



Australian Government

**Assessment Requirements for
MSMTMINS501 Inspect a range of
complex measuring instruments**

Release: 2

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Modification History

Release 2. Adjustments to the Application, Performance Criteria, Range of Conditions, Adjustments to Performance Evidence, Assessment Conditions and minor corrections. Equivalent.

Release 1. Supersedes and is equivalent to MSATMINS501A Inspect a range of complex measuring instruments

Performance Evidence

Evidence of competence in this unit must satisfy all of the requirements of the elements and performance criteria, and include demonstration of:

- completing initial verification testing of one or more of the following complex weighing instruments:
 - non-automatic weighing machines >3 tonne
 - automatic rail weighbridges
 - continuous totalising automatic weighing instruments (belt weighers)
 - discontinuous totalising hopper weighing instruments
- completing initial verification testing of one or more of the following complex fuel instruments:
 - LPG dispensers
 - bulk flowmetering systems for liquid hydrocarbons other than LPG
 - bulk LPG flowmetering systems
 - bulk flowmetering systems for liquid products other than liquid hydrocarbons
 - dispensers and flowmetering systems for gaseous products (excluding utility meters)
 - any other complex measuring instrument prescribed by the NMI
- accessing and correctly interpreting documentation required for inspections, evaluation of instruments and verifier audits
- ensuring test equipment and reference standards are fit for purpose in accordance with applicable legislation and organisational procedures
- planning, scheduling, preparing for and safely conducting inspections to optimise use of resources, maximise outcomes and minimise disruption to the public and trader
- checking compliance and evaluating the performance of complex measuring instruments using appropriate Certificates of Approval, NMI policy and National Instrument Test Procedures, and adjusting for any impact of the operating environment
- using specified calculations, graphical and statistical analysis to determine a performance result for a complex measuring instrument
- reliably determining if complex measuring instruments are suitable for trade use in accordance with legislative requirements

- conducting at least one (1) verifier performance audit, to assess the performance of verifiers who test and mark measuring instruments for trade use
- assessing verifier performance against expected outcomes and analysing any variances to identify isolated or systemic problems
- identifying potential non-compliance of trading practices (applicable to instruments) with national measurement legislation and initiating an efficient inspection strategy that has a limited impact on others
- recognising and acting on non-compliance of complex measuring instrument or verifier performance and/or trading practices with national measurement legislation and initiating appropriate enforcement action
- demonstrating professionalism and respecting the rights of the trader at all times
- using advanced communication and negotiation skills to:
 - explain the purpose of inspection
 - arrange site clearances, gain cooperation of site controllers and schedule complex tests
 - access trader's equipment and equipment, materials and support personnel to complete the inspection, when necessary
 - inform traders of non-compliances and consequences of failing to rectify them
 - explain inspection procedures and outcomes to traders, verifiers and managers
 - organise large equipment to be dispatched ahead of inspection visit, when necessary
- performing specified calculations involving:
 - fractions, decimals, ratios, proportions and percentages
 - scientific notation, correct units and the correct number of significant figures, calculation of uncertainties
 - evaluation of formulae containing powers, exponents and logarithms functions
 - preparation and interpretation of linear graphs
- maintaining the security and confidentiality of data in accordance with organisational and regulatory requirements
- reporting results in the required formats and expected timeframe
- working safely.

Knowledge Evidence

Must provide evidence that demonstrates knowledge of:

- general science principles and concepts, including:
 - physical states (solid, liquid and gas), weight, mass, gravity and density
 - pressure, pressure differential, backpressure and head pressure, fluid flow and viscosity
 - temperature effects and coefficients of expansion, flashpoint, boiling point and ice point
- metrological terms and terminology of specific instruments, such as maximum permissible errors, maximum permissible difference and maximum permissible variation, traceability, repeatability, uncertainty, error of measurement and error of indication, meter creep, hose dilation, temperature correction, linearization and gas elimination

- details of the design and applications for one (1) complex measuring instrument in each class, the major instrument components and their function
- national measurement legislation applicable to complex measuring instruments
- safe work method statements (SWMS) for a range of trading environments, such as laboratories, retail, commercial, office, manufacturing, industrial, mining, construction, medical, chemical and petroleum
- NMI policy requirements, including test procedure variations between a verification, in-service or audit inspection, bulletins, instructions and determinations
- National Instrument Test Procedures and operating procedures for equipment and reference standards used in job role, including:
 - test conditions and possible environmental impacts on performance of the instrument
 - key preparation/measurement steps in test method
 - calculation steps to give results in appropriate units and precision
 - maximum permissible errors for instruments being inspected
 - safety principles and procedures relevant to instruments
 - organisational policy and procedures for inspecting complex measuring instruments including completing inspection documentation
 - organisational safety procedures and requirements of applicable Commonwealth, state and territory WHS/OHS legislation
- basic first aid and site safety induction, if required.

Assessment Conditions

- Judgement of competence must be based on holistic assessment of the evidence. Assessment methods must confirm consistency of performance over time, rather than a single assessment event.
- This unit of competency should be assessed in the workplace, or a simulated workplace environment. A simulated workplace environment must reflect realistic operational workplace conditions that cover all aspects of workplace performance, including the environment, task skills, task management skills, contingency management skills and job role environment skills.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Knowledge evidence may be collected concurrently with performance evidence or through an independent process, such as workbooks, written assessments or interviews (provided a record is kept in each case).
- This unit of competency may be assessed with:
 - *MSMTMREF301 Use and maintain reference standards*
- Holistic assessment methods include:
 - review of test results, inspection reports and verifier performance reports prepared by the candidate

- feedback from supervisors and peers regarding the candidate's ability to conduct inspections, evaluate the performance of complex measuring instruments and audit verifier's performance in accordance with legislative and organisational procedures
- questions to assess understanding of relevant procedures, licensing requirements, trader obligations and remedial actions
- review of candidate's responses to inspection scenarios, such as: potential/actual non-compliances and appropriate actions, common issues and problems
- observation of the candidate conducting an inspection.
- Access is required to instruments, equipment, materials, workplace documentation, procedures, and specifications associated with this unit including, but not limited to:
 - latest versions of appropriate documentation, such as Certificates of Verification and Approval, NMI policy, National Instrument Test Procedures for verifying complex measuring instruments and relevant legislation
 - equipment manuals, safety data sheets (SDS), safety procedures and safety equipment
 - records, such as test reports; audit reports; instrument history and test results; and correction tables for volume, density and pressure for a range of liquids
 - complex measuring instruments, test equipment and reference standards
 - computer and relevant software and/or organisation information management system.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.
- The assessor must demonstrate both technical competency and currency.
- Technical competence can be demonstrated through:
 - relevant VET or other qualification/Statement of Attainment AND/OR
 - relevant workplace experience in trade measurement at least to the level being assessed and broad industry knowledge (such as a relevant industry qualification).
- Currency can be demonstrated through:
 - performing the competency being assessed as part of current employment in trade measurement OR
 - having consulted with trade measurement inspectors and/or verifiers performing the competency being assessed within the last twelve months.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=d1287d36-dff4-4e9f-ad2c-9d6270054027>