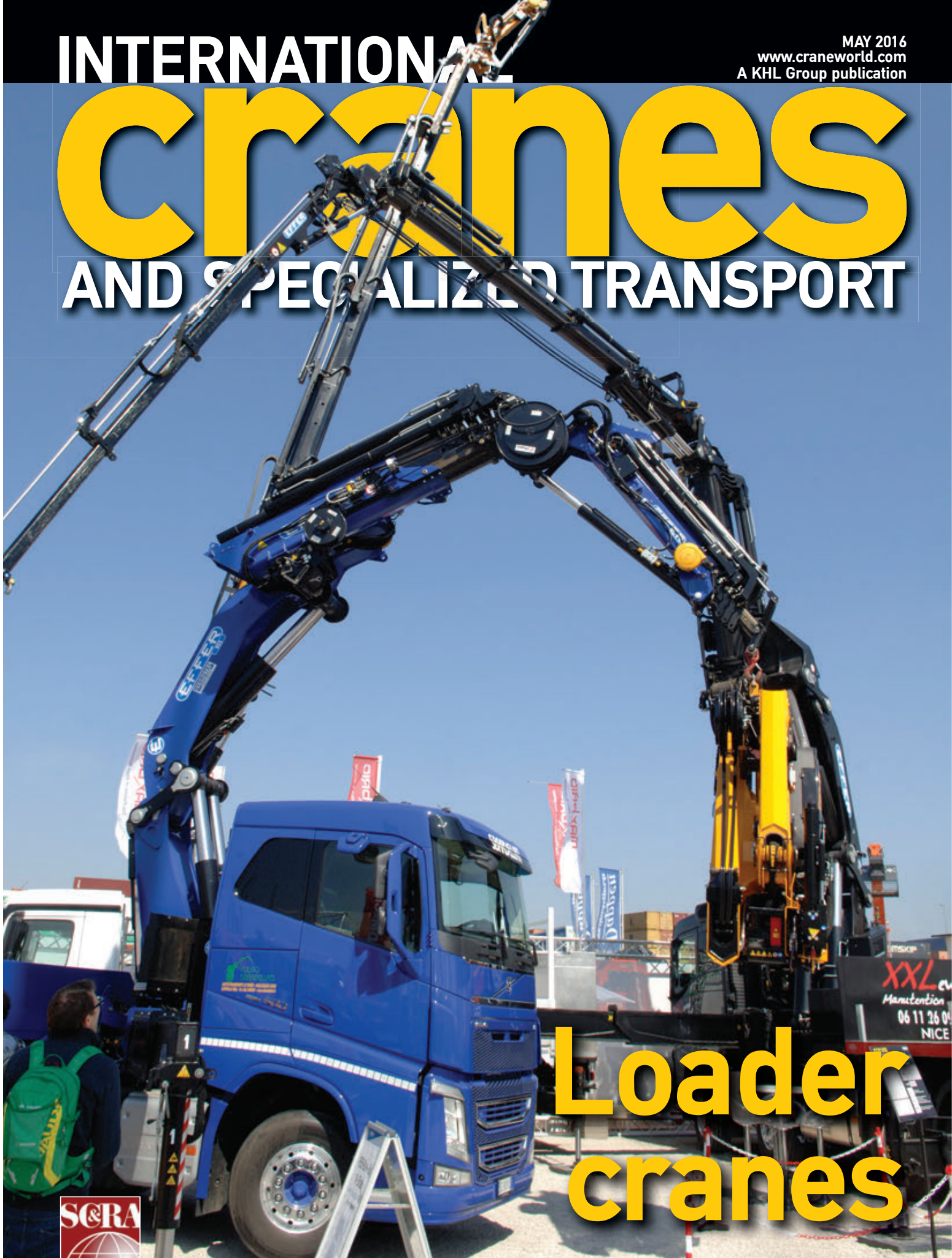


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# cranes

AND SPECIALIZED TRANSPORT



## Loader cranes



BAUMA REVIEW ■ BARRY PENNYPACKER INTERVIEW ■ MINI CRAWLERS

# Comms to the core

**With communication attributed as the cause in the vast majority (more than three quarters) of accidents in our industry, improving it should be a key aim of all stakeholders. MARCO VAN DAAL reports**

Recent months have seen our industry shocked once again with (deadly) crane and transport accidents. New York, Atlanta, India and Mecca, just to name a few, come to mind. Although we may never find out the real reason behind these accidents, there is one reason that causes the majority of accidents in this industry; communication.

Communication is a buzz word nowadays and many believe that if it is repeated often enough, communication will somehow improve. Fact, however, is that to improve communication and reduce accidents, a solid plan is required. It must be implemented at the top level of an organisation and needs to trickle down to every level below.

Before we get into the details, let's look at some numbers and reasons behind why accidents happen. For the last 10 years or so I have collected all the information I could get on every crane and transport accident. The internet made this increasingly easier to accomplish. This extensive database of accidents and mishaps are used only for educational purposes, not to damage the image of reputation of any of the companies involved. Many times I try to contact the company involved for feedback and as the photos and videos

are circulating the internet already, often I receive valuable information. This has resulted in the following overview, see Figure 1.

Communication (or lack thereof) is the cause of 80 % of all accidents in our industry. It covers a wide range of issues that are all related to communication. Varying from team members simply not talking to each other or the sales department failing to inform the operations department about the exact scope of work, once they arrive on the job site. Also, unclear responsibilities and associated authorisations appear to be high on the list of uncertainties.

Last but not least, terminology and disagreements in hand signals contribute to the high number of communication related mishaps. The sad truth is that most, if not all, of these mishaps are avoidable by relatively simple procedures, for example, department, client and toolbox meetings. Checklists are another tool that can help in avoiding to forget activities. Crew resource management or

CRM (more on this later) has been found a most effective method to improve on communication and reduce mishaps.

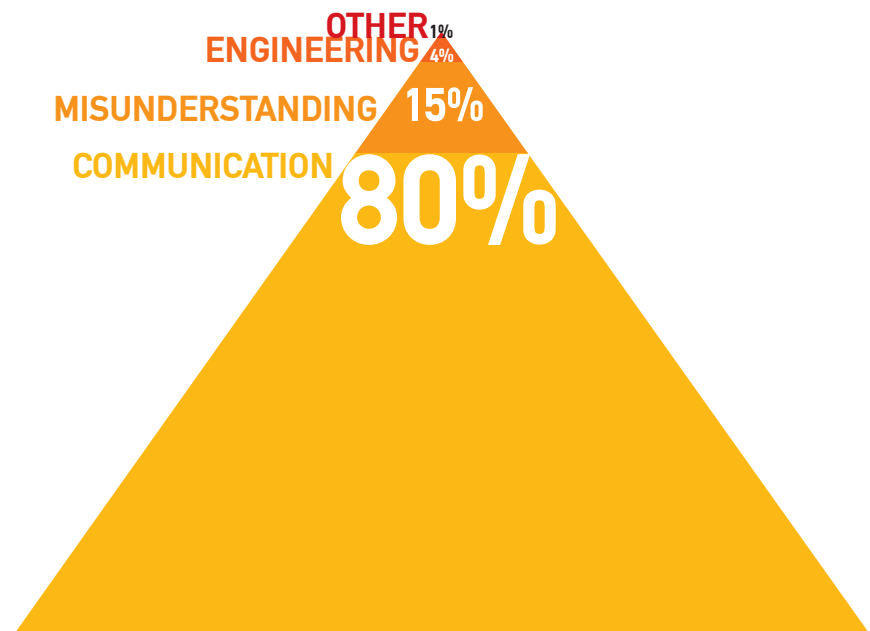
## Not understanding

Misunderstanding covers exactly what the word implies; a misunderstanding of a part of the operation or equipment or concept. Examples here are not knowing what a centre of gravity is, or what it does if it is underestimated or neglected. Not knowing the principle working of an hydraulic transporter or a crane also falls in this category. Over the years I have been really surprised a few times how leading individuals that worked in our industry for decades lacked the knowledge of basic transport and lifting principles. Mishaps caused by misunderstanding can be reduced by ensuring the proper training of personnel.

In my seminars, workshops and master classes I teach these principles and concepts to every layer of an organisation, management, maintenance, operations, sales, etc. I also teach how these departments can improve their efficiency by working together as opposed to operating standalone. Unfortunately more than half of my classes take place after an accident has already happened.

Engineering mishaps are (fortunately) the reason for only 4 % of mishaps. I have seen only two main reasons here. The

FIGURE 1



## ABOUT THE AUTHOR



Marco van Daal has been in the heavy lift and transport industry since 1993. He started at Mammoet Transport from the Netherlands and later with Fagioli PSC from Italy, both leading companies in the industry. His 20-year plus experience extends to five continents and more than 55 countries. It resulted in a book *The Art of Heavy Transport*, available at: [www.khl-infostore.com/books](http://www.khl-infostore.com/books) Van Daal has a real passion for sharing knowledge and experience and holds training seminars around the world.

engineer in question is inexperienced in this field. A qualified engineer is not necessarily a qualified rigging engineer.

The second reason lies in the conversion of units, from tonne to kilogramme, to pounds to kips, to short tons to long tons, etc. Somewhere along the line a simple mistake was made and by definition the outcome of the engineering is incorrect. A second opinion or engineering review could bring these mistakes to light.

The “other” category is a collection of “everything else” that can go wrong on a job. This covers personal situations at home, fatigue, friction between team members, obnoxious supervisors or project managers and so on. This is the category that is most difficult to manage, it is officially non-existing because nobody wants to bring it up. Our industry is generally not one of employee complaints or nagging.

## Crew resource management

CRM is a training initially developed by NASA (Figure 2) following the 1970 Apollo 13 incident (Houston, we have a problem). The investigation that took more than five years revealed that the most accidents resulted from one source; human error caused by improper communication. No surprise here.

Crew resource management works in three easy steps:

- 1 GET RID OF THE MILITARY REGIME**  
(I am the boss/supervisor/manager, you do as I tell you)
- 2 ADOPT THE ASSERTIVE STATEMENT PROCESS**  
(no more loose remarks such as “that spreader bar looks small”)
- 3 ASSIGN A CENTRAL OR SINGLE POINT OF CONTACT**  
(this can be the boss/supervisor/manager but in a different capacity from before).

Step 1 and 3 are relatively easy to implement but how does step 2 work. Step 2 consists of a process that can be divided in five steps. Each step is of equal importance but, in some cases, multiple steps can be combined.

- A** “hey chief”, “boss” or just “Harry”  
The attention is called
- B** “the load is leaning”  
The concern is raised
- C** “our limit is 8 deg, we must be close to it”  
The problem is stated
- D** “let’s raise the front end left corner (Alpha)”  
A solution is proposed
- E** “what do you think, Harry?”  
A response is forced.

The difference between the CRM method and just stating that “the load is leaning” or “the spreader bar looks small” is that the CRM method forces the one who calls the attention to think about his concern and at the same time the CRM method forces a response from the one whose attention is called.

So what if I see that the load is leaning but I don’t know the limit nor do I know what to do about it. Should I say nothing because I have no proposed solution? In a properly implemented CRM method, any concern is raised if a team member feels uncomfortable about something. The following steps are perfectly acceptable as the outcome is that the situation is reviewed when the concern is raised.

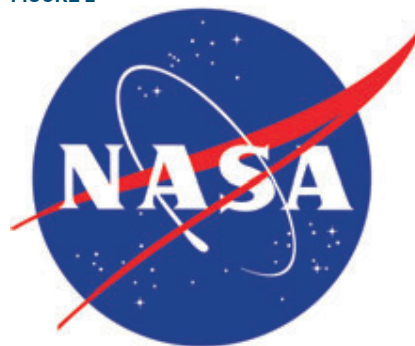
- A** “hey Harry”  
The attention is called
- B** “the load is leaning... a lot”  
The concern and problem is raised
- C** “let’s stop and see what is going on”  
A solution is proposed
- D** “what do you think, Harry?”  
A response is forced.

You can imagine that in critical situations it is not always possible (for example, due to time constraints) to follow five or sometimes even four steps. The following conversation is still within the CRM guidelines:

- A** “Harry, we are leaning, we need to stop and fix this”  
The attention is called, the concern and problem is raised, a solution is proposed
- B** “alright Harry?”  
A response is forced.

As you can see, it is not a scientific method that requires a high degree of education. It is merely a systematic approach to arrive at a solution, every time. Even in cases where there is no solution, at least the concern and problem was raised and now you can come to a safe conclusion that there is no solution at hand, and you may have to get help or change something in your game

**FIGURE 2**



plan. This is still a better scenario than to continue without knowing that you are about to get in trouble.

If you compare this to the example remark made earlier in this article “that spreader bar looks small”, you can now conclude that this remark by itself can mean several things:

- that is a nice small spreader bar for this job
- that spreader bar is too small for this job
- that spreader bar is too short
- that spreader bar looks small, it may fit in the back of my pick-up.

The statement “that spreader bar looks small” will leave at least one person wondering what the statement means. Chances are that he is going to ignore it or forget about it as there was no “proposed solution” nor was there a “forced response”.

In the best case scenario the job goes flawlessly and nobody will ever know how close to disaster they really were at the time. In the worst case scenario, something goes wrong during the lift and the famous “I told you so” finger pointing will start. Neither of these scenarios are desirable.

The simplicity and effectiveness of CRM reached other industries, for example, the airline industry. In 1981 United Airlines was the first airline to implement CRM (now with the applicable name of cockpit resource management) in the training programme. By 1990 it had become a global standard. It is also successfully adopted in the arenas of ship handling, fire-fighting and hospital operating rooms.

Let’s be clear about it; we all want to go home safely after the job has been completed successfully, without damage, without accidents, without loss. No matter how well trained we are or how well planned the project is, or how well motivated and prepared and professional our employees are... as long as humans are involved...

Error is inevitable, at some point, somewhere, somebody is going to make a mistake.

It is our responsibility as company owners, managers, sales persons, supervisors, operators, riggers, etc. to reduce this to an absolute minimum by understanding what caused the mishap so we can learn from it and (hopefully) manage it in such a way that it does not happen again.

Luckily, we can learn from our mistakes. Unluckily, our industry does not allow many mistakes. ■