Specifications:
Bus Power Plant

Main Power Plant

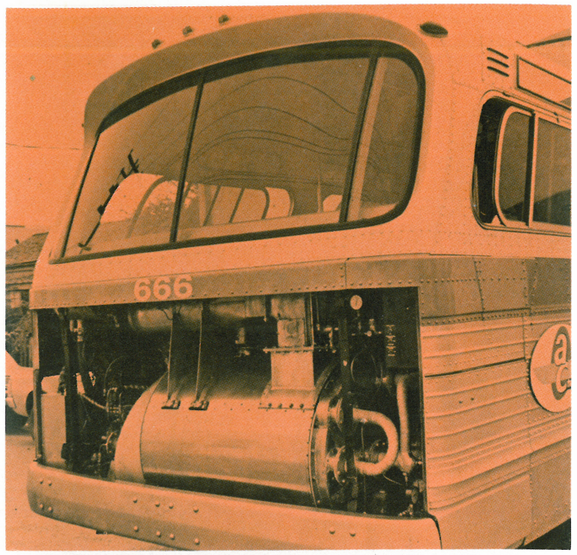
Steam Conditions	800 p.s.i.a. 850°F.
Steam Output	2450 lbs./hr.
Type: Expander	Double-Acting Compound
High Pressure Cylinders	One, 3½" x 5"
Low Pressure Cylinders	Two, 4¾" x 5"
Rated Horsepower	250 h.p. @ 2000 r.p.m.
Rated Maximum Torque	800 lb. ft. at 1200 r.p.m.

Auxiliaries

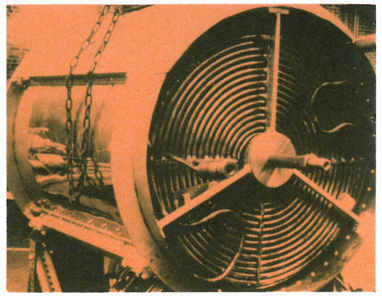
Electrical Alternators	12 volts 300 amps.
Condenser Core Face Area	Total 26.6 sq. ft.
Feedwater Pump Pressure	2000 p.s.i.a.
Blower	Multivane
Water Tank	50 gallons
Fuel Tank	85 gallons

AC TRANSIT
508 16th Street • Oakland, California 94612

INTRODUCING THE MODERN STEAM BUS



The steam generator assembly is installed in original diesel engine compartment at rear of bus. Automatic controls govern flow of fuel and water.



Steam generator, with flue end removed, shows monotube construction. A forced circulation of small amount of water and steam is induced through 1,400 feet of coiled steel tubing.

Special camera lens gives a futuristic look to AC Transit steam bus on cover—compatible with future potential of a modern steam power system.

Development of this steam-powered bus is a significant achievement—and an exciting one.

Although considered a prototype, it offers the potential of cleaner, quieter and more powerful urban mass transportation.

During the next few months, AC Transit, of Oakland, California, will test this bus in experimental, revenue-earning service. From this experience will come information on potential of the steam engine as a possible alternate to the internal combustion engine.

The value of steam as a non-polluting motive power has long been known. Steam autos and buses of the past are remembered with affection and respect—but hardly as practical for modern transportation.

To determine the modern application of steam power—one of the foremost of the external combustion systems—the experimental steam bus project was set in motion by the California State Assembly in December, 1968. The project was financed by a $1.6 million grant from the Urban Mass Transportation Administration of the U.S. Department of Transportation—first such grant of any size to be made to a state legislative body.

William M. Brobeck & Associates of Berkeley was one of three contractors selected for installing a complete external combustion power plant in buses operated by public transit operators in California.

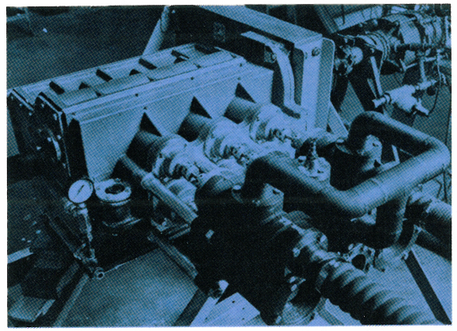
Brobeck was paired with AC Transit and was the first to complete engine laboratory testing. It steamed with flying colors through exhausting tests covering safety, endurance, fuel consumption and reliability.

Lear Motors Corp., Reno, Nevada, is providing a bus and power plant for testing by the San Francisco Municipal Railway. Steam Power Systems, Inc., of San Diego, is equipping a bus for the Southern California Rapid Transit District of Los Angeles.

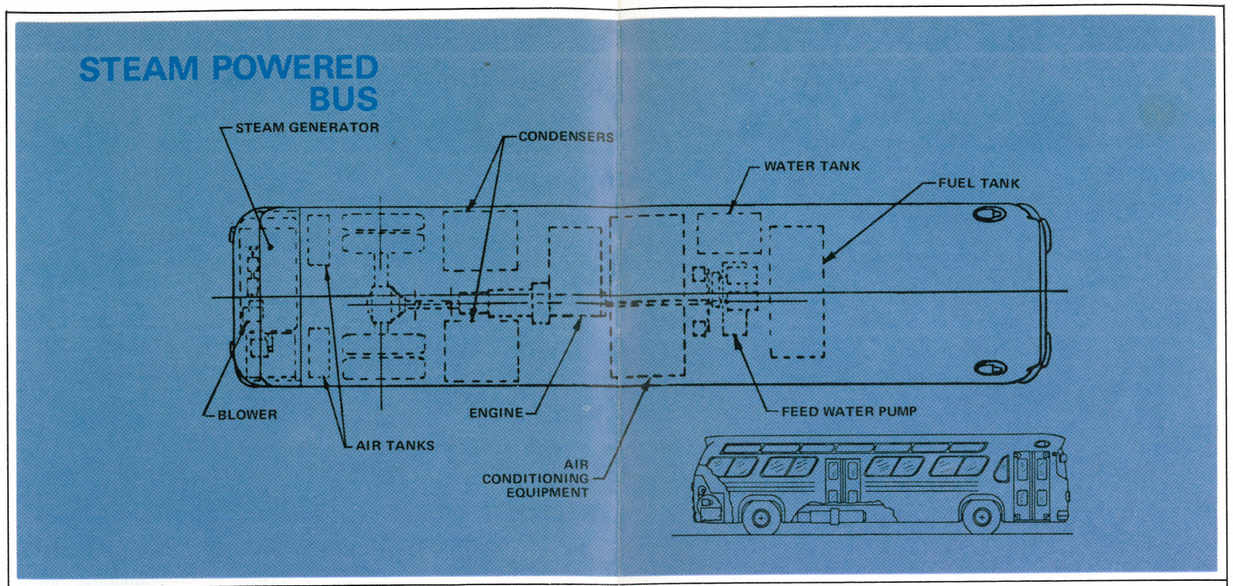
Project management is being provided by Scientific Analysis Corp., of San Francisco; technical management and evaluation services are by the International Research and Technology Corp. of Washington, D.C., through a field office in San Ramon, California. The California Air Resources Board and the California Highway Patrol are assisting in the testing and evaluation work.

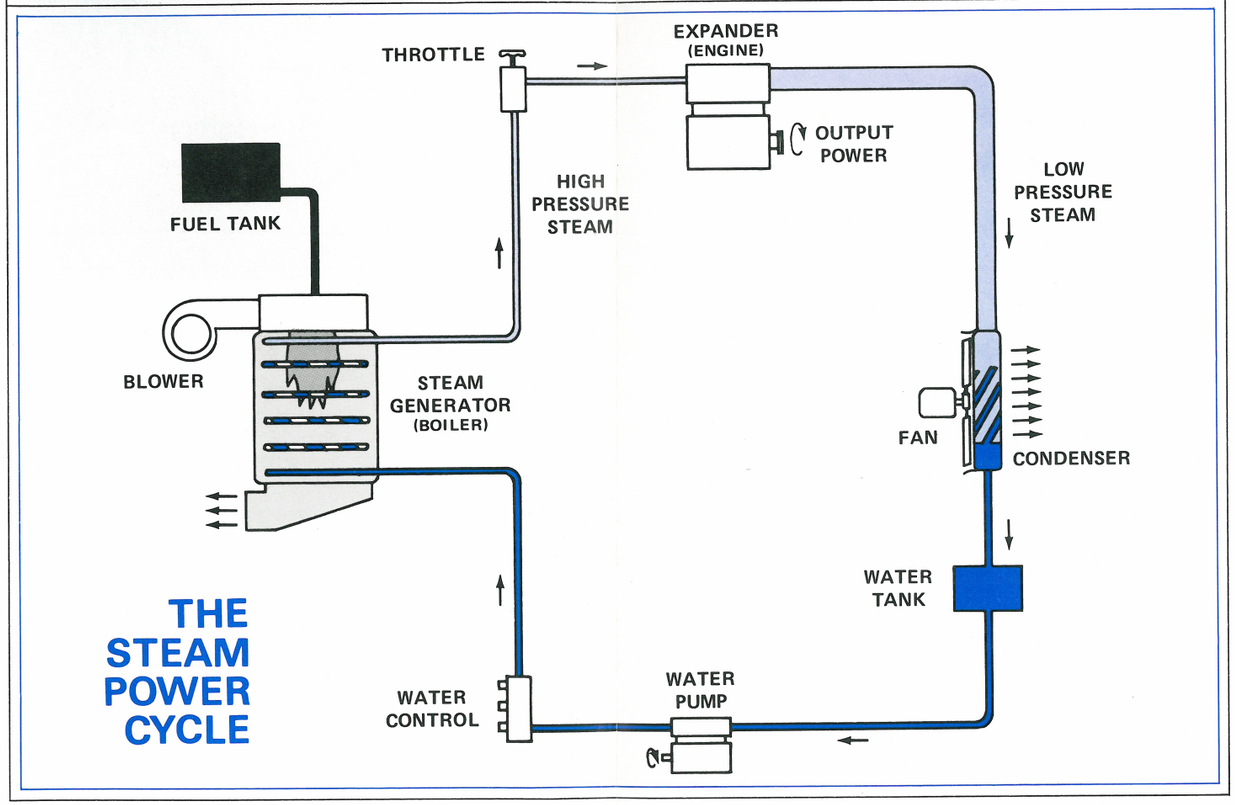
Further efforts will be required to bring the steam bus to the reality of the market place. But tests on the AC Transit steam bus have shown:

- The power system is capable of delivering more horsepower than the diesel system it replaced. The 51-passenger AC Transit bus used for the project was manufactured by General Motors and powered by a six-cylinder Detroit diesel (6-V-71) which advertised a maximum rating of 183 net horsepower at 2100 RPM. The Brobeck system, using a three cylinder double-acting compound expansion system has recorded 203 net horsepower at 2100 RPM using steam at 850 degrees Fahrenheit and 800 pounds per square inch pressure.
- Because of the higher horsepower and inherent high torque characteristics, the Brobeck system delivers greater acceleration.



Steam-powered engine, before installation in bus. The three double-acting compound pistons at right have one high pressure and two low pressure cylinders.





- Fuel consumption at present appears to be greater than the diesel replaced.
- All exhaust steam is recovered by condensers, eliminating any loss of steam.
- Substantially lower emission levels are expected.

Brobeck's steam generator, installed in the original engine compartment at the rear of the coach, is based on a monotube concept. Unlike conventional boilers, no steam drums are used. There is no boiler to rupture in the event of an accident. Rather, a forced circulation of a small amount of water and steam is induced through 1,400 feet of coiled tubing. A system of automatic controls governs the flow of fuel and water to provide the steam required by varying operational conditions.

The engine, condensers and auxiliary parts are mounted mid-coach, under the floor. There is no difference in the appearance of the bus. Familiar driver controls are retained.

From cold, the engine needs two minutes for sufficient power to move off and another three minutes before full power is available. Once on the road, the vehicle starts in 30 seconds—even after an hour's stop.

During its demonstration by AC Transit, the bus will operate on different lines in regular service.

The public will be asked their opinion in passenger surveys.

Extensive testing will measure exhaust emissions, smoke, noise, actual road performance, fuel consumption and general operating characteristics.

This is a new look and a new concept. It may well mean happier, quieter, cleaner, smoother and speedier public riding.