Col Webb

[redacted]

9 June 1964

To: [redacted]

From: [redacted]

Subject: J-7 EXPOSURE CRITERIA

The customer has requested the installation of a Wratten 25 filter on J-7 in place of the usual Wratten 21 filter. The solar azimuth conditions that will prevail during the mission have been evaluated to ascertain which panoramic camera should contain the Wratten 25 filter and the slit width that should be used with this filter.

The launch window has been selected for 2300 Z to 2400 Z for a launch date of about 20 June 1964. The mission is planned for an inclination of 85°. The approximate solar azimuth, considering the vehicle heading as 0°, are as follows:

REV.	1	1	128	128
LAUNCH TIME	2300	2400	2300	2400
LATITUDE				
50°N	48	50	45	48
60°N	52	53	49	53
70°N	55	56	53	56
80°N	57	59	55	58
85°N	58	60	56	59
80°N	59	60	56	59
70°N	61	62	59	61
60°N	65	66	63	66
50°N	71	72	69	71
40°N	79	80	88	79
30°N	88	89	88	88
20°N	99	98	99	99
10°N	110	109	111	110
0°	119	118	121	119
10°S	128	127	130	127
20°S	134	133	136	134

The sub-solar point is generally in the forward quadrant of the vehicle hence it is recommended that the Wratten 25 filter be installed on the Master (forward) camera.

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Examination of density data has shown a tendency for the Master camera to have density values approximately 0.10 to 0.20 greater than the slave under somewhat more acute solar azimuth angles. It is anticipated that the Master camera density values would be generally 0.10 greater than the Slave camera with normal configuration under the J-7 flight parameters. This approximates a 1/4 stop exposure variation at a 2.0 processing gamma.

The Eastman Kodak exposure curves show a 1/2 stop greater filter factor when a Wratten 21 is replaced with a Wratten 25 using 4404 film emulsion. It is recommended that a 0.250" wide slit be installed on the Master camera which will produce 1/4 stop longer exposure times and thus make the resulting densities on the Master camera approximately equal to the Slave camera which will have the normal Wratten 21 filter and a 0.200" wide slit.

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Special Staff

cc [redacted]

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