Wheelchair Securement Training

Q'STRAINT®
THINKING BEYOND SAFETY

SURE-LOK®
Safe and Secure



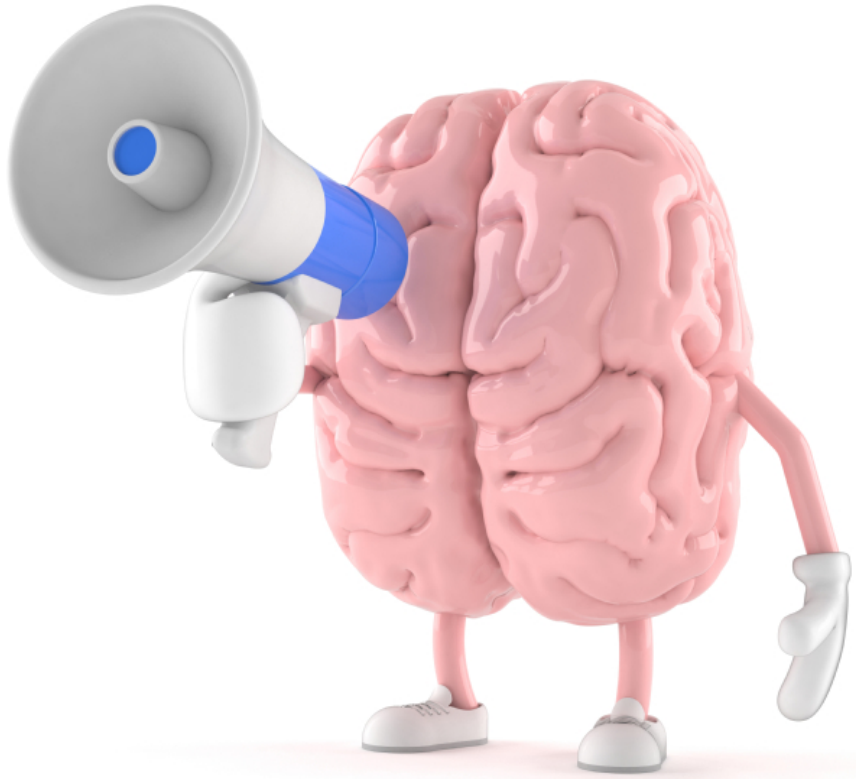
Darren Reaume

Director of Training
training@qstraint.com

PURPOSE OF TRAINING

Increase Understanding of the 3 Essential Securement Principles for:

- **Mobility Device**
- **Occupant**



These Principles:

- Increase Operator Proficiency/Confidence & Passenger Safety
- Are Universal (every device, every vehicle)
- Provide Checklist for Drivers



IMPORTANCE OF PROPER SECUREMENT

Securement Equipment Saves Lives When Used Properly!

…even when everything else goes wrong.

The drivers make other errors ***BUT*** do a great job following our securement principles.



IMPORTANCE OF PROPER SECUREMENT

Improper Securement?

…Will result in avoidable incidents even during routine driving.

Not following basic securement principles = ***passengers at risk on nearly every trip***



WHEELCHAIR TRANSPORTATION INCIDENT?

What is an Incident?:

- *potential* that a passenger in a mobility device is injured.

AND

- *potential* that someone involved (driver, passenger, caregiver etc.) will claim the securement equipment malfunctioned.

Post Incident:





Contact Customer Service

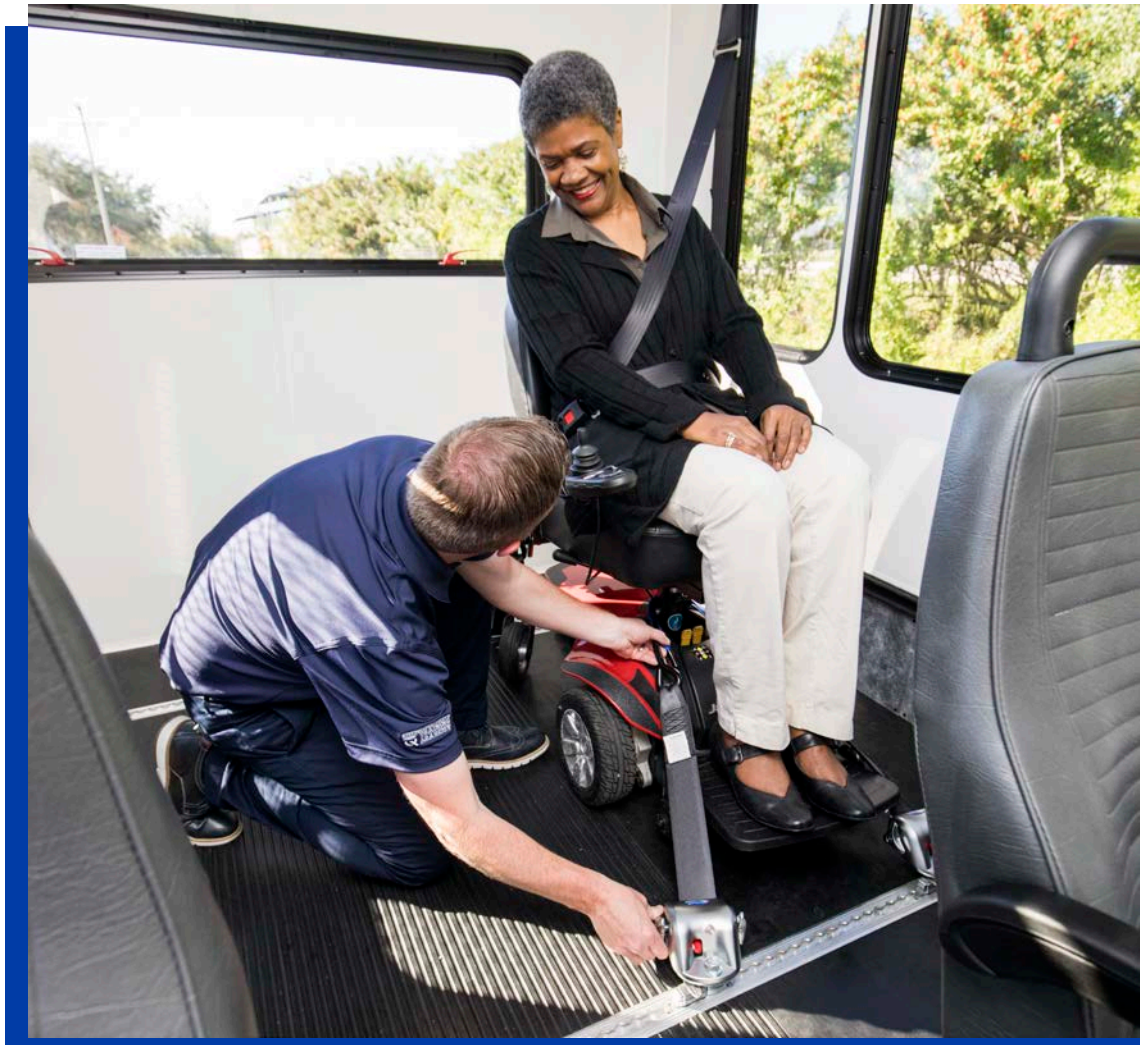


Equipment & How It Works

Floor Anchorages & Securements

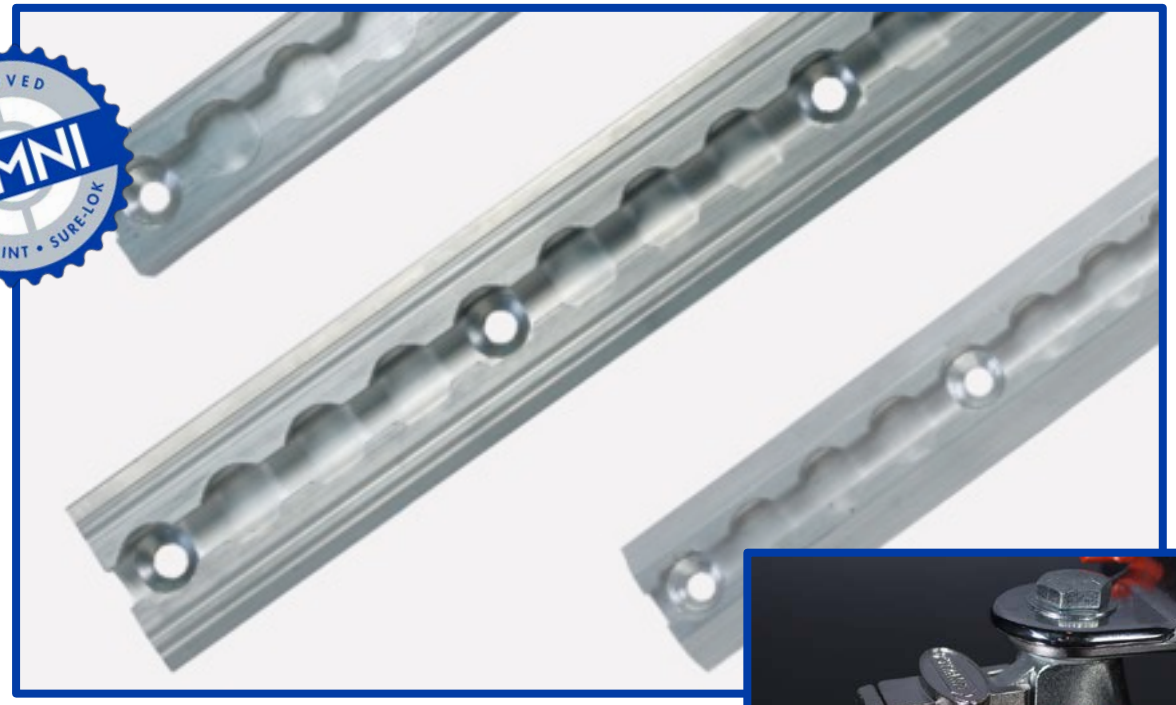
Securing the Wheelchair

Principles



FLOOR ANCHORAGES

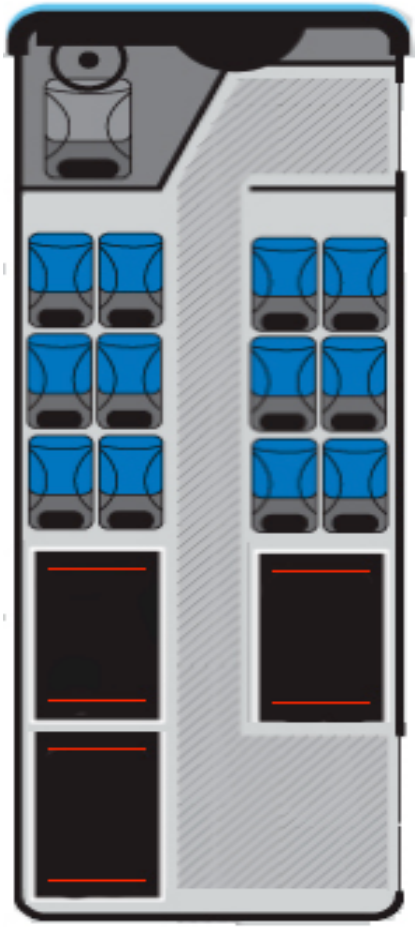
L-TRACK®

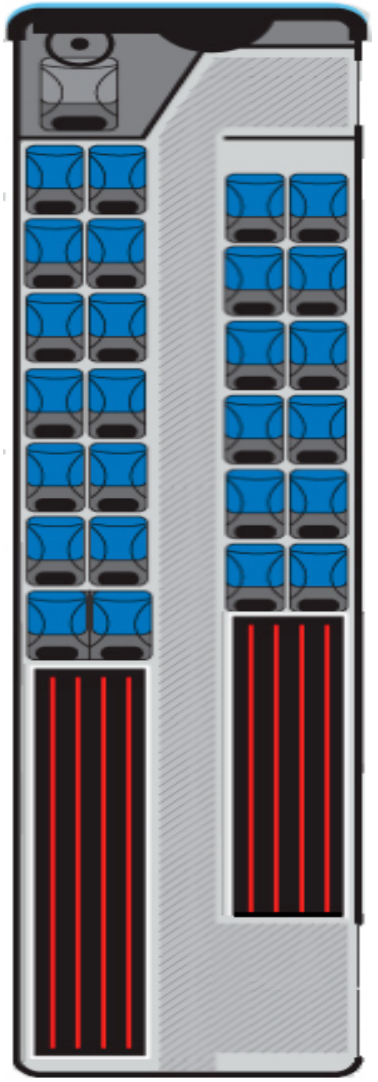




- Aluminum
- Most widely used

LAYOUT:
Top-Down Bus Views



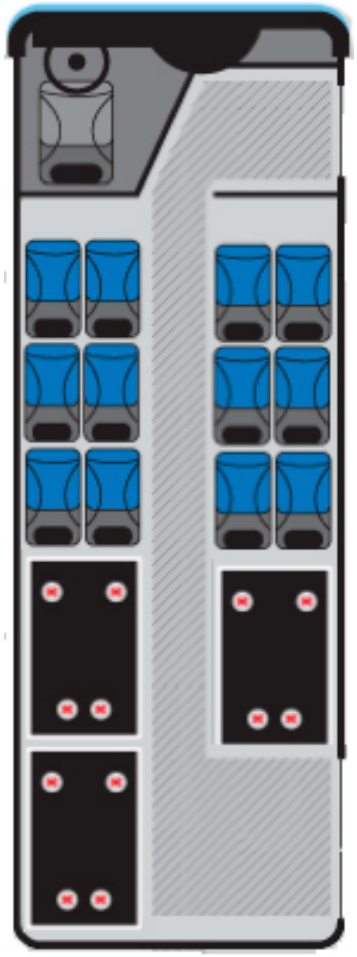


FLOOR ANCHORAGES

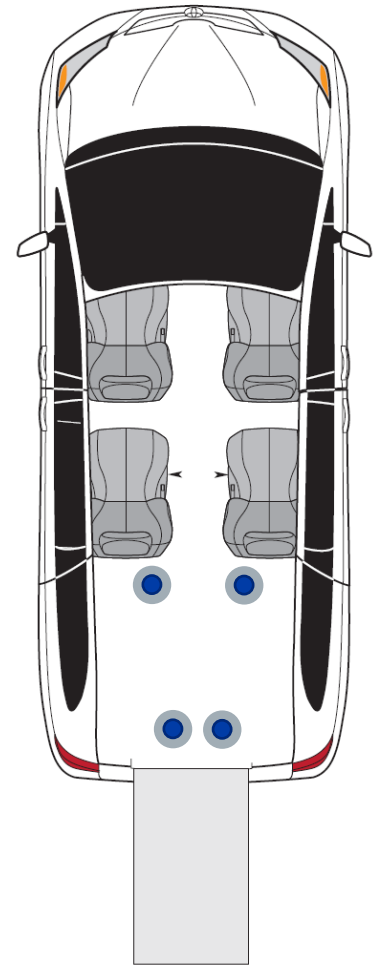
SLIDE 'N CLICK®



LAYOUT:
Top-Down Bus View



LAYOUT:
Top-Down Van View



AUTOMATIC RETRACTORS



QRT® DELUXE



QRT® MAX



QRT-360®



AL 700 TITAN



TITAN800

- Fully Automatic
- Self-Tensioning; Self-Locking
- Single hand operation

STANDARD LOCKING RETRACTORS



QRT® STANDARD



FF600 Retractor

- Semi-Automatic: ***requires additional tensioning***
- Single tightening knob
- Two hand operation

AUTOMATIC vs. STANDARD LOCKING SECUREMENTS

Important Tip:

Automatic vs. Standard:

Know the Difference



- Standard retractors require manual tensioning; Automatic retractors do not.
- Not understanding this difference can put your passengers' safety at risk.

MANUAL SECUREMENTS

Let's totally do that gnarly securement thang…



M-SERIES® Since 1984



- Meets minimum specifications

The Retro SECUREMENT OPTION

Your presenter @ 80's Party



BEST PRACTICE SECUREMENT STANDARD

ANSI/RESNA WC18

- **Latest industry safety standard for Securement Equipment:** took effect in 2016
- **Essential:** for Public Use Vehicles (School, Paratransit)
- Accommodates WC-19 wheelchairs with integrated lap belt, which increase the load *on rear securements by 60%.*
- **Heavy Duty:** Securements must be nearly twice as strong as traditional securements.
- Compliant Securements:

QRT-360 TITAN800



WC18 COMPLIANT RETRACTORS



Dress shoes required for governmental crash testing?!?!?!



ACCESSORIES



Belt Cutter
Used in emergency evacuations.



Webbing Loops
Used where hooks cannot be fitted onto the wheelchair frame.

PREBOARDING

Outside the Vehicle

- **Develop a Plan:** Inspect the wheelchair to determine appropriate securement options on the frame.
  - More space & fewer distractions.
  - 360° view of the wheelchair.
  - *Other considerations:* Trays, backpacks, Disability or Device that might make occupant securement use difficult.



Easier to maintain social distance

ENTERING THE SECUREMENT LOCATION

Position the Wheelchair in the Securement Location ensuring:

FORWARD FACING ONLY

- It is within the floor anchorages/securement envelope.
- Your securement plan still looks good? If not, adjust.
- The device is powered ‘OFF’ / wheel locks applied.



PLACING SECUREMENTS IN FLOOR ANCHORAGES

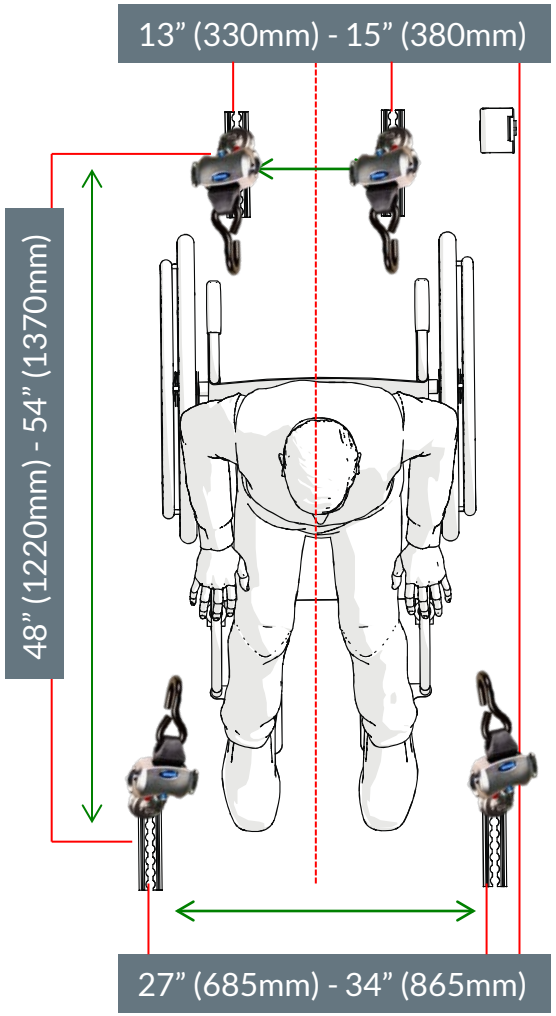
Retractor Layout

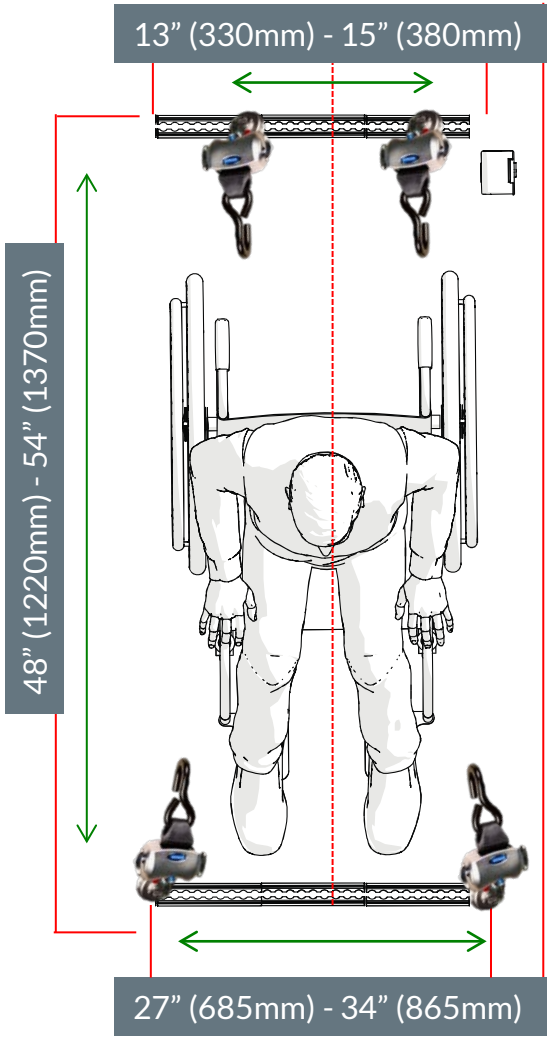
Rear

- Inside the wheels ≈12”-15”
- Prevents forward inertia.

Front

- Outside the wheels ≈27”-34”
- Stabilizes and minimizes contact with passenger’s legs.

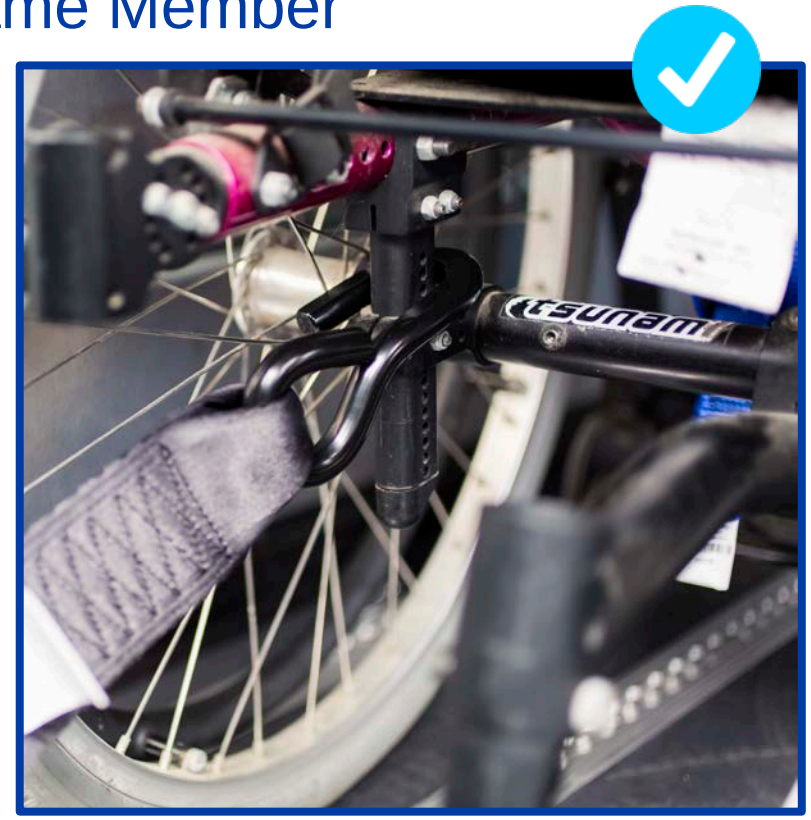




SECURING THE WHEELCHAIR

When attaching securement hook to frame aim for:

1. Solid Or Welded Frame Member





Judgement Call:

Most wheelchairs aren't designed to be transported and haven't been crash tested

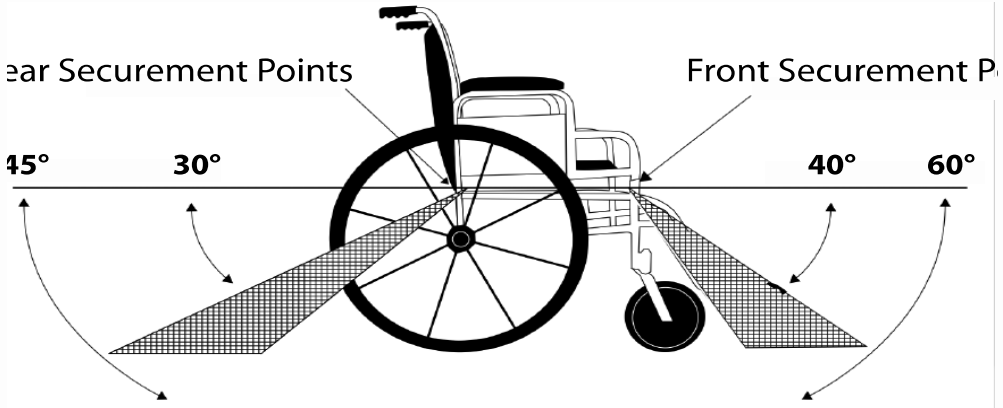
SECURING THE WHEELCHAIR

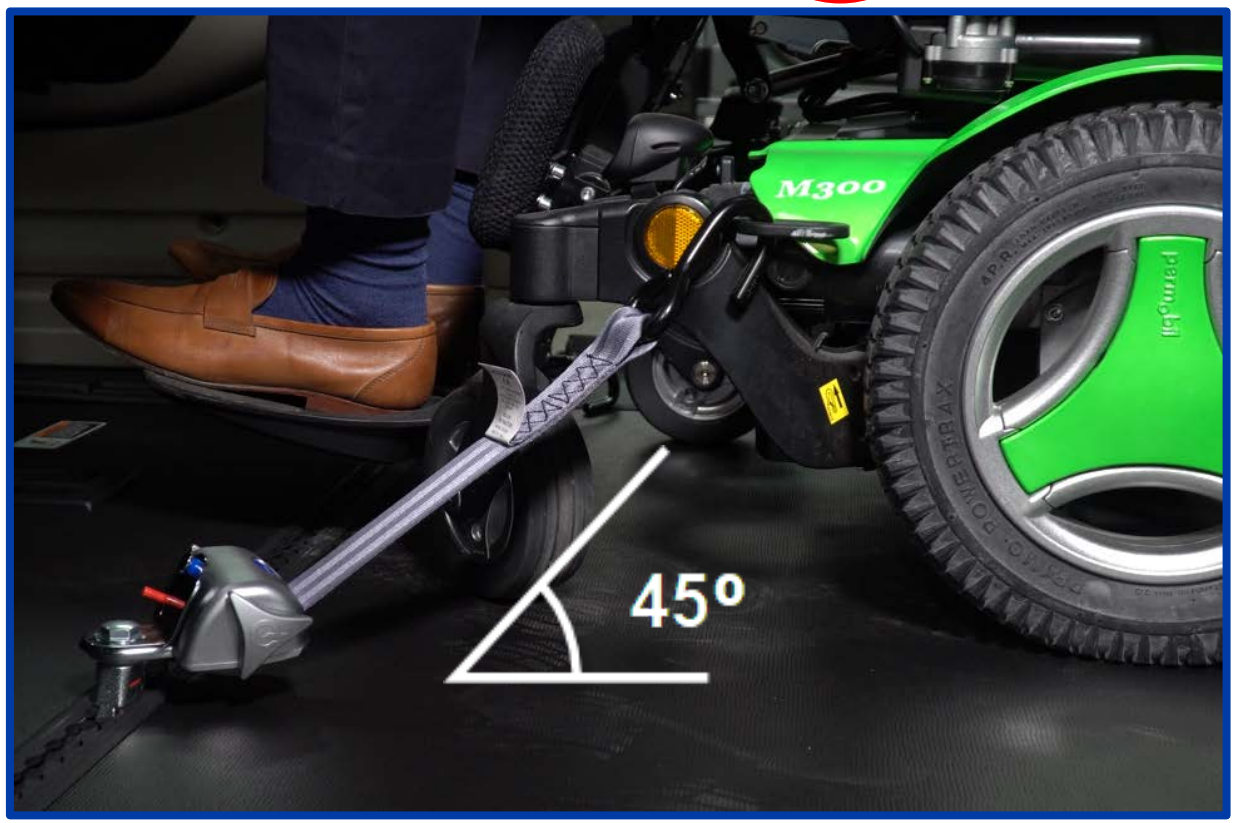
When attaching securement hook aim for:

2. Correct belt angles ≈ 45º
   - Front: 40-60º
   - Rear: 30-45º
   - **Tip:** Proximity to Seat

Good News:
NO MATH





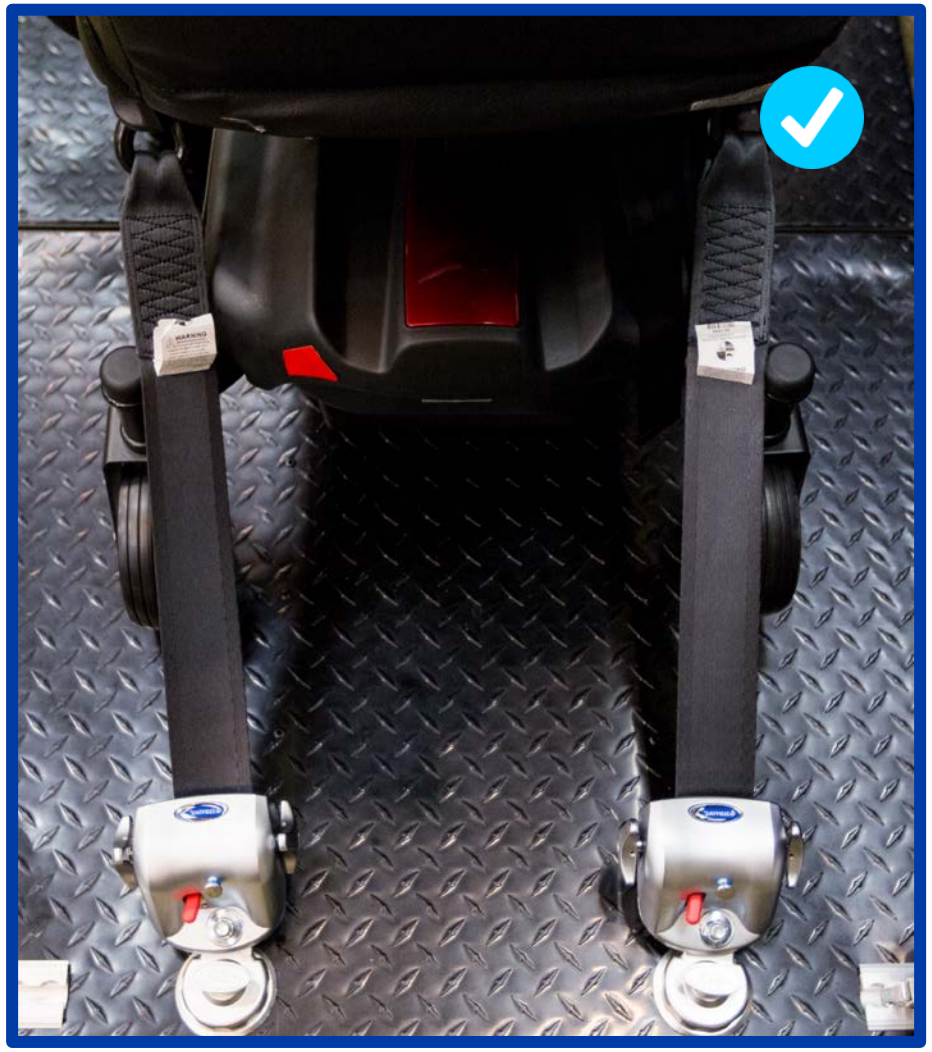


SECURING THE WHEELCHAIR

When attaching securement hook aim for:

3. **Direct Path** to the attachment point

- Relatively straight line from retractor to the attachment point on the wheelchair in both the front and rear



SECURING THE WHEELCHAIR

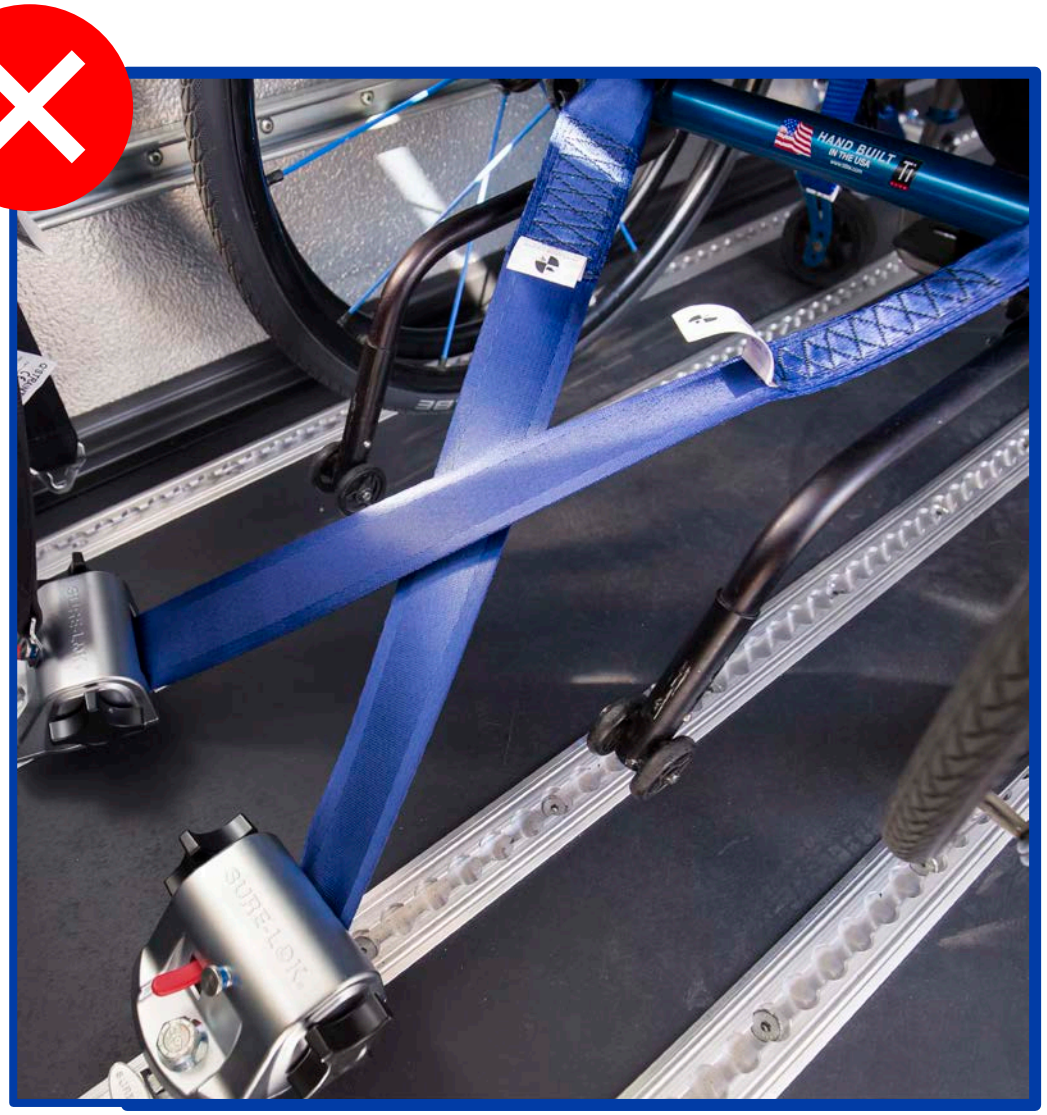
When attaching securement hook aim for:

3. **Direct Path** to the attachment point

- Relatively straight line from retractor to the attachment point on the wheelchair in both the front and rear

AVOID:

- Belts resting on OR routed through wheels or frame members
- Significant twisting of the belts
- Crossing belts



WC – 19 WHEELCHAIRS

- Look for symbol
- Designed and crash tested to be used as a vehicle seat
- **No symbol?** Examine hooks like any other potential attachment point







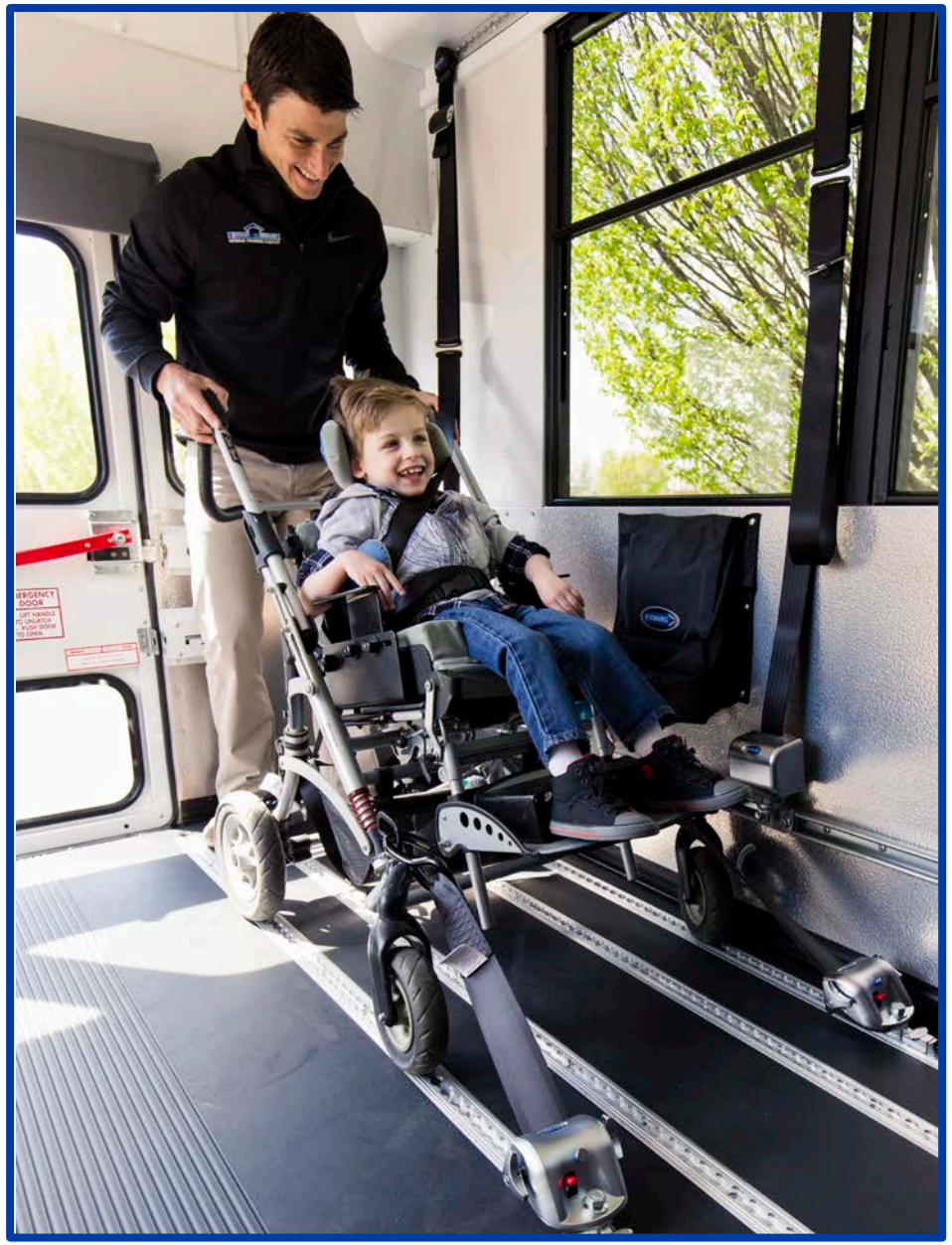
FINAL STEP

Improving Ride Quality / Check for Movement

- **Automatic Retractors: Optional -** Turn knob(s) and/or push-pull test.

- **Standard Retractors: Mandatory -**Turn knob/press red lever





3 ESSENTIAL PRINCIPLES

For every wheelchair strive to get as close as possible to these essential principles. The closer you get to achieving them, the more secure the devices is – regardless of the size of the wheelchair or passenger, or the type of device (manual or powered).

1. **SOLID FRAME MEMBER**
2. **DIRECT PATH**
3. **45º BELT ANGLE**

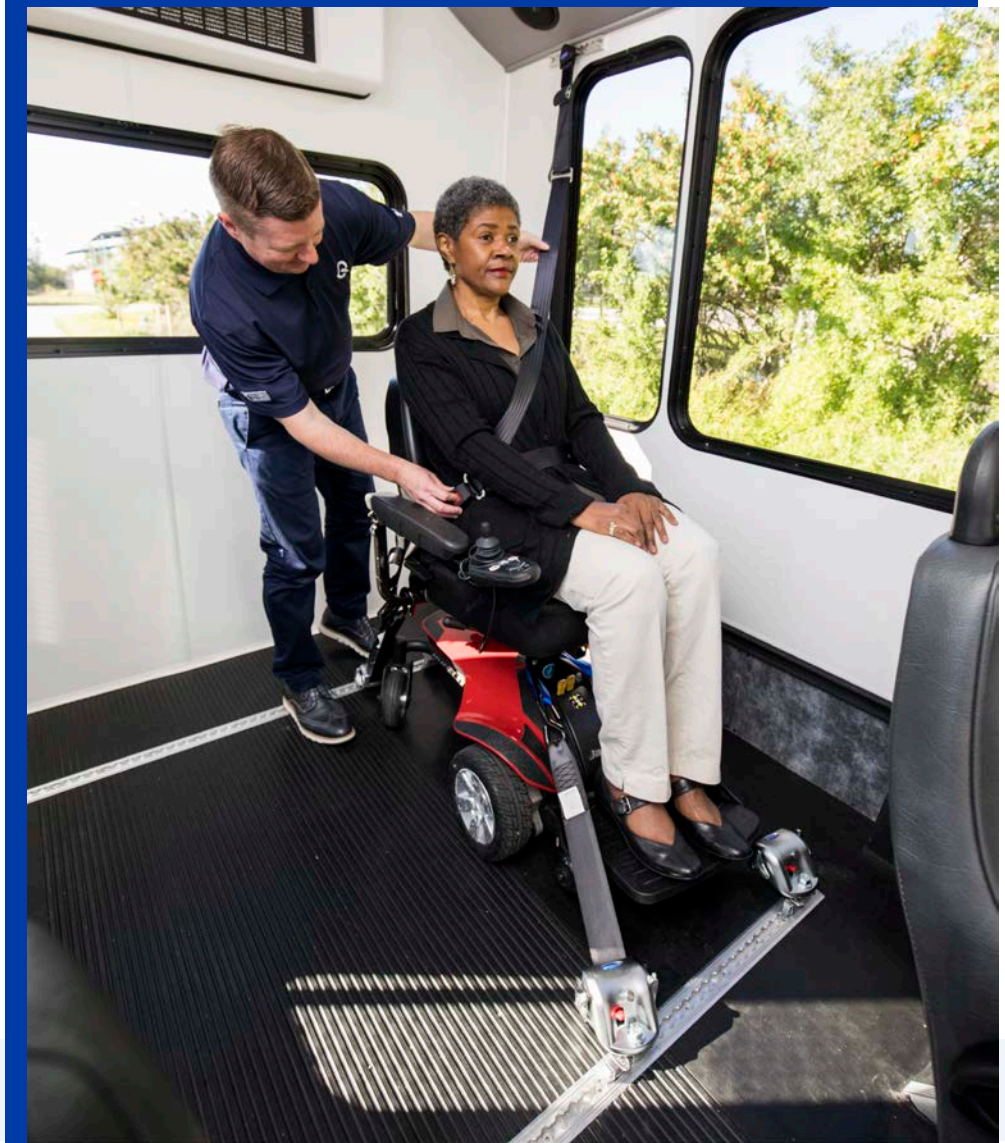


Equipment & How It Works

Combination & Manual Systems

Securing the Occupant

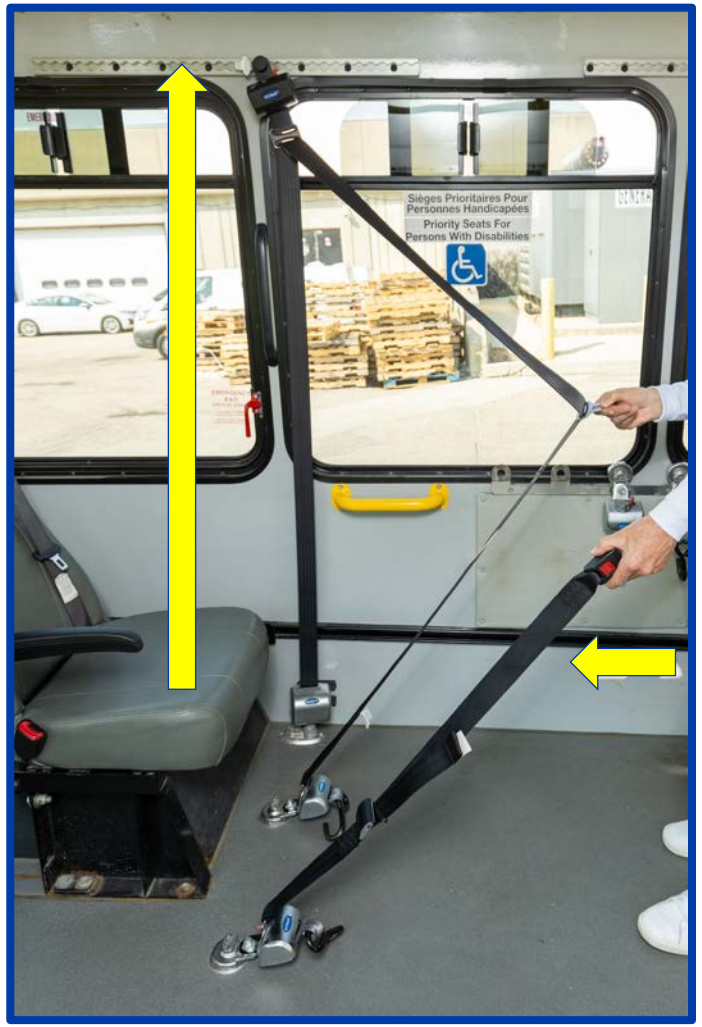
Principles



OCCUPANT SECUREMENTS

COMBINATION (RETRACTABLE)

- An integrated, 3-point belt system.
- Incorporates both the lap and shoulder belts.
- Functions like the occupant securements in your personal vehicle.
- Emergency locking.





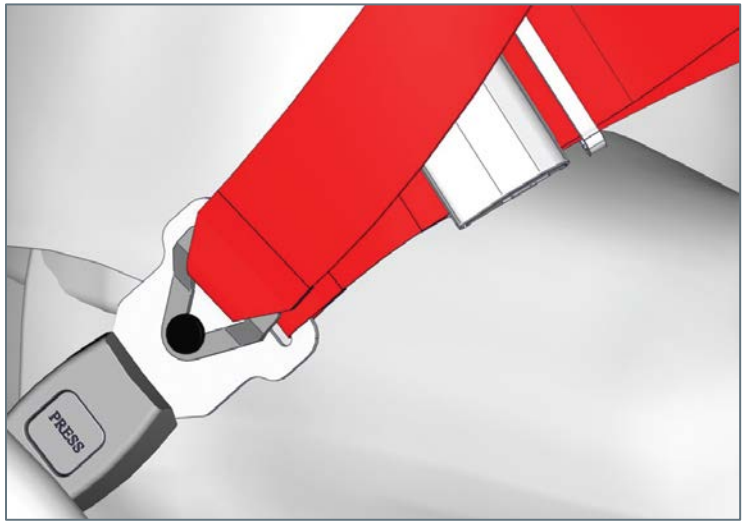


OCCUPANT SECUREMENTS

MANUAL

- Standard, three-piece, occupant securement that requires manual tensioning.
- Best for passengers that require additional positioning support.







Importance of the Occupant Securement



BOOTLEG CRASH VIDEO

- Retractors only secure the wheelchair; Occupant Securement keeps passengers in wheelchair.
- Incidents are a result of incorrectly used occupant securements.
- If a passenger leaves their wheelchair the injuries are likely to be catastrophic.

No Lap or Shoulder Belt, No Testing Facility (30 Miles/Hour, 20 G Crash)

SECURING THE OCCUPANT: LAP BELT

Design

- Attaches to pin connector on rear retractors
- Stiffened webbing



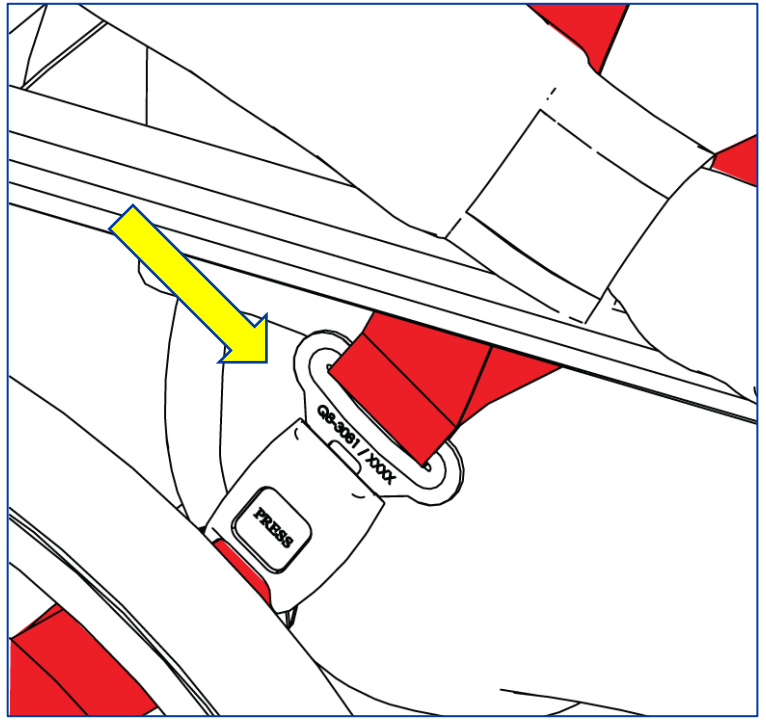


SECURING THE OCCUPANT: LAP BELT

Principles

- Lay across pelvis
- Red Release/Receiving Buckle on aisle side hip.





SECURING THE OCCUPANT: LAP BELT

COMMON LAP BELT ERRORS.





SECURING THE OCCUPANT: SHOULDER BELT

Design:

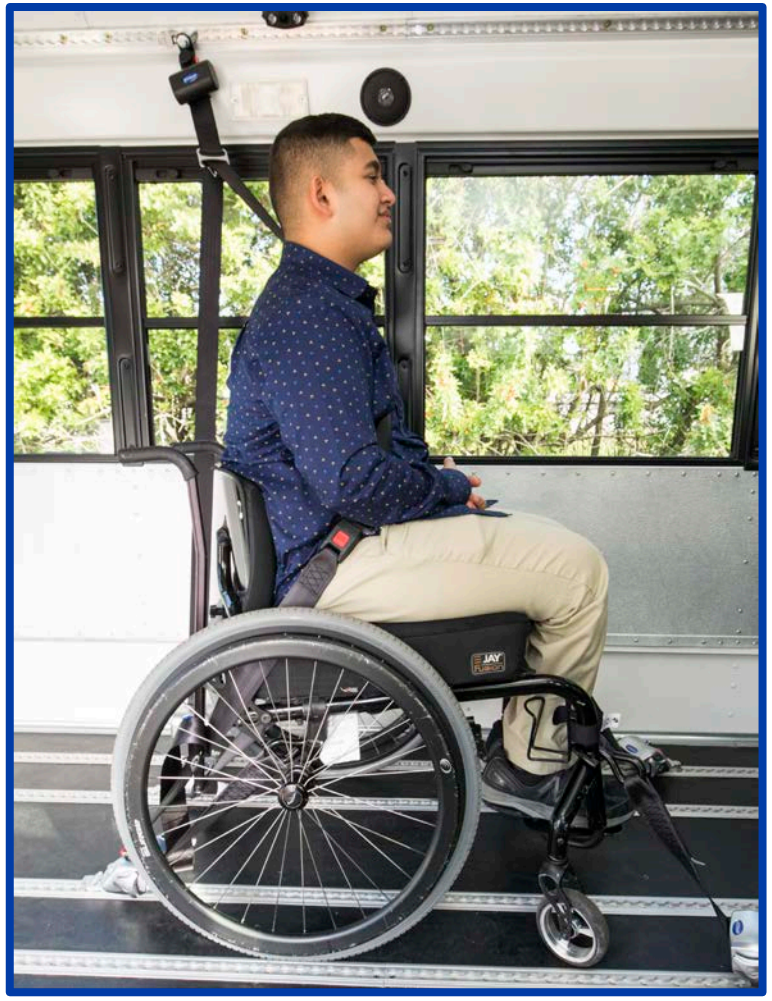
- Position so the shoulder belt is located ***behind & above*** passenger's shoulder.

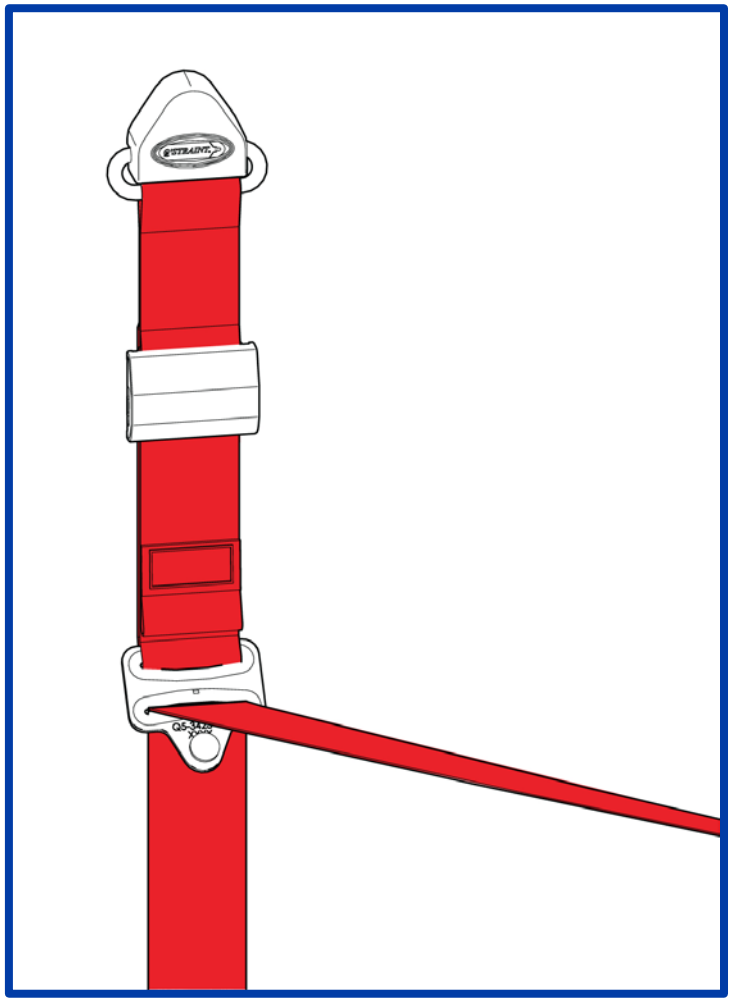


SECURING THE OCCUPANT: SHOULDER BELT

Design

- Height adjuster





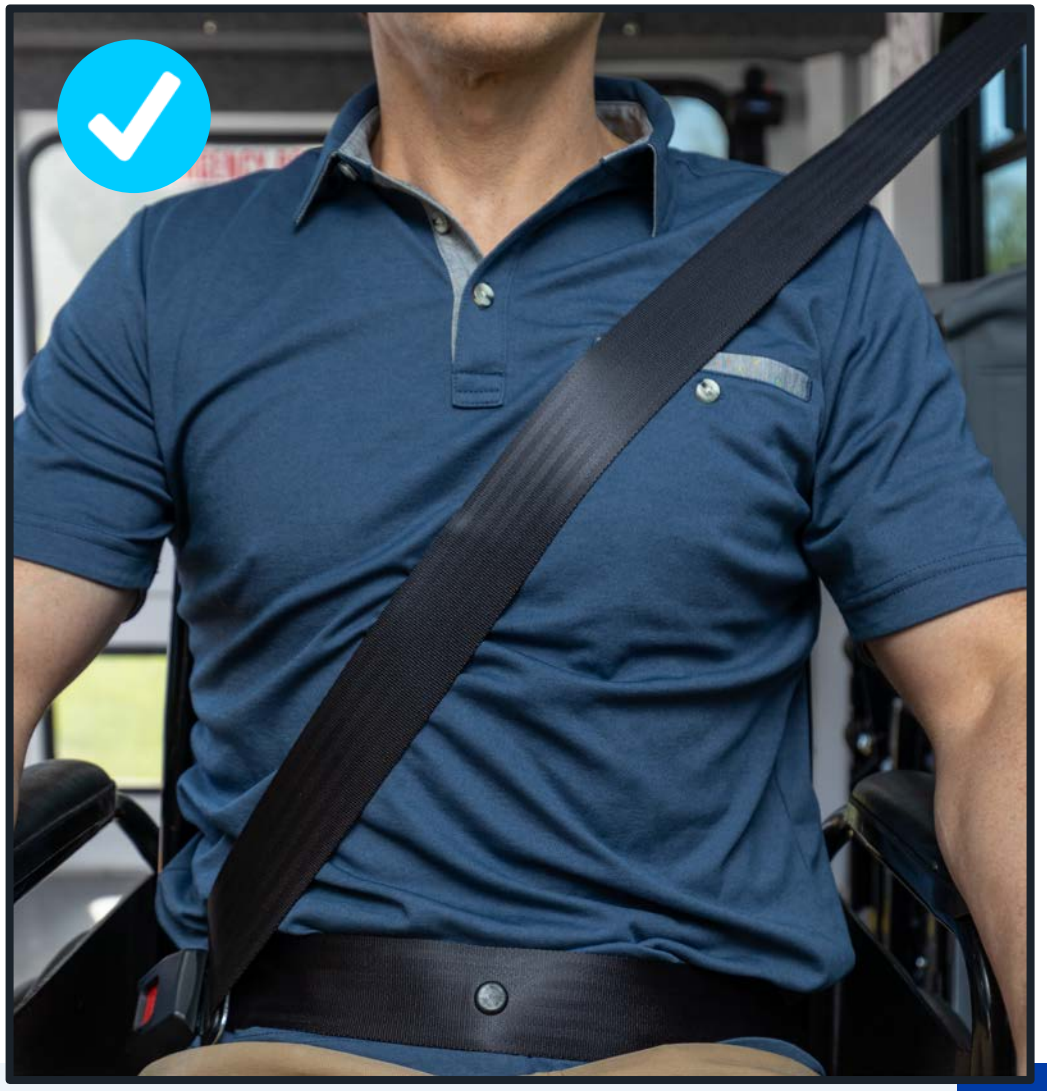
SECURING THE OCCUPANT: SHOULDER BELT

Principles

- Attached to lap belt near passenger's hip.
- Adjusted to lay across the middle of the passenger's shoulder.
- Reposition chair or use height adjuster to achieve proper positioning.







SECURING THE OCCUPANT

IMPORTANT





Belts must not be held away from the body by wheelchair components such as armrests or frame members

SECURING THE OCCUPANT: SUMMARY



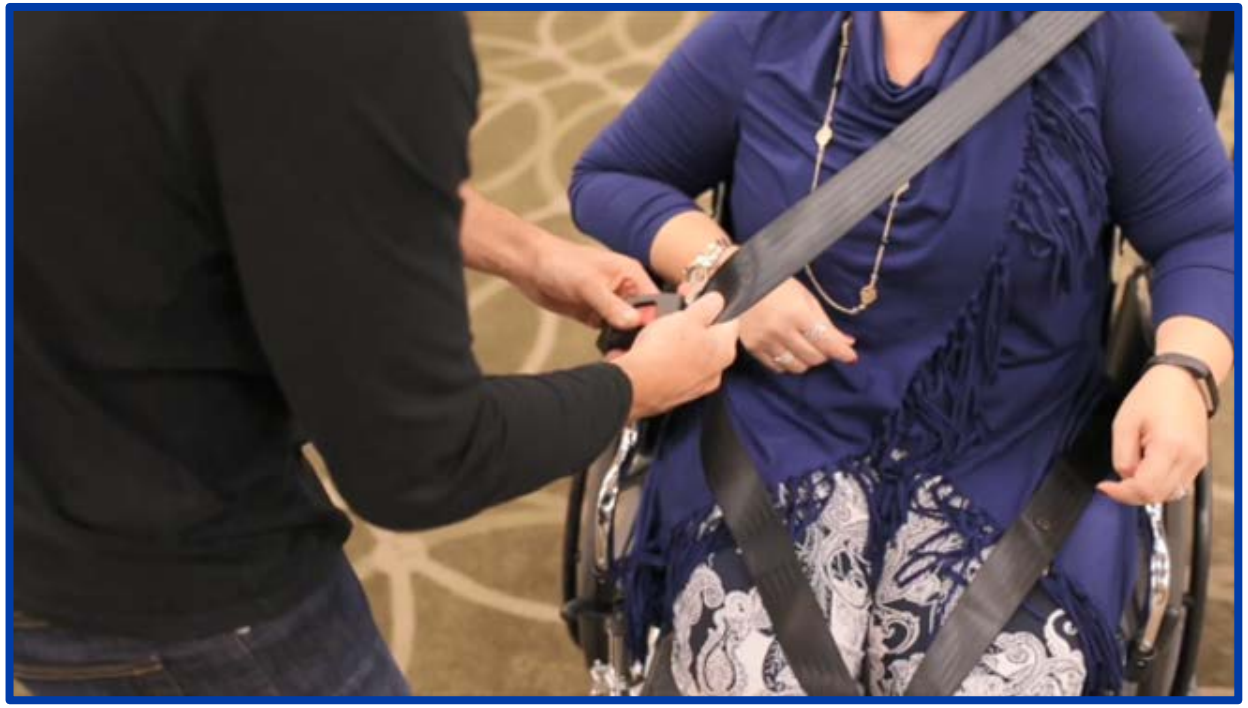
Every driver should ask themselves at the end of the occupant securement process:

“Does it fit like the occupant securement in my own vehicle?”

3 ESSENTIAL PRINCIPLES

For every passenger you should strive to get as close as possible to these essential principles. The closer you get to achieving them, the more secure your passenger will be.

1. **RED RECEIVING / RELEASE BUCKLE ON AISLE SIDE HIP**
2. **BELTS NOT HELD AWAY FROM BODY**
3. **LAP BELT ON LAP; SHOULDER BELT ON SHOULDER**



WC – 19 WITH INTEGRATED LAP BELT

WC-18 Retractors

- Use existing shoulder belt
- Pin connector near red release button.



Non-WC-18 Retractors

- Must use <u>complete occupant restraint.</u>
- Good news: you still have WC19 attachment points to secure the WC).



QUESTIONS & CERTIFICATES





Complete the Certificate Request Form in the chat before 3pm est

Q’Straint / Sure-Lok offers a sincere “Thank You” for attending today’s training.

Darren Reaume

training@qstraint.com