

-SQA- SCOTTISH QUALIFICATIONS AUTHORITY

NATIONAL CERTIFICATE MODULE: UNIT SPECIFICATION

GENERAL INFORMATION

-Module Number-	2210034	-Session-1994-95
-Superclass-	ZJ	
-Title-	MOTOR VEHICLE INSPECTION: TACHOGRAPHS AND SPEED LIMITERS	

-DESCRIPTION-

GENERAL COMPETENCE FOR UNIT: Examining vehicle tachograph installations, analysing tachograph charts and implementing the legislation pertaining to the inspection and operation of tachographs. Understanding the operation of vehicle road speed limiters.

OUTCOMES

1. identify contraventions of the drivers' hours regulations;
2. examine tachograph equipment for legal compliance;
3. check the vehicle and tachograph calibration;
4. report the operation and accuracy of a tachograph system;
5. analyse tachograph charts to identify faults, errors, falsifications and offences;
6. demonstrate an understanding of vehicle road speed limiters.

CREDIT VALUE: 1 NC Credit

ACCESS STATEMENT: Candidates should have completed Module 2210024 Motor Vehicle Inspection: Light Vehicles.

For further information contact: Committee and Administration Unit, SQA, Hanover House, 24 Douglas Street, Glasgow G2 7NQ.

Additional copies of this unit may be purchased from SQA (Sales and Despatch section). At the time of publication, the cost is £1.50 (minimum order £5).

NATIONAL CERTIFICATE MODULE: UNIT SPECIFICATION**STATEMENT OF STANDARDS****UNIT NUMBER:** 2210034**UNIT TITLE:** MOTOR VEHICLE INSPECTION: TACHOGRAPHS AND SPEED LIMITERS

Acceptable performance in this unit will be the satisfactory achievement of the standards set out in this part of the specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

OUTCOME

1. IDENTIFY CONTRAVENTIONS OF THE DRIVERS' HOURS REGULATIONS

PERFORMANCE CRITERIA

- (a) Drivers' hours regulations are interpreted and applied in accordance with current legislation.
- (b) Drivers' hours offences are identified correctly.

RANGE STATEMENT

Drivers' hours legislation: statutory instruments; international regulations; national regulations; goods vehicles; passenger vehicles.

EVIDENCE REQUIREMENTS

Written and/or oral evidence that the candidate is able to identify contraventions of the drivers' hours regulations.

OUTCOME

2. EXAMINE TACHOGRAPH EQUIPMENT FOR LEGAL COMPLIANCE

PERFORMANCE CRITERIA

- (a) Examination of a given vehicle tachograph system is correct in terms of identifying conformity to manufacturer's specifications.
- (b) Examination of a given tachograph system is correct in terms of identifying conformity to EEC requirements.

RANGE STATEMENT

Specifications: manufacturers; EEC Type Approval.

Calibration Information: approved plaques; location; approved information; EEC requirements.

Mechanical tachograph system: tachograph; adaptor gearbox; drive cable; electric cable; 2-speed corrector unit.

Electronic tachograph system: tachograph; impulse sender unit; electronic cable.

Operational defects: seals missing; inaccurate calibration; inoperative tachograph drive; clock failure; defective recording components.

EVIDENCE REQUIREMENTS

Performance evidence of the candidate's ability to examine tachograph equipment. Written and/or oral evidence of the candidate's ability to identify defects.

OUTCOME**3. CHECK THE VEHICLE AND TACHOGRAPH CALIBRATION****PERFORMANCE CRITERIA**

- (a) Identification of the vehicle specification is correct in terms of calibration requirements.
- (b) Measurement of the effective tyre circumference ('L') is accurate.
- (c) Calibration check and recorded results (W) using linear test track method are accurate.
- (d) Calibration check and recorded results (W) using static method are accurate.

RANGE STATEMENT

Vehicle specification: vehicle type; make; Reg No; number of axles; 2-speed axle fitted; plated weight; nature of load; tyres details; tachograph details; sealing.

Effective tyre circumference; driven tyres; 5-wheel turns; tape measure; chalk; tread depth; tyre pressures.

Linear test track method: KWZ Kit; tape measure; chalk; turns counter; electronic pulse counter; 4 runs.

Static method: as linear track method.

'L': effective tyre circumference; measured in mm; driven tyres.

'W': no of turns/impulses from vehicle gearbox; linear and static method.

Clock accuracy: EEC tolerances; tachograph clock; DTp approved clock testing equipment.

EVIDENCE REQUIREMENTS

Performance evidence of the candidate's ability to check the vehicle and tachograph calibration. Written and/or oral evidence of the candidate's ability to record results.

OUTCOME

4. REPORT THE OPERATION AND ACCURACY OF A TACHOGRAPH SYSTEM

PERFORMANCE CRITERIA

- (a) Drive components are identified appropriate for the vehicle.
- (b) Operation of drive components is verified correctly.
- (c) Test chart produced is appropriate for forensic submission.
- (d) Clock accuracy is verified in accordance with regulation limits.
- (e) Forensic report form is completed accurately and clearly.
- (f) Measurement of electronic tachograph constant (K) is accurate.

RANGE STATEMENT

Mechanical tachograph systems: tachograph unit; adaptor gearbox; drive cable; electric cable; 2-speed corrector unit; calibration test equipment.

Electronic tachograph systems: tachograph unit; impulse sender unit; electronic cable; electric cable; calibration test equipment.

Clock accuracy: EEC tolerances; tachograph clock; DTp approved clock testing equipment.

Report form: forensic laboratory approved; national standard form.

EVIDENCE REQUIREMENTS

Performance evidence of the candidate's ability to check the operation of a tachograph system. Written and/or oral evidence of the candidate's ability to record results.

OUTCOME

5. ANALYSE TACHOGRAPH CHARTS TO IDENTIFY FAULTS, ERRORS, FALSIFICATIONS AND OFFENCES

PERFORMANCE CRITERIA

- (a) Information read from a given tachograph chart provides full data for an accurate analysis of the records.
- (b) Evaluation of given tachograph chart recordings identifies breaches of the drivers' hours regulations.
- (c) Analysis of given tachograph data identifies faults, errors and falsifications.

RANGE STATEMENT

Appropriate data: chart insertion time; start activity time; finish activity time; chart removal time; total driving time; cumulative driving; daily rest period; start odometer; finish odometer; odometer difference; chart distance; start location; finish location.

Chart reading methods: hand held analyser disc.

Infringements: chart centre-field information; equipment malfunction; illegal interference; driver errors; falsifications.

Breaches of drivers' hours regulations: insufficient daily rest; insufficient break; daily driving period exceeded.

EVIDENCE REQUIREMENTS

Written and/or oral evidence of the candidate's ability to identify and record faults, errors, falsifications and offences.

OUTCOME

- 6. DEMONSTRATE AN UNDERSTANDING OF VEHICLE ROAD SPEED LIMITERS

PERFORMANCE CRITERIA

- (a) Description of road speed limiter requirements is correct in terms of legislation.
- (b) Description of road speed limiter operation is correct in terms of EEC and BSI approval.

RANGE STATEMENT

Legislation: statutory instruments; national regulations; EEC regulations; BSI approval; good vehicles; passenger vehicles.

Operation: operation of the speed limiter relative to vehicle road speed.

EVIDENCE REQUIREMENTS

Written and/or oral evidence of the candidate's ability to describe road speed limiter operation and requirements.

ASSESSMENT

In order to achieve this unit, candidates are required to present sufficient evidence that they have met all the performance criteria for each outcome within the range specified. Details of these requirements are given for each outcome. The assessment instruments used should follow the general guidance offered by the SQA assessment model and an integrative approach to assessment is encouraged. (See references at the end of support notes).

Accurate records should be made of the assessment instruments used showing how evidence is generated for each outcome and giving marking schemes and/or checklists, etc. Records of candidates' achievements should be kept. These records will be available for external verification.

SPECIAL NEEDS

In certain cases, modified outcomes and range statements can be proposed for certification. See references at end of support notes.

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NATIONAL CERTIFICATE MODULE: UNIT SPECIFICATION**SUPPORT NOTES**

UNIT NUMBER: 2210034

UNIT TITLE: MOTOR VEHICLE INSPECTION: TACHOGRAPHS AND SPEED LIMITERS

SUPPORT NOTES: This part of the unit specification is offered as guidance. None of the sections of the support notes is mandatory.

NOTIONAL DESIGN LENGTH: SQA allocates a notional design length to a unit on the basis of time estimated for achievement of the stated standards by a candidate whose starting point is as described in the access statement. The notional design length for this unit is 40 hours. The use of notional design length for programme design and timetabling is advisory only.

PURPOSE This module forms part of a series intended for those responsible for inspecting road vehicles for compliance with the law. In addition to inspection techniques, the recording and preparation of evidence to support convictions is an important part of the module.

SQA publishes summaries of NC units for easy reference, publicity purposes, centre handbooks, etc. The summary statement for this unit is as follows:

On completion of the module, the candidate will have a recognised qualification to inspect tachograph installations, check the accuracy of tachograph records, analyse tachograph charts and understand vehicle road speed limiters. He or she will also be able to prepare records of inspections in a suitable form to provide supporting evidence for convictions for infringements of the law pertaining to tachographs and tachograph records.

CONTENT/CONTEXT Corresponding to Outcomes 1-6:

1. Classroom instruction on the content and interpretation of drivers' hours regulations to identify infringements of the regulations for all types of operations.
2. Practical visual inspection of a tachograph installation to identify compliance with legislative requirements.
3. Practical checking of the accuracy of calibration of all components of a tachograph system.
4. Preparation of a formal report and test chart suitable as forensic evidence.

5. Practical reading of tachograph chart data and information by visual inspection using hand-held chart reading equipment.
6. Classroom explanation of the purpose and operation of vehicle road speed limiters.

Teaching may be assisted by the use of photographs and/or videos of tachograph systems, road speed limiters, records and components exemplifying the types of faults, errors, falsifications and offences likely to be encountered.

APPROACHES TO GENERATING EVIDENCE Most of this module will be carried out by an integration of classroom and practical work with access to specialist equipment as required. Evidence of practical work completed by the candidate should be the basis for assessment.

Copies of all relevant regulations and other material relating to tachographs and calibration should be available for reference by candidates as required.

The necessary workshop equipment must be provided in a safe condition and ready for use by the candidates.

ASSESSMENT PROCEDURES Centres may use the instruments of assessment which are considered to be most appropriate.

Assessment should avoid the need to quote from memory a series of regulatory figures for drivers' hours and similar information.

Examples of practical situations should be used to provide a high degree of realism in the assessments. Materials used for assessment should cover the range of circumstances commonly encountered in the work situation.

Wherever possible, the assessment of the outcomes should be integrated within the three main areas of competence:-

understanding and applying the appropriate regulations;
examining and reporting on vehicles and tachograph systems;
interpreting information contained on tachograph records.

Outcome 1. Candidates will be presented with a written or oral test to assess their knowledge and interpretation of the drivers' hours regulations.

Satisfactory achievement of the outcome will be based on the candidate achieving a result which indicates that all performance criteria have been met.

Outcome 2. Candidates will be presented with a practical exercise to test the application of knowledge and skills required to examine recording equipment systems for legal compliance.

The exercise will consist of the visual examination of a tachograph unit and a tachograph drive system.

Satisfactory achievement of the outcome will be based on all PCs being met.

This will be demonstrated by the candidate presenting a completed calibration form which correctly identifies the results of all the inspections carried out.

Outcome 3. Candidates will be presented with a practical exercise to test the application of knowledge and skills required to check and report on tachograph recording systems and their operation.

Candidates will be required to carry out a visual and operational inspection of the recording systems identified in the range.

Satisfactory achievement of the outcome will be based on all PCs being met.

This will be demonstrated by the candidate presenting a correctly completed tachograph calibration form.

Outcome 4. Candidates will be presented with a practical exercise to test the application of knowledge and skills required to complete a formal report on a tachograph system.

The exercise will require the physical measurements and calculations necessary for a tachograph calibration check.

Satisfactory achievement of the outcome will be based on all PCs being met.

This will be demonstrated by the candidate presenting a correctly completed tachograph calibration check form and test chart.

Outcome 5. Candidates will be presented with a practical exercise to test the application of knowledge and skills required to identify driving hours faults, errors, falsifications and offences.

The exercise will consist of reading and analysing 6 tachograph charts consisting of at least:

3 containing examples of infringements;
3 containing examples of breaches of the drivers' hours regulations.

Satisfactory achievement of this outcome will be based on all PCs being met for all the charts.

This will be demonstrated by the candidate presenting a correct completed data matrix for all the charts.

Outcome 6. The candidate will be required to successfully complete an assessment consisting of 5 short answer questions as follows:

3 questions on the legislation pertaining to road speed limiters;
2 questions on the operation of road speed limiters.

Satisfactory achievement of the outcome will be based on all PCs being met.

This will be demonstrated by the candidate presenting satisfactory answers to all the questions.

PROGRESSION This module is part of a series of modules including vehicle inspection and the powers of prohibition of using a vehicle on a road.

RECOGNITION Many SQA NC units are recognised for entry/recruitment purposes. For up-to-date information see the SQA guide 'Recognised and Recommended Groupings'.

REFERENCES

1. Guide to unit writing.
2. For a fuller discussion on assessment issues, please refer to SQA's Guide to Assessment.
3. Procedures for special needs statements are set out in SQA's guide 'Students with Special Needs'.
4. Information for centres on SQA's operating procedures is contained in SQA's Guide to Procedures.
5. For details of other SQA publications, please consult SQA's publications list.

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