

**SMART POWER "LIBERATOR" 20kW HYDRAULIC GENERATOR (LI-20)
WITH XRT RESCUE TOOL PUMP SYSTEM SPECIFICATIONS**

The LI-20 Liberator system will provide 20 kW of continuous electrical power and 5 kW of hydraulic power to drive the XRT pump for rescue tools.

The apparatus shall be equipped with a 20,000 watt hydraulic generator, installed and tested in compliance with NFPA 1901 (current edition) Chapter 22 standards and requirements. A Smart Power, model LI-20, 20,000 watt hydraulic generator, equipped with an integral XRT rescue tool hydraulic pump system, shall be provided and installed. The generator shall be mounted on top of the vehicle, or in a customer-specified location. The generator shall be easily separated into three major components (tray, cooler/fan assembly, and reservoir) for mounting in custom or remote locations on the apparatus. The XRT hydraulic pump system shall be capable of driving up to three hydraulic rescue tools simultaneously.

The generator shall produce the full kW continuous rated capacity even when the XRT hydraulic tool pump is operating (no exception).

The installation of the generator shall be designed for continuous operation without overheating and undue stress on components. The generator tray assembly shall be delivered with the cooler/fan assembly mounted such that hot air is exhausted straight up, through an NFPA approved walking grate.

The generator system shall consist of the following components:

- Generator tray assembly which includes the generator, hydraulic motor, cooler, fan, Electronic Control Unit, 10 micron spin-on fluid filter and reservoir. The generator mounting base shall be constructed of a solid 1/2" thick 6061T6 extruded aluminum base plate.
- 80cc Axial piston hydraulic pump with pressure compensated control;
- XRT Power Systems dual level, two-stage , continuous duty multiple tool port hydraulic pump;
- Command and Control Center (CCC) display with all required wiring harnesses.

Generator System Dimensions, Weight, and Cooling Design:

The body of the generator tray assembly (including reservoir) shall be 48" long (including integral XRT pump on end of generator) x 19" wide x 22" high.

Weight: 715 pounds.

The generator tray assembly shall be delivered with the cooler/fan assembly mounted such that the hot air is exhausted straight up. An NFPA 1901 compliant extruded aluminum grate walking surface shall be installed on top of the entire generator tray assembly.

Instrumentation and Controls

The generator system shall be provided with a digital meter display in compliance with NFPA 1901 Chapter 22.4.6. The Command and Control Center (CCC) shall be an interactive operator control center, equipped with smart touch solid state buttons, with super bright red LED displays for voltage, frequency, dual amperage displays , hour meter, service reminders, operator warnings, system faults and diagnostics. The electronics package shall include smart start engagement to reduce mechanical stress, precise voltage and frequency control, cold start system, automatic load and temperature

compensation, integrated diagnostics system, and other automated control features to protect system, vehicle and operator.

The CCC shall be permanently mounted at an operator's panel, shall be located in a plane facing the operator, and shall be constructed in weatherproof integral enclosure/bezel.

The CCC shall be manufactured and warranted by the generator manufacturer.

Diagnostics:

The generator system shall be equipped with diagnostic capabilities which are monitored by the operator through the Command and Control Center digital display meter panel. Diagnostics shall include overheat protection, system service reminders, low fluid indication, no PTO engagement indication, over-voltage, and graduated high temperature displays.

Chassis Transmission Drive:

The hydraulic pump shall be driven by the chassis transmission mounted power take off (PTO).

Generator Operation:

The output of the generator shall be controlled by an integral, patented, solid state Electronic Control Unit. The ECU shall be connected directly to the NFPA 1901 required digital instrumentation display.

The generator shall be operable in the stationary mode OR when driving, utilizing the standard soft start system for engagement at any speed.

The generator can be engaged by an OEM installed optional lighted control in the cab or by the generator manufacturer command and control center.

The XRT system is active when the generator is running.

Ratings and Capacity Per NFPA 1901

Rating:	22,000 watts peak 20,000 watts continuous
Volts:	120/240 volts
Phase:	Single, 4 wire
Frequency:	60 Hz
Amperage:	167 amps @ 120 volts or 84 amps @ 240 volts
Engine speed at engagement:	Standard soft start feature allows for any speed engagement
Operation range:	800 to 3000 RPM

Generator Testing

The generator shall be tested in accordance with all current N.F.P.A. 1901 standards.

*All ratings and capacities shall be derived utilizing current NFPA 1901 test parameters.

Integral Rescue Tool Pump System:

A XRT hydraulic rescue tool pump shall be bolted directly to one end of the generator tray assembly. The pump system is a dual level pump designed to operate one, two, or three hydraulic rescue tools at the same time (customer to specify number of tools; make and model of tools, and hydraulic system pressure requirement) See Addendum A. Each pump circuit has two pumps assigned providing a total of six (6) possible pumps for three individual tool circuits. Each individual circuit shall be completed with a control block assembly and an open center valve (open/closed manifold control). The system shall provide emergency response personnel the ability to operate three extrication tools (regardless of brand of rescue tool) simultaneously, independent of each other, in order to implement a rapid rescue operation. The system is capable of running 5,000psi or 10,500psi rated rescue tools.

The system shall include the following components:

- XRT rescue tool pump with stainless steel hydraulic hose fittings;
- 3.5 gallon stainless steel reservoir tank with sight gauge, temperature gauge, auxiliary oil cooler with 12volt fan;
- Spin-in type oil filter assembly with 10micron filter
- One (1) open center valve/control block assembly for each tool port; assembly is remote mounted at a customer specified location(s), ie. Next to hydraulic hose reel, next to exterior discharge port manifold, etc. Each Open Center Valve/Control Block shall be equipped with a manual pressure adjuster for adjusting the pressure to the hydraulic hose line.
- One (1) Stainless steel identification cover plate for each Open Center Valve/Control Block;
- 1" Suction Hose from reservoir to pump system

Owners and Installation Manuals shall be provided with the unit at time of delivery.

XRT POWER SYSTEMS WARRANTY

The XRT hydraulic rescue pump is guaranteed against defects in material or workmanship from the original date of installation for two years or 2000 hours of use, whichever comes first. If it is determined, by an independent 3rd party representative of said rescue tool manufacture, that the XRT pump system has caused damage to the hydraulic rescue tool that the system was built to power (as identified by the XRT serial number on the pump system), XRT Power Systems will repair, replace, or pay for repair or replacement of said tool, as set forth in tool manufacturer's warranty statement, subject to specific general limitations.

SMART POWER MANUFACTURER'S 6 - YEAR WARRANTY

The entire generator system, including the Command and Control Center digital meter display, shall be covered by a standard 6 year/1,000 hour fully transferable warranty from the generator manufacturer. The warranty shall commence the date the product is shipped.