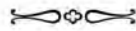


“New York Central No. 34”

Oil-Electric Tugboat



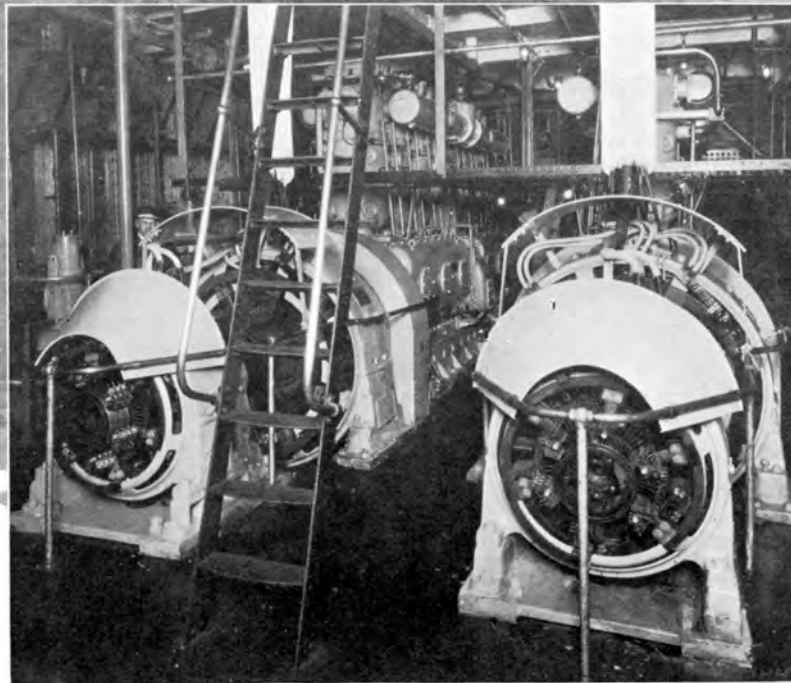
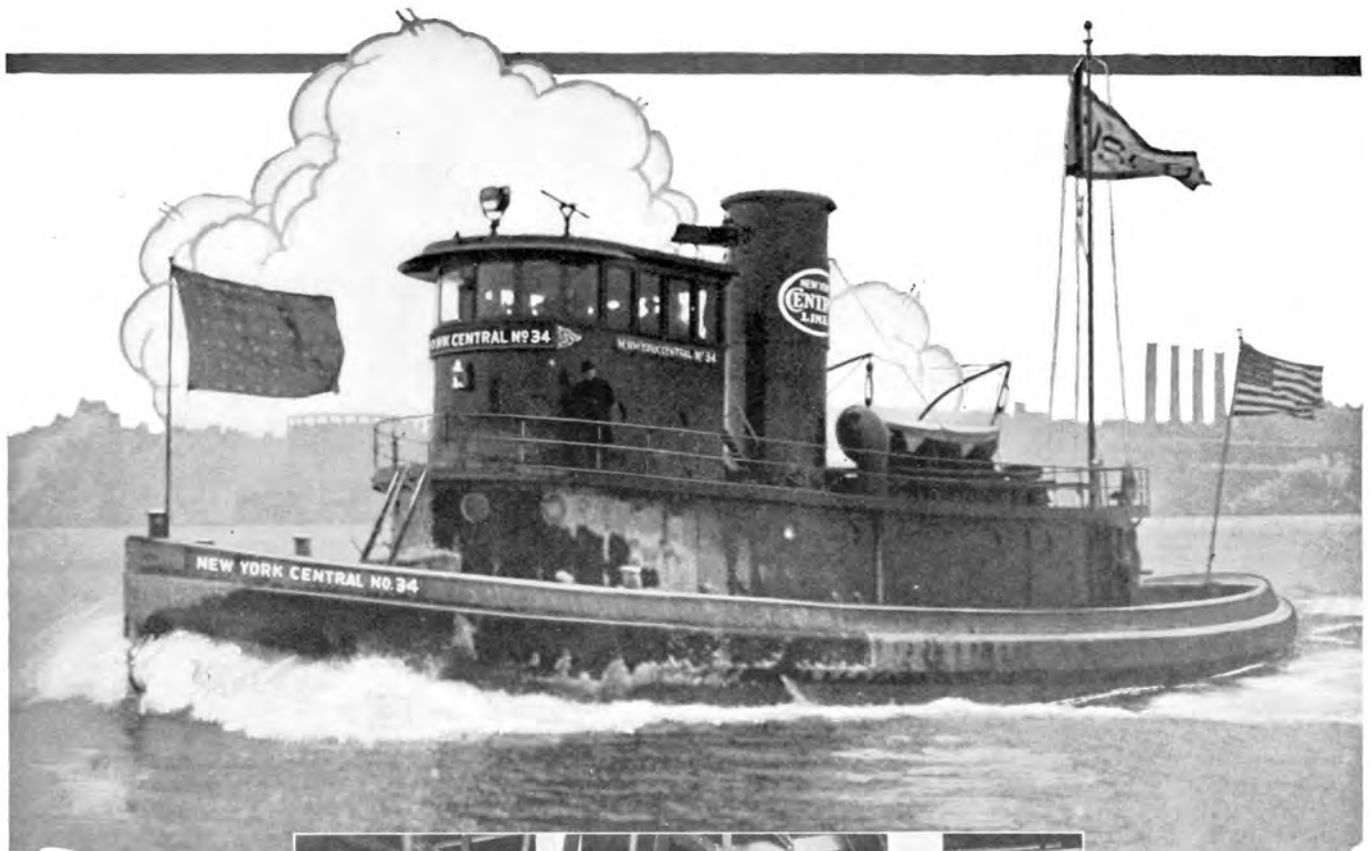
Latest Development in
Harbor Equipment



Equipped with Engines
by

INGERSOLL-RAND COMPANY

11 BROADWAY, NEW YORK



R-1353

"New York Central No. 34" is equipped with two 400 B. H. P. Ingersoll-Rand Oil Engines, each direct connected to a General Electric Generator and Exciter.

New York Central "No. 34"



THE "NEW YORK CENTRAL No. 34," recently put into service, has the distinction of being the most powerful oil-electric tugboat in the world. This tug, with its economical prime movers, pilot house control, flexibility of power manipulation, and ease of maneuvering, is thoroughly representative of the modern trend in harbor craft. Moreover, in propulsion and type of drive, it is considered a sound model for the great ocean liners of the future.

Oil-electric drive for marine propulsion is distinctly a post-war development in marine engineering. In the last eight years, it has been very successfully applied to yachts, tugboats, ferryboats, dredges, cargo vessels, fireboats, and tankers.

Ingersoll-Rand Company has taken an active part in this field of engineering. It is of interest to note that Ingersoll-Rand engines are installed in the "J. W. Van Dyke" (the largest oil-electric ship afloat), in the tanker "Brilliant", and in the three "Van Dyke" tugboats. In addition, Ingersoll-Rand engines are now being built for three large Atlantic Refining Co. tankers, two tugboats for the Panama Canal Commission, a tugboat for the

Long Island Railroad, and three ferryboats for the Golden Gate Ferry Company.

Interesting direct-drive installations include the ferryboat "Hudson-Athens" and the tugboats "Hustler", "Sonittep", "Samson", "Robert C. Bonham", "Grace", "Seba", and "New York Central No. 22".

Thirty Years of Marine Development and A Great Railroad

The marine activities of any great railroad may be taken as a reliable indication of that road's progressiveness, the quality of its service and its intrinsic worth. This is reflected by the modern floating equipment of the New York Central Railroad Co.

In 1898, a total of 143 craft of all kinds bore the emblem of the road as they plied the waters in the vicinity of New York. Of that number, 7 were ferryboats and 16 were tugs. There were 4 steam lighters, 6 steam hoisting barges, 27 car floats, 61 miscellaneous type barges, and 22 grain boats.

Today the fleet stands at 340 craft. Not only have the tugboats and barges doubled in numbers, but the modern trends have been religiously observed in replacement and additions. All of the coal burning equipment, with its attendant black smoke, was gradually replaced by oil burners.

Now, 66 car floats can handle 884 cars at one time and 25 tugs are always at the dispatcher's command. 40 refrigerator and heating barges, which handle perishable foodstuffs, are included in this figure, as well as 101 covered barges, 24 grain boats, 16 gasoline hoisting barges, 9 ferryboats, and a number of other lighters, oil barges and scow barges.

The advent of tug "New York Central No. 34", which marks an epoch of economical marine transportation, can well be considered a milestone in the Marine Department's progress. Its economy of operation, its power, its ease of handling in congested waterways, and its numerous other advantages place it foremost in an enlightened era of railroad auxiliary service.

Description of the "No. 34"

"New York Central No. 34" was designed by the consulting naval architects, J. W. Millard & Bros., New York. It was built and outfitted by the Staten Island Shipbuilding Company. The hull was launched on October 15, 1926, Miss Jennie M. Huttar of the New York Central Lines being the sponsor.

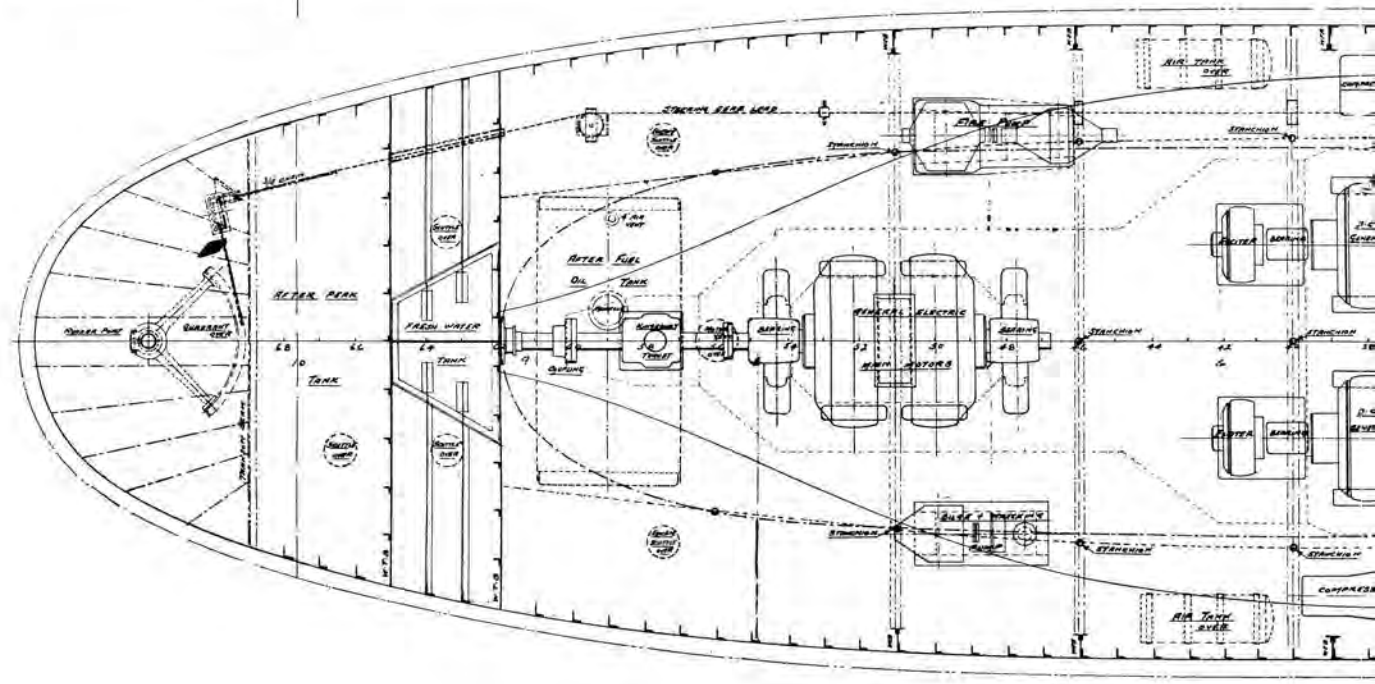
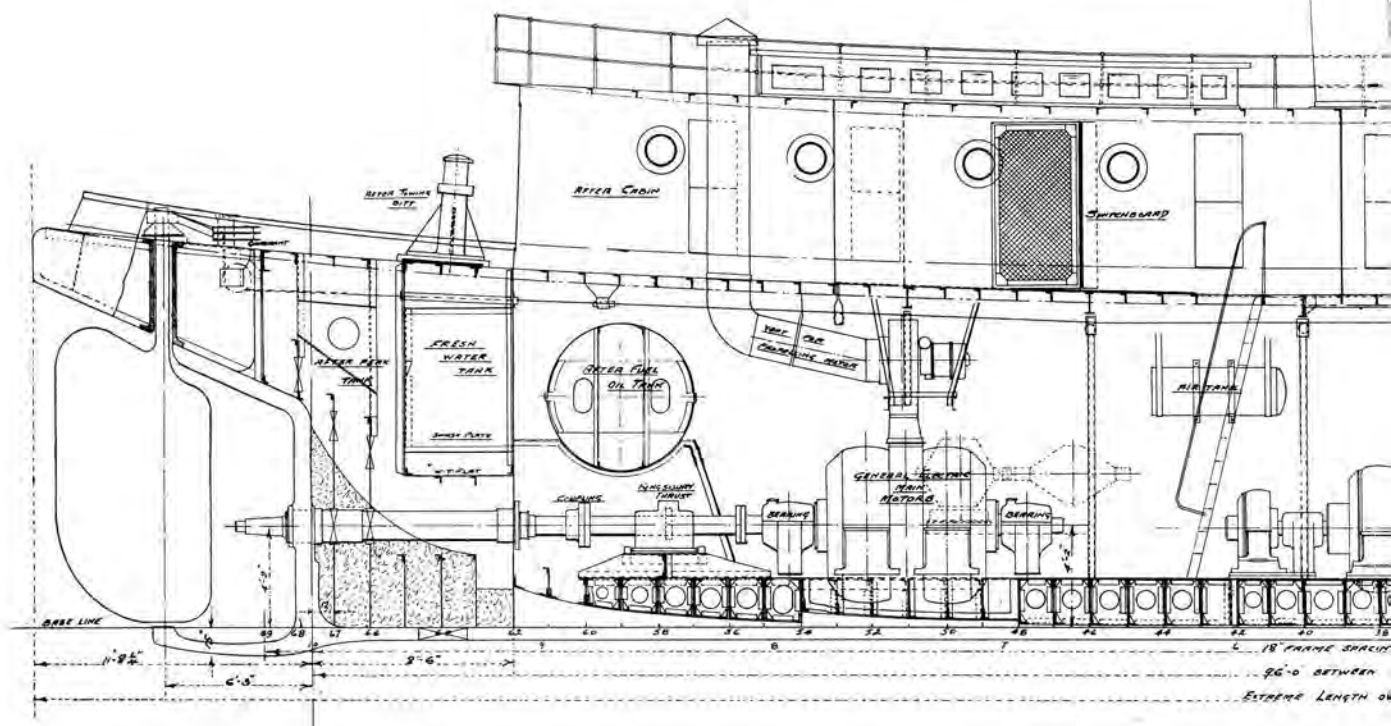
"New York Central No. 34", while built for towing car floats and barges in New York Harbor is fully equipped to take care of itself under all operating conditions. Among its

safety devices is included a complete fire-fighting outfit.

Principal Dimensions

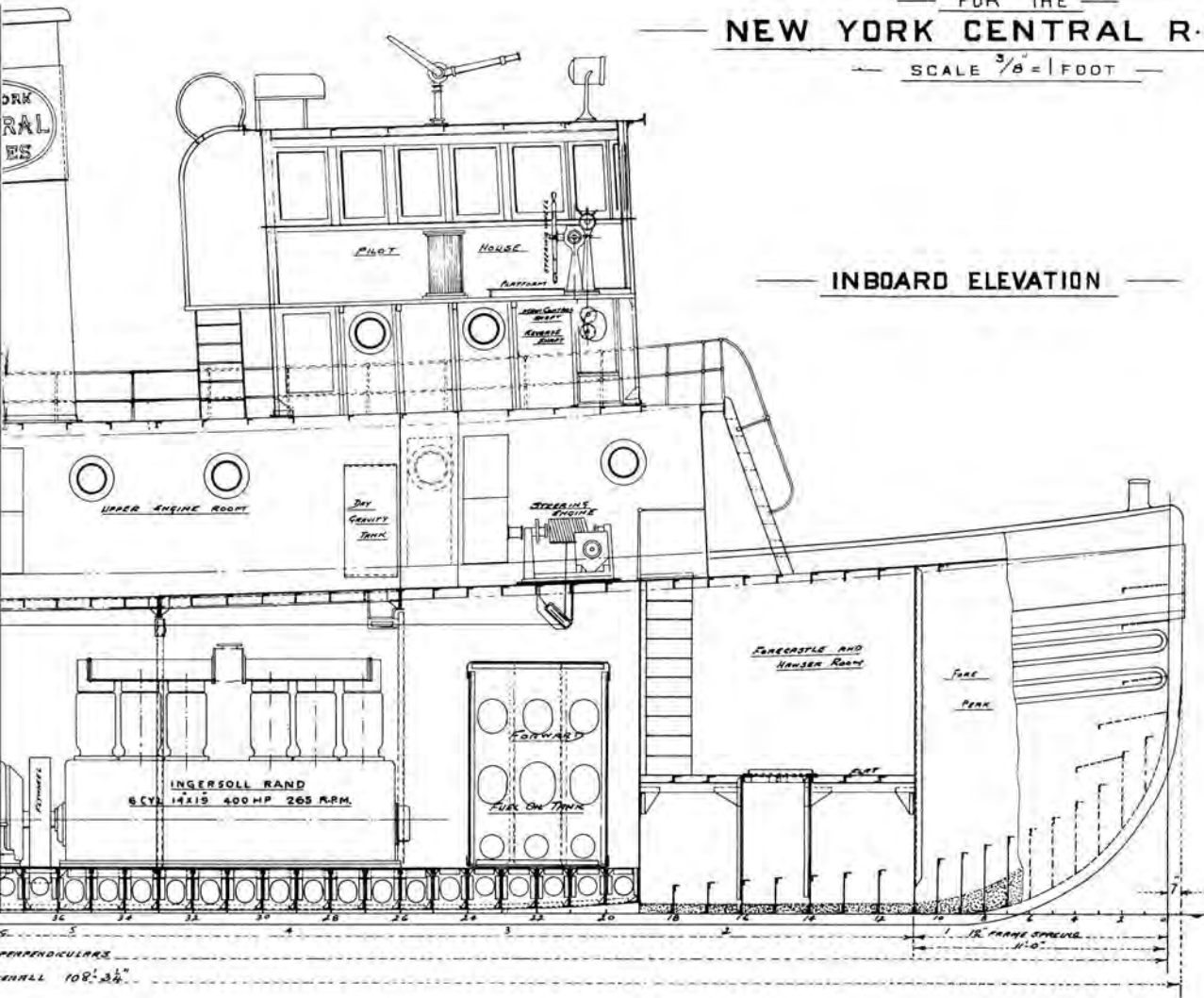
Length over-all	108 ft. 3¼ in.
Length b. p.	96 ft. 0 in.
Beam, molded	26 ft. 0 in.
Depth, molded	13 ft. 3 in.
Draft	9 ft. 0 in.

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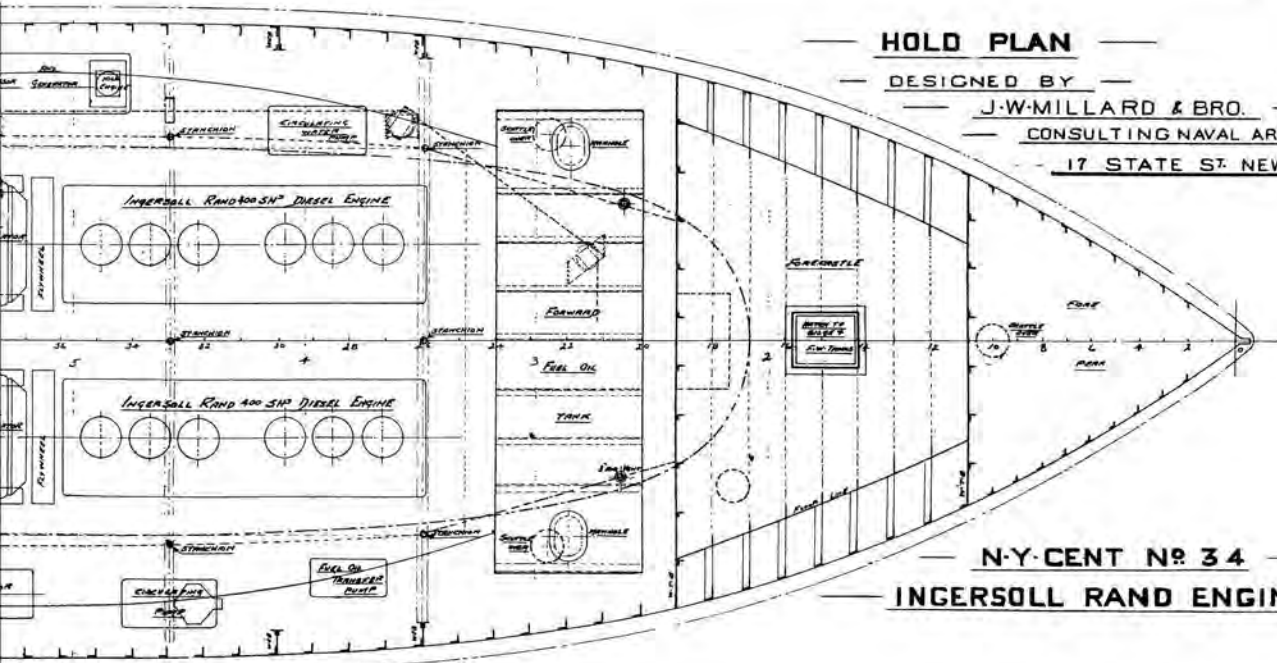


OIL-ELECTRIC
 SINGLE SCREW STEEL HARBOR TUGBOAT
 FOR THE
 NEW YORK CENTRAL R.R. CO

SCALE $\frac{3}{8} = 1$ FOOT



INBOARD ELEVATION



HOLD PLAN

DESIGNED BY
 J.W. MILLARD & BRO.
 CONSULTING NAVAL ARCHITECTS
 17 STATE ST. NEW YORK

N-Y-CENT NO 34
 INGERSOLL RAND ENGINES

Oil-Electric Propulsion

The oil-electric power plant of the "New York Central No. 34" consists of two Ingersoll-Rand Type "PR" 6-cylinder, 4-cycle, 14x19 inch oil engines—each direct-connected to a 270-k.w. General Electric compound-wound generator and 30-k.w. exciter.

These oil engine generating sets are non-reversing and operate at a constant speed of 265 revolutions a minute. The generators are connected in series and normally supply 480-volt direct-current for the 650-S.H.P. double-armature, shunt-wound propulsion motor.

The propulsion motor, which is direct connected to the propeller shaft, is capable of delivering full power of 650-S.H.P. at any speed from 115 to 145 r.p.m. This highly desirable characteristic for tugboat service is possible only with oil-electric drive.

Either one or both of these oil engine generating sets can supply power for either or both armatures of the propulsion motors.

Pilot House Control

The control of the "New York Central No. 34" oil-electric tugboat is entirely in the hands of the captain, stationed in the pilot house. He can maneuver this boat (which is over 100 feet in length) far more easily than he could an ordinary automobile. The control is flexible as to speed variations and is positive to the highest degree.

When maneuvering, the Captain keeps one hand on the steering wheel and the other on the control lever. With these, he can vary the speed of the propulsion motor from 0 to 150 r.p.m. for ahead and astern movements, and can maneuver the tugboat as desired. The craft can be turned around in almost its own length. Due to the conservative rating of the power plant, reserve power is always available for emergency use.

The direction and speed of the double-

armature propulsion motor are controlled by varying the voltage of the generators. The control levers, mounted on Cory pedestals, are located in both the port and starboard sides of the pilot house, convenient to the Hyde electric-type steering wheel. One lever controls the r.p.m. of the propulsion motor; the other, the ahead and astern direction of rotation. The levers are mechanically interlocked to prevent improper use.

Three meters show the electrical performance at all times. These instruments, which are mounted directly in front of the steering wheel, show (1) the motor field amperes, 25 to 150; (2) amperes line to motor (0 to 1500, ahead and 0 to 1500, astern); (3) the propeller r.p.m. (0 to 150, ahead; and 0 to 150, astern).

Solid Injection Marine Oil Engines

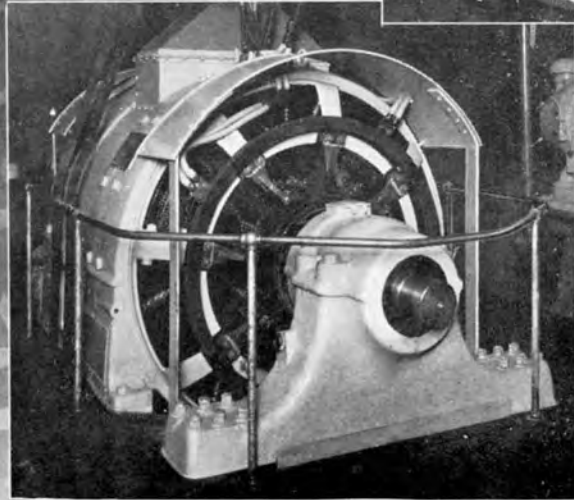
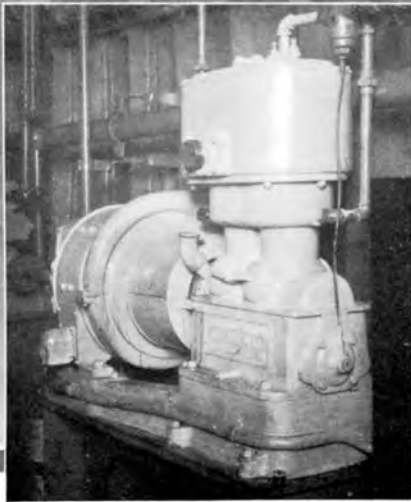
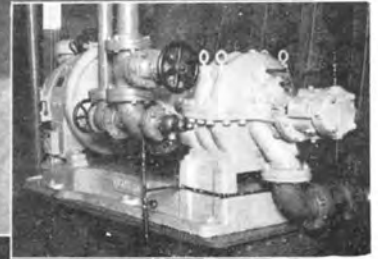
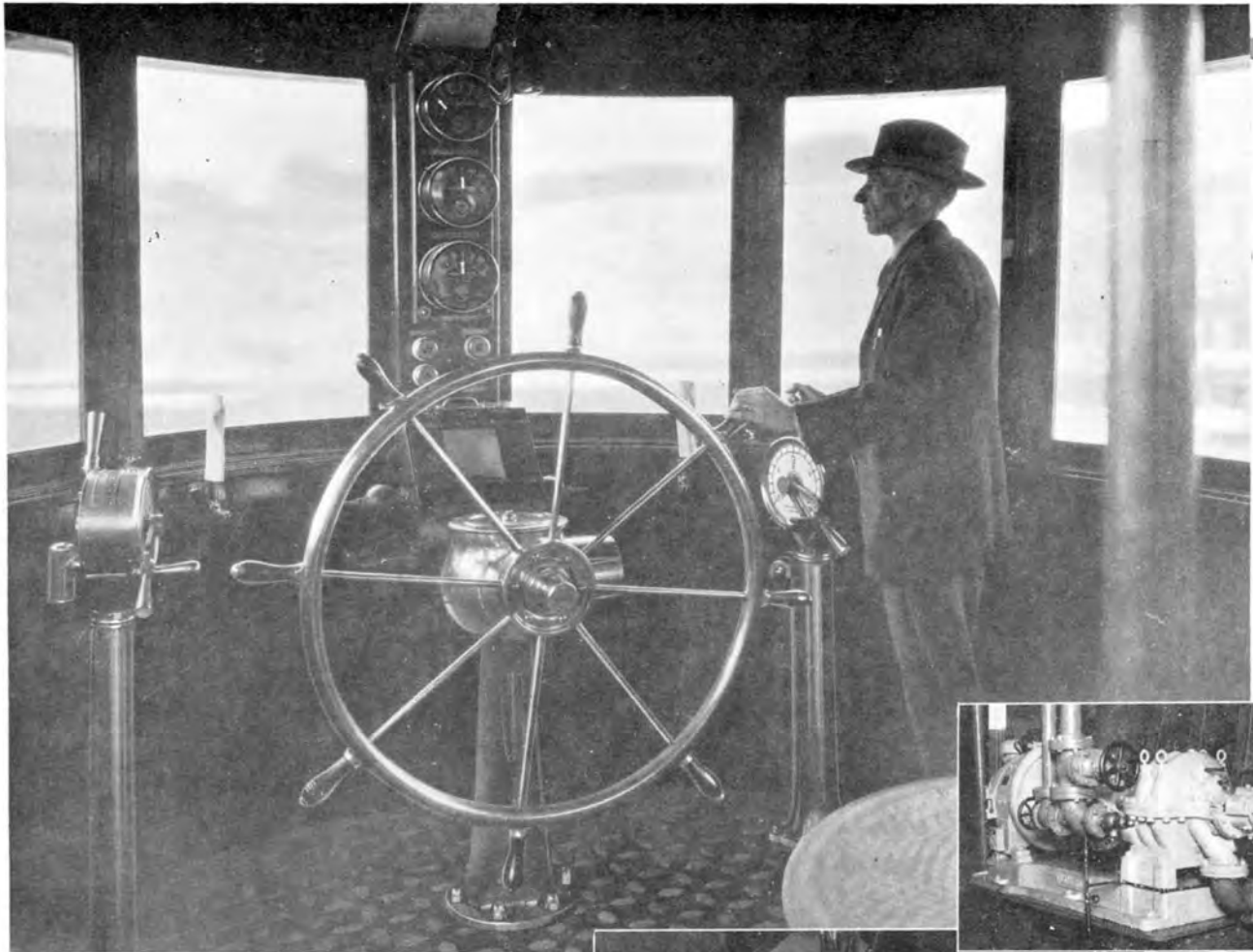
The Ingersoll-Rand oil engines, each of which develops 400 b.h.p. at 265 r.p.m., operate on solid injection of fuel oil. They are of the single acting, four-cycle type. The fuel oil is sprayed into the center of the combustion chamber through two opposing nozzles. This results in complete atomization and mixture with the air that is drawn from the atmosphere into the combustion chamber during the previous revolution.

The combustion occurs without the introduction of electric spark or high-pressure air, being produced as the vaporized fuel oil comes into contact with the oxygen and the heat of air compressed in the combustion chamber.

The simplicity and accuracy of this combustion principle, an exclusive feature of Ingersoll-Rand oil engines, is shown by the unusually high economy and freedom from smoke.

Motor Driven Auxiliaries

The electrical equipment, built by the Gen-



The Captain of New York Central No. 34 has complete control of this modern tugboat.

eral Electric Company, is designed specially for marine application. All the engine room auxiliaries are driven by motors. The power is supplied, through the various switch-board combinations, by power take-offs from the exciters.

A 6-h.p. Hill Diesel Engine, driving a 4-k.w., 120-volt direct-current generator, supplies power and light for stand-by service. The auxiliary generating set is also connected through a clutch to an Ingersoll-Rand Type 15, 4½x5 inch air compressor, which charges the air tank when no other power is available to start the main engines.

An Ingersoll-Rand Type 20 Compressor, driven by a 12-h.p. motor, charges the main air tanks from which the main engines are started.

A Cameron Multi-Stage Centrifugal Pump with a capacity of 500 g.p.m. against 150 lbs. discharge pressure is driven at 1700 r.p.m. by a 75-h.p. motor. This pump supplies water to three nozzles included in the fire-fighting apparatus.

A service pump of the Northern type (250-500 g.p.m. against 30-lb. head) is motor-driven at 575-1150 r.p.m. through herringbone reduction gears.

This unit is run at the minimum r.p.m. for pumping bilges. It can be used for pumping water out of barges at the maximum capacity.

Two circulating water and bilge pumps, Northern rotary type, are driven by 5-h.p. motors. These units have capacities of 175 g.p.m. against 30 lbs. pressure.

A fuel oil transfer pump, Northern rotary type, is driven by a 2-h.p. motor.

The steering motor (1½-h.p., 115-volt) operates at 550 r.p.m.

An American Radiator oil burning furnace is used for heating the pilot house, engine, and crew quarters.

Except for size, the "New York Central No. 34" is the same in exterior appearance as the others of the fleet. The stack, which is not required, has been retained for housing the exhaust pipes of the engines and for ventilating the engine room.





A later view of the wheelhouse of NEW YORK CENTRAL NO. 34, with a small wooden wheel in sharp contrast to the huge brass one shown on page 7 of the brochure, and the master's garb equally far from the business suit and fedora of old. Only a bit of the base of the engine control is visible here, and the floor tile has been replaced with plain linoleum. New York Central System photo, from Collection of Robert G. Herbert, Jr.

Passenger's choice for the *Coach of Tomorrow*

How New York Central's wartime travelers made post-war travel news!



Fighters, service wives, business men...these were some of the wartime passengers New York Central asked to become its post-war plans committee.

And how they responded! Thousands answered questionnaires telling what *they* wanted in future trains . . . choosing from newly developed ideas

and from features now on Central's latest coaches.

The car visualized here reflects their choice. And now this wartime guidance is helping New York Central's designers and engineers plan new trains that will mean more jobs and finer travel in the years of peace ahead.

HERE'S HOW THEY VOTED

RECLINING SEATS . . . The vast majority voted for adjustable coach seats developed from those now on trains like the *Empire State Express*.

WIDE VIEW WINDOWS . . . This was the winning window...extra wide, and non-fogging...ideal for viewing the scenic *Water Level Route*.

BIG DRESSING ROOMS
Large lounge-type dressing rooms were preferred 2-to-1 as against a number of small, individual washrooms.

CONDITIONED AIR . . .
Passengers voted 72° about right for winter. But for summer, most felt air conditioning should vary somewhat with temperature outdoors.



THRIFTY DINER . . .
Low-cost meals in a separate dining car . . . like the present *Pace-maker* diner . . . won against other plans for eating en route.

"NEWS & VIEWS" . . .
70% favored a Public Address System to announce stations and points of interest.



BUY MORE
WAR BONDS



NEW YORK CENTRAL

THE WATER LEVEL ROUTE



One of the last photos of NEW YORK CENTRAL NO. 34, believed to have been taken in the Boston area after her sale by Penn Central. She appears to be wearing the "Perlman green" color scheme with white trim, but the railroad emblem has been removed from her stack. Her name was never changed.
Collection of Steven Lang