

1. The Installation

C1 How will the installation operate?

The following process description was finalised in consultation with paint shop and facilities personnel to ensure that it reflects the current state of operation within the Gaydon production paint shop and the on wheels repair paint shop.

Operations are split into the following distinct sections:

1. AML Production Paint Shop
 - 1.1. Mixing of paints
 - 1.2. Surface Preparation
 - 1.3. Application of primers
 - 1.4. Application of basecoats
 - 1.5. Application of enamels
 - 1.6. Curing process via ovens (primer)
 - 1.7. Flattening and polish preparation
2. On Wheels Repair Paint Shop
 - 2.1. On wheels paint repair or defects via gas-fired curing ovens

1. AML Production Paint Shop

1.1. Mixing of paints (solvent and water borne) – step 1

Paint mixing, when required, is conducted within a designated area known as the Paint Mixing Room (PMR), with the paint being diluted with solvent thinners to the required specification and forced ventilation through carbon filters is provided as required. In both the main paint line and rework area, paint is delivered manually to the booths in a safe controlled manner.

Gun Cleaning

The spray guns are manually cleaned in a stream of flushing solvent. This is pumped from a drum of solvent held under the machine. The solvent then drains back into the drum. When the flushing solvent in the drum becomes too contaminated with paint to be used further, the drum is sealed, and a fresh solvent drum is put on the machine. The spent flushing solvent is recovered via an in-house solvent recycling unit for reuse in line with solvent management best practice.

Solvent Recycling Unit

The recycling unit recovers most of the solvent used leaving behind only a block of paint residue which is disposed via a nearby hazardous waste bin. All waste items generated are removed from site by an authorised contractor. Foreseeable emissions to air include fugitive emissions of VOC and odour during paint mixing or cleaning and release of hazardous substances to air from leaks and spillages.

1.2. Surface Preparation – step 2

The car body transfers into the paint shop from Body in White (BIW) where it is prepared for paint application which consists of a number of stages. Body panels are scuffed through a sanding operation to ensure a perfect surface for paint application, which is conducted in specialized enclosures fitted with filtration equipment. Critical areas are masked to protect them during spraying operations. Slave tooling is fitted for any additional parts which also need painting e.g., wing mirrors. Sealing is conducted to prevent water ingress, protect cut edges from the atmosphere or for soundproofing purposes. Following that, the surfaces are cleaned and degreased to ensure the vehicle body is free from all contaminants. Cleaning is undertaken both manually using Tak-cloths and a water based solvent cleaner as well as compressed air. A final inspection is then undertaken, and any defects identified within the body panels are repaired. This can include applying etch primer to prevent corrosion. Foreseeable emissions to air include particulate matter (dust) emissions from the sanding operations and fugitive emissions of VOC and odour during cleaning/degreasing operations.

1.3. Application of primers - step 3

Stage one of the spraying process is the manual primer application within the primer booth. There is also a manual spray booth if any specialist work is required or for redundancy. Primer is mixed in the mix room and delivered manually to the booth in a safe controlled manner. Primer provides a smooth even surface to aid the adhesion of the basecoat. After spraying, the primer is allowed to flash off and then dry within a specially designed two-stage oven (60C for approx. 30mins). Once the car body has been oven cured it enters the flattening stage which is a series of sanding operations within a ventilated enclosure.

1.4. Application of basecoats - step 4

Stage two of the spraying process is the basecoat application within the spray booth. Several coats of waterborne basecoat are applied using manual spray equipment until the desired colour effect and quality is achieved. After spraying, the basecoat is allowed to flash off using a heated process (40C).

1.5. Application of enamels – step 5

Stage three of the spraying process is the clearcoat application. The clear coat is manually mixed with hardener in the mix room and delivered to the booth. Two coats of clearcoat are then manually applied. After spraying, the clearcoat is allowed to flash off and then dry within an oven (85C for approx. 60mins). Once the car body has been oven cured it enters the finishing stage described below.

1.6. Curing Process Via Ovens (Primer) – step 6

The ovens are fitted with indirect gas burners whereby 90% of the air is recycled. The remaining 10% of the air is “bled off” in line with legal requirements to ensure the concentration of combustible gas never reaches the lower explosive limit. Foreseeable emissions to air include point and fugitive emissions of VOC and odour.

1.7.Flattening and polish preparation – step 7

After curing the car body is polished and inspected for defects. Should any defects be found these are rectified by various methods depending on their severity. All repairs are conducted inside specially designed booths/enclosures. On completion the car bodies are transferred to the trim area of the plant for final assembly. If rework is required once the vehicle has been assembled this is conducted in OWR where there are purpose-built preparation booths where all pre-painting preparation will take place, then repair painted in combi spray-booth ovens.

2. On Wheels Repair Paint Shop

2.1.On wheels paint repair of defects via gas-fired curing ovens

The "on-wheels paint repair of defects via gas-fired curing ovens" process is a specialized step that occurs when issues with the vehicle's paint finish are identified during the inspection phase. In this process, any defects, or imperfections in the paint, such as scratches, blemishes, or uneven coatings, are repaired while the vehicle is already on its wheels, meaning it is in its final assembled state. To rectify these paint defects, the affected areas are carefully prepared, which may involve sanding or other surface treatment techniques. Then, the vehicle is painted and cured.

Table 1 below outlines the main paint spraying operations by zone and the associated process.

Table 1. Paint spraying operations and process.

Paint Spraying Operations	
Zone	Process
Assembly Paint	
05 - Etch primer	Etch priming and 2k surface priming (water wash booth)
08 - Small Parts Booth L/H (2)	2k primer, waterborne base coat and 2k clearcoat (low frequency use)
09 - Small Parts Booth R/H (1)	2k primer, waterborne base coat and 2k clearcoat (low frequency use)
10 - Production Repair Booth 1	2k primer, waterborne base coat and 2k clearcoat (dry floor combi booth)
11 - Production Repair Booth 2	2k primer, waterborne base coat and 2k clearcoat (dry floor combi booth)
12 - Production Repair Booth 3	2k primer, waterborne base coat and 2k clearcoat (dry floor combi booth)
13 - Cygnet preparation Booth	2k primer, waterborne base coat and 2k clearcoat (dry floor combi booth)
25 - BIW Special Colours Booth	2k primer, waterborne base coat and 2k clearcoat (dry floor combi booth)
25a - BIW Special Colours Booth	2k primer, waterborne base coat and 2k clearcoat (dry floor combi booth)
27 - New Production rework booth	2k primer, waterborne base coat and 2k clearcoat (dry floor combi booth)
28 - New Production rework booth	2k primer, waterborne base coat and 2k clearcoat (dry floor combi booth)
On Wheels Repair	
17 - On Wheels Repair Booth 4	2k primer, waterborne base coat and 2k clearcoat (dry floor combi booth)
18 - On Wheels Repair Panel Booth (PB)	2k primer, waterborne base coat and 2k clearcoat (dry floor combi booth)
19 - On Wheels Repair Booth 3	2k primer, waterborne base coat and 2k clearcoat (dry floor combi booth)
20 - On Wheels Repair Booth 2	2k primer, waterborne base coat and 2k clearcoat (dry floor combi booth)
21 - On Wheels Repair Booth 1	2k primer, waterborne base coat and 2k clearcoat (dry floor combi booth)

3 Emissions Monitoring

C2 Emissions, techniques, and monitoring

What pollutants (including odour) and how much are expected to be emitted into the atmosphere? Please say which stage of the process each emission will come from and whether from a particular chimney, vent, or other source (fugitive). Please include emissions during starting and shutting down the plant, and from breakdowns or accidents identified by a risk assessment. (Using process flow diagrams may help to simplify this).

For the last two years Gaydon's paint operations have used less than 15 tonnes of VOC and the forecast for the end of 2024 follows this trend (see table 2). Although retrieving production forecasts for the next three to five years is difficult due to the nature of our sales at present there is no major change to production planned for 2025.

Table 2. Total VOC used at Gaydon (tonnes)

Total VOC and produced vehicles		
Year	Total VOC (tonnes)	Comments
2024 (Jan - Sep)	10.21	based on the current average monthly figures we are expected to hit a total of around 13.6 tonnes by the end of the year
2023	12.72	
2022	12.39	

An annual manual extractive test will be completed for all combi booth exhaust stacks. All exhaust stacks will be visibly checked for potential odour or particulate emission issues on a weekly basis. The mass emission of VOC will be calculated monthly.

Information on locations of paint operations can be found on the attached drawing (AMLPaint-emission-points2024)

4 Environmental Management and Impacts

C3 Environmental Management?

What environmental management procedures and policy will you deploy?

AML will operate the installation in accordance with an environmental management system (EMS) which is certified to ISO14001: 2015. As such AML has a number of environmental procedures to which it conforms:

Training and awareness: Effective control of emissions to air requires the proper management, supervision, and training for process operations; the proper use of equipment, effective preventative maintenance on all related plant and equipment; and ensuring related spares and consumables are adequately available so plant breakdowns can be rectified rapidly.

Competency: AML will ensure staff and contractors are competent and provide training and instruction in their duties relating to the control of emissions to air. The training will focus on the awareness of responsibilities under the permit, steps to minimise emissions during start-up and shutdown and actions to take when there are

abnormal or emergency conditions that could, if not controlled, result in emissions to air. Training requirements will be documented and maintained, and records of training undertaken will be retained.

Maintenance: Effective preventative maintenance shall be employed on all plant and equipment concerned with the control of emissions to air. A written maintenance programme for air pollution control equipment will be documented and records of maintenance undertaken will be retained.

Evaluation of compliance: AML has an annual evaluation of compliance audit on its high-risk compliance obligations including environmental permits, consents, and licences. The evaluation of compliance will check status and progress of actions for solvent management plans and solvent reduction action plans, for example.

Internal audits: AML operates to a calendar of internal audits for its high-risk compliance obligations including environmental permits, consents, and licences. Internal audits will check status and progress of actions for solvent management plans and solvent reduction action plans, for example.

Incident reporting procedure: AML has a robust reporting process through its AIRS (Aston Martin Incident Reporting System) to identify any issues and follow-up with root cause analysis, interim corrective actions, and longer-term corrective actions.