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HQ Sixteen® C-Pod and P-Pod V. 5 Upgrade Kit

February 2017

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Overview

This upgrade to the HQ Sixteen C-Pod and P-Pod adds Precision stitch regulation capabilities. You must replace both the C-Pod and P-Pod units. In addition, if your HQ Sixteen has the V3 Encoder, you will also need to replace the X and Y encoders’ circuit boards.

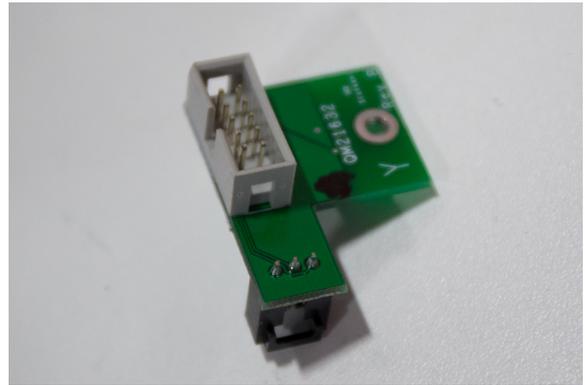
- **IMPORTANT BEFORE PROCEEDING:** If your machine has a buffer between the motor and the P-Pod it must be removed first. It is not compatible with the new C-Pod/P-Pod kit. See the “Instructions for Installing the Rainbow Motor Cable, QM20964” page 8 for how to identify if this step will be needed. If needed, the rainbow cable will need to be ordered, because it is not included with the pod upgrade kit; order number is QM20964.

Kit Contents (part number QM59111)

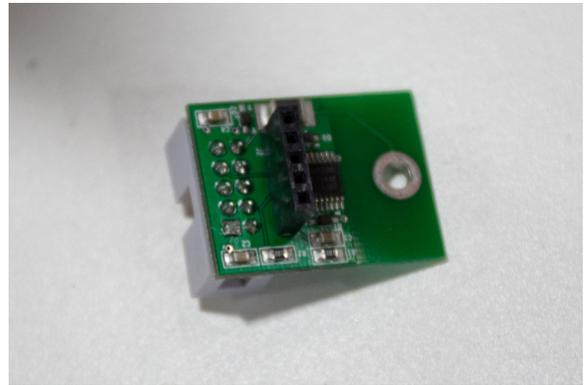
- | | |
|--|--------------------|
| C-Pod, with board version 5 and software version 1.79
Part number QM59110 | pictured on page 5 |
| P-Pod, with board version 5
Part number QM59109 | pictured on page 7 |

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Circuit board (without jumper wire) for Y-encoder
Part number QM21632



Circuit board (without jumper wire) for X-encoder
Part number QM21631



Tools Required

- #1 Phillips screwdriver for use with encoders
- #1 or #2 Phillips screwdriver for use with C-Pod and P-Pod

Safety Precautions

- △ **Electrostatic Discharge (ESD) Warning:** This procedure exposes the control electronics of the HQ Sixteen machine. Take care to avoid handling the open electronics as much as possible. To minimize the risk of damage to the electronics due to ESD, touch an exposed metal part of the machine (such as the thread mast) multiple times throughout the procedure. This will discharge any electrostatic charge that can build up on your body through the machine casing rather than into the control electronics (which could cause damage).
- △ **CAUTION:** Check that the HQ Sixteen is unplugged from the electrical outlet. All power to the machine must be turned off before continuing. Failure to do this can result in damage to the machine electronics or personal injury.

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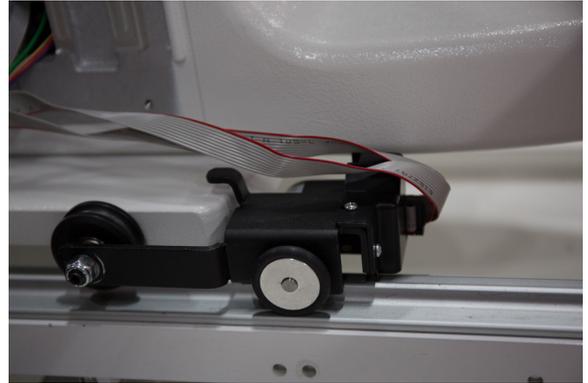
V3 Encoder Upgrades

If you have replaced the V1 or V2 encoders (see note below) that came with your HQ Sixteen with a V3 Encoder, you will need to replace the encoders' circuit boards with the new ones in the kit.

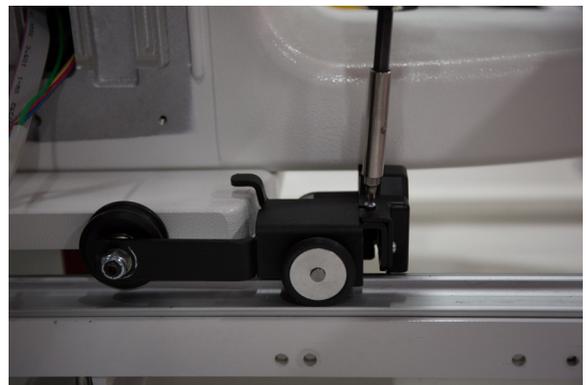
 **NOTE:** V1 or V2 encoders have silver stainless steel housing instead of black housing.

To replace the circuit board in the V3 Y-encoder

1. Unplug the ribbon cable from the encoder.
If you also have HQ Pro-Stitcher®, unplug the HQ Pro-Stitcher communication cable from the encoder board as well.



2. If the encoder has a cover, use a Phillips screwdriver to remove the two screws from the encoder cover.



3. Slide off the Y-encoder cover.
4. Use a Phillips screwdriver to remove the screw from the circuit board.



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5. Remove the old circuit board by pulling straight out.



6. Insert the new circuit board by carefully aligning the pins on the circuit board with the holes on the Y-encoder. Screw into place.
7. Replace the cover and screw into place.
8. Plug the ribbon cable into the encoder. If you have HQ Pro-Stitcher, plug the communication cable into the encoder as well.

To replace the circuit board in the V3 X-encoder

1. Unplug the ribbon cable.
2. Use a Phillips screwdriver to loosen the screw from each side of the encoder cover.
3. Slide off the encoder cover.
4. Use a Phillips screwdriver to remove the screw (circled) from the circuit board.



5. Remove the old circuit board by pulling straight out.
6. Insert the new circuit board by carefully aligning the pins on the circuit board with the holes on the Y-encoder. Screw into place.
7. Replace the cover and screw into place. Then plug in the ribbon cable.

C-Pod and P-Pod Upgrades

To remove the C-Pod

1. Identify the C-Pod. When facing the needle end of the machine, the C-Pod is on the right side.



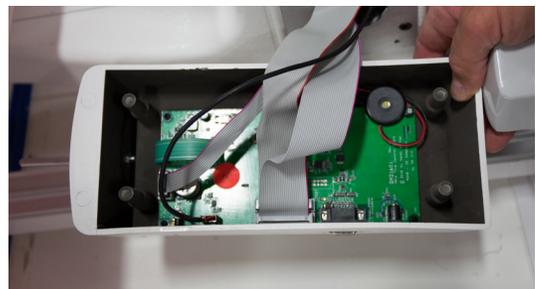
2. Disconnect the stitch regulator cable from the C-Pod.
3. Remove the four Phillips screws that connect the C-Pod to the side of the machine. Store the screws in a safe place. You will need them to attach the new C-Pod.



△ **CAUTION:** Before you disconnect the cables in the next step, note that the small round shaft encoder cable has a delicate connection that can be damaged if wiggled up and down or side to side. Carefully pull it straight out without wiggling.

4. Gently tilt the C-Pod away from the machine base and unplug all cables that are connected to the circuit board within the C-Pod by pulling them straight out holding the connector housing.

✍ **NOTE:** We recommend that you take a digital photo of how the cables are connected to the circuit board for help when reinstalling the C-Pod.



To install the new C-Pod

1. Plug the cables into their appropriate connectors on the C-Pod. The two gray ribbon cables can be plugged into either slot (labeled *Handlebars*) on the C-Pod board (noted with an oval in the image at the right).
2. Attach the narrow ribbon cable to the J8 power connector (noted with an arrow in the image at the right).
3. The remaining cable is sized to fit the white connector labeled Shaft Encoder (circled in the image at the right). Once again be very careful with this cable connection; plug it straight into the board. It will fit only one way onto the connector. If you took a photo when removing the C-Pod, use the photo as reference if needed.



4. Gently guide the cables back into the C-Pod housing while putting the C-Pod back in place on the machine. Make sure no cables are pinched by the edges of the C-Pod and that they are out of the path of the mounting screws.

⚠ **IMPORTANT:** Do not push the cables back into the machine casting or the cables may be damaged by moving parts inside the machine.

5. Mount the C-Pod with the four Phillips screws, tightening just until snug.

To remove the P-Pod

1. Identify the P-Pod. When facing the needle end of the machine, the P-Pod is on the left side. It has the on/off switch.
2. Use a Phillips screwdriver to remove the four screws that connect the P-Pod to the side of the machine. Store the screws in a safe place. You will need them to attach the new P-Pod.



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- Carefully tilt the P-Pod away from the machine base and unplug all cables that are connected to the circuit board within the P-Pod by pulling them straight out holding the connector housing.
- Carefully disconnect the two sides of the green grounding cord at the white connection.

 **NOTE:** We recommend that you take a digital photo of how the cables are connected to the circuit board for help when reinstalling the P-Pod.

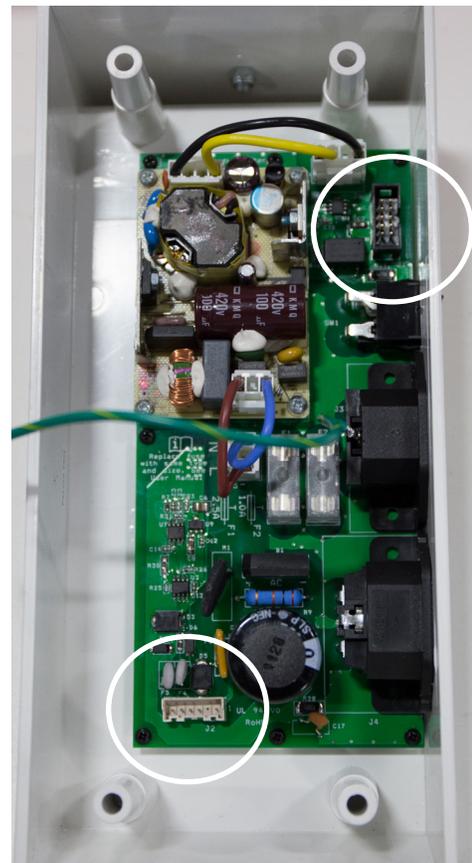


To install the new P-Pod

 **CAUTION:** Review the Electrostatic Discharge (ESD) Warning at the beginning of this document.

- Plug the cables into their appropriate connectors on the P-Pod as follows:
 - Reconnect the two sides of the green grounding cable.
 - Plug the multi-color set of cables into the slot labeled J2 (circled) in the lower-left corner of the circuit board.
 - Plug the ribbon cable into the slot labeled J1 (circled) in the upper-right corner of the circuit board.

 **NOTE:** If you took a photo when removing the P-Pod, use the photo as reference if needed.



- Gently guide the cables back into the P-Pod while putting the P-Pod back in place on the machine. Make sure no cables are pinched by the edges of the P-Pod and that they are out of the path of the mounting screws.
- Mount the P-Pod with the four Phillips screws, tightening just until snug.

 **NOTE:** The longest screw goes in the lower-left corner hole.

Instructions for Installing the “Rainbow” Motor Cable, QM20964



Figure A

Figure B



Figure C



Figure D



Figure E



Figure F

1. This procedure should only be performed if the Motor Cable in the P-Pod looks like Figure B and C rather than the “Rainbow” cable in Figure A.

△ **Caution:** Make sure the machine is unplugged from the power source.

2. Remove the four screws from the P-Pod with a phillips scredriver.
3. Carefully pull on the gray round/tubular cable (not the gray flat ribbon cable) until the black heat-shrink covered circuit board (buffer) is accessible through the hole in the machine casting (Figure C).
4. Holding onto the buffer, start carefully cutting through the heat shrink on the flat side of the buffer. Once you have cut far enough to expose the end of the motor cable on the far inside of the board, unplug the white motor cable connector from the buffer.

✂ **NOTE:** The round cable connected to the board, the board, and the heat shrink can now be thrown away (Figures D & E).

5. If necessary, use needle nose pliers to secure the white connector on the motor cable inside the machine casting; so that when you remove the buffer board, the cable does not fall back into the machine. If the cable does fall back into the machine, it can usually be reached with needle nose pliers and pulled back toward the service opening of the machine.

6. Plug the new “Rainbow” cable directly into the white connector on the short rainbow cable inside the machine casting (Figure F). You should hear a click as the two cables lock together.

7. Let the “Rainbow” cable relax back into the machine. Any excess cable should be folded up into the P-Pod so as not to be pinched.

△ **Caution:** Do not force the excess cable into the machine where it may become damaged by the gears or belts.

8. Reinstall the P-Pod taking care not to pinch any wires or hit any wires with the screw ends.

New Features

These instructions summarize the new capabilities of the updated HQ Sixteen software that is part of this upgrade.

Stitch Regulation

The original stitch regulator used *Cruise* mode. This update adds *Precision* mode.

Cruise Mode

In Cruise mode, set the machine to the desired stitches per inch and speed percentage (from 7% to 30%). Press the Start/Stop button on the front or rear handle bars to begin quilting. The needle will begin to move at the speed percentage you set. As you move the machine, the machine motor will slow down or speed up to maintain a consistent stitch length according to how quickly or slowly you move the machine. When you are through quilting, press the Stop button.

Precision Mode

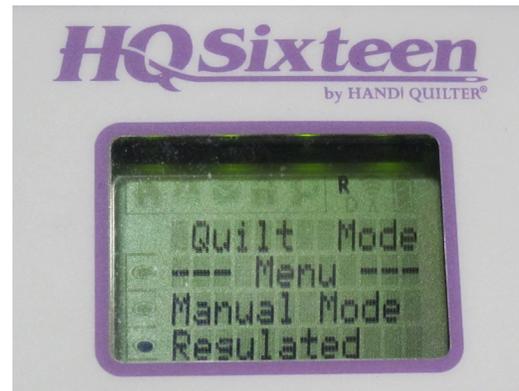
In Precision Mode, the needle will not begin moving when you press the Start/Stop button on the handlebars. It will move when you begin moving the machine. As you move the machine, the machine motor will slow down or speed up to maintain a consistent stitch length according to how quickly or slowly you move the machine. When you are through quilting, press the Stop button.

To select regulated mode

1. Scroll through the menu options with the arrow buttons until you see the **Quilt Mode** option. Then press the **Select** button.

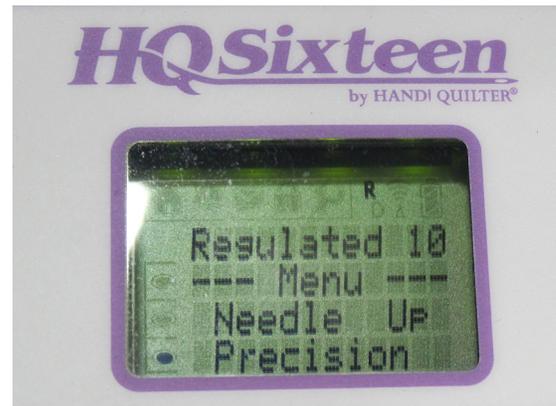


2. Use the arrow buttons to choose **Regulated**. Then press **Select**.



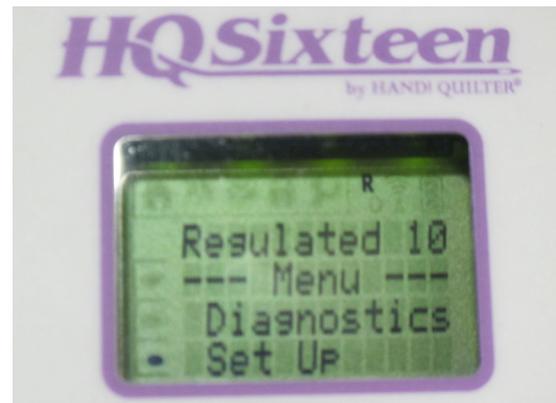
To alternate between Cruise and Precision stitch regulation

1. While in Regulated mode, use the arrow buttons to scroll until you see either **Cruise** or **Precision** on the screen.
2. Then press the **Select** button to alternate between Cruise or Precision stitch regulation.



To set the Cruise speed

1. Press the arrow keys until you see **Setup** on the screen. Then press **Select**.



2. Use the arrow keys until you see **Cruise Speed** on the screen. Press **Select**.



3. Use the arrow keys to increase or decrease the Cruise Speed to between 7% and 30%.



Other new features with this upgrade

In addition to being able to use both Cruise and Precision stitch regulation, this upgrade provides the following other new capabilities:

- When the machine is stopped while in regulated mode, use the plus (+) and minus (—) buttons to increase or decrease the stitches per inch setting.
- If you have HQ Pro-Stitcher with your HQ Sixteen, the handlebar buttons work while HQ Pro-Stitcher is active.

Trouble Shooting

If the needle stops either too high or too low, take the machine to an authorized HQ Retailer technician for servicing. The belt and/or the main shaft encoder disk may need to be adjusted.

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