

1. Module details**Module name****Television Servicing Practices****Module duration**

It is expected that students with the appropriate entry knowledge and skills will successfully complete this module in 36 - 40 hours.

Module code

NUE902

Discipline code

0703230

2. Module purpose

This module will provide students with practical diagnostic and servicing skills enabling them to repair televisions to component level.

3. Prerequisites

NUE101 Introduction to Television.
NUE102 Chrominance and Luminance.
NUE103 Scanning and Deflection.
NUE104 Power Supplies – TV and VCR.
NUE105 Display Devices.
NUE107 Television RF Stages.
NUE901 TV Micro Controllers.
NUE801 TV Antenna Systems.

4. Relationship to competency standards

This module provides some of the knowledge and skills underpinning competence in the following standards: Metals and Engineering Industry National Competency Standards, Units 18.45A, 18.56A, 18.65A. National Electrotechnology Industry Standards, Units NES205, NES302, NES303, NES305, NES306, NES402, NES403, NES406, NES407.

5. Content**Components and circuits**

Components and device functions

Circuit functions

Interpretation of schematics

Fault finding

Techniques and strategies

Analysis of symptoms

Locations of faults to component level

Repair

Test equipment

TV test signal generators

Waveform and voltage measurement

Specialised TV test equipment

Safety procedures

6. Assessment strategy**Assessment methods**

Assessment should be progressive reflecting an holistic approach to ensure the module purpose is met. To assist in ensuring validity, reliability and fairness assessment instruments should include practical exercises, assignments and written tests consisting of a number of item types, such as multiple choice, short answer and problem solving.

Conditions of assessment

Normally learning and assessment will take place in a classroom / laboratory environment.

7. Learning outcome details**Learning outcome 1****Describe television fault finding procedures.****Assessment criteria**

- 1.1 Describe diagnostic procedures which may be employed to isolate a fault to a functional block in a typical TV receiver.
- 1.2 Given a symptom, state the probable faulty functional block or blocks.
- 1.3 Given a faulty block and details of its malfunction, state the probable symptoms.

Learning outcome 2**Locate components on a schematic diagram of a typical TV receiver and describe their circuit functions.****Assessment criteria**

- 2.1 Given the name or function of a component, locate the item on the schematic diagram of a typical TV receiver.
- 2.2 Shown a component in a television receiver, locate the item on the schematic diagram and explain its function or operation.
- 2.3 Given a faulty component and details of its malfunction state the probable symptoms manifested in the functioning of a television receiver.

Learning outcome 3**Perform repairs on a typical TV receiver.****Assessment criteria**

- 3.1 Given a defective TV receiver, diagnose and locate the faulty device and effect a repair.
- 3.2 Given relevant test equipment, take waveform and voltage measurements.
- 3.3 Perform adjustments and alignments to ensure the optimum performance of a TV receiver.

Learning outcome 4

3.4 Perform the appropriate procedures to ascertain whether a TV receiver is functioning according to the manufacturer's specification.

Demonstrate the use of test equipment utilised in the repair of televisions.

Assessment criteria

4.1 Demonstrate the use of specialised test equipment such as tube testers, in-circuit component testers, shorted turns testers, EHT probes etc.

4.2 Explain the operational principles of specialised television test equipment.

4.3 Describe the purpose of various test patterns produced by a typical TV pattern generator.

4.4 Explain the need for, and the operational functions or principles of, test signal generators used when working with televisions.

4.5 Demonstrate the use of test signal generators for diagnosing faults in, or adjustment of, TV receivers.

Learning outcome 5

Substitute faulty components.

Assessment criteria

5.1 Select suitable replacement components.

5.2 Use data books to determine the suitability of replacement components.

5.3 State factors which should be considered when selecting replacement components in TV receivers.

Learning outcome 6

Demonstrate safe working practices when repairing TV receivers.

Assessment criteria

6.1 Describe the potential electrical hazards encountered when working on television receivers.

6.2 Describe the physical hazards encountered when working on televisions receivers.

6.3 Establish the correct electrical isolation of a TV receiver set up for servicing.

6.4 Describe the procedures necessary for safe working on TV receivers.

6.5 Test the safety equipment used when working with television receivers.

8. Delivery of the module

Delivery strategy

Delivery strategies must be suitable for learning both theoretical and practical aspects described in the module purpose. It is considered that the most effective way to achieve this is by the integration of theory and practice where students learn by experimentation and through research and laboratory reports. It is recommended that learning and assessment be facilitated in a holistic manner which may require a learning outcome sequence other than that indicated in the module.

Resource requirements

Resources should be sufficient for students to carry out experiments on an individual basis. This will require a range of typical TV receivers and test equipment.

Useful references include:

Ibrahim KF 1994, *Television Receivers*
Longman Essex, England
ISBN 0-582-086175

Liff A et al 1993, *Colour and Black and White Television*
Prentice Hall, Englewood Cliffs
ISBN 0-13-150012-0

Zarach et al 1985, *Television: Principles and Practice*
MacMillan, Hampshire

Trundle E 1996, *Newnes Guide to TV and Video Technology*
Butterworth-Weinermann Oxford
ISBN 07506 23748

Botto D 1992, *A Basic Guide to Colour TV and VCRs*
Electronics Australia, Federal Publishing, Alexandria

Occupational health and safety requirements

A safe and healthy environment will be provided for students and teachers as well as safe procedures with regard to learning / teaching activities.