Material efficiency & end-of-life aspects: Design and policy options proposals
Ecodesign preparatory studies on household dishwashers and washing machines/dryers

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We would like to thank to the JRC for the opportunity to follow up with further comments after the discussions held in Seville on 23rd and 24th June 2015. With the following recommendations we provide our views on which policy options the JRC should investigate further during task 6 (design options) and task 7 (policy scenarios), related to material efficiency and end-of-life aspects of the two product groups concerned.

1. Suggest a procedure to prove non-destructive disassembly & re-assembly

Proposal

The products shall be designed to provide ease of access to components and subassemblies that may need removal for repair or replacement. Ease of access shall include external enclosures, chassis, motor and pumps, and electronic subassemblies shall be removable with commonly available tools or by hand. Products shall utilise commonly used fasteners for joining components, subassemblies, chassis and enclosures.

Access to points of connection and clearance shall be adequate for ease of dismantling of the above mentioned parts of the appliances. Non-separable connections (e.g. glued, welded) between different materials shall be avoided unless they are technically or legally required or utilised for safety purposes. While the verification of such a requirement currently being implemented in IEEE standards is based on documentation, we could also imagine establishing a simple test procedure to be run by independent laboratories.

For the technical documentation we suggest to refer to the existing precedent for professional vacuum cleaners: information relevant for non-destructive disassembly for maintenance purposes shall be made accessible free of charge to independent service providers (see also below our proposal N°2 on availability of repair manuals) through the websites of manufacturers, their authorised representatives, or importers. To further specify this requirement, the preparatory study should take into account the most frequent failures. For washing machines and washer dryers we would consider e.g. the drain pump, drive belt, heating, motor brush, inverter electronics, power electronics, shock absorber, inlet hose, drum bearings and the door handle as most relevant. For dishwashers e.g. circulation pump, door handle, dish basket rolls, drain pumps, power electronics, heating and spray arms would be concerned.

Justification

Ensuring non-destructive disassembly & re-assembly products is a prerequisite for any policy measure to promote repair instead of disposal and purchase of a replacement product. There is a need to identify a few key components or parts for each product category that would need to be replaced with a high probability during the average technical lifetime and which would require a

simple, standardized procedure to be removed with commonly used tools or by hand in situ. The in situ condition could be a way to limit the time spent and increase the practicality for repairs actually being carried out without the need for an expensive dislocation of the whole product. For verification any independent test laboratory should be able to remove and replace the concerned parts. As it should be possible to do both disassembly and re-assembly in a non-destructive way, market surveillance authorities would not even have to buy the appliance.

2. Make repair manuals and tools available

Proposal

Oblige manufacturers to provide independent repair organisations and approved re-use centres with all means to ensure the full functioning and serviceability of their products over their entire lifetime including free-of-charge access to repair and service documentation together with any troubleshooting and diagnostic tools, circuit diagrams, machine codes, software and hardware.

To address safety and liability concerns raised by manufacturers we suggest a differentiation of the possible minimum requirements: repair manuals should be publicly available for everyone, including individual consumers and user repair initiatives such as Repair Cafés. It could contain clear warnings which kind of repairs should only being carried out by professional repair services. If special equipment for more complex maintenance and repairs is required, manufacturers should be obliged to make them available free of charge to all independent commercial repair services (in line with the provisions of the WEEE Directive), which fulfil commonly accepted quality standards or certification schemes, and all re-use centres or networks, which are approved by EU Member States.[1]

Justification

Professionalising and developing approved re-use centres and networks will help create significant opportunities to boost repairing products throughout Europe that otherwise would become waste. This would also help to promote the re-use of products and preparing for re-use activities, as stated in Article 11 of the Waste Framework Directive. For setting Ecodesign requirements to promote repair it is crucial to ensure safety and minimum quality of the services involved. Both manufacturers and market surveillance must be able to check in an easy way if a repair service or re-use centre is 'allowed' or 'qualified' to handle specific product groups. Until outstanding safety and liability issues have not been resolved, more complex maintenance and repairs should only be carried out by professional repair services or approved re-use centres. This is why we suggested the differentiated approach described above which should be enforceable through an Ecodesign implementing measure in combination with EU waste legislation.

Repair is a labour intensive activity and is difficult to delocalise. Independent repair operators, which also include re-use centres, are finding their activity increasingly marginalised economically with producers gaining an increased stronghold and monopoly on repair services. For example even if an

[1] Approved re-use centres or networks are organisations where used goods are prepared for re-use according to the rules laid down in EU waste legislation. This includes proper handling of used goods in a controlled manner: collecting, sorting, dismantling, checking and where appropriate testing, repairing and cleaning. Such organisations separate re-usable goods from non-reusable goods and are officially recognised by a relevant public authority as being competent to carry out these activities. For example an approved re-use centre should have a qualified or competent mechatronic or electrical technician for WEEE. Alternatively a training scheme must be in place under the supervision of a relevant qualified person to train both permanent and non-permanent staff.
RREUSE has defined further key principles for approved re-use centres in order to ensure high quality and safe repair services being carried out as preparation for re-use: http://www.rreuse.org/approved-reuse-centres-and-networks-principles/.

independent repair operator can fix an appliance, they still have to call the after sales service provider of the manufacturer to get the software to delete error codes. This software comes at a cost and is often only available if the repair organisation is an approved service partner of a given brand. To become such a service partner comes at a cost of at least 10,000 EUR in many cases. This is just for one brand but independent organisations deal with many at the same time so costs can be astronomical and repairs impossible. In short, providing the relevant fault diagnostic software, tools, circuit diagrams, service manuals for free to independent repair operators would be of huge help.

3. Ensure availability of spare parts and information on repair services

Proposal

Require mandatory availability of spare parts for at least 10 years from the time that production of a specific model ceases. Information on how to obtain spare parts should be included on the manufacturer's website. Information where to obtain professional repairs and servicing of the product, including the contact details as appropriate, must be found also in the user instructions.

Justification

Beyond the period of legal warranty and an optional commercial guarantee, the consumer is responsible of the necessary repairs. These depend highly on the availability and conditions of the repair services. The availability and price of spare parts is one of the key aspects that influence whether a product will be repaired or replaced by a new one. The Austrian Standard for durable and easy to repair products suggests that for white and brown goods spare parts should be made available for at least 10 years following the last product batch.

Within the methodology for the Ecodesign of Energy-related Products (MEErP) the assumption of an average technical lifetime of 12 years will be used for both washing machines and dishwashers to calculate the Least Life Cycle Costs for minimum performance standards. But this theoretical lifetime can only be reached if spare parts are available for those components that might fail earlier. The time period for availability of spare parts should therefore correspond to the Average Expected Product Lifetime (AEPL) of the models covered by the regulations. Consumers need to be informed and reassured that their product can actually be repaired during that time period. In addition, a list of retailers selling those spare parts should be made available online.

4. Facilitate recycling at end-of-life

Proposal

The JRC should investigate the need for any specific design and/or information requirements for washing machines or dishwashers to ensure the removal of e.g. Printed Circuit Boards (PCBs) and LCD displays of a minimum size, motors and pumps at end-of-life. Separability of those parts could be tested in a standard BAT recycling line. The WEEE Directive defines the BAT how recycling plants should be operating, so consistency between both regulations would be ensured.

Justification

Ecodesign implementing measures should facilitate the separate treatment of materials, subassemblies or components if special handling for recycling is required. This can be the reason because of their toxicity or if a significant higher potential for recovery of secondary raw materials exists. A recent study by the JRC concludes that the resource efficiency of dishwashers could be

significantly improved by the extraction of key parts before any non-specific shredding treatment takes place. The latter could result in contamination of other recyclable parts, lower recycling rates e.g. for steel, copper, gold, silver, and platinum-group metals (PGMs) or eliminating the possibility for recovery of Critical Raw Materials (CRM, e.g. Indium). Furthermore, this requirement would be essential for the separation of neodymium magnets (when embodied), once commercial recycling routes of rare earth would be established. For the very same reason an information requirement for the content of rare earths in motor parts is already being considered during the ongoing revisions of the motors and fans regulations.

5. Promote better durability of products

Proposal

Require mandatory information on commercial guarantees.

The energy label should show as additional information the number of years that the producer guarantees the full functioning of the appliance for free and without passing on the burden of proof to the consumer. Similar to the automotive sector this kind of mandatory information would create a market incentive and competition between manufacturers to differentiate and extend the legal warranties for their products on a voluntary basis according to consumers' preferences.

Provide consumers with more reliable information about product lifetimes for a specific model.

Based on a standard test procedure measuring the technical life time of a specific model under normalised conditions, it should be possible to indicate an average number of cycles before the first failure of a specific model occur. Therefore the JRC should investigate whether or not such endurance testing is already available or can be adapted and replicated. In this case an indication on the energy label could be envisaged, based on the same number of cycles per year as assumed for the information on annual energy consumption.

Justification

Both dishwashers and washing machines are quite long-living products with an average technical lifetime of 12 years (as assumed in the preparatory studies). Nonetheless the market is quite differentiated with much longer-lasting appliances as well as a significant share of earlier failures within the first 5 years after purchase, often without an economic viable repair option available for consumers. Evaluation of recent consumer surveys indicates that product lifetime is one of the relevant purchasing criteria for products like washing machines and dishwashers. So far the EU energy label does not provide information on durability of the product, if it is used and maintained properly. The revision process would be a good opportunity to investigate a standard test procedure in order to promote reliable information on the lifetime of products.

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