

**Q'STRAIT®**

# **Use and Care Manual**

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**VEHICLE ANCHORAGES & ACCESSORIES FOR 4-POINT  
WHEELCHAIR SECUREMENT SYSTEMS:**

**QRT- 1, 3 & 5 SERIES  
Q-5000 SERIES  
M-SERIES**

THE Q'STRAIT® 4-POINT WHEELCHAIR SECUREMENT SYSTEM AND COMPONENTS  
COMPLY WITH ALL APPLICABLE REQUIREMENTS OF SAFETY REGULATIONS  
AND STANDARD ISO10542-1:2012, PAS2012 AND UN ECE REGULATION 107 AS APPLICABLE.



## 4-POINT WHEELCHAIR SECUREMENT SYSTEMS

### TABLE OF CONTENTS

READ ALL INSTRUCTIONS PRIOR TO INSTALLATION.....	4
IMPORTANT SAFEGUARDS AND WARNINGS .....	4
COMPLIANCE .....	5
EQUIPMENT.....	6
OPERATIONAL SEQUENCE .....	7
SYSTEM DEFINITIONS .....	8-9
OPERATING INSTRUCTIONS .....	10-17
POWER FAILURE .....	18
TROUBLESHOOTING .....	19-20
MAINTENANCE AND CARE.....	21
WARRANTY .....	21

STOP

## READ ALL INSTRUCTIONS PRIOR TO USE

- This manual is a comprehensive step-by-step guide for the following 4-point Wheelchair Securement Systems: QER - Q'Straint Electrical Front Retractor, QRT-1 Series - QRT Deluxe, QRT Max & QRT Standard, QRT-3 Series - QRT350e, QRT-5 Series - QRT550e, M-Series & Q-5000 Series
- Make sure to read, understand and follow all these instructions.
- To address any questions relating to ordering parts, operating this 4-Point Wheelchair Securement System, troubleshooting, maintenance, service or anything else, contact a Q'Straint® authorized dealer.



## IMPORTANT SAFEGUARDS AND WARNINGS

- All equipment and components **MUST** be installed and serviced by an experienced and trained technician.
- Wheelchairs are not intended to be used as seats in motor vehicles unless compliant with ISO7176-19.
- **System are only compliant with ISO10542-1 for wheelchairs in forward facing applications.**
- The Q'Straint® 4-Point Wheelchair Securement System **MUST** only be used with one wheelchair and one occupant at a time
- The Q'Straint® 4-Point Wheelchair Securement Systems are complete integrated systems, do not alter or modify them in any way and do not interchange or substitute any components. Any deviation from these recommendations is the responsibility of the installer.
- Electrical Retractors are designed and tested to **ONLY** be used as a front tiedown as part of Q'Straint® 4-Point Securement System.
- Regulations and standards in some countries require the installation of a shoulder and pelvic belt to be considered a compliant wheelchair securement system. The Q'Straint® 4-Point Wheelchair Securement System plus compliant shoulder and pelvic belt (occupant restraint) make a complete wheelchair securement system.
- If a head restraint is anchored to the vehicle, a vehicle anchored back restraint **MUST** be provided to minimize rearward deflection of the wheelchair seatback and therefore prevent injury.
- Installer is responsible for making sure the installed 4-Point Wheelchair Securement System meets all applicable regulations and standards—and that the system works according to the instructions in the section of this manual called Testing the Q'Straint® 4-Point Securement System.
- **Tie-Down Hooks** must be attached to a solid wheelchair frame (no spokes, wheels or movable components) at an approximate 45-degree angle with floor.
- **DO NOT** allow webbing to get twisted inside the retractors or come in contact with sharp corners and edges.
- **Compliant Shoulder and Pelvic Belt Restraint** must go across occupant's shoulder and pelvis (lap), and not be worn twisted or held away from the occupant's body by wheelchair components. We recommend using both a pelvic and shoulder belt together and not individually since it will compromise the performance of the system.
- The Q'Straint® 4-Point Wheelchair Securement Systems, components and anchorages have been tested in a configuration similar to the recommendations in this manual.
- This Q'Straint® 4-Point Wheelchair Securement System and its components **MUST** be regularly inspected, cleaned and maintained—reference the Maintenance and Care section in this manual.
- The Q'Straint® 4-Point Wheelchair Securement Systems should not be operated by anyone who does not have full comprehension of how the system works or if the system is not working properly.
- Make sure shoulder belt does not rub against the occupant's neck.
- Postural supports and belts **MUST** not be relied on for occupant restraint in motor vehicle.
- Auxiliary wheelchair equipment must be effectively secured to the wheelchair or removed from the wheelchair and secured in the vehicle during transport.
- Items attached to the wheelchair in front of the wheelchair occupant, other than foot supports, (for example, trays), must be removed wherever possible and secured separately during transportation, in order to reduce the potential for injury to the wheelchair occupant and others in the vehicle.
- **These 4-Point Wheelchair Securement Systems and all system components including floor and wall anchorages MUST be replaced after a vehicle collision.**
- Broken and worn components **MUST** be replaced.
- All damages and defects **MUST** be reported to supervisor and Q'Straint®.
- Airbags should be used only as an added safety device in conjunction with a wheelchair securement system, a shoulder and pelvic belt restraint system that are compliant with the requirements of SAE J2249, ANSI/RESNA WC-4 SECTION 18, ISO 10542-1, UNECE Regulation 16 or CSA Z605.
- The airbag **MUST** be disconnected if the wheelchair occupant is positioned less than 7" (177.8mm) from the airbag unit, or if an aftermarket device is installed to block the deployment of the airbag.
- **Keep loose articles of clothing away from retractors.**

**SAVE THESE INSTRUCTIONS**

## COMPLIANCE

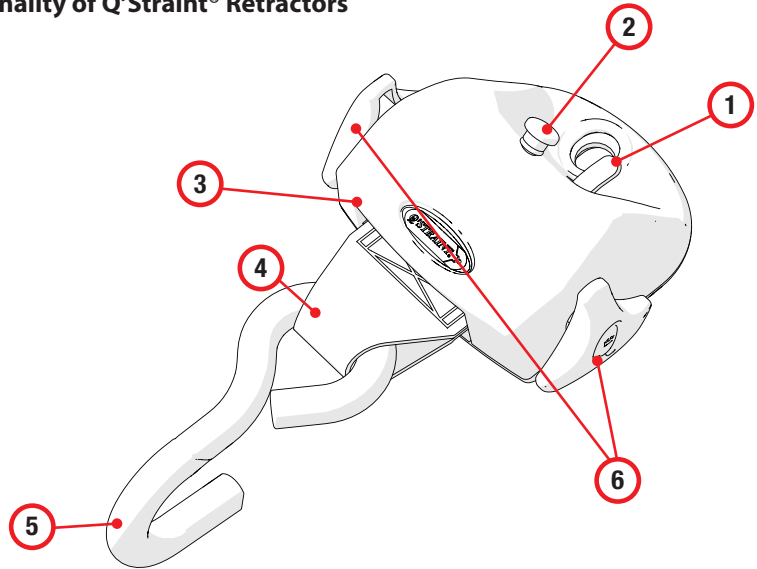
- The QER, QRT 1,3, 5, Q5000, M-Series series 4-point 4-Point Wheelchair Securement Systems and components comply with all applicable requirements of safety regulations and standard ISO10542-1:2012, PAS2012 and UN ECE Regulation 107, as applicable.
- QRT-1 (used with either QRT1 or QER at the front), Q-5000 & M-Series Systems are dynamically crash tested at 30mph (48kph), 20g, using a 85kg forward facing surrogate wheelchair and a 78kg Anthropomorphic Test Device (ATD). The ATD is restrained by both shoulder and pelvic belt restraints.
- QRT350e used with either QRT1 or QER (at the front), are dynamically tested at 30mph (48kph), 20g, using both a 85kg and 150Kg forward facing surrogate wheelchair and a 78kg Anthropomorphic Test Device (ATD). The ATD is restrained by both shoulder and pelvic belt restraints.
- QRT550e used with either QRT1 or QER (at the front).- are dynamically tested at 30mph (48kph), 20g, using both a 85kg and 200 Kg forward facing surrogate wheelchair and a 78kg Anthropomorphic Test Device (ATD). The ATD is restrained by both shoulder and pelvic belt restraints.



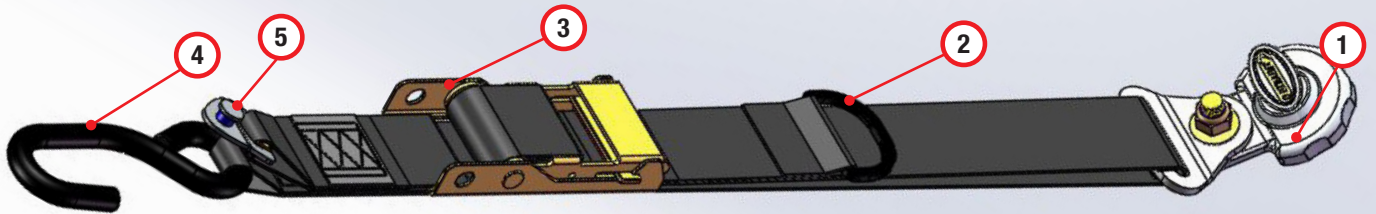
# EQUIPMENT

## Functionality of Q'Straint® Retractors

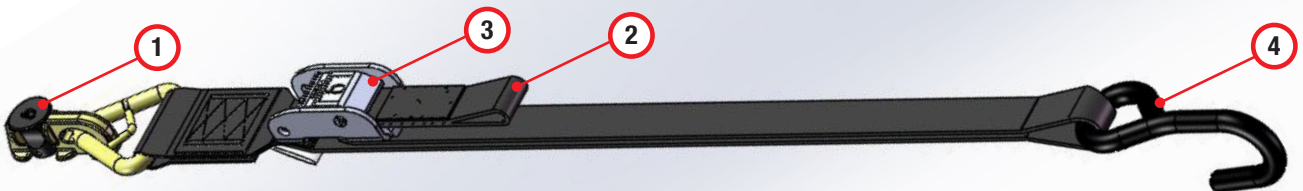
1. Red Release Lever
2. Connecting Pin on Retractor (for occupant restraint)
3. Frame and cover
4. Webbing
5. J-Hook (universal wheelchair securement)
6. Retractor Knobs (manually tension webbing)



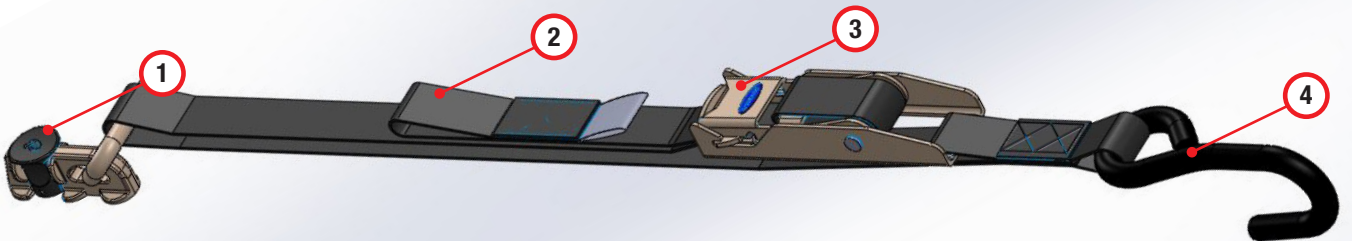
## Functionality of Q'Straint® Manual Tiedown Straps



Q5000 REAR TIEDOWN



Q5000 FRONT TIEDOWN



M-SERIES FRONT & REAR TIEDOWN

1. Anchorage
2. Webbing Loop
3. Adjuster
4. Hook
5. Shoulder Belt Pin Connector

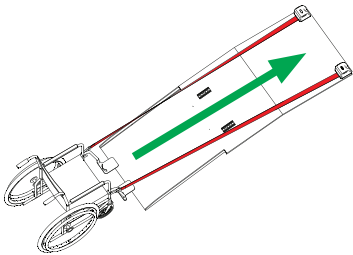
# OPERATIONAL SEQUENCE

The following is a quick guide on how the Electrical Retractor and QRT (QER-QRT) System and 4 point (QRT) Wheelchair Securement System works..

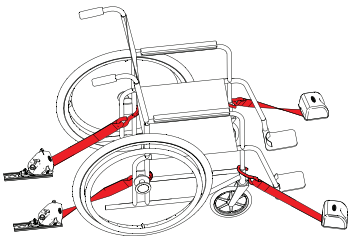
 **Reference the Operating Instructions Section in this manual for complete instructions.**

## FRONT ELECTRICAL AND REAR QRT MECHANICAL RETRACTORS

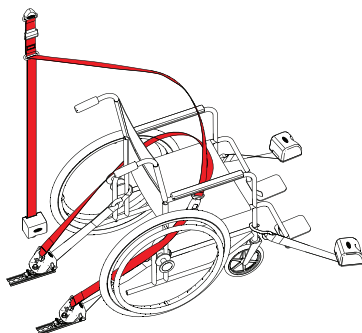
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2

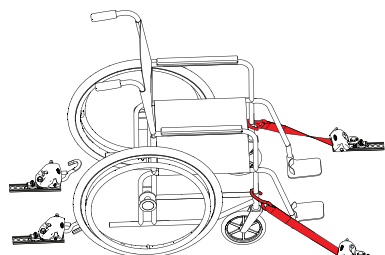


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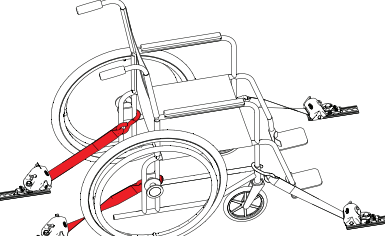


## FRONT AND REAR QRT MECHANICAL RETRACTORS

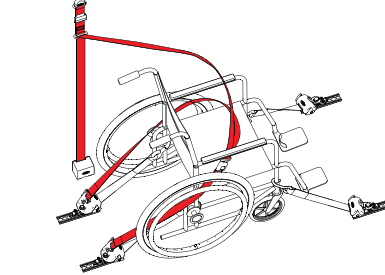
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2

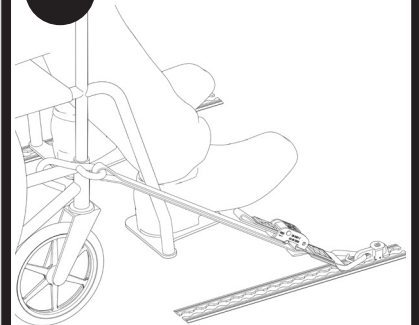


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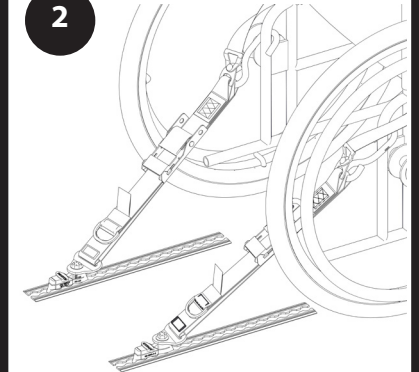


## FRONT AND REAR MANUAL TIEDOWNS

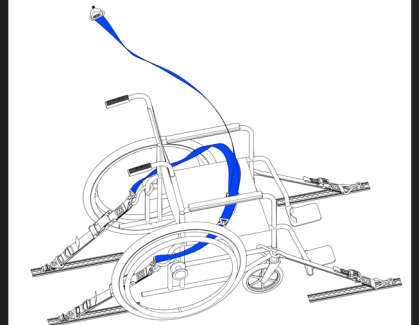
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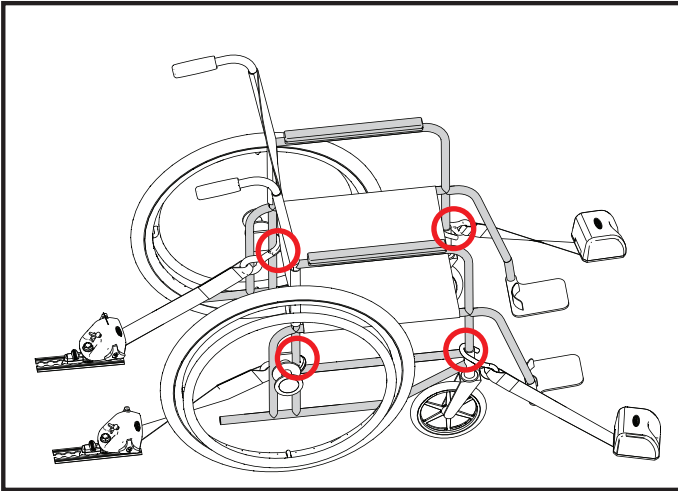
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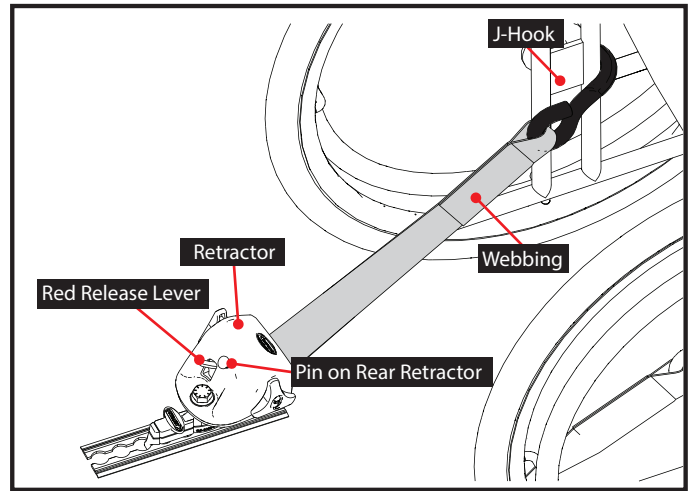
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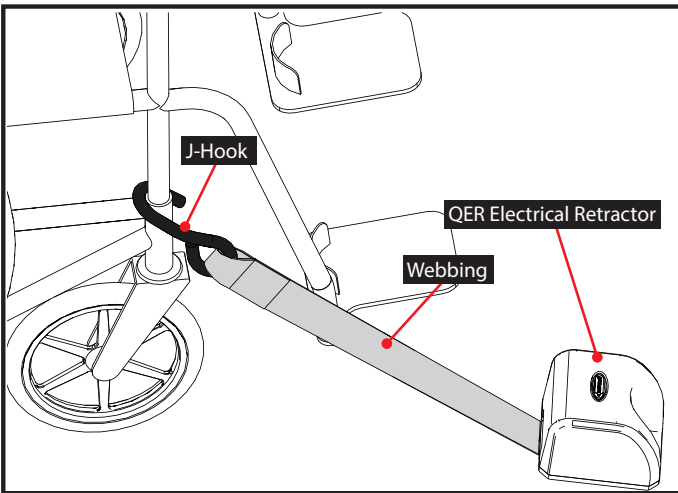
# SYSTEM DEFINITIONS



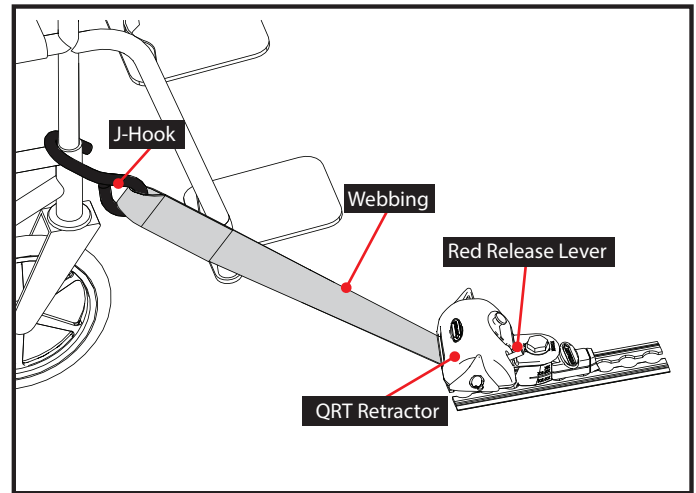
**Solid Frame Members**



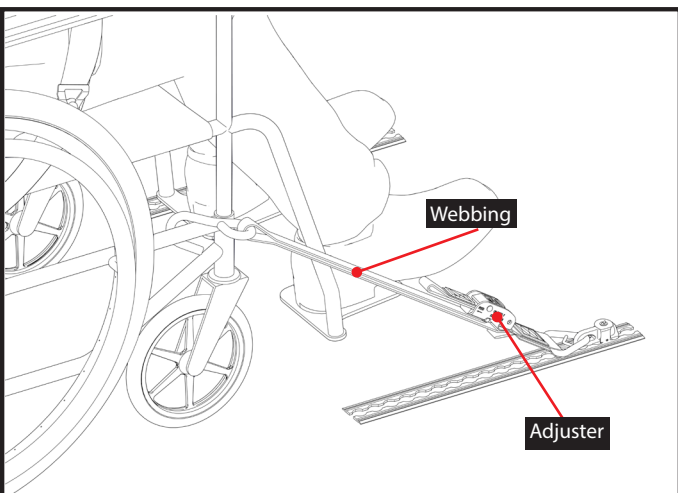
**QRT Retractor**



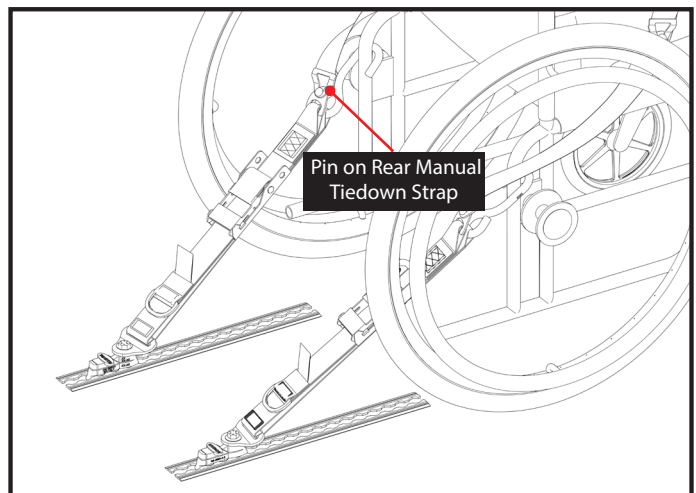
**Front Electrical Retractor**



**Front Mechanical Retractor**



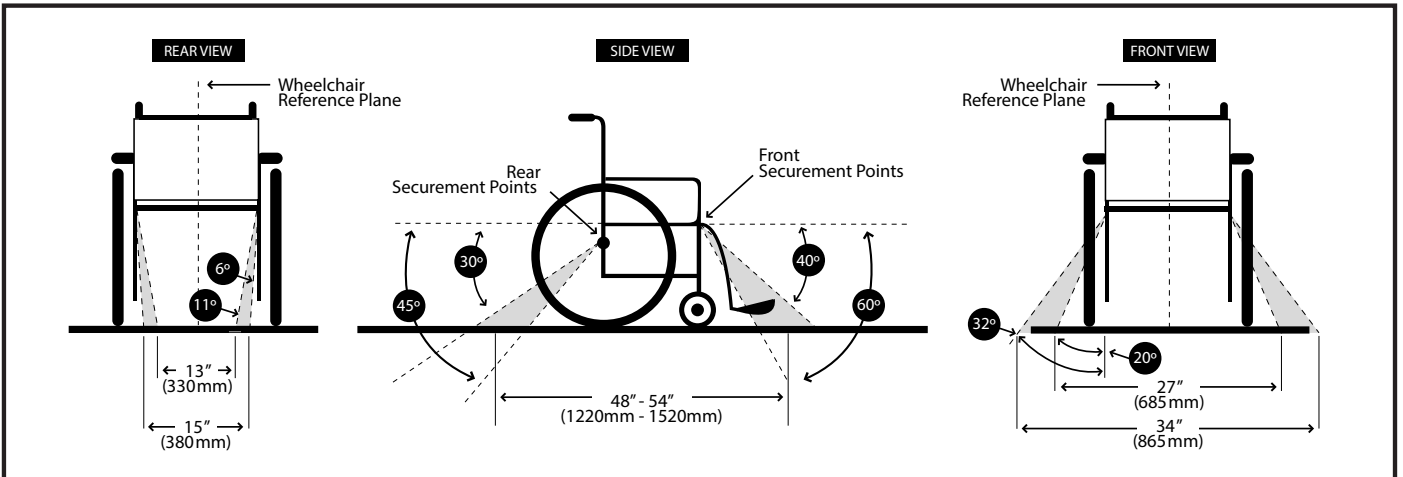
**FRONT MANUAL STRAP TIEDOWN**



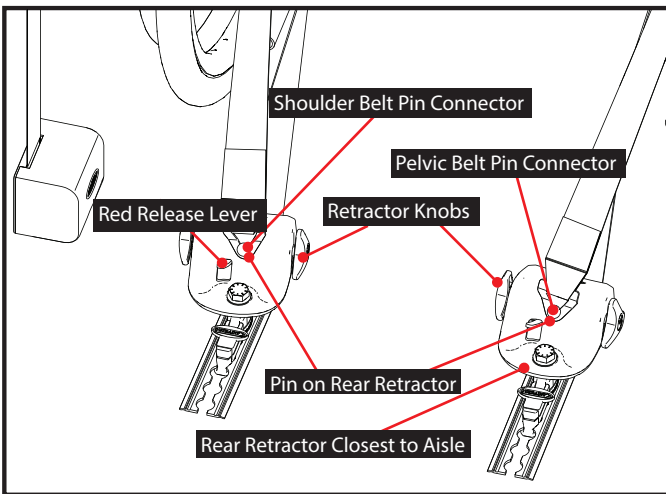
**REAR MANUAL STRAP TIEDOWN**



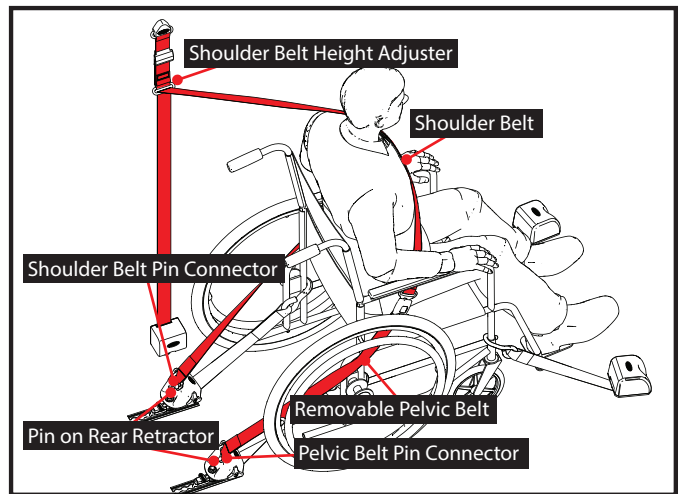
# SYSTEM DEFINITIONS



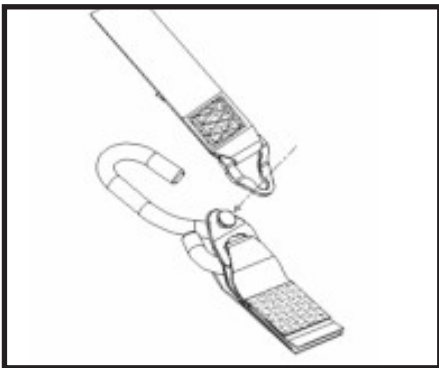
**Tie-Down Angles**



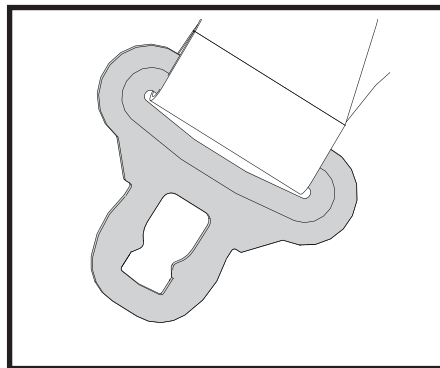
**Rear Retractors**



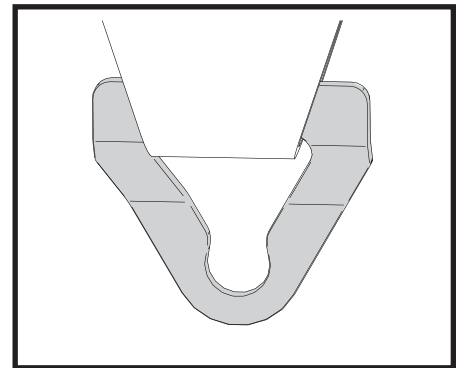
**QRT Shoulder and Pelvic Belt Restraint**



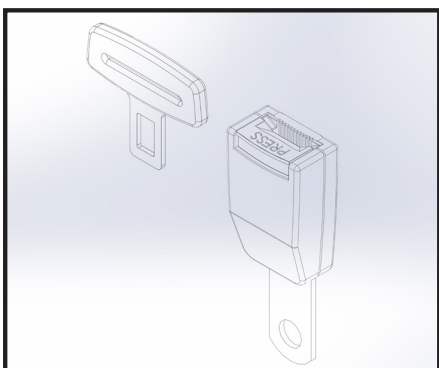
**Q5000 Pelvic Belt Pin Connector**



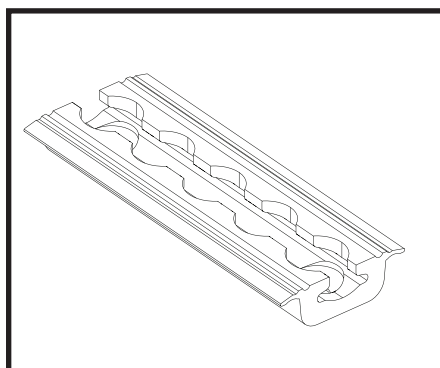
**QRT Shoulder Belt Pelvic Connector**



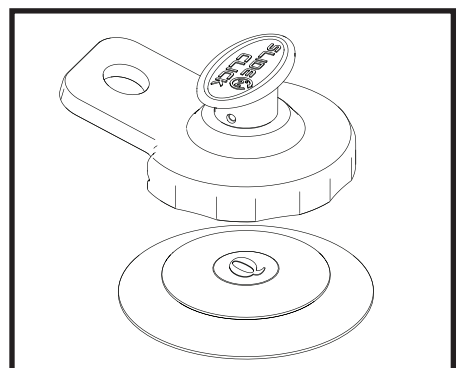
**QRT Shoulder & Pelvic Belt Pin Connector**



**K12 Tongue and Buckle**



**L-Track**



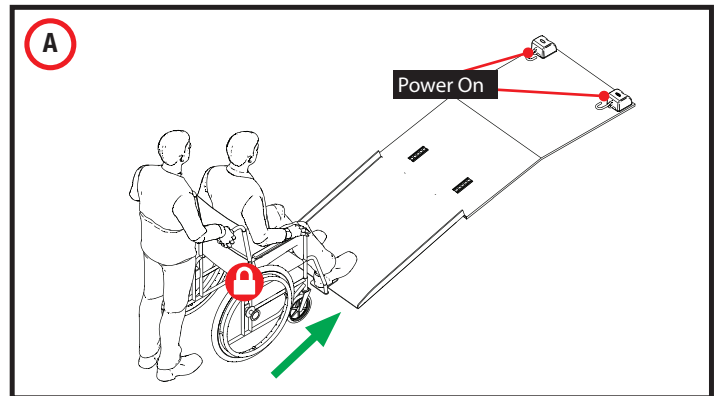
**Slide 'n Click**

# OPERATING INSTRUCTIONS

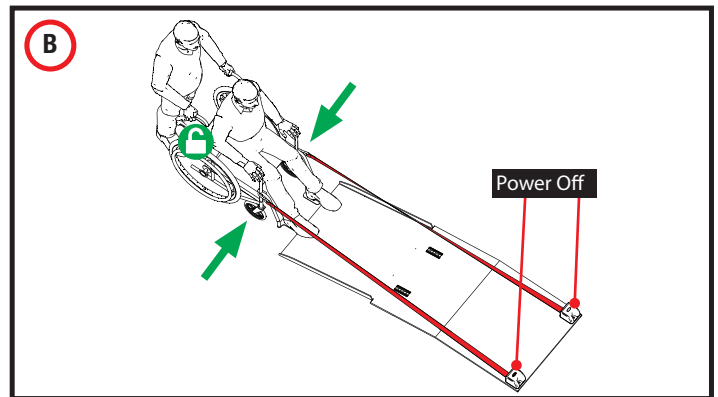


## SECURING WHEELCHAIR

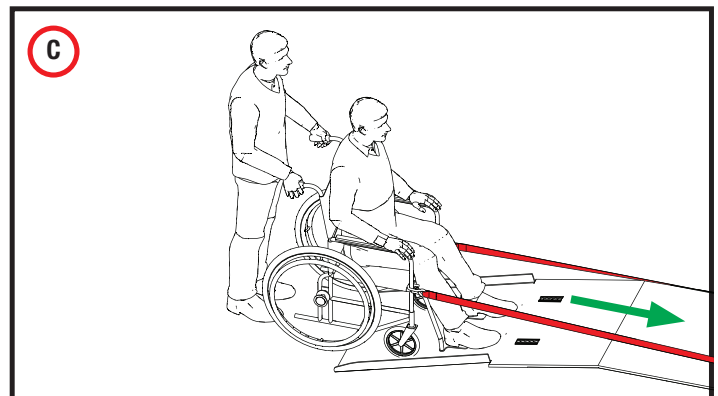
1. **Front (QER) Electrical Retractors:** (If front retractors are not electrical follow steps 4-10.) Prior to entering vehicle, park wheelchair behind ramp, lock wheelchair brakes and **power on Electrical Retractors (A)**.



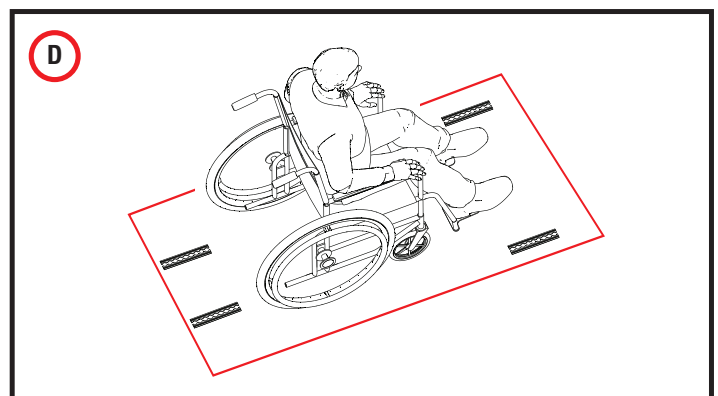
2. Pull both J-Hooks, attach them to solid wheelchair frame, **power off Electrical Retractors** and unlock wheelchair brakes (B).



3. Use **CAUTION** as you push wheelchair up ramp and into wheelchair Securement Zone (C). **Proceed to step 7.**



4. **Front Mechanical Retractor/Manual Front Tiedowns:** Center wheelchair facing forward in Securement Zone (D).





# SECURING WHEELCHAIR

5. Attach Front Retractor or Manual Front Tiedown into floor anchorage points and lock them in place (E).



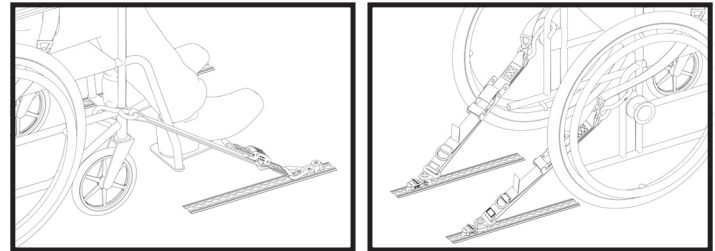
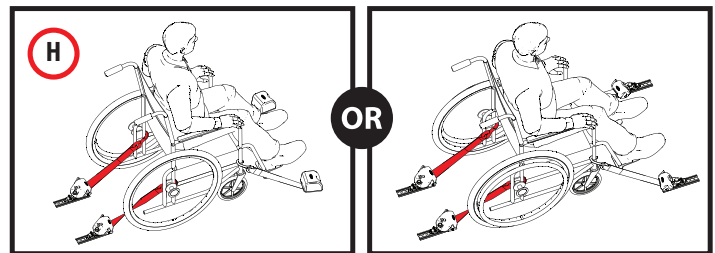
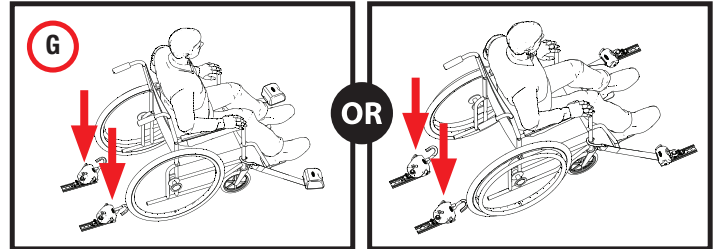
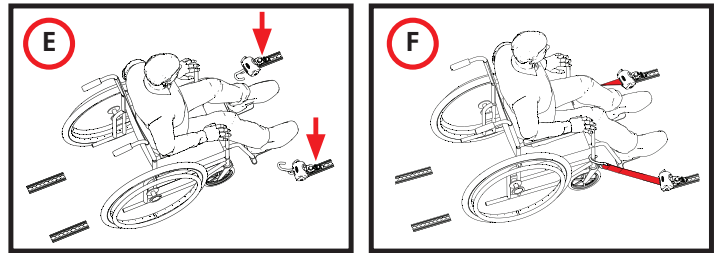
**If the KIT has 2 QRT-1 (Deluxe or Max) and 2 QRT350e or QRT550e Retractors (the bigger retractors), ensure the 2 QRT-1 Retractor are used at the front**

6. Completely pull out each Webbing and attach J-hook to solid frame member. (F).

MANUAL TIEDOWNS – Pull end of webbing loop to remove slack in webbing strap.

7. Attach QRT Rear Retractors or Rear Manual Tiedowns into floor anchorage points and lock them into place (G).

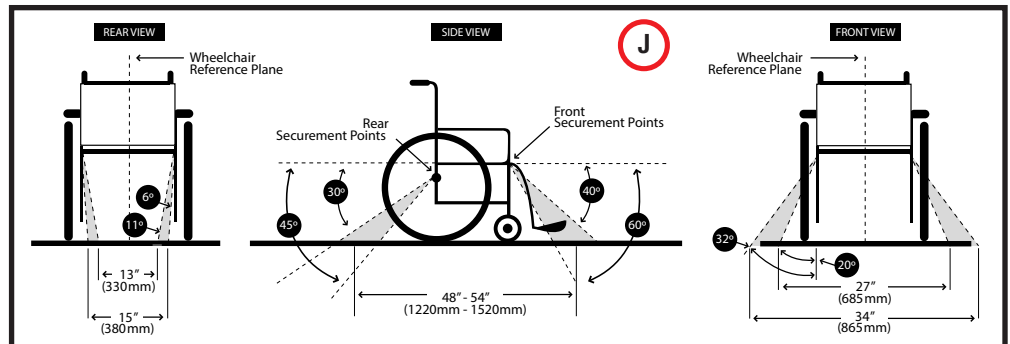
8. Completely pull out each Webbing and attach hook to solid frame member (H).



**Keep loose articles of clothing away from retractors.**



**Make sure to follow the tie down angles in illustration (J).**

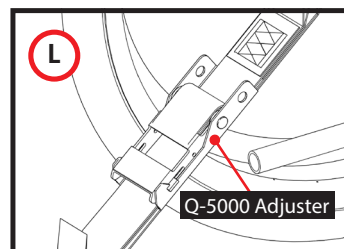
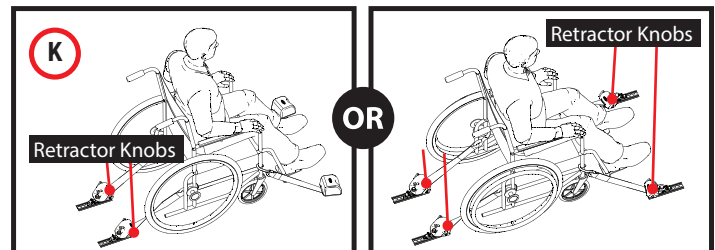


9. QRT RETRACTORS: Move wheelchair forward and back to remove webbing slack or manual tension webbing with retractor knobs (K).

MANUAL M-SERIES TIEDOWNS: Pull on end of webbing loop to remove slack.

MANUAL Q-5000 TIEDOWN: Pull adjuster back and forth to remove slack in the webbing. Push down to lock into place (L).

10. Lock wheelchair brakes (or power off electric chair).





## SECURING PASSENGER

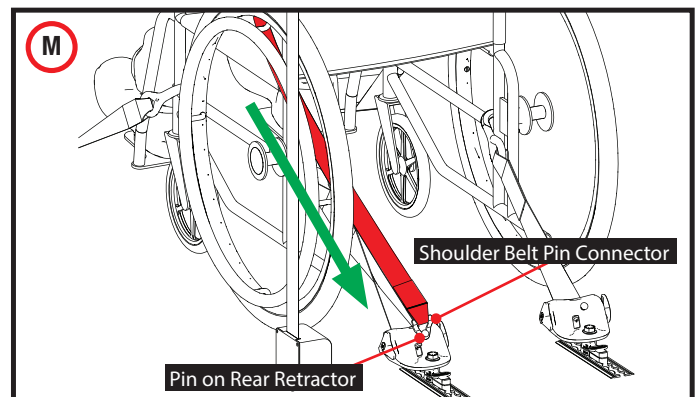
RETRACTABLE COMBINATION LAP/SHOULDER BELT SYSTEMS- Steps 11+

RETRACTABLE COMBINATION LAP/SHOULDER BELT SYSTEMS with BUCKLE STALKS - Steps 14+

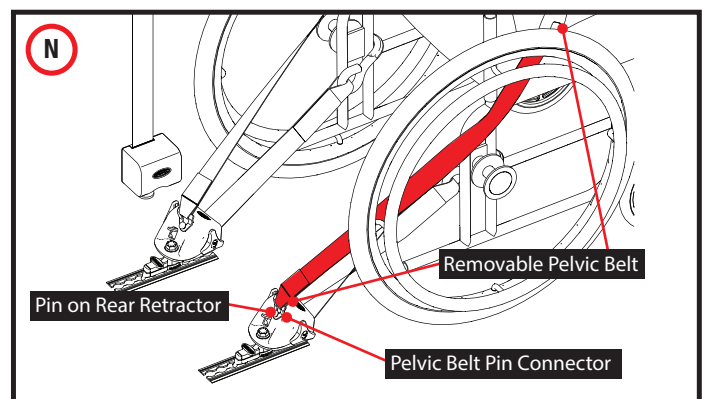
SEPARATE SHOULDER AND PELVIC BELTS – Steps 16+

### RETRACTABLE COMBINATION LAP/SHOULDER BELT SYSTEMS

11. Attach Shoulder belt Pin Connector to Pin on Rear Retractor closest to the Wall **(M)**

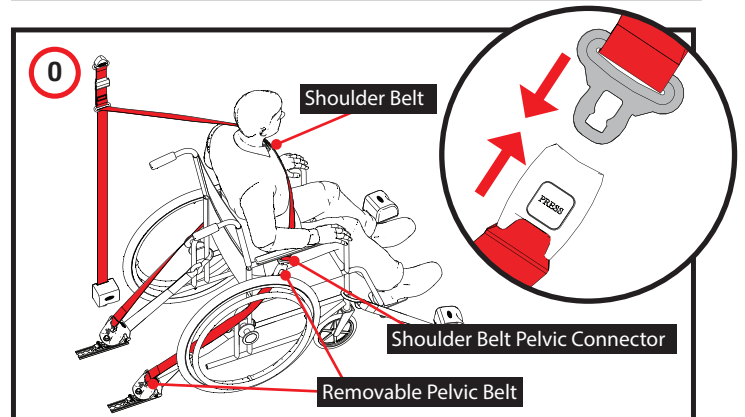


12. Attach removable pelvic belt to pin on rear retractor closest to the aisle **(N)**.



13. Pull the Shoulder Belt over occupant's chest and buckle Shoulder Belt Pelvic Connector to Removable Pelvic Belt **(O)**.

Go to step 19.

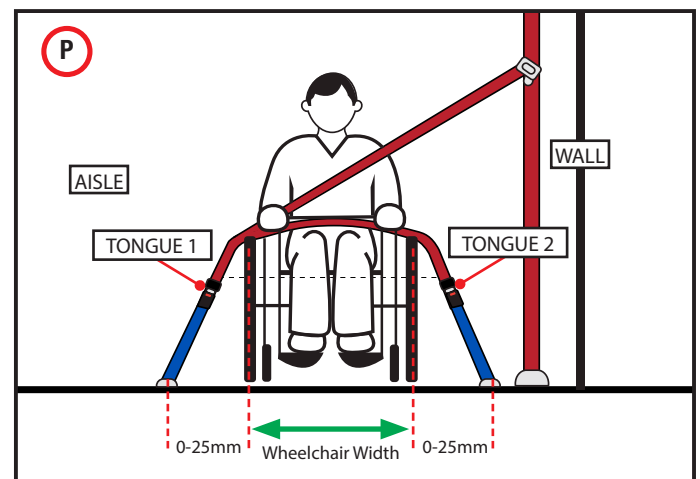


### RETRACTABLE COMBINATION LAP/SHOULDER BELT SYSTEMS WITH K12 BUCKLE STALKS

14. Attach tongue (2) on end of shoulder belt to Buckle Stalk closest to the Wall **(P)**

15. Pull the Shoulder belt over Occupant chest and insert tongue (1) into the Buckle stalk closest to the Aisle.

Go to step 19.

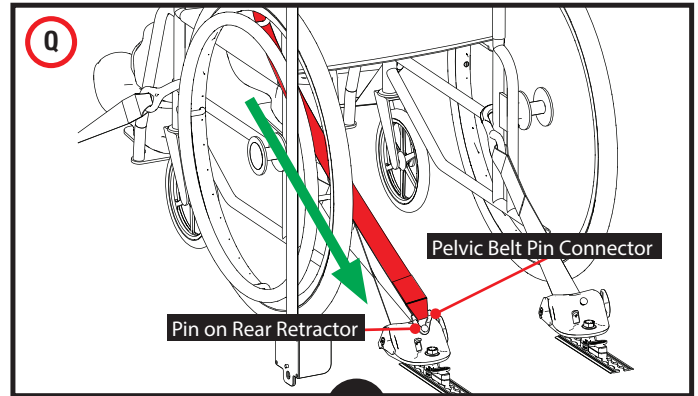




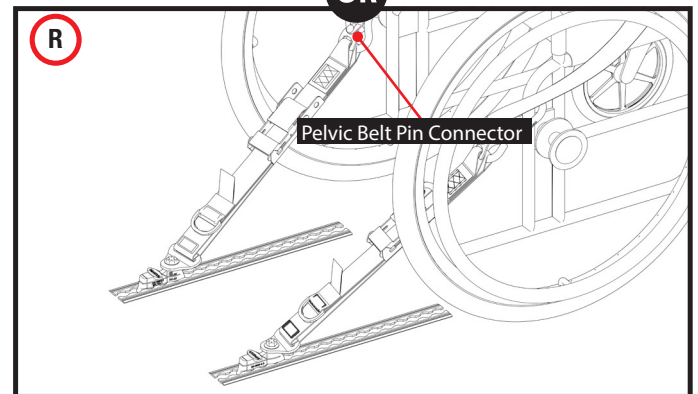
## SECURING PASSENGER

### SEPARATE SHOULDER BELT AND PELVIC BELTS

16. Attach Pelvic belt Pin Connectors onto Pins on Rear Retractors (Q) or Tiedown Straps (R)

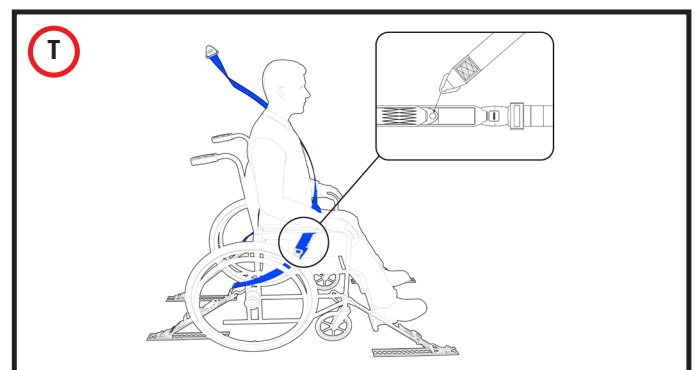
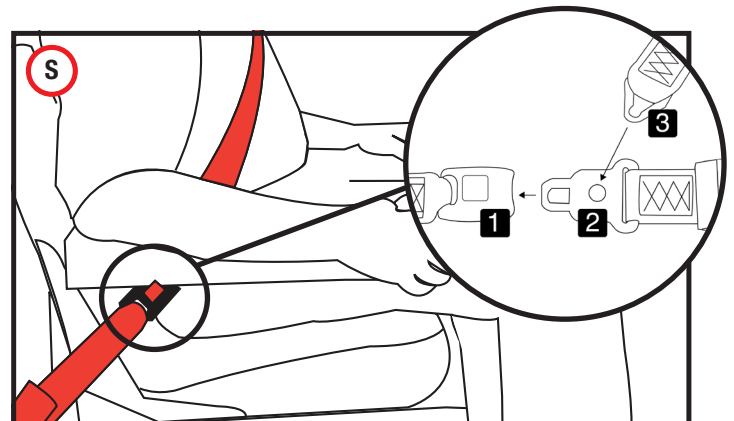


OR



**Check that the Buckle Release is nearest to the Occupants Hip on the Aisle Side (opposite side to shoulder belt)**

17. Connect 2 halves of Pelvic belt together (S)(T).
18. Pull the Shoulder belt over Occupant chest and attach shoulder belt pin connector to the lapbelt pin: QRT System (S), Q-5000 System (T).



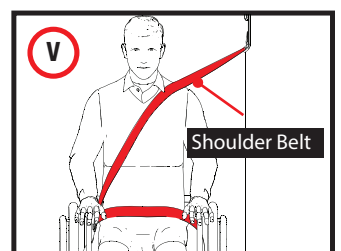
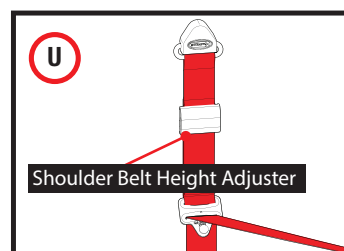
### ALL OCCUPANT BELT SYSTEMS

19. Adjust Shoulder Belt Height so that Shoulder Belt rests on occupant's shoulder (U) (V).



**Make sure Shoulder Belt does not rub against the occupants neck (V).**

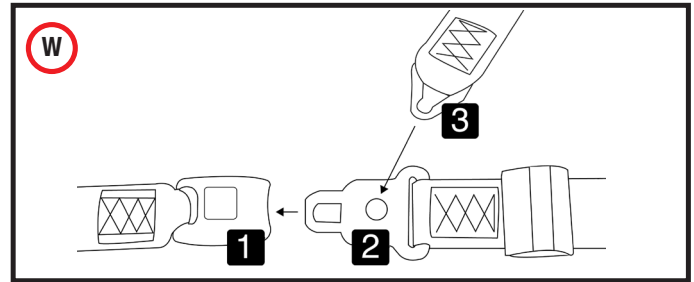
20. After occupant and vehicle are secure -- they are ready for transport.



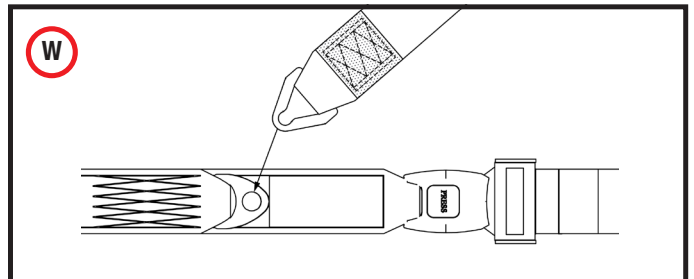


## RELEASING PASSENGER

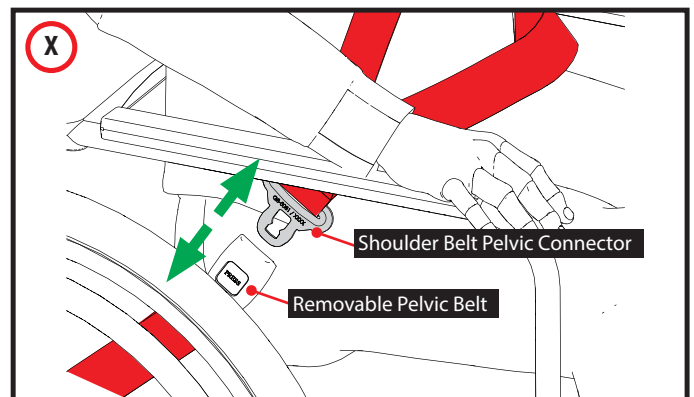
21. Disconnect the Shoulder belt from the lapbelt (W) or Unbuckle Shoulder Belt Pelvic Connector from Removeable Pelvic Belt /Buckle Stalk (X).



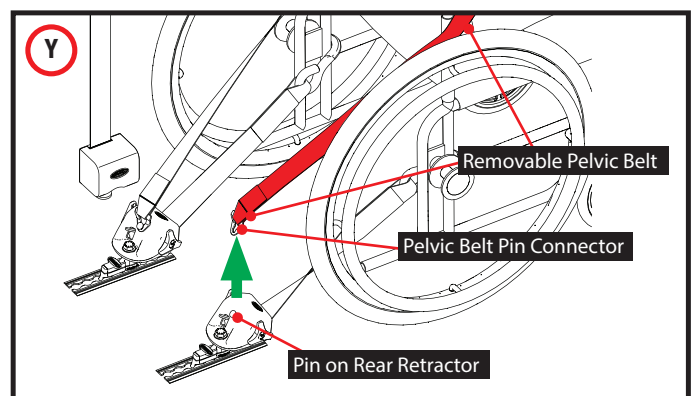
22. For Removeable Shoulder belts, Remove Shoulder belt and place in storage pouch.



23. Detach occupant belt(s) from the Pin Connectors on the Rear tiedowns (Y). Check the occupant belt(s) are free of the wheelchair. Place any removeable belts in storage.

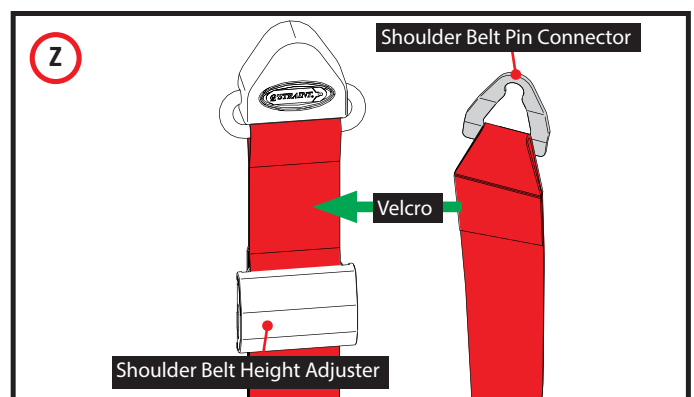


24. If applicable, attach Velcro on Shoulder Belt Connector to Velcro on Shoulder Belt Height Adjuster (Z) and return Shoulder Belt to storage position.



### FOR OCCUPANT BELTS WITH K12 BUCKLES

25. Unbuckle tongue from buckle stalk closest to the wall. Ensure lapbelt is free of the wheelchair.
26. Stow the occupant belt by attaching the tongue at end of shoulder belt, into the tongue closest to the wall.



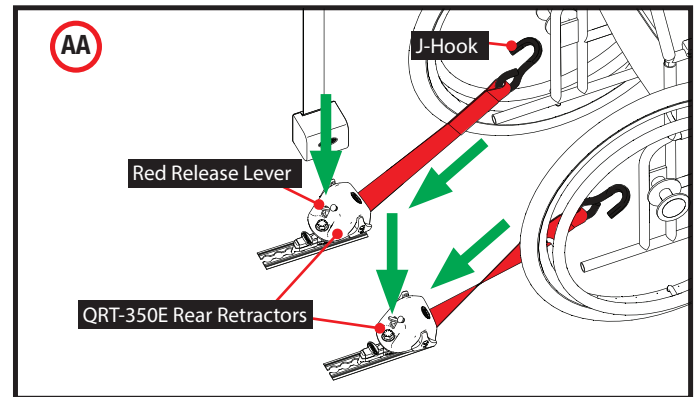


## RELEASING WHEELCHAIR

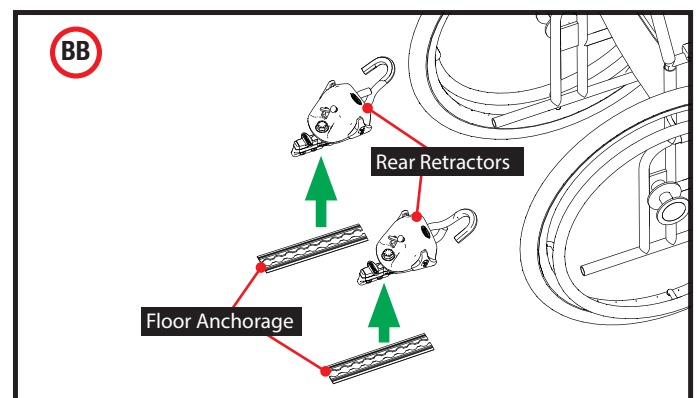
27. Press Red Release Levers on QRT Rear Retractors and detach J-Hooks from wheelchair and slowly return them to retractors (X).



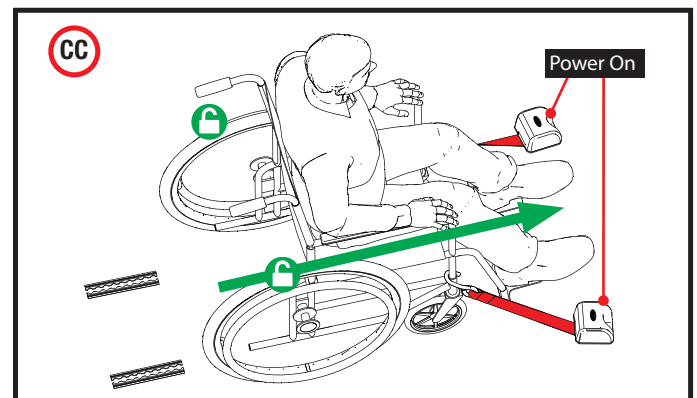
**Manual Tiedown Straps, Press release lever on adjuster to loosen webbing and detach hooks from wheelchair.**



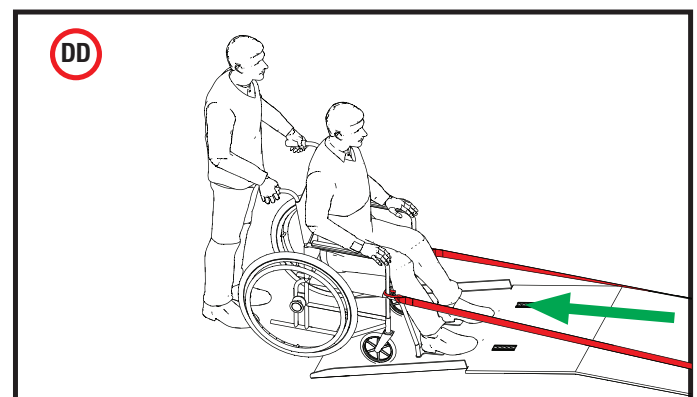
28. Remove rear retractor or rear tiedown straps from floor anchorage points and place in storage (BB).



29. **Front Electrical Retractors: (If front tiedowns/ retractors are not electrical follow steps 27-29.)** Unlock wheelchair brakes (or power on electric chair), **power on Electrical Retractors and move wheelchair forward to unlock retractors (CC).**



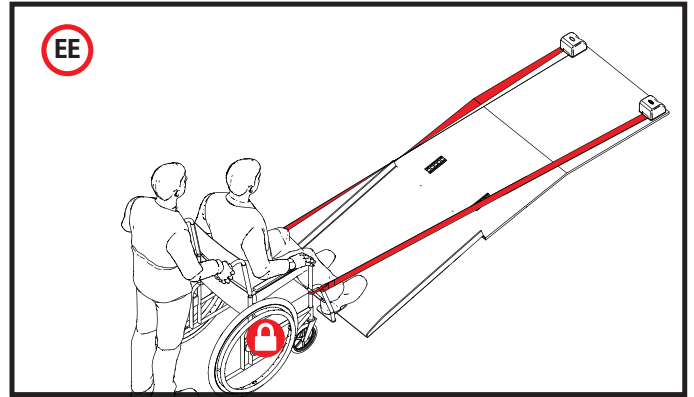
30. Use **CAUTION** going down ramp (DD).





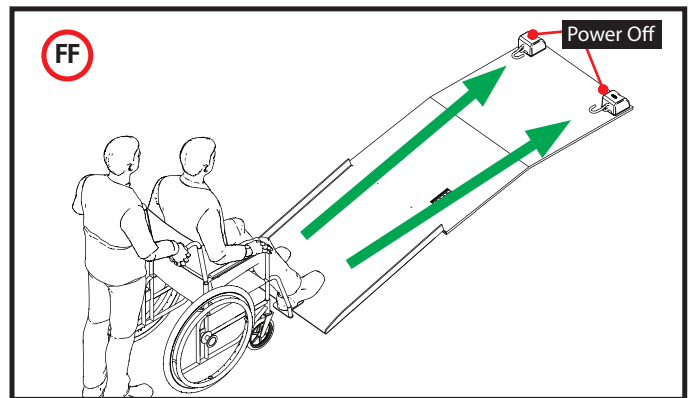
## RELEASING WHEELCHAIR

31. Position wheelchair on the ground and lock wheelchair brakes (or power off electric chair) (**EE**).

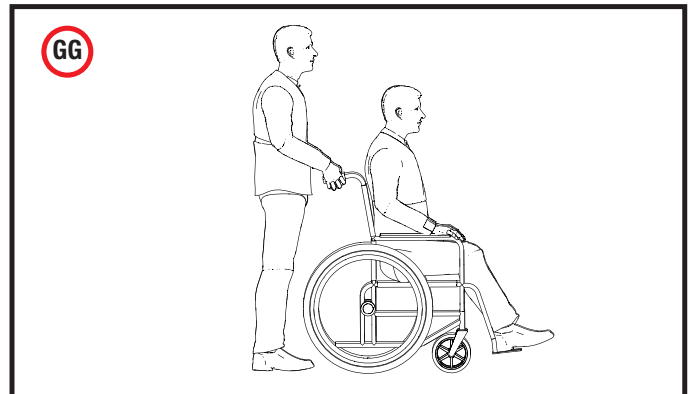


32. Detach J-Hooks from wheelchair, slowly return them to retractors and **power off Electrical Retractors** (**FF**).

 **Keep loose articles of clothing away from retractors.**

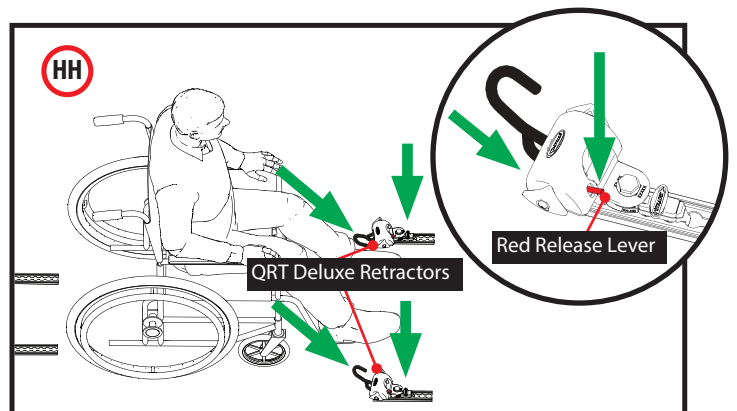


34. Unlock wheelchair brakes (or power on electric chair) and place wheelchair in a secure area (**GG**).



35. **Front Mechanical Retractors:** Press Red Release Levers on QRT front retractors and detach J-Hooks from wheelchair and slowly return them to retractors (**HH**).

**Manual Tiedowns:** Press Release Lever on manual belt, loosen webbing and detach J-hooks from wheelchair.

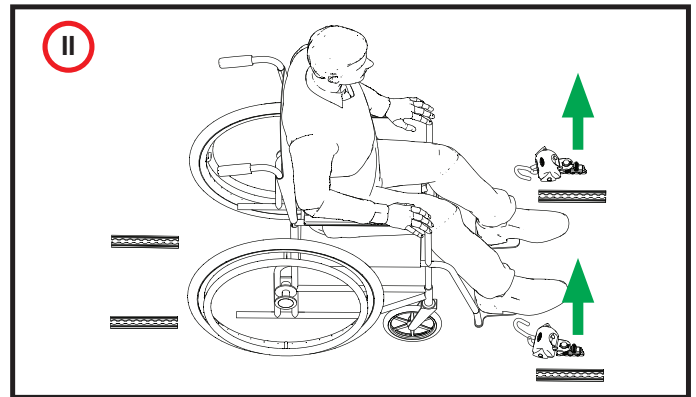




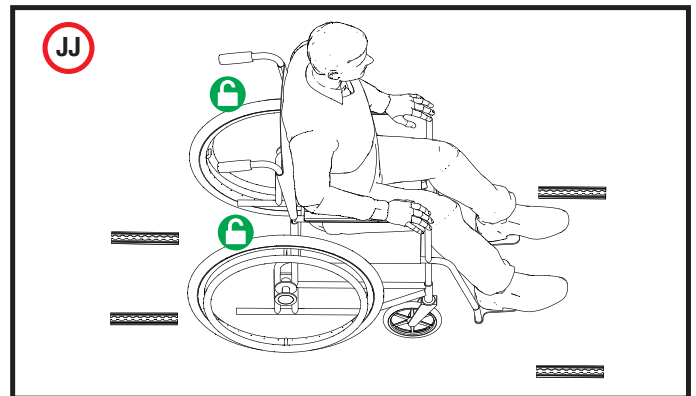


## RELEASING WHEELCHAIR

36. Remove Retractors or straps from Floor Anchorage points (II) and place in storage.

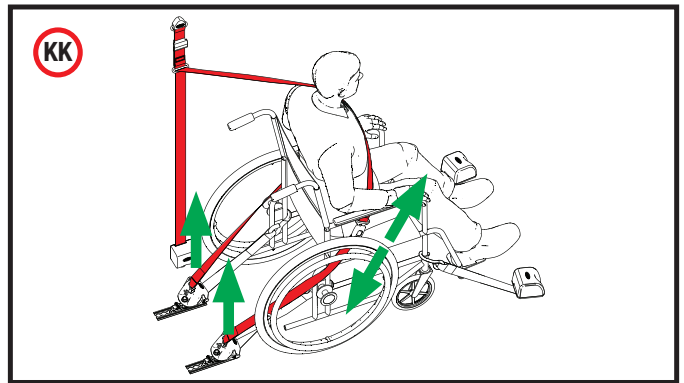


37. Unlock wheelchair brakes (power on electric chair). Wheelchair occupant is ready to exit vehicle (JJ).

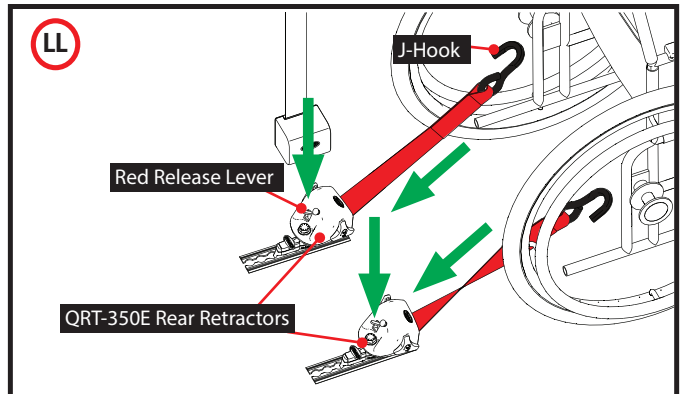


## POWER FAILURE - ELECTRIC RETRACTORS

1. Release Occupant Restraint (Shoulder and Pelvic Belt) **(KK)**.

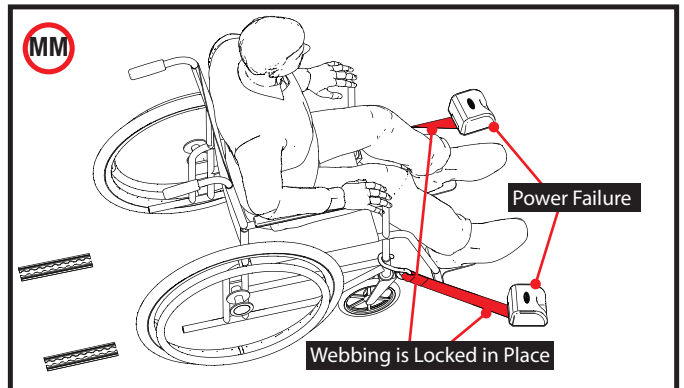


2. **Rear Retractors:** Press Red Release Levers on **QRT Rear Retractors** and detach J-Hooks from wheelchair and slowly return them to retractors **(LL)**. Remove Rear Retractors from Floor Anchorage points and place in storage.



**!** Keep loose articles of clothing away from retractors.

3. **Front Electrical Retractors:** The Electrical Retractors will not release the webbing if there is a power failure **(MM)**.



**!** **In an Emergency:** If retractors do not release webbing, cut the webbings at an angle. For safety reasons, we recommend using the **Q'Straint® emergency Cutter to cut Webbings at an angle.** (Q'Straint® Emergency Cutter—sold separately)

If **NOT** an Emergency. Make sure the wheelchair cannot roll forward. It is highly recommended a second person is present to assist.

Disengage the wheelchair brakes, but do not allow the wheelchair to roll forward at all.

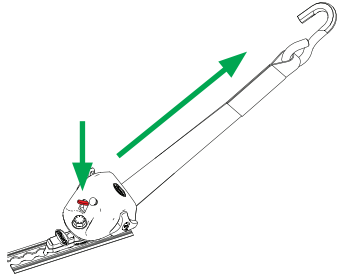
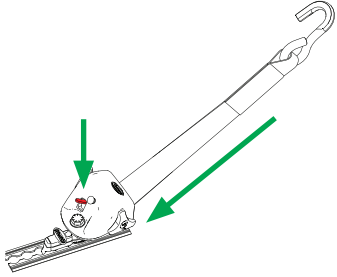
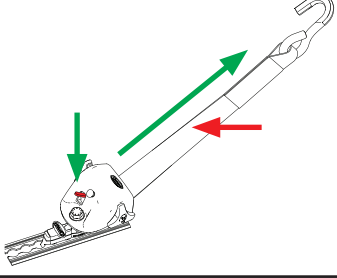
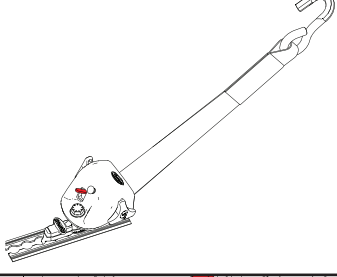
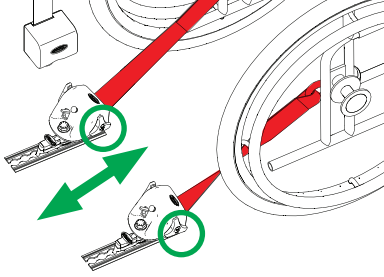
Take hold of the Electrical retractor hook and webbing to ensure the webbing is not retracted back into the retractor.

Ensure someone is standing behind the wheelchair, move the wheelchair forward to release tension on the webbing and then have the other person, remove the electrical retractor hooks from the wheelchair. Slowly return hook to retractor.

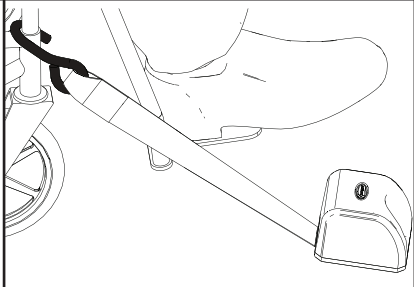
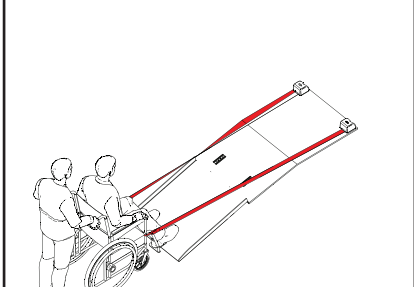
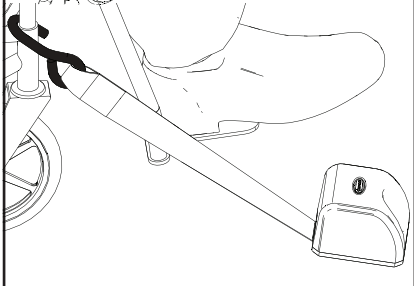
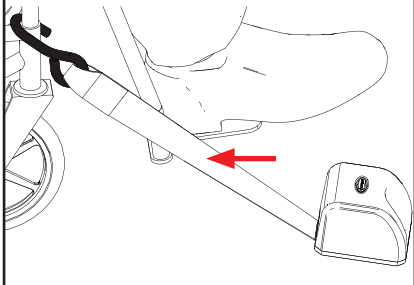
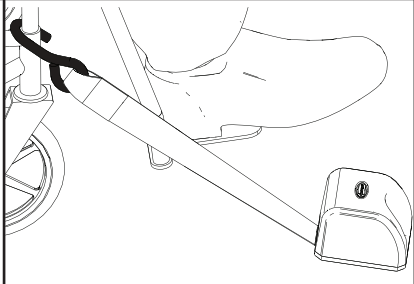
Carefully, continue to remove the wheelchair from the vehicle.

4. Use **CAUTION** going down ramp. Position wheelchair on the ground and lock wheelchair brakes (or power off electric chair).

## TROUBLESHOOTING

PROBLEM	IMAGE	ANSWER
<p><b>The webbing is twisted inside the retractor.</b></p>		<p>Press and hold Red Release Lever then pull J-Hook until webbing is straight.</p>
<p><b>The retractor(s) is (are) not releasing the webbing.</b></p>		<p>Press and hold Red Release Lever to release webbing from retractor.</p>
<p><b>It's an Emergency and the retractor(s) is (are) not releasing the webbing.</b></p>		<p>Press and hold Red Release Lever then pull J-Hook—if retractor(s) is (are) not releasing the webbing(s), cut webbing(s) at an angle.</p>
<p><b>The retractor(s) is (are) not working.</b></p>		<p>Call a Q'Straint® authorized dealer.</p>
<p><b>The webbing is slacking.</b></p>		<p>Retractors: Move wheelchair forward and back to remove slack from webbing and self-tension, or manually tensions webbing with retractor knobs.</p> <p>Manual Tiedowns: Pull end of webbing loop to tension the webbing</p>

## TROUBLESHOOTING

PROBLEM	IMAGE	ANSWER
<p>The Electrical Retractors are not releasing the webbing.</p>		<p>The Electrical Retractors <b>MUST</b> be powered on and wheelchair moved forward in order for the webbing to be released.</p>
<p>Can the J-Hooks of the Electrical Retractors be attached to wheelchair once inside vehicle?</p>		<p>This is <b>NOT</b> recommended. J-Hooks should be attached to wheelchair before going up the ramp because in case of an emergency the J-Hooks will hold wheelchair in place.</p>
<p>In Case of Power Failure:</p>		<p>Electrical Retractors will <b>NOT</b> release the webbing. Do <b>NOT</b> move wheelchair forward as this will only tighten the webbing grip.</p>
<p>It's an Emergency and there is a Power Failure.</p>		<p>Electrical Retractors will <b>NOT</b> release the webbing, cut the webbings at an angle.</p>
<p>Once Power is restored, will the Electrical Retractors work?</p>		<p>Yes, Power on Electrical Retractors and move wheelchair forward in order for retractors to unlock.</p>

## MAINTENANCE AND CARE

The following items should be inspected and serviced by an experienced and trained technician during the scheduled maintenance of the Q'Straint® 4-Point Wheelchair Securement System.

- **Always keep belts clean and off the floor** by using a storage device such as a Q'Straint® wall pouch. We recommend one storage device per wheelchair location.
- **All systems and components MUST be regularly inspected, tightened, cleaned, and maintained.**
- Clean webbing periodically with mild soap and water. After cleaning, fully extend belts and position them to prevent water from entering retractors until completely dry.
- **Make sure to prevent contamination of the webbing** by keeping it away from polishes, oils or other chemicals (particularly battery acid).
- Occasionally lubricate buckles and fittings, without contaminating the webbing.
- Clean bolt threads and reapply permanent thread locker if bolts are adjusted.
- **Frayed, contaminated or damaged webbing MUST be replaced immediately.**
- **Systems or components exposed to a vehicle accident, showing signs of missing parts, excessive damage or wear MUST be replaced.**

## WARRANTY - ALL SYSTEMS, PRODUCTS & ACCESSORIES

### WARRANTY REGISTRATION

Q'STRAIN'T'S LIMITED WARRANTY: Q'Straint® warrants this product conformance to our manufacturing specifications and to be free from defects in materials and workmanship. Q'Straint® or its authorized dealer will (at its sole discretion), repair or replace the defective component(s) free of charge. This warranty does not cover the cost of assembly or disassembly, transportation, labor, or any other incidental costs involved in the removal of a defective part or the installation of the replacement part.

Q'Straint® or its authorized dealers reserves the right to inspect the product to verify the claimed defect has not been caused by non-Q'Straint® approved maintenance or by foreign particles or substances. This Warranty does not apply to defects that result from accident, misuse or abuse, intentional damage, fire, flood, alteration or modification of the product, negligence, exposure, or use of the product in a manner inconsistent with its intended use.

#### COVERED PRODUCTS AND LIMITATIONS:

Q'STRAIN'T's limited warranty coverage applies only to factory defects in materials and workmanship in the Products as follows:

QRT 350, QRT 550 - 5 years\*  
QRT Deluxe, QRT Max, 3 years\*  
QRT Standard, Q-5000, M-Series, 2years\*  
QER Electrical Retractor - 1 year

\*Only valid if product is registered with Q'STRAIN'T. Otherwise a 1 year limited warranty applies to all products.

REGISTER PRODUCTS ONLINE AT:  
[WWW.qstraint.com/registration](http://WWW.qstraint.com/registration)







[www.qstraint.com](http://www.qstraint.com)

This manual contains the most current information at the time of printing. Q'Straint® reserves the right to modify systems, components and content without notice.



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