TRM 885, 835, 823

Warning: This service manual is for use by Precor trained service providers only.
If you are not a Precor Trained Servicer, you must not attempt to service any Precor Product; Call your dealer for service.

This document contains information required to perform the majority of troubleshooting, and replacement procedures required to repair and maintain this product.

This document contains general product information, software diagnostic procedures (when available), preventative maintenance procedures, inspection and adjustment procedures, troubleshooting procedures, replacement procedures and electrical block and wiring diagrams.

To move directly to a procedure, click the appropriate procedure in the bookmark section to the left of this page. You may “drag” the separator bar between this page and the bookmark section to change the size of the page being viewed.

Section One - Things you Should Know

.

Section One, Things You Should Know. This section includes technical specifications. Read this section, as well as the TRM 845, 835, 823 Treadmill Owners Manual, before you perform the maintenance procedures in this manual.

Section Two, Consoles. This section lists the Precor console line and their application with all the base units.

Section Three, P80 Console. This section contains procedures you need to access the diagnostic features and troubleshooting the P80 console.

Section Four, Future Content. This section contains procedures you need to access the diagnostic features and troubleshooting the future console.

Section Five P30, Console. This section contains procedures you need to access the diagnostic features and troubleshooting the P30 console.

Section Six, P20 Console. This section contains procedures you need to access the diagnostic features and troubleshooting the P20 console.

Section Seven, Checking Treadmill Operation. This section provides you with a quick way of checking treadmill operation. Check treadmill operation at the end of a maintenance procedure and when it is necessary to ensure that the treadmill is operating properly.

Section Eight, Inspection and Adjustment Procedures. Perform inspection procedures when a trouble symptom points to a particular problem and after removing and replacing major components. Many maintenance problems can be fixed by adjusting various treadmill components. This section also provides you with the step-by-step procedures required to make these adjustments.

Section Nine, Troubleshooting Procedures. The troubleshooting procedures contained in this section should be performed when it is necessary to isolate a problem to a particular TRM component.

Section Ten, Replacement Procedures. When a treadmill component must be replaced, go to this section and follow the step-by-step procedures required to remove and replace the component.

Section Eleven, Future Content.

Section Twelve, Future Content.

Section Thirteen, Future Content.

Section Fourteen, Technical Diagrams and Parts Lists. This section includes wiring diagrams, and block diagrams for the TRM Treadmills.

Safety guidelines you should know and follow include:

Read the owner's manual and follow all operating instructions.

Operate the treadmill on a solid, level surface. Visually check the treadmill before beginning service or maintenance operations. If it is not completely assembled or is damaged in anyway, exercise extreme caution while operating and checking the treadmill.

When operating the treadmill, do not wear loose clothing. Do not wear shoes with heels or leather soles. Check the soles of your shoes and remove any embedded stones. Tie long hair back.

Do not rock the unit. Do not stand or climb on the handlebars, display enclosure, or cover.

Do not set anything on the handlebars, display enclosure, or cover. Never place liquids on any part of the treadmill, 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-such attachments might cause injuries.

Removing the hood exposes high voltage components and potentially dangerous machinery. Exercise extreme caution when you perform maintenance procedures with the hood removed.

General Information

For the latest exploded view diagram, part number and part pricing information, visit the Precor dealer website at "www.precor.com/connection".

Section Two – Precor Console line

Console Line

The TRM Treadmill will be available with three different console options, the P80, P30, and P20. The following sections will provide procedures on replacing components and troubleshooting all three consoles. Choose the console section that applies to your TRM Treadmill.

TRM with P80 Console

TRM with P30 Console

TRM with P20 Console

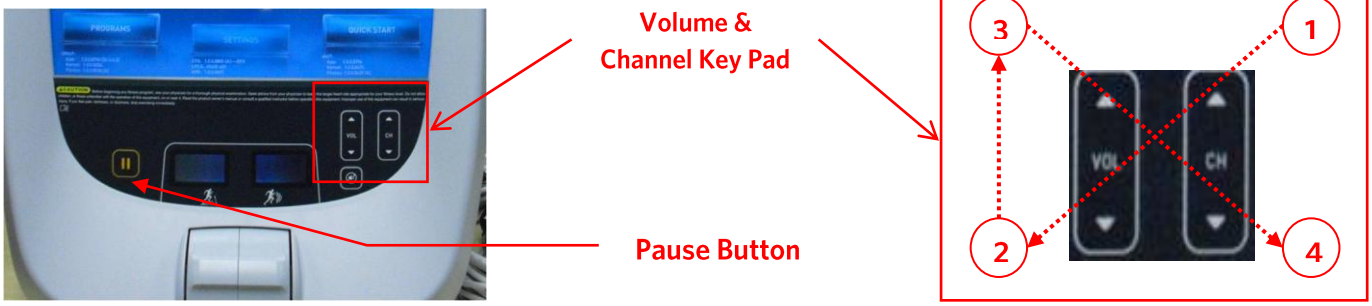
Section Three – P80

Procedure 3.1 – P80– Systems Settings

Procedure

1. The "Welcome" screen will be the first screen you see when you approach the P80 console. Press the Pause key and continue holding it down while you double press (**prior to 1.1 version software release**) or single press (**1.1 version or after software release**) in sequential order an X configuration on the Volume and Channel key pad (① Channel Up, ②Volume Down,③ Volume Up,④ Channel Down). **See Diagram 3.1.1.** Release the Pause key when done pressing the arrows. **Note: The keypad X configuration sequence should be not faster than 1 second between each key stroke.** Any speed faster than 1 second may result in an unsuccessful access to the sign-in screen.

Diagram 3.1.1



2. The sign-in screen will be displayed. Type in the technician access code and then touch "**OK**". The "Settings" menu will be displayed. **See Settings Table**.

3. Use the System mode to configure settings in ways that benefit the users and the facility. Changes made to these settings save to the fitness equipment. To select a "Setting" touch on an item in the "**Settings**" menu".

Settings			
Menu Item	**Description**	**Navigation**	**Configure/View/Test**
About	System information settings provide basic information including equipment models and serial numbers. Most of these settings are for informational purposes only and cannot be modified.	Touch "**About**"	**See Procedure 3.2, About**
Equipment Usage	The Equipment Usage settings provide information on individual usage as well as cumulative equipment usage. This information and these settings are accessible only to administrators and registered service technicians.	Touch "**Equipment Usage**"	**See Procedure 3.3, Equipment Usage**
System Settings	Use the System Settings to test your equipment and set parameters that benefit your users and your facility. The System Settings menu is visible only to administrators and registered service technicians.	Touch "**System Settings**"	**See Procedure 3.4, System Settings**
Software Downloads	Allows software to be automatically downloaded. It is recommended that this remain "**ON**" at all times. Contact Precor Customer Service before this setting is disabled.	Touch "**Software Downloads**"	**Touch radio button next to "On" to Enable Automatic Downloads.** **Default is "ON"** **Touch radio button next to "Off" to Disable Automatic Downloads.**
Reflashing	Used in advanced troubleshooting. Contact Precor Customer Service before changing these settings.	Touch "**Reflashing**"	**Contact Precor Customer Service**
Available Updates **Or** **No Available Updates (Default)**	The default is "**No Available Updates**". When "Software Downloads" is enabled and a USB flash drive is installed that contains a valid software package, "**Available Updates**" will be displayed.	Touch "**Available Updates**"	**Touch next to any of the available updates.** **Touch "View" to see the details of the update. Touch ◀ BACK to updates list.** **Touch "Install" to load the update into the console.** **See Procedure 3.5, Updating Software.**

4. Touch ◀ **BACK** to the "Welcome" screen.

Procedure 3.2– P80– About

1. Refer to Procedure 3.1 – Settings, to access the About menus.
2. "About" settings provide basic information including equipment models and serial numbers. Most of these settings are for informational purposes only and cannot be modified. **See About Table**. To select a "**About**" item, touch on an item in the "**About**" menu.

About			
Menu Item	**Descriptions**	**Navigation**	**Configure/View/Test**
Event Log	Provides a list of the most recent hardware and software events, and equipment status. If no events have occurred since the last time the event log was cleared, the event log screen will be empty.	Touch "**Event Log**"	Details of the Event will be listed. Touch "**REFRESH**" to update the list in the log. Touch "**SAVE**" to save the log to a Flash drive device. Touch "◀ **BACK**" to "**About**"
Event Count	Number of events recorded by equipment over its lifetime.	None	None
Console Serial Number	Set by Precor and stored in the console's memory.	None	None
Lower Serial Number	Stored in the console's memory. Note: This information is not currently available to be displayed.	None	None
Location	Entered on console at the time of registration.	Touch "**Location**"	Displays location information. Touch "◀ **BACK**" to "**About**"
Release Bundle Version	Shows current version of software. Automatically updates as part of each software upgrade.	Touch "**Release Bundle Version**"	Displays detailed information about the current software. Touch "◀ **BACK**" to "**About**"
Etag Check Interval:	Determines how often the console will check for updates.	None	None
Heartbeat Interval	Determines how often the console communicates with the Server.	None	None
Minimum Heartbeat Interval	Minimum amount of time between heartbeats to the Preva server.	None	None
Maximum Heart beat Interval	Maximum amount of time between heartbeats to the Preva server.	None	None
Mfe MAC Adress	Stored in the consoles memory. Set at factory	None	None
Network Time Server 1	These addresses are set at the factory and will not need to be changed in the field.	None	None
Network Time Server 2	These addresses are set at the factory and cannot be changed in the field.	None	None
Network Time Server 3	These addresses are set at the factory and cannot be changed in the field.	None	None
Machine Type	Type of equipment (AMT, RBK, UBK, EFX, & TRM). Set at factory.	None	None

3. Touch ◀ **BACK** to Settings. Procedure 3.1.

Procedure 3.3– P80 – Equipment Usage

1. Refer to Procedure 3.1 – Settings to access the Equipment Usage menus.
2. The Equipment Usage settings provide information on individual usage as well as cumulative equipment usage. **See Equipment Usage Table**.
3. The "Equipment Usage" screen currently does not have additional detail or test screens.

Equipment Usage			
Menu or Information Item	**Description**	**Navigation**	**Detail or Test**
Cumulative Workout Seconds	Total number of seconds. Seconds are counted when the workout clock starts	None	None
Cumulative Workout Distance	• Treadmills will report miles of use. • AMTs will report a "horizontal distance" as miles. • Ellipticals will convert total strides to miles. • Bikes will convert total revolutions to miles	None	None
Cumulative Work Out Sessions	Total number of sessions. A session is counted if the summary screen displays.	None	None
Last Workout Start Date Time	The date of the start of the last workout.	None	None
Last Workout End Date Time	The date of the end of the last workout.	None	None

4. Touch ◀ **BACK** to Settings. Procedure 3.1.

Procedure 3.4 – P80– System Settings

1. Refer to Procedure 3.1 – Settings, to access the Equipment Usage menus.
2. Use the System Settings to test your equipment and set parameters that benefit your users and your facility.

System Settings			
Menu or Information Item	**Description**	**Navigation**	**Configure/View/Test**
Systems Test	The systems tests allow you to check specific functions of the equipment.	Touch "**Systems Test**"	**See Procedure 3.6**
Connectivity	The connectivity screens allow you to configure or provides information about the equipment's network connection.	Touch "**Connectivity**"	**See Procedure 3.7**
Display	The display settings allow you to configure, Measurement units, Standby Mode Delay, Time Zone, and Closed Captioning.	Touch "**Display**"	**See Procedure 3.8**
TV Settings	TV Settings help you set up television channels for your users.	Touch "**TV Settings**"	**See Procedure 3.9**
Work out Limits	The Workout Limit settings give you control over how the equipment is used. Use these settings to create reasonable limitations for equipment usage including speed, incline, resistance, and duration.	Touch "**Workout Limits**"	**See Procedure 3.10**
Manage Settings	Use this setting to save your equipment settings to a USB flash drive, or to import settings from a USB flash drive.	Touch "**Manage Settings**"	**See Procedure 3.11 (Cloning)**

Procedure 3.5 – P80 – Updating Software

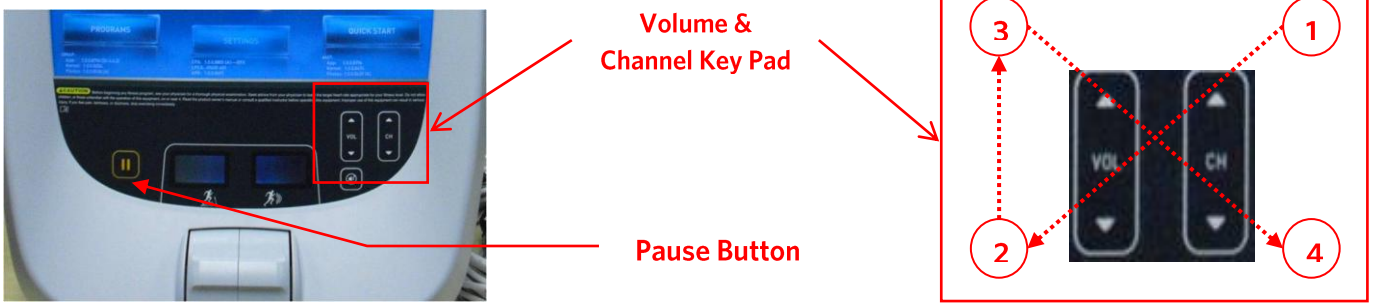
The P80 console is driven by software with innovative features which enhances the user's experience during a workout. Periodically the software will need to be updated with improvements to the functionality and features. Procedure will explain how to update the software at the customer's location using a USB Flash drive device for P80 consoles.

A USB Flash drive device with pre-loaded software or a web site location where you can upload the software onto a USB Flash drive device will be provided by PRECOR.

Procedure to update (Flash) software for P80 consoles:

1. The "Welcome" screen will be the first screen you see when you approach the P80 console. Press the Pause key and continue holding it down while you double press (**prior to 1.1 version software release**) or single press (**1.1 version or after software release**) in sequential order an X configuration on the Volume and Channel key pad (① Channel Up, ②Volume Down,③ Volume Up,④ Channel Down). **See Diagram 3.1.1.** Release the Pause key when done pressing the arrows. **Note: The keypad X configuration sequence should be not faster than 1 second between each key stroke.** Any speed faster than 1 second may result in an unsuccessful access to the sign-in screen.

Diagram 1



2. The sign-in screen will be displayed. Type in the technician access code and press enter.
3. Insert the USB Flash Drive into the USB Drive Port of the P80 console. **See Diagram 2.**

Diagram 2

4. The P80 software will automatically access the USB Flash Drive files and look for a valid software update. While the USB Flash Drive is being validated, "No Updates Available", will be displayed on the P-80 console screen. Once an update file has been identified and validated, "Updates Available", will be displayed on the P-80 console screen. Touch the spot on the P80 console screen where "Updates Available" is displayed to select.
5. A software package or list of software packages will be displayed on the P80 console screen. Touch the spot on the P80 console screen displaying the software package required.

   Note: PRECOR customer service will specify which software package is required when the service is requested to update P-80 Console software. If you are unsure of which software package should be installed, contact PRECOR customer service.

6. Touch the spot on the screen displaying "Install" and the P80 console will start the software installation process. The software installation process can take up to 35 minutes and the console will automatically reboot when it has finished.
7. Remove the USB Flash Drive device from the P80 USB port
8. When the P80 has completed rebooting the "Welcome" screen will be displayed. The installation of the software update is now complete.
9. Verify the correct version of software has been installed. This can be found by accessing the main menu using the instructions provided in steps 1 and 2, then selecting "About." The software version will be displayed under "Installed Bundle Version and should match the package selected in step 5.

Procedure 3.6– P80 – Systems Tests

1. Refer to Procedure 3.1 – Settings, to access the Equipment Usage menus.
2. The systems tests allow you to check specific functions of the equipment.
3. To select a "**Systems Test**" touch on an item in the "**Systems Test**" menu".

Systems Tests		
Test	**Equipment**	**Description**
Auto Stop Test	TRM Only	1. Touch "**Auto Stop Test**", then Touch "**START**". 2. The Auto stop test will start the belt at 1 mph; count will be reset to 0, and then count up with each step. 3. Touch "**STOP**" to end the test. Touch "◀ **BACK**" to exit to Systems Test.
Belt Speed Test	TRM Only	1. Touch "**Belt Speed Test**", then Touch "**START**". 2. The belt will start a 0.5 mph, using the machine control paddle to increase by 0.1 mph increments. The console will display the power bits (PWRB) as the belt speed increases or decreases. 3. Touch "**STOP**" to end the test. Touch "◀ **BACK**" to exit to Systems Test.
Incline Test	TRM Only	1. Touch "**Incline Test**", and then Touch "**START**". 2. Use the machine control paddle to change the lift. The console will display the analog to digital (A/D) incline position number and the incline position in percent of incline. 3. Touch "**STOP**" to end the test. Touch "◀ **BACK**" to exit to Systems Test.
AMT Stride Position Test	AMT Only	1. Touch "**AMT Stride Position Test**" and then Touch "**START**". 2. The High, Low and Dynamic positions will be displayed. The low position display shows the lowest position reading achieved during the test. The high position display shows the highest position reading achieved during the test. The dynamic position display changes with current stride position. Stride on the AMT to the maximum horizontal movement in both directions. At maximum stride length the low stride display should read "0" and the high stride display should read 40. 3. Touch "**STOP**" to end the test. Touch "◀ **BACK**" to exit to System Tests.
Brake Test	AMT, RBK, UBK, EFX	1. Touch" **Brake Test**", then Touch "**START**". 2. Use the machine control paddle to change the resistance up and down. The resistance changes will be displayed in power bits. 3. Touch "**STOP**" to end the test. Touch "◀ **BACK**" to Systems Test.

Systems Tests Continued		
Battery Test	AMT, RBK, UBK, EFX	1. Touch "**Battery Test**", and then Touch "**START**". 2. The console will display the voltage of the battery. 3. Touch "**STOP**" to end the test. Touch "◀ **BACK**" to Systems Test.
SPM	AMT, EFX	1. Touch "**SPM Test**", and then "**START**". 2. The console will display Pulse. The pulse is showing a count of zero crossings from the generator. SPM shows a software averaged version of pulse. A averaged pulse per minute will display as Minimum and a Maximum pulse. 3. Touch "**STOP**" to end the test. Touch "◀ **BACK**" to exit to Systems Tests.
RPM Test	RBK, EFX	1. Touch "**RPM Test**", and then "**START**". 2. The console will display Pulse. The pulse is showing a count of zero crossings from the generator. RPM shows a software averaged version of pulse. 3. Touch "**STOP**" to end the test. Touch "◀ **BACK**" to exit to Systems Test.
CrossRamp	EFX Only	1. Touch "**CrossRamp Test**" , and then Touch "**START**". 2. Use the machine control paddle to change the CrossRamp. The console will display the analog to digital (A/D) and Glitches incline position number. Available battery voltage to the lift system will be displayed. 3. Touch "**STOP**" to end the test. Touch "◀ **BACK**" to Systems Test.
USB Test	All	1. Touch "**USB Test**". 2. The USB Test will show the number of USB ports currently active, there should be six. Insert a USB Flash drive into the USB port and then Touch "**CLOSE**", and then Touch "**USB Test**" again. The number of active USB ports should be increased by one. 3. Touch "**CLOSE**" to exit to Systems Test.
Touchscreen Test	All	1. Touch "**Touchscreen Test**". 2. Place your finger on one corner of the screen and run it around the edges multiple times. 3. The line drawn by your finger should be very close to previous passes. Be sure that you do not touch anything else with your other hand. 4. Touch "**FINISH**" to exit to Systems Test.

Systems Tests Continued		
Touchscreen Calibration	All	1. Touch "**Touchscreen Calibration**". 2. A "**+**" will be displayed on a white screen. Touch the "**+**", the spot you just touched will disappear and then be replaced with another "**+**" in a different location on the white screen. 3. Continue to touch the "**+**" as they appear on the screen until the test automatically exits to the Systems Test screen. You cannot exit this test until all the "**+**" have been touched and the screen is calibrated.
Backlight Test	All	1. Touch "**Backlight Test**" 2. The backlight will display three levels of brightness, 100%, 60%, and 0% in succession in 1 second intervals, returning to the System Tests menu when complete.
RGB Test	All	1. Touch "**RGB Test**". 2. The full screen should move through a succession of five colors, requiring a touch anywhere on the screen to advance to the next. These are **Red, Green, Blue, Black, White**, returning to the Systems Tests menu when all the displayed colors have been touched.
Speaker Test	All	1. Touch "**Speaker Test**". 2. This test will send an audible sound to the speaker mounted in the headphone jack and while providing a graphic of a scrolling bar on the screen. When the test is complete it will automatically exit to the Systems Test screen.
Numeric Backlight Test	All	1. Touch "**Numeric Backlight Test**". 2. This tests the back lights of the lower display just above the paddle controls. The back lights of the display will illuminate in sequence and then automatically exit to the Systems Test screen.
Numeric Display Test	All	1. Touch "**Numeric Display Test**". 2. This will test the numeric LCD display just above the paddle controls. All the numeric characters will be displayed in sequence and then automatically exit to the Systems Test.
Heart Rate	All	1. Touch "**Heart Rate**". 2. Grasp both of the heart rate grips on the handlebar, after a couple of seconds the heart rate will be displayed. 3. Touch "◀ **BACK**" to exit to Systems Test.

3. Touch ◀ **BACK** to Settings. Procedure 3.1.

Procedure 3.7 – P80- Connectivity

Configuring your audio, video, and network infrastructure requires expertise. Precor strongly recommends that you work with a qualified contractor to set up this infrastructure.

This setting provides the following information:

- Network Type
  - Wired (Default)
  - Wireless (This is a selectable option but is not currently supported)
- Configuration
- Status
- IP Address
- Preva Server

To view connectivity information:

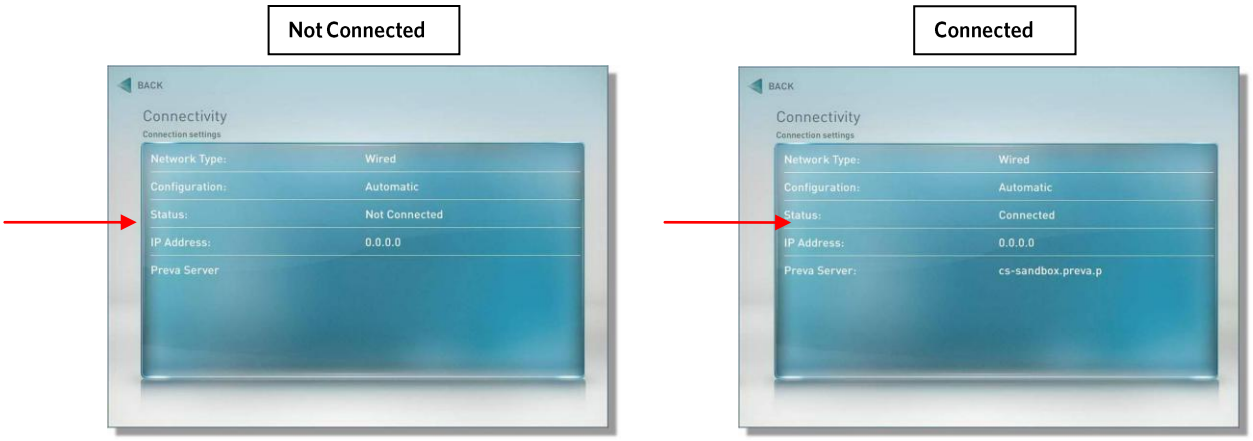
1. Refer to Procedure 3.1 – Settings, to access the Connectivity menus.
2. To select a "**Connectivity Setting**" touch on an item in the "**Connectivity Settings**" menu".

Connectivity settings

Settings	Default	Detail
Network Type	Wired	
Configuration	Automatic	Automatic (DHCP) or Manual (Static IP) Press Network Settings to view the • IP Address • Netmask • Gateway • DNS Primary • DNS Secondary
Status	N/A	• Connected –Connected to the network. • Not Connected – Not connected to the network
IP Address	N/A	Location-specific
Preva Server		na.preva.precor.com

1. Before you attempt to connect to the Precor Preva Server, check the status field and ensure that the "Connected" is displayed. If the Status field shows "Not Connected", you will need to diagnose your networking issue. Continue with Step 2. If the Status Field shows "Connected" go to step 3. **See Diagram 3.7.1**
2. Either the Ethernet cable is not connected or there is a problem with the network connection. Check the connection and then check the Status field again. If the Status field shows "Connected" continue with step 3. If the Status field still shows "Not Connected" contact your IT expert.

Diagram 3.7.1

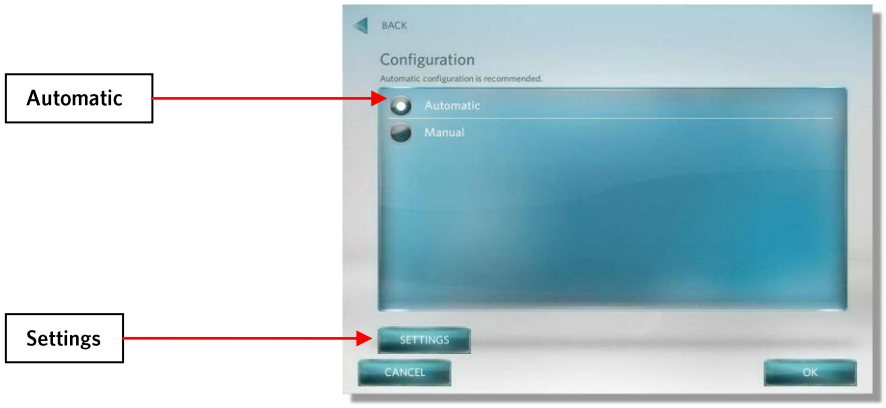


3. Check the IP Address field for a valid IP Address. If the IP Address is present continue with step 12. If the IP Address is not present continue with step 4. **See Diagram 3.7.2**.

Diagram 3.7.2

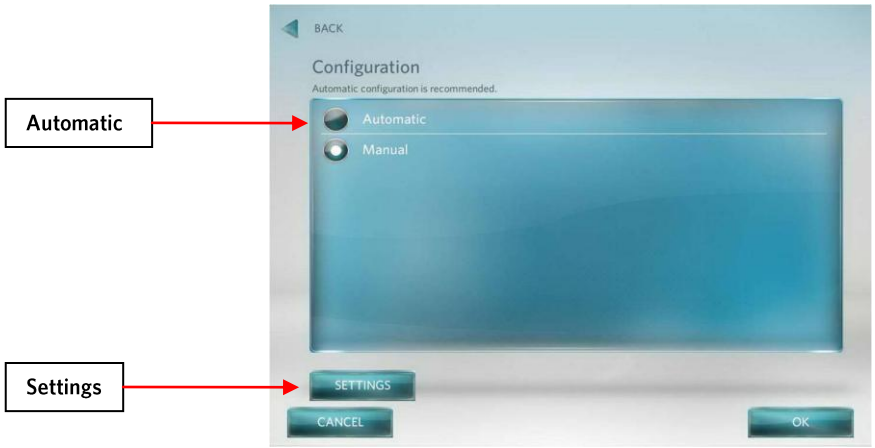
4. If the Status shows Connected and the IP Address is not present, it will be necessary to either have the P80 software assist in acquiring the IP Address (Recommended) or enter the IP address manually. Touch "Configuration" from the Connectivity menu.
5. Touch on the radio button next to "Automatic", and then touch "**SETTINGS**". **See Diagram 3.7.3.**

Diagram 3.7.3



6. The P80 will attempt to connect to the network, and when successful will acquire the networking information necessary for registration. If the console was already connected, it will skip straight to the 'Network Settings' screen and display the current network information. Once a good IP Address has been acquired, the P80 can now be registered. Continue with step 12.
7. Note: Manually setting up the network configuration is not recommended. Precede with the following procedure only with assistance from the facilities IT staff. Touch "Configuration" form the Connectivity menu.
8. Touch on radio button next to "Manual", and then touch "**SETTINGS**". **See Diagram 3.7.4.**

Diagram 3.7.4



9. Touch one of the network settings items from the Connectivity menu.
10. Enter the data acquired from the network administrator using the on-screen key pad, and then select "**OK**". **See Diagram 3.7.5**.
11. Repeat steps 9 and 10 for the remaining network settings.

12. Once a good IP Address is displayed, touch "Preva Server" to enter the web address.
13. If you are in North America enter **na.preva.precor.com** by using the on-screen key pad.
14. Touch "**OK**".
15. A screen will appear stating, "The equipment is ready to be set up", touch "USER NAME AND PASSWORD".
16. The user name and password will have been provided by Precor prior to installation. Enter the user name using the on-screen keypad, then touch "**NEXT**".
17. Enter the password using the on-screen keypad, then touch "**NEXT**".
18. The next screen will list information that you need to know before continuing with the registration process.
    - Site Code
    - Base Serial Number
    - Friendly Name

    Site Code – This is given at the time of the dispatch.
    Base Serial – The base serial number is located on the exercise equipment.
    Friendly Name - It is recommended that you have a list of the equipment with "friendly names" already assigned, such as Elliptical 1, Treadmill 22, and so forth. Touch "**NEXT**".
19. Enter the Site Code using the on-screen keypad, then touch "**NEXT**".
20. Enter the Base Serial Number using the on-screen keypad, then touch "**NEXT**".
21. Enter the Friendly Name using the on-screen keypad, then touch "**NEXT**".
22. The next screen displayed will be the Registration Summary screen. Review the screen to ensure the information entered is correct before completing the registration. If the information is not correct touch "◀ **BACK**" until the screen with incorrect information is displayed. Make the corrections and then touch "**NEXT**" unit you are back at the Registration Summary Screen.
23. Touch "Register" to submit the data.
24. If the registration was successful a screen with current software version will be displayed. Touch "**FINISH**" to the Systems Settings menu, if a newer software version is available, the console will automatically start the download.
25. Touch ◀ **BACK** to Settings. Procedure 3.1.

Procedure 3.8 – P80– Display

The display settings allow you to configure Measurement units, Standby Mode Delay, Time Zone, and Closed Captioning.

1. Refer to Procedure 3.1 – Settings, to access the Display menus.
2. To select a "**Display Settings**" touch on an item in the "**Display**" menu".

Display			
Settings	**Settings Options**	**Default Fault**	**Configure/View/Test**
Measurement Units	US Standard or Metric	US Standard	1. Touch "**Measurement Units**" 2. Touch on a radio button next to either US Standard or Metric, a dot will fill the radio button next the selection. 3. Touch "**OK**" or "**CANCEL**" to exit to the Display menu.
Standby Mode Delay	• 5 Minutes • 15 Minutes • 30 Minutes • 60 Minutes	15 Minutes	1. Touch "**Standby Mode Delay**". 2. Touch on a radio button next to the desired delay time, a dot will then fill the radio button. 3. Touch "**OK**" or "**CANCEL**" to exit to the Display menu.
Time Zone	GMT- 12 through GMT + 12	GMT – 00-10	1. Touch "**Time Zone**". 2. Touch on the radio button next to the desired Time Zone, a dot will fill the radio button. 3. Touch "**OK**" or "**CANCEL**" to exit to the Display menu.
Closed Captioning	ON/OFF	ON	1. Touch "**Closed Captioning**" 2. Touch on a radio button next to either ON/OFF, a dot will fill the radio button next to the desired selection. 3. Touch "**OK**" or "**CANCEL**" to exit to the Display menu.

4. Touch ◀ **BACK** to Settings. Procedure 3.1.

Procedure 3.9 – P80– TV Settings

The display settings allow you to configure Measurement units, Standby Mode Delay, Time Zone, and Closed Captioning.

1. Refer to Procedure 3.1 – Settings, to access the TV Settings menus.
2. To select a "**TV Settings**" setting, touch on an item in the "**TV Settings**" menu".

The TV Settings are:

- Channel Guide
- Region
- Default Channel
- Skip Unnamed Channels
-

Settings	Default	Detail
Channel Guide		Scan Channels
Region	United States	Select the appropriate region for your location.
Default Channel		Set a default channel for the equipment. This is the channel that will display when the TV is turned on.
Skip Unnamed Channels		ON/OFF

Channel Guide

The following procedure discusses how to set up the channel guide and how to configure audio and video playback.

Note: The correct region must be set before you scan for available channels. To confirm the settings, touch "**Region**", a list of regions will be displayed. Confirm that the radio button next to the appropriate region for your area is selected. If the highlighted region is incorrect, touch on the radio button next to appropriate region. Touch "**OK**", and then touch ◀ **BACK** to the TV Settings menu.

To scan for available channels:

1. Touch Channel Guide from the TV Settings menu.
2. Touch Scan Channel.

The console scans for available channels and when the scan is finished all available channels will be displayed on the screen.

To delete a channel from the Channel Guide:

1. On the Channel Guide screen, touch the listing for the channel you want to delete.
2. Touch the "**DELETE** "button.
3. When asked "Are you sure?" verify that you want to proceed, then touch "**YES**".
4. Touch ◀ **BACK** to Settings. Procedure 3.1.

Procedure 3.10– P80 – Workout Limits

The Workout Limit settings give you control over how the equipment is used. Use these settings to create reasonable limitations for equipment usage including speed, incline, resistance, and duration.

1. Refer to Procedure 3.1 – Settings, to access the Workout Limits menus.
2. To select a "**Workout Limits**" setting, touch on an item in the "**Workout Limits**" menu".

Workout Limits Settings			
Settings	**Settings Options**	**Default Fault**	**Configure/View/Test**
Maximum Workout Duration	Use the on-screen keypad or the up and down arrows to enter the maximum workout duration allowed on this fitness equipment.	60 minutes	1. Touch "**Maximum Workout Duration**" 2. The on-screen keypad will appear, enter the desired duration using the keypad. If an error was made while typing in the duration number, press the back space key "◀" key on the keypad to delete the last entry. Touching the "◀" also reactivate the presets after typing a number on the keypad. 3. Touch "**FINISH**" to exit to the Workout Limits screen.
Maximum Pause Time	• 1 second • 5 seconds • 15 seconds • 30 seconds • 60 seconds • 120 seconds • 300 seconds	30 seconds	1. Touch "**Maximum Pause Time**". 2. Touch on a radio button next to the desired time, a dot will then fill the radio button next to the selection. 3. Touch "**OK**" to exit to the Workout Limits Settings menu.
Summary Time Out	• No Time Out • 30 seconds • 60 seconds • 120 seconds	60 seconds	1. Touch "**Summary Time Out**". 2. Touch on a radio button next to the desired time, a dot will then fill the radio button next to the selection. 3. Touch "**OK**" to exit to the Workout Limits Settings menu.

Workout Limits Settings Continued			
Settings	**Settings Options**	**Default Fault**	**Configure/View/Test**
Resistance Range (RBK, UBK only)	• Low • Medium • High	Medium	1. Touch "**Resistance Range**" 2. Touch on the radio button next to Low, Medium, or High, a dot will fill the radio button next the selection. 3. Touch "**OK**" to exit to the Display menu.
Speed Limit (TRM only)	1-16 mph	16 mph	1. Touch "**Speed Limit**" 2. The on-screen keypad will appear, enter the desired duration using the keypad. 3. Touch "**FINISH**" to exit to the Workout Limits screen.
Incline Limit (TRM only)	TRM 883 is 05-15 TRM 885 is 0 to 15 **Note**: the incline range is -3 to 15 but the limit can only be set from 0 to 15	15	1. Touch "**Incline Limit**" 2. The on-screen keypad will appear, enter the desired duration using the keypad. 3. Touch "**FINISH**" to exit to the Workout Limits screen.
Auto Stop (TRM only)	• ON • OFF	ON	1. Touch "**Auto Stop**" 2. Touch on a radio button next to either ON/OFF, a dot will then fill the radio button next to the selection. 3. Touch "**OK**" to exit to the Workout Limits menu.

3. Touch ◀ **BACK** to Settings. Procedure 3.1.

Procedure 3.11 – P80 – Manage Settings (Cloning)

The only P80 console settings that can be imported and exported through a USB Flash Drive device at this time are:

Settings that Can Be Cloned	
Menu	**Settings**
Display	• Measurement of Units • Standby Mode Delay • Time Zone • Closed Captioning
Workout Limits	• Maximum Workout Duration • Maximum Pause Time • Summary Time Out • Resistance Range (RBK, UBK only) • Speed Limit (TRM only) • Incline Limit (TRM only) • Auto Stop (TRM only)
TV Settings	• Channel Guide • Region • Default Channel • Skip Unnamed Channels

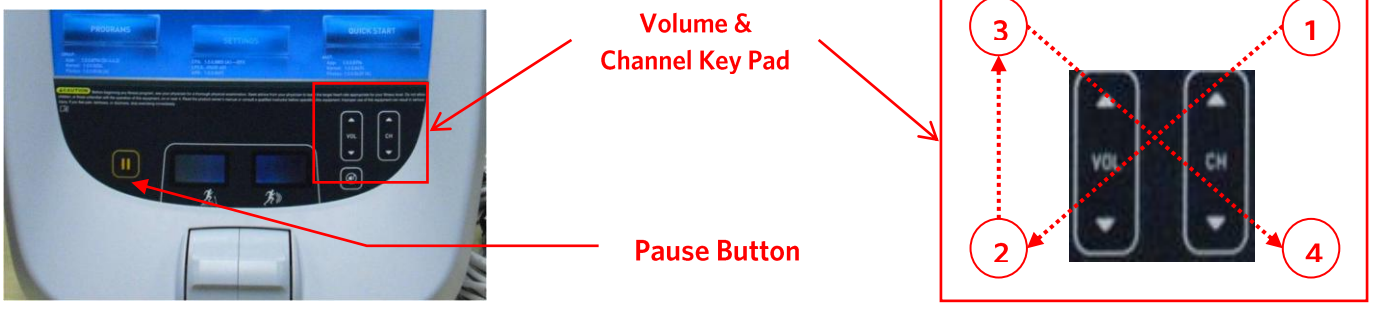
The following procedure will explain how to save existing P80 console settings onto a USB Flash Drive and then import the saved settings into another P80 console.

Note: Settings from one P80 console will need to be configured manually and imported to a flash drive device before cloning and exporting to additional P80 consoles.

Procedure

5. The "Welcome" screen will be the first screen you see when you approach the P80 console. Press the Pause key and continue holding it down while you double press (**prior to 1.1 version software release**) or single press (**1.1 version or after software release**) in sequential order an X configuration on the Volume and Channel key pad (① Channel Up, ②Volume Down,③ Volume Up,④ Channel Down). **See Diagram 3.1.1.** Release the Pause key when done pressing the arrows. **Note: The keypad X configuration sequence should be not faster than 1 second between each key stroke.** Any speed faster than 1 second may result in an unsuccessful access to the sign-in screen.

Diagram 3.11.1



6. The sign-in screen will be displayed. Type in the technician access code and press enter.
7. The "Settings" screen will be displayed. Select "Systems Settings" from the "Settings" menu.
8. From the "Systems Settings" menu select "Manage Settings".
9. The "Manage Settings" screen will display two gray inactive USB Flash Drive Icons. **See Diagram 3.11.2.**

Diagram 3.11.2

10. Insert the USB Flash Drive into the USB Drive Port of the P80 console. **See Diagram 311.3.**

Diagram 3.11.3

11. When the gray inactive "Save to USB" Flash Drive Icon becomes active and lights up, select "Save to USB". **See Diagram 3.11.4**

    Note: Depending on the type of Flash Drive device used, it may take up to a minute for the USB Flash Drive Icons to become active (light up) after the USB Flash Drive device has been inserted into the P80 console.

Diagram 3.11.4

12. You will see a scrolling in process bar and then "Settings exported successfully to the USB drive" displayed. **See Diagram 3.11.5**
13. Touch "**OK**" to return the Settings menus.

Diagram 3.11.5

14. The settings export is now complete and you can exit the service mode by touching the back arrow until you get to the "Welcome" screen.
15. Move the USB Flash Drive device with the saved settings to a P80 console that you would like to import the saved settings.
16. Access the "Manage Settings" screen by following the described steps 1 through 5.
17. Insert the USB Flash Drive into the USB Drive Port of the P80 console. **See Diagram 3.11.3.**
18. Wait for the USB Flash Drive Icons to become active (light up) and then select "Import from USB". **See Diagram 3.11.6**

Diagram 3.11.6

19. You will see a scrolling in process bar and then "Settings imported successfully" displayed. **See Diagram 3.11.7**
20. Touch "**OK**" to return the Settings menus.

Diagram 3.11.7

21. Exit the service mode as described in steps 9 and 10.
22. Repeat the described process steps 11 though 16 for any remaining P80 consoles.

Procedure 3.12 – P80 – Replacing the Console

Required Tools

- 2- 7/16 in open end wrenches
- $^{1}/_{4}$-inch hex wrench
- SAE $^{5}/_{32}$-inch hex wrench
- SAE$^{1}/_{2}$-inch box-end wrench
- #2 Phillips screwdriver
- Wire cutter

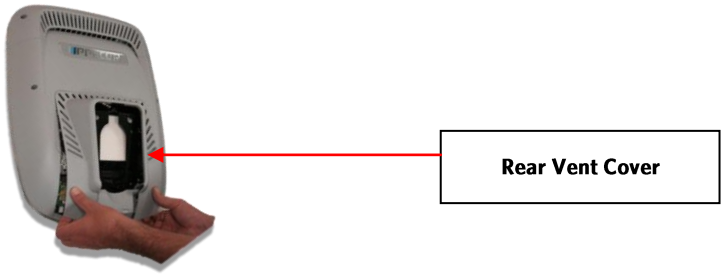
Procedure

1. Remove the two #3 Phillips head screws securing the upper back cover of the dash to the two transition covers. Set transition cover and the screws aside for reinstallation. **See Diagram 3.12.1**

Diagram 3.12.1

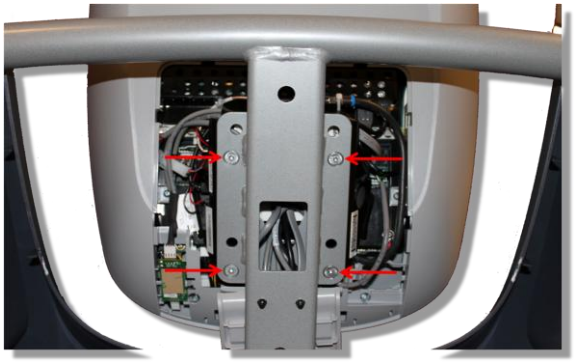
2. Remove the rear vent cover. Do not use a sharp tool, such as a flat bladed screwdriver, to pry up the cover, as you can damage the covers and possibly components inside the console. When the cover starts to come loose, gently unsnap it from the P80 and set it aside where it will not be scratched. **See Diagram 3.12.2**

Diagram 3.12.2



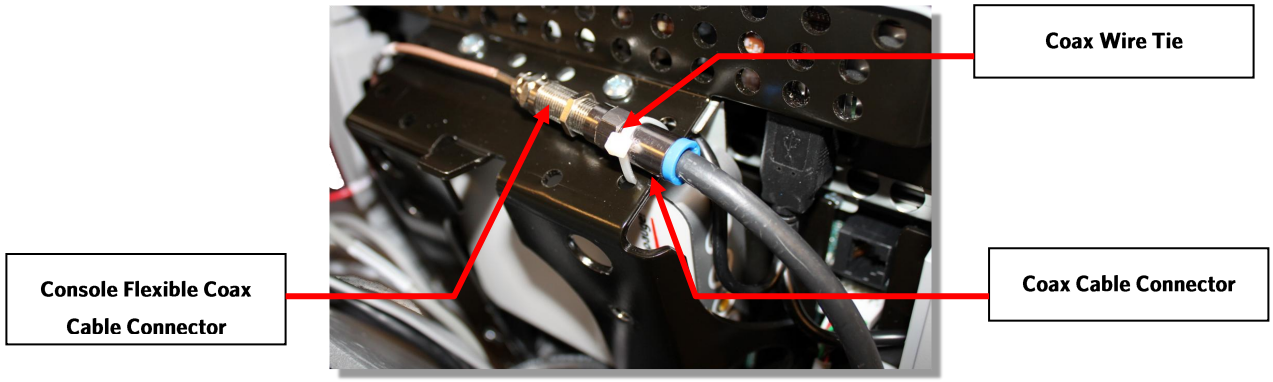
3. Remove the four flat head 5/8 inch long screws that secure the console to the plate. **See Diagram 3.12.3**

Diagram 3.12.3



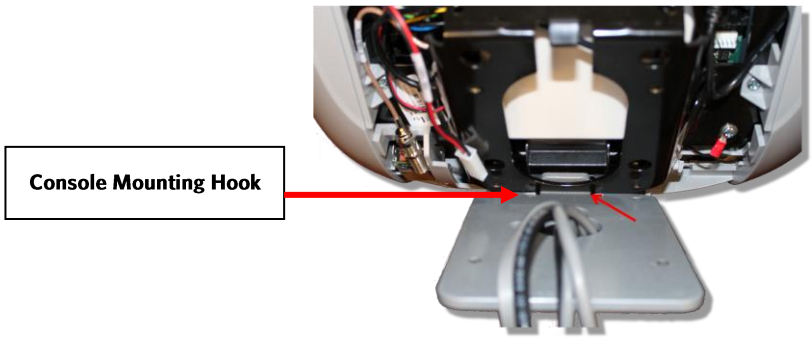
4. Tilt the console forward (away from yourself) on the mounting hook. **See Diagram 3.12.4**

Diagram 3.12.4



5. Locate the coax connector and cut the wire tie that secures the coax connector to the console armor. Disconnect the coax cable connector from the consoles flexible coax cable connector. **See Diagram 3.12.5**

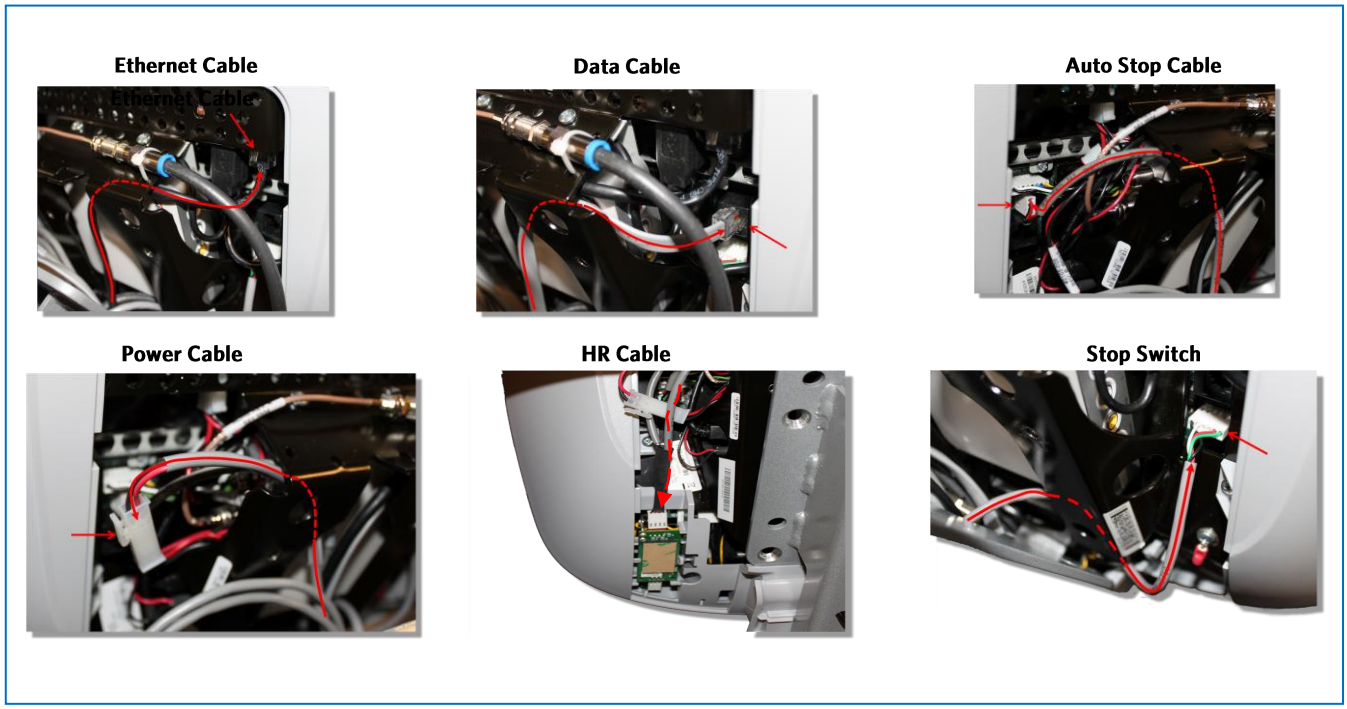
Diagram 3.12.5



6. Disconnect the Ethernet cable, Data cable, Auto Stop cable, Stop Switch cable, the Power cable and the HR cable. **See Diagram 3.12.6**

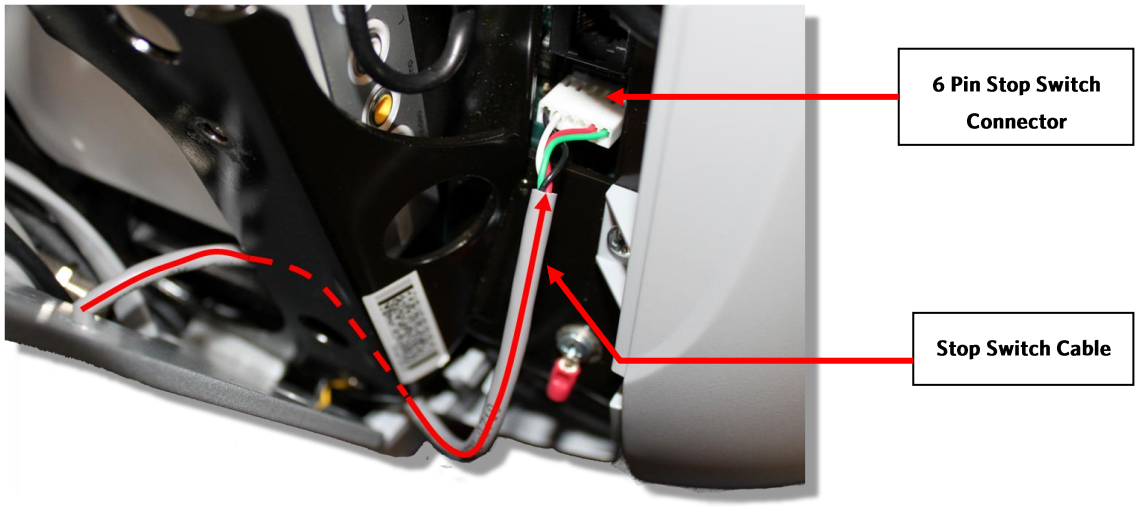
Diagram 3.12.6

7. Remove the console by lifting it off the mounting hook.



8. Install the replacement console. In the back of the P80 console there is a large black steel support called the Armor. At the bottom of Armor there is a notch about ¼ inches in depth and about 1½ inches across. **See Diagram 3.12.7.** Set the console notch over the over the mounting hook. **Note:** Before releasing the console ensure the notch is securely seated over the mounting hook. **See Diagram 3.12.4**

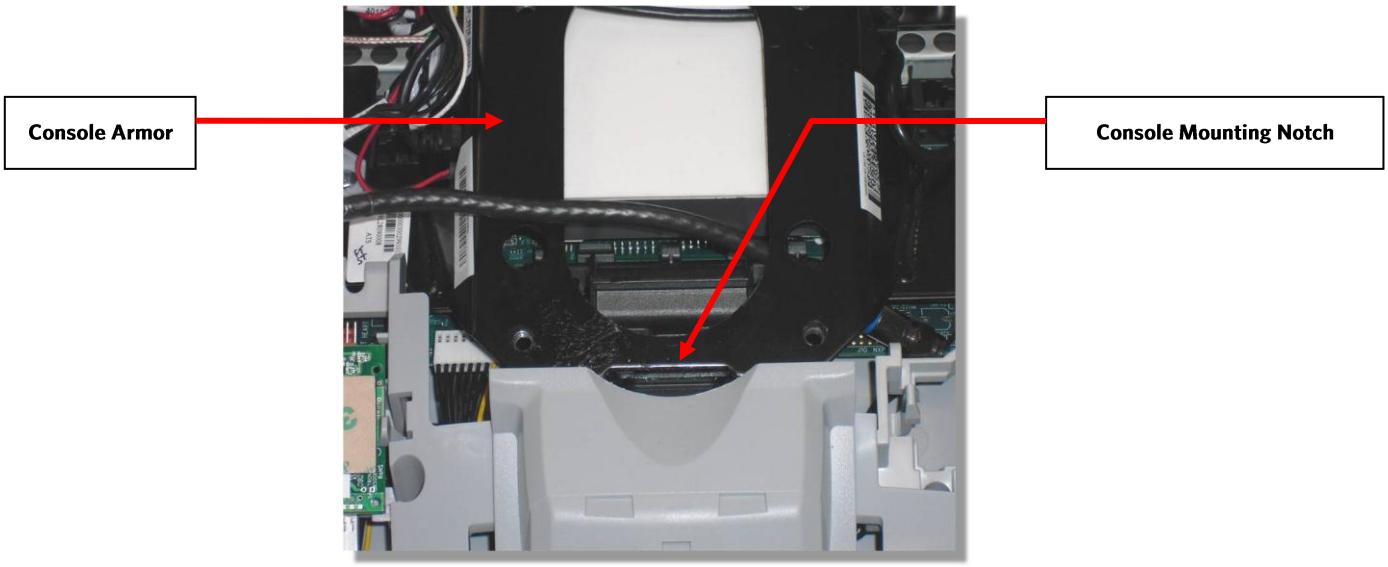
Diagram 3.12.7



9. After the console has been seated, route the Stop Switch assembly cable through the lower right corner of the armor, and connect it to the 6 pin flat connector on the CPA board. The cable will go behind the armor, then up to the connector. Be sure to align the connector onto the six pins correctly, or the treadmill will not work. **See Diagram 3.12.8**

Diagram 3.12.8

10. Route the RF coax cable down below the tuner and out the right bottom side of the armor. This is easier if you



straighten the cable and gently push it in the direction as shown in diagram 3.12.9. Feed about 10 inches of cable out though the plastic using your finger as a guide.

11. Bring the coax cable up over the top of the armor and connect it to the flexible cable attached to the tuner. **See Diagram 3.12.10.**
12. Secure the RF coax connectors in place with a zip tie. **Note:** It is important that the connection be tied to the frame in this location to prevent the cable from being pinched, and the possibility of rattling noises during use. Be sure to secure the zip tie on the connector and not on the cable. **See Diagram 3.12.11.**

Diagram 3.12.9

Diagram 3.12.10

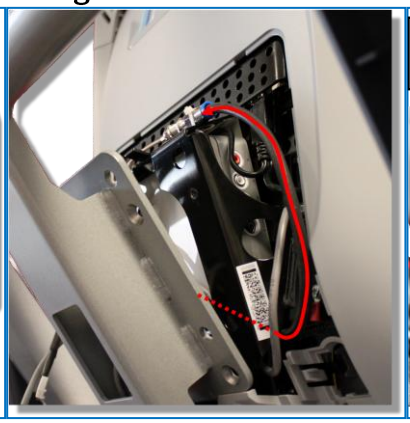
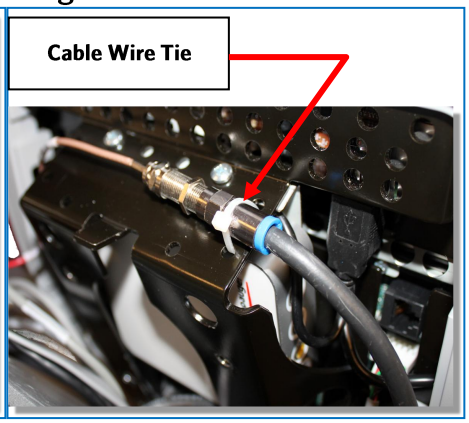


Diagram 3.12.11



13. Route the black, round Ethernet cable through the opening in the upper right side of the armor, behind the tuner and connect the Ethernet cable to the upper RJ45 type connector. **See Diagram 3.12.12.**

14. Route the grey, flat Data cable through the opening in the upper right side of the armor, behind the tuner and connect the Data cable to the lower RJ45 type connector. **See Diagram 3.12.13.**

Diagram 3.12.12

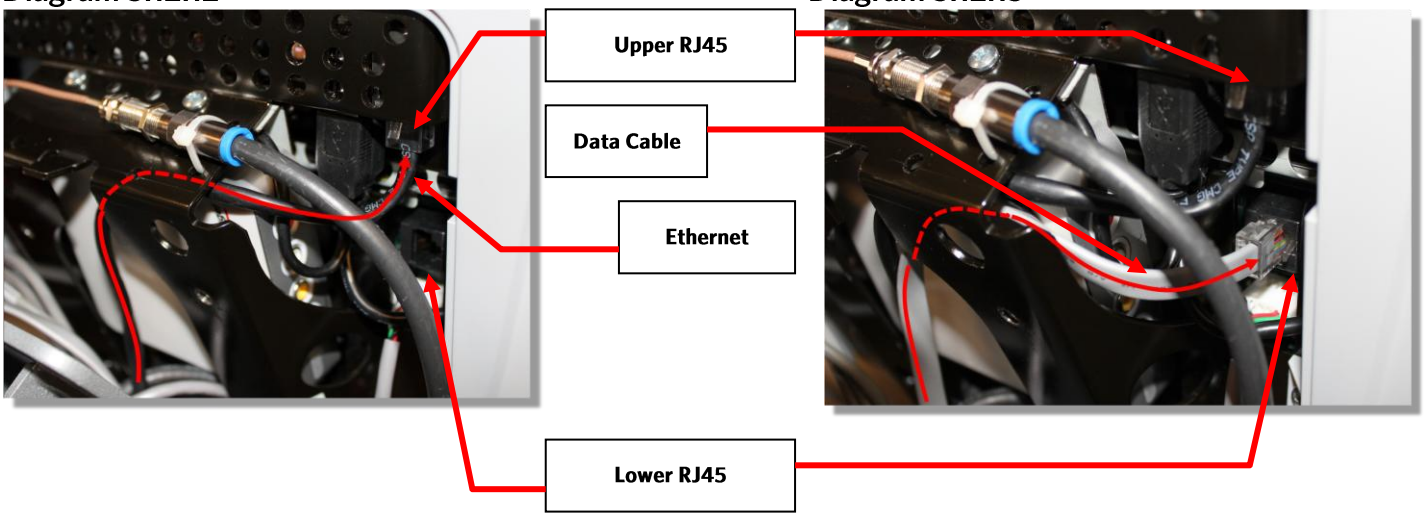
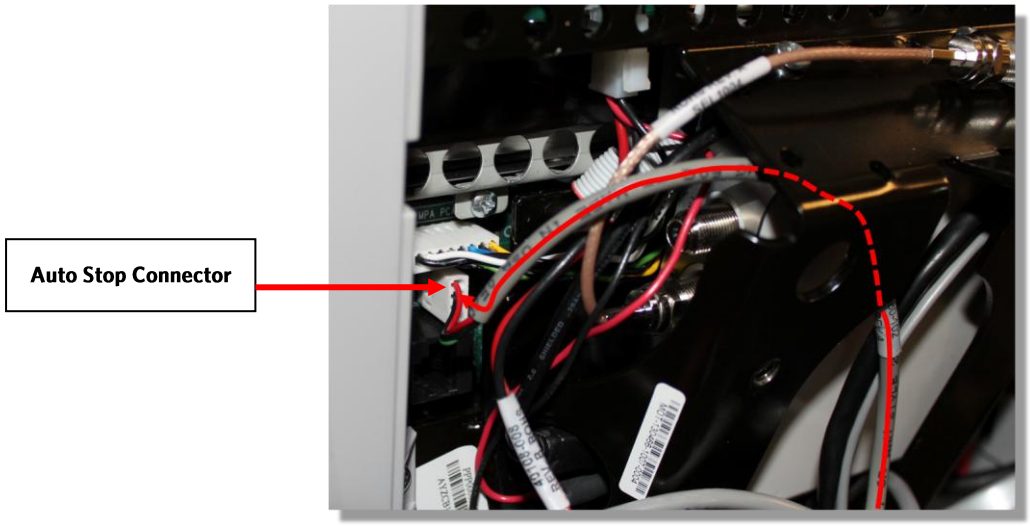


Diagram 3.12.13

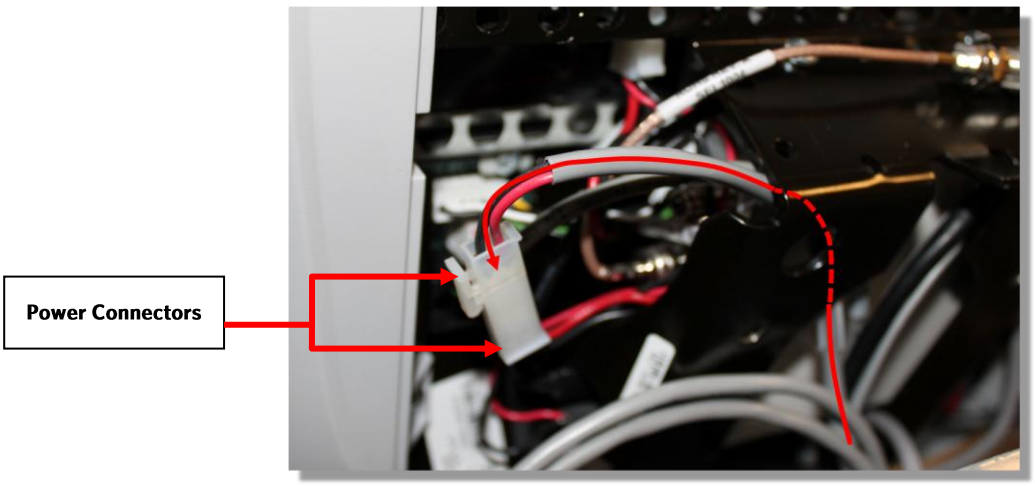
15. Route the Auto Stop cable through the upper left corner of the weldment and connect it to the four pin, keyed connector. **See Diagram 3.12.14**

See Diagram 3.12.14



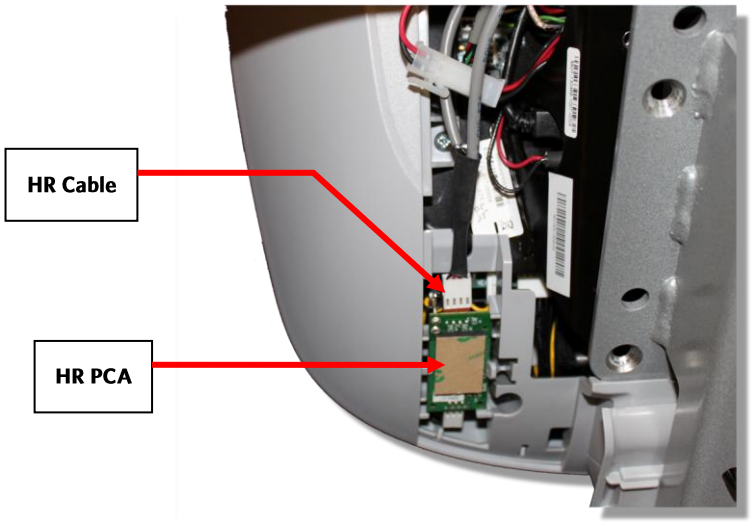
16. Route the Power cable through the upper left corner of the weldment and connect it to the P80 power connector. **See Diagram 3.12.15**. **Note:** Leave the connector on the side of the P80 as shown in diagram 3.12.15, as it might be necessary to access it for troubleshooting.

Diagram 3.12.15



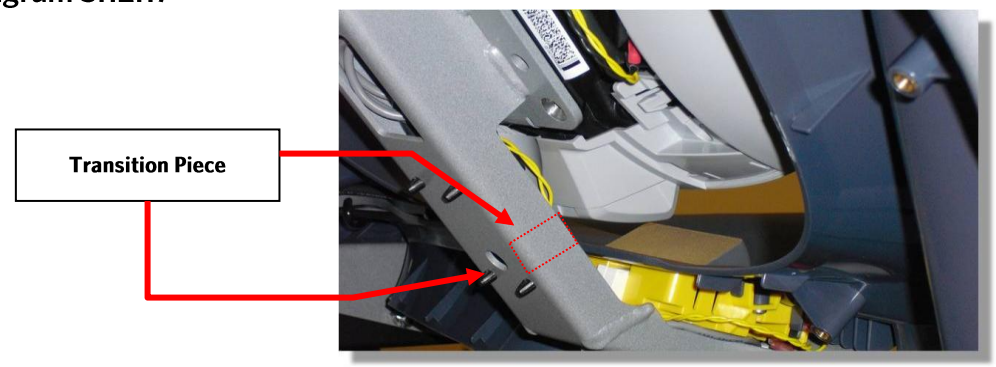
17. Route the Heart Rate cable through the upper left corner of the weldment and connect it to the HR PCA. Route any excess Heart Rate cable into the rectangular center section of the dash assembly. **See Diagram 3.12.16**

Diagram 3.12.16



18. Make sure that all cables are fully and securely connected, and that cables are tied back properly. Make sure any extra cabling is pulled down through the neck and along the front of the dash, making sure the cables are routed through the plastic guides inside the neck.
19. Make sure that the two transition pieces are still in the correct mounting locations and did not move or fall out during the console installation. **See Diagram 3.12.17**

Diagram 3.12.17



20. Tilt the control console backward (toward yourself) until the tab on the top edge of the armor slides along the top edge of the console mount and the screw holes align properly.
21. Secure the console to the plate using the four flat head $^{5}/_{8}$ inch long screws. **Note:** You must use $^{5}/_{8}$ inch long screws. If the screws are too short the console will not be properly grounded. If the screws are too long it is possible to damage the internal wiring.
22. Tighten the screws fully using a $^{5}/_{32}$-inch hex wrench.
23. Replace the rear vent cover.
24. Fasten the transition cover to the frame using the two screws removed in step 1.

Procedure 3.13 – P80 – Replacing the Heart Rate PCA Board

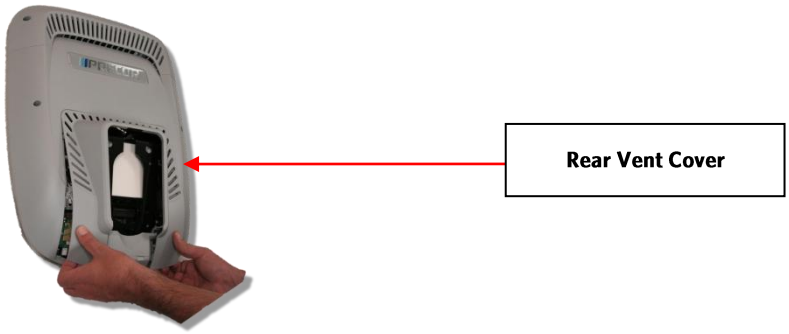
Procedure

1. Set the treadmill circuit breaker in the "off" position and unplug the treadmill's line cord from the AC outlet.
2. Remove the two #3 Phillips head screws securing the upper back cover of the dash to the two transition covers. Set all three covers and the screws aside for reinstallation. **See Diagram 3.13.1**

Diagram 3.13.1

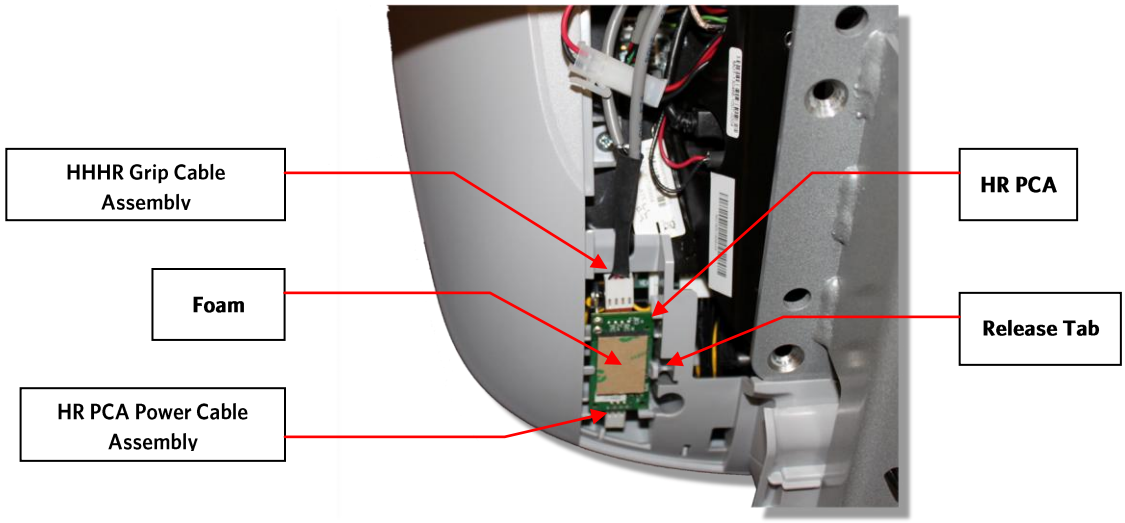
3. Remove the rear vent cover. Do not use a sharp tool, such as a flat bladed screwdriver, to pry up the cover, as you can damage the covers and possibly components inside the console. When the cover starts to come loose, gently unsnap it from the P80 and set it aside where it will not be scratched. **See Diagram 3.13.2**

Diagram 3.13.2



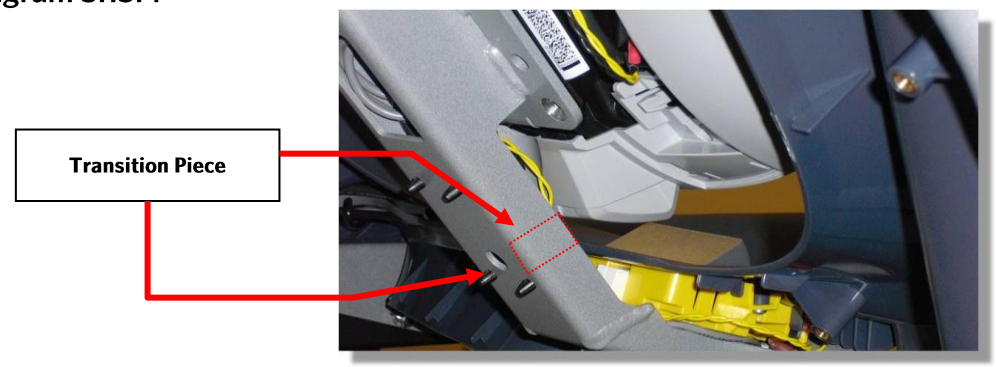
4. The PCA's in the console are static sensitive. They can be damaged if proper static prevention equipment is not used. Attach an anti-static wrist strap to your arm, and then connect the ground lead of the wrist strap to frame ground.
5. The HR PCA snaps into its mounting. Press the release tab sideways and remove the HR PCA from its mounting.
6. Disconnect the HR cable and handlebar cable from the HR PCA. **See Diagram 3.13.3.**
7. Connect the HHHR Grip cable assembly to the upper connector on the HR PCA and the HR PCA Power cable to the lower connector on the replacement HR PCA. **See Diagram 3.13.3**.
8. Orient the replacement HR PCA so that the side with the protective foam pad is facing out and snap the HR PCA into its mounting.

Diagram 3.13.3



9. Make sure that the two transition pieces are still in the correct mounting locations and did not move or fall out during the console installation. **See Diagram 3.13.4**

Diagram 3.13.4



10. Fasten the transition cover to the frame using the two screws removed in step 2.
11. Replace the rear vent cover.
12. Check operation per Section 7.

Procedure 3.14 – P80– Future Content

Procedure 3.15 – P80– Future Content

Procedure 3.16 – P80– Future Content

Procedure 3.17 – P80– Future Content

Procedure 3.18 – P80– Future Content

Procedure 3.19 – P80– Future Content

Troubleshooting 3.20- P80 - Black Screen – TV Only

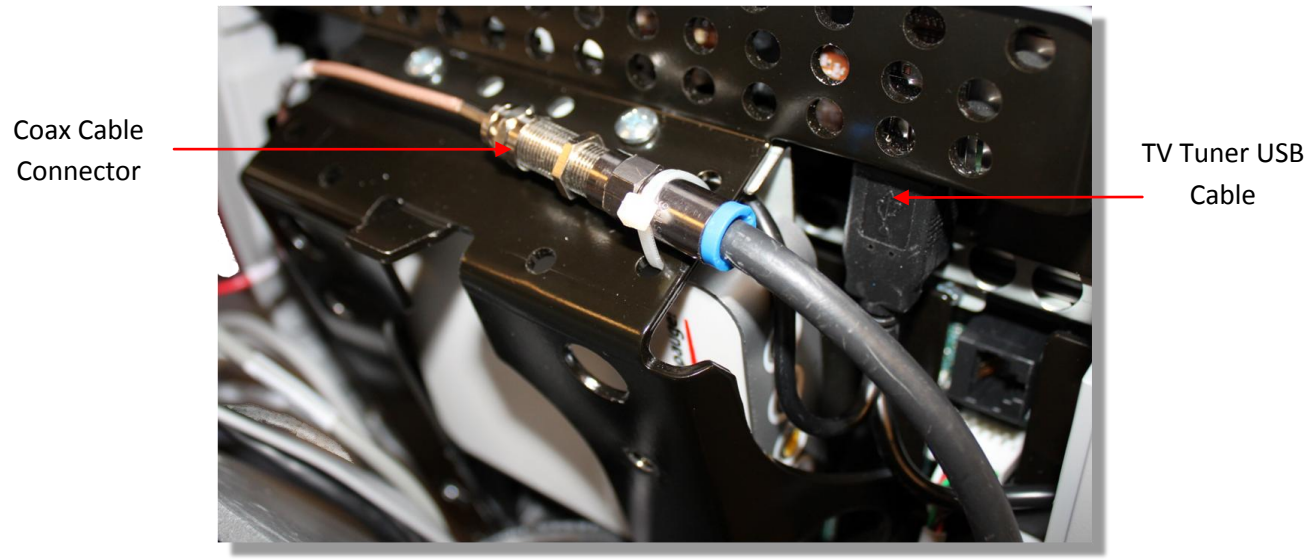
Description

The console interface and the fitness equipment operates normally when using workout programs, but TV channels only display as a black screen and audio is not present.

Possible Causes

1. There is no TV signal to the console
    a. External jumper cable is damaged or disconnected
    b. Coax cables inside the unit are damaged or disconnected
    c. All cables are good and connected but there is no signal at the drop
2. TV channel is not being received or is not a valid channel
3. USB cable connecting tuner to screen is loose or plugged in incorrectly
4. Media player has failed (software)
    a. Watchdog may or may not be recovering the media player automatically
5. There may be a software mismatch between the CPA and the MFE.
6. Tuner has failed (hardware).

Diagram 3.20.1



Possible Remedies

1. Check for video signal to the tuner
    a. Inspect jumper cables connecting fitness equipment to the video drop. If it is visibly damaged or disconnected, replace or reconnect. If it passes visual inspection, swap with a known good. If TV channel now appears, the cable is the cause. Replace the jumper cable. If the channel does not appear, perform the same check on the F connectors.
    b. Inspect the cable that runs from the patch panel at the bottom of the machine to the console. If this is disconnected or damaged, reconnect or replace. If the cable passes visual inspection, use a known good cable to bypass this cable. If the TV channel appears, replace the coax cable running through the machine.
    c. Connect the machine to a known good A/V drop. If the TV channel now appears on the console, verify the drop is good. If not, have the customer contact their A/V service technician to repair the drop. Getting a signal strength reading can assist in diagnosing the video problem.
2. Verify on other machines that this is a valid channel. If a channel would appear as total snow or static (as on a channel that is has no signal), then the console will display this as a black screen for that channel. If no machines receive this channel, it is likely that it is not a valid channel. The club's channel lineup may have changed or something may be wrong with their head end.
    a. If the lineup has changed, rescan to pick up the correct channel lineup. If other units in the facility also have the incorrect lineup, you will need to export this new scan information to the other units.
3. Inspect the black USB cable running from the left side of the tuner to the USB jacks on the right side of the console. The tuner cable must be plugged into the correct jack. If it is not plugged into the outermost jack (the one closest to you when looking at the back of the console) plug it into the correct jack. **See Diagram 3.20.1**

4. If the signal to the console is good and the TV screen has been black for more than 5-10 minutes, then the watchdog is not able to recover the media player. If it is less than 5 minutes or so, the watchdog may still be trying to automatically recover the system.
    a. This can be verified by looking in the Event Log. Messages that indicate a media reboot include: "Rebooting the meda [sic] board," "The mediaapp restart is near," "i2c timeout," or "The OMAP board was rebooted because the mpaqtapp was not running," though this is not inclusive of all possible messages.
    b. Rebooting the machine will force the media player to reboot. If the TV channel appears after rebooting, the issue was the media player. Verify all channels and operation of unit. If the channel is still black, then verify all other components are operational.
5. Some older versions of software can experience a bug where only one component reverts back to a different image. If the old image is of a much older version of software, this could cause some communications problems between the CPA and the MFE. Open the Settings menu and select Reflashing. Check the version numbers in the CPA Reflashing and the MFE Reflashing menus to make sure they are the correct version numbers. If they are not or say <UNKNOWN>, then this bug may have occurred. Try rebooting the unit to see if it resolves the issue. If not, use the appropriate Reflashing menu to boot that component to the other boot image. Verify that the new image contains the correct software versions.
6. If the video signal can be verified up to the tuner, connect a known good signal directly into the mini-coax on the tuner. If the channel lineup on the console has been confirmed correct, the signal is good, the unit has been rebooted, the software is correct on all components, and the screen is still black, the tuner has likely failed. Replace the entire console.

Troubleshooting 3.21- P80 - Black Screen – Full Console

Description

Console displays only a black screen. Machine is unusable.

Possible Causes

1. Console has frozen
2. Console is attempting to boot to an image that has corrupted
3. Touch screen has failed

Possible Remedies

1. Reboot the machine to resolve any software freezing issues.
2. If the console is attempting to boot to a corrupted software image, when a reboot is performed, the CPA version number will scroll across the display of the machine controls, but the screen will remain black and will never reach the Precor splash screen. Perform a 7 Power Cycle (**See Boot Screen Procedure below**) to force the machine to revert to the backup image. When the unit boots successfully, reflash the unit with the correct software to ensure that the old, corrupted image has a usable image installed.
3. If the touch screen has failed, the entire console will need to be replaced.

Boot Screen Procedure

1. Turn the power off then back on. On treadmills, turn the on/off switch to the "off" position then back to the "on" position. On self powered units, disconnect the power source connected to the P80 console and then reconnect the power source.
2. Wait 15 seconds. It is critical that the timing be no less than 15 seconds and no greater than 45 seconds for the procedure to be successful.
3. Repeat steps 2 and 3 for 6 additional power "Off and On" cycles.
4. On the last or 7th cycle leave the power connected or the power switch turned to the "On" position allowing the P80 console to boot up completely.
5. If the P80 console boot up to the "Welcome" screen was successful, go to step 6. If the P80 console still will not boot to the "Welcome" screen contact PRECOR customer support.
6. Reprogram the P80 console with the most current software package available. **See Procedure 3.5, P80 Updating Software,** for instructions on how to reprogram the P80 console.

Troubleshooting 3.22- P80 – Poor Quality Video – Single Unit Only

Description

Television signal is present, but picture quality is consistently or inconsistently poor across all available channels.

Possible Causes

1. Loose or damaged coaxial cable
2. Poor television signal to the machine
3. Incorrect region setting in channel settings

Possible Remedies

1. Check for good video signal to the tuner.
    a. Inspect jumper cable connecting fitness equipment to the video drop. If it is visibly damaged or disconnected, replace or reconnect. If it passes visual inspection, swap with a known good jumper cable. If a TV channel now appears, the cable is the cause. Replace the jumper cable. If the channel does not appear, perform the same check on the F connectors.
    b. Inspect the cable that runs from the patch panel at the bottom of the machine to the console. If this is disconnected or damaged, reconnect or replace. If the cable passes visual inspection, use a known good cable to bypass this cable. If the TV channel appears, replace the coax cable running through the machine.
    c. Connect the machine to a known good A/V drop. If the TV channel now appears on the console, verify the drop is good. If not, have the customer contact their A/V service technician to repair the drop.
    d. Verify signal strength with signal meter.
2. As above, verify condition and connections of coax cables as well as verify quality of signal to that drop. Verify signal strength with signal meter.
3. Enter the Settings Menu. Select System Settings, then TV Settings. Verify that unit is set for "United States." **See Procedure 3.9. TV Settings.**

Troubleshooting 3.23 - P80 – Poor Quality Video – All Units

Description

Television signal is present, but picture quality is consistently or inconsistently poor across all available channels.

Possible Causes

1. Loose or damaged coaxial cable at or near head end.
2. Poor television signal from head end.
3. Poor television signal to club.
4. All machines were configured using incorrect region setting.

Possible Remedies

1. Verify condition and connections of video distribution network. Begin as close to head end as possible and check for visible damage to coaxial cables or connectors. Verify all connections are tight.
2. Check signal quality and strength as close to head end as possible. If poor from the head end have customer contact their A/V service company to ensure signal from head end is within acceptable parameters.
3. Troubleshoot as above. Signal provider (e.g. Cable Company, Satellite Company, etc.) will need to address this issue.
4. Enter the Settings Menu. Select System Settings, then TV Settings. Verify that unit is set for "United States.". **See Procedure 3.9. TV Settings.**

Troubleshooting 3.24 - P80 – Poor Quality Video – One Channel(s) or Limited Channels

Description

One or a limited number channels on a unit has poor reception or no reception.

Possible Causes

1. Loose or damaged coaxial cable.
2. Poor television signal to the machine.
3. Incorrect channel scan lineup.

Possible Remedies

1. Check for good video signal to the tuner.
    a. Inspect jumper cable connecting fitness equipment to the video drop. If it is visibly damaged or disconnected, replace or reconnect. If it passes visual inspection, swap with a known good jumper cable. If the TV channel now appears, the cable is the cause. Replace the jumper cable. If the channel does not appear, perform the same check on the F connectors.
    b. Inspect the cable that runs from the patch panel at the bottom of the machine to the console. If this is disconnected or damaged, reconnect or replace. If the cable passes visual inspection, use a known good cable to bypass this cable. If the TV channel appears, replace the coax cable running through the machine.
    c. Connect the machine to a known good A/V drop. If the TV channel now appears on the console, verify the drop is good. If not, have the customer contact their A/V service technician to repair the drop.
    d. Verify signal strength with signal meter.
2. As above, verify condition and connections of coax cables as well as verify quality of signal to that drop. Verify signal strength using a signal meter.
3. Rescan channels on that unit. This is less likely to be the problem if the channel is coming in poorly since if the console is looking at the wrong channel number entirely, this should manifest as a black TV screen rather than poor video quality.

Troubleshooting 3.25 - P80 – Green Screen

Description

Entire touch screen is displaying a green color. No response to any inputs, machine is completely unusable.

Possible Causes

1. Operation System, kernel crash. Operating System is completely hung up, no error logging is able to occur.

Possible Remedies

1. Reboot machine.

Troubleshooting 3.26 - P80 – Stuttering Channels

Description

TV channels stutters and skips regularly every second or so. Video and audio skip together. If the skipping channel is left on, the TV may go black for a short time and the mediaapp will be reset by the system.

Possible Causes

1. Tuner tuned improperly to the channel

Possible Remedies

Change the channel to a different channel. The skipping will now be gone and the user can change back to the original channel.

Troubleshooting 3.27 - P80 – Touch Screen Unresponsive

Description

Touch screen does not respond to any touches. Screen may show a static or a moving image, but is not completely black.

Possible Causes

1. Console was improperly calibrated or has fallen out of calibration
2. Console has locked up.
3. Touch Screen is defective

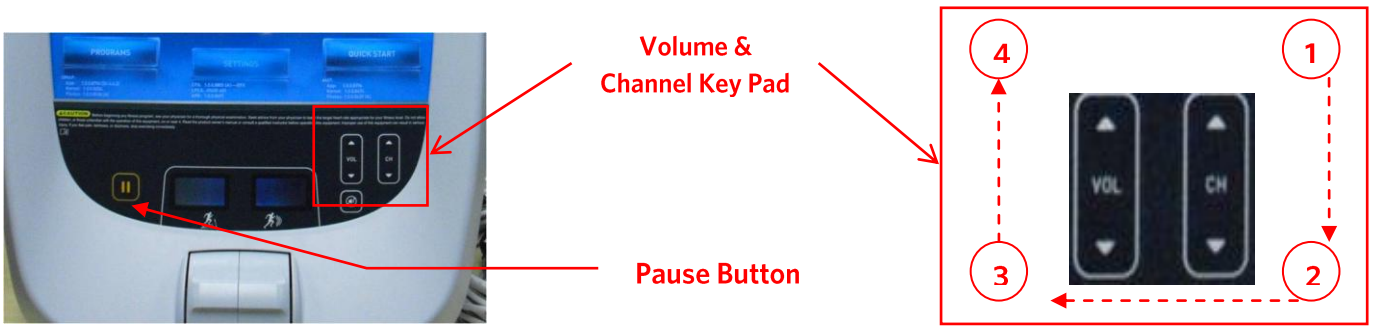
Possible Remedies

1. Use Single Secret Handshake to enter screen calibration. **See Single Secret Handshake Procedure below**. Press each 'X' in sequence to recalibrate the screen. **See Procedure 3.6, Systems Test.** Ensure the person recalibrating is standing on the machine and is not holding on to the console or any other part of the machine while doing so.
2. Reboot the machine
3. If touch screen has failed entirely, console will need to be replaced. This is not a replaceable part.

Single Secret Handshake Procedure

Press the Pause key and continue holding it down while you press in sequential order an U configuration on the Volume and Channel key pad (① Channel Up, ② Channel Down,③ Volume Down,④ Volume Up). **See Diagram 3.27.1.** Release the Pause key when done pressing the arrows. **Note: The keypad U configuration sequence should be not faster than 1 second between each key stroke.** Any speed faster than 1 second may result in an unsuccessful access to the sign-in screen.

Diagram 3.27.1



Troubleshooting 3.28- P80 – Touch Screen Slow Response

Description

Touch screen responds appropriately to touches, but does so slowly. The screen may or may not play the animations associated with the touches when carrying out the appropriate action.

Possible Causes

1. The console is running low on memory.

Possible Remedies

1. Reboot the console. This will clear the memory and restore the unit to normal operation.

Troubleshooting 3.29 - P80 – Touch Screen Responds Incorrectly to Touch

Description

Touch screen reads touches, but it is not registering them where the user is touching the screen.

Possible Causes

1. The touch screen was improperly calibrated or has fallen out of calibration.

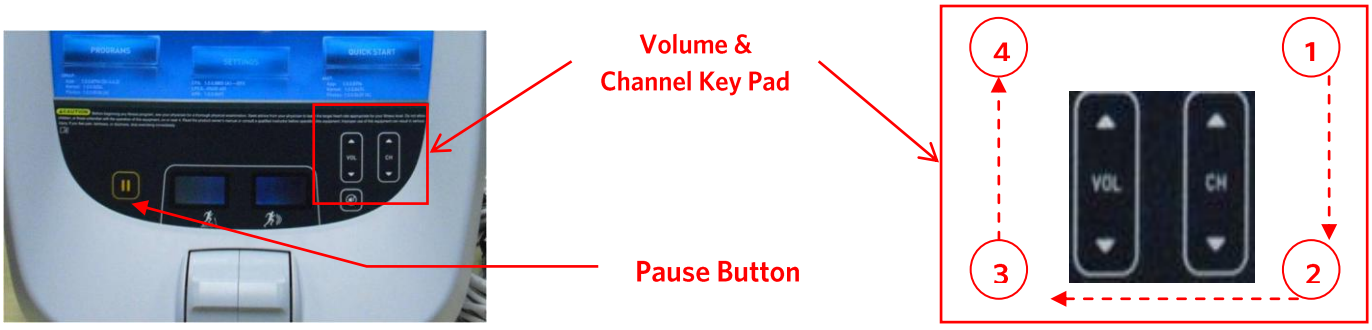
Possible Remedies

1. Use Single Secret Handshake to enter screen calibration. **See Single Secret Handshake Procedure below.** Press each 'X' in sequence to recalibrate the screen. **See Procedure 3.6, Systems Test.** Ensure the person recalibrating is standing on the machine and is not holding on to the console or any other part of the machine while doing so.

Single Secret Handshake Procedure

Press the Pause key and continue holding it down while you press in sequential order an U configuration on the Volume and Channel key pad (① Channel Up, ② Channel Down,③ Volume Down,④ Volume Up). **See Diagram 3.27.1.** Release the Pause key when done pressing the arrows. **Note: The keypad U configuration sequence should be not faster than 1 second between each key stroke.** Any speed faster than 1 second may result in an unsuccessful access to the sign-in screen.

Diagram 3.27.1



Troubleshooting 3.30 - P80 – Poor Audio Quality – All Channels, One/Limited Units

Description

While video signal is good to one or a few machines, the sound is of poor quality.

Possible Causes

1. Bad or damaged headphone jack
2. Bad or damaged headphone jack cable
3. Poor television signal to the machine

Possible Remedies

1. Remove and inspect headphone jack for damage. If jack passes visual inspection, swap headphone jack with known good.
2. Inspect cables from console to headphone jack. Verify that they are not damaged. If they are, these are not field-replaceable. Console will need to be swapped.
3. Check for good video signal to the tuner. Generally, however, if the issue is a cabling issue, the video will be bad along with the sound. However, if there is an issue with how the amplifier in the head end is configured, this could result in good video, but poor sound, though this is likely to be an issue across all units rather than a subset of the entire facility.

Troubleshooting 3.31 - P80 – Poor Audio Quality – All Channels, Multiple Units

Description

While video signal is good to one or a few machines, the sound is of poor quality.

Possible Causes

1. Bad or damaged headphone jack
2. Bad or damaged headphone jack cable
3. Poor television signal from the head end

Possible Remedies

1. Remove and inspect headphone jacks for damage. If jack passes visual inspection, swap headphone jack with known good.
2. Inspect cables from console to headphone jack. Verify that they are not damaged. If they are, these are not field-replaceable. Console will need to be swapped.
3. Check for good video signal from the head end. Generally, however, if the issue is a cabling issue, the video will be bad along with the sound. However, if there is an issue with how the amplifier in the head end is configured, this could result in good video, but poor sound, though this is likely to be an issue across all units rather than a subset of the entire facility.

Troubleshooting 3.32 - P80 – Machine Controls Unresponsive

Description

Machine controls do not respond to input. User is unable to change workout parameters.

Possible Causes

1. Cable from machine controls to upper board is damaged or not inserted properly.
2. Machine controls have failed

Possible Remedies

1. Check yellow/black cable in console for damage. Ensure the cable is inserted fully onto the pins. If not inserted properly, insert. If cable is damaged, console must be replaced; this is not a replaceable part.
2. If machine controls have failed, the entire console will need to be replaced. This is not a replaceable part.

Troubleshooting 3.33 - P80 – Machine Controls Incorrect Response

Description

Machine controls do not respond properly to input – speed up makes speed go down, incline up makes incline go down, etc.

Possible Causes

1. "Bounce-back" If the user if flipping the machine controls with a lot of force, the control could rebound with enough force to cause it to bounce in the other direction, causing the machine to think the user is actually pressing it in that direction.
2. Cable from machine controls to upper board is damaged or not inserted properly.
3. Machine controls have failed

Possible Remedies

1. Verify the user is not using excessive force on the controls. Test to make sure they are operating properly when appropriate force is used. Educate customer on proper use of equipment.
2. Test controls in Systems Tests. **See Procedure 3.6, Systems Test.** Check yellow/black cable in console for damage. Ensure the cable is inserted fully onto the pins. If not inserted properly, insert. If cable is damaged, console must be replaced; this is not a replaceable part.

Troubleshooting 3.34- P80 – Message "Out of Service" Displayed

Description

Console is displaying a message that says "Temporarily Out of Service. Please use another machine."

Possible Causes

1. Software has encountered an error causing the console to enter Out of Service mode
2. The Auto Stop sensor on a treadmill is missing, improperly installed, or malfunctioning (Treadmill Only).

Possible Remedies

1. Reboot the console. Most issues causing "Out of Service" errors will be cleared from a reboot.
2. Treadmill Only. Inspect the Auto Stop sensor and ensure it is installed properly. Inspect Auto Stop cable to ensure it is inserted properly and undamaged. Repair or replace if needed. OOS error will clear as soon as the sensor is detected. Do not disable the Auto Stop sensor in the software. For more trouble shooting information on the Auto Stop feature see **Troubleshooting- 9.5 – TRM_ Trouble Shooting the Auto Stop Feature.**

Troubleshooting 3.35 - P80 – Message “Please Reset the Treadmill” Displayed

-

Description

On a treadmill, the screen displays the message, “Please Reset the Treadmill” along with a graphic of the stop switch.

Possible Causes

1. The Stop Switch lanyard has been pulled and the reset latch has been disengaged. The yellow button will be raised on the dash.
2. The stop switch reset latch has been engaged, but not fully so.
3. The cable connecting the stop switch to the console is disconnected, loose, or damaged.
4. The stop switch is malfunctioning

Possible Remedies

1. Press down firmly the yellow button on the dash. The tread will reset itself shortly.
2. Pull the lanyard to disengage the reset latch. Press down firmly on the yellow button on the dash to reset the treadmill.
3. Inspect the connections leading from the stop switch to the console. Ensure that the cables are secure and undamaged.
4. Replace the stop switch assembly.

Troubleshooting 3.36 - P80 – Unit reboots of its own volition

Description

Console fully reboots without any outside input, either during the boot process or while in operation.

Possible Causes

1. Power connections outside fitness equipment are loose or bad
2. Power connections inside fitness equipment are loose or bad
3. Faulty power supply
4. Facility power is not configured correctly.
5. Faulty console

Possible Remedies

1. Inspect power cord from wall plate to power supply (if non-Treadmill) or patch panel (if Treadmill). Verify all connections are tight and that there is no damage. Swap with known good cable, if appropriate. Inspect connections from power supply to patch panel (if non-Treadmill). Reconnect or replace all cables as needed.
2. Open the machine and inspect the power cord running from patch panel to console (if non-Treadmill) or from patch panel to power supply (if Treadmill). Swap with known good to test, if needed. On Treads, also check from power supply to console. Again, swap with known good to test.
3. Inspect power supply for damage. Swap with known good power supply to test. Replace, if needed.
4. Ensure that facility has configured their power correctly. About 8 non treadmill units can be connected through one dedicated circuit. Each treadmill must be on a dedicated, branch circuit. Neutrals and Hot Leads must not be shared among treadmills. If the power supplied to the machines is not up to specification, the customer will need to contact an electrician to make the needed repairs.
5. If the power, power supply, and power cabling are all good and securely connected, the console will need to be replaced.

Section Four – Future Content

Section Five – P30 Console - TRM

Procedure 5.1 – P30 - Accessing the Diagnostic Software

The P30 Console diagnostic software consists of the following modes:

- Beeper Test
- Display Test
- Keyboard Test
- Heart Rate Test
- Machine Test
    - Belt Speed (TRM only)
    - Incline (TRM, EFX)
    - Auto Stop (TRM only)

Procedure:

1. Treadmills - Plug the power cord into the wall outlet, and then turn on the treadmill with the circuit breaker..

2. Using the **PAUSE** key and the numeric keypad, press keys **PAUSE,5,1,7,6,5,7,6,1,** sequentially.

3. **Hardware Validation** will scroll across the display followed by **DISPLAY TEST**.

Diagram 5.1 .1 – P30 Console - TRM

4. Press the **OK** key, the upper most group of LED's will illuminate on the display. Check the display to ensure that all LED segments are illuminated.

5. Press the **OK** key four more times to display the remaining LED groups. Check each display group to ensure that all LED segments are illuminated.

6. Press the **BACK** key then the ▼ key, **KEYBOARD TEST** will scroll across the display.

7. Press the OK key, a representation of all of the keys on the console will be displayed. Pressing a key on the console will cause the illuminated representation of that key to turn off. Press all of the keys on the console to ensure that all of the keys are functioning.

8. Press and hold the **BACK** key for **5 seconds** then the ▼ key, **HEART RATE** will be displayed.

9. Press the OK key, then grasp both of the heart rate grips on the handlebar, after a couple of seconds the heart rate will be displayed in the heart rate and smart rate displays.

10. Use chest strap transmitter or a test transmitter to test the wireless heart rate function, after a couple of seconds the heart rate will be displayed in the heart rate and smart rate displays.

11. Press the **BACK** key then the ▼ key, **MACHINE TEST** will scroll across the display.

12. You may now proceed to either the belt speed test or the incline test. Press the ▼ key once to access the belt speed test or twice to access the incline test. Press the OK key.

13. **BELT SPEED** test. Press the OK key, the console will display the power bits (PWRB), Press the **SPEED** ▲ key to start the treadmill running belt, the display will indicate the power bits, the elapsed time and the actual speed (in either miles per hour or kilometers per hour depending on the club parameters setting, see Procedure 2.3).

14. Press the ▼ key, the console will display the motor current (AMPS), the elapsed time and the actual speed.

15. Press the **BACK** key to exit the belt speed test.

16. **INCLINE** test. The console will display the analog to digital (A/D) incline position number and the incline position in percent of incline. Press the inline ▲,▼ keys to operate the incline throughout its range.

17. Press the **BACK** key to exit the belt incline test.

18. **AUTO STOP** test. The console will display "**USER DETECTED**" when motion is detected from the running deck or "**NO USER DETECTED**" when there is no motion from the running deck.

19. Press the **BACK** key to exit the Auto Stop test.

20. **INCLINE** test. The console will display the analog to digital (A/D) incline position number and the incline position in percent of incline. Press the inline ▲,▼ keys to operate the incline throughout its range.

21. Press the **BACK** key to exit the incline test.

22. Press the **PAUSE** key to exit the hardware validation test.

Procedure 5.2 – P30 – Displaying Information

The information display will access the following data;

- Odometer
- Hour Meter
- U-Boot Software
- U-Base Software
- Lower Software
- Serial Number
- Usage log
- Error Log

Procedure

1. Plug the power cord into the wall outlet, and then turn on the treadmill with the circuit breaker.
2. With the **PRECOR** banner scrolling, press the keys **PAUSE,6,5,** sequentially.
3. **DIAGS-INFORMATION DISPLAY** will scroll across the display.
4. Use the ▲,▼ keys to move to the desired display shown in the list above.
5. **ODOMETER** display. Press the OK key.
6. The odometer will be displayed as **1234567 MILES** or **1234567 KM** depending on club parameter settings (See Procedure 2.3). The odometer is also used to provide the "distance stamp" for the error code log
7. **Note:** The odometer data is stored in non-volatile memory on the upper PCA. If the upper PCA is replaced the odometer data will be lost.
8. Press the **BACK** key to exit the odometer display.
9. **HOUR METER** display. Press the **OK** key.
10. The operating time of the unit will be displayed as **12345 HOURS**. The operating time is defined as total amount of time that the unit has operated in program modes with the drive motor running. The hour meter is also used to provide the "time stamp" for the error code log.
11. Press the **BACK** key to exit the hour meter display.
12. **U-BOOT SW** display. This display the installed version of upper boot software. The boot software is used to upload new software into the upper display PCA.
13. Press the OK key. The software part number will be displayed as **XXXXX-XXX.**
14. Press the **BACK** key to exit the U-Boot SW display.
15. **U-BASE SW** display. This display the installed version of upper PCA software.
16. Press the **OK** key. The software part number will be displayed as **XXXXX-XXX.**

17. Press the **BACK** key to exit the U-Base SW display.
18. **LOWER SW** display. This display the installed version of lower PCA software.
19. Press the **OK** key. The software part number will be displayed as **XXXXX-XXX.**
20. Press the **BACK** key to exit the lower SW display.
21. **SER. NUMBER** display. Press the **OK** key.
22. The treadmill's serial number will be displayed. The serial number may be incorrect or not displayed if the upper PCA has been replaced.
23. Press the **BACK** key to exit the serial number display.
24. **USAGE LOG** display. Press the **OK** key.
25. Use the ▲,▼ keys to move through the list of programs. A message will scroll describing the program, the number of times and the number of minutes the program was used.
26. Press the **BACK** key to exit the usage log display.
27. **ERROR LOG** display. Press the **OK** key, the quantity of errors in the log will be displayed.
28. Press the **OK** key, the most recent error will be displayed first.
29. Use the ▲,▼ keys to move through the list of errors. The error messages will list the error name, the odometer reading when the error occurred, the hour meter when the error occurred and the drive motor current reading when the error occurred.
30. If you wish to clear the error log, press and hold the **QUICK START** key. The message **HOLD TO CLEAR ERRORS** will be displayed. The error log will be cleared when the message NO ERRORS is displayed.
31. Press the **PAUSE** key to exit the information display.
32. Please note that the **ERROR LOG** may also be accessed at any time by pressing and holding the PAUSE key for four seconds. If the error log does not contain any errors, the message **STUCK KEY** will be displayed.

Procedure 5.3 – P30 – Setting Club Parameters

This procedure allows you to change the following club settings:

- Safety Code
- Select Language
- Select Units
- Set Max Workout Time
- Set Max Pause Time
- Set Cool Down Time
- Set Speed Limit
- Set Incline Limit
- Hidden Programs
- Remote Speed Control
- Auto Stop Configure
- Set Custom Program 1
- Set Custom Program 2

Procedure

1. Plug the power cord into the wall outlet, then turn on the treadmill with the circuit breaker.
2. With the banner scrolling, press keys **PAUSE,5,6,5,1,5,6,5**, sequentially.
3. Use the ▲,▼ keys to move to the desired display shown in the list above.
4. **DIAGS-SET CLUB PARAMETERS** will scroll across the display.
5. **SAFETY CODE** display. The safety code, when enabled, makes the user enter a password in order to start the treadmill. Press the **OK** key.
6. Use the ▲,▼ keys to toggle between **ENABLED** and **DISABLED.**
7. Press the **BACK** key to exit the safety code display.
8. **SELECT LANGUAGE** display. Press the **OK** key.
9. Use the ▲,▼ keys to toggle between the available languages.
10. Press the **OK** key to select desired language.
11. Press the **BACK** key to exit the select language display.
12. SELECT UNITS display. Press the **OK** key.
13. Use the ▲,▼ keys to toggle between **U.S** (miles per hour) and **METRIC** (kilometers per hour).
14. Press the BACK key to exit the set units display.
15. **SET MAX WORKOUT TIME** display. Press the **OK** key.
16. Use the ▲,▼ keys to select the maximum time a user can remain in a program.
17. Press the **BACK** key to exit the set max. workout time display.

18. **SET MAX PAUSE TIME** display. Press the **OK** key.
19. Use the ▲,▼ keys to select the maximum time a program will remain in the pause mode.
20. Press the **BACK** key to exit the set max. pause time display.
21. **SET COOL DOWN TIME** display. Press the **OK** key.
22. Use the ▲,▼ keys to select the cool down time.
23. Press the **BACK** key to exit the set cool down time display.
24. **SET SPEED LIMIT** display. Press the **OK** key.
25. Use the ▲,▼ keys to select the maximum allowable treadmill speed.
26. Press the **BACK** key to exit the set speed limit time display.
27. **SET INCLINE LIMIT** display. Press the **OK** key.
28. Use the ▲,▼ keys to select the maximum allowable incline setting.
29. Press the **BACK** key to exit the set incline limit time display.
30. **HIDDEN PROGRAMS** display. Press the **OK** key.
31. Use the ▲,▼ keys to toggle between **HIDE PROGRAMS** and **SHOW PROGRAMS.**
32. Press the **BACK** key to exit the hidden programs display.
33. **REMOTE SPEED CONTROL** display. Remote speed control allows the treadmill speed to be controlled by an external source such as InSite. Press the **OK** key.
34. Use the ▲,▼ keys to toggle between **ENABLED** and **DISABLED.**
35. Press the **BACK** key to exit the remote speed control display.
36. **AUTO STOP CONFIGURE** display. Press the **OK** key.
37. Use the ▲,▼ keys to toggle between **"AUTOSTOP ON"** and **AUTOSTOP OFF".**
38. Press the **BACK** key to exit the auto stop configure.
39. **SET CUSTOM PROGRAM 1** display. Allows programming of the custom program 1. Follow the instructions scrolling on the display to program the custom course. Use the **ENTER** key to save changes and exit or the **BACK** to exit without saving changes.
40. **SET CUSTOM PROGRAM 2** display. Allows programming of the custom program 2. Follow the instructions scrolling on the display to program the custom course. Use the **ENTER** key to save changes and exit or the **BACK** to exit without saving changes.

Procedure 5.4 – P30 – Documenting Software Problems

When a problem is found with the software in the upper or lower PCA, record the information listed below.

When a problem occurs, record the following information:

- Model and serial number
- Software version number
- Program number running when the problem occurred

A description of:

- What happened or failed to happen.
- The action taken by the user just before the problem occurred.
- Problem-related information (such as how far into the program the problem occurred, the work level being used when the problem occurred, error code displayed, etc.).
- The frequency of occurrence.

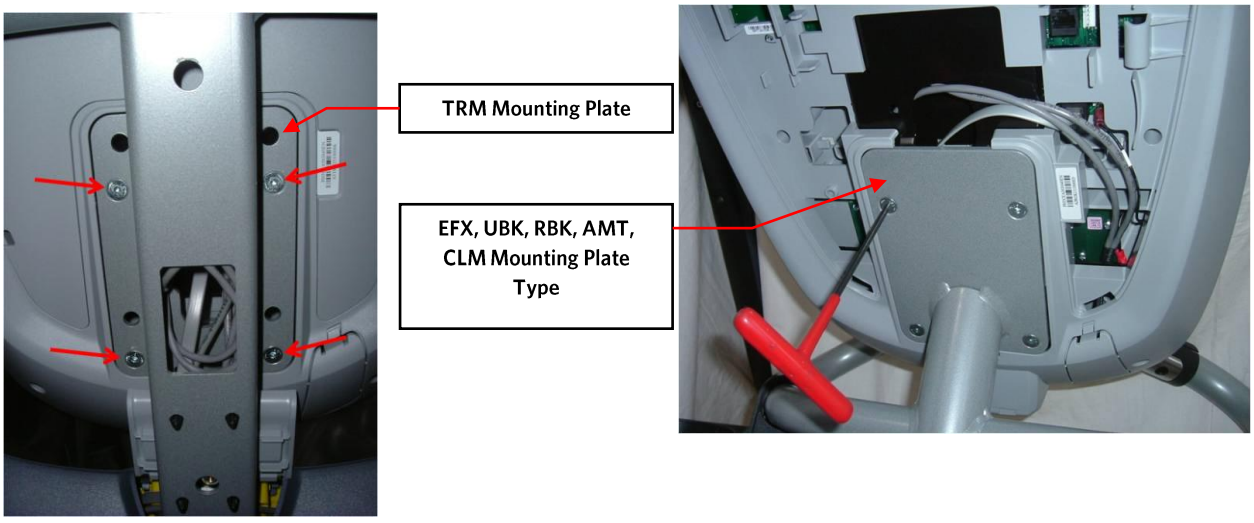
Procedure 5.5 – P30 – Replacing Upper PCA

1. Set the treadmill circuit breaker in the "off" position and unplug the treadmill's line cord from the AC outlet. **(TRM only)**
2. The PCA's in the console are static sensitive. They can be damaged if proper static prevention equipment is not used. Attach an anti-static wrist strap to your arm, and then connect the ground lead of the wrist strap to the treadmill's frame ground.
3. Remove the two screws that fasten the dash transition cover and remove the cover. **See Diagram 5.5.1**

Diagram 5.5.1 – Dash Transition Cover – (TRM only)

4. Remove the four screws that fasten the console to the dash mounting plate. **See Diagram 5.5.2.**

5. Diagram 5.5.2 – Dash Mounting Plate

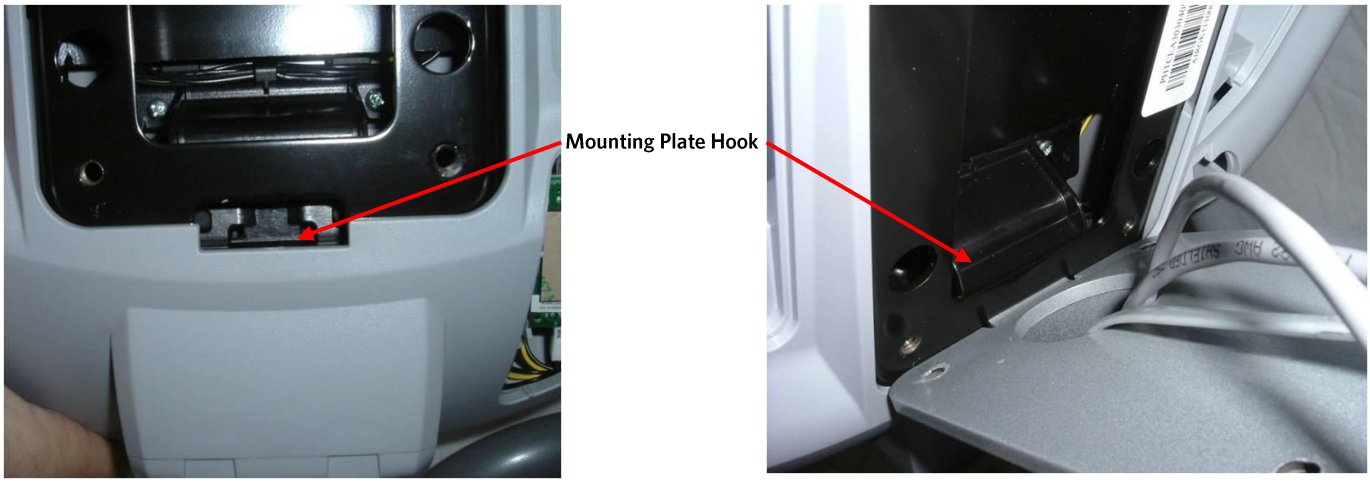


6. Remove the two screws that fasten the access panel to the console. **See Diagram 5.5.3**

Diagram 5.5.3 – Console Access Panel

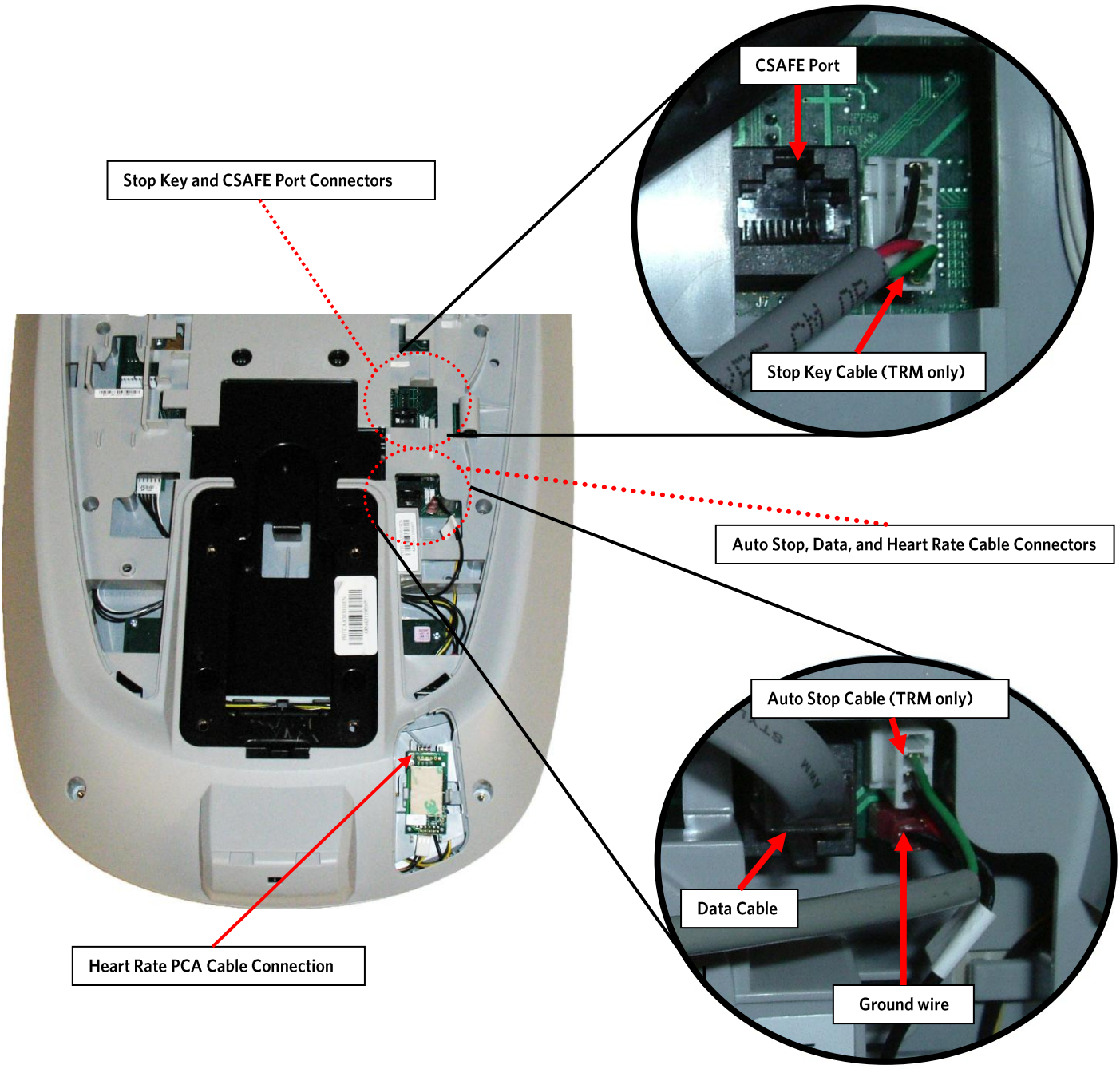
7. Remove the back access Panel:
    a. Treadmills: Lift the console off the maintenance hook and then position the console so that the back panel is accessible and remove the back cover.
    b. AMT's, EFX's, CLM's, UBK's, and RBK's: Tilt the console forward on the maintenance access hook on the dash weldment and remove the back. **See Diagram 5.5.4.**

Diagram 5.5.4 – Maintenance Access Hook



8. Remove the Heart Rate PCA. **See Procedure 5.7, Removing Heart Rate PCA.**
9. Disconnect the Heart Rate Cable from the Heart Rate PCA.
10. Disconnect the Data cable, Auto Stop cable (Treadmill only), Stop Key cable(Treadmill only), Ground wire and the CSAFE cable (if in use) from the Upper PCA. **See Diagram 5.5.5.** Remove the console from the maintenance access hook and place it on a flat work surface.

Diagram 5.5.5 – P30 Cable Connectors

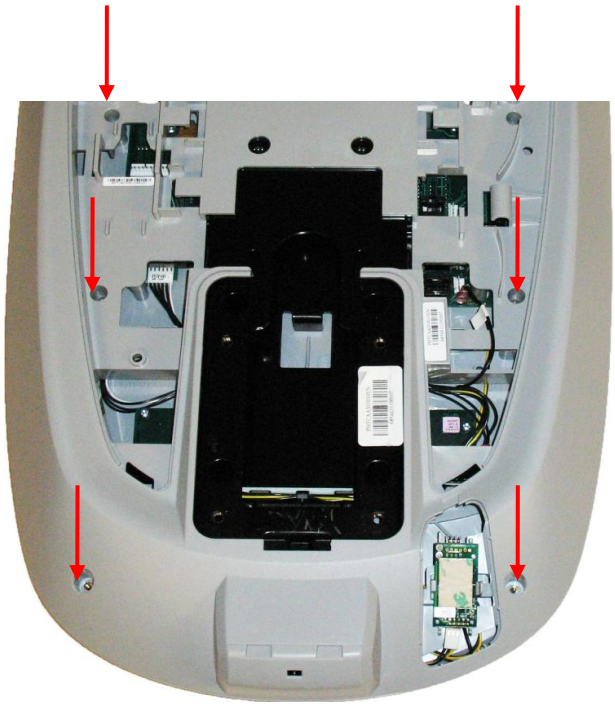


11. Remove the two screws that fasten the back cover to the option cap and remove the cover. **See Diagram 5.5.6**

Diagram 5.5.6 – Option Cap Back Cover

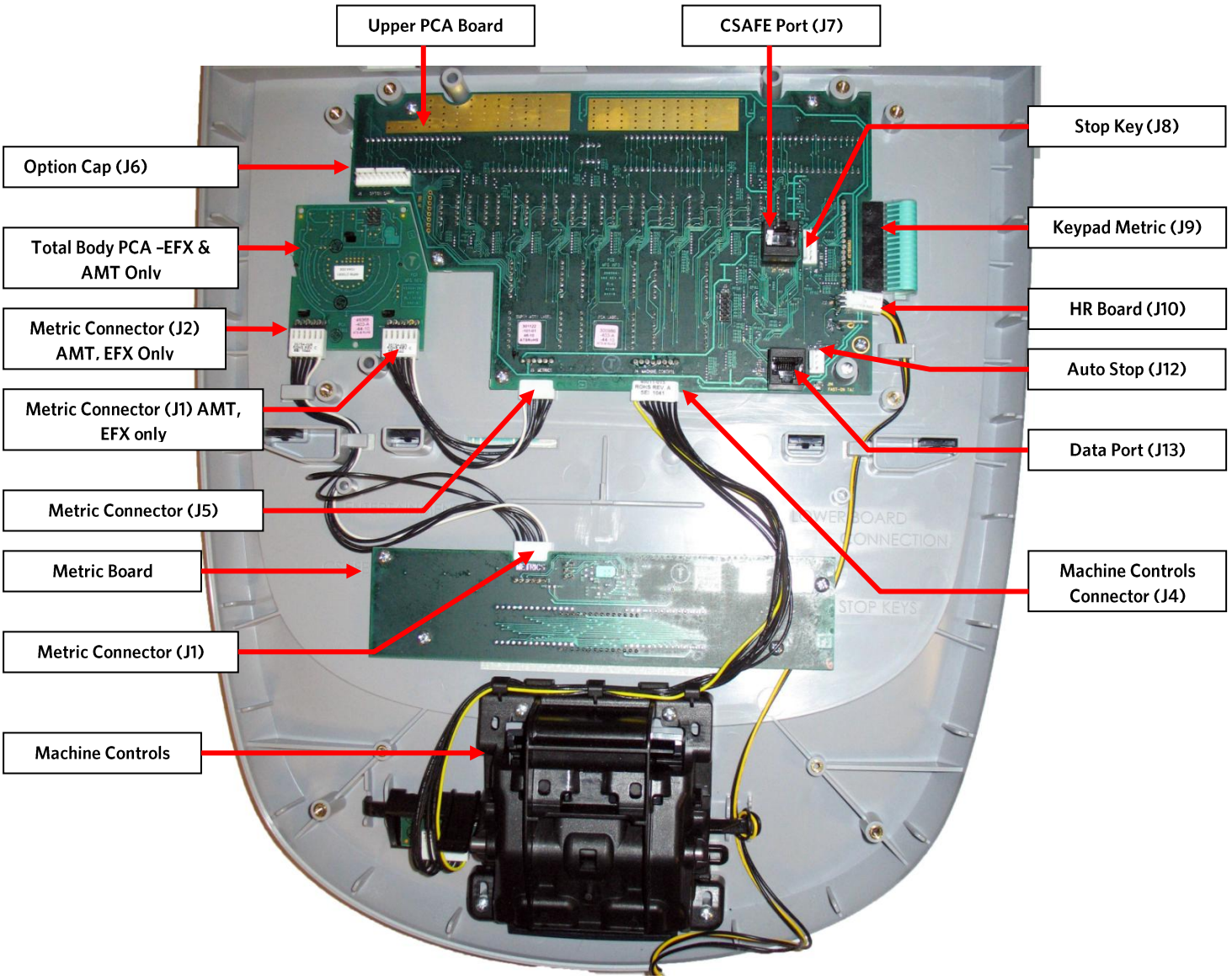
12. Remove the 6 screws that fasten the rear cover from the console and remove. **See Diagram 5.5.7.**

Diagram 5.5.7 – Rear Console Cover



13. Disconnect the Metric cable (J5), Machine Controls cable (J4), Option Cap cable (J6, if applicable), Keypad Metric cable (J9) and HR cable (J10) from the Upper PCA board. **See Diagram 5.5.8.**
14. Remove the five screws that fasten the Upper PCA board to the console and remove the Upper PCA.

Diagram 5.5.8 – P30 Electronic Components



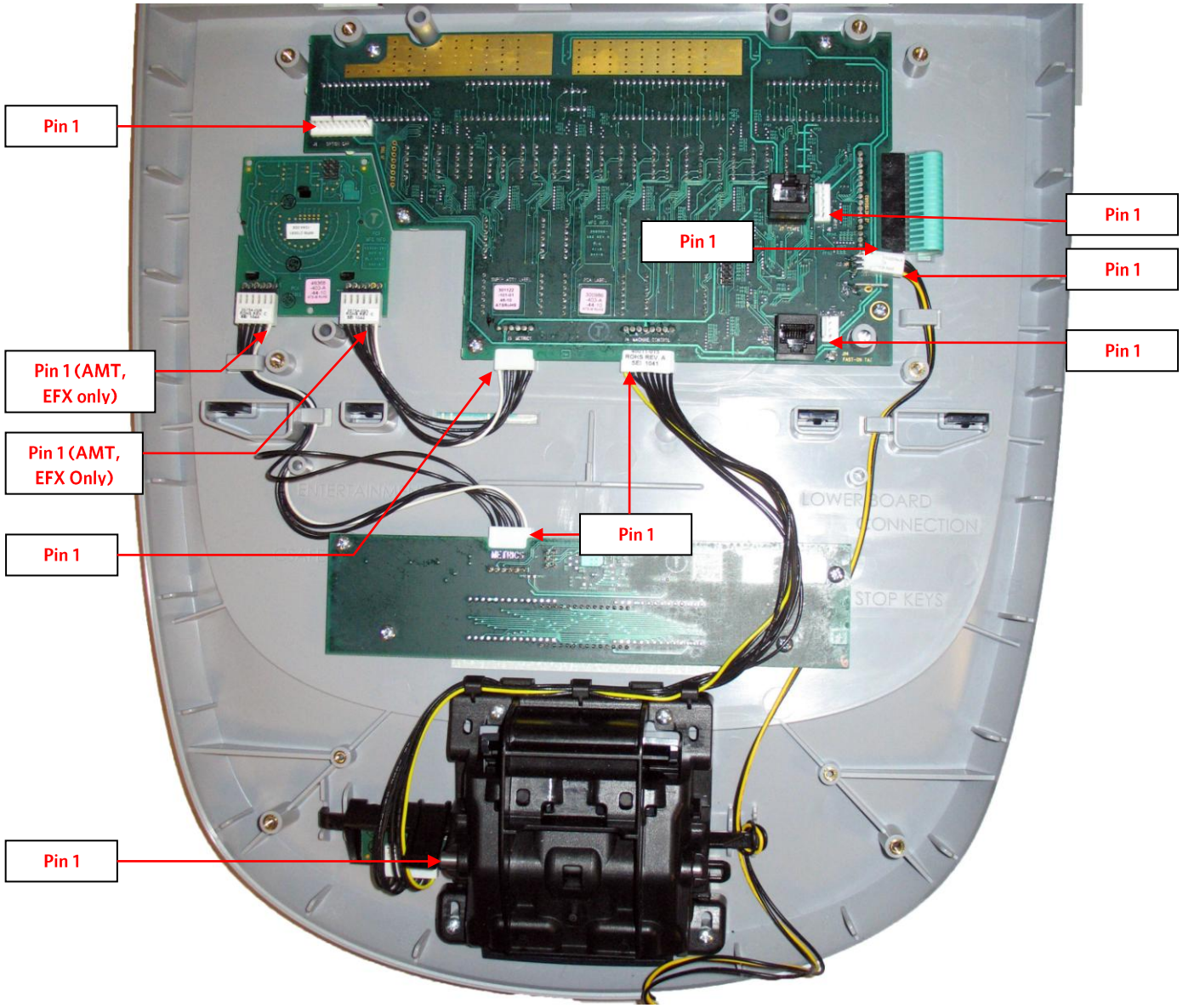
15. Install the replacement upper PCA into the console using the five screws removed in step 14. Torque to 10 inch pounds.

    Note: Do not use an electric screw driver or over tighten the screws. Over tightening may damage the console. This type of damage is not covered under warranty.

16. The white wire in the Metrics cable and the yellow wire in the Machine Controls and HR cables indicate pin 1. Align the white wire in the Metrics cable and yellow wires in the Machine Controls and HR cables with the pin 1 markings on the upper PCA. **See Diagram 5.5.9**

    Note: If pin 1 is not marked on the Upper PCA refer to **Diagram 5.5.9**.

Diagram 5.5.9 – P30 PCA – Pin 1 Reference



17. Reconnect the Metric cable (J5), Metric cable (J1), Metric cable (J2), Machine Controls cable (J4), Option Cap cable (J6, if applicable), Keypad Metric cable and HR cable (J10) from the Upper PCA board. **See Diagram 5.5.8.**cables to the Upper PCA.
18. Replace the P30 Rear Cover removed step 12 and secure the cover with the screws 6 screws. Torque to 10 inch pounds.

    Note: Do not use an electric screw driver or over tighten the screws. Over tightening may damage the console. This type of damage is not covered under warranty.
19. Replace the P30 Option Cap back cover removed step 11 and secure the cover with the screws 2 screws. Torque to 10 inch pounds.

    Note: Do not use an electric screw driver or over tighten the screws. Over tightening may damage the console. This type of damage is not covered under warranty.
20. Place the P30 console on the maintenance access hook.
21. Reconnect the Data cable, Auto Stop cable (Treadmill only), Stop Key cable (Treadmill only), Ground wire and the CSAFE cable (if in use) to the Upper PCA. **See Diagram 5.5.5.**
22. Reconnect the Heart Rate Cable to the Heart Rate PCA.
23. Replace the Heart Rate PCA. **See Procedure 5.7, Removing Heart Rate PCA**
24. Replace the access cover with the hardware removed in step 6.
25. Tilt the console back against the mounting plated. While tilting the console back feed the excess cable into weldment tube making sure that the cables will not become pinched.
26. Fasten the console to the dash mounting plate with the four screws removed in step 4. **See Diagram 5.5.2.**
27. Fasten the dash transition cover using the two screws removed in step 3. **See Diagram 5.5.1**
28. Check treadmill operation per Section Seven.

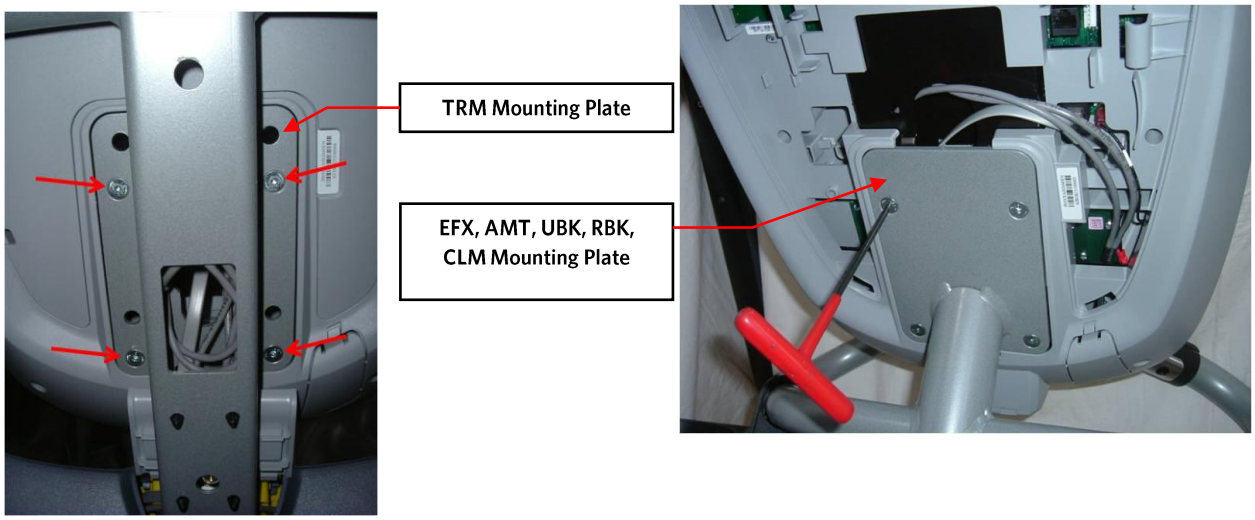
Procedure 5.6 – P30 – Replacing Metric PCA

1. Set the treadmill circuit breaker in the "off" position and unplug the treadmill's line cord from the AC outlet. **(TRM only).**
2. The PCA's in the console are static sensitive. They can be damaged if proper static prevention equipment is not used. Attach an anti-static wrist strap to your arm, and then connect the ground lead of the wrist strap to the treadmill's frame ground.
3. Remove the two screws that fasten the dash transition cover and remove the cover. **(TRM Only) See Diagram 5.6.1**

Diagram 5.6.1 – Dash Transition Cover – (TRM only)

4. Remove the four screws that fasten the console to the dash mounting plate. **See Diagram 5.6.2.**

Diagram 5.6.2 Dash Mounting Plate

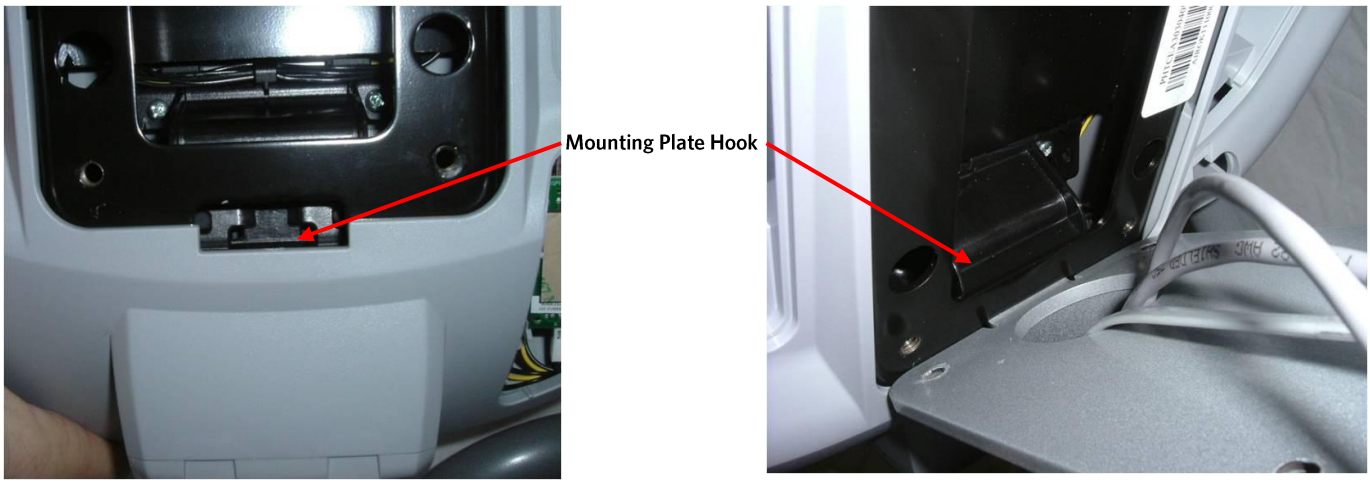


5. Remove the two screws that fasten the access panel to the console. **See Diagram 5.6.3**

Diagram 5.6.3 – Console Access Panel

6. Remove the back access panel:
    a. Treadmills: Lift the console off the maintenance hook and then position the console so that the back panel is accessible and remove the back cover.
    b. AMT's, EFX's, CLM's, UBK's, and RBK's: Tilt the console forward on the maintenance access hook on the dash weldment and remove the back. **See Diagram 5.6.4.**

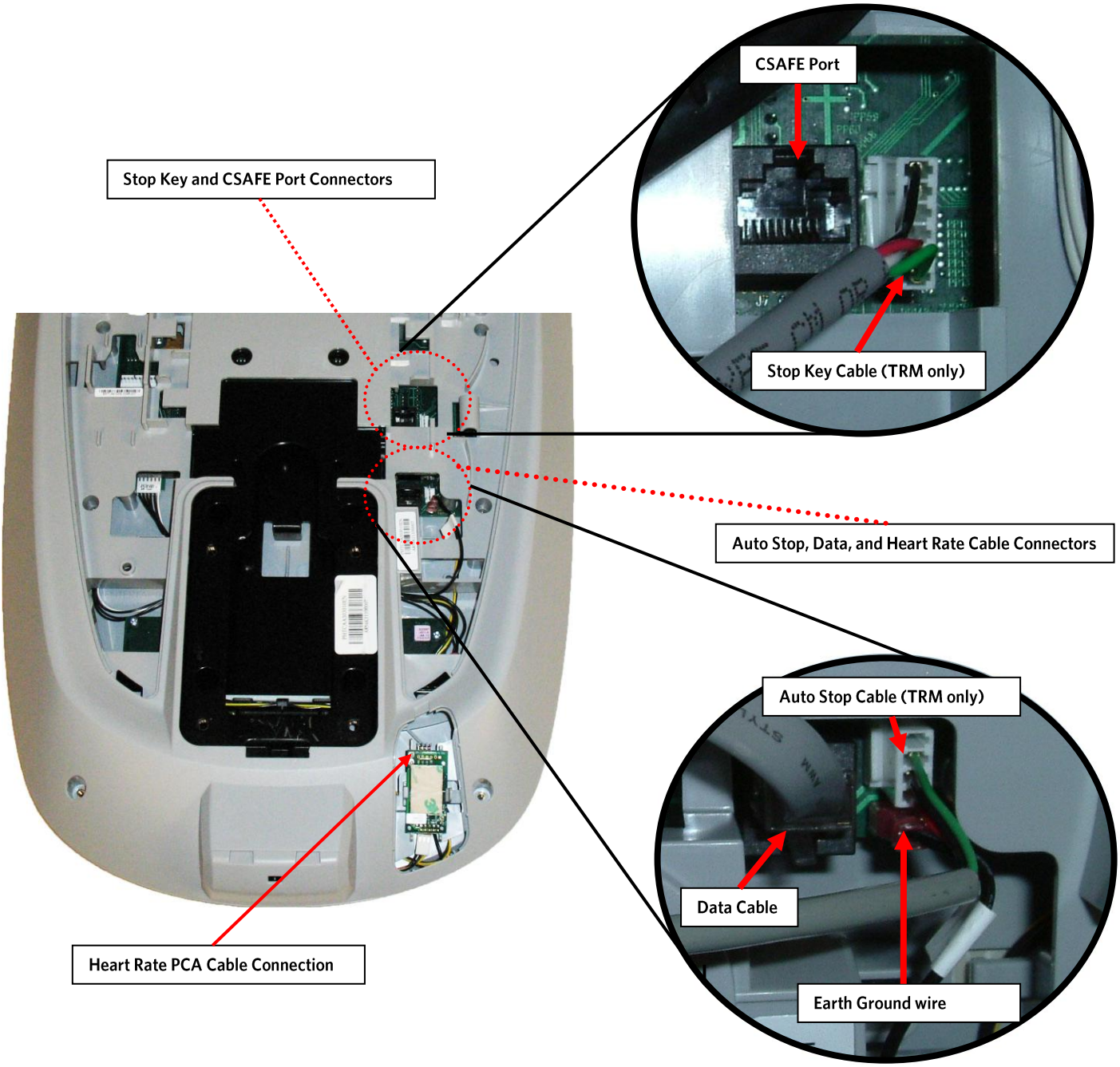
Diagram 5.6.4 – Maintenance Access Hook



7. Remove the Heart Rate PCA. **See Procedure 5.7, Removing Heart Rate PCA.**
8. Disconnect the Heart Rate Cable from the Heart Rate PCA.

9. Disconnect the Data cable, Auto Stop cable (Treadmill only), Stop Key cable (Treadmill only), Heart Rate ground wire and the CSAFE cable (if in use) from the Upper PCA. **See Diagram 5.6.5.** Remove the console from the maintenance access hook and place it on a flat work surface.

Diagram 5.6.5 – P30 Cable Connectors

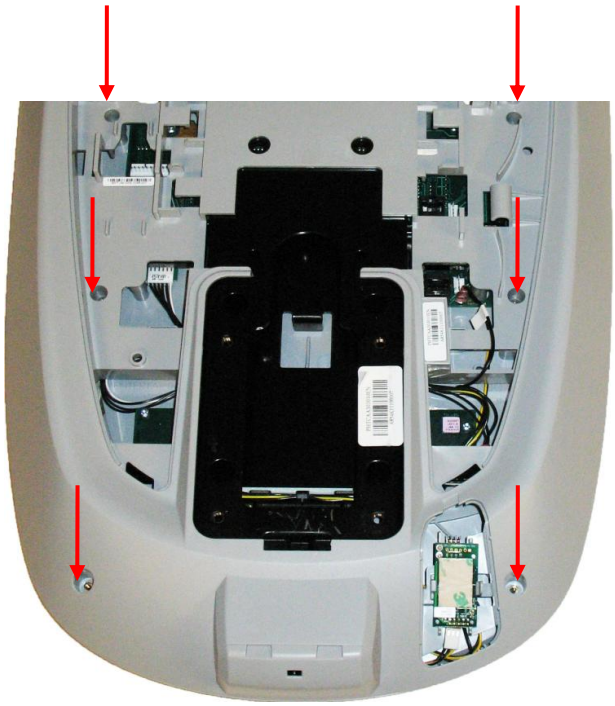


10. Remove the two screws that fasten the back cover to the option cap and remove the cover. **See Diagram 5.6.6**

Diagram 5.6.6 – Option Cap Back Cover

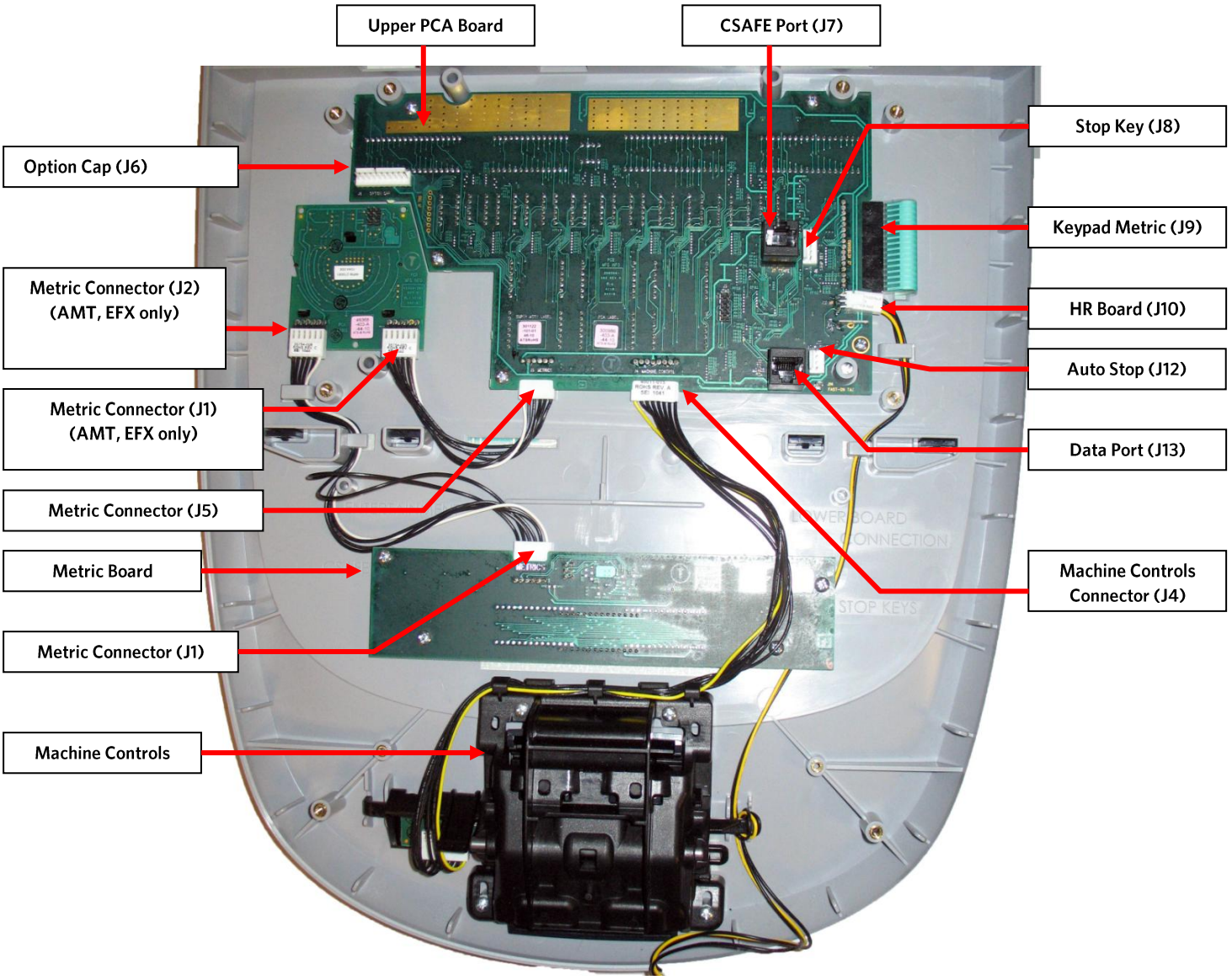
11. Remove the 6 screws that fasten the rear cover from the console and remove. **See Diagram 5.6.7.**

Diagram 5.6.7 – Rear Console Cover



12. Disconnect the Metric cable (J1) from the Metric PCA board. **See Diagram 5.6.8.**
13. **Remove the four screws that fasten the Metric PCA board to the console and remove the Metric PCA and the four spacers.**

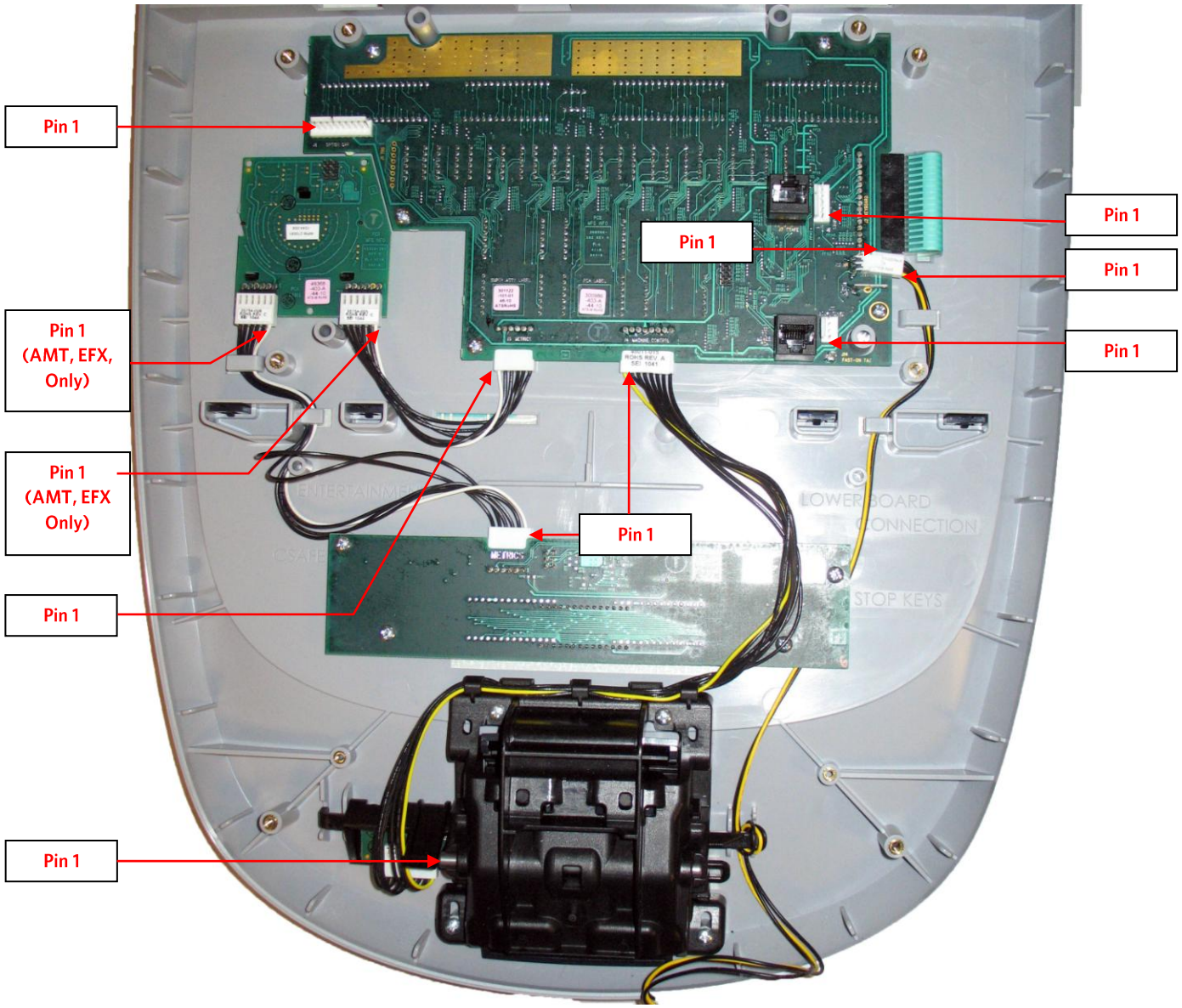
Diagram 5.6.8 – P30 Upper PCA & Metric Board



14. Replace the four spacers removed in step 13 onto the console mounting studs. The spacers must be used to ensure the Metrics LED's are flush with the display window. If spacers are not used the Metrics LED's will apply excessive pressure on the Metrics board and may cause damage to the Metrics board.
15. Install the replacement Metric PCA into the console using the four screws removed in step 13.
16. The white wire in the Metrics cables indicate pin 1. Align the white wire in the Metrics cables with the pin 1 markings on the Metics PCA. **See Diagram 5.6.9**

    Note: If pin 1 is not marked on the Upper PCA refer to **Diagram 5.6.9**.

Diagram 5.6.9 – P30 PCA – Pin 1 Reference



17. Connect the Metrics cable to the Metric PCA.
18. Replace the P30 Rear Cover removed step 11 and secure the cover with the screws 6 screws. Torque to 10 inch pounds.

    Note: Do not use an electric screw driver or over tighten the screws. Over tightening may damage the console. This type of damage is not covered under warranty.
19. Replace the P30 Option Cap back cover removed step 12 and secure the cover with the screws 2 screws. Torque to 10 inch pounds.

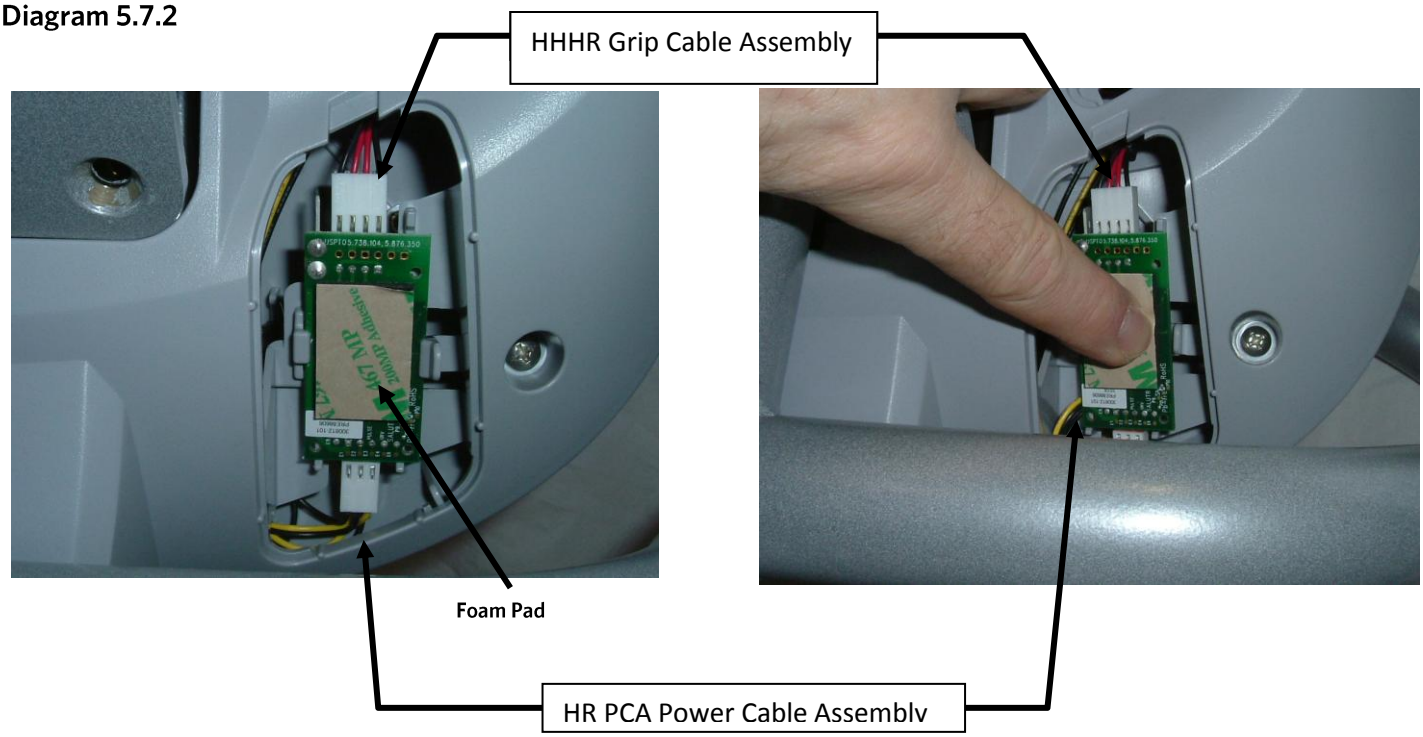
    Note: Do not use an electric screw driver or over tighten the screws. Over tightening may damage the console. This type of damage is not covered under warranty.
20. Place the P30 console on the maintenance access hook.
21. Reconnect the Data cable, Auto Stop cable (Treadmill only), Stop Key cable (Treadmill only), Heart Rate ground wire and the CSAFE cable (if in use) from the Upper PCA. **See Diagram 5.6.5.**
22. Reconnect the Heart Rate Cable to the Heart Rate PCA.
23. Replace the the Heart Rate PCA. **See Procedure 5.7, Removing Heart Rate PCA**
24. Replace the access cover with the hardware removed in step 6.
25. Tilt the console back against the mounting plated. While tilting the console back feed the excess cable into weldment tube making sure that the cables will not become pinched.
26. Fasten the console to the dash mounting plate with the four screws removed in step 4. **See Diagram 5.6.2.**
27. Fasten the dash transition cover using the two screws removed in step 3. **See Diagram 5.6.1**
28. Check treadmill operation per Section Seven.

Procedure 5.7 – P30 – Replacing Heart Rate PCA

1. Set the treadmill circuit breaker in the "off" position and unplug the treadmill's line cord from the AC outlet.
2. The PCA's in the console are static sensitive. They can be damaged if proper static prevention equipment is not used. Attach an anti-static wrist strap to your arm, and then connect the ground lead of the wrist strap to the treadmill's frame ground.
3. Remove the HR PCA access panel on the back of the console. **See Diagram 5.7.1**
4. The HR PCA snaps into its mounting. Press its tabs downward and remove the HR PCA from its mounting.
5. Disconnect the HR cable and handlebar cable from the HR PCA. **See Diagram 5.7.2.**
6. Connect the HHHR Grip cable assembly to the upper connector on the HR PCA and the HR PCA Power cable to the lower connector on the replacement HR PCA. **See Diagram 5.7.2**.
7. Orient the replacement HR PCA so that the side with the protective foam pad is facing out and snap the HR PCA into its mounting.
8. Replace the HR PCA access panel removed in step 3.
9. Check treadmill operation per Section 7

Diagram 5.7.1

Diagram 5.7.2



Procedure 5.8 – P30 – Future Content

Procedure 5.9 – P30 – Future Content

Procedure 5.10 – P30 – Future Content

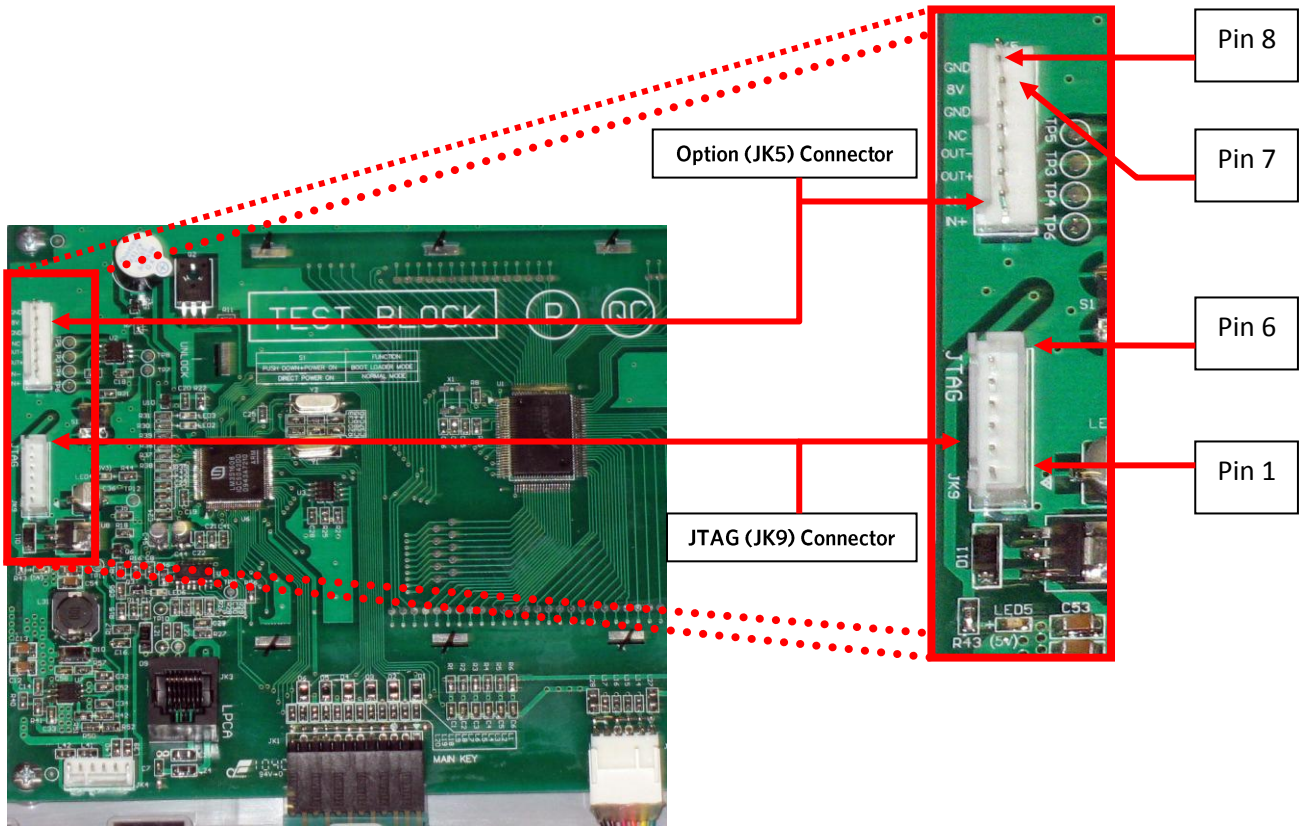
Troubleshooting 6.11 – P20 – Troubleshooting the Keypad and the Upper PCA

Procedure

Note: The green wire on the cables shown in **Diagram 6.11.1** denotes pin 1. When these cables are inserted into their connectors, the green wire must align with the pin 1 designation on the PCA. If pin 1 is not marked on the PCA refer to **Diagram 6.11.1**.

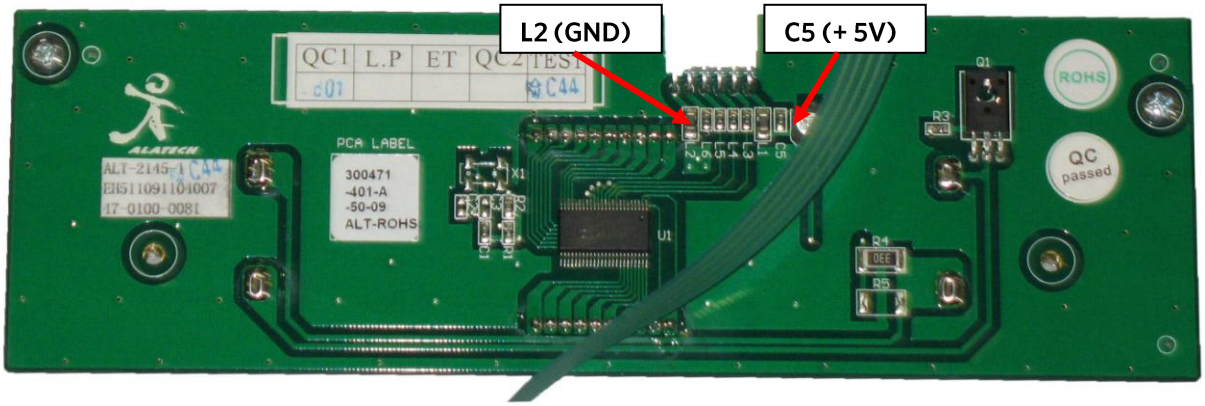
1. Set the treadmill's on/off switch in the "off" position (Treadmill Only). Access the upper electronics and machine controls per Procedure 6.5, steps 1 through 11. Place the console on the maintenance mounting hook and reconnect all cables.
2. If the message STUCK KEY is when the unit is turned on for treadmill's or pedaling on the RBK, UBK, AMT, and EFX, skip to step 23.
3. If a key does not function, skip to step 18.
4. If the display does not illuminate, continue with step 5.

Diagram 6.11.1 - Console, Upper PCA , JTAG (J9), & Option Cap Connector



5. If the upper PCA is not illuminating, skip to step 12.
6. If the metrics PCA is not illuminating, continue with step 7.
7. Remove the four screws that fasten the metrics PCA to the display face and rotate it so that the front of the PCA is visible. For treadmill's set the on/off switch in the "on" position for AMT's, EFX's, UBK's, RBK's and CLM's start pedaling.
8. With a DC voltmeter, measure between C5 (+5V) and L2 (GND) on the metric board and L27 (+5V) and L28 (GND) of JK6 connector of the upper PCA for 5Vdc. See Diagram 6.11.3

Diagram 6.11.3 - Metrics PCA, Front View



9. If 5 Vdc is not present on C5 and 5 Vdc is present on L27, replace the metrics cable between the upper PCA and the metrics PCA.
10. If 5 Vdc is present on C5 and the upper PCA is illuminating normally, replace the metrics PCA.
11. If you have performed steps 7 - 10 and the metrics PCA still does not illuminate, contact Precor customer support for assistance.
12. Set the treadmill's on/off switch in the "on" position. (Treadmill Only)
13. With a DC voltmeter, measure between pins 1 and 6 of JK9 (JTAG Connector) for 3.3 Vdc and between pins 6 and 7 of JK5 (Option Cap connector) for 8 Vdc.
14. If 3.3 Vdc is not present on JK9 and 8 Vdc is present on JK5, replace the upper PCA.
15. If 8 Vdc is not present on JK5, temporarily replace the upper PCA to power control module cable with a known good cable.
16. If the upper PCA illuminates normally, replace the upper PCA to power control module cable permanently. If the upper PCA still does not illuminate, replace the power control module (treadmills) or Lower PCA (AMT's, EFX's, UBK's, RBK's and CLM's).
17. If you have performed steps 12 - 16 and the upper PCA still does not illuminate, contact Precor customer support for assistance.

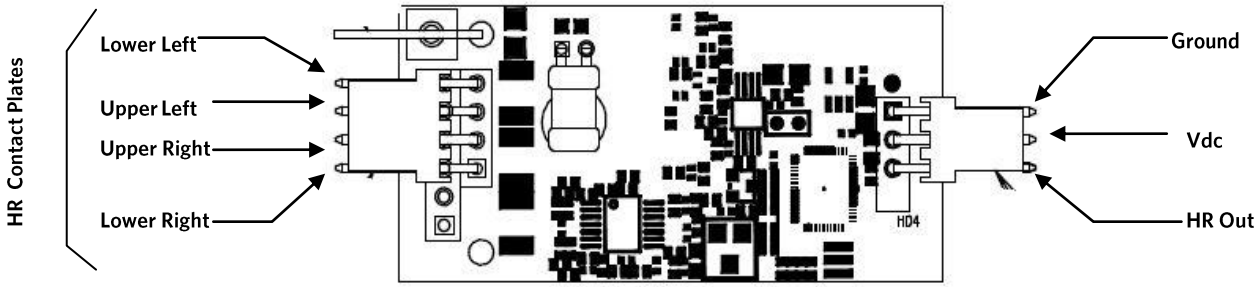
18. Set the treadmill's on/off switch in the "on" position. (Treadmill Only)
19. If none of the keys on the display are functioning, check the stop switch cable connection to the upper PCA (Treadmill's only). If the stop switch is not connected or the stop switch is not functioning, none of the display keys will operate. This feature ensures that the treadmill has a functioning stop switch when it is in use (Treadmill's only).
20. If a particular key is not functioning, perform the keyboard test in **Procedure 6.2.** If the test verifies that the key is not functioning, replace the display face.
21. If the display face has been replaced and the same key or control is still not functioning, replace the upper PCA.
22. If you have performed steps 18 - 22 and the same key is still not functioning, contact Precor customer support for assistance.
23. Remove the keypad cable from the upper PCA. **See Diagram 6.5.8.**
24. For treadmill's set the on/off switch in the "on" position for AMT's, EFX's, UBK's, RBK's and CLM's start pedaling.
25. If the **STUCK KEY** message is no longer displayed, replace the display face. If the **STUCK KEY** message is still being displayed continue with step 26.
26. Set the treadmill's on/off switch in the "off" position. (Treadmill Only)
27. Remove the Machine Control cable from the upper PCA.
28. For treadmill's set the on/off switch in the "on" position for AMT's, EFX's, UBK's, RBK's and CLM's start pedaling.
29. If the **STUCK KEY** message is no longer displayed, replace the machine the display face.
30. If the **STUCK KEY** is still being displayed with the keyboard cable disconnected, replace the upper PCA.
31. If you have performed steps 23 - 30 and the **STUCK KEY** message is still being displayed, contact Precor customer support for assistance.

Troubleshooting 5.12 – P30 – Troubleshooting Handheld Heart Rate

Circuit Description
The hand held heart rate system is actually a dual system, that is, it can accept a heart rate signal from either the hand held heart rate contacts on the unit's handlebar or from a Polar heart rate chest strap transmitter. The PCA is configured for hand held priority. That is, if both a chest strap and hand heart rate signal are being received, the system will accept the hand held signal and ignore the chest strap signal. If a hand held signal is not being received, the system will accept the chest strap signal.

Note:
There are four typical failure modes for the hand held/chest strap heart rate system. They are: hand held is normal - no chest strap reading; no hand held reading - chest strap normal; no hand held or chest strap reading or constant or intermittent readings when neither hand held or chest strap are in use.

Diagram 5.12.1 - Hand held/chest strap heart rate PCA



Normal hand held reading - No chest strap reading

1. Access the diagnostic program (Procedure 5.1). Advance to the heart rate display portion of the diagnostic program. Verify that a chest strap signal is not being accepted with either a Polar heart rate test transmitter or a known good chest strap transmitter. If this reading is good, skip to step 3.
2. Using a known good Polar heart rate chest strap, verify that the heart rate operates with the known good chest strap. If the known good Polar chest strap does correct the problem, replace the original chest strap transmitter.
3. If the above procedures did not correct the problem, replace the heart rate PCA.

No hand held reading - Normal chest strap reading

4. Access the diagnostic program (Procedure 5.1). Advance to the heart rate display portion of the diagnostic program. Verify that a hand held signal is not being accepted by firmly grasping both the right and left hand held contacts on the handlebars. Cover as much of the top and bottom contact surface area with your hands as possible (without moving your hands), you should receive a heart rate reading within ten seconds.
5. If the hand held signal is now being accepted, something in the near vicinity is radiating RF (radio frequency) energy that is being received by the chest strap portion of the heart rate PCA.
6. If a hand held signal still not being accepted, skip to step 8.
7. Replace the heart rate PCA with a 300812-101 (or higher) heart rate PCA. 300812-101 and higher versions of heart rate PCA are less susceptible to radiated RF energy.
8. Access the diagnostic program (Procedure 5.1). Advance to the heart rate display portion of the diagnostic program. Verify that a hand held signal is not being accepted by firmly grasping both the right and left hand held contacts with the opposite hands, right hand on the left handlebar contacts and left hand on the right handlebar contacts. Cover as much of the top an bottom contact surface area with your hands as possible, you should receive a heart rate reading within ten seconds. If a hand held signal is still not being accepted, skip to step 10.
9. If a hand held signal was accepted in step 8, the hand held contact wiring is reversed. The harness that connects to the hand held contacts in the handlebar is segregated into two groups. One group has blue shrink wrap around it and the other group has black shrink wrap around it. The “blue” group must go to the right hand contacts and the “black” group must go to the left hand contacts. If necessary, rewire the hand held contacts as described above and test as described in step 4.
10. If the wiring is correct, refer to Diagram 5.12.1 for the following measurements. With an ohmmeter measure between the “lower right contact” pin on the J1 connector and the lower right hand held heart rate contact on the handlebar. The reading should be 1 Ω or less. Measure between the “upper right contact” pin on the J1 connector and the upper right hand held heart rate contact on the handlebar. The reading should be 1 Ω or less. Measure between the “upper left contact” pin on the J1 connector and the upper left hand held heart rate contact on the handlebar. The reading should be 1 Ω or less. Measure between the “lower left contact” pin on the J1 connector and the lower left hand held heart rate contact on the handlebar. The reading should be 1 Ω or less. If any of the above readings are greater than 1 Ω, replace the heart rate PCA to handlebar wire harness.

No hand held reading - No chest strap reading

11. Access the diagnostic program (Procedure 5.1). Advance to the heart rate display portion of the diagnostic program. Verify that neither a chest strap signal or a hand held signal is being accepted with either a heart rate test transmitter or a chest strap transmitter.
12. Check the plug/connector connections on both the heart rate PCA (J4), and upper PCA (J1).
13. If neither a chest strap signal or a hand held signal is being accepted, measure between the "ground" and "5 Vdc" pins on J4 for 5 Vdc. If 5 Vdc is present, replace the heart rate PCA.
14. If 5 Vdc is not present, remove the connector from J4 of the heart rate PCA. Measure between the "ground" and "5 Vdc" pins of the connector (just removed from the heart rate PCA) for 5 Vdc. If 5 Vdc is present, replace the heart rate PCA. If the 5 Vdc is not present, measure between the corresponding pins of J1 on the upper PCA (red and black wires). If 5 Vdc is not present replace the upper PCA. If 5 Vdc is present, replace the upper PCA to heart rate PCA cable.

Constant or intermittent readings when neither the hand held or chest strap is in use.

Verify that a ferrite core is clamped around the heart rate PCA to upper PCA cable. Constant or intermittent heart rate readings when neither heart rate system is in use is caused by something in the near vicinity radiating RF energy that is being received by the chest strap portion of the heart rate PCA. Replace the heart rate PCA with a 300812-101 (or higher) heart rate PCA. 300812-101 and higher versions of heart rate PCA are less susceptible to radiated RF energy.

Section Six – P20 Console - TRM

Procedure 6.1 – P20 - Accessing the Diagnostic Software

The P20 Console diagnostic software consists of the following modes:

- Beeper Test
- Display Test
- Keyboard Test
- Heart Rate Test
- Machine Test
    - Belt Speed (TRM only)
    - Incline (TRM, EFX)
    - Auto Stop Test

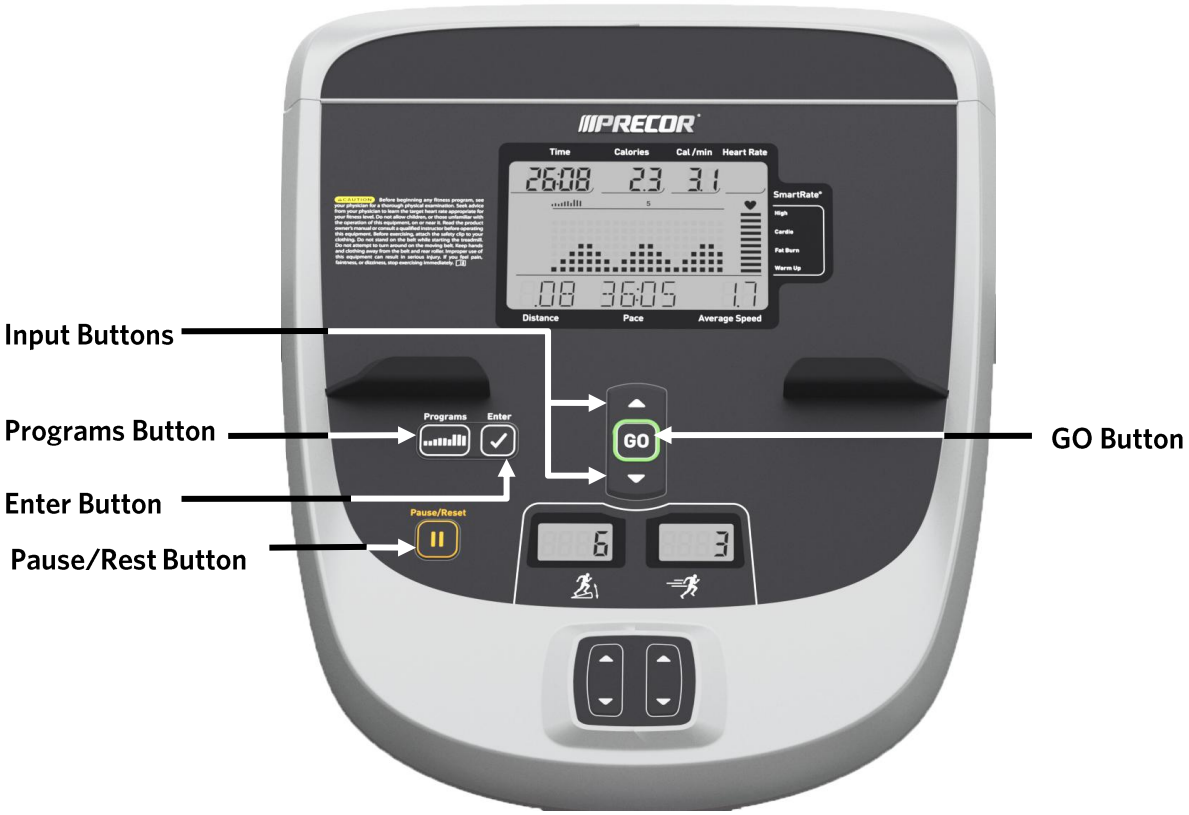
Procedure:

1. Treadmills - Plug the power cord into the wall outlet, and then turn on the treadmill with the circuit breaker.

2. To access this menu from Banner state follow this sequence: **PAUSE/RESET, ENTER, PROGRAMS, INPUT DOWN▼, INPUT UP▲, ENTER, INPUT DOWN▼**, **INPUT UP▲**, and **PROGRAMS** sequentially.

3. Use the:
    - **INPUT UP▲ and INPUT DOWN▼** keys to move though the different tests.
    - **GO** key to select the test needed.
    - **PROGRAMS** key to back up one level until reaching Banner state.
    - **PAUSE/RESET** key to return the unit to Banner state from anywhere in the menus.

Diagram 6.1 .1 – P20 Console - TRM



4. **BEEPER TEST** will scroll across the display. The display will prompt the user to test the beeper sound. Push the "**GO**" key to select the test.
5. Press the **PROGRAMS** key to exit the belt beeper test.

6. Push **INPUT DOWN▼,** to go to the next test.

7. **KEYBOARD TEST** will scroll across the display.

8. Press the **GO** key, a representation of all of the keys on the console will be displayed. Pressing a key on the console will cause the illuminated representation of that key to turn off. Press all of the keys on the console to ensure that all of the keys are functioning.

9. Press and hold **PAUSE/RESET** key for five seconds to back out of this test.

10. Push **INPUT DOWN▼,** to go to the next test.

11. **LCD TEST** will scroll across the display

12. Press the **GO** key, the unit will test all the different sections of LCD display screen then all sections on, advancing through each section. Check the display to ensure that all LED segments are illuminated.

13. Press the **INPUT DOWN▼**, key, **HEART RATE** will be displayed.

14. Press the **GO** key, grasp both of the heart rate grips on the handlebar, after a couple of seconds the heart rate will be displayed in the heart rate and smart rate displays.

15. Use chest strap transmitter or a test transmitter to test the wireless heart rate function, after a couple of seconds the heart rate will be displayed in the heart rate and smart rate displays.

16. Press the **PROGRAMS** key to exit the heart rate test.

17. Press the **INPUT DOWN▼**, key, **MACHINE TEST** will scroll across the display.

18. You may now proceed to either the belt speed test or the incline test. Press the **INPUT DOWN▼**, key once to access the belt speed test or twice to access the incline test.

19. **BELT SPEED** test. Press the **GO** key, the console will display the power bits (PWRB), Press the **SPEED ▲** key to start the treadmill running belt, the display will indicate the power bits, the elapsed time and the actual speed (in either miles per hour or kilometers per hour depending on the club parameters setting, see Procedure 6.3).

20. Press the ▼ key, the console will display the motor current (AMPS), the elapsed time and the actual speed.

21. Press the **PROGRAMS** key to exit the belt speed test.

22. **INCLINE** test. The console will display the analog to digital (A/D) incline position number and the incline position in percent of incline. Press the inline ▲,▼ keys to operate the incline throughout its range.
23. Press the **PROGRAMS** key to exit the incline test.
24. Push **INPUT DOWN▼,** to go to the Auto Stop test.
25. Press the **GO** key, the console will display "**USER DETECTED**" when motion is detected from the running deck or "**NO USER DETECTED**" when no motion is detected from the running deck.
26. Press the **PAUSE/RESET** key to exit the hardware validation test.

Procedure 6.2 – P20 – Displaying Information

The information displayed will access the following data;

- Odometer
- Hour Meter
- U-Boot Software
- U-Base Software
- Lower Software
- Usage log
- Error Log

Procedure

Plug the power cord into the wall outlet, and then turn on the treadmill with the circuit breaker.

1. To access this menu from Banner state follow this sequence: **PAUSE/RESET, INPUT UP▲**, and **ENTER** keys, sequentially.
2. Use the:
    - **INPUT UP▲** and **INPUT DOWN▼** keys to move though the different tests.
    - **GO** key to select the test needed.
    - **PROGRAMS** key to back up one level until reaching Banner state.
    - **PAUSE/RESET** key to return the unit to Banner state from anywhere in the menus.
3. ODOMETER display. Press the **GO** key.
4. The odometer will be displayed as 1234567 MILES or 1234567 KM depending on club parameter settings (See Procedure 6.3). The odometer is also used to provide the "distance stamp" for the error code log
5. Note: The odometer data is stored in non-volatile memory on the upper PCA. If the upper PCA is replaced the odometer data will be lost.
6. Press the **PROGRAMS** key to exit the odometer display.
7. Press **INPUT DOWN▼**, HOUR METER display. Press the GO key.
8. The operating time of the unit will be displayed as 12345 HOURS. The operating time is defined as total amount of time that the unit has operated in program modes with the drive motor running. The hour meter is also used to provide the "time stamp" for the error code log.
9. Press the **PROGRAMS** key to exit the hour meter display.
10. Press **INPUT DOWN▼**, U-BOOT SW display. This display the installed version of upper boot software. The boot software is used to upload new software into the upper display PCA.
11. Press the GO key. The software part number will be displayed as XXXXX-XXX.

12. Press the **PROGRAMS** key to exit the U-Boot SW display.
13. Press **INPUT DOWN▼**, U-BASE SW display. This display the installed version of upper PCA software.
14. Press the GO key. The software part number will be displayed as XXXXX-XXX.
15. Press the **PROGRAMS** key to exit the U-Base SW display.
16. Press **INPUT DOWN▼**, LOWER SW display. This display the installed version of lower PCA software.
17. Press the **GO** key. The software part number will be displayed as XXXXX-XXX.
18. Press the **PROGRAMS** key to exit the lower SW display.
19. Press **INPUT DOWN▼**, USAGE LOG display. Press the **GO** key.
20. Use the ▲,▼ keys to move through the list of programs. A message will scroll describing the program, the number of times and the number of minutes the program was used.
21. Press the **PROGRAMS** key to exit the usage log display.
22. Press **INPUT DOWN▼**, ERROR LOG display. Press the GO key, the quantity of errors in the log will be displayed.
23. Press the GO key, the most recent error will be displayed first.
24. Use the ▲,▼ keys to move through the list of errors. The error messages will list the error name, the odometer reading when the error occurred, the hour meter when the error occurred and the drive motor current reading when the error occurred.
25. If you wish to clear the error log, press and hold the GO key for 5 seconds. The message ERROR LOG CLEAR will be displayed.
26. Press the **PAUSE/RESET** key to exit the information display.
27. Please note that the ERROR LOG may also be accessed at any time by pressing and holding the **PAUSE/RESET** key for five seconds. If the error log does not contain any errors, the message STUCK KEY will be displayed.

Procedure 6.3 – P20 – Setting Club Parameters

This procedure allows you to change the following club settings:

- Auto Stop
- Safety Code
- Select Language
- Select Units
- Set Default Workout Time
- Set Max Workout Time
- Set Max Pause Time
- Set Cool Down Time
- Set Speed Limit
- Set Incline Limit
- Hidden Programs

Procedure

1. Plug the power cord into the wall outlet, and then turn on the treadmill with the circuit breaker.
2. To access this menu from Banner state follow this sequence**: PAUSE/RESET, ENTER, INPUT UP▲, ENTER, PROGRAMS, ENTER, INPUT UP▲**, and **ENTER** keys, sequentially.
3. Use the:
   - **INPUT UP▲** and **INPUT DOWN▼** keys to move though the different tests.
   - **GO** key to select the test needed.
   - **PROGRAMS** key to back up one level until reaching Banner state.
   - **PAUSE/RESET** key to return the unit to Banner state from anywhere in the menus.
4. **AUTO STOP** will scroll across the display.
5. Use the **INPUT UP▲** and **INPUT DOWN▼** keys to toggle between **ENABLED** and **DISABLED.** Press the **GO** key to save.
6. Press **INPUT DOWN▼, SAFETY CODE** will be displayed. The safety code, when enabled, makes the user enter a password in order to start the treadmill. Press the **GO** key.
7. Use the **INPUT UP▲** and **INPUT DOWN▼** keys to toggle between **ENABLED** and **DISABLED**. If enabled is selected, the display will require the user to enter key combination (**PROGRAMS, ENTER, INPUT DOWN ▼,** and INPUT UP▲, sequentially) as a password, in order to start a program.
8. Press the **PROGRAMS** key to exit the safety code display.
9. Press **INPUT DOWN▼, SELECT LANGUAGE** will be displayed. Press the **GO** key.
10. Use the **INPUT UP▲** and **INPUT DOWN▼** keys to toggle between the available languages.
11. Press the **PROGRAMS** key to exit the select language display.

12. Press **INPUT DOWN▼, SELECT UNITS** will be displayed. Press the **GO** key.
13. Use the **INPUT UP▲** and **INPUT DOWN▼** keys to toggle between **U.S** (miles per hour) and **METRIC** (kilometers per hour).
14. Press the **PROGRAMS** key to exit the set units display.
15. Press **INPUT DOWN▼, SET DEFAULT WORKOUT TIME** will be displayed. Press the **GO** key.
16. Use **INPUT UP▲** or **INPUT DOWN▼** key to toggle between ON and OFF. Press **ENTER** key to select.
17. When set to ON, *"30"* will be displayed, use **INPUT UP▲** or **INPUT DOWN ▼** key to increase or decrease time.
    - When set to OFF, programs time will be the value in MAX Workout Time

    .
18. Press the **PROGRAMS** key to exit the set default workout time display.
19. Press **INPUT DOWN▼, SET MAX WORKOUT TIME** will be displayed. Press the **GO** key.
20. Use the **INPUT UP▲** or **INPUT DOWN▼** keys to select the maximum time a user can remain in a program.
21. Press the **PROGRAMS** key to exit the set max. workout time display.
22. Press **INPUT DOWN▼, SET SPEED LIMIT** will be displayed. Press the **GO** key.
23. Use the **INPUT UP▲** or **INPUT DOWN▼** keys to select the maximum allowable treadmill speed.
24. Press the **PROGRAMS key** to exit the set speed limit time display.
25. Press **INPUT DOWN▼, SET INCLINE LIMIT** will be displayed. Press the **GO** key.
26. Use the INPUT **UP▲** or **INPUT DOWN▼** keys to select the maximum allowable incline setting.
27. Press the **PROGRAMS** key to exit the set incline limit time display.
28. Press **INPUT DOWN▼, SET MAX PAUSE TIME** will be displayed. Press the **GO** key.
29. Use the ▲,▼ keys to select the maximum time a program will remain in the pause mode.
30. Press the **BACK** key to exit the set max. pause time display.
31. Press **INPUT DOWN▼, SET COOL DOWN TIME** will be displayed. Press the **OK** key.
32. Use the **INPUT UP▲** or **INPUT DOWN▼** keys to select the cool down time. Press the **OK** key.
33. Press the **PROGRAMS** key to exit the set cool down time display.
34. Press the **PAUSE/RESET** key to exit Club Settings.

Procedure 6.4 – P20 – Documenting Software Problems

When a problem is found with the software in the upper or lower PCA, record the information listed below.

When a problem occurs, record the following information:

- Model and serial number
- Software version number
- Program number running when the problem occurred

A description of:

- What happened or failed to happen.
- The action taken by the user just before the problem occurred.
- Problem-related information (such as how far into the program the problem occurred, the work level being used when the problem occurred, error code displayed, etc.).
- The frequency of occurrence.

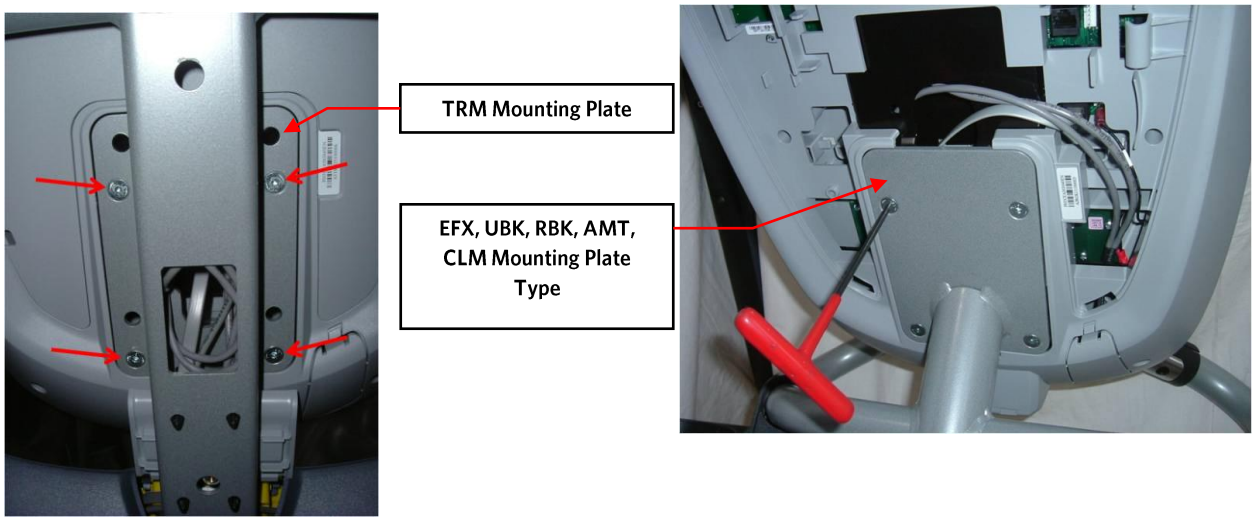
Procedure 6.5 – P20 – Replacing Upper PCA

1. Set the treadmill circuit breaker in the "off" position and unplug the treadmill's line cord from the AC outlet. (Treadmill Only)
2. The PCA's in the console are static sensitive. They can be damaged if proper static prevention equipment is not used. Attach an anti-static wrist strap to your arm, and then connect the ground lead of the wrist strap to the treadmill's frame ground.
3. Remove the two screws that fasten the dash transition cover and remove the cover. **See Diagram 6.5.1**

Diagram 6.5.1 – Dash Transition Cover (Treadmill Only)

4. Remove the four screws that fasten the console to the dash mounting plate. **See Diagram 6.5.2.**

Diagram 6.5.2 – Dash Mounting Plate

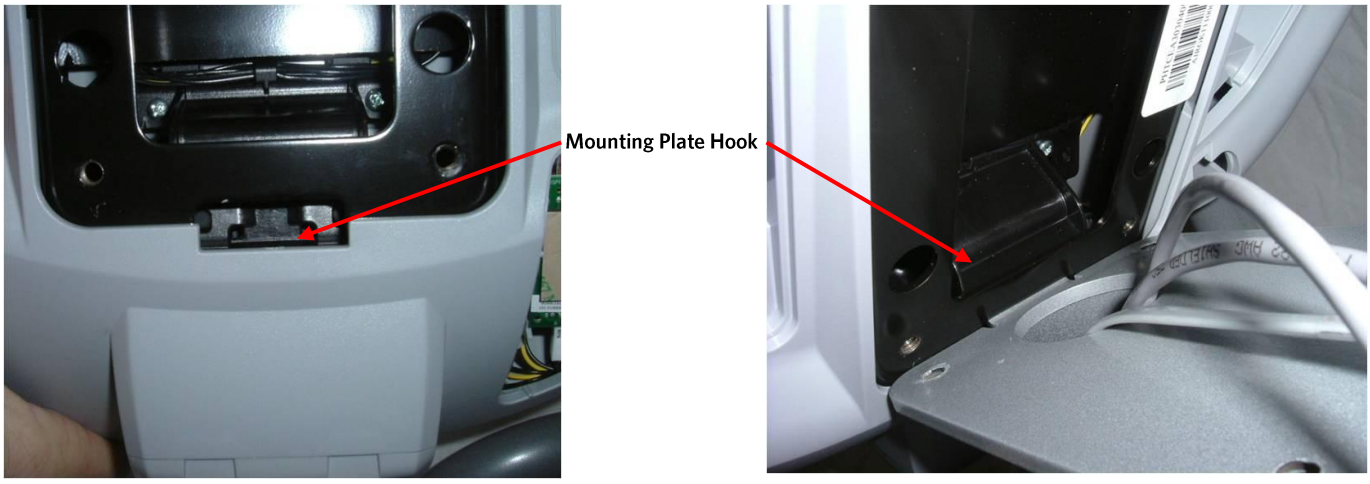


5. Remove the two screws that fasten the access panel to the console. **See Diagram 6.5.3**

Diagram 6.5.3 – Console Access Panel

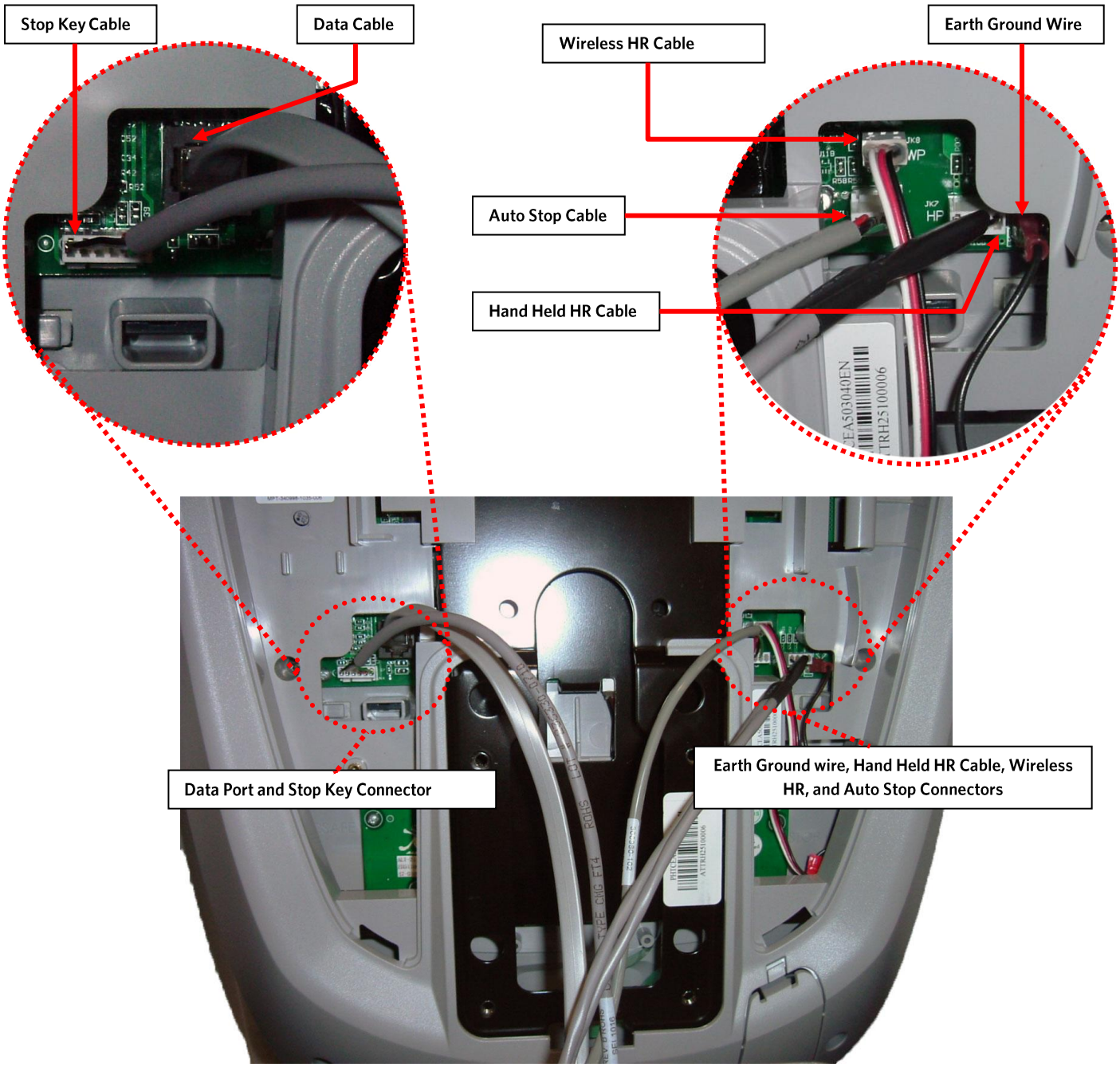
6. Remove access panel:
    a. Treadmills: Lift the console off the maintenance and then position the console so that the back panel is accessible and remove the back cover.
    b. AMT's, EFX's, CLM's, UBK's, and RBK's: Tilt the console forward on the maintenance access hook on the dash weldment and remove the back. **See Diagram 5.5.4.**

Diagram 6.5.4 – Maintenance Access Hook



7. Disconnect the Data cable, Auto Stop cable (Treadmill only), Stop Key cable (Treadmill only), Hand Held HR Cable, Earth Ground wire and the Wireless HR Cable from the Upper PCA. **See Diagram 6.5.5.** Remove the console from the maintenance access hook and place it on a flat work surface.

Diagram 6.5.5 – P20 Cable Connectors

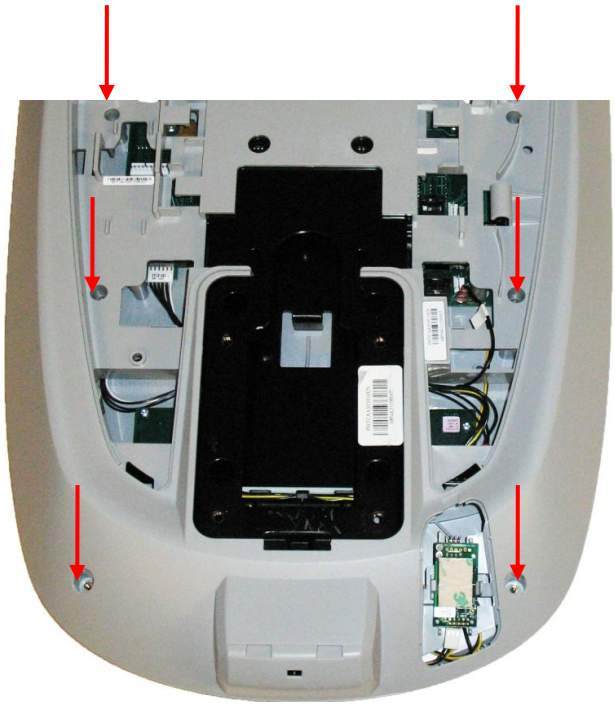


8. Remove the two screws that fasten the back cover to the option cap and remove the cover. **See Diagram 6.5.6**

Diagram 6.5.6 – Option Cap Back Cover

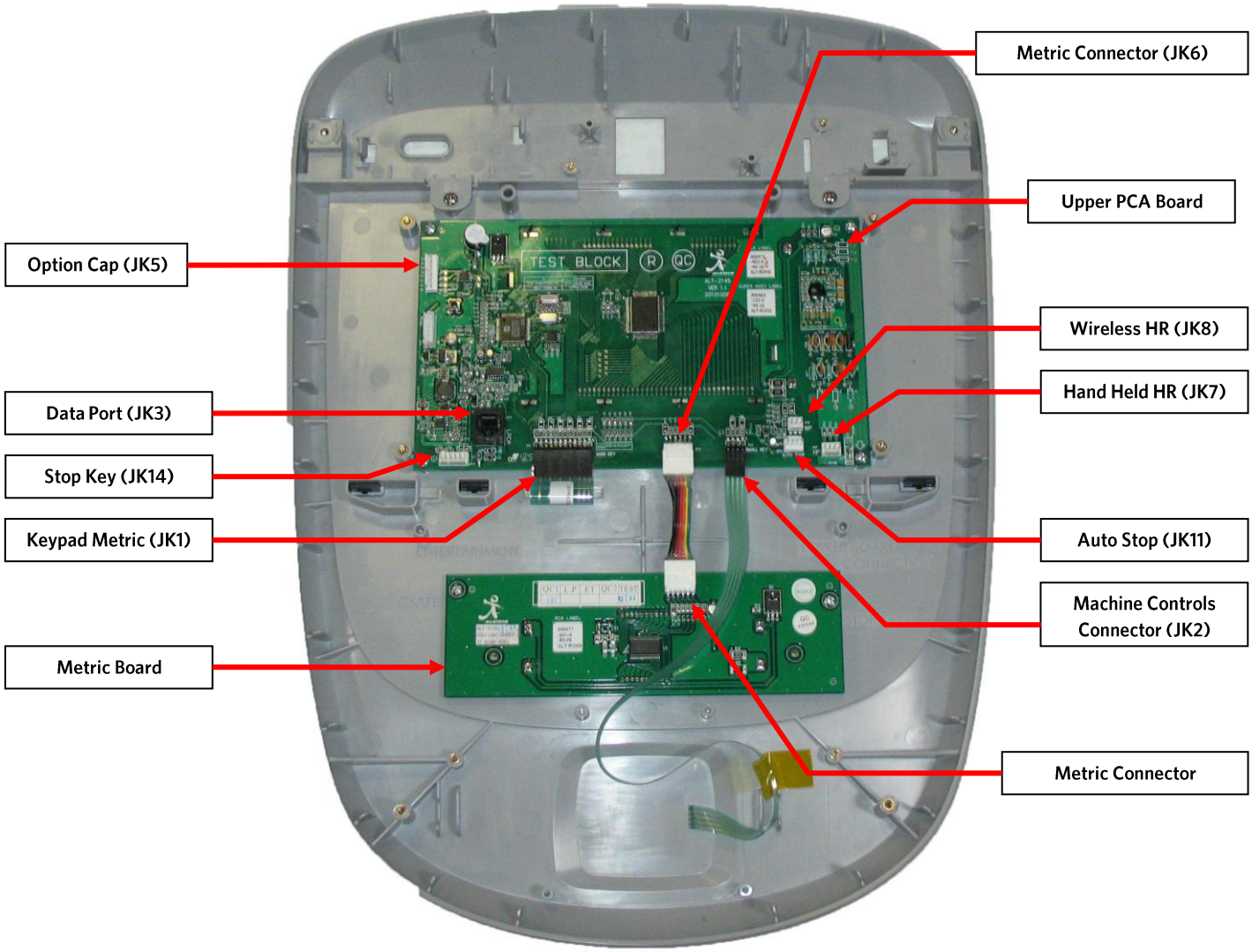
9. Remove the 6 screws that fasten the rear cover from the console and remove. **See Diagram 6.5.7.**

Diagram 6.5.7 – Rear Console Cover



10. Disconnect the Metric cable (JK6), Machine Controls cable (JK12), Option Cap cable (JK5, if applicable), and Keypad Metric cable (JK1) from the Upper PCA board. **See Diagram 6.5.8.**
11. Remove the four screws that fasten the Upper PCA board to the console and remove the Upper PCA.

Diagram 6.5.8 – P20 Upper PCA & Metric Board



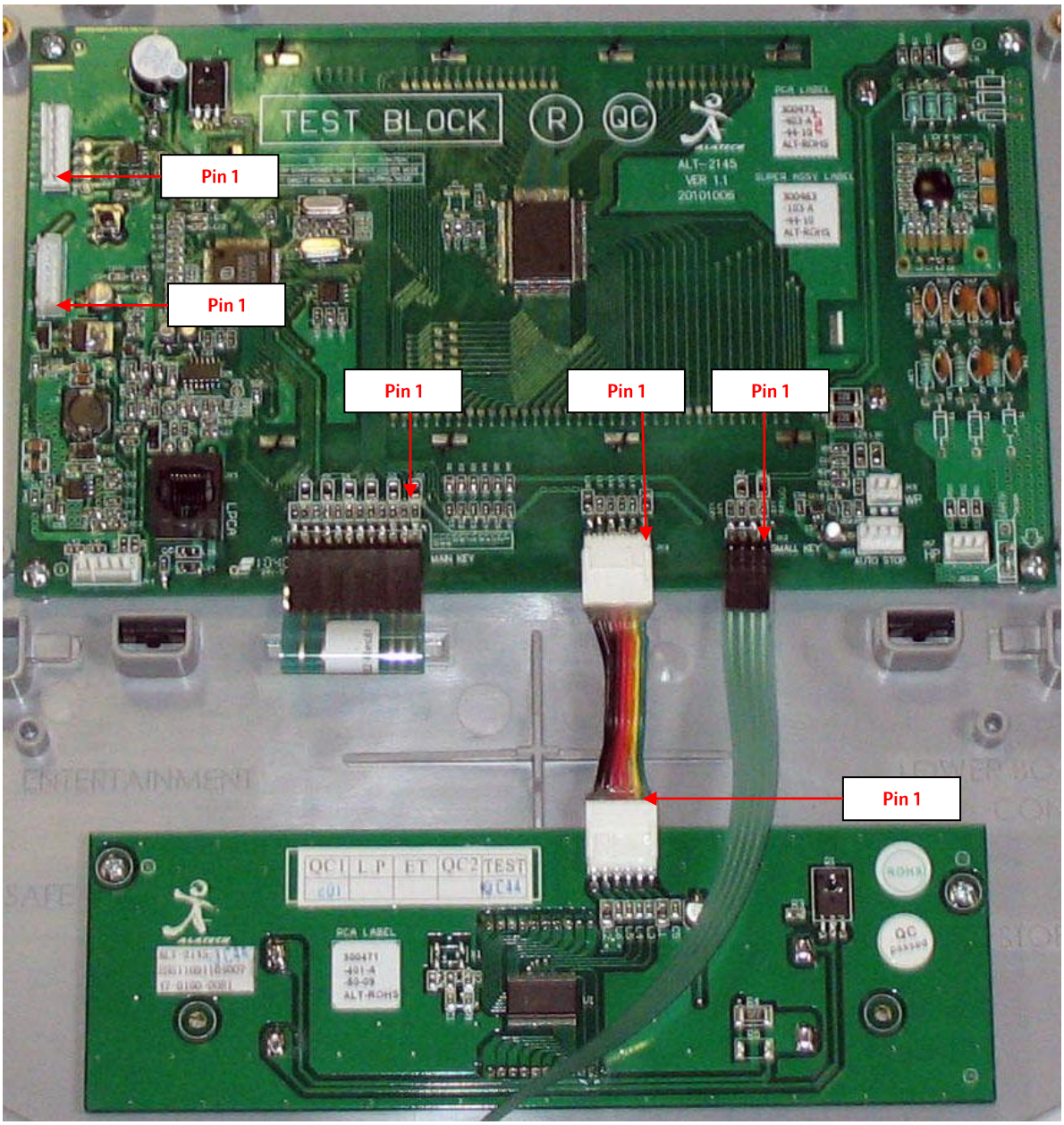
12. Install the replacement upper PCA into the console using the four screws removed in step 12. Torque to 10 inch pounds.

    Note: Do not use an electric screw driver or over tighten the screws. Over tightening may damage the console. This type of damage is not covered under warranty.

13. The green wire in the Metrics cable indicate pin 1 and the symbol (▽) indicates Pin 1 on the PCA. Align the green wire with the pin 1 markings on the upper PCA. **See Diagram 6.5.9**

    Note: If pin 1 is not marked on the Upper PCA refer to **Diagram 6.5.9**.

Diagram 6.5.9 – P20 PCA – Pin 1 Reference



14. Connect the Metrics cable, Machine Controls cable, Keypad Metric cable, and Option Cap cable (if applicable) to the Upper PCA.
15. Replace the P20 Rear Cover removed step 10 and secure the cover with the screws 6 screws. Torque to 10 inch pounds.

    Note: Do not use an electric screw driver or over tighten the screws. Over tightening may damage the console. This type of damage is not covered under warranty.
16. Replace the P30 Option Cap back cover removed step 9 and secure the cover with the screws 2 screws. Torque to 10 inch pounds.

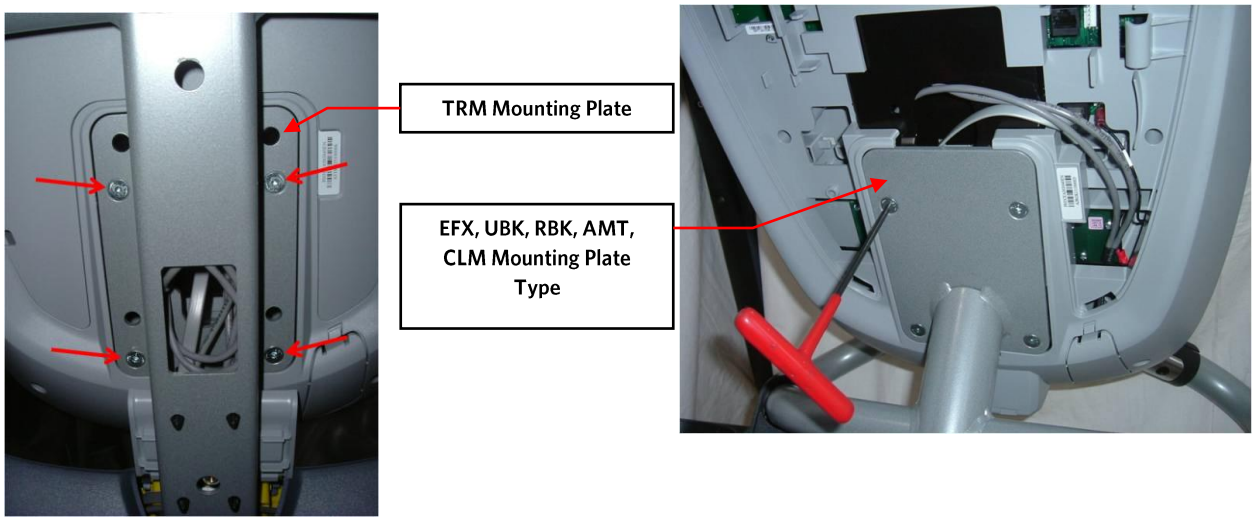
    Note: Do not use an electric screw driver or over tighten the screws. Over tightening may damage the console. This type of damage is not covered under warranty.
17. Place the P20 console on the maintenance access hook.
18. Reconnect the Data cable, Auto Stop cable (Treadmill only), Stop Key cable (Treadmill only), Hand Held HR cable, Wireless HR cable, and the Earth Ground wire and to the Upper PCA. **See Diagram 6.5.5.**
19. Replace the access cover with the hardware removed in step 5.
20. Tilt the console back against the mounting plated. While tilting the console back feed the excess cable into weldment tube making sure that the cables will not become pinched.
21. Fasten the console to the dash mounting plate with the four screws removed in step 4. **See Diagram 6.5.2.**
22. Fasten the dash transition cover using the two screws removed in step 3. **See Diagram 6.5.1**
23. Check treadmill operation per Section Seven.

Procedure 6.6 – P20 – Replacing the Metric Board

1. Set the treadmill circuit breaker in the "off" position and unplug the treadmill's line cord from the AC outlet. (Treadmill only)
2. The PCA's in the console are static sensitive. They can be damaged if proper static prevention equipment is not used. Attach an anti-static wrist strap to your arm, and then connect the ground lead of the wrist strap to the treadmill's frame ground.
3. Remove the two screws that fasten the dash transition cover and remove the cover. **See Diagram 6.6.1**

Diagram 6.6.1 – Dash Transition Cover (Treadmill only)

4. Remove the four screws that fasten the console to the dash mounting plate. **See Diagram 6.6.2.**
5. Diagram 6.6.2 – Dash Mounting Plate

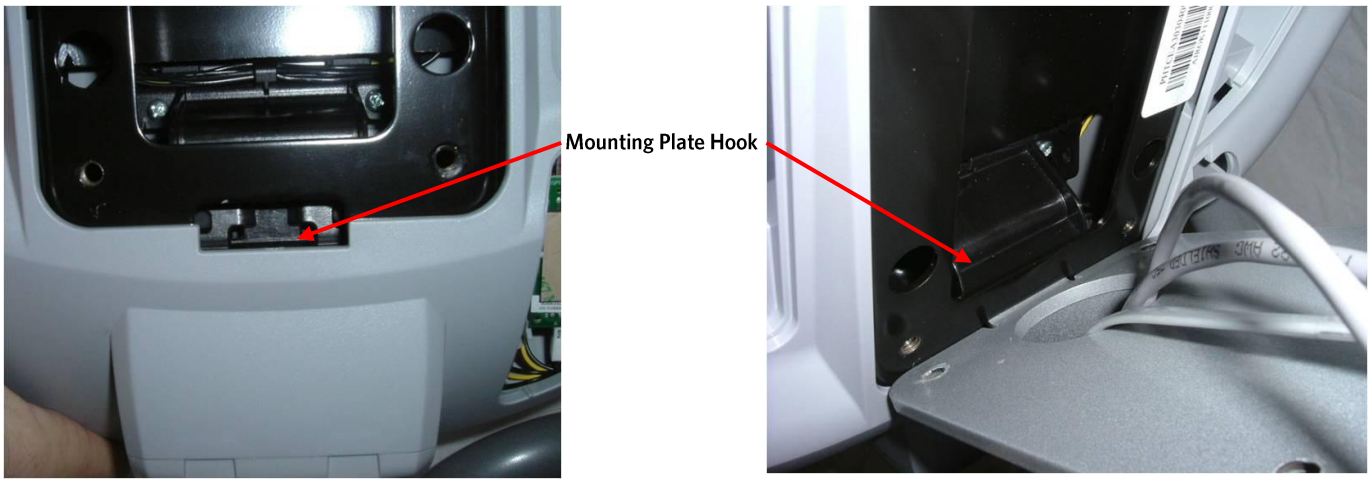


6. Remove the two screws that fasten the access panel to the console. **See Diagram 6.6.3**

Diagram 6.6.3 – Console Access Panel

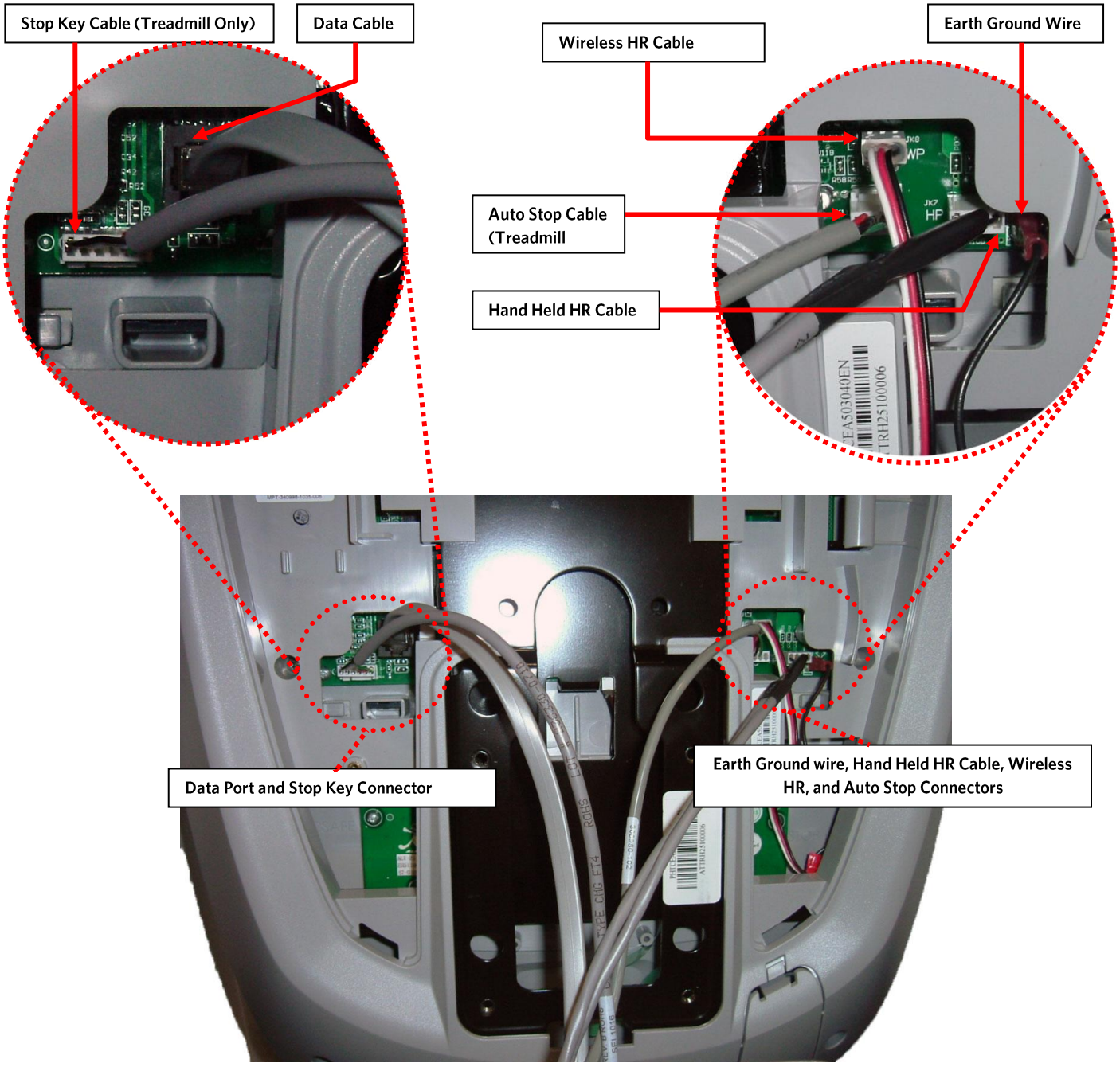
7. Remove Access panel:
    a. Treadmills: Lift the console off the maintenance hook and then position the console so that the back panel is accessible and remove the back cover.
    b. AMT's, EFX's, CLM's, UBK's, and RBK's: Tilt the console forward on the maintenance access hook on the dash weldment and remove the back.

See Diagram 6.6.4.Diagram 6.6.4 – Maintenance Access Hook



8. Disconnect the Data cable, Auto Stop cable (Treadmill only), Stop Key cable (Treadmill only), Hand Held HR Cable, Earth Ground wire and the Wireless HR Cable from the Upper PCA. **See Diagram 6.6.5.** Remove the console from the maintenance access hook and place it on a flat work surface.

Diagram 6.6.5 – P20 Cable Connectors

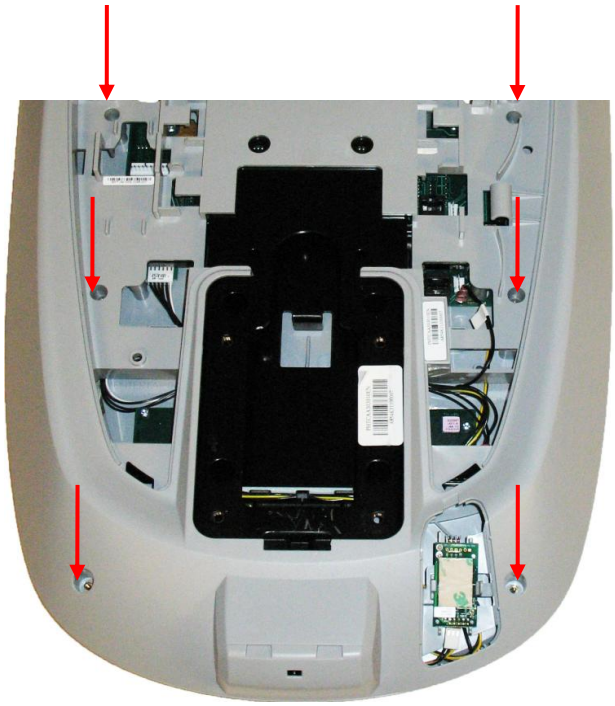


9. Remove the two screws that fasten the back cover to the option cap and remove the cover. **See Diagram 6.6.6**

Diagram 6.6.6 – Option Cap Back Cover

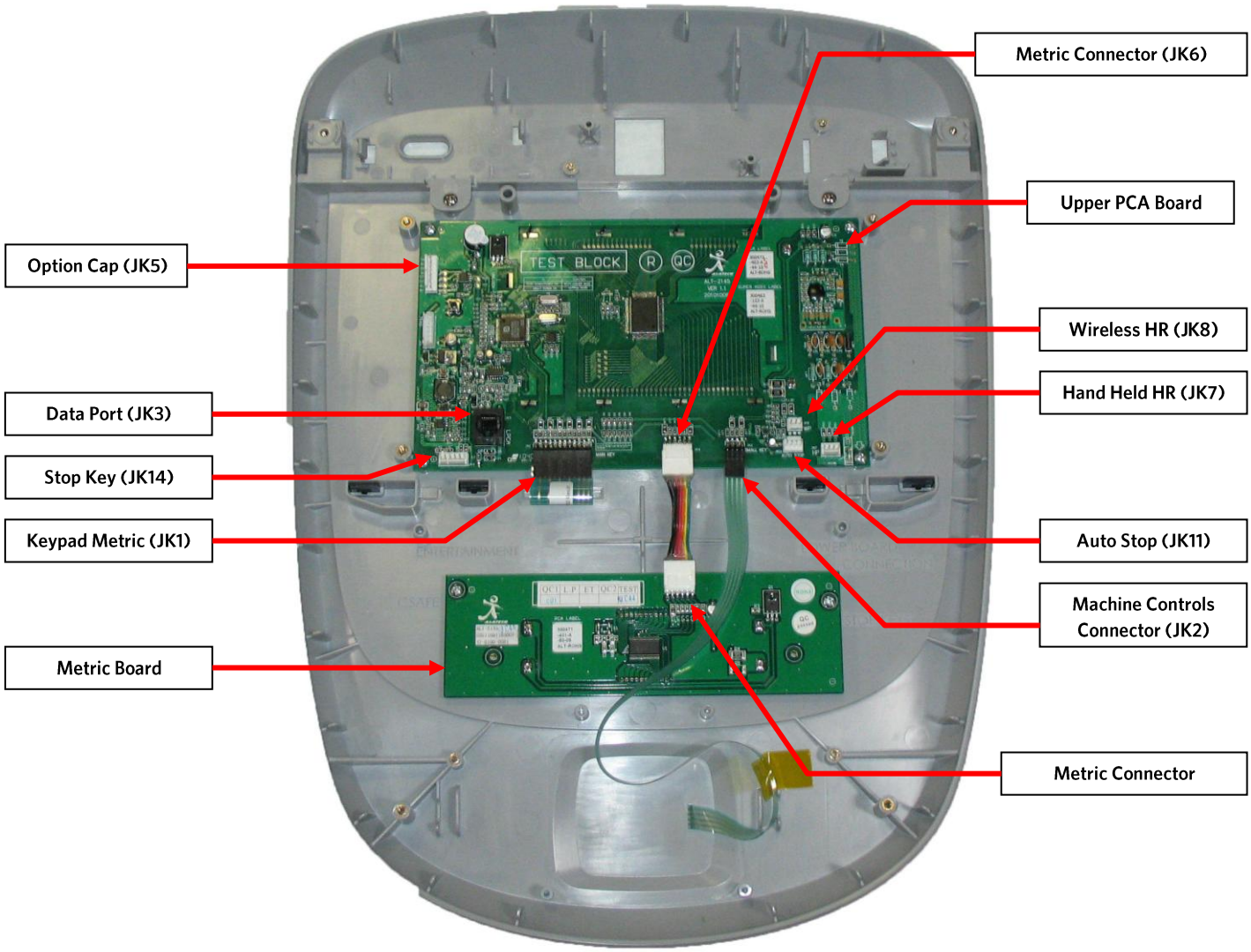
10. Remove the 6 screws that fasten the rear cover from the console and remove. **See Diagram 6.6.7.**

Diagram 6.6.7 – Rear Console Cover



11. Disconnect the Metric cable from the Metric PCA board. **See Diagram 6.6.8.**
12. Remove the four screws that fasten the Metric PCA board to the console and remove the Metric PCA and the four spacers.

Diagram 6.6.8 – P20 Upper PCA & Metric Board



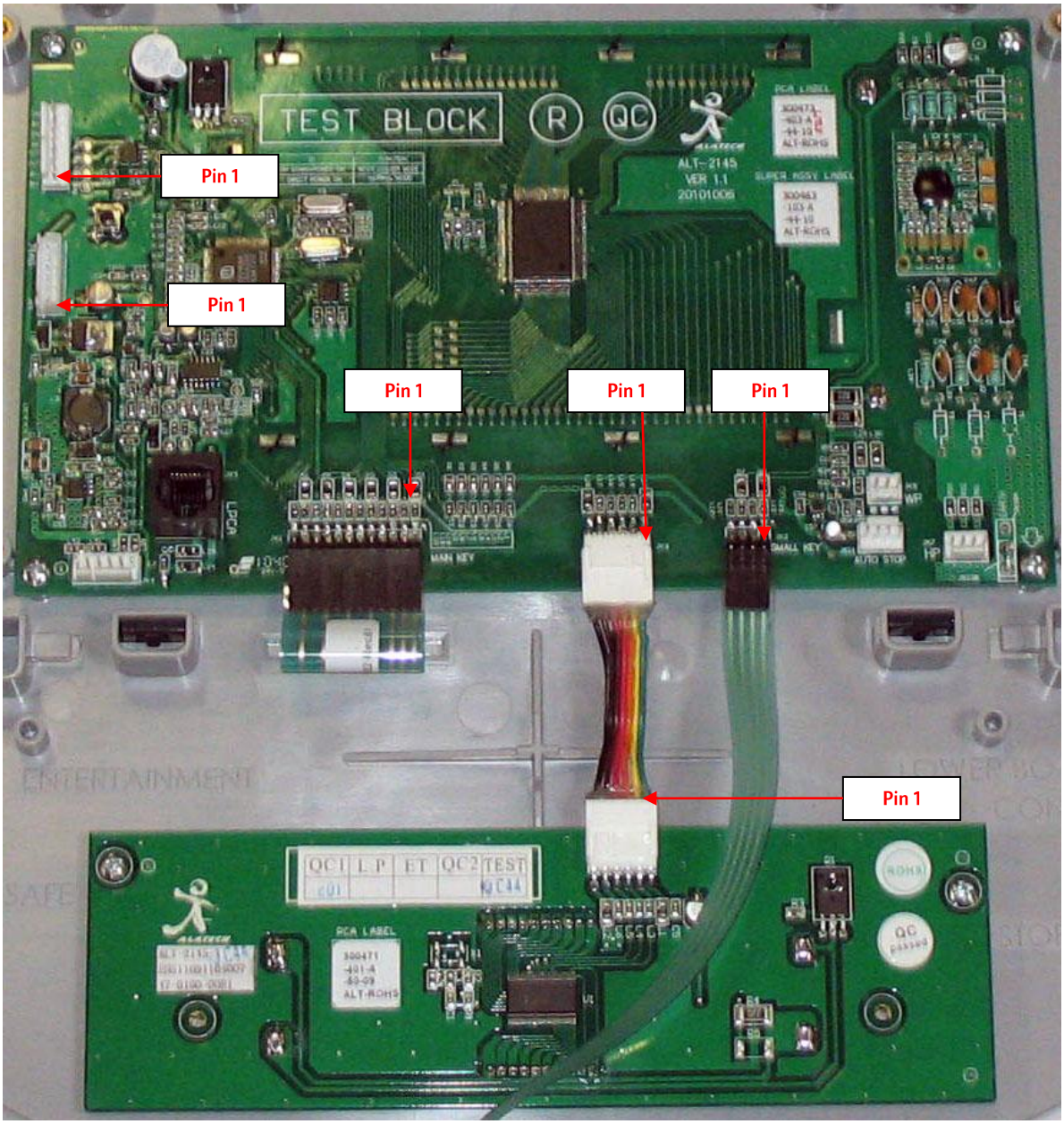
13. Install the replacement Metric PCA board into the console using the four screws removed in step 12. Torque to 10 inch pounds.

    Note: Do not use an electric screw driver or over tighten the screws. Over tightening may damage the console. This type of damage is not covered under warranty.

14. The green wire in the Metrics cable indicate pin 1 and the symbol (▽) indicates Pin 1 on the Metric board. Align the green wire with the pin 1 markings on the Metric board. **See Diagram 6.6.9**

    Note: If pin 1 is not marked on the Metric boards refer to **Diagram 6.6.9**.

Diagram 6.6.9 – P20 PCA – Pin 1 Reference



15. Connect the Metrics cable, to the Metric board.
16. Replace the P20 Rear Cover removed step 10 and secure the cover with the screws 6 screws. Torque to 10 inch pounds.

    Note: Do not use an electric screw driver or over tighten the screws. Over tightening may damage the console. This type of damage is not covered under warranty.
17. Replace the P30 Option Cap back cover removed step 9 and secure the cover with the screws 2 screws. Torque to 10 inch pounds.

    Note: Do not use an electric screw driver or over tighten the screws. Over tightening may damage the console. This type of damage is not covered under warranty.
18. Place the P20 console on the maintenance access hook.
19. Reconnect the Data cable, Auto Stop cable (Treadmill only), Stop Key cable (Treadmill only), Hand Held HR cable, Wireless HR cable, and the Earth Ground wire and to the Upper PCA. **See Diagram 6.6.5.**
20. Replace the access cover with the hardware removed in step 6.
21. Tilt the console back against the mounting plated. While tilting the console back feed the excess cable into weldment tube making sure that the cables will not become pinched.
22. Fasten the console to the dash mounting plate with the four screws removed in step 4. **See Diagram 6.6.2.**
23. Fasten the dash transition cover using the two screws removed in step 3. **See Diagram 6.6.1**

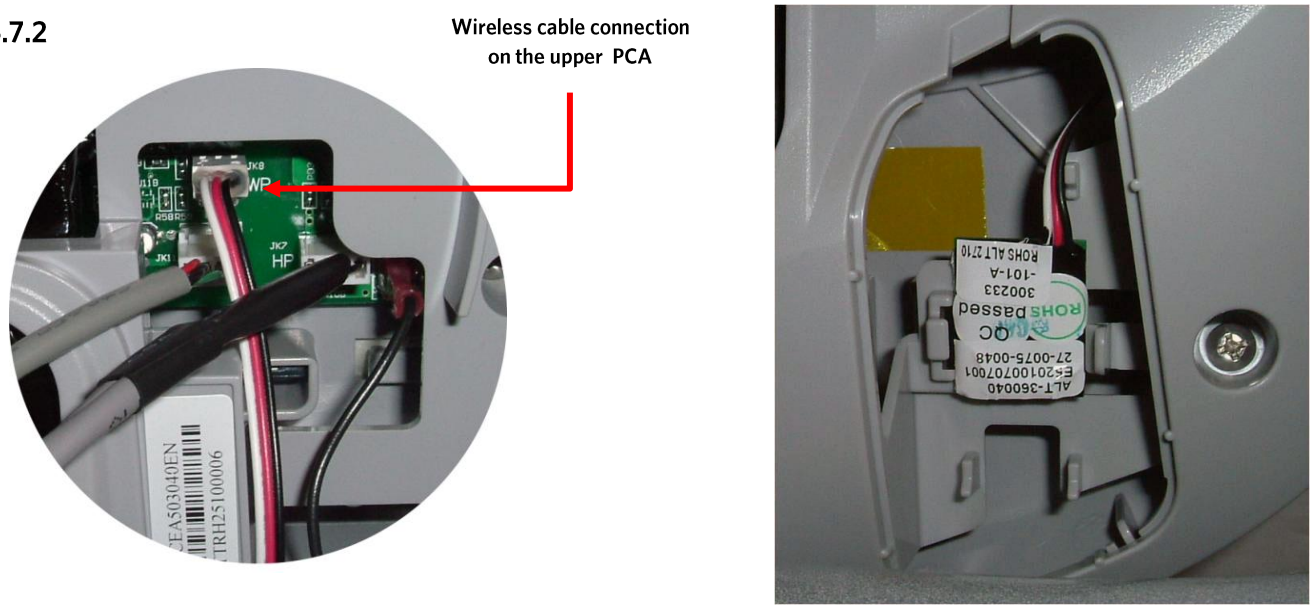
    Check operation per Section Seven.

Procedure 6.7 – P20 – Replacing Heart Rate PCA

1. Set the treadmill circuit breaker in the "off" position and unplug the treadmill's line cord from the AC outlet (Treadmill only).
2. Remove the console access panel per procedure 6.5.
3. The PCA's in the console are static sensitive. They can be damaged if proper static prevention equipment is not used. Attach an anti-static wrist strap to your arm, and then connect the ground lead of the wrist strap to the frame ground.
4. Disconnect the HR cable connector from the upper PCA.
5. Remove the HR PCA access panel on the back of the console. **See Diagram 6.7.1**
6. The HR PCA snaps into its mounting. Press its tabs downward and remove the HR PCA from its mounting.
7. Pull the HR PCA cable out of the console.
8. Route and the new HR cable through the console and reconnect it onto the upper PCA. **See Diagram 6.7.2**.
9. Snap the HR PCA into its mounting.
10. Replace the HR PCA access panel removed in step 5.
11. Replace the console access panel removed in step 2.
12. Check operation per Section 7

Diagram 6.7.1

Diagram 6.7.2



Procedure 6.8 – Future Content

Procedure 6.9 – Future Content

Procedure 6.10 – Future Content

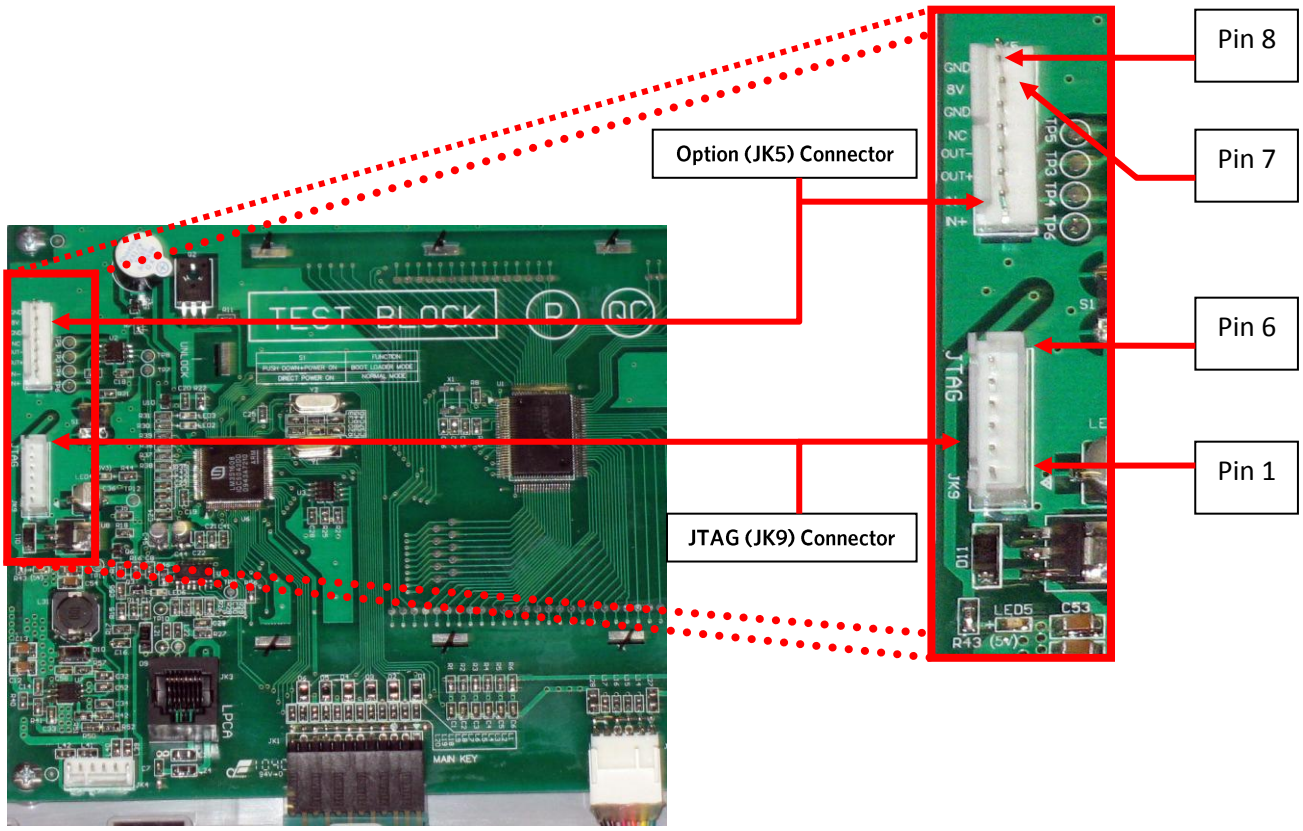
Troubleshooting 6.11 – P20 – Troubleshooting the Keypad and the Upper PCA

Procedure

Note: The green wire on the cables shown in **Diagram 6.11.1** denotes pin 1. When these cables are inserted into their connectors, the green wire must align with the pin 1 designation on the PCA. If pin 1 is not marked on the PCA refer to **Diagram 6.11.1**.

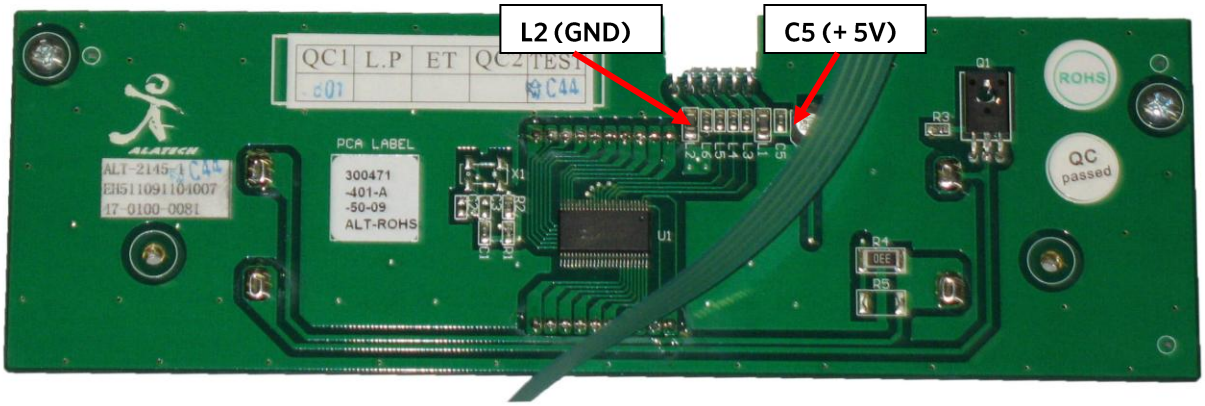
1. Set the treadmill's on/off switch in the "off" position (Treadmill Only). Access the upper electronics and machine controls per Procedure 6.5, steps 1 through 11. Place the console on the maintenance mounting hook and reconnect all cables.
2. If the message STUCK KEY is displayed when the unit is powered on, skip to step 23.
3. If a key does not function, skip to step 18.
4. If the display does not illuminate, continue with step 5.

Diagram 6.11.1 - Console, Upper PCA , JTAG (J9), & Option Cap Connector



5. If the upper PCA is not illuminating, skip to step 12.
6. If the metrics PCA is not illuminating, continue with step 7.
7. Remove the four screws that fasten the metrics PCA to the display face and rotate it so that the front of the PCA is visible. Set the treadmill's on/off switch in the "on" position. (Treadmill Only)
8. With a DC voltmeter, measure between between C5 (+5V) and L2 (GND) on the metric board and L27 (+5V) and L28 (GND) of JK6 connector of the upper PCA for 5Vdc. See Diagram 6.11.3

Diagram 6.11.3 - Metrics PCA, Front View



9. If 5 Vdc is not present on C5 and 5 Vdc is present on L27, replace the metrics cable between the upper PCA and the metrics PCA.
10. If 5 Vdc is present on C5 and the upper PCA is illuminating normally, replace the metrics PCA.
11. If you have performed steps 7 - 10 and the metrics PCA still does not illuminate, contact Precor customer support for assistance.
12. Set the treadmill's on/off switch in the "on" position. (Treadmill Only)
13. With a DC voltmeter, measure between pins 1 and 6 of JK9 (JTAG Connector) for 3.3 Vdc and between pins 6 and 7 of JK5 (Option Cap connector) for 8 Vdc.
14. If 3.3 Vdc is not present on JK9 and 8 Vdc is present on JK5, replace the upper PCA.
15. If 8 Vdc is not present on JK5, temporarily replace the upper PCA to power control module cable with a known good cable.
16. If the upper PCA illuminates normally, replace the upper PCA to power control module cable permanently. If the upper PCA still does not illuminate, replace the power control module.
17. If you have performed steps 12 - 16 and the upper PCA still does not illuminate, contact Precor customer support for assistance.

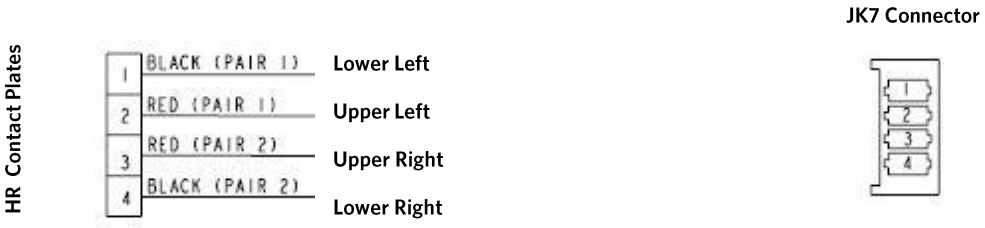
18. Set the treadmill's on/off switch in the "on" position. (Treadmill Only)
19. If none of the keys on the display are functioning, check the stop switch cable connection to the upper PCA. If the stop switch is not connected or the stop switch is not functioning, none of the display keys will operate. This feature ensures that the treadmill has a functioning stop switch when it is in use.
20. If a particular key is not functioning, perform the keyboard test in **Procedure 6.2.** If the test verifies that the key is not functioning, replace the display face.
21. If the display face has been replaced and the same key or control is still not functioning, replace the upper PCA.
22. If you have performed steps 18 - 22 and the same key is still not functioning, contact Precor customer support for assistance.
23. Remove the keypad cable from the upper PCA. **See Diagram 6.5.8.**
24. Set the treadmill's on/off switch in the "on" position. (Treadmill Only)
25. If the **STUCK KEY** message is no longer displayed, replace the display face. If the **STUCK KEY** message is still being displayed continue with step 26.
26. Set the treadmill's on/off switch in the "off" position. (Treadmill Only)
27. Remove the Machine Control cable from the upper PCA.
28. Set the treadmill's on/off switch in the "on" position. (Treadmill Only)
29. If the **STUCK KEY** message is no longer displayed, replace the machine the display face.
30. If the **STUCK KEY** is still being displayed with the keyboard cable disconnected, replace the upper PCA.
31. If you have performed steps 23 - 30 and the **STUCK KEY** message is still being displayed, contact Precor customer support for assistance.

Troubleshooting 6.12 – P20 – Troubleshooting Handheld Heart Rate

Circuit Description
The hand held heart rate system is actually a dual system, that is, it can accept a heart rate signal from either the hand held heart rate contacts on the unit's handlebar or from a Polar heart rate chest strap transmitter. The heart rate circuit in upper PCA is configured for hand held priority. That is, if both a chest strap and hand heart rate signal are being received, the system will accept the hand held signal and ignore the chest strap signal. If a hand held signal is not being received, the system will accept the chest strap signal.

Note:
There are four typical failure modes for the hand held/chest strap heart rate system. They are: hand held is normal - no chest strap reading; no hand held reading - chest strap normal; no hand held or chest strap reading or constant or intermittent readings when neither hand held or chest strap are in use.

Diagram 6.12.1 - Hand held/chest strap heart rate PCA



Normal hand held reading - No chest strap reading

1. Access the diagnostic program (Procedure 6.1). Advance to the heart rate display portion of the diagnostic program. Verify that a chest strap signal is not being accepted with either a Polar heart rate test transmitter or a known good chest strap transmitter. If this reading is good, skip to step 3.
2. Using a known good Polar heart rate chest strap, verify that the heart rate operates with the known good chest strap. If the known good Polar chest strap does correct the problem, replace the original chest strap transmitter.
3. If the above procedures did not correct the problem, replace the wireless heart rate receiver.

No hand held reading - Normal chest strap reading

4. Access the diagnostic program (Procedure 6.1). Advance to the heart rate display portion of the diagnostic program. Verify that a hand held signal is not being accepted by firmly grasping both the right and left hand held contacts on the handlebars. Cover as much of the top and bottom contact surface area with your hands as possible (without moving your hands), you should receive a heart rate reading within ten seconds.
5. If the hand held signal is now being accepted, something in the near vicinity is radiating RF (radio frequency) energy that is being received by the chest strap portion of the heart rate PCA. Discount the Wireless HR cable from the upper PCA.
6. If a hand held signal still not being accepted, skip to step 7.
7. Access the diagnostic program (Procedure 6.1). Advance to the heart rate display portion of the diagnostic program. Verify that a hand held signal is not being accepted by firmly grasping both the right and left hand held contacts with the opposite hands, right hand on the left handlebar contacts and left hand on the right handlebar contacts. Cover as much of the top and bottom contact surface area with your hands as possible, you should receive a heart rate reading within ten seconds. If a hand held signal is still not being accepted, skip to step 9.
8. If a hand held signal was accepted in step 11, the hand held contact wiring is reversed. The harness that connects to the hand held contacts in the handlebar is segregated into two groups. One group has blue shrink wrap around it and the other group has black shrink wrap around it. The “blue” group must go to the right hand contacts and the “black” group must go to the left hand contacts. If necessary, rewire the hand held contacts as described above and test as described in step 4.
9. If the wiring is correct, refer to Diagram 6.12.1 for the following measurements. With an ohmmeter measure between the “lower right contact” pin on the JK7 connector and the lower right hand held heart rate contact on the handlebar. The reading should be 1 Ω or less. Measure between the “upper right contact” pin on the JK7 connector and the upper right hand held heart rate contact on the handlebar. The reading should be 1 Ω or less. Measure between the “upper left contact” pin on the JK7 connector and the upper left hand held heart rate contact on the handlebar. The reading should be 1 Ω or less. Measure between the “lower left contact” pin on the JK7 connector and the lower left hand held heart rate contact on the handlebar. The reading should be 1 Ω or less. If any of the above readings are greater than 1 Ω, replace the heart rate PCA to handlebar wire harness.

No hand held reading - No chest strap reading

10. Access the diagnostic program (Procedure 6.1). Advance to the heart rate display portion of the diagnostic program. Verify that neither a chest strap signal or a hand held signal is being accepted with either a heart rate test transmitter or a chest strap transmitter.
11. Check the plug/connector connections on both the hand held heart rate (JK7) and wireless heart rate (JK8) at the upper PCA.
12. If neither a chest strap signal or a hand held signal is being accepted, measure between the replace the upper PCA.

Section Seven – TRM – Checking Treadmill Operation

This section provides you with a quick method of checking treadmill operation. Check treadmill operation at the end of a maintenance procedure and when it is necessary to ensure that the treadmill is operating properly.

Procedure

1. Plug the power cord into the wall outlet, and then turn on the treadmill with the circuit breaker.
2. Operate the treadmill in the Manual program. Adjust the speed of the running belt to 2–3 m.p.h. Operate the treadmill for at least 5 minutes.
    a. Concentrate on the feel of the running belt and the sound of the drive motor and rollers. Be on the alert for unusual noises, smells, or vibrations.
    b. Observe the LED's on the electronic console. Make sure that each LED lights as the information corresponding to that LED is displayed on the electronic console.
    c. Enter the diagnostics program **(see Diagnostic Procedure for P80, P30, or P20 Console)** and log the power bits under loaded and unloaded conditions.
3. Press the STOP key. When the treadmill comes to a stop, view the electronic console as the treadmill scans time, speed, distance and percent of incline.
4. Press the INCLINE ▲ key while viewing the electronic console. Confirm that the running bed inclines and the incline display increments to 15% as the INCLINE ▲key is pressed.
5. Press the INCLINE ▼ key while viewing the electronic console. Confirm that the running bed returns to a level position and the incline display decrements to 0% as the INCLINE ▲ key is pressed.
6. Turn off the treadmill with the circuit breaker, and then unplug the treadmill from the wall outlet.

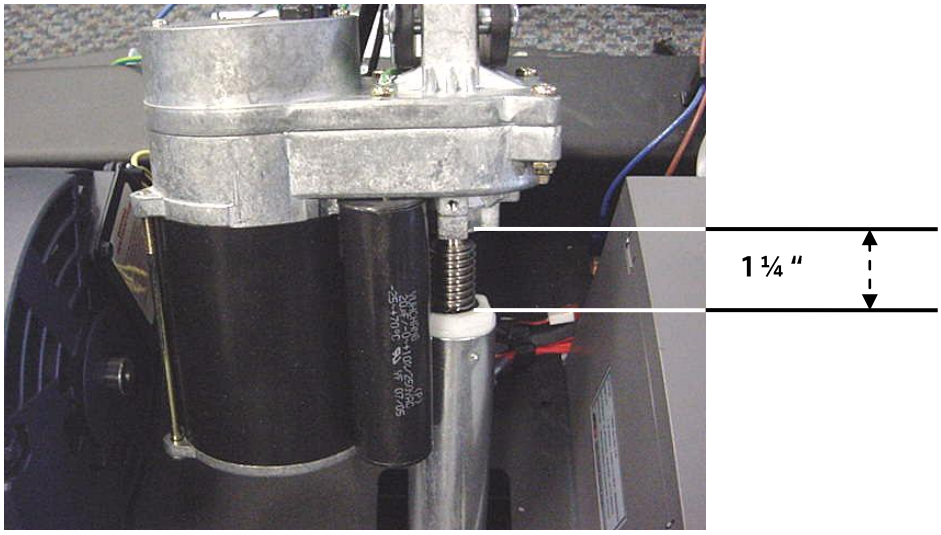
Section Eight, Inspection and Adjustment Procedures

Perform inspection procedures when a trouble symptom points to a particular problem and after removing and replacing major components. Many maintenance problems can be fixed by adjusting various treadmill components. This section also provides you with the step-by-step procedures required to make these adjustments.

Procedure 8.1 – TRM - Calibrating the Incline Motor

1. Set the treadmill circuit breaker in the "off" position and unplug the line cord from the wall outlet. Remove the hood.
2. Place the treadmill on its right side. Remove hitch and clevis pins that secure the incline tube to the incline platform. See Diagram 8.1.1.

Diagram 8.1.1 - Incline Motor Mounting



3. Plug the power cord into the wall outlet, set the treadmill circuit breaker in the "on" position. If the lift was not set at 0% incline the lift motor will immediately start to operate. The lift motor will continue to operate until the system is at 0% incline.
4. With the system at 0% incline, rotate the incline tube until the distance from the top of the incline tube to the incline motor is 1-1/4 inch. See Diagram 8.1.1. While rotating the incline tube, be sure the incline motor drive screw does not rotate. If the drive screw is rotated, return to step 3 and repeat steps 4 and 5.
5. Set the treadmill circuit breaker in the "off" position and remove the line cord from the wall outlet.
6. Replace the clevis and hitch pins removed in step 2. Return the treadmill to an upright position.
7. Plug the line cord into the wall outlet, set the treadmill circuit breaker in the "on" position.
8. Check the calibration of the incline system by performing the following steps:
9. Press the INCLINE ▲ key until maximum incline is obtained, 15%.
10. Press the INCLINE ▼ key to minimum incline is obtained, 0% on TRM 823 and TRM 845 treadmills or -3% on TRM 885 treadmills.
11. Re-install the hood.

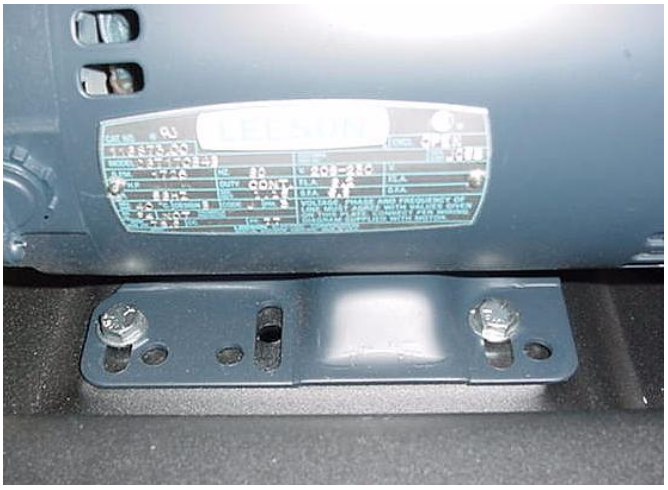
Procedure 8.2 – TRM - Adjusting Drive Belt Tension

1. Set the treadmill circuit breaker in the "off" position and unplug the line cord from the wall outlet.
2. Remove the hood.
3. Place the drive belt tension gauge on the drive belt as shown in **Diagram 8.2.1**

Diagram 8.2.1 - Drive Belt Tension Gauge

4. The gauge should read approximately 80 inch/pounds. The drive belt tension is acceptable if it is in the range of 70 to 90 inch-pounds.
5. If the drive belt tension is less than 70 or greater than 90 inch/pounds, slightly loosen the four drive motor mounting bolts. The drive motor mounts on slotted holes allowing the drive motor to be move forward or rearward. Move the drive motor forward or rearwards, as required, until the belt gauge reads approximately 80 inch/pounds and tighten the four drive motor mounting bolts. **See Diagram 8.2.2**. Momentarily remove the drive belt tension gauge from the drive belt. Replace the drive belt tension gauge on the drive belt and re-adjust the drive belt tension, if necessary. Torque the four drive motor mounting bolts to 204 inch pounds (17 foot pounds).

Diagram 8.2.2 - Drive Belt Adjustment



6. Re-install the hood.
7. Plug the line cord into the wall outlet and set the treadmill circuit breaker in the “on” position.
8. Check treadmill operation per **Section Seven**.

Procedure 8.3 – TRM – Running Belt and Deck Cleaning Procedure

1. First, check for proper operation of the safety stop key. Stand to one side of the treadmill. Ensure that the stop key tether is hanging straight down from the stop key and is not wrapped around the handle bars. Push the "Quick Start" button and wait for the display to count down and for the running belt to begin moving. Once the running belt is moving pull the safety stop key tether. See the Diagram 8.3.1.

Diagram 8.3.1

CAUTION: If the running belt does not stop, turn off the power using the ON/OFF switch at the front of the treadmill and unplug the power cord. The treadmill must remain out of service until the stop switch is repaired. If the running belt stops, continue with the cleaning procedure.

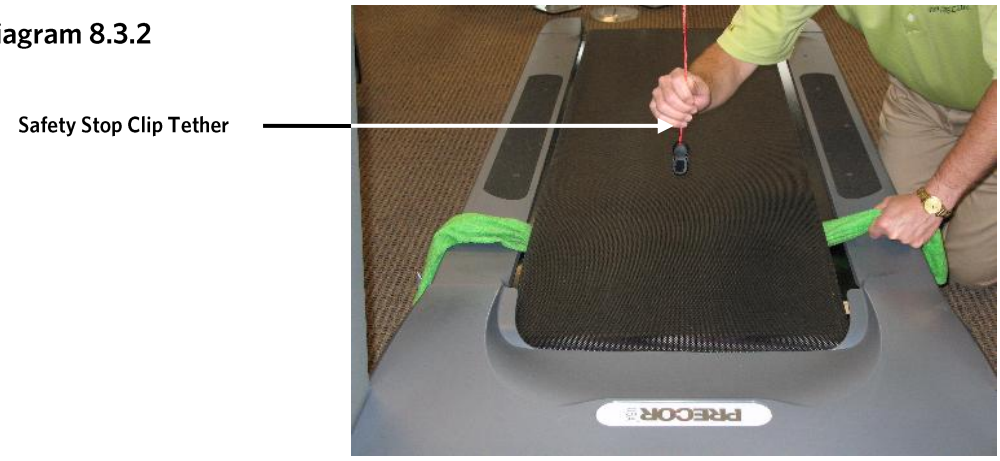
2. A clean, dry towel approximately 36 inches or 1 meter in length is required. Fold the towel in half lengthwise, lift the running belt up and insert the towel beneath the belt so that an end of towel extends on to each deck trim. **See the Diagram 8.3.2.**

3. Stand to one side of the treadmill, push the "Quick Start" button, grasp the towel as illustrated in the illustration above. **Note:** You will have 3 seconds to firmly grasp your hands on the towel before the treadmill running belt begins to move. Allow the treadmill to run for about one minute while holding the towel firmly in place.

   CAUTION: If the towel becomes loose it may be pulled into the treadmill's rollers. Pull the safety key tether to stop the treadmill and retrieve the towel, no damage should occur. Start the procedure over again. **See Diagram 8.3.2.**

4. Keep one hand firmly grasped on the towel, use your other hand to pull on the safety stop key tether to stop the treadmill running belt. **See Diagram 8.3.2.**
5. Turn the power off. Place your hands on the towel and push it up and down the length of the running deck several times to clean the deck.
6. Remove the towel.

Diagram 8.3.2



It is recommended that this procedure be performed frequently to extend the life of the running belt and running deck.

Section Nine – TRM – Troubleshooting Procedures

The troubleshooting procedures contained in this section should be performed when it is necessary to isolate a problem to a particular TRM component.

Troubleshooting 9.1 – TRM – Troubleshooting the External A.C. Power Source

It is extremely important that any Precor treadmill be connected to and operated on a dedicated 20 amp A.C. circuit. A 20 amp dedicated circuit is defined as: a circuit fed by a 20 amp circuit breaker that feeds a single load. A treadmill operating from a non-dedicated circuit or a circuit breaker of less than 20 amps capacity will not have the necessary power available to operate normally under higher load conditions. The lack of available power can cause any number of symptoms ranging from numerous intermittent (seemingly inexplicable) error conditions, poor speed control, or tripping the house circuit breaker. If any of the above symptoms exist the external A.C. circuit must be checked and confirmed to be a 20 amp dedicated circuit before troubleshooting the treadmill.

In addition the A.C. voltage must be checked. Nominal A.C. operating voltage on 120 Vac circuits is 105 Vac to 120 Vac. Nominal A.C. operating voltage on 240 Vac circuits is 208 Vac to 240 Vac. For operator safety considerations and to minimize electrostatic discharge conditions the A.C. frame ground continuity must also be verified to be a low resistance connection to the A.C. distribution ground bar.

Important
If the A.C. circuit feeding a treadmill is found to be a non-dedicated circuit or a circuit equipped with a circuit breaker with a capacity of less than 20 amps, the A.C. circuit must be corrected to be a 20 amp dedicated circuit before any reliable troubleshooting can be performed on the treadmill. More importantly, a non-dedicated circuit may constitute a safety hazard to the treadmill operator.

120 Vac Systems

120 Vac distribution systems utilize a single pole circuit breaker (hot lead) and a neutral lead connected to a common neutral (ground) bar. The A.C. safety ground (green wire) is connected to a separate ground bar in the distribution system.

The most common problems found are (1) the circuit is fed by a circuit breaker of less than 20 amp capacity, (2) the circuit breaker correctly feeds a single A.C. outlet but the neutral is common between several A.C. outlets and (3) both the hot and neutral leads feed several A.C. outlets. The appropriate correction action or actions (see below) must be followed if any of the above conditions exist. Corrective actions should only be undertaken by a licensed electrician.

1. The circuit breaker feeding the treadmill is not a 20 amp circuit breaker.

   If the circuit breaker is greater than 20 amps, the circuit breaker should be replaced with a 20 amp circuit breaker. If the circuit breaker is less than 20 amps the circuit breaker must be replaced with a 20 amp circuit breaker and the wiring from the A.C. distribution must be capable of safely handing 20 amps. If the A.C. wiring is under sized, it must be replaced with wire capable of safely handling 20 amps. Please, refer to local electrical codes when determining the appropriate wire size for a 20 amp circuit.

2. The circuit breaker correctly feeds a single A.C. outlet but the neutral is common between several A.C. outlets.

   The common neutral lead must be removed from treadmill's A.C. outlet and a new neutral lead from the treadmill's A.C. outlet to the A.C. neutral distribution bar must be added.

3. Both the hot and neutral leads feed several A.C. outlets.

   Both the common neutral and hot leads must be removed from treadmill's A.C. outlet and a new neutral lead and hot lead from the treadmill's A.C. outlet to the A.C. neutral distribution bar and circuit breaker must be added.

240 Vac Systems

240 Vac distribution systems utilize a double pole circuit breaker (two hot leads) The A.C. safety ground (green wire) is connected to a ground bar in the distribution system. The most common problems found are (1) the circuit is fed by a circuit breaker of less than 20 amp capacity and (2) both the hot leads feed several A.C. outlets. The appropriate correction action or actions (see below) must be followed if any of the above conditions exist. Corrective actions should only be undertaken by a licensed electrician.

1. The circuit breaker feeding the treadmill is not a 20 amp circuit breaker.

   If the circuit breaker is greater than 20 amps, the circuit breaker should be replaced with a 20 amp circuit breaker. If the circuit breaker is less than 20 amps the circuit breaker must be replaced with a 20 amp circuit breaker and the wiring from the A.C. distribution must be capable of safely handing 20 amps. If the A.C. wiring is under sized, it must be replaced with wire capable of safely handling 20 amps. Please, refer to local electrical codes when determining the appropriate wire size for a 20 amp circuit.

2. Both the hot leads feed several A.C. outlets.

   Both hot leads must be removed from treadmill's A.C. outlet and two new hot leads from the treadmill's A.C. outlet to the circuit breaker must be added.

A licensed electrician may use the followings hints to determine if an A.C. service is dedicated.

1. If, on a 120 Vac system, the A.C. distribution panel contains more circuit breakers than neutral leads, the system has shared neutral leads and is not dedicated.

2. If an A.C. outlet (120 or 240 Vac) has multiple hot and/or neutral leads, it is not a dedicated.

If either of the above conditions exist, the system is not dedicated. However, absence of the above conditions does not necessarily mean that the system is dedicated. If any doubt exists about A.C. systems dedication, point to point tracing of the A.C. wiring may be the only way to prove system dedication.

Troubleshooting 9.2 – TRM – Troubleshooting the 3 Phase AC Drive Motor System

Circuit Description

The power control module converts single phase 120Vac or 240Vac into three phase variable frequency current for the AC drive motor. The motor speed is controlled by controlling the frequency of the drive motor current.

1. When taking voltage readings of the AC drive motor current, the readings will not be accurate because of the frequencies being used, however, they are indicative of the presence of drive motor voltage and relative frequency changes.
2. If the symptoms are the drive motor starts when you force the running belt to move and once running the drive motor runs "rough", skip to step 10. If the drive motor will not start continue with step 3.
3. If the drive motor does not start, the power 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.
4. Connect an AC voltmeter between terminals 4 & 5 of the OUTPUT connector on the power control module. See Diagrams 9.3.1 Incline and 9.3.2 Incline. Set the treadmill's on/off switch in the "on" position. Press the QUICK START key. If the power control module is supplying output, you will momentarily read approximately 55 Vac. Set the treadmill's on/off switch in the "off" position.
5. Repeat the procedure in step 4 between terminals 4 & 6 of the OUTPUT connector on the power control module.
6. Repeat the procedure in step 4 between terminals 5 & 6 of the OUTPUT connector on the power control module.
7. If one or more of voltage readings in steps 4 through 6 are not present, replace the power control module. If the voltage readings in steps 4 through 6 are present, continue with step 8.
8. Set the treadmill's on/off switch in the "off" position. Disconnect the drive motor connector from the OUTPUT connector on the power control module. With an ohmmeter, measure between terminals 4 & 5, 4 & 6 and 5 & 6 of the drive motor connector. Each reading should be approximately 2.5Ω. If any of the readings are significantly high or open, replacement the drive motor.
9. If you have performed all of the procedures above and have been unable to correct the problem, call Precor customer service.

10. Connect an AC voltmeter between terminals 4 & 5 of the OUTPUT connector on the power control module. See Diagrams 9.3.1 and 9.3.2. Set the treadmill's on/off switch in the "on" position. Press the QUICK START key. If the power control module is supplying output, you will momentarily read approximately 55 Vac.
11. Repeat the procedure in step 4 between terminals 4 & 6 of the OUTPUT connector on the power control module.
12. Repeat the procedure in step 4 between terminals 5 & 6 of the OUTPUT connector on the power control module.
13. If one or more of voltage readings in steps 4 through 6 are not present, replace the power control module. If the voltage readings in steps 10 through 12 are present, skip to step 8

Troubleshooting 9.3 – TRM – Troubleshooting the Incline System

Incline System Description:

The incline system on these units consists of an AC line voltage driven incline motor (120 Vac or 240 Vac), and an internal 1 KΩ potentiometer for incline position identification. The incline motor contains two motor windings, one to operate the motor in an "upward" direction and the other to operate the motor in a "downward" direction. As the incline motor is operated, the motor also rotates the potentiometer via an internal gear system. Therefore, the position of the incline system can be determined by monitoring the value of the internal potentiometer. The incline motor is initially set at a known starting position **(calibration, See Procedure 8.1),** subsequent motor movement is tracked via the potentiometer resistance reading.

Note:
All resistance measurements must be performed with power removed from the treadmill. Performing resistance measurements with voltage applied may damage your ohmmeter.

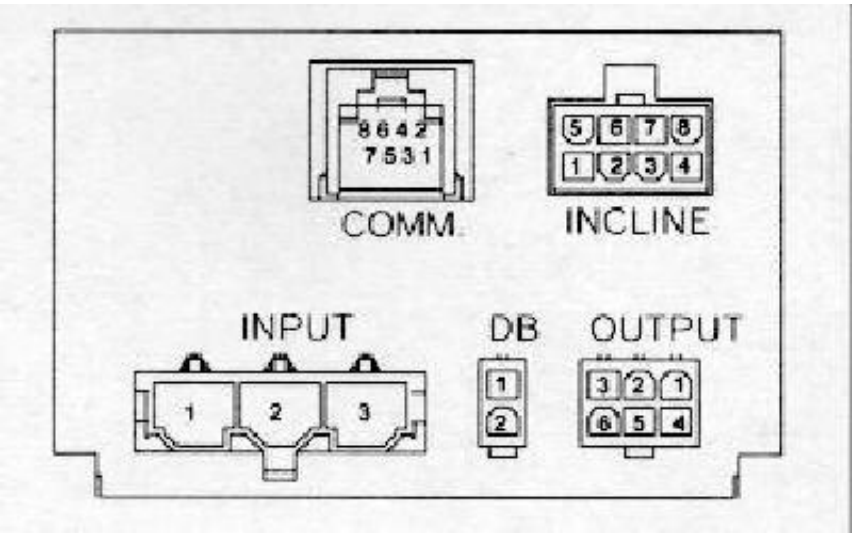
Procedure

1. If the incline motor operates but creates a incline error (error 40 or 42) go to step 14. If the incline motor will not move continue with step 2.
2. Set the treadmill's on/off switch in the "on" position.

Diagram 9.3.1 - Power Control Module

3. With the incline below 15%, connect an AC voltmeter between terminals 1 & 6 of the INCLINE connector. See Diagrams 9.3.1 and 9.3.2. Set the treadmill in the manual program and press the INCLINE ▲ key. The AC voltmeter should read AC line voltage (either 120 Vac or 240 Vac). Note that the AC line voltage reading will only be present before an error condition is displayed.

Diagram 9.3.2 - Power Control Module Connector Numbering



4. If the incline moves normally skip to step 7.
5. If the display indicates that the incline should be moving and the incline motor does not move and AC line voltage is present, skip to step 12.
6. If the display indicates that the incline should be moving and the incline motor does not move and AC line voltage is not present, replace the power control module.
7. With the incline above 0%, connect an AC voltmeter between terminals 1 & 5 of the INCLINE connector. See Diagrams 9.3.1 and 9.3.2. Set the treadmill in the manual program and press the INCLINE ▼ key. The AC voltmeter should read AC line voltage (either 120 Vac or 240 Vac). Note that the AC line voltage reading will only be present before an error condition is displayed.
8. If the incline moves normally skip to step 11.
9. If the display indicates that the incline should be moving and the incline motor does not move and AC line voltage is present, skip to step 12.
10. If the display indicates that the incline should be moving and the incline motor does not move and AC line voltage is not present, replace the power control module.
11. The incline is moving normally in both directions, there is either is not an incline problem or the problem is intermittent. Intermittent problems are often caused by poor connections or wiring problems.
12. Set the treadmill's on/off switch in the "off" position. Visually inspect the incline motor's wiring and connector for any broken or improperly crimped connections. With an ohmmeter, measure between terminals 1 & 5 and 1 & 6 of the INCLINE connector. Both readings should be approximately 12Ω. If either reading is significantly high or open replace the incline motor.

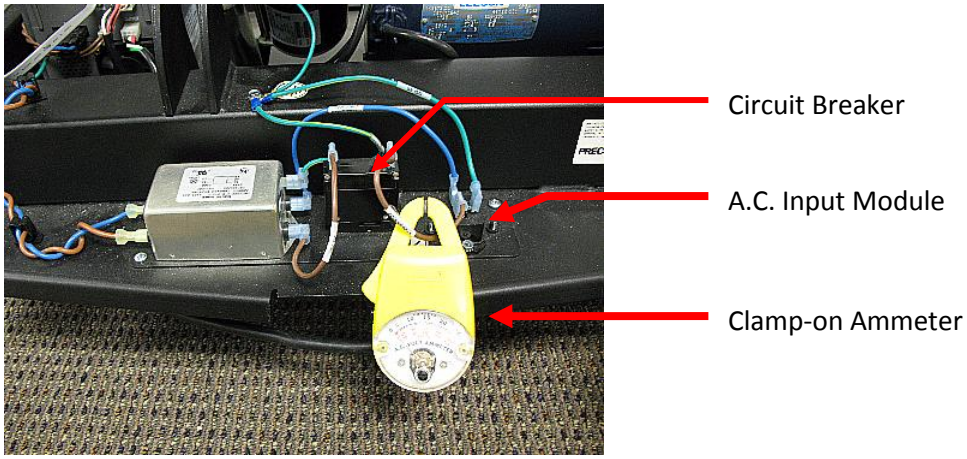
13. If you have performed all of the procedures above and have been unable to correct the problem, call Precor customer service.
14. Set the treadmill's on/off switch in the "off" position. Remove the incline motor's connector from the INCLINE connector on the power control module. Visually inspect the incline motor's wiring and connector for any broken or improperly crimped connections. With an ohmmeter, read between terminals 3 & 4, 4 & 8 and 3 & 8 of the INCLINE connector. Terminals 3 & 4 should read approximately 1KΩ. The sum of the readings between terminals 4 & 8 and 3 & 8 should total approximately 1KΩ. If either reading is significantly high or open, replace the incline motor.
15. If you have performed all of the procedures above and have been unable to correct the problem, call Precor customer service.

9.4 Troubleshooting -TRM - Running Belt & Deck Troubleshooting

This procedure is to be used to determine the condition of the running belt and running deck combination. A clamp-on ammeter will be used to measure the treadmill's A.C. input current under load. The A.C input current is a direct indication of the load being placed on the treadmill. Treadmill loading consists of several factors, the user's weight, treadmill speed, treadmill incline setting and the condition of the running belt and running deck condition. By making all of the other factors consistent we will be able to determine the relative condition of the running belt and deck combination. The A.C input current measurements will be performed at 3 m.p.h. (4.8 k.p.h.) and 0% incline. Because the loading varies with the user's weight, you should perform the A.C input current measurement test on a new running belt and deck combination. That will provide you with a benchmark reading to account for your individual weight.

Because the A.C. input current reading will pulse between a high value (during foot plant) and a low reading (between foot plants) we suggest the use of an analog clamp-on ammeter. An analog ammeter makes it very easy to see the A.C. current pulses. The refresh rate on digital ammeters may make it difficult to see the current peaks.

1. Remove the treadmill's motor cover and place the A.C clamp-on ammeter on the brown wire from the A.C. input module (or A.C. power cord) to the circuit breaker (on/off switch). **See the illustration below**.



2. Set the treadmill's speed at 3 m.p.h. (4.8 k.p.h.) and the incline at 0%. Walk on the treadmill and observe the peak A.C. current reading. Typical peak A.C. current readings on a new running belt and deck are between 3 and 6 amperes.
3. If the peak current reading approaches 20 amperes, the running belt should be replaced. The running deck should be flipped or replaced if the running deck has been previously flipped. See Procedure X for running belt and running deck replacement.
4. If the peak A.C. current readings are greater than on a new running belt and deck combination but not approaching 20 amperes, the reading will give you an indication of the running belt and deck combination's general condition.

Troubleshooting 9.5 – TRM – Troubleshooting the Auto Stop Feature

Auto stop is a feature incorporated into all next generation Experience series treadmills. The Auto Stop feature monitors motion from the running deck, the presents of 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.

When a program is entered or "Quick Start" is pressed, 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 second, if motion is still not detected after 30 seconds a 10 second count down will be display of the treadmill. 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 60, 30, or 10 second count down cycles the shut down feature will be aborted.

The Auto Stop feature can be enabled or disable within the software service menus. **See Procedure 3.3 (P80), 5.3 (P30), 6.3 (P20) Setting Club Parameters**. **Note:** If enabled, the auto stop feature will need to be disabled during belt replacement, adjustment and tracking procedures, and if the club requires this feature it will need to be re-enabled prior to putting the unit back in use.

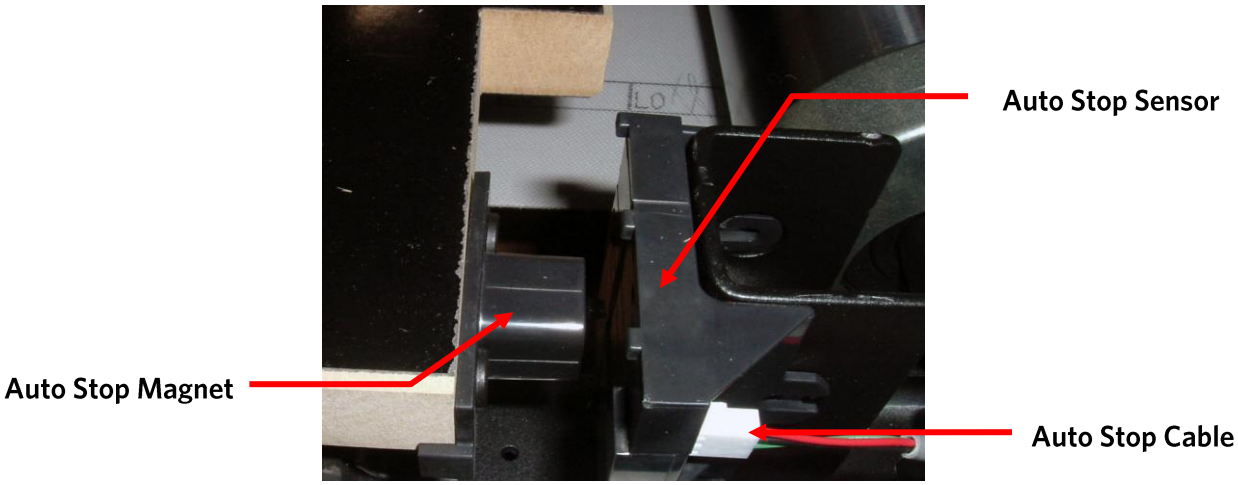
This procedure will provide troubleshooting steps for the Auto Stop feature.

Procedure:

1. If the Auto Stop feature does not function continue with step 3.
2. If the Console is displaying "Temporarily Out of Order" (P80) or "Please use another Treadmill" (P30 & P20) go to step 6.
3. Check the treadmill to ensure the Auto Stop hardware is installed. **See Diagram 9.5.1**. 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.
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 Procedure 3.3 (P80), 5.3 (P30), 6.3 (P20) Setting Club Parameters**. If the treadmill has a P80 console and the Auto Stop feature is not displayed in the Club Settings software menus it is possible the software does not support the Auto Stop feature. The Auto Stop feature was not available until software version 1.03. Contact Precor customer service for more information.
5. If the Auto Stop feature is enabled and you have performed steps 3 and 4 contact Precor customer service.

6. Access the diagnostic system tests, and select the Auto Stop test. **See Procedure 3.1 (P80), 5.1 (P30), 6.1 (P20) Accessing the Diagnostic Software** If the feature is enabled the P80 Auto Stop sensor test will count the number of times the magnet crosses the sensor. On the P30 and P20 the 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 DECTED" is displayed and the Auto Stop feature still does not function contact Precor Customer Support. If the Auto Stop did not pass the test continue with step 7.

Diagram 9.5.1

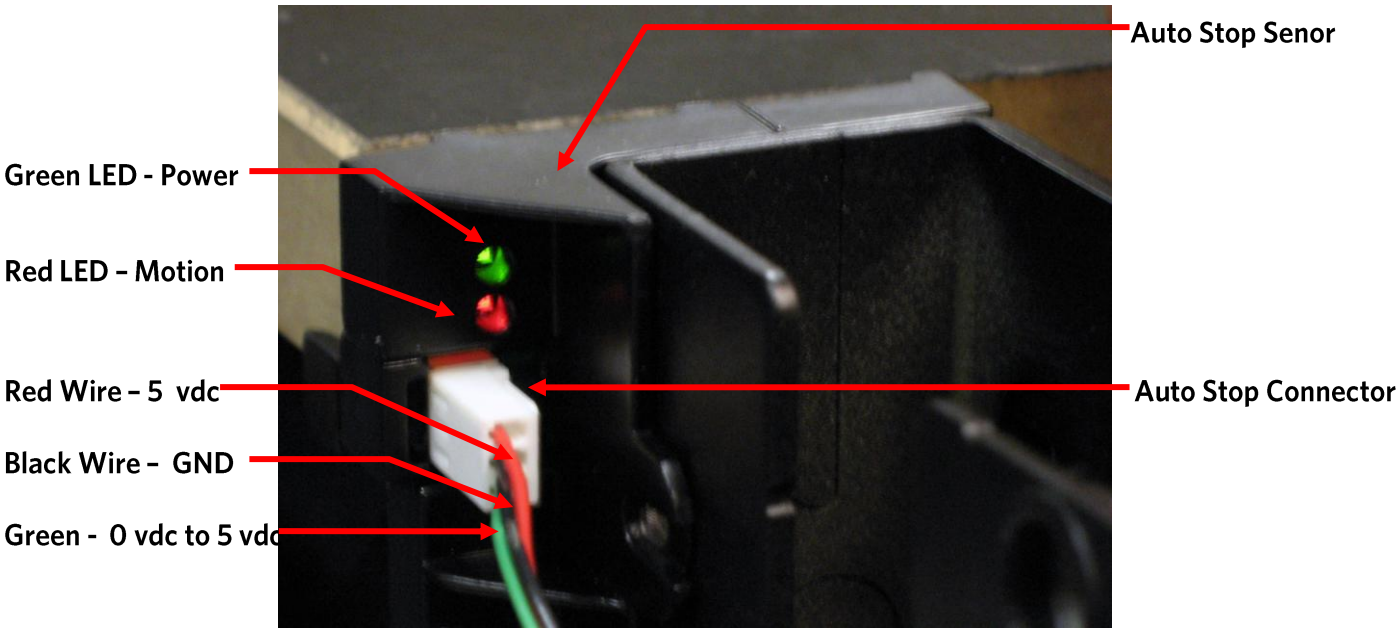


Caution: Do not place the auto stop magnet on or near a steel structure. If the magnet assembly comes in contact with a steel structure and then pulled away from the steel structure, the magnet can become dislodged from the magnet assembly housing. Should this occur, contact PRECOR customer service for possible options for repairing the magnet assembly or to obtain a replacement part.

7. 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 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 gapped and positioned properly relative to the sensor. **Reference Procedure 10.13 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 8.

8. The Auto Stop sensor will display a green blinking LED 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 step 9. **See Diagram 9.9.2**

Diagram 9.9.2



9. 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.
10. Place the meter's 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 skip to step 12.
11. 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. If 5 volts is present permanently replace the Auto Stop cable.
12. With the Auto Stop connector plugged into the Auto Stop sensor place the meter's red lead to the green wire and black lead to the black wire. The meter should indicate 5 volts +/- 0.1volt. While monitoring this voltage, have someone step and/or bounce on the deck **Note**: **the running belt does not need to be nor should it be moving for this test**. The voltage between the black and green wires should fluctuate when the deck is moving up and down. If the voltage does not change with movement replace the Auto Stop Sensor.
13. If you have preformed all the described steps and the Auto Stop feature will still not function contact Precor Customer Support.

Section Ten - TRM Replacement Procedures

Procedure 10.1 - Replacing the Incline Motor

Note:

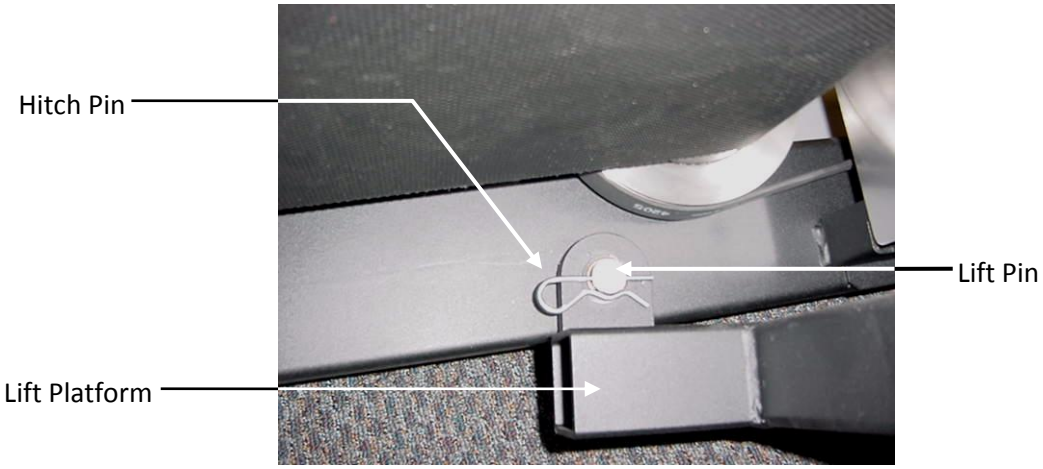
1. The replacement incline motor must be calibrated prior to installation (See Procedure 8.1).

2. Set the treadmill's circuit breaker in the "off" position and remove the AC line cord from the AC outlet.
3. Disconnect the incline motor connector from the INCLINE connector on the power control module. See Diagrams 9.3.1 and 9.3.2. Lay the replacement incline motor on the floor in front of the treadmill and insert its connector in the INCLINE connector on the power control module.
4. Calibrate the incline motor per Procedure 8.1.
5. Either lay the treadmill on its side or securely block the front of the treadmill so that the treadmill's weight is off of the incline platform.
6. Remove the defective incline motor as follows: remove the screw that fastens the frame ground wire (green with yellow stripe) to the treadmill frame. Remove the hitch and clevis pins from the top and bottom of the incline motor. Remove the incline motor from the treadmill.
7. Set the calibrated incline motor in its mounting position. Replace the upper clevis and hitch pins.
8. Replace the lower clevis and hitch pins. It may be necessary to slightly rotate the incline tube to align it so that the clevis pin may be inserted. To align the hole in the incline tube rotate it in the direction that will cause the least amount of rotation to make alignment possible.
9. Connect the frame ground wire to the treadmill frame with the screw removed in step 5. Route both incline motor cables as noted in the incline motor removal procedure.
10. Insert the incline motor connector in the INCLINE connector on the power control module.
11. Check treadmill operation per Procedure Seven.

Procedure 10.2 - Replacing the Incline Platform

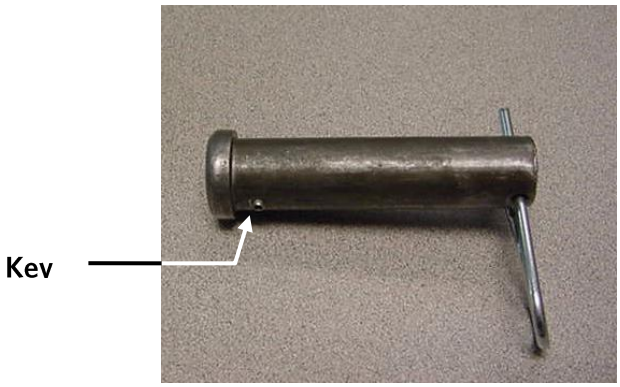
1. Set the treadmill circuit breaker in the "off" position. Remove the AC line cord from the AC outlet.
2. Carefully, lay the treadmill on its side.
3. Remove the hitch pin and clevis pin that fastens the incline motor tube to the incline platform. While the incline tube is not fastened to the incline platform, care must be taken to not allow the incline tube to rotate. If the incline tube rotates, the incline motor must be re-calibrated per Procedure 8.1.
4. Remove the two large hitch pins (one each side) from the incline platform to frame mounting. **See Diagram 10.2.1.** Remove the incline platform mounting pins and remove the incline platform from the treadmill.

Diagram 10.2.1 - Incline Platform Mounting



5. Remove the wheels from the old incline platform and remount them on the replacement incline platform.
6. Set the replacement incline platform in it mounting position. Align the key the incline mounting pin with the keyway in the frame and slide the incline mounting pins into place. **See Diagram 10.2.2.** Fasten the incline mounting pins with the hitch pins removed in step 4.
7. If the incline tube or the incline motor's drive screw has been moved, re-calibrate the incline motor per Procedure 8.1, at this time.

Diagram 10.2.2 - Incline Mounting Pin



8. Fasten the incline tube to the incline platform with the clevis pin and hitch pin removed in step 3.
9. Set the treadmill in its upright position and thoroughly check it per Section Seven.

Procedure 10.3 –TRM - Replacing the Power Control Module

1. Set the treadmill's on/off switch in the "off" position and remove the AC line cord from the AC outlet.
2. Remove the treadmill's hood.
3. Disconnect the COMM, INCLINE, INPUT, DB and OUTPUT connectors from the power control module. **See Diagram 9.3.1 and 9.3.2**.
4. Remove the four screws that mount the power control module. **See Diagram 10.3.1**.

Diagram 10.3.1 - Power Control Module Mounting

5. Set the replacement power control module in its mounting position.
6. Fasten the power control module with the four screws removed in step 4.
7. Reconnect the COMM, INCLINE, INPUT, DB and OUTPUT connectors removed in step 3. The mating connectors on the power control module are polarized, therefore they cannot be reconnected incorrectly.
8. Replace the treadmill's hood.
9. Thoroughly check the treadmill per Section Seven.

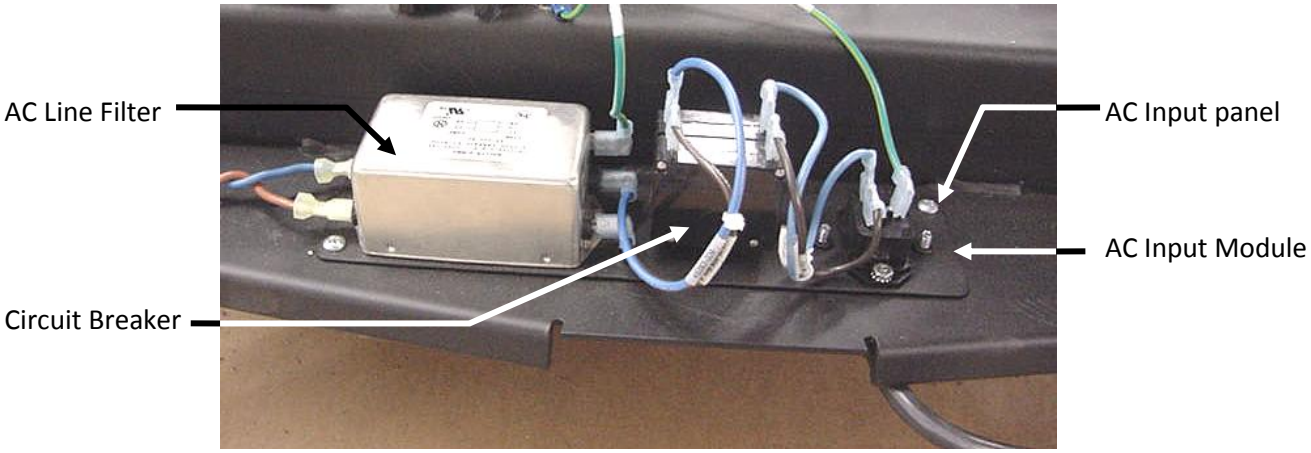
Procedure 10.4 – TRM - Replacing Drive Motor

1. Set the treadmill's on/off switch in the "off" position and unplug the treadmill's line cord from the AC outlet.
2. Remove the hood.
3. Disconnect the drive motor connector from the OUTPUT connector on the power control module.
4. Remove the four bolts that fasten the drive motor to the frame. Remove the drive belt from the drive motor.
5. Set the replacement drive motor in its mounting position. Place the drive belt on the drive roller pulley and on the drive motor pulley.
6. Adjust the drive belt tension and complete the motor installation per Procedure 8.2.
7. Thoroughly check the treadmill per Section Seven.

Procedure 10.5 – TRM - Replacing the Circuit Breaker

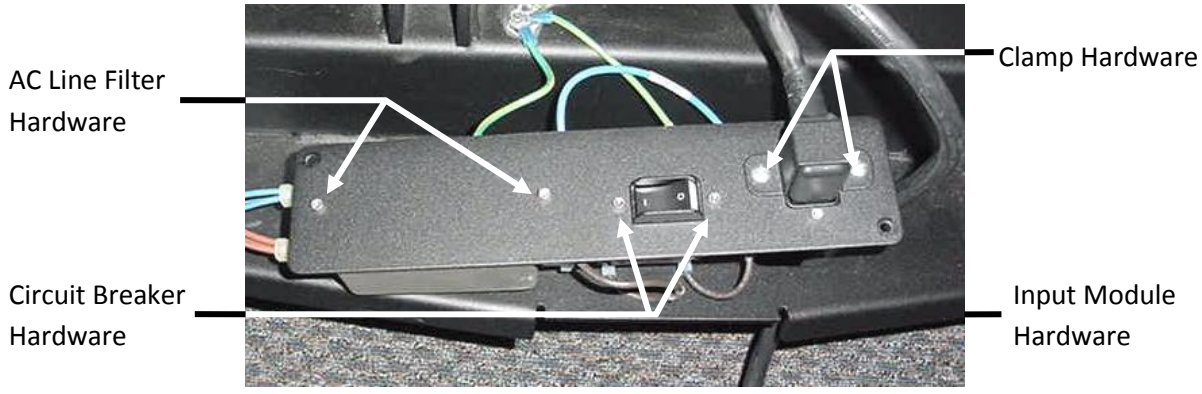
1. Set the treadmill circuit breaker in the "off" position and unplug the treadmill's line cord from the AC outlet.
2. Remove the treadmill's hood.
3. Remove the two screws that fastens the AC input panel to the frame. **See Diagram 10.5.1.**
4. Disconnect the wiring from the circuit breaker (2 blue wires on 120 Vac treadmills or 2 blue and 2 brown wires on 240 Vac treadmills).

Diagram 10.5.1 - AC Input Panel



5. Lift the AC input panel from the frame and rotate it to expose the circuit breaker mounting screws. **See Diagram 10.5.2**.

Diagram 10.5.2 - AC Input Panel



6. Remove the two screws retaining the circuit breaker and remove the circuit breaker.
7. Reference the label on the replacement circuit breaker and set 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. Fasten the circuit breaker with the hardware removed in step 6.
8. 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.
9. 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.
10. Set the input panel in its mounting position and fasten it with the hardware removed in step 3.
11. Thoroughly check the treadmill per Section Seven.

Procedure 10.6 – TRM - Replacing the Line Filter

1. Set the treadmill circuit breaker in the "off" position and unplug the treadmill's line cord from the AC outlet.
2. Remove the treadmill's hood.
3. Remove the two screws that fastens the AC input panel to the frame, See Diagram 10.5.1
4. Disconnect the wiring from the AC line filter (2 blue wires, 2 brown wires and a green/yellow wire.
5. Lift the AC input panel from the frame and rotate it to expose the AC line filter mounting screws. See Diagram 10.5.2.
6. Remove the screws that retain the AC line filter. Remove the AC line filter.
7. Set the replacement AC line filter in its mounting position with the side with three terminals facing the circuit breaker.
8. 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.
9. 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 (annunciated) terminal mounted directly on the line filter case.
10. 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 (annunciated) terminal mounted directly on the line filter case.
11. Set the input panel in its mounting position and fasten it with the hardware removed in step 3.
12. Thoroughly check the treadmill per Section 3.

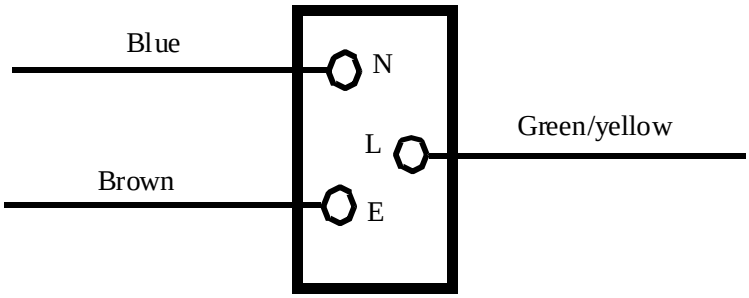
Procedure 10.7 – TRM - Replacing the Line Cord

1. Set the treadmill circuit breaker in the “off” position and unplug the treadmill’s line 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. **See Diagram 10.5.1.**
4. Lift the AC input panel from the frame and rotate it to expose the AC line cord clamp screws. **See Diagram 10.5.2.**
5. Remove the hardware that retains the AC line cord clamp and remove the clamp.
6. Disconnect the AC line cord from the input module.
7. Feed the end of the replacement AC line 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 line cord clamp in its mounting position and fasten it with the hardware removed in step 3.
9. Set the input panel in its mounting position and fasten it with the hardware removed in step 5.
10. Check treadmill operation per Section Seven.

Procedure 10.8 – TRM - Replacing the Input Module

1. Set the treadmill circuit breaker in the "off" position and unplug the treadmill's line 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. **See Diagram 10.5.1.**
4. Lift the AC input panel from the frame and rotate it to expose the AC line cord clamp screws and input module screws. **See Diagram 10.5.2.**
5. Remove the hardware that retains the AC line cord clamp and remove the clamp.
6. Disconnect the AC line cord from the input module.
7. Disconnect the wiring from the input module (1 blue wire, 1 brown wire and 1 green/yellow wire).
8. Remove the hardware that retains the input module and remove the input module.
9. Set the input module in its mounting position with the side with two terminals facing the circuit breaker.
10. Connect the blue wire removed in step 57to terminal "N", the brown wire to terminal "L" and the green/yellow wire to terminal "E" of the input module. **See Diagram 10.8.1.**

Diagram 10.8.1 - Input Module Wiring

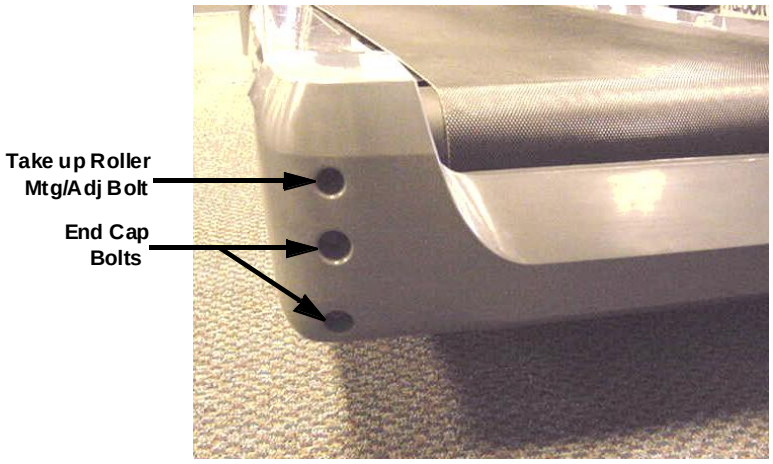


11. Insert the AC line cord firmly into the input module. Set the AC line cord clamp in its mounting position and fasten it with the hardware removed in step 5.
12. Set the input panel in its mounting position and fasten it with the hardware removed in step 3.
13. Check treadmill operation per Section Seven.

Procedure 10.9 – TRM - Replacing the End Cap or Belt Guard

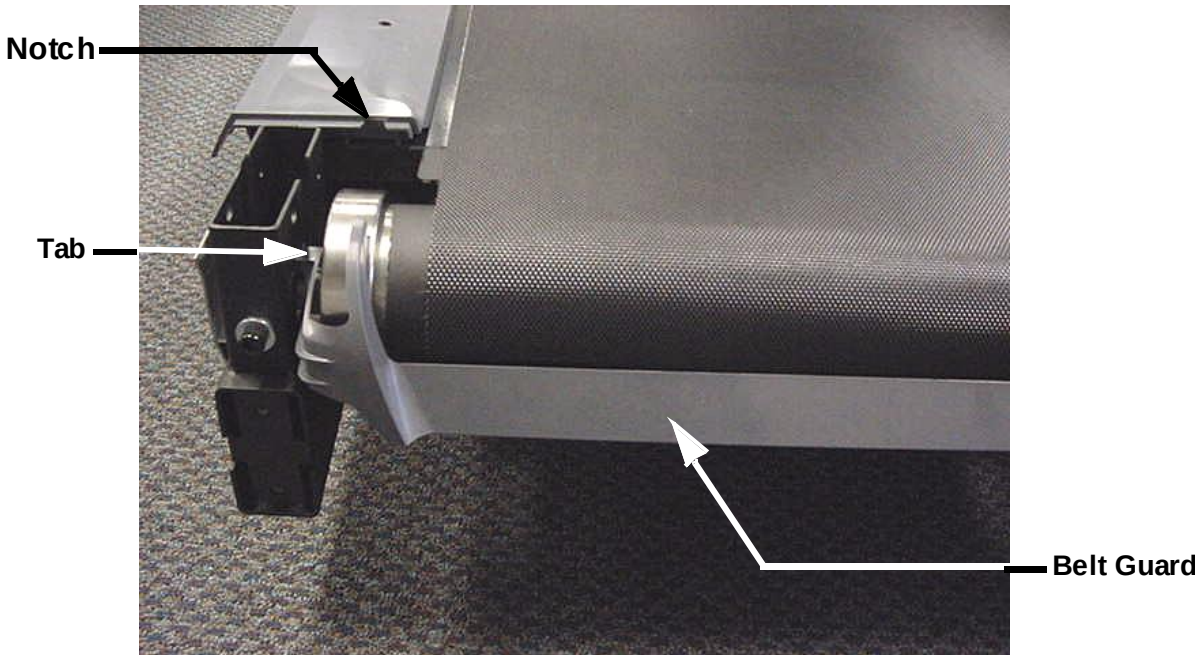
1. Set the treadmill circuit breaker in the "off" position and unplug the treadmill's line cord from the AC outlet.
2. Remove the four screws (2 lower screws, each side) that retain the end cap. Do Not loosen or move the take up roller mounting/adjustment bolts. Doing so will change the running belt's tension and alignment. **See Diagram 10.9.1.**

Diagram 10.9.1 - End Cap Mounting



3. Slide the end cap off of the treadmill.
4. If you are not replacing the belt guard skip to step 8.
5. The tabs on the belt guard (1 each side) snap into the take up roller mounts **See Diagram 10.9.2**.
6. Press inwards on the belt guard to remove the belt guard's tabs from the take up roller mounts. Slide the belt guard off of the treadmill.
7. Slide the replacement belt guard into place so that the tabs on the belt guard engage in both take up roller mounts.
8. Slide the end cap into place so that the tabs on the end cap engage in the notches in the running belt trim strips. **See Diagram 10.9.2**.
9. Fasten the end cap with the hardware removed in step 2.

Diagram 10.9.2 - Belt Guard Mounting



Procedure 10.10 – TRM – Replacing the Drive Roller

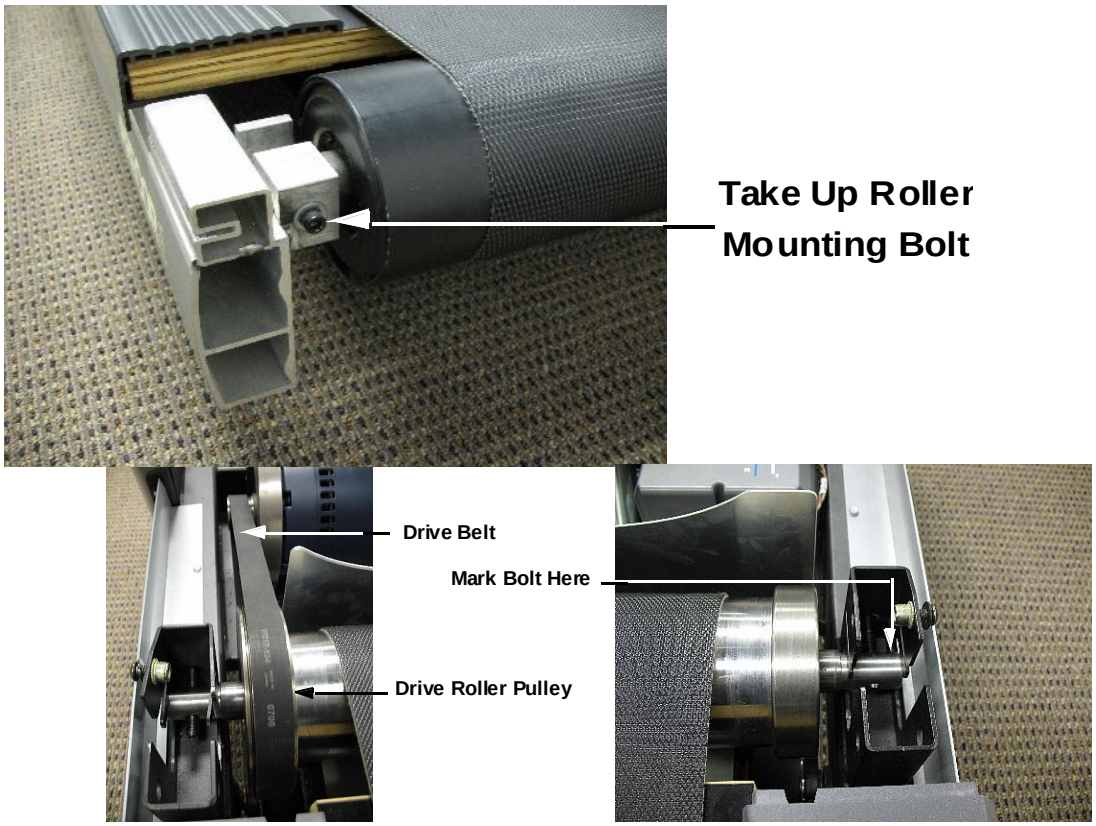
This procedure is to be used to replace a drive roller while maintaining the drive belt's original tensioning and the running belt's original tension and tracking settings. Two running belt gauges, Precor part number 20007-101, are required. It is important that this procedure be followed to maintain correct drive belt and running belt tension. When tension is removed from the running belt, the belt requires 24 hours for it to "relax". If tension is removed from the belt and then re-tensioned without following this procedure or allowing a 24 hour relaxation period, the running belt may be over tensioned. Over tensioning the belt will lead to premature running belt wear, premature driver roller bearing failure and premature take up roller bearing failure.

1. Place two running belt gauges on each side of the running belt, being sure that the gauges are not across a belt seam. Set the gauges to the 3%. See Diagram 10.10.1

Diagram 10.10.1

2. Once set the belt gauges cannot be disturbed or moved, doing so will invalidate the tension settings and necessitate a 24 hour relaxation period before the running belt can be re-tensioned.
3. Remove the end caps from the rear of treadmill to expose the take up roller mounting bolts. Remove the treadmill's motor cover.
4. Loosen, but do not remove the take up roller mounting bolts. The bolts are being loosened to remove tension from the running belt. See Diagram 10.10.2

Diagram 10.10.2



5. Slowly rotate the drive motor flywheel while pressing the drive belt off of the drive roller pulley.

6. Continue until the drive belt "walks" completely off of the drive roller pulley.
7. Using a fine tip marker or scribe, place a mark on the right hand drive roller mounting bolt directly in front of the drive roller shaft. The bolt is being marked so that the drive roller can be returned to the exact same position. The use of a fine marking line allows for more accuracy when the replacement drive roller is installed.
8. Remove both drive roller mounting bolts. Remove the drive roller from the treadmill.
9. Slide the replacement drive roller into running belt and into the drive belt. Hand start both drive roller mounting bolts.
10. Tighten the left hand drive roller bolt fully. The left hand side of the drive roller should be as far forward as possible.
11. Tighten the right hand drive roller bolt until the mark placed on it in step 6 aligns with the front edge of the drive roller shaft. Steps 8 and 9 should place the drive roller into its original position and should now be square to the treadmill frame.

12. Slowly rotate the drive motor flywheel while pressing the drive belt onto of the drive roller pulley. Continue until the drive belt "walks" completely onto the drive roller pulley. Be sure that the drive belt is fully onto and correctly aligned on the drive roller pulley.
13. Alternate tightening the two take up roller mounting bolts, in order to tighten both ends evenly, until both running belt gauges again read exactly 3%.
14. When both gauges again read 3% the belt is at its original tension. It will now be necessary to touch up the running belt tracking, however if this procedure was carefully followed, the belt tracking should be very close.
15. Remove both belt gauges from the running belt.
16. Start the treadmill and operate it at 2 m.p.h. Observe the running belt. If the belt drifts away from its centered position re-track it by adjusting the take up roller mounting bolts as described in step 17.
17. If the belt drifts to the right, slowly turn the right hand mounting bolt clockwise until the drifting stops. If the belt drifts to the left, slowly turn the left hand mounting bolt clockwise until the drifting stops. Only a very small adjustment should be required, 1/8 to 1/4 turn.
18. Increase the treadmill speed to 4 m.p.h., if the belt drifts away from center, touch up the tracking as described in step 19.
19. If the belt drifts to the right, slowly turn the left hand mounting bolt counter-clockwise until the drifting stops. If the belt drifts to the left, slowly turn the right hand mounting bolt counter-clockwise until the drifting stops. Only a very small adjustment should be required, 1/8 to 1/4 turn.
20. Increase the treadmill speed to 8 m.p.h., if the belt drifts away from center, track it as described in step 17.
21. Increase the treadmill speed to maximum, if the belt drifts away from center, track it as described in step 19.
22. Set the treadmill at a comfortable running speed and run on the treadmill for a couple of minutes and note the running belt tracking. If required track it as described in step 16. Replace the end caps and motor cover removed in step 3.

Procedure 10.11 – TRM - Take Up Roller Replacement

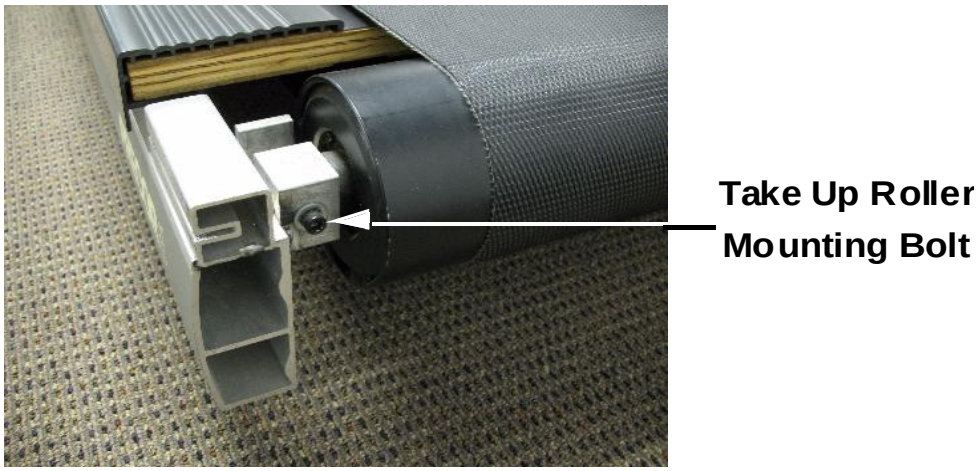
This procedure is to be used to replace a take up roller while maintaining the running belt's original tension and tracking settings. Two running belt gauges, Precor part number 20007-101, are required. It is important that this procedure be followed to maintain correct running belt tension. When tension is removed from the running belt, the belt requires 24 hours for it to "relax". If tension is removed from the belt and then re-tensioned without following this procedure or allowing a 24 hour relaxation period, the running belt may be over tensioned. Over tensioning the belt will lead to premature running belt wear, premature driver roller bearing failure and premature take up roller bearing failure.

1. Place two running belt gauges on each side of the running belt, being sure that the gauges are not across a belt seam. Set the gauges to the 3%. See Diagram 10.11.1

Diagram 10.11.1

2. Once set the belt gauges cannot be disturbed or moved, doing so will invalidate the tension settings and necessitate a 24 hour relaxation period before the running belt can be re-tensioned.
3. Remove the end caps from the rear of treadmill to expose the take up roller mounting bolts.
4. If applicable, remove the finger guard located in front of take up roller.
5. Remove both take up roller mounting bolts. The belt gauge readings will decrease as the take up roller mounting bolts are removed. Remove the take up roller from the treadmill. Diagram 10.11.2

Diagram 10.11.2



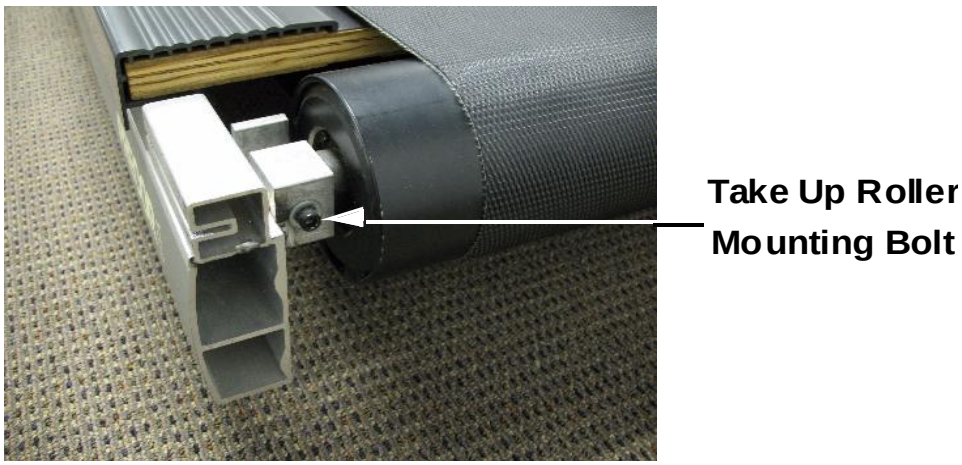
6. Slide the replacement take up roller into the running belt and set it in its mounting position. Hand start both take up roller mounting bolts that were removed in step 5.
7. Alternate tightening the two take up roller mounting bolts, in order to tighten both ends evenly, until both running belt gauges again read exactly 3%.
8. When both gauges again read 3% the belt is at its original tension. It will now be necessary to touch up the running belt tracking, however if this procedure was carefully followed, the belt tracking should be very close.
9. Remove both belt gauges from the running belt.
10. Start the treadmill and operate it at 2 m.p.h. Observe the running belt. If the belt drifts away from its centered position re-track it by adjusting the take up roller mounting bolts as described in step 11.
11. If the belt drifts to the right, slowly turn the right hand mounting bolt clockwise until the drifting stops. If the belt drifts to the left, slowly turn the left hand mounting bolt clockwise until the drifting stops. Only a very small adjustment should be required, 1/8 to 1/4 turn.
12. Increase the treadmill speed to 4 m.p.h., if the belt drifts away from center, touch up the tracking as described in step 13.
13. If the belt drifts to the right, slowly turn the left hand mounting bolt counter-clockwise until the drifting stops. If the belt drifts to the left, slowly turn the right hand mounting bolt counter-clockwise until the drifting stops. Only a very small adjustment should be required, 1/8 to 1/4 turn.
14. Increase the treadmill speed to 8 m.p.h., if the belt drifts away from center, track it as described in step 11.
15. Increase the treadmill speed to maximum, if the belt drifts away from center, track it as described in step 13.
16. Set the treadmill at a comfortable running speed and run on the treadmill for a couple of minutes and note the running belt tracking. If required track it as described in step 11.
17. If applicable, replace the finger guard removed in step 4.
18. Replace the end caps removed in step 3.

Procedure 10.12 – TRM - Running Belt and/or Deck Replacement

This procedure is to be used to replace the running belt and/or deck while maintaining the drive belt's original tensioning and setting the running belt's tension and tracking. 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. Over tensioning the belt will lead to premature running belt wear, premature driver roller bearing failure and premature take up roller bearing failure. This procedure addresses decks that can be flipped, however it is important to note that only double sided decks can be flipped. Single sided decks must be replaced.

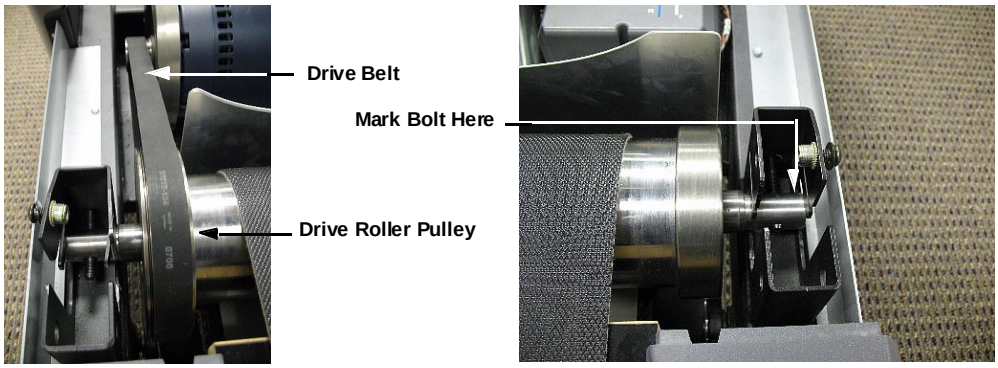
1. Remove the end caps from the rear of treadmill to expose the take up roller mounting bolts. Remove the treadmill's motor cover.
2. If applicable, remove the finger guard from in front of the take up roller.
3. Remove both running deck trim strips and both take up roller mounting bolts. Remove the take up roller from the treadmill. See Diagram 10.12.1

Diagram 10.12.1



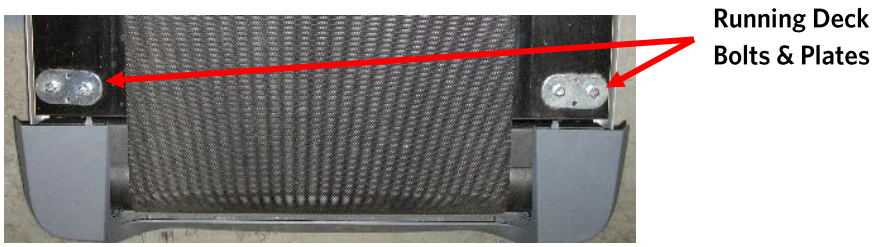
4. Slowly rotate the drive motor flywheel while pressing the drive belt off of the drive roller pulley. Continue until the drive belt "walks" completely off of the drive roller pulley. See Diagram 10.12.2

Diagram10.12.2



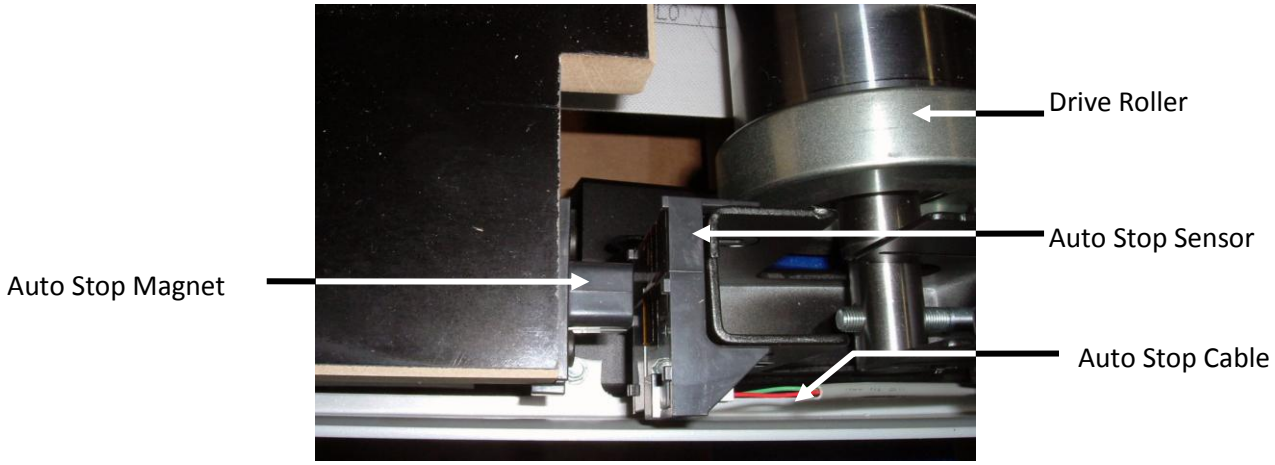
5. Using a fine tip marker or scribe, place a mark on the right hand drive roller mounting bolt directly in front of the drive roller shaft. The bolt is being marked so that the drive roller can be returned to the exact same position. The use of a fine marking line allows for more accuracy when the replacement drive roller is installed.
6. Remove both drive roller mounting bolts. Remove the drive roller from the treadmill.
7. Remove the four mounting bolts and two top plates that fasten the running deck to the pivot bracket at the back end of the treadmill. See Diagram 10.12.3

Diagram 10.12.3



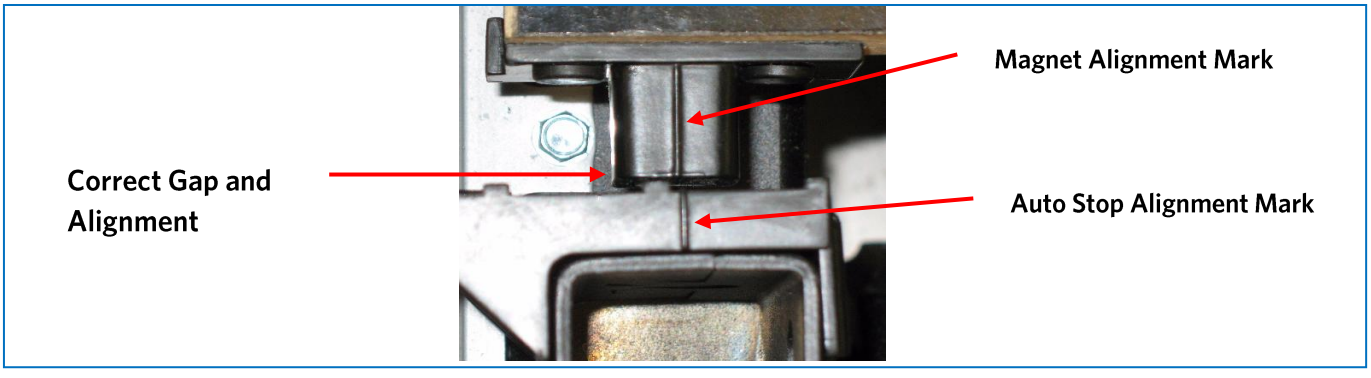
8. Remove the running belt and deck from the treadmill.
9. Remove the Auto Stop magnet from the deck. If both sides of the deck have been used, discard the deck. If the bottom side of the deck has not been used, flip the deck so that when it is replaced it will now be the top side.
10. Reinstall the Auto Stop magnet on the right front corner of the deck. See Diagram 10.12.4

Diagram 10.12.4



11. Decks with inserts that are being flipped need to be reversed so that the bottom of the deck can be used, the inserts can be removed by threading the deck screw into the insert from the top. Using a hammer or mallet the insert can be tapped out the bottom of the deck. Remove the insert from the deck screw. Using one of the CATN025-150 bolts and a flat washer, to cover the hole, thread the bolt into the insert and pull the insert into the opposite side of the deck until the insert is flush with the deck surface. Repeat this procedure with the remaining five inserts.
12. Using a clean, dry cloth, wipe the top surface of the deck clean of any dirt, dust or debris. Set the replacement or flipped deck inside of the replacement running belt.
13. 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. Replace the plates and the running deck mounting bolts removed in step 7. Only hand tighten the bolts at this time.
14. 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 approximately 3/16 of an inch between the housings. A 3/16 allen wrench 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 Diagram 10.12.5

Diagram 10.12.5



15. Securely tighten the running deck mounting bolts.
16. Place two running belt gauges on each side of the running belt, being sure that the gauges are not across a belt seam. Set the gauges to the 3% mark as shown in the Illustration below.

17. Slide the drive roller into running belt and into the drive belt. Hand start both drive roller mounting bolts.
18. Tighten the left hand drive roller bolt fully. The left hand side of the drive roller should be as far forward as possible.
19. Tighten the right hand drive roller bolt until the mark placed on it in step 5 aligns with the front edge of the drive roller shaft.
20. Steps 17 and 18 should place the drive roller into its original position and should now be square to the treadmill frame.
21. Slowly rotate the drive motor flywheel while pressing the drive belt onto of the drive roller pulley. Continue until the drive belt “walks” completely onto of the drive roller pulley. Be sure that the drive belt is fully onto and correctly aligned on the drive roller pulley.
22. Slide the take up roller into the running belt and set it in its mounting position. Hand start both take up roller mounting bolts that were removed in step 3.
23. Alternate tightening the two take up roller mounting bolts, in order to tighten both ends evenly, until both running belt gauges again read exactly 3.5% on consumer treadmills or 3.55% on commercial treadmills.
24. When both gauges again read 3.5 or 3.55% the belt is at its original tension. It will now be necessary to touch up the running belt tracking, however if this procedure was carefully followed, the belt tracking should be very close.
25. Remove both belt gauges from the running belt.

Note: For the following belt tracking procedures it will be necessary to run the treadmill while in belt test mode in the diagnostics program or disable the Auto Stop feature before testing. If the Auto Stop feature does not detect any motion after the first 60 sixty seconds after the belt has been put in motion the running belt will stop.

26. Start the treadmill and operate it at 2 m.p.h. Observe the running belt. If the belt drifts away from its centered position re-track it by adjusting the take up roller mounting bolts as described in step 26.
27. If the belt drifts to the right, slowly turn the right hand mounting bolt clockwise until the drifting stops. If the belt drifts to the left, slowly turn the left hand mounting bolt clockwise until the drifting stops. Only a very small adjustment should be required, 1/8 to 1/4 turn.
28. Increase the treadmill speed to 4 m.p.h., if the belt drifts away from center, touch up the tracking as described in step 28.
29. If the belt drifts to the right, slowly turn the left hand mounting bolt counter-clockwise until the drifting stops. If the belt drifts to the left, slowly turn the right hand mounting bolt counter-clockwise until the drifting stops. Only a very small adjustment should be required, 1/8 to 1/4 turn.
30. Increase the treadmill speed to 8 m.p.h., if the belt drifts away from center, track it as described in step 26.
31. Increase the treadmill speed to maximum, if the belt drifts away from center, track it as described in step 28.
32. Set the treadmill at a comfortable running speed and run on the treadmill for a couple of minutes and note the running belt tracking. If required track it as described in step 26.
33. If applicable, replace the finger guard removed in step 2.
34. Replace both running deck trim strips and the end caps and motor cover removed in step 2.

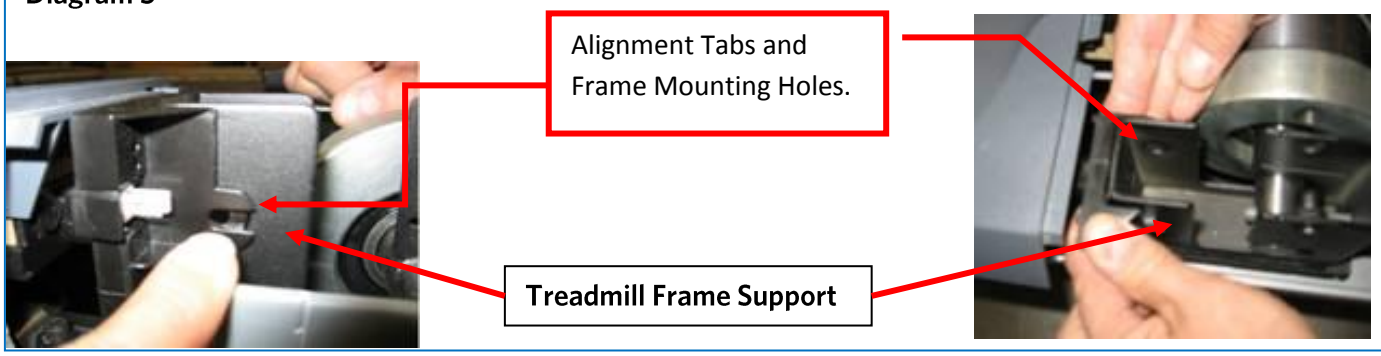
Procedure 10.13 – TRM – Replacing the Auto Stop Sensor

Procedure:

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. Should this occur, contact PRECOR customer service for possible options for repairing the magnet assembly or to obtain a replacement part.

1. Remove the motor hood**.**
2. Unplug the Auto Stop Cable from the Auto Stop assembly.
3. 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. **See Diagram 5.**

Diagram 5



4. 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 treadmills frame mounting holes securing the auto stop assembly in place.
5. 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 approximately 3/16 of an inch between the housings. A 3/16" allen wrench 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 procedure 10.14**.**
6. Replace the Auto Stop Cable to the Auto Stop Sensor Assembly.
7. Replace the motor hood.

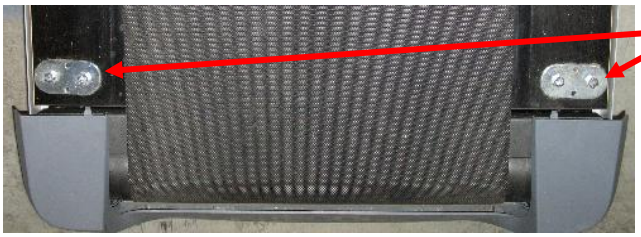
Procedure 10.14 – TRM – Replacing the Auto Stop Magnet

Procedure:

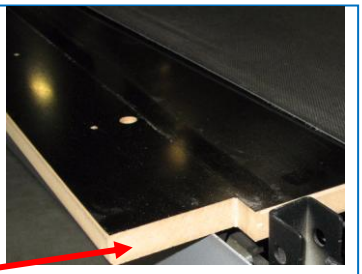
Caution: Do not place the auto stop magnet on or near a steel structure. If the magnet assembly comes in contact with a steel structure and then pulled away from the steel structure, the magnet can become dislodged from the magnet assembly housing. Should this occur, contact PRECOR customer service for possible options for repairing the magnet assembly or to obtain a replacement part.

1. Remove the motor hood**.**
2. Remove the left and right trim strips from the treadmill deck.
3. Remove the four mounting bolts and two top plates that fasten the running deck to the pivot bracket at the back end of the treadmill. 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. (Left and Right side orientations are based as if you were standing on the treadmill facing the console.) **See Diagram 1.**

Diagram 1



Running Deck Bolts & Plates



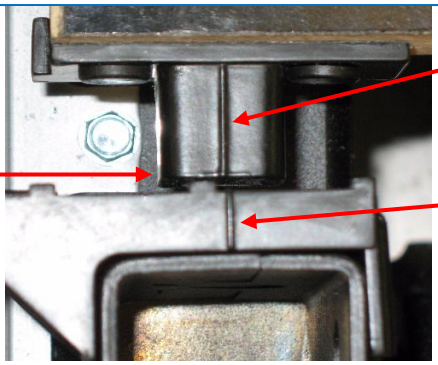
Right Front of Running Deck

4. Pry out the two push fasteners from the deck using a flat head screw driver and remove the Auto Stop magnet.
5. Align the replacement magnet on the running deck and then secure the magnet to the running deck using the two push fasteners removed in step 4. **See Diagram 3.**
6. 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. Replace the plates and the running deck mounting bolts removed in step 3. Only tighten the bolts by hand at this time.

Diagram 3

7. 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 approximately 3/16 of an inch between the housings. A 3/16" allen wrench 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 Diagram 6.**

Diagram 6



8. Securely tighten the running deck mounting bolts.
9. Replace the left and right running deck trim strips.
10. Replace the motor hood.

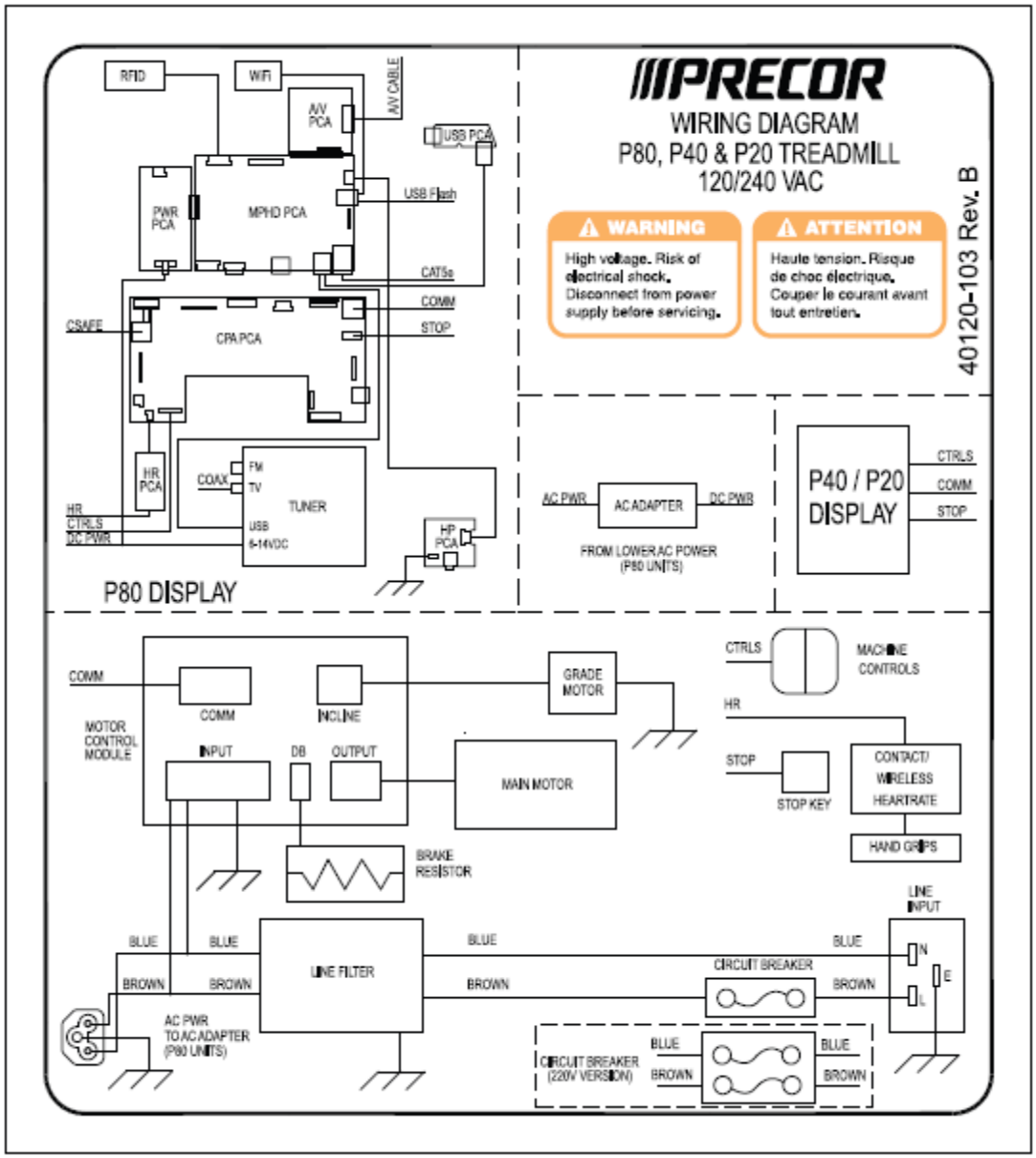
Section Eleven– Future Content

Section Twelve– Future Content

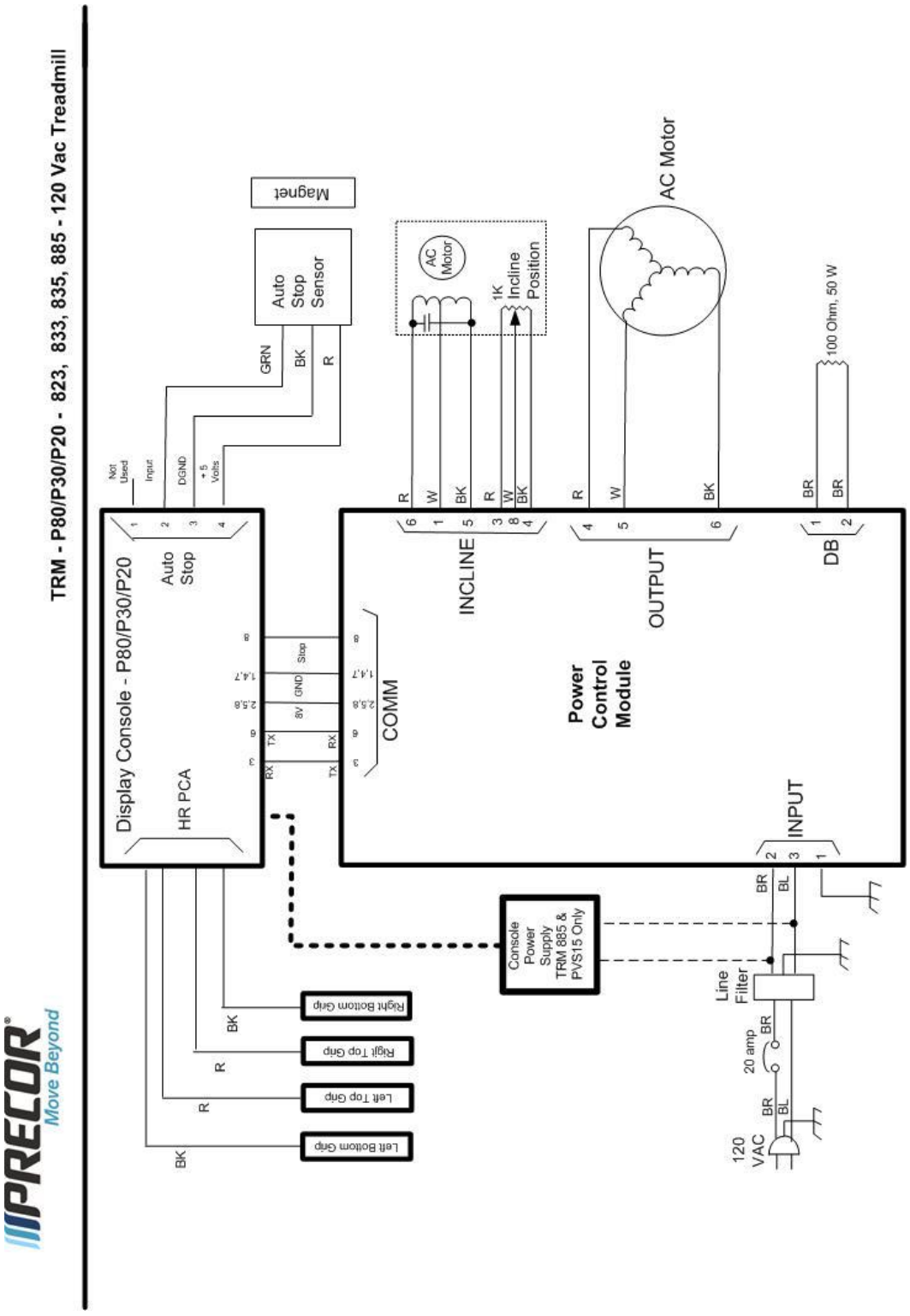
Section Thirteen– Future Content

Section Fourteen – Wiring Diagrams

Wiring Diagram - 14.1 – TRM – P80/P30/P20 – 120/240 Volt



Block Diagram 14.2 –TRM - P80/P30/P20 – 120 Volt



Block Diagram 14.3 – TRM – P80/P30/P20 – 240 Volt