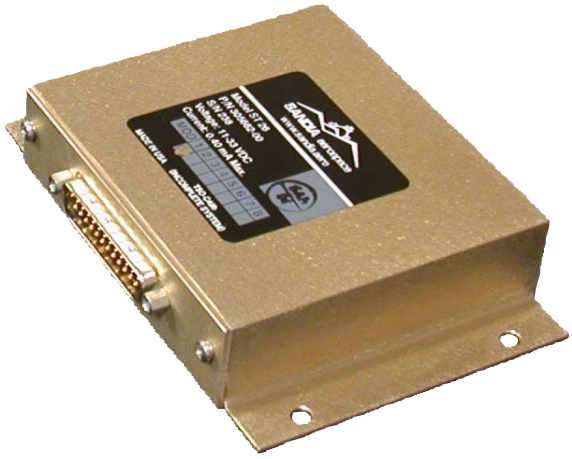
SANDIA aerospace

ST 26
Tach Generator Adapter



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Albuquerque, New Mexico
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305662-00-IS

Revision	Date	Description	Approval
A	20061208	DRN289	J. Fiala
B	20120625	ECN3915	L. Harrison

Table Of Contents

List of Illustrations

1.1 Introduction

This sheet describes the installation of the ST 26 Tach Generator Adapter. It is intended for use by FAA certified repair stations and original equipment manufacturers (OEM's) to install the ST 26 and includes both mechanical and electrical installation information. The installer should insure that the ST 26 is operating according to its intended function.

1.2 Product Description

The ST 26 is a Tach Generator Adapter that converts the sinusoidal output of Tach Generator to a digital format that can be used by aircraft display and/or control systems.

1.3 Technical Characteristics

1.3.1 Physical Characteristics

Width 5.06" Height .99"
Depth 3.35" Weight 0.5 lb

1.3.2 Operational Characteristics

Operating Voltage 11-33Vdc
Current .10 Amps per channel (.40 Amps total all channels)
Operating Temp -55^{O} C to +70^{O}C
Max Operating Altitude 55,000 Feet

1.3.3 Approved Equipment

The ST 26 requires the following input from the on-board Tach Generator.

Signal: Sinusoidal
Signal Frequency Range: 4-100Hz
Signal Amplitude Range: 4.25-150VPP

Approved Tachometers include:

- Globe 22A703
- AAE 32005-007
- Electro-Mech EM-8001
- Mikrotechna LUN 1333.12-8

The ST 26 digital output signal is:

- Pulled up collector to aircraft power
- Rise time is 15 uS nominal to Aircraft power @ 5VPP
- Fall time is 10uS nominal @ 5VPP
- Low voltage: 0.5VDC, 370 ohm
- High Voltage: Aircraft power through 4.7 K Ohm

Approved Systems include:

- Garmin G900X, G1000 Integrated Avionics Systems

NOMENCLATURE: TACH-GENERATOR ADAPTOR
TYPE/MODEL/PART NO: ST 26/305662-[XX]

MANUFACTURER'S SPECIFICATION AND/OR OTHER APPLICABLE SPECIFICATION: 305662-00
MANUFACTURER: SANDIA AEROSPACE
ADDRESS: 3700 OSUNA RD. NE, SUITE 711
ALBUQUERQUE, NM 87109

REVISION & CHANGE NUMBER OF DO-160: REV E CHANGE -

CONDITIONS	SECTION	DESCRIPTION OF TESTS CONDUCTED	NOTES:
Temperature and Altitude	4.0	Tested to Category [A2F2X]	
Low Temperature	4.5.1 4.5.2		-65 Ground/-55 Short -55 Operating
High Temperature	4.5.3 4.5.4		+85 Ground/+70 Short +70 Operating
Loss of Cooling	4.5.5	Not applicable	
Altitude Decompression Overpressure	4.6.1 4.6.2 4.6.3		55,000 (2.69InHg),-1000FT 55,000 Decompression -15,000 (50.12InHg)
Temperature Variation	5.0	Tested to Category B	5 deg/min
Humidity	6.0	Tested to Category B	240 Hours / 10 Cycles
Operational Shock and Crash Safety	7.0	Tested to Category B Aircraft Type 5 Test Type R	Helicopter and All Fixed-wing in random orientation
Sustained Crash Safety	7.3.2	Tested to Category B, Centrifuge	
Vibration	8.0	Tested to Category (S) using vibration curves (B2M)	Fixed Wind Recip & Turboprop Mult over 12,500Lbs. Recip & Turbojet
Explosion	9.0	Equipment identified as Category X, no test performed	
Waterproofness	10.0	Equipment identified as Category X, no test performed	
Fluids Susceptibility	11.0	Equipment identified as Category X, no test performed	
Sand and Dust	12.0	Equipment identified as Category X, no test performed	
Fungus	13.0	Equipment identified as Category X, no test performed	
Salt Spray	14.0	Equipment identified as Category X, no test performed	
Magnetic Effect	15.0	Tested to Category Z	Less than 0.3m deflection
Power Input	16.0	Tested to Category Z	No Digital Circuits
Voltage Spike	17.0	Tested to Category A	
Audio Frequency Susceptibility	18.0	Tested to Category Z	
Induced Signal Susceptibility	19.0	Tested to Category [ZC]	
Radio Frequency Susceptibility	20.0	Tested to Category [RR]	Note 1
Radio Frequency Emission	21.0	Tested to Category M	Note 1
Lightning Induced Transient Susceptibility	22.0	Tested to Category [Z3XXX]	Note 1, 2, 3
Lightning Direct Effects	23.0	Equipment identified as Category X, no test performed	
Icing	24.0	Equipment identified as Category X, no test performed	
Electrostatic Discharge	25.0	Equipment identified as Category X, no test performed	
Fire, Flammability	26.0	Equipment identified as Category X, no test performed	

Figure 1
ST 26 Qualification Test Form

Note 1: ST 26 is to be mounted flat, with mounting tabs on the reference ground plane. Bonding shall be close to mounting holes of case. Impedance from case to reference ground plane less than 2.5 milliohms. Test report shall describe actual bonding methods used.

Note 2: The following table defines the waveforms used on circuits

Pins/Circuits		Waveforms
1,2,4,5,7,8,10,11/ Tach Inputs	4, 5A	- Level 4
13,25 / Acft Pwr	3, 4	- level 3
15,18,21,24 / Output	3, 5A	- level 3

Output circuits (pins 15, 18, 21, 24) have 250 Ohm impedance between circuit and transient generator during waveform 5A testing.

Note 3: UUT shall be powered with 27.5Vdc +- .25Vdc.

1.3.4 Certification

TSO C49B (Incomplete System)
ETSO C49B (Incomplete System)
DO 160E [(A2)(F2)X]BBB[(S)(B2M)]XXXXXXZZAZ[ZC][RR]M[Z3XXX]XXXX

> "The conditions and test required for TSO approval of this article are minimum performance standards. It is the responsibility of those desiring to install the article either on or within a specific type or class of aircraft to demonstrate that the aircraft installation conditions are within the TSO standards. The article may be installed only if installation of the article is approved by the Administrator"

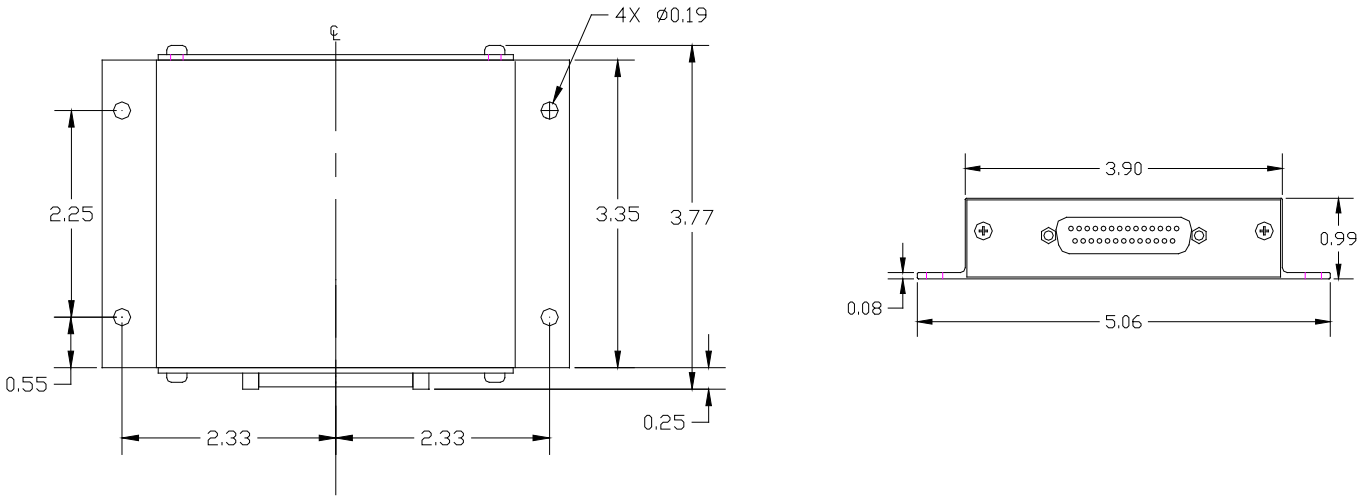

Figure 2
Dimensional Drawing

2.0 Installation Procedures

2.1 General

The ST 26 is supplied with a mounting connector and twenty-five crimp contacts. The ST 26 is mounted with four (4) number 6 or 8 screws.

2.2 Equipment Required

2.2.1 Supplied

ST 26 System Includes:
ST 26 305662-00
Installation Kit 305663-00
Mating Connector/Sockets 305720
Connector Clamp 305437

2.3 Continued Airworthiness

Maintenance of the ST 26 is on condition only. No scheduled maintenance is required.