

## Review of Cottis-Blandford Cassette Interface.

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This note describes some experiences in using the cassette interface supplied by Newbear Ltd. (Kit form, current price 12.50), and may be of use to anyone wishing to upgrade the speed and reliability of the cassette interface on their Nascom 1.

### Technical details.

1. Uses CUTS type encoding (one - 2400Hz, zero - 1200Hz).
2. Capable of running at 300 to 2400 bits per second.
3. Fairly easy to interface to the Nascom, though the method suggested by Newbear can be improved upon (eg: see below).

### Value for money ?

The kit seems reasonable value for money, but there were several pitfalls for the unwary. The two main ones were:

1. The printed circuit board lay-out is poor, and must be very carefully checked for bridges across tracks. Also, it is very easy to cause bridges when soldering certain connections.
2. The documentation is wrong in places, and vague in others. For example, two of the board terminal points were labelled incorrectly on the board lay-out diagram, and it was not stated anywhere that all the output terminal points had to be wired to go to the outside world via spare inverter-buffers in IC3.

The moral is to cross-check everything against the various diagrams etc.

### Does it work ?

On first switching on the finished kit, the transmitter section worked properly, and the tapes could be read back on the lowest speed of 300 bits/sec, though with low reliability. Clearly, there were no wiring faults. The problem was traced to two causes:

1. The amplitudes of the high & low frequency tones on replay were different by a factor of about three times. This was due partly to the low-pass filtering used on the transmitter output circuitry, and possibly also due to poor tape recorder frequency response. When the transmitter output circuit was set up so that roughly equal amplitudes were obtained on replay, a big improvement in reliability was obtained. This required a high-pass RC filter, just the opposite of that provided. Obviously, adjustments are required to obtain good results with particular recorders.
2. The input circuitry from the replay has no means of adjusting the D.C. bias level, so as to give an even mark/space ratio on pin 10 of IC10 (a). This ratio seems to be very critical for high reliability, and the required bias can easily be obtained using a potentiometer across the 5V supply. The trick seems to be to record a section of tape having no data on it, i.e just a continuous high frequency tone at 2400