

MODULATOR AND OVEN UNIT UN22/1

The UN22/1 comprises an MD3/2 modulator contained in a commercial oven chamber. The oven, which is complete with its control circuit, requires an external supply of 24-volts d.c. at about 600 mA on full load. The unit is constructed on a CH1/12B chassis with index stud positions 13 and 28.

The front panel of the unit carries the modulator centre-frequency setting controls behind a perspex cover. In the skirt of a control knob for fine adjustment of frequency is an aperture which gives

access to a screwdriver-operated coarse control when the knob is at its centre position. Above the frequency control is a modulator-output monitoring socket and also an indicator lamp to show the oven-heater on and off states.

Fig. 1, showing the UN22/1 arrangement, includes details of the oven control circuit mounted at the rear of the oven. The working temperature is nominally 45 degrees C, with individual ovens liable to be set up for values differing slightly from that figure. In any event the value adopted

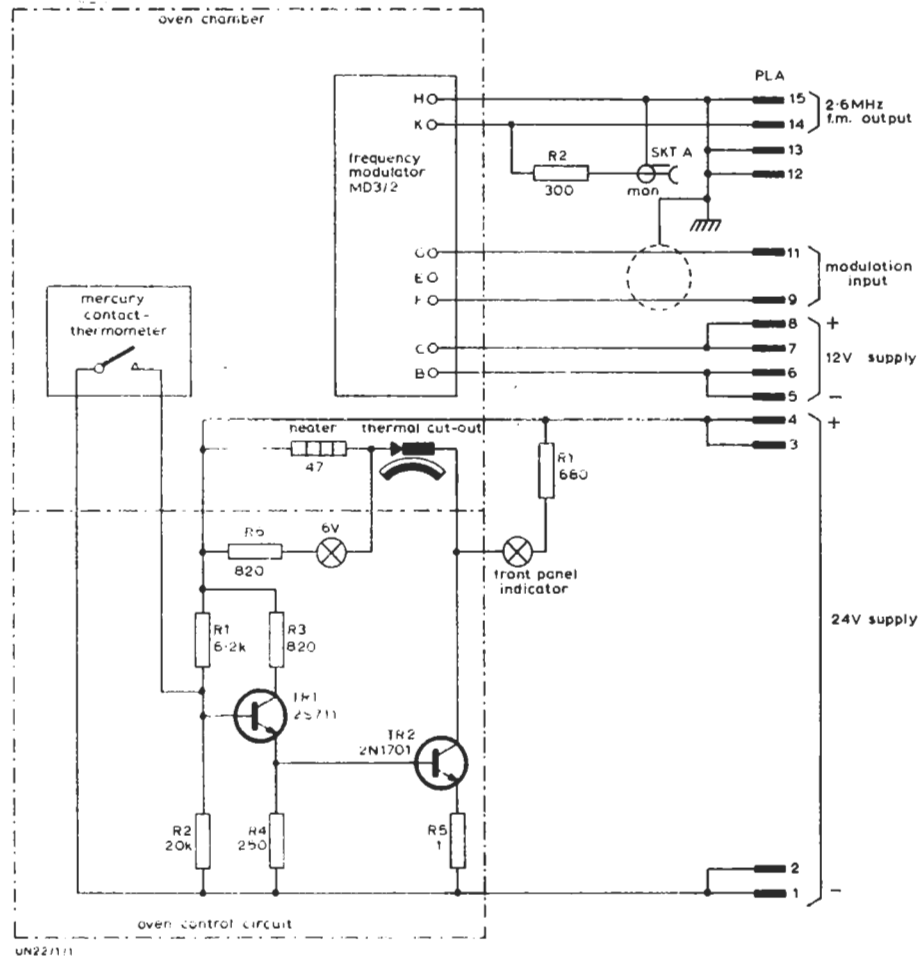


Fig. 1 Circuit of the UN22/1

for a particular oven is held to within 0.5 degree C by the switching action of TR1 and TR2 in the control circuit. This action is controlled by the mercury contact-thermometer connected across R2.

When the temperature of the oven is low, the thermometer is an open circuit and the bias conditions are such that both transistors conduct. The collector load of TR2 is the oven heater and consequently the temperature inside the oven rises until the mercury column of the thermometer short-circuits R2. This changes the bias conditions and TR2 is cut-off, thus switching off the heater. The thermal cut-out in series with the heater is

set to open at about 55 degrees C, to give protection for the oven and its contents if the control circuit fails.

Because it is attached to the control unit, the indicator lamp in series with R6 is not normally visible when the UN22/1 is in use. For this reason a front-panel lamp is provided and, by its connection to the junction of the cut-out and the TR2 collector, this shows the ordinary cyclic operation of the oven circuit. Continuous lighting of the lamp indicates operation of the cut-out, to reset which it is necessary to dismantle the oven.

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