



QUANTUM[®]

USE & CARE MANUAL

THE QUANTUM[®] SECUREMENT SYSTEM MEETS ALL CURRENT REGULATIONS FOR REAR FACING TRANSIT,
EUROPEAN DIRECTIVES AND ADA/CSA REQUIREMENTS.

QUANTUM®

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Read All Instructions Prior to Installation

- This manual is a comprehensive step-by-step instruction guide on how to install the QUANTUM® Securement System and components into vehicles' floors and walls.
- Make sure to read, understand and follow all these instructions.
- To address any questions relating to installation, ordering parts, operating the QUANTUM® Securement System, troubleshooting, maintenance, service or anything else, contact the nearest Q'STRAIT® office listed on the back page of this manual.
- All deviations and alterations from these instructions **MUST** be reported to both your supervisor and Q'STRAIT®.



IMPORTANT SAFEGUARDS AND WARNINGS



WARNING: While in maintenance and service mode, ALL safety features are temporarily disable, therefore keep hands, feet and all body parts away from the QUANTUM® Securement System when activated.

- All equipment and components **MUST** be installed and serviced by an experienced and trained technician.
- Safety eye glasses **MUST** be worn whenever installing or servicing this system.
- **While the QUANTUM® is in Maintenance or Service Mode, earplugs MUST be worn.**
- **The QUANTUM® Securement System meets all current regulations for rear facing transit, European Directives and ADA/CSA requirements.**
- The QUANTUM® Securement System is a complete integrated system. Do not alter or modify it in any way and do not interchange or substitute any components. Any deviation from these recommendations is the responsibility of the installer.
- The QUANTUM® Securement System and components have been tested in a configuration similar to the recommendations in this manual.
- The QUANTUM® Securement System and its components **MUST** be regularly inspected, cleaned and maintained—reference the sections in this manual Maintenance and Service.
- Before installation, check with local transportation authorities for specific regulations, standards, requirements and minimum/maximum wheelchair location space and emergency exit requirements.
- Before installation, inspect the underside of vehicle floor, note utilities, frames, cross-members, fuel tanks and other possible obstructions—any questions contact the vehicle's OEM.
- **Vehicle anchor points may require reinforcement.** The installer or manufacturer is responsible for ensuring anchorages are installed into suitable floor and wall structures. Floor and wall strength **MUST** meet specific regulations, standards and applicable performance requirements from local transportation authorities.
- Do **NOT** install anchorages or any system components into faulty materials such as corroded metal, wood, plastic or fiberglass panels.
- Regulations and standards in some countries require the installation of a backrest, shoulder and lap belt to be considered a compliant wheelchair securement system. **The QUANTUM® Securement System plus Backrest, Shoulder and Lap Belt (occupant securement—for US only) make a complete rear facing wheelchair securement system.**
- The QUANTUM® Securement System **MUST** be serviced by an experienced and trained technician after every Manual Release.
- **Every QUANTUM® Securement System Manual Release MUST be reported to both your supervisor and Q'STRAIT®.**
- **The QUANTUM® Securement System MUST be serviced or replaced after every vehicle collision.**
- Replace ALL system components including floor and wall anchorages that were used during a vehicle collision. Broken and worn components **MUST** be replaced.
- All damages and defects **MUST** be reported to both your supervisor and Q'STRAIT®.
- If the QUANTUM® Securement System malfunctions or if any questions arise regarding the system's operations, immediately contact Q'STRAIT®.
- **Only use Q'STRAIT® components** with this system, unless otherwise stated.
- **Only use Hardware with a minimum Grade 8**, which meets ASTM F835, SAE J429 or ASTM 574 specifications (depending on head style and drive), and coated for adequate protection against corrosion per ISO 7253 or ASTM B117 or per customer requirements.
- The QUANTUM® **Mounting Plate MUST** be installed onto a flat and durable surface. **ONLY** use Q'STRAIT® hardware for installation.
- The images of the Mounting Plate and Supporting Plates illustrated in this manual are a representation of the Basic Mounting Plate and Basic Supporting Plates. The Mounting Plate and Supporting Plates will vary depending on the Bus Configuration.
- When installing or servicing the QUANTUM® Securement System, protect system from contacting sharp corners and edges.
- Prevent contamination of webbing by avoiding contact with oils, gasses, polishes and chemicals.
- Worn, contaminated, or damaged webbing **MUST** be replaced.
- Installer is responsible for making sure the installed QUANTUM® 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 System.
- Two QUANTUM® Securement Systems **cannot** be installed side by side because there **MUST** be a minimum pathway clearance of 22" when the QUANTUM® Arms are at their maximum width of 33.14"—check with local transportation authorities for specific regulations, standards and requirements.
- Backrest **MUST** meet or exceed all current ISO 10865 regulations for rear-facing transit, European directives and the latest ADA and CSA revisions.
- Occupant securement system (shoulder and lap belt) **MUST** meet applicable regulations for rear facing occupant securement requirements.
- **Shoulder and lap belt MUST** cross occupant's shoulder and hip, and not be held away from the occupant's body by wheelchair components.
- If a head restraint is anchored to the vehicle, a vehicle anchored backrest restraint **MUST** be provided to minimize rearward deflection of the wheelchair seatback in order to prevent an injury.
- **Keep loose articles of clothing away from the QUANTUM® Rotational and Non-Rotational Arms.**

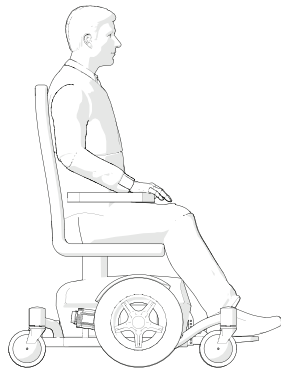
SAVE THESE INSTRUCTIONS

COMPLIANCE

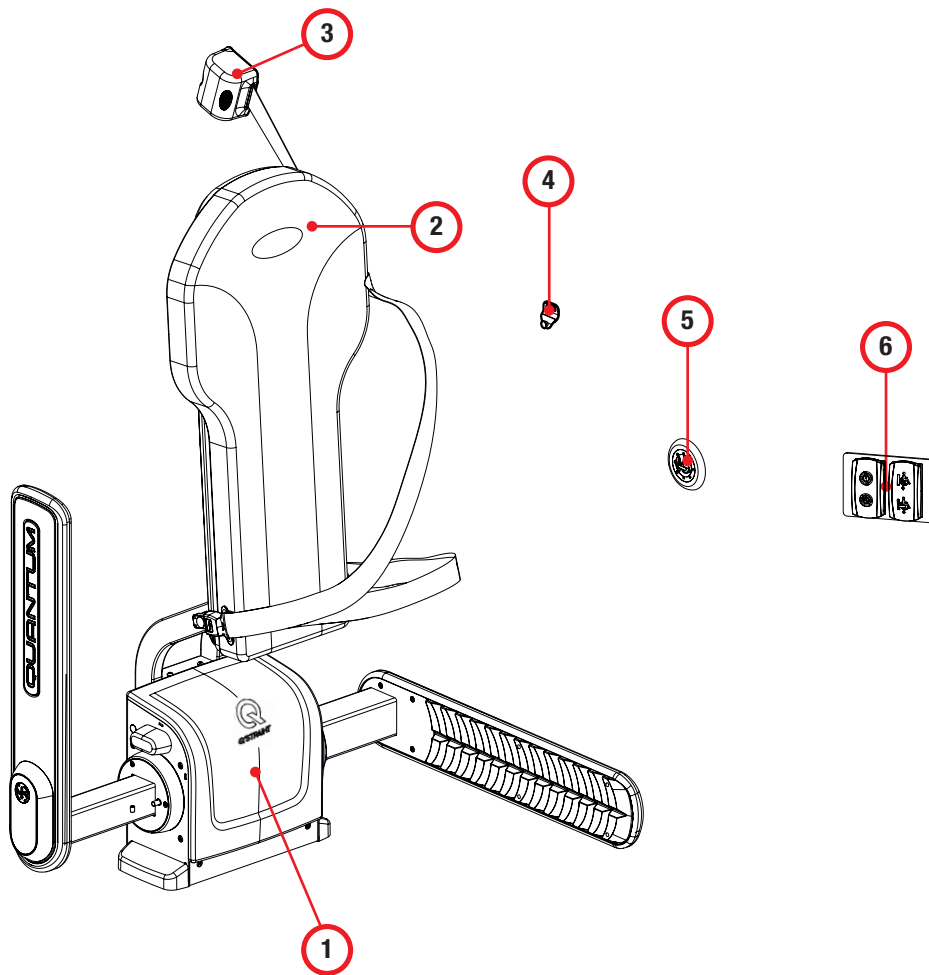
- The QUANTUM® Wheelchair Securement and Backrest meets the applicable sections of ADA 38.23, CSA D-435, FMVSS/CMVSS 572.222, 302 and 209, European Regulations 10 and 107, EC Directive 92/28/EC, and PSVAR 2000.



SYSTEM DEFINITIONS



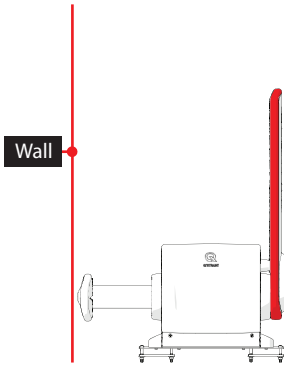
WMD
Wheeled Mobility Device



- 1. QUANTUM® Base
- 2. Backrest
- 3. Passenger Securement
- 4. Stowage Pin
- 5. Occupant Interface
- 6. Driver Interface

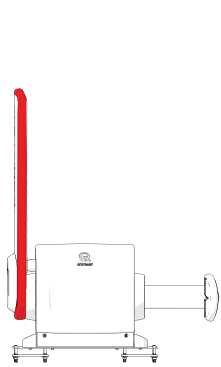
SYSTEM DEFINITIONS

AVAILABLE CONFIGURATIONS



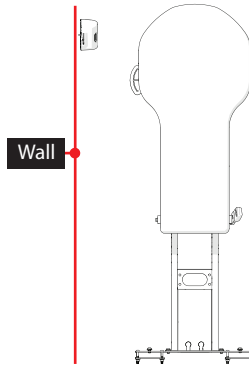
QUANTUM® -
(Street Side, US and CA)
(Curbside, UK)
(Left) (part# Q099000)

- 1 QUANTUM® Base (Left Hand)
- 1 Mounting Plate
- 2 Supporting Plates (Bus without Tapping Plate)
- 1 Occupant Interface
- 1 Driver Interface
 - Occupant Switch
 - Master Switch (On/Off Occupant Interface)
- 2 Base Feet
- 1 Cable Kit (2-18 AWG and 13-22 AWG)
- 2 Bolts for Mounting Plate
- 1 QUANTUM® Key and Manual Release Card
- 1 Installation Manual
- 1 Use and Care Manual
- 1 Occupant Placard
- 1 Driver Placard



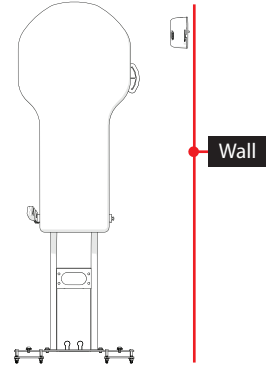
QUANTUM® -
(Curbside, US and CA)
(Street Side, UK)
(Right) (part# Q098000)

- 1 QUANTUM® Base (Right Hand)
- 1 Mounting Plate
- 2 Supporting Plates (Bus without Tapping Plate)
- 1 Occupant Interface
- 1 Driver Interface
 - Occupant Switch
 - Master Switch (On/Off Occupant Interface)
- 2 Base Feet
- 1 Cable Kit (2-18 AWG and 13-22 AWG)
- 2 Bolts for Mounting Plate
- 1 QUANTUM® Key and Manual Release Card
- 1 Installation Manual
- 1 Use and Care Manual
- 1 Occupant Placard
- 1 Driver Placard



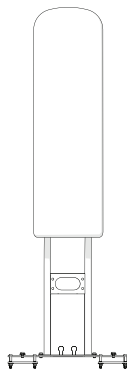
Backrest
- US, Street Side
(Left) (part# Q09B002)

- 1 Backrest with Brackets
- 1 Mounting Plate
- 2 Supporting Plates (Bus without Tapping Plate)
- 1 Combo Occupant Securement (Shoulder and Lap Belt) with Retractor
- 4 Bolts for Backrest
- 2 Bolts for Mounting Plate
- 2 Bolts for Stanchion (Bus without Tapping Plate)
- 1 Installation Manual



Backrest
- US, Curbside
(Right) (part# Q09B001)

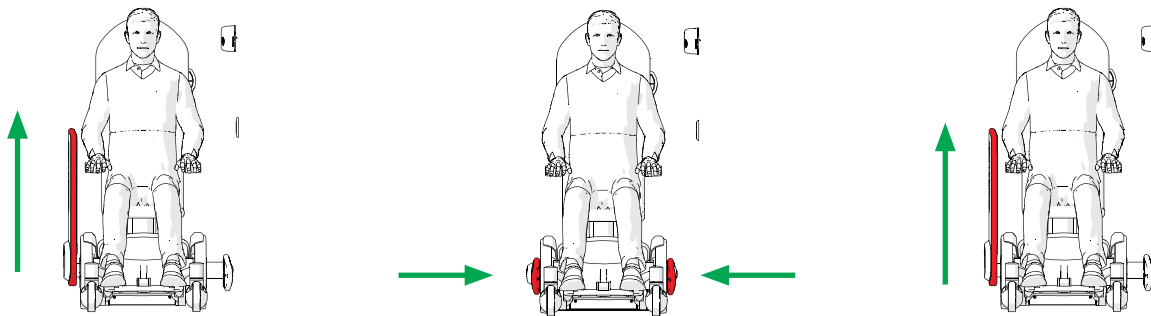
- 1 Backrest with Brackets
- 1 Mounting Plate
- 2 Supporting Plates (Bus without Tapping Plate)
- 1 Combo Occupant Securement (Shoulder and Lap Belt) with Retractor
- 4 Bolts for Backrest
- 2 Bolts for Mounting Plate
- 2 Bolts for Stanchion (Bus without Tapping Plate)
- 1 Installation Manual



Backrest - CA and UK
(part# Q09B003)

- 1 Backrest
- 1 Mounting Plate
- 2 Supporting Plates (Bus without Tapping Plate)
- 4 Bolts for Backrest
- 2 Bolts for Mounting Plate
- 2 Bolts for Stanchion (Bus without Tapping Plate)
- 1 Installation Manual

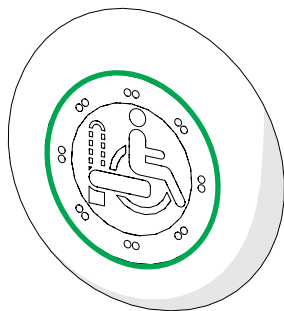
SYSTEM DEFINITIONS



One Cycle

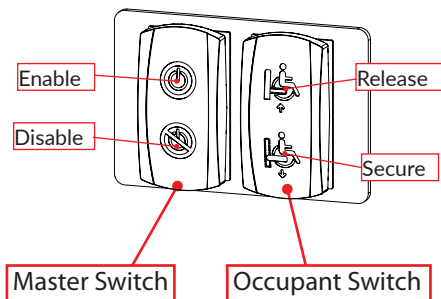
1. From Stow Position initiate secure sequence by pressing the operator or user interface.
2. QUANTUM® unit will beep twice alerting the operator while the capture is completed. QUANTUM® will beep twice again after completion.
3. To release press operator or user interface.

Reset Switch, Driver and Occupant Interfaces.



Occupant Interface

One-touch pushbutton use by the occupant of the **WMD** to **Secure** and **Release** the QUANTUM®.



Driver Interface

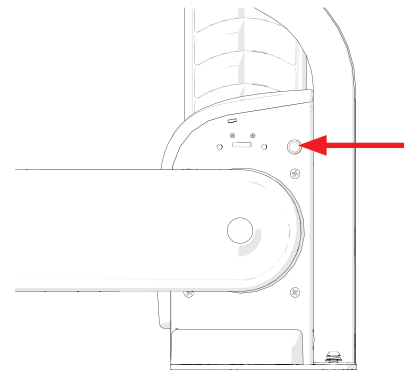
Master Switch

(On/Off Occupant Interface)

Used to disable the **Occupant Interface** when not in use and enable the **Occupant Interface** when in use. Used to disable and enable the marker lights on aisle side rotation arm.

Occupant Switch

Used for communicating, commanding movement, indicating current status, **Securing and Releasing** the QUANTUM® from the Driver Interface.



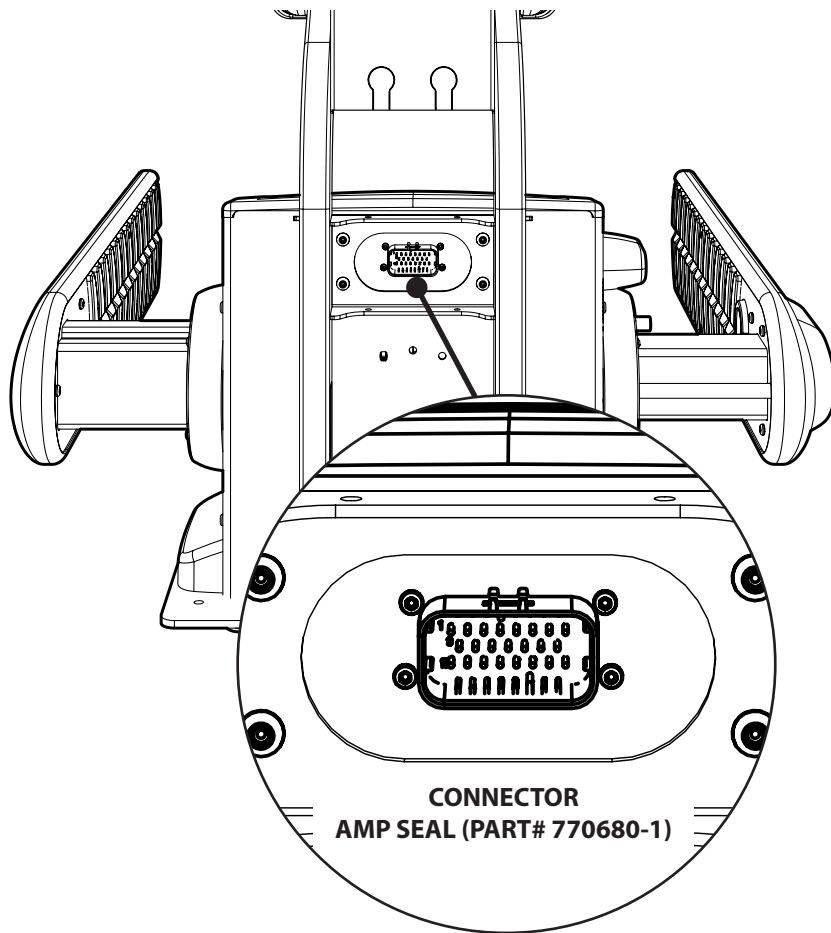
Reset Switch

Used to reset {turn "OFF" (Pressed) and "ON" (Depressed) } the QUANTUM® when power failure occurs, when its sequence is disrupted or once obstruction is removed.

SYSTEM DEFINITIONS

ELECTRICAL AND OPERATIONAL REQUIREMENTS

1. Continuous power source of 15 amps at 12V or 10 amps at 24V.
2. Vehicle Engine must be running (ON), Ignition signal of 12V or 24V (Interlocked).
3. Parking Brake must be engaged (ON), Parking Brake signal of 12V or 24V (Interlocked).
4. Reset switch must be depressed.

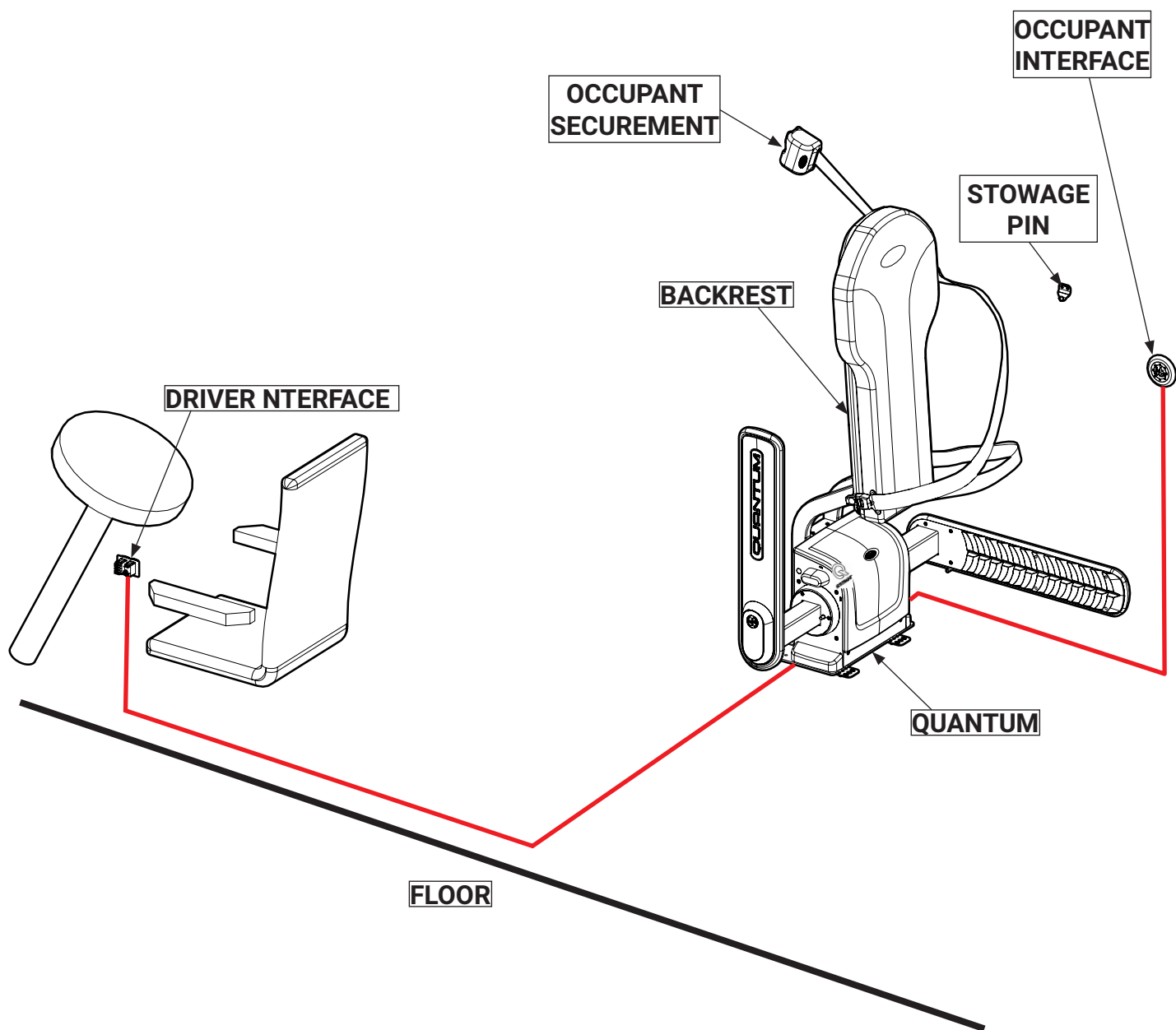




QUICK INSTALLATION REFERENCE

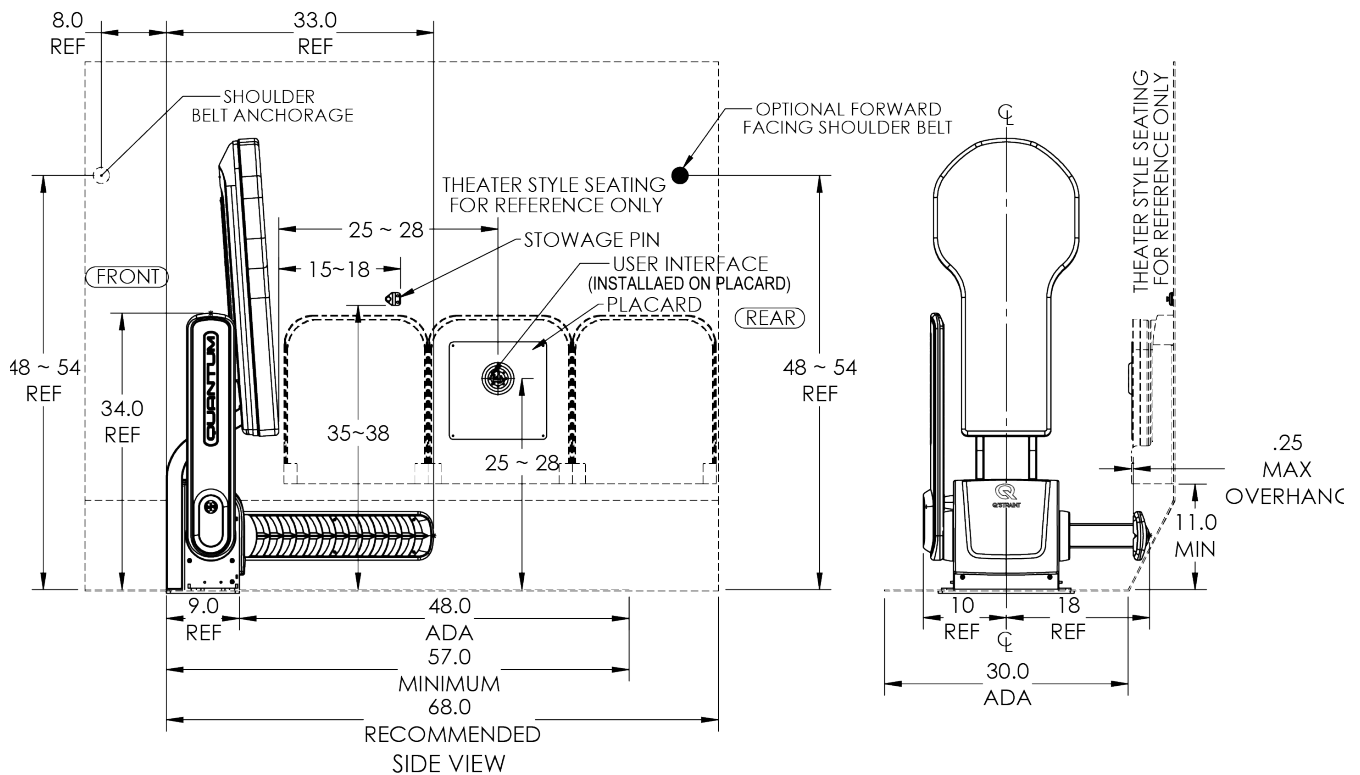
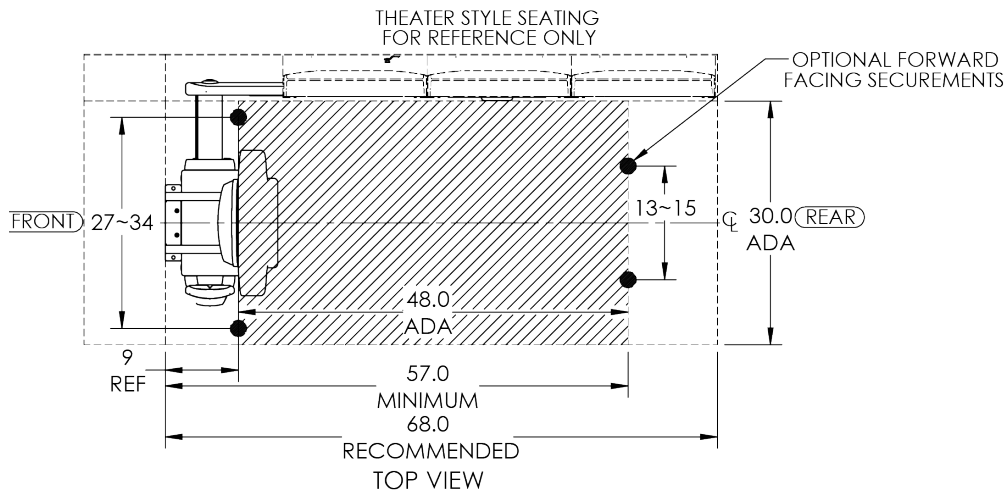
! This is ONLY a quick guide, for complete installation instructions follow the directions in the “Installation Instructions” section.

NOTE: Occupant Securement (8 and 9), if applicable.



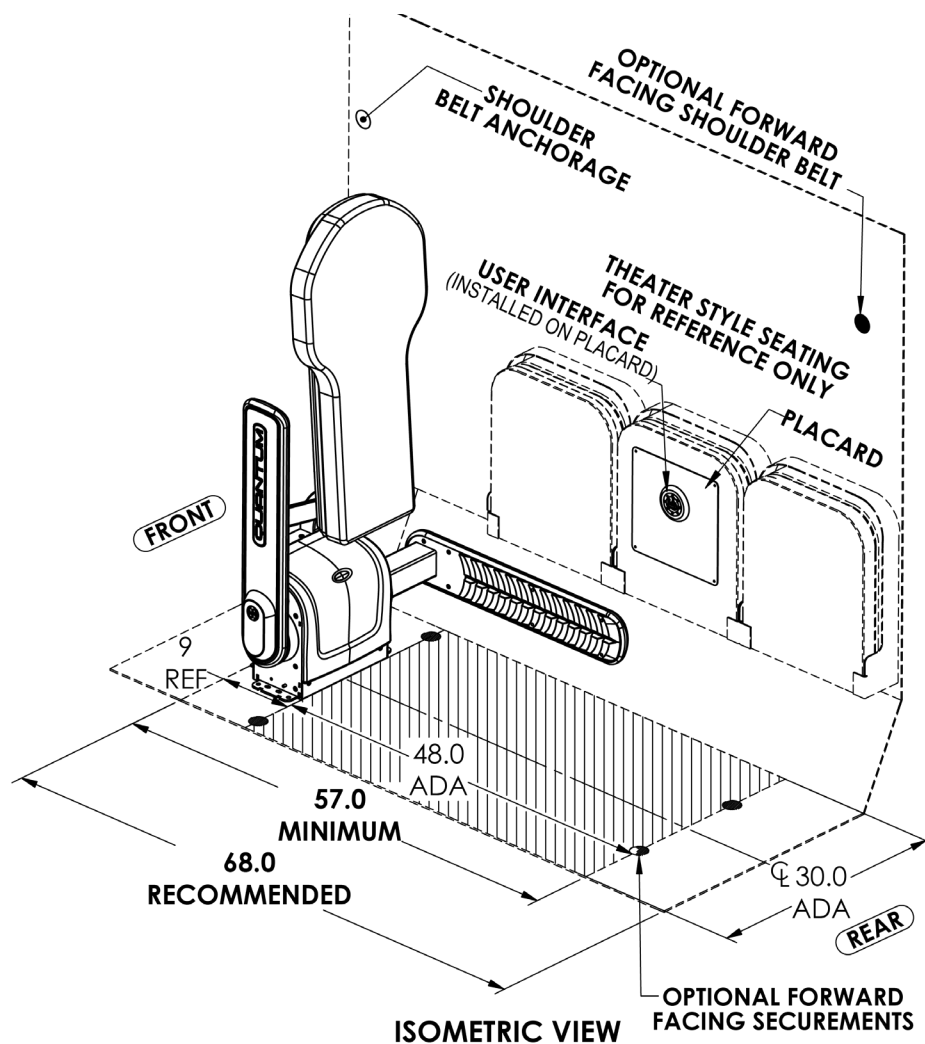


QUANTUM EFFECTIVE LAYOUT





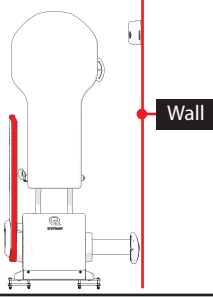
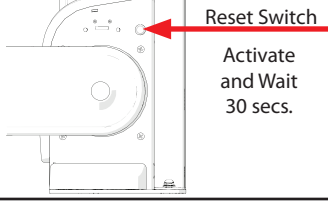
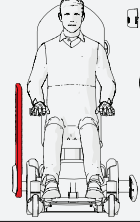
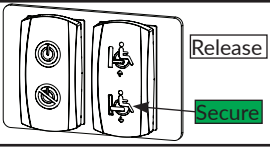
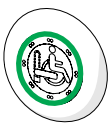
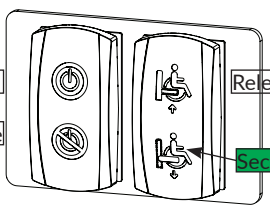
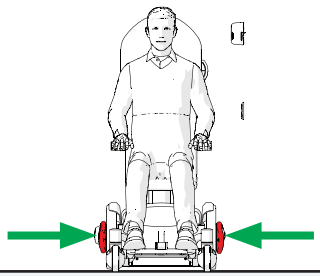
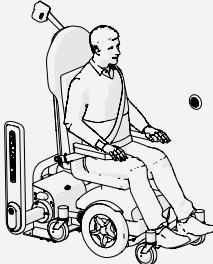
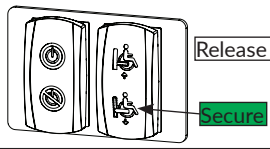
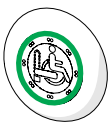
QUANTUM EFFECTIVE LAYOUT



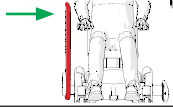
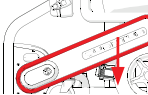
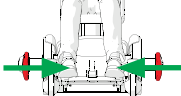
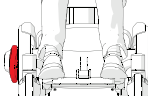


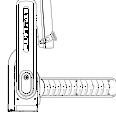
UNLESS OTHERWISE SPECIFIED:

1. LAYOUT IS FOR A REAR FACING APPLICATION.
2. LAYOUT DISTRIBUTION AND DIMENSIONS ARE APPLICABLE AND SYMMETRICAL FOR BOTH STREET SIDE AND CURBSIDE APPLICATIONS.
3. SEAT LOCATION AND DISTRIBUTION MAY VARY.
4. THIN THEATER STYLE SEATS WITH AUTO FLIP OPTION RECOMMENDED.
5. USER INTERFACE AVAILABLE THROUGH SEATING MANUFACTURER.
6. ALL PRODUCT CHANGES REQUIRE ENGINEERING APPROVAL.
7. FORWARD FACING SECUREMENTS ARE OPTIONAL AND AVAILABLE PER REQUEST.

OPERATIONAL SEQUENCE

No.	ACTION	IMAGE	COMMENTS
1	<p>Stowed</p> <p>Engine running and parking brake engaged. Quantum reset switch must be set to ON. Quantum is at Stowed position</p>		<p>Reset switch located on inner side of the body</p> 
2	<p>Boarding</p> <p>Have occupant maneuver in to the securement area and position facing the rear of the bus, centered on the backrest between the two arms.</p>		<p>User must be centered as much as possible for ease of securement</p>
3	<p>Securing</p> <p>Press secure to begin the securement process or press enable to allow occupant begin process using occupant interface</p>	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <p>Enable</p> <p>Disable</p> </div>  <div style="margin-left: 10px;"> <p>Release</p> <p>Secure</p> </div> </div> 	<p>The Occupant interface will flash green. The arm will rotate down beeping twice and will capture the device</p>
4	<p>Final Capture</p> <p>The flashing will change to inform the operator to complete the securement process by pressing secure on the operator interface.</p>	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <p>Enable</p> <p>Disable</p> </div>  <div style="margin-left: 10px;"> <p>Release</p> <p>Secure</p> </div> </div>	
5	<p>Occupant Securement</p> <p>Offer occupant securement and assist if necessary.</p>		<p>Occupant is Secured and ready for transport.</p>
6	<p>Release</p> <p>Unbuckle and release brake or power on device. Press release or press enable to allow occupant begin process using occupant interface.</p>	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <p>Enable</p> <p>Disable</p> </div>  <div style="margin-left: 10px;"> <p>Release</p> <p>Secure</p> </div> </div> 	<p>Occupant is ready to exit.</p>

VISUAL AND AUDIO SEQUENCE

Activity	Image	Audible Alarm	Marker Light	Occupant Interface	Driver Interface, Secure Light	Driver Interface, Release Light	Master Switch ON Light	Master Switch OFF Light
Stow Position		OFF	ON Solid	ON, Solid Light	OFF	ON Solid	ON Solid	OFF
Deploy in Motion		Beep Twice	Blinking	Blinking	Blinking	OFF	ON Solid	OFF
Engage in Motion		OFF	Blinking	Blinking	Blinking	OFF	ON Solid	OFF
WMD Secured		OFF	ON Solid	Solid Light	ON Solid	OFF	OFF	ON Solid
Release in Motion		Beep Twice	Blinking	Blinking	Blinking	Blinking	ON Solid	OFF
Bump 'n Go Down	Rotate Arm Moving Out, In, Up & Down	Beep 5 Times	Blink 5 Times	Blink 5 Times	Blink 5 Times	Blink 5 Times	ON Solid	OFF
Power up 30 secs After Reset Switch, Depressed		OFF	ON Solid	ON Solid	On Solid	OFF	ON Solid	OFF
Sleep Mode 30 secs. After Engine shut/off		OFF	OFF	OFF	OFF	OFF	OFF	OFF



WARNING: when master switch position is set to "off" marker light along rotate arm will be disabled. Rotate arm functionality will not be affected.

MAINTENANCE AND CARE

Date _____


Company _____

Vehicle Identification # _____

Serial Number of the QUANTUM® Securement System _____

Serial Number of the QUANTUM® Backrest _____

1. The following items **MUST** be inspected and serviced by an experienced and trained technician during the scheduled maintenance of the QUANTUM® Securement System.

- ☐ Clean all debris from arm extensions
- ☐ **ONLY** use Soap and Water to Clean the QUANTUM®, Arm Extensions and Backrest, then Rinse and Dry (Arms Fully Extended)
- ☐ Verify that the QUANTUM® Securement System is working properly.
- ☐ Verify that all manual release systems are functioning properly.
- ☐ Verify that all automatic release systems are functioning properly.
- ☐ Verify that occupant securement system (shoulder and lap belts) are working properly.
- ☐ Verify that all seatbelt systems are not worn or frayed. Replace as needed.
- ☐ Verify that occupant securement system is not damaged or corroded. Replace if needed.
- ☐ Verify that floor anchorages are not damaged or corroded. Replace if needed.
- ☐ Verify that all mounting bolts are tight.
- ☐ Inspect all webbing for fraying. Replace any that have frayed.
- ☐ Inspect entire system to make sure everything is working properly and replace anything that is needed.
- ☐ **DO NOT LUBRICATE ARMS.** 

2. Any deficiencies shall be noted below and rectified before the QUANTUM® Securement System is released to the consumer for use.

3. If the repairing technician has any issues not covered by this document or is not clear on what corrective action needs to be taken, they **MUST** consult the Q'STRAIT® office listed on the back page of this manual. **DO NOT make any repairs without consulting Q'STRAIT® first.**

Deficiencies Noted: _____

Action Taken: _____

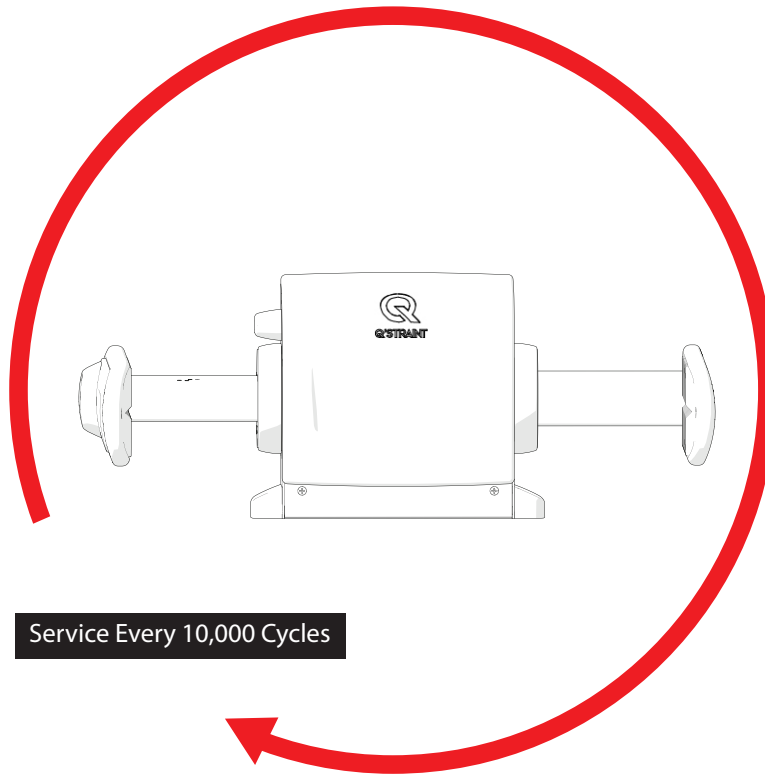
Dealership: _____

Technician: _____

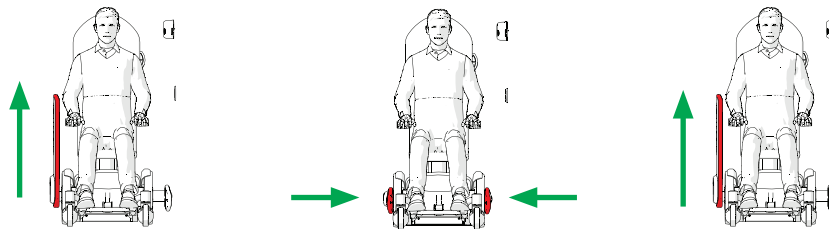
SERVICE



For service contact a Q'STRAIT® certified dealer.



Service Every 10,000 Cycles



One Cycle

From **Stow Position** to **Secure Position** back to **Stow Position**.



WARNING: Once the QUANTUM® reaches 9,500 cycles, every time the vehicle is turned "ON" 2 Alert Beeps will be heard for 1 minute indicating that the QUANTUM® needs to be serviced soon. The QUANTUM® will still be operational. Make sure to contact your authorized Q'STRAIT® dealer for a service appointment.



WARNING: While in maintenance and service mode, ALL safety features are temporarily disabled, therefore keep hands, feet and all body parts away from the QUANTUM® Securement System when activated.

3 YEAR WARRANTY - ALL SYSTEMS, PRODUCTS & ACCESSORIES

WARRANTY REGISTRATION

In order to take full advantage of Q'STRAIN'T'S warranty, register your product online at: **www.qstraint.com/registration**
PLEASE DO NOT MAIL IN THIS REGISTRATION. Before going online, have your vehicle's registration handy as well as the equipment's:

Serial # _____ Part # _____

Q'STRAIN'T'S LIMITED WARRANTY: Q'STRAIN'T® warrants this product conformance to our manufacturing specifications and to be free from defects in materials and workmanship. Q'STRAIN'T® 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'STRAIN'T® or its authorized dealers reserves the right to inspect the product to verify the claimed defect has not been caused by non-Q'STRAIN'T® 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.



www.qstraint.com

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



This manual was printed on 30% post-consumer stock using vegetable oil based inks and is 100% recyclable.
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Our products are protected under the following patents: www.qstraint.com/patents

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