

# FEED 422

## User manual Spare parts book



**SERIAL NUMBER** \_\_\_\_\_

**YEAR OF MANUFACTURE** \_\_\_\_\_

**TP SILVA OY**  
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# **1. General information and responsibilities**

## **1.1. Introduction**

The purpose of this manual is to ensure that the machine is used in the manner intended by the manufacturer, taking safety into consideration. Everyone operating the machine or working in close proximity to it must study this manual carefully.

Before commencing work, operators must also familiarise themselves with the machine's control and safety equipment, and ensure their proper operation.

**Keep this manual in the immediate vicinity of the machine.**

## 1.2. Connection Assurance of partly completed machinery

Machine Directive 2006/42/EC, Appendix II B

The name and address of the person who is authorized to assemble the technical file:

Name: Timo Jussila  
Address: Valimotie 1, 85800 Haapajärvi

Certifies that

Product: FEED 422 log rack (TP Silva firewood processor accessory)

Serial number: \_\_\_\_\_

Is in accordance with the relevant provisions of the Machinery Directive (2006/42/EC).

This partly completed machine may only be connected to a compatible TP Silva firewood processor.

Date, place: Haapajärvi, 17.05.2022

Signature:   
Seppo Koiranen  
Chief Executive Officer

### 1.3. Purpose of use

The FEED 422 log rack is intended for moving pruned wood or logs onto a TP Silva firewood processor. The firewood processor must not be used to process any treated wood, such as is found in construction waste.

The maximum diameter of the logs to be processed is 40 cm. This limit must not be exceeded. The maximum length of the logs to be placed on the rack is 4 metres, and the minimum length is 2 metres.

### 1.4. Machine models and basic information

Model	FEED 422 (accessory, TP Silva)
Driving power	TP Silva firewood processor's hydraulics (max 200 bar, max 16 l/min)
Weight	330 kg
Height (adjustable) /width/length	880-1320, 1230-1660 / 2280 / 2480 (mm)
Max log diameter	40 cm
Max/min log length	4,000 mm–2,000 mm
Max load-bearing capacity	2,000 kg

The machine's serial number, year of manufacture, weight and model are provided on the grey type plate fixed to the machine's frame.

### 1.5. Safety instructions

These safety instructions are general in nature. When handling the machine, you must take into account all other relevant instructions concerning health and safety, road traffic regulations regarding transportation, as well as the provisions of the general legislation. Observing the instructions helps to prevent accidents.

The machine may only be used by persons who have familiarised themselves with the manual and the operation of the machine. The operator must not be under the influence of alcohol or narcotic substances. Persons under 18 years of age may not operate the machine. Observe all requirements placed on the operator! The operator(s) must carefully study the machine's safety and installation instructions, along with the operation and control functions, before installing and operating the machine.

#### General provisions:

- The machine must be used solely for loading logs.
- Only one person may operate the assembly.
- The operator must ensure that no unauthorised persons are in the working area. The danger zone is 10 m.
- The operator must always use approved eye and ear protection.
- The machine must be cleaned and maintained on a regular basis.
- The machine must always be stopped and the power source disconnected before performing maintenance work.
- The machine may only be transported in the transport position. This is the responsibility of the driver.

**Working area and operating conditions:**

- The working area must be level and solid.
- The area must be clean and free of obstructions.
- The ground must not be slippery near the machine.
- The machine must not be used indoors, as the dust may enter your airways or cause a fire hazard.
- The machine may only be used with sufficient lighting: daylight is recommended.
- The temperature range within which the machine can be operated is -20 to +30 °C. In the winter, the operator must ensure that there is no risk of slipping in the working area.

**Before use:**

- Place the machine in the working position and always check the safety devices before starting the machine.
- The operator must always check the integrity of any possible power cables before use.
- The operation of the safety devices must always be checked before starting the machine. Do not use the machine if part of the mechanism is not functioning properly.

**During operation:**

- Stop using the machine immediately if you observe a fault.
- Stop using the machine immediately if you observe that its operation causes a hazard to you, other people or property.

## 1.6. Guarantee terms

**Roles****Guarantor**

Manufacturer of the TP Silva product:

**TP Silva Oy**

Lahdentie 9	Valimotie 1	Kusnintie 44
61400 Ylistaro	85800 Haapajärvi	23800 Laitila
Finland	Finland	Finland
+358 6 474 5100	+358 8 772 7300	+358 2 857 1200

**Retailer**

The retailer is a company authorised by TP Silva Oy, which sells and markets TP Silva products in its local area. The retailer acts as the recipient in guarantee matters from the buyer. In matters regarding the guarantee, the buyer must contact the retailer from whom the machine was purchased.

**Buyer**

The buyer is the person or community that acquires a TP Silva product for personal use. The buyer is obliged to report faults within the guarantee terms to the retailer and to retain the receipt in order to prove where and when the TP Silva product has been purchased. When necessary, the buyer is also obliged to indicate the type plate information to the retailer.

**Operator**

The operator is the person or community that uses the machine.

The guarantee is valid for the original buyer for 12 months, starting from the date of purchase, but for no more than 1 000 operating hours. In guarantee matters, always contact the machine's seller before undertaking any procedures.

A guarantee demand has to be issued to the seller **immediately** upon discovery of a defect. If the defect concerns a damaged part or component, please send a photograph of the damaged part or component to the seller, if possible, so the fault can be identified. When submitting a guarantee claim, the buyer must always include the type and serial number of the machine and present a receipt that includes the date of purchase. Guarantee claims must be submitted to an authorised retailer.

#### **The guarantee covers**

- Parts damaged in normal use due to faults in material or manufacture.
- Reasonable expenses caused by repairing a fault in accordance with the agreement between the seller or buyer and manufacturer. Faulty parts will be replaced with new ones. A faulty part or parts replaced due to a material fault should be returned to the manufacturer through the retailer.

#### **The guarantee does not cover**

- Damage caused by normal wear and tear (for example blades, mats and belts), improper use or use contrary to the instruction manual.
- Damages caused by negligence of maintenance or storage procedures detailed in the instruction manual.
- Damage caused during transport.
- Cutting blades, V-belts and oil, and normal adjustment, care, maintenance or cleaning procedures.
- Defects in a machine to which the buyer has carried out or commissioned structural or functional changes to the degree that the machine can no longer be considered equivalent to the original machine.
- Other potential costs or financial obligations resulting from the procedures mentioned above
- Indirect costs.
- Travel costs resulting from guarantee repairs.
- The guarantee for parts replaced during the guarantee period of the machine expires at the same time as the machine's guarantee.
- The guarantee is void if the ownership of the machine is transferred to a third party during the guarantee period.
- The guarantee is void if any of the machine's seals have been broken.

If a fault or defect reported by the customer is found to not be covered by the guarantee, the manufacturer has the right to charge the customer for the pinpointing and possible repair of the fault or defect in accordance with the manufacturer's current price list.

This guarantee certificate indicates our responsibilities and obligations in full and it excludes all other responsibilities.

Guarantee terms come into force when you register your customership in the extranet service found on our website.

## 2. Receipt and assembly

### 2.1. Delivery inspection

Dispose of the packaging material in an environmentally friendly manner.

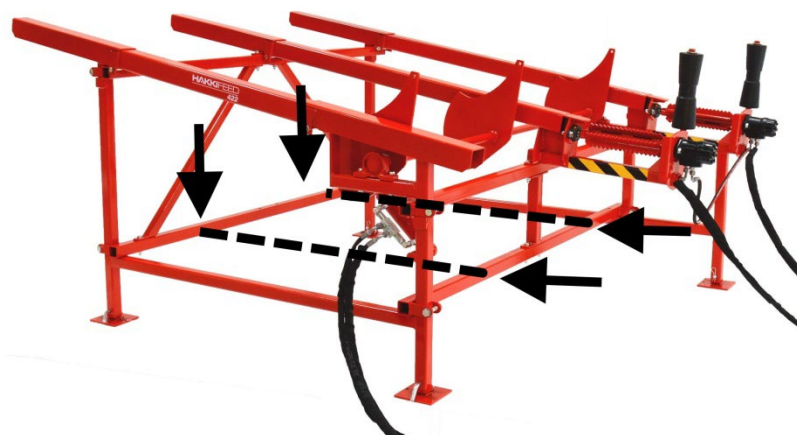
Check that the machine has not sustained any damage during transit, and ensure that all necessary parts are included in the package. In the event of any defects or damage, contact the retailer immediately

### 2.2. Assembly instructions

The rack can be delivered either assembled or packaged. If the rack is delivered in packaged form, a sufficiently proficient person must assemble it before use in accordance with the assembly instructions.

### 2.3. Lifting and moving the machine

When moving the machine, make sure that the moving and lifting capacity of your tractor or forklift is sufficient for the weight of the machine. Ensure the sufficient length of the lifting prongs so that the tips rest safely under both frame plates (Figure 1). Only lift the rack when it is empty and use the lifting points shown in **Figure 1**.



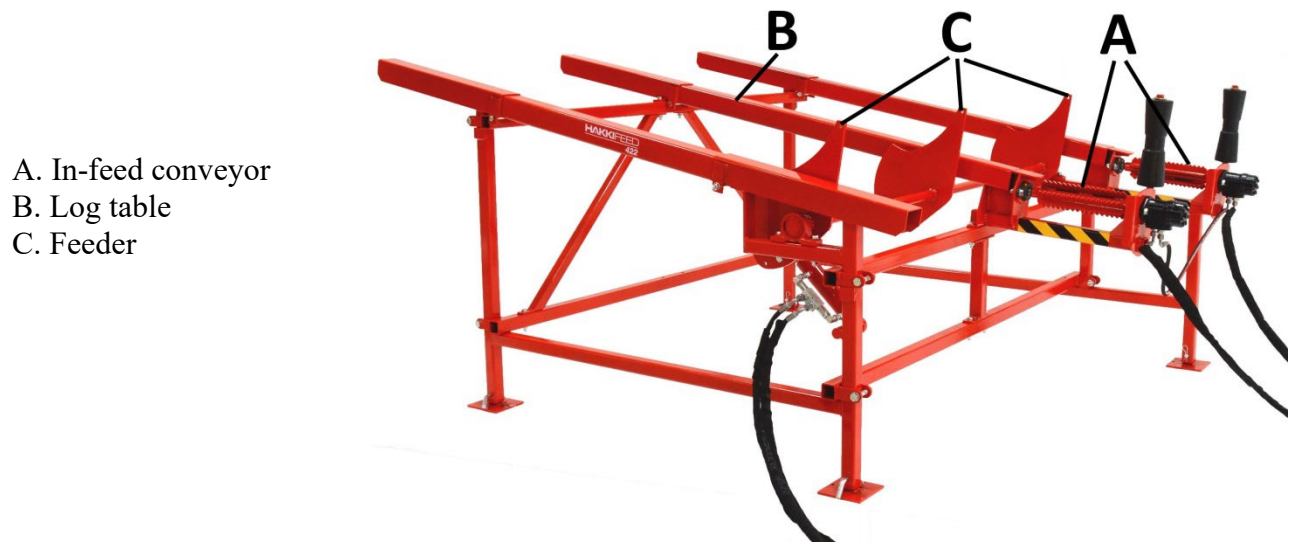
*Figure 1. Lifting points of the machine*

**Note! Incorrect lifting may cause a hazardous situation or damage the machine.**



## 2.4. Main components of the machine

The FEED 422 log rack is an accessory for TP Silva firewood processors. It is controlled hydraulically with the operating levers of the TP Silva firewood processor's control unit.



*Figure 2. Main components of the machine*

## 3. Control functions and setting up the machine

### 3.1. Arranging the machine for operation and transport

Before arranging the machine for operation and using it, ensure that the operating conditions, detailed in Section 1.4, are met and review the safety instructions in Section 1.5.

When preparing the rack for operation, ensure that it is positioned on an even and firm foundation so that the logs on the rack are straight. Ensure that the rack cannot move or slide on its foundation during use. Make sure that the machine's hydraulic hoses cannot be caught between moving parts or cause a hazard.

When arranging the rack for transport, clear any wood off of it and fix the hydraulic hoses to it with cable ties, for example.

**Note! Inspect and clean the machine before arranging it for transport.**

#### 3.1.1. Adjustments

Adjust the height of the rack according to the firewood processor model in such a way that the rack's in-feed conveyor A is at least 20 mm higher than the machine's in-feed belt. Adjust the distance between the machine and rack to ensure the safe transfer of logs to the machine. The maximum allowed distance between the rack and the machine's in-feed arrangement is 500 mm.

#### 3.1.2. Connecting the hydraulics

**Use the operator's manual of the relevant TP Silva firewood processor for the connections!**

Use of the rack requires two separate control valves: Example Figure 3.

In-feed conveyor A (Figure 1)

- Connected in series to the TP Silva firewood processor's in-feed system (quick couplings C (red) and D (black))

**Note!** If the machine features the valve shown in Figure 3, it must be opened to ensure oil flow through the quick couplings.

Feeder C (Figure 1)

- Connected to the accessory valve of the TP Silva firewood processor (quick couplings A (red) and B (black))

**Ensure that all connections are safe and secure!**



*Figure 3.*

## 4. Operating the machine

### 4.1. Performing a test run on the machine

The machine may not be used before a test run has been performed and all the functions of the machine have been tested. Both the test run and testing can only be performed by a person who has studied the machine's manual.

Before the test run, all of the components of the firewood processor must be checked. If any faults or wear and tear that may affect the safe use of the machine are discovered, the processor must not be used until the faulty or worn component is replaced and safe use can be ensured.

1. Make sure that you are familiar with the functions of the machine's controls. If necessary, see Section 3.
2. Operate in-feed conveyor A (Figure 2) empty, and ensure that the rollers run freely and in the right direction.
3. Use feeder C unloaded and ensure that it can move freely in both directions.
4. Load logs onto table B, and use one log to test the operation before beginning actual work.

If a fault occurs during the test run, determine the cause of the fault and take remedial action as deemed necessary. The machine must be shut down and disconnected from the power source for the duration of both the diagnostics and repairs.

### 4.2. Loading logs onto the log rack

Use a forklift or tractor with a sufficiently long fork to ensure safe loading.

- Load the first log against the feeder – do not drop the log.
- Lower the following logs carefully on the rack – do not drop them.
- Load the logs on the machine with the stem end first, and ensure that the centre of gravity is in the middle so that the logs cannot tip to the side off the rack.
- Do not exceed the load-bearing capacity of the rack (Section 1.3), and leave enough room for the free operation of feeder C.
- Smaller logs can be stacked on top of each other, but a total height of 40 cm must not be exceeded.

**Note! Ensure that there are no other people in the vicinity of the machine when loading logs!**

**Note! Ensure that the log's centre of gravity stays on the conveyor!**

## 5. Machine maintenance

The machine must be disconnected from its power source before any maintenance, adjustment, replacement or cleaning measures. Only use spare parts that are supplied by the manufacturer or your retailer. If any of the machine's guards or components need to be removed for maintenance, they must always be reattached before the machine is activated. After maintenance and adjustment measures, a test run must be carried out on the machine, according to the instructions in Section 4.1.

### 5.1. Tightening

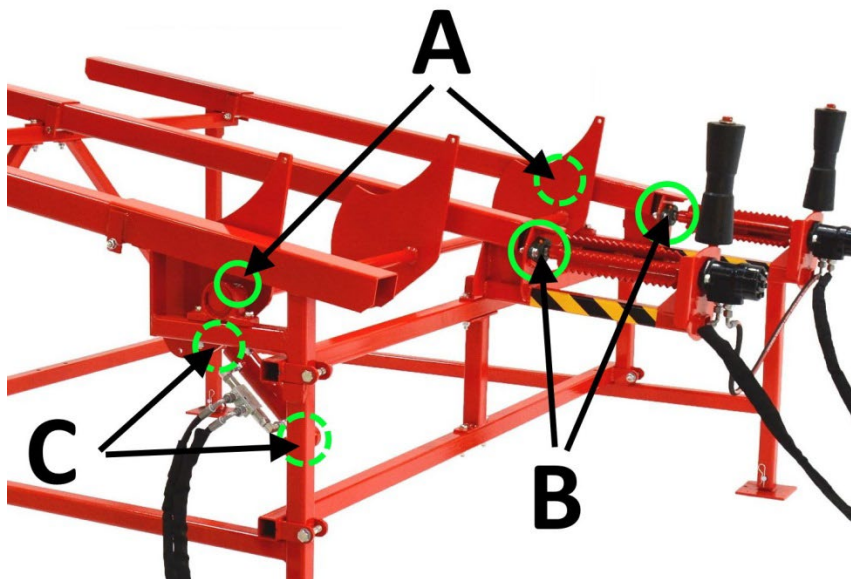
Check the tightness of the log rack bolts at regular intervals. Inspect the rack visually before each instance of use.

### 5.2. Lubrication

There is a total of six lubrication points in the machine, presented in the figures below.

1. In-feed conveyor bearings (B) 2 pcs, Figure 6:B (every 200 hours)
2. Feeder bearings (A) 2 pcs, Figure 6:A (every 200 hours)
3. Feeder cylinder nipples 2 pcs, Figure 6:C (every 50 hours)

**Note! Take care when applying grease to dustproof bearings!**



*Figure 6*

### 5.3. Washing and cleaning

Loose debris and sawdust can be cleaned from the machine with pressurised air, for example. The machine can also be washed with a high-pressure washer as long as the water jet is not aimed directly at the bearings.

Always ensure that the machine and the working area are sufficiently clean during operation. The machine must always be cleaned after use. Clean the machine at suitable intervals and always before storing the machine for a prolonged time. After washing, the machine must be lubricated according to the instructions in Section 5.2.

## 6. Storage

Although the machine is intended for outdoor use, it should be covered and stored in a sheltered location or indoors. Before prolonged storage, the machine must first be cleaned, then washed according to Section 5.8 and lubricated according to Section 5.5.

## 7. Maintenance table

Target	Task	Daily	Interval 50 t	Interval 200 h	Substance/accessory item
Lubrication points	Lubrication	(Section 5.2)	X	X*	Lubrication grease *bearings
Tightening bolts (condition, tightness)	Check	X			
Hoses	Check	X			

## 8. Failures and remedial measures

Failure	Cause	Remedial measure
The in-feed conveyor rollers are not rotating.	<ol style="list-style-type: none"><li>1. The feed serial connection valve is connected to the machine</li><li>2. Quick coupling fault or loose coupling</li><li>3. Incorrect or insufficient valve pressure</li></ol>	<ol style="list-style-type: none"><li>1. Open the valve (Figure 3)</li><li>2. Repair connection</li><li>3. Contact the retailer</li></ol>
The feeder is not moving	<ol style="list-style-type: none"><li>1. Quick coupling fault or loose coupling</li><li>2. Log stuck</li></ol>	<ol style="list-style-type: none"><li>1. Repair connection</li><li>2. Disconnect from the power source and remove blockage</li></ol>

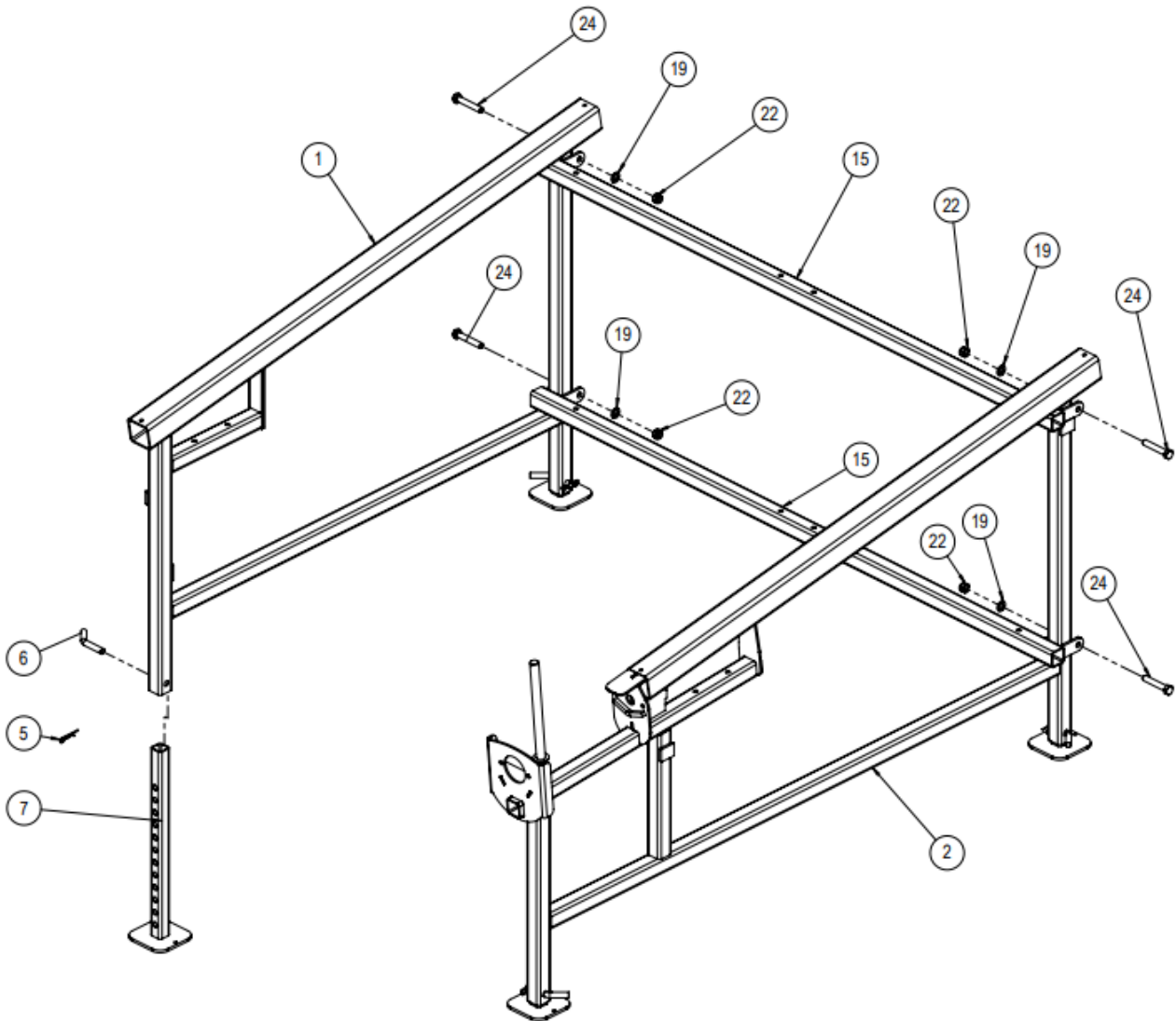
## 9. Assembly instructions and spare parts diagrams

### 9.1. Parts list for the assembly

Osa	Nimike	Nimitys	Standardi	Mitat	Kpl
1	31206	End, cylinder side			1
2	50037432	Rear end			1
3	96044	Retaining ring	DIN 471	30	2
4	31230	Extension			4
5	96208	Hitch pin			4
6	48033	Pin		Ø16 L=135	4
7	48015	Height adjustment pipe			4
8	95003	Keel roller 300			2
9	31059	Log rotator			1
10	11160	Cylinder Ø50 , Ø32 HF422			1
11	97307	Hydraulic motor EPM 160 HF422			2
12	95057	Collar step bearing unit	SKF	UCFL 205	2
13	61105	Drive roller			2
14	50037451	Middle pipe			1
15	50037464	Intermediate support			4
16	50033060	Lock valve HF422			1
17	50037476	Vertical support			1
18	96058	Washer	DIN 125	A12	52
19	96059	Washer	DIN 125	A16	8
20	96054	Washer	DIN 125	A24	2
21	96218	Locking nut	DIN 985	M12	28
22	96219	Locking nut	DIN 985	M16	8
23	96376	Hex screw	DIN 931	M12x80	4
24	96118	Hex screw	DIN 931	M16x90	8
25	96332	Hex screw	DIN 931	M12x130	4
26	96111	Hex screw	DIN 931	M12x90	12
27	96149	Hex screw	DIN 933	M12x45	4
28	96148	Hex screw	DIN 933	M12x40	4
29	96247	Split pin	DIN 94	3,2x40	2
30	50037504	Diagonal support			2
31	97213	Usit 1/2"			4
32	97203	Double nipple 3/8" x 1/2"			4
33	97151	Hydraulic hose 3,800 x 3/8" + quick coupling + guard			3
34	97152	Hydraulic hose 4,500 x 3/8" + quick coupling + guard			1
35	97060	Hydraulic hose 1,200 x 3/8"			1
36	96154	Hex screw	DIN 933	M16x40	1
37	50048741	Pin			1
38	96586	Washer	DIN 440	M16	1
39	50050830	Bottom bracket for cylinder			1
40	50050831	Counter plate			1

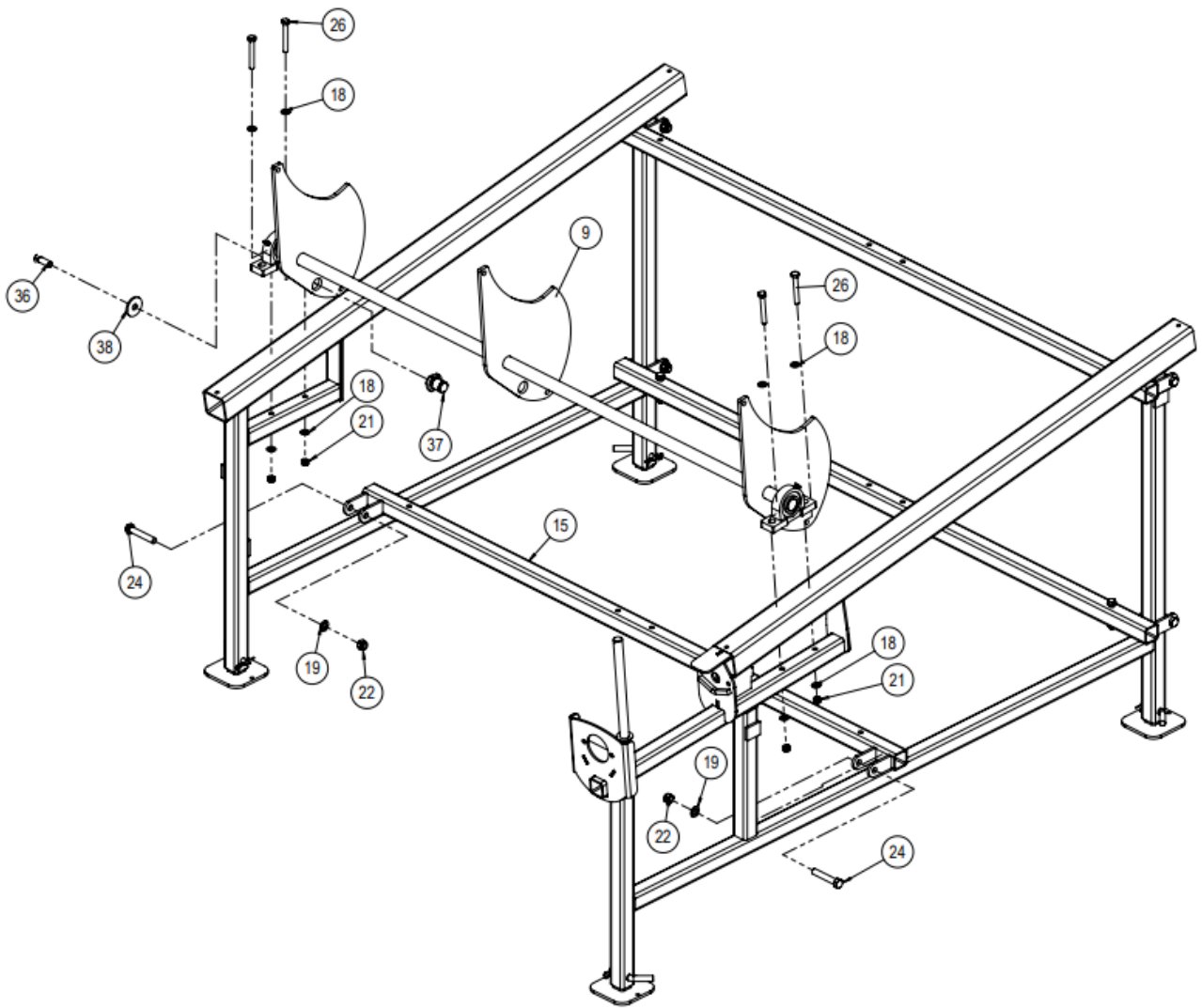
## 9.2. Assembly phases

**Phase 1:** Assemble in accordance with Figure 7 and leave the screws loose.



*Figure 7*

**Phase 2:** Spread the front section. Install feeder 9 first, followed by support pipe 15. Leave the screws loose.



*Figure 8*



**Phase 3:** Install support 17 first, leave the screws loose. Then install intermediate support 15, leave the screws loose.

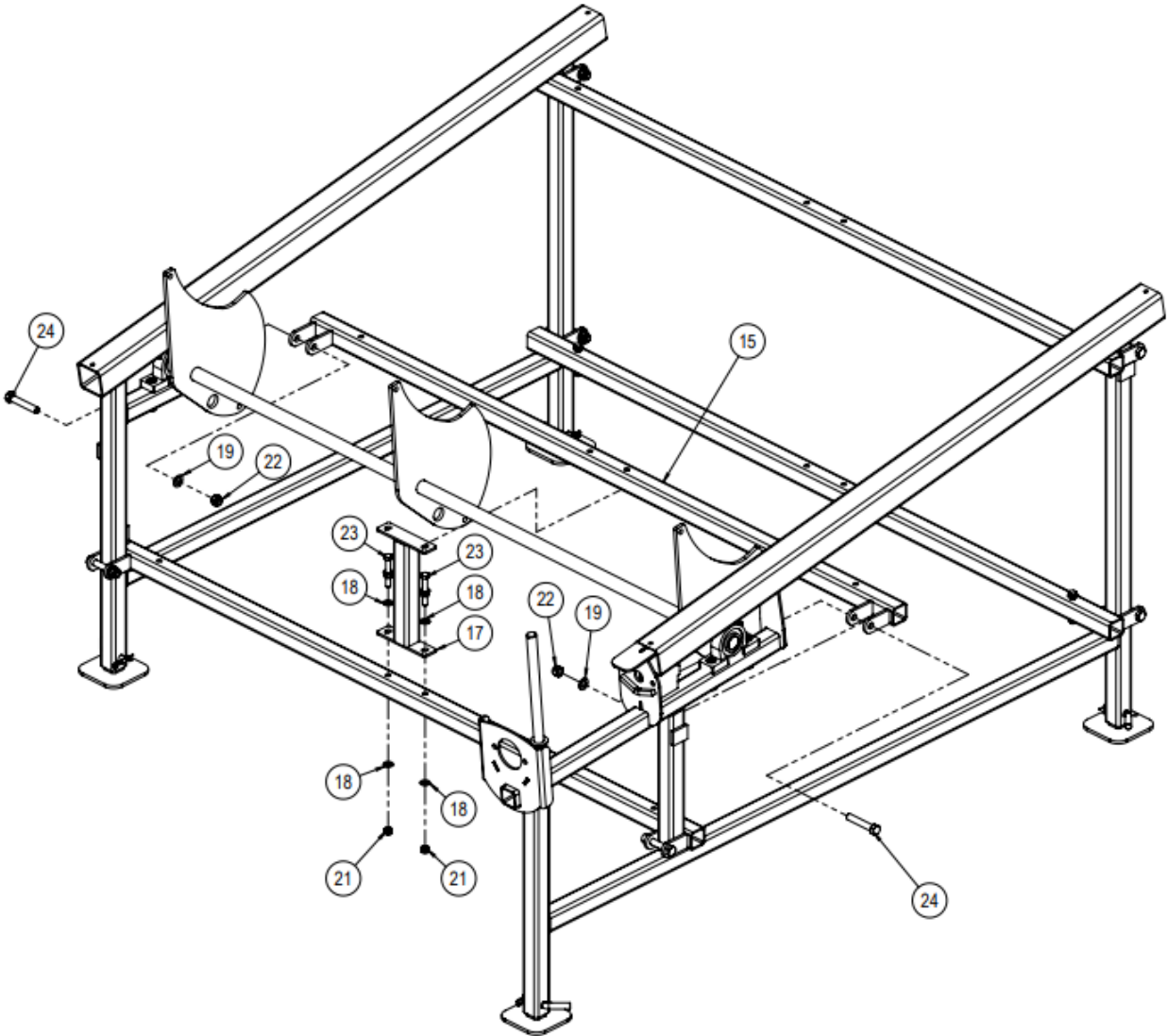
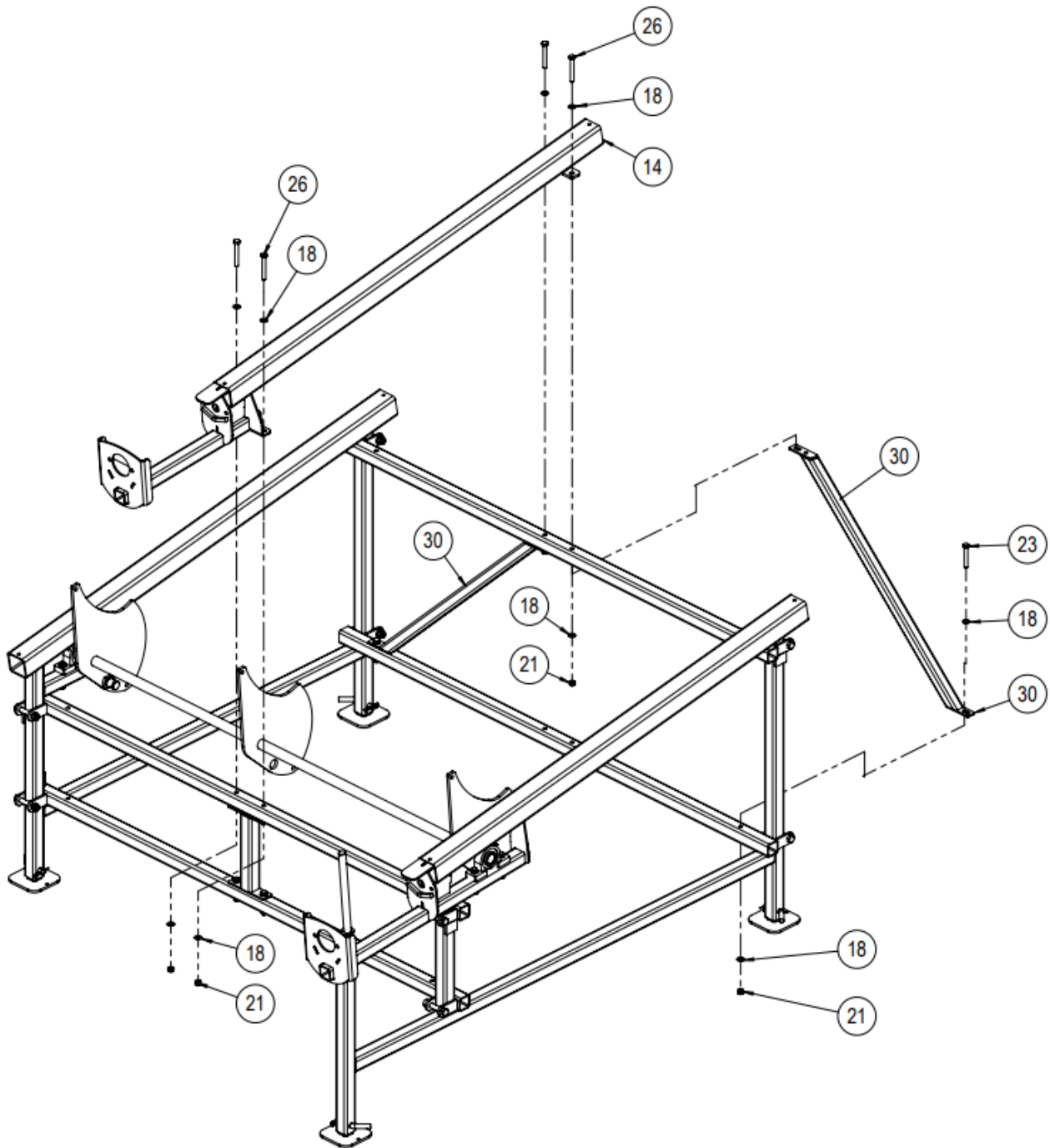


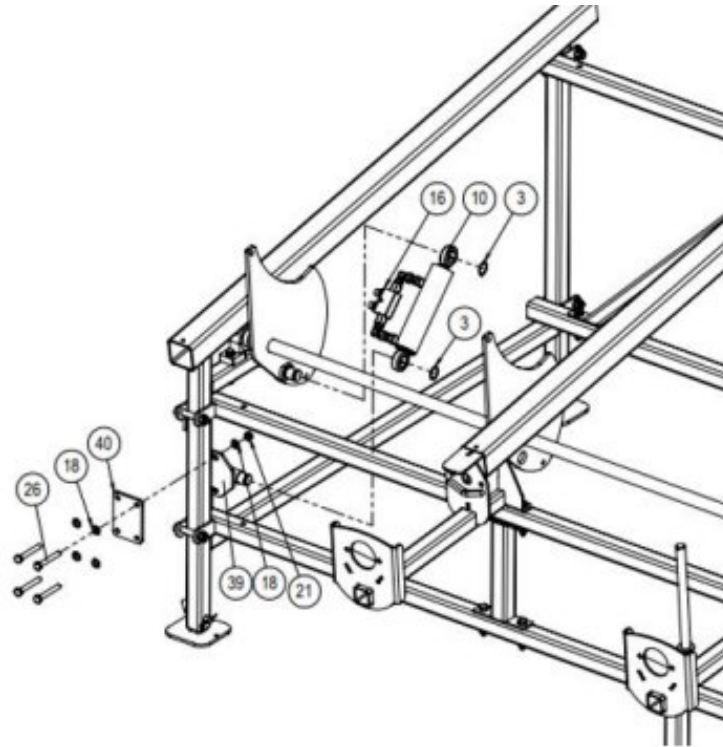
Figure 9

**Phase 4:** First install the No 30 diagonal supports. Fasten the screws to the lower ends and leave them loose. Then install middle pipe 14 and its screws. Leave the screws loose.



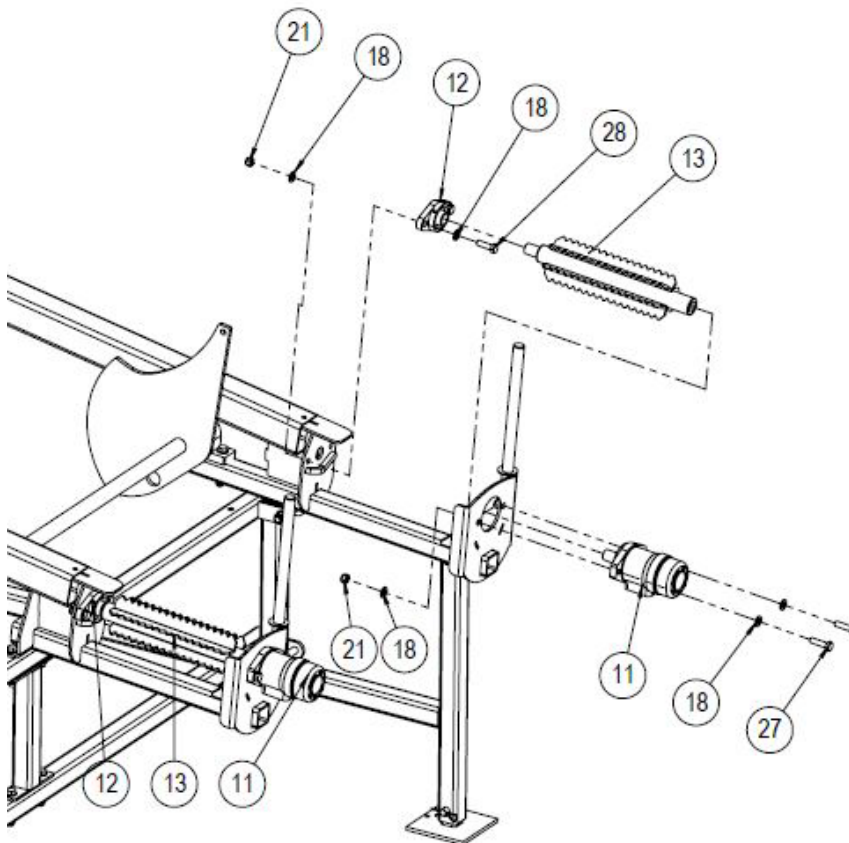
*Figure 10*

**Phase 5:** Install the cylinder, part 10. Tighten all the screws installed so far.



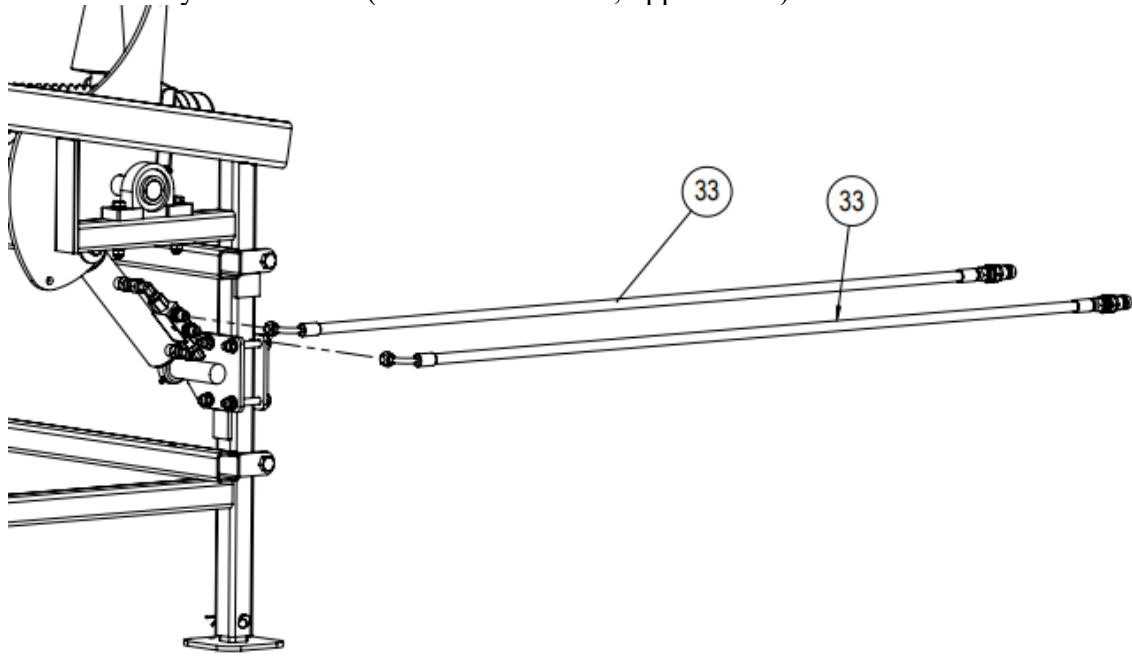
*Figure 11*

**Phase 6:** Install roller 13; bearing 12 on the end. Leave the screws loose. Then push hydraulic motor 11 into place. Tighten the hydraulic motor screws first, followed by the bearing screws.



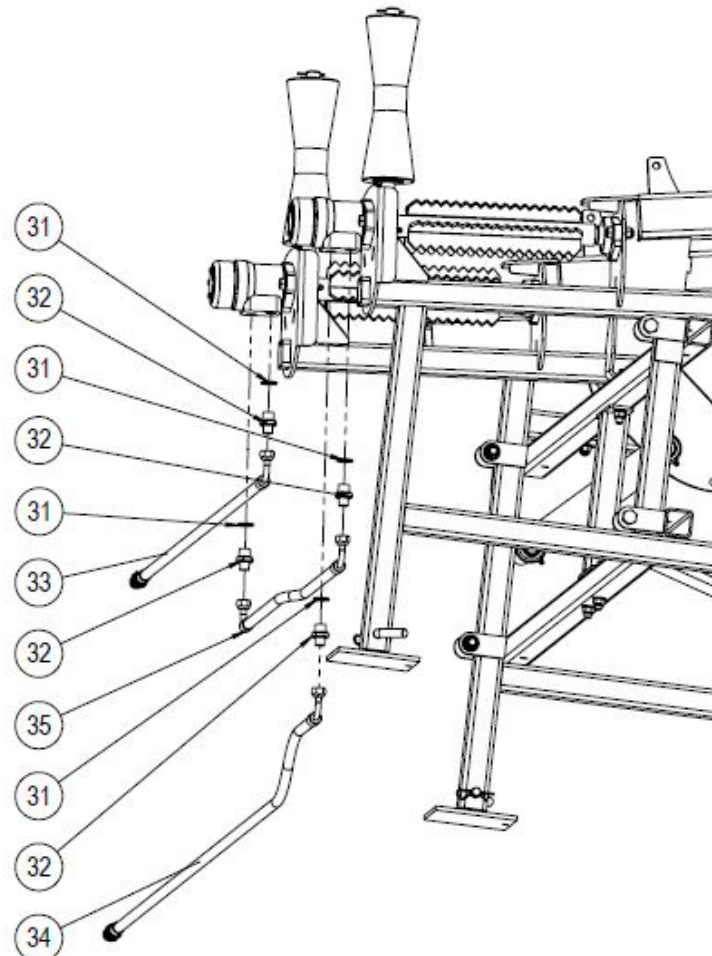
*Figure 12*

**Phase 7:** Install the No 8 rollers as shown in Figure 12.  
Install the No 33 cylinder hoses. (Lower marked red, upper black)



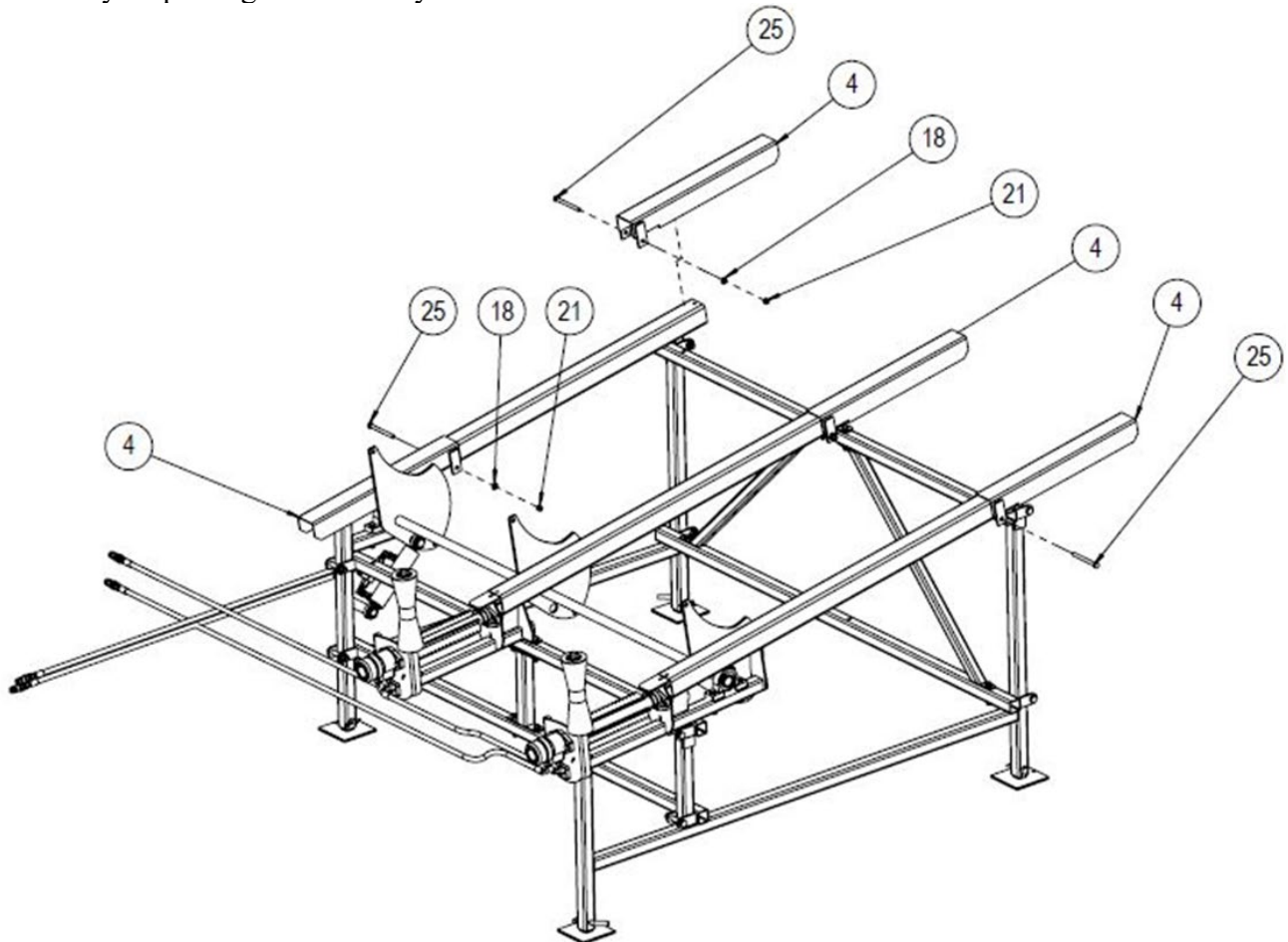
*Figure 13*

Install the USIT seals 31, nipples 32 and hydraulic hoses 33 (shorter hose, red) 34 (longer hose, black) and 35 (intermediate hose) in the hydraulic motors.



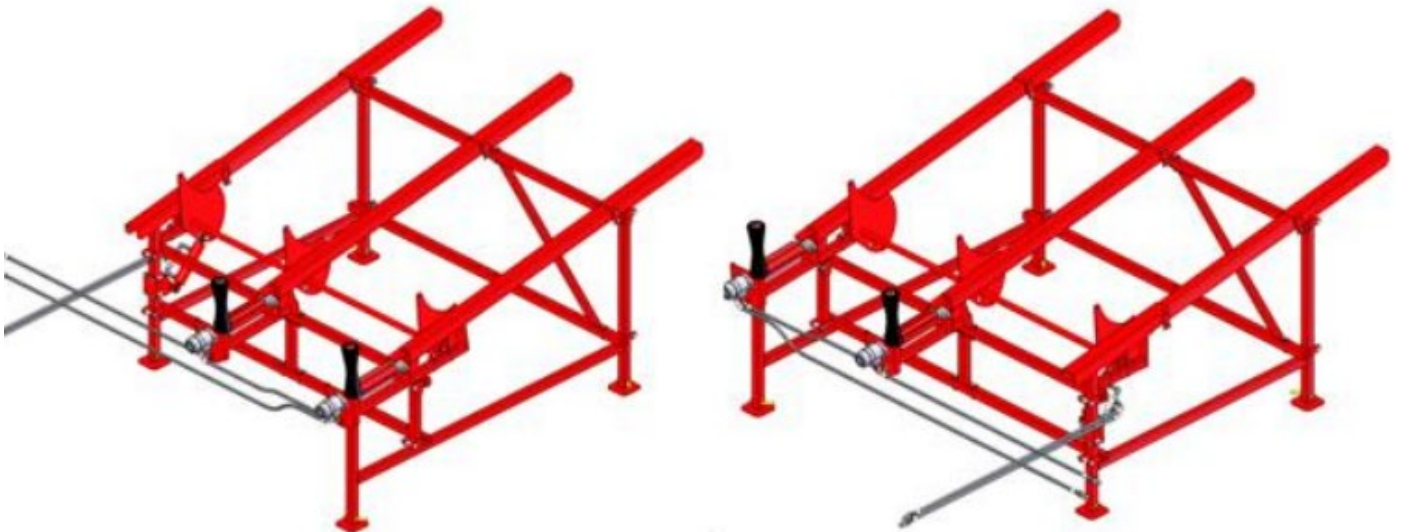
*Figure 14*

**Phase 8:** Install the No 4 extensions and their screws. Tighten the screws.  
Finish by inspecting the assembly!



*Figure 15*

You can assemble the log rack as a left-or right handed version.



*Figure 16*