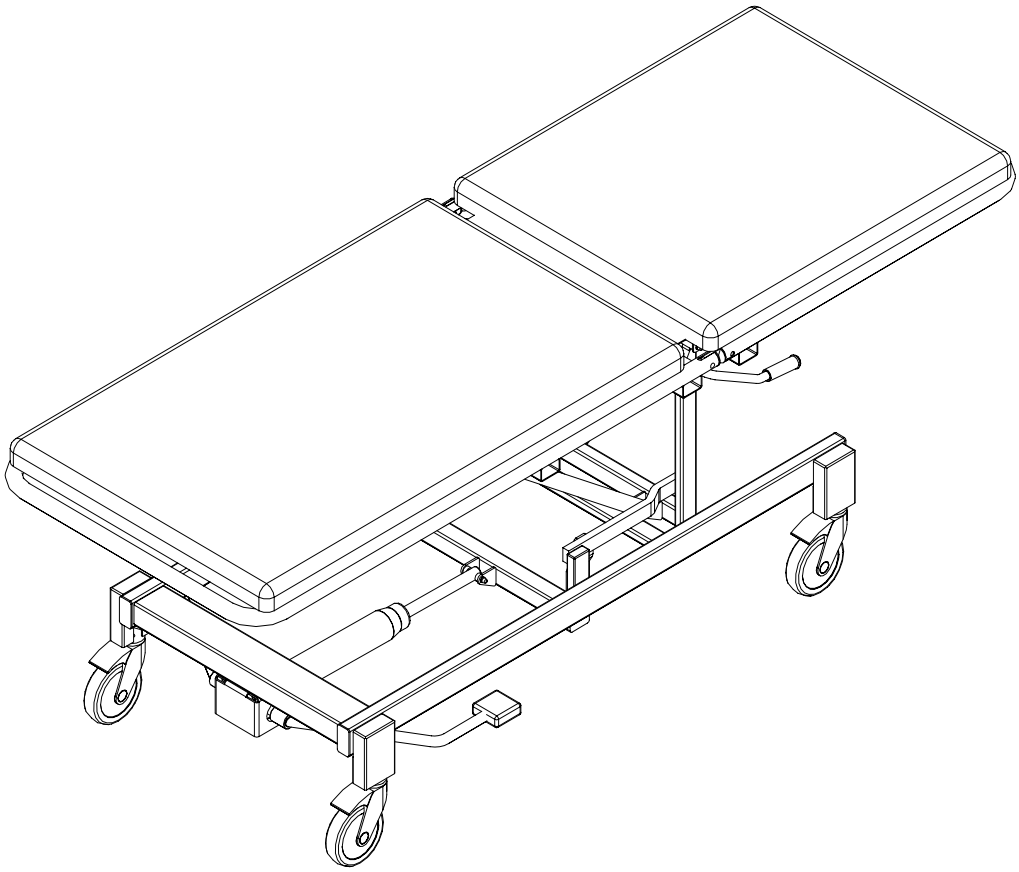
USER AND MAINTENANCE MANUAL

EXAMINATION / TREATMENT TABLE 409



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MERIVAARA

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CE

1. GENERAL

Dear owner of Finnish examination table . The safe and fault-free use and maintenance of the equipment requires careful adherence to these instructions. When mounting accessories to the equipment, the instructions provided with them must be followed closely. Always keep the instructions for accessories together with this manual.

Warnings and observations in this instruction manual are indicated as follows:

WARNING! Please observe to ensure patient safety.

CAUTION! Please observe in order to avoid causing damage to the equipment or its parts. To be lubricated during servicing and when replacing parts.

- Warnings and cautions on page 9, 10, 11, 18, 30 and 33

Intended use

Merivaara examination table is used for patient examination and nursing in hospitals and emergency rooms.

Your Specialist for integrated Medical Furniture and Equipment Systems.

Merivaara products form an integrated furnishing system for clinical, hospital and nursing home enviroments. The comprehensive range of Merivaara products includes high-quality tools and equipment needed in a variety of medical procedures.

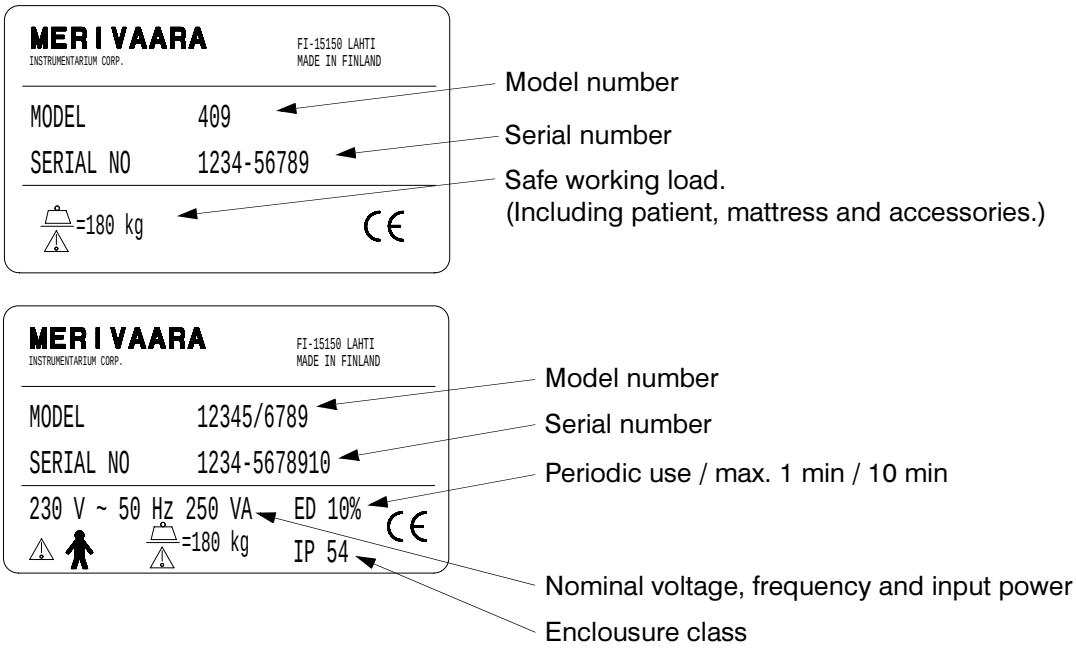
Merivaara products feature flexible design, adjust easily into ideal working positions which offers high patient comfort. Daily nursing procedures are readily accommodated by the safe and easy operation of all Merivaara products.
The comprehensive selection of available accessories make our products ideal for a number of speciality procedures.

For more information on Merivaara products, contact our Sales Office. For matters related to equipment servicing, contact the Merivaara After Sales Department.

2. TECHNICAL DATA

2.1 Identification plate

The identification plate is located under the back section.



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2.1.1 Symbols

Protective grounding

AC

B - type connector

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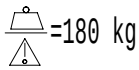
Read instructions



Safe working load (incl. patient, mattress and accessories)

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2.2 Properties and materials

2.2.1 Conditions

Ambient temperature	+10 ... +40 °C
Ambient pressure	700 ... 1060 mbar
Relative humidity	30 % ... 75 %
Transport temperature	- 10 ... +40 °C
Storage temperature	+10 ... +40 °C
Safe working load	
(incl. patient, mattress and accessories)	180 kg

2.2.2 Classification data

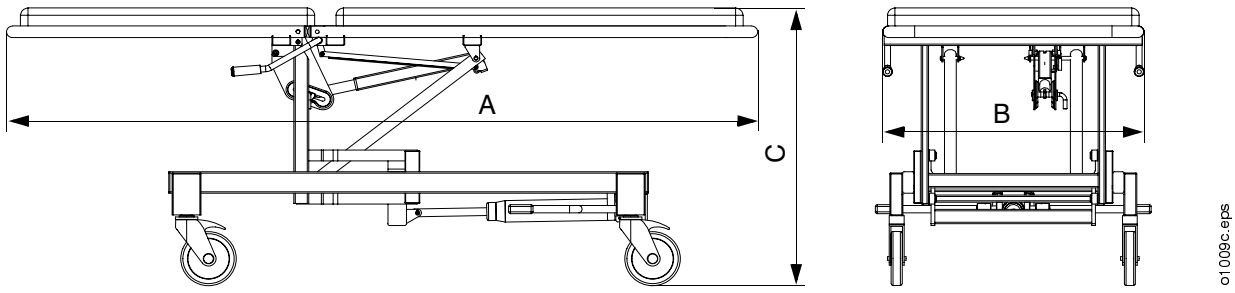
Electrically operated examination tables are classified according to SFS-EN 60601-1 as follows:

Electric shock protection	Class II equipment
Degree of electric shock protection	B-type equipment
Protection against ingress of water	splash-proof equipment (IPX4)
Cleaning and disinfection	in section 4.1 sivulla 12
Combustible anaesthetic gas protection	cannot be used with flammable gases
Operation mode	Intermittent operation

2.2.3 Dimensions

	409
Mattress base	2-sectional
Weight of table	ca. 80 kg
Length (A)	2030 mm
Width (B)	705 mm
Height (C)	590 - 960 mm
Castors	125 mm

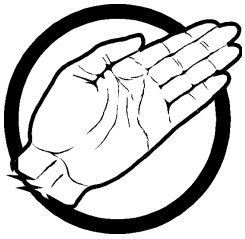
Table 1. Dimensions



2.2.4 Surface materials

Surface materials	409
Epoxy-powder coat, frame parts, mattress base frame	X
Chroming, pedal tubing	X
ABS (acrylonitrile/butadiene/styrene), protective casing	X
PP (polypropene), side rail mounting brackets, bumpers	X
PA 6 (polyamide), mattress base joint, handles	X
PVC softened, padding	X
Painted chipboard, back of padding	X

3. PRODUCT USE



3.1 Implementation

Examination table is packaged pre-assembled. Check for damages that may have been caused during transport. Recycle the cardboard packaging. Wood and plastic are energy waste.

3.1.1 Special instructions

WARNING!
Ensure that the power cord is not trapped between moving parts of examination table, as this may expose or cut the cord. When adjusting mattress base into Trendelenburg or anti-Trendelenburg position, ensure that the cord is not caught between mattress base and lower frame. **Damaged power cord may cause electric shock!**

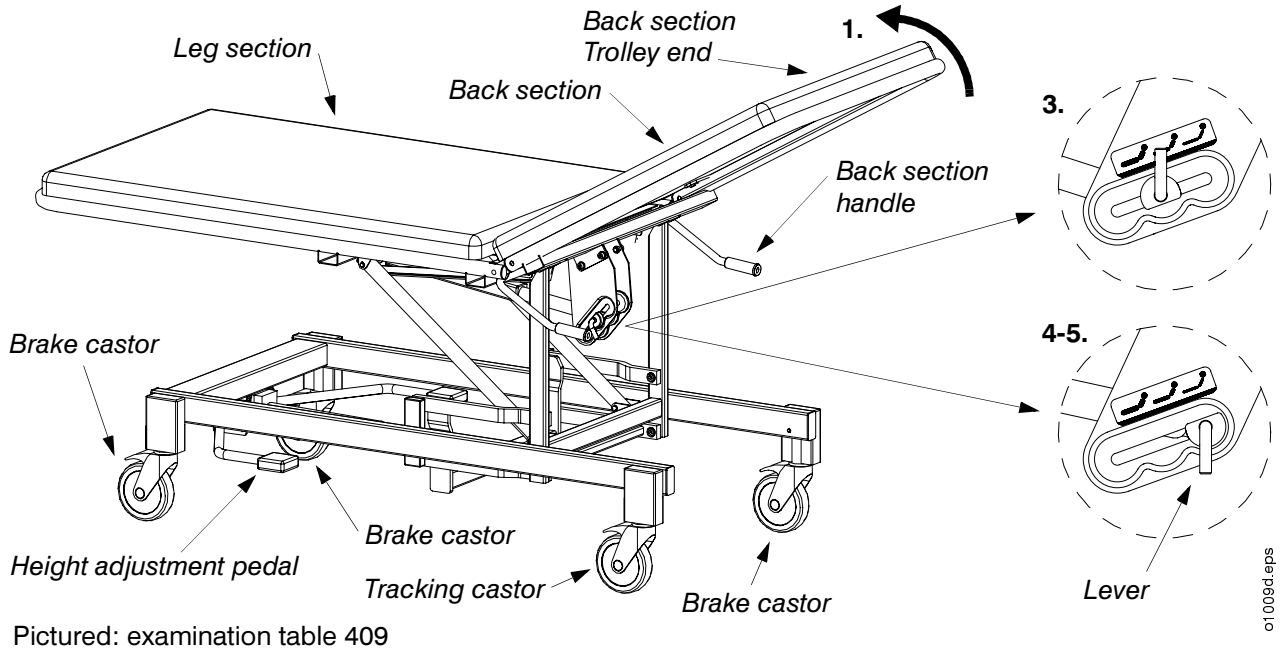
The maximum load capacity of examination table is 170 kg. During electrically controlled adjustments, only one person at time is allowed on table.

When adjusting examination table, ensure that the patient's fingers, hands or other parts of the body are not caught between the moving parts of examination table and accessories or examination table moving parts.

CAUTION!
Do not operate the motors for more than one minute at a time (max. 1 min). Continuous repetition of movements may overload and damage the motor.

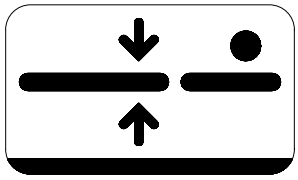
Ensure that the hand-held control unit wire does not get caught between moving parts of examination table, as this may expose or cut the wire. An exposed or cut hand-held control unit wire is not life-threatening, as it operates on a 24 V safety voltage. When adjusting the mattress into Trendelenburg- or anti-Trendelenburg position, ensure that the wire is not caught between the mattress base and lower frame.

3.2 Structure and adjustments



Pictured: examination table 409

3.2.1 Height adjustment



Pressing the height adjustment pedal down will raise the mattress base.
Lifting the pedal will lower the mattress base.
Adjustment range is 370 mm.

3.2.2 Adjustment of back section

Turn the back section handle and support with your other hand at the end of the back section. The adjustment range is approximately -20 ... 54°.
Check the position of back section lever as instructed in section 3.2.3 on page 10

3.2.3 Force adjustment of back section adjustment

1. Bring the back section to a semi-sitting position.
2. Manually support the back section at the trolley end.
3. Turn the adjustment lever half turn.
4. Support the back section with your other hand and move the lever into the desired position.
5. Lock the lever by turning it half turn. The lever should be FULLY lowered, whenever using the trolley.

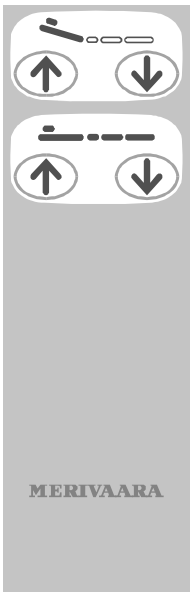
WARNING! The patient must not lean on the back section when adjusting.

3.3 Electrically operated adjustments

3.3.1 Hand-held control unit

Adjustments are made electrically by pressing the buttons on the hand-held control unit. Press and hold the button of the function you desire. The selected function will continue until you release the button or the outermost position is reached. If desired, you can operate several functions at the same time. If the function is interrupted when doing so, the overload protector has been tripped. Release all buttons and perform each function one at a time.

CAUTION! Do not operate the motors for more than one minute at a time. Continuous repetition of movements may overload and damage the motor.



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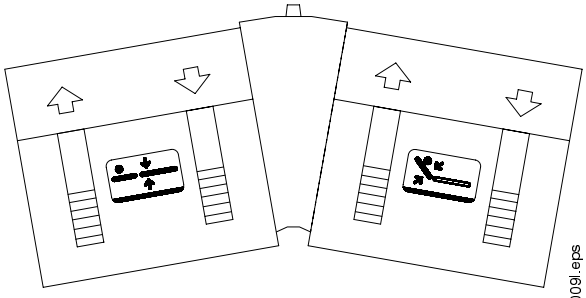
3.3.2 Foot pedal control unit operation

Adjustments are made electrically by pressing foot pedal control unit pedals.

CAUTION! When using foot pedal control unit, take notice of same operation limitations as for hand-held control unit.



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4. CLEANING

4.1 Cleaning and disinfecting

4.1.1 Examination table

4.1.1.1 Cleaning

Remove all accessories. Clean by wiping down with a lightly alkaline cleaning detergent (ph 7 - 8).

4.1.1.2 Disinfecting

Wipe using, for example, a 3 % chloramine-based disinfectant or similar cleaning detergent.

4.1.1.3 Drying

Dry thoroughly by wiping down immediately after cleaning or disinfecting.

4.1.2 Mattress

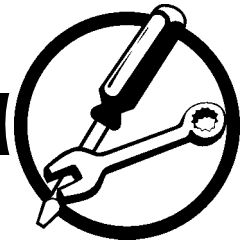
4.1.2.1 Cleaning mattress cover

Wipe down with soap and water. Use standard laundry detergent powder that does not contain biological detergents. Do not use bleach. If dry cleaning, use perchloroethylene. The fabric must be completely dry before storing.

4.1.2.2 Disinfecting mattress cover

A maximum of 0,1 % hypochlorite may be used in the hypochlorite disinfection solution. Disinfection cleaning temperatures and times are as follows: 65 °C: 10 minutes and 71 °C: 3 minutes.

5. MAINTENANCE AND REPAIR



5.1 Preventative maintenance

Mark the date taken into use to the indentification plate on the examintation table section. The date serves as a reminder for the following annual servicing. Remember to mark the examination table with the date when performing the annual servicing, so that the following service date will not require a separate reminder.

- When doing a normal cleaning, give the examination table a quick visual inspection and check for any hydraulic leaks, loose screws or parts, cracks, surface damage or missing parts.
- Perform a monthly inspection of examination table function by fully extending and retracting all table adjustments. Make the necessary repairs and adjustments.
- The following items should be serviced on an annual basis:
    - check height adjuster hydraulic pump
    - check and lubricate joints
    - ensure that the castors and brakes turn freely and lock precisely.

5.2 Troubleshooting

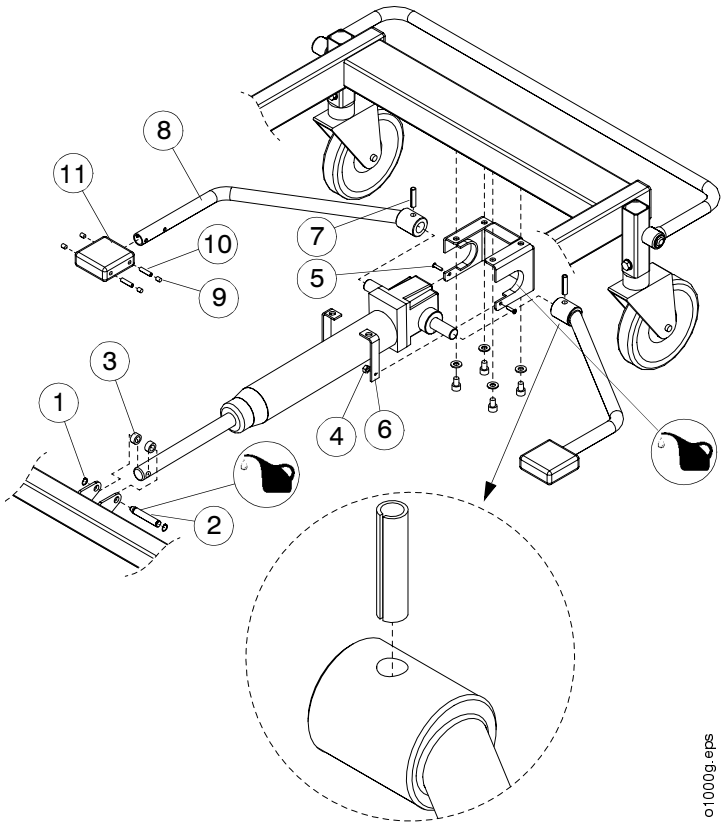
Problem	Cause	Repair
Mattress base will not rise.	• Oil level low. • Air in the hydraulic system.	Bleed pump.
Mattress base will not lower properly.	• Air in the hydraulic system.	Bleed pump.
Mattress base not maintaining height.	• Faulty valve. • Faulty seal. • Dirt in the hydraulic system.	Replace pump.
Table pulls to one side when being pushed.	• A castor is sticking.	Replace castor.
Mattress base angle adjustment does not remain in place.	• Gas spring is damaged. • Gas spring is installed incorrectly.	Replace gas spring.

Problem	Cause	Repair
Motor does not work.	• Motor connection has come loose.	Re-connect to control unit.
	• Hand-held control unit connection has come loose.	Re-connect to control unit.
	• Power cord out of socket or control unit.	Plug back into wall socket.
	• Fuse blown.	Contact service. **Caution!** Replacements may only be performed by an authorised servicerepresentative.
	• Faulty limit switch.	Contact service.
	• Faulty motor.	Contact service.
	• Control unit current limit exceeded due to overloading of motor.	Only one person allowed on table when the motor is operating.
Hand-held control unit does not work.	• Hand-held control unit connection has come loose.	Re-connect to control unit.
	• Wire or hand-held control unit damaged.	Contact service.
Function activated does not correspond to the symbol on the hand-held control unit.	• Motor leads are in the wrong order.	Re-connect the connections of the control unit in numerical order.

5.3 Hydraulics

5.3.1 Pump removal

- Support mattress base to its upright position.
- Remove circlip (1).
- Remove pivot pin (2) and plactic bushings (3).
- Loosen nuts (4) and remove screws (5) from both sides.
- Remove limiters (6).
- Lift the pump out from its mounting.



5.3.2 Pedal removal

- Remove spring pin (7).
- Pull pedal (8) out from its mounting.
- When remounting the pedal insert the pin as shown in picture.

5.3.3 Pedal pad removal

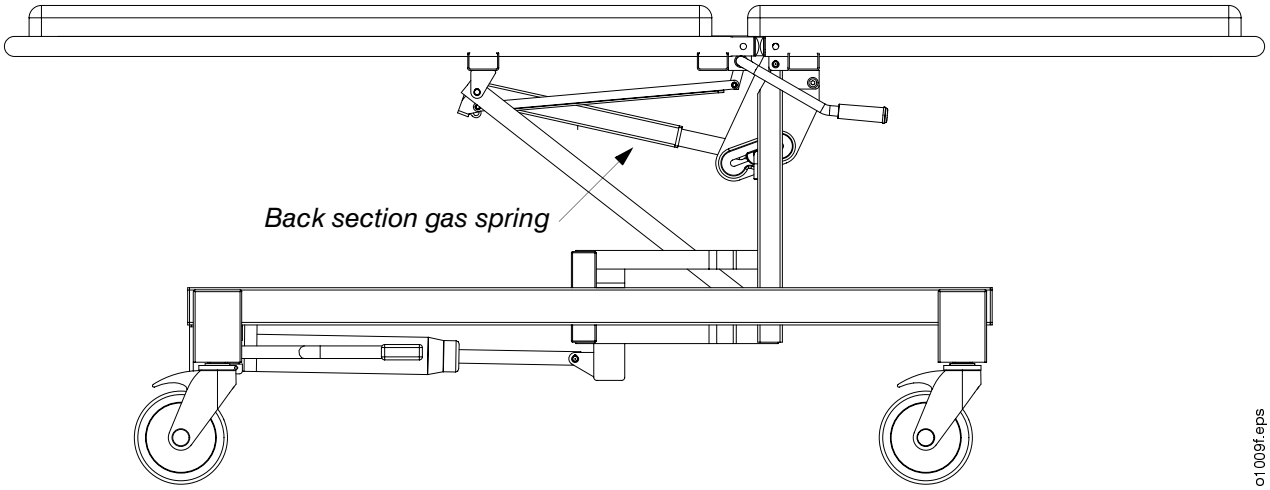
- Remove cover plugs (9).
- Remove spring pins (10).
- Pull pedal pad (11) off the pedal.

5.3.4 Hydraulic pump bleeding

The hydraulic pump is equipped with an automatic bleeding mechanism, which facilitates bleeding.

- Pump mattress base into its upright position.
- Give 2-4 extra pumps.
- Lower mattress base to its operating height.

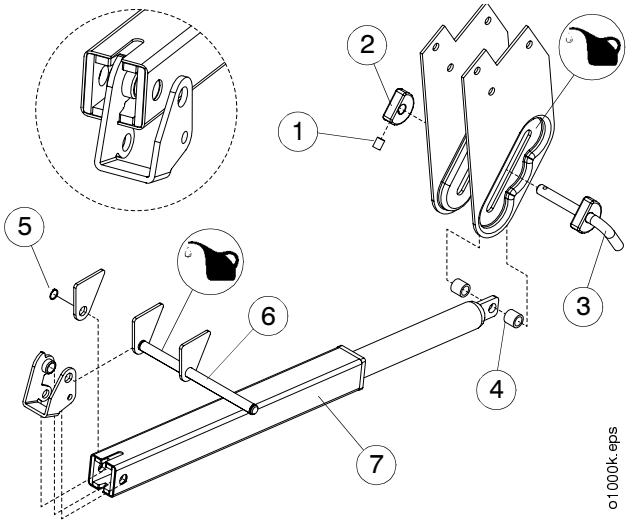
5.4 Gas spring



5.4.1 Removal of back section gas spring

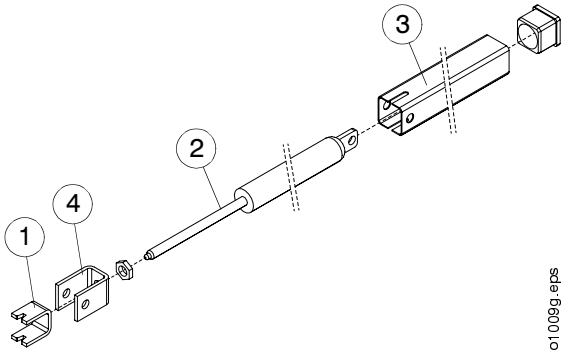
Put gas spring adjuster handle into centre position. Bring back section into upright position and support with, for example, a bedside table.

- Loosen locking screw (1) and remove cam (2).
- Remove handle (3) and plastic bushings (4).
- Remove circlip (5).
- Using a mandrel, tap out the tap pivot pin (6) until the gas spring (7) comes free.



5.4.2 Removal of gas spring from protector sleeve

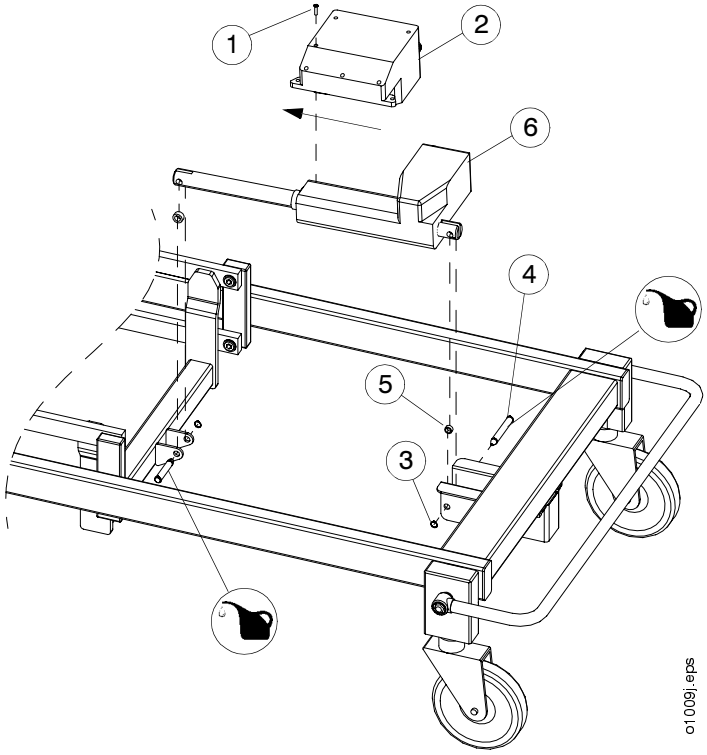
- Remove gas spring ram mount (1).
- Pull gas spring (2) out of protector sleeve (3).
- Unscrew mounting bracket (4). Count the rotations for remounting.



5.5 Replacement of motors and control units

5.5.1 Control unit

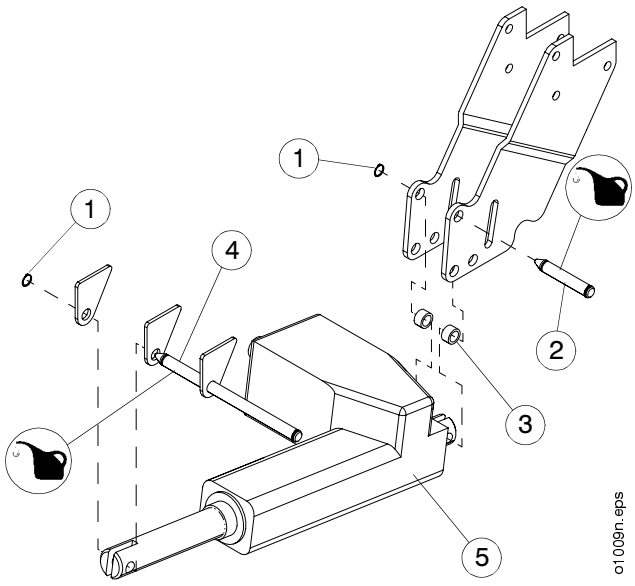
- Support mattress base to its upright position.
- Loosen screw (1) with TORX- key (T20).
- Pull control unit (2) in motor's arm direction.
- Remove circlip (3).
- Remove pivot pin (4) and plastic bushing (5).
- Lift motor (6) out from its mounting.



5.5.2 Removal of back section motor

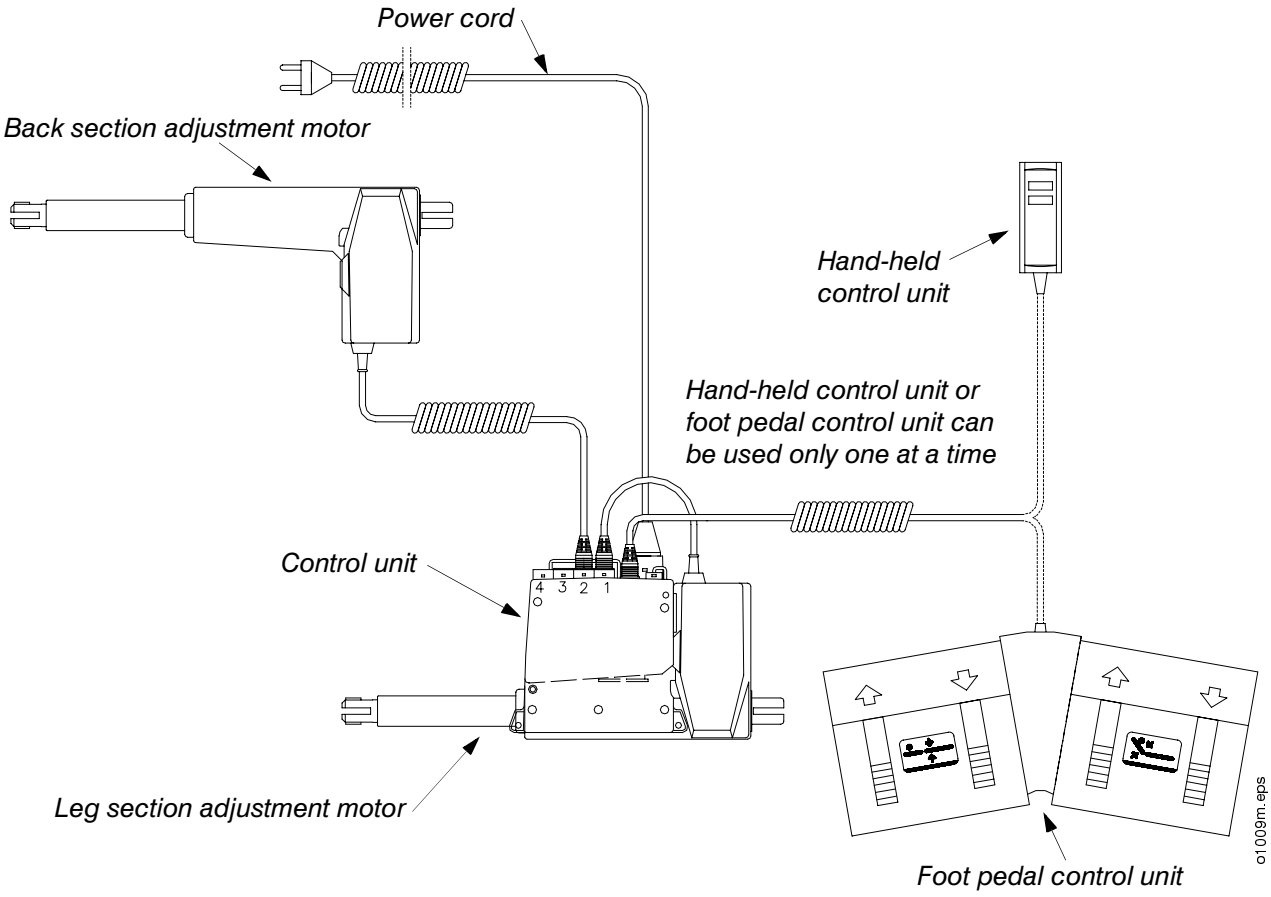
Bring back section into upright position and support with, for example, a bedside table.

- Remove circlip (1).
- Remove pivot pin (2) and plastic bushings (3).
- Using a mandrel, tap out the tap pivot pin (4) until the motor (5) comes free.



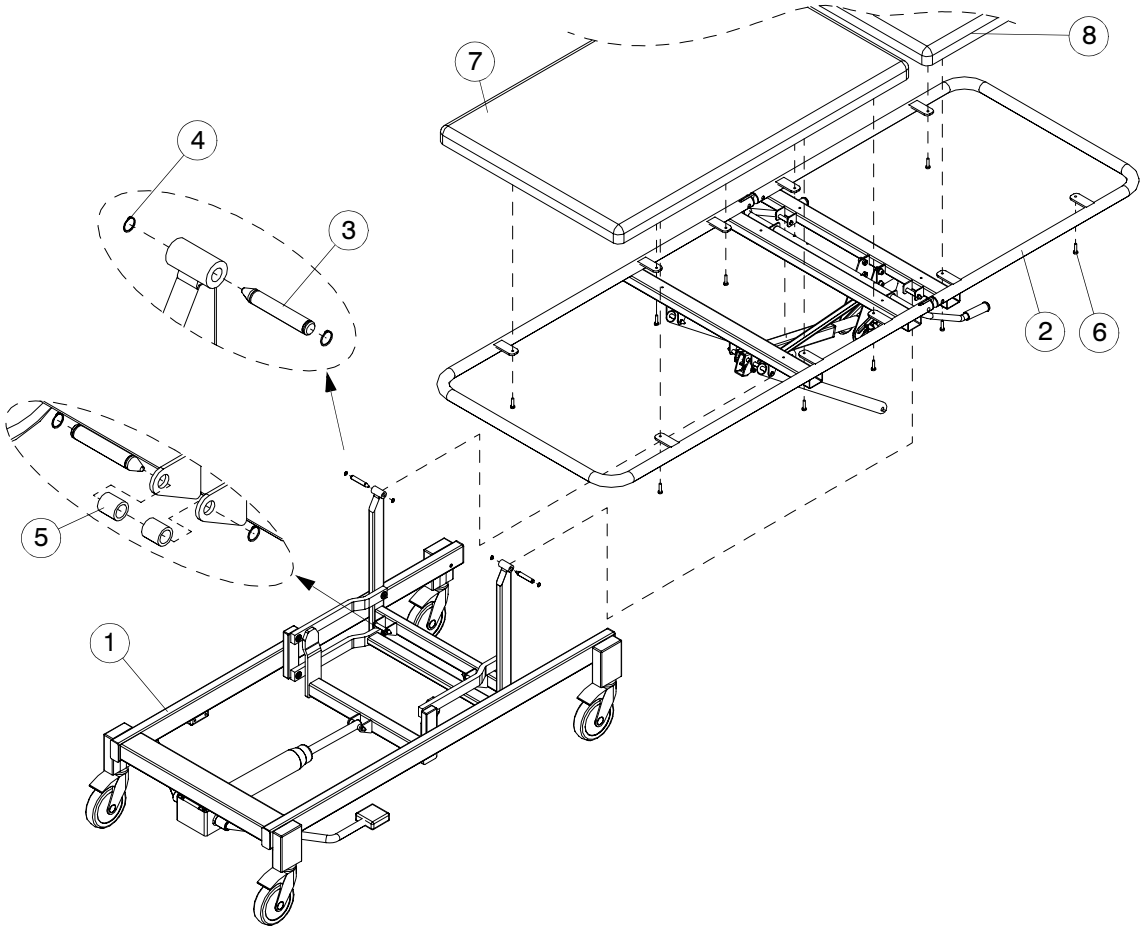
5.6 Wiring schematic

CAUTION! In order to avoid accidents, always remember to disconnect the power cord before beginning servicing!



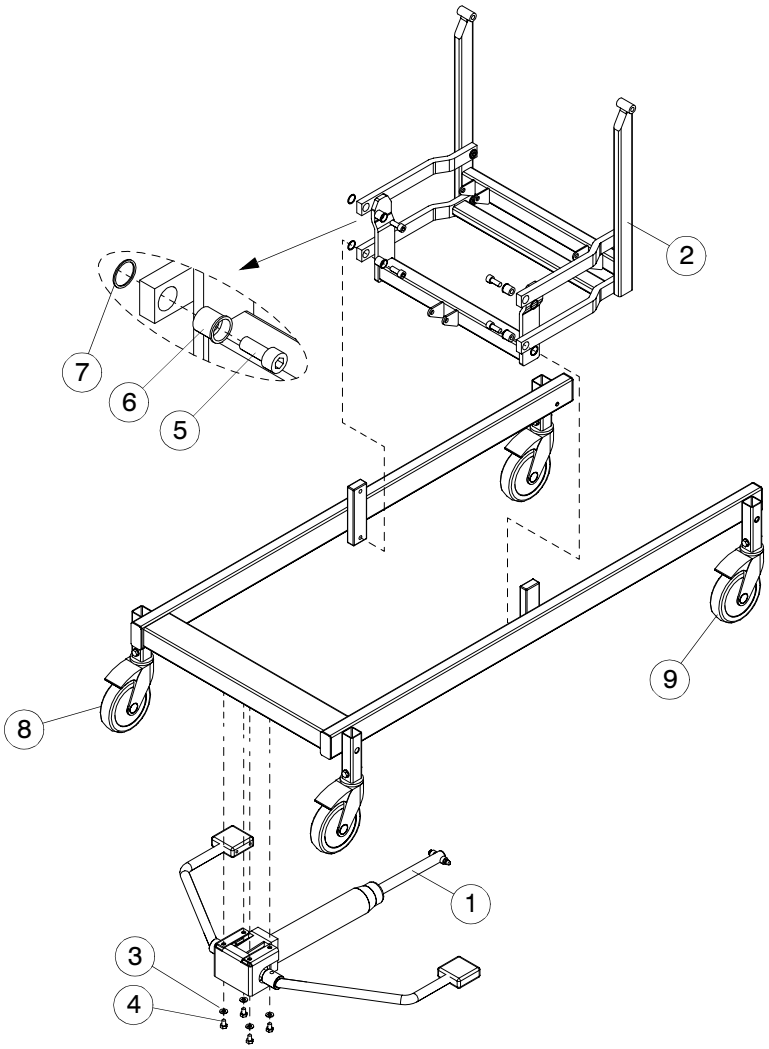
6. SPARE PARTS

6.1 Examination table spare parts



Part	Code	Part name	Number in parts in assembly Additional information	
1		Lower frame	See section 6.2 on page 20.	1
2		Upper frame	See section 6.3 on page 23.	1
3	A4541500	Pivot pin		4
4	70792	Retaining ring	DIN 471-10x1	8
5	709871	Washer sleeve		4
6	70466	Screw	SFS 2976-M6x25	10
7	A36554A00	Mattress base mattress		1
8	A36551A00	Back section mattress		1

6.2 Lower frame



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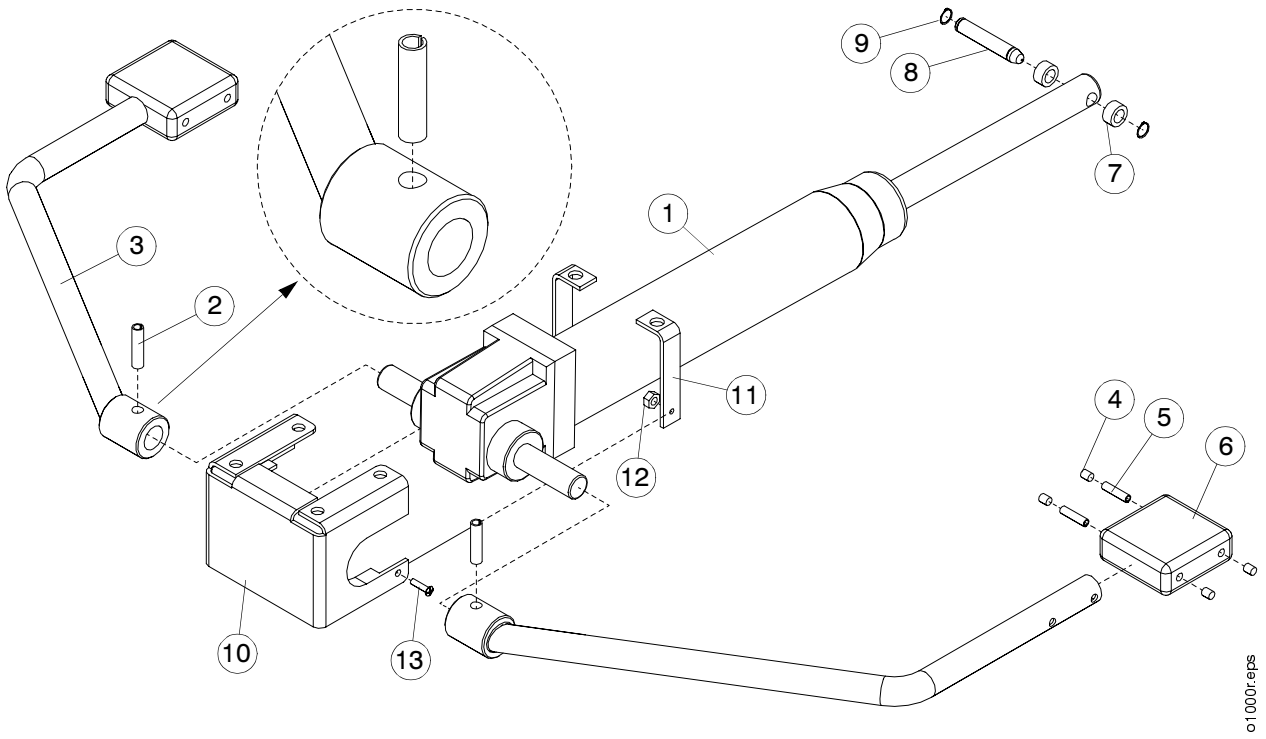
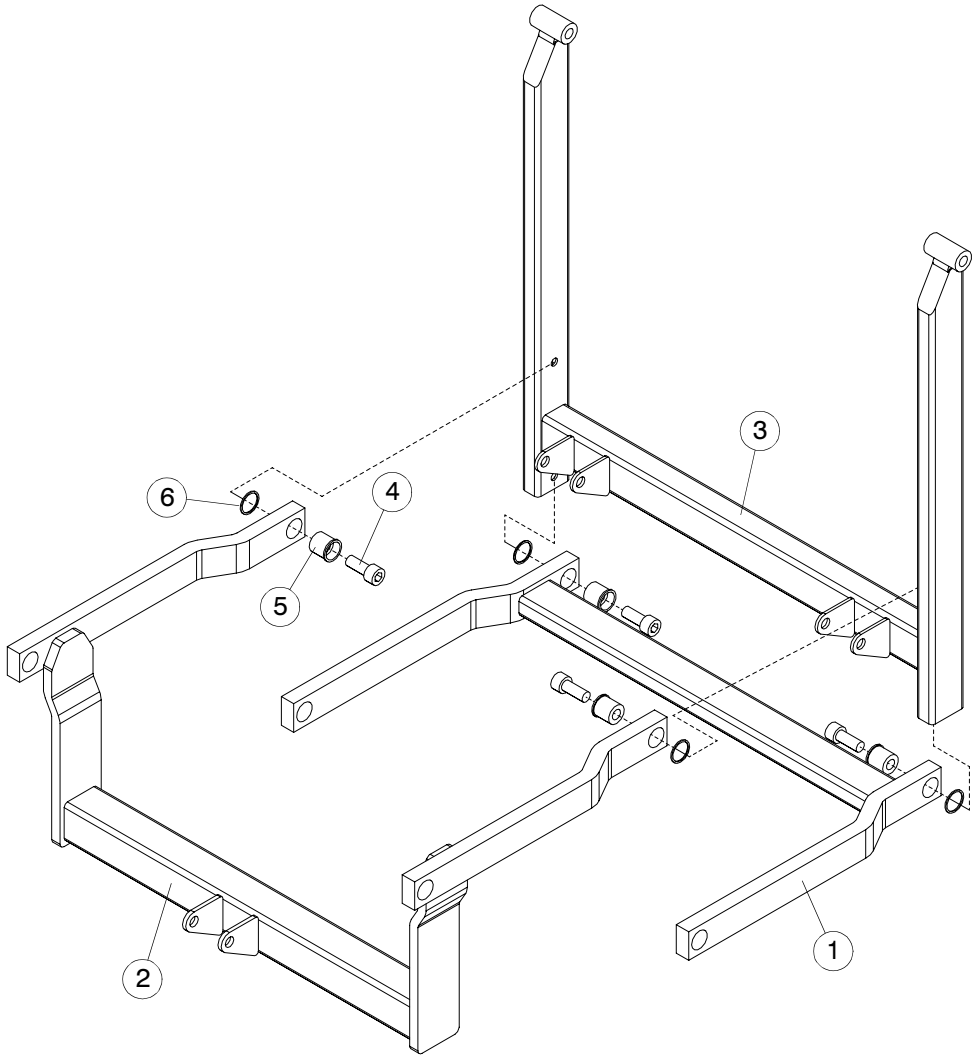
			Number of parts in assembly	
Part	Code	Part name	Additional information	
1		Hydraulics	See section 6.2.1 on page 21.	
2		Height adjustment	See section 6.2.2 on page 22.	
3	70635	Star washer	DIN 6978-J8.2	4
4	70772	Allen screw	SFS 2219-M10x20	4
5	70645	Allen screw	SFS 2119-M10x25	4
6	A4540000	Bearing retainer		4
7	709851	Bushing		4
8	7123232	Brake castor		3
9	7123233	Directional castor		1

6.2.1 Hydraulics



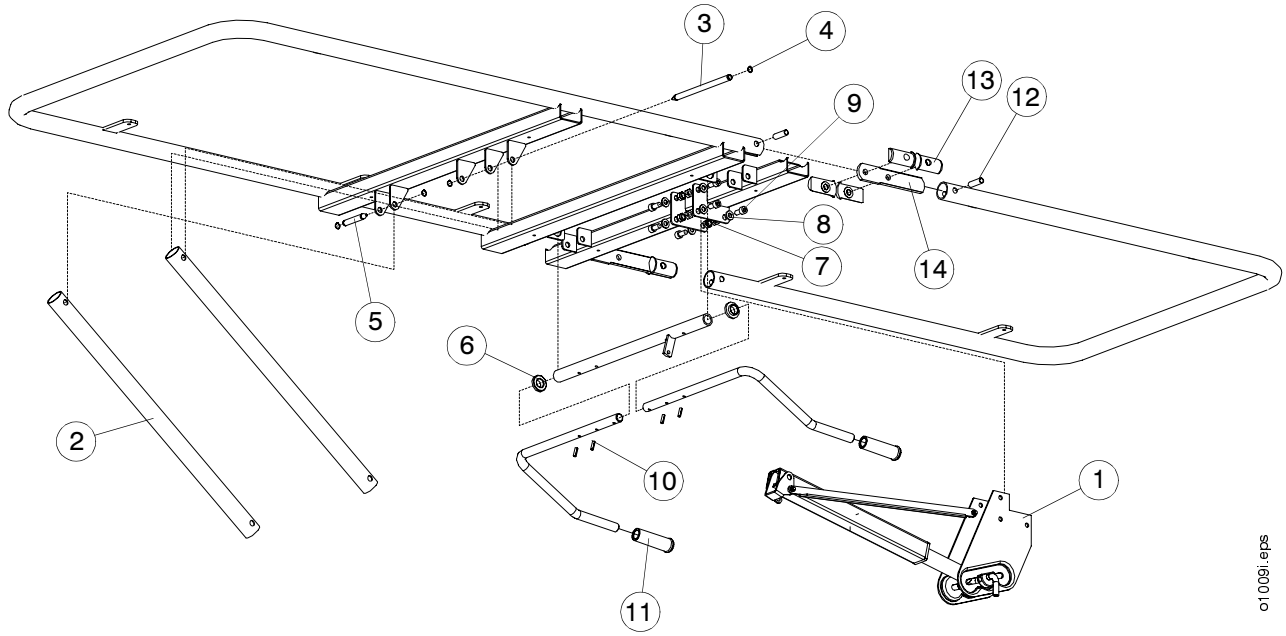
			Number of parts in assembly	
Part	Code	Part name	Additional information	
1	7115691	Hydraulic pump		1
2	70814	Spring pin	DIN 1481-8x32	2
3	A2405200	Pedal		2
4	709772	Plug		8
5	70810	Spring pin	DIN 1481-6x40	4
6	709772	Pedal pad		2
7	709931	Bushing		2
8	A4541500	Pivot pin		1
9	70792	Retaining ring	DIN 471 10x1	2
10	A2334500	Mounting case		1
11	A4542100	Limiter		2
12	7074100	Nut	Nyloc DIN 985-M5	2
13	70452	Screw	SFS 2976-M5x12	2
14	A3778100	Hydraulics pack	Includes positions 1 - 9	

6.2.2 Height adjustment



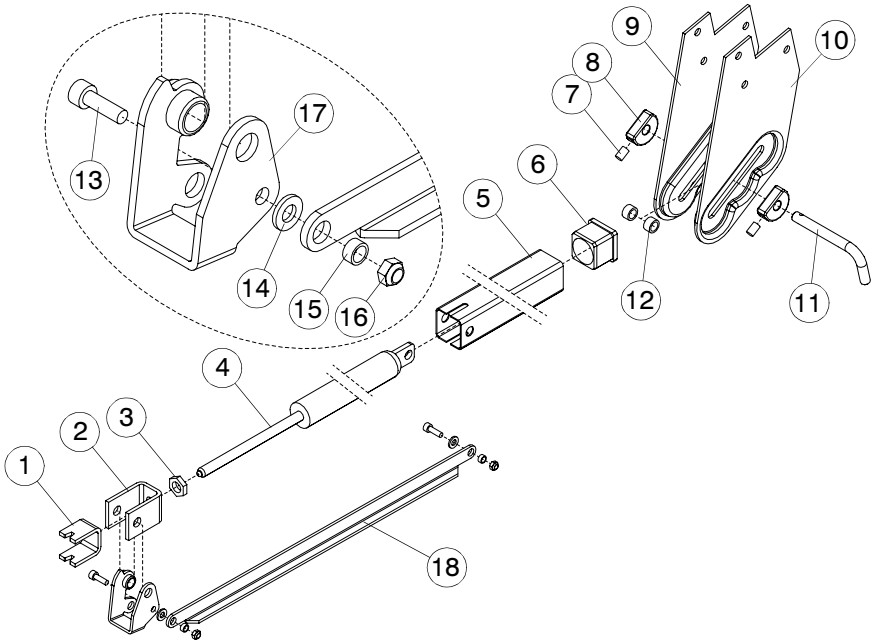
			Number of parts in assembly	
Part	Code	Part name	Additional information	
1	A3490000	Support bar		1
2	A2400700	Lift bar		1
3	A2405900	Centre frame		1
4	70645	Allen screw	SFS 2119-M10x25	4
5	A4540000	Bearing retainer		4
6	709851	Bushing		4

6.3 Upper frame



			Number of parts in assembly
Part	Code	Part name	Additional information
1		Gas spring	Adjustment of back section. See section 6.3.1 on page 24.	
2	A3646201	Support tube	No Trendelenburg-adjustment.	2
3	A4541600	Pivot pin		1
4	70792	Retaining ring	DIN 471-10x1	4
5	A4541500	Pivot pin		1
6	709711	Bearing		2
7	70743	Nut	Nyloc DIN 985-M8	6
8	70772	Star washer	DIN 6978-J8.2	6
9	70634	Allen screw	SFS 2219-M8x16	6
10	70850	Spring pin	DIN 1481-5x22	4
11	7097747	Handle guard	Green	2
12	70815	Spring pin	DIN 1481-10x32	4
13	70962	Pivot plug half-piece		8
14	A4331700	Pivot bar		2

6.3.1 Back section adjustment gas spring



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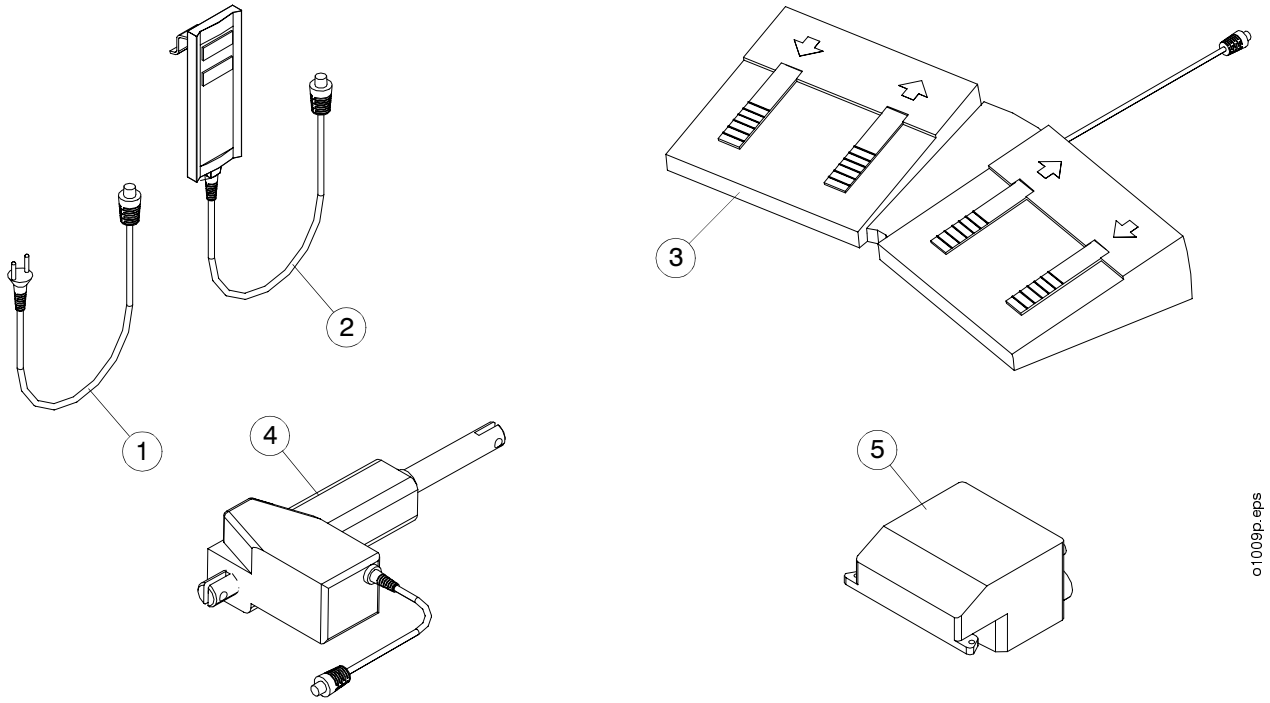
			Number of parts in assembly	
Part	Code	Part name	Additional information	
1	A3357500	Ram mount		1
2	A3357400	Mounting racket		1
3		Nut	M10x1	1
4	71260	Gas spring	180mm/720N	1
5	A3357300	Protective sleeve		1
6	709781	Bearing retainer		1
7	706912	Retaining screw	DIN 916-M8x12	2
8	A4541900	Cam		2
9	A3399200	Bracket	Right	1
10	A3399201	Bracket	Left	1
11	A4911600	Handle		1
12	709871	Bushing		2
13	70623	Allen screw	SFS 2219-M6x16	2
14	A4493300	Washer	DIN 125-A6.4	2
15	78006	Washer sleeve		2
16	70742	Nut	Nyloc DIN 985-M6	2
17	A4728800	Starting lever		1
18	A4541700	Cross bar		1

6.4 Electric parts



			Number of parts in assembly	
Part	Code	Part name	Additional information	
1	71336085	Power cord		1
2	71335462	Hand-held control unit	HB 72000-2MV122	1
3	713428	Foot pedal control unit	FSE1200020+FSL0W00000+FSR0W00000	1
4	71335454 71335457	Height adjustment motor Back section adjustment motor	LA31.40 JBM-200-24-001, IP54 LA31.2M-200-24-001C200, IP 54	1
5	71336063	Control unit	CB 09 Lo-2T-24, IP54	1

7. ACCESSORIES

7.1 Conditions and materials

7.1.1 Conditions

Ambient temperature	+10 ... +40 °C
Ambient pressure	700 ... 1060 mbar
Relative humidity	30 % ... 75 %
Transport temperature	- 10 ... +40 °C
Storage temperature	+10 ... +40 °C

7.1.2 Surface materials

	Wire basket	Paper cutter mechanism	Paper roll holder	Trendelenburg-adjustment	Central braking system
AG epoxy coat			**X**	**X**	
Chroming	**X**		**X**	**X**	**X**
RST		**X**			
PA				**X**	

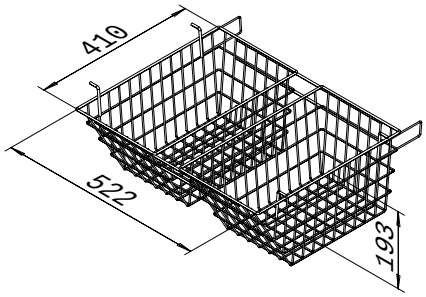
Table 2. Surface materials of accessories.

7.1.3 Accessory codes and weights

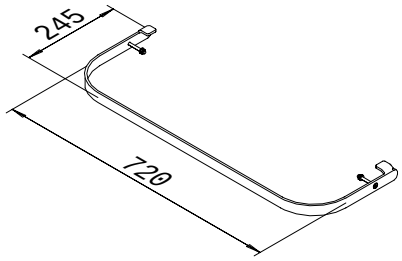
	Wire basket	Paper cutter mechanism	Paper roll holder	Trendelenburg-adjustment	Central braking system
Weight kg/pc	2,4	1,2	3,7	3,7	9,8

Table 3. Weights

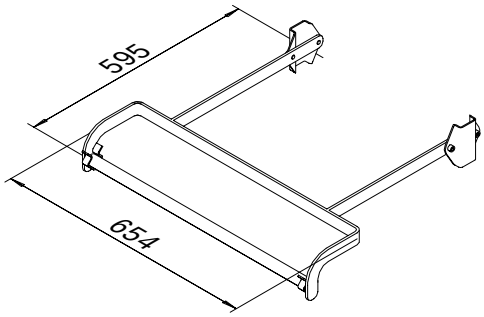
Wire basket
100000583



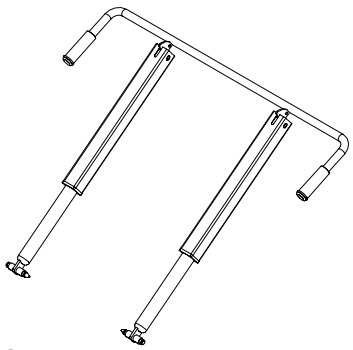
Paper cutting mechanism
100000734



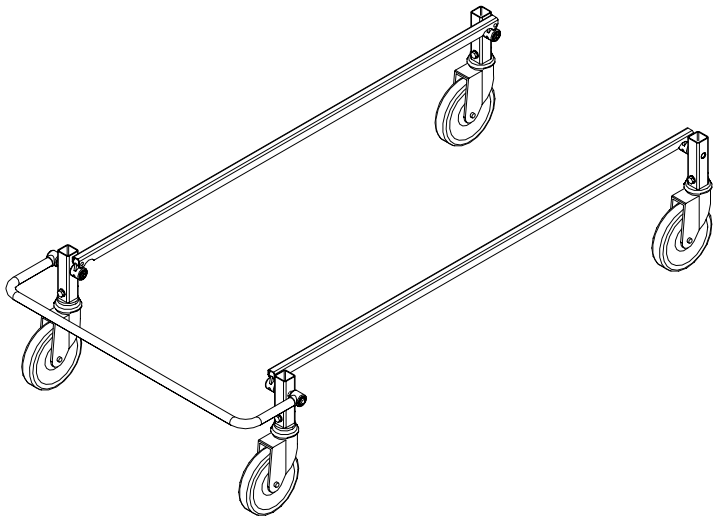
Paper roll holder
100000732



Trendelenburg adjustment
100000977 Factory assembly



Central braking system
100000961 Factory assembly



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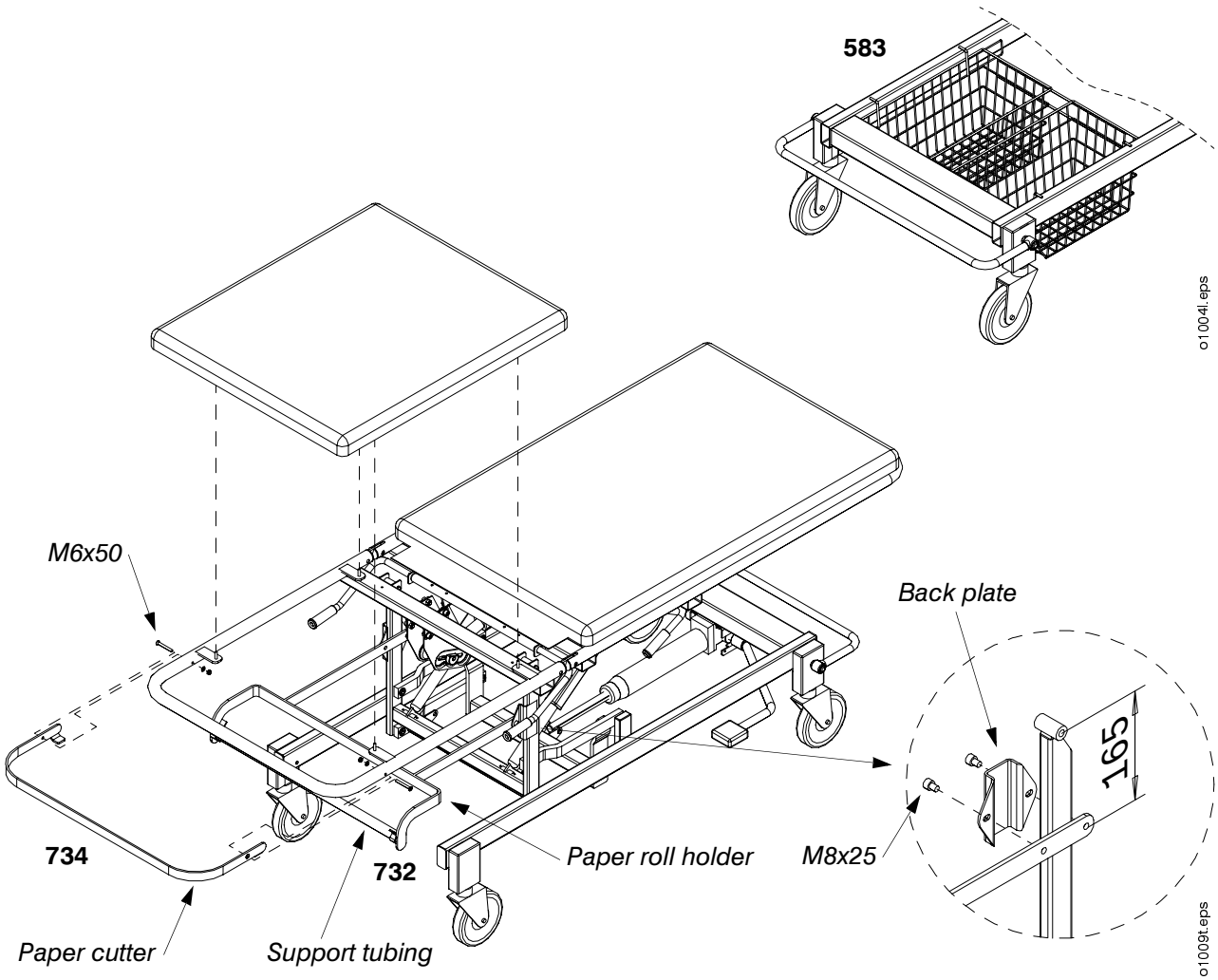
8. PRODUCT USE

8.1 Implementation

Check the package contents for any damages that may have been caused during transport. Cardboard packing materials should be recycled. Plastics are energy waste.

8.2 Assembly and use



8.2.1 Paper cut mechanism 732 fixing

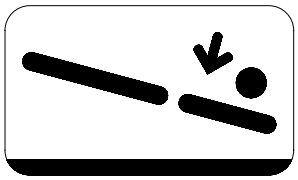
- Set paper cut mechanism at place and fasten with M6x50 screws, washers and nuts.

8.2.2 Paper roll holder 734 fixing

- Set paper roll holder at place and fasten back plate with M8x25 screws.
- Insert the support tubing into the roll and raise the holder into place.

8.2.3 Trendelenburg and anti-Trendelenburg adjustment 977 (factory assembly)

Turn the handle and adjust by holding the leg section tubing
with your other hand.
Trendelenburg angle is 0 ... 14° and anti-Trendelenburg angle is 0 ... 7°.



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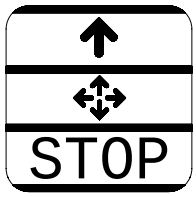
8.2.4 Central braking system and directional castor 961+962 (factory assembly)

When the pedal is up, the directional castor is locked in its steering position.

When the pedal is in the middle position, all castors will turn.

When the pedal is down, all wheels will lock.



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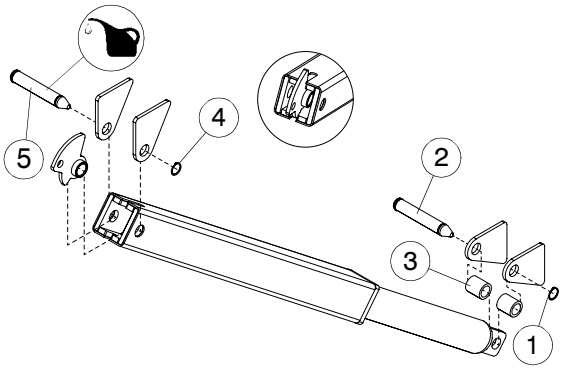
9. MAINTENANCE AND REPAIR

9.1 Removal of Trendelenburg and leg section adjustments gas springs

Adjust bed into Trendelenburg position
and support with, for example, a bedside table.

- Remove circlip (1).
- Using a mandrel, tap out the tap pivot pin (2).
- Remove plastic bushings (3).
- Remove circlip (4).
- Using a mandrel, tap out the tap pivot pin (5).



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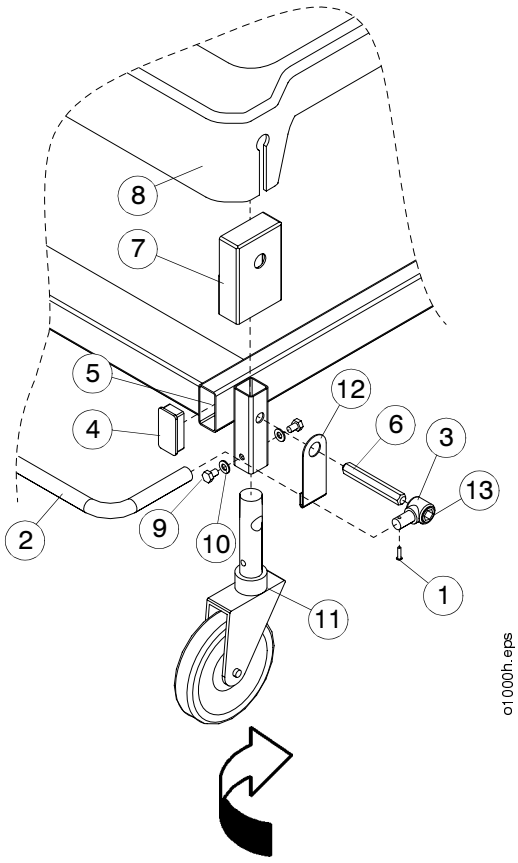
Removal of gas spring from protection sleeve
as in section 5.4.2 on page 16.

9.2 Central braking system and castors

9.2.1 Central braking system



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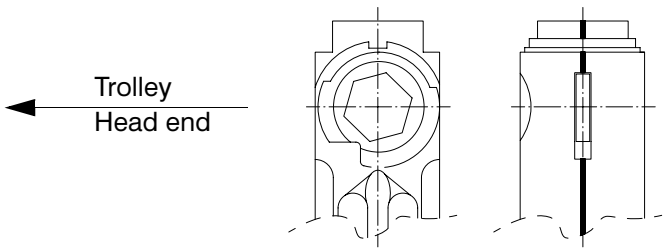
- Put the brake pedal (2) into free position (pedal centred).
- Remove screw (1).
- Pull pedal bar (2) out from lever (3).
- Remove end plug (4).
- Loosen retaining screw (5) with a 3 mm Allen key.
- Pull pedal lever (3) and axle (6) out.
- Remove protective housing (7) or (8), guard (12).
- Remove screws (9) and washers (10).
- Pull castor out from sleeve (11).

Re-assemble castor in reverse order.
Ensure that the brake pedal and cam are aligned
and that the castor is mounted in the correct direction.

9.2.2 Brake adjustment

- Engage brakes (2) (brake pedal down).
- Remove screw (1).
- Pull pedal bar (2) out from lever (3).
- Loosen lever retaining screw (13) with a 3 mm Allen key.
- Pull lever (3) out from the axle (6).
- Remove protective housing (7) or (8), guard (12).
- Remove screws (9) and washers (10).
- Support the examination table so that the castor being adjusted is off the floor.
- Braking power is increased by turning the castor clockwise
  (as seen from above) one half rotation at a time (as shown by the arrow).

Brake pedal centred
(free position)



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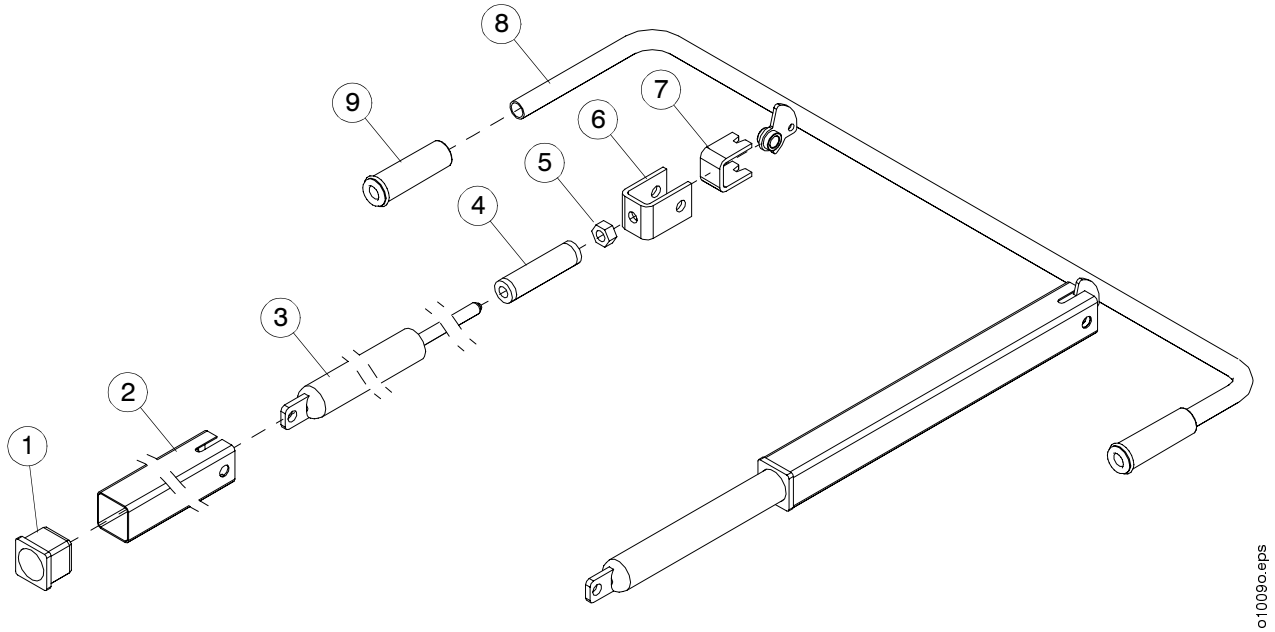
CAUTION! The directional castor in generally located on the right hand side of the head end.
The location of the directional castor can be specified by the orderer.

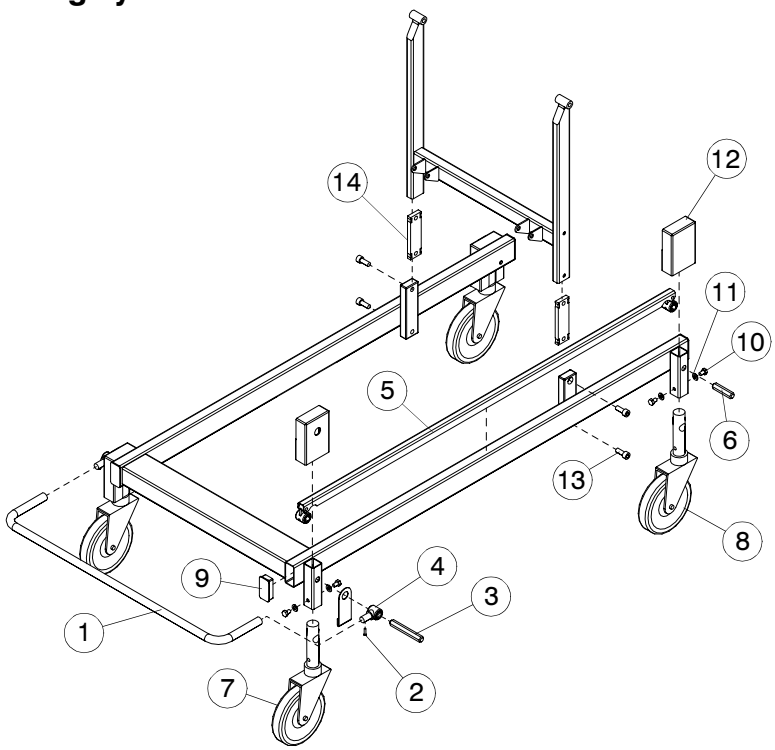
10. SPARE PARTS

10.1 Trendelenburg adjustment gas spring



			Number of parts in assembly
Part	Code	Part name	Additional information
1	709781	Bearing retainer	2
2	A3357300	Protective sleeve	2
3	712583	Gas spring	180 mm/420N 2
4	A4980600	Limiter	2
5		Nut	M10x1 2
6	A3357400	Mounting racket	2
7	A3357500	Ram mount	2
8	A2406701	Starting handle	1
9	7097746	Handle guard	Red 2

10.2 Central braking system



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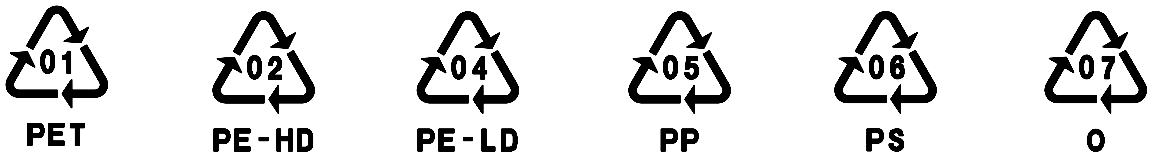
			Number of parts in assembly	
Part	Code	Part name	Additional information	
1	A2400100	Pedal		1
2	70530	Screw	SFS 2759-4.2x1.3	2
3	A4724500	Axle		2
4	A4724700	Fixing lever	Includes retaining screw DIN 916-M6x8	2
5	A3450000	Brake connecting rod	Includes retaining screws DIN 916-M6x8 (2 pcs)	2
6	A4724600	Axle		2
7	712321	Brake castor		3
8	712311	Directional castor		1
9	710219	Side rail plug	Grey	4
10	70632	Screw	SFS 2219-M8x12	8
11	707782	Washer		8
12	7107069	Protective housing	Remember to specify the need for a hole when placing an order	4
13	70645	Allen screw	SFS 2119-M10x25	4
14	A4539500	Nut plate		2
15	A3778000	Central brake pack	Includes positions 1 - 8	

11. RECYCLING

11.1 Metals and plastics

When disposing an examination table or replacing any of its parts, check the recyclability of each item.. A majority of the metal used on the examination table is steel. The examination table also contains a number of zinc castings and brass bushings. When recycling plastic parts, determine the material type. The table on pageSivulla 8 lists part materials, which will provide assistance in determining the correct recycling procedure. If a part material is missing from the table, contact your sales representative for the correct information. For more information on recycling, contact your local waste management facility or visit related sites on the Internet.

Below are recycling symbols, which are marked on parts made of plastic. Products marked with these symbols can be used as energy waste.



CAUTION! Jelly batteries are hazardous waste and should be delivered to a hazardous waste pick up.

11.1.1 Gas springs

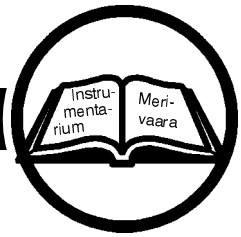
Gas springs can be disposed of as a metal waste after all nitrogen gas and oil has been removed from them.

WARNING! Releasing nitrogen gas is strictly prohibited without following the proper instructions. Your sales representative will provide the necessary instructions for the correct disposal of gas springs.

11.1.2 Hydraulics

Hydraulic cylinders can be disposed of as a metal waste after all oil has been removed from them.

NOTES



ORDER FORM

Delivery address:	Invoicing address:
Mark / reference:	Mark / reference:
Orderer: / Telephone:	Order date: / Transport mode:

Pcs.	Part	Code	Part name

Information:

Merivaara Instrumentarium
Puustellintie 2
FIN - 15150 LAHTI, FINLAND

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Fax: +358 10 394 6249