

Recording Australia's Oral History – 2:

Choosing a Recorder

In this second article in his short series on recording oral history, the author discusses which kinds of recorder are best suited for this kind of work. He also explains the things to look for when choosing one.

by **JIM LAWLER**

Throughout these articles I will concentrate on 'monophonic' productions. For the most part this is what can be done best on domestic equipment. Simple interviews, or a talk by a single person does not demand a stereo production.

Only if you plan to sell your output for radio broadcast is the requirement for stereo likely to arise, and then you will have problems in producing material of suitable quality without professional equipment. We will not consider stereo production in these pages.

Also, bear in mind that our recordings will be mostly speech, with some low level sound effects in the background. For this reason we are not looking for high fidelity, wide frequency response and enormous dynamic range. All we need is intelligible speech – clean, clear sound at levels that don't make heavy demands on either the listener or the equipment.

Recorders

I have been involved with recording since the days when we used lacquer-coated aluminium discs, in big machines that would break an elephant. These machines allowed no editing and the recording had to be made in one take, mistakes and all.

Then came open reel tape recorders, which gave us the opportunity to edit the recording or to re-record if the take was just too bad.

Finally, we have come to cassette recorders which are nearly back to the disc era, in that editing is difficult, if not out of the question. Only media economy remains the same as in the open reel tape era – we can at least re-

use the cassette if we make too many mistakes.

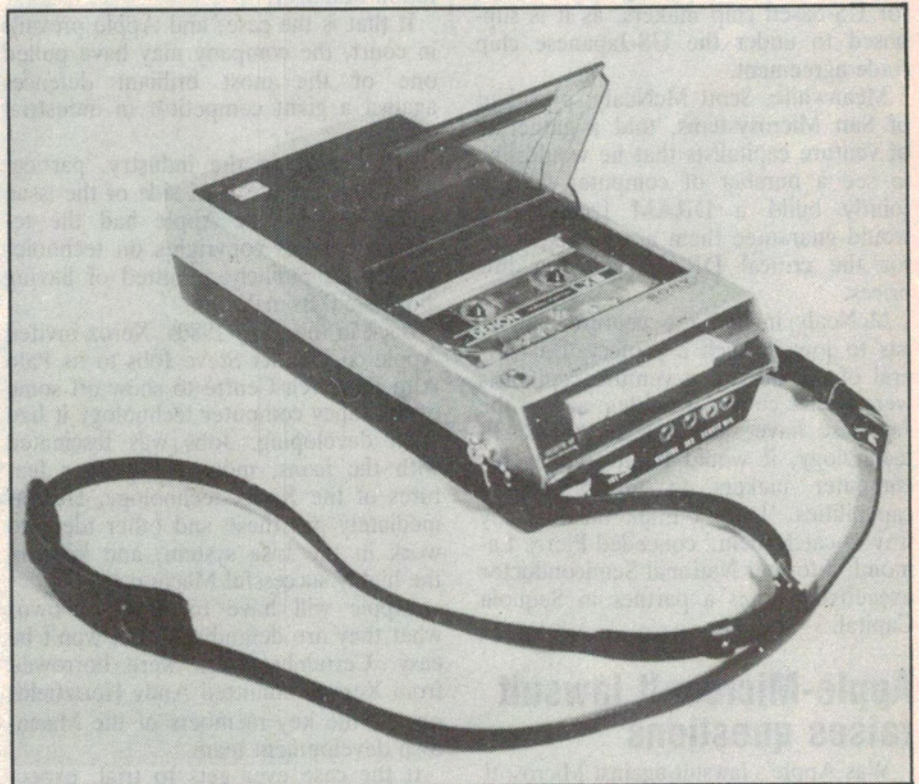
Open reel recorders are ideal for editing and for the preparation of master tapes. Even the simplest open reel machine usually offers good quality, simple operation, and some degree of editing facility.

Unfortunately, open reel recorders have gone the way of the Dodo and most folk now use cassettes for both portable and static recording. Cassettes

might be convenient, but most machines leave the user with very little control over what they are doing. If you have an open reel machine, by all means use it for your editing and making a master tape, but we won't consider open reelers again in these articles.

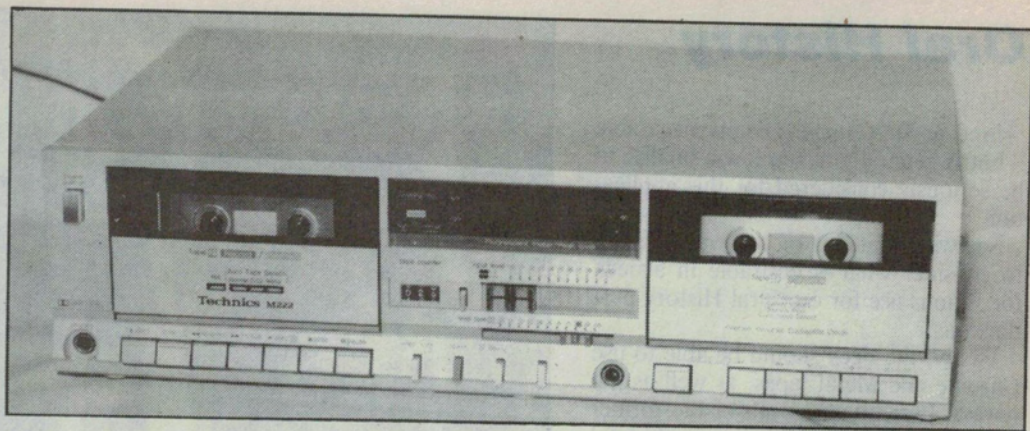
Cassette recorders are not designed to facilitate editing, although some can be used in spite of their unsuitable design. In a later article I will show how this can be done with a cassette recorder, though success will depend on a good knowledge of the particular machine and a good deal of practice.

I will divide the rest of the present article into two parts – portable recorders and stereo decks. We will look at what is desirable, rather than what is available. Then if your equipment doesn't suit, you will know what to look for when you go shopping.



The author's old Sony model TC100 mono cassette recorder. Although 20 years old, it still performs perfectly and is well suited for recording interviews and background sound effects.

A Technics M222 dual cassette deck, very suitable for editing because of its precise soft-touch controls. It can also make very accurate copies or 'dubs' at twice normal speed.



Portable recorders

At one time portable cassette recorders were just that, simple, plain monophonic machines that offered reasonable quality and no frills. Now they are fully stereo and combined with AM/FM radios, stereo amplifiers, graphic equalisers, sing-along microphones and some of the latest even have compact disc players built in. These 'ghetto blasters' are not for us.

In fact, stereo is a distinct disadvantage in our exercise because of its poorer 'signal to noise ratio'. A good S/N ratio relies on picking up as much signal as possible from the tape, and this is directly related to *track width*.

Because cassettes are 'turnover' devices, a one-way track cannot occupy more than half of the tape width. Then for stereo, two signals have to be recorded side by side, so that each can only occupy no more than one quarter of the tape width. Then there has to be a guard band between the two tracks, so you can see that there is very little tape left to record a signal on.

A mono signal, on the other hand, can occupy not only the same width as the two stereo signals, but also the guard band between them. So a mono recorder can record its single signal over more than double the track width, for significantly better signal to noise ratio.

A 'Walkman' type personal portable cassette recorder would seem to offer advantages for interview work, particularly in the field. In fact they are ideal for journalists and others who have to take notes which are later transcribed to print. However, these are all stereo recorders and suffer from the signal to noise ratio problems mentioned above.

Other limitations stem from the tiny built-in microphones used in these little machines. These have restricted frequency response and limited dynamic range, so unless the machine has an external microphone socket, there is little chance that it can be used successfully

for our work. I have tried several different models and have not been satisfied with any of them.

It could be hard to find a new mono cassette recorder these days, so it might be worthwhile getting an old one reconditioned. This would require new drive belts, a new record/replay head, and possibly a new motor. All of this might cost as much as the machine did when new, but it will then be 'As New', and capable of performing better than any new stereo machine, for our particular application.

Another difficulty with portable cassette recorders is that most of them use ALC (automatic level control) recording. This was incorporated by the manufacturers to relieve the user of the tedium of setting the recording level. Unfortunately this works against us for our kind of work, because the ALC raises the level of background noise during pauses in the subject matter.

There is nothing much you can do to beat ALC if the manufacturer has not given you an ALC on/off switch; you cannot totally avoid the 'breathing' effect during pauses in your interview. However, by selecting a quiet location for the recording, there will be little sound for the ALC to pick up during the pauses, and the 'breathing' will be far less noticeable.

Also, careful use of a directional microphone will help to minimise this problem. A microphone with a narrow pattern can be pointed at the speaker's mouth. This discriminates against the background noise, which then comes in from the side. To use this kind of microphone you must keep moving the mike from interviewee to interviewer in turn, but it does help to lower the background noise during pauses.

The secret of good recording is to put down the strongest signal possible, without overloading the tape. With ALC this choice is out of our hands and the 'strongest signal' is only that which the

system allows. Modern tapes can handle more signal than earlier varieties, but this ability is not used in ALC machines.

Most modern portable cassette recorders have built in electret microphones, like the Walkman-type models. As noted before these are effective enough for non critical work but are subject to handling and mechanical noise. Far better to have a separate microphone which can be selected and positioned to best suit the situation. Also, it is generally less offensive to poke a microphone at the interviewee than to poke the whole recorder at him or her!

A leather or plastic carrying case can protect the recorder, but it can also get in the way of the controls and make operation difficult. Unless it is a well designed case, it's better to leave it off. A shoulder strap is useful for carrying the machine, but don't try to record on the move with a domestic recorder.

Finally, the batteries used to power your recorder should be no smaller than standard C cells. These cells offer a reasonable service life and are not likely to die on you during a session, if they are in good condition at the start. In fact D cells are preferred for heavy duty and professional applications, but they tend to make the machine big and heavy.

To sum up, then, we are looking for a monophonic cassette recorder, powered with C or D cells. It does not need a built-in radio, or a big, fancy loudspeaker. And if it does have a built-in microphone, it must also have an 'external mic' socket which automatically disconnects the internal mike.

Stereo cassette decks

For the purposes of this discussion, the word 'deck' refers to a separate cassette recorder, normally intended to be used as part of a hi-fi system. An integrated radio cum record player cum cassette recorder, commonly called a

Oral History

'Three in One', may possibly be usable – but is generally of too low a quality to be seriously considered for this application.

So, with that out of the way, we get to consider what is desirable in a deck for serious use for our Oral History productions.

Firstly, the deck should be able to use Chrome and Metal tapes, as well as the normal Ferro types. Both of the former types offer lower tape noise, and metal tapes can also handle higher recording levels without saturation. This results in better signal to noise ratios, a most desirable feature if the tape is to be copied several times during editing.

The mechanism should preferably be solenoid controlled. This is by far the fastest and most accurate control method. Soft touch controls are driven by the deck's motor and these too are generally quite fast and give good control. The machine's User Manual should tell you which system it uses.

If the manual is not available, you can sometimes tell the difference by the sound the machine makes during operations. Solenoids usually work with a moderately loud 'clunk' and you can feel the thump of the solenoid inside the machine. Soft touch machines make a much softer 'click' and seem to be altogether gentler in operation.

However, some soft touch systems require the motor to come up to speed before the control operates, and this delay can spoil an otherwise good deck.

Piano key operation is wholly mechanical and is too slow for our present purposes.

The mechanism must have an efficient PAUSE function. This should stop and start the tape instantly, without any backlash. If the tape moves after the pause button is pressed, or there is any delay in starting the tape when the button is released, it will be very difficult to make a neat edit with that deck.

Most cassette decks have line level input and output sockets. This is the absolute minimum. If the unit also has phono inputs, so much the better. Microphone inputs can be a useful extra, provided they can be mixed with the line and/or phono inputs and there are separate volume controls for each circuit. An output socket for headphones is also very useful, again provided that there is a volume control on the output line. (All of these ins and outs are rendered unnecessary if a separate mixer is



For outdoor use, microphones should have a good windshield. Foam type windshields as shown here must be snug fitting.

used. This will be discussed in a later instalment).

If you are going to buy a machine especially for this type of work, it will serve you well to consider a dual cassette deck. These machines have two cassette mechanisms, both of which can play tapes although usually only one can record. Because of the way they are organised, it is easy to copy from one tape to another, often at double normal speed. However, it is not usual for these machines to mix line input material with the tape being copied. For this you will need a second machine and an external mixer.

All good cassette decks, either single or dual, have manual recording level controls. Some might have ALC fitted, but always with an on/off switch. So, if you are to know the level you are putting on the tape, the deck must be fitted with good, clear level meters. I still prefer analog meters (the dial and pointer type), although LED or LCD bar-graph meters are becoming more common, probably more on the basis of lower cost than on any demand by users. Either type gives an unambiguous reading so perhaps there is little to choose between them (although in theory, the newer type should respond faster to sudden peaks).

One last point about your equipment. Make sure that the deck you are using

has its controls clearly marked. There is nothing more frustrating than to see the tape fast forward when you are certain that you pressed the PLAY button!

If you need to play your original mono tape in a stereo deck, say for dubbing background sounds into an interview for your final mix, always remember that the stereo deck will pick up less than the whole of the available mono signal. For this reason it is important to dub onto a Chrome or Metal tape, for the lowest possible noise level. You may find that you get better results by playing the mono tape on the mono recorder and dubbing across to the stereo deck, with an appropriate connecting lead.

Finally, should you use a noise reduction system – Dolby, ANR or DBX? My preference is to work without noise reduction up to the final mix, because it is hard to get a number of machines all aligned to the same standard. If one system is out of adjustment, it will upset all the others down the line and you will not know what correction to apply to the final mix. It's better to have NR switched off, and use quality, low noise tape throughout.

Next month I will talk about microphones, mixers and other accessories, and how to select the bits and pieces that will make easier our recording of Oral History.