



## **National Unit specification: general information**

**Unit title:** Servicing and Modifying Electric and Electro-Acoustic Stringed Instruments (SCQF level 6)

**Unit code:** H1Y0 12

**Superclass:** LJ

**Publication date:** September 2012

**Source:** Scottish Qualifications Authority

**Version:** 02

### **Summary**

This Unit enables candidates to gain knowledge and understanding relating to the installation, modification and repair of pickup systems in electric and electro acoustic stringed instruments. Candidates will gain an overview of the pickup systems available, methods of installation and points for consideration when determining the choice of system. They will become familiar with the faults commonly found in pickup systems and the methods for detecting and repairing these.

This is an optional Unit within the National Certificate in Stringed Musical Instrument Making and Repair at SCQF level 6, but can also be taken as a freestanding Unit.

This Unit is suitable for candidates who are making and/or repairing instruments.

### **Outcomes**

- 1 Identify and describe electric and electro acoustic pick up systems.
- 2 Describe and detect defects in electric and electro acoustic pick up systems.
- 3 Repair or replace defective components on electric and electro acoustic pickup systems.
- 4 Modify or install an instrument pickup system.

### **Recommended entry**

Entry is at the discretion of the centre.

## General information (cont)

**Unit title:** Servicing and Modifying Electric and Electro-Acoustic Stringed Instruments (SCQF level 6)

### Credit points and level

1 National Unit credit at SCQF level 6: (6 SCQF credit points at SCQF level 6\*)

*\*SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

### Core Skills

Achievement of this Unit gives automatic certification of the following Core Skills component:

Complete Core Skill            None

Core Skill component        Critical Thinking at SCQF level 5

There are also opportunities to develop aspects of Core Skills which are highlighted in the Support Notes of this Unit specification.

## **National Unit specification: statement of standards**

**Unit title:** Servicing and Modifying Electric and Electro-Acoustic Stringed Instruments (SCQF level 6)

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

### **Outcome 1**

Identify and describe electric and electro acoustic pickup systems.

#### **Performance Criteria**

- (a) Electric and electro acoustic instrument pickup systems are accurately described.
- (b) Manufacturers of pickup systems are correctly identified.
- (c) Suppliers of pickup systems are correctly stated.

### **Outcome 2**

Describe and detect defects in electric and electro acoustic pickup systems.

#### **Performance Criteria**

- (a) Common defects in electric and electro acoustic instruments are described.
- (b) Wiring diagrams are correctly interpreted.
- (c) A faulty electric and/or electro acoustic instrument system is correctly and safely tested.
- (d) Defects are successfully located and defective components are correctly named.
- (e) Reasons for the defects are correctly stated.
- (f) Safe working practices are observed/followed.

### **Outcome 3**

Repair or replace defective components on electric and electro acoustic pickup systems.

#### **Performance Criteria**

- (a) The defective component is replacement or repaired.
- (b) The ability to correctly solder joints is demonstrated correctly and safely.
- (c) The replaced or repaired component is safely tested and adjusted for optimum performance.

### **Outcome 4**

Modify or install an instrument pickup system.

#### **Performance Criteria**

- (a) The characteristics of a pickup system are correctly described.
- (b) The pickup system is modified or installed correctly and safely.
- (c) The new system is tested and adjusted safely and correctly for optimum performance.

## **National Unit specification: statement of standards (cont)**

**Unit title:** Servicing and Modifying Electric and Electro-Acoustic Stringed Instruments (SCQF level 6)

### **Evidence Requirements for this Unit**

Evidence is required to demonstrate that candidates have achieved all Outcomes and Performance Criteria.

#### **Outcome 1**

Written and/or oral evidence gathered under closed-book conditions is required which demonstrates that candidates can:

- ◆ Identify and describe two types of magnetic pickup
- ◆ Identify and describe two types of piezoelectric pickup
- ◆ Specify four popular manufacturers of magnetic pickups
- ◆ Specify four popular manufacturers of piezoelectric pickups
- ◆ Specify four suppliers (as opposed to manufacturers) of pickup systems

#### **Outcome 2**

Written/or oral evidence is required that describes four common defects found in electric and electro acoustic instrument systems.

Performance evidence is required which demonstrates that candidates can:

- ◆ Interpret one wiring diagram correctly
- ◆ Test a faulty electric and/or electro acoustic pickup system
- ◆ Locate a defect in an electric and/or electro acoustic pickup system
- ◆ Name and state one reason for the defect
- ◆ Observe safe working practices

#### **Outcome 3**

Performance evidence is required which demonstrates that candidates can:

- ◆ Replace or repair a minimum of one defective component
- ◆ Adjust the replaced or repaired component and test it for optimum performance
- ◆ Observe safe working practices throughout

#### **Outcome 4**

Performance and written and/or oral evidence is required to describe the characteristics of the pickup system being modified or installed.

Performance evidence is required which demonstrates that candidates can:

- ◆ Modify or install a minimum of one pickup system
- ◆ Test a modified or installed pickup system for optimum performance
- ◆ Observe safe working practices throughout

## National Unit specification: support notes

**Unit title:** Servicing and Modifying Electric and Electro-Acoustic Stringed Instruments (SCQF level 6)

This part of the Unit specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

### Guidance on the content and context for this Unit

Candidates completing this Unit will be working towards aspects of the following National Occupational Standards (NOS) from Creative and Cultural Skills:

- ◆ Craft: CR13 Select and use techniques, materials, tools and equipment for craft
- ◆ Craft: CR14 Prepare and maintain materials, tools and equipment for craft
- ◆ Craft: CR15 Use safe working practices and spaces for craft
- ◆ Craft: CR17 Document and record craft work and work practice
- ◆ Craft: CR51 Maintain and repair craft work
- ◆ Craft: CR56 Make sure your own actions reduce risks to health and safety

This is an optional Unit within the National Certificate in Stringed Musical Instrument Making and Repair at SCQF level 6, but can also be taken as a freestanding Unit.

To enable candidates to detect and repair faults and install and modify pickup systems in electric and electro acoustic instruments, candidates require information regarding the types of pickup systems available and commonly occurring faults. It would also be useful to discuss the advantages and disadvantages of one pickup system over another.

Systems and system elements to identify might include:

- ◆ Magnetic pickups
- ◆ Single coil and double coil
- ◆ 2 and 3 pickup systems
- ◆ Hum-buckers
- ◆ Soundhole mounted pickups
- ◆ Active and passive systems
- ◆ Piezoelectric pickups
- ◆ Under saddle pickup systems
- ◆ Contact pickup systems
- ◆ Bowed instrument bridge systems
- ◆ Pre amps onboard/off board
- ◆ Transducers
- ◆ Jack socket
- ◆ Tone controls
- ◆ Volume controls
- ◆ Pickup switch controls
- ◆ Wiring diagrams

## National Unit specification: support notes (cont)

### **Unit title:** Servicing and Modifying Electric and Electro-Acoustic Stringed Instruments (SCQF level 6)

The sources of manufacturer and supplier should also be considered. A range of actual components should be available and there should be instruments on which to test faulty components and to install or modify pickup systems. Some of these events could be simulated.

Faults to identify might include:

- ◆ Wiring
- ◆ Short circuit
- ◆ Poor electrical connection
- ◆ Broken or faulty component
- ◆ Soldering/dry joint

Candidates should also test pickup systems using a multimeter and gain information regarding the removal and installation of pickup system components.

Installations may require routing, for example, to add an extra pickup or to deepen an existing saddle slot. Therefore, candidates would benefit from tutor demonstrations followed by individual performance using a router to add or modify an instrument cavity.

### **Guidance on learning and teaching approaches for this Unit**

Candidates will require tutor-led input to outline common pickup systems, manufacturers and suppliers. This should be supplemented by individual candidate research to identify additional manufacturers and suppliers.

Tutor-led input should describe common defects in electric and electro acoustic instruments, followed by candidates working individually, in pairs or in larger groups to test for faults and to repair or replace faulty components. Group work may also be used when installing or modifying systems.

### **Guidance on approaches to assessment for this Unit**

The following are suggested approaches to assessment:

Outcome 1 PC (a)

Short answer written and/or oral test.

Outcome 1 PC (b) and (c)

Candidate research written and/or oral short assignment.

Outcome 2 PC (a)

Short answer written and/or oral test

Outcome 2 PC (b), (c), (d), (e) and (f)

Evidence of practical work may be recorded on an observation checklist.

Outcome 3

Evidence of practical work may be recorded on an observation checklist.

## National Unit specification: support notes (cont)

**Unit title:** Servicing and Modifying Electric and Electro-Acoustic Stringed Instruments (SCQF level 6)

Outcome 4 PC (a)

Candidate research written and/or oral short assignment.

Outcome 4 PC (b), (c), and (d)

Evidence of practical work may be recorded on an observation checklist.

### Opportunities for the use of e-assessment

E-assessment may be appropriate for some assessments in this Unit. By e-assessment we mean assessment which is supported by Information and Communication Technology (ICT), such as e-testing or the use of e-portfolios or social software. Centres which wish to use e-assessment must ensure that the national standard is applied to all candidate evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. Further advice is available in *SQA Guidelines on Online Assessment for Further Education (AA1641, March 2003)*, *SQA Guidelines on e-assessment for Schools (BD2625, June 2005)*.

### Opportunities for developing Core Skills

In this Unit candidates will identify pickup systems and carry out research. They will detect faults and repair, replace and install pickup systems, after which they will test and adjust them. Wiring diagrams will also be interpreted.

Candidates will:

- ◆ describe pickup systems and defects
- ◆ use ITC to research manufacturers and suppliers
- ◆ work in small groups to identify and repair defects
- ◆ read instruction material relating to repairing techniques
- ◆ read wiring diagrams
- ◆ repair defects
- ◆ measure and lay out and install pickup systems
- ◆ observe correct health and safety measures

This means that as candidates are doing this Unit they will be developing aspects of the Core Skills of *Communication, Numeracy, Problem Solving, Working with Others and Information Communication Technology (ICT)*.

This Unit has the Critical Thinking component of Problem Solving embedded in it. This means that when candidates achieve the Unit, their Core Skills profile will also be updated to show they have achieved Critical Thinking at SCQF level 5.

## **National Unit specification: support notes (cont)**

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### **Disabled candidates and/or those with additional support needs**

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website [www.sqa.org.uk/assessmentarrangements](http://www.sqa.org.uk/assessmentarrangements)



## History of changes to Unit

Version	Description of change	Date
02	Clarification of Outcome 2 Performance Criteria (f) on page 3.	28/09/2012

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