# FIELD-FEEDING & ADVANCED SUSTAINMENT TECHNOLOGY (FAST)

Field-feeding and Advanced Sustainment Technologies (FAST Food Service) is a paradigm shift in field kitchen technology. Current military unique appliances, open-flame burners, and diesel generators are being replaced by high capacity commercial appliances, closed combustion, and cogeneration.

## WHY IS IT NEEDED?

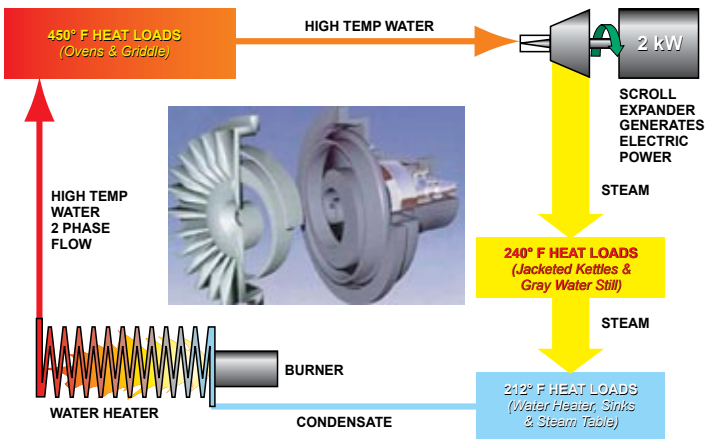
Current field kitchen technology is based on methods and equipment originally developed in the 1930s. Evolutionary improvements have put the 1930s equipment on different trailers and containers, converted burners from gasoline to JP8, and added generators. However, the appliances have low capacity requiring a series of batches that take excessive time and labor. The open-flame burners are inefficient, consume too much fuel, and overheat the kitchen. The sanitation center uses a four sink immersion process that consumes a lot of fresh water and produces a lot of gray water which must be back-hauled and treated. Accordingly, the military needs modern technology to reduce the logistical footprint of field-feeding including labor, fuel, water, and transportation requirements.

## TECHNOLOGY:

Field kitchens are largely heat-driven. They require a lot of heat and little electric power. They are excellent candidates for cogeneration (one process that provides two forms of energy). FAST Food Service, is designed around cogenerator that enables the use of high capacity commercial appliances. The appliance electric heating elements are replaced by finned tube heat exchangers. An oil burner, heats water to high temperature and pressure that is circulated in a closed loop, first through the griddle and ovens, and then injected in a scroll expander that drives a generator to produce 2kW of electric power. The expander also expands the hot water to steam which is then condensed in jacketed kettles, water heater, sinks, and a gray water still.

## KEY FEATURES / BENEFITS:

High capacity commercial appliances significantly increase the output of the kitchen and reduce the time and labor required to prepare meals. By burning fuel in a closed combustion system and "cogenerating" heat and electric power, fuel consumption is significantly reduced and the habitability and safety of the kitchen is improved. By integrating the sanitation function and recycling gray water, footprint, water consumption, and back-hauling are all significantly reduced. To feed a Maneuver Battalion, the number of kitchen systems could be reduced from 6 to 3, labor from 20 to 7, fuel from 120 gallons to 20, and water from 240 gallons to 40. The cogeneration technology has already been transferred to residential applications, which will provide continued product improvement and affordability for the military.





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