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1. General safety notes

In the Federal Republic of Germany, the electrical installation of rooms for medical purposes must conform to the provisions VDE Standard 0107. In all other countries the national requirements have to be observed. Check the installation layout plan.

During the installation it is important to check that all protective ground wire connections provided by the manufacturer are properly made before the equipment is started up.

The protective ground wires between the individual system components and the power supply are connected as shown in the wiring diagram.

Regulation of professional associations concerning safety and accident prevention has to be observed. No work may be performed on parts carrying a voltage higher than 42 V.

If it is necessary to turn on the power for execution of movements of the equipment in the course of installation procedure, it must be shut down immediately after completion of these movements.

1.1 Technical data

1.1.1 Compatibility

These mounting instruction is valid for Bucky-units BS 2000 and all versions of them.

The columns carry all customary in trade Bucky-units.

The columns will be supplied with the brake handles at the left hand side.

It is possible to exchange the handles in the field if necessary. The procedure of exchanging the handle will be described in section 3.

1.1.2 Climatic conditions

During regular work:

Temperature:	10° C to 40° C
Humidity:	20% to 80%
Air pressure:	700hPa to 1100hPa

During transport:

Temperature:	-25° C to 70° C
Humidity:	5% to 95%
Air pressure:	700hPa to 1100hPa

1.2 Measurements and weights

Measurements	With shipping box	Without shipping box
Version V	2340 x 750 x 650 mm	2220 x 650 x 420 mm
Version VK	2340 x 750 x 850 mm	2220 x 650 x 620 mm

Weights	With shipping box	Without shipping box
Version V	190 kg	150 kg
Version VK	240 kg	195 kg

Options:

Bucky P	13,0 kg
Front cover with profilrails for accessories	5,2 kg
Support triangle for installation without wall incl. fixing material.	12,5
Spacer incl. additional counterweights (only version V)	10,0 kg
Patient stretching-rest	2,5 kg
Patient armrests	1,1 kg
Compression belt device	2,0 kg
Cassette holder	2,0 kg
Babyx holder	3,9 kg

1.3 Scope of delivery

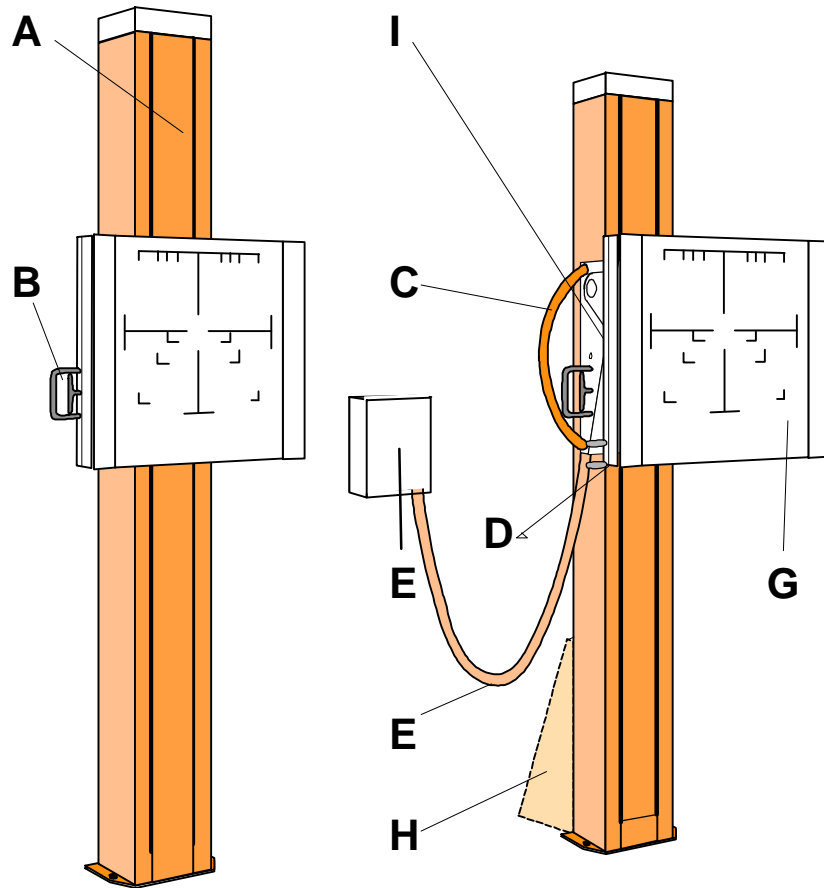
Standard:

Column with counterweight and Bucky carrier incl. Fixing material for wall- and floor-fixing.
Adaptation parts for fixing the Bucky-unit.
Wall connection box incl. corrugated hose and fixing material for wall connection box.

Options:

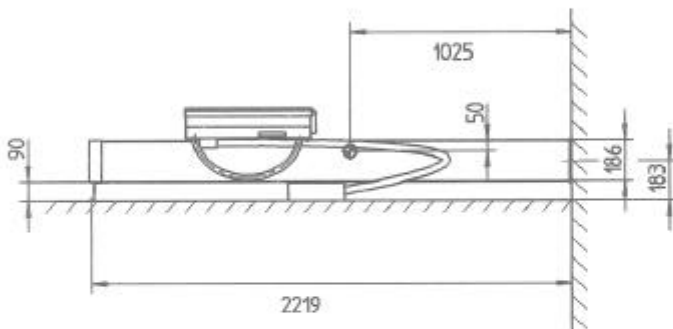
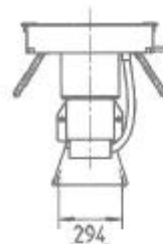
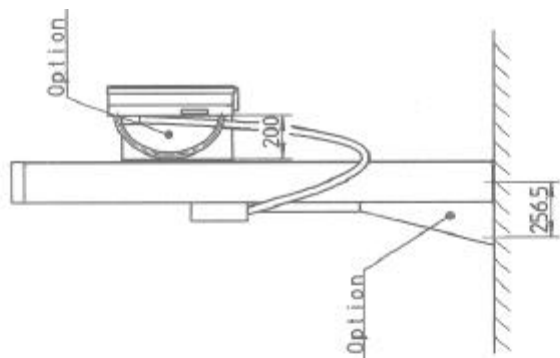
Support triangle for installation without wall incl. fixing material.
Front cover with profilrails for accessories
Patient armrests
Patient stretching-rest
Babyx holder
Spacer incl. additional counterweights (only version V)
High distance measurement device

1.4 Component designation

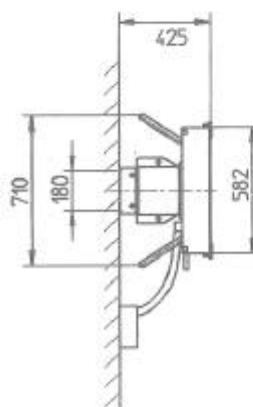
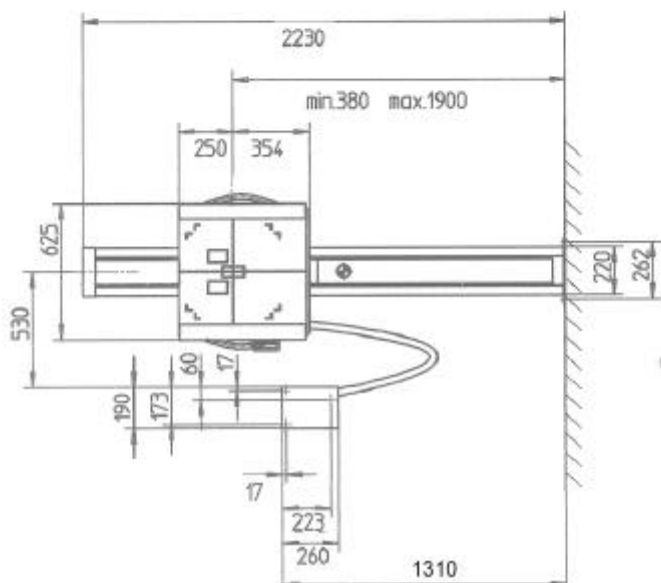


- A** Column
- B** Brake handle
- C** Patient rests
- D** Tilting handle
- E** Corrugated hose
- F** Wall connection box
- G** Front cover with profilrails for accessories
- H** Support triangle
- I** Display of tilting angle
- K** Spacer (only version V)
- L** Patient stretching-rest

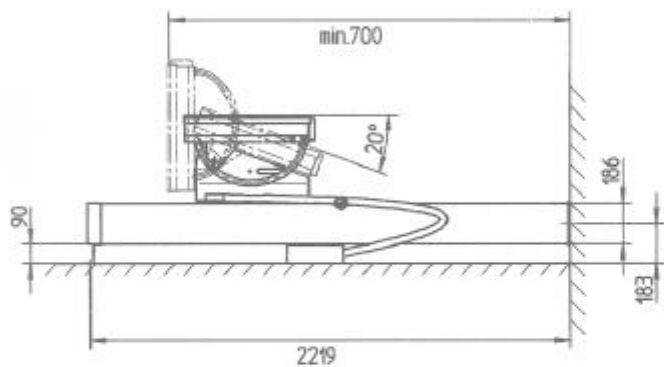
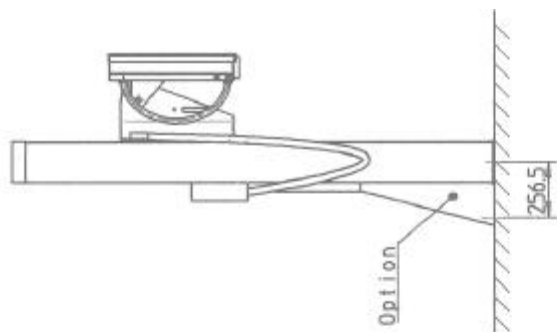
1.5 Dimensions of components version V



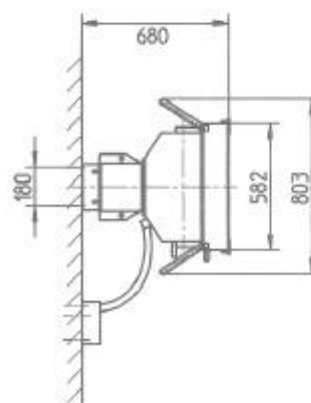
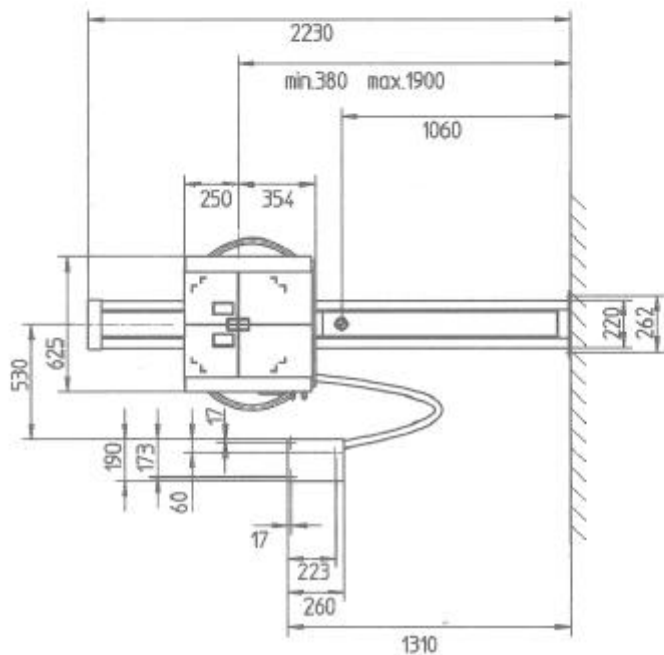
mm	Zoll	mm	Zoll
2230	87.795	256.5	10.098
2219	87.362	250	9.842
1900	74.803	223	8.779
1310	51.575	220	8.661
1025	40.354	200	7.874
740	27.953	190	7.480
625	24.606	186	7.323
582	22.913	183	7.205
530	20.866	180	7.087
425	16.732	173	6.811
380	14.961	90	3.543
354	13.937	60	2.362
262	10.315	50	1.969
260	10.236	17	0.669



1.6 Dimensions of components version VK



mm	Zoll	mm	Zoll
2230	87,795	262	10,315
2219	87,362	260	10,236
1900	74,803	256,5	10,098
1310	51,575	250	9,842
1060	41,732	223	8,779
803	31,642	220	8,661
700	27,559	190	7,480
680	26,772	186	7,323
625	24,606	183	7,205
582	22,913	180	7,087
530	20,866	173	6,811
380	14,961	90	3,543
354	13,937	60	2,362
		17	0,669



1.7 Site preparation

The electrical data have to correspond to the Bucky-unit installed.

For the columns only the respective ground wire connection is required.

The mounting points on mounting surface have to be suitable for tensile strength of 2400 N each (concrete class B 150 DIN 1045 or other national requirements, if the supplied fixing material will be used).

The fixing drillings have to be inserted at the floor 12 mm , at the wall 10 mm and at the wall connection box 8 mm as shown in diagrams 1.5, or 1.6.

Depending on the version the cable for the Bucky-unit and the measurement chamber have to be installed to the wall connection box or to the Bucky-unit as shown in cabling diagram of installation.

A set of cables including hose and wall connection box are scope of delivery.

1.8 Tools

Service standard tool kit

1.9 Test equipment

Spirit level

2. Installation

2.1 Installation of Bucky-unit version V

Unpack the individual parts and check for completeness. If necessary compare with scope of delivery section 1.3 or order.

Check that all parts are not damaged.

Note: If the application requires the using from right hand side the exchange of the brake handle should be done first.

The following steps have to be carried out by the column in the horizontal position.

Pull the connection cable for the Bucky-unit and if necessary the cable for the measurement chamber through the appropriate openings.

Install the side cover (Fig. 1 Pos. 4) and fix it with the shackle. (If needed install the spacer). Place the Bucky-unit between the covers and fix it with 2 bolts (Pos.2) each above and below to the carrier or spacer.

Install the covers (Pos.3) each with 4 bolts (Pos.1) and washers on the carrier.

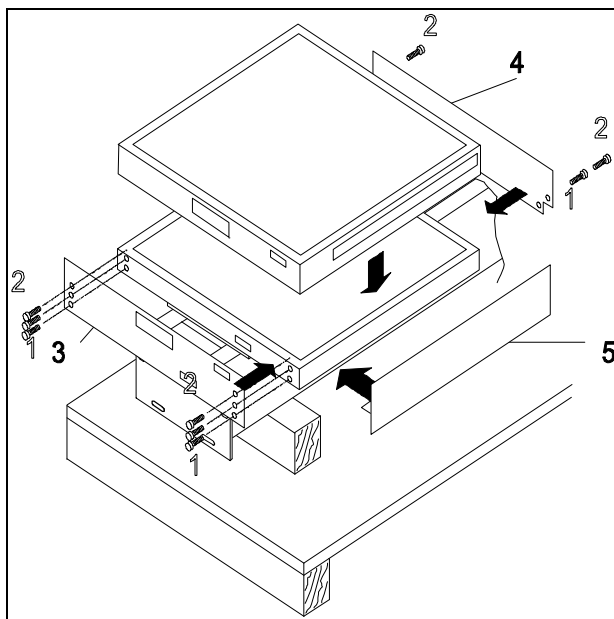


Fig. 1

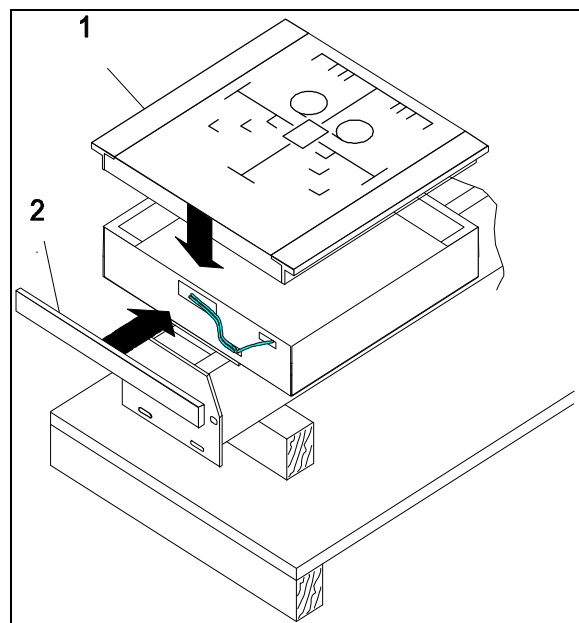


Fig. 2

Connect the Bucky cable and if necessary the cable for the measurement chamber as described in the documentation of the Bucky-unit.

Install the front panel (Fig.2 Pos.1) and the cable cover below (Pos.2).

Place two blocks of wood or similar under the column and remove the transport safety fixing bars from above and below both sides of the pallet.

2.2 Installation of Bucky-unit version VK

Unpack the individual parts and check for completeness. If necessary compare with scope of delivery section 1.3 or order.

Check that all parts are not damaged.

Attention: Do not operate the tilting handle in horizontal position of the column. Accident prevention !

Note: If the application requires the using from right hand side the exchange of the handle should be done first.

The following steps have to be carried out by the column in the horizontal position.

Pull the connection cable for the Bucky-unit and if necessary the cable for the measurement chamber through the appropriate opening.

Install the side cover (Fig.3 Pos.5) and fix it with the shackle. (If needed install the spacer). Place the Bucky-unit between the covers and fix it with 2 bolts (Pos.2) each to the carrier. Install the cover (Pos.3) and the fixed part of the tilting handle (Pos.4) with 4 bolts (Pos.1) and washers each on the carrier.

Connect the Bucky cable and if necessary the cable for measurement chamber as described in the documentation of Bucky-unit.

Install the front panel (Fig.4 Pos.1) and the cable cover below (Pos.2).

Place two blocks of wood or similar under the column and remove the transport safety fixing bars from above and below both sides of the pallet.

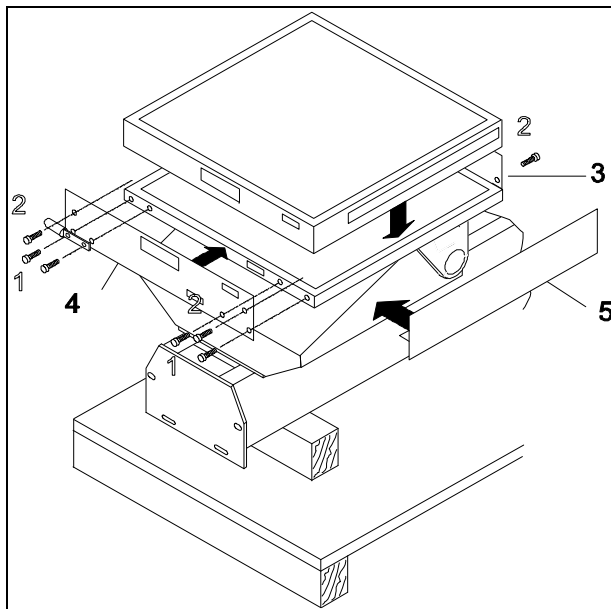


Fig. 3

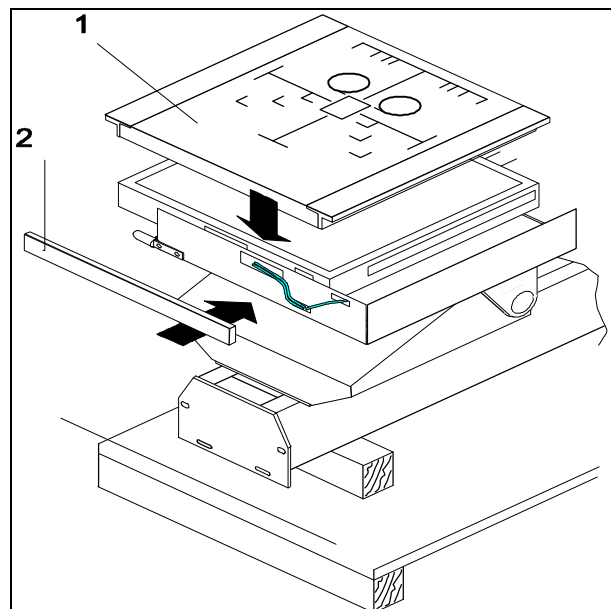


Fig. 4

2.3 Installation at the wall

Install the parts for wall fixing to the top side of the column with 2 bolts.
Move the Bucky-unit to the lowest position until the rope is tense.
Bring the column to the vertical position and fix it at the floor with 2 bolts.

Attention: Secure the column against tilting

Screw the wall fixing part with 2 bolts to the wall.
Level the column with a spirit level.
Fasten all bolts.
Remove the transport safety fixing guard from the counterbalance.
Check the easy movement of the Bucky-unit.
Install the wall connection box to the wall as shown in measurement drawing.
Connect the cable as shown in the connection diagram or documentation of the Bucky-unit.

2.4 Installation without wall

Insert the nut-lines (Fig.5 Pos.1) by the diagonal edge first and fix with a bolts (Pos.2).
Move the Bucky-unit to the lowest position until the rope is tense.

Attention: Secure the column against tilting

Bring the column to the vertical position and fix it at the floor with 2 bolts. (Do not fasten the screws completely).
Install the support triangle at the rear side of the column by fixing it to the nut-lines.
Fix the support triangle to the corresponding bore holes at the floor. (Do not fasten the screws completely).
Level the column with a spirit level. Fasten all bolts.
Remove the transport safety guard from the counterbalance.
Check the easy movement of the unit.
Install the wall connection box to the wall as shown in measurement drawing.
Connect the cable as shown in the connection diagram or documentation of the Bucky-unit.

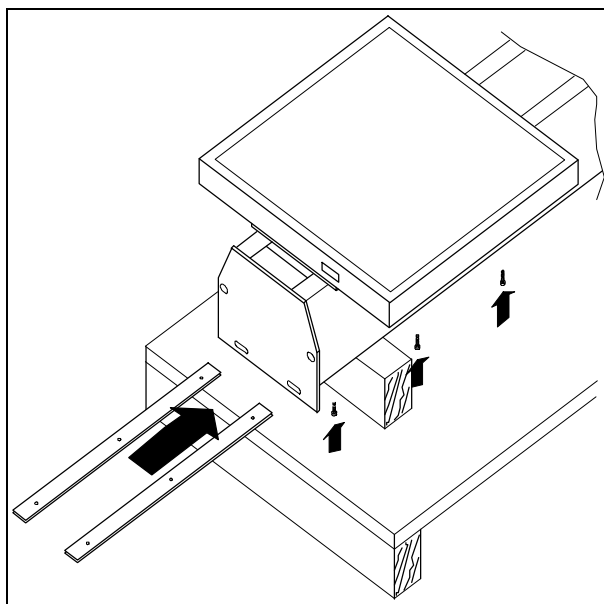


Fig. 5

2.5 Installation of the covers

Insert the lower cover (Fig.6 Pos.1) through the polyamide guides at the carriage and push it into the support.

Insert the top cover (Pos.2) into the guide bolts and fasten the nuts at the stay bolts on the top.

Install the top cover panel.

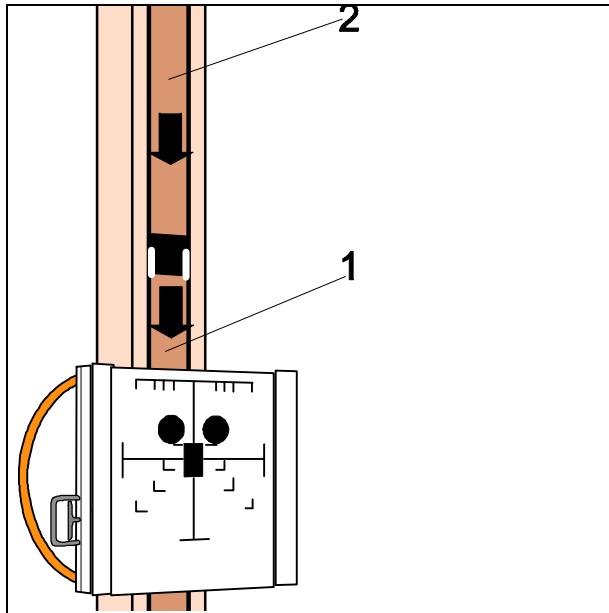


Fig. 6

2.6 Installation of the patient armrests

The patient armrests are not part of standard delivery.

Install the armrests to the left and right hand side of the Bucky-unit with 2 screws each.

2.7 Installation of counterbalance

For all known Bucky-units the columns are weight compensated. Only in case of installing a special light Bucky-unit it may be necessary to install additional counterbalances.

Install the front panel, put in the cassette tray with a cassette for lungs exposures and install all other options.

With opened brake handle the Bucky-unit should have a slightly upwards movement.

Put counterbalances on top of the Bucky-unit as long as the unit is weight compensated. These number of counterbalances has to be taken into the Bucky-unit.

3. Reconstruction of handles

3.1 Handle version V

The column will be supplied with installed brake handle at the left hand side of the column. If the application requires the handling from right hand side the brake handle has to be hanged first. In case of later reconstruction the Bucky-unit has to be remounted first. The remounting should be done in opposite sequence as the installation and is described at section 2.

Mark the position of the rope (Fig.7) and loosen the rope.

Remount all parts in mentioned sequence.

Install the brake handle in the opposite position on the right hand side. (Position the rounded edge correct).

Fix the rope at the marked position.

Check the easy movement of the brake function.

Note: Depending on the installed Bucky-unit the grid movement inside the Bucky-unit has to be changed too.

The appropriate information's should be withdrawn from the technical documentation of the Bucky-unit.

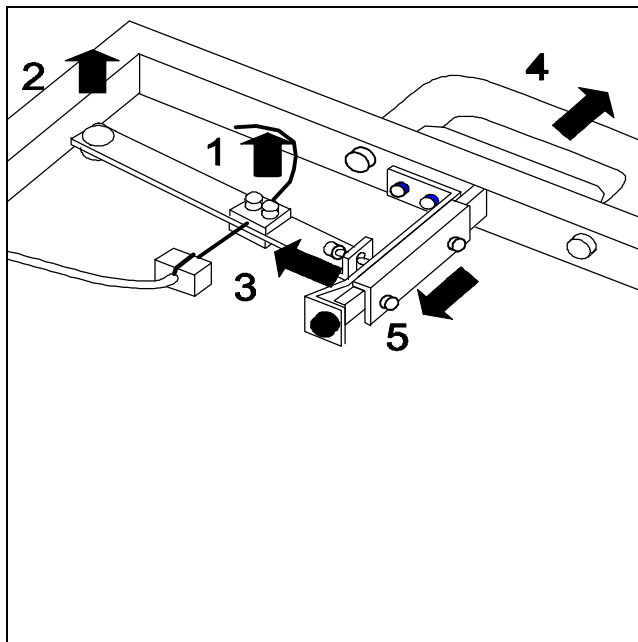


Fig. 7

3.2 Handle version VK

The column will be supplied with installed brake handle and the tilting handle at the left hand side of the column. If the application requires the handling from right hand side the handles have to be changed first. In case of later reconstruction the Bucky-unit has to be remounted first. To exchange the tilting handle Bucky-unit has to be remounted first. The remounting should be done in opposite sequence as the installation and is described at section 2.

Mark the position of the rope (Fig.8) and loosen the rope.
 Open all parts in mentioned sequence and remove them.
 Install the tilting handle in the opposite position on the right hand side.
 Change the fixed part of the handle to the opposite position.
 Check the easy movement of the tilting function.

Remove the cover from the tilting housing.
 Mark the position of the brake rope (Fig.9) and loosen the rope.
 Open all parts in mentioned sequence and remove them.
 Install the brake handle in the opposite position on the right hand side. (Position the rounded edge correct).
 Fix the rope at the marked position.

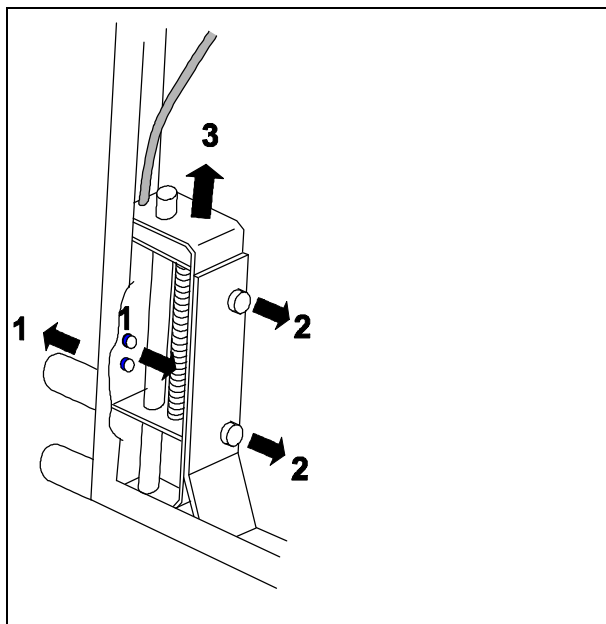


Fig. 8

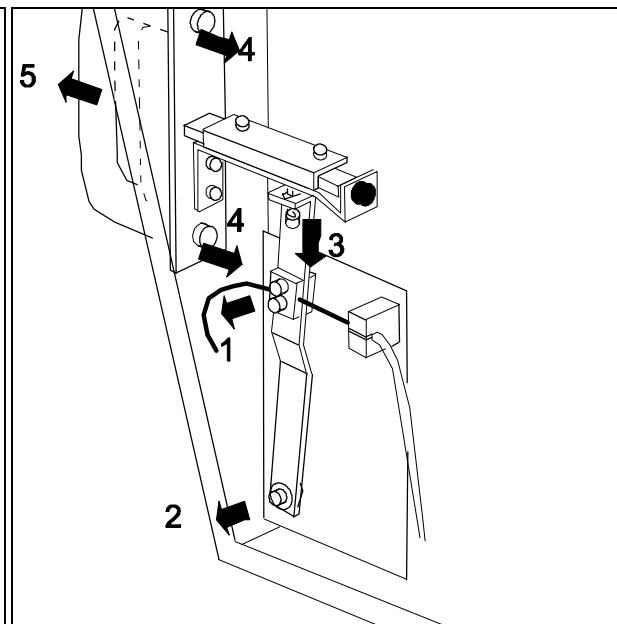


Fig. 9

Check the easy movement of the brake function.

Note: Depending on the installed Bucky-unit the grid movement inside the Bucky-unit has to be changed too. The appropriate information's should be withdrawn from the technical documentation of the Bucky-unit.

3.3 Installation of the spacer version V

If the optional spacer should be part of delivery it has to be installed. If it should be installed later the column must be reinstalled and placed to the floor. The Bucky-unit has to be re-mounted before the spacer may be installed.

Before the column will be reinstalled the safety fixing guard at the counterbalance has to be installed first.

The remounting should be done in opposite sequence as the installation and is described at section 2.

Mark the position of the brake wire rope at the fixing point and remove the wire rope.
Remove the baseplate from vertical carrier (Fig.10).
Install the spacer and fix it with 4 bolts.
Install the base plate on top of the spacer.
Fix the rope at the marked position.

Remove the safety fixing guard from the counterbalance.
Loosen all parts (Fig.11) in mentioned sequence and remove the rope-roller.
Pull the counterbalance at the rope until it is accessible.
Reinstall the rope holder (Fig.5.2.1 Pos.32).
Loosen the safety nut from the counterweight plate (Pos.35).
Put on the additional counterweight plates (5,2 Kg).
Install the safety nut and the rope holder again.
Insert the counterbalance again, secure it and install the rope-roller again.

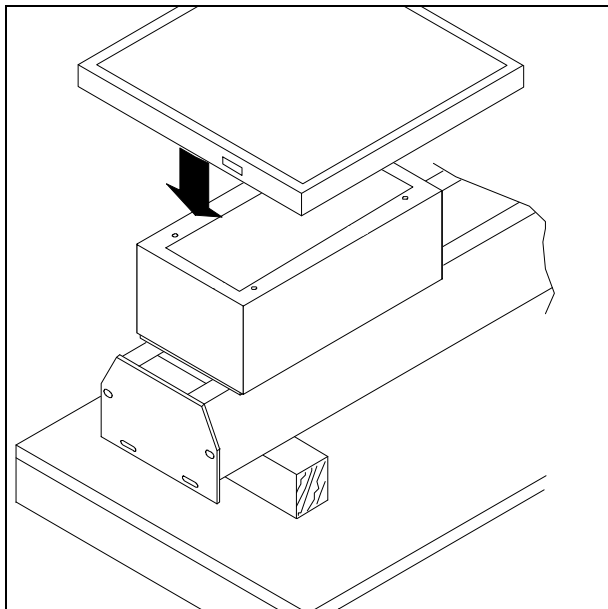
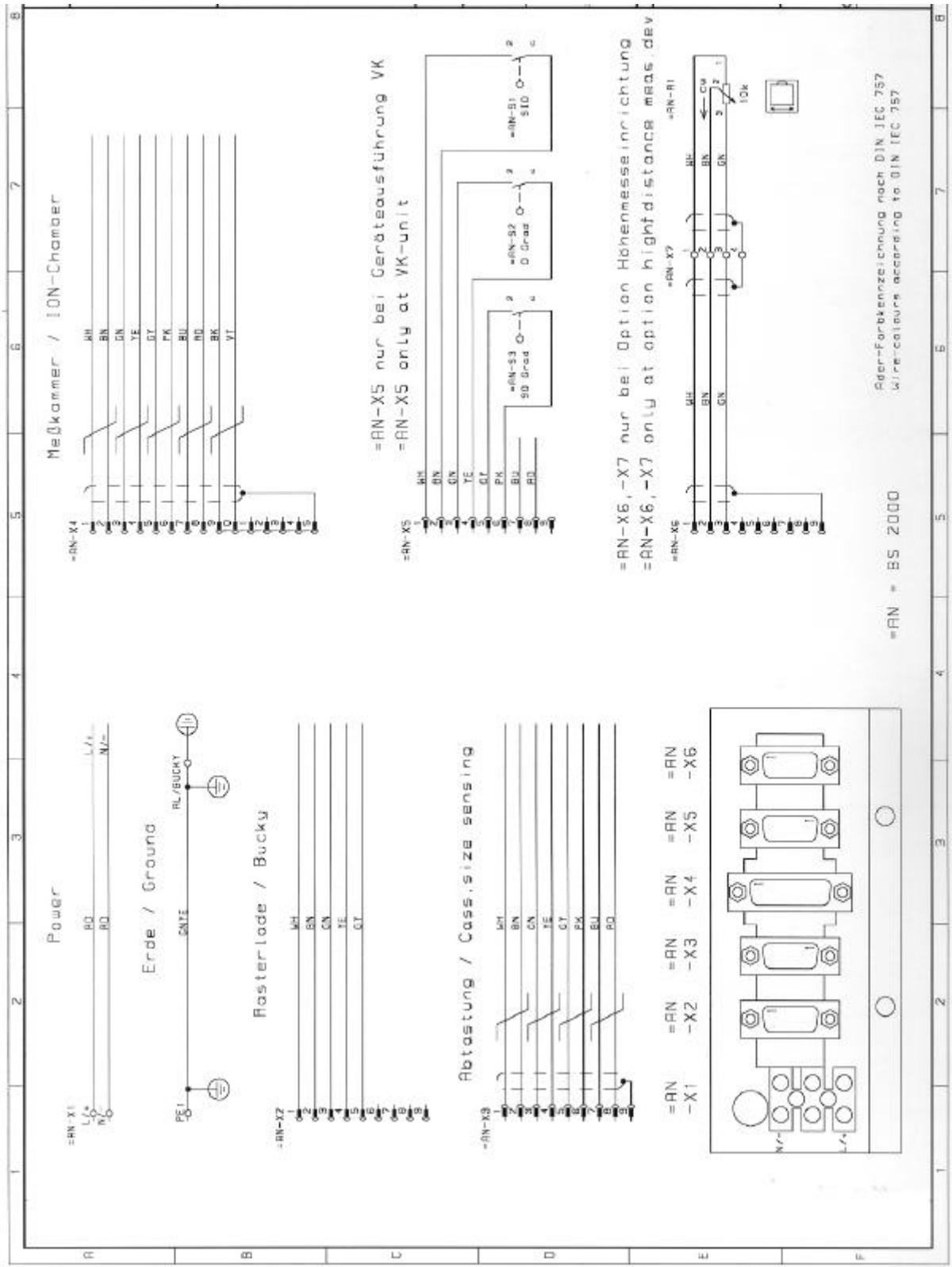


Fig. 10

4. Electrical diagrams



5. Preventive Maintenance

5.1 Exchange of wire rope

Wire ropes have to be exchanged after 3 years of operation or if:
there are 12 or more broken wires in any 100 mm section.
or there are 3 and more broken wires in any 10 mm section.

If the check of a wire rope reveals one broken strand the customer has to be notified that any further operation endangers the safety of patient and operator so that the unit should not be used until the defective wire rope has been replaced.

At both versions the column must not be re-installed completely to exchange the rope.
At the version V the Bucky-unit and the base plate must be re-installed to exchange the rope.

At the version VK the fixing point for the rope will be accessible if the Bucky-unit will be tilt to the horizontal position and the cover has been re-installed.

Re-install the cover

Move the Bucky-unit until the tapping hole in the counterweight and the bore in the column are congruence.

Fix the counterbalance by a M12 bolt and washer.

Lift the Bucky-unit until the rope relieves and fix the Bucky-unit in this position by a wooden block.

Loosen the wire rope at the Bucky carrier side.

Loosen all parts (Fig.11) in mentioned sequence and remove the rope-roller. (The fixing bolt of the rope at the counterbalance side will be accessible now.)

Loosen the rope at the counterbalance and exchange the rope.

Install the rope-roller again.

Install the rope at the carrier. (Pay attention to washers and parts at both fixing points and check that the rope safety part is installed correctly.

Remove the wooden block.

Remove the bolt at the counterbalance.

Check that the function is smooth. Install the covers.

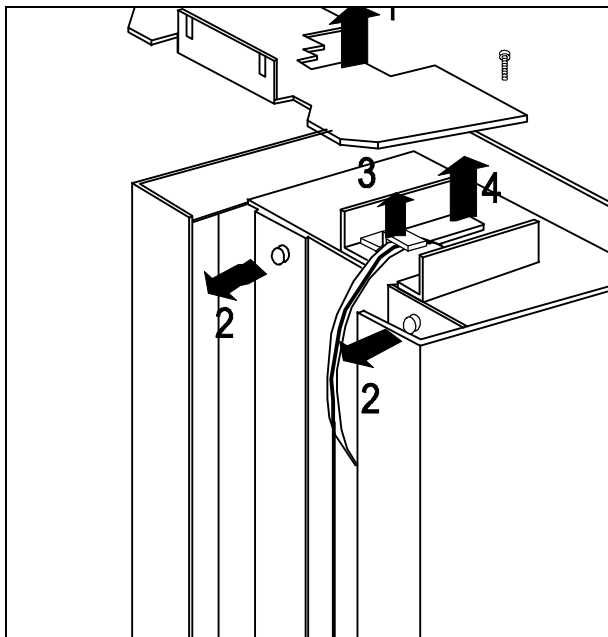
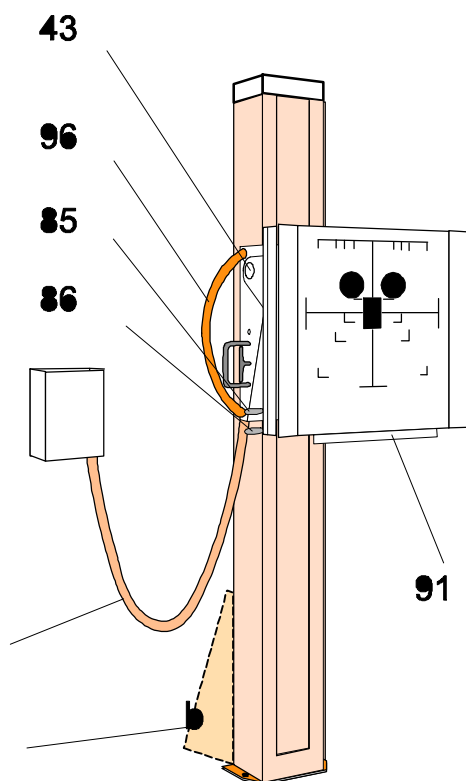
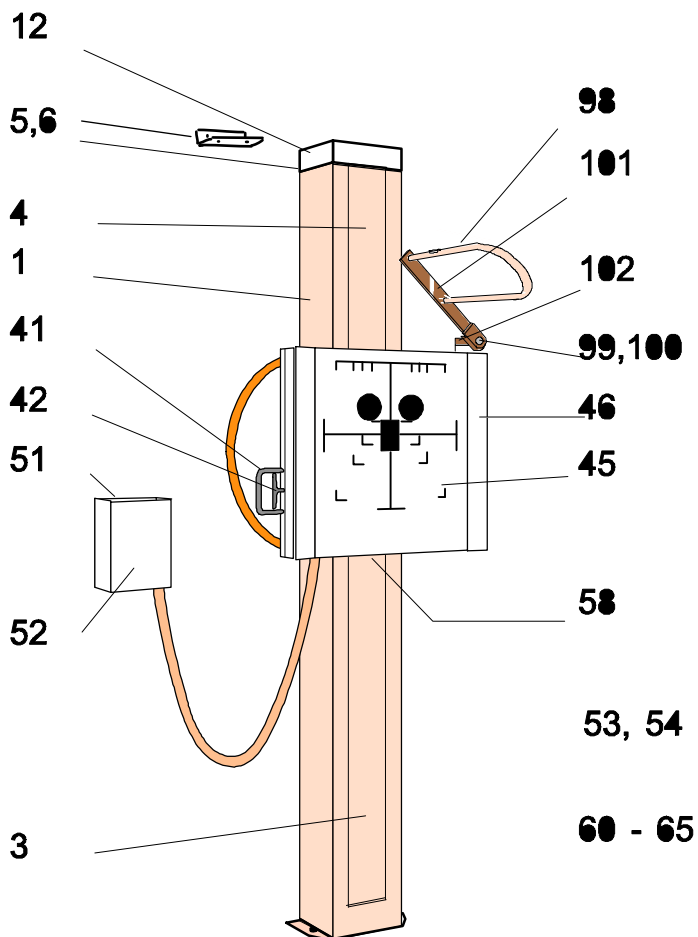
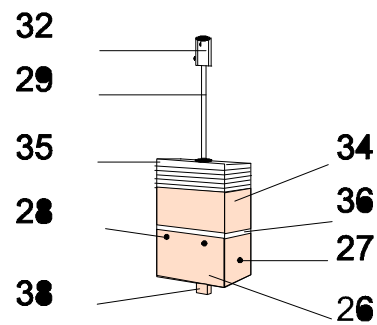
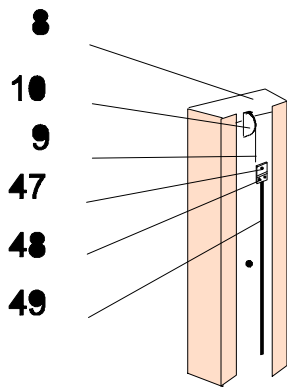
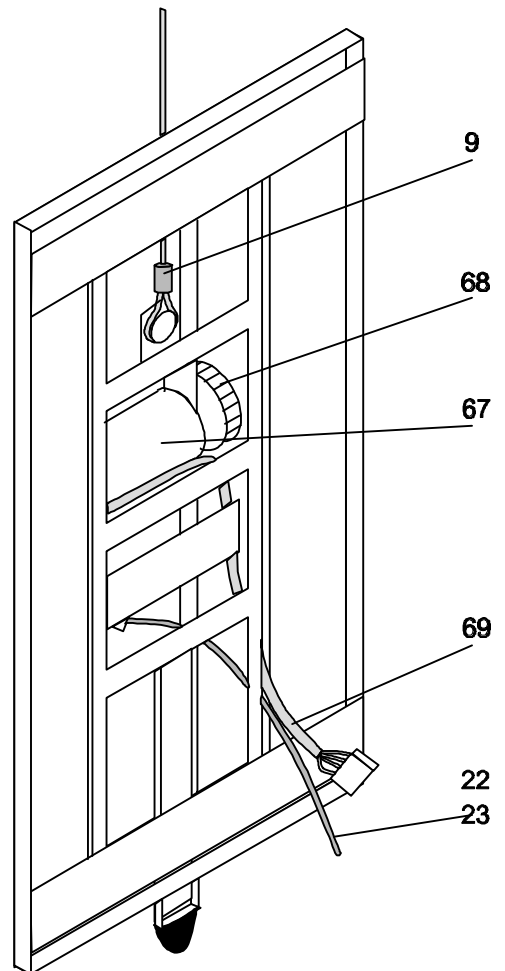
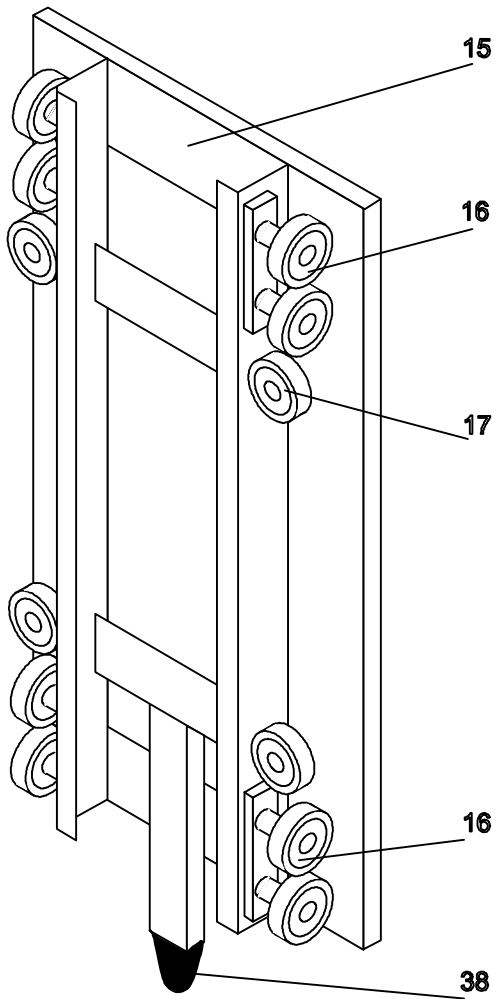
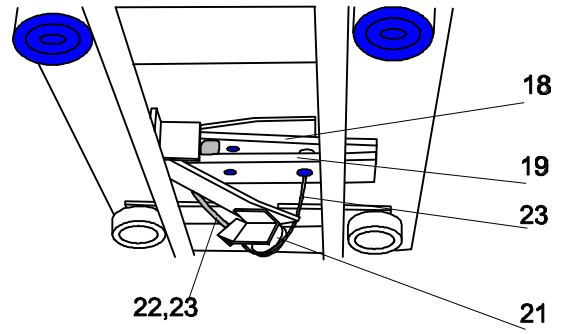
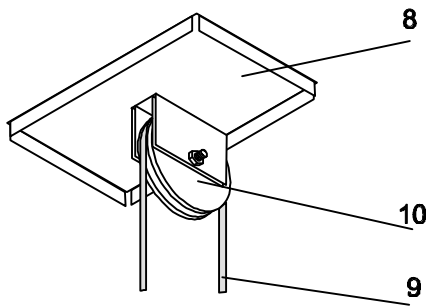


Fig. 11

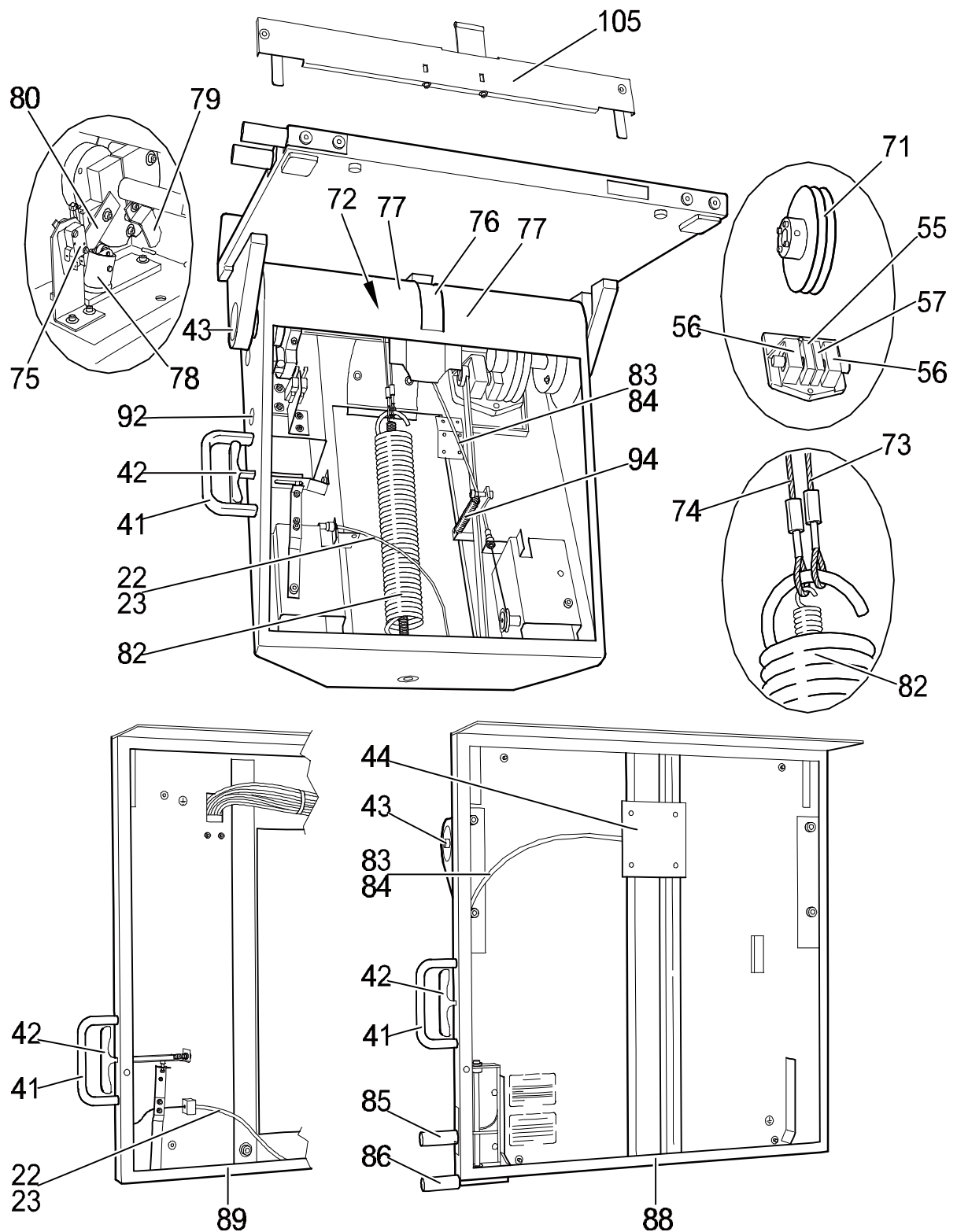
5.2.1 Spareparts



5.2.2 Spareparts



5.2.3 Spareparts



5.3 Spareparts List

Part names / Ordering numbers

Note:

Failed spare parts may only be replaced with original parts listed below. When ordering parts always indicate serial number of unit and complete number of parts. The exchange of parts or components may only be carried out by yourself or by qualified personnel being authorised to do so.

See also chapter: "Safety Notes".

Item	Designation	Order No.
1	Column weld	0370 0120
2		
3	Cover	0370 0138
4	Cover	0370 0142
5	Column fastening angle	0370 0167
6	Wall fastening angle	0370 0168
7		
8	Head piece weld	0370 0183
9	Rope	0370 0189
10	Rope roller complete	0370 0191
11		
12	Head cover weld	0370 0210
13		
14		
15	Vertical carrier	0370 0300
16	Pair of roller	0370 0315
17	Roller	0370 0321
18	Brake lever complete	0370 0342a
19	Brake lever complete	0370 0342b
20		
21	Roller	0370 0357
22	Sheath	0370 0367
23	Brake rope	0370 0368
24		
25		
26	Vertical counterweight	0370 0511
27	Glide block	0370 0512a
28	Glide block	0370 0512b
29	Counterweight	0370 0514
30		
31		
32	Rope holder	0370 0515
33		
34	Counterweight block	0370 0520
35	Counterweight plate	0370 0528a
36	Counterweight plate	0370 0528b
37		
38	Spring	0005 0103b
39		
40		

41	Grip	0005 0192b
42	Handle	0370 0645
43	Cover cap	0370 0333
44	Cable cover	0370 1382
45	Front plate	0370 0718
46	Profile bar	0370 0746
47	Belt holder	0370 1504
48	Clamp metal	0370 1505
49	Tothbelt	0370 1514
50		
51	Interface ground weld	0370 0752
52	Interface cover	0370 0765
53	Corrugated hose	0007 0024e
54		
55		
56		
57		
58	Spacer kit only to use for "V"	0370 0850
59		
60	Kit "free stand Installation"	0370 0900
61	Support triangle	0370 0905a
62	Support triangle	0370 0905b
63	Thread bar	0370 0909
64	Cover weld	0370 0910
65	Top weld	0370 0920
66		
67	Spiral potentiometer	0006 0598c
68	Tothbelt wheel	0370 1513
69	Potentiometer cable	0370 1516
70		
71	Brake disk package	0370 1055
72	Rope curve disk	0370 1101
73	connection rope	0370 1105
74		
75	Micro switch assembled	0370 1115
76	Slit cover	0370 1120
77		
78	Catch complete	0359 0850
79	Switch cam cranked	0370 1083
80	Switch cam	0370 1084
81	Brake metal complete	0359 0782
82	Pull spring	0370 1232
83	Sheath	0370 1226
84	Rope	0370 1227
85	Round grip short	0370 1352
86	Handle round	0370 1378
87		
88	Retaining plate "VK"	0370 1375
89	Retaining plate "V"	0370 0661
90		
91	Cover cap	0370 0669
92	Pressure switch with lamp	0006 0661a

93	Telecommunications lamp	0006 0662a
94		
95		
96	Patient rest	0960 0702
97		
98	Patient stretching rest	0960 0710
99	Axle assembled	0960 0716
100	Rack	0960 0538
101	Retaining metal weld	0960 0725
102	Insert element	0960 0714
103		
104		
105	Zero degree stop cpl.	0370 1180
106		
107		
108	Babyx holder cpl.	0960 0755

5.4 Maintenance Certificate

The maintenance according to the attached maintenance instructions has been carried out. Any parts replaced were original spare parts as shown on the list.

Replaced parts (List item no. only)

Date Name of company Signature

Replaced parts (List item no. only)

Date Name of company Signature

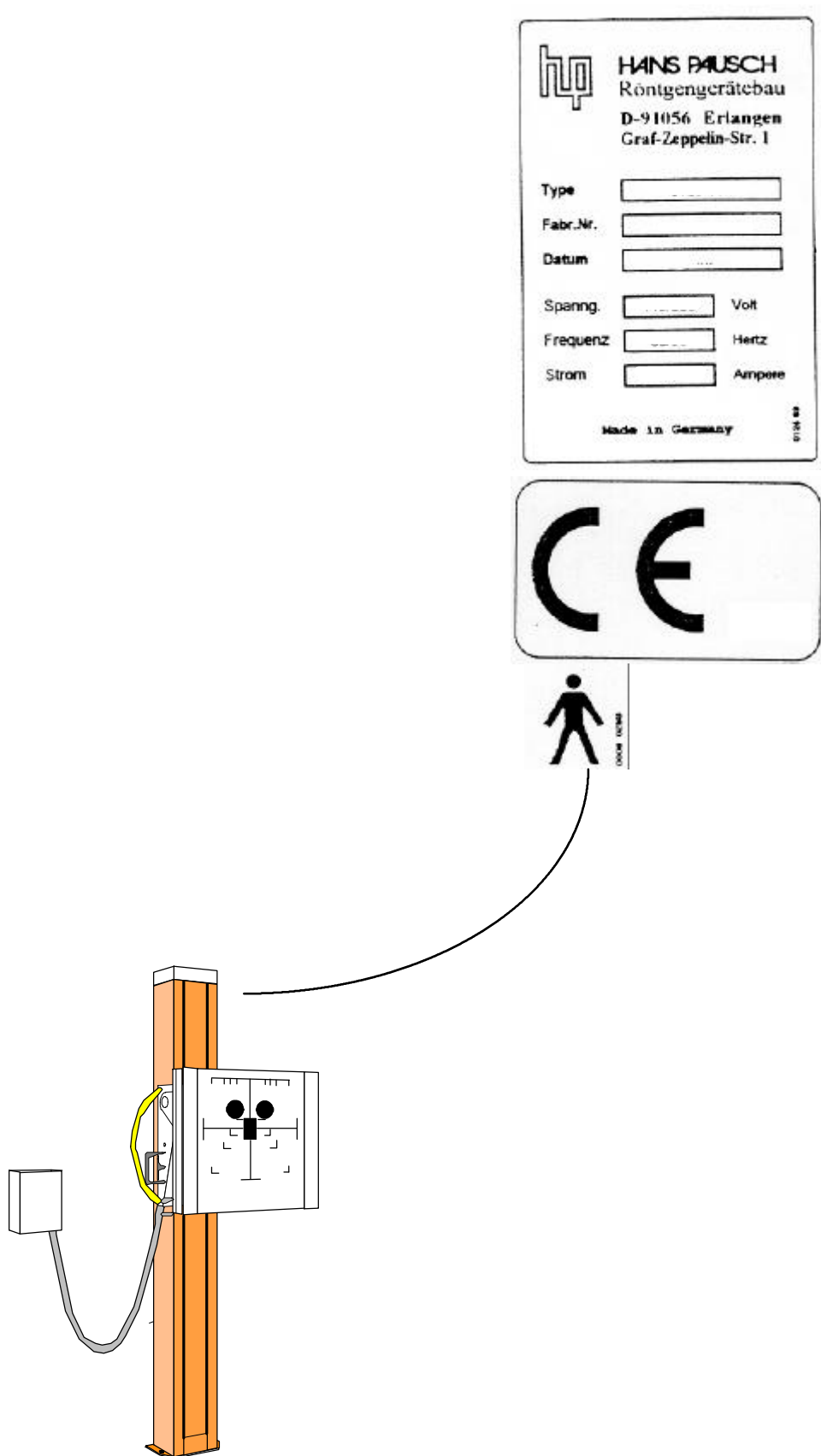
Replaced parts (List item no. only)

Date Name of company Signature

Replaced parts (List item no. only)

Date Name of company Signature

5.5 Name Plate Location



Subject to technical alterations

TV/Ru