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Feedback from Right to Repair Europe on the JRC Study for the guidelines on removability and replaceability of portable and LMT batteries

The [Right to Repair Europe](#) coalition represents over 100 organisations from 21 European countries. It represents environmental NGOs and repair actors such as community repair groups, social economy actors, spare parts distributors, self-repairers, repair and refurbishing businesses, and any citizen who would like to advocate for their right to repair. This is a rapidly growing movement, and its objective to make repair affordable, accessible and mainstream is aligned with the objectives of the European Green Deal and the Circular Economy Action plan. Browse member organisations by country [here](#).

[ECOS](#) is an international NGO with a network of members and experts advocating for environmentally friendly technical standards, policies and laws. We ensure the environmental voice is heard when they are developed and drive change by providing expertise to policymakers and industry players, leading to the implementation of strong environmental principles. Browse member organisations by country [here](#).

The [Right to Repair Europe](#) coalition and [ECOS](#) applaud the intent and effort to clarify the precise meaning of several aspects of battery replaceability in the current *Proposal for a regulation of the European Parliament and of the Council concerning batteries and waste batteries, repealing Directive 2006/66/EC and amending Regulation (EU) No 2019/1020*. Below, we present our comments and suggestions with a view to improving the relevance and effectiveness of such guidance.

Interaction between Ecodesign and battery regulation

We consider it very important to see the JRC report confirm that the Ecodesign requirements for smartphones and tablets will not serve to weaken the provisions for battery removability. It would not be in the spirit of the law to have specific and anterior regulations limit the ambition of a horizontal measure. **We therefore urge the Commission and the JRC to preserve the ambition as currently worded** in spite of pressure from manufacturers to have Ecodesign requirements undercut the requirements of the proposed battery regulation.

No additional exemptions or limitations to access by independent repairers

During the stakeholder meeting held on June 15th 2023, several manufacturer's representatives pleaded for exemptions for very small batteries or for entire product categories such as toys,

e-scooters, watches and wearables, vape pens, earbuds, e-call modules in cars, etc. **We believe that such additional exemptions would be in contradiction with not just the wording, but also the intent and spirit of the proposed regulation.**

Safety considerations were also invoked to justify exemptions. Firstly, it should be noted that the safety-relevant nature of certain products or their batteries is not necessarily at odds with user-replaceable batteries. It is entirely possible to design a connection between a device and its battery that is highly reliable and safe whilst still making the battery user-replaceable. Secondly, it is important to note that the text of the proposed regulation only allows for safety-based exemptions in three specific cases, namely (a) where they are needed to comply with safety or environmental regulations concerning electric and electronic equipment laid down in Union law, (b) in the case of appliances specifically designed to operate primarily in a wet environment, and (c) in the case of medical devices. Any other exceptions defined in the guidelines, would contradict the wording of the proposed regulation.

Several manufacturer's representatives also invoked safety to propose restrictions on access by independent repairers, suggesting that manufacturer training, authorisation or certification might be required for independent repairers to be allowed to replace batteries. Again there is no basis for such a restriction in the proposed regulation, and **allowing manufacturers to act as gatekeepers for the ability to replace batteries is contradictory to the very concept of independent repairers and runs counter to the proposed regulation's intent and purpose.**

Appliances designed to operate in a wet environment

Regarding the exemption related to user-replaceable batteries for appliances designed to operate primarily in a wet environment, **we applaud that this is clarified as referring to appliances for which the operation in a wet environment is part of its main function and necessary to deliver it.** We strongly recommend maintaining this specification. We believe that the industry's request to enlarge the scope of the exemption to encompass any product that might in certain cases be used in a wet environment, would severely undermine the scope, intent and ambition of the proposed regulation.

Furthermore, we consider that further **clarification is needed** concerning the proposed regulation's qualification that the exception is only applicable where it is required to ensure the safety of the user and the appliance.

In order to ensure the correct application of this qualification, we feel that it is crucial that:

- **Exemptions be made on a product model basis** and not on a product category basis (e.g. not all toothbrushes but only those specific toothbrush models for which justification for the exemption is provided by the manufacturer);
- In order for a given model to be exempted, the manufacturer should not simply refer to the product's IP rating, but should be **required to demonstrate that the specific**

difficulty that makes battery replacement by end users impossible, is directly related to the waterproofing of the product, which is in turn required to ensure the safety of the user and the appliance.

We would like to illustrate this point, as we did during the stakeholder meeting, with a practical example regarding the replaceability of batteries in toothbrushes and other devices with a similar form factor.

Replacing the battery on a watertight (IP68) flashlight of similar form factor as a toothbrush (eg [Ledlenser P5R Core](#)) is both intuitive and easy to do, to the point that any consumer could do this without any instructions: [after removing the screw-on cap \(with o-ring for water ingress protection\) the battery cell just slides out, and a new cell can be slid in](#). Instructions on battery replacement are provided in the user manual.



Fig. 1: removing the end cap of Ledlenser P5R Core flash light and removing the battery (image © Ledlenser)

Replacing the battery of some electric toothbrushes such as the [Oral B iO](#) is not intuitive, but in fact perfectly feasible for an average consumer. [After removing a small metal ring and unscrewing the bottom cap \(again with o-ring\) with the help of the toothbrush charging station, the whole mechanism slides out and the battery can be unclipped](#). However, instructions on battery replacement are not provided in the user manual. Quite to the contrary; the manual states: “This appliance contains batteries that are non-replaceable. (...) Opening the handle will destroy the appliance and invalidate the warranty”.



Fig. 2 and 3: removing the bottom cap of an Oral-B iO toothbrush (o-ring is visible) and removing the battery (image © iFixit)

On the other hand, replacing the battery of another electric toothbrush by the same manufacturer such as the [Oral-B vitality](#), is probably beyond the capabilities of the average consumer - but this is not due to the device's water ingress protection.

This model opens from the top. It's not excessively difficult to open the device if you know how: it only takes a pair of pliers to unscrew the top 1/8 of a turn. Then the whole mechanism slides out. This is the only step that is related to water ingress protection, which as with the previously discussed devices, is ensured by an o-ring.



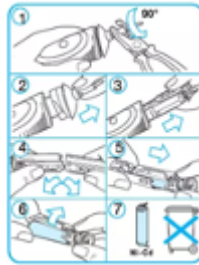
Fig. 4: removing the top cap of an Oral-B Vitality toothbrush (o-ring is visible) (image © iFixit)

The procedure for opening the toothbrush is actually described in the user manual, but only for the purpose of recycling, where it is recommended to forcefully break the internal mechanism in half after removing it to gain access to the battery:

Removing Batteries

At the end of the product's useful life, open the handle as shown, remove the rechargeable battery and dispose of it according to local environmental regulations.

Warning:
Do not disassemble the product at any time other than when disposing of it. Failure to observe this point may result in short circuit, fire or injury. For repair or maintenance (such as battery replacement), take the product to an authorised service centre.



Caution!

Opening the handle will destroy the appliance and invalidate the warranty.

Please make sure the rechargeable battery is completely discharged before disassembling the appliance for product disposal.

Subject to change without notice.

Fig. 5: instructions for removal of battery from Oral-B Vitality toothbrush (image © Oral-B)

Indeed, the real difficulties which make end user battery replacement unlikely, come past the stage of water ingress protection: [replacing the battery requires unsoldering the motor and battery cell tabs \(one of which is soldered together or close to a very delicate 0.2mm thick charge coil wire\), prying up the PCB, removing said delicate charge coil, bending and snipping battery](#). These difficulties have nothing to do with waterproofing, they are purely linked to the internal, not at all repair-friendly design of the device.

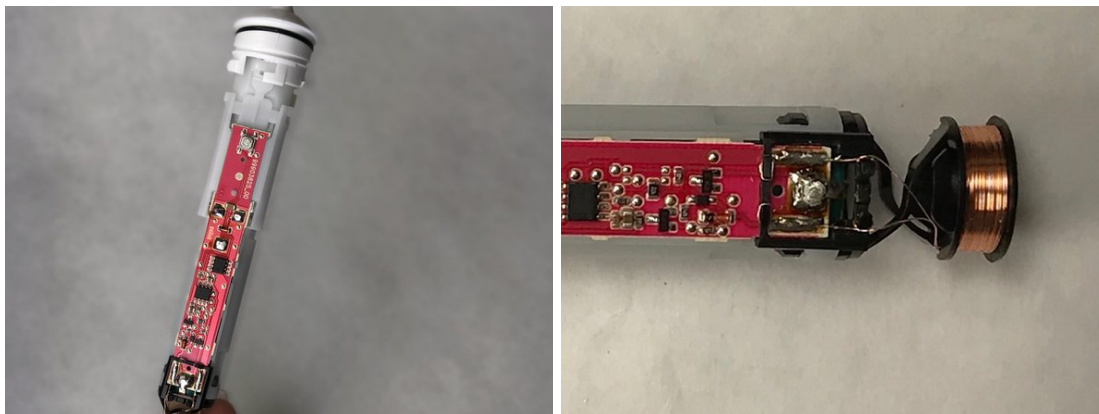


Fig. 6 and 7: Battery of an Oral-B Vitality toothbrush, hidden beneath the control board which needs to be desoldered from motor and battery terminals (image © Oral-B)

In other words, **asking for this product to be exempted from battery removability on water protection grounds would be a false excuse**, as exactly the same water protection can be combined with an easily removable battery, as is in fact the case in another product by the same manufacturer.

Information for battery replacement

As far as information requirements are concerned, the JRC report gives an overview of relevant information, but does not specify the means by which such communication should be communicated. Especially given the above mentioned example of a replaceable battery that is described as non-replaceable in the user's manual (see fig. 5), we think it is essential to specify that the requirement for "products to be accompanied with instructions and safety information on the use, removal and replacement of the batteries" be further specified to **require inclusion of instructions for battery replacement in the user's manual.**

Tools for battery replacement

Regarding tools, fasteners and joining techniques, we welcome that the proposed legislation clarifies that **thermal energy or solvents should not be required in a user-repair scenario.**

However, we regard the **specification of commercially available tools for both repair scenarios as inconsistent and lacking in ambition.** The legislative proposal excludes both specialised and proprietary tools for user-replaceable batteries, and the proposed guidance document excludes proprietary tools for batteries replaceable by independent professionals.

Only proprietary tools are excluded from the definition of commercially available tools in EN45554:2020. This means that, according to the current guidelines, the specification of tools for self-repair is the same as the specification for independent repairers. This is not logical, as end-users generally have access to a less diversified set of tools than independent repairers.

Moreover, the current lack of specification of a 'specialised tool' could easily give rise to a situation where, **in order to replace a battery, a user would have to purchase a tool that is specialised but cannot be identified as such for lack of a definition - the cost of which could easily exceed the cost of the replacement battery.** Excluding proprietary tools is not sufficient to exclude specialised tools, a fact which is clearly recognized by the regulatory text mentioning both separately.

Although we find that EN45554:2020 class B *product specific tools* would be a more appropriate specification for removability by independent repairers, we understand that it is beyond the remit of the JRC to define this as such at this point.

In order to ensure that the spirit of the proposed regulation is maintained, there is a need for defining what a 'specialised tool' means. As mentioned in the report (quoting the final assessment report by Stahl et al.), a battery can be considered replaceable if it is removable with tools commonly available to the end-user. In our opinion and taking into account this concept of 'tools commonly available to the end-user', the specification of EN45554:2020 class A '**basic tools**' would be the most appropriate specification for removability by end-users. The legislation's wording 'removal without specialised tools' should therefore be defined as removal 'with no tool, a tool or set of tools that is supplied with the product or spare part, or

basic tools'. This would also ensure consistency with Ecodesign regulations, where this specification is used for user-replaceable parts.

Battery availability

Regarding the availability of spare batteries for a reasonable and non-discriminatory price, we appreciate that the report takes a first step towards clarifying what this means, but we feel that additional clarification is needed in order to make this requirement enforceable by Member States.

While the report rightly identifies the rationale behind the requirement in that repairs are generally only carried out when the cost is below 30%-40% of the product value¹, it does not provide specific guidance on the interpretation of the requirement.

Given that the cost of a repair is generally composed of labour cost and spare parts cost (assuming there is no transportation cost for the repairer), in order for the repair to stay below the critical threshold, it is reasonable to estimate that the price of spare parts should stay below 15-20% of the product price.²

We therefore **encourage the JRC to propose criteria for reasonable end-user battery prices based on proportionality to product price**. Such criteria could refer to the price of the most expensive spare part, the average price of spare parts, or both³, and should make sure that parts bundling practices do not create a backdoor for part prices exceeding the set threshold.⁴

Spare parts prices could potentially be differentiated based on product price brackets (for instance, max. 20% of product price for products up to 99€ recommended retail price, and max. 15% of product price for products costing 100€ and above) or product complexity (for instance, max. 20% of product price for products consisting of up to 20 parts, max. 15% of product price for products consisting of up to 50 parts, and max. 10% of product price for products consisting of 100 parts or more).

In addition to the price of spare batteries, we suggest that **guidance is also provided on the delivery time of spare parts**. In order to ensure consistency with Ecodesign regulations, we suggest that manufacturers, importers or authorised representatives shall ensure the delivery of the spare batteries within 5 working days after having received the order.

¹ This may be a high estimate. According to Sahra Svensson-Hoglund ea., *Barriers, enablers and market governance: A review of the policy landscape for repair of consumer electronics in the EU and the U.S.* (2021), "generally, the willingness to pay for repairs of small electronics has been estimated to be 20% of the replacement cost" (p. 6, citing McCollough (2007)).

² This threshold is proposed in Florent Curel e.a., *Guide pratique: Rendre la réparation accessible* (Club de la durabilité, 2023) (publication foreseen July 2023, pre-publication draft made available to the authors by HOP).

³ In the French *Indice de Réparabilité*, a product scores 0 points for the price criterion if the average of, on the one hand, the price of the most expensive spare part of a product, and on the other hand, the average price of the other spare parts, is 30% or more of the product price. The parts considered are the 5 parts most likely to fail as well as all parts necessary for the appliance to perform its core function.

⁴ In the French *Indice de Réparabilité*, it is specified that "if one or more parts (...) are of a batch offered for sale or of any other subset of inseparable parts, the price of the part concerned is the price of this batch or subset".

Reasonable disassembly depth

We welcome the fact that a reasonable number of disassembly steps is considered as a criterion for assessing removability of the battery. We support the criterion that **batteries should be attached to the product in a way that no other product components (without accounting for fasteners) need to be removed** before the battery, except for the protective cover. Should this criterion be abandoned, a maximum number of disassembly steps to reach the battery should be specified.

Software limitations

We welcome the explicit clarification offered in the report, that **battery pairing is a form of “software used to affect the replacement of a battery”**, and as such is prohibited by the current article 11.6 of the proposed regulation.

Similar and compatible parts

During the stakeholder meeting, several stakeholders brought up the subject of verification of the compatibility of parts. Indeed guidance should be provided on how to identify compatible batteries. While some industry representatives suggested that in order to be considered compatible, a battery should be approved by the manufacturer, this would clearly go against the spirit of the proposed regulation. Instead, manufacturers should **indicate in the user’s manual which specifications a battery should meet, with reference to international standards**, in order to ensure that a consumer or repairer can easily identify compatible batteries.

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