# FLASH TUBE

# LSD8

*Gas-filled discharge tube designed to give high intensity flashes at repetition frequencies up to 500 c/s (30,000 r.p.m.) for stroboscopic work.*

## GENERAL

| | | |
|---|---|---|
| Gas filling | Xenon | |
| Life at 50 watts mean dissipation | approx. 40 | hours |
| Warming up period before stable operation is established at mean dissipation of 30 watts (*See Note* 2) | 30 | seconds |
| Variation of time occurrence of flashes after stable conditions have been reached | $\pm 5$ | $\mu$ seconds |

## OPERATING CONDITIONS

| | | |
|---|---|---|
| Mean dissipation | 30 | W |
| Mean luminous flux at 100 c/s and mean dissipation 30 W | 30 | lumens* |
| Peak luminous flux at 1 joule per flash | $6 \times 10^4$ | lumens* |
| Flash duration at $<5$ joules per flash | 40—50 | $\mu$ seconds |

*Measured by photometric comparison with a 60 W gas-filled tungsten lamp.

## LIMITING VALUES

| | | |
|---|---|---|
| Max. mean dissipation (*see Notes* 3 *and* 4) | 50 | W |
| Max. repetition frequency of flash (*See Note* 3) | 500 | c/s |
| Max. working anode voltage | 2,700 | V |
| Anode to cathode breakdown voltage | 3,500 | V |

## OPERATING NOTES

### 1. Method of Triggering

Triggering may be effected by either of the following methods :

(*a*) *Using earthed-negative E.H.T. Supply*

The cathode is connected to earth and the anode to the positive E.H.T. line. The trigger electrode is fed from the E.H.T. line, via a high resistance and an EL 38 pentode is arranged to short the trigger to earth upon the application of a suitable pulse to its control grid (see Fig. 1).

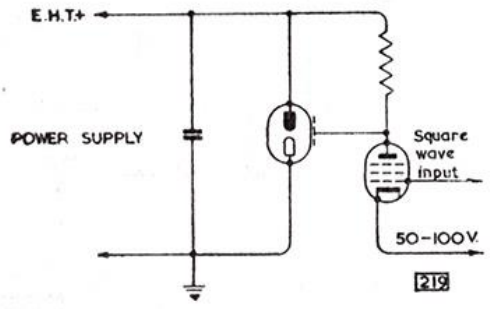



FIG. 1

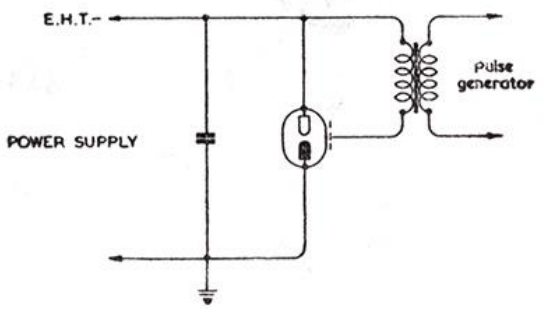



FIG. 2

(b) *Using earthed-positive E.H.T. Supply*

The anode is connected to earth and the cathode to the negative E.H.T. line. The ignition pulses, which should have a peak value of approximately 3.5 KV, are applied between the trigger electrode and the cathode by means of a step-up transformer (see Fig. 2).

### 2. Stability

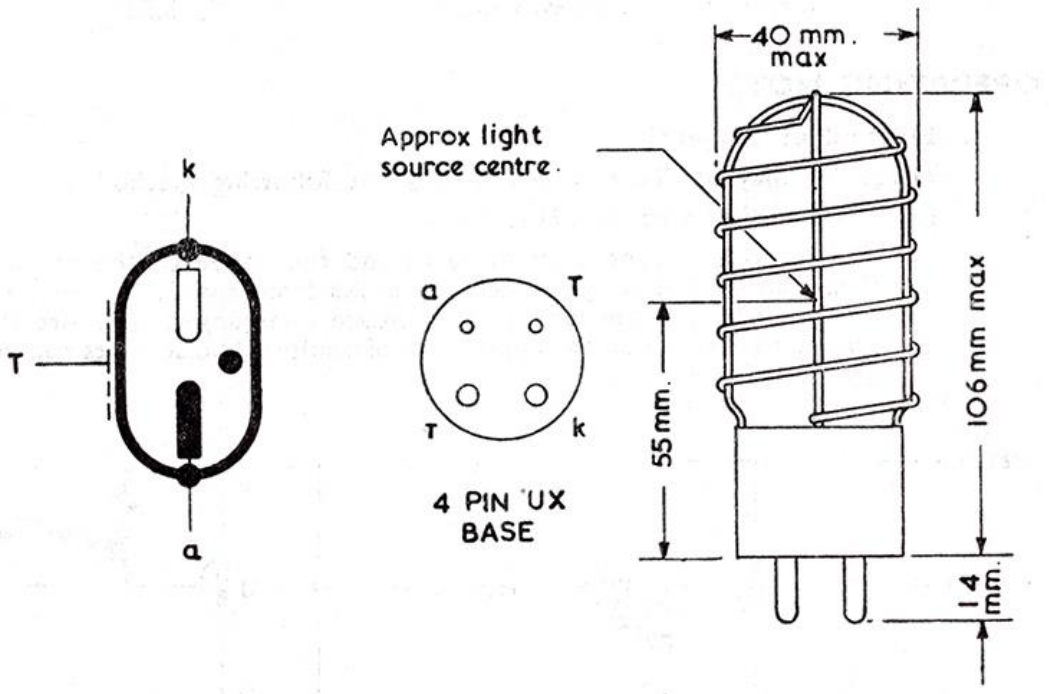
The operation of the tube will be stable as regards repetition frequency when the tube has attained a steady working temperature. At 50 watts mean dissipation this will be reached after approximately one minute ; and at 30 watts, within 30 seconds.

### 3. Assisted Cooling

With efficient forced air or water cooling the maximum mean dissipation may be increased to 200 watts and repetition frequencies up to 2,000 c/s (120,000 r.p.m.) may be employed. When water cooling is employed the water must be placed in an insulated container and effectively replaces the trigger electrode.

### 4. Limitations at Low Repetition Frequencies

When operating at very low repetition frequencies (e.g. one flash every two seconds), care must be taken not to exceed the maximum rated energy per single flash, i.e. 100 joules.

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