Trailer Design Modifications for Less Bruising in Beef Cattle

Merritt Trailers Inc.
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Merritt Trailers considers itself part of the food chain and will strive to execute a design philosophy that is centered on four basic tenants:

- **Safety**: Designing trailers that are safe to operate with a focus on animal and operator safety and care.

- **Ease of operation**: Equipment that is easy to operate and reduces stress on the operator as well as the livestock.

- **Animal health**: Providing a trailer that supplies maximum clearances, adequate ventilation, reasonable loading angles, rounded corners and non-slip floors.

- **Light weight durability**: Design the lightest weight equipment possible that delivers the highest payload and lowest life cycle cost in the industry.
Livestock Semi: Other considerations in overall design

- Legality
- Federal & State laws
- Federal & State Bridge Laws
- Safety Requirements- DOT, ICC, NHTSA, Etc.

- Stake holder recommendations
- Customer Requests & Requirements
- Vendor Capabilities
- Liability & Warranty
Increasing clearances inside of a Merritt livestock semi.

• How do you do that when:
  – External dimensions are Federally Mandated.
  – GVWR’s are Federally Mandated.
  – Warranty and operational safety have to be considered.
  – Supplier/Vendor capability restrictions for a niche market (to them).
“The Biggest Box on the Road”
Rear basket chute loading area
Ways to Increase Back Clearance into belly:

• Install Fold to Wall Loading Ramp
Removing pullout ramp and replacing with a Fold to Wall ramp

- **Fold to wall rear load ramp**
  - Eliminates the need for brackets hanging down into the loading chute to the belly which effectively increases back clearance.
  - Reduces bruising as stock moves into and out of the belly
Fold to Wall Ramp to center deck

• **Fold to wall rear load ramp**-

  • Installed in place of a traditional “pull out ramp”, the fold to wall ramp is spaced away from the wall for cleaning and eliminates the 4” step up at the top of the ramp to walk into the top center deck. Flattening out the loading angle can also be addressed using this optional ramp.
Fold to Wall Rear Ramp-Folded against wall
Ways to Increase Back Clearance into belly:

• Install Fold to Wall Loading Ramp
Ways to Increase Back Clearance into belly:

• Install Fold to Wall Loading Ramp
• Lower the rear floor
Lowering the Rear Floor:

• Increases Clearance Under Doghouse
• Increases Clearance between basket chute and rear cross member of top floor
• Maximum clearance achieved in 14’ tall over all height

Up to 65” back clearance
Standard Rear Frame Clearance

• This video shows the chute clearance in an “standard” old style rear frame trailer on 24.5 tires.

• This shows the “pinch point” or shortest clearance point.
Deeper “TT” style rear frame

• Lowered rear frame allows more back clearance into the belly.
Deeper “TT” style rear frame: 63” Clearance

• This video shows the actual chute clearance into the belly that is considered a “Deep Back End – 13’7” tall trailer”.

Clearance Under Doghouse: 63”

- This clearance allows loading into the belly for any animal that will fit under the doghouse.
Ways to Increase Back Clearance into belly:

• Install Fold to Wall Loading Ramp
• Lower the rear floor
• To lower the rear floor:
  – Put on smaller diameter tires
  – 255/75R22.5