UBK 885,835,825

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

Right, Left, Front, and Back Conventions

In this manual, right, left, front, and back are from the perspective of a user sitting on the UBK 885, 835, 825 facing the console.

Warning and Caution Statements and General Safety Guidelines

Warning statements indicate a particularly dangerous activity. Warning statements you will find in this manual include:

- To remove power from the UBK 885, 835, 825 the optional power adapter must be disconnected from the cycle. Always ensure that the optional power adapter is disconnected from the cycle when you inspect or adjust the UBK 885, 835, 825 or when you isolate, remove, or replace a component.
- Removing the covers exposes high voltage components and potentially dangerous moving parts. Exercise extreme caution when you perform maintenance procedures with the hood removed.
- During service operations you will be very close to moving machinery and high voltage components. When you perform maintenance procedures with the covers removed, remove jewelry (especially from ears and neck), tie up long hair, remove neck ties, and do not wear loose clothing.

- Exercise caution when touching any wire or electrical component during operation.

- Caution statements are intended to prevent damage to the bicycle as a result of the current activity. Caution statements included in this manual are listed below:

Safety guidelines you should know and follow include:

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

- Visually check the bicycle before beginning service or maintenance operations. If it is not completely assembled or is damaged in any way, exercise extreme caution while operating and checking the bicycle.

- When operating the bicycle, 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. While servicing, never place liquids on any part of the bicycle the water bottle holder must be empty.

- To prevent electrical shock, keep all electrical components, such as the power cord and power adapters away from water and other liquids.

- Do not use accessory attachments that are not recommended by the manufacturer, such attachments might cause injuries or damage to the unit.

General Information

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

Required Tools and Equipment

- The following is a summary of the tools and equipment that may be required when you service a Precor UBK 885, 835, 825 Upright Cycle.

Tools

- Phillip and flat-head screwdrivers
- Standard and metric allen wrench set
- Open-end wrench set
- 1-1/8 inch thin open end wrench
- Socket wrench set
- Rubber mallet
- Snap ring pliers
- Torque wrench
- 20030-119 secondary sheave tool
- Park Tool CCP-22 crankarm puller or equivalent (available at bicycle shops)
- Kent Moore BT-33-73Fdrive belt tension gauge or equivalent

- Equipment
- Anti-static kit
- Digital multimeter

- Supplies
- Cable ties

Section Two - Console Line

The UBK Bicycle 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 UBK.

UBK with P80 Console

UBK with P30 Console

UBK with P20 Console

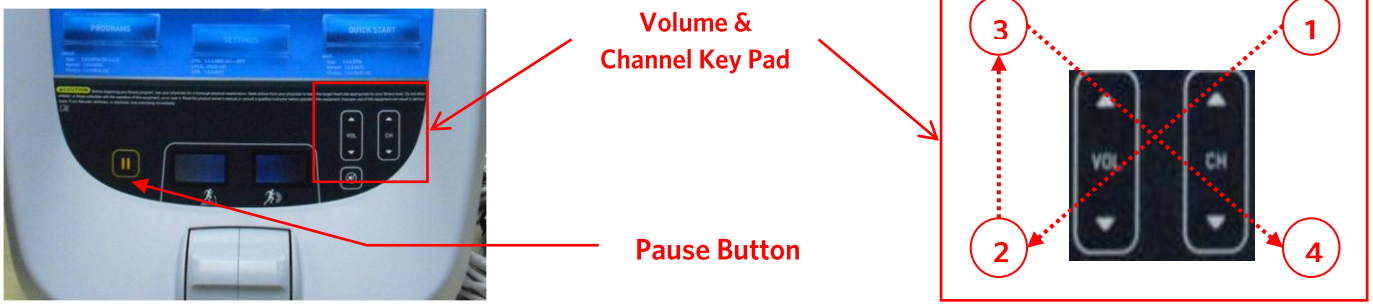
Section Three – P80 Console – UBK

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 Address	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

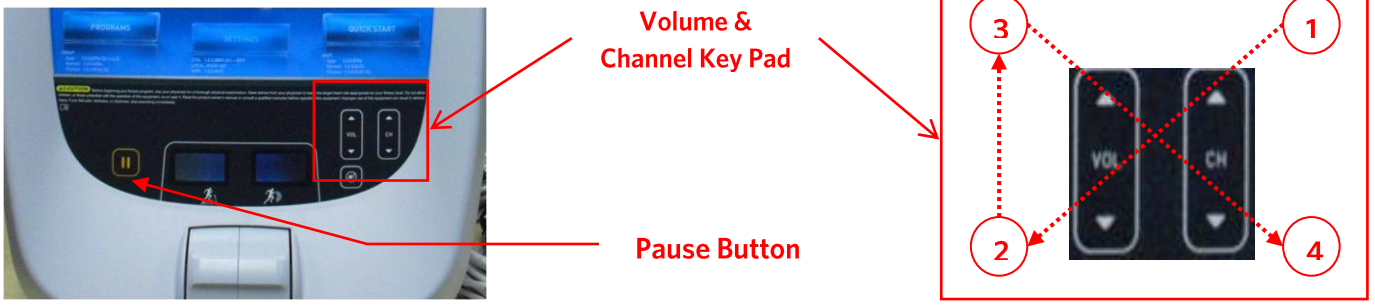
The P80 console is driven by software with innovative features which enhances the user's experience during a workout. Periodically the software will need to be updated with improvements to the functionality and features. Procedure will explain how to update the software at the customer's location using 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. Once the download as started it is safe to 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 motor current 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.

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:

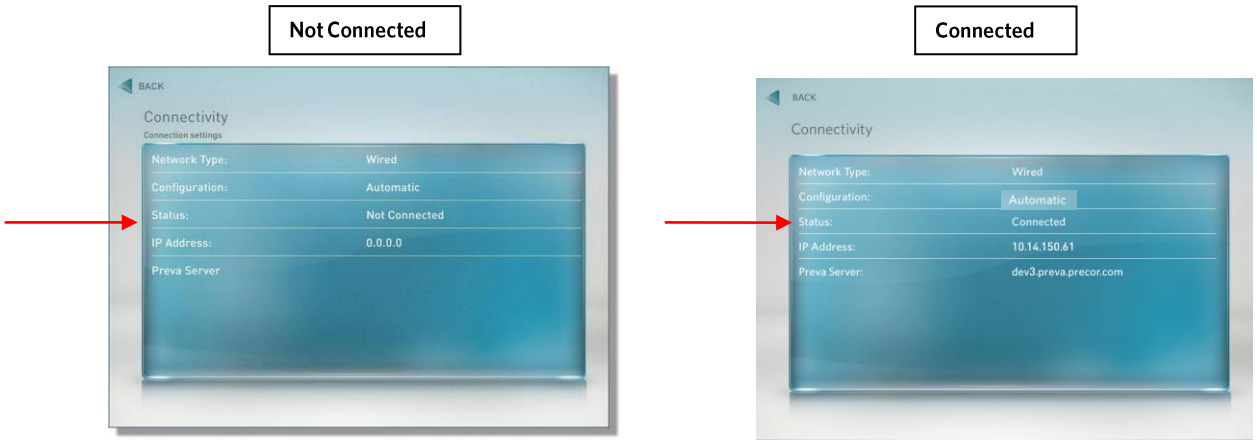
1. Refer to Procedure 3.1 – Settings, to access the Connectivity menus.
2. To select a "**Connectivity Setting**" touch on an item in the "**Connectivity Settings**" menu".

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

Connectivity Set Up and Registration Procedure

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

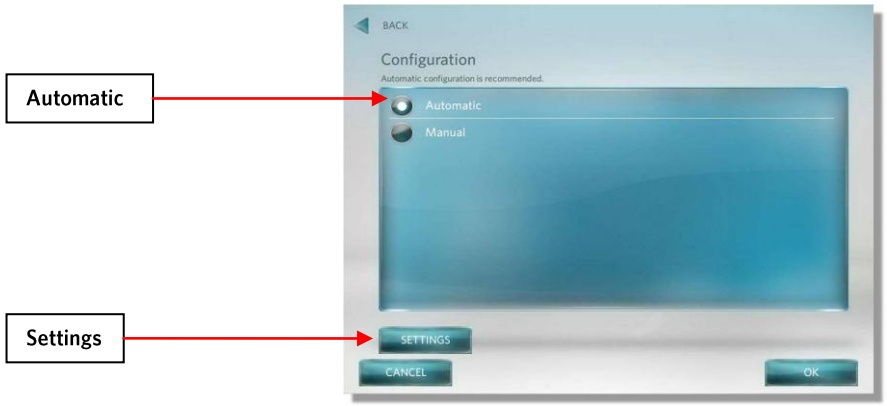


3. Check the IP Address field for a valid IP Address. If the IP Address is present continue with step 12. If the IP Address is not present continue with step 4. **See Diagram 3.7.2**.

Diagram 3.7.2

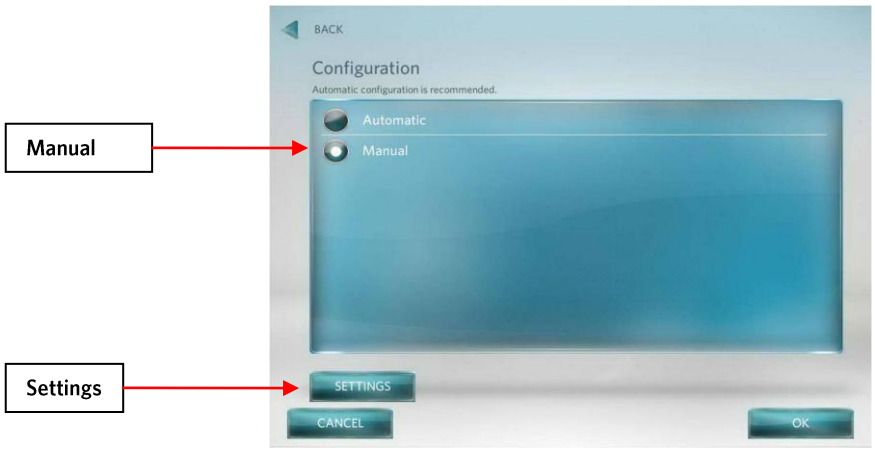
4. If the Status shows Connected and the IP Address is not present, it will be necessary to either have the P80 software assist in acquiring the IP Address (Recommended) or enter the IP address manually. Touch "Configuration" from the Connectivity menu.
5. Touch on the radio button next to "Automatic",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

Diagram 3.7.5

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**
Language	• German • English • Spanish • French • Italian • Dutch • Russian • Japanese	English	1. Touch "**Language**" 2. Touch on a radio button next to the desired language, a dot will fill the radio button next to the selection. 3. Touch "**OK**" or "**CANCEL**" to exit to the Display menu.
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 to 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.

3. 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	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 CrossRamp incline range can be set to 0%-15%. TRM 885 CrossRamp incline range can be set to 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.
CrossRamp Auto Level **(EFX only)**	CrossRamp Auto level settings are from 1% to 20%	1	1. Touch "CrossRamp Auto Level" 2. Touch the "▲,▼" to move auto level to the desired setting. 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 • Language
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) • CrossRamp Auto Level (EFX only)
TV Settings	• Channel Guide • Region • Default Channel • Skip Unnamed Channels
Network Settings	• Primary DNS – Manual only • Secondary DNS – Manual only • Gateway – Manual only • Netmask – Manual only
Connectivity	• Network Type • Preva Server Address

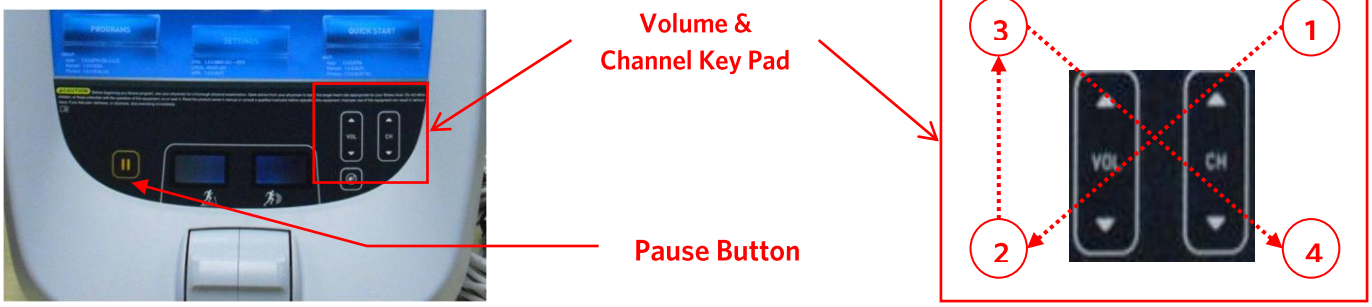
The following procedure will explain how to save existing P80 console settings onto a USB Flash Drive and then import the saved settings into another P80 console.

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

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 3.11.1



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

Diagram 3.11.2

6. Insert the USB Flash Drive into the USB Drive Port of the P80 console. **See Diagram 3.11.3.**

Diagram 3.11.3

7. 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

8. You will see a scrolling in process bar and then "Settings exported successfully to the USB drive" displayed. **See Diagram 3.11.5**

Diagram 3.11.5

9. Touch "**OK**" to return the Settings menus.
10. 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.
11. Move the USB Flash Drive device with the saved settings to a P80 console that you would like to import the saved settings.
12. Access the "Manage Settings" screen by following the described steps 1 through 9.
13. Insert the USB Flash Drive into the USB Drive Port of the P80 console. **See Diagram 3.11.3.**
14. 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

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

Diagram 3.11.7

17. Exit the service mode as described in steps 14.
18. Repeat the described process steps 11 though 16 for any remaining P80 consoles.

Procedure 3.12 – P80 – Replacing the Console

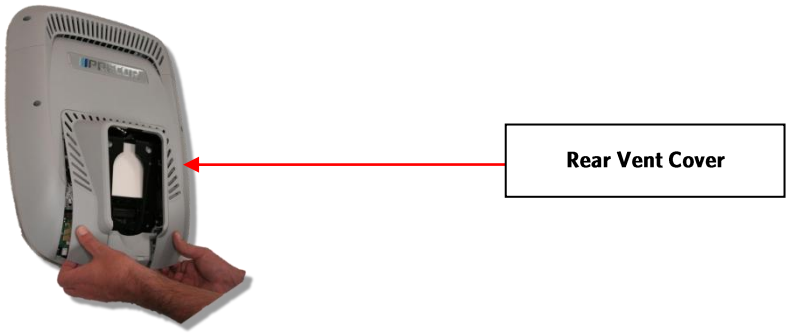
Required Tools

- 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

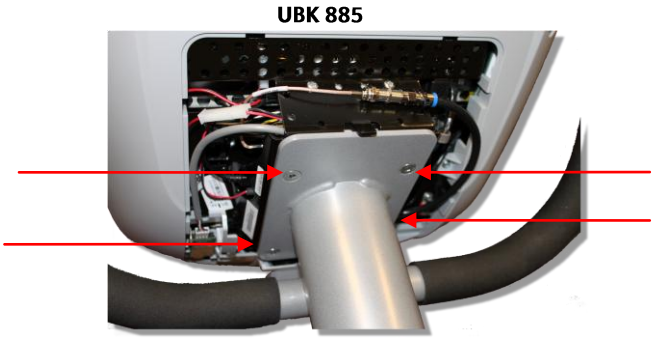
1. Remove the rear vent cover. Do not use a sharp tool, such as a flat bladed screwdriver, to pry up the cover, as you can damage the covers and possibly components inside the console. When the cover starts to come loose, gently unsnap it from the P80 and set it aside where it will not be scratched. **See Diagram 3.12.1**

Diagram 3.12.1



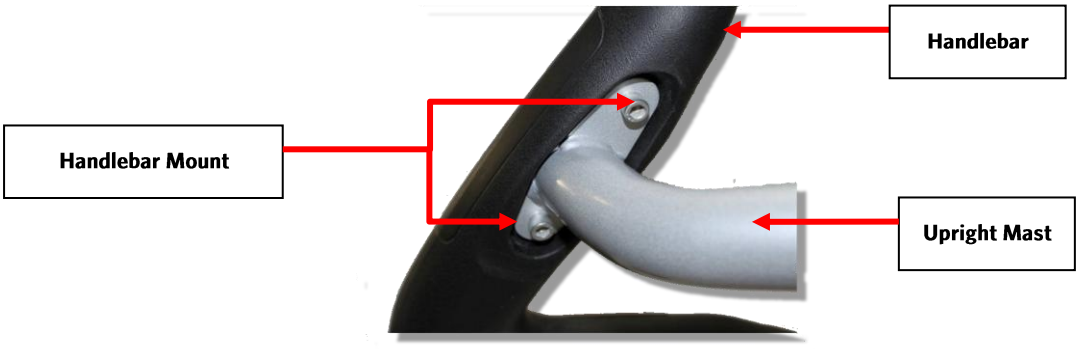
2. Remove the four flat head 5/8 inch long screws that secure the console to the plate. **See Diagram 3.12.2**

Diagram 3.12.2



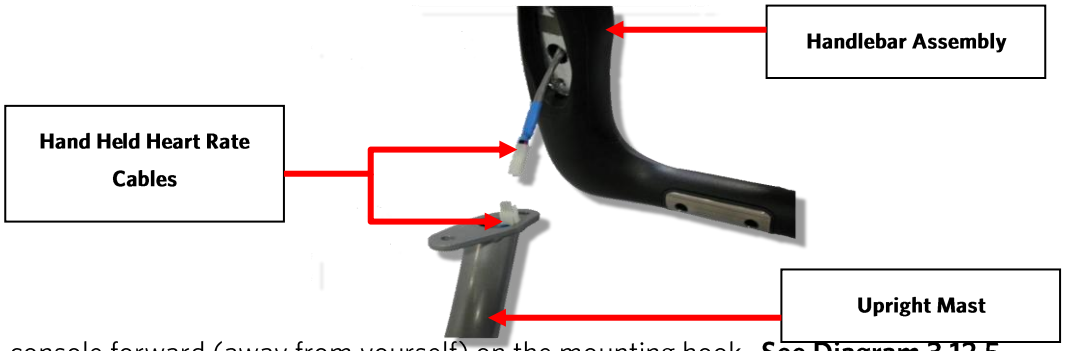
3. When removing and installing the P80 onto the upright mast. There will be interference between the console and the handlebar supports, requiring that the removal of the upright handlebar.
4. Remove the four screws that secure the left and right side of the handlebar to the upright mast. **See Diagram 3.12.3**

Diagram 3.12.3



5. Carefully lift the handlebar assembly off the upright mast until the hand held heart rate cable connectors visible.
6. Disconnect the hand held heart rate connectors and place the handlebar assembly aside. **See Diagram 3.12.4**

Diagram 3.12.4



7. Tilt the console forward (away from yourself) on the mounting hook. **See Diagram 3.12.5**

Diagram 3.12.5

8. 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 3.12.6**

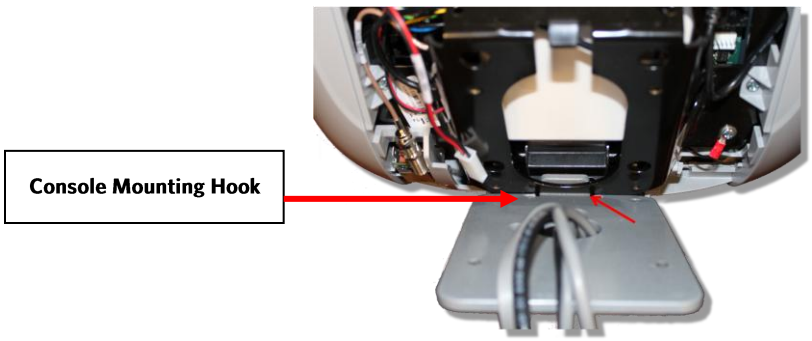
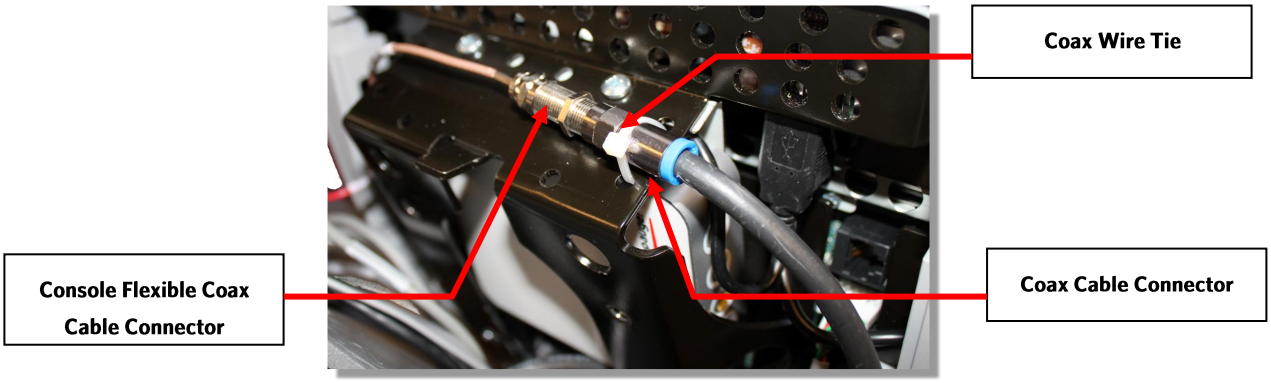
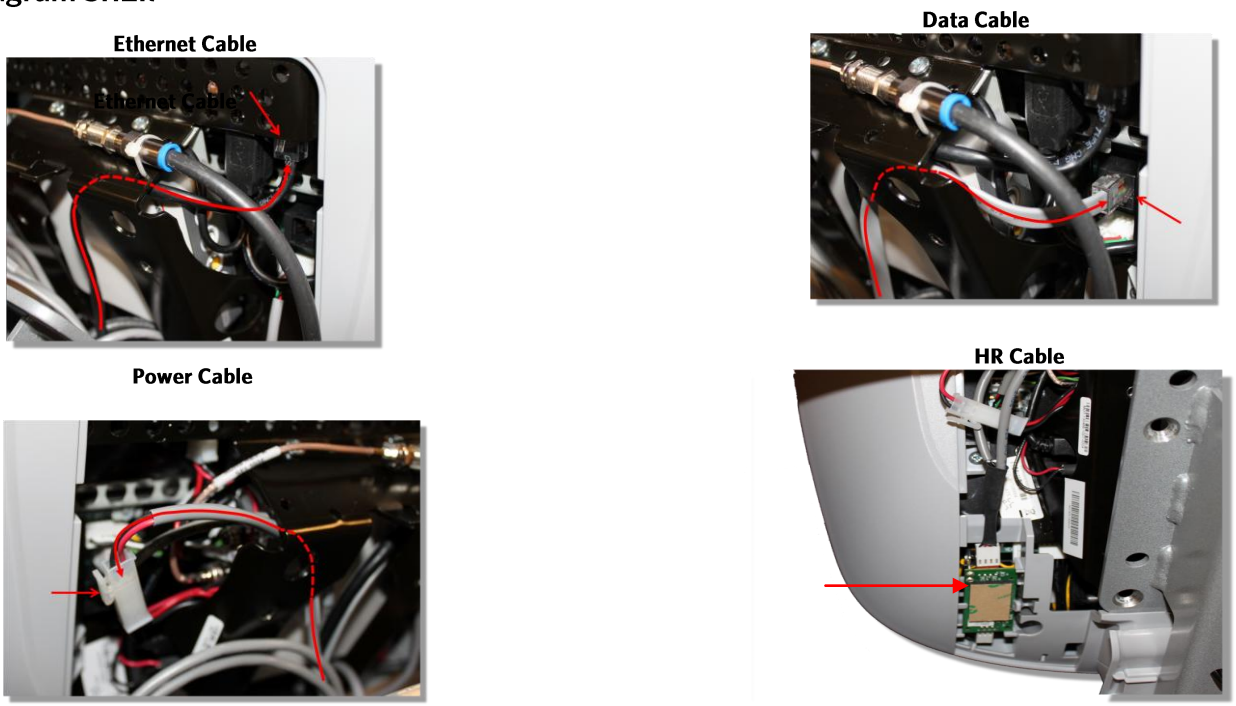


Diagram 3.12.6



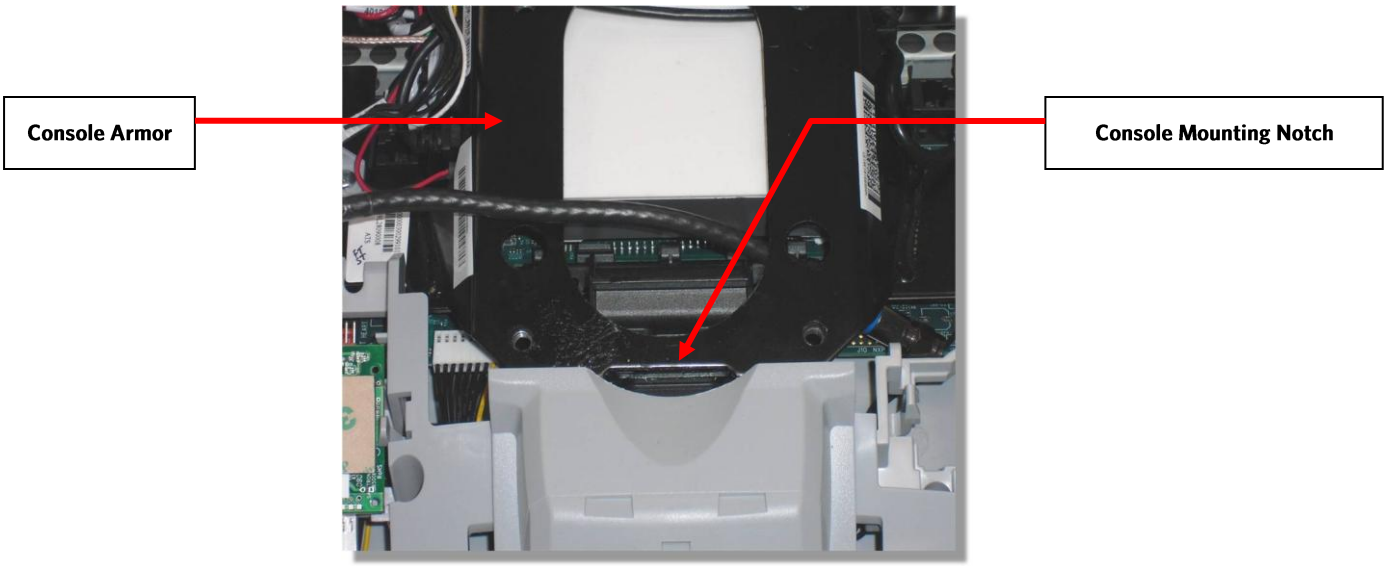
9. Disconnect the Ethernet cable, Data cable, the Power cable and the HR cable. **See Diagram 3.12.7**

Diagram 3.12.7



10. Remove the console by lifting it off the mounting hook.
11. 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 3.12.8.** Set the console notch over the over the mounting hook. **Note:** Before releasing the console insure the notch is securely seated over the mounting hook. **See Diagram 3.12.5**

Diagram 3.12.8



12. 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.
13. 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.**
14. 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

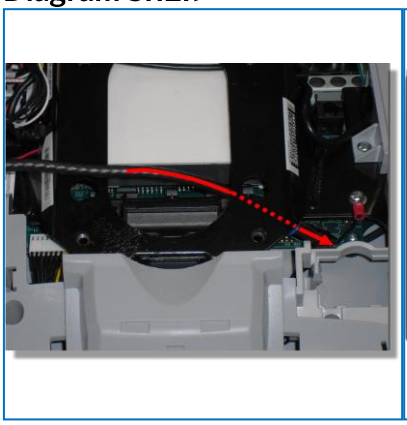
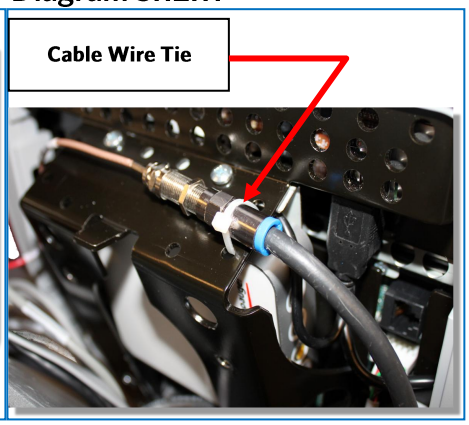


Diagram 3.12.10

Diagram 3.12.11



15. 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.**
16. 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

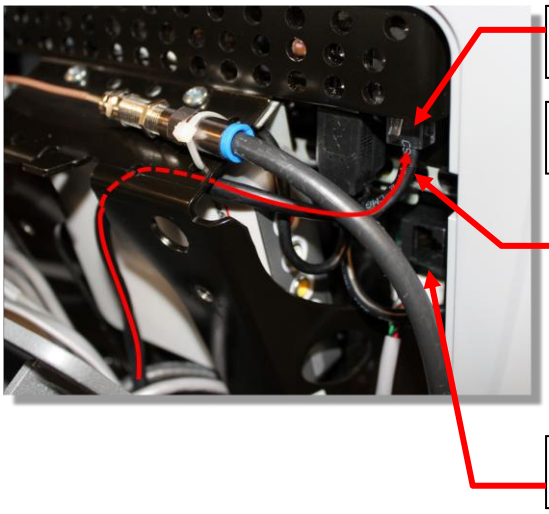
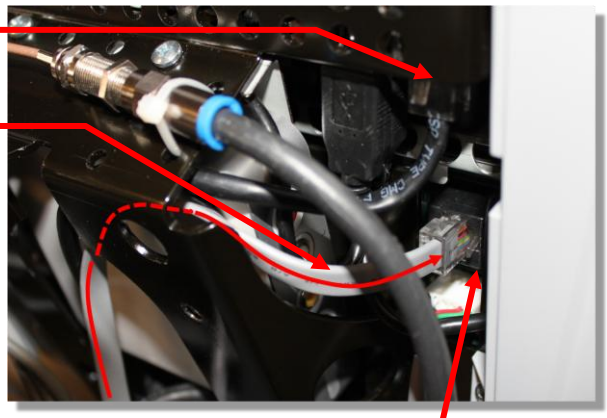
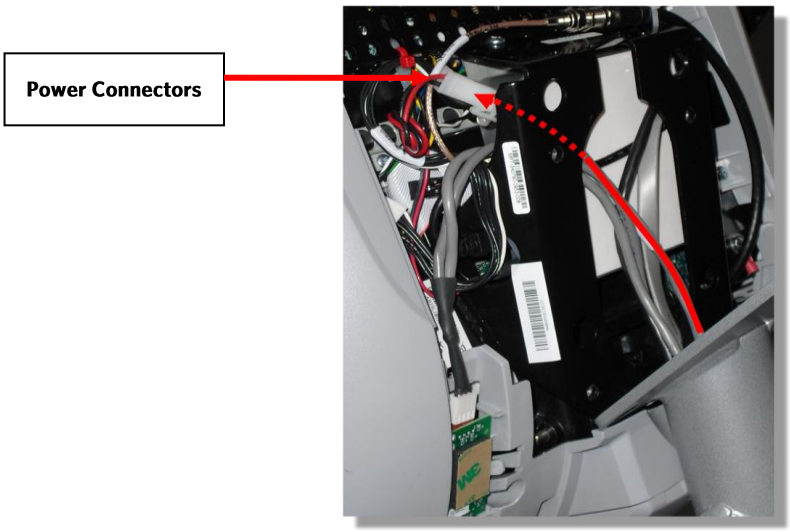


Diagram 3.12.13



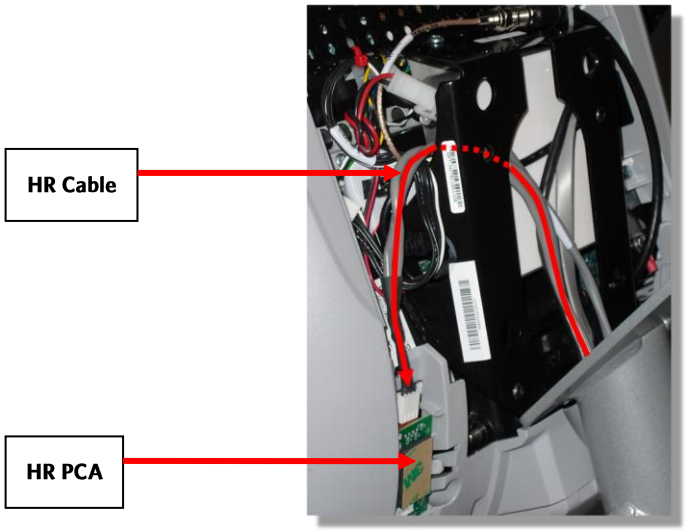
17. Route the Power cable through the upper left corner of the weldment and connect it to the P80 power connector. **See Diagram 3.12.14**. **Note:** Leave the connector on the side of the P80 as shown in **Diagram 3.12.14**, as it might be necessary to access it for troubleshooting.

Diagram 3.12.14



18. 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 3.12.15**

Diagram 3.12.15



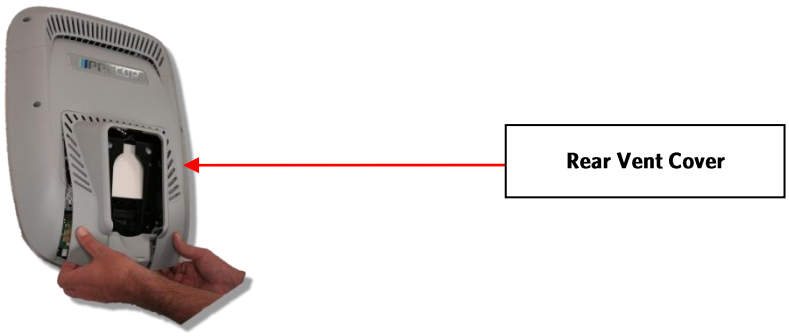
19. Make sure that all cables are fully and securely connected, and that cables are tied back properly. Make sure any extra cabling is pulled down through the neck and along the front of the dash, making sure the cables are routed through the plastic guides inside the neck.
20. Tilt the control console 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. Connect the two hand held heart rate cables on the upright mast to the cables on the handlebar assembly.
24. Fasten the handlebar assemble to the upright mast with the four screws removed in step 4.
25. Replace the rear vent cover.

Procedure 3.13 – P80 – Replacing the Heart Rate PCA Board

Procedure

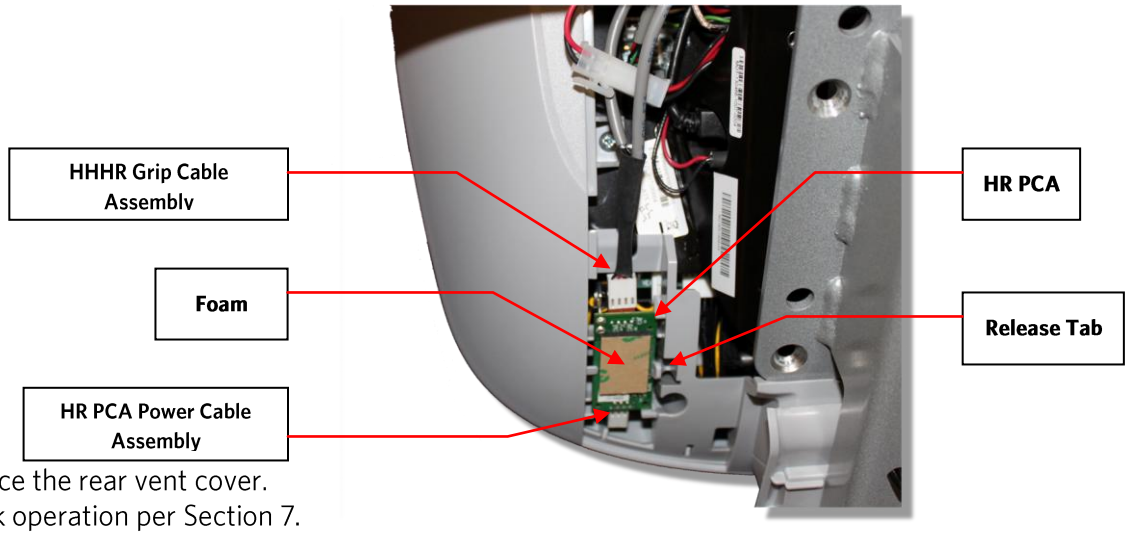
1. Remove the rear vent cover. Do not use a sharp tool, such as a flat bladed screwdriver, to pry up the cover, as you can damage the covers and possibly components inside the console. When the cover starts to come loose, gently unsnap it from the P80 and set it aside where it will not be scratched.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

Diagram 3.13.2



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 frame ground.
3. The HR PCA snaps into its mounting. Press the release tab sideways and remove the HR PCA from its mounting.
4. Disconnect the HR cable and handlebar cable from the HR PCA. **See Diagram 3.13.3.**
5. 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**.
6. 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



7. Replace the rear vent cover.
8. 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

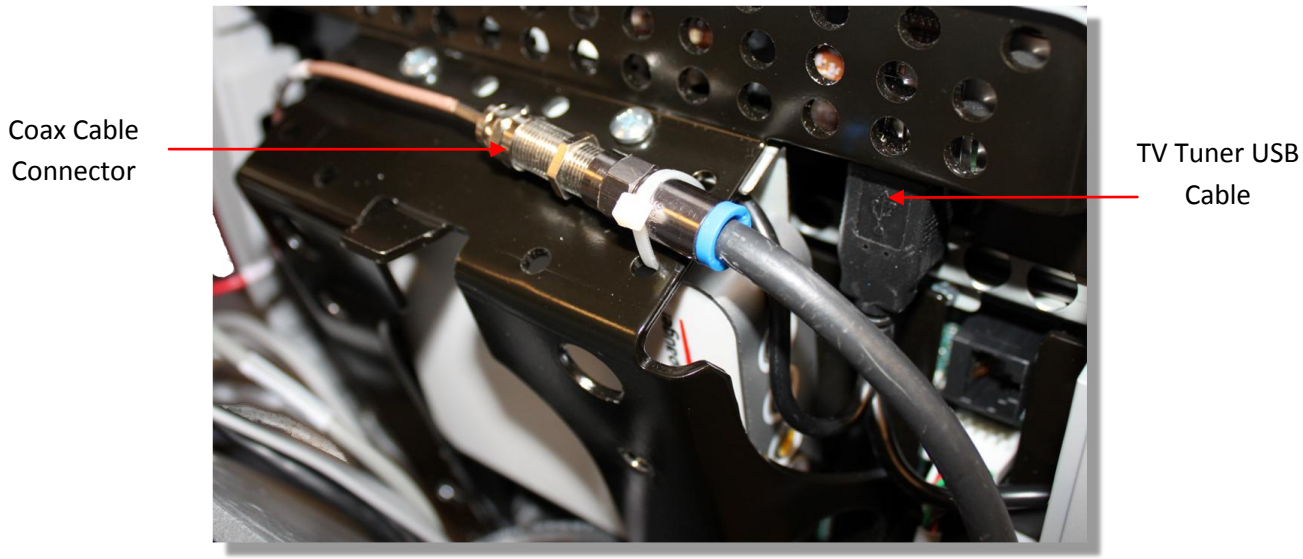
Description

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 ," "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 1 and 2 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

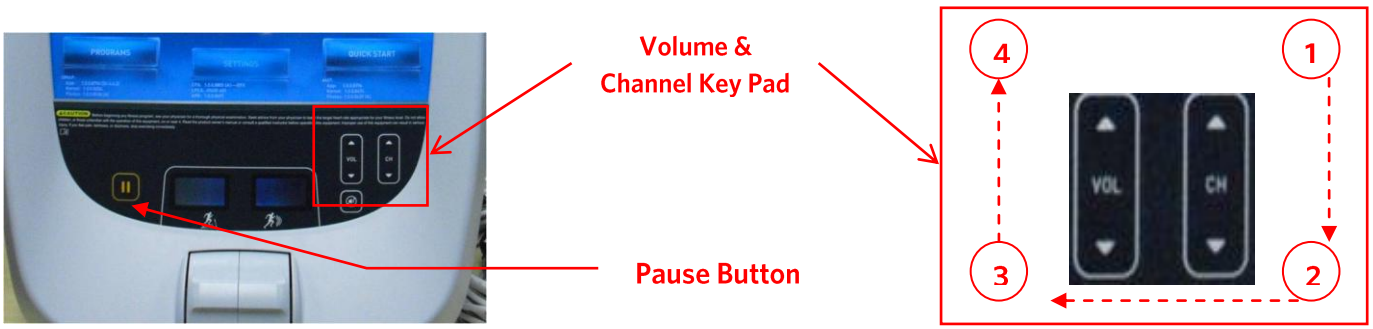
Possible Remedies

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.

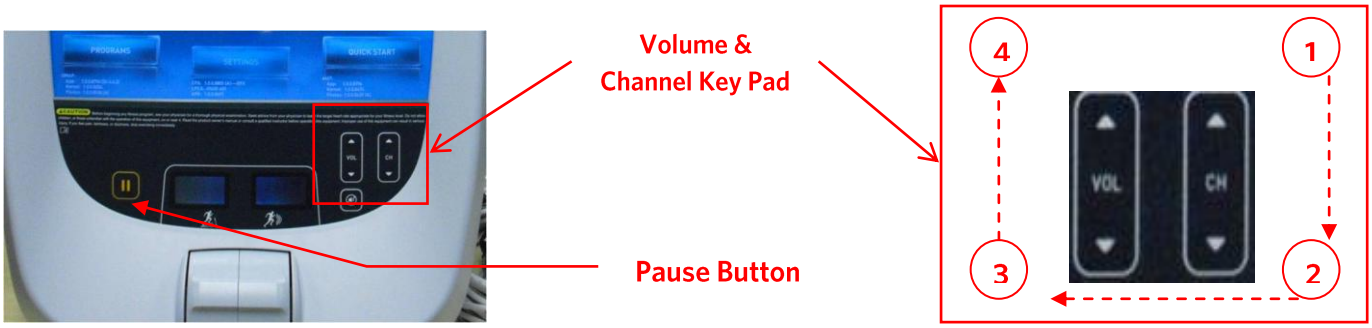
Possible Remedies

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

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
    - Brake Test
    - RPM Test
    - Battery Test

Procedure:

1. The RBK/UBK 835 uses the standard access codes to provide access to the various software features. Use the **PAUSE** key and the numeric keypad to enter the access code. The standard access codes use all sequential key presses. The allowable delay between key presses is short. If too much time is taken between key presses the access procedure will be aborted. If the access is aborted, it will be necessary to start over from the beginning.

Diagram 5.1 .1 – P30 Console - UBK

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**.

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 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 brake test or the RPM test. Press the ▼ key once to access the brake test or twice to access the RPM test. Press the OK key.

13. **BRAKE** test. Press the OK key, the console will display the power bits (PWRB).

14. Press the **BACK** key then the ▼ key, **RPM** will scroll across the display.

15. **RPM** test. Press the OK key, the console will display the Pulse. The pulse is showing a count of zero crossings from the generator. RPM shows a software averaged version of pulse.

16. Press the **BACK** key then the ▼ key, **BATTERY** will scroll across the display.

17. **BATTERY** test. Press the OK key, the console will display the battery test. Battery test will display battery voltage.

18. Press the **BACK** key to exit the belt battery test.

19. 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. (Treadmill Only)
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
- Hidden Programs
- 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. **HIDDEN PROGRAMS** display. Press the **OK** key.
25. Use the ▲,▼ keys to toggle between **HIDE PROGRAMS** and **SHOW PROGRAMS.**
26. Press the **BACK** key to exit the hidden programs display.
27. **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.
28. **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.

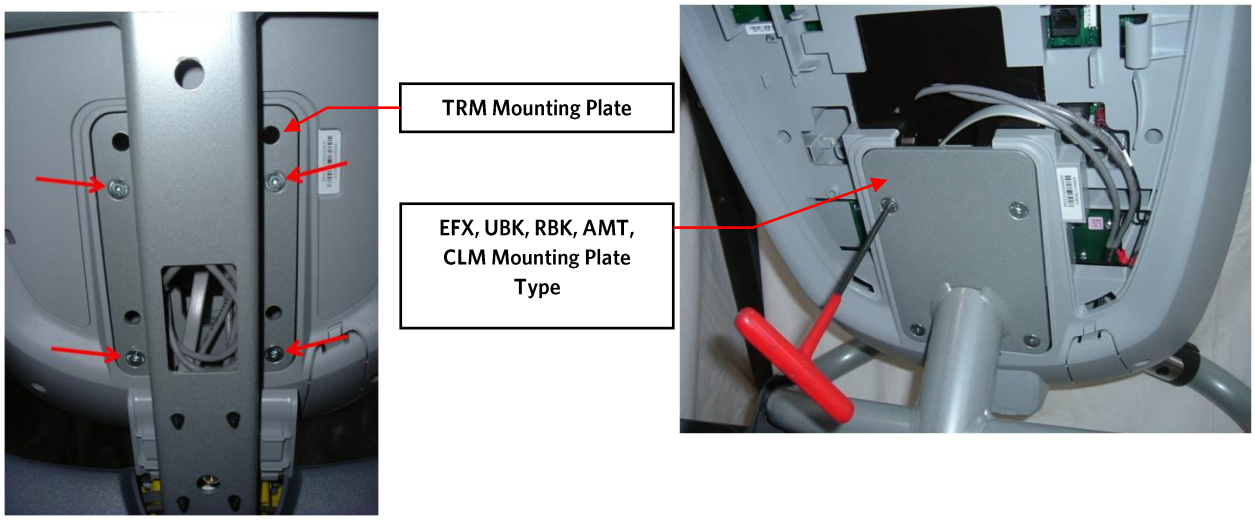
Procedure 5.5 – P30 – Replacing Upper PCA

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.**

Diagram 5.5.2 – Dash Mounting Plate

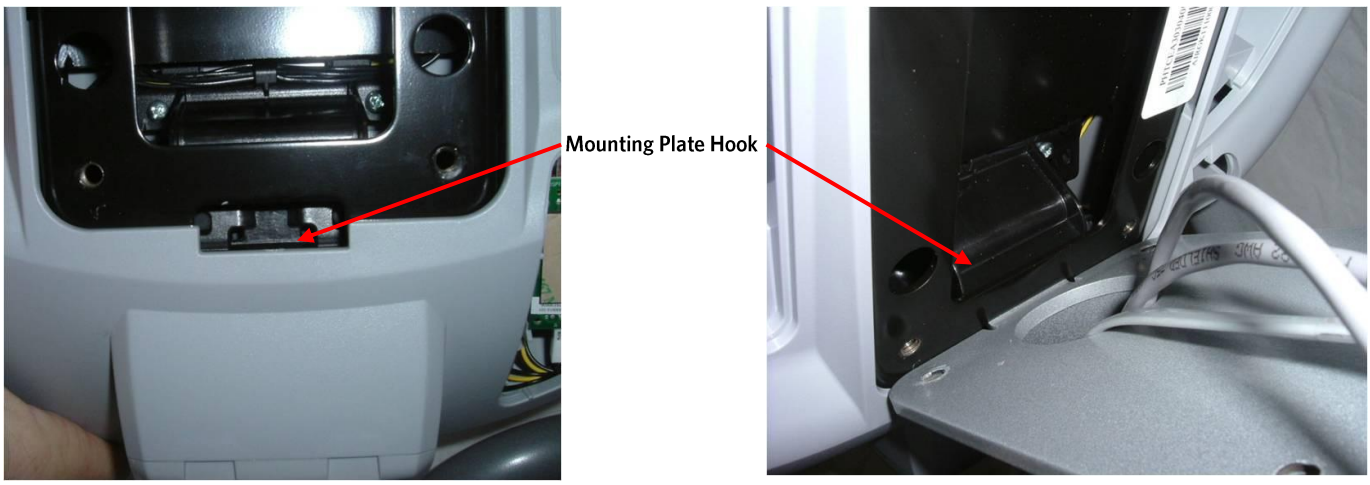


5. Remove the two screws that fasten the access panel to the console. **See Diagram 5.5.3**

Diagram 5.5.3 – Console Access Panel

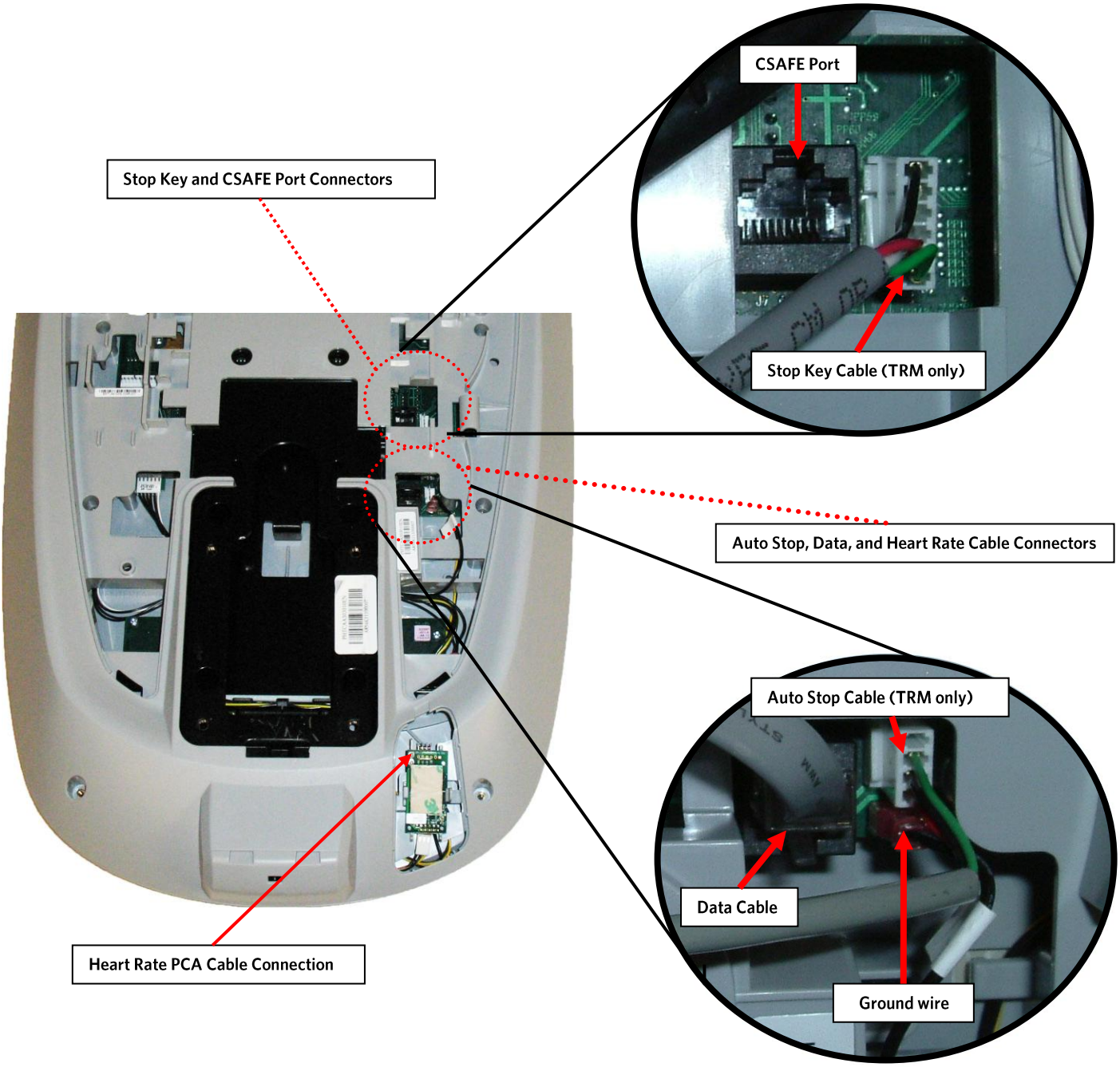
6. Remove the back access Panel:
    a. Treadmills: Lift the console off the maintenance hook and then position the console so that the back panel is accessible and remove the back cover.
    b. AMT's, EFX's, CLM's, UBK's, and RBK's: Tilt the console forward on the maintenance access hook on the dash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

Diagram 5.5.4 – 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), 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

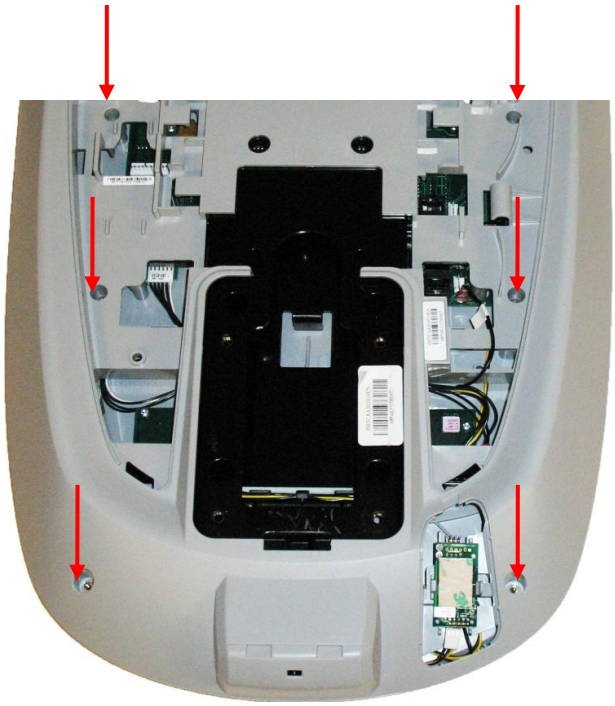


10. Remove the two screws that fasten the back cover to the option cap and remove the cover. **See Diagram 5.5.6**

Diagram 5.5.6 – Option Cap Back Cover

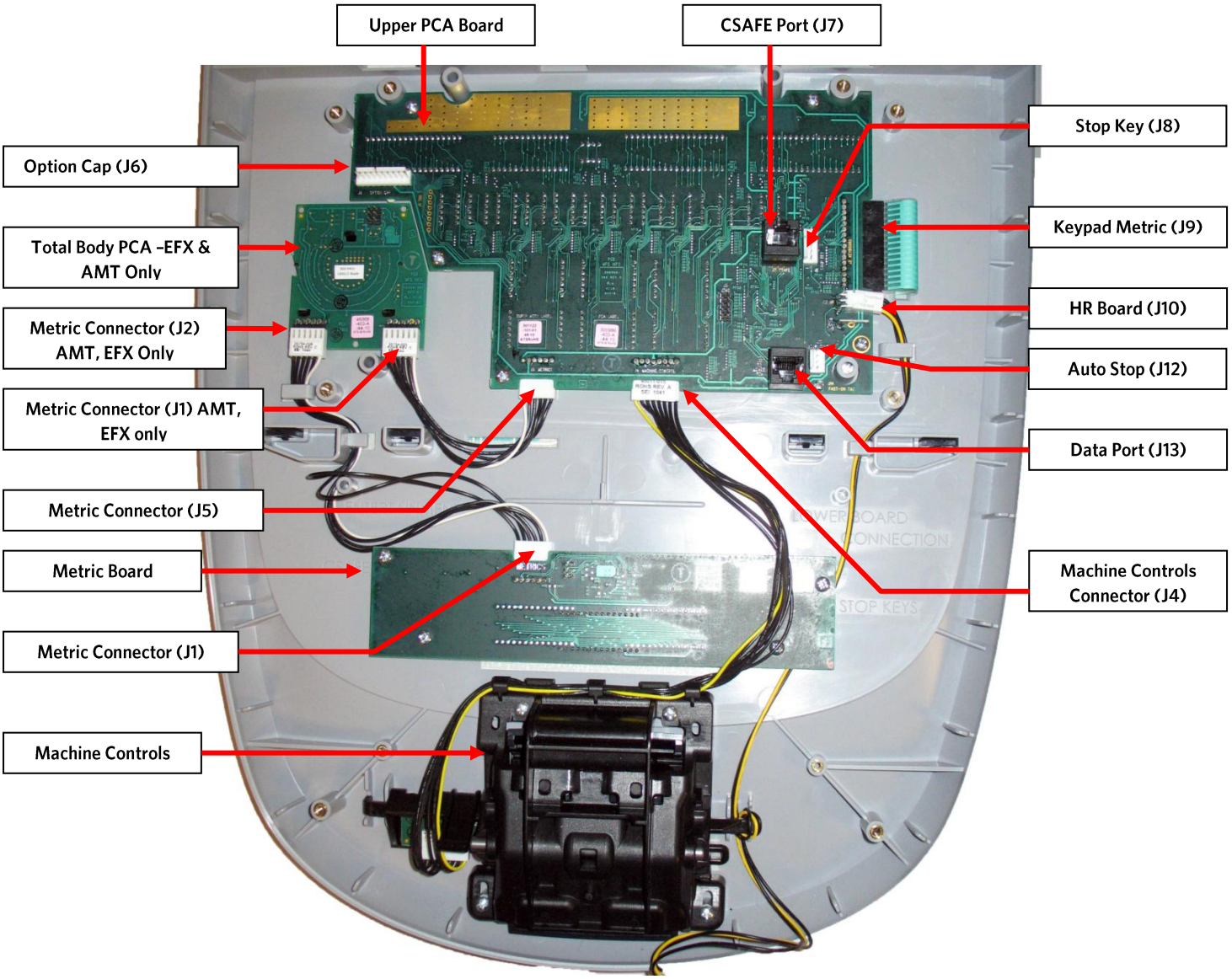
11. Remove the 6 screws that fasten the rear cover from the console and remove. **See Diagram 5.5.7.**

Diagram 5.5.7 – Rear Console Cover



12. 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.**
13. 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



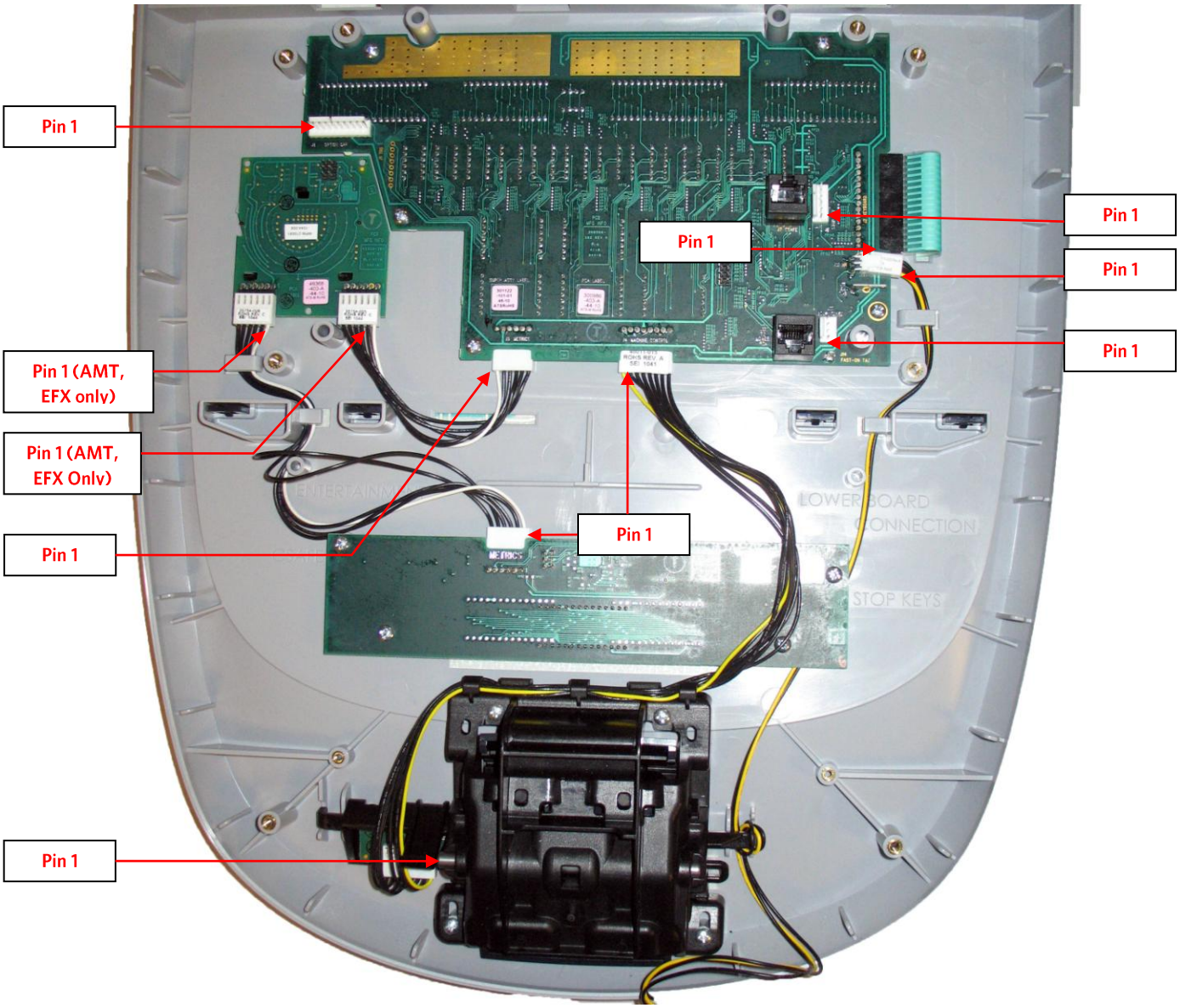
14. Install the replacement upper PCA into the console using the five screws removed in step 14. Torque to 10 inch pounds.

    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.

15. 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



16. 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.
17. 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.

18. 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.

19. Place the P30 console on the maintenance access hook.
20. 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.**
21. Reconnect the Heart Rate Cable to the Heart Rate PCA.
22. Replace the Heart Rate PCA. **See Procedure 5.7, Removing Heart Rate PCA**
23. Replace the access cover with the hardware removed in step 6.
24. 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.
25. Fasten the console to the dash mounting plate with the four screws removed in step 4. **See Diagram 5.5.2.**
26. Fasten the dash transition cover using the two screws removed in step 3. **See Diagram 5.5.1**
27. Check treadmill operation per Section Seven.

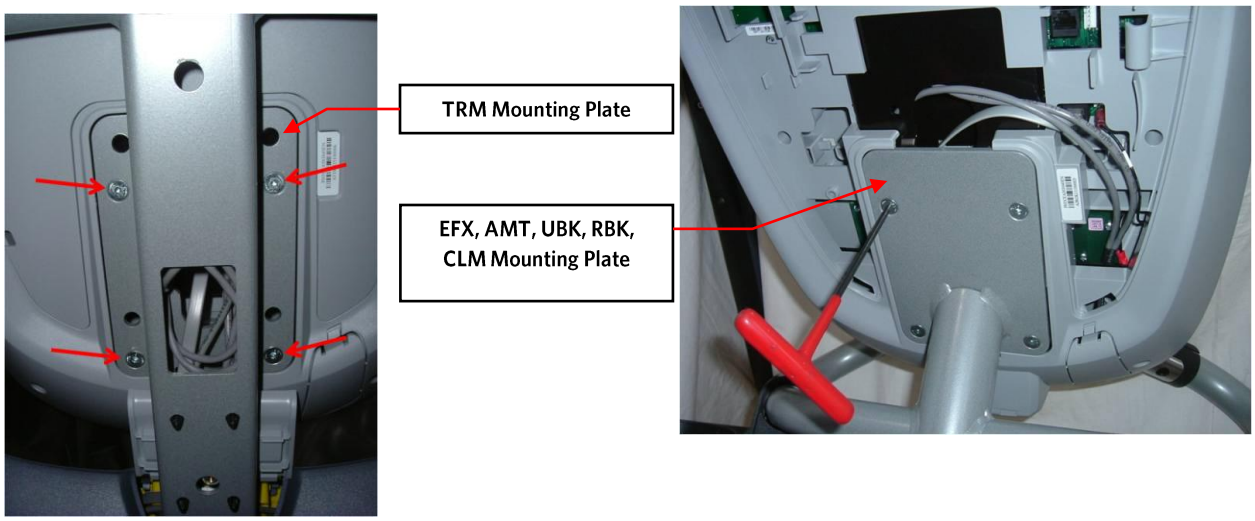
Procedure 5.6 – P30 – Replacing Metric PCA

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

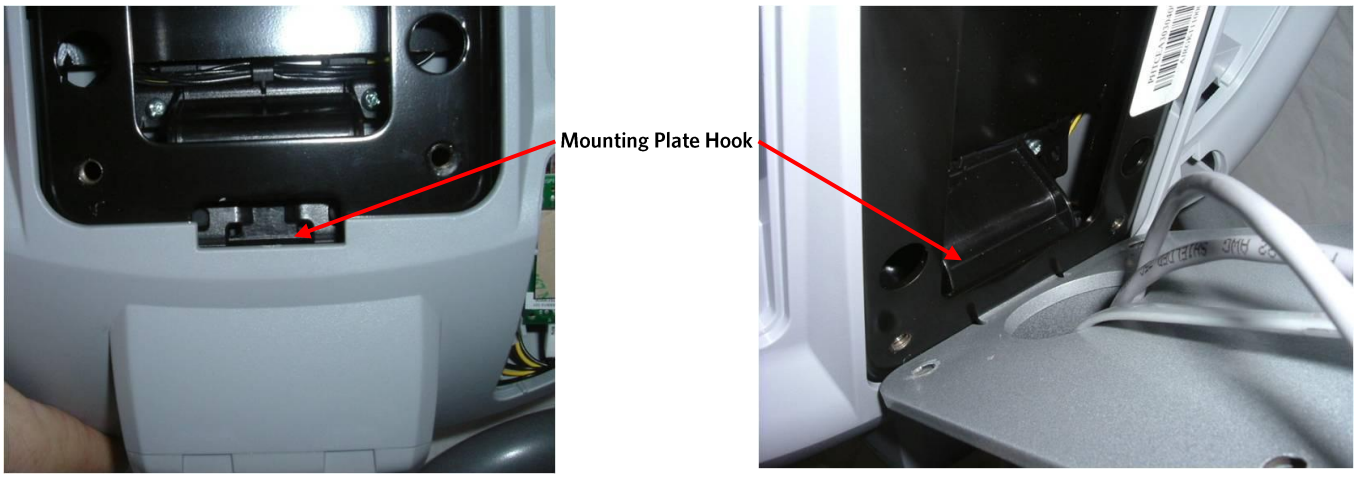


5. Remove the two screws that fasten the access panel to the console. **See Diagram 5.6.3**

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.**

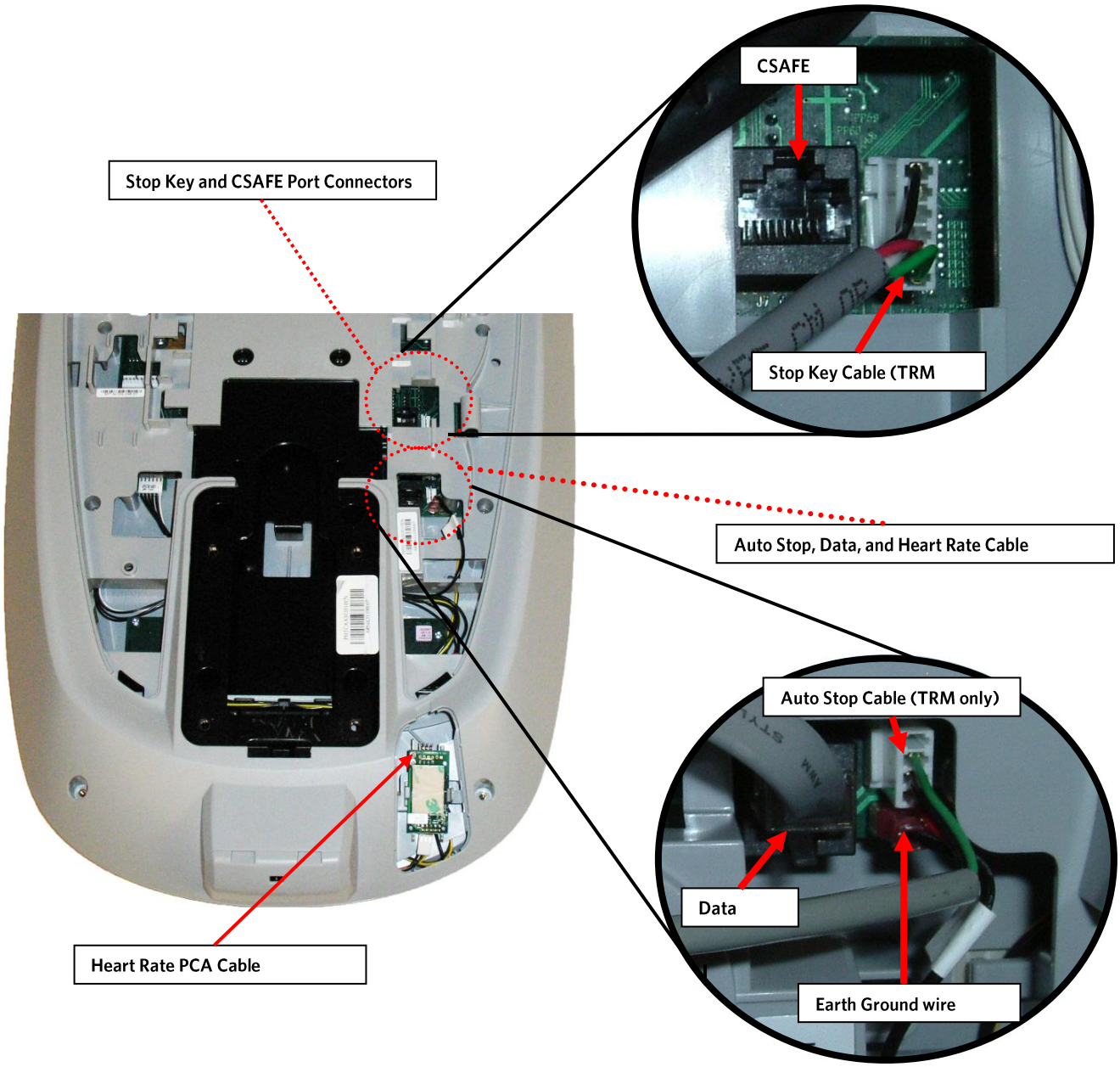
Diagram 5.6.4 – Maintenance Access Hook



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

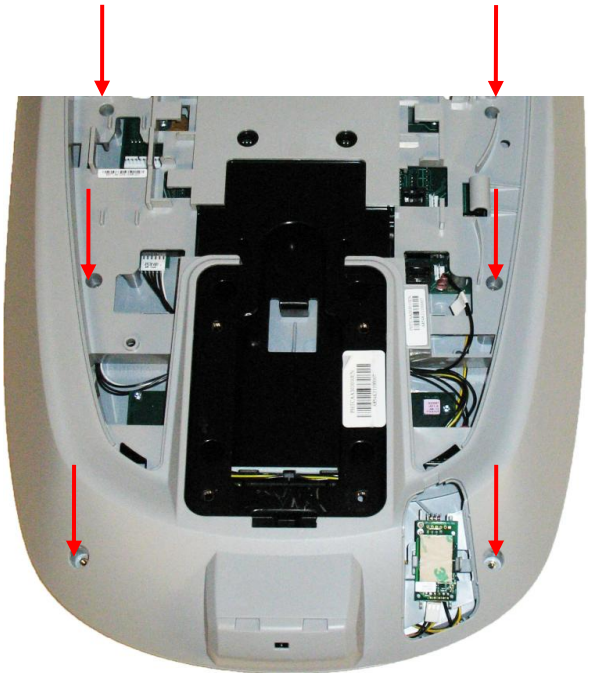


10. Remove the two screws that fasten the back cover to the option cap and remove the cover. **See Diagram 5.6.6**

Diagram 5.6.6 – Option Cap Back Cover

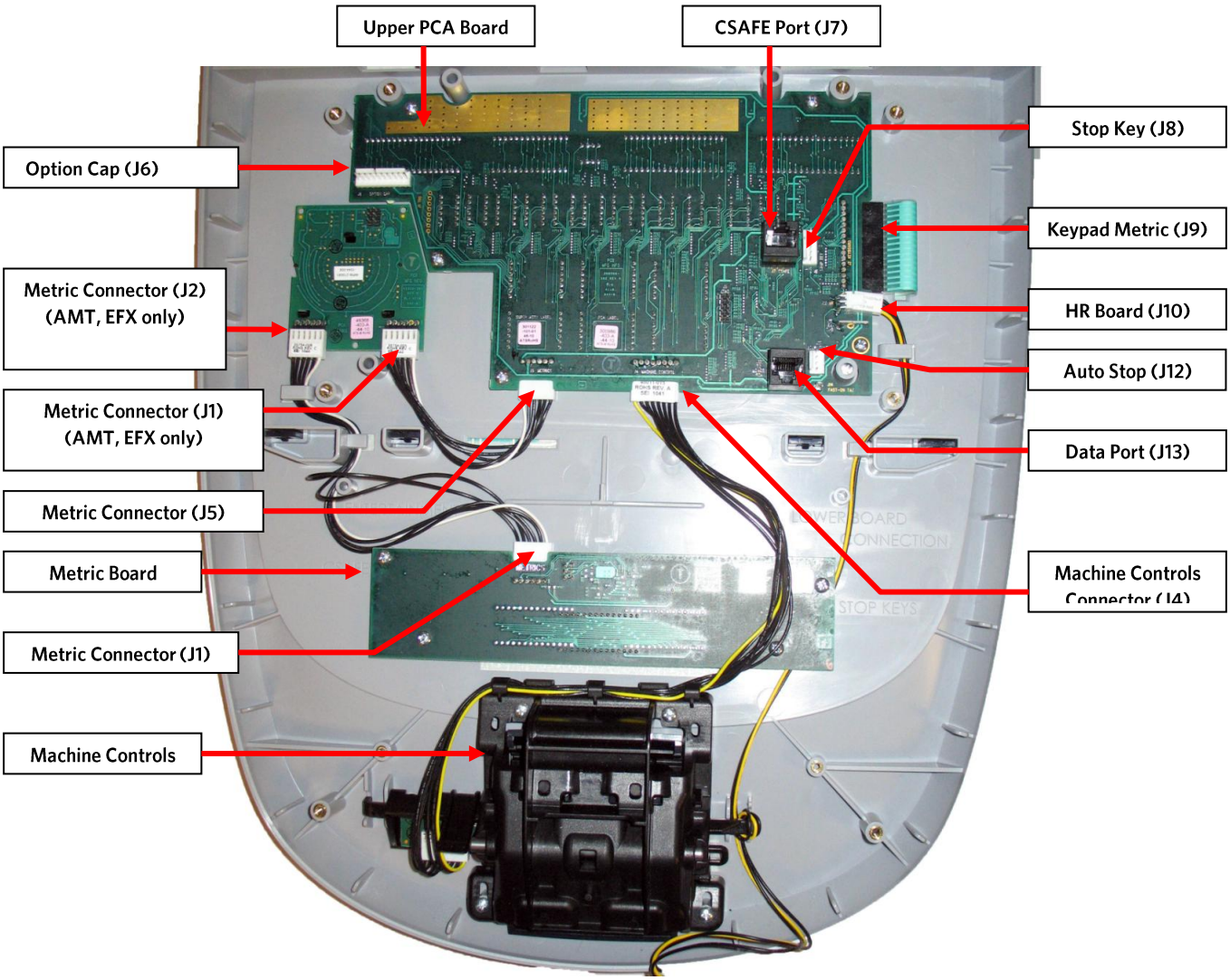
11. Remove the 6 screws that fasten the rear cover from the console and remove. **See Diagram 5.6.7.**

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.**

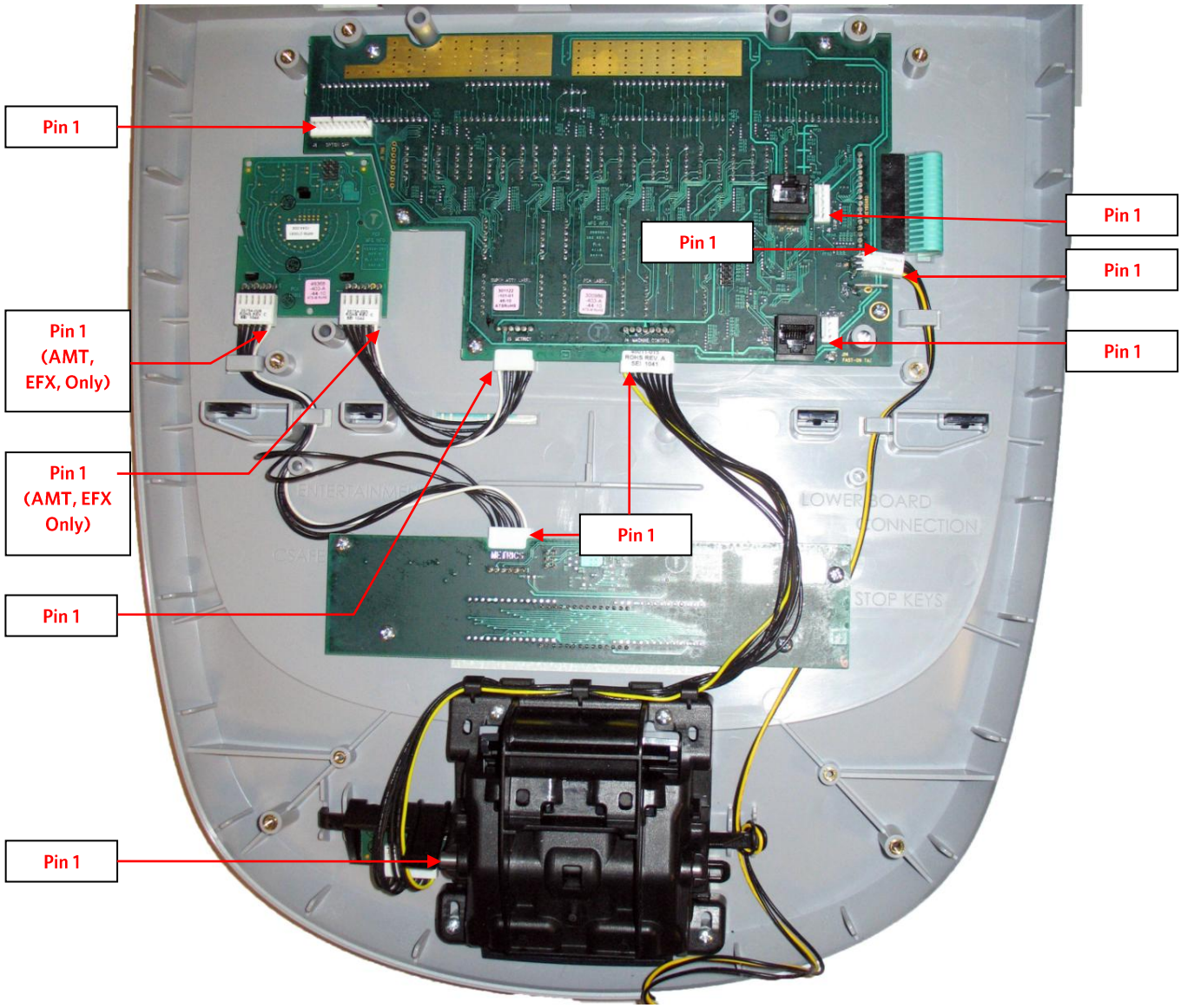
Diagram 5.6.8 – P30 Upper PCA & Metric Board



14. Replace the four spacers removed in step 13 onto the console mounting studs. The spacers must be used to insure 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 (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 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 sideways 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 operation per Section 7

Diagram 5.7.1

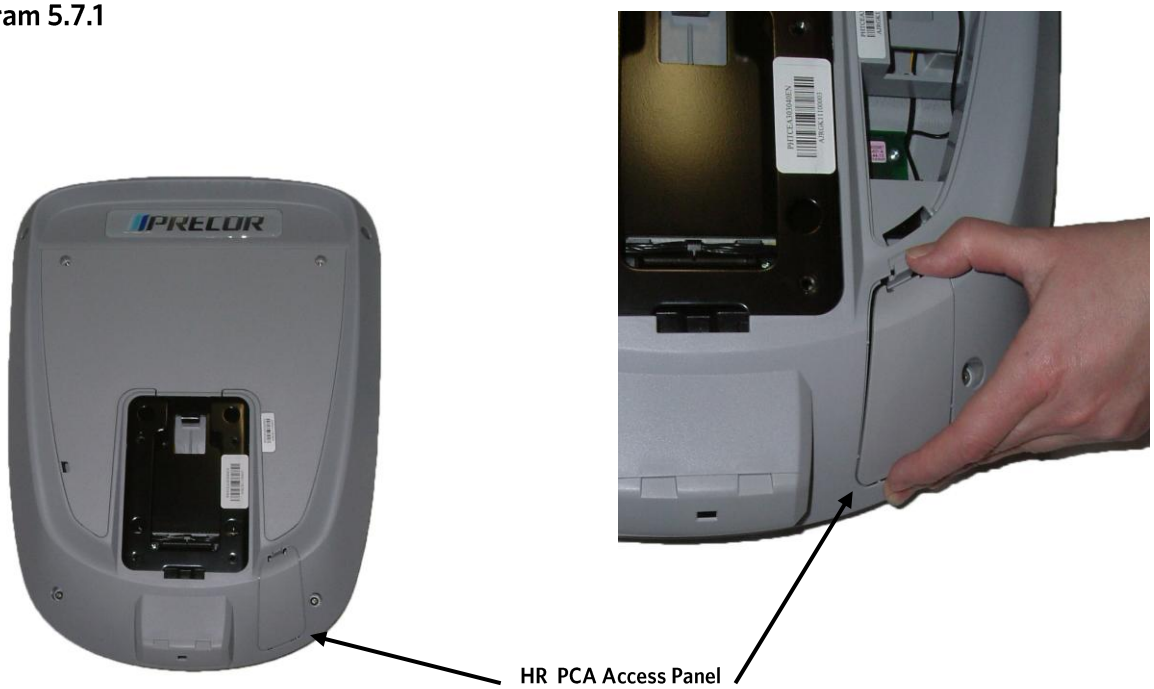
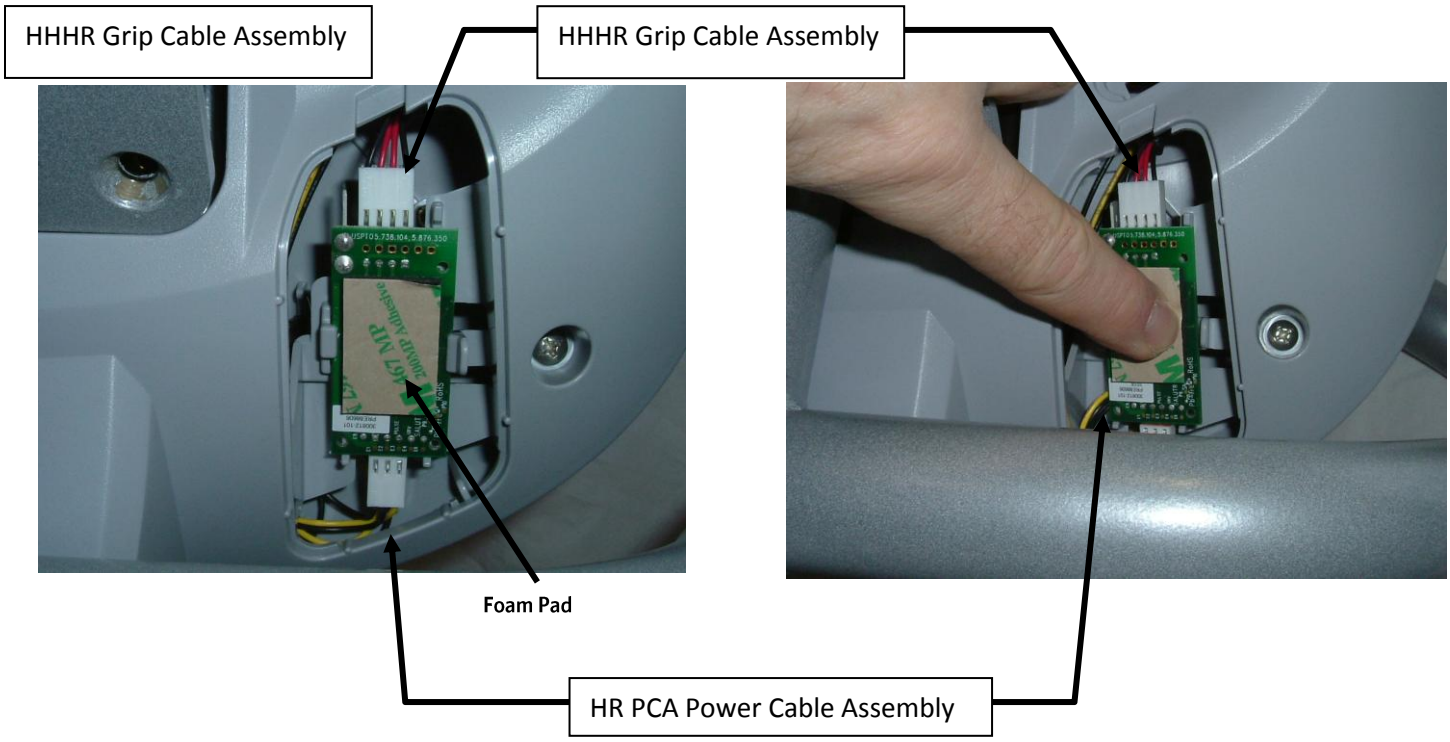


Diagram 5.7.2



Procedure 5.8 - Future Content

Procedure 5.9 – P30 – Flash Programming the Upper PCA

This unit utilizes an upper PCA software system that is capable of onsite upper PCA software uploading (re-programming). The software upload may be accomplished with the use of a PDA (palm device) or a laptop computer.

If a palm device is to be used it must use OS software version 3.2 or higher. Currently, we have only tested devices manufactured by Palm, but other manufacturer's palm devices may also function correctly.

If a palm device is to be used, the appropriate software must be available in the palm device. A PDA containing the appropriate software may be ordered from Precor or it may be downloaded to the PDA from your desktop or laptop computer via the "hot sync" function. With the PDA inserted in the hot sync cradle, download to "Precor IFP" (in field programmer) directory.

If a laptop computer is to be used, the computer's DB9 serial port will be used for the upload.

Upload Procedure

1. The P30 must be "powered down" before the upload procedure can be initiated. Ensure that the P30 has not be used for a sufficient time to allow the lower PCA to completely discharge. The light emitting diode on the lower PCA will go out when the power supply is discharged.
2. If the CSAFE port is in use, temporarily disconnect the RJ-45 cable from the CSAFE port. If the CSAFE port is not in use, temporarily remove the plastic plug from the CSAFE port.
3. Connect the PDA or computer interface cable to the CSAFE port.
4. Select the software file to be uploaded on the palm device or computer.
5. Start pedaling the P30 or power up using the external power supply. When the P30 "powers up" the upload will commence. You must continue to pedal until the upload is complete, approximately 2 minutes.
6. Stop pedaling or disconnect the external power supply when the upload is complete, and allow the lower PCA to completely discharge. The light emitting diode on the lower PCA will go out when the power supply is discharged.
7. Start pedaling the P30, after it has been allowed to power down, the P30 will now be operating on the newly uploaded software.
8. Thoroughly, check the P30's function per Section Seven.

Procedure 5.10 – Future Content

Troubleshooting 5.11 – P30 – Troubleshooting the Keypad and the Upper PCA

Procedure

Note: The white or yellow wire on the cables shown in **Diagram 5.5.9** denotes pin 1. When these cables are inserted into their connectors, the white or yellow wire must align with the pin 1 designation on the PCA. If pin 1 is not marked on the PCA refer to **Diagram 5.5.9**.

1. Set the treadmill's on/off switch in the "off" position (Treadmill only). Access the upper electronics and machine controls per Procedure 5.5, steps 1 through 12. Place the console on the maintenance mounting hook and reconnect all cables.
2. If the message STUCK KEY is displayed 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 5.11.1 - Console, Upper PCA, JTAG (J9) Connector

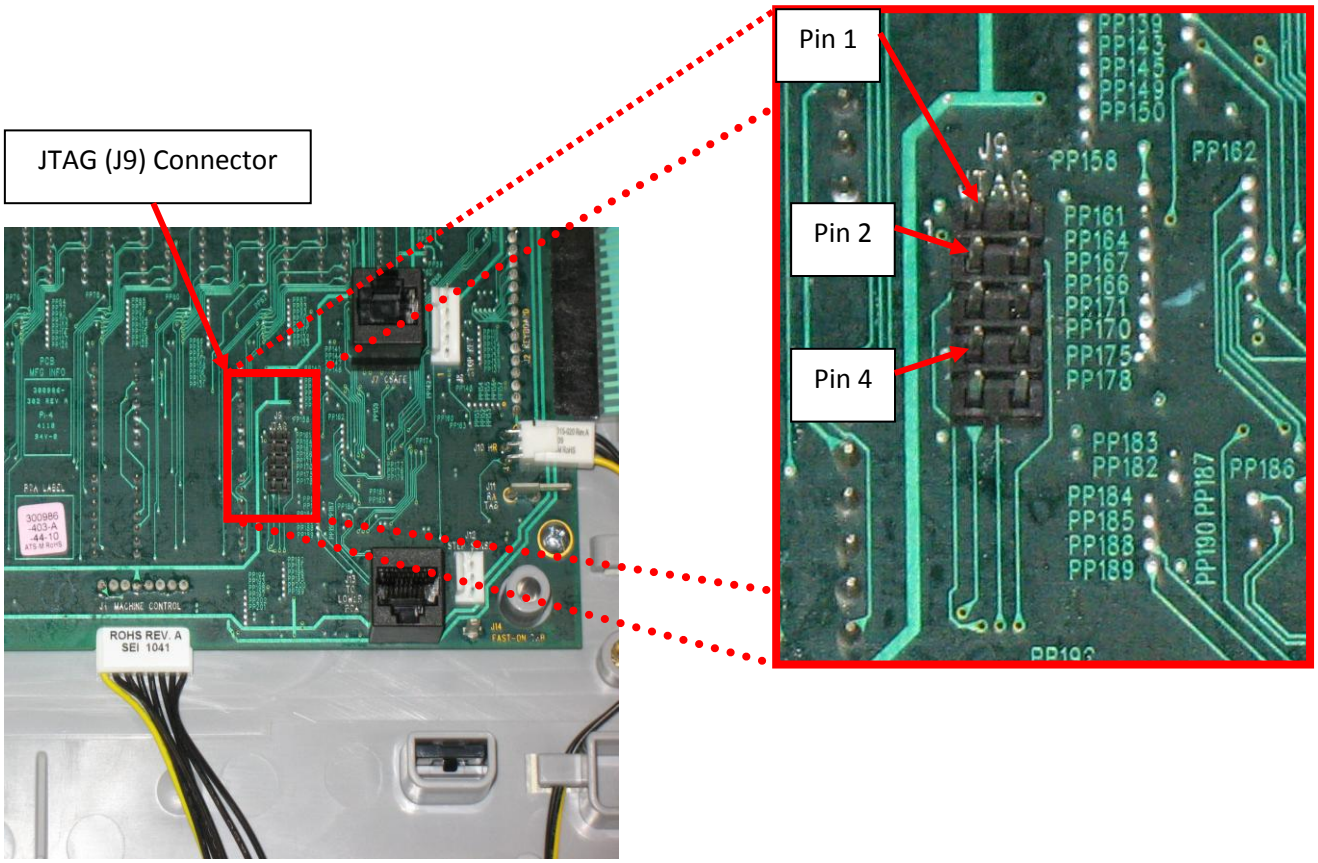
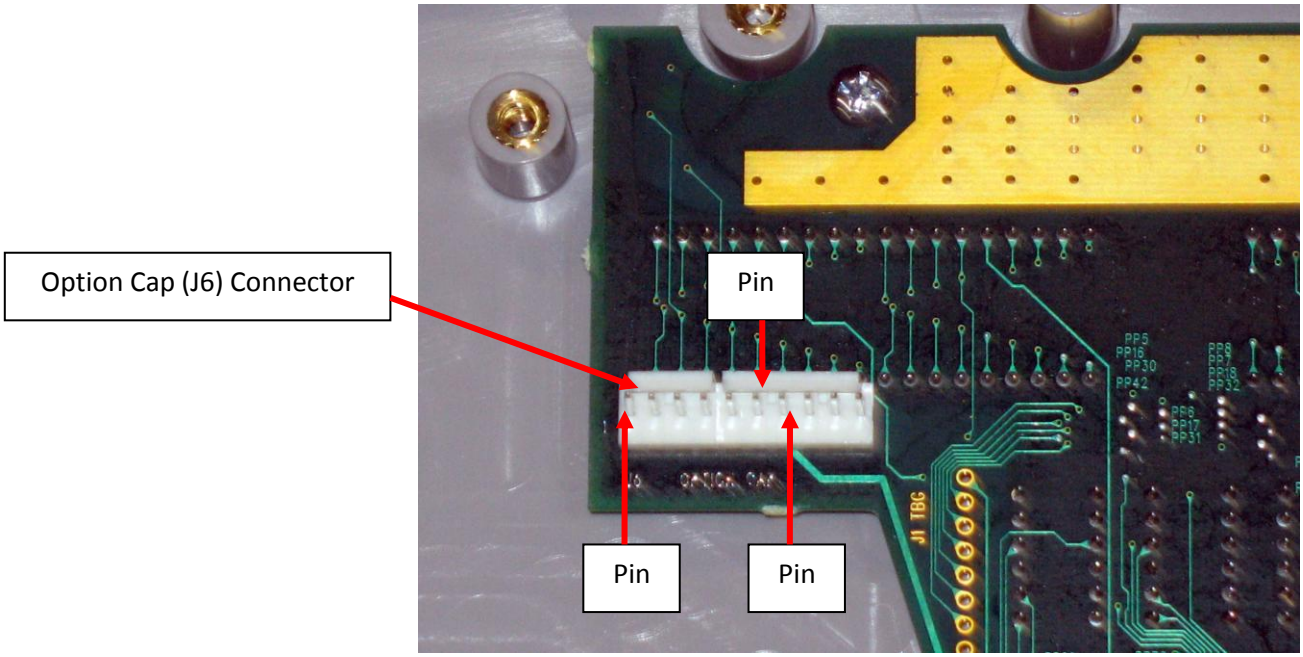


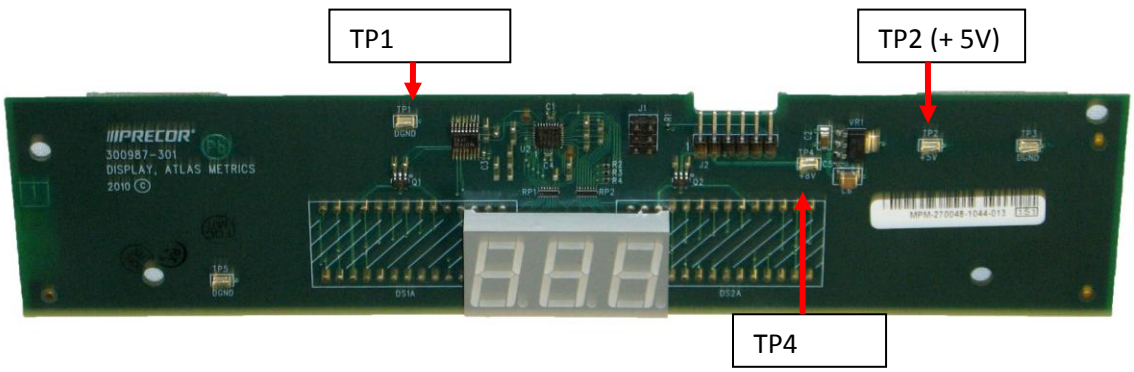
Diagram 5.11.2 - Console, Upper PCA , Option Cap (J6) Connector



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.

   Note: There are four spacers between the Metric board and the mounting studs. These must be saved and reinstall with the Metric board. If they are not used the Metric board or display face may become damaged.
8. With a DC voltmeter, measure between TP4 (+8V) and TP1 (DGND) for 8 Vdc and between TP2 (+5V) and TP1 (DGND) for 5Vdc. See Diagram 5.11.3

Diagram 5.11.3 - Metrics PCA, Front View



9. If 5 Vdc is not present on TP2 and 8 Vdc is present on TP4, replace the metrics PCA.
10. If 8 Vdc is not present on TP4 and the upper PCA is illuminating normally, replace the cable between the upper PCA and 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. 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.
13. With a DC voltmeter, measure between pins 2 and 4 of J9 (JTAG Connector) for 5 Vdc and between pins 6 and 7 of J6 (Option Cap) for 8 Vdc.
14. If 5 Vdc is not present on J9 and 8 Vdc is present on J6, replace the upper PCA.
15. If 8 Vdc is not present on J6, temporarily replace the upper PCA to power control module (treadmill's) or Lower PCA (AMT's, EFX's, UBK's, RBK's and CLM's), 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. 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.
19. If none of the keys on the display are functioning, check the stop switch cable connection to the upper PCA. (Treadmill Only).If the stop switch is not connected or the stop switch is not functioning, none of the display keys will operate. This feature insures that the treadmill has a functioning stop switch when it is in use (Treadmill Only).
20. If a particular key is not functioning, perform the keyboard test in **Procedure 5.2.** If the test verifies that the key is not functioning, replace the console face or the machine controls.
21. If the console face or the machine controls 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 5.5.8.**
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 console face.
26. Set the treadmill's on/off switch in the "off" position (Treadmills Only).

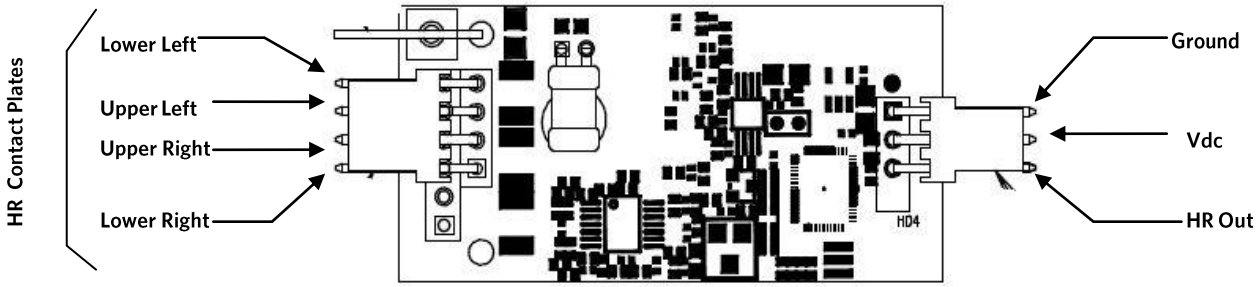
27. Remove the Machine Control cable from the upper PCA.
28. For treadmill's set the on/off switch in the "on" position for AMT's, EFX's, UBK's, RBK's and CLM's start pedaling.
29. If the STUCK KEY message is no longer displayed, replace the machine Controls assembly.
30. If the STUCK KEY is still being 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 - I

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 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 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.

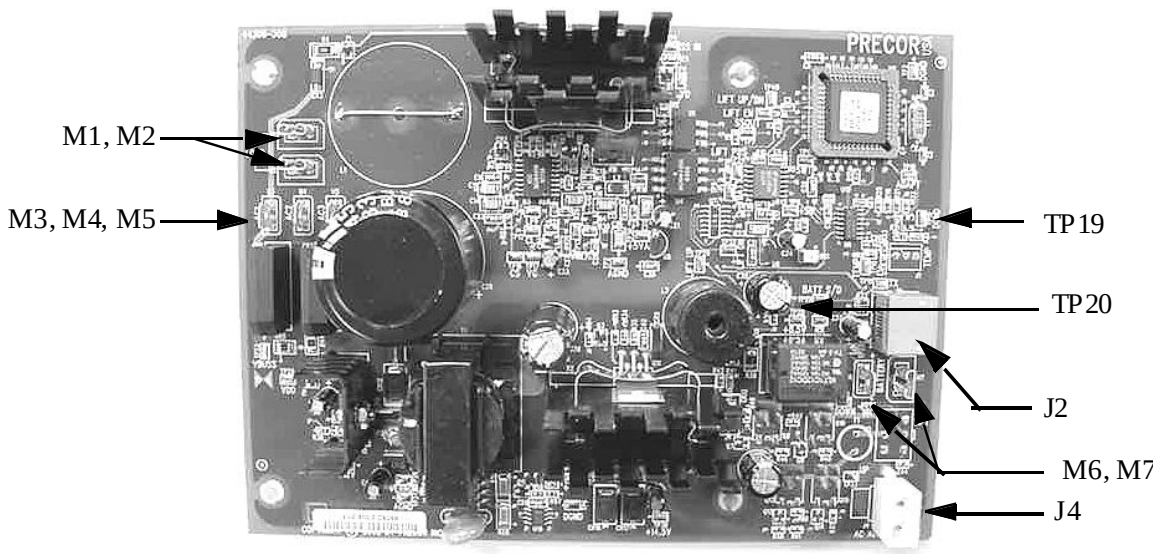
Verify that a ferrite core is clamped around the heart rate PCA to upper PCA cable. Constant or intermittent heart rate readings when neither heart rate system is in use is caused by something in the near vicinity radiating RF energy that is being received by the chest strap portion of the heart rate 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.

Procedure 5.13 - Display does not Illuminate

Note:
In order to conserve battery power when the cycle is not in use, a time out feature is incorporated in the cycles software. If the cycle is not used (motion not detected by the speed sensor), when in the program mode, approximately 15 seconds later, the cycle will "power down" The bike will "power up" again when pedaling is resumed (motion detected by the speed sensor). In order to measure voltages in the unit it is necessary to keep the unit powered up. This can be accomplished either by pedaling on the unit or by installing the optional external power adapter.

1. Attach the anti-static wrist strap to your arm, and then connect the ground wire of the wrist strap to the units frame.
2. Pedal on the cycle for a minimum of 5 seconds. The system monitors one of the three phase generator windings for AC zero cross. The monitoring system notes every time the generator AC voltage passes through zero volts. By counting the zero cross rate, the system knows how fast the generator is turning. The system calculates the user RPM from the generator speed. If the system does not see a zero cross rate, it assumes the bike is not being used and the display will not illuminate when the bike is pedaled.
3. Disconnect the generator leads from terminals M3 (red) and M4 (black) on the lower PCA. Connect and AC voltmeter to the leads removed from terminals M3 and M4. Pedal the bike at about 60 RPM (1 rotation per second), the voltmeter should read approximately 120 Vac. If the voltage reading is absent or extremely low, replace the generator.
4. If the voltage reading in step 3 was normal, replace the lower PCA. If the lower PCA did not correct the problem, continue with step 5.
5. With the unit powered up, measure between test point 19 and test point 20 for approximately 8.5 Vdc. See Diagram 6.1. If the measurement is correct, skip to step 7.

Diagram 5.14.1 - Lower PCA,



6. If the measurement in step 3 is significantly low or high, disconnect the interconnect cable from the J2 connector and repeat the measurement in step 4.
7. If the measurement in step 6 is still significantly low or high, replace the lower PCA. If replacing the lower PCA does correct the problem, skip to step 9.
8. Remove the upper display panel and disconnect the interconnect cable from the upper PCA. With the unit powered up, check the voltage between the outer two pins of the interconnect cable for DC volts. It should read approximately 8.5 Vdc. If the voltage is absent or significantly low, troubleshoot the interconnect cable.
9. If the voltage measurement in step 4 is correct, replace the upper PCA.
10. If you have performed all of the previous tests and have not been able to locate the trouble, call Precor customer support.

Section Six – P20 Console

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
    - Power Bits Test
    - Brake Test
    - RPM Test
    - Battery Test

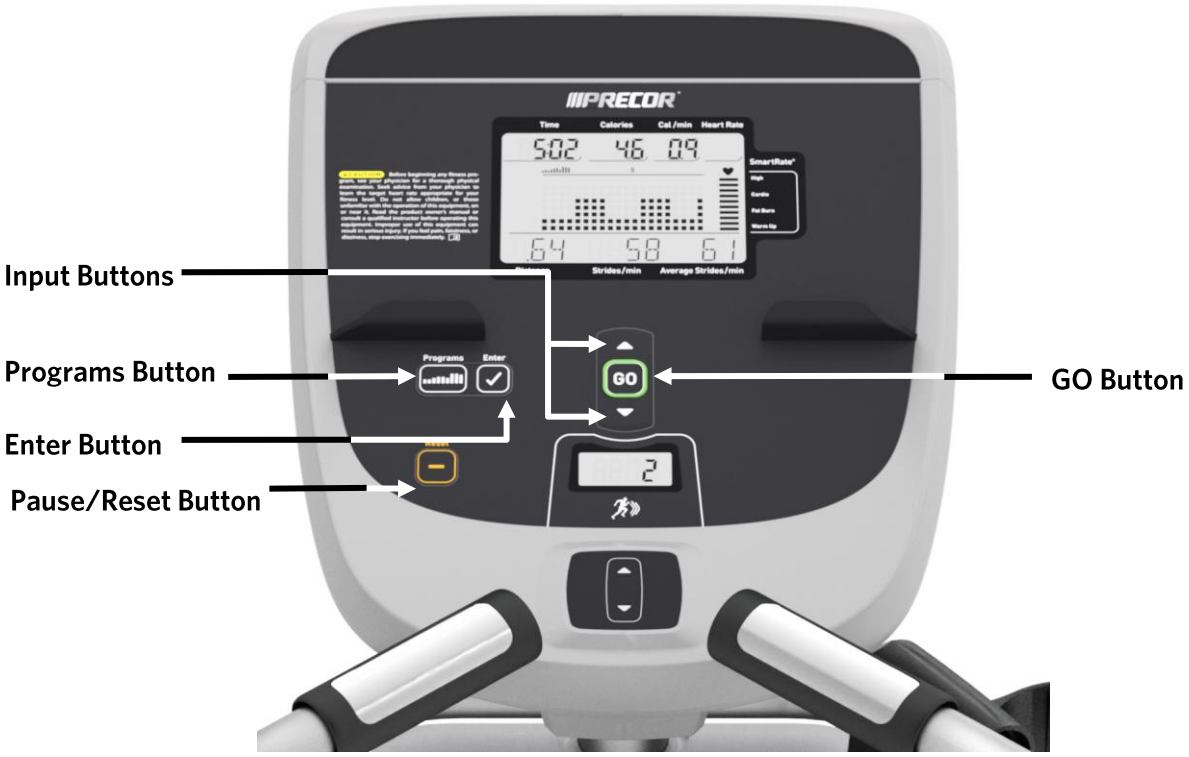
Procedure:

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

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



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 **RESET/PUASE** 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 brake test or the PWRB test. Press the **INPUT DOWN▼**, key once to access the belt PWRB test or twice to access the BRAKE test.

19. **BRAKE TEST**. Press the **GO** key, the console will display the power bits (PWRB).

20. Press the ▼ key, the console will display **BRAKE.**

21. Press the **PROGRAMS** key to exit the **BRAKE** test. Press the **INPUT DOWN▼**, RPM will be displayed.

22. Press the **GO** key, **PULSE** will be displayed with the current speed pulse count.

23. Press the **PROGRAMS** key to exit the **PULSE** test. Press the **INPUT DOWN▼**, BATTERY will be displayed.

24. Press the **GO** key, the battery voltage will be displayed as **XX.X VDC**.
25. Press the **PROGRAMS** key to exit the BATTERY test.
26. Press the **PAUSE/RESET** key to exit the hardware validation test.

Procedure 6.2 – P20 – Displaying Information

The information display 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. (Treadmill only)

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:

- Safety Code
- Select Language
- Select Units
- Set Default Workout Time
- Set Max Workout Time
- Set Max Pause Time
- Set Cool Down Time

Procedure

29. Plug the power cord into the wall outlet, and then turn on the treadmill with the circuit breaker.
30. To access this menu from Banner state follow this sequence**: PAUSE/RESET, ENTER, INPUT UP▲, ENTER, PROGRAMS, ENTER, INPUT UP▲**, and **ENTER** keys, sequentially.
31. 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.
32. 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.
33. 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.
34. Press the **PROGRAMS** key to exit the safety code display.
35. Press **INPUT DOWN▼, SELECT LANGUAGE** will be displayed. Press the **GO** key.
36. Use the **INPUT UP▲** and **INPUT DOWN▼** keys to toggle between the available languages.
37. Press the **PROGRAMS** key to exit the select language display.
38. Press **INPUT DOWN▼, SELECT UNITS** will be displayed. Press the **GO** key.
39. Use the **INPUT UP▲** and **INPUT DOWN▼** keys to toggle between **U.S** (miles per hour) and **METRIC** (kilometers per hour).
40. Press the **PROGRAMS** key to exit the set units display.
41. Press **INPUT DOWN▼, SET DEFAULT WORKOUT TIME** will be displayed. Press the **GO** key.
42. Use **INPUT UP▲** or **INPUT DOWN▼** key to toggle between ON and OFF. Press **ENTER** key to select.

43. 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

    .
44. Press the **PROGRAMS** key to exit the set default workout time display.
45. Press **INPUT DOWN▼, SET MAX WORKOUT TIME** will be displayed. Press the **GO** key.
46. Use the **INPUT UP▲** or **INPUT DOWN▼** keys to select the maximum time a user can remain in a program.
47. Press the **PROGRAMS** key to exit the set max. workout time display.
48. Press **INPUT DOWN▼, SET MAX PAUSE TIME** will be displayed. Press the **GO** key.
49. Use the ▲,▼ keys to select the maximum time a program will remain in the pause mode.
50. Press the **BACK** key to exit the set max. pause time display.
51. Press **INPUT DOWN▼, SET COOL DOWN TIME** will be displayed. Press the **OK** key.
52. Use the **INPUT UP▲** or **INPUT DOWN▼** keys to select the cool down time. Press the **OK** key.
53. Press the **PROGRAMS** key to exit the set cool down time display.
54. 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.

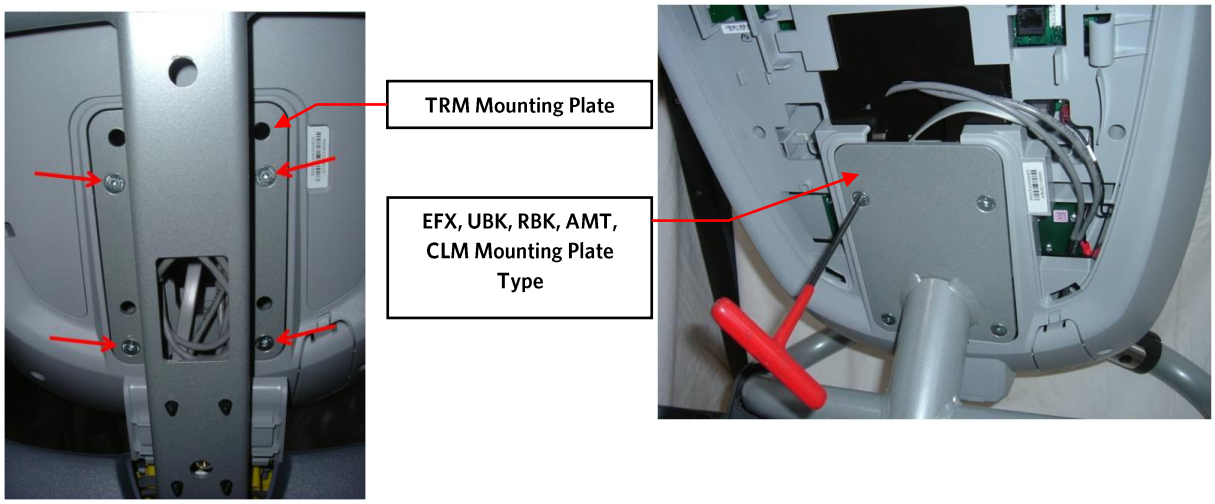
Procedure 6.5 – P20 – Replacing Upper PCA

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

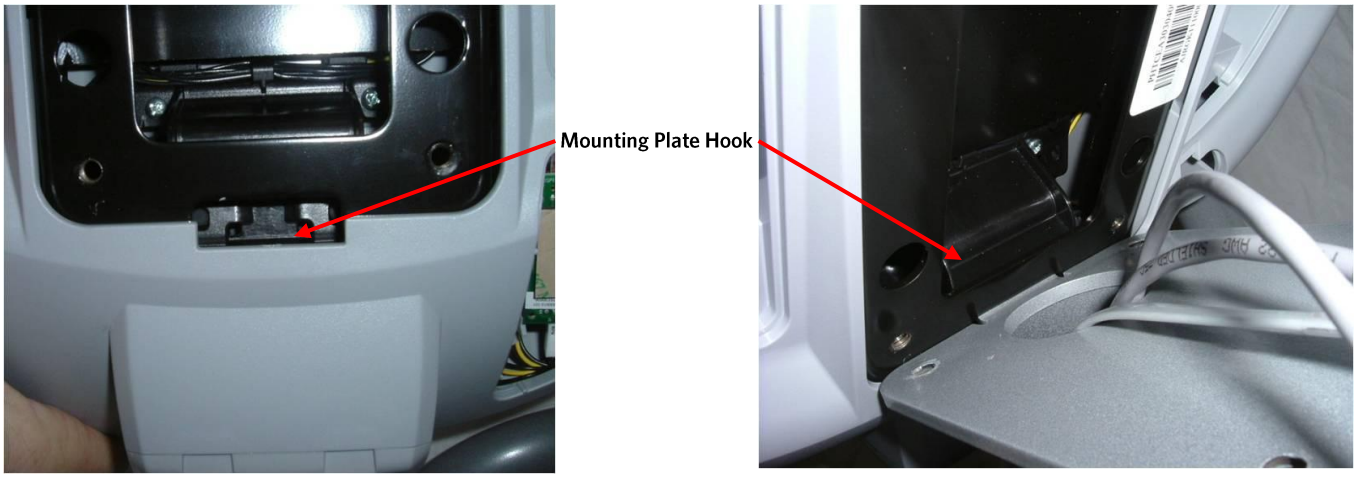


5. Remove the two screws that fasten the access panel to the console. **See Diagram 6.5.3**

Diagram 6.5.3 – Console Access Panel

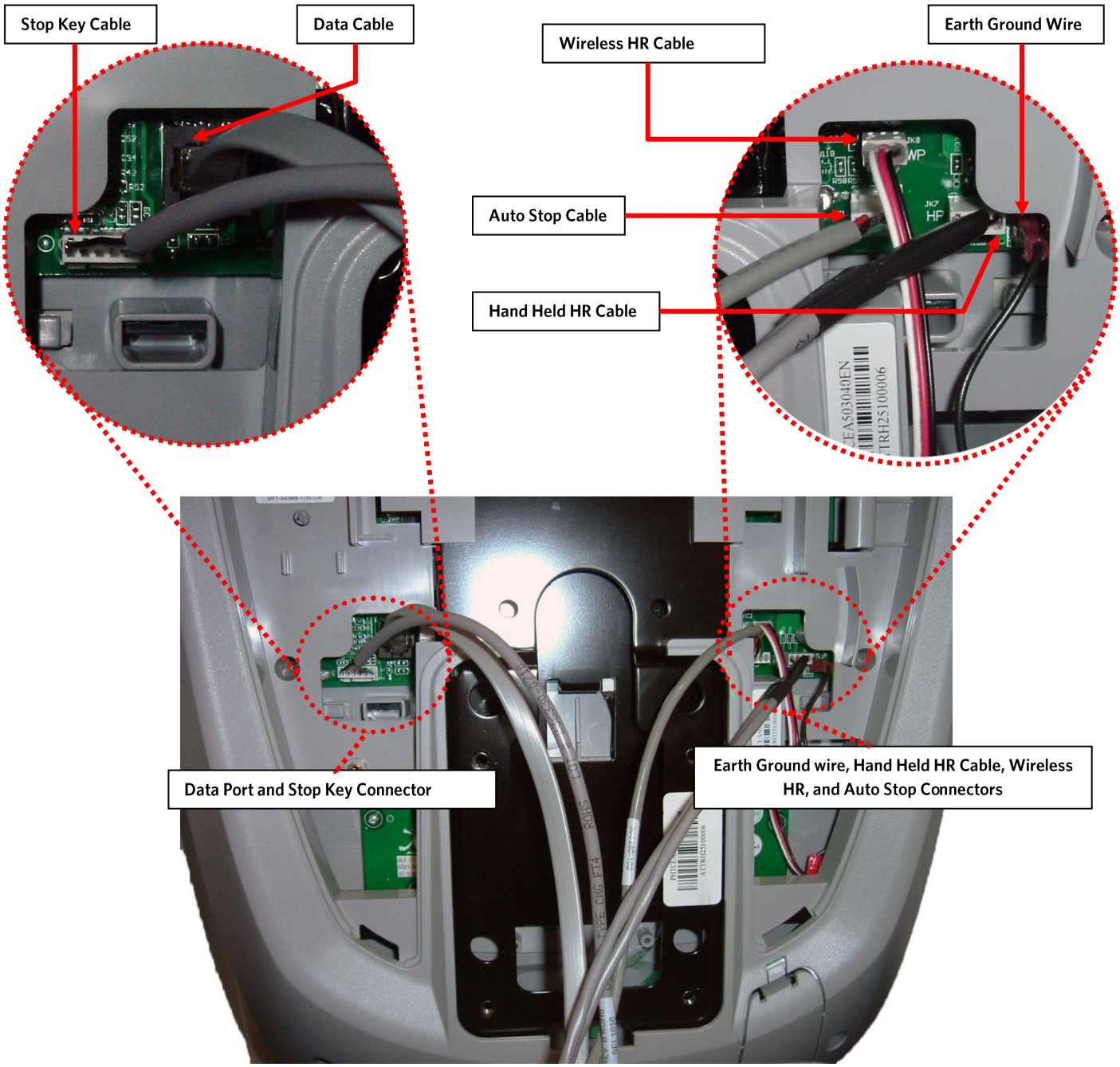
6. Remove access panel:
    a. Treadmills: Lift the console off the maintenance and then position the console so that the back panel is accessible and remove the back cover.
    b. AMT's, EFX's, CLM's, UBK's, and RBK's: Tilt the console forward on the maintenance access hook on the dash weldment and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

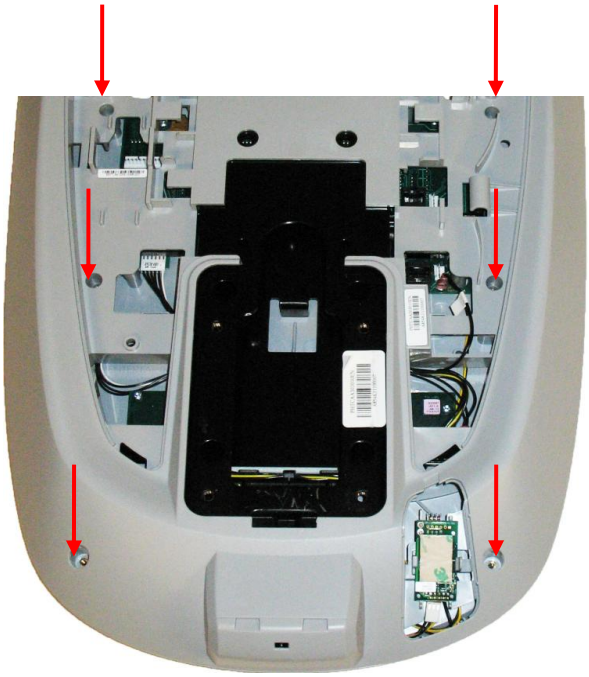


8. Remove the two screws that fasten the back cover to the option cap and remove the cover. **See Diagram 6.5.6**

Diagram 6.5.6 – Option Cap Back Cover

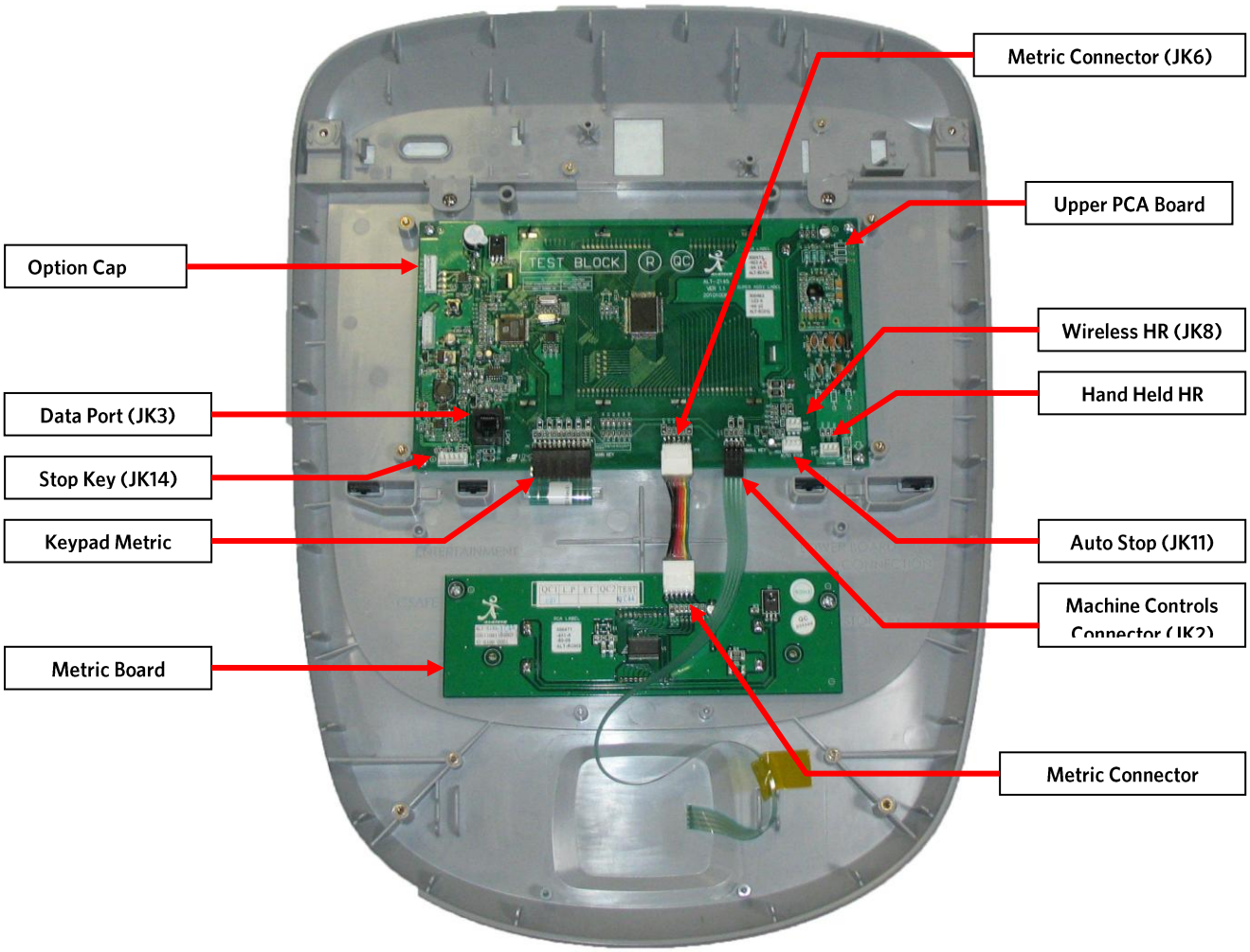
9. Remove the 6 screws that fasten the rear cover from the console and remove. **See Diagram 6.5.7.**

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



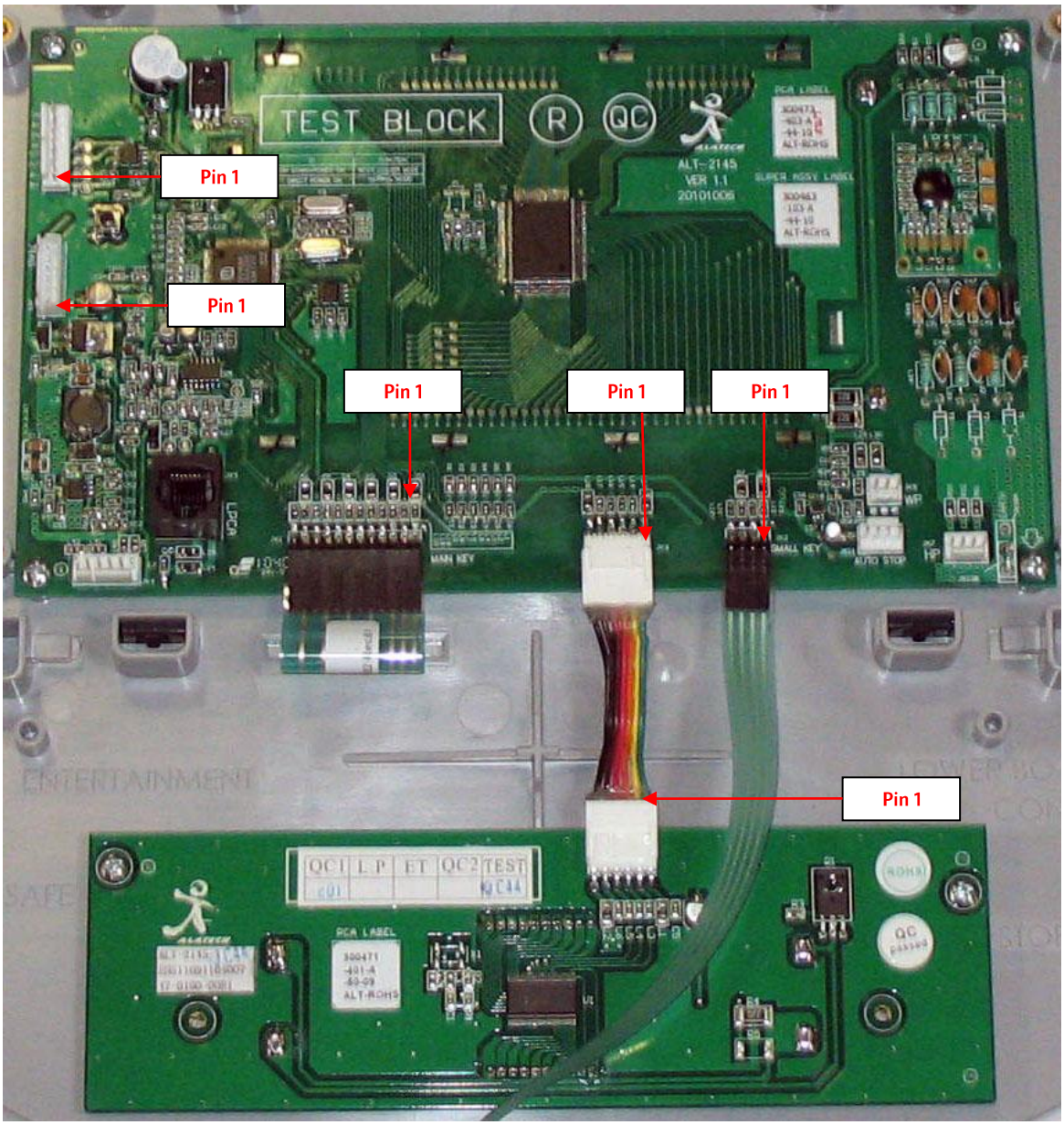
12. Install the replacement upper PCA into the console using the four screws removed in step 12. Torque to 10 inch pounds.

    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.

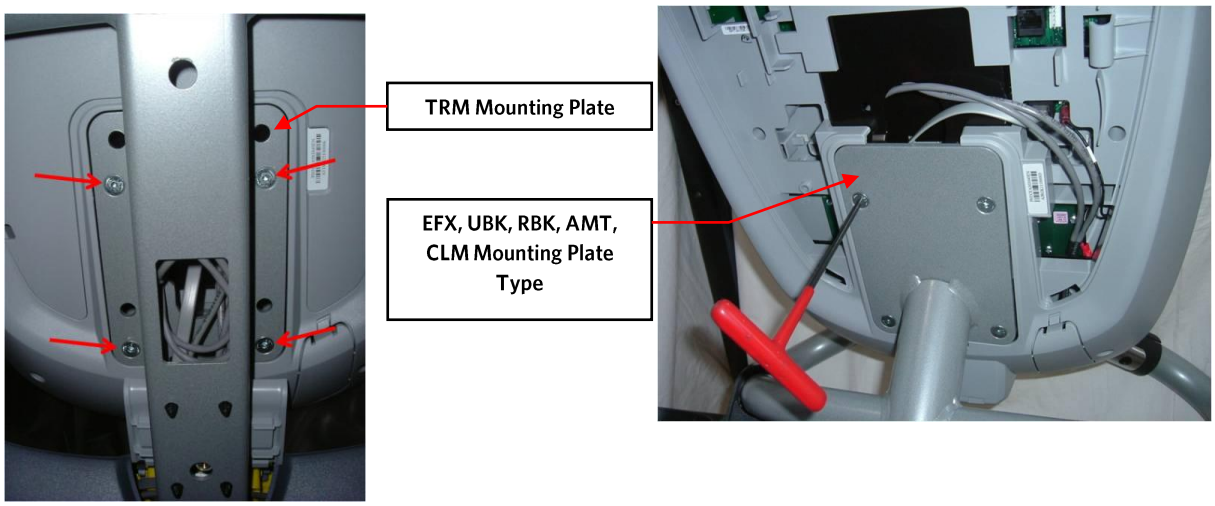
    Note: Do not use an electric screw driver or over tighten the screws. Over tightening may damage the console. This type of damage is not covered under warranty.
17. Place the P20 console on the maintenance access hook.
18. Reconnect the Data cable, Auto Stop cable (Treadmill only), Stop Key cable (Treadmill 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

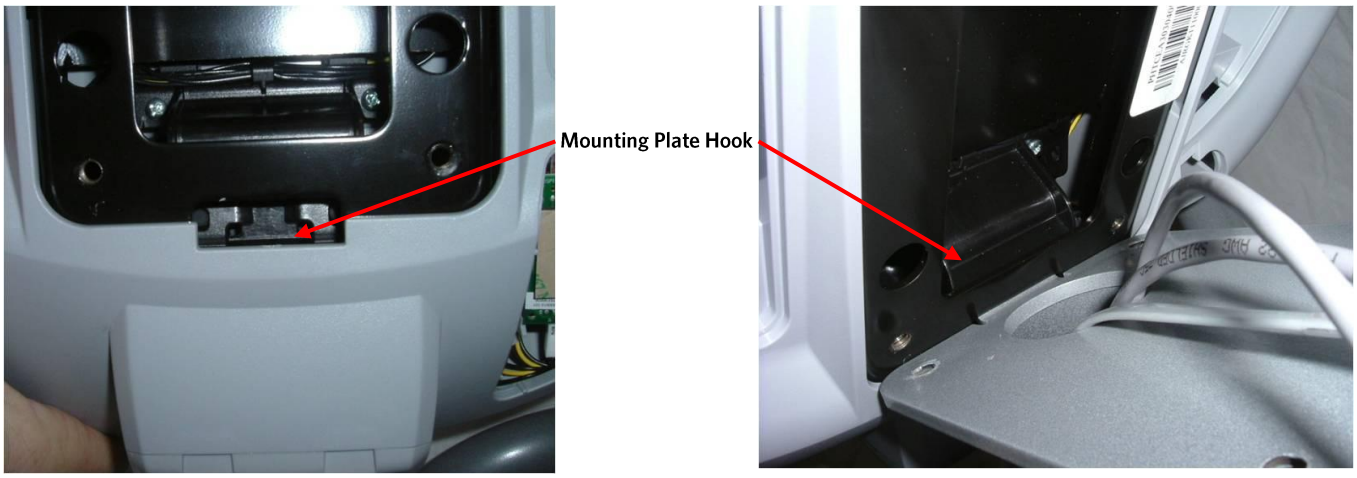


6. Remove the two screws that fasten the access panel to the console. **See Diagram 6.6.3**

Diagram 6.6.3 – Console Access Panel

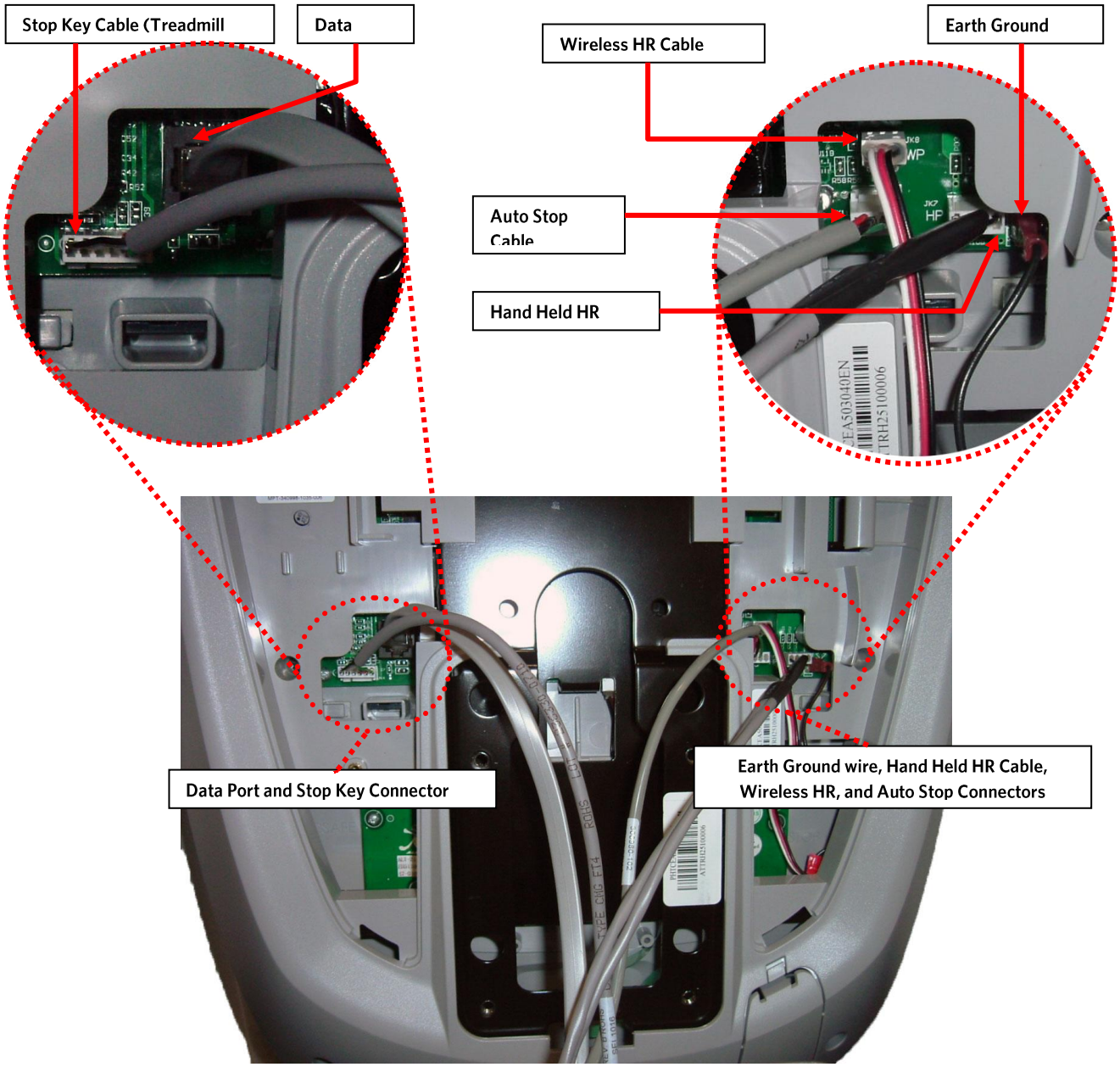
7. Remove Access panel:
    a. Treadmills: Lift the console off the maintenance hook and then position the console so that the back panel is accessible and remove the back cover.
    b. AMT's, EFX's, CLM's, UBK's, and RBK's: Tilt the console forward on the maintenance access hook on the dash weldment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

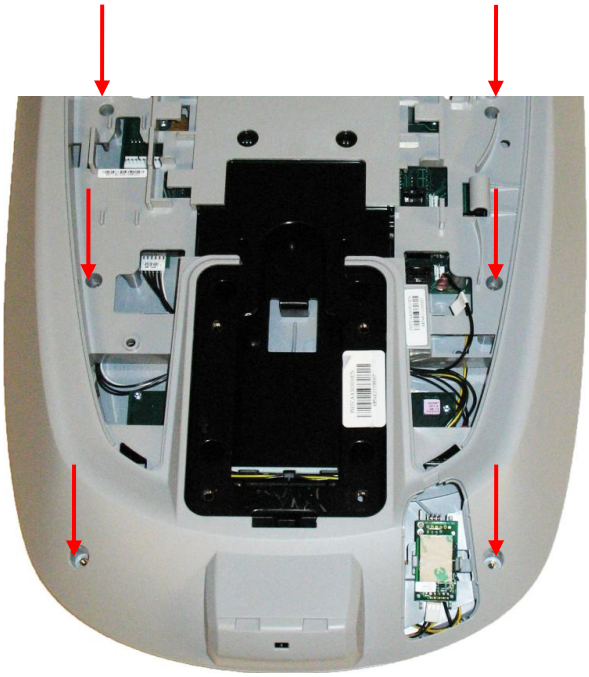


9. Remove the two screws that fasten the back cover to the option cap and remove the cover. **See Diagram 6.6.6**

Diagram 6.6.6 – Option Cap Back Cover

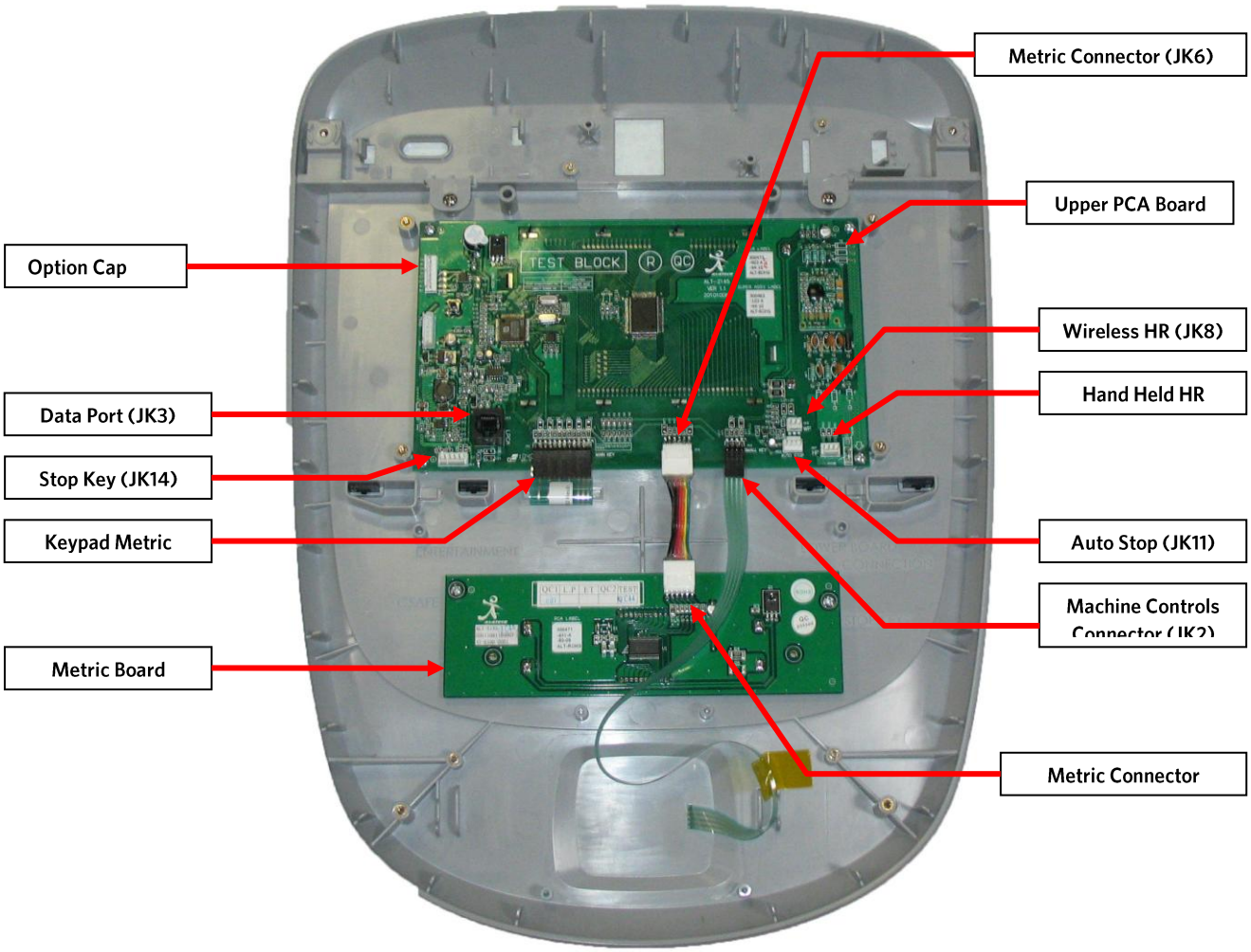
10. Remove the 6 screws that fasten the rear cover from the console and remove. **See Diagram 6.6.7.**

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



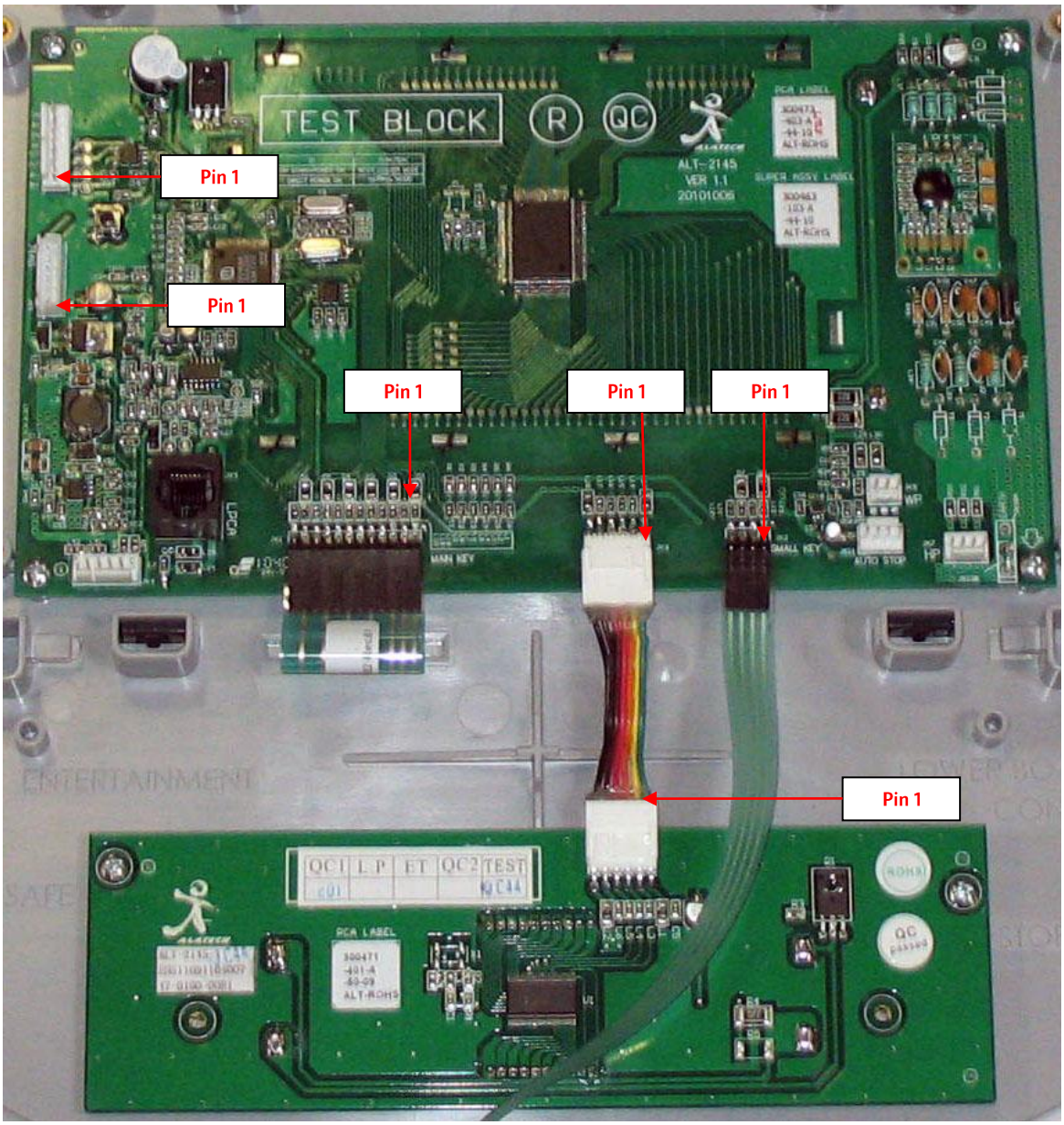
13. Install the replacement Metric PCA board into the console using the four screws removed in step 12. Torque to 10 inch pounds.

    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**
24. 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. 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.
3. Remove the HR PCA access panel on the back of the console. **See Diagram 6.7.1**
4. Disconnect the Wireless HR cable from the Upper PCA. **See Diagram 6.7.2.**
5. The HR PCA snaps into its mounting. Press its tabs downward and remove the Wireless HR PCA from its mounting.
6. Snap the Wireless HR PCA into its mounting.
7. Connect the Wireless HR cable to the upper PCA. **See Diagram 6.7.2**.
8. Replace the HR PCA access panel removed in step 3.
9. Check operation per Section 7

Diagram 6.7.1

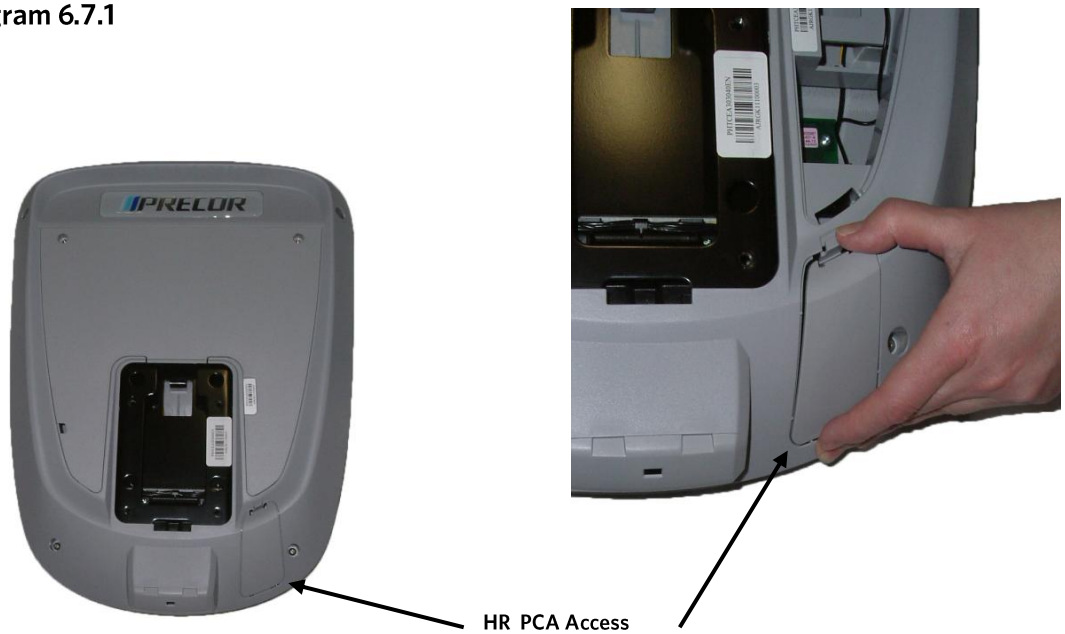
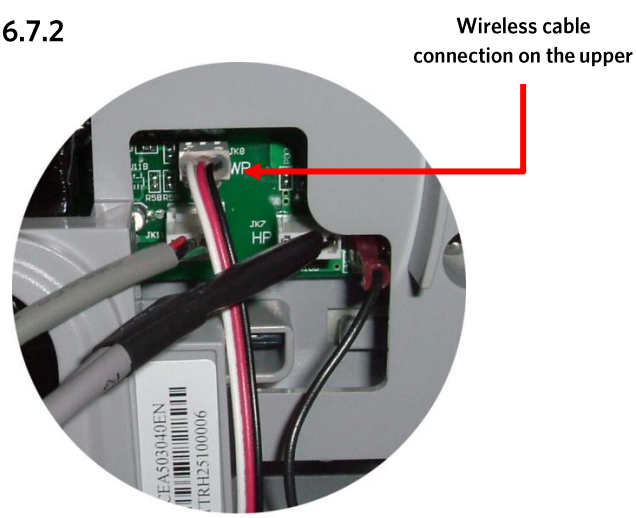


Diagram 6.7.2



Procedure 6.8 – Future Content

Procedure 6.9 – Future Content

Procedure 6.10 – Future Content

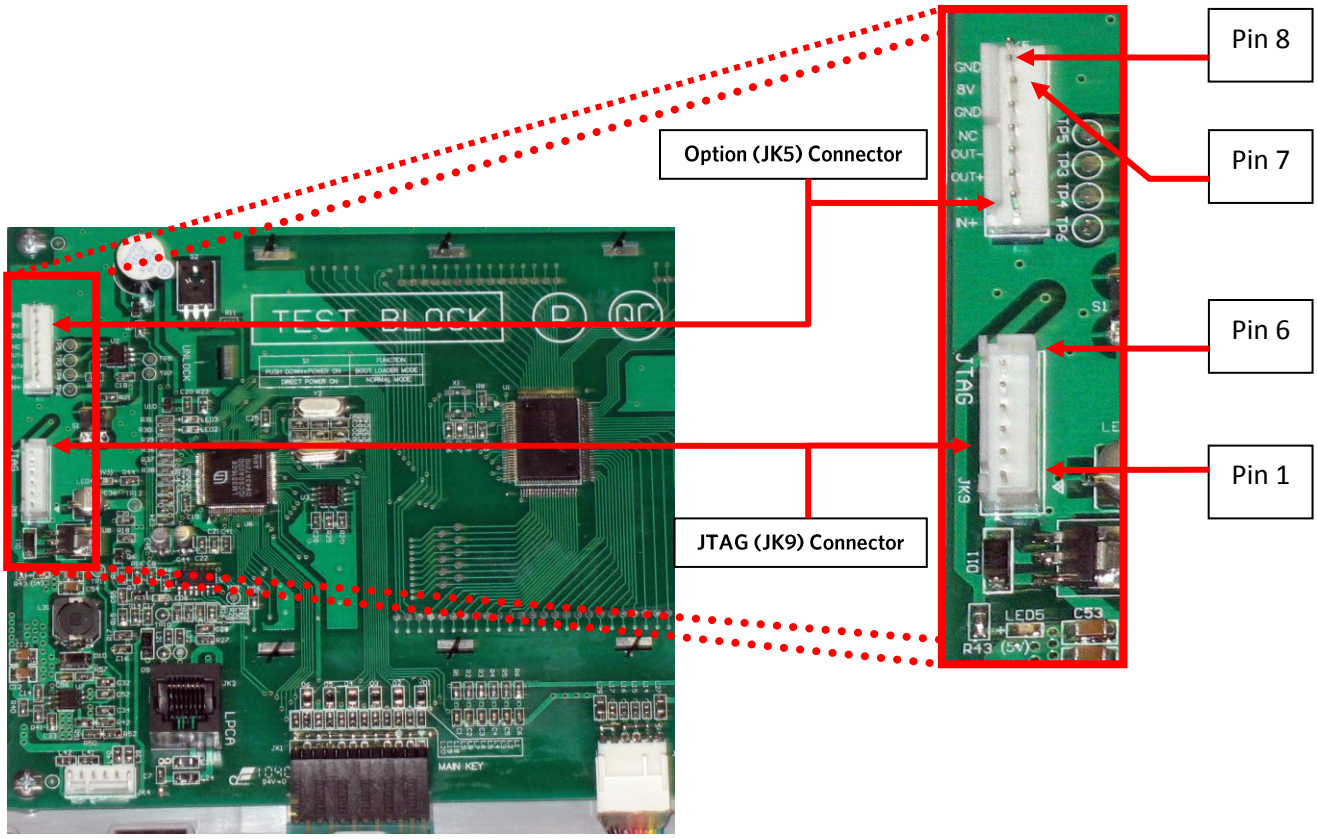
Troubleshooting 6.11 – P20 – Troubleshooting the Keypad and the Upper PCA

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**.

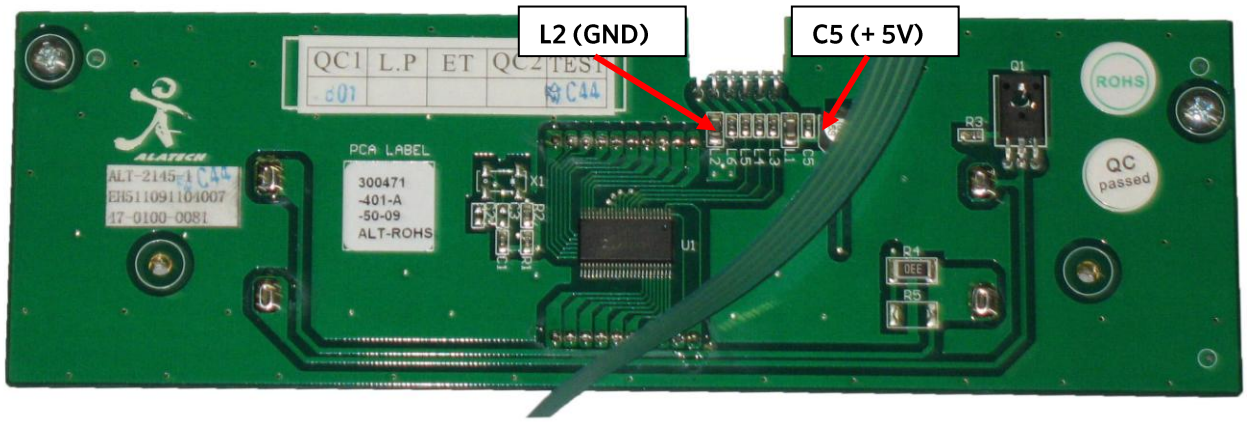
1. Set the treadmill's on/off switch in the "off" position (Treadmill Only). Access the upper electronics and machine controls per Procedure 6.5, steps 1 through 11. Place the console on the maintenance mounting hook and reconnect all cables.
2. If the message STUCK KEY is when the unit is turned on 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.

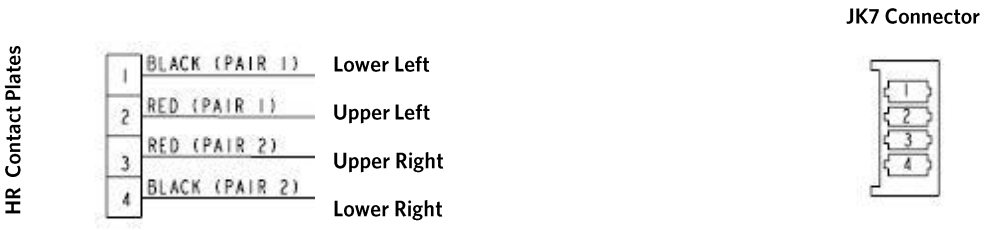
18. Set the treadmill's on/off switch in the "on" position. (Treadmill Only)
19. If none of the keys on the display are functioning, check the stop switch cable connection to the upper PCA (Treadmill's only). If the stop switch is not connected or the stop switch is not functioning, none of the display keys will operate. This feature insures 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 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

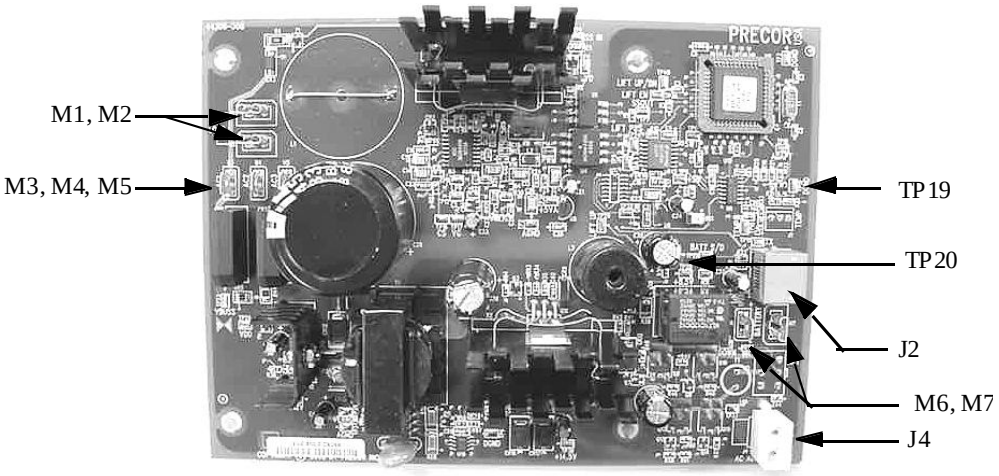
10. Access the diagnostic program (Procedure 6.1). Advance to the heart rate display portion of the diagnostic program. Verify that neither a chest strap signal or a hand held signal is being accepted with either a heart rate test transmitter or a chest strap transmitter.
11. Check the plug/connector 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.

Troubleshooting 6.13 - Display does not Illuminate

Note:
In order to conserve battery power when the cycle is not in use, a time out feature is incorporated in the cycles software. If the cycle is not used (motion not detected by the speed sensor), when in the program mode, approximately 15 seconds later, the cycle will "power down" The bike will "power up" again when pedaling is resumed (motion detected by the speed sensor). In order to measure voltages in the unit it is necessary to keep the unit powered up. This can be accomplished either by pedaling on the unit or by installing the optional external power adapter.

1. Attach the anti-static wrist strap to your arm, and then connect the ground wire of the wrist strap to the units frame.
2. Pedal on the cycle for a minimum of 5 seconds. The system monitors one of the three phase generator windings for AC zero cross. The monitoring system notes every time the generator AC voltage passes through zero volts. By counting the zero cross rate, the system knows how fast the generator is turning. The system calculates the user RPM from the generator speed. If the system does not see a zero cross rate, it assumes the bike is not being used and the display will not illuminate when the bike is pedaled.
3. Disconnect the generator leads from terminals M3 (red) and M4 (black) on the lower PCA. Connect and AC voltmeter to the leads removed from terminals M3 and M4. Pedal the bike at about 60 RPM (1 rotation per second), the voltmeter should read approximately 120 Vac. If the voltage reading is absent or extremely low, replace the generator.
4. If the voltage reading in step 3 was normal, replace the lower PCA. If the lower PCA did not correct the problem, continue with step 5.
5. With the unit powered up, measure between test point 19 and test point 20 for approximately 8.5 Vdc. See Diagram 6.14.1. If the measurement is correct, skip to step 7.

Diagram 6.14.1 - Lower PCA,



6. If the measurement in step 3 is significantly low or high, disconnect the interconnect cable from the J2 connector and repeat the measurement in step 4.
7. If the measurement in step 6 is still significantly low or high, replace the lower PCA. If replacing the lower PCA does correct the problem, skip to step 9.
8. Remove the upper display panel and disconnect the interconnect cable from the upper PCA. With the unit powered up, check the voltage between the outer two pins of the interconnect cable for DC volts. It should read approximately 8.5 Vdc. If the voltage is absent or significantly low, troubleshoot the interconnect cable.
9. If the voltage measurement in step 4 is correct, replace the upper PCA.
10. If you have performed all of the previous tests and have not been able to locate the trouble, call Precor customer support.

Section Seven – Checking UBK Operation

This section provides you with a quick method of checking operation.

Procedure

1. Start pedaling.
2. With the banner displayed, press **QUICK START**.
3. Select Resistance Level 1 and press **ENTER**.
4. Operate the UBK for 4–5 minutes. As you operate the bike, concentrate on the operating sounds made by the unit. Be on the alert for unusual rubbing, hitting, grinding, or squeaking noises.
5. If the electronic display does not change appropriately, troubleshoot per Procedure 3.11 (P80), 5.11 (P30), 6.11 (P20).
6. Press the **RESISTANCE ▲** key until you reach Resistance Level 10. Operate the UBK for another 2–3 minutes.
7. If the resistance does not change or the operation of the bike feels inconsistent compared with Resistance Level 1, troubleshoot per Procedure 9.1.
8. Press the **RESISTANCE ▲** key until you reach Resistance Level 20. Operate the bike for another 2–3 minutes.
9. If the resistance of the bike does not change or operation feels inconsistent with Resistance Levels 1 and 20, troubleshoot per Procedure 9.1.
10. Check the LED's mounted on the upper PCA and the function keys displayed on the electronic console by performing Procedure 3.1 (P80), 5.1 (P30), 6.1(P20).

Section Eight - Inspection and Adjustment Procedures

Procedure 8.1 - Preventive Maintenance

Preventive maintenance measures are either scheduled or unscheduled. Scheduled preventive maintenance activities are included here so that you are aware of preventive measures performed on a regular basis.

Regular Preventive Maintenance (Owner)

Cleanliness of the cycle and its operating environment will keep maintenance problems and service calls to a minimum. Precor recommends that you perform the following preventive maintenance schedule.

After Each Use

- Turn off and, unplug the power adapter (if equipped) from the bicycle.
- Wipe down the covers, handlebars, seat and pedals with a damp cloth.

Daily Maintenance

Clean the bicycle's frame, covers, seat and pedals using water damped cloth. Wipe the surface of the electronic console with a damp sponge or soft cloth. Dry with a clean towel.

Weekly Maintenance

- Clean underneath the bicycle, following these steps:

1. Turn off the bicycle with the on/off switch, and then unplug it from the power adapter (if equipped).
2. Place the bicycle on its side.

Note:
Place a drop cloth under the bicycle to protect the flooring and to ensure that the cycle handrail is not scratched or damaged.

3. Vacuum the rug or damp mop the floor.
4. Make sure that the floor is dry before returning the bicycle to an upright position.

Quarterly Maintenance

1. Remove the cover.
2. Thoroughly clean inside the bicycle. Use a vacuum cleaner and damp rag to remove all the dust belt particles, etc.
3. Check the belt tension of both belts per Procedures 8.2 and 8.3.
4. Replace both covers.

On-Site Preventive Maintenance (Service Technician)

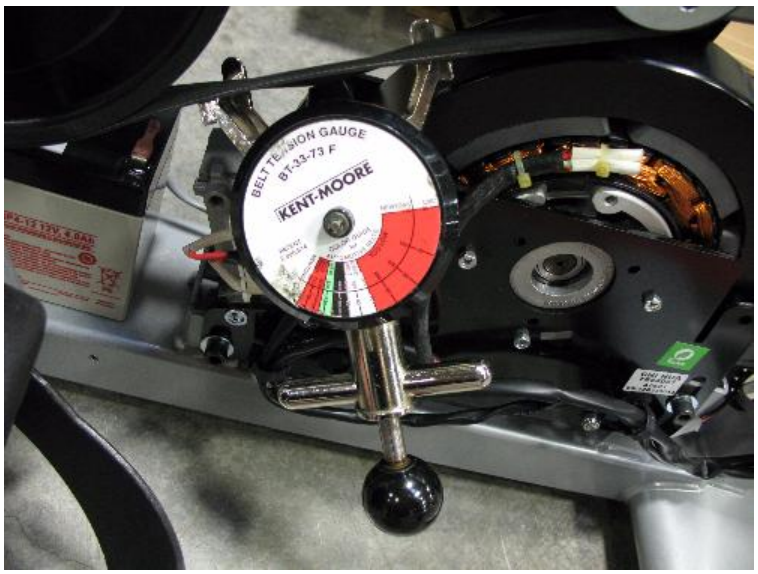
When you are called to service a UBK perform these preventive maintenance activities:

- Perform the software diagnostics. Check LED and keypad function. Record the odometer reading. See Procedure 3.1 (P80), 5.1 (P30), 6.1(P20).
- Visually inspect the drive belts for cracks, fraying or excessive wear.
- Visually examine all wires and check connectors and wire connections. Secure connections and replace wiring as necessary.

Procedure 8.2 - Primary Belt Tension Adjustment

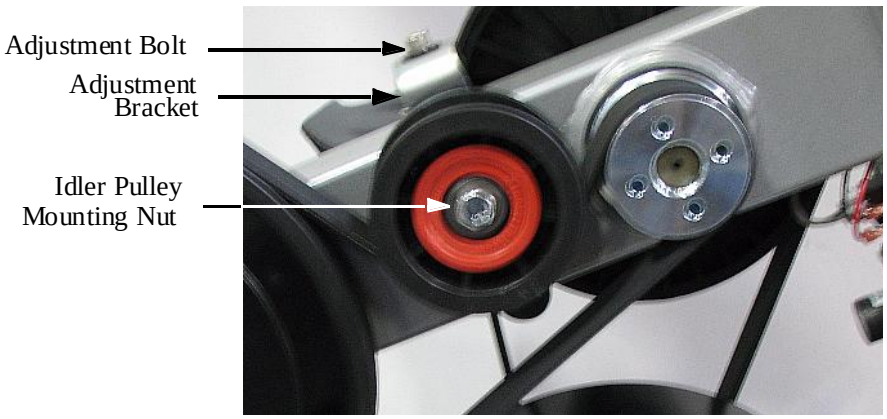
1. Remove the covers per Procedure 7.1
2. Place the belt tension gauge on the primary belt. The belt will twist when the tension gauge is engaged. The belt tensions have been adjusted to accommodate the twisting of the belt. See Diagram 8.2.1.

Diagram 8.2.1 - Primary Belt Tensioning



3. The correct belt tension is 90 pounds ± 5 pounds. If the belt tension range is correct, skip to step 7.
4. If the belt tension is incorrect, slightly loosen the idler pulley mounting nut. The idler pulley mounting nut also fastens the belt adjustment bracket. The belt tension cannot be adjusted if the idler pulley mounting nut is tightened. See Diagram 8.2.2.

Diagram 8.2.2 - Primary Belt Adjustment

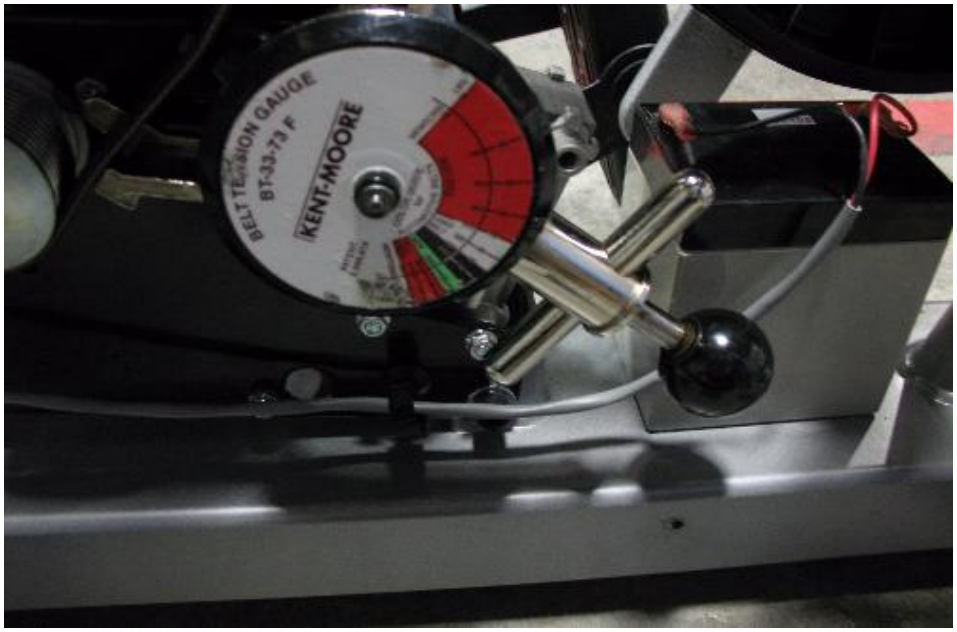


5. Turn the adjustment bolt clockwise or counter clockwise, as required, until the belt gauge is in the range of 90 pounds ± 5 pounds. Torque the idler pulley adjustment nut to 120 inch pounds (10 foot pounds).
6. You may find, depending on how much the idler pulley mounting nut was loosened, that the belt tension increases when the idler pulley mounting nut is tightened. If so, slightly loosen the idler pulley mounting bolt. Then return to step 5 and set the belt tension on the low side, so that the belt tension is correct when the idler pulley mounting bolt is torque to 120 inch pounds.
7. Replace the covers per Procedure 10.1.

Procedure 8.3 - Secondary Belt Tension Adjustment

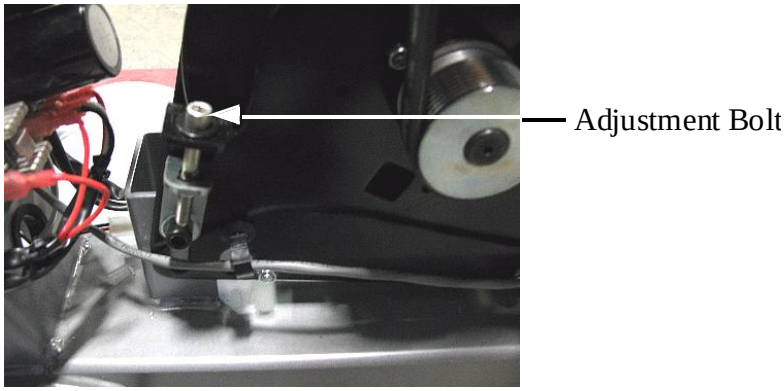
1. Remove the covers per Procedure 10.1.
2. Place the belt tension gauge on the secondary belt. The belt will twist when the tension gauge is engaged. The belt tensions have been adjusted to accommodate the twisting of the belt. See Diagram 8.3.1.

Diagram 8.3.1 - Secondary Belt Tensioning



3. The belt tension should be in the range of 75 pounds ± 5 pounds. If the belt tension is correct, skip to step 6.
4. If the belt tension is incorrect, loosen the 4 bolts that secure generator to the frame, then turn the adjustment bolt clockwise or counterclockwise, as required, until the belt tension is in the range of 75 pounds ± 5 pounds. See Diagram 8.3.2.
5. Tighten the generator bolts to 100 ± 10 inch pounds.

Diagram 8.3.2 - Secondary Belt Adjustment



6. Replace the covers per Procedure 10.1.

Section Nine - UBK - Troubleshooting Procedure

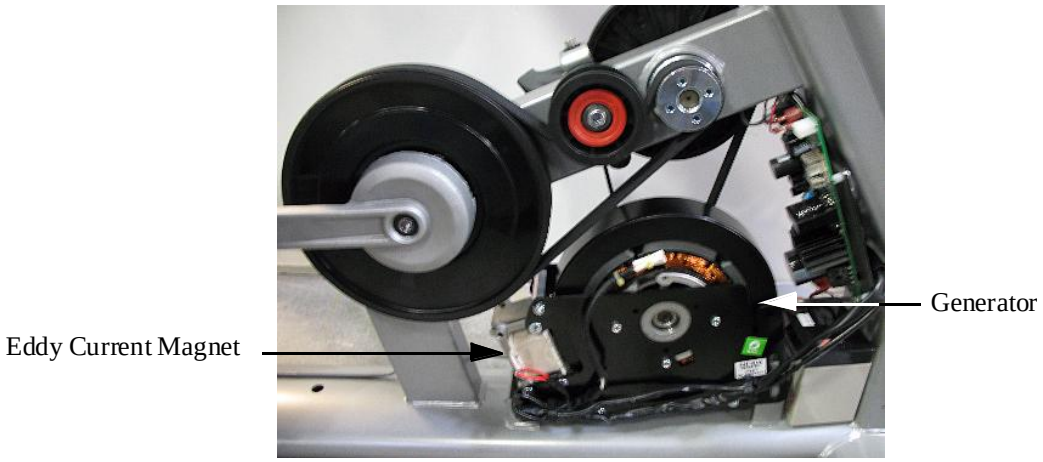
Procedure 9.1 - No or Incorrect Pedaling Resistance

1. If the display is not illuminated, go to Procedure 3.14 (P80), 5.14, P30), 6.14 (P20).
2. Enter the "manual" program and set the work level at "level 20". Pedal the cycle and confirm that there is no resistance or that the resistance is abnormally low.

Note:
The voltage readings in this procedure will vary with the pedaling rate. Pedal the cycle at approximately 60 RPM with the work level set at "10" while taking the voltage readings in this procedure. Resistance readings must be taken with the power off and the cycle idle.

3. Measure the DC voltage at the terminals M1 and M2 of the lower PCA. See Diagram 3.14 .1, (P80), 5.14.1, (P30), 6.1.1 (P20). The voltage reading should be approximately 11 Vdc. If the reading is significantly low, or significantly high, skip to step 5.
4. If the reading in step 3 was correct, the pedaling resistance should be correct, skip back to step 2.
5. Disconnect the eddy current magnet wires from terminals M1 and M2 of the lower PCA. Measure between the eddy current magnet wires with an ohmmeter. It should read approximately 10 W.

Diagram 9.1.1 - Eddy Current Magnet



6. If the measurement in step 5 was significantly high or low, replace the generator. The eddy current magnet is furnished with the generator. After replacing the generator, tension the secondary belt per Procedure 8.3.

7. If the measurement in step 5 was correct, replace the lower PCA.
8. It is highly unlikely that the RPM reading could be present but incorrect. If this condition should occur, replace the lower PCA.

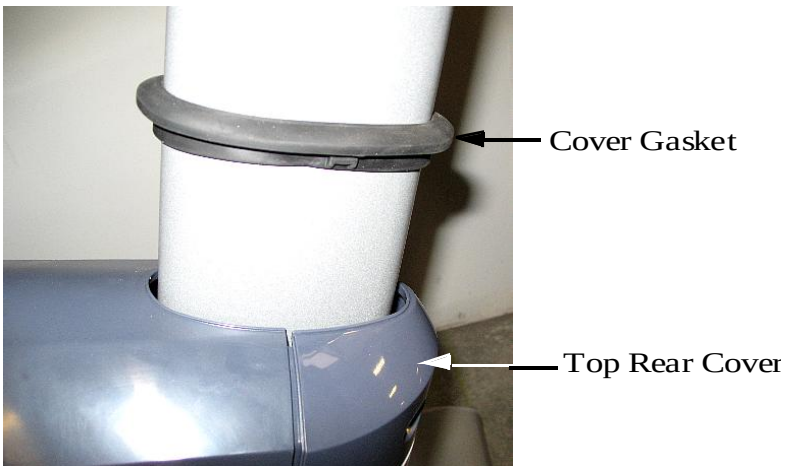
Section Ten - UBK - Replacement Procedures

Procedure 10.1- Replacing a Cover

Cover Removal

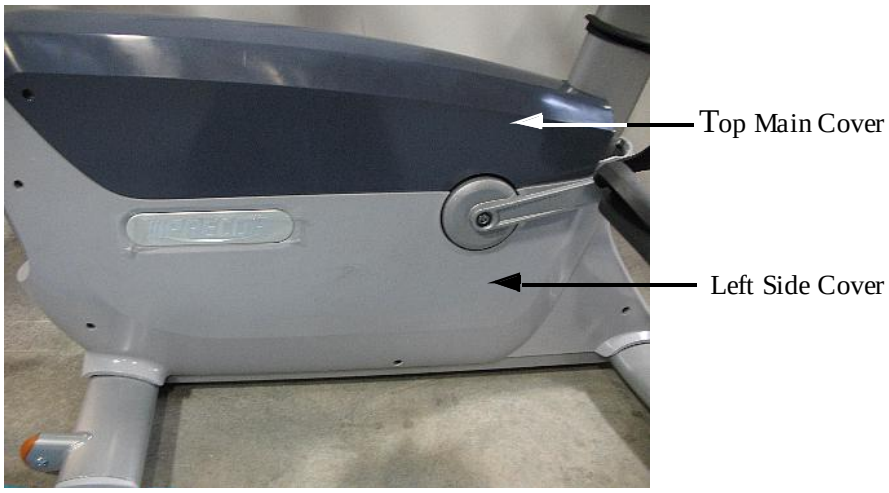
1. Remove the two screws from the rear of the top rear cover. Remove the top rear cover. Slide the cover gasket a short distance up the seat post. See Diagram 10.1.1.

Diagram 10.1.1 - Top Rear Cover



2. Remove two screws (one each side) from the front portion of the top main cover. Remove the top main cover. See Diagram 10.1.2.

Diagram 10.1.2 - Top Main Cover



Remove six screws from the left side cover. Remove the left side cover. Remove five screws from the right side cover. Remove the right side cover. See Diagram 10.1.2.

Cover Replacement

3. Set the right side cover in its mounting position. Fasten with the five screws removed in step 3 above. Torque the cover screws to 20 inch pounds.
4. Slide the assembly containing the CAT5 and coax connectors into the slot in the lower front portion of the right side cover. See Diagram 10.1.3.
5. Note: The battery fits in a pocket in the right and left side covers. Ensure that the battery is fully within the pockets and that the wire harness is routed to the left side. The battery's long axis is from front to rear. If the battery is not correctly oriented the side cover pockets it won't fit correctly and the crankarms may rub the side covers when the bike is used.

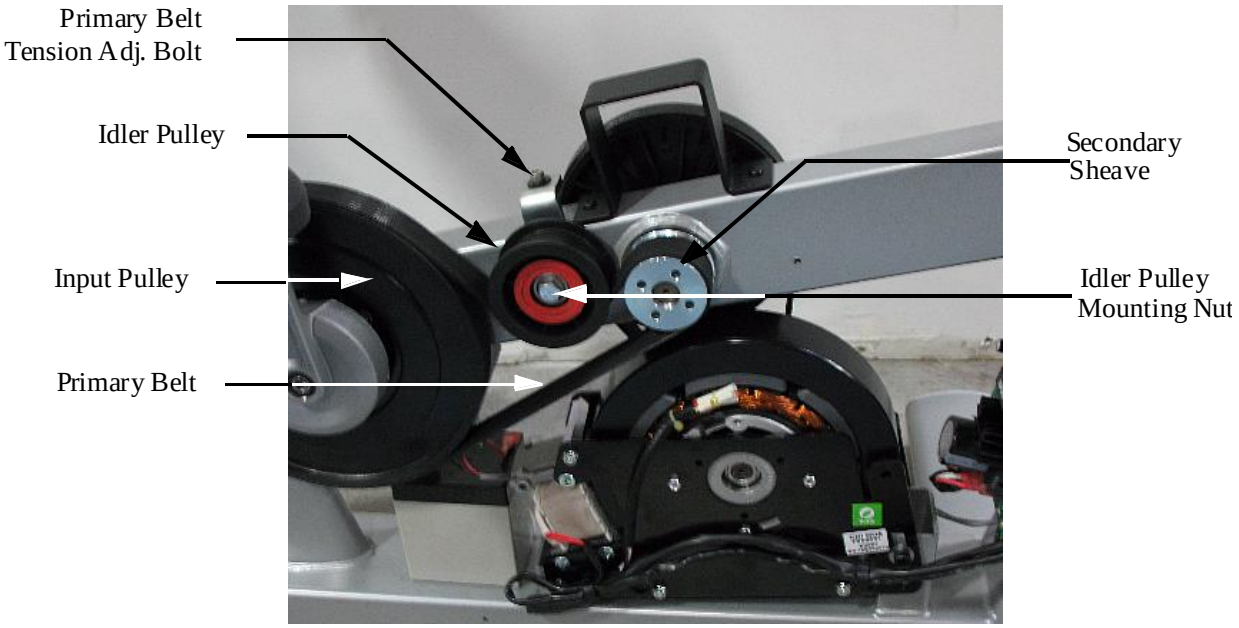
Diagram 10.1.3 - CAT5, Coax Connector Assembly

6. Set the left side cover in its mounting position with the CAT5, coax connector assembly in the slot in the lower front portion of the left side cover and the battery in the cover's battery pocket. Fasten the left side cover with the six screws removed in step 3 above. Torque the cover screws to 20 inch pounds.
7. Set the top main cover in its mounting position. Fasten it with the two screws removed in step 2 above. Torque the cover screws to 20 inch pounds.
8. Slide the cover gasket down into place in the top cover. Set the top rear cover in its mounting position. Fasten it with the two screws removed in step 1 above. Torque the cover screws to 20 inch pounds.

Procedure 10.2 - Replacing a Primary Belt

1. Remove the top, rear, left and right covers per procedure 10.1
2. Loosen but do not remove the idler pulley mounting nut.
3. Loosen the primary belt tension adjustment bolt to remove tension from the primary belt. See Diagram 10.2.1.
4. Remove and discard the primary belt.

Diagram 10.2.1 - Primary Belt

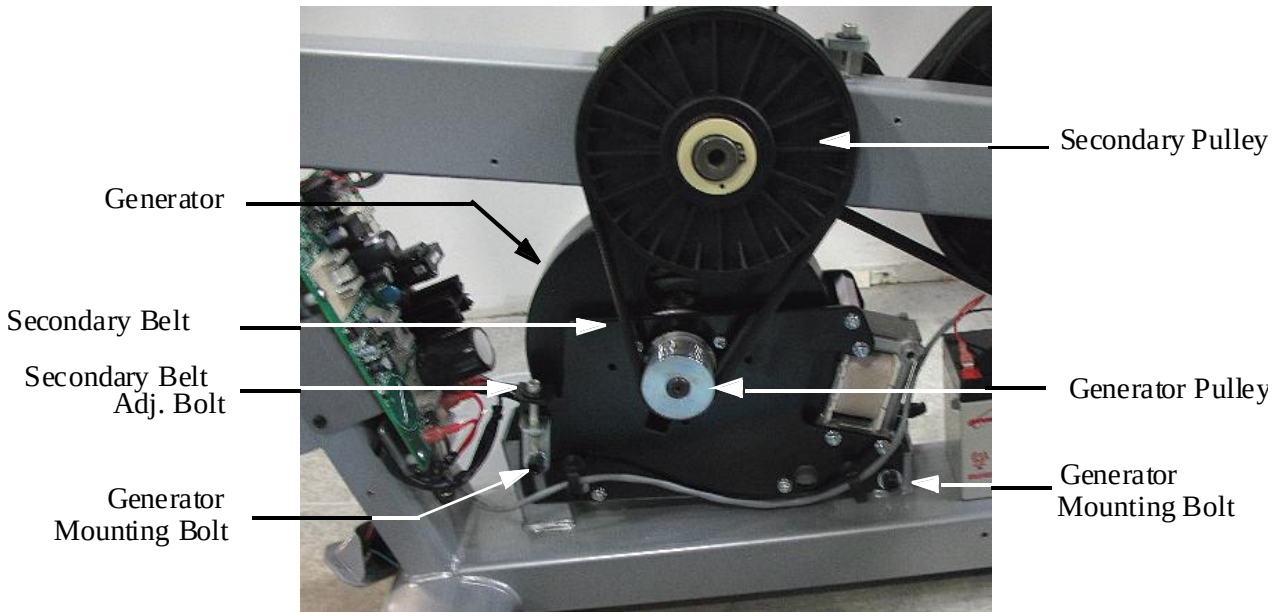


5. Place the replacement primary belt in its mounting position around the input pulley, under the idler pulley and around the secondary sheave.
6. Tension the primary belt per Procedure 8.2. When the belt tension is correct, torque the idler pulley mounting nut to 120 inch pounds (10 foot pounds).
7. Replace the covers per procedure 10.1.

Procedure 10.3 - Replacing a Secondary Belt

1. Remove the top, rear, left and right covers per procedure 10.1.
2. Loosen but do not remove the four generator mounting bolts.
3. Remove tension from the secondary belt by loosening the secondary belt adjustment bolt mounted on the generator. See Diagram 10.3.1.

Diagram 10.3.1 - Secondary Belt



4. Lift the generator, it will pivot on the rear mounting bolts, to remove the generator's weight from the secondary belt then remove and discard the secondary belt.
5. Lift the generator and place the replacement secondary belt in its mounting position around the generator and secondary pulleys.
6. Tension the secondary belt per Procedure 8.3.
7. Torque the four generator mounting bolts to 100 inch pounds. Recheck the belt tension, if it is no longer correct, slightly loosen the four generator mounting bolts and return to step 6.
8. Replace the covers per Procedure 10.1.

Procedure 10.4 - Replacing a Crankarm

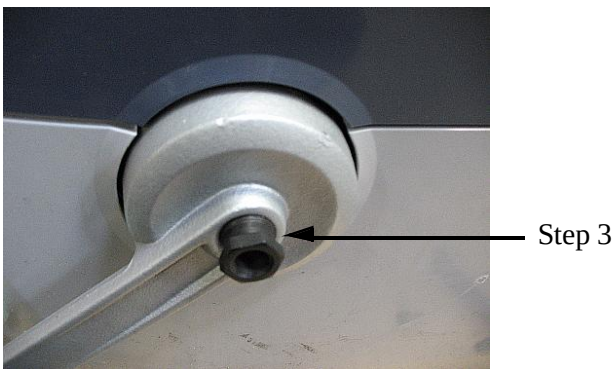
1. Using a 15mm open end wrench, remove the pedal from the crankarm being replaced.
2. A Park Tool CCP-22 crankarm puller will be used to remove the crankarms.

Diagram 10.4.1 - Park Tool CCP-22 Crankarm Puller

3. Using an 8mm allen wrench, remove the crankarm mounting bolt.
4. Remove the nut from the crankarm puller. Thread the nut fully into the crankarm, until the bottoms out. See Diagram 7.7.
5. Note: If the nut is not fully threaded into the crankarms, the crankarm's threads may be destroyed when the crankarm is removed.

6. Thread the crankarm puller into the nut removed from the crankarm puller. See Diagram 10.4.2. When the crankarm puller tightens in the crankarm, continue rotating the crankarm tool clockwise until the crankarm is removed.

Diagram 10.4.2 - Crankarm with Crankarm Puller

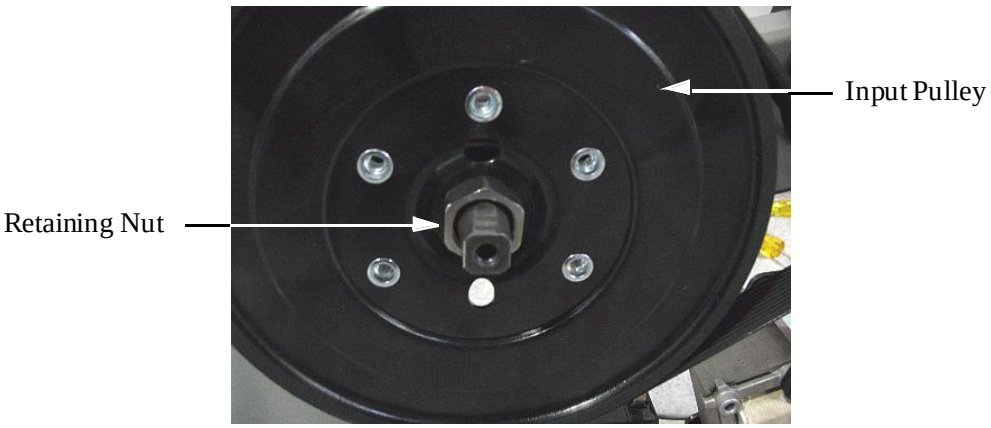


7. The right hand crankarm has a pin on the rear that fits into the input pulley. The left hand crankarm does not have a pin on the rear.
8. Set the replacement crankarm in its mounting position, ensuring that the pin (right hand crankarm only) on the crankarm is inserted in its mating hole in the input pulley.
9. Thread the crankarm mounting bolt, removed in step 2 into the crankarm until it is finger tight. Torque the crankarm bolt to 360 inch pounds (30 foot pounds).
10. The right hand pedal threads onto the crankarm in a normal (clockwise) direction, the left hand crankarm is reverse (counter-clockwise) threaded.
11. Install the pedal, removed in step 1, on the replacement crankarm and torque it to 800 inch pounds (67 foot pounds).
12. Pedal the bike for 1 minute and then re-torque left and right crankarms to the specification indicated in steps 8 and 9.

Procedure 10.5 - Replacing the Input Pulley

1. Remove the top, rear, left and right covers per procedure 10.1.
2. Remove the right crankarm per Procedure 10.4.
3. Loosen, but do not remove the idler pulley mounting nut.
4. Remove tension from the primary belt by turning the primary belt tension adjustment bolt counter-clockwise. See Diagram 10.2.1.
5. Remove the primary belt.
6. Remove the retaining nut from the center of the input pulley while holding the opposite end of the input axle with an open end wrench, turning clockwise. See Diagram 10.5.1.

Diagram 10.5.1 - Input Pulley

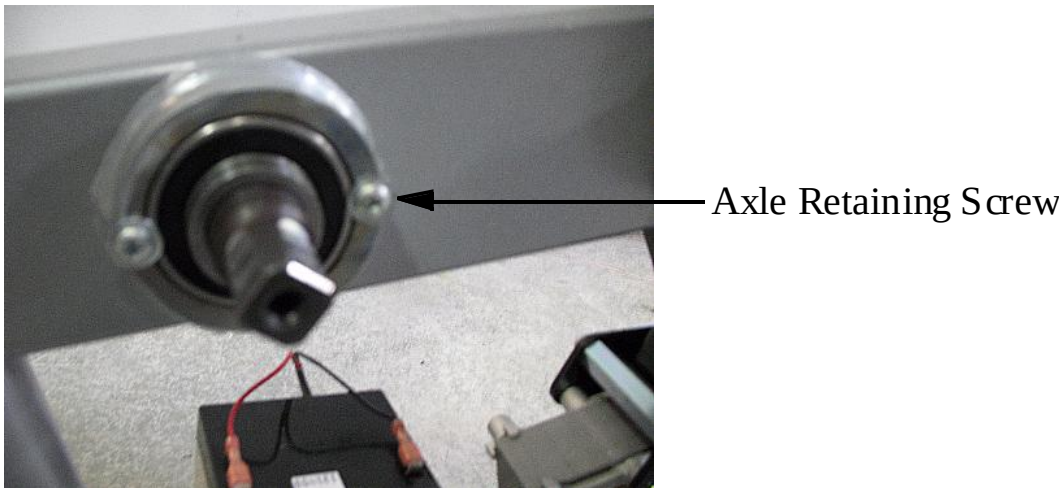


7. Remove the input pulley and discard.
8. Slide the replacement input pulley onto the input axle, ensuring that the spacer is still in place behind the input pulley.
9. Thread the retaining nut, removed in step 6. onto to the input axle, finger tight only at this time.
10. Place the primary belt in its mounting position around the input pulley, under the idler pulley and around the secondary sheave.
11. Replace the right crankarm per procedure 7.4, steps 6 to 8.
12. Using the thin 1-1/8 inch end wrench, reach behind the crankarm and securely tighten (counter-clockwise) the input pulley's retaining nut.
13. Tension the primary belt per procedure 8.2.
14. Replace the covers per Procedure 10.1.

Procedure 10.6 - Replacing the Input Axle Assembly

1. Remove the top, rear, left and right covers per procedure 10.1.
2. Remove both crankarms per Procedure 10.4.
3. Loosen, but do not remove the idler pulley mounting nut.
4. Remove tension from the primary belt by turning the primary belt tension adjustment bolt counter-clockwise. See Diagram 10.2.1.
5. Remove the primary belt.
6. Remove the retaining nut from the center of the input pulley.
7. Slide the input pulley off of the input axle assembly and remove spacer.
8. Remove the two small screws and washers that retain the input axle assembly. See Diagram 10.6.1.

Diagram 10.6.1 - Input Axle Assembly



9. Slide the input axle assembly out of the frame and discard.
10. Slide the replacement input axle assembly into its mounting position in the frame.
11. Slide spacer onto axle assembly.
12. Fasten the input axle assembly with the screws and washers remove in step 8.
13. Slide the input pulley, removed in step 7, onto the input axle assembly. Thread the nut, removed in step 6, onto the input axle assembly. Finger tight only at this time.
14. Place the primary belt in its mounting position around the input pulley, under the idler pulley and around the secondary sheave.
15. Replace the right crankarm per procedure 7.4, steps 6 to 8.

16. Using the thin 1-1/8 inch end wrench, reach behind the crankarm and securely tighten (counter-clockwise) the input pulley's retaining nut.
17. Tension the primary belt per Procedure 8.2.
18. Replace the left crankarm per procedure 10.4.
19. Replace the covers per Procedure 10.1.

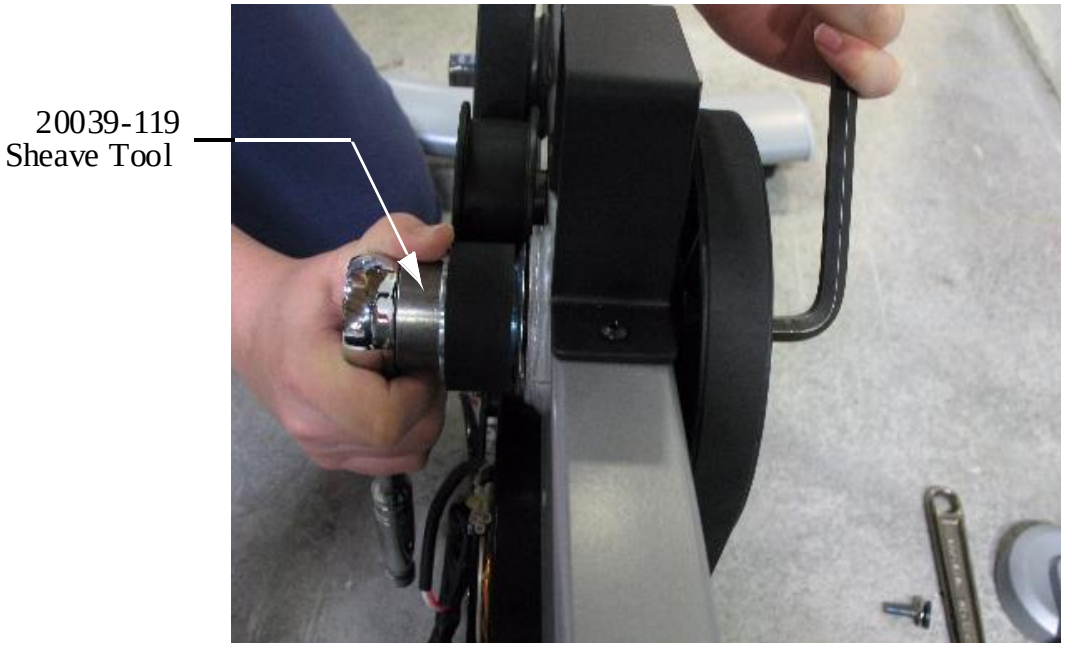
Procedure 10.7 - Replacing the Idler Pulley

1. Remove the top, rear, left and right covers per procedure 10.1.
2. Loosen, but do not remove the idler pulley mounting nut.
3. Remove tension from the primary belt by turning the primary belt tension adjustment bolt counter-clockwise. See Diagram 10.2.1.
4. Remove the primary belt.
5. Remove the idler pulley by removing the idler pulley mounting nut. Discard the idler pulley.
6. Mount the replacement idler pulley using the nut removed in step 5. The idler pulley mounting nut should only be finger tight at this time.
7. Replace the primary belt and tension the primary belt per Procedure 8.1.
8. Torque the idler pulley mounting nut to 120 inch pounds (10 foot pounds).
9. Replace the covers per Procedure 10.1.

Procedure 10.8 - Replacing the Secondary Sheave

1. Remove the top, rear, left and right covers per procedure 10.1.
2. Loosen, but do not remove the idler pulley mounting nut.
3. Remove tension from the primary belt by turning the primary belt tension adjustment bolt counter-clockwise. See Diagram 10.2.1.
4. Remove the primary belt.
5. Insert a 1/4 inch allen wrench into the primary pulley, the allen wrench will keep the secondary axle from turning and allow the secondary sheave to be removed.
6. While holding the secondary axle with a 3/8 inch allen wrench, use the 20030-119 sheave removal tool and a 1/2 inch drive socket wrench to remove the secondary sheave. See Diagram 10.8.1.

Diagram 10.8.1 - Secondary Sheave Removal

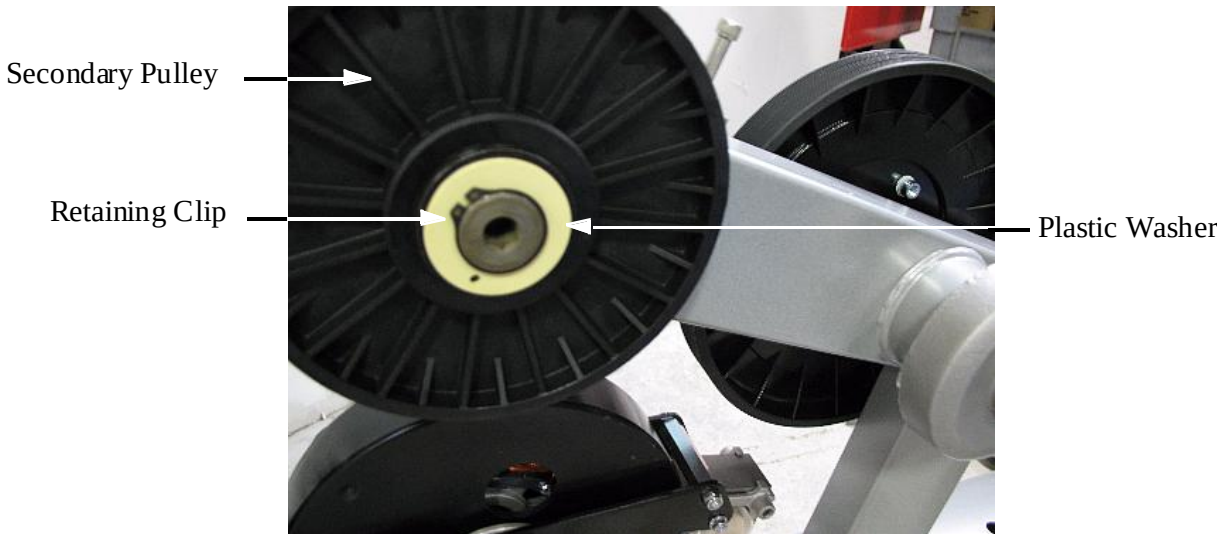


7. Thread the replacement sheave onto the secondary axle assembly. Using the allen wrench, 20030-119 sheave tool and socket wrench securely tighten the secondary sheave.
8. Replace the primary belt and tension the primary belt per Procedure 8.2.
9. Torque the idler pulley mounting bolt to 120 inch pounds (10 foot pounds).
10. Replace the covers per Procedure 10.1.

Procedure 10.9 - Replacing the Secondary Pulley

1. Remove the top, rear, left and right covers per procedure 10.1.
2. Loosen, but do not remove the generator screws and tension bracket mounting bolt, thread the tension adjustment bolt counter-clockwise to remove tension from the secondary belt. See Diagram 10.11.1.
3. Remove the retaining clip from the secondary axle. See Diagram 10.9.1.

Diagram 10.9.1 - Secondary Pulley



4. Remove the plastic washer and the secondary pulley. Discard the secondary pulley.
5. Slide the replacement secondary pulley onto the secondary axle. Slide the plastic washer, removed in step 4 onto the secondary axle fasten the secondary pulley with the retaining clip removed in step 4.
6. Replace the secondary belt and tension it per Procedure 8.3.
7. Replace the covers per procedure 10.1.

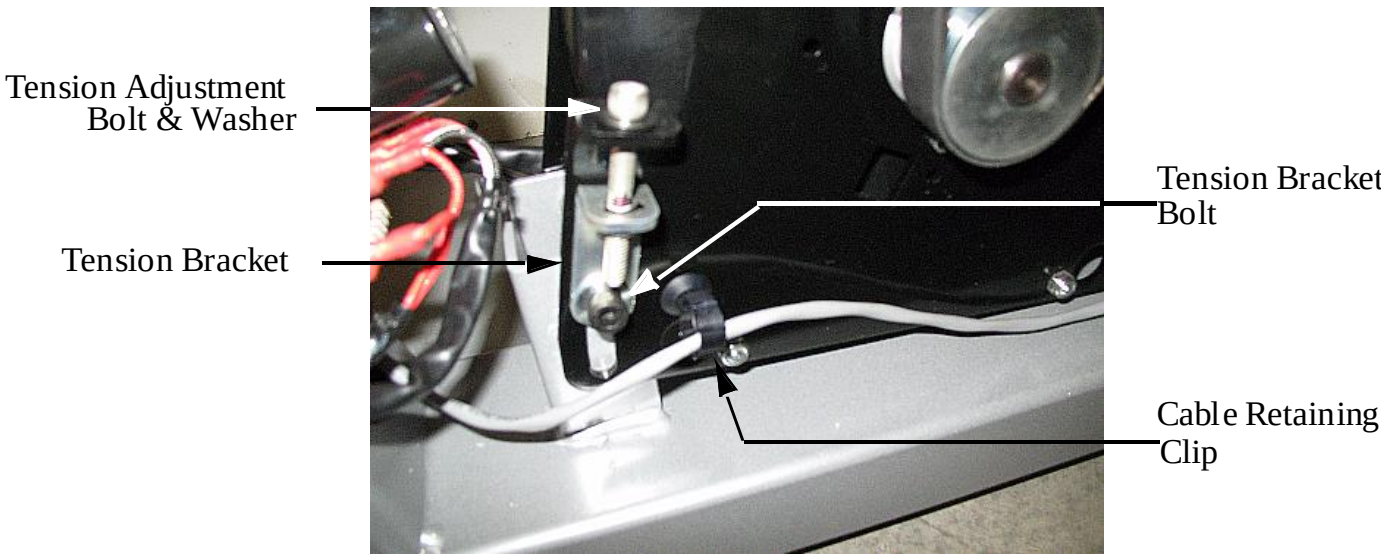
Procedure 10.10 - Replacing the Secondary Axle Assembly

1. Remove the top, rear, left and right covers per procedure 10.1.
2. Loosen, but do not remove the idler pulley mounting nut.
3. Remove tension from the primary belt by turning the primary belt tension adjustment bolt counter-clockwise. See Diagram 10.2.1.
4. Loosen, but do not remove the generator screws and tension bracket mounting bolt, thread the tension adjustment bolt counter-clockwise to remove tension from the secondary belt. See Diagram 10.11.1.
5. Remove the secondary sheave per Procedure 10.8.
6. Remove the secondary pulley per Procedure 10.9.
7. Remove a second plastic washer from the secondary pulley side of the secondary axle.
8. Remove a retaining clip and from the secondary sheave side of the secondary axle.
9. Remove a large retaining clip from the secondary pulley side of the secondary axle.
10. Remove the secondary axle from the frame and discard.
11. Slide the replacement secondary axle into its mounting position in the frame. Fasten the secondary axle with the large retaining clip removed in step 9. Inspect the retaining clip to insure that it is securely snapped in.
12. Replace the retaining clip removed in step 8.
13. Slide a plastic washer, removed in step 7, onto the secondary pulley side of the secondary axle.
14. Replace the secondary pulley per Procedure 10.9.
15. Replace the secondary sheave per procedure 10.8.
16. Tension the secondary belt per Procedure 8.3.
17. Tension the primary belt per Procedure 8.2.
18. Replace the covers per Procedure 10.1.

Procedure 10.11 - Replacing a Generator

1. Remove the top, rear, left and right covers per procedure 10.1.
2. Disconnect the two generator cables from the lower PCA. The cables are connected to M1, M2 and M3, M4, M5 on the lower PCA. See Diagram 6.1. Remove the generator clips from their cable retaining clips. See Diagram 10.11.1.
3. Remove the tension adjustment bolt and washer, remove the tension bracket mounting bolt, washer and tension bracket. See Diagram 10.11.1.
4. Loosen the three generator mounting bolts, one front and two rear.
5. Lift the generator, it will pivot on the rear mounting bolts, to remove the generator's weight from the secondary belt then remove the secondary belt.

Diagram 10.11.1 - Generator Tension Adjustment Hardware



6. Remove three generator mounting bolts, one front and two rear.
7. Remove and discard the generator.
8. Set the replacement generator in its mounting position. Hand start and hand tighten the three generator mounting bolts removed in step 6.
9. Place the tension adjustment bolt and washer in its mounting position on the replacement generator.
10. Thread the adjustment bolt into the tension bracket. Fasten the tension bracket with the bolt and washer removed in step 3. The bolt should only be hand tight.

11. Replace the secondary belt.
12. Tension the secondary belt per Procedure 8.3.
13. Torque the three generator mounting bolts and the tension bracket bolt to 100 inch pounds.
14. Reconnect the two generator cables, removed in step 2 to the lower PCA. Connect the two red magnet wires to terminals M1 & M2, the order does not matter. Connect the red generator wire to M3, the white generator wire to M4 and the black generator wire to M5. Check cable routing to insure cables will not rub on generator. See Diagram 10.13.1.
15. Replace the covers per Procedure 10.1.

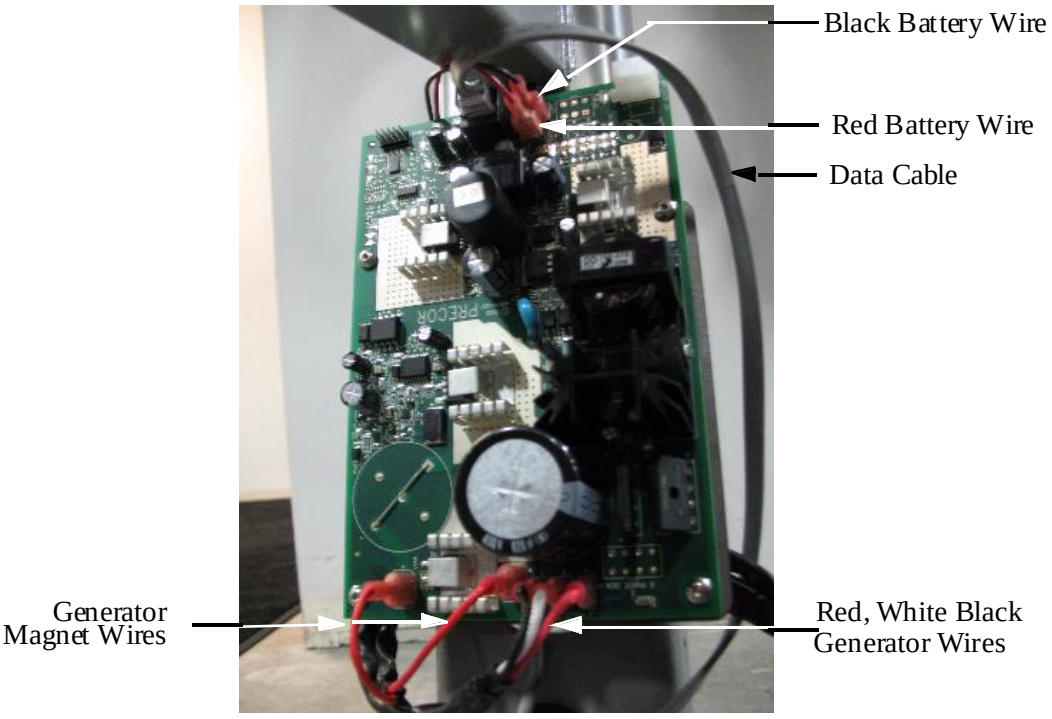
Procedure 10.12 - Replacing a Battery

1. Remove the top rear, top main and left side covers per Procedure 10.1.
2. The battery is held in place by the covers.
3. Remove the red and black wires from the battery.
4. Remove the battery and properly dispose of the battery.
5. Set the battery on the frame near its mounting position with the positive terminal (red dot) to the left.
6. If the battery does not have a wire clip on the left side, positive side of the battery, add one at this time.
7. Connect the black wire to the battery's negative terminal and the red wire to the battery's positive (red dot) terminal.
8. Route the cables to left side and run them through the wire clip. Ensure cable is not run near the primary pulley.
9. Slide the battery in into the battery pocket in the right hand cover, the battery must be oriented with its long axis side to side and the wire harness must be run to left side of the bike. If the battery orientation is incorrect, the covers will not fit.
10. Replace the covers per Procedure 10.1.

Procedure 10.13 - Replacing the Lower PCA

1. Remove the top, rear, left and right covers per procedure 10.1.
2. Disconnect all of the wires from the lower PCA.
3. Remove the four screws that fasten the lower PCA. Remove and discard the lower PCA.
4. Set the replacement lower PCA in its mounting position and fasten it with the four screws removed in step 3.
5. Reconnect the wiring to the lower PCA as follows: two red generator magnet wires to M1, M2; red generator wire to M3, white generator wire to M4, black generator wire to M5; red battery wire to M6, Black battery wire to M7; the data cable to connector J2. See Diagram 10.13.1.

Diagram10.13.1 - Lower PCA

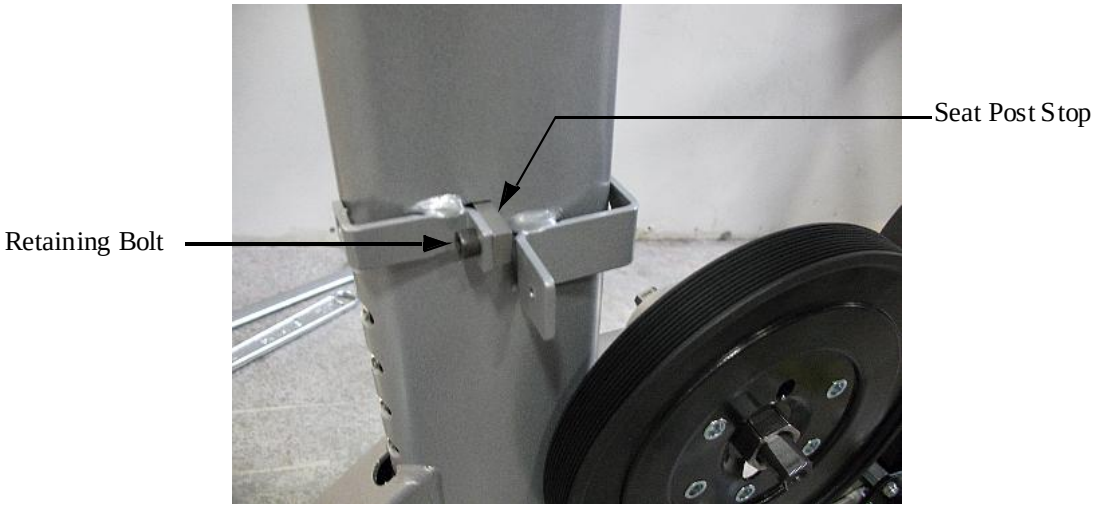


6. Replace the covers per Procedure 7.1.

Procedure 10.14 - Seat Post Removal

1. Remove the top rear and top main covers per Procedure 10.1.
2. The bicycle uses a universal seat. Loosen but do not remove the seat's mounting nut. Remove the seat.
3. Remove the bolt that retains the seat post stop. Remove the seat post stop. See Diagram 10.14.1.

Diagram 10.14.1 - Seat Post Stop



4. Lift the orange seat post height adjustment handle, lift seat post until you see the window in the post. Press on the seat post collar tabs located on the left and right side of seat post frame. Lift and remove the seat post from the bicycle.
5. Slide the replacement seat post into the bicycle frame until the window can be seen at the top of the frame and then snap the collar in place
6. Move the seat post down until the post locks into the frame.
7. Replace the seat stop and fasten it with the bolt removed in step 3. Torque the bolt to 50 inch pounds.

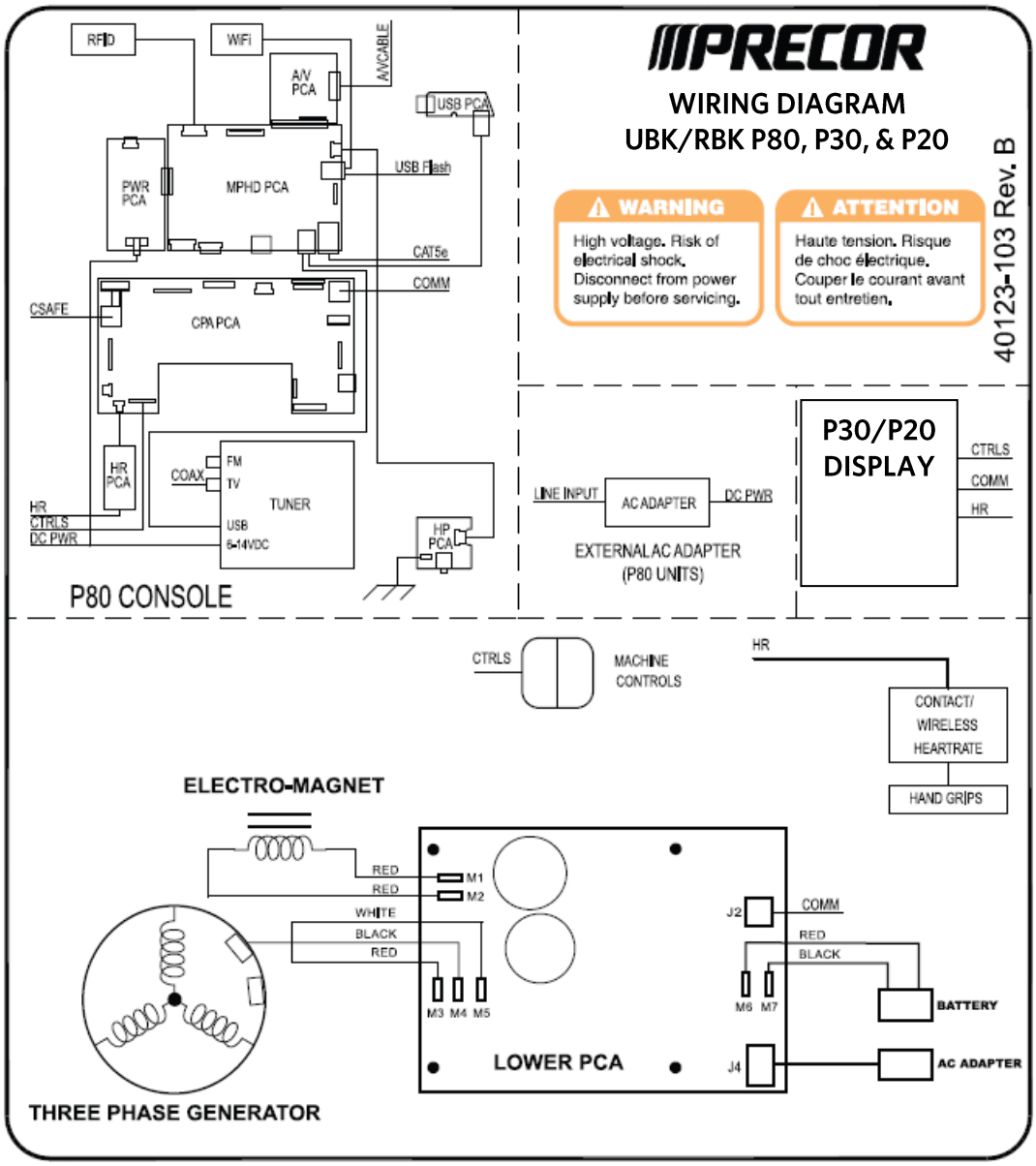
Section Eleven – Future Content

Section Twelve – Future Content

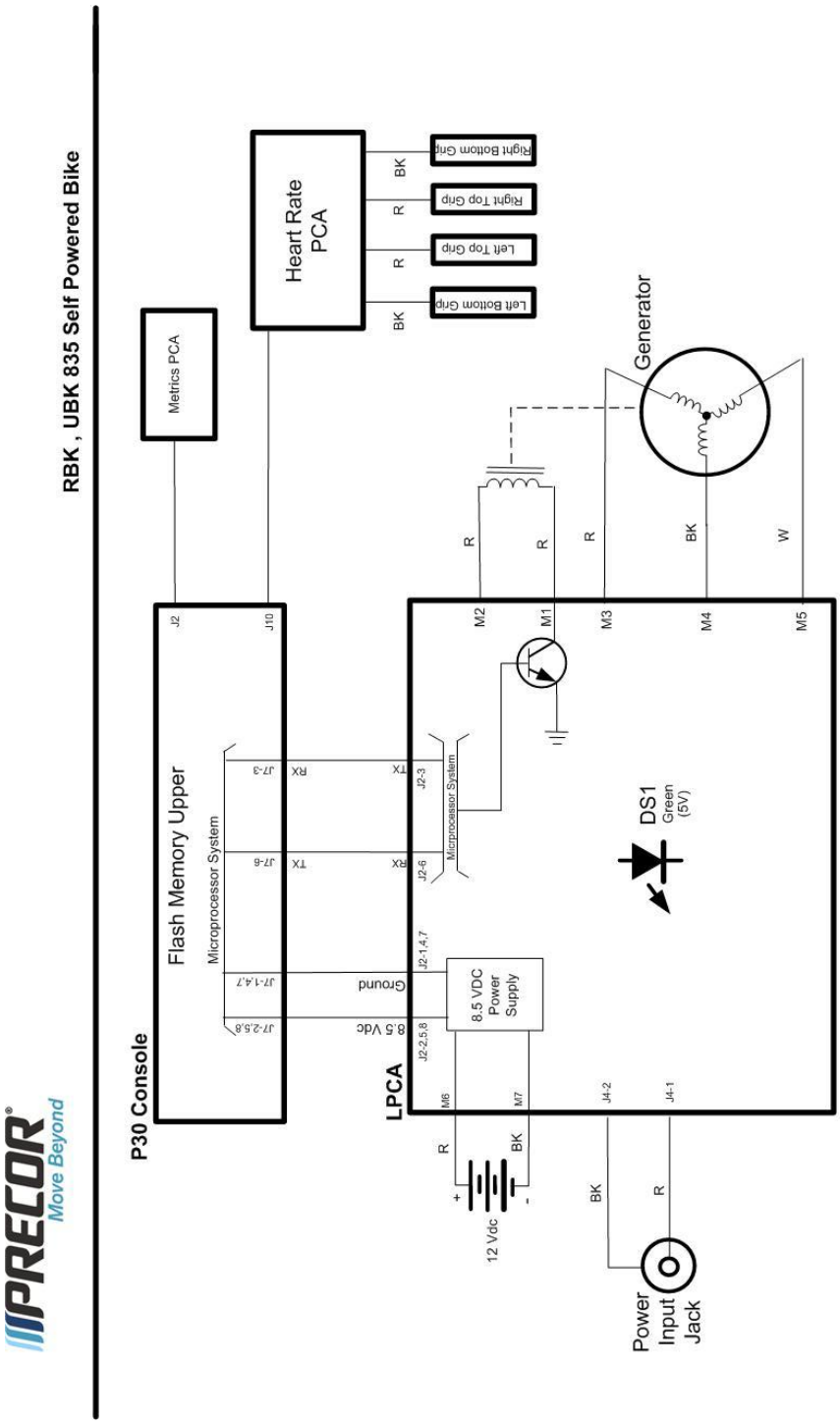
Section Thirteen – Future Content

Sections Fourteen – Wiring Diagrams

Wiring Diagram 14.1 – UBK/RBK



Block Diagram 14.2 – RBK/UBK 835



Block Diagram 14.3 – RBK/UBK 825