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SCIENCE NEWS LETTER

®

THE WEEKLY SUMMARY OF CURRENT SCIENCE



URS Corporation

Operation 'Sailor Hat'

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A SCIENCE SERVICE PUBLICATION

Our Stirling Engine: Just Add Heat.

It's a thermal engine—a remarkably quiet device that can run even on heat from the sun.

There are no explosions in the cylinders, just quiet expansion and contraction of the working fluid, pushing the pistons. The fluid—hydrogen or helium—is sealed in the engine. Heat to expand it can come from any outside source . . . burning fuel, a nuclear reactor, a heat storage system, as well as the sun.

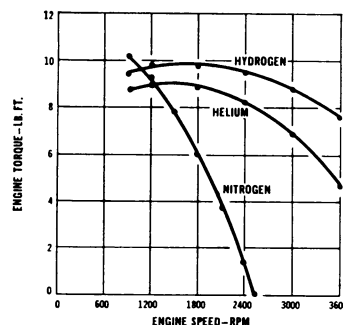
The Stirling cycle is reversible, too. Crank in mechanical power and the engine absorbs heat, becomes a refrigerator.

Invented back in 1816, the Stirling Thermal Engine is now becoming practical for modern applications. Current improvements have grown out of a cooperative development program with N. V. Philips' Gloeilampenfabrieken, of the Netherlands. Performance of the latest models is encouraging (40% thermal efficiency, for instance, compared to about 28% for conventional spark-ignition engines). An experimental three-kilowatt generator set is being tested for Army field use, where quiet is important. Inaudibility at 300 feet has already been attained.

The Research Laboratories and other GM groups are also studying Stirling systems from five to five thousand horsepower, for applications ranging from under the sea to outer space.

At GM Research, engineers study all kinds of engines. The research may be all-encompassing, from basic thermodynamics and engine cycle analyses to the design of prototype units. It helps us find a better way.

General Motors Research Laboratories Warren, Michigan



Effect of working fluid on engine output—from a recent GMR paper on Stirling engine research.

