

ELECTRICAL POWER-STATIC INVERTER - TOP COVER STANDOFF ADDITION

I PLANNING INFORMATION

- A Effectivity - Static Inverter, Part Number
1-002-0102-0714, (Boeing P/N S282T004-7)
Model 1C1000-1B, Mod Levels "-" thru "A"
- B Reason - This service bulletin revision
simplifies the functional performance
test following standoff installation and
extends the part availability dates
through August 31, 1994.
- Engineering Quality Analysis (EQA)
conducted by Boeing Commercial Airplane
Company on a model 1C1000-1B static
inverter determined that a potential
arcing condition exists if the top cover
is depressed with excessive pressure.
The addition of two nylon standoff
spacers to the top cover is recommended.
- C Description - Installation to the two nylon standoff
spacers will require removal of the top
cover of the static inverter and
attachment of the two standoffs using
one split-lock washer and pan-head screw.
- D Approval - This Service Bulletin contains no
modification information that revises
the approved configuration, and
therefore does not require FAA or
other regulatory agency approval.
- E Manpower - The estimated manpower required to
accomplish this task is 10 minutes.

August 24, 1992

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service bulletin

from AVIONIC INSTRUMENTS INC.

1-001-5601-0017

- F Material - Operators who intend to do this change at their facility may obtain the parts Cost and Availability shown in paragraph III A., Parts Required Per Component, from vendor as shown below. The data shows the date when the parts are available.

<u>Part Number</u>	<u>Qty</u>	<u>Unit Price</u>	<u>Name</u>	<u>Date Available</u>
1-001-2708-0181	2	N/C	Standoff, Nylon, Hex	31 Aug 1992
1-001-3201-0055	2	N/C	Washer, #4 Split-Lock	31 Aug 1992
1-001-2802-0030	2	N/C	Screw, 4-40 x 1/4 Long, SST, Pan-head	31 Aug 1992

1. The parts will be available August 31, 1992 through August 31, 1994. Send parts requests to Product Support Department at the address below and refer to this service bulletin number.

Avionic Instruments Inc.
1414 Randolph Ave
Avenel, NJ 07001 USA

- G Tooling - NONE
- H Weight and Balance - Net weight change +/- .01 lbs.

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1-001-3601-0017

- I Electrical - Not Affected
Load Data
- J Software - Not Applicable
Accomplishment
Summary
- K Reference - None
- L Other - Component Maintenance Manual,
Publications ATA No 24-20-27, 1-001-4902-0017
Affected will be revised to include this
service bulletin.

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II ACCOMPLISHMENT INSTRUCTIONS

Addition of the standoffs to the top cover will require the installer to remove the top cover of the static inverter.

CAUTION: DISCONNECT INPUT POWER PRIOR TO HANDLING OR REMOVAL OF THE COVER OF THE STATIC INVERTER TO PREVENT ELECTRICAL SHOCK.

1. Remove four (4) screws securing top cover, two (2) of item 40A and two (2) of item 40B on figure 1.
2. Remove eight (8) screws from the front and side panels securing top cover, two (2) of item 10 and six (6) of item 45 on figure 1.
3. Carefully pry off top cover, item 35 on figure 1.
4. Using figure 2, locate position for standoff installation.
5. Insert screw (p/n 1-001-2802-0030) through washer (p/n 1-001-3201-0055), then through appropriate hole in top cover as shown in figure 2.
6. Carefully thread standoff (p/n 1-001-2708-0181) on to screw from bottom side of cover as shown in figure 2.
7. Tighten screw with #1 Phillips screwdriver.
8. Repeat steps 4. through 7. for second standoff.

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9. Carefully install the top cover and replace the eight (8) screws, two (2) of item 10 and six (6) of item 45 removed in step 2.
10. Carefully install the two (2) screws, item 40B removed in step 1.
11. Apply threadlocking compound such as Loctite Threadlocker 242 to the two (2) screws, item 40A removed in step 1, prior to installation.
12. Reidentify the Mod Level of the Static Inverter as follows:
 - 1.- Use the "X" metal stamp to stamp over the existing mod level.
 - 2.- Use the "B" metal stamp to reidentify the MOD LEVEL by stamping a "B" in the silver area next to the existing letter (See figure 3).
13. Perform function test defined in Addendum 1 to verify inverter performance.
14. Return inverter to stock or installation upon successful completion of functional test.
15. Should the inverter fail the functional test, test and troubleshoot unit or return to Avionic Instruments Inc. for repair.

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III MATERIAL INFORMATION

A Parts Required Per Component - To get the parts listed below, refer to paragraph I.F., Material- Cost and Availability.

NOTE: One kit consisting of the components listed below is required for each static inverter.

<u>Part Number</u>	<u>Qty</u>	<u>Unit List Cost</u>	<u>Key Word</u>	<u>Instruction</u>
1-001-2708-0181	2	No Charge	Standoff, Nylon, Hex	Install
1-001-3201-0055	2	No Charge	Washer, #4 Split-Lock	Install
1-001-2802-0030	2	No Charge	Screw, 4-40 x 1/4 Long, SST, Pan-head	Install

In addition, the following commercially available items will be required to complete installation:

<u>Description</u>	<u>Qty</u>
3/32" Metal Stamp, Letter "B"	1
3/32" Metal Stamp, Letter "X"	1
Loctite Threadlocker 242 Thread-Locking Compound (or equivalent)	A/R

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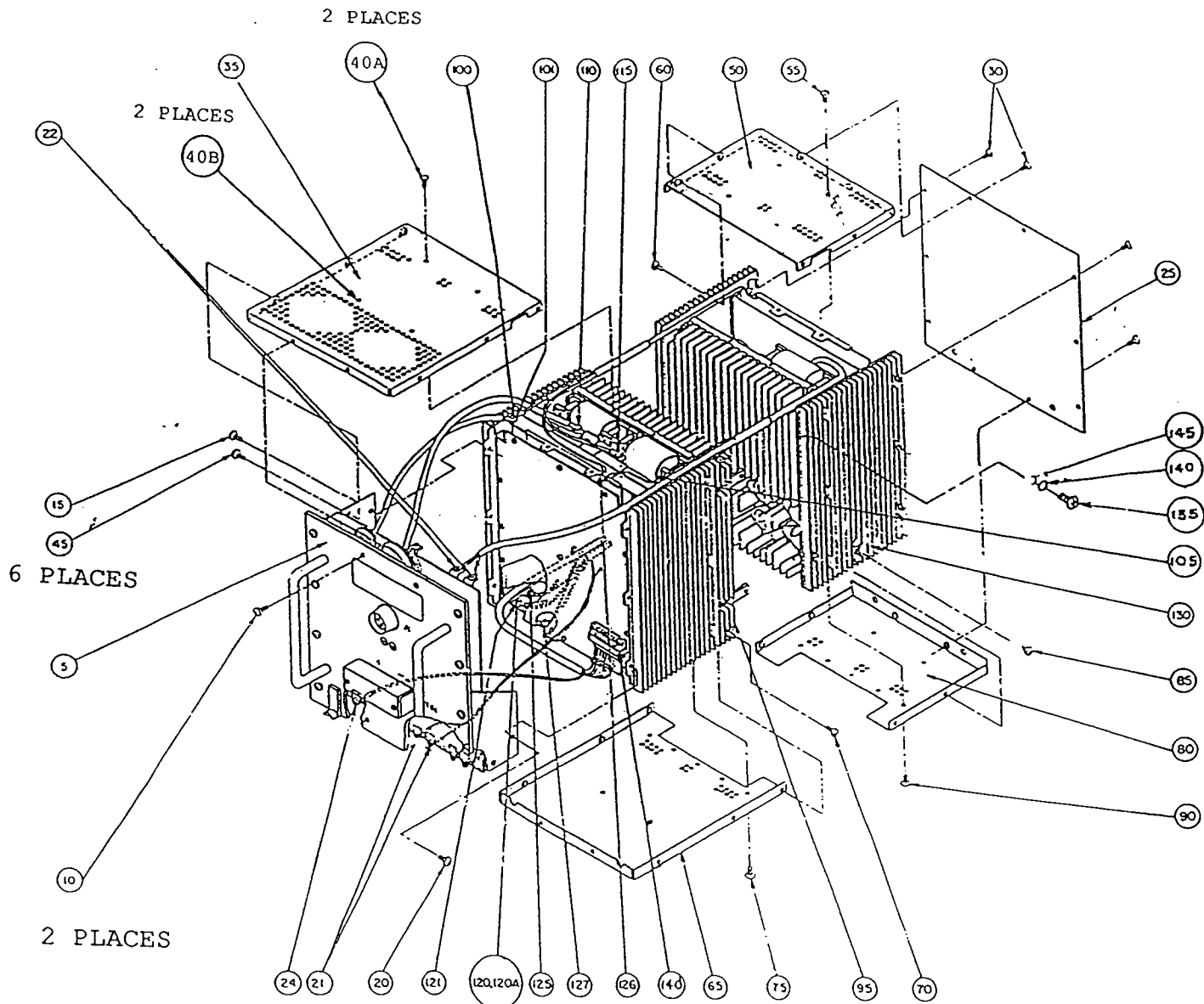


FIGURE 1

FINAL ASSEMBLY MODEL 1C1000-1B
STATIC INVERTER

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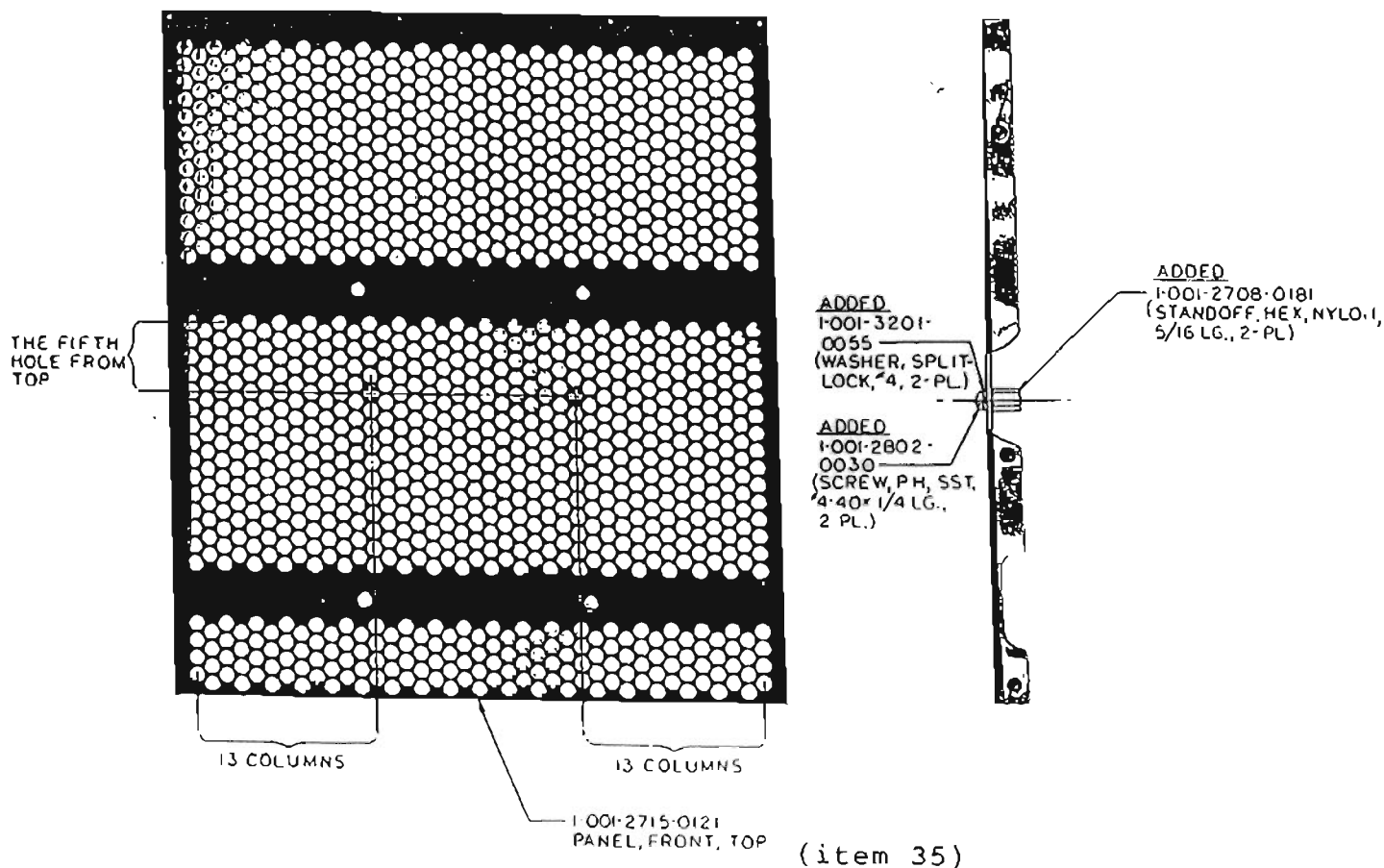


FIGURE 2

LOCATION OF STANDOFFS OF TOP COVER

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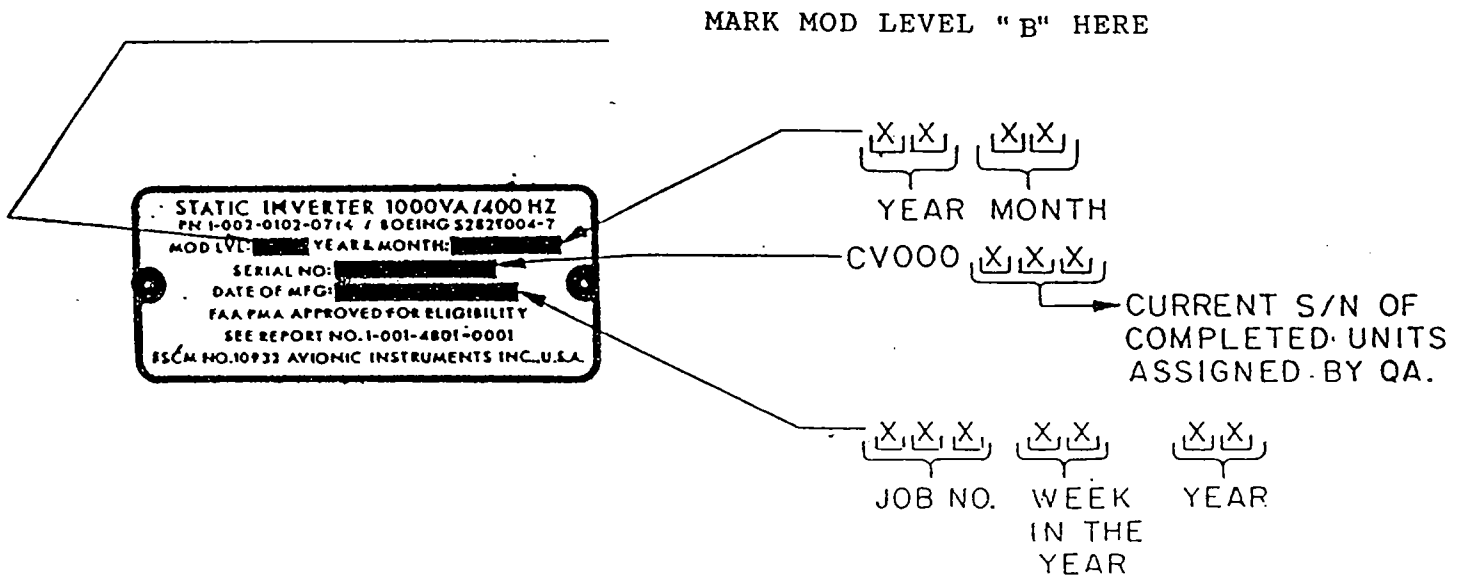


FIGURE 3

NAMEPLATE MARKING INFORMATION

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ADDENDUM 1 FUNCTIONAL TEST REQUIREMENTS

1. General

This section contains instructions for testing the Model 1C1000-1B Static Inverter. Testing is performed according to the procedure outlined in this section. The purpose of this test is to demonstrate that the static inverter meets all critical parameters and operates within the specified limits.

2. Test Equipment

A. Required Test Equipment

Figure 101 specifies the test equipment that is required for this test procedure. Alternate test equipment may be substituted provided its accuracy and performance are suitable for obtaining data consistent with the requirements of this procedure.

B. Test Setup

Figure 102 specifies the connections for the test setup.

3. Testing

This procedure establishes the operating conditions for the unit.

WARNING: DISCONNECT ALL POWER FROM THE STATIC INVERTER BEFORE MAKING CONNECTIONS OR PERFORMING ASSEMBLY OR DISASSEMBLY OPERATIONS.

A. Test Setup (See Figure 102)

- (1) Connect dc power supply, dc ammeter (with shunt, if required), and dc voltmeter to input of unit-under-test (UUT) -- TB1 on front panel. (Large diameter stud is positive; small diameter stud is negative.)

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1-001-3801-0017

<u>Equipment</u>	<u>Manufacturer</u>	<u>Model</u>	<u>Specifications</u>
Dc Power Supply	Sorenson	-DCR40 125A	0 to 40 V, 0 to 125 A
Dc Voltmeter	Weston	931	0 to 50 V $\pm 2\%$
Dc Ammeter	Weston	931	0 to 100 A
Shunt for Dc Ammeter (if required)			
Ac Voltmeter, True Rms	Weston	433	0 to 150% $\pm 2\%$
Ac Ammeter	Weston	904	0 to 50 A $\pm 2\%$
Linear Load			1000 W
SPST Switch	Augat (Alco Switch)	TT13A- 2T	3A, 28 Vdc

NOTE: Equivalent substitutes may be used

FIGURE 101

REQUIRED EQUIPMENT LIST FOR TEST PROCEDURE

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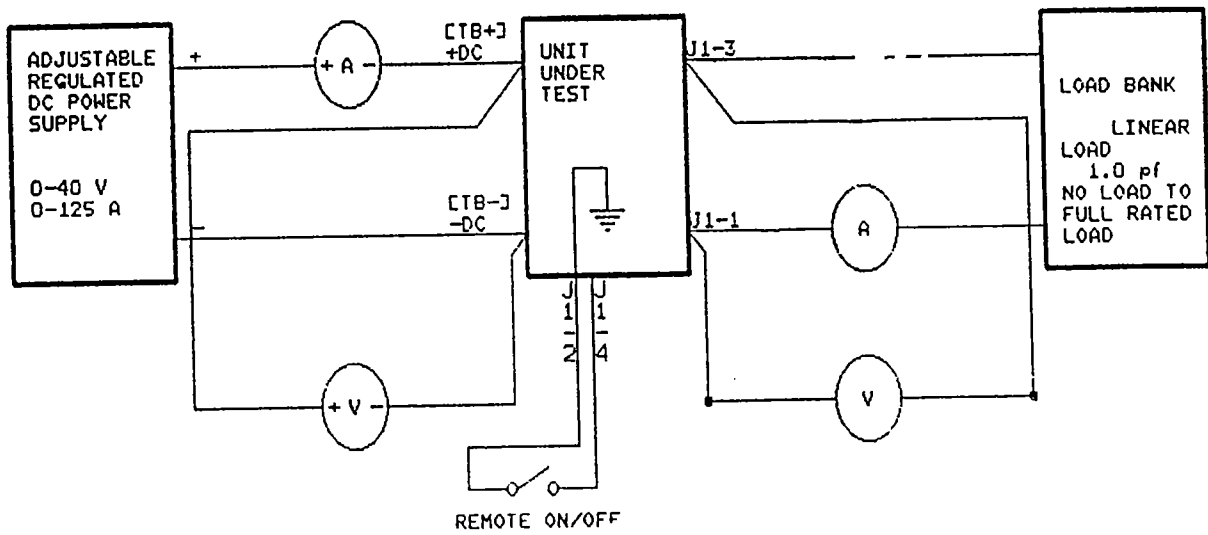


FIGURE 102

CONNECTIONS FOR TEST SETUP

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A. Test Setup (See Figure 102) (Continued)

- (2) Connect ac ammeter, ac voltmeter, and 1000 W nominal linear load to pins 1 and 3 of J1 on the front panel of the UUT.

NOTE: To minimize voltmeter reading error due to line losses, connect dc voltmeter directly to J1 and ac voltmeter directly to TB1.

B. Test Procedure

Perform steps of test procedure in listed order. Figure 103 specifies limits for each measured value. Testing must be stopped if any reading is out of tolerance and should be continued only after all faults have been corrected.

1. No-Load Test

- (a) Disconnect 1000 W nominal linear load from J1 on UUT.
- (b) Adjust dc power supply to 24 $-2/+4$ Vdc.
- (c) Measure and record input current, output voltage. Record measured values and compare to limits in Figure 103.

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2. Full-Load Test

- (a) Connect 1000 W nominal linear load to J1 on UUT. Calculate the efficiency at full-rated load and at input voltages of 22 V or greater using the following equation:

$$n = \frac{V_{out} * I_{out}}{V_{in} * I_{in}} * 100\%$$

The calculated efficiency at full-rated load should be at least 82% for input voltages of 22 V or greater.

- (b) Adjust dc power supply to 24 -2/+4 Vdc.
(c) Measure and record input current, output voltage. Record measured values and compare to limits in Figure 103.

3. Remote On/Off Test

- (a) Adjust dc power supply to 24 -2/+4Vdc.
(b) Close remote on/off switch for 5 seconds. This grounds Pin J1-4).
(c) UUT output should be zero.
(d) Open remote on/off switch. Verify that output returns.
(e) Turn off dc power supply and disconnect load.

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C. Limits, Measured Values

Check all readings against values specified in Figure 103. Repairs are required if input current, output voltage, or efficiency are not within tolerance.

Input		Output			
Voltage (Vdc)	Current (Adc)	Voltage (Vrms)	Current (A)	Eff. (%)	Load (W) Nominal
22-28	3.5 (1)	110-120	0	N/A	0
22-28	70 (1)	110-120	8.7 (2)	82	1000

- (1) Worst case input current limit for 22 V input, 1000 W load.
- (2) Nominal output current, load dependent. 1000 W current equal to output voltage divided by load resistance (typically 13.2 ohms at 1000 W).

FIGURE 103
LIMITS FOR MEASURED VALUES

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