PRECOR®

Service Manual



TRM10[1]/GEN06 Treadmill

[1]TRM800 version 1 treadmills mfg. dates 2010 thru 2014.

Contents

Introduction **1**

Service manual contents 1

Additional Service Documentation and Videos 2

Safety Guidelines 3

Safety guideline you need to know and follow: 3

General Information **5**

Orientation 5

Tools and Supplies 5

Specification Summary 6

Fastener Torque Specification 6

Belt Tension Specification 7

Parts 7

Bolt Grade Identification 8

Bolt Grade Markings Chart 8

Lubrication 9

Cleaning Procedure 9

Approved Cleaning Products 10

Cleaning Procedure 10

Power Requirements 10

Equipment Power Requirements 10

Plugs and Outlets 12

Console & PVS Display Power Requirements 13

LED consoles (P10, P30, P30i and P31) 13

Touchscreen consoles (P62, P80, and P82) 14

PVS Display 14

Cable TV RF Power Requirements 15

Touchscreen consoles (P62, P80, and P82) 15

MYE - PVS displays 15
RF cable TV wall outlet power requirements 16
Ethernet (LAN) Input Signal Requirements 16
Equipment Spacing Requirement 16
How To Safely Move The Treadmill 17
Treadmill Moving Procedure Using a Movers Dolly 17
Tool required 18
Procedure 18
General Information 21
Orientation 21
Tools and Supplies 21
Specification Summary 22
Parts 23
Bolt Grade Identification 24
Lubrication 25
Cleaning Procedure 25
Approved Cleaning Products 25
Cleaning Procedure 26
Power Requirements 26
Equipment Power Requirements 26
Console & PVS Display Power Requirements 29
Cable TV RF Power Requirements 31
Ethernet (LAN) Input Signal Requirements 32
Equipment Spacing Requirement 32
How To Safely Move The Treadmill 33
Treadmill Moving Procedure Using a Movers Dolly 33
Operation Verification 37
Operation Verification Tests 37
Standard Service Menus 41

About 41
Service Menu Access Codes 41
LED Consoles: P10, P30, P30i and P31 42
Touchscreen Consoles: P62, P80, and P82 42
How to Access the Standard Service Menus 43
P10, P30, P30i and P31 LED consoles 43
P80 touchscreen console 44
P62 and P82 touchscreen consoles 45
Diagnostics menu access 45
Touchscreen Display Calibration shortcut 45
Debug Information Report shortcut 46
Navigating the Service Menus 48
P10, P30, P30i and P31 LED consoles 48
P10, P30 and P31 consoles 48
P30i consoles 49
P80 and P82 touchscreen consoles 49
P62 touchscreen consoles 50
LED Console Standard Service Menus 51
Hardware Validation Diagnostics Tests Menu (51765761) 51
Club Settings Menu (5651565) 53
Information Display (65) 55
Touchscreen Console Standard Service Menus 57
Service Settings Menu ((51765761) 57
About menu 59
61
Equipment Usage menu 61
Maintenance menu(1) 61
System Settings menu 63
System Tests menu 67

Club Settings (5651565) 69
Information Display (65) 69
Adjustment Procedures **71**
Available Adjustment Procedures 71
Drive Belt Tension & Alignment Adjustment 72
About 72
Procedure 72
Lift Motor Calibration 75
About 75
Procedure 75
Running Belt Tension and Tracking Adjustment 77
About 77
Procedure 77
Replacement Procedures **80**
Available Replacement Procedures 80
Auto Stop Magnet Replacement 81
About 81
Procedure 81
Auto Stop Sensor Replacement 83
About 83
Procedure 83
Circuit Breaker Replacement 85
About 85
Procedure 85
Drive Belt Replacement 87
About 87
Procedure 87
Drive Motor Replacement 91
About 91

Procedure 91
Drive Roller Replacement 94
About 94
Procedure 94
End Cap & Belt Guard Cover Replacement 98
About 98
Procedure 98
Incline Lift Motor Replacement 100
About 100
Procedure 100
Incline Lift Platform Replacement 103
About 103
Procedure 103
Input Module Replacement 105
About 105
Procedure 105
Line Filter Replacement 107
About 107
Procedure 107
Power Control Module Replacement 109
About 109
Procedure 109
Power Cord Replacement 111
About 111
Procedure 111
Running Belt and Deck Replacement 113
About 113
Procedure 113
Take-Up roller Replacement 118

About 118
Procedure 118
Troubleshooting 120
About 120
Introduction to Troubleshooting 120
Troubleshooting Steps 120
Validate the customer reported issue 121
Verify Input Power 121
Verify (reproduce) the customer issue 122
Verify the Club Settings 122
Verify service bulletin and software update incorporation 123
Verify console operation 123
Verify that there are no current active error codes 124
Verify hardware validation diagnostic tests 125
Verify that there are no new error codes 125
Standard Error Codes 126
About 126
Viewing Error Codes (Error Log & CPA Event Log) 128
Error Code and Troubleshooting Guide 128
Troubleshooting with Error Codes 129
Error Log & CPA Event Log 130
About 130
Error Log 131
Error Log 131
CPA Event Log 133
CPA Event Log 133
System Troubleshooting Procedures 136
Available Troubleshooting Procedures 136
Auto Stop Troubleshooting 137

Tripped Circuit Breaker 140
Communications Error Troubleshooting 143
No Power to the Console Troubleshooting 144
Drive Motor System Troubleshooting 146
E-Stop Not Communicating 149
Heart Rate Monitor Troubleshooting 150
Incline System Troubleshooting 153
Input Power and Machine Controls Troubleshooting 154
Running Belt and Deck Troubleshooting 155
Tripped Circuit Breaker 158
Preventive Maintenance (PM) **161**
About 161
PM Guides and Videos 161
Product PM Guides 161
PM Service Videos 162
Running Belt and Deck Cleaning Procedure 163
Videos 163
Procedure 163
Theory of Operation **166**
About 166
Console Operation 166
Controls 166
Features 166
Treadmill Base Operation 168
System Diagrams 174
System Block Diagram - 120 VAC 174
Parts **175**
Exploded View Diagram 176
Parts Identification List 181

Product Literature & Videos **184**
Service & Maintenance Documentation 184
Precor Websites 184
Service Videos 185
Appendix A : Edition Information ..... **i**
Edition i
Additional Documentation i
Copyright i
Appendix B : Notices and Safety ..... **ii**
Trademarks ii
Intellectual Property ii
Warranty ii
Safety Notices iii
Service Safety Guidelines iii

Introduction

Only Precor certified technicians are authorized to service Precor equipment. If you are not a Precor certified servicer, you must not attempt to service any Precor product. Call your dealer for service information

WARNING: This service documentation is for use by Precor certified servicer providers only. Personal injury can result from electrical shock and/or mechanical moving parts.

This service manual applies to the following treadmill models:

- GEN06 series treadmill (120 VAC and 240 VAC models): The GEN-06 treadmill base is defined as any treadmill produced between April 2006 and April 2011. GEN-06 Treadmills include the following models; C952, C954, C956, and C966.
- **TRM10**[1] series treadmill (120 VAC and 240 VAC models): The TRM10 treadmill base is defined as any treadmill produced after April 2011 and is configured with a Pxx series console. All of the base and console combinations are part of the "Experience" line of products.



Service manual contents

The service manual contains information to service, repair, troubleshoot, and maintain the machine base.

This manual does not include console service and repair information, for console service and repair information, refer to the console service manual.

[1]TRM800 version 1 treadmills mfg. dates 2010 thru 2014.

However, the service manual does include information about how to use the console standard service menus, diagnostic tests and error code log to help troubleshoot and repair machine issues.

Additional Service Documentation and Videos

There are additional literature and video resources available that can help you to use, service, troubleshoot, and repair the machine. Refer to *Product Literature & Videos* topic:

- "Product Literature & Videos" on page 184

See Also

"General Information" on page 21

"Product Literature & Videos" on page 184

"Safety Guidelines" on the facing page

"Operation Verification" on page 37

"Standard Service Menus" on page 41

"Adjustment Procedures" on page 71

"Replacement Procedures" on page 80

"Troubleshooting" on page 120

"Preventive Maintenance (PM)" on page 161

"Theory of Operation" on page 166

"Parts" on page 175

"Theory of Operation" on page 166

Safety Guidelines

WARNING: Only Precor certified servicers and technicians are permitted to service Precor products. Personal injury can result from electrical shock and/or mechanical moving parts.

Safety guideline you need to know and follow:

- Read and follow all **Warning** notices to protect yourself from personal injury.
- Read and follow all **Caution** notices to prevent damage to the equipment.
- Read the owner's manual and follow all operating instructions.
- Operate the equipment on a solid, level surface.
- Visually check the equipment before beginning service or maintenance operations. If it is not completely assembled or is damaged in anyway, do not attempt to operate the equipment.
- Never place liquids on any part of the equipment while performing service.
- To prevent electrical shock, keep all electrical components away from water and other liquids.
- Do not use accessory attachments that are not recommended by the manufacturer. Non-OEM accessories can cause injuries.
- Do not stand or climb on the handlebars, display enclosure or cover.
- On a self-powered unit, it will either be necessary to either equip the unit with the optional external power supply or have an assistant pedal on the unit while voltage measurements are being taken. Because of the danger of working on the unit while it is in motion using the optional external power supply is strongly recommended.
- On ATM units when the stairarms are in motion; the generator will operate and produce potentially hazardous voltages even when the battery is disconnected.
- On **AMT**[1] units with Cardio Theater **PVS**[2] units will have external power supply and coaxial cable routed through the bottom of the unit to the top of the display console. Cord management must be maintained
- On ATM units, a pinching hazard exists when the unit is operated. It is possible to seriously pinch a finger. The AMT can be mechanically locked by inserting a screwdriver through the primary sheave and frame.
- On treadmills, removing the hood exposes high voltage components and potentially dangerous machinery. Exercise extreme caution when you perform maintenance procedures with the hood removed.

When servicing the equipment:

[1]Adaptive Motion Trainer

[2]Personal Viewing System display.

- During service operations you will be very close to moving machinery and voltage bearing components:
  - Remove jewelry (especially from ears and neck),
  - Tie up long hair,
  - Remove neck ties, and
  - Do not wear loose clothing

See Also

"Notices and Safety" on page ii

"Safety Notices" on page iii

General Information

The following information provides general equipment and service information that will help you to use this manual to properly repair and maintain the treadmill.

Orientation

The equipment orientation (front, right, left, back) used in manual is referenced to a user standing on the equipment facing the console.



Tools and Supplies

Tools and supplies required to complete the machine service and repair.

Tools

- US and Metric Hex Key set
- US and Metric socket set
- Us and Metric wrench set
- Cutters
- Rubber mallet
- Tape measure /Straight edge ruler
- Standard straight slot tip screw drive set
- Philips tip screw driver set
- US & metric Allen wrench set
- 7/16” Allen key, socket mounted
- Pliers
- Inner and outer snap ring pliers

- **DVM**[1] meter
- **AC**[3] Clamp-on averting current meter
- Belt tension gauge – OTC Tools Model #: 6673
- 2 Running belt tension gauges (Precor PN: PPP000000020007101)
- 12 " wonder bar
- ESD wrist strap
- **Torque**[2] Wrenches: 9 in lbs to 100 in - lbs (83 ft-lbs)
- DVM Multimeter
- Drive Belt tension Gauge (Kent-Moore BT-33-73-F
- Compatible **HR**[4] chest strap or Polar HRM simulator xmitter (Precor PN: PPP000000020045101)
- Vacuum cleaner (recommend **ESD**[5] safe model)

Supplies

- Super Lube Gel with Teflon by Permatex
- Mobil 1, NLGI 2 Teflon Synthetic Grease
- Loctite 243 Blue Medium Strength Thread-locker
- Cleaning rags
- Cleaner Degreaser (see)
- Cable ties (1- 3/4", 3", 4" lengths)

Specification Summary

Fastener Torque Specification

System component fastener torque specification:

[1]digital volt meter

[2]Torque is a measure of the force that can cause an object to rotate about an axis. Bolt/nut example: 5 NM torque is equivalent to 5 newton's of force applied one meter from the center of the bolt, 6 ft-lb is equivalent to 6 lbs of force applied 1 foot away from the center of the bolt.

[3]Alternating Current: electric current which periodically reverses direction between positive and negative polarity.

[4]Heart Rate

[5]Electrostatic Discharge or Electrostatic Sensitive Device.

System Component	Specification
RF[1] coax connector	2.4 in-lbs (0.271 Nm)
Display mounting fasteners	180 in-lbs (20 Nm
Set screws	300 in-lbs (34 Nm)
Plastite screw fasteners	20 in-lbs (2.3 Nm)
Flathead screws	25 in-lbs (2.8 Nm)
Deck front fasteners	27-33 in-lbs (3.1-3.7 Nm)
Deck rear fasteners	50-55 in-lbs (5.6-(6.2 Nm)
Lift Motor Calibration gap	1 1/8 in - 1 3/16 in (2.8 cm - 3.0 cm)

Belt Tension Specification

.Belt tension specification:

System Component	Specification
Drive Belt Tension New Belt(1)	95-115 lbs (43-52 kgs)
Drive Belt Tension Used Belt(1)	80-90 lbs (36-41 kgs)
Drive Motor fasteners	204 in-lbs (17 ft-lbs, 23 N-m)
Forbo brand running belt tension (gauge/-percent)	0.5% - 0.6% (dial 3.5 - 3.6)(2)
(1) New belt tension applies to new belt first time installations. Used belt tension applies to reinstalling an existing belt or re-tensioning an existing used belt. (2) Referenced to 0.0% (dial 3.0).	

Parts

IMPORTANT: Always purchase OEM replacement parts and hardware from Precor. If you use parts not approved by Precor, you could void the Precor Limited Warranty. Use of parts not approved by Precor may cause injury.

Exploded View Diagram and Parts List

There is a copy of the parts *Exploded View Diagram* and *Parts Identification List* included in the "Parts" on page 175 chapter that you can use as a quick reference. It is recommended

[1]Radio Frequency: Identifies electromagnetic signals with frequency spectrum between the 3 kHz (3,000 hertz) to 300 GHz (300 billion hertz) range.

that you go to the servicer partners Precor Connect (or Precor Connection) website to view the most current parts information including the *Exploded View Diagram* and *Parts Identification List*.

- Precor Connect Partner website



Exploded View Diagram and Parts list, see "Parts" on page 175.

.

Bolt Grade Identification

Bolt grade markings are used to categorize bolts according to the bolt material, manufacturing process, and mechanical properties. The grade of the bolt is stamped on the head of the bolt.

US SAE bolts: The bolt grade markings are determined by the number of the lines stamped on the head of the bolt. The number of lines is always two less than the grade of the bolt. Count the lines, add two, and you can determine the grade of the bolt.

Metric bolts: On metric bolts, the bolt grade is identified by a bolt grade number stamped on the head of the bolt.

CAUTION: Always replace bolts with the same grade bolt. If you don't know the grade of the replacement bolt – DO NOT USE THE BOLT.

Bolt Grade Markings Chart

Example bolt grades used on Precor equipment (may not represent all bolt grades). Always match the replacement bolt grade marking to the removed bolt grade marking.

GRADE	SAE BOLT LINES	BOLT MARKINGS Metric SAE
Grade 2 Metric 5.8	No Radial Lines	 
Grade 5 Metric 8.8	3 Radial lines	 
Grade 8 Metric 10.9	6 Radial Lines	 

Lubrication

Only use products from the following list of approved lubricants:

Lubricant	Description
Grease	Use only NLGI class 2 PTFE synthetic grade grease. Use of unapproved lubricants may void the product warranty. Recommended brands (or equivalent): • Mobil 1® synthetic grease • Super Lube® with Teflon



CAUTION: Do not use petroleum based lubricants on mechanical components such as the lift, as this may result in degradation of nylon gearing mechanisms. Use only synthetic lubricants such as "Super Lube with Teflon" or "Mobile One Synthetic" grease (RED).



CAUTION: Do not apply any lubricants or wax to the deck and belt. Do not use Wax Blast, silicon sprays, or other applied lubricants. The use of these lubricants will quickly degrade the low-friction surface of the deck.

Cleaning Procedure

Only use the following approved cleaning products and procedures to safely clean and prevent damage to the machine surfaces.

Approved Cleaning Products

Approved equipment and console cleaning products:

- **General Equipment Surfaces**:
  - 1 part mild soap to 30 parts water (recommend Simple Green® cleaner or equivalent).
  - Athletic equipment cleaner, 9x7 pre-saturated wipes (ATHLETIX PRODUCTS).
  - Enivir O Safe oxygen enhanced cleaner or Enviro Safe glass and multitask cleaner concentrate.
- **Consoles and PVS[1] displays**: a diluted solution of one part 91% Isopropyl alcohol to one part water.

Cleaning Procedure

Generic cleaning procedure applicable to all Precor equipment:

TIP: There are many product specific **PREVENTATIVE MAINTENANCE** cleaning videos available on the Precor Connect **SERVICE VIDEOS** web page. Log in to your Precor Connect servicer account and select SERVICE VIDEOS, see SERVICE VIDEOS.

1. Wipe down equipment using a soft lint-free cloth using only the recommended cleaning solution. Always spray cleaning solution directly onto the cleaning cloth and not directly onto the equipment surface to avoid equipment damage due to excessive moisture.

CAUTION: Do not use acidic cleaners and do not spray directly onto the equipment surfaces.

2. Rinse surfaces using a clean lint-free cloth dampened with water only.
3. Then completely dry with another clean lint-free cloth.

Power Requirements

Equipment Power Requirements

Electrical Recommendation for 120 V and 240 V Treadmills.

[1]Personal Viewing System display.

Note: This is a recommendation only. NEC (National Electric Code) guidelines or local region electric codes must be followed.

The facility must provide a good quality stable power signal (not fluctuating or intermittent) per the OEM power requirements to insure best performance and trouble free operation.

Power Specification

- Nominal 120 VAC models
  - Operating voltage: 90 VAC to 132 VAC.
  - AC frequency range: 47 - 65 **Hz**[1]
  - 20 amp individual branch circuit
- Nominal 240 VAC Models
  - Rated Operating voltage: 180 VAC - 264 VAC.
  - Frequency: 47- 65 Hz
  - 20 amp individual branch circuit

Treadmill Grounding

The treadmill must be grounded. If the equipment malfunctions or breaks down, grounding draws off electric current and reduces the risk of electric shock. The power cord on the treadmill is equipped with a grounding conductor and a three-pin grounding plug. This plug must be inserted into an outlet that is properly installed and grounded in accordance with all local codes and ordinances. Failure to ground the treadmill properly may void the Precor Limited Warranty.

CAUTION: Improper connection of the grounding conductor can result in a risk of electric shock. Check with a qualified electrician or service person if you are not sure whether the equipment is properly grounded. DO NOT modify the plug provided with the treadmill. If the plug does not fit the outlet, have a proper outlet installed by a qualified electrician.

Frame Grounding Requirement

For operator safety and to minimize electrostatic discharge conditions have a certified electrician verify that the AC frame ground continuity to be a low resistance connection to the AC distribution ground bar

CAUTION: To avoid electrostatic discharge shock, make sure that there is AC frame ground continuity.

Individual branch circuit requirement

(US and Canada installations)

[1]The hertz (symbol: Hz) is the derived unit of frequency in the International System of Units (SI) and is defined as one cycle per second.

Each Precor treadmill must be connected to a separate 20 amp individual branch circuit outlet. No other devices can be connected to the same circuit outlet except for one optional PVS (Personal Viewing System) display if installed.

- **Individual branch circuit**: An individual branch circuit provides a hot conductor and neutral conductor to a receptacle. The conductors must not be looped, "daisy-chained", or connected to any other conductors or receptacles. The circuit must be grounded according to NEC guidelines or local region electric codes.



CAUTION: All NEC (National Electric Code) guidelines or local region electric codes must be complied with.

Plugs and Outlets

(US and Canada installations)

Your equipment comes with a power cable that meets your local electrical code requirements along with the equipment. Precor commercial treadmills must be connected to a 20 amp individual branch circuit that can be shared only with one PVS.

The power cord on the treadmill is equipped with a grounding conductor and a three-pin grounding plug. This plug must be inserted into an outlet that is properly installed and grounded in accordance with all local codes and ordinances. Failure to ground the treadmill properly may void the Precor Limited Warranty.



CAUTION: Improper connection of the grounding conductor can result in a risk of electric shock. Check with a qualified electrician or service person if you are not sure whether the equipment is properly grounded. DO NOT modify the plug provided with the treadmill. If the plug does not fit the outlet, have a proper outlet installed by a qualified electrician.

Verifying 20 Amp outlet receptacles

US and Canadian installations require 20A current rated power outlets.

You can visually identify a 20A from a 15A rated outlet receptacle by the different style outlet sockets. Make sure the facility wall outlets are the 20A style outlet receptacles.



CAUTION: DO NOT use 20A to 15A power cord adapters to plug the equipment power cord into a 15A wall outlet.

20 Amp rated plugs and outlets

Country	Equipment Voltage	Receptacle/Plug[1] Type
US & Canada	120 VAC: 50/60 Hz	Dedicated 120V/20A circuit with 5-20R NEMA receptacle

Country	Equipment Voltage	Receptacle/Plug[1] Type
US & Canada	240 VAC: 50/60 Hz	Dedicated 220V- 240V/20A circuit with 6-20R NEMA receptacle
International	240VAC	IEC 320-C19 inlet supporting applicable country-specific power cord



NEMA 5-20R
120VAC 20A
Duplex Outlet



NEMA 5-20P
120VAC 20A
Plug



NEMA 6-20R
250VAC 20A
Outlet



NEMA 6-20P
250VAC 20A
Plug

Console & PVS Display Power Requirements

LED consoles (P10, P30, P30i and P31)

LED[2] console power is supplied by the machine. An external power supply is not required.

[2]light-emitting diodes.

- Self-powered machines: The machine generator and/or battery is used to power the console. The machine must be continuously operated to power ON and use the console functions.
- Powered machines: The machines internal power supply is used to power the console. The machine power cord must be plugged in and switched ON to power up and use the console. The console power is independent of the machine workout operation.

Touchscreen consoles (P62, P80, and P82)

Touchscreen consoles use an AC/DC[1] power adapter to supply the console input power.

- Self-power machines: the AC/DC adapter input power cord is plugged into the facility wall outlet. Up to ten consoles can be connected to the same 20 amp individual branch circuit. Only touchscreen consoles can share the same individual branch circuit, no other devices can be connected to this circuit.
- Powered machines: the AC/DC adapter is powered by the machines internal power supply which is hardwired to the machine input power circuit.

AC/DC adapter specification:

AC/DC Adaptor	Specification
input voltage	100v-240v
output power rating	60W/12Vdc/5A

PVS Display

PVS displays use an AC/DC power adapter to power the display.

- On treadmills, the PVS display can be plugged into the same individual branch circuit outlet as the treadmill.
- On self-powered equipment, up to 10 PVS displays can be connected to the same 20A branch circuit. No other devices except PVS displays can be connected to this circuit.

PVS display specification:

PVS Display	Specification
input power	43 W max

AC/DC adapter specification:

[1]Direct Current: electrical current that only flows in one direction.

AC/DC Adaptor	Specification
input voltage	100v-240v
output power rating	60W/12Vdc/5A

Cable TV RF Power Requirements

There is a minimum Cable TV "**CATV**[1]" RF signal input power level requirement for the touchscreen (P62, P80, and P82) consoles and PVS displays. There are also RF signal power requirements at the facility RF cable wall outlet coax connector:

Touchscreen consoles (P62, P80, and P82)

Touchscreen console RF Input Power specification

Touchscreen	RF Input Power
Analog video power	- 30 **dB**[2] to +20 dB RF power with a (+40 dB **C/N**[3] (Channel to Noise ratio)
Digital RF power	-5 dB to 0 dB

MYE - PVS displays

MYE display RF Input Power specification

PVS	RF Input Power
Analog video power	+5 dB to +10 dB RF power with a +40 dB minimum channel to noise ratio (*at each console)
Digital RF power	-5 dB to 0 dB (*at each console)

[1]Cable Television (aka Community Access Television) is a system of transmitting television programming to consumers via radio frequency (RF) signals transmitted through coaxial cables

[2]1) Dynaamic Brake or 2) Decibel (dB): In electronic systems, the decibel (dB) is a of measurement used to express the system power gain (+dB) or loss (-dB) in decibels (dB). dB (power) = 10Log Pout/Pin) or, in terms of voltage, dB (power) = 20Log (Vout/Vin).

[3]carrier-to-noise ratio: The ratio of power in an RF carrier to the noise power in the channel. CNR is defined as the ratio of the received modulated carrier signal power C to the received noise power N after the receiver filters: in terms of power: CNR = C/N, in terms of decibels CNR (dB) = 10Log(C/N) = C (dBm) – N (dBm).

RF cable TV wall outlet power requirements

When a RF cable TV wall outlet is used to power several equipment consoles in series, there is a minimum RF power requirement of +35 dB at +40 dB minimum channel to noise ratio for analog video and a +25 dB for Digital video.

An RF signal strength of +35 dB can power 17 to 19 consoles connected in series using properly connected splitters tapped to each individual console.

Ethernet (LAN) Input Signal Requirements

Precor recommends a dedicated CAT6 Ethernet feed to each equipment location.

Communication Requirements:

Ethernet (LAN[1])	Specification
upload bit rate	512 Kbps min upload
download bit rate	5-10 Mbps min download
switch ports	80, 123, 443

*Touchscreen (*P62, P80, and P82*) console Preva **PBS**[2] communication protocol*

The touchscreen consoles P62, P80, and P82) use a security token for communication to the Precor servers. The security token is a hash string that is sent with every API call from the FE's to the Amazon Cloud. The security token originates after the equipment is registered at the location. The console issues a 'Call' which returns the registration token and the fitness equipment URL. Every event after that uses the URL and the token to validate/authenticate communication with the Amazon servers and Preva Business Suite (PBS).

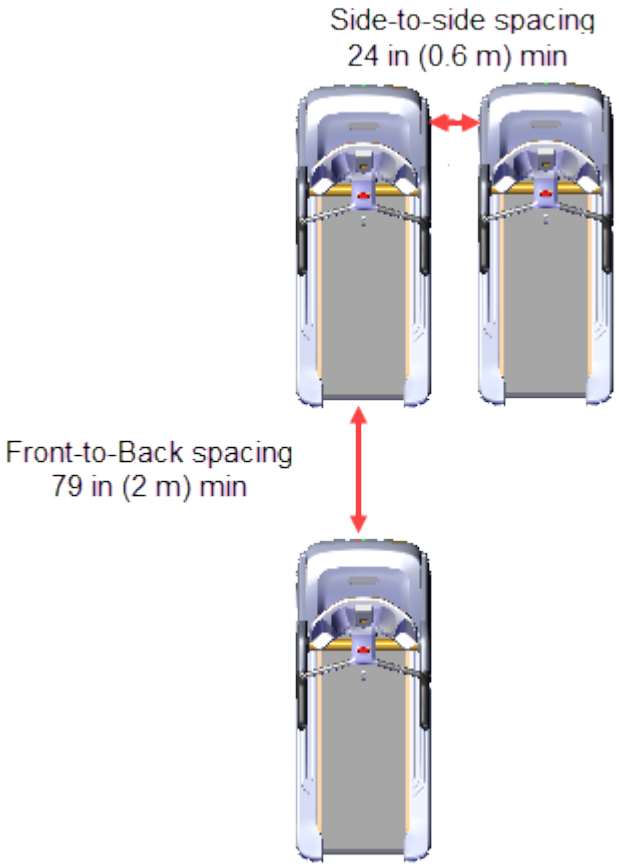
All communication with Precor servers is currently done via outgoing (originating from the console) HTTPS sessions. The console utilizes **NTP**[3] to set its clock and for synchronization. At no time is Precor connecting to the customers facility network to "push" any data. The console initiates all data requests.

Equipment Spacing Requirement

[2]Preva Business Suite

[3]Network Time Protocol (NTP) is a networking protocol for clock synchronization between computer systems over packet-switched, variable-latency data networks.

The minimum side to side spacing between treadmills is 23.6 in (0.6 m) and the minimum front to back spacing is 79 in (2 m).



How To Safely Move The Treadmill

Treadmill Moving Procedure Using a Movers Dolly

Typically you would lift the back and use the front wheels to move and position the treadmill.

However, situations may occur when space is tight and it may become very difficult to safely lift and use the front wheels to move the treadmill. This procedure provides an alternative method using a 4-caster movers dolly to safely move a treadmill with minimal effort, risk of muscle strain, or injury. This moving procedure does not requiring the technician to lift the treadmill.

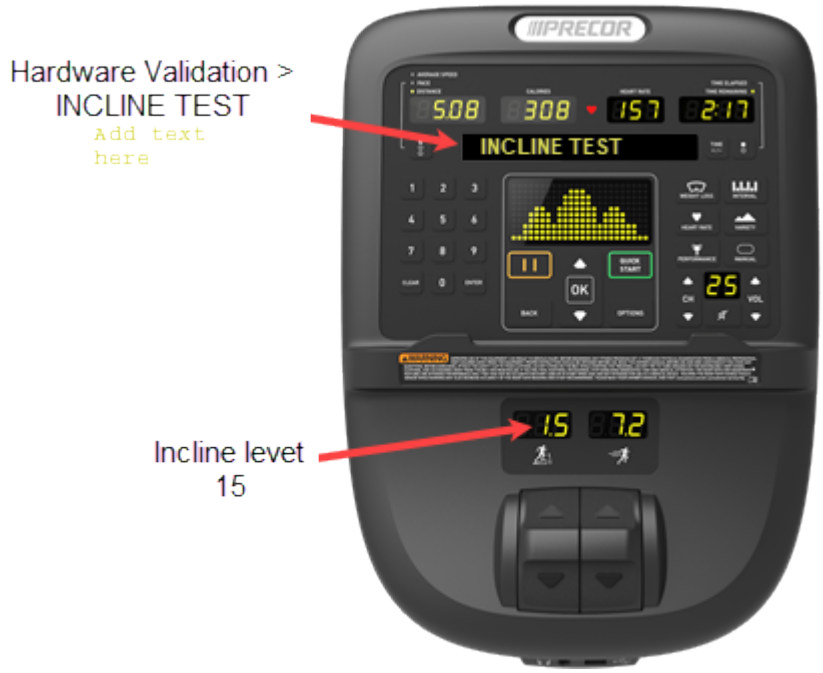
Tool required

Movers Dolly	Hardwood rubber end dolly with 4-swivel casters (recommended: Uline H-1792, 750 lb capacity) Dimensions: Length 30” (76 cm) X Width 14 – 18” (36 – 46 cm) X Height 6.25” (15 cm) Load Capacity: minimum 600 lbs (272 kgs).



Procedure

1. Access the **INCLINE** Hardware Diagnostic Test (**Hardware Diagnostic Test 51765761** > **INCLINE** test) and raise the level to 15.0.



2. Slide the movers dolly under the treadmill. Ensure the rubber ends are evenly spaced under the left and right frame rails. Lift the front end of the dolly and position the dolly as close as possible midway between the front and back ends of the treadmill.



3. Lower the **INCLINE** to 0.0. Then verify the rear leveling feet are not contacting the floor. If the feet are touching the floor, reposition the movers dolly.
4. Use the side arms to easily move and position the treadmill as needed.



5. Reverse the steps to install the dolly and remove the dolly.
6. Verify and level the treadmill as need.

7. Verify operation and return to service.

General Information

The following information provides general equipment and service information that will help you to use this manual to properly repair and maintain the treadmill.

Orientation

The equipment orientation (front, right, left, back) used in manual is referenced to a user standing on the equipment facing the console.



Tools and Supplies

Tools and supplies required to complete the machine service and repair.

Tools

- US and Metric Hex Key set
- US and Metric socket set
- Us and Metric wrench set
- Cutters
- Rubber mallet
- Tape measure /Straight edge ruler
- Standard straight slot tip screw drive set
- Philips tip screw driver set
- US & metric Allen wrench set
- 7/16” Allen key, socket mounted
- Pliers
- Inner and outer snap ring pliers

- **DVM**[1] meter
- **AC**[3] Clamp-on averting current meter
- Belt tension gauge – OTC Tools Model #: 6673
- 2 Running belt tension gauges (Precor PN: PPP000000020007101)
- 12 " wonder bar
- ESD wrist strap
- **Torque**[2] Wrenches: 9 in lbs to 100 in - lbs (83 ft-lbs)
- DVM Multimeter
- Drive Belt tension Gauge (Kent-Moore BT-33-73-F
- Compatible **HR**[4] chest strap or Polar HRM simulator xmitter (Precor PN: PPP000000020045101)
- Vacuum cleaner (recommend **ESD**[5] safe model)

Supplies

- Super Lube Gel with Teflon by Permatex
- Mobil 1, NLGI 2 Teflon Synthetic Grease
- Loctite 243 Blue Medium Strength Thread-locker
- Cleaning rags
- Cleaner Degreaser (see)
- Cable ties (1- 3/4", 3", 4" lengths)

Specification Summary

Fastener Torque Specification

System component fastener torque specification:

[1]digital volt meter

[2]Torque is a measure of the force that can cause an object to rotate about an axis. Bolt/nut example: 5 NM torque is equivalent to 5 newton's of force applied one meter from the center of the bolt, 6 ft-lb is equivalent to 6 lbs of force applied 1 foot away from the center of the bolt.

[3]Alternating Current: electric current which periodically reverses direction between positive and negative polarity.

[4]Heart Rate

[5]Electrostatic Discharge or Electrostatic Sensitive Device.

System Component	Specification
RF[1] coax connector	2.4 in-lbs (0.271 Nm)
Display mounting fasteners	180 in-lbs (20 Nm
Set screws	300 in-lbs (34 Nm)
Plastite screw fasteners	20 in-lbs (2.3 Nm)
Flathead screws	25 in-lbs (2.8 Nm)
Deck front fasteners	27-33 in-lbs (3.1-3.7 Nm)
Deck rear fasteners	50-55 in-lbs (5.6-(6.2 Nm)
Lift Motor Calibration gap	1 1/8 in - 1 3/16 in (2.8 cm - 3.0 cm)

Belt Tension Specification

.Belt tension specification:

System Component	Specification
Drive Belt Tension New Belt(1)	95-115 lbs (43-52 kgs)
Drive Belt Tension Used Belt(1)	80-90 lbs (36-41 kgs)
Drive Motor fasteners	204 in-lbs (17 ft-lbs, 23 N-m)
Forbo brand running belt tension (gauge/-percent)	0.5% - 0.6% (dial 3.5 - 3.6)(2)
(1) New belt tension applies to new belt first time installations. Used belt tension applies to reinstalling an existing belt or re-tensioning an existing used belt. (2) Referenced to 0.0% (dial 3.0).	

Parts

IMPORTANT: Always purchase OEM replacement parts and hardware from Precor. If you use parts not approved by Precor, you could void the Precor Limited Warranty. Use of parts not approved by Precor may cause injury.

Exploded View Diagram and Parts List

There is a copy of the parts *Exploded View Diagram* and *Parts Identification List* included in the "Parts" on page 175 chapter that you can use as a quick reference. It is recommended that you go to the servicer partners Precor Connect (or Precor Connection) website to

[1]Radio Frequency: Identifies electromagnetic signals with frequency spectrum between the 3 kHz (3,000 hertz) to 300 GHz (300 billion hertz) range.

view the most current parts information including the *Exploded View Diagram* and *Parts Identification List*.

- Precor Connect Partner website



Exploded View Diagram and Parts list, see "Parts" on page 175.

.

Bolt Grade Identification

Bolt grade markings are used to categorize bolts according to the bolt material, manufacturing process, and mechanical properties. The grade of the bolt is stamped on the head of the bolt.

US SAE bolts: The bolt grade markings are determined by the number of the lines stamped on the head of the bolt. The number of lines is always two less than the grade of the bolt. Count the lines, add two, and you can determine the grade of the bolt.

Metric bolts: On metric bolts, the bolt grade is identified by a bolt grade number stamped on the head of the bolt.

CAUTION: Always replace bolts with the same grade bolt. If you don't know the grade of the replacement bolt – DO NOT USE THE BOLT.

Bolt Grade Markings Chart

Example bolt grades used on Precor equipment (may not represent all bolt grades). Always match the replacement bolt grade marking to the removed bolt grade marking.

GRADE	SAE BOLT LINES	BOLT MARKINGS Metric SAE
Grade 2 Metric 5.8	No Radial Lines	 
Grade 5 Metric 8.8	3 Radial lines	 
Grade 8 Metric 10.9	6 Radial Lines	 

Lubrication

Only use products from the following list of approved lubricants:

Lubricant	Description
Grease	Use only NLGI class 2 PTFE synthetic grade grease. Use of unapproved lubricants may void the product warranty. Recommended brands (or equivalent): • Mobil 1® synthetic grease • Super Lube® with Teflon



CAUTION: Do not use petroleum based lubricants on mechanical components such as the lift, as this may result in degradation of nylon gearing mechanisms. Use only synthetic lubricants such as "Super Lube with Teflon" or "Mobile One Synthetic" grease (RED).



CAUTION: Do not apply any lubricants or wax to the deck and belt. Do not use Wax Blast, silicon sprays, or other applied lubricants. The use of these lubricants will quickly degrade the low-friction surface of the deck.

Cleaning Procedure

Only use the following approved cleaning products and procedures to safely clean and prevent damage to the machine surfaces.

Approved Cleaning Products

Approved equipment and console cleaning products:

- **General Equipment Surfaces**:
  - 1 part mild soap to 30 parts water (recommend Simple Green® cleaner or equivalent).
  - Athletic equipment cleaner, 9x7 pre-saturated wipes (ATHLETIX PRODUCTS).
  - Enivir O Safe oxygen enhanced cleaner or Enviro Safe glass and multitask cleaner concentrate.
- **Consoles and PVS[1] displays**: a diluted solution of one part 91% Isopropyl alcohol to one part water.

Cleaning Procedure

Generic cleaning procedure applicable to all Precor equipment:

TIP: There are many product specific **PREVENTATIVE MAINTENANCE** cleaning videos available on the Precor Connect **SERVICE VIDEOS** web page. Log in to your Precor Connect servicer account and select SERVICE VIDEOS, see SERVICE VIDEOS.

1. Wipe down equipment using a soft lint-free cloth using only the recommended cleaning solution. Always spray cleaning solution directly onto the cleaning cloth and not directly onto the equipment surface to avoid equipment damage due to excessive moisture.

CAUTION: Do not use acidic cleaners and do not spray directly onto the equipment surfaces.

2. Rinse surfaces using a clean lint-free cloth dampened with water only.
3. Then completely dry with another clean lint-free cloth.

Power Requirements

Equipment Power Requirements

Electrical Recommendation for 120 V and 240 V Treadmills.

Note: This is a recommendation only. NEC (National Electric Code) guidelines or local region electric codes must be followed.

The facility must provide a good quality stable power signal (not fluctuating or intermittent) per the OEM power requirements to insure best performance and trouble free operation.

Power Specification

[1]Personal Viewing System display.

- Nominal 120 VAC models
  - Operating voltage: 90 VAC to 132 VAC.
  - AC frequency range: 47 - 65 **Hz**[1]
  - 20 amp individual branch circuit
- Nominal 240 VAC Models
  - Rated Operating voltage: 180 VAC - 264 VAC.
  - Frequency: 47- 65 Hz
  - 20 amp individual branch circuit

Treadmill Grounding

The treadmill must be grounded. If the equipment malfunctions or breaks down, grounding draws off electric current and reduces the risk of electric shock. The power cord on the treadmill is equipped with a grounding conductor and a three-pin grounding plug. This plug must be inserted into an outlet that is properly installed and grounded in accordance with all local codes and ordinances. Failure to ground the treadmill properly may void the Precor Limited Warranty.



CAUTION: Improper connection of the grounding conductor can result in a risk of electric shock. Check with a qualified electrician or service person if you are not sure whether the equipment is properly grounded. DO NOT modify the plug provided with the treadmill. If the plug does not fit the outlet, have a proper outlet installed by a qualified electrician.

Frame Grounding Requirement

For operator safety and to minimize electrostatic discharge conditions have a certified electrician verify that the AC frame ground continuity to be a low resistance connection to the AC distribution ground bar



CAUTION: To avoid electrostatic discharge shock, make sure that there is AC frame ground continuity.

Individual branch circuit requirement

(US and Canada installations)

Each Precor treadmill must be connected to a separate 20 amp individual branch circuit outlet. No other devices can be connected to the same circuit outlet except for one optional PVS (Personal Viewing System) display if installed.

- **Individual branch circuit**: An individual branch circuit provides a hot conductor and neutral conductor to a receptacle. The conductors must not be looped, "daisy-

[1]The hertz (symbol: Hz) is the derived unit of frequency in the International System of Units (SI) and is defined as one cycle per second.

chained", or connected to any other conductors or receptacles. The circuit must be grounded according to NEC guidelines or local region electric codes.

CAUTION: All NEC (National Electric Code) guidelines or local region electric codes must be complied with.

Plugs and Outlets

(US and Canada installations)

Your equipment comes with a power cable that meets your local electrical code requirements along with the equipment. Precor commercial treadmills must be connected to a 20 amp individual branch circuit that can be shared only with one PVS.

The power cord on the treadmill is equipped with a grounding conductor and a three-pin grounding plug. This plug must be inserted into an outlet that is properly installed and grounded in accordance with all local codes and ordinances. Failure to ground the treadmill properly may void the Precor Limited Warranty.

CAUTION: Improper connection of the grounding conductor can result in a risk of electric shock. Check with a qualified electrician or service person if you are not sure whether the equipment is properly grounded. DO NOT modify the plug provided with the treadmill. If the plug does not fit the outlet, have a proper outlet installed by a qualified electrician.

Verifying 20 Amp outlet receptacles

US and Canadian installations require 20A current rated power outlets.

You can visually identify a 20A from a 15A rated outlet receptacle by the different style outlet sockets. Make sure the facility wall outlets are the 20A style outlet receptacles.

CAUTION: DO NOT use 20A to 15A power cord adapters to plug the equipment power cord into a 15A wall outlet.

20 Amp rated plugs and outlets

Country	Equipment Voltage	Receptacle/Plug[1] Type
US & Canada	120 VAC: 50/60 Hz	Dedicated 120V/20A circuit with 5-20R NEMA receptacle
US & Canada	240 VAC: 50/60 Hz	Dedicated 220V- 240V/20A circuit with 6-20R NEMA receptacle
International	240VAC	IEC 320-C19 inlet supporting applicable country-specific power cord

Country	Equipment Voltage	Receptacle/Plug[1] Type



NEMA 5-20R
120VAC 20A
Duplex Outlet



NEMA 5-20P
120VAC 20A
Plug



NEMA 6-20R
250VAC 20A
Outlet



NEMA 6-20P
250VAC 20A
Plug

Console & PVS Display Power Requirements

LED consoles (P10, P30, P30i and P31)

LED[2] console power is supplied by the machine. An external power supply is not required.

- Self-powered machines: The machine generator and/or battery is used to power the console. The machine must be continuously operated to power ON and use the console functions.

[2]light-emitting diodes.

- Powered machines: The machines internal power supply is used to power the console. The machine power cord must be plugged in and switched ON to power up and use the console. The console power is independent of the machine workout operation.

Touchscreen consoles (P62, P80, and P82)

Touchscreen consoles use an AC/DC[1] power adapter to supply the console input power.

- Self-power machines: the AC/DC adapter input power cord is plugged into the facility wall outlet. Up to ten consoles can be connected to the same 20 amp individual branch circuit. Only touchscreen consoles can share the same individual branch circuit, no other devices can be connected to this circuit.
- Powered machines: the AC/DC adapter is powered by the machines internal power supply which is hardwired to the machine input power circuit.

AC/DC adapter specification:

AC/DC Adaptor	Specification
input voltage	100v-240v
output power rating	60W/12Vdc/5A

PVS Display

PVS displays use an AC/DC power adapter to power the display.

- On treadmills, the PVS display can be plugged into the same individual branch circuit outlet as the treadmill.
- On self-powered equipment, up to 10 PVS displays can be connected to the same 20A branch circuit. No other devices except PVS displays can be connected to this circuit.

PVS display specification:

PVS Display	Specification
input power	43 W max

AC/DC adapter specification:

AC/DC Adaptor	Specification
input voltage	100v-240v
output power rating	60W/12Vdc/5A

[1]Direct Current: electrical current that only flows in one direction.

Cable TV RF Power Requirements

There is a minimum Cable TV "**CATV**[1]" RF signal input power level requirement for the touchscreen (P62, P80, and P82) consoles and PVS displays. There are also RF signal power requirements at the facility RF cable wall outlet coax connector:

Touchscreen consoles (P62, P80, and P82)

Touchscreen console RF Input Power specification

Touchscreen	RF Input Power
Analog video power	- 30 **dB**[2] to +20 dB RF power with a (+40 dB **C/N**[3] (Channel to Noise ratio)
Digital RF power	-5 dB to 0 dB

MYE - PVS displays

MYE display RF Input Power specification

PVS	RF Input Power
Analog video power	+5 dB to +10 dB RF power with a +40 dB minimum channel to noise ratio (*at each console)
Digital RF power	-5 dB to 0 dB (*at each console)

RF cable TV wall outlet power requirements

When a RF cable TV wall outlet is used to power several equipment consoles in series, there is a minimum RF power requirement of +35 dB at +40 dB minimum channel to noise ratio for analog video and a +25 dB for Digital video.

An RF signal strength of +35 dB can power 17 to 19 consoles connected in series using properly connected splitters tapped to each individual console.

---

[1]Cable Television (aka Community Access Television) is a system of transmitting television programming to consumers via radio frequency (RF) signals transmitted through coaxial cables

[2]1) Dynaamic Brake or 2) Decibel (dB): In electronic systems, the decibel (dB) is a of measurement used to express the system power gain (+dB) or loss (-dB) in decibels (dB). dB (power) = 10Log Pout/Pin) or, in terms of voltage, dB (power) = 20Log (Vout/Vin).

[3]carrier-to-noise ratio: The ratio of power in an RF carrier to the noise power in the channel. CNR is defined as the ratio of the received modulated carrier signal power C to the received noise power N after the receiver filters: in terms of power: CNR = C/N, in terms of decibels CNR (dB) = 10Log(C/N) = C (dBm) – N (dBm).

Ethernet (LAN) Input Signal Requirements

Precor recommends a dedicated CAT6 Ethernet feed to each equipment location.

Communication Requirements:

Ethernet (LAN[1])	Specification
upload bit rate	512 Kbps min upload
download bit rate	5-10 Mbps min download
switch ports	80, 123, 443

*Touchscreen (*P62, P80, and P82*) console Preva **PBS**[2] communication protocol*

The touchscreen consoles P62, P80, and P82) use a security token for communication to the Precor servers. The security token is a hash string that is sent with every API call from the FE's to the Amazon Cloud. The security token originates after the equipment is registered at the location. The console issues a 'Call' which returns the registration token and the fitness equipment URL. Every event after that uses the URL and the token to validate/authenticate communication with the Amazon servers and Preva Business Suite (PBS).

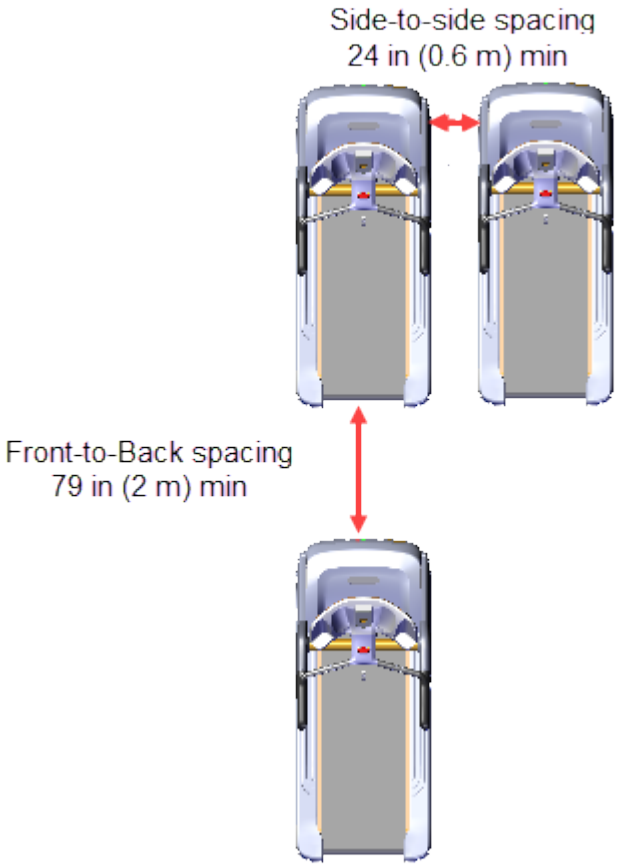
All communication with Precor servers is currently done via outgoing (originating from the console) HTTPS sessions. The console utilizes **NTP**[3] to set its clock and for synchronization. At no time is Precor connecting to the customers facility network to "push" any data. The console initiates all data requests.

Equipment Spacing Requirement

The minimum side to side spacing between treadmills is 23.6 in (0.6 m) and the minimum front to back spacing is 79 in (2 m).

[2]Preva Business Suite

[3]Network Time Protocol (NTP) is a networking protocol for clock synchronization between computer systems over packet-switched, variable-latency data networks.



How To Safely Move The Treadmill

Treadmill Moving Procedure Using a Movers Dolly

Typically you would lift the back and use the front wheels to move and position the treadmill.

However, situations may occur when space is tight and it may become very difficult to safely lift and use the front wheels to move the treadmill. This procedure provides an alternative method using a 4-caster movers dolly to safely move a treadmill with minimal effort, risk of muscle strain, or injury. This moving procedure does not requiring the technician to lift the treadmill.

Tool required

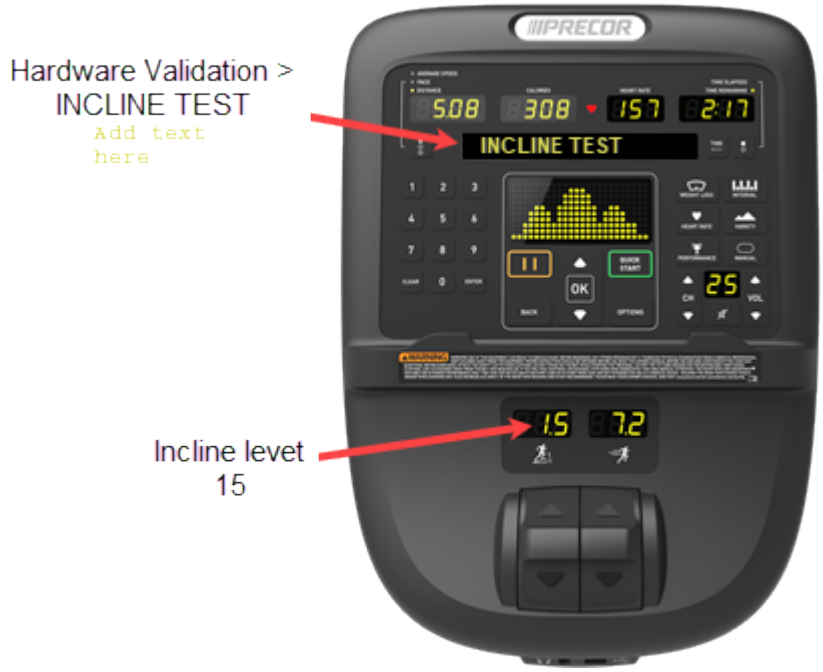
Movers Dolly	Hardwood rubber end dolly with 4-swivel casters (recommended: Uline H-1792, 750 lb capacity) Dimensions: Length 30” (76 cm) X Width 14 – 18” (36 – 46 cm) X Height

6.25” (15 cm)
Load Capacity: minimum 600 lbs (272 kgs).



Procedure

1. Access the **INCLINE** Hardware Diagnostic Test (**Hardware Diagnostic Test 51765761** > **INCLINE** test) and raise the level to 15.0.



2. Slide the movers dolly under the treadmill. Ensure the rubber ends are evenly spaced under the left and right frame rails. Lift the front end of the dolly and position the dolly as close as possible midway between the front and back ends of the treadmill.



3. Lower the **INCLINE** to 0.0. Then verify the rear leveling feet are not contacting the floor. If the feet are touching the floor, reposition the movers dolly.
4. Use the side arms to easily move and position the treadmill as needed.



5. Reverse the steps to install the dolly and remove the dolly.
6. Verify and level the treadmill as need.

7. Verify operation and return to service.

Operation Verification

The Operation Verification tests verify that the machine is operating correctly and, upon successful completion of each test, can be returned to service. Do these operation verification tests at the end of a maintenance procedure or whenever it is necessary to ensure that the machine is operating properly.

Operation Verification Tests

☐ **Error Code Verification Test**
Verify that there are no current active logged error codes:

1. Access either the Error Log (**LED**[1] consoles) or **CPA**[2] Event Log (touchscreen consoles) and record any current active logged error codes:
   - On P10, P30, P30i and P31 LED consoles, Press & hold down the **PAUSE** key for 6 seconds minimum to access the Error Log.
   - On P62, P80, and P82 touchscreen consoles, access **Service menu (51765761)**, select **About** > **CPA Event Log**.
2. Resolve any current active logged error code issues.
3. Delete resolved error codes:
   - On P10, P30, P30i and P31 LED consoles, access the **Information Display (65)** > scroll to **Error Log**.> select **OK** hardkey to view the Error Log. To remove an error code, press/hold down the **QUICK START** key until the "NO ERRORS" message shows.
   - . On P62, P80, and P82 touchscreen consoles, access the **CPA Event Log** (access the **Service menu (51765761)** > select **About** > **CPA Event Log**). Then select the **CLEAR** softkey to remove all error codes.

☐ **Console Verification Tests**
Verify the LED console or touchscreen console operation.
LED consoles (P10, P30, P30i and P31) only

1. Access the Hardware Validation Diagnostic Test menu (51765761) and run the following tests:
   - **KEYPAD or KEYBOARD TEST**: Select KEYPAD TEST and follow prompts to run test.
   - **DISPLAY TEST**: Select DISPLAY TEST and follow prompts to run test.
2. Exit the Diagnostic Test menu, press the **STOP** key.

Touchscreen consoles (P62, P80, and P82) only

[1]light-emitting diodes.

[2]Touchscreen console Control Processing Assembly.

1. Access the Service menu (51765761) and perform the following console System Tests (**Settings** > **System Settings** > **System Tests**):
    - **Touchscreen Calibration**: Follow screen prompts to complete test. When the test is completed the console will automatically exit and return to the System Tests menu.
    - **Touchscreen Test**: Verify that there is a trace created that follows your finger movement across the touchscreen surface. Select **Finish** to exit. move your finger and verify that a trace follows
    - **Backlight Test**: Tests the display backlight brightness. Follow prompts to complete test.
    - **RGB Test**: Touch the screen to cycle through the test colors: Red, Green, Blue, White, & Black. Returns to the System Tests menu when completed.
    - **Numeric Backlight Test**: Tests the controls numeric display brightness. Returns to the System Tests menu when completed.
    - **Numeric Display Test**: Tests the controls numeric display. Returns to the System Tests menu.
2. Exit the Diagnostic Test menu. (press **Back** to exit & return to the banner screen)

☐ **Machine Operation Test**

This test verifies the console motion controls, metric indicators and machine operation.

1. Select **QUICKSTART** to begin a manual workout. Do this test while walking on the machine and the set to 0% incline:
2. Operate the **SPEED** motion control from minimum to maximum range while verifying the machine operation.
    - Make sure that the console SPEED paddle control operation is smooth and working correctly.
    - Verify that the running belt can reach the maximum speed and then returns to the minimum speed level.
    - Make sure that the running belt speed change is smooth and that there are no unusual noises.
    - Verify that the console SPEED indicators and workout displays are showing correct information.
3. Operate the **INCLINE** motion controls from minimum to maximum range while verifying the machine operation. Set the SPEED between 2-3 mph and walk on the belt while performing this test.
    - Make sure that the console **INCLINE** paddle control operation is smooth and working correctly.
    - Verify that the running deck can reach the maximum incline and then return to the minimum incline level.
    - Verify that the lift motor operation is smooth while changing the INCLINE from minimum to maximum levels.
    - Verify that the console INCLINE level indicators and user workout displays are showing correct information.

☐ **Running Belt Test**
(Internet Only)

Verify the running belt condition

1. Visually Inspect the belt condition: no surface rips, tears, or frayed edges. Also check the seam for damage.

INSPECTING THE RUNNING BELT CONDITION

Verify the running belt alignment and tracking

1. Step off the running belt and operate the treadmill at 12 mph (19 kph) for one minute.
2. Verify the running belt alignment and tracking remains centered.

RUNNING BELT ALIGNMENT AND TRACKING PROCEDURE

☐ **ESTOP[1] Switch Test**
Verify the ESTOP emergency stop switch operation.

1. While walking on the treadmill, press the emergency **STOP** button and verify that the running belt immediately slows to a stop.
2. While walking on the treadmill, pull the **ESTOP** lanyard and make sure the running belt immediately slows to a stop.
3. Inspect the condition of the **ESTOP** lanyard clip: make sure that the clip spring is installed and that the clip tension will firmly hold when attached to the runner.
4. Make sure that the lanyard clip is properly stowed. The lanyard string is looped with the clip attached near the ESTOP cover to hold in place, freely hanging from the ESTOP switch cover. Do **NOT** wind the lanyard string and clip around the handlebars, see ESTOP TEST video.

ESTOP TEST

☐ **Heart Rate Monitor Test**
Verify both the Handheld Handlebar Heart Rate (**HHHR**[2]) and wireless **HR**[3] monitor operation.

1. **Handheld Handlebar Heart Rate (HHHR) monitor verification**

   LED consoles (P10, P30, P30i and P31) only: Access the Diagnostic menu (51765761) > select **HEART RATE TEST** and follow prompts to run the test:

   Touchscreen consoles (P62, P80, and P82) only: Access the Service menu

[1]Emergency Stop: Safety clip and lanyard attached to the stop switch to immediately turn off power bringing the machine to a stop.
[2]Handheld Handlebar Heart Rate
[3]Heart Rate

(51765761), select **System Settings** > **System Tests** > **HEART RATE TEST** and follow prompts to run the test.

2. **Wireless Heart Rate monitor verification**.

   Use a wireless heart rate monitor chest strap (pn PPP000000038819103 or **ANT+**[1] wireless compatible HR chest strap) and verify that the console heart rate icon is flashing, and the HR indicator is showing the heart rate beats per minute (bpm).

☐ **Return to service**

1. Switch the power OFF.
2. Make sure that the machine is setting level and stable.

   MACHINE LEVELING PROCEDURE

3. Make sure that any external power cords or interface cables are properly routed, connected, and safe from being damaged.
4. On successful completion of all verification tests, return to service.

[1]ANT+ (pronounced ant plus) is a wireless protocol for monitoring sensor data such as a person's heart rate or a bicycle's tire pressure

Standard Service Menus

About

There is a set of equipment Standard Service Menus that are supported across Precor cardio product lines designed to allow servicers and clubs to manage, configure/setup, and maintain/test the equipment: The service menus are grouped into functional service categories depending on the console type as follows:

On **LED**[1] consoles (P30, P30i and P31), there are three service menus:

- **Hardware Validation (51765761)** menu provides a set of automated diagnostic tests used to troubleshoot, calibrate, and verify machine operation.
- **Club Settings (5651565)** menu is used to configure the equipment workout settings.
- **Information Display (65)** menu provides information about the equipment hardware, software, usage, and error log data.

On touchscreen consoles (P62, P80, and P82), there are two service menus:

- **Service Settings (51765761)** menu intended for service technicians. The Service Settings menu provides access to all available equipment service menus used by service technicians to service and maintain the equipment.
- **Club Settings (5651565)** intended for club operators. The Club Settings menu is a subset of service menus used by club operators to manage, configure, and maintain the equipment.

Steps to access the Standard Service Menus:

On LED consoles you first press a specific sequence of console hardkeys and then quickly type in the Service Menu Access code. The access code will show on the console display as you type. The console hardkey sequence varies between console models, see (see "How to Access the Standard Service Menus" on page 43).

On Touchscreen consoles you press a specific sequence of console hardkeys which opens the Service Access Code login screen. Then type in the Service Menu Access Code to open the service menu (see "How to Access the Standard Service Menus" on page 43).

Service Menu Access Codes

Service Menu Access Codes

[1] light-emitting diodes.

LED Consoles: P10, P30, P30i and P31

SERVICE MENU ACCESS CODE	SERVICE MENU	FUNCTION
51765761	**Hardware Validation**	Set of automated diagnostic tests used to troubleshoot, calibrate, and verify machine operation.
5651565	**Club Settings**	Used to customize the equipment user interface localization, Workouts configuration, and maintenance default settings.
65	**Information Display**	Used to access the equipment usage, hardware, software, error code, and maintenance information.

Touchscreen Consoles: P62, P80, and P82

SERVICE ACCESS CODE	SERVICE MENU	FUNCTION
51765761	**Service Settings**	Service Menu access code provide access to all available equipment service menus used to service, configure, test, and maintain the equipment including the legacy Information Display, Club Settings, and Hardware Validation Diagnostic Tests menus.
5651565	**Club Settings**	Club Settings access code is a subset of service menus directed toward club operation, used by club operators to manage, configure, and maintain the equipment.
Note: Service access code 65 "Information Display" is not used on touchscreen consoles. The Information Display menus are integrated into the Service Settings menus.		

How to Access the Standard Service Menus

P10, P30, P30i and P31 LED consoles

CONSOLE		HARDKEY	
 P10 Console	Press & Release	 PAUSE	Type in the Access Code
 P30 Console	Press & Release	 PAUSE	Type in the Access Code
 P30i Console	Press & Release	 PAUSE	Type in the Access Code
 P31 Console (*except StairClimber)	Press & Release	 PAUSE	Type in the Access Code
 P31 "StairClimber" Console	Press & Release	 STOP	Type in the Access Code

CONSOLE	STEPS
P10/P30/P31 consoles*	1. Press (2-3 sec) and release the **PAUSE** hardkey. 2. Immediately type in the access code.
P30i consoles:	1. Press (2-3 sec) and release the **PAUSE** hardkey. 2. Immediately use the **INCLINE** number keys to type in the access code.
P31 StairClimber consoles**	1. Press (2-3 sec) and release the console **STOP** hardkey. 2. Immediately type in the access code.
Notes: *Except for P31 StairClimber machines. **On SCL800 StairClimber P31 consoles, the console PAUSE key is replaced with a STOP key.	

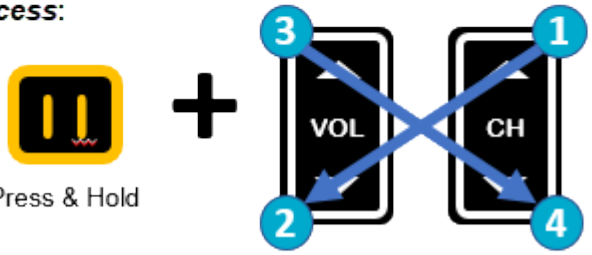
P80 touchscreen console

Have the service access code ready and then use the following instructions to access the

P80 console



Menu access:



standard service menu:

Steps

1. Make sure the P80 is set to the Welcome home page.
2. Press and hold the **Pause** key while pressing **CH up >VOL down > VOL up > CH down**:
3. Use the touch keypad to type in the service access code.

P62 and P82 touchscreen consoles

Diagnostics menu access

Have the service access code ready and then use the following instructions to access the standard service menu:

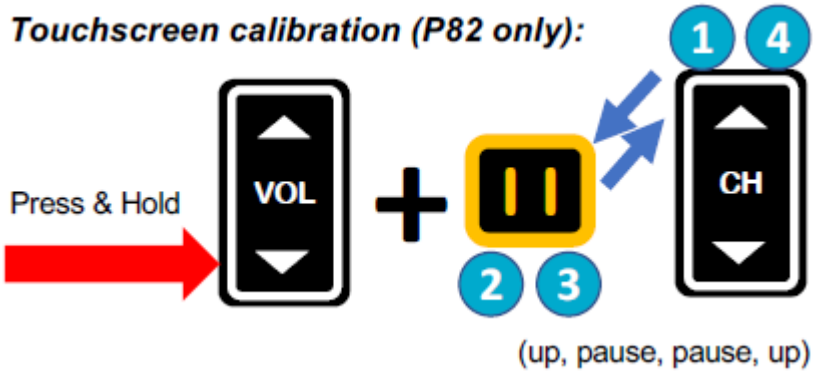


Steps

1. Make sure the console is set to the Welcome banner.
2. Press and hold the **VOL down** key while pressing **CH up >CH down > CH down > CH up**:
3. At the Sign-In screen, type in the service access code.

Touchscreen Display Calibration shortcut

Console shortcut to access the **Touchscreen Calibration** test.

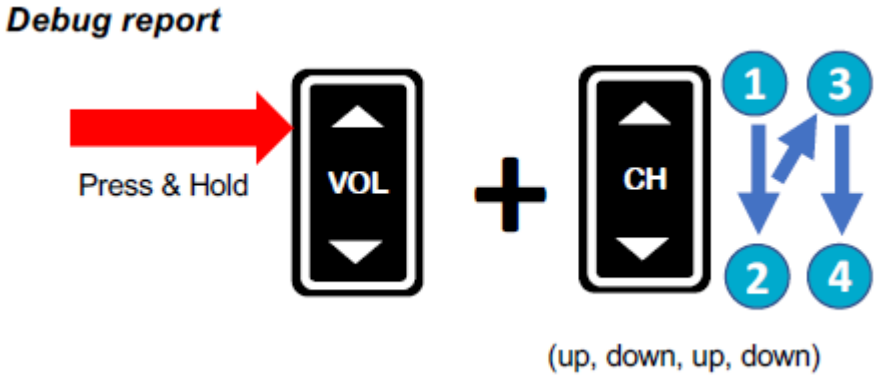


Steps

1. Make sure the console is set to the Welcome banner.
2. Press and hold the **VOL down** hardkey while pressing **CH up > Pause > Pause > CH up**:
3. Touch the designated display positions and follow prompts to complete the touch-screen calibration.

Debug Information Report shortcut

Console shortcut to download an event log debug information report.



Steps

1. Make sure the console is set to the Welcome banner.
2. Insert a **USB**[1] flash drive into the Chin USB port.
3. Press and hold the **VOL up** hardkey while pressing **CH up > CH down > CH down > CH up**:
4. Wait for the download to finish and then remove the USB drive.

[1]Short for Universal Serial Bus, is an industry standard developed in the mid-1990s that defines the cables, connectors and communications protocols used in a bus for connection, communication, and power supply between computers and electronic devices.

IMPORTANT: Do not remove the USB drive until the "Report was successful" message is shown, (approx. 1 min).

Navigating the Service Menus

P10, P30, P30i and P31 LED consoles

LED console service menus are organized in a sequential top-menu to sub-menu item architecture. Select the top level menu and sequentially navigate through the sub-menus until the particular operation is found. Then return to the top-level menu to select a different menu item. Refer to the following tables for console hardkey and keypad functions.

P10, P30 and P31 consoles

CONSOLE KEY	FUNCTION/DESCRIPTION
Up/Down	Scrolls up and down through the current menu.
OK	Selects the current menu item or confirms settings.
BACK/CLEAR	• Returns to the previous menu level without saving changes. • Hold **BACK** to exit the **DISPLAY** test.
PAUSE (STOP[3])	• Press **PAUSE** once to pause a workout session. • (SCL800 StairClimber*) Press **STOP** once to pause a workout and stop the stairs, except for the fitness tests WFI and CPAT, where pressing **STOP** terminates the workout. • Access Service menus: Press/Release **PAUSE** (**STOP** for StairClimber*) and type in the access code • Press and hold **PAUSE** (**STOP** for StairClimber*) for greater than 6 sec will open the Error Log or show the "Stuck Key" message when there are no logged errors.
Numeric Keypad[1]	Use to type in numeric inputs (e.g. access codes).
INCLINE Keypad[2]	On P3oi consoles, use the INCLINE keys to type in numeric inputs (e.g. access codes).

1. On all consoles, except the P30i console, use the Numeric keypad to enter numeric inputs.
2. On P30i console, use the INLINE keys to enter numeric inputs.
3. On P31 SCL800 StairClimber consoles, the PAUSE key is replaced with the STOP key. There is also an additional handlebar grip Remote STOP key that performs the same functions.

P30i consoles

Available exclusively on the 700 Line Treadmill, the P30i Interval Console is an easy-to-use console that facilitates interval training with one-touch speed and incline keys.

CONSOLE KEY	FUNCTION/DESCRIPTION
SPEED 1/2 - DWN/UP (US std) **SPEED 2/4 - DWN/UP (metric)**	Use the SPEED numeric 1 & 2 keys to scroll up and down through the current menu.
OK or **INCLINE 0**	Selects the current menu item or confirms settings.
INCLINE 0	Returns to the previous menu level without saving changes.
PAUSE	• Exits service mode • Press and hold PAUSE for greater than 6 sec will open the Error Log or show the "Stuck Key" message when there are no logged errors.
INCLINE numeric keys	Use as the numeric keypad to type in numeric inputs (access codes etc.).

P80 and P82 touchscreen consoles

The P80 and P82 consoles use the touch sensitive touchscreen controls to select items and navigate the service menus. Only one hardkey "Pause" is used to stop a running diagnostic test.

Follow the on-screen prompts to run the diagnostic tests.

CONSOLE KEY	FUNCTION/DESCRIPTION
Touchscreen controls	There is various touch sensitive softkey controls (OK. START, STOP, BACK, etc.) and icon controls (image boxes, buttons, etc.) used to control and operate the console. Make selection by touching the softkey control or icon.
Scroll Up/Dwn	Use your finger to swipe the touchscreen up or down to scroll through menu items. Some menus provide a vertical scroll bar on the screen right side to scroll Up/Dwn.
BACK softkey	• Use the touchscreen **BACK** softkey to return to the previous menu display. • Continue selecting the **BACK** softkey to exit the service software.
PAUSE hardkey	Stop a running diagnostic test.

P62 touchscreen consoles

The P62 console uses a combination of touchscreen softkeys/icons and keypad hardkeys to select and navigate thru the service and diagnostics menus. The P62 uses the **BACK** keypad button to return to the previous menu and the **PAUSE** hardkey to stop a running diagnostic test.

Follow the on-screen prompts run the diagnostic tests.

CONSOLE KEY	FUNCTION/DESCRIPTION
Touchscreen controls	There is various touch sensitive softkey controls (OK. START, STOP, BACK, etc.) and icon controls (image boxes, buttons, etc.) used to control and operate the console. Make selection by touching the softkey control or icon.
Scroll Up/Dwn	Use your finger to select while swiping your finger Up/Dwn to scroll through menu lists. Some menus provide an on-screen scroll bar to scroll Up/Dwn.
BACK	• On P62 consoles, use the control keypad **BACK** button to go back or return to the previous menu. • Continue selecting the **BACK** hardkey to exit the service software.  P62 Console
PAUSE hardkey	Stop a running diagnostic test.

LED Console Standard Service Menus

Standard service menus for LED consoles (P10, P30, P30i and P31).

Hardware Validation Diagnostics Tests Menu (51765761)

Service Access Code: 51765761 (see "Service Menu Access Codes" on page 41)

menu: **Access code (51765761) > Hardware Validation Tests**.

The Hardware Validation menu provides a set of automated hardware diagnostic tests and calibration procedures used to troubleshoot, calibrate, and verify machine operation. The diagnostic tests are customized for the particular equipment type and console configuration.

DIAGNOSTIC TEST	TEST DESCRIPTION
DISPLAY TEST	Tests the console LEDs. Successively press the **OK** key to verify each group of LEDs and verify that all LEDs illuminate. Press **Back** to exit the test.
KEYBOARD TEST	An illuminated LED map of the function keys will be shown. Press each individual key and verify that the corresponding LED extinguishes. Press and hold **BACK** to exit the test.
HEART RATE	Tests the Unfiltered and Filtered pulse heart rate. Grasp the grips to test the handheld heart rate. Use a Polar heart rate simulator to test the wireless heart rate. Press the **BACK** button to exit this test. Results: F xxx U xxx (F-filtered, U-unfiltered)
ACTIVE STATUS LIGHT (1)(2)(3)	(Located in the Information Display on some models) The current **ASL**[1] light state (blue. pulsing blue, yellow, pulsing yellow) or switched OFF on some models.
AS LIGHT BRIGHTNESS (1)(2)(4)	(Located in Club Settings > SET ASL BRIGHTNESS on some models) Sets the ASL light brightness level and ON/OFF state: HIGH. MED, LOW, and OFF on selected models.
MC[2] **LIGHT**(2)	**Machines with ASL functionality** Indicates the current fault status of the MC: • Green - OK • Yellow: Fault condition

[1]Active Status Light: Service and maintenance status light.

[2]Motor controller, motor controller unit, or motor controller module: used on treadmills, contains the LPCA and motor controller functionality.

DIAGNOSTIC TEST	TEST DESCRIPTION
	Hold the **Quick Start** hardkey to reset. **Machines without ASL functionality**(2) Used as an ON/OFF light:
BELT SPEED TEST	menu: **MACHINE TEST** > **BELT SPEED TEST** Tests belt operating condition in 0.1 speed increments Test parameters: • AMPS IN: Treadmill input Current. • VOLTS IN: Treadmill input Voltage • VBUSS: Treadmill internal buss Voltage • AMPS MTR: Current supplied to the drive motor.
AUTO STOP TEST	menu: **MACHINE TEST** > **AUTO STOP TEST** Test parameters: • Status - Exerciser detected on or off the running belt. • Step Count - Average # of footplants. Footplant averaging delay reset with each speed change. .
INCLINE TEST	menu: **MACHINE TEST** > **INCLINE TEST** Test parameters: • **A/D**[1] - lift motor incline position potentiometer A/D number. • SEC - UP/DWN command response delay between the **UPCA**[2] and **LPCA**[3]. • Glitches - Momentary failures in the A/D potentiometer output. If there are more than 50 Glitches, the lift motor should be replaced. .
STOP KEY TEST	menu: **MACHINE TEST** > **STOP KEY TEST** (P10, P30 consoles only) Verifies the Stop Key and E-Stop function Test sequence steps: 1. StopKey test - Press the Stop Key 2. Lanyard **ESTOP**[4] test- Pull the lanyard to trip the emer-

[1]analog to digital converter

[2]Upper PCA board

[3]Lower Printed Circuit Assembly board; also refered to as the Lower PCA or simply as the lower board. On treadmills, it is the console to base function interface and the motor controller unit (MCU). On self-powered units, it is the lower PCA console to base function interface.

[4]Emergency Stop: Safety clip and lanyard attached to the stop switch to immediately turn off power bringing the machine to a stop.

DIAGNOSTIC TEST	TEST DESCRIPTION
	gency stop function. 3. Exit test - Press the Stop button to reset and exit test.
(1) Only included on products that have the ASL feature. (2) Not included on the EFX600 series or TRM600 series products. (3) Moved to the Information Display on some models. (4) Moved to the Club Settings on SCL800 StairClimber.	

Club Settings Menu (5651565)

Service Access Code: 5651565 (see "Service Menu Access Codes" on page 41)

Used to customize the equipment user interface localization, Workouts configuration, and maintenance default settings.

menu: **Club Settings (51765761) > DIAGS - CLUB SETTINGS**

CLUB SETTINGS	DESCRIPTION
SAFETY CODE	Enabled or disabled. When enabled, a user password (xxxx) is required to use the machine. Factory default: Disabled. Default safety code: 1234 When the equipment is shipped from the factory, the safety code feature is disabled. An enabled safety code requires users to enter the code 1 2 3 4 to use the equipment.
SELECT LANGUAGE	Sets the default language for all workouts on this machine. Language for single use workouts can also be set by the user from the workout options. Default: English
SET UNITS **or** **SELECT UNITS**	Sets the measurement units to U.S. Standard or Metric. Default: U.S.
SET MAX WORKOUT TIME	Specifies the maximum workout time per session. Range: 1 to 240 minutes (or NO LIMIT) Default: 60 minutes
SET MAX PAUSE TIME	Limits how long equipment remains paused during a workout before it resets to the Welcome banner. Range: 1 to 60 seconds (1 to 120 seconds for treadmills). Default 120 seconds for treadmills and 60 seconds for all other equipment.

CLUB SETTINGS	DESCRIPTION
SET COOL DOWN TIME	Sets the amount of time that a cool down period will occur at the end of every workout. Range: 0 to 5 minutes in 1 minute increments. Default: 5 min
SET METRICS DEFAULT	Sets a metric that may be of specific importance to the specific facility or fitness trainer. The selected metric will scroll across the screen at regular intervals during the workout. Default: OFF
SET SPEED LIMIT	(Treadmill only) Sets the user maximum speed. Range: Varies by model. Default: 12 mph
SET INCLINE LIMIT	(Treadmill only) Sets the user maximum incline level. Range: 15 max Default: 15
REMOTE SPEED CONTROL	(Treadmill only) Not used.
AUTO STOP CONFIGURE	Automatically stops the machine if an exerciser is not detected. Sets Auto Stop to On or Off. Default: ON
SET CUSTOM PROGRAM 1/2 **or** **SET CUSTOM WORKOUTS 1 AND 2**	You can create and save two custom workouts on your treadmill and one custom workout on your other Precor equipment. Range: ON/OFF Default: OFF Note: The Total Body Workout can only be turned on in this Club Settings menu.
MAINT CONFIG **or** **MAINTENANCE CONFIGURE** **or** **MANINTENANCE COUNTER**	(ASL equipped machines only) Switch ON or OFF the ASL pulsing blue light maintenance counter reminder function: Range: ON - Enable, OFF - Disable Default: ON
SET DISPLAY BRIGHTNESS	(not available on all models) Sets the display light brightness level. Settings: Low, Medium, High

CLUB SETTINGS	DESCRIPTION
	Default: HIGH
SET ASL BRIGHTNESS	(Located in Hardware Validation > AS LIGHT BRIGHTNESS on some models) Sets the ASL light brightness level. Settings: Low, Medium, High, (**EFX**[1] includes OFF) Default: Medium
(1) Only used on products that have the ASL feature. (2) Not included on all equipment models.	

Information Display (65)

Service Access Code: 65 (see "Service Menu Access Codes" on page 41)

Provides the equipment usage, hardware, software, error code, and maintenance information.

INFORMATION DISPLAY	DESCRIPTION
ODOMETER	The odometer provides the accumulated machine usage to date in units applicable to the type of equipment being used. • **TRM**[2] / **AMT**[3]: Cumulative units logged to date. AMT also displays vertical strides. • EFX: Strides logged to date • Bike: Revolutions logged to date • Climber/**SCL**[4]: Floors climbed
HOUR METER	The total number of hours that the unit took to accumulate unit miles (Steps on SCL800 StairClimbers) . This value is stored in the upper **PCA**[5] in the console so if that PCA is replaced the hours of use would start again from "0".
U-BOOT SW	The console upper boot software version inform-

[1]Elliptical Fitness Crosstrainer
[2]Treadmill
[3]Adaptive Motion Trainer
[4]StairClimber
[5]Printed circuit assembly, generally referred to as either an upper PCA or lower PCA.

INFORMATION DISPLAY	DESCRIPTION
or **BOOT LOADER SW***	ation. *P31 console only.
U-BASE SW **or** **MAIN CONSOLE SW***	The console upper base software version information. *P31 console only.
SER NUMBER **or** **SERIAL NUMBER**	Shows the serial number of the machine if input. The base serial number can be set using the WinCSAFE computer software. Factory default: NONE.
USAGE LOG	Provides the total number of times a particular workout has been used and the total elapsed Time used for the workout. Use the up/down arrows to scroll thru the available workouts.
Error Log	Table of stored error event codes, see "Error Log & CPA Event Log" on page 130. **TIP**: You can quickly access the Error log by holding down the **PAUSE** key. Will show the **STUCK KEY** message when there are no logged error codes.
MODEL	Machine detected model. Result: SCL800
ACTIVE STATUS LIGHT	(Located in the Hardware Validation menu on some models) Showa the current ASL state color (blue. pulsing blue, yellow, pulsing yellow) or switched OFF on some models:
(1) ASL equipped machines only. (2) TRM600 series treadmills only. (3) SCL800 StairClimber only. (4) Not used on SCL800 models.	

Touchscreen Console Standard Service Menus

Standard service menus for Touchscreen consoles (P62, P80, and P82).

Touchscreen Console Standard Service Menus

Service Settings Menu ((51765761)

Service Access Code: 51765761

Service Settings menu access code (51765761) opens to the Settings menu which is the top level service menu providing access to all the equipment service submenus.

menu: **Service Access code (51765761) > Settings**

The Settings menu is the top level service menu providing access to all available equipment service information, diagnostic tests, and maintenance submenus.

SETTINGS MENU	DESCRIPTION
"About menu" on page 59	menu: **Settings > About** General information about the machine (serial number, name, type, location, software versions, internet & **Wi-Fi**[1] connectivity, and the error codes (Event Log or CPA Event Log)
Safety Code menu:	menu: **Settings > Safety Code** (SW version 8.2 and later) A 4-Digit PIN safety code that must be entered to use the equipment. Settings: • OFF (default): Does NOT require safety code PIN to use the machine • ON: Does require safety PIN code to use the machine. Default PIN: 1234 The default PIN can be changed and user specified. If the PIN is forgotten, you can go to the Safety Code menu and switch OFF the feature or create a new PIN without knowing the current PIN.
"" on page 61	menu: **Settings > Equipment Usage**

[1]Wireless Fidelity - a term defined and Trademarked by the Wi-Fi Open Alliance. Wireless LAN equipment carrying the Wi-Fi logo have been interoperability tested for compatibility with one (or more) 802.11 standards, and certified by the Wi-Fi Alliance to be sold under the Wi-Fi brand.

SETTINGS MENU	DESCRIPTION
	Machine workout usage information (total workout time & distance, last work start/stop times).
"" on page 61 (1)	menu: **Settings > Maintenance** (ASL equipped products only) Provides the machine maintenance and operating ASL status information.
"" on page 63	menu: **Settings > System Settings** Provides settings to configure the console and machine. Also includes the service diagnostic tests.
Software Downloads	menu: **Settings > Software Downloads** Settings: ON, OFF Enables automatic operating system software downloads: • ON: Enables automatic operating system software downloads. • OFF: Disables automatic operating system software downloads. Note: Must be connected to the internet and register with **PBS**[1] (Preva® Business Suite).
Partition Configuration	menu: **Settings > Partition Configuration** OEM use only, contact Precor Customer Service for information.

[1]Preva Business Suite

SETTINGS MENU	DESCRIPTION
(No) Available Updates	menu: **Settings > No Available Updates** or **Available Updates** • **No Available Updates**: No available software updates can be read from the USB flash drive. • **Available Updates**: List of available software updates read from the USB flash drive. Used to update the operating system software. The console reads a software update USB flash drive and then changes the menu from **No Available Updates** to **Available Updates**. Select **Available Updates** to view, select, and upload the software, see How to Update the console operating system software.

(1) Not included on elliptical or treadmill products that do not have the maintenance and ASL features. Not included on the EFX600 series, the TRM600 series, or the **TRM800-10**[1] (**TRM10**[2]/GEN06) series products.

About menu

About menu

menu: **Service Setting menu (51765761) > Settings > About**

General information about the machine (serial number, name, type, location, software versions, internet & Wi-Fi connectivity, and the event and error codes (Event Log or CPA Event Log).

ABOUT MENU	DESCRIPTION
Event Log	menu: **About > Event Log** The Event Log contains all connectivity errors and service maintenance error codes. .Note: For maintenance service and troubleshooting, use the CPA Event Log and not the Event Log to find the machine maintenance error event codes.
CPA Event Log	menu: **About > CPA Event Log** The CPA Event Log only contains the machine maintenance and troubleshooting error event codes that are described in the "*Error Code Troubleshooting Guide*", see Error Code Troubleshooting

[1]TRM800 version 1 treadmills mfg. dates 2010 thru 2014.
[2]TRM800 version 1 treadmills mfg. dates 2010 thru 2014.

ABOUT MENU	DESCRIPTION
	Guide. .Note: Use the CPA Event Log and not the Event Log to find the machine maintenance and troubleshooting error event codes.
Console Serial Number	menu: **About > Serial Number** Console serial number.
Lower Serial Number	menu: **About > Serial Number** Base serial number.
Friendly Name	menu: **About > Friendly Name** Friendly name assigned to the equipment by the facility.
Location	menu: **About > Location** Facility location code.
Release Bundle Version	menu: **About > Release Bundle Version** Console System Operating software version. Select to show the component system software versions including: the CPA Software, LPCA, Qt App, Boot Kernel, and File System software versions.
Heartbeat Interval	menu: **About > Heartbeat Interval** OEM use only.
Wired MAC Address	menu: **About > Wired MAC Address** Wired **LAN**[1] MAC address
WI-FI MAC Address	menu: **About > Wi-Fi MAC Address** Wireless Wi-Fi MAC address
Network Time Server1	menu: **About > Network Time Server1** **NTP**[2] server address
Machine Type	menu: **About > Machine Type** Specifies the detected machine type: TRED, AMT, EFX, **UBK**[3], **RBK**[4].
Legal Notices	menu: **About > Legal Notices** Specifies the trademarks. trade names, etc.

[1]Local Area Network: A communications network that serves users within a local geographical area, typically over distances of around 100m. Wireless LANs use wireless communications to network devices so there is no need for data cabling.
[2]Network Time Protocol (NTP) is a networking protocol for clock synchronization between computer systems over packet-switched, variable-latency data networks.
[3]Upright Bike
[4]Recumbent Bike

Equipment Usage menu

menu: **Service menu (51765761) > Settings > Equipment Usage**.

Machine workout usage information: cumulative hours & distance, number of workout sessions, & last work start/stop times.

EQUIPMENT USAGE MENU	DESCRIPTION
Cumulative Workout Hours	menu: **Equipment Usage > Cumulative Workout Distance** Machine total workout hours.
Cumulative Workout Distance	menu: **Equipment Usage > Cumulative Workout Distance** Machine total workout distance.
Cumulative Workout Sessions	menu: **Equipment Usage > Cumulative Workout Sessions** Machine total number of workout sessions.
Last Workout Start Timestamp	menu: **Equipment Usage > Last Workout Start Timestamp** The most recent workout start time.
Last Workout End Timestamp	menu: **Equipment Usage > Last Workout End Timestamp** The most recent workout end time.

Maintenance menu(1)

Menu: **Service menu (51765761) > Settings > Maintenance(1)**

Provides machine maintenance related information including: routine maintenance due status, machine operating condition, and ASL state.

MAINTENANCE MENU(1)	DESCRIPTION
Recommended Action menu(1)	menu: **Maintenance > Recommended Action** Range: None, Inspect • None: No maintenance required. • Inspect: Maintenance action required. Used to report that there is a maintenance issue that requires attention; it could indicate routine maintenance is due or that a machine failure (error code) has occurred that required attention.

MAINTENANCE MENU[1]	DESCRIPTION
» Operating Condition[1]	menu: **Maintenance > Operating Condition** Range: Normal, Inspect • Normal: No maintenance required. • Inspect: There is a routine maintenance issue or failure condition (error code) that requires immediate attention. .***Important***: Reset the ASL light state and Motor Controller (MC) status light after repairs a completed.
» Belt Rating[1]	(Treadmills only, not supported on TRM600) menu: **Maintenance > Belt Rating** Range: 10 - 0 (10 - New condition, ≤ 1 - Replace running belt) (ASL equipped products only) A belt rating of 0 or 1 will cause a blue pulsing ASL light indicating that there is a problem with the running belt/deck and requires servicing or replacement. ***Important***: Reset the Belt Rating after replacing with a new running belt and deck (select **Replace**).
» Next Maintenance Due[1]	menu: **Maintenance > Next Maintenance Due** Provides machine next maintenance due remaining mileage or hours. Perform preventative maintenance when the maintenance counter reaches 0. ***Important***: Reset the maintenance interval after completing routine maintenance service, (select **Reset**). Treadmills reset to 1000 miles, ellipticals reset to 250 Hrs.
Active Status Light (ASL menu)[1]	menu: **Maintenance > Active Status Light** Indicates the machine operating and maintenance status. **Blue Solid**: Normal operation Indicates that the ASL has not detected any logged error codes. **Blue Pulsing**: Preventative maintenance reminder. • Treadmills: A belt rating of 0 or 1 will cause a blue pulsing ASL light indicating that there is a problem with the running belt/deck and is in need of servicing or replacement. • ALL: The maintenance counter starts at 1000 hours counting down to active use hours to 0 indicating preventative maintenance is due. **Yellow Solid**: Indicates an error has occurred, was self-corrected and the machine can be used. The fault can be cleared. **Yellow Pulsing** There is a current non-recoverable fault condition, there is a loss of a major function and the machine id out-of-service. Machine service is required.
» AS light Bright-	menu: **Maintenance > AS Light Brightness**

MAINTENANCE MENU(1)	DESCRIPTION
ness (1)	Range: Low, Medium, High Set the ASL brightness level.
» Maintenance Reminder(1)	menu: **Maintenance > Maintenance Reminder** Range: OFF, ON (default) Switch the maintenance reminder function ON or OFF.
(1) Not included on elliptical or treadmill products that do not have the maintenance and ASL features. Not included on the EFX600 series, the TRM600 series, or the TRM800-10 (TRM10/GEN06) series products.	

System Settings menu

menu: **Service menu (51765761) > Settings > System Settings**.

Provides settings to configure the console and machine. Also includes the service diagnostic tests.

SYSTEM SETTINGS MENU	DESCRIPTION
System Tests menu	menu: **System Settings > System Tests** Machine diagnostics tests to verify system hardware operation, see "System Tests menu" on page 67.
Connectivity menu	menu: **System Settings >Connectivity** Connectivity includes Internet network and Preva® Server setup and configuration.
» Network Type	menu: **System Settings > Connectivity > Network Type** Settings: Wired, Wi-Fi Default: Wired To connect to a network: 1. Select **Network Type** > **Wired** (or Wi-Fi) > **Go**. 2. Select **Configure** > **Configuration** > select a network from the list and enter your credentials to access that network. 3. Select **Back** to save settings and return to the Connectivity screen.
» Configuration	menu: **System Settings > Connectivity> Configuration** Settings: Automatic (recommended), Manual Default: Automatic

SYSTEM SETTINGS MENU	DESCRIPTION
	Specifies internet connection mode.
» Status	menu: **System Settings > Connectivity > Status** Range: Connected, Not Connected Specifies internet connection status.
» IP Address	menu: **System Settings > Connectivity> IP Address** Specifies console internet IP address.
» Preva® Server	menu: **System Settings > Connectivity> Preva® Server** Specifies Precor Preva server URL (na.preva.com).
Display menu	menu: **System Settings > Display** Console default display configuration settings: language, units, standby delay, .browser and news reader on/off.
» Default Language	menu: **System Settings > Display > Default Language** Default: English Specifies the default language.
» Measurement Units	menu: **System Settings > Display > Measurement Units** Range: US Standard, Metric Default: US Standard Specifies the default measurement units.
» Standby Mode Delay	menu: **System Settings > Display > Standby Mode Delay** Range: 5, 10, 15. 30, 60 minutes Default: 15 minutes Specifies the idle wait time before entering standby mode.
» Browser	menu: **System Settings > Display > Browser** Range: ON/OFF Default: ON Show (enable) the Browser app.
» News Reader	menu: **System Settings > Display > News Reader** Range: ON/OFF Default: ON Show (enable) the News Reader app.
TV Settings menu	menu: **System Settings > TV Settings** Configuration TV settings and channel guide.
» Channel Guide	menu: **System Settings > TV Settings > Channel Guide** TV channel configuration.
» TV Source	menu: **System Settings > TV Settings > TV Source** Default: Internal Tuner TV input signal source

SYSTEM SETTINGS MENU	DESCRIPTION
» Region	menu: **System Settings > TV Settings > Region** Specifies the TV input signal modulation format for a particular geographical region.
» Default Channel	menu: **System Settings > TV Settings > Default Channel** Default: Not set TV default channel.
» Skip Unnamed Channel	menu: **System Settings > TV Settings > Skip Unnamed Channels** Default: ON Skips over unnamed channels.
» Skip Encrypted Channel	menu: **System Settings > TV Settings > Skip Encrypted Channels** Default: ON Skips over encrypted channels.
» Analog Channels Aspect Ratio	menu: **System Settings > TV Settings > Analog Channels Aspect Ratio** Range: 4:3, 16:9 Select the analog channel aspect ratio.
» Extensive Scan	menu: **System Settings > TV Settings > Extensive Scan** Default: OFF Searches all available channel sources.
» Closed Captioning	menu: **System Settings > TV Settings > Closed Captioning** Default: On Switches close caption feature ON/OFF.
» Export/Import Channels	menu: **TV Settings > Export/Import Channels** Export/Import channel mapping using a USB .flash drive.
Audio Settings menu	menu: **System Settings > Audio Settings** Specify the workout duration and equipment Limits for your facility.
» Default Wired Headphone Volume	menu: **System Settings > Audio Settings > Default Wired Headphone Volume** Range: 1 to 15 Default: 6 Sets the default wired headphone jack volume level.

SYSTEM SETTINGS MENU	DESCRIPTION
» Default Bluetooth[1] Headphone Volume	menu: **System Settings > Audio Settings > Default Bluetooth Headphone Volume** Range: 1 to 15 Default: 11 Sets the default bluetooth headphone jack volume level.
Workout Limits menu	menu: **System Settings > Workout Limits** Specify the workout duration and equipment Limits for your facility.
» Maximum Workout Duration	menu: **System Settings > Workout Limits > Maximum Workout Duration** Range: 1 to 240 min, NO LIMIT Default: 60 min Sets the maximum allowable user workout time per session.
» Maximum Pause	menu: **System Settings > Workout Limits > Maximum Pause** Range: 1 to 300 sec Default: 30 sec Sets how long the equipment remains in a paused banner during a workout before resetting.
» Summary Time Out	menu: **System Settings > Workout Limits > Summary Time Out** Sets the time to view the Workout Summary data. Range: 1 to 120 sec Default: 60 sec
» Maximum Speed	menu: **System Settings > Workout Limits > Maximum Speed** Default: 12 mph Sets the user maximum speed.
» Maximum Incline	menu: **System Settings > Workout Limits > Maximum Incline** Default: 15 %
» Auto Stop	menu: **System Settings > Workout Limits > Auto Stop** Automatically stops the machine if an exerciser is not detected. Sets Auto Stop to On or Off.

[1]Bluetooth is a wireless technology standard for exchanging data over short distances (using short-wavelength UHF radio waves in the ISM band from 2.4 to 2.485 GHz from fixed and mobile devices, and building personal area networks (PANs).

SYSTEM SETTINGS MENU	DESCRIPTION
	Default: ON
GEM Settings menu	menu: **System Settings > GEM Settings** Enable/Disable Apple® Gymkit™ Smart Watch connectivity.
» GEM Module	menu: **System Settings > GEM Settings > Gem Module** Range: ON/OFF Default: OFF ON: Enables the GEM module and Smart Watch connectivity for the Apple Watch®.
» Enable Developer	menu: **System Settings > GEM Settings > Enable Developer** OEM use only.
Register Equipment menu	menu: **System Settings > Register Equipment** Register console and equipment with Precor Preva® Business Suite "PBS". Required information to register the equipment: • Location code • Precor technician account name and password • Serial number from the base • Friendly name assigned to the equipment by the facility (Example: Equipment Type-Floor-Row-Number) To complete registration for Preva-networked facilities: 1. Enter the Preva server name (na.preva.com for all sites). 2. Enter the assigned account name and password. 3. Follow the onscreen instructions to register the product.
Manage Settings	menu: **System Settings > Manage Settings** Save and restore the Connectivity, Display, Media, and Workout Limits settings.

System Tests menu

System Tests menu

menu: **Service menu (51765761) > System Settings > System Tests**.

Machine diagnostics tests to verify system hardware operation.

SYSTEM TESTS MENU	TEST DESCRIPTION
Auto Stop Test	menu: **System Tests** > **Auto Stop Test** Test parameters: • Status - User detected on running belt • Step Count - Average # of footplants. Footplant averaging delay reset with each speed change.
Belt Speed Test	menu: **System Tests** > **Belt Speed Test** Tests belt operating condition in 0.1 speed increments Test parameters: • AMPS IN: Treadmill input Current. • VOLTS IN: Treadmill input Voltage • VBUSS: Treadmill internal buss Voltage • AMPS MTR: Current supplied to the drive motor.
Incline Test	menu: **System Tests** > **Incline Test** Test parameters: • A/D - lift motor incline position potentiometer A/D number. • SEC - UP/DWN command response delay between the UPCA and LPCA. • Glitches - Momentary failures in the A/D potentiometer output. If there are more than 50 Glitches, the lift motor should be replaced.
USB Test	menu: **System Tests** > **USB Test** List the active USB ports.
Touchscreen Test	menu: **System Tests** > **Touchscreen Test** Verify touchscreen display.
Touchscreen Calibration	menu: **System Tests** > **Touchscreen Calibration** Calibrates touchscreen finger press operation.
Backlight Test	menu: **System Tests** > **Backlight Test** Tests the display backlight performance.
RGB Test	menu: **System Tests** > **RGB Test** Tests the display color performance.
Numeric Backlight Test	menu: **System Tests** > **Numeric Backlight Test** Tests the movement controls **LCD**[1] numeric displays backlight brightness level.
Numeric Display Test	menu: **System Tests** > **Numeric Display Test** Tests the movement controls LCD numeric displays.

[1]liquid crystal display.

SYSTEM TESTS MENU	TEST DESCRIPTION
Heart Rate Test	menu: **System Tests** > **Heart Rate Test** Tests the handlebar unfiltered and filtered pulse heart rate. Grasp the grips to test the handheld heart rate. Use a Polar heart rate simulator to test the wireless heart rate. Press the back button to exit this test.

(1) Not included on elliptical or treadmill products that do not have the maintenance and ASL features. Not included on the EFX600 series, the TRM600 series, or the TRM800-10 (TRM10/GEN06) series products.

Club Settings (5651565)

Service Access Code: 5651565

On P62, P80, and P82 touchscreen consoles, Club Settings menu is used localize the console user interface (language, measurement units, etc.), customize the equipment workout parameters (workout times and limits), and to help manage equipment service.

Club Settings Menus

- **About menu**, see "About menu" on page 59.
- **Equipment Usage menu**, see "" on page 61.
- **Maintenance menu**(1), see "" on page 61.
- **System Settings menu**, see "" on page 63.
- **(No) Available Updates**, see "(No) Available Updates" on page 59.

(1) Not supported on EFX600 or TRM600 product lines.

Information Display (65)

Information Display (65): Not supported

The Information Display (65) service menu found on LED consoles (P10, P30, P30i and P31) is **NOT** supported on touchscreen consoles (P62, P80, and P82).

Refer to the following touchscreen console service menus for similar equipment information:

- **About** menu, see "About menu" on page 59.
- **Equipment Usage**, menu see "" on page 61.
- **Maintenance** menu, see "" on page 61.

Adjustment Procedures

Adjustment procedures provide you with the step-by-step adjustment instructions to bring systems and components into specification. Perform the adjustment procedures whenever a trouble symptom points to a particular component and after a major component is removed/replaced.

Available Adjustment Procedures

."Drive Belt Tension & Alignment Adjustment" on the next page

"Running Belt Tension and Tracking Adjustment" on page 77

"Lift Motor Calibration" on page 75

Drive Belt Tension & Alignment Adjustment

About

This procedure provides instruction to verify and make adjustments to the Drive Belt tension. The Drive Belt tension should be verified anytime the drive belt is removed or replaced.

NOTE: This procedure assumes that the drive belt has been installed and seated onto the drive roller and drive motor pulleys.

Procedure

Review entire procedure before starting.

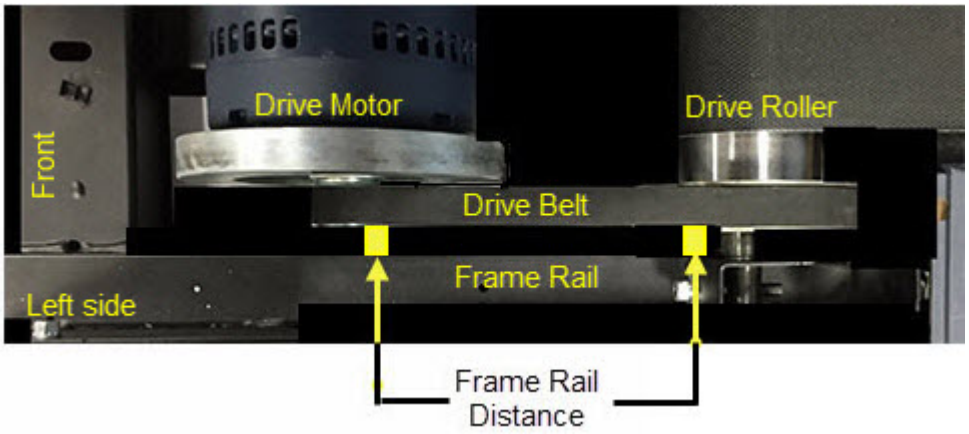
Drive Belt Tension Verification

1. Switch the input power **OFF** and **unplug**[1] the power cord.
2. Remove the front hood.

Drive Belt Alignment

3. Verify the drive belt alignment. Make sure that the drive belt is aligned parallel to the frame rail. Measure the belt to frame rail distance at the drive roller pulley and at the drive motor pulley. If the measurements are not the same, adjust the belt position on the drive motor pulley to match the drive roller belt distance.

CAUTION: Improper drive belt alignment will cause damage and/or break the drive belt.



1. Place the belt tension gauge onto the drive belt.

[1]Disconnect a device power cord plug or cable connector from the power receptacle or outlet.



2. Verify that the tension measurement is within the **Range Limit** specification, see *Drive Belt Tension Specification* table. Note that there is a separate **Range Limit** specification for New and Used belt installations.
    a. If the belt tension is not within the **Range Limit** specification; Re-tension to the OEM specification, go to Drive Belt Tension Adjustment procedure below.
    b. If the belt tension is within the **Range Limit** specification; Reinstall all covers, verify treadmill operation (see Operation Verification), and return to service.

Drive Belt Tension Specification

Belt Condition	Tension	Range Limit
New	105 lbs +/- 10 (48 kgs +/- 4.5)	95-115 lbs (43-52 kgs)
Used	85 lbs +/- 5 (39 kgs +/- 2)	80-90 lbs (36-41 kgs)

Drive Belt Tension Adjustment

Belt tension is adjusted by moving the drive motor position (forward or rearward) in an iterative process until the belt tension meets specification.

3. Remove the drive belt. It is recommended that you walk the belt off the smaller drive motor pulley.
4. Loosen the drive motor mount bolts, slightly move the drive motor either forward or rearward as required to increase or decrease the belt tension. Re-tighten the bolts.
5. Re-install the drive belt. It is recommended that you walk the drive belt onto the larger drive roller pulley.

6. Measure and verify that the belt tension meets the **Tension** specification, see *Drive Belt Tension Specification* table. Note that there is a separate specification for New and Used belt installations:
    a. If the tension is not within specification, repeat the adjustment process.
    b. If the tension is within specification, continue procedure.
7. **Torque**[1] the drive motor mount bolts to 204 in-lbs (17 ft-lbs, 23 N-m).
8. **Plug**[2] in the power cord and switch the input power ON.
9. Run the treadmill speed at 3 mph for 1 minute.
10. Switch the power OFF and disconnect power.
11. Measure and verify that the tension measurement is within the **Range Limit** specification, see *Drive Belt Tension Specification* table. Note that there is a separate **Range Limit** specification for New and Used belt installations.
    a. If the belt tension is not within the **Range Limit** specification, repeat the tension adjustment procedure.
    b. If the belt tension is within the **Range Limit** specification, continue procedure.
12. Re-install hood.
13. Connect and Switch the input power ON.
14. Verify operation and return to service.

.See Also

"Adjustment Procedures" on page 71

"Drive Motor Replacement" on page 91

"Drive Belt Replacement" on page 87

[1]Torque is a measure of the force that can cause an object to rotate about an axis. Bolt/nut example: 5 NM torque is equivalent to 5 newton's of force applied one meter from the center of the bolt, 6 ft-lb is equivalent to 6 lbs of force applied 1 foot away from the center of the bolt.
[2]Device power cord connector or electrical cable male connector that is inserted into an electrical receptacle "outlet" (also called the plug-in).

Lift Motor Calibration

About

This procedure provides instruction to verify and calibrate the Lift Motor and incline system. The Lift Motor calibration should be verified anytime the Lift Motor circuit breaker fails or is replaced or any incline system component is replaced.

Procedure

Review entire procedure before starting.

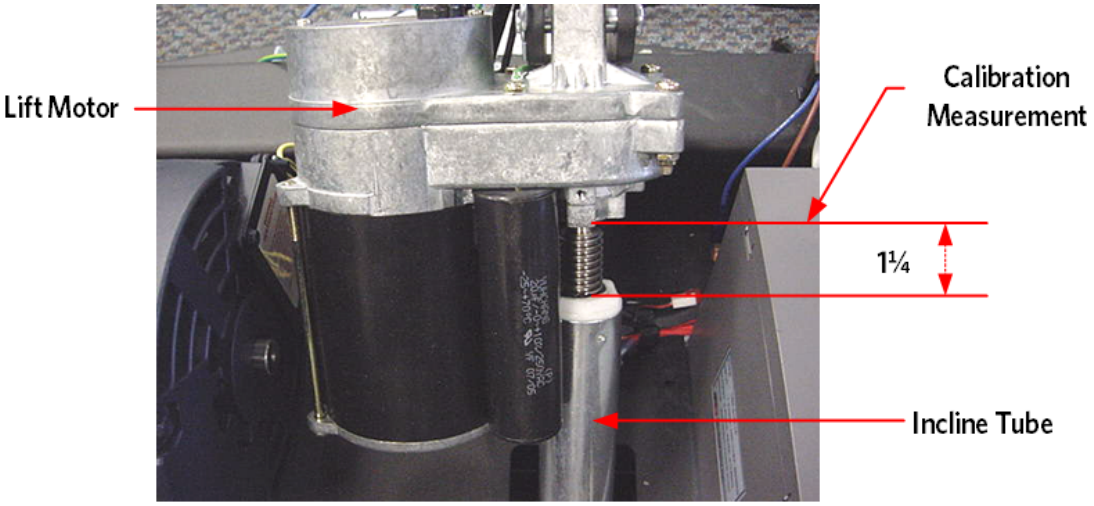
1. Toggle the treadmill circuit breaker from **OFF** to **ON**. The treadmill will begin to auto-reset the running deck incline to the 0% incline level "Home" position (This is the Lift Motor calibration reference position).



WARNING: Be aware that switching power **ON** will cause the Lift Motor actuator to auto-reset moving the incline actuator and platform. Keep clear of incline system components.

2. Set the treadmill circuit breaker to **OFF** and disconnect the power cord.
3. Access the Lift Motor actuator tube in one of the following methods:
    a. From the bottom by carefully laying the treadmill on its side
    b. From the front by connecting power and raising the treadmill to maximum incline and resting the frame base onto blocks securely placed under the front corners of the frame (removes weight from the incline platform and Lift Motor actuator tube). Switch power **OFF** and **unplug**[1] the power cord.
4. Disconnect the actuator tube from the incline platform mounting bracket by removing the hitch pin and clevis pin.
5. Set the actuator reference gap (distance between the top of the actuator tube (or nut) to the bottom of the Lift Motor housing) to 1 1/4 in (3.175 cm). Firmly hold the jack screw from turning and rotate the actuator tube to adjust the reference distance.

[1]Disconnect a device power cord plug or cable connector from the power receptacle or outlet.



6. Re-Install the actuator tube into the incline platform mounting bracket. It may be necessary to slightly rotate the actuator tube to align the clevis pin mounting holes. Choose the adjustment direction that will minimize the change to the actuator tube reference distance. Hold the jack screw from turning while adjusting the actuator tube.
7. Return the treadmill to the upright position or remove support blocks.
8. Level the Treadmill.
9. Install the hood.
10. Connect the power cord and set the treadmill circuit breaker to **ON**.
11. Verify the treadmill incline operation through the full range of motion. Do the - **INCLINE TEST** diagnostic test.
12. Verify treadmill operation (see) and return to service.

.See Also

"Replacement Procedures" on page 80

"Incline Lift Motor Replacement" on page 100

Running Belt Tension and Tracking Adjustment

About

This procedure provides instructions to verify and make adjustments to the running belt tension and tracking alignment. The running belt tension and tracking should be verified anytime the running belt alignment is not centered or the running belt is replaced.

NOTE: Proper tensioning of the belt requires the use of two tensioning gauges, Precor part number PPP000000020007101....

Procedure

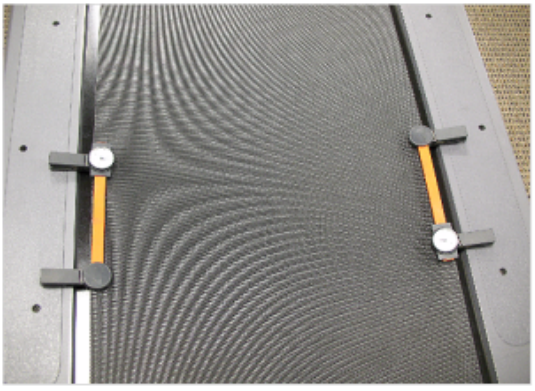
Review entire procedure before starting.

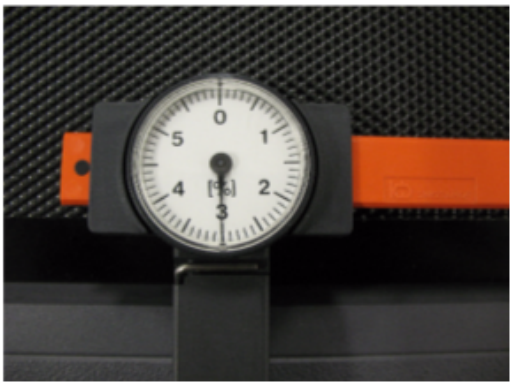
Running Belt Tension adjustment

1. Remove the front hood, and left/right side step covers.
2. Remove the drive motor belt from the drive roller pulley. . If is recommended that you walk the belt off the smaller drive motor pulley.

NOTE: The drive motor belt must be removed to properly adjust the running belt tension.

3. Remove tension from the rear take-up roller. Alternately loosen the left and right bolts to equally remove the belt tension.
4. Center the running belt and make sure that it is squarely positioned from the front Drive roller to the rear Take-Up roller.
5. Move the running belt so that the seam is positioned underneath the treadmill.
6. Attach a running belt tension gauge on each side of the running belt opposite each other.

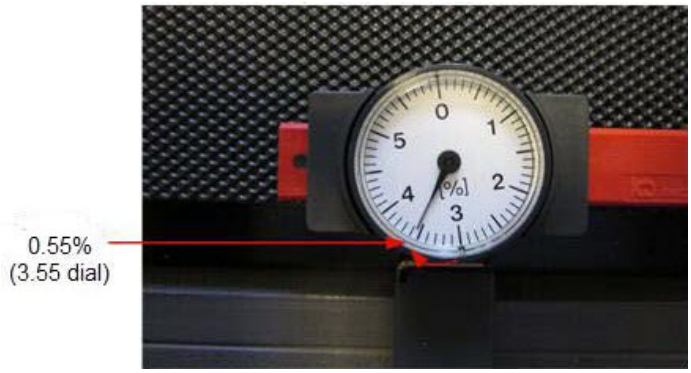




7. Slide the gauge head to set the dial needle to a coarse setting of 3. You can then rotate the gauge dial face to fine tune the needle to precisely 3.

NOTE: Setting the gauge to a 3 reference value centers the gauge head travel allowing +/- movement without impeding travel.

8. Alternately tighten the right and left take-up roller mounting bolts in increments of 0.2% so that the roller is evenly tensioned to the final 0.5% - 0.6% (dial 3.5 - 3.6) specification as follows:
   a. Tighten the right bolt to dial setting 3.2, then the left bolt to 3.2.
   b. Tighten the right bolt to dial setting 3.4, then the left bolt to 3.4
   c. Tighten the right bolt to dial setting 3.55 (0.55%), then the left bolt to 0.5% - 0.6% (dial 3.5 - 3.6)



9. Remove the tension gauges.
10. Re-install the drive belt .Install by walking the belt onto the larger drive roller pulley. Make sure that the belt alignment is parallel to the frame rail, see "" on page 74.

Running Belt Tracking Adjustment

11. Start the treadmill and set the speed to 3 mph (5 kph).
12. Observe and verify that the running belt tracking remains centered, adjust as required:
    a. If the belt starts to drift toward the right, slowly turn the right side Take-Up roller mounting bolt clockwise in ¼ turn increments until the drifting stops.
    b. If the belt starts to drift toward the left, slowly turn the right side Take-Up roller bolt counterclockwise in ¼ turn increments until the drifting stops.

NOTE: 1) The tracking adjustments should only be done in 1/4 turn increments.
2) ONLY use the right side Take-Up roller mounting bolt to adjust tracking.
3) ONLY use hand tools to adjust tracking.



1. Increase the speed to 9 mph (14 kph) and then 12 mph (19 KPH) making sure that the tracking remains centered, make small adjustments as needed.
2. Verify that the treadmill is level, adjust as necessary.
3. Verify the running belt/deck surfaces are clean.
4. Replace all covers.
5. Verify treadmill operation (see) and return to service.

.See Also

"Adjustment Procedures" on page 71

"Running Belt and Deck Replacement" on page 113

Replacement Procedures

Replacement procedures provide you with the step-by-step instructions to remove and replace system components.

Available Replacement Procedures

"Auto Stop Magnet Replacement" on the facing page

"Auto Stop Sensor Replacement" on page 83

"Circuit Breaker Replacement" on page 85

"Drive Belt Replacement" on page 87

"Drive Motor Replacement" on page 91

"Drive Roller Replacement" on page 94

"End Cap & Belt Guard Cover Replacement" on page 98

"Input Module Replacement" on page 105

"Incline Lift Motor Replacement" on page 100

"Incline Lift Platform Replacement" on page 103

"Input Module Replacement" on page 105

"Line Filter Replacement" on page 107

"Power Control Module Replacement" on page 109

"Power Cord Replacement" on page 111

"Running Belt and Deck Replacement" on page 113

"Take-Up roller Replacement" on page 118

Auto Stop Magnet Replacement

About

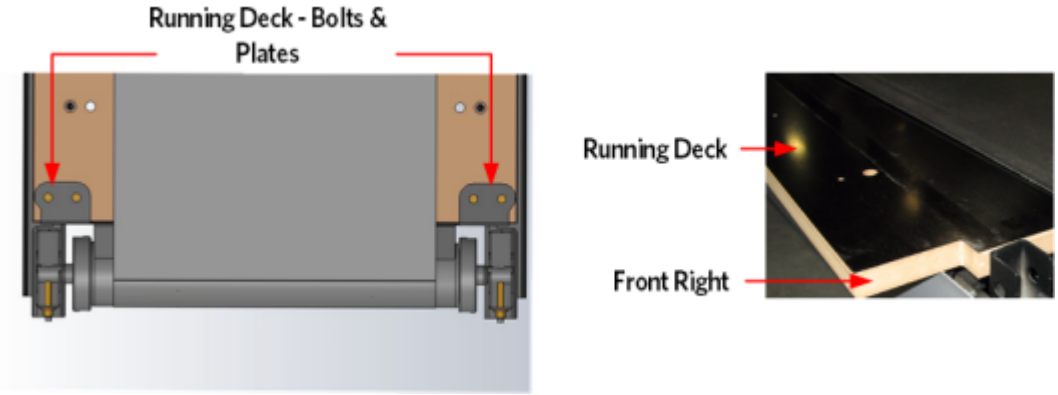
This procedure provides instruction to remove and replace the Auto Stop Magnet.

Procedure

Review entire procedure before starting.

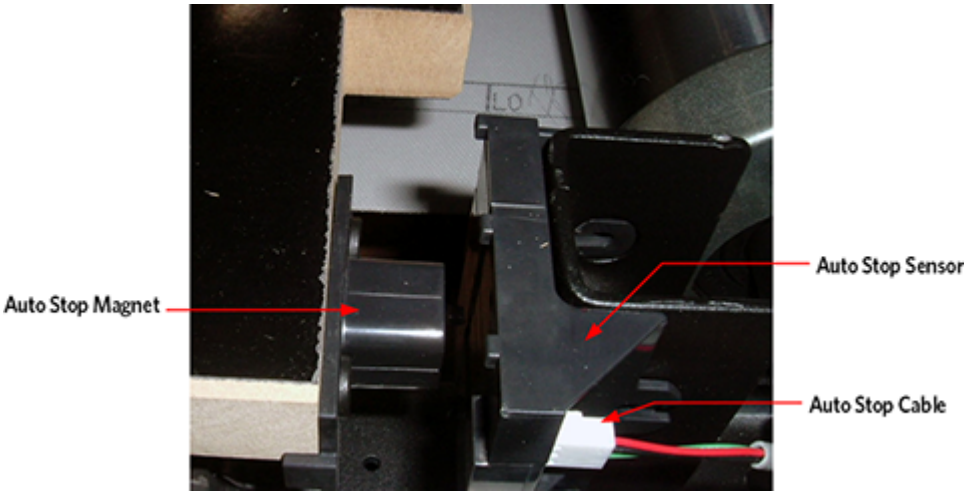
CAUTION: Do not place the Auto Stop Magnet on or near a steel structure. If the magnet assembly comes in contact with a steel structure and then pulled away from the steel structure, the magnet can become dislodged from the magnet assembly housing. Contact PRECOR customer service for repair or replacement.

1. Set the treadmill circuit breaker to OFF and **unplug**[1] the treadmill's power cord.
2. Remove the front hood.
3. Remove the left and right trim strips from the treadmill deck.
4. Remove the four mounting bolts and two top plates that fasten the running deck to the pivot bracket at the back of the treadmill. Keep fasteners for installation.
5. Pull the running deck out from the right side of the treadmill just far enough to expose the front right edge of the running deck, see "" on page 21.



6. Pry out the two push fasteners from the deck using a flat head screw driver and remove the Auto Stop Magnet. Keep fasteners for installation.

[1]Disconnect a device power cord plug or cable connector from the power receptacle or outlet.



7. Align the replacement magnet on the running deck and then secure the magnet to the running deck using the two push fasteners.
8. Slide the running deck back into position over the running deck pivot bracket. Align the bottom plate and pivot bracket holes with the running deck bolt holes. Insert and tighten deck mounting bolts.
9. Check the alignment of the magnet and the auto stop assembly, see "Auto Stop Sensor Replacement" on the facing page.
10. Replace the trim strips and front hood.
11. Connect the power cord and Switch the input power **ON**.
12. Verify the Auto Stop function by doing the Auto Stop diagnostics test, see .
13. Verify treadmill operation and return to service.

.See Also

"Replacement Procedures" on page 80

"Running Belt and Deck Replacement" on page 113

Auto Stop Sensor Replacement

About

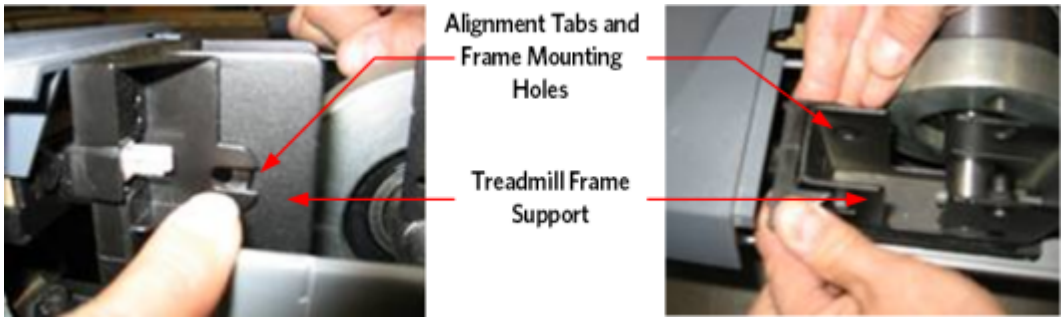
This procedure provides instruction to remove and replace the Auto Stop Sensor.

Procedure

Review entire procedure before starting.

CAUTION: Do not place the Auto Stop Magnet on or near a steel structure. If the magnet assembly comes in contact with a steel structure and then pulled away from the steel structure, the magnet can become dislodged from the magnet assembly housing. Contact PRECOR customer service for repair or replacement.

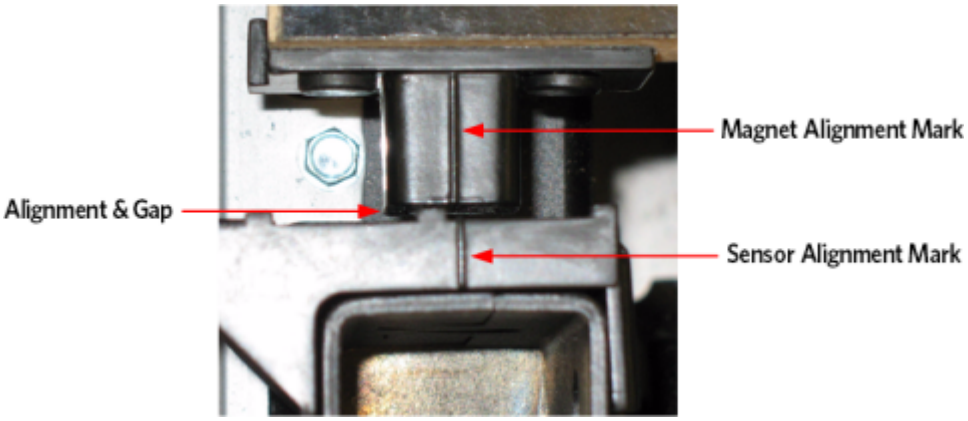
1. Set the treadmill circuit breaker to OFF and **unplug**[1] the treadmill's power cord.
2. Remove the front hood and right side step cover.
3. Unplug the Auto Stop Cable from the Auto Stop assembly.
4. The Auto Stop Sensor assembly has round alignment tabs that match the holes of the treadmill frame support. With one hand grasp the side of the Auto Stop Sensor assembly that is closest to the outside of the treadmill and apply pressure toward the running deck. With your other hand push on each alignment tab from the inside of the frame mounting holes. The Auto Stop Assembly should disengage from the frame.



5. Position the replacement Auto Stop assembly with the cable connector facing to the right side of the treadmill. Slide the Auto Stop assembly over the treadmill frame support and push down until the round tabs align with the holes in the support. The round tabs will snap into the treadmill frame mounting holes securing the Auto Stop assembly in place.
6. Check the alignment of the magnet and the Auto Stop assembly. The magnet and the Auto Stop assembly each have an alignment mark on the top of their housings. The magnet mark and the Auto Stop mark should align and the gap should be

[1]Disconnect a device power cord plug or cable connector from the power receptacle or outlet.

approximately 3/16 of an inch between the housings. A 3/16 hex key can be used as a feeler gauge to set the correct gap. If the gap or alignment are off adjust the running deck until the magnet and auto housing are properly aligned, see "Auto Stop Magnet Replacement" on page 81.



7. Reconnect the Auto Stop Cable to the Auto Stop Sensor Assembly.
8. Replace front hood and side step cover.
9. Connect power cord and Switch the input power **ON**.
10. Verify the Auto Stop function by doing the Auto Stop diagnostics test, see .
11. Verify treadmill operation and return to service.

.See Also

"Replacement Procedures" on page 80

Circuit Breaker Replacement

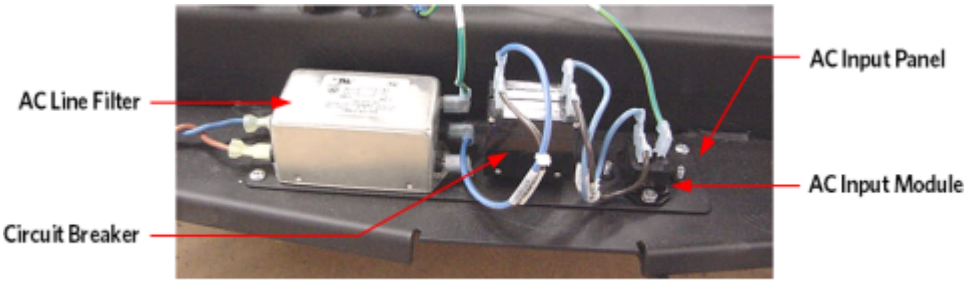
About

This procedure provides instruction to remove and replace the ON/OFF Circuit Breaker.

Procedure

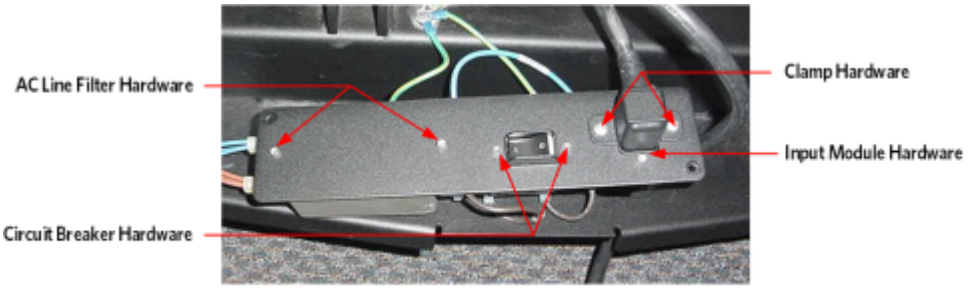
Review entire procedure before starting.

1. Set the treadmill circuit breaker to **OFF** and **unplug**[1] the treadmill's power cord from the **AC**[2] outlet.
2. Remove the treadmill's hood.
3. Remove the two screws that fasten the AC input panel to the frame. Keep fasteners for replacement installation.
4. Disconnect the wiring from the circuit breaker (2 blue wires on 120 Vac treadmills or 2 blue and 2 brown wires on 240 Vac treadmills) Note: The figure below is showing a 240 volt configuration.



AC Input Panel (240 VAC option)

5. Incline the AC input panel from the frame and rotate it to expose the AC input circuit breaker screws.



AC Input Panel Hardware

[1]Disconnect a device power cord plug or cable connector from the power receptacle or outlet.
[2]Alternating Current: electric current which periodically reverses direction between positive and negative polarity.

6. Remove the two screws and remove the circuit breaker. Keep fasteners for replacement installation.
7. Reference the label on the replacement circuit breaker and install the circuit breaker in its mounting position with the **LINE** side of the breaker facing the input module and the **LOAD** side of the circuit breaker facing the AC line filter. Install the circuit breaker using the previously removed fasteners.
8. Install wire connections as follows for the 120 VAC and 240 VAC models:
    a. **120 VAC:** On 120 Vac treadmills connect the blue wire from the input module to the LINE terminal on the circuit breaker and the blue wire from the AC line filter to the LOAD terminal on the circuit breaker.
    b. **240 VAC**: On 240 Vac treadmills connect the blue wire from the input module to the upper LINE terminal on the circuit breaker and the blue wire from the AC line filter to the upper LOAD terminal on the circuit breaker. Connect the brown wire from the input module to the lower LINE terminal on the circuit breaker and the brown wire from the AC line filter to the lower LOAD terminal on the circuit breaker.
9. Set the AC input panel in its mounting position and install using the previously removed fasteners.
10. **Plug**[1] in the power cord and Switch the input power **ON**.
11. Verify treadmill operation per " and return to service.

.See Also

"Replacement Procedures" on page 80

[1]Device power cord connector or electrical cable male connector that is inserted into an electrical receptacle "outlet" (also called the plug-in).

Drive Belt Replacement

About

This procedure provides instruction to remove and replace the Drive Belt.

CAUTION: Two running belt gauges, Precor part number 20007-101, are required. It is important that this procedure be followed to maintain correct drive belt and running belt tension. Improper tensioning of the belt will lead to premature running belt wear, premature driver roller bearing failure and premature Take-Up roller bearing failure.

Procedure

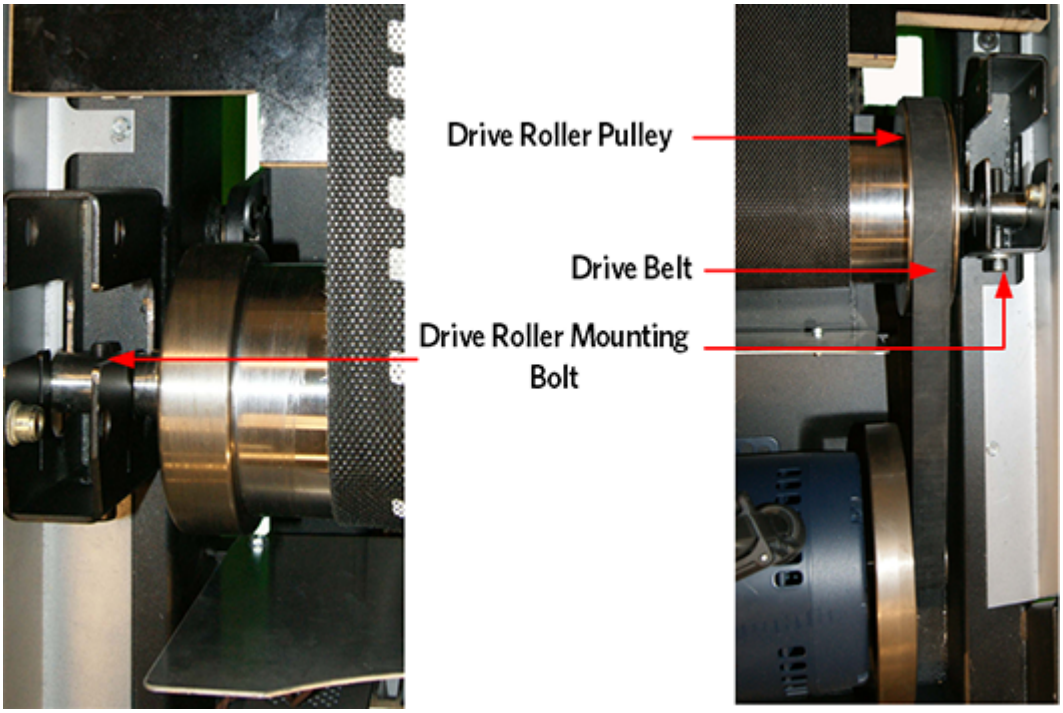
Review entire procedure before starting.

Drive Belt Removal

1. Switch the input power **OFF** and **unplug**[1] the power cord.
2. Remove the front hood.
3. Remove running belt tension by alternately loosening the left and right Take-Up roller mounting/adjustment bolts, but do not remove the mounting bolts, see "Running Belt Tension and Tracking Adjustment" on page 77.
4. Walk the drive belt off the smaller drive motor pulley. Remove pulley off the drive roller pulley.
5. Alternately loosen and remove the left and right drive roller mounting bolts.

TIP: You can put a reference mark on the right drive roller mounting bracket to identify the current drive roller shaft position for re installation.

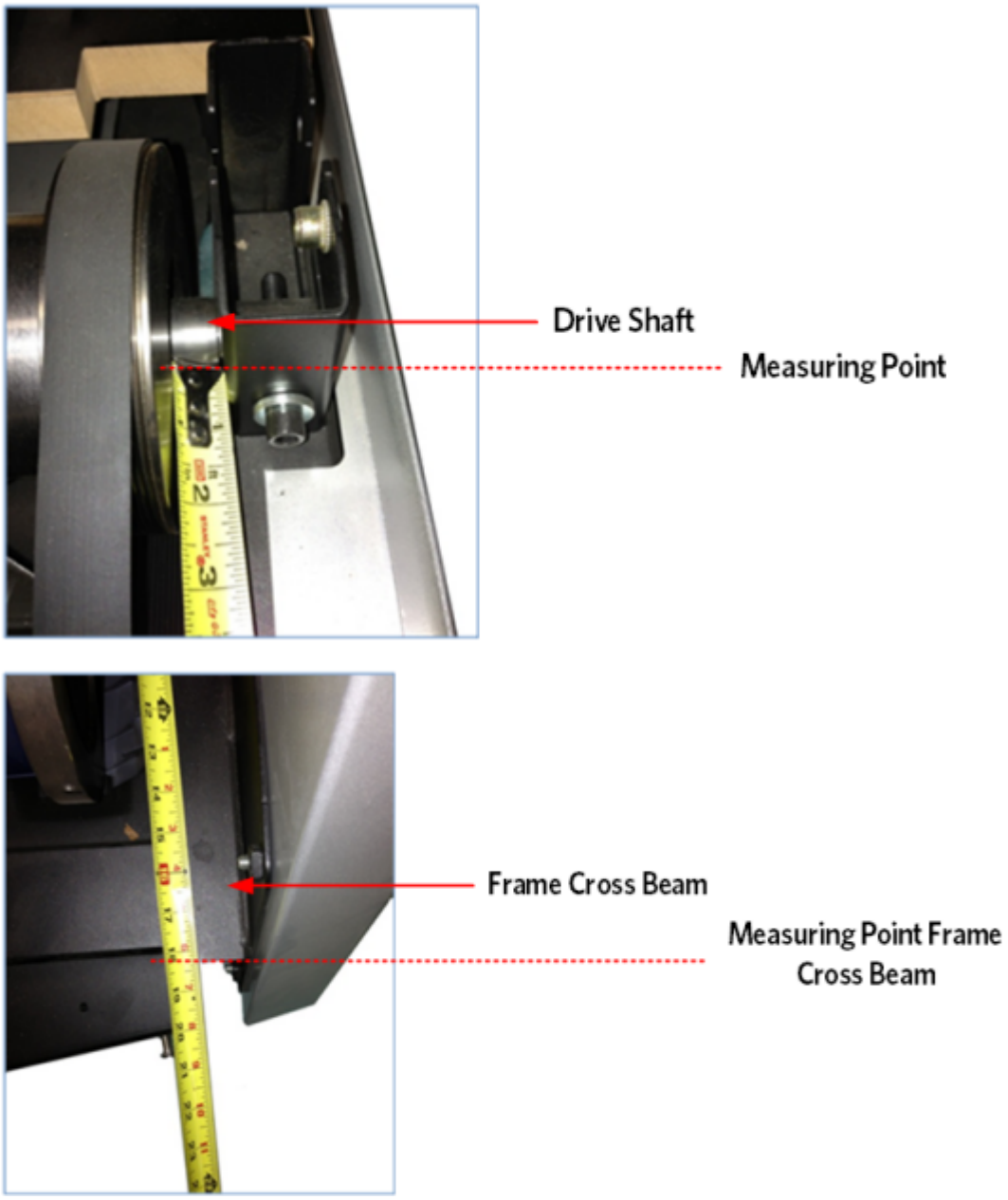
[1]Disconnect a device power cord plug or cable connector from the power receptacle or outlet.



6. Use the drive belt to help lift the roller out of the mounting bracket and then remove the belt off the drive roller pulley, Remove the belt from the treadmill.

Drive Belt Installation

7. Place the replacement drive belt onto the drive roller pulley and use the drive belt to help lower and slide the drive roller into the roller mounting bracket. Hand tighten the left and right drive roller mounting bolts.
8. Position the running belt on the rollers so that it is centered and sets square on the deck from the front drive roller to the rear Take-Up roller.
9. Alternately tighten the left and right drive roller mounting bolts to evenly tighten the roller until the left mounting bolt reaches the left mount stop. The left mounting bracket stop sets the roller reference position and the right bolt is used to make final position adjustments. Fully tighten the left mounting bolt against the bracket stop position.
10. Using a measuring tape, measure the distance from the front of the left drive roller shaft to the front of the frame cross beam. Record this reference distance.



11. Adjust the right drive roller mounting bolt so that the right drive roller shaft to frame cross beam distance equals the left side reference distance. This adjustment will make sure that the drive roller is positioned parallel and square to the front of the frame.
12. Install the drive belt onto the drive motor pulley and walk the drive belt onto the larger drive roller pulley.
13. Verify the drive belt alignment and set tension to specification, see "Drive Belt Tension & Alignment Adjustment" on page 72 procedure.

14. Set the running belt tension to specification and verify tracking, see "Running Belt Tension and Tracking Adjustment" on page 77 procedure.
15. Replace the belt guard cover ensuring the tabs are firmly locked into position on the Take-Up roller shaft, see "End Cap & Belt Guard Cover Replacement" on page 98.
16. Replace the end cap, see "End Cap & Belt Guard Cover Replacement" on page 98.
17. Replace the hood cover.
18. Verify treadmill operation per "Operation Verification" and return to service.

.See Also

"Replacement Procedures" on page 80

"Adjustment Procedures" on page 71

Drive Motor Replacement

About

This procedure provides instruction to remove and replace the Drive Motor.

Procedure

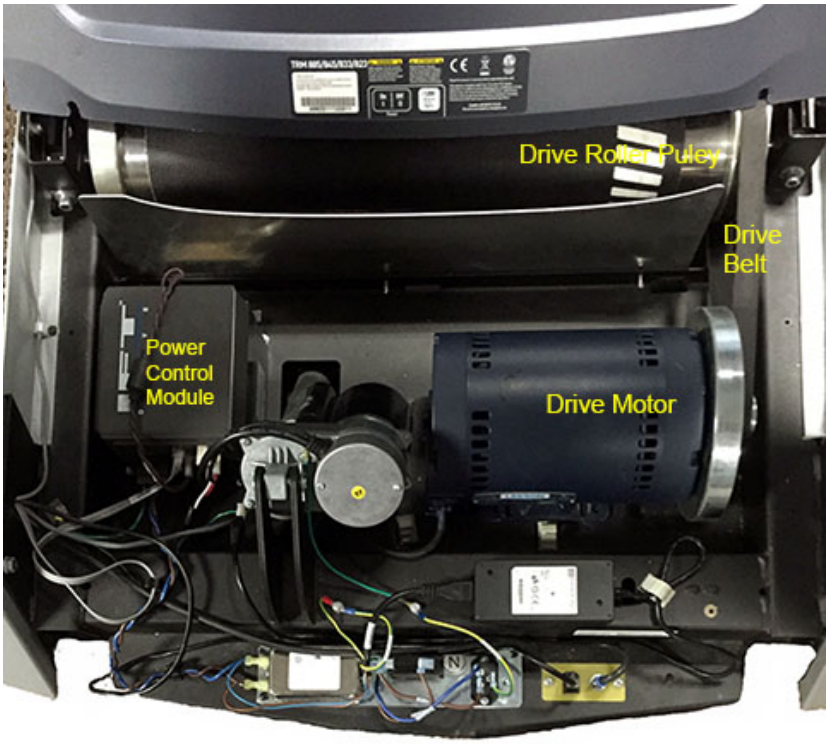
Review entire procedure before starting.

1. Switch the input power **OFF** and **unplug**[1] the power cord.
2. Remove the front hood.
3. Disconnect the drive motor power cable connector from the **OUTPUT** connector on the power control module.

TIP: Remove the **MC**[2] fasteners so that the MC module can be raised to allow easy access to disconnect and connect the **I/O**[3] connectors.

4. Remove the drive belt. It is recommended that you walk the belt off the smaller drive motor pulley.

[1]Disconnect a device power cord plug or cable connector from the power receptacle or outlet.
[2]Motor controller, motor controller unit, or motor controller module: used on treadmills, contains the LPCA and motor controller functionality.
[3]Input and Output Interface.



5. Mark the outline of the current motor mounting plate which will be used as a reference position when you install the replacement motor.
6. Remove the four drive motor mounting bolts. Keep bolts for replacement installation.
7. Set the replacement drive motor onto the frame. Align the motor mount plate to the reference position marks, insert and tighten the four mounting bolts to the torque 204 in-lbs (17 ft-lbs, 23 N-m).
8. Re-install the drive belt. It is recommended that you walk the drive belt onto the larger drive roller pulley.
9. Connect the drive motor connector from the ***OUTPUT*** connector on the power control module.
10. Verify that the drive belt is properly seated and aligned, see "" on page 74 procedure.
11. Verify the drive belt tension is within specification and adjust as necessary, see "Drive Belt Tension & Alignment Adjustment" on page 72
12. Re-install hood.
13. **Plug**[1] in the power cord and Switch the input power **ON**.
14. Verify treadmill operation and return to service.

.See Also

[1]Device power cord connector or electrical cable male connector that is inserted into an electrical receptacle "outlet" (also called the plug-in).

"Replacement Procedures" on page 80

"Drive Belt Tension & Alignment Adjustment" on page 72

Drive Roller Replacement

About

This procedure provides instruction to remove and replace the Drive Roller.



CAUTION: Two running belt gauges, Precor part number 20007-101, are required. It is important that this procedure be followed to maintain correct drive belt and running belt tension. Improper tensioning of the belt will lead to premature running belt wear, premature driver roller bearing failure and premature Take-Up roller bearing failure.

Procedure

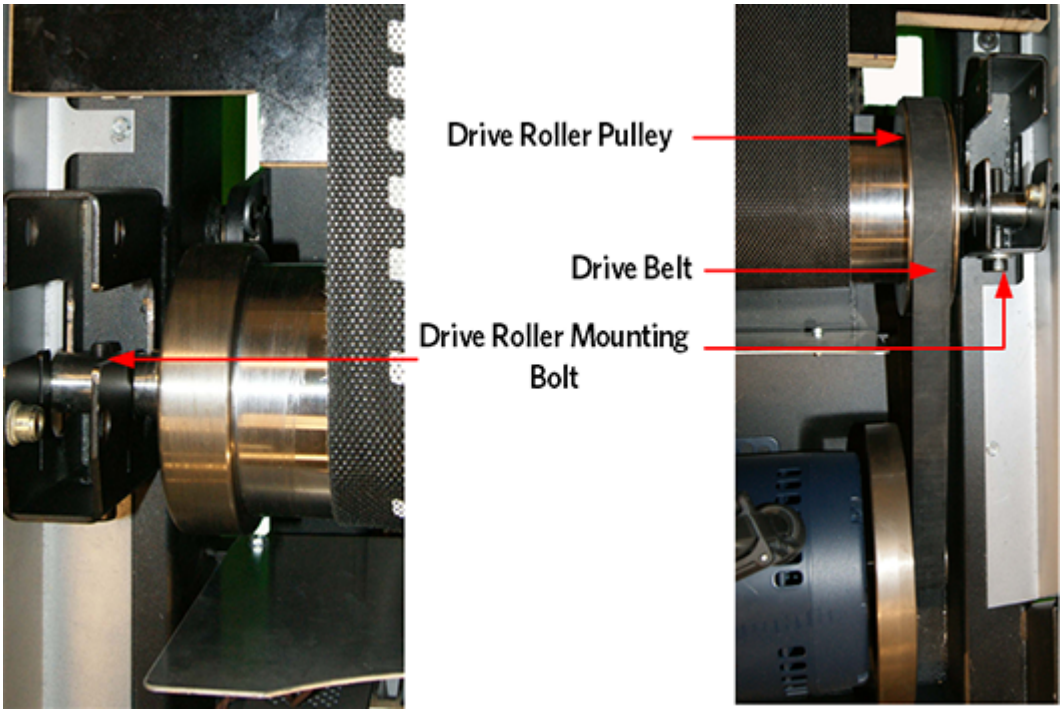
Review entire procedure before starting.

1. Switch the input power **OFF** and **unplug**[1] the power cord.
2. Remove the front hood.
3. Relax the running belt tension by alternately loosening the left and right Take-Up roller mounting/adjustment bolts, but do not remove the mounting bolts.
4. Walk the drive belt off the smaller drive motor pulley. Remove pulley off the drive roller pulley.
5. Alternately loosen and remove the left and right drive roller mounting bolts.



TIP: Before loosening the mounting bolts, you can put a reference mark on the right drive roller mounting bracket to identify the current drive roller shaft position used later for re installation.

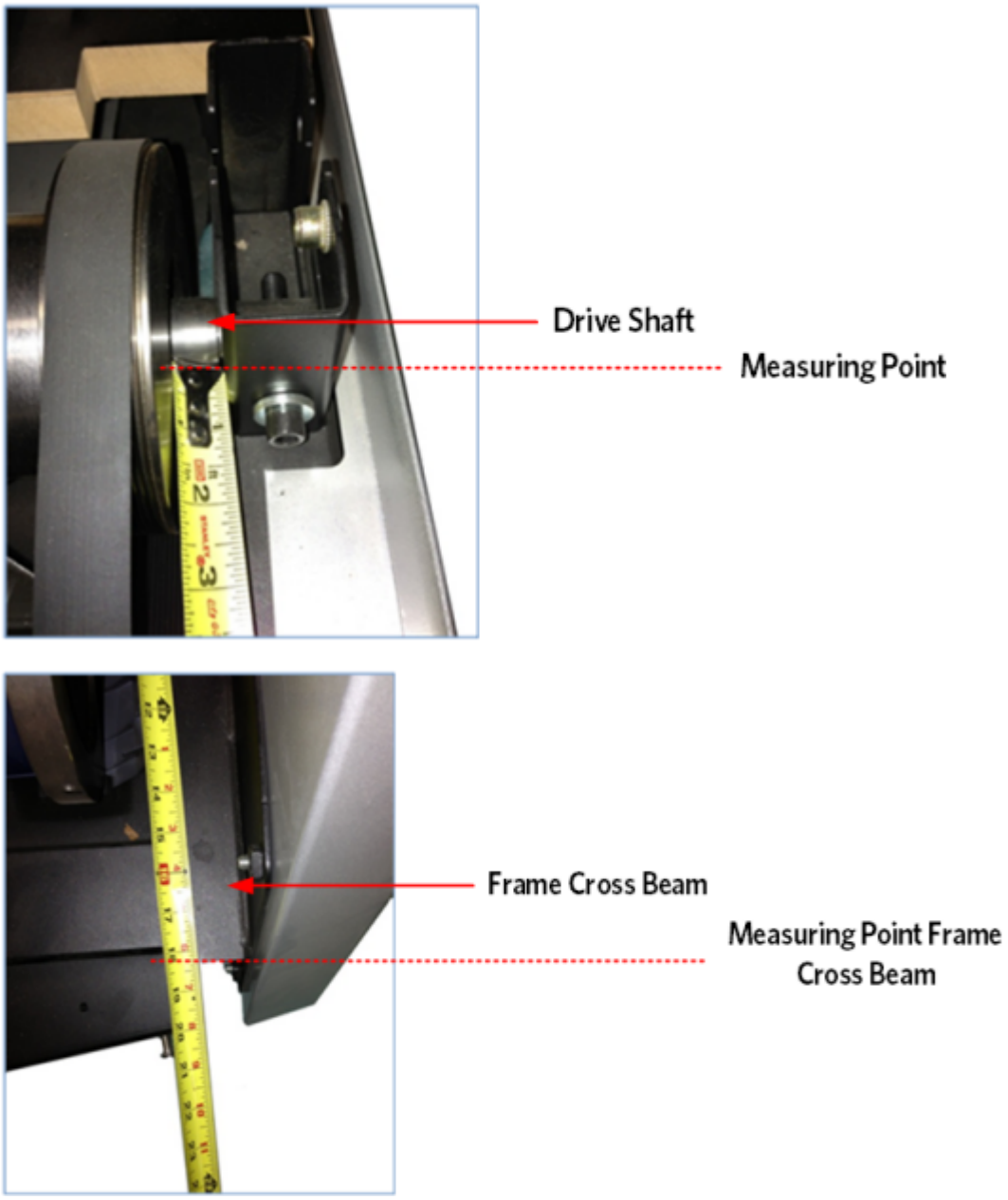
[1]Disconnect a device power cord plug or cable connector from the power receptacle or outlet.



6. Use the drive belt to help lift the roller out of the mounting bracket and then remove the belt off the drive roller pulley,
7. Remove the drive roller.

Installing the drive roller

8. Insert the replacement drive roller through the running belt. Use running belt to help lower and slide the drive roller into the mounting bracket.
9. Insert the replacement drive roller through the running belt. Place the drive belt onto the drive roller pulley and use the drive belt to help lower and slide the drive roller into the roller mounting bracket. Hand tighten the left and right drive roller mounting bolts.
10. Position the running belt on the rollers so that it is centered and sets square on the deck from the front drive roller to the rear Take-Up roller.
11. Alternately tighten the left and right drive roller mounting bolts to evenly tighten the roller until the left mounting bolt reaches the left mount stop. The left mounting bracket stop sets the roller reference position and the right bolt is used to make final position adjustments. Fully tighten the left mounting bolt against the bracket stop position.
12. Using a measuring tape, measure the distance from the front of the left drive roller shaft to the front of the frame cross beam. Record this reference distance.



13. Adjust the right drive roller mounting bolt so that the right drive roller shaft to frame cross beam distance equals the left side reference distance. This adjustment will make sure that the drive roller is positioned parallel and square to the front of the frame.
14. Install the drive belt onto the drive motor pulley and walk the drive belt onto the larger drive roller pulley.
15. Verify the drive belt alignment and set tension to specification, see "Drive Belt Tension & Alignment Adjustment" on page 72 procedure.

16. Set the running belt tension to specification and verify tracking, see "Running Belt Tension and Tracking Adjustment" on page 77 procedure.
17. Replace the belt guard cover ensuring the tabs are firmly locked into position on the Take-Up roller shaft (see "End Cap & Belt Guard Cover Replacement" on the next page).
18. Replace the end cap (see "End Cap & Belt Guard Cover Replacement" on the next page).
19. Replace the hood cover.
20. Verify treadmill operation (see) and return to service.

.See Also

"Replacement Procedures" on page 80

"Adjustment Procedures" on page 71

"Running Belt and Deck Replacement" on page 113

End Cap & Belt Guard Cover Replacement

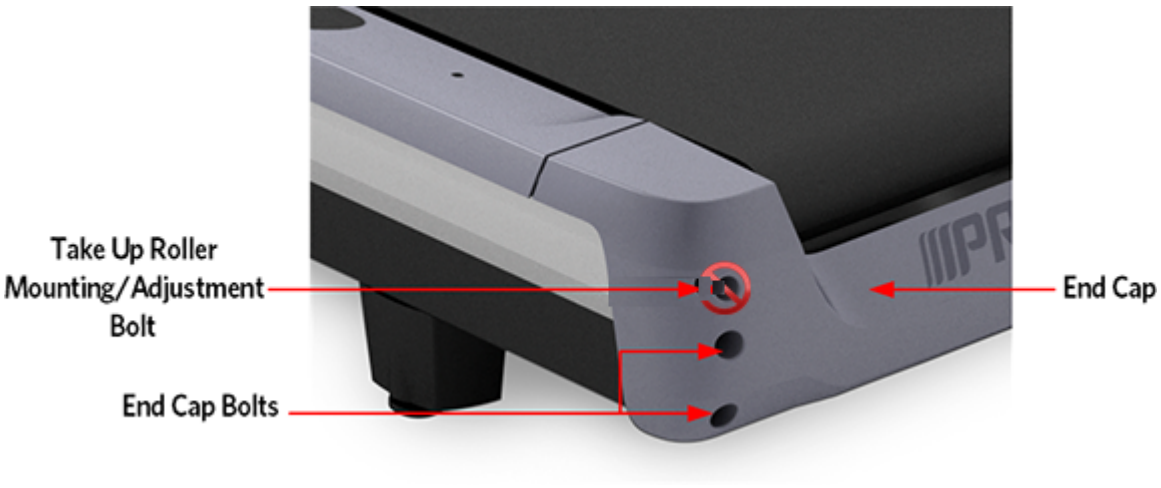
About

This procedure provides instruction to remove and replace the End Cap and belt guard covers.

Procedure

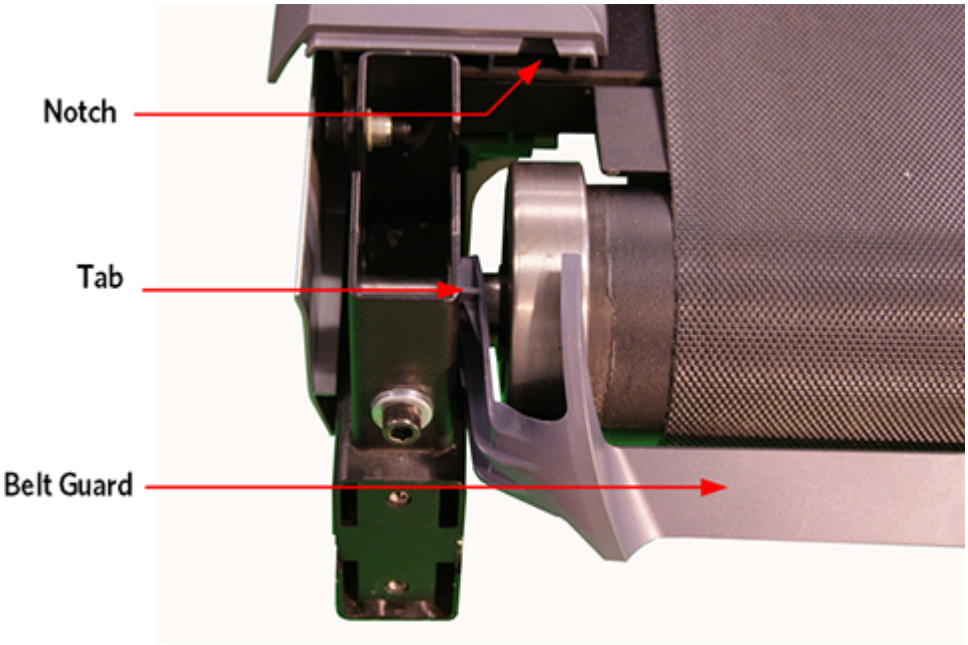
Review entire procedure before starting.

1. Switch the input power **OFF** and **unplug**[1] power cord.
2. Remove the four screws (2 lower screws, each side) that retain the end cap. Keep fasteners for installation. **DO NOT** loosen or move the Take-Up roller mounting/adjustment bolts. Doing so will change the running belt's tension and alignment.



3. To remove the end cap, slide the end cap off of the treadmill.

[1]Disconnect a device power cord plug or cable connector from the power receptacle or outlet.



4. To remove the belt guard, press inwards on the belt guard to remove the belt guard tabs from the Take-Up roller mounts. Slide the belt guard off of the treadmill.
5. To install the belt guard, slide the replacement belt guard into place so that the tabs on the belt guard engage in both Take-Up roller mounts.
6. To install the rear guard, slide the end cap into place so that the tabs on the end cap engage in the notches in the running belt trim strips.
7. Secure end cap with fasteners.

See Also

"Replacement Procedures" on page 80

"Running Belt and Deck Replacement" on page 113

"Take-Up roller Replacement" on page 118

Incline Lift Motor Replacement

About

This procedure provides instruction to remove and replace the Lift Motor.

Procedure

Review entire procedure before starting.

Calibrate the replacement Lift Motor prior to installation

1. Switch the input power **OFF**.
2. Remove the front hood.
3. Lay the replacement Lift Motor in front of the treadmill allowing room for the actuator/jack screw to freely move up and down.
4. Disconnect the Lift Motor power cable connector from the Power Control Module **INCLINE** connector and connect the replacement Lift Motor power cable.

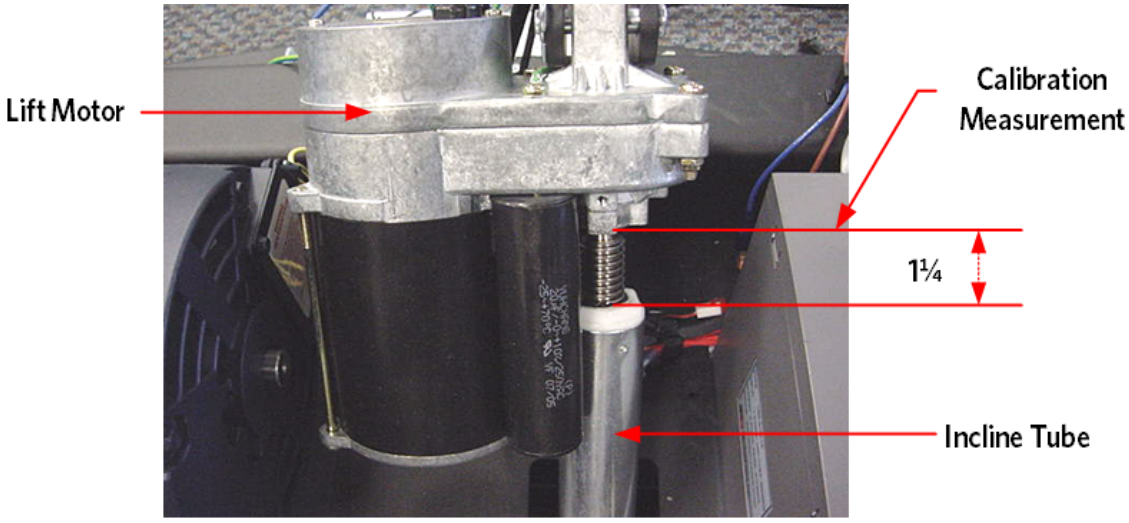
TIP: Remove the **MC**[1] fasteners so that the MC module can be raised to allow easy access to disconnect and connect the **I/O**[2] connectors.

5. Toggle the treadmill circuit breaker from **OFF** to **ON**. The treadmill will begin to auto-reset the actuator to the 0% incline level "Home" position (This is the Lift Motor calibration reference position).

WARNING: Be aware that the Lift Motor actuator will begin to auto-calibrate causing movement to the Lift Motor actuator when power is applied to the treadmill.

6. Switch the treadmill power to **OFF** and **unplug**[3] the power cord.
7. Set the actuator 0% incline reference gap (distance between the top of the actuator tube (or nut) to the bottom of the Lift Motor housing). Firmly hold the jack screw from turning and rotate the actuator tube to adjust the reference distance.

[1]Motor controller, motor controller unit, or motor controller module: used on treadmills, contains the LPCA and motor controller functionality.
[2]Input and Output Interface.
[3]Disconnect a device power cord plug or cable connector from the power receptacle or outlet.



8. Switch the input power OFF and unplug the power cord.

   Remove the Lift Motor.

9. Access the Lift Motor from the bottom by carefully laying the treadmill on its side.

TIP: If the Lift Motor will raise the treadmill to maximum, you can access the Lift Motor from the front. Connect power and raise the treadmill to maximum incline and resting the frame base onto blocks securely placed under the front corners of the frame (removes weight from the incline platform and Lift Motor actuator tube). Switch power OFF and unplug the power cord.

10. Disconnect the ground wire (green with yellow stripe) from the l frame. Keep screw for motor installable.
11. Remove the lift actuator tube from the lift platform, remove the hitch pin and clevis pin.
12. Remove the Lift Motor actuator housing from the frame mounting bracket. Grasp the Lift Motor and remove the Lift Motor housing mount hitch pin and clevis pin. Remove the Lift Motor from the treadmill

    Install the Lift Motor.

NOTE: Be careful to not allow the actuator tube nut to turn during the installation process. This will cause the actuator reference gap to change.

13. Set the calibrated Lift Motor housing into the frame mounting bracket, replace the upper clevis pin and secure with the hitch pin. Be careful to not turn the actuator tube or jack screw while installing the motor.
14. Install the actuator tube into the incline platform mounting bracket. It may be necessary to slightly rotate the actuator tube to align the clevis pin mounting holes. Choose the adjustment direction that will minimize the change to the actuator tube reference distance. Hold the jack screw from turning while adjusting the actuator tube.

15. Connect the frame ground wire to the treadmill frame, Make sure to route the cable using the frame cable clips to secure the able in position. Securely tighten the mounting screw to ensure very good electrical connectivity.
16. Connect the Lift Motor connector to the **INCLINE** connector on the power control module. Make sure to route and use the frame cable clips to safely secure the cable away from the jack screw.
17. Connect the Lift Motor connector to the **LIFT** connector on the motor control module. Make sure to route and use the frame cable clips to safely secure the cable away from the jack screw.
18. Return the treadmill to the upright position.
19. Level the Treadmill.
20. Install the hood.
21. **Plug**[1] in the power cord and Switch the input power to **ON**.
22. Verify the treadmill incline operation through the full range of motion. Do the - **INCLINE TEST** diagnostic test.
23. Verify treadmill operation (see) and return to service.

See Also

"Replacement Procedures" on page 80

"Lift Motor Calibration" on page 75

[1]Device power cord connector or electrical cable male connector that is inserted into an electrical receptacle "outlet" (also called the plug-in).

Incline Lift Platform Replacement

About

This procedure provides instruction to remove and replace the Incline Platform.

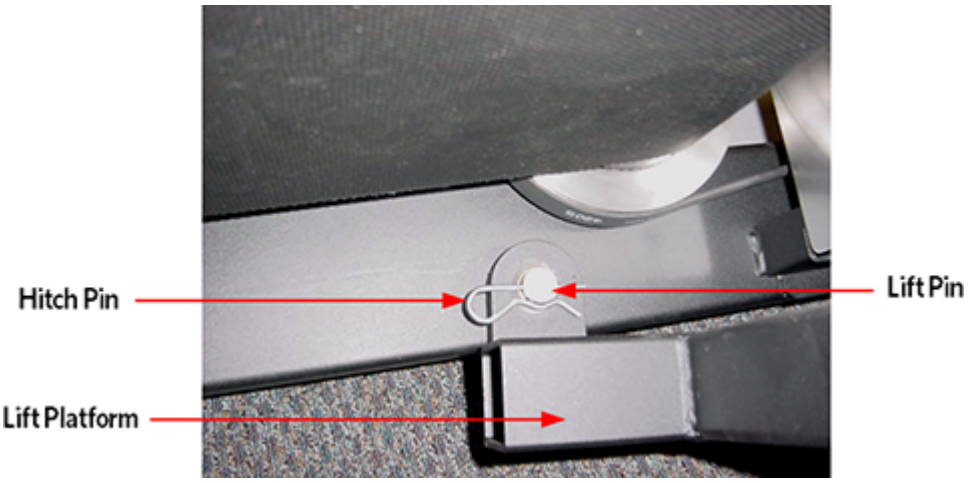
Procedure

Review entire procedure before starting.

1. Switch the treadmill power to **OFF** and **unplug**[1] the power cord.
2. Remove the front hood.
3. Access the incline platform by carefully laying the treadmill on its side.
4. Disconnect the Lift Motor actuator tube from the incline platform mounting bracket by removing the hitch pin and clevis pin. Keep fasteners for installation.

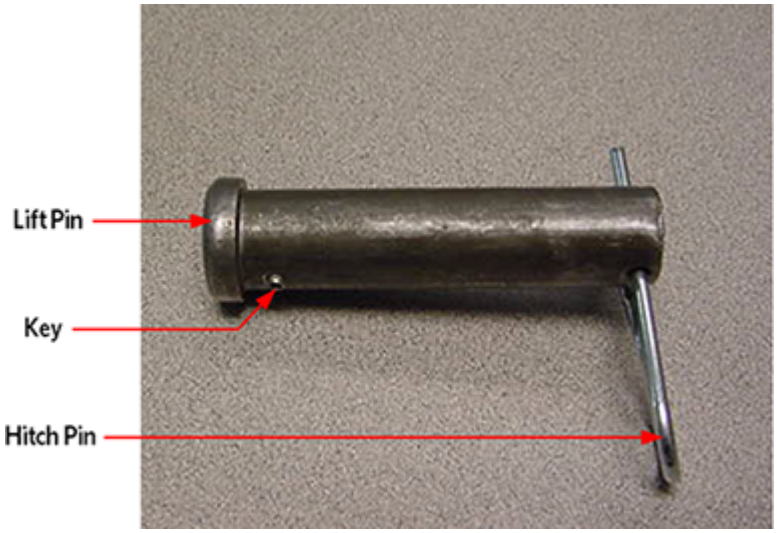
NOTE: Be careful to not allow the actuator tube to turn during the removal/installation process. This will cause the actuator reference gap to change and will require recalibration of the Lift Motor, see "Lift Motor Calibration" on page 75.

5. Remove the left and right incline platform hitch pins from the frame mounting brackets and removal the platform. Keep fasteners for installation.



6. Remove the wheels from the old incline platform and reinstall them on the replacement incline platform.
7. Set the replacement incline platform in it mounting position. Align the key in the incline mounting pin with the key way in the frame and slide the incline mounting pins into place. Secure mounting pins with the hitch pins.

[1]Disconnect a device power cord plug or cable connector from the power receptacle or outlet.



8. Install the actuator tube into the incline platform mounting bracket. Hold the jack screw from turning while inserting the actuator tube into the mounting bracket. Secure with clevis and hitch pins.
9. If the Lift Motor actuator tube has turned during the installation process (which changes the incline reference gap distance) re-calibrate the Lift Motor, see "Lift Motor Calibration" on page 75.
10. Return the treadmill to the upright position.
11. Level the treadmill.
12. Install hood and all removed covers and trim.
13. Connect the power cord and Switch the input power to **ON**.
14. Verify the treadmill incline operation through the full range of motion. Do the - **INCLINE TEST** diagnostic test.
15. Verify treadmill operation (see) and return to service.

See Also

"Replacement Procedures" on page 80

"Lift Motor Calibration" on page 75

Input Module Replacement

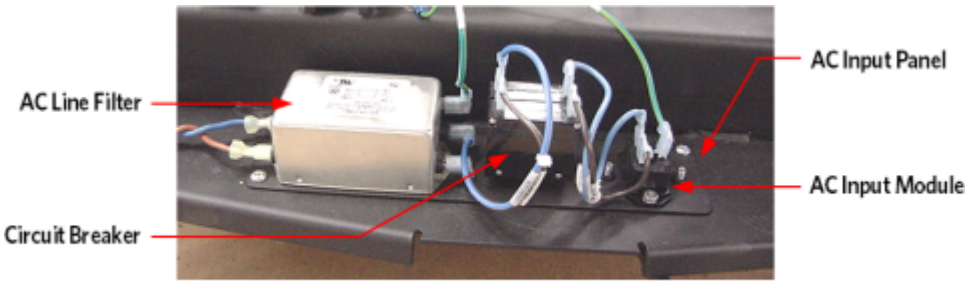
About

This procedure provides instruction to remove and replace the **AC**[1] Input Module.

Procedure

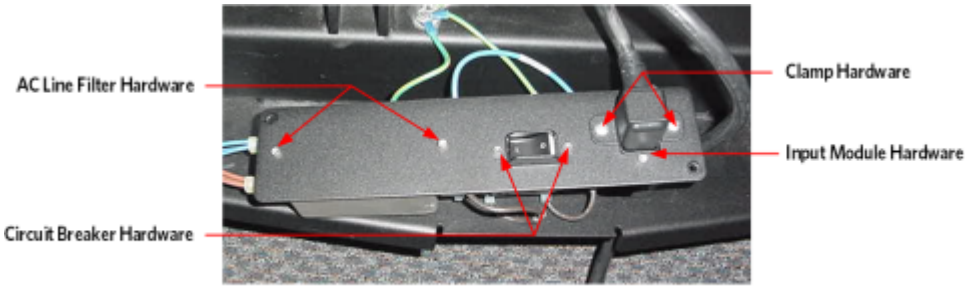
Review entire procedure before starting.

1. Set the treadmill circuit breaker to **OFF** and **unplug**[2] the treadmill's power cord from the AC outlet.
2. Remove the treadmill's hood.
3. Remove the two screws that fasten the AC input panel to the frame. Keep fasteners for replacement installation.



AC Input Panel (240 VAC option)

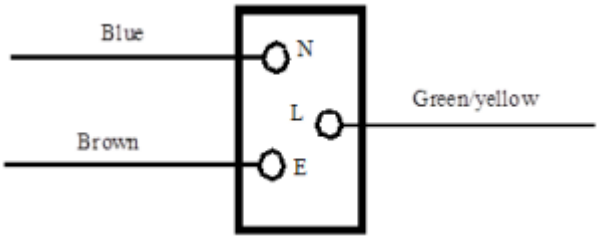
4. Incline the AC input panel from the frame and rotate it to expose the AC line cord clamp screws and input module screws
5. .Remove the mounting screws and remove the AC power cord clamp. Keep fasteners for replacement installation



AC Input Panel Hardware

[1]Alternating Current: electric current which periodically reverses direction between positive and negative polarity.
[2]Disconnect a device power cord plug or cable connector from the power receptacle or outlet.

6. Disconnect the AC line cord from the input module.
7. Disconnect the wiring from the AC input module (1 blue wire, 1 brown wire and 1 green/yellow wire).
8. Remove the mounting screws and remove the AC input module. Keep fasteners for replacement installation:
9. Set the AC input module in its mounting position with the side with two terminals facing the circuit breaker and install using the previously removed fasteners.
10. Re-connect the AC input module blue wire to terminal **N**, the brown wire to terminal **L** and the green/yellow wire to terminal **E.**



11. Insert the AC line cord firmly into the input module. Set the AC line cord clamp in its mounting position and fasten it with the previously removed fasteners.
12. Reinstall hood.
13. **Plug**[1] in the power cord and Switch the input power **ON**.
14. Verify treadmill operation and return to service.

.See Also

"Replacement Procedures" on page 80

[1]Device power cord connector or electrical cable male connector that is inserted into an electrical receptacle "outlet" (also called the plug-in).

Line Filter Replacement

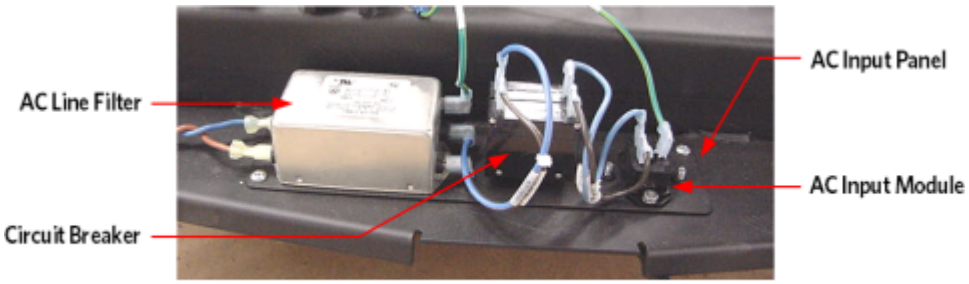
About

This procedure provides instruction to remove and replace the **AC**[1] Line Filter.

Procedure

Review entire procedure before starting.

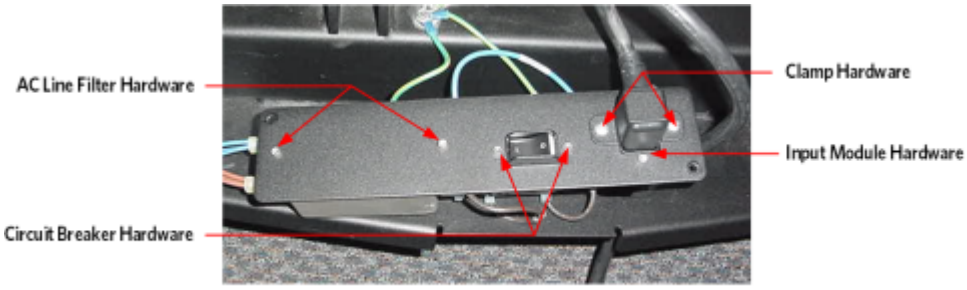
1. Set the treadmill circuit breaker to **OFF** and **unplug**[2] the treadmill's power cord from the AC outlet.
2. Remove the treadmill's hood.
3. Remove the two screws that fasten the AC input panel to the frame. Keep fasteners for replacement installation.



AC Input Panel (240 VAC option)

4. Disconnect the wiring from the circuit breaker (2 blue wires on 120 Vac treadmills or 2 blue and 2 brown wires on 240 Vac treadmills) Note: The figure below is showing a 240 volt configuration.
5. Lift the AC input panel from the frame and rotate it to expose the AC input circuit breaker screws.

[1]Alternating Current: electric current which periodically reverses direction between positive and negative polarity.
[2]Disconnect a device power cord plug or cable connector from the power receptacle or outlet.



AC Input Panel Hardware

6. Remove the two screws and remove the circuit breaker. Keep fasteners for replacement installation.
7. Set the replacement AC line filter in its mounting position with the three terminals facing the circuit breaker and secure with previously removed screws.
8. Re-attach wire connections as follows for the 120 VAC and 240 VAC models:
    a. On 120 Vac and 240 Vac treadmills, connect the blue wire from the power control module to the L1 terminal on the LOAD side of the AC line filter and the brown wire from the power control module to the L2 terminal on the LOAD side of the AC line filter.
    b. On 120 Vac treadmills, connect the blue wire from the input module to the L1 terminal on the LINE side of the AC line filter, the brown wire from the circuit breaker to the L2 terminal on the LINE side of the AC line filter and the green/yellow wire to the (non-insulated) terminal mounted directly on the line filter case.
    c. On 240 Vac treadmills, connect the blue wire from the circuit breaker to the L1 terminal on the LINE side of the AC line filter, the brown wire from the circuit breaker to the L2 terminal on the LINE side of the AC line filter and the green/yellow wire to the (non-insulated) terminal mounted directly on the line filter case.
9. Set the AC input panel in its mounting position and install using the previously removed fasteners.
10. **Plug**[1] in the power cord and Switch the input power **ON**.
11. Verify treadmill operation and return to service.

.See Also

"Replacement Procedures" on page 80

[1]Device power cord connector or electrical cable male connector that is inserted into an electrical receptacle "outlet" (also called the plug-in).

Power Control Module Replacement

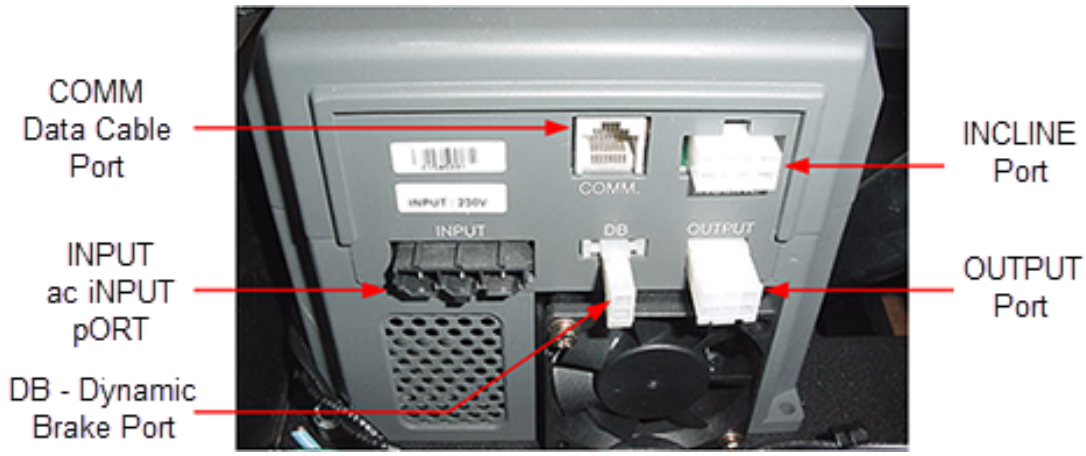
About

This procedure provides instruction to remove and replace the Power Control Module (**IFT**[1] Drive).

Procedure

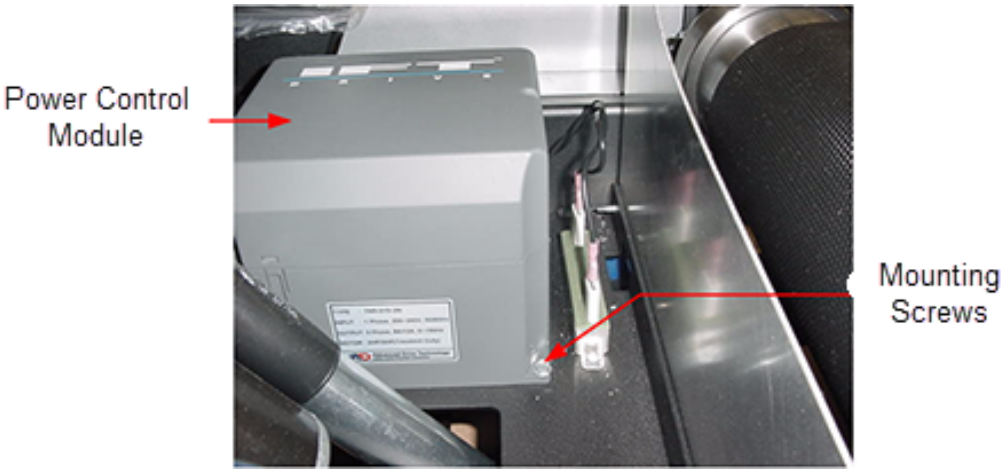
Review entire procedure before starting

1. Switch the input power **OFF** and remove power cord.
2. Remove the front hood.
3. Disconnect the **COMM**, **INCLINE**, **INPUT**, **DB** and **OUTPUT** connectors from the power control module.



4. Remove the four screws that mount the power control module. Keep fasteners for installation.

[1]Integrated Footplant Technology: IFT recognize this change in speed when your foot strikes the belt and adjust to match every stride, resulting in a smooth, fluid feel that enhances the workout experience.



5. Set the replacement power control module in its mounting position.
6. Install and tighten the four mounting screws.
7. Reconnect the **COMM**, **INCLINE**, **INPUT**, **DB** and **OUTPUT** connectors. The mating connectors are keyed to insure proper contact pin alignment and fit.
8. Reinstall the hood.
9. Pug in the power cord and Switch the input power **ON**.
10. Verify treadmill operation (see Operation Verification) and return to service.

See Also

"Replacement Procedures" on page 80

Power Cord Replacement

About

This procedure provides instruction to remove and replace the power cord.

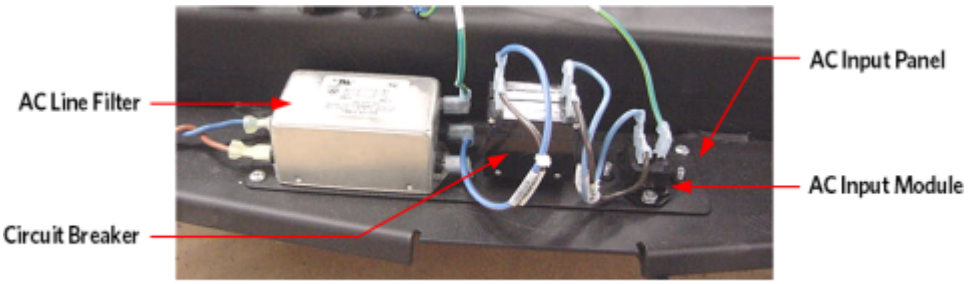
CAUTION: Use only Precor OEM power cords. Do not remove or otherwise bypass the 3-prong plug with an adapter to use a non-grounded outlet. Do not plug the unit into a power transformer in an attempt to adjust the voltage requirements. Failure to follow these instructions might damage the unit and void the Precor Limited Warranty.

CAUTION: The treadmill requires a 20-amp individual branch circuit grounded per NEC (National Electric Code) guidelines or local region electric code.

Procedure

Review entire procedure before starting.

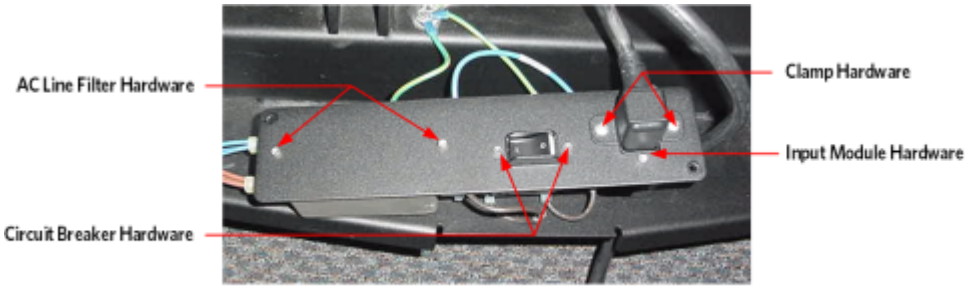
1. Set the treadmill circuit breaker to **OFF** and **unplug**[1] the treadmill's power cord from the **AC**[2] outlet.
2. Remove the treadmill's hood.
3. Remove the two screws that fasten the AC input panel to the frame. Keep fasteners for replacement installation.



AC Input Panel (240 VAC option)

4. Lift the AC input panel from the frame and rotate it to expose the AC power cord clamp screws.

[1]Disconnect a device power cord plug or cable connector from the power receptacle or outlet.
[2]Alternating Current: electric current which periodically reverses direction between positive and negative polarity.



AC Input Panel Hardware

5. Remove the fasteners that retain the AC power cord clamp and remove the clamp. Keep fasteners for replacement installation.
6. Disconnect the AC power cord from the input module.
7. Feed the end of the replacement AC power cord that mates with the input module through its hole in the frame and firmly insert it into the input module.
8. Set the AC power cord clamp in its mounting position and install using the previously removed fasteners.
9. Set the AC input panel in its mounting position and install using the previously removed fasteners.
10. **Plug**[1] in the power cord and Switch the input power **ON**.
11. Verify treadmill operation and return to service.

.See Also

"Replacement Procedures" on page 80

[1]Device power cord connector or electrical cable male connector that is inserted into an electrical receptacle "outlet" (also called the plug-in).

Running Belt and Deck Replacement

About

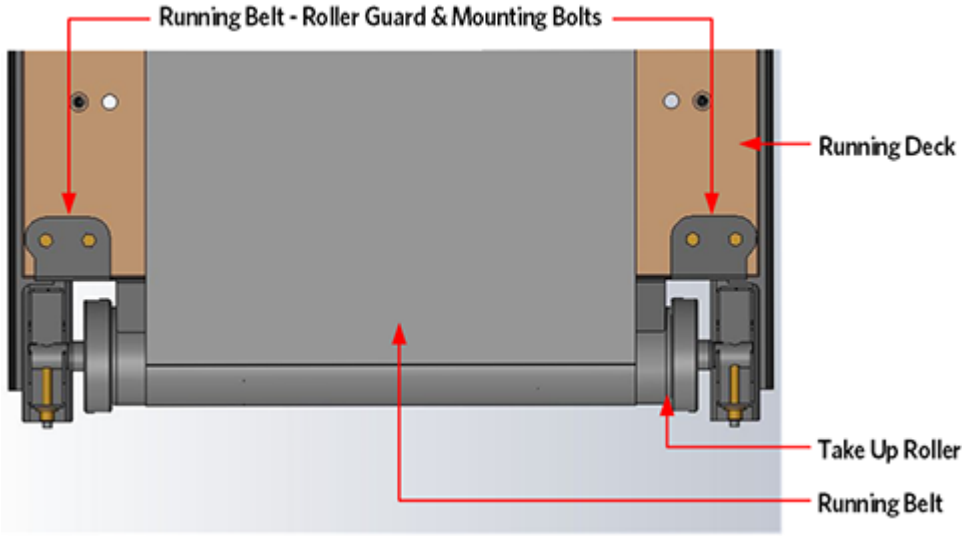
This procedure provides instruction to remove and replace the Running Belt.

CAUTION: Two running belt gauges, Precor part number 20007-101, are required. It is important that this procedure be followed to maintain correct drive belt and running belt tension. Improper tensioning of the belt will lead to premature running belt wear, premature driver roller bearing failure and premature Take-Up roller bearing failure.

Procedure

Review entire procedure before starting.

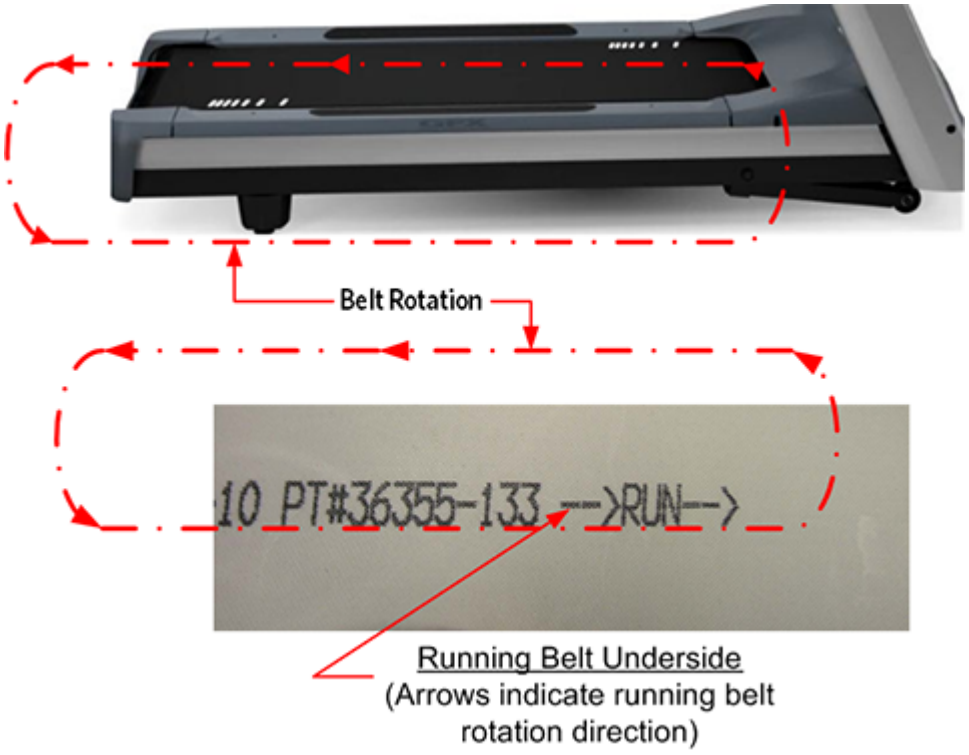
1. Switch the input power **OFF** and **unplug**[1] the power cord.
2. Remove the front hood.
3. Remove the end cap and belt guard covers (see "End Cap & Belt Guard Cover Replacement" on page 98).
4. Remove the left and right deck trim covers
5. Remove the Take-Up roller, see "Take-Up roller Replacement" on page 118.
6. Remove the Drive Roller, see "Drive Roller Replacement" on page 94.
7. Remove the four mounting bolts and the roller guard that hold the deck to the frame.



[1]Disconnect a device power cord plug or cable connector from the power receptacle or outlet.

8. Lift the deck and running belt up and away from the treadmill.
9. If installed, remove the Auto Stop magnet from the deck, see "Auto Stop Magnet Replacement" on page 81.
10. Slide the running belt off the deck and discard. Remove and keep the deck mounting inserts.
11. If the deck has already been flipped (flipped surface is used), discard and replace with new deck. Re-install the deck mounting inserts.
12. If the deck has not be flipped (flipped surface is new), flip deck and re-install the deck mounting inserts into the used side of the deck surface.
13. The new running belt will have a directional arrow placed on the inside of the belt. The arrow indicates the correct direction of travel. Slip the running belt onto the deck with the arrow pointing in the direction of travel.

CAUTION: Incorrectly installed running belt direction will cause the belt to wear prematurely.

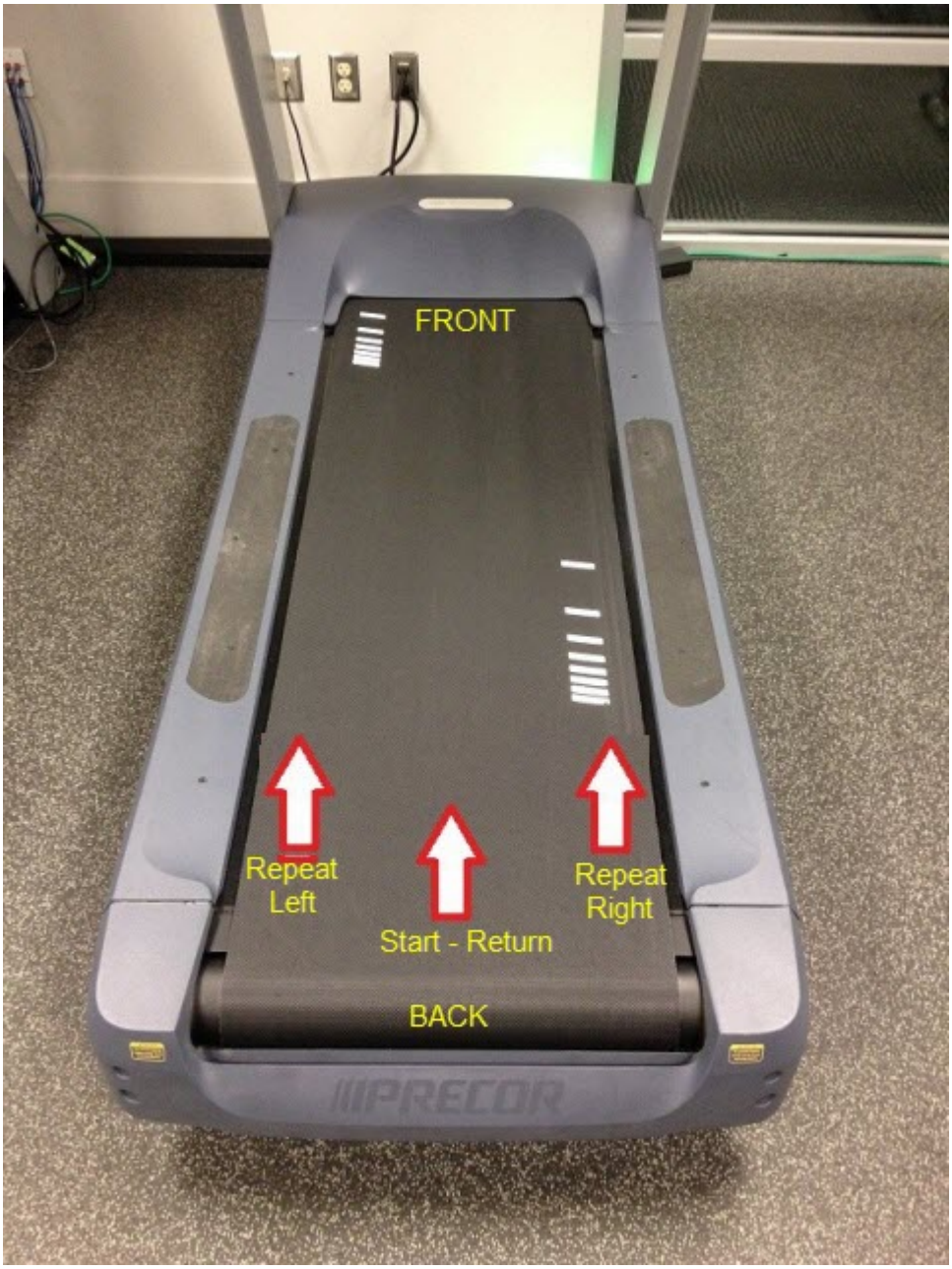


14. Carefully place the deck with running belt onto the deck.
15. Reinstall the Auto Stop Magnet on the right front corner of the deck, see "Auto Stop Magnet Replacement" on page 81.
16. Slide the take up roller though the running belt and install in the frame mounting bracket. Hand tighten the mounting bolts into the take up roller shaft.

17. Align the bottom plate and pivot bracket holes with the running deck bolt holes. Replace the roller guard, install and hand tighten the deck mounting bolts.
18. Verify that the spacing on all four corners is the same, adjust as necessary.
19. Check the alignment of the magnet and the auto stop assembly, see "Auto Stop Sensor Replacement" on page 83.
20. Tighten and torque the Deck mounting bolts to 150 in-lbs (17 N-m).
21. Reinstall the Drive Roller and Drive Belt, see "Drive Roller Replacement" on page 94.
22. Reinstall the Take-Up roller, see "Take-Up roller Replacement" on page 118.
23. Tension and verify the running belt tracking, see "Running Belt Tension and Tracking Adjustment" on page 77.
24. Replace the belt guard cover ensuring the tabs are firmly locked into position on the Take-Up roller shaft, see "End Cap & Belt Guard Cover Replacement" on page 98.
25. Replace the end cap, see "End Cap & Belt Guard Cover Replacement" on page 98.

New Deck break-in

26. Straddle the running belt and set the speed to 3 mph (5 kph). While holding the treadmill handles, walk onto the middle of the running belt starting from the back walking to the front and returning to the back. Repeat walking process 4 times.



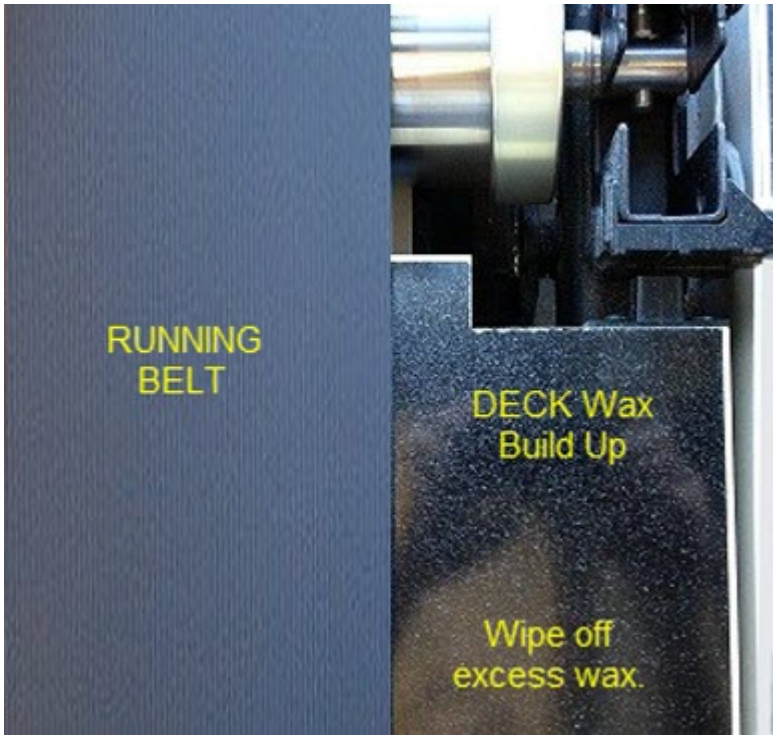
27. Repeat the process on walking on the right side of the belt.
28. Repeat the process walking on the left side of the belt.

NOTE: It may be necessary to override the treadmill auto-stop function.

29. Stop the treadmill and step off the belt.
30. Set the treadmill to the maximum speed and run for 3 minutes.

NOTE: This process helps to remove excess wax from the belt.

31. Clean up any loose wax from the deck sides and frame.



32. Verify treadmill operation (see) and return to service.

.See Also

"Adjustment Procedures" on page 71

"Running Belt Tension and Tracking Adjustment" on page 77

Take-Up roller Replacement

About

This procedure provides instruction to remove and replace the Take-Up roller.

CAUTION: Two running belt gauges, Precor part number 20007-101, are required. It is important that this procedure be followed to maintain correct drive belt and running belt tension. Improper tensioning of the belt will lead to premature running belt wear, premature driver roller bearing failure and premature Take-Up roller bearing failure.

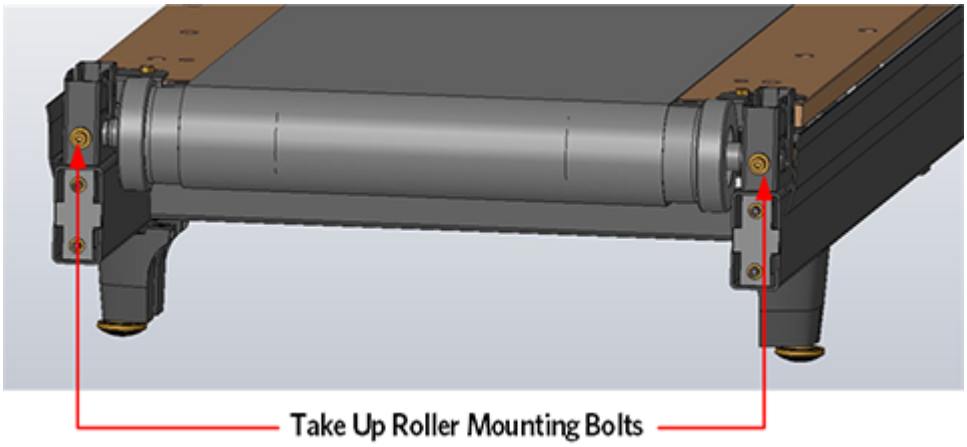
Procedure

Review entire procedure before starting.

1. Switch the input power **OFF** and **unplug**[1] the power cord.
2. Remove the front hood.
3. Remove the end cap and belt guard covers (see "End Cap & Belt Guard Cover Replacement" on page 98.
4. Remove the left and right deck trim covers.

   Removal Instructions

5. Remove running belt tension by alternately loosening the left and right Take-Up roller mounting/adjustment bolts. Remove the mounting bolts, lift and slide the Take-Up roller out of the running belt.



Installation Instructions

[1]Disconnect a device power cord plug or cable connector from the power receptacle or outlet.

6. Slide the new Take-Up roller through the running belt and slide into position. Evenly hand tighten the left and right Take-Up roller mounting bolts a few turns only.
7. Tension the running belt to specification and verify tracking, see "Running Belt Tension and Tracking Adjustment" on page 77.
8. Replace the belt guard cover ensuring the tabs are firmly locked into position on the Take-Up roller shaft, see "End Cap & Belt Guard Cover Replacement" on page 98.
9. Replace the end cap (see "End Cap & Belt Guard Cover Replacement" on page 98).
10. Replace the hood cover.
11. Verify treadmill operation (see Operation Verification) and return to service.

.See Also

"Replacement Procedures" on page 80

"Running Belt Tension and Tracking Adjustment" on page 77

"Running Belt and Deck Replacement" on page 113

Troubleshooting

About

This section contains troubleshooting information to help you identify, isolate, and resolve component and system issues.

Review the *Introduction To Troubleshooting* section below to learn about the troubleshooting process, troubleshooting best practices, and other pertinent information that will help you efficiently troubleshoot issues and return the equipment to service.

Information that will help you troubleshoot:

- Review the *Introduction To Troubleshooting* section below, see "Introduction to Troubleshooting" below.
- Review the machine diagnostics *Error Log* for any current active error codes, see the "Error Log & CPA Event Log" on page 130 and "Standard Error Codes" on page 126 topics.
- Refer to the *Error Code Troubleshooting Guide* for error code description and troubleshooting repair information, see Error Code Troubleshooting Guide.
- Make sure that the machine has incorporated all machine specific service bulletins, tech-tips, and software updates, see "Verify service bulletin and software update incorporation" on page 123.

Introduction to Troubleshooting

Troubleshooting issues is an investigative process best implemented utilizing a systematic approach that efficiently targets the issue cause allowing correct equipment repairs and return to service. The following basic troubleshooting steps will help you to systematically troubleshoot and resolve issues.

Troubleshooting Steps

Always begin troubleshooting using the most common simplest possible solution first and then systematically trying the next more complex solution until the issue is finally resolved. Use the following basic troubleshooting steps to help guide you through a systematic approach to troubleshoot and resolve equipment issues:

- "Validate the customer reported issue" on the facing page
- "Verify Input Power" on the facing page
- "Verify (reproduce) the customer issue" on page 122

- "Verify the Club Settings" on the next page
- "Verify service bulletin and software update incorporation" on page 123
- "Verify console operation" on page 123
- "Verify that there are no current active error codes" on page 124
- "Verify hardware validation diagnostic tests" on page 125
- "Verify that there are no new error codes" on page 125

Validate the customer reported issue

The failure that is reported may differ from your observations as a trained technician. Many reported failure are not true failures and can be fixed without a customer visit.

For example, start the troubleshooting process by asking the customer the following questions:

- Powered units only: Always ask the customer if there is power to the machine (power cord connected, circuit breaker ON) and is the machine switched ON.
- Further question the customer to determine if this is the real issue requiring an on-site visit or possibly a different issue that can be simply resolved over the phone.

Verify Input Power

On powered equipment and consoles, **always** make sure that the customer has the power properly connected and the equipment is switched "ON".

Powered touchscreen consoles (P62, P80, and P82):

Make sure that the powered touchscreen console (P62, P80, and P82) power brick cord is properly connected.

Powered equipment (treadmills):

Verify the customer has input power cord connected and that the equipment power is switched "ON".

If the machine power is connected and switched ON, but the machine does not power up or runs poorly, verify the following conditions:

- Make sure there is power at the outlet receptacle and that the power is within the specified voltage and current limits. If not, review the following possible causes:
    - Outlet voltage to low: Low out-of-spec outlet voltage can be caused by a large voltage drop in the facility circuit panel-to-wall outlet circuit due to an extremely long circuit wire run. For power requirement information, refer to the *Power Requirements* topic.
    - Input current to low: The power outlet circuit wire gauge may be too small to carry the required machine load current (20 amps/machine).

- Make sure that the outlet receptacle power is good quality (the input power is NOT intermittent or has fluctuating voltage levels or frequency). Poor quality input power can cause operational failures in the machine or powered console. For power requirement information, refer to the *Power Requirements* topic.
- Make sure that each Precor treadmill is connected to a separate 20 amp individual branch circuit outlet. No other devices can be connected to the same circuit outlet except for one optional **PVS**[1] (Personal Viewing System) display if installed. For power requirement information, refer to the *Power Requirements* topic.

IMPORTANT: Always make sure the input power is good quality before troubleshooting the machine. A poor quality input power signal may be the cause of the machine issue or operating failure.

Verify (reproduce) the customer issue

If possible, operate the unit in the workout and conditions similar to the customer and attempt to reproduce the reported failure.

- Determine if the error is a repeatable or intermittent type failure.
- Make note of any additional observations (noises, vibrations, etc.) that occur at the time of the failure which may then be used to help resolve the issue.

Note: It is important to keep in mind that some issues are weight (load) related. You may need to test the unit at minimum and maximum load Limits to reproduce the failure.

Verify the Club Settings

Verify that one of the workout limit settings are not causing a failure, see Club Settings (**LED**[2] consoles) or System Settings Workout Limits (Touchscreen consoles). If a failure is observed while using the machine but passes the hardware validation system tests, this could be an indication that one of the club parameters Limits settings is causing the issue.

IMPORTANT: Check the following if a failure is observed during a workout but the machine works perfectly when doing a hardware validation test:
• First check the Club settings. Some parameters might be set to limits that can give the appearance of a failure, such as, the incline limit set to 0, or the parameter Units set to Metric or US Standard.
• Attempt to recreate the issue. Some problems are caused by vibration, to much weight, or may be an intermittent issue etc. Various workout conditions and scenarios may be necessary to recreate the issue.

[1]Personal Viewing System display.
[2]light-emitting diodes.

Verify service bulletin and software update incorporation

Make sure that the machine is up to date with all released service bulletins, tech-tips, and software updates before troubleshooting an issue. The list of current service bulletins, tech-tips, and software updates can be viewed and downloaded from the Precor Connect web-site. Make sure that all released service bulletins/Tech-Tips and software updates have been incorporated.

How to find and download service bulletins and tech-tips:

1. Log in to your Precor Connect Servicer account (Precor Connect Partner's).
2. From the Connect Home page, select the DOCUMENTATION pane > SERVICE BULLETINS link to view the list of the equipment service bulletins and Tech-Tips.

Note: .There may or may not be service bulletins or tech-tips released for this machine.

How to find and download software updates:

1. Log in to your Precor Connect Servicer account (Precor Connect Partner's).
2. From the Connect Home page, select the DOCUMENTATION pane > CONSOLE SOFTWARE to view the list of available equipment console "**UPCA**[1]" and/or **MC**[2] "**LPCA**[3]" software updates.

   Use the following software access login Username and Password:

   Username: software
   Password: D0wnl0ads!

Note: .There may or may not be software updates for this machine.

Verify console operation

1. On LED consoles (P10, P30, P30i and P31) make sure the console powers up and is working correctly, perform the following verification tests:
   a. If the console does not power up, make sure the Data COMM cable is properly connected at the console and LPCA and in good condition.

[1]Upper PCA board

[2]Motor controller, motor controller unit, or motor controller module: used on treadmills, contains the LPCA and motor controller functionality.

[3]Lower Printed Circuit Assembly board; also refered to as the Lower PCA or simply as the lower board. On treadmills, it is the console to base function interface and the motor controller unit (MCU). On self-powered units, it is the lower PCA console to base function interface.

b. Run the console Display, and Keypad diagnostic tests (see "Hardware Validation Diagnostics Tests Menu (51765761)" on page 51). Resolve any failures.

2. On Touchscreen consoles (P62, P80, and P82) make sure the console powers up and is working correctly, perform the following verification tests:
   a. If the console does not power up, make sure the external **AC**[1]/**DC**[2] power adapter is plugged in and connected to the console. Also make sure the AC/DC adapter brick is in good condition.
   b. Run the following console System Tests (see System Tests):
      - Touchscreen Test
      - Touchscreen Calibration
      - Backlight Test
      - RGB Test
      - Numeric Backlight Test
      - Numeric Display Test

Note: Keep in mind that if a key on the console keypad does not function, the LPCA will not receive a user initiated request for action. For failed console key problems, the machine failure is not caused by a problem with the LPCA or the machine base, In these types of console failures, no error codes will be triggered and logged.

Verify that there are no current active error codes

Always review the Error Log or CPA Event Log when troubleshooting an issue. The error logs will contain any triggered error code events and related information. You can then refer to the Error Code Troubleshooting Guide for information to help resolve the issue. Also, when calling Precor customer service for assistance, refer to the Error Log or CPA Event Log for additional information to help the representative resolve the issue.

- Refer to Error Code & CPA Error Log, see "Error Log & CPA Event Log" on page 130.
- Refer to Error Code Troubleshooting Guide for error code descriptions and repair information.

IMPORTANT: Error code descriptions and troubleshooting information can be found in the *Error Code Troubleshooting Guide*, see Error Code Guide Troubleshooting Guide.

Note: Not all failures trigger an error event code. Many issues are purely mechanical in nature and therefore cannot trigger an error event code.

[1]Alternating Current: electric current which periodically reverses direction between positive and negative polarity.
[2]Direct Current: electrical current that only flows in one direction.

Verify hardware validation diagnostic tests

Perform the equipment Hardware Validation Tests (LED consoles) or System Tests (Touch-screen consoles) to help isolate the cause of the issue. These tests will help identify failed system components. Resolve any resulting failures.

Verify that there are no new error codes

After correcting the issue, reopen the Error Log and verify that there are no remaining active error codes. This will verify that the original error codes are not recurring and that there are no new error code issues. If the error code is recurring, the issue may be mileage related, review the error code odometer history to verify if the error event is related to mileage intervals.

Clear the Error Log, see "Error Log & CPA Event Log" on page 130.

Note: If there are no logged error codes and the issue persists, you will need to use observable and audible indicators to identify the source of the failure. Also make sure that there are no related service bulletins that may resolve the issue. Browse the list of available Troubleshooting procedures for related Troubleshooting information.

Standard Error Codes

About

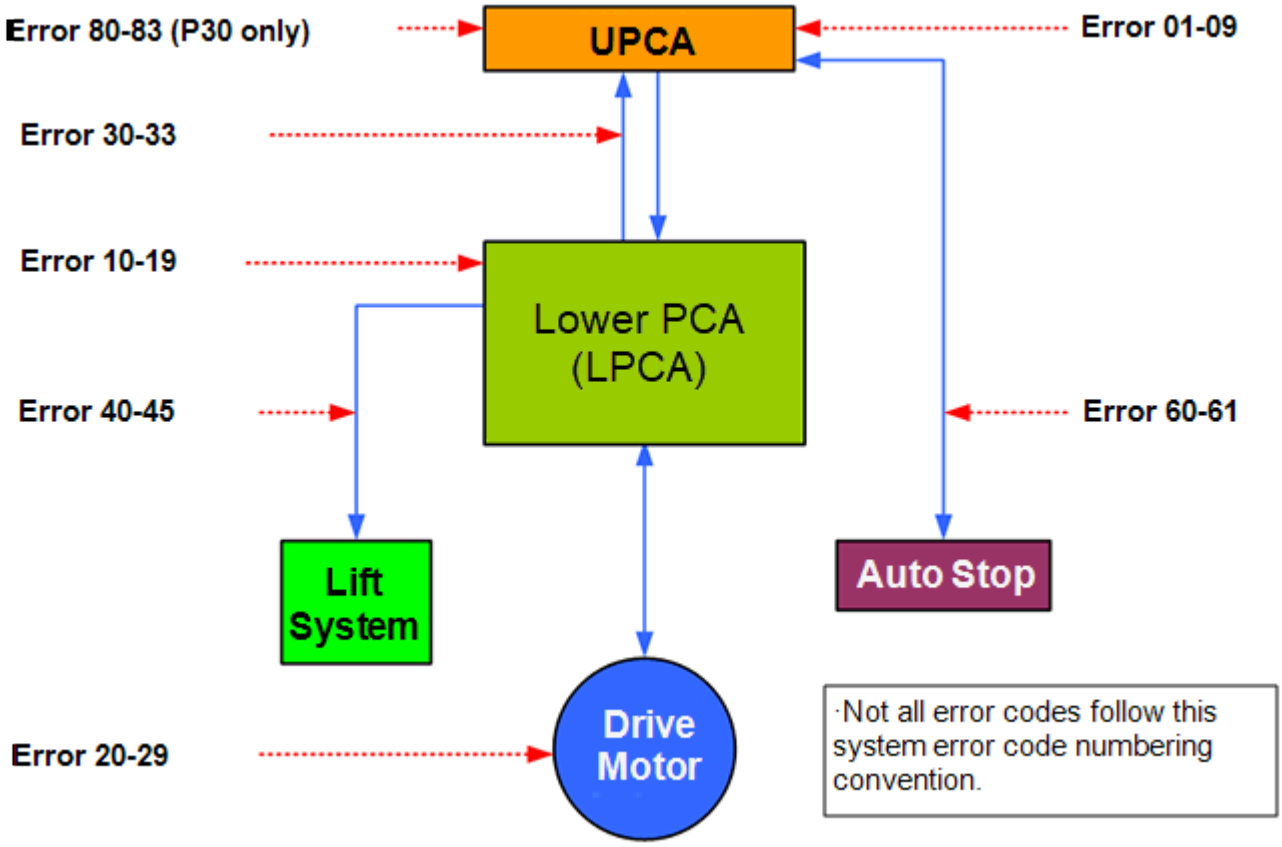
There is a set of standard error codes implemented across Precor cardio exercise equipment. Error codes are system generated codes that identify specific machine fault conditions. The maintenance software monitors error code event conditions, when a fault is detected, the error code is generated and stored in the Error Log (or **CPA**[1] Event Log) along with related machine metrics, such as, the machine mileage (or hours), the time, drive motor current, etc.

On some equipment, error codes have been separated into two categories: Error codes "ERR" and Warning codes "WRN". see Errors and Warnings.

Error code numbers range from 01 to 99. There are also a small number of alpha and alpha-numeric codes. Most, but not all error codes are grouped into numeric ranges to help easily identify common system issues. Refer to the Error Code Troubleshooting Guide for a complete list of error codes and troubleshooting information.

IMPORTANT: Error code descriptions and troubleshooting information can be found in the *Error Code Troubleshooting Guide*, see Error Code Guide Troubleshooting Guide.

[1]Touchscreen console Control Processing Assembly.



How Error Codes Are Generated and Stored

The **Lower PCA**[1] monitors error code event conditions, when a fault is detected, the error code is generated and transmitted to the console **Upper PCA**[2] where it is stored and viewed in the Error Log or CPA Event Log. The error log shows the error code along with related machine metrics, such as, the machine mileage, hours, the time when the event occurred, the date, and other machine specific relevant data.

Error codes are sequentially stored in memory on a "First-In, Last-Out" basis, the newest error code is stored in the number one memory position pushing any currently stored error codes down one position. When the memory is full, the next new code is stored pushing the oldest error code from memory.

[1]Lower Printed Circuit Assembly board; also refered to as the Lower PCA or simply as the lower board. On treadmills, it is the console to base function interface and the motor controller unit (MCU). On self-powered units, it is the lower PCA console to base function interface.
[2]Upper Printed Circuit Assembly board located in the console.

Errors and Warnings

On certain machines, there is a differentiation between errors and warnings. Issues that are noncritical to the operation of the machine have been demoted from Error status to Warning status. Error codes will be formatted with an "ERR" prefix identifier and Warning codes will be formatted with the "WRN" prefix identifier.

- **Error Codes**

  Error codes are system generated codes that identify specific machine fault conditions. The maintenance software monitors error code event conditions, when a fault is detected, the error code is generated and stored in the Error Log or CPA Event Log along with pertinent machine metrics, such as, the machine mileage, hours, event time stamp, etc. Error codes are identified with the "ERR' prefix.

- **Warning Codes**

  Warning codes are system generated codes that identify noncritical machine information that in most cases will not require service action. Depending on the Warning, the information could be used by clubs to better utilize and maintain the equipment etc. or provide additional machine information to help the service technician resolve an issue. Warnings will not disable functionality, display to the exerciser, or change the **ASL**[1] light status.

To differentiate between errors and warnings, error codes will be identified with the "ERR" prefix and warning codes will be identified with the "WRN" prefix.

Viewing Error Codes (Error Log & CPA Event Log)

Error event codes are logged, stored, and viewed in either the **Error Log** on **LED**[2] consoles (P10, P30, P30i and P31) or the **CPA Event Log** on touchscreen consoles (P62, P80, and P82), see Error Log & CPA Event Log.

How to access the Error Log:

- On LED consoles (P10, P30, P30i and P31)**:** access the **Information Display (65)** > select **Error Log**.
- On touchscreen consoles (P62, P80, and P82)**:** access the **Service Settings menu (51765761)** > select **About > CPA Event Log**

Error Code and Troubleshooting Guide

Use the *Error Code Troubleshooting Guide* to learn about the error code and to help troubleshoot and repair the machine. The *Error Code Troubleshooting Guide* provides a complete list of all supported error codes and information about the error code including the

[1]Active Status Light: Service and maintenance status light.

[2]light-emitting diodes.

code description, related issues and symptoms associated with the error, troubleshooting steps, and repair procedures:

Error Code and Troubleshooting Guide: Error Code Troubleshooting Guide.

- The error code description.
- The affected system components.
- The Issues and Symptoms associated with the fault condition.
- Troubleshooting steps and repair instructions.

Troubleshooting with Error Codes

Getting Started

You will need a copy of the "*Error Code Troubleshooting Guide*" to learn Information about the error codes including the code description, related issues/symptoms, troubleshooting and repair information, click Error Code Troubleshooting Guide.

Using Error Codes to troubleshoot

1. Review the equipment Error Log (or CPA Event Log) to identify any current active error codes. Also review the error code history for any past error codes that may provide insight to the current active error code issue.
2. Next go to the error code topic in the *Error Code Troubleshooting Guide* and review the error code troubleshooting and repair information.

Note: Be aware that not all machine failures will cause an error code event. Use physical observation and mechanical troubleshooting skills to resolve non error code issues.

Error Log & CPA Event Log

About

The Error Log and **CPA**[1] Event Log is used to store "log" and view error and warning codes. On **LED**[2] (P10, P30, P30i and P31 consoles) use the "*Error Log*" to view error codes. On touchscreen consoles (P62, P80, and P82) use the "*CPA Event Log*" to view error/warning codes.

- Error Log, see "Error Log " on the facing page
- CPA Event Log, see " CPA Event Log" on page 133

IMPORTANT: On touchscreen consoles (P62, P80, and P82), use the **CPA Event Log** and not the **Event Log** to view the maintenance error/warning codes. The touchscreen console Event Log includes additional OEM use only error codes.

more....

How Error Codes Are Generated and Stored

The **Lower PCA**[3] monitors error code event conditions, when a fault is detected, the error code is generated and transmitted to the console **Upper PCA**[4] where it is stored and viewed in the Error Log or CPA Event Log. The error log shows the error code along with related machine metrics, such as, the machine mileage, hours, the time when the event occurred, the date, and other machine specific relevant data.

Error codes are sequentially stored in memory on a "First-In, Last-Out" basis, the newest error code is stored in the number one memory position pushing any currently stored error codes down one position. When the memory is full, the next new code is stored pushing the oldest error code from memory.

Repeating Error Codes

Repeated instances of the same error code will only be logged as a single error code until one of the following conditions occur:

1. Two different errors events occur and are logged
2. There is an "Odometer" and "Hours" change.

[1]Touchscreen console Control Processing Assembly.

[2]light-emitting diodes.

[3]Lower Printed Circuit Assembly board; also refered to as the Lower PCA or simply as the lower board. On treadmills, it is the console to base function interface and the motor controller unit (MCU). On self-powered units, it is the lower PCA console to base function interface.

[4]Upper Printed Circuit Assembly board located in the console.

Errors and Warnings

On certain machines, there is a differentiation between errors and warnings. Issues that are noncritical to the operation of the machine have been demoted from Error status to Warning status. Error codes will be formatted with an "ERR" prefix identifier and Warning codes will be formatted with the "WRN" prefix identifier.

- **Error Codes**

  Error codes are system generated codes that identify specific machine fault conditions. The maintenance software monitors error code event conditions, when a fault is detected, the error code is generated and stored in the Error Log or CPA Event Log along with pertinent machine metrics, such as, the machine mileage, hours, event time stamp, etc. Error codes are identified with the "ERR' prefix.

- **Warning Codes**

  Warning codes are system generated codes that identify noncritical machine information that in most cases will not require service action. Depending on the Warning, the information could be used by clubs to better utilize and maintain the equipment etc. or provide additional machine information to help the service technician resolve an issue. Warnings will not disable functionality, display to the exerciser, or change the **ASL**[1] light status.

To differentiate between errors and warnings, error codes will be identified with the "ERR" prefix and warning codes will be identified with the "WRN" prefix.

Troubleshooting with Error Codes

Always review the Error Log or CPA Event Log when troubleshooting an issue. The error logs will contain all current and past error codes from the last log reset. You can then refer to the *Error Code Troubleshooting Guide* (Error Code Troubleshooting Guide) to for description and troubleshooting information.

Note: Be aware that not all machine failures will trigger an error code event. Use physical observation and mechanical troubleshooting skills to resolve non error code issues.

Error Log

Error Log

Error Log

Applies To: LED (P10, P30, P30i and P31) consoles

About

[1]Active Status Light: Service and maintenance status light.

On LED (P10, P30, P30i and P31) consoles, error codes are stored in the **Error Log**. Error codes are sequentially shown on the console message display one at a time. The individual error code data metrics will scroll across the display. Use the Up/Down keys to scroll thru and view the individual error codes.



LED P31 Console "ERROR LOG"

Event Code Format

The error format will always start with the Error Log entry number, the error type (error "ERR" or warning "WRN"), the Error Number and then additional information specific to the type of fitness equipment, with no commas or other delimiters in between information. Errors will have the identifier ERR and Warnings will have the identifier WRN before the error number.

Example Error Code Format

1	ERR	30	1000 MILES 20 HOURS
2	WRN	70	1000 MILES 20 HOURS

- Error log memory stack number
- Code Type: Error "ERR" or Warning "WRN"
- Error/Warning number
- Description and associated metric values

Typical Error Log data format metrics:

- Error/Warning code entry number: 1 thru "n" (1 is the newest error code and "n" is the oldest)
- Event Type: Error "ERR" or Warning "WRN"

- Error/Warning Code Number
- Error/Warning Code Description
- May include additional pertinent event metric information

How to open the Error Log:

1. Access the **Information Display (65)**
2. Select **Error Log**
3. Select **OK** hardkey

Clearing Error Codes:

To remove an error code from the Error Log, scroll to select the error code to be removed and then press/hold the **QUICK START** key for a minimum of 6 secs until the ."NO ERRORS" message shows.

TIP: **Error code remove shortcut**: Press and hold the **PAUSE** key for a minimum of 6 seconds to open the Error Log and view all logged error codes. If there are no logged error codes, the "Stuck Key" message will show. To remove error codes, select the error code and press/hold the **QUICK START** key until the "NO ERRORS" message shows.

CPA Event Log

CPA Event Log

CPA Event Log

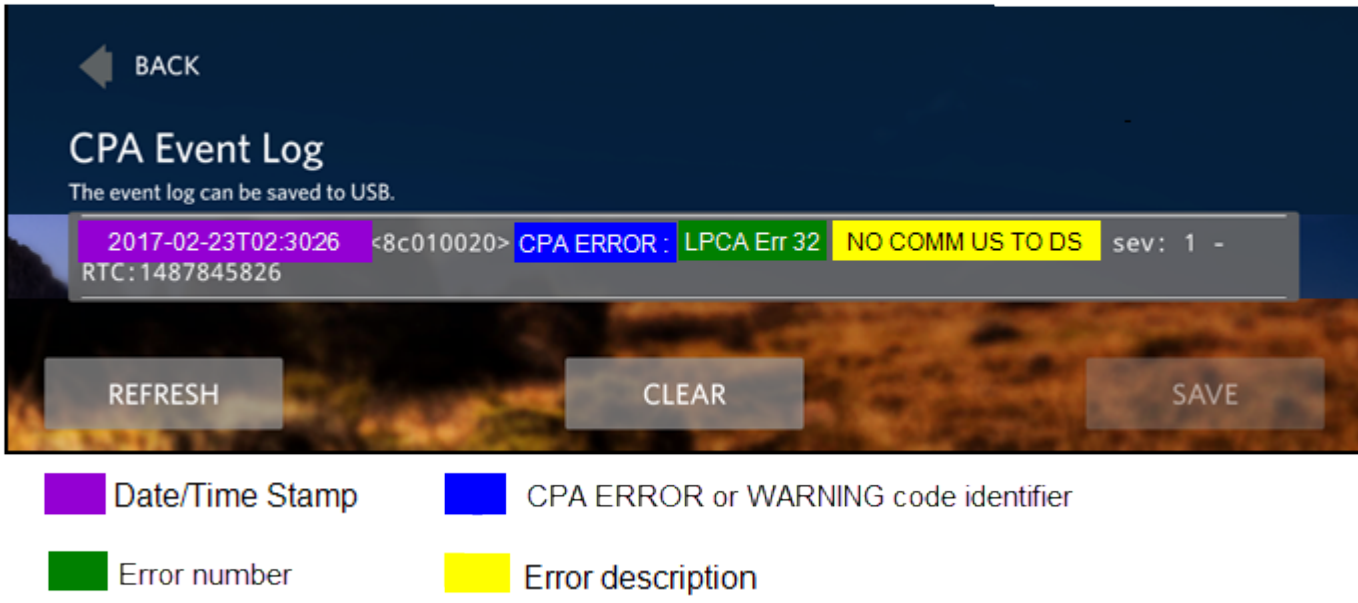
Applies To: Touchscreen (P62, P80, and P82) consoles

About

On touchscreen (P62, P80, and P82) consoles you will use the **CPA Event Log** and not the **Event Log** to view error and warning codes. The **CPA Event Log** only contains service related error and warning codes, whereas the Event Log contains all event code types including additional OEM use only error codes. Maintenance error codes are identified with a "CPA ERROR" tag and warnings are identified with a "CPA WARNING" tag

IMPORTANT: . Make sure to only use the **CPA ERROR** or **CPA WARNING** tagged event codes for service related issues, refer to the Error Code Troubleshooting Guide for description and troubleshooting information.

Touchscreen console "CPA Event Log"



Date/Time Stamp

CPA ERROR or WARNING code identifier

Error number

Error description

Event Code Format

Typical CPA Error and Warning code data format information:

- Date and Time stamp
- Event type: CPA Error or CPA Warning
- Error/Warning Code Number
- Error/Warning Code Description
- May include additional pertinent event metric information

How to open the CPA Event Log:

1. Access the **Service menu (51765761)**
2. Select **About > CPA Event Log**

CPA Event Log Softkeys

The CPA Event Log provides the following function softkeys

Softkey	Description
REFRESH	Refreshes the CPA Event Log with any missing current error codes.
CLEAR	Removes all error codes from the CPA Error Log.

Softkey	Description
SAVE	Typically reserved for Precor use. Saves the CPA Event Log error codes to a **USB**[1] flash drive.

How to Clear CPA Error Codes

1. Access the **Error Event Log**
2. Select the **CLEAR** softkey.

How to Save CPA Error Log Data

The save CPA Event Error Log feature is used by Precor to investigate machine issues. Occasionally, Precor may request you to save the CPA Error Log error code data to a USB flash drive and then send the USB drive to Precor customer service.

1. Access the **CPA Event Log**.
2. Insert a USB flash drive into the USB chin port.
3. Then wait for the **SAVE** softkey to highlight and then select **SAVE**.
4. Follow prompts to complete the save process.
5. Remove the USB flash drive.
6. Insert the USB drive into PC and verify that the error log data file was saved.
7. Return the USB drive as directed by Precor customer service.

[1]Short for Universal Serial Bus, is an industry standard developed in the mid-1990s that defines the cables, connectors and communications protocols used in a bus for connection, communication, and power supply between computers and electronic devices.

System Troubleshooting Procedures

System troubleshooting procedures provide information and procedures to help you troubleshoot and repair treadmill issues.

Available Troubleshooting Procedures

- "Auto Stop Troubleshooting " on the facing page
- "Tripped Circuit Breaker" on page 158
- "Communications Error Troubleshooting" on page 143
- "No Power to the Console Troubleshooting" on page 144
- "Drive Motor System Troubleshooting" on page 146
- "E-Stop Not Communicating" on page 149
- "Heart Rate Monitor Troubleshooting" on page 150
- "Incline System Troubleshooting" on page 153
- "Input Power and Machine Controls Troubleshooting" on page 154
- "Running Belt and Deck Troubleshooting" on page 155
- "Tripped Circuit Breaker" on page 158

See Also

"Troubleshooting" on page 120

Auto Stop Troubleshooting

This procedure will provide troubleshooting steps for the Auto Stop feature

Related Error Codes

Auto Stop error codes: 60, 61.

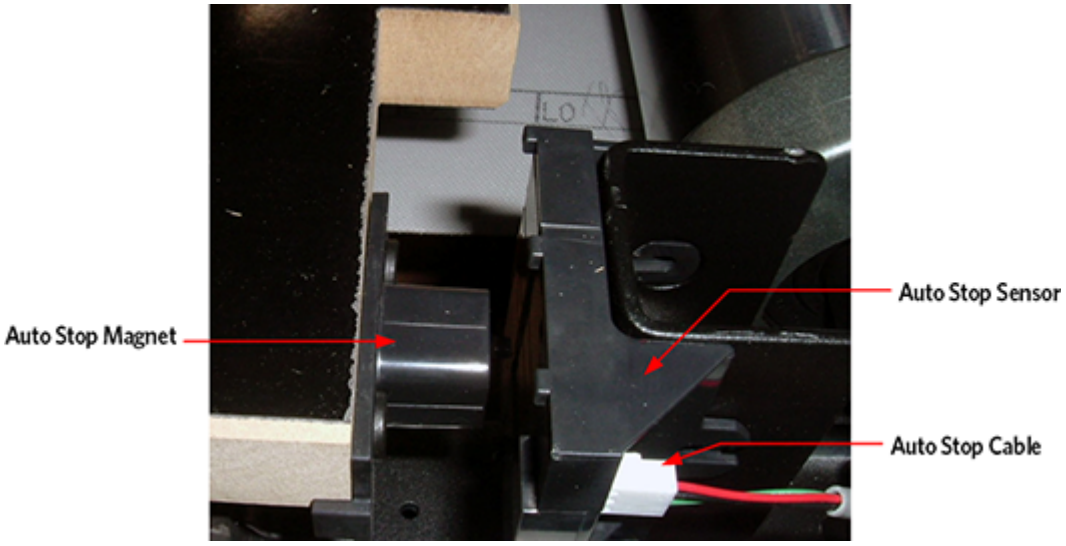
Refer to the Error Code Troubleshooting Guide for error code description and troubleshooting information.

Procedure:

1. If the Console message is "Temporarily Out of Order" on the P80 console or "Please use another Treadmill" on the P10, P20, or P30 console go *Run Hardware Validation Tests* below.
2. Check the treadmill to ensure the Auto Stop hardware is installed.
    - If the Auto Stop hardware is not installed, contact Precor customer support to see if your treadmill is compatible for the Auto Stop or arrange the installation of the Auto Stop hardware.
3. Verify that the Auto Stop cable is plugged into the correct port in the console. The connector for the Auto Stop is the same number of pins as the connector for the heart rate grips, and you need to make sure that they were not reversed.
    a. If the cables were reversed, swap the connectors and re-test.
    b. If the cables were correctly connected, continue
4. If the Auto Stop hardware is installed, access the club settings and check if the Auto Stop feature is enabled. If it is not enabled, enable the feature, see .

    Run Hardware Validation Tests

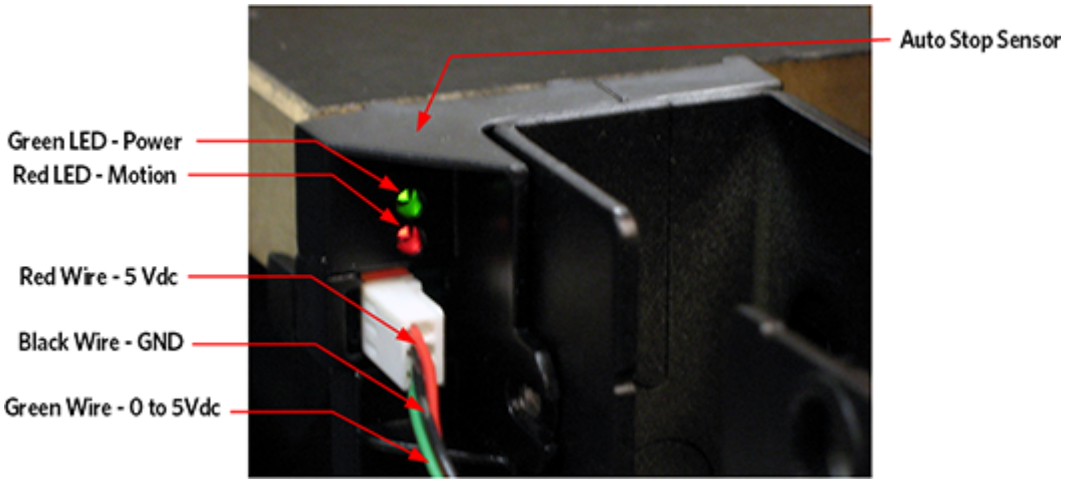
5. Access the service access software Hardware Validation Tests (see and select the **Auto Stop** test. If the feature is enabled the P80 **Auto Stop** sensor test will count the number of times the magnet crosses the sensor. The P10, P20, or P30 consoles will display **USER DETECTED** if motion is detected from the running deck or **NO USER DETECTED** if no motion is detected from the running deck. If the unit passes this test or a **USER DETECTED** message is displayed and the **Auto Stop** feature does not function contact Precor Customer Support. If the **Auto Stop** did not pass the test continue troubleshooting.



CAUTION: Do not place the Auto Stop Magnet on or near a steel structure. If the magnet assembly comes in contact with a steel structure and then pulled away from the steel structure, the magnet can become dislodged from the magnet assembly housing. Contact PRECOR customer service for repair or replacement.

6. The Auto Stop system consists of a magnet holder mounted to the right front corner of the deck and a Hall Effect sensor mounted to the drive roller bracket of the frame. Check the alignment and gap (3/16") between the Auto Stop magnet holder and the Auto Stop sensor. If the alignment and gap are not correct, it may be necessary to loosen the deck and adjust so that the magnet is gaped and positioned properly relative to the sensor. Reference Procedure, Replacing the Auto Stop Magnet. If the alignment and the gap between the Auto Stop magnet holder and the Auto Stop sensor are correct continue with step 9.
7. The Auto Stop sensor will display a green blinking **LED**[1] visible next to the connector, indicating that power is being applied to the sensor board. The LED does not tell you if the voltage is correct, just that it is present. If the LED is not lit or if LED is lit continue with the next step.

[1]light-emitting diodes.



8. The connector has 3 wires (red, black, and green), which can be metered for troubleshooting. Unplug the Auto Stop connector from the Auto Stop Sensor.
9. Place the meter red lead to the red wire and black lead to the black wire of the Auto Stop connector. The meter should indicate 5 volts +/- 0.1 volt. If 5 volts is present continue with the next step.
10. If the 5 volts is not present of significantly low temporarily replace the Auto Stop cable with a known good cable and repeat step 10. If the 5 volts is not present or the voltage is still significantly low replace the console or upper **PCA**[1]. If 5 volts is present permanently replace the Auto Stop cable.

NOTE: The running belt does not need to be moving for this test.

11. With the Auto Stop connector plugged into the Auto Stop sensor place the meter red lead to the green wire and black lead to the black wire. The meter should indicate 5 volts +/- 0.1 volt. While monitoring this voltage, have someone step onto the deck and bounce up and down. The voltage between the black and green wires should fluctuate between bounces. If the voltage does not change, replace the Auto Stop Sensor.
12. If you have completed all the previous steps and Auto Stop will still not function correctly, contact Precor Customer Support.

See Also

"System Troubleshooting Procedures" on page 136

[1]Printed circuit assembly, generally referred to as either an upper PCA or lower PCA.

Tripped Circuit Breaker

Troubleshooting a tripped treadmill ON/OFF circuit breaker or facility outlet circuit breaker. Review the electrical requirements, see "" on page 26.

It is extremely important to know whether it is the treadmill circuit breaker or the facility wall outlet circuit breaker that trips. It is also extremely important to know when the breaker trip occurs, choose one of the following trip events:

- Immediately on power up
- After the belt starts but before the exerciser walks onto the belt
- After the exerciser walks onto the belt.

If the facility outlet circuit breaker trips

- Measure the facility wall outlet voltage. If the is approximately 0 VAC, the wall breaker has tripped.
- Inspect the power cord, if damaged, replace the line cord. If the line cord is not damaged continue with the following steps.
- Verify whether there is more than one treadmill on the same outlet circuit breaker. This will be especially evident if two or more treadmills shutdown at the same time. To verify if multiple treadmills are sharing the same wall breaker, manually switched OFF the wall breaker. If more than one treadmill loses power, the treadmills are on the same breaker.
    - If YES, advise the customer to have their facility wiring upgraded per Precor specifications.
    - If NO, continue troubleshooting.



IMPORTANT: If the **AC**[1] circuit feeding a treadmill is found to be a non-dedicated branch circuit or a circuit equipped with a capacity of less than 20 amps, the AC circuit must be corrected before any reliable Troubleshooting can be performed. More importantly, a non-dedicated branch circuit may constitute a safety hazard to the treadmill operator.

- Verify the wall outlets do not share neutral wiring and that each wall outlet is on an individual branch circuit. An individual branch circuit will have its own load line, neutral line and ground line. To verify that the treadmill is not on an individual branch circuit use an AC voltmeter measure from the hot contact of one AC receptacle to the neutral contact of another AC receptacle. If AC line voltage is present then the treadmills are sharing neutral lines.
    - If YES, advise customer to have their facility wiring upgraded per Precor specifications, and then continue to step 5.
    - If NO, continue troubleshooting

[1]Alternating Current: electric current which periodically reverses direction between positive and negative polarity.

CAUTION: The treadmill requires a 20-amp individual branch circuit grounded per NEC (National Electric Code) guidelines or local region electric code.

- Measure the AC input voltage with the treadmill unloaded (running belt moving, with no one walking on the running belt) and then again while loaded (someone walking/running on the belt). The difference between the two states should be no more than about 6 volts RMS, and ideally less.
    - If the voltage variance is more than 6 volts RMS, the distance the branch circuit wire are runs maybe very long or may have used smaller diameter wire. Recommend to the club that they should consult with an electrician if this is suspected.
    - If NO, continue troubleshooting.
- Weight overloading is the most frequent cause of treadmill shutting down. Overloading is most often caused by excess deck/belt friction, but can be made worse by line voltage conditions. This condition happens more often with heavier runners, but never walkers. In high exerciser clubs (10 hours or more of use per day), the decks/belts will wear out much faster than at other locations, sometimes in months rather than years. It is often accompanied by error codes 27, 28, or 29, see "Troubleshooting the 3 Phase AC Drive Motor System."

If the Treadmill ON/OFF circuit breaker is tripped:

- Verify the wall outlets do not share neutral wiring and that each wall outlet is on an individual branch circuit. An individual branch circuit will have its own load line, neutral line and ground line. To verify that the treadmill is not on an individual branch circuit use an AC voltmeter measure from the hot contact of one AC receptacle to the neutral contact of another AC receptacle. If AC line voltage is present then the treadmills are sharing neutral lines.
    - If YES, advise customer to have their facility wiring upgraded per Precor specifications, and then continue with step 2.
    - If NO, continue troubleshooting.

CAUTION: The treadmill requires a 20-amp individual branch circuit grounded per NEC (National Electric Code) guidelines or local region electric code.

- Verified that a long distance branch run has inadequate gauge wire.
    - If YES, advise customer to have their facility wiring upgraded per Precor specifications.
    - If NO, continue troubleshooting.
- Verify the input line voltage; Low line voltage for the U.S. is any voltage below 108 VAC, measured while the treadmill circuit breaker is switched "ON" and the running belt is stopped. For international, low line voltage is anything below 200 VAC while the treadmill circuit breaker is switched "ON" and the running belt is stopped. Measure the line voltage with the treadmill circuit breaker is switched "ON", and the running belt is stopped. Record the voltage. Then measure the voltage again using the instantaneous voltage drop using the min/max function on your volt meter while someone is running on the treadmill at 7.0 MPH or higher.

- If any measurement is below 108 VAC (US) or 200 VAC (International), advise the customer to have their facility wiring inspected by an electrician.
- If the measurements are at or above 108 VAC (US) or 200 VAC (International), continue troubleshooting.

- Does the treadmill trip its breaker immediately on power up?

- If YES, it is likely that there is a shorted component (line filter, lower control module) or faulty/shorted wiring.
- If NO, continue with the following steps.

- Does the treadmill power up, but trips the breaker after the motor is started?
  - If YES, it is likely that there is a bad roller or bad drive motor.
  - If NO, continue with the following steps.
- Does the drive motor start up fine, but trips the breaker after an exerciser walks/runs on the running belt?
  - If YES, Overloading is the most frequent cause of treadmill shutting down. Overloading is most often caused by excess deck/belt friction, but can be made worse by line voltage conditions. The overloading condition happens more often with heavier runners, but never walkers. In high exerciser clubs (10 hours or more of use per day), the decks/belts will wear much faster than at other locations, sometimes in months rather than years. It is often accompanied by error codes 27, 28, or 29. Perform an amp draw test in the "Running Belt and Deck Troubleshooting" on page 155 procedure.

See Also

"System Troubleshooting Procedures" on page 136

Communications Error Troubleshooting

Go to the error log and note any occurrences of the error codes related to communications issues.

Related Error Codes

Communications error codes: 30 through 33.

Refer to the Error Code Troubleshooting Guide for error code description and troubleshooting information.

Procedure

Refer to the Error Code Troubleshooting Guide.

See Also

"System Troubleshooting Procedures" on page 136

No Power to the Console Troubleshooting

Applies To: P10, P20, or P30 consoles only.

This procedure only applies to treadmill powered consoles.

1. Verify that the treadmill input power is correct, see "Tripped Circuit Breaker" on page 158.
2. Remove the treadmill hood and measure the **AC**[1] voltage at the input side of the line filter. Verify that line voltage is present when the breaker switch is turned on.
    a. If NO, replace the breaker switch.
    b. If YES, continue troubleshooting.
3. Measure the AC voltage at the output side of the line filter. Verify that line voltage is present when the breaker switch is turned on.
    a. If NO, Replace the line filter.
    b. If YES, continue troubleshooting.
4. Use a known good console and communication cable. **Plug**[2] the test console and test communications cable into the suspect treadmill lower control module (**IFT**[3] drive). Does the test console power up?
    a. If NO, replace the lower control module (IFT drive).
    b. If YES, continue troubleshooting.
4. If the test console powered up, re-connect the test communications cable from the test console to the original console. Does the original console power up?
    a. If YES, replace the Communications Cable.
    b. If NO, replace the upper **PCA**[4].



CAUTION: Swapping a lower control module from a good unit into a bad unit could damage the lower control module from the good unit. If the control module that is being swapped may have a defect and could damage components in the good unit.

See Also

[1]Alternating Current: electric current which periodically reverses direction between positive and negative polarity.
[2]Device power cord connector or electrical cable male connector that is inserted into an electrical receptacle "outlet" (also called the plug-in).
[3]Integrated Footplant Technology: IFT recognize this change in speed when your foot strikes the belt and adjust to match every stride, resulting in a smooth, fluid feel that enhances the workout experience.
[4]Printed circuit assembly, generally referred to as either an upper PCA or lower PCA.

"System Troubleshooting Procedures" on page 136

Drive Motor System Troubleshooting

About

Occasionally, there may be issues with the proper operation of the drive system that do not generate error codes. This troubleshooting procedure is intended troubleshoot the 3-phase Drive Motor System.

If there is a drive motor system Error code from 20 through 29 in the error log, go to the Error Code Troubleshooting Guide for troubleshooting information.

If there are no errors in the error log, yet the drive system appears to have an issue (such as jittery motion) then continue the troubleshooting procedure.

Related Error Codes

Drive system error codes: 20 through 29.

Refer to the Error Code Troubleshooting Guide for error code description and troubleshooting information.

Procedure

Lower Control Module OUTPUT power Check

NOTE: When taking voltage readings of the **AC**[1] drive motor, the readings may not seem accurate because of the frequencies being used, however, they are indicative of the presence of drive motor voltage and relative frequency changes.

1. If the drive motor starts when you force the running belt to move and the drive motor runs rough, jump to the *Drive Motor Winding Check* procedure below. If the drive motor will not start, continue with the next step.
2. If the drive motor does not start, the lower control module will only apply voltage for a couple of seconds before it shuts down. Therefore the voltage readings in the following step must be taken within the first couple of seconds after the treadmill is instructed to start the running belt. (A multimeter with a peak hold feature is recommended)
3. Connect an AC voltmeter between terminals 4 (red) & 5 (white) of the OUTPUT connector on the lower control module. Set the treadmill ON/OFF switch to the ON position. Press the **QUICK START** key. If the lower control module is supplying output, you will momentarily read some value of AC voltage. Make a note of the voltage and set the treadmill ON/OFF switch to the OFF position.
4. Set the treadmill ON/OFF switch to the OFF position. Repeat the previous AC voltage measurement between terminals 4 (red) & 6 (black) of the OUTPUT connector as the

[1]Alternating Current: electric current which periodically reverses direction between positive and negative polarity.

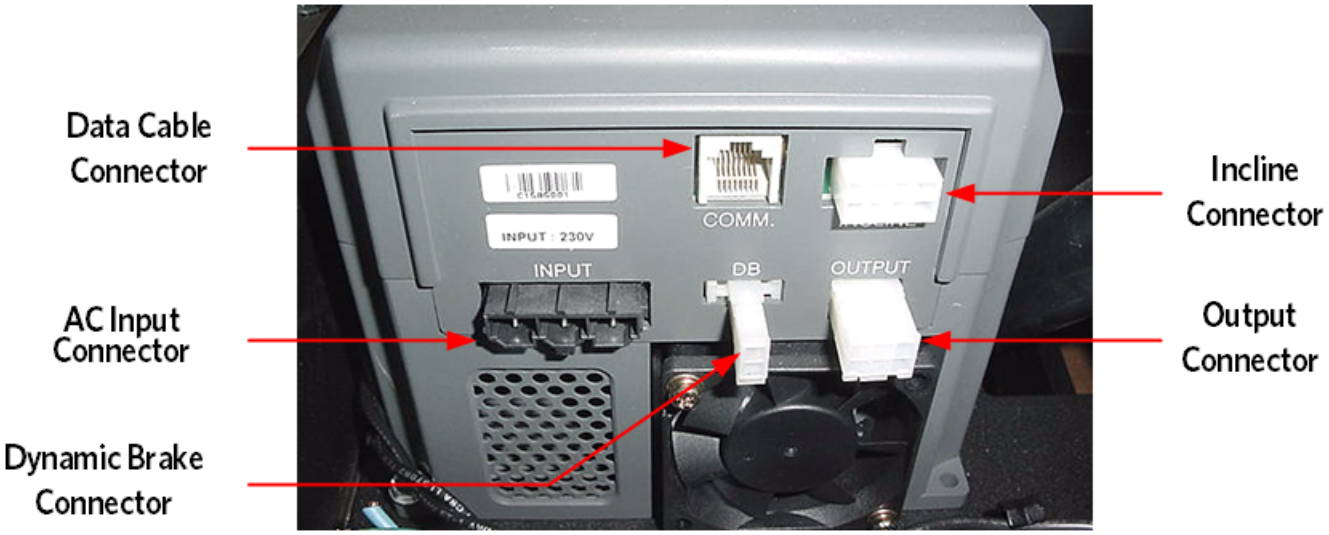
previous step. Voltage should read the same value as the OUTPUT pins 4 and 5. Set the treadmill ON/OFF switch to the OFF position.

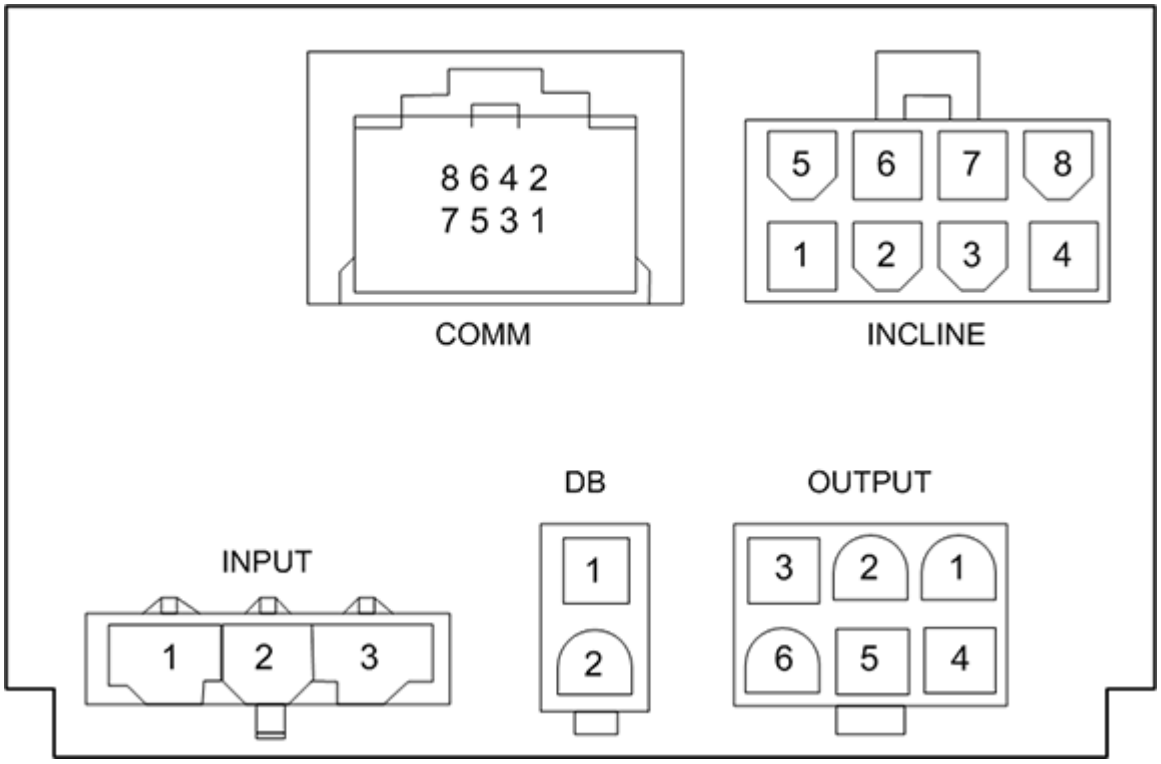
5. Set the treadmill ON/OFF switch to the OFF repeat the previous AC voltage measurement between terminals 5 (white) & 6 (black) of the OUTPUT connector on the lower control module. The voltage should read the same value as the OUTPUT pins 4 and 5. Set the treadmill's ON/OFF switch to the OFF position.
6. If one or more of the previous OUTPUT voltage readings are not present, replace the lower control module. If the voltage readings are present, continue with the next step.

Drive Motor Winding Check

CAUTION: All resistance measurements must be performed with power removed from the machine. Performing the resistance measurements with voltage applied to the circuit can damage the multimeter.

7. Set the treadmill's ON/OFF switch to the OFF position. Disconnect the drive motor connector from the OUTPUT connector on the power control module. With an ohmmeter, measure between terminals 4 (red) & 5 (white), 4 (red) & 6 (black) and 5 (white) & 6 (black) of the drive motor connector. Each reading should be approximately 2.5 ohms. If any of the readings are significantly high or open, replace the drive motor.
8. If the ohm readings are correct, inspect the female terminals of the drive motor connector. Verify that they are not spread beyond the point of making good connection with the male pins on the OUTPUT connector on the power control module. If proper connection is not being achieved, replace the drive motor connector.
9. If you have performed all of the procedures above and have been unable to correct the problem, call Precor customer support.





See Also

"System Troubleshooting Procedures" on page 136

E-Stop Not Communicating

The error 37 is generated by the upper **PCA**[1] in the console when the lower control module gets into an E-Stop state and the upper PCA in the console did not know about it. The system uses pin 8 of the data cable to communicate E-Stop states between the console and the lower control module.

Related Error Codes

E-Stop error code: 37.

Refer to the Error Code Troubleshooting Guide for error code description and troubleshooting information.

Procedure

Refer to the Error Code Troubleshooting Guide for error code description and troubleshooting information.

See Also

"System Troubleshooting Procedures" on page 136

[1]Printed circuit assembly, generally referred to as either an upper PCA or lower PCA.

Heart Rate Monitor Troubleshooting

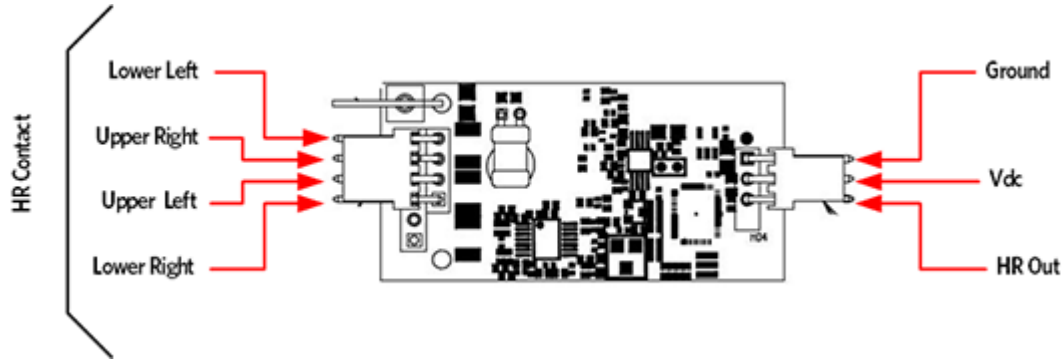
Hand Held Heart Rate Does Not Work

1. Place your hands on the **HHHR**[1] (Hand Held Heart Rate) contacts, making full contact with both top and bottom contacts for at least 15 seconds.
    a. If the unit displays a heart rate, no problem exists.
    b. If the unit does not display a heart rate value within this time, continue with next step.
2. Set the ON/OFF switch to the OFF position, wait 10 seconds, then set the ON/OFF switch to the on position and repeat step 1.
    a. If the HHHR functions correctly, then the processor on the **HR**[2] board was in a "latched-up" condition, and cycling the power cleared the condition.
    b. If the HHHR does not function correctly, continue with step 3.
3. Verify that the HHHR board has the correct operating voltage. Connect a voltmeter to VCC and Ground on the Power/Signal connector. The voltage should read between 4.5 and 5 Vdc.
4. Verify the wiring of the HHHR contacts (top left, bottom left, top right, bottom right) go to the proper pin on the Grip/Contact connector, that none of the lines are shorted,
    a. If NO, Correct the wiring error.
    b. If YES, Continue.
5. Verify that the grip connections are free of corrosion.
    a. If NO, replace the corroded HHHR grips.
    b. If YES, continue.
6. Verify that there is a ferrite bead around the cable from the HHHR board to the upper **PCA**[3]. (GEN-06 treadmill only)
7. Verify that the unit does not display a heart rate with only one hand on a grip. This would indicate static damage, and require replacement of the heart rate board.
8. If the above procedures do not correct the problem, replace the heart rate board.

[1]Handheld Handlebar Heart Rate

[2]Heart Rate

[3]Printed circuit assembly, generally referred to as either an upper PCA or lower PCA.



Wireless Heart Rate Does Not Work

1. Verify wireless heart rate with a known good chest strap transmitter or test transmitter. If the heart rate reading is erratic, incorrect, or absent, continue.

NOTE: It may be necessary to lean in closer to the console at first to allow receiver to begin to acquire a heart rate signal.

2. Verify that the HHHR board has the correct operating voltage. Connect a voltmeter to VCC and Ground on the Power/Signal connector. The voltage should read between 4.5 and 5.5 Vdc.
3. Identify other sources of wireless interference signals in close proximity to the unit (such as **Wi-Fi**[1] networks, cordless phones, etc.).

NOTE: Wi-Fi network is transmitting in close proximity to the treadmill the heart rate system MAY pick it up. Using an ohmmeter, verify that upper and lower PCAs have a good electrical path to chassis ground.

4. If the preceding procedures do not correct the problem, replace the heart rate board.
5. Possible sources of interference signals include, but not limited to:

- Wi-Fi Network Routers
- Cordless Telephones
- Cell Phones
- Electronic Dog Fences
- Garage Door Remotes
- Noisy **AC**[2] feeds
- Florescent light ballasts

[1]Wireless Fidelity - a term defined and Trademarked by the Wi-Fi Open Alliance. Wireless LAN equipment carrying the Wi-Fi logo have been interoperability tested for compatibility with one (or more) 802.11 standards, and certified by the Wi-Fi Alliance to be sold under the Wi-Fi brand.
[2]Alternating Current: electric current which periodically reverses direction between positive and negative polarity.

See Also

"System Troubleshooting Procedures" on page 136

Incline System Troubleshooting

The incline system consists of an **AC**[1] line voltage driven lift motor (120 VAC or 240 VAC), and an internal 1 K W (Ohms) potentiometer for lift position monitoring. It is important when you start to troubleshoot the lift system to determine if the problem is due to an inability to move the lift, or an inability to monitor the lift position.

Related Error Codes

Incline system error codes: 40 through 45.

Refer to the Error Code Troubleshooting Guide for error code description and troubleshooting information.

Procedure

Determine whether you need to troubleshoot the AC voltages going to the motor windings, or if you need to troubleshoot the **DC**[2] voltages and/or ohm readings from the potentiometer. The error log will help determine which is causing the issue.

Check the error log for INCLINE system error codes, press and hold the reset key for at least 6 seconds to access the error log.

If there is an error code for a lift system error logged (Error 40 through 45), go to the Error Code Troubleshooting Guide and follow the troubleshooting information.

CAUTION: All resistance measurements must be performed with power removed from the machine. Performing the resistance measurements with voltage applied to the circuit can damage the multimeter.

Operation of lift motor for testing:

Most Precor treadmills require the running belt to be moving to operate the lift. For this reason it is recommended that the servicer use the "Hardware Validation" - Machine Tests (see) to verify lift operation.

See Also

"System Troubleshooting Procedures" on page 136

[1]Alternating Current: electric current which periodically reverses direction between positive and negative polarity.
[2]Direct Current: electrical current that only flows in one direction.

Input Power and Machine Controls Troubleshooting

Errors in this section cover either input power (error 15 & 16) conditions, Console controls (error 5 & 80-83), or processor/memory (error 9 & 11) conditions. These are errors that although they are valid to the proper function of the machine, are not part of a specific treadmill base system (lift system, drive system, deck & belt system, etc.).

Related Error Codes

- Input Power: 15,16,
- Machine Controls: 5, 80-85.
- Processor Memory; 9:11.

Refer to the Error Code Troubleshooting Guide for error code description and troubleshooting information.

Procedure

Refer to the *Error Code Troubleshooting Guide*.

See Also

"System Troubleshooting Procedures" on page 136

Running Belt and Deck Troubleshooting

This procedure is to be used to determine the condition of the running belt and deck.

A clamp-on ammeter will be used to measure the treadmill's **AC**[1] input current draw under load. The AC input current is a direct indication of the loading effects placed on the drive motor system; heavier loading requires more input current. Treadmill loading consists of several factors: the exerciser's weight, treadmill speed, incline level, and condition of the running belt and deck.

Test conditions:

The AC input current measurement should be performed at 8 mph (13 kph) and 0% incline for 10 sec minimum workout.

Creating personal input current benchmarks

The Precor typical belt condition input current ratings are based on a loading weight of 220 lbs (100 kgs). A lighter weight exerciser produces less loading effects resulting in lower input current values for the same belt/deck condition. Therefore, it is recommended that you should create a personal benchmark or reference input current value for three belt/deck conditions: a new deck/belt condition, a used good belt/deck condition, and a worn replacement belt/deck condition. These benchmarks will help you to quickly determine the correct condition of the belt and deck.

- New belt/deck condition benchmark: Make the input current measurement on a machine with a new belt and deck.
- Used good belt/deck condition benchmark: Repeat the input current measurement on a machine with a known used good condition belt and deck (for a 220 lb (100 kg) load, the typical input current should be within the 8-12 amp range).
- Worn replacement belt/deck condition benchmark: Repeat the input current measurement on a machine with a known worn replacement condition belt and deck (for a 220 lb (100 kg) load, the typical input current should be 19-20 amps or greater).

Analog Clamp-on Ammeter and Digital Clamp Meters

Because the AC input current will spike (pulse) during foot plants, we suggest the use of an analog clamp-on ammeter to obtain more accurate measurements. An analog ammeter makes it very easy to see the AC current spikes and measure the true AC average input current. Less expensive Digital Clamp meters may not make accurate AC average current measurements due to the current spikes. If using a digital clamp meter, make sure that the meter provides True RMS AC current measurement capability (recommend the Fluke 289 True RMS multimeter or equivalent). You can use the meter AC peak hold feature (if available) to obtain the largest current spike within the measurement span (some AC current spikes may exceed the 20 amp max spec. limit).

[1]Alternating Current: electric current which periodically reverses direction between positive and negative polarity.

Specialized Tool

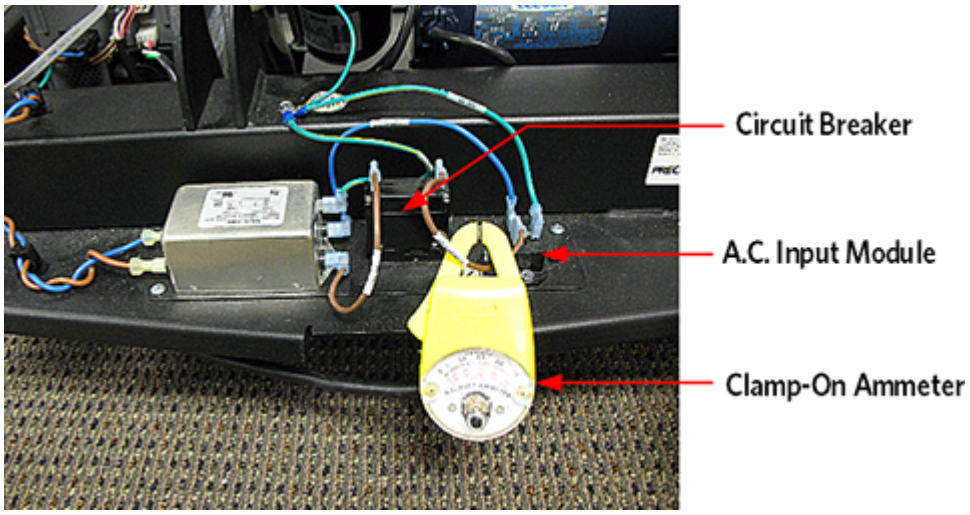
- Analog AC Clamp-on Ammeter or Digital Clamp Meter with True RMS current measurement capability (recommend the Fluke 289 True RMS multimeter or equivalent).

Procedure

Read the entire procedure before beginning.

TIP: You may find it difficult to read the AC current reading while also walking on the treadmill. You may need a second person to read the AC clamp meter while performing this test. Or, if using a **DMM**[1] with clamp probe, you can use extra-long test leads (approx. 1.5 m) that will allow you to set the DMM on the dash while performing the test.

1. Clean the belt and deck surfaces.
2. Remove the treadmill hood cover.
3. Place the AC clamp probe over the brown (hot or line) wire between the AC. input module (or AC. power cord) and the circuit breaker ON/OFF switch.



4. Start a manual workout and set the treadmill speed to 8 mph (13 kph) and 0% incline. Walk on the treadmill for a minimum of 10 sec and read the AC average (True RMS) input current. Typical AC. average current for a good condition running belt/deck is between 8 to 12 amps on 120 VAC machines (4 to 6 amps on 240 VAC machines). A new belt/deck may read less current draw. Note that during foot plants, you could measure peak amp spikes as high as 20 amps, even on a new belt/deck. The higher the AC input current is, the more worn the belt/deck condition is
    a. If the average AC input current is less than 16 amps, the belt/deck is in good condition, do not replace.

[1] digital multimeter

b. If the average AC current is between 16-18 amps on 120 VAC machines (8-9 amps on 240VAC machines), the belt and deck needs to be serviced. Be aware that lighter weight exercisers may not be heavy enough to cause these higher AC input current values.
   i. If not already cleaned, clean the belt/deck surfaces and repeat the AC input current draw measurement.
   ii. If the current draw decreases below 16 A 120 VAC (8 A 240 VAC), do not replace the belt and deck. Otherwise, replace the belt and deck. If the other side of the deck is new condition, flip the deck and reuse.
   iii. Also review the error log, if there are recurring motor current overload related error codes, replace the deck and belt. .

c. If the average input current reaches 19-20 amps or greater on 120 VAC machines (9.5-10 amps or greater on 240 VAC machines), the running belt and deck needs to be replaced. If the other side of the deck is new condition, flip the deck and reuse.

5. Repeat the AC input amp draw test after replacing the running belt and deck. Damage to the Motor Controller (**MC**[1]) can occur if the machine has been operated in an overload/high current condition for prolonged periods of time. This type of damage would not generate an error code, but would cause the input breaker to trip intermittently. An amp draw test will confirm this condition. If the amp draw test is comfirmed, replace the MC.

NOTE: Repeat the AC input amp draw test after replacing a running belt and deck. Damage to the Motor Controller (MC) can occur if the unit has been operated in an overload/high current condition for prolonged periods of time. This type of damage would not generate an error code, but would cause the input breaker to trip intermittently. An amp draw test will comfirm this condition.

See Also

"System Troubleshooting Procedures" on page 136

[1]Motor controller, motor controller unit, or motor controller module: used on treadmills, contains the LPCA and motor controller functionality.

Tripped Circuit Breaker

Troubleshooting a tripped treadmill ON/OFF circuit breaker or facility outlet circuit breaker. Review the electrical requirements, see "" on page 26.

It is extremely important to know whether it is the treadmill circuit breaker or the facility wall outlet circuit breaker that trips. It is also extremely important to know when the breaker trip occurs, choose one of the following trip events:

- Immediately on power up
- After the belt starts but before the exerciser walks onto the belt
- After the exerciser walks onto the belt.

If the facility outlet circuit breaker trips

- Measure the facility wall outlet voltage. If the is approximately 0 VAC, the wall breaker has tripped.
- Inspect the power cord, if damaged, replace the line cord. If the line cord is not damaged continue with the following steps.
- Verify whether there is more than one treadmill on the same outlet circuit breaker. This will be especially evident if two or more treadmills shutdown at the same time. To verify if multiple treadmills are sharing the same wall breaker, manually switched OFF the wall breaker. If more than one treadmill loses power, the treadmills are on the same breaker.
    - If YES, advise the customer to have their facility wiring upgraded per Precor specifications.
    - If NO, continue troubleshooting.



IMPORTANT: If the **AC**[1] circuit feeding a treadmill is found to be a non-dedicated branch circuit or a circuit equipped with a capacity of less than 20 amps, the AC circuit must be corrected before any reliable Troubleshooting can be performed. More importantly, a non-dedicated branch circuit may constitute a safety hazard to the treadmill operator.

- Verify the wall outlets do not share neutral wiring and that each wall outlet is on an individual branch circuit. An individual branch circuit will have its own load line, neutral line and ground line. To verify that the treadmill is not on an individual branch circuit use an AC voltmeter measure from the hot contact of one AC receptacle to the neutral contact of another AC receptacle. If AC line voltage is present then the treadmills are sharing neutral lines.
    - If YES, advise customer to have their facility wiring upgraded per Precor specifications, and then continue to step 5.
    - If NO, continue troubleshooting

[1]Alternating Current: electric current which periodically reverses direction between positive and negative polarity.

CAUTION: The treadmill requires a 20-amp individual branch circuit grounded per NEC (National Electric Code) guidelines or local region electric code.

- Measure the AC input voltage with the treadmill unloaded (running belt moving, with no one walking on the running belt) and then again while loaded (someone walking/running on the belt). The difference between the two states should be no more than about 6 volts RMS, and ideally less.
    - If the voltage variance is more than 6 volts RMS, the distance the branch circuit wire are runs maybe very long or may have used smaller diameter wire. Recommend to the club that they should consult with an electrician if this is suspected.
    - If NO, continue troubleshooting.
- Weight overloading is the most frequent cause of treadmill shutting down. Overloading is most often caused by excess deck/belt friction, but can be made worse by line voltage conditions. This condition happens more often with heavier runners, but never walkers. In high exerciser clubs (10 hours or more of use per day), the decks/belts will wear out much faster than at other locations, sometimes in months rather than years. It is often accompanied by error codes 27, 28, or 29, see "Troubleshooting the 3 Phase AC Drive Motor System."

If the Treadmill ON/OFF circuit breaker is tripped:

- Verify the wall outlets do not share neutral wiring and that each wall outlet is on an individual branch circuit. An individual branch circuit will have its own load line, neutral line and ground line. To verify that the treadmill is not on an individual branch circuit use an AC voltmeter measure from the hot contact of one AC receptacle to the neutral contact of another AC receptacle. If AC line voltage is present then the treadmills are sharing neutral lines.
    - If YES, advise customer to have their facility wiring upgraded per Precor specifications, and then continue with step 2.
    - If NO, continue troubleshooting.

CAUTION: The treadmill requires a 20-amp individual branch circuit grounded per NEC (National Electric Code) guidelines or local region electric code.

- Verified that a long distance branch run has inadequate gauge wire.
    - If YES, advise customer to have their facility wiring upgraded per Precor specifications.
    - If NO, continue troubleshooting.
- Verify the input line voltage; Low line voltage for the U.S. is any voltage below 108 VAC, measured while the treadmill circuit breaker is switched "ON" and the running belt is stopped. For international, low line voltage is anything below 200 VAC while the treadmill circuit breaker is switched "ON" and the running belt is stopped. Measure the line voltage with the treadmill circuit breaker is switched "ON", and the running belt is stopped. Record the voltage. Then measure the voltage again using the instantaneous voltage drop using the min/max function on your volt meter while someone is running on the treadmill at 7.0 MPH or higher.

- If any measurement is below 108 VAC (US) or 200 VAC (International), advise the customer to have their facility wiring inspected by an electrician.
- If the measurements are at or above 108 VAC (US) or 200 VAC (International), continue troubleshooting.

- Does the treadmill trip its breaker immediately on power up?

- If YES, it is likely that there is a shorted component (line filter, lower control module) or faulty/shorted wiring.
- If NO, continue with the following steps.

- Does the treadmill power up, but trips the breaker after the motor is started?
  - If YES, it is likely that there is a bad roller or bad drive motor.
  - If NO, continue with the following steps.
- Does the drive motor start up fine, but trips the breaker after an exerciser walks/runs on the running belt?
  - If YES, Overloading is the most frequent cause of treadmill shutting down. Overloading is most often caused by excess deck/belt friction, but can be made worse by line voltage conditions. The overloading condition happens more often with heavier runners, but never walkers. In high exerciser clubs (10 hours or more of use per day), the decks/belts will wear much faster than at other locations, sometimes in months rather than years. It is often accompanied by error codes 27, 28, or 29. Perform an amp draw test in the "Running Belt and Deck Troubleshooting" on page 155 procedure.

See Also

"System Troubleshooting Procedures" on page 136

Preventive Maintenance (PM)

About

Preventative maintenance is proven to extend the life of the equipment, improve the user experience, and keep maintenance problems and service calls to a minimum.

IMPORTANT: It is the responsibility of the owner to maintain equipment in accordance with the Precor recommended preventative maintenance schedule. Following the preventative maintenance schedule is required to maintain warranty coverage.

Preventative maintenance (**PM**[1]) tasks are grouped into Daily, Weekly, Monthly, Quarterly, and Semi-annual scheduled maintenance tasks (scheduled maintenance tasks are equipment model specific). Refer to the equipment specific maintenance guide for schedule and maintenance task information. The PM maintenance manuals are available for download from the Precor product web page, see " PM Guides" below. There are also many PM service task instructional videos available to view from the Precor Connect servicer web site, see " PM Service Videos" on the next page.

Precor Customer PM Plans

Precor also offers PM service plans for customer purchase, see Preventative Maintenance Plans.

PM Guides and Videos

Product PM Guides

PM Guides

The PM maintenance guide provides the required Daily, Weekly, Monthly, Quarterly, and Semi-annual scheduled maintenance tasks needed to satisfy Precor equipment maintenance requirements. The PM guides can be downloaded from the Precor product web page.

- Cardio Equipment PM Guide

How to find equipment and console PM guides

[1]Preventative Maintenance: Daily, Weekly, Monthly, and Quarterly scheduled maintenance.

1. Go to the Precor.com website and select COMMERCIAL FITNESS products (Precor.com/commercial) and navigate to the specific equipment product web page.
2. Then scroll down to the **Brochures and Manuals** section.
3. Click the **Please Select** drop-down box and select the product **Preventative Maintenance Guide** link(s).

TIP: Make sure to review the entire list of manuals. There may be other related product PM guides, such as, console PM guides.

IMPORTANT: If you determine that the equipment needs service, disconnect all power connections (television, Ethernet, and power cables). Then place an OUT OF SERVICE sign on the equipment and make it clear that the machine must not be used.

PM Service Videos

PM Service Videos

There are many products that have product PM service videos. The list of current available product PM videos are located on the **Precor Connect** > **SERVICE VIDEOS** web page. Not all products currently include PM videos, please review the web site for the latest video updates.

- PM Service Videos: SERVICE VIDEOS

How to access PM service videos from Precor Connect:

1. Log in to your Precor Connect Servicer account (Precor Connect Partner's).
2. On the Connect Home page, select DOCUMENTATION > **SERVICE VIDEOS** to view the list of the current available equipment PM and service videos.

Running Belt and Deck Cleaning Procedure

Use this procedure to clean the running belt and deck. It is also recommended that you watch the Belt and Deck Cleaning video.

CAUTION: Do not apply any lubricants or wax to the deck and belt. Do not use Wax Blast, silicon sprays, or other applied lubricants. The use of these lubricants will quickly degrade the low-friction surface of the deck.

Videos

(Internet access required)

RUNNING BELT AND DECK CLEANING PROCEDURE

Procedure

Review the entire procedure before beginning.

1. Verify the proper operation of the safety **Stop** key.
   a. Stand to one side of the treadmill – Do not stand or allow others to stand on the treadmill running belt during this procedure. Ensure that the stop key tether is hanging straight down and is not wrapped around the handlebars.
   b. Select **Quick Start** and wait for the running belt to begin moving
   c. When the running belt is moving, push the **SAFETY STOP** key.
   d. Ensure the running belt stops moving, then reset the **SAFETY STOP** key.
   e. Turn the power switch to OFF. The **ON/OFF** switch is located at the front of the treadmill.

WARNING: If the running belt does not stop, turn off the power using the ON/OFF switch at the front of the treadmill and **unplug**[1] the power cord. The treadmill must remain out of service until the stop switch is repaired.

2. Get a clean, dry cotton towel that is at least 36 inches (1 meter) in length and fold it in half lengthwise.
   a. Lift the running belt and push the towel through to the other side so that both ends of the towel extend an equal distance over the deck trim on both sides.
   b. Push the towel forward to the front of the machine so it is located beneath the **SAFETY STOP** key.
   c. Turn the power switch to **ON**.

[1]Disconnect a device power cord plug or cable connector from the power receptacle or outlet.

3. Stand on the machine straddling the running belt placing your feet on the left and right trim landings. Attach the stop key tether clip. Do not stand on the running belt at any time. Stand firmly on both ends of the towel keeping your feet off the treadmill running belt. Brace yourself using the handlebars or side handrails. Push the **Quick Start** button once in position.



CAUTION: You have approximately 3 seconds before the treadmill running belt begins to move after pressing Quick Start. Ensure you are in the proper position.

WARNING: Press the safety stop key if the towel becomes loose to prevent it from being pulled into the treadmill's rollers.

4. The treadmill will begin to run at 1 mph. Allow the treadmill to run for one minute while keeping the towel firmly in place.



WARNING: Do not adjust the treadmill's speed or run it higher than 1 mph.

5. After one minute, stop the treadmill by pressing the **STOP** button.
6. When the belt has fully stopped moving, remove the **STOP** key tether, exit the treadmill, and turn the power switch to **OFF**.
7. Grasp both sides of the towel and run it up and down the length of the belt several times to clean the top of the deck.
8. Remove the towel from beneath the belt.
9. Turn the power switch to **ON**.
10. Verify operation and return to service.

Theory of Operation

About

The treadmill is comprised of two basic system blocks, the console provides the user interface and operational controls. It contains the **Upper PCA**[1] board which sends the control input information to the base. The base contains and uses the **Lower PCA**[2] board to execute received operational commands. The Lower **PCA**[3] returns status and error code information to the Upper PCA for display and diagnostics.

Console Operation

Basic operation

This section will explain basic operation and functions that apply to all models of consoles. For specific details about a particular model of console (Standard, P10, P20, P30, P80), refer to the applicable console service manual.

The supported console models include the P10, P20, P30, P80, and P82 models.

Controls

All consoles provide user input (keypad functions), user display (**LED**[4] display / user feedback), automated control (heart rate program, interval program) and service software routines (tests, settings, and information).

The keypad functions can vary between different console models, however the basic functions that all consoles have include the Quick Start, Incline (up or down) and Speed (up or down) functions.

Features

Different console models provide a different set of user features but the basic operation and servicing software is the dame.

---

[1]Upper Printed Circuit Assembly board located in the console.

[2]Lower Printed Circuit Assembly board; also refered to as the Lower PCA or simply as the lower board. On treadmills, it is the console to base function interface and the motor controller unit (MCU). On self-powered units, it is the lower PCA console to base function interface.

[3]Printed circuit assembly, generally referred to as either an upper PCA or lower PCA.

[4]light-emitting diodes.

The service software functions exactly the same for all console models. Each console uses the same service software standard access codes to access the Hardware Validation Tests, Club Parameter settings, or Information Display modes, see .

The service software also utilizes the same Standard Error Codes in all console models, see .

Console to Base Interface

The console processor (upper PCA board "**UPCA**[1]") provides user input, user display and automated control to the system. The console processor communicates with the base processor (Lower PCA "**LPCA**[2]") which then performs the actual machine function.

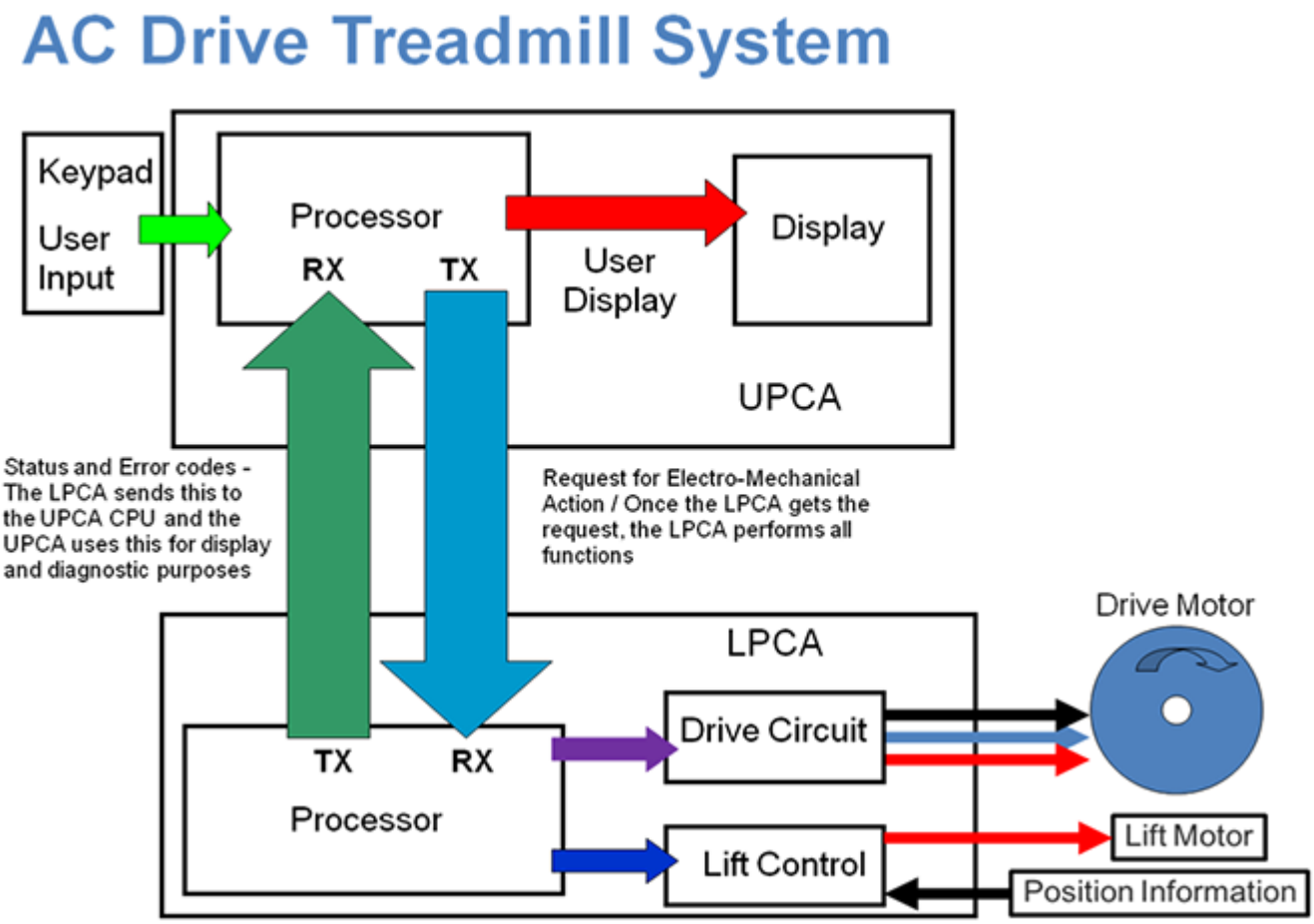
The two processors communicate via a serial data stream. When the user makes a request via a machine control or the keypad, the console processor communicates the command to the processor in the lower electronics module.

When the lower processor receives a command the lower control module performs the machine function. The console processor continues to monitor machine controls, keypad entry, lower board status, and provide user feedback information.

The lower board base processor also provides machine operation and error status (error log codes) to the console processor.

[1]Upper PCA board

[2]Lower Printed Circuit Assembly board; also refered to as the Lower PCA or simply as the lower board. On treadmills, it is the console to base function interface and the motor controller unit (MCU). On self-powered units, it is the lower PCA console to base function interface.

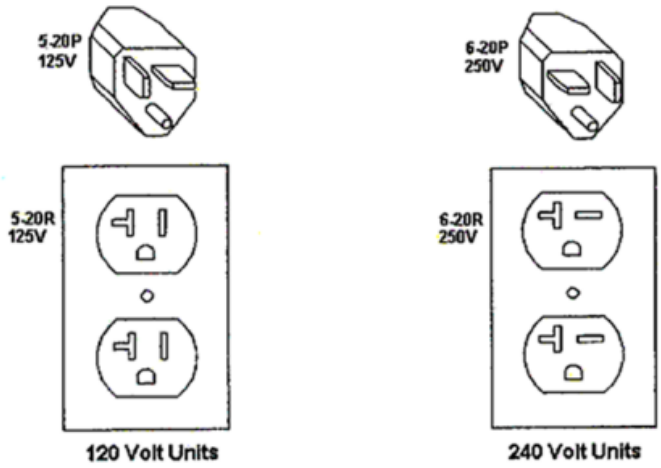


Treadmill Base Operation

Input Power

The GEN-06 / **TRM10**[1] base is equipped with a removable line cord plugged into a power entry socket. This is designed to accommodate either 120 VAC or 240 VAC NEMA compatible line cords, as well as line cords for other countries. The diagram below shows a NEMA 20A plug for both 120 VAC and 240 VAC configurations in the United States.

[1]TRM800 version 1 treadmills mfg. dates 2010 thru 2014.



CAUTION: The treadmill requires a 20-amp individual branch circuit grounded per NEC (National Electric Code) guidelines or local region electric code.

120 VAC power, when measured from hot to neutral, should read between 90 and 10's. '40s power, when measured from hot to neutral should read between 180 and 264 VAC. This input voltage is applied through the power entry plug and wired to the breaker switch. The 120 VAC breaker switch only interrupts the hot line and the 240 VAC breaker switch interrupts both the hot and neutral lines. The power is then fed through a line filter which removes high frequency noise from the line voltage. After the power is cleaned by the line filter it can be applied to the lower electronics module (**IFT**[1] drive).

Review electrical requirements, see "" on page 26.

Lower Electronics Module (IFT module)

The lower control module consists of an **AC**[2] drive motor controller, an AC lift motor controller and a +8.5 Vdc power supply to power the console.

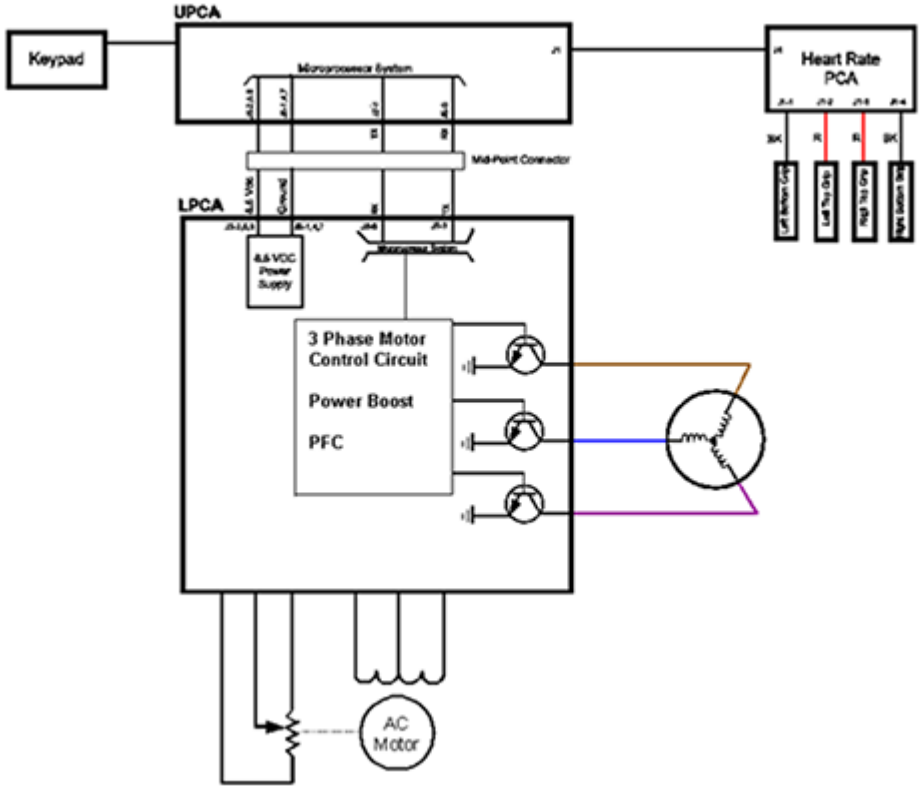
The electronic circuits in the console operate on +5 Vdc, however the lower control module sends +8.5 Vdc due to the optional external equipment such as Fitlinxx products connected to the **CSAFE**[3] (communication standard for all fitness equipment) port. Sending a higher voltage (+8.5 Vdc) and regulating the voltage down to +5 Vdc ensures enough supply power to support both the console and the optional external equipment.

It is important to note that the lower control module (IFT module) has different part numbers for the 120 Vac unit the 240 Vac treadmill.

[1]Integrated Footplant Technology: IFT recognize this change in speed when your foot strikes the belt and adjust to match every stride, resulting in a smooth, fluid feel that enhances the workout experience.
[2]Alternating Current: electric current which periodically reverses direction between positive and negative polarity.
[3]Communication Specification for Fitness Equipment protocol.

AC Drive Motor Controller

The AC drive system controls the three phase AC drive motor. In an AC motor, speed is controlled by frequency independent of voltage or current, torque is controlled by the voltage/-current applied to the motor 3 phase windings. The windings (stator) and rotor core of the motor are designed to spin at a specific speed at the design frequency. The lower control module generates the correct frequency to drive the motor at the command speed. Since the speed of an AC motor is controlled by frequency, there is no need for a speed sensor.

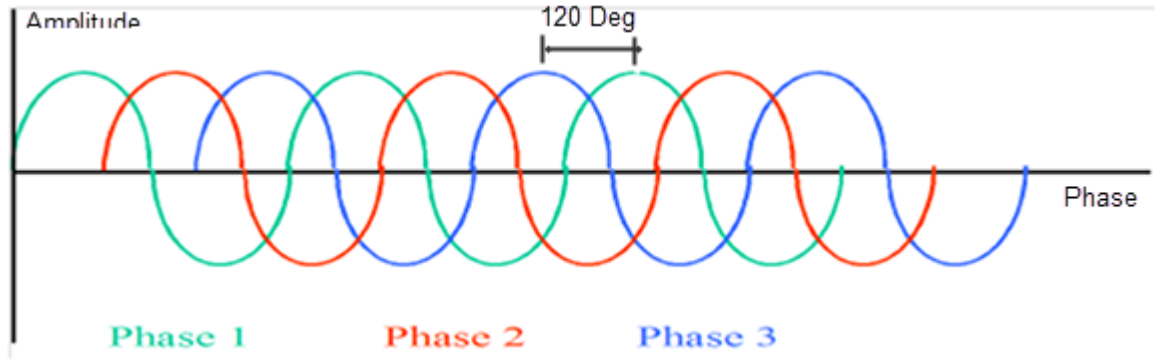


The 3 phase AC motor generates enough torque to provide continuous duty run time. The 3 phase voltage amplitude of all three input AC sine waves is the same at any given time which allows the torque to be applied smoothly throughout the rotation of the motor. Increasing the input voltage/current amplitude increases the torque and decreasing the input amplitude decreases the torque.

The lower electronics module (IFT drive) is responsible for sending the proper frequency to control speed and the amplitude (same on all 3 phases) to control torque. The motor must then be balanced both mechanically and electrically in order to translate the frequency and amplitude into fluid motion. Mechanical balance is achieved by balancing the weight of the flywheel, and electrical balance is achieved by having the same winding resistance on all 3 phase windings.

Other AC drive motor controller features include "Dynamic Braking" and "Power Factor Correction". Dynamic Braking addresses an issue where an over-speed condition could occur.

If a heavy user runs at a high incline, the weight of the user has the potential to push the running belt to go faster than the commanded motor controller speed (generates excess current). The dynamic brake circuit senses the load variations and applies a braking force within the motor. The system utilizes an external power resistor (Dynamic Brake resistor) to absorb the excess generated current and determine applied braking force. Power Factor Correction is a feature that attempts to reduce power consumption. The system monitors that this power factor is held within certain parameters. If it falls outside those parameters (the system is using more current than expected), the system will flag an ERROR 29.



Auto Stop

The Auto Stop feature monitors up and down movement of the deck. The deck motion indicates a user is present. The lack of motion indicates that a user is not present. If the running belt is moving and the Auto Stop does not detect motion from the running deck, the Auto Stop feature will stop the motion of the running belt.

GEN 06 treadmills (Mfg. date: April 2006 to April 2011) do not support the auto-stop feature. TRM10 treadmills (Mfg. date: April 2011 and later) do support the auto-stop feature.

The auto-stop feature consists of a magnet mounted on the edge of the deck, the sensor mounted on the roller mounting bracket and a cable connecting Auto-stop to the console. When a user is running on the deck, it causes the magnet to be in motion relative to the sensor. When a program is entered, Quick Start is pressed or the treadmill has been resumed after being paused, the treadmill starts at 1 mph. The user will then have 60 seconds to enter any remaining workout settings before motion detection begins. Once motion detection has commenced and if no or very little motion is detected, the Auto Stop feature interprets that the treadmill is no longer in use. The Auto Stop feature will continue to monitor the treadmill for motion for 30 seconds; if motion is still not detected a 10 second count down will be displayed on the console. After the 10 second count down has elapsed and motion has not been detected, the Auto Stop feature will stop the motion of the running belt and go into pause mode. If motion is detected within the 10 second count down cycles the shutdown feature will be aborted.

The Auto Stop feature can be enabled or disabled within the service software Club Parameters, see .

NOTE: When Auto Stop is enabled, running belt adjustment and tracking procedures should be performed in the Hardware Validation – Belt Speed Test

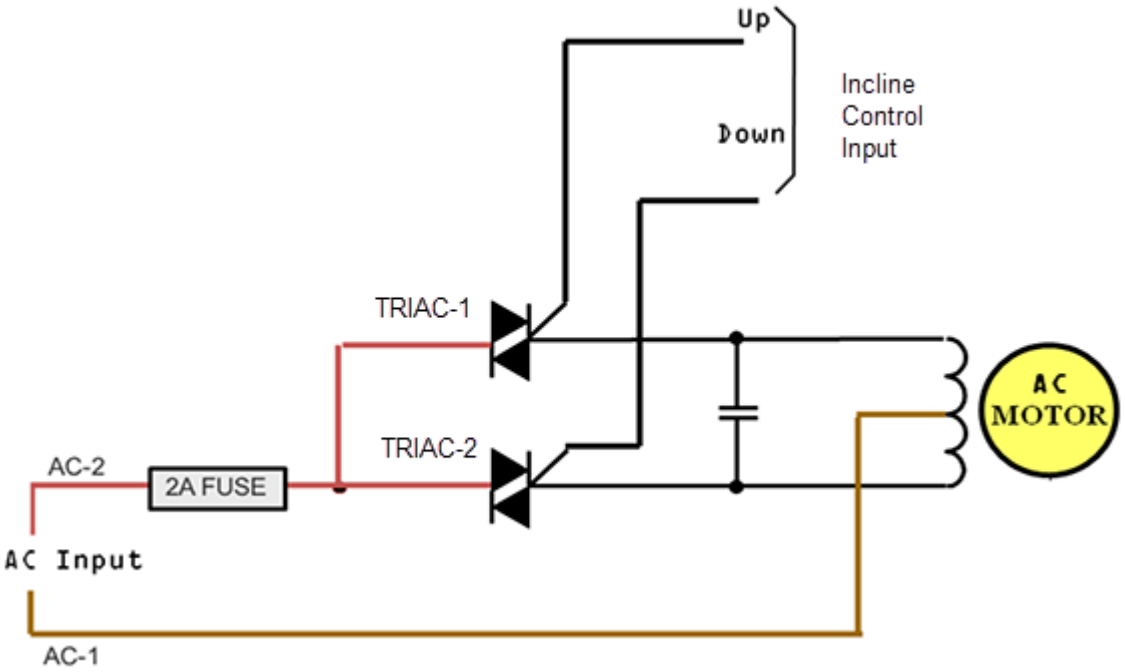
because the Auto-Stop feature is not active during the Belt Speed Test, see

AC Incline System

Motion Control

The motor used in the incline system is a "Permanent Split Capacitance", single phase AC motor. The motor incorporates the use of a capacitor to provide the required lift torque. Power to the lift motor is provided directly from the treadmill AC input power.

In order to turn the motor in forward and reverse directions, the AC motor has 2 separate windings, one for up and one for down direction. The AC-1 input has a continuous connection to the center / common connection of the motor winding.



The system has a 2A fuse to protect the components from over-current failure.

When a control signal is applied to the "UP" input, TRIAC-1 control line is active and turns on the up triac. This directs the AC-2 connection to the up winding of the motor, causing the motor to spin in the up direction.

When a control signal is applied to the "DOWN" input, TRIAC-2 control line is active, turns on the down triac. This directs the AC2 connection to the down winding of the motor, causing the motor to spin in the down direction.

Since the lift motor runs directly on the AC input voltage, it is important to note that there is a different part number for a 120 Vac unit and a 240 Vac unit.

Position Monitoring

The unit also requires an absolute measurement of lift position. This is achieved through the use of a potentiometer. The potentiometer resistance wiper is turned by gears in the lift motor.

With +3. 3 Vdc is applied across the potentiometer, the center wiper connection will create a variable voltage between 0 and +3. 3 Vdc representing the position of the lift or incline. This variable voltage is applied to the input of a 16-bit **A/D**[1] converter which converts the analog voltage into a 16-bit binary numeric representation that the processor can understand.

As the potentiometer voltage changes between 0 and 3. 3 Vdc, the corresponding A/D values change between 0 and 65507. The processor uses the A/D number to track the lift position.

It is important to note that since the potentiometer is mechanically connected to the internal gearing of the motor, it would be highly unlikely for a lift motor to go out of calibration without having physical damage to the potentiometer mechanism.

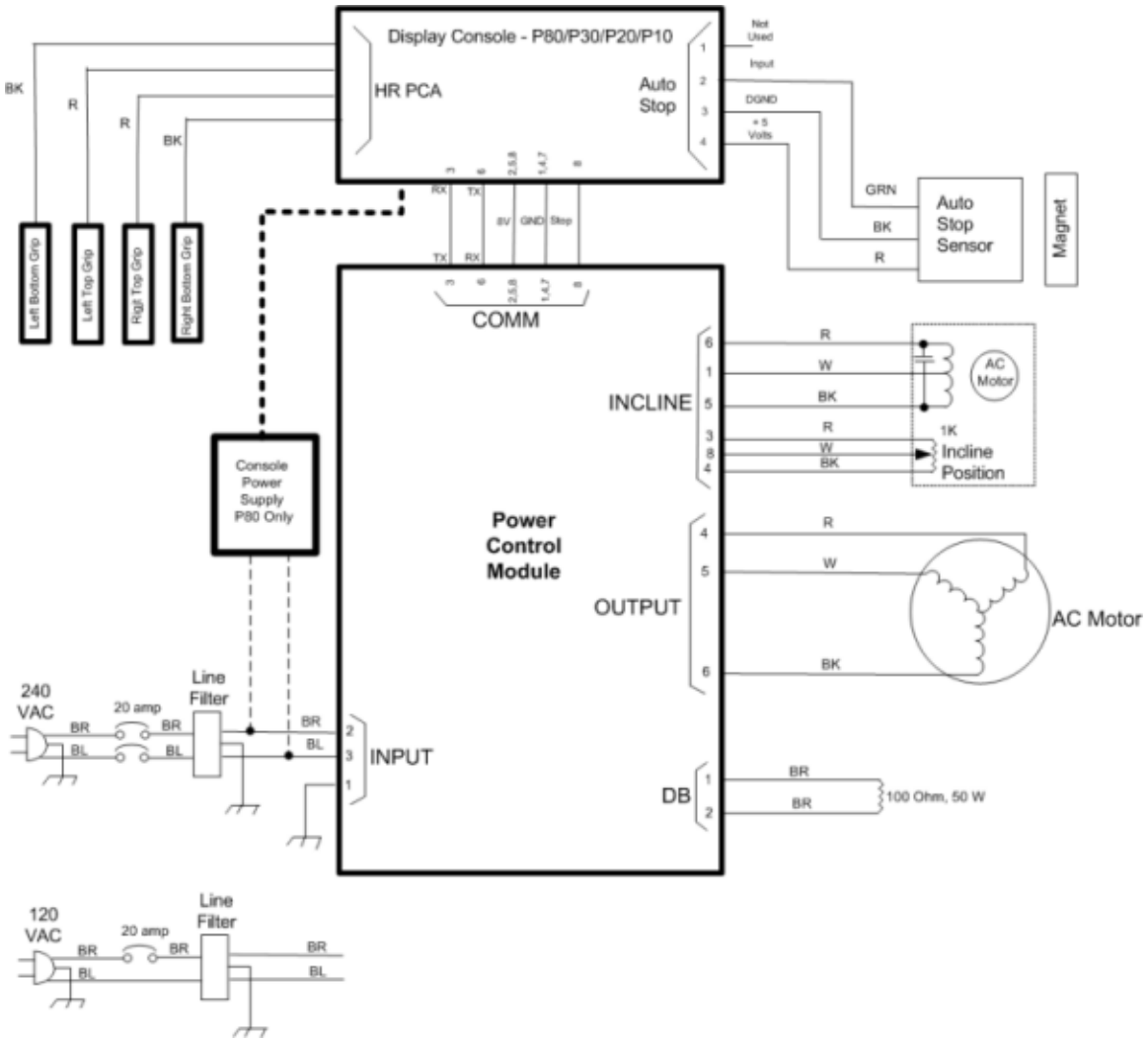
See Also

"System Diagrams" on page 174

[1]analog to digital converter

System Diagrams

System Block Diagram - 120 VAC



See Also

"Theory of Operation" on page 166.

Parts

The following copies of the equipment *"Exploded View Diagram*" and *"Parts Identification List*" are provided for you to use as a quick reference.

However, it is recommended that you go to the servicer partners Precor Connect (or Precor Connection) website to view the most current parts information including the *Exploded View Diagram* and *Parts Identification List*.

- Precor Connect Partner website



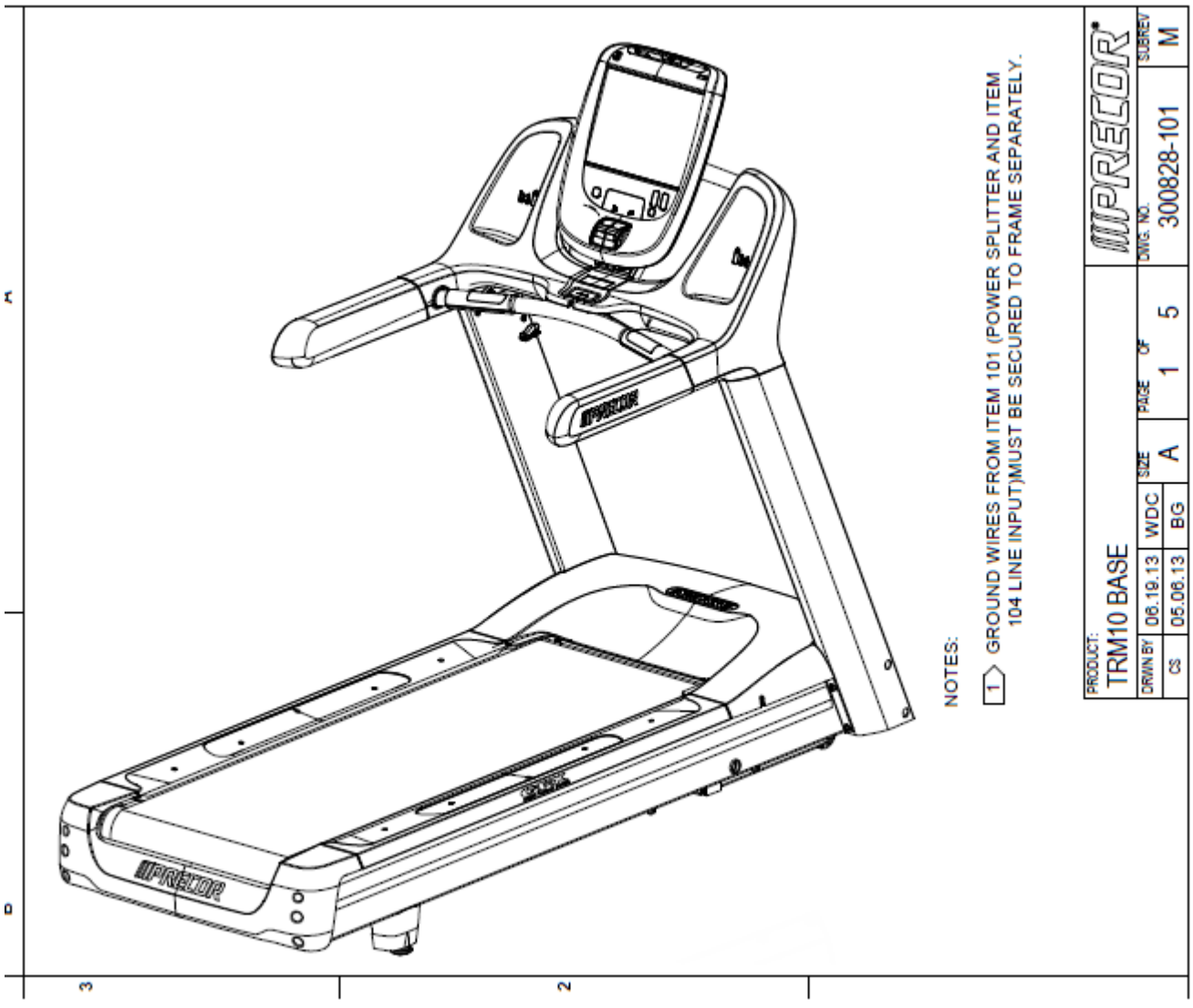
IMPORTANT: Always purchase OEM replacement parts and hardware from Precor. If you use parts not approved by Precor, you could void the Precor Limited Warranty. Use of parts not approved by Precor may cause injury.

"Exploded View Diagram" on the next page

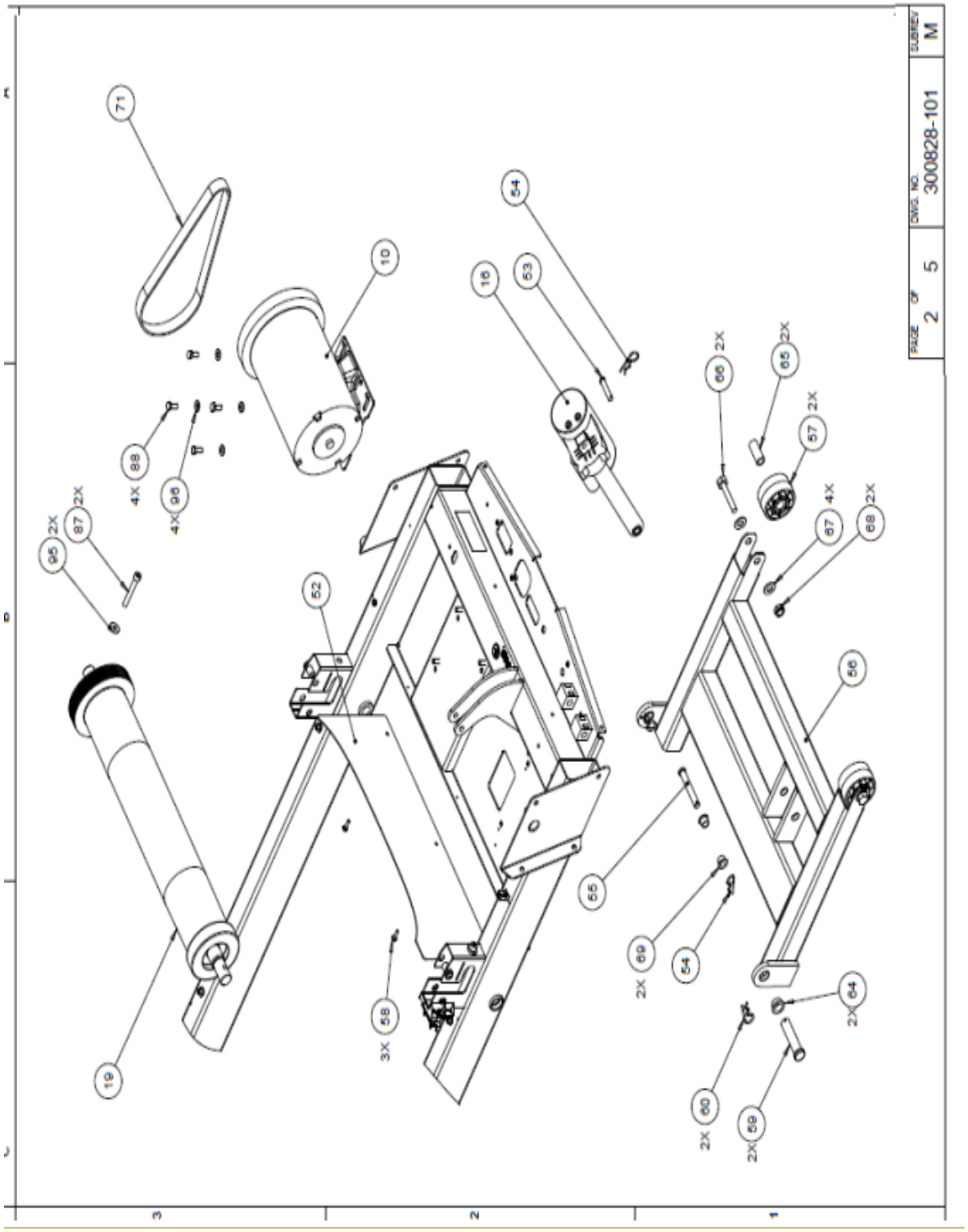
"Parts Identification List" on page 181

Exploded View Diagram

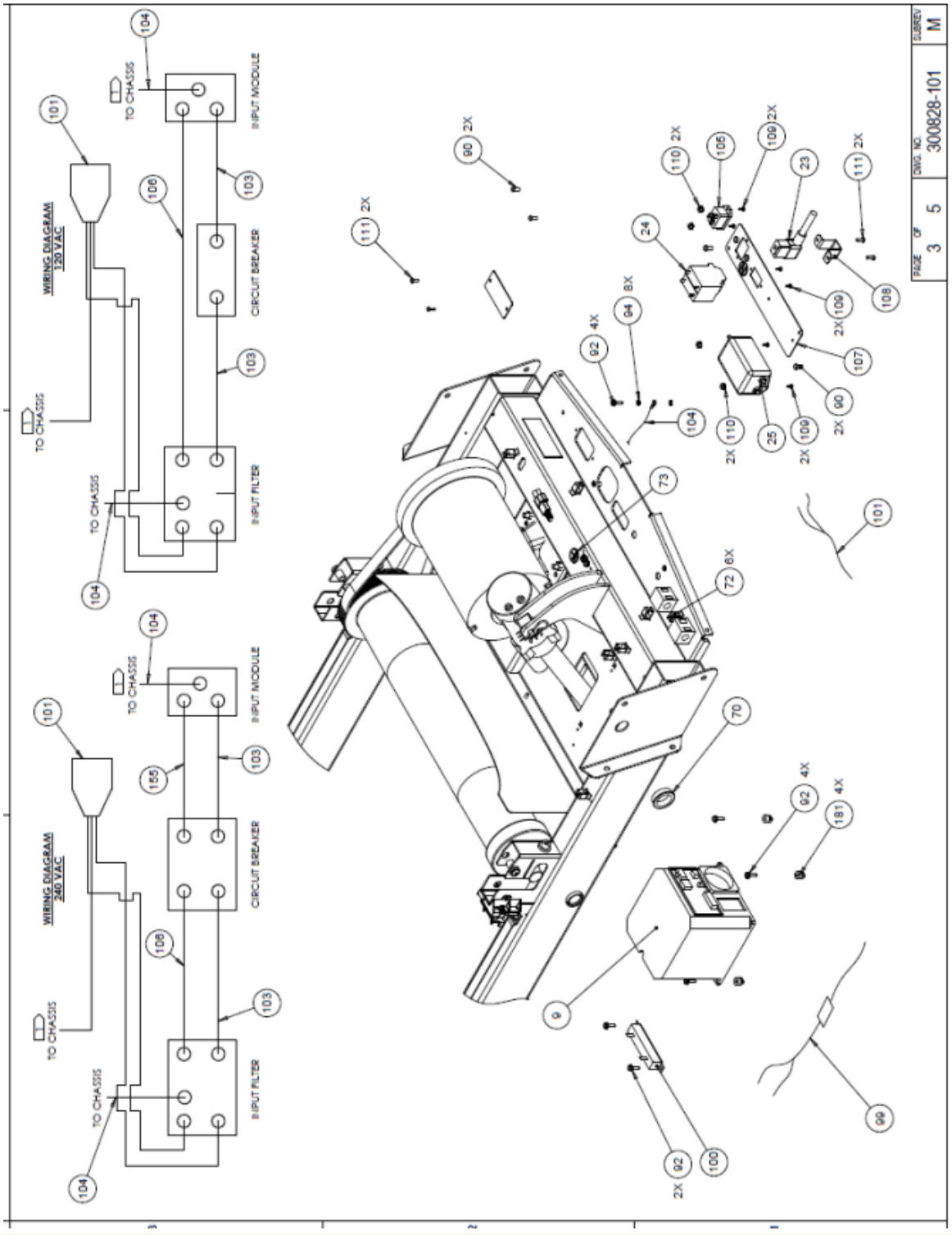
Page 1 of 5



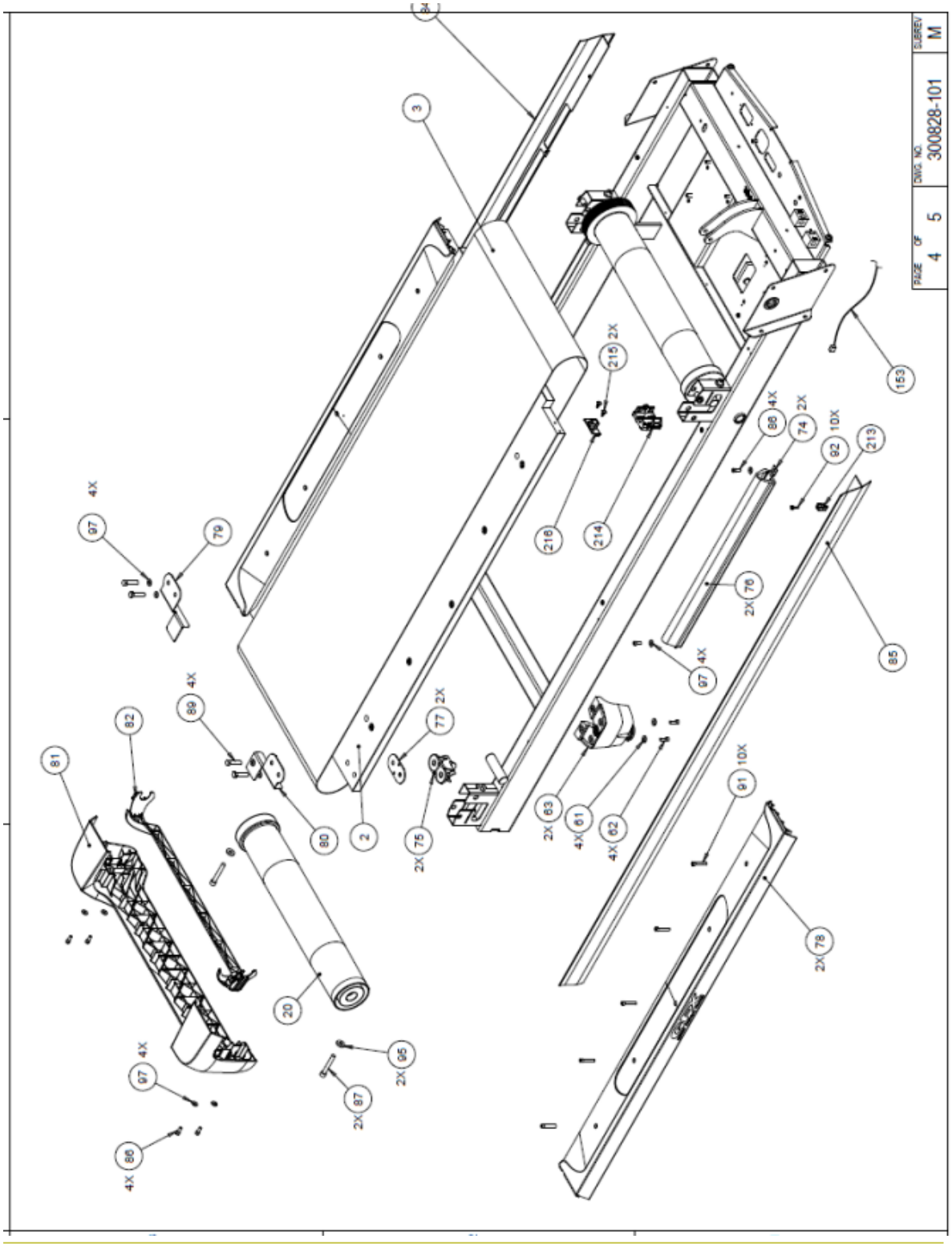
Page 2 of 5


SHEET M
DWG. NO. 300828-101
PAGE 2 OF 5
71
10
54
16
53
88
4X
96
4X
87
2X
85
2X
52
66
2X
65
2X
57
2X
67
4X
68
2X
56
55
69
2X
54
64
2X
58
3X
19
60
2X
59
2X

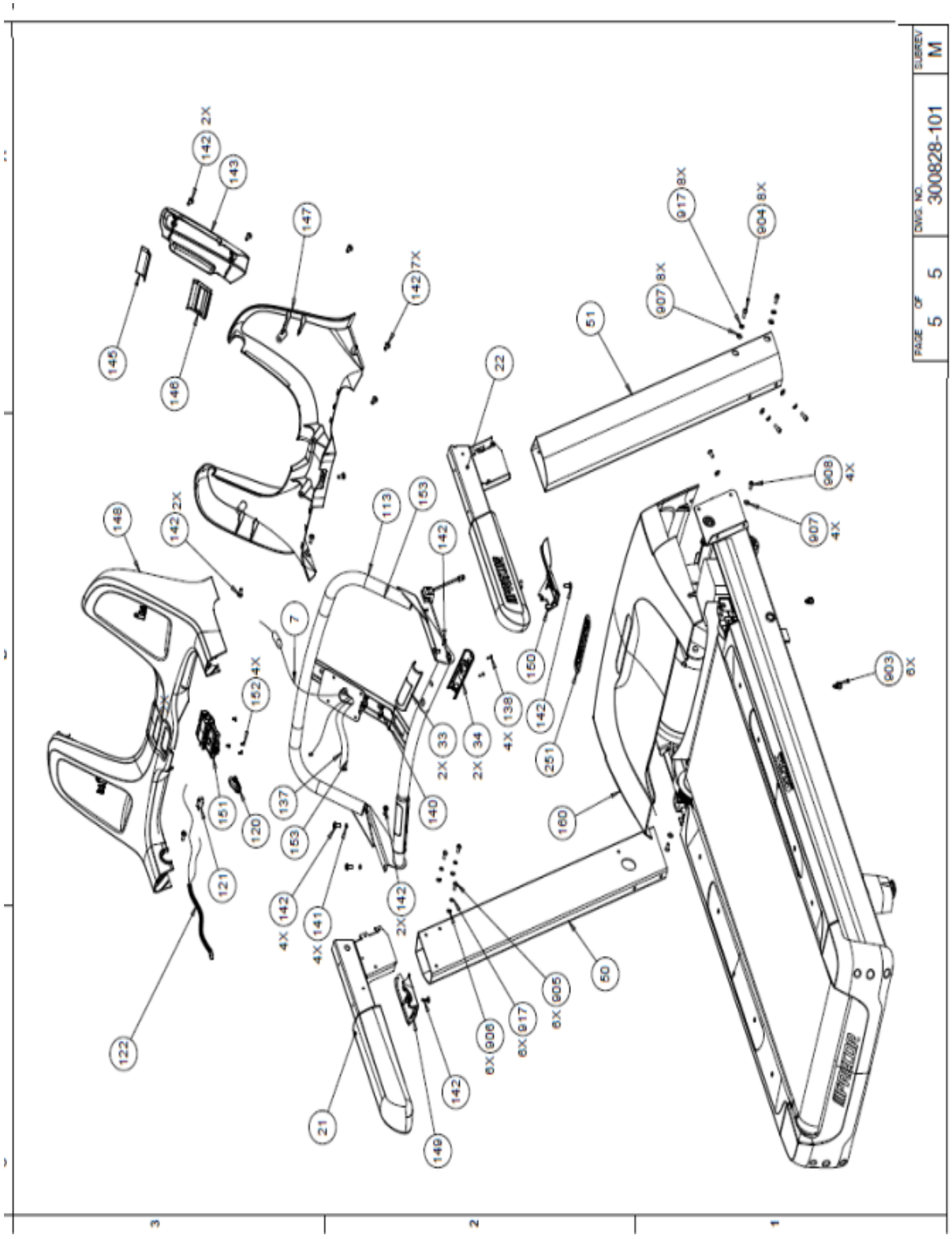
Page 3 of 5


WIRING DIAGRAM 120 VAC
WIRING DIAGRAM 240 VAC
INPUT MODULE
CIRCUIT BREAKER
INPUT FILTER
TO CHASSIS
DWG. NO. 300828-101
REV M
PAGE 3 OF 5

Page 4 of 5


SUBREV M
DWG. NO. 3008828-101
PAGE 4 OF 5
84
3
215 2X
216
214
153
88 4X
74 2X
92 10X
213
97 4X
79
76 2X
97 4X
85
89 4X
82
81
77 2X
80
2
75 2X
63 2X
61 4X
62 4X
91 10X
78 2X
20
95 2X
87 2X
97 4X
86 4X

Page 5 of 5



Parts Identification List

Parts List

TRM10, Base, (8X5) (8X3), 120V (Serial Code A837)

Part Number	Description	Number
PPP000000058093101	DECK W/SHIPPER, PRE-WAX, TRM10	2
PPP000000036355138	RUNNING BELT, SIEGLING 132.75 X 20	3
PPP000000300814104	ASSEMBLY, CABLE, MOD 8P8C 1-1, W/FE	7
PPP000000058125101	KIT, BOXED, MODULE,MOTOR DRIVE,120V	9
PPP000000058066101	KIT, BOXED, ASSY, DRIVE MOTOR, AC I	10
PPP000000044257107	MOTOR, LIFT ACTUATOR, 120V, ROHS	16
PPP000000058131101	KIT, BOXED, ASSEMBLY, ROLLER DRIVE,	19
PPP000000058130101	KIT, BOXED, ASSEMBLY, ROLLER TAKEUP	20
PPP000000300380103	ASSEMBLY, OVERMOLD, LEFT	21
PPP000000300380104	ASSEMBLY, OVERMOLD, RIGHT	22
PPP000000047429144	PWR CORD,125VAC,20A,NEMA 5-20RA45/I	23
PPP000000041168144	PWR CORD,250VAC,16A,NBR 14136 - IEC	23.02
PPP000000011462143	CKT BRKR,250V,MAGNETIC,ROCKER,1 PO	24
PPP000000011224104	FILTER, POWER LINE, 250VAC, 16A, GE	25
PPP000000035700102	GRIP, HHHR, TOP 9.3X-07, BLACK	33
PPP000000035701102	GRIP, HHHR, BOTTOM 9.3X-07, BLACK	34
PPP000000048668101	TARGA, LEFT,PAINTED	50
PPP000000048668102	TARGA, RIGHT,PAINTED	51
PPP000000048685101	DUST GUARD	52
PPP000000010401106	PIN,CLEVIS, 3/8 X 1.75, ZINC	53
PPP000000010400103	PIN, HITCH, .093 DIA, ZINC, #203	54
PPP000000045669107	PIN, LIFT PIVOT, 3.34, MUSHROOM HEA	55
PPP000000048659101	WELDMENT, LIFT PLATFORM	56
PPP000000044270101	WHEEL, LIFT	57
PPP00000PKCN019075	SCREW,S/T,#10X.75,WSHHXHD,ZN	58
PPP000000045669109	PIN, LIFT PIVOT, 3.27, MUSHROOM HEA	59
PPP000000010400106	PIN, HITCH, .125 DIA, ZINC, #216	60
PPP00000WBCN031007	WASHER,FLT,5/16X.688X.065, ZN	61
PPP00000CARB031100	SCREW, SKHD, 5/16-18 X 1.00, ZNCOAT	62
PPP000000048684101	ASSEMBLY, REAR FOOT	63
PPP000000010043136	BEARING,FLANGE .875ODX.750IDX.50L	64
PPP000000036192101	BUSHING, SPANNER	65
PPP00000HCTN050250	SCREW,HEX,GR 5,1/2-13X2-1/2,BLK SHA	66
PPP00000WBCN050010	WASHER, FLT, 1/2, ID=.531,	67
PPP00000KACN050019	LOCKNUT,HALF,1/2-13,ZN	68
PPP000000010043113	BEARING,FLANGE,OD=.62 ID=.5	69
PPP000000010178112	BUSHING, SNAP	70
PPP000000010214102	BELT, DRIVE, 320J10 POLY V, TEM	71
PPP000000011278101	CABLE CLAMP,INSERT	72
PPP000000033984101	LABEL, SAFETY, GROUND SYMBOL	73
PPP000000044074106	STRAP, GFX TIE DOWN	74
PPP000000044234101	DECK PIVOT	75

PPP0000000044236101	GFX CUSHION	76
PPP0000000044263101	PLATE, SPACER, DECK	77
PPP0000000048968105	ASSEMBLY, TRIM STRIP, C966I,PACIFIC	78
PPP0000000300833101	BRACKET, REAR ROLLER GUARD, LEFT, P	79
PPP0000000300833102	BRACKET, REAR ROLLER GUARD, RIGHT,	80
PPP0000000048694102	END CAP, PACIFIC BLUE, NEW LOGO	81
PPP0000000048695104	BELT GUARD, END CAP, PACIFIC BLUE	82
PPP0000000300172101	SIDE TRIM, LEFT, PLASTIC	84
PPP0000000300172102	SIDE TRIM, RIGHT, PLASTIC	85
PPP00000CKRB038250	SHCS,3/8-24 X 2.50,STL,ZNCOAT, NUTL	87
PPP00000HCCN031075	SCREW, HEX HD, GRADE 5, 5/16-18 X .	88
PPP00000HCCN038150	SCREW,HEX,GR 5,3/8-16X1 1/2,ZN	89
PPP00000MGCN019050	SCREW, MACHINE, 10-24X1/2, PANHD, P	90
PPP00000CATN025150	SCREW, SKHD,1/4-20X1.50,BLK SHARPER	91
PPP00000PKCN019075	SCREW,S/T,#10X.75,WSHHXHD,ZN	92
PPP0000WAMCN019002	WASHER, LOCK, EXT TOOTH, #10	94
PPP0000WAVCN038015	WASHER, FLAT, 3/8 X .875 X .150	95
PPP00000WBCN031007	WASHER,FLT,5/16X.688X.065, ZN	96
PPP00000WNCN026006	WASHER,FLT,1/4X.625X.063,ZN	97
PPP0000000012000030	GASKET,EMI,FABRIC OVER FOAM W/PSA,1	98
PPP0000000300075016	ASSY, CABLE, 2C, 16 AWG, BROWN, QK	99
PPP0000000012248101	RES,WW,100 OHM,50W,10%,METAL CASE,.	100
PPP0000000300826017	ASSY,CABLE, FILTER TO DRIVE MODULE,	101
PPP0000000037436101	LABEL, CHASIS NEUTRAL	102
PPP0000000040193006	ASSY,CBL,1C,12AWG,250X032 QD RECP(X	103
PPP0000000044528006	ASSY,CBL,1 COND,14AWG,QK DISC,6",BR	103
PPP0000000040731009	CBL,1C,14AWG,#10 RING/250X032 QD RE	104
PPP0000000045381101	IEC 16/20A POWER CORD INLET	105
PPP0000000040194007	ASSY,CBL,1C,12AWG,250X032 QD RECP/2	106
PPP0000000045383009	CBL,1C,14AWG,250X032 QD RECP/250X03	106
PPP0000000048760101	PLATE, POWER ENTRY	107
PPP0000000048761101	CLAMP, POWER CORD	108
PPP00000MGCN013038	SCREW,MCH,6-32X3/8,PANHD,PHIL,	109
PPP00000KGCN013011	LOCKNUT, STARWASHER 6-32, #6	110
PPP00000MGCN019050	SCREW, MACHINE, 10-24X1/2, PANHD, P	111
PPP0000000044021104	CLIP ASSEMBLY	120
PPP0000000012259102	SWITCH,MICRO,PLUNGER,SPNC	121
PPP0000000040137024	ASSY,CABLE W/JACKET,E-STOP PLUS SOF	122
PPP0000000047342045	ASSY, CABLE, HHHR PCA TO GRIP, W/SH	137
PPP00000TCNN016075	SCREW, BTHD, 8-32X.75,SS	138
PPP0000000010123101	CABLE TIE,11 LONG,WHITE,NYL	139
PPP0000WALCN025006	WASHER, SPLIT LOCK, 1/4 MED,	141

PPP0000PANTN025050	SCREW,S/T,#1/4-20X1/2,PANHD,PHIL,TR	142
PPP0000000300361103	COVER, CONDUIT, REAR, TREADMILL	143
PPP0000000300362101	COVER, CONDUIT, UPPER TREADMILL	145
PPP0000000300363101	COVER, CONDUIT, LOWER TREADMILL	146
PPP0000000300367101	DASH, BACK, TREADMILL	147
PPP0000000300366101	ASSY,DASH,TREADMILL	148
PPP0000000300374101	TRANSITION,DASH,TARGA,LEFT	149
PPP0000000300374102	TRANSITION,DASH,TARGA,RIGHT	150
PPP0000000300369103	ASSY,STOP SWITCH,CONSOLE	151
PPP00000MGCN016038	SCREW,MCH,8-32X3/8,PANHD,PHIL,	152
PPP0000000300980102	CBL, 4P3C-3P3C,22AWG, W/RAMP & RIBS	153
PPP0000000048747105	ASSEMBLY, HOOD, PACIFIC BLUE, NEW L	160
PPP0000000012865003	CABLE P-CLIP,OPEN ENDED,0.375" BUND	213
PPP0000000300993101	ASSY,AUTO-STOP, PCA & PLASTIC HOUSI	214
PPP0000000301101101	FASTENER, SNAP-IN, PANEL (CHRISTMAS	215
PPP0000000301102101	ASSEMBLY, MAGNET HOLDER, AUTO STOP	216
PPP0000000011075105	FUSE,2.00A,250VAC,SLO,RAD,UL248-14	250
PPP0000000300678101	LABEL, HOOD ALUMINUM, NEW LOGO	251
PPP0000000302148101	PLATE, CONNECTOR COVER, BLANK	252
PPP0000000012414101	CABLE CLAMP INSERT,SNAP IN	903
PPP00000CATN031075	SCREW,SKHD,5/16-18X0.75,BLK SHARPER	904
PPP00000TCNN031075	SCREW,BTHD,5/16-18X.75,SS	905
PPP00000WEGN031007	WASHER, FLT, 5/16X.688X.065,SS, BLK	906
PPP00000WENN031007	WASHER, FLT, 5/16X.688X.065,SS	907
PPP00000TATN031075	SCREW,BTHD,5/16-18X3/4,BLK SHARPERI	908
PPP00000KGCN031027	LOCKNUT,STARWASHER,5/16-18,1/2	909
PPP0000MACCN025062	MACHINE SCREW, 1/4-20, [FLAT HEAD,	910
PPP0000WALCN031008	WASHER, 5/16 SPLIT LOCK, ZINC	917
PPP0000000300491301	LITERATURE KIT, TREAD,ATLAS, EN	999

Product Literature & Videos

Additional product literature and videos that will help you to service and maintain the equipment.

- "Service & Maintenance Documentation" below
- "Precor Websites" below
- "Service Videos" on the facing page

Service & Maintenance Documentation

	Document	Link
	TRM10[1]/GEN06 Treadmill Base Service Manual (online version)	Service Manual
	Preventative Maintenance Guides	"Preventive Maintenance (PM)" on page 161

Precor Websites

	Precor Websites	Link
	Precor.com product home page. Available information: • Product Specifications • Assembly Guides • Preventative Maintenance Guides • Console Install & PM Guides	Precor.com
	Precor Connect servicer home page*. Available Product information: • Part Numbers • Exploded View Diagrams • Service Bulletins • Software Updates • Service Videos	Connect Login
	Precor Technician Certification Training	Service & Install Training

[1]TRM800 version 1 treadmills mfg. dates 2010 thru 2014.

	Precor Websites	Link
	Precor E-Learning Center	E-Learning System
	SalesForce Login	SalesForce Login
* Always log in to Precor connect using your Precor Connect account login information.		

Service Videos

	Service Video	Link
	Preventative Maintenance Videos	
	Preventative Maintenance Videos: (not available for all products) • Login to Precor Connect‡. • select **SERVICE VIDEOS** • Navigate to the product equipment PM videos	available on Precor Connect Connect Login
	TRM[1] Service Videos	
	Running Belt & Deck Cleaning procedure	Running Belt & Deck Cleaning
	Running Belt Alignment procedure	Running Belt Alignment
	Hood Cover Removal	Hood Cover Removal
	ESTOP[2] Switch & Lanyard Test	TRM ESTOP Test
	Lift Motor Jackscrew Lubrication Maintenance procedure	Lift Motor Jackscrew Lubrication Procedure
	Machine Leveling procedure	Machine Leveling Procedure
‡ Always log in to your Precor connect servicer account. Guest login users do not have access to all features.		

[1]Treadmill

[2]Emergency Stop: Safety clip and lanyard attached to the stop switch to immediately turn off power bringing the machine to a stop.

Appendix A : Edition Information

Edition

Title: **TRM10**[1]/GEN06 Treadmill Base Service Manual
P/N: 20039-165 rev A06

Additional Documentation

You can also view the service manual online at Online Service Manual

Copyright

Copyright 2010 Precor Incorporated

No part of this manual may be reproduced in any form or by any means (including electronic storage and retrieval or translation into a foreign language) without prior agreement and written consent from Precor Incorporated as governed by United States and international copyright laws.

Precor Incorporated
20031 142nd Ave. NE
P.O.Box 7202
Woodinville, WA. 98072-4002
Ph: 1-800-347-4404

[1]TRM800 version 1 treadmills mfg. dates 2010 thru 2014.

Appendix B : Notices and Safety

Trademarks

Precor, **AMT**[1], **EFX**[2], and Preva are registered trademarks of Precor Incorporated. Other names in this document may be the trademarks or registered trademarks of their respective owners.

The Spinner Family of bikes—Spin®, Spinner®, Spinning®, Spin Fitness®, and the Spinning logo® are registered trademarks owned by Mad Dogg Athletics, Inc., a California corporation.

SPD[3] is a registered trademark of Shimano American Corporation.

Intellectual Property

All rights, title, and interests in and to the software of the Preva Business Suite, the accompanying printed materials, any copies of such software, and all data collected via the Preva Business Suite, are exclusively owned by Precor or its suppliers, as the case may be.

Precor is widely recognized for its innovative, award-winning designs of exercise equipment. Precor aggressively seeks U.S. and foreign patents for both the mechanical construction and the visual aspects of its product design. Any party contemplating the use of Precor product designs is hereby forewarned that Precor considers the unauthorized appropriation of its proprietary rights to be a very serious matter. Precor will vigorously pursue all unauthorized appropriation of its proprietary rights.

Warranty

The material contained in this document is provided "as is," and is subject to being changed, without notice, in future editions. Further, to the maximum extent permitted by applicable law, Precor disclaims all warranties, either expressed or implied, with regard to this manual and any information contained herein, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. Precor shall not be liable for errors or for incidental or consequential damages in connection with the furnishing, use, or performance of this document or of any information contained herein. Should Precor and the user have a separate written agreement with warranty terms covering the material in this document that conflict with these terms, the warranty terms in the separate agreement shall control.

[1]Adaptive Motion Trainer

[2]Elliptical Fitness Crosstrainer

[3]speed

Safety Notices

Warning and Caution notices indicate an activity that could be dangerous and cause personal injury and/or equipment damage if not adhered to. Always follow Warning and Caution instructions.

Warning



A **WARNING** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood.

Caution



A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood.

Service Safety Guidelines

Prior to doing any machine service, review the Service Safety Guidelines, see Service Safety Guidelines.