421® METAL FIBER MEDIA

PTI Technologies Inc.® *Listen, Understand, Deliver*

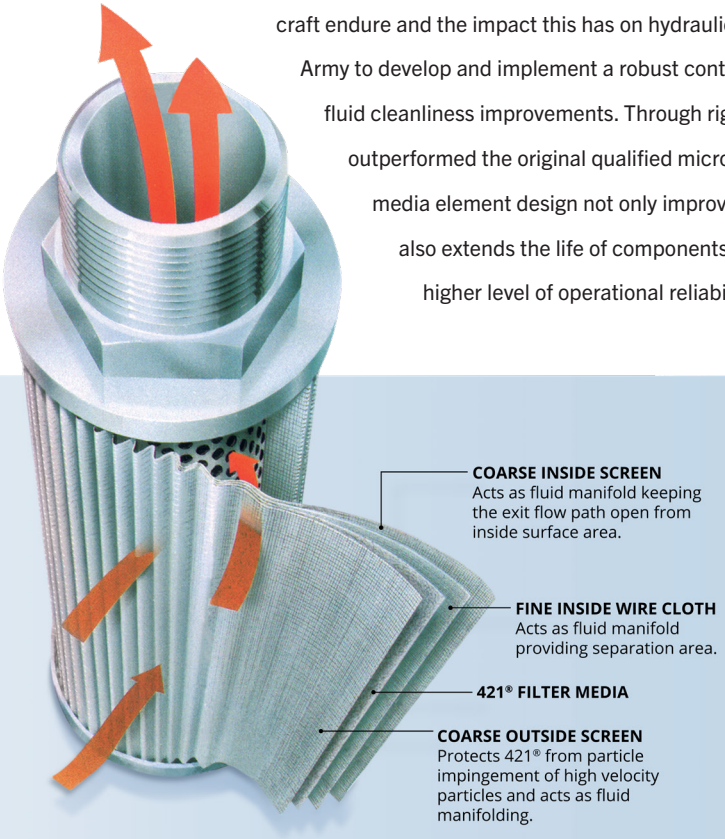
System	Old Filter NSN	New Filter NSN
H-60	1650-01-114-1899	1650-01-601-1254
AH-64	1650-01-328-5588	1650-01-642-2829
AGPU	4330-01-484-0896 4330-01-484-0891	2940-01-605-7088

PTI Technologies Inc. is proud to be a part of the U.S. Army's mandatory Aviation Maintenance Action Message (AMAM) in support of all H-60 Black Hawk series aircraft and all AH-64 Apache series aircraft. H-60-21-AMAM-05 and H-64-21-AMAM-10 released in May 2021 and June 2021, respectively, require all micro-fiberglass filter elements under the old NSN be replaced with PTI's 421® metal fiber media filter elements under the new NSN. Learn more – https://www.ptitechnologies.com/aerospace/products/421-media/

Background

Particulate contamination is one of the main sources of failure in a helicopter hydraulic system that can result in high risks, both to human life and equipment cost if a failure occurs during mission-critical operations. Helicopter applications require that the critical hydraulic system components reliably operate under extreme operating pressures, temperatures, vibration/shock, and cyclic flow flight conditions. Fortunately, induced failures can be significantly reduced or eliminated if appropriate contamination control is implemented during design and development phases.

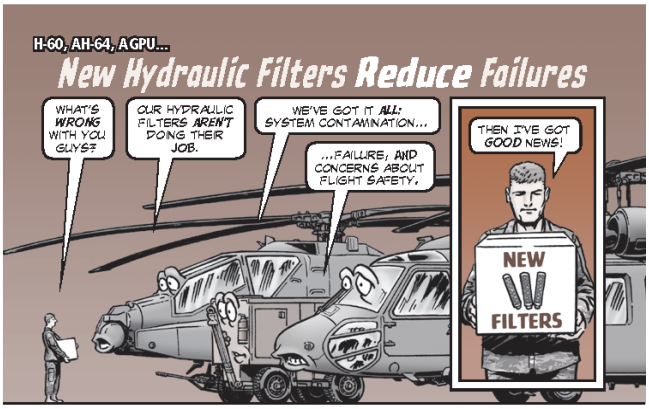
The U.S. Army has been using micro-fiberglass media filter element designs for both the AH-64 Apache and UH-60 Black Hawk fleet of helicopters since their introduction into service. Knowing the extreme flight operating conditions these aircraft endure and the impact this has on hydraulic system failures, PTI Technologies was sourced by the U.S. Army to develop and implement a robust contamination control filter element design to achieve desired fluid cleanliness improvements. Through rigorous testing, PTI's metal fiber media element design outperformed the original qualified micro-fiberglass media filter element design. PTI's metal fiber media element design not only improves the performance of the hydraulic system significantly, but also extends the life of components and reduces annual maintenance cost, thereby providing a higher level of operational reliability and improved safety.

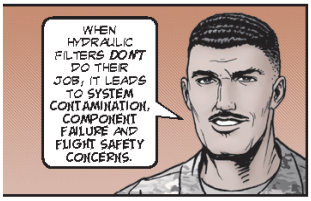


Benefits of using 421® Filters

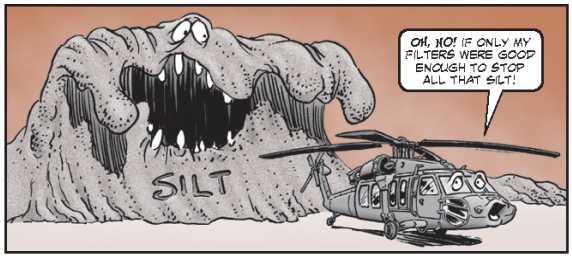
- Exceptional Service Life
- Economy and Reliability
- Low Pressure Drop
- Customized Pore Size Distribution
- Zero Media Migration
- High Corrosion Resistance
- High Collapse Pressure
- Stainless Steel Construction
- High Temperature Resistance

This article initially appeared in PS 786 (May 18), pp. 38-39, and in PS FB post (Dec 17).



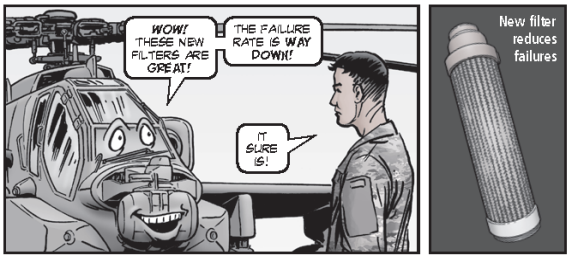


Hydraulic pumps, primary servos, actuators and tail rotor servos have a high failure rate when using the current legacy filters. Dynamic flow testing showed the filters captured and then released a cloud of particles that flowed downstream from the filter into hydraulic components. This condition, known as silting, causes spool valve locking, uncommanded flight control inputs, and increased component wear.

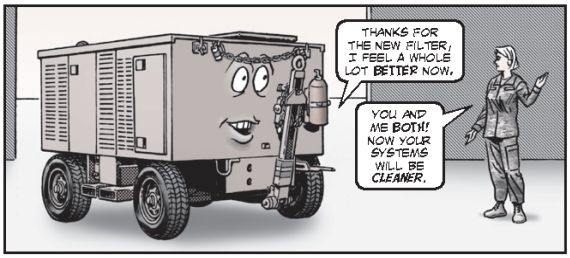


To combat the problem, a series of new, improved filters were tested. Over many flight hours, the new filters removed particulate matter, improved hydraulic fluid cleanliness, and increased the mean time between failures (MTBF) for six key hydraulic components.

For example, the failure rate of the primary hydraulic servos dropped from 310 failures with a MTBF of 648 hours to just 25 failures with a MTBF of 1,389 hours; a 114.3 percent MTBF rate increase. And hydraulic pump replacement went from 285 failures with a MTBF of 705 hours to just 25 with 1,389 MTBF; a 97 percent increase in the MTBF rate.



Hydraulic systems require very clean fluid to make things work. From helicopters to the aviation ground power units (AGPUs) that service aircraft, hydraulic filters are the key to increased operation, reliability and safety.



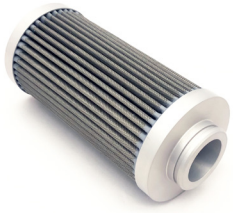
Why 421®

The Best Value for You and The Environment

The exceptionally long life between cleanings and replacements makes 421® metal fiber media elements the most economical type of filter elements available. PTI Technologies' random fiber filter media is the highest performance media on the market today. It will give you a higher purity end product, a lower pressure drop, and a higher contaminant retention capacity than either woven metallic wire cloth or sintered powder metal. 421® metal fiber media elements are ideal for filtration of high viscosity, high temperature, high vibration, dynamic, or corrosive fluid applications.

AH-64 Apache
PTI P/N 7595726-101
NSN 1650-01-642-2829

H-60 Black Hawk
PTI P/N 7596335-101
NSN 1650-01-601-1254



Aviation Ground Power Unit
PTI P/N 7600570-101
NSN 2940-01-605-7088

PTI
Listen, Understand, Deliver

PTI Technologies, Inc.
501 Del Norte Boulevard
Oxnard, California 93030-7983
CAGE 05228
(800) 331-2701
www.ptitechnologies.com
aerospace@ptitechnologies.com

ESCO TECHNOLOGIES

Sales Contact:

Praxie Uy
PTI
puy@ptitechnologies.com
(805) 604-3961

David Conrad
PTI
dconrad@ptitechnologies.com
(805) 604-3844