



Functional Specification for Diesel Fuel Servicing for Generators

To be Included with Annual Generator Maintenance Contracts

1. General

Diesel Fuel in generator tanks shall be serviced annually in accordance with this specification. Generator sub-base tanks, day tanks, and any associated underground or aboveground bulk storage tanks shall be included. Generator service contractor shall utilize a specialized sub-contract service for the fuel service to assure conformance with the technical specification.

2. Qualifications

Fuel Service provider shall be a firm regularly engaged in providing fuel services with a minimum 3 years of experience. The fuel service technician shall have completed a minimum 40 hours of operational and safety training, and shall have a minimum 6 month work experience in fuel servicing.

3. Access Control and Safety

Fuel Service specialist shall provide safety barriers and markings to secure the work area. Service vehicle shall have on-board a fire extinguisher, spill containment and cleanup materials, containers for waste disposal, personal protective equipment, and other items as required by applicable regulations.

4. Tank Water Removal

A high suction pump shall be utilized to remove all trace of water from the fuel tank bottom. The pump shall be a GenApp M20 or approved equal. Water removed shall be transferred to an approved storage container and disposed of in accordance with applicable regulations. Service provider shall maintain a tracking system for waste, which shall be available upon request. Up to 5 gallons of water removal shall be included in the base price for the service.

5. Fuel Filtration

- a) A circulation type fuel system shall be used to perform fuel cleaning. High efficiency filters shall be used to perform filtration in a single tank turnover to minimize time at site. Filtration shall consist of multi-stage filters with a final filter rated at 1 micron. The filter system shall include elements for entrained water absorbers, rather than coalescing elements which can be ineffective in ULSD. The filtration system shall be a GenApp M30 or approved equal. Filtration

shall achieve a minimum ISO 12/9/6 for generators made after 2015, and ISO 18/16/13 for older generators.

- b) Fuel filtration shall be accomplished through the tank fill port using a coaxial fitting for suction and return. The coaxial adapter shall be a GenApp V50C or approved equal. If special equipment is installed in the fill pipe, then an alternate tank fitting may be utilized. Separate supply and return port locations shall be discouraged to prevent spills and overfills.
- c) The suction pipe for the filtration shall rest on the tank bottom using a non-metallic thermoplastic port. The coaxial return flow shall terminate below the fuel surface to minimize vapors and foaming, and above the 50% level of the tank. Flow rates shall be 30 GPM or less in sub-base tanks to allow fluid flow between baffled sections.

6. Fuel Treatment

- a) Fuel shall be treated with (i) performance additive for cetane, lubricity, and detergent, (ii) biocide soluble in fuel and water, and (iii) where applicable a winterization anti-gel agent.
- b) Additives shall be used in accordance with the generator and additive manufacturers guidelines. Additives shall be as provided by the generator OEM, GenApp, or Power Service. Additives shall be accurately dosed using the GenApp M30A or approved equal. Additives shall be injected into the filter flow stream during the last 25% of the filter cycle to assure distribution throughout the tank.
- c) Additives shall be stored, transported, handled, and used in accordance with all applicable safety and environmental regulations, including use of personal protective equipment. MSDS sheets shall be available for inspection at the site.

7. Fuel Sample and Test

- a) Diesel Fuel Quality check shall be performed by an authorized dealer of the generator OEM, GenApp, or approved fuel testing service. Diesel fuel shall be sampled after cleaning is complete and as close to the bottom of the tank as practical. Sampling may be through the filtration equipment at the end of the cleaning operation or separately using a manual pump. The fuel sample shall be produced, stored, handled, and transported in accordance with the packaging and instructions of a nationally recognized fuel testing lab.
- b) Testing shall be performed in accordance with NFPA 110 and ASTM D975 requirements, and any other requirements of the generator OEM. The test report shall include results as a minimum for Cetane Index, Cloud Point, Density, Distillation, Flash Point, Sediment and Water, Sulfur Content, Oxidative Stability, Particle Contamination, Micro-Organism Culture, and Trace Metals. The test results shall include a comparison to OEM fuel quality recommendations and indicate any adverse results.

8. Fuel Delivery to Top Off Tank

Diesel fuel shall be provided to top-off the generator fuel tank to 90 - 95% fill level. Diesel delivery shall be in accordance with an established fuel safety plan that addresses the potential for spills and overfills. The diesel delivery shall occur before the fuel service procedures, or shall be provided pre-filtered and treated to meet the specification of the conditioned fuel.

9. Service and Test Records

A record of the service shall be provided as an electronic document, or shall be available online for secure customer access.