CCSMT28
Carry out soldering and wiring basic repairs and maintenance for sound and audio industries

Overview

Today's recording and sound studios are a complex mixture of analogue and digital hardware and software systems, many of which have assorted hard-wired connections. The end quality of a recording is entirely dependent on the reliability of associated connectors along the signal chain.

Sound and recording studios often have a quantity of cable looms which carry important signals over long distances; they can be heavy in weight and are in daily use. During operation some of the connections associated with this wiring will become damaged, worn or may become defective due to dry joints. It is important that people involved in the music and sound industries have a good working knowledge in order to be able to test, repair and replace wiring and associated connections. This standard enforces key problem solving skills. This standard focuses on the skills required to repair common wiring connection problems using basic information on how to connect up and solder cables safely. The standard will demonstrate how you can make your own leads and to construct bespoke leads for a series of applications.

Soldering is the process by which two or more metal parts are connected by a heated alloy. The alloy melts at a lower temperature than either of the pieces of metal and the molten solder passes into (permeates) the molecular structure of each of the metals. On cooling, the alloy forms a common bond, connecting the metals. Today's studios are a mixture of analogue and digital systems most of which have hard wired connections.

Soldering skills can save the day at any moment. Conversely someone may bring in equipment that needs a specific wiring system to be made up. Do not ever touch connections after completion of soldering until items have fully cooled down, metals are very effective conductors of heat and you are advised that this heat must dissipate (cool down) before items are released or picked up. To ignore this advice could cause serious burns injuries to the skin.

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Performance criteria

You must be able to:

P1   produce detailed wiring diagrams of a variety of industry connectors
P2   locate common faults in connectivity and wiring through continuity tests
P3   isolate and report connectivity and wiring problems
P4   produce plans of action to restore connectivity
P5   prepare designated area for soldering equipment
P6   organise and safely setup equipment and tools ready for use
P7   prepare and strip various cables and wires with appropriate tools
P8   prepare and correctly tin various cables and wires
P9   prepare and correctly tin a selection of common connectors
P10   make or repair a selection of leads
P11   check leads for performance
P12   test connectivity of repaired or replacement parts
P13   reset tidy all areas

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Knowledge and understanding

You need to know and understand:

K1   the correct wiring for a variety of industry connectors

K2   correct wiring terminals for wiring connections

K3   unbalanced and balanced wiring

K4   signal connectivity

K5   common faults in connectivity and wiring

K6   the importance of keeping work areas clean and safe

K7   the importance of ensuring that equipment and tools are safe before use

K8   the processes involved in preparing new or repaired connections

K9   how to identify types of leads and connectors

K10   how various leads are wired and constructed

K11   how to identify points of weakness of types of leads

K12   correct working practices and safety

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Date approved	April 2012
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Validity	Current
Status	Original
Originating organisation	Creative & Cultural Skills
Original URN	CCSMT28
Relevant occupations	Maintenance engineers; technical support; Recording Engineers; recording Producers; mix engineers; assistant engineers; programmers; Mastering Engineers; editing engineers; OB/post engineers; writers; co writers; tape ops; Studio managers; facility managers;
Suite	Music Technology; Live Events
Key words	Dry joints; broken connection; broken or damaged wiring; damaged connectors; oxidisation; RFI interference; resistance, phase; ground or earth problems; Unbalanced ¼" type A jack; balanced ¼" type A jack (TRS); balanced type B jack (post office); bantam jack; male/female XLRs; RCA phono; mini jack; mini mono jack; mini stereo jack; headphone ¼" type jack; headphone mini stereo jack; Connectivity of hot; positive (+) cold; negative (-) earth, points on each connector; Terminals; TRS (Tip Ring Sleeve); XLR (Earth, Live Return); Inspect and identify connections; t cable wiring loom; Soldering iron; tinned/cleaned iron; rosin core solder; flux; wire cutting devices, solder wick; continuity test equipment; new connectors; FST wiring cable; shielded microphone and guitar wiring cable; microphone cable; 2 way loom;4 way loom; 8 way loom; 12 way loom; 16 way loom; 24 way loom; phono; female to male headphone lead; phono to phono lead; twin phono to twin phono lead; Tinned; tinning; music; sound; music technology; Live Events, Exhibitions;