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18 November 1955

MEMORANDUM FOR: THE PANEL

SUBJECT : Infrared Sources

REFERENCE : Memo for: C/TSS/APD (dated) 15 November 1955
 From : C/TSS/WAD
 Subject : Same as above

1. The 13 specifications as set forth in the referenced memorandum are discussed as follows:

a. The "lightweight for aircraft installation" feature simply means that castings if used should be of aircraft type metals rather than the cast iron mountings we have been using in the past. There is no specific limit on weight; however, lightweight construction or aircraft type construction should be used throughout.

b. The mounting type should be of conventional yoke type which is controlled remotely by means of Servo electro methods.

c. The horizontal movement should be 120°.

d. The vertical movement 100°.

These features, though they may present some small engineering problems are not considered to be insurmountable.

e. Beam angle 2° to 40° or more.

This can be accomplished remotely by means of a fish scale type reflector with a moving-light source.

g. "Q dynamic loads up to 300 knots."

These specifications are normal for aircraft type installations and no particular difficulty in achieving this is anticipated.

h. "Minimum range 10° beam 1,000 feet (with AN/SAR-4 viewer)"

i. "Power requirements 125 amps at 28 volts dc or less."

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We have achieved somewhat in excess of a thousand foot range with a six degree beam and a 3,000 watt light source; Therefore, no particular difficulty is anticipated.

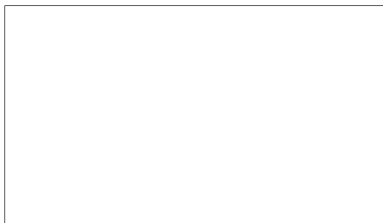
j. Light Sources. Tungsten is preferred over carbon arc due to the reliability factor.

k. Continuous use 15 hours - 30 hours has been achieved by using a 3,000 watt tungsten source.

l. The all weather capability means that it should be either weather proof or not adversely affected by inclement weather.

m. Ceiling. At present the anticipated use is in helicopter installations. However, if ranges in excess of 1,000' can be achieved and if other features of the gear are favorable, it is believed that there will be a possibility of installing this equipment on conventional type fixed wing aircraft where it would be conceivable that the ceiling would be approximately 45,000'. This will present a number of engineering problems, the partial answers to which should be in the files of any competent aircraft lighting company. On the basis of the requirements and specifications as set forth in the referenced memorandum, it is recommended that the panel favorably consider a project to develop this equipment.

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