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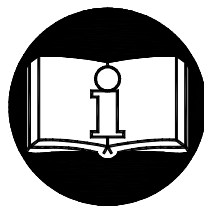
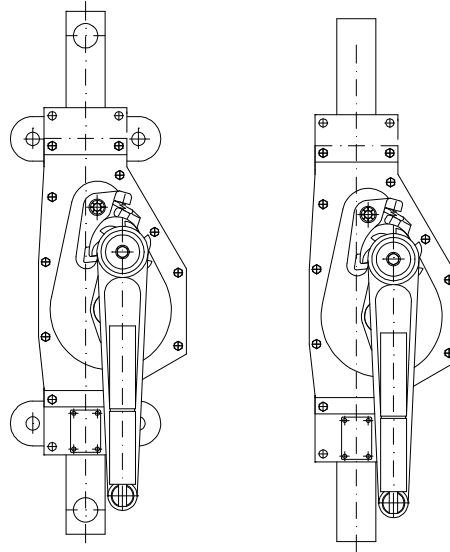
**OPERATION MANUAL  
SECURITY PRINCIPLES, OPERATION AND MAINTENANCE  
FOR**

**CONTAINER RACK JACK WALL MOUNTED**

type: 15-00-CON -W/2,5t, 15-00-CON-W/5t 15-01-CON-W/10t

**CONTAINER RACK JACK**

type: 15-00-CON/2,5t, 15-00-CON/5t 15-01-CON/10t



Peruse the operation manual before using the jack. It comprehends substantial security instructions and instructions for use, installation and maintenance of the product.

Ensure the Operation Manual is available for all responsible persons.

**Keep for next usage!**

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## 1 DEFINITION

**! HAZARD** **Hazard:** it adverts to an imminent hazardous situation, which will inflict death or serious injury, if the operation personnel do not avoid it.

**! WARNING** **Warning:** it adverts to a possible hazardous situation, which could inflict death or serious injury, if the operation personnel do not avoid it.


**! NOTICE** **Notice:** it adverts to a possible hazardous situation, which could inflict any minor or slight injury, if the operation personnel do not avoid it. The notice can warn against hazardous practices as well.


**Load capacity (Q):** is the maximum permitted weight (working load limit) of a load, the jack can be loaded by when handling it on conditions specified in this Operation Manual.

## 2 DEVICE PURPOSE

2.1 The 15-00-CON-W, 2,5t, 5t a 10t container wall mounted rack jack types with load capacities 2,5t, 5t and 10t and 15-00 CON container rack jack types with load capacities 2,5t, 5t and 10t (hereinafter referred as to jack) is destined entirely for anchorage to structures for the purpose of manual raising and lowering of movable parts of structures (e.g. covers or container roofs, waste gates of water basins, screens of sewage disposal plant etc.). The weight of a movable part of a structure when handling does not have to exceed specified permitted load capacity of the jack.

2.2 The jack by its design meets requirements provided by Directive 2006/42/EC of the European Parliament and of the Council as amended by the Czech technical regulation – ministerial order No. 176/2008 of the Collection of Laws as amended as well as requirements of the ČSN EN ISO 12100 and ČSN EN 1494+A1 harmonized technical standards.

2.3 The product has been designed in compliance with the requirements stipulated by Directive 94/9/EC of the European Parliament and of the Council, as amended by the Czech technical regulation – Government Directive No. 23/2003 Coll., as amended. The product has been designed as  **IM2c** equipment pursuant to ČSN EN 13463-1:2009 and ČSN EN 13463-5:2012. It complies with the conditions stipulated for use in mining environments classed as “hazardous atmospheric conditions 2” pursuant to ČSN EN 1127-2.

2.4 The product has been designed in compliance with the requirements stipulated by Directive 94/9/EC of the European Parliament and of the Council, as amended by the Czech technical regulation – Government Directive No. 23/2003 Coll., as amended. The product has been designed as  **I/2GDcT6** equipment pursuant to ČSN EN 13463-1:2009 and ČSN EN 13463-5:2012. It complies with the conditions stipulated for use in mining environments classed as „zone 1 and zone 21“, “ zone 2 and zone 22“ pursuant to ČSN EN 1127-1.

Note: 2.3 and 2.4 articles apply for jack designed for use in the environment with explosion hazard.

## 3 SECURITY PRINCIPLES

### 3.1 SECURITY PRINCIPLES OVERVIEW

A hazard exists when handling movable parts of structures especially in the event that the jack is not use in the right way or is badly maintained. Whereas as a result an accident or severe injury could happen, it is necessary to observe the special security measures when handling, assembling, maintaining and checking the jack.

#### **! VAROVÁNÍ**

**ALWAYS** ensure the raised part of the structure against drop (e.g. by brace rod), if you intend to work under it.

**NEVER** jack up persons.

**NEVER** burden the jack more than is the load capacity indicated on the jack.

**ALWAYS** warn persons in surroundings before starting work.

**ALWAYS** read the operation manual and security instructions.

Bear in mind that the operation staff is responsible for faultless technique of raising. Hence verify all national directives, regulations and standards whether they contain other information on safety work with your jack.

### 3.2. SECURITY PRINCIPLES

#### **! WARNING**

##### 3.2.1 Prior to use

**ALWAYS** ensure the jack would be operated by physically fit, qualified and instructed persons older than 18 years, familiarized with the operation manual and trained in security of work and mode of operation.

**ALWAYS** check up the jack every day before starting work according to Section 8.2. (1) „Daily inspection“.

**NEVER** use the defective or outworn jack.

**NEVER** use the jack without visible load capacity marking on the jack.

**NEVER** use the jack marked with the label „**OUT OF OPERATION**“.

**ALWAYS** consult the producer or his authorized representative any application of the jack in nonstandard or extreme environment.

##### 3.2.2 When in use

**ALWAYS** make sure the jack is properly mounted in equipment construction.

**ALWAYS** pay increased attention, if the jack is drawn up to maximum position.

**ALWAYS** work with the jack only with manpower.

**ALWAYS** we recommend with respect to actuating forces the jack operation is ensured by two persons when handling parts of structures the weight of which approximate to safe working load of the hoister.

- NEVER** use the separate jack (not mounted in the structure for which it is destined) to handling free loads
- NEVER** allow the lifted part of the structure would give rise to impacts or vibrations.
- NEVER** leave the loaded jack without supervision or other securing of a raised part of the structure.

### 3.2.3 Risk analysis

The possible risks analysis in light of design, operation and environment of the jack appointment is presented in freestanding document „Risk analysis“. It is possible to require the document in service centers.

### 3.2.4 Maintenance

**ALWAYS** make possible to competent persons to carry out the regular inspection of the jack.

**ALWAYS** ensure slipping parts (except the brake) are sufficiently greased.

At maintenance only such interventions can be done that will be in accordance with producer's requirements stated in the chapter 11 and 14 of this OM.

**IT IS NOT PERMITTED** to carry out repairs and maintenance in other manner than specified by the producer. It concerns namely the forbiddance of using of unoriginal spare parts or carrying out changes on the product without the approval of the producer.

## 4 PACKING, STORAGE AND HANDLING

### 4.1 PACKING

4.1.1 Jacks are supplied in assembled state in bulk in transport cases.

4.1.2 The following accompanying documentation is a part of the delivery:

- a) Operation Manual
- b) EC Declaration of Conformity
- c) Quality and Completeness Certificates and Guarantee Certificate.
  - c1) Guarantee period is stated in the Guarantee Certificate.
  - c2) The guarantee does not apply to defects caused by infringement of the instructions stated in the Operation Manual and defects arisen by improper using and unskilled action.
  - c3) The guarantee does not apply as well to changes on the product or using of unoriginal spare parts without the approval of the producer.
  - c4) Reclaiming of product defects is carried out according to applicable provisions of commercial code eventually as amended.
- d) List of service centers.

### 4.2 STORAGE

Store jacks in dry and clean stores void of chemical impacts and noxious fumes.

- (1) Wipe away all dust, water and impurities from the jack.
- (2) Grease the rack of the jack.
- (3) Put the jack in a dry place.
- (4) In next using follow instructions in the article 8.1.4 „Jack occasionally used“.

### 4.3 HANDLING

During transportation and handling, observe technical regulations and standards in force for work with heavy loads.

## 5 MAIN SPECIFICATIONS

### Specifications

Type	Load capacity (t)	Lift (mm)	Actuating force on crank (N)	Range of operating temperature	Weight rack L = 660 (kg)	Weight rack L = 970 (kg)	Weight rack L = 1200 (kg)
15-00 CON-W	2,5	345 - 850	380	-20 <sup>o</sup> C to +50 <sup>o</sup> C	12,8	15,2	17,0
15-00 CON					11,4	13,8	15,6
15-00 CON-W	5	360 – 850	550		22,1	25,6	28,5
15-00 CON					19,0	22,5	25,4
15-00 CON-W	10	345 – 825	540		35	40	45
15-00 CON					33	38	43

### Dimensions

Type	Load capacity	A	B	C	E	d	L
15-00 CON-W	2,5	320	80	250	180	13	660, 970, 1200
15-00 CON		-	-		150	-	
15-00 CON-W	5	350	80	300	190	13	660, 970, 1200
15-00 CON		-	-		160	-	
15-00 CON-W	10	490	80	300	225	13	660, 970, 1200
15-00 CON		-	-		195	-	

Fig.1 - 15-00 CON – W jack type

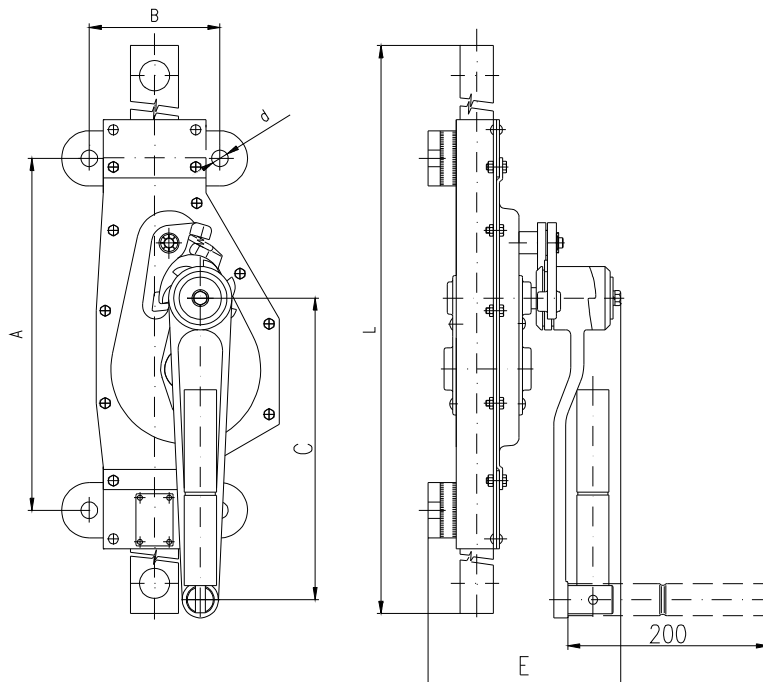
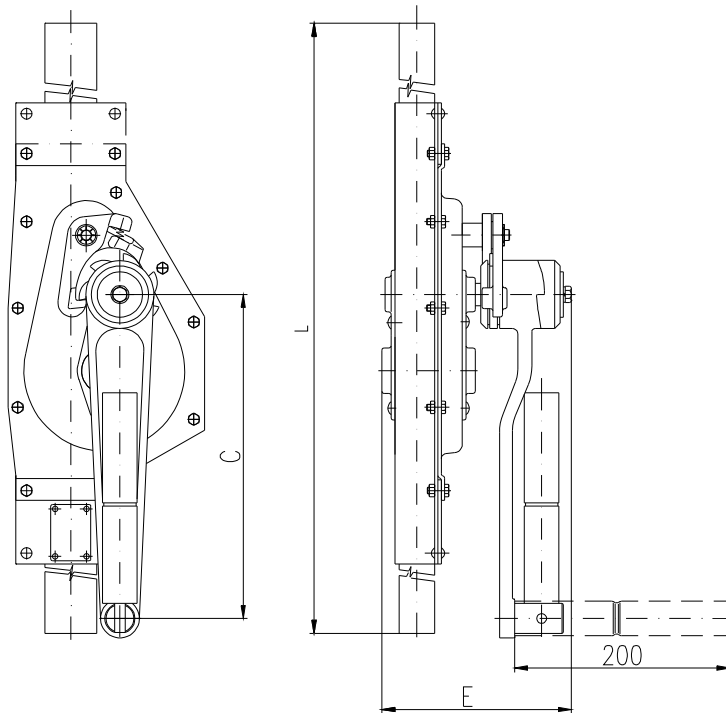


Fig.2 - 15-00 CON jack type



### 5.1 MECHANICAL CLASSIFICATION

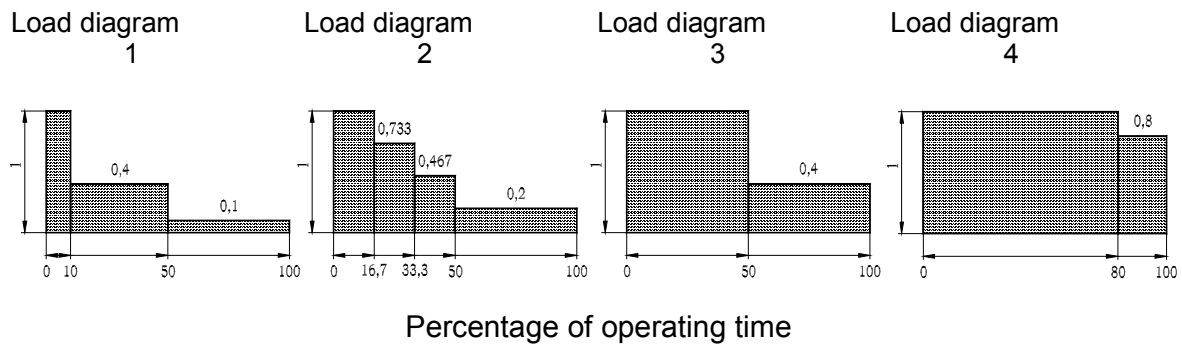
Safety and working life of the jack is guaranteed providing that it works in accordance with specified classification.

The jack is designed for class 1Bm according to the FEM 9.511 regulation – see table 5.1. (it corresponds to mechanism classification M3 according to the ISO 4301/1).

Average daily operating time is specified in the load diagram.

Tab. 5.1 MECHANICAL CLASSIFICATION

Load diagram (load distribution)	Definition	Load coefficient	Average daily operating time (h)
1 (light)	Jacks usually being subject to the low load and only in special cases to the maximum load.	$k \leq 0,50$	1 - 2
2 (mean)	Jacks usually being subject to the low load, but quite often to the maximum load.	$0,50 < k \leq 0,63$	0,5 - 1
3 (heavy)	Jacks usually being subject to the mean load, but frequently to the maximum load.	$0,63 < k \leq 0,80$	0,25 - 0,5
4 (very heavy)	Jacks usually being subject to the maximum load or load approximating to the maximum.	$0,80 < k \leq 1,00$	0,12 - 0,25



## 5.2. MATERIAL AND FINISH

5.2.1 All parts of the jack are manufactured from steel and cast iron.

5.2.2. Materials susceptible to a creation of an incentive spar within the meaning of the Annex No.2 Article 1.3.1 to the ministerial order No. 23/2003 of the Collection of Law and the ČSN EN 1127-2 article 6.4.4 and ČSN EN 13463-1 article 8.1 harmonized technical standards are not used.

5.2.3. Materials with dangerous effects of static electricity within the meaning of the ČSN EN 1127-2 article 6.4.7, ČSN EN 1127-1 article 6.4.7, ČSN EN 13463-1 article 7.4.3 and ČSN 33 2030 are not used in the jack.

5.2.4 The jack does not exceed the noise values specified in the Annex No.1 article 1.7.4.2 letter u of the ministerial order No. 176/2008 of the Collection of Law (EP and RE directive No. 2006/42/EC).

Note: Articles 5.2.2 and 5.2.3 apply for jack finish to environment with explosion risk.

## 5.3 DATA ON THE PRODUCT

Each product is equipped with the label with specified data as follows:

Standard finish:	Finish to environment with explosion risk:
Mark of the producer	Mark of the producer
Address of the producer	Address of the producer
Product type	Product type
Load capacity	Load capacity
Serial number	Serial number
Production year	Production year
CE marking	CE marking
	Protection type symbol ( <b>IM2c</b> for group I, <b>IIGDcT6</b> for group II)

## 6 JACK INSTALLATION

### **! WARNING**

**ALWAYS** before installation check up thoroughly whether the jack is not damaged.

**NEVER** the weight of the jacked up structure or resulting pushing (pulling) force on the rack bar have to exceed the safe working load of the jack.



## 6.1 ANCHORAGE TO A STRUCTURE

### 6.1.1 CON – W container jack type:

Two grips on the coating with holes for screws M12 (2,5t load capacity) or M16 (5t ,10t load capacity) and holes at the ridge bar ends with  $\varnothing$  25 mm (2,5t load capacity) or  $\varnothing$  30 mm (5t,10t load capacity) serve for mounting to a structure.

### 6.1.2 CON container jack type:

The manufacturer of the equipment, in which the jack will be used, specifies the assembly method for the structure. The jack anchorage to the equipment as a rule represents an intervention to the jack design (e.g. welding very grip, mounting of other parts on the jack).

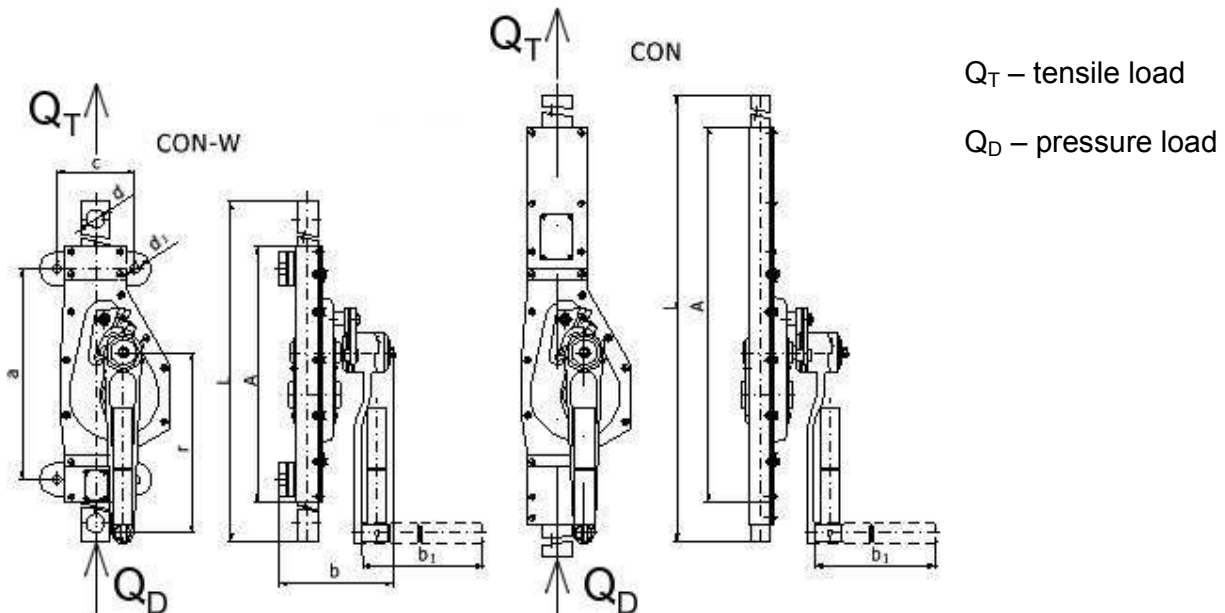
## ! NOTICE

**Any guarantee does not apply to the jack modified according to Article 6.1.2, unless the modification type is negotiated and approved by the manufacturer.**

**ALWAYS** we recommend consulting a technical department of the jack manufacturer the type of intended modification.

### 6.1.3 Installation of jack with respect to rack load.

When installing the CON and CON-W rack jacks it is essential to assure that the load on the jack is in the right direction. The pressure (tension) load on the rack must always act in the direction from the handle hub to the catches (see diagram), and never the other way round.



### 6.1.4 Documentation:

Method of the container jack anchorage and eventual jack modifications are necessary to be documented by drawing documentation and stress analysis. The equipment manufacturer has to elaborate the operation manual to the equipment, in which the jack is used.

## **! WARNING**

The jack anchorage to a structure must be solved so that the ridge bar is not stressed by bend. Loading only by simple pulling or pushing forces is permitted. Maximum force on the jack must not exceed maximum load capacity of the jack.

### **6.2 TEST PRIOR TO USE**

#### **! NOTICE**

- (1) At first go over again the previous Articles of this Operation Manual and make sure that all steps were well done and all parts are safely mounted.
- (2) Inspect visually the jack and anchoring in the structure whether they are without any defect.
- (3) Test the function of the jack by crank motion.
- (4) Jack up and consequently lower the movable part of the structure. At the same time verify whether the jack holds the load without slipping when lowering and stopping.

## **7 OPERATION AND MAINTENANCE**

### **7.1 JACK APPLICATION**

- 7.1.1 The jack is a single purpose device destined entirely for anchorage to structures with the purpose of manual jacking up and lowering of movable parts of structures. It can be used not only in current environment, but also in environments with explosion risk in the event that there is the symbol of the protection type marked on the label – see articles 2.3, 2.4 and 5.3 of this OM.
- 7.1.2 The jack is operated by a crank. Jacking up and lowering of a structure can be interrupted in any lift height. A lowering brake and pawls system with forced mesh in the crank ensure position stability.
- 7.1.3 By reason that the work with heavy loads can constitute unexpected hazard it is necessary to follow all „Security principles“ according to Chapter 3 of this OM.

### **7.2 SAFETY WORK ENVIRONMENT**

#### **! WARNING**

- (1) The operating personnel must be demonstrably acquainted with this Operation Manual; they must adhere to valid security and hygienic regulations and must be qualified for operation of this equipment.
- (2) When working with the jack the operation staff must be equipped with gloves and appropriate footwear.
- (3) When operating by more persons always one worker must be determined who is trained in safety at work and is responsible for jack handling.
- (4) Before starting the work, the operation staff must check up whether all work area is safety and whether there is a possibility of eventual escape from the environment of jeopardy.

## **8 JACK CHECK**

### **8.1 INSPECTION**

### **8.1.1 Inspections types**

- (1) Introductory inspection: it precedes first use. The responsible competent person must check up all new or repaired jacks to ensure the qualified fulfilment of requirements of this OM.
- (2) The jack inspections carried out regularly are generally divided to two groups according to inspections intervals. Intervals depend on the state of critical parts of the jack and rate of wear, damage or malfunction. Two main groups are here marked as daily and regular ones. The appropriate intervals are defined as follows:

**(a) Daily inspection:** visual inspection carried out by the operation staff determined by the user that is made at the beginning of each use.

**(b) Regular inspection:** visual inspection carried out by the competent person determined by the user.

Current operation – once a year,

- 1) Heavy operation – every six month,
- 2) Special or occasional operation – according to recommendations of the competent person at first use and according to the order of qualified employees (maintenance workers).

### **8.1.2 Daily inspection**

Check up at parts recommended in Section 8.2(1) „Daily inspection“, whether the jacks are not damaged nor have no defect. Carry out this inspection also during operation in the interval between regular inspections. Qualified employees will determine whether any defect or damage can constitute a hazard and whether the detailed inspection is necessary.

### **8.1.3 Regular inspection**

Carry out overall inspections of the jack in the form of recommended regular inspections. The recommended regular inspection stated in Section 8.2(2) must be performed under the supervision of competent persons who will determine, whether the jack is necessary to be taken to parts. These inspections comprise also requirements of the daily inspection.

### **8.1.4 Jack occasionally used**

- (1) Submit the jack not being in operation for a period of one month or longer but less than a year to inspection complying with requirements in Section 8.1.2 before follow-up putting it into operation.
- (2) Submit the jack not being in operation for a period of one year to inspection complying with requirements in Section 8.1.3 before follow-up putting it into operation.

### **8.1.5 Report on inspection**

Keep the record of performed tests, repairs, inspections and maintenances of jacks every time. Carry out dating reports on inspections in intervals specified in Section 8.1.1

(2) (b) and keep them in the place specified by the user.

The person responsible for safety and determined by the user must be advised of defects detected by the inspection or recorded during the operation.

## 8.2 INSPECTION PROCEDURE

### (1) Daily inspection (carried out by operating staff or competent person)

Part	Inspection method	Limit / criterion for putting-out of operation	Remedy
1. Jack function	Visually, aurally	The jack goes hardly, stammers, emits noise etc.	To clean up and grease the jack. If the defect will not be removed, get the jack repaired.
2. Pawls function	Visual inspection when jacking up	Pawls do not snap behind dents of the ratchet.	To clean up, grease, eventually change the spring.
3. Fixative parts	Visual inspection of all screws, nuts, rivets etc.	Faulty or missing parts;  Released parts	Replace by new ones;  To retighten released parts

### (2) Regular inspection (carried out by competent person)

Part	Inspection method	Limit / criterion for putting-out of operation	Remedy
1. Fixative parts	Visual inspection of all screws, nuts, rivets etc.	Faulty or missing parts;  Released parts	Replace by new ones;  To retighten released parts
2. All parts	Visual inspection	Outworn or damaged parts;  Fouled and ungreased parts	Replace by new ones;  To take to parts, clean up, grease and again assemble
3. Label – marking of load capacity on the jack	Visual inspection	Load capacity is not readable	To repair or replace by new one
4. Brake	Jack up and lower the part of the equipment	When interrupting jacking up the brake must hold firmly the load in each position during raising and lowering	If it will not be so, ask for repair and adjusting of the brake

## 9 TROUBLE-SHOOTING

Situation	Cause of trouble	Remedy
1. Jack does not hold firmly the load.	Brake slipping.	Brake adjusting or repair according to Chapter „Maintenance“.
2. Jack jacks up heavily or does not raise the load.	(1) Jack is overloaded. (2) Damaged geared transmission.	(1) Remove the cause-sticking, seizing of equipment mechanism (2) Repair of the jack
3. Jack emits the special noise.	Insufficiently greased geared transmission.	Carry out the lubrication of the geared transmissions by grease.
4. Characteristic sound is not heard when snapping the pawls to dents of ratchet.	Malfunction of pawls. Rust, impurities, broken spring.	Clean up, replace the spring.

## 10 GREASING

### 10.1 GENERAL

Before application of new grease remove the old one, clean up components with a grease solvent and apply the new grease. Use the grease specified by the producer.

### 10.2 JACK MECHANISM

Throw up the unloaded jack to a maximum position. Grease with the PM-A2 vaseline or its equivalent the ridge bar and lower down the jack.

Grease all slipping or moveable surfaces on the crank of the jack.

#### **! NOTICE**

Imperfect maintenance and insufficient greasing can cause serious accidents.

**ALWAYS** grease it more often in corrosive environment (salt water, oceanic climate, acids etc.) than in ordinary circumstances.

## 11 MAINTENANCE

### 11.1 SECURITY PRINCIPLES

#### **! WARNING**

**Only qualified persons (service organizations), trained in safety and maintenance of the jacks, can carry out maintenance and professional inspections.**

**ALWAYS** use entirely components supplied by the producer.

It is not permitted to carry out repairs and maintenance in other way than specified by the producer. It means namely the forbiddance of using

unoriginal spare parts or carrying out changes on the product without an approval of the producer.

**ALWAYS** test jack function after carrying out the maintenance.

**ALWAYS** mark disabled or repaired jack with appropriate inscription (i.e. „**OUT OF OPERATION**“).

**NEVER** carry out maintenance if there is a load on the jack.

**NEVER** work with the jack that is under repair!

## 11.2 REPLACEMENT OF BRAKE INSERTS AND BRAKE ADJUSTING

### 11.2.1 Brake disassembly (fig. 4)

Demount the crank from the jack. Unbolt safety screws (6) and consequently the nut (5). Take out the spring (4) and crank arm (7). Take out from the hub (1) the ratchet (3) with brake insert (2A), take off the brake insert (2B), and replace both brake inserts (2A) (2B).

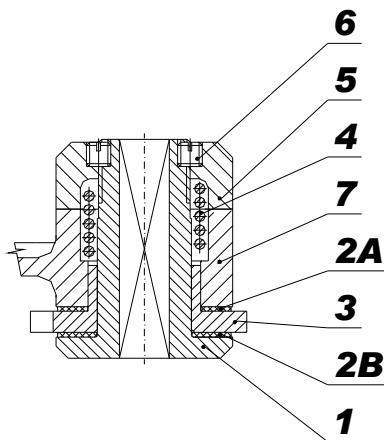


Fig. 4

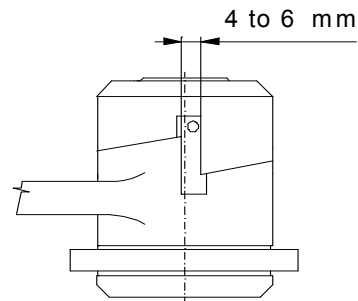


Fig. 5

### 11.2.2 Brake assembly and adjusting (figures 4 and 5)

Proceed in the opposite way when assembling. Slip over the hub (1) the friction insert (2B); ratchet (3) and second friction insert (2A). Set it in the crank arm (7), slide on the spring (4) and screw on the nut (5). Tighten the nut so that the clearance in the dent is from 4 to 6 mm (see fig. 5) and screw down the screws (6).

## 11.3 GENERAL INSTRUCTIONS

Following instructions give general important information on disassembly, check up, repair and assembly. If the jack was dismantled from any reason act upon the instructions as follows.

1. Perform maintenance in clean environment.
2. **NEVER** disassemble the jack more than it is necessary to carrying out the needful repair.
3. **NEVER** use excessive power when dismantling parts.
4. **NEVER** use heat (fire) as the mean when dismantling parts, if the parts are destined for next use.

5. Keep the workplace clean and without foreign materials that could get into bearings and other movable parts.
6. If you squeeze the part in vice, use always the appropriate pads for protection of parts surfaces.

#### **11.4 CHECK UP**

Check up, whether all disassembled parts are suitable for next use.

1. Check up, whether no parts are worn out and have no chutes or fissures.
2. Check up, whether threaded parts have no damaged thread.

#### **11.5 REPAIR**

Outworn or damaged parts must be replaced.

Remove little burrs and scratches or other minor surface defects and flatten out with fine grinder or abrasive cloth.

### **12 PUTTING OUT OF OPERATION – DISPOSAL**

The jack do not contain any noxious agents, its parts are from steel and cast iron. Hand over the jack after putting it out of operation to the firm dealing with disposal of waste metal.

### **13 RELATED DOCUMENTATION**

EC declaration of conformity

The Operation Manual was elaborated in accordance with following technical regulations, technical standards and national regulations:

- Ministerial order No.176/2008 of the Collection of Law as amended (EP and Council directive 2006/42/EC)
- Ministerial order No.23/2003 of the Collection of Law as amended (EP and Council directive 94/9/EC)
- ČSN EN ISO 12100
- ČSN EN 1494+A1
- ČSN EN 1127 - 2
- ČSN EN 1127 - 1
- ČSN EN 13463 - 1
- Regulation of CBM (Czech Bureau of Mine) No.22/89 of the Collection of Law
- ČSN 33 2030.

### **14 FINAL REQUIREMENTS OF THE PRODUCER TO THE CUSTOMER**

**Any changes of the product, eventually usage of unoriginal spare parts can be realized only based on the approval of the producer.**

**When not observing this condition the producer does not guarantee safety of his product. In this case, any producer's guarantees do not apply to the product.**