

A photograph of a rail yard at night, illuminated by numerous tall, slender light poles. The scene shows several tracks with various train cars, including a large black tanker car on the left and a smaller dark car in the center. The background features industrial structures and more tracks, all under a dark sky.

The Greenbrier Companies

NTSB

2014

How does a manufacturer demonstrate compliance with requirements?

DOT delegates **review** and approval responsibility to AAR Tank Car Committee.

The Committee has experienced tank car Independent Third Party Engineers that carefully review drawings and applications for DOT and AAR compliance.

Each and all build lots must be approved.

AAR M-1001, M-1002, and M-1003 audits.

What kinds of tank cars are being built by Greenbrier?

Greenbrier builds mostly tank cars in the non-pressure, CPC-1232, configuration.

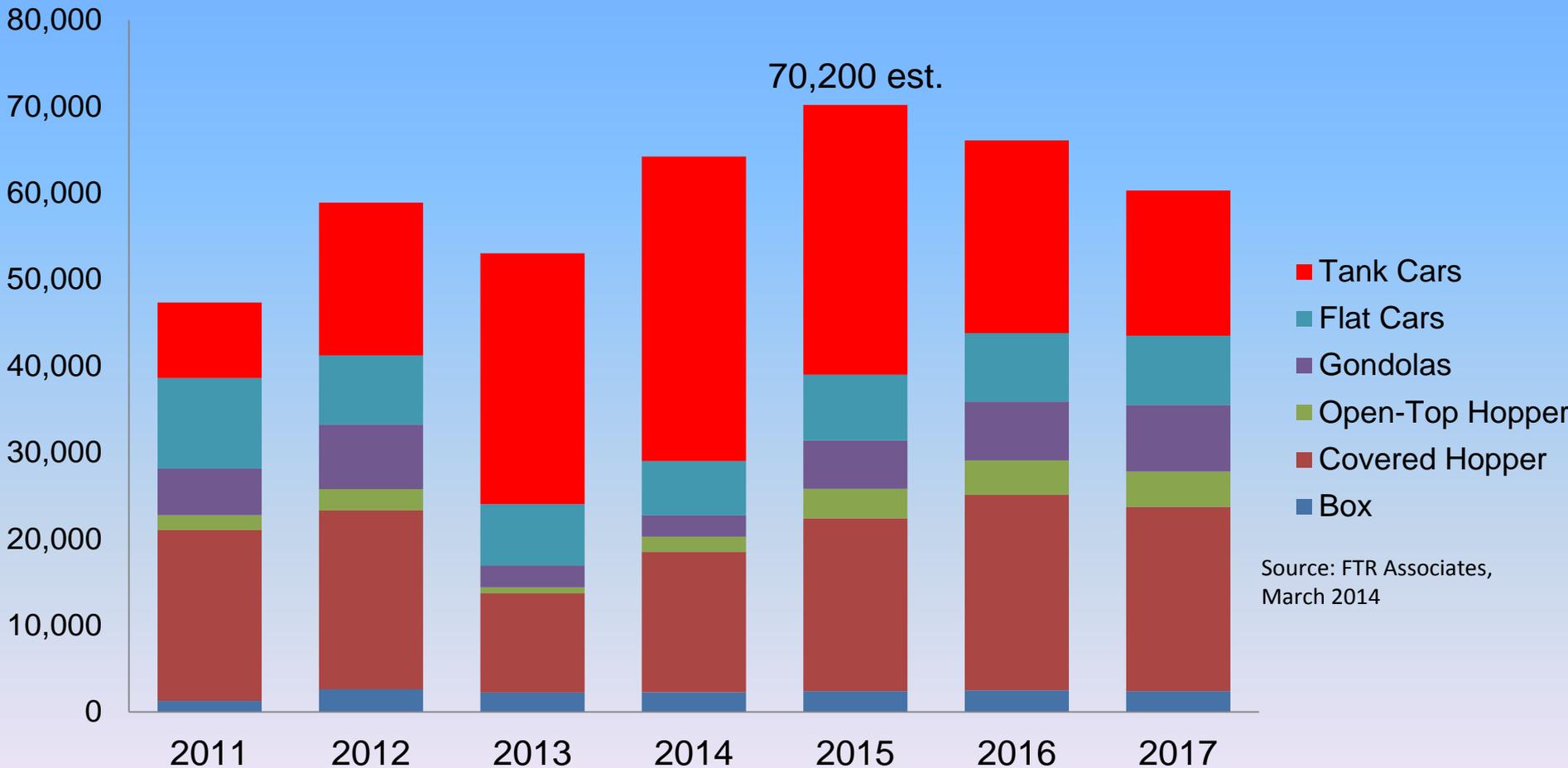
Greenbrier builds pressure tank cars in North America (NA) and has over 30 years of tank experience in Europe including pressure cars

About 3/4 of all tank cars built for NA are non-pressure type.



What kinds of cars are being ordered?

Industry-wide production – actual & forecast



Source: FTR Associates, March 2014

Small cube hoppers & tank cars account for 60% of 2012 – 2014F deliveries

What kinds of cars are being ordered?

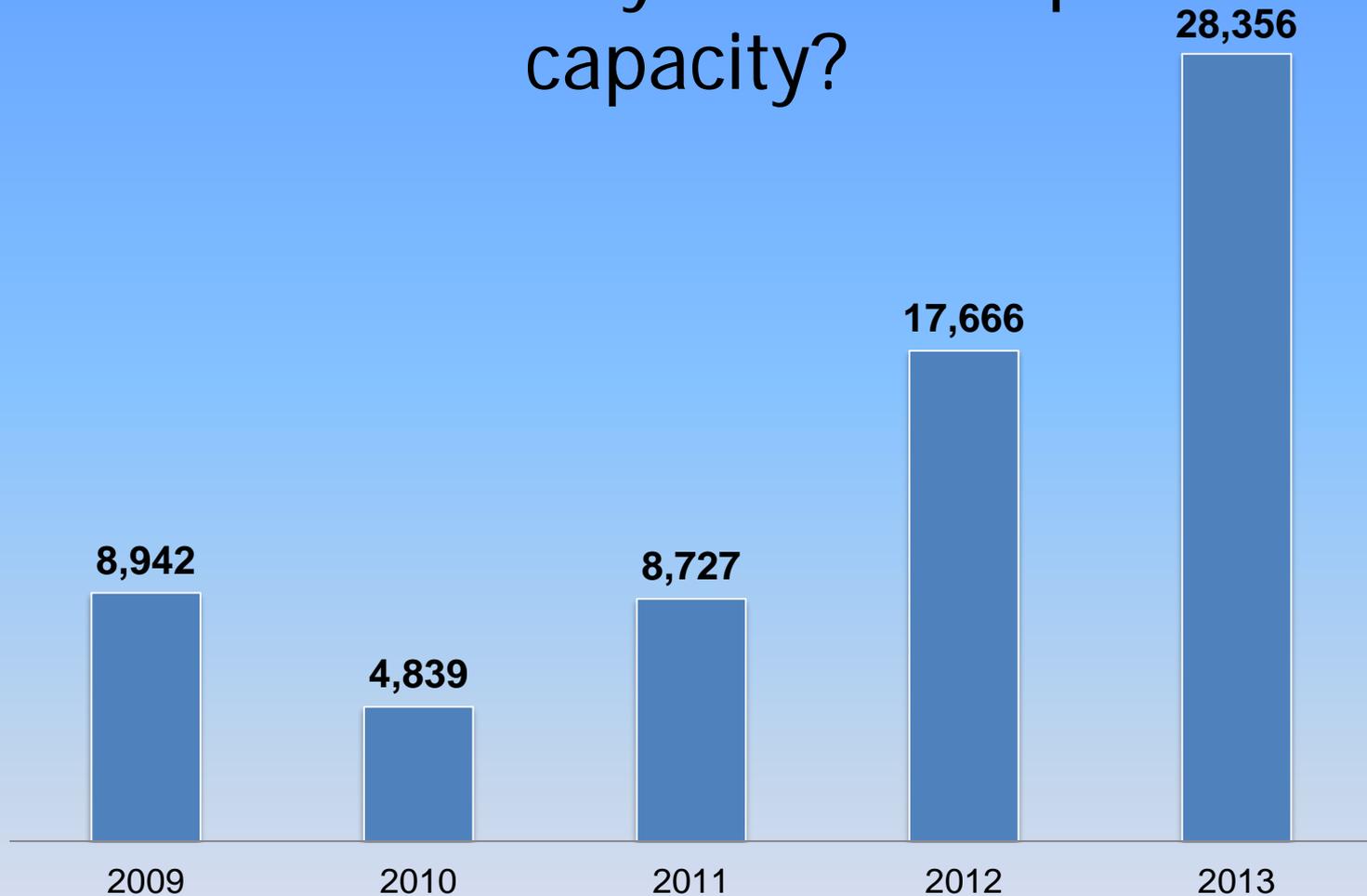
Greenbrier builds mostly DOT 111A (non-pressure) tank cars entirely in the CPC-1232 configuration.

About 3/4 of all tank cars are non-pressure type.

DOT 111A cars including CPC-1232 cars are over 75% of the tank car market.



What is the industry's tank car production capacity?



Source: Railway Supply Institute

Greenbrier believes tank car production can increase 7,000 to 10,000 per year.

What types of retrofitting is feasible on different kinds of older tank cars?

For many cars it will be possible to add:

Head shields

Jackets

Top fittings protection

Thermal protection

Operating handles



Key Tank Car Retrofit Areas

An Opportunity for "Triage" Across Hazardous Material Commodities Transported by Rail

UPGRADES FOR OLDER DOT-111 CARS

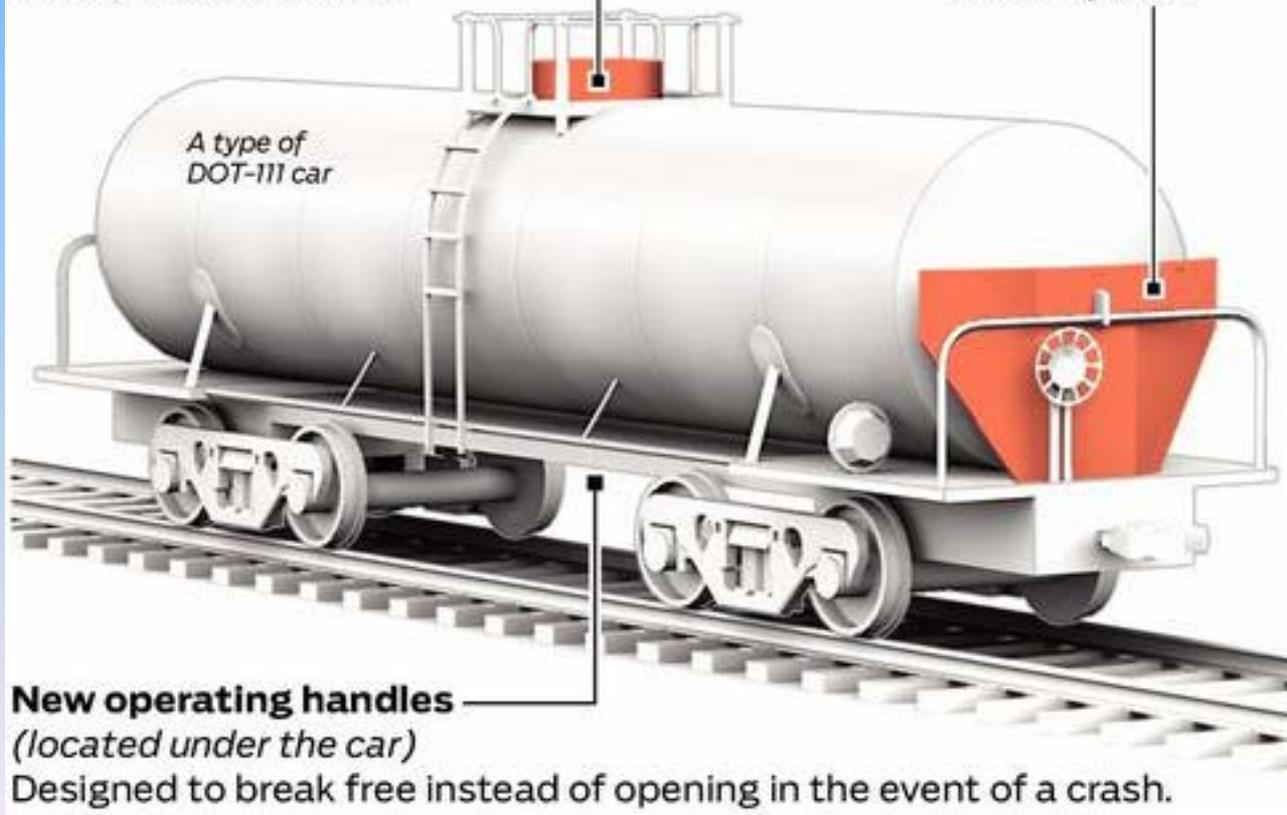
Upgrades for tankers carrying ethanol and crude oil

Stronger housing

Designed to prevent top-fitting damage in the event of a rollover.

Head shields

Protects the head or end of the car from impacts



4/21/2014

Source: Chicago Tribune, GBX Marketing

What kind of inspections and maintenance are necessary, and how is maintenance performed?

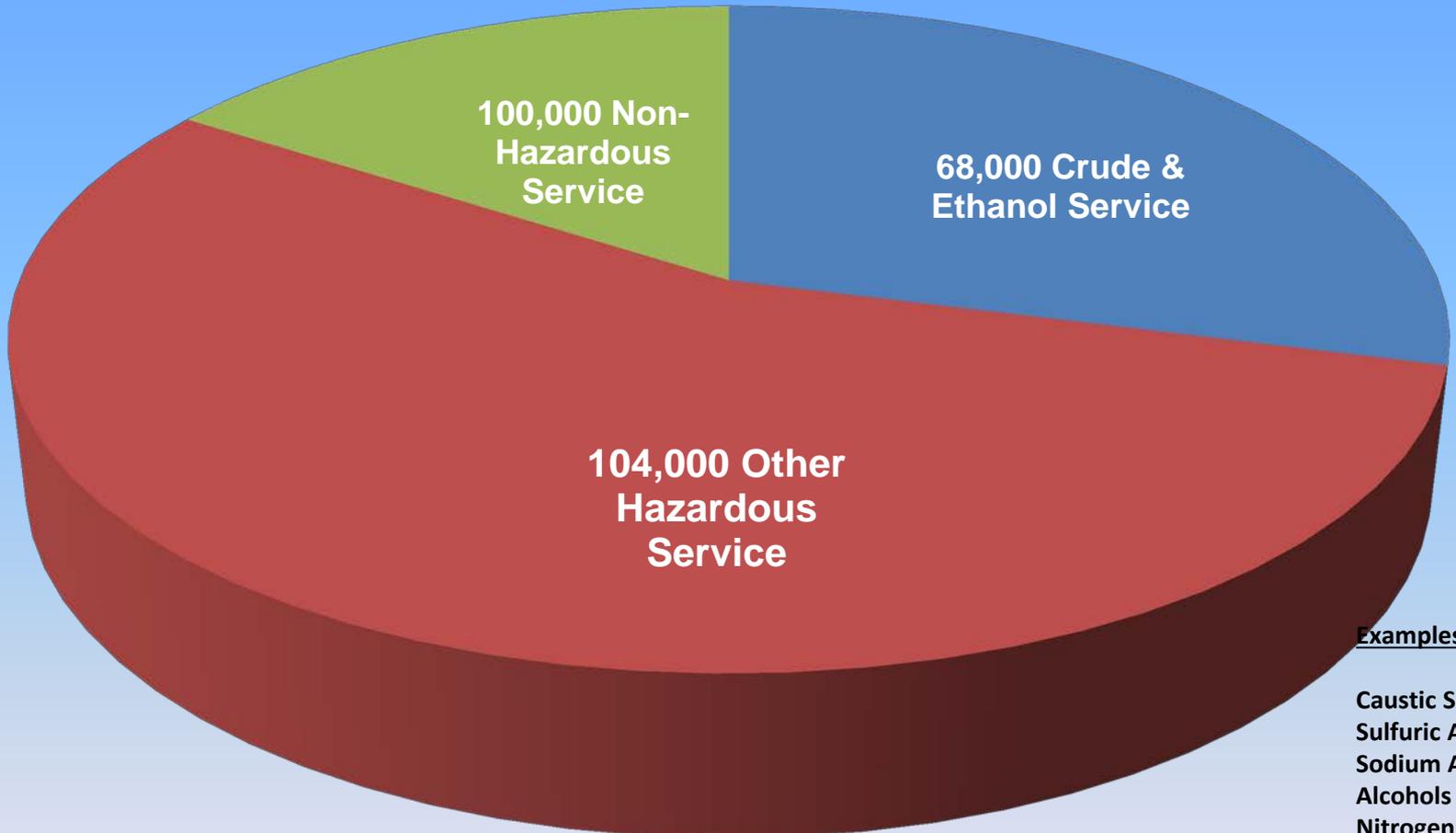
The railroad performs a basic worthiness inspection whenever a car is assembled into a train

Bad Order, Reassignment, and Requalification all trigger Inspection and Maintenance

Tank Car Maintenance must be performed only in Licensed Facilities



What services are these non-pressure cars in?



272,000 Non-Pressure Cars

Examples:

- Caustic Soda
- Sulfuric Acid
- Sodium Alkalis
- Alcohols
- Nitrogen Fertilizer
- Residual Fuel Oils

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