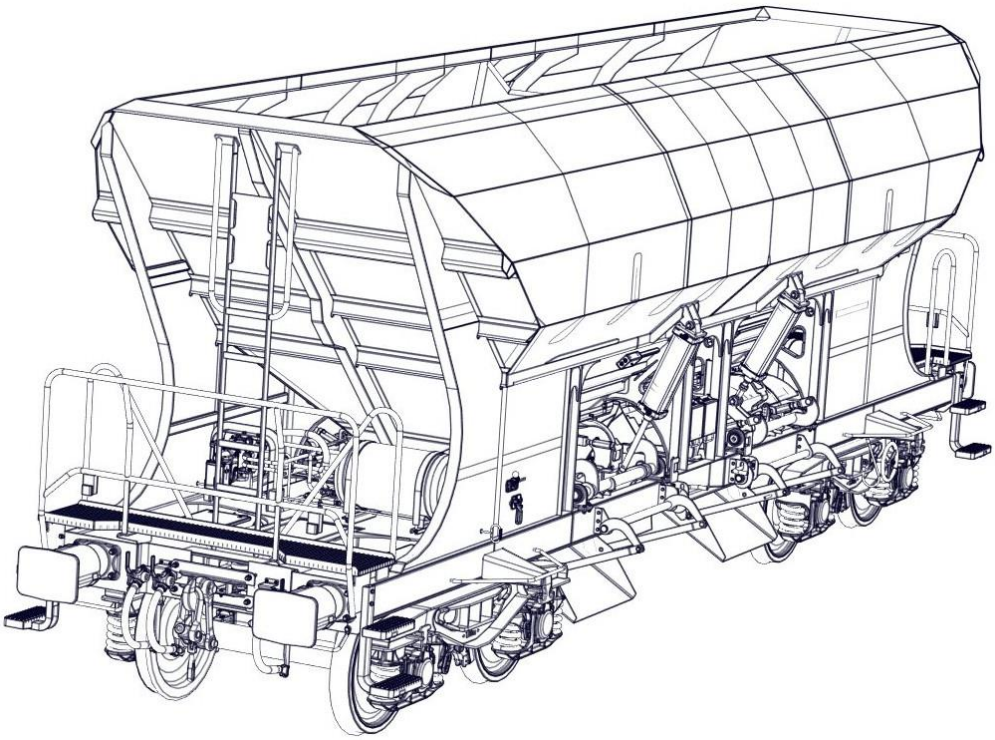
Operating Manual

Four-axle automatic discharge wagon of Faccn(pp)s 48 series prod. no. F01-00-00



Content:

1 Introduction

1.1 These Operating Manual have been produced by the wagon manufacturer:

Name of company: Đuro Đaković Specijalna vozila d.d.
Sídlo: Ulica 108. brigade ZNG 42, 35000 SLAVONSKI BROD, Croatia
Kontakt: marketing@ddsv.hr

1.2 These Instructions have been compiled for:

Four-axle automatic discharge wagon of Faccn(pp)s 48 series, prod. no. F01-00-00

1.3 Intended use of the wagon:

The wagon is designed for the transport of bulk material not requiring protection against weather conditions. The wagon is not intended for the transport of hazardous goods pursuant to RID.
The wagon meets the requirements of the technical specifications for interoperability (TSI) concerning the “Rolling stock - wagons” and “Noise”. It also complies with the conditions of the general contract for the use of wagons (GCU), decrees of UIC.

1.4 Basic technical parameters of the wagon including the related technical documentation

The wagon complies with the requirements of EN, TSI, GCU and UIC.

Gauge ..... 1435 mm
Length over buffers ..... 10.580 mm
Length over buffer beams ..... 10.340 mm
Distance of pivot pins..... 6.780 mm
Loading volume ..... 48 m^3
Maximum width..... 3125 mm
Maximum height ..... 4098 mm
Minimum passable curve radius ..... 35 m
Bogie ..... Y25 Lsi(f)
Bogie wheelbase..... 1 800 mm
Wheel nominal diameter ..... 920 mm

- Drawbar mechanism according to EN 15566, non-continuous 1500 kN
- Screw coupling according to EN 15566 - 1350 kN
- Buffers according to EN 15551 with the stroke of 105 mm, category A
- Height of buffers of an empty wagon above T. K. allows for the operation of a fully loaded wagon up to the wheel set wear limit
- Pneumatic brake: KNORR KE-GP-A(K)-2xCFCB or MH-GP-A (K) - 2x IBB 10 or DK-GP-A (K) 2x ITBL
- Wheel set according 25t, running profile according to EN 13715 - S1002/h28/e30.5/6.7%

Weight of empty wagon ..... 20.5 t
Loading weight..... 69.5 t
Loaded wagon weight ..... 90 t
Max. axle weight ..... 22.5 t

Other technical parameters are stated in to Technical Descriptions F01-10-00

These operating instructions do not replace the operating procedure of unloading and is developed by the operator of the wagons for each site where the wagons are loaded, unloaded, shunted, repaired or cleaned. It does not replace the provisions of other railway regulations and safety and working standards either.
These instructions will be specified by the operator through its own operating procedure for loading, unloading, operation and maintenance of the wagon in accordance with the relevant operational and safety regulations while maintaining all the conditions of economical, safe and environmentally friendly operation of the wagon.

The workers operating the wagon equipment must be familiar with the operating instructions and safety regulations. The observation of this provision is the responsibility of the wagon operator. The wagon loading is governed by RIV regulations.

2 Wagon loading and unloading

2.1 Wagon loading

The clear loading opening is 1.600 x 10.230 mm.

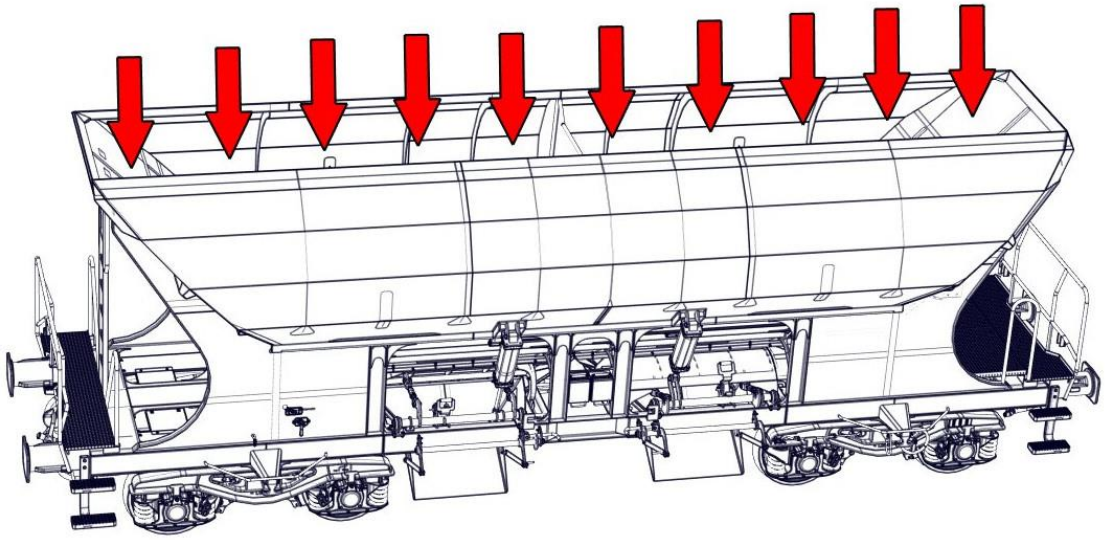


Fig. 1 – Loading wagon

Before loading a wagon:

- the vehicle will be secured against movement (rail stops, or handbrake), unless the car is part of a train.
- the flaps must be in closed position and locked – Section 4.

During loading a wagon:

- the carrier must make sure that the total weight of the loaded wagon does not exceed the maximum total value of 90 t, while respecting the values listed in the wagon load table and the RIV loading regulations.
- the operators shall ensure that the material in both unloading chutes is distributed evenly. Load control and, if necessary, cleaning of the body from the substrate is carried out from the wagon gangway or front ladders – Section 10

After loading a wagon:

- the flaps can be sealed – Section 4.3.

2.2 Wagon unloading

Before unloading a wagon:

- the vehicle will be secured against movement (rail stops, or handbrake), unless the car is part of a train.
- the flaps must be unlocked and unsealed – Section 4.
- in case of pneumatic opening, the supply pipeline (10 bar - yellow) must be connected by hose couplings after the locomotive or compressor - Section 5 .
- in case of mechanical opening, the torque multiplier with a lever must be connected to the flap shaft – Section 5.3.1.
- in case of a silo between the rails or belt conveyor, the additional unloading chutes must be retracted - Section 3.
- the additional unloading chute will be extended from the box wagon outside the railway track – Section 3
- the additional unloading chute will be extended from the box wagon beween the railway track – Section 3.

Wagon unloading:

- carried out by gravity unloading of transported materials.
- carried out by four flaps on both sides or two flaps on one side, which can be operated either pneumatically from the platform and the middle of the wagon, or mechanically from the middle of the wagon - Section 5. Unloading of only a half of the wagon can be carried out when using the flaps (flap) of an unloading chute.
- can be facilitated by blows of the flat part of a hammer (mallet) on the reinforced parts in the middle of each unloading chute - Fig. 2 and Fig.3.

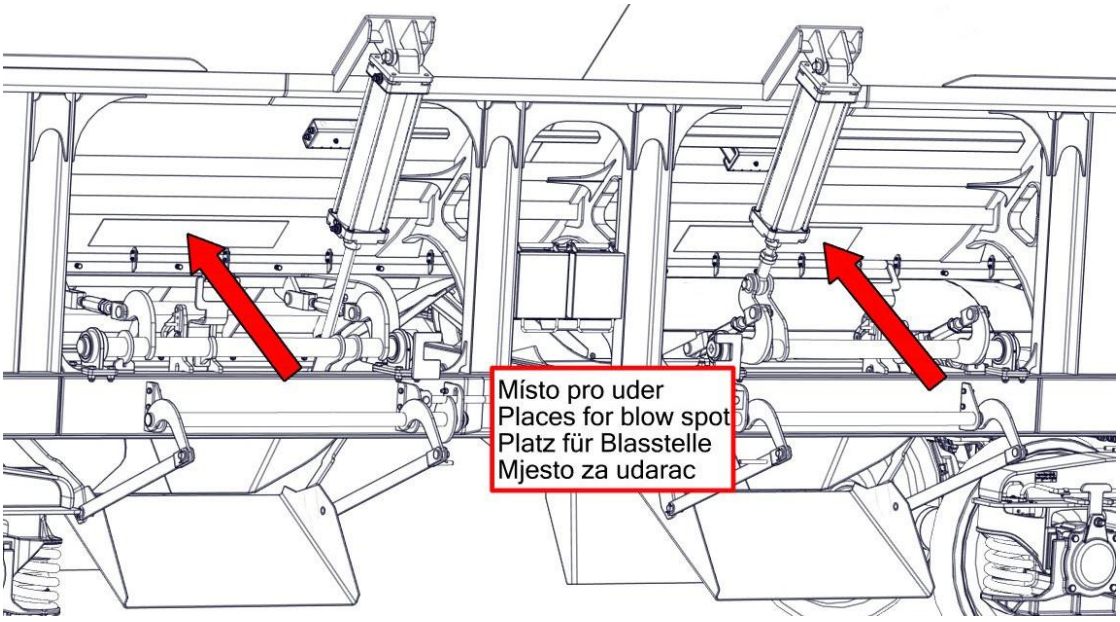


Fig. 2 – Places for blow spot

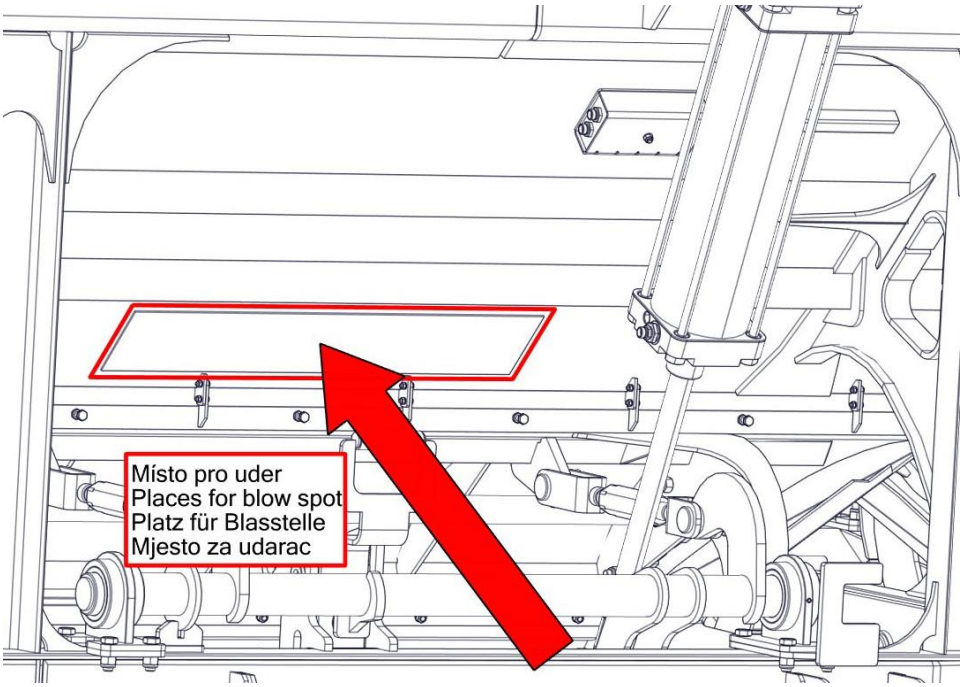


Fig. 3 – Detail of the place for blow spot

Caution:

use of pointed parts of hammers, thin objects or blows outside reinforced parts is prohibited!

3 Operation of auxiliary chutes

3.1 Opening an auxiliary chute (variant of the Faccns wagon)

a) Lift the shaft lever - Fig. 4
b) Extend the unloading chute using the handle in the position where the lever can be locked again – Fig. 6 and Fig.7

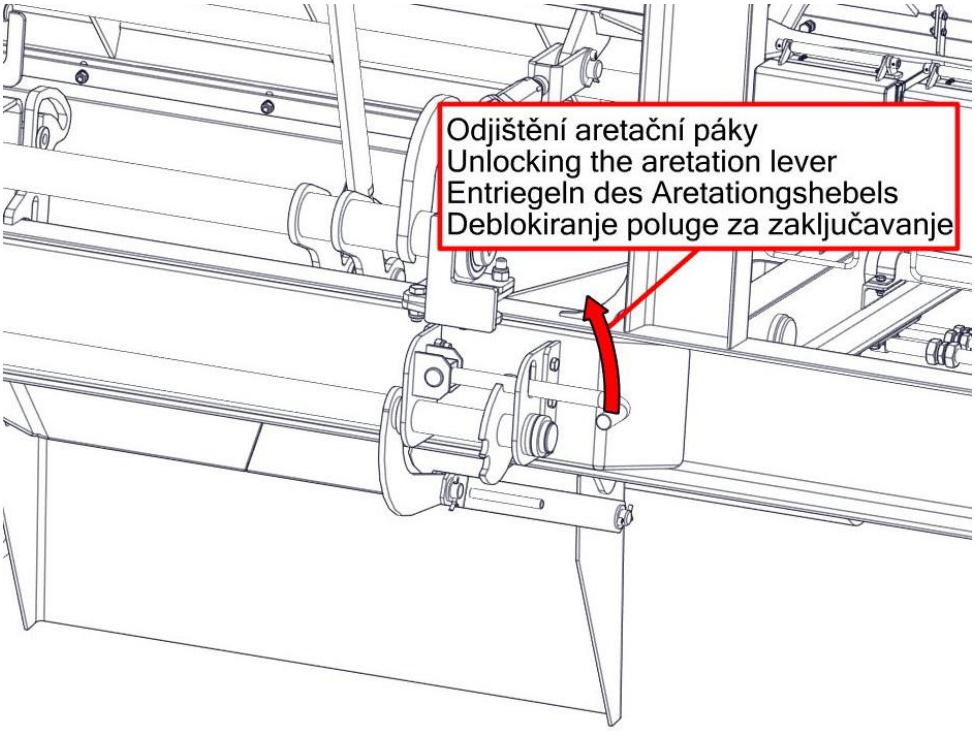


Fig. 5

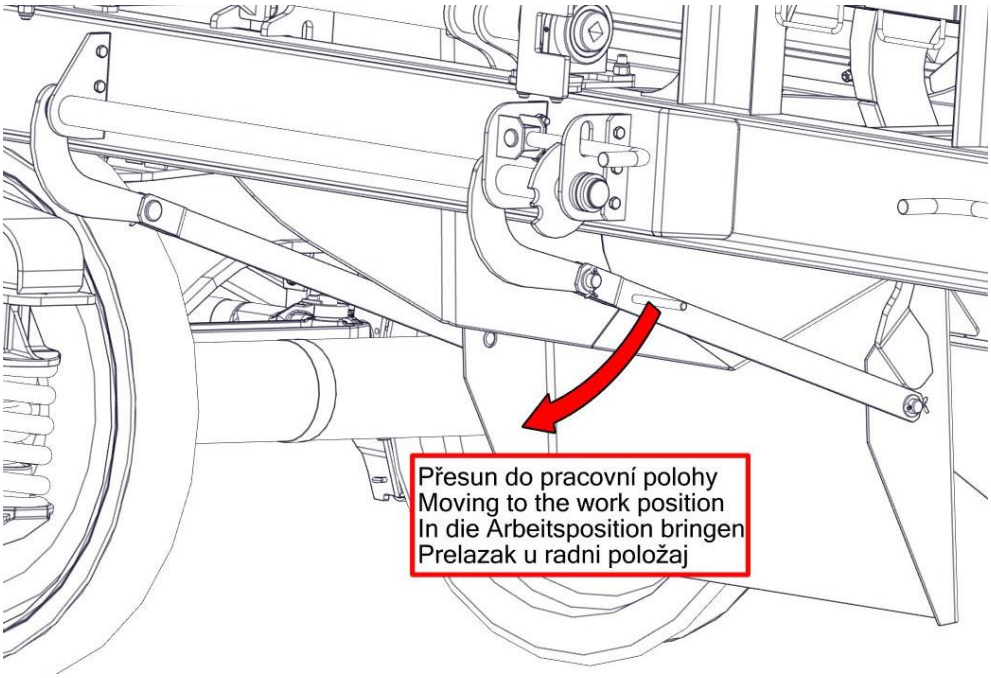

Přesun do pracovní polohy
Moving to the work position
In die Arbeitsposition bringen
Prelazak u radni položaj

Fig. 6

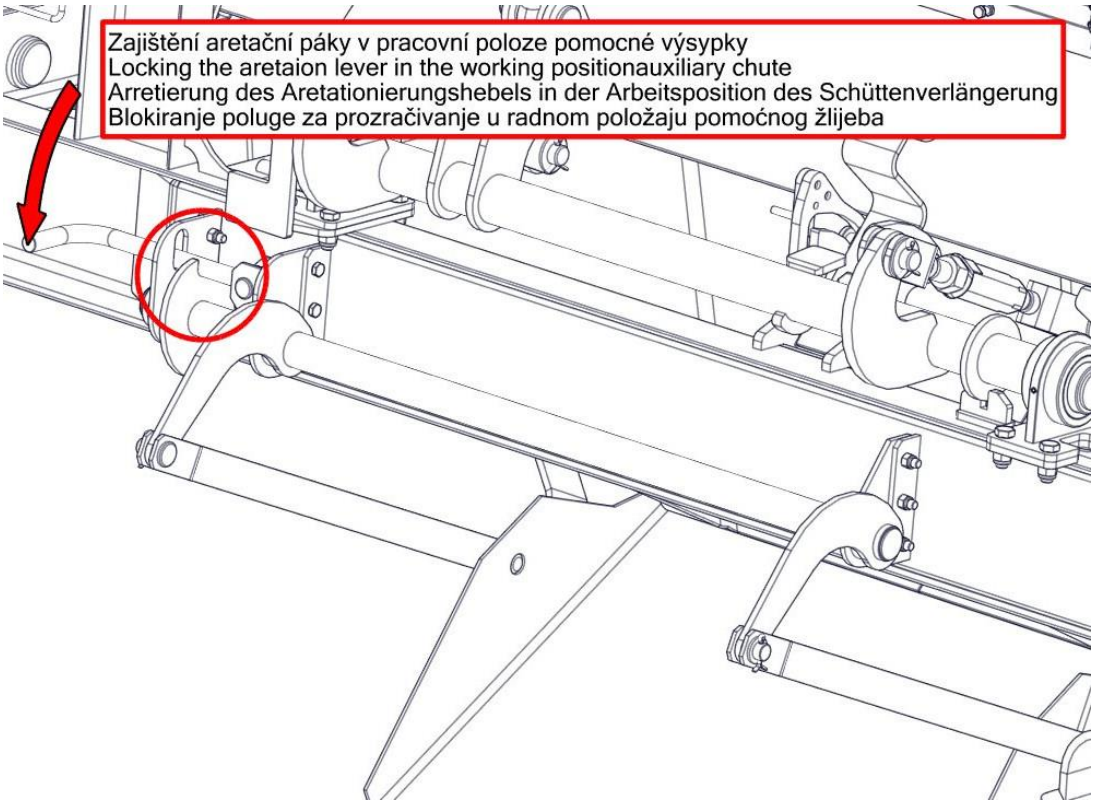

Zajištění aretační páky v pracovní poloze pomocné výsypky
Locking the aretaion lever in the working positionauxiliary chute
Arretierung des Aretationierungshebels in der Arbeitsposition des Schüttenverlängerung
Blokiranje poluge za prozračivanje u radnom položaju pomoćnog žlijeba

Fig. 7

3.2 Closing an additional chute (variant of the Faccns wagon)

a) Lift the shaft lever - Fig. 8
b) Retract the unloading chute using the handle in the position where the lever can be locked again – Fig. 9 and Fig 10

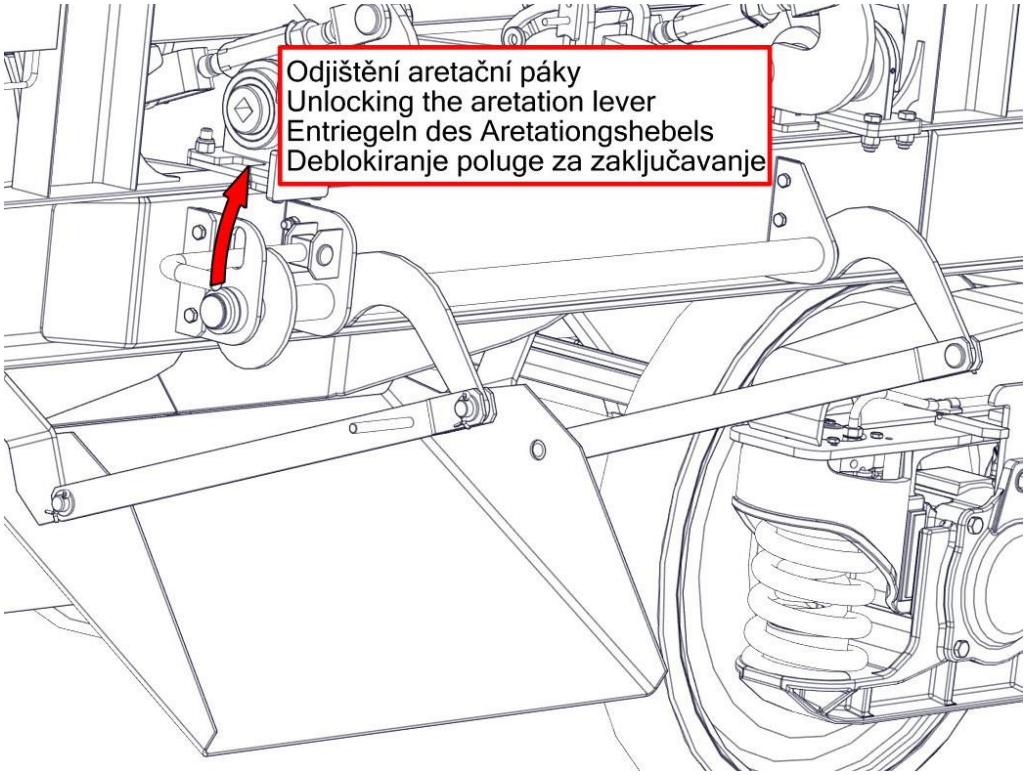


Fig. 8

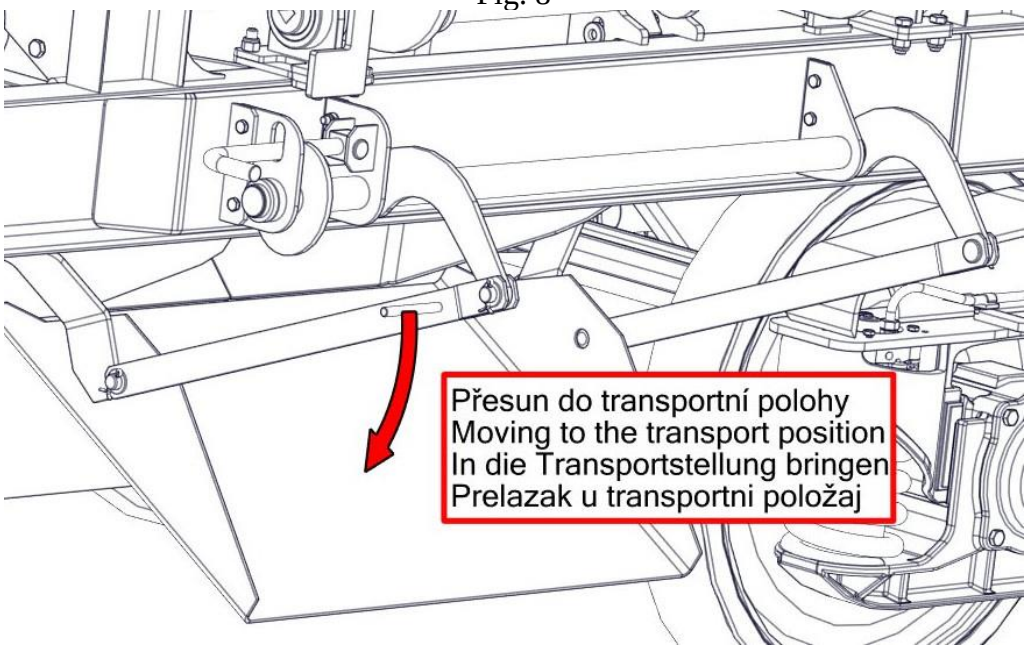


Fig. 9

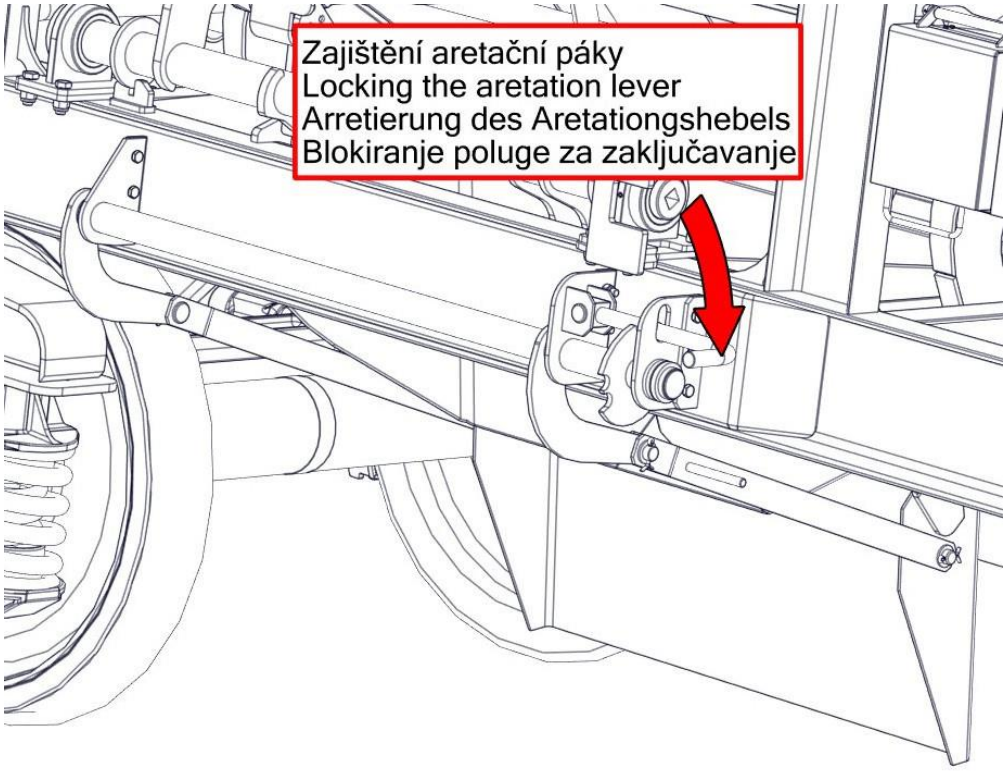


Fig. 10

Fig. 11

Caution:

- the movement of the additional chute is prevented by locking the lever in the locking slot – Fig. 10
- **The movement of the wagon is only permitted with retracted – Fig. 11 and locked additional unloading chutes – Fig. 10**

3.3 Opening an auxiliary chute (variant of the Faccnpps wagon)

a) Lift the shaft lever - Fig. 12 or Fig 8
b) Extend the unloading chute using the handle in the position where the lever can be locked again – Fig. 13, Fig.14 and Fig 15

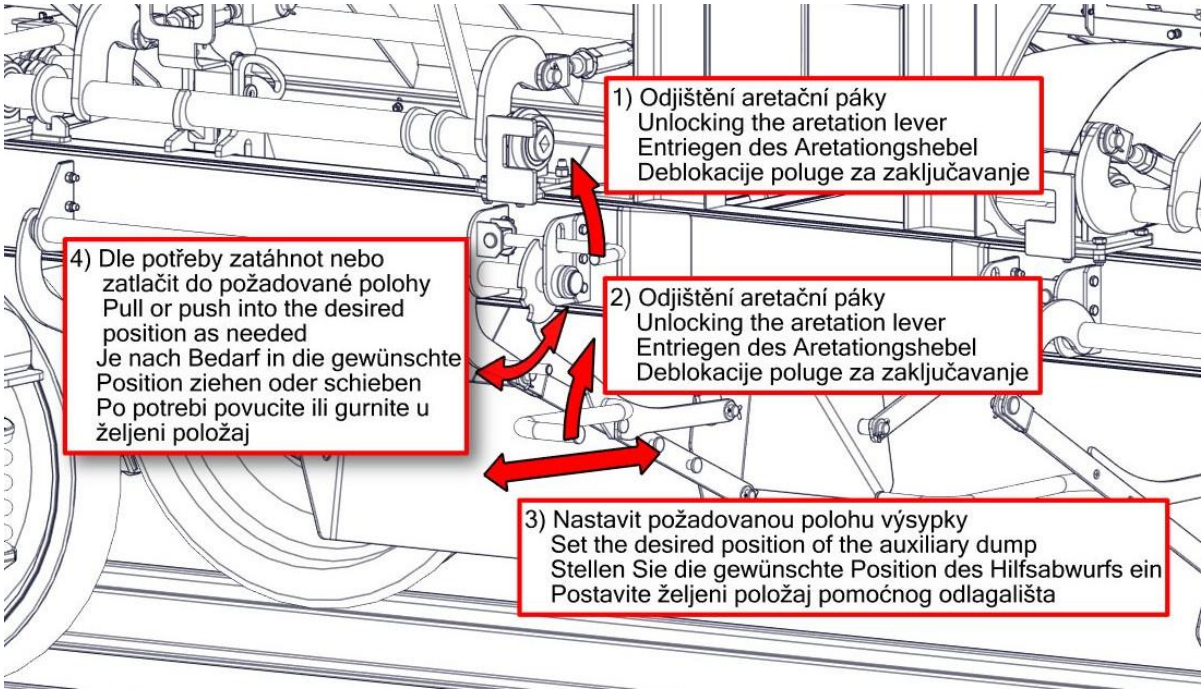


Fig. 12

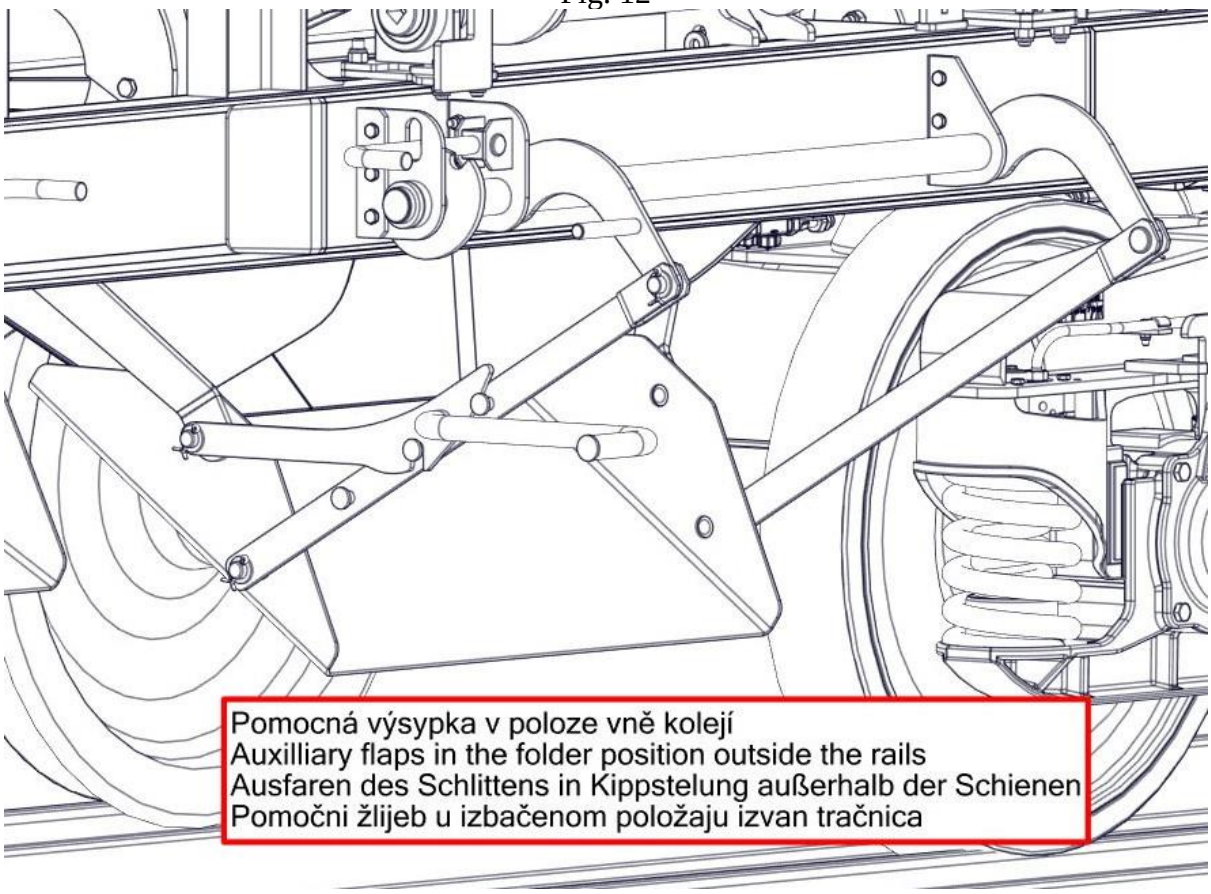


Fig. 13

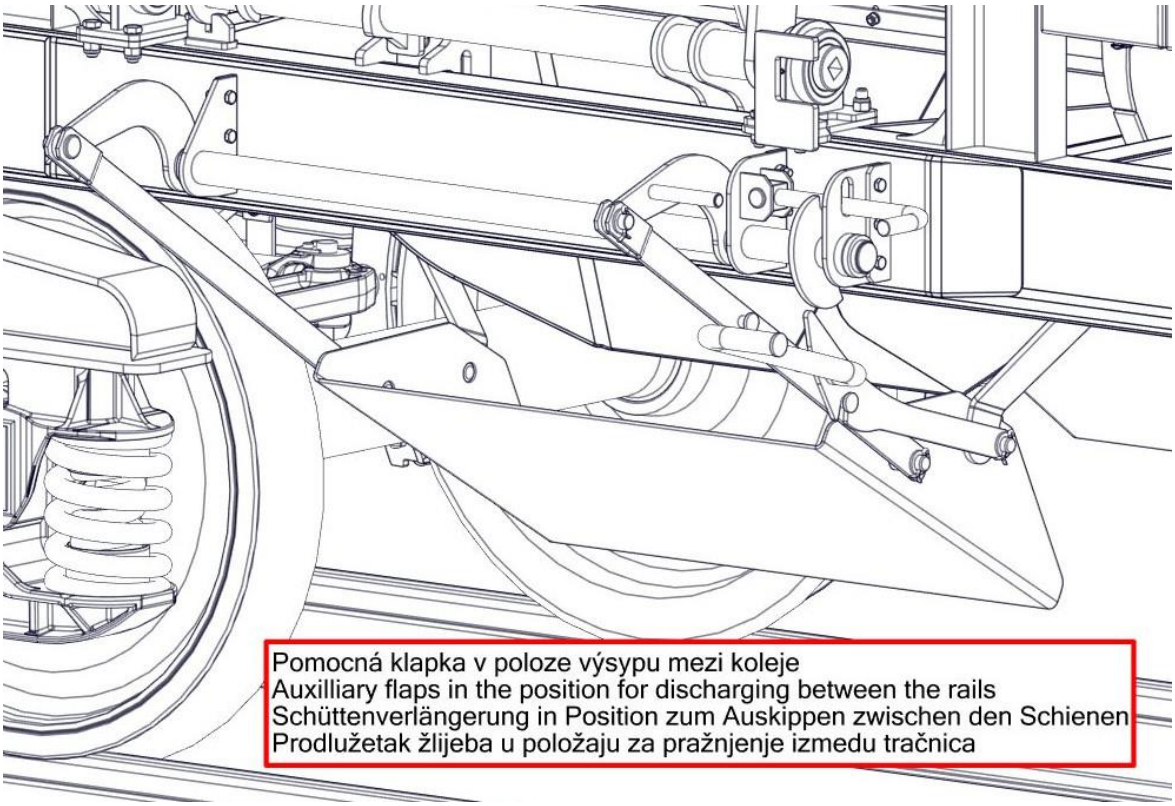

Pomocná klapka v poloze výsypu mezi koleje
Auxilliary flaps in the position for discharging between the rails
Schüttenverlängerung in Position zum Auskippen zwischen den Schienen
Prodlužetak žlijeba u položaju za pražnjenje izmedu tračnica

Fig. 14

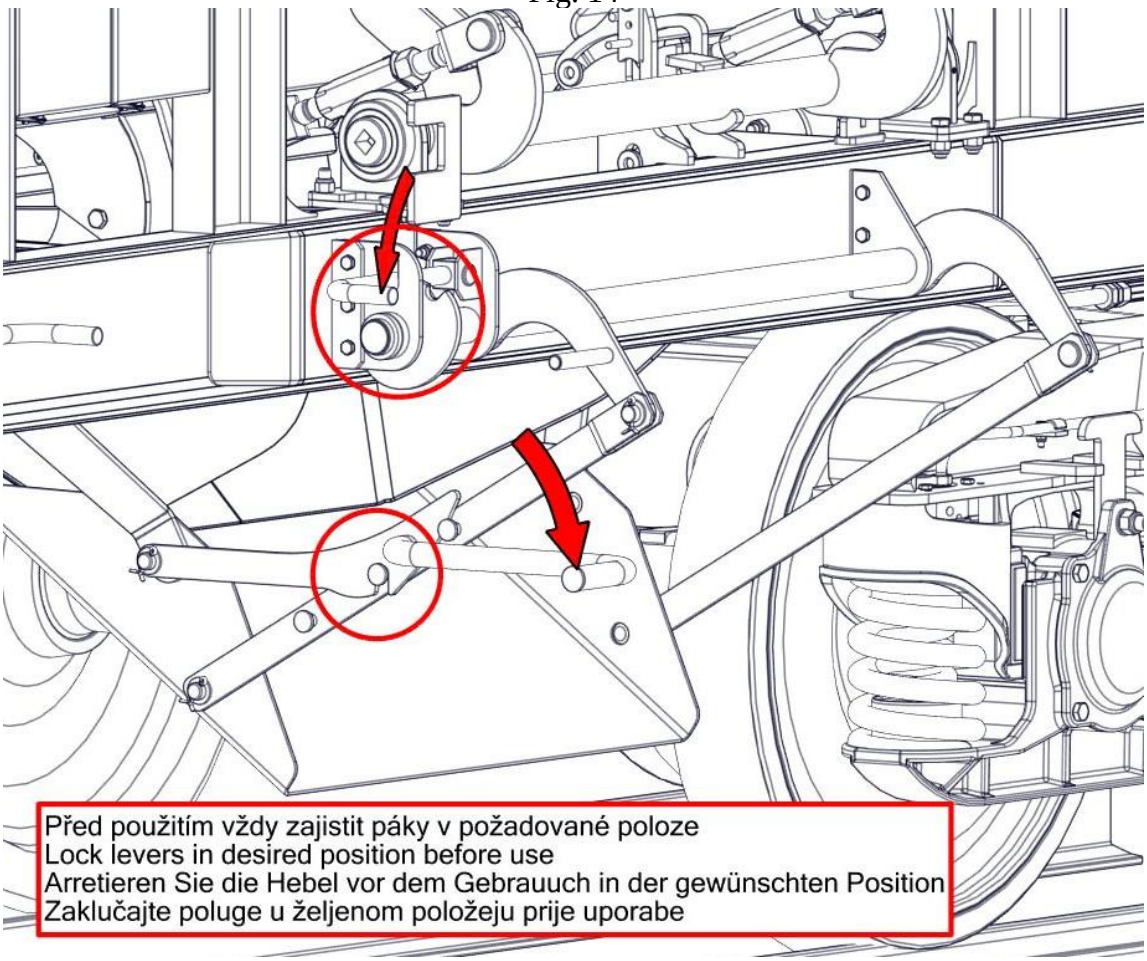

Před použitím vždy zajistit páky v požadované poloze
Lock levers in desired position before use
Arretieren Sie die Hebel vor dem Gebrauuch in der gewünschten Position
Zaključajte poluge u željenom položeju prije uporabe

Fig. 15

3.4 Closing an additional chute (variant of the Faccnpps wagon)

a) Lift the shaft lever - Fig. 16
b) Retract the unloading chute using the handle in the position where the lever can be locked again – Fig. 17, Fig 18 and Fig 19.

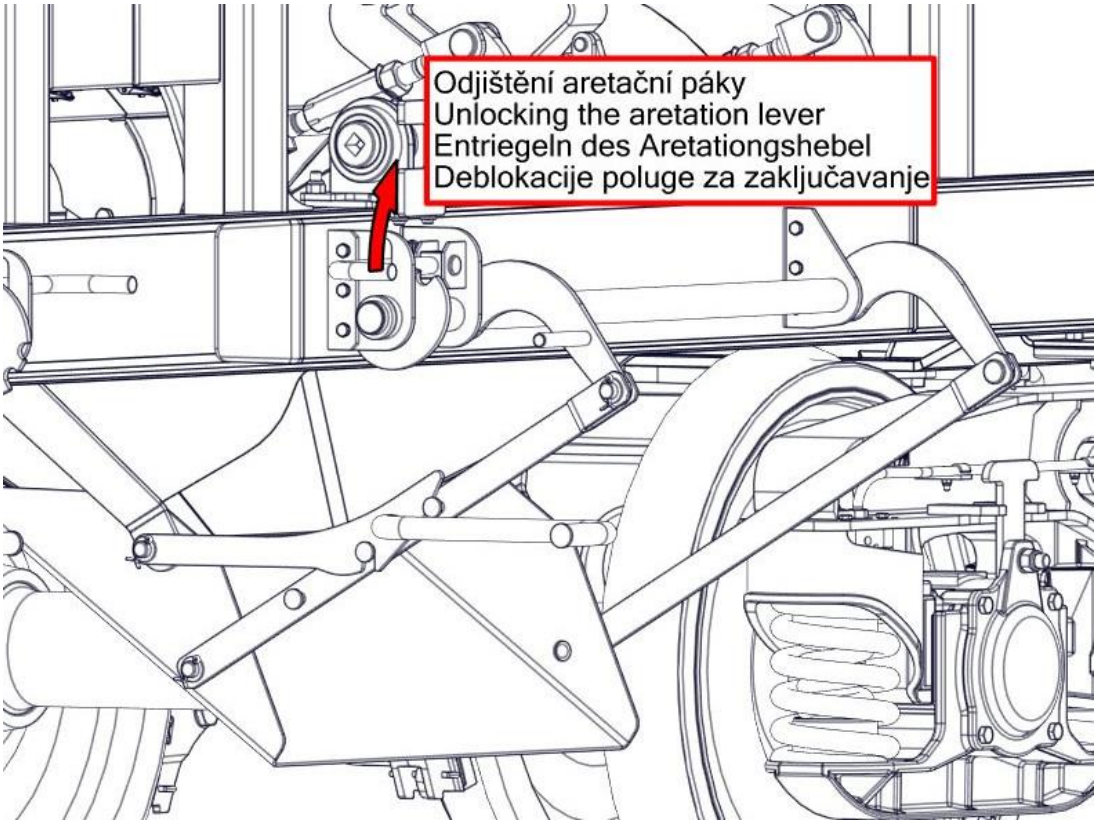


Fig. 16

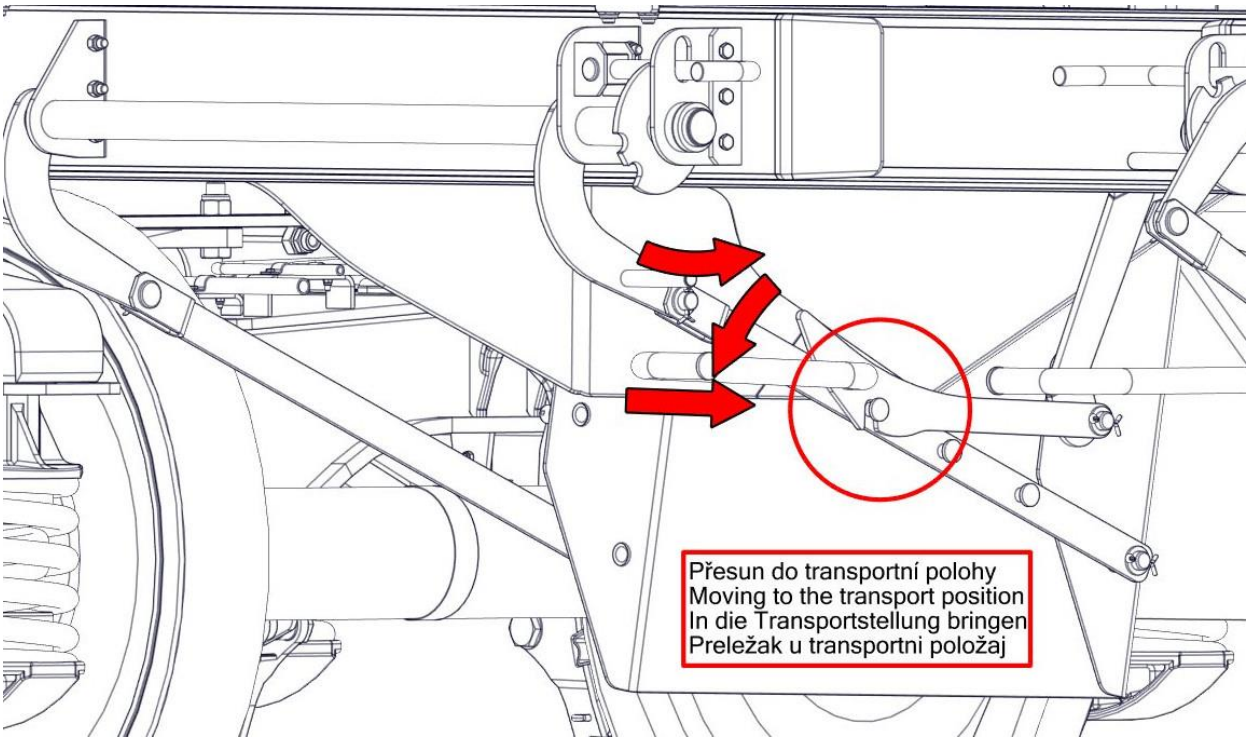


Fig. 17

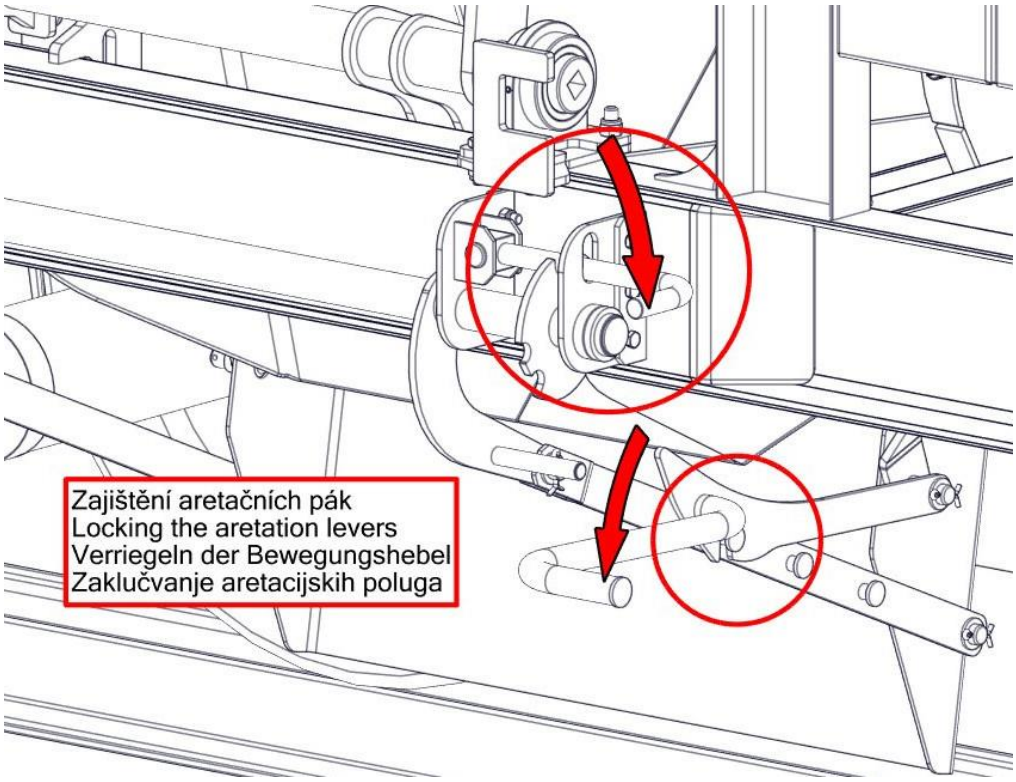


Fig. 18

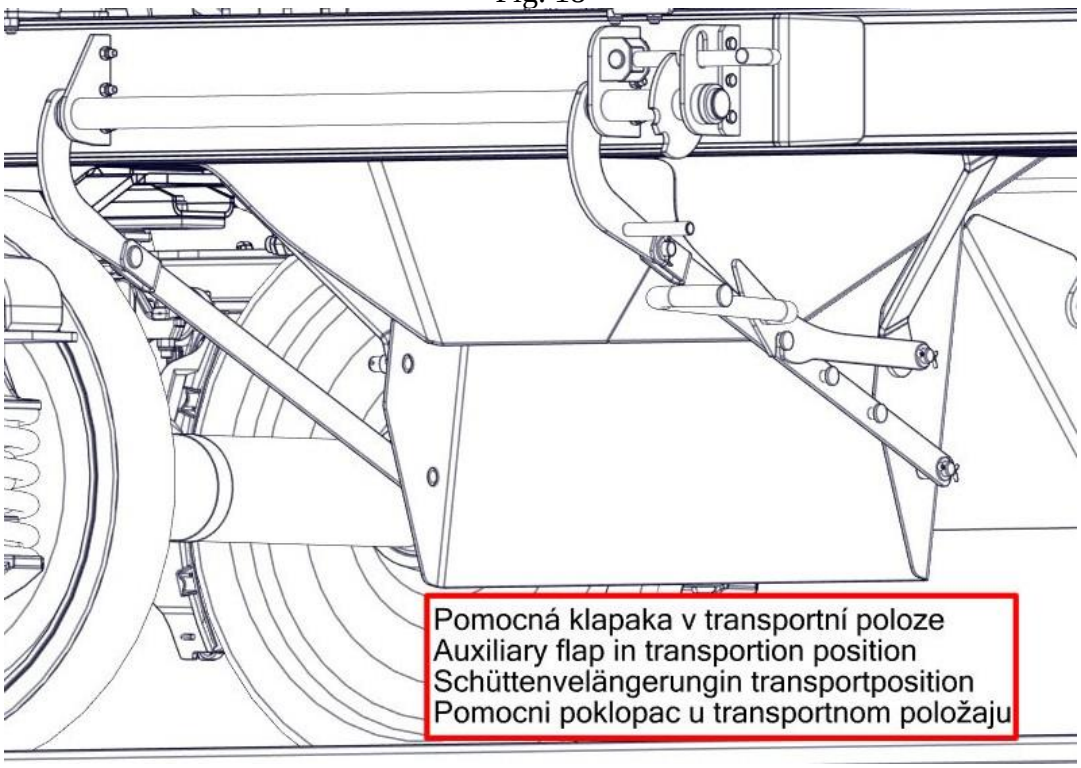


Fig. 19

Caution:

- the movement of the additional chute is prevented by locking the lever in the locking slot – Fig. 18
- **The movement of the wagon is only permitted with retracted – Fig. 19 and locked additional unloading chutes – Fig. 18**

4 Flap operation

- before opening the wagon, the flaps must be unlocked and unsealed

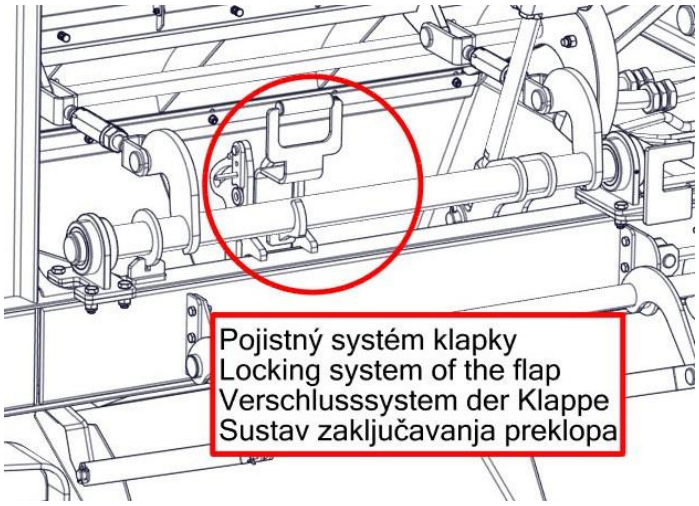


Fig. 20

4.1 Flap unlocking

a) turn the lock in the open position – Fig. 21
b) lift the handle and put it in the open position – Fig. 22

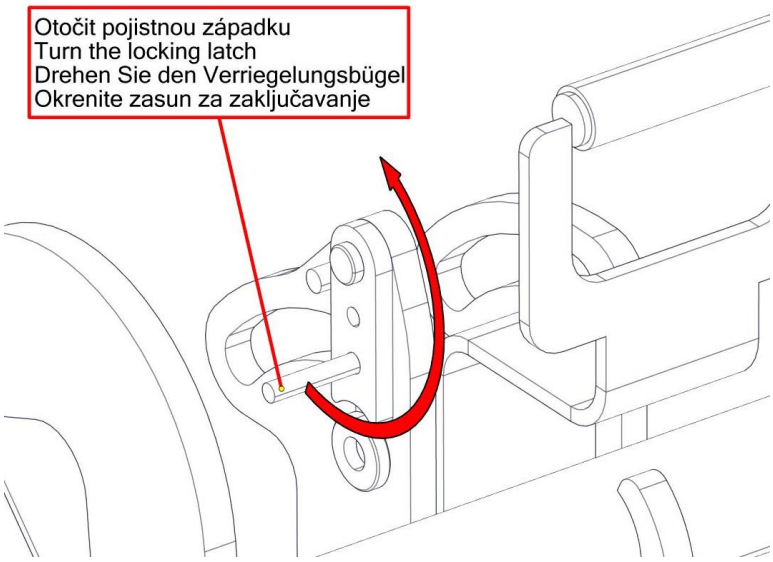


Fig. 21

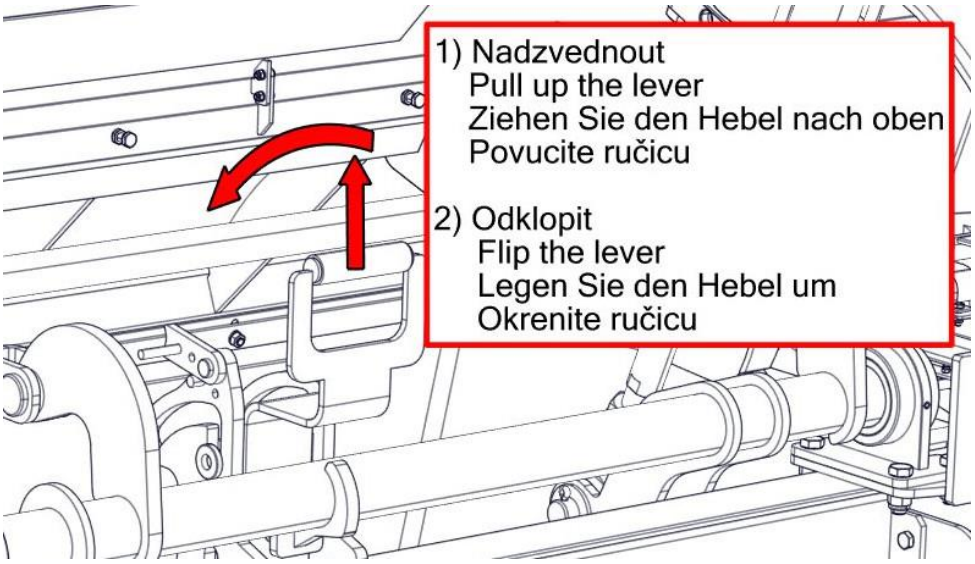


Fig. 22

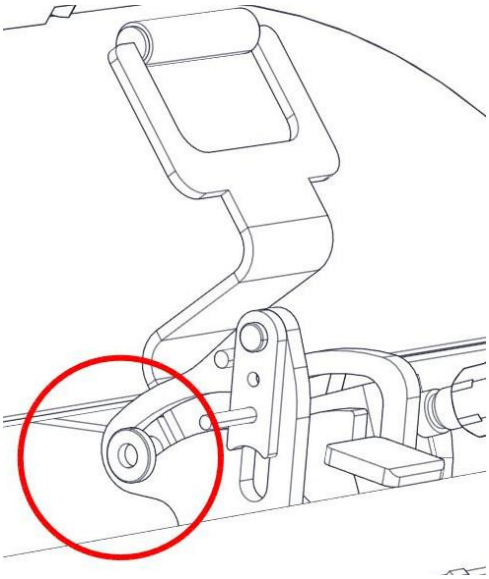


Fig. 23

Caution:

- **Before any further handling of the flaps, the safety system must be unlocked, otherwise there is a risk of damage to the wagon parts and injury to the operator**,
- a fully unlocked safety system is shown in Fig. 23

4.2 Flap locking

a) put the handle in the closed position – Fig. 24
b) turn the lock in the closed position – Fig. 24

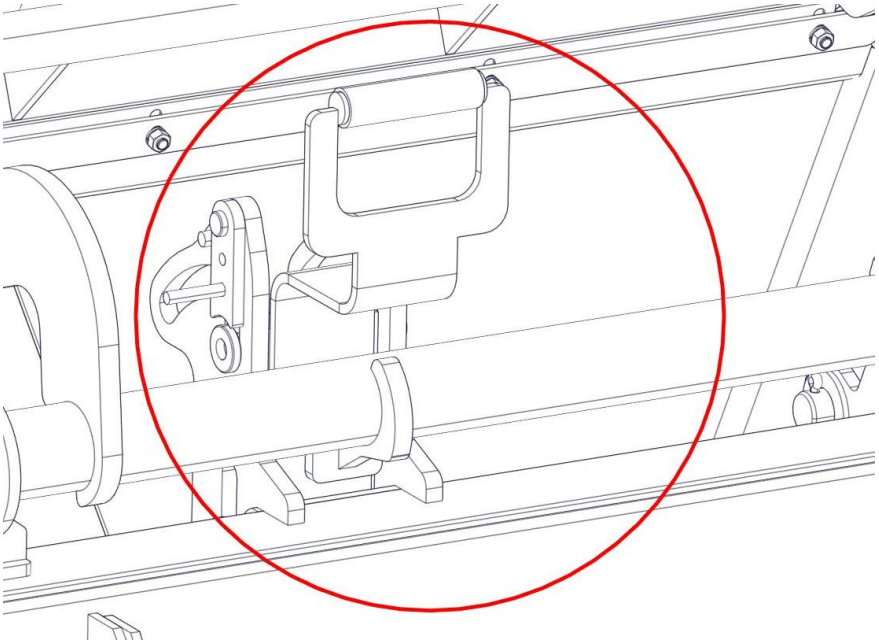


Fig. 24

Caution:

- **The flaps must be in the closed position before loading and during transport**
- **The locking system of the flap mechanism must be in the locked position - Fig 24**

4.3 Sealing (unsealing):

- Flap lock is provided with openings for possible sealing (unsealing) – Fig. 25

Fig. 25

5 Pneumatic flap opening and closing

5.1 Pneumatic flap opening

Before flap opening:

a) supply pipeline (10 bar - yellow) must be connected by hose couplings after the locomotive - Fig.26 or after the quick-clamp to the compressor - Fig. 27 (the compressor must meet the conditions for the operation of rolling stock)
b) in case of connection through hose couplings, open the valve (yellow) for a single wagon feed, or all valves of the feed line (yellow) for feeding the wagons in a train - Fig. 26
c) open the ball ventil front the regulator and check the **max. pressure of 6 bar** - Fig 28 and Fig 29

Caution:

if the pressure gauge indicates pressure over 6 bar:

- pneumatic control must not be used
- continue according to Section 6 Control of pressure regulator with filter and pressure gauge

d) manual-pneumatic lever (in the middle of the wagon) must be in the pneumatic position – Fig. 35
e) unlock the flap – Section 4.2

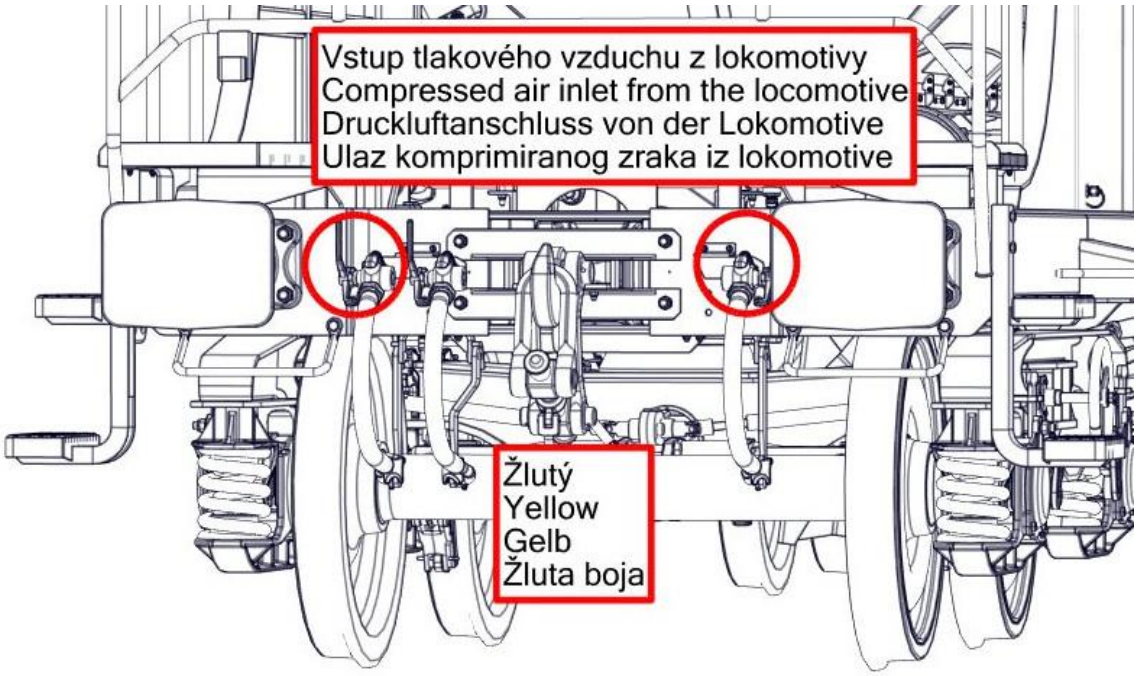


Fig. 26

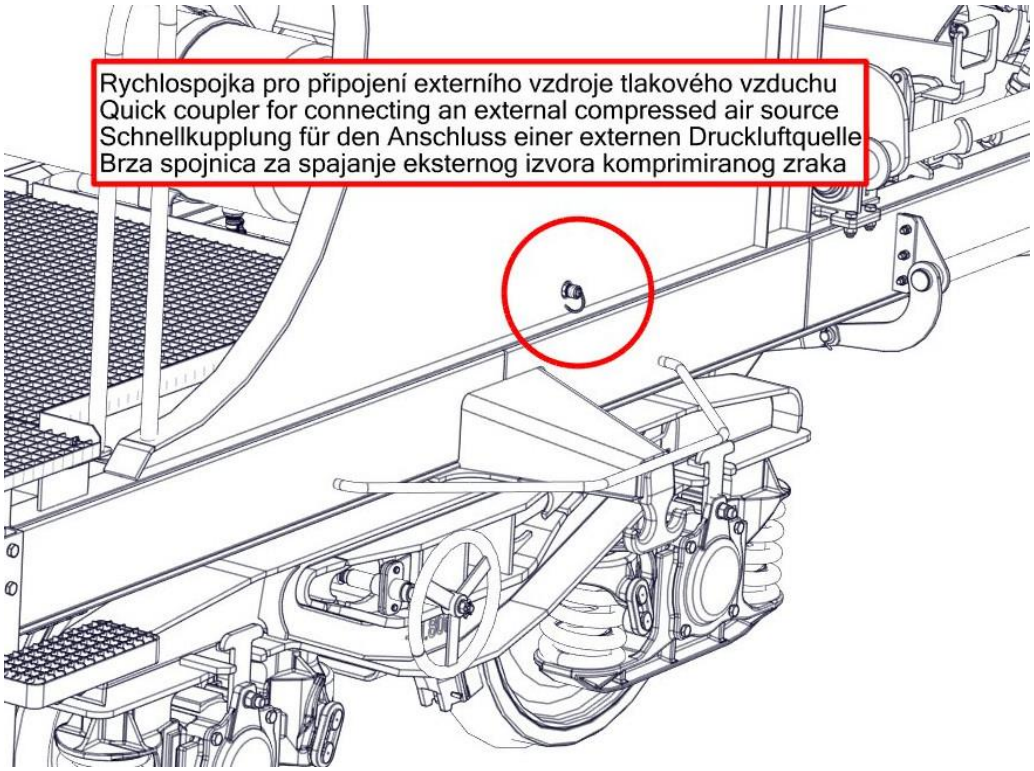

Rychlospojka pro připojení externího vzdroje tlakového vzduchu
Quick coupler for connecting an external compressed air source
Schnellkupplung für den Anschluss einer externen Druckluftquelle
Brza spojnica za spajanje eksternog izvora komprimiranog zraka

Fig. 27

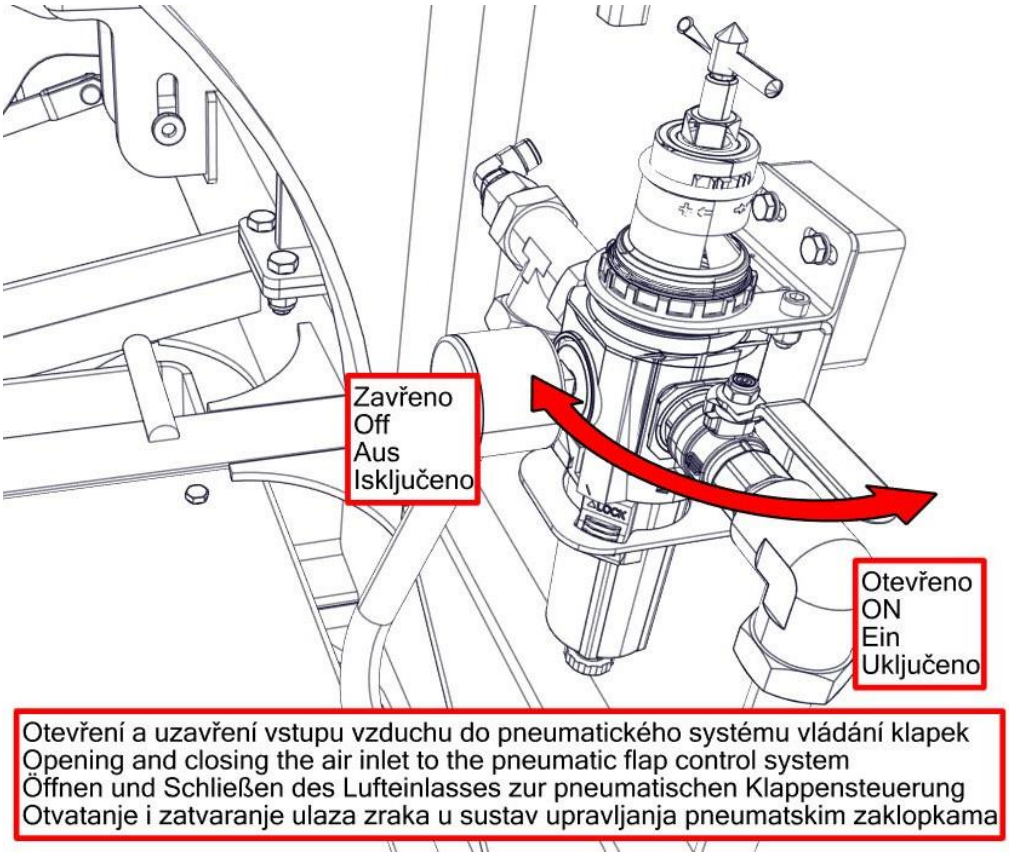

Zavřeno
Off
Aus
Isključeno
Otevřeno
ON
Ein
Uključeno
Otevření a uzavření vstupu vzduchu do pneumatického systému vládání klapek
Opening and closing the air inlet to the pneumatic flap control system
Öffnen und Schließen des Lufteinlasses zur pneumatischen Klappensteuerung
Otvatanje i zatvaranje ulaza zraka u sustav upravljanja pneumatskim zaklopkama

Fig. 28

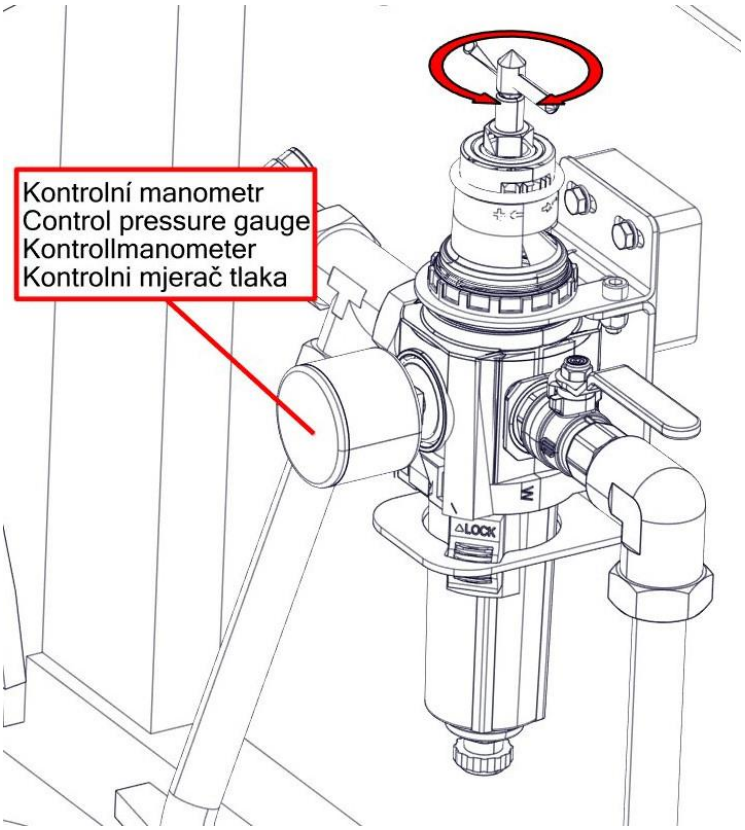

Kontrolní manometr
Control pressure gauge
Kontrollmanometer
Kontrolni mjerač tlaka
LOCK

Fig. 29

5.2 Opening the cover of boxes with pneumatic control

Caution:

- All control boxes of the pneumatic system are equipped with a cover – Fig 30
- All covers are equipped with the same system for locking the cover in the closed position
- Wagon operation is only possible with all pneumatic control covers secured

The procedure for opening the lock of the control box cover – Fig 31 and 32

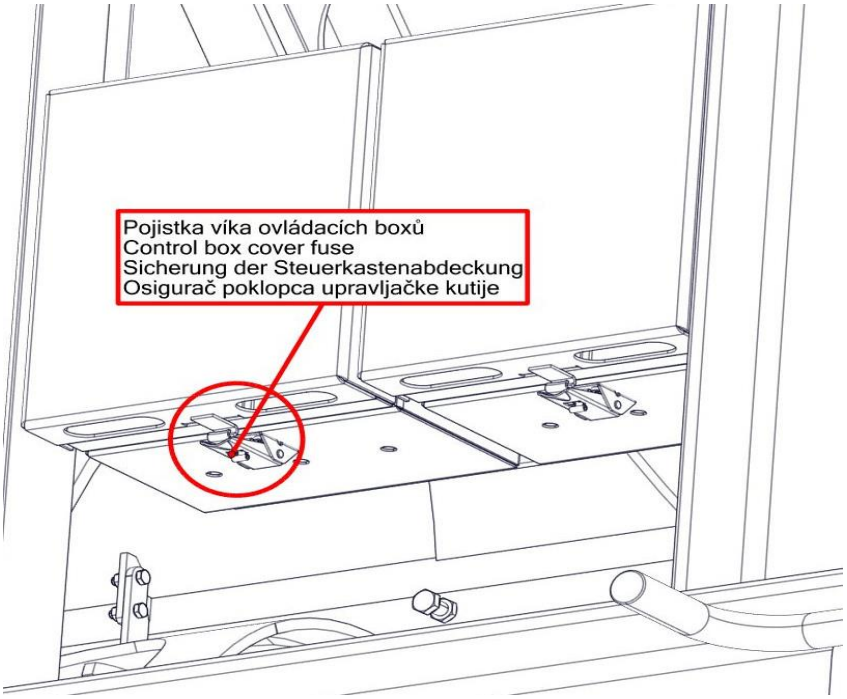


Fig. 30

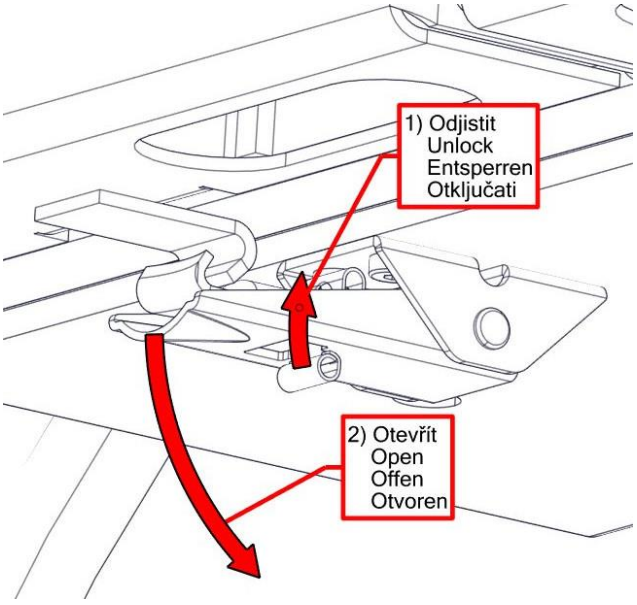


Fig. 31

Fig. 32

5.2.1 Opening the flaps from the wagon platform

a) push the green button for the respective flap – Fig. 33
(the button number corresponds to the flap number)
b) release the button when the required position or max. opening position is reached
(max. opening position is the position where the flap movement is stopped by the flap reaching the stops – Fig. 34)

Fig. 33

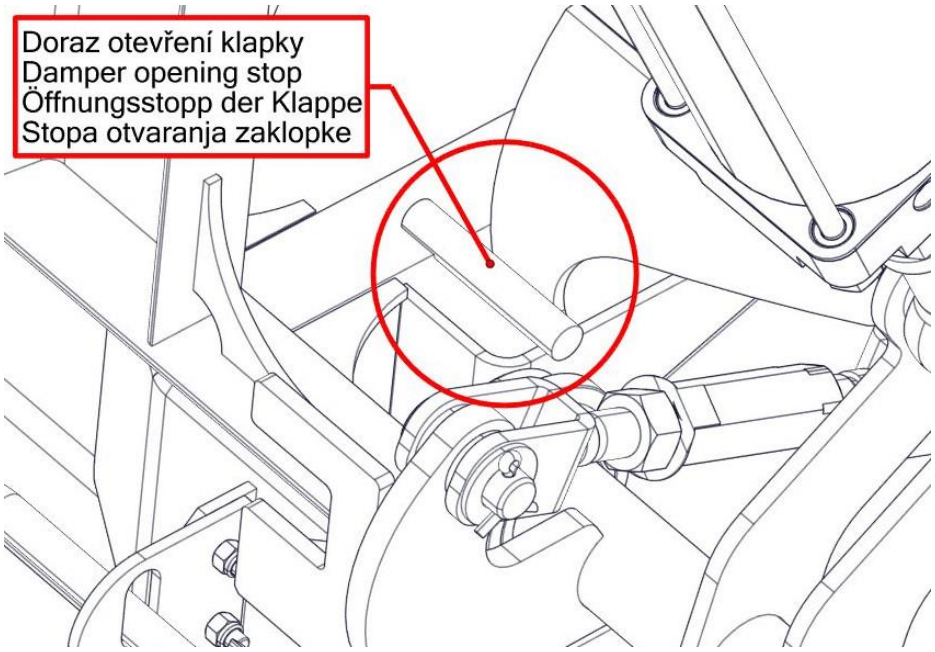


Fig. 34

5.2.2 Opening the flaps from the middle of the wagon

a) push the green button for the respective flap – Fig. 35
b) release the button when the required position or max. opening position is reached (max. opening position is the position where the flap movement is stopped by the flap reaching the stops – Fig. 34)

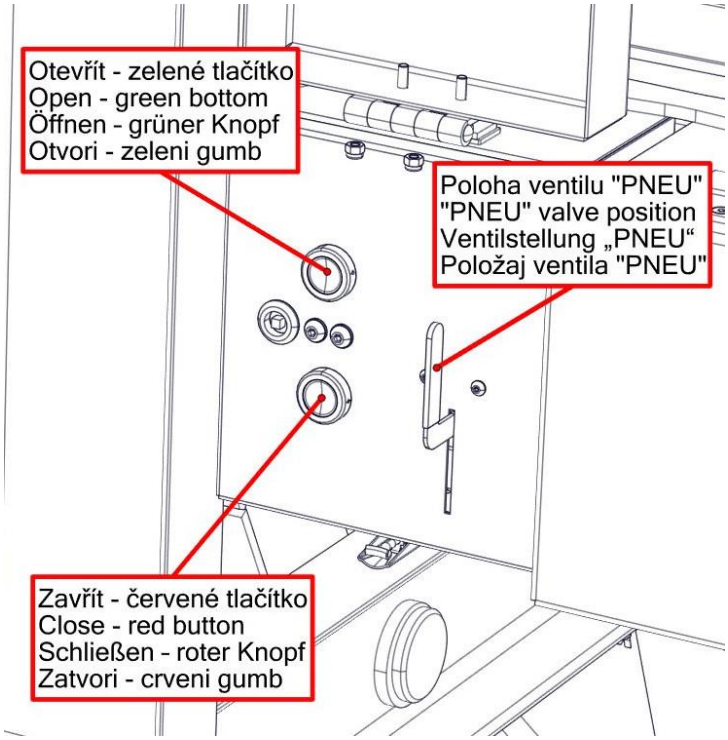


Fig. 35

5.3 Pneumatic flap closing

Before flap closing:

a) supply pipeline (10 bar - yellow) must be connected by hose couplings after the locomotive - Fig.26 or after the quick-clamp to the compressor - Fig. 27 (the compressor must meet the conditions for the operation of rolling stock)
b) in case of connection through hose couplings, open the valve (yellow) for a single wagon feed, or all valves of the feed line (yellow) for feeding the wagons in a train - Fig. 26
c) open the ball ventil front the regulator and check the **max. pressure of 6 bar** - Fig 28 and Fig 29

Caution:

if the pressure gauge indicates pressure over 6 bar:

- pneumatic control must not be used
- continue according to Section 6 Control of pressure regulator with filter and pressure gauge

d) manual-pneumatic lever (in the middle of the wagon) must be in the pneumatic position – Fig. 35
e) the flap and the unloading chute must be cleaned of any substrate in the area of the sealing tape.

5.3.1 Closing the flaps from the wagon platform:

a) push the red button for the respective flap – Fig. 36
(the button number corresponds to the flap number)
b) release the button when the required position or max. closing position is reached (max. closing position is the position where the flap movement is stopped by the flap reaching the unloading chute – Fig. 37)

Fig. 36

Fig. 37

5.3.2 Closing the flaps from the middle of the wagon:

a) push the red button for the respective flap – Fig. 38
b) release the button when the required position or max. closing position is reached (max. closing position is the position where the flap movement is stopped by the flap reaching the unloading chute – Fig. 37)

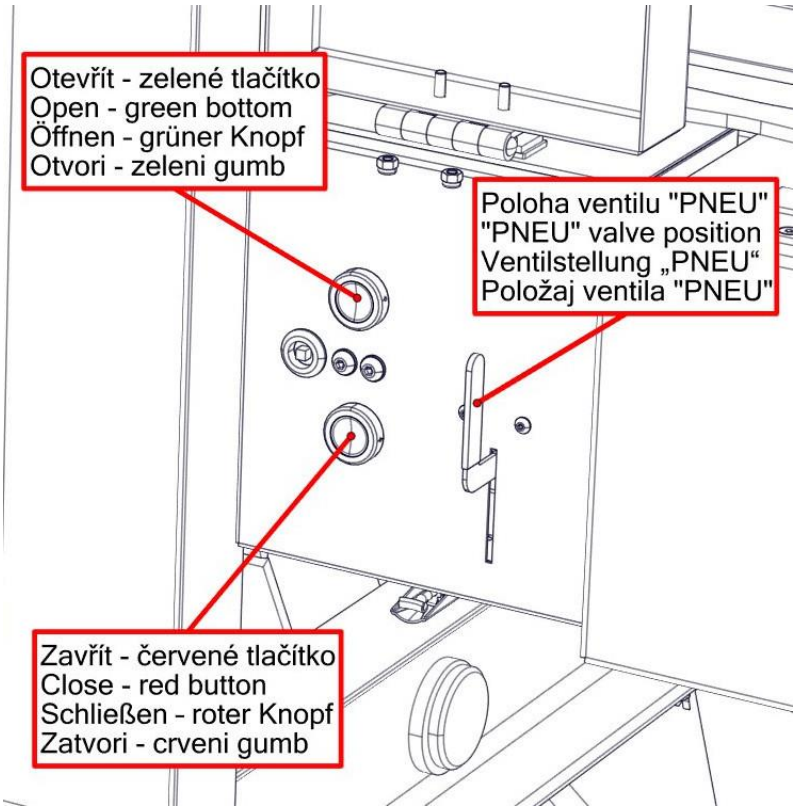


Fig. 38

5.4 Alternative wagon equipment for the flap operation

- the wagons may be fitted with the following additional equipment:

5.4.1 Manual flap opening and closing

5.4.1.1 Manual flap opening

Before flap opening:

a) connect the torque multiplier – *Fig. 39*
b) connect the ratchet - *Fig. 40*
c) manual-pneumatic lever (in the middle of the wagon) must be in the manual position – *Fig. 41*

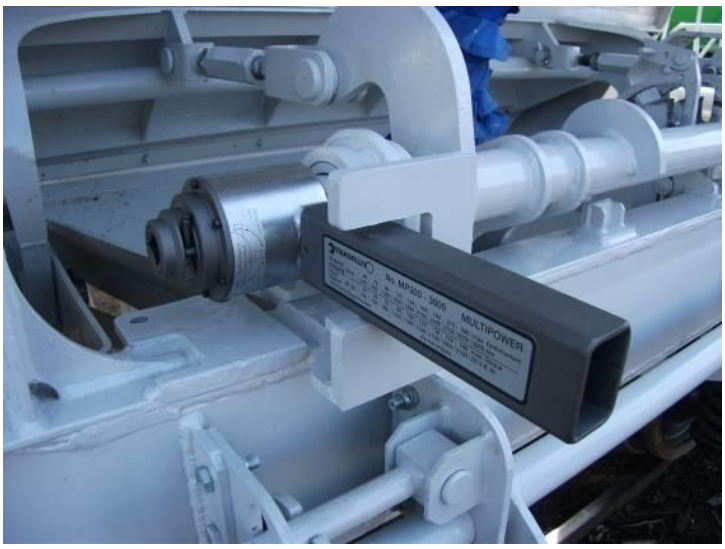


Fig. 39

Fig. 40

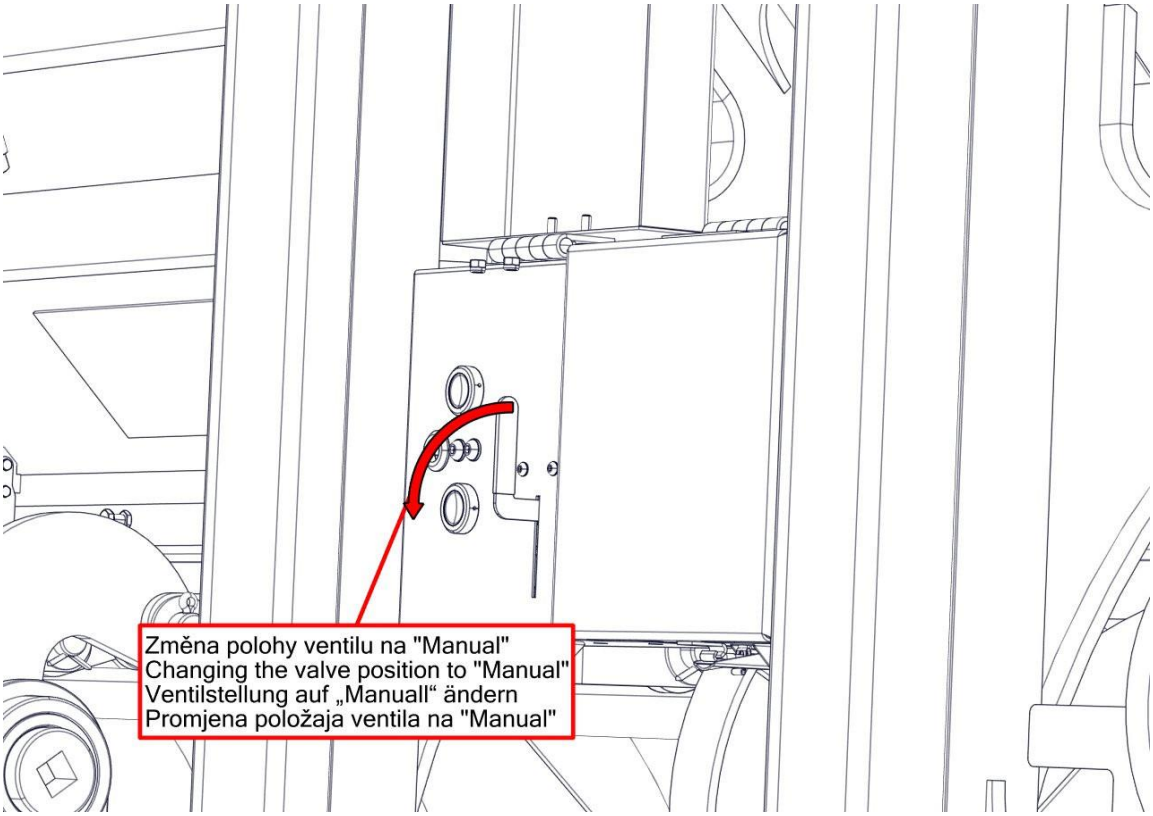


Fig. 41

Flap opening:

a) Set the torque multiplier lever to the opening position – *Fig. 42*
c) move the ratchet towards yourself to open the flap to the required or maximum position (max. opening position is the position where the flap movement is stopped by the flap reaching the stops – *Fig. 34*)

Fig. 42

5.4.1.2 Manual flap closing

Before flap closing:

a) connect the torque multiplier – *Fig. 39*
b) connect the ratchet - *Fig. 40*
c) manual-pneumatic lever (in the middle of the wagon) must be in the manual position – *Fig. 41*

Flap closing

a) Set the torque multiplier lever to the closing position – *Fig. 43*
move the ratchet from yourself to close the flap to the required or maximum position (max. closing position is the position where the flap movement is stopped by the flap reaching the unloading chute – *Fig. 37*)

Fig. 43

6 Control of pressure regulator with filter and pressure gauge

Caution:

- **the pneumatic regulator is from factory set and blocked at max 6 bar**
- **manipulation with the pneumatic regulator is prohibited**
- **regulation of the maximum pressure of the pneumatic regulator only during service operations**

6.1 Setting the max. pressure of 6 bar – Fig. 44

a) Remove the safety
b) pull the control cap of the pressure regulator
c) set the pressure of **max. 6 bar**
d) press the control cap of the pressure regulator
e) put on the safety

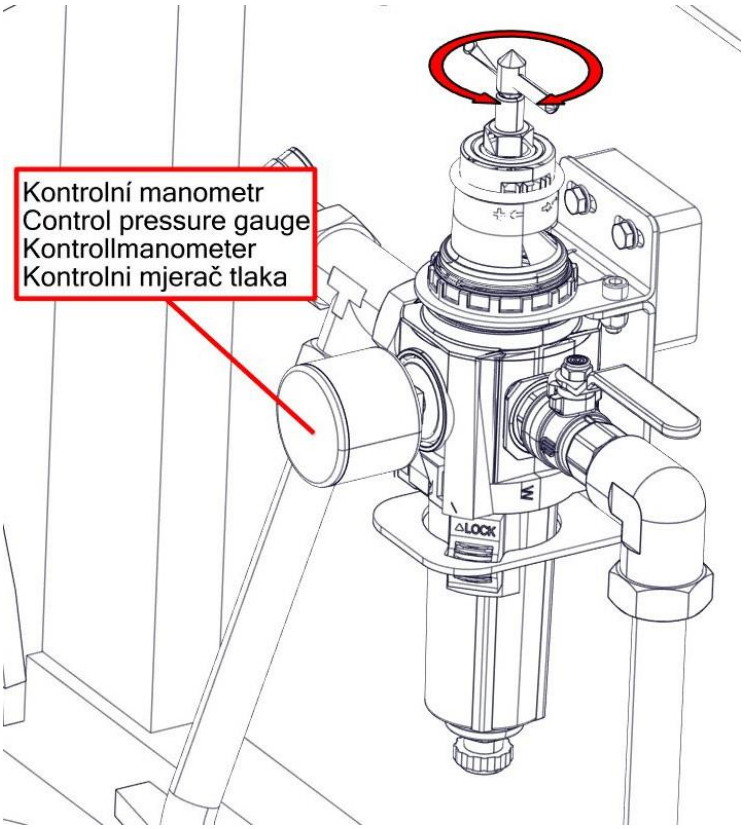


Fig. 44

7 Auxiliary air tank

- the auxiliary air tank is used for limited control of the flaps without the possibility of connecting the wagon to the locomotive - Fig. 26 or to the compressor - Fig. 27
- before using the air tank, it is necessary to pressurize it

Pressurization of the air tank:

a) connect the supply pipe (10 bar - yellow) via hose couplings behind the locomotive - fig. 26 or behind the quick coupling to the compressor - fig. 27
b) open the tap (yellow) to power one car, or all the taps of the power supply pipe (yellow) to power the cars connected to the train - Fig. 26
c) open the ball valve on the pneumatic regulator - Fig. 28
d) open the valve of the air tank (parallel) - Fig. 46
e) pressurize
f) check the **pressure of 6 bars** - Fig. 47
g) close the valve of the air tank (perpendicular) - Fig. 46

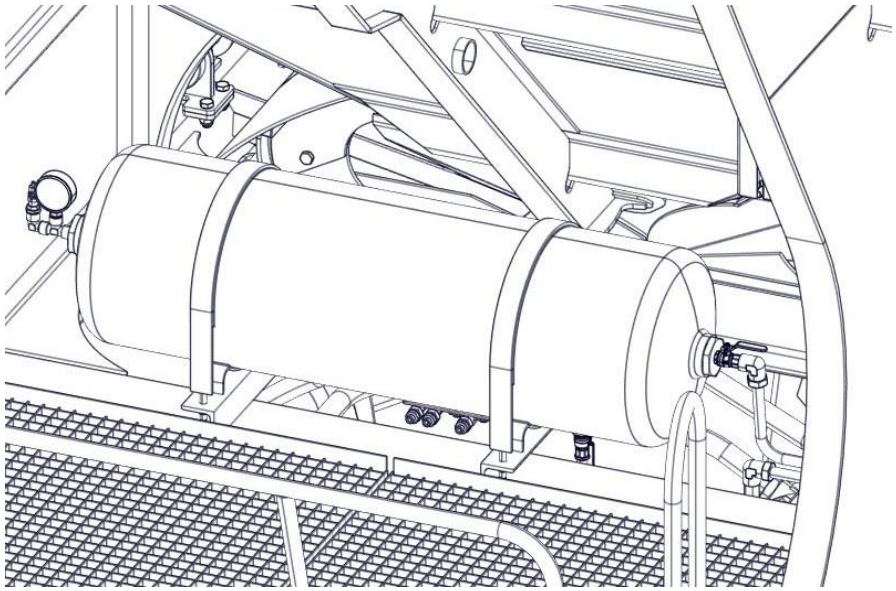


Fig. 45

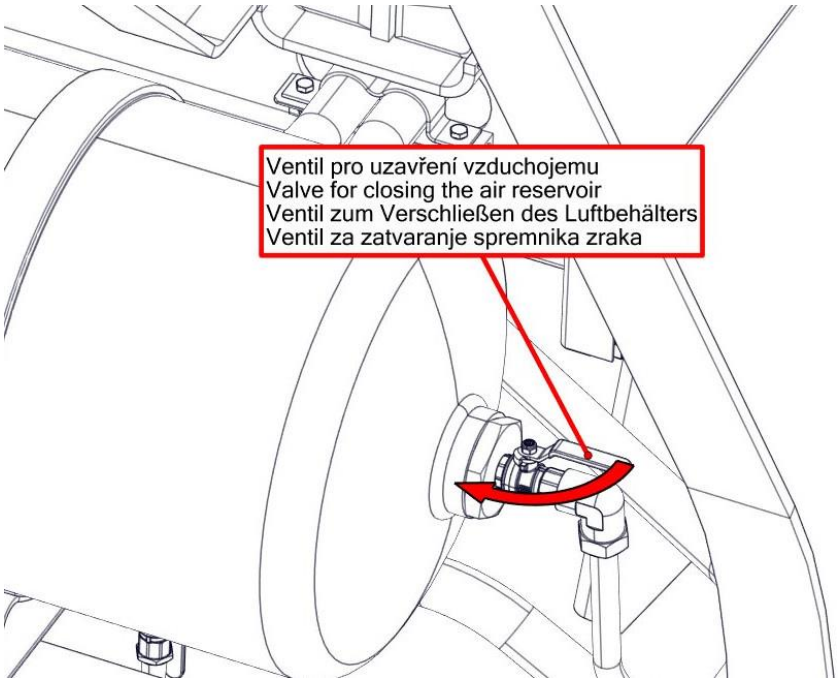


Fig. 46

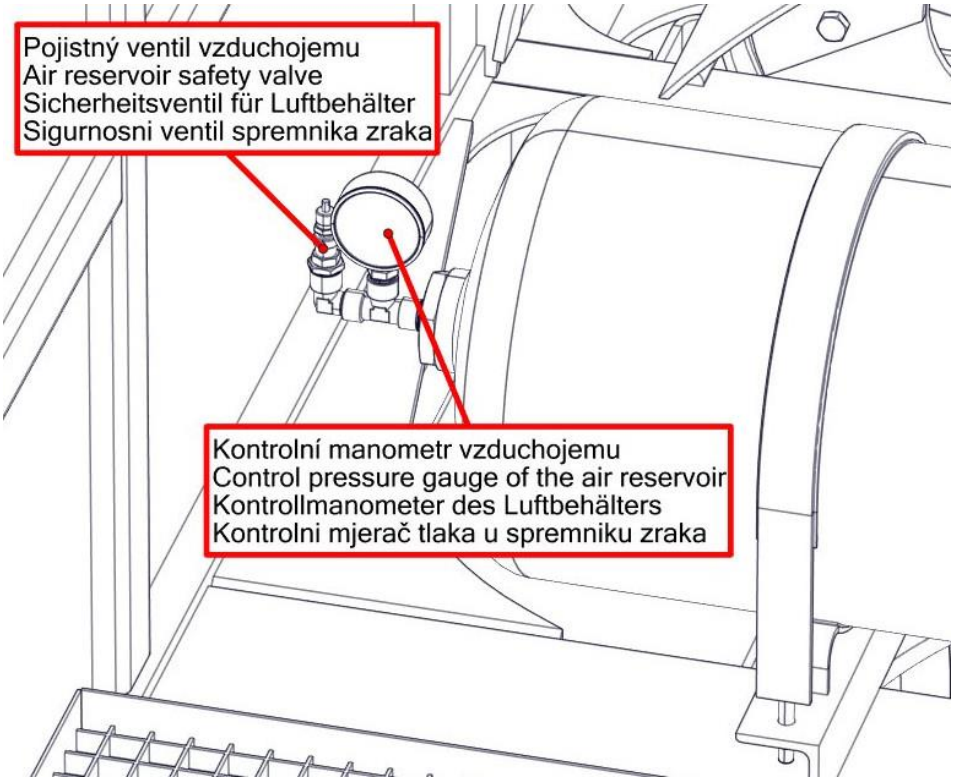


Fig. 47

Using the air tank:

a) open the valve of the air tank (parallel) - Fig. 46

8 Folding grates

Grid uping:

a) unscrew the clip - Fig. 49 on the grid - Fig. 48 (2 pcs/grid)
b) flip off the grate and secure it with a carabiner - Fig. 50

Run down grid:

a) lower the grate to the down position - Fig. 48
b) hang the carabiner in the appropriate place - Fig. 51
c) screw the clip - Fig. 49 on to the grid - Fig. 48 (2 pcs/grid)

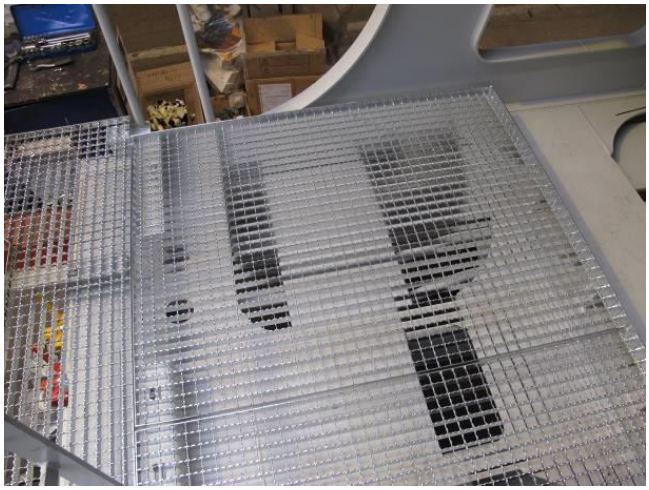


Fig. 48

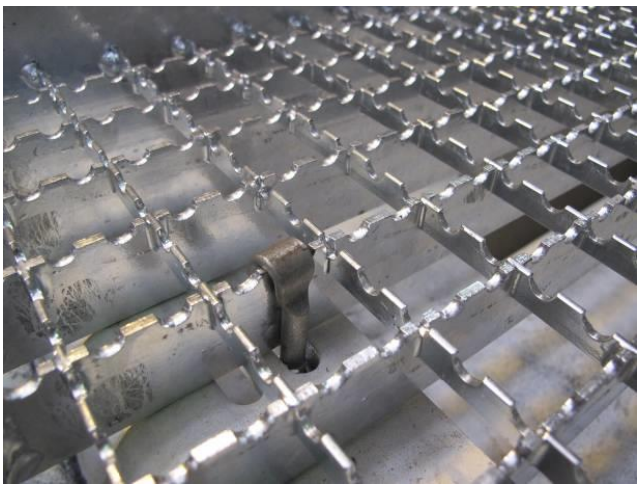


Fig. 49

Fig. 50

Fig. 51

9 Removing air from quick couplings

The air can also be removed from the supply pipe using quick couplings.

Air extraction:

a) Connect the hose to the quick coupling on the side of the wagon - Fig. 27

10 Access on the front wall of the wagon

Provided by means of the ladders on both side of the wagon

	**Caution:** - **when ascending the front wall, follow the respective safety regulations.** - **The ascent is forbidden, if the wagon is located under the overhead line! – Fig. 52**

Fig. 25

11 Controls of pneumatic brake

Before using of the wagon, the adjustment of the brake must be checked properly.
When adjusting the brake, always follow the pictograms on the labels of the changeover devices.

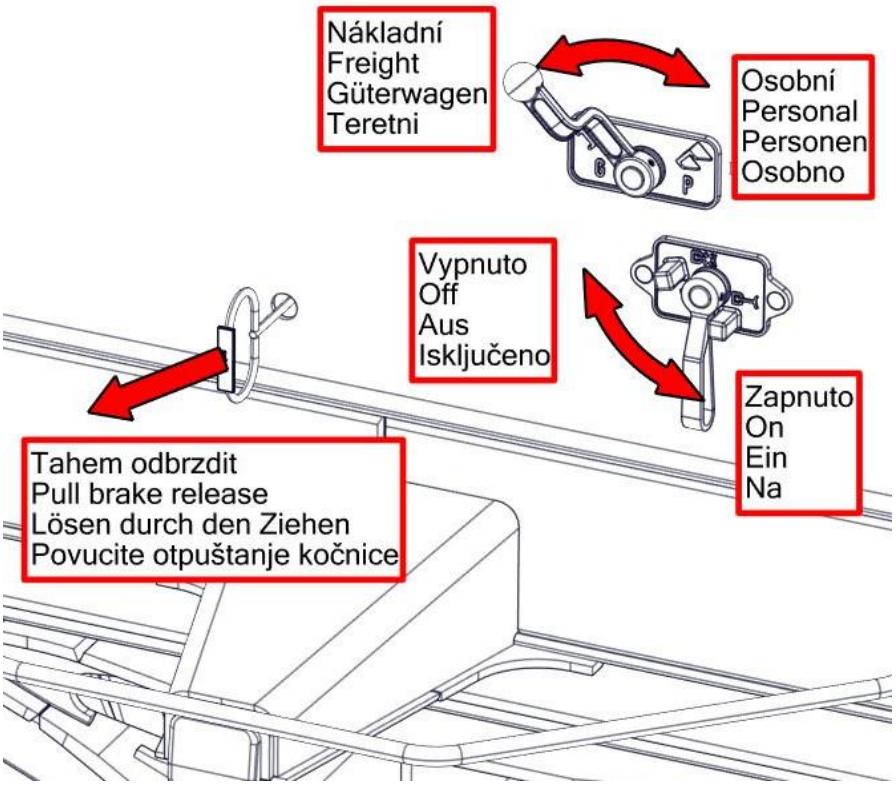


Fig. 53

This part of the text provides information on the location of the controls of the pneumatic brake on the wagon, it does not replace the operating instructions of the carriers.

12 Hand brake control

Braking is done by turning the hand brake handle from left to right. The handbrake control wheel is located on the side of the chassis on both sides of the wagon, see the picture below.

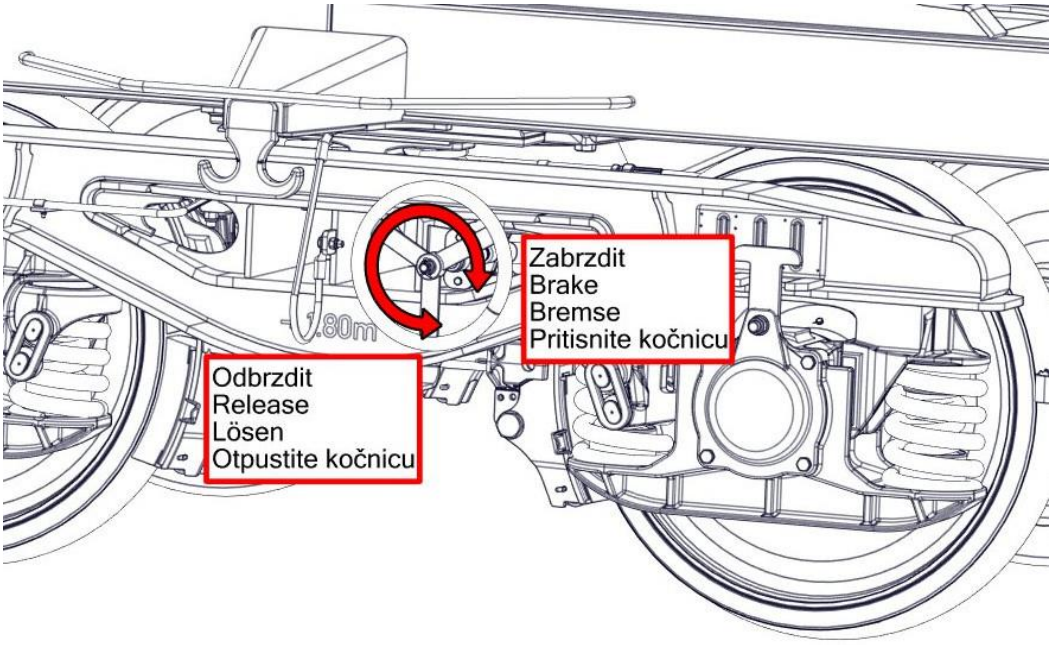


Fig. 54

The brake is released by turning the hand brake handbrake control wheel in the opposite direction, i.e. from right to left.

When releasing the brake, always make sure that the brake blocks are fully released and rotate the handbrake control wheel fully until it stops

13 Lifting and re-railing the entire wagon in four-points

- lifting of the wagon is always to carry out in intended points with adequate means and with regard to working safety
- lifting of loaded wagon only in exceptional cases

The lifting points are always marked by pictograms according to EN 15 877-1

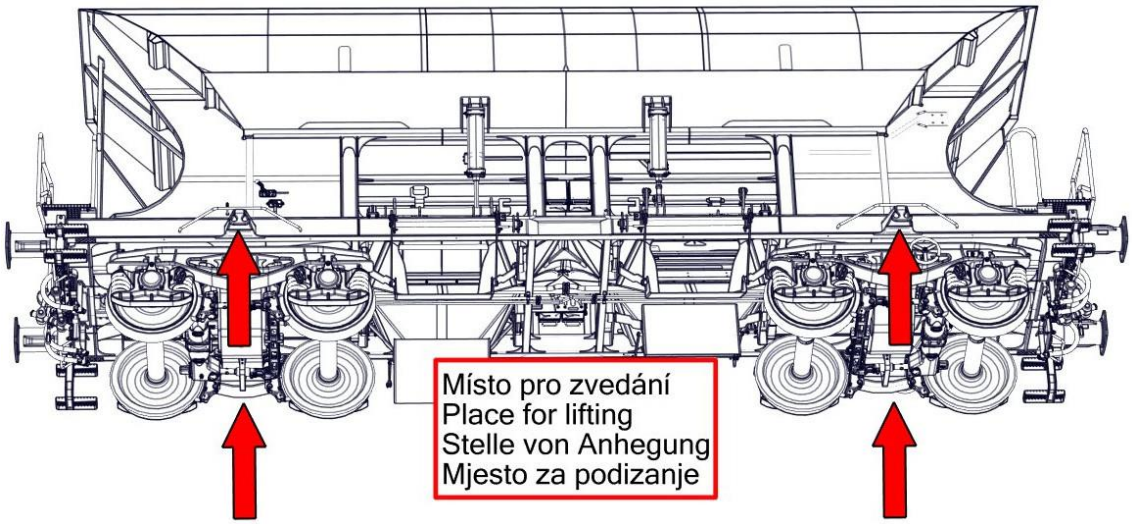


Fig. 55
Scheme of the places for lifting the entire wagon in the lifting device

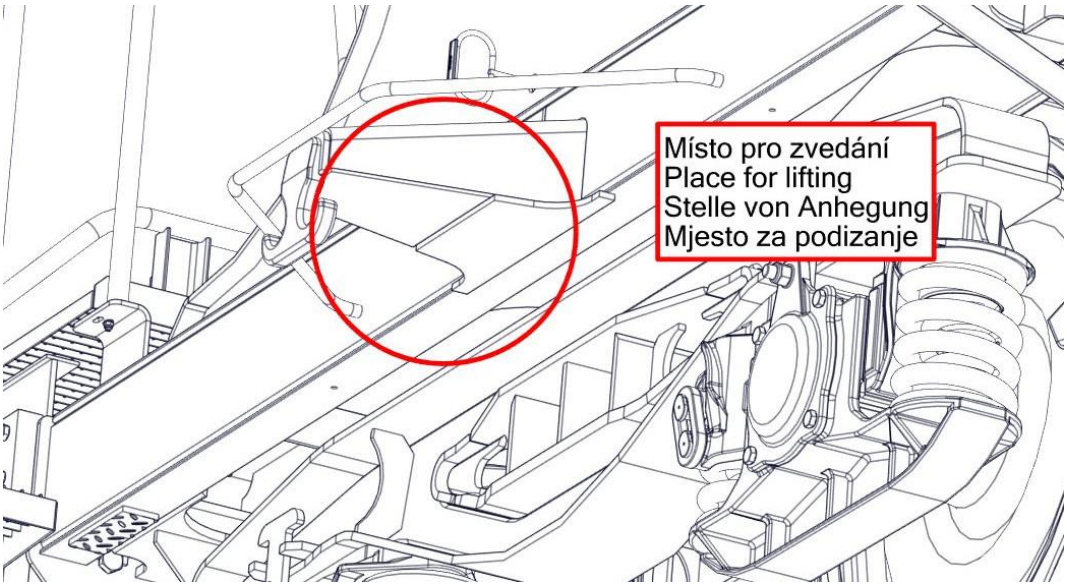


Fig. 56
Detail of the place for lifting the entire wagon in the lifting device

Raise the whole wagon only when the whole wagen is in the horizontal position. Strict prohibition of lifting the wagon in places other than those intended (risk of damage to the parts of the wagon).

14 Lifting and re-railing at the end of the wagon

- carry out the wagon re-railing always in points intended for this purpose with adequate means and with regard to working safety
- re-railing of loaded wagon only in exceptional cases

The lifting points are always marked by pictograms according to EN 15 877-1

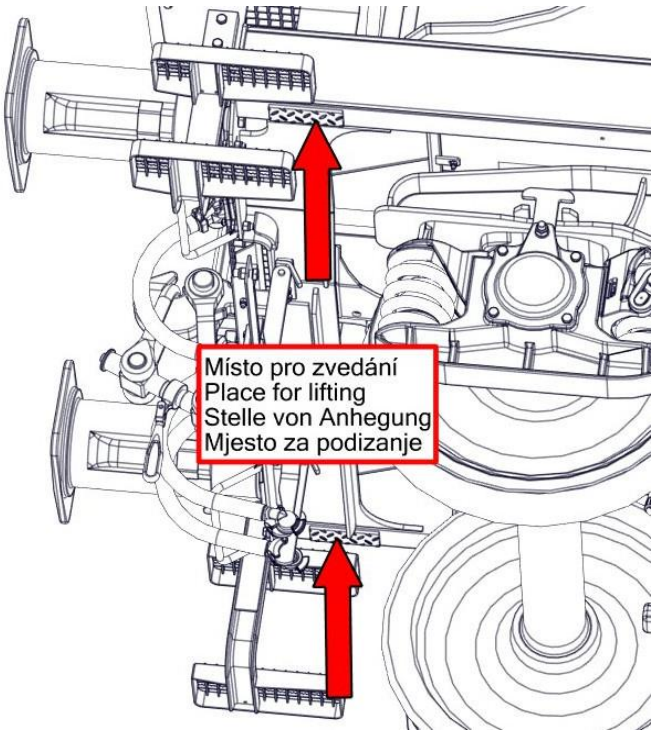


Fig 57
Plan of points for lifting or re-railing at one end

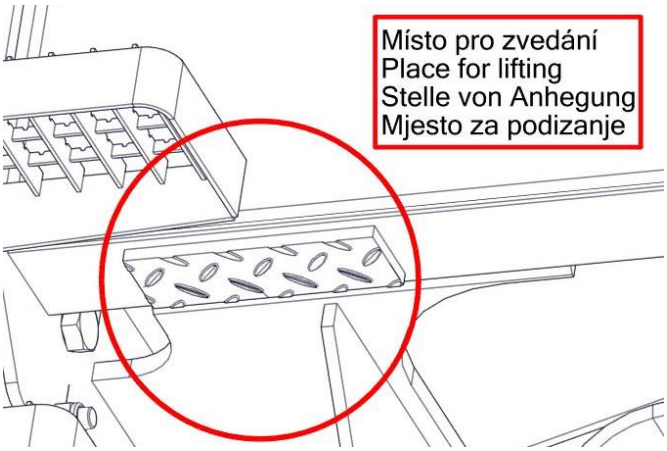


Fig 58
Detail of the place of points for lifting or re-railing at one end

Strict prohibition of lifting the wagon in places other than those intended (risk of damage to the parts of the wagon).

15 Shunting of the wagon with a tow rope

- carry out the wagon shunting always in points intended for this purpose with adequate means and with regard to working safety
- towing the wagon in places other than intended for this purpose is prohibited (risk of damage of wagon parts)

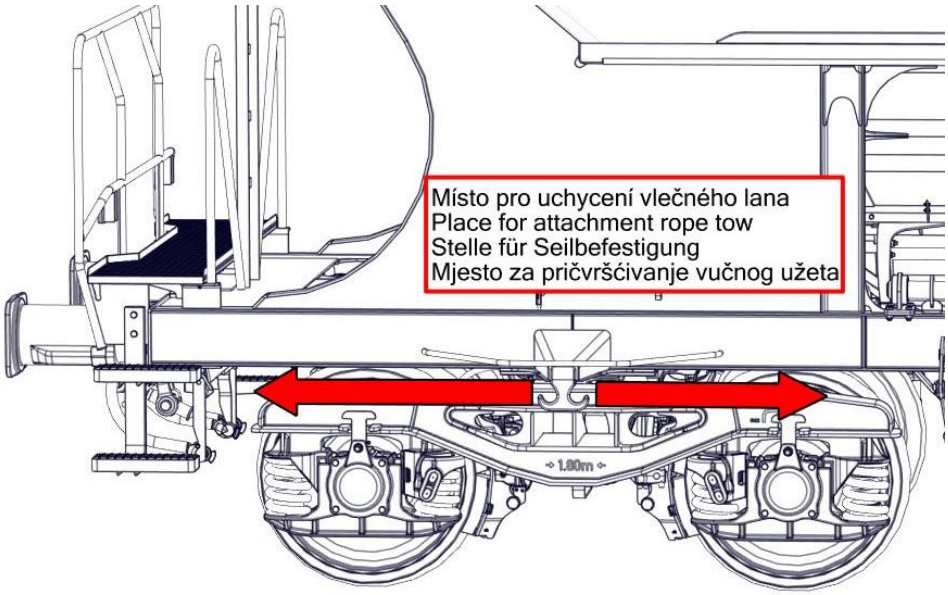


Fig. 59
Detail of the point for towing

Fig. 60
Detail of the point for towing

Towing of the wagon at points not intended for towing is strictly prohibited (risk of damage to the wagon parts)

16 Lubrication plan

The lubrication plan is developed in detail in the user´s rules of service with regard to these determined lubricants and periods for individual construction units and components – see the table below.

Bogies Y25 Lsi(f)

See the specifications in the Maintenance book MB Y25Lsi(f) 02/2023.

WARNING! The following must not be lubricated:

1. sliding insert pressed onto the pivot centre casting bottom body
2. surface of the top body of the pivot centre, which is in contact with the sliding insert
3. manganese plates of the bearing box guide and the friction surface of the buffer piston – any grease must be removed before mounting!
4. suspended plastic slides on the contact area

Underframe:

	Name of the wagon parts	Lubricating grease	Kg	Frequency	Note
1	Tube buffer Buffer head – front surface	Grease according to regulation or ECM	0,75	During usual maintenance and regular review of the wagon	During inspection: Old grease remove
2	Draw gear Moving screws and nuts of the screw coupling pin, fork end of the draw gear, hook pin, hook draw guide	Grease according to regulation or ECM	0,4 0,1 0,05	During usual maintenance and regular review of the wagon	During inspection Old grease remove
3	Brake Pins in the mechanical part Brake lever Brake cylinder Slack adjuster Handbrake gears , spindle, bearing, rocker arm Changeover devices G/P, - gearing, pins	Grease according to regulation or ECM	0,8 0,4 0,1 0,4 0,2	During mounting During review	Old grease remove