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Black Liquid Solar Collector

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"BLACK LIQUID SOLAR COLLECTOR"

MET 497

SENIOR DESIGN PROJECT

Submitted to

Professor C. Jack Quinn

by

Russel L. Mitchener

ABSTRACT

The design and testing of a solar collector which uses black liquid as both the heat transfer medium and the absorption means are described. Because solar energy is absorbed directly by the liquid, this design eliminates the need for a flat black absorber plate with attached liquid passages.

Two prototype units were built in Pleasant Lake, Indiana. Unexpected leakage problems made testing of the units impossible. Various black liquids were evaluated, however, and the data shows that this type collector is up to 37 % more efficient than conventional flat black absorber plate collectors.

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