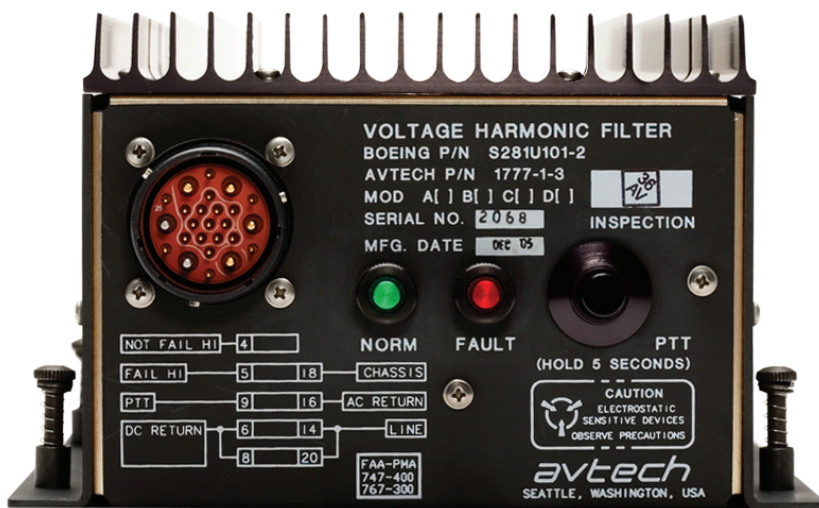


## HARMONIC FILTER

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

AvtechTyee'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



Since 1969 AvtechTyee has been a leader in the design, development, and manufacture of electronic systems for the aerospace industry, with a focus in three product groups: Audio, Avionics and Structures.

AvtechTyee products are flying onboard 42 aircraft types within the air transport, regional commuter, and business jet sectors, serving 450 customers in 49 countries of the world.

Our versatility in supporting aerospace electronics requirements ranges from the custom design and manufacturing of complex power supplies to complete Digital Audio Systems.

AvtechTyee is certified to ISO9001, AS9100 and the FAA's ACSEP. Product Support includes in-house repair services (FAA approved Repair Station #IG6R621N), loaner/exchange programs, and both in-house and offsite airline training.

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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

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