

CCIB Intermodal Seminar

Railroad Equipment Initiatives

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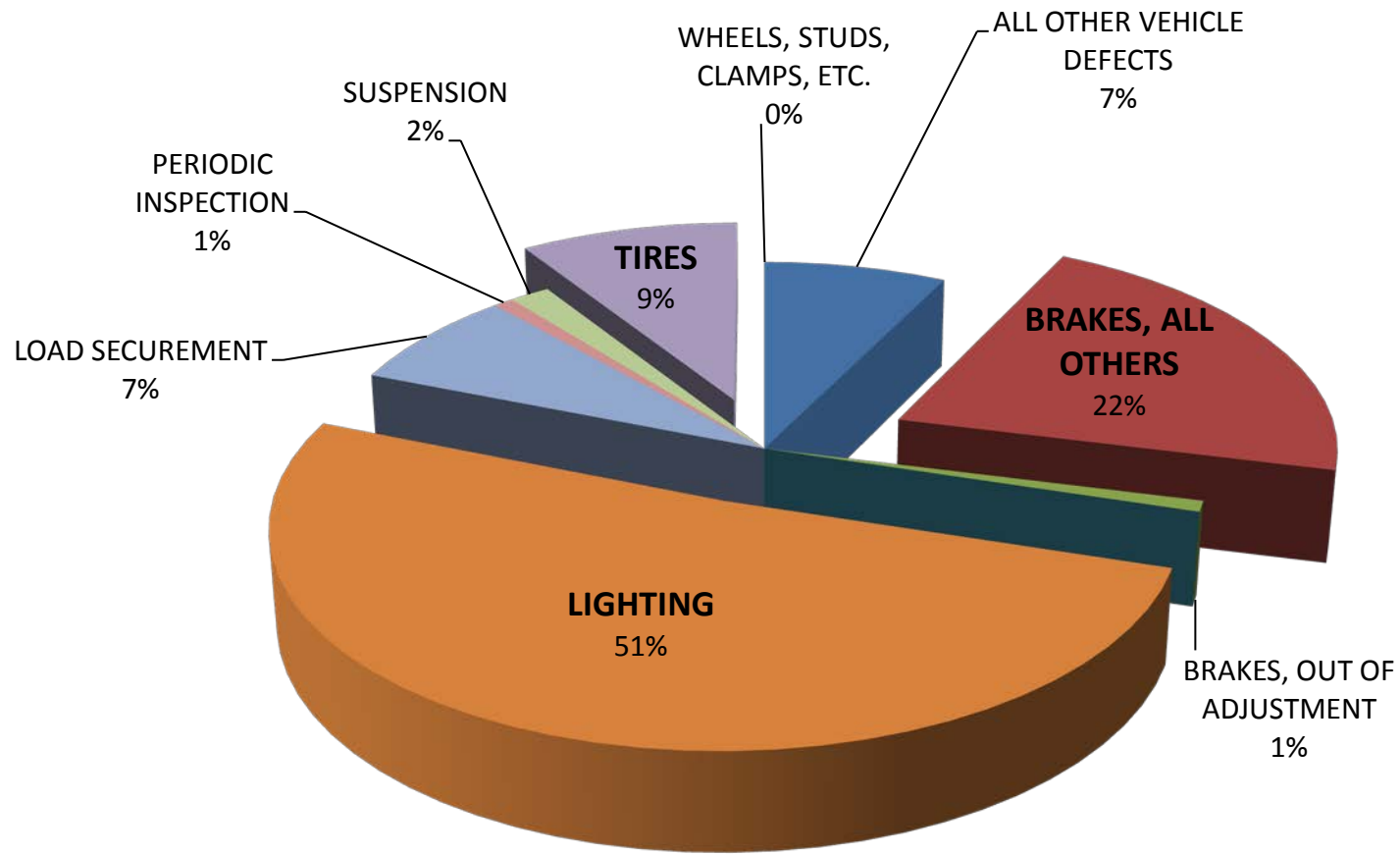
Railroad Equipment Initiatives

- Component Parts
- Chassis of the future

Railroad Equipment Initiatives

Component Parts – LED Lights

- Why start here?



Railroad Equipment Initiatives

Component Parts – LED Lights

	Incan- descent	Flange Mount LED	External Plate LED	Internal Mount LED	Hammer Mount LED
# of chassis	49,224	8,599	976	6,949	138
Marker lights replaced (per chassis/year)	5.9	1.2	1.1	1.1	n/a
Tail lights replaced (per chassis/year)	2.4	.3	.06	.03	1.1
Annual expense	\$4.3 M	\$170 K	\$6 K	\$19 K	\$5 K
Annual expense (per chassis/year)	\$87.14	\$19.46	\$6.04	\$2.73	\$34.72

Railroad Equipment Initiatives

Component Parts – LED Lights



Railroad Equipment Initiatives

Component Parts – LED Lights

- Conversion of all chassis to LED lights on their next annual inspection
 - Anti-theft
 - Quicker impact to CVSA scores
 - Lower cost option
 - Internal plate mount
 - More expensive and takes more time
 - More secure and less replacements over time
 - Failure sensing wire harness

Railroad Equipment Initiatives

Component Parts – Braking System

- Brake Chambers
 - Diaphragm
 - Welded clevis
 - Stainless clevis and pin
 - Boot
 - Stroke length indicator
 - Electronic monitoring of stroke length



Railroad Equipment Initiatives

Component Parts – Braking System

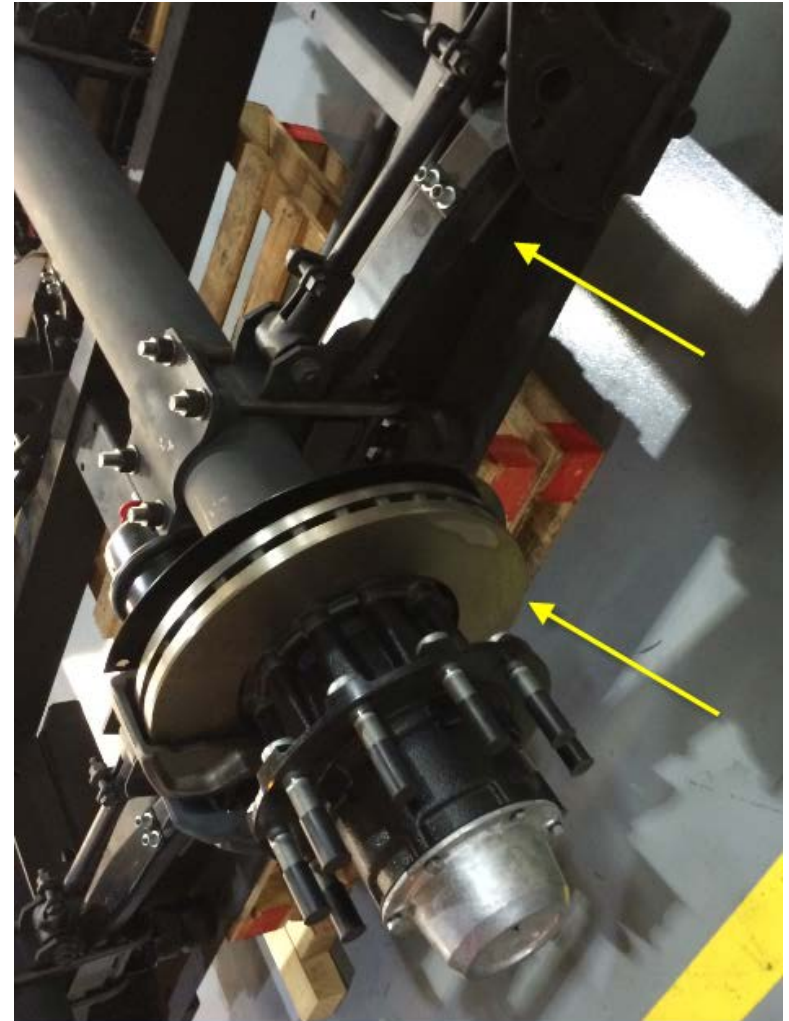
- Automatic Brake Adjusters
 - Visual Indicators
 - Greasing



Railroad Equipment Initiatives

Suspension

- Disk Brakes
 - Faster brake jobs
 - Out of adjustment citations
- Composite Springs
 - Heavy duty
 - Higher cycle times than metal versions



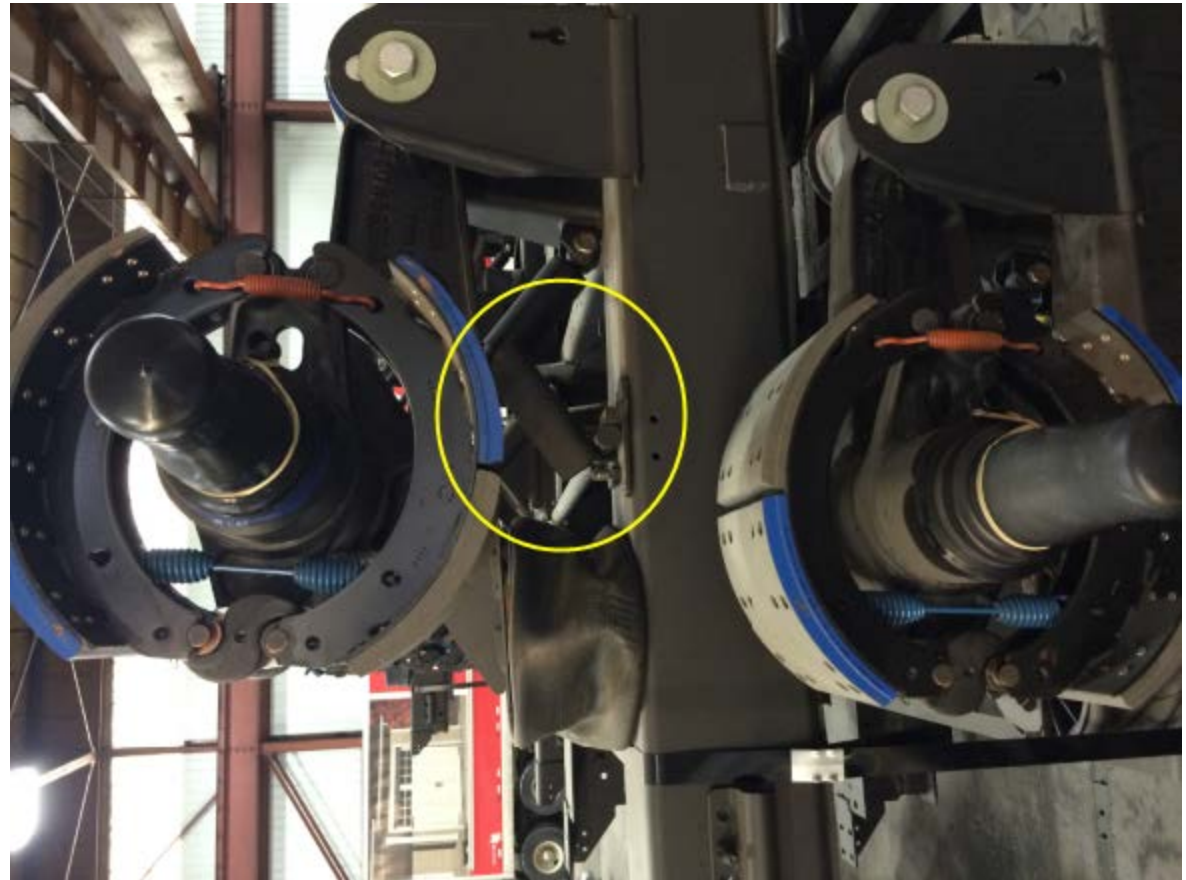
Railroad Equipment Initiatives

Suspension

- Dock Lock

Activates with application of parking brake

Prevents drifting away from dock as airbags deflate



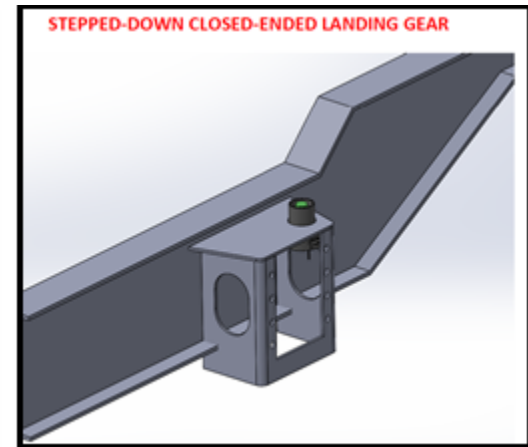
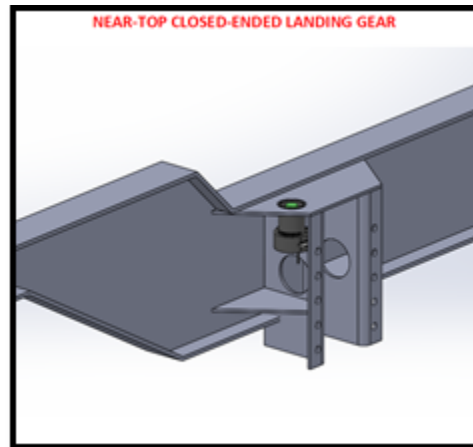
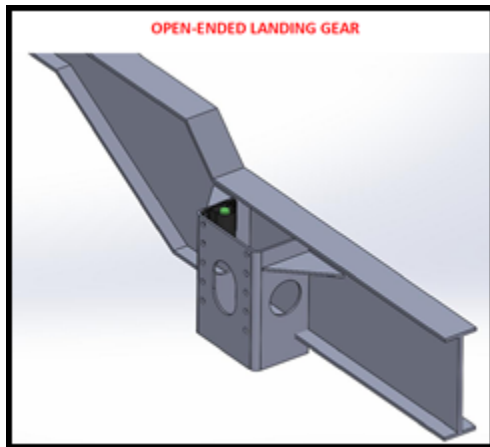
Railroad Equipment Initiatives

Chassis of the future

- Wire harness with fault sensing
- Automatic Tire Inflation
- ABS
- Tires
 - PSI
 - Presence
- Stroke Length
- Wheel-end temperature
- Load / Unload

Railroad Equipment Initiatives

Chassis of the future



Railroad Equipment Initiatives

Chassis of the future

- GPS antenna
- Cellular Modem
- Current state has 4 data channels
- 5 year battery
- GEO-Zone

Railroad Equipment Initiatives

Chassis of the future

- Pre-alert road side assistance
- Notification to motor carrier dispatch (driver)
- Loss prevention (tire theft)
- Improved cycle time for assets

Railroad Equipment Initiatives

Thank you