

# INSTALLATION INSTRUCTIONS FOR CLARKE ENGINES

(A complete Clarke Operation and Maintenance Manual is located inside the document pouch affixed to the engine)

1. Secure pump set to foundation and complete installation in accordance with pump manufacturer's instructions. Perform engine-to-pump coupling alignment. (Refer to Alignment Instruction Section of Operation Manual if a Clarke driveshaft is being used). If a Clarke universal joint driveshaft is used lubricate the bearings with NLGI grade #1 or #2 grease at the zerk fittings. If a Falk "steelflex" coupling is being used, lubricate Falk coupling with supplied grease.
2. **Note:** Clarke Operation and Maintenance Manual and other important engine reference documents, are shipped with each engine in the protective storage pouch attached to the side of the engine. **Please review all provided shipping documents before installing the engine.**
3. Install the heat exchanger discharge piping. The discharge pipe should be no smaller than the outlet connection on the heat exchanger. Discharge water piping should be installed in accordance with applicable codes. Clarke recommends that discharge water should be piped to an open waste cone. All plumbing connecting to the heat exchanger must be secured to minimize movement by the engine. Cooling loop water pressure to the heat exchanger must not exceed the limit that is stated on the heat exchanger supplied with the engine.
4. If engine coolant has been drained for shipping purposes refer to the Operations Manual for coolant type, capacity, and filling procedure.
5. Install the zinc electrode into the heat exchanger (do not use Teflon sealing tape) and the drain plug into the charge-air-cooler if equipped. *Note: Zinc electrode and drain plug are shipped loose with engine.*
6. Verify that the oil is filled to the proper level per Lubrication System section of Operation Manual. If engine oil has been drained for shipping purposes, refer to the operations manual for oil type, capacity, and filling procedure.
7. Connect fuel supply and return lines to fuel supply tank plumbing. Reference the Fuel System section of the Installation and Operation Data Sheet (included in the shipping documents that come with the engine) for piping size, maximum allowable fuel pump suction, and maximum allowable fuel head limits. Fill supply tank with #2 diesel fuel (ASTM D-975) or BS 2869 Class A2 "Red" diesel fuel: bleed supply system of air and check for leaks. *It is highly recommended that you do not use bio-diesel.* Fuel supply level must meet applicable code requirements. Do not use copper based or galvanized material for any component of a diesel fuel system.
8. Remove protective covering on air cleaner element. If the engine will be subjected to harsh conditions during final construction do not remove protective covering until engine is ready to run.
9. Connect jacket water heater to AC power source. The electrical supply requirements are indicated on the connection box. Connect the electrical supply wiring to the junction box at the bottom of the heater. **Supply wiring should never be routed through the engine gauge panel; severe damage to critical engine control components or personal injury could result.** Energize heater only after step #3 is completed.
10. Connect exhaust system to flexible connection on the engine. The exhaust system plumbing must be supported by the building structure and not the engine. The exhaust flexible connection is provided only for the purpose of thermal expansion and vibration isolation, not for misalignment or directional change. *Exhaust piping inside the building should be insulated for personnel safety.*
11. Make electrical (DC) connections between the engine gauge panel terminal strip and the fire pump controller per the fire pump controller manufacturer's instructions.
12. Connect negative battery cables to the identified ground lug on engine. Connect each positive battery cable to each identified lug. For engines with two starters the cables connect directly to each starter. For engines with one starter, the cables connect directly to each start contactor. Connect cables between engine and batteries **only** after electrolyte is installed. Charge batteries for a minimum of 24 hours prior to starting the engine. *Note: Batteries may be shipped dry. Electrolyte will need to be sourced locally.*
13. **IMPORTANT!** In order to obtain prompt Warranty Service and to comply with Emissions Regulations, this engine must be registered to the final installation name and address. To register this engine, go to [www.clarkefire.com](http://www.clarkefire.com) and select Warranty Registration.

**CAUTION: All engines accelerate rapidly to Rated Speed. Prior to the initial startup of the engine, hold up on manual stop switch or manual stop lever and crank for 15 seconds to circulate lubrication. It is recommended that during the initial running of the engine since the sprinkler lines may not be completely full; throttle the discharge control valve to slow the rate of fill, so as not to "shock" the system.**

For additional technical information, installation drawings, wiring diagrams, and identification of authorized Clarke Service Dealer for start-up inspection and warranty, please refer to the Clarke Fire Protection Products web site:

[www.clarkefire.com](http://www.clarkefire.com)

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