



SCHWINN

MPower™ Echelon2 Console
MPower™ Echelon2 Power Upgrade
MPower™ Echelon2 External Wiring Kit



Installation Guide

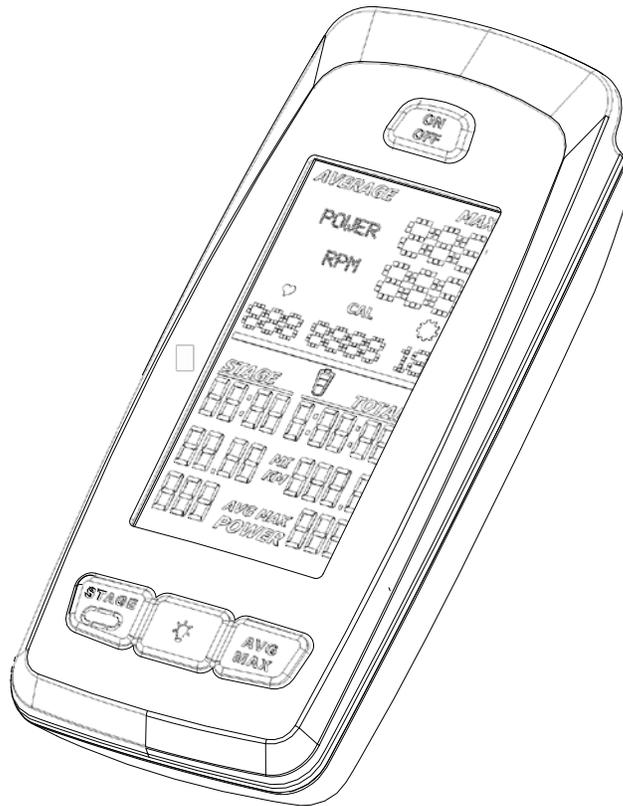




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1. INTRODUCTION

This installation guide details how to install and setup the following:

- Schwinn® MPower™ Echelon2 Console, P/N 740-8727
- Schwinn® MPower™ Echelon2 Optional Power Upgrade, P/N 740-8730
- Schwinn® MPower™ Echelon2 External Wiring Kit, P/N 740-8875

The following instructions apply to the following models:

- Schwinn® AC™ Performance
- Schwinn® AC™ Sport
- Schwinn® AC™ Sport with Carbon Blue
- Schwinn® AC™ Performance Plus
- Schwinn® AC™ Performance Plus with Carbon Blue

NOTE: *The console cable must be externally routed on the AC™ Performance and AC™ Sport models. This requires that the External Wiring Kit, 740-8875 be used. The console cable for the AC Performance Plus is routed internally*

2. TOOLS REQUIRED

- Phillips screw driver
- 2.5mm hex key
- 3mm hex key
- Glove
- Soft-jaw pliers (Pliers with protective rubber or plastic caps over jaws)

NOTE: *Tools are not included in the kits.*



3. CONSOLE KIT CONTENTS

Item	Description	QTY
1	Console	1
2	Console mount bracket	1
3	RPM (Cadence) sensor	1
4	RPM sensor adapter for AC Sport and AC Performance models	1
5	Console-to-RPM sensor cable (Only used when the optional power upgrade kit is not installed)	1
6	Connector protective cap	1
7	Cosmetic cap for AC Performance Plus models	1
8	C Cell Batteries	2
9	Console bracket mount screws, M4 x 10mm PHP, for AC Performance Plus models	3
10	Console bracket mount screws, M5 x 14mm BHCS, for AC Sport and AC Performance models	2
11	Connector protective cap mount screws, M3 x 12mm SHCS	2
12	Console-to-bracket mount screw, M3 x 6mm PHP	1
13	RPM sensor adapter mount screw, M3 x 6mm PHP (Only used on AC Sport and AC Performance Plus models)	1
14	Cosmetic cap mount screw, M5 x 14mm (Same as Item 10)	1
15	Cable grommet	1
16	RPM cable saddles	2
17	Cable saddle mount rivets	2
18	CD Rom with Owner's Manual and Installation Guide	1

4. OPTIONAL POWER UPGRADE KIT CONTENTS

Item	Description	QTY
1	Sensor assembly	1
2	Console-to-power sensor cable	1
3	RPM-to-Power sensor cable	1
4	Magnet assembly	1
5	Sensor mount screws, M4 x 6mm BHCS (Only 2 screws are used on older models with two screw mount holes)	3
6	Calibration tool	1

5. EXTERNAL WIRE KIT CONTENTS

Item	Description	QTY
1	Cable duct assemblies	2



6. CONSOLE KIT INSTALLATION ON AC™ SPORT AND AC™ PERFORMANCE BIKES

NOTE: If installing the console with the optional power upgrade at the same time as the console, review the instructions in the section “Optional Power Upgrade Kit Installation on AC™ Sport and AC™ Performance Bikes” before proceeding with the steps in this section.

1. Insert batteries into console. (Figure 1)



Figure 1

2. Mount the console bracket using the two (2) M5 x 14mm button head screws. Tighten the screws using the 3mm hex key. (Figure 2 and Figure 3)



Figure 2

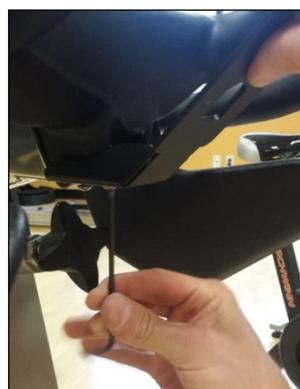


Figure 3

3. Slide the console onto the bracket. Insert the M3 x 6mm pan head screw and tighten with the screw driver. (Figure 4)



Figure 4

4. Prior to installing the upper conduit, clean head tube with isopropyl alcohol. Allow to air dry.
5. Peel off backing adhesive and align duct part number 740-8875-001 to forward edge and lower edge of the frame tube (as shown below). Apply normal pressure for 5 seconds. (Figure 5)

Note: It is recommended that the adhesive set for 24 hours before use.

6. Insert the cable through the slot. (Figure 5)
7. Snap the outer part of the cable duct onto the base with the cable inside. (Figure 6)



Figure 5



Figure 6

8. Using a Philips screw driver, remove the sweat guard (Do not use a power drill in removing and re-installing). (Figure 7)
9. Route the cable through the sweat guard. (Figure 8)

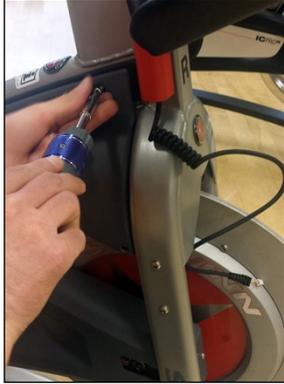


Figure 7



Figure 8

10. Re-mount the sweat guard. (Figure 9 and Figure 10)



Figure 9

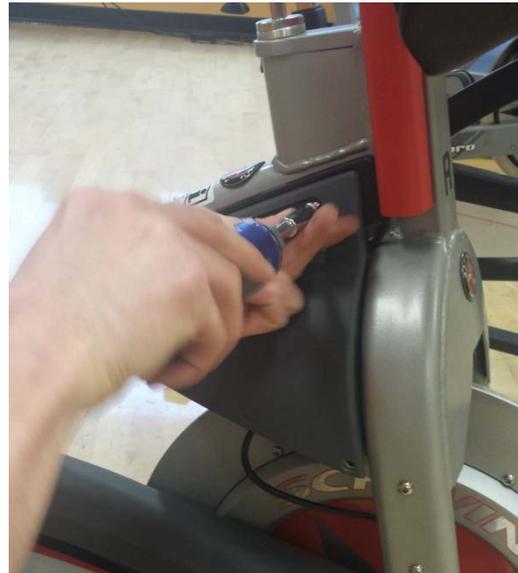


Figure 10

11. Plug the console cable RJ45 connector into the console. (Figure 11)
12. Slide the grommet of the cable into the slot on the connector protective cap as shown. (Figure 11)
13. Attach the protective cap to the bracket using the two (2) M3 x 12mm socket head cap screws, and tighten with the 2.5mm hex key. (Figure 12)



Figure 11



Figure 12

14. Attach the RPM sensor adapter to the RPM sensor using the M3 x 6mm Philips Pan Head Screw. (Figure 13)
15. Unscrew the M3 x 6mm Philips Pan Head screw holding the RPM sensor cover on and remove it. (Figure 14 and Figure 15)



Figure 13



Figure 14



Figure 15



16. Plug the RPM sensor cable 2-pin connector into the RPM sensor connector and slide the cable grommet into the slot in the RPM sensor housing. (Figure 16 and Figure 17)
17. Reinstall the RPM sensor cover into the housing, and reinstall the M3 x 6mm Philips Pan Head screw. (Figure 18 and Figure 19)

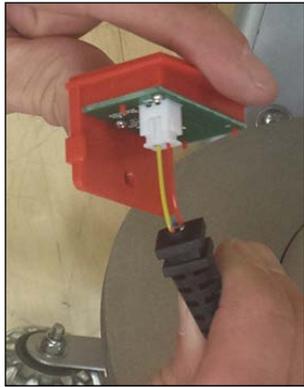


Figure 16



Figure 17



Figure 18



Figure 19

18. Remove the top and bottom screw from the front of the chain guard. (Figure 20)
19. Position the RPM sensor as shown and reinstall the two chain guard screws. The RPM sensor should be about 2 - 3mm away from the flywheel, or about the width of a credit card. If the RPM sensor is too close, it will rub against the sensor magnet that is embedded in the flywheel. If the RPM sensor is too far away, the sensor will intermittently pick up a signal from the magnet or will not pick up any signal at all; this will cause an erratic RPM display, or no RPM display. (Figure 21)



Figure 20



Figure 21

20. Prior to applying the lower conduit, clean the surface of the inner right fork with isopropyl alcohol and allow to air dry. Peel the non-stick strip off the plastic conduit base. Place it firmly on the inside of the right hand fork. There should be about one inch gap between chain guard/rpm sensor bracket and the wire conduit. (Figure 22)
21. Route the wire inside the conduit and snap the conduit outer cover on to the base. (Figure 23 and Figure 24)



Figure 22



Figure 23



Figure 24



7. Console KIT Installation on AC™ Performance Plus Bikes

NOTE: If installing the console with the optional power upgrade at the same time as the console, review the instructions in the section “Optional Power Upgrade Kit Installation on AC™ Performance Plus” before proceeding with the steps in this section.

1. Insert batteries into console. (Figure 25)



Figure 25

2. Remove handlebars from bike and place on a sturdy working surface.
3. Grab the console-to-RPM cable and note which end has the 2-pin connector.
4. Insert the end of cable with the 2-pin connector into the opening at the top of the handlebar post. Feed the cable through, with one section of coiled cable being inside the tube, and one section of coiled cable being outside the tube. The end of the cable should just be poking out of the end of the tube. (Figure 26 and Figure 27)



Figure 26

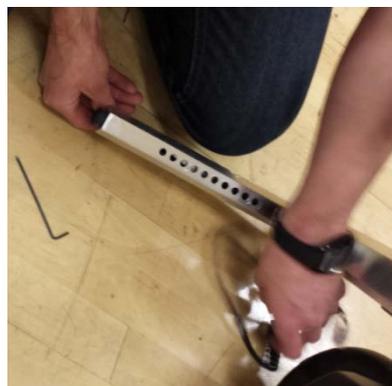


Figure 27



5. Place the handlebar back on the bike.
6. Feed the end of the cable out of the end of the head tube. Wear heavy-duty protective gloves when pulling the end of the cable out of the head tube as there may be sharp edges inside the head tube. (Figure 28)



Figure 28

7. Mount the console bracket using the three (3) M4 x 10mm Philips Pan Head screws, and tighten the screws. (Figure 29 and Figure 30)



Figure 29



Figure 30

8. Slide the console onto the bracket. Insert the M3 x 6mm pan head screw and tighten with the screw driver. (Figure 31)



Figure 31

9. Plug the console cable RJ45 connector into the console. (Figure 32)
10. Slide the grommet of the cable into the slot on the connector protective cap as shown. (Figure 32)
11. Attach the protective cap to the bracket using the two (2) M3 x 12mm socket head cap screws, and tighten with the 2.5mm hex key. (Figure 33)



Figure 32



Figure 33

12. Install the cosmetic cap using a M5 x 14mm BHCS. (Figure 34 and Figure 35)



Figure 34



Figure 35

13. Using a Philips screw driver, remove the sweat guard (Do not use a power drill in removing and re-installing). Route the cable through the sweat guard. (Figure 36 and Figure 37)



Figure 36



Figure 37

14. Unscrew the M3 x 6mm Philips Pan Head screw holding the RPM sensor cover on and remove it. (Figure 38 and Figure 39)



Figure 38



Figure 39

15. Plug the RPM sensor cable 2-pin connector into the RPM sensor connector and slide the cable grommet into the slot in the RPM sensor housing. (Figure 40 and Figure 41)
16. Reinstall the RPM sensor cover into the housing, and reinstall the M3 x 6mm Philips Pan Head screw. (Figure 42 and Figure 43)



Figure 40



Figure 41



Figure 42



Figure 43

17. Remove the top and bottom screw from the front of the chain guard. (Figure 44)
18. Position the RPM sensor as shown and reinstall the two chain guard screws. The RPM sensor should be about 2 - 3mm away from the flywheel, or about the width of a credit card. If the RPM sensor is too close, it will rub against the sensor magnet that is embedded in the flywheel. If the RPM sensor is too far away, the sensor will intermittently pick up a signal from the magnet or will not pick up any signal at all; this will cause an erratic RPM display, or no RPM display. (Figure 45)
19. Reinstall the sweat guard.



Figure 44



Figure 45

20. Install the two cable saddle mounts to the two holes inside the left fork using the two plastic rivets. (Figure 46 and Figure 47)



Figure 46



Figure 47

21. Secure the cable inside the two saddle clamps as shown. (Figure 48)



Figure 48



8. Magnet Gap Check and Adjustment

NOTE: In order to achieve consistent power output between multiple bikes, it is very important that the gap between the magnets on the resistance mechanism is correct and consistent between bikes. The gap is set by the factory when the bikes are assembled; however, some older model bikes may not have correct magnet gap. Checking the magnet gap and adjusting it as needed on each bike will ensure a high level of consistency of power out between bikes. The two pictures below show the resistance mechanism with a correct magnet gap and with an incorrect (too large) magnet gap. The tool used to measure magnet gap is the same tool that is used to calibrate the power sensor on each bike (as detailed in Section 13). Figure 49 shows the correct gap when checked with the tool. Figure 50 shows a gap that is too large. The calibration tool should have a slip fit in between the magnets without having to force the tool in place, and without any gaps between the tool and the magnets. To check the magnet gap and adjust the gap, follows the steps below.



Figure 49



Figure 50

1. Place the calibration tool on the flywheel and rotate the flywheel so that the tool rests between the front set of magnets. Shown on the AC™ Sport for clarity in Figure 51 and Figure 52. As can be seen in the figure on the right, the gap is too large in this case. The gap should be between 10.5 mm and 11 mm. Using the calibration tool will set the gap correctly
2. To adjust the magnet gap, carefully place a pair of soft-jaw pliers around the outside of the resistance mechanism plates, and squeeze. Make small adjustments at a time and check the gap with the tool fit—the fit should be a slip fit with no side-to-side play. Make sure the flywheel remains centered between the magnets. See Figure 53 and Figure 54. Figure 55 shows how to adjust the magnet gap on the AC™ Performance. Figure 56 shows how to adjust the



magnet gap on the AC™ Performance Plus. **Error! Reference source not found.** shows the correct magnet gap on the AC™ Sport, and Figure 58 shows the magnet gap on the AC™ Performance Plus. **IMPORTANT NOTE: DO NOT USE ANY METAL TOOLS DIRECTLY ON THE SURFACE OF THE BLACK PLATES. DOING SO WILL DAMAGE THE CORROSION RESISTANT COATING.**



Figure 51



Figure 52



Figure 53



Figure 54



Figure 55



Figure 56



Figure 57

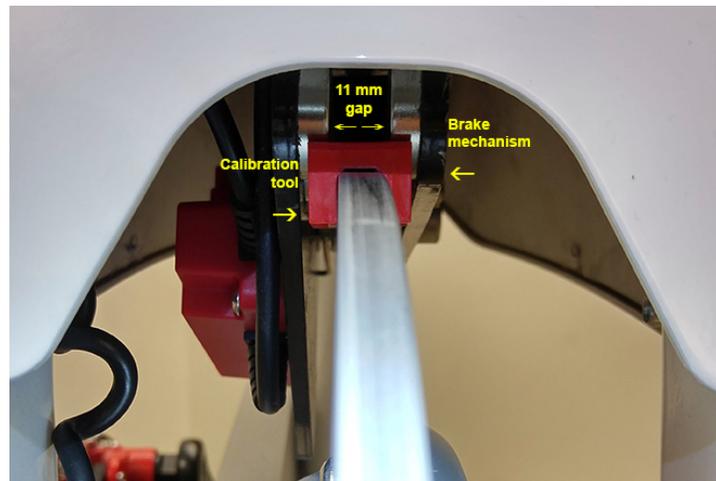


Figure 58

9. Optional Power Upgrade Kit Installation on AC™ Sport and AC™ Performance Bikes

NOTE: When installing the power upgrade kit, do not use the console-to-RPM sensor cable (Item 5) from the console kit. This cable is not used when installing the power upgrade kit. Use the console-to-power cable (Item 2) in the power kit to connect the console to the power sensor. Use the RPM-to-power cable (Item 3) in the power kit to

connect the RPM sensor to the power sensor; this cable is the shorter cable with a two-pin connector on each end of the cable. (Figure 59)



Figure 59

1. Repeat Step 1-9, and 11-21 from the console kit installation instructions above.
NOTE: The difference at this point will be that the cable from the console will not be plugged into the RPM sensor. The RPM sensor cable will have one free end after installing the RPM sensor on the bike and routing the RPM cable through the cable duct. The console-to-power cable has different lengths of unshielded wires at each end as show below in Figure 60 and has RJ45 connectors on both ends. The end with the shorter length of unshielded wires (shown in the right) plugs into the console. The end with the longer length of unshielded wires (shown on the left) is routed through the cable duct and plugged into the power sensor.

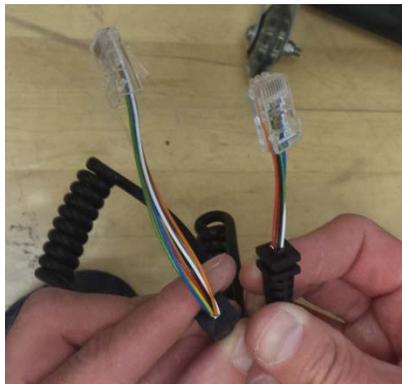


Figure 60



2. Position rubber boot with magnet (magnet assembly) so that the hex pattern of the boot lines up exactly with the hex nut on the resistance mechanism. (Figure 61) NOTE: As of July 2016, the sensor magnet will be mounted during production at the factory.
3. Slide boot onto hex nut and **ensure that boot sits in contact with the black plate of the resistance mechanism.** (Figure 62, Figure 63, and Figure 64)



Figure 61



Figure 62



Figure 63

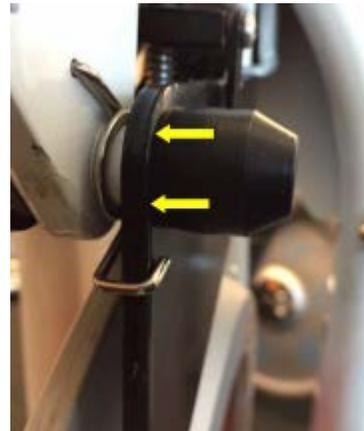


Figure 64

4. If the bike serial number is XXXXXXDAY1642XXXX or later, an updated bolt and magnet assembly will be installed at the factory. (Figure 65) If this updated assembly is already installed, the rubber boot with magnet mentioned in Steps 2 and 3 does NOT need to be installed.

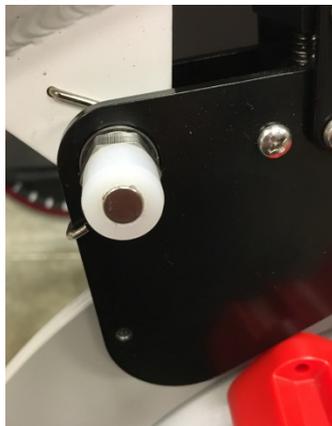


Figure 65



5. Plug console cable into the RJ45 connector at the front of the sensor, and the RPM cable into the 2-pin connector on the underside of the power sensor. Slide each cable's grommet into their respective slots in the power sensor case. (Figure 66 and Figure 67)



Figure 66

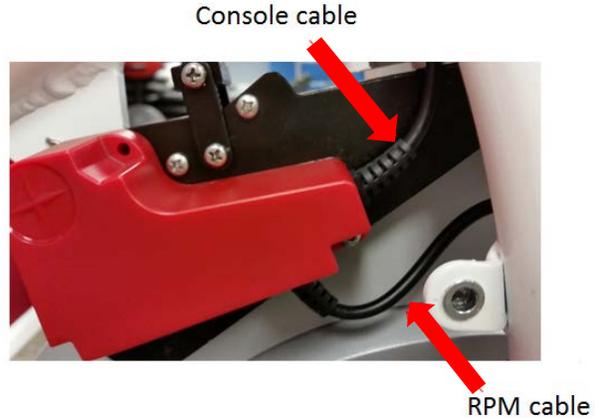


Figure 67

6. Attach sensor case to the resistance mechanism using the M4 x 6mm button head screws. Use blue thread lock on the screws to ensure the sensor mounts fully. **NOTE: Be sure that sensor case sits tight against the black plate of the resistance mechanism. All wires must be contained within the sensor cover and not protrude from the sensor cover, which will prevent the cover from being completely seated.** (Figure 68)



Figure 68

7. Reinstall sweat guard. (See Figure 10)

IMPORTANT: Before using the console with the power upgrade kit for the first time, the power sensor must be calibrated. Follow the instructions for "[Calibrating Power Sensor.](#)"



10. Optional Power Upgrade Kit Installation on AC™ Performance Plus Bikes

NOTE: When installing the power upgrade kit, do not use the console-to-RPM sensor cable (Item 5) from the console kit. This cable is not used when installing the power upgrade kit. Use the console-to-power cable (Item 2) in the power kit to connect the console to the power sensor. Use the RPM-to-power cable (Item 3) in the power kit to connect the RPM sensor to the power sensor; this cable is the shorter cable with a two-pin connector on each end of the cable. (Figure 69)

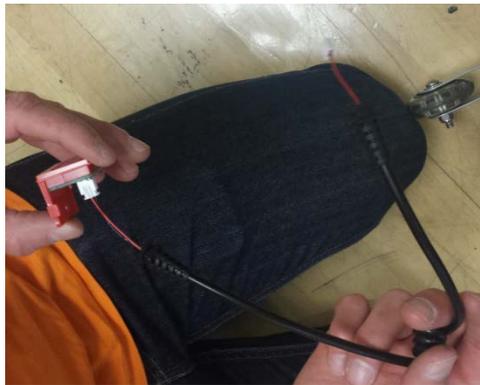


Figure 69

1. Repeat Step 1-9, and 11-21 from the console kit installation instructions above.
NOTE: The difference at this point will be that the cable from the console will not be plugged into the RPM sensor. The RPM sensor cable will have one free end after installing the RPM sensor on the bike and routing the ROM cable through the cable duct. The console-to-power cable has different lengths of unshielded wires at each end as shown in Figure 70 and has RJ45 connectors on both ends. The end with the shorter length of unshielded wires (shown in the right) plugs into the console. The end with the longer length of unshielded wires (shown on the left) is routed through the handlebar post to be plugged into the power sensor. After routing the cable through the post, and reinstalling the post, the RJ45 connector that plugs to the power sensor will be visible. (Figure 71)

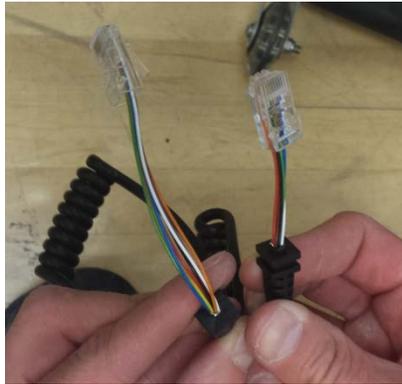


Figure 70



Figure 71

2. Position rubber boot with magnet (magnet assembly) so that the hex pattern of the boot lines up with the hex nut on the resistance mechanism. (Figure 72) Note: As of July 2016, the sensor magnet will be mounted during production at the factory.
3. Slide boot onto hex nut and **ensure that boot sits in contact with the black plate of the resistance mechanism.** (Figure 72, Figure 73, Figure 74, Figure 75)



Figure 72



Figure 73



Figure 74

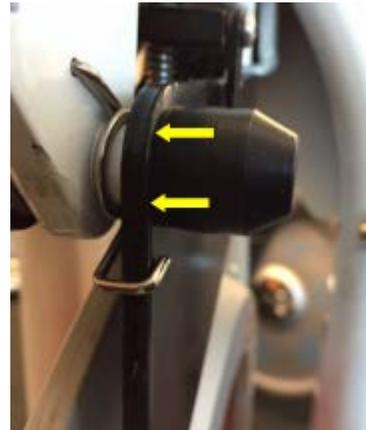


Figure 75

4. If the bike serial number is XXXXXXDAY1642XXXX or later, an updated bolt and magnet assembly will be installed at the factory. (Figure 76) If this updated assembly is already installed, the rubber boot with magnet mentioned in Steps 2 and 3 does NOT need to be installed.

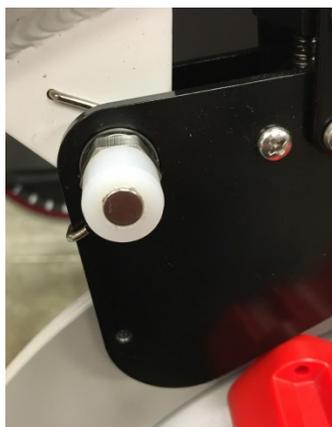


Figure 76



5. Plug console cable into the RJ45 connector, and the RPM cable into the 2-pin connector on the power sensor. Slide each cable's grommet into their respective slots in the power sensor case. (Figure 77)



Figure 77

6. Attach sensor case to the resistance mechanism using the M4 x 6mm button head screws. Use blue thread lock on the screws to ensure the sensor mounts fully. **NOTE: Be sure that sensor case sits tight against the black plate of the resistance mechanism. All wires must be contained within the sensor cover and not protrude from the sensor cover, which will prevent the cover from being completely seated.** (Figure 78)



Figure 638

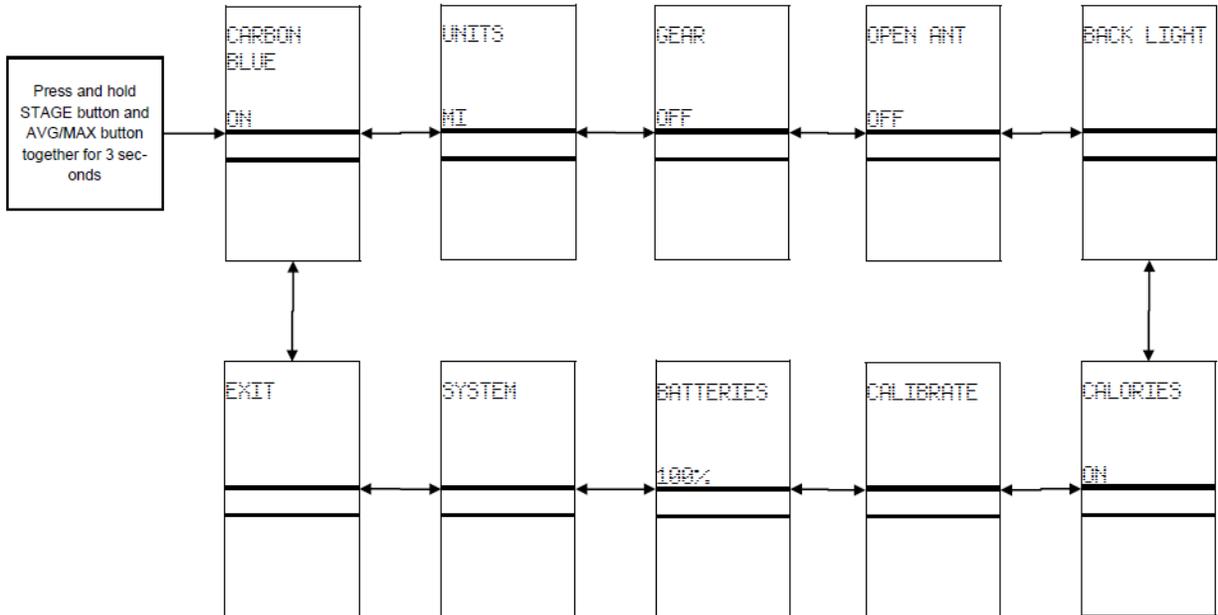
7. Reinstall sweat guard.

IMPORTANT: Before using the console with the power upgrade kit for the first time, the power sensor must be calibrated. Follow the instructions for "[Calibrating Power Sensor](#)."



11. SERVICE MODE OPERATION

Service mode may be entered immediately after powering on the console, or when the console is in Pause mode (Pause mode is indicated by flashing digits on the screen). Service mode cannot be entered during Ride mode. Follow the instructions in the attached picture to enter Service mode. In Service mode, the STAGE button is used to scroll backwards. The LIGHT button is used as an enter button to enter submenus, or make select desired setting. The AVG/MAX button is used to scroll forward. To exit the Service mode, scroll to the EXIT menu and press the LIGHT (Enter) button.



12. ASSIGNING SYSTEM SETTINGS

The picture below shows the optional system settings and how to assign settings. Below is a description of each setting. *NOTE: The Gear setting and Calibration settings are not used unless the optional power upgrade kit is installed.*

Carbon Blue

This setting is used to distinguish between Carbon Blue bike with a belt and bikes with a chain. The default setting is ON. Leave this setting set to ON for Carbon Blue models. On models with chain, set it to OFF.

Gear

This is an optional setting that enables the console to display a gear number that corresponds to the level of resistance. When set to ON, a gear symbol and gear number will be displayed on the right side of the console next to the calories value. This setting is set to OFF by default.



Units

The units refer to the distance. The two optional settings are miles or kilometers. The default setting is miles.

Open Ant Channel

This setting is used to turn on the channel that broadcasts data to external leaderboard systems that display console data on a large screen. This must be set to ON in order for external systems to read data from the console. It is set to OFF by default. Leaving this setting off when not used conserves battery life.

Backlight

This setting allows the user to set the backlight display to a number of settings. In the BACKLIGHT SETTING submenu the backlight can be set as follows:

- Backlight displays for 10 seconds when the LIGHT button is pressed in Ride mode (this is the default setting)
- Backlight displays for 15 seconds when the LIGHT button is pressed in Ride mode
- Backlight displays for 20 seconds when the light button is pressed in Ride mode
- When set to ON, the backlight will always be on when the console is on
- When set to OFF, the backlight cannot be used when the console is on

In the BACKLIGHT HOLD submenu the backlight display can be set as follows:

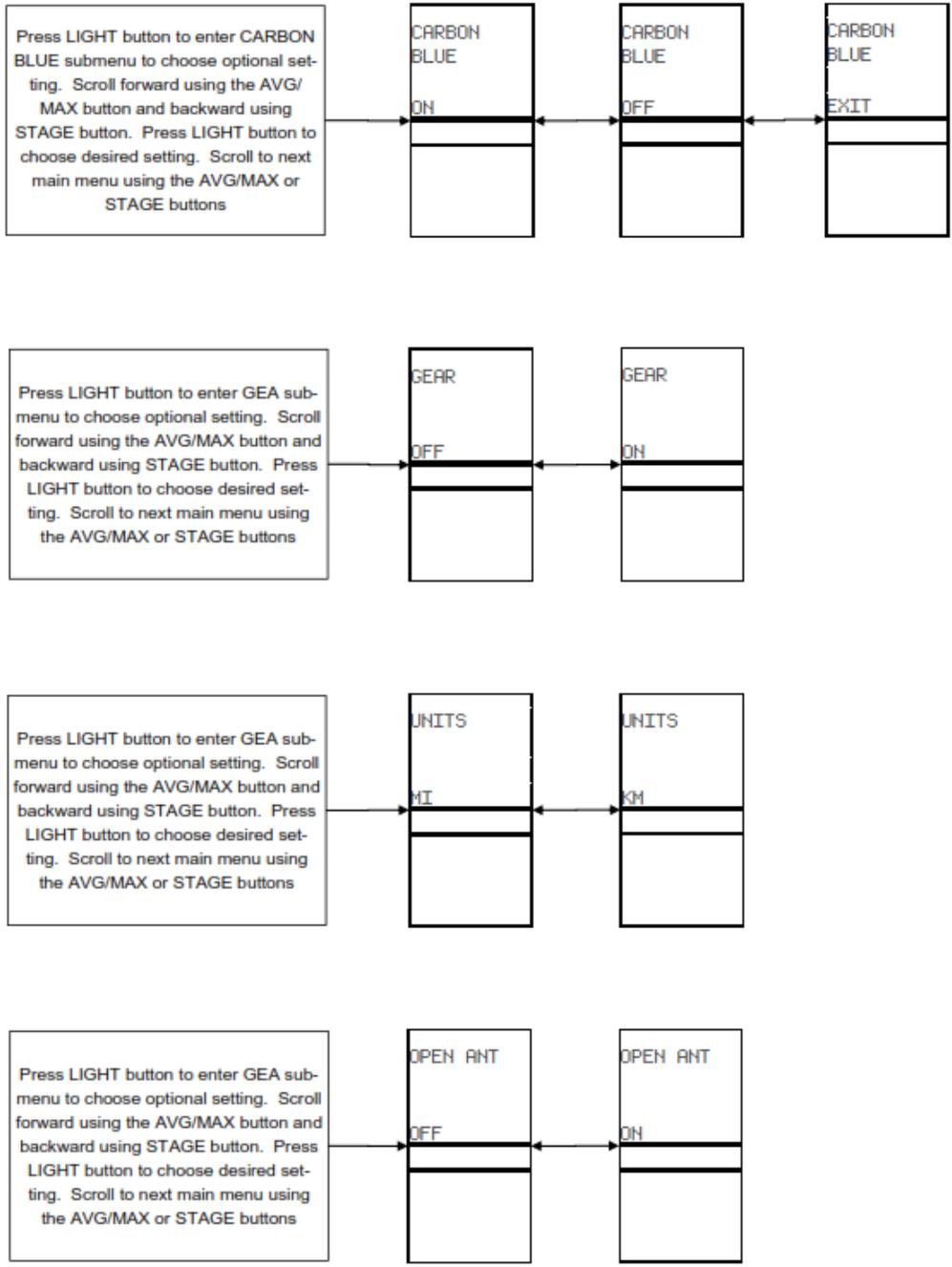
- When set to ON, the rider can press and hold the LIGHT button for 5 seconds, allowing the backlight to remain on until the rider presses the LIGHT button again to turn off the light
- When set to OFF, the backlight hold display cannot be used

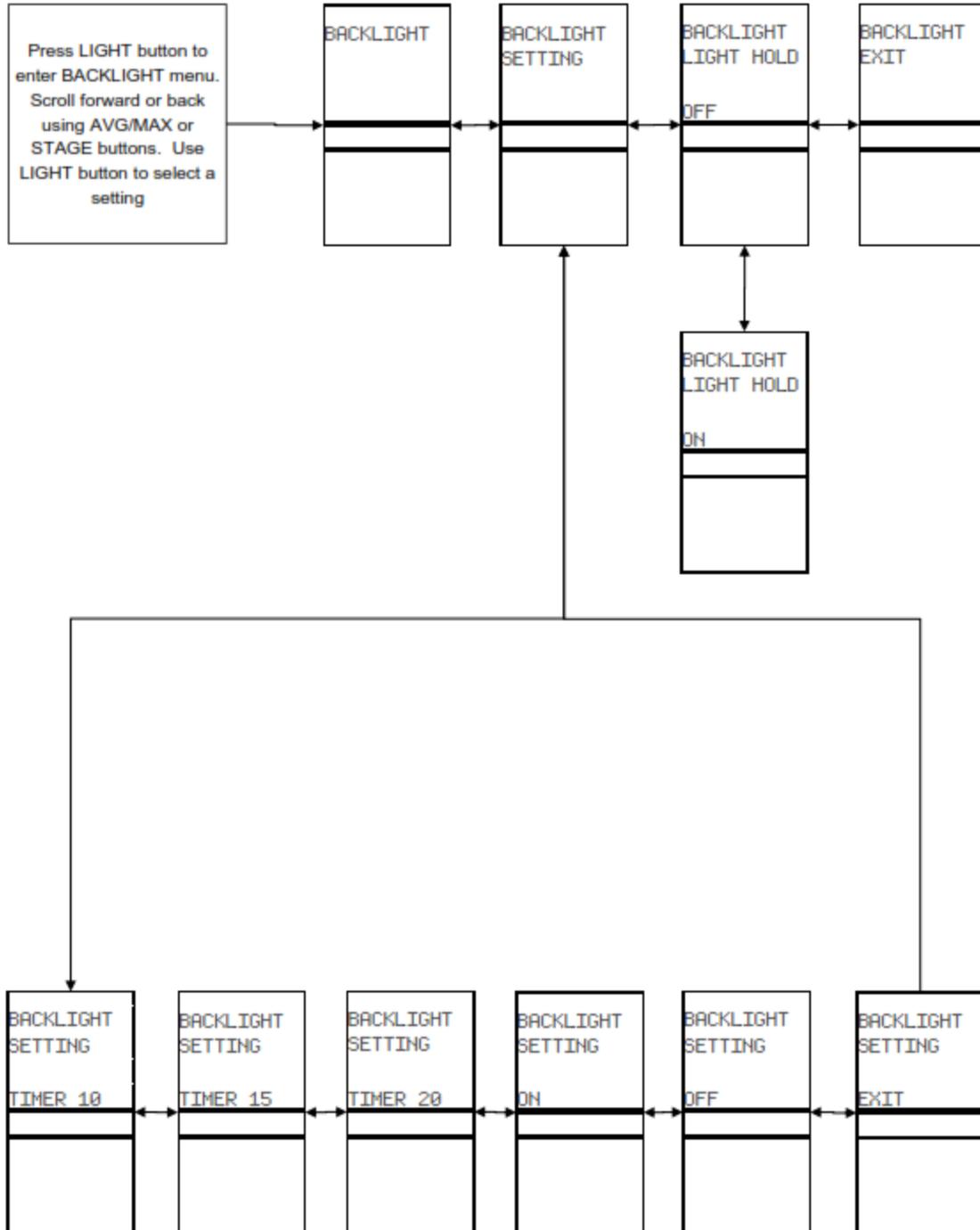
Calories

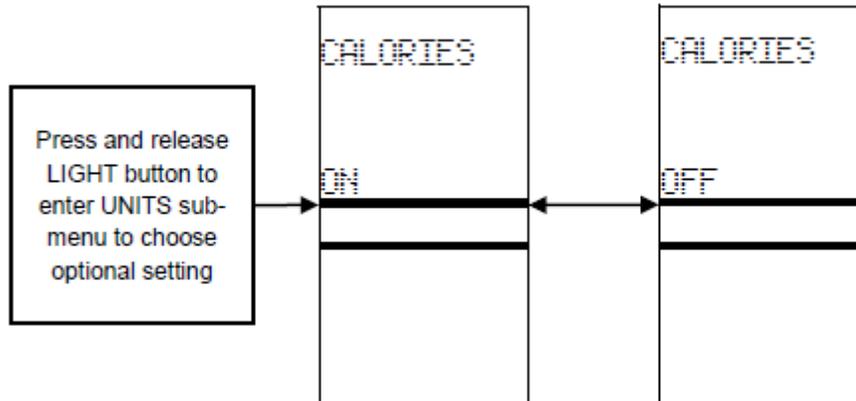
This is an optional setting that enables the user to turn the calorie (CAL) display ON or OFF. This setting is set to ON by default. NOTE: This optional setting is not available in firmware version V1.0. It is available only in firmware version V1.1 and later.

Batteries

The battery strength is displayed on the BATTERIES screen.







13. CALIBRATING POWER SENSOR

Before performing the calibration, follow the steps in Section 9 of this document for checking and adjusting magnet gap. This will ensure consistent power output between multiple bikes.

When the optional power upgrade kit is installed with the console for the first time, the sensor zero point must be set. This is done using the calibration tool included with the power upgrade kit. Follow the prompts as shown below to set the zero point. Place the calibration tool on the flywheel as shown in (Figure 79 and Figure 80). It is very important that the calibration tool rest completely on the flywheel, and is placed between the magnets. NOTE: When rotating the resistance knob to the right after placing the calibration tool as shown, only turn the resistance knob until the knob stops against the calibration tool. DO NOT USE EXCESSIVE FORCE ONCE THE KNOB STOPS TURNING. STOP TURNING AS SOON AS THE KNOB STOPS. After completing the zero set point operation, scroll to CURRENT ANGLE and verify the angle is 0.0 +/- .1 degrees. If the angle is outside this range, then rerun the zero set point process. Once the zero point is set, the console is ready to use.

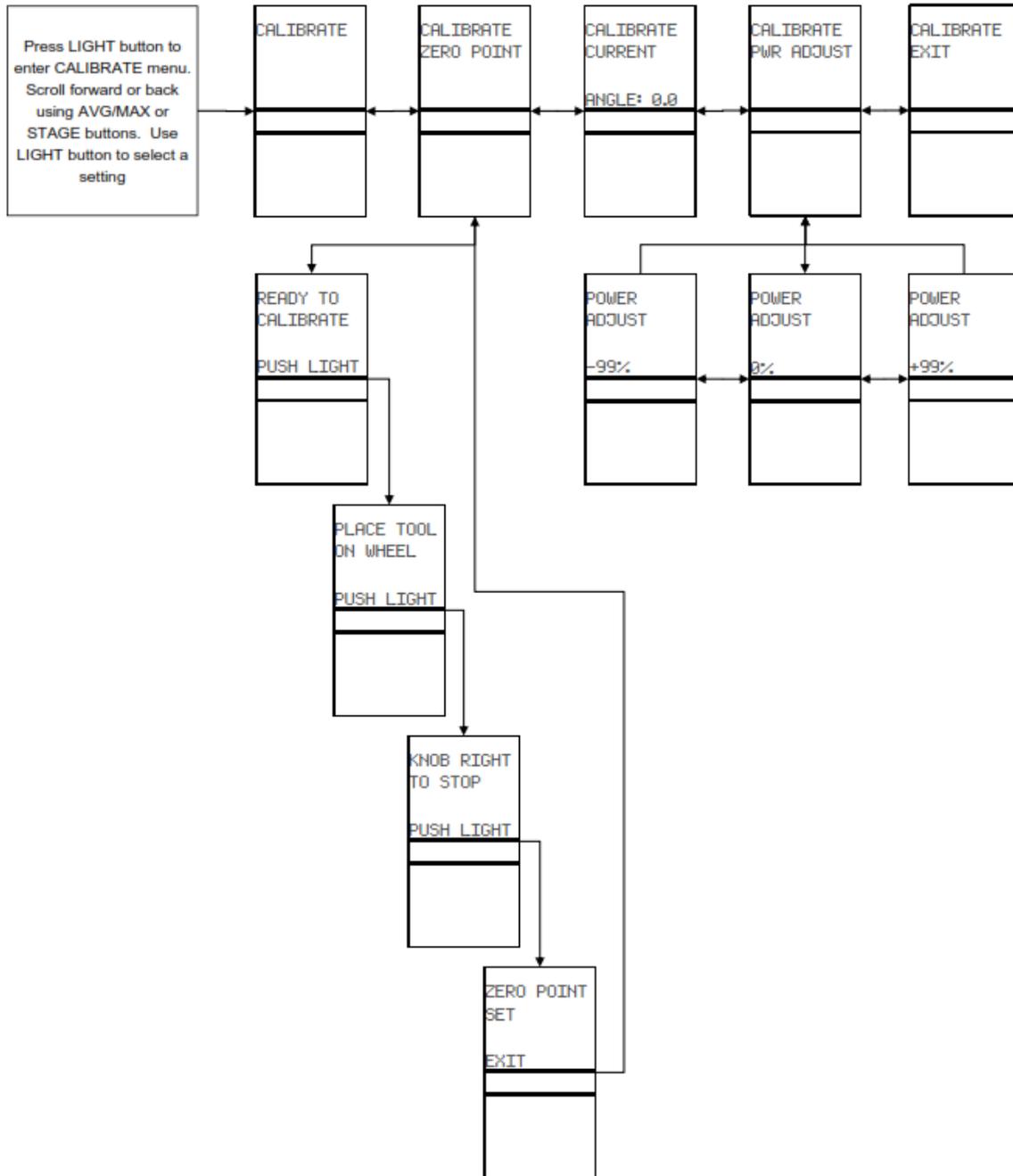
The CALIBRATE PWR ADJUST setting enables the rider to adjust the power displayed up or down between the range of -99% to +99%. This feature is intended to be used to fine tune the power level of bikes to make all bikes consistent in rare cases that some bikes feel “easier” or “harder” to riders compared to other bikes at a given level of resistance.



Figure 79



Figure 80



14. CHECKING SYSTEM SETTINGS, RESETTING SYSTEM, AND UPDATING FIRMWARE

Checking System Settings

In the SYSTEM menu, the first screen displays the system summary which includes:

- Number of hours of usage on the third line



- Current version of firmware on the 4th line, in the lower section of the screen

Resetting System

In the SYSTEM RESET submenu, the console can be restored to factory default settings by following the prompts shown below.

Updating Firmware

The console firmware can be easily updated via a USB stick in the SYSTEM LOAD FW submenu. The firmware file should be loaded onto the US stick under the name "MPowerQ.bin". To load the new firmware, follow the prompts shown below. Updating the firmware will not restore user-defined settings to factory default as is done SYSTEM RESET submenu. All user-defined settings will be maintained when updating firmware. After loading the firmware, scroll back to the SYSTEM SUMMARY screen and verify that the new version of firmware appears. Check the Schwinn Equipment website at www.schwinnequipment.com for firmware updates.



SCHWINN®

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