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Bobtail Pre-Trip Inspection & Best Practices

Daily, Weekly, Monthly and Resources

Overview

- **Daily Checks**
  - Every morning
  - After every delivery
  - Safety: operator, customer and public
- **Weekly/Monthly Checks**
  - First of the month
  - Reduce downtime
  - Minimize maintenance expense
- **Best Practices and Resources**
  - Tips and resources
  - Develop inspection routine
  - Create preventative maintenance program

Not Discussing Today

- Specifics of all items to be carefully inspected
- Products other than propane delivery trucks
- Fine details of inspection steps
- Nuances/gray areas in code
- Unique, one-off instances

The Goal

- **Employee and Public Safety**
  - Safest trucks
  - Clean orderly fleet
  - Continued prosperity of the chain and consumers
- **Regulatory Compliance**
  - Avoid penalties, fines, and frequent compliance audits
  - Damaged reputations
- **Improve Operating Cost and Efficiency**
  - Clean, well-maintained and safe vehicle is efficient
  - Equipment failure
  - Missed maintenance
  - Downtime

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Daily Pre-Trip Inspections

Chassis Pre-Trip

49 CFR § 392.7 Equipment, inspection and use.

(a) No commercial vehicle shall be driven unless the driver is satisfied that the following parts and accessories are in good working order, nor shall any driver fail to use or make use of such parts and accessories when and as needed:

- Service brakes, including trailer brake connections.
- Parking (hand) brake.
- Steering mechanism.
- Lighting devices and reflectors.
- Tires.
- Horn.
- Windshield wiper or wipers.
- Rear-vision mirror or mirrors.
- Coupling devices.
- Wheels and rims.
- Emergency equipment.

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Placarding & Labeling

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Placarding & Labeling

- Why are DOT Hazmat Placards important?
  - Inform the public
  - Inform emergency responders
  - They are required

Placarding & Labeling

Placarding – 49 CFR 172 Subpart F. Other labels for MC331 CTMV

- Each cargo tank must be marked, in lettering no less than 2”, on each side and each end with – the proper shipping name (i.e. – “Liquified Petroleum Gas”); OR an appropriate common name (i.e. – “Propane”). §172.328
- “Emergency Shutoff” marking must be marked in letters at least 0.75” in height, in a color that contrasts with its background, and located in an area immediately adjacent to the means of closure
- QT/NQT. Each MC330 or 331 must be marked near the specification plate, in letters no less than 2” in height, with –
  - “QT”, if the cargo tank is constructed of quenched and tempered steel; or
  - “NQT”, if the cargo tank is constructed of other than quenched and tempered steel

QT/NQT

- **Quenching**
  - Steel is heated to form austenite
  - “Quenched”(cooled quickly)
- **Tempering**
  - Steel is reheated
  - Slowly cooled
- **Effects**
  - Dramatically strengthens
  - Brittle and generally unworkable
- **Effects**
  - Retains mechanical properties
  - Enhances workability of the steel

QT/NQT

- Non-Quench and Tempered Steel (NQT)
  - Achieves performance without process
  - Most common in our industry (SA612)
  - Majority of propane delivery trucks

Why It Matters

- QT steel is used when weight is a major consideration
- Thickness of steel required to meet the vessel pressure rating is less for QT
- QT vessel is much lighter than comparable NQT vessel
- Discussion

Test Dates - VKIP

Requirements for test and inspection of specification cargo tank – § 180.407

- (V) External Visual Inspection – 1 year retest
- (K) Leakage Test – 1 year retest
- (I) Internal Visual Inspection – 5 year or 10 year retest
- (P) Pressure Test – 5 year or 10 year retest

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New(er) Ruling

- July 2016
- PHMSA issued final rule
- Extends testing requirements to 10 years
- Certain requirements met
- Studies from Battelle Memorial Institute

Testing Requirements

Conditions required for 10 year retest

- Must be in dedicated propane service
- Tanks must be less than 3,500 gallon water capacity
- Must be made of NQT steel
  - SA-612 approved without further pre-conditions
  - SA-202 and SA-455 approved if full-size equivalent CVN test data performed and passed

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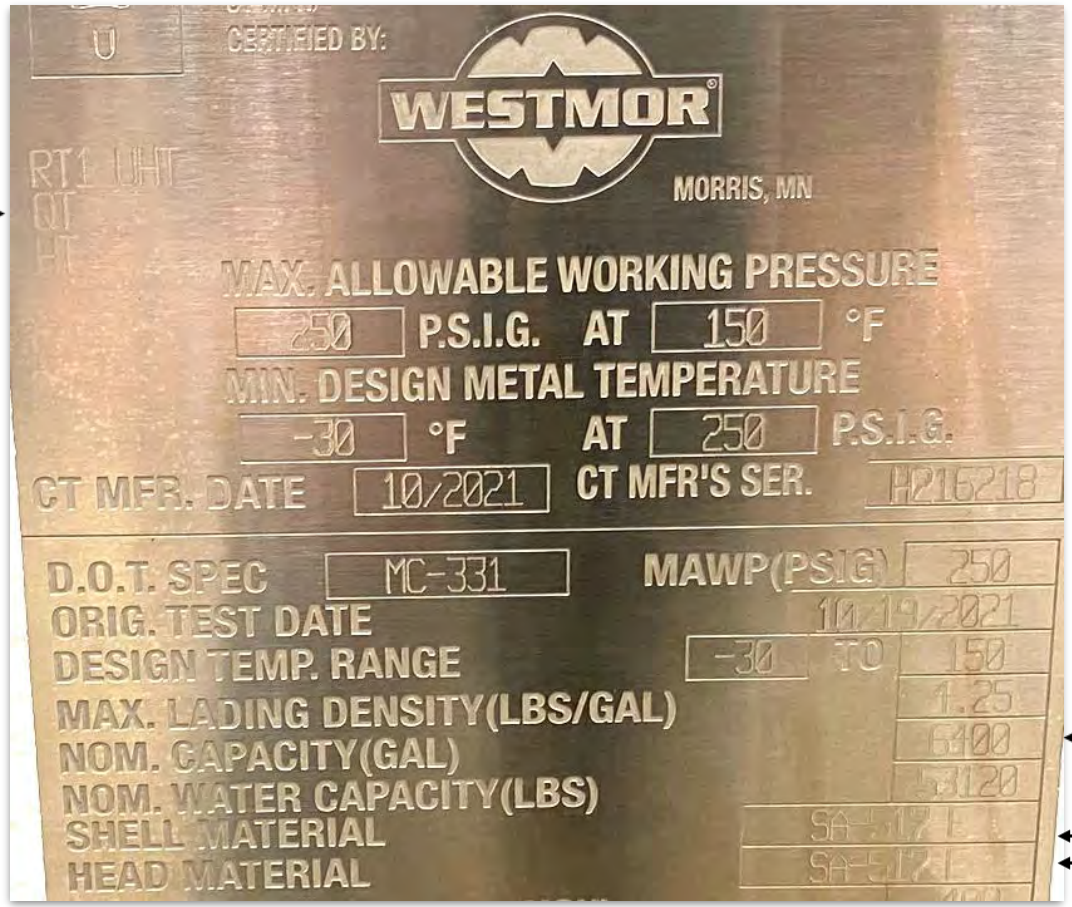
5 or 10 Year?

QT →



6400

SA-517 E

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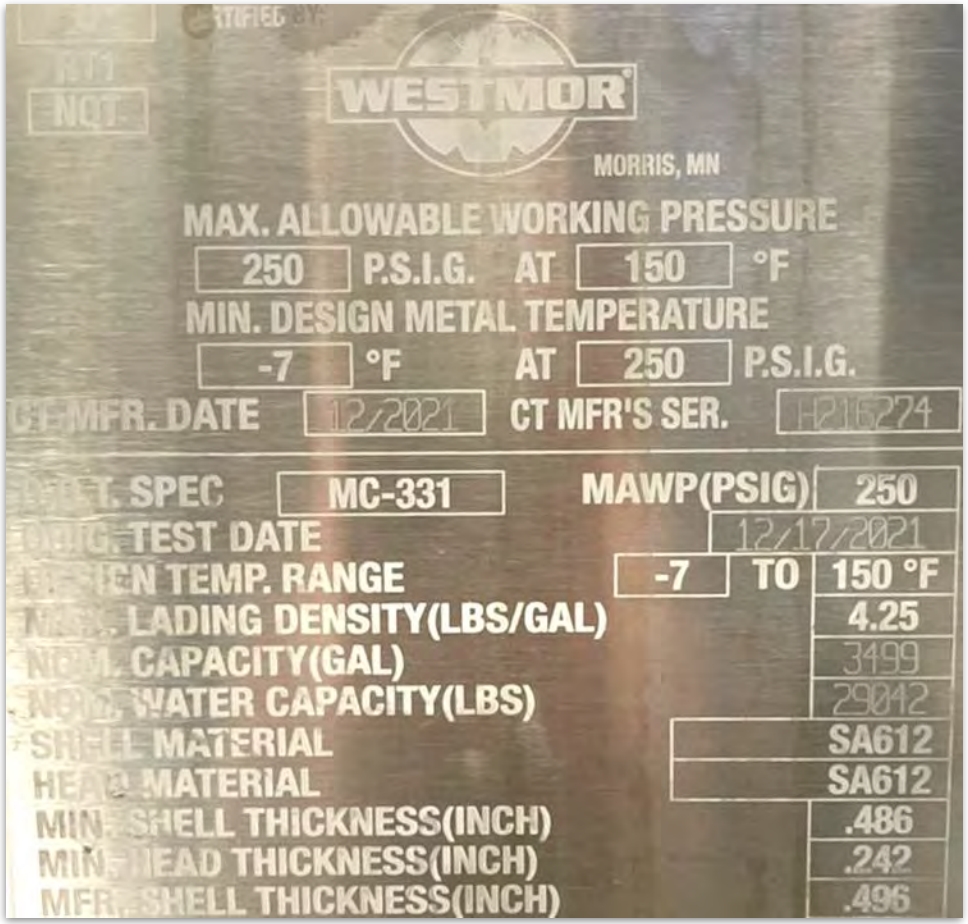
5 or 10 Year?

NQT →



→ 3499

→ SA612

→ SA612

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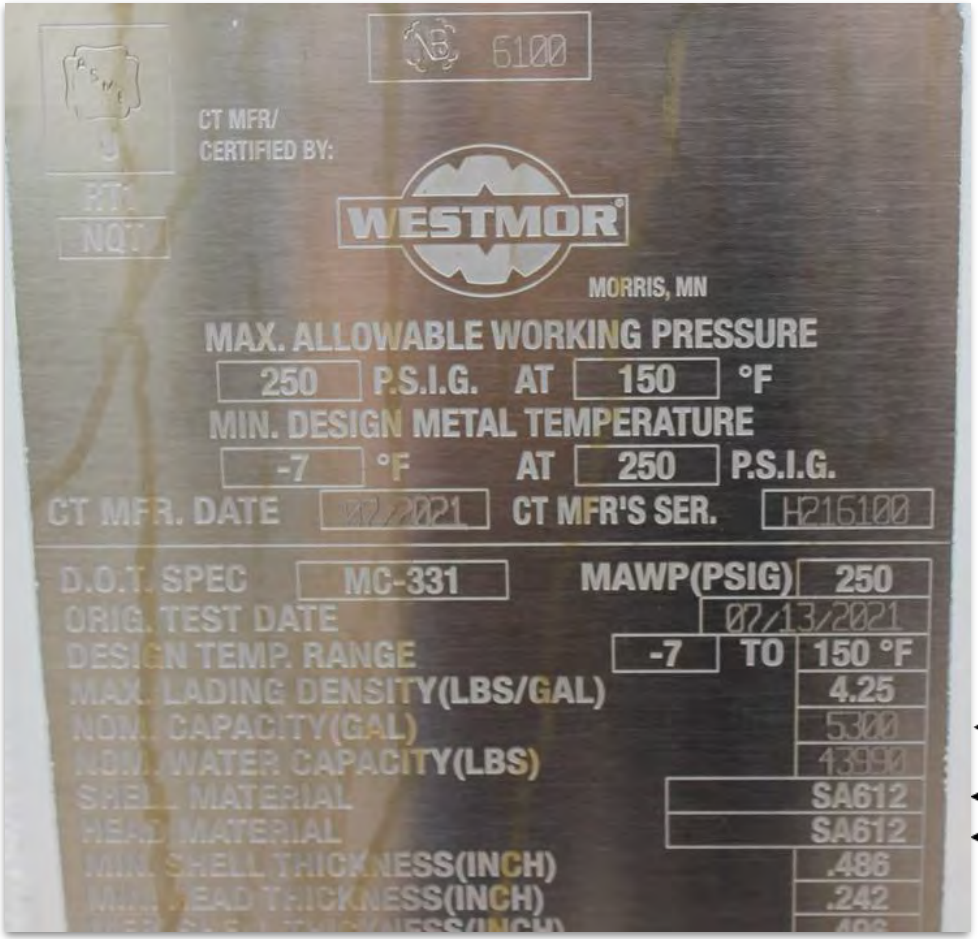
5 or 10 Year?

NQT →



← 5300

← SA612

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Placarding and Labeling

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Placarding and Labeling

Placarding and Labeling

Placarding – 49 CFR 172 Subpart F

- Placards must be clearly visible from the direction it faces.
- Be located away from markings (such as advertisements) that substantially reduce the effectiveness of the placard, at least 3” away from such markings.
- Be affixed to a background of contrasting color or must have a dotted or solid line outer border which contrast with the background color.

*Get your placards from reputable sources like Labelmaster or JJ Keller

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Placarding

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Placarding

Tank & Equipment

- What to check before we go…
  - Switches and interlocks
    - Off/closed position
    - Proximity sensors and/or interlocks disengaged

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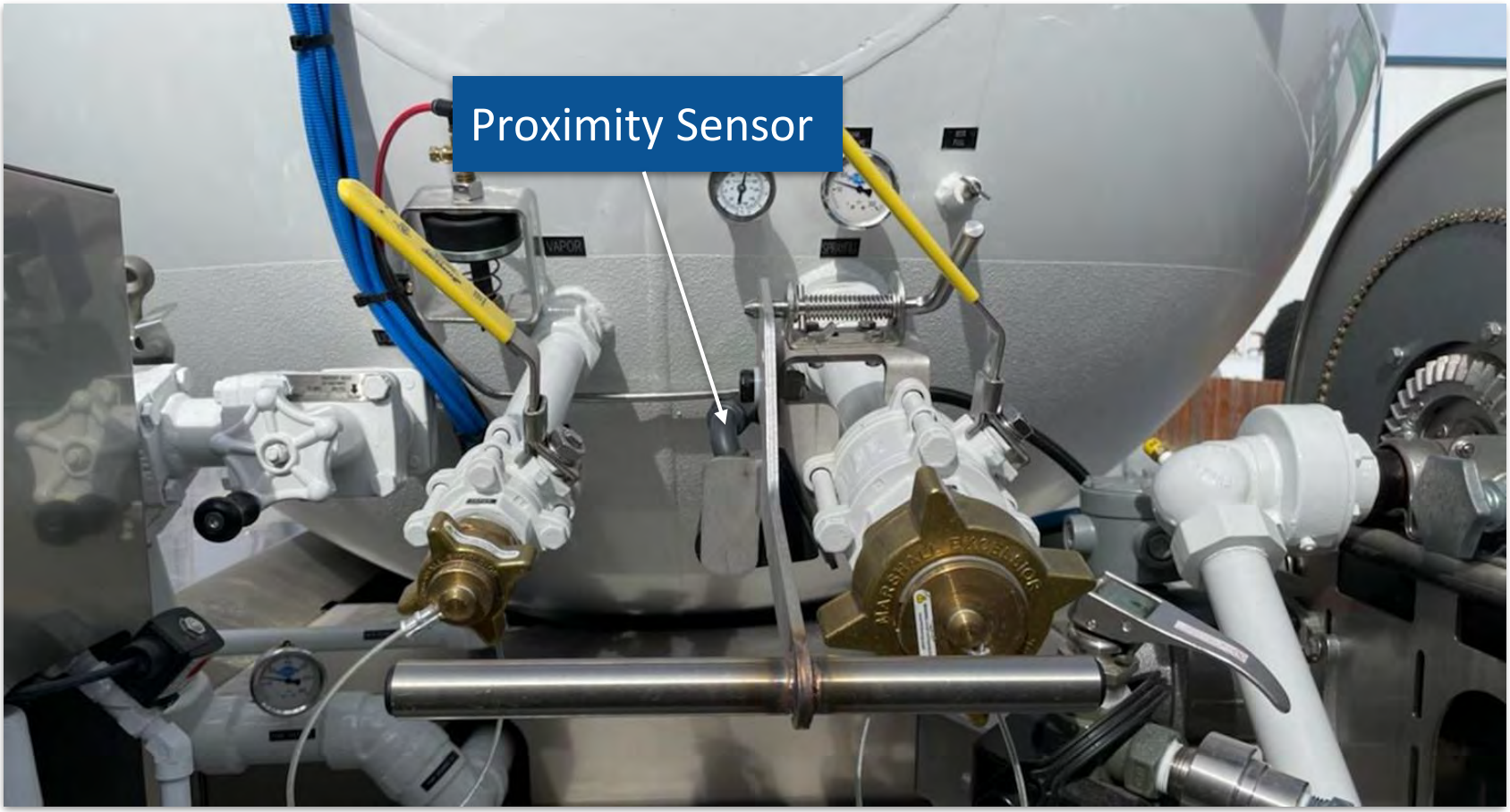
Tank & Equipment



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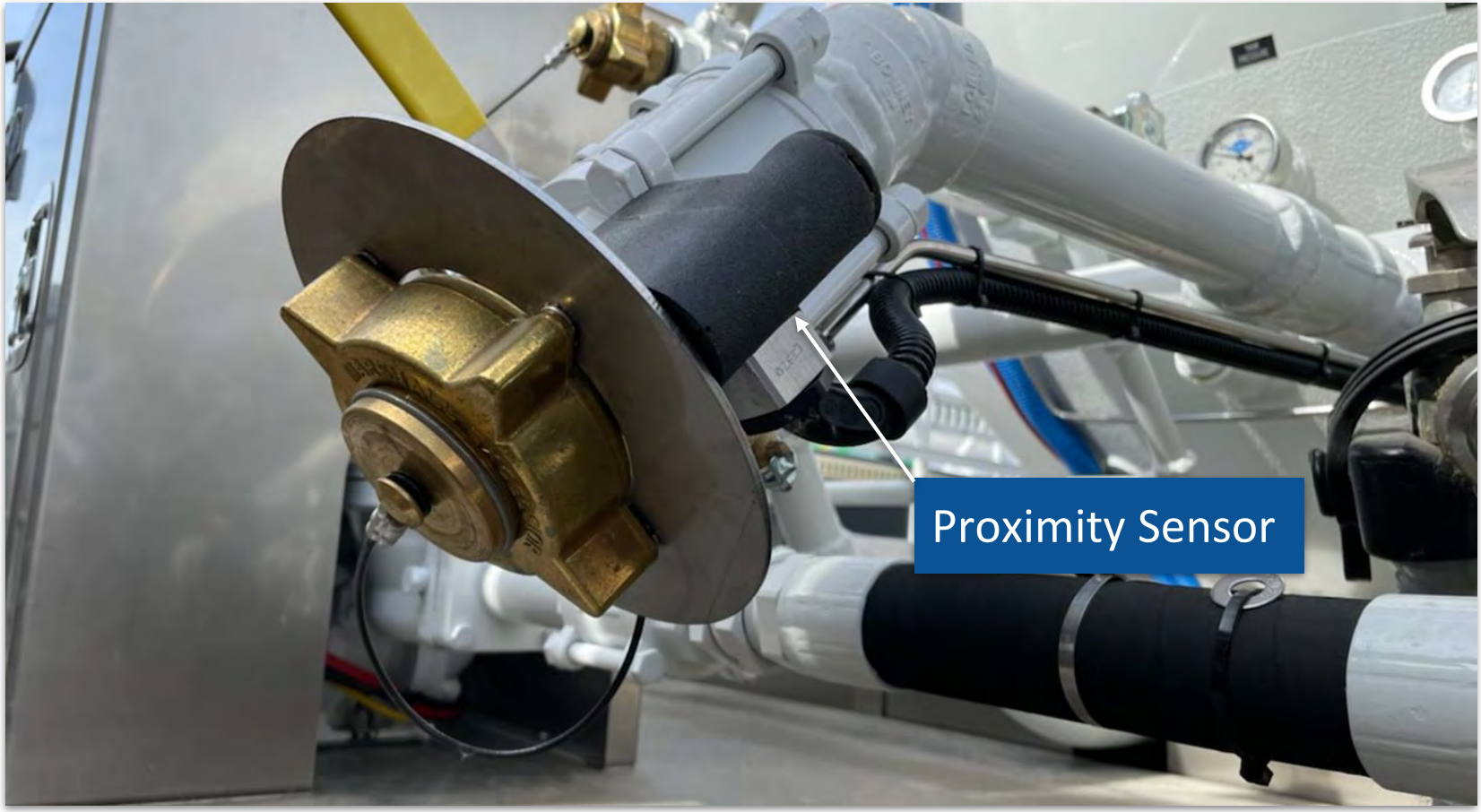
Tank & Equipment



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Tank & Equipment

Tank & Equipment

- What to check before we go… Leaks

  - Thread on internals
  - Piping
  - Threads
  - Check valves
  - Piping leaks
  - Flange leaks (o-ring failure)
  - Swivel leaks
  - Leakes inside the meter cabinet
  - Hose leaks

Tank & Equipment

§ 180.416 (g)(2) No operator may use a cargo tank with a piping system found to have any condition identified in this paragraph (g)(2) for unloading compressed gases.

(i) Any external leak identifiable without the use of instruments.

(ii) Bolts that are loose, missing, or severely corroded

(iii) Manual stop valves that will not actuate

(iv) Rubber hose flexible connectors with any condition outlined in paragraph (g)(1)

(v) Stainless steel flexible connectors with damaged reinforcement braid.

(vi) Internal self-closing stop valves that fail to close or that permit leakage through the valve detectable without the use of instruments.

(vii) Pipes or joints that are severely corroded.

Tank & Equipment

- Leaks cont'd…
  - Your nose is the most convenient leak detection system
  - NFPA 58 - 1lb of mercaptan per 10,000 gallons of propane
  - Code requires odorant be detectable at ⅕ the LEL
  - LP industry standard is 1.5lbs per 10,000 gallons
  - If you smell something, say something

https://www.lpgasmagazine.com/propane-retail-operationslaws-regulationshave-good-industry-sense/

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Lighting

Requirement for lighting on commercial motor vehicles is found in 49 CFR § 393.11 – *Lamps and reflective devices*

Lighting

LED Lamps

- Recommend replacement of lamp when 25% of individual diodes are burned out of an LED lamp

Mud Flaps

- Most states have their own rules
- FMCSA does not have specific FMCSR regarding mud flaps, splash guards or fenders
- Recommendation:
  - No greater than 12” from the ground
  - 22° departure angle
- Replace damaged and missing
- Keep clean! Snow and salt will contribute to broken flaps

https://cdllife.com/2012/truck-mud-flap-laws/

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Mud Flaps

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Mud Flaps

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Tank Tie-Downs

- Physically inspect on chassis and tank frame rail
- Grab each bold head looking for any play
- Visually inspect all other fasteners, too

Inside The Cab

- Documentation and information that must be in your cab
  - Check daily
  - Emergency Response Information - § 172.602
    - Your Emergency Response Handbook must be in the cab of your truck. The handbook should be inspected regularly to ensure that it's undamaged and legible
  - Shipping papers

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Weekly/Monthly Inspections

Delivery Hose Inspection

Hose Identification

- Each hose must be permanently marked with a unique identification number and maximum working pressure.

Post-Delivery Hose Check

- After each unloading, the operator must visually check that portion of the delivery hose assembly deployed during the unloading.

Monthly Inspection

- The operator must visually inspect each delivery hose assembly at least once each calendar month the hose is in service.

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Delivery Hose Inspection

Piping Inspection

- Operator must visually inspect piping system at least one a month
- Inspection must include fusible elements and all components of piping system
- Include bolts, connections, and seals

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Piping Inspection

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Piping Inspection

Meter Creep Test

- Internal self-closing stop valve leakage tests for cargo tanks transporting liquified compressed gases. *Appendix B to Part 180.*
  - *Meter Creep Test.*
    - Start the delivery process or begin pumping back into the tank through the delivery system. After flow is established, close the internal and monitor the flow. Flow through the meter must stop within 30 seconds and no meter creep within 5 seconds after the meter stops.

Meter Creep Test

https://youtu.be/75Wo0asu57k

Emergency Discharge Controls

- At least once per month, the operator must actuate all emergency discharge control devices designed to close the internal self-closing stop valve to assure that all linkages operate as designed.
- Appendix A to part 180 outlines acceptable procedures that may be used to fulfill this requirement.
- This requirement includes testing of both on-truck and off-truck emergency discharge control.

Preventative Maintenance

- Costly repairs and down time can be dramatically reduced by the implementation of an effective PM program.
- One of the easiest ways to mitigate downtime (in addition to the daily inspections for leaks, lighting, etc.) is to grease all the moving parts and check fluids.
  - Driveline U-Joints
  - PTO Shaft and slip joint
  - Blackmer pump grease
  - Hose reel bearings and chain
  - Check hydraulic fluid in your wet kits
  - Others? Discussion….

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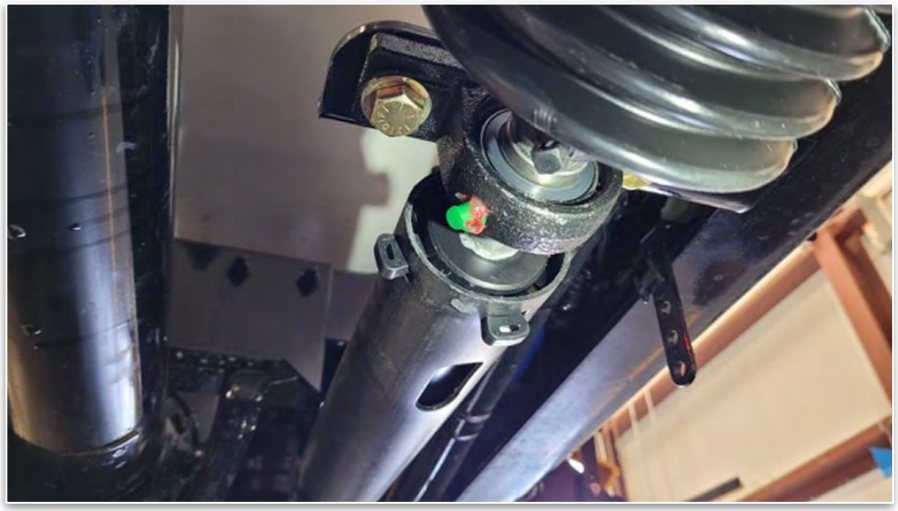
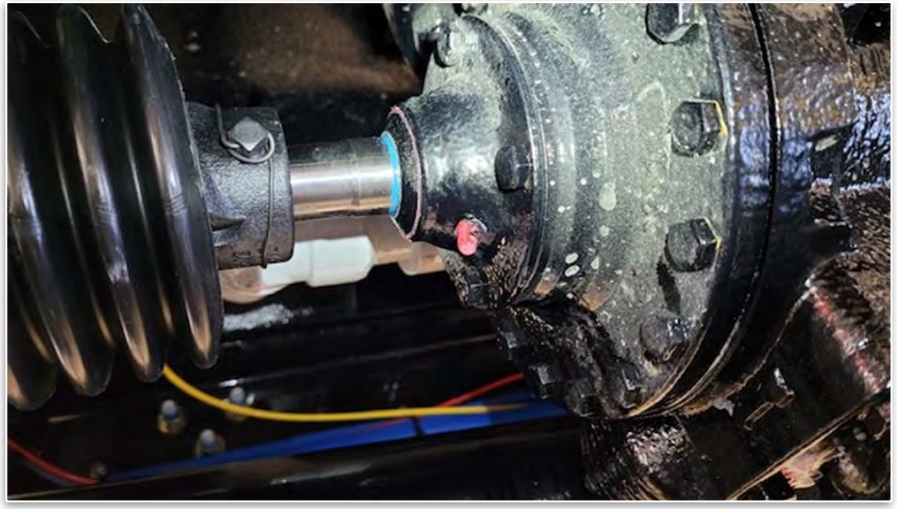
Preventative Maintenance





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Preventative Maintenance

Best Practices

- Vessel corrosion is the most expensive and preventable
- Corrosion occurs when moisture reacts with bare metal
- The longer it is left, the deeper the “rot”
- Local Thin Areas (LTAs)

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Best Practices

- What are we looking for?
- How does it start?
- How do we stop it before it becomes a problem?

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Best Practices

Tips to prevent damaging corrosion:

- Regular inspection, specifically focused on belly of vessel and around skirting
- Weekly spray downs with pressure washer
- Proper care of the beginnings of corrosion

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Best Practices

Best Practices

- How does it start?
  - Damage to the coating, paint or powder
  - Bare metal is exposed
  - Moisture in the atmosphere leads to oxidation
  - Over time, eats away at the thickness of base metal
  - Base metal eventually is below minimum thickness
  - Must be corrected
  - Repair is costly, time consuming, and could be mitigated
  - Broad corrosion could also result from poor paint jobs or low quality paint

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Best Practices

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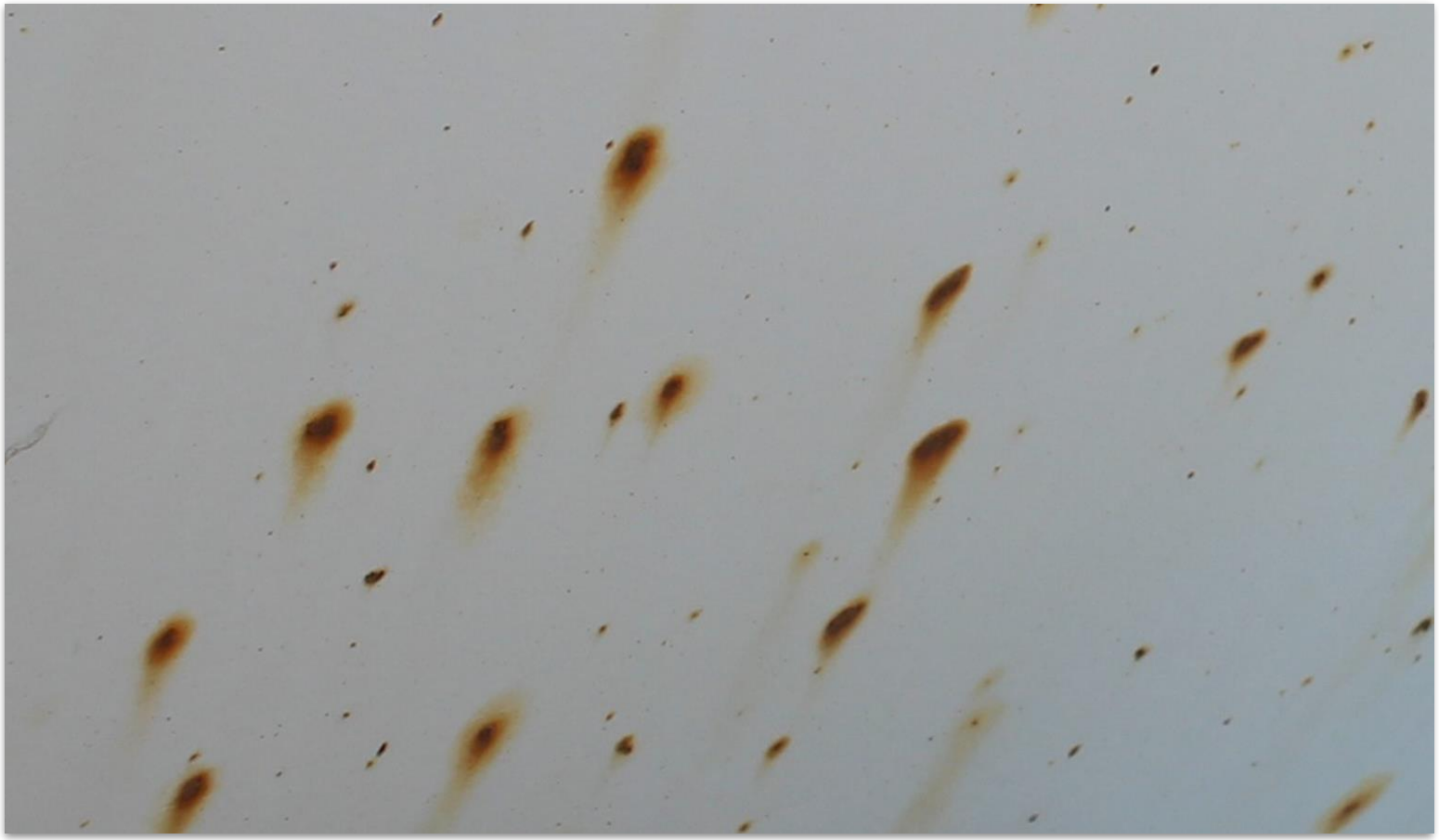
Best Practices



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Best Practices

Best Practices

- How to stop it
  - Not about looking new
  - Preventing the need for welded repair

- Remove rust using light grit sandpaper and hand sanding
- Use care to not remove metal and cause LTA
- Clean thoroughly with soapy water, wipe clean, and dry

- Tape off area around bare metal
- Scuff taped off area with light sandpaper
- Spray area with epoxy primer and cover with compatible paint
- Remove tape while paint is tacky

Resources

Placards, labels, handbooks, checklists, etc

- www.jjkeller.com
- www.labelmaster.com

Associations

- www.npga.org

State and Regional Associations

Truck Builders

- www.westmor-ind.com

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