

OPERATING EQUIPMENTS AND THEIR LOGISTICAL APPLICATION DURING THE SOLUTION OF EXTREME EVENTS

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ABSTRAKT

Článok hovorí o manipulačných prostriedkoch a ich logistickom uplatnení pri riešení mimoriadnych situácií. Vzhľadom na špecifické podmienky riešenia mimoriadnych udalostí je potrebné venovať veľkú pozornosť výberu vhodných manipulačných zariadení, ku ktorým možno zaradiť okrem iného aj teleskopické manipulátory.

Kľúčové slová: manipulačné prostriedky, logistika, mimoriadne situácie, teleskopické manipulátory

SUMMARY:

The article is aimed to operating equipments and their logistical application during the solution of extreme events. It is necessary to pay big attention to the selection of suitable operating equipments, among which also telescopic manipulators belong, because of specific conditions while solving extreme events.

Key words: operating equipments, logistics, extreme events, telescopic manipulators

Logistic orientation of the rescue elements is an inseparable part of solution during existence of extreme events.

There is a necessity of intersection in all part of logistics – integration of tangible and informative logistic elements – rescue subjects in effort of population rescue, animals, tangible and intangible property what is determined by demand of quality of rescue. Transport and transport systems are one part of logistic chain of rescue during extreme events.

TRANSPORT AND ITS LOGISTIC PRINCIPLES

Transport could be characterized as a multilateral, conscious active and creative activity, in frame of which subject defines the aims, influences methods, means and behavior process of directed objects, so that the system optimally fulfilled assigned target and to reached set goals in the assigned time, quality and volume.

In general, transport mission and its meaning could be divided into 3 principles:

1st principle:

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Logistics of systems which solve whole system; logistic system from the transport and operating equipments point of view is solved as general selected transport type or combination of transports in given situation.

2nd principle:

Logistics of process, which solves chosen subsystem; which is characterized as a transport subsystem, a combination of transport subsystems for particular transport aim and for manipulation with specific material.

3rd principle:

Logistics of machine and transport equipment which solve innovation by the process of criteria levels; this is aimed to technical parameters, conception and machine construction.

During the extreme events – that means particular material flow of the given logistic system is the transport based on factors as, for example:

- selection of sort, type and number of operating equipment,
- selection of manipulative equipment in dependence on the level of interruption of transfer communications (given automobile net, bridges, etc.)
- constructional equipment condition in accordance with particular transport aim,
- constructional equipment condition in accordance with transported material,
- transport in dependence on the weight and size of material. manipulated

Material transport of all material classes transfers of people or movement of transfer medium realizes evacuative tasks on roads and on the ground. Necessary material manipulation, transfer, charging, discharging, transloading, repumping are secured using operating equipments.

SELECTION AND LOGISTIC APPLYING OF OPERATING EQUIPMENTS

Mean and equipments of special construction secure material flow during extreme events, which is suitable for realization of complicated, combined transfer processes of different material sorts.

Selection of the applied sorts and types of operating equipments is based on deep analysis:

- character properties of transfer and manipulate material,
- time for manipulation, necessity level,
- sort and technical parameters of transport and operating equipments,
- concrete conditions of manipulation space,
- material flow,
- handling qualification for securing inviolability of handling material.

Telescopic manipulators are one of the machines with wide use possibilities during extreme events. It is mainly determined from the character of their activity, where manipulation – as an operating process - belongs to basic and often irrecoverable working operations.

Among the tasks, which have to be done during rescue, it could be subservient to:

- necessary manipulation with big exactness of material handling,
- manipulation on restricted areas,
- higher capacity manipulation, which is replacing manipulation with high-lifted trolley,
- manipulation in space with free store material, gross volume packages etc.,
- manipulation with various material in frame of others activities in logistic flow during the solution of extreme events,
- others



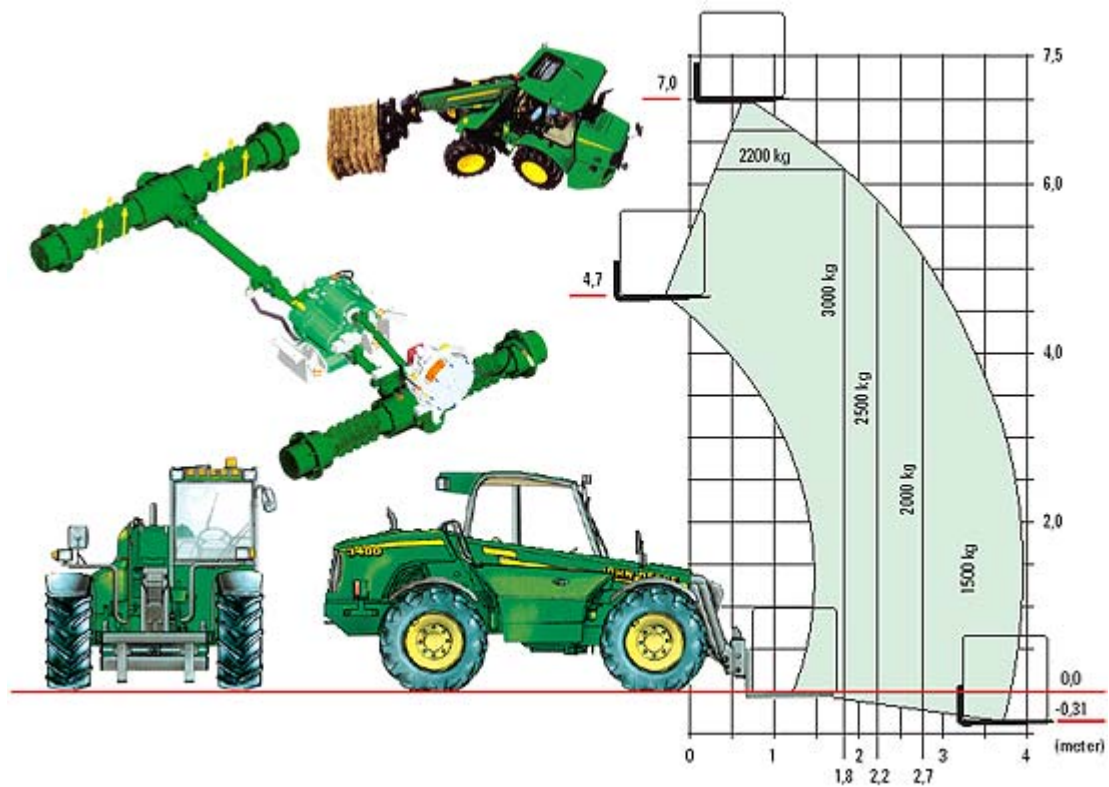
Pic.1 Operating equipment

CRITERIAL LEVEL OF TELESCOPIC EQUIPMENT

Chosen type – telescopic manipulator with fixed or joint frame is applicable for huge mounting with wide assortment of manipulative materials.

Among the advantages of its use, during pretentious manipulative processes in the time of solution of extreme events, it is important to mention and emphasize, on the base of technical parameters and its construction, especially:

- their lifting capacity 3 tons with available lift high 7 meters,
- motor location in the back part, which:
 - provides better machine stability, because the motor is a counterweight,
 - helps the manipulator to reach higher loading in full arm protrusion,
 - allows to shorten wheel-base, which allowed to reach incompetitively small rotation radius,
 - secures safer and better handling access from both motor sides and a lower noise level in cage,
 - conduced to optimal motor cooling irrespective of working conditions.



Pic. 2 Construction advantages of telescopic manipulator

- mechanical gear of all four wheels, what is asset for
 - machine control (from this point of view it is very simple and in many ways it is similar to a high-lifted trolley),
 - using the reversor under loading increases speed of manipulation, what has essential influence on work productivity,
- advantages for fast fixture of equipment to hinge, without operator leaving of cage. The advantage was reached by providing the manipulator with a hydraulic fast-hanger.

Tab.1 Criteria level of telescopic manipulator selection depends mainly on its technical parameters

Manipulator type	with fixed frame		with joint frame	
	Max. capacity, kg	2800	3000	2000
Max. lift height, mm	5620	7000	4700	5300
Max. motor capacity, kW	81/110	81/110	72/97	86/117
Max. speed, km/h	35	35	35	35
Machine dimensions – width, mm	2303	2340	1960	2230

Machine dimensions – height, mm	2410	2475	2553	2725
Rotation radius, mm	3200	3530	3620	4160
Fuel tank, liter	200	200	130	130

CONCLUSION

Logistic solution of transport during extreme events is a demanding phase of operating centre. Selection of right manipulative equipment influences the amount of specific factors in a particular situation. The solution is extremely sensitive in case of destroyed houses as well as saving human health and life.

For the mentioned reasons, it is important to know the possibilities of help with available operating machinery, which must be known in detail during the solution of extreme events not only from the technical point of view but also to use it in the right time during extreme events.

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