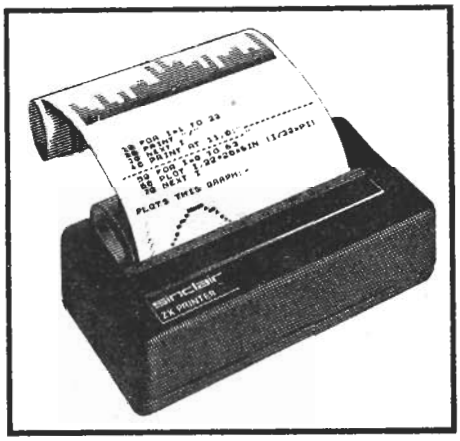
A 16K RAM module is available. This is compatible with both the ZX80 and the ZX81.

Clive Sinclair with is pocket TV. Ultimately it may lead to 'pocket' computers with graphic capabilities.



A preview of the ZX printer. Designed exclusively for use with the ZX81, it will also work on ZX80s equipped with the 8K ROM.

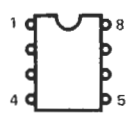
Flat, The Shape Of the Future?

Finally, Clive Sinclair recently announced the developement of a flat video picture tube. Initially, it will be produced as a pocket television, but word has it that the flat screen TV will be worked into the ZX computer system. This would result in a small, portable and very powerful system.

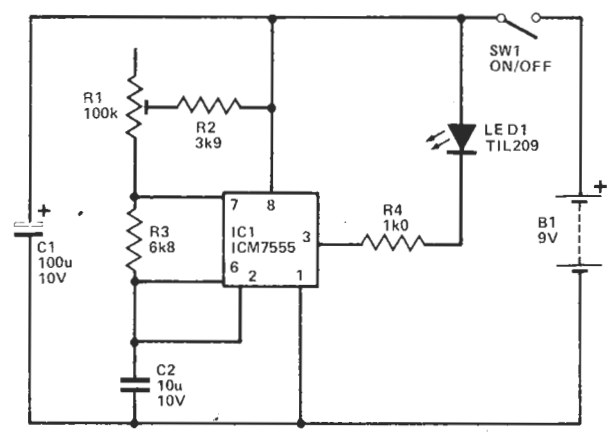
Having seen what has been promised, it would appear that ZX computer system is maturing to a level of power and capability at a price that should make it attractive to a large number of people. It's certainly worth a second look. ●

Designer Circuits

SIMPLE PHOTOGRAPHIC TIMER



ICM7555 TOP VIEW



Although this timing device may seem to be rather unsophisticated, it is a handy little gadget for timing darkroom exposures, or time exposures, or time exposures made on a camera with the shutter set to the "B" position. The unit simply flashes a LED indicator briefly at 1 second intervals. If, for example, one wishes to make a ten second time exposure, then the shutter is opened during any convenient flash produced by the unit, and then closed after a further ten flashes have been produced. Adequate accuracy for normal requirements can be obtained in this way.

The circuit is based on the CMOS version of the well known 555 timer device. The CMOS version has the advantage of having a current consumption which is only about one hundredth of that taken by the conventional version, and this is obviously beneficial in a battery powered piece of equipment such as this one. The average current consumption of the unit is actually less than 1mA., giving an extremely long battery life.

The CMOS version of the 555 operates in the same basic manner as the ordinary version, with timing capacitor C2 first charging up to ⅔ V+ by way of the timing resistors — R1 — R2 — R3. The device is then triggered into the discharge mode, resulting in C2 being discharged through R4 to a potential of ⅓ V+ whereupon the circuit reverts to its original state with C2 charging up once again. Contuous oscillation thus results. The frequency of operation is adjusted to 1 HZ by adjusting R1, and in practice this is adjusted by trial and error to obtain (say) 60 flashes in a one minute period. Longer calibration periods can be used if better accuracy is required.

The output of IC1 assumes the high state while C2 is charging, and the low state while it is discharging. As C2 charges via R1, R2 and R3, but only discharges through R4, the discharge time is therefore much shorter than the charge time. By connecting LED indicator D1 and its current limiting resistor R4 between the output of the IC1 and the positive supply the required brief flashes are thus obtained.