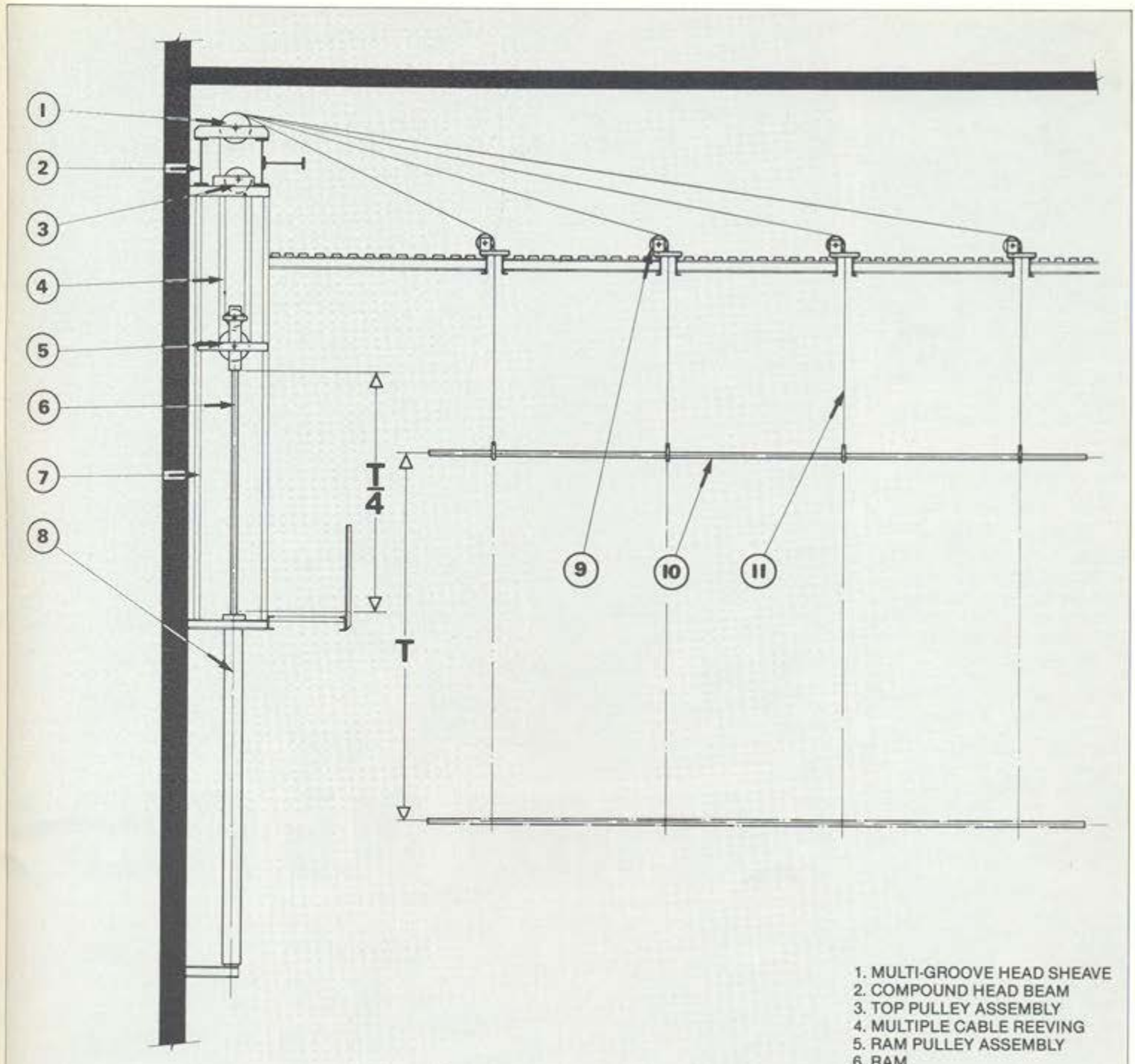

1. MULTI-GROOVE HEAD SHEAVE
2. COMPOUND HEAD BEAM
3. TOP PULLEY ASSEMBLY
4. MULTIPLE CABLE REEVING
5. RAM PULLEY ASSEMBLY
6. RAM
7. RAM PULLEY GUIDES
8. HYDRAULIC CYLINDER
9. SUSPENSION PULLEYS
10. SCENERY BAR
11. SUSPENSION CABLES

Diagram showing basic hydraulic flying principle

The next question is "Where does the Computer fit into this form of Technology?"

We believe that we should take parts of the modern technology to serve us, rather than to control us, and for this reason we would like to consider the control of these equipments in stages.

We recognise fully the requirement that one should be able to remotely control these equipments even though it is clear that in many instances it will be necessary to brail sets from the fly floors and in that respect it is impossible to rule out and dispense with flymen completely. However, the modern servo valve does allow that the use of a D.C. voltage plus or minus 0 to 25 volts can control adequately the speed of these systems throughout their range. The modern proportional control valve can now be provided complete with its own electronics package which includes a pre-settable acceleration rate and deceleration rate as well as in many cases up to four pre-set speeds, should these be required.

Now, I reiterate, these components are standards for industry and are used to control robot machines and automatic warehouses so therefore their reliability is excellent.

The next quest is to control the position, or stopping positions, or the scenery.

Here there is a mechanical method in which deceleration valves are struck by cams driven either by the rotary winches or by some form of sliding actuator which will give smooth progressive decelerations and accurate stopping positions at all times. These cams being available for manual readjustment or by the addition of a small electric servos or solenoids to give adjustment remotely. Most installations require some form of position readout, this in terms of a non coupled readout can take the form of a geared multi turn potentiometer coupled to the first grid drop pulley in any system that will accurately depict the set position as a digital number on a readout panel at stage level.

In non coupled systems we prefer to use a potentiometer as this does not require continuous voltage to maintain its memory of position as would be the case if a digital device was used.

More advanced schemes obviously can be provided with incremental shaft encoders, synchro's or other esoteric devices to provide digital information which can be displayed on V.D.U. screens or stored in a computer.

The developments in this field have a little way to go but the day must be close when the peripherals of lighting control equipment can be used to minimise costs and maximise the control facilities of scenery flying.

My plea would always be though, that we continue to use the best designed computer which we have, namely the human brain coupled to the human eye, using electronics only as a backup and as a safeguard to what surely must be one of the most human activities we have, surely all the world's a stage but we humans are the actors, actresses and administrators and we should control our art, not the computer! ●

**These initials stand for Transistor-Transistor-Logic, commonly called "discrete". This method preceded the current practise of using integrated circuits.*