Automatic Fire Pump Priming System

A Trident four (4) location, 3-barrel, automatic air operated priming system (Model #31.011.23) will be installed. The primer body will be constructed of all brass, stainless-steel, and be designed for fire pumps of 1,250 GPM (4,730 LPM) or greater. Due to corrosion exposure, no aluminum will be used in the air primer. No vanes, electric motors, lubrication, belt drives, or clutch assemblies will be used in the design of the air primer system.

The primer will be a 3-barrel design with a 0.75” FNPT connection to the fire pump.

The primer will be mounted above the fire pump impeller so that it will automatically drain back into the pump. The primer will also automatically drain when the panel control actuator is not in operation. The inlet side of the primer will include a brass ‘wye’ strainer with a removable stainless steel fine mesh to prevent entry of debris into the primer body.

Air Flow Requirements

The primer will require a minimum of 15.6 cubic feet per minute of compressed air and will be capable of meeting drafting requirements at high idle engine speeds. The primer will require an air supply from a protected air storage tank on the fire chassis. A pressure protection valve (PPV) set at 70 PSIG will be installed on the air supply line to meet DOT standards.

Automatic Primer Control

The 12-volt primer will be automatic with a three-way switch located on the placard to operate an air solenoid valve. The valve will direct air pressure from the air brake system to the primer. To prevent freezing, no water will enter the air primer solenoid valve.

An analog vacuum lift gauge will be included in the placard assembly.

The automatic priming system switch will have three positions:

* **“Auto-Prime”** – In the upper position, a green LED light will be illuminated when the switch is in the “Auto-Prime” position. The “Auto-Prime” operates automatically when the pump pressure drops below 20 PSIG. The primer shuts off automatically when the fire pump pressure is re-established and exceeds 20 PSIG. The “Auto-Prime” mode only operates when the fire pump is engaged.
* **“Off”** - Center position
* **“Prime” –** The lower switch position will be a momentary, manual, push and hold to prime.

Three (3) additional “push to prime” manual remote primer controls will be installed for the specific additional intakes. The additional controls will operate the air primer to pre-prime and may be used to remove air from the specified intake piping and hose while the fire pump is operating.

Power Requirements

To reduce the electrical power demand on the fire apparatus, the priming system will be air powered. The maximum electrical current draw will not exceed 0.5 amps during operation.

Performance, Safety, and NFPA Compliance

The priming system will be capable of vacuum ratings down to 22 inches of mercury and will be fully compliant to all applicable NFPA standards for vertical lift. The system will create a vacuum by using air from the fire chassis air brake system through a 3-barrel, multi-stage, venturi nozzle system within the primer body. The operating noise level of the primer will not exceed 75 db.

Warranty

The air primer will be covered by a five (5) year parts warranty.