

PROVEN

Quality, Dependability and Reliability

What happens with your aircraft power system when you add in-flight entertainment, internet connectivity, powered seat controls, mood lighting? The answer - some form of power degradation will more than likely occur. These quality problems can manifest themselves in many ways; unexplained computer lockups, overheated motors and transformers, frequent circuit breaker tripping, fuse blowing, communications interference, insulation failures, power bus switching problems or fluorescent lamp flicker. Problems as severe as auto-pilot shutdowns have also been reported.



POWER LINE FILTERING

AvtechTye's revolutionary Active Filter solves many of these issues. The Active Filter is connected in parallel with the AC line, and constantly injects currents that precisely correspond to the harmonic components drawn by the load. The result is really magic and the power bus remains sinusoidal.

- Clears up power line distortion caused by installation of in-flight entertainment systems
- Prevents unexplained computer lockups, auto-pilot shutdowns, frequent circuit breaker tripping, and various other interference related phenomenon
- Cancels primarily the 3rd, 5th and 7th harmonic frequencies
- Can be installed on any point in the aircraft electrical system
- Provides up to eight amps of harmonic cancellation current
- If more filtering is required, multiple filters may be added in parallel

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The normal power source provides the fundamental current, and the Active Harmonic Filter supplies the harmonic currents required by the load. The filter acts on the 3rd, 5th, and 7th harmonics and is optimized to correct primarily the 3rd, as this is what a single phase rectifier-capacitor circuit generates. If the harmonic currents drawn by the load are greater than the 8.0 Amp rating of the filter, the filter automatically limits the injected current to the rated output current. Need more filtering? Simple, just add another Harmonic Filter.

Easy to implement, an active filter may be installed at any point on an aircraft AC system to compensate the power drawn by one or several non-linear loads, thus avoiding the circulation of harmonic currents throughout the 115 Volt AC system.

AvtechTyee's filter has been Type Certified and granted PMA for the Boeing 747 and 767 aircraft and has been qualified and tested to meet the requirements of RTCA DO-160C.

SPECIFICATIONS

Part Number	1777-1-3
Input Voltage	115 VAC, 400 Hz, Single Phase
Input Current	2.0A capacitive minimum, 8.5A maximum
Output	6.7 - 8.0 Arms harmonic cancellation current, depending on bus impedance and shape of distortion voltage waveform
Dimensions	6.80" X 6.75" X 4.14" (17.3 cm X 17.2 cm X 10.5 cm)
Weight	4.8 lbs (2.2kg)
Input Power	50-60W Effective maximum based on 978 Volt-Amperes
BITE	Push-To-Test button: Normal and fault LEDs; 2 connector pins allow additional configuration of BITE for AC under voltage and thermal limit conditions.
Temperature/Altitude	Section 4, Category A2 per DO-160C Note: Maximum altitude 25,000 feet in lieu of 15,000 feet. Reduced harmonic cancellation between -55°C and -15°C and +54°C to +70°C
Temperature Variation	Section 5, Category B of DO-160C
Operational and Crash Safety Shock	Per Section 7.3 of DO-160C
Vibration	Section 8 DO-160C with 5 hours random each axis.
Dielectric and Insulation Resistance	N/A
Power Input	Section 16, Category A of DO-160C
Voltage Spikes	Category A of DO-160C
Power Line	Section 17 of DO-160C
Induced Spikes	Section 19.3.4 of DO-160C
Bus Switching	Section 7.5.3 of D6-16050-4
AF Susceptibility	Section 7.2 of D6-16050-4
RF Susceptibility	Section 7.3, Category C4/A3 of DO-16050-4
Induced Spikes into Interconnecting cables	Section 19, paragraph 19.3.4 of DO-160C
Lightning Induced Susceptibility	Section 7.4.4, Level L1 of D6-16050-4
AF Conducted Emissions	Section 8.3 of D6-16050-4
RF Emissions	Section 8.4 of D6-16050-4
Humidity	Section 6, Category B of DO-160C
Sand and Dust	Section 12, Category D of DO-160C
Salt Spray	Section 14, Category S of DO-160C
Fungus	Section 13, Category F of DO-160C No fungal nutrient material is used.
Bench Handling Shock	Procedure VI, Paragraph 11-3.6 of MIL-STD-810D
Bonding Resistance	Maximum resistance between non-anodized chassis surfaces and chassis ground pin is less than or equal to 20 milliohms
ESDS	Section 7.1 of DO-16050-4

