

CCSMT23

Carry out multi track and stereo tape machine alignment and maintenance



Overview

This standard is about multi track and stereo tape recording and playback machines. Despite popular DAW skills being required, you will also need to have basic skills to operate analogue recording formats. This standard requires an appreciation of the complexities of magnetic recording and acquisition of skills needed to use, maintain, and align analogue tape.

Routine maintenance:

To keep any multi-track, or any other analogue tape machine working at its' best, it should be cleaned and de-magnetised regularly. The tape is constantly leaving deposits on the components it comes into contact with and as a result magnetism will build up on the head blocks. These skills and knowledge are then applied to working within a non-linear digital environment, allowing you to analyse and assess both DAW and analogue tape systems. You will also analyse sound quality and noise reduction. This standard utilises the multi-tasking skills expected of today's recording engineers, editing engineers, mastering engineers, mix engineers and programmers. This standard is about the processes and practical applications involved in using and maintaining analogue tape recorders and their correct playback and recording line up.

You will be required to implement actions to safely and professionally secure and save entire recorded content via WAV, AIFF, (file formats) DVD, DVD RAM, Digital removable HD CADDY, TAPE, DAT, CD, External HD. You will independently edit recorded material to the required specification and save the newly edited work. Backups should be made of all original and edited materials. You will need to edit a variety of requested sources.

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Performance criteria

You must be able to:

- P1 perform essential maintenance and alignment procedures for 2 track and 24 track analogue tape machines
- P2 use MRL test tape or create test tapes and test tones for alignment
- P3 correctly prepare, clean and demagnetise tape heads and relevant moving parts of transport mechanics
- P4 produce a 3-5 minute stereo analogue tape recording to common professional standards at 15IPS and 30IPS
- P5 produce and record 24 track session onto tape at 30IPS using correct BIAS/Alignment for tape used (Eg: RMG or Quantegy)
- P6 create a single pass basic stereo mix down of Multi track recording to stereo tape and a professional digital mastering device at same time
- P7 analyse sound quality of both stereo recordings
- P8 'top and tail' (edit) stereo analogue tapes
- P9 archive finished stereo analogue tapes presented to professional standards
- P10 recall a given client multi track recording and track sheet to correct playback speed and alignment
- P11 create another single pass basic stereo mix down of recalled Multi-track recording to a professional stereo digital mastering device only
- P12 re-clean all tape heads and guide rollers.
- P13 archive and store tapes
- P14 reset and tidy all equipment

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Knowledge and understanding

You need to know and understand:

- K1 the different types of analogue tape
- K2 differing types of analogue machines
- K3 characteristics for mono, stereo, balanced and un balanced
- K4 magnetism and magnetic properties, fluxivity reference charts
- K5 the development and composition of magnetic tape
- K6 the functions of a stereo analogue tape machine
- K7 the maintenance and alignment procedures for stereo analogue tape machines
- K8 the functions of a 24 track analogue tape machine
- K9 maintenance and alignment procedures for a 24 track analogue tape machine
- K10 the process of aligning tape for recording and playback
- K11 the advantages and disadvantages of DAW and analogue tape recording systems
- K12 the differences between digital and analogue audio material
- K13 the advantages and disadvantages of professional analogue noise reduction systems
- K14 signal to noise ratios
- K15 signal level and signal headroom
- K16 various VU and Decibel(db) metering/meterage
- K17 LCD/LED bar graph meters
- K18 relevant aspects of health and safety related to your work

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Developed by	Creative & Cultural Skills
Version number	1
Date approved	April 2012
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Validity	Current
Status	Original
Originating organisation	Creative & Cultural Skills
Original URN	CCSMT23
Relevant occupations	Mastering Engineers; Recording Engineers; recording Producers; mix engineers; assistant engineers; programmers; editing engineers; OB/post engineers; tape ops;
Suite	Music Technology
Key words	Cleaning transport mechanism; repro; sync; playback; erase heads; de-magnetising; setting levels; calibration (CAL); bias; overbias; checking/adjusting azimuth; mono; stereo; multitrack; spool dimensions; tape lengths; tracks (number of, dimensions); guard bands; tape speed; direction; wow & flutter; signal levels; magnetic flux; Leader tape; spacers; blank tape; alignment tones; spool labels; tail-out storage; box labels (artiste); studio; track list; timings; format; speed; EQ, NR, NAB; SPARS archiving; MRL Test Tapes; Reference Fluxivity; biasing; LF gains; HF gains; Replay gain; dB's; Sine Test Tones; 0VU, +4dbm; +3db/+9db; 1kHz; 100kHz; 10kHz; 15kHz; Nano-webers per minute (nwb/m);180; 200; 250; 320; 510nwb/m; AES; Nab; Spools; IPS, 7.5;15,30ips; Analogue; level differences; frequency response differences; noise; noise modulation; distortion; clipping; drop-out; print through; partially erased previous material; azimuth errors; phasing errors; flutter; crosstalk; warmth; tape compression; transient distortion;