



# New Technology in Fork-Lift Trucks

## **Fleet Management & Lift Truck Safety Trends**

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**Date:**

September 13, 2011

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## Today's Agenda

- Using Operator & Fleet Management Technology to Improve Safety
    - OSHA Compliance
    - Impact Detection Tools
    - Operator Performance Levels
    - Service Efficiency
  - End User Requirements of an Operator & Fleet Management System
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# Industry Trends Using Technology to Improve Safety

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## Powered Industrial Trucks (Forklift)

Types & Fundamentals Operating the Forklift The Workplace Training Assistance

### Operating the Forklift: Pre-Operation

A vehicle that is in need of repair, defective or in any way unsafe should be removed from service. The problem should be recorded on a log and reported to a supervisor immediately. This section discusses pre-operation and operational inspections that operators should perform to ensure that forklifts will operate safely. Only operators who have been trained and evaluated in accordance with [29 CFR 1910.178\(l\)](#) can operate forklifts.

- Pre-Operation Inspection
- Operational Inspection





### 1910.178 - Powered Industrial Trucks

This standard covers the design, maintenance and operation of all kinds of powered industrial trucks, from forklifts to motorized hand trucks.

- In the last 12 months, 1910.178 was the **most frequently cited standard** for the Motor Freight Transportation & Wholesale Trade SIC groups.
- This same standard was also **in the top 5** for number of citations for the Manufacturing & Retail Trade SIC groups.

### **Top 5 Powered Industrial Trucks Standards Cited in 2010:**

1910.178 (l)(1)(i) – Failure to ensure operator competency

1910.178 (l)(6) – Lack of operator certification

1910.178 (p)(1) – Failure to remove unsafe trucks from operation

1910.178 (l) – Lack of operator training

1910.178 (q)(7) – Failure to inspect trucks

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## OSHA Compliance

Only operators who have been trained & evaluated in accordance with OSHA standard can operate forklifts

- Vehicle Access Control



## OSHA Compliance (Cont.)

- Pre Shift Inspection

**1910.178(q)(7)** Industrial trucks shall be examined before being placed in service, and shall not be placed in service if the examination shows any condition adversely affecting the safety of the vehicle. Such examination shall be made at least daily. Where industrial trucks are used on a round-the-clock basis, they shall be examined after each shift. Defects when found shall be immediately reported and corrected

**1910.178(p)(1)** If at any time a powered industrial truck is found to be in need of repair, defective, or in any way unsafe, the truck shall be taken out of service until it has been restored to safe operating condition.

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Check (✓) appropriate box  OK  Needs repair or adjustments (give details in comments section)

		MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
VISUAL CHECKS	<b>DAMAGE</b> bent, dented or broken parts	OK	OK	OK	OK	OK	OK	OK
	<b>LEAKS</b> drive unit, brakes, hydraulics	OK	OK	OK	OK	OK	OK	OK
	<b>TIRES &amp; WHEELS</b> drive wheels, load wheels, casters	OK	OK	OK	OK	OK	OK	OK
	<b>FORKS</b> in place, properly secured	OK	OK	OK	OK	OK	OK	OK
	<b>CHAINS, CABLES &amp; HOSES</b> in place	OK	OK	OK	OK	OK	OK	OK
	<b>HOUR METER</b> operating	OK	OK	OK	OK	OK	OK	OK
	<b>BATTERY</b> water level, vent caps in place, cleanliness	OK	OK	OK	OK	OK	OK	OK
	<b>BATTERY CONNECTOR</b> cracked, burnt, tight fitting	OK	OK	OK	OK	OK	OK	OK
	<b>GUARDS</b> overhead, load backrest, battery retainer	OK	OK	OK	OK	OK	OK	OK
	<b>SAFETY DEVICES</b> flashing lights, indicator lights, safety shield operator harness, warning labels, etc. in condition as equipped	OK	OK	OK	OK	OK	OK	OK
OPERATIONAL CHECKS	<b>HORN</b> sounds	OK	OK	OK	OK	OK	OK	OK
	<b>STEERING</b> no binding, no excessive play	OK	OK	OK	OK	OK	OK	OK
	<b>TRAVEL CONTROLS</b> all speed ranges, forward & reverse, no unusual noise	OK	OK	OK	OK	OK	OK	OK
	<b>HYDRAULIC CONTROLS</b> raise & lower, tilt forward & rearward reach in & out, sideshift right & left, etc., no unusual noise	OK	OK	OK	OK	OK	OK	OK
	<b>BRAKES</b> stop truck within required distance, work smoothly, brake override functions	OK	OK	OK	OK	OK	OK	OK
	<b>PARKING BRAKE</b> seat, hand, foot	OK	OK	OK	OK	OK	OK	OK
	<b>BATTERY CHARGE</b> discharge meter in full green or 75% charge after raising forks	OK	OK	OK	OK	OK	OK	OK
	<b>POWER DISCONNECT</b> cuts off all electric power	OK	OK	OK	OK	OK	OK	OK
	<b>ATTACHMENTS</b> function properly, no unusual noise	OK	OK	OK	OK	OK	OK	OK
	<b>LIMIT SWITCHES</b> travel limit, lift limit, tilt limit, etc.	OK	OK	OK	OK	OK	OK	OK

## OSHA Compliance (Cont.)

- Electronic Pre Shift Inspection Checklist
    - Manual processes can be difficult to manage
      - How does the company ensure the checklist is done?
      - And done correctly?
    - Challenges in getting real time information
      - What happens if a trucks requires a repair?
    - Ensuring unsafe equipment is taking out of service
      - How does management ensure trucks are safe to operate?
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## Impact Detection System

- Impact detection systems have been available since 1992 for various industries.
    - Various off the shelf systems were used on lift trucks, with marginal success.
    - Today's technology can communicate with the truck to eliminate false positives which provides accurate & consistent information. This can then be used with confidence to coach or discipline unsafe operators.
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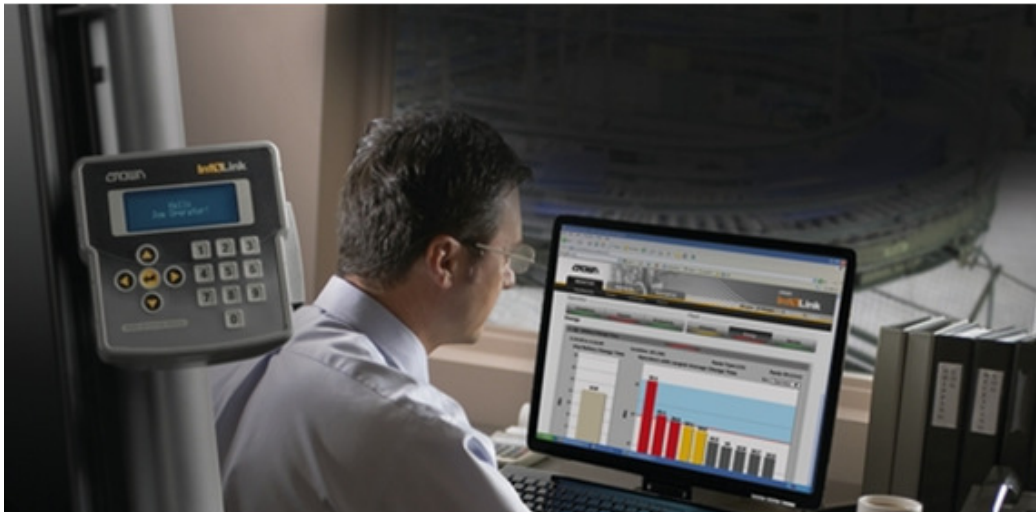
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## Remote Performance Mode Adjustments

- Managers can set operator performance levels that follow the individual from truck to truck.



## Service Efficiency

- Automated PM Notifications.
  - Intervals can be based on actual hours of use or calendar days.
- Today's lift truck control systems utilize service event codes for maintenance.
  - Wireless technology enables remote notifications directly to managers or service providers as the event codes occur.
- Electronic checklist technology can generate e-mail alerts to managers or service when truck requires attention.



## End User Requirements

- System must be easy to use for operator
  - System must be easy to use and maintain by managers / supervisors
  - System must assist with identifying opportunities
    - Manage by exception through benchmarking
  - System must provide accurate and consistent information
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# Summary

- Operator & Fleet Management Technology Can Assist to Improve Safety
    - OSHA Compliance
      - Vehicle Access Control
      - Operator Certificate Management
      - Electronic Pre Shift Inspections
    - Impact Detection Tools
      - Accurate and Reliable Information with Lift Truck Validation
    - Operator Performance Levels
      - Remotely Manage Operator Performance Truck to Truck
    - Service Efficiency
      - Automated PM Notifications
      - Lift Truck Event Code Notifications
      - Electronic Checklist Service Notifications
  - End User Requirements of an Operator & Fleet Management System
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Questions?

Thank You Very Much

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