

Capreolus CA2-590-4-92



Capreolus CA1H-590-4-24

# Assembly and Instruction Manual

## Capreolus Transport Rack





# Transport Racks

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## ***Congratulations***

Congratulations on the purchase of this Transport Rack from JOWI. You will find it the perfect solution for storing and transporting a wide range of materials used during manufacturing.

## ***Important***



These operating instructions contain important information regarding safety, use and maintenance. Please ensure that you read and fully understand these instructions before using your JOWI Transport Rack for the first time. In the event that you sell your JOWI Transport Rack to somebody else, please make sure that you pass on this instruction manual to the new owner. We expressly inform you that these instructions must be strictly adhered to if they are to protect personal health and safety, people's lives and property. As the manufacturer, we reserve the right to make changes to the instruction manual at any time and without prior notice. Changes can include, for example, adding further details, new information or improving instructions. You can request a copy of the current version of these operating instructions by sending an email to [office@jowi.at](mailto:office@jowi.at) or download the current version on our website [www.jowi.at](http://www.jowi.at).



**This symbol is used in these operating instructions and means:  
Important: Failure to comply with these operating instructions can result in the risk of injury, risk of death or possible damages.**

Some of the information in these operating instructions only applies to certain models. This is clearly indicated in each section.

The different JOWI Transport Rack designs can be summarised as follows:

CA1H-590-4      => CA1H

CA2-590          => CA2

CA2-780          => CA2

CA2-920          => CA2

## **Assembling your JOWI Transport Rack**

At least two people are required to assemble your JOWI Transport Rack.

To assemble your rack:

### **1. Open the cardboard box**

Make sure that the box is lying in a stable position on one of its larger flat sides. Open the flaps along the two long sides of the box and cut the box open along the short sides. Take the top layer off the box. Place it alongside the bottom of the box to use as an underlay when assembling the Transport Rack.

### **2. Separate the transport unit and check that the cardboard box contains all the correct components**

N.B.: The CA2H rack includes an extra box containing 4 connecting tubes (6) and 2 tensioning stays (10).

- Put the shelf (9) on one side  
CA1H:682 x 590 mm  
CA2:1393 x 590 / 780 / 920 mm
- Cut the plastic ties and place 2 crossbars (5) including the bolts to attach them on one side (only applies to CA2 racks).
- Remove the first horizontal rail (2). You will need to use the 4-mm Allen key supplied, which is stored in the front end of the horizontal rail (2) of the base frame (1). Undo the 2 grub screws on the back right and left-hand side of the top horizontal rail (2). With the help of at least one other person, lift up the horizontal rail (2), including the support tubes (7) that are fitted to it, until the rail comes off the short connecting tubes and put the rail on one side for the time being.

N.B.: The front end of the horizontal rail not only contains a 4-mm Allen key, but also a 6-mm Allen key. You will need this later when assembling the rack.

Place the 8 connecting tubes (6) (only applies to CA2), 3 tensioning stays (10) (only applies to CA2), the wooden spacers and the second horizontal rail (2) – including the support tubes (7) that are fitted to it – to one side.

N.B.: Fit this horizontal rail (2) to the rack last. This rail can be recognised by:

- the two stoppers, which prevent the connecting tubes (6) from being pushed in too far and ensure that the tubes protrude by equal amounts.
- the plates containing lens head bolts to secure the tensioning stays (1).
- Remove the third horizontal rail (2) and put it on one side.
- Place the two handle tubes (8) and the wooden spacers on one side.
- Remove the short connecting tubes from the base frame (1).
- Two small cardboard boxes can be found beneath the base frame, each containing:  
2 x steering castors (3, 4) Ø 160 mm, 1 of which is fitted with brakes (4)

2 x M12 hex-head bolts including wedge-lock washer sets

One box also contains 1 x 17-mm combination spanner and 1 x 19-mm combination spanner

### 3. Assemble the Transport Rack (at least 2 people required)

#### 3.1 Fit the steering castors to the base frame (1)

For optimal manoeuvrability, we recommend attaching the steering castors fitted with brakes (4) at the front (at the open end of the support tubes (7)) and the steering castors without brakes (3) at the back. You will require the M12 hex-head bolts and wedge-lock washers supplied (see castor box), as well as the 19-mm ring spanner or an equivalent.

**N.B.:** From April 2017, the bolt sets supplied to attach the steering castors include wedge-lock washer sets, which allows for better tensioning of the bolts that hold the castors in place. If you own a JOWI Mobile Rack or Transport Rack that is not fitted with wedge-lock washer sets, we will gladly send you a free set of wedge-lock washers to use on your rack. To request these, please send an email to [office@jowi.at](mailto:office@jowi.at).



- Place the bolt, with the wedge-lock washer set on it, through the steering castor housing (3, 4) and attach it underneath the base frame (1).
- Tighten the bolts with a torque of 80–100 Nm. With a 200-mm-long spanner, this needs a force of around 400–550 N (approx. 40–55 kpF/kg).



**Important:** Safety can only be guaranteed when the recommended amount of torque (80–100 Nm) has been applied. We recommend checking the bolts with a torque spanner.

**N.B.:** The bolt may touch the side of the tube behind the jam nut before the steering castor housing is properly secured. Continue to turn the bolt until the appropriate torque has been applied. The side of the tube will spring back into place.



**Important:** Check the tightness of the bolts after using the rack for the first time. Tighten the bolts if necessary. We recommend inspecting the bolts regularly. Plan further inspections according to the usage conditions, e.g. distance covered by the rack, the nature of the floor, the weight of loads and the frequency of loading/unloading, as well as any other factors, such as a noticeable loosening of the screws.



#### 3.2 CA2: Fit the crossbars (5)

The holes at the diagonally cut ends of the crossbars (5) contain bolts and washers.



**Important:** The following parts must be assembled in the following order: the screw head is immediately followed by a set of wedge-lock washers, which is followed by a large plain washer that butts onto the crossbar (5).

- Screw the two bolts on the crossbar (5) into the fastening screw threads underneath the base frame (1). You will need to use the 17-mm combination spanner supplied.
- Tighten all the bolts that secure the crossbar (5) in place (applying a torque of 80 to 100 Nm). With a 200-mm-long spanner, this needs a force of around 400–550 N (approx. 40–55 kpF/kg).



**Important:** Safety can only be guaranteed when the recommended amount of torque (80–100 Nm) has been applied. We recommend checking the bolts with a torque spanner.



**Important:** Check the tightness of the bolts after using the rack for the first time. Tighten the bolts if necessary. Plan further inspections according to the usage conditions, e.g. distance covered by the rack, the nature of the

**floor, the weight of loads and the frequency of loading/unloading, as well as any other factors, such as a noticeable loosening of the screws.**

### 3.3 Position the base frame (1) on top of the steering castors (3, 4)

- Secure both brakes on the steering castors (3, 4) to avoid the rack rolling away accidentally.
- With the help of at least one other person, carefully tip the base frame (1) upright onto its steering castors (3, 4).

### 3.4 Fit the connecting tubes (6)

- Insert the 4 or 8 galvanised connecting tubes (6) through the holes drilled in the horizontal rail of the base frame (1) until they click into place.
- Secure the connecting tubes (6) using the 4-mm Allen key, applying a torque of 3–4 Nm.

### 3.5 Fit the remaining horizontal rails (2)

- With the help of at least one other person, pick up one horizontal rail (2) and hold it so that the clamp bolts on the support tubes (7) are facing upwards.
- Guide the horizontal rail (2) onto the connecting tubes (6) and adjust to the desired height. Always ensure that they are horizontal to avoid possible twisting.
- One person needs to hold the horizontal rail still while another person tightens the grub screws on the connecting tubes (6) with a torque of 3–4 Nm, to secure the horizontal rail (2) in place.

### 3.6 Fit the tensioning stays (10)

- Lightly screw each of the lens head bolts on the back of the top horizontal rail (2) into the top end of the tensioning stays (10).
- Secure the tensioning stays (10) through the hole at the bottom ends onto the M10 bolts on the side of the base frame (1). Using the 17-mm combination spanner supplied, screw on the self-locking nuts just enough so that the nut holds the tensioning stay (10) and chassis loosely together.
- Tighten up the lens head bolts equally, until the support tubes (7) that are fitted on the top horizontal rail (2) are approximately horizontal. You will need to use the 6-mm Allen key supplied, which is stored in the front end of the horizontal rail (2) of the base frame (1), next to the 4-mm Allen key mentioned before.
- Tighten the hex nuts on the lens head bolts so that they secure the tensioning stays (10) in place. You will need to use the 17-mm combination spanner supplied.

### 3.7 Fit the two handles (8)

- Insert both ends of the handle (8) into the bushes on the side of the base frame (1) and secure them in place with the 4-mm Allen key supplied.

### 3.8 Fit the shelf (9)

- Place the left-hand side of the shelf (9) on the U-shaped rail on the base frame (1) and position the right-hand side a little below the yellow plastic strip.
- Slide it backwards a little and guide the plastic pegs on the left into the U-shaped rail.
- Push the shelf (9) as far back as it will go and lower it down on the right-hand side.

**4. Your JOWI Transport Rack is now ready for use!**

## ***Intended use***

The Capreolus Transport Rack from JOWI has been designed exclusively for storing and transporting manufacturing materials in an almost vertical position. Please respect the following:

- The weight of materials should not exceed the maximum load capacity for a given rack. Please refer to the corresponding data in the "Maximum load capacity" section of this chapter, or to the label on the Transport Rack.
- The width of materials should not exceed the width of the shelves (9). Wider items may be stored in the rack, providing specific guidelines are respected. Please refer to the section "Placing wide items in the rack".
- Items must be supported by at least 2 support tubes (7), one of which must be towards the top of the item, and another towards the bottom.
- The support tubes (7) only provide side support for items in the racks. Items are not allowed to be placed horizontally on the support tubes (7).

### Maximum load capacity (based on evenly distributed loads, without impact loads)

1 support tube (7)	SR23-0590: 15 kg
	SR23-0780: 11 kg
	SR23-0920: 9 kg
Bottom shelf (9)	CA1H: 400 kg
	CA2: 600 kg

### Maximum speed: 3 km/hr

Secure rack contents with straps if required.

Environmental requirements: The Transport Rack has been designed to be used inside, in areas with:

- a slip-proof, level and horizontal floor (to prevent tripping when pushing/pulling the rack)
- a temperature between 10°C and 80°C (racks can be custom-built if they are needed to withstand higher temperatures)
- a relative humidity of <50% (not condensing). The rack should not come into contact with any corrosive substances.

Using the rack for any other purpose than those stated here could be dangerous. The manufacturer shall not be held liable or responsible *for any damages that are caused by incorrect use or operation of the rack.*

## Technical safety



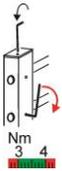
Always replace damaged parts of the rack with original JOWI components. The manufacturer cannot guarantee that any other parts fully comply with safety standards. No other spare parts may be added to or integrated into the rack unless they have been expressly approved by the manufacturer. If you fit any parts to your rack other than original JOWI components, the warranty, compensation and product liability will be rendered null and void.

### Mechanical stability and protection against explosion

Securing the chassis: Tighten up all the bolts that secure the chassis by applying the torque listed in the section "Assembly".



This ensures maximum stability and load capacity of the Transport Rack, and enables potential to be correctly equalised.



Securing the support tubes (7): Tighten up all the bolts that secure the support tubes (7) with 3 to 4 Nm, to ensure maximum stability and load capacity of the Transport Rack and to enable potential to be correctly equalised. You will need to use the Allen key supplied, (stored in the front end of the horizontal rail (2) of the base frame (1)).



Potential equalisation: Potential equalisation is essential where electrostatic processes are concerned and recommended in spray-painting and drying zones. An M8 bolt is fixed to both sides of the chassis. These bolts, marked with a sticker showing an earth symbol, can be used as contact pins for equalising potential.



The contact pins for potential equalisation are to be found beneath the chassis. Their position is marked with a yellow, rectangular sticker on a vertical surface next to them.



To ensure that potential is correctly equalised, keep the contact pins clean and (depending on rack model) tighten the bolts that secure the chassis, as well as all the bolts that secure the support tubes (7). All bolts must be tightened with the corresponding torque, as listed in this instruction manual.



Risk of explosion: Items that are tainted with solvent may lead to a potentially explosive atmosphere. Hitting the frame with a hammer or other metal tools could generate sparks and is, therefore, forbidden in areas subject to explosion hazards. Please comply with your country's safety guidelines and regulations relating to this matter.

An explosion risk assessment should be carried out for the relevant areas and stations on your site by an explosion prevention expert, taking the following information into consideration. Other measures may need to be implemented in addition to those listed above.

Established explosion protection data:

Capacity per support tube (7)  $C < 0.5 \text{ pF}$ ,

Maximum potential  $U < 12 \text{ kV}$ ,

Maximum ignition energy  $E < 0.5 \text{ mJ}$ ,  
Surface resistance of support tubes (7)  $r > 109 \text{ Ohm}$ .  
Bleeder resistance of the steel frame  $R_a < 10 \text{ Ohm}$  when potential equalisation cables connected.

## Adjusting the Transport Rack

### Removing and fitting support tubes (7)

The position of the support tubes (7) can be changed or more support tubes (7) can be added if required.

To do this, release the grub screws using the 4-mm Allen key and remove or fit the corresponding support tube (7).

To fit a support tube (7), insert the tube in the hole drilled in the horizontal rail (2) and secure it in place by tightening the grub screws with a torque of 3 to 4 Nm.



Only fit support tubes (7) on the front of the rack: Never fit support tubes (7) to the back of a Transport Rack. Fitting support tubes to the back could cause the Mobile Rack/Transport Rack to tip over.



Altering the position of the horizontal rails: (Requires 2 people)

The middle horizontal rails (2) are height-adjustable. Undo the grub screws that secure the horizontal rail (2) onto the connecting tubes (6), while another person holds the horizontal rail (2) firmly to prevent it from accidentally slipping down. With two people holding the horizontal rail (2), adjust the rail to the desired height. Tighten the grub screw after fitting every connection tube (6). The horizontal rail (6) must be secured with a torque of 3–4 Nm.



Some models of Transport Rack feature a rear-extendable chassis with telescopic arms. This allows larger materials to be stored on the back of the rack. Loosen the knurled screws on the side of the chassis and lift the Transport Rack a few millimetres off the ground. Pull the telescopic arm out until it clicks, or push it back in. Then, secure it in place with the knurled screws. A tightening torque of 3 to 4 Nm is required. Repeat this procedure for both telescopic arms (on the CA1H-T), or for the three telescopic arms (on the CA2-T). As a general rule, we recommend securing materials on the rear of the rack to prevent them from tipping off, with a restraining strap, for example.



Risk of tripping: If all or some of the support tubes (7) are removed, or when the telescopic chassis arms are extended, there is a risk of tripping over the chassis.

## Positioning the Transport Rack in the workplace



Locking the steering castors: Secure both lockable steering castors (4) after moving the Transport Rack to a different place, to prevent the rack from rolling away accidentally.



### **Moving the rack/transporting material**

Maximum authorised speed 3 km/hr: To ensure that the Transport Rack does not tip over, the maximum authorised speed is 3 km/hr.



Unsuitable for inclined floors: Only use the Transport Rack on a horizontal floor. If the floor is not level, materials stored on the support tubes (7) may fall off the rack. The brakes on the steering castors (4)

are not designed to hold the rack securely in place if left on a sloping floor.



Do not bang into steps or other objects! The Transport Rack has been designed for use on horizontal, level floors. Banging into objects, e.g. steps, can lead to accidents that may cause injuries or material damage.



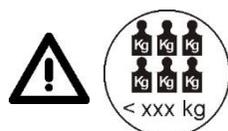
Do not climb on the rack! Do not ride on the rack! The Transport Rack has not been designed to climb on, to travel with, or to transport people. This may overload the rack and cause it to tip over. The Transport Rack has been exclusively designed to hold and transport materials.

### Loading/unloading materials



Maximum load capacity of support tubes (7): The maximum load capacity applies to a rack with an evenly distributed load, without impact loads.

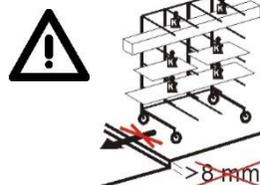
The maximum load capacity of support tubes (7) is calculated for a load that does not protrude beyond the front end of the support tubes (7). Materials that protrude beyond the front end of the support tubes (7) reduce the load capacity of the tubes and the overall load capacity of the rack. Please refer to the section "Placing wide items in the rack".



Overall maximum load capacity of the Transport Rack: The maximum load capacity data is calculated based on an evenly distributed load. Please refer to the corresponding data in the chapter "Intended use", or the label on the Transport Rack.



Load materials gently into the rack: Place material gently in the rack. Impact loads could overload the rack and cause damage.



Avoid impact loads: Avoid pushing or pulling the rack over steps that are over 8 mm high as this may overload the Transport Rack.



Distribute loads evenly: Place items as far back as possible in the rack, close to the vertical load-bearing frame. Items should not protrude beyond the edge of the shelf (9) if this can be avoided.

Placing wide items in the rack: Up to one-third of the compartments may be used to store wider items that protrude beyond the front of the shelf (9) by no more than one-third of the width of the shelf. Care should be taken to ensure that the centre of gravity is positioned as far back as possible. The centre of gravity must lie between the two rear supports and in the middle of the item being carried. If a Transport Rack is loaded with wide items that

protrude beyond the ends of the support tubes, the maximum load capacity of these tubes is reduced by one-third. The rack may be moved at a maximum speed of 2 km/hr. Greater speeds can cause the rack and its contents to tip.



Securing items to prevent tipping: You can store items vertically in the compartments. The inclination of the items keeps them in place. Depending on the shape and dimensions of materials, or the way they are placed in the rack, they may need to be secured manually to prevent tipping. If your rack has a telescopic chassis, we generally recommend securing items placed on the back of the rack, with a restraining strap, for example.



Placing narrow items in the rack: Certain sized narrow or pole-shaped materials can also be stored in the rack, providing certain guidelines are adhered to. It is, however, necessary to secure contents during transport to prevent them from tipping out. with a restraining strap, for example.



Items protruding from the rack: Single protruding items, particularly at foot- or head-height, present a risk of accidents.

## **Repairs and maintenance**



### **Regular inspections**

**Carry out regular inspections (depending on the wear and tear of the rack), but AT LEAST once every year:**

- Check the tightness of all bolts, especially those that secure the steering castors (3,4). Tighten the bolts if necessary.
- Check the state of the steering castors (3,4) and ensure that the brakes lock properly.
- Check that the stickers are in place and legible. Stickers providing operation and safety advice, as well as authorised loads, can be found underneath the chassis of the left-hand L-shaped upright (1) of your Transport Rack. Add or replace missing or illegible stickers immediately. Replacement stickers can be ordered from your supplier, or by sending an email to [office@jowi.at](mailto:office@jowi.at).
- The rack should be fully cleaned and inspected for micro-cracks. Micro-cracks can, in rare cases, be caused by material fatigue, which often occurs as a result of exceptional loads. The inspection should pay particular attention to the following areas: the points at which the support tubes (7) are inserted into the horizontal rail (2), as well as all welded areas, especially the welding on the base frame (1). Also inspect the rack for any other damage, such as bent or twisted parts. If you notice that the Transport Rack is damaged, stop using the rack immediately. Damage may make the rack less stable. Replace any damaged parts with original JOWI parts. It cannot be guaranteed that any other parts fully comply with safety standards.

### **Dismantling and disposing of the rack**

Please respect your local recycling regulations.

### **All rights reserved**

These instructions have been written to provide information to users of the corresponding products. This document may only be copied and circulated for this purpose.

This document cannot be used for any other purpose, including circulated in whole or in part, without prior written consent from JOWI Produktions- und Vertriebs GmbH.

## ***Liability***

As the manufacturer of the product described in this manual, we are unable to monitor whether these instructions are observed, nor are we able to monitor the way in which the product is operated, used and maintained. Incorrectly assembling, maintaining or servicing the rack, or failing to carry out the minimum annual inspection, can result in material damage and put people's safety at risk.

We cannot be held accountable or liable for any direct or indirect loss, damage or costs that result from the incorrect installation, operation, use and maintenance of the rack.

Once it is known that the rack can no longer be used safely (e.g. once damage has been detected, etc.) the product must be taken out of use immediately.

JOWI Produktions- und Vertriebs GmbH  
Untergrafendorf 70  
3071 Böheimkirchen  
Austria

[office@jowi.at](mailto:office@jowi.at)

[www.jowi.at](http://www.jowi.at)