

The Magazine for the materials handling professional

EUREKA

No. 36

Autumn 2020

www.eurekapub.eu

Adapting to change

Is your warehouse flexible enough?

IN THIS ISSUE

Think before you tick

Do you know what to look for
in lift truck daily checks?

High noon for IT

How can you build in
system security?

Better safe than sorry

What makes 'dangerous goods'
warehouses safer?

INDUSTRIAL WATER REUSE:

SAVE WATER WITH INTELLIGENT WATER TREATMENT

UP TO
80%
WATER REUSE

IMPROVED
TOTEX

RIGHT WATER
QUALITY

GRUNDFOS iSOLUTIONS



REDUCE YOUR WATER FOOTPRINT AND SAVE MONEY

Did you know that you can reduce water consumption in your industrial facility by up to 80% with water reuse? Intelligent solutions from Grundfos in a water reuse system help you to save water, improve your TOTEX and achieve the right water quality for your application. With the increase of water scarcity, costs and regulations, industrial facilities all over the world are moving towards water reuse. It is particularly suited for make-up water for cooling towers, which are very water intensive, yet do not require the same water quality and treatment as the water for core processes.

Discover the benefits of Grundfos iSOLUTIONS for industrial water treatment and reuse at www.grundfos.co.uk



be
think
innovate

GRUNDFOS

Trademarks displayed in this material, including but not limited to Grundfos, the Grundfos logo and "be think innovate" are registered trademarks owned by The Grundfos Group. All rights reserved. © 2020 Grundfos Holding A/S. All rights reserved.

EUREKA

COMMISSIONING EDITOR

Monica Escutia

ASSOCIATE EDITOR

Virpi Tynkkynen

CONTRIBUTING EDITORS

Gian Schiava

Mark Nicholson

Ruari McCallion

ART DIRECTOR

Dave Hobbs

PRODUCED BY

gu9creative

PRINTED & DISTRIBUTED BY

BTB Mailflight, UK

PUBLISHED BY

Cat® Lift Trucks, Hefbrugweg 77,
1332 AM Almere, The Netherlands

CHECK OUT

www.eurekapub.eu



Here you will have access to other articles and useful information.

FOLLOW US



©2020, MCFE. All rights reserved. CAT, CATERPILLAR, LET'S DO THE WORK, their respective logos, "Caterpillar Yellow", the "Power Edge" and Cat "Modern Hex" trade dress as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission. All material is strictly copyright and all rights are reserved. No part of this publication may be reproduced in whole or part without the prior written permission of the copyright holder. Opinions expressed in Eureka are not necessarily those of Cat Lift Trucks (MCFE B.V.) or its dealers. Cat Lift Trucks (MCFE B.V.) does not accept responsibility for the opinions or information expressed in the articles or advertisements.

OEPC1614(08/20)gu9

CONTENTS

04 Adapting to change

How to react positively and maintain warehouse performance.

06 Think before you tick

A guide to what lies behind your truck's pre-shift checklist.

10 High noon for IT

Expert views on countering supply chain cybercrime threats.

12 Better safe than sorry

Warehouse modifications for storing and handling hazardous items.

15 Events

Sharing knowledge with fellow professionals benefits all.

04



12



FROM THE EDITOR

For obvious reasons, reducing risks has recently become a higher priority in everyone's lives. In the materials handling industry, virus transmission is just one of the threats for which we must always be prepared. Our four Eureka 36 articles, offering advice on some of the other key issues, expand the large archive of practical guidance which you can explore online at www.eurekapub.eu.

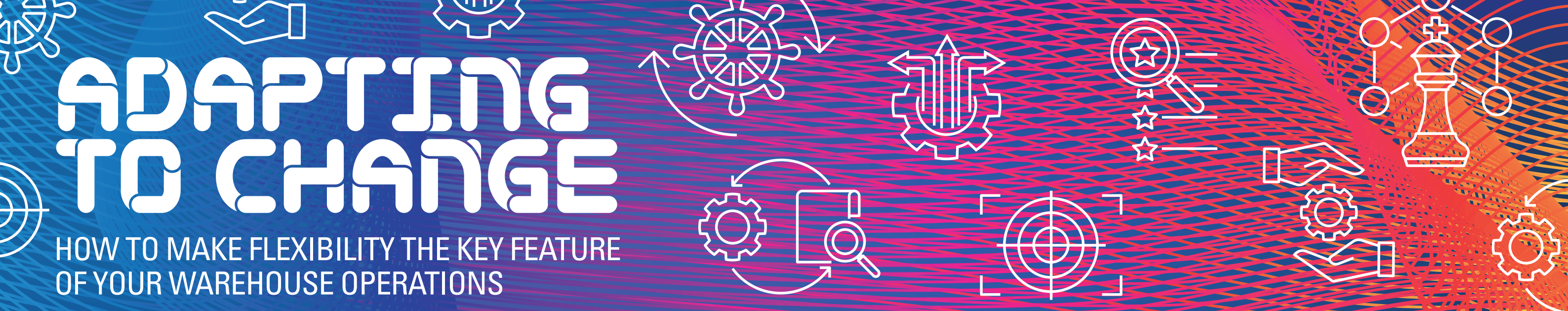
Gian Schiava explores options for adding extra flexibility to warehouse operations so they can cope with sudden changes. **Mark Nicholson** urges businesses to think deeply about daily checks on forklift trucks, which defend against accidents and high maintenance bills. **Ruari McCallion** reports on the scale of cybercrime and how to beat it. Finally, **Gian Schiava** finds out what warehouse operators can do to prevent disasters involving hazardous goods.

As always, we welcome feedback and suggestions for further investigations. Please email comment@eurekapub.eu or message us via our website. The address, again, is www.eurekapub.eu.

Monica Escutia
Commissioning Editor

Eureka's Commissioning Editor is Monica Escutia, a Bachelor of Communications – Journalism. She is a Spanish national and fluent also in Dutch, English and Italian. Having previously edited a variety of international media, she has spent the last 17 years in the materials handling industry – the first four as a parts sales representative for several European countries, before becoming the EAME Manager Marketing Communications for Cat® Lift Trucks, based in the Netherlands.





ADAPTING TO CHANGE

HOW TO MAKE FLEXIBILITY THE KEY FEATURE OF YOUR WAREHOUSE OPERATIONS

Change is good. Many management consultants use this creed in their classes and most business professionals would probably agree with the slogan. In real life, however, people don't like events happening to them, especially if they are negative and unexpected. How can materials handling professionals cope with these sudden changes without having to compromise on performance? This article by **Gian Schiava** will explore how to react, but – spoiler alert – you can considerably reduce negative consequences if your current operation excels in adaptability.

A crisis can be the result of many external developments which you cannot control. It may be caused by macro developments like wars, shifts in economic power, climate change, resource scarcity and ever-continuing technological development. These days we even have to consider and safeguard our IT systems against harmful cyber-attacks. After all, modern logistics supply chains are made of many companies that are interconnected to ensure production and deliveries are synchronised.

Changes can also be the result of micro decisions. The company gets sold to a new shareholder; demand rises drastically because of an unexpected factor; or your supplier goes bankrupt. Unfortunately, the list of uncontrollable events is endless.

Once such an event has occurred, the company must take every measure to limit financial, operational and even reputational consequences. Good crisis management is, according management consultant PwC, based on eight actions, whether we are dealing with a pandemic or a financial crisis:

1. TAKE THE STEERING WHEEL FIRMLY IN YOUR HANDS

This is the moment when management has to be in charge and provide leadership. Often a small crisis team is formed and the expectations for employees should be made clear. All decisions must be well documented for future reference.

2. KNOW WHERE YOUR STAFF ARE

Regardless of the nature of the crisis, this step helps to decide if holidays need to be cancelled or extra staff have to be hired. Review travel plans. Decide on your policy for working from home, and what to do about booked training sessions.

3. REVIEW YOUR EXISTING CRISIS PLANS

Every well-run company must have a crisis plan, but an actual crisis is a reality check. You will probably need to adapt the generic plan to the specific challenges you are facing.

4. EVALUATE THE SUPPLY CHAIN

A clear view of your supply chain helps to reveal potential vulnerabilities. Start with the most critical products and look beyond the current suppliers. For example, if your products come from a country that has become isolated, how quickly can you find an alternative?

5. IDENTIFY POTENTIAL BOTTLENECKS

Define your critical processes or services. What can you do to keep them going?

6. ENSURE GOOD COMMUNICATION

This step is often defined as the most important one. Disinformation and confusion are most common around a crisis. Employees expect clarity from their management, especially when it comes to job security.

7. USE SCENARIO ANALYSIS

Perhaps a typical business consultant's advice, but it can be insightful to describe best and worst scenarios and determine whether your company is designed for them. Get your finance team to calculate the financial results.

8. DON'T LOSE SIGHT OF OTHER RISKS

Every crisis makes organisations vulnerable as they pull all their resources together to deal with the situation. But the normal work must continue as well. Products need to be received, picked, shipped and invoiced for the company to survive. Loss of focus can be disastrous.



Nurture your staff and give them opportunities to expand their skills.



Look for a flexible forklift supplier who can accommodate a sudden reduction or enlargement of your fleet. Visit www.catlifttruck.com/dealers



Consider outsourcing some of your storage, logistics and inventory activities.

Good crisis management is one of the hardest jobs to pull off successfully, but it is also just a reaction to an unexpected event. The best possible protection for any materials handling operation is to build in flexibility in order to cope better with a future crisis. There are various areas where we can intervene:

STAFF

Building the right group of employees can bring some challenges if you want to be able to quickly up- or downscale the activity. In many European countries we see an ageing population and many young professionals do not pursue their careers in a warehouse. Nevertheless, you can only reach your goals if you build a flexible layer around the fixed employees.

To maintain employee satisfaction, make sure they are properly rewarded and give them equal opportunities for training and development. After all, when you need to rehire them, you want to rely on a positive experience. The training should also result in multi-skilled workers, who can be used in various jobs. For example, never limit the group of people that can operate a reach truck in order to save schooling expenses, but make this available to all people with the right skillset.

Finally, always maintain good relations with recruitment agencies. Hold periodic meetings to predict workload and staff demand. Building this relationship will also result in better support when you need to dismiss people and find suitable replacements.

WAREHOUSE SYSTEMS AND EQUIPMENT

Today, managing a fleet of materials handling equipment is often about managing a long-term hire fleet. But sudden changes require you to work with flexible forklift suppliers who can accommodate a sudden reduction or enlargement of your fleet. Your supplier needs to be willing to take out lift trucks from your fleet, quickly, without (significant) financial consequences for your company. Meeting with the supplier weekly or monthly to assess the coming flow of materials could be a good idea to build a strong partnership. These agreements need to be made prior to a crisis if they are to be effective.

Whilst it may be relatively easy to bring in or collect a forklift, your storage or transportation systems are often fixed assets. Nowadays even automated systems offer a larger degree of flexibility. For example, in cases where goods

used to be stored in mini-load systems, operated with cranes, they are now being replaced by racking with shuttles. According to the workflow, shuttles can be added or taken out, just like with forklift trucks.

ORGANISATION

Flexibility can also be added by reviewing the current warehouse or logistics operation. You may want to consider outsourcing part of your storage to avoid having to build another, expensive warehouse. Hire the extra warehouse for the peak season, or let a logistics services provider take care of the labour-intensive picking, whilst you store only slow movers. Overall, the costs might be higher, but you have downsizing options ready when trouble is around the corner.

Looking upstream of the supply chain, you might also make agreements for suppliers to keep the inventory. This business model is called Vendor Managed Inventory and is particularly successful when you need large amounts of consumables or fast movers but don't want the hassle of the warehousing task. ●

Article feedback is welcome:
editor@eurekapub.eu

THINK BEFORE YOU T[✓]CK



LIFT TRUCK DAILY CHECKS

When carrying out a lift truck's daily or pre-shift checks, what are you actually looking for? **Mark Nicholson** suggests you answer the following questions before ticking boxes on your checklist.

This guide may include some items which are not relevant to your truck or which are part of its weekly or monthly maintenance regime. Each truck's user guide should specify what needs to be checked and when. But if that information is reduced to a list of systems and components to tick, are you sure you know what counts as a defect?

Daily checks are an important defence against accidents arising from operating a lift truck in unsafe condition. They are also vital to minimising downtime and repair bills as they allow problems to be spotted and dealt with early – before serious damage develops. The time, attention and careful thought you put into them is an excellent investment.

BEFORE STARTING THE MOTOR OR ENGINE

Yesterday's checks

- ✓ Have all faults noted on the previous day or shift been dealt with?

Walkaround inspection

✓ LEAKS

Can you see any liquid on the floor, under or near to the truck?

✓ HYDRAULIC FLUID LEVEL*

Does it need topping up?

✓ HYDRAULIC HOSES

Are they in good condition? Is there any leaked fluid on them?

✓ MAST AND FORK CARRIAGE

Do any of the structures look worn, cracked, bent or otherwise damaged? Can you see traces of wall plaster or paint, suggesting they have been in a collision? Are they very rusty? Are there any loose or missing bolts or fixtures, particularly where the mast is attached to the chassis and the tilting mechanism? Are moving parts – including bearing surfaces – contaminated with materials like mud or cement, and are they well lubricated? Are there leaks from the hydraulic cylinders?

*If any of these need to be topped up, record how much you needed to add.

✓ CHAINS AND FIXING BOLTS

Do any of the chain links seem stretched or damaged? Are the chains very rusty? Are they well lubricated? Do the fixing bolts show any sign of damage?

✓ FORKS

Can you find any cracks or other signs of damage, especially at the heels? Are the forks bent, dented or excessively worn? Are they firmly attached? Are the pins, hooks or other attaching features in good condition?

✓ LOAD BACKREST EXTENSION

Is it bent, dented, cracked or loose? Is there anything caught up in the structure, like a piece of brick or block?

✓ MAST ATTACHMENTS (IF PRESENT)

Are they securely attached? Are the fixing or locking points, hydraulic hoses and other connections in good condition?

✓ WHEELS AND TYRES

Do the tyres have enough tread? Is there any sign of damage, including cracks, cuts, tears, bulges, or nails and other embedded objects, in the tread surface or side walls? In the case of pneumatic tyres, is the air pressure* correct? Are the wheels and especially their rims damaged? Are the wheel nuts tightly fastened?

✓ STEERING LINKAGE

Is it well lubricated?

✓ TRUCK BODY AND OVERHEAD GUARD

Are any of the bodywork panels or overhead guard structures damaged?

✓ SAFETY GUARDS AND COVERS

Are they securely attached and fastened?

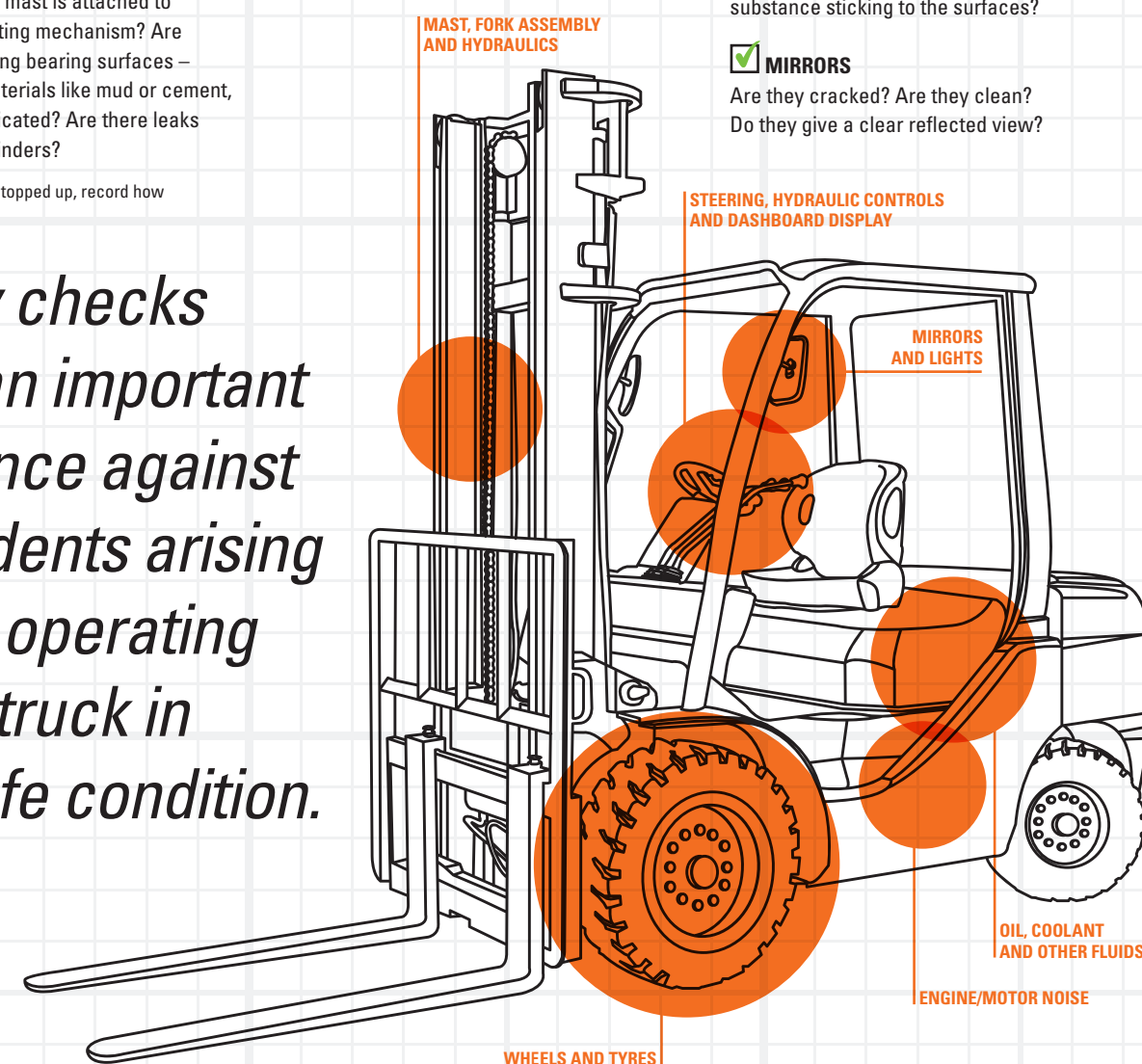
✓ WINDOWS AND OTHER TRANSPARENT PANELS

Is there any obstruction to visibility? Are there cracks, tears or scratches? Is vision reduced by stickers? Is dirt making the view unclear? Is paint, cement or any other hard-to-remove substance sticking to the surfaces?

✓ MIRRORS

Are they cracked? Are they clean? Do they give a clear reflected view?

Daily checks are an important defence against accidents arising from operating a lift truck in unsafe condition.



IC engine truck checks

✓ FUEL, ENGINE OIL AND COOLANT LEVELS*

Do they need topping up?

✓ LPG BOTTLE

Are its clamps and gas line connections secure?

✓ ADBLUE OR OTHER ADDITIVES*

If these are used (as in some diesel engines), do they need topping up?

✓ BATTERY

Is it securely attached? Is it clean? Are there any signs of leakage? Does it need topping up with distilled water?

(NB top-ups are not needed for Li-ion or sealed lead-acid batteries.)

✓ FAN AND OTHER BELTS

Are they worn, damaged or loose?

Electric-powered truck checks

✓ BATTERY CHARGE LEVEL

Has the battery been charged sufficiently for the shift or will it need replacing?

✓ BATTERY ELECTROLYTE*

Do any of the cells need topping up with distilled water? Is the electrolyte's specific gravity within the correct range?

(NB these checks are not needed for Li-ion or sealed lead-acid batteries.)

✓ BATTERY CABLES AND CONNECTIONS

Are they clean, in good condition and secure?

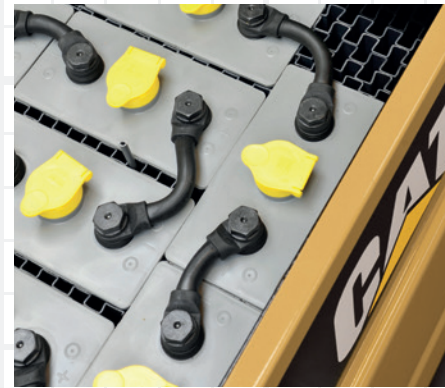
✓ BATTERY GENERAL CONDITION

Is it clean? Are there any signs of leakage?

✓ BATTERY SECURITY

Is it firmly held in place, with its locking device (if present) activated? Is the battery compartment securely closed?

*If any of these need to be topped up, record how much you needed to add.



Battery.

ONBOARD CHECKS

Operator area

✓ STEPS AND CABIN FLOOR

Is your workspace clear of rubbish and other potential slipping or tripping hazards?

✓ SEAT AND SEAT BELT

Is the seat firmly fixed to the truck, with no loose movement? Is the seat belt securely attached and can it be fastened and adjusted?



Parking brake.



Service brake and other pedal controls.

Monitoring, control and safety systems

✓ OPERATING SYSTEM

After switching on, does the computerised display (if present) go through its normal initialisation sequence? Is there any fault indication?

✓ DASHBOARD WARNING LIGHTS

Have any of the warning lights stayed on?

✓ GAUGES AND INSTRUMENTS

Are they showing appropriate readings?

✓ WORKING LIGHTS AND BEACONS

Are all lights functioning?

✓ OTHER WARNING SYSTEMS

Does the horn work? Does the reversing alarm (if present) sound when reverse is selected? Are there warning lights and/or audible alarms linked to use of parking brakes, seat belts etc., and are they working?



Horn and other warning systems.

Operator controls

✓ STEERING

Does the steering feel normal and turn smoothly from lock to lock? Is there any unexpected movement or looseness?

✓ HYDRAULICS

Do all of the hydraulic functions – including lift, lower, tilt and (if present) sideshift or other attachments – operate as expected? Does the mast move without any twisting, sticking or juddering?

✓ PEDALS

Driving over a short distance to test them, do the foot-operated controls (including the inching pedal on an IC engine truck) work normally?

✓ PARKING BRAKE

Testing on a slight slope if possible, does it hold the truck firmly and release correctly?

✓ SERVICE BRAKES

Do they bring the truck to a stop effectively and do they feel normal?

✓ NOISES

Are you hearing any unusual sounds from the electric motors, engine or other systems?

WHAT TO DO NEXT

If you have found a fault, you should report it immediately to the relevant manager. He or she will decide whether it is safe to carry on using the lift truck or if it should be taken out of service. An effective system for fixing problems identified by daily checks is essential.

Skipping daily checks, or carrying them out incompletely, is a false economy that can lead to accidents, breakdowns, high repair bills and a shorter truck life.



READY-MADE CHECKLISTS

Your lift truck supplier may provide a checklist to copy, or your company may create its own check sheets tailored to the trucks used. Various organisations produce generalised checklists. A good example is the booklet "Operator Safety – Daily or Pre-shift Checks" from the UK Fork Lift Truck Association (FLTA). This gives advice on the checking process and contains 66 copies of the checklist form, so that records for a truck can easily be kept together. Visit the 'Store' at www.fork-truck.org.uk for more details.

DIGITAL DAILY CHECKS

Software developer CheckedSafe offers a mobile app allowing standard FLTA daily checks to be carried out via your phone or tablet. The form is completed on-screen and photographs of defects can be taken and saved with it. As well as saving time and paper, it makes transmission of reports instant. The relevant manager is automatically alerted to problems, and the system enables efficient management of remedial actions. A complete audit trail for the truck is maintained, including motion detection records which confirm that all items have been properly checked and not just ticked without looking. CheckedSafe can supply the app in languages other than English.

See www.checkedsafe.com.



BEWARE OF FALSE ECONOMY

Skipping daily checks, or carrying them out incompletely, is a false economy that can lead to accidents, breakdowns, high repair bills and a shorter truck life. Time efficiency can, however, be gained by design features which give quick and easy access to items that need checking. Li-ion batteries, requiring virtually no maintenance, are another time-saving option. These advantages are available in the lift truck product range from Cat® Lift Trucks. ●

See www.catlifttruck.com/forklift-trucks



HIGH NOON FOR IT.

HOW SAFE IS YOUR SUPPLY CHAIN FROM CYBERCRIME?

The true scale of cybercrime is widely unappreciated in industry; it is truly frightening. **Ruari McCallion** talks to experts about the nature and extent of the threats to the supply chain and materials handling industries, and how to build in system security.

Big 'hacking attacks', such as WannaCry, and huge-scale data breaches like that which affected GE Capital, attract banner headlines but the reality is that cybercrime is now routine. It affects companies of all sizes and across all industry sectors.

IBM's 2019 Global Threat Intelligence Index¹ found that manufacturing companies are the target of 10% of all cybercrime business attacks and incidents across the world – but that placed them as only the fifth-most targeted sector in this particular league table. As would be expected, the finance and insurance sector was top, with 19% of all attacks. Worryingly for logistics operators, practitioners and users of the physical supply chain, transportation services came second, with 13%, and retail in fourth, with 11%. This means that logistics and materials handling operations are involved with businesses accounting for around 34% of all cybercrime attacks.

According to Assured Cyber Protection Ltd, the annual cost of cybercrime is forecast to be US\$600 million a year by 2021. This is likely to be an underestimate as a lot of incidents go unreported. Some have resulted in production interruption or companies having to cease operations altogether. This is major crime; the image of a social misfit engaging in malicious attacks from his mother's basement is outdated.

GLOBALISATION AND ITS DISCOMFORTS

"Hacking is a business model in some areas of the world," according to Michael Rösch, Senior Vice President Customer Engagement Europe, Jaggaer, which is a provider of Cloud-based business automation technology. Some states are undoubtedly involved, as well.

The extended length of globalised supply chains has brought some real problems. The longer a chain is, the more links it has, and the more vulnerable it becomes. The risks and costs may lead some to question whether increasing reliance on IT is worth it.

"We still see many companies managing big parts of their supply chain via pen and paper, fax, Excel documents and email. Those companies are at a huge disadvantage. Without state-of-the-art systems that are tightly connected to the supply base, it is difficult to exchange information quickly and reliably. Demands are changing constantly. In the mid-term, more and more companies will use systems to digitally support their supply chains."

So: regressing to paper-based physical systems is not the answer. The most efficient way of communicating data along extended and distributed supply chains is by using Cloud-based systems, which are accessible from

anywhere. The need is for effective protection and security; businesses have to make it hard for their systems to be breached.

PRIORITISING PROTECTION

"Hackers are seeking highly useful information they can easily get. If the effort to hack a system is high and the value is very low, it is not of any interest," Michael Rösch continued, but he emphasised the importance of prioritisation. "In procurement, for example, price information could be very valuable if you as a supplier participate in an online auction for a multi-million Euro deal in the automotive sector. On the flip side, price information for commodity products like pencils, notebooks and other office supplies is less of an interest and therefore not as sensitive. We recommend classifying data carefully and protecting accordingly."

Philip Ashton, co-founder and CEO of 7bridges, a multi-industry logistics IT platform that makes extensive use of AI (artificial intelligence), observed that information security is a core capability for SaaS (software as a service) providers, whose speciality is Cloud-based systems. Vikram Singla, Strategy Director at Oracle, when asked about the security implications of storing data in the Cloud, rather than within factory (or warehouse) walls,

"Hacking is a business model in some areas of the world."

Michael Rösch, Senior Vice President Customer Engagement Europe, Jaggaer



Michael Rösch, Senior Vice President Customer Engagement Europe, Jaggaer



Philip Ashton, co-founder and CEO of 7bridges

responded by asking where it would be safer to store family jewellery: in the house or in the vault of a specialist, like a bank?

"The risks of data breaches and security threats are rising all the time," said Philip Ashton, "and for that reason picking partners who see security as a core capability should be a key decision criterion. The biggest risk businesses face is not taking steps immediately to use their data, and in logistics this means using specialised AI. There are very few businesses that will have this in-house, and so they need to pick the right Cloud-based partners to work with to remain competitive. Just look at all the businesses that have struggled to maintain their supply chains during the disruption caused by Covid-19, while Amazon has capitalised on the disruption."

One of the biggest risks for a business that has a long, complex and global supply chain is the limited time it has to appropriately manage a large number of integrations with suppliers, customers and partners. "Each of these is a potential vulnerability, and allowing specialist Cloud-based SaaS systems, like 7bridges, to transact with an ecosystem means you have just one integration to secure," he said.

Jaggaer is in agreement, adding that Multi Factor Authentication, strong passwords, and an accurate role and right management, are useful to protect confidential information. It uses additional encryption techniques and audit logs to provide extra layers of security.

CHANGE KEEPS COMING; UPDATES ARE ESSENTIAL

But the landscape is changing. New applications are constantly being developed and the capabilities of existing systems are extended pretty much weekly. End-user requirements are shifting, too: the talk of reshoring, near-shoring and shorter supply chains means that demands will be different, with possibly smaller deliveries but many more of them. Alongside this is the increasing sophistication of cybercriminals.

Vikram Singla's case for handing responsibility over to those who specialise in it seems very solid. Philip Ashton asserts that, post-Covid, businesses will need more agile and efficient supply chains, which in turn will drive an increased need to deploy AI and access an ecosystem of suppliers, customers and partners. This will create new security challenges for businesses that manage this in-house.

Michael Rösch concluded: "In the mid-term, more and more companies will use systems to digitally support their supply chains. These investments will lead to more security and new techniques to protect customers, users and supply chains – and I bet AI will play a big role in it." ●

Article feedback is welcome:
editor@eurekapub.eu

1. Source: "Cyber Security and Manufacturing"; MakeUK, 2019.

BETTER SAFE

THAN SORRY

WAREHOUSE ADAPTATION FOR DANGEROUS GOODS

Getting the most out of your warehouse is a daily challenge for your logistics manager. A constant flow of goods needs to be maintained and customers must receive the items they order in time. The job becomes even more complicated when you store and ship dangerous or hazardous goods. **Gian Schiava** interviews a logistics real estate specialist to find out how facilities for these differ from 'ordinary' warehouses.

We meet up with Rene Geujen, Director Plan Development at Next Level Development, a specialist firm which develops and finances futureproof and sustainable logistics centres, to talk about this 'dangerous' topic.



Rene Geujen,
Director Plan Development,
Next Level Development.

EUREKA: What adjustments need to be made in warehouses when it comes to the storage of dangerous goods?

RENE: In practice, the quantities you are storing really determine the adjustments to be made. Basically, we see three different levels with different outcomes. The first is simple

adjustment. Hazardous items can be stored, up to a certain tonnage, in dangerous goods containers. Within this category, there are hardly any modifications to the building itself. This often applies when quantities of goods are smaller. The risk becomes more manageable when you spread these dangerous supplies all over the warehouse. Construction work is limited to ventilation systems and additional connections to fire control systems. Second is inbuilt variation, also called the 'box-in-a-box' solution. Changes have to be made to the building structure and foundation in order to obtain a certain fire resistance, like with double steel constructions. Spreading is again key. It is all about making choices about compartmentalisation: how large do spaces have to be and how flexible should you make these compartments? The hazard classification of the goods themselves also determines a lot. Will you store goods on pallet racking or as loose items on the warehouse floor? Which products do we have today and what do we expect tomorrow?

The last category is the real dangerous goods warehouse. ADR is the European Agreement

concerning the International Carriage of Dangerous Goods by Road (ADR), which was created in Geneva in 1957 and entered into force in 1968. Various national standards today are based on the ADR.

The ADR warehouse is a category of real estate on its own. It is purpose-built for storing and handling dangerous goods. Some of its features are:

- The total layout is different and it contains much fewer units
- It has a concrete roof and sometimes the whole construction is in concrete
- All the industrial doors are different – to contain extinguishing foam/water during fires, for example
- In an increasing number of cases, carbon dioxide fire extinguishing systems are implemented instead of foam or water sprinklers to extinguish fires as this causes less damage to the stock

An ADR warehouse is a 'product' on its own, like a cold storage warehouse, or like an HACCP warehouse (the certification used within the food business).



Purpose-designed dangerous goods warehousing on a large scale.

EUREKA: You mentioned hazard classes. What are they?

RENE: In the Netherlands we have the so-called PGS15 Directive, which sums up the various classes. Here, the user is responsible for getting the right permits. In almost every case, the user is accompanied by an expert adviser who knows the tricky business of procedures and legislation.

The above-mentioned ADR sets out nine classes, varying from explosive substances and articles to gases and flammable liquids.

Another important European directive to follow is the Seveso Directive.

HAZARD CLASSES DEFINED BY ADR



EXPLOSIVES



GASES



FLAMMABLE LIQUID



FLAMMABLE SOLIDS



OXIDISING SUBSTANCES



TOXIC SUBSTANCES



RADIOACTIVE MATERIAL



CORROSIVE SUBSTANCES



MISCELLANEOUS DANGEROUS GOODS

More and more products are being marked as 'hazardous goods' and therefore an increasing number of businesses will have to deal with this matter.

EUREKA: Which are the main business sectors that have to deal with these types of goods?

RENE: The most prominent sector is probably the chemical industry, including chemical derivations like paints or lubricants. Other examples are retail chains, pharma and the food business, where citric acids are used everywhere.

EUREKA: Does Next Level Development work with experts when developing these special warehouses?

RENE: Yes, we do have in-house specialists, but we also work with specialised consultants as legislation can always change. Safety officers from the client are involved as well. It's interesting to note that we also work with the clients' administrative personnel. The reason for this is that companies storing dangerous goods must know at any moment exactly how much is in stock. Their IT systems have to be able to provide that information promptly.

EUREKA: Earlier you mentioned that the two more simple warehouse adaptation categories require only relatively minor adjustments. Can customers organise these themselves?

RENE: In principle they can, provided they have the knowledge and experience. In practice, we often support companies to make the adjustments. This is a case-by-case service. Certainly we see an increased number of companies needing to adapt their warehouses.

EUREKA: Could you sum up the standards and legislation companies must adhere to?

RENE: As in the example of the PGS15 directive in the Netherlands, every country will have its own legislation. From a European perspective, ADR and the Seveso Directive are again key.

As history has demonstrated many times, an adverse event has to happen before legislation improves drastically. A catastrophic accident in the Italian town of Seveso in 1976 prompted the adoption of legislation on the prevention and control of such accidents. The so-called Seveso Directive was later amended in view of the lessons learned from other accidents such as Bhopal, Toulouse and Enschede (fireworks!), resulting into Seveso II.

The directive applies to more than 12,000 industrial establishments in the European Union where dangerous substances are used or stored in large quantities. These are mainly in the chemical and petrochemical industry, as well as in the fuel wholesale and storage (LPG/LNG) sectors.

Considering the rate of industrialisation in the EU, the Seveso Directive has contributed to achieving a low frequency of major accidents. It is widely considered as a benchmark for industrial accident policy and has been a role model for legislation in many countries worldwide.

An interesting fact is that the directive not only aims at preventing major accidents involving dangerous substances but also provides directions for limiting consequences in the case of an accident – both for human health and for the environment.

EUREKA: What trends do you see for this type of logistics real estate?

RENE: In fact, more and more products are being marked as 'hazardous goods' and therefore an increasing number of businesses will have to deal with this matter. It starts with separating part of the stock, but dealing with these goods may well grow into a separate task within your staff.

Storing and transporting hazardous goods is no easy task. Whether adapting an existing warehouse or developing a state-of-the-art ADR warehouse from the start, it remains an evolving subject – and ever-developing legislation is reason enough to hire your own safety officer.



Dangerous goods containers.

ADR REQUIREMENTS

The European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) requires:

- Extra documentation – including information on the goods, written emergency instructions and photo ID of the vehicle crew
- ADR-compliant and annually tested vehicles and tanks
- Special driver training

In addition, companies handling or transporting hazardous items may need to appoint a dangerous goods safety adviser. •

Article feedback is welcome: editor@eurekapub.eu

EVENTS



SUPPLY CHAIN EUROPE 2020 VIRTUAL

17-18 September 2020,
Digital Conference & Exhibition

Supply Chain Europe Virtual 2020 has one simple aim: to equip the supply chain sector with crucial information that you can weave into your strategy to emerge stronger, more agile, more robust, more sustainable and more digital, with your customer at the centre of every decision.

events.eft.com/eu3pl

INTRALOGISTEX 2020

01-02 October 2020

The Ricoh Arena, Coventry, UK

IntraLogistEX is completely free and will be packed with everything practitioners need to improve productivity, enhance safety, maximise space and cut costs.

www.intralogistex.co.uk

BUNDESVEREINIGUNG LOGISTIK (BVL) 2020

21-23 October 2020

Hotel InterContinental, Berlin, Germany

Take advantage of one of Europe's most important business conferences in the field of supply chain management and logistics with over 3,000 leaders from the fields of industry, trade and logistics. Meet new customers and establish future business ties.

www.bvl.de/en/iscc/exhibition

LOGIMAT 2020

09-11 March 2021

Trade Fair Centre, Stuttgart, Germany

LogiMAT, the International Trade Fair for Intralogistics Solutions and Process Management, sets new standards as the biggest annual intralogistics exhibition in Europe. This is the leading international trade fair that provides a comprehensive market overview and competent knowledge-transfer.

www.logimat-messe.de/en

NEED A SOLUTION THAT'S DESIGNED AROUND YOU?

We can handle it.®

At Impact we offer the UK's widest range of purpose-built equipment for the materials handling industry. Combined with our unique funding solutions, we provide you with complete flexibility, whilst delivering new levels of efficiency and cost-savings.



0800 169 9789
www.impact-handling.com

KONECRANES
Lift Trucks
caterer Rocla

COMBI **bulmor** **Vulcan**
Spykstaal **JLG**

IMPACT **CAT**
Lift Trucks