GQA LEVEL 3 NVQ CERTIFICATE IN AUTOMOTIVE GLAZING

Qualification Number 500/7846/X

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PERSONAL COMPETENCE SUMMARY

Name	Company/Centre
Job Title	GQA Registration Number

	UNITS OF COMPETENCE			ASSESSOR SIGNATURE Performance and knowledge assessment completed and supplemented with evidence overtime	DATE
Unit Number	**Mandatory Units**	**Level**	**Credit**		
T/600/7363 AG2	Promote and Maintain Health and Safety in a Glass or Glass Related Working Environment	3	4		
L/600/7451 AG15	Understanding Automotive Glazing Products	3	5		
J/600/7657 AG13	Identify and Rectify Technical Problems in a Glass or Glass Related Working Environment	3	5		
R/600/8262 FIS2	Improve the Work of the Organisation through the use of Resources, Communication and Working Relationships in a Glass or Glass Related Working Environment	3	5		
Optional Units					
Addtional Units					

RELIABLE EVIDENCE: The forms of evidence available include (mark as appropriate)

Observation in the workplace	☐	Assessment of knowledge	☐
Records of prior experience	☐	Witness statement(s)	☐
Testimonial(s)	☐	Photographic evidence	☐
Work records	☐	External testing	☐

Passport Style Candidate Photo (Mandatory)

COMPETENCE COMPLETION SIGNATURES

By signing here, the Candidate and Assessor confirm that evidence presented is authentic and that the assessments took place in accordance with the relevant assessment strategy. Details of the assessments and evidence must be recorded in the assessment decision record/summaries at the end of each unit.

	Name and Signature	Date
Candidate		
Lead Assessor		
Internal Verifier		
EQA		

Introduction to the Qualification

Who is this Qualification for?

This qualification is aimed at those who work in the replacement automotive glazing industry. It covers the most important aspects of the job of those who replace glazing components in motor vehicles.

This qualification is at Level 3, although there may be individual units at different levels, and should be taken by those who are experienced automotive glaziers, capable of dealing with a wide range of issues, including the identification and rectification of technical problems and working with vehicles that have non routine fitment types. Candidates may be required to show the skills and knowledge to assess products or work procedures and identify possible improvements.

They will also work closely with customers and have well-developed knowledge of the automotive glazing industry and the products used. Candidates for this qualification will primarily be:

- Working in a Fitting Centre or on site
- Working with standard production vehicles and those with non routine fitments
- Removing, replacing and repairing other standard automotive glazing components
- Able to use initiative to identify and suggest improvements to work procedures Candidates could have jobs entitled:
- Automotive Glazing Technician
- Windscreen Fitter
- Automotive Glazier

Further qualifications that cover Automotive Glazing at Level 2, Automotive Glazing Supervision and Windscreen Repair are also available

What is required from candidates?

Qualifications are made up of a number of units that have a credit value or credits. These credits must be achieved in the correct combination from mandatory and optional units.

This qualification is made up of 4 mandatory units, which have a total credit value of 19 credits, and 2 groups of optional units. Candidates should achieve all of the mandatory units listed below and a minimum of 4 credits from group 1 and a minimum of 11 credits from group 2. This gives the qualification a minimum credit value of 34 credits. There is also a group of additional units any of which, if achieved, will appear on the qualification certificate but do not count towards the minimum credit value of the qualification.

The units are made up of the things you need to know and the things you need to be able to do to carry out your job safely and correctly. These are called Learning Outcomes, and all must be met to achieve the unit.

Mandatory Units (All units must be taken)			
Unit ref	**Title**	**Level**	**Credit**
T/600/7363 AG2	Promote and Maintain Health and Safety in a Glass or Glass Related Working Environment	3	4
L/600/7451 AG15	Understanding Automotive Glazing Products	3	5
R600/8262 FIS2	Improve the work of the Organisation through the use of Resources, Communication and Working relationships in a Glass or Glass Related Working	3	5
J/600/7657 AG13	Identify and Rectify Technical Problems in a Glass or Glass Related Working Environment	3	5
Optional Units group 1			
A/600/7655 AG12	Assess the Quality of Materials/Components in a Glass or Glass Related Working Environment	3	4
K/600/7652 AG11	Develop New Work Procedures in a Glass or Glass Related Working Environment	3	5
Optional Units group 2			
J/602/4992 AG23	Remove And Refit (Intact) Fully Encapsulated Windscreens In Vehicles	3	8
L/600/8146 AG17	Replace Opening Automotive Glass in Vehicles with Modular Door Construction of Frameless Doors	3	6

K/600/7442 AG9	Repair Damaged Windscreen Glass in Vehicles	2	5
T/600/7444 AG10	Cut Automotive Glass to Shape for Installation in Vehicles	3	6
Addtional Units			
M/615/2210 AG40	Knowledge of Calibration of screen mounted Advanced Driver Assistance Systems (ADAS) in automotive glass replacement	3	8
F/615/2213 AG41	Calibration of screen mounted Advanced Driver Assistance Systems (ADAS) in automotive glass replacement	3	16
F/616/9528 AG42	Knowledge of safe working practices for automotive glazing work on electric/hybrid vehicles	2	2
J/616/9529 AG43	Safe working practices for automotive glazing work on electric/hybrid vehicles	2	2

Achieving the combination of Mandatory units and the correct choice of Optional credits will mean the qualification has been completed and GQA will provide the Certificate with the qualification title. Where a candidate has completed additional credits the Certificate will list these as "additional credits", in cases where the candidate has not completed the full qualification and will not go on to do so, a Certificate of Credit can be issued for the credits achieved.

Assessment guidance
Evidence should show that you can complete all of the learning outcomes for each unit being taken.

Types of evidence:
Evidence of performance and knowledge is required. Evidence of performance should be demonstrated by activities and outcomes, and should be generated in the workplace only, unless indicated under potential sources of evidence (see below). Evidence of knowledge can be demonstrated through performance or by responding to questions.

Quantity of evidence:
Evidence should show that you can meet the requirements of the units in a way that demonstrates that the standards can be achieved consistently over an appropriate period of time.

Potential sources of evidence:
The main source of evidence for each unit will be observation of the candidate's performance and knowledge demonstrated during the completion of the unit. This can be supplemented by the following types of physical or documentary evidence:

Accident books/reporting systems
- Safety records
- Training records
- Invoices/job cards
- Witness testimonies
- Correspondence with Suppliers
- Correspondence with customers
- Notes and memos
- Photographic/video evidence
- Telephone logs
- Customer feedback

Examples of Evidence could include:
•Removal, replacement and repair of automotive glazing (inc. front glass, side glass, rear glass, quarter lights) • Glass cut to size
•Use of consumables (i.e. urethanes, primers, solvents, adhesives, sensor gels etc)
•Job specifications, job history
•Materials inc. components, substances, products
•Equipment inc. personal protective equipment, manual and power tools,
•Work instructions
•Reports and memos
•Information systems, manual or electronic
•Resources inc. people, time, materials, equipment, energy
•Emergency procedures inc. responding to alarms, using firefighting equipment, isolating power and/or fuel supplies.

Please note that photocopied or downloaded documents such as manufacturers or industry guidance, H&S policies, risk assessments etc, are not normally acceptable evidence for GQA qualifications unless accompanied by a record of a professional discussion or Assessor statement confirming candidate knowledge of the subject. If you are in any doubt about the validity of evidence, please contact your GQA EQA.

GQA Qualification Implementation Requirements covering Centre Approval, Candidate Assessment and ongoing Quality Assurance

This document indicates the requirements of Approved Centres delivering GQA qualifications and / or units of credit.

1. Equality of Opportunity
Equality of access to fair and valid assessment is necessary for all candidates undergoing assessment. This may mean making reasonable adjustments to normal assessment methods for candidates with particular or special assessment requirements. Candidates work patterns should not become a barrier to assessment, the organisation of which may have to be flexible. In the same way, reasonable adjustment arrangements may be necessary for candidates with a disability. For example, a candidate who is unable, through disability, to produce oral or written evidence, may be allowed to use the method they normally use as a substitute for the required form of communication. Reasonable adjustments need to be approved by GQA.

2. Recognised/Approved Assessment Centres
2.1 Individual centres must be approved by GQA to offer specific qualifications and / or units of credit. A centre may be a single organisation or a partnership of two or more organisations. It may operate at a single location or have satellites. For further details see the GQA booklet "Guide to Centre Approval". The Centre Approval process is carried out by a GQA approved EQA. Each Centre must maintain a centre file. It is important to be clear what the steps in the assessment process are:
• plan evidence collection and opportunities for assessment
• collect evidence
• judge evidence
• determine whether sufficient evidence has been presented
• make an assessment decision and give feedback to the candidate

NB Any deviation from the norm must be approved by a GQA EQA

2.2 Assessors and Verifiers

All Assessors of candidate performance must be competent, to make qualitative judgements, both in the skills they are assessing and in the assessment of candidates and hold the appropriate Assessor national award. Assessor occupational knowledge related to the qualifications being assessed is essential and must be illustrated to GQA prior to approval.

Internal Verifiers are responsible for the quality assurance of the assessment process within a centre. They should have a relevant occupational background, be competent in internal verification and hold the Internal Verifier national award. It is recommended that Internal Verifiers work towards national recognition of assessor competence.

EQAs are responsible for ensuring accurate and consistent standards of assessment across centres, qualifications, units of credit and over time. They should have a relevant occupational background, be competent in external verification and hold the EQA national award
GQA will approve and licence all individuals involved in the assessment and verification of its approved qualifications and / or units of credit. Individuals who are working towards the Assessor or Internal Verifier national awards can only be provisionally licensed. The judgement of provisional licence holders will need to be agreed/authorised by a fully qualified and GQA licensed individual who cannot carry out a dual role in relation to a specific candidate.

All GQA Assessors and Verifiers must undertake a minimum of 2 significant CPD activities in both occupational areas and assessment and verification. Reflective CPD records must be maintained and made available to GQA EV's for review.

2.3 Centre Approval, Monitoring Reviews and Quality Assurance
The centre recognition/approval process is the start of a significant part of the awarding body's quality assurance system. The Approval process will begin with an EQA review of centre procedures to ascertain the potential centres ability to deliver GQA qualifications and / or units of credit. Centres will be expected to meet the relevant regulatory authority criteria for delivery of qualifications prior to initial approval; continued compliance with the criteria will be monitored through regular EQA visits. It is recommended that centre reviews are conducted at minimum every six months by a GQA EQA.

New or multi-site centres may be required to undertake quarterly or more frequent EV reviews to ensure that different locations can be seen to satisfy the national requirements.

GQA will ensure that unacceptable barriers relating to the assessment and internal verification of candidates in small companies do not deny recognition of competence to competent young workers. In such circumstances, GQA will demonstrate that its quality assurance procedures remain sufficient and rigorous to ensure that the competence outcomes have standing and credibility in the occupational area.

Enhanced quality procedures to ensure consistency of assessment and verification will be necessary and will include:
• a high level of sampling of assessment decisions N.B. In some instances the EQA may visit each assessment location and qualification / unit of credit candidate (e.g. single candidates dispersed throughout different small companies on government funded programmes)
• an in-depth scrutiny of assessment plans, materials and records
• specific centre guidance aimed at the successful implementation of qualifications and / or units of credit in SMEs via approved centre partnerships. This can include guidance on the quantity and quality of valid, authentic, and transferable evidence expected to be attributed to individual candidates
• ensuring centres are following the requirements prescribed in any appropriate assessment strategies and applicable codes of practice
• the identification and publication of good practice in centres

As part of the Quality Assurance process Proskills require an Enhanced External Verification process. This will be in the form of 1 significant underpinning knowledge question answered by the candidate for each unit of the qualification. The questions will be decided by GQA, and guideline answers must be submitted for approval and once approved kept in the Centre File to allow independent assessment

3. Qualification / Unit of Credit Candidates
All candidates must register with a GQA recognised/approved centre. The centre must maintain appropriate candidate personal details for external audit purposes etc.
The centre will provide candidates with advice and guidance on how to prepare for assessment and allocate an Assessor who will assess candidate ability to meet the requirements of the relevant qualifications / unit of credit. It is the candidate's responsibility to demonstrate competence and to do this they must:
• prove they can consistently meet all the qualification and / or unit of credit criteria
• provide evidence from work, that they can perform competently in all the contexts specified in the qualification / unit of credit requirements
• prove that they have the knowledge and understanding required to perform competently, even where they have not provided evidence from the workplace

It is therefore critical that quality evidence is provided in a format to allow the Assessor to make a decision and for the Internal Verifier to audit/verify his/her decision.

4. Evidence
A qualification and / or credit is awarded when a person has achieved the necessary outcomes of the qualification and / or unit of credit.
The specific combination of units necessary to achieve a qualification is detailed in the qualification structure. Certificates of Unit Credit can be awarded when candidates achieve any one, or more, units from the qualification.
The evidence the candidate brings forward is primarily evidence of performance of what he/she can do, not just what he/she knows. The assessment criteria / qualification requirements are described within the qualification and / or unit of credit itself and can incorporate practical skills and knowledge.
The assessor's role is to judge each relevant item of evidence. Each must be judged against the qualification and / or unit of credit requirements. It is not sensible to collect evidence against individual criteria. Nor is it effective. If items of evidence were collected for each of the criteria, the candidate may have to produce many items of evidence, well above the number actually required. GQA recommend holistic assessment.

When judging each item of evidence, the assessor is deciding whether the evidence:
• is authentic – i.e. actually produced by the candidate
• meets the criteria
• relates as appropriate to a context defined within the qualification and / or unit of credit
• confirms that the candidate has the required underpinning knowledge

When the assessor makes a decision about the candidate's competence, he or she examines all the evidence available to determine:
• if the evidence, as a whole, covers all the evidence of achievement
• whether the evidence indicates consistency in competent performance
• whether there is enough evidence on which to base an inference of competence
The answer can only be:
• yes (the candidate is competent)
• no (the candidate is not yet competent)
• there is insufficient evidence to make a decision

Consistency means that the individual is likely to achieve the standard in their work role, in the different activities defined in the qualification and / or unit of credit over time and range of work. The assessor must judge how long a time period is enough to be confident that the candidate can perform reliably to the standard. Unsupported evidence i.e. based on a single assessment/visit will not normally prove consistency.

Performance evidence
Performance evidence can be what the individual actually produces, or the way the individual achieves the standard. One is called product evidence and the other process evidence.
Product evidence is tangible – you can look at it and feel it. Products can be inspected and the candidate can be asked questions about them.

In order to make a fair and objective assessment, the assessor must be able to answer the question: Is there sufficient evidence that the candidate can consistently meet the requirements of the qualification and / or unit of credit?
Process evidence describes the way the candidate has achieved an outcome – how they went about it. This may be, for example, the way the quality of products is checked or the way customer complaints are handled. This usually means observing the candidate in action.

Performance evidence may cover a number of outcomes. It makes sense to plan evidence collection so that what the candidate does, in the normal course of their job, can be related to different outcomes and units. The activities that clearly link to the qualification and / or unit of credit requirements are the things to concentrate on when planning evidence collection and assessment and when monitoring the candidate's progress. Look for opportunities in the candidate's job when evidence can be collected against a number of units at the same time.

Performance evidence can be:
• Naturally occurring – evidence produced in the normal course of work. Evidence of this sort is usually of high quality and reliable. It is also cost effective to collect naturally occurring evidence
• Taken from previous achievements – the candidate may be able to bring forward evidence from previous work experience to show that they are still competent to the standard.
• Evidence of prior achievement can be used when it can be shown to support a judgment that the candidate can still achieve the standard. So, the assessor must be satisfied that the evidence of prior achievement is sufficiently reliable to justify saying that the candidate is currently competent.
• Simulated – from circumstances specially designed to enable the candidate's performance to be assessed. Simulation is generally not acceptable. The exceptions to this are:

o Dealing with emergencies
o Dealing with accidents
o Certain pre-approved real time simulators
o Limited other procedures that cannot be practically performed in the workplace, and for which sufficient evidence can be collected through other means.

NB:It is not always possible or feasible to collect naturally occurring evidence. It is likely that some simulation may be needed, when it may take too long to wait for the evidence to arise e.g. it may be an aspect of performance which occurs infrequently. An example of this may be evidence of how to deal with emergencies i.e. it makes sense to look for evidence from sources other than naturally occurring ones, rather than for, say, waiting for the building to burn down. Centres must obtain GQA EQA approval prior to the use of simulation.

Knowledge evidence
Being able to achieve a standard requires the ability to put knowledge to work. The qualification and / or unit of credit indicates the knowledge each person should use if they are to perform competently.
It should not be necessary to test all of the candidate's knowledge separately; however, any exception to this would be detailed in the relevant Assessment Strategy. Performance evidence could show that the candidate knows what he or she is doing. When this is not the case, or if the assessor is not convinced from the performance evidence, it may be necessary to check the individual's knowledge separately.

Oral or written assessments must clearly provide a suitable means of checking the breadth and depth of an individual's knowledge. Assessors will need to judge the best mix of knowledge evidence according to individual circumstances. Knowledge evidence is useful when deciding the quality of performance evidence, but must not be used in isolation to judge competence or as an alternative to performance evidence. Care must be taken that candidate evidence is auditable and verifiable.

NB: These Qualification implementation guidelines are generic across the full range of GQA qualifications. Further guidance on acceptable evidence on each qualification will be found in the Introduction to the Qualification section of the candidate booklet

Collation of Evidence for Level 3 Qualifications

The definition of a Level 3 NVQ/SVQ is that competence in a broad range of varied work activities is performed in a wide variety of contexts, most of which are complex and non-routine. There is considerable responsibility and autonomy, and control or guidance of others is often required.

By the very nature of this, it is anticipated that Level 3 candidates will be able to provide evidence of their achievement drawn from successful work activities or projects, in other words, real examples of their work over time and range. All evidence should be dated, signed and authenticated/authorised by a recognised responsible person.

The following comments will help in the planning of evidence collection for Level 3 qualifications:

- Level 3 assessments are not normally carried out by the use of checklists
- Level 3 candidates are encouraged to provide evidence of their achievements drawn from their actual current work activities
- In many cases, evidence of achievement is not difficult to find
- Level 3 candidates should produce a CV that clearly indicates their relevant experience and achievement that contribute to the qualification
- A collation of evidence in the form of a Level 3 portfolio may be used to demonstrate competence against the standard
- The evidence must be cross referenced against the NVQ/SVQ standard (and where necessary justified)
- It may be appropriate for Level 3 candidates to undertake the related Level 2 qualification or some Level 2 units as a milestone/interim qualification
- Level 3 qualifications may include units of competence from Level 2 qualifications. If the candidate has already achieved any unit(s) and is regarded as currently competent then he/she will not be required to be reassessed on the same unit(s)
- Assessors will need to carry out performance and knowledge assessments for units/elements/pcs etc but the need for ongoing formal observations should not be as great if the candidate has produced a quality portfolio.

Some aspects of evidence may be subjected to independent assessment or enhanced external verification to satisfy the requirements of the standards setting body's assessment strategy

Candidate Declaration

Candidate Name.....

Centre/Company Name.....

Assessor(s) Name(s).....

I acknowledge receipt of this copy of GQA qualification booklet. The unit structure provides information on which units must be achieved to be awarded the qualification. The individual units detail in the necessary requirements etc that I must achieve.
I understand that I will have an important role in preparing for and planning assessments and with guidance from the Assessor I will Collect and record relevant evidence.

I have been informed of the appeals system, should I want to appeal against any part of the assessment process.

I understand the assessments will be carried out with regard to the company's/centre's Equal Opportunities Policy.

Candidate signature.....

Date.....

Production/Process Activity Guideline

To aid new or established workers, a centre may wish to describe a normal production/process activity relevant to the achievement of the national vocational qualification and identify which units/elements it will contribute to, e.g. the act of preparation for work, implementation and completion will contribute to a number of units of competence.

Production/Process Activity Relevant to the Achievement of this Qualification	Contributory to: Units/Elements

T/600/7363 AG2	Promote and Maintain Health and Safety in a Glass or Glass Related Working Environment	Level 3	4 Credits

The aim of this unit is to provide the learner with the knowledge and skills to work safely in the glass or glass related environment, to be able to carry out the correct actions should an accident or emergency occur and to promote and develop safe working practices. The learner will also be required to show awareness of associated problems that can occur and possible solutions.

Learning outcome. The learner will:	Assessment criteria. The learner can:	Evidence.ref.no		
1 Know which acts, regulations and guidelines apply to the glass or glass related working environment.	1.1 State which acts, regulations and guidelines apply to the glass or glass related working environment.			
	1.2 Explain how these acts, regulations and guidelines apply to the glass or glass related working environment.			
2 Know how to monitor and implement changes in health and safety acts, regulations and guidelines.	2.1 Explain how to monitor changes in health and safety acts, regulations and guidelines, to include: • Accessing HSE information • Receiving training updates.			
	2.2 Explain how to introduce and implement changes			
	2.3 Explain how to monitor the implementation of changes in Health and Safety to the working environment			
3 Know how to carry out a formal assessment of hazards and risks in the glass or glass related working environment and the types of risk or hazards that exist.	3.1 Describe the steps in carrying out a formal risk assessment:			
	3.2 Explain how to record the findings and why recording is important			
	3.3 Explain who should be made aware of the findings and how			
	3.4 Explain why it is important to inform the relevant people of the findings			
	3.5 Give 3 examples of risks or hazards that can occur in your working environment			
4 Be able to identify hazards and assess risks in the glass or glass related working environment.	4.1 Carry out an accurate risk assessment of the glass or glass related working environment.			
	4.2 Report the findings to the correct authority.			
5 Be able to adopt a safe method of work.	5.1 Plan and organise a safe method of work.			
	5.2 Correctly select and use personal protective equipment			
	5.3 Correctly select and use tools and equipment, to include: • hand tools • power tools			
	5.4 Correctly select and use glass and glass related materials			
6 Know how to ensure there is no unauthorised or unsafe access to the working areas.	6.1 Explain how to establish if a person is authorised to enter the work area.			
	6.2 Explain how to ensure that authorised people entering the work area are kept safe.			

Assessor comments/feedback

7 Know how to monitor colleagues to ensure they comply with health and safety requirements.	7.1 Explain how to monitor colleagues to ensure they comply with health and safety requirements.			
8 Know what to do in the event of accidents or emergencies.	8.1 Describe the correct procedure to follow in the case of an accident.			
	8.2 Describe the correct procedure to follow in the case of an emergency.			
	8.3 Describe the procedure for evacuating workers and visitors.			
	8.4 Describe the procedure for reporting and recording accidents and emergencies			
9 Be able to correctly record information on accidents and emergencies.	9.1 Correctly record information on health and safety issues for example: accidents, incidents, dangerous occurrences.			
10 Understand the problems that can occur with promoting and maintaining Health and Safety within the glass or glass related working environment and the potential solutions	10.1 Give 3 examples of problems that can arise when promoting Health and Safety, 1 each of the following: • Problem with communicating information to others • Problem with introducing changes • Problem with monitoring colleagues compliance with Health and Safety requirements			
	10.2 Give an explanation of how to overcome each of the problems given in answer to			

Assessor comments/feedback

L/600/7451	Understanding Automotive Glazing Products	Level 3	5 Credits
AG15			

The aim of this unit is to provide the learner with the knowledge and understanding of automotive glazing products, for example, laminated glass, toughened glass, PVB interlayers, tinted glass, light and rain sensors, integrated antennas, membranes, hydrophobic coatings. The learner will be able to list the products and describe the features of each.

Learning outcome. The learner will:	Assessment criteria. The learner can:	Evidence.Ref.No		
1. Know the difference in construction between laminated and toughened glass and how they behave on impact and how the different types of glass can be processed after manufacture.	1.1 Explain the typical make up of laminated glass.			
	1.2 Explain how toughened glass is manufactured.			
	1.3 Describe how laminated glass normally behaves on impact and what protection this gives.			
	1.4 Describe how toughened glass normally behaves on impact and what protection this gives.			
	1.5 Describe what processes can be carried out on laminated glass after manufacture.			
	1.6 Describe what processes can be carried out on toughened glass after manufacture.			
2. Know why the use of laminated glass in side and rear windows is minimal.	2.1 Explain why the use of laminated glass in side and rear windows is minimal.			
3. Know the properties of Polyvinyl Butyral (PVB) interlayers used in automotive glass manufacture.	3.1 Describe the properties of Polyvinyl Butyral (PVB) interlayers used in automotive glass manufacture.			
	3.2 Explain where the different thicknesses of PVB should be used.			
	3.3 Explain how the PVB interlayer differs from the norm on a windscreen with head up display.			
4. Know what a direct glazing system is and what its properties are.	4.1 Describe what a direct glazing system is.			
	4.2 Describe the effects of weather conditions on a direct glazing system.			
	4.3 Describe how to correctly use a direct glazing system.			
	4.4 Explain why it is important to use a direct glazing system correctly.			
5. Know the terminology for different types of windscreens and their properties.	5.1 Explain the meaning and make up of at least 2 of the following: • Acoustic glazing • Electrochromic glazing • Anti-bandit glazing • Anti-reflective glazing			
6. Know the possible implications of installing an after market sunroof.	6.1 Describe the possible implications of installing an after market sunroof.			
7. Know the range of glass tints available, how to identify them and what problems can occur.	7.1 List at least four different glass tints.			
	7.2 Explain how to identify glass tints.			
	7.3 Describe the problems that can arise if the incorrect tint is fitted.			

L/600/7451	Understanding Automotive Glazing Products (Continued)	Level 3	5 Credits
AG15			

8. Know how solar control glass is constructed, what its uses are and how it works.	8.1 Explain how solar control glass is constructed.			
	8.2 Describe what solar control glass is used for. Give three purposes.			
	8.3 Explain how solar control glass works.			
9. Know the purpose and meanings of glass marking.	9.1 Explain the purpose of glass marking.			
	9.2 Explain the meaning of glass marking symbols. Give four examples.			
10. Know the properties of heated rear and front windscreens.	10.1 Describe the properties of heated rear and front windscreens.			
11. Know why it is important to be aware of airbags, how to identify their presence and what precautions need to be taken when working near them.	11.1 Explain why it is important to be aware of airbags.			
	11.2 Explain how to identify the presence of airbags.			
	11.3 Describe the precautions that need to be taken when working near airbags.			
12. Know how rain sensors work for automatic wiper activation, how to check them, the types of problem that can occur and how to overcome them.	12.1 Explain how rain sensors work for automatic wiper activation.			
	12.2 Explain how to check rain sensors.			
	12.3 Describe two types of problem that can occur with rain sensors and explain how these might be overcome.			
13. Know how light sensors work, how to check them, the types of problem that can occur and how to overcome them.	13.1 Explain how light sensors work.			
	13.2 Explain how to check light sensors.			
	13.3 Describe two types of problem that can occur with light sensors and explain how these might be overcome.			
14. Know the types of resins and urethanes used in automotive glazing and what their uses are.	14.1 Describe the purpose of resin in automotive glazing repairs.			
	14.2 Give three examples of urethanes used in automotive glazing and describe their uses.			
	14.3 Explain the meanings of direct and indirect glazing.			
	14.4 List the 2 most common types of rubber fitments used in indirect glazing.			
15. Know the types of tools and equipment used in automotive glazing and what they are used for.	15.1 List six different types of tool or pieces of equipment used in automotive glazing and describe their uses.			
16. Know what integrated antennas are used for in automotive glazing, reasons Vehicle Manufacturers use them and what kind of problems they have and how to overcome them.	16.1 List what integrated antennas are used for in automotive glazing, giving three examples of Vehicle Manufacturers who use this technology and 2 reasons they are used in preference to external aerials.			
	16.2 Describe the type of problems that can occur with integrated antennas and explain how these might be overcome.			

17. Know the types of membrane used on the inside of doors, what their purposes are, what problems can occur and how to overcome these problems.	17.1 List three types of membrane used on the inside of doors.			
	17.2 Give an example of a Vehicle Manufacturer who uses each type of membrane listed.			
	17.3 Explain the purpose of the membranes.			
	17.4 Describe three problems with membranes and explain how these might be overcome.			
18. Know how to locate reset procedures for door glasses, how to use the procedures correctly and understand the implications of not following them correctly.	18.1 Explain how to locate reset procedures for door glasses.			
	18.2 Explain how to correctly follow procedures for door glasses.			
	18.3 Describe the implications of not following the procedures correctly.			
19. Know what a hydrophobic coating is and how it may be used.	19.1 Clearly explain what a hydrophobic coating is and describe its uses.			
20. Know the types of material used for temporary glazing, their uses and restrictions.	20.1 List at least three types of materials used for temporary glazing and describe the use and restrictions of each.			
21. Know the construction and properties of different types of automotive glazing.	21.1 List at least four types of automotive glazing and describe their properties, e.g. • security glazing			

Assessor comments/feedback

R/600/8262 FIS2	Improve the Work of the Organisation through the use of Resources, Communication and Working Relationships in a Glass or Glass Related Working Environment	Level 3	5 Credits

The aim of this unit is to provide the learner with the knowledge and skills to be able to contribute to the improvement of the organisation through the use of resources, communications and working relationships within the glass or glass related working environment.

Learning outcome. The learner will:	Assessment criteria. The learner can:	Evidence.Ref.No		
1. Know how to ensure that the correct quantities of products and materials and human resources are used and how surplus materials might be reused.	1.1 Explain how to ensure that the correct quantities of products and materials and human resources are selected.			
	1.2 Explain how surplus materials might be reused.			
	1.3 Give instructions to colleagues so that they know how to use correct quantities of products and materials and how to reuse surplus products and materials.			
	1.4 Monitor colleagues' use of products and materials.			
2. Know how to minimise wastage of materials.	2.1 List three types of material that can potentially be wasted.			
	2.2 Describe what actions can be taken to minimise wastage of the materials listed.			
3. Know why it is important to contribute to improving the effectiveness of the glass or glass related organisation.	3.1 Explain 3 reasons for contributing to improving the effectiveness of the glass or glass related organisation.			
4. Know the importance of clear, sufficient, accurate and prompt information.	4.1 Explain 3 benefits of sharing information which is clear, sufficient and accurate.			
5. Know why information needs to be shared with colleagues.	5.1 List 3 types of information which needs to be shared with colleagues, related to the glass or glass related activity.			
	5.2 Explain why this information needs to be shared.			
6. Be able to share information with colleagues.	6.1 Share information with colleagues using different methods, for example: • Toolbox Talks • Face to face conversations • Written notes • Drawings/sketches • Telephone (voice or text) • Email • Internet			
7. Know how to identify and pass on improvements to work activities.	7.1 Explain 2 ways to identify improvements that can be made in work activities.			
	7.2 Explain how to pass on suggestions for improvements identified.			
	7.3 Explain who to make the suggestions to and why these people need to be made aware.			

Assessor comments/feedback

R/600/8262 FIS2	Improve the Work of the Organisation through the use of Resources, Communication and Working Relationships in a Glass or Glass Related Working Environment (continued)	Level 3	5 Credits

8. Be able to identify and pass on improvements to work activities.	8.1 Identify a potential improvement with the glass or glass related activity.			
	8.2 Discuss potential improvements and outcomes.			
	8.3 Pass identified improvements on to colleagues.			
9. Know why good working relationships with colleagues are important.	9.1 State 3 benefits of having good working relationships with colleagues.			
10. Know why it is important to have good relationships with customers.	10.1 Explain 3 benefits of having good relationships with customers.			

Assessor comments/feedback

J/600/7657 AG13	Identify and Rectify Technical Problems in a Glass or Glass Related Working Environment	Level 3	5 Credits

The aim of this unit is to provide the learner with the knowledge and skills to be able to accurately assess any technical issues that arise in a glass or glass related working environment, to be able to identify potential rectification methods and how to communicate to those involved or affected.

Learning outcome. The learner will:	Assessment criteria. The learner can:	Evidence.Ref.No		
1. Know the types of technical problems that can occur in a glass or glass related working environment and how to investigate them.	1.1 Describe 3 technical problems in a glass or glass related working environment e.g. problems with: • Equipment • Materials • Components • Design • Site/location			
	1.2 Explain how to investigate the causes of the 3 problems highlighted above.			
2. Be able to investigate a technical problem, to identify the problem, its location and likely causes.	2.1 Identify the location and likely cause of the problem.			
3. Know when and how to obtain expert assistance to help identify technical problems.	3.1 Explain at what stage to obtain expert assistance and what implications this could have for the organisation and customer.			
	3.2 Explain how and where to obtain expert assistance.			
4. Be able to rectify the technical problem.	4.1 Evaluate potential solutions to an identified technical problem.			
	4.2 Rectify the problem using, as appropriate • Personnel • Equipment • Materials • Procedures			
5. Know how to ensure that the technical problem has been rectified.	5.1 Explain how to ensure that the rectification meets the specifications and requirements.			
	5.2 Explain how to verify that the technical problem has been rectified.			
	5.3 Explain how to monitor the rectification.			
6. Know how to overcome problems in the identification and rectification of technical problems.	6.1 Describe two factors that can cause difficulties in the identification and rectification of technical problems and explain how these might be overcome.			
7. Know how to record technical problems, their location and rectification and how to inform people who need to know about this.	7.1 Explain how information on technical problems, their location and rectification are communicated.			
	7.2 Explain who needs to know.			

Assessor comments/feedback

A/600/7655 AG12	Assess the Quality of Materials and Components in a Glass or Glass Related Working Environment	Level 3	4 Credits

The aim of this unit is to provide the learner with the knowledge and skills to be able to assess the quality of glass and related products, identify the areas to be assessed and communicate effectively with others involved in or affected by the information obtained.

Learning outcome. The learner will:	Assessment criteria. The learner can:	Evidence.Ref.No		
1. Know how to identify the quantity, quality and type of glass and glass related materials/ components needed.	1.1 Explain how to identify the quantity, quality and type of glass and glass related materials/components needed.			
2. Be able to check that the quantity, quality and type of glass and glass related materials match the specifications.	2.1 Ensure that any equipment used to assess quality is functioning correctly.			
	2.2 Select the correct method and equipment to assess glass and glass related materials/components.			
	2.3 Identify the main characteristics and features of the glass and glass related materials/components.			
	2.4 Check that the glass and glass related materials/ components accord with the information on them.			
	2.5 Confirm accordance with specifications, or report discrepancies clearly and accurately, to the correct people.			
	2.6 Record findings clearly and accurately.			
3. Know the types of variations in quality that can occur and how to recognise these variations.	3.1 Describe three types of variations in quality that can occur in: • Glass • Glass related materials/components			
	3.2 Explain how to recognise the examples given.			
4. Know how to identify the causes of variation in quality.	4.1 Describe how to identify the most likely causes of variation in quality in: • Glass • Glass related materials/components			
5. Know the corrective actions to be carried out when a variation in quality is identified.	5.1 Explain 3 types of corrective action that can be carried out and what variation in quality each action will correct.			
6. Know when and where to obtain expert assistance to help identify causes of variation in quality.	6.1 Explain at what stage to obtain expert assistance to help identify causes of variation in quality.			
	6.2 Explain how and where to obtain expert assistance.			
7. Know how to make recommendations to correct variations in quality.	7.1 Explain how and who to make recommendations for correcting variations in quality.			
	7.2 Explain the importance of quality checks and the possible implications if they are not done.			

Assessor comments/feedback

K/600/7652 AG11	Develop New Work Procedures in a Glass or Glass Related Working Environment	Level 3	5 Credits

The aim of this unit is to provide the learner with the knowledge and skills to be able to accurately assess the requirements of the work to be done in a glass or glass related working environment and be able to specify a procedure for carrying out the work. The learner will also be able to test the procedure to ensure it meets work requirements and to provide sufficient details to enable the procedure to be effective.

Learning outcome. The learner will:	Assessment criteria. The learner can:	Evidence.Ref.No		
1. Know how to assess the requirements of the work activity.	1.1 Explain how to identify what work needs to be done and its purpose.			
	1.2 Explain how to identify features and characteristics of the work that could affect work procedures.			
	1.3 Explain how to identify any potential problems and possible solutions.			
	1.4 Explain how to obtain information on previous examples of similar work.			
	1.5 Explain how to identify if any special requirements are needed.			
	1.6 Explain why written procedures are important.			
2. Know how to identify potential work procedures, assess their advantages and disadvantages and decide on the most likely procedure.	2.1 Explain how to assess advantages and disadvantages of potential work procedures.			
	2.2 Explain how to identify the most likely procedure.			
3. Be able to specify a work procedure for testing.	3.1 Write a potential work procedure for testing.			
4. Be able to identify the resources and any special requirements needed to implement the specified work procedure.	4.1 Identify the resources including equipment, materials, manpower, skills and time that will be needed to implement the work procedure.			
	4.2 Highlight any special requirements and confirm them with those who need to know.			
5. Know how to inform all those who need to know about the work procedure and provide them with a rationale for the introduction of the procedure.	5.1 Explain who needs to know about the work procedure and the rationale.			
	5.2 Explain how those who need to know will be informed.			
	5.3 Explain how to provide a rationale for the work procedure.			
6. Know how to test the work procedure.	6.1 Explain how to test the potential work procedure and accurately assess if it needs to be modified.			
7. Be able to provide details to others so that the work procedure can be replicated.	7.1 Produce a work procedure that is clear and specific.			
	7.2 Inform others with sufficient details to enable the procedure to be replicated.			

Assessor comments/feedback

J/602/4992 AG23	Remove and Refit (Intact) Fully Encapsulated Windscreens in Vehicles	Level 3	8 Credits

The aim of this unit is to provide the learner with the knowledge and skills to be able to list the differences in encapsulation types in windscreens, to be able to identify the need to remove windscreens intact for reinstallation and also remove other associated components and materials. The learner will also be able to prepare and refit the removed windscreen to provide a secure weatherproof installation and to be able to replace removed components and materials ensuring their correct functioning.

Learning outcome. The learner will:	Assessment criteria. The learner can:	Evidence.Ref.No		
1. Know the difference between fully, partial and non-encapsulated glass.	1.1 Explain the meaning of fully, partial and non- encapsulated glass.			
2. Know the situations when and understand the reasons why a windscreen may need to be removed and refitted intact.	2.1 State 3 situations where a windscreen may need to be removed and refitted.			
	2.2 Give 1 benefit to removing the windscreen intact for: i) customer ii) Company			
3. Know how to assess the installation work and know the types of problems that can occur when attempting to remove a windscreen in a condition that will allow re-installation and how to minimise the risk from these problems.	3.1 Explain how to assess the installation work.			
	3.2. Describe three problems that can occur in the removal of an encapsulated windscreen intact and explain how the risk from these problems can be minimised.			
4. Know how to locate manufacturer's instructions and/or organisation guidelines on the removal (intact) and reinstallation of an encapsulated windscreen.	4.1 Explain where to locate manufacturer's instructions and/or organisation guidelines on the removal (intact) and reinstallation of an encapsulated windscreen.			
5. Know how rain and light sensors work , how to check them, remove them , the types of problem that can occur and how to overcome them.	5.1 Explain how rain and light sensors work .			
	5.2 Explain how to check rain and light sensors.			
	5.3 Explain how to remove the sensor to minimise damage.			
	5.4 Describe two types of problem that can occur with rain and light sensors and explain how these might be overcome.			
6. Know the types of technology other than rain and light sensors that can be used in windscreens and how to check these.	6.1 Describe 1 other piece of technology used in windscreens other than rain or light sensors.			
	6.2 Explain how to check the operation of this technology before removal.			
7. Be able to correctly remove existing windscreen (intact) and other components and materials using the most appropriate method.	7.1 Correctly identify and select the most appropriate method for removal and explain why the method selected is the most suitable.			
	7.2 Remove existing windscreen and other components and materials without causing damage to them or the surrounding structures.			
8. Be able to correctly store removed components and materials.	8.1 Correctly store removed components and materials.			
9. Be able to clear all debris and surplus materials and dispose of them correctly.	9.1 Clear all debris and surplus materials and dispose of them correctly.			

10. Know how to prepare surfaces for Direct Glazing.	10.1 Explain how to prepare existing urethane on an aperture.			
	10.2 Explain how to prepare a newly painted aperture.			
	10.3 Explain how to prepare a new glass for installation.			
	10.4 Explain how to prepare a removed glass for re-installation.			
	10.5 Explain how to prepare a plastic window for installation.			
	10.6 Explain how to deal with the presence of corrosion in accordance with Manufacturer's recommendations.			
11. Be able to assess the aperture and identify and carry out the necessary action to prepare it correctly.	11.1 Assess the condition of the aperture.			
	11.2 Identify the correct action to take.			
	11.3 Prepare the aperture correctly.			
12. Be able to assess the removed windscreen and ensure it is suitable for re-installation.	12.1 Assess the condition of the removed windscreen.			
	12.2 Indentify any actions required as a result of removal.			
	12.3 Prepare the windscreen correctly including removal of any contamination.			
13. Be able to identify, select and use the correct method and system for fitting the windscreen.	13.1 Identify and select the correct method for fitting the windscreen.			
	13.2 Use the system correctly to ensure a secure and weatherproof installation.			
14. Be able to correctly install the windscreen.	14.1 Handle the windscreen correctly.			
	14.2 Fit the windscreen correctly and securely.			
15. Be able to replace removed components and materials and ensure correct function.	15.1 Correctly replace the removed components and materials.			
	15.2 Check the operation of the restored items to ensure they function correctly.			
16. Know the minimum amount of time required after installation before the vehicle can be driven, the reasons this is important and how to ensure a customer is aware of the safe drive time.	16.1 State the minimum safe drive time for the installed windscreen and why this is important.			
	16.2 Explain what factors can affect the safe drive time.			
	16.3 Explain 2 ways of ensuring a customer is aware of the safe drive time.			
17. Be able to correctly record information on the work carried out.	17.1 Correctly record information on the work carried out.			

Assessor comments/feedback

L/600/8146	Replace Opening Automotive Glass in Vehicles with Modular Door Construction of Frameless doors	Level 3	6 Credits
AG17			

The aim of this unit is to provide the learner with the knowledge and skills to be able to list the range of vehicles that have modular or frameless doors, to be able to identify the requirement of the installation and to be able to remove existing glass and other components and materials. The learner will also be able to fit and adjust the replacement glass to provide a secure weatherproof installation and to be able to replace removed components and materials ensuring their correct functioning.

Learning outcome. The learner will:	Assessment criteria. The learner can:	Evidence.Ref.No		
1. Be able to identify vehicles that have doors of modular construction and frameless doors	1.1 Name 3 vehicles from 2 different manufacturers that have doors of modular construction			
	1.2 Name 3 vehicles from 2 different manufacturers that have frameless doors			
2. Be able to assess the installation work and identify the particular requirements for the type of work to be carried out.	2.1 Accurately assess the installation work and correctly identify any particular requirements of the type of work to be carried out			
3. Be able to check that replacement opening automotive glass is fit for use.	3.1 Accurately check the replacement opening automotive glass for faults or damage.			
	3.2 Explain 3 things that need to be checked with the replacement opening glass			
4. Know how to locate manufacturer's instructions and/or organisation guidelines on the removal and installation of opening automotive glass in vehicles with modular door construction or frameless doors.	4.1 Explain where to locate manufacturer's instructions and/ or organisation guidelines on the removal and installation of opening automotive glass in vehicles with modular door construction or frameless doors.			
5. Be able to correctly remove existing glass and other components and materials.	5.1 Correctly remove existing glass and other components and materials without causing damage to them or the surrounding structures.			
6. Be able to correctly store removed components and materials.	6.1 Correctly store removed components and materials.			
7. Be able to clear all debris and surplus materials and dispose of them correctly.	7.1 Clear all debris and surplus materials and dispose of them correctly.			
8. Be able to assess the aperture and identify and carry out the necessary action to prepare it correctly.	8.1 Assess the condition of the aperture.			
	8.2 Identify the correct action to take, explaining the reason for the chosen action.			
	8.3 Prepare the aperture correctly.			
9. Be able to correctly fit the opening automotive glass and make any adjustments required to ensure correct operation	9.1 Handle the opening automotive glass correctly.			
	9.2 Fit the glass correctly and securely.			
	9.3 Adjust the glass as required to ensure correct operation			
10. Be able to provide a secure and weatherproof installation.	10.1 Adjust the glass to provide a secure and weatherproof installation.			
11. Be able to replace removed components and materials and ensure correct function.	11.1 Correctly replace the removed components and materials.			
	11.2 Check the operation of the restored items to ensure they function correctly.			

L/600/8146	Replace Opening Automotive Glass in Vehicles with Modular Door Construction of Frameless doors	Level 3	6 Credits
AG17			

12. Know the types of problem that can occur in the replacement of opening automotive glass with doors of modular construction and frameless doors and how these problems can be overcome.	12.1 Describe two problems that can occur in the replacement of opening automotive glass in vehicles with modular door construction and explain how these might be overcome.			
	12.2 Describe two problems that can occur in the replacement of opening automotive glass in vehicles with frameless doors and explain how these might be overcome.			
13. Be able to correctly record information on the replacement of opening automotive glass.	13.1 Correctly record information on the replacement of opening automotive glass.			

Assessor comments/feedback

K/600/7442	Repair Damaged Windscreen Glass in Vehicles	Level 2	5 Credits
AG9			

The aim of this unit is to provide the learner with the knowledge and skills to know the code of practice for repairing damaged windscreens and to be able to identify and confirm the damage with the customer. The learner will be able to explain why it is important to identify the zone where the damage lies and be able to carry out the repair. The learner will also be able to provide relevant information, to the customer, including any further actions needed.

Learning outcome. The learner will:	Assessment criteria. The learner can:	Evidence.Ref.No		
1. Know the industry code of practice relating to windscreen repair.	1.1 Name the industry code of practice referring to windscreen repairs and explain what this means in practice.			
2. Be able to correctly identify the type of windscreen damage and confirm this with the customer.	2.1 Correctly identify the type of windscreen damage.			
	2.2 Correctly identify the zone in which the damage lies.			
	2.3 Correctly determine the feasibility of repair.			
	2.4 Clearly inform the customer of the action required, risks involved, customer expectations and obtain customer's agreement and confirmation of this action.			
3. Know why it is important to identify correctly the zone where the damage lies and how this affects the feasibility of repair.	3.1 Explain why it is important to identify correctly the zone where the damage lies.			
	3.2 Explain how the position and condition of the damage affects the feasibility of repair.			
4. Know the types of action that can be taken to rectify windscreen damage.	4.1 Describe the types of action that can be taken to rectify windscreen damage. Give three examples.			
5. Be able to correctly carry out windscreen repair.	5.1 Select the correct equipment to carry out the repair.			
	5.2 Select the correct materials.			
	5.3 Correctly carry out the repair minimising the time the vehicle is not operational.			
6. Be able to clearly provide necessary information to the customer.	6.1 Clearly provide necessary information to the customer, e.g. • further action required when repair is not feasible or on completion is not satisfactory to the customer • provide the customer with advice on MOT regulations with regard to windscreen damage			
7. Know the types of problems that can occur in the repair of damaged windscreens and how these can be overcome.	7.1 Describe four types of problem that can occur in the repair of damaged windscreens and explain how these might be overcome.			
8. Be able to correctly record information on the repair of damaged windscreens.	8.1 Correctly record information on the repair of damaged windscreens.			

Assessor comments/feedback

T/600/7444	Cut Automotive Glass to Shape for Installation in Vehicles	Level 3	6 Credits
AG10			

The aim of this unit is to provide the learner with the knowledge and skills to be able to list the different types of automotive glass, used in the organisation, and describe the features of each. The learner will be able to identify the requirements that will affect the shape of the glass to be cut and be able to ensure that the glass meets specification. The learner will also be able to cut the glass to shape.

Learning outcome. The learner will:	Assessment criteria. The learner can:	Evidence.Ref.No		
1. Know the different types of automotive glass and what their features are.	1.1 Describe the different types of automotive glass, e.g. • toughened • laminated			
	1.2 Describe the features of the different types of automotive glass.			
2. Be able to accurately identify the requirements that affect the shape of the glass.	2.1 Accurately identify the requirements that affect the shape of the glass.			
3. Know how to obtain and confirm the correct specifications for the glass including glass markings.	3.1 Explain how to obtain and confirm the correct specifications for the glass.			
	3.2 Explain what markings should be on the glass and why it is important the glass is clearly marked.			
4. Be able to ensure that quality assurance requirements for the glass are satisfied.	4.1 Select the correct equipment and methods for checking the glass.			
	4.2 Check that the glass meets specification.			
5. Be able to correctly cut the glass to shape.	5.1 Identify and prepare a suitable location for cutting the glass.			
	5.2 Select the correct tools for cutting the glass to shape.			
	5.3 Handle and position the glass correctly.			
	5.4 Cut the glass to the correct shape minimising wastage.			
	5.5 Mark the glass correctly.			
6. Know the type of problems that can occur in cutting to shape automotive glass and how these problems might be overcome.	6.1 Describe the types of problems that can occur in cutting to shape automotive glass and explain how these might be overcome.			
7. Be able to correctly record information on the cutting to shape of automotive glass.	7.1 Correctly record information on cutting to shape automotive glass.			

Assessor comments/feedback

M/615/2210	Knowledge of Calibration of screen mounted Advanced Driver Assistance Systems (ADAS) in automotive glass replacement	Level 3	8 Credits
AG40			

The aim of this unit is to ensure candidates have the required depth and range of knowledge of how to identify the presence of ADAS in vehicles and how to reinstate the correct operation to ensure the safety of the vehicle and anyone who may come into contact with it is not compromised. This requires an understanding of the methods and equipment used to check, diagnose and calibrate the ADAS and the different types of calibration. Candidates must also be aware of information a customer requires pre and post installation, and how to record this information. The unit requires candidates to be aware of their responsibilities, the problems that can occur where ADAS is fitted and how to minimise the risk of, and impact from, problems.

Learning outcome. The learner will:	Assessment criteria. The learner can:	Evidence.Ref.No		
1. Know the types of ADAS present in vehicles and how to deal with these	1.1 Give 2 examples of ADAS fitted to vehicles and how these can reduce the risk of accidents			
	1.2 Explain how to identify the presence of ADAS			
	1.3 Explain how to determine which ADAS functions require calibration			
	1.4 Explain where to find up to date accurate information on ADAS and calibration			
	1.5 Explain what information the customer must be made aware of prior to arranging the work			
	1.6. Explain what needs to be considered when carrying out windscreen repairs to vehicles where ADAS technology is fitted			
2. Understand calibration	2.1 List 2 types of calibration			
	2.2 Explain the difference between the types			
	2.3 Describe the equipment, identification process and conditions required to carry out each type of calibration			
	2.4 Describe problems that can occur with calibration and how to deal with these			
	2.5 Explain why calibration is important and the possible implications if it is not fully and accurately completed			
	2.6 Explain the proof of calibration provided to customers and why this is important			
	2.7 Explain how the records of calibration are stored by the calibrating organisation			
3. Understand how to prepare for the replacement work when ADAS is involved	3.1 Explain how to check the optical quality of the replacement glass and why this is important			
	3.2 Describe the pre-inspection checks to make to include: • Diagnostic tools and methods • ADAS and Non-ADAS fault codes • Information the customer requires			
	3.3 Describe any additional considerations, e.g. job scheduling, insurance issues			
4. Understand the problems that can occur	4.1 Describe 2 problems that can occur when diagnosing ADAS			
	4.2 Describe 2 problems that can occur with calibration			
	4.3 Explain how to deal with each problem to minimise the effect			

Assessor comments/feedback

F/615/2213	Calibration of screen mounted Advanced Driver Assistance Systems (ADAS) in automotive glass replacement	Level 3	16 Credits
AG41			

The aim of this unit is to ensure candidates have the required depth and range of knowledge of how to identify the presence of ADAS in vehicles and how to reinstate the correct operation to ensure the safety of the vehicle and anyone who may come into contact with it is not compromised. This requires an understanding of the methods and equipment used to check, diagnose and calibrate the ADAS and the different types of calibration. Candidates must also be aware of information a customer requires pre and post installation, and how to record this information. The unit requires candidates to be aware of their responsibilities, the problems that can occur where ADAS is fitted and how to minimise the risk of, and impact from, problems. Finally the candidate must show competence in carrying out static and dynamic calibration.

Learning outcome. The learner will:	Assessment criteria. The learner can:	Evidence.Ref.No		
1. Know the types of ADAS present in vehicles and how to deal with these	1.1 Give 2 examples of ADAS fitted to vehicles and how these can reduce the risk of accidents			
	1.2 Explain how to identify the presence of ADAS			
	1.3 Explain how to determine which ADAS functions require calibration			
	1.4 Explain where to find up to date accurate information on ADAS and calibration			
	1.5 Explain what information the customer must be made aware of prior to arranging the work			
	1.6 Explain what needs to be considered when carrying out windscreen repairs to vehicles where ADAS technology is fitted			
2. Understand calibration	2.1 List all types of calibration			
	2.2 Explain the difference between the types			
	2.3 Describe the equipment, identification process and conditions required to carry out each type of calibration			
	2.4 Describe problems that can occur with calibration and how to deal with these			
	2.5 Explain why calibration is important and the possible implications if it is not fully and accurately completed			
	2.6 Explain the proof of calibration provided to customers and why this is important			
	2.7 Explain how the records of calibration are stored by the calibrating organisation			
3. Understand how to prepare for the replacement work when ADAS is involved	3.1 Explain how to check the optical quality of the replacement glass and why this is important			
	3.2 Describe the pre-inspection checks to make to include: • Diagnostic tools and methods • ADAS and Non-ADAS fault codes • Information the customer requires			
	3.3 Describe any additional considerations, e.g. job scheduling, insurance issues			
4. Understand the problems that can occur	4.1 Describe 2 problems that can occur when diagnosing ADAS			
	4.2 Describe 2 problems that can occur with calibration			
	4.3 Explain how to deal with each problem to minimise the effect			

F/615/2213	Knowledge of Calibration of screen mounted Advanced Driver Assistance Systems (ADAS) in automotive glass replacement (continued)	Level 3	8 Credits
AG41			

5. Be able to carry out calibration	5.1 Identify the type of calibration to be carried out for the vehicle being worked on.			
	5.2 Locate vehicle OBD (on board diagnostics)port			
	5.3 Connect diagnostic equipment			
	5.4 Locate correct vehicle software			
	5.5 Navigate the diagnostic tool			
	5.6 Carry out global check for fault codes			
	5.7 Carry out 2 types of calibration: • Static • dynamic			
	5.8 Carry out global check on completion of calibration to check further faults have not been created.			
	5.9 Complete relevant documentation e.g. print out			

Assessor comments/feedback

F/616/9528 AG42	Knowledge of safe working practices for automotive glazing work on electric/hybrid vehicles	Level 2	2 Credits

The aim of this unit is to ensure candidates have the required depth and range of knowledge of how to identify the presence of alternative fuelled vehicles to be able to carry out automotive glazing work safely and in accordance with Manufacturer guidance. Candidates must be able to prove knowledge of vehicle range, fuel types, how to prepare the vehicle and work area, carry out the work and understand how to reinstate the correct operation to ensure the safety of the vehicle and anyone who may come into contact with it is not compromised before, during or after as a consequence of the automotive glazing work.

Learning outcome. The learner will:	Assessment criteria. The learner can:	Evidence.Ref.No		
1. Know the principles of alternative fueled vehicles available and how to identify them	1.1 Give examples of electric/hybrid vehicles currently available			
	1.2 Explain how to identify vehicles of this type			
	1.3 Describe the key differences between hybrid and electric vehicles			
	1.4 List typical voltages for: • Motor vehicle high energy systems • A range of electric/hybrid vehicles			
	1.5 List 2 other alternative fuel systems			
	1.6 Explain why it is important to identify the type of fuel source/system before starting work on a vehicle			
2. Understand the hazards present with high energy electrical systems	2.1 State the hazards associated with alternative fuelled vehicles			
	2.2 State hazards that may be present when: • Vehicles are having power drained • Vehicles are charging • Vehicles have been involved in accident damage			
3. Understand how to carry out automotive glazing work safely on electric/hybrid vehicles	3.1 Describe the safe working procedures to follow when preparing for automotive glazing work on electric/hybrid vehicles			
	3.2 Explain how to check the system has been made safe prior to commencing work			
	3.3 Explain how to minimise risks when carrying out automotive glazing work on electric/hybrid vehicles			
	3.4 Explain how to confirm reinstatement of system on completion of work			

Assessor comments/feedback

J/616/9529 AG43	Safe working practices for automotive glazing work on electric/hybrid vehicles	Level 2	2 Credits

The aim of this unit is to ensure candidates have the required depth and range of knowledge of how to identify the presence of alternative fuelled vehicles to be able to carry out automotive glazing work safely and in accordance with Manufacturer guidance. Candidates must be able to prove knowledge of vehicle range, fuel types, how to prepare the vehicle and work area, carry out the work and understand how to reinstate the correct operation to ensure the safety of the vehicle and anyone who may come into contact with it is not compromised before, during or after as a consequence of the automotive glazing work. Finally, candidates must demonstrate putting the theory into practice by carrying out work on this type of vehicle

Learning outcome. The learner will:	Assessment criteria. The learner can:	Evidence.Ref.No		
1. Know the principles of alternative fuelled vehicles available and how to identify them	1.1 Give examples of electric/hybrid vehicles currently available			
	1.2 Explain how to identify vehicles of this type			
	1.3 Describe the key differences between hybrid and electric vehicles			
	1.4 List typical voltages for: • Motor vehicle high energy systems • A range of electric/hybrid vehicles			
	1.5 List 2 other alternative fuel systems			
	1.6 Explain why it is important to identify the type of fuel source/system before starting work on a vehicle			
2. Understand the hazards present with high energy electrical systems	2.1 State the hazards associated with alternative fuelled vehicles			
	2.2 State hazards that may be present when: • Vehicles are having power drained • Vehicles are charging • Vehicles have been involved in accident damage			
3. Understand how to carry out automotive glazing work safely on electric/hybrid vehicles	3.1 Describe the safe working procedures to follow when preparing for automotive glazing work on electric/hybrid vehicles			
	3.2 Explain how to check the system has been made safe prior to commencing work			
	3.3 Explain how to minimise risks when carrying out automotive glazing work on electric/hybrid vehicles			
	3.4 Explain how to confirm reinstatement of system on completion of work			
4. Be able to carry out automotive glazing work safely on electric/hybrid vehicles	4.1 Prepare the vehicle and work area following manufacturer guidance and following safe working practices			
	4.2 Carry out the work to meet the customer requirements and in a safe manner			
	4.3 Ensure vehicle system is reinstated on completion of automotive glazing work			

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Notes

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