VACC
Victorian Automobile
Chamber Of Commerce

Australian Government Productivity Commission

VACC Submission February 2006

Inquiry into Waste Generation and Resource Efficiency

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Productivity Commission
Waste Generation and Resource Efficiency Inquiry
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Contacts

David Russell
Senior Manager Government & Public Affairs
VACC
464 St Kilda Rd Melbourne Victoria 3004
Phone (03) 9829 1142
Email drussell@vacc.com.au

Alan Marshall
Executive Officer
Auto Parts Recyclers Association of Australia (APRAA)
Phone (03) 9866 6933
Email AlanMarshall@vacc.com.au

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Executive summary

In Australia, review of current waste reduction and recycling agenda is over due. National solid waste levels occur at a higher rate than most OECD countries and Victorians are generating more waste each year with over three quarters of reprocessed materials coming from industry.

As an industry association representing the automotive retail and service sector, VACC welcomes the waste generation and resource efficiency inquiry by the Productivity Commission as a positive move toward sustained and viable waste reduction.

Sustainable and vibrant waste reduction industries depend on innovative government, and industry policy plus cohesive governance infrastructures. VACC recommend consideration of the following policy frameworks to responsibly reduce current solid waste levels in the automotive industry.

Recommendations:

- Recognition of the special contributions of the waste, recycling and recovery industries in the automotive sector to waste management.
- Complete life cycle outlook for waste reduction & resource use that includes use of tracking technologies for efficient product life cycle monitoring
- A National approach to waste reduction/ recycling/re-use in the automotive industry that outlines consistent and specific environmental standards, guidelines, regulations, industry best practice and performance measures for viable waste reduction and recycling environment
- Co regulatory product stewardship measures that may include levies, recycling funds, extended producer responsibilities that incorporate registration of recycling processes and a registrar of manufacturers, importers and recyclers and 'take back' initiatives
- Waste reduction quality standards for end-of-life vehicles (ELVs)
- Improved Waste to Energy strategies for automotive waste / recycling industries

Reviewing current waste reduction, recovery and reuse programs and policies must also reflect upon the relationships between increasing quota recovery levels, changing market conditions and the recovery costs of specific automotive products.

Waste reduction and recovery policy must also critique existing international directives and take a long term view of future waste reduction strategies that account for the needs of the Australian waste management environment. Responsible waste reduction policy can measure the benefits of recovery targets, adapt to changing technological advances without over regulation and offer viable markets for recovered/recycled products.

Recommendations

To encourage sustainable waste reduction in the automotive industry that continues to respond effectively to environmental concerns, VACC recommend the following (some references refer to Victorian policy with acknowledgement that similar initiatives may have occurred in other States):

- **Recognition of Automotive Industry's Existing and Specialist Role in Waste Reduction, Recycling and Resource Recovery**

  Since the Department of Environment and Heritage[1] identify automotive waste as a priority in the waste management agenda, VACC recommend existing waste reduction programs include recognition of the automotive sector as a unique and separate industry within National and State waste and recycling policies.

  While some industry sectors, such as the tyre industry, has been acknowledged by the Environment Protection and Heritage Council (EPHC) for its role in the recycling process, the unique recycling requirements of the automotive industry as a whole, would benefit from further recognition and support from government via a National structural framework.

  On a State basis, positive change is noted. In WA, the Motor Trade Association and the Department of Environment's Green Stamp Program has helped small to medium automotive businesses improve waste disposal methods while the Northern Territory Government, MTA and the Chamber of Commerce have created a voluntary draft environmental codes of practice for the automotive repairs industry.

  The Auto Parts Recyclers Association of Australia (APRAA – an affiliated trade association within the MTAA federation) has developed a voluntary National Quality Accreditation Program for the auto recycling industry that has been operating since 1977. The program, along with an auto parts recycling guide (see Appendix) and Waste Oil Management Best Practice Guide, actively encourages environmental best practice for auto repairers and auto parts recyclers.

  A National framework supports existing State level initiatives and recognises the essential the co-operative and interdependent nature of recycling networks. Waste management as a National agenda, would also unify government approaches to waste management objectives.

[1] http://www.deh.gov.au/settlements/waste/index.html

- **Complete Life Cycle Outlook for Waste Reduction & Resource Use**

  In terms of waste reduction and resource efficiency, a complete life cycle outlook helps reduce of the environmental effects of automotive products throughout a product's various life cycle stages, including production processes.
  Recent studies show environmental impact reduction from recycling materials regenerated at the end of life has lesser (though not insignificant) value compared to the use phase of a vehicle[2]. The results suggest a need to balance economic benefit relative to environmental gains at each life cycle phase. Thus improved waste reduction via a complete life cycle approach is worth consideration. Also, it is noted that current Tasmanian and Queensland waste management strategies refer to 'cradle to grave' waste management values[3]

  A total life cycle approach includes assessment of environmental effects of automotive products through appropriate data collection and classification plus environmental evaluation of product improvements, waste reduction goals and effects. Since the basic tenet of recycling is the ability to reuse a recycled product, a full life cycle approach is recommended by VACC to offer continued economic value for reuse/recycling businesses and the broader economy.

- **A National Approach to Waste Reduction/ Recycling/Re-use in the Automotive Industry**.

  Apart from increased accountability and consistency in recycling policies, a National approach to recycling supports a governance infrastructure that:

1. Allocates clear producer responsibilities and definitions in each supply chain. This is important in monitoring 'free riders' or businesses that operate without due regard for responsible industry practice. Producer responsibilities should also integrate waste management law with environmental protection legislation to support a cohesive waste reduction framework.

2. Allows realistic recycling/recovery targets that respond to changing market forces. However, these targets should avoid unnecessary processing cost increases and not inhibit innovation for automotive service industries, automakers and other stakeholders. Also, recovery levels should allow opportunities to develop markets and technologies to support recycling/recovery activity. This is significant, given the cost of manufacturing waste on a State level in Victoria at least, is estimated to be 5 to 10 times higher than waste disposal costs.[4]

3. Harmonises legal responsibilities for small business producers, government agencies and other stakeholders. However, additional rulings should not increase administrative and regulatory burden for small waste reduction businesses as the size of these operations limits the ability to respond to high regulatory obligations.

[2] EU 2005 '*Stakeholder consultation on the review of the 2015- Targets on reuse, recovery and recycling of End of Life Vehicles*
[3] Dept of Environment Qld Government *Waste Management Strategy For Queensland* Tasmanian Dept of Primary Industries , *Water and Environment Industrial Waste Management* www.dpiwe.tas.gov.au
[4] Eco recycle Victoria Waste Wise Industry Advisor ToolKit

4. Enables a cohesive government infrastructure to deal effectively with recycling requirements. In Victoria, an Auditor General investigation found key agencies involved in implementing waste reduction strategies had no reporting obligations to the Department of Sustainability and Environment. As the Department reports directly to the Environment Minister, the exclusion of these key agencies seems unjustified and highlights a basic irregularity in the State's waste management framework[5].

5. Standardises and integrates clear policy relating to the three elements of sustainability: reuse, recycling and recovery of solid waste; at all governmental levels. The creation of united waste reduction objectives also offers clear outputs for other stakeholders.

6. As automotive shredder residue levels are expected to increase in order to sustain recycling profitability levels, a National shredder residue policy is essential for reprocessing the shredder flock going to land fill. Integral to such policy is investigation into new technologies for residue treatment.

7. Develops new markets for non metallic materials generated through recycling processes such as End-of-Life (ELV)

8. Recognises the importance of a certification process for recycling and post shredder recovery processes. Internationally recognised certification would acknowledge the global nature of the automotive industry.

9. Helps eliminate ELV dumping through a National ELV register which introduces a formal de-registration process for ELVs. Registration would include compulsory registration of all dismantlers, auto parts recyclers and metal resellers.

10. Provides a reliable recycling model that outlines specific environmental standards, guidelines, regulations, industry best practice and performance measures to sustain a viable commercial recycling environment. The absence of such a model was highlighted during an audit of Victorian regional waste management groups [6]. The audit showed a lack of outcomes direction and deficiency in monitoring and reporting against basic goals and aims. Relevant performance measures were also absent.

    While the Victorian Department of Sustainability and Environment have stipulated two key performance indicators, namely the volume of waste material recycled and tonnes of waste used as land fill, these are limited in terms of measuring progress as there were no specified rates of improvement, targets or benchmarks. Different types of measurements for different waste streams had also been omitted, according to the 2003 Auditor General findings[7].

[5] Auditor General Victoria 2003 '*Performance management and reporting – progress report and a case study'* presented to Legislative Council and Legislative Assemble Parliament House Melbourne

[6] Montgomery Watson Harza, 2003 *Victorian Regional Waste Management Groups Organisational Status Audit Final Report Generic Findings and Recommendations*

[7] Auditor General Victoria 2003 '*Performance management and reporting – progress report and a case study'* presented to Legislative Council and Legislative Assemble Parliament House Melbourne

Furthermore, other Victorian waste management agencies exhibited inconsistent performance information; the EPA lacked supporting data regarding operational efficiencies while EcoRecycle Victoria's performance indicators were taken from a diverse collection of waste data and thus limited in value.

- **Product Stewardship**

Product stewardship encompasses the shared responsibility of automotive manufacturers, governments, recyclers and consumers in minimising the environmental impact of ELVs by extending collection, dismantling shredding and increasing reuse, recycling and recovery from discarded vehicles.

Shared responsibility can be implemented through voluntary industry initiatives, industry – government agreements and co- regulatory or full regulatory schemes.

VACC supports product stewardship in the automotive industries with particular reference to the Environment Protection and Heritage Council and the National Environment Protection Council's (EPHC) Analysis of Product Stewardship[8] recommendations. These proposals are relevant in view of predicted high recovery rates by some industry observers that may be needed to sustain the economic viability of waste reduction industries[9].

Product stewardship supports a co-regulatory approach. A co-regulatory view accepts the interdependent networks between different producers, recyclers, government and other agencies in the waste recovery process. Also, it allows safety net protection for participating auto recycling businesses against non compliance from other operators or consumers. (A co-regulatory approach has already been advocated by the tyre industry.)

Possible frameworks for product stewardship include:

- A levy (similar to the current model for oil recycling) where the cost of recycling is funded to support auto parts recyclers and dismantlers. In the Netherlands, economic incentives for auto dismantlers is provided via a levy upon newly registered vehicles to cover the cost of ELV recycling/dismantling[10] while in the Japanese recycling system[11], prior payment of recycling fees is required from consumers. This prevents consumers from discarding ELVs because of the pre-paid recycling fee, but the disadvantage of advance fee payment is that recycling costs can be under estimated or overpriced

- 'Take back' schemes for some automotive parts and whole vehicles by auto makers

[8] Environment Protection & Heritage Council & National Environment Protection Council 2004 *Co regulatory frameworks for Product Stewardship - Analysis of Submissions to Discussion Paper'*
[9] Bandivadekar, A. Kumar,V, Gunter, K.L. Sutherland, J.W. 2004 Journal of Manufacturing Systems ' *A Model for Material Flows and Economic Exchanges Within the US Automotive Life Cycle Chain'*
[10] EU 2005 '*Stakeholder consultation on the review of the 2015- Targets on reuse, recovery and recycling of End of Life Vehicles*
[11] Togawa. K. 2004 '*Background of the automobile recycling law enactment in Japan'* Research Center Kyushu University Japan Environmental Economics and Policy Studies

- Tradeable certificates where redeemable certificates are issued by a regulator to recyclers. Manufacturers and importers then purchase the certificates from the recyclers which act as incentives for increased recycling activity.

- Promotion and creation of markets for recycled materials

- Complementary recycling initiatives that support existing programs such as the Victorian Sustainability Fund and the Victorian Environmental Sustainability Framework

- **Quality Standards in Waste Reduction and Recycling Processes for ELVs**

1. Collection, storage, and de pollution standards are required for End-of-Life Vehicles (ELVs).

2. Regulation of waste stream by asking last owners to pass on ELVs to licensed auto parts recyclers.

3. Only auto parts recyclers who adhere to minimum environmental standards and practices should be recommended for licensing approval.

4. De-pollution standards for ELV secondary waste i.e. gases, fluids, precious metals and other contaminant processing by licensed recycling organisations

5. Investigation of ISO 14001 certification (used overseas) to guide environmental management of recycling facilities

- **Improved Waste to Energy Strategies**

  Waste to Energy strategies convert waste to alternate energy sources for re-use. For example, bioreactor technologies boost landfill gas levels for use as green energy. Internationally, Waste to Energy (WTE) initiatives are integral to responsibly integrated waste management innovation. Australian WTE is moving toward similar goals, e.g. ACT waste policy. Further investigation of using recycled waste to produce other energy streams is recommended from a long term perspective of sustainable recycling and resource recovery in the automotive industry.

- **Further Research**

  While the complexity of some material streams in ELV recovery (i.e. materials spread over diverse process chains and requiring different treatments) can limit the availability of precise, verifiable data, VACC recommends additional research to improve quality of automotive waste reduction and disposal. Even though there may be statistical variance with results, additional research will improve understanding of environmental impacts for resources used throughout the motor vehicle life cycle.

- **Extended Producer Responsibility**

  Proposals include:

  - The potential for recycling funds as many industry operators are small business owners who may lack the level of required facilities and finance to undertake adequate environmental compliance measures. Also, these funds can afford some measure of stability for small business during market volatility.

  - Declaration and registration of recycling processes by manufacturers, importers and recyclers to monitor recycling operations and reduce 'free rider' operators.

  - Incorporation of product stewardship initiatives which include 'take-back' of vehicles by auto makers and importers as per EU directive and introduction of formal deregistration processes.

  - Shared producer responsibility between small business, government and other agencies. This enables recycling policy to respond to market conditions and acknowledges the interplay between waste management networks as opposed to privatisation which tends to place more responsibilities upon industry.

  - Further investigation into shredder residue and environmental concerns via current disposal methods is necessary, given the current lack of data on shredder flock effects[12]. While European and Japanese automobile recycling law asks automakers and importers to collect and treat ELVs inclusive of all parts and components, Japanese law limits recycling responsibility to Automotive Shredder Residue (ASR), fluorocarbons and airbags as these are seen as having the most environmental impact[13]. More discussion on ASR impact in the Australian environment is suggested for future waste management initiatives.

[12] Environment Australia Department of the Environment and Heritage 2002 ' *Environmental Impact of End of Life Vehicles: An Information Paper*'
[13] Togawa. K. 2004 '*Background of the automobile recycling law enactment in Japan'* Research Center Kyushu University Japan Environmental Economics and Policy Studies

Introduction

Waste Generation Levels

In Australia, National solid waste levels occur at a higher rate than most OECD countries. In Victoria, the state is generating more waste each year. In the 2003-04 fiscal year each Victorian generated, on average, more than 1,900 kg of waste per person. Annually, Victoria creates around 8.3 tonnes of waste with around half of the state's waste contained in land fill.

While state materials recovery from land fill for this period (5,072,203 tonnes) exceeded 2002-2003 levels with 53% of Victoria's solid waste being recycled for 2003-04, more than three quarters of reprocessed materials came from industry.

As an industry association representing the automotive retail and service sector, VACC welcomes and supports the current waste generation and resource efficiency inquiry by the Productivity Commission as a positive move toward sustained and viable waste reduction.

Waste Industry - National Profile

- Latest available ABS figures[14] show 1,092 waste management businesses in Australia during 2003.
- At this time, the industry employed 14,386 people and generated an annual income of $2,684.2 million.
- 74.1% of all businesses had employment of 4 people or less.
- Most (59.4% or $1,595,400) income was derived from the collection and transportation of waste
- Solid waste was 90.5% (or $1,444,000) of income sourced from the collection and transportation of waste

Recycling – Function of

The prime purpose of recycling is to:
a) keep waste material out of life cycle
b) reduce waste material during product life cycle
c) recycle at the end of a product's life.

Recycling relies on the availability of economically viable and sustainable markets for recycled products. In view of this understanding, waste reduction and recycling policies must balance the need for high environmental standards with the ability to create and sustain opportunities, especially in regard to recycling activities such as of End-of-Life Vehicles (ELVs).

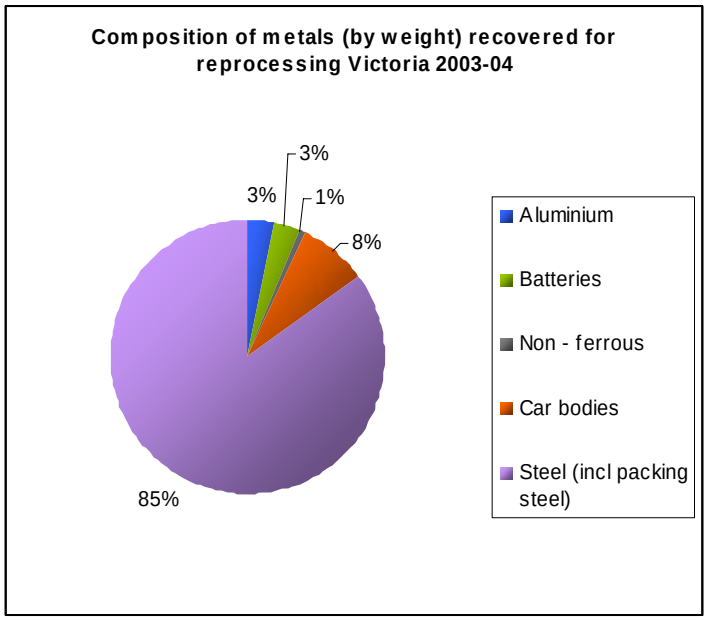
[14] ABS Waste Management Services cat 8698.0 2002-2003

Victorian Auto Recycling – Key Facts[15]

- Over 100,000 car bodies were shredded in Victorian plants and converted into new metal products during 2003-2004; 25,000 more than for the previous year.

- Metal recovery in Victoria reached 1,032,265 tonnes in 2003 -2004.

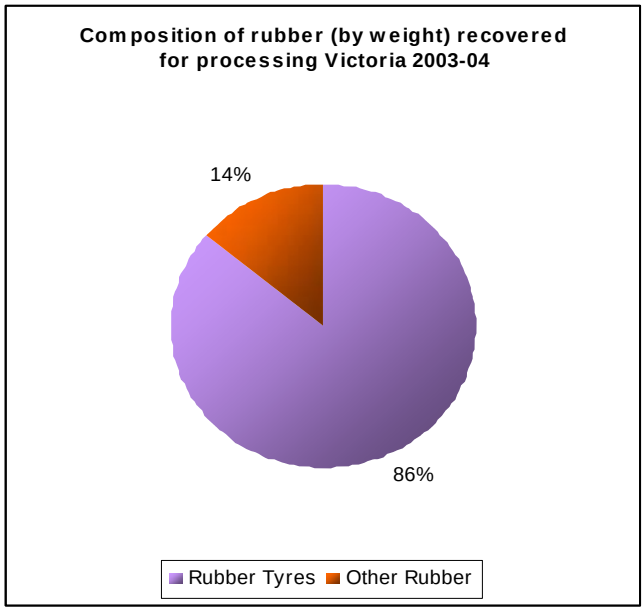
Chart One Source Eco Recycle



- 1.5 million car batteries were recycled into new car batteries in Victoria

- Rubber recovery was registered at 10,670 tonnes with over 1.2 million car and truck tyres recovered for recycling in Victoria each year.

Chart 2 Source Eco Recycle



[15] Eco recycle 2003-2004 *Towards Zero waste annual survey of Victorian Recycling Industries*

Recycling Legislation (administered by EPA)

Primary Legislation

- Environment Protection Act *1970*
- Pollution of Waters by Oils and Noxious Substances Act *1986*
- National Environment Protection Council (Victoria) Act *1995*

Regulations

- Environment Protection (Distribution of Landfill Levy) Regulations *2002*
- Environment Protection (Fees) Regulations *2001*
- Environment Protection (Prescribed Wastes) Regulations *1998*
- Environment Protection (Residential Noise) Regulations *1997*
- Environment Protection (Scheduled Premises and Exemptions) Regulations *1996*
- Environment Protection (Vehicle Emissions) Regulations *2003*
- Pollution of Water by Oil and Noxious Substances Regulations *2002*

VACC

Since 1918, the Victorian Automobile Chamber of Commerce (**VACC**) has represented the interests of small business in the automotive industry. Currently over 5,000 members employ around 50,000 Victorians and provide key services in the repair, services and retail sectors of the motor industry. **VACC** representation includes the following industry sectors:

- Automotive Dismantlers & Recyclers
- Crash & Mechanical Repairers
- New Car Dealers
- Engine Reconditioners
- Radiator / Air conditioning Specialists
- Auto Electricians
- Motorcycle Dealers and Repairers
- Used Car/Rental vehicle/ Commercial Vehicle /Tyre/ Farm Machinery Dealers
- Service Station & Convenience Store Operators
- Automatic Transmission Specialists
- Brake and Vehicle Under body Repairers
- Parts Retailers
- LPG installers
- Car Detailers
- Tow Truck Operators
- Commercial Vehicle Body Builders
- Car Washes
- Steering and Suspension
- Specialists

Submission Scope

The following submission includes commentary pertaining to solid automotive waste disposal in Australia, with particular reference to end-of-life vehicle waste management. The paper includes some of the economic, environmental, regulatory and socio – economic factors influencing resource efficiency, recycling and waste management. Contributions from the Auto Parts Recyclers Association of Australia (APRAA) are acknowledged in regard to recycling recovery issues relevant to the auto parts recycling /re-use sector.

Key Issues for Automotive Waste Reduction /Recycling and Sustainability

Economic factors

- Specifying quota levels in recovery targets in recycling does not necessarily include unstable market prices e.g. surplus of unsold recycling material. Unrealistic recovery targets can conflict with supply and demand principles such as price, patterns of consumption, economic growth and demographic changes.

- VACC support re-use of automotive products as a waste production priority for environmental efficiency. However, re-use policy must be carefully considered for each automotive product. For instance, some recycled materials may not be available in sufficient volume for manufacturers. Another subsidiary issue surrounds consumer acceptance of recycled material quality.

- The expense associated with recycling some materials such as plastics (due to diversity of product requiring different recycling methods) must be reviewed as it may conflict with legal requirements that insist on minimum recycling rates and reduce the sustainability of recycling activity.

- While recycling funds have been employed in countries such as Taiwan, Germany, Korea, France and the US, criticism of these funds suggests that by applying fiscal costs to producers, it removes industry responsibility from management and implementation of these funds.

  However from the perspective of best practice values, Australian waste management policy may benefit from such funds. A recent analysis of the Taiwan experience sees the future of recycling funds to depend upon:

a) simplified administration processes – a clearly understood administrative system attracts more recyclers to a system, improves reporting accuracy because of the low auditing cost and allows more checks on industry
b) Promotion of material re-use rates – this helps recyclers improve their processes
c) Creating markets for generated recycled products
d) More research into technologies to maintain market competitiveness
e) Eventual privatisation of the recycling system is viewed as improving efficiencies in the system[16] despite the burden of responsibility being placed upon industry

[16] Fan, K. S. 2005 '*Management and performance of Taiwan's waste recycling fund*' Journal of the Air and Waste Management Association V55 issue 5 pp574-9

- **ELV Recycling**.

  The cost of transportation and collection of ELVs remains high and is a prime obstacle in reverse distribution i.e. recycling. This is potentially intensified when economies of scale outlined in European policies such as Directive 2000/53/EC may increase the cost of recycling ELVs in Australia. Increased costs raise concerns about the long term future of existing recycling/recovery businesses. Furthermore, high recycling costs will affect recyclers. While the majority are small businesses who operate highly professional operations, some may be unable to undertake adequate environmental steps due to limited fiscal or operational resources.

Environmental

- There are concerns that current recycling infrastructures will only retain economic incentive if much higher levels of dismantling are employed. Reduced economic value for automotive waste industries are influenced by factors such as the changing nature of vehicle content and market climate.

- Predicted rising levels of Automotive Shredder Residue (ASR) and criticism of current ASR disposal methods (as adding to environmental dangers), means more research into resource recovery and re-use is necessary for safe and sustainable ASR waste reduction.

- Current overseas recovery targets in waste reduction are believed to be based on inadequate data, so existing international best practice may require review prior to implementation in Australia.

Material flows

- Constantly changing standards restricts efficient material flow monitoring. This has encouraged some countries to adopt non legislative approaches and decentralise recycling activities. These options may be viable ways of regulating waste reduction/recycling for automotive products that may have compliance limitations.

- As the automotive industry functions as a global industry, the need for a set of universal Global standards for material flows has become apparent due to European directives that have affected other countries' recycling responsibilities.

  Global Standard Guidelines to improve material flow has been initiated by the Automotive Industry Action Group in the US.
  Developed over several years with world wide manufacturers and suppliers, the guidelines[17] translate the terminology of material management and outline world class processes in a single set of rules.

  These standards help structure supplier development programs and supports lean manufacturing processes. As part of the guideline process, a self assessment program is used which involves all departmental managers to raise awareness of

[17] Materials handling Management May 2005 'Global Standard Improves Material Flow' www.mhmonline.com

the materials management process. These standards also conform to ISO /ts 16949:2002 International quality standards for the auto industry and have been used by major automotive companies.

To further reduce auto industry waste, **Total Waste Management (TWM)** - the outsourcing of waste management to a single, central supplier has been a continuing overseas trend since the mid 1990's. This waste management initiative allows auto facilities to share management resources through the adaptation of common practices and efficiencies. These programs also offer financial incentives for TWM providers as costs are reduced and services are able to be utilised by multiple customers. Other TWM programs offer onsite mangers to clients to plan and improve processes.

Process improvement is important for Australian waste reduction and recycling industries given the criticism of European waste reduction policy as focusing on materials and substances rather than offering an integrated approach that includes materials processes and handling.

Performance Measures of Recovery Practices

An environmental management system (EMS) helps reduce environmental risks and meet legislative requirements. ISO 14001 certification verifies environmental management systems and shows a continuing process to upgrade environmental management of waste company facilities. It is internationally recognised and has been used in around 118 countries. Adoption of this certification practice may assist Australian recovery practices to International Best Practice levels.

Social / Cultural

Further Recognition of Auto Waste Reduction and Recycling Industries

A vibrant Australian waste management framework is inhibited by the current modest view of the role and contribution of automotive waste reduction and recycling industries by public, business and Government.

The capabilities of many Australian businesses involved in auto waste management and auto parts / recycling industries are destabilised by the current lack of legislative and economic frameworks. This is not sustainable or acceptable as the contribution of these industries to waste reduction is significant, especially in ELV recovery; most of the estimated 500,000 ELVs retired annually, is undertaken without Government or community support.

The absence of robust law and fiscal initiatives for automotive waste recycling is not confined to Australia. During a recent EU stakeholder consultation[18] regarding reuse, recovery and recycling of ELVs; the lack of suitable frameworks for automotive recycling and re-use was observed as a continuing restraint on ELV development.

[18] EU 2005 '*Stakeholder consultation on the review of the 2015- Targets on reuse, recovery and recycling of End of Life Vehicles'*

Institutional/legal

The European Union **Directive 2000/53/EC** (refer to appendix for summary) was issued in October 2000 to offer a uniform ELV recycling policy. Subsequent ELV policy has been influenced by this Directive and resulting legislation in other countries has tended to be more restrictive.

Essentially, the Directive focuses on three aims:

1 It specifies harmful substances and environmentally hazardous substances to be restricted in automobiles

2 Dismantlers and other recyclers must be registered or licensed to take part in new recycling system, and

3 To avoid illegally abandoned cars; the directive asks automakers and importers to collect abandoned vehicles at their expense

The European directive requests auto makers to collect and process ELVs inclusive of all parts and components. In Japan, recycling law still requires auto makers to collect and process ELVs, but limits responsibility for other parts and components recycling to shredder residue, flurocarbon and airbag recycling as these are seen as having the most significant environmental impact.

Criticisms of the EU Directive have focused on the following:

- The extent that the Directive and other environmental legislation have become complex and endless due to changing standards and vehicle materials, work against existing and emerging market conditions and waste management infrastructures

- The Directive omits focus on economically viable markets for recycled products

- Limitations of the Directive and other environmental legislation to respond to advances in scientific and technical knowledge quickly and without overregulating the automotive waste reduction and recycling industries

- While the Directive sets targets such as 95% of a vehicles weight to be recycled by 2015, it is also important to measure the benefits of specified recovery targets

Furthermore, the international trend has seen recycling levels increase. However, waste regeneration law should also consider the environmental impact of strategy and 'realise recycling is not an end in its self, the waste hierarchy is not fixed for all situations and materials and should be based upon environmental impact'[19]

[19] Pocklington, D. 2004 European Environmental Law Review 'Re-use and Regeneration Back to basics? – Recent considerations on the reuse and regeneration of waste'

Apart from the European Union, countries including China, South Korea and Taiwan are expected to adopt end of life vehicle laws during 2006-07. The imperative to create suitable end of life laws in Australia to align with current international law is critical to a well balanced legal waste reduction framework but must extend beyond the limitations of current EU directives.

Additionally, future waste management law must move beyond a short term view of waste management measures. A UK study[20] on waste and resource management policy confirms prevailing concerns both in Australia and overseas about the long term view of waste management. In the case of the UK analysis, the frequency of government recycling policy strategies was viewed as limiting waste management to immediate waste reduction goals without guidance for future waste management aims.

Current limitations of government agencies to either meet performance standards or report adequately against primary waste minimisation goals suggests that while waste reduction is a high government priority in Australia, only improved structural and policy innovation will deliver integrated and sustainable waste and resource management frameworks to support automotive waste reduction and recycling industries[21].

Technologies

- To cope with ever changing environmental thresholds, technologies have been developed for use during product development to avoid compliance issues throughout a product's life cycle. Product tracking and organising technologies have been led by overseas innovations.
  For example, American PLM software is used by engineers to ensure products will meet new and existing governmental regulations[22]. The software produces compliance reports and alerts in regard to regulation and policy changes in addition to the latest design updates. Further examination of such software to monitor the Australian automotive recycling environment may be an efficient way of meeting future regulatory obligations.

- Investigations of technological innovations to increase Waste to Energy strategies that support sustainable waste reduction practice in Australia. For example, bioreactor technology accelerates the biodegradation process while simultaneously preserving airspace and increasing landfill gas production to allow recycling agents to produce commercially viable volumes of land fill gas. However, new sources of green energy such as land fill gas requires incentives such as tax concessions to encourage adoption by auto recycling/ waste reduction businesses.

[20] Gervais, C. Dr 2002 'An Overview of UK Waste and Resource Management Policy ' Royal Society for Nature Conservation
[21] Auditor General Victoria 2003 '*Performance management and reporting – progress report and a case study*' presented to Legislative Council and Legislative Assemble Parliament House Melbourne
[22] Thilmany, J. 2005 'Up to Snuff' Mechanical Engineering Vol 127 Issue 3 pp28-30

Appendix

SUMMARY of Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of-life vehicles [Official Journal L 269 of 21.10.2000]

(Source: http://europa.eu.int/scadplus/leg/en/lvb/l21225.htm)

'Following the Council Resolution of 7 May 1990 on waste management policy, the Commission proposed various measures to combat certain categories of waste. Several waste streams have therefore already been the subject of Community regulation (waste oil , waste batteries and accumulators , waste packaging , sewage sludge).

The 5th Community action programme in the field of the environment and sustainable development stresses the need to modify both methods of production and development and consumer behaviour.

The Community approach to waste management is based on two complementary strategies:

- avoiding waste by improving product design;
- increasing the recycling and re-use of waste.

By Resolution of 14 November 1996, the European Parliament called on the Commission to legislate on waste streams, in particular end-of-life vehicles, on the basis of product liability. The Commission took the view that a specific directive was necessary given the importance of this type of waste. This position is shared by the OECD Working Party on waste streams, whose 1995 report considers the treatment of end-of-life vehicles as a priority towards the overall objective of reducing waste.

The Directive defines an end-of-life vehicle as any type of vehicle which is waste within the meaning of Directive 75/442/EEC. The scope of the Directive therefore covers:

- any end-of-life vehicle designated as category M1 or N1 (as defined in section A of Annex II to Directive 70/156/EEC);
- two - or three-wheel motor vehicles and their components.

Waste prevention is the priority objective of the Directive. To this end, it stipulates that vehicle manufacturers and material and equipment manufacturers must:

- endeavour to reduce the use of hazardous substances when designing vehicles;
- design and produce vehicles which facilitate the dismantling, re-use, recovery and recycling of end-of-life vehicles;
- increase the use of recycled materials in vehicle manufacture;
- ensure that components of vehicles placed on the market after 1 July 2003 does not contain mercury, hexavalent chromium, cadmium or lead, except in the cases listed in Annex II. The Commission must amend the Annex in the light of scientific and technical progress.

The Directive also introduces provisions on the collection of all end-of-life vehicles (Article 5). Member States must set up collection systems for end-of-life vehicles and for

waste used parts. They must also ensure that all vehicles are transferred to authorised treatment facilities, and must set up a system of deregistration upon presentation of a certificate of destruction. Such certificates are to be issued when the vehicle is transferred, free of charge, to a treatment facility.

The last holder of an end-of-life vehicle will be able to dispose it free of charge ("free take-back" principle). Producers must meet all, or a significant part of, the cost of applying this measure.

The storage and treatment of end-of-life vehicles is also subject to strict control, in accordance with the requirements of Directive 75/442/EEC and those of Annex I to the Directive. Establishments or undertakings carrying out treatment operations must strip end-of-life vehicles before treatment and recover all environmentally hazardous components. Priority must be given to the re-use and recycling of vehicle components (batteries, tyres, oil).

At the moment, 75% of end-of-life vehicles are recycled (metal content). The aim of this Directive is to increase the rate of re-use and recovery to 85% by average weight per vehicle and year by 2006, and to 95% by 2015, and to increase the rate of re-use and recycling over the same period to at least 80% and 85% respectively by average weight per vehicle and year. Less stringent objectives may be set for vehicles produced before 1980.

Member States must ensure that producers use material coding standards which allow identification of the various materials during dismantling. The Commission must establish European standards on material coding and identification.

Economic operators must provide prospective purchasers of vehicles with information on the recovery and recycling of vehicle components, the treatment of end-of-life vehicles and progress with regard to re-use, recycling and recovery. On the basis of this information, Member States must report to the Commission every three years on the implementation of the Directive. The Commission must then publish a report on the implementation of the Directive.

Member States may transpose certain of the Directive's provisions by means of agreements with the economic sectors concerned.’

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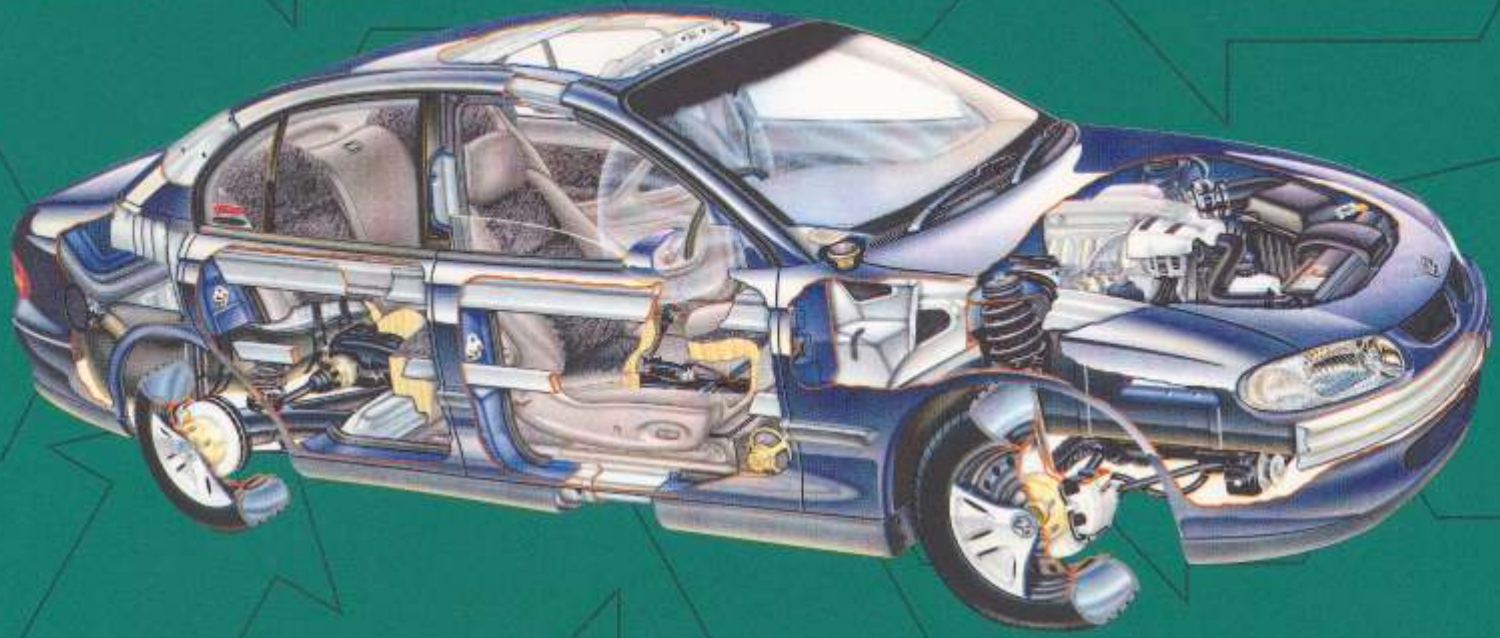
Auto Parts Recycling

A GUIDE TO THE FUTURE



A joint initiative of:

Greenfleet

HOLDEN

AUTO PARTS RECYCLERS ASSOCIATION OF AUSTRALIA APRAA

The Contributors

The Auto Parts Recyclers Association of Australia (APRAA) is the national association dedicated to representing, progressing and promoting the auto parts recycling industry throughout Australia.

Around half a million end-of-life vehicles (ELV's) are de-registered and scrapped each year in Australia. This includes the management of associated fluids, gases, wheels, tyres, interior, glass, plastic, panels, electrical and mechanical components. The bulk of these ELV's are handled by auto parts recyclers before the vehicle shell is passed on to scrap metal recyclers.

APRAA is committed to playing an industry leadership role, promoting best practice and quality auto parts recycling procedures with our Accreditation Program.

We also promote the benefits of licensing all auto parts recyclers towards achieving Australia's environmental goals. APRAA, in conjunction with Holden and Green*fleet*, is proud to be associated with this auto parts recycling publication in working towards a better future.

Green*fleet* is a comprehensive yet simple action oriented community based strategy to "Green the Australian Transport Fleet".

To achieve this, and to have a viable automotive industry and healthy environment in the future it is essential to have substantial investment in research and development of fuels, technologies, policies and work place practices that will lead to sustainable transport systems.

As we move towards a world that demands sustainability. Manufacturers are looking at ways to recycle their products in the interests of resource efficiency, profitability and environmental responsibility.

To date there has been no standard industry guide that deals with how to handle airbags, pollutants, fluids, safety and what is and is not recyclable. To this end Holden, APRAA and Green*fleet* have worked in partnership to develop this guide for the auto parts recycling industry.

Among the many challenges facing the world in the new millennium, striking a balance between environmental sustainability and economic development is one of the most crucial issues.

Holden recognises the community's increasing focus on the environmental impact of the manufacture, use and scrapping of motor vehicles. This concern is part of an international trend of community and government expectation, which has made recycling a priority within the automotive industry in Europe, America and Australia.

Holden is committed to pursuing a program of environmentally responsible manufacture and one aspect of this has been to develop approaches to component recycling.

Holden's involvement in this manual represents one of the activities that we hope will lead to a greater recycling effort in the industry as a whole. By joining forces with APRAA and Green*fleet*, Holden has demonstrated the importance for manufacturers and parts recyclers to work together in guiding the future direction of the automotive industry.

Contents

Exciting Future for Auto Parts Recycling

When cars in Australia are scrapped seventy five percent of the materials, by weight, are recycled. The other twenty five percent is dumped in landfill.

Dumping is becoming less and less acceptable. It is an unwise use of resources and creates of environmental hazards. As the environmental consequences of these practices are realised, the costs to society will become unacceptable. In the not-so-distant future there will be no remaining landfill or toxic waste dumps.

There is a continuing push by the community and government for industry to adopt a 'whole of lifecycle' responsibility for their products. Cars in the future will be designed and manufactured in such a way that all materials will be re-used in some form again and again. They will be simple to dismantle, with each component labelled so that materials are identifiable and available for reuse. In Europe for example it has been proposed that the manufacturers will own the cars throughout their life, and will be responsible for their disposal.

These trends provide great opportunities for members of the auto parts recycling industry.

This guide is a combined initiative by Holden, Greenfleet and APRAA designed to support the development of a structured relationship between manufacturers and the auto parts recycling industry.
Such a relationship will provide the following benefits:

- The opportunity for APRAA to further develop voluntary compliance standards rather than mandetory government regulations to license the industry.
- The opportunity for all auto parts recyclers to implement these standards to ensure both continued profitability and long term viability.
- The market benefits and competitive advantages of being visual industry leaders through APRAA membership and accreditation as the move towards fully recyclable vehicles accelerates.
- The future potential for APRAA members to become 'Factory Approved' recyclers and suppliers of recycled spare parts with direct access back into the manufacturing loop.

This Auto Parts Recycling guide offers a format to conduct the disassembly and relocation of materials used in motor vehicles.

It represents the start of a journey towards an exciting future for the auto parts recycling industry.

Occupational Health, Safety & Environment

Stormwater Management

This is one of the major issues in the auto parts recycling industry. Contaminated stormwater discharge is one of the most common causes of problems with authorities.
Any contaminated water should be processed through triple interceptor traps or oil separators and discharged through the sewer, subject to trade waste agreements with the relevant authority.

Hazardous Waste Management

This is another area for potential problems if not handled in a responsible and professional manner.

Fluoroelastomer Adhesives (e.g. Viton)

These substances are often used as sealers between panels and other sections in automotive bodies, and o-rings and gaskets in mechanical components. They are highly toxic when hot, and are potentially very dangerous. These materials have been known to burn through flesh to the bone and may require amputation to stop the process. When cutting panels, use cutoff saws or normal hand-tools rather than oxy-acetylene equipment.

Refrigerant Gases

R.12 is a highly toxic substance that causes environmental damage.
Only qualified operators should reclaim this and other refrigerant gases in all situations.

Batteries

Sulphuric acid contained in batteries will give a nasty burn, and is highly toxic. Contact with skin should be immediately washed with soap and water. Vapour from batteries is explosive.

Pyrotechnic Devices (e.g. undeployed airbags)

A competent operator should always remove these from vehicles. Handle with care. These contain explosives! Observe manufacturers' recommendations regarding handling and deployment. If unit is scrapped it must be rendered inoperative by intentionally deploying or by removing the trigger source.

Legislation

Legislation covering issues of Occupational Health, Safety and the Environment varies between jurisdictions.

Contact relevant agencies in your State or Territory to get copies of legislation relating to your business in terms of:

- *Occupational Health & Safety*
- *Dangerous Goods*
- *Environment Protection*
- *Trade Waste policies of local Water Board.*

Emergency Contacts

It is important to fill out the emergency contact list on Page 19. This indicates who to contact in the event of a spill, injury or other emergency.

Basic Requirements & Equipment

Storage and Operation

- Store your hazardous materials such as coolants, solvents and fuels in a bunded, covered area that will prevent any materials being spilled or washed into the stormwater system.
- Perform dismantling operations where possible inside the workshop. Work towards a workshop that is fully enclosed and sealed.
- Store parts to prevent any residues reaching the stormwater system or soaking into the ground.

Code of Conduct

The following issues are important when conducting business in your community:

Stormwater Management

Natural waterways must be protected from contamination, so make sure the stormwater drains on or near your premises receive only rain water.

Ensure oil, radiator fluid and any other liquid wastes from your business do not get into the storm-water system or soak into the ground.

Trade Wastewater

Do you have a Trade Waste Agreement with your local Water Management Authority (*Water Industry Act 1994)* or equivalent in your state?
These agreements allow you to have approved trade waste outflows into the sewer system.

Well maintained oil separators and interceptors are designed for outflows to the SEWER system as opposed to the STORMWATER system.

Air Quality Management

Adopt practices that keep chemicals, solvent fumes, brake lining dust, refrigerant gases and other harmful substances contained to avoid contact with the lungs, skin and the environment.

Waste Management

The practice of continually aiming for a reduction of material that goes to landfill is good housekeeping which helps the environment and saves money at the same.

Make sure items stored for resale do not leach residues that soak into the ground or find a way to the stormwater system.

Ensure that all other waste products are properly handled and stored, ready for recycling or pick-up by approved professional contractors.

Endeavour to maintain a neat and tidy workplace, adopting a conscious practice to reduce, reuse, recycle and constantly upgrade your business towards 'best practice' standards.

Noise Management

Limit using noisy equipment such as grinders, cutters and hammering, to business hours. Use shields and other noise abatement methods when engaging in activities that may offend others in and outside of your business. Provide hearing protection equipment for the welfare of employees.

General Procedures and Guidelines

INITIAL HANDLING PROCEDURE

Order of disassembly when the vehicle arrives

1. Disconnect and remove battery
2. Drain fluids and gases
3. Remove pyrotechnic devices (e.g. airbags). Refer to manufacturers' recommendations regarding reuse and safe deployment methods.

Cleaning (detergents etc)

1. APRAA can provide a list of available bio-degradable products.
2. Use high pressure cleaners on bunded areas in conjunction with oil separators or interceptors, ensuring residues don't enter stormwater system (certain amounts of approved waste may be allowed into the sewer system).
3. Conserve water where possible, this saves both money and a precious resource!

Storage

Store hazardous materials such as airbags in secure storage. Coolants, solvents and fuels should be stored in a bunded, covered area that will prevent any materials being spilled or washed into the storm-water system, soaking into the ground, or causing injury.

Disposal

Always use approved professional contractors to ensure that disposal is environmentally responsible.

Auto Parts Recycling Guide Code

HAZARD

RED: Hazardous Materials – There is a safety and/or environmental issue involved with these materials

RE-USE

BLUE: When in good condition these materialscan be sold for re-use, or reused on site

RECYCLE

GREEN: This product can be remanufactured or otherwise recycled

COLLECTED

YELLOW: This product should be collected by an authorised contractor

DISPOSED

BLACK: This product cannot be of use again, and must be disposed to landfill or to a toxic waste dump. Try to reduce this waste as much as possible!

Recycling Auto Parts

Initial Procedure

COMPONENT	MATERIALS	DISMANTLING	STORAGE	DISPOSAL	SAFETY
Batteries	Case - plastic or rubber. Contents - lead, sulphuric acid	Remove from vehicle as appropriate	Under cover, off ground storage	**For Collection Contact:** **Phone:**	Avoid sulphuric acid fumes or contact with skin. Gas is explosive - keep away from ignition sources
Brake Fluid	Primarily diethylene & polyethylene glycol-mono alkyl ethers	Collected in steel or plastic drain pan only used for that purpose	Under cover, bunded area, to appropriate storage drum or tank	**For Collection Contact:** **Phone:**	Corrosive, highly toxic to environment
Fuel	ULP (unleaded petrol) LP (leaded petrol) Diesel	Siphon mechanically from tank to avoid spillage	Under cover in appropriate sealed drums	**For Collection Contact:** **Phone:**	Erect fire hazard warning signs with approved fire control equipment at hand. Avoid fumes

HAZARD RE-USE RECYCLE COLLECTED DISPOSED

Initial Procedure

COMPONENT	MATERIALS	DISMANTLING	STORAGE	DISPOSAL	SAFETY
LPG	Liquid Petroleum Gas	Mechanically decant before tank is removed from vehicle	In approved LPG tanks, in appropriately ventilated area	**For Collection Contact:** **Phone:**	LPG is an explosive product and is heavier than air. Do not allow LPG to accumulate in low areas
Oil	Engine, transmission and differential	Drain to bulk container in bunded area. Use compressed air or spill free movement to storage	Under cover, bunded area, to appropriate storage drum or tank	**For Collection Contact:** **Phone:**	Appropriate fire hazard warning sign
Air Conditioning Gases	R12 Freon, 134A **R12 is hazardous to the environment**	Reclaim by accredited operator	To approved storage containers	**For Collection Contact:** **Phone:**	Provide safe area for minimum chance of gas escapes
Air Bag (undeployed)	Plastics, metals **igniters** and **explosives**	Removal by competent operator	Under cover secure area. **Must be stored face up**	**For Collection Contact:** **Phone:**	Handle with care, contains explosive. Adopt manufacturer's recommendations for reuse and general handling. If unit is scrapped it must be rendered inoperative by intentionally deploying or by removing trigger source

HAZARD RE-USE RECYCLE COLLECTED DISPOSED

Plastics

COMPONENT	MATERIALS	DISMANTLING	STORAGE	DISPOSAL	SAFETY
Bumper Bar Cover 	Various. Some are identified for recycling	Remove from car where appropriate	Racked or binned for recycling	**For Collection Contact:** **Phone:**	Do not burn. Fumes are toxic!
Grilles 	Plastic or metal. Some are identified for recycling	Remove from car where appropriate	Racked or binned for recycling	**For Collection: As listed for other metals and plastics**	Do not burn. Fumes are toxic!
Internal Trim and Plastic Fittings 	Various. Some are identified for recycling	Remove from car where appropriate	Racked or binned for recycling	**For Collection Contact:** **Phone:**	Do not burn. Fumes are toxic!
Plastic Drums (empty) 	Various. Some are identified for recycling	N/A	Where appropriate. Contain residues	**For Collection Contact:** **Phone:**	Do not burn. Fumes are toxic! Contain residues

HAZARD RE-USE RECYCLE COLLECTED DISPOSED

Plastics

COMPONENT	MATERIALS	DISMANTLING	STORAGE	DISPOSAL	SAFETY
Plastic Panels	Various. Some are identified for recycling	Remove from car where appropriate	Racked or binned for recycling	**For Collection Contact:** **Phone:**	Do not burn. Fumes are toxic!
Polythene Film (packaging)	High Density Polyethelene (HDPE) or Low Density Polyethelene (LDPE)	N/A	Waste bin	**For Collection Contact:** **Phone:**	Do not burn. Fumes are toxic!
Seats	Various	Remove from car where appropriate	Appropriate storage	**For Collection Contact:** **Phone:**	Do not burn. Fumes are toxic!
Trim Interior & Exterior	Various. Some are identified for recycling	Remove from car where appropriate	Racked or binned for recycling	**For Collection Contact:** **Phone:**	Do not burn. Fumes are toxic!

HAZARD RE-USE RECYCLE COLLECTED DISPOSED

Metals

COMPONENT	MATERIALS	DISMANTLING	STORAGE	DISPOSAL	SAFETY
Air Conditioning Cores	Aluminum, copper	One piece, using normal hand tools	Rack or appropriate bin	**For Collection Contact:** **Phone:**	Handle with gloves
Aluminium & Aluminium Alloys	Various types	Normal hand tools and cut-off saws	Rack or appropriate bin	**For Collection Contact:** **Phone:**	Handle with gloves
Magnesium	Wheel rims and other mechanical components	Normal hand tools	Rack or appropriate bin	**For Collection Contact:** **Phone:**	Warning! Fire hazard and gives off toxic fumes when burned. Avoid cut-off saws and oxy-acetylene equipment
Car Bodies & Panels	Steel and plastics	Normal hand tools and cut-off saws where appropriate	Rack or stack safely in a secure area	**For Collection Contact:** **Phone:**	Use of oxy-acetylene to a minimum, may ignite plastics, rubber, grease which produces dense black fumes detrimental to health and air quality

HAZARD RE-USE RECYCLE COLLECTED DISPOSED

Metals

COMPONENT	MATERIALS	DISMANTLING	STORAGE	DISPOSAL	SAFETY
Catalytic Converters 	Contain toxic heavy metals. Only active when hot	Normal hand tools or cut-off saw to adjacent pipes	Rack or appropriate bin	**For Collection Contact:** **Phone:**	Avoid heat e.g. The use of oxy-acetylene equipment
Copper 	Radiators, heater cores and electrical wiring etc	Normal hand tools and cut-off saws	Rack or appropriate bin	**For Collection Contact:** **Phone:**	Handle with gloves. Do not burn electrical wiring insulation. Fumes are toxic
Drums (empty) 	Steel	Appropriate handling equipment	In bays with lids securely in place. Bund area to contain residues	**For Collection Contact:** **Phone:**	Possible hazardous fumes and explosive potential. Contain residues
Oil Filters (drained) 	Steel, paper and fibres	Use normal hand tools. Contain any residues	In leak-proof drums to contain residues	**For Collection Contact:** **Phone:**	Contain residues

HAZARD RE-USE RECYCLE COLLECTED DISPOSED

Metals

COMPONENT	MATERIALS	DISMANTLING	STORAGE	DISPOSAL	SAFETY
Radiators	Copper, aluminum and plastic	Remove to contain coolant residues, using normal hand tools	Bund area to contain coolant residues	**For Collection Contact:** **Phone:**	Warning sign! Radiator coolant is toxic to environment, especially waterways. Handle with gloves
Steel and Steel Alloys	Steel and steel alloys	Normal hand tools and cut-off saws, in preference to oxy-acetylene cutting	Rack or appropriate bin	**For Collection Contact:** **Phone:**	Handle with gloves

Liquids

Coolant	Includes phosphoric acid, hydrazine, ethylene glycol and alcohols	Collect in bunded spill containment area	Transfer to appropriate storage drums in bunded area	**For Collection Contact:** **Phone:**	Warning sign! Radiator coolant is toxic to environment, especially waterways

HAZARD RE-USE RECYCLE COLLECTED DISPOSED

Liquids

COMPONENT	MATERIALS	DISMANTLING	STORAGE	DISPOSAL	SAFETY
Interceptor Waste and Oil Separator Waste	Oils, grease, water, chemicals, detergent and sludge	Pump to dedicated holding tank	Pumped to dedicated holding tank in bunded area for removal by contractor	**For Collection Contact:** **Phone:**	Warning sign! Hazardous Waste!
Caustic Cleaning Solutions	Caustic Soda (usually hot tank application)	When cool, transfer to storage in bunded spill containment area	Under cover, bunded area to appropriate storage drum or tank	**For Collection Contact:** **Phone:**	Warning sign! Corrosive - highly toxic to environment
Solvents	Oil and grease removal, general parts cleaning	Drain into dedicated container in bunded spill containment area	Under cover in dedicated container for collection by contractor	**For Collection Contact:** **Phone:**	Appropriate fire hazard warning sign. 'Hazardous Chemical' sign

HAZARD RE-USE RECYCLE COLLECTED DISPOSED

Tyres

COMPONENT	MATERIALS	DISMANTLING	STORAGE	DISPOSAL	SAFETY
Tyres	Rubber, steel and fabrics	Remove as appropriate	Fenced area. Check maximum permissible storage numbers. See local authorities	**For Collection Contact:** **Phone:**	Ensure minimum quantities stored. Keep away from ignition sources
Inner Tubes and Rubber Components	Rubber, hoses, mounts etc	Remove as appropriate	Collection bin as appropriate	**For Collection Contact:** **Phone:**	Keep away from ignition sources

Hazardous Materials (other than liquid)

Adhesives, Gasket O-Rings & Seals including Fluoroelastoma Sealants used between panels e.g. Viton	Fire wall to body adhesives, etc **Extremely dangerous to skin when hot**	Keep away from oxy-acetylene flame or any other heat source	Leave intact where possible as on fire wall etc	**For Collection Contact:** **Phone:**	Extremely dangerous to skin when hot: Clear liquid hydrofluoric acid forms on top of burned components. Clean with detergent solution and use heavy duty neoprene gloves

HAZARD RE-USE RECYCLE COLLECTED DISPOSED

Other Wastes

COMPONENT	MATERIALS	DISMANTLING	STORAGE	DISPOSAL	SAFETY
Overalls, Gloves and Cleaning Rags	Cotton polyester/leather. Oil impregnated	N/A	Under cover to dedicated storage for waste collection or cleaning	**For Collection Contact:** **Phone:**	Keep away from ignition sources
Paper and Cardboard	Packaging and newspapers	Package in manageable piles	Under cover	**For Collection Contact:** **Phone:**	Keep away from ignition sources
Windscreen and Side Glass	Safety glass. (This can be used as asphalt filler). Laminated Glass	Remove as appropriate	In dedicated bin or racks	**For Collection Contact:** **Phone:**	Handle with care

HAZARD RE-USE RECYCLE COLLECTED DISPOSED

For more information on the Auto Parts Recyclers Association of Australia contact:

APRAA National Office:
Level 1, 3/249 Boundary Road, Mordialloc VIC 3195.
Ph: (03) 9587 2194, Fax: (03) 9587 6556
Email: info@apraa.com.au Internet Home Page: www.apraa.com.au