



**HYDRO ENGINEERING
INC**

fwagner@hydroblaster.com
www.hydroblaster.com

AIRCRAFT HANGAR WASH SYSTEMS

**Innovative Maintenance
Solutions**





MISSION STATEMENT

We believe in conserving water and protecting our environment. Through innovation, we achieve these goals. Our Hydroblaster, Hydrokleen and Hydropad products promote water conservation and compliance with environmental regulations.

Hydro Engineering Inc. has been in operation since 1980.



Wash - Collect - Recycle

CONTENT

- 3 Summary
- 4 Hangar Wash Systems
- 8 Pressure Washers
- 10 Remote Equipment
- 12 Filtration and Wastewater Recycling
- 14 Portable Solutions
- 16 Meet Your Project Manager

SUMMARY

Aircraft corrosion is a multi-billion dollar problem. On some aircraft types corrosion maintenance hours are known to outstrip flight hours. Corrosion occurs when materials react adversely to each other, corrosive liquids, or their environment, which exposes the aircraft to moisture, salt, sand, and extreme temperatures. Problems caused by corrosion are compounded by an aging aircraft fleet, where aircraft are regularly pushed far beyond their original intended life cycles.

SIMPLE FACTS ABOUT HYDRO ENGINEERING

- STARTED IN // 1980
- STAFF NUMBER // 98
- AWARDS // 14
- PROJECTS // 1000+
- DEPARTMENTS // 6



WE HELP YOU BUILD THE RIGHT INTEGRATED STRATEGY AND DELIVER THE BEST PRODUCTS.

CORROSION PREVENTION

Prevent corrosion by removing salt deposits, other corrosives and electrolytes. Allow a thorough inspection for corrosion and damage.

EFFICIENCY

Maintain turbine engine efficiency of the aircraft.

AESTHETICS

Maintain special paint scheme characteristics. Improve overall appearance.

SAFETY

Maintain visibility through canopies and windows. Allow a thorough inspection for corrosion and damage. Reduce fire hazards by removal of leaking fluids.



We think CREATIVE

Hydro Engineering, Inc. manufactures aircraft wash/rinse systems designed to compliment corrosion control programs through corrosion prevention. Timely removal of corrosion causing contaminants can be the most effective corrosion control measure in aircraft maintenance. Through many years of technological evolution, Hydro Engineering, Inc. now offers the most effective and reliable solutions for wash/rinse decontamination available. Innovative solutions are available from Hydro Engineering, Inc. for hanger, airfield or deployment application.

With appreciation that cleaning the aircraft is the first, and possibly the best step in preventing corrosion, knowledge of the materials and methods needed to remove corrosive contaminants is essential. Thorough knowledge and training of appropriate procedures for aircraft washing is of great importance.



You have many REASONS to choose us

Hydro Engineering, Inc. has worked with many and varied military and commercial entities for decades to enhance techniques and employ new technologies to optimize the wash/rinse process of corrosion prevention. Regardless of the advancements in metals, coatings, special treatments and other advancements for the industry, effective wash/rinse decontamination remains the most beneficial action for corrosion prevention. The following information will provide a brief outline of the product innovations available to support this action.

AIRCRAFT HANGAR WASH/RINSE SYSTEMS

“ What would your cost savings be, based upon your current consumption? ”

Aircraft hangar wash systems can be configured for a variety of different applications. Hydroblaster wash systems are configured using our standard equipment model; customized to meet your operational needs, goals, and objectives using our option tree. The common denominators in all cases are to minimize out of service time and maximize decontamination performance.

Evolutionary developments by Hydro Engineering for aircraft wash systems have focused on maximizing wash performance, minimizing time spent washing, environmental compliance and cost savings.

Potential savings can be recognized in the reduced consumption of water, in certain instances up to 50% less water consumption. Reduced consumption of cleaning compounds with better product performance can be up to 50% less usage. This can also potentially reduce labor costs by 30% with the right equipment, training and wash process.

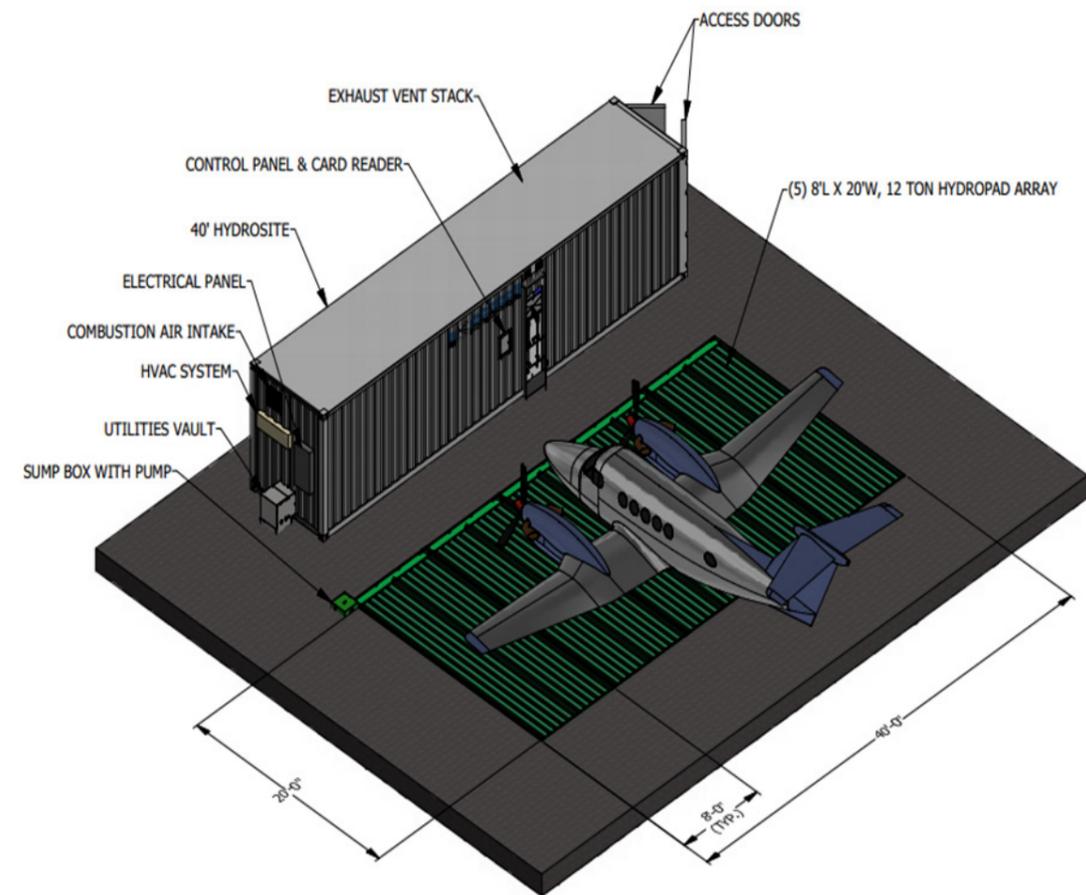
Hydro Engineering Inc, aircraft hangar wash/rinse systems are efficiently designed. They include Hydroblaster hot water generating machines, chemical mix stations, foaming application systems and the Remote Equipment Modules (REM).

Instant Aircraft Wash Systems

Since a hangar can be deemed a classified area or have certain explosion proof requirements the high-pressure hot water generating equipment may need to be installed in an equipment room or other non classified area. While the Hydroblaster equipment is mounted in an area adjacent to the hangar, the systems are completely controlled from the Remote Equipment Module located in the hangar.

For hangar retrofit application, or if new hangar design considerations are better served, Hydro Engineering, Inc. offers a stand-alone “Hydrosite” enclosure for equipment mounting. This provides a portable, environmentally controlled equipment enclosure for equipment installation.

The enclosure can then be placed outside the hangar then interfaced with utilities and the hangar remote stations inside. This option offers great flexibility for facilities with site limitation.



Hangar wash/rinse systems are extremely simple to adapt for new hangar construction or retrofit to an existing hangar. Hydro Engineering, Inc. project managers are always available to assist with design, installation requirements, and even operator training for proper performance. Options exist to make every system a perfect fit for any aircraft, in any hangar.

Remote Equipment Modules (REM) are individual wash/rinse stations positioned strategically within the hangar then plumbed and wired to interface with a corresponding Hydroblaster located elsewhere in an equipment room or Hydrosite Enclosure. Operation of the Hydroblasters is completely controlled at the REM remote stations located in the hangar and classified for hangar explosion proof areas.

Hydro Engineering Inc. Remote Equipment Modules are manufactured in a variety of configurations to best meet the facility layout and desires of the operation. These configurations include wall mount, pedestal mount and portable on a wheeled cart. All REM configurations offer the same features and multiple configurations

As stated, each Remote Equipment Module controls a corresponding Hydroblaster System. This includes start/stop and burner control for hot water or cold water operation. In addition, each remote station includes a soap/foam application system with separate trigger wand. The "Hydrofoamer" is a pneumatic pump operated system that utilizes an adjustable air mix at the wand to vary the soap/foam consistency for application. Soap mix ratio can be done manually or include an automatic proportioning system. Hydrofoamer soap/foam application systems provide superior safety for cleaning compound application since chemicals are not at risk in a pressurized container.

Any washing process begins with applying the correct soap to the surface being washed. The Hydrofoamer not only provides the best method to apply that soap, but in most cases, uses as much as 50% less soap!



04

AIRCRAFT HANGAR WASH/RINSE DECONTAMINATION OPTIONS

Historically, aircraft wash systems utilized only potable water (once through) for high pressure hot water applications. This required potable water for the wetting of the aircraft, cleaning compound application,

moisture during agitation, rinsing the cleaning compound from the aircraft and then a final fresh water rinse.

Concerns of contaminants remaining in the wastewater have precluded the use of a recycle type of system for aircraft wash/rinse. Hydro Engineering wastewater processing technologies now satisfy aircraft application requirements with recycle operation, by meeting the stringent water quality requirements for using recycled water in the wetting, cleaning compound application, agitation and rinse prior to the final fresh water rinse.

The Hydrokleen filtration system can be utilized for the treatment and continuous reuse of the wash water or wastewater pretreatment for discharge. These systems are compact, above ground, fully automatic, self cleaning and interface with hangar trench drains and sumps. Systems can install in an existing equipment room, the hangar or our Hydrosite portable/permanent equipment enclosure along with the other Hydro Engineering, Inc equipment for the wash/rinse operation.

Hydrokleen Systems remove solids, oils, solvents, hydrocarbons, heavy metals, odor and pathogens during the filtration process.

These filtration units can be incorporated into a new hangar design or added to existing hangar facilities. While some facilities already have base wastewater processing, current limits may not allow the addition of wastewater generated from a hangar wash operation. Hydrokleen systems can help by minimizing the load on an existing system.

PRESSURE WASHERS

AIRCRAFT HANGAR WASH/RINSE EQUIPMENT



WHAT KIND OF SYSTEM SUITS YOUR NEEDS?

Hydroblaster High-pressure hot water generating systems are installed in non-classified equipment room adjacent hangar or optionally packaged in a Hydrosite Enclosure.

We built our first Hydroblaster industrial pressure washer in 1980 and since then have developed hundreds of different models and configurations. Hydroblaster pressure washers certified to UL CSA and CE standards are among the safest industrial pressure washers in the world.

Hydroblaster pumps can be powered by electric motors, gasoline or diesel engines, and pneumatic motors, and configured stationary, portable, skid or trailer mounted. Hot water heater for pressure washer may be fueled with electricity, oil (diesel, kerosene, JP4 or JP8), LP gas or natural gas. With water flows up to 60 GPM and pressures to 5000 PSI, it is likely that we have just the system for your application.

SIMPLE AND EFFECTIVE



EHGV HYDROBLASTER

Hydroblaster™ 5/3000EHGV
Mounts in designated equipment room and comes complete with remote station (REM) equipment



HYDROSITE EQUIPMENT ENCLOSURE

Hydrosite™ Equipment Enclosure
Contains up to (4) Hydroblaster Systems for Aircraft hangar wash/rinse system

REMOTE EQUIPMENT

AIRCRAFT HANGAR WASH/RINSE EQUIPMENT



ACCESS YOUR EQUIPMENT WHERE YOU NEED IT!

Hydroblaster Remote Equipment Modules (REM) interface with Hydroblaster Systems and provide operators with full remote control of Hydroblaster systems.



WALL MOUNT REM

This REM wall mounted work station includes operating controls and spring rewind reels for high pressure Hydroblaster hose and dual hose foaming soap systems. Gun/wand



FLOOR MOUNT REM

This REM floor mounted work station includes operating controls and spring rewind reels for high pressure Hydroblaster hose and dual hose foaming soap systems. Gun/wand



PORTABLE REM

The portable version of the REM Foaming Application System is a compact, self-contained tool for application of liquid or foam solutions to surfaces.

FILTRATION AND RECYCLING

WASH WASTEWATER PROCESSING OPTIONS



RESPONSIBLE WASTEWATER MANAGEMENT

Hydro Engineering, Inc., Hydrokleen Systems can be installed to facilitate wash wastewater management requirements for pretreatment or recycle use. Hydrokleen Systems are field proven innovations for removal of solids, oils, hydrocarbons, metals, and more.

Hydro Engineering, Inc. strongly suggests thorough and effective operator training for the proper use of Hydroblaster equipment and best practices for performing aircraft wash/rinse decontamination.



CMAFU-2

The Hydrokleen CMAFU-2 is a simple low maintenance gravity bed filter. This filter is designed for solids reduction in a variety of applications. It can operate as a stand-alone system or be used with other filtration and waste water treatment equipment.



BIOREACTOR

A Hydrokleen Bioreactor system extends the benefits derived from the use of Hydro-Biodigesters beyond control of naturally occurring bacteria and odors associated with wash water recycling to organic waste reduction.



HE/7000

HE/7000 filtration systems are designed to filter wash water for recycling back to wash applications or for sewer discharge. Systems are configured with three integrated process tanks that control the waste stream as it is pumped or gravity fed into the first of three filtration processes.

PORTABLE SOLUTIONS

AIRCRAFT WASH/RINSE EQUIPMENT



TAKE YOUR EQUIPMENT TO THE JOB SITE

Hydro Engineering, Inc. manufactures various other aircraft wash/rinse decontamination systems for airfield or deployment application. These systems are used by all US Military divisions on base or in theatre.

Aircraft corrosion maintenance hours are known to outstrip flight hours. Timely removal of corrosion causing contaminants can be the most effective corrosion control measure in aircraft maintenance. Hydro Engineering, Inc. offers the most effective and reliable solutions for wash/rinse decontamination available. Innovative solutions for hangar, airfield, or deployment application. Regardless of advancements in metals, coatings, special

treatments and other advancements, effective wash/rinse decontamination remains the most beneficial action for corrosion prevention.

Hydro Engineering, Inc. technologies will not only optimize aircraft cleaning performance but can reduce man hours spent by 60%, reduce water consumption by more than 90% and lower cleaning compound usage by about 75%. Better results, faster rotation and save money too.



AWS

The Aircraft Wash System, (AWS), has set the bar for exterior airframe washing. Three operators can work simultaneously, one (1) applying foaming soap and two (2) rinsing. The AWS is a safe, simple to operate fully self-contained Hydroblaster capable of enhancing any wash application



TEWS-D

The TEWS-D turbine engine washing system provides the perfect solution for turbine engine washing of small to medium sized fixed wing and rotary wing aircraft. Turbine engine powered ground support equipment can also benefit from engine cleaning with this system.



ATAWS

The Hydro Engineering, Inc. Hydroblaster Model ATAWS (Advanced Total Aircraft Wash System) is an integration of two (2) existing technologies developed by Hydro Engineering, Inc. and approved by United States Army AGSE Branch that safely provides external washing as well as turbine engine flushes.

MEET YOUR PROJECT MANAGERS

Our dedicated team of trained professionals will fully accommodate your needs from complete engineering services, manufacturing, and support.

**THE BEST IN
THEIR BRANCH**
You will be amazed

Contact us at help@hydroblaster.com

 **HYDRO ENGINEERING**
INC



865 West 2600 South
Salt Lake City, UT
USA, 84119

Phone: 801-736-6476
Fax: 801-972-3265

E-mail: help@hydroblaster.com
www.hydroblaster.com