

# RAZOR

## POWER LIFT

### OWNERS MANUAL



#### CONTENTS

Safety Cautions	1
Installation Instructions	1
Electrical Schematic	4
Operation	5
Light Indication	6
Reset	6
Maintenance	6
Warranty	7
Appendix – Trailer Wiring	7

## INSTALLATION INSTRUCTIONS

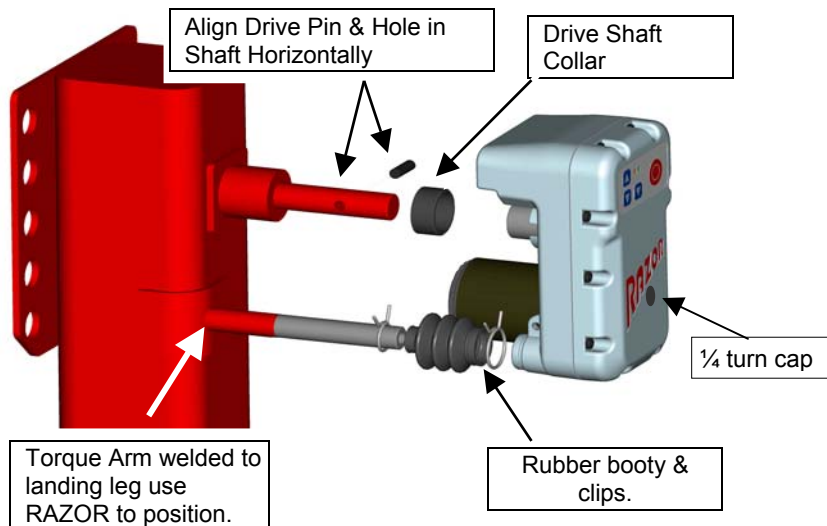
**RAZOR**

### SAFETY CAUTIONS

1. This RAZOR POWER LIFT unit MUST NOT be installed on a trailer used for transporting flammable goods.
2. A brake interlock can be optionally installed to ensure that the legs will not lower unless the trailer brakes are engaged. *Note: If the legs are already raising the interlock will still permit the legs to continue rising even after the brakes are released. Once the brakes are released RAZOR is required to be re-activated before it can be used again.*
3. The RAZOR POWER LIFT in conjunction with landing legs can create high forces. These forces can be as high as 25,000 lbs /12 tonnes per leg and can easily crush limbs. The installer, the trailer owner and the operator must ensure that during operation all care is taken to ensure that personnel are clear of the landing leg feet. Suitable signage is supplied to install on the legs and this must be displayed and be clearly visible near the leg with all users educated on the risks involved.

### RAZOR Drive Installation Instructions

1. Read the entire instructions thoroughly prior to starting. This will assist to ensure you have all the tools and equipment required.
2. Remove landing leg crank handle. Clean drive shaft to ensure RAZOR can slide on and off. Filing and or wire brushing may be necessary.
3. Slide RAZOR onto the torque arm supplied and slide both onto drive shaft so that the position to weld the torque arm on leg can be marked.



4. "Tack" weld the torque arm then remove RAZOR. Weld the torque arm with a minimum 50% stitch 4mm ( $3/16$ " ) fillet weld around the perimeter of the leg mating faces. After welding, thoroughly clean and paint any welded bare metal surfaces.

## INSTALLATION INSTRUCTIONS

**RAZOR**

5. Liberally lubricate the unpainted portion of the torque arm. The RAZOR is ready for final fitting
6. Partially fit drive shaft collar to RAZOR (this nests in boss at rear of unit) and lubricate the torque arm.
7. Fit spring clips to rubber booty then the booty to the torque arm.
8. Fit RAZOR to landing leg crankshaft ensuring drive pin holes are aligned. *Note: the RAZOR shaft can be rotated by removing the front ¼ turn cap and using the manual override handle supplied. (Refer to Page 3 for details on manual override handle)*
9. Use a hammer and punch to drive pin into the aligned holes. *Note: There are two cross holes in the output shaft always use where possible the hole closer to the RAZOR body.*
10. Slide drive shaft collar over drive pin and press into boss on the back of the Razor. Finally fit the booty and retaining clips.
11. Connect the electrical wiring as per the enclosed wiring schematic.

### RAZOR Power Kit Installation Instructions (where supplied)

12. The maintenance free sealed 12V lead acid battery is supplied and clamped inside the battery box provided. This must be fitted to a sturdy location on the trailer close enough for wiring harnesses to connect to the Razor drive unit. Chassis members that are prone to considerable vibration can affect battery life. (Main structural sections are not a concern)  
*Note: release the battery harness from inside the box as supplied. Refer enclosed wiring diagram.*



**Battery Kit**

13. Remove the front cover of the battery box to release the battery harness. It may be appropriate to mirror the battery direction and this is allowed for in the design of the battery box. Using the battery box as a template drill 4 9mm or  $11/32$ " holes and preferably bolt the Battery box in place with the four M8 bolts supplied. Alternatively it may be riveted in place.
14. Your RAZOR has a built-in battery charger which needs to be utilised to maintain your battery in peak condition. It will charge your battery if connected to a supply from the trailer that is between 9.5 and 30 volts DC (continuous). The charge circuit harness which should connect to both the positive and negative points on the trailer electrical circuit are the red and black wires respectively. Typically the supply can come from the trailer clearance lights or alternatively the auxiliary circuit if connected. (Refer to appendix).

## INSTALLATION INSTRUCTIONS

**RAZOR**

15. It is important that the electrical connections are robust as a poor ground connection can result in a discharged battery. If there is doubt always connect directly to the trailer harness. (Experience has shown that poor connections is a major factor in battery charge status)
16. Refer to light indication to ensure charge circuit is operating correctly.

### RAZOR Remote Keypad Installation (offside leg keypad)

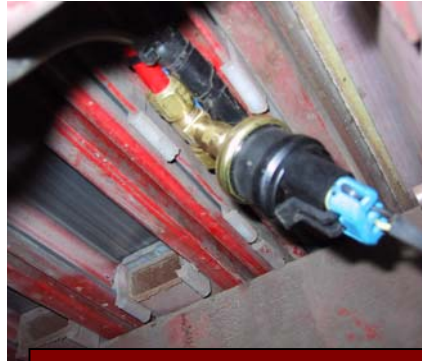
17. The remote keypad panel mounts on the opposite side of the trailer adjacent to or on the offside leg. Remove the aluminium housing to gain access to the backing plate.
18. The stainless steel backing plate can be screwed/bolted in place or alternatively the plate can be riveted. Once installed screw the keypad panel back in place.
19. Route and secure the cabling to allow the four pin connector to plug into the matching connector from the RAZOR drive unit)



Remote keypad mounted

### RAZOR Brake Interlock Installation (pressure switch)

20. A pressure switch and mating in-line tee may be supplied for connecting into the trailer air brake circuit. (optional) This acts as an interlock and will not allow the legs to lower if the trailer brakes are not engaged
21. The switch is fitted to the brake line (red air line).
22. Care needs to be taken to ensure switch is adequately supported and appropriate thread sealant should be used on the threaded fittings.
23. It is necessary to consider the length of the wiring harness when choosing the location for the pressure switch.



In line tee & pressure switch

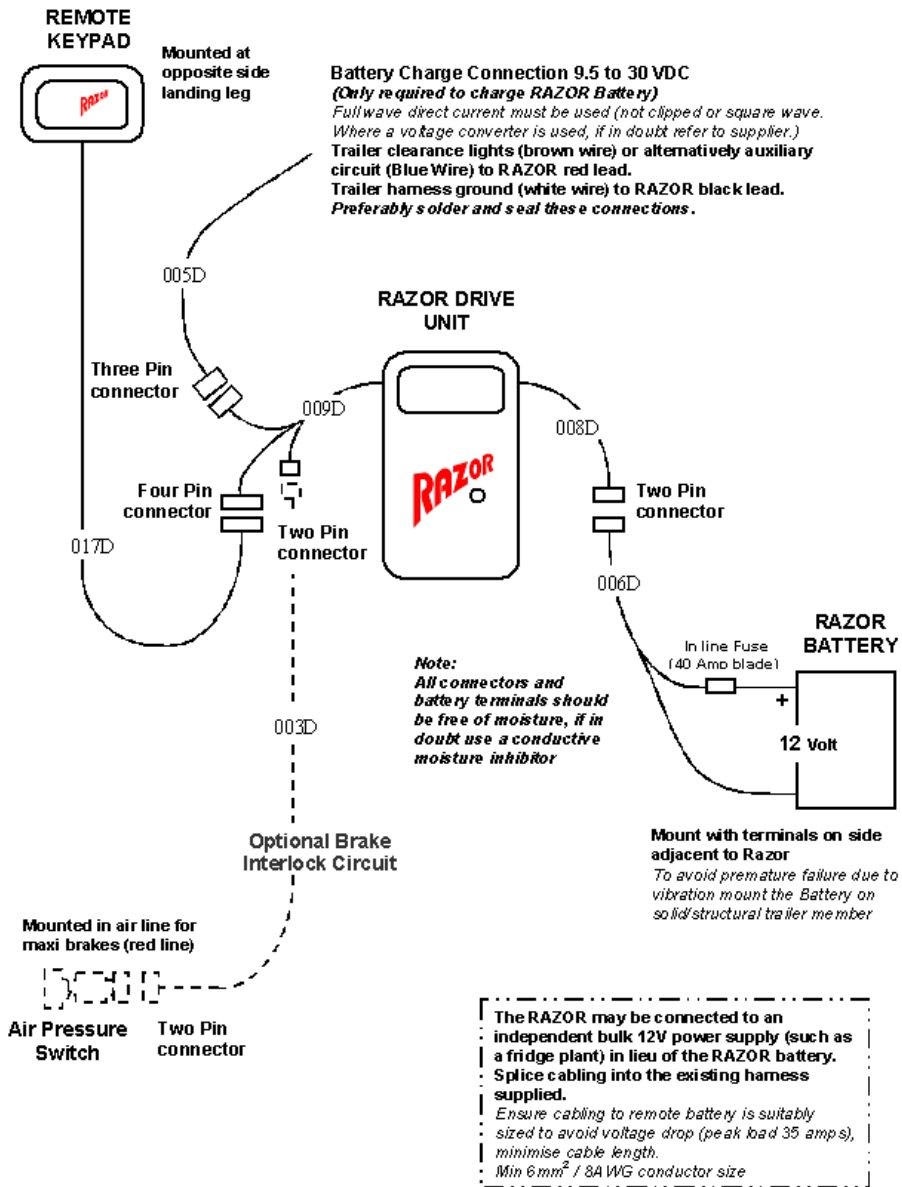
### RAZOR Manual Override Handle

24. Razor is supplied with a manual override handle that should be clipped to your trailer chassis in a handy location with the clips supplied. This handle is for use in an emergency should either the battery or RAZOR drive unit have a fault.



Manual Override Handle

## RAZOR ELECTRICAL SCHEMATIC



- RAZOR is a push button replacement for your manual crank handle. It is an electronically controlled electric drive unit.
- Incorporated into the RAZOR unit are many features to ensure a trouble free operation. Even connecting the battery around the wrong way will not damage the unit. The unit is sealed for its life and there is no need to service any internal components. If the unit is installed correctly and does not go about its task as described below then you should refer the problem to Razor International.

## ACTIVATE RAZOR

1. Once your RAZOR unit has been fully installed, it must be activated each time you operate it. This helps prevent indiscriminate use of the unit.  
*Note: On a flammable goods trailer installation the in-cabin isolator may prevent the RAZOR unit from operating as it also isolates power from the RAZOR unit.*
2. RAZOR is activated by depressing the Red (STOP) button on either panel for 3 seconds. Enabling has been achieved when the ACTIVATE light illuminates twice.
3. The RAZOR will remain activated for a period of 15 minutes from the time the unit was last operated. After 15 minutes of inactivity, the RAZOR will need to be activated once again prior to being operated.

## LOWER LANDING LEGS

1. Ensure the legs are in the high-speed gear.
2. Press the Green (LOWER) button.
3. RAZOR will then lower the legs to the ground and will pre-load the legs to a preset weight. In some instances this may be all that is required prior to decoupling and the subsequent steps will not need to be carried out.
4. Once the legs are on the ground change the leg gear ratio by grasping RAZOR and moving the leg shaft and RAZOR in or out as the case may be, to change the leg gearing to low speed. This should be done with the motor stopped.
5. Press the Green TIMER button to lower the legs for a 20 second duration. You can press the Inch button multiple times to achieve respective multiple half minutes of leg travel. *Note: Travel distance will vary from trailer to trailer dependent on load, on leg type and on leg condition.*
6. The legs can be stopped at any time by pressing the STOP button.
7. The legs will stop if they reach their end travel stop or the load on the legs approaches 50,000 lbs/24 tonnes. Once this happens you cannot further lower the legs without first raising the legs by some degree. This condition is indicated by a double red light flash.

## RAISE LANDING LEGS

1. The legs will raise by pressing the Blue (RAISE) button. If the legs are not clear of the ground the legs will need to be in low gear. Once clear of the ground the leg gearing should be changed to high gear, this will bring the legs up quickly. The gearing in the leg is changed by using RAZOR as a grab handle and moving it in or out as the case may be. This should be done with the motor stopped.
2. The legs can be stopped at any time by pressing the STOP button.

## OPERATING INSTRUCTIONS

- The legs will stop automatically when they are fully raised. Once this happens you cannot further raise the legs without first lowering the legs by some degree. This is indicated by a double red light flash.

### LIGHT INDICATION

#### **CHARGE**

This green light indicates when the battery is fully charged (constant light indicates fully charged). The green light flashes when the battery is being charged. If the green light is not illuminated then charging is not functional.

#### **ACTIVATE**

This red light indicates when a button is pressed. The exception is when the unit is not activated in this case it indicates after 3 seconds with a double flash.

Additionally, this light, is used to indicate via a double flash that RAZOR has reached a maximum load condition in either direction and you cannot continue in that direction. If the trailer brakes are not engaged four flashes will indicate that you cannot lower the trailer legs, the brakes must first be engaged. In general the double flash is an indication that the unit is working OK but you are asking it to do something it should not. Five flashes from this light indicates the battery voltage is too low and requires charging (In extreme cases this may need to be an external charger)

#### **SERVICE**

This amber light indicates the battery voltage is low. When you activate the unit a continual double flash indicates this. The amber light also provides an estimate of motor brush life. When the Razor is not activated hold down the stop and lower buttons at the same time and this light will flash after the activate light. Each flash represents 10% life remaining i.e. 2 flashes suggests between 20% to 29% brush life left. If this light is continually on then the estimated brush life has been reached.

#### **RESET**

There may be a time when the unit needs to be reset. This can be readily achieved by either pulling & replacing the fuse at the battery or disconnecting & reconnecting the power at the in-line connector.

### SERVICE

- If a trailer is to be left idle for extended periods i.e. many months, it may be prudent to disconnect the battery power supply to ensure the battery charge is maintained.*
- The operation relies on use of both gears in the leg and this is achieved by sliding the Razor in an out on torque arm. This should be keep well lubricated. To check or lubricate remove the clips that hold the booty in place and lubricate as appropriate.*
- The RAZOR unit is an electrical devise and only as good as the power supply. Never leave moisture within the connectors or on the battery terminals. Preferable apply a suitable conductive moisture inhibitor.*

Note: In severe cases of direct Electrostatic discharge the Unit may be affected ,but only for the duration of the discharge to the unit.

## WARRANTY

### 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.

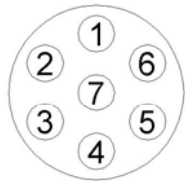
### WARRANTY ADJUSTMENTS

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 an exchange RAZOR 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.

## Appendix – Trailer Wiring



7 Pole Socket

(view from Rear)

A.S. Pin	SAE Pin	Connect to	Colour
1	5	Left Flasher	Yellow
2	6	Reversing	Black
3	1	Earth	White
4	3	Right Flasher	Green
5	7	Service Brakes (Auxiliary)	Blue
6	4	Stop	Red
7	2	Tail, Licence & Clearance	Brown

A.S. pin refers to the configuration in accordance with Australian Standard 2513-1982 and ADR 42/02. The SAE pin is where a SAE (American Standard) connector is used. Typically this is evidenced by the larger pin in the "1" position.