

# R40 Console Service Manual

---



---

## Contents

Introduction.....	3
About This Document .....	3
General Information.....	3
Electrical Requirements .....	3
Safety Guideline's .....	3
Operation Verification .....	4
Introduction .....	4
Procedure .....	4
Service Software and Access Codes .....	6
Standardized Service Software and Access Codes.....	6
Accessing Service Software.....	6
Hardware Validation (Access Code 51765761).....	7
Performing System Tests .....	7
Information Service Software (Access Code 65) .....	8
Accessing the Information and Error Log.....	8
DEMO mode (5555).....	11
Enter DEMO mode: .....	11
Exit DEMO mode.....	11
Error Log.....	12
Accessing the Error Log.....	12
Understanding Display Error Log Information.....	12
Display Error Log Table Parameters.....	12
Clearing the Error Log.....	12
Error Event Codes .....	13
Non-Fatal Error Codes .....	13
Fatal Error Codes .....	14
Removal/Installation .....	15
Removal .....	15
Installation .....	15

---

## Introduction

### About This Document

This manual provides the service information for R40 consoles including information required to perform the majority of troubleshooting and replacement procedures required to maintain and repair this product.

**Warning:** This service manual is applies to Precor trained service providers only. Non-Precor Certified Servicers should not attempt to service any Precor products. Call your Precor dealer for service requests.

**Manual Part Number:** 20081-125.A02, Feb 2016

#### Contact Information

Precor Incorporated  
20031 142<sup>nd</sup> Ave. NE  
P.O.Box 7202  
Woodinville, WA. 98072-4002  
1-800-347-4404

### General Information

This manual provides service and maintenance information for the R40 Console.

The R40 console supports the following exercise equipment bases:

- Precision series TRM 400 series treadmills and EFX 400 series elliptical fitness trainers
- Energy series TRM 200 series treadmills, and EFX 200 series elliptical fitness trainers.

For R40 console with base configuration service and maintenance information, see the equipment base service manual.

### Electrical Requirements

R40 console power is supplied by the base lower control module.

### Safety Guideline's

Safety guidelines you should know and follow include:

- Read the owner's manual and follow all operating instructions.
- Operate the equipment on a solid, level surface. Visually check the equipment before beginning service or maintenance operations. If it is not completely assembled or is damaged in anyway, do not attempt to operate the equipment.
- When operating the R20 equipped cardiovascular equipment, 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 base. Do not stand or climb on the handlebars, display enclosure or cover.
- Do not set anything on the handlebars, display enclosure, or cover. Never place liquids on any part of the base while performing service.
- To prevent electrical shock, keep all electrical components away from water and other liquids.

---

## Operation Verification

### Introduction

This procedure will verify proper operation of the R40 Console independent of the installed base. The R40 console must be properly installed on a supported equipment base to perform these tests. To verify the R40-base configuration, refer to the equipment base service manual.

**Note:** To learn more about how to use the R40 Console and operating parameters, refer to the R40 Console Owner's Manual.

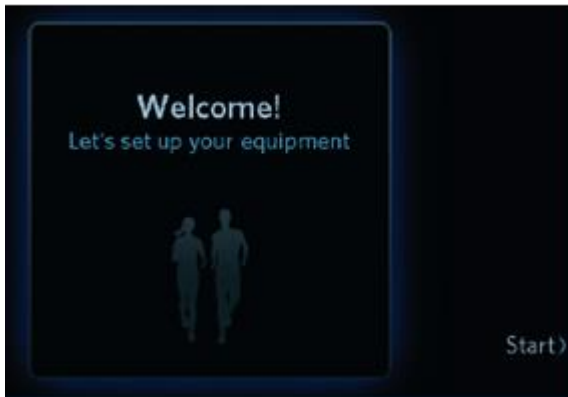
### Procedure

1. Apply console power. The R40 console can be installed on powered and non-powered bases.
  - a. Powered base configurations; connect the base power cord to power and set the base power switch to **ON**.
  - b. Self-powered base configurations (EFX, Bikes, etc.): you will need to manually exercise the base to generate and supply input power to the console.

**Note:** If the console powers up showing an error code, clear the Error Log and return to complete this procedure, see *Clearing the Error Log*. If the error code cannot be cleared, you will need to resolve the error before continuing with this procedure.

*Initial Power Up "Welcome" page*

2. If this is the R40 console initial power-up sequence, the R40 opens to the **Welcome** page and you will be required to specify the R40-base configuration setup parameters (model, Date, Time, Distance Units, etc.). Press **Start** to begin, follow prompts to complete the setup configuration process.



3. After the initial R40-base power-up, the R40 console will open to the default **Home** page. Press the **QuickStart** softkey and verify that the base starts and runs the **Suggested Workout** program



R40 Console Home page

4. Verify the following basic console SPEED and INCLINE base control functionality.
  - a. Verify the **SPEED** control functionality. Increase and decrease the console SPEED (RESISTANCE) control and verify proper base response. Make sure that the base speed (or resistance) changes as commanded and that the console Speed (Resistance) indicator reads correctly.
  - b. Verify the **INCLINE** control functionality (variable CrossRamp or lift equipped bases only). Increase and decrease the console INCLINE control and verify that the base travel moves in the commanded Up/Down direction and that the console INCLINE indicator reads correctly.
5. Verify the console Wireless and Hand Held Heart Rate monitor operation:
  - a. Use the Polar Heart Rate Simulator to verify the console wireless heart rate indicator operation.
  - b. Grasp the handlebar Heart Rate Grips and verify valid console heart rate indication.
6. Run and verify successful completion of the following Hardware Validation System Tests, see “*Performing System Tests*”:
  - a. **Display-Gui Test** system test
  - b. **Key Test** system test

# Service Software and Access Codes

## Standardized Service Software and Access Codes

The R40 console provides the following set of standardized Precor equipment Service software and Access Codes.

Service Software	Description	Access Code
Hardware Validation	Set of system diagnostic tests that verify proper operation of console and base functionality. Useful for troubleshooting and resolving problems.	<b>51765761</b> (or 536)
Information	Provides 1) Information page; provides product software/hardware version and equipment usage information and 2) Display Error Log; provides history of event error codes and diagnostics used for maintenance and troubleshooting.	<b>65</b>
DEMO mode	Demo mode is a program that cycles the console through various GUI screens to demonstrate the various available workout programs. Demo mode locks-out the controls and cannot be used until Demo mode is exited.	<b>5555</b>
<b>Note: Select Settings &gt; My Settings + Edit &gt; Access Code number &gt; Next.</b>		

## Accessing Service Software

1. Go to the console default **Home** page.



R40 Console Home page

2. Select the **Settings** softkey.
3. Simultaneously select the default **My Settings** and **Edit** softkeys respectively.

**Note:** The **My Settings** softkey can be blank and/or OFF, however it remains an active softkey. Simultaneously select the TOP and Bottom right side softkeys to access the System Settings page.



Accessing Hardware Validation mode: Simultaneously select the Right Side Upper and Lower menu softkeys.

4. Use the numbered softkeys to type in the Service Software Access Code:
  - **51765761** – Hardware Validation - Systems Tests
  - **65** – Information and Error Log



Enter Service Access Mode: Use number softkeys to type in Access Code > select Next

5. Select **Next** to access the **Service** software.

## Hardware Validation (Access Code 51765761)

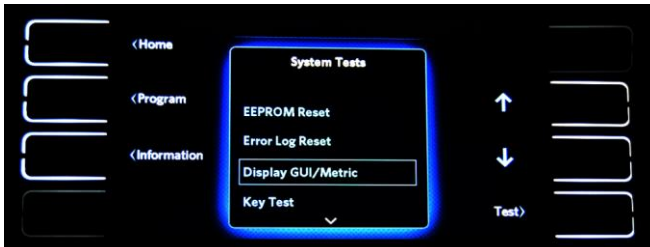
Hardware Validation service software provides a set of system tests used to verify proper operation of the console and base hardware. System tests can also be used to troubleshoot and resolve problem issues.

Available System Tests:

- **Display GUI/Metric Tests**
  - Backlight brightness changes
  - Numerals cycle properly
- **Key Test**
  - Keys all function
- **Heart Rate Test**
  - Heart rate is acquired and displayed
- **Belt Speed Test**
  - Running belt moves and is controlled from 0.5mph to 12.0mph in 0.1 increments
- **Incline Test**
  - Lift goes up and down and the A/D value is:
    - 37 ±5 @ 0% incline
    - 13 ±5 @ -2% incline
    - 242 ±5 @ 15% incline

## Performing System Tests

1. Go to the System Tests page, access the Hardware Validation service software (access code “51765761”), see *Accessing Service Software*.



Hardware Validation Mode: System Tests page

2. Use the **Up/Down** arrows to move between and select one of the available tests.
3. Select the **Test** softkey to start a test, follow user prompts to run and complete the test.
4. Select the **Home** softkey to exit and return to the Home page.

## Information Service Software (Access Code 65)

The Information service software provides access to the equipment Information and Error Log pages:

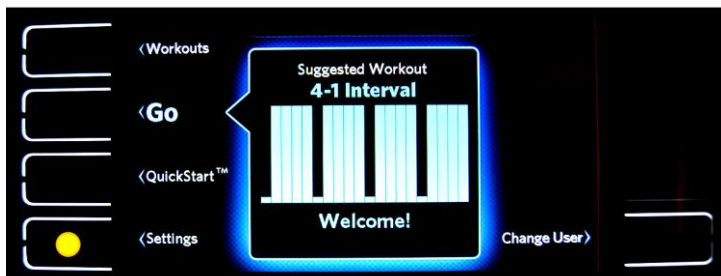
- **Information** page contains the system software/hardware version information and usage information.
- **Display Error Log** page contains a record of the error event codes and related diagnostic information.

### Accessing the Information and Error Log

The Information and Error Log data can be accessed by one of two methods: 1) the **Information** menu or 2) the Information service software (Access Code “65”).

#### Information menu access:

1. From the **Home** page select the **Settings** softkey.

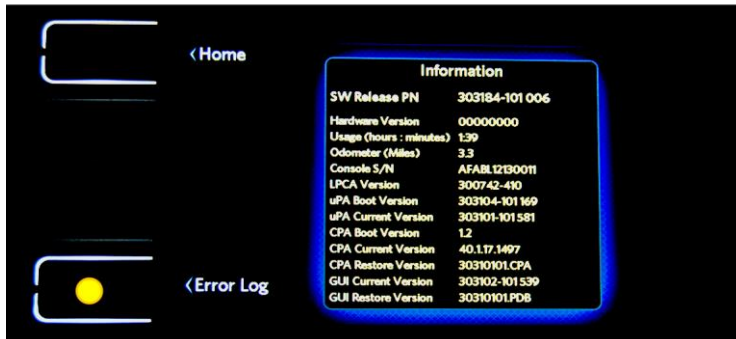


R40 Console Home page

2. Select the **Information** softkey to open the *Information* page.



3. Select **Error Log** to open the *Display Error Log* page



Information page

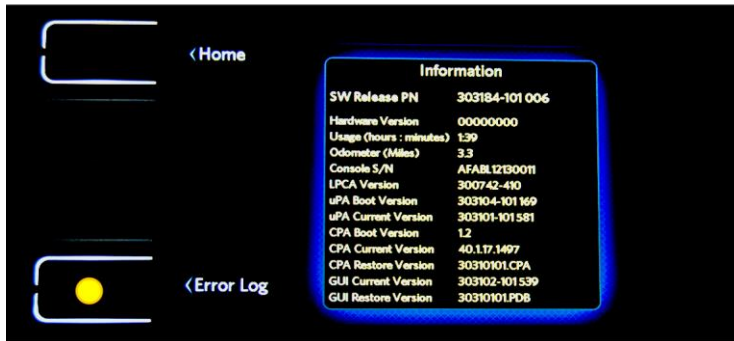
### Information service software (Access Code “65”)

You can access the Information and Error Log data using Information Service software (Access Code “65”).

1. Access the *Information* service software (Access Code “65”), see *Accessing Service Software* topic.

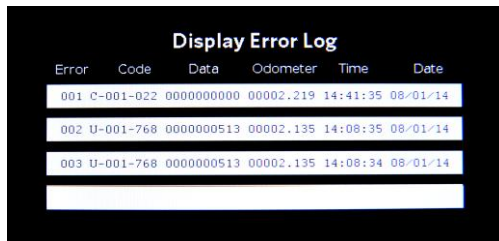


2. Select **Information** to open the Information page.



Information page

3. Select **Error Log** softkey (Information page) to open the Display Error Log page.



## DEMO mode (5555)

DEMO mode locks out “disables” all console menu softkeys and Speed/Incline controls. DEMO mode must be exited before the menu softkeys and controls can be used.

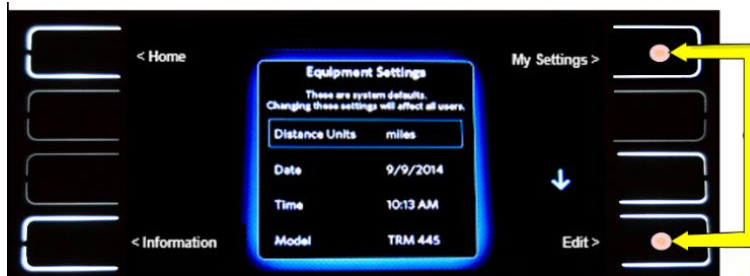
**TIP:** DEMO mode locks out “disables” all softkey menu items and may make you think the console is not working properly. Make sure that the console is not in DEMO mode: go to service access DEMO mode (code 5555) > select “**Turn Demo OFF**” > **Save**.

### Enter DEMO mode:

To enter service software access DEMO mode:

1. From the console default **Home** page select the **Settings** softkey.
6. Simultaneously and momentarily press the **My Settings** (upper right) and **Edit** (lower right) softkeys.

**Note:** The **My Settings** softkey can be blank and/or OFF, however it remains an active softkey. Simultaneously momentarily press and release the upper and lower right side softkeys to access the System Settings page.



Accessing Hardware Validation mode: Simultaneously select the Right Side Upper and Lower menu softkeys.

2. Type in the DEMO Software Access Code “**5555**” > select **Next**.
3. Select “**Turn Demo On**” > **Save**.  
The main screen will begin to slowly alternate between different workout pages and the audio control lights will switch ON “illuminate” (no audio player connected).  
**Note:** The **Save** softkey must be selected to start DEMO mode.

### Exit DEMO mode

To exit DEMO mode

1. Press and hold down the lower right softkey for 5 seconds and release.  
This will return to the **Home** page, all softkey functionality will be enabled, and the audio player control lights will be switched OFF (no audio player connected).
2. From the Home page, select the **Settings** softkey.
3. Simultaneously and momentarily press the **My Settings** (upper right) and **Edit** (lower right) softkeys.
4. Type in the DEMO Software Access Code “**5555**” > select **Next**.
5. Select “**Turn Demo Off**” > **Save**...  
**Note:** The **Save** softkey must be selected to exit DEMO mode. If not saved within 5 minutes, DEMO mode will resume.

## Error Log

The R40 console captures and stores equipment error events codes and related information in the **Display Error Log** page. Error Log information provides useful diagnostic information to help maintain and troubleshoot issues. Error Log information is also useful when contacting Precor Service to resolve an issue.

Error	Code	Data	Odometer	Time	Date
001	C-001-022	0000000000	00002.219	14:41:35	08/01/14
002	U-001-768	0000000513	00002.135	14:08:35	08/01/14
003	U-001-768	0000000513	00002.135	14:08:34	08/01/14

## Accessing the Error Log

Go to the **Home** page, select **Settings > Information > Error Log**, see *Accessing Service Software*.

## Understanding Display Error Log Information

### Display Error Log Table Parameters

Parameter	Description
<b>Error</b>	Sequentially generated number indicating the order in which the error code events occurred in time, 001 is the first listed event code (oldest) to be logged continuing to the last number “nnn” (most recent) error code to be logged.
<b>Code</b>	The alpha-numeric code “C-001-nnn” representing the error event. Where the <b>C-001</b> prefix identifies valid service error codes and “nnn” is the code number, Disregard any other code prefix error codes. See <i>Error Codes</i> for listing of error codes and description.
<b>Data</b>	Disregard this entry.
<b>Odometer</b>	Odometer reading when the error event occurred.
<b>Time</b>	Time the error event occurred.
<b>Date</b>	Date the error event occurred

## Clearing the Error Log

The Error Log history is cleared by 1) running the Hardware Validation “**Error Log Reset**” systems test and 2) cycling the input power.

1. Go to the *Hardware Validation Systems Tests* page (Service Access Code 51765761), see *Accessing Service Software*.

- Use **UP/Down** arrow softkeys to select the **Error Log Reset** test.



- Select **Test**
- Select **Start** to reset the Error Log.
- Cycle the input power (OFF/ON).
- Go to the **Display Error Log** page and verify that all error codes have been cleared, select **Settings > Information > Error Log**.
- Select **Home** to exit and return to the **Home** page,

## Error Event Codes

There are two categories of Error Codes: Fatal and Non-Fatal errors.

Fatal error code messages will continue to show until the input power is cycled (OFF/ON). The console is locked except for access to the *Display Error Log* page. Error code messages will continue to return until the error issue is resolved.

### Non-Fatal Error Codes

Non-Fatal Error Codes		
Code	Error description	Expected behavior following error detection
05	Stuck Key	Do not allow further operation and display error until the Stuck Key event is cleared. Does not require power cycle to clear.
10	AC Frequency	
40	Lift error: lift won't move	For lift errors, do not interrupt operation of the treadmill and do not stop belt. Display error code for two seconds, then log. If incline keys are pressed, do not operate incline but display the error code again for two seconds. Allow full operation of lift motor again after the power is cycled.
42	Lift error: bad pot reading	
44	Lift error: non commanded lift motion	
45	Lift error: lift going in the wrong direction	

---

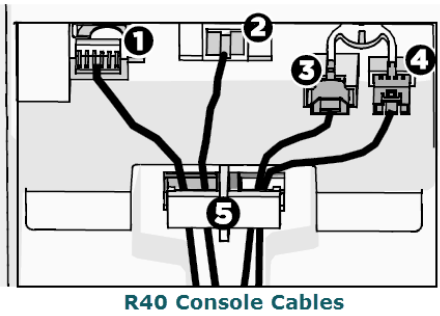
## Fatal Error Codes

Fatal Error Codes	
Code	Error description
00	Upstairs EEPROM checksum error
02	RAM error
03	EEPROM error
09	EPROM Downstairs
11	Upstairs watchdog
12	Downstairs watchdog
13	Fan
14	Board Fan
15	AC input voltage too high
16	AC input voltage too low
17	Overheating
18	DB Resistor open
19	Low input voltage for PFC
20	Tread error: motor will not drive
21	Not enough speed
22	No speed pulse at startup
23	No speed pulses after start up
24	Not slowing down
26	Erratic speed pulses
27	Tread error: too much output (to motor) current
28	Tread error: motor controller limit
29	Tread error: too much input (from AC outlet) current
30	Communications error: downstairs to upstairs
31	Incorrect communication Downstairs to Upstairs
32	Communications error: upstairs to downstairs
33	Incorrect communications Upstairs to Downstairs

# Removal/Installation

## Removal

1. Remove the 4 R40 console attachment screws and tilt the console away from the Console Attachment bracket
2. Disconnect the 4 console-base cables and remove the Cable Retainer.
3. Remove the console.



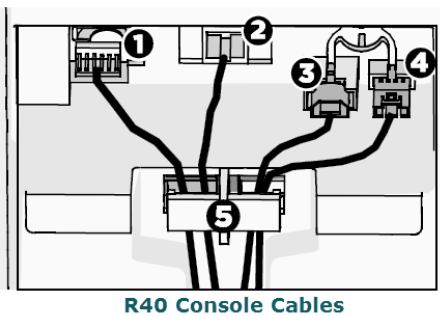
Number	Description
1	Stop Switch Cable
2	Base Unit Data Cable
3	Console Ground Cable
4	Touch Heart Rate Cable
5	Cable Retainer

## Installation

Carefully connect and route the 4 console cables

1. Insert the stop switch cable (1) with the two connector tabs pointing down.  
You will feel the cable lock into place.
2. Insert the base unit data cable (2).  
When both cables are connected, tuck the cables into the left side of the cable retainer (5), as shown in the figure below.
3. Insert the console ground cable (3) with the round side positioned upward
4. Insert the touch heart rate cable (4) with the front two tabs pointing down
5. When both cables are connected, tuck the cables into the right side of the cable retainer (5).

**Important:** Make sure that all four cables are tucked into the cable retainer before you place the console on the bracket. Place excess cable in the console recess where the cables insert.



Number	Description
1	Stop Switch Cable
2	Base Unit Data Cable
3	Console Ground Cable
4	Touch Heart Rate Cable
5	Cable Retainer