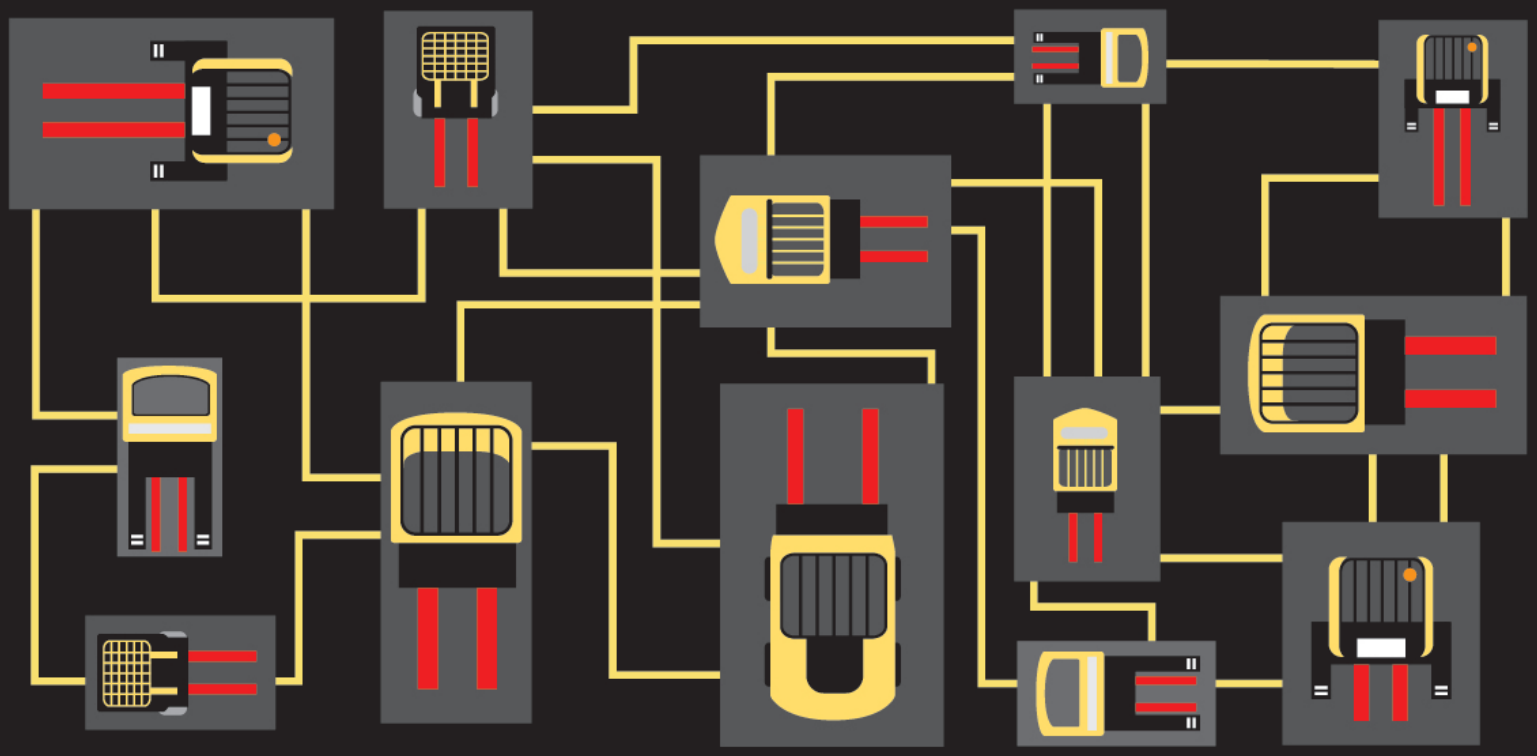


OPTIMIZING THE FULL OPERATIONAL VIEW

To improve, we first need to measure. By implementing telematics and fleet management tools to monitor maintenance, reduce energy cost and maximize operator productivity, materials handling operations can realize a substantially lower total cost of ownership. The resultant data from these tools is the full operational view.

HYSTER

STRONG PARTNERS.
TOUGH TRUCKS.™

Introduction

Effectively managing a fleet of lift trucks and their operators can mean the difference between improving uptime and return on investment, or potentially overlooking critical equipment and workforce needs. These needs, if left unnoticed or undiagnosed, may lead to equipment downtime, performance setbacks and operational and safety violations.

For many operations, an active fleet of lift trucks represents a significant investment that cannot be compromised by abuse, neglect or unauthorized operation. Furthermore, beyond simple reporting on vehicle usage and performance information, many fleet managers are increasingly responsible for delivering actionable data on workforce productivity, efficiency and regulatory compliance.

The pressures of balancing fleet efficiency and operator performance can be mitigated by having access to the right data. Understanding an organization's total cost of operation, including contract costs, maintenance, acquisition, labor, shift utilization and more, allows fleet managers to optimize fleet size and structure for maximum productivity. To effectively monitor and analyze these key data points and trends over time, lift truck fleets must be equipped with comprehensive telemetry systems.

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The Basics – Telemetry 101

Telemetry is the process of remotely capturing specific measurements and other meaningful data in its given application. It most often uses wireless data transfer via the internet, Wi-Fi or a cellular connection. Similarly, telemetry is a related, interdisciplinary field that not only tracks, records and reports data, but also allows end users to remotely command or otherwise exert control over the equipped machinery.

How Telemetry Fits into the Materials Handling Equation

A recent survey indicates that while 80 percent of companies track lift truck fleet data in some way, only 25 percent track equipment and utilization by specific drivers. These days it is imperative to keep detailed records of lift truck fleet usage, service and maintenance schedules, as well as impact incidents to remain accountable and compliant with business leadership and industry regulations. Modern telemetry systems have evolved to enable effortless access to immediate and actionable data, and have quickly become integral to the efficiency of materials handling operations around the globe.

Designed to evaluate fleet utilization, impacts, idle time and maintenance, lift truck telemetry systems offer fleet managers the ability to make quick and informed decisions about fleet size, composition and use. Features such as fault code tracking, impact sensing and preventative maintenance allow customers to get the most out of their existing assets, lengthen the life of their fleet and run their trucks longer between repairs, reducing downtime and overall cost of operations. Fleet managers also benefit from having a comprehensive view of hour meter and usage tracking, and cost of operations to maintain a right-sized fleet composed of equipment tailored to meet their specific operational challenges.

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The following telemetry system features are key to achieving the full operational view:

Fleet Maintenance

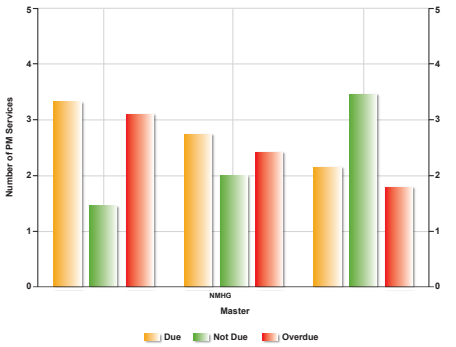
Fault Code Tracking

- Logs fault code events identified by affected vehicles
- Allows fleet managers to discern severity of faults and respond accordingly
- Can be configured to send real-time email alerts for immediate attention; can a store alerts for follow-up action during routine maintenance

Equipment	List Events	Event Date	Operator (Card Number)	Critical	Lock Out	Shut Down	Event Status	Event Name
Product ID : 1041		14 DEC 2012 15:16:28	Don White (0)	Yes	No	No		DTC
Asset ID : Asset 1000		14 DEC 2012 14:17:05	Don White (0)	Yes	No	No		DTC
Service ID : Service 1000		14 DEC 2012 14:17:03	Don White (0)	No	No	No		DTC
Truck 435		14 DEC 2012 14:17:03	Don White (0)	Yes	No	No		DTC
		07 DEC 2012 15:08:48	Don White (0)	Yes	No	No		DTC

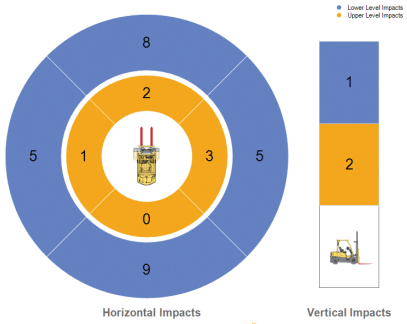
Preventative Maintenance Tracker

- Tracks maintenance based on custom parameters
- Valuable for diverse lift truck fleets with unique maintenance intervals and service requirements
- Over time, the service history and maintenance forecast can be utilized to determine both fleet and individual truck needs



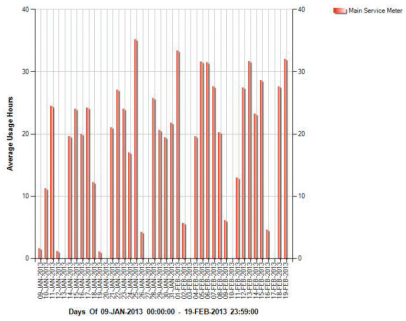
Impact Sensing

- Tracks and measures instances where impacts exceed a preset impact force benchmark
- Sends real-time email alerts with impact details including time of impact, direction and force, vehicle ID, serial number and operator ID (if set)
- Allows fleet managers to assess vehicle damage and surrounding structures for quick response



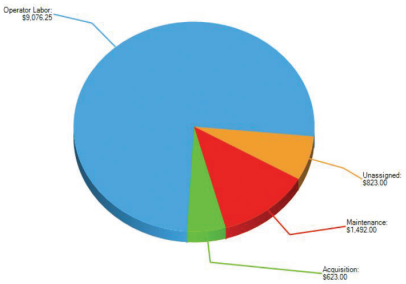


Fleet Management



Hour Meter and Usage Tracking

- Reports utilization of individual lift trucks and aggregate data
- Compares fleet vehicles based on hour meter to clock vehicle usage over a user-specified time interval; intervals can be based on shifts, days or other time periods
- Allows fleet managers to compare utilization and efficiency between shifts and jobs, or seasons, enabling optimum workforce planning and operational consistency



Cost of Operations

- Operational reports per truck, fleet and location
- Ability to analyze total cost of ownership in measurements of cost per hour, day, week, month or year, as defined by user-specified date ranges
- Comprehensive reporting allows fleet managers to respond rapidly at the first indication of operational inefficiency

Facility Management

Automatic Shutdown

- Monitors truck activity, observes operator presence and triggers shutdown when preset parameters of inactivity are met
- Prevents hours of unnecessary idling, records delineating vehicle use and enhances energy conservation initiatives

GPS Integration

- Identifies the location of lift trucks, monitors travel patterns and provides data on areas prone to congestion and locations where previous impacts have occurred
- Allows fleet managers to analyze trends over time and update traffic patterns as needed to maximize workflow efficiency and safety



Workforce Management

Access Control

- Prevents unauthorized lift truck access by requiring operator authentication before allowing the vehicle to become operable
- Increases operator accountability and can improve driving behaviors and reduce damage or repairs

It's the Law – OSHA Operator Checklists

OSHA requires that all forklifts be examined at least once daily before being placed into operation. Typically, operators work from preset checklists, examining the equipment components, fluids and functionality before use.

With a telemetry system, these checklists can be programmed into an equipped tracking unit and provide immediate, remote visibility into compliance practices and trends. Integrating this process into a fleet's telemetry reporting system streamlines the checklist process for operators and encourages greater discipline for completing comprehensive equipment inspections.

Integrating Telemetry Practices

Plant operations are complicated, requiring a nearly limitless number of moving parts to work together seamlessly. Especially in large fleets, fleet managers do not have the ability to oversee each operational detail for each individual truck. Even when functioning properly, inefficiency in a single component, process or piece of equipment can have a major impact on the overall uptime and output of the business. Furthermore, operator compliance with various health and safety regulations is critical for organizational success, avoidance of injuries and costly fines.

These businesses should seek out lift truck manufacturers that can evaluate and assess existing assets and processes, and provide telemetry solutions that will drive fleet efficiency, improve operator performance and lower overall total cost of ownership. Integrating a telemetry system into a lift truck fleet, large or small, can be done easily by working with a lift truck manufacturer to assess and outfit according to the unique needs of the individual operation.

Hyster Company offers Hyster Tracker, a centralized fleet management telemetry system to effectively maintain, monitor, analyze and optimize materials handling and lift truck fleets according to all of the metrics detailed here. By combining these capabilities with an extensive dealer network and value-added parts and service programs, Hyster Tracker can help businesses maximize fleet uptime and productivity while reducing overall costs.

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