be printed as a smudge during the flyback after a long line of type. Lines longer than about 40 characters should be terminated in at least three teleprinter-instruction characters (e.g. CR LF CR).

**Control Unit**

9. The control unit is shown in fig. 5.2. It is supplied with power from socket SK12 on the computer, phase B of the main being used for driving the motors, and the -150V supply for relay switching (the +200V supply is not used in the basic installation). The 'tape out' contacts on the auto-transmitter sense the tape slightly in advance of the peckers and disengage the clutch when the tape runs out, the motors stopping if no character is transmitted for about 80 seconds. The 'taut-tape' switch also disengages the clutch: when the motors stop, relay MR, which is in parallel with them, is de-energised and causes relay C to become energised provided that there is some tape in the auto-transmitter. Relay C switches relay D, which breaks the clutch circuit at another point, this condition persisting as long as the 'taut-tape' arm remains up.

10. When the 'taut-tape' arm is lowered, relay C, and hence relay D, is de-energised; but a release delay of at least 100 m.sec. on relay D allows relay E to operate, which switches the motors on by operating relay MS, brings in the thermal delay switch, and keeps the clutch coil on open circuit. When the delay switch changes over, relay TH is energised and relay E is switched off, allowing the clutch to operate again.

11. The delay device used during automatic carriage-return is a gas discharge tube controlled by a charging capacitor. A glass window is set in the desk skinning to admit ionising photons. When the carriage reaches the preset limit, the 'carriage counting' contacts close and relay A is energised; the effect of this is to break the clutch-coil circuit, to apply HT to the discharge tube, and to prepare a hold-on circuit for relay A through the 'off-normal' contacts, which open only at the beginning of a line. When the tube strikes, after the last character has been set up and printed, relay F is energised, causing a 4$\mu$F capacitor to be discharged through the 'trip' coil that releases the carriage-return spring, and energising the 'non-print' coil that arrests the printing hammer. The carriage then returns to the start position, breaking the 'off-normal' contacts, de-energising relay A, and hence closing the clutch circuit and switching off relay F.