

# A Assembly Instructions

## Liana Swing

### Art-No. 20.01.090



**Operator:** \_\_\_\_\_

**Location:** \_\_\_\_\_

#### **Revision history**

Revision 0 – 2004-02-24

The first released version

Assembly instructions

Revision 4 – 2011-11-15

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# 1 Introduction Assembly

## 1.1 General Information

This equipment should be installed, inspected, maintained and operated in accordance with EN1176-7 guidelines.

**Before installation work commences, please check that you have all of the equipment and fixation components in the parts list provided (see Tables 3-1 and 3-2).**

**Please consider that the installation has to be carried out only on even terrain (max.slope up to 3%).**

Any spare parts that may be required can be obtained directly from your supplier.

Please do not hesitate to call your supplier if you have any problems during installation or with any other questions.



### Attention

Following installation, complete assembly instructions, maintenance instructions and a maintenance record must be sent to the operator who must confirm receipt in writing. See the last page of this document.



### Attention

All nuts and bolts are hot-dip galvanised or stainless steel.

One of the characteristics of stainless steel is that uncontrolled cold welding may occur when the nuts are tightened. To prevent this, it is necessary to spray the nuts and bolts with Teflon spray or another similar lubricant.

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**We hereby confirm that this play equipment has been tested and certified in accordance with the play equipment standard EN 1176-1.**

### **Drawings / Views**

All optical drawings are showing only the measurements/dimensions and are no mandatory technical views of the complete item.

We reserve the right to change technical details of our articles which are serving for the further development of our articles and are reasonable for the customer.

### **Measurement / Tolerances**

Because of the properties and characteristics of the components, minor measurement tolerances compared to the indication on the sketches are possible. This concerns all shown measurements except the foundation measurements resp. measurements below upper edge ground level/play area.

### **Carousels with Optional Breaking Disk**

Please note that the installation of the optional breaking disk is **not** mandatory according the regulations of the EN 1176. It is only an additional option to reduce the rotational speed.

We recommend the installation of this disk in situations of restricted fall areas (please see general note regarding fall areas below) with respect to the surrounding and adjoining solid objects like fences, palisades, benches, etc.

By the installation of the disk the rotational speed and the resulting centrifugal force will be reduced extremely but we would suggest that the general play value of the article will also be reduced

### **Note regarding fall areas / safety zones**

#### **Statutory safety zone**

- has to be provided with the prescribed fall protection

#### **Recommended safety zone**

- an additional area with fall protection as per EN 1176

We strictly recommended keeping to our specified, increased safety area although it is sufficient to place fall protection material onto the statutory safety area. Never border the transition to e.g. lawn or similar material with solid or hard bordering! No solid objects (e.g. benches, bollards, dustbins, fences etc.) should to be installed within the specified **increased safety area**.

## 2 Datasheet

- Space requirement: Ø 3.50 m  
 Urgent recommended safety zone Ø 11.00 m  
 Lawful required safety zone: Ø 8.00 m  
 Height of fall 1:00 m



### Attention!

**According to EN 1176-5 (paragraph 5.3) the statutory fall protection area has to be an additional 2m diameter in relation to the space requirement.**

**We strictly recommend keeping our specified, increased safety area although it is sufficient to place fall protection material onto the statutory safety area.  
 Never limit the transition to e.g. lawn or similar material with solid or hard bordering!  
 No solid objects (e.g. benches, bollards, dustbins, fences etc.) are to be installed within the specified, increased safety area!**

- Required Safety Surface:

Surface material	Description mm	Minimum thickness of layer mm	Maximum height of fall mm
Topsoil grass			<= 1000*
Chipped bark	20 – 80 grain size	300/400	<= 2000/3000
Wood chippings	5 – 30 grain size	300/400	<= 2000/3000
Sand	0.2 – 2 grain size	300/400	<= 2000/3000
Gravel	2 – 8 grain size	300/400	<= 2000/3000
Other ground materials	As recommended by manufacturer		

- Name and overall dimension of the largest component:  
 Steel post (1 item) length 3.80m, Ø 193 mm
- Name and weight of the heaviest component:  
 Steel post (1 item), 110 kg

5. Intended age group: 3 years and over

**Please note that this equipment is set in concrete.**

Concrete: C25/30

Foundations/area to be excavated:

**1 x 1.20 m long x 1.20 m wide, total depth 1.10 m including 10 cm drainage**

**Top edge of concrete rounded, 20 - 40 cm below ground level.**



Attention!

**Round off foundation edges (min.R = 100 mm)! Sizes of foundations are designed for soils class "4-5" (natural ground).**

**Soil class 4: soft to medium plasticity, interleave bound, with minor portion of stone (portion < 30% with bigger diameter of 63 mm grain size)**

**Soil class 5 : ground with soil class 3 and 4 with big portion of stones (portion > 30% with bigger diameter of 63 mm grain size)**

**In case of sandy and soft soils, the surface measure of foundations have to be enlarged for about 50%!**

(Top edge of concrete 20cm-40 cm below play level)

6. Assembly time, once foundations complete: 2 - 3 hours.  
Required assistance: 2 - 3 people.
7. Any spare parts which may be required can be obtained directly from your supplier
8. **We hereby confirm that this item of play equipment has been tested and certified in accordance with the play equipment standard EN 1176-1.**

### 3 Delivery Contents (parts list with part numbers)

Before installation work commences, please check that you have all of the equipment and fixation components in the parts list provided.

#### 3.1 In Words
















Table 3-1: Delivery Contents, in words

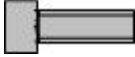


Pos.	Quantity	Element / Description	Size	O.K.	Missing
1	1	Steel mast	Ø 193 mm, 3.80 m long		
2	1	Automobile tyre			
3	1	Rotating seesaw mechanism			
4	4	Glue binder	Ø 135 mm, 1.65 m long		
5	4	Caps	Ø 140 mm		
6	1	Rope (cord			
100	1	Friction plate			
101	4	VA-support, simple swing direction (pre-assembled)			
102	4	Cap nuts VA (pre-assembled)			
103	1	Washers with large outer diameter DIN 9021	Ø 17 mm		
104	1	Hexagonal nut VA (self locking) DIN 985			
105	1	Caps (black)	f. M16		
106	12	Pan head screws VA	5 x 30 VA		
107	8	Hexagonal wood screws VA	10 x 100		
108	8	Caps (black)	f. M10		
109	4	Cylinder head screws VA DIN 912	M10 x 30 VA		
110	4	Stop nuts VA DIN 985	M10 VA		
111	1	Loctite	3 ml		



### 3.2 In Symbols

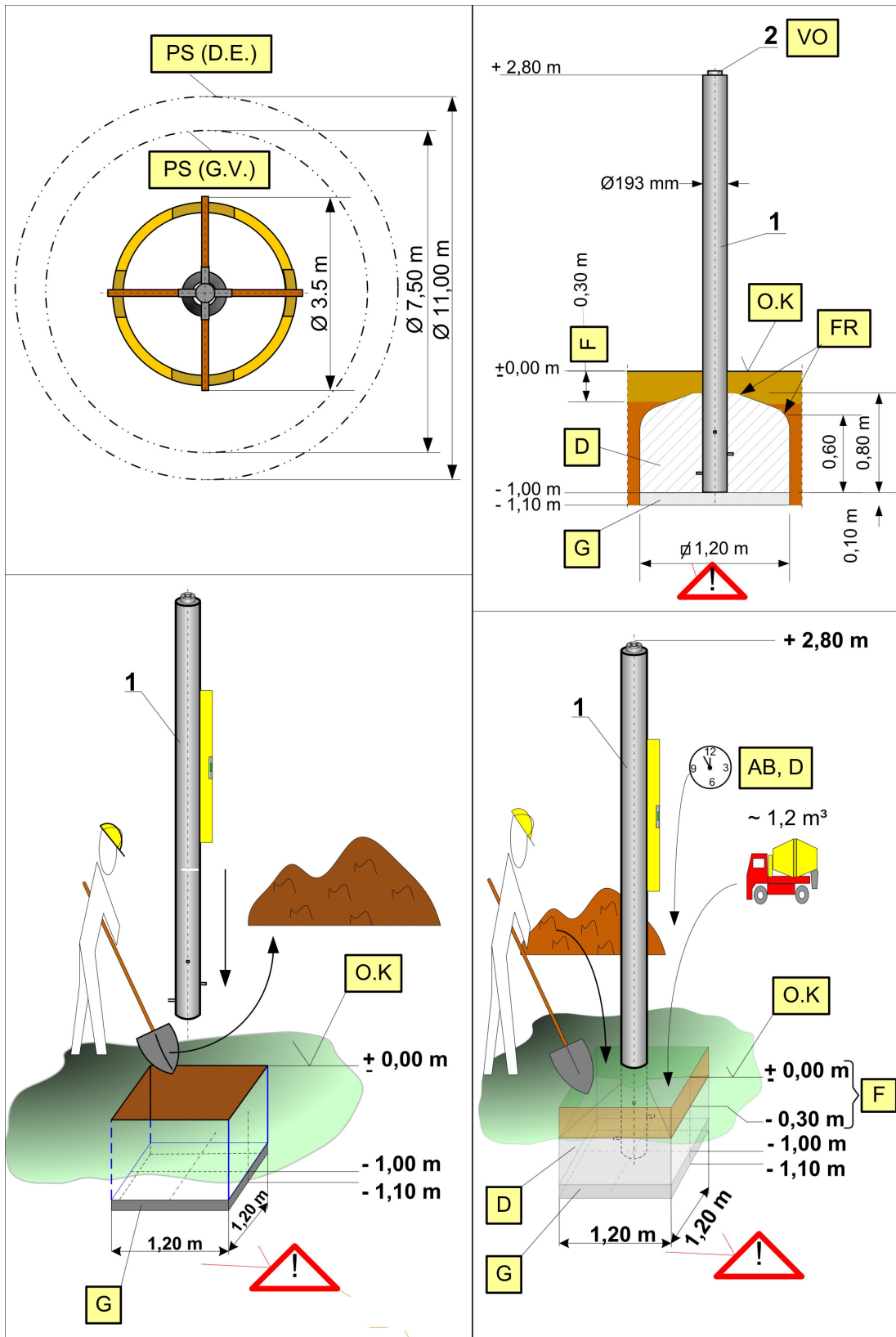
Table 3-2: Delivery Contents, in symbols

Pos	Quantity	Symbol
1	1	 Ø 193 mm, 3,80 m
2	1	
3	1	
4	4	 Ø 135 mm, 1,65 m
5	4	 for Ø 140 mm
6	1	
100	1	
101	4	
102	4	
103	1	 Ø 17 mm
104	1	
105	1	 f. M16
106	12	 5 x 30 mm
107	8	 10 x 100 mm
108	8	 f. M10

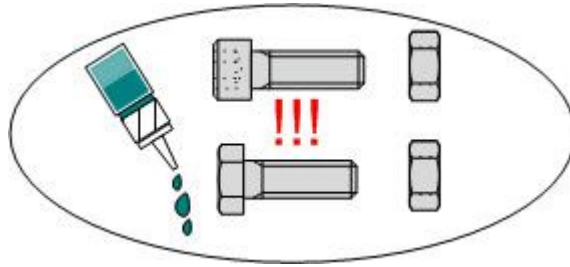
Pos	Quantity	Symbol
109	4	 M10 x 30 VA
110	4	 M10 VA
111	1	 Loctite 3 ml.

## 4 Erection Instructions

Note: See page 17 for Glossary of terms and abbreviations.



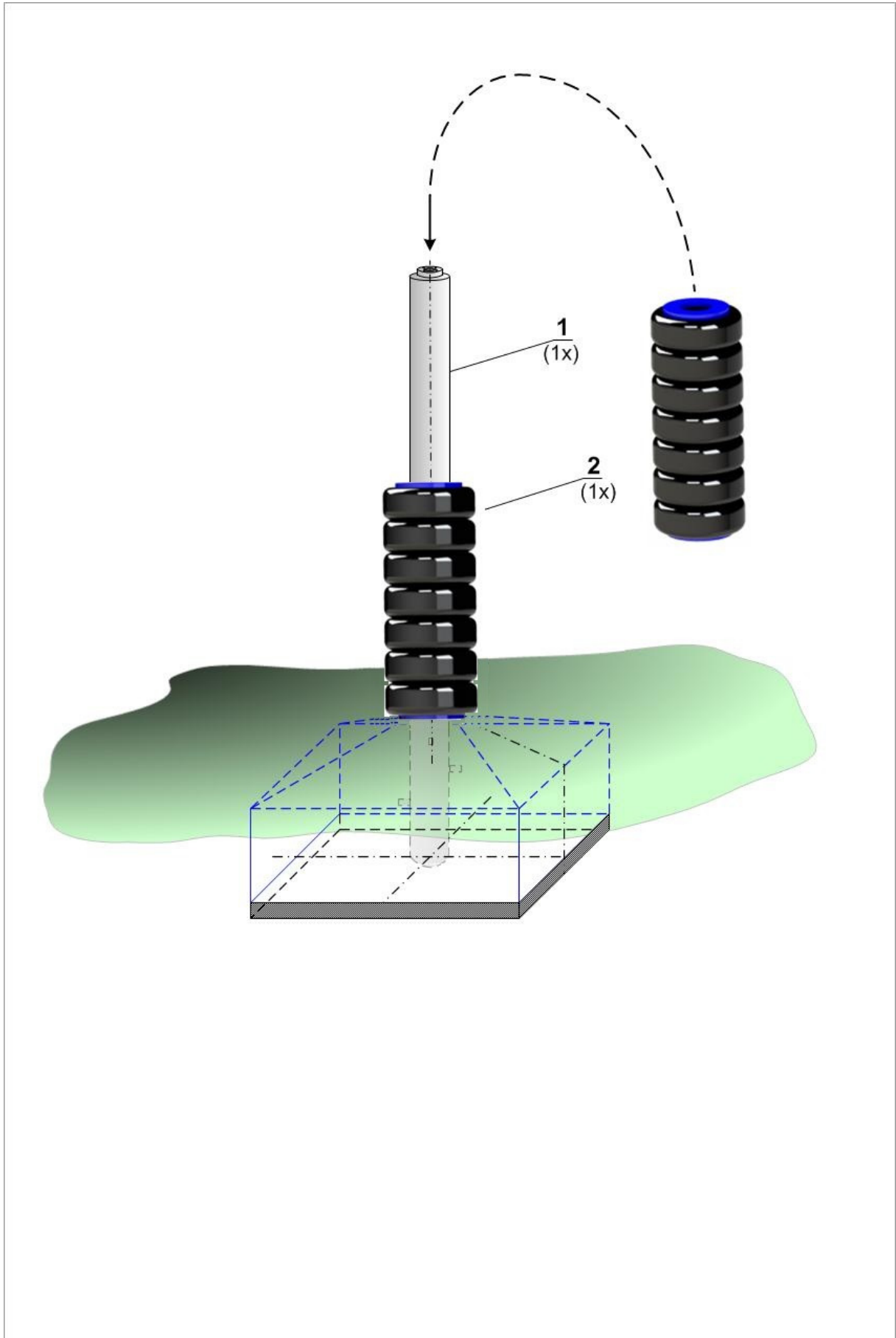
# Screw locking device!

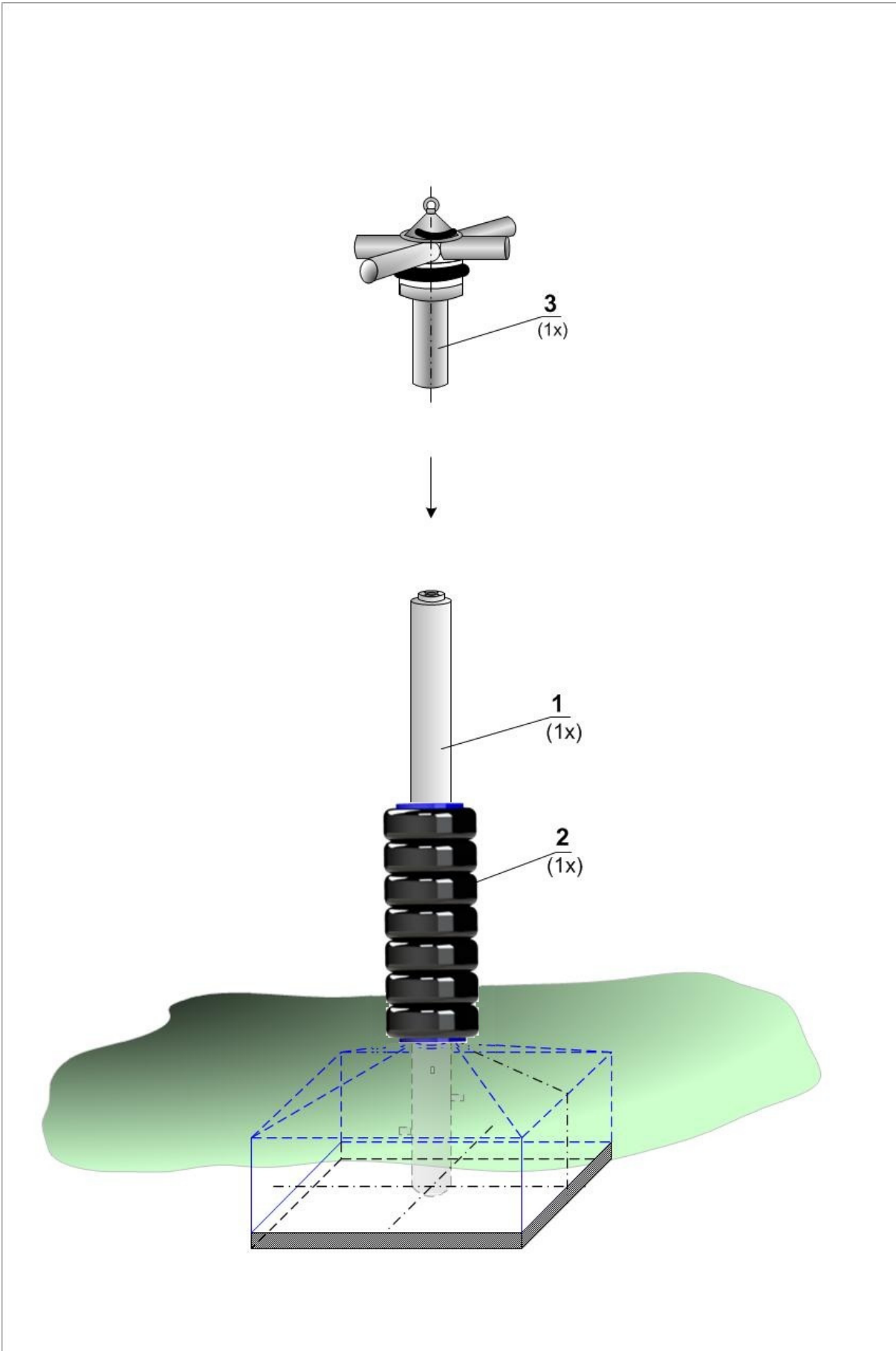


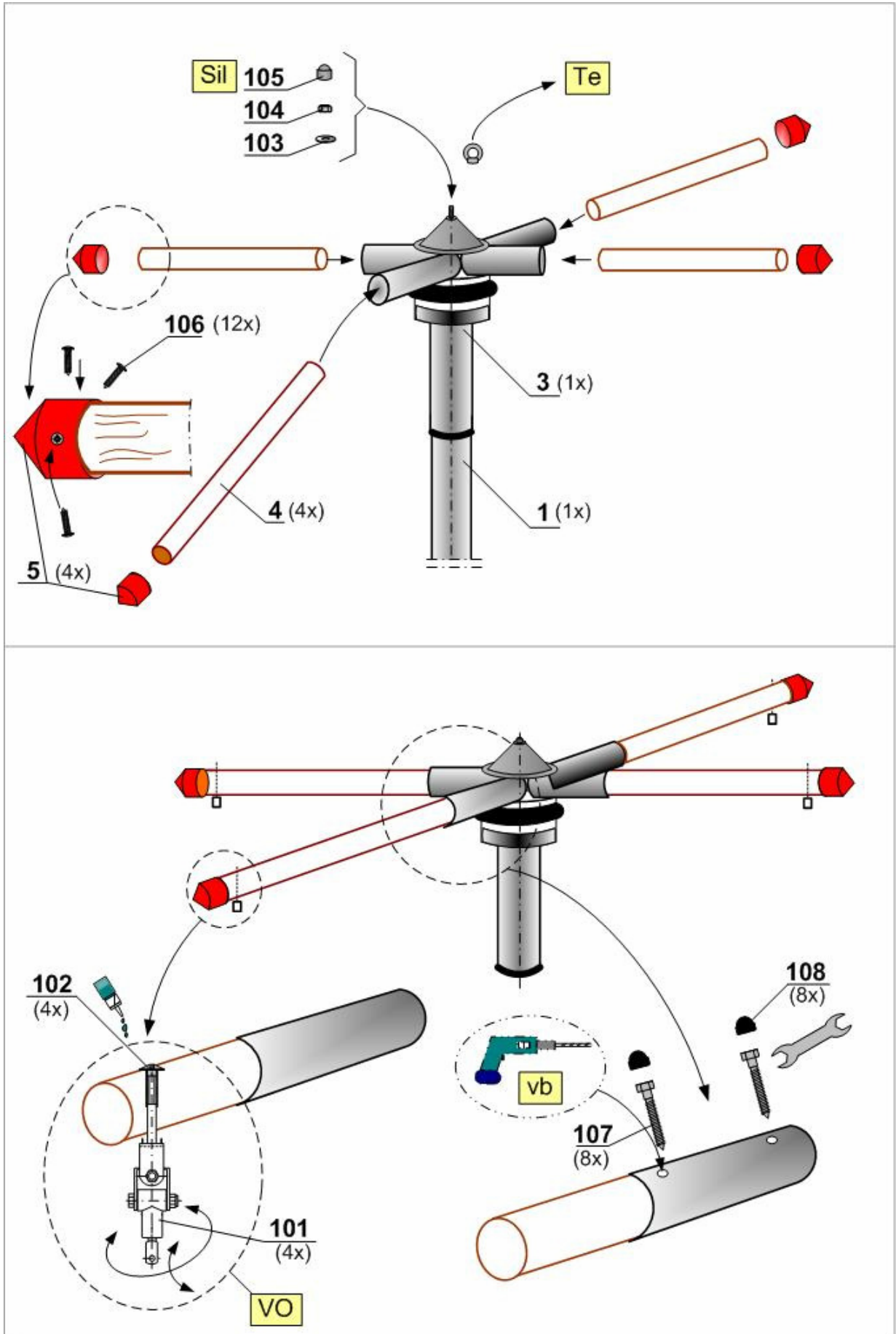
**Glue screws, nuts and sleeves with loctite.**

**(not less than 5 drops !)**

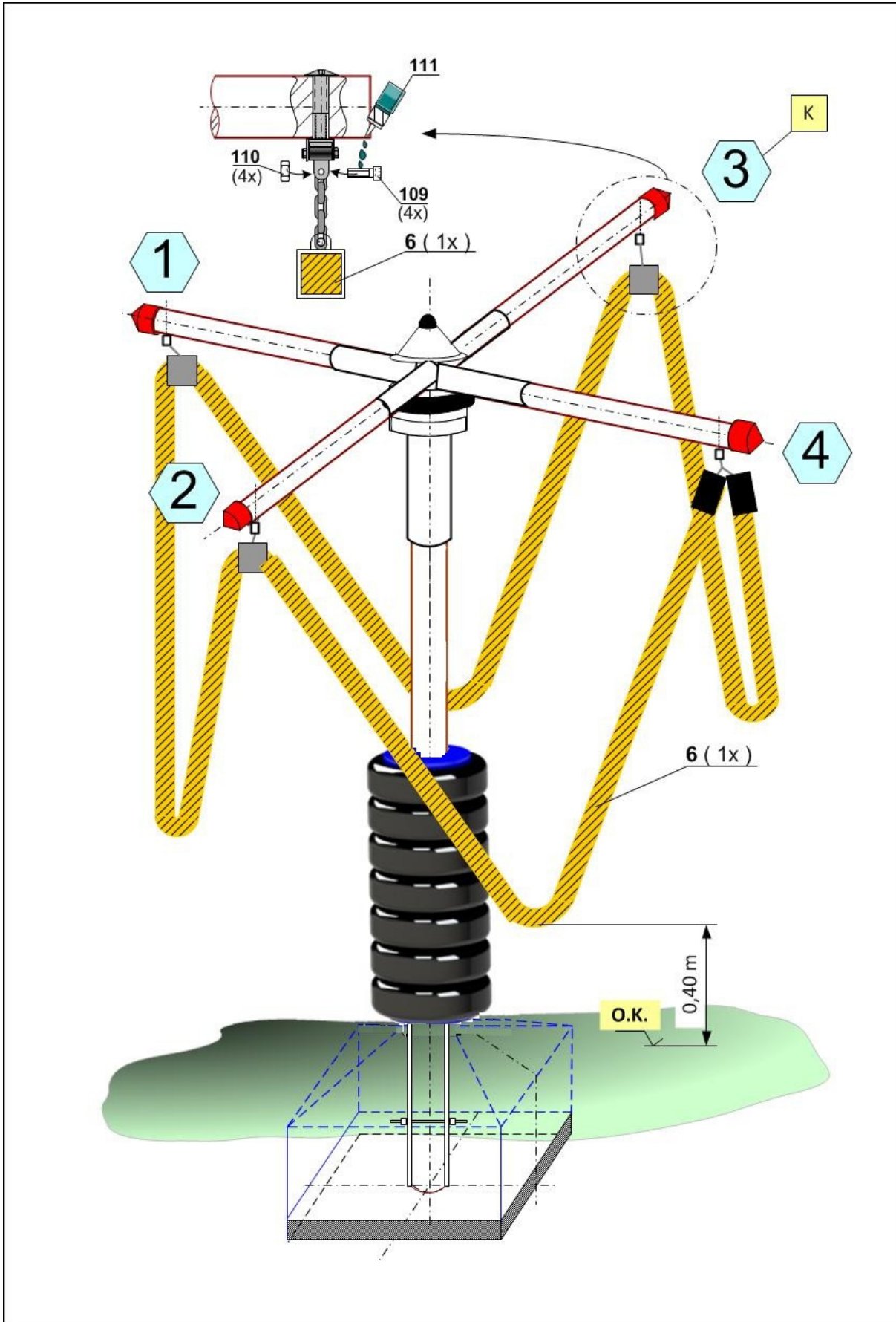
**(except for lock nut)**














<b>AB</b>	Setting time at least 7 – 8 days
<b>D</b>	Concrete C25/30 (for foundation) ~ 1.2 m <sup>3</sup>
<b>F</b>	Fall protection
<b>FR</b>	<b>Foundation radius at least 10 cm !</b>
<b>G</b>	Drainage (10 cm thick)
<b>K</b>	Order of suspension
<b>O.K</b>	Upper edge of playing level
<b>PS</b> (G.V.)	lawful required safety zone: Ø 7.50 m / 44.50 m <sup>2</sup>
<b>PS</b> (D.E.)	urgent recommended safety zone: Ø 11.00 m / 95 m <sup>2</sup>
<b>Sil</b>	Adhere with silicone
<b>Te</b>	Remove transport protection
<b>vb</b>	Pre-drill
<b>VO</b>	Pre-assembled
	<p><b>Round off foundation edges (min.R = 100 mm)! Sizes of foundations are designed for soils class“4-5” (natural ground).</b></p> <p><b>Soil class 4: soft to medium plasticity, interleave bound, with minor portion of stone (portion &lt; 30% with bigger diameter of 63 mm grain size).</b></p> <p><b>Soil class 5 : ground with soil class 3 and 4 with big portion of stones (portion &gt; 30% with bigger diameter of 63 mm grain size).</b></p> <p><b>In case of sandy and soft soils, the surface measure of foundations have to be enlarged for about 50%!</b></p>

**See drawings for details of shortcuts**

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## 5 Post Installation Checks

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If the equipment has not been installed safely, you must ensure that the public is prevented from using it.

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### 5.1 Marking filler depth

- Labelling the posts to show the depth of material provided as fall protection (i.e. loose filler).

### 5.2 The equipment has not been installed safely in the following cases:

- Safe equipment installation is not complete.
- The protective surface has not been installed yet.
- Appropriate maintenance work cannot guarantee operational safety.

### 5.3 Removal of all assembly aids

- Please make sure that all assembly aids have been removed from the playing area. The equipment must not be approved for use until this check has been made.

### 5.4 Information about inspection of the equipment before it is used for the first time

- There are no special inspection requirements to be met before the equipment is used for the first time.

### 5.5 Retighten bolts

- After one week of play, please retighten all bolts again. Later upon respective maintenance.

## **B Maintenance Instructions**

### **Liana Swing, Art-No. 20.01.090**



**Revision 2004-02-24**

The first released version

Maintenance instructions

Revision 4 – 2011-11-15

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## 6 Introduction Maintenance

### 6.1 General Information

This equipment should be installed, inspected, maintained and operated in accordance with EN 1176-7 guidelines.



**Please note:** Providing any necessary repairs are carried out, a piece of play equipment that is inspected regularly cannot become so damaged that it is dangerous.

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Any spare parts which may be required can be obtained directly from your supplier.



This equipment should only be assembled, maintained and repaired by **persons with the necessary expertise**.  
**A copy of the inspection record should be given to the operator, who must confirm receipt.**

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**This maintenance instruction is based on the standard  
“EN 1176-1”.**

## **7 General Maintenance Information**

### **7.1 Maintenance intervals**

Maintenance intervals are based on average use. Please note that more frequent inspections and/or maintenance are required if the play equipment is subject to intensive use.

### **7.2 Inspection frequency**

The frequency of inspections must be based on actual use. Factors that affect frequency include vandalism, location (e.g. coastal proximity), air pollution and the age of the equipment.

### **7.3 Maintenance products and procedures**

All nuts and bolts are hot-dip galvanised or stainless steel. One of the characteristics of stainless steel is that uncontrolled cold welding may occur when the nuts are tightened. To prevent this, it is necessary to spray the nuts and bolts with Teflon spray or another similar lubricant.

### **7.4 Spare parts**

All spare parts must conform to the manufacturer's specifications.

### **7.5 Identifying spare parts**

All spare parts are listed in the parts list. The parts list follows the installation requirements.

### **7.6 Special instructions for the disposal of individual equipment components**

No special instructions are necessary for the disposal of individual equipment components.

### **7.7 Special measures during the break-in period**

No later than 2 weeks after assembly, all screwed connections should be checked and tightened if necessary.

### **7.8 Maintenance of protective surfaces**

Surfaces providing fall protection must also be maintained regularly. It is particularly important to maintain the correct level of loose surface material and add more if necessary.

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## 7.9 Faults

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**Attention**

Faults must be repaired as soon as they are detected. If serious defects that compromise safety cannot be repaired straight away, the public must be prevented from using the equipment with immediate effect.

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## 7.10 Loose screws

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**Attention**

Loose screws always cause quality problems and put safety at risk. Therefore, loose screws should always be tightened and checks carried out to ensure that there are no missing screws (e.g. look out for holes you can see through).

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## 7.11 Preventing equipment use

Use of the equipment should be prevented in the event of incomplete installation, disassembly, maintenance, repairs and faults.

## 7.12 Safeguarding the guarantee

Steel posts and footings are guaranteed if regular maintenance is carried out and recorded in writing. Maintenance first takes place after 3 years. The steel posts must be excavated as far as the concrete foundations and checked for corrosion. Zinc paint should be applied to any corroded areas and scratches.

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## 8 Maintenance Timetable

### 8.1 Special Advices

#### 8.1.1 Maintenance interval

We strongly advise you to carry out inspections and maintenance work within the specified periods as use of the equipment, the weather and malicious vandalism cause wear and tear that compromises the safety and function of the equipment.

#### 8.1.2 Maintenance intervals in the event of intensive use

Please note that more frequent inspections and/or maintenance are required if the play equipment is subject to intensive use.

#### 8.1.3 Faults that compromise safety

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In the event of a fault that compromises safety, quick action must be taken. This may involve repairing it immediately or shutting down and dismantling the equipment.

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#### 8.1.4 Faults that compromise function

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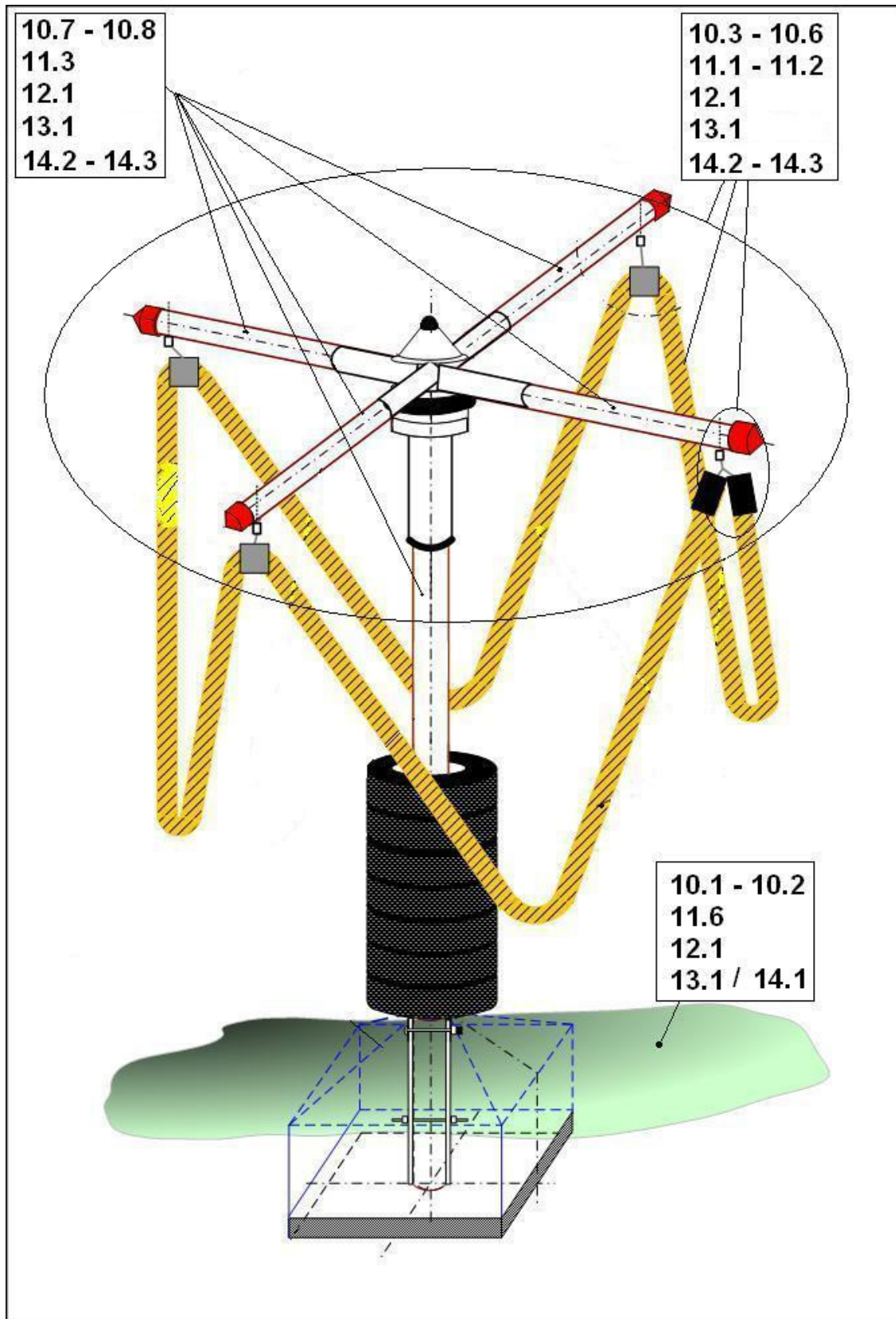


Faults that compromise function should also be repaired immediately. Such faults lower the value of the equipment to the user and encourage malicious vandalism, which may render the equipment less safe. Any damage should also be repaired immediately.

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## 9 Maintenance Timetable



## 10 Monthly Maintenance

- 10.1 Check the spaces between the equipment and the ground (clearance and height of fall).
- 10.2 Check the ground surface in the area with fall protection for hard objects and loose foundations.
- 10.3 Check all connecting elements and fittings for wear and tear and tighten if necessary. Replace damaged or missing parts.
- 10.4 Check that moving metal parts (joints, springs, etc.) move smoothly and are not worn. Replace if necessary. It is not necessary to lubricate joints as we only use maintenance-free metal roller bearings.
- 10.5 Check all attachments such as chains, ropes, nets, etc. for damage and replace if necessary.
- 10.6 Check rubber parts, sleeves, etc. for wear and tear or damage and replace if necessary.
- 10.7 If necessary, remove excess padding material from the post footings due to danger of rotting.
- 10.8 Check the surface of wooden parts for damage caused by the weather or external influences and mould. Repair or replace if necessary.
- 10.9 Check the surface of plastic and metal parts, e.g. slides, for damage and replace if necessary.

## 11 Quaterly maintenance

- 11.1 Detailed inspection of the operation and stability of the equipment paying particular attention to any wear and tear.
- 11.2 Tighten all forms of attachment.
- 11.3 Repaint and retreat surfaces.
- 11.4 Maintenance of fall protection surfaces.
- 11.5 Lubrication of joints.
- 11.6 Check the height of the fall and top up with loose filler if necessary. If the posts are labelled, top up as far as the mark.
- 11.7 Retighten all bolts

## 12 Half yearly maintenance

- 12.1 Stability (check posts, bracing, foundations, etc.). Ascertaining whether there are any changes in equipment safety as a result of repairs that have been carried out or components that have been added or replaced.



## Annual Maintenance

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### **13 Annual maintenance**

- 13.1 The equipment should particularly be checked for the presence of decay and corrosion.
- 13.2 For this, certain parts may need to be dug up or exposed. Additionally, all wood and central mast must be treated with the enclosed varnish. When applying the varnish, paint against the direction of the fibres, so that any natural crannies occurring after varnishing in the factory are saturated with varnish, in order to effectively prevent the penetration of any moisture. All wooden posts must be exposed in the earth-air region and completely painted with varnish. In the case of swing frames, the cross beam must be thoroughly painted.  
Until the paint has dried, 1 day or more, depending on weather conditions, the equipment should be closed off. With steel posts, corrosion spots and scratches must be painted with zinc paint
- 13.3 The equipment should particularly be checked for the presence of decay and corrosion. For this, certain parts may need to be dug up or exposed. Corrosion spots and scratches must be painted with zinc paint.



The equipment must be inspected by someone **with the necessary expertise** in strict compliance with the instructions issued by the manufacturer.

**A copy of the inspection record should be given to the operator, who must confirm receipt.**

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## 14 Maintenance Printout

Name of Item: Liana swing \_\_\_\_\_ / Art. No. 20.01.090 \_\_\_\_\_

Location: \_\_\_\_\_

Customer or Operator: \_\_\_\_\_  
(Local Authority, School, etc.)

Date of inspection	Inspector	O.K.	Accessible	Blocked	Defects	Repaired by	Date



## 15 Hand Over Document



After the installation of the equipment pass the installation and maintenance documents to the operator. The operator has to receive the hand over documents. The complete filled and signed hand over document should be sent to the supplier.

Art.-No.: 20.01.090

Type of Item: Liana swing

Serial Number: \_\_\_\_\_

**Customer or Operator (Local Authority, School, etc.):**

\_\_\_\_\_  
\_\_\_\_\_

Competent Person in Charge:

\_\_\_\_\_  
\_\_\_\_\_

**Installation Company (Address):**

\_\_\_\_\_  
\_\_\_\_\_

Responsible Assistant (Assembler):

\_\_\_\_\_  
\_\_\_\_\_

Received the complete assembly instructions, maintenance instructions and maintenance printout

\_\_\_\_\_  
(Signature of Operator)      (Signature of Installation Company)  
(Stamp)

Date: \_\_\_\_\_