

TELECINE SEPMAG RELAY AND METERING UNIT UN1/58

Introduction

The UN1/58 forms part of a telecine machine^{1,2} and performs two functions:

- (a) the relay section of the unit performs specific switching operations in the correct sequence to enable a Sepmag recording to be made.
- (b) the metering section of the unit measures either the Sepmag recording-head bias current or the Sepmag erase-head current. Normally the meter measures the recording head current, but the erase head current can be measured instead by pressing a non-locking pushbutton on the front panel of the unit.

The unit is mounted on a CH1/18C chassis with index peg positions 18 and 22. Power supplies at 24 volts and 50 volts are required.

General Description*Relay Section*

This section is required to:

- (a) Remove a short-circuit from the output of the associated recording amplifier.
- (b) Apply power to the bias and erase oscillator.
- (c) Indicate that the sequence of operations is completed and that the telecine machine is in the Sepmag recording mode.

The operations are carried out in the reverse order to that given above when the recording mode is cancelled.

Metering Section

A voltage proportional to the bias current flowing in the recording head is generated across a resistor which is in series with the head. A voltage proportional to the current flowing in the erase head is generated in the same manner. The required voltage is applied via the pushbutton to the metering circuit where it is amplified, rectified and fed to the meter.

Circuit Description

The circuit diagram of the UN1/58 is shown in Fig. 1.

Relay Circuit

The relay circuit is described below in tabular form.

<i>Relay</i>	<i>Function</i>
SC	Energised when an earth is applied to PLA pin 11. SC-1 connects a charged capacitor (C5) across the coil of the relay. SC-2 removes the short circuit from the output of the recording amplifier.
HT	Energised after a delay of 15 to 20 ms, caused by R10 and C6. HT-1 applies power to the bias and erase oscillator; HT-2 gives an indication that the sequence of operations is completed.
SC and HT	Both relays are de-energised when the earth is removed from PLA, pin 11, and capacitor C6 discharges through the coil of relay HT in parallel with the series combination of R10 and the coil of relay SC. Relay HT de-energises before relay SC because C5 is greater than C6 and because diode MR1 limits the discharge path of C5 to the coil of relay SC.

Metering Circuit

The selected input signal is amplified in a feedback amplifier comprising transistors TR1 and TR2 and is then applied to the complementary transistors TR3 and TR4. When the input is positive-going TR4 conducts and a current flows through the meter and R7 to charge C4; when the input is negative-going TR3 conducts and discharges C4. Thus the signal is rectified by the action of the two transistors and the meter deflection is proportional to the input voltage.

Resistor RA is connected in series with a 5.6-kilohm variable resistor so that the bias reading can be reset to half-scale deflection for different recording stocks. Resistor RB is adjusted on test so that the correct erase current gives half-scale deflection of the meter.

References

1. 16-mm Vidicon Telecine EP6/501 (see Designs Dept. Technical Memorandum No. 7.133)
2. 16-mm Colour Telecine Equipment EP6/505.

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See overleaf for Fig. 1.

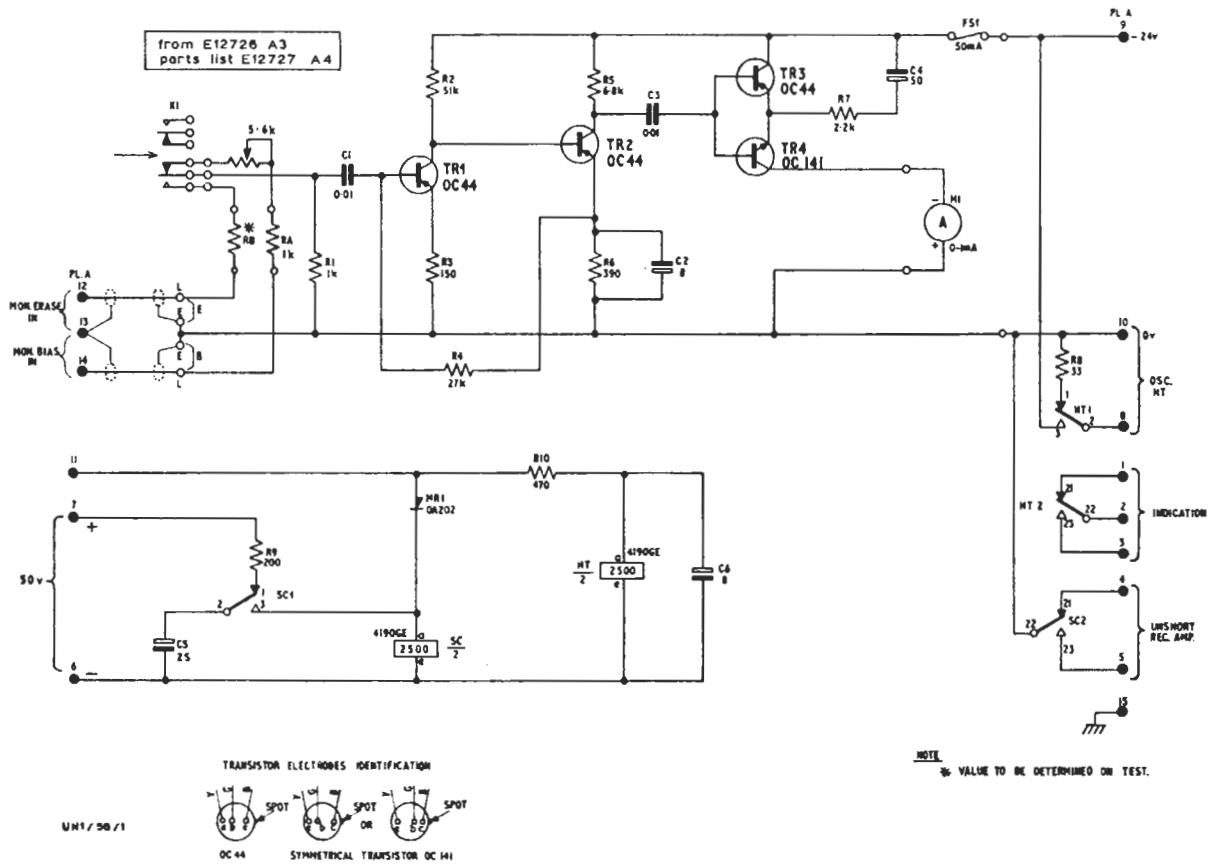


Fig. 1 Circuit of the Metering Unit UN1/58