

Automotive Qualifications (4101)

Practical assessment guide

Certificate in Vehicle Maintenance and Repair
(VRQ, NVO, SVQ) Level 3

Light vehicles

Heavy vehicles

Motorcycles



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1 About this document

This assignment guide has been designed to cover the common automotive maintenance and repair units for the City & Guilds Level 3 Certificate in Vehicle Maintenance and Repair (4101). It can be used for **light vehicle** (LV), **heavy vehicle** (HV) and **motorcycle** (MC) practical assessments and applies to the following qualification routes:

Vocationally Related Qualification (VRQ) routes

VRQ complexes	VRQ unit title
4101-51	Level 3 Certificate in Vehicle Maintenance and Repair (Light Vehicles)
4101-52	Level 3 Certificate in Vehicle Maintenance and Repair (Heavy Vehicles)
4101-53	Level 3 Certificate in Vehicle Maintenance and Repair (Motorcycles)

National Vocational Qualification (NVQ) routes

NVQ complexes	NVQ unit title
4101-06	Level 3 Certificate in Vehicle Maintenance and Repair (Light Vehicles)
4101-07	Level 3 Certificate in Vehicle Maintenance and Repair (Heavy Vehicles)
4101-08	Level 3 Certificate in Vehicle Maintenance and Repair (Motorcycles)

Scottish Vocational Qualification (SVQ) routes

SVQ complexes	SVQ unit title
4101-28	Level 3 Certificate in Vehicle Maintenance and Repair (Light Vehicles)
4101-29	Level 3 Certificate in Vehicle Maintenance and Repair (Heavy Vehicles)
4101-30	Level 3 Certificate in Vehicle Maintenance and Repair (Motorcycles)

2 Guidance for assessors

Introduction

The assessments have been designed to cover all the scope, observation and knowledge requirements for the practical content of this qualification.

Underpinning knowledge for each practical assessment should be covered during the assessment and documented on the worksheets provided within this guide. Candidates are required to complete a number of practical tasks to show their attainment of practical skills and underpinning knowledge.

One practical task may cover elements from more than one unit. The practical tasks have been designed to avoid repetition, but allow complete coverage of the required knowledge for the qualification.

The practical assessments cover the most popular optional units. If a candidate wishes to cover units not contained within the tasks provided, the centre delivering the qualification will need to devise the appropriate practical task. For further information on centre devised assignments please refer to the 4101/4121 qualification handbook – section *5.12 Producing centre devised assignments*, available from the City & Guilds Automotive website (www.cityandguilds.com/uk/automotive).

Online testing (GOLA) is used to assess the theory component of the maintenance and repair units. In addition to obtaining centre approval, centres are required to set up a GOLA profile in order to offer online examinations to candidates. Setting up a GOLA profile is a simple process that need only be completed once for the centre.

Details of how to set up the profile are available on the City and Guilds website (www.cityandguilds.com/gola). The website also has details of the GOLA helpline for technical queries and downloads for centres and candidates about GOLA examinations.

Note: It is important that candidates who are new to the industry complete a practical training programme which covers a wider range of equipment and resource material before attempting these final assessment tasks. This is to ensure that they gain the sufficient confidence and knowledge to successfully complete the qualification. For complimentary practical practice tasks please refer to the *Practical practice task guide* available for download from the City and Guilds Automotive website (www.cityandguilds.com/uk/automotive). For further information about the available documentation and resources, please refer to section *1.2 Other documents and sources of further information* in the qualification handbook.

Relation to Key Skills, Wider Key Skills and Core Skills

The City & Guilds Level 3 Certificate in Vehicle Maintenance and Repair may provide opportunities to gather evidence if working towards any of the following Key Skills, Wider Key Skills or Core Skills: Communication; Number; ICT; Problem Solving; Improving Own Learning and Working with Others.

Examples of Key Skill, Core Skill and Wider Key Skill work are provided in the following table.

Key Skill/Wider Key Skill	Example of Key Skill work
Communication	Data collection, assessment, reports (oral and written), feedback.
Number	Measurements, percentages, test readings, pressures.
ICT	Computer diagnostics, data collection.
Problem Solving	Most assessments involve diagnosing vehicle problems and faults.
Working with Others	Working with another or as teams to lift and support vehicle components is part of a vehicle technician's normal role, as well as in the final assessments.
Improving Own Learning	Unit by unit achievements evidence the learning progress made by candidates during the assessment period.

A detailed guide to signposting the Key Skills, Wider Skills and Core Skills covered within this Level 3 qualification is outlined in the individual Vehicle Maintenance and Repair unit specifications available from the City & Guilds Automotive website (www.cityandguilds.com/uk/automotive).

Candidates seeking to achieve any of the Key Skills, Wider Key Skills and/or Core Skills would need to be separately registered for them. Any evidence presented for a Key/Core Skills and/or Wider Key Skills portfolio **must** be separately assessed using the relevant Key/Core and Wider Key Skills specifications and guidance. For further guidance and information about these qualifications, please refer to the City & Guilds website (www.cityandguilds.com).

Introducing practical tasks to candidates

It will be beneficial to take the candidate through what is required for each practical task and the way each task will be assessed.

Timings for practical tasks

A submission schedule should be worked out by the centre, governed by the overall assessment plan for the course, to be negotiated between tutor/assessor and candidate.

The relationship between course delivery, the handing out and completion of practical tasks are matters for agreement between the tutors and candidates locally.

Feedback

Assessors must provide feedback on every occasion that a skills observation takes place. Recording forms are provided and can be downloaded from the City & Guilds Automotive website (www.cityandguilds.com/uk/automotive).

Candidate's records of coursework

Candidates should be encouraged to keep their work carefully in a portfolio. This may be an unfamiliar form of recording keeping for many of them, but it is a good discipline which will benefit them when they progress in learning and training.

Overall grading of practical tasks

Practical tasks are graded Pass (P) or Fail (F).

Codes of practice

The importance of safe working practices, the demands of any regional and/or national legislation relating to health and safety and any regional and/or national codes of practice associated with the industry must always be adhered to.

Health and safety

The requirement to follow safe working practices in an integral part of City & Guilds qualifications and assessments, and is the responsibility of centres to ensure that all relevant health and safety requirements are in place before the candidates start practical assessments.

Should a candidate fail to follow health and safety practice and procedures during an assessment, the assessment must be stopped and the candidate advised of the reasons why. The candidate should be informed that they have not reached the standard of assessment required. Candidates may retake the assessment at a later date, at the discretion of the centre.

If the centre is in any doubt about a violation of health and safety, guidance should be sought from the external verifier.

Verification of practical tasks

By using checklists verifiers can check that evidence for an assignment is complete and can ensure that the assessment decision has been fair and beyond dispute.

Assessors must ensure that candidates understand why a particular grade has been given for the task. It is for this reason that City & Guilds requires the signature of both the assessor and the candidate on the assignment record.

If a candidate's work is selected for verification, samples of work must be made available to the appointed external verifier. The external verifier will ensure that:

- the internal verifier is undertaking his/her responsibilities
- the internal verifier is given prompt, accurate and constructive feedback on centre operations
- a report is written on centre activities for City & Guilds.

Internal quality assurance

Approved centres must have effective quality assurance systems to ensure optimum delivery and assessment of qualifications.

Quality assurance includes initial centre approval, qualification approval and the centre's own internal procedures for monitoring quality. Centres are responsible for internal quality assurance, and City & Guilds is responsible for external quality assurance.

Full details and guidance on the internal and external quality assurance requirements and procedures, are provided in *Providing City & Guilds qualifications – A guide to centre and qualification approval* (available from www.cityandguilds.com, by selecting 'becoming a centre'). This document also explains the tasks, activities and responsibilities of quality assurance staff.

In order to fully support candidates, centres are required to retain copies of candidates' assessment records for three years after certification.

Centres are also free to design their own practical tasks, if they feel their suggestions better reflect their candidates and/or regional/national needs, or if the chosen route is not covered by the tasks provided by City & Guilds. Nationally/regionally-devised tasks must fulfill the assessment requirements for each unit.

Entry for assessment and certification

Candidates should be registered via the Walled Garden or using Form S at least 28 days before any assessment. Entries for the online multiple choice test should be made via the Walled Garden or by using Form S as per the instructions outlined in the City & Guilds *Providing City & Guilds qualifications – A guide to centre and qualification approval*.

Results of assignments should be submitted in the form of grades via the Walled Garden or by using Form S. Only those units which have been achieved should be included. Each unit number is entered, followed by P (Pass) to indicate the grade the candidate has achieved.

3 Resource requirements

The resource list below identifies the typical workshop tools and equipment required to complete the practical assessments for the City & Guilds Level 3 Certificate in Vehicle Maintenance and Repair (4101).

- Steel ruler.
- Micrometer (25 millimetre, 50 millimetre, 75 millimetre and 100 millimetre).
- Oil drain.
- Vernier calliper.
- Trolley jack, wheel chocks and stands.
- Car lifting ramp.
- Tyre changer and wheel balance machine.
- Dial test indicator.
- Brake test machine to suit vehicle type.
- Antifreeze tester.
- Diagnostic interface to suit vehicle type (oscilloscope).
- Solder iron.
- Oil pressure test gauge.
- Torque wrench.
- Air wrench.
- Taps and dies
- Multimeter (volts, amps and ohm).
- Wheel alignment gauge.
- Engine diagnostic machine with gas analyser.
- Straight edge.
- Vee blocks and surface plate.
- Wheel alignment or similar system, depending on vehicle.
- Brake fluid test machine.
- Selection of hand tools suitable for a garage workshop.
- Selection of garage consumables (rags, nuts, bolts, washers, electrical terminals).

4 Guidance for candidates

The practical tasks given to you by your tutor have been designed to help you to complete the Level 3 Certificate in Vehicle Maintenance and Repair (4101).

The following will help you to understand the requirements of the practical assessment and ensure that you complete all of the necessary recording forms.

- 1 Before starting the assessment it is important that you have had sufficient training.
- 2 Read the task criteria carefully and complete **all** parts of the assessment task.
- 3 Complete **all** the documentation as neatly and as legibly as possible.
- 4 Try to keep to the estimated times allowed.
- 5 Ensure that you and your assessor sign and date the relevant worksheets accurately, and that you get feedback from your assessor.

5 Candidate information sheet

Candidate name:

Date of Birth:

Date enrolled with centre:

Date enrolled with City & Guilds:

City & Guilds enrolment
number:

Course tutor:

6 Assessment pro formas

6.1 Note for assessors

Before the G1-V1, G2-V2 and G3-V3 units are awarded, sufficient evidence needs to be achieved. For the purpose of this assessment booklet, these units are embedded within the following main units: MR07-V21; MR08-V22/MR08HV-23 and MR13-V29. The three units may have already been achieved at Level 2, therefore the candidate may be exempt from doing them again. However, it is seen as good practice to consider units G1-V1, G2-V2 and G3-V3 when being assessed on the other main units. All criteria for the **performance, knowledge and scope** have been embedded within the unit tasks. It is important that the task documentation is completed fully and correctly.

Unit Number	Unit Title	Scope tick	Observation tick	Knowledge tick	Unit description and portfolio/page number (PRN)	Assessor signature	Date
G1-V1	Contribute to workplace good housekeeping				Units G1-V1, G2-V2 and G3-V3 can be completed as stand alone units. However, for the purpose of this assessment package, they are integrated within the units listed below and once completed they can be automatically signed off.		
G2-V2	Ensure your own actions reduce risks to health & safety						
G3-V3	Maintain positive working relationships						
MR07-V21	Diagnose and rectify vehicle engine system and component faults				PRN 1 cylinder head/compression testing and fault finding		
					PRN 2 alternator diagnostic and testing		
					PRN 3 fuel injection diagnostic		
MR08-V22/ MR08HV-V23 (HV)	Diagnose and rectify vehicle chassis systems and component faults/ Diagnose and rectify commercial vehicle chassis systems and component faults				PRN 4 suspension alignment diagnostics		
					PRN 5 braking diagnostic		
					PRN 6 steering diagnostics		
MR13-V29	Diagnose and rectify vehicle transmission and driveline system faults				PRN 7 clutch		
					PRN 8 bearing/hub		
					PRN 9 drive line		
					PRN 10 gearbox		
AE06-V38 or AE06MC-V39	Diagnose and rectify auxiliary equipment electrical faults/ Diagnose and rectify motorcycle auxiliary equipment electrical faults				PRN 11 electrical door actuator		
					PRN 12 lighting system		
					PRN 13 wiper system (for LV and HV)/PRN 14 (for MC)		
MR06-V20*	Inspect vehicles						
MR11-V26*	Overhaul mechanical units						
Units marked with * Either unit can be chosen, speak to your tutor/assessor.					Verifier Sampling Name:..... Signature:.....		

6 Assessment pro formas

6.2 Portfolio reference number (PRN) tracking table

The table below identifies the PRN assessment pro formas that need to be completed to meet the required performance evidence for the relevant vehicle maintenance units within the City & Guilds Level 3 Certificate in Vehicle Maintenance and Repair (4101). The assessment pro formas follow this page. For a detailed qualification structure please refer to the *Qualification handbook* – section 4.3 N/SVQ Route tables.

G1-V1	Contribute to workplace good housekeeping									
Criteria	Hand tools	Electrical tools	Mechanical tools	Pneumatic tools	Hydraulic tools					
PRN	1, 10, 11, 13	2, 3, 7	1, 5, 6, 11, 12, 13	4, 5, 14, 12	4, 5, 6, 10, 11					
G2-V2	Ensure your own actions reduce risks to health and safety									
	Identify risks and produce evidence of workplace policies on:									
Criteria	Machinery equipment	Materials substances	Spillages	Safe working method	Safe use of substances	Personal protection				
PRN	1, 4, 5, 6, 10, 11, 13	1, 5, 10, 13, 14, 13	1, 5, 7, 11, 10, 12, 13	1, 2, 4, 8, 11, 12, 14	1, 2, 4, 8, 11, 12, 14	All PRN 1 - 14				
G3-V3	Maintain positive working relationships									
Criteria	Work as a team	Respond assist	Give information	Show respect	Inform colleagues	Make requests	Inform problems			
PRN	1, 5, 13, 12, 14	1, 5, 10, 12, 14	11, 12	All PRN 1 - 14	1, 5, 6, 8, 10, 11, 13	3, 5, 6, 8, 10, 12, 13, 14	All PRN 1 - 14			
MR07-V21	Diagnose and rectify vehicle engine system and component faults									
Criteria	Mechanical	Electrical	Hydraulic/ Fluid	Specialist equipment	Rectify/Test	Data	Dismantle	Records	Delays	Health & Safety
PRN	1	2, 3	1, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3
MR12HV-V22/MR08HV-V23	Diagnose and rectify vehicle chassis systems and component faults/ Diagnose and rectify commercial vehicle chassis systems and component faults									
Criteria	Mechanical	Electrical	Hydraulic/Fluid	Specialist equipment	Rectify/Test	Data	Dismantle	Records	Delays	Health & Safety
PRN	4, 5, 6	4, 5, 6	5	4, 5, 6	4 5 6	4, 5, 6	4, 5, 6	4, 5, 6	4, 5, 6	4, 5, 6
AE06-V38/AE06MC-V39	Diagnose and rectify auxiliary equipment electrical faults/ Diagnose and rectify motorcycle auxiliary equipment electrical faults									
Criteria	Security	Lighting	Wiper	Specialist equipment	Rectify/Test	Data	Dismantle	Records	Delays	Health & Safety
PRN	7	8	9 Motorcycle, 9a	7, 8, 9, 9a	7, 8, 9, 9a	7 8 9 9a	7, 8, 9, 9a	7, 8, 9, 9a	7, 8, 9, 9a	7, 8, 9, 9a

6 Assessment pro formas



6.3 Portfolio reference number (PRN) unit table

The table below identifies the units covered and the corresponding portfolio reference number (PRN) for each assessment pro forma contained within this guide.

PRN	Name	Units covered
1	Diagnose a fault in the engine area	G1-V1, G2-V2, G3-V3, MR07-V21
2	Alternator and charging test	G1-V1, G2-V2, G3-V3, MR07-V21
3	Fuel system: Fuel injection	G1-V1, G2-V2, G3-V3, MR07-V21
4	Chassis system: Steering and suspension diagnostics	G1-V1, G2-V2, G3-V3, MR07-V21, MR08-V22 or MR08HV-V23
5	Chassis system: Braking system diagnostics	G1-V1, G2-V2, G3-V3, MR07-V21, MR08-V22 or MR08HV-V23
6	Chassis system: Steering diagnostics	G1-V1, G2-V2, G3-V3, MR07-V21, MR08-V22 or MR08HV-V23
7	Transmission system: Diagnostics (clutch)	G1-V1, G2-V2, G3-V3, MR13-V29
8	Transmission system: Diagnostics (hub bearing)	G1-V1, G2-V2, G3-V3, MR13-V29
9	Transmission system: Diagnostics (driveline component)	G1-V1, G2-V2, G3-V3, MR13-V29
10	Transmission system: Diagnostics (gearbox)	G1-V1, G2-V2, G3-V3, MR13-V29
11	Diagnose auxiliary electrical system faults: Security locking	G1-V1, G2-V2, G3-V3, AE06-V38
12	Diagnose auxiliary electrical system faults: Headlamp and lighting circuit	G1-V1, G2-V2, G3-V3, AE06-V38
13	Diagnose auxiliary electrical system faults: Wiper and screen washer system	G1-V1, G2-V2, G3-V3, AE06-V38
14	Diagnose auxiliary electrical system faults: Electrical brake switch	G1-V1, G2-V2, G3-V3, AE06MC-V39


6 Assessment pro formas

6.4 PRN 1 Diagnose a fault in the engine area

Date work carried out/...../.....		Indicate unit(s) covered on this evidence record:		G1-V1	G2-V2	G3-V3	MR07-V21							
Vehicle details Vehicle type (please circle) LV HGV MC PSV Make/Model Registration number Chassis/VIN number				1 Diagnose a fault in the engine area 2 Use a compression test gauge or electronic cylinder comparison test (estimated time 5 hours)		 								
Details of work activity: Adjust to suit vehicle types		<ul style="list-style-type: none"> Your tutor/assessor should provide you with an engine which has a fault in the cylinder head. Examples are: valve worn; lifter follower/fault; camshaft worn; gasket leak; cam shaft drive fault. You must be able to diagnose the fault and use diagnostic equipment to provide test readings to support your diagnosis and repair procedures. 												
Special tools/equipment used: Hand tools Compression test gauge Electronic test equipment Torque/angle wrench Straight edge/feeler gauge Special tools as necessary		Technical information: Valve clearance if appropriate Specified cylinder compression Torque for cylinder head		Examination and testing methods used (include readings as appropriate): Compression/electronic test readings taken: cylinder numbers 1..... 4..... 7..... 10..... 2..... 5..... 8..... 11..... 3..... 6..... 9..... 12..... State any faults found and other test readings as appropriate:										
Specific evidence of health and safety, good housekeeping and working with others:														
1	Work with others when lifting cylinder head	4	Sweep up	7	Wear and use correct PPE.									
2	Dispose of all waste correctly and safely	5	Clear up spillages											
3	Tools tidy, cleaned, checked and put away	6	Identify workshop policies											
Work found that requires further attention and any action taken:														
Assessor knowledge check:														
Assessor feedback on evidence provided:														
I confirm that the work carried out on this evidence record meets City & Guilds requirements for validity, authenticity, currency and sufficiency. All the necessary scope , performance and knowledge for this task have been met.														
Assessor name:.....			Signature:			Date:/...../.....			Candidate signature:.....			Date:...../...../.....		



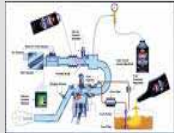
6 Assessment pro formas

6.5 PRN 2 Alternator and charging test

Date work carried out/...../.....		Indicate unit(s) covered on this evidence record:		G1-V1	G2-V2	G3-V3	MR07-V21				
Vehicle details: Vehicle type (please circle) LV HGV MC PSV Make/Model Registration number Chassis/VIN number				Alternator and charging test							
											
Details of work activity: Adjust to suit vehicle types		<ul style="list-style-type: none"> Perform an alternator charging test for both maximum regulated voltage and output current. Diagnostic equipment should be used and test readings taken. Remove the alternator from the vehicle, repair as necessary, refit and test. 									
Special tools/equipment used: Hand tools Voltmeter Electronic test equipment Ammeter Special tools as necessary		Technical information: Maximum regulated voltage Maximum output current Battery voltage			Examination and testing methods used (include readings as appropriate): Maximum regulated voltage Maximum output current Battery voltage Condition of rectifier Alternator drive pulley/gear/belt						
Specific evidence of health and safety, good housekeeping and working with others:											
1	Work with others when taking readings	4	Sweep up	7	Wear and use correct PPE.						
2	Dispose of all waste correctly and safely	5	Clear up spillages								
3	Tools tidy, cleaned, checked and put away	6	Identify workshop policies								
Work found that requires further attention and any action taken:											
Assessor knowledge check – outline of question(s) used and response:											
Assessor feedback on evidence provided:											
I confirm that the work carried out on this evidence record meets City & Guilds requirements for validity, authenticity, currency and sufficiency. All the necessary scope , performance and knowledge for this task have been met.											
Assessor name:.....			Signature:			Date:/...../.....			Candidate signature:.....		
									Date:...../...../.....		



6 Assessment pro formas

6.6 PRN 3 Fuel system

Date work carried out/...../.....		Indicate unit(s) covered on this evidence record:		G1-V1	G2-V2	G3-V3	MR07-V21			
Vehicle details: Vehicle type (please circle) LV HGV MC PSV Make/Model Registration number Chassis/VIN number				Fuel System: Fuel injection			  			
Details of work activity: <i>Adjust to suit vehicle types</i>		<ul style="list-style-type: none"> Diagnose a fault in the fuel injection system using appropriate diagnostic equipment (either petrol or diesel fuel systems). It is important you provide test readings to support your work. 								
Special tools/equipment used: Hand tools Voltmeter Electronic test equipment Oscilloscope Special tools as necessary		Technical information: Injection pressure Fuel type Type of injector Injection duration at idle Injector resistance		Examination and testing methods used (include readings as appropriate): Battery voltage Injector resistance Injection duration at idle Condition of spray pattern (if tested)						
Specific evidence of health and safety, good housekeeping and working with others:										
1	Work with others when taking readings	4	Sweep up	7	Wear and use correct PPE.					
2	Dispose of all waste correctly and safely	5	Clear up spillages							
3	Tools tidy, cleaned, checked and put away	6	Identify workshop policies							
Work found that requires further attention and any action taken:										
Assessor knowledge check – outline of question(s) used and response:										
Assessor feedback on evidence provided:										
I confirm that the work carried out on this evidence record meets City & Guilds requirements for validity, authenticity, currency and sufficiency. All the necessary scope , performance and knowledge for this task have been met.										
Assessor name:.....			Signature:		Date:/...../.....		Candidate signature:.....		Date:...../...../.....	



6 Assessment pro formas

6.7 PRN 4 Chassis system (steering and suspension diagnostics)

Date work carried out/...../.....		Indicate unit(s) covered on this evidence record:		G1-V1	G2-V2	G3-V3	MR07-V21	MR08-V22 or MR08HV-V23	
Vehicle details: Vehicle type (please circle) LV HGV MC PSV Make/Model Registration number Chassis/VIN number				Chassis system: Steering and suspension diagnostics				 	
Details of work activity: Adjust to suit vehicle types		<ul style="list-style-type: none"> Remove strip and inspect a suspension spring/damper unit. Report faults. Check the alignment of the vehicles steering and suspension system. Use diagnostic test equipment and provide test readings as supporting evidence for the diagnostics. 							
Special tools/equipment used: Alignment equipment Specialist tools used		Technical information: Camber Castor Toe if applicable Toe on turns if applicable Front to rear alignment (MC only)		Examination and testing methods used (include readings as appropriate): Camber Castor Toe out/in Toe out on turns Alignment (MC) Faults found with suspension components					
Specific evidence of health and safety, good housekeeping and working with others:									
1	Work with others when taking readings	4	Sweep up	7	Wear and use correct PPE.				
2	Dispose of all waste correctly and safely	5	Clear up spillages						
3	Tools tidy, cleaned, checked and put away	6	Identify workshop policies						
Work found that requires further attention and any action taken:									
Assessor knowledge check – outline of question(s) used and response:									
Assessor feedback on evidence provided:									
I confirm that the work carried out on this evidence record meets City & Guilds requirements for validity, authenticity, currency and sufficiency. All the necessary scope , performance and knowledge for this task have been met.									
Assessor name:.....			Signature:		Date:/...../.....		Candidate signature:.....		
							Date:...../...../.....		


6 Assessment pro formas

6.8 PRN 5 Chassis system (braking system diagnostics)

Date work carried out/...../.....		Indicate unit(s) covered on this evidence record:		G1-V1	G2-V2	G3-V3	MR07-V21	MR08-V22 or MR08HV-V23
Vehicle details: Vehicle type (please circle) LV HGV MC PSV Make/Model Registration number Chassis/VIN number				Chassis system: Braking system diagnostics				
Details of work activity: Adjust to suit vehicle types		<ul style="list-style-type: none"> • Check the braking system: discs, drums, pads, shoes and hydraulic/air/cable components for wear or damage and report. • Remove and fit as necessary. • Check the operation of a wheel speed sensor as used for ABS and or traction control and report test readings for serviceability. 						
Special tools/equipment used: Brake performance test equipment if required Multimeter (state) Diagnostic plug-in equipment		Technical information: Minimum braking effort required Minimum secondary braking effort required Wheel speed sensor resistance Wheel speed sensor output voltage Diagnostic code if applicable		Examination and testing methods used (include readings as appropriate): Main brake efficiency Wheel speed test readings Diagnostic code test readings Brake roller test readings below applicable to type of vehicle				
Specific evidence of health and safety, good housekeeping and working with others:								
1	Work with others when taking readings	4	Sweep up	7	Wear and use correct PPE.			
2	Dispose of all waste correctly and safely	5	Clear up spillages					
3	Tools tidy, cleaned, checked and put away	6	Identify workshop policies					
Report on the brake components and faults/damage. Work found that requires further attention and any action taken:								
Assessor knowledge check – outline of question(s) used and response:								
Assessor feedback on evidence provided:								
I confirm that the work carried out on this evidence record meets City & Guilds requirements for validity, authenticity, currency and sufficiency. All the necessary scope , performance and knowledge for this task have been met.								
Assessor name:.....			Signature:		Date:/...../.....		Candidate signature:..... Date:...../...../.....	


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6.9 PRN 6 Chassis system (steering diagnostics)

Date work carried out/...../.....		Indicate unit(s) covered on this evidence record:		G1-V1	G2-V2	G3-V3	MR12-V21	MR08-V22 or MR08HV-V23
Vehicle details: Vehicle type (please circle) LV HGV MC PSV Make/Model Registration number Chassis/VIN number				Chassis system: Steering diagnostics				
Details of work activity: Adjust to suit vehicle types		<ul style="list-style-type: none"> Remove and inspect a steering box/rack/head. Report faults. Check the alignment of the vehicles steering and system. Use diagnostic test equipment and provide test readings as supporting evidence for the diagnostics. 						
Special tools/equipment used: Alignment equipment Specialist tools used		Technical information: Toe if applicable Toe on turns if applicable Front to rear alignment (MC only)		Examination and testing methods used (include readings as appropriate): Alignment/Toe Toe out on turns Alignment (MC) Faults found with steering components				
Specific evidence of health and safety, good housekeeping and working with others:								
1	Work with others when taking readings	4	Sweep up	7	Wear and use correct PPE.			
2	Dispose of all waste correctly and safely	5	Clear up spillages					
3	Tools tidy, cleaned, checked and put away	6	Identify workshop policies					
Work found that requires further attention and any action taken:								
Assessor knowledge check – outline of question(s) used and response:								
Assessor feedback on evidence provided:								
I confirm that the work carried out on this evidence record meets City & Guilds requirements for validity, authenticity, currency and sufficiency. All the necessary scope , performance and knowledge for this task have been met.								
Assessor name:			Signature:		Date:/...../.....		Candidate signature:..... Date:...../...../.....	


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6.10 PRN 7 Transmission system (diagnostics: clutch)

Date work carried out/...../.....		Indicate unit(s) covered on this evidence record:		G1-V1	G2-V2	G3-V3	MR13-V29				
Vehicle details: Vehicle type (please circle) LV HGV MC PSV Make/Model Registration number Chassis/VIN number				Transmission system: Diagnostics (clutch)							
Details of work activity: Adjust to suit vehicle types		<ul style="list-style-type: none"> Remove and replace a clutch, investigate, diagnose and report clutch wear. Report on one or more of either mechanical, electrical, hydraulic or pneumatic failure; depending on the type of vehicle. Use diagnostic test equipment and provide test readings as supporting evidence for the diagnostics. 									
Special tools/equipment used: DTI Micrometer Alignment tool..... Other		Technical information: Flywheel run-out..... Crankshaft end float Bolt torque as applicable; state:			Examination and testing methods used (include readings as appropriate): Flywheel run-out Crankshaft end float..... Motorcycle: wear in clutch multi plate housing..... Thickness of clutch plates; all vehicles: Condition of pressure springs Report on mechanical, electrical, hydraulic or pneumatic operation						
Specific evidence of health and safety, good housekeeping and working with others.											
1	Work with others when taking readings	4	Sweep up	7	Wear and use correct PPE.						
2	Dispose of all waste correctly and safely	5	Clear up spillages								
3	Tools tidy, cleaned, checked and put away	6	Identify workshop policies								
Work found that requires further attention and any action taken:											
Assessor knowledge check – outline of question(s) used and response:											
Assessor feedback on evidence provided:											
I confirm that the work carried out on this evidence record meets City & Guilds requirements for validity, authenticity, currency and sufficiency. All the necessary scope , performance and knowledge for this task have been met.											
Assessor name:.....			Signature:		Date:/...../.....		Candidate signature:.....			Date:...../...../.....	


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6.11 PRN 8 Transmission system (diagnostics: hub bearing)

Date work carried out/...../.....		Indicate unit(s) covered on this evidence record:		G1-V1	G2-V2	G3-V3	MR13-V29				
Vehicle details: Vehicle type (please circle) LV HGV MC PSV Make/Model Registration number Chassis/VIN number				Transmission system: Diagnostics (hub bearing)							
Details of work activity: <i>Adjust to suit vehicle types</i>		<ul style="list-style-type: none"> Remove and replace a hub bearing to suit the type of vehicle worked on. Diagnose faults in bearing/hub failure. Use diagnostic test equipment and provide test readings as supporting evidence for the diagnostics. 									
Special tools/equipment used: DTI Micrometer Torque wrench Other		Technical information: Bearing type Bearing nut torque Bearing hub tightening procedure Grease/lubricant type		Examination and testing methods used (include readings as appropriate): Bearing faults and condition Report on the bearing/hub after rebuild and test method:.....							
Specific evidence of health and safety, good housekeeping and working with others:											
1	Work with others when taking readings	4	Sweep up	7	Wear and use correct PPE.						
2	Dispose of all waste correctly and safely	5	Clear up spillages								
3	Tools tidy, cleaned, checked and put away	6	Identify workshop policies								
Work found that requires further attention and any action taken:											
Assessor knowledge check – outline of question(s) used and response:											
Assessor feedback on evidence provided:											
I confirm that the work carried out on this evidence record meets City & Guilds requirements for validity, authenticity, currency and sufficiency. All the necessary scope , performance and knowledge for this task have been met.											
Assessor name:.....			Signature:		Date:/...../.....		Candidate signature:.....			Date:...../...../.....	


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6.12 PRN 9 Transmission system (diagnostics: driveline component)

Date work carried out/...../.....		Indicate unit(s) covered on this evidence record:		G1-V1	G2-V2	G3-V3	MR13-V29				
Vehicle details: Vehicle type (please circle) LV HGV MC PSV Make/Model Registration number Chassis/VIN number				Transmission system: Diagnostics (drive line component)							
Details of work activity: Adjust to suit vehicle types		<ul style="list-style-type: none"> Remove and replace a driveline component (prop shaft, half shaft, drive shaft, CV joint chain and sprocket). Use diagnostic test equipment and provide test readings as supporting evidence for the diagnostics. 									
Special tools/equipment used: DTI Torque wrench Other		Technical information: Torque settings as appropriate Drive shaft bow Chain sprocket wear..... Grease/lubricant type		Examination and testing methods used (include readings as appropriate): Driveline faults and condition Report on the drive line after rebuild and test method							
Specific evidence of health and safety, good housekeeping and working with others:											
1	Work with others when taking readings	4	Sweep up	7	Wear and use correct PPE.						
2	Dispose of all waste correctly and safely	5	Clear up spillages								
3	Tools tidy, cleaned, checked and put away	6	Identify workshop policies								
Work found that requires further attention and any action taken:											
Assessor knowledge check – outline of question(s) used and response:											
Assessor feedback on evidence provided:											
I confirm that the work carried out on this evidence record meets City & Guilds requirements for validity, authenticity, currency and sufficiency. All the necessary scope , performance and knowledge for this task have been met.											
Assessor name:.....				Signature:		Date:/...../.....		Candidate signature:.....		Date:...../...../.....	



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6.13 PRN 10 Transmission system (diagnostics: gearbox)

Date work carried out/...../.....		Indicate unit(s) covered on this evidence record:		G1-V1	G2-V2	G3-V3	MR13-V29				
Vehicle details: Vehicle type (please circle) LV HGV MC PSV Make/Model Registration number Chassis/VIN number				Transmission system: Diagnostics (gearbox)							
Details of work activity: Adjust to suit vehicle types		<ul style="list-style-type: none"> • Dismantle a gearbox identify faults and rebuild gearbox as necessary. • Use diagnostic test equipment and provide test readings as supporting evidence for the diagnostics. • This assessment can be done on any type of transmission/gearbox to suit the college or training provider's resources. 									
Special tools/equipment used: DTI Feeler blades Electronic testing Torque wrench Other		Technical information: Torque settings as appropriate: Gear end float reading Lubricant capacity Grease/lubricant type			Examination and testing methods used (include readings as appropriate): Report on; Gear condition Selector forks Synchromesh Electronic/electrical devices Bearings						
Specific evidence of health and safety, good housekeeping and working with others:											
1	Work with others when taking readings	4	Sweep up	7	Wear and use correct PPE.						
2	Dispose of all waste correctly and safely	5	Clear up spillages								
3	Tools tidy, cleaned, checked and put away	6	Identify workshop policies								
Work found that requires further attention and any action taken:											
Assessor knowledge check – outline of question(s) used and response:											
Assessor feedback on evidence provided:											
I confirm that the work carried out on this evidence record meets City & Guilds requirements for validity, authenticity, currency and sufficiency. All the necessary scope , performance and knowledge for this task have been met.											
Assessor name:.....			Signature:		Date:/...../.....		Candidate signature:.....			Date:...../...../.....	

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6.14 PRN 11 Diagnose auxiliary electrical system faults (security locking)

Date work carried out/...../.....		Indicate unit(s) covered on this evidence record:			G1- V1	G2- V2	G3- V3	AE06 -V38											
Vehicle details: Vehicle type (please circle) LV HGV MC PSV Make/Model Registration number Chassis/VIN number				Diagnose Auxiliary Electrical System Faults: Security locking				 											
Details of work activity: Adjust to suit vehicle types		<ul style="list-style-type: none"> Diagnose faults in an electrical door lock actuator mechanism. Remove a door panel, check out actuator supply voltage and earth return, check and adjust actuator operation. (Motorcycle may use electrical alarm or another electrical device). 																	
Special tools/equipment used: Voltmeter Multimeter Electronic diagnostic if applicable..... Other		Technical information: Battery voltage Electronic key fob type			examination and testing methods used (include readings as appropriate): State fault found in the system and how it was rectified Battery voltage at actuator..... Electrical locking mechanism operates correctly														
Specific evidence of health and safety, good housekeeping and working with others:																			
1	Work with others when taking readings	4	Sweep up	7	Wear and use correct PPE.														
2	Dispose of all waste correctly and safely	5	Clear up spillages																
3	Tools tidy, cleaned, checked and put away	6	Identify workshop policies																
Work found that requires further attention and any action taken:																			
Assessor knowledge check – outline of question(s) used and response:																			
Assessor feedback on evidence provided:																			
I confirm that the work carried out on this evidence record meets City & Guilds requirements for validity, authenticity, currency and sufficiency. All the necessary scope , performance and knowledge for this task have been met.																			
Assessor name:.....				Signature:				Date:/...../.....				Candidate signature:.....				Date:...../...../.....			

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6.15 PRN 12 Diagnose auxiliary electrical system faults (headlamp and lighting circuit)

Date work carried out/...../.....		Indicate unit(s) covered on this evidence record:		G1-V1	G2-V2	G3-V3	AE06-V38				
Vehicle details Vehicle type (please circle) LV HGV MC PSV Make/Model Registration number Chassis/VIN number				Diagnose Auxiliary Electrical System Faults: Headlamp and lighting circuit							
Details of work activity: <i>Adjust to suit vehicle types</i>		<ul style="list-style-type: none"> • Diagnose faults in the headlamp lighting circuit. • Remove a lamp, and check condition of reflector. • Check supply voltage for both dip and main beam • Set alignment to meet vehicle inspectorate requirements. 									
Special tools/equipment used: Voltmeter..... Multimeter. Electronic diagnostic if applicable..... Other		Technical information: Battery voltage Lamp type Alignment data			Examination and testing methods used (include readings as appropriate): Alignment set correctly Supply voltage at main/dip Correct function of main/dip switch						
Specific evidence of health and safety, good housekeeping and working with others:											
1	Work with others when taking readings	4	Sweep up	7	Wear and use correct PPE.						
2	Dispose of all waste correctly and safely	5	Clear up spillages								
3	Tools tidy, cleaned, checked and put away	6	Identify workshop policies								
Work found that requires further attention and any action taken:											
Assessor knowledge check – outline of question(s) used and response:											
Assessor feedback on evidence provided:											
I confirm that the work carried out on this evidence record meets City & Guilds requirements for validity, authenticity, currency and sufficiency. All the necessary scope , performance and knowledge for this task have been met.											
Assessor name:.....			Signature:			Date:/...../.....			Candidate signature:.....		Date:...../...../.....

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6.16 PRN 13 Diagnose auxiliary electrical system faults (wiper and screen washer system)

Date work carried out/...../.....		Indicate unit(s) covered on this evidence record:		G1-V1	G2-V2	G3-V3	AE06-V38				
Vehicle details Vehicle type (please circle) LV HGV MC PSV Make/Model..... Registration number..... Chassis/VIN number.....				Diagnose Auxiliary Electrical System Faults: Wiper and screen washer system Note: For motorcycles use PRN 14							
Details of work activity: Adjust to suit vehicle types For motorcycles use PRN 14		<ul style="list-style-type: none"> • Diagnose faults in the windscreen wiper/washer system. • Remove a wiper motor, check condition of linkages and wiper blades. • Check supply voltage and earth return for all wiper motor speeds. • Fit wiper motor and linkages; set wiper blades to correct angles and top up washer bottle and adjust jets. 									
Special tools/equipment used: Voltmeter..... Multimeter. Electronic diagnostic if applicable..... Other		Technical information: Battery voltage Wiper blade length..... Alignment data			Examination and testing methods used (include readings as appropriate): State speed of wiper system checked..... Supply voltage at wiper motor Washer jets function.....						
Specific evidence of health and safety, good housekeeping and working with others:											
1	Work with others when taking readings	4	Sweep up	7	Wear and use correct PPE.						
2	Dispose of all waste correctly and safely	5	Clear up spillages								
3	Tools tidy, cleaned, checked and put away	6	Identify workshop policies								
Work found that requires further attention and any action taken:											
Assessor knowledge check – outline of question(s) used and response:											
Assessor feedback on evidence provided:											
I confirm that the work carried out on this evidence record meets City & Guilds requirements for validity, authenticity, currency and sufficiency. All the necessary scope , performance and knowledge for this task have been met.											
Assessor name:.....			Signature:			Date:/...../.....			Candidate signature:.....		
									Date:...../...../.....		

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6.17 PRN 14 Diagnose auxiliary electrical system faults (electrical brake switch)

Date work carried out/...../.....		Indicate unit(s) covered on this evidence record:		G1-V1	G2-V2	G3-V3	AE06MC-V39			
Vehicle details Vehicle type (please circle) LV HGV MC PSV Make/Model..... Registration number..... Chassis/VIN number.....				Diagnose Auxiliary Electrical System Faults: Electrical brake switch, either foot or hand operation Note: For use with motorcycles only						
Details of work activity: Adjust to suit vehicle types		<ul style="list-style-type: none"> Diagnose faults in the brake light operation; either hand or foot operation systems. Remove and check continuity of switch and supply voltage Adjust its operation to correct specification. 								
Special tools/equipment used: Voltmeter..... Multimeter. Electronic diagnostic if applicable..... Other		Technical information: Battery voltage Hand or foot system.....			Examination and testing methods used (include readings as appropriate): Type of adjustment method..... Supply voltage at switch.....					
Specific evidence of health and safety, good housekeeping and working with others:										
1	Work with others when taking readings	4	Sweep up	7	Wear and use correct PPE.					
2	Dispose of all waste correctly and safely	5	Clear up spillages							
3	Tools tidy, cleaned, checked and put away	6	Identify workshop policies							
Work found that requires further attention and any action taken:										
Assessor knowledge check – outline of question(s) used and response:										
Assessor feedback on evidence provided:										
I confirm that the work carried out on this evidence record meets City & Guilds requirements for validity, authenticity, currency and sufficiency. All the necessary scope , performance and knowledge for this task have been met.										
Assessor name:..... Signature: Date:/...../.....				Candidate signature:..... Date:...../...../.....						

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