

**Issue Summary** ERROR E-7 Requiring Calibration of the DC Incline motor and VR  
**Applies To** Elliptical trainer models pictured - E821, E825, E830, E870 and E880  
 Not pictured but same basic process for - E82, E820, 805P, 807P, 8300 and E8300

**Detailed Problem Description**

ERR E-7 indicates that the stride motor and the variable resistor (VR) are not synchronized. Signal from the VR is not being received properly. Loose cabling or mechanical / electrical calibration is needed to reset this error message.

**Procedure Overview**

- 1) Accessing the Motor(s)
- 2) Electrical Calibration
- 3) Mechanical Calibration
- 4) Test Equipment Operation

**NOTE:** The equipment is powered up during this process. Take appropriate precautions to avoid personal injury and equipment damage from electrical shock.

- A) Use the STRIDE ▲ key to adjust the stride length to the 26" position. Take notice of which side does not adjust properly.
- B) Expose the motor assembly on the malfunctioning side of the equipment.
  - 1) Use an Allen wrench to remove the frame support bar retaining bolts. Place the bolts and washers aside with the frame support bar.



**1) Accessing the Motor(s)**

- A) Determine which motor is malfunctioning
- B) Expose the motor assembly

- 2) Remove frame support bar and stationary handle.
- 3) Remove the stride bolt cover.



- 4) Use a 6mm Allen wrench to remove the stride bushing bolt.



- 5) Remove the bushing from the stride rail and set it aside.

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- 6) Remove the stopper on the glide rail and set it aside.



- 7) Pull to detach the stride rail and set the rail on the ground. Use a towel between contact points on hard flooring to keep from damaging floors and/or equipment.



- 8) Remove the glide rail by pushing the pedal carriage forward. Set the glide rail on the frame and use a towel between contact points to keep from damaging equipment.



- 9) Use C-clip pliers to remove the clip, and then remove the washer stack. Keep the order correct for reassembly. From inner to outer, the stack should be: White Teflon washer, flat washer, wave washer, flat washer, and then the C-clip retainer.



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10) Pull the stride arm assembly toward the outside of the unit slightly to access the shoulder covers screws. Remove the shoulder covers. Note that there are 2 types of screws: Pointed screws connect plastic standoffs and flat screws connect with the metal support arm. This is important for reassembly.



11) Remove the 4 motor retaining bolts on the stride arm. There are 2 on either side.



12) Remove the access cover by pressing in slightly and sliding the cover up.



13) First unplug the wires. **NOTE** - To avoid damaging the wire you must push the wires down through the bottom of the rail and pull them out. (This step is not required on E82, E820, 805P, 807P, 8300 and E8300)



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14) Remove the motor assembly by inserting the stride bushing into its socket and using it to lift the motor assembly. When the motor assembly cannot be lifted from the bottom any further, lift it out from the top. **Do Not** lift the motor assembly by the wiring harness. Removal of the motor assembly may require tilting the stride arm to avoid contact with the display.



**NOTE:** The equipment is powered up during this process. Take appropriate precautions to avoid personal injury and equipment damage from electrical shock.

**2) Electrical Calibration**

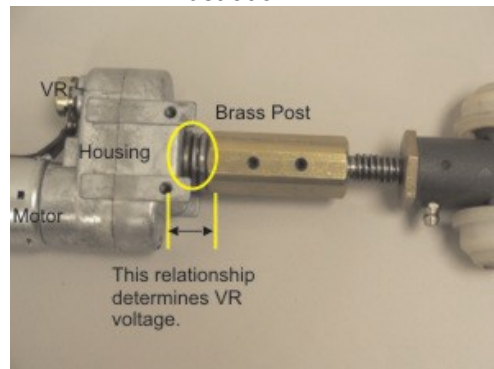
- A) Reconnect motor to power
- B) Test VR voltage
- C) Set VR calibration
- D) Replacement (if necessary)

- A) Reconnect the stride motor wires. Plug in wall powered equipment (E821, E825, E830, E880, E82, 805P, 807P) and turning on the power. For self-powered equipment (E870, 8300 and E8300), press the "ON" key on the display to operate from battery power during calibration.
- B) Using a multimeter set to read 20VDC, test the VR voltage. In the wiring connector, locate the 3-pins for the stride VR connection (orange/white/black wires).
  - 1) Place the ground (black) multimeter probe on the ground wire (**BLACK**) connection, making sure to maintain metal-to-metal contact. (Illustration #1)
  - 2) Place the positive (red) multimeter probe on the adjustment wire (**WHITE**) connection, making sure to maintain metal-to-metal contact. (Illustration #1)
  - 3) The VR voltage should be 4.15 VDC.
- C) If the VR voltage is not 4.15 VDC, the rotate the brass post to adjust the voltage reading. (Illustration #2)
- D) If the VR never obtains or does not maintain a 4.15 VDC reading, the stride motor needs to be replaced. (VR is not a replaceable separate item)

Illustration #1




Illustration #2



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<p><b>3) Mechanical Calibration</b></p> <ul style="list-style-type: none"> <li>A) Set worm gear calibration</li> <li>B) Ensure appropriate orientation</li> <li>C) Secure motor assembly in stride arm</li> </ul>	<p><b>NOTE:</b> Do not disturb the electrical calibration setting during mechanical calibration. Ensure that the motor and brass post stay in the same alignment when setting the worm gear calibration or the entire calibration procedure will need to be performed again.</p> <ul style="list-style-type: none"> <li>A) Detach the wiring harness and set the worm gear calibration distance to 1 ¼ inches by rotating the lower portion of the stride assembly.</li> </ul>  <ul style="list-style-type: none"> <li>B) Ensure the stride rail bushing socket is facing the stride rail, and the zirc fitting (grease gun port) is facing the front of the equipment.</li> <li>C) Without disturbing the electrical or mechanical calibration settings, carefully insert the motor in the stride arm. Secure the motor in place with the 4 retaining bolts removed in Step 1-B-11 and reconnect the wiring harness.</li> </ul>
<p><b>4) Test Equipment Operation</b></p> <ul style="list-style-type: none"> <li>A) E821, E825, E830, E880, E82, 805P and 807P procedure.</li> <li>B) E870, 8300 and E8300 procedure.</li> </ul>	<ul style="list-style-type: none"> <li>A) Reassemble the equipment by reversing the disassembly instructions in Step 1-B. The access cover, shoulder cover and frame support are not necessary to reinstall to test the stride calibration on wall-powered equipment.</li> <li>B) Fully reassemble the equipment by reversing the disassembly instructions in Step 1-B. Self-powered equipment must be fully assembled to operate in order to test the calibration. <ul style="list-style-type: none"> <li><b>Test Operations for wall-powered and self-powered equipment:</b></li> <li>1) Operate the stride decrease set up. Press the STRIDE ▼ key. Display stride value decreases. Stride shortens on equipment.</li> <li>2) Operate the stride increase set up. Press the STRIDE ▲ key. Display stride value increases. Stride lengthens on equipment.</li> <li>3) If ERR7 message persists, inspect calibration <ul style="list-style-type: none"> <li>a) If the VR output changes when the stride is not moving, or jumps when it is moving, the VR is bad; replace the assembly.</li> <li>b) If the motor does not move when voltage is applied, the stride motor is bad; replace the assembly.</li> <li>c) If the VR output is correct and consistent and the motor moves when voltage is applied, but ERR7 message persists, inspect the wiring. If wiring is not frayed or damaged, the unit may need a new display and drive board.</li> </ul> </li> </ul> </li> <li>C) When equipment passes all test operations, complete reassembly of wall-powered units by replacing the access cover, shoulder cover and frame support before use.</li> </ul>