

# Vehicle System Design Estimate



Quality is Behind the Diamond®

Amerex

7595 Gadsden Highway  
Trussville, AL 35173-0081

## Vehicle Information

**Make:** CAT  
**Type:** Wheel Loader  
**Model:** 993  
**No Engines:** 1  
**Engine HP:** Gross 973 HP

**Operating Weight:** 294,687 lb  
**Hydraulic Capacity:** 230 Gal  
**Diesel Capacity:** 573 Gal  
**No. Turbo Chargers:**  
**Capacity CU Yards:** 31 yd3

**Date Rev:** 20150205  
**VSDE No:**  
**Drawing No:**

**Purpose:** Amerex Fire Suppression Systems and components are FM approved and designed to suppress fires on mobile and self-propelled equipment. The primary mission of these systems is to suppress the fire long enough for the operator(s) to safely exit the vehicle/equipment and minimize subsequent damage. They are not intended to be able to extinguish any possible fire that could occur on or near the vehicle. Fires that originate outside of the protected area, within combustible materials outside of the vehicle, environmental hazards and excessive amounts of pressurized flammable liquids are examples of hazards which could exceed the capability of the fire suppression system.

## Bill of Materials

QTY	Part #	Description
2	22373	V75 ABC agent cylinder
2	10199	Discharge Fitting Kit
6	10178	Distributor 3/4 x 1/2-4
2	22517	Distributor 3/4 x 5
20	10250	Cone Nozzle w/Blow-off Cap
2	10147	Pneumatic Control Head
1	10173	Vent Check
1	10262	Check Valve
2	09956	Nitrogen Cylinder
1	10210	Manual Actuator
1	20775	Electric Nitrogen Actuator
1	14053	Manual Switch
1	22579	Linear Actuator
2	22260	Bracket, Agent cylinder 75
20	10780	Bracket, Nozzle - 90 Degree
2	10354	Bracket, Outdoor Actuator
1	17311	Control Panel III Leads (Back Wiring Exit)
1	16473	Actuator Lead, Shielded - 20'
1	14017	Power Lead - 25'
2	20083-25	Modular Linear Wire (ALHD) w/Spring 25'
1	16457	Thermostat/Manual Switch Lead, Shielded - 3'
1	16458	Thermostat/Manual Switch Lead, Shielded - 6'

### Supplemental Protection:

In applications where there is an opportunity for Flammable Liquids to come into contact with heated surfaces beyond the discharge time of the dry chemical discharge a secondary discharge of Amerex ICE is recommended. The ICE system will cool the surface temperatures and reduce the possibility of a fire re-ignition.

QTY	Part #	Description
1	19570	ICE6
6	19740	ICS Discharge Nozzle
6	19248	ICS Reducer
1	10199	Discharge Fitting Kit
1	22966	Weld Ring 1/2 inch
1	10147	Pneumatic Control Head
1	10178	Distributor
6	10780	Nozzle bracket

The purpose of this Bill of Materials (BOM) is for reference and estimation purposes only and does not replace an onsite hazard analysis. The BOM estimate should be considered the Minimum level of protection and a complete onsite hazard analysis is required to identify final protection requirements. Additional distributor supplied materials (hose, fittings, hardware etc) not supplied by Amerex will be required.

### Note #1

Potential Nozzle Locations					
Dry Chemical nozzles			Liquid ICE Nozzles		
Nzl Qty	Haz Description	Nzl Qty	Haz Description	Nzl Qty	Haz Description
4	Turbo chargers top of engine	2	Transmission, torque converter	4	Turbo chargers
1	Front engine	2	Hydraulic valves, pumps	2	Engine Manifold
2	Left side of engine	1	Hydraulic pumps and torque converter		
2	Right side of engine	2	Hydraulic hoses under cab pivot point		
2	Underneath engine, belly pan	1	Hydraulic tank connections		
1	Transmission bottom				
<b>Do Not use these Potential Nozzle locations for final nozzle placement without conducting a complete hazard analysis on the machine.</b>					

**Note:** The information provided in this form is for reference and estimation purposes only. Estimates are determined by information provided in whole or part by the vehicle manufacturer, available sales literature and data sheets, OEM dealers, Amerex field surveys, Amerex distributor experience and field surveys and comparisons with similar types of equipment. Modifications and optional accessory equipment made at the factory, dealer or end user site could change the protection requirements and nullify previous field surveys. A complete hazard analysis and risk assessment will have to be performed on the vehicle to determine the most probable ignition sources along with the fire characteristics and quantity of the various fuels exposed to the ignition sources. The Amerex Fire Suppression system requires periodic maintenance by factory trained and certified individuals to maintain the system in operable condition, including assessing the vehicle for any changes that may affect the system performance.