

**MODULATION INPUT AND FREQUENCY-CHANGER UNIT UN1/78****Introduction**

The UN1/78 comprises a modulation-frequency amplifier and a frequency-changer MX1/2. The two parts of the unit are electrically independent and perform entirely separate functions in the parent equipment<sup>1</sup>.

The amplifier normally accepts either a pre-emphasised a.f. signal or a stereophonic pilot-tone multiplex signal and produces an asymmetric push-pull output with a pre-set high-frequency attenuation characteristic.

The modulation-frequency amplifier is constructed on a printed card and is in a screening-box mounted, with the MX1/2, on a CH1/27 chassis with index stud positions 1 and 5. A common 12-volt supply from an external source is used by both sections of the unit.

**Modulation Frequency Amplifier**

In order that it shall be capable of accommodating the pilot-tone multiplex signal, with components up to 53 kHz, this amplifier has a working frequency range extending beyond the normal upper limit of the a.f. spectrum. The circuit diagram of Fig. 1 shows alternative unbalanced input circuits of 600 ohms and 75 ohms impedance. The required circuit is selected

by changing over two connections, marked by asterisks in the diagram. Each of the input circuits contains a pad, the component values of which are chosen (from the tables given in Fig. 1) to suit the particular installation.

The input signal passes via a front-mounted *Sensitivity* control, with a range of  $\pm 2.5$  dB but calibrated 0-5, to the input of a long-tailed-pair phase-splitter. The phase-splitter transistors TR2 and TR4 have a constant-current generator TR4 as their common emitter impedance. Unequal TR2 and TR3 collector load resistances cause the output to be asymmetrical with respect to earth; the degree of balance is set initially by selection of R19 and finally, according to input requirements of a following unit<sup>2, 3</sup>, by adjustment of R23 on the front panel. High-frequency attenuation, also to suit the following unit, is introduced by C7 and C8.

The maximum overall output level is about 2 volts p-p.

**References to Typical Associated Equipment**

1. F.M. Drive Equipment EP7/7
2. V.I.F.M. Modulator MD3/2
3. Theory and Design of V.I.F.M. Modulator. D.D. Tech. Mem. 12.12 (67)

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*See overleaf for Fig. 1*

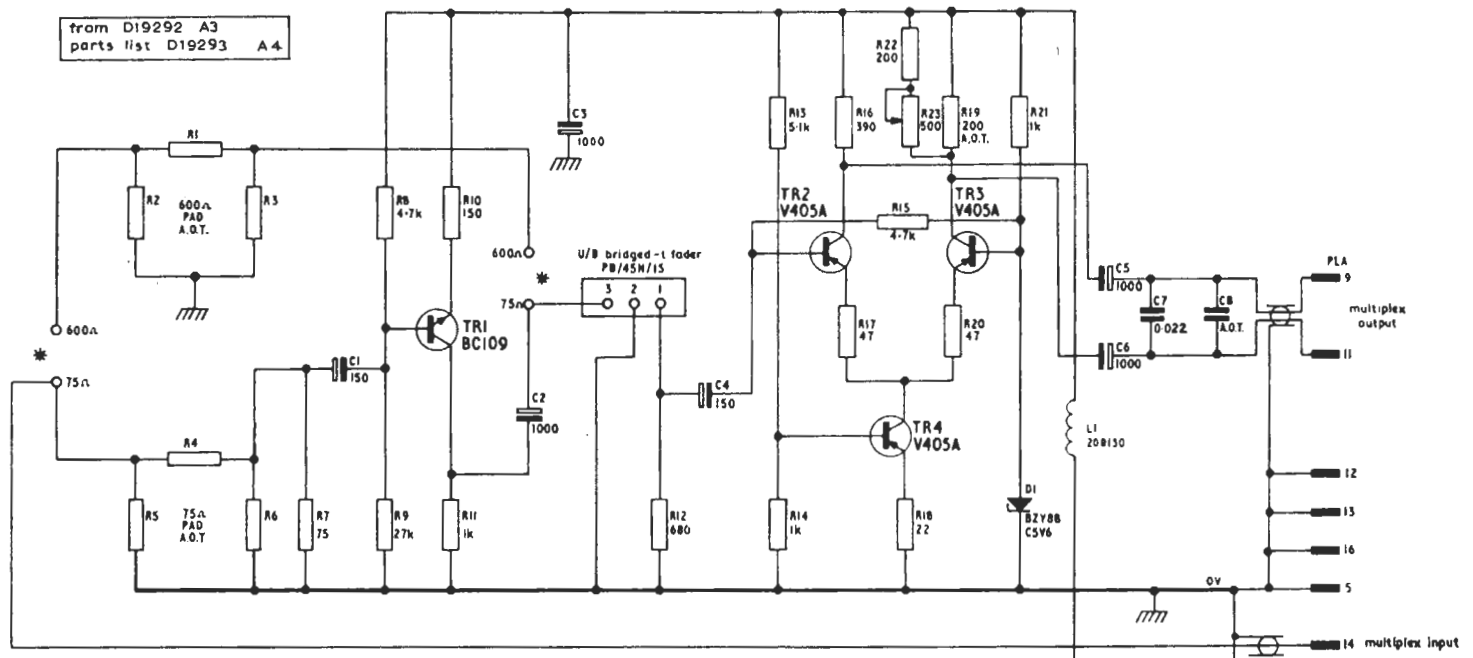
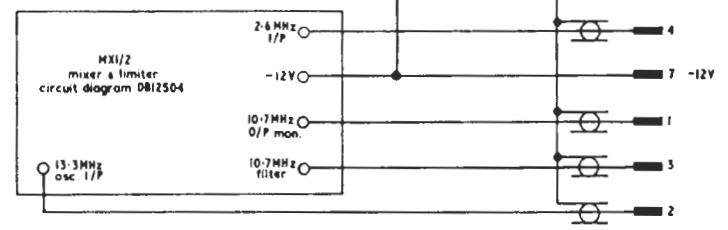


Fig. 1 Circuit of the UNI/78

		75Ω INPUT						
ATTENUATION dB		2	4	6	8	10	12	14
R4	18	36	56	75	100	130	180	
R5	680	330	220	180	150	130	110	
R6	680	330	220	180	150	130	110	

		600Ω INPUT						
ATTENUATION dB		2	4	6	8	10	12	14
R1	150	270	430	620	820	1.1k	1.5k	
R2	5.1k	2.4k	1.8k	1.5k	1.2k	1k	910	
R3	5.1k	2.4k	1.8k	1.5k	1.2k	1k	910	

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view on leads transistor terminations



Note: Circuit shown connected for 75Ω input. For 600Ω input reverse connections at points marked \*