Razor Service Guide 2020

Basic Guide to Razor Systems

Service Department 1/1/20 Razor International Pty Ltd

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Razor Electronic Systems

This Service Guide's aim is to provide context on problems that may occur over time with the Razor product, whether it be electronic, mechanical or outside interference. The information inside is to help you better understand your Razor system.

Our Values:

In November 1998, Geoffrey Watson and Darryl Baird developed an idea that was to become Razor, the electronic intelligence system for winding semi-trailer landing legs. Their vision was to draw on their world-class engineering knowledge and expertise to make life safer and easier for transport operators en route toward one of the industry's most pressing issues of the future: Occupational Health and Safety.

Today, Razor International Pty Ltd boasts a state-of-the-art suite of electronic products and is in the field every day making life safer and easier for transport fleets and private operators alike.

Razor International has been developing state-of-the-art electronic and automated control systems for semi-trailers and rigid trucks, saving transport drivers time and money, and reducing the risk of physical injuries. With innovative products like Electronic Landing Legs, Front to Back and Rollover Power Tarp systems, the Power Door, the Volt Razor and the Top Runner, Razor International surpasses global best practice when it comes to incorporating new trucking automation technology with occupational health and safety.

Our Mission:

Our mission is to make a positive difference in the lives of transport drivers, primarily through bringing labour saving products and world-class technology to the marketplace. By focusing on the age-old business practice of first-class service, we are committed to producing the best technology and products using only the highest standards of excellence.

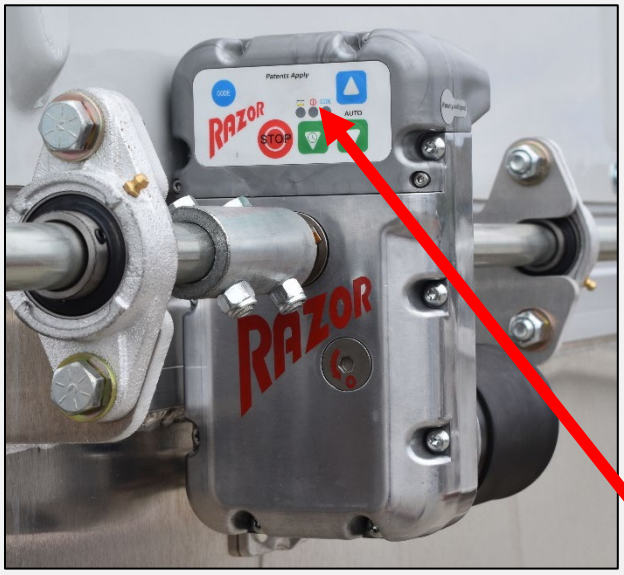
Light Codes/Meaning

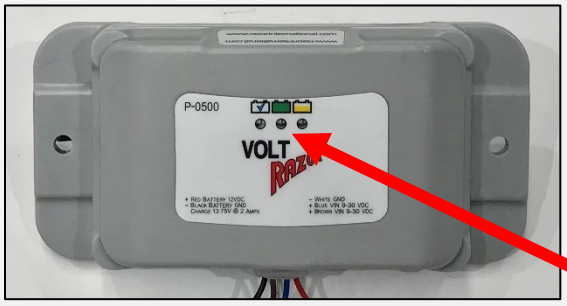
A key indicator of a problem that may occur will be signaled by our Razor Electronics with the three LED lights on the keypad.

The first place to start diagnosing a Razor-related issue is checking the light flash sequences on the system, start by checking the battery charger lights and then onto the Controller lights.

You may need to recreate the initial fault to get the LEDs to indicate the fault!

See below our electronics examples:





Drive Unit, electronics held inside unit directly, same functionality as controller.

Razor Controller, controls drive unit, will indicate main causes of faults

Battery Charger, connected to the battery indicating battery charge levels.

The full list of light codes is in the Technical Bulletin 1 – Light Codes.

Battery & Charger Inspection

Our independent battery source supplied with every system is the reason why the system has power and can operate. Housed in a specially designed cradle, the 12V battery and battery charger must be maintained regularly for full potential usage!

See Service Bulletin 1 & 2 (Battery Service and Maintenance) for a full guideline on how to properly take care of your battery and replace it if necessary.

Battery Kit examples:

Charger Inspection & Test Procedure

This section will outline how to test a Razor Charger and what parts are required.

Parts:

- Voltmeter (w/Leads)
- Battery A (12V)
- Razor Charger
- Battery B (12V)
- 3-Pin Charge Harness

The test below will indicate if the Razor Charger is getting the power threshold required to activate, which is between 9-30 volts DC.

Testing Charger Input:

1. Connect Charge Harness to Battery A.
2. Set the voltmeter to read Volts.
3. Use the pins from the voltmeter to gently place them on the positive and negative pin, from the 3-pin Charge Harness.
4. If done correctly, you will see a reading of 12V+ coming from the voltmeter. Any other reading will either indicate: The Battery is low, the battery is 24 Volts not 12 Volts, the pins aren't connecting properly.

After testing that there is enough power going to the charger, completing the below test will indicate if the charger is giving a satisfactory output to the battery.

Testing Charger Output:

1. Connect Razor Charger to Battery A via 3-pin Charge Harness, RED & GREEN LED will light up.
2. Clamp Voltmeter to the positive leads from the charge harness, make sure the voltmeter is set to test AMP's.
3. Connect Razor Charger to Battery B, RED & AMBER LED will light up, the voltmeter will show an AMP reading between 2-3 AMP's.

If the output test shows 0.00, and all connections are correct, the Charger will need to be replaced

Important Checks:

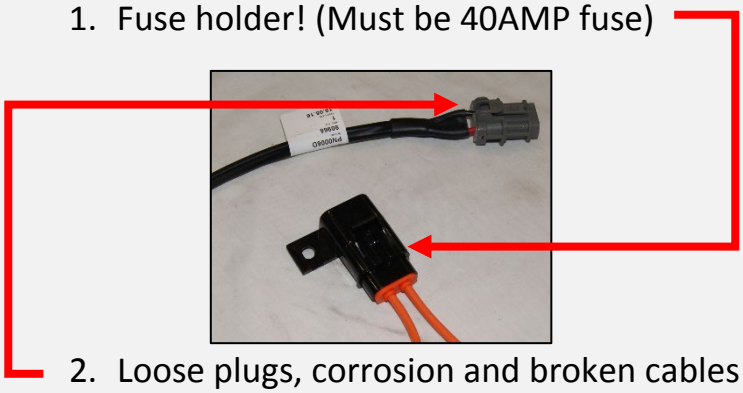
To determine if the battery or battery charger may be at fault, you will need a multimeter or volt tester, a device to test volts and AMPs.

This device will tell you:

1. The volt levels of the battery
   (anything lower 10V will need to be serviced)
2. The AMPs going from the charger to the battery
   (Testing if it's being charged!)
3. Volts from the truck's battery to the charger
   (Testing if the charger is getting power)

Other checks:

1. Fuse holder! (Must be 40AMP fuse)



2. Loose plugs, corrosion and broken cables will cause problems
3. General check of housing

The purpose will be to eliminate potential faults with the Razor System.

If the battery section all tests okay (and the LEDs aren't flashing yellow) then aspects of the system will need to be checked!

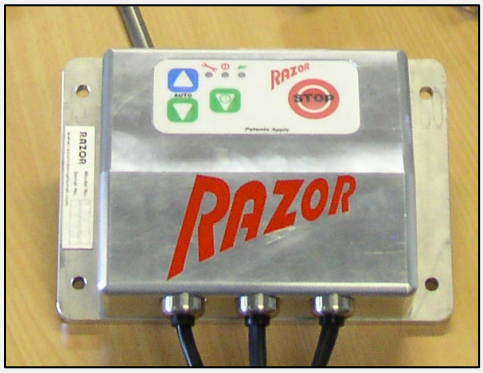
Controller Inspection

The controller of the system allows the system to function, it controls operation, settings, programs, remote synchronization and warning indicators.

IP65 Enclosure - IP rated as "dust tight" and protected against **water** projected from a nozzle. Do not use high-pressure hose!!

The full list of light codes is in the Technical Bulletin 1 – Light Codes.

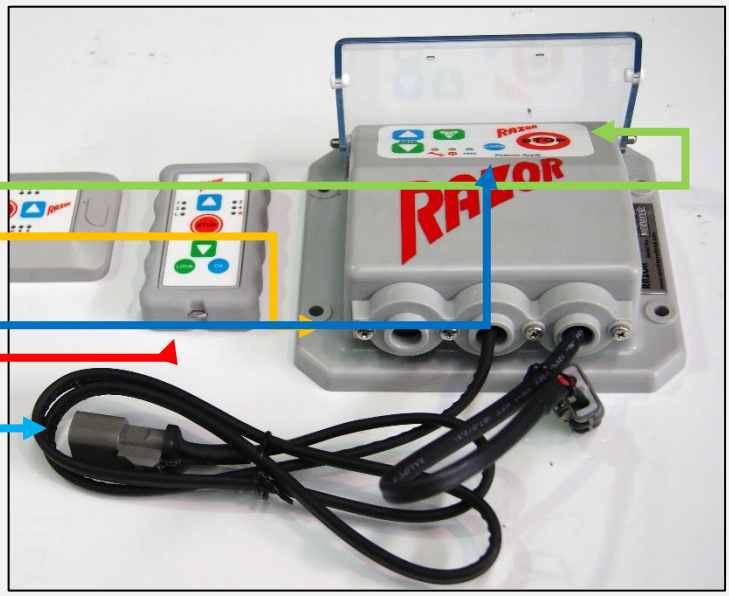
See examples of Controllers & Motor Electronics:



Important Checks:

This key component is connected direct to the battery source, if there are no lights, then the battery will need to be checked again. If the battery is okay, then the controller's motherboard may have malfunctioned.

1. Checking the plugs first!
   (Corrosion and loose connections)
2. Testing each button
3. Check the condition of the housing
   (Cracks may lead to water leaks!)
4. Check the condition of the keypad
5. Testing any wireless remotes



These basic checks will then need to be cross-checked with the light codes that are showing.

The encounters below will likely require a controller change:

- Drive unit operates without a button press (Runs by itself)
- Controller blows fuses while plugged in
- Housing cracks
- No response on controller even if battery is okay

Drive Unit / Motor Inspection

The Razor Drive Unit is the component that drives the system to its functionality, there are two types, one that is controlled by an external controller and one that has electronics housed inside.

There are currently 14 different models of the Razor Drive Unit, but overall checks are relatively the same.

See Service Bulletin 11 – General Service – Drive Unit for full details.

See examples of Razor Drive Units:

Important Checks:

The Drive Unit is comprised of three areas: the gearbox which contains three main gears, the motor and for certain units, the electronics.

//::::UNITS WITH ELECTRONICS::::\\

1. Physical check of unit
2. Check for broken harnesses, check plugs
3. Perform Manual Override Wind
4. Check functionality of brake mechanism (if able)
5. Check electronics functionality
6. Run drive unit direct from battery

//::::UNITS WITHOUT ELECTRONICS::::\\

1. Physical check of unit
2. Check for broken harnesses, check plugs
3. Perform Manual Override Wind
4. Check functionality of brake mechanism (if able)
5. Run drive unit direct from battery

See Service Bulletin 11 – General Service – Drive Unit for full details on how to perform the above checks.

Other Factors to consider..

As the Razor System needs to work cooperatively with the heavy vehicle, certain areas can interfere with the operation, whether it be tarps, bows, cables, landing legs, the bin or weather itself.

Leg System:

- Landing Leg may have mechanical issue

Tarp System:

- Cables are loose
- Drive shaft is bent, not parallel
- Bows faulty

Rollover Tarp System:

- Drive shaft not parallel
- Tarp is faulty
- Razor Drive arms mechanically faulty

Top Runner Tarp System:

- Drive shaft is faulty
- Razor Rail broken
- Razor Reduction 2-to-1 Gearbox faulty

It is important when getting the vehicle routinely checked, that other factors be checked, and the operation of the Razor system also get tested.

Warranty Terms

What's Covered

Razor International Pty Ltd (Razor) warrants to the original retail purchaser that all of its products sold as new and installed in accordance with Razor's fitting instructions, will be free from defects in material or workmanship under normal use and service for a period of 12 months from the date of purchase ("the warranty period").

What's Not

This warranty excludes damage from accidents, objects striking RAZOR, misuse of RAZOR, alterations to RAZOR, air-borne fallout, (such as loads carried on the trailer or thrown up from the road and road wheels), windstorm, lightning, hailstorm and improper maintenance.

Other Terms

To the greatest extent permitted by law any warranty or guarantee either expressed or implied which varies in any way from this written warranty is excluded. Notwithstanding the provision of the warranty Razor and its authorised associates will not be responsible for any consequential loss or damage whatsoever and no such claims will be accepted.

Warranty repairs will be covered for a period of 90 days or until the end of the original warranty period, whichever is the longer.

Warranty Adjustments

Razor or an authorised associate can only honour this warranty. All warranty claims are to be submitted to Razor. Razor will investigate warranty claims and where possible respond to the customer within 7 days. Subject to Razor review and approval, all RAZOR parts or units found to be defective and within the warranty period, will be repaired or replaced with a unit, as appropriate, at the sole discretion of Razor. This warranty gives you specific legal rights. You may also have other rights, which may vary from territory to territory.

Contact Information

Any faults that can't be diagnosed or other servicing needs required, please contact Razor or any authorized dealer to further diagnose the issue.

See below links and contact information:

Address:

Razor International
Service Department
28B Amcor Way
Campbellfield VIC 3061
Australia

Office: (+61) (03) 9357 7181
Service Phone: (+61) 0438 299 904

Email: service@razorinternational.com

Website: https://razorinternational.com/
Distributors: https://razorinternational.com/distributors/