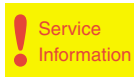


Service  
Service  
Service



**CoolSkin**

Domestic Appliances and Personal Care

# Service Manual

## GENERAL

- Cool skin is a new shaving system.  
The shaver features a special compartment for cartridges containing Nivea for Men moisturising shaving emulsion.  
This emulsion is applied to the skin while shaving.
- The shaving unit can be cleaned under a running hot tap.  
The HQ156 shaving heads are made of special stainless steel for corrosion-free cleaning with water.

## TECHNICAL DATA

Input voltage	: 100-240 V, 50/60Hz
Motor voltage	: 1.2 V $\overline{\text{---}}$
Cell	: 1x 4/5A NiCd
Cell capacity	: approx. 1200 mAh
Charging indicators	: 1x LED green
Charging time	: approx. 8 hours
Charging current	: 200 mA cont.
Charging device	: Transformer in plug out : approx. 5V $\sim$
Comfort control	: fixed setting contour following
Shaving heads	: HQ156 - 4822 690 10152
Shaving emulsion	: HQ150 - 4822 390 10156 W-EU

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MSH Coding  
8851 561 00000 HQ 561

# HQ 561/A

## TROUBLESHOOTING

- **Shaving heads do not move smoothly over the skin.**  
Cause: not enough Nivea for Men shaving emulsion.

- **Shaving performance has decreased.**

Cause:

1. Clogged shaving heads.

The shaver has not been cleaned immediately after use and/or has not been rinsed with hot water or has not been rinsed long enough.

2. Long hairs in the shaving head.

Clean the cutters and combs individually, since they are all matching sets.

If the cutters and combs have accidentally become mixed up, it may take several weeks before optimal shaving performance is restored.

3. Shaving heads are damaged or worn.

Check the combs for broken or indented lamellae.

Only HQ156 stainless steel Cool Skin shaving heads may be used as replacements.

- **Compartment cover (item 21) cannot be closed.**

Cause:

1. The cartridge has not been positioned correctly.

2. The cartridge has not been pushed far enough into the shaver.

- **Shaver does not work when the on/off button is pressed.**

Cause:

Batteries are empty.

- **Shaving emulsion has lost its colour or has become watery.**

Cause:

The Nivea for Men emulsion has not been kept at the right temperature.

## TIPS FOR REPAIR

- Remove the shaving unit to prevent damage during repair.
- Remove the slide cover (item 21) and cartridge (item 20).
- **Push the edge of the hair chamber up with your thumb until the snap connection unlocks (see ÕZÕ in exploded view).**
- Remove 3 A1 screws.
- Remove the cover (item 14).
- Use a screwdriver to push the connecting plate (item 17) up at a connecting strip (ÕZÕ in exploded view).
- Tilt the motor slightly to detach the snap hooks of the hair chamber.
- Lift the motor and the PCB out of the housing.
- The cover (item 14) contains a sticker that is permeable to gas yet impermeable to water.
- This sticker may not be removed under any circumstances.
- The entire drive unit (item 10) is supplied as a single part to guarantee optimal sealing of the gear shafts.
- When reassembling the shaver, the sealing ring (item 2) must be placed onto the housing.
- **A new sealing ring must be used to ensure a proper sealing of the shaver.**
- To guarantee that the shaver is completely watertight, only the original screws may be used.

## CIRCUIT DESCRIPTION

The working of the power supply can be diagrammatically represented in the following blocks:

B1. power plug

B2. rectifier

B3. electronic on/off switch

B4. up-converter

B5. motor control

B6. charging circuit

B7. battery

B8. motor

To show the differences between the NiCd version (HQ561) and the NiMH version (HQ562), we have combined the electrical diagrams of these versions.

### B1. Power plug

The power plug of the two versions is identical and has been made specific for these shavers by means of two notches in the shaver plug.

The transformer supplies an alternating voltage of approx. 5 V in unloaded condition.

The relay switches between 145 and 185 V= in loaded condition and in this way adjusts the secondary voltage, depending on the mains voltage range of 100-130 V~ or 200-240 V~.

### B2. Rectifier

The secondary voltage of T1 is rectified by bridge rectifier D2.

Load signalling takes place by means of green LED D1.

Although in the HQ562 load signalling can also be controlled by IC1 and take place via Ledn, we have opted for the solution indicated in the diagram for the sake of uniformity.

### B3. Electronic on/off switch

If a pulse is generated via on/off switch SK1, interface IC2 will ensure a stable on/off position via inverters IC2a and IC2b.

TS5 makes it impossible to switch the motor on when the shaver is connected to the mains.

### B4. Up-converter

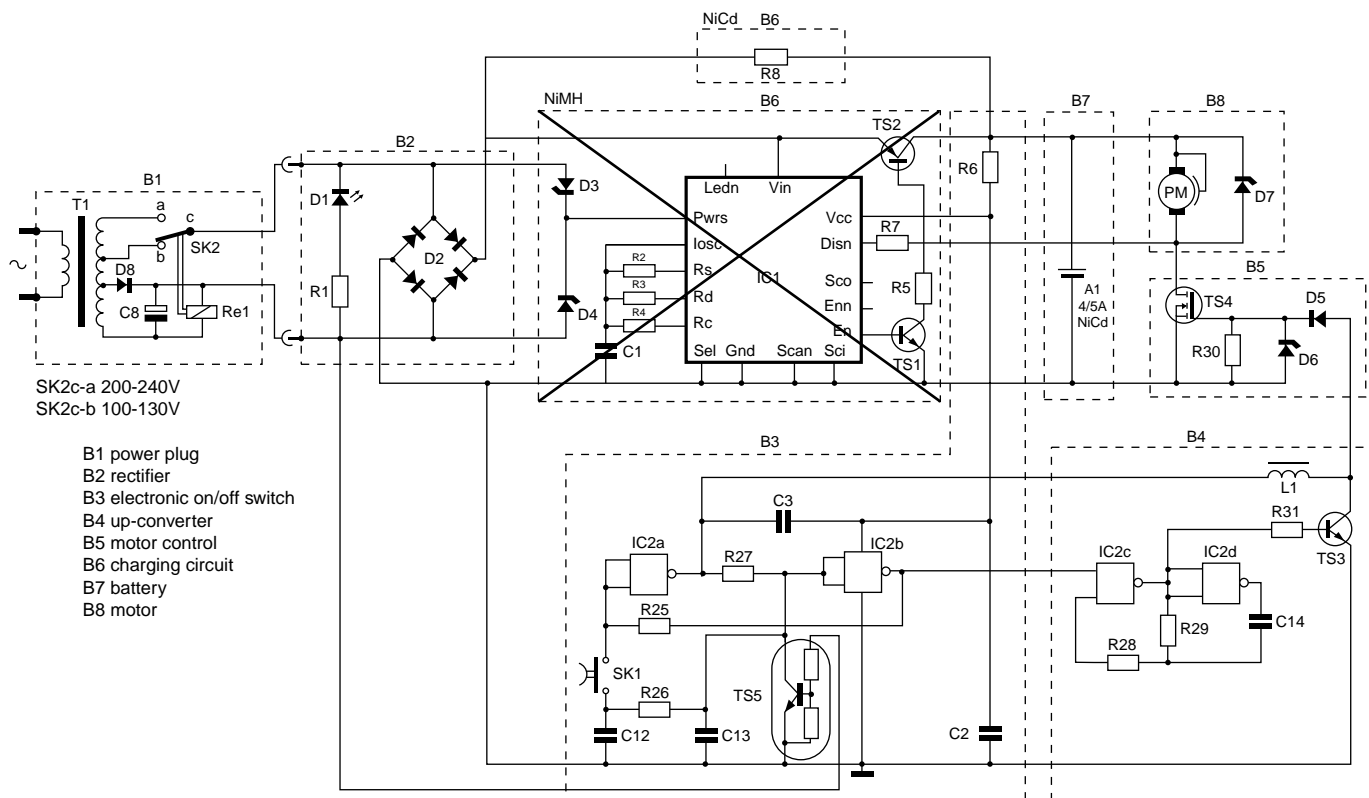
Inverters IC2c and IC2d have been configured as an oscillator and together with TS3 and L1 they provide a voltage that is higher than the battery voltage.

### B5. Motor control

Motor control takes place via MOSFET TS4.

The higher gate voltage (approx. 4.2 V) is produced by the up-converter and is rectified by D5.

Zener diode D6 eliminates voltage peaks.



### B6. Charging circuit

As NiMH batteries may not be continuously loaded with a high charging current, the HQ562 has a timer IC (IC1).

This IC controls TS2 in such a way that a current of 200 mA is supplied to the battery for about 8 hours, after which TS2 switches to a trickle charging current of 25 mA.

D3 and D4 suppress high voltage peaks.

This circuit is not required in the HQ561 because in this shaver the NiCd battery is continuously charged at 200 mA via R8.

The value of R8 equals the internal resistance of TS2.

### B7. Battery

The 4/5A NiCd battery of the HQ561 has a capacity of 1200mAh.

The capacity of the AA NiMH battery of the HQ562 is 1100 mAh.

### B8. Motor

The motor is of the permanent magnet type.

Zener diode D7 suppresses high voltage peaks during shaving.

Normally, this diode is placed between the motor solder tags to suppress radio interference (RIF) in the mains as well.

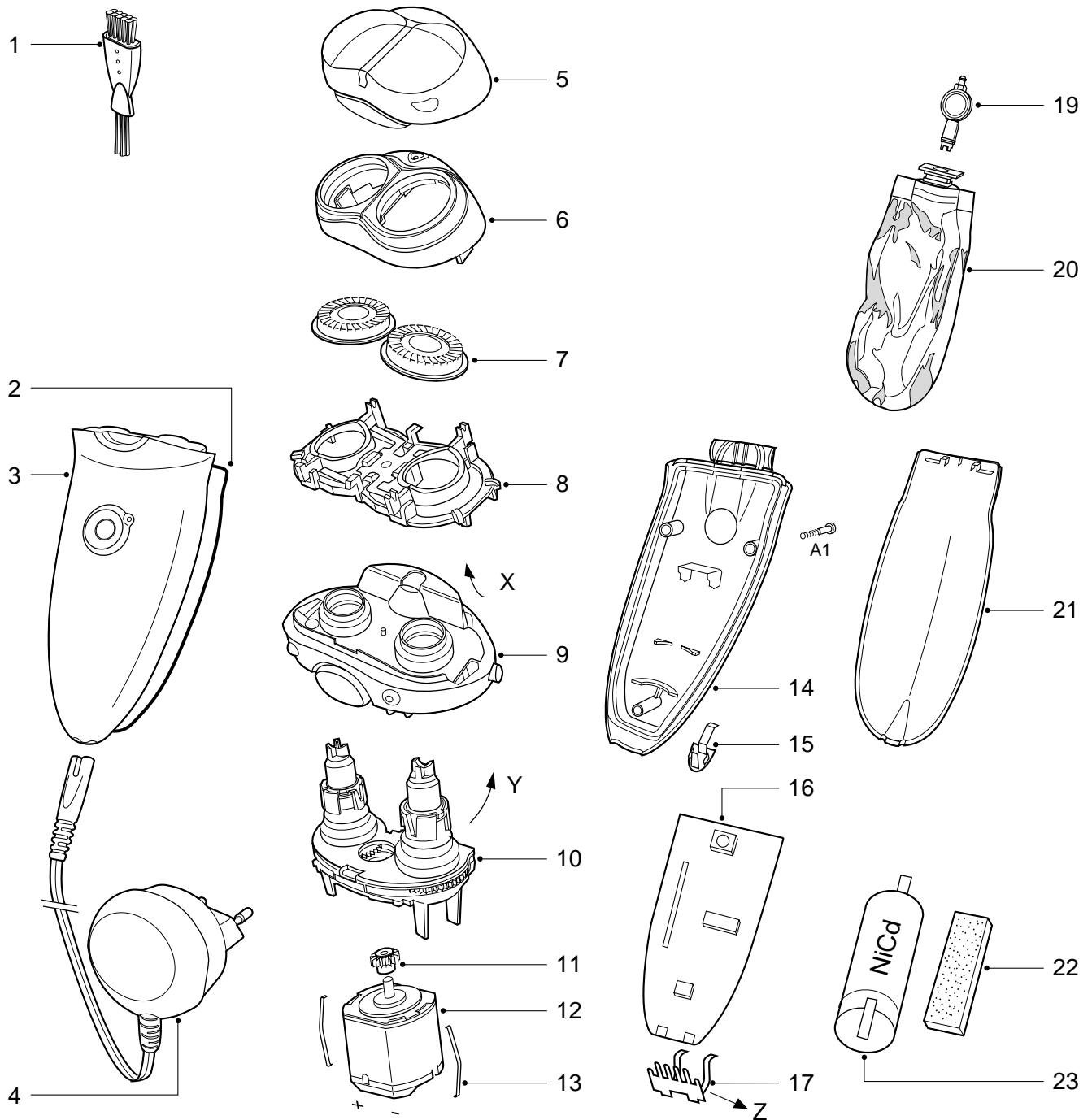
As TS5 makes it impossible to switch the motor on when the shaver is connected to the mains, D7 is now placed on the PCB.

### GENERAL

Some resistors are not indicated in the electrical diagram.

These are resistors of 0 ½ which serve as jumpers across print tracks or as interconnectors between the layers of the double-layer PCB.

# HQ 561/A



- |    |                |                    |
|----|----------------|--------------------|
| 1  | 4822 479 20198 | cleaning brush     |
| 2  | 4822 532 13111 | sealing ring       |
| 3  | 4822 441 12304 | housing PH         |
|    | 4822 441 12305 | housing NOR        |
| 4  | 4822 219 10648 | power plug EU      |
|    | 4822 219 10651 | power plug ROK     |
|    | 4822 219 10652 | power plug AUS/NZ  |
|    | 4822 219 10653 | power plug USA     |
|    | 4822 219 10762 | power plug RA      |
|    | 4822 219 10763 | power plug CDN     |
|    | 4822 219 10764 | power plug MEX     |
| 5  | 4822 462 11152 | protecting cap     |
| 6  | 4822 441 12303 | head housing       |
| 7  | 4822 690 10152 | HQ156 shaving head |
| 8  | 4822 402 11251 | retaining bracket  |
| 9  | 4822 442 01691 | hairchamber        |
| 10 | 4822 522 10747 | gearwheel unit     |
| 11 | 4822 522 10748 | pinion             |
| 12 | 4822 361 21752 | motor 1.2V         |
| 13 | 4822 492 63165 | motor clamp        |

- |    |                |                       |
|----|----------------|-----------------------|
| 14 | 4822 442 01692 | cover PH              |
|    | 4822 442 01708 | cover NOR             |
| 15 | 4822 410 12229 | release knob          |
| 16 | 4822 214 13011 | power module          |
| 17 | 4822 265 11548 | connector             |
| 18 |                |                       |
| 19 | 4822 360 10389 | pump                  |
| 20 | 4822 390 10156 | shaving emulsion W-EU |
| 21 | 4822 442 01693 | slide cover           |
| 22 | 4822 466 12153 | foam plate            |
| 23 | 4822 138 10729 | NiCd cell 4/5A        |
| A1 | 4822 502 14545 | s.t.screw spec.       |
|    | 4822 600 10833 | pouch PH              |
|    | 4822 600 10835 | pouch NOR             |

## Directions For Use

- |                |      |
|----------------|------|
| 4822 736 16773 | NL   |
| 4822 736 16774 | GB   |
| 4822 736 16775 | F    |
| 4822 736 16776 | D    |
| 4822 736 16777 | S    |
| 4822 736 16778 | DK   |
| 4822 736 16779 | N    |
| 4822 736 16781 | FIN  |
| 4822 736 16782 | E    |
| 4822 736 16783 | P    |
| 4822 736 16784 | I    |
| 4822 736 16785 | TR   |
| 4822 736 16786 | GR   |
| 4822 736 16787 | RC   |
| 4822 736 16788 | USA  |
| 4822 736 16789 | ARAB |
| 4822 736 16791 | ROK  |