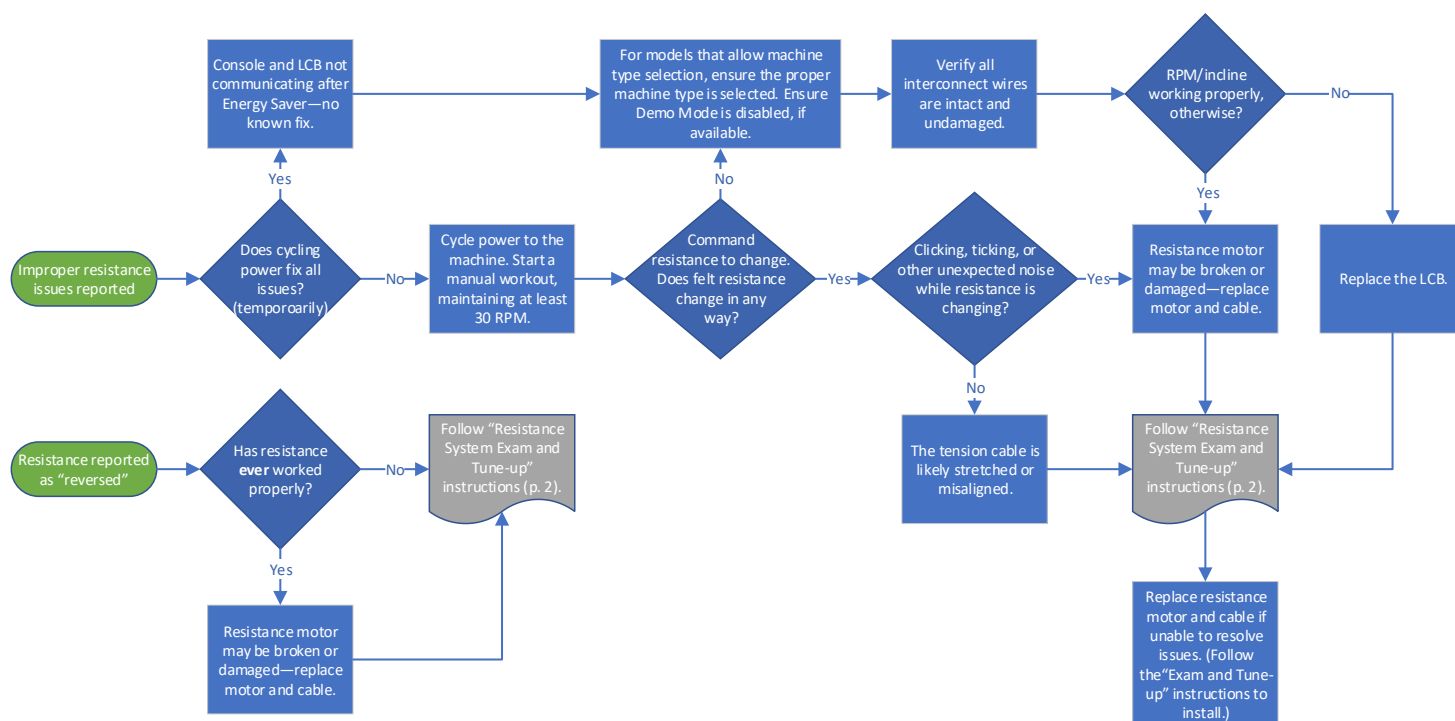


	Troubleshooting Guide: Resistance		
Prepared by: Bill Kasper	Date Prepared: 5/3/2021	Models Affected: Retail Bikes and Ellipticals, Horizon Rower	Bulletin Number: NB-2105004

Follow the flowchart below to troubleshoot improper or “reversed” resistance,



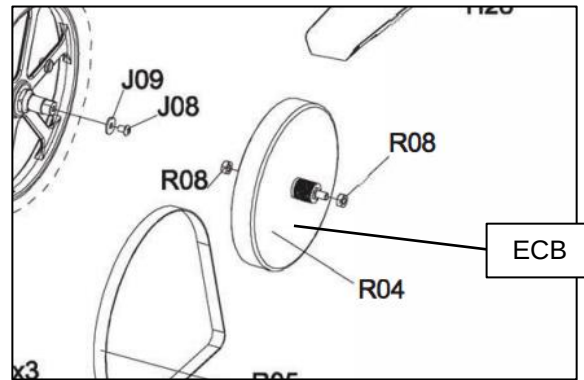
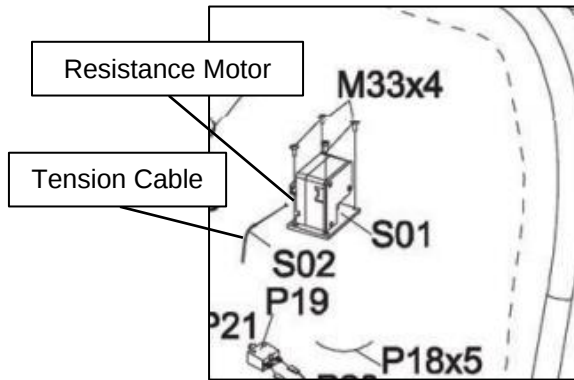
RESISTANCE SYSTEM EXAM AND TUNE-UP

Required Tools

- #2 Phillips screwdriver
- 2mm Allen wrench
- 6mm Allen wrench
- 8mm Allen wrench
- 8mm wrench
- 16mm wrench
- Needle-nose pliers
- Bearing puller & appropriate wrench

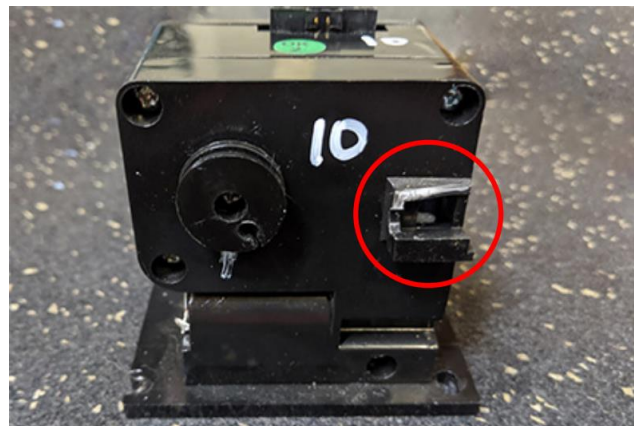
Part Glossary

Reference numbers may vary depending on the model.

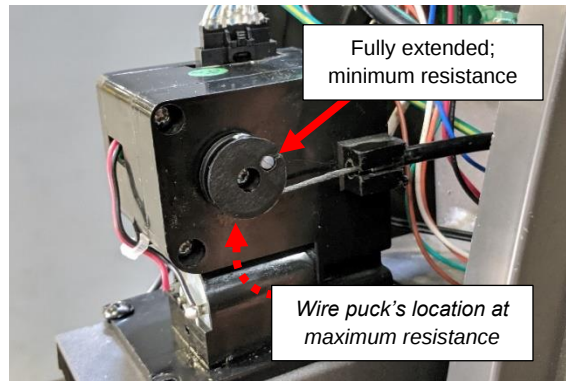


Procedure

1. Remove all covers to access the ECB, resistance motor, and tension cable. Refer to the Frame Service Manual for instructions on how to remove the covers.
2. Inspect the resistance motor:
 - If the cable bracket is broken or damaged, replace the resistance motor.



- If the cable is broken, replace the cable.
- Step the machine to at least 15 RPM (carefully, if one crank arm is removed), start a workout, and then command maximum resistance. The resistance motor pulley should rotate counterclockwise, feeding the cable into the housing. Returning to minimum resistance, the resistance motor pulley should turn clockwise, pulling the cable from the housing. If you observe any clicking, skipping, or “missing teeth,” replace the resistance motor.

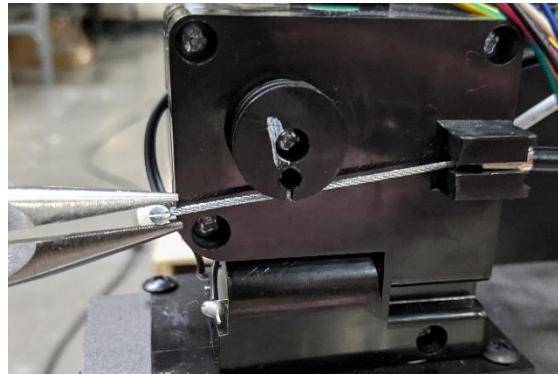


- If the motor can be heard or felt turning but the pulley doesn't move, replace the resistance motor.
3. Command the console to maximum resistance. The resistance motor pulley should turn counterclockwise, and the cable head socket in the pulley should stop closer to the bottom.
 4. Promptly disconnect power from the machine—some frames will automatically return to minimum resistance if the workout pauses due to no RPM.
 5. Check the cable head in the ECB orange block. If the head is extended up above the orange block (no tension at all on the cable), the cable is likely stretched and needs to be adjusted or possibly replaced.



6. If replacing the resistance motor, remove the old one and install the new one. Connect all wires, but leave the tension cable disconnected.

7. Disconnect the cable head from the pulley (if attached) and pull it against ECB spring tension to ensure smooth, bind-free travel. Consider replacing the cable or the ECB if either is binding or sticking.

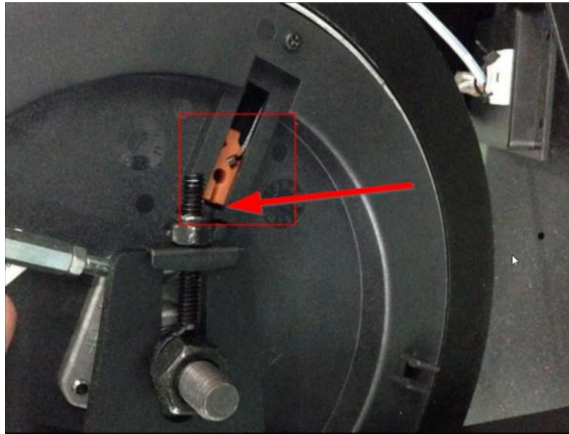


8. If replacing the tension cable, disconnect the cable head from the orange block in the ECB. Route the new cable and connect the cable into the ECB orange block.
9. Loosen the cable housing length adjustment locknut and then tighten the housing length adjustment to make the **housing** as short as possible.



10. If the resistance motor was replaced, restore power and allow the resistance motor to set itself to initial position. Start a workout and command the console to maximum resistance; the pulley will rotate counterclockwise. Disconnect power once the pulley comes to a stop.
11. Attach the cable head back on to the resistance motor pulley.
 - Ensure that the cable seats properly in the pulley groove.
 - Check that all cable housing ends are properly seated in their brackets.
12. Restore power; the resistance motor will wind up the cable and stop moving at minimum resistance.

13. Insert a 2mm Allen wrench between the orange block and the bottom of its path (closest to the center of the flywheel). Use the cable adjustment to lengthen the cable housing until the Allen wrench is squeezed between the orange block and the end of its path. Remove the Allen wrench, leaving a 2mm gap. Tighten the locknut for the cable adjustment.



- If the orange block gap cannot be reduced to 2mm, the cable is stretched beyond spec—replace the cable.
 - If a 2mm Allen wrench cannot fit in the gap, no adjustments are needed.
14. Reinstall any removed covers and reassemble the machine. Resistance should work as expected.