From Eye to Insight

Leica
MICROSYSTEMS

Service Manual
Leica DM2700 M/P

Version 02 - January 2017

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Version: 02 (January 2017)
Document Template: QMS_LSOP_TP Service Manual English_V00.fm

Structure of the Service Manual

Part	Contents
Part A: Safety and Handling	• Target group • Requirements of the service personnel • Intended use • Standards • Serial numbers • Ambient conditions • Liability and warranty • Safety notes • ESD protection • Electrical acceptance test • Care and maintenance
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For detailed information, refer to the table of contents for the individual parts.

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Leica DM2700 M/P

Part A: Safety and Handling

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Creation:	2013-01-15 (MM, SCH)
Revision:	2016-12-13 (NST)

Table of Contents

1 Target Group and Application of this Manual

This service manual is intended primarily for service technicians who are trained by Leica Microsystems and for authorized Leica Microsystems employees. Duplication and distribution to other persons is strictly prohibited.

With this service manual and a training certified by Leica Microsystems CMS GmbH, you can correctly set up the device described here, operate it and carry out all required service work.

This service manual must be read carefully before assembling, commissioning and using the device and must be kept for later reference. Also observe other documentation such as the user manual for the microscope or manuals for other components.

As soon as a new version of the service manual is published, you will automatically be notified by e-mail. The current version is provided in the Leica Microsystems CMS GmbH intranet.

Although every effort has been made to ensure the accuracy of the work instructions and illustrations, some of the illustrations may differ from reality for individual device variants.

If you have comments on this service manual or our documentation in general, please send them to cms.support@leica-microsystems.com.

2 Requirements of the Service Personnel

This service manual assumes a measurable level of knowledge on the part of the Leica service personnel in order to understand and carry out the instructions described here in a manner that complies with Leica's quality standards.

The service personnel must be able to document the following knowledge and completion of the following Leica training units:

- Experience with microscopes in general: replacing components, performing setup and teach-in work. This also includes experience with Koehler illumination and changing and adjusting mercury and xenon lamps.
- Leica DM2700 Training

The service personnel must be physically capable of moving heavy objects such as tabletops or packaging.

3 Intended Use

The microscope Leica DM2700 M with the product variants DM2700 M RL (for reflected light applications) and DM2700 M RL/TL (for reflected light and transmitted light applications) is intended for industrial routine and research application.

The microscope DM2700 P with LED illumination and the DM2700 P with halogen illumination are indented for industrial, mineralogical and geological routine and research application.

Article no. lab devices	Article no. IVD devices	Designation
11888511	DM2700 P LED (RL/TL)	Reflected and transmitted light application
11888518	DM2700 P Halogen (RL/TL)	Reflected and transmitted light application
11888768	DM2700 M Stand Assy (RL)	Reflected light application
11888769	DM2700 M Stand Assy (RL/TL)	Reflected and transmitted light application

4 Standards

Standard	Contents
IEC/EN 61010-1	Safety requirements for electrical equipment for measurement, control and laboratory use – Part 1
IEC/EN 61326-1	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements
IEC/EN 61010-2-101	Safety requirements for electrical equipment for measurement, control and laboratory use – Part 2-101: Particular requirements for in vitro diagnostic (IVD) Medical devices

These microscopes meet the conditions of the EU standards 2014/35/EU regarding safety of electrical equipment and 2014/30/EU about electromagnetic compatibility.

5 Serial Number

The serial number of the Leica DM2700 M/P is located on the back of the microscope.

For correct processing of installation logs, service reports and inquiries, Leica requires the serial number of the microscope.

6 Ambient Conditions

Use of the Leica DM2700 M/P is permitted only in indoor areas at a maximum height above sea level of 2000 m.

	DM2700 M (LED) DM2700 P (LED)	**DM2700 P (Halogen)**
Supply voltage	100 – 240 VAC	
Frequency	50 / 60 Hz	
Power consumption	max. 80 VA LED: max. 15 W	max. 160 VA Lamp: max. 100 W
Fuses	5x20, T0, 63A switching capacity H	5x20, T3, 15 switching capacity H
Operation temperature	15° - 35°C	
Ambient temperature	15° - 35°C	
Relative humidity	90% up to 30°C, non-condensing	
Protection class	I	
Overvoltage category	II	
Pollution degree	2	
Transport and storage	-20 °C to 85 °C, max. 90 % humidity (non-condensing)	

7 Liability and Warranty

Leica Microsystems CMS GmbH shall not be liable for damages resulting from noncompliance with safety notes. The information here does not in any way modify the warranty and liability clauses contained in the general terms and conditions of Leica Microsystems CMS GmbH.

Only service personnel authorized by Leica Microsystems CMS GmbH may assemble and disassemble the device as well as carry out repairs and service work. Unauthorized alterations to the device shall void all rights to any warranty claims. Leica Microsystems CMS GmbH shall not be liable for any injury or property damage caused by untrained or unauthorized persons.

The owner/operator and users are fully liable for all consequences resulting from the use of the device if it is opened, improperly serviced or repaired by persons other than authorized Leica service representatives.

Leica Microsystems CMS GmbH shall not be liable for any damage caused by incorrect storage, improper transport or an unsuitable installation location.

The figures used are for illustration purposes. The device may differ from the illustrations.

8 General Safety Notes

The safety notes are intended for your protection. You should observe them without fail.

You will find the safety notes:

- in this service manual
- in the corresponding operating manual
- as safety labels on the device
- in included instructions and safety data sheets, e.g. for additional auxiliary devices

8.1 First Contact with the Device

- Make sure that the device is free of hazardous substances and infectious agents. This applies particularly to devices in biological-medical research labs.
- Make sure that all safety features are ready to operate. Safety features that have been disabled, damaged or modified can cause severe injury to the eye or other parts of the body or property damage.
- Make sure that missing or damaged safety labels are immediately attached at the described locations.
- Do not place any combustible or flammable objects near hot surfaces.

8.2 Before Switching on the Device

- Keep your hands away from the microscope’s specimen area, both before starting the device and when it is already in use. There is a risk of injury from rotating objectives and the motorized specimen stage.
- Make sure that the device is completely dry before connecting it to the power supply or turning it on.
- If country-specific: Only use grounded outlets. The protective effect must not be nullified by using an extension cable without a protective conductor.
- Do not unplug the device or individual components unless the device is de-energized.
- With an inverted microscope: Tilt the illumination arm back so that the motorized specimen stage cannot cause any damage to the condenser, objective or specimen during the initialization.

8.3 If Service Work Is Performed

- Avoid creasing, bending, crushing, tightly coiling, or in any other way damaging the cables and cooling tubes.
- Ensure that the customer has backed up his or her existing data.

8.4 If the Device Malfunctions

If the following cases of malfunction occur, find the causes and remedy them. Start by immediately switching off the device if:

- Coolant leaks
- Cables are damaged

8.5 Constraints on Components

- Do not connect any external equipment. The responsible Leica office or CMS support must be consulted whenever making alterations, modifications or combinations with non-Leica components that are outside of the scope of this manual.
- Use only the power cables approved by Leica to connect the individual peripheral devices to the power supply.
- Only use fuses that are listed in this manual. The type of current and amperage must not deviate.

8.6 Safety Notes for the Operator

- The operator is responsible for the safe operation and maintenance of this device in accordance with the intended purpose.
- The operator is responsible for all safety features being in ready-to-operate condition.
- The operator must comply with the specified ambient conditions (see chapter 6).

9 Additional Notes on Handling the Device

9.1 ESD Protection

All service work with ESD sensitive components or assemblies must be performed in a workplace that is set up properly for that purpose. Such an ESD protected workplace requires a portable antistatic field service kit, ESD protected tools and wearable components:

- A foldable, grounded conductive antistatic mat as worktable covering to place and work on ESD sensitive components. The mat requires a connector for a wrist strap, a ground cord (with crocodile clip or grounding connection for country-specific sockets) and a series resistor of 1 MΩ in order to discharge at a slow rate. The resistor allows high-voltage charges to leak through to earth and also prevents a shock hazard when working with low-voltage parts.

WARNING **Risk of electric shock**

When using a wrist strap, make sure that the connections to the ground have a series resistor of 1 MΩ.

- A wrist strap that is connected to the grounded antistatic mat on the worktable or to grounding connections. Your wrist strap must be grounded and used at all times when working on ESD sensitive components.
- ESD protected tools, e.g. screwdrivers, Allen keys, pliers, tweezers.
- ESD protection clothing (e.g. ESD jacket or ESD T-shirt) which creates a wearable version of a Faraday cage. This shields ESD sensitive components from static charges from your normal clothing. Additionally recommended are either ESD shoes or a pair of heel grounders worn over your shoes to provide consistent grounding while in motion. Neither of these can replace the wrist strap.

Additionally observe the following instructions:

- Always store and handle components or assembly groups with special ESD protective packaging when you leave an ESD protected zone: Pack all ESD sensitive components and spare parts, even defective ones, in shielding, anti-static packaging intended especially for this purpose and labeled noticeably with the corresponding ESD safety sign.

Figure 1: **Shielding packaging (left) labeled with ESD safety sign; ESD safety sign indicating special shielding packaging with an "S" (right)**

- Connect the crocodile clip of the ground cord from your antistatic mat to the grounding screw of the device, for example the CTR box or the supply unit. These devices of course must be grounded as well.

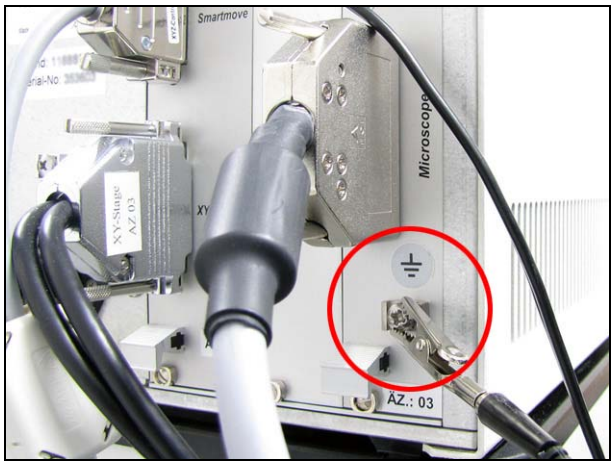

Figure 2: Crocodile clip connected to grounding screw of the CTR box

- Before you exchange a component, switch off the device.
- When working on the main circuit, disconnect the power plug.

The grounding of the device is lost after disconnecting the power plug. In this case, you have to ground the antistatic mat and the wrist strap with an earth bonding point plug with a series resistor of 1 MΩ.

Figure 3: Example of a grounding plug with a series resistor of 1 MΩ

9.2 Using Immersion Fluids

- Note the manufacturer's safety data sheets for the immersion fluids.
- Only use immersion fluids that are intended for the objective.
- Only use one small drop of immersion fluid. The immersion fluid must not contaminate or run in the microscope.

- Remove the immersion fluid from the specimen slide before changing to a dry objective (air objective).
- For how to remove immersion fluid, see chapter 12.3.3.

10 Warning Messages Corresponding to Specific Situations and Actions

The warning messages that correspond to specific situations and actions are intended to warn you about dangers that can occur in a specific situation or during a specific action. In order to prevent these dangers, the warning messages contain specific instructions or conditions that must be strictly observed and complied with.

10.1 Risk Level of a Warning Message

Each warning message contains a signal word which is used to classify the level of risk:

- **WARNING:** Hazard with moderate risk which could result in death or serious physical injury if not avoided.
- **CAUTION:** Hazard with low risk which could result in minor or moderate physical injury if not avoided.
- **NOTICE:** Hazard with low risk which could result in property damage if not avoided.

10.2 Structure of a Warning Message

A warning message contains the following information:

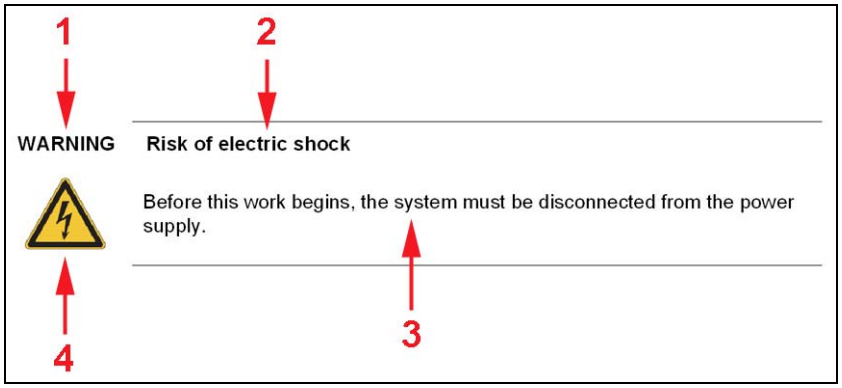

Figure 4: **Structure of a warning message: signal word (1), type and source of the danger (2), explanations of the source of the danger and measures to prevent the danger (3), warning symbol (4)**

10.3 Warning Messages in this Service Manual

The warning messages always differ according to the source of danger. The source of danger is illustrated by the respective warning symbol.

NOTICE **Risk of damage to the device**

Further explanations and measures can be found here.

10.4 Messages with the i Symbol

Such a declaration either provides extra information about a specific topic or contains special instructions for handling the product.

11 Electrical Acceptance Test

11.1 General

You have to carry out the electrical acceptance test after each service call on the device where components in the primary circuit (power circuit) have been changed. This applies mainly to power supplies that are implemented in the device. This does not apply to external power supplies that are closed.

Example: You replaced a power supply of a CTR box.

The mandatory electrical acceptance test that we prescribed is a minimum standard. If country-specific regulations exist that go beyond the measurements that we prescribed, you also have to comply with the country-specific requirements.

You must shut down the device if limits are exceeded when measuring. In this case, please contact cms.support@leica-microsystems.com.

Fill in the attached inspection report during the measurement. You can also find it individually in the documentation library. Sign it, save it (serial number_EIR) and send it. Please find a detailed description below.

If you are a user of "Mobile Service", select the "CMS5 TSB 2016/08 Work on mains circuit" activity code in your "Mobile Service Technical Report".

11.2 Components

The electrical acceptance test consists of the following parts:

- Visual inspection
- Measuring ground wire resistance
- Insulation measurement
- Measuring protective conductor current
- Functional test

11.3 Measuring Equipment

For measuring the protective conductor current, you need the following adapter cable. You can order it from us: 15000010000084 Adapter cable for testing IEC-C14G+C13.

The remaining measuring equipment for the electrical acceptance test must be obtained locally. We recommend the following measuring equipment:

- Fluke 1507 insulation tester
- Amprobe AC50A leakage current clamp multimeter

11.4 Measurements in Detail

11.4.1 Visual Inspection

Here, you have to visually inspect the power supply cord for damage. If you opened the housing, you also have to visually inspect the protective ground cable (PE). Proceed as described in the inspection report.

WARNING **Risk of electric shock**

Close the housing after having completed the visual inspection.

11.4.2 Measuring Ground Wire Resistance

The ground wire resistance is the resistance between the protective conductor terminal (PE) and the metal housing. It must be less than 0.3 Ω .

The measuring points are the protective conductor terminal (PE) and electrically conductive points on the metal housing (also refer to figure 5)

Figure 5: **CTR box – measuring points on the metal housing, regular measuring point (left) and alternative measuring point (right)**

If the metal housing is coated completely and you cannot find any regular or alternative measuring point on the device (see figure 5), you have to pierce the varnish with the gauge tip.

Below, we will describe how to measure the ground wire resistance for the Fluke 1507 insulation tester:

1. On the insulation tester, connect one measurement sensor to the "COM" connection and the other measurement sensor to the "Ω" connection.
2. Join both measurement sensors together to measure the line resistance of the measuring line.
3. Hold the blue button for a few seconds until the insulation tester display shows a series of dashes. The line resistance is now set.

4. Connect one of the measurement sensors to the protective conductor terminal (PE) of the power plug. (The power plug must be from the original power cable!)
5. Connect the other measurement sensor to a measuring point on the housing.
6. Hold the "Test" button for a few seconds until a measurement result is displayed.
7. Repeat the measurement at another measuring point on the housing.
8. Enter the measured value into the inspection report.

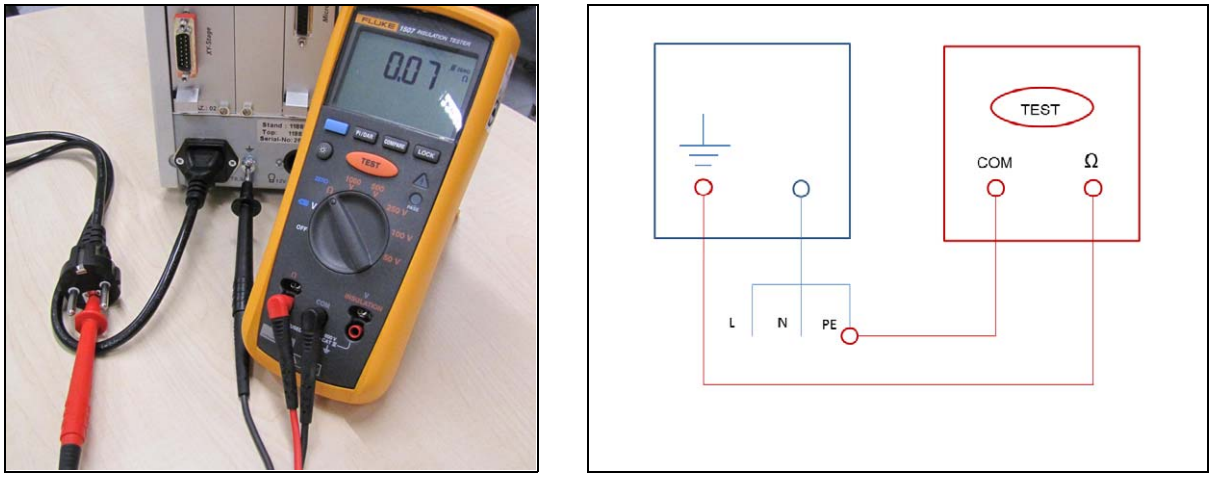

Figure 6: Measuring ground wire resistance

11.4.3 Insulation Measurement

You measure the insulation resistance as part of the insulation measurement. That is the resistance between the phase (L)/neutral conductor (N) and the ground protection conductor (PE).

It must be more than 2 MΩ. Measuring points are the protective conductor terminal (PE), the phase (L) and the neutral conductor (N) of the power plug. The measurement occurs with a test voltage of 1000 V.

Below, we will describe how to measure for the Fluke 1507 insulation tester:

1. Disconnect all peripheral devices.
2. On the insulation tester, connect one measurement sensor to the "COM" connection and the other measurement sensor to the "Insulation V" connection.
3. Switch on all switches on the device.
4. Example FSU: All 3 switches on the main switch board and the power switch on the back of the FSU.
5. Connect the first measurement sensor to the protective conductor terminal (PE) of the power plug. (The power plug must be from the original power cable!)
6. Connect the second measurement sensor to the phase (L) of the power plug.
7. Hold the "Test" button for a few seconds until a measurement result is displayed.
8. Connect the second measurement sensor to the neutral conductor (L) of the power plug. Repeat the measurement.
9. Enter the measured value into the inspection report.

Even though the limit value for the insulation resistance is 2 MΩ, the insulation resistance is typically in the GΩ range. If the value you measured is not in the GΩ range and you cannot find a reason for this behavior, please contact cms.support@leica-microsystems.com.

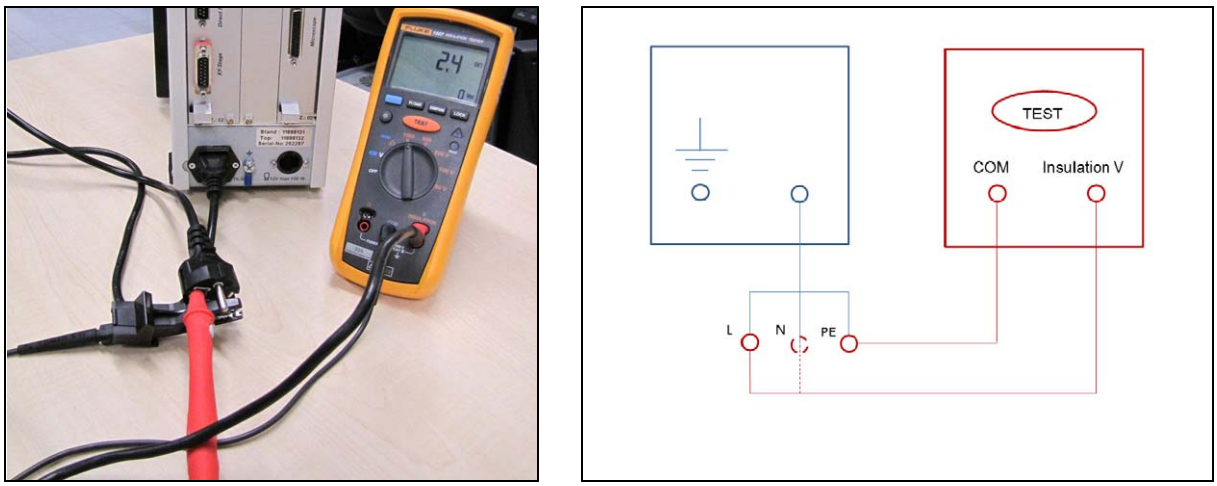

Figure 7: Insulation measurement

11.4.4 Measuring Protective Conductor Current

The protective conductor current (or leakage current) is the current through the ground protection conductor (PE). It must be less than 3.5 mA. Below, we will describe the procedure with an adapter cable and the Amprobe AC50A leakage current clamp multimeter.

1. Disconnect all peripheral devices.
2. Connect the device to the line voltage using the adapter cable and the power supply cord.
3. Switch on all switches on the device.
4. Clamp the leakage current clamp multimeter onto the ground protection conductor (PE) of the adapter cable.
5. Set a measurement range from 40 mA.
6. Measure the protective conductor current. It must be less than 3.5 mA.
7. Enter the measured value into the inspection report.
8. Only FSU: Repeat the measurement for the second power supply cord.

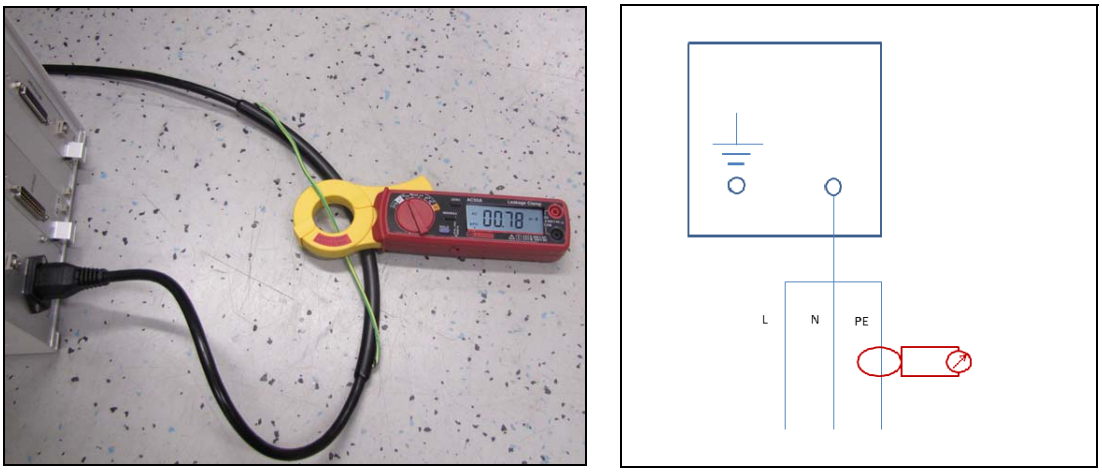

Figure 8: Measuring protective conductor current

11.4.5 Functional Test

1. Reconnect the original power cable to the device.
2. Switch on the device.
3. Check whether the device is working properly.

11.5 Electrical Inspection Report

If you are a user of Mobile Service, select the "CMS5 TSB 2016/08 Work on mains circuit" activity code in your "Mobile Service Technical Report".

Fill in the electrical inspection report during the measurement. You can also find it individually in the documentation library. Use your own laptop, not the customer system. After having filled in the electrical inspection report:

1. Sign it: Use the digital signature field, or use the field right down at the bottom with your signature pad (see also tooltip, mouseover).
2. Click "save". Save it as "XXX_EIR" (XXX= serial number).
3. Click "send". The form is delivered to cms.support@leica-microsystems.com.

12 Care and Maintenance

- Protect the microscope from dust and grease.
- When the microscope is not in use, cover it with a plastic cover or a clean, lint-free cotton cloth. After using the device, allow it to cool down to room temperature before covering it with a dust cover. This way you will prevent condensation from forming underneath.
- Always place dust caps over the nosepiece positions when no objectives are in place.
- Disconnect the power supply before performing cleaning and maintenance work.
- Make sure that no fluid runs into the individual components during cleaning.
- Make sure that parts made of glass and rubber do not come into contact with benzine, oil or lubricant, unless that is expressly required.
- To care of the individual components and peripheral devices, observe the operating manuals provided for them.

12.1 Cleaning Surfaces

- Never use acetone, xylene or nitro thinners as they attack the lacquer.
- Never use abrasives. Abrasives can scratch the surface and thus have a negative effect on the protection of the parts.
- Remove dust and loose dirt particles using a soft brush or lint-free cotton cloth.
- You may clean uncoated or plastic surfaces only using a dry cotton cloth or one moistened with a little water. Other cleaning agents can attack and tarnish the surface and cause it to become porous.

12.2 Cleaning Mechanical Parts

- Use benzine to clean the parts and assemblies. If possible, clean them outside of their housing.
- When cleaning lacquered parts and parts with an engraving only use a soft leather or brush.
- Remove sticky dirt as necessary either with a low-concentrated soap solution, petroleum ether or ethanol (ethyl alcohol).
- Clean dirty exterior surfaces with a textured lacquer finish by using an oiled cloth and wipe them dry.
- Remove lubricant and adhesive residue before treating parts with new adhesive.
- Only use lubricants or adhesives that Leica Microsystems CMS GmbH has recommended and that can be purchased from Technical Service. Other materials are not permitted, as only the lubricants and adhesives we tested ensure proper function.

The places on the device where lubricants and adhesives are to be found are displayed in part C in the figures and indicated by numbers (311) or letters. Lubricants are only allowed to come into contact with designated places, since they can dissolve or damage plastics.

- Clean and dry parts before using lubricant.

12.3 Cleaning Optical Components

- Keep the optical system of the microscope clean at all times.
- Observe that optical components are not contaminated with dust, grease or other dirt.
- Keep the tools, auxiliary equipment and work place clean at all times. This is a prerequisite for successfully cleaning optical components.
- Check the condition of the optical parts before you begin cleaning them. To do so, use a cotton cloth or a hair pencil to wipe them at a place where no light beams pass through the optical medium (for example, at the edge). If you find traces of wiping, the surface coating is soft and it will hardly be possible to be cleaned without damaging the coating.
- To clean the optical part (for example illuminating lens or mirror), remove it from the mount if possible.
- Never open the objectives for cleaning.

12.3.1 Tools and Accessories

- Dusting brush
- Brush made from hair
- Brass tweezers
- Brass tweezers with cork lining
- Rubber squeeze blower
- Polishing sticks
- Chamois leather
- Lint-free cotton cloth (optical cloth)
- Cotton wadding or cotton swabs that are free of grease/acid
- Lens cleaning paper

Figure 9: Some examples of tools for cleaning optical components

You can also make your own polishing sticks. Chamois leather becomes hard after being used multiple times for cleaning and has to be replaced regularly. The chamois leather surface can be periodically re-roughened with the cutting edge of a razor blade. Clean the brush and polishing stick by repeatedly dipping them in alcohol and then blowing them dry. Cotton swabs, optical cloths and lens cleaning paper are consumables. Dispose of them after using them once.

12.3.2 Cleaning Agents

- Ethanol (ethyl alcohol)
- AR19
- Distilled water
- Benzine

NOTICE **Risk of damage to components**

Never clean with acetone, xylene, ammonia glass cleaner or nitro-containing thinners.

12.3.3 Cleaning Front Lenses of Immersion Objectives

Immediately remove the immersion medium from front lenses after use (e. g. type F immersion liquid, in the past referred to as "immersion oil“):

1. First, remove the immersion medium using a clean cloth.
2. Once most of the immersion medium has been removed, lay a piece of fine lens tissue over the immersion end of the lens.
3. Apply a drop of suitable solvent and gently wipe the tissue across the lens surface.
4. Repeat this operation until the lens is completely clean. Use a clean piece of lens tissue each time.

12.3.4 Cleaning Glass Surfaces

- If a vacuum connection is available, vacuum the glass surfaces.
- Use a soft dust brush or rubber squeeze blower to clean large dust particles off of glass surfaces. In the case of built-in optics units, make sure that no other parts inside of the device or assembly get dirty.
- Remove persistent dirt from glass surfaces using pure alcohol or another suitable cleaning agent.
- Begin in the middle of the surface and move the cleaning tool toward the edge in concentric circles.

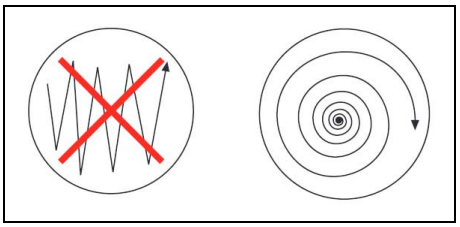

Figure 10: Cleaning motion on glass surfaces

- When using ethanol (ethyl alcohol):
  Soak a clean cotton cloth with ethanol, wipe off the glass surfaces and quickly polish with soft leather.
- When using AR19 or distilled water:
  First wipe dry the glass surfaces and then polish them with soft leather.
- Remove remaining lint and dust particles with a fine hair pencil.

Residual lint and dust can create unwanted background fluorescence in fluorescence images. After cleaning, check whether all residual dust has been removed.

12.3.5 Optical Parts with Graticule Marks

In the case of cemented optical parts, line markings or scales, make sure that no cleaning agent with the ability to dissolve gets on the cemented spots or the graticule marks.

Component	Cleaning instructions
Eyepiece graticules with cemented glass cover	• As described in chapter 12.3.4 • Moisture must not be allowed to act upon the cementing surfaces
Graticules with vacuum-metallized film graticule marks without a glass cover	• As described in chapter 12.3.4 • The vacuum-metallized film for the graticule marks is resistant to wiping
Graticules with etched graticule marks and embedded lacquer layer, without cover glass	• Clean using a rubber squeeze blower or a soft, grease-free hair pencil • If there are smudges: Dab them using a little AR19 and a cotton cloth (twice, to avoid forming an edge), then wipe dry using moderate pressure • The lacquer layer in the graduation must not be cleaned away

12.3.6 Optical Parts with Mild Fungal Infestation

In rare cases fungal infestation can occur in humid-warm climate. Optical components often have to be replaced by new ones because the fungus can destroy the glass surface over time and then cleaning is no longer possible. With slight fungal infestation the optical components may be rescued.

1. Before cleaning, check the surface coating.
2. Prepare the following cleaning agent to treat optics units with and without surface coatings:
   – 3% hydrogen peroxide
   – 10% ammonia solution
   – Prior to application: Mix 1:1
   – After use dispose of the leftovers
3. Clean the glass surfaces infested with fungus using an optical cloth and the cleaning agent you have mixed.
4. Rinse the glass surfaces with water. Additional cleaning is described in chapter 12.3.4 and chapter 12.3.5.

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Leica MICROSYSTEMS

Service Manual
Leica DM2700 M/P

Part C: Components and Spare Parts

Version 02 - January 2017

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Creation:	2014-03-28 (MM)
Revision:	2017-01-24 (MM, SL, NST, SCH)

Table of Contents

1 Ordering Spare Parts

Order spare parts via the SU back office.

You will find a list of spare parts in the following chapters.

2 Notes for Packaging

Use the following packaging:

Order number	Designation
	Special packaging on request

3 Legend

In the following chapters you will find the spare parts list with corresponding figures, required order numbers and the needed quantities.

3.1 Numbering with Additional Symbols

Symbol	Designation	Meaning
(25)	Numbers in parentheses	indicates an assembly group in a figure
25	Numbers in circles	indicates a higher-level assembly group in a figure
25 *	Number with asterisk	part in the list is not shown on the figure or not identified by a number

3.2 Order Number

The surface state of the standard parts is usually indicated in encoded form in the 9th to 11the digit of the order number. In case of different color versions of instruments or parts, matching surface finish of the delivered spare parts can not be guaranteed.

3.3 "Remarks" Column

In the "Remarks" column, identifying letters and numbers provide information regarding:

- Assembly groups
- Assembly group membership
- Production stage membership
- Replacement options
- Delivery options
- Ordering information

The code letters have the following meanings:

Code letter	Meaning
E	replaces running number...
G	assembly group (The article with this order number consists of multiple parts. The following numbers specify the items (running number or chapter number and running number of the figure) that are contained in this assembly group.)
N	no longer available
NE	no longer available, for replacement see running number...
o	without running number... (This order number does not include the listed items....)

4 Overview

4.1 Electronic Overview DM2700 M IL until March 2015

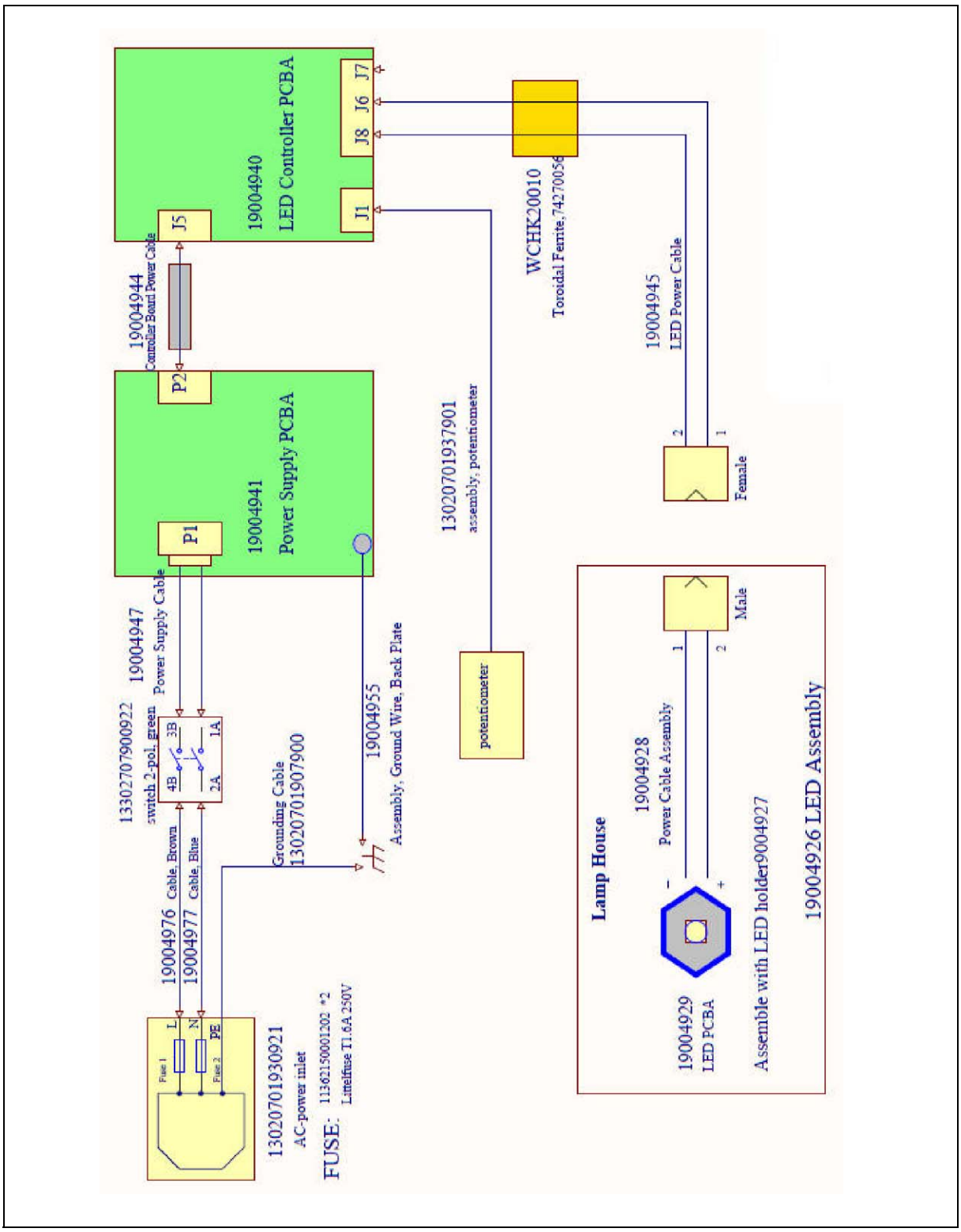

Figure 1: Electronic overview DM2700 M IL until March 2015

4.2 Electronic Overview DM2700 M IL since March 2015

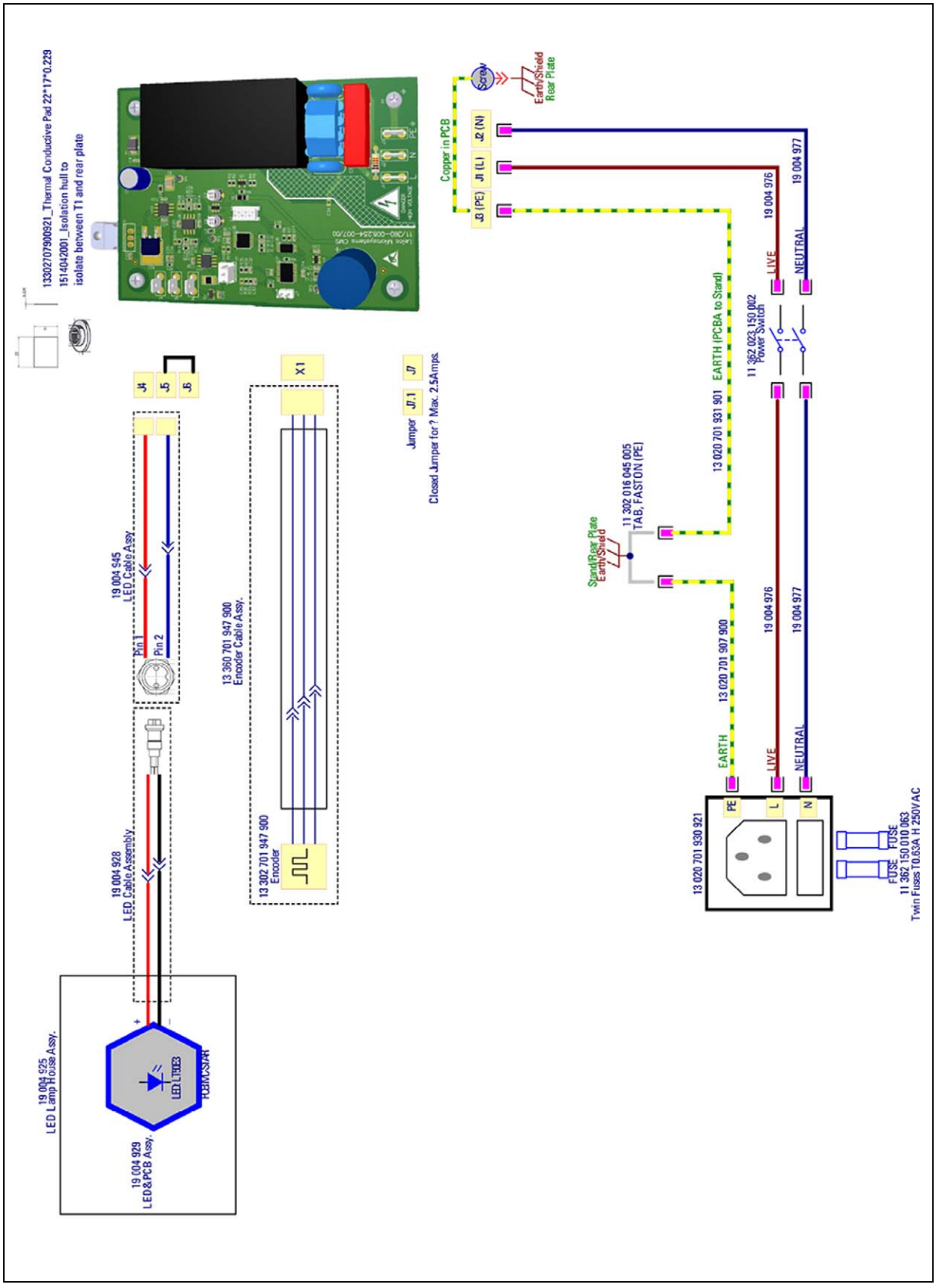

Figure 2: Electronic overview DM2700 M IL since March 2015

4.3 Electronic Overview DM2700 M P IL TL until March 2015

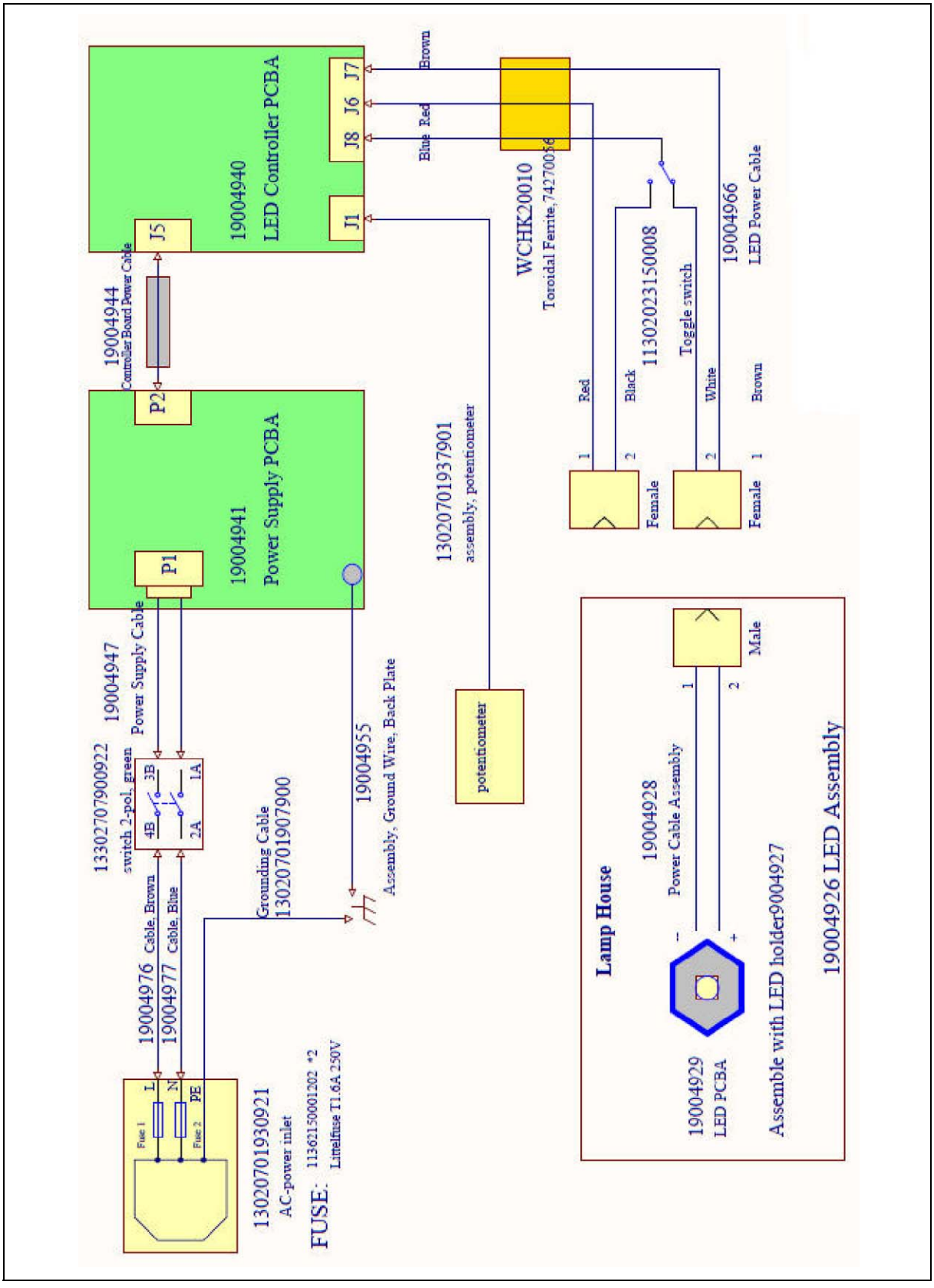

Figure 3: Electronic overview DM2700 M P IL TL until March 2015

4.4 Electronic Overview DM2700 M P IL TL since March 2015

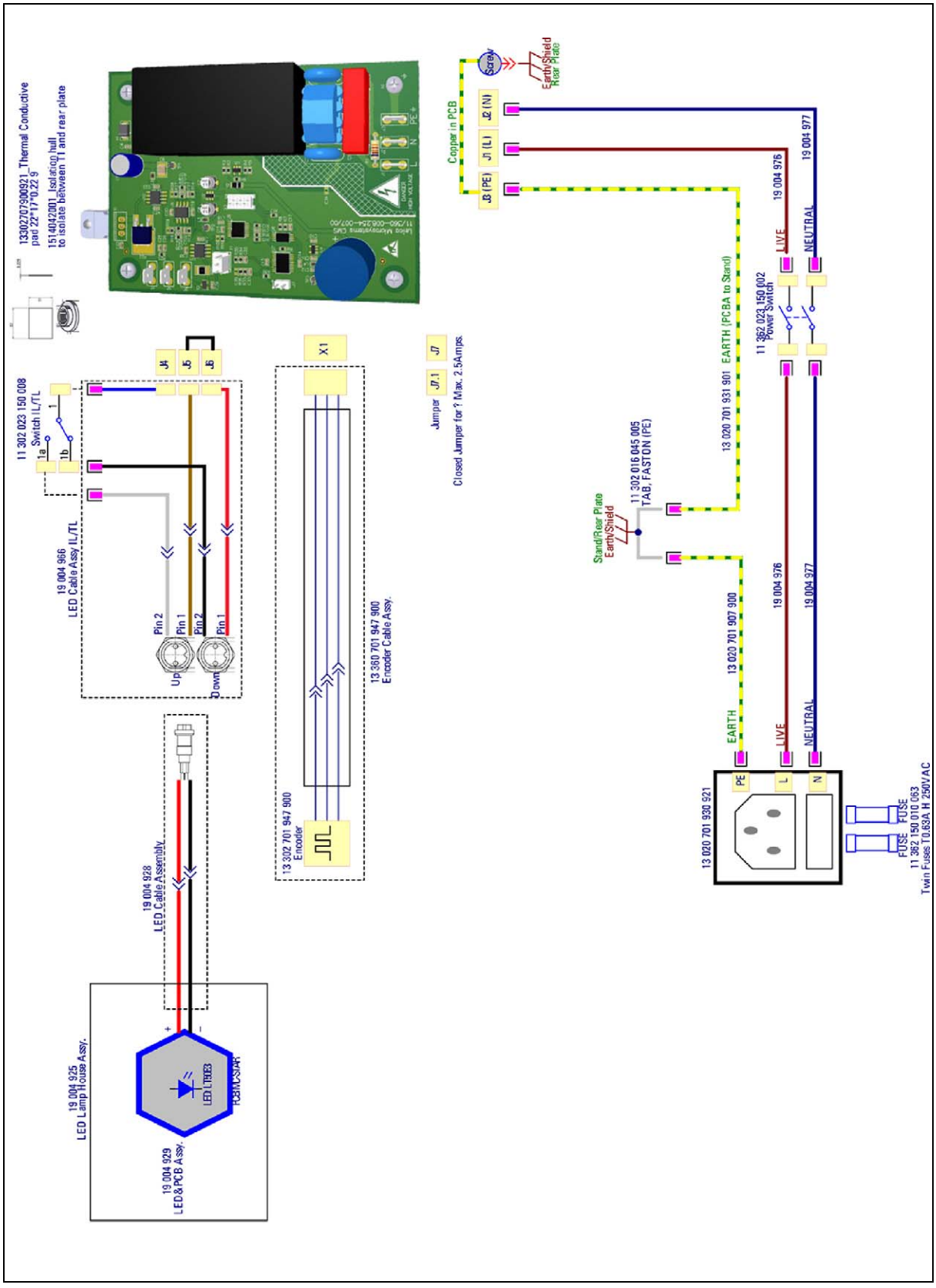

Figure 4: Electronic overview DM2700 M P IL TL since March 2015

4.5 Component Overview

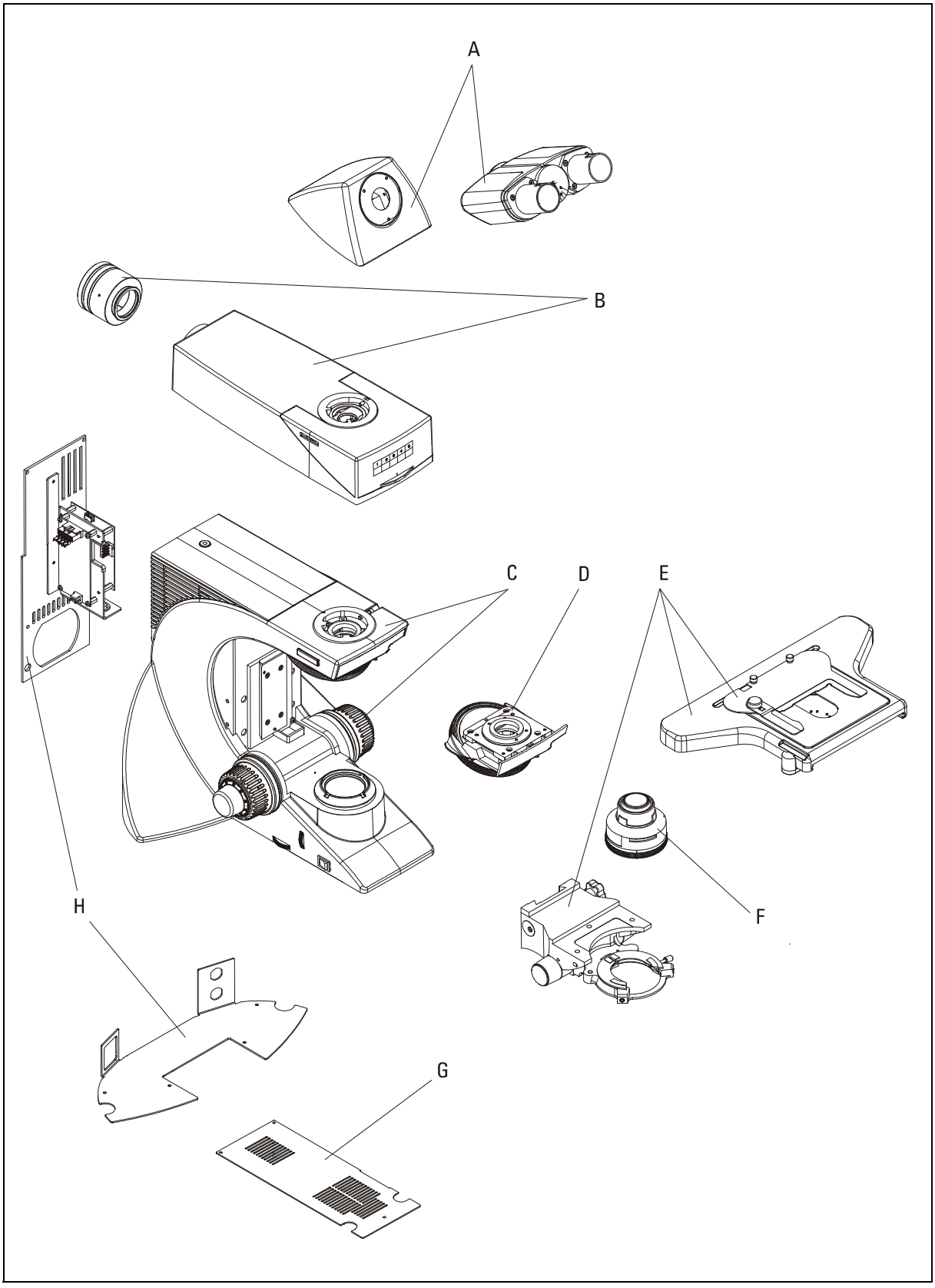

Figure 5: Component overview

Table 1: Component overview

A	Tube	see chapter 11
B	Axis	see chapter 12
C	Stand	see chapter 5
D	Nosepiece	see chapter 6
E	Stage	see chapter 9
F	Condenser	see chapter 10
G	Base plate	see chapter 8
H	Illumination	see chapter 7

5 Stand

5.1 Coarse and Fine Drive until 2015

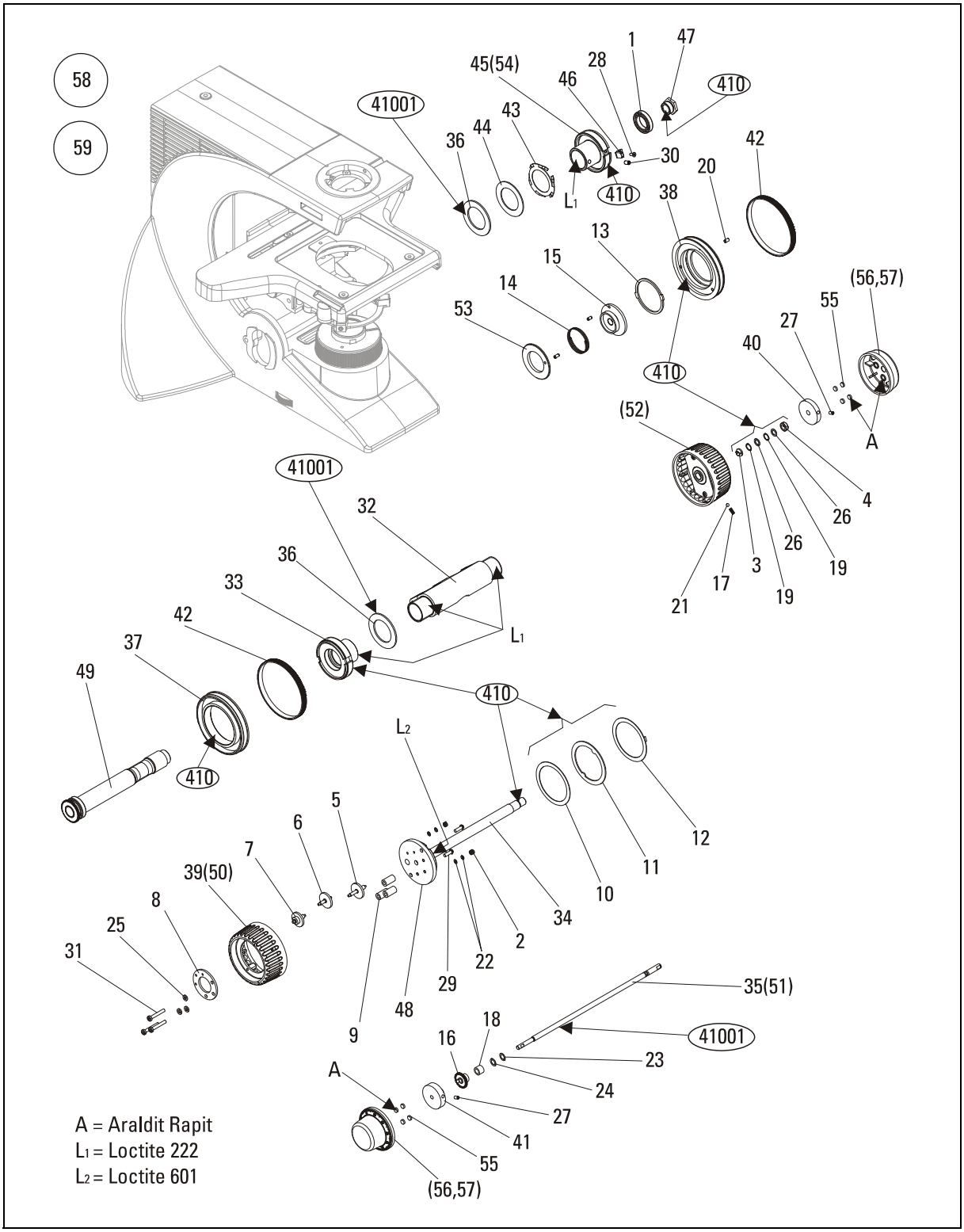

Figure 6: Coarse and fine drive until 2015

Table 2: Coarse and fine drive until 2015

No.	Order No.	Qty.	Name English	Name SAP	Remark
1	11016200026005	1	grooved ball bearing	Rillenkugellager 61802	
2	11020370390015	2	spring	Druckfeder	
3	11020507010043	1	tapered bushing	BUCHSE	
4	11020507010044	1	retaining ring	Gewindering	
5	11020519010067	1	gear 1	ZAHNRAD MIT RITZEL	
6	11020519010072	1	gear 2	ZAHNRAD MIT RITZEL	
7	11020519010075	1	gear 3	ZAHNRAD	
8	11020519010079	1	plate	Platte	
9	11020519010082	3	tube	HUELSE	
10	11020519010084	1	washer	SCHEIBE	
11	11020519010085	1	disk	Scheibe	
12	11020519010086	1	washer with tab	SCHEIBE	
13	11020519010090	1	disk	Scheibe	
14	11020519010097	1	torsion spring	SPIRALFEDER	
15	11020519010098	1	flange assembly w/pin	Anschlag mit Stift	G
16	11020519010104	1	gear	SCHIEBERAD	
17	11020519010115	1	spring	Rastfeder Best.Nr. D-39 A	
18	11020519010126	1	tube	Hülse	belongs to 58
19	11020519010127	2	wave washer	FEDERSCHEIBE W61320R	
20	11703271630000	1	threaded pin	Gewindestift DIN 913-M3x5-A2	
21	11704617000000	1	ball bearing	Kugel DIN 5401-3mm III	
22	11705792630000	14	spacer	SPACER	
23	11705853630000	1	washer	Scheibe LN 12203 (5.2x8x0.2)	belongs to 58
24	11705952630000	1	washer	Scheibe LN 12203 (5,2x8x0,3)	belongs to 58
25	11706945220000	3	washer	SCHEIBE 015-121.038-165	
26	11707082000000	2	washer	Scheibe LN 12203 (5,2x8x0,5)	
27	11707516631000	2	threaded pin	Gewindestift DIN 916-M3x5-A2	
28	11707990630000	1	countersunk screw	Senkschraube ISO 7046-2-M2,5x6-A2-H	
29	11709968630000	2	screw	Schraube LN 12080-3x9,5	
30	11710078163000	1	screw	SET SCREW, DIN 916 M3X3	
31	11710370630000	3	screw pan head	Screw Pan Head -M3X20	
32	13020701822401	1	holder, focus drive	HOLDER, FOCUS DRIVE, MACHINED	
33	13020701822402	1	flange, left	FLANGE, LEFT	
34	13020701822404	1	shaft	SUPPORT SHAFT	
35	13020701822405	1	shaft	F.A. SHAFT	
36	13020701822406	2	disc, teflon	WASHER, TEFLON	
37	13020701822407	1	torque control knob	TORQUE CONTROL KNOB	
38	13020701822408	1	auto stop control knob	AUTO STOP CONTROL KNOB	
39	13020701822411	1	knob	C.A. KNOB	
40	13020701822412	1	support plate	SUPPORT PLATE	
41	13020701822413	1	support plate	SUPORT PLATE, SHIFTER	

Table 2: Coarse and fine drive until 2015

No.	Order No.	Qty.	Name English	Name SAP	Remark
42	13020701822414	2	knurl grip	KNURL GRIP	
43	13020701822415	1	finger spring washer	FINGER SPRING WASHER	
44	13020701822416	1	washer, large	WASHER, LARGE	
45	13020701822417	1	bearing flange	FLANGE, RT	
46	13020701822419	1	mount, auto stop	MOUNT, AUTO STOP	
47	13020701822438	1	nut, threaded	NUT, THREADED	
48	13020701822447	1	flange	MOUNT, GEAR ASSEMBLY	
49	13020701822805	1	coarse focus shaft & gear assy	COARSE FOCUS SHAFT & GEAR ASSY	G
50	13020701822810	1	left c. a. knob & gear box assy	LEFT C.A. KNOB & GEAR BOX ASSEMBLY	G 2, 7, 9, 22, 29, 34, 41, 48
51	13020701822812	1	f. a. shaft assembly	F.A. SHAFT ASSEMBLY	G 16, 27, 35, 41
52	13020701822818	1	right c. a. knob assembly	RIGHT C.A. KNOB ASSEMBLY	G
53	13020701822820	1	auto stop plate assy	AUTO STOP PLATE ASSEMBLY	G
54	13020701822822	1	flange assembly, right	FLANGE ASSEMBLY, RIGHT	G 29, 45, 46
55	1310499SA171	8	magnet	MAGNET	
56	11888135	1	std. focus knobs	Std.Focus knobs for DM 2000/2500/3000	13020701822830
57	11888137	1	rubber focus knobs	Rubber focus knobs DM 2000/2500/3000	13020701822835
58	11888143	1	focusing drive 2-step for DM 2000/2500/3	Focusing Drive 2-step for DM 2000/2500/3	G 1...54 13020701822801
59	11888144	1	focusing drive 3 step for DM 2000/2500/3	Focusing Drive 3-step for DM 2000/2500/3	G 1...54, o 18, 23, 24 13020701822802

5.2 Coarse and Fine Drive since 2015

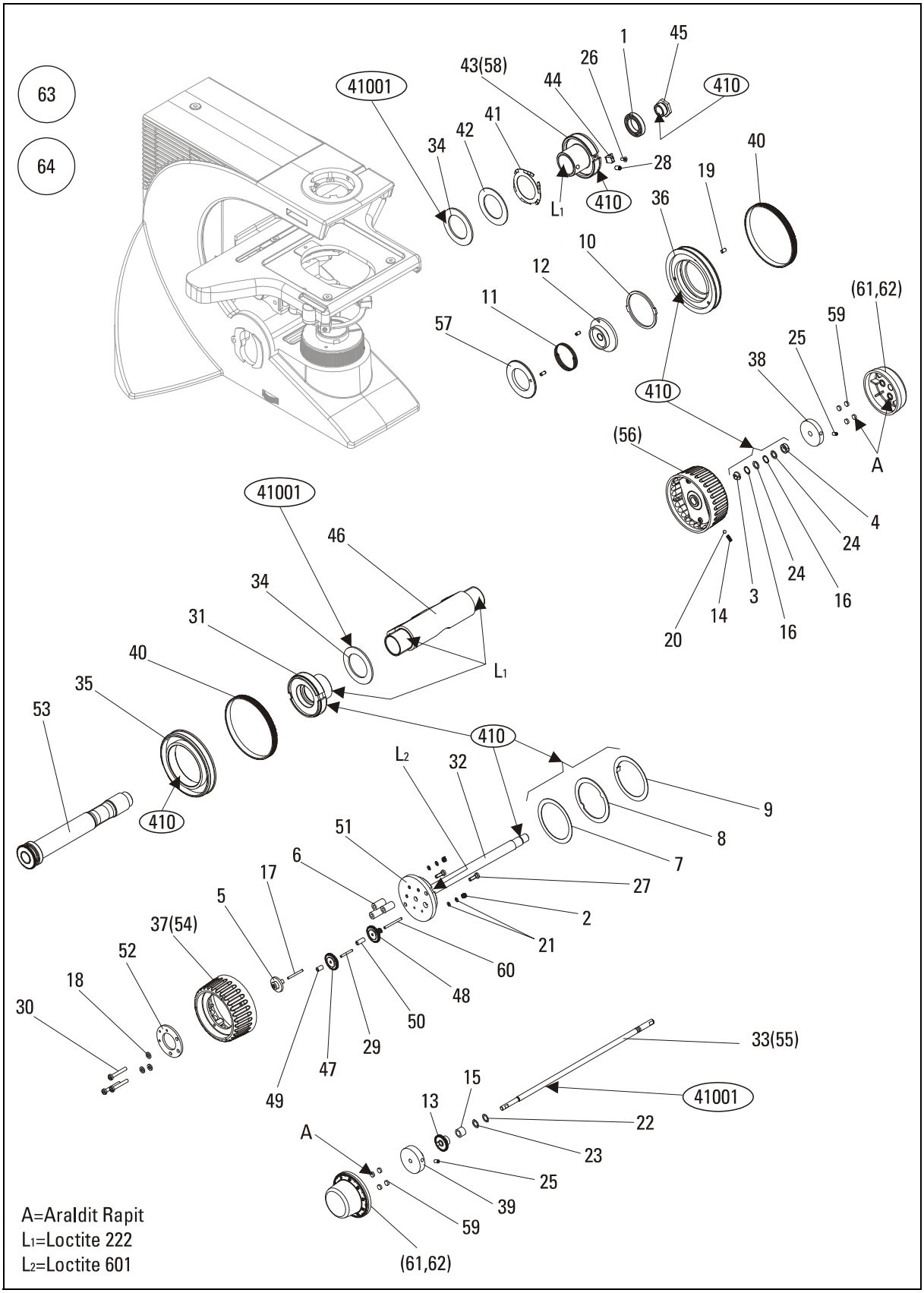

Figure 7: Coarse and fine drive since 2015

Table 3: Coarse and fine drive since 2015

No.	Order No.	Qty.	Name English	Name SAP	Remark
1	11016200026005	1	grooved ball bearing	Rillenkugellager 61802	
2	11020370390015	2	spring	Druckfeder	
3	11020507010043	1	tapered bushing	BUCHSE	
4	11020507010044	1	retaining ring	Gewindering	
5	11020519010075	1	gear	ZAHNRAD	
6	11020519010082	3	tube	HUELSE	
7	11020519010084	1	washer	SCHEIBE	
8	11020519010085	1	disk	Scheibe	
9	11020519010086	1	washer with tab	SCHEIBE	
10	11020519010090	1	disk	Scheibe	
11	11020519010097	1	torsion spring	SPIRALFEDER	
12	11020519010098	1	flange assembly w/pin	Anschlag mit Stift	G
13	11020519010104	1	gear	SCHIEBERAD	
14	11020519010115	1	spring	Rastfeder Best.Nr. D-39 A	
15	11020519010126	1	tube	Hülse	belongs to 63
16	11020519010127	2	wave washer	FEDERSCHEIBE W61320R	
17	11700093630000	1	cylindrical pin	ZYL.-STIFT DIN 7-2M6X20-A2	
18	11702131631000	3	washer	SCHEIBE	
19	11703271630000	1	threaded pin	Gewindestift DIN 913-M3x5-A2	
20	11704617000000	1	ball bearing	Kugel DIN 5401-3mm III	
21	11705792630000	4	spacer	SPACER	
22	11705853630000	1	washer	Scheibe LN 12203 (5.2x8x0.2)	belongs to 63
23	11705952630000	1	washer	Scheibe LN 12203 (5,2x8x0,3)	belongs to 63
24	11707082000000	2	washer	Scheibe LN 12203 (5,2x8x0,5)	
25	11707516631000	2	threaded pin	Gewindestift DIN 916-M3x5-A2	
26	11707990630000	1	screw	Senkschraube ISO 7046-2-M2,5x6-A2-H	
27	11709968630000	2	screw	Schraube LN 12080-3x9,5	
28	11710078163000	1	screw	SET SCREW, DIN 916 M3X3	
29	11710139630000	1	cylindrical pin	Zylinderstift ISO 2338-2m6x16-A1	
30	11710370630000	3	screw pan head	Screw Pan Head -M3X20	
31	13020701822402	1	flange, left	FLANGE, LEFT	
32	13020701822404	1	shaft	SUPPORT SHAFT	
33	13020701822405	1	shaft	F.A. SHAFT	
34	13020701822406	2	disc, teflon	WASHER, TEFLON	
35	13020701822407	1	torque control knob	TORQUE CONTROL KNOB	
36	13020701822408	1	auto stop control knob	AUTO STOP CONTROL KNOB	
37	13020701822411	1	knob	C.A. KNOB	
38	13020701822412	1	support plate	SUPPORT PLATE	
39	13020701822413	1	support plate	SUPORT PLATE, SHIFTER	
40	13020701822414	2	knurl grip	KNURL GRIP	
41	13020701822415	1	finger spring washer	FINGER SPRING WASHER	
42	13020701822416	1	washer, large	WASHER, LARGE	
43	13020701822417	1	bearing flange	FLANGE, RT	

Table 3: Coarse and fine drive since 2015

No.	Order No.	Qty.	Name English	Name SAP	Remark
44	13020701822419	1	mount, auto stop	MOUNT, AUTO STOP	
45	13020701822438	1	nut, threaded	NUT, THREADED	
46	13020701822452	1	focus driver holder.mach	Focus Driver Holder.Mach	
47	13020701822453	1	2nd double gear	2nd Double GEAR	
48	13020701822454	1	3rd double gear	3rd Double Gear	
49	13020701822455	1	nylon pipe.short	nylon pipe.short	
50	13020701822456	1	nylon pipe.long	nylon pipe.long	
51	13020701822457	1	mount, gear assembly	MOUNT, GEAR ASSEMBLY	
52	13020701822458	1	plate	Platte	
53	13020701822805	1	coarse focus shaft & gear assy	COARSE FOCUS SHAFT & GEAR ASSY	G
54	13020701822810	1	left c. a. knob & gear box assy	LEFT C.A. KNOB & GEAR BOX ASSEMBLY	G 2,5...8,17,18,21,27, 29,30,32,37,47…52,60
55	13020701822812	1	f. a. shaft assembly	F.A. SHAFT ASSEMBLY	G 13,25,33,39
56	13020701822818	1	right c. a. knob assembly	RIGHT C.A. KNOB ASSEMBLY	G
57	13020701822820	1	auto stop plate assy	AUTO STOP PLATE ASSEMBLY	G
58	13020701822822	1	flange assembly, right	FLANGE ASSEMBLY, RIGHT	G 28,43,44
59	1310499SA171	8	magnet	MAGNET	
60	55309001630065	1	pin	PIN ISO 2338-A1-STST-2m6x24	
61	11888135	1	std. focus knobs	Std.Focus knobs for DM 2000/2500/3000	13020701822830
62	11888137	1	rubber focus knobs	Rubber focus knobs DM 2000/2500/3000	13020701822835
63	11888143	1	focusing drive 2-step for DM 2000/2500/3	Focusing Drive 2-step for DM 2000/2500/3	G 1...58, 13020701822801
64	11888144	1	focusing drive 3 step for DM 2000/2500/3	Focusing Drive 3-step for DM 2000/2500/3	G 1...58 o 15,22,23 13020701822802

5.3 Guide Box

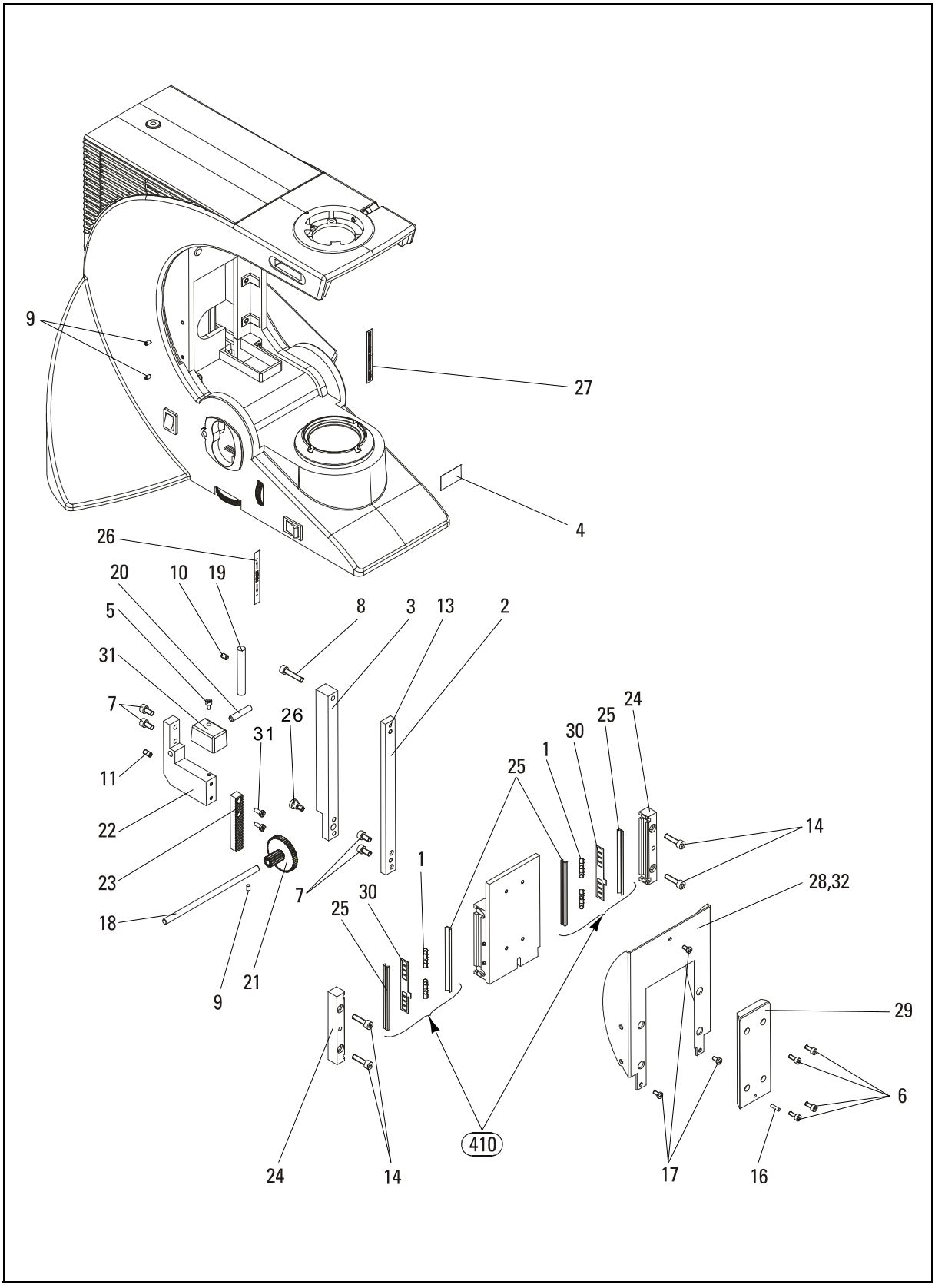

Figure 8: Guide box

Table 4: Guide box

No.	Order No.	Qty.	Name English	Name SAP	Remark
1	11020448025137	16	cylinder roller	Zylinderrolle GKL.I rd 4	
2	11020519010015	1	ledge	Leiste 020-519.010-015	
3	11020519010019	1	rack mount	Zahnstangenaufnahme	
4	11020519010156	1	lable	Klebeschild Focus 1/4	
5	11703106631000	1	cylinder screw	Zylinderschraube ISO 4762-M3x5-A2	
6	11703108630000	4	cylinder screw	Zylinderschraube ISO 4762-M3x8-A2	
7	11703122630000	4	cylinder screw	Zylinderschraube ISO 4762-M4x8-A2	
8	11703127630000	1	cylinder screw	Zylinderschraube ISO 4762-M4x20-A2	
9	11703271630000	3	threaded ring	Gewindestift DIN 913-M3x5-A2	
10	11703276630000	1	threaded ring	Gewindestift DIN 913-M4x6-A2	
11	11703277630000	1	threaded ring	Gewindestift DIN 913-M4x8-A2	
12	11703787630000	1	pan head screw	Flachkopfschraube DIN 923-M4x4-A1	
13	11704374630000	1	grooved pin	Kerbstift ISO 8745-3x12-A1	
14	11706847630000	4	cylinder screw	Zylinderschraube ISO 4762-M4x16-A2	
15	11706914000000	2	cylinder screw	Zylinderschraube DIN 7984-M3x8-8.8	
16	11707870630000	1	grooved pin	Kerbstift ISO 8741-2,5x12-A1	
17	11707952631000	3	pan head screw	Flachkopfschraube ISO 7045-M3x6-A2-H	
18	13020701822421	1	idler shaft	IDLER SHAFT	
19	13020701822431	1	pin auto stop	PIN, AUTO STOP	
20	13020701822432	1	pin, stop	PIN, STOP	
21	13020701822825	1	idler gear assembly	IDLER GEAR ASSEMBLY	
22	13020701866450	1	rack holder	RACK HOLDER	
23	13020701866452	1	focusing rack	FOCUSING RACK	
24	13020701866454	2	gib, adjustable	GIB, ADJUSTABLE	
25	13020701866455	8	triangular gib race	TRIANGULAR GIB RACE	
26	13020702800415	1	lable torque	LABEL, TORQUE	
27	13020702800416	1	lable focus stop	LABEL, FOCUS STOP	
28	13020703800416	1	cover, gibs	COVER, GIB	for DM2700 M
29	13020703866450	1	dovetail plate	DOVE TAIL PLATE	
30	13020703866456	2	spacer, ball	SPACER, BALL	
31	13020703866457	1	cover, rack	COVER, RACK	
32	13020704800416	1	cover, gibs	COVER, GIBS	for DM2700 P

6 Nosepiece

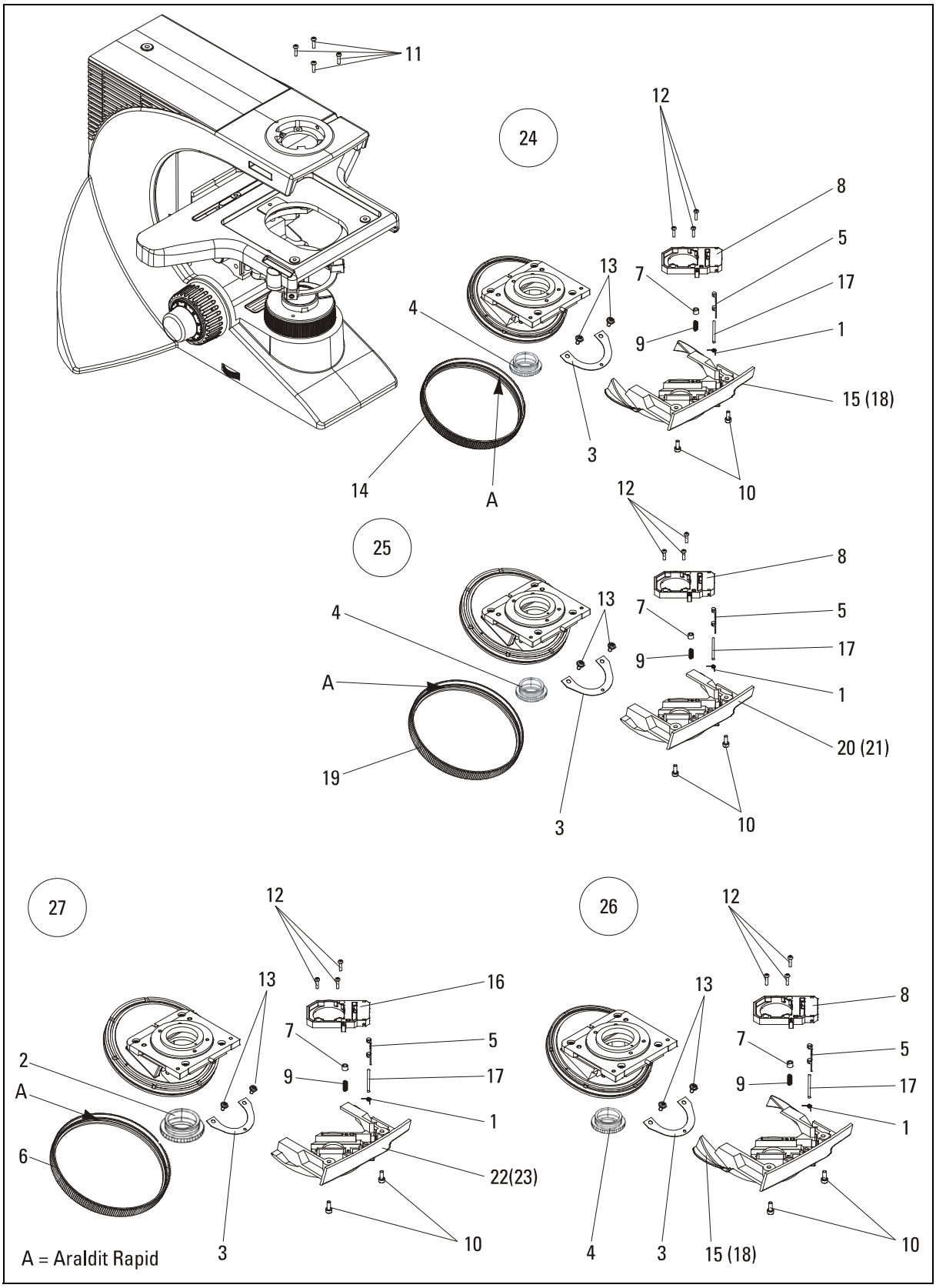

Figure 9: Nosepiece 11888140, 11888141, 11888507 and 11888702

Table 5: Nosepiece 11888140, 11888141, 11888507 and 11888702

No.	Order No.	Qty.	Name English	Name SAP	Remark
1	11020387400196	1	spring	Drehfeder	
2	11020422557000	1	cover 32	Schraubdeckel 32	
3	11020422560015	1	spring	Rastfeder, kompl.	
4	11020422570000	1	cover 25	Schraubdeckel 25	
5	11020422573051	1	cap	Klappe	
6	11020422590021	1	rubber grip	Griffring	
7	11020452012058	1	ring	Rolle	
8	11020519010135	1	support plate	Halteplatte	
9	11020519010137	1	spring	Druckfeder Best.Nr. D 080 G	
10	11703108630000	2	cylinder screw	Zylinderschraube ISO 4762-M3x8-A2	
11	11707953630000	4	pan head screw	Flachkopfschraube ISO 7045-M3x8-A2-H	
12	11708242630000	3	screw	Blechschraube ISO 7049-ST 2,2x9,5-A2-C-H	
13	11710246213000	2	screw	SCHRAUBE LN 12027-M3X6-10	
14	13020701806402	1	rubber grip	RUBBER GRIP	
15	13020701806410	1	6 hole nosepiece cover	6 HOLE NOSEPIECE COVER	
16	13020701806411	1	cradle	CRADLE	
17	13020701806421	1	shaft, nosepiece slider door	SHAFT, NOSEPIECE SLIDER DOOR	
18	13020701806802	1	nosepiece cover, 6-hole	NOSEPIECE COVER, 6-HOLE	G 1,5,7…9,12,15,17
19	13020701807402	1	rubber ring	RUBBER RING	
20	13020701807410	1	7-position nosepiece cover	7-POSITION NOSEPIECE COVER	
21	13020701807802	1	nosepiece cover assembly, 7-position	NOSEPIECE COVER ASSEMBLY, 7-POSITION	G 1,5,7…9,12,17,20
22	13020703805410	1	5 hole nosepiece cover	5 HOLE NOSEPIECE COVER	
23	13020703805802	1	nosepiece cover assembly, 5-hole	NOSEPIECE COVER ASSEMBLY, 5-HOLE	G 1,5,7,9,12,16,17,22
24	11888140	1	6-fold nosepiece for DM 2000/2500	6-fold nosepiece for DM 2000/2500	G 3,10,13,14,18 13020701806800
25	11888141	1	7-fold nosepiece for DM2000/2500	7-fold nosepiece for DM2000/2500	G 3,10,13,19,21 13020701807800
26	11888507	1	5-fold (M25) centerable	5-fold (M25) Centerable	G 3,10,13,18 13020704805800
27	11888702	1	5-fold nosepiece (M32)	5-fold nosepiece (M32)	G 3,6,10,13,23 13020703805800

7 Illumination

7.1 Illumination until October 2015

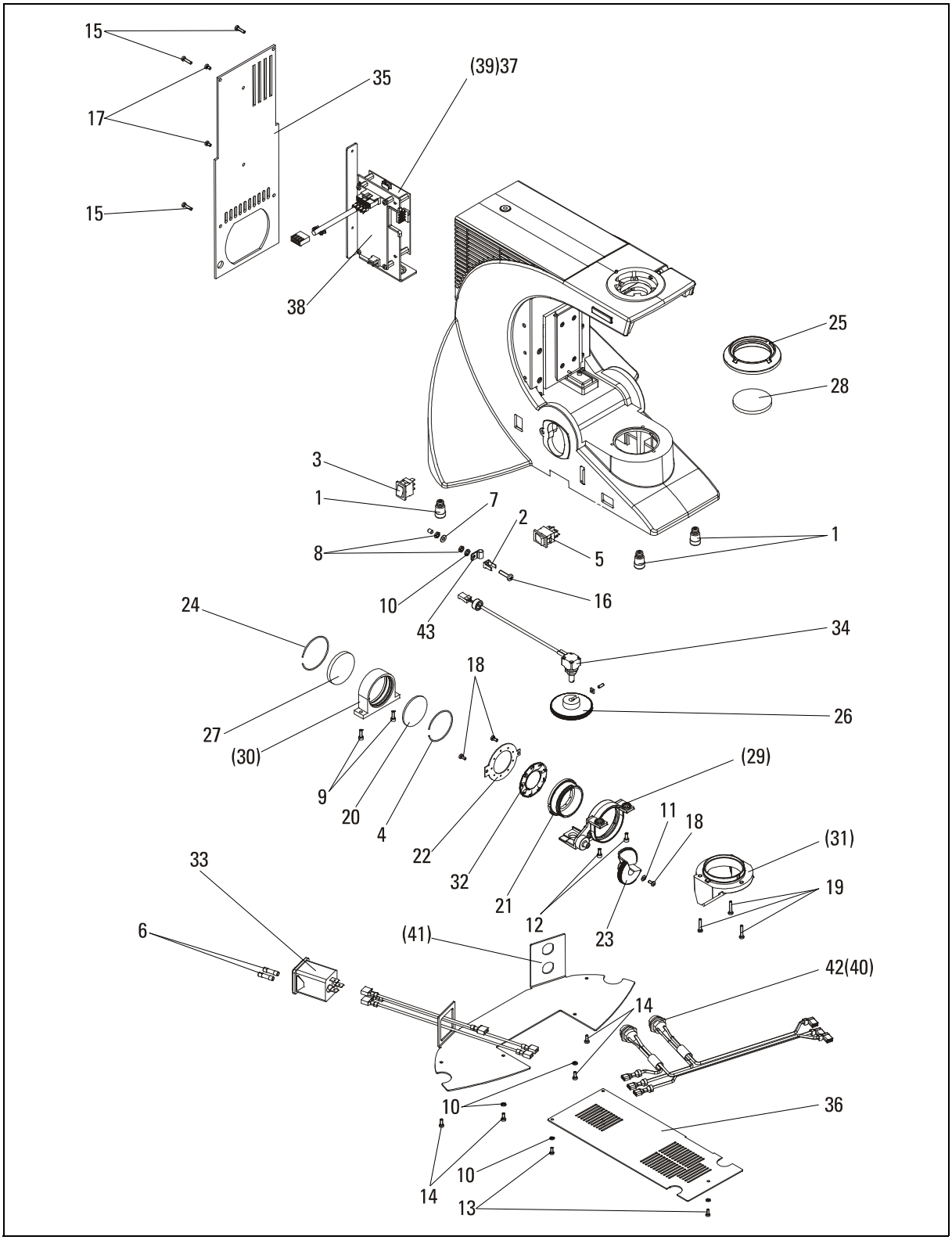

Figure 10: Illumination until October 2015

Table 6: Illumination until October 2015

No.	Order No.	Qty.	Name English	Name SAP	Remark
1	11020437035011	4	foot assembly	Fuß mit Puffer	
2	11302016045005	1	plug	Flachstecker	
3	11302023150008	1	switch	UMSCHALTER MIT PFEILBEDRUCKUNG	
4	11307097005012	1	snap ring	Sprengring X 12 CRNI 17 7 K	
5	11362023150002	1	switch main	Ausschalter, 2-pol., mit Signallampe grü	
6	11362150001202	4	fuse	Feinsicherung T1.6A 250V AC	
7	11701805630000	1	washer	Scheibe DIN 125-A4,3-140HV-A2	
8	11702211630000	2	hexagon nut	Sechskantmutter ISO 4035-M4-A2	
9	11703109631000	2	cylinder screw	Zylinderschraube ISO 4762-M3x10-A2	
10	11704745220000	4	toothed disc	ZAHNSCHEIBE DIN 6797-A4,3	
11	11705537000000	1	wave washer	Sattelfeder LN 12207 (2,8x7,0x0,1)	
12	11706914000000	2	cylinder screw	Zylinderschraube DIN 7984-M3x8-8.8	
13	11707952631000	3	pan head screw	Flachkopfschraube ISO 7045-M3x6-A2-H	
14	11707953630000	4	pan head screw	Flachkopfschraube ISO 7045-M3x8-A2-H	
15	11707955630000	4	pan head screw	Flachkopfschraube ISO 7045-M3x12-A2-H	
16	11707962630000	1	pan head screw	Flachkopfschraube ISO 7045-M4x16-A2-H	
17	11708490631000	2	pan head screw	Flachkopfschraube ISO 7045-M2x5-A2-H	
18	11710278630000	3	screw	Schraube LN 12081-ST2,9x6,5-F-H	
19	11710553630000	3	lens head screw	Linsenkopfschraube WN 1442-3x16-A2-H	
20	11940500610162	1	diffuser	Prismenstreuscheibe	
21	13020701840402	1	shifting ring	SHIFTING RING	
22	13020701840403	1	face plate	FACE PLATE	
23	13020701840404	1	knob	KNOB	
24	13020701840409	1	snap ring	SNAP RING 45MM	
25	13020701840421	1	lens mount	COLLECTOR MOUNT LENS "B"	
26	13020701840427	1	knob, potentiometer	KNOB, POTENTIOMETER	
27	13020701840601	1	lens „a“	LENS "A"	
28	13020701840602	1	lens „b“	LENS "B"	
29	13020701840805	1	field diaphagm assembly	FIELD DIAPHRAGM ASSY	G 11,18,21…23,32
30	13020701840810	1	lens a assembly	LENS "A" MOUNT ASSY	G 4,20,24,27
31	13020701840812	1	mount, mirror assembly	MOUNT, MIRROR ASSY	G
32	13020701840820	9	iris leaf assembly	IRIS LEAF ASSY	
33	13020701930921	2	assembly, ac-power inlet	AC POWER INLET, FILTER	
34	13020701937901	1	potentiometer	POTENTIOMETER, ASSY	
35	13020703800421	1	cover rear stand	COVER, STAND REAR	
36	13020703840414	1	base plate	BASE PLATE DM2500M	
37	19004940	1	LED controller	LED Controller PCBA	
38	19004941	1	power supply	Power Supply PCBA	
39	19004948	1	power and LED controller	Power and LED Controller Board Assembly	G 37,38
40	19004966	1	LED power cable	LED Power Cable Assembly IL/TL	G 42
41	19004967	1	base plate IL/TL	BASE PLATE ASSEMBLY IL/TL	G 6,33, 40
42	19004988	3	power socket	Power Socket	
43	WMHW10002	1	clamp cable	CLAMP, CABLE	

7.2 Illumination since October 2015

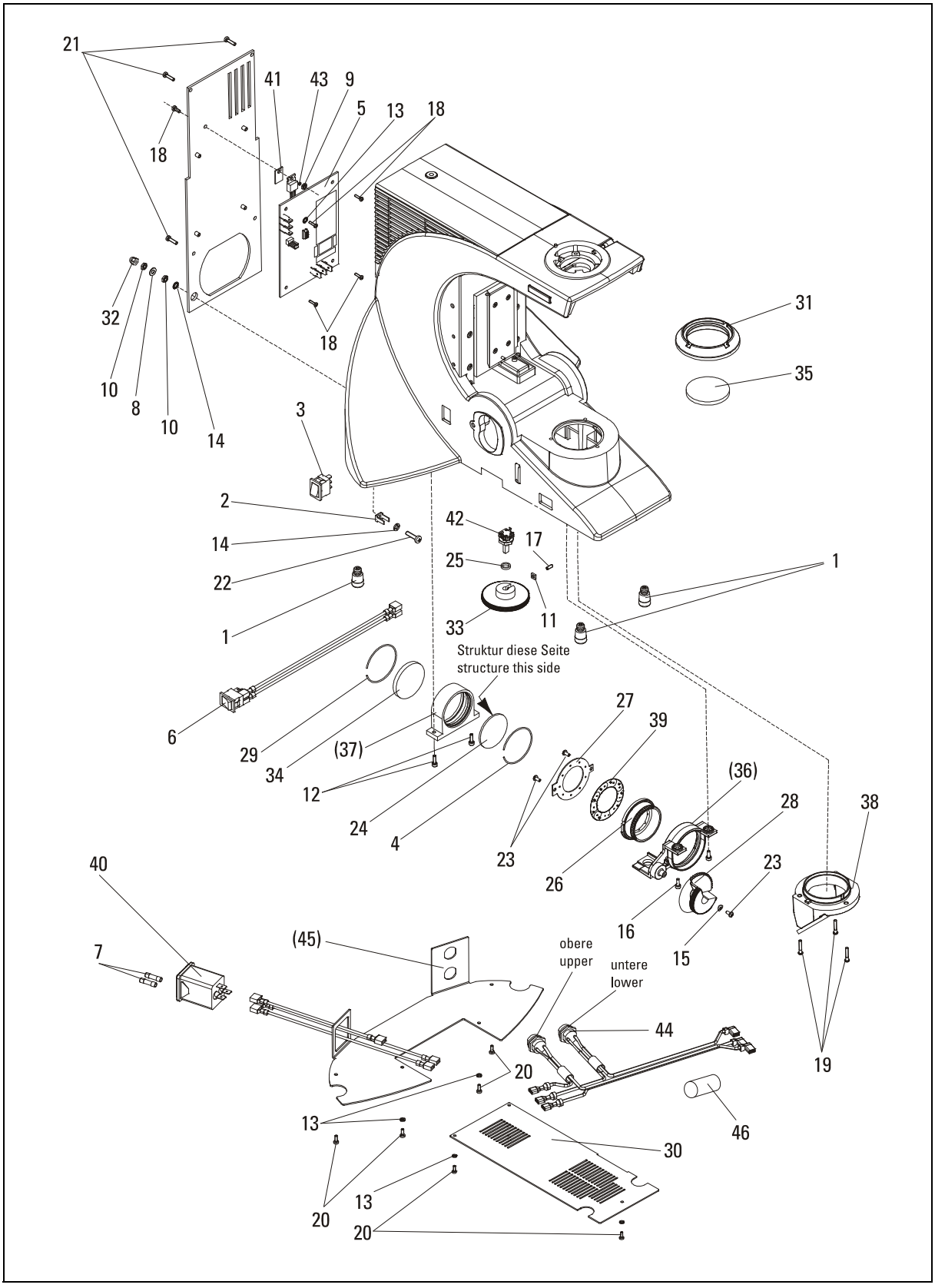

Figure 11: Illumination since October 2015

Table 7: Illumination since October 2015

No.	Order No.	Qty.	Name English	Name SAP	Remark
1	11020437035011	4	foot assembly	Fuß mit Puffer	
2	11302016045005	1	plug	Flachstecker	
3	11302023150008	1	changeover switch	UMSCHALTER MIT PFEILBEDRUCKUNG	
4	11307097005012	1	circlip	Sprengring X 12 CRNI 17 7 K	
5	11360008254000	1	PCBA power and LED controller CALLISTO	PCBA Power and LED Controller CALLISTO	see chapter 7.3
6	11362023150002	1	switch	Ausschalter, 2-pol., mit Signallampe grün	
7	11362150010063	2	fuse	Feinsicherung T0,63A, H, 250VAC 5 x 20 mm, IEC 60127-2, Time-Lag T	
8	11701805630000	1	washer	Scheibe DIN 125-A4,3-140HV-A2	
9	11702206630000	1	nut	Sechskantmutter ISO 4035-M3-A2	
10	11702211630000	2	nut	Sechskantmutter ISO 4035-M4-A2	
11	11702752630000	1	nut	Vierkantmutter DIN 562-M3-A2	
12	11703109630000	2	cylinder screw	Zylinderschraube ISO 4762-M3x10-A2	
13	11704741630000	5	tooth washer	Zahnscheibe DIN 6797-A3.2-FSt	
14	11704745220000	2	tooth washer	Zahnscheibe DIN 6797-A4.3-FSt	
15	11705537000000	1	wave washer	Sattelfeder LN 12207 (2,8x7,0x0,1)	
16	11706914000000	2	cylinder screw	Zylinderschraube DIN 7984-M3x8-8.8	
17	11707518630000	1	threaded pin	Gewindestift DIN 916-M3x8-A2	
18	11707951630000	5	pan head screw	Flachkopfschraube ISO 7045-M3x5-A2-H	
19	11707952631000	3	pan head screw	Flachkopfschraube ISO 7045-M3x6-A2-H	
20	11707953630000	8	pan head screw	Flachkopfschraube ISO 7045-M3x8-A2-H	
21	11707955630000	4	pan head screw	Flachkopfschraube ISO 7045-M3x12-A2-H	
22	11707962630000	1	pan head screw	Flachkopfschraube ISO 7045-M4x16-A2-H	
23	11710278630000	3	screw	Schraube LN 12081-ST2,9x6,5-F-H	
24	11940500610162	1	diffuser	Prismenstreuscheibe	
25	13020701800453	1	round spacer	Round spacer	
26	13020701840402	1	shifting ring	SHIFTING RING	
27	13020701840403	1	face plate	FACE PLATE	
28	13020701840404	1	knob	KNOB	
29	13020701840409	1	snap ring 45mm	SNAP RING 45MM	
30	13020701840417	1	base plate	BASE PLATE	
31	13020701840421	1	collector mount lens "B"	COLLECTOR MOUNT LENS "B"	
32	13020701840433	1	capped nut, DIN1587 M4-PA, white	Capped Nut, DIN1587 M4-PA, White	
33	13020701840437	1	knob, encoder	KNOB, Encoder	
34	13020701840601	1	lens "A"	LENS "A"	
35	13020701840602	1	lens "B"	LENS "B"	
36	13020701840805	1	field diaphragm assy	FIELD DIAPHRAGM ASSY	G 15,23,26…28,39
37	13020701840810	1	lens "A" mount assy	LENS "A" MOUNT ASSY	G 4,24,29,34
38	13020701840812	1	mount, mirror assy	MOUNT, MIRROR ASSY	G
39	13020701840820	9	iris leaf assy	IRIS LEAF ASSY	

Table 7: Illumination since October 2015

No.	Order No.	Qty.	Name English	Name SAP	Remark
40	13020701930921	1	AC power inlet, filter	AC POWER INLET, FILTER	
41	13302707900921	1	thermo conductive pad	THERMO CONDUCTIVE PAD	
42	13360701947900	1	encoder cable assembly	Encoder cable assembly	see chapter 7.3
43	15 14042001	1	insulating sleeve	Isolierhuelse M3	
44	19 004966	1	LED power cable assembly	LED Power Cable Assembly IL/TL	
45	19 004967	1	base, plate	BASE PLATE ASSEMBLY IL/TL	G
46	WCHK20010	1	ferrite, toroidal, 20.5O OD x 11.5 ID x	FERRITE, TOROIDAL, 20.5O OD x 11.5 ID x	

7.3 Power Supply LED and Encoder

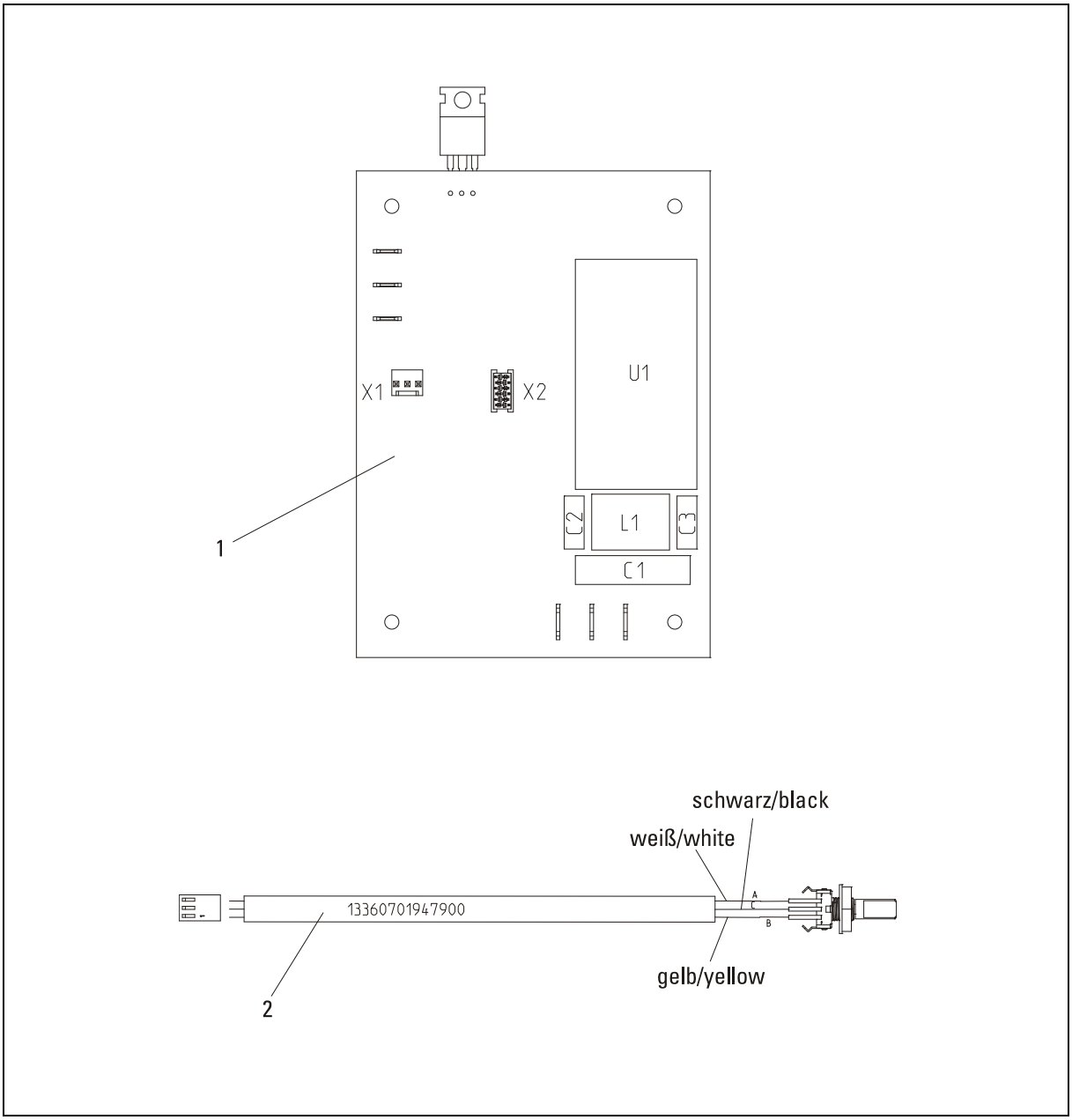

Figure 12: Power supply LED and encoder

No.	Order No.	Qty.	Name English	Name SAP	Remark
1	11360008254000	1	PCBA power and LED controller callisto	PCBA Power and LED Controller CALLISTO	
2	13360701947900	1	encoder cable assembly	Encoder cable assembly	

8 Base Plate with Filter Magazine

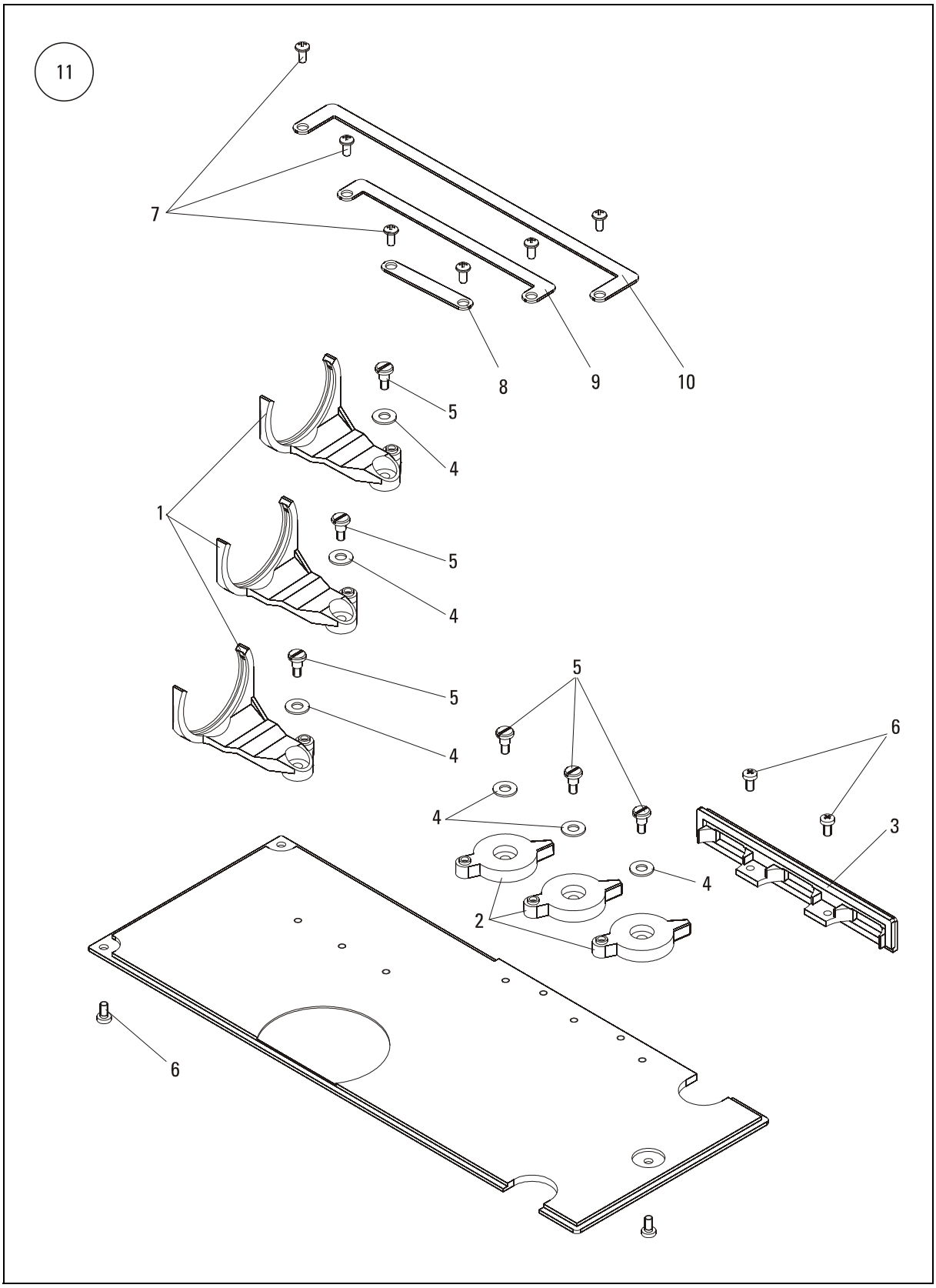

Figure 13: Base plate with filter magazine

Table 8: Base plate with filter magazine

No.	Order No.	Qty.	Name English	Name SAP	Remark
1	11020519020006	3	filter holder	Filterhalter	
2	11020519020007	3	lever knob	Hebel	
3	11020519020012	1	cover	Blende	
4	11020519020018	6	washer	Federscheibe	
5	11703758630000	6	pan head screw	Flachkopfschraube DIN 923-M3x4-A1	
6	11707952630000	5	pan head screw	Flachkopfschraube ISO 7045-M3x6-A2-H	
7	11710278630000	6	pan head screw	Schraube LN 12081-ST2,9x6,5-F-H	
8	13020701840423	1	linkage, short	LINKAGE, SHORT	
9	13020701840424	1	linkage, medium	LINKAGE, MEDIUM	
10	13020701840425	1	linkage, long	LINKAGE, LONG	
11	11888146	1	TL filter magazine	Stand ground with filter magaz. f.3 filte	G 1...10, 13020701840818

9 Stage

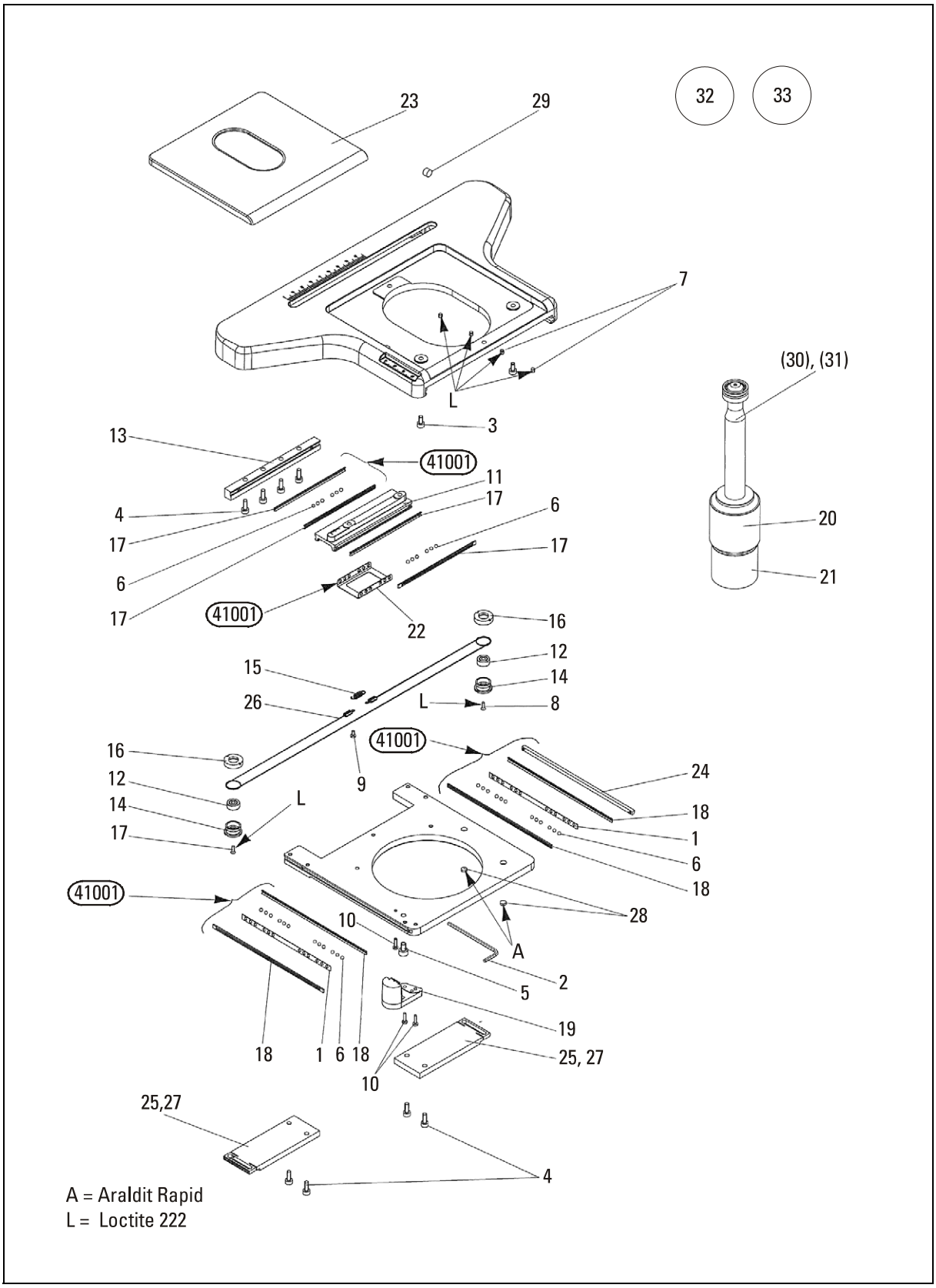

Figure 14: Stage 11888186 and 11888189

Table 9: Stage 11888186 and 11888189

No.	Order No.	Qty.	Name English	Name SAP	Remark
1	11026370001017	2	ball spacer	Kugelkäfig	
2	11703100605000	1	wrench, hex, 3mm	Schraubendreher 6kt verni 3	
3	11703107630000	3	cylinder screw	Zylinderschraube ISO 4762-M3x6-A2	
4	11703108630000	8	cylinder screw	Zylinderschraube ISO 4762-M3x8-A2	
5	11703121630000	1	cylinder screw	Zylinderschraube ISO 4762-M4x6-A2	
6	11704611000000	36	ball	Kugel DIN 5401-2.5mm I	
7	11705743630000	4	threaded pin	Gewindestift DIN 914-M3x4-A2	
8	11707457630000	2	countersunk screw	SENKSCHRAUBE ISO 2009-M2X6-A2	
9	11708489630000	1	pan head screw	Flachkopfschraube ISO 7045-M2x4-A2-H	
10	11708492631000	3	pan head screw	Flachkopfschraube ISO 7045-M2x8-A2-H	
11	13020700803402	1	E-W glider, machined	E-W GLIDER, MACHINED	
12	13020700803404	2	ball bearing OD10, ID3, T4	BALL BEARING OD10, ID3, T4	
13	13020700803405	1	E-W guide	E-W GUIDE	
14	13020700803406	2	drive pulley	DRIVE PULLEY	
15	13020700803412	1	extension spring	EXTENSION SPRING	
16	13020700803413	2	pulley retainer, lower	PULLEY RETAINER, LOWER	
17	13020700803422	8	triangular rail, 79mm	TRIANGULAR RAIL, 79MM	
18	13020700803423	8	triangular rail, 118mm	TRIANGULAR RAIL 118MM	
19	13020700803431	1	vernier scale mount, N-S	VERNIER SCALE MOUNT, N-S	
20	13020700803437	1	rubber grip, N-S	RUBBER GRIP, N-S	
21	13020700803438	1	rubber grip, E-W	RUBBER GRIP E-W	
22	13020700803440	1	ball spacer, small	BALL SPACER, SMALL	
23	13020700803443	1	insert, ceramic	INSERT, CERAMIC	
24	13020700803802	1	N-S Guide assembly	N-S GUIDE ASSEMBLY	
25	13020701803408	2	DM2XXX stage rack	DM2XXX STAGE RACK	
26	13020701803801	1	wire assembly	WIRE ASSEMBLY	
27	13020703803408	2	vertical rack 50 mm	VERTICAL RACK, STAGE	
28	1310499SA171	2	magnet	MAGNET	
29	26S71618631606	1	DIN 914 M6X6-A2	DIN 914 M6X6-A2	
30	11888153	1	XY-stage control standard	XY-stage control standard	G 20,21 13020700803850
31	11888154	1	XY-stage controltelescopic,torque adj.Includes Rubber covers	XY-stage control telescopic,torque adj.Includes Rubber covers	G 20,21 13020701803850
32	11888186	1	Ergo stage with ceramic plate for DM2000 and DM3000	Ergotisch mit Keramikplatte für DM 2000 und DM 3000	G 1...19,22...29 13020701803804
33	11888189	1	Ergo stage (2 slides) DM 2000/2500/3000	Ergo stage (2 slides) DM 2000/2500/3000	G 1...19,22...29 13020703803858

9.1 Specimen Holder

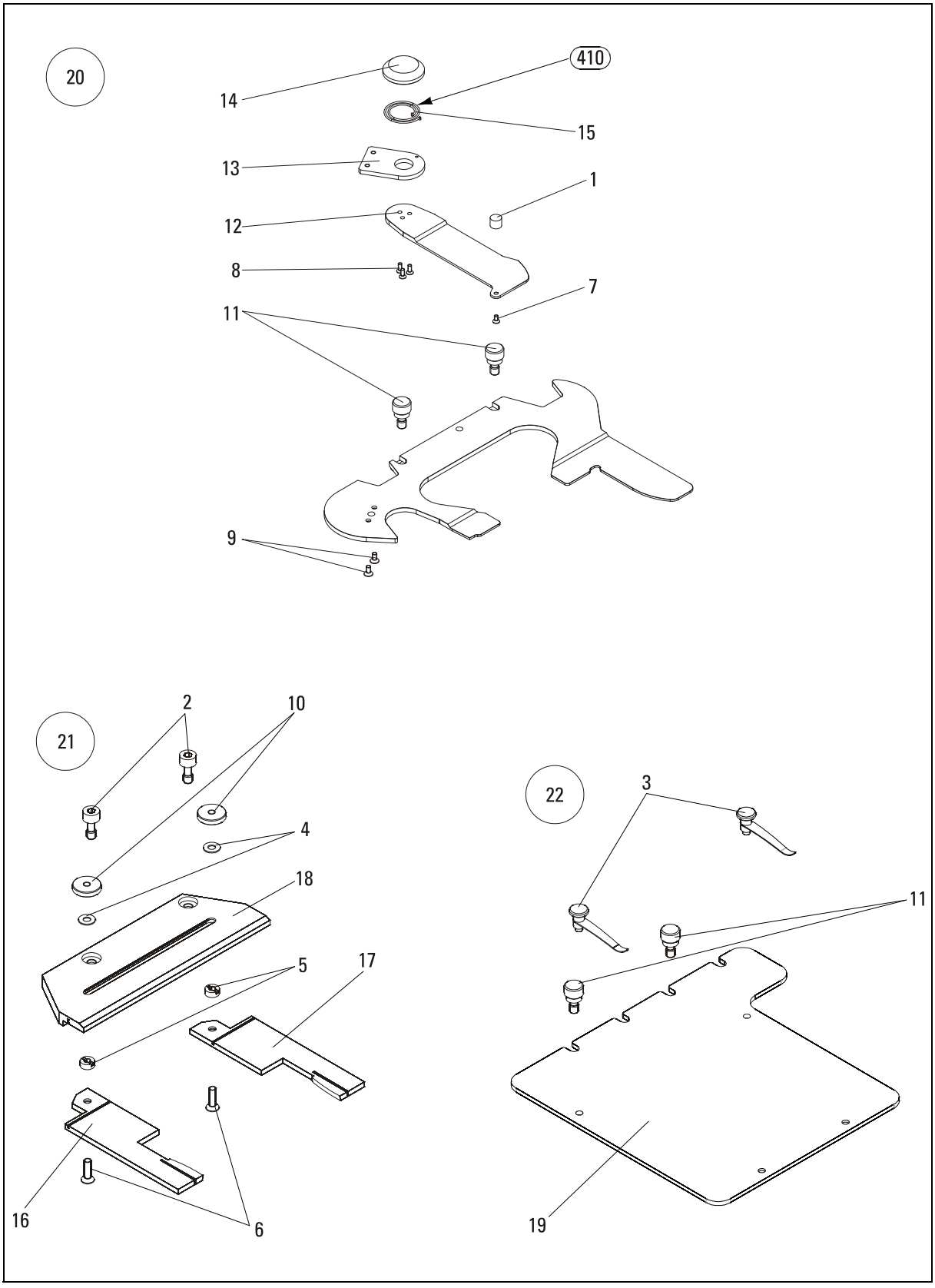

Figure 15: Specimen holder

Table 10: Specimen holder

No.	Order No.	Qty.	Name English	Name SAP	Remark
1	11026366054015	1	bold	Bolzen	
2	11026366138008	2	screw	Schraube	
3	11026380030000	2	clip	OBJEKTKLEMME	
4	11701801631000	2	washer	Scheibe DIN 125-A3,2-140HV-A2	
5	11702464630000	2	slotted nut	Schlitzmutter DIN 546-M3-A1	
6	11707998630000	2	slotted nut	Schlitzmutter DIN 546-M3-A1	
7	11708503630000	1	countersunk screw	Senkschraube DIN 965-M1,6x3-A2-H	
8	11708504630000	3	countersunk screw	Senkschraube DIN 965-M1,6x4-A2-H	
9	11708510630000	2	countersunk screw	Senkschraube ISO 7046-2-M2x4-A2-H	
10	11710382214000	2	knurled nut	Raendelmutter DIN 467-M3-A2	
11	13020700803439	4	thumbscrew	THUMBSCREW	2 x into 20, 2 x into 22
12	13020700803486	1	moveable holder	MOVEABLE GUIDE, MACHINED SLIDE HOLDER	
13	13020700803487	1	plate	PLATE	
14	13020700803493	1	spring housing	SPRING HOUSING	
15	13020700803495	1	spring	TORSION SPRING	
16	13020703803411	1	holder left	HOLDER ARM, LEFT	
17	13020703803412	1	holder right	HOLDER ARM, RIGHT	
18	13020703803812	1	holder	HOLDER SUPPORT ASSY, INDUSTRY	
19	13020703803816	1	plate	INCIDENT LIGHT PLATE	
20	11505196	1	single slide holder	Single slide holder one hand slide excha	G 1,7...911...15 13020700803877
21	11888711	1	industriy slide holder	Industrial Sample Holder 8Ind stage)	G 2,4…6,10,16…18,21 13020703803875
22	11888712	1	object holder	Objekthalter	G 3,11,19 13020703803877

9.2 Rotatable Pol Stage without Detent

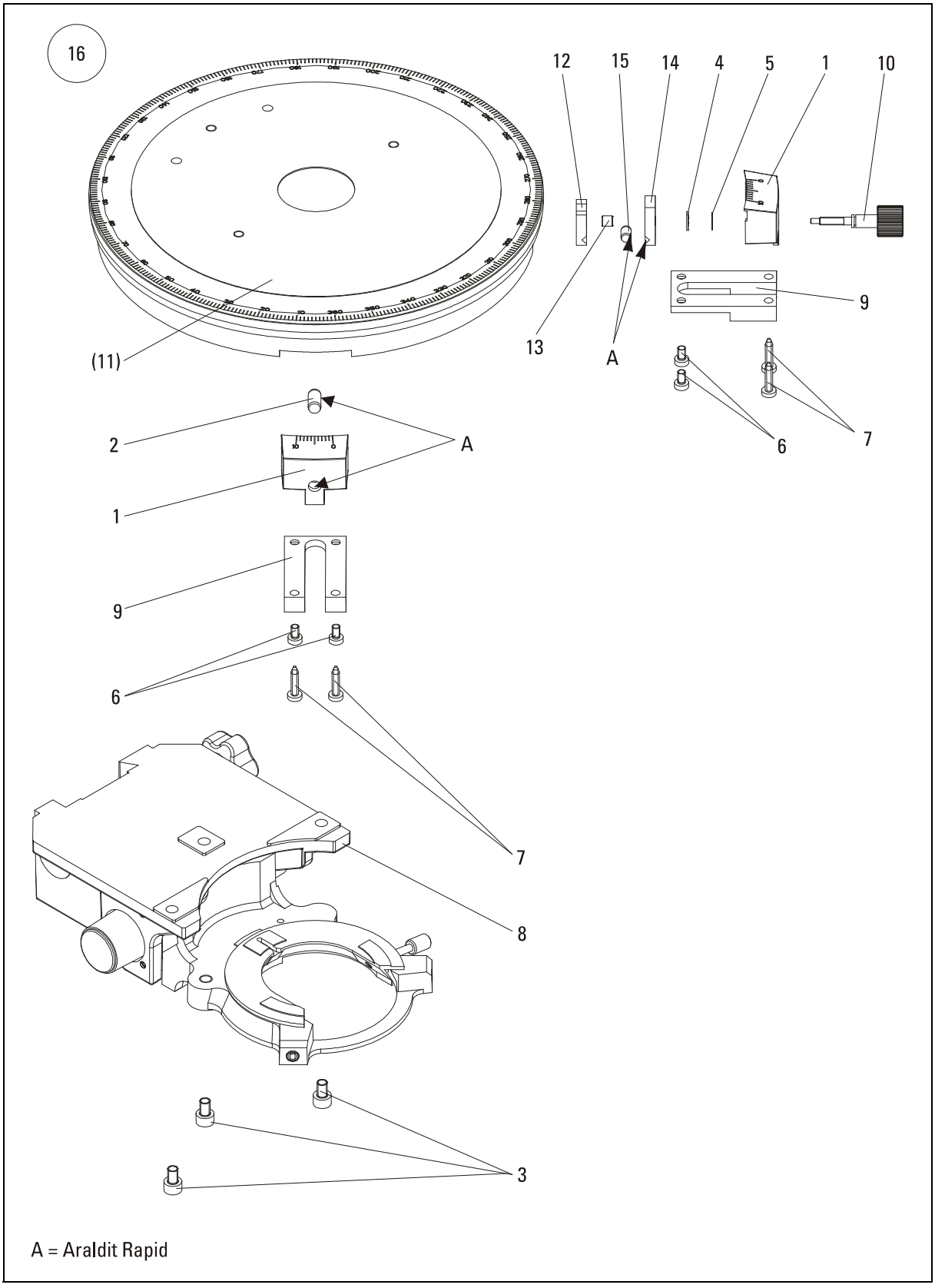

Figure 16: Rotatable pol stage without detent

Table 11: Rotatable pol stage without detent

No.	Order No.	Qty.	Name English	Name SAP	Remark
1	11090311004018	2	vernier	Nonius	
2	11700166631000	1	straight pin	Zylinderstift DIN 7-5m6x10-A1	
3	11703121631000	3	cylinder screw	Zylinderschraube ISO 4762-M4x6-A2	
4	11704784630000	1	c-clip	Sicherungsscheibe DIN 6799-3,2	
5	11706953163000	1	washer	SCHEIBE 015-121.053-342	
6	11707951631000	4	pan head screw	Flachkopfschraube ISO 7045-M3x5-A2-H	
7	11708071631000	4	sheet metal screw	Blechschraube ISO 7049-ST 2,9x13-A2-C-H	
8	13020703866815	1	substage assembly	RL/TL SUBSTAGE ASSEMBLY	see chapter 9.4
9	13020704803410	2	braking clamp	Braking Clamp	
10	13020704803411	1	braking screw	Braking screw	
11	13020704803801	1	pol stage w/o 45 degree	Pol stage w/o 45 degree	G 1,2,4…7,9,10,12…15
12	13020709803427	1	glided splint	Glided Splint	
13	13020709803428	1	spring	Spring	
14	13020709803433	1	splint	Splint	
15	13020709803434	1	roller	Roller	
16	11551078	1	rotatable pol. Stage	Rotatable Pol. Stage(DM 2500 P)	G 1…15 13020704866807

9.3 Rotatable Pol Stage with 45° Detent

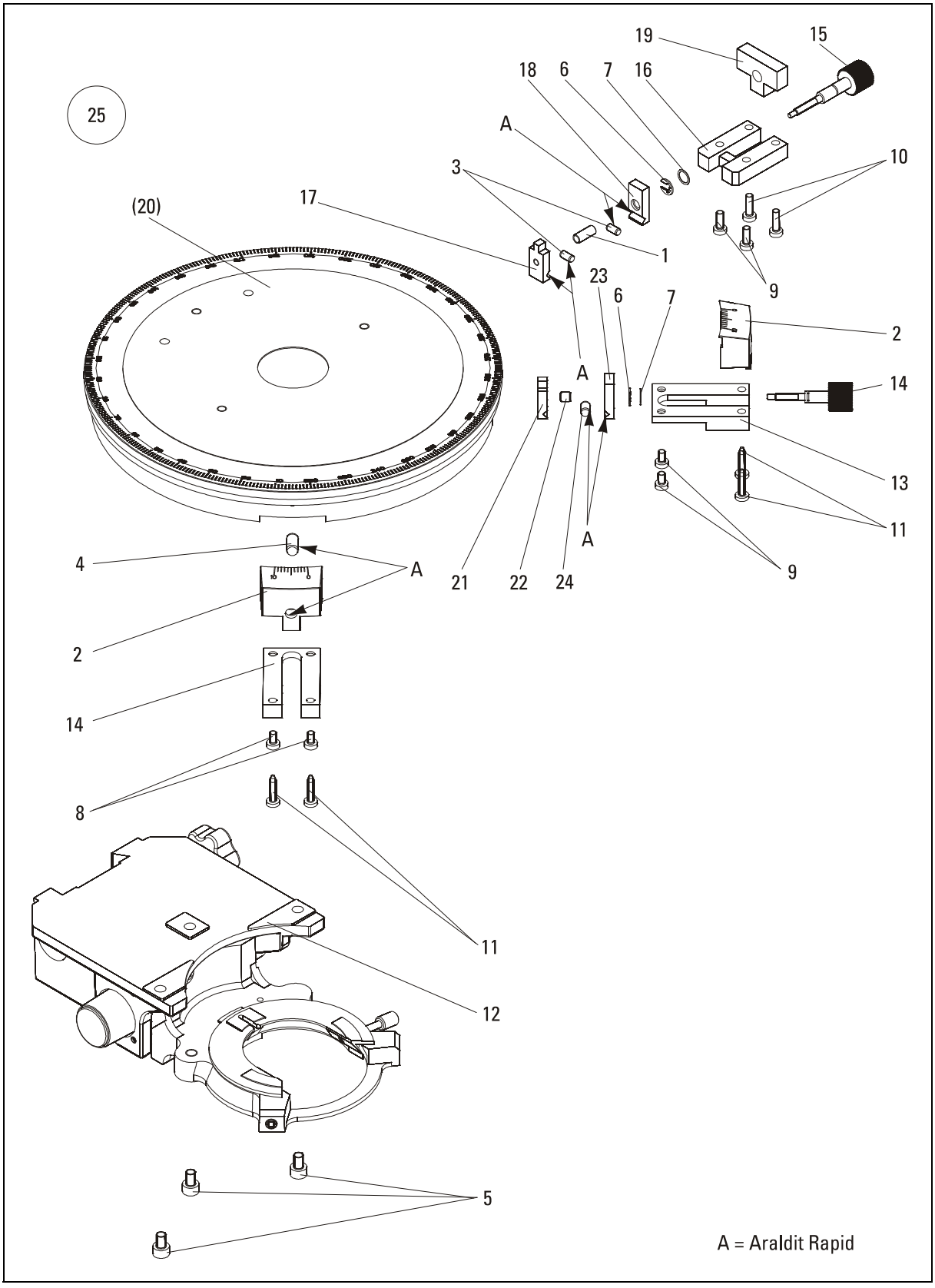

Figure 17: Rotatable pol stage with 45° detent

Table 12: Rotatable pol stage with 45° detent

No.	Order No.	Qty.	Name English	Name SAP	Remark
1	11016061000016	1	pressure lege	Druckfeder 0.4/4.0/14.4	
2	11090311004018	2	vernier	Nonius	
3	11700114630000	2	straight pin	Zylinderstift ISO 2338-2,5m6x6-A1	
4	11700166631000	1	straight pin	Zylinderstift DIN 7-5m6x10-A1	
5	11703121631000	3	cylinder screw	Zylinderschraube ISO 4762-M4x6-A2	
6	11704784630000	2	c-clip	Sicherungsscheibe DIN 6799-3,2	
7	11706953163000	2	washer	SCHEIBE 015-121.053-342	
8	11707951631000	4	pan head screw	Flachkopfschraube ISO 7045-M3x5-A2-H	
9	11707953631000	2	pan head screw	Flachkopfschraube ISO 7045-M3x8-A2-H	
10	11707954631000	2	pan head screw	Flachkopfschraube ISO 7045-M3x10-A2-H	
11	11708071631000	4	sheet metal screw	Blechschraube ISO 7049-ST 2,9x13-A2-C-H	
12	13020703866815	1	substage assembly	RL/TL SUBSTAGE ASSEMBLY	see chapter 9.4
13	13020704803410	2	braking clamp	Braking Clamp	
14	13020704803411	1	braking screw	Braking screw	
15	13020704803412	1	braking screw for 45 degree click stop	Braking screw for 45 degree click stop	
16	13020704803413	1	clamp for 45 degree click stop	Clamp for 45 degree click stop	
17	13020704803414	1	45 degree inner glided splint	45 degree Inner Glided Splint	
18	13020704803415	1	45 degree outer splint	45 degree Outer Splint	
19	13020704803416	1	screw base for 45° click stop	Screw base for 45° click stop	
20	13020704803800	1	pol stage w/o 45 degree	Pol stage w/o 45 degree	G 1…4,6…11, 13…19,21…24
21	13020709803427	1	glided splint	Glided Splint	
22	13020709803428	1	spring	Spring	
23	13020709803433	1	splint	Splint	
24	13020709803434	1	roller	Roller	
25	11551079	1	Rotatablepol.Ssage(DM2500P) with click-stops with substage assembly	Rotatable Pol.Stage(DM2500P)with click-stops With substage assembly	G 1…24 13020704866808

9.4 Stage Bracket

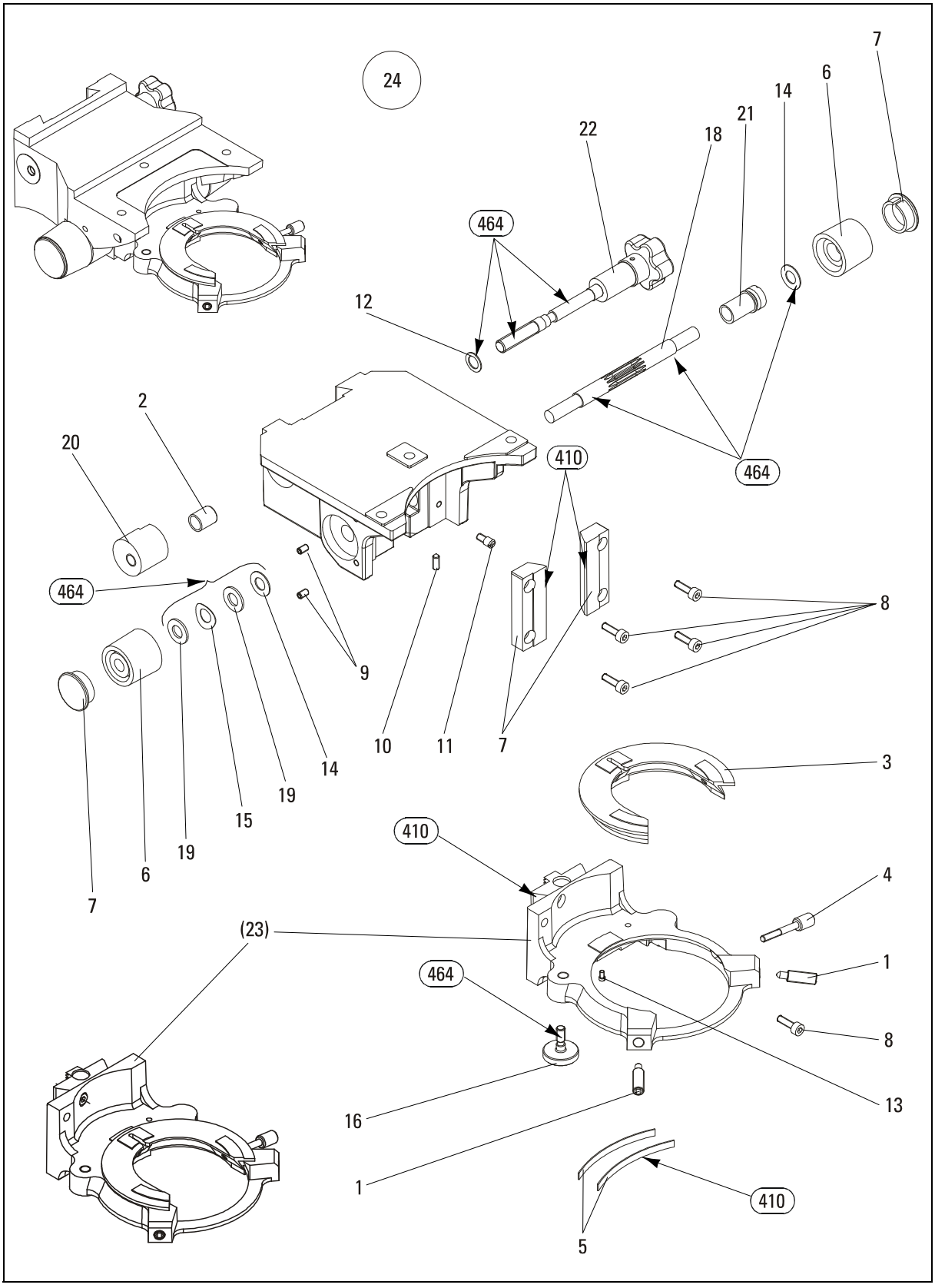

Figure 18: Stage bracket

Table 13: Stage bracket

No.	Order No.	Qty.	Name English	Name SAP	Remark
1	11020449084018	2	centering screw	Zentrierschraube	
2	11020449084020	1	pressure spring	Druckfeder	
3	11020518010172	1	mount	AUFNAHME	
4	11020518010173	1	knurled screw	Rändelschraube	
5	11020518010174	2	leaf spring	Blattfeder	
6	11302031089099	2	knob	Drehknopf schwarz	
7	11302031089331	2	cap	Deckel	
8	11703109631000	5	cylinder screw	Zylinderschraube ISO 4762-M3x10-A2	
9	11703271631000	2	threaded pin	Gewindestift DIN 913-M3x5-A2	
10	11703341631000	1	threaded pin	Gewindestift DIN 914-M3x8-A2	
11	11704054631000	1	shank screw	Zapfenschraube DIN 927-M3x4-A1	
12	11705675000000	1	washer	Scheibe LN 12203 (6,2x9,5x0,5)	
13	11708620630000	1	shank screw	Zapfenschraube DIN 927-M2x1.6-A1	
14	11709086000000	2	washer	Scheibe LN 12203 (6.2x12x0.5)	
15	11710377630000	1	spring washer	Federscheibe DIN 137-B6-A2	
16	11710378220000	1	knurled screw	Rändelschraube DIN 653-M4x12	
17	13020703866462	2	dovetail ledge	DOVETAIL BAR	
18	13020703866463	1	pinion shaft	PINION SHAFT	
19	13020703866465	2	washer	WASHER 6.2X12X1.0	
20	13020703866469	1	clamping piece	DOVETAIL CLAMP	
21	13020703866470	1	eccentric bushing	ECCENTRIC BUSHING	
22	13020703866817	1	clamping axis	Klemmachse	
23	13020703866819	1	condenser carrier complete	CONDENSER BRACKET ASSEMBLY	G 1,3...5,8,13,16
24	13020703866815	1	substagestage	RL/TL SUBSTAGE ASSEMBLY	G 1...23

9.5 Attachable Object Stage POL

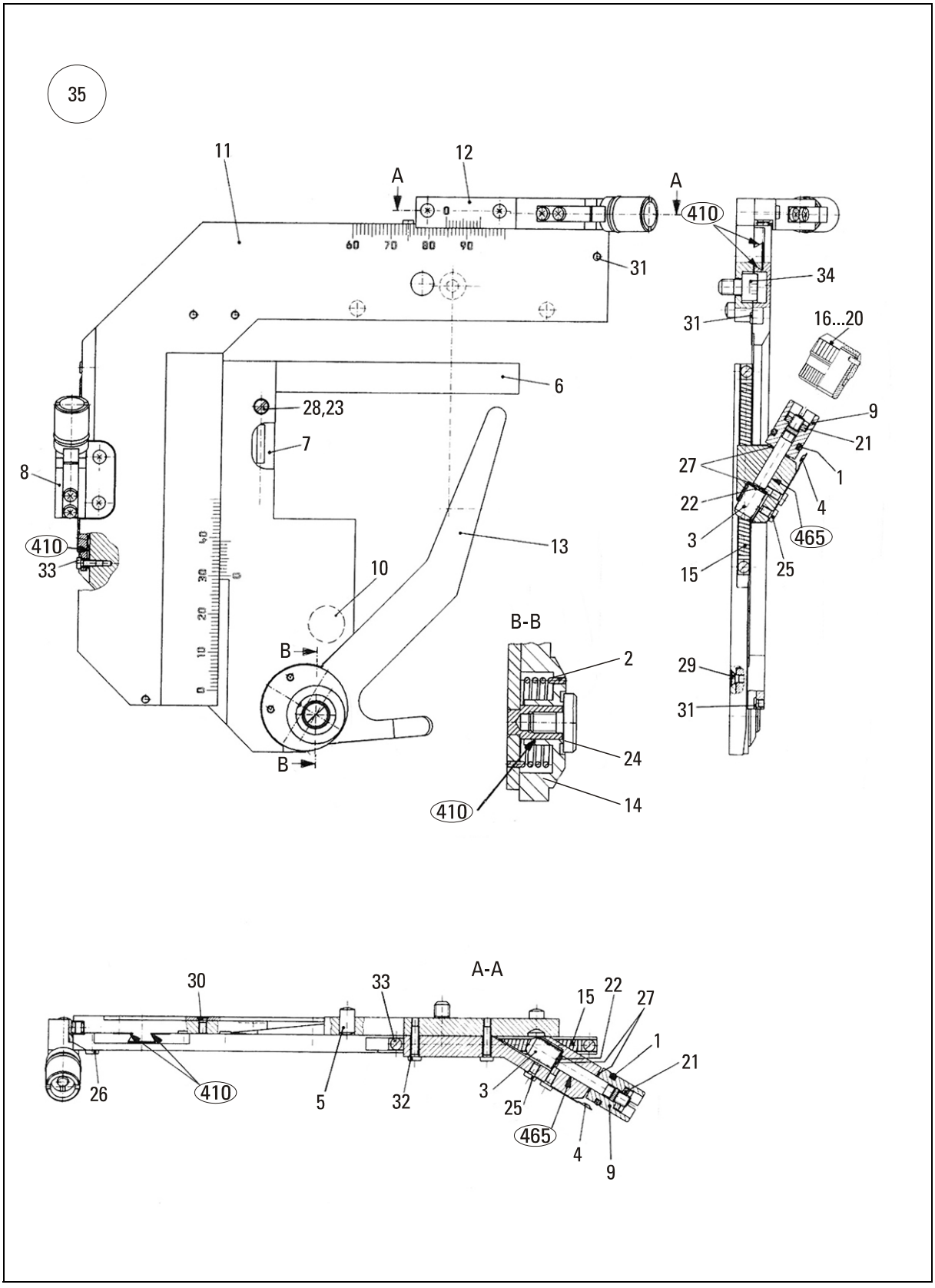

Figure 19: Attachable object stage pol

Table 14: Attachable object stage pol

No.	Order No.	Qty.	Name English	Name SAP	Remark
1	11016012003008	2	ring seal	Runddichtring	
2	11026366030012	1	spring	Biegefeder	
3	11026391010030	2	pinion	Trieb	
4	11026391010032	2	arresting spring	Rastfeder	
5	11026391010036	2	pin	Stift	
6	11026391020011	1	stop	Anschlag	
7	11026391020012	1	ledge	Leiste	
8	11026391020013	1	control knob	TRIEBLAGER	
9	11026391020015	2	control knob	TRIEBKNOPF	
10	11026391020016	1	washer	TEFLONSCHEIBE D 10	
11	11026391021005	1	bracket	WINKEL,KOMPL.	
12	11026391021010	1	bearing support	LAGERBOCK	
13	11026391021024	1	lever with axis	HEBEL MIT ACHSE	G
14	11026391021028	1	housing	Gehaeuse	
15	11026391021032	2	rack	ZAHNSTANGE	
16	11026391022000	2	lock button 0.1	RASTKNOPF 0.1	G
17	11026391023000	2	lock button 0.3	RASTKNOPF 0.3	G
18	11026391024000	2	lock button 0.4	RASTKNOPF 0.4	G
19	11026391025000	2	lock button 1.0	RASTKNOPF 1.0	G
20	11026391026000	2	lock button 2.0	RASTKNOPF 2.0	G
21	11702464630000	2	slotted round nut	Schlitzmutter DIN 546-M3-A1	
22	11705596000000	2	washer	Scheibe 050514	
23	11706195000000	1	spring	Sattelfeder LN 12207 (2,4x3,5x0,1)	
24	11707611630000	1	screw	SCHRAUBE DIN 921-M2,5X4-A2	
25	11707937630000	4	pan head screw	Screw PAN HEAD JCIS-M2x3	
26	11707938630000	2	pan head screw	Screw PAN HEAD JCIS-M2x4	
27	11708100000000	4	washer	SCHEIBE 015-122.036-513	
28	11708378213000	1	screw	SCHRAUBE 015-010.163-009-5.	
29	11708510630000	2	countersunk screw	Senkschraube ISO 7046-2-M2x4-A2-H	
30	11708693630000	2	screw	SCHRAUBE LN 12040-M2X4	
31	11708709630000	4	screw	Schraube LN 12010-M2x2	
32	11708962630000	2	pan head screw	Screw PAN HEAD JCIS-M2x8	
33	11709932630000	4	screw	Schraube LN 12010-M1,6x4	
34	11710493630000	1	cylinder screw	Zylinderschraube ISO 4762-M4x6-A2	
35	11553520	1	attachable detach. mech. stage	AUFSETZB. OBJEKTFüHRERPOL-3 M.RASTKN.0,1	G 1...34 11026391021000

10 Condenser

10.1 Condenser CLP/PH

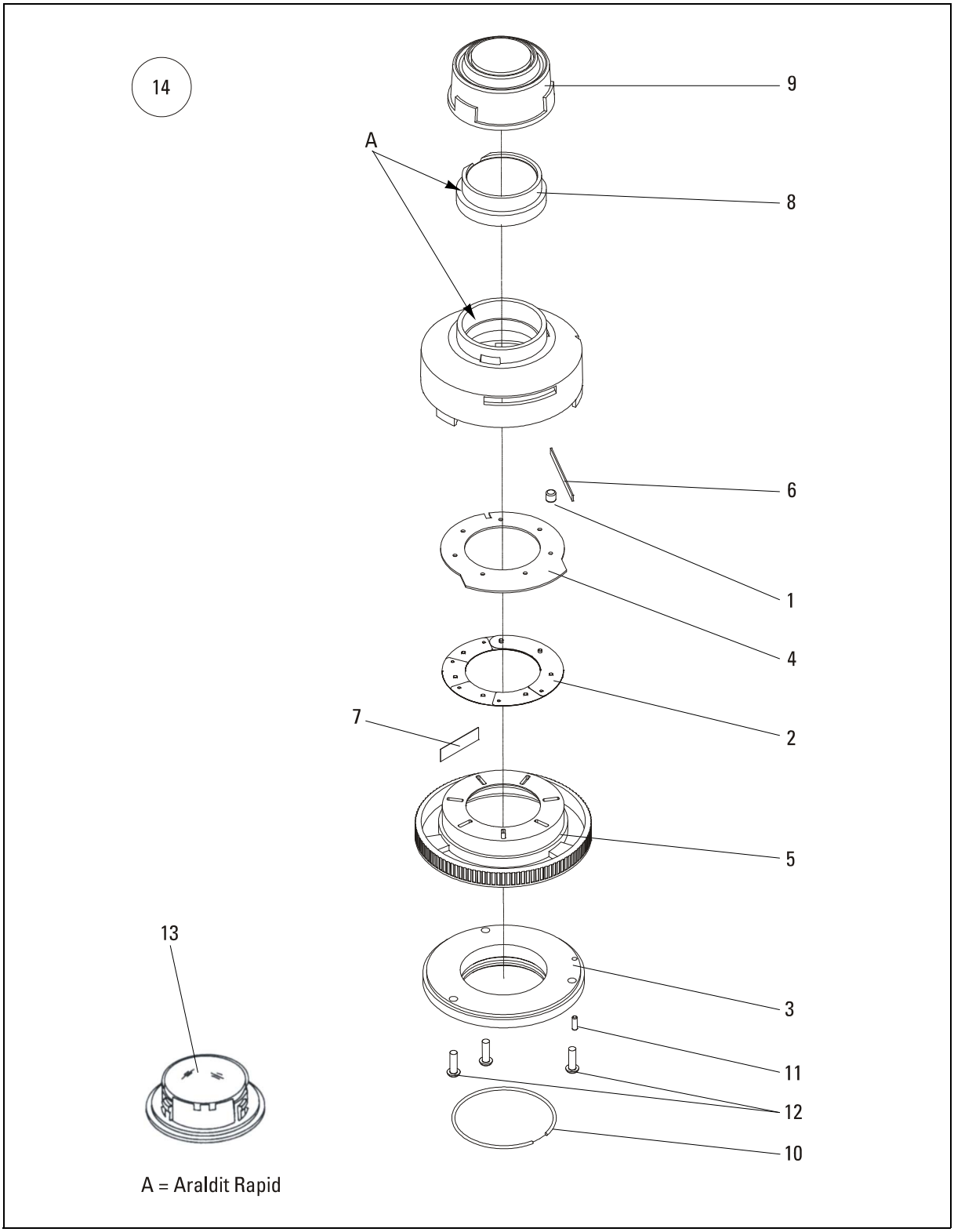

Figure 20: Condenser CLP/PH

Table 15: Condenser CLP/PH

No.	Order No.	Qty.	Name English	Name SAP	Remark
1	11020448025137	1	cylinder roller	Zylinderrolle GKL.I rd 4	
2	11023123012007	7	leaf	Lamelle mit Niet	
3	11023123012010	1	dovetail mounting ring	Wechselstück	
4	11023123013007	1	washer	Scheibe	
5	11023123013009	1	leaf guide ring	Lamellenführungsring	
6	11023123013010	1	flat spring	Blattfeder	
7	11023123013011	1	flat spring	BLATTFEDER	
8	11023123014012	1	lens in mount	Linse in Fassung	
9	11023123014015	1	condenser top	KONDENSORKAPPE MIT LINSE, GEKITTET	
10	11307086025057	1	circlip	Sprengring	
11	11704358630000	1	grooved pin	Kerbstift ISO 8745-2x6-A1	
12	11710341630000	3	screw	Schraube LN 12081-ST2,9x9,5-F-H	
13	11501231	1	condenser lens CL/LS	Kondensorlinse CL/SL	
14	11551042	1	condenser CLP PH 0.85 S1	Kondensor CLP PH 0.85 S1	G 1...12, 11023123015000

10.2 Condenser CL/PH

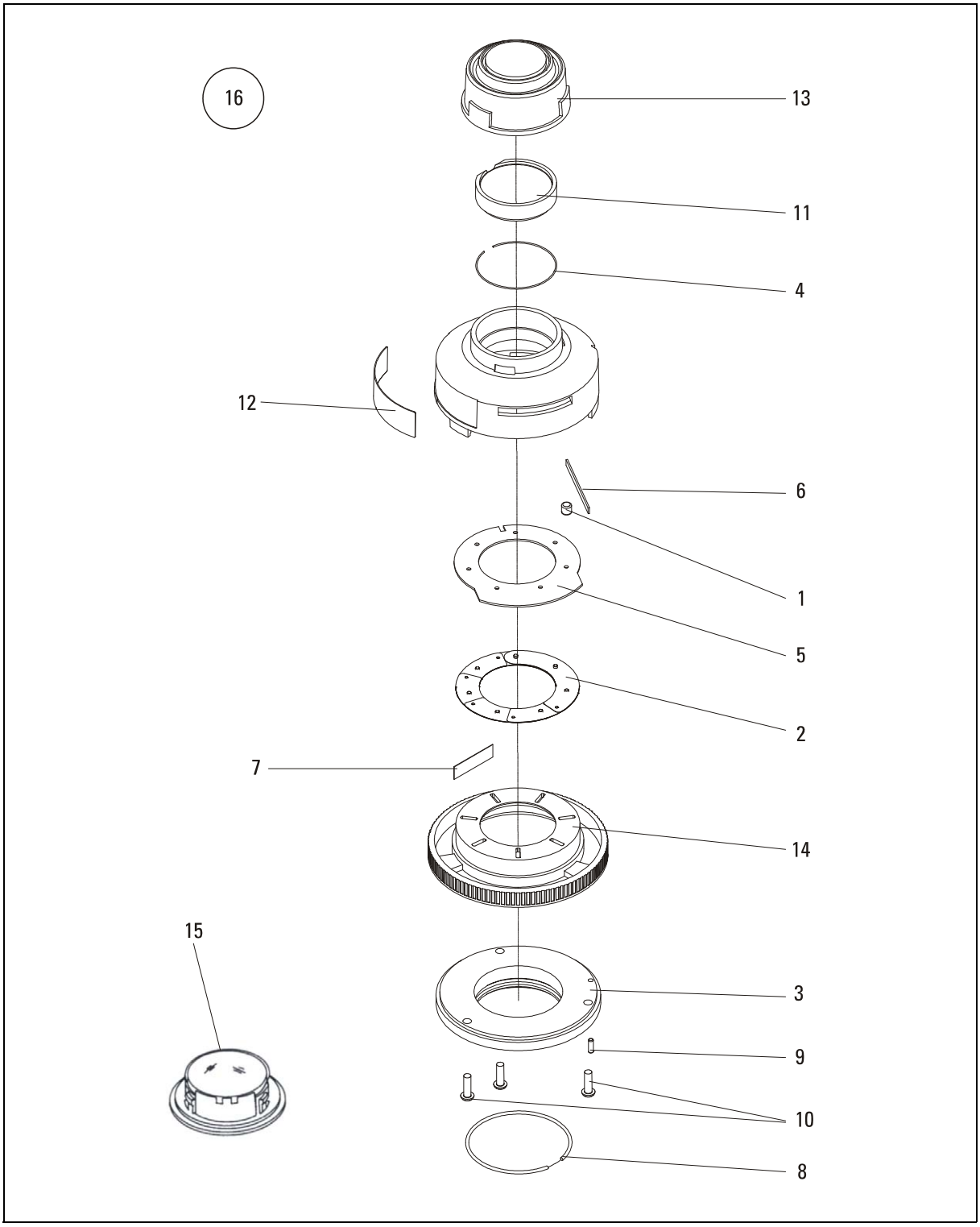

Figure 21: Condenser CL/PH

Table 16: Condenser CL/PH

No.	Order No.	Qty.	Name English	Name SAP	Remark
1	11020448025137	1	cylinder roller	Zylinderrolle GKL.I rd 4	
2	11023123012007	7	iris leaf	Lamelle mit Niet	
3	11023123012010	1	dovetail mounting ring	Wechselstück	
4	11023123012012	1	spring ring	FEDERRING	
5	11023123013007	1	iris plate	Scheibe	
6	11023123013010	1	leaf spring	Blattfeder	
7	11023123013011	1	leaf spring	Blattfeder	
8	11307086025057	1	circlip	Sprengring	
9	11704358630000	1	grooved pin	Kerbstift ISO 8745-2x6-A1	
10	11710341630000	3	screw	Schraube LN 12081-ST2,9x9,5-F-H	
11	11940196810010	1	lens	Linse	
12	13020700860401	1	label	label	
13	13593030101	1	condenser head	Kondensor Kopf	
14	13593030104	1	leaf adjusting ring	Lamelleneinstellring	
15	11501231	1	condenser lens CL/LS	Kondensorlinse CL/SL	
16	11505197	1	Condenser CL/PH 0.901.25 OIL,S1.CC	Condenser CL/PH 0.90/1.25 OIL,S1.CC	G 1...14 13020700860800

10.3 Condenser UCLP

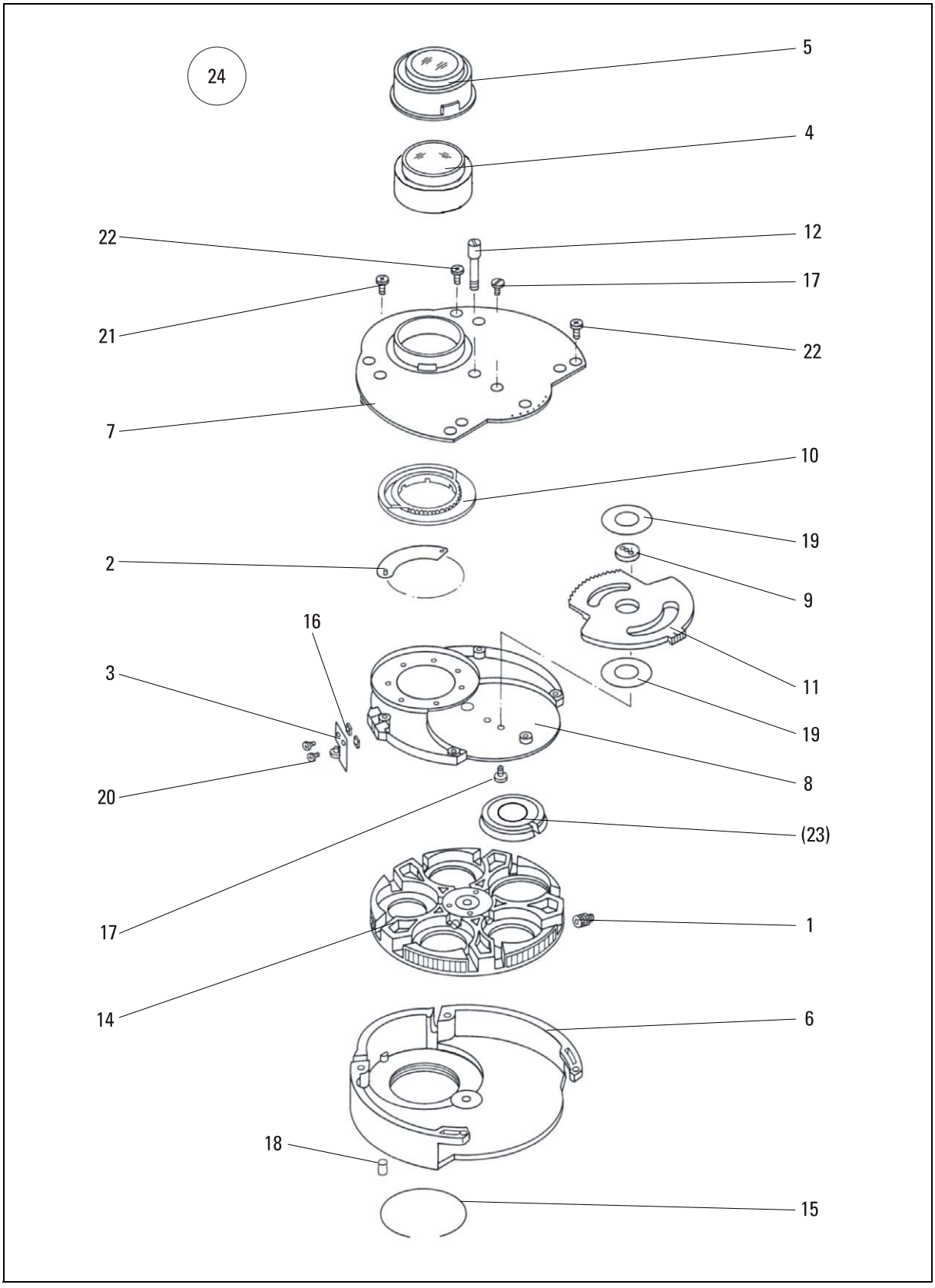

Figure 22: Condenser UCLP

Table 17: Condenser UCLP

No.	Order No.	Qty.	Name English	Name SAP	Remark
1	11016023006004	10	threaded insert M4	Sonic-Loc Gewinde-Einsatz M4	
2	11020518010014	7	leaf with rivet	Lamelle mit Niet 020-518.010-014	
3	11023121001058	1	arresting spring complete	RASTFEDER,KOMPL.	
4	11023123014012	1	lens in mount	Linse in Fassung	
5	11023123014015	1	condenser top	KONDENSORKAPPE MIT LINSE, GEKITTET	G
6	11023123030006	1	housing	Gehaeuse	
7	11023123030009	1	cover	Deckel	
8	11023123030010	1	diaphragm bottom	LAMELLENBODEN	
9	11023123030011	1	bearing	Lager	
10	11023123030013	1	leaf guide ring	LAMELLENFUEHRUNGSRING	
11	11023123030014	1	toothed disc	Zahnscheibe	
12	11023123030015	1	screw	SCHRAUBE	
13*	11023123030027	2	centering key	ZENTRIERSCHLUESSEL (2)	
14	11023123032000	1	condenser disc	KONDENSORSCHEIBE UCL-PH *ANFWL	G
15	11307086025057	1	circlip	Sprengring	
16	11702751630000	2	square nut	Vierkantmutter DIN 562-M2-A2	
17	11703554631000	3	pan head screw	Flachkopfschraube DIN 921-M2x4-A1	
18	11704437630000	1	grooved pin	Kerbstift ISO 8741-2x6-A1	
19	11706308000000	2	washer	Scheibe 015-121.124-062	
20	11708490630000	2	pan head screw	Flachkopfschraube ISO 7045-M2x5-A2-H	
21	11710278631000	5	screw	Schraube LN 12081-ST 2.9x6.5-A2	
22	11710365233000	4	pan head screw	Schraube Pan Head M 3X6	
23	11501069	1	light ring set	Lichtringset UCL D,PH 1/2/3	
24	11551043	1	condenser UCLP 0.85 S1 with washer	Kondensor UCLP 0.85 S1 mit Scheibe	G 1...22 11023123028000

10.4 Condenser achr.-aplan. A 0.9 (P) until July 2011

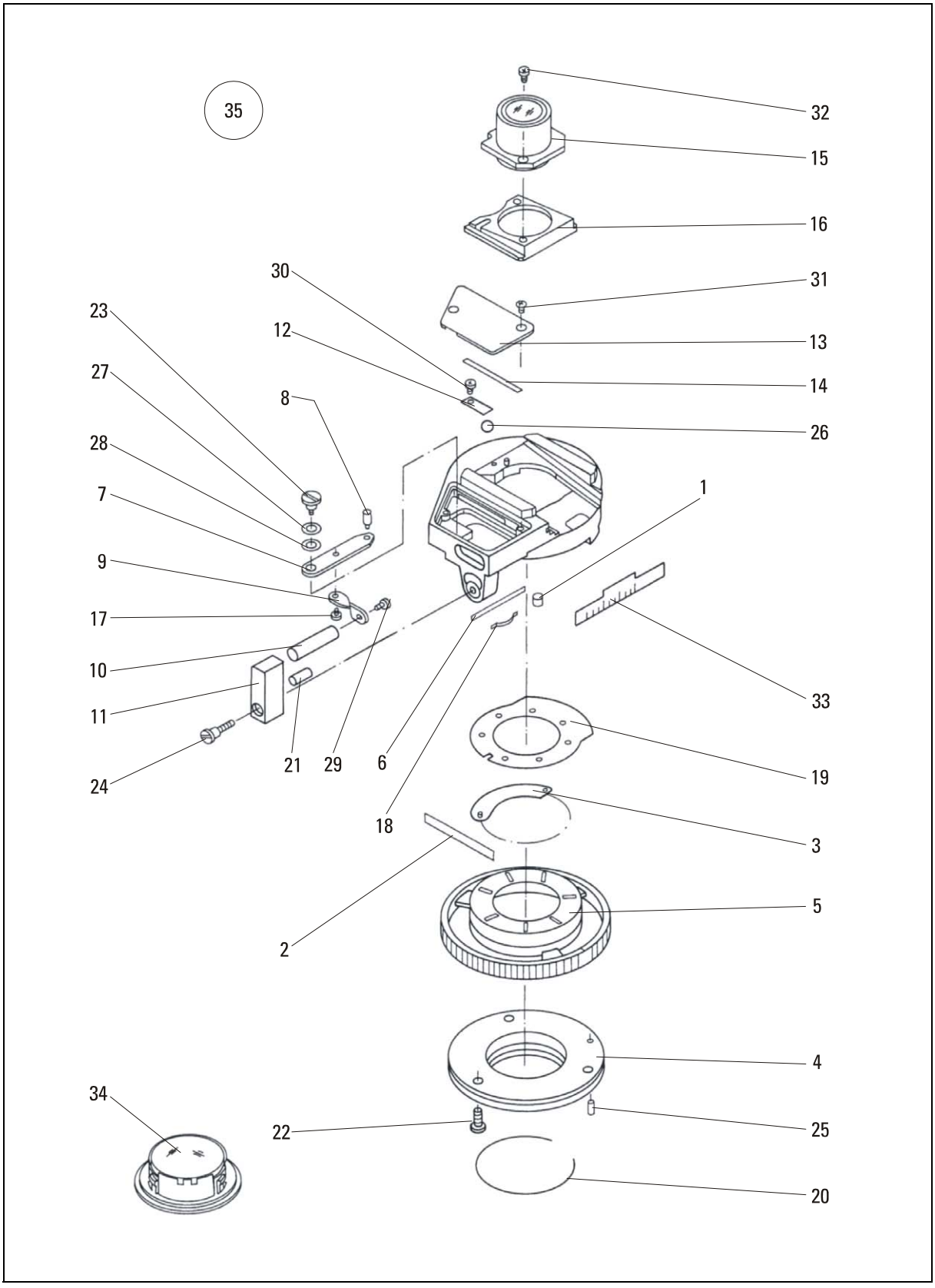

Figure 23: Condenser achr.-aplan. A 0.9 (P) until July 2011

Table 18: Condenser achr.-aplan. A 0.9 (P) until July 2011

No.	Order No.	Qty.	Name English	Name SAP	Remark
1	11020448025137	1	cylinder roll	Zylinderrolle rd 4	
2	11020449025032	1	leaf spring	Blattfeder	
3	11023123012007	7	leaf with rivet	Lamelle mit Niet	
4	11023123012010	1	flange ring	Wechselring	
5	11023123013009	1	leaf guide ring	Lamellenführungsring	
6	11023123013010	1	leaf spring	Blattfeder	
7	11023123036007	1	lever	Hebel	
8	11023123036008	1	threaded pin	Gewindestift	
9	11023123036009	1	lever	Hebel	
10	11023123036010	1	axis	Achse	
11	11023123036011	1	lever	Hebel	
12	11023123036012	1	leaf spring	Blattfeder	
13	11023123036013	1	cover	Deckel	
14	11023123036014	1	foil	Folie	
15	11023123036015	1	condenser head	Kondensorkopf	
16	11023123036022	1	slider	Schieber	
17	11023123036025	1	screw	Schraube	
18	11023123036033	1	leaf spring	Blattfeder	
19	11023123036037	1	diaphragm bottom	Lamellenboden	
20	11307086025057	1	circlip	Sprengring	
21	11700153630000	1	straight pin	ZYL.-STIFT DIN 7-4M6X16-A2	
22	11700717631000	3	cylinder screw	Zylinderschraube ISO 1207-M3x8-A2	
23	11703752630000	1	pan head screw	Flachkopfschraube DIN 923-M3x2.5-A1	
24	11703767631000	1	pan head screw	Flachkopfschraube DIN 923-M3x10-A1	
25	11704358630000	1	grooved pin	Kerbstift ISO 8745-2x6-A1	
26	11704626000000	1	steel ball	Stahlkugel 5mm GKL.3	
27	11705735000000	1	washer	Scheibe 51004	
28	11705856000000	1	washer	Scheibe 015-121.044-262	
29	11707944630000	1	pan head screw	Flachkopfschraube ISO 7045-M2.5x5-A2-H	
30	11708488630000	1	pan head screw	Flachkopfschraube ISO 7045-M2x3-A2-H	
31	11708713631000	2	screw	Schraube LN 12010-M2x4	
32	11710478630000	2	pan head screw	Flachkopfschraube ISO 7045-M2.5x4-A2-H	
33	13020700860401	1	adhesive lable with graduation	Klebeschild mit Teilung	
34	11501231	1	condenser lens CL/LS	Kondensorlinse CL/LS	11023123013010
35	11501183	1	condenser achr.-aplan. A 0.9 (P)	Kondensor achr.-aplan. A 0.9 (P)	G 1…33,36 11023123036000
36*	11883265000000	1	quick-pack	Quick-Pack	

10.5 Condenser achr.-aplan. A 0.9 (P). since July 2011

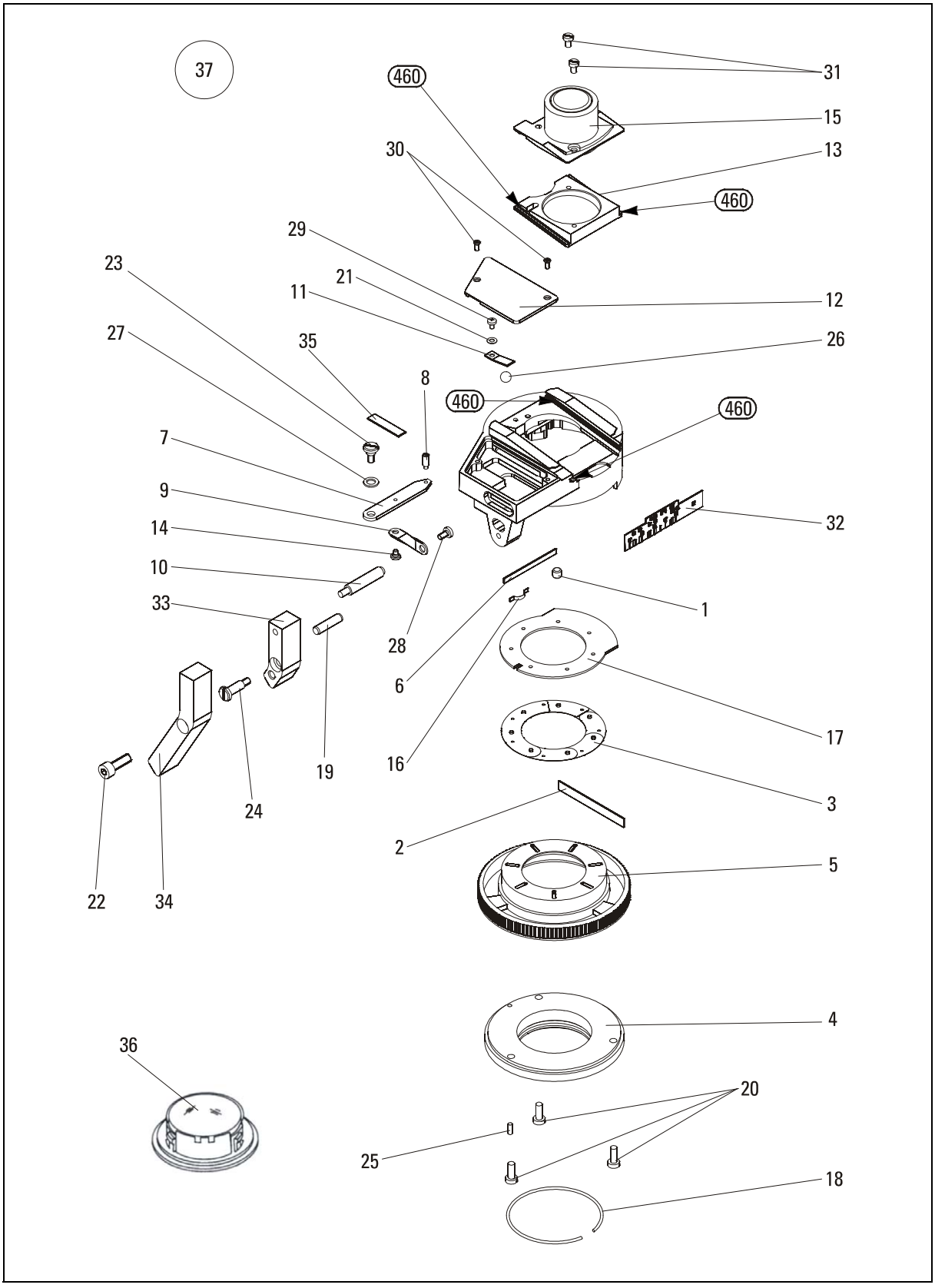

Figure 24: Condenser achr.-aplan. A 0.9 (P). since July 2011

Table 19: Condenser achr.-aplan. A 0.9 (P). since July 2011

No.	Order No.	Qty.	Name English	Name SAP	Remark
1	11020448025137	1	cylinder roll	Zylinderrolle rd 4	
2	11020449025032	1	leaf spring	Blattfeder	
3	11023123012007	7	leaf with rivet	Lamelle mit Niet	
4	11023123012010	1	flange ring	Wechselring	
5	11023123013009	1	leaf guide ring	Lamellenführungsring	
6	11023123013010	1	leaf spring	Blattfeder	
7	11023123036007	1	lever	Hebel	
8	11023123036008	1	threaded pin	Gewindestift	
9	11023123036009	1	lever	Hebel	
10	11023123036010	1	axis	Achse	
11	11023123036012	1	leaf spring	Blattfeder	
12	11023123036013	1	cover	Deckel	
13	11023123036023	1	slider	Schieber	
14	11023123036025	1	screw	Schraube	
15	11023123036028	1	condenser head	Kondensorkopf	
16	11023123036033	1	leaf spring	Blattfeder	
17	11023123036037	1	diaphragm bottom	Lamellenboden	
18	11307086025057	1	circlip	Sprengring	
19	11700153630000	1	straight pin	Zylinderstift ISO 2338-4m6x16-A1	
20	11700717631000	3	cylinder screw	Zylinderschraube ISO 1207-M3x8-A2	
21	11702128630000	1	washer	Scheibe DIN 433-2,2-140HV-A2	
22	11703124630000	1	screw	Schraube DIN 912-M3x12	
23	11703752630000	1	pan head screw	Flachkopfschraube DIN 923-M3x2.5-A1	
24	11703767631000	1	pan head screw	Flachkopfschraube DIN 923-M3x10-A1	
25	11704358630000	1	grooved pin	Kerbstift ISO 8745-2x6-A1	
26	11704626000000	1	steel ball	Stahlkugel 5mm GKL.3	
27	11705703000000	1	washer	Scheibe LN 12203 (4,2x7x0,75)	
28	11707944630000	1	pan head screw	Flachkopfschraube ISO 7045-M2.5x5-A2-H	
29	11708488630000	1	pan head screw	Flachkopfschraube ISO 7045-M2x3-A2-H	
30	11708713631000	2	screw	Schraube LN 12010-M2x4	
31	11709234220000	2	screw	Schraube DIN 84-M2.5x4-A2	
32	13020700860404	1	adhesive lable with graduation	Klebeschild mit Teilung	
33	13020701860402	1	lever	Hebel	
34	13020701860815	1	handle	Hebel	G
35	13020703884416	1	foil	Folie	
36	11501231	1	condenser lens CL/LS	Kondensorlinse CL/LS	11023123013010
37	11501183	1	condenser achr.-aplan. A 0.9 (P)	Kondensor achr.-aplan. A 0.9 (P)	G 1...35, 38 11023123036000
38*	11883265000000	1	quick-pack	Quick-Pack	

10.6 Condenser UCA/P

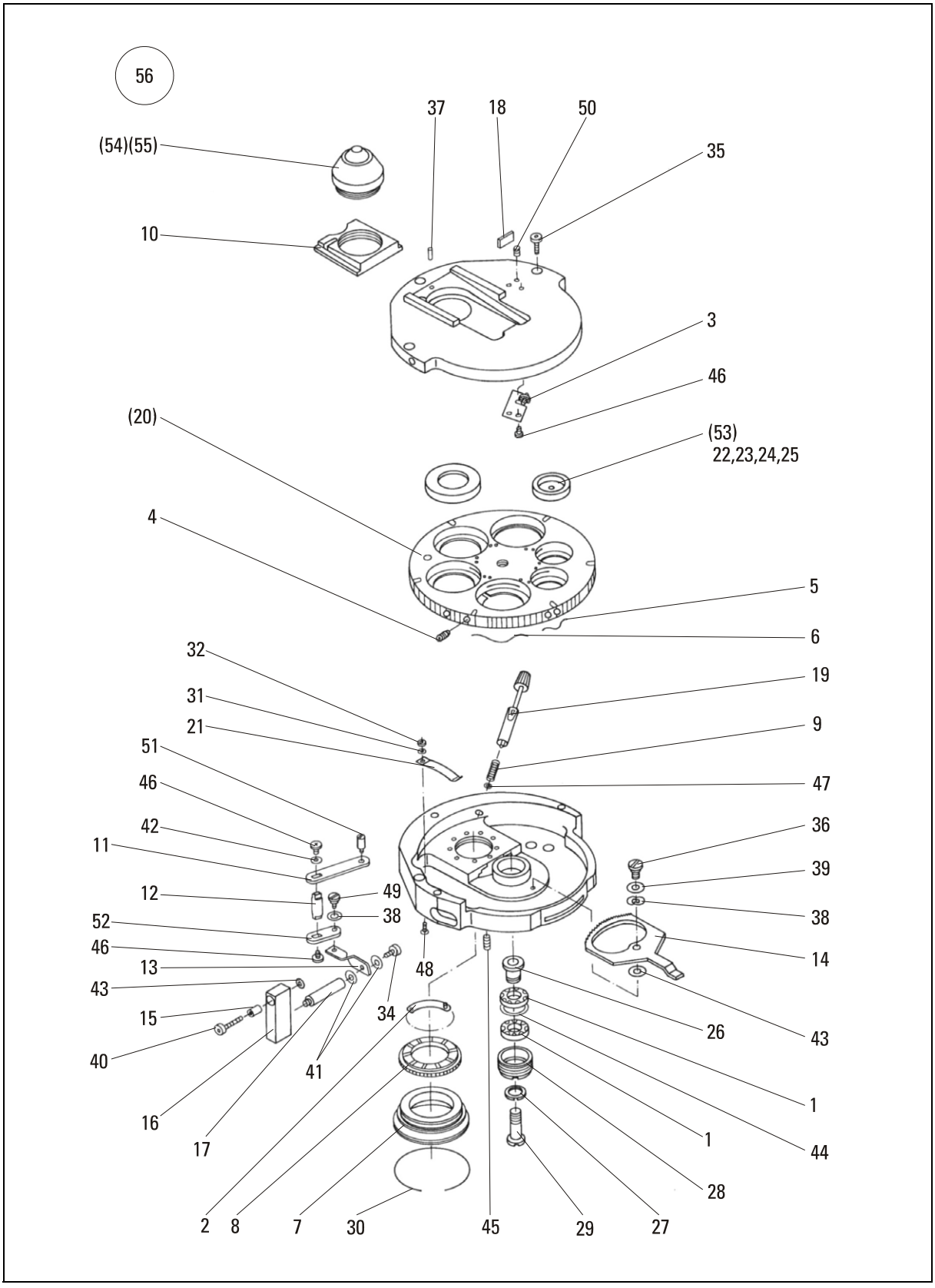

Figure 25: Condenser UCA/P

Table 20: Condenser UCA/P

No.	Order No.	Qty.	Name English	Name SAP	Remark
1	11016200001090	2	ball bearing	Rillenkugellager UL917	
2	11020507062015	9	leaf with rivet	Lamelle mit Niet	
3	11023121001058	1	arresting spring	Rastfeder	
4	11023121020010	12	threaded pin	Gewindestift	
5	11023121020012	2	spring	Feder	
6	11023121020013	4	spring	Feder	
7	11023123020008	1	dovetail ring	Ringschwalbe	
8	11023123020010	1	diaphragm ring	Blendenring	
9	11023123020059	2	pressure spring	Druckfeder	
10	11023123021007	1	slider	Schieber	
11	11023123021008	1	lever long	Hebel lang	
12	11023123021009	1	axis	Achse	
13	11023123021011	1	lever	Hebel	
14	11023123021012	1	toothed disc	Zahnscheibe	
15	11023123021015	1	sleeve	Huelse	
16	11023123021016	1	lever	Hebel	
17	11023123021017	1	threaded pin	Gewindestift	
18	11023123021018	1	stop	Anschlag	
19	11023123021022	2	key complete	Schlüssel komplett	G
20	11023123021026	1	condenser disk complete	Kondensorscheibe komplett	G
21	11023123021030	1	leaf spring	Blattfeder	
22	11023123033005	1	light ring 1 S1	Lichtring 1 S1	
23	11023123033011	1	light ring 2 S1	Lichtring 2 S1	
24	11023123033015	1	light ring 3 S1	Lichtring 3 S1	
25	11023123033020	1	light ring DS1	Lichtring DS1	
26	11090132034026	1	bushing	Buchse	
27	11090132034028	1	threaded ring	Gewindering	
28	11090132034029	1	sleeve	Huelse	
29	11090132034030	1	axis	Achse	
30	11307086025057	1	circlip	Sprengring	
31	11701796630000	1	washer	Scheibe DIN 125-A2 2-A2	
32	11702199630000	1	hexagon cap nut	Sechskantmutter ISO 4035-M2-A2	
33*	11703098605000	1	screw driver	Schraubendreher 6kt 2 DIN 911	
34	11703107630000	1	cylinder screw	Zylinderschraube ISO 4762-M3x6-A2	
35	11703109631000	3	cylinder screw	Zylinderschraube ISO 4762-M3x10-A2	
36	11703752630000	1	pan head screw	Flachkopfschraube DIN 923-M3x2,5-A1	
37	11704360630000	1	grooved pin	Kerbstift DIN 1472-2X10-A2	
38	11705605000000	2	washer	Scheibe LN 12203 4,2x9x0.4	
39	11705644220000	1	spring	Sattelfeder LN 12207 4,1x9,0x0,2	
40	11705795631000	1	cylinder screw	Zylinderschraube ISO 4762-M3x16-A2	
41	11706185220000	2	washer	Scheibe 015-121.046-262	
42	11706435000000	2	washer	Scheibe LN 12203 5,2x6 8x0,4	
43	11706664220000	2	washer	Scheibe 015-121.036-056	

Table 20: Condenser UCA/P

No.	Order No.	Qty.	Name English	Name SAP	Remark
44	11707338000000	1	washer	Scheibe 015-121.134-062	
45	11707519630000	2	threaded pin	Gewindestift DIN 916-M3X10-A2	
46	11707944630000	4	pan head screw	Flachkopfschraube ISO 7045-M2,5x5-A2-H	
47	11708386000000	4	washer	Scheibe LN 12203 2,7x4x0,3	
48	11708512631000	1	countersunk screw	Senkschraube ISO 7046-2-M2x6-A2-H	
49	11708628630000	1	pan head screw	Flachkopfschraube DIN 923-M2,5x1 6-A2	
50	11710120631000	1	threaded pin	Gewindestift DIN 913-M2,5x5-A2	
51	11927002008630	1	turning screw	Zapfenschraube DIN 927-M2x8-A2	
52	11023123 021010	1	lever short	Hebel kurz	
53	11501069	1	light ring set	Lichtring set	G 22...25
54	11505150	1	condenser head	Kondensorkopf 0 90 S1	G
55	11551004	1	condenser head	Kondensorkopf P 1 40 Oil S1	G
56	11551062	1	condenser UCA/P	Kondensor UCA/P	G 1…21,26…52

11 Tube

11.1 Basic Tube 30° HC -/4/4

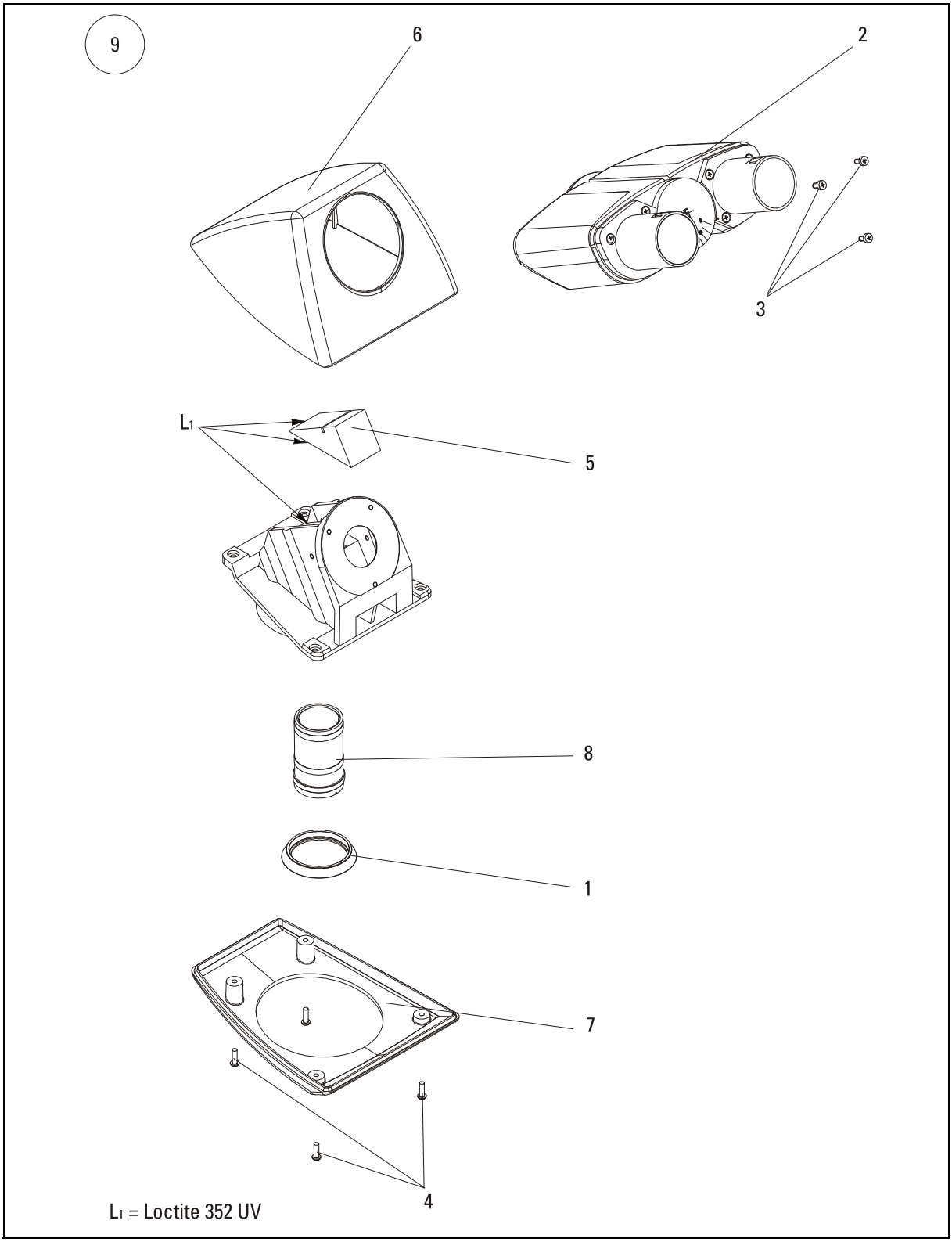

Figure 26: Basic tube 30° HC -/4/4

Table 21: Basic tube 30° HC -/4/4

No.	Order No.	Qty.	Name English	Name SAP	Remark
1	11020370565018	1	dovetail	Wechselring	
2	11020387611000	1	interpupillary adjustment	Augeneinstellung HC, kompl. (SICO)	G see chapter 11.2
3	11707952630000	3	pan head screw	Flachkopfschraube ISO 7045-M3x6-A2-H	
4	11710341630000	4	screw	Schraube LN 12081-ST2,9x9,5-F-H	
5	11940500111750	1	deviating prism	PRISM	
6	13020700830401	1	upper cover, 30 degree binocular tube	UPPER COVER, 30 DEG BINOC TUBE	
7	13020700830402	1	lower cover, 30 degree binocular tube	LOWER COVER, 30 DEG BINOC TUBE	
8	13020700830802	1	tube lens	Tubuslinse oo/275-339 V=1.0x	
9	11505193	1	basic tube HC -/4/4	Basic tube HC -/4/4	G 1...8, 13020700830800

11.2 Interpupillary Adjustment HC

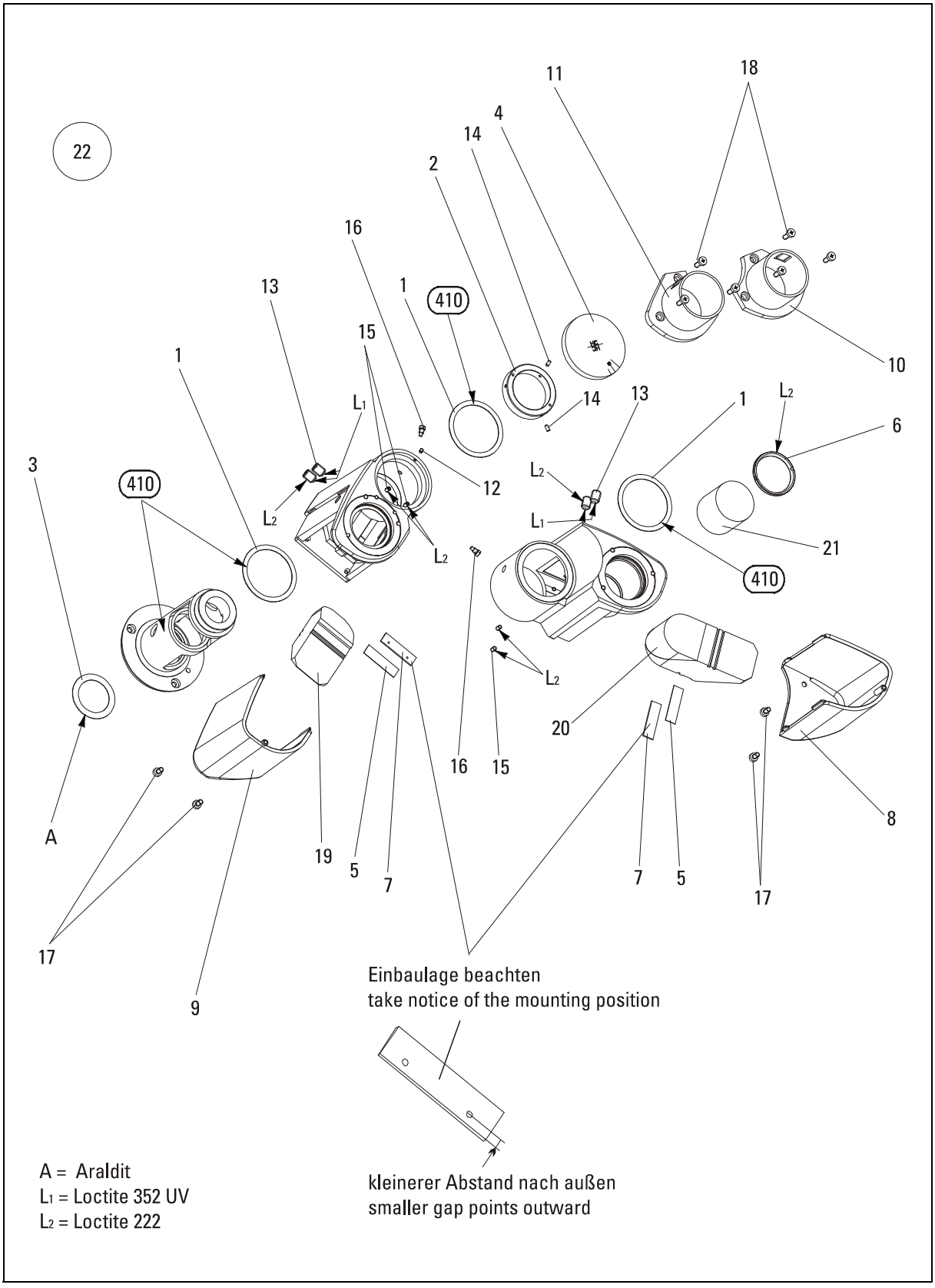

Figure 27: Interpupillary adjustment HC

Table 22: Interpupillary adjustment HC

No.	Order No.	Qty.	Name English	Name SAP	Remark
1	11020370565037	3	washer	Scheibe	
2	11020370565039	1	threaded ring	Gewindering	
3	11020370565055	1	baffle	Blende	
4	11020370570027	1	vernier	Nonius	
5	11020387550033	2	velvet strip	Plüschstreifen	
6	11020387550037	1	threaded ring	Gewindering	
7	11020387550038	2	plate	Platte	
8	11020387600015	1	cover right	Abdeckkappe rechts	
9	11020387600016	1	cover left	Abdeckkappe links	
10	11020387611005	1	eyepiece sleeve right	Okularhülse rechts	
11	11020387611006	1	eyepiece sleeve left	Okularhülse links	
12	11702648630000	1	threaded pin	Gewindestift DIN 553-M2x3-A2	
13	11707542630000	4	threaded pin	Gewindestift DIN 916-M6x8-A2	
14	11710176630000	2	threaded pin	Gewindestift DIN 913-M2x4-A2	
15	11710190630000	4	threaded pin	Gewindestift DIN 914-M2,5X5-A2	
16	11710352630000	2	pan head screw	Flachkopfschraube DIN 922-M3x3x2,5-A1	
17	11710364630000	4	pan head screw	Screw PAN HEAD JCIS-M3x5	
18	11710366631000	6	pan head screw	Screw PAN HEAD JCIS-M3x8	
19	11940500111740	1	prism	Prisma	
20	11940500131208	1	deviation prism	Ablenkprisma gekittet	G
21	11940500311200	1	glass cylinder	Glaszylinder	
22	11020387611000	1	interpupillary adjust.	Augeneinstellung HC, kompl. (SICO)	G 1...21

11.3 Pol Tube HC L1TP 4/5/7

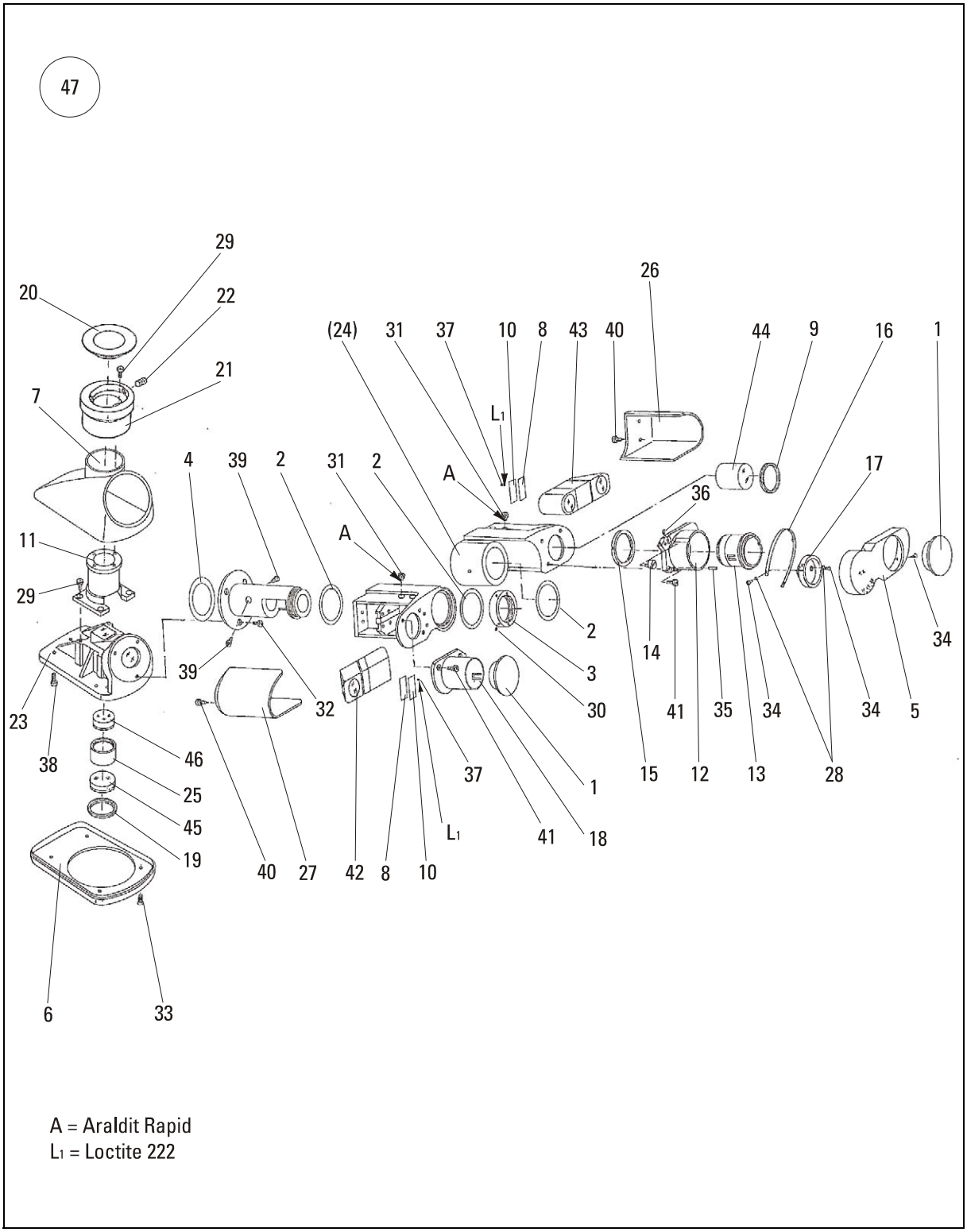

Figure 28: Pol tube HC L1TP 4/5/7

Table 23: Pol tube HC L1TP 4/5/7

No.	Order No.	Qty.	Name English	Name SAP	Remark
1	11016016005300	2	dust cover	Staubdeckel	
2	11020370565037	3	disk	Scheibe	
3	11020370565039	1	threaded ring	Gewindering	
4	11020370565055	1	baffle	Blende	
5	11020370571028	1	vernier	Nonius-Traeger	
6	11020387550011	1	housing-lower part	Schale unten	
7	11020387550029	1	housing-upper part	Schale oben	
8	11020387550033	2	strip	Tuch	
9	11020387550037	1	threaded ring	Gewindering	
10	11020387550038	2	plate	Plättchen	
11	11020387550042	1	intermediate tube	Zwischenstutzen	
12	11020387551034	1	eyepiece sleeve, right	Okularhuelse,rechts	
13	11020387551035	1	sleeve	Huelse	
14	11020387551036	1	bolt	Exenterbolzen	
15	11020387551037	1	threaded ring	Gewindering	
16	11020387551038	1	band with pin	Band mit Stift	G
17	11020387551041	1	roller	Rolle	
18	11020387551042	1	eyepiecesleeve,left	Okularhuelse,links	
19	11020387555064	1	threaded ring	Gewindering	
20	11020387556009	1	cap	Schutzkappe	
21	11020387564035	1	flage ring	Wechselring 2	
22	11020387564040	1	threaded pin	Gewindestift	
23	11020387565015	1	tube body w. prism	Tubusunterteil mit Prisma	G
24	11020387565031	1	interpupillary adjust.	Augeneinstellung HC, kompl.	G 1…5,8...10,12...18,26...28, 30, 31, 34...37, 39...44
25	11020387567014	1	mount	Fassung	
26	11020387600015	1	cover	Abdeckkappe,rechts	
27	11020387600016	1	cover	Abdeckkappe,links	
28	11702128220000	3	washer	SCHEIBE DIN 433-2,2-ST	
29	11703108630000	8	straight pin	Zylinderschraube ISO 4762-M3x8-A2	
30	11703270630000	2	threaded pin	Gewindestift DIN 913-M3x4-A2	
31	11707542630000	4	threaded pin	Gewindestift DIN 916-M6x8-A2	
32	11707952630000	3	pan head screw	Flachkopfschraube ISO 7045-M3x6-A2-H	
33	11707997630000	4	countersunk screw	Senkschraube ISO 7046-2-M3x8-A2-H	
34	11708490631000	6	pan head screw	Flachkopfschraube ISO 7045-M2x5-A2-H	
35	11710142000000	1	straight pin	Zylinderstift DIN 7-3m6x10-A1	
36	11710176630000	1	threaded pin	Gewindestift DIN 913-M2x4-A2	
37	11710190630000	4	threaded pin	Gewindestift DIN 914-M2,5x5-A2	
38	11710341630000	3	screw	Schraube LN 12081-ST2,9x9,5-F-H	

Table 23: Pol tube HC L1TP 4/5/7

No.	Order No.	Qty.	Name English	Name SAP	Remark
39	11710352630000	2	pan head screw	Flachkopfschraube DIN 922-M3x3x2,5-A1	
40	11710364630000	4	pan head screw	Screw PAN HEAD JCIS-M3x5	
41	11710366631000	6	pan head screw	Screw PAN HEAD JCIS-M3x8	
42	11940500111490	1	prism	Prisma	
43	11940500130828	1	deviation prism	Ablenkprisma,gekittet	G
44	11940500310960	1	glass cylinder	GLASZYLINDER	
45	11940601000028	1	lens	Linsen gekittet	G
46	11940601000048	1	lens	Linsen gekittet	G
47	11551506	1	tube HC L1TP 4/5/7, binok. phototube	Tubus HC L1TP 4/5/7, binok. Phototubus	G 1...46 11020387565000

12 Pol and Industrial Axis

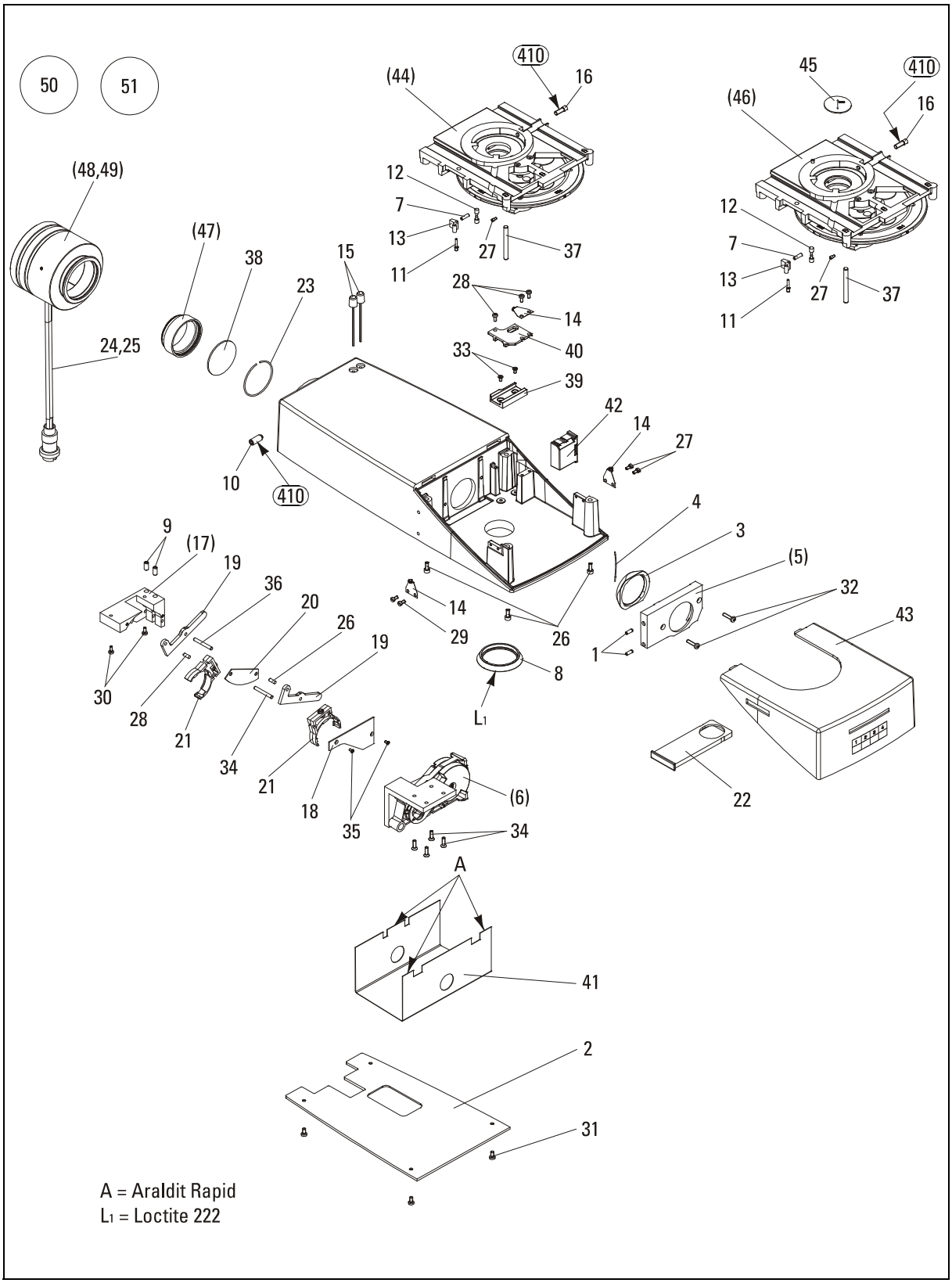

Figure 29: Pol and industrial axis

Table 24: Pol and industrial axis

No.	Order No.	Qty.	Name English	Name SAP	Remark
1	10641642	2	screw	SCR DIN 913 M3X9 A2	
2	10724856	1	bottom plate	BOTTOM PLATE	
3	10724859	1	front lens glued	Front Lens glued	
4	10724861	1	wire spring	Wire Spring	
5	10724862	1	front lens, compl.	Front Lens Assembly	G 1,3,4
6	10724890	1	aperture mechanism	Aperture Mechanism	G
7	11016061000001	4	pressure spring	Druckfeder	
8	11020370565018	1	flange ring	Wechselring	
9	11020379208083	2	pressure piece	Federndes Druckstück GN 615-M4-K	
10	11020515079032	1	threaded pin	Gewindestift	
11	11020530042006	4	threaded pin	Gewindestift	
12	11020530042007	4	roller	Rolle	
13	11020530042028	4	lever	Hebel	
14	11020654021018	3	arresting spring complete	Rastfeder kompl.	G
15	11023124011010	2	centering key	Zentrierschlüssel (1.5mm)	
16	11090938017008	1	clamping screw	Klemmschraube M4x11	
17	11090938017070	1	filter module	Filtermodul	G 9,18...21,28,35,36
18	11090938017072	1	cover	Deckel	
19	11090938017073	2	lever	Hebel	
20	11090938017074	1	distance piece	Abstandstück	
21	11090938017075	2	filter holder	Filtertraeger	
22	11090938017083	1	dummy slider	Leerschieber	
23	11307063007009	1	circlip	Sprengring	
24	11360021223000	1	Cable LED Unit (0,51m)	Cable LED Unit	0,51m
25	11360021224000	1	Cable LED Unit (2.5m)	Cable LED Unit (2.5m)	2,50m
26	11703108630000	4	cylinder screw	Zylinderschraube ISO 4762-M3x8-A2	
27	11704014631000	4	shoulder screw	Zapfenschraube DIN 927-M2x2,5-A1	
28	11704372630000	4	grooved pin	Kerbstift ISO 8745-3x8-A1	
29	11707415630000	4	cylinder screw	Zylinderschraube ISO 1207-M2.5x5-A2	
30	11707945631000	4	pan head screw	Flachkopfschraube ISO 7045-M2.5x6-A2-H	
31	11707952630000	4	pan head screw	Flachkopfschraube ISO 7045-M3x6-A2-H	
32	11707955631000	2	pan head screw	Flachkopfschraube ISO 7045-M3x12-A2-H	
33	11707989630000	2	countersunk screw	Senkschraube ISO 7046-2-M2,5x5-A2-H	
34	11707998630000	4	countersunk screw	Senkschraube ISO 7046-2-M3x10-A2-H	
35	11708510631000	4	countersunk screw	Senkschraube ISO 7046-2-M2x4-A2-H	
36	11710146630000	2	cylindrical pin	Zylinderstift ISO 2338-3m6x24-A1	
37	11710469631000	4	cylindrical pin	Zylinderstift ISO 2338-4m6x40-A1	
38	11940626300010	1	lens	Linse	
39	13020703880427	1	lower polarizer track	LOWER POLARIZER TRACK	

Table 24: Pol and industrial axis

No.	Order No.	Qty.	Name English	Name SAP	Remark
40	13020703880428	1	upper polarizer track	UPPER POLARIZER TRACK	
41	13020703880431	1	light shield	LIGHT SHIELD	
42	13020703880437	1	pol slot plug	POL SLOT PLUG	
43	13020703880444	1	axis cover, 4-position	AXIS COVER, 4-POSITION	
44	13020703880805	1	turret assembly, industrial	TURRET ASSEMBLY, INDUSTRIAL	G 7,11...13,27,37
45	13020704880601	1	quartz plate	QUARTZ PLATE	
46	13020704880805	1	turret assembly, pol	TURRET ASSEMBLY, POL	G 7,11...13,27,37,45
47	19004979	1	lens mount B assembly	Lens Mount B Assembly	G 23,38
48	11504199	1	LED lamp house 113	LED LampHouse	G 24
49	11504216	1	LH113, 2,5m	LH113, 2,5m	G 25
50	10724891	1	pol axis minerva, 4 position	Pol Axis MINERVA,4 Position	G 1...23,26...43,45...47
51	10724892	1	axis industrial, 4 position	Industrial Axis MINERVA, 4 Position	G 1...23,26...44,47

13 External Power Supply

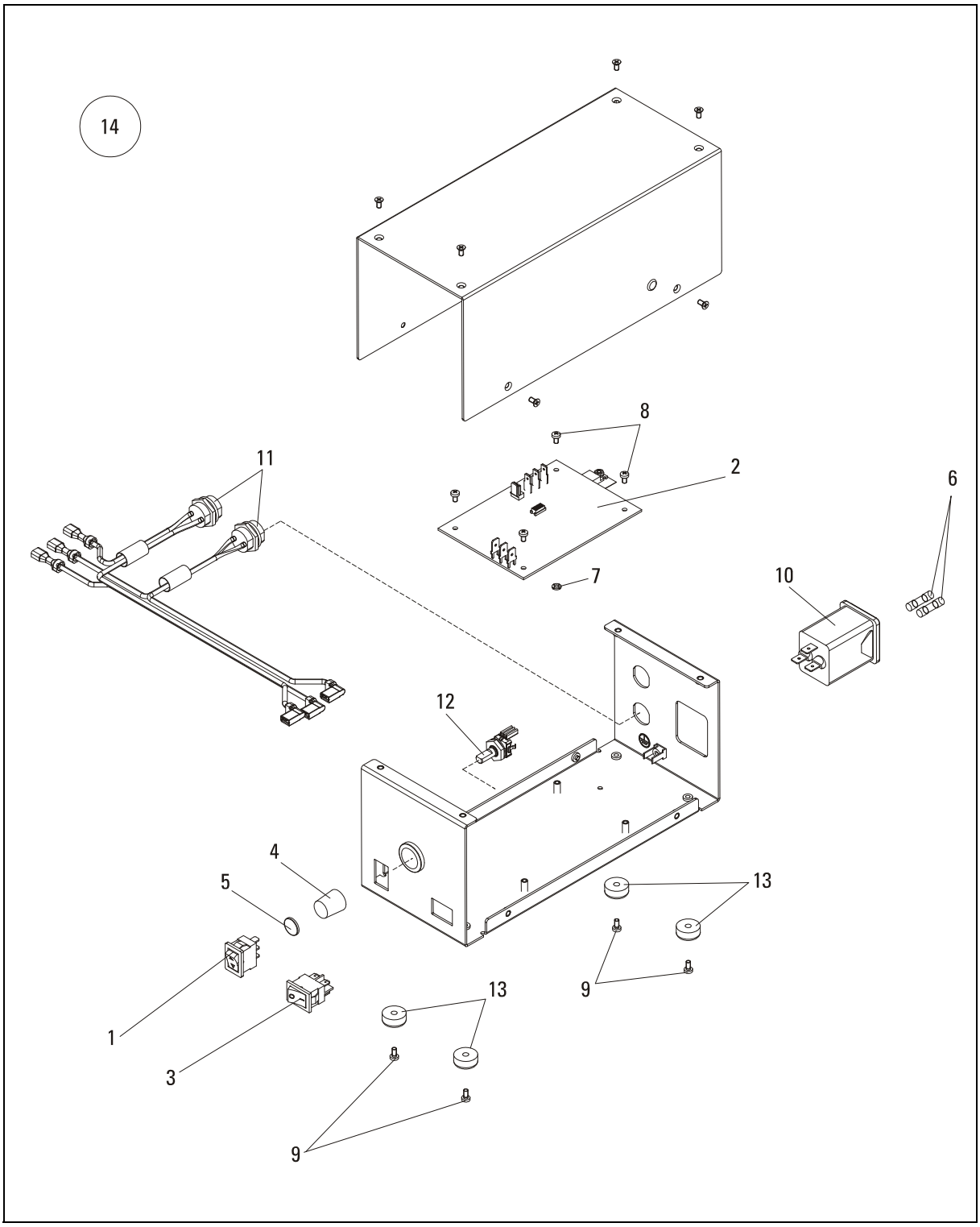

Figure 30: External power supply

Table 25: External power supply

No.	Order No.	Qty.	Name English	Name SAP	Remark
1	11302023150008	1	toggle switch	UMSCHALTER MIT PFEILBEDRUCKUNG	
2	11360008254000	1	PCBA poert and LED controller	PCBA Power and LED Controller CALLISTO	
3	11362023150002	1	power switch	Ausschalter, 2-pol., mit Signallampe grün, Steckanschluss 4,8mm	
4	11362031089001	1	rotating knob, black	Drehknopf, schwarz	
5	11362031089002	1	cover	Deckel mit Strich, hellgrau	
6	11362150010063	2	fuse	Feinsicherung T0,63A, H, 250VAC	
7	11704741630000	1	toothed wheel disk	Zahnscheibe DIN 6797-A3.2-FSt	
8	11707951630000	4	pan head screw	Flachkopfschraube ISO 7045-M3x5-A2-H	
9	11707952630000	4	pan head screw	Flachkopfschraube ISO 7045-M3x6-A2-H	
10	13020701930921	1	AC power inlet, filter	AC POWER INLET, FILTER	
11	19004988	2	power Socket	Power Socket	
12	19005299	1	encoder	Encoder	
13	X54353	4	bumper, rubber	BUMPER, RUBBER	
14	19005296	1	external power supply	External Power Supply	G 1…13

From Eye to Insight

Leica MICROSYSTEMS

Service Manual
Leica DM2700 M/P

Part D: Service and Maintenance

Version 02 - January 2017

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Creation:	2013-01-15 (MM, SCH)
Revision:	2017-01-09 (MM, NST, SCH)

Table of Contents

1 Required Service Tools

When the article number is listed, the mentioned tools can be ordered from Leica Microsystems CMS GmbH.

When no article number is listed, provide them locally or manufacture them yourself.

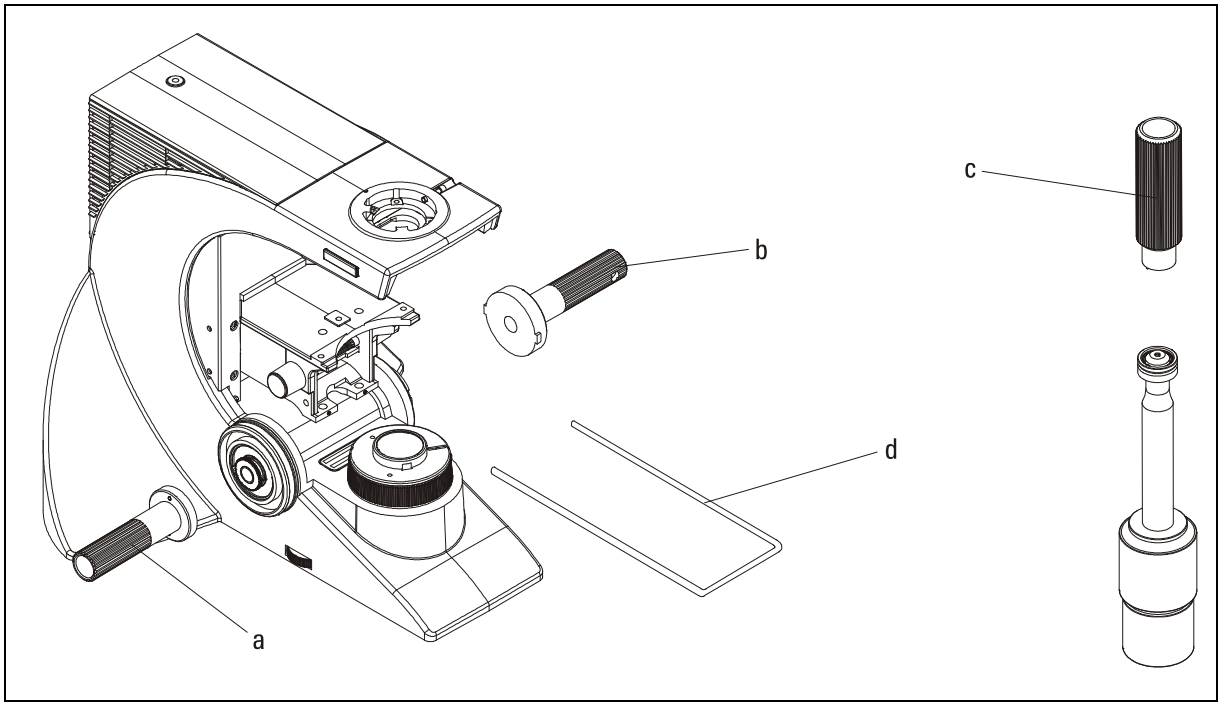
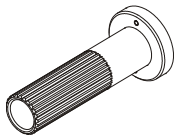
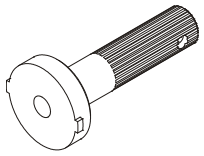
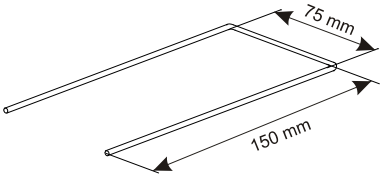
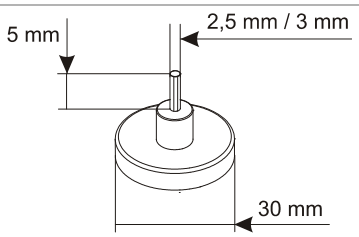


Figure 1: Overview Service Tools

Position in figure	Service tool	Article number	Figure
a	Fastening key	11150000001349	
b	Fastening key	11150000001350	
c	Fastening key	11150000001351	
d	Mounting clamp made out of 3 mm thick spring steel wire	not orderable, own manufacture	
e	Mounting key to assemble the specimen stage	not orderable, own manufacture	

2 Coarse and Fine Drive

2.1 Disassembly

1. Remove all optical components of the stand.
2. Remove all magnetical fine drive knobs (1).
3. Unscrew the allen screw (2) with an Allen key 1.5 mm and remove the disk (3).
4. Unscrew the allen screw (4) with an Allen key 2 mm and remove the right coarse drive knob (5).
5. Unscrew the driving disk (6) and remove the spring (7) with the brake disk (8).
6. Remove the fine drive axis (9), the coarse drive axis (10) and the 3 disks (11) to the left.
7. Unscrew the allen screw (12), unfasten the ring (13) and remove the clamping ring (14).

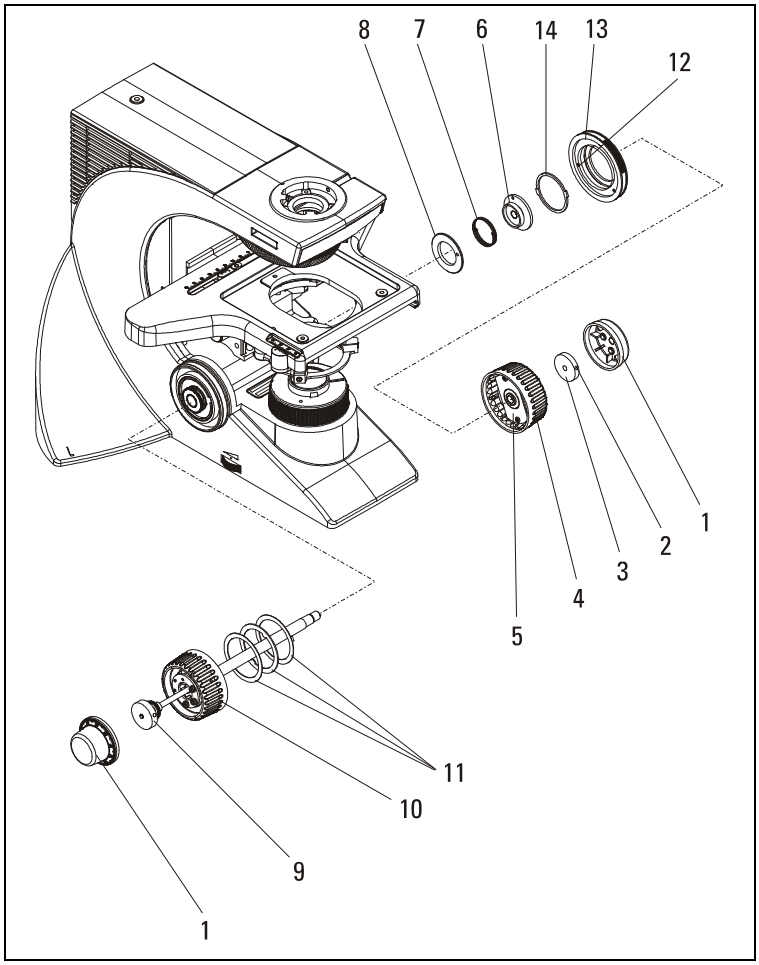


Figure 2: Disassemble the coarse and fine drive

8. Turn the microscope upside down.
9. Unscrew the 3 screws (16) and remove the base plate (15).
10. Unscrew the allen screws (17) of the gear wheel axis (18).

11. Remove the allen screws (19) of the flange (20).

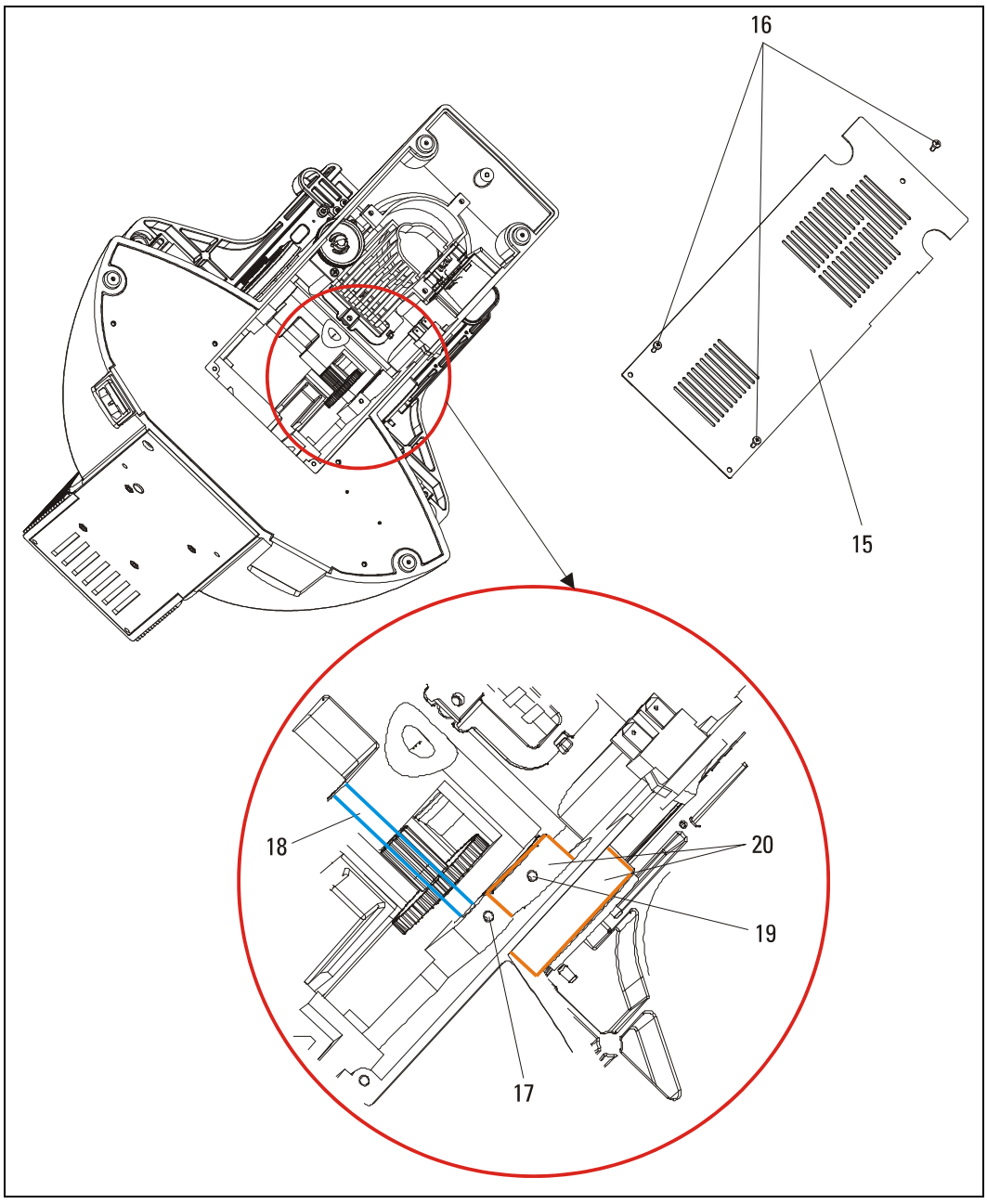


Figure 3: Remove base plate

12. Remove the ring (21).
13. Hold the gear wheel of the axis (22) with the fastening key (service tool a).
14. Unfasten the nut (23) with a ring wrench 16 mm and remove the ball bearing (24).
15. Remove the flange (20) with the fastening key (service tool b).

Ensure that the flange is secured with Loctite 222.

16. Remove the disks (25).
17. Remove the axis (26) to the right and remove the gear wheel (27).
18. Remove the bearing (28) with the axis (22) to the left.

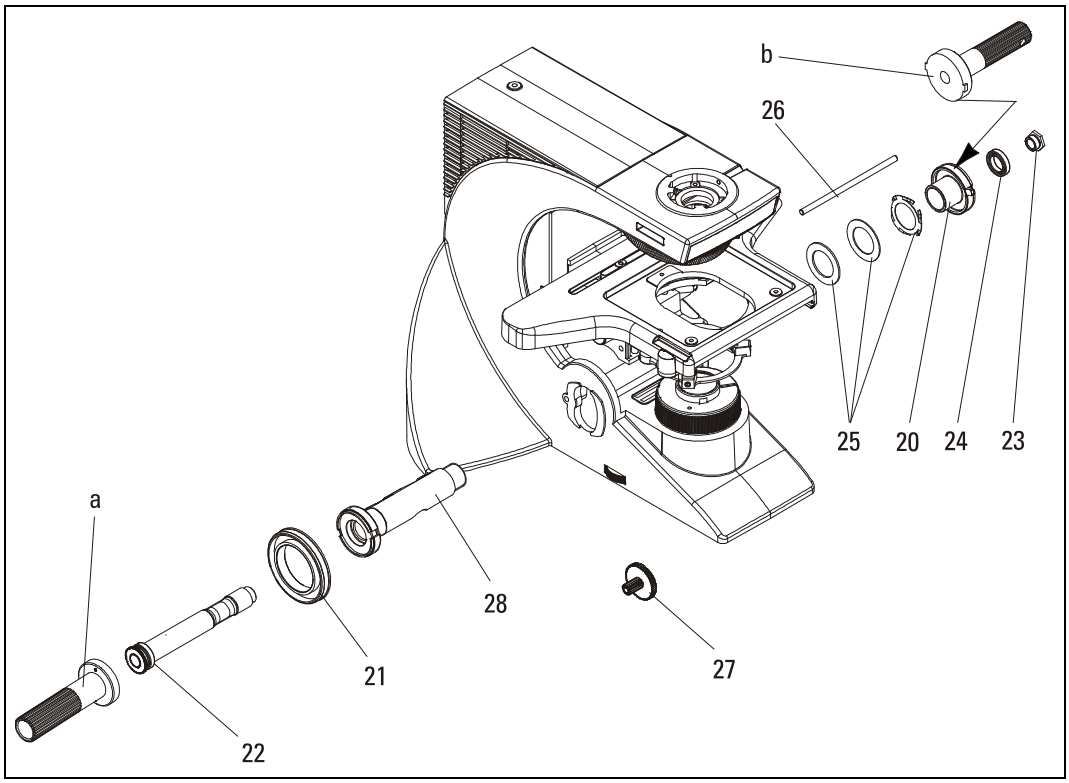


Figure 4: Disassemble coarse and fine drive

2.2 Assembly

1. Grease all parts with the indicated lubricants.
2. Push the axis (22) into the bearing (28).
3. Insert the composed axis (22) and bearing (28) into the stand from the left side.
4. Insert the axis (26) into the stand from the right side.
5. Assemble the gear wheel (27) from below into the stand.
6. Apply Loctite 222 to the thread of the flange (20) and tighten it with the disks (25) from the left to the bearing (28).
7. Adjust the flange with the fastening key (service tool b) as far as it can be moved up and down with a torque of 50 N or 5 kg.
8. Assemble the ring (21).
9. Insert the ball bearing (24) and tighten the nut (23).
10. Hold the gear wheel of the axis (22) with the fastening key (service tool a) and slightly tighten the nut (23) with an Allen Key 16 mm.

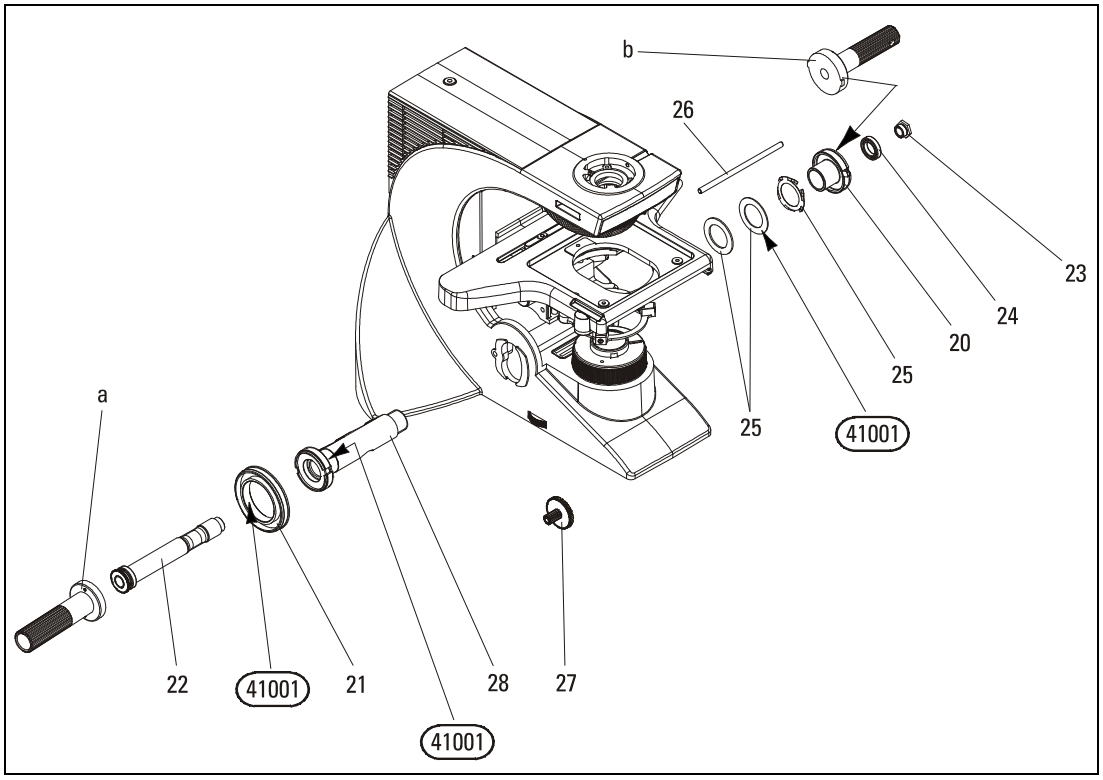


Figure 5: Assemble coarse and fine drive

11. Turn the microscope upright again.
12. Tighten the allen screws (17) of the gear wheel axis (18).
13. Tighten the allen screws (19) of the flange (20).
14. Attach the base plate (15) with 3 screws (16).

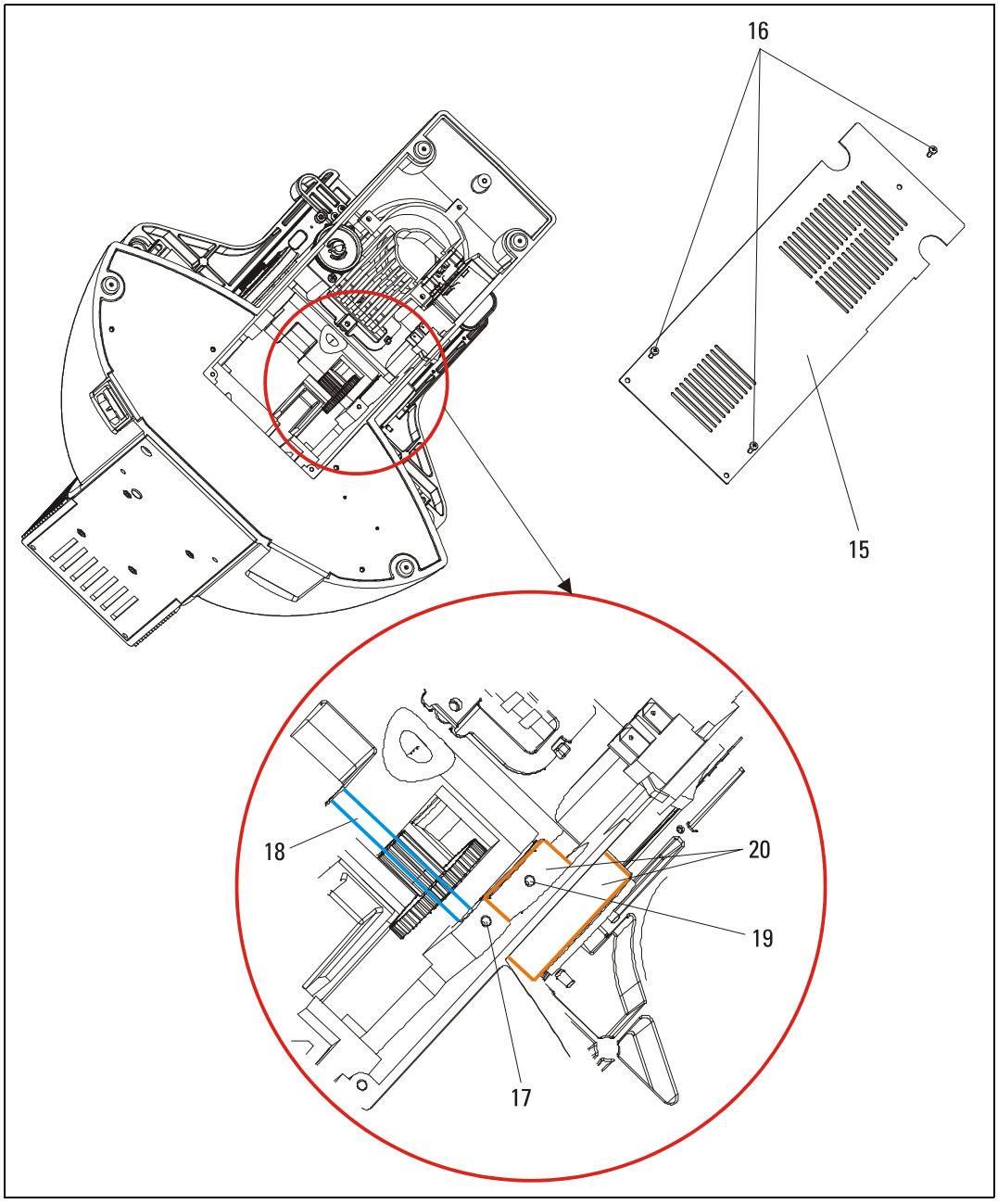


Figure 6: Assemble base plate

15. Insert the planetary gear (10) and the 3 disks (11) from the left into the stand.
16. Merge the auto stop ring (8), the spring (7) and the auto stop plate (6).

The spring (7) must be mounted in the pins of the auto stop plate (6) and the auto stop ring (6).

17. Tension the spring (7). Herefore turn the auto stop plate (6) approx. half a rotation counterclockwise. The tension of the spring must press the pin of the auto stop plate (6) from the left against the pin of the auto stop ring (8).

18. Assemble all 3 parts (6, 7 and 8) from the right onto the planetary gear and tighten them manually.
19. Attach the pressure ring (14).
20. Tighten the ring (13).
21. Turn the threaded pin (12) in as far as possible until it functions as limit stop when turning the ring (13).
22. Push the fine drive axis (9) into the stand from the left and mount the right coarse drive knob (5).
23. Adjust the detent of the fine drive axis with threaded pin (4) until there is no clearance.
24. Push the fine drive axis (9) herefore in the left stop position.
    Slip on the disk (3) and tighten it with a threaded pin (2).

Ensure that a slight axial backslash of approx. 0.1 mm exists.

25. Push on the magnetical fine drive knobs (1).

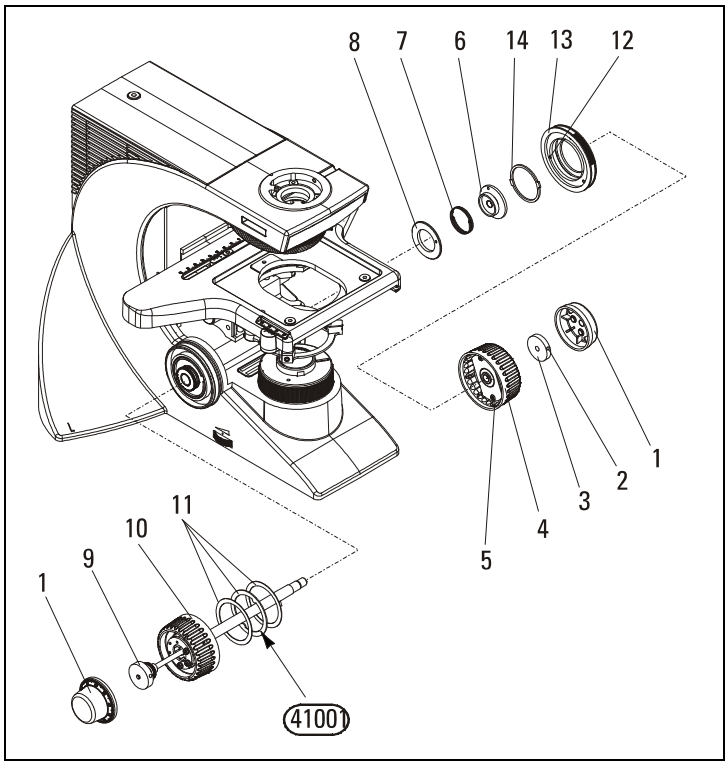


Figure 7: Assemble coarse and fine drive

3 z-Drive

3.1 Disassembly

1. Remove all optical components from the stand.
2. Unscrew the 4 screws (2) and remove the back plane (1).
3. Unscrew the screw (4) and remove the cap (3).
4. Unscrew the 2 screws (6) and remove the gear rack (5).
5. Unscrew the screws (7) and remove the strip (8).
6. Unscrew the screws (9) and remove the strip (10).
7. Unscrew the 3 screws (11).
8. Unscrew the 2 allen screws (12).
9. Unscrew the 4 screws (13).
10. Slightly remove all parts (14-19) from the stand.

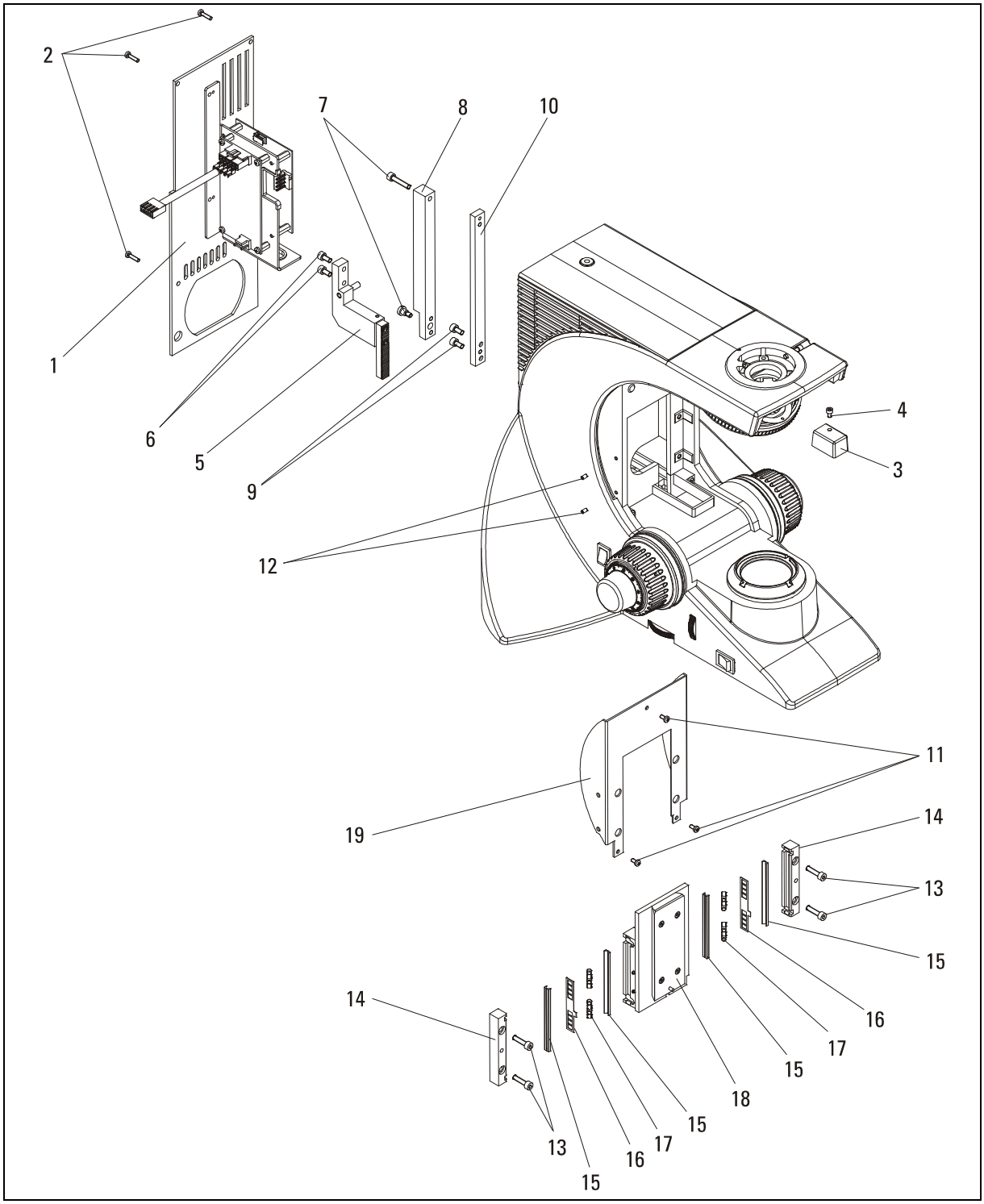


Figure 8: Disassemble z-drive

3.2 Assembly

1. Unscrew the 4 screws (2) and remove the revolving nosepiece (1).

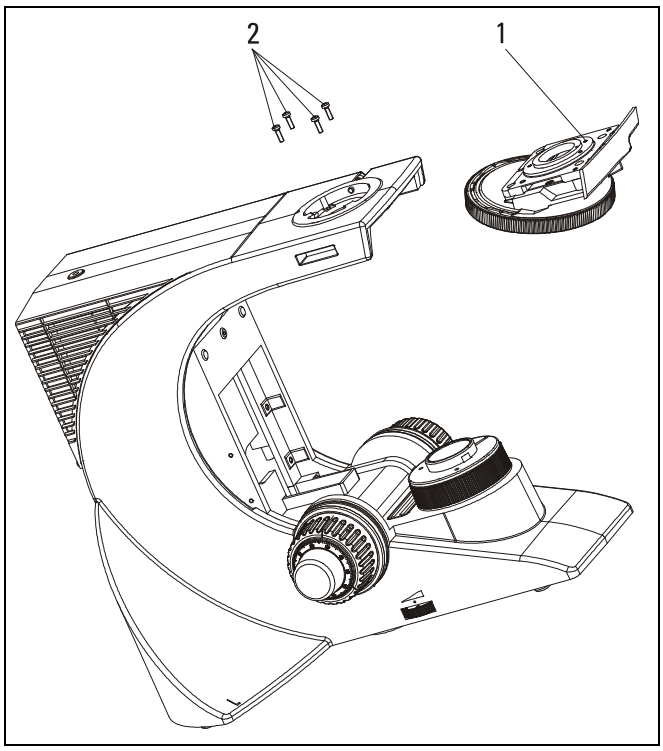


Figure 9: Remove the revolving nosepiece

2. Clean all parts thouroughly with benzine and grease them with the indicated lubricants.

3. Merge the parts (3 to 8) with the mounting clamp (service tool d).

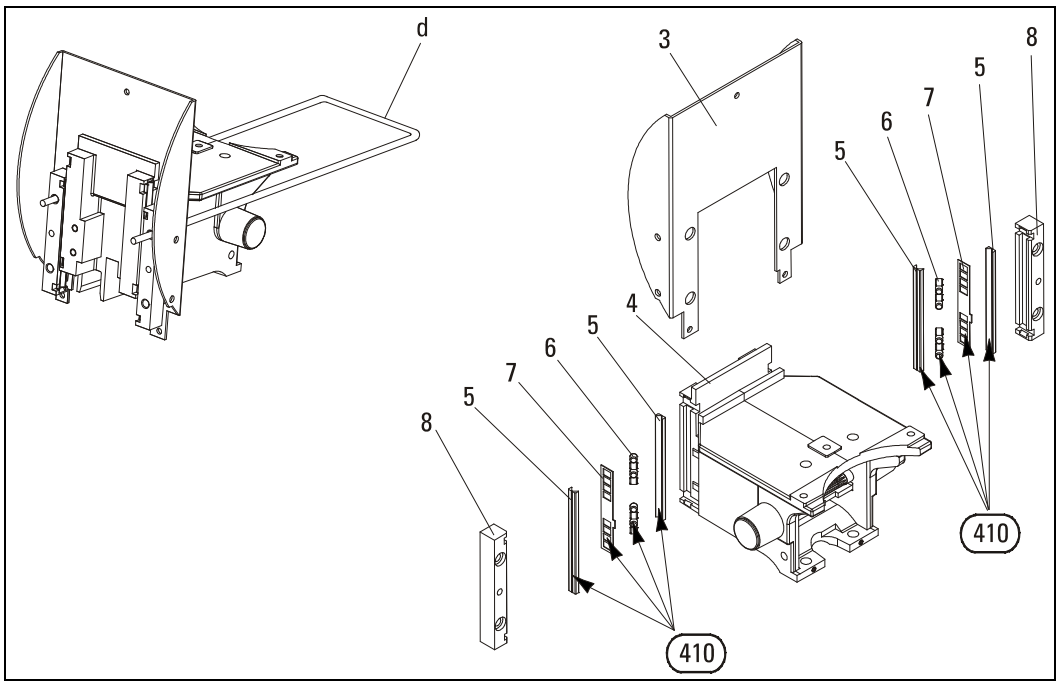


Figure 10: Pre-assemble the guide box

4. Turn the microscope upside down.
5. Insert the z-drive (3), held by the mounting clamp (service tool d), into the stand.
6. Pull out the mounting clamp.
7. Insert and slightly tighten the 4 screws (4 and 5).
8. Strongly push the z-drive (3) with the 2 allen screws (6) against the stop limits (A).
9. Tighten the 2 screws (4).
10. Unscrew the 2 allen screws (6) and adjust a regular gangway until there is no clearance of the table angle.
11. Tighten the 2 screws (5).
12. Tighten the cover (8) with the 3 screws (7).

13. Assemble the revolving nosepiece (1) with 4 screws (2).

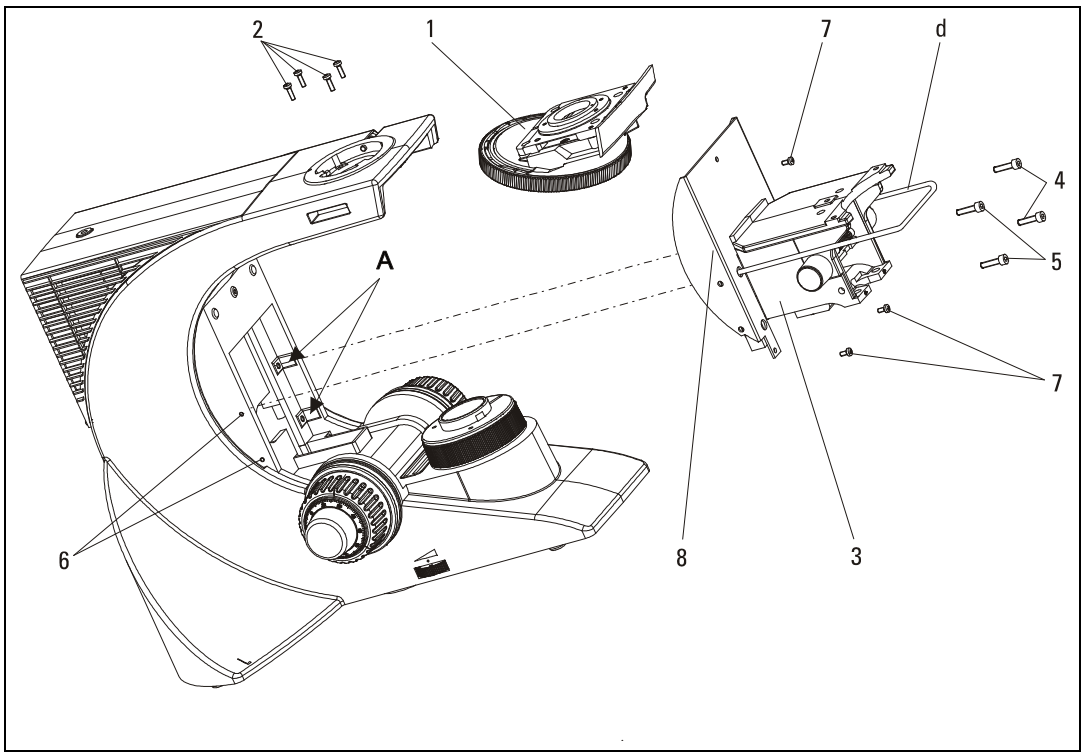


Figure 11: Assemble guide box

4 Power Supply

4.1 Disassembly

1. Unscrew the 4 screws (1).
2. Remove the backplane with the power supply (2).

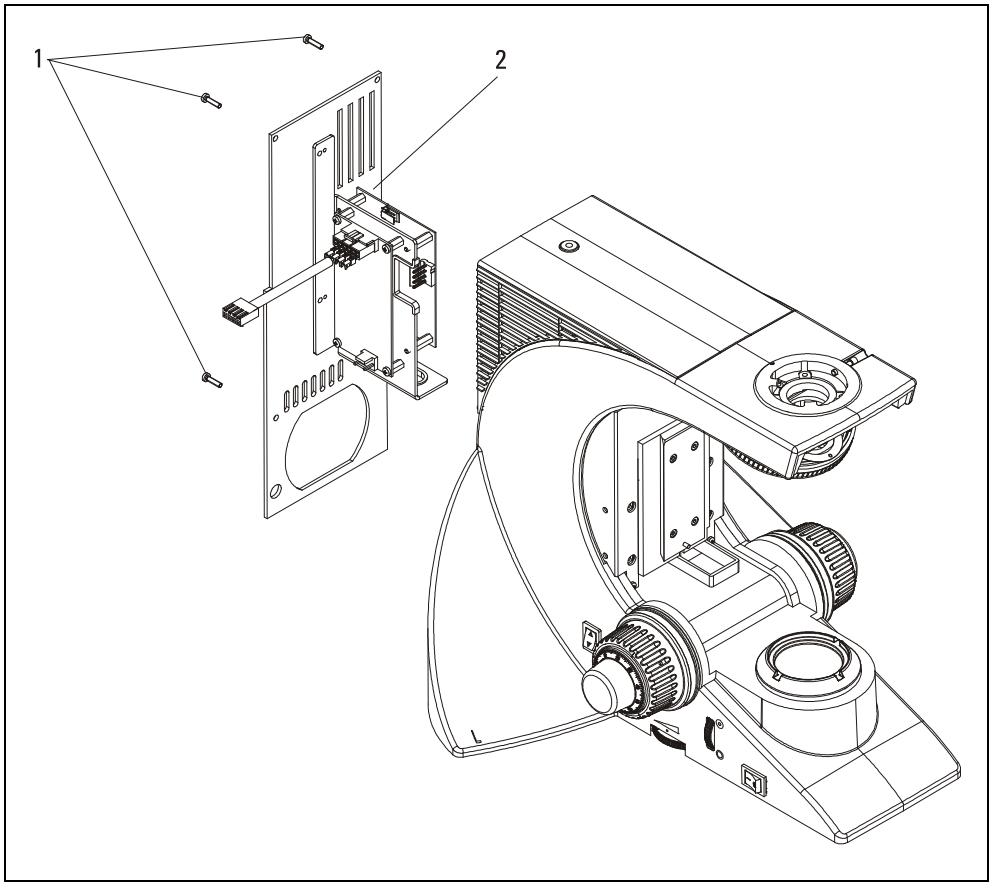


Figure 12: Disassemble the power supply

5 Dovetail Plate

5.1 Service Tools

Position in figure 13	Service tool	Article number
a	AKF (Autocollimation telescope)	107061000000
b	AKF changing mount	104046008000
c	Adapter 45 mm	104046054000
d	Stage image mark	150000001327

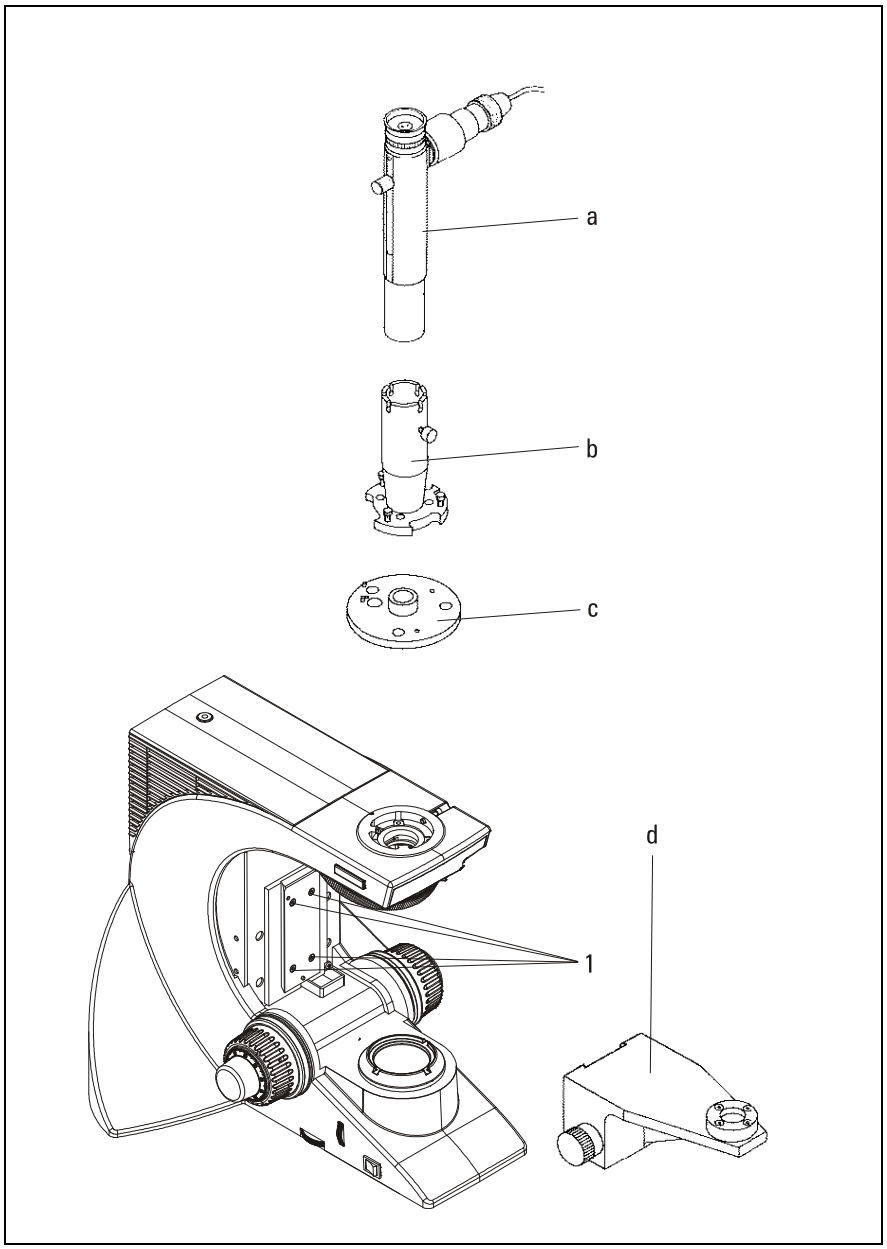


Figure 13: Dovetail plate, service tools

5.2 Adjustment

5.2.1 Infinity Adjustment

1. Put the AKF, AKF changing mount and the adapter 45 mm onto the tube changing mount.
2. Clamp the stage image mark at the dovetail plate.
3. Push the AKF slider upwards until figure 14 is visible.

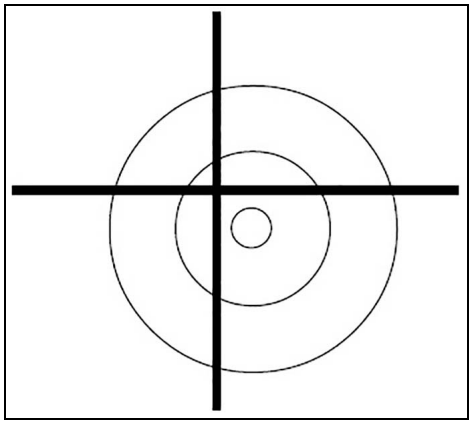


Figure 14: Stage image mark

4. Unscrew the 4 screws, see figure 13, position 1.
5. Tilt the stage image mark to the side until the cross line in east-west direction is located in the small circle.

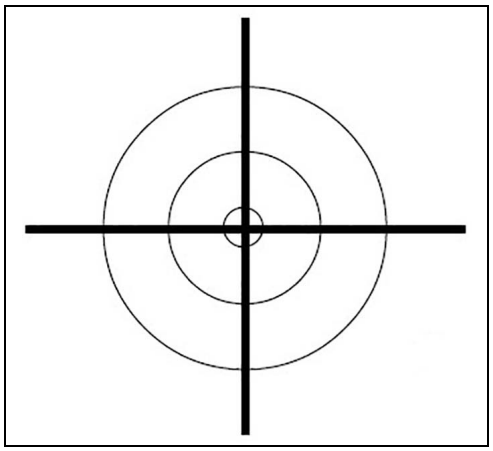


Figure 15: Crossline in east-west direction is located in the small circle

To correct deviations in north-south direction, place plain washers between the dovetail plate and the guide plate.

Tolerance

Small ring

5.2.2 Finite Adjustment

1. Focus on the cross line of the stage image mark with the AKF. downwards.

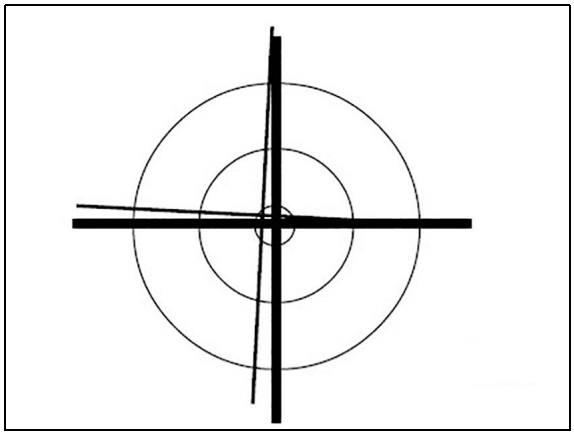


Figure 16: Focus on cross line of the stage image mark

2. Align the cross lines of the stage image mark and the AKF by parallel lateral movement in east-west direction.

To correct deviations in north-south direction and the erection of the two cross lines, place plain washers between the dovetail plate and the guide plate.

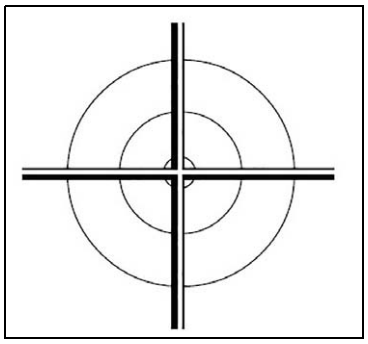


Figure 17: Deviations

3. Check the infinity adjustment, see chapter 5.2.1.
4. Tighten the 4 screws, see figure 13, position 1.

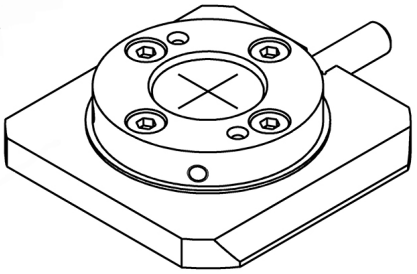
Tolerance

One line thickness in all directions.

6 Pol-Stage Adjustment

6.1 Service Tool

See chapter 5.1 for the service tools AKF, AKF changing mount and adapter 45 mm.

Position in figure 20	Service tool	Article number	Figure
a	test slider for condenser	1W104046057000	

6.2 Adjustment

1. Put AKF, AKF changing mount and the adapter 45 mm onto the tube changing mount.
2. Place the test slider for the condenser at the table center.
3. Focus on the cross line of the test slider with the AKF.
   Align the cross line of the test slider with the cross line in the AKF.

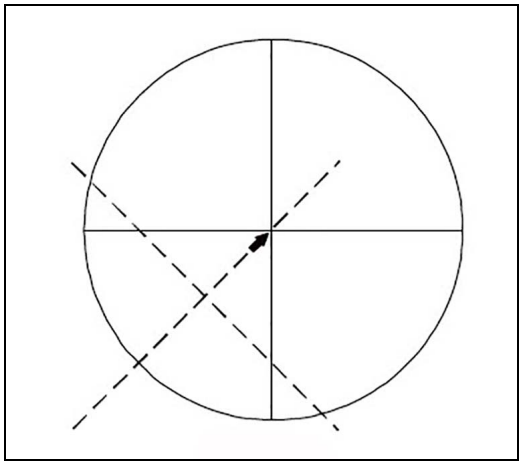


Figure 18: Aligning cross line of test slider and AKF

4. Rotate the stage and observe the orbit of the cross line.
   Determine center point m'.

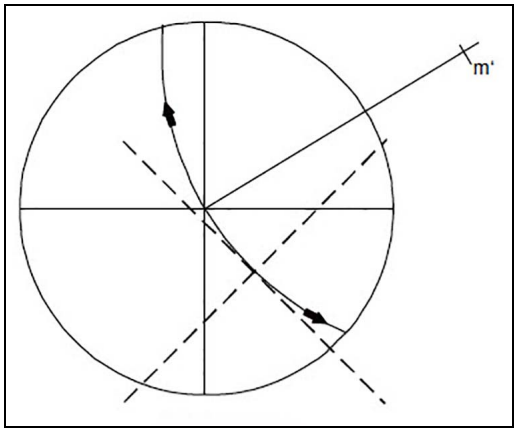


Figure 19: Determine center point m'

5. Slightly loosen the screws (1).

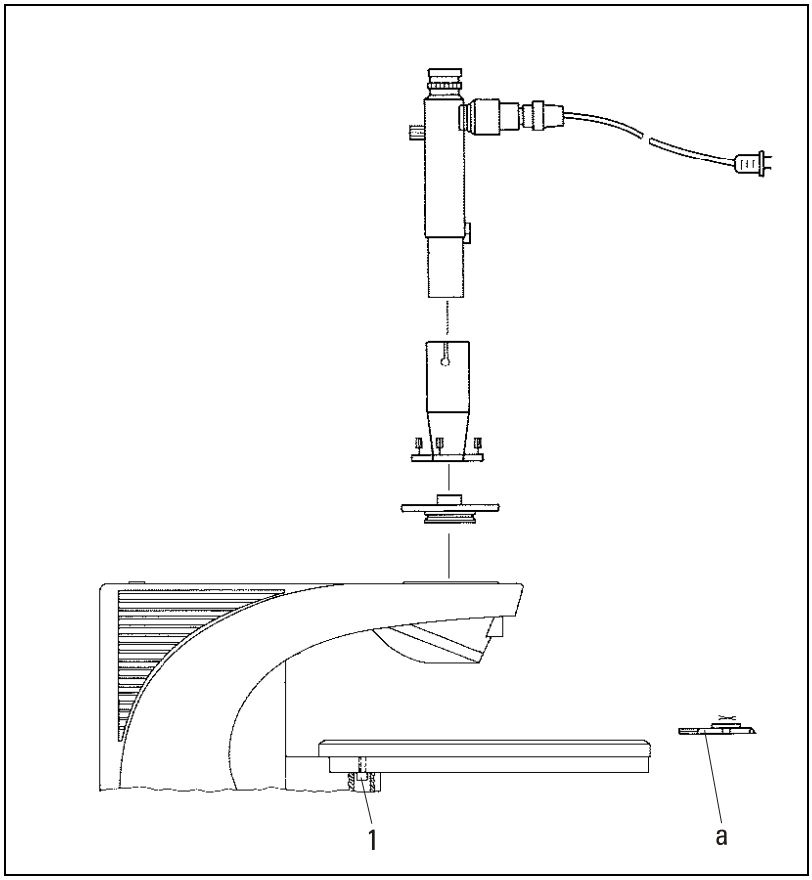


Figure 20: Stage adjustment

6. Shift the stage in the half radius (r) reverse to the center point m'.

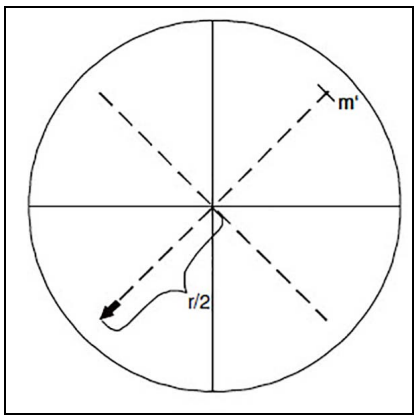


Figure 21: Shift the stage in the half radius (r)

7. Center the cross lines in the center of the image field by displacing the test slider.

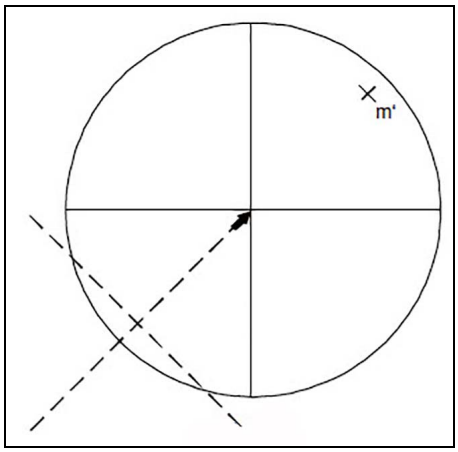


Figure 22: Center cross lines in image center

8. Rotate the stage until the cross line of the test slider is as far away as possible from the center point.

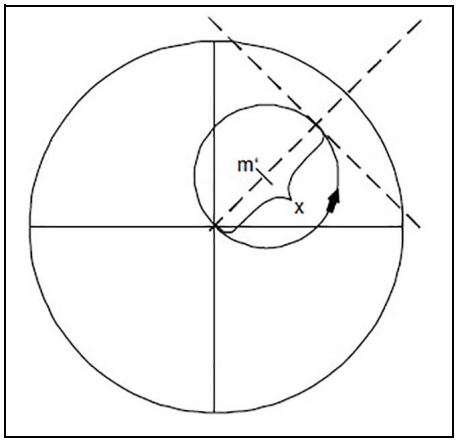


Figure 23: Cross line as far away as possible from the center point

9. Shift the test slider by x/2 towards the center.

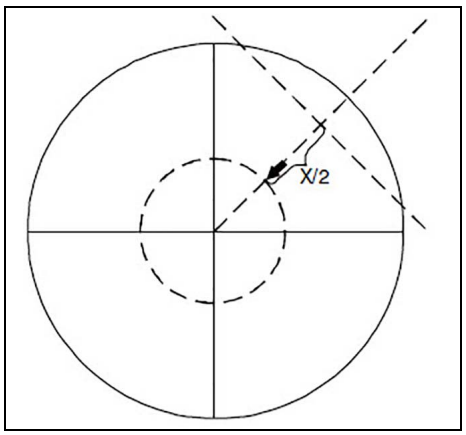


Figure 24: Shifting test slider by x/2 to the center

10. Shift the stage again until the test slider is in the center.

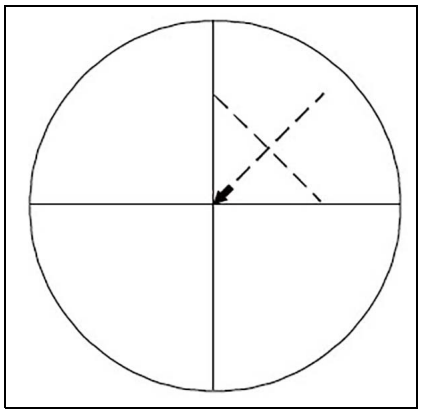


Figure 25: Shifting the stage until the test slider is in the center

The test slider may not drift out of the center of the field of view while rotating the stage.
Repeat steps 8 to 10 in case of a necessary correction.

11. Tighten the 4 screws (see figure 20, position 1).

7 Objective Centration

1. Check the stage centration, see chapter 6.
2. Set Koehler illumination with the objective to be centered.
   Position a small specimen point in the center of the field of view.

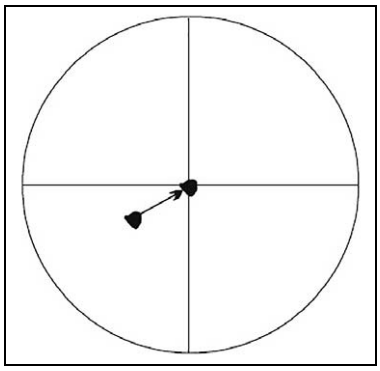


Figure 26: Set specimen point in image center

3. Rotate the stage and determine center point m'.

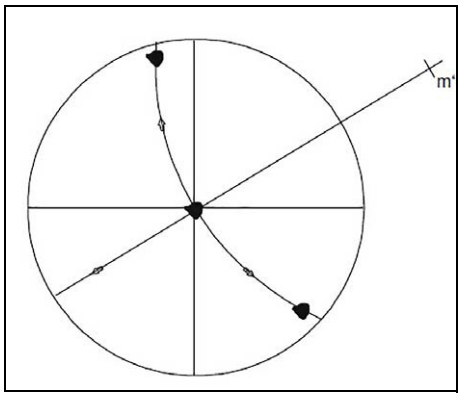


Figure 27: Determine center point m'

4. Move the specimen point by r/2 away from the stage center point m' using the objective centering screws.

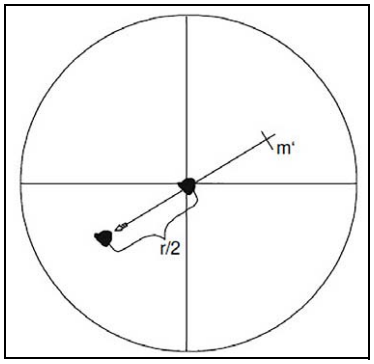


Figure 28: Moving specimen point by r/2 away from stage center point

5. Shift the specimen until the speciment point is in the center of the image field.

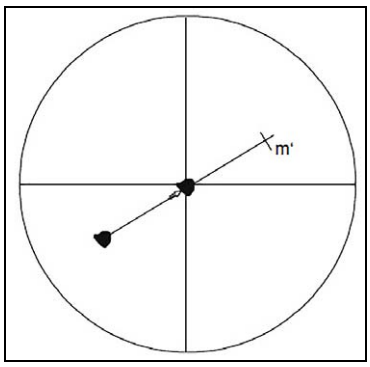


Figure 29: Shift speciment point in image center

6. Rotate the stage and determine point m'.
   Rotate the stage until the specimen point is as far as possible from the image field center.

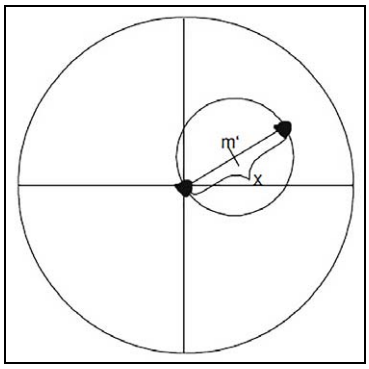


Figure 30: Determine m'

7. Move the specimen point to m' using objective centering keys.

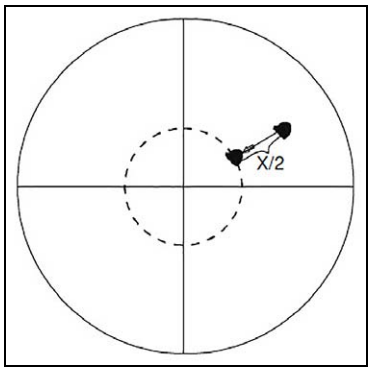


Figure 31: Moving specimen point to point m'

8. Set the specimen point in the image field center by shifting the specimen.

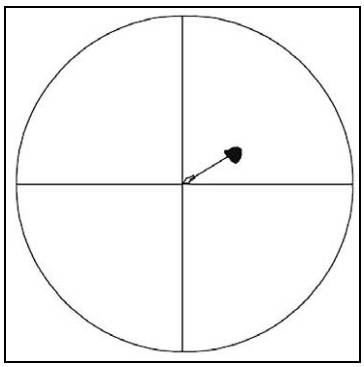


Figure 32: Set specimen point in image field center

The test specimen point may not drift out of the center of the field of view while rotating the stage.
Repeat steps 6 to 8 in case of a necessary correction.

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Service Manual Leica DM2700 M/P
Version 02