

Donaldson MD 500 IBF

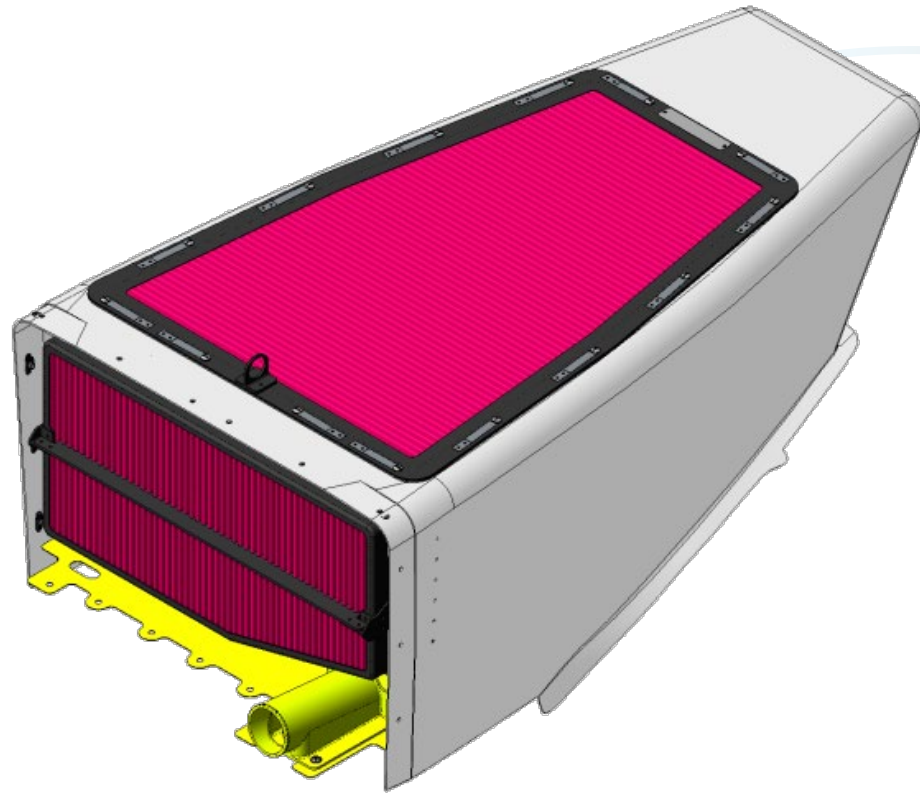
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MD 500

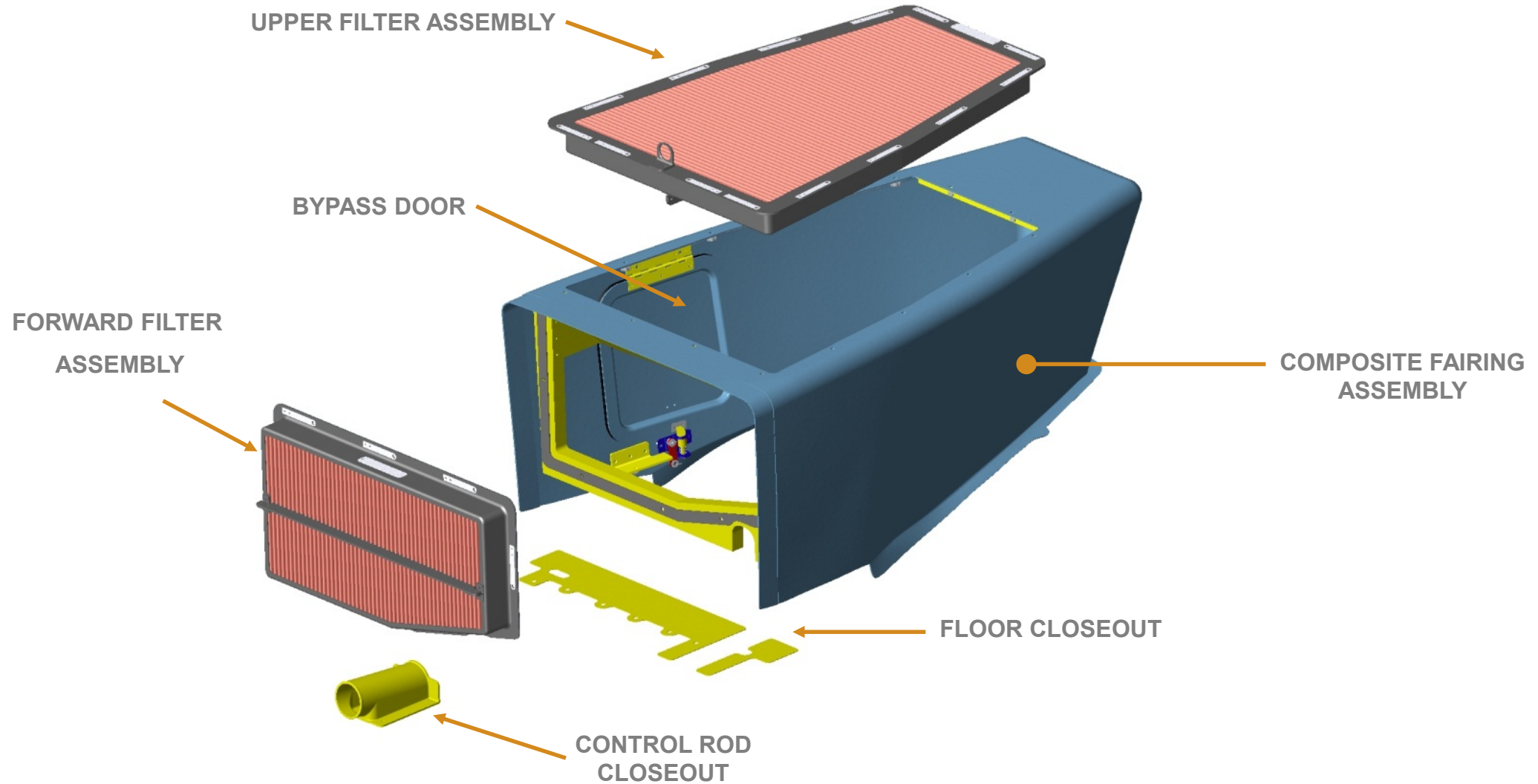
(MD HELICOPTERS 369 (H, D, E, F), MD 500 SERIES)



MD 500 IBF SYSTEM DESIGN



MD 500 IBF SYSTEM DETAILS



IBF FILTER MAINTENANCE AID (FMA)

- Pre and Post flight indication of filter contamination level and maximum pressure drop.
- Allows flexibility for mission planning with predictable service cycles, particularly in high tempo desert environments.
- Verification of post cleaning effectiveness.



IBF FILTER MAINTENANCE AID (FMA)

- Provides the ability to meet Condition-Based Maintenance (CBM) between established cleaning intervals, eliminating unnecessary service.
- Measures plenum pressure versus ambient, across the filter system.
- Similar FMA used on other Donaldson IBFs for the Bell 205A, 206B, 206L-1/3/4, 407, 430, Leonardo A119, AW139, AW189, Airbus AS350, EC130, and AS350 helicopters.



IBF BENEFITS: PERFORMANCE

MAXIMUM ENGINE DEBRIS/FOD PROTECTION

Allows consistent flight operations and extends engine time on wing. Improved protection over an inertial design and significantly better protection than a FOD screen.

IMPROVED AIRFLOW

Dual entry pleated barrier filter element provides improved air flow versus inertial separation vortex/swirl tubes typical with EAPS.



IBF BENEFITS: VALUE

RETURN ON INVESTMENT (ROI)

- Less premature engine removals, meet the expected engine TBO
- Long-life 7,500 flight hour filter assemblies (15 cleanings; 500-hour intervals)
- Reduction in corrosive salt air entering engine
- Engine overhaul cost reduction due to elimination of erosion and contamination on all rotating and pneumatic components
- Reduced maintenance time with improved plenum access.
- Common Line Replaceable Units (LRU) for mixed IBF fleets.
- Bleed air system and Mist Eliminator maintenance eliminated with IBF



IBF OPERATIONAL CONSIDERATIONS

- Improved power margin for high/hot operations and confined landing zones. Mission useful load increase of up to 95 pounds (140 pounds for MD530F high/hot) due to elimination of the performance penalty associated with EAPS use of Mis Eliminator while significantly improving separation efficiency.
- Reduction in turbine operating temperature results in increased power available and will translate into improved cruise performance.
- Includes bypass system with similar door configuration as current MD500. This improvement reduces internal component count and FOD incidents.
- Certified for flight in falling and blowing snow IAW helicopter manufacturers flight manual requirements



IBF OPERATIONAL CONSIDERATIONS

- Possibility of frozen particulate (snow, ice) accumulating inside inlet eliminated with the barrier filter versus inertial separator which allows snow to pass through and accumulate inside.
- Transport Canada Alternate Means of Compliance (AMOC) for operation without Snow Baffles.
- Up to 10 pounds lighter than EAPS/Mist Eliminator removed and IBF installed.
- IBF environmental cover included.
- Tail rotor control rod interface significantly improved, does not require removal when servicing filters.



IBF COMPARATIVE BENEFITS

- Engine Air Particle Separators (EAPS) utilize traditional inertial particle separation technology. Barrier Filters (BF) use current technology and state of the art integration.
- BF does not require the use of engine bleed air. EAPS does require engine bleed air which reduces engine power available.
- Engine bleed air system maintenance is eliminated. Reduced chance of engine stall from leaking valves and lines.
- Inertial separation vortex/swirl tubes routinely become clogged with straw, leaves and bugs degrading performance; Barrier filter immune to this type debris clogging and operates without degradation.



IBF COMPARATIVE BENEFITS

- Barrier Filters (BF) have significantly higher separation efficiency than inertial separators. BF typically >99% capture efficient on ISO Coarse & Fine dust, inertial separator typically <96% capture efficiency on ISO Coarse dust and far less on ISO Fine dust.
- BF are effective regardless of engine power setting; inertial separators (PS) are only effective when they have adequate engine bleed air; PS adequacy typically available above flight idle power setting.
- Significant decrease in fine sand ingestion reduces engine erosion damage from offsite landings/unprepared sites; BF virtually eliminate concern about ramp FOD ingestion.



Thank You

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