

**International
Specialised Skills Institute (ISSI)
TAFE Fellowship Report**



**Waste Management in the
Automotive Collision Repair
Industry**

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1. Summary

In the coming years, the Collision Repair Industry in Australia will need to embrace Environmental practices that not only adhere to legislation but also to the expectations of the community at large. In order to do this, there needs to be changes to the methods currently used to generate and dispose of waste materials and products, and a reduction in the emissions in the air. To assist in the process, there needs to be an increased level of Industry awareness through education and training.

Whilst there are examples of some states and territories in Australia moving towards good practices and an auditable waste management system in Collision Repair, there is very little evidence that the majority of Victorian Collision Repair Industry are embracing Environmental friendly Waste Management practices.

There is certainly a lack of training for the Environment at the entry level to the Collision Repair Industry (Apprentices) and minimal training at Management level within the Industry.

In saying this

- There is a need for the Victorian Collision Repair Industry in total to embrace environmental friendly Waste Management practices.
- There is a need for more awareness and training on Environmental friendly Waste Management practices.
- More education and training is required on the environmental impact when disposing of Collision Repair Waste
- There is a need for a Waste Management education program at the Apprenticeship level in Collision Repair

This Fellowship looks at Waste Management and disposal practices throughout the Collision Repair Industry in England, Holland, Germany, Italy and France and encompassed, Collision Repair Shops, Manufacturers, Training Organisations, and Government and Industry bodies.

Gaps are identified against practices currently used in the Victorian Collision Repair Industry.

2. Acknowledgments

The awarding of my International Specialised Skills Institute Fellowship to study Waste Management practices in the Collision Repair Industry throughout the UK and other parts of Europe and my subsequent Industry visits was due to a number of organisation and individuals.

To those many organisation and individuals, I sincerely thank you and acknowledge your contribution.

Awarding Bodies

Major Sponsor- The Office of Employment, Training and Tertiary Education for their generous sponsorship

Sponsor – Kangan Batman Institute of TAFE management team for supporting my application.

The International Specialised Skills Institute (ISS Institute) Board of Management for their generous support

ISS Institute selection committee for selecting me. Ms Sue Christophers – ETTE, Ms Carolynne Bourne – ISS Institute, Mr Graham Morris – ISS Institute

Training Institutes / Peak Government and Industry Bodies in Australia and Europe

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Individuals

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Mr Chris Langley – Director of Training Europe and International

Mr Ian Lewis – Manager Research, Thatcham Repair Research Centre

Mr Dennis Bidwell – Manager Motex, UK

And finally my wife Neva and my family for all their support and encouragement.

Growth and Success

The experience of the last decade underpins their acute insights into design, technologies (leading-edge and traditional) and solutions through carefully constructed strategies. ISS Institute works closely with industry, government, professional associations, individuals and educational institutions.

ISS Institute is initiating a new phase of activity. This marks the next stage of development for one of Australia's most exciting and innovative enterprises. ISS Institute has successfully brought together some of Australia's most talented people each determined to build Australia's industries towards global competitiveness.

ISS Institute have undertaken major initiatives in restructuring and positioning itself to expand its programs and activities throughout Australia including regional and rural centres. Significant contributing factors to ISS Institute's success are the high calibre of the Fellows, the focus and the nature of the study programs and their sponsors and partners. *Those who have provided funds and continuing to actively support ISS Institute are OTTE, their major sponsor, the Palladio Foundation, the Australian Multicultural Foundation, Deakin University and RMIT University.*

ISS Institute acknowledges the generous contribution of the State Training System as sponsors of this Fellowship.

Point of Difference

ISS Institute has a holistic approach where they work across industry and occupation sectors and integrate design, skills, knowledge and attitudes in the Fellowship program and education / training activities and special events. The focus is towards generating a knowledge-based economy.

Experience has shown that most participants in ISS Institutes activities perceive that the lack of skills is the principle cause of problems in the workplace. We believe that the attitudes are often the constraint to turning ideas into product and a successful business; the ability to think laterally, to work and communicate across disciplines, to understand cultural diversity, to be able to take risks and think outside the familiar.

In a careful, structured and effective way, ISS Institute Fellowships and activities are intended to improve our ability to compete with the rest of the world. The possibilities are unlimited.

Sponsors

Office of Employment, Training and Tertiary Education (ETTE) Victoria.

The office of Employment, Training and Tertiary Education (ETTE) is a long time valued sponsor of the ISS Institute fellowship. ETTE is responsible for overseeing the administration and coordination of programs for the provision of training and further education, adult community education and employment services in Victoria.

Kangan Batman Institute of TAFE

Kangan Batman Institute of a TAFE is a leading provider of Education and Training within the Victorian Education System. They were a very generous sponsor of this fellowship, both financially and by allowing me to complete the overseas study tour. Both Management and staff within the Institute were very supportive.

Industry Providers

There are many Industry organisations that assisted with me this Fellowship program and whilst not necessarily contributing financially, their very generous assistance and support has also made this Fellowship possible.

These organisations assisted with arranging Industry visits and meetings, letters of introduction and support and in some cases transport.

Current Situation in the Victorian Automotive Collision Repair Industry with regards to Generating Waste

The Collision Repair Industry in Australia has numerous waste materials and products that result from repairs to Automotive Vehicles. Over recent years, these materials have changed considerably with the introduction of the 2 pack painting systems and the demise of single pack Acrylic paint systems.

There has also been huge change in Vehicle Manufacture through the introduction of the many different types of materials used in the manufacture of the modern motor vehicle.

The introduction of Plastics or Polymer materials would be the first to come to mind, however, there is an increasing move towards non-ferrous materials such as Aluminium, Magnesium, and Copper.

Waste in the Collision Repair Industry can generally be classified into two categories.

- ❖ Waste consumable materials
- ❖ Damaged or Waste Parts

Waste consumable materials are in turn broken down into toxic / hazardous waste and non-toxic / hazardous waste.

Toxic / Hazardous waste may include

- Waste Paint materials
- Waste Solvent (Thinners)
- Empty Paint and Hardener containers (wet)
- Body Filler waste or dust
- Paint / Thinner Soaked Rags or Wipes
- Paint Soaked Masking Paper / Plastic
- Empty Body Filler tins
- Paint Stripping material waste
- Residue from wet sanding
- Paint Filters / Strainers
- Solvent, Paint, or dust polluted water
- Solid Paint / Solvent Sludge

Non Toxic / Non Hazardous waste may include

- Paper
- Cardboard
- Empty Paint and Hardener tins (cleaned and dry)
- Rags or Wipes (dry)
- Weld materials
- General waste

Whilst damaged or waste parts resulting from Collision Repair are generally not categorised toxic or non-toxic, they can be put into recyclable categories.

- Steel or metal
- Polymer / Plastics
- Aluminium / non ferrous
- Battery
- Radiators
- Glass

Current situation in the Victorian Automotive Collision Repair Industry with regards to Waste Disposal

The Collision Repair Industry as with most Automotive industries is made up of small, medium and large businesses. The smaller businesses generally have two to three employees with the medium size business having five to six and the larger businesses ten to twenty employees. The Industry is currently going through a downturn, which will see a lot of the smaller businesses close down or be taken over by the larger organisations.

It goes without saying that the larger well run organisations are the ones who have made some move towards a Waste Management System, however, there are still far too many Collision Repair Shops who do not take disposing of their waste in an environmental friendly manner seriously.

Current methods of disposing of waste within the Collision Repair Industry are wide and varied. I made mention previously that some states and territories are implementing Waste Management systems and processes, however, there is a lack of consistency in how this is done in Victoria.

There are few Collision Repair Shops in Victoria who would have a total Environmental Waste Management System in place. That is full documentation on how, when and where all waste is disposed and I mean all waste, and a full re-cycle and maintenance system within the organisation. Whilst waste disposal in Collision Repair seems to be self-regulatory at the moment, until there is fully enforced legislation, shop owners will continue to dispose of waste haphazardly. The EPA have a Code of Practice for Spray painting and in conjunction with the Victorian Automobile Chamber of Commerce (VACC) have introduced the Clean Green Shop program, however, I'm not sure the take up rate for this program has been successful.

The general rule of thumb when it comes to disposing of most waste is to place it all in the one waste bin, drum, or skip. I will say one thing however, nowadays, most Collision Repair Shops are disposing of waste paint and solvents through a registered solvent recycler. But what about all the other Toxic / Hazardous materials that don't go into that scrap drum under the paint bench, such as paint filters, paint soaked rags and paper, body filler waste and dust, empty paint / hardener tins some with materials still inside and waste associated with paint stripping materials.

The other area of concern is waste water and dry paint sludge that forms when wet rubbing vehicles, most of the contaminated water would find its way into storm water drains or pits. There is also the Spray Booth, how many organisations have a regular maintenance plan in place for their Spray Booth filters and water pit?

Re-cycling in the Collision Repair Industry has improved over the years with the introduction of more and more plastics into the modern motor vehicle, however, there are certainly improvements that can be made in this area. You will generally find that larger plastic components such as bumper bars are disposed of separately, however, smaller components are placed in the general- purpose waste bin with everything else. Batteries and Radiators are components that have attracted money from re-cyclers in the past, however, this is not always the case nowadays.

Whilst it can be said that there are certainly a few Collision Repair organisations out there who are embracing good practices in waste management, there is certainly a need for more education in this area in order to get more organisations to embrace good practices.

Organisations that Impact on the Industry

Victorian Automobile Chamber of Commerce (VACC)

The Victorian Automobile Chamber of Commerce (VACC) is the voice of the Automotive industry in Victoria and has 4,500 members. Some of these members are in the Collision Repair Industry and represented through the Collision Repair Council.

As previously mentioned, the VACC in conjunction with the Environmental Protection Authority (EPA) have introduced the Clean Green Shop program. This program was piloted by a group of VACC member shops before being put into place. It covers all areas of the Environment and also focuses on reduced production costs, less waste handling and a better work environment. Whilst it is an applaudible program, the take up rate has been slow with only a handful of members implementing the program.

Another program that has been developed by the VACC, EPA and Kangan Batman TAFE is the Eco-maintenance for cars program. This program is designed to assist Vehicle Repairers reduce the environmental impact of cars as part of routine car servicing and repair. This program is designed to educate the Automotive repairer and car owner what environmental effects poorly serviced vehicles have on the environment. The program is not specifically for the Collision Repair Industry; it is for the Automotive repair sector in general. The only reference to Collision Repair is a small section on sanding and dry rubbing of panels and reduction of particles in the air.

TAFE Institutes and Training Providers

TAFE Institutes play a key role in Education and Training for the Collision Repair Industry. Whilst private Registered Training Organisations (RTO's) and Group Training companies certainly play a part, at Certificate III level and above, TAFE Institutes would certainly be the main provider of the training. There are eight TAFE Institutes in Victoria who deliver training programs to the Collision Repair Industry.

- Chisholm Institute of TAFE
 - Vehicle Painting
 - Panel Beating

- Kangan Batman Institute of TAFE
 - Vehicle Painting
 - Panel Beating
- Victoria University of Technology TAFE
 - Vehicle Painting
 - Panel Beating
- Bendigo Regional Institute of TAFE.
 - Panel Beating
- University of Ballarat TAFE
 - Panel Beating
- Goulburn Ovens Institute of TAFE
 - Vehicle Painting
 - Panel Beating
- Central Gippsland Institute of TAFE
 - Panel Beating
- Gordon Institute of TAFE
 - Vehicle Painting
 - Panel Beating

These TAFE Institutes meet formally three times a year through the Victorian TAFE Automotive Forum to discuss issues associated with delivery of the Automotive Training Packages.

There are also informal meetings arranged throughout the year, to discuss other issues that may be of interest. There is a great working relationship amongst Collision Repair teaching staff within all of these Institutes.

Through the implementation of the National Automotive Training Packages, the Collision Repair Industry as with all the Automotive Industry has seen huge change. Touted as being Industry driven, the packages now allow for a more flexible training program for the organisation with regards to content and how and where it will be delivered. We are seeing more and more partnership arrangements with RTO's and employers through an on-the-job delivery / assessment process. That is, more employers are opting for their apprentice to complete some or parts of the package in the workplace.

In relation to Waste Management practices in the Institutes, as with the Collision Repair Industry, we have a long way to go. Some Institutes are looking towards ISO 14,001 Accreditation, so there will need to be huge changes made in the near future. Whilst most have systems in place for disposing of waste paint / solvents, other areas of waste disposal and recycle require much more work.

With regards to training programs for the Environment, there is very little currently available for Collision Repair students. There is some reference made in OH&S programs and programs on Handling Dangerous Goods, however, there is no specific training in Collision Repair Waste Management. There is however a draft National Competency for the Environment being developed and will be introduced into the Automotive Training Package. Therefore, the findings and recommendation from this fellowship will assist in the development of a dedicated training program for apprentices.

Environmental Protection Authority (EPA)

The Environment Protection Authority (EPA) has a huge role to play and impact on Waste Management in the Collision Repair Industry. They are the gatekeepers of Legislation surrounding the way waste is disposed of and other environmental issues that impact on the Collision Repair Industry.

The Environment Protection Act 1970 - ACT NO 8056/1970 Industrial Waste Management Policy (Prescribed Industrial Waste) is the main Act that would impact on the Industry.

The Preamble to this policy states

In line with community expectations this industrial waste management policy seeks to protect people and the environment from the risks posed by prescribed industrial waste. This is achieved by specifically providing a framework and tools to implement the waste management hierarchy for prescribed industrial waste, consistent with ecologically sustainable developments.

This policy seeks to facilitate waste reduction and diversion of wastes from landfill for productive purposes and will ensure safe containment of remaining wastes.

There have been recent amendments to this act including Environment Protection (Amendment) Act 1999, Environment Protection (Prescribed Waste) (Amendment) Regulations 2000 and Environment Protection (Enforcement and Penalties) Act 2000.

There is also a very good EPA Publication,

Managing Prescribed Industrial Waste.
Industrial Waste Management Policy
(Prescribed Industrial Waste) and Impact Assessment
January 2001

Local Government / Councils

Local Councils have an impact on the Industry as well with waste disposal sites and the associated rules and regulations that go with that. Local council tip sites are generally similar in most areas with regards to what you can dispose of and how they dispose of the waste, however, there still seems to be evidence that you can dispose of hazardous waste with general waste.

Automotive Paint and Consumable Manufacturers

Automotive Paint and Consumable Manufacturers have a huge impact on the Industry when it comes to Waste Management and the Environmental impact in general. They are the main providers of the hazardous and toxic materials that are used in the Collision Repair Industry. That is both Solvent and water-based materials and many other consumable items that are used in Collision Repair.

There is however a commitment by all the Australian Automotive Paint Manufacturers to the environment, they are well aware of their responsibility and they will be without doubt the leaders in educating the industry when it comes to environmental issues. Most are Global companies with environmental practices and systems in place in their overseas operations. In recent times, we have started to see some of these environmental friendly systems put in place in Australia.

Equipment Manufacturers

As with paint and consumable manufacturers, equipment manufacturers will impact on the industry as well. If we look at history in Europe with regards to equipment in the Collision Repair Industry. There is a huge amount of equipment that has assisted to reduce waste and dispose of waste including Spray Gun Cleaning Equipment, Paper and Paint Container Crushers, Dry and Dustless Sanding Equipment, Spray Guns, Spray Booths and waste disposal bins or containers. Most of this equipment is starting to be introduced into Australia and we need all of industry to take it up if we are going work towards environmental friendly practices.

Auto Training Australia (ATA) and Auto Training Victoria (ATV)

Automotive Training Australia is the overriding authority for Automotive training within Australia and Automotive Training Victoria is the local Industry training authority. Both have an important part to play when it comes to educating the industry. We have just seen the development of a draft environment competency standards for the Automotive Training Package. This will include a competency that will relate to the Collision Repair Industry.

Aim of the Fellowship

This International Specialised Skills Institute (ISSI) Fellowship was sponsored by the Office of Employment, Training and Tertiary Education and Kangan Batman Institute of TAFE. The aim of the Fellowship was to research and observe best practice in the provision of Environmental Waste Management Systems in the Collision Repair Industry in the UK and other countries in Europe. This would include visits to Collision Repair Workshops, relevant Government and Industry Bodies, Automotive Paint Manufacturers and Training Institutions.

ISSI Fellowships are an exciting and unique opportunity for TAFE Teachers and the like to identify skills gaps within their chosen vocation, then enhance their skills and knowledge through education programs or study tours abroad, and on returning, share the skills and knowledge gained with others. ISSI assists with the sharing of this knowledge through special events, exhibits and education and training activities.

Outcomes and recommendations from my findings will go towards Education programs, Seminars and Forums for the Collision Repair Industry including an Apprentices program in line with the new Automotive National Competency Standard for the Environment. Knowledge gained will also go towards assisting Kangan Batman Institute of TAFE in the implementation of ISO 14,001

The Skills Gaps

There is legislation and policy surrounding the way the Collision Repair Industry generates and disposes of its waste, however, there is a reluctance by industry in general to abide by the rules set down or to embrace good environmental practices.

There are no recognised Environmental Waste Management training programs available for Automotive Collision Repair Apprentices in both Vehicle Painting and Panel Beating. As previously mentioned, there is a training program conducted by the VACC targeting Collision Repair shops, however, there is a need to educate at the entry level to the Industry through Apprenticeship education and training.

It is imperative that the Industry equips itself with the required knowledge and skills underpinning this area in order to effectively respond both to legislative change and the environmental concerns of the community. In order to fill the recognised knowledge and skills gap, and in driving change to comply with government legislation, there is a need to alter the mindset of those who work in the Collision Repair Industry. This ranges from the Apprentice level to Management level creating a culture in the Industry that drives change.

At present, the Collision Repair industry in general is seen as a dirty industry to work in and an industry that doesn't seem to care about the environment. There is a need to improve the image of the industry to a reflect a more environmental responsible industry. Such an initiative would improve the long-term sustainability of the Industry in line with other progressive Industries in Australia and Globally.

4. The Fellowship Program

Introduction

The nature of this Fellowship program was to visit Collision Repair Workshops, Training Organisations, Manufacturers and Industry / Government bodies to observe and discuss best practice methods and processes in Collision Repair Waste Management Systems. Whilst there are other environmental aspects associated with Collision Repair such as VOC emissions, this study focuses on Waste Management.

My Industry contacts in Australia, suggested that the UK and parts of Europe were demonstrating best practice in disposing of waste and embracing environmental friendly systems in Collision Repair.

These Australian contacts assisted me with setting up visits to Collision Repair Workshops, Manufacturing plants, Training facilities and Government and Industry bodies in England, Holland, Germany, Italy and France. Whilst the best plans and preparation in the world can be put in place prior to leaving Australia, reality tells you that your best preparation doesn't always go to plan. Sickness, public holidays and preparation for exams marred a couple of pre-planned visits, however, throughout the study tour, I was able visit a good cross section of the Industry in each country.

In total, 16 Collision Repair Shops were visited, 10 Training organisations, and 5 Industry / Government organisations.

Because of the repetitive nature of some of the visits, this report will not include every visit, however, it will capture aspects of each visit in the pre-amble to each Country. The visits with the most to offer or interesting aspects will be covered in detail.

Due to language barriers, there was also some difficulty in my understanding the terminology when it came to legislation and government bodies, therefore, I have used my own interpretation.

Host Organisations and Industry / Education visits.

England

There is much talk within the Industry about new environment legislation and laws that are coming in including end of life vehicle directive and the new VOC laws that will be implemented in stages over the next five years or so. There is evidence that workshops in collaboration with paint manufacturers and distributors are documenting the VOC content in their workshop and working towards reducing the levels they have.

There was a slight variation in what I saw during my visits to Collision Repair Shops in England, however, most were embracing a responsible attitude towards the Environment.

Each shop I visited had some sort of system in place to separate their waste, and whilst not always in a clean and tidy manner, their intentions were always good. There is clearly a responsibility on the person or organisation creating the waste to ensure that it is disposed of correctly. The disposal or recycle process was generally determined by the local region or council laws for that area which included land fill, re-cycling or incinerating.

Of particular note was the excellent Waste Management System in place at some of the Collision Repair shops I visited. This included full policy and procedure manuals for both OH&S, the Environment and Waste Management.

The training facility I visited was certainly the best I have ever seen with regards to new technology and equipment, however, the training is more focused on short or special courses for Industry. They are just starting to push apprenticeship type training again.

In total six, Collision Repair Shops were visited and two training facilities, one of which doesn't deal directly with teaching Panel and Paint skills but Body Shop Management and Collision Repair Estimating.

THATCHAM Training Centre, England



My visit to Thatcham Research and Training Centre was arranged with Ms Lesley Upham. My hosts were Mr Robert Blair and Mr Ian Lewis. Thatcham Training Centre is recognised in the Collision Repair Industry as one of the premium training Institutes in the World. Set up and owned by the Insurance Industry, they are a research centre as well as a training centre. Their training programs include both Apprenticeship type programs and short courses for Panel Beating and Vehicle Painting. They don't have a specific training program in place for waste management, however, it is covered in some aspects through OH&S and storage of hazardous materials.



Thatcham Equipment

Within the organisation itself, they have a Waste Management System in place that sees all waste separated into categories and documentation clearly identifying its disposal. That includes a consignment note identifying what the material is, how much (weight), who is disposing of the waste, the truck drivers name and where he is taking it.

They separate their waste into skips, one for hazardous materials such as empty paint tins, filters and paint effected paper etc. One for general waste, one for metal and one for Plastics. They don't generate enough paper waste to warrant a paper re-cycle system. In their painting area, there main paint system is water-borne, however, there is an occasional need to use solvent based paint.

When cleaning spray equipment, a gun cleaning machine is used in both cases. The water system recycles the water and any paint residue is captured in a filter system within the machine. This filter is dried and disposed of as hazardous materials. The solvent based machine uses re-cycled solvent to clean the gun with paint / solvent residue drummed and taken away by a registered waste disposal company.



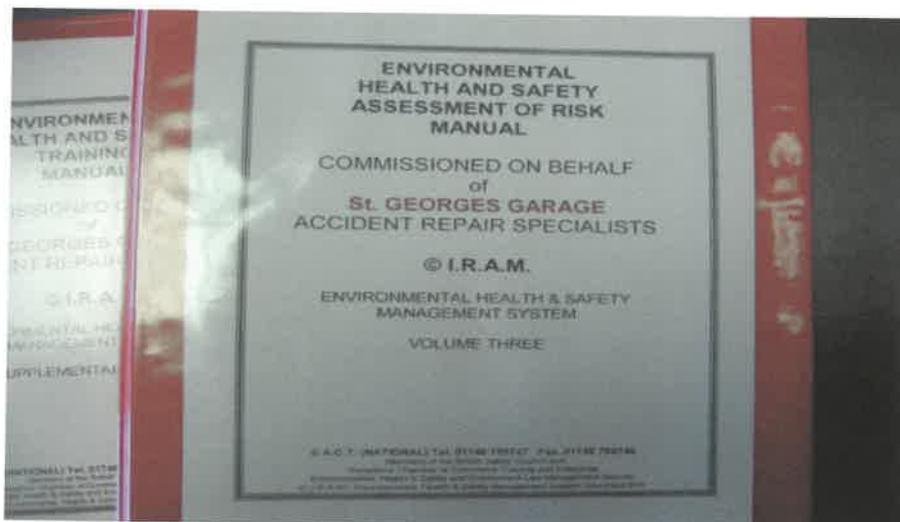
Thatcham repair area.

St Georges Garage, England



St Georges Garage workshop area.

This Collision Repair Shop has just moved into new premises and clearly demonstrates very good practices when it comes to Waste Management. The owner of shop Mr Tony Atkins has employed the services of an external consultant to look after his Environmental and OH&S Management System. The Environmental Waste System in place has policy and procedure manuals that clearly outline what needs to be done, by whom and when. These procedures relate to safety data sheets, waste registers, separation of waste materials and disposal methods and practices that Tony himself audits. That includes auditing the registered waste disposal company that takes away his waste to ensure that it has been disposed of correctly and in a timely manner.



Environmental and Health & Safety Manuals



Separate areas set up for waste materials

There is clear separation of waste materials with bays set up at the rear of the premises. They include a bay for plastics, a bay for metal and steel, an approved bay for batteries and an approved storage area for hazardous materials such as waste paint and solvent. There are also separate drums for oils etc.



Separate plastic and metal areas.

In the paint area, a gun cleaning machine is used utilising re-cycled solvent with the paint residue drummed, stored appropriately and disposed of monthly through a registered company.

Empty paint containers and filters are dried, bagged and disposed of as hazardous materials, as with body filler dust that is captured through the extraction unit set up around the shop.

There is a regular spray booth maintenance program in place that requires the cleaning or changing of the filters, these are then disposed of as hazardous materials.



Spray gun cleaning equipment

Another interesting process in place is the documenting of the xxxxxxx (VOC) content in the paint and solvent materials that are purchased each month. This requires the paint distributor to disclose on the invoices and monthly statement, the VOC content in Tony's monthly purchases.

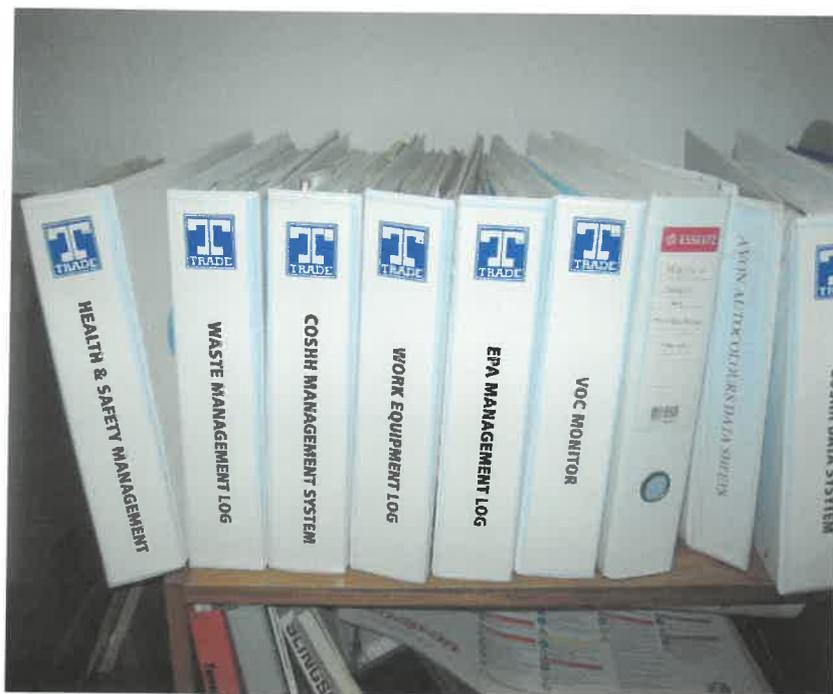
This is then aligned to the VOC content in the monthly paint / solvent waste. It assumes that the balance between these has been applied to the vehicles or gone into the air through over spray. I'm not convinced that this is an accurate indication, however, Tony feels that it is a starting point to becoming VOC compliant.

It is to be noted that there is a new VOC law / legislation coming into place throughout the UK and Europe which will require Collision Repair Shops to reduce the amount of VOC levels or usage in their shop. The first stage of compliance will be in place by 2004 and the final stage by 2007.

S.J Curtis Body Repair & Paint Centre, England



The host for this visit was Paul who is the workshop foreman. They have an excellent waste management system in place with full documentation through policy and procedure manuals.



Policy and Procedure Manuals

All waste is separated with the use of four medium skips and a larger skip for steel / metal. There is special sealed container for storing batteries and a hazardous goods store where all waste paint / solvent is stored until it is disposed of. There is also provision for separate storage of other waste such as oil, brake fluid etc.



Skips for waste storage and removal

Masking paper and plastic is crushed and placed in the appropriate skip for removal as are empty paint / hardener tins. These are drained and dried prior to disposing. In the paint preparation area, waste paint and solvent materials are drummed and placed in the hazardous goods store awaiting removal by a registered company. Gun cleaning machines utilising the re-cycle process for both water and solvent-based paints ensure minimal waste in the cleaning process. Paint residue and filters are dried and disposed of as hazardous materials. Body filler dust is captured by the extraction unit, bagged and disposed of as hazardous waste.



Hazardous goods storage

All waste materials are documented on a monthly register as part of the policy and procedures for the shop.

When disposing of the waste, registered companies have consignment notes that clearly state all details pertaining to the type of waste, amount, who is disposing of the waste and where it is to be disposed of. This is very clear and auditable and forms part of the waste management system. Management make it very clear that it is the responsibility of all employees to ensure that this system is adhered to. An interesting observation in the paint area was a trainee documenting his methods of waste disposal for the day on a sheet he had been given by his school. Discussions with the trainee revealed that they cover a small amount of waste management training at school which included documenting their own work practices in this area.



Empty paint / hardener tins and filters.

Ashford Coachworks, England



My host during this visit was Mr Trevor Ferris who is the owner of the shop.

This was an interesting visit due to the fact that they had policy and procedure manuals for their waste management, and used an outside organisation to set this up, however, their disposal practices were certainly different than those of others I visited.

The only thing they seemed to have in common with my previous visits was the disposal of their waste paint / solvent and the separation of other materials such as oil, radiator fluid and brake fluid. This was picked up by a registered company, documented, and taken away. They also had an older model spray gun cleaning machine that used re-cycled solvent.



Older type re-cycle machine

Nearly all their waste is placed on a large trailer and taken daily to the local tip. This included general waste, paper, plastic, empty paint containers and batteries. They pay a yearly fee to the local council, this allows them to dispose of their waste as required. The local council used land fill and incineration processes to dispose of the waste. According to Trevor the processes used at Ashford are within the guidelines of the local authority.



All waste is placed in a trailer ready for daily disposal



Chemicals are stored separately

Newmans Accident Repair Centre, England



Newmans Accident Repair Centre

Newmans is a smaller Collision Repair Shop with four employees and a Manager. Whilst they don't have a Waste Management System in place with policy and procedure manuals, they do observe pretty good waste disposal practices.

They have in place separate skips for plastic components, paper and cardboard, metal and general waste.



Separate skips and storage area for waste

As with other Collision Repair Shops visited in England, they have a spray gun cleaning machine in place and all waste paint and solvents are drummed separately, stored, and picked up by a registered company. Paper work is completed with all relevant information documented.



Newmans workshop

Whilst there is a dust extraction system in place for sanding, there doesn't seem to be any special arrangements for disposing of the residue. The same applies to empty paint containers. Whilst not the most organised or tidiest shop visited, they are certainly aware of their environment responsibility and are trying to do the right thing.

Holland

My visits in Holland included two training organisations, a paint manufacturer and three Collision Repair Shops.

Waste disposal laws in Holland are very strict and monitored by the local council and regions. There seems to be a slight variance to these, however, you must separate your waste, register it and document disposal carefully. Local council monitor this and in some cases are responsible for picking up the waste through registered transport companies.

The Netherlands are part of the European Committee set up in Brussels who are responsible for the Environment and legislation that goes with it. This includes the new VOC laws that are being put in place. They are not as active in Holland as England in registering the VOC content purchased in each Collision Repair shop, however, they are pro-active in promoting water-borne paint products to assist with reducing the VOC levels. It seems that Paint Manufacturers in the Netherlands are meeting together and have continual dialog on this matter.

The Paint Manufacturer I visited has a very strict Waste Management program in place with a dedicated department responsible for this. This team monitors the daily waste streams with regular reports prepared for each area and for management. This monitoring system assist each area in keeping their waste to an absolute minimum which results in less waste disposal, and a more profitable bottom line.

The Collision Repair Shops I visited were very similar to those in England when it came to waste disposal, however, I didn't see any evidence of VOC levels documented on paint purchases as with the UK. I did however see evidence of paint manufacturers supplying a sheet stating the VOC content for their products. This seemed to be an acceptable practice in monitoring VOC levels in that particular shop, providing they were the only paint products used.

A training College I visited, Vakopleiding Carrosseriebedrijf or VOC had an EPA accreditation program in place for Vehicle Painters. Participants attended a half-day training program then sat a practical and written exam. This gave them accreditation for four years and when this expired, they re- sat the exam.

AKZO NOBEL Paint Manufacturer Sassenheim, Holland



My visit to the AKZO NOBEL paint plant was broken into two parts, the Training Centre and the Manufacturing plant.

My host at the training centre was Mr Peter Schuurink. The training centre (CRIC) is set up to provide product and spray technique training for Auto refinish materials to the Collision Repair Industry. It is extremely well set out and equipped and has an excellent waste management program in place. As with of the rest of the organisation, their aim is to reduce waste to a minium in order to meet their environmental commitment and keep costs down.

They have a chemical waste plan in place, which is easily identifiable on the wall and explains the process. It is clearly a process of separating all waste and classifying it as hazardous or non-hazardous.



AKZO training centre waste plan

There are large plastic lined bins for all waste including non-hazardous and hazardous materials. Empty paint containers are drained, dried and placed in a bin for disposal as are the paint filters, gloves and paint covered wipes. Dry sanding papers and materials are placed in their own bin, as are paper materials. All paper is crushed in a crushing machine prior to disposal.

Both water-borne and solvent-borne materials are used in the training centre, therefore, spray guns are cleaned in separate sealed cleaning units. The water-borne unit goes through a water re-cycle process during cleaning and has a separator mixed in with the water to assist this process. Paint refuse is filtered at the bottom of the machine, dried, and disposed of as hazardous materials.

Solvent-borne spray guns are cleaned in their own sealed unit using recycled solvent with paint refuse collected in a drum at the bottom of the unit, this is then disposed of as hazardous toxic waste by a registered company.

All sanding is dry using a dust extraction unit that captures the dust materials in a sealed unit. These are then disposed of as hazardous materials



Plastic lined bins at Akzo



Paper crusher at Akzo



Empty paint containers being drained (Peter Schuurink)



Spray gun cleaning machine at Akzo

The second part of my visit at the AKZO NOBEL site in Sassenheim was with the department responsible for Health, Safety and the Environment. Mr Bob Stenneke, HSE Manager car refinish was my host during this visit. Mr Stenneke who is assisted by Mr Edwin de Roij and Mr Wim Jonker are responsible for Health, Safety and Waste management across the entire site and also consult to the refinish industry when required. It was clear from our first discussions that they have in place a very good safety and waste management system.

The waste management system requires daily pick up of waste streams from each area of the plant. This is then placed in a large waste storage area with each waste stream identified ready for pick up and disposal by registered companies. All waste is documented with type, quantity, and signed through the process from the registered companies pick up driver to the person who has disposed of the waste, be it land fill or incinerated. At the end of the cycle, the final documentation must be returned to AKZO as proof of correct disposal. AKZO have their waste streams registered with the local authorities.

An objective of the HSE department is to reduce the total waste for the entire plant. Daily documentation of waste streams from each area form part of a weekly report that is presented to management. There have been benchmarks set for each area to meet and these reports assist the areas meet these objectives. It is clear that the company policy to reduce waste will do two things, meet their obligation to the environment and if your not wasting product, then your not wasting money.



Waste clearly labelled ready for pick up

UAS Body Shop Amsterdam West, Holland



My host at this Collision Repair shop was Mr Peter van Rijn the Manager of this business. UAS are a chain of 12 Collision Repair shops in Holland. This shop reports to the local council or region for the disposal of waste and whilst there is general government legislation regarding waste disposal, this local council has it's own regulations in place. They will visit repair shops to check the paper work relating to waste disposal, and ensure that the organisation is meeting local requirement.

This is a medium size shop and doesn't have an official waste management system in place, however, they do display a dedication to responsible waste disposal. There are separate medium size skips for disposing of general waste, paper and cardboard and a storage area at the rear of the premises where plastics, metal, radiators and non ferrous materials are stored ready for pick up. There is also a separate area where hazardous materials and goods are kept in separate drums ready for pick. up. Again, as with most shops visited, the company that picks up the hazardous / toxic waste must be a registered company and have clear documentation stating what the waste is, quantity, who is disposing of the waste, who took it away and how and when it was disposed of.



Separate skips for waste at UAS



Store for steel, radiators and non-ferrous metals at UAS

Solvent and water borne refuse are drummed separately from the spray gun cleaning equipment and empty paint tins are dried and then crushed in a small crusher. They are then disposed of with other metal products or in the case of plastic containers, with other plastic parts.

Metal materials and non ferrous metals are taken away for re-cycle and other materials such as paint refuse, consumable materials, masking paper and plastic etc are taken away by the registered company and incinerated by the local council.

All work areas are dry sanding with the majority of dust and waste collected through the extraction system. This is then bagged and disposed of with hazardous materials,



Spray gun cleaning equipment at UAS



Can crusher at UAS (Peter van Rijn)

Merks Autoschade Collision Repair Shop, Holland



Merks are a very large Collision Repair Shop and have similar systems in place to other shops visited with regards to hazardous waste internally, however, they seem to have different approaches when it comes to disposal. They are monitored by the local council who also assist with waste pick up and it seems that nearly everything is incinerated.

Storage is the same as other shops with separate storage area at the rear of the premises, although, when it comes to waste left over paint, this is allowed it to harden in tins, and as a solid material, it is disposed of as general waste. The same goes with empty paint containers, they are crushed and disposed of as general waste.

Spray guns are cleaned through a cleaning machine using re-cycled solvent with the refuse being drummed and then taken away by a registered carrier. The filter in this machine is dried and also disposed of as general waste.

Plastic is also disposed of as general waste, however, metal is picked up weekly by a re-cycle company at no cost.



Spray gun cleaning machine filter at Merks



Waste storage area at Merks

Vakopleiding Carrosseriebedrijf (VOC College) Holland



The VOC is a vocational training college, and provides education and training programs to the Collision Repair Industry. They also provide environmental certification to individuals on behalf of the ministry of the environment.

My host during this visit was Mr Dio van der Mee.

In the Paint and Panel areas, the college has an excellent waste management system in place and works closely with the local authority to register their waste and to ensure they meet regulations.

They are required to have spray gun cleaning machines in place with full ventilation and the ability to re-cycle. The waste from the machines is internally documented, stored safely and then picked up by a registered carrier for disposal. All documented information relating to waste is carefully filed and presented to the local authority on request.

All empty paint containers are drained and stored separate for disposal, as are filters, gloves, abrasives and paper etc. All preparation areas use dry methods with extraction units picking up most of the waste and collecting it in a sealed unit ready for disposal.



Fully ventilated cleaning machines at VOC



Preparation and sanding area with extraction unit at VOC

The EPA certification program (*Milieucertificaat verf/lak spuiten*) they conduct on behalf of the ministry for the environment requires participants to do a half-day training program on environmental issues and techniques associated with Collision Repair.

Both theory and practical, the program includes topics such as EPA legislation, waste processes, correct mixing quantity, spray gun nozzle set up, spray techniques, spray gun cleaning, waste reduction methods and correct waste disposal practices.



Environment Certificate from VOC

At the completion of the training program, participants are required to complete a practical test and an exam of about twenty questions before receiving their certificate.

This certification is valid for four years, after which you are required to re-sit the exam.

Germany

My visits in Germany included a Training facility, three Collision Repair shops and an Automotive Paint Distributor. My scheduled visit to an Automotive manufacture wasn't possible due to an extra public holiday being taken.

The Collision Repair Industry differs a little in North and South Germany. In the North, some car companies or dealers do the repairs and farm the painting out to a body shop whilst in the South, there are not so many car dealers doing this and body shops do the lot. Most Spray Booths in Germany are dry with no water pits and prep areas use dry or dustless sanding methods. This eliminates waste- water and sludge. There are local EPA type inspectors in some regions that are responsible for checking waste water. This is to make sure it is not going into the storm water or gutters.

Some Collision Repair Shops in Germany are starting to implement stage 1 of the new VOC law, that is to start reducing the VOC paint content in your shop. This is being done by moving towards water-borne materials or only using materials recommended on the paint manufacturers sheet as having reduced VOC levels. Paint Manufacturers seem to be leading this change and most have a consultant who will assist you through the process.

Collision Repair Waste Management in Germany is very similar to Holland, all waste must be separated and disposed of correctly with full documentation and the collision repair shop is responsible until this is done. Whilst not everyone understands the laws to the fullest, they seem to understand their responsibility with waste disposal, and although some practices are a little different, everyone is aiming for the same result. The laws are set down and monitored in each territory or region with a slight difference in each area. In some territories or regions, things like spray booth filters and body filler dust are classified as hazardous waste, and in some areas it is general waste. I think it depends on how that regional waste dump is going to dispose of it, landfill or incineration. However, chemical waste such as paint and solvent refuse is classified as hazardous in all regions, and must be disposed of by a registered carrier.

An interesting concept in Germany is that Auto Paint Manufacturers have the responsibility to pick up empty paint containers from the collision repair shops. This is an agreement with all manufacturers and they have contracted a company (Rethmann Waste) to do this. The Paint Manufacturers pay for this service with the Collision Repair Shop only paying for the plastic sack the containers are placed in.

Another interesting concept in some regions is that damaged plastic components such as bumper bars are returned to the dealer when purchasing a new one.

Training in waste management again seemed to be best supported by the paint manufacturers. Whilst there is some evidence that it exists in the vocational training system, it seems to be very minimal and is generally coupled with OH&S and handling / storage of dangerous goods.

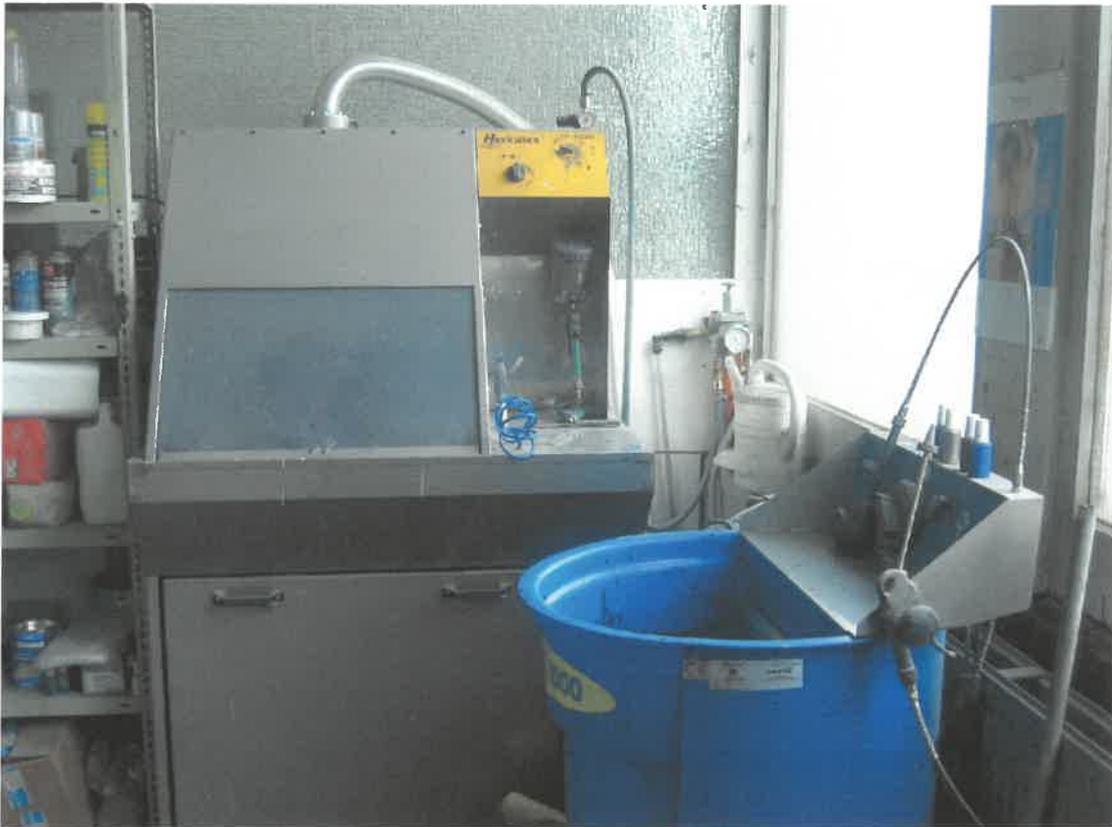
Karosserie Lackiercentre Weilimdorf (KLW) Collision Repair Shop, Germany



KLW is a medium size shop employing eight people and my host was Mr Fischer the owner.

As with every other shop I visited, they have ventilated spray gun cleaning systems in place for both solvent and water-borne paint. The water-borne system uses a separator in the water re-cycle process and paint refuse is filtered out. The filter is dried and disposed of as general waste, as is solid and dried solvent based paint. The waste paint and solvent claimed by the solvent-based machine is then taken away by a registered company as hazardous waste. They return waste solvent after it has been through a re-cycle process and it is used again in the solvent based machine to clean the spray guns.

Masking paper is crushed and taken away by a paper re-cycler as is all the plastic wrapping in the shop. Empty paint containers are bagged and picked up by Rethmann, as contracted by the paint manufacturers. When the bag is full, a fax is sent to Rethmann requesting pick up. Damaged plastic components such as bumper bars are returned to the car dealer when purchasing a new part and dry sanding refuse is collected through the extraction unit and disposed of as general waste.



Spray gun cleaning equipment at KLW



Empty paint containers ready for disposal at KLW



Paper crusher at K LW



Plastic wrap bagged separate at K LW

Sikkens Training Centre Stuttgart, Germany



My host for this visit was Mr Torsten Schmiegel.

As with most training centres I visited, this is well set up with a very good waste management process in place. All materials are separated and disposed of correctly and according to the legislation set down by both the EPA and the local authorities. Because this is a very big industrial area with a lot of chemical companies around, they tend to have the authorities visit regularly. Nothing different here with regards to waste disposal, everything is documented with consignment notes and the normal dry sanding and gun cleaning systems are in place.



Full cleaning and Re-Cycle system



Dry sanding and prep area

As well as general training programs on spraying and colour matching, they do have a very good safety and environmental training program in place for young people entering the Collision Repair Industry. It covers topics such as the legislation and your legal requirements, emissions and the new VOC laws that are coming in, Safety and dangerous goods storage, waste water, recycling and general good practices when it comes to the environment. Mr Schmiegel also gives regular talks and consults industry on the environmental issues associated with the collision repair industry and the benefits of water-borne paint systems.



Mr Torsten Schmiegel

Italy

In Italy I visited two Training Centres, six Collision Repair Shops, the Associazione Italiana Riparatori Auto (AIRA) or Italian Association for car repairs and the Energy and Waste Department, province of Milano.

Italy forms part of the European committee that sets the laws relating to the environment and waste management, therefore, most of the practices they have in place are the same as Germany, Holland, France and the UK. As with most countries, interpretation and monitoring differs slightly from region to region. In the North of Italy, legislation seems to be enforced much more than in the South, however, whilst this is the case, hazardous materials have to be clearly documented when you dispose of them, waste is generally separated, empty paint containers drained and dried prior to disposal, wet spray booths are not allowed and dustless sanding processes are the norm.

The new VOC law is starting to make it's way into some Collision Repair shops, however, there is no evidence of documenting VOC paint levels on purchase invoices. Whilst there is a real change to the mindset of the industry when it comes to Water-borne systems, there is however evidence of more shops moving this way in order to lower VOC content in materials. An interesting observation was made at an industry trade night north of Milano where one of the topics related to the new VOC law and the benefits of Water-borne paint systems. There were about 80 shop owners in attendance, and a lot of the older tradesman could not relate to painting a car with water paint, however, if that helps them meet the new VOC law, then I'm sure they will embrace it in time.



Industry trade night in Northern Italy

The Collision Repair Shops visited were mixed from small, medium to large and had varying processes in place. All are generally aware of their responsibility when it comes to waste disposal and although not always the cleanest, they are trying to comply. One large shop however had a full Waste Management system in place with policy and procedure books and regular audits.

In general, waste is separated into hazardous and non - hazardous with the non-hazardous generally separated into its own category. There are some Collision Repair shops that crush their dried paint containers and masking paper and dispose of them as hazardous materials and there are some that just throw all this in together. The hazardous materials such as paint and solvent refuse and dry sanding dust is certainly disposed of in the correct manner with full documentation.

I didn't see any evidence of structured training for Collision Repair Waste Management, however, paint manufacturers seem to be again leading the way when it comes to assisting industry in this area. One training college I visited had no structured method of waste disposal other than to pass it on to a local Collision Repair Shop for them to dispose of with their waste.

I also met with the Italian Association for Car Repairs. They are the voice of the industry and support them similar to the VACC in Victoria. Their membership and committee is made up of Collision Repair shop owners and they address issues and concerns within their Industry. They informed me that they are having a conference in 2003 to address environmental issues in the Auto industry.

LEALI Collision Repair Shop, Italy



Leali is a large shop well set out and has a full waste management system in place with policy and procedure manuals. Regular meetings assist them with improvement opportunities in their systems. Another interesting concept is they add a charge onto the customer invoice of 1% of the paint cost. This goes towards their waste management costs..



Quality system at Leali

They have their waste system registered with the authorities and document everything they do. They have both solvent and water-borne systems, however, they are moving more towards water-borne to meet VOC requirements.



A clean and well set out paint room at Leali

All waste is registered and the details are documented on a weekly register sheet. Hazardous materials are removed by a registered company, including waste paint materials, spray booth filters and paint filters, solvent / paint wipes and hazardous dust from the sanding extraction unit.



Hazardous waste sanding dust is documented at Leali

Andreassi Collision Repair Shop



Andreassi Carrozzeria is a small family business in the North of Italy and has three employees and the owner working within the workshop. Everyone within this organisation is aware of their responsibility with regards to waste disposal and abides by the local rules. Whilst there is an over riding government legislation on waste disposal, as with most regions or local councils, this area certainly has it's own methods and rules.

At Andreassi, waste is separated into the two categories, hazardous and non-hazardous. The interesting thing here however is that those items not seen as hazardous such as metal, plastic, glass, paint and solvent containers, are all placed in the same large skip for removal. General workshop waste such as paper, filters and consumable type waste is placed in a small bin for removal as general waste by the local council. What differs from most other visits is that the metal, plastic, glass, and paint containers etc are all in together.



Andreassi general skip

Hazardous materials include waste paint and solvent, dry sanding dust and dried solid paint. These must be separated from general waste, documented on a register and disposed of by a registered company. There is also a concerted effort made to reduce waste in this area through the use of a solvent re-cycle machine.



Hazardous materials at Andreassi

Professional School in Italy



Mr Marco Crevenna the Collision Repair training co-ordinator was my host during a visit to the Regione Lombardia Centro Formazione Professionale (Automotive Professional school) in Northern Italy.

The School caters for young people entering the Automotive Industry and some engineering trades. They receive funds from the local or regional government and also apply for funding to the European Community Training program. They are also supported by industry with equipment and consumable donations as well.



Collision repair students at the Professional School

New entrant students in Collision Repair do both Panel Beating and Vehicle Painting combined and complete approximately 2,000 hours of training over two years. This is made up of school based - work based training through a mixture of half day at school and half day work placement in the first year and possible employment in the second year.



Spraying done in general work area.

One thing that was very noticeable in this school was that there were no spray booths, the work areas seemed to be congested and there was no evidence of a waste management system in place. It seemed that what waste was generated was taken to a local Collision Repair shop for disposal and when it came to disposing of empty paint and solvent containers, these were taken away by the paint manufacturer or distributor when new paint and solvent materials were delivered. This seemed to be a local arrangement.

There was a spray gun cleaning machine in place, however, this was slightly away from the general paint mixing area and was vented through an open window into the car park. Dry sanding was in place with an extraction unit set up to capture dust etc, however, disposing of this material didn't seem to have any clear method.



Gun cleaning machine vented through an open window



Dustless dry sanding unit

Meeting with Italian Association for Car Repairs



A meeting was held with Mr Francesco Palladini Director Associazione Italiana Riparatori Auto (AIRA) (Italian Association for Car Repairs) and Ms Patrizia Pocobelli President AIRA.

AIRA is an Industry Body set up to represent the Collision Repair Industry and advise on all issues associated with Collision Repair. This includes insurance company issues, pricing and costing issues, government issues and all legislation associated to Collision Repair including the Environment. The committee and membership is made up of Collision Repair Shop owners and employees.

With regards to Waste Management and the Environment, they make sure that all Collision Shops are aware and updated on legislation and assist where possible with the education aspects. They feel that their Industry in general are taking a positive approach to Waste Management and are all aware of their responsibility. AIRA intend to have a conference in 2003 to look at the environmental issues facing the Industry including the VOC laws.

France

Whilst in France, I visited four Collision Repair Shops, met with one paint manufacturers environment consultant and three manufacturers training facilities.

Waste Management in France is the same as the other Countries visited with all Collision Repair shops abiding by the legislation set down by the European committee. This is enforced or monitored by the local region or council and whilst this differs in some areas, it is only the method of removal and end disposal that differs, all waste clearly must be separated before being picked up for removal. The question on how often the local council visits Collision Repair shops to check their methods of disposal met with mixed reaction, larger shops seem to get a visit more often than the medium to smaller shops and some had not seen any one for over a year. Whilst not having been checked for compliance for some time, they know they must do the right thing. They are also aware of the fines that are imposed if they are caught disposing of waste inappropriately and I got the impression from an environmental consultant that the law is starting to be enforced a lot more.

Hazardous materials such as liquid and solid waste paint and solvent, refuse filtered from spray gun cleaning machines, refuse from sanding machines, paint filters, paint soaked rags and empty paint containers all have to be picked up by a registered company and disposed of at a registered hazardous waste sight.

All other waste generated in the Collision Repair shop has to be separated before removal such as paper, plastic, metal, glass and oils etc.

Again as with other visits, correct disposal is the responsibility of the end user of the products or materials, that is, the Collision Repair shop owner.

Training in waste management for new entrants into the industry is limited and is incorporated into training in OH&S and storage of hazardous goods. Training for Collision Repair Shops on waste management and the environment generally seems to come from a specialist customer service representative within the Paint Manufacturers, and is provided as an add on service. This includes advice and assistance with stage one of the VOC law coming into place.

AKZO NOBEL France



Mr Gerard Dangoise, Technical Manager, Akzo Nobel France

Mr Gerard Dangoise was my host at the visit to the Akzo Nobel facility in Montataire, Northern France. Part of Mr Dangoise responsibility is to assist Collision Repair shops with environmental issues and educate them on ways of improving their systems. This includes education on the benefits of water-borne paint technology. An interesting observation over the last three years is that 25% of Akzo customers are changing over to the water-borne system.

It seems that in some of the larger shops, there is a move towards having a register for waste and there is certainly a push towards reducing the amount of hazardous waste being generated. This can be seen as a result of the change to water-borne as this reduces the hazardous waste immensely.

Akzo Nobel are also providing advice on reducing the VOC content within you paint cabinet. They provide a list of products and materials that fall within the legal limits and if these are the products your organisation uses, you are working towards the new laws.

The training centre at Akzo Nobel has a very thorough waste system in place with everything being separated and disposed of by the correct means. Full documentation is in place as with most manufacturers and there is clear evidence that all staff are well aware of their responsibility.



Akzo Nobel spray gun cleaning area.

Separate plastic lined bins are in place for all hazardous and non-hazardous materials such as sanding papers, empty paint containers, paint filters, masking paper and gloves etc



Plastic lined bins ready for disposal at AKZO France

Carrosserie MB (Collision Repair Shop)



Mr Bernard Coquin is the owner of MB Carrosserie and Michael the workshop foreman was my host for this visit. This is a medium size shop in the north of France.

This Collision Repair shop has both Water-Borne and Solvent-Borne paint systems in place, however, Water-Borne is the preferred where possible as it reduces the waste. In fact this shop was one of the very first Collision Repair shops in France to put in a Water-Borne paint system. Waste at MB is separated into categories such as plastic, metal, paper hazardous waste and general waste and they have contracts with different companies to pick up their waste.

Both water and solvent spray gun cleaning equipment generates hazardous waste materials and is picked up by a registered company and disposed of with all relevant paper work in place. Empty metal paint containers are dried and disposed of with all other metal as are the plastic paint containers disposed of with the other plastic waste. Paper and cardboard is crushed and taken away by a separate company as is the general waste. Dry sanding materials captured through the dust extraction units throughout the shop is disposed of as hazardous waste.



Spray gun cleaning equipment for Water and Solvent at MB.



Paper ready to be crushed at MB

PPG Industries France



Mr Chris Langley PPG

PPG are one of the main paint manufacturers supplying refinish materials to the Collision Repair Industry in France. My hosts during the visit to PPG were Mr Chris Langley and Mr Eric Le Gall.

As with most auto paint manufacturers in Europe, PPG are committed to ensuring their customers are aware of the environmental issues associated with the Collision Repair Industry and have customer service representatives that assist Collision Repair shops comply. They have a fully equipped training centre that caters for product training as well as offering courses in colour and spray techniques. PPG are also pro active in educating the industry in the new VOC laws that are coming into place. Their training centre is well equipped and has a very good waste management system in place. As previously mentioned, the auto paint manufacturers in Europe are certainly leading the way when it comes to demonstrating best practice in waste management and the environment.

In the training centre, there is a well set out workshop area and paint mixing room and all waste is separated, documented and disposed of through registered companies. Hazardous waste is taken to a registered site for disposal and this includes refuse from both the solvent and water – borne cleaning machines. Filters and empty paint containers are classed as hazardous as are gloves, rags and sanding dust.



A well set out mixing area at PPG



Water, gun cleaner filter disposed of as hazardous waste at PPG

FOTIS Collision Repair Shop France



FOTIS Collision Repair is one of the larger shops in the North of France with 22 people in the workshop operating through two shifts.

They have had a water-borne paint system in place since 1996 and whilst they have both water and solvent systems, they mainly use the water system. The reason being that there is less waste generated and it is cleaner to use. They also understand that it has a marginally reduced VOC content. Their waste is separated into hazardous and non-hazardous with some of this being taken away by the local council. With regards to hazardous waste, registered companies pick this up and dispose of it at a registered site and other contracted companies pick up their plastic, metal and paper etc.



Waste ready for removal at FOTIS

An interesting system in place at FOTIS is that they charge customers a small environment fee on all their quotes for waste removal. Another interesting concept that management have introduced as part of a plan to reduce overall costs is a material monitoring system, this has helped to reduce their paint usage by nearly 30%, and intern helped to reduce their waste. How this works is management monitor each painters material usage for the week against the work completed and discuss with staff any over material usage.



Plastic ready for removal at FOTIS

5. Recommendations

The Problem.

It is very clear that the majority of the Victorian Collision Repair Industry is not embracing environmental friendly waste management practices. Whilst there are some repair shops and organisations out there that are demonstrating a willingness to try and manage and dispose of their waste correctly, they are in the minority. The majority of businesses are certainly not sorting their waste or disposing of their waste in an environmental friendly way.

I don't think it is a matter of not caring, I think it is just a matter of not fully understanding what the meaning of an environmental friendly manner is, or understanding that waste can be classified or sorted and in lots of cases recycled. Most organisations dispose of their waste paint / solvent materials through a registered company, however, there are lots of other hazardous and toxic materials that are just simply placed in the waste bin or skip with the general waste.

The Environment Protection Act and the Industrial Waste Management Policy (Prescribed Industrial Waste) addresses all these issues, however, who's listening. If we look at waste paint and hardener containers for instance, containers must be drained and dry before disposing, does everyone do this? and if we look at body filler dust, paint soaked rags and paint soaked paper, where do classify this waste? Does this go in with the general landfill waste?

Stricter enforcement of the Environment Protection act at all levels of government will also move the industry in the right direction, local government and councils can play a big part in this. Whilst there are many local councils and shires across Victoria that are well placed in their commitment to the environment, I still think that collision repair shops in lots of cases slip through the loop when it comes to disposing of waste. The Environment Protection Authority are certainly doing their best, however, it is a big industry and the EPA's existing resources will only go so far. This is where local government can assist, they should be aware of their local businesses and be able to monitor their practices.

The Solution

If we are to have a better experience when we look at the Waste Management process in the Victorian Collision Repair Industry, then there needs to be considerable change. Change needs to be across the board from legislation, Education and the Industry itself, and there is no doubt that for change to work, all parties have to be committed and working towards the same clear goals and objective.

One might say that the Industry needs to lead the change, however, prior experiences show, that has not necessarily worked in the past. Let me say from the outset that there are certainly those out there who are trying to make a difference and working towards good practices, however, I must generalise the Industry, and there are far more Collision Repair Shops out there that are not doing the right thing. If we look at Collision Repair Waste Management in Europe, clear and precise legislation is in place and the Industry knows that. Though it differs in some aspects of implementation from country to country or region-to-region, the rules are clear enough and enforced enough to ensure that every Collision Repair Shop is aware of their responsibility. Ask any shop owner and they know it is clearly the responsibility of the end user to ensure that the waste is disposed of correctly.

If we take a leaf out of the European experience, then we need to first have a clear understanding of the type of waste we are generating in Collision Repair and the impact it has on our environment. The EPA and the VACC have endeavoured to change the mindset of the Industry through the Clean Green Shop Program and there are a couple of other bodies doing their bit as well, but is anyone listening, and is anyone caring. One could say that we need to continue the education and training, but do we clearly understand the classification of the waste generated. Should we re-look at what is hazardous / toxic and what is non-hazardous / toxic. For example, what category do repairers put empty paint containers in, and what category do we put masking paper or rags that have paint or solvent on them. If they are placed in with general waste and disposed of as land fill, is this good for the environment. It is absolutely paramount that we understand the waste we are dealing with and what classification it comes under, then we must continue to educate.

Industry certainly has a big role to play if there are to be any improvements made. Whilst the Collision Repair Industry can be seen as going through tough times, the hourly rate is seen as being very low and there is a reduction in work due to fewer smashes. However, if Industry were to embrace the full classification and separation of waste, there is still an opportunity for innovative ways of paying for the disposal. If we again take a leaf out of the European experience, there are Collision Repair shops who levy the customers repair costs to cover waste management. This is not a huge levy; however, at the end of the month it helps. One might argue that Insurance companies wont pay, however, as a collective Industry, perhaps the approach might be the approach parts of Europe took, and that is to start with the private customers.

There are also innovative ways of reducing the amount of waste generated, including the use of Water-Borne materials and accurate mixing ratios and methods. If there is a reduction in the materials used then there is a reduction in the waste generated, therefore, there is a reduction in the material costs and a reduction and waste removal costs, this in turn will add to the bottom line of the business. Paint Manufacturers throughout Europe specialise in this type of consultancy and we now see paint manufacturers in Australia doing this as well, however, we need more Collision Repair shops to embrace these initiatives. On the subject of manufacturers, can they do more? In Germany, paint manufacturers take on the responsibility of picking up their empty paint / solvent containers and parts houses do a similar thing, when dropping off the replacement plastic components or bumper bar, they remove the damaged component.

Education the Industry in waste management must be improved as well, whilst the VACC and EPA have satisfactory programs available, the take up rate for these programs has been poor. Prior experience tells us that at Management level, unless there is strict enforced legislation in place, we are only going to treat it as a nice to know. If we are going to get the message across, then we must start with entry level into the Industry, that is through our Apprenticeship level training program. With the coming introduction of the new environmental competency standard in the Automotive Training Package, there is going to be an opportunity to educate on better practice methods of waste disposal. It is therefore imperative that we get our act together in all aspects from legislation to enforcement or this will only be seen as a nice to know as well. Spray Painters in Holland must attend a certification program that sees them trained in correct use of spray equipment to ensure that maximum materials are applied to the job and not the environment.

They are trained in correct mixing ratios to ensure that waste is kept to a minimum and correct waste classification and disposal methods. They must renew this certification every four years.

If we are going to make change, then there needs to be

- A full commitment by all stakeholders, including those that legislate or make policy, those that enforce policy, those that manufacture or distribute the materials, those that generate the waste, those that remove the waste, those that dispose of the waste and those that educate.
- Better and clearer education on classification of Collision Repair Waste
- Waste registers within organisations
- Documented best practice methods of Waste Storage and Disposal.
- More education on the guidelines relating to Collision Repair Waste removal
- More education to the Industry on the impact their waste has on the environment.
- Education on how to reduce the amount of waste generated.
- Education throughout the industry on Waste Management best practice.
- Education and training at Apprenticeship level on best practice options for storage and disposal of waste.
- Environment Certification programs for Automotive Vehicle Painters
- Partnership arrangements between Paint / Consumable manufacturers, the EPA, Industry Bodies and training Institutions in the provision of educating Industry.

A combination of all the above, would certainly go a long way towards ensuring that we have worlds best practice in place when it comes to Collision Repair Waste Management and protecting our environment.

Action Plan

There are a lot of stakeholders associated with the Collision Repair Industry who can have a huge influence on the changes that need to be made, if it is going to be an environmentally friendly Industry.

Industry itself will need to play the biggest part if we are going to have better systems in place when it comes to Waste Management. Industry will need to look at itself in the mirror and be happy with the commitment it is making to the environment. Collision Repair Shops themselves will need to be the drivers of change, and they can be well informed and assisted through industry forums, conferences and seminars and relevant education and training programs. This fellowship aims to assist spread the word through much of the same.

It has been previously stated that the Victorian Automobile Chamber of Commerce (VACC) and the Environmental Protection Authority (EPA) have a very good program in place, however, the take up rate for this program has been very poor. Part of the action plan for this fellowship will be to assist promote that program where possible as part of the awareness program to Apprentices and the Industry.

ISS Institute Commitment and Assistance

The ISS Institute will continue to play a key role in the outcomes and future programs related to this Fellowship.

This will be through assistance and support in conducting conferences, seminars, workshops and displays, and in other general support areas.

The ISS Institute is committed to an ongoing relationship with its Fellows and continues to support them into the future.

Conferences.

The Collision Repair Industry have two or three annual seminars or conferences throughout the year and this will be seen as an opportunity to present the findings and recommendations from this fellowship through one or more of these events. There are also other forums within the Automotive and affiliated industries that may present opportunities for presentation of this fellowships findings such as the Automotive Training Australia National Conference, and the Victorian Automotive TAFE Teachers Forum.

Education

There is a great need to educate industry on waste management practices and this can be done for the existing workforce through education workshops and training sessions in collaboration with the industry body (VACC) and or the Environment Protection Authority (EPA)

With regards to new entrants into the industry through the Apprenticeship system, an education and training program will be developed at Kangan Batman Institute of TAFE that will align to the new environment competency standards currently being developed for Collision Repair.

Actions to date

Since completing my overseas study tour, there have been numerous presentations and showings of my findings during 2002 including

- Meeting with the EPA to brief them on my findings
- Presentation to the Collision Repair TAFE teachers forum
- Meeting with the VACC to brief them on my findings
- Presentation at the 2002 FurnTag Conference
- Display and showing at Minister Kosky's office (Minister for Education and Training)
- Assistance with Kangan Batman TAFE achieving AS/NZS ISO14001 accreditation.

Conclusion

This Fellowship has been an amazing experience so far, it has opened my eyes to a bigger and broader Automotive Collision Repair Industry, and given me opportunities to study my given trade to far greater lengths than I ever thought possible

To those who assisted me throughout this journey, many thanks

6. Appendices

Further information or full viewing of original documents or books, is available on request.

- 1. VACC Clean Green Shop (Victoria)**
- 2. ICI AUTOCOLOR guide to Collision Repair and the Environment (France)**
- 3. Technology Guidelines for Vehicle Refinish (CEPE)**
- 4. Managed Compliance Systems (Thatcham England)**
- 5. Vehicle Painting Certification, Environment (Holland)**
- 6. MaxMeyer International Training System including Environment (France)**
- 7. Collision Repair Shop Waste Removal Documentation (Italy)**
- 8. Environmental Waste Removal Organisations for the Auto Industry (France)**

How you can become accredited in the Environmental Management System

To learn more about the Environmental Management System, and how you can participate, please contact the Victorian Automobile Chamber of Commerce.

Tel. (03) 9829 1227

email: m.cassidy@vacc.asn.au

Yes, I am interested in finding out more about the Environmental Management System.

My details are:

Name	
Phone	Fax
Business name	

fax to VACC EMS Program
(03) 9867 3159





clean green shop
A VACC / EPA INITIATIVE



The Environmental Management System is a cleaner production partnership project by:

The Victorian Automobile Chamber of Commerce and The Environment Protection Authority



Environmental Management It's an investment



A PROGRAM FOR THE
AUTOMOTIVE REPAIR INDUSTRY



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LE GUIDE VERT



**CARROSSERIE &
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From 12/11/11 - 12/11/11

TECHNOLOGY GUIDELINES FOR VEHICLE REFINISHES



A guide to
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prepared by the
CEPE
Technical Committee
Vehicle Refinishes



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CEPE
Comité Européen de l'Industrie des Peintures, des Encres
et des Matériaux et des Colorants d'Art. - Depuis 1951

INTRODUCTION

These updated guidelines for vehicle refinishing and the coating of commercial transport replace the CEPE guidelines originally published in 1992 (CEPE 1992), and 1994 (CEPE 1994). They have been prepared by the CEPE Technical Committee Vehicle Refinishes, in which the major paint suppliers to the European refinishing industry are represented. The target of this paper is to set out best available technique (BAT) for the industry. In doing this, the following four principles have been adopted:

- The processes described must represent the minimum risk to health;
- The quality of the finish coating must be comparable to that of the original coating of the new vehicle;
- Flexibility of application must be sufficient to enable the refinisher to produce good quality over the full range of conditions encountered in practice;
- The process must achieve the required reduction in solvent emissions without generating new environmental hazards.

The proposals described below fulfil these principles, with the important additional advantage that they do not lead to significant increases in process cost.

It is intended that these guidelines can serve as a model for national regulations to implement the VOC (volatile organic compounds) Directive (OJ 1989). Further, at their meeting on 16th/20th June 1997, the Council of Ministers adopted a resolution, requesting the Commission to prepare a product based Directive for Vehicle Refinishing. This paper offers some concepts that could be useful in the development of such a Directive.

The guidance covers the repair of private cars and commercial vehicles, as well as the initial painting of commercial vehicles, other than production line application. It addresses the reduction of solvent emissions to the atmosphere, both in painting and in cleaning processes; as well as the measures required for the control of discharges to water and land. Many of these recommendations will incidentally reduce the occupational solvent exposure of workers in the sector, but guidance on good practice in this respect has also been included.

1. THE VOC DIRECTIVE

The VOC Directive sets out targets for solvent emission reduction in the European Union. It applies to a wide range of industrial processes, including painting in contained plant, as well as paint manufacture. It does not apply to non-contained painting processes, such as the maintenance of buildings, bridges etc..

The key features of the Directive for vehicle refinishing are shown in Table 1. The figures refer to all the products used in the painting process, from surface cleaning to final finishing and polishing.

Table 1:

The Directive - key targets for vehicle refinishing

	Interim stage	Final stage
Maximum average solvent content (excluding water)	64.3%	54.5%
Corresponding emissions reduction	40%	60%
Date for new installations	10/2001	10/2004
Date for existing installations	10/2005	10/2007
Threshold solvent use per year	500 kg	500 kg

Unlike earlier regulations in California (SCAQMD 1988) and in the UK (P66/34 1997), it does not specify a list of VOC limits for products. Instead (see Appendix D) it uses a model to determine the target maximum solvent content. In fact, the existing VOC lists in the UK and in the Californian rule cited already meet the final stage target (see Appendix B). In contrast, the proposed American national rule (EPA 1998) does not meet the target for the interim stage.

One other difference from earlier regulations is the absence of targets for emission reduction from process or equipment changes, such as the use of efficient spray guns. For this reason, savings from these sources are shown separately in the discussion below (see section 3.3, page 8).

RECORD KEEPING AND MONITORING FOR

C.O.S.H.H.,

HEALTH & SAFETY

&

THE ENVIRONMENTAL PROTECTION ACT 1992

MANAGED COMPLIANCE SYSTEMS

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RESEARCH

VOLUME THREE

EPA AND WASTE MANAGEMENT

MOTOR VEHICLE
ASSOCIATION



VAKOPLEIDING CARROSSERIEBEDRIJF

CERTIFICAAT

Jamy van den Berg

Geboortedatum: 28 september 1976

Geboorteplaats: Utrecht

heeft op 10 april 2002 te Nieuwegein met goed gevolg afgelegd de toets

Milieucertificaat verf/lak spuiten

Het certificaat is geldig tot 10 april 2006

Sassenheim, 27 mei 2002



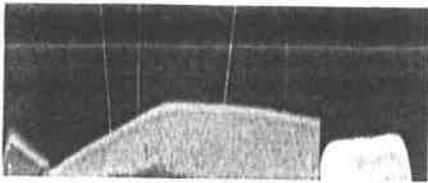
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VOC

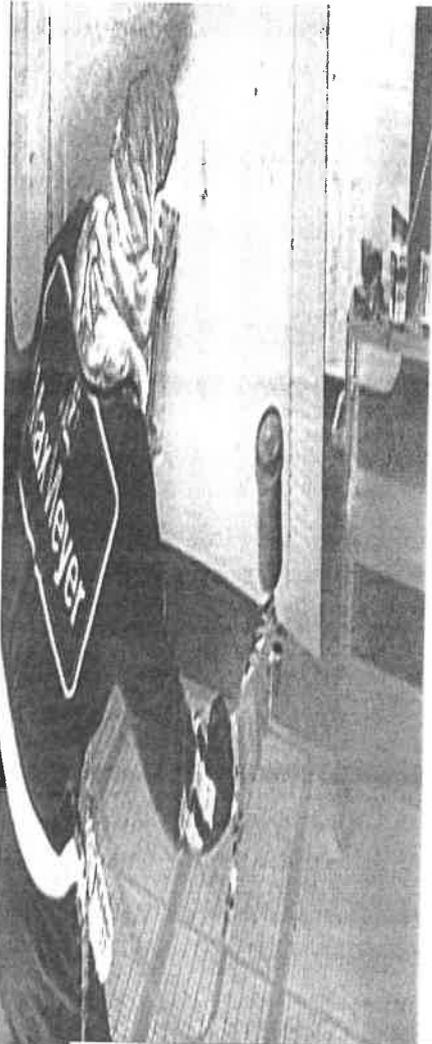
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