



# *Advanced Fluid Systems, Inc*

## **Fluid Power & Motion Control Solutions**

**Hydraulic System Design, Manufacturing and Installation.**

**Mobile Hydraulic Design, Motion Controls and Automation.**

**Custom Motion Controls, PLC Logic and User Interfaces.**

**Component and System Repair, Testing and Field Services.**

**Hydraulic Filtration Systems, Rental and Fluid Testing.**

## Antares Rocket Lift and Launch Retract

Advanced Fluid Systems was one of the few hydraulic, motion control integrators in the country asked to quote a rocket lift and launch retract system for the Antares rocket, Orbital Science's next generation launch vehicle designed to carry supplies to the international space station.

The massive project required the 133 foot, 265 ton Antares rocket to be lifted, gripper arms released and the TEL (lift structure) retracted 13 degrees in 2.4 seconds during launch. Advanced Fluid Systems' solution utilized two, synchronized 20-inch bore cylinders with custom manifolds, proportional servo controls and piston accumulators mounted directly on each cylinder.

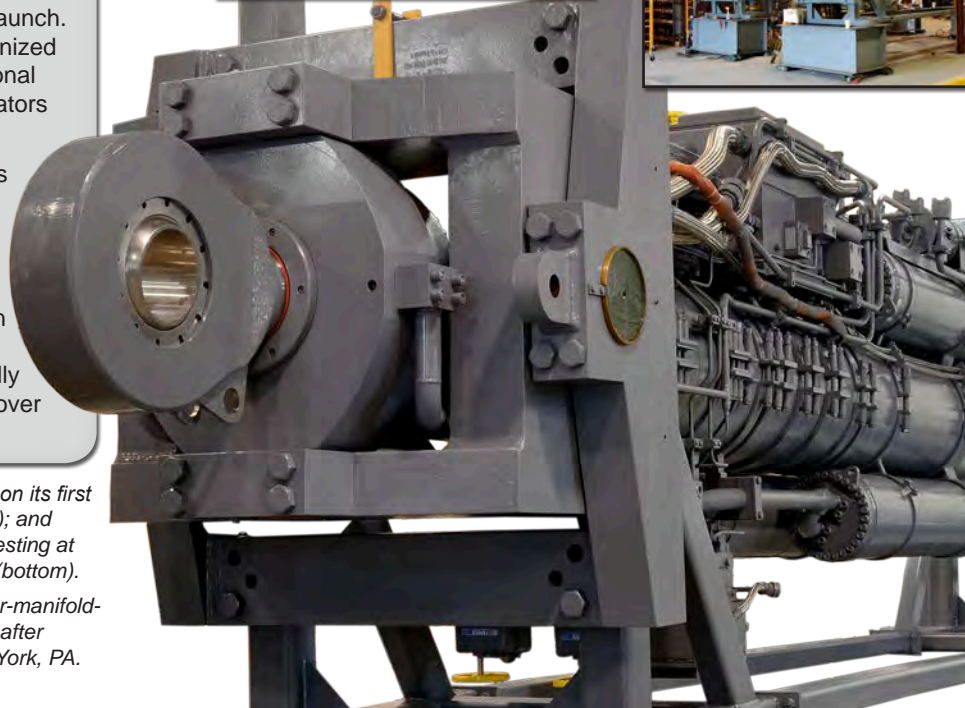
Advanced Fluid Systems engineers designed, integrated and installed the complex motion controls used to control the rocket "gripper" arms and two 24 ton cylinder assemblies. The redundant motion control systems included over 212 sensors and switches; 87 electrically operated valves; and over 5,100 feet of wiring.

*Left: The Antares rocket on its first launch in April 2013 (top); and the on-site "Tel" retract testing at Wallops Island, Virginia (bottom).*

*Right: One of the cylinder-manifold-accumulator assemblies after assembly and testing in York, PA.*



*Each of the 51,000 lb. cylinder assemblies required a custom stand for assembly and transportation.*



# Hydraulic System and Motion Control Solutions

*...The power of fluid with the precision of electronics.*

## Hydraulic System Engineering, Design and Manufacturing

For over 30 years, Advanced Fluid Systems has been designing and manufacturing custom hydraulic power units and controls at its York, PA facility. Our focus has always been on working with you as a partner to develop a solution that meets or exceeds your expectations.

- Turnkey hydraulic systems of all sizes from compact portable units to high flow, high pressure multi-pump designs.
- PLC Design, programming and LCD touch screen interfaces integrated into your hydraulic system and application.
- Combustion engine, electric motor and variable frequency drive systems creating flexibility and energy savings.
- ASME and API enclosures, components and fabricating for corrosive and explosion-proof environments.
- Fixed and mobile filtration systems available with real-time cleanliness monitoring integrated into your existing system.
- AutoCAD Inventor (3D), a 20 ton overhead crane, and 10,000 sq. ft. dedicated to fabrication and testing.

### Press Redesign and Controls Integration.

Upgrade your existing machine or equipment at the fraction of the cost of new, while reducing maintenance and employee operating costs. Combining high efficiency hydraulic components with user-friendly interfaces is a cost effective way to improve the life and performance of your equipment.



*Hydraulic power unit, motion controls and user interface for an existing 500 ton press.*

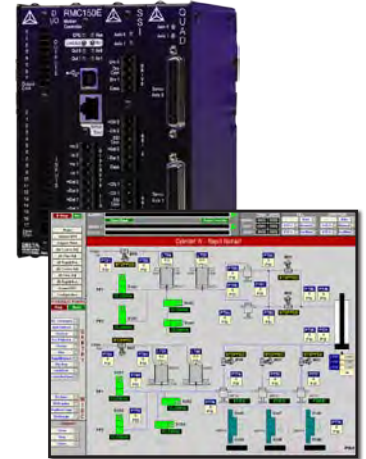
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# Motion Control Design and Integration

While many companies can build a hydraulic system, few can build a hydraulic system with a custom motion control interface and seamlessly integrate it into your application. From simple programmable logic controls and push buttons to complex touch screen interfaces with thousands of I/O points, Advanced Fluid Systems has developed custom motion control solutions for a variety of applications and environments. Some capabilities include:

- Closed loop motion profiles including force, pressure, velocity, position control and actuator synchronization utilizing the latest motion controls technology.
- Custom human-machine interfaces (HMI) increase productivity via interactive displays, real-time feedback and digital accuracy.
- Integrated operator safety controls safeguard your employees while visual, audible and automatic shutdown alarms protect your investment.
- Electronic and/or hydraulically operated joystick controls that allow multi-axis, proportional movement for all environments.
- CANbus, CANopen, PROFIBUS, Ethernet, EtherCAT and other network integration solutions streamline installation and startup.
- Multiple programming platforms supported including Delta, Allen Bradley, Weg, Wonderware, Emerson, Cross Controls and IFM Efector.



Delta RFC Motion Controllers  
and Wonderware HMI Software



*Our engineers work closely with you before, during and after installation to create an efficient interface specific to you and your application. Contact us to learn more.*

## Custom Lubrication Solutions

Advanced Fluid Systems engineers and manufactures custom lubrication systems for some of the most demanding applications and environments. Systems include single and dual line units ranging from simple manual operations to fully automatic electronic controls.

- Custom system designs for grease, oil and mist applications.
- Duplex and high flow filtration options down to 1 micron at Beta 200.
- Sealed reservoirs, stainless steel construction and manufacturing to ASME and API specifications are available.
- Level and flow meters with custom metering and limit switches.



Visit us online at: [www.advancedfluidsystems.com](http://www.advancedfluidsystems.com)

# Mobile Hydraulic Capabilities

## “Mobile Case Studies in Success”

For more information on Advanced Fluid Systems and our mobile hydraulic capabilities, be sure to check out our brochure “Mobile Case Studies in Success”. The brochure features three mobile OEM applications and illustrates how Advanced Fluid Systems partnered with each customer to provide a solution that improved performance, while reducing costs.



**Problem:**  
**Solution:**  
**Result:**

2  
Schramm, Inc. T450i drilling rig

**Problem:**  
**Solution:**  
**Result:**

3  
American Lattice serial platform



Mobile QR Code

Today’s advanced mobile hydraulic solutions require a unique blend of hydraulic system experience, motion controls expertise and the ability to seamlessly integrate them into your application. From simple manual controls to complex automated operations, we work closely with you to develop a solution that meets your performance and cost requirements.

Advanced Fluid Systems has developed custom mobile hydraulic solutions for drilling equipment, emergency vehicles, aircraft maintenance vehicles (below), marine vessels and more.



Hawe PSL Series Manual / Electro-Proportional valve.

Some Mobile design and engineering capabilities include:

- Programmable motion and logic controls designed and programmed by our in-house engineering.
- Multi-axis joystick, LCD touch screen and radio remote user interfaces seamlessly incorporated into your application.
- Custom Manifolds Combining integrated cartridge valves, diagnostic ports, face mounted valves, and more while reducing size, weight and costs.
- Vehicle control system integration via CANopen, and software integration for J1939 engine management and feedback.
- Manual and electro-proportional control valves that permit pressure compensation, load sensing and other control options independent of each section.
- Corrosion resistant materials and manufacturing techniques for marine applications and other harsh environments.



# Solutions for Mobile Applications

...Hydraulic Design, Motion Controls and Installation.



## Aircraft De-icer Prototype

Chinook MHD Corp.'s latest aircraft deicer prototype spent over six months at our York facility as we worked closely with Chinook's engineers to develop, install and test the custom motion controls.

Advanced Fluid Systems' motion profile features anti-collision and auto-leveling algorithms that allows the operator to move the deicer boom without contacting the surface, regardless of the vehicle's position or operator's commands.



|                                  |                |                 |
|----------------------------------|----------------|-----------------|
| Thermal Fluid Loop Pressure: PSI |                | 0               |
| BIR                              | temperature    | dienum          |
|                                  | ambient: deg F | setpoint: deg F |
|                                  | 73             | actual: deg F   |
|                                  | 73             |                 |
|                                  | blower         | duct            |
| volume                           | temperature    | setpoint: deg F |
| setpoint: RPM                    | 0              | actual: deg F   |
| actual: RPM                      | 0              | 73              |
| WATER                            | steam          | stenum          |
| Available: %                     | 0              | cofs            |
| temperature                      |                | setpoint: deg F |
| 0 deg F                          | 0              | actual: deg F   |
| 0 deg F                          | 73             | 73              |
| flash tank                       |                | flash tank      |
|                                  |                | water level: %  |
|                                  |                | 0               |

The wood frame pictured here is a mock-up of the deicing delivery head for testing and programming.

Visit us online at: [www.advancedfluidsystems.com](http://www.advancedfluidsystems.com)





# Advanced Fluid Systems, Inc

Fluid Power & Motion Control Solutions

## Hydraulic Pumps and Motors

Multiple test stands, including a 400HP diesel system, allow us to repair and test even the largest pumps and motors. We are an authorized service center for Oilgear, Kawasaki / Staffa, Linde and more.



## Large and Small Bore Cylinders

A dedicated cylinder repair station and overhead crane service and test cylinders up to 16 inches in bore and 240 inches of stroke. We service all makes, models and styles.



## Proportional-Servo Valves

An isolated servo valve test stand and specialized software allows us to service, test and calibrate your valve to your custom profile and specifications.



# Hydraulic Repair Services

*...Friendly, Professional Service from an Engineering Company.*

## Mobile and Industrial Valves

Since 1985, Advanced Fluid Systems has been refurbishing and testing hydraulic and pneumatic valves to the manufacturer's specifications for a fraction of the cost of a new valve.



### Begin Your Free No-Obligation Repair Quote

You may contact us at:

717-757-1068 Phone

717-840-8625 Phone

[repair@advancedfluidsystems.com](mailto:repair@advancedfluidsystems.com)

#### Ship Items for Repair to:

Advanced Fluid Systems, Inc.

Attn: Repair Department

245 Campbell Rd.

York, PA 17402

Please include your name, company name, phone number and other contact information with your shipment, as well as, why you are sending it in for repair.

## We also repair:

- Complete Hydraulic Systems •
- DIN Cavity Valves • Accumulators
- Gear Boxes • PTO Drives •
- Hydraulic Winches and more...



# Advanced Fluid Systems, Inc

Fluid Power & Motion Control Solutions



## Marine

*High Speed Ship Steering*

*Dredging Equipment*

*Small Vessel Stability*

*Off-Shore Stationary Platforms*

*Hydraulic Winch Applications*



## Industrial

*Press and Forming Machinery*

*Metal Casting and Forging*

*Plastic Injection and Molding*

*Pick-and-Place Equipment*

*Food Processing*

*Stage and Theater Entertainment*

*Pulp, Paper and Lumber*



## Power Generation

*Steam and Gas Actuators*

*Process Control Valves*

*Wind Turbine Controls*

*Varnish Removal and Prevention*

*Fluid Contamination Control*



## Mobile

*Emergency Vehicles*

*Construction Equipment*

*Drill Rigs and Mining Equipment*

*Airport Support Vehicles*

*Agricultural Equipment*

### Central PA: (Repair, Headquarters)

PO Box 3342  
245 Campbell Rd.  
York, PA 17402

717-757-1068 Phone  
717-757-4915 Fax

### Greater Philadelphia:

PO Box 360  
292 Green St.  
Royersford, PA 19468

610-948-1000 Phone  
610-948-1010 Fax

### Greater Baltimore:

899c Airport Park Rd.  
Glen Burnie, MD 21061

800-606-9801 Phone

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