

## Calibration Of The Ultima ZT1 42E Throttle Position Sensor (TPS)

**NOTE:** Videos are available for the Operation and Calibration of the Ultima ZT1 42E by clicking on one of the links below.

How to Operate the Ultima ZT1 42E: <https://youtu.be/NV9wlv-cf5k>

How to Calibrate the Ultima ZT1 42E Throttle Position Sensor: <https://youtu.be/IUNXliuQQGw>

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**Pre Calibration Steps:** Page 2.

**Calibration Steps:** Pages 3 through 8.

The VCM buttons are shown in Figure 1.

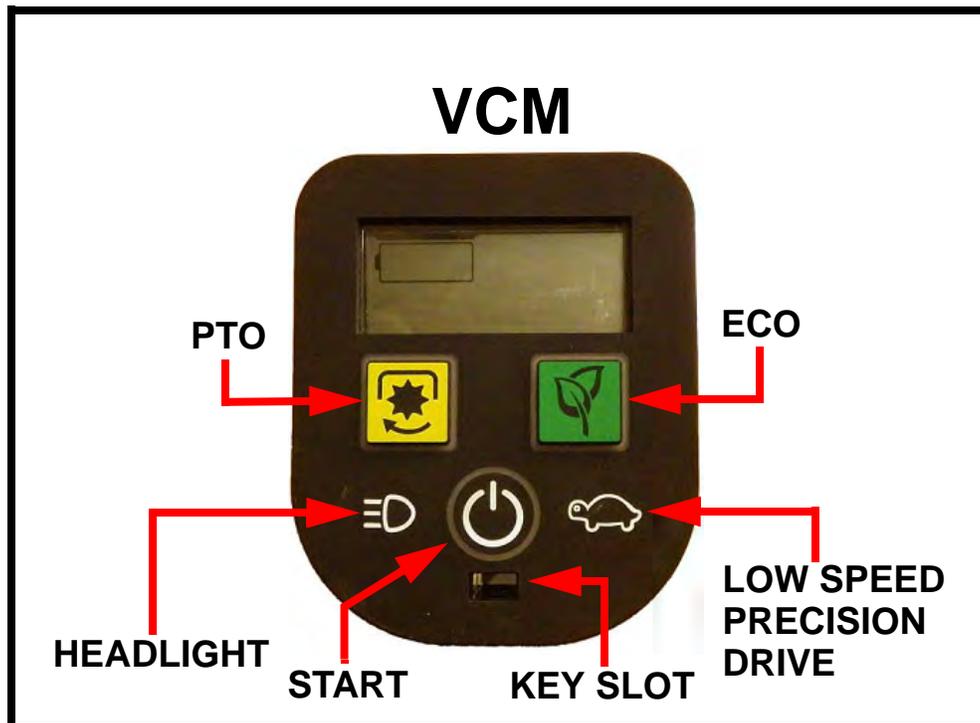


FIGURE 1

## Pre Calibration Steps:

1. Park the mower on a flat level surface. Chock the rear wheels.
2. Equal air pressure and tire size is important on zero turn mowers and is especially important on the electrically powered drive motors of the **ZT1 42E**. Check and maintain both rear tires at 10 psi and the front tires at 20 psi.
3. Confirm that both lap bar drive control lever stop adjustment bolts are adjusted all the way out so that the bolt is flush with the end of the Rivnut. See Figure 2.

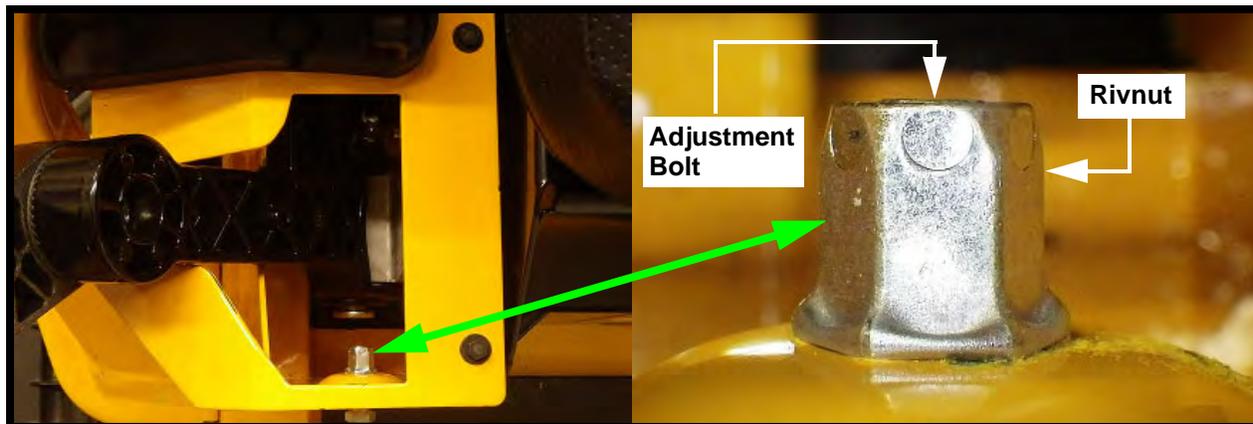


FIGURE 2

4. Confirm that the lap bars are aligned evenly across from each other by adjusting the adjust knobs shown in Figure 3.



FIGURE 3

5. In a large area free of bystanders and obstacles, drive the mower in both "**Low Speed Precision Drive**" and "**Standard Drive**" modes. Operate the mower through turns, starts and stops, etc. If the experience is unsatisfactory in the operation of the mower, proceed to the "**Calibration Steps**" on Page 3.

**IMPORTANT:** The Brake must be released. **DO NOT** touch the brake pedal during any of the calibration procedures.

**NOTE:** If during the calibration procedures, an error code shows up on the screen. Start the calibration procedures over beginning at Step 1 after removing the key.

## Calibration Steps:

1. Insert the key into key slot.
2. Make sure both lap bars are in the “**OUTWARD**” position as shown in Figure 1.



FIGURE 1

3. Simultaneously press and hold the **ECO**  and the **HEADLIGHT**  buttons for 7 seconds or until the screen displays **F N R** as shown in Figure 2, then release the **ECO**  and **HEADLIGHT**  buttons.

**NOTE:** If the VCM will not accept calibration inputs, retry Steps 1 through 3. If the VCM still will not accept calibration inputs, contact your local Cub Cadet Service Dealer.



FIGURE 2

4. Leave the right lap bar in the “**OUTWARD**” position and move the left lap bar to the inward “**NEUTRAL**” position as shown in Figure 3.



FIGURE 3

5. Move the left lap bar forward until it hits a hard stop on the lap bar drive control lever stop adjustment bolt Rivnut as shown in Figure 4.

6. Press the **LOW SPEED PRECISION DRIVE**  button.

7. Release the lap bar and allow it to return to the **"NEUTRAL"** position.



**FIGURE 4**

8. The **"F"** on the screen should have a box around it as shown in Figure 5.



**FIGURE 5**

9. Place the left lap bar in the “**OUTWARD**” position as shown in Figure 6 and press the

**START**  button.



**FIGURE 6**

10. The “**N**” on the screen should have a box around it as shown in Figure 7.



**FIGURE 7**

11. Move the left lap bar to the “NEUTRAL” position and pull rearward until it hits a hard stop as shown in Figure 8 and press the

PTO  button.

**NOTE:** *If you hold the button for more than 7 seconds, you will get an error code.*



FIGURE 8

12. The **[F][N] R** display will disappear and the screen will switch to the start screen as shown in Figure 9. This indicates that the calibration for the left lap bar has been completed and saved.

13. Release the lap bar and allow it to return to the “NEUTRAL” position.



FIGURE 9

14. For the right side lap bar calibration, proceed as follows.
15. Place both lap bars in the **"OUTWARD"** position as shown in Figure 10.



**FIGURE 10**

16. Simultaneously press and hold the **PTO**  and the **HEADLIGHT**  buttons for 7 seconds or until the screen displays **F N R** as shown in Figure 11, then release the **PTO**  and **HEADLIGHT**  buttons.



**FIGURE 11**

17. Leave the left lap bar in the “**OUTWARD**” position and move the right lap bar to the inward “**NEUTRAL**” position as shown in Figure 12.
18. For the completion of the right lap bar calibration, repeat Steps 5 through 13, then proceed to Step 19.
19. After performing the calibration procedures for both lap bars, test drive the mower again in a large area in both drive modes to verify that the recalibration is satisfactory.



**FIGURE 12**

If you feel that there is no difference, please contact us directly. We would like to speak to you about your feedback and points of concern. Please send an email to [ElectricRidingMowers@mtproducts.com](mailto:ElectricRidingMowers@mtproducts.com) so that we can coordinate a time to discuss this at your convenience.