



Higher National Unit Specification

General information

Unit title: Sound Production: Sound for Live Events (SCQF level 7)

Unit code: J01C 34

Superclass: XL

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Unit purpose

The purpose of this unit is to develop knowledge and skills in the use of sound reinforcement equipment at live events. The unit is designed to enable learners to apply the correct techniques necessary for reinforcing a variety of sound sources. Learners will be required to specify, plan and provide sound reinforcement suitable for live events, eg music, vocal, audio-visual events, etc.

This unit may be undertaken as a stand-alone unit, however it is most suitable for learners undertaking other sound production units who wish to develop their skills in sound for live events. Learners will also develop skills such as communication, planning, organising and working with others.

Outcomes

On successful completion of the unit the learner will be able to:

- 1 Prepare for a live sound event.
- 2 Assemble, test and sound-check a sound reinforcement system.
- 3 Operate a sound reinforcement system for a live sound event.

Credit points and level

2 Higher National Unit credits at SCQF level 7: (16 SCQF credit points at SCQF level 7)

Higher National Unit Specification: General information (cont)

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Recommended entry to the unit

Access to this unit is at the discretion of the centre. However, it is recommended that learners have prior knowledge and skills and/or experience of the equipment used in sound reinforcement. This could be evidenced through the National Progression Award Sound Production: Live (SCQF level 6) group award; NQ Units such as *Understanding the Signal Path* (SCQF level 6) or *Sound: Reinforcement* (SCQF level 6). The following HN Unit also provides knowledge and skills development relevant to this unit: *Sound Production: Audio Skills* (SCQF level 7)

Core Skills

Achievement of this unit gives automatic certification of the following:

Complete Core Skill	<i>Working with Others</i> at SCQF level 5
Core Skill component	Planning and Organising at SCQF level 5 Critical Thinking at SCQF level 5 Providing/Creating Information 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.

Context for delivery

This is a mandatory unit in the framework for HNC/HND Sound Production. It is recommended that it should be taught and assessed within the subject area of the group award to which it contributes.

The Assessment Support Pack (ASP) for this unit provides assessment and marking guidelines that exemplify the national standard for achievement. It is a valid, reliable and practicable assessment. Centres wishing to develop their own assessments should refer to the ASP to ensure a comparable standard. A list of existing ASPs is available to download from SQA's website (<http://www.sqa.org.uk/sqa/46233.2769.html>).

Equality and inclusion

This unit specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence.

Further advice can be found on our website www.sqa.org.uk/assessmentarrangements.

Higher National unit specification: Statement of standards

Unit title: Sound Production: Sound for Live Events (SCQF level 7)

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

Prepare for a live sound event.

Knowledge and/or skills

- ◆ Choice and use of the system components with regard to the performer and venue requirements
- ◆ Effective communication with key personnel associated with the event
- ◆ Production of documentation for setting up and testing the system
- ◆ Health and safety for live events
- ◆ Risk assessment

Outcome 2

Assemble, test and sound-check a sound reinforcement system.

Knowledge and/or skills

- ◆ Safe, efficient and correct set up and use of equipment
- ◆ Gain structure
- ◆ Appropriate communication with others associated with the event
- ◆ Feedback control
- ◆ Equalisation, dynamic processing and time domain processing
- ◆ Fault-finding and remedial action
- ◆ Appropriate handling of cables

Outcome 3

Operate a sound reinforcement system for a live sound event.

Knowledge and/or skills

- ◆ Safe working practices
- ◆ Effective operation of a sound reinforcement system
- ◆ Responding appropriately to the needs of performers
- ◆ Corrective sound reinforcement techniques
- ◆ Creative sound reinforcement techniques
- ◆ Balance and blend
- ◆ Post-event systems check
- ◆ De-rigging procedures

Higher National Unit Specification: Statement of standards (cont)

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Evidence requirements for this unit

Outcome 1 should be assessed as an open-book assessment based on a brief provided for a specified live event.

Outcomes 2 and 3 should be assessed holistically in a real life or simulated live event environment. Learners should generate performance evidence to demonstrate all of the evidence requirements. An observation checklist covering all evidence requirements should be completed by the assessor for each learner.

Learners will need to provide evidence to demonstrate their knowledge and/or skills across all outcomes by showing that they can:

Outcome 1:

Learners should generate product evidence in the form of an operational guide to demonstrate all of the following requirements:

- ◆ correctly specify a sound reinforcement system.
- ◆ collate the following documentation:
 - Stage plan
 - Venue plan showing loudspeaker placement, FOH position, multicore layout, mains power for FOH
 - Wiring schematic/connection diagram
 - Channel list
 - Venue/client contact information
 - Risk assessment

Outcome 2:

Learners should demonstrate the following through performance evidence. Assessors should complete and retain a performance checklist showing the learner can:

- ◆ demonstrate the safe, efficient and correct set up and use of equipment.
- ◆ demonstrate the appropriate setting of gain structure for a variety of sound sources.
- ◆ demonstrate effective communication with performers and other relevant parties.
- ◆ demonstrate effective use of system parameters to control feedback.
- ◆ demonstrate appropriate equalisation, dynamic and time domain processing for a variety of sources.
- ◆ demonstrate effective fault-finding and effective remediation of faults.
- ◆ demonstrate appropriate handling of cables.

Higher National Unit Specification: Statement of standards (cont)

Unit title: Sound Production: Sound for Live Events (SCQF level 7)

Outcome 3:

Learners should demonstrate the following through performance evidence. Assessors should complete and retain a performance checklist showing the learner can:

- ◆ demonstrate safe working practice at all times.
- ◆ demonstrate the operation of the following parameters of a sound reinforcement system appropriate to the sound source:
 - Gain
 - Equalisation
 - Routing (eg insert send/returns)
 - Dynamic processing
 - Auxiliary Sends>Returns
 - Time domain processing
- ◆ apply appropriate system parameter adjustments in line with requests from performers.
- ◆ demonstrate the use of corrective sound reinforcement techniques appropriate to the sound source.
- ◆ demonstrate the use of creative sound reinforcement techniques appropriate to the sound source.
- ◆ establish an appropriate balance and blend of sound sources.
- ◆ demonstrate the application of appropriate post-event system checks.
- ◆ demonstrate the safe and effective de-rigging of the system.



Higher National Unit Support Notes

Unit title: Sound Production: Sound for Live Events (SCQF level 7)

Unit support notes are offered as guidance and are not mandatory.

While the exact time allocated to this unit is at the discretion of the centre, the notional design length is 80 hours.

Guidance on the content and context for this unit

Achievement of this unit is a three stage process — planning, preparing for and carrying out the task. The planning phase is essential to the whole process and should be carried out as soon as is practical. The set-up and sound-check phase can be accomplished immediately prior to the ‘show’ phase. Learners should be given adequate opportunity to become familiar with the operation of the sound reinforcement equipment before being assessed. This will help in the preparation of the ‘Operational Guide’ and help build confidence with the equipment.

The resources available to the delivery centre will dictate what equipment the learner will have the use of for this unit. Opportunities to use a variety of equipment for sound reinforcement should be available. This may include some or all of the following:

- ◆ Analogue mixing desk with/without outboard equipment
- ◆ Digital mixing desk with/without outboard equipment
- ◆ Amplifiers
- ◆ Cross-over
- ◆ Loudspeakers
- ◆ Ground stacked speaker array
- ◆ Flown speaker array
- ◆ Line-array
- ◆ Powered loudspeakers
- ◆ Analogue multi-core system
- ◆ Digital multi-core system

This unit will provide opportunities for learners to perform in the role of live sound engineer. In addition to the underpinning knowledge and experience gained in the *Sound Production: Audio Skills* unit, learners are expected to be able to use their skills in an unfamiliar situation.

Much of the equipment is common to recording studio practice but this unit will call on the expertise of the learner in realising that the two disciplines, though similar, require a different approach, ie the difference between technical and creative techniques in controlling sound and the impact of polar patterns and gain structure on the sound. Learners should therefore be encouraged to keep reflective logs for comparison of techniques, approaches and the behaviour of system components.

Higher National Unit Support Notes (cont)

Unit title: Sound Production: Sound for Live Events (SCQF level 7)

The quality of the teaching and learning experience will be enhanced considerably when early opportunities for 'hands-on' experience are provided. To facilitate this, after an introduction to the complete system, it is suggested that teams of learners be given the chance to investigate the sound reinforcement system components before moving on to the larger task of assembling and testing. Teamwork and integration across units would be of great value.

The term 'reinforcement' should be the underpinning key skill in other words, augmenting the sound source rather than substituting for the onstage sound source through excessive or very high sound pressure levels. It should be emphasised that best practice does not mean that sound reinforcement systems should be as loud as possible and learners should be aware of the resulting health and safety consequences.

For sound engineers and musicians alike, the safe electrical and electronic operation of a sound reinforcement system, ie electrical loading, fuses, RCDs, wiring and the dangers of electricity are important. It is essential that health and safety legislation be complied with throughout this unit.

The concept of risk assessment should be introduced but should not be assessed beyond a basic identification of potential risks and a summary of actions to be taken to minimise these risks. Learners should be made aware of the current legislation applicable to the following areas: Control of Noise at Work, Electricity at Work, Manual Handling and Working at Height. Learners will find the following websites useful: the Health and Safety Executive website has details of all of the relevant legislation (<http://www.hse.gov.uk>) and the Production Services Agency website is the source for how the legislation impacts on the sound reinforcement industry (<http://www.psa.org.uk>).

The ability to control feedback whilst maintaining audio quality, whether in the monitor or front-of-house systems, is a key skill. Negotiating with the performers with regards to backline sound levels is important in realising the best possible sound.

A sufficient amount of time should be allowed for the learner to acquaint themselves with the use of microphone type, speaker placement and equalisation techniques to control feedback. Automatic feedback destroyers can be used in a system but should not be used as a substitute for learning how to manually control feedback.

It is suggested that teams of three or four learners carry out tasks together during formative assessment.

Higher National Unit Support Notes (cont)

Unit title: Sound Production: Sound for Live Events (SCQF level 7)

Key topics

The following list is not intended to be prescriptive or exhaustive but should form the basic platform for learning and teaching in this unit:

- ◆ Transducers, ie speakers and microphones
- ◆ Electronic circuits, eg the difference between balanced/unbalanced and the difference between signal, line, speaker and mains
- ◆ The definition and use of high and low impedance circuits
- ◆ Wiring and termination conventions used for cables and connectors, eg XLR, Speakon, TS/TRS jack, Phono
- ◆ How to avoid audible glitches, eg electromagnetic interference, ground loops, incorrect signal/phase polarity, etc
- ◆ Correct gain structure for channel, bus, signal processing and amplifiers, system dynamics and the need for headroom
- ◆ Equalisation, eg in controlling plosives and sibilants, filtering sound source and room resonances, etc. The limitations of using third-octave equalisers for precise and efficient system and room equalisation
- ◆ Correct equipment handling and storing including cables, microphone stands, equipment racks, etc
- ◆ Planning and the need for good communication skills whether oral, written or graphical
- ◆ The need to develop inquisitive and acute listening skills
- ◆ Systematic fault-finding technique

Guidance on approaches to delivery of this unit

National Occupational Standards

There are two relevant Sector Skills Councils (SSCs) which cover standards that could apply to learners operating in the role of live sound engineer — Creative and Cultural Skills and Creative Skillset.

They have both produced a variety of standards that it would be beneficial for learners to be aware of. These standards are unlevelled but offer guidance on what someone should know and be able to do in the workplace. They are available on the respective SSC websites and on the UK Standards website.

Below are two examples of standards available at the time of writing:

- ◆ Creative and Cultural Skills (CCSKILLS) standard CCSTP20.4a Operating sound for a live performance in the theatre
- ◆ Creative Skillset standard S13 Mix Sound Live

Higher National Unit Support Notes (cont)

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Guidance on approaches to assessment of this unit

Evidence can be generated using different types of assessment. The following are suggestions only. There may be other methods that would be more suitable to learners.

Approaches to assessment are not prescriptive and the following is for guidance only. If the assessment is a simulation then the sequencing and the timing of the assessments is at the discretion of the centre. If the assessments are to be undertaken at a live event attended by the public then it is likely that the sequencing of assessments will be dictated by the circumstances of the event.

Outcomes 1, 2 and 3 could be assessed in one integrated assessment event or separately. There is flexibility in the unit to allow for the circumstances and timing of any actual event to dictate the pace and intervals between the outcomes.

Teamwork is to be encouraged during the formative stages and each learner should rotate through specific duties. Summative assessment of teams may be possible at certain types of event, particularly where an event involves more than one act or performer on a bill. Outcomes 2 and 3 are naturally sequential and, if sufficient time allows, they could form one single assessment opportunity. It would be possible for learners to be assessed for Outcomes 2 and 3 on separate occasions, but this is not recommended as it may add to the pressure for the learner. This scenario might occur if separate assessment events are used and the learner has not been part of a sound-check event prior to the 'show' phase.

Centres may wish to administer assessments under controlled conditions on certain aspects of this unit, eg a specific time period allocated to the task of assembling, testing and fault-finding. This would simulate the pressures of real-life working conditions but these should be tailored to the circumstances of the event.

It is anticipated that most centres will assess learners towards the end of the delivery period for the unit but learners should be able to undertake assessments when opportunities and individual circumstances allow.

Assessment guidelines

Outcome 1

Formative assessment for this outcome could involve case studies and analysis of typical scenarios where sound reinforcement is likely to be encountered by learners in the early stages of their career development, eg small club/gig but not arena/large hall type events. Emphasis should be placed on interpreting the channel input requirements, the use of transducers, in particular choosing the correct microphone and its correct placement for the sound source, and context of the performance and the acoustic environment.

The live event documentation should be clear and able to be followed by any person performing the role of live sound engineer. Peer assessment should be encouraged whilst preparing it for use.

Higher National Unit Support Notes (cont)

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Outcome 2

Learners should have ample opportunities to familiarise themselves with the correct operation of the system to be used and also become familiar with the types of fault that are likely to be encountered. A systematic approach to each stage should provide straightforward opportunities to gather the performance evidence required for the unit.

Formative assessment opportunities using peer assessment should be encouraged, eg small groups could be assessed on their effectiveness in assembling and testing. Depending on the equipment used, the learner should be able to use on-board and/or outboard processing equipment correctly.

Outcome 3

Though beneficial to the learner's career development, the assessment for this outcome does not have to be undertaken in a 'public' setting. Sufficient practice should be provided to ensure learners can operate comfortably and safely in a situation typical of 'real' public performance events.

Centres are reminded that prior verification of centre-devised assessments would help to ensure that the national standard is being met. Where learners experience a range of assessment methods, this helps them to develop different skills that should be transferable to work or further and higher education.

'Balance and Blend' is by definition subjective criteria and is at the discretion of the assessor. Learners should demonstrate that they can balance the relative levels of the sound sources appropriately, and utilise equalisation, dynamic processing and time-domain processing to achieve a blend of the sound sources appropriate to the source material.

Opportunities for 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 learner evidence and that conditions of assessment as specified in the evidence requirements are met, regardless of the mode of gathering evidence. The most up-to-date guidance on the use of e-assessment to support SQA's qualifications is available at www.sqa.org.uk/e-assessment.

Opportunities for developing Core and other essential skills

This unit has the complete Core Skill of *Working with Others* embedded in it. This means that when learners achieve the unit, their Core Skills profile will also be updated to show they have achieved the complete Core Skill of *Working with Others* at SCQF Level 5.

Higher National Unit Support Notes (cont)

Unit title: Sound Production: Sound for Live Events (SCQF level 7)

This unit has the Planning and Organising and Critical Thinking components of *Problem Solving* embedded in it. This means that when learners achieve the unit, their Core Skills profile will also be updated to show they have achieved Planning and Organising at SCQF level 5 and Critical Thinking at SCQF level 5.

This unit has the Providing/Creating Information component of *Information and Communication Technology (ICT)* embedded in it. This means that when learners achieve the unit, their Core Skills profile will also be updated to show they have achieved Providing/Creating Information at SCQF level 5.

The learner will also have the opportunity to develop aspects of the following Core Skills:

Communication: The learner will have the opportunity to develop written and/or oral communication skills in Outcome 1.

Information and Communication Technology (ICT): The learner could have the opportunity to develop skills in accessing information through the preparation of materials for Outcome 1.

History of changes to unit

Version	Description of change	Date

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General information for learners

Unit title: Sound Production: Sound for Live Events (SCQF level 7)

This section will help you decide whether this is the unit for you by explaining what the unit is about, what you should know or be able to do before you start, what you will need to do during the unit and opportunities for further learning and employment.

This unit is designed to enable you to function in the role of live sound engineer by using a variety of audio equipment forming a sound reinforcement system (PA). You will develop a broad range of knowledge of the why and how of sound reinforcement. This unit will help your understanding of the technical specification and practical use of the equipment and the practicalities of supplying high quality sound reinforcement in a variety of acoustic spaces.

If you are undertaking the HNC/HND Sound Production then you may well develop your knowledge and skills from the unit *Sound Production: Audio Skills* (SCQF level 7). Completion of this unit will normally allow you to progress to *Sound Production: Sound Reinforcement* (SCQF level 8).

On successful completion of the unit you should be able to:

- 1 Plan for a live sound event.
- 2 Assemble, test and sound-check a sound reinforcement system.
- 3 Operate a sound reinforcement system for a live sound event.

For Outcome 1 you will interpret the specific requirements of the venue and the performers by specifying suitable components for the sound reinforcement system.

For Outcome 2 you will demonstrate the connection and routing and testing of the system components. You will then sound-check the system before the event. You should be able to correctly identify and remedy faults, correctly retrieve, use and store equipment including: microphones, microphone stands, XLR and jack cables, multi-core, speakers/amplifiers, etc.

For Outcome 3 you will either attend a live event or take part in a simulated live event. You will demonstrate the correct use of gain, equalisation, routing, auxiliary sends/returns, dynamic processing and FX during the event, whether for technical or creative control of the sound. You must demonstrate and perform all duties professionally and at the end of the show you will de-rig and pack the system safely and efficiently.

This unit has the complete Core Skill of *Working with Others* embedded in it. This means that when you achieve this unit, your Core Skills profile will also be updated to show you have achieved the complete Core Skill of *Working with Others* at SCQF Level 5.

This unit has the Planning and Organising and Critical Thinking components of *Problem Solving* embedded in it. It also has the Providing/Creating Information component of *Information and Communication Technology (ICT)* embedded in it. This means that when you achieve this unit, your Core Skills profile will also be updated to show you have achieved Planning and Organising at SCQF level 5, Critical Thinking at SCQF level 5 and Providing/Creating Information at SCQF level 5.

You will also have the opportunity to develop aspects of other Core Skills including *Communication* and other aspects of *Information and Communication Technology (ICT)*.