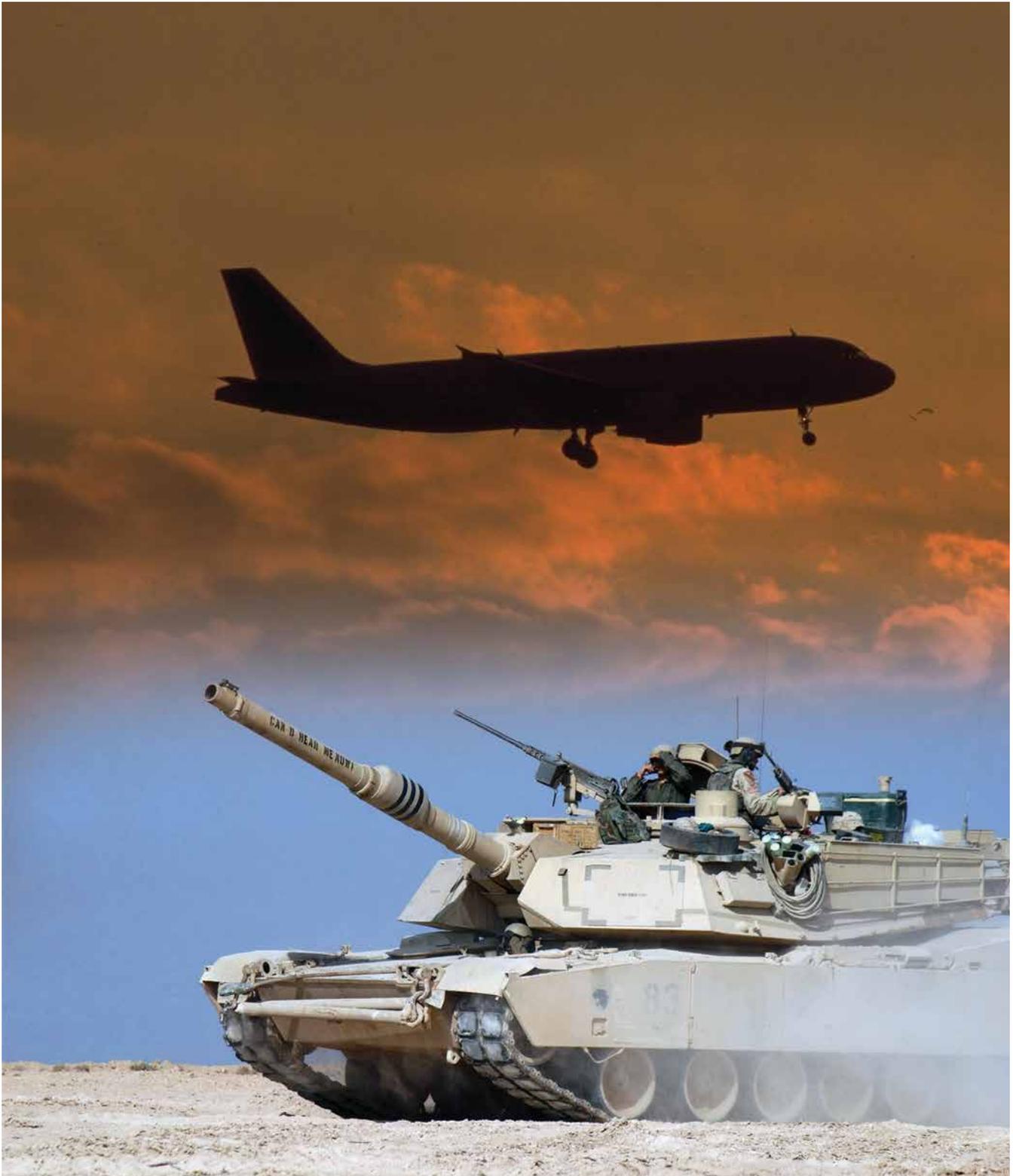




AEROSPACE AND DEFENSE  
**History of Filtration  
Innovation**



# technology at

## Experience the Donaldson Difference for Yourself

With nearly of 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

# its best

## 1960s



Developed piston engine intake filters

### WESTERN FILTER

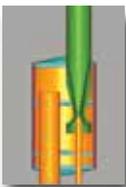
Western Filter was founded, developed their first liquid filter



EAPS on OH-6A army helicopter



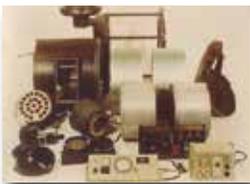
Introduced Strata™ Tubes pre-cleaner on CH-53 helicopter



Introduced mufflers with integrated ejectors



Air cleaner and muffler on the M113 Personnel Carrier family of vehicles



Donaldson developed air filtration products for the M-59 NBC Collective Protection System

## 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

# 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



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

Developed cabin air filter and Donaldson Rain Repellent for Dassault Falcon 7X

Provided Donaldson Rain Repellent system for Sukhoi Super Jet 100 and Airbus A350XWB

Electronics cooling inertial particle separators on the MH-60R Helicopter



Air cleaner and muffler on Stryker Armored Vehicle



Gulfstream G650 Hydraulic Filter Manifold containing Aircraft Health Trend Monitoring capability



The FMTV gets an upgrade with Catalytic Converter Mufflers (CCMs) or Diesel Oxidation Catalysts (DOCs)



Donaldson Strata™ Tubes protect critical electronics in TPO-36 radar

Developed 5000 PSI filtration equipment for the Boeing 787 hydraulic system

Developed GH2 and GO2 diffuser screen assemblies for NASA Space Shuttle external fuel tanks



**Donaldson**  
FILTRATION SOLUTIONS  
AEROSPACE & DEFENSE

**Donaldson Company, Inc.**  
Minneapolis, MN

[www.DonaldsonAerospace-Defense.com](http://www.DonaldsonAerospace-Defense.com)

**Aerospace & Defense**  
952-887-3435  
Toll-free 866-323-0394

**Brochure No. F112238 ENG (11/14)**  
© 2014 Donaldson Company, Inc. All rights reserved.  
Donaldson Company, Inc. reserves the right to change  
or discontinue any model or specification at any time  
and without notice. Printed in the U.S.A.