

Service Manual

Rechargeable Shaver

Model No. **ES7103**
ES7109

North America



⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by **⚠** in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

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1 Warning

Caution:

- Pb free solder has a higher melting point than standard solder; Typically the melting point is 50 - 70°F (30 - 40°C) higher. Please use a soldering iron with temperature control and adjust it to 750 ± 20°F (400 ± 10°C). In case of using high temperature soldering iron, please be careful not to heat too long.
- Pb free solder will tend to splash when heated too high (about 1100°F / 600°C).

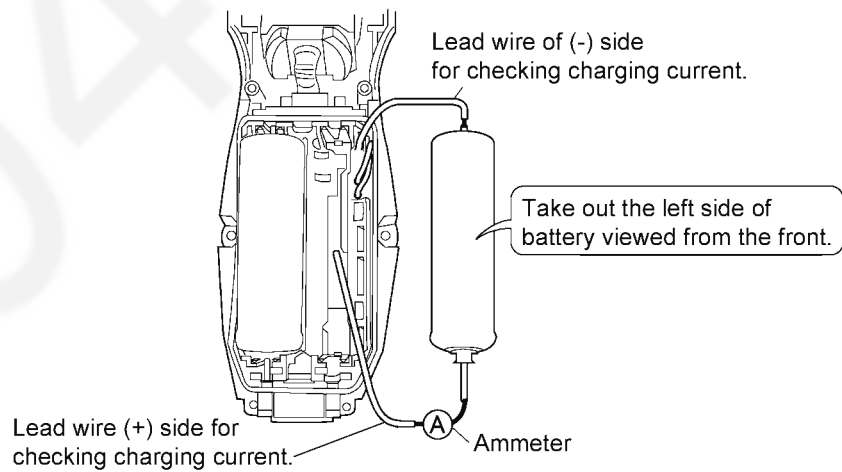
2 Specifications

Power source	AC 100-240V, 50-60Hz (Automatic voltage conversion)
Power consumption	Approx. 6W
Motor voltage	2.4V DC
Charging time	1 Hour
Shaves per charge	14 times (3 minutes shave)
Measurement	(H)15.3 x (W)6.3 x (D)4.5 cm
Weight	200g
Supplied accessories	Self-cleaning recharger (ES7109 only)
	Soft case

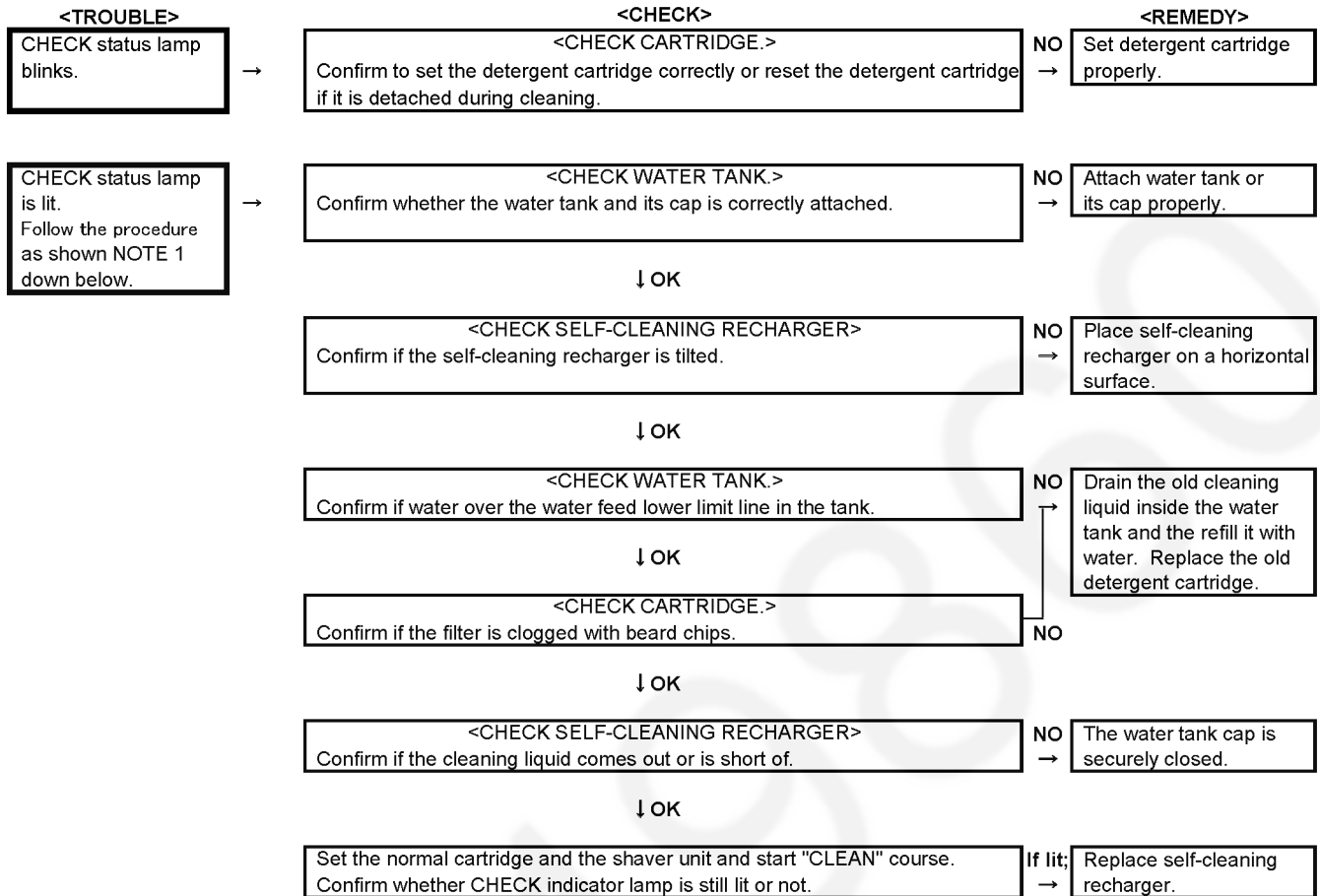
3 Troubleshooting Guide

3.1. Main unit and charging adaptor

<TROUBLE>	<CHECK.>	<REMEDY>	
Motor does not rotate. Does not charge. Functions for a moment and stops.	<p align="center"><CHECK CHARGING ADAPTOR.></p> Connect the rated voltage to the normal main unit by the charging adaptor. Check if the plug symbol of LCD glows. Supply the rated voltage to the adaptor and measure the voltage. OK if it is approximate DC 5.7V between the terminals of the plug with no-load operation.	NO → Replace charging adaptor.	
↓ OK			
<p align="center"><CHECK RECHARGEABLE BATTERIES.></p> Okay if the voltage of rechargeable batteries is more than approximately 1.2V DC between (+) and (-) terminals. (Replace two rechargeable batteries at the same time even though one battery is defective due to series connection.)			NO → Replace both rechargeable batteries at the same time.
↓ OK			
<p align="center"><CHECK SWITCH CONTACT.></p> Okay if there is a continuity and no deformation of switch terminals.			NO → Repair contact or replace housing A.
↓ OK			
<p align="center"><CHECK MOTOR.></p> Okay if motor rotates when DC2.4V is applied to (+) and (-) terminals.			NO → Replace motor.
↓ OK			
<p align="center"><CHECK MODULE.></p> Wire the main unit returned from a customer refer with the following figure, and connect the rated voltage to it by the charging adaptor. Take out the left battery (viewed from the front). Connect the chassis and (-) terminal of battery with the lead wire. Check charging current with the wire between chassis and (+) terminal of battery. Check charging current, if it is in between 700mA to 850mA.			NO → Replace module.



3.2. Self-cleaning recharger (ES7109 only)



NOTE 1: Hold down the SELECT button for approximately two seconds to extinguish the CHECK indicator lamp.

The course will be aborted if the power is cut off during cleaning.

(Phenomenon)

The cleaning liquid remains the tray even the course is completed normally.

(Action)

Try to re-operate the course once again to exhaust the cleaning liquid on the cartridge tray.

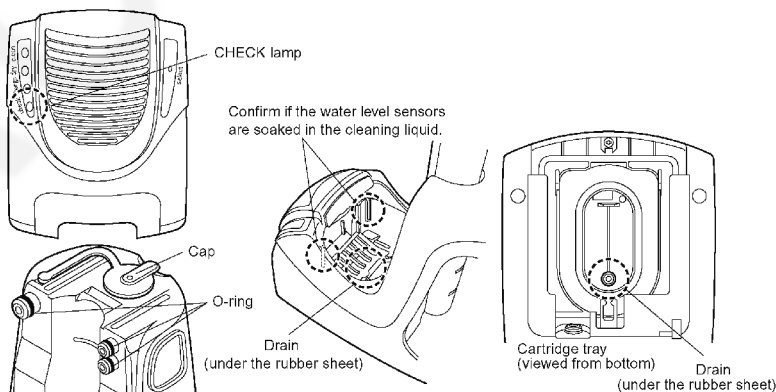
Too much cleaning liquid remains the tray.

(Phenomenon)

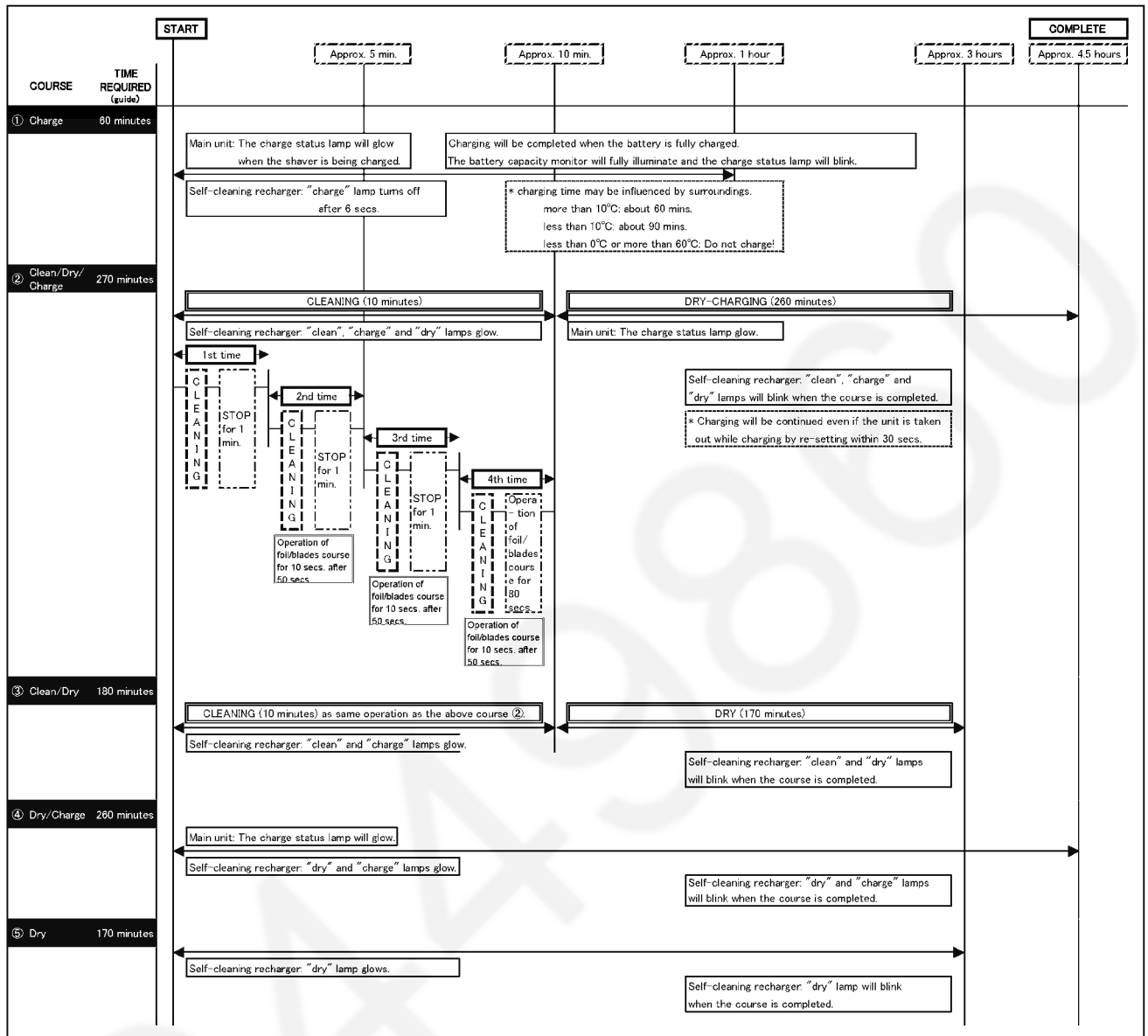
The cleaning liquid remains the tray even the course is completed normally.

(Action)

Clean the drain holes as pointed with the circle down below.



3.3. Operation of Self-cleaning recharger (es7109 only)



NOTE: When the shaver is set on the self-cleaning recharger, "Charge" course is selected automatically. Press the select button within six seconds to choose a difference course starting from ①→②→③→④→⑤→①.....

Course	Course selection indications				Changeable course halfway through	Course completion summary				
	On recharger			On shaver		On recharger			On shaver	Time required (guide)
	clean	dry	charge			clean	dry	charge		
① Charge	○	○	○*	②③④⑤	▶	○	○	○	☀	1 hour
② Clean/Dry/Charge	○	○	○	③	▶	☀	☀	☀	☀	4 h 30 min
③ Clean/Dry	○	○	○	②	▶	☀	☀	○	☀	3 hours
④ Dry/Charge	○	○	○	②③⑤	▶	○	☀	☀	☀	4 h 20 min
⑤ Dry	○	○	○	②③④	▶	○	☀	○	☀	2 h 50 min

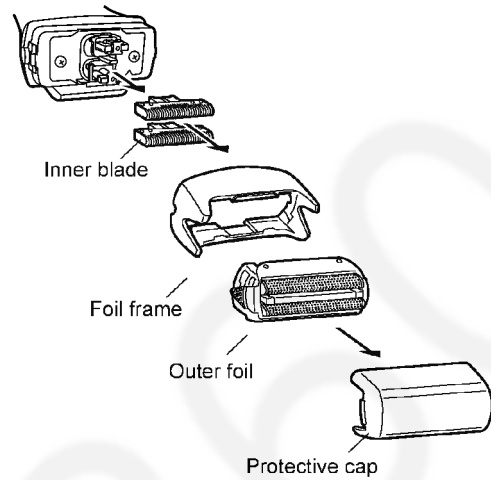
*The lamp goes out in 6 seconds.

4 Disassembly and Assembly Instructions

4.1. Disassembly Instructions

Follow the procedure below to disassemble the main unit.

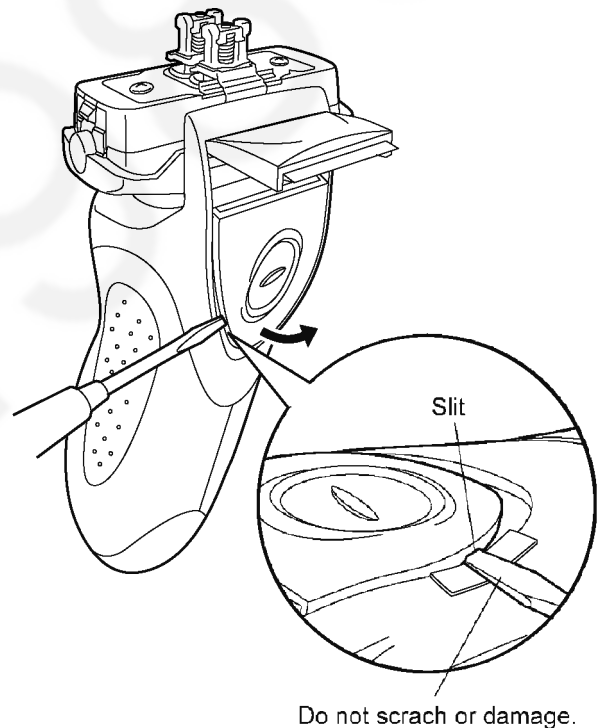
1. Remove the cap, the outer foil with foil frame and the inner blade.



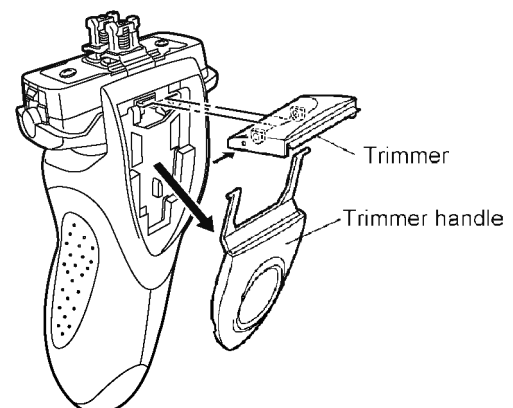
2. Slide the trimmer handle up to open the trimmer and unhook the trimmer handle by inserting something like a slotted screwdriver or plastic spatula into a slit.

NOTE:

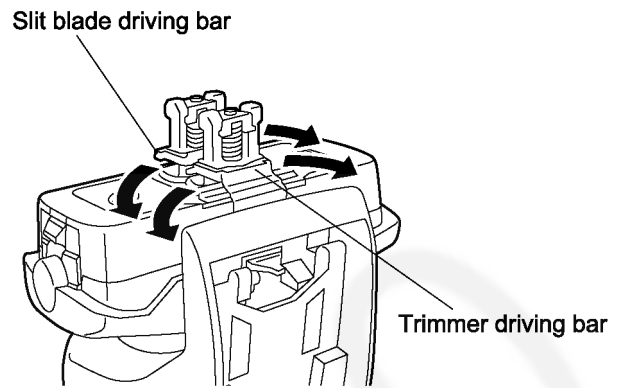
In order to prevent the scratch or damage on the housing, use the cushion under the screwdriver.



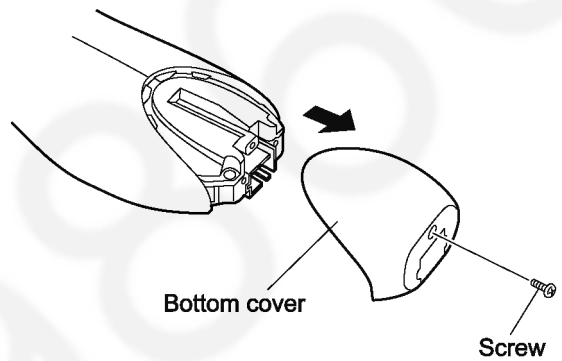
3. Remove trimmer and trimmer handle.



4. To remove the trimmer driving bar or the slit blade driving bar, press bars outward.



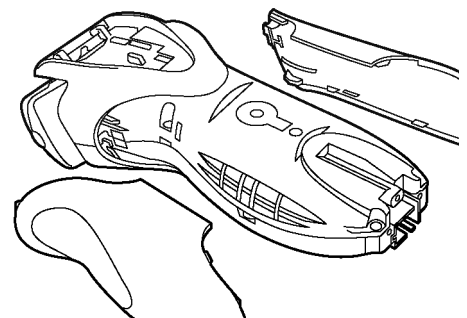
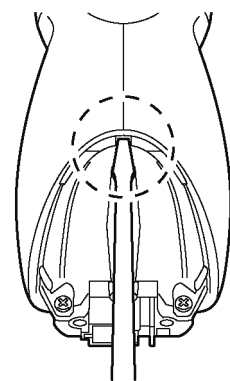
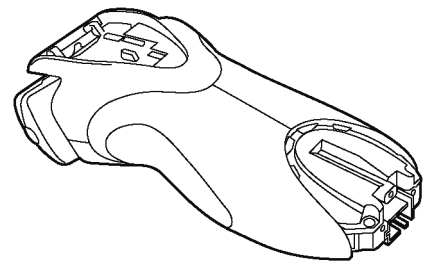
5. Loosen a screw and remove the bottom cover.



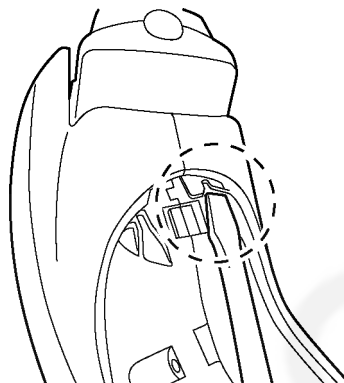
6. To remove the side panels, insert a small slotted screwdriver into the middle of housing and unhook.

NOTE:

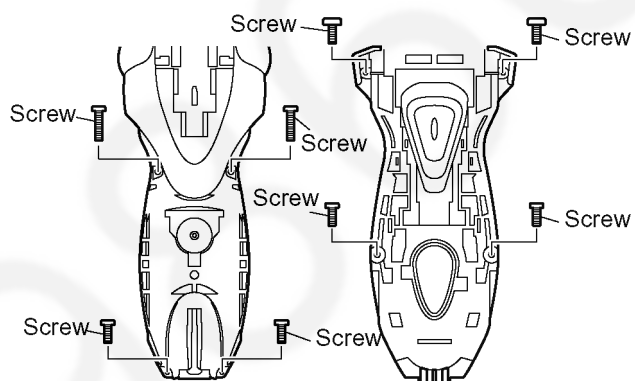
Unhook the rear side, front side and upper side of side panel in order.



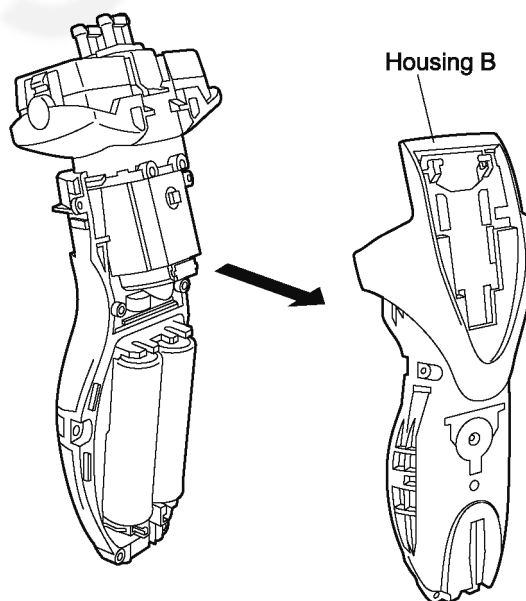
7. Insert a slotted screwdriver into the space between the front panel and housing. Unhook the front panel by lifting the screwdriver up.



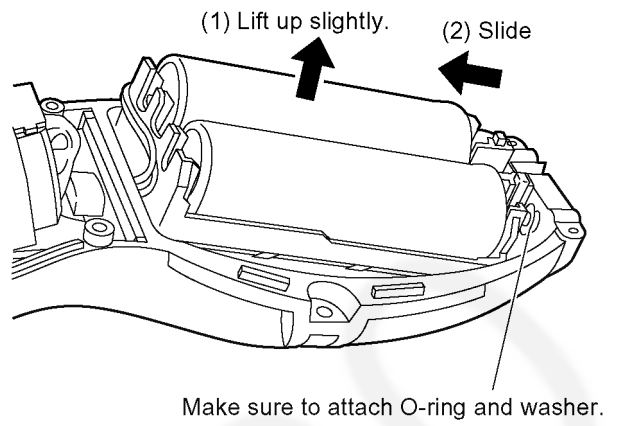
8. Loosen four screws on both front and back side of housing.



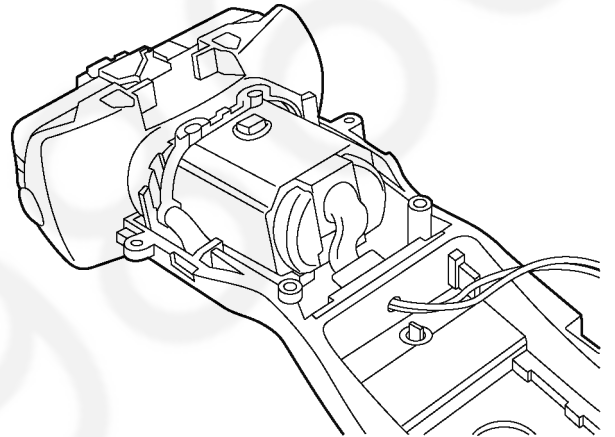
9. Take out the housing B.



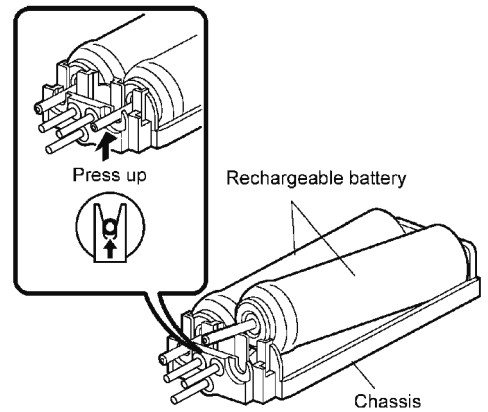
10. And take out the battery assembly from housing A.



11. Remove the motor assembly and tube holder.



12. Remove the battery o-ring and washer in each battery.
Take out the rechargeable batteries from the chassis.



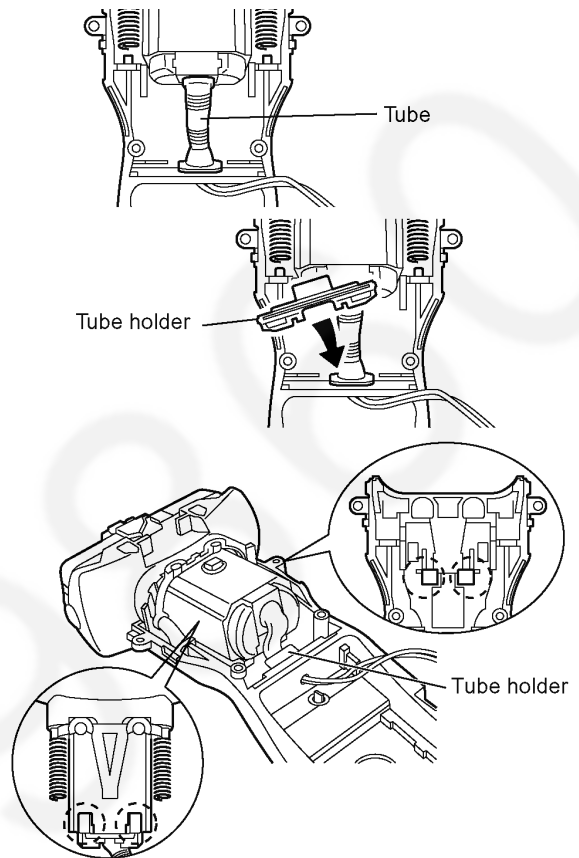
4.2. Cautions in Assembly

NOTE:

When reassembling, replace the new waterproof rubber. Make sure whether there is NO foreign substance sticking around a part covered with water seal.

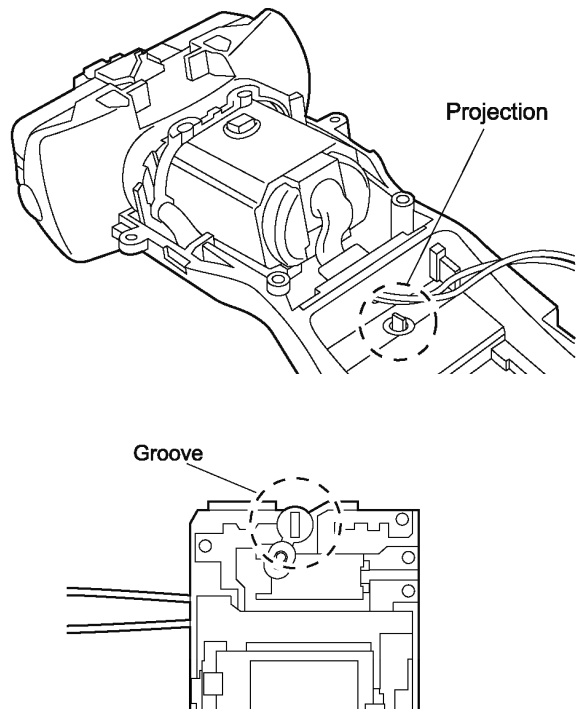
4.2.1. Motor

Insert the tube into the projection of the housing A and set the tube holder firmly. Then hook the motor holder to the housing and put the float springs properly.



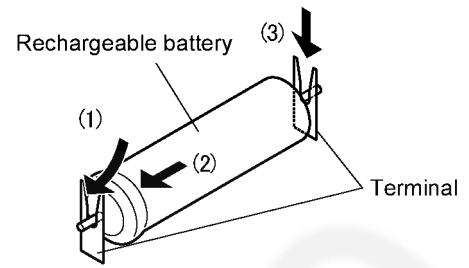
4.2.2. Module

Align the projection of switch select button on housing A with the groove of switch plate on module.



4.2.3. Rechargeable batteries

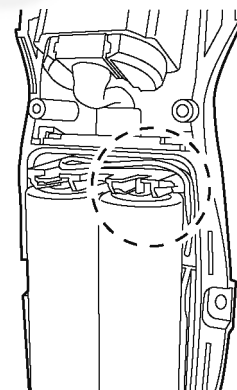
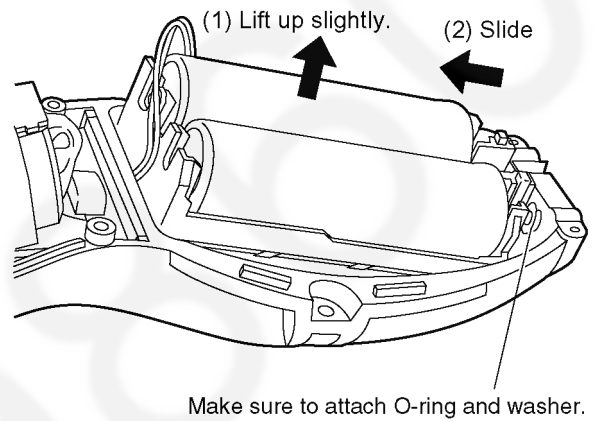
Insert the rechargeable batteries into chassis. Attach the battery o-ring and washer to the battery.



Put the battery assembly from the battery terminal side into housing A, and insert the motor side into housing A.

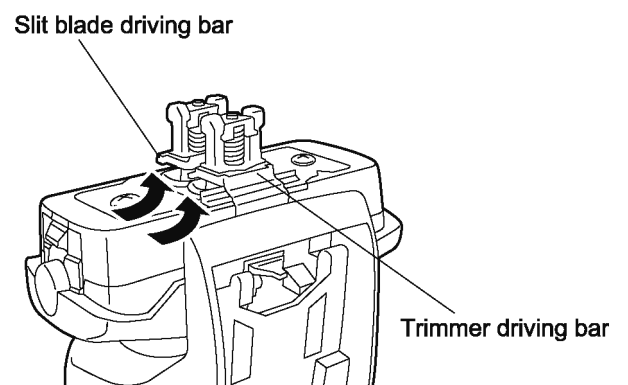
NOTE:

While setting the battery assembly, pull the lead wires out in order to prevent pinching. Then press fit the lead wires neatly.



4.2.4. Driving bars

Set the trimmer driving bar and the slit blade driving bar.

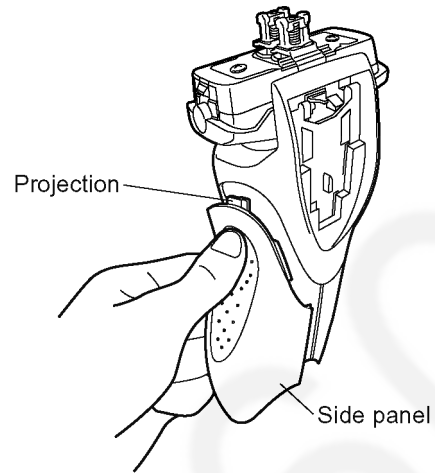


4.2.5. Side panel

Set the side panel on the body and insert the projection on top of side panel into the housing first. Then hook the front side and the rear side of the side panel in order.

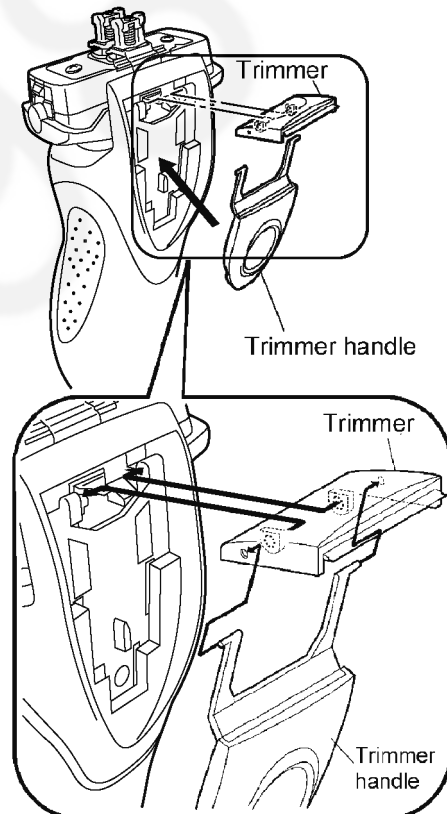
NOTE:

Make sure that the left and right side panels are firmly fitted on both rear and front side.

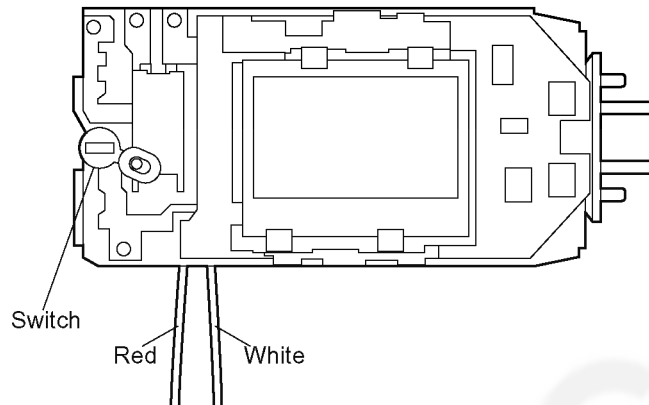


4.2.6. Trimmer

1. Make sure if the bosses of handle arm insert into the holes of trimmer.
2. Align the bosses of housing with the holes of trimmer, and hook the trimmer handle.
3. Confirm its operation or smooth movement of trimmer.

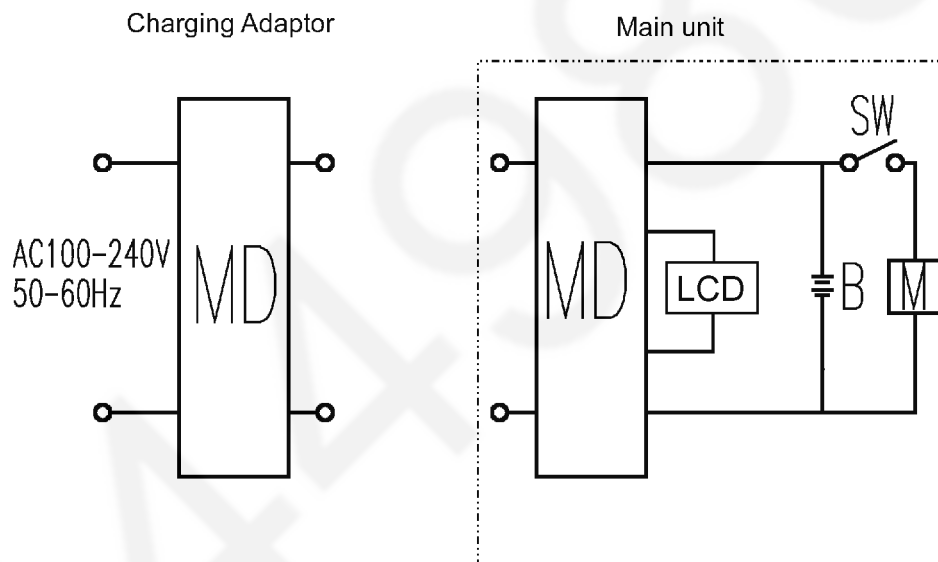


5 Wiring Connection Diagram

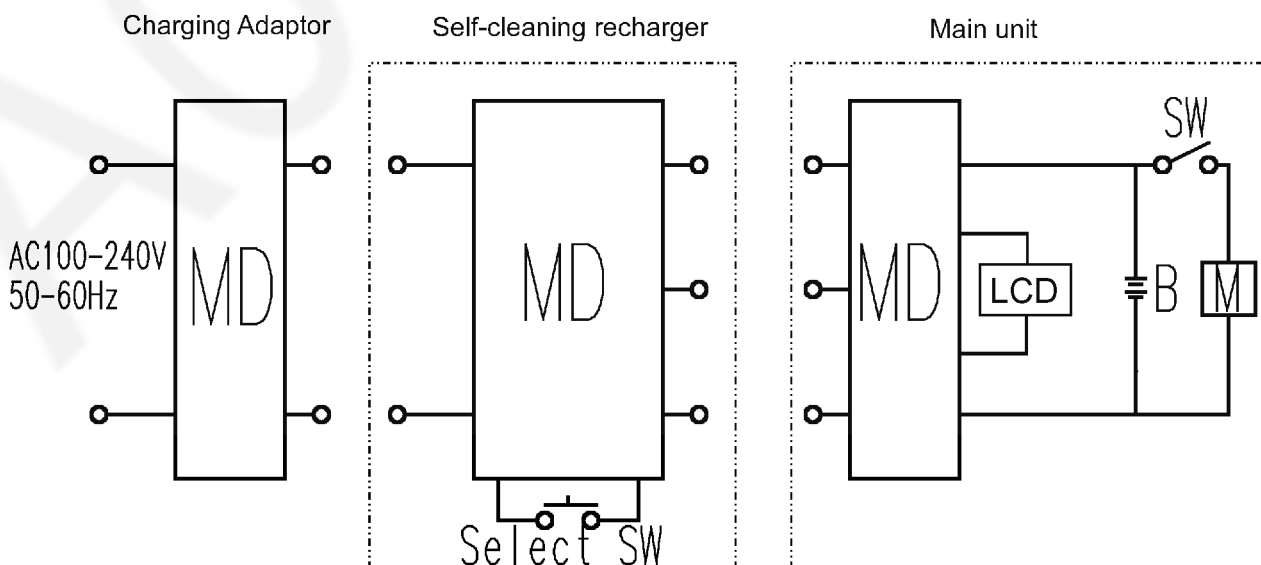


6 Schematic Diagram

6.1. ES7103

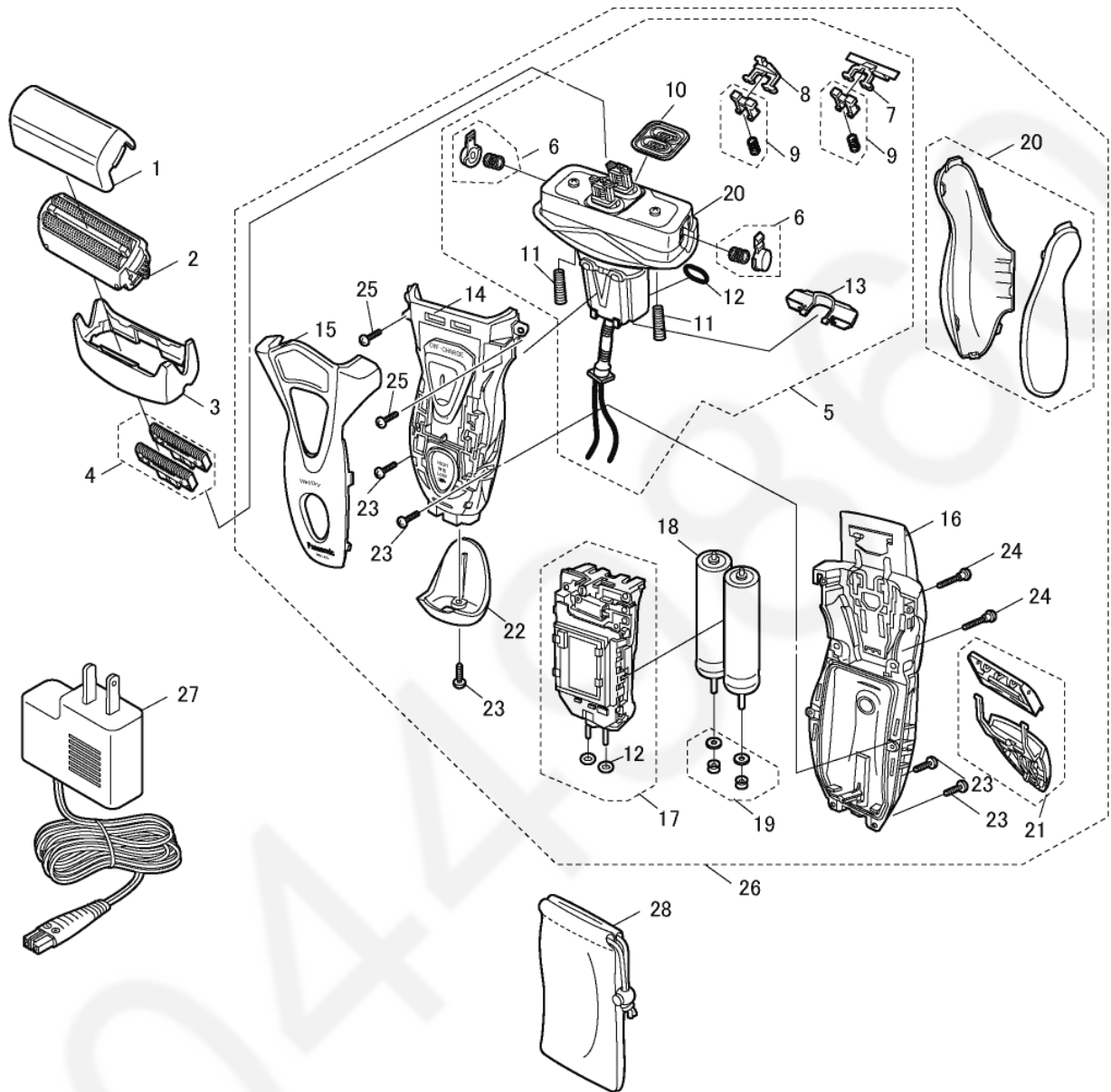


6.2. ES7109



7 Exploded View and Replacement Parts List

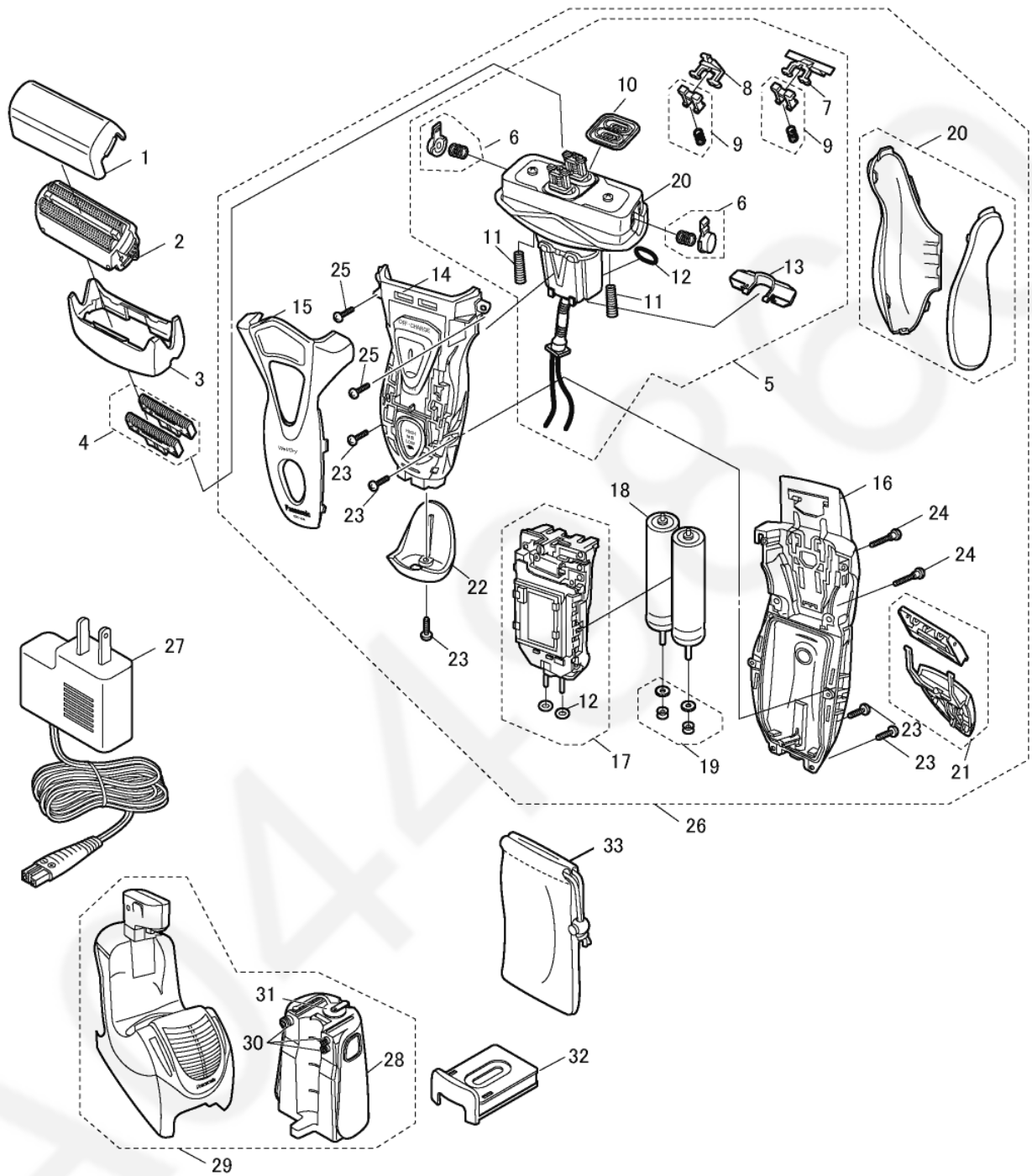
Model No. : ES7103 Exploded View for ES7103



Model No. : ES7103 Parts List

Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
ES7103					
	1	WES8044X7158	PROTECTIVE CAP	1	[BG]
	2	WES9085PC	OUTER FOIL	1	
	3	WES7111K0047	OUTER FOIL FRAME	1	[BG]
	4	WES9064PC	INNER BLADE	1ST	
	5	WES7111L1007	MOTOR ASSEMBLY	1	[BG]
	6	WES7047H3268	FOIL RELEASE BUTTON	2	(2PCS/PK), [BG]
	7	WES7046L1087	TRIMMER DRIVING BAR	1	[BG]
	8	WES7046L1077	SLIT BLADE DRIVING BAR	1	[BG]
	9	WES7046L0587	SPRING AND STOPPER	2	(2SETS/PK), [BG]
	10	WES8080L0326	WATERPROOF RUBBER	1	[BG]
	11	WES7046L0227	FLOAT SPRING	2	(2PCS/PK), [BG]
	12	WES7046L0967	O-RING	1	[BG]
	13	WES7046L0237	TUBE HOLDER	1	[BG]
	14	WES7103K3058	HOUSING A	1	[BG]
	15	WES7103K3778	FRONT PANEL	1	[BG]
	16	WES7111K3067	HOUSING B	1	[BG]
	17	WES7103L2128	MODULE	1	[BG]
	18	WES7038L2508	RECHARGEABLE BATTERY	2	(Ni-Mh Type), (2PCS/PK), [BG]
	19	WES7025L0977	WASHER & O-RING SET	2	[BG]
	20	WES7115K3367	SIDE PANEL	1	[BG]
	21	WES8046H1507	TRIMMER	1	[BG]
	22	WES7103K3848	BOTTOM COVER	1	[BG]
	23	WES7023L6058	TAPPING SCREW	5	(K2-8), [BG]
	24	WES7046L6008	P TIGHT SCREW	2	(K2-12), [BG]
	25	WES762L6007	P TIGHT SCREW	2	(K2-8), [BG]
	26	WES7103K3038	BODY BLOCK	1	[BG]
	27	WES7058K7658	CHARGING ADAPTOR	1	(A-2 PLUG), [BG]
	28	WES7115K7007	SOFT CASE	1	[BG]
	-	WES7103K8008	INDIVIDUAL BOX	1	[BG]
	-	WES7103K8108	OPERATING INSTRUCTIONS	1	[BG]

Model No. : ES7109 Exploded View for ES7109



Model No. : ES7109 Parts List

Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
ES7109					
	1	WES8044X7158	PROTECTIVE CAP	1	[BG]
	2	WES9085PC	OUTER FOIL	1	
	3	WES7109S0048	OUTER FOIL FRAME	1	[BG]
	4	WES9064PC	INNER BLADE	1ST	
	5	WES7109L1008	MOTOR ASSEMBLY	1	[BG]
	6	WES7047H3268	FOIL RELEASE BUTTON	2	(2PCS/PK), [BG]
	7	WES7046L1087	TRIMMER DRIVING BAR	1	[BG]
	8	WES7046L1077	SLIT BLADE DRIVING BAR	1	[BG]
	9	WES7046L0587	SPRING AND STOPPER	2	(2SETS/PK), [BG]
	10	WES8080L0326	WATERPROOF RUBBER	1	[BG]
	11	WES7046L0227	FLOAT SPRING	2	(2PCS/PK), [BG]
	12	WES7046L0967	O-RING	1	[BG]
	13	WES7046L0236	TUBE HOLDER	1	[BG]
	14	WES7109K3058	HOUSING A	1	[BG]
	15	WES7109S3778	FRONT PANEL	1	[BG]
	16	WES7109S3068	HOUSING B	1	[BG]
	17	WES7109L2128	MODULE	1	[BG]
	18	WES7038L2508	RECHARGEABLE BATTERY	2	(Ni-Mh Type), (2PCS/PK), [BG]
	19	WES7025L0976	WASHER & O-RING SET	2	[BG]
	20	WES7115K3367	SIDE PANEL	1	[BG]
	21	WES8046H1507	TRIMMER	1	[BG]
	22	WES7109K3848	BOTTOM COVER	1	[BG]
	23	WES7023L6058	TAPPING SCREW	5	(K2-8), [BG]
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	25	WES762L6007	P TIGHT SCREW	2	(K2-8), [BG]
	26	WES7109S3038	BODY BLOCK	1	[BG]
	27	WES7058K7658	CHARGING ADAPTOR	1	(A-2 PLUG), [BG]
	28	WES7058A7358	WATER TANK	1	[BG]
	29	WES7058K4218	SELF-CLEANING RECHARGER	1	[BG]
	30	WES7058L0968	O-RING FOR WATER TANK	1ST	[BG]
	31	WES7058H3658	TANK CAP	1	[BG]
	32	WES035P551	DETERGENT CARTRIDGE	1	(3PCS/BOX), [BG]
	33	WES7115K7007	SOFT CASE	1	[BG]
	-	WES7109S8008	INDIVIDUAL BOX	1	[BG]
	-	WES7109S8108	OPERATING INSTRUCTIONS	1	[BG]