SMMT
DRIVING THE
MOTOR INDUSTRY

POWERING CIRCULAR GROWTH:
HOW AUTOMOTIVE REMANUFACTURING DRIVES SUSTAINABILITY AND INDUSTRIAL OPPORTUNITY IN THE UK

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As we transition toward a net-zero future, and the automotive industry continues to increase volumes of zero emission vehicles on our roads, the focus is shifting. Not so much on whether the technology will work and be accepted but, moreover, how these vehicles will be more sustainable. This is about the minimisation of raw materials and, fundamentally, how to reuse components and materials once they reach the end of their service life. This is the "circular economy" and at its heart is remanufacturing – a key enabler of sustainability, industrial resilience and economic growth.

Remanufacturing is more than simply reusing existing material. It is a route to reducing environmental impact, and delivering growth and jobs while decreasing dependence on virgin materials. It generates half a billion pounds in turnover in the UK and, with the right conditions, can deliver even greater economic and environmental benefits.

With the UK's skilled workforce, diverse supply chain, and more than 41 million vehicles on the roads providing essential mobility, the opportunity to scale remanufacturing is significant. From brake calipers and tyres to electric vehicle batteries, each can be repurposed for a second life. Remanufactured components are already delivering measurable carbon, energy and cost savings but with the right support, this sector can do much more.

The prize is considerable – job creation, sustainable business growth, closer compliance with carbon cutting targets. Remanufacturing, and the independent manufacturing sector, is a central pillar of the UK's circular economy strategy, and can be buoyed by smarter regulation to enable growth. As our switch to zero emission mobility/ transport accelerates, remanufacturing will reduce waste, while powering up the next generation of vehicles as a key source of material, rather than digging up the earth.

This is a prize within our grasp, with other nations and economies also striving to reap the benefits remanufacturing can bring. The UK has made a strong start and has huge potential for growth. But with the right policy frameworks, regulation and trade agreements, Britain can continue to be a global leader in automotive innovation - one that is cleaner, smarter and more sustainable.

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IMPORTANCE OF THE UK AUTOMOTIVE INDUSTRY

The automotive industry is a vital part of the UK economy, integral to growth, the delivery of net zero and the UK's status as a global trade hub. It contributes £92 billion turnover and £42 billion value added to the UK economy, invested £5 billion in R&D in 2024 and underpins some 796,000 jobs across the sector.

As a highly innovative part of the automotive sector, independent remanufacturing sector could play a key role in supporting the industry's sustainability goals.

APPROACH AND OUTLINE

With the right support, the independent remanufacturing sector could play a significant role in driving growth as a critical cog in a circular economy, which helps the industry achieve its net zero ambitions. This report aims to explore how this can be achieved.

The report is based on a literature review, discussions with leading players in the sector and advice from an industry steering group convened by SMMT.

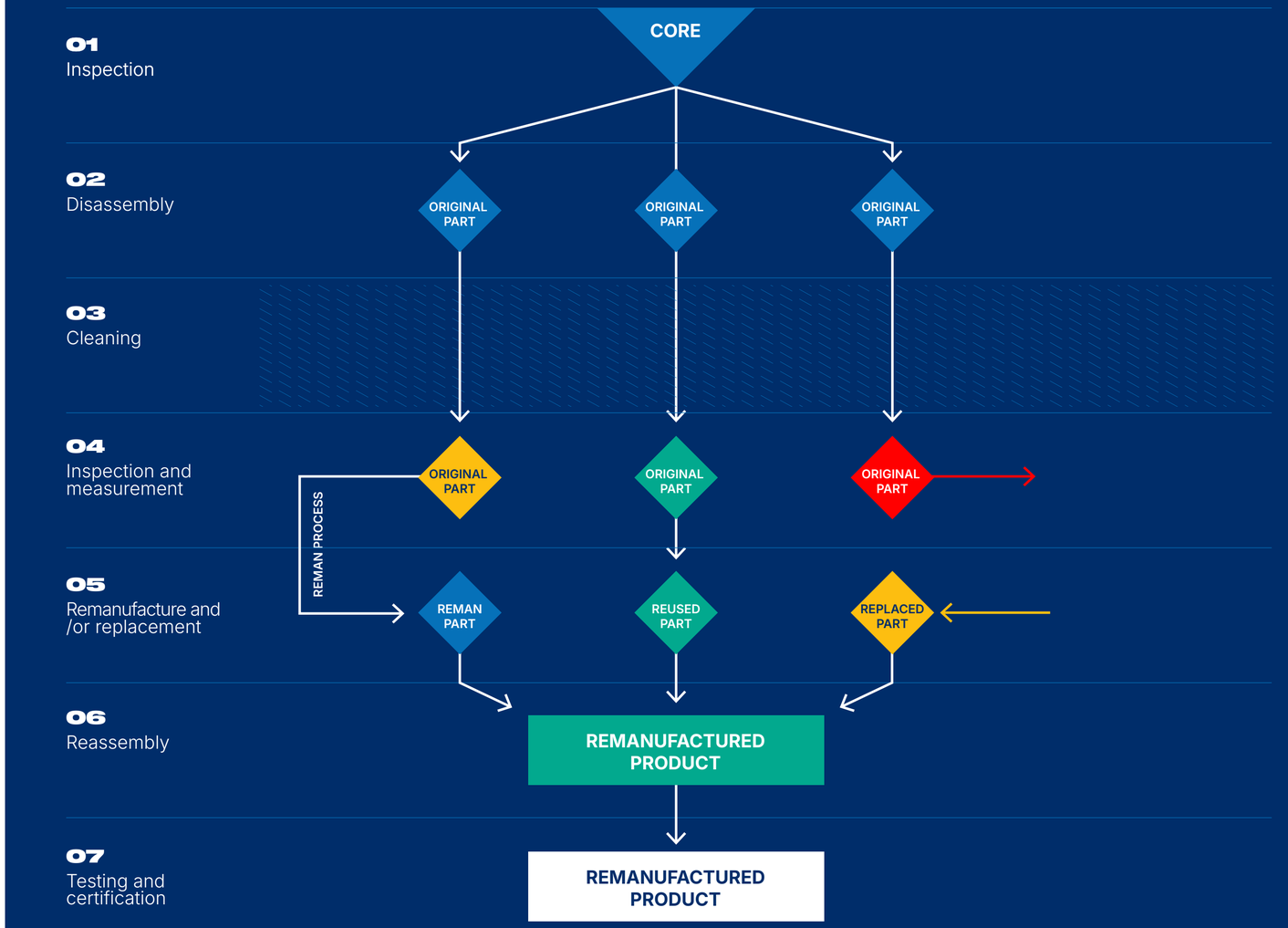
It describes the present state and trends facing the UK's independent remanufacturing sector, presents a range of environmental, economic and social benefits and explores the impact of legislation and the effects of changing technology including electrification. It offers recommendations for government and industry to consider while also including case studies from some of the UK's leading remanufacturing companies.

DEFINING REMANUFACTURING

Remanufacturing is a standardised industrial process by which 'cores' – used materially-intensive and/or costly components – are returned to a same-as-new, or better, condition and performance.[1] These are inspected and disassembled before individual parts are cleaned, inspected and measured. Where possible parts are reused, but parts will be replaced or remanufactured where needed before being reassembled, tested and certified. Guided by specific technical specifications, including engineering, quality and testing standards, remanufacturing yields fully warrantied products that are returned to equivalent or possibly better condition and performance to new, recycled, repaired or reconditioned equivalents.[2]

Common examples of remanufactured components include alternators, braking systems, electronic control units (ECUs), engines, starter motors, turbochargers, transmissions and tyres. Decarbonisation presents huge opportunities for highly sustainable remanufacture of traction batteries, battery management systems, inverters and motors.

THE REMANUFACTURING PROCESS



1 CLEPA. 2021. Report on the current status, impacts and potential of the European automotive component remanufacturing industry. Prepared by Oakdene Hollins, October 2021
2 CLEPA. 2021. Report on the current status, impacts and potential of the European automotive component remanufacturing industry. Prepared by Oakdene Hollins, October 2021

REMANUFACTURING IN RELATION TO THE OTHER 'RS'

Several other circular economy activities occur alongside, and sometimes compete with, remanufacturing:

Recycling
Reprocessing of waste materials for the original or other purposes, but excluding energy recovery.[3]

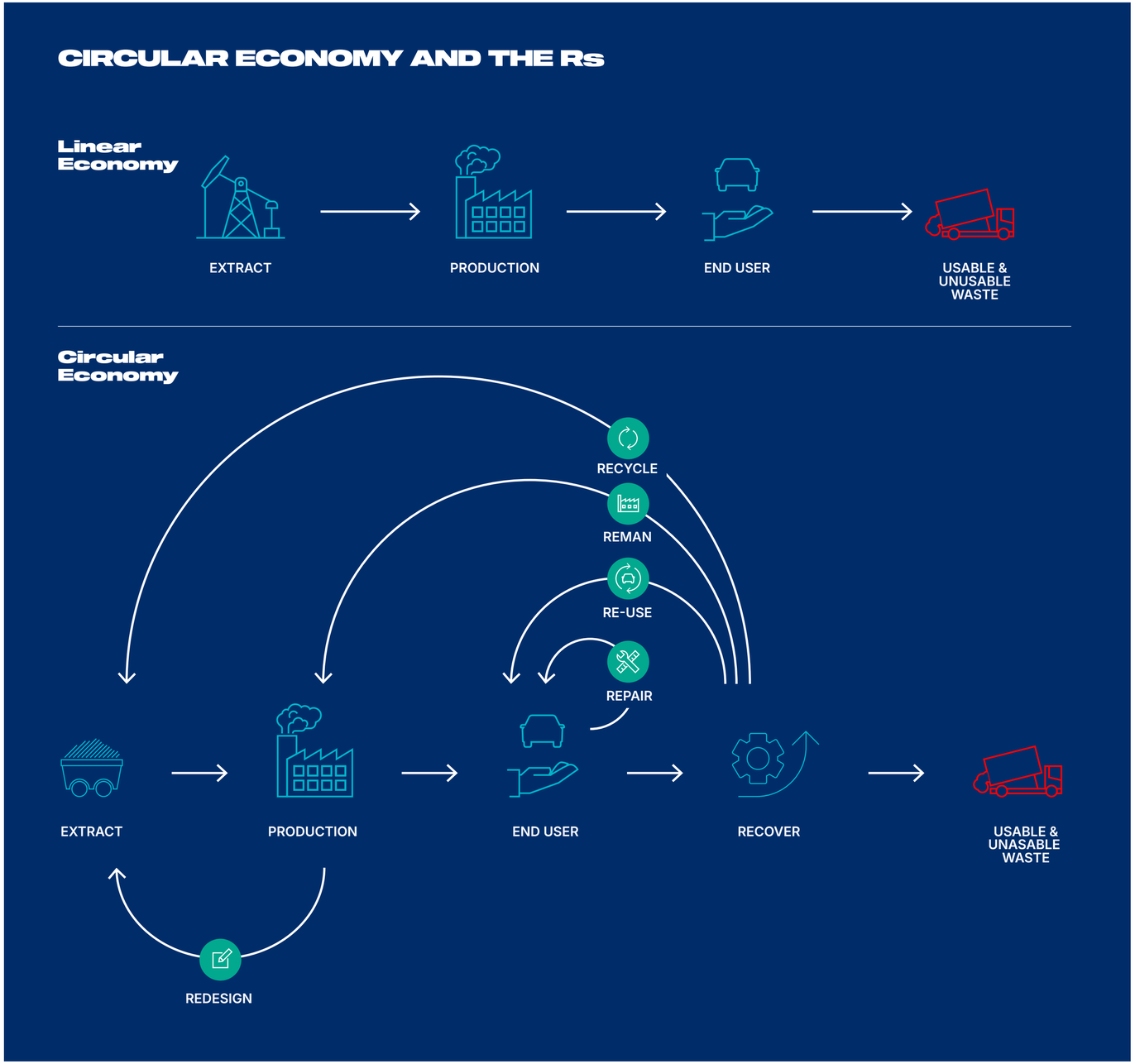
Repair
Returning a faulty, worn or broken component back to a usable state.[4]

Reconditioning
Industrial process returning a used component to a satisfactory performance level,[5] but not necessarily to the same level as remanufacturing.

Reuse
Components from end-of-life vehicles used for their original purpose.[6]

The remanufacturing process is more involved than these other activities, as components are typically fully disassembled, cleaned, tested, rebuilt, and final-tested before being placed back on the market. Where possible, original parts are reused or remanufactured and when necessary replaced; helping reduce the amount of virgin material required. Allowing remanufacturing to play a key role in the circular economy.

3 ELV Directive https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex-%3A32000L0053
4 BS ISO 8887-2:2023. Technical product documentation
5 BS ISO 8887-2:2023. Technical product documentation
6 ELV Directive https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex-%3A32000L0053



SIZE OF THE SECTOR

Globally, the total automotive remanufacturing is in a phase of growth and is expected to increase from £20 billion in 2022 to £31 billion in 2030.[7]

UK government datasets do not separate out automotive remanufacturing, so concrete data on the domestic sector is sparse. There are gaps within the data around the number of companies, employment figures, turnover and gross value added (GVA).

Nevertheless, Oakdene Hollins and SMMT estimate total UK automotive remanufacturing to be valued at approximately £0.5 billion based on historical data sets.[8]

Accessing larger international remanufacturing markets, however, offers an exciting potential for growth.

The EU's recent Clean Industrial Deal projects the European remanufacturing market across multiple sectors to grow threefold to €100 billion by 2030 and create 500,000 new jobs.[9] Especially given automotive is identified as the second biggest European remanufacturing sector after aerospace.

The USA is currently the world's largest single producer, consumer and exporter of remanufactured products, with a projected approximate revenue of £5.2 billion in 2025.[10] Again, automotive components are the second biggest remanufacturing sector after aerospace.[11]

In China around 110,000 engines, 60,000 transmissions and a million starter motors are remanufactured each year.[12] South Korea boasts a sector worth £475 million while in Japan it is estimated at £820 million.

The UK remanufacturing sector is well positioned to exploit global opportunities and can, with beneficial trading, environmental and economic conditions, grow significantly over the coming years.

7 Frost and Sullivan: Remanufacturing to Play a Pivotal Role as Automotive Aftermarket Embraces Circular Economy Principles, September 2024
8 Estimate based on historical remanufacturing data, UK vehicle parc growth, inflation adjustments and scaling of EU remanufacturing size to the UK based on a ratio of car parcs as a comparison.
9 European Commission - Clean Industrial Deal. https://commission.europa.eu/topics/eu-competitiveness/clean-industrial-deal_en
10 Auto Parts Remanufacturing in the US - Market Research Report (2015-2030), Evan Jozkowski. https://www.ibisworld.com/united-states/industry/auto-parts-remanufacturing/5933/
11 Parker, D., Riley, K., Robinson, S., Symington, H., Tewson, J., Jansson, K., Ramkumar, S. and Peck, D., 2015. Remanufacturing market study. https://www.remanufacturing.eu/assets/pdfs/remanufacturing-market-study.pdf
12 Parker, D., Riley, K., Robinson, S., Symington, H., Tewson, J., Jansson, K., Ramkumar, S. and Peck, D., 2015. Remanufacturing market study. https://www.remanufacturing.eu/assets/pdfs/remanufacturing-market-study.pdf

KEY PLAYERS
A diverse range of companies from across the UK are active throughout the remanufacturing supply chain.

TIER 2 AND INDEPENDENT COMPONENT SUPPLIERS
Automotive remanufacturing has traditionally been the preserve of Tier 2 suppliers and specialist independent operators. While some carry out work for Tier 1 suppliers and vehicle manufacturers, they also directly compete with them and often reverse engineer products better to understand the technical properties.

TIER 1 COMPONENT SUPPLIERS
Some Tier 1 suppliers, including electronic specialists Valeo, Bosch and tyre maker Michelin, have long offered both brand new and remanufactured components. Others are developing remanufacturing capabilities alongside primary manufacturing operations. These businesses can often capitalise on existing relationships with vehicle manufacturers to access technical information necessary to remanufacture.

WHOLESALERS
Wholesalers, accessory shops and car parts distributors constitute a strong independent aftermarket across the UK. These businesses supply a full range of components to workshop networks and retail customers and can use their logistics networks to support core recovery.

VEHICLE MANUFACTURERS
Vehicle manufacturers sometimes reclaim cores and either remanufacture parts in-house or outsource the process to their original equipment supply chain or to the independent remanufacturers. They can then use remanufactured parts when vehicles are returned to the main dealer for repair or servicing. This can add a layer of complexity to commercial relationships as vehicle manufacturers may then compete with their remanufacturing suppliers.

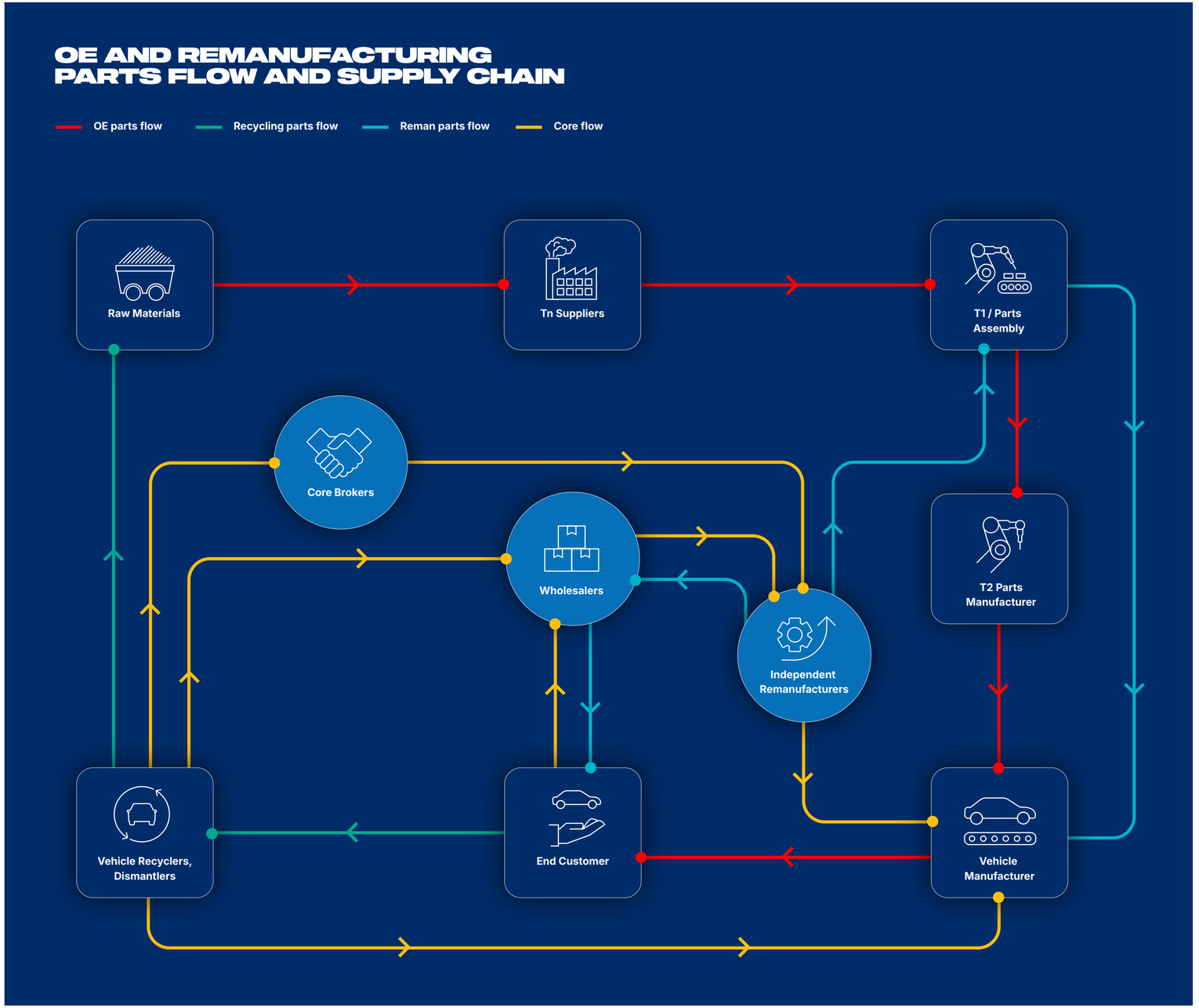
As products and business models change and evolve, some vehicle manufacturers are increasing their use of remanufactured parts to keep their vehicles on the road for longer and to support sustainability goals. Recent examples include Toyota's Circular Factory at Burnaston, which recovers and remanufactures parts from end-of-life vehicles,[13] and Stellantis' European SUSTAINera REMAN range, featuring remanufactured LED headlamps and infotainment screens developed with Valeo.

VEHICLE RECYCLERS AND DISMANTLERS
End-of-life vehicles (ELVs) are dismantled at authorised treatment facilities (ATFs). Valuable and reusable parts are typically harvested as cores. These can then be sold on to core brokers or directly to remanufacturers.

CORE BROKERS
These buy, sell and trade cores between different parts of the supply chain, providing a service to plug gaps in supply or in sourcing hard-to-find products.[14]

13 https://mag.toyota.co.uk/toyota-circular-factory/
14 https://www.media.stellantis.com/uk-en/corporate-communications/press/stellantis-and-valeo-strengthen-their-cooperation-with-the-launch-of-the-first-remanufactured-led-headlamp-in-europe-and-the-remanufactured-infotainment-display-screen

OE AND REMANUFACTURING PARTS FLOW AND SUPPLY CHAIN



REMANUFACTURING: THE BENEFITS

ENVIRONMENTAL BENEFITS

Remanufactured components offer significant environmental savings and promote a circular economy. A large percentage of a part's embodied material and value is kept in use for longer avoiding the need for more raw materials and the greater energy usage, necessary in the manufacture and shipping of new components.

There is a large contribution to resource efficiency which is defined by the UK Department for Energy Security and Net Zero as the "optimisation of resource use so that a given level of final consumption can be met with fewer resources. This can occur at production, consumption, or end of product life."[15]

Remanufacturing components have been shown to yield material savings of 88% compared with using a new product, an associated 53% decrease in greenhouse gas emissions and a 56% lower energy requirement.[16]

Some 807,000 tonnes of greenhouse gas emissions could be avoided annually across Europe through remanufacturing, equivalent to 6% of the total annual car manufacturing emissions.[17]

ECONOMIC BENEFITS

The independent remanufacturing sector can help deliver economic growth and job creation. Due to the complexity of logistics involved in the recovery of cores, remanufacturing processes and subsequent delivery of final product, remanufacturing naturally supports a domestic closed-loop model based on a sizeable market. With an ageing car parc of 41 million vehicles,[18] a long-established remanufacturing base, and a growing aftermarket, the UK is well positioned to capitalise on sector growth, generating more high-value and highly skilled jobs.

Many remanufacturing processes are relatively labour-intensive, providing high value employment opportunities across the UK. In the case of tyre retreading, more than 80% of re-treaded truck and bus tyres used in the UK are also made here, providing economic benefit and opportunity through the 5,500 people employed in retreading alone.[19]

Much of the independent remanufacturing sector sits within the UK's buoyant aftermarket for service, maintenance and repair which could underpin future growth and development opportunities with new technology. The latest ONS data, shows the aftermarket sector grew 8.7% and contributed £17.1 billion to the UK economy in 2023.

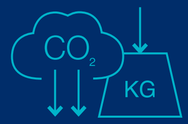
If the independent remanufacturing sector can leverage its position in the market, it could make a significant added contribution. Data from GiPA, a specialist automotive aftermarket intelligence agency, highlights that the majority of UK workshops seek support in sourcing remanufactured components implying a strong level of existing demand.[20] There is a clear opportunity for all parts of the remanufacturing supply chain to better connect and work closer together, through trade bodies like the SMMT, to capture this demand.

REAL WORLD CASE STUDIES

Remanufacturing a single electric vehicle (EV) battery can save more than a **tonne of greenhouse gas emissions,** as well as **4,200 kWh of electricity and 1,500 litres of water.**[21]

Using remanufactured parts in a truck gearbox can **cut greenhouse gas emissions by 45%** compared to building a brand-new unit.[22]

Fitting remanufactured (retreaded) truck and bus tyres can deliver three times the resource efficiency and lead to **four times less tyre consumption** than using low-cost single-life tyres.[23]



Each time a truck and bus tyre is retreaded, **30 kg of rubber, up to 20 kg of steel and 60 kg of CO_2 are saved.** High quality retreaded tyres can also last up to **50% longer** than low-cost, single-life tyres[24]

CASE STUDY

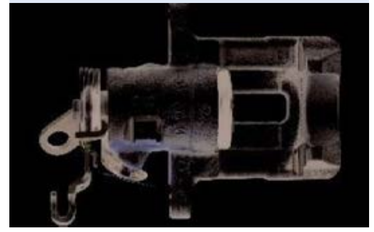
Brake remanufacture by Brake Engineering

Brake Engineering, a part of ZF Services, has been remanufacturing brake systems out of its Centre of Excellence in Wrexham for over forty years.

Over this period, it has produced nine million remanufactured brake calipers, delivering an estimated 951 tonnes of CO2 savings each year from materials savings and remanufacturing processes.

The company employs a comprehensive 10-stage remanufacturing process involving cleaning, inspection, rebuilding and rigorous testing to ensure the end product performs at least as well as a new product.

The 20,000 m2 facility is capable of handling large volumes of product and has a 90% availability rate, ensuring a wide range of products to support.



15 Unlocking Resource Efficiency Phase 1 Executive Summary DESNZ Research Paper Series Number 2023/039. https://assets.publishing.service.gov.uk/media/6564e61b888c060013fa7dd0/unlocking-resource-efficiency-phase-1-executive-summary.pdf
16 Remanufacturing as best practice of the Circular Economy, APRA Europe. (cited in Parker, D., et al. 2015. Remanufacturing market study.)
17 CLEPA. 2021. Report on the current status, impacts and potential of the European automotive component remanufacturing industry. Prepared by Oakdene Hollins, October 2021
18 SMMT Motorparc Vehicles in Use (UK) - Overview https://www.smmt.co.uk/vehicle-data/motorparc-vehicles-in-use-uk/
19 British Tyre Manufacturers' Association
20 GiPA research July 2024
21 Autocraft EV Solutions Case Study (2024)
22 Scania Case Study (2024)
23 Michelin Case Study (2024)
24 https://btmauk.com/retreading/benefits/

REMANUFACTURING IN A CIRCULAR ECONOMY

Through delivery of the economic and environmental benefits outlined, automotive remanufacturing can play a key role as an engine for growth in the UK's circular economy. Remanufacturing processes provide a route to close manufacturing supply chains, helping keep materials in use. By only replacing what is necessary, remanufacturing reduces the need for new parts and their associated costs and embedded carbon emissions.

CASE STUDY

Michelin tyre retreading

Michelin remanufactures tyres for the truck and bus sectors. When tyres reach the end of their first life, they can be regrooved. Once that has worn down, they can then be retreaded at Michelin's Stoke-on-Trent facility as a Remix brand product. Retreaded tyres can be regrooved again for a fourth life, after which they can be retreaded once more for use on flatbed trailers.

Nigel Graham, Clugston's Fleet Manager, said: "Correctly managed, we can achieve up to 250,000 km from some of our first life tyres. The Remix tyre always performs just as well, which is little wonder after you see the Michelin Remix factory process in action. It's incredible when you witness the time, effort and passion that goes into ensuring the Remix tyre is as good as a first life one."

The remanufacturing process delivers three times the resource efficiency and consumes four times fewer tyres than using single use tyres.

VALUE OF THE UK AFTERMARKET

RECORD TURNOVER & GVA, BUT EMPLOYMENT DIPS

SIC45.2 (Maintenance & repair motor vehicles)
45.31 (Wholesale trade of mv parts & accessories)
45.32 (Retail trade mv P&A)

Number of businesses **57,572** +1.8%

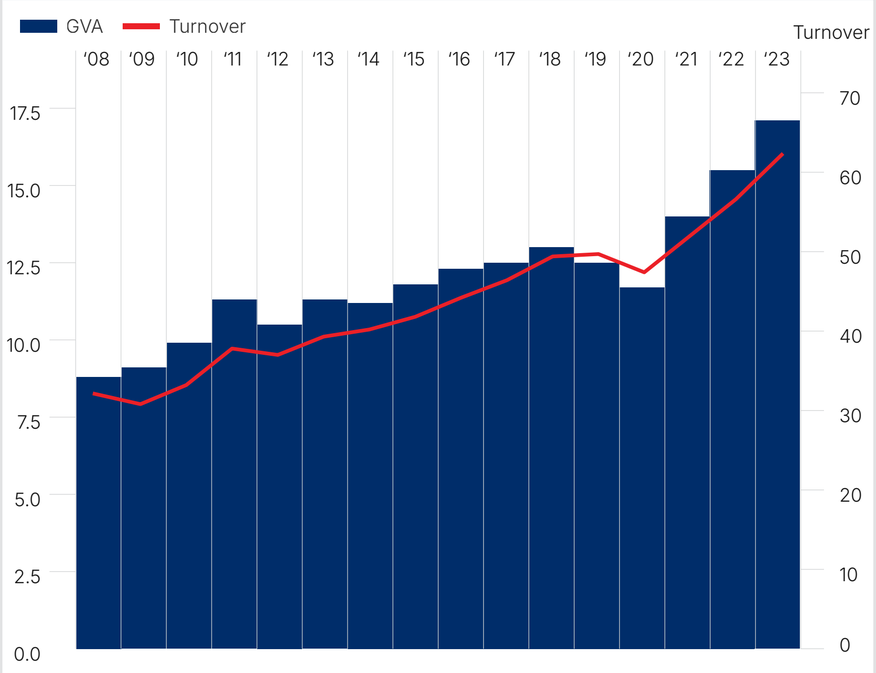
GVA **£17.1bn** +10.3%

Turnover **£62.2bn** +9.9%

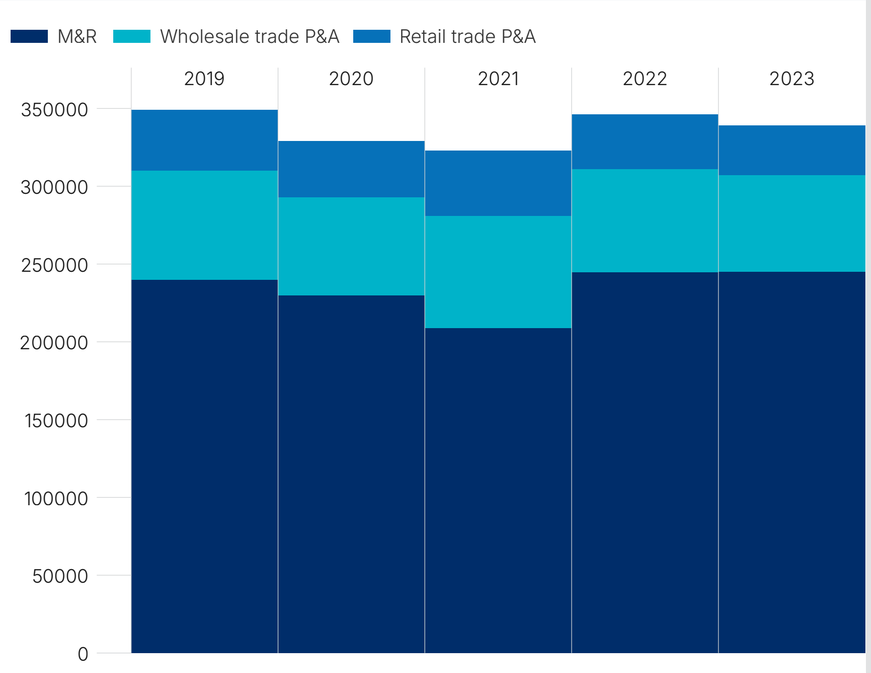
Employment **339,000** -2.0%

	Number of businesses	Turnover £bn	GVA £bn	Employment
2019	53,606	49.7	12.5	349,000
2020	54,806	47.4	11.7	329,000
2021	57,153	52	14	323,000
2022	56,547	56.6	15.5	346,000
2023	**57,572**	**62.2**	**17.1**	**339,000**

TURNOVER AND GVA (£BNS)



AFTERMARKET - EMPLOYMENT



THE OPPORTUNITIES FOR REMANUFACTURING, ‘OLD’ AND NEW

Traditionally, mechanical parts such as engines, gearboxes, transmission products, starters, alternators, steering shafts and brake callipers have dominated the remanufacturing landscape and will continue to be of huge importance.

Recent years have also seen a marked increase in the complexity of many ICE components such as turbochargers, alternators and engines, further commending them for remanufacture rather than recycling.

Some of these parts and components will disappear as new technologies come to market, but the overwhelming majority of the UK’s 41 million-strong vehicle parc is still internal combustion engine (ICE) powered. While the industry transitions to net zero, ICE vehicles will still be on the road until the end of their life span and this market will still require aftermarket parts, service and repair for many years.

The age of these vehicles is also increasing, with the average age of car and light commercial vehicle (LCV) now over nine years and heavy commercial vehicles (HCVs) close behind at 8.2 years.[26] This ageing vehicle parc population is an opportunity for remanufacturing to support vehicles’ longer service life.

New technologies mean the sector has an exciting opportunity to adapt and grow to meet the needs of an increasingly electrified vehicle parc, one which increasingly deploys advanced driver assistance systems (ADAS), and connected and automated vehicle (CAV) technology in what is increasingly becoming known as Software Defined Vehicles (SDV).

The move away from fossil-fuel powertrains is a key trend influencing the remanufacturing sector with the greatest impacts likely to hit from 2030 onwards. The ZEV Mandate requires 80% of all new car and 70% of all new van registrations to be zero emission by 2030.[27] A million EVs are expected to be rolling off UK production lines every year by 2035.[28]

UK demand for traction batteries is expected to increase from 20GWh in 2027 to 79 GWh in 2035.[29] For e-motors it is expected to double from 600,000 units to 1.1 million across the same period.[30]

Remanufacturers are ideally placed to capitalise on the expected demand for affordable and reliable replacement batteries and motors. The option to replace the battery with a remanufactured one rather than a new one and hence extending the life of the vehicle, will be attractive to both customers and vehicle manufacturers. It could also help buoy the second-hand car market, making it of interest to the broader electric vehicle ecosystem including leasing companies and insurance providers.

Effective use of remanufacturing techniques on battery packs, motors and power electronics would:

- reduce the demand for virgin critical materials
- reduce the environmental and social impacts associated with critical mineral mining
- ensure cost-effective EV repairability to keep them in use for longer
- and improve domestic supply chain resilience

The increasing level of software in vehicles is likely to drive demand for remanufactured electronic control units (ECUs), which, anecdotally, can be around 30% cheaper than a new version.

Furthermore, with some electronic components or parts, there may be challenges in the future to supply new replacements as chip fabricators move away from legacy automotive technologies. Remanufactured parts can play a key role in the replacement of these electronic parts, keeping vehicles on the road.

25 SMMT Motorparc Vehicles in Use (UK) - Overview https://www.smmt.co.uk/vehicle-data/motorparc-vehicles-in-use-uk/
26 SMMT Motorparc Vehicles in Use (UK) – Vehicle Age https://www.smmt.co.uk/vehicle-data/motorparc-vehicles-in-use-uk/
27 SMMT Automotive Sustainability Report 2023
28 SMMT Automotive Sustainability Report 2023
29 APC automotive quarterly report – Q1 2025. https://www.apcuk.co.uk/knowledge-base/resource/q1-2025-automotive-industry-demand-forecast/
30 APC automotive quarterly report – Q1 2025. https://www.apcuk.co.uk/knowledge-base/resource/q1-2025-automotive-industry-demand-forecast/

CASE STUDY

Caterpillar engine remanufacture

Caterpillar has remanufactured diesel engines and components in Shrewsbury for more than 20 years under the Cat and Perkins brands. Employing around 350 people, the site serves customers across Europe with advanced remanufacturing technologies and processes thousands of units each year. Each reman unit can include hundreds of tests and thousands of replaced parts.

THE CHALLENGES

The UK vehicle parc is one of the largest in Europe[31] and also one of the most varied with a greater range of make and model types than other countries. Each model type can have a large variety of fundamental components such as alternators.

Keeping abreast of the wide range of products required to keep these vehicles running is a challenge in itself but when coupled to new, more complex product designs, the need for accurate and reliable data becomes acutely important.

While reverse-engineering has been a mainstay for the sector, access to technical repair and maintenance information from vehicle manufacturers, as required by regulation, is of paramount and increasing importance.

The speed of model and component development and proliferation can be a challenge for vehicle manufacturers, in terms of making repair methods and data available.

Investment to upskill and reskill the workforce to carry out remanufacturing processes on this diversifying parc is also a challenge. Smaller companies may struggle, particularly in electronics capabilities, although partnering with other firms may be a solution.

Surcharges processes on core may also hinder uptake of remanufacturing. This is where a removed, used component is returned for assessment for remanufacture. If accepted, this leads to a surcharge levied on the supplied remanufactured part being repaid to the workshop which supplied the core. The mature and sophisticated distribution chain could mitigate paperwork and cashflow issues around this.

CASE STUDY

Autocraft EV Solutions

Autocraft EV Solutions, a remanufacturer of electric vehicle traction batteries, was working with a major vehicle manufacturer to support manage vehicle warranties. The manufacturer's standard process was to recycle faulty batteries on the assumption they could not be cost effectively repaired. Given the cost of the batteries, this resulted in significant cost to the manufacturer.

Through a process of reverse engineering, Autocraft were able to diagnose three sample batteries provided by the manufacturer and identify, in line with its experience over the years, that failures were commonly due to individual faulty cells or modules.

Autocraft has since developed a process to safely disassemble the battery packs, test and diagnose faulty cells funded in part by APC and the Faraday Institution. This included developing a digital twin of the pack and rigorous testing using Autocraft's proprietary methodology, which enabled Autocraft to diagnose the faulty parts. By sourcing replacements from battery packs consigned to recycling, Autocraft was able to cost effectively repair the battery packs.

In two of three packs, the State of Health was restored to 95%. The third was restored to 90%, the minimum required for a product to be reintroduced to the market under the EU's Batteries Regulation. Each repair resulted in a saving of 1,100 kg of CO2, 4,200 kWh of electricity, and 1,500 litres of water.

Autocraft continues to work closely with the manufacturer following its decision to prioritise remanufacturing under its warranty approach.

31 SMMT Motorparc Vehicles in Use (UK) - Overview https://www.smmt.co.uk/vehicle-data/motorparc-vehicles-in-use-uk/

THE ROLE OF REGULATION

Regulation can either support or hinder the prospects for remanufacturing. It plays a key role in ensuring a fair and open market but needs to be applied swiftly and include specific references, where necessary, to remanufacturing to support government resource efficiency and decarbonisation goals.

EXTENDED PRODUCER RESPONSIBILITY, ENVIRONMENT ACT AND END-OF-LIFE VEHICLE REGULATIONS

Remanufacturing can make a substantial contribution to lowering lifecycle carbon footprints which businesses are increasingly required to monitor and minimise.

The principle of extended producer responsibility (EPR) legislation[32] is that a producer's responsibility extends beyond production and sale to the entire life cycle of a product, including ensuring discarded products are collected and adequately disposed of or treated at their end of life. Research suggests that EPR regulation favours the early development phase of the remanufacturing industry and can improve collection rates.[33]

The Environment Act has also committed to the introduction of Mandatory Digital Waste Tracking, which could be used in conjunction with EPR or similar schemes to ensure remanufacturing is prioritised.

The current ELV regulations do not identify remanufacturing as an option for components once the vehicle is declared ELV. However, the European Commission's proposal[34] in its review of the current regulations, brings in more of an overall circularity approach, to which remanufacturing can obviously significantly contribute.

MOTOR VEHICLE BLOCK EXEMPTION REGULATION/ORDER

The MVBER in Europe[35] and MVBEO in GB[36] require automotive manufacturers to provide other operators with the same repair procedures and information that are supplied to dealers. This requirement is also replicated within the EU and GB type approval frameworks which have specific provisions for access to repair and maintenance information helping to underpin freedom of choice for consumers. Both provide the independent remanufacturing sector with critical technical information necessary to support the development of effective remanufacturing processes.

CIRCULAR ECONOMY LEGISLATION

The EU's legislative approach to circularity centres on the Circular Economy Action Plan (CEAP)[37] from 2020. It covers a wide range of areas, from product design for sustainability, to treatment of waste and public procurement, and signals a long-term policy direction to improve circularity, with remanufacturing explicitly referenced as having a key role to play.

The EU has also published a proposal for their review of the ELV directive, which expands the scope to a wider circularity approach.

In the UK, DEFRA has established a Circular Economy Taskforce.[38] It is also expected to publish a Circular Economy Strategy in 2025, with automotive and remanufacturing expected to be a key part. SMMT has encourage UK government to ensure remanufacturing is recognised as central to the circular economy and would welcome a balanced approach to regulation in this area, one that encourages and supports remanufacturing.

BATTERY REGULATION

The EU's Battery Regulation should prove a positive regulatory development for remanufacturers. Remanufacture is specifically defined in the Regulation as:

> *"'any technical operation on a used battery that includes the disassembly and evaluation of all its battery cells and modules and the use of a certain number of battery cells and modules that are new, used or recovered from waste, or other battery components, to restore the battery capacity to at least 90 % of the original rated capacity, and where the state of health of all individual battery cells does not differ more than 3 % between cells, and results in the battery being used for the same purpose or application as the one for which the battery was originally designed."*

Through the Battery Passport, which comes into force in 2027, remanufacturers will have access to key data points including state of health, expected lifetime, and information to support safe dismantling.

TREATMENT OF CORES IN TRADE

Cores are essential to remanufacturing yet do not qualify for preference under the UK-EU Trade and Cooperation Agreement (TCA) or any other UK free trade agreement. While SMMT has secured a tariff suspension under the TCA in the trade of cores, tariffs could be applied in the future. Non-tariff barriers also arise with variations in how cores are treated at customs across different European states.

END OF WASTE REGULATIONS

End of Waste regulations in the UK currently add cost and complexity to the remanufacturing of automotive parts as cores are treated as waste and can require case-by-case interventions with the Environment Agency. European Member States often treat the core as raw material to be used in remanufacture, an approach encouraged since the publication of the Circular Economy Action Plan (CEAP).[39]

32 The definition of a 'producer' varies across different EPR systems, but in general a producer is defined as the party who first places a product subject to EPR requirements onto the market, and can include manufacturers, importers and/or sellers. https://epr-info.com/
33 https://www.sciencedirect.com/science/article/abs/pii/S0925527323001652 Environment Act 2021
34 https://data.consilium.europa.eu/doc/document/ST-11888-2023-INIT/en/pdf
35 CLEPA. 2021. Report on the current status, impacts and potential of the European automotive component remanufacturing industry. Prepared by Oakdene Hollins, October 2021
36 Parker, D., Riley, K., Robinson, S., Symington, H., Tewson, J., Jansson, K., Ramkumar, S. and Peck, D., 2015. Remanufacturing market study. https://www.remanufacturing.eu/assets/pdfs/remanufacturing-market-study.pdf
37 https://environment.ec.europa.eu/strategy/circular-economy-action-plan_en
38 https://www.gov.uk/government/groups/circular-economy-taskforce
39 https://environment.ec.europa.eu/strategy/circular-economy-action-plan_en

RECOMMENDATIONS FOR GOVERNMENT

- Work with SMMT and industry to improve market data availability around remanufacturing to help quantify the size of the market, its contribution to the UK economy, how it changes over time and the efficacy of policy interventions that support this part of the industry.
- Bring forward a balanced regulatory framework that promotes and enables remanufacturing as a key part of the circular economy but does not overburden industry.
- Take insights from international approaches aimed at increasing the use of remanufactured parts.
- Ensure cores are considered in future free trade agreement negotiations to ensure tariff free market access and parts movement.
- Promote improved product design principles for ease of remanufacture, re-use and recycling.

RECOMMENDATIONS FOR INDUSTRY

- Drive public awareness of the environmental benefits and performance of remanufactured parts to ensure consumers are aware of the choices available.
- Improve product designs where possible for ease of disassembly and remanufacture, re-use and recycling.
- Invest in UK operations to strengthen the competitiveness of UK remanufacturing supply chains. Remanufacturing facilities and warehousing close to customers can reduce logistics costs and complexity, investments in process development and automation can increase efficiency and drive competitiveness.
- Engage as a whole sector on the issue of skills as the industry transitions to an electrified future, to ensure the remanufacturing and other key parts of the sector are not left behind.
- Encourage engagement with remanufacturing across all parts of value chain. The independent remanufacturing sector has a key role to play to supporting the broader industry, from vehicle manufacture through to aftermarket, in achieving its long-term ambitions, particularly around net-zero. Now is the right time to connect and work together.

SMMT
DRIVING THE
MOTOR INDUSTRY

ABOUT THE SMMT

The Society of Motor Manufacturers and Traders (SMMT) is one of the largest and most influential trade associations in the UK, supporting the interests of the automotive industry at home and abroad, and promoting it to government, stakeholders and the media. SMMT has more than 800 members representing the breadth of the sector, including volume manufacturers, supply-chain, aftermarket, bus and coach, commercial vehicles, specialist manufacturers and, of course, remanufacturing.

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