

INSTRUCTIONS TO OPERATORS. 'DREM' TYPE 'Q'.

1. Daily Test. The telephone line, generator and all lights are to be tested each day.
2. Night Crew. The minimum night crew in the shelter is 3 men and they must be on duty from one hour before dusk until dawn, during which time the telephone must be continually manned.
3. Warming up Engines. The engines are always to be ready for starting up at short notice during the night. During cold weather they will be warmed up at dusk and thereafter at intervals of three to four hours throughout the night. When the engines are cold they require warming up for 5 to 10 minutes before they will take full load. Engines which have been warmed up but which have stood for 2 to 3 hours should be run for a few minutes before full load is imposed. If the water in the cooling tank boils there is a danger of serious damage to the engine and the operators should telephone immediately to the Controller for instructions. Under such circumstances the engine should normally be stopped and allowed to cool down for 20 minutes.
4. Lighting up. On receiving instructions to light up, the generators are to be started up and the flarepath switched on. Where a dimmer is fitted this will be set at the strength indicated by the parent station. One man is to remain at the control switches and telephone and at all times when the lights are in operation one man will be posted outside the shelter for look-out duty and for operation of the headlamp.
5. Operation of the Lights.
  - (i) The stationary lights (i.e., the flarepath, the angle of glide light and the obstruction light) will be alight for as long as the 'Q' lighting is in use.
  - (ii) The variable lights (i.e., the funnel, the floodlight and the headlamp will be operated as under:-
    - (a) Funnel and floodlight - these will be operated to reproduce these lights on an R.A.F. Station.  
Examples of timing are:-
 

Lighting for one aircraft at a time

Z hours	Funnel turned ON
Z + 3 minutes	Floodlight turned ON
Z + 4 minutes	Floodlight turned OFF
Z + 5 minutes	Funnel turned OFF

From Z + 5 till Z + 15 Interval with no variable lights on.  
Z + 15 repeat and continue for the full period for which 'Q' lighting is ordered on.

Lighting for two aircraft landing in succession.

Z hours	Funnel turned ON
Z + 3 minutes	Floodlight turned ON
Z + 4 minutes	Floodlight turned OFF
Z + 8 minutes	Floodlight turned ON again.
Z + 8½ minutes	Floodlight turned OFF again.
Z + 9 minutes	Funnel turned OFF

From Z + 9 till Z + 20 Interval with no variable lights on.  
Z + 20 repeat and continue for full period for which 'Q' lighting is ordered on.
    - (b) To simulate aircraft on a north-east take-off (only when ordered by the Controller), turn on funnel for periods varying ½ to 1 minute at various intervals but floodlight not to be used.

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5. Operation of the Lights, continued.

(iii) Headlamp. - The headlamp is to be operated to reproduce the effect of an aircraft taxi-ing on the ground with its headlamp on. It should be turned on for about 6 seconds at a time and slowly rotated one-quarter of a circle to imitate an aircraft turning. As the lamp is slowly swung round it should be given sufficient (but not excessive) vertical play to imitate an aircraft taxi-ing on rough ground. In poor visibility the headlamp should be operated for 4 to 6 seconds and off for say 1 minute. In clear visibility the headlamp should be operated for 4 to 6 seconds and off for say 2 to 3 minutes. The headlamp is to be worked in this way for periods of 30 minutes or longer as ordered by the Controller. As soon as an aircraft is heard within about 3 miles of the site, i.e., as soon as he has had a good chance of seeing it, it should not be used again until the aircraft has left the vicinity. This is important as an aircraft close at hand might detect that the headlamp was stationary and not on a taxi-ing aircraft. The object of the headlamp is to attract an enemy near enough to the site to see the other lighting.

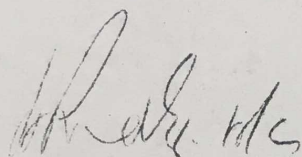
(iv) Floodlight. - The floodlight should be turned off when the enemy aircraft is judged to be say one mile away, i.e. after turning off the headlamp the floodlight is next switched off. This is important as no enemy aircraft should be allowed to see the floodlight from close range where the rough nature of the ground on the 'Q' site or any hedges, trees, ditches, etc., might lead to its detection.

6. On approach of Aircraft. When aircraft are heard approaching the site the operation of the headlamp will stop when he is judged to be about 3 miles away, but the operator will remain outside to watch and listen. The aircraft should be allowed to see the funnel and the floodlight operating, but if the aircraft approaches the site it can be assumed that he has spotted the lighting and the floodlight should next be turned off. If the aircraft circles the site the funnel should then be turned off. It is very desirable that the enemy should see this turning out by stages - the headlamp, the floodlight and the funnel.

7. Voltage. When lights ---, particularly the floodlight and headlamp, the greatest care must be taken to see that the voltage is kept at the correct level as marked on the voltmeter. This must be continually watched as otherwise there is a danger of all the lights blowing.

Note. The smaller generator ( $1\frac{1}{2}$  or  $2\frac{1}{2}$  kW) supplies current for the flare-path, angle of glide light, obstruction light and the funnel. The floodlight and headlamp are run off the 5kW Generator. The voltage drop between the generators and the various lights is considerable and is adjusted by (A) variations in sizes of cable used and (B) using lamps of different voltages (Flarepath lights 230V, Funnel lights 210V, Floodlight 230V, Headlamp and shelter lights 250V). The correct position for the voltage control at the generator is checked up for each site individually and is marked on the voltmeter by the engineers.

- 8. Friendly Aircraft. Constant watch must be kept for friendly aircraft which may be lost and which might mistake the 'Q' site for a real landing ground. Should any aircraft circle the site, the parent station should at once be notified.
  
- 9. Operations Log. A Log is to be kept in the shelter in which are to be recorded all instructions, messages and reports received from or sent to parent station, the times of lighting, strength used and weather conditions, etc. From this log will be compiled a weekly site lighting report (see specimen attached) which is to be signed by the Airman i/c and rendered in duplicate to the parent station.
  
- 10. Maintenance. General maintenance of the lighting equipment engine and generator will be undertaken by the Works Services of the parent station, to whom any defects should be immediately reported; minor matters only should be attended to by the site personnel. While running, a constant check should be kept on the governor to see that this is in working order. The governor should be checked, cleaned and oiled daily, but no adjustments are to be made to the setting.



for Air Commodore (Operations)  
Colonel Turner's Department.

29/4/42.

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