

TECHNOLOGY

Need Throw-Away Engine

Army hopes to find an engine that can be abandoned as cheaply as repaired. A promising engine is the small gas turbine now being tested.

➤ THE ARMY is looking for a "throw-away" engine to power its lightweight combat vehicles, hoping to find an engine cheaper to abandon when it breaks down than to repair.

Although the term "throw-away" is used as a figure of speech, Capt. R. H. Sawyer of the Army Ordnance Corps, Detroit Arsenal, says the quest for such an engine is no dream.

"Sometime in the future," Capt. Sawyer states, "the throw-away engine can be realized."

The need for such an engine, together with faster and lighter vehicles, has been brought about by a change in modern warfare. Emphasis today is on getting troops where needed in a hurry. To do this, the military will need many more very small wheeled and tracked vehicles than they now have.

To accommodate this radical shift in ordnance thinking away from large, heavy, high-powered vehicles, the automotive industry will have to begin new programs to develop small, light, medium-horsepower engines, Capt. Sawyer points out.

An ideal engine would be a "super-powerplant giving one horsepower per cubic inch of displacement, one horsepower per pound of weight, and costing less than one dollar per horsepower."

Right now, Capt. Sawyer says, the Army is getting one horsepower for about five or six dollars, an output of about one-half horsepower per cubic inch, and a weight of approximately four and one-half pounds per horsepower.

Pointing out that engines outliving the vehicles they power are wasteful, the Ordnance expert thinks the answer to the military's problem lies in the engine that could be "factory tested, sealed, issued and written off."

A promising engine for the future is the small gas turbine, operating on regenerative cycles. This engine, now being tested, might be ready in three years.

Although the engine is not as good on fuel as the piston engine, its small size is highly desirable.

Initial cost is still high, Capt. Sawyer says. The small gas turbine runs about \$40 per hp., but "we hope to reduce cost below the five dollars per hp. cost of the piston engine."

One of the guiding principles for the development of the "throw-away" engine would give the Army commander during a battle situation the decision as to whether the vehicle could be or should be abandoned.

It would also benefit the civilian automotive industry. With slight modification, Capt. Sawyer believes, the new engines could be used in sports cars, small trucks and as standby power sources.

Their low cost and fuel economy would make them ideal for second cars, and they could provide a backstop should the nation's economy ever not be able to afford the luxury of 200-hp. engines in low-priced cars.

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PSYCHOLOGY

Treating Alcoholism

➤ THE AIR FORCE has saved more than \$1,000,000 through a small experimental program for giving treatment to chronic alcoholics before they were lost to the service through court martial, imprisonment or separation in disgrace.

The treatment program was tested at the 3700th U. S. Air Force Hospital at Lackland Air Force Base, San Antonio, Tex.

Results with the first 50 cases, producing the million-dollar saving, are reported in the *American Journal of Psychiatry* (June) by Maj. Louis Jolyon West of the Air Force and the University of Oklahoma School of Medicine and Master Sergeant William H. Swegan, psychiatric social worker at the hospital and A.A. worker.

The patients treated ranged in rank from basic airman to colonel. The average length of service was ten years. The basic airmen had previously held higher rank but had been demoted as a direct or indirect consequence of alcoholism.

Only 13 of the 50 cases (26%) are considered as failures, and a follow-up showed three of these benefited enough from the treatment so that, after a return to civilian life, they adjusted successfully and stayed sober for over a year.

An additional 10% were lost track of after treatment because they were transferred overseas.

Another 14% are considered improved, although they have had one or more bouts of drinking since their treatment began.

But 50%, 25 cases, have been sober since treatment began and have been continuously successful in performing their duties.

It is hard to put a money value on this saving of human resources, self-respect and morale, the report indicates, but in terms of the cost of replacing a highly trained airman or officer, the figure is high. Estimates put the cost of replacing a man with four

RADIO

Saturday, July 21, 1956, 1:45-2:00 p.m. EDT
"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Dr. Thomas A. Garrett, medical director of J. B. Roerig & Co., Chicago, will discuss "Peace of Mind."

INVENTION

Patent Method for Stabilizing Wines

➤ FOR A METHOD of stabilizing wines to keep harmless deposits from settling in the wine bottle, William A. Wiseman of London, England, was granted patent No. 2,754,212. He assigned the patent rights to W. & A. Gilbey Ltd., of London.

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years of service at nearly \$15,000. An electronics technician is worth \$75,000 to the service. Officers are worth proportionately more and the training of a qualified jet pilot ranges up to \$500,000.

The report estimates that the cost of replacing an average patient among the 25 salvaged in the program would be \$40,000. This adds up to more than a million dollars for the salvaged of the first 50 patients.

The treatment program was very flexible and adapted to each individual patient. Of the 50 patients, 16 received medical and psychotherapeutic help, 12 received assistance from A.A. only and 22 received combined medical and A.A. treatment.

All hospitalized patients were given heavy doses of vitamins. Those who showed any signs of adrenal deficiency were given adrenal cortex extract or lipoadrenal cortex. Any who requested it were given Antabuse, which is supposed to make the patient sick of the taste of alcohol.

Treatment of alcoholics has been a serious problem in the military services, the report indicates. In the good old days, it was traditional for the military man to be a hard drinker.

However, today, when military duty requires a high level of alertness and individual responsibility, official policies tend to severe punishment of heavy drinking in spite of the unofficial acceptance of it.

So the alcoholic may go through a dismal procession of failure, demotion, imprisonment and discharge. Or he may be separated from the service for a variety of reasons, AWOL, financial irresponsibility, or more serious trouble.

Without even a good approximation of the number of chronic alcoholics in the military service, it is impossible to estimate the cost of this disease, the report states.

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