

. . . NORDBERG DIESEL ENGINES are easy to operate—simple to maintain

You just don't need special mechanical training to operate and maintain Nordberg "4FS" Diesel engines.

Their basic design and construction makes them easy to start and easy to keep going—day in, day out, with a minimum of attention. Routine maintenance is extremely simple . . . all parts are easy to get at.

These are reasons why Nordberg 1, 2 and 3-cylinder "4FS" Diesels are more and more in demand for all kinds of power jobs from 10 to 45 hp—for electric service from 6 to 30 kw (6,000 to 30,000 watts)—and for pumping jobs from 200 to 3000 gpm at 15 to 240 ft. total head.

Mail the coupon for full details.

NORDBERG MFG. CO., Milwaukee, Wis.

NORDBERG
BUILDERS OF AMERICA'S LARGEST LINE OF HEAVY-DUTY DIESELS

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Nordberg Mfg. Co., Milwaukee, Wisconsin

Send catalog covering Nordberg Type 4FS Diesels. I am interested in a unit for the following service:

Your Name_____

Company Name_____

Address_____

City_____ Zone___ State_____

4-253

More POWER NEWS

Begins on page 130

voltage and power at any point in the system, he can discover how the full-scale system works (or will work, if it has not yet been built), and how it might be modified to give maximum service. He will be able to solve nearly any problem concerning the design or operation of a system: transient and steady-state stability, load control, voltage regulation, relay application, etc.

The analyzer will incorporate 580 circuits in two separate units, one having one-third, the other two-thirds of the total capacity of the device. Each unit can operate separately or both together if the problem demands.

World's First All-Gas Turbine Tanker Ordered

London—(*McGraw-Hill World News*)—The first order for a tanker propelled exclusively by gas turbines has been placed by the Anglo-Saxon Petroleum Co, Ltd, operators of the Shell Tanker Fleet.

A single screw vessel of 18,000 deadweight tons, it is scheduled to be completed in 1956. It will be one of the "general purpose" class of tankers of which 50 are either on order or under construction for the Shell Fleet. The others will be powered by either steam-turbine electric machinery or by geared steam turbines, so that a direct comparison of the operating and maintenance costs of the three forms of propulsion will be obtained.

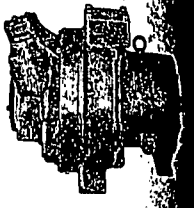
The first success was achieved in 1951 with the tanker *Auris* which became the world's first merchant ship to be powered by a gas turbine engine, fitted in place of one of the ship's four diesel engines. It functioned so well that it propelled the *Auris* across the Atlantic in early 1951 without any help from the diesel engines which were held in reserve.

The machinery will comprise two gas turbo-generators driving the single propeller shaft through two electric motors and a two-pinion single reduction gearbox. Power for all auxiliary requirements at sea and in port will be drawn from the propulsion gas turbines, including that required for the 2,000 ton per hour cargo pumps. A diesel generator will be provided to supply power for ship's services when the gas turbines are not in use.

Operating on the open cycle, each unit will have two-stage compression with intercooling. The h-p line will comprise turbine, compressor and geared auxiliary generator with exciter set; the l-p line will comprise turbine, compressor and propulsion generator.

For QUALITY Specify PYLE-NATIONAL Turbine

¼ to 120 h



The Pyle-National highly efficient impulse turbines is ideal for d... able mechanical dri... small machinery, such ... pumps, fans, blowers, ... abrasive wheels, ... and generators particu... where the exhaust steam ... be used for heating and ... purposes.

Since 1897 Pyle-National ... manufactured their ... entirely within their own ... ... thus assuring ... control of quality and ... manship through all ... of production ... from ... material to the final ...

SEND NOW FOR BULLE... containing complete in... tion on these small and ... dium capacity turbines.

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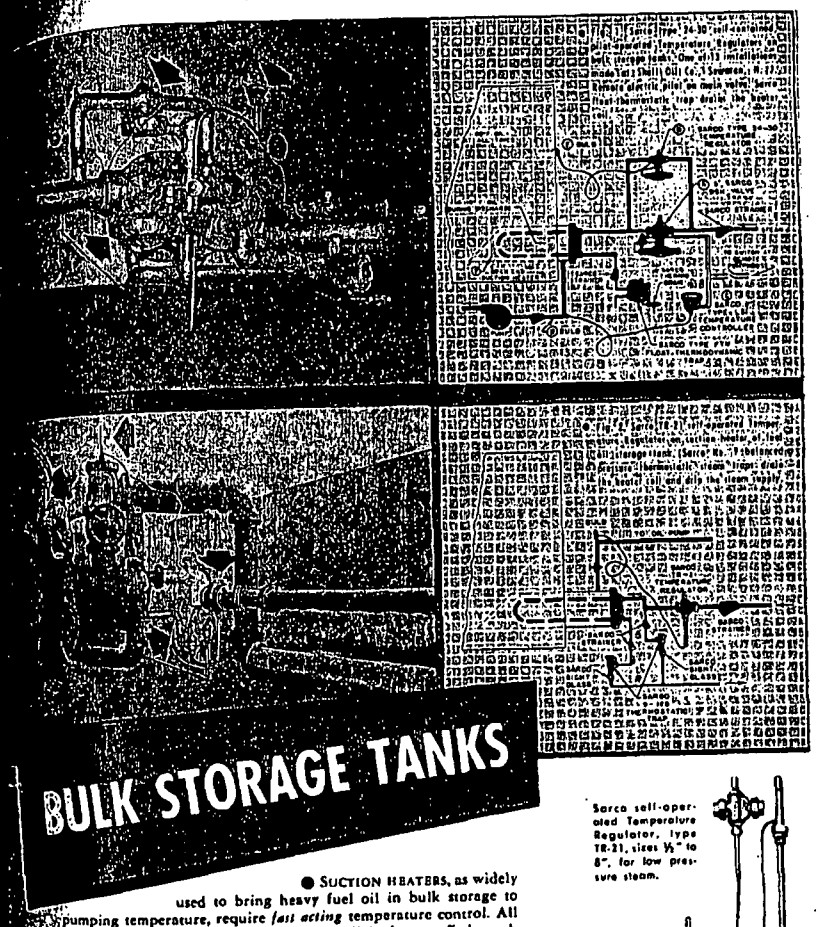


● SUCTION HEATERS, as widely used to bring heavy fuel oil in bulk storage to pumping temperature, require *fast acting* temperature control. All the controlling must be done while the oil is drawn off through the heater.

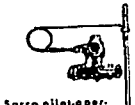
The control valve must be of the dead-end, *tight shutoff* type to prevent running away of the temperature when no oil is pumped out.

Sarco self-contained, pilot operated regulator, type 24-30, (Fig. 1) meets these requirements perfectly and will hold delivered fluid temperature constant within close limits.

Fig. 2 is a simplified hook-up for low pressure steam, using self-operated regulator, type TR-21

Send for a Questionnaire or write for Catalog 600-14, to Sarco Company, Inc., Empire State Bldg., New York 1, N. Y. Branches in principal cities. Sarco Canada Ltd., Toronto 8, Ont.

Sarco self-operated Temperature Regulator, type TR-21, sizes ½" to 8", for low pressure steam.



Sarco pilot-operated Temperature Regulator, type 24-30 for dead-end service and high steam pressure.



A Sarco pipeline strainer should be ahead of every regulator to keep out dirt and scale.

SARCO saves steam
improves product quality and output

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