

OFFICE MEMORANDUM



MICHIGAN

DEPARTMENT OF STATE HIGHWAYS

June 2, 1967

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To: L. T. Oehler, Director
Research Laboratory Division

From: M. H. Janson

Subject: Mercury Vapor "Super Lumen" Lights (Jewel Electric Products Inc.)
New Materials Project 63 NM-110. Research Report No. R-639.

A second comparison test of a Jewel Mercury Vapor "Super Lumen" Lamp and a General Electric Mercury vapor lamp has been completed. The first comparison test was reported in Research Report No. R-537 dated July 23, 1964. The report concluded that a 400-watt General Electric lamp consistently provided a higher level of illumination than the 750-watt Jewel lamp.

After receiving a report of the test, B. J. Tremayne of Jewel Electric Products stated that the wrong light had been tested. He maintained that a low-voltage lamp was tested and it should have been a high-voltage lamp. H. J. Rathfoot decided to place another lamp under test and, as stated in R. L. Greenman's letter of December 27, 1965 to E. A. Finney, R. C. Harp was to make a final determination with laboratory assistance as requested.

On February 24, 1966 a high voltage 750-watt Jewel lamp was installed in the I 96 rest area near Okemos Road and on March 2, 1966, R. C. Harp phoned a request for illumination measurements by the laboratory. The General Electric lamp installed for the first test was again used for comparison. Illumination measurements were made periodically until further measurements were not expected to show significant changes.

Results of both comparison tests are shown on the attached graph and table. The data can be summarized as follows:

1. Lumen output of the General Electric lamp stabilized more rapidly than the Jewel high-voltage lamp.
2. Lumen output of the Jewel high-voltage lamp was higher than the General Electric lamp for a short period of time but this time represents a small percentage of the average life-time.
3. The Jewel Electric lamps consume considerably more energy and produce less illumination than the General Electric lamp.

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We recommend that further study of Jewel lamps be terminated because the purpose of the comparison tests has been satisfied.

OFFICE OF TESTING AND RESEARCH

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MHJ:jcb

FT - CANDLES ON MEASURED PLANE AT "D"

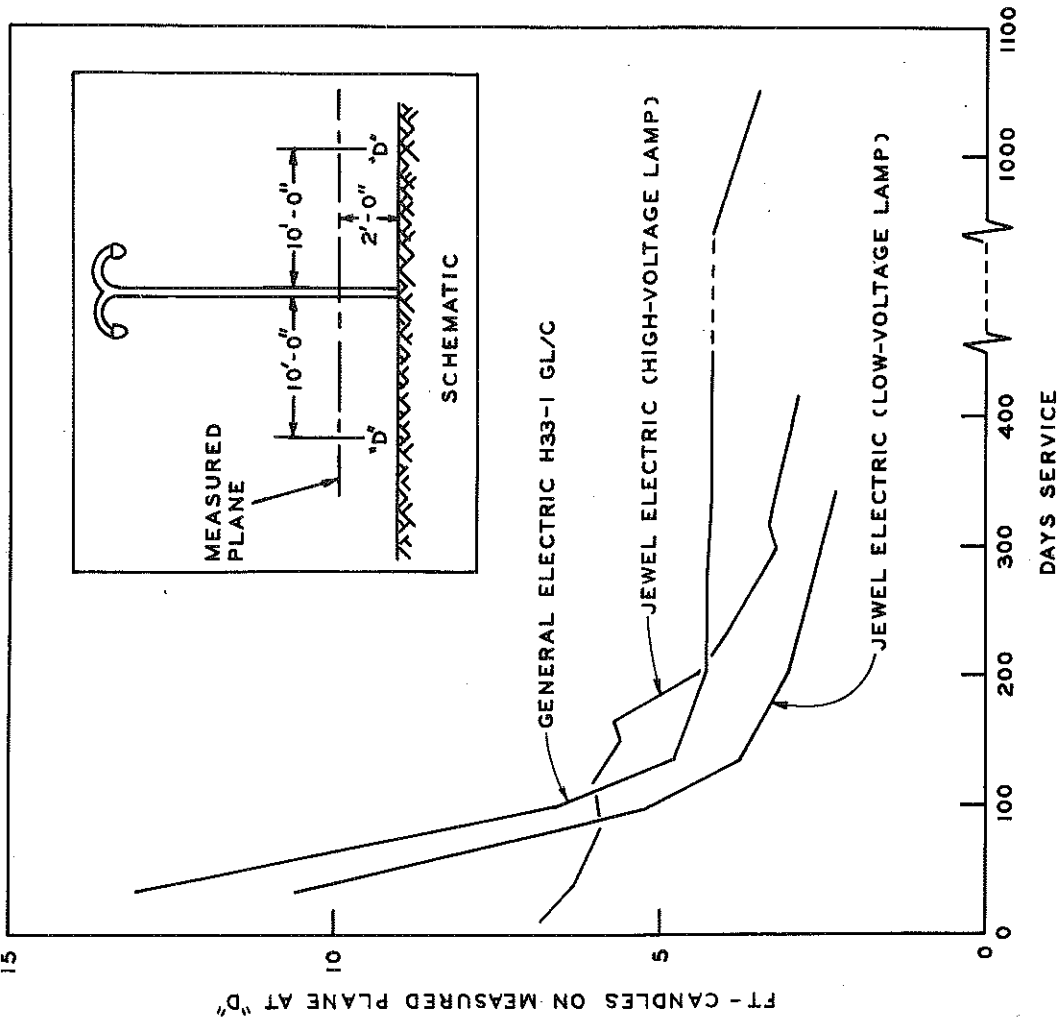


TABLE 1
ILLUMINATION VALUES, FT-CANDLES

Days of Service	Illumination Values, ft-candles		
	General Electric Lamp	Jewel Low-Voltage Lamp	Jewel High-Voltage Lamp
12			6.8
34	13.1	10.6	
40			6.3
84			5.9
99	6.6	5.2	
117			6.0
135	4.8	3.8	
150			5.6
165			5.7
200			4.4
204	4.3	3.0	
230			4.0
281	4.3	2.6	
298			
313			3.2
342	4.2	2.3	
418			2.9
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