AEROSPACE AND DEFENSE
History of Filtration Innovation
Experience the Donaldson Difference for Yourself

With nearly a century of experience solving our customer’s filtration problems, it’s no surprise that the biggest names in aerospace and defense rely on Donaldson.

**1910s**

World’s first air cleaner invented by Frank Donaldson

Donaldson air cleaners appear on Artillery Tractors

**1920s**

Leon Le Bozec and Georges Gautier collaborated on their patents in the field of fuel and fluids controls. Their collaboration led to the creation of a large number of products for the automotive and aviation industry.

**1930s**

Donaldson issued patent for oil-washed air cleaners

Exhaust systems and air cleaners appeared on 5-ton military trucks and artillery tractors

Air cleaner installed on M3 tank

**1940s**

Donaldson product line diversified to include bayonet holders, crankcase valves, Bomber gun sights and ammunition box liners; workers in their welding gear shown at left

Donaldson plants work 24/7 to provide an urgent solution to filtration problems encountered by US tanks in North Africa.

**1950s**

Innovative dry-type air cleaners and filters

Developed Strata™ Tube and Donaclone® inertial separators

Catalytic air cleaner on B-52 Bomber

Air cleaner with Donaclone® particle separator on the M60 Tank

Air cleaner with Donaclone on M109 Self-Propelled Howitzer

Air cleaner with Donaclone “fender” installation on M48 Tank
1960s

- Developed piston engine intake filters

**WESTERN FILTER**
Western Filter was founded, developed their first liquid filter

- EAPS on OH-6A army helicopter
- Introduced Strata™ Tubes pre-cleaner on CH-53 helicopter
- Introduced mufflers with integrated ejectors

1970s

- Air cleaner and muffler on M113A2 Armored Personnel Carrier
- Air Cleaner and muffler on M88A1 Recovery Vehicle
- Main engine air cleaner on Merkava Tank
- Main engine air cleaner on M1 Tank

1980s

- Synteq™ filter media developed for lube and hydraulic filters
- Donaldson developed line of engine liquid filters
- Oil conditioning system for the tilt-rotor V-22

Donaldson developed air filtration products for the M-59 NBC Collective Protection System
**1980s continued**

- Developed main hydraulic filter assembly for M1A1 tank

- Air cleaner and muffler on AAV7A1 Amphibious Assault Vehicle

- Air cleaner and muffler on Bradley M2/A3 Fighting Vehicle

- Air cleaner and muffler for LAV (Light Armored Vehicle) Family of Vehicles

- Supplier for main fuel filter on LeClerc Tank (Nexter)

- Strata panel filters on the LCAC Hovercraft

- Air cleaner and muffler on MLRS - Multiple Launch Rocket System

- Donaldson developed Nuclear, Biological and Chemical (NBC) Shelter air filtration

- Selected to provide cabin air filters and Rain Repellent™ on Airbus A320 family of aircraft

**1990s**

- Donaldson acquired commercial aircraft cabin air filters from Mine Safety Appliance and started developing our own commercial aircraft filters

- Aerospace Filtration Systems started developing helicopter engine barrier filters

- Le Bozec Filtration & Systems became an independent company

- Developed Donaldson PowerCore® Filtration Technology

- Provided cabin air filters and environmental control systems (ECS) filtration on C17 Globemaster Transport

- Exhaust system and 200-hour air cleaner on the FMTV - Family of Medium Tactical Vehicles

- RadialSeal® air filters for Gen Sets (stand alone power generators)

- Donaldson pioneered nanofiber filtration with Ultra-Web® Nanofiber Filtration – used in Pulse Jet Air Cleaner (PJAC™) on M1 Abrams tank

- Acquired AirMaze expanding our general aviation product line
**2000s & Beyond**

- Donaldson selected to provide Air Purification System (APS™) on the Boeing 787
- Developed self-cleaning PJAC™ Ultra® for military vehicles; initially installed on the Freightliner M915A5 truck
- Donaldson launched first PJAC in Europe on the Terrier vehicle
- Acquired Le Bozec Filtration & Systems, Aerospace Filtration Systems, Inc. and Western Filter
- Provided main fuel filter and APU air filter for NH-90 rotorcraft
- Introduced RadialSeal™ and Ultra-Web® Technology to the UK MOD on the Land Rover Snatch
- Donaldson introduced first FAA STC IBF on MD500
- First fully-integrated barrier filter qualified by the US Army
- Donaldson provided air cleaners for the Mine Resistance Ambush Protected (MRAP) family of vehicles
- Provided first dry media barrier filter for the V-22 Shaft-Driven Compressor
- Warrior, CVR(T) and Bulldog vehicles retrofitted with Donaldson Ultra-Web® filters
- Selected to provide Sikorsky with integrated engine particle separators on the CH-53K
- Developed cabin air filter and Donaldson Rain Repellent for Dassault Falcon 7X
- Auxiliary Power Unit Inlet Barrier Filter developed for Army UH-60 Black Hawk, CH-47 Chinook and AH-64 Apache helicopters; developed main engine barrier filter for UH-60 Black Hawk
- Provided Donaldson Rain Repellent system for Sukhoi Super Jet 100 and Airbus A350XWB
- Electronics cooling inertial particle separators on the MH-60R Helicopter
- Gulfstream G650 Hydraulic Filter Manifold containing Aircraft Health Trend Monitoring capability
- Air cleaner and muffler on Stryker Armored Vehicle
- Donaldson Strata™ Tubes protect critical electronics in TPQ-36 radar
- The FMTV gets an upgrade with Catalytic Converter Mufflers (CCMs) or Diesel Oxidation Catalysts (DOCs)
- Developed GH2 and GO2 diffuser screen assemblies for NASA Space Shuttle external fuel tanks
- Developed 5000 PSI filtration equipment for the Boeing 787 hydraulic system