do not tighten.
24. Replace the left and right end caps and the securing screws.
25. Adjust the tension of the running belt.

See "Running Belt Tension Adjustment" on page 42.

26. Reinstall the hood.

## Replacing the Motor Drive Belt

### Tools required

- 1/4" Hex Wrench or Hex Socket
- 3/4" Open-end Wrench & Hex Socket
- 1/4" Hex Nut Driver or Flat Blade Screw Driver
- Grounding Wrist Strap
- Tape Measure

Approximate time to complete: 1 hr 20 min

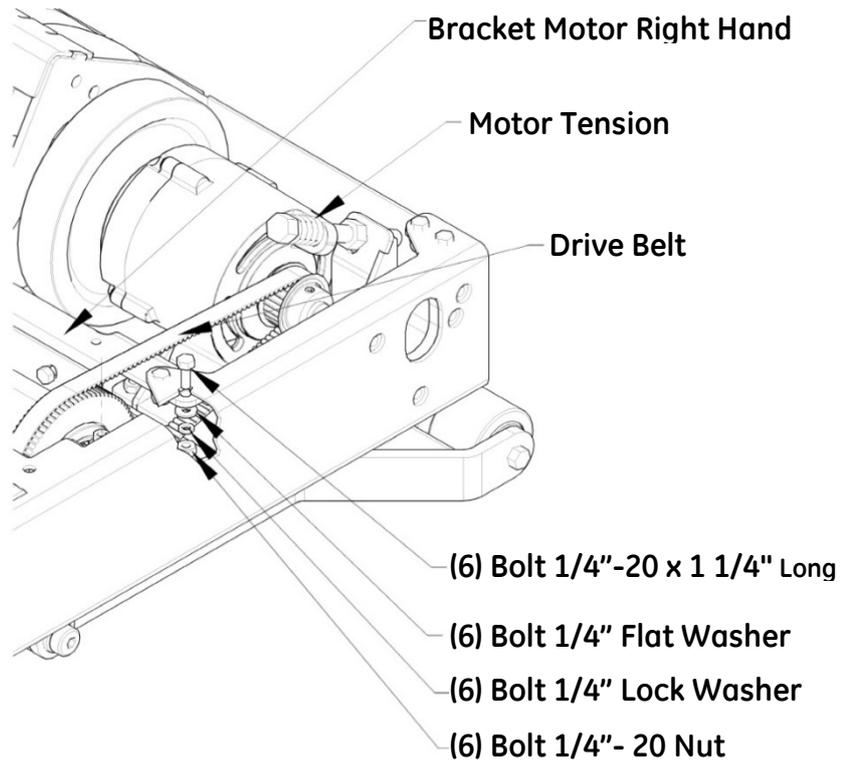
1. Elevate the treadmill to 12%.
2. Turn the treadmill main power switch to the OFF position.
3. Unplug the treadmill plug from the wall receptacle.
4. Allow the treadmill to discharge for 1 minute.
5. Remove the (5) hood-securing bolts.
6. Remove the hood and set it aside.

### CAUTION:

Use ESD precautions, including wearing a grounding wrist strap that is connected to an exposed metal connection point on the treadmill chassis.

7. With the 3/4" wrench and socket, loosen spring tension and the slide belt off the sprocket, allowing the motor to pivot.
8. With the 7/16" socket and wrench, remove the (6) bolts securing the Bracket Motor Right Hand.
9. Loosen the rear belt tension bolt, allowing the rear roller to move forward towards the front roller.
10. Remove the hex socket head cap screw, retaining the front roller on the right hand side.
11. Lift right hand end of the front roller enough to remove the drive belt.
12. Reverse the procedure to install the new drive belt.
13. After installation of the new drive belt, perform "Running Belt Tracking Adjustment" on page 59 and "Running Belt Tension Adjustment" on page 60.

## Component/FRU Removal and Replacement



## Replacing/Adjusting the Elevation Actuator

### Tools Required

- 2 - 9/16" Wrenches or Sockets
- 3/8" Wide Flat Blade Screwdriver
- Shipping blanket, carpet, or cardboard
- 1/4" Hex Nut Driver or Flat Blade Screw Driver
- Grounding Wrist Strap
- Tape measure
- Service grease (Part Number 2097829-072)

Approximate time to complete: 1 hr 30 min

1. Turn the treadmill main power switch to the OFF position.
2. Unplug the treadmill plug from the wall receptacle.
3. Allow the treadmill to discharge for 1 minute.
4. Move the treadmill to an area large enough to lay it on its side.
5. Remove the (5) hood securing bolts.
6. Remove the hood and set it aside.

### CAUTION:

Use ESD precautions, including wearing a grounding wrist strap that is connected to an exposed metal connection point on the treadmill chassis.

7. Unplug the treadmill actuator harness.  
The harness is a six-conductor connector attached to the actuator.
8. Cut the zip tie that holds the wire to the motor pan gusset.
9. With the shipping blanket in suitable spot, place a foot on the treadmill side channel, grasp the handrail; pull the treadmill towards you, and allow it to gently come to rest on its side.
10. With the 9/16" wrench and socket, remove the top and lower bolts from the actuator.  
When removing the bolts from the actuator, watch out for nylon washers on each side of the actuator.
11. Prior to installing the new actuator, use the following procedure to preset the zero position.
  - a. Looking from the bottom (tube end), lightly turn the tube clockwise until it bottoms the threads or stops.
  - b. Ensure that the motor shaft does not turn.

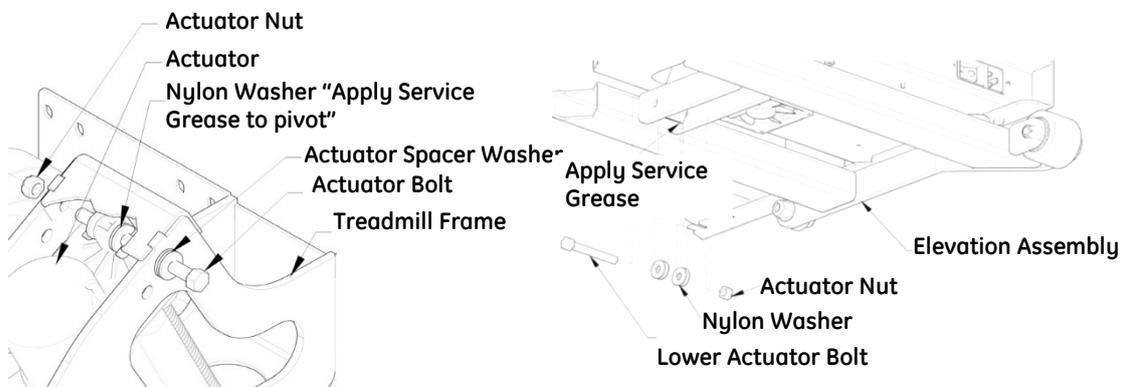
- c. Turn the tube counter-clockwise 1.5 turns (540°) and continue turning it until the bolt holes in the tube align with holes as it is installed.
12. Reverse the procedure to install the actuator into the treadmill.

Be sure to use Service grease (quality, moly-based grease) on both the bolts and nylon washers retaining it.

**NOTE:**

Over tightening the lower bolt will lead to a popping or creaking noise when the treadmill is elevating.

13. After installing the elevation actuator, perform "Calibrating Elevation" on page 171.



## Replacing the Smart Power Supply Relay Board

**Tools required**

- Wire Cutters or Utility Knife
- Grounding Wrist Strap
- 1/4" Hex Nut Driver or Flat Blade Screw Driver
- 5/16" Hex Nut Driver
- 3/32" Flat Blade Electronics Screwdriver
- Grounding Wrist Strap

Approximate time to complete: 1 hr 15 min

1. Turn the treadmill main power switch to the OFF position.
2. Unplug the treadmill plug from the wall receptacle.
3. Allow the treadmill to discharge for 1 minute.
4. Remove the (5) hood securing bolts.
5. Remove the hood and set it aside.

**CAUTION:**

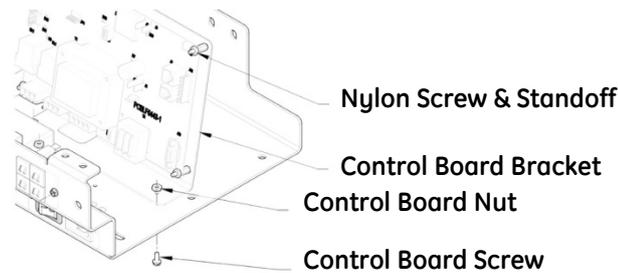
Use ESD precautions, including wearing a grounding wrist strap that is connected to an exposed metal connection point on the treadmill chassis.

6. Unplug the 4-conductor JP2 and 3-conductor JP1 plugs from the SPSR Board (smart power supply relay board).
7. Unplug the Cooling Fan J1-Red and J2-Black single conductor spades from the SPSR Board.
8. Unplug the E-Stop J4-Black and J5-Gray single-conductor spades from the SPSR Board.
9. Unplug the Pull Tether J6-Black and J7-Gray single-conductor spades from the SPSR Board.
10. Unplug the Speed Sensor J10 two-conductor spade from the SPSR Board.
11. Unplug the Elevation Count Sensor J11-three-conductor spade from the SPSR Board.
12. Unplug the Drive Harness J15-ten-conductor spade from the SPSR Board.
13. Remove the RS232 harness J13 by unscrewing the (2) flat head screws retaining it to the SPSR Board.
14. Cut the Zip tie on USB harness J14 and unplug from the SPSR Board.
15. Remove the two control board bracket screws.
16. Remove the screw that holds the circuit board to the control board bracket.
17. Relocate the standoff and spacer transfer to the new Power supply board.
18. Remove the nylon nuts on the four corners of the SPSR Board.
19. Once the board has been removed, note the position of the voltage switch.
20. Set the switch on new board to the same voltage as the board just removed.

**NOTICE**

Setting a different voltage on the new board will result in damage!

21. Reverse the procedure to install the new SPSR Board.
22. After installation, see Chapter 9, "Calibration", to recalibrate the treadmill using the recalibration instructions for your treadmill model, and then check for proper operation.



## Replacing the Circuit Breaker

### Tools Required

- 1/4" Hex nut driver or flat blade screw driver
- 3/32" Flat blade electronic screwdriver
- Grounding Wrist Strap

Approximate time to complete: 20 min

1. Turn the treadmill main power switch to the OFF position.
2. Unplug the treadmill plug from the wall receptacle.
3. Allow the treadmill to discharge for 1 minute.
4. Remove the (2) screws retaining the circuit breaker mounting plate.

### CAUTION:

Use ESD precautions, including wearing a grounding wrist strap that is connected to an exposed metal connection point on the treadmill chassis.

5. Gently pull the plate out, allowing the wires to feed through the hole.
6. Unplug the (2) wire connectors from the circuit breaker to be replaced.

When replacing more than one circuit breaker, perform the replacement for one breaker at a time to keep the wires on the correct value of circuit breaker.

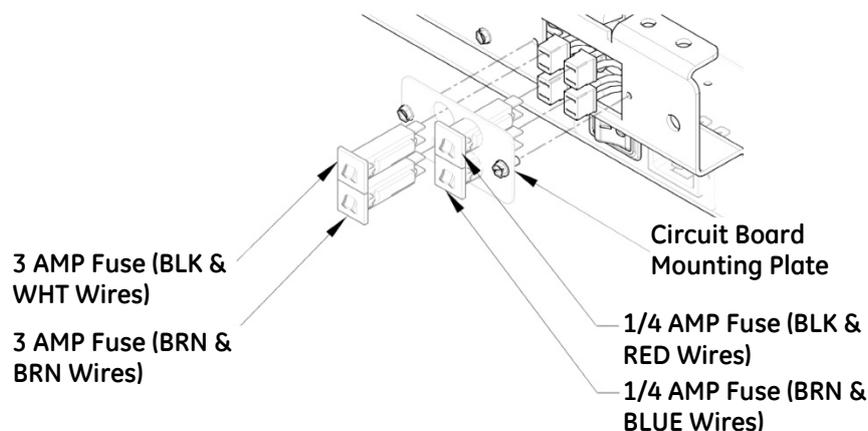
7. Using a small electrical flat blade screwdriver, push in the holding clips on the sides of the breaker to allow it to slide out of the plate.

The clips are part of the breaker housing and are located on the back side of the plate.

8. Install the new circuit breaker by sliding it into the hole until it snaps into place.
9. Reattach the wire connectors by sliding them on to the terminals.

## Component/FRU Removal and Replacement

10. Once all desired breakers have been replaced, reinstall the plate with the (2) screws.
11. After installation, check the unit for proper operation.



## Relocating the ESB and STS Assembly

### Tools Required

- 1/8" Allen Wrench
- ¼" Flat Blade Screwdriver
- 2 Pair Long Nose Pliers
- Grounding Wrist Strap

Approximate time to complete: 1 hr 00 min

1. Turn the treadmill main power switch to the OFF position.
2. Unplug the treadmill plug from the wall receptacle.
3. Allow the treadmill to discharge for 1 minute.
4. With the 1/8" Allen wrench, remove the (4) 10-32 screws (Fig. A) holding the ESB and STS assembly to the fabricated handrail.

Fig. A

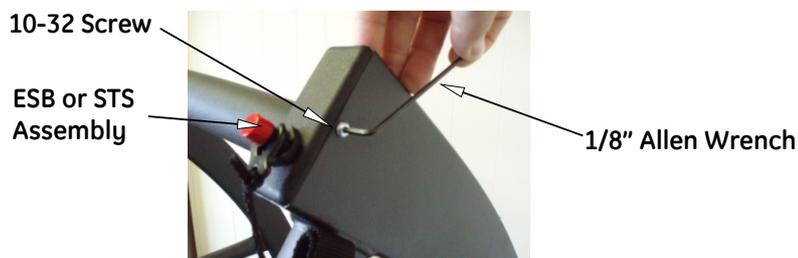
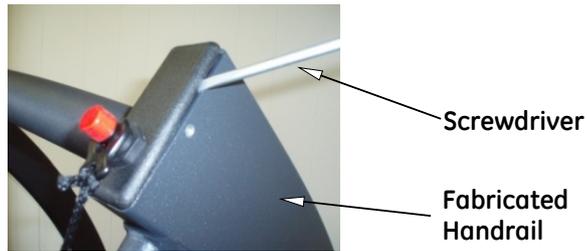


Fig. B



5. With the flat head screwdriver, remove the ESB and STS assembly from the fabricated handrail (Fig. B).

Caution: Use ESD precautions including wearing a grounding wrist strap which is connected to an exposed metal connection point on the treadmill chassis.

6. Completely remove the ESB and STS assembly and gently pull to expose the wires.
7. With two pairs of long nose pliers, gently separate the connectors on the ESB.
8. With a pair of pliers, remove the STS connector from the tether assembly (Fig. C).

Fig. C

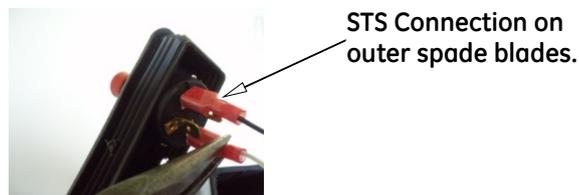
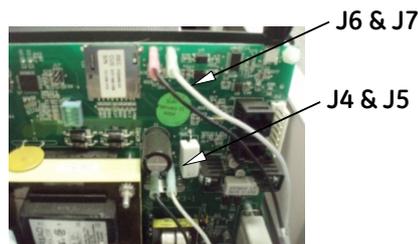


Fig. D



9. Reverse steps 1 through 8 to reinstall the ESB and STS assembly.
10. Remove the (5) hood-securing bolts.
11. Remove the hood and set it aside.
12. Swap J4 and J5 with J6 and J7 on the controller board.  
With the pliers, cautiously remove the wires. Slowly wiggle the wires up and down while pulling. Avoid causing excessive flexing to the board (Fig. D).
13. Replace the hood and secure it with the original screws.

## Replacing the Emergency Stop Button (ESB)

### Tools Required

- 1/8" Allen Wrench
- ¼" Flat Blade Screwdriver
- 2 Pair Long Nose Pliers
- Grounding Wrist Strap

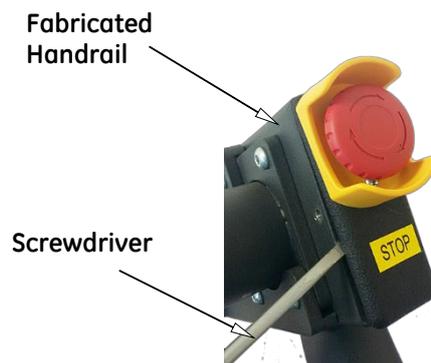
Approximate time to complete: 30 min

1. Turn the treadmill main power switch to the OFF position.
2. Unplug the treadmill plug from the wall receptacle.
3. Allow the treadmill to discharge for 1 minute.
4. With a 1/8" Allen wrench, remove the (2) 10-32 screws (Fig. A) holding the ESB assembly to the fabricated handrail.

Fig. A



Fig. B



5. With a flat head screwdriver, remove the ESB assembly from the fabricated handrail (Fig. B).

**CAUTION:**

Use ESD precautions, including wearing a grounding wrist strap that is connected to an exposed metal connection point on the treadmill chassis.

6. Completely remove the ESB assembly and gently pull to expose the wires.
7. With two pairs of long nose pliers, gently separate the connectors on the ESB.
8. Reverse step 1 through step 7 to reinstall the ESB assembly.

## Replacing the Stop Tether Switch (STS)

### Tools Required

- 1/8" Allen Wrench
- ¼" Flat Blade Screwdriver
- Long Nose Pliers
- Grounding Wrist Strap

Approximate time to complete: 30 min

1. Turn the treadmill main power switch to the OFF position.
2. Unplug the treadmill plug from the wall receptacle.
3. Allow treadmill to discharge for 1 minute.
4. With a 1/8" Allen wrench, remove the (2) 10-32 screws (Fig. A) holding the STS assembly to the fabricated handrail.

Fig. A

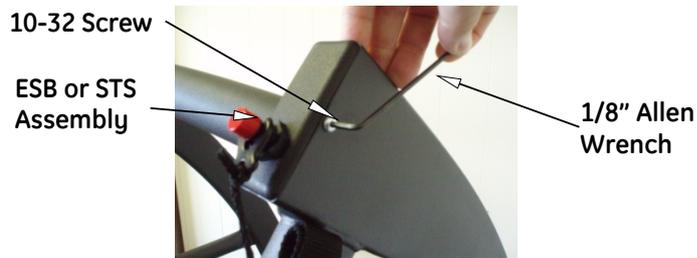
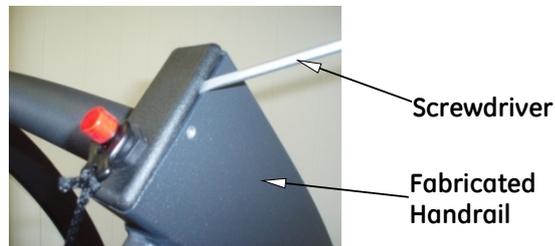


Fig. B



5. With a flat head screwdriver, remove the STS assembly from the fabricated handrail (Fig. B).

### CAUTION:

Use ESD precautions, including wearing a grounding wrist strap that is connected to an exposed metal connection point on the treadmill chassis.

6. Completely remove the STS assembly and gently pull to expose the wires.
7. With a pair of long nose pliers, remove the two STS connector wires from the outside terminals of the tether assembly (Fig. C).

### NOTE:

When reconnection wires be sure to locate the connector on the outer terminals.

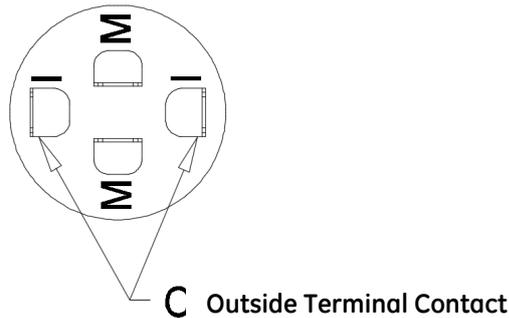
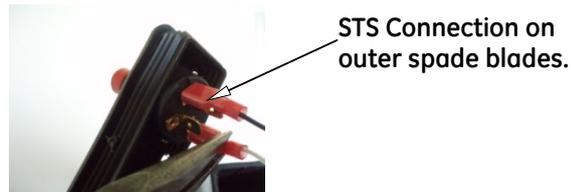


Fig. C



8. Reverse step 1 through step 7 to reinstall the STS assembly.

## Replacing the Right or Left Handrail

### Tools Required

- 1/8" Allen Wrench
- 5/32" Allen Wrench
- 5/16" Allen Wrench
- Flat head screwdriver
- Grounding Wrist Strap

Approximate time to complete: 30 min

### NOTE

When replacing all the handrails, remove the center handrail before proceeding with the left and right handrails. See "Replacing the Center Handrail" on page 153 for instructions.

1. Turn the treadmill's power switch to the OFF position.
2. Unplug the treadmill from the wall receptacle.
3. Allow the treadmill to discharge for 1 minute.
4. Remove the ESB or STS assembly.

See "Replacing the Emergency Stop Button (ESB)" on page 148 or "Replacing the Stop Tether Switch (STS)" on page 150 for instructions.

### CAUTION:

Use ESD precautions, including wearing a grounding wrist strap that is connected to an exposed metal connection point on the treadmill chassis.

## Component/FRU Removal and Replacement

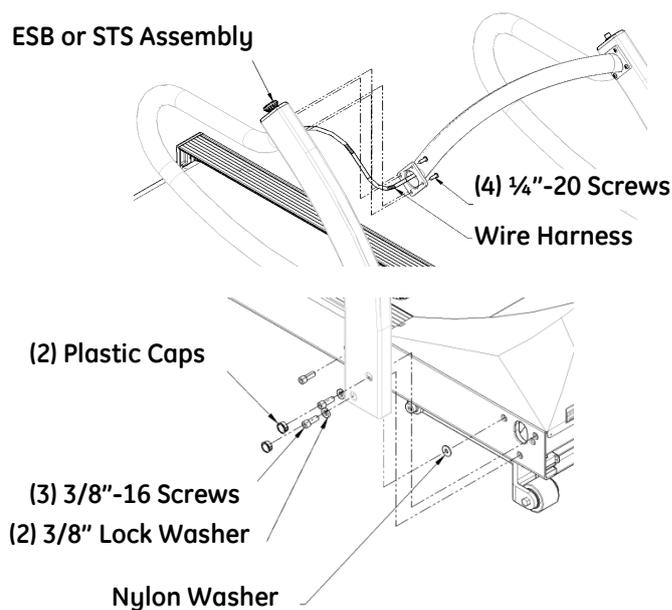
5. With the 5/32" Allen Wrench, remove the four 1/4"-20 screws holding the center handrail to the handrail assembly.
6. Feed the wire harness through the handrail assembly.

**NOTE:**  
Pay close attention not to damage the wires going through the handrail assembly.

  - a. If replacing the right handrail, only disconnect the right side ESB (normal configuration) or STS (alternate configuration) wires to remove the handrail.
  - b. If replacing the left handrail, first disconnect the ESB (normal configuration) or STS (alternate configuration) on the right side and feed the wire harness through the center handrail. Then disconnect the STS (normal configuration) or ESB (alternate configuration) wires on the left side to remove the handrail.
7. With the flat head screw driver, remove the two plastic caps covering the bolts on the handrail.
8. With the 5/16" Allen Wrench, remove the two 3/8"-16 screws from the handrail.

This allows the handrail to pivot to a resting position beside the treadmill.
9. Remove the remaining 3/8"-16 screws and nylon washer.

The handrail is ready to be replaced.
10. Reverse steps 1 through step 9 to reinstall the replacement handrail.



## Replacing the Center Handrail

### Tools Required

- 1/8" Allen Wrench
- 5/32" Allen Wrench
- Grounding Wrist Strap

Approximate time to complete: 30 min

1. Turn the treadmill's power switch to the OFF position.
2. Unplug the treadmill from the wall receptacle.
3. Allow the treadmill to discharge for 1 minute.
4. Remove the ESB or STS.

See "Replacing the Emergency Stop Button (ESB)" on page 148 or "Replacing the Stop Tether Switch (STS)" on page 150 for instructions.

### CAUTION:

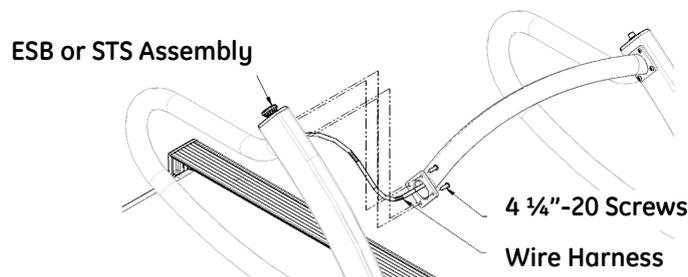
Use ESD precautions, including wearing a grounding wrist strap that is connected to an exposed metal connection point on the treadmill chassis.

5. With the 5/32" Allen Wrench, remove the eight 1/4"-20 screws holding the center handrail to the handrail assembly.
6. Feed wire harness through center handrail.

Pay close attention when removing as to not damage the wires running through the center handrail assembly.

The center handrail is ready to be replaced.

7. Reverse steps 1 through step 6 to install replacement center handrail.



## Removing and Reinstalling the Handrails for Moving

### Tools Required

- 1/4" Hex Socket or Flat Blade Screw Driver
- 5/16" Allen Wrench
- Flat head screw driver
- Grounding Wrist Strap

Approximate time to complete: 45 min

### NOTE:

This task is required only when you need to pass through a door opening less than the standard 36". It will be necessary to remove the handrail assembly if the door is not capable of being opened fully parallel to the door opening and clearance is less than 35 ½".

1. Turn the treadmill's power switch to the OFF position.
2. Unplug the treadmill from the wall receptacle.
3. Allow the treadmill to discharge for 1 minute.
4. Remove the (5) hood securing bolts.
5. Removed the hood and set it aside.

### CAUTION:

Use ESD precautions, including wearing a grounding wrist strap that is connected to an exposed metal connection point on the treadmill chassis.

6. At the Smart Power Supply Board, disconnect the two wire harnesses from the J4 and J5 connectors (ESB) and the J6 and J7 connectors (STS).
7. Slide the ESB and STS wires through the side channel of the motor pan.

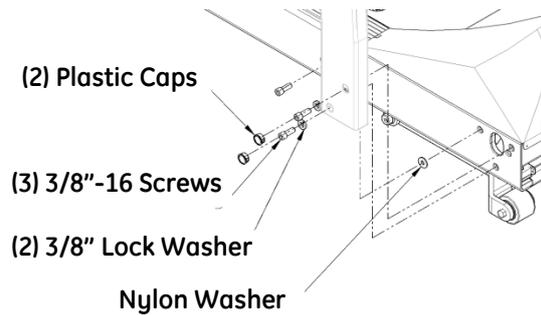
Pay close attention not to damage the wires going through the handrail assembly.

8. With the flat head screw driver, remove the two plastic caps on each side which are covering the bolts on the handrails.
9. With the 5/16" Allen Wrench, remove the two 3/8"-16 screws from each handrail.

This allows the handrail to pivot to a resting position beside the treadmill.

10. Remove the remaining 3/8"-16 screws and nylon washers.  
The handrail is ready to be lifted off as an assembly.

11. Reverse step 1 through step 10 to reinstall the replacement handrail.



## Replacing the Main power switch

### Tools Required

- 1/4" Hex nut driver or flat blade screwdriver
- 3/32" Flat blade electronic screwdriver
- Grounding Wrist Strap

Approximate time to complete: 25 min

1. Turn the treadmill main power switch to the OFF position.
2. Unplug treadmill plug from the wall receptacle.
3. Allow the treadmill to discharge for 1 minute.
4. Remove the two screws retaining the main power switch mounting plate.

### CAUTION:

Use ESD precautions, including wearing a grounding wrist strap that is connected to an exposed metal connection point on the treadmill chassis.

5. Gently pull the plate out, allowing the wires to feed through the hole.
6. Unplug the four (4) wire connectors from the main power switch to be replaced.

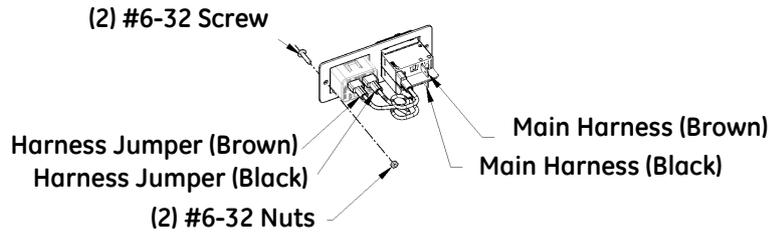
### CAUTION:

When reconnecting the main power switch, insert the brown wire on top and black wire on bottom, as shown in the picture in step 8.

7. With a small electrical flat blade screwdriver, push the holding clips on the sides of the main power switch to allow it to slide out of the plate.

The clips are part of the power switch housing and located on the back side of the plate.

8. Reverse step 1 through step 7 to reinstall main power switch while being sure to follow the caution in step 6.



## Adjusting the Run Belt Tracking and Tension

### Tools Required

- ¼" Allen wrench

Approximate time to complete: 25 min

### Adjusting belt tracking

Your running belt should remain centered, although a slight amount of movement to the left or right during use is normal. Do not allow the running belt to travel all the way to either side.

To adjust the belt tracking, do the following:

1. Turn the treadmill's power switch to the ON position.
2. Increase the speed to 3 mph (4.8 km/h)
3. Observe the left side of the running belt as it travels over the rear roller.

If the belt runs to the right side of the roller, turn the right bolt 1/8 turn clockwise and turn the left bolt 1/16 turn counterclockwise.

#### NOTE:

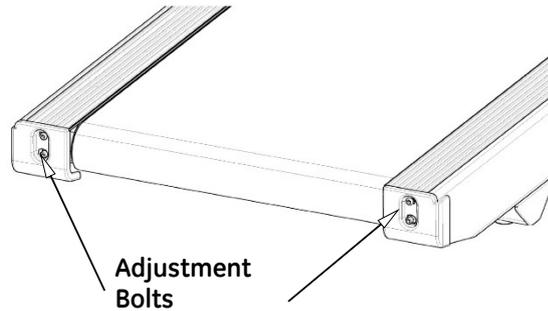
When tightening one side of the belt, always loosen the opposite side one-half as much. This procedure provides finer control, with a smaller impact on the belt tension.

4. Check the belt after 2 minutes, with the treadmill running at approximately 7 mph (11.3 km/h).

If the belt does not correct itself, continue with slight turns until the belt is in the center of the rear roller. If the belt runs toward the left side of the roller, reverse the adjustments.

#### NOTE:

Uneven floors accelerate belt misalignment. This situation may require more frequent adjustment to prevent belt damage.



### Adjusting belt tension

The running belt may stretch and loosen with regular use. This looseness is noticeable when the belt tends to hesitate or stick.

To adjust the belt's tension, do the following:

1. Turn the treadmill's power switch to the ON position.
2. Start the treadmill and increase to 1 mph (1.6 km/h).
3. Start walking on the treadmill, grabbing the side handrail and applying pressure with your foot to create resistance on the running belt.
4. If the running belt hesitates or slips on the front drive roller, tighten both tension bolts  $\frac{1}{2}$  turn (clockwise).
5. Repeat steps 2 through step 4 until the running belt stops slipping.

**NOTE:**

When the running belt is too tight, the edge of belt will curl, causing premature running belt failure.

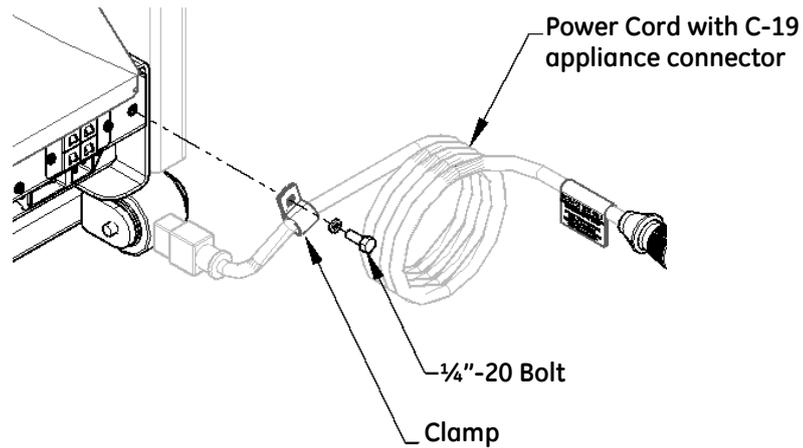
### Replacing the Power cord

**Tools Required**

- 7/16" Open End Wrench or Hex Socket

Approximate time to complete: 10 min

1. Turn the treadmill's power switch to the OFF position.
2. Unplug the treadmill from the wall receptacle.
3. Allow treadmill to discharge for 1 minute.
4. With the 7/16" wrench, remove the 1/4"-20 bolt, allowing the clamp to be removed from the front of the treadmill.
5. Unplug the C-19 appliance power cord from the front of the treadmill.
6. Reverse step 1 through step 5 to reinstall new power cord.



## Replacing the CE filter

### Tools Required

- Flat Head Screwdriver
- Grounding Wrist Strap
- Pliers or adjustable wrench

Approximate time to complete: 30 min

1. Turn treadmill main power switch to the OFF position.
2. Unplug the treadmill plug from the wall receptacle.
3. Allow the treadmill to discharge for 1 minute.
4. Remove the (5) hood-securing bolts.
5. Remove the hood and set it aside.

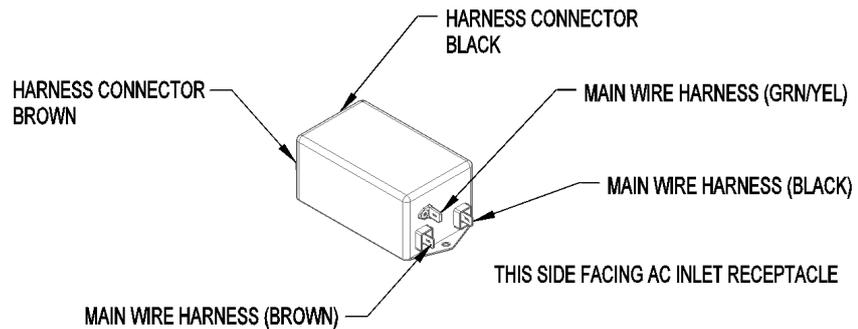
### CAUTION:

Use ESD precautions, including wearing a grounding wrist strap that is connected to an exposed metal connection point on the treadmill chassis. Put on the grounding wrist strap and ground it to the power cord ground screw.

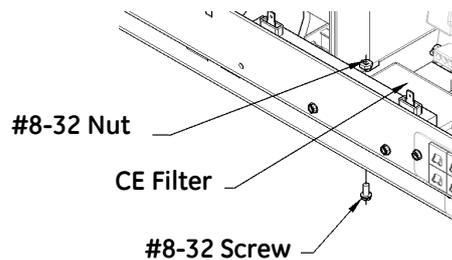
6. With pliers or an adjustable wrench, hold the 11/32" nuts while removing the two (2) #8-32 screws with a flathead screwdriver.
7. Remove the quick disconnect wire connection from the inline filter.

Note the wire's location for replacement.

## Component/FRU Removal and Replacement



- Reverse step 1 through step 7 to reinstall replacement CE Filter.



## Replacing the Relay

### Tools Required

- Flat Head Screwdriver
- Grounding Wrist Strap
- Pliers or adjustable wrench

Approximate time to complete: 20 min

- Turn treadmill main power switch to the OFF position.
- Unplug the treadmill plug from the wall receptacle.
- Allow the treadmill to discharge for 1 minute.
- Remove the (5) hood-securing bolts.
- Remove the hood and set it aside.

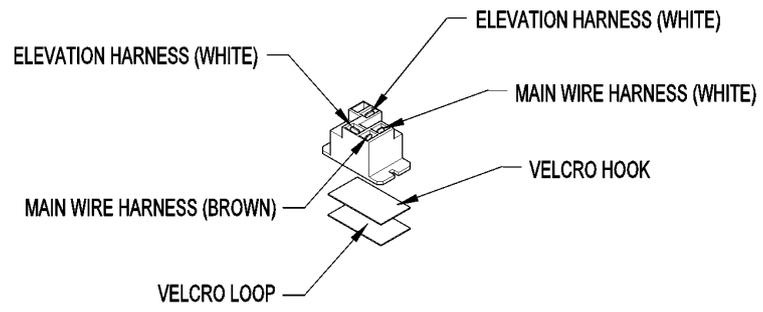
### CAUTION:

Use ESD precautions, including wearing a grounding wrist strap that is connected to an exposed metal connection point on the treadmill chassis. Put on the grounding wrist strap and ground it to the power cord ground screw.

- With pliers remove the quick disconnect wires connection from the relay.

Note the wire's location for replacement.

## Component/FRU Removal and Replacement



7. Reverse step 1 through step 6 to reinstall replacement relay.

# 9

## Calibration

Calibration is necessary to ensure your T2100-ST series treadmill is functioning properly. This chapter describes how to:

- install the T2100-ST series calibration software,
- install the serial drivers,
- connect the calibration software to the T2100-ST series treadmill,
- calibrate the treadmill's speed,
- calibrate the treadmill's elevation, and
- understand the calibration software's tabs.

### Installing the T2100-ST Series Calibration Software

This section explains how to install the T2100-ST Series Calibration Software on the field service engineer's PC in preparation for calibrating the T2100-ST Series treadmill. Compatible PC operating systems are Windows 7, 8, 8.1, and 10 (both 32 bit and 64 bit).

**NOTE:**

This section can be skipped if the T2100-ST Series Calibration Software is already installed on the PC being used. If already installed, proceed to "Installing the Serial Drivers" on page 163.

**NOTE:**

Do not plug any hardware including treadmill cable into the PC unless directed to do so.

1. Download the T2100-ST Series Calibration software using the following procedure:
  - a. Go to the GE Service Support Central site;

[http://supportcentral.ge.com/products/sup\\_products.asp?prod\\_id=20335](http://supportcentral.ge.com/products/sup_products.asp?prod_id=20335)

**NOTE**

A Single Sign On (SSO) user ID and password are required to log on to the site.

- b. In the *Product Support* box, select *Carts-Stress Software* under the *Tools* heading.  
*GE Libraries* opens to the *Carts-Stress* folder.
- c. Select *Software Library > T2100 ST1 and ST2 Treadmill* and download the correct version of the calibration software.

There are two versions of calibration software:

- T2100-ST\_Series\_Calibration\_Software\_1\_0\_1\_5.zip  
This version of the software is for calibrating firmware version 1.57. If the T2100-ST treadmill Firmware has been upgrade to V1.66 this software is no longer compatible.
- T2100 ST1 and ST2 Calibration Software \_1\_0\_1\_8.zip  
This version of the software is for calibrating firmware version 1.59+ thru 1.1812+.

For more information, refer to *T2100 ST1 and ST2 Calibration Software Information.docx*, also found at this location.

**NOTE**

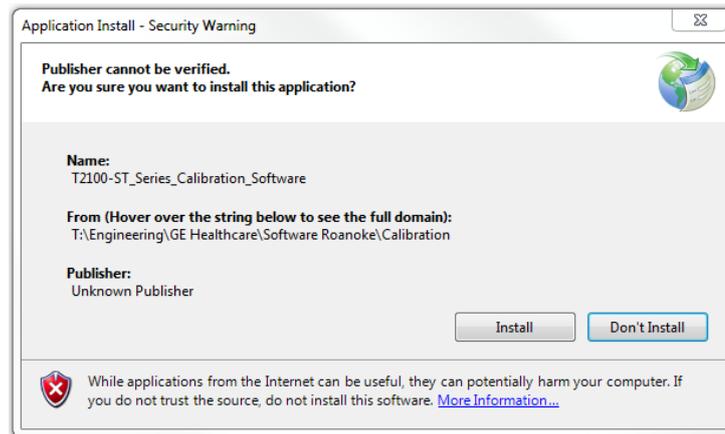
Service personnel can also call Technical Support to receive the calibration software via email.

2. To install the T2100-ST Series calibration software, extract the zip file and double-click *setup.exe* as located in the previously chosen directory.

**NOTE:**

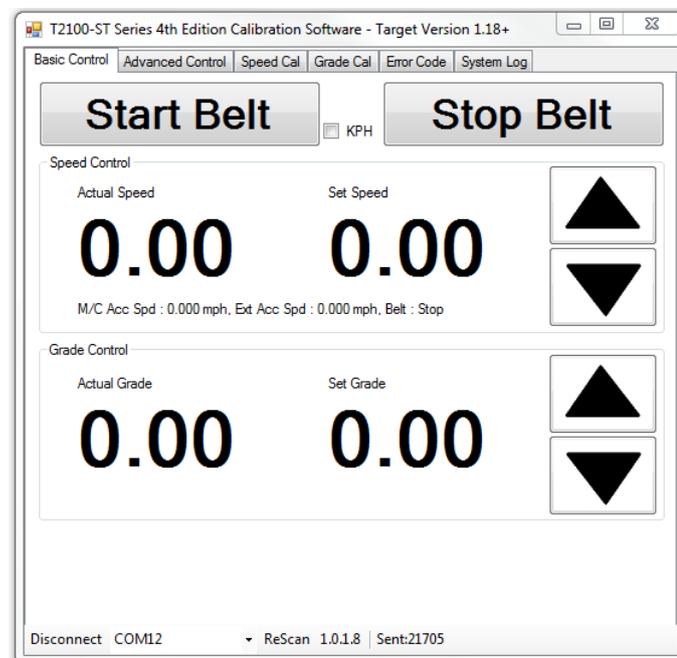
The following instructions are for a PC running Windows 7. The basic instruction flow should be the same for Windows 8 and 10, although the screens may vary. If necessary, refer to Appendix B, "Reference Documents", for a list of reference documents that contain helpful OS-specific guidance.

*The Application Install – Security Window* opens.



3. Click *Install*.

With a successful software installation, the software starts automatically.



4. In preparation for the next section, close the *T2100-ST Series Calibration Software* window.

## Installing the Serial Drivers

This section describes how to install the USB Serial Drivers on the field service engineer's PC in preparation for running the Calibration Software. Compatible PC OSes are Windows 7, 8, 8.1, and 10 (both 32 bit and 64 bit).

### NOTE:

This section can be skipped if the USB Serial Drivers are already installed on the PC being used. If already installed, proceed to "Software Interface Instruction T2100-ST Series Calibration" on page 167.

**NOTE:**

Do not plug any hardware including the treadmill USB cable into the PC until this step is completed.

1. Locate the flash drive (p/n 317-160-313) shipped with the T2100-ST series treadmill and insert into a USB port of the PC.
2. Browse the flash drive and locate the file named CDM21218\_Setup.exe and double click on it to start the install.

**NOTE:**

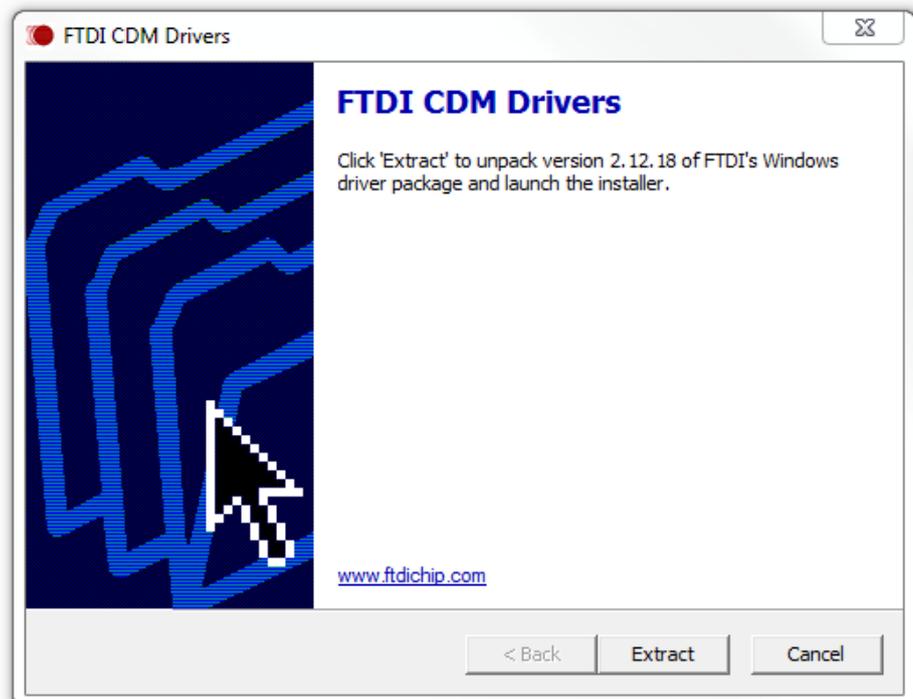
Do not download the driver from the FTDI website.

**NOTE:**

The following instructions are for a PC running Windows 7. The basic instruction flow should be the same for Windows 8 and 10, although the screens may vary. If necessary, refer to Appendix B, "Reference Documents", for a list of reference documents that contain helpful OS-specific guidance.

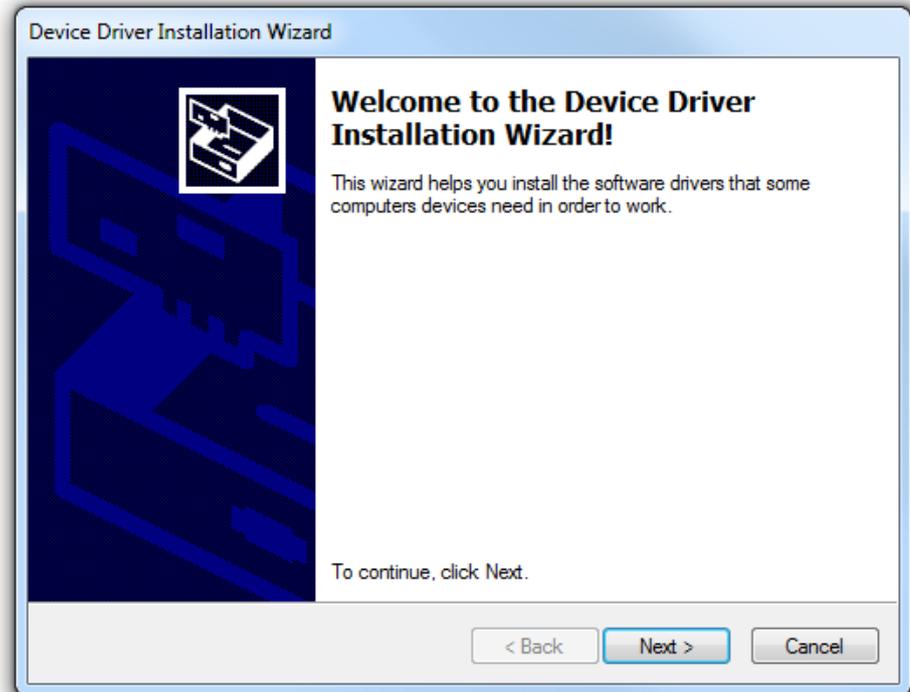
3. If prompted Do you want to allow the following program to make changes to this computer, verify the program name, CDM21218\_Setup.exe, and publisher, Future Technology Devices International, Ltd, and click Yes.

The *Driver Extract* window opens.



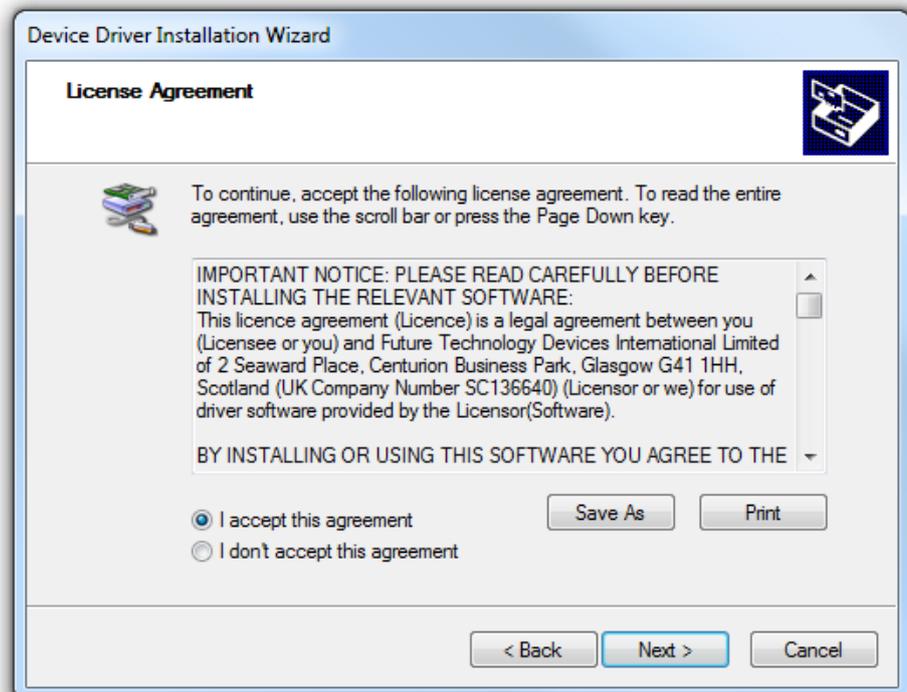
4. Click *Extract*.

The *Device Driver Installation Wizard* opens.



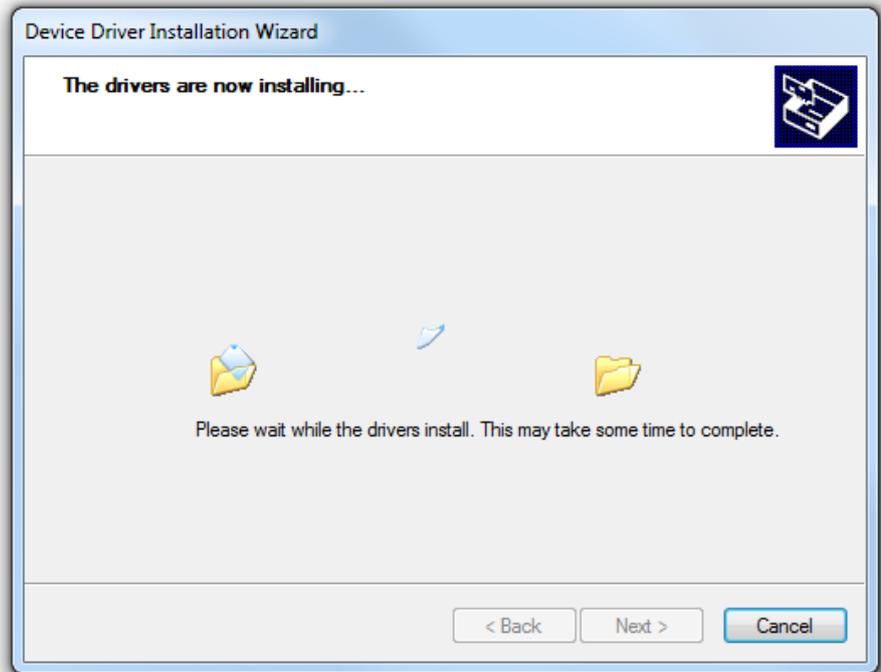
5. Click *Next*.

The *License Agreement* window opens.



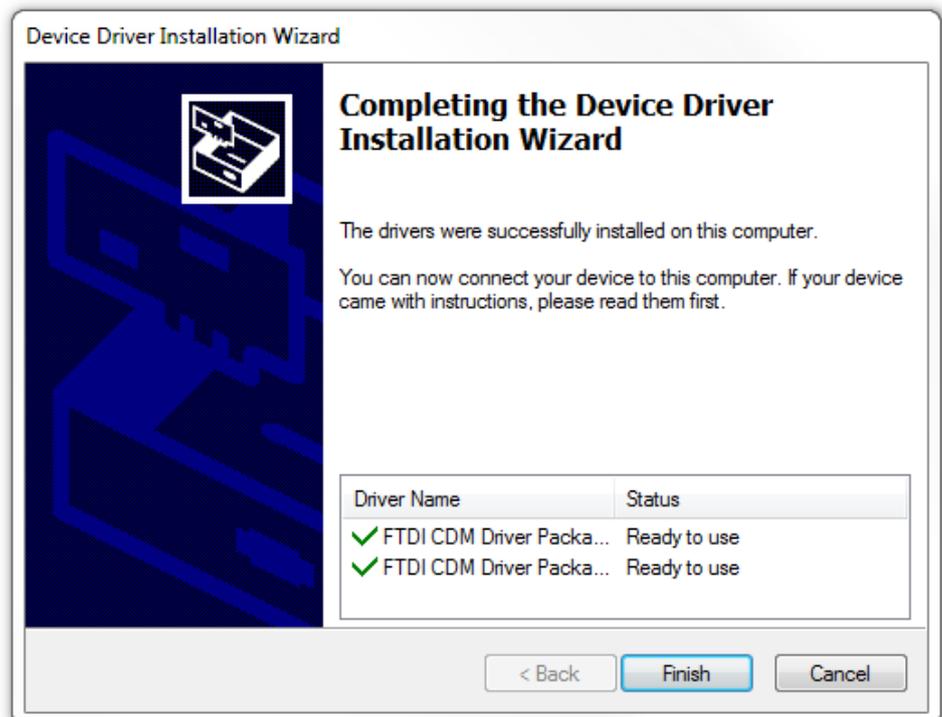
6. Select *I accept this agreement* and click *Next*.

An installation progress window opens.



The installation process should take less than a minute.

The *Device Driver Installation Wizard* window opens, confirming a successful installation.



7. To close the window, click *Finish*.

## Software Interface Instruction T2100-ST Series Calibration

### Tools Required

- Calibration Program (T2100-ST Series Calibration Software)
- Chalk or some other temporary marking device
- Computer or laptop (PC)
- Serial or USB Communication Cable

### NOTE:

This task needs to be performed prior to speed or elevation calibration.

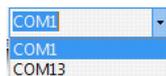
1. Connect the treadmill to AC power.
2. Connect the treadmill and PC.
  - If using USB cable, connect a USB cable (GE part number 2044095-001) between the PC and the T2100-ST series treadmill and turn on the treadmill.
  - If using RS232 serial cable:
    - a. Connect one end of the RS232 serial cable (GE part number 2097829-109) to the RS232 COM port located on the lower front panel of the T2100-ST series treadmill.
    - b. Connect the other end of the RS232 serial cable (GE part number 2097829-109) to a COM port on the PC.
    - c. Turn on the Treadmill.
3. Open T2100-ST Series Calibration Software by browsing for the file named T2100-ST\_Series\_Calibration\_Software.application and then double clicking on it.

### NOTE:

This file should be found in the directory in which the file ST\_Series\_Calibration\_Software.Zip was unzipped.

4. In the lower left of the window, select the appropriate COM and press *Open*.

For example:



5. When connected, the numerical count to the right of *Sent:* will increase in value:

ReScan | 1.0.1.4 Sent:6091

This is the indication that the communication has been established with the treadmill.

## Calibrating Speed

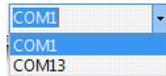
### Tools Required

- Calibration Program (T2100-ST Series Calibration Software)
- Stop watch (handheld or software app) or watch with a second hand
- Chalk or some other temporary marking device
- Computer or laptop
- Serial or USB Communication Cable

Approximate time to complete 20 min

1. If not already using it, open the T2100-ST Series Calibration Software.
2. In the lower left of the window, select the appropriate COM and press *Open*.

For example:



When connected, the numerical count to the right of *Sent*: will increase in value:

ReScan | 1.0.1.4 Sent:6091

This is the indication that the communication has been established with the treadmill.

3. Select the *Speed Cal* tab.
4. Remove all tools from the running belt and stand clear of the running surface.
5. Select *Reset Treadmill*.

The treadmill will reset and return to the parked position.

### NOTE

After the down relay on the Smart Power Supply board cycles (two audible clicks), a 20 second timer starts during which the following step (start speed calibration) must be initiated. If this time window is missed, this step must be repeated.

6. Select *Start Speed Cal*.  
You will be promoted with "Treadmill Entering Calibration".
7. Click *OK*.

The running belt will pause for approximately 8 seconds and slowly increase speed, establishing multiple calibration points. This procedure may take approximately 10 to 15

seconds per calibration point, with the overall time of the speed calibration procedure taking up to 5 minutes to complete.

When calibration routing is complete the treadmill will stop and, if successful, the Speed Calibration table will have automatically updated all of the values in the *Measured Speed* column (for example see table below). At this point running belt calibration is complete.

PWM Output	Measured Speed
PWM Output 1%	0.151
PWM Output 5%	0.774
PWM Output 10%	1.552
PWM Output 20%	3.112
PWM Output 30%	4.679
PWM Output 40%	6.252
PWM Output 50%	7.834
PWM Output 60%	9.426
PWM Output 70%	11.026
PWM Output 80%	12.641
PWM Output 85%	13.252
PWM Output 87.5%	13.266
PWM Output 90%	13.285
PWM Output 93.5%	13.298

**NOTE:**

If the calibration routine fails, refer to the flow chart titled *Smart Power Supply Error Code 1 Flow Chart 1J "Bad Calibration Error (1)"* on page 87.

8. Select the *Basic Control* tab, select *Start Belt*, and then press  one time.

The running belt will start at 0.1 mph.

**NOTE**

You have two ways to change speed:

- selecting  or  and adjusting to the desired speed, or
- double-clicking on the *Set Speed* and typing in the desired speed

Set Speed

**0.10**

9. To validate the belt speed calibration, do the following:
  - a. Verify a point on the run belt that can be seen plainly with each full revolution; this could be the seam or a chalk line you make on the belt.

- b. Start the treadmill and adjust the speed to 1 mph/1.6 km/h.
- c. Start the stopwatch when the mark on the belt passes an established point on the treadmills side rail.
- d. Count the number of passes the mark makes in a 60 second period. The count should be 8 passes; this is within the 2% speed accuracy.
- e. Set the speed to 5 mph/8.0 km/h.
- f. Count the passes the belt makes but this time in a 15 second period. The count should be 10 passes; this is within the 2% speed accuracy.
- g. Do one of the following, depending on the speed accuracy:

- If treadmill achieved 2% accuracy, select *Stop Belt*.

Speed calibration is complete.

Proceed to "Calibrating Elevation" on page 171 if a Smart Power supply or elevation actuator was replaced.

- If the treadmill does not achieve the 2% speed accuracy, this can be adjusted. When needing to further adjust the speed accuracy, this can be achieved by changing the Motor Controller Speed Offset and External Sensor Speed Offset.

Proceed to step 10.

10. Select *Stop Belt* and return to the *Speed Cal Tab*.
11. If the actual running belt is running slower than target speed, double-click the *Motor Controller Speed Offset* and decrease the percentage between 95 to 99.99%.
12. If the actual running belt is running faster than target speed, double-click the *Motor Controller Speed Offset* and increase the percentage between 100.01 to 104.99%.
13. Adjust the *External Sensor Speed Offset* to match the changed percentage of the *Motor Controller Speed Offset*.  
This is critical to ensure the treadmill does not shut down due to incorrectly reported speed verification (refer to Smart Power Supply Error Code 3 through 7 in Chapter 6, "Troubleshooting").
14. Repeat steps 5 through 9 to confirm proper adjustment of the actual running belt speed.

## Calibrating Elevation

### NOTE:

Calibrating Elevation is required if a Smart Power Supply or Elevation Actuator was replaced, or if reported elevation is not achieving desired accuracy.

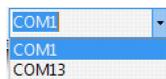
### Tools Required

- Calibration Program (T2100-ST Series Calibration Software)
- Tape Measure
- ¼" Nut Driver or Flat Headed Screw Driver
- T15 Torx Screw Driver
- Phillips Head Screw Driver
- Needle Nose Pliers
- Computer or laptop
- Serial or USB Communication Cable

Approximate time to complete 30 min

1. If not already using it, open the T2100-ST Series Calibration Software.
2. In the lower left of the window, select the appropriate COM and press *Open*.

For example:



When connected, the numerical count to the right of *Sent:* will increase in value:

ReScan | 1.0.1.4 Sent:6091

This is the indication that the communication has been established with the treadmill.

3. Select the *Grade Cal* tab.
4. Select *Test 0.5%* to elevate the treadmill 0.5% and then cycle the treadmill power.  
By resetting the power, the treadmill will automatically find the lower limit position.
5. Using a tape measure, verify the 0% elevation.  
Refer to the "Elevation Chart" on page 174.
  - a. If the zero position requires adjustment, remove actuator top cover.

VonWeise Actuator

MSI Actuator



**NOTE:**

The system can have either VonWeise or MSI Actuator they only difference is the zero position is adjusted.

- b. Do one of the following:
- If the position is low, adjust the upper cam with needle nose pliers clockwise into the limit switch "see note".
  - If position is high, adjust the upper cam with needle nose pliers counterclockwise away from limit switch "see note".

VonWeise Actuator



MSI Actuator



**NOTE:**

When adjusting upper cam on VonWeise Actuator, an audible click will be heard. Make adjustments in small increments, preferably a single click at time.

On MSI Actuator loosen screw to relieve tension then position upper cam. This is a friction fit be careful to move in small increments, tighten screw when complete.

- c. Repeat step 4 to 5 to reestablish 0% elevation.
6. To ensure the upper limit switch is not engaged, change the 25% default value of **481** on the *Grade Cal* tab to a new value of **500**.
7. Select *Test 25%* and verify with a tape measure that the value is 18.0" to 18.1".

The lower cam should almost be in contact with the limits switch.

If the *Upper Elevation Limit* is reached prior to reaching the target, the treadmill will automatically reset to the 0% elevation.

- a. If this happens on VonWeise Actuator, use a large (.375" wide) flat blade screwdriver to rotate the lower switch cam counterclockwise the proper amount to assure the treadmill will not elevate past 25%. On MSI Actuator loosen screw to relieve tension then position lower cam. This is a friction fit be careful to move in small increments, tighten screw when complete.

VonWeise Actuator



MSI Actuator



- b. If the cam was turned to adjust the lower switch; the upper cam will need to be reset to zero to allow the treadmill to park in the correct position. Repeat step 4 to 5 to reestablish 0% elevation.

**NOTE:**

When an adjustment on VonWeise Actuator is made to the lower cam, the upper cam moves in tandem.

On MSI Actuator when an adjustment is made to the lower cam, the upper cam does not move in tandem.

- 8. When the desired results are achieved change the *Test 25%* value back to **481**.
- 9. Select *Test 0.5%*.
- 10. Using the tape measure, verify the elevation height is within specification +/- 2%,  
Refer to the "Elevation Chart" on page 174.
- 11. If incorrect, compensate by making small incremental adjustments of 1 to 5 counts in *Elevation Count* column next to the elevation grade being tested by typing the new value and selecting *OK* or pressing *Enter*.

Grade	Inches	MM	Elevation Count	Test
0%	2.64"	67mm	0	<input type="button" value="Home"/>
0.5%	3.35"	85mm	<input type="text" value="19"/>	<input type="button" value="Test 0.5%"/>
5%	5.92"	150.4mm	<input type="text" value="93"/>	<input type="button" value="Test 5%"/>
10%	9.18"	233.2mm	<input type="text" value="194"/>	<input type="button" value="Test 10%"/>
15%	12.45"	316.2mm	<input type="text" value="298"/>	<input type="button" value="Test 15%"/>
20%	15.12"	384mm	<input type="text" value="389"/>	<input type="button" value="Test 20%"/>
25%	17.88"	454.2mm	<input type="text" value="481"/>	<input type="button" value="Test 25%"/>

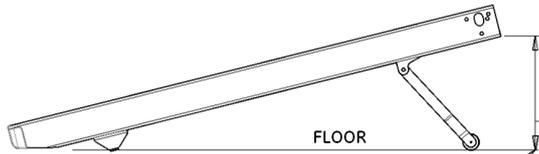
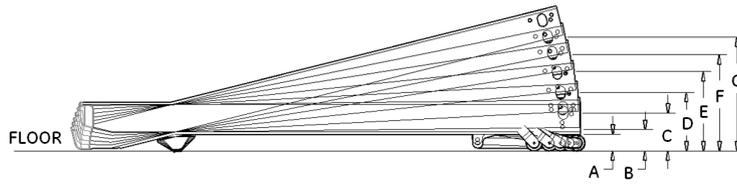
- 12. Select *Test 0.5%* and recheck the measurement.

**NOTE:**

When selecting the grade being tested, the treadmill will change elevation.

- 13. Repeat steps 9 through 12 for 5%, 10%, 15%, 20%, and 25%.
- 14. Cycle the power to return the treadmill to 0% elevation.
- 15. If the actuator cap was removed, replace the cap.

## Elevation Chart

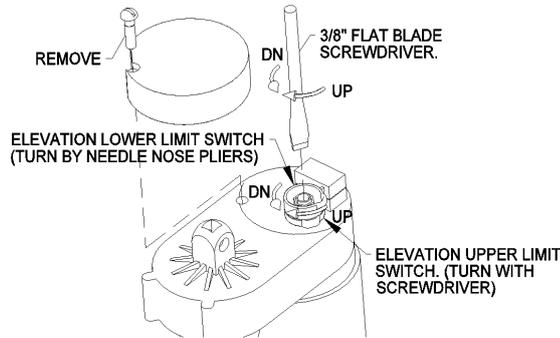


MEASUREMENT SHOULD BE TAKEN FROM THE BOTTOM EDGED OF THE SIDERAIL PERPENDICULAR TO FLOOR

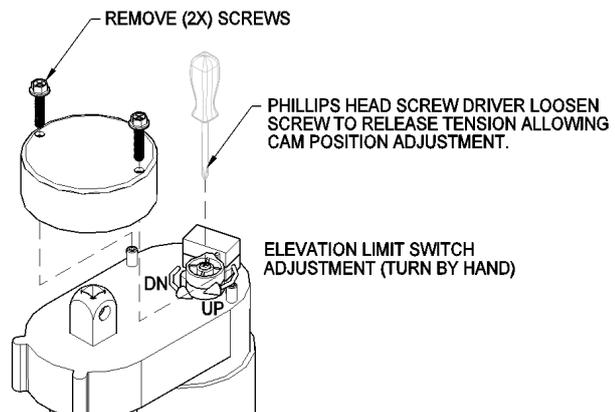
Dim.	Grade	Inches	MM
A	0%	2.64"	67mm
B	.5%	3.35"	85mm
C	5%	5.92"	150.4mm
D	10%	9.18"	233.2mm
E	15%	12.45"	316.2mm
F	20%	15.12"	384.0mm
G	25%	17.88"	454.2mm

## Elevation Actuator

### VonWeise Actuator

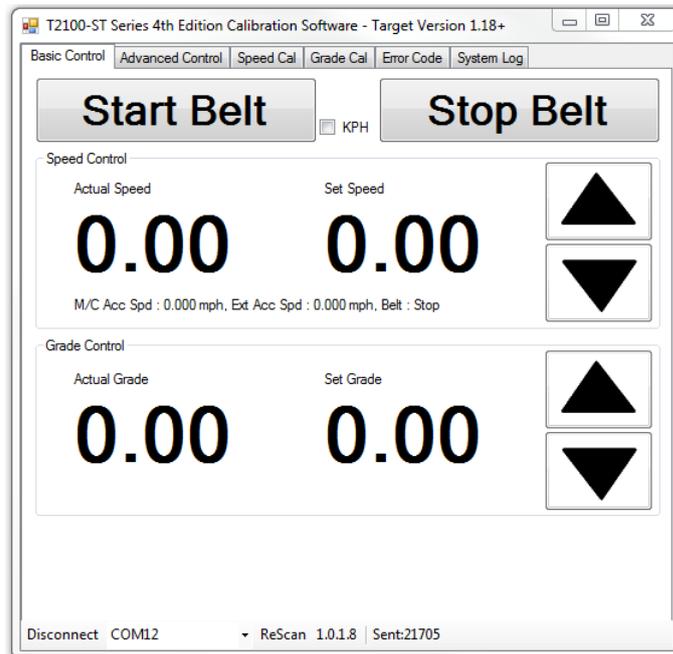


### MSI Actuator



## Calibration Software Tabs

### Basic Control Tab



**Start Running Belt:** Select *Start Belt*

**Speed Control:** Press ▲ one time. The running belt will start at 0.1 mph. You have two ways to change speed:

- Select ▲ or ▼ and adjust to the desired speed
- Double-click on *Set Speed* and type in the desired speed

Set Speed  
**0.10**

**Stop Running Belt:** Select *Stop Belt*. The running belt will go to and maintain 0.0 mph for about 3 minutes before the belt starts to freewheel.

**MPH Versus KPH:** The software is configured to run in MPH as a standard configuration. When it is desired to run in KPH, check the *KPH* box. The next time you select *Start Belt*, the treadmill will function in KPH.

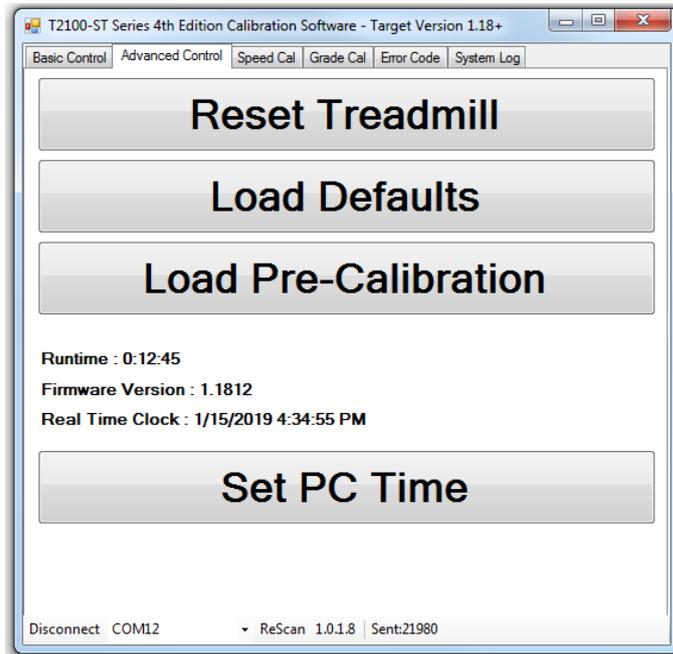
**Grade Control:** Press ▲ one time. the elevation will increase to .5%. You have two ways to change grade:

- Select ▲ or ▼ to adjust elevation by .5% per click.
- Double click on *Set Grade* and type in the desired grade %.

Set Grade  
**0.50**

**COM port:** Interface COM port with host system.

## Advanced Control Tab



**Reset Treadmill:** Select *Reset Treadmill*. The treadmill will perform a software reset: it will return to 0.0% elevation and reset the drive.

**Load Defaults:** Select *Load Defaults* to reset the speed calibration to 0.000.

**NOTE:**

The treadmill needs speed calibration to start the running belt.

**Load Pre-Calibration:** Select *Load Pre-Calibration* to upload calibration values.

**NOTE:**

Only to be performed when calibrating speeds fails, to assist in troubleshooting.

**Set PC Time:** The FGLF0495-3 Smart Power Supply is equipped with a real time clock. The time and date can be updated by selecting *Set PC Time* to match the computer system. This will assist when troubleshooting is required.

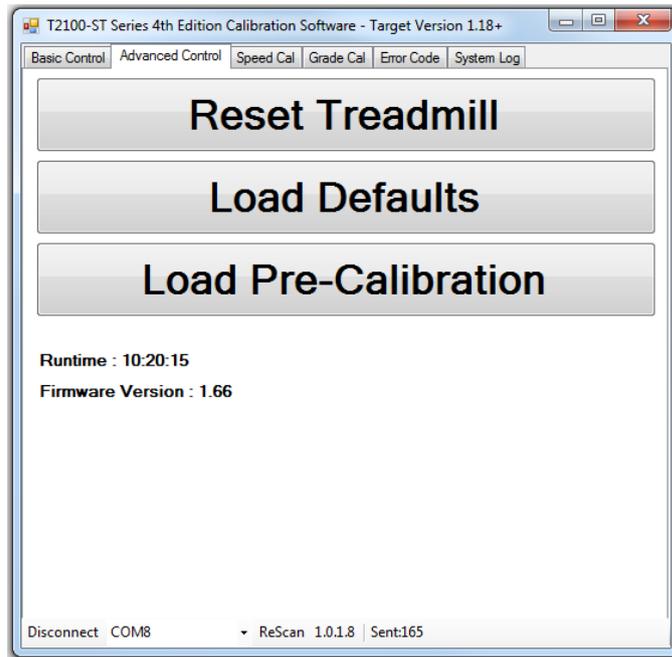
**NOTE:**

The FGLF0495-1 Smart Power Supply is not equipped with real time clock.

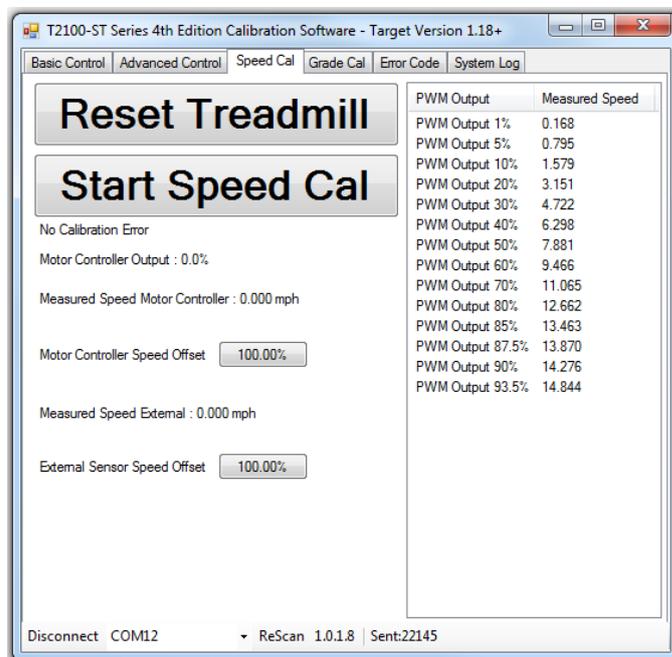
**Runtime:** Information indicating treadmill total runtime.

**Firmware Version:** Software version loaded in the smart power supply board.

Treadmill running firmware Version 1.XX does not have the ability to Set PC Time displays as follows:



### Speed Cal Tab



**Reset Treadmill:** Select *Reset Treadmill*. The treadmill will perform a software reset: it will return to 0.0% elevation and reset the drive.

**Start Speed Calibration:** Select *Start Speed Cal* to initialize the speed calibration routine.

## Calibration

**No Calibration Error:** Information regarding calibration error.

**Motor Controller Output:** When the treadmill speed is running, this displays the motor controller % of speed output.

**Measured Speed Motor Controller:** Information from the motor controller speed sensor.

**Motor Controller Speed Offset:** The ability to fine tune speed output when outside the 2% speed accuracy.

**Measure Speed External:** External speed sensor is in place to detect speed abnormalities.

**External Sensor Speed Offset:** The ability to fine tune the speed verification to the Motor controller speed sensor.

**PWM Output:** Calibration information reported in % to measured speed.

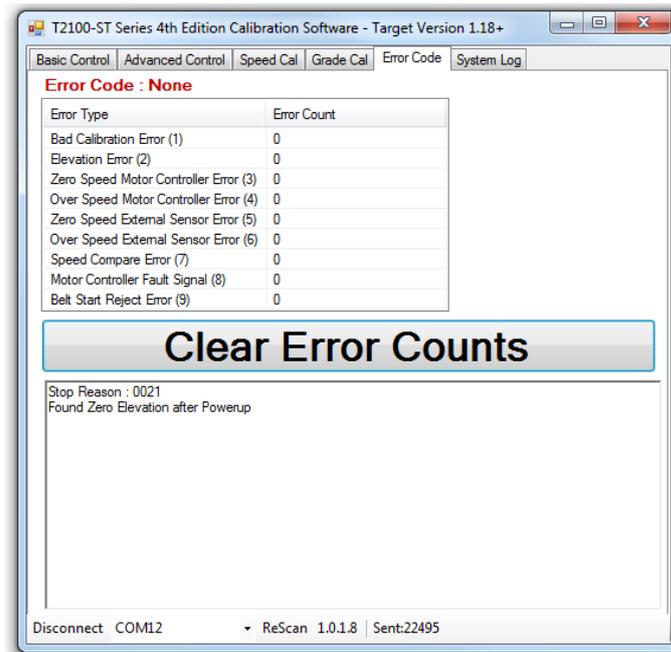
### Grade Cal Tab

Grade	Inches	MM	Elevation Count	Test
0%	2.64"	67mm	0	Home
0.5%	3.35"	85mm	19	Test 0.5%
5%	5.92"	150.4mm	93	Test 5%
10%	9.18"	233.2mm	194	Test 10%
15%	12.45"	316.2mm	298	Test 15%
20%	15.12"	384mm	389	Test 20%
25%	17.88"	454.2mm	481	Test 25%

**Elevation Count:** The ability to fine tune the actual elevation target height.

**Test:** The ability to test each elevation calibration point.

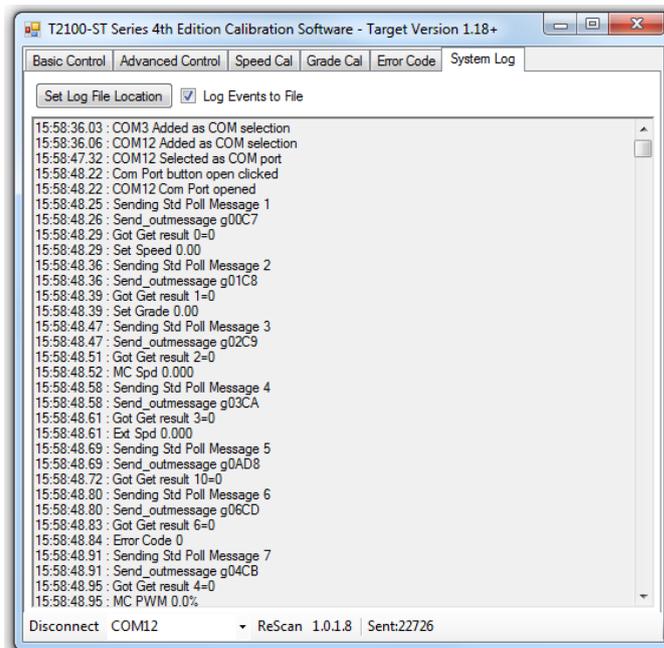
## Error Code Tab



**Error Code:** The ability to view error codes that have accrued during operation for the treadmill.

**Clear Error Counts:** The ability reset the error code counter to zero.

## System Log Tab



**Set Log File Location:** The ability to record treadmill communication for trouble shooting.

## Calibration

***Log Events to File:*** When checked this will create a TXT file for trouble shooting. When not selected, it only displays information in the window.

# 10

## Functional / Post Repair / Preventative Maintenance Checkout Procedures

This chapter identifies the tools and checkout procedures that need to be performed to ensure the T2100-ST Series treadmills and individual components are functioning properly and safe to use. These procedures are performed after completing any repair, exchange, or preventative maintenance procedure.

### Tools Required

All or some of the following tools may be required to perform the various checkout procedures. For a list of which tools are required for each procedure, refer to “Procedural Lists” on page 185.

1. Applicable service and/or operator manual, as needed.
2. Standard hand tools.
3. Anti-static wrist strap.
4. Leakage tester.
5. Multimeter.
6. T2100-ST Series Calibration software.

### Checkout Procedures

The following topics detail the individual checkout procedures. For a list of which procedures to perform after completing each repair or preventative maintenance procedure, refer to “Procedural Lists” on page 185.

## Visual/Functional Checks

1. Perform the following inspections for visual signs of excess wear or damage.
  - a. Check the device case for cracks or any other visual damage.
  - b. Check plugs, cords, cable insulation jacket, and connectors for bent prongs or pins.
  - c. Check handles for wear and or damage.
  - d. Check walking belt for wear and or damage.

*Expected Results:* No visual damage and wear detected

Pass/Fail

## Operational Checks

2. Inspect the following to ensure they are operational.

- a. Power Switch

- Connect T2100-ST Series to external power.
- Power on the device

*Expected Results:* System powers on

Pass/Fail

- b. Emergency Stop Switch

- Power on T2100-ST Series
- Adjust speed manually by controlling the unit.
- Press the Emergency stop switch.
- Release the Emergency Stop Switch.

*Expected Results:* Unit will coast to a stop; running belt will move freely.

Pass/Fail

- c. Safety Tether System

- Power on T2100-ST Series
- Adjust speed manually by controlling the unit.
- Pull the Safety Tether System.
- Replace the Safety Tether System.

*Expected Results:* Unit will have a controlled deceleration to a stop; running belt will not move freely.

Pass/Fail

## Speed Calibration

3. Perform the following speed calibration and verification:

- a. Power on T2100-ST Series treadmill.
- b. Perform the "Calibrating Speed" procedure on page 168.

*Expected Results:* The system speed is successfully calibrated without errors.

Pass/Fail

## Elevation Calibration

4. Perform the following elevation calibration and verification:
  - a. Power on T2100-ST Series.
  - b. Perform the "Calibrating Elevation" procedure on page 171.

*Expected Results:* The system elevation is successfully calibrated without errors. Pass/Fail

## Test Plug Check

5. Perform the following tests.
  - a. Turn off and remove the controlling device from back of treadmill.
  - b. Plug the Test Plug (secured to the frame) into the RS232 port.
  - c. Perform the "Test Plug Procedure" on page 43.
  - d. When the unit passes the test, turn it off and reconnect to controlling device.

*Expected Results:* The treadmill will elevate to 20% with a cycled speed of 10 mph, and then return to 0% and 0.0 mph. Pass/Fail

## Walking Belt Tension / Tracking

6. Perform the following to check the walking belt tension and tracking.
  - a. Power on the T2100-ST Series treadmill.
  - b. Adjust the speed manually by controlling the unit.
  - c. Perform the procedure "Running Belt Tension Adjustment" on page 42.
  - d. Perform the procedure "Secure Cables
  - e. Tie down cables to ensure they do not get caught in the wheels or the elevation racks.
  - f. "Running Belt Tracking Adjustment" on page 42.

*Expected Results:* Belt should not slip and the rear roller should have no alignment tracking problem. Pass/Fail

## Walking Belt Speed Verification

7. Perform the following to check the walking belt speed.
  - a. Power on T2100-ST Series
  - b. Adjust speed manually by controlling the unit.
  - c. Set speed to 5.0 mph/8.0 km/h.

*Expected Results:* 10 revolutions of the running belt in 15 seconds. Pass/Fail

## Host Communication

8. Perform the following to test the host device's communication with the treadmill.
  - a. Attach the controller cable for the host system to the T2100-ST Series treadmill.
  - b. Power on the T2100-ST Series treadmill.
  - c. Power on the host system.
  - d. Adjust the treadmills speed and elevation from the host system.  
 Expected Results: Elevation and speed can be adjusted with the controlling device. Pass/Fail
  - e. Stop the treadmill from the host system.  
 Expected Results: Unit can be stopped with the controlling device Pass/Fail

## Electrical Safety Checks

9. Perform the following to test the electrical safety of the treadmill.
  - a. Conduct the tests described in "Electrical Safety Tests" on page 38 and "Conducting Leakage Tests" on page 40.
  - b. Report the pass/fail status for each step performed.
  - c. Report the measured values.
 Expected Results: All electrical safety tests pass. Pass/Fail

Earth Leakage Current to Ground					limits
1.	Forward Polarity (L1, L2)	NC	_____μA	Pass/Fail	500μA
2.	Neutral (L2) open, Forward Neutral Polarity	SFC	_____μA	Pass/Fail	500μA
3.	Ground open, Forward Polarity	SFC	_____μA	Pass/Fail	500μA
4.	Ground open, Reverse Polarity	SFC	_____μA	Pass/Fail	500μA
5.	Neutral (L2) open, Reverse Polarity	SFC	_____μA	Pass/Fail	500μA
6.	Reverse Polarity (L2, L1)	NC	_____μA	Pass/Fail	500μA
Ground Continuity					Resistance
1.	AC mains power cord ground prong to exposed metal surface (ground lug)	N/A	_____mΩ	Pass/Fail	100mΩ

## Preventative Maintenance Visual/Functional Checks

10. Perform the following inspections for visual signs of excess wear or damage.
  - a. Check the device case for cracks or any other visual damage.
  - b. Check plugs, cords, cable insulation jacket, and connectors for bent prongs or pins.
  - c. Check handles for wear and or damage.
  - d. Press the Emergency STOP Button (ESB) and the treadmill will coast to a stop. To release the emergency stop switch, turn the push button  $\frac{1}{4}$ -turn in counter clockwise direction. The treadmill will return to 0.0% elevation.
  - e. Pull the safety tether system (STS) the treadmill will have a controlled stop. To re-attach the pull tether, attach clip to the original position on the switch. The treadmill will return to 0.0% elevation.
  - f. Evaluate the condition of the deck and running belt.
  - g. Check running belt tension and correct as required.
  - h. Observe running belt tracking and correct as required.
  - i. Check the drive belt tension and correct as required.
  - j. Clean and lubricate the treadmill elevation screw.  
If the treadmill hood has been opened, check that the interior is free of excessive dust build-up, if necessary; use commercially available compressed air to clean following manufacturer's instructions.

*Expected Results:* No visual damage, no wear detected, maintenance checks / procedures performed successfully.

Pass/Fail

## Procedural Lists

The following tables identify the tools, checkout procedures, and safety electrical checks required after completing each repair or preventative maintenance procedure. To use these tables, find the applicable procedure in the first column, then locate the *Tools*, *Functional Checkout Procedures*, and *Electrical Safety Checks* associated with that procedure. Use the numbers in those columns to locate the corresponding details earlier in this chapter.

For a list of the tools, refer to “Tools Required” on page 181.

For the checkout procedure details, refer to “Checkout Procedures” on page 181.

For the electrical safety check details, refer to “Electrical Safety Checks” on page 184.

## FRU Repairs / Exchange

Description	Tools	Functional Checkout Procedure	Electrical Safety Checks
DC Motor Assembly 2097829-020 and associated hardware.	1, 2, 3, 4, 6	1, 3, 8	9
Board FG0495-1 Universal Power Supply FW V1.66 2097829-022 and associated hardware.	1, 2, 3, 4, 6	1, 3, 4, 8	9
Board FG0495-3 Universal Power Supply FW V1.18.12 2097829-080 and associated hardware.	1, 2, 3, 4, 6	1, 3, 4, 8	9
Wheel Landing Gear 2097829-024	---	5	---
Pull Tether Assembly 2097829-026	1, 2, 3, 4	1, 2, 8	9
Emergency Stop with Guard Assembly 2097829-011	1, 2, 3, 4	1, 2, 8	9
Actuator 115V 2097829-028 or Actuator MSI 2097829-088 and associated hardware.	1, 2, 3, 4, 6	1, 4, 8	9
Actuator 220V 2097829-029 or Actuator MSI 2097829-089 and associated hardware.	1, 2, 3, 4, 6	1, 4, 8	9
Fan Assembly DC W/Connector 2097829-030 and associated hardware.	1, 2, 3, 4	1, 8	9
Resistor Omite 85/150MJ40R0DE 2097829-031 and associated hardware.	1, 2, 3, 4	1, 8	9
Filter CorCom F4635/10EHT1 2097829-032/082 and associated hardware.	1, 2, 3, 4	1, 2, 8	9
Drive DC Servo PC2303-012-N 2097829-033 and associated hardware.	1, 2, 3, 4, 6	1, 3, 8	9
Breaker 3 amp 2097829-034	1, 2, 3, 4	1, 2, 8	9
Breaker 1/4 amp 2097829-035	1, 2, 3, 4	1, 2, 8	9
Switch TA35-C324-L200C0 2097829-036	1, 2, 3, 4	1, 2, 8	9
Power Cord Inlet C-20 4793.4000 2097829-037	1, 2, 3, 4	1, 2, 8	9
Harness 110V DC Treadmill 2097829-040	1, 2, 3, 4	1, 2, 8	9
Harness 220V DC Treadmill 2097829-041	1, 2, 3, 4	1, 2, 8	9
Harness Resistor 2097829-042	1, 2, 3, 4	1, 2, 8	9
Speed Sensor Hall Effect 2097829-043	1, 2, 3, 4	1, 2, 3, 8	9
Harness Speed Sensor Hall Effect 2097829-044	1, 2, 3, 4	1, 2, 3, 8	9
Harness Elevation 2097829-045	1, 2, 3, 4	1, 2, 8	9
Harness Elevation FG0495-3 2097829-083	1, 2, 3, 4	1, 2, 8	9
Harness Motor Controller 2097829-046	1, 2, 3, 4	1, 2, 8	9
Harness Main DC Treadmill 2097829-047	1, 2, 3, 4	1, 2, 8	9
Harness Main DC Treadmill FG0495-3 2097829-084	1, 2, 3, 4	1, 2, 8	9
Relay 110V 2097829-085	1, 2, 3, 4	1, 2, 8	9
Relay 220V 2097829-086	1, 2, 3, 4	1, 2, 8	9

## FRU Repairs / Exchange

Description	Tools	Functional Checkout Procedure	Electrical Safety Checks
Surge Suppressor 2097829-048	1, 2, 3, 4	1, 2, 8	9
Cable RS232 Panel Mount 2097829-049	1, 2, 3, 4	1, 2, 8	9
Stem Bumper 2097829-052	1, 2	1, 2, 8	---
Bumper 1.8" Dia Black 2097829-053	1, 2	1, 2, 8	---
Belt Drive 2097829-054 and associated hardware.	1, 2, 3, 4	1, 3, 8	9
Belt Running with V-Guide 2097829-057 and associated hardware.	1, 2, 4	1, 6, 7, 8	9
Deck Isolator 1.75" Dia with Stud 2097829-058 and associated hardware.	1, 2, 4	1, 6, 7, 8	9
Deck Running Board 2097829-059 and associated hardware.	1, 2, 4	1, 6, 7, 8	9
Roller Front 2097829-060 and associated hardware.	1, 2, 4	1, 6, 7, 8	9
Rear Roller 2097829-061 and associated hardware.	1, 2, 4	1, 6, 7, 8	9
End Cap LH 2097829-062 and associated hardware.	1, 2	1, 8	---
End Cap RH 2097829-063 and associated hardware.	1, 2	1, 8	---
Extrusion Anti-Skid Rubber 60" LG 2097829-064	1, 2, 4	1, 8	9
Handrail RH 2097829-066 and associated hardware.	1, 2, 3, 4	1, 2, 5, 8	9
Handrail LH 2097829-067 and associated hardware.	1, 2, 3, 4	1, 2, 5, 8	9
Handrail Center 2097829-068 and associated hardware.	1, 2, 3, 4	1, 2, 5, 8	9
Hood Kit 2097829-069	1, 2, 3, 4	1, 8	9
Test Plug 2097829-070	1, 2	1, 5, 8	---
SPARE COMM CABLE CLAMPS 2097829-074	1, 2	1	---
POWER CORD 2097829-101 through 2097829-107	1, 2, 4	1, 2, 8	9
USB CABLE 5M A TO B 2044095-001 (INTERFACE T2100-ST TO CARDIOSOFT/CS)	1, 2, 4	1, 8	---
CABLE RS232 INTERFACE T2100-ST TO MAC5500ST 2097829-108 (contains 2097829-008)	1, 2, 4	1, 8	---
CABLE RS232 INTERFACE T2100-ST TO CASE/PC 2097829-109 (contains 2097829-009)	1, 2, 4	1, 8	---
CABLE RS232 INTERFACE T2100-ST TO MAC2000ST 2097829-110 (contains 2097829-010)	1, 2, 4	1, 8	---

## Final Checkout Preventative Maintenance Test

Procedure (for PM perform all)	Tools	Functional Checkout Procedure	Electrical Safety Checks
Preventative Maintenance Visual/Functional Checks	1	10	---
Operation Check	1	2	---
Test Plug Check	1	5	---
Walking Belt Tension / Tracking	1, 2, 6	6	---
Walking Belt Speed Verification	1, 2, 6	7	---
Leakage Test	1, 2, 4, 5, 6	9	9



## Maintenance Log



## Reference Documents

If needed, the following installation documents can be referenced and may provide some helpful OS specific guidance for driver installation.

These files are PDF documents located in the directory called FTDI PDF on the flash drive shipped with the T2100-ST series treadmill.

- Windows 7:  
AN\_119\_FTDI\_Drivers\_Installation\_Guide\_for\_Windows\_7.pdf
- Windows 8:  
AN\_234\_FTDI\_Drivers\_Installation\_Guide\_for\_Windows\_8.pdf
- Windows 10:  
AN\_396\_FTDI\_Drivers\_Installation\_Guide\_for\_Windows\_10.pdf

**NOTE:**

Do not download the driver from the FTDI website as referenced in Chapter 2 of these three documents.







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