

Service Manual

Handpiece FH40S_2016

(Model 2016, with disassembleable chuck)

For foot care devices SIRIUS NT MICRO, NEPTUN NT MICRO, PUCK MICRO and JUPITER Duomatic



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1 General

1.1 Purpose

This service manual is intended to help authorized workshops to service and repair the FH40S handpiece attachment, model 2016, which is used on the following foot care devices:

- SIRIUS NT MICRO
- NEPTUN NT MICRO
- PUCK MICRO
- JUPITER Duomatic S2

The respective foot care devices are not described in this document. These items are described in separate service manuals.



Note: Also read the user manual of the respective foot care device. It contains important information on the operation and maintenance.

1.2 Qualification of personnel

Service work on handpieces may only be carried out by qualified and authorized specialists. Qualified specialist personnel are persons who, due to their specialist training, knowledge and experience, as well as their knowledge of the relevant safety regulations, are able to carry out the work safely and to recognize and avoid possible dangers. Advanced technical knowledge and basic knowledge of occupational safety are required. The local accident prevention regulations and the general safety regulations apply. The relevant safety regulations of DIN, EN, and VDE must be observed.

1.3 Contact

The technical service of Eduard Gerlach GmbH will be happy to assist you, if you have any further questions.

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Revision: E01

2 Product Versions

Handpiece FH40S_2016

The FH40S_2016 model described in this document was introduced end of 2016. It is used with the foot care spray devices SIRIUS NT MICRO, NEPTUN NT MICRO, JUPITER DUOMATIC and the foot care device PUCK MICRO. The chuck can be disassembled completely, which enables thorough cleaning and easy replacement of wearing parts.



Older devices are equipped with previous versions of the FH40S handpiece. In the event of a defect, these handpieces can be replaced with the current FH40S_2016 version.

<p>Handpiece FH40S (old) with one-piece cartridge</p> <p>SIRIUS NT MICRO < S/N 04.1620420 NEPTUN NT MICRO < S/N 64.161364</p> <p>This version with a one-piece cartridge was used until end of 2016.</p>	
<p>PUCK handpiece FH20 (obsolete)</p> <p>PUCK MICRO < S/N 44.4170</p> <p>The long FH20 handpiece was used on the PUCK MICRO devices until early 2017.</p> <p>When updating to the FH40S_2016 handpiece, make sure to use the standard FH40 coupling.</p>	 <p>Handpiece FH20 (obsolete)</p> <p>coupling FH20 (obsolete)</p> <p>coupling FH40</p>

3 Maintenance and repairs

3.1 Handpiece cleaning

The FH40S_2016 handpiece can be disassembled completely to allow easy and thorough cleaning.



It is recommended to clean the handpiece weekly.

If only little or no dust has accumulated in the handpiece, you may extend the cleaning interval accordingly.

Typical errors caused by contamination are:

- Burs are slipping
- Burs cannot be fully inserted
- Unusual noise
- Heating of the handpiece

Often it is sufficient to clean the parts of the chuck assembly to eliminate these errors. If necessary, the clamping bush, clamping pins and front bearing can be replaced.

Lack of cleaning

If you notice that the handpiece has not been maintained properly, please inform the user about the cleaning instructions contained in the user manual.

- Inform the customer of the importance of regular handpiece cleaning.
- Show the customer how to clean the handpiece. Cleaning instructions can be found in the user manual or are included with the replacement handpiece.
- Recommend the use of Gerlach drip off caps.

Safety Information

- Disconnect the mains plug before cleaning.
- Always wear protective gloves and a mouth and nose mask to avoid contact with the sanding dust.

Cleaning instruction



Unscrew the spray channel with the small hex key from the device accessories.



Unclip the spray channel (1) and carefully slide it from the handpiece tip (2). Be careful not to damage the cables.



Unscrew the handpiece attachment.



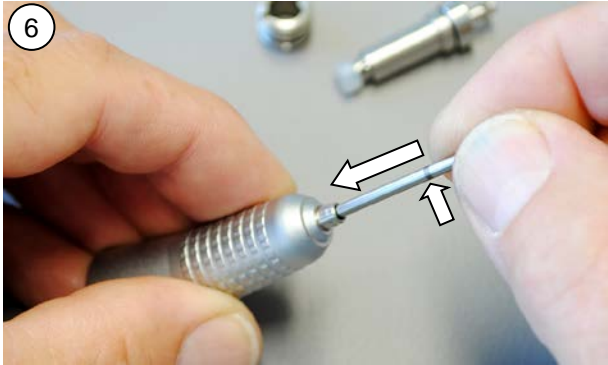
The coupling should remain on the motor. If it came off, put it back on with the flat side first.



Unscrew the ring nut with a 10-cent coin or a suitable screwdriver.



Insert a (testing) bur and push out the chuck assembly.



Insert the bur slightly angled to push out the front shaft.



Remove the bearing from the front shaft. Check the bearing and replace it, if worn or dirty.

Note: If the handpiece has not been cleaned for some time, it may happen that the front bearing is stuck in the housing. In this case, warm up the housing and try to detach the bearing with light strokes. Alternatively, you can try cleaning in an ultrasonic cleaner. After that, however, the bearing must be replaced. If this does not help, press out the centering bushing (see section 3.5).

8 **Machine washing allowed**



Do not wash!

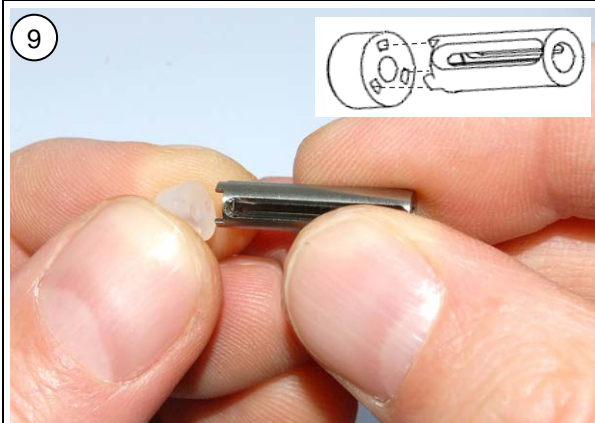


Parts Cleaning

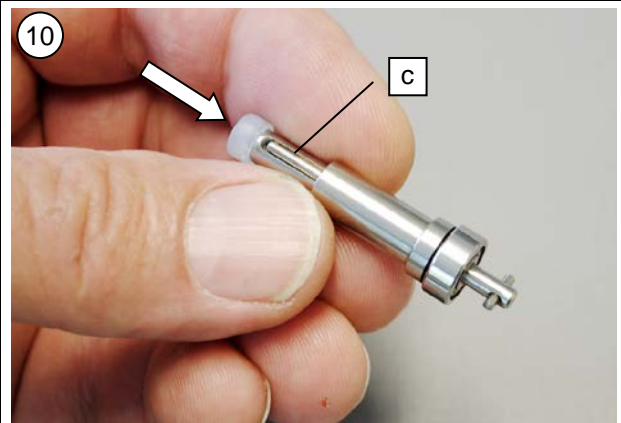
Brush off all parts and clean the insides with a pipe cleaner. If necessary, use isopropyl alcohol to remove persistent residues. The parts on the left side can additionally be cleaned in an ultrasonic cleaner or a thermal disinfectant.

Caution: Do not wash the bearings!

After any machine cleaning, the parts must be rinsed with water to remove any remains of the cleaning detergents. The parts have to be completely dry before reassembly.



Reassembly: Attach the clamping bushing to the chuck body.



Insert the three clamping pins (c) and slide the assembly into the rear shaft. Enclose the pins with your fingers to keep them in place.



Slide the rear shaft into the front shaft.



Make sure that the O-ring is still positioned correctly and attach the bearing.



Put the chuck assembly into the handpiece housing.



Screw in the ring nut.



Screw on the handpiece attachment.



Make sure that the cable lies in a Z-shape between the two spray hoses.



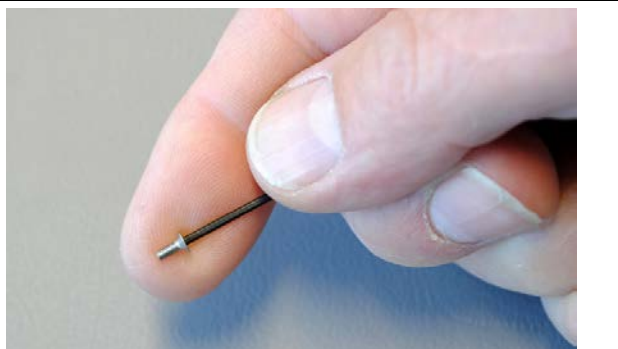
Slide the spray channel onto the handpiece tip (1) and clip it onto the retaining clip (2).



Make sure that the spray channel is straight and not bent.



Screw on the spray channel.



Tipp: Hold the little screw like this.

3.2 Wear parts

The handpiece wear parts must be checked and changed regularly. Always make sure that the handpiece is running smooth and holds the burs. Regular cleaning extends the life of the wear parts.

- If the chuck is losing clamping force, replace bushing and pins.
- If noise and vibration increase, replace the bearing.

Repair kit

The repair kit contains a front bearing, bushing and three pins.

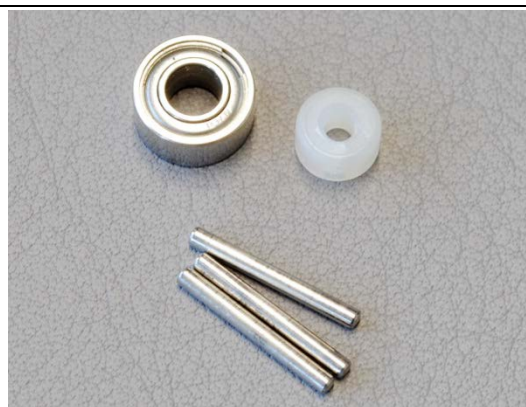
Order-No.: 704210410 Repair kit FH40S_2016

The parts are also available separately:

704207095 front bearing

704207376 clamping bushing

704210404 clamping pins 1,5 x 13mm



3.3 Replace front bearing

The front bearing can easily be replaced during the regular cleaning.

704207095 front bearing

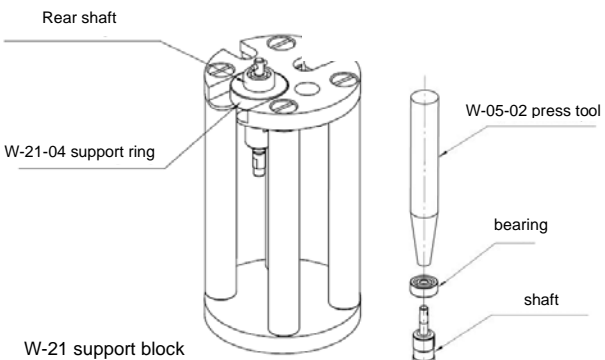
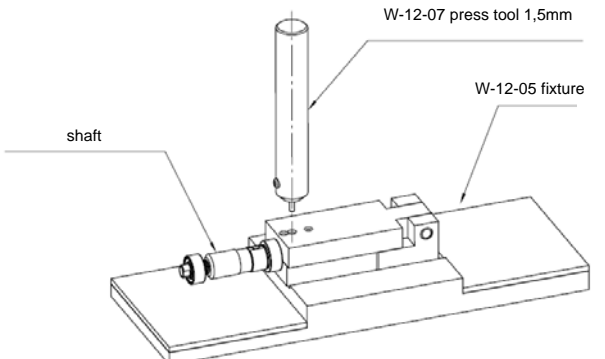


3.4 Replace rear bearing

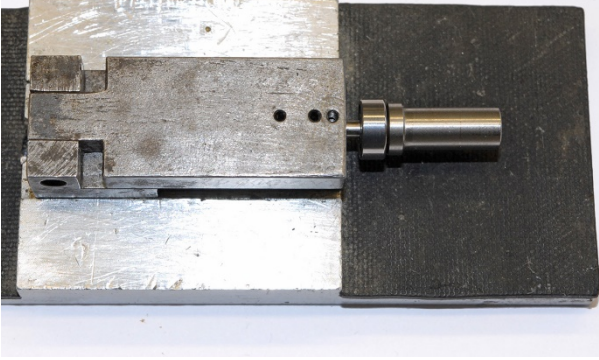

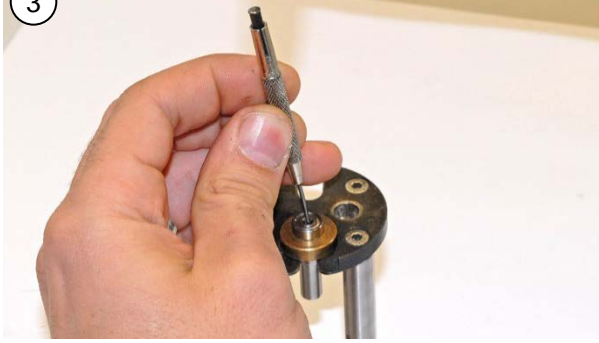
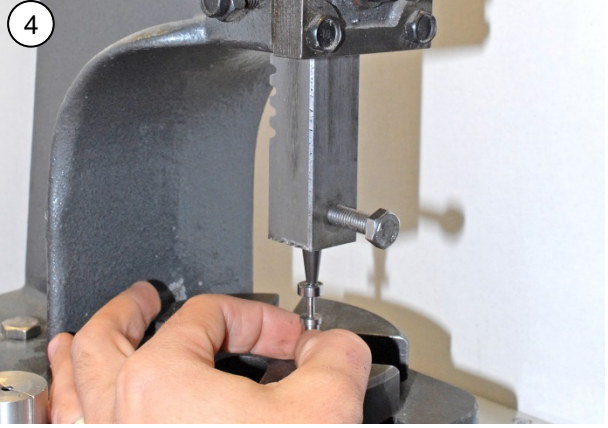
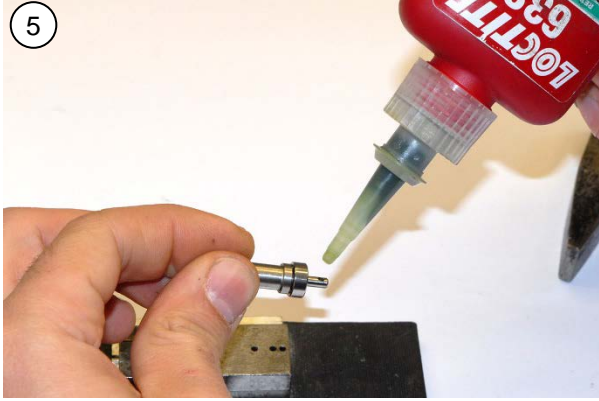

The rear bearing usually has to be replaced less frequently because it is exposed to less stress and dirt. Either the entire rear shaft assembly can be replaced or just the bearing.

<p>Rear shaft assembly</p> <p>704210405 Rear shaft assembly, FH40S consisting of the rear shaft with mounted bearing and pin.</p>	
<p>Individual parts</p> <p>704207037 Rear bearing, 10mm 704207070 Center grooved pin 1,5 x 6 mm The single rear shaft is not available as a spare part.</p>	

Tools for disassembling / assembling the rear shaft

<ul style="list-style-type: none"> • Hand lever press • 704208023 W-21 support block • 704208025 W-21-04 support ring • 704208019 W-26 pin punch 3 mm • 704208031 W-05-02 press tool 	 <p>Labels in diagram: Rear shaft, W-21-04 support ring, W-21 support block, W-05-02 press tool, bearing, shaft.</p>
<ul style="list-style-type: none"> • Hand lever press • 704208014 W-12-05 fixture • 704208020 W-12-07 press tool 1,5 mm • 704208022 W-12-09 pin punch 1,5 mm • High-strength retaining adhesive, e.g. Loctite 638 	 <p>Labels in diagram: shaft, W-12-07 press tool 1,5mm, W-12-05 fixture.</p>

Mounting instruction

<p>①</p>  <p>Position the rear shaft assembly into the W-12-05 fixture.</p>	<p>②</p>  <p>Punch out the center grooved pin.</p>
<p>③</p>  <p>Place the rear shaft with the support ring W-21-04 in the W-21 support block and press the shaft out of the bearing.</p>	<p>④</p>  <p>Press a new bearing (704207037) on the shaft using the W-05-02 press tool.</p>
<p>⑤</p>  <p>Put some high-strength retaining adhesive in the bore.</p>	<p>⑥</p>  <p>Press or hammer in the pin until it is centered on the shaft. The W-12-07 press tool already has the right offset. If you use a normal pin punch, you will have to manually align the pin in the middle.</p>

3.5 Replace centering bushing


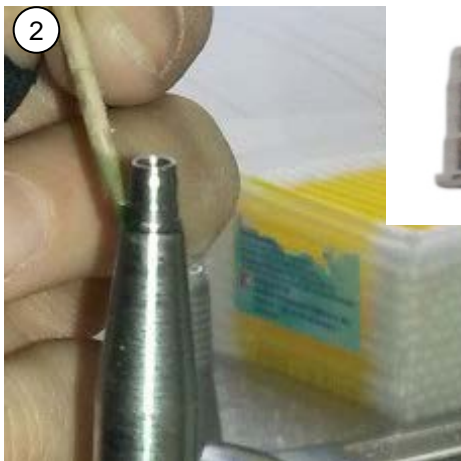


If the tip of the handpiece hits something, the centering bushing can be bent or moved. Following errors can occur:

- Burs cannot be inserted
- Noise and heat due to friction on the bur shank
- Handpiece is blocked because the centering bushing presses against the front bearing

Repair instruction

Tools and parts required:

- Hand lever press
- 704208005 W-51-01b fixture tool for centering bushing
- 704208004 W-51-02b stamp tool for centering bushing
- Centering bushing FH40S_2016
- High-strength retaining adhesive (e.g. Loctite 638)

<p>①</p>  <p>Use a lever press to push out the damaged centering bushing. Remove all adhesive residues.</p>	<p>②</p>  <p>Place a new centering bushing on the W-51-01b fixture tool and apply a few points of high-strength retaining adhesive (e.g. Loctite 638).</p>
<p>③</p>  <p>Place the housing on the centering bushing and press it in with the W-51-02b stamp tool.</p>	<p>④</p>  <p>Remove any residue adhesive from inside and outside of the housing.</p>

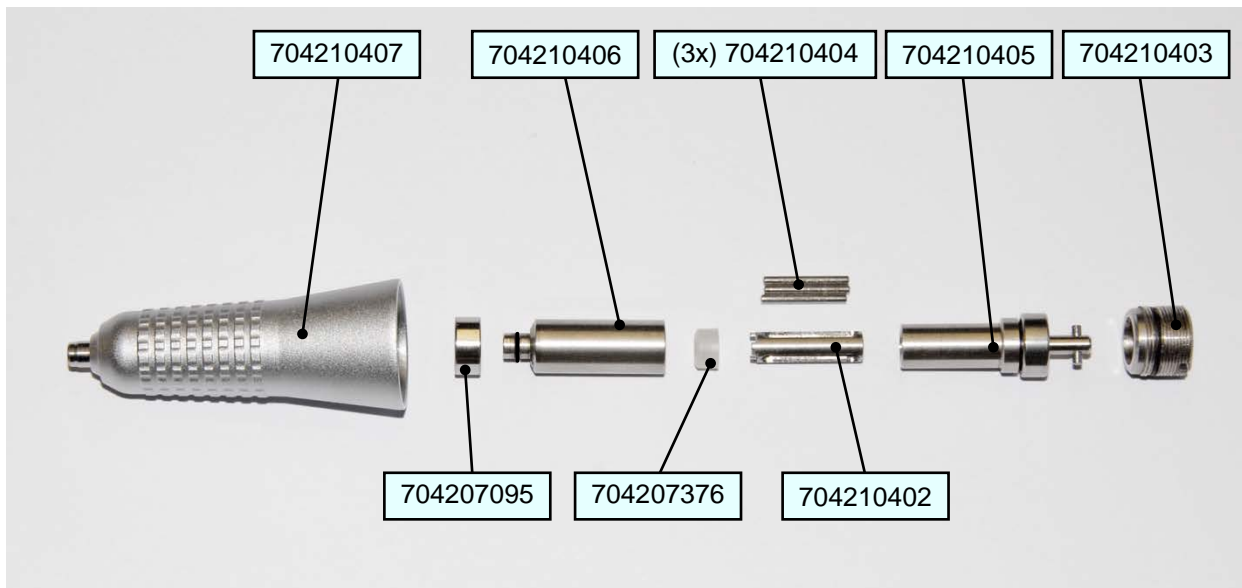
4 Troubleshooting

If users have problems with the handpiece, it is sometimes due to simple things:

- Only work with light pressure and with the appropriate rotation speed.
- Note the maximum speed of the rotating instruments.
- Use only high-quality instruments. Do not work with blunt, bent or out-of-round cutters.
- The bur shank must be undamaged, free of cleaning residues and dry.
- Clean the handpiece regularly and check the wearing parts.
- The chuck assembly must not be oiled or greased.

Error	Cause	Action
Handpiece runs jerky. Vibrations and noises occur	Cutter head out of round or bur shank bent	Let the handpiece run without bur, if no vibrations can be felt, replace the bur. Check bur shank with test gauge.
	The retainer ring in the handpiece has come loose	Tighten the retainer ring again hand-tight
	Bearing defective	Replace bearing
	Centering bushing damaged	Replace centering bushing
	Centering bushing moved	Press in centering bushing
	Front or rear shaft defective	Replace shaft
	Inner O-ring in front shaft is missing or out of place	Replace O-ring or front shaft
Handpiece gets hot	Chuck assembly defective	Disassemble chuck and replace defective parts
	Centering bushing damaged	Replace centering bushing
	Centering bushing moved	Press in centering bushing
Burs do not hold or slip	Cutter too large	Use smaller cutter <7mm
	User works with too much pressure	Work with less pressure and use instruments that match the application
	Bur shank bent	Check the bur shank with the but testing gauge and replace if necessary
	Residues of cleaning agents on the bur shank	Clean the bur shank Always rinse the burs after cleaning
	Chuck contaminated	Disassemble and clean chuck
	Clamping bushing worn out	Replace clamping bushing
	Clamping pin worn	Replace clamping pins
Burs are difficult to insert	Bur shank bent	Check the bur shank with the but testing gauge and replace if necessary
	Chuck contaminated	Disassemble and clean chuck
	Chuck assembly defective	Disassemble chuck and replace defective parts
	Inner O-ring in front shaft is missing or out of place	Replace O-ring or front shaft

5 Spare parts



Order-No.		Item	Note
704210407		Handpiece housing FH40S_2016	With O-ring and centering bushing
	704210409	O-ring 15 x 1,5	Single O-ring
	704210408	centering bushing FH40S_2016	Single centering bushing
704210406		Front shaft FH40S_2016	With O-rings
	704207255	Inner O-ring, 2,2 x 0,4	
	704207317	Outer O-ring, 3 x 0,5	
704210404		Clamping pin, 1,5 x 13 mm	3 pcs required
704210402		Chuck body, FH40S_2016	
704210405		Rear shaft assembly, FH40S_2016	Shaft assembly with bearing and pin
	704207037	Rear bearing, 10mm	
	704207070	Center grooved pin 1,5 x 6 mm	
704210403		Ring nut, FH40S_2016	With O-ring
	704210207	O-Ring for ring nut	
704207095		Front bearing	
704207376		Clamping bushing	
704210410		Repair set FH40S_2016	Consists of: 1x front bearing (704207095) 1x clamping bushing (704207376) 3x clamping pin (704210404)



Order-No.	Item	Note
704210400	Handpiece FH40S_2016 (packed)	Handpiece attachment, packed, with booklet
704210401	Handpiece FH40S_2016	
720903826	Maintenance instructions for FH40S	Single booklet