TECHNICAL MANUAL

INSTRUMENT CALIBRATION PROCEDURE

DIGITAL VOLTMETERS AND DIGITAL MULTIMETERS

USING THE FLUKE 515A PORTABLE CALIBRATOR

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SECTION 1

INTRODUCTION AND DESCRIPTION

1.1 This procedure describes the calibration of digital voltmeters (DVMs) or digital multimeters (DMMs), and includes instruments having multifunction capability of measuring dc voltage, ac voltage, and resistance. Instruments that can be calibrated using this procedure include, but are not limited to the items listed in Appendix A.

1.2 This procedure omits the calibration of the DMM 10 Ω and 100 Ω resistance ranges, and calibrates the other resistance ranges to ±0.2%. It omits calibration of the voltage ratio functions. Affix special calibration labels (NAVMAT form 4355/7A or 4355/8A) as applicable. The instrument being calibrated is referred to herein as the TI (Test Instrument).

1.3 In the event that the user requires the calibration of the TI to a greater accuracy than that stated in Table 1, or requires calibration of the functions that this procedure omits, the TI must be submitted to a Navy calibration facility that can calibrate these functions to the required accuracy. It should be noted that a review of Navy usage of DVMs/DMMs reveals very limited use of the functions that this procedure omits. It is anticipated that the requirements for such calibrations will be similarly limited.

1.4 All comments concerning this procedure should be directed to Navy Measurement Science Directorate, Naval Warfare Assessment Station, P.O. Box 5000, Corona, CA 92878–5000.

1.5 This procedure includes tests of essential performance parameters only. Any malfunction noticed during calibration, whether specifically tested for or not, should be corrected.

1.6 Each plug in unit must be used with the TI with which it is calibrated. The plug in unit should be tagged, "For use with _____ (mfr) _____ model, serial # _____ only. If used with another TI, the system may not operate within the prescribed tolerance."

NOTE

This procedure describes the calibration of the TI up to 50 kHz. If the measurement capability of the TI is greater than 50 kHz, affix a special calibration label stating: This TI has been calibrated up to 50 kHz only.

Table 1. Calibration Description

TI Characteristics	Performance Specifications	Test Method
Direct voltage measurements	Ranges: μV: 0 to 999 μV Tolerance: ±6 μV 1, 10, 100, and 1000 V: Tolerance: ±0.009% of range 100 mV: Tolerance: ±0.09% of range 10 mV range: No capability Sensitivity: One least significant digit (LSD) for a TI having a lowest range resolution of 100 μV, 10 μV or 1 μV; otherwise sensitivity is not tested.	The TI indication is compared to the calibrator V dc output.

TI Characteristics	Performance Specifications	Test Method
Alternating voltage measurement	Range: 1, 10, 100, and 1000 V Tolerance: 1 V at 400 Hz; ±0.15% iv; 10 V at 400 Hz or 4 kHz, ±0.12% iv; 10 V at 50 kHz; ±0.3% iv; 100 V or 1000 V at 400 Hz, ±0.18% iv	The TI indication is compared to the calibrator V ac output.
Resistance	Range: 1 kΩ through 10 MΩ Tolerance: Assigned ±0.2%. 10 Ω and 100 Ω ranges are not tested.	The TI indication is compared to the calibrator resistance output

SECTION 2

EQUIPMENT REQUIREMENTS

NOTE

Minimum use specifications are the principal parameters required for performance of the calibration, and are included to assist in the selection of alternate equipment, which may be used at the discretion of the using laboratory. Satisfactory performance of alternate items shall be verified prior to use. All applicable equipment must bear evidence of current calibration.

The instruments utilized in this procedure were selected from those known to be available at Navy calibration facilities, and the listing by make or model number carries no implication of preference, recommendation, or approval for use by other agencies. It is recognized that equivalent equipment produced by other manufacturers may be capable of equally satisfactory performance in this procedure.

If the TI has an electronic counter function, calibration is in two parts: First, calibrate the TI electronic counter function in accordance with NAVAIR 17–20VF–06; then calibrate the multimeter function with this procedure.

Table 2. Equipment Requirements

Item	Minimum Use Specifications	Calibration Equipment
2.1 Portable meter calibrator (calibrator)	DCV range: 0 to 999 μV, 1 V, 10 V, and 100 V Uncertainty: 0 to 999 μV: ±2.0 μV 1 V, 10 V, and 100 V: ±0.003% iv or 30 μV, whichever is greater ACV range: 1 V, 10 V, and 100 V Uncertainty: 1 V at 400 Hz: ±0.05% 10 V at 400 Hz and 4 kHz: ±0.04% 10 V at 50 kHz: ±0.1% 100 V at 400 Hz: ±0.06% Resistance range: 1kΩ, 1 MΩ, and 10 MΩ Uncertainty: 1 kΩ and 1 MΩ: ±0.015% 10 MΩ: ±0.075%	Fluke 515A (no substitute)

SECTION 3

PRELIMINARY OPERATIONS

WARNING

TESTS INDICATE THAT WHEN USING THE FLUKE 8125A IN EITHER THE BATTERY MODE OR WITH A TWO WIRE V AC INPUT, THERE CAN BE UP TO 180 V AC POTENTIAL BETWEEN THE CASE AND GROUND. ACCORDINGLY, IF THE TI IS A FLUKE 8125A AND A THREE TO TWO WIRE ADAPTER IS USED, OR IF THE INSTRUMENT IS POWERED FROM THE OPTIONAL BATTERY PACK WITH THE LINE CORD DISCONNECTED, ENSURE THAT THE TI CASE IS GROUNDED. THE GROUND LEAD SHOULD BE CONNECTED BETWEEN EARTH GROUND AND THE HINGE PIN ON THE TI CASE.

3.1 Set all equipment controls as necessary to avoid damage to the equipment and so that dangerous voltages will not be present on output terminals when power switches are turned on.

3.2 Connect all applicable equipment to the appropriate power source, and turn all power switches on.

3.3 Allow a 30 minute warm up time for the calibrator and a sufficient warm up time for the TI (see manufacturer's manual).

NOTE

The calibrator may be warmed up on battery or ac power or a combination of both. When the power switch is on, it will automatically switch to battery power when unplugged from the ac line. It may be warmed up in transit to another location, or if previously warmed up, it may be transported on battery power (power switch on) to avoid any further warm up requirement. Transport the calibrator with the function switched to OHMS to avoid electrical shock, and the rotary switch in the 10 M (BTRY SAVER) position for minimum battery drain. When operating the calibrator on battery power, use the 10 M position for standby.

3.4 As applicable adjust the TI controls that are normally required to electrically zero the TI or to precalibrate certain functions prior to the TI usage.

SECTION 4

CALIBRATION PROCESS

WARNING

VOLTAGES HAZARDOUS TO LIFE MAY BE PRESENT. USE EXTREME CAUTION.

NOTE

Manually set the TI controls to the required voltage ranges to hold the measurement in the specified range. If a measurement must be performed in the TI auto mode because the TI is not equipped with a manual range selector, the calibration test measurement values have been chosen to avoid any measurement problem which may arise as a result of the TI automatic downranging and upranging characteristics.

NOTES

Unless otherwise specified, verify the results of each test and take corrective action whenever the test requirement is not met before proceeding.

Zero test point measurements are to be verified only if an out of tolerance indication occurs at any test point during calibration.

4.1 DIRECT VOLTAGE MEASUREMENTS

4.1.1 Connect the TI input to the calibrator output, observing correct polarity.

4.1.2 Set the TI controls to measure positive polarity dc voltage on the range most appropriate for testing linearity. (Usually the 1 or 10 volt range.)

4.1.3 If a checklist is not provided for the TI, select five equally spaced calibration points compatible with the TI range and available calibrator outputs. Set the calibrator V dc output multiplier switch decade to each calibration point and verify that at each calibration point, the TI indication is within the TI tolerance limits specified by the manufacturer.

4.1.4 Set the calibrator V dc controls for minimum output.

4.1.5 Reverse the input leads to the TI for negative polarity.

4.1.6 Set the calibrator V dc output multiplier switch decade to the highest calibration point selected in step 4.1.3 (The TI indication will be a negative value for the TI that has an auto polarity capability).

4.1.7 Set the calibrator V dc controls for minimum output.

4.1.8 Reverse the input leads to the TI for positive polarity.

4.1.9 Set the calibrator V dc controls for a voltage value at the highest compatible calibration point for each TI voltage range. (TIs having voltage ranges above 100 V dc will be tested at 100 V dc). At each calibration point, verify that the TI indication is within the TI tolerance limits specified by the manufacturer.

4.1.10 Set the calibrator V dc controls for minimum output.

NOTE

Perform steps 4.1.11 to 4.1.14 only if the TI has a resolution of either 100 μV, 10 μV, or 1 μV on the TI lowest voltage range; for all others TIs, proceed to Section 4.2. The word “resolution” in the following test measurements represents the lease significant digit (LSD) of the TI lowest voltage range.

4.1.11 Set the TI V dc controls to the lowest range.

4.1.12 Press the calibrator μV switch, and adjust the calibrator μV control to set the TI indication to 500 μV.

4.1.13 Adjust the calibrator μV control to increase the indication on the calibrator μV indicator by twice the resolution of the TI, and verify that the TI indication is within the TI tolerance limits specified by the manufacturer.

4.1.14 Adjust the calibrator μV control to decrease the indication on the calibration μV indicator by four times the resolution of the TI, and verify that the TI indication is within the TI tolerance limits specified by the manufacturer.

4.1.15 Set the calibrator V dc controls for minimum output.

4.2 ALTERNATING VOLTAGE MEASUREMENTS

4.2.1 Adjust the TI controls for ac voltage measurements.

4.2.2 Adjust the TI and calibrator controls for TI measurement of the following calibrator voltage and frequency; outputs 400 Hz – 1 V, 400 Hz – 10 V, 400 Hz –100 V, and 4 kHz – 10 V or 50 kHz – 10V. (If the TI has a range above 100 V, it will be tested as 400 Hz – 100 V). At each calibrator output specified by the manufacturer.

4.2.3 Set the calibrator V ac output voltage switches for minimum output.

4.3 RESISTANCE MEASUREMENTS

4.3.1 Set the TI controls to measure resistance.

4.3.2 Press the calibrator ohms switch, and set the calibrator output switch to 1 k, 10 k, 100 k, 1000 k, or 10000 k. At each setting, verify that the TI indication is within the TI tolerance limits specified by the manufactuer.

4.3.3. Affix a special calibration label to the TI, listing any function which was not calibrated, and any function or range for which the calibrator did not provide a 4:1 test accuracy ratio.

4.3.4 Unless other measurements are to be performed, set all power switches to off and disconnect the equipment.

CALIBRATION CHECKLIST

TEST INST (S) Cubic 50–1122–1, V72–1000–1 Digital Voltmeter as used in Autonetics 37002–315 Static Test Unit

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	10 V	10 V x 0	0.000				–0.001 to 0.001
”	”	10 V x .1	1.000				0.999 to 1.001
”	”	10 V x .2	2.000				1.999 to 2.001
”	”	10 V x .3	3.000				2.999 to 3.001
”	”	10 V x .4	4.000				3.999 to 4.001
”	”	10 V x .5	5.000				4.998 to 5.002
”	”	10 V x .6	6.000				5.998 to 6.002
”	”	10 V x .7	7.000				6.998 to 7.002
”	”	10 V x .8	8.000				7.998 to 8.002
”	”	10 V x .9	9.000				8.998 to 9.002
4.1.6	–10 V	10 V x .9	9.000				8.998 to 9.002

CALIBRATION CHECKLIST

TEST INST (S) Cubic 0309020 or 0309020–1 Digital Voltmeter

PROC. NO. NA 17–20VQ–05 MFG. MODEL SER. NO.

PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.000				–0.001 to 0.001
”	”	10 V x .1	1.000				0.999 to 1.001
”	”	10 V x .2	2.000				1.999 to 2.001
”	”	10 V x .3	3.000				2.999 to 3.001
”	”	10 V x .4	4.000				3.999 to 4.001
”	”	10 V x .5	5.000				4.998 to 5.002
”	”	10 V x .6	6.000				5.998 to 6.002
”	”	10 V x .7	7.000				6.998 to 7.002
”	”	10 V x .8	8.000				7.998 to 8.002
”	”	10 V x .9	9.000				8.998 to 9.002
”	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	100 V	100 V	100				99.98 to 100.02
”	1000 V	100 V	100				99.9 to 100.1

CALIBRATION CHECKLIST

TEST INST (S) Hewlett–Packard 2402A with Options 02 and/or 03 Digital Voltmeter

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.0000				–0.0003 to 0.0003
”	”	10 V x .1	1.0000				0.9996 to 1.0004
”	”	10 V x .2	2.0000				1.9995 to 2.0005
”	”	10 V x .3	3.0000				2.9994 to 3.0006
”	”	10 V x .4	4.0000				3.9993 to 4.0007
”	”	10 V x .5	5.0000				4.9992 to 5.0008
”	”	10 V x .6	6.0000				5.9991 to 6.0009
”	”	10 V x .7	7.0000				6.9990 to 7.0010
”	”	10 V x .8	8.0000				7.9989 to 8.0011
”	”	10 V x .9	9.0000				8.9988 to 9.0012
”	”	10 V x 1	10.0000				9.9987 to 10.0013
4.1.6	–10 V	10 V x 1	10.0000				9.9987 to 10.0013
	TI Range	Calibrator	(mV)	(mV)			(mV)
4.1.9	1000 mV	1 V x 1	1000.00				999.87 to 1000.13
	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	100 V	100 V	100.00				99.992 to 100.008
	1000 V	100 V	100.00				99.96 to 100.04
	TI 100 mV range		(µV)	(µV)			(µV)
4.1.13	1 µV LSD		502				501 to 503
4.1.14	1 µV LSD		498				497 to 499
4.2	Alternating–Voltage Measurements (02)						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	1 V	400 Hz–1 V	1.00000				0.99910 to 1.00090
”	10 V	400 Hz–10 V	10.0000				9.9910 to 10.0090
”	100 V	400 Hz–100 V	100.000				99.910 to 100.090
”	1000 V	400 Hz–100 V	100.00				99.91 to 100.09
”	10	4 kHz–10 V	10.0000				9.9910 to 10.0090
”	10	50 kHz–10 V	10.0000				9.9610 to 10.0390
”	1000	50 kHz–10 V	10.00				9.38 to 10.62

CALIBRATION CHECKLIST

TEST INST (S) Hewlett–Packard 2402A with Options 02 and/or 03 Digital Voltmeter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements (03)					
	TI & Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	1 kΩ range	1.00000				0.99800 to 1.00200
”	10 kΩ range	10.0000				9.9800 to 10.0200
”	100 kΩ range	100.000				99.800 to 100.200
”	1000 kΩ range	1000.00				998.00 to 1002.00
		(MΩ)	(MΩ)			(MΩ)
4.3.2	10 MΩ range	10.0000				9.9800 to 10.0200
	Affix a special calibration label stating:					
	1. The resistance ranges have been calibrated to ±0.2% of range. 2. The 100 mV V dc range has not been calibrated. 3. The V ac function of the TI has been calibrated up to 50 kHz only.					

CALIBRATION CHECKLIST

TEST INST (S) Cimron Digital Multimeter, Sanders P/N 3005896G1 as used with 0Q–10/ALM–64*

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.0000				–0.0002 to 0.0002
”	+10 V	10 V x .1	1.0000				0.9997 to 1.0003
”	+10 V	10 V x .2	2.0000				1.9995 to 2.0005
”	+10 V	10 V x .3	3.0000				2.9992 to 3.0008
”	+10 V	10 V x .4	4.0000				3.9990 to 4.0010
”	+10 V	10 V x .5	5.0000				4.9987 to 5.0013
”	+10 V	10 V x .6	6.0000				5.9985 to 6.0015
”	+10 V	10 V x .7	7.0000				6.9982 to 7.0018
”	+10 V	10 V x .8	8.0000				7.9980 to 8.0020
”	+10 V	10 V x .9	9.0000				8.9977 to 9.0023
”	+10 V	10 V x 1	10.0000				9.9975 to 10.0025
”	–10 V	10 V x 1	10.0000				9.9975 to 10.0025
”	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	100 V	100 V	100.000				99.975 to 100.025
”	1000 V	100 V	100.00				99.97 to 100.03
	TI 10–volt range		(µV)	(µV)			(µV)
4.1.13	100 µV LSD		700				600 to 800
4.1.14	100 µV LSD		300				200 to 400
	*Affix a special calibration label to the TI stating: “This TI is calibrated in accordance with the usage requirement of 0Q–10/ALM–64”.						

CALIBRATION CHECKLIST

TEST INST (S) Hewlett–Packard 3460B Digital Voltmeter

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.0000				–0.0002 to 0.0002
”	+10 V	10 V x .1	1.0000				0.9998 to 1.0002
”	+10 V	10 V x .2	2.0000				1.9997 to 2.0003
”	+10 V	10 V x .3	3.0000				2.9997 to 3.0003
”	+10 V	10 V x .4	4.0000				3.9996 to 4.0004
”	+10 V	10 V x .5	5.0000				4.9996 to 5.0004
”	+10 V	10 V x .6	6.0000				5.9996 to 6.0004
”	+10 V	10 V x .7	7.0000				6.9995 to 7.0005
”	+10 V	10 V x .8	8.0000				7.9995 to 8.0005
”	+10 V	10 V x .9	9.0000				8.9994 to 9.0006
”	+10 V	10 V x 1	10.0000				9.9994 to 10.0006
”	–10 V	10 V x 1	10.0000				9.9994 to 10.0006
”	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	1 V	1 V x 1	1.00000				0.99994 to 1.00006
”	100 V	100 V	100.000				99.994 to 100.006
”	1000 V	100 V	100.00				99.98 to 100.02
	TI 1 volt range		(µV)	(µV)			(µV)
4.1.13	10 µV LSD		520				510 to 530
4.1.14	10 µV LSD		480				470 to 490

CALIBRATION CHECKLIST

TEST INST (S) Hewlett–Packard 34703A Option E01 as used with the Mardan Test Set for FBM*

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.	
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)	
4.1	Direct–Voltage Measurements							
	TI Range	Calibrator	(V)	(V)			(V)	
4.1.3	+10 V	10 V x 0	0.000				–0.006 to	0.006
”	+10 V	10 V x .1	1.000				0.991 to	1.009
”	+10 V	10 V x .2	2.000				1.989 to	2.011
”	+10 V	10 V x .3	3.000				2.988 to	3.012
”	+10 V	10 V x .4	4.000				3.986 to	4.014
”	+10 V	10 V x .5	5.000				4.984 to	5.016
”	+10 V	10 V x .6	6.000				5.982 to	6.018
”	+10 V	10 V x .7	7.000				6.980 to	7.020
”	+10 V	10 V x .8	8.000				7.979 to	8.021
”	+10 V	10 V x .9	9.000				8.977 to	9.023
”	+10 V	10 V x 1	10.000				9.975 to	10.025
”	–10 V	10 V x 1	10.000				9.975 to	10.025
”	TI Range	Calibrator	(mV)	(mV)			(mV)	
4.1.9	10 mV	1000 µV	1.000				0.499 to	1.501
”	100 V	1 V X .1	100.00				99.75 to	100.25
	TI Range	Calibrator	(V)	(V)			(V)	
4.1.9	1 V	1 V x 1	1.0000				0.9975 to	1.0025
”	100 V	100 V	100.00				99.75 to	100.25
”	1000 V	100 V	100.0				99.2 to	100.8
	TI 1 volt range		(µV)	(µV)			(µV)	
4.1.13	100 µV LSD		700				600 to	800
4.1.14	100 µV LSD		300				200 to	400
	*Affix a special calibration label to the TI stating: “Calibration is performed in accordance with the usage requirement of the Mardan Test Set.”							

CALIBRATION CHECKLIST

TEST INST (S) Hewlett–Packard 3490A Digital Multimeter

PROC. NO. NA 17–20VQ–05 MFG. MODEL SER. NO.

PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.0000				–0.0002 to 0.0002
”	+10 V	10 V x .1	1.0000				0.9996 to 1.0004
”	+10 V	10 V x .2	2.0000				1.9995 to 2.0005
”	+10 V	10 V x .3	3.0000				2.9993 to 3.0007
”	+10 V	10 V x .4	4.0000				3.9992 to 4.0008
”	+10 V	10 V x .5	5.0000				4.9990 to 5.0010
”	+10 V	10 V x .6	6.0000				5.9989 to 6.0011
”	+10 V	10 V x .7	7.0000				6.9987 to 7.0013
”	+10 V	10 V x .8	8.0000				7.9986 to 8.0014
”	+10 V	10 V x .9	9.0000				8.9984 to 9.0016
”	+10 V	10 V x 1	10.0000				9.9983 to 10.0017
”	–10 V	10 V x 1	10.0000				9.9983 to 10.0017
”	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	0.1 V	1 V x .1	.100000				0.099980 to 0.100020
”	1 V	1 V x 1	1.00000				0.99983 to 1.00017
”	100 V	100 V	100.000				99.983 to 100.017
”	1000 V	100 V	100.00				99.96 to 100.04
	TI 0.1 volt range		(µV)	(µV)			(µV)
4.1.13	1 µV LSD		502				501 to 503
4.1.14	1 µV LSD		498				497 to 499
4.2	Alternating–Voltage Measurements						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	1 V	400 Hz–1 V	1.00000				0.99845 to 1.00155
”	10 V	400 Hz–10 V	10.0000				9.9845 to 10.0155
”	100 V	400 Hz–100 V	100.000				99.845 to 100.155
”	1000 V	400 Hz–100 V	100.00				99.53 to 100.47
”	10 V	4 kHz–10 V	10.0000				9.9845 to 10.0155
”	10 V	50 kHz–10 V	10.0000				9.9845 to 10.0155

CALIBRATION CHECKLIST

TEST INST (S) Hewlett–Packard 3490A Digital Multimeter

PROC. NO.	NA 17–20VQ–05	MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements					
	TI & Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	1 kΩ range	1.00000				0.99800 to 1.00200
”	10 kΩ range	10.0000				9.9800 to 10.0200
”	100 kΩ range	100.000				99.800 to 100.200
”	1000 kΩ range	1000.00				998.00 to 1002.00
”	10000 kΩ range	10000.0				9980.0 to 10020.0
	Affix a special calibration label stating: 1. The 0.1 kΩ range has not been calibrated. 2. All other resistance ranges have been calibrated to ±0.2% of range. 3. The V ac function of the TI has been calibrated up to 50 kHz only.					

CALIBRATION CHECKLIST

TEST INST (S) Electro Instruments, Inc. 4010 DC Voltmeter

PROC. NO. NA 17–20VQ–05 MFG. MODEL SER. NO.

PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.000				–0.001 to 0.001
”	+10 V	10 V x .1	1.000				0.999 to 1.001
”	+10 V	10 V x .2	2.000				1.999 to 2.001
”	+10 V	10 V x .3	3.000				2.999 to 3.001
”	+10 V	10 V x .4	4.000				3.999 to 4.001
”	+10 V	10 V x .5	5.000				4.999 to 5.001
”	+10 V	10 V x .6	6.000				5.999 to 6.001
”	+10 V	10 V x .7	7.000				6.999 to 7.001
”	+10 V	10 V x .8	8.000				7.999 to 8.001
”	+10 V	10 V x .9	9.000				8.999 to 9.001
4.1.6	–10 V	10 V x .9	9.000				8.999 to 9.001
	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	100 V	100 V	100.00				99.99 to 100.01
”	1000 V	100 V	100.0				99.9 to 100.1

CALIBRATION CHECKLIST

TEST INST (S) Hewlett–packard 405A, 405AR, 405BR, or 405CR Digital Voltmeter

PROC. NO. NA 17–20VQ–05 MFG. MODEL SER. NO.

PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.00				–0.01 to 0.01
”	+10 V	10 V x .1	1.00				0.99 to 1.01
”	+10 V	10 V x .2	2.00				1.99 to 2.01
”	+10 V	10 V x .3	3.00				2.98 to 3.02
”	+10 V	10 V x .4	4.00				3.98 to 4.02
”	+10 V	10 V x .5	5.00				4.98 to 5.02
”	+10 V	10 V x .6	6.00				5.98 to 6.02
”	+10 V	10 V x .7	7.00				6.98 to 7.02
”	+10 V	10 V x .8	8.00				7.97 to 8.03
”	+10 V	10 V x .9	9.00				8.97 to 9.03
4.1.6	–10 V	10 V x .9	9.00				8.97 to 9.03
	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	1 V	1 V x .9	0.900				0.897 to 0.903
”	100 V	100 V	100.0				99.7 to 100.3
”	1000 V	100 V	100				99 to 101

CALIBRATION CHECKLIST

TEST INST (S) Dana 4700 or 4700A Digital Voltmeter

PROC. NO. NA 17–20VQ–05			MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.000				–0.001 to 0.001
”	+10 V	10 V x .1	1.000				0.999 to 1.001
”	+10 V	10 V x .2	2.000				1.998 to 2.002
”	+10 V	10 V x .3	3.000				2.998 to 3.002
”	+10 V	10 V x .4	4.000				3.998 to 4.002
”	+10 V	10 V x .5	5.000				4.997 to 5.003
”	+10 V	10 V x .6	6.000				5.997 to 6.003
”	+10 V	10 V x .7	7.000				6.997 to 7.003
”	+10 V	10 V x .8	8.000				7.997 to 8.003
”	+10 V	10 V x .9	9.000				8.996 to 9.004
4.1.6	–10 V	10 V x .9	9.000				9.996 to 9.004
	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	1 V	10 V x 1	1.0000				0.9996 to 1.0004
”	100 V	100 V	100.00				99.96 to 100.04
”	1000 V	100 V	100.0				99.9 to 100.1
	TI 0.1 volt range		(µV)	(µV)			(µV)
4.1.13	10 µV LSD		520				510 to 530
4.1.14	10 µV LSD		480				470 to 490
4.2	Alternating–Voltage Measurements						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	1 V	400 Hz–1 V	1.0000				0.9988 to 1.0012
”	10 V	400 Hz–10 V	10.000				9.998 to 10.012
”	100 V	400 Hz–100 V	100.00				99.88 to 100.12
”	1000 V	400 Hz–100 V	100.0				99.7 to 100.3
”	10 V	4 kHz–10 V	10.000				9.988 to 10.012
”	10 V	50 kHz–10 V	10.000				9.896 to 10.104

CALIBRATION CHECKLIST

TEST INST (S) Dana 4700 or 4700A Digital Voltmeter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements					
	TI & Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3	1 kΩ range	1.0000				9.9980 to 1.0020
”	10 kΩ range	10.000				9.980 to 10.020
”	100 kΩ range	100.00				99.80 to 100.20
”	1000 kΩ range	1000.0				998.0 to 1002.0
”	10000 kΩ range	10000				9980 to10020
	Affix a special calibration label stating: 1. The 0.1 V dc and the 0.1 kΩ range have not been calibrated. 2. All other resistance ranges have been calibrated to ±0.2% of range. 3. The V ac function of the TI has been calibrated up to 50 kHz only.					

CALIBRATION CHECKLIST

TEST INST (S) Non–Linear System 5005 or 5010 Digital Voltmeter

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.000				–0.001 to 0.001
”	+10 V	10 V x .1	1.000				0.999 to 1.001
”	+10 V	10 V x .2	2.000				1.999 to 2.001
”	+10 V	10 V x .3	3.000				2.999 to 3.001
”	+10 V	10 V x .4	4.000				3.999 to 4.001
”	+10 V	10 V x .5	5.000				4.998 to 5.002
”	+10 V	10 V x .6	6.000				5.998 to 6.002
”	+10 V	10 V x .7	7.000				6.998 to 7.002
”	+10 V	10 V x .8	8.000				7.998 to 8.002
”	+10 V	10 V x .9	9.000				8.998 to 9.002
”	+10 V	10 V x 1	10.000				9.998 to 10.002
4.1.6	–10 V	10 V x 1	10.000				9.998 to 10.002
	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	1 V (5010)	1 V x 1	1.0000				0.9998 to 1.0002
”	100 V	100 V	100.00				99.98 to 100.02
”	1000 V	100 V	100.0				99.9 to 100.1
	(5010) 1 volt range		(µV)	(µV)			(µV)
4.1.13	100 µV LSD		700				600 to 800
4.1.14	100 µV LSD		300				200 to 400

CALIBRATION CHECKLIST

TEST INST (S) Dana 4430, 4432, or 4400 Series Digital Voltmeter

PROC. NO. NA 17–20VQ–05 MFG. MODEL SER. NO.

PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.000				–0.001 to 0.001
”	+10 V	10 V x .1	1.000				0.999 to 1.001
”	+10 V	10 V x .2	2.000				1.999 to 2.001
”	+10 V	10 V x .3	3.000				2.999 to 3.001
”	+10 V	10 V x .4	4.000				3.999 to 4.001
”	+10 V	10 V x .5	5.000				4.998 to 5.002
”	+10 V	10 V x .6	6.000				5.998 to 6.002
”	+10 V	10 V x .7	7.000				6.998 to 7.002
”	+10 V	10 V x .8	8.000				7.998 to 8.002
”	+10 V	10 V x .9	9.000				8.998 to 9.002
”	+10 V	10 V x 1	10.000				9.998 to 10.002
4.1.6	–10 V	10 V x 1	10.000				9.998 to 10.002
4.1.9	1 V	1 V x 1	1.0000				0.998 to 1.0002
”	10 V	10 V x 1	10.000				9.998 to 10.002
”	100 V	100 V	100.00				99.98 to 100.02
”	1000 V	100 V	100.0				99.9 to 100.1
	TI 1 V range		(µV)	(µV)			(µV)
4.1.13	100 µV LSD		700				600 to 800
4.1.14	100 µV LSD		300				200 to 400
4.2	Alternating–Voltage Measurements (with 220 converter)						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	1 V	400 Hz–1 V	1.0000				0.9988 to 1.0012
”	10 V	400 Hz–10 V	10.000				9.998 to 10.012
”	100 V	400 Hz–100 V	100.00				99.88 to 100.12
”	1000 V	400 Hz–100 V	100.0				99.7 to 100.3
”	10 V	4 kHz–10 V	10.000				9.945 to 10.055
”	10 V	50 kHz–10 V	10.000				9.790 to 10.210

CALIBRATION CHECKLIST

TEST INST (S) Dana 4430, 4432, or 4400 Series Digital Voltmeter

PROC. NO.	NA 17–20VQ–05	MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements (with 225 or 230 converter)					
	TI & Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3	1 kΩ range	1.0000				0.9980 to 1.0020
”	10 kΩ range	10.000				9.980 to 10.020
”	100 kΩ range	100.00				99.80 to 100.20
”	1000 kΩ range	1000.0				998.0 to 1002.0
”	10000 kΩ range	10000				9980 to 10020
	Affix a special calibration label stating: 1. All resistance ranges have been calibrated to ±0.2% of range. 2. If the TI is equipped with a model 220 module (converter), the V ac function has been calibrated up to 50 kHz only.					

CALIBRATION CHECKLIST

TEST INST (S) Cohu 501B, 501BZ, 502B, or 502BZ Digital Voltmeter with 452, 452A, or 452B AC Converter

PROC. NO. NA 17–20VQ–05			MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	20 V	10 V x 0	0.000				–0.001 to 0.001
”	20 V	10 V x .1	1.000				0.999 to 1.001
”	20 V	10 V x .2	2.000				1.999 to 2.001
”	20 V	10 V x .3	3.000				2.999 to 3.001
”	20 V	10 V x .4	4.000				3.999 to 4.001
”	20 V	10 V x .5	5.000				4.998 to 5.002
”	20 V	10 V x .6	6.000				5.998 to 6.002
”	20 V	10 V x .7	7.000				6.998 to 7.002
”	20 V	10 V x .8	8.000				7.998 to 8.002
”	20 V	10 V x .9	9.000				8.998 to 9.002
”	20 V	10 V x 1	10.000				9.998 to 10.002
4.1.6	–20 V	10 V x 1	10.000				9.998 to 10.002
4.1.9	2 V	1 V x 1	1.0000				0.9998 to 1.0002
”	20 V	10 V x 1	10.000				9.998 to 10.002
”	200 V	100 V	100.00				99.98 to 100.02
”	1000 V	100 V	100.0				99.9 to 100.1
	TI 2 V range	(μV)	(μV)				(μV)
4.1.13	100 μV LSD		700				600 to 800
4.1.14	100 μV LSD		300				200 to 400
4.2	Alternating–Voltage Measurements (with 220 converter)						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	20 V	400 Hz–10 V	10.000				9.990 to 10.010
”	200 V	400 Hz–100 V	100.00				99.90 to 100.10
”	1000 V	400 Hz–100 V	100.0				99.9 to 100.1
”	1000 V	4 kHz–10 V	10.0				9.9 to 10.1
”	20 V	4 kHz–10 V	10.000				9.990 to 10.010

CALIBRATION CHECKLIST

TEST INST (S) Dana 5400 to 5403 Digital Voltmeter

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	10 V	10 V x 0	0.000				–0.001 to 0.001
”	10 V	10 V x .1	1.000				0.999 to 1.001
”	10 V	10 V x .2	2.000				1.999 to 2.001
”	10 V	10 V x .3	3.000				2.999 to 3.001
”	10 V	10 V x .4	4.000				3.999 to 4.001
”	10 V	10 V x .5	5.000				4.998 to 5.002
”	10 V	10 V x .6	6.000				5.998 to 6.002
”	10 V	10 V x .7	7.000				6.998 to 7.002
”	10 V	10 V x .8	8.000				7.998 to 8.002
”	10 V	10 V x .9	9.000				8.998 to 9.002
”	10 V	10 V x 1	10.000				9.998 to 10.002
4.1.6	–10 V	10 V x 1	10.000				9.998 to 10.002
4.1.9	100 V	100 V	100.00				99.98 to 100.02
”	1000 V	100 V	100.0				99.9 to 100.1
	TI 100 mV range (µV)		(µV)				(µV)
4.1.9	1000 mV	1 V x 1	1000.0				999.7 to 1000.3
	TI 1 V range		(mV)	(mV)			(mV)
4.1.13	10 µV LSD		520				510 to 530
4.1.14	10 µV LSD		480				470 to 490
4.2	Alternating–Voltage Measurements (with 220 converter)						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	1 V	400 Hz–1 V	1.0000				0.9980 to 1.0020
”	10 V	400 Hz–10 V	10.000				9.990 to 10.010
”	100 V	400 Hz–100 V	100.00				99.90 to 100.10
”	1000 V	400 Hz–100 V	100.0				99.7 to 100.3
”	10 V	4 kHz–10 V	10.000				9.975 to 10.025
”	10 V	50 kHz–10 V	10.000				9.900 to 10.100

CALIBRATION CHECKLIST

TEST INST (S) Dana 5400 to 5403 Digital Voltmeter

PROC. NO. NA 17–20VQ–05 MFG. MODEL SER. NO.

PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements (07)					
	TI & Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	1 kΩ range	1.0000				0.9980 to 1.0020
”	10 kΩ range	10.000				9.980 to 10.020
”	100 kΩ range	100.00				99.80 to 100.20
”	1000 kΩ range	1000.0				998.0 to 1002.0
”	1 kΩ range	10000				9980 to 10020
	Affix a special calibration label stating:					
	1. The 100 mV V dc range has not been calibrated.					
	2. All resistance ranges have been calibrated to ±0.2% of range.					
	3. The V ac function has been calibrated up to 50 kHz only.					

CALIBRATION CHECKLIST

TEST INST (S) Cimron 6453A, 6453A–1, 6453A–2, or 6453A–3 Digital Multimeter

PROC. NO. NA 17–20VQ–05			MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.000				–0.001 to 0.001
”	+10 V	10 V x .1	1.000				0.999 to 1.001
”	+10 V	10 V x .2	2.000				1.999 to 2.001
”	+10 V	10 V x .3	3.000				2.999 to 3.001
”	+10 V	10 V x .4	4.000				3.999 to 4.001
”	+10 V	10 V x .5	5.000				4.998 to 5.002
”	+10 V	10 V x .6	6.000				5.998 to 6.002
”	+10 V	10 V x .7	7.000				6.998 to 7.002
”	+10 V	10 V x .8	8.000				7.998 to 8.002
”	+10 V	10 V x .9	9.000				8.998 to 9.002
”	+10 V	10 V x 1	10.000				9.998 to 10.002
4.1.6	–10 V	10 V x 1	10.000				9.998 to 10.002
	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	1 V	1 V x 1	1.0000				0.9997 to 1.0003
”	100 V	100 V	100.00				99.97 to 100.03
”	1000 V	100 V	100.0				99.9 to 100.1
	TI 0.1 volt range		(µV)	(µV)			(µV)
4.1.13	10 µV LSD		520				510 to 530
4.1.14	10 µV LSD		480				470 to 490
4.2	Alternating–Voltage Measurements						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	1 V	400 Hz–1 V	1.0000				0.9980 to 1.0020
”	10 V	400 Hz–10 V	10.000				9.980 to 10.020
”	100 V	400 Hz–100 V	100.00				99.80 to 100.20
”	1000 V	400 Hz–100 V	100.0				98.9 to 101.1
”	10 V	4 kHz–10 V	10.000				9.980 to 10.020
”	10 V	50 kHz–10 V	10.000				9.900 to 10.100

CALIBRATION CHECKLIST

TEST INST (S) Cimron 6453A, 6453A–1, 6453A–2, or 6453A–3 Digital Multimeter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements					
	TI & Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	1 kΩ range	1.0000				0.9980 to 1.0020
”	10 kΩ range	10.000				9.980 to 10.020
”	100 kΩ range	100.00				99.80 to 100.20
”	1000 kΩ range	1000.0				998.0 to 1002.0
”	10000 kΩ range	10000				9980 to 10020
	Affix a special calibration label stating: 1. The 100 mV V dc range has not been calibrated. 2. All resistance ranges have been calibrated to ±0.2% of range. 3. The V ac function has been calibrated up to 50 kHz only.					

CALIBRATION CHECKLIST

TEST INST (S) Systron Donner 7000 or 7005A Digital Volt/Multimeter with Options 02, 03, and/or 07

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.0000				–0.0004 to 0.0004
”	+10 V	10 V x .1	1.0000				0.9995 to 1.0005
”	+10 V	10 V x .2	2.0000				1.9994 to 2.0006
”	+10 V	10 V x .3	3.0000				2.9993 to 3.0007
”	+10 V	10 V x .4	4.0000				3.9992 to 4.0008
”	+10 V	10 V x .5	5.0000				4.9991 to 5.0009
”	+10 V	10 V x .6	6.0000				5.9990 to 6.0010
”	+10 V	10 V x .7	7.0000				6.9989 to 7.0011
”	+10 V	10 V x .8	8.0000				7.9988 to 8.0012
”	+10 V	10 V x .9	9.0000				8.9987 to 9.0013
”	+10 V	10 V x 1	10.0000				9.9986 to 10.0014
4.1.6	–10 V	10 V x 1	10.0000				9.9986 to 10.0014
	TI Range Calibrator		(V)	(V)			(V)
4.1.9	100 V	100 V	100.000				99.986 to 100.014
”	1000 V	100 V	100.00				99.95 to 100.05
	TI 100 mV Range		(µV)	(µV)			(µV)
4.1.13	1 µV LSD		502				501 to 503
4.1.14	1 µV LSD		498				497 to 499
	TI 1 V Range (TI without Option 07)						
			(µV)	(µV)			(µV)
4.1.13	10 µV LSD		520				510 to 530
4.1.14	10 µV LSD		480				470 to 490
4.2	Alternating–Voltage Measurements (02)						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	1 V	400 Hz–1 V	1.00000				0.99700 to 1.00300
”	10 V	400 Hz–10 V	10.0000				9.9700 to 10.0300
”	100 V	400 Hz–100 V	100.000				99.700 to 100.300
”	1000 V	400 Hz–100 V	100.00				97.90 to 102.10
”	10 V	4 kHz–10 V	10.0000				9.9700 to 10.0300
”	10 V	50 kHz–10 V	10.0000				9.9000 to 10.1000

CALIBRATION CHECKLIST

TEST INST (S) Systron Donner 7000 or 7005A Digital Volt/Multimeter with Options 02, 03, and/or 07

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements (03)					Assigned: ±0.2%
	TI & Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	1 kΩ range	1.00000				0.99800 to 1.00200
”	10 kΩ range	10.0000				9.9800 to 10.0200
”	100 kΩ range	100.000				99.800 to 100.200
”	1000 kΩ range	1000.00				998.00 to 1002.00
”	10000 kΩ range	10000.0				9980.0 to 10020.0
	Affix a special calibration label stating:					
	1. The 100 mV V dc range has not been calibrated.					
	2. All resistance ranges have been calibrated to ±0.2% of range.					
	3. The V ac function has been calibrated up to 50 kHz only.					

CALIBRATION CHECKLIST

TEST INST (S) Systron Donner 7050 or Fairchild 7050 Digital Voltmeter

PROC. NO. NA 17–20VQ–05			MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	15 V	10 V x 0	0.00				–0.01 to 0.01
”	15 V	10 V x .1	1.00				0.99 to 1.01
”	15 V	10 V x .2	2.00				1.99 to 2.01
”	15 V	10 V x .3	3.00				2.99 to 3.01
”	15 V	10 V x .4	4.00				3.99 to 4.01
”	15 V	10 V x .5	5.00				4.98 to 5.02
”	15 V	10 V x .6	6.00				5.98 to 6.02
”	15 V	10 V x .7	7.00				6.98 to 7.02
”	15 V	10 V x .8	8.00				7.98 to 8.02
”	15 V	10 V x .9	9.00				8.98 to 9.02
”	15 V	10 V x 1	10.00				9.98 to 10.02
4.1.6	–15 V	10 V x 1	10.00				9.98 to 10.02
4.1.9	1.5 V	1 V x 1	1.000				0.998 to 1.002
”	150 V	100 V	100.0				99.8 to 100.2
”	1000 V	100 V	100				99 to 101
	TI 1.5 V Range		(µV)	(µV)			(µV)
4.1.13	100 µV LSD		700				600 to 800
4.1.14	100 µV LSD		300				200 to 400
4.3	Resistance Measurements						
	TI & Calibrator		(kΩ)	(kΩ)			(kΩ)
4.3.2	1.5 kΩ	range	1.000				0.997 to 1.003
”	15 kΩ	range	10.00				9.97 to 10.03
”	150 kΩ	range	100.0				99.7 to 100.3
4.3.2	TI & Calibrator		(MΩ)	(MΩ)			(MΩ)
”	1.5 MΩ	range	1.000				0.989 to 1.011
”	15 MΩ	range	10.00				9.89 to 10.11

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8100A with Options 001, 002, or 8100B Digital Voltmeter

PROC. NO. NA 17–20VQ–05			MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	10 V	10 V x 0	0.000				–0.001 to 0.001
”	10 V	10 V x .1	1.000				0.998 to 1.002
”	10 V	10 V x .2	2.000				1.998 to 2.002
”	10 V	10 V x .3	3.000				2.998 to 3.002
”	10 V	10 V x .4	4.000				3.998 to 4.002
”	10 V	10 V x .5	5.000				4.996 to 5.004
”	10 V	10 V x .6	6.000				5.996 to 6.004
”	10 V	10 V x .7	7.000				6.995 to 7.005
”	10 V	10 V x .8	8.000				7.995 to 8.005
”	10 V	10 V x .9	9.000				8.994 to 9.006
”	10 V	10 V x 1	10.000				9.994 to 10.006
4.1.6	–10 V	10 V x 1	10.000				9.994 to 10.006
4.1.9	1 V	1 V x 1	1.0000				0.9994 to 1.0006
”	100 V	100 V	100.00				99.94 to 100.06
”	1000 V	100 V	100.0				99.8 to 100.2
	TI 1 V Range		(µV)	(µV)			(µV)
4.1.13	100 µV Sensitivity		700				600 to 800
4.1.14	100 µV Sensitivity		300				200 to 400
4.2	Alternating–Voltage Measurements						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	1 V	400 Hz–1 V	1.0000				0.9975 to 1.0025
”	10 V	400 Hz–10 V	10.000				9.975 to 10.025
”	100 V	400 Hz–100 V	100.00				99.75 to 100.25
”	1000 V	400 Hz–100 V	100.0				99.3 to 100.7
”	10 V	4 kHz–10 V	10.000				9.975 to 10.025

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8100A with Options 001, 002, or 8100B Digital Voltmeter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements					
	TI Range & Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	1 kΩ range	1.0000				0.9980 to 1.0020
”	10 kΩ range	10.000				9.980 to 10.020
”	100 kΩ range	100.00				99.80 to 100.20
”	1000 kΩ range	1000.0				998.0 to 1002.0
	TI Range & Calibrator	(MΩ)	(MΩ)			(MΩ)
4.3.2	10 MΩ	10.000				9.980 to 10.020
	Affix a special calibration label stating: ”All resistance ranges have been calibrated to ±0.2% of range. The V ac frequency response has not been calibrated.”					

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8110A, 8110AOPT001, 8125A, or 8125AOPT001 Digital Multimeter

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.000				–0.002 to 0.002
”	+10 V	10 V x .1	1.000				0.998 to 1.002
”	+10 V	10 V x .2	2.000				1.998 to 2.002
”	+10 V	10 V x .3	3.000				2.997 to 3.003
”	+10 V	10 V x .4	4.000				3.997 to 4.003
”	+10 V	10 V x .5	5.000				4.997 to 5.003
”	+10 V	10 V x .6	6.000				5.997 to 6.003
”	+10 V	10 V x .7	7.000				6.997 to 7.003
”	+10 V	10 V x .8	8.000				7.996 to 8.004
”	+10 V	10 V x .9	9.000				8.996 to 9.004
4.1.3	+10 V	10 V x 1	10.000				9.996 to 10.004
4.1.6	–10 V	10 V x 1	10.000				9.996 to 10.004
	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	1 V	10 V x 1	1.0000				0.9996 to 1.0004
”	100 V	100 V	100.00				99.96 to 100.04
”	1000 V	100 V	100.0				99.8 to 100.2
	TI Volt Range (µV)		(µV)				(µV)
4.1.13	100 µV LSD		700				600 to 800
4.1.14	100 µV LSD		300				200 to 400
4.2	Alternating–Voltage Measurements						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	1 V	400 Hz–1 V	1.0000				0.9970 to 1.0030
”	10 V	400 Hz–10 V	10.000				9.970 to 10.030
”	100 V	400 Hz–100 V	100.00				99.70 to 100.30
”	1000 V	400 Hz–100 V	100.0				99.8 to 100.2
”	10 V	4 kHz–10 V	10.000				9.970 to 10.030

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8110A, 8110AOPT001, 8125A, or 8125AOPT001 Digital Multimeter

PROC. NO.	NA 17–20VQ–05	MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements					
	TI & Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	1 kΩ range	1.0000				0.9980 to 1.0020
”	10 kΩ range	10.000				9.980 to 10.020
”	100 kΩ range	100.00				99.80 to 100.20
”	1000 kΩ range	1000.0				998.0 to 1002.0
		(MΩ)	(MΩ)			(MΩ)
4.3.2	10 MΩ	10.000				9.980 to 10.020
	Affix a special calibration label stating: ”All resistance ranges have been calibrated to ±0.2% of range. No measurement above 4 kHz has been calibrated.”					

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8200, 8200A, or 8200A–BM Digital Voltmeter with Options 001, 002, and/or 003

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.000				–0.003 to 0.003
”	+10 V	10 V x .1	1.000				0.997 to 1.003
”	+10 V	10 V x .2	2.000				1.997 to 2.003
”	+10 V	10 V x .3	3.000				2.996 to 3.004
”	+10 V	10 V x .4	4.000				3.996 to 4.004
”	+10 V	10 V x .5	5.000				4.996 to 5.004
”	+10 V	10 V x .6	6.000				5.996 to 6.004
”	+10 V	10 V x .7	7.000				6.996 to 7.004
”	+10 V	10 V x .8	8.000				7.995 to 8.005
”	+10 V	10 V x .9	9.000				8.995 to 9.005
”	+10 V	10 V x 1	10.000				9.995 to 10.005
4.1.6	–10 V	10 V x 1	10.000				9.995 to 10.005
	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	1 V	1 V x 1	1.0000				0.9995 to 1.0005
”	100 V	100 V	100.00				99.95 to 100.05
”	1000 V	100 V	100.0				99.7 to 100.3
	TI 1 Volt Range		(µV)	(µV)			(µV)
4.1.13	100 µV LSD		700				600 to 800
4.1.14	100 µV LSD		300				200 to 400
4.2	Alternating–Voltage Measurements (01)						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	1 V	400 Hz–1 V	1.0000				0.9988 to 1.0012
”	10 V	400 Hz–10 V	10.000				9.988to 10.012
”	100 V	400 Hz–100 V	100.00				99.88to 100.12
”	1000 V	400 Hz–100 V	100.0				99.7to 100.3
”	10 V	4 kHz–10 V	10.000				9.988to 10.012
”	10 V	50 kHz–10 V	10.000				9.948to 10.052

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8200, 8200A, or 8200A–BM Digital Voltmeter with Options 001, 002, and/or 003

PROC. NO.	NA 17–20VQ–05	MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements (03)					
	TI & Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	1 kΩ	1.0000				0.9980 to 1.0020
”	10 kΩ	10.000				9.980 to 10.020
”	100 kΩ	100.00				99.80 to 100.20
”	1000 kΩ	1000.0				998.0 to 1002.0
		(MΩ)	(MΩ)			(MΩ)
”	10 MΩ	10.000				9.980 to 10.020
	Affix a special calibration label stating: 1. The 100Ω, 10 mV, and 100 mV V dc ranges have not been calibrated. 2. All other resistance ranges have been calibrated to ±0.2% of range. 3. The V ac function has been calibrated up to 50 kHz only.					

CALIBRATION CHECKLIST

TEST INST (S) AN/USM–216, ME–310, McDonnell 53E04005, or Cubic 93–1015–1 SECTION D
Digital Multimeter

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.0000				–0.0001 to 0.0001
”	+10 V	10 V x .1	1.0000				0.9999 to 1.0001
”	+10 V	10 V x .2	2.0000				1.9998 to 2.0002
”	+10 V	10 V x .3	3.0000				2.9997 to 3.0003
”	+10 V	10 V x .4	4.0000				3.9996 to 4.0004
”	+10 V	10 V x .5	5.0000				4.9995 to 5.0005
”	+10 V	10 V x .6	6.0000				5.9994 to 6.0006
”	+10 V	10 V x .7	7.0000				6.9993 to 7.0007
”	+10 V	10 V x .8	8.0000				7.9992 to 8.0008
”	+10 V	10 V x .9	9.0000				8.9991 to 9.0009
4.1.6	–10 V	10 V x .9	9.0000				8.9991 to 9.0009
4.1.9	100 V	100 V	100.00				99.990 to 100.01
”	1000 V	100 V	100.0				99.990 to 100.01
	TI 10 V Range (μV)		(μV)				(μV)
4.1.13	100 μV LSD		700				600 to 800
4.1.14	100 μV LSD		300				200 to 400
4.2	Alternating–Voltage Measurements						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	10 V	400 Hz–10 V	10.0000				9.9890 to 10.0110
”	10 V	4 kHz–10 V	10.0000				9.9690 to 10.0310
”	100 V	4 kHz–10 V	10.000				9.960 to 10.040
”	100 V	400 Hz–100 V	100.000				99.890 to 100.110
”	1000 V	400 Hz–100 V	100.00				99.80 to 100.20

CALIBRATION CHECKLIST

TEST INST (S) AN/USM–216, ME–310, McDonnell 53E04005, or Cubic 93–1015–1 SECTION D
Digital Multimeter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements					
	TI & Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	1 kΩ	1.00000				0.99800 to 1.00200
”	10 kΩ	10.0000				9.9800 to 10.0200
”	100 kΩ	100.000				99.800 to 100.200
”	1000 kΩ	1000.00				998.00 to 1002.00
”	10000 kΩ	10000.0				9980.0 to 10020.0
	Affix a special calibration label stating: ”The ratio measurement function and the freq. response of the V ac function have not been calibrated. All resistance ranges have been calibrated to ±0.2% of range.”					

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8400A with Options 001, 002, 005, and/or 007, 8425A, 8425A/AF, or 8425B Digital Voltmeter with Options 001 and/or 002

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.0000				–0.0001 to 0.0001
”	+10 V	10 V x .1	1.0000				0.9998 to 1.0002
”	+10 V	10 V x .2	2.000				1.9996 to 2.0004
”	+10 V	10 V x .3	3.00000				2.9996 to 3.0004
”	+10 V	10 V x .4	4.0000				3.9995 to 4.0005
”	+10 V	10 V x .5	5.0000				4.9994 to 5.0006
”	+10 V	10 V x .6	6.0000				5.9993 to 6.0007
”	+10 V	10 V x .7	7.0000				6.9992 to 7.0008
”	+10 V	10 V x .8	8.0000				7.9991 to 8.0009
”	+10 V	10 V x .9	9.0000				8.9990 to 9.0010
”	+10 V	10 V x 1	10.0000				9.9989 to 10.0011
4.1.6	–10 V	10 V x 1	10.0000				9.9989 to 10.0011
	TI Range Calibrator		(V)	(V)			(V)
4.1.9	1 V	1 V x 1	1.00000				0.99978 to 1.00022
”	100 V	100 V	100.000				99.989 to 100.011
”	1000 V	100 V	100.00				99.98 to 100.02
	TI 0.1 Volt Range		(µV)	(µV)			(µV)
4.1.13	1 µV LSD		502				501 to 503
4.1.14	1 µV LSD		498				497 to 499
4.2	Alternating–Voltage Measurements (01)						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	1 V	400 Hz–1 V	1.00000				0.99945 to 1.00055
”	10 V	400 Hz–10 V	10.0000				9.9945 to 10.0055
”	100 V	400 Hz–100 V	100.000				99.945 to 100.055
”	1000 V	400 Hz–100 V	100.00				99.90 to 100.10
”	10 V	4 kHz–10 V	10.0000				9.9945 to 10.0055
”	10 V	50 kHz–10 V	10.0000				9.9495 to 10.0505

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8400A with Options 001, 002, 005, and/or 007, 8425A, 8425A/AF, or 8425B Digital Voltmeter with Options 001 and/or 002

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements (02)					
	Range & Calibrator	(Ω)	(Ω)			(Ω)
4.3.2	1000 Ω	1000.00				998.00 to 1002.00
”	10000 Ω	10000.0				9980.0 to 10020.0
	Range & Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	100 kΩ	100.000				99.800 to 100.200
”	1000 kΩ	1000.00				998.00 to 1002.00
”	10000 kΩ	10000.0				9980.0 to 10020.0
	Affix a special calibration label stating: 1. The 0.1 V dc, 10Ω, and 100Ω ranges have not been calibrated. 2. All other resistance ranges have been calibrated to ±0.2% of range. 3. The V ac function has been calibrated up to 50 kHz only.					
NOTE: The Fluke 8425 A/AF does not have the 10 & 100Ω ranges.						

CALIBRATION CHECKLIST

TEST INST (S) ME–229/ASM–35 or Electro Instruments, Inc. 851–8014A or 851–8014B Digital Multimeter

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0					–0.001 to 0.001
”	+10 V	10 V x .1	1.000				0.999 to 1.001
”	+10 V	10 V x .2	2.000				1.999 to 2.001
”	+10 V	10 V x .3	3.000				2.999 to 3.001
”	+10 V	10 V x .4	4.000				3.999 to 4.001
”	+10 V	10 V x .5	5.000				4.998 to 5.002
”	+10 V	10 V x .6	6.000				5.998 to 6.002
”	+10 V	10 V x .7	7.000				6.998 to 7.002
”	+10 V	10 V x .8	8.000				7.998 to 8.002
”	+10 V	10 V x .9	9.000				8.998 to 9.002
4.1.6	–10 V	10 V x .9	9.000				8.998 to 9.002
	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	1 V	1 V x .9	0.9000				0.8998 to 0.9002
”	100 V	100 V	100.00				99.98 to 100.02
”	1000 V	100 V	100.0				99.9 to 100.1
	TI 1 Volt Range		(µV)	(µV)			(µV)
4.1.13	100 µV LSD		700				600 to 800
4.1.14	100 µV LSD		300				200 to 400
4.2	Alternating–Voltage Measurements						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	1 V	400 Hz–1 V	1.0000				0.9990 to 1.0010
”	10 V	400 Hz–10 V	10.000				9.990 to 10.010
”	100 V	400 Hz–100 V	100.00				99.90 to 100.10
”	1000 V	400 Hz–100 V	100.0				99.8 to 100.2
”	10 V	4 kHz–10 V	10.000				9.990 to 10.010

CALIBRATION CHECKLIST

TEST INST (S) ME–229/ASM–35 or Electro Instruments, Inc. 851–8014A or 851–8014B Digital Multimeter

PROC. NO.	NA 17–20VQ–05	MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements					
	TI & Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	1 kΩ range	1.0000				0.9980 to 1.0020
”	10 kΩ range	10.000				9.980 to 10.020
”	100 kΩ range	100.00				99.80 to 100.20
		(MΩ)	(MΩ)			(MΩ)
4.3.2	1 MΩ range	1.0000				0.9980 to 1.0020
	Affix a special calibration label stating: ”All resistance ranges have been calibrated to ±0.2% of range.”					

CALIBRATION CHECKLIST

TEST INST (S) Systron Donner 9000, 9015, or 9025 Digital Volt/Multimeter

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.00				–0.001 to 0.01
”	+10 V	10 V x .1	1.00				0.99 to 1.01
”	+10 V	10 V x .2	2.00				1.99 to 2.01
”	+10 V	10 V x .3	3.00				2.99 to 3.01
”	+10 V	10 V x .4	4.00				3.99 to 4.01
”	+10 V	10 V x .5	5.00				4.98 to 5.02
”	+10 V	10 V x .6	6.00				5.98 to 6.02
”	+10 V	10 V x .7	7.00				6.98 to 7.02
”	+10 V	10 V x .8	8.00				7.98 to 8.02
”	+10 V	10 V x .9	9.00				8.98 to 9.02
”	+10 V	10 V x 1	10.00				9.98 to 10.02
4.1.6	–10 V	10 V x 1	10.00				9.98 to 10.02
	TI Range	Calibrator	(mV)	(mV)			(mV)
4.1.9	100 mV	1 V x .1	100.0				99.6 to 100.4
	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	1 V	1 V x 1	1.000				0.998 to 1.002
”	100 V	100 V	100.0				99.8 to 100.2
”	1000 V	100 V	100				99 to 101
	TI 100 m Volt Range		(µV)	(µV)			(µV)
4.1.13	100 µV LSD		700				600 to 800
4.1.14	100 µV LSD		300				200 to 400
4.2	Alternating–Voltage Measurements (9025 only)						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	1 V	400 Hz–1 V	1.000				0.994 to 1.006
”	10 V	400 Hz–10 V	10.00				9.94 to 10.06
”	100 V	400 Hz–100 V	100.0				99.4 to 100.6
”	1000 V	400 Hz–100 V	100				97 to 103
”	10 V	4 kHz–10 V	10.00				9.94 to 10.06
”	10 V	50 kHz–10 V	10.00				9.87 to 10.13

CALIBRATION CHECKLIST

TEST INST (S) Systron Donner 9000, 9015, or 9025 Digital Volt/Multimeter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements					
	TI & Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	1 kΩ range	1.000				0.998 to 1.002
”	10 kΩ range	10.00				9.98 to 10.02
”	100 kΩ range	100.0				99.8 to 100.2
		(MΩ)	(MΩ)			(MΩ)
4.3.2	1 MΩ range	1.000				0.998 to 1.002
”	10 MΩ 1 MΩ	1.00				0.99 to 1.01
	Affix the Systron Donner 9025 Digital Multimeter with a special calibration label stating: “This TI has been calibrated up to 50 kHz only.”					

CALIBRATION CHECKLIST

TEST INST (S) Systron Donner 9310, 9320, 9330, 9340, or 9340–5B Digital Multimeter

PROC. NO. NA 17–20VQ–05			MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.000				–0.003 to 0.003
”	+10 V	10 V x .1	1.000				0.997 to 1.003
”	+10 V	10 V x .2	2.000				1.997 to 2.003
”	+10 V	10 V x .3	3.000				2.997 to 3.003
”	+10 V	10 V x .4	4.000				3.997 to 4.003
”	+10 V	10 V x .5	5.000				4.996 to 5.004
”	+10 V	10 V x .6	6.000				5.996 to 6.004
”	+10 V	10 V x .7	7.000				6.996 to 7.004
”	+10 V	10 V x .8	8.000				7.996 to 8.004
”	+10 V	10 V x .9	9.000				8.996 to 9.004
”	+10 V	10 V x 1	10.000				9.996 to 10.004
4.1.6	–10 V	10 V x 1	10.000				9.996 to 10.004
	TI Range Calibrator		(mV)	(mV)			(mV)
4.1.9	1000 mV	10 V x 1	1000.0				999.6 to 1000.4
	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	1000 V	100 V	100.00				99.7 to 100.3
	TI 100 mV Range		(µV)	(µV)			(µV)
4.1.13	10 µV LSD		520				510 to 530
4.1.14	10 µV LSD		480				470 to 490
4.2	Alternating–Voltage Measurements						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	1 V	400 Hz–1 V	1.0000				0.9988 to 1.0012
”	10 V	400 Hz–10 V	10.000				9.988 to 10.012
”	100 V	400 Hz–100 V	100.00				99.98 to 100.12
”	1000 V	400 Hz–100 V	100.0				99.7 to 100.3
”	10 V	4 kHz–10 V	10.000				9.949 to 10.051
	Range	Freq.	(V)	(V)			(V)
4.2.2	1000 V	4 kHz	10.0				9.8 to 10.2
”	10 V	50 kHz	10.000				9.930 to 10.070

CALIBRATION CHECKLIST

TEST INST (S) Systron Donner 9310, 9320, 9330, 9340, or 9340–5B Digital Multimeter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements					Assigned: ±0.2%
	TI & Calibrator	(Ω)	(Ω)			(Ω)
4.3.2	1000	1000.0				998.0 to 1002.0
”	Range & Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	10 kΩ	10.000				9.980 to 10.020
”	100 kΩ	100.00				99.80 to 100.20
”	1000 kΩ	1000.0				998.0 to 1002.0
		(MΩ)	(MΩ)			(MΩ)
4.3.2	10 MΩ	10.000				9.980 to 10.020
	Affix a special calibration label stating: “The 100 mV V dc range has not been calibrated, and all resistance ranges have been calibrated to ±0.2% of range.”					
	NOTE: If the TI is a Systron Donner 9320, 9340, or 9340–5B, subjoin another statement to the special calibration label stating: ”The V ac function has been calibrated up to 50 kHz only.”					

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8350A Digital Multimeter

PROC. NO. NA 17–20VQ–05 MFG. MODEL SER. NO.

PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.0000				–0.0005 to 0.0005
”	+10 V	10 V x .1	1.0000				0.9993 to 1.0007
”	+10 V	10 V x .2	2.0000				1.9992 to 2.0008
”	+10 V	10 V x .3	3.0000				2.9990 to 3.0010
”	+10 V	10 V x .4	4.0000				3.9989 to 4.0011
”	+10 V	10 V x .5	5.0000				4.9987 to 5.0013
”	+10 V	10 V x .6	6.0000				5.9986 to 6.0014
”	+10 V	10 V x .7	7.0000				6.9984 to 7.0016
”	+10 V	10 V x .8	8.0000				7.9983 to 8.0017
”	+10 V	10 V x .9	9.0000				8.9981 to 9.0019
”	+10 V	10 V x 1	10.0000				9.9980 to 10.0020
4.1.6	–10 V	10 V x 1	10.0000				9.9980 to 10.0020
	TI Range Calibrator		(mV)	(mV)			(mV)
4.1.9	1000 mV	10 V x 1	1000				999.83 to 1000.17
	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	100 V	100 V	100.000				99.980 to 100.020
”	1000 V	100 V	100.00				99.93 to 100.07
	TI 100 mV Range		(µV)	(µV)			(µV)
4.1.13	1 µV LSD		502				501 to 503
4.1.14	1 µV LSD		498				497 to 499
4.2	Alternating–Voltage Measurements						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	1 V	400 Hz–1 V	1.00000				0.99860 to 1.00140
”	10 V	400 Hz–10 V	10.0000				9.9860 to 10.0140
”	100 V	400 Hz–100 V	100.000				99.860 to 100.140
”	1000 V	400 Hz–100 V	100.00				99.50 to 100.50
”	10 V	4 kHz–10 V	10.0000				9.9860 to 10.0140
”	10 V	50 kHz–10 V	10.0000				9.9460 to 10.0540

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8350A Digital Multimeter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements					Assigned: ±0.2%
	TI Range & Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	1 kΩ	1.00000				0.99800 to 1.00200
”	10 kΩ	10.0000				9.9800 to 10.0200
”	100 kΩ	100.000				99.800 to 100.200
”	1000 kΩ	1000.00				998.00 to 1002.00
		(MΩ)	(MΩ)			(mΩ)
4.3.2	10 MΩ	10.0000				9.9800 to 10.0200
	Affix a special calibration label stating: 1. The 100 mV V dc range has not been calibrated. 2. All resistance ranges have been calibrated to ±0.2% of range. 3. The V ac function has been calibrated up to 50 kHz only.					

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8375A Digital Multimeter with Options 003 and/or 007

PROC. NO. NA 17–20VQ–05			MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.0000				–0.0002 to 0.0002
”	+10 V	10 V x .1	1.0000				0.9997 to 1.0003
”	+10 V	10 V x .2	2.0000				1.9996 to 2.0004
”	+10 V	10 V x .3	3.0000				2.9995 to 3.0005
”	+10 V	10 V x .4	4.0000				3.9994 to 4.0006
”	+10 V	10 V x .5	5.0000				4.9993 to 5.0007
”	+10 V	10 V x .6	6.0000				5.9992 to 6.0008
”	+10 V	10 V x .7	7.0000				6.9991 to 7.0009
”	+10 V	10 V x .8	8.0000				7.9990 to 8.0010
”	+10 V	10 V x .9	9.0000				8.9989 to 9.0011
”	+10 V	10 V x 1	10.0000				9.9988 to 10.0012
4.1.6	–10 V	10 V x 1	10.0000				9.9988 to 10.0012
	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	1 V	1 V x 1	1.00000				0.99977 to 1.00023
”	100 V	100 V	100.000				99.987 to 100.013
”	1000 V	100 V	100.00				99.96 to 100.04
	TI 0.1 V Range		(µV)	(µV)			(µV)
4.1.13	1 µV LSD		502				501 to 503
4.1.14	1 µV LSD		498				497 to 499
4.2	Alternating–Voltage Measurements						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	1 V	400 Hz–1 V	1.00000				0.99830 to 1.00170
”	10 V	10 VDC X 1*	10.0000				9.9800 to 10.0200
”	10 V	400 Hz–10 V	10.0000				9.9830 to 10.0170
”	10 V	4 kHz–10 V	10.0000				9.9830 to 10.0170
”	10 V	50 kHz–10 V	10.0000				9.7650 to 10.2350
”	100 V	400 Hz–100 V	100.000				99.830 to 100.170
	*Press the calibrator DC VOLTS 10, and set output switch to X1.						

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8375A Digital Multimeter with Options 003 and/or 007

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.2.2	TI Range Calibrator	(V)	(V)			(V)
”	100 V 50 kHz–10 V	10.000				9.405 to 10.595
”	1000 V 400 Hz–100 V	100.00				99.47 to 100.53
”	1000 V 4 kHz–10 V	10.00				9.59 to 10.41
4.3	Resistance Measurements					
	TI Range & Calibrator	(Ω)	(Ω)			(Ω)
4.3.2	1000 Ω	1000.00				998.00 to 1002.00
”	10000 Ω	10000.0				99800 to 10020.0
		(kΩ)	(kΩ)			(kΩ)
4.3.2	100 kΩ	100.000				99.800 to 100.200
”	1000 kΩ	1000.00				998.00 to 1002.00
”	10000 kΩ	10000.0				9980.0 to 10020.0
	Affix a special calibration label stating:					
	1. The 0.1 V V dc range has not been calibrated.					
	2. All resistance ranges have been calibrated to ±0.2% of range.					
	3. The V ac function has been calibrated up to 50 kHz only.					

CALIBRATION CHECKLIST

TEST INST (S) AN/USM–192 or Simpson 111 Digital Voltmeter

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.00				–0.01 to 0.01
”	+10 V	10 V x .1	1.00				0.99 to 1.01
”	+10 V	10 V x .2	2.00				1.99 to 2.01
”	+10 V	10 V x .3	3.00				2.99 to 3.01
”	+10 V	10 V x .4	4.00				3.99 to 4.01
”	+10 V	10 V x .5	5.00				4.98 to 5.02
”	+10 V	10 V x .6	6.00				5.98 to 6.02
”	+10 V	10 V x .7	7.00				6.98 to 7.02
”	+10 V	10 V x .8	8.00				7.98 to 8.02
”	+10 V	10 V x .9	9.00				8.98 to 9.02
4.1.6	–10 V	10 V x .9	9.00				8.98 to 9.02
	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	1 V	1 V x .9	0.900				0.898 to 0.902
”	100 V	10 V x 1	10.0				9.9 to 10.1
”	1000 V	100 V dc	100				99 to 101

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8300A Digital Voltmeter with Options 001 and/or 002

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.	
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)	
4.1	Direct–Voltage Measurements							
	TI Range	Calibrator	(V)	(V)			(V)	
4.1.3	+10 V	10 V x 0	0.0000				–0.0001 to	0.0001
”	+10 V	10 V x .1	1.0000				0.9993 to	1.0007
”	+10 V	10 V x .2	2.0000				1.9992 to	2.0008
”	+10 V	10 V x .3	3.0000				2.9990 to	3.0010
”	+10 V	10 V x .4	4.0000				3.9989 to	4.0011
”	+10 V	10 V x .5	5.0000				4.9987 to	5.0013
”	+10 V	10 V x .6	6.0000				5.9986 to	6.0014
”	+10 V	10 V x .7	7.0000				6.9984 to	7.0016
”	+10 V	10 V x .8	8.0000				7.9983 to	8.0017
”	+10 V	10 V x .9	9.0000				8.9981 to	9.0019
”	+10 V	10 V x 1	10.0000				9.9980 to	10.0020
4.1.6	+10 V	10 V x 1	–10.0000				–0.9980 to	–10.0020
	TI Range	Calibrator	(mV)	(mV)			(mV)	
4.1.9	1000 mV	1 x 1	1000.00				999.83 to	1000.17
	TI Range	Calibrator	(V)	(V)			(V)	
4.1.9	100 V	100 V	100.000				99.865 to	100.135
”	1000 V	100 V	100.00				99.93 to	100.07
	TI 100 mV Range		(µV)	(µV)			(µV)	
4.1.13	1 µV LSD		502				501 to	503
4.1.14	1 µV LSD		498				497 to	499
4.2	Alternating–Voltage Measurements (Options 01)							
	Range	Calibrator	(V)	(V)			(V)	
4.2.2	1 V	400 Hz–1 V	1.00000				0.99860 to	1.00140
”	10 V	400 Hz–10 V	10.0000				9.9860 to	10.0140
”	10 V	4 kHz–10 V	10.0000				9.9860 to	10.0140
”	10 V	50 kHz–10 V	10.0000				9.9760 to	10.0240
”	100 V	50 kHz–10 V	10.000				9.940 to	10.060
”	100 V	4 kHz–10 V	10.000				9.950 to	10.050
”	100 V	400 Hz–100 V	100.000				99.860 to	100.140
”	1000 V	400 Hz–100 V	100.000				99.50 to	100.50

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8300A Digital Voltmeter with Options 001 and/or 002

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.2.2	TI Range	Calibrator	(V)	(V)			(V)
”	1000 V	4 kHz–10 V	10.00				9.59 to 10.41
”	1000 V	50 kHz–10 V	10.00				9.58 to 10.42
4.3	Resistance Measurements (8300A–02)						Assigned: ±0.2%
	TI & Calibrator		(kΩ)	(kΩ)			(kΩ)
4.3.2	1 kΩ	range	1.00000				0.99800 to 1.00200
”	10 kΩ	range	10.0000				9.9800 to 10.0200
”	100 kΩ	range	100.000				99.800 to 100.200
”	1000 kΩ	range	1000.00				998.00 to 1002.00
			(MΩ)	(MΩ)			(MΩ)
4.3.2	10 MΩ		10.000				9.9800 to 10.0200
	Affix a special calibration label stating: ”The 100 mV V dc range has not been calibrated and all resistance ranges have been calibrated to ±0.2% of range.” State also that the V ac frequency response, and measurement above 50 kHz have not been calibrated; if the TI has an Option 01 (AC Converter).						

CALIBRATION CHECKLIST

TEST INST (S) Tektronix DM 501OPT01, or DM 501OPT02 Digital Multimeter

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+20 V	10 V x 0	0.000				–0.002 to 0.002
”	+20 V	10 V x .1	1.000				0.997 to 1.003
”	+20 V	10 V x .2	2.000				1.996 to 2.004
”	+20 V	10 V x .3	3.000				2.995 to 3.005
”	+20 V	10 V x .4	4.000				3.994 to 4.004
”	+20 V	10 V x .5	5.000				4.993 to 5.007
”	+20 V	10 V x .6	6.000				5.992 to 6.008
”	+20 V	10 V x .7	7.000				6.991 to 7.009
”	+20 V	10 V x .8	8.000				7.990 to 8.010
”	+20 V	10 V x .9	9.000				8.989 to 9.011
”	+20 V	10 V x 1	10.000				9.988 to 10.012
4.1.6	–20 V	10 V x 1	10.000				9.998 to 10.012
	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	2 V	1 V x 1	1.0000				0.9988 to 1.0012
”	200 V	100 V	100.00				99.88 to 100.12
”	1000 V	100 V	100.0				99.7 to 100.3
	TI 2 V Range		(µV)	(µV)			(µV)
4.1.13	100 µV LSD		700				600 to 800
4.1.14	100 µV LSD		300				200 to 400
4.2	Alternating–Voltage Measurements						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	2 V	400 Hz–1 V	1.0000				0.9928 to 1.0072
”	20 V	400 Hz–10 V	10.000				9.928 to 10.072
”	20 V	4 kHz–10 V	10.000				9.928 to 10.072
”	20 V	50 kHz–10 V	10.000	ck ( )			Typical: 9.749 to 10.2
”	200 V	4 kHz–10 V	10.00				9.928 to 10.072
”	200 V	50 kHz–10 V	10.00	ck ( )			Typical: 9.75 to 10.25 ”
200 V	400 Hz–100 V		100.00				99.28 to 00.72
”	500 V	400 Hz–100 V	100.0				99.28 to 100.72
”	500 V	50 kHz–10 V	10.0	ck ( )			Typical: 9.6 to 10.4

CALIBRATION CHECKLIST

TEST INST (S) Tektronix DM 501OPT01, or DM 501OPT02 Digital Multimeter

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements						
	TI	Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	2 kΩ	1 kΩ	1.0000				0.9968 to 1.0032
”	20 kΩ	10 kΩ	10.000				9.968 to 10.032
”	200 kΩ	100 kΩ	100.00				99.68 to 100.32
	TI	Calibrator	(MΩ)	(MΩ)			(MΩ)
4.3.2	2 MΩ	1 MΩ	1.0000				0.9968 to 1.0032
”	10 MΩ	10 MΩ	10.000				9.948 to 10.052
	Affix a special calibration label stating: 1. The DC and AC ammeter function have not been calibrated. 2. The TI temperature–measuring function has not been calibrated. (Applicable only to DM501 & DM501–1)						

CALIBRATION CHECKLIST

TEST INST (S) Cimron DMM 40 Digital Multimeter

PROC. NO. NA 17–20VQ–05 MFG. MODEL SER. NO.

PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.000				–0.001 to 0.001
”	+10 V	10 V x .1	1.000				0.999 to 1.001
”	+10 V	10 V x .2	2.000				1.999 to 2.001
”	+10 V	10 V x .3	3.000				2.999 to 3.001
”	+10 V	10 V x .4	4.000				3.999 to 4.001
”	+10 V	10 V x .5	5.000				4.998 to 5.002
”	+10 V	10 V x .6	6.000				5.998 to 6.002
”	+10 V	10 V x .7	7.000				6.998 to 7.002
”	+10 V	10 V x .8	8.000				7.998 to 8.002
”	+10 V	10 V x .9	9.000				8.998 to 9.002
4.1.6	–10 V	10 V x 1	10.000				9.997 to 10.003
	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	1 V	1 V x 1	1.0000				0.9997 to 1.0003
”	100 V	100 V	100.00				99.97 to 100.03
”	1000 V	100 V	100.0				99.9 to 100.1
	TI 0.1 volt range		(µV)	(µV)			(µV)
4.1.13	10 µV LSD		520				510 to 530
4.1.14	10 µV LSD		480				470 to 490
4.2	Alternating–Voltage Measurements						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	1 V	400 Hz–1 V	1.0000				0.9989 to 1.0011
”	10 V	400 Hz–10 V	10.000				9.989 to 10.011
”	10 V	4 kHz–10 V	10.000				9.989 to 10.011
”	10 V	50 kHz–10 V	100.00				9.905 to 10.095
”	100 V	400 Hz–100 V	100.00				99.89 to 100.11
”	100 V	4 kHz–10 V	10.00				9.98 to 10.02
”	100 V	50 kHz–10 V	10.00				9.86 to 10.14
”	1000 V	400 Hz–100 V	1000.0				99.8 to 100.2

CALIBRATION CHECKLIST

TEST INST (S) Cimron DMM 40 Digital Multimeter

PROC. NO. NA 17–20VQ–05 MFG. MODEL SER. NO.

PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements						
	TI Range	Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	1 kΩ	1 kΩ	1.0000				0.9980 to 1.0020
”	10 kΩ	10 kΩ	10.000				9.994 to 10.006
”	100 kΩ	100 kΩ	100.00				99.94 to 100.06
”	1000 kΩ	1 MΩ	1000.0				998.9 to 1001.1
”	10000 kΩ	10 MΩ	10000				9974 to 10026
	Affix a special calibration label stating: 1. The TI 0.1 V V dc range, 0.1 V V ac range, 0.1 kΩ range, and all current functions have not been calibrated. 2. The 1 kΩ range has been calibrated to ±0.2% of range. 3. The V ac function has been calibrated up to 50 kHz only.						

CALIBRATION CHECKLIST

TEST INST (S) Cimron DMM 50 Digital Multimeter

PROC. NO. NA 17–20VQ–05			MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.0000				–0.0001 to 0.0001
”	+10 V	10 V x .1	1.0000				0.9998 to 1.0002
”	+10 V	10 V x .2	2.0000				1.9997 to 2.0003
”	+10 V	10 V x .3	3.0000				2.9996 to 3.0004
”	+10 V	10 V x .4	4.0000				3.9995 to 4.0005
”	+10 V	10 V x .5	5.0000				4.9994 to 5.0006
”	+10 V	10 V x .6	6.0000				5.9994 to 6.0006
”	+10 V	10 V x .7	7.0000				6.9993 to 7.0007
”	+10 V	10 V x .8	8.0000				7.9992 to 8.0008
”	+10 V	10 V x .9	9.0000				8.9991 to 9.0009
4.1.6	–10 V	10 V x 1	10.0000				0.9990 to 10.0010
	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	1 V	1 V x 1	1.00000				0.99990 to 1.00010
”	100 V	100 V	100.000				99.990 to 100.010
”	1 kV	100 V	100.00				99.98 to 100.02
	TI 100 mV range		(µV)	(µV)			(µV)
4.1.13	1 µV LSD		502				501 to 503
4.1.14	1 µV LSD		498				497 to 499
4.2	Alternating–Voltage Measurements						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	1 V	400 Hz–1 V	1.00000				0.99850 to 1.00150
”	10 V	400 Hz–10 V	10.0000				9.9850 to 10.0150
”	10 V	4 kHz–10 V	10.0000				9.9850 to 10.0150
”	10 V	50 kHz–10 V	10.0000				9.9440 to 10.0560
”	100 V	50 kHz–10 V	10.000				9.872 to 10.128
”	100 V	4 kHz–10 V	10.000				9.967 to 10.033
”	100 V	400 Hz–100 V	100.000				99.850 to 100.150
”	1000 V	400 Hz–100 V	100.00				99.67 to 100.33

CALIBRATION CHECKLIST

TEST INST (S) Cimron DMM 50 Digital Multimeter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements					
	TI & Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	1 kΩ 1 kΩ	1.00000				0.99847 to 1.00153
”	10 kΩ 10 kΩ	10.0000				9.9847 to 10.0153
”	100 kΩ 100 kΩ	100.000				99.847 to 100.153
”	1000 kΩ 1000 kΩ	1000.00				998.47 to 1001.53
”	10000 kΩ 10000 kΩ	10000.0				9980.0 to 10020.0
	Affix a special calibration label stating: 1. The 100 Ω range, 0.1 V dc range, and the V dc ratio function have not been calibrated. 2. The V ac frequency response, and measurements above 50 kHz have not been calibrated. 3. The 10000 kΩ range has been calibrated up to ±0.2% of range.					

CALIBRATION CHECKLIST

TEST INST (S) ME–346/ASM–308, Cimron 9200B, 9300B, 9400B, or 9500B Digital Voltmeter with the 6980B AC Converter

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.0000				–0.0001 to 0.0001
”	+10 V	10 V x .1	1.0000				0.9998 to 1.0002
”	+10 V	10 V x .2	2.0000				1.9997 to 2.0003
”	+10 V	10 V x .3	3.0000				2.9996 to 3.0004
”	+10 V	10 V x .4	4.0000				3.9995 to 4.0005
”	+10 V	10 V x .5	5.0000				4.9994 to 5.0006
”	+10 V	10 V x .6	6.0000				5.9993 to 6.0007
”	+10 V	10 V x .7	7.0000				6.9992 to 7.0008
”	+10 V	10 V x .8	8.0000				7.9991 to 8.0009
”	+10 V	10 V x .9	9.0000				8.9990 to 9.0010
4.1.6	–10 V	10 V x .9	9.0000				8.9990 to 9.0010
	TI Range Calibrator		(mV)	(mV)			(mV)
4.1.9	1000 mV	1 V x .9	900.00				899.82 to 900.18
	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	100 V	10 V x 1	10.000				9.998 to 10.002
”	100 V	100 V	100.000	ck ( )			99.989 to 100.011*
”	1000 V	100 V	100.00	ck ( )			99.98 to 100.02
	TI 100 mV Range		(µV)	(µV)			(µV)
4.1.13	1 µV LSD		502				501 to 503
4.1.14	1 µV LSD		498				497 to 499
4.2	Alternating–Voltage Measurements						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	10 V	4 kHz–10 V	10.0000				9.9950 to 10.0050*
”	10 V	400 Hz–10 V	10.0000				9.9950 to 10.0050*
”	10 V	400 Hz–1 V	1.0000				0.9980 to 1.0020
”	100 V	400 Hz–10 V	10.000				9.980 to 10.020
”	1000 V	400 Hz–100 V	100.00				99.80 to 100.20
	*The TI may not indicate this value; however, overrange indication is considered acceptable.						

CALIBRATION CHECKLIST

TEST INST (S) ME–346/ASM–308, Cimron 9200B, 9300B, 9400B, or 9500B Digital Voltmeter with the 6980B AC Converter

PROC. NO. NA 17–20VQ–05			MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements						
	TI Range	Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	1 kΩ	1 kΩ	1.00000	ck ( )			0.99800 to 1.00200*
”	10 kΩ	1 kΩ	1.0000				0.9980 to 1.0020
”	10 kΩ	10 kΩ	10.0000	ck ( )			9.9800 to 10.0200*
”	100 kΩ	10 kΩ	10.000				9.980 to 10.020
”	100 kΩ	100 kΩ	100.000	ck ( )			99.800 to 100.200*
	TI Range	Calibrator	(MΩ)	(MΩ)			(MΩ)
4.3.2	1 MΩ	100 kΩ	0.100000				0.09980 to 0.10020
”	1 MΩ	1 MΩ	1.00000	ck ( )			0.99800 to 1.00200*
”	10 MΩ	1 MΩ	1.0000				0.99800 to 1.0020
”	10 MΩ	10 MΩ	10.0000	ck ( )			0.9800 to 10.0200*

Affix a special calibration label stating:
”All resistance ranges have been calibrated to ±0.2% of range. The TI V ac frequency response and the 100 mV V dc range have not been calibrated.”

*The TI may not indicate this value; however, an overrange indication is considered acceptable.

CALIBRATION CHECKLIST

TEST INST (S) Hickok 3300A or 3301 Digital Multimeter (Without Frequency Adapters)

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.00				–0.01 to 0.01
”	+10 V	10 V x .1	1.00				0.99 to 1.17
”	+10 V	10 V x .2	2.00				1.99 to 2.01
”	+10 V	10 V x .3	3.00				2.99 to 3.01
”	+10 V	10 V x .4	4.00				3.99 to 4.01
”	+10 V	10 V x .5	5.00				4.98 to 5.02
”	+10 V	10 V x .6	6.00				5.98 to 6.02
”	+10 V	10 V x .7	7.00				6.98 to 7.02
”	+10 V	10 V x .8	8.00				7.98 to 8.02
”	+10 V	10 V x .9	9.00				8.98 to 9.02
”	+10 V	10 V x 1	10.00				9.98 to 10.02
4.1.6	–10 V	10 V x 1	10.00				9.98 to 10.02
	TI Range	Calibrator	(mV)	(mV)			(mV)
4.1.9	100 mV	1 V x .1	100.0				99.8 to 100.2
	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	1 V	1 V x 1	1.000				0.998 to 1.002
”	100 V	100 V	100.0				99.8 to 100.2
”	1000 V	100 V	100				99 to 101
	TI 100 mV Range		(µV)	(µV)			(µV)
4.1.13	100 µV LSD		700				600 to 800
4.1.14	100 µV LSD		300				200 to 400
4.2	Alternating–Voltage Measurements						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	1 V	400 Hz–1 V	1.000				0.994 to 1.006
”	10 V	400 Hz–10 V	10.00				9.94 to 10.06
”	10 V	4 kHz–10 V	10.00				9.94 to 10.06
”	10 V	50 kHz–10 V	10.00				9.94 to 10.06
”	100 V	50 kHz–10 V	10.0				9.8 to 10.2
”	100 V	4 kHz–10 V	10.0				9.8 to 10.2
”	100 V	400 Hz–100 V	100.0				99.4 to 100.6

CALIBRATION CHECKLIST

TEST INST (S) Hickok 3300A or 3301 Digital Multimeter (Without Frequency Adapters)

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.2.2	Range	Calibrator	(V)	(V)			(V)
”	1000 V	400 Hz–100 V	100				99 to 101
4.3	Resistance Measurements						
	TI Range & Calibrator		(Ω)	(Ω)			(Ω)
4.3.2	100 Ω		100.0				98.7 to 101.3
	TI Range & Calibrator		(kΩ)	(kΩ)			(kΩ)
”	1 kΩ		1.000				0.987 to 1.013
”	10 kΩ		10.00				9.87 to 10.13
”	100 kΩ		100.0				98.7 to 101.3
	TI Range	Calibrator	(MΩ)	(MΩ)			(MΩ)
4.3.2	1 MΩ	1 MΩ	1.000				0.996 to 1.004
”	10 MΩ	10 MΩ	10.00				9.96 to 10.04
”	100 MΩ	10 MΩ	10.0				9.6 to 10.4
	Affix a special calibration label on the test instrument stating: ”The AC/DC current function, the V ac frequency response, and voltage measurements above 50 kHz have not been calibrated.”						

CALIBRATION CHECKLIST

TEST INST (S) Non–Linear System V35, V35A, V35B, V35BR, 3000, 3026, or 3100 Digital Voltmeter with 1201, 1202, 1203, 1204, 125A, 125B, 125C, or 125E AC/DC Converter

PROC. NO. NA 17–20VQ–05 MFG. MODEL SER. NO.

PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.0000				–0.0001 to 0.0001
”	+10 V	10 V x .1	1.0000				0.9999 to 1.0001
”	+10 V	10 V x .2	2.0000				1.9998 to 2.0002
”	+10 V	10 V x .3	3.0000				2.9997 to 3.0003
”	+10 V	10 V x .4	4.0000				3.9996 to 4.0004
”	+10 V	10 V x .5	5.0000				4.9995 to 5.0005
”	+10 V	10 V x .6	6.0000				5.9994 to 6.0006
”	+10 V	10 V x .7	7.0000				6.9993 to 7.0007
”	+10 V	10 V x .8	8.0000				7.9992 to 8.0008
”	+10 V	10 V x .9	9.0000				8.9991 to 9.0009
4.1.6	–10 V	10 V x .9	9.0000				8.9991 to 9.0009
	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	100 V	10 V x 1	10.000				9.9990 to 10.001
”	100 V	100 V	100.000	ck ( )			99.990 to 100.01
”	1000 V	100 V	100.00				99.990 to 100.01
	TI 10 V Range		(µV)	(µV)			(µV)
4.1.13	100 µV LSD		700				600 to 800
4.1.14	100 µV LSD		300				200 to 400
4.2	Alternating–Voltage Measurements						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	10 V	400 Hz–1 V	1.0000				0.9700 to 1.0300
”	10 V	400 Hz–10 V	10.000	ck ( )			9.9700 to 10.030*
”	10 V	4 kHz–10 V	10.000	ck ( )			9.9700 to 10.030*
”	100 V	4 kHz–10 V	10.000				9.7000 to 10.300
”	100 V	400 Hz–10 V	10.000				9.7000 to 10.300
”	100 V	400 Hz–100 V	100.00	ck ( )			99.700 to 100.30*
”	1000 V	400 Hz–100 V	100.00				97.000 to 103.00
”	1000 V	4 kHz–10 V	10.0				9.70 to 10.30

Affix a special calibration label stating: ”The direct voltage ratio function has not been calibrated.”

*The TI may not indicate this value; however, an overrange indication is considered acceptable.

CALIBRATION CHECKLIST

TEST INST (S) Monsanto 200A Digital Multimeter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements					
	TI Range Calibrator	(V)	(V)			(V)
4.1.3	+10 V 10 V x 0	0.000				–0.0010 to 0.0010
”	+10 V 10 V x .1	1.000				0.9989 to 1.0011
”	+10 V 10 V x .2	2.000				1.998 to 2.001
”	+10 V 10 V x .3	3.000				2.999 to 3.001
”	+10 V 10 V x .4	4.000				3.999 to 4.001
”	+10 V 10 V x .5	5.000				4.998 to 5.002
”	+10 V 10 V x .6	6.000				5.998 to 6.002
”	+10 V 10 V x .7	7.000				6.998 to 7.002
”	+10 V 10 V x .8	8.000				7.998 to 8.002
”	+10 V 10 V x .9	9.000				8.998 to 9.002
”	+10 V 10 V x 1	10.000				9.998 to 10.002
4.1.6	–10 V 10 V x 1	10.000				9.998 to 10.002
	TI Range Calibrator	(V)	(V)			(V)
4.1.9	100 V 100 V	100.0				99.98 to 100.02
”	1000 V 100 V	100.0				99.9 to 100.1
	TI 1 V Range (µV)	(µV)				(µV)
4.1.13	100 µV LSD 700					600 to 800
4.1.14	100 µV LSD					200 to 400

CALIBRATION CHECKLIST

TEST INST (S) Hewlett–Packard 3439A or 3440A Digital Voltmeter with the 3441A, 3442A, 3443A, 3444A, 3445A, or 3446A Plug–in Units

PROC. NO. NA 17–20VQ–05			MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.000				–0.001 to 0.001
”	+10 V	10 V x .1	1.000				0.998 to 1.002
”	+10 V	10 V x .2	2.000				1.998 to 2.002
”	+10 V	10 V x .3	3.000				2.997 to 3.003
”	+10 V	10 V x .4	4.000				3.997 to 4.003
”	+10 V	10 V x .5	5.000				4.996 to 5.004
”	+10 V	10 V x .6	6.000				5.996 to 6.004
”	+10 V	10 V x .7	7.000				6.995 to 7.005
”	+10 V	10 V x .8	8.000				7.995 to 8.005
”	+10 V	10 V x .9	9.000				8.994 to 9.006
4.1.6	–10 V	10 V x 1	10.000				9.994 to 10.006
4.1.9	TI Range Calibrator		(mV)	(mV)			(mV)
”	100 mV	1 x .1	100.00				99.89 to 100.11
”	1000 mV	1 x .9	900.0				899.0 to 901.0
	TI Range	Calibrator	(V)	(V)			(V)
”	100 V	100 V	100.00				99.94 to 100.06
”	1000 V	100 V	100.0				99.8 to 100.02
	TI 100 mV Range		(µV)	(µV)			(µV)
4.1.13	10 µV LSD		520				510 to 530
4.1.14	10 µV LSD		480				470 to 490
4.2	Alternating–Voltage Measurements						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	10 V	400 Hz–10 V	10.000				9.988 to 10.012
”	100 V	400 Hz–100 V	100.00				99.88 to 100.12
”	1000 V	400 Hz–100 V	100.0				99.7 to 100.3
”	10 V	4 kHz–10 V	10.000				9.988 to 10.012
”	100 V	4 kHz–10 V	10.00				9.97 to 10.03
”	1000 V	4 kHz–10 V	10.0				9.8 to 10.2
”	1000 V	50 kHz–10 V	10.0				9.0 to 11.0
”	100 V	50 kHz–10 V	10.000				9.89 to 10.11

CALIBRATION CHECKLIST

TEST INST (S) Hewlett–Packard 3439A or 3440A Digital Voltmeter with the 3441A, 3442A, 3443A, 3444A, 3445A, or 3446A Plug in Units

PROC. NO. NA 17–20VQ–05 MFG. MODEL SER. NO.

PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.2.2	Range Calibrator	(V)	(V)			(V)
”	10 V 50 kHz–10 V	10.000				9.978 to 10.022
4.3	Resistance Measurements					
	(kΩ) Ranges:	(kΩ)				(kΩ)
4.3.2	1	1.0000				0.9969 to 1.0031
”	10	10.000				9.969 to 10.031
”	100	100.00				99.69 to 100.31
”	1000	1000.0				996.9 to 1003.1
		(MΩ)	(MΩ)			(MΩ)
”	10 MΩ range	10.000				9.899 to 10.101
	For the HP 3444A plug–in only; affix a special calibration label stating: The Direct–Current function has not been calibrated.					
	If the plug–in unit is a model 3445A or 3446A, affix a special calibration label stating: This plug–in unit has been calibrated up to 50 kHz only.					

CALIBRATION CHECKLIST

TEST INST (S) Data Tech Corp. 350 Digital Multimeter

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.	
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)	
4.1	Direct–Voltage Measurements							
	TI Range	Calibrator	(V)	(V)			(V)	
4.1.3	+10 V	10 V x 0	0.000				–0.001 to	0.001
”	+10 V	10 V x .1	1.000				0.999 to	1.001
”	+10 V	10 V x .2	2.000				1.998 to	2.002
”	+10 V	10 V x .3	3.000				2.998 to	3.002
”	+10 V	10 V x .4	4.000				3.998 to	4.002
”	+10 V	10 V x .5	5.000				4.997 to	5.003
”	+10 V	10 V x .6	6.000				5.997 to	6.003
”	+10 V	10 V x .7	7.000				6.997 to	7.003
”	+10 V	10 V x .8	8.000				7.997 to	8.003
”	+10 V	10 V x .9	9.000				8.996 to	9.004
”	+10 V	10 V x 1	10.000				9.996 to	10.004
4.1.6	–10 V	10 V x 1	10.000				9.996 to	10.004
	TI Range	Calibrator	(V)	(V)			(V)	
4.1.9	1 V	1 V x 1	1.0000				0.9996 to	1.0004
”	100 V	100 V	100.00				99.96 to	100.04
”	1000 V	100 V	100.0				99.9 to	100.1
	TI 100 mV Range		(µV)	(µV)			(µV)	
4.1.13	10 µV LSD		520				510 to	530
4.1.14	10 µV LSD		480				470 to	490
4.2	Alternating–Voltage Measurements							
	Range	Calibrator	(V)	(V)			(V)	
4.2.2	1 V	400 Hz–1 V	1.0000				0.9987 to	1.0013
”	10 V	400 Hz–10 V	10.000				9.987 to	10.013
”	10 V	4 kHz–10 V	10.000				9.987 to	10.013
”	10 V	50 kHz–10 V	10.000				9.890 to	10.110
”	100 V	50 kHz–10 V	10.00				9.80 to	10.20
”	100 V	4 kHz–10 V	10.00				9.80 to	10.20
”	100 V	400 Hz–100 V	100.00				99.87 to	100.13
”	1000 V	400 Hz–100 V	100.0				99.6 to	100.4

CALIBRATION CHECKLIST

TEST INST (S) Data Tech Corp. 350 Digital Multimeter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements					
	TI & Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	1 kΩ	1.00000				0.9980 to 1.0020
”	10 kΩ	10.0000				9.980 to 10.020
”	100 kΩ	100.000				99.80 to 100.20
”	1000 kΩ	1000.00				998.0 to 1002.0
”	10000 kΩ	1000.00				9980 to 10020
	Affix a special calibration label stating the following: 1. The V ac frequency response, the direct–voltage ratio function, the 10, and 100 mV ranges have not been calibrated. 2. All resistance ranges have been calibrated to ±0.2% of range.					

CALIBRATION CHECKLIST

TEST INST (S) Hickok 3300 Digital Multimeter (Without Frequency Adapters)

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.		
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)		
4.1	Direct–Voltage Measurements								
	TI Range	Calibrator	(V)	(V)			(V)		
4.1.3	+10 V	10 V x 0	0.00				–0.01	to	0.01
”	+10 V	10 V x .1	1.00				0.99	to	1.01
”	+10 V	10 V x .2	2.00				1.99	to	2.01
”	+10 V	10 V x .3	3.00				2.99	to	3.01
”	+10 V	10 V x .4	4.00				3.99	to	4.01
”	+10 V	10 V x .5	5.00				4.98	to	5.02
”	+10 V	10 V x .6	6.00				5.98	to	6.02
”	+10 V	10 V x .7	7.00				6.98	to	7.02
”	+10 V	10 V x .8	8.00				7.98	to	8.02
”	+10 V	10 V x .9	9.00				8.98	to	9.02
”	+10 V	10 V x 1	10.00				9.98	to	10.02
4.1.6	–10 V	10 V x 1	10.00				9.98	to	10.02
	TI Range	Calibrator	(mV)	(mV)			(mV)		
4.1.9	100 mV	1 V x .1	100.0				99.8	to	100.2
	TI Range	Calibrator	(V)	(V)			(V)		
4.1.9	1 V	1 V x 1	1.000				0.998	to	1.002
”	100 V	100 V	100.0				99.8	to	100.2
”	1000 V	100 V	100				99	to	101
	TI 100 mV Range		(µV)	(µV)			(µV)		
4.1.13	100 µV LSD		700				600	to	800
4.1.14	100 µV LSD		300				200	to	400
4.2	Alternating–Voltage Measurements								
	Range	Calibrator	(V)	(V)			(V)		
4.2.2	1 V	400 Hz–1 V	1.000				0.993	to	1.007
”	10 V	400 Hz–10 V	10.00				9.93	to	10.07
”	10 V	4 kHz–10 V	10.00				9.93	to	10.07
”	10 V	50 kHz–10 V	10.00				9.93	to	10.07
”	100 V	50 kHz–10 V	10.0				9.7	to	10.3
”	100 V	4 kHz–10 V	10.0				9.7	to	10.3
”	100 V	400 Hz–100 V	100.0				99.3	to	100.7

CALIBRATION CHECKLIST

TEST INST (S) Hickok 3300 Digital Multimeter (Without Frequency Adapters)

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.2.2	Range	Calibrator	(V)	(V)			(V)
”	1000 V	400 Hz–100 V	100				97 to 103
4.3	Resistance Measurements						
	TI Range & Calibrator		(Ω)	(Ω)			(Ω)
4.3.2	100 Ω		100.0				98.6 to 101.4
	TI Range & Calibrator		(kΩ)	(kΩ)			(kΩ)
4.3.2	1 kΩ	1 kΩ	1.000				0.986 to 1.014
”	10 kΩ	10 kΩ	10.00				9.86 to 10.14
”	100 kΩ	100 kΩ	100.0				98.6 to 101.4
	TI Range	Calibrator	(MΩ)	(MΩ)			(MΩ)
4.3.2	1 MΩ	1 MΩ	1.000				0.996 to 1.004
”	10 MΩ	10 MΩ	10.00				9.96 to 10.04
”	100 MΩ	10 MΩ	10.0				9.6 to 10.4
	Affix a special calibration label stating: ”The AC/DC current function, the V ac frequency response, and voltage measurement above 50 kHz have not been calibrated.”						

CALIBRATION CHECKLIST

TEST INST (S) Dana 3800, 3800A, 3860A, or 429883–01–01 Digital Voltmeter

PROC. NO. NA 17–20VQ–05 MFG. MODEL SER. NO.

PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+20 V	10 V x 0	0.00				–0.01 to 0.01
”	+20 V	10 V x .1	1.00				0.99 to 1.01
”	+20 V	10 V x .2	2.00				1.99 to 2.01
”	+20 V	10 V x .3	3.00				2.99 to 3.01
”	+20 V	10 V x .4	4.00				3.99 to 4.01
”	+20 V	10 V x .5	5.00				4.98 to 5.02
”	+20 V	10 V x .6	6.00				5.98 to 6.02
”	+20 V	10 V x .7	7.00				6.98 to 7.02
”	+20 V	10 V x .8	8.00				7.98 to 8.02
”	+20 V	10 V x .9	9.00				8.98 to 9.02
”	+20 V	10 V x 1	10.00				9.98 to 10.02
4.1.6	–20 V	10 V x 1	10.00				9.98 to 10.02
	TI Range Calibrator		(mV)	(mV)			(mV)
4.1.9	200 mV (3860A) 1 V x .1		100.0				99.8 to 100.2
	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	2 V	1 V x 1	1.000				0.998 to 1.002
”	200 V	100 V	100.0				99.8 to 100.2
”	2000 V	100 V	100				99 to 101
	TI 200 mV Range (3860A)		(µV)	(µV)			(µV)
4.1.13	100 µV LSD		700				600 to 800
4.1.14	100 µV LSD		300				200 to 400
4.2	Alternating–Voltage Measurements						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	20 V	400 Hz–10 V	10.00				9.96 to 10.04
”	20 V	4 kHz–10 V	10.00				9.95 to 10.05
”	20 V	50 kHz–10 V	10.00				9.90 to 10.10
”	2 V	400 Hz–1 V	1.000				0.996 to 1.004
”	200 V	400 Hz–100 V	100.0				99.6 to 100.4
”	2000 V	400 Hz–100 V	100				99 to 101

CALIBRATION CHECKLIST

TEST INST (S) Dana 3800, 3800A, 3860A, or 429883–01–01 Digital Voltmeter

PROC. NO. NA 17–20VQ–05			MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements						
	TI Range	Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	2 kΩ	1 kΩ	1.000				0.997 to 1.003
”	20 kΩ	10 kΩ	10.00				9.97 to 10.03
”	200 kΩ	100 kΩ	100.0				99.7 to 100.3
	TI Range	Calibrator	(MΩ)	(MΩ)			(MΩ)
4.3.2	2 MΩ	1 MΩ	1.000				0.995 to 1.005
”	20 MΩ	10 MΩ	10.00				9.89 to 10.11
	Affix a special calibration label stating: ”The 200 Ω range and the direct–current functions of the TI have not been calibrated.						

NOTE: If the TI is a 3800 or 3800A, the special calibration label should also state that the V ac function has been calibrated up to 50 kHz only.

CALIBRATION CHECKLIST

TEST INST (S) Dana 5500 as used with Mobil Automatic Test Set LN2C, 5600, 5600OPT20, or 5600–S638 Digital Voltmeter

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.0000				–0.0001 to 0.0001
”	+10 V	10 V x .1	1.0000				0.9998 to 1.0002
”	+10 V	10 V x .2	2.0000				1.9998 to 2.0002
”	+10 V	10 V x .3	3.0000				2.9997 to 3.0003
”	+10 V	10 V x .4	4.0000				3.9996 to 4.0004
”	+10 V	10 V x .5	5.0000				4.9995 to 5.0005
”	+10 V	10 V x .6	6.0000				5.9995 to 6.0005
”	+10 V	10 V x .7	7.0000				6.9994 to 7.0006
”	+10 V	10 V x .8	8.0000				7.9993 to 8.0007
”	+10 V	10 V x .9	9.0000				8.9993 to 9.0007
”	+10 V	10 V x 1	10.0000				9.9992 to 10.0008
4.1.6	–10 V	10 V x 1	10.0000				9.9992 to 10.0008
	TI Range	Calibrator	(mV)	(mV)			(mV)
4.1.9	1000 mV	1 V x 1	1000.00				999.70 to 1000.30
	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	100 V	100 V	100.000				99.992 to 100.008
”	1000 V	100 V	100.00				99.98 to 100.02
	TI 100 mV Range		(µV)	(µV)			(µV)
4.1.13	1 µV LSD		502				501 to 503
4.1.14	1 µV LSD		498				497 to 499
4.2	Alternating–Voltage Measurements						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	10 V	400 Hz–10 V	10.0000				9.9900 to 10.0100
”	10 V	4 kHz–10 V	10.0000				9.9750 to 10.0250
”	10 V	50 kHz–10 V	10.0000				9.9000 to 10.1000
”	100 V	400 Hz–100 V	100.000				99.900 to 100.100
”	1000 V	400 Hz–100 V	100.00				99.81 to 100.19

CALIBRATION CHECKLIST

TEST INST (S) Dana 5500 as used with Mobil Automatic Test Set LN2C, 5600, 5600OPT20, or 5600–S638
Digital Voltmeter

PROC. NO. NA 17–20VQ–05 MFG. MODEL SER. NO.

PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements					
	kΩ Ranges:	(kΩ)	(kΩ)			(kΩ)
4.3.2	1	1.00000				0.99800 to 1.00200
”	10	10.0000				9.9800 to 10.0200
”	100	100.000				99.800 to 100.200
”	1000	1000.00				998.00 to 1002.00
”	10,000	10000.0				998.00 to 1002.00
	Affix a special calibration label stating:					
	1. The direct–voltage ratio function and the 100 mV V dc range have not been calibrated.					
	2. All resistance ranges have been calibrated to ±0.2% of range.					
	3. The V ac function has been calibrated up to 50 kHz only.					

CALIBRATION CHECKLIST

TEST INST (S) Cimron 7000A, 7200A, 7300A–631, 7400A, or 7500A Digital Multimeter with the 6700A, 6710A AC Converter, the 6801A or 6802A DC Preamplifier and the 6910A or 6911A Ohm Converter

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.	
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)	
4.1	Direct–Voltage Measurements							
	TI Range	Calibrator	(V)	(V)			(V)	
4.1.3	+10 V	10 V x 0	0.0000				–0.0001 to	0.0001
”	+10 V	10 V x .1	1.0000				0.9998 to	1.0002
”	+10 V	10 V x .2	2.0000				1.9997 to	2.0003
”	+10 V	10 V x .3	3.0000				2.9996 to	3.0004
”	+10 V	10 V x .4	4.0000				3.9995 to	4.0005
”	+10 V	10 V x .5	5.0000				4.9994 to	5.0006
”	+10 V	10 V x .6	6.0000				5.9993 to	6.0007
”	+10 V	10 V x .7	7.0000				6.9992 to	7.0008
”	+10 V	10 V x .8	8.0000				7.9991 to	8.0009
”	+10 V	10 V x .9	9.0000				8.9990 to	9.0010
4.1.6	–10 V	10 V x .9	9.0000				8.9990 to	9.0010
	(6801A or 6802A)							
	TI Range Calibrator		(mV)	(mV)			(mV)	
4.1.9	x10	1 x .9	900.00				899.82 to	900.18
	TI Range	Calibrator	(V)	(V)			(V)	
”	100 V	10 x 1	10.000				9.998 to	10.002
”	100 V	100	100.000				99.989 to	100.011*
”	1000V	100	100.00				99.98 to	100.02
	(6801A or 6802A:)							
	TI x100 Range		(µV)	(µV)			(µV)	
4.1.13	1 µV LSD		502				501 to	503
4.1.14	1 µV LSD		498				497 to	499
4.2	Alternating–Voltage Measurements (6700A or 6701A)							
	Range	Calibrator	(V)	(V)			(V)	
4.2.2	10 V	400 Hz–1 V	1.0000				0.9999 to	10.0001
”	10 V	4 kHz–10 V	10.0000	ck			9.9950 to	10.0050
”	100 V	400 Hz–10 V	10.000				9.999 to	10.001
”	100 V	4 kHz–10 V	10.000	ck ( )			9.990 to	10.010
”	1000 V	4 kHz–10 V	10.0				9.98 to	10.02

CALIBRATION CHECKLIST

TEST INST (S) Cimron 7000A, 7200A, 7300A–631, 7400A, or 7500A Digital Multimeter with the 6700A, 6710A AC Converter, the 6801A or 6802A DC Preamplifier and the 6910A or 6911A Ohm Converter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements (6910A or 6911A)					
	kΩ Ranges	(kΩ)	(kΩ)			(kΩ)
4.3.2	1	1.00000	ck ( )			0.99950 to 1.00050*
”	10	10.0000	ck ( )			9.9950 to 10.0050*
”	100	100.000	ck ( )			99.950 to 100.050*
”	1000	1000.00	ck ( )			999.50 to 1000.50*
		(MΩ)	(MΩ)			(MΩ)
4.3.2	10 MΩ Range	10.0000	ck ( )			9.9900 to 10.0100*

Affix special calibration labels to each of the following Cimron test instruments stating the reasons as indicated as applicable.
6801A DC Preamplifier: The X100 voltage range has not been calibrated.
6802A DC Preamplifier: The X1000 and X100 voltage ranges have not been calibrated.
7300A, 7300A–631, or 7500A Digital Multimeter: The direct voltage ratio function has not been calibrated.
6700A or 6710A AC Converter: The 10 kHz V ac response has not been tested.
6710A or 6911A Ohm Converter: The 0.1 kΩ range has not been calibrated.

*The TI may not indicate this value; however, an overrange indication is considered acceptable.

CALIBRATION CHECKLIST

TEST INST (S) Cimron 76, 7630, 7650, or 7650–969 Digital Multimeter with the 6770 or 6771 AC Converter, or the 6990 Ohm Converter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements					
	TI Range Calibrator	(V)	(V)			(V)
4.1.3	+10 V 10 V x 0	0.0000				–0.0001 to 0.0001
”	+10 V 10 V x .1	1.0000				0.9998 to 1.0002
”	+10 V 10 V x .2	2.0000				1.9997 to 2.0003
”	+10 V 10 V x .3	3.0000				2.9996 to 3.0004
”	+10 V 10 V x .4	4.0000				3.9995 to 4.0005
”	+10 V 10 V x .5	5.0000				4.9994 to 5.0006
”	+10 V 10 V x .6	6.0000				5.9993 to 6.0007
”	+10 V 10 V x .7	7.0000				6.9992 to 7.0008
”	+10 V 10 V x .8	8.0000				7.9991 to 8.0009
”	+10 V 10 V x .9	9.0000				8.9990 to 9.0010
4.1.6	–10 V 10 V x .9	9.0000				8.9990 to 9.0010
	TI Range Calibrator	(mV)	(mV)			(mV)
4.1.9	1000 mV 1 x .9	900.00				899.82 to 900.18
	TI Range Calibrator	(V)	(V)			(V)
4.1.9	100 V 10 V x 1	10.000				9.9980 to 10.0020
”	100 V 100 V	100.00	ck ( )			99.989 to 100.01*
”	1000 V 100 V	100.00				99.980 to 100.02
	TI 1000 mV Range	(µV)	(µV)			(µV)
4.1.13	10 µV LSD	520				510 to 530
4.1.14	10 µV LSD	480				470 to 490
4.2	Alternating–Voltage Measurements					
	Range Calibrator	(V)	(V)			(V)
4.2.2	10 V 400 Hz–1 V	1.0000				0.9990 to 1.0010
”	10 V 400 Hz–10 V	10.0000				9.9894 to 10.011*
”	10 V 4 kHz–10 V	10.000				9.9894 to 10.011*
”	10 V (6771) 50 kHz–10 V	10.000				9.9900 to 10.010*
”	100 V (6771) 50 kHz–10 V	10.000				9.9900 to 10.010
”	100 V (6771) 400 Hz–100 V	100.00				99.900 to 100.10 *
”	1000 V 400 Hz–100 V	100.00				99.900 to 100.10

CALIBRATION CHECKLIST

TEST INST (S) Cimron 76, 7630, 7650, or 7650–969 Digital Multimeter with the 6770 or 6771 AC Converter, or the 6990 Ohm Converter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements (6990 Ohm Converter)					
	TI & Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	1 kΩ	1.0000	ck ( )			0.9980 to 1.0020*
”	10 kΩ	10.000	ck ( )			9.9800 to 10.020*
”	100 kΩ	100.00	ck ( )			99.800 to 100.20*
”	1000 kΩ	1000.0	ck ( )			998.00 to 1002.0*
		(MΩ)	(MΩ)			(MΩ)
4.3.2	10 MΩ range	10.000	ck ( )			9.9800 to 10.020*

Affix special calibration labels to the TI as follows:

1. If the TI has a ratio measurement function, affix a special calibration label stating, ”The ratio function has not been calibrated.”
2. If the TI has a 20 kHz bandwidth, affix a special calibration label stating, ”The frequency response has not been calibrated.”
3. If the TI has a resistance – measurement function, affix a special calibration label stating, ”All resistance ranges have been calibrated to ±0.2% of range.”
4. If the AC Converter is a model 6771, affix a special calibration label stating: ”The V ac function has been calibrated up to 50 kHz only.”

*The TI may not indicate this value; however, an overrange indication is considered acceptable.

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8120A Digital Voltmeter including Options 001 and/or 002

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.000				–0.001 to 0.001
”	+10 V	10 V x .1	1.000				0.999 to 1.001
”	+10 V	10 V x .2	2.000				1.999 to 2.001
”	+10 V	10 V x .3	3.000				2.998 to 3.002
”	+10 V	10 V x .4	4.000				3.998 to 4.002
”	+10 V	10 V x .5	5.000				4.998 to 5.002
”	+10 V	10 V x .6	6.000				5.998 to 6.002
”	+10 V	10 V x .7	7.000				6.998 to 7.002
”	+10 V	10 V x .8	8.000				7.997 to 8.003
”	+10 V	10 V x .9	9.000				8.997 to 9.003
4.1.6	–10 V	10 V x 1	10.000				9.997 to 10.003
	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	1 V	1 V x 1	1.0000				0.9997 to 1.0005
”	100 V	100 V	100.00				99.97 to 100.03
”	1000 V	100 V	100.0				99.9 to 100.1
	TI 100 mV Range		(µV)	(µV)			(µV)
4.1.13	10 µV LSD		520				510 to 530
4.1.14	10 µV LSD		480				470 to 490
4.2	Alternating–Voltage Measurements						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	1 V	400 Hz–1 V	1.0000				0.9975 to 1.0025
”	10 V	400 Hz–10 V	10.000				9.95 to 10.025
”	10 V	4 kHz–10 V	10.000				9.975 to 10.025
”	100 V	4 kHz–10 V	10.000				9.93 to 10.07
”	100 V	400 Hz–100 V	100.00				99.75 to 100.25
”	1000 V	400 Hz–100 V	100.0				99.3 to 100.7

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8120A Digital Voltmeter including Options 001 and/or 002

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements					
	kΩ Ranges:	(kΩ)	(kΩ)			(kΩ)
4.3.2	1 kΩ	1.0000				0.9980 to 1.0020
”	10 kΩ	10.000				9.994 to 10.006
”	100 kΩ	100.00				99.94 to 100.06
		(MΩ)	(MΩ)			(MΩ)
4.3.2	10 MΩ Range	10.000				9.980 to 10.020
	Affix a special calibration label to the following: 1. The TI V ac frequency response has not been calibrated. 2. The 100 mVac range has not been calibrated. 3. The 1 kΩ and 10 MΩ ranges have been calibrated to ±0.2% or range. 4. The DC and AC current functions have not been calibrated. 5. The 100 mV V dc range has not been calibrated.					

CALIBRATION CHECKLIST

TEST INST (S) Cimron 9500B–355 Digital Multimeter with the 6980B AC Converter

PROC. NO. NA 17–20VQ–05			MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.0000				–0.0001 to 0.0001
”	+10 V	10 V x .1	1.0000				0.9998 to 1.0002
”	+10 V	10 V x .2	2.0000				1.9997 to 2.0003
”	+10 V	10 V x .3	3.0000				2.9996 to 3.0004
”	+10 V	10 V x .4	4.0000				3.9995 to 4.0005
”	+10 V	10 V x .5	5.0000				4.9994 to 5.0006
”	+10 V	10 V x .6	6.0000				5.9993 to 6.0007
”	+10 V	10 V x .7	7.0000				6.9992 to 7.0008
”	+10 V	10 V x .8	8.0000				7.9991 to 8.0009
”	+10 V	10 V x .9	9.0000				8.9990 to 9.0010
4.1.6	–10 V	10 V x .9	9.0000				8.9990 to 9.0010
	TI Range	Calibrator	(mV)	(mV)			(mV)
4.1.9	1000 mV	1 x 0.9	900.00				899.82 to 900.18
	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	100 V	10 V	10.000				99.998 to 10.002
”	100 V	100 V	100.000				99.989 to 100.011*
”	1000 V	100 V	100.00				99.98 to 100.02
	TI 10 V Range		(µV)	(µV)			(µV)
4.1.13	100 µV LSD		700				600 to 800
4.1.14	100 µV LSD		300				200 to 400
4.2	Alternating–Voltage Measurements						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	10 V	400 Hz–1 V	1.0000				0.9960 to 10.0040
”	10 V	400 Hz–10 V	10.0000				9.9870 to 10.0130*
”	100 V	400 Hz–10 V	10.000				9.960 to 10.040*
”	100 V	400 Hz–100 V	100.000				99.870 to 100.130*
”	1000 V	400 Hz–100 V	100.00				99.60 to 100.40

Affix as special calibration label stating:
”The direct–voltage ratio measurement function and the 100 mV dc range have not been calibrated.”

*The TI may not indicate this value; however, an overrange indication is considered acceptable.

CALIBRATION CHECKLIST

TEST INST (S) Dymec DY–2401A, DY–2401AOPTM40, DY–2401B, DY–2410BOPTM40, DY–2401C, and DY–2401COPTM5 Digital Voltmeters

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.	
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)	
4.1	Direct–Voltage Measurements (Set TI to 1 Sec sample period)							
	TI Range	Calibrator	(V)	(V)			(V)	
4.1.3	+10 V	10 V x 0	0.0000				–0.0006 to	0.0006
”	+10 V	10 V x .1	1.0000				0.9993 to	1.0007
”	+10 V	10 V x .2	2.0000				1.9992 to	2.0008
”	+10 V	10 V x .3	3.0000				2.9991 to	3.0009
”	+10 V	10 V x .4	4.0000				3.9990 to	4.0010
”	+10 V	10 V x .5	5.0000				4.9989 to	5.0011
”	+10 V	10 V x .6	6.0000				5.9988 to	6.0012
”	+10 V	10 V x .7	7.0000				6.9987 to	7.0013
”	+10 V	10 V x .8	8.0000				7.9986 to	8.0014
”	+10 V	10 V x .9	9.0000				8.9985 to	9.0015
”	+10 V	10 V x 1	10.0000				9.9984 to	10.0016
4.1.6	–10 V	10 V x 1	10.0000				9.9984 to	10.0016
	TI Range	Calibrator	(mV)	(mV)			(mV)	
4.1.9	0.1 V	1 x .1	100.000				99.000 to	101.000
”	1 V	1 x 1	1000.00				999.00 to	1001.00
”	1 V	10 x .2	2000.00				1999.59 to	2000.41
”	1 V	10 x .3	3000.00	ck ( )			2999.24 to	3000.76
	TI Range	Calibrator	(V)	(V)			(V)	
”	100 V	100V	100.000				99.984 to	100.016
”	1000 V	100 V	100.00				99.93 to	100.07
	TI 100 mV Range		(µV)	(µV)			(µV)	
4.1.13	1 µV LSD		502				501 to	503
4.1.14	1 µV LSD		498				497 to	499
	Affix a special calibration label to the TI stating: ”The test instrument frequency sensitivity has not been calibrated. The 100 mV V dc range has been calibrated to ±1% of range; the 1 V dc range, to 0.1% of range.”							

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8800A/AA Digital Multimeter

PROC. NO. NA 17–20VQ–05			MFG.	MODEL			SER. NO.		
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)		
4.1	Direct–Voltage Measurements								
	TI Range	Calibrator	(V)	(V)			(V)		
4.1.3	20 V	10 V x 0	0.0000				–0.0010	to	0.0010
”	20 V	10 V x .1	1.0000				0.9988	to	1.0012
”	20 V	10 V x .2	2.0000				1.9987	to	2.0013
”	20 V	10 V x .3	3.0000				2.9985	to	3.0015
”	20 V	10 V x .4	4.0000				3.9984	to	4.0016
”	20 V	10 V x .5	5.0000				4.9982	to	5.0018
”	20 V	10 V x .6	6.0000				5.9981	to	6.0019
”	20 V	10 V x .7	7.0000				6.9979	to	7.0021
”	20 V	10 V x .8	8.0000				7.9978	to	8.0022
”	20 V	10 V x .9	9.0000				8.9976	to	9.0024
4.1.6	–20 V	10 V x 1	10.0000				9.9975	to	10.0025
4.1.9	2 V	1 V x 1	1.0000				0.99975	to	1.00025
”	200 V	100 V	100.000				99.975	to	100.025
”	1200 V	100 V	100.00				99.920	to	100.080
	TI 200 mV Range		(µV)	(µV)			(µV)		
4.1.13	1 µV LSD		502				501	to	503
4.1.14	1 µV LSD		498				497	to	499
4.2	Alternating–Voltage Measurements								
	Range	Calibrator	(V)	(V)			(V)		
4.2.2	2 V	400 Hz–1 V	1.00000				0.99820	to	1.00180
”	20 V	400 Hz–10 V	10.0000				9.9820	to	10.0180
”	20 V	4 kHz–10 V	10.0000				9.9820	to	10.0180
”	20 V	50 kHz–10 V	10.0000				9.9420	to	10.0580
”	200 V	50 kHz–10 V	10.000				9.870	to	10.130
”	200 V	400 Hz–100 V	100.000				99.820	to	100.180
”	1200 V	400 Hz–100 V	100.000				99.42	to	100.58
”	1200 V	4 kHz–10 V	10.00				9.51	to	10.49
”	1200 V	50 kHz–10 V	10.00				9.47	to	10.53

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8800A/AA Digital Multimeter

PROC. NO. NA 17–20VQ–05			MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements						
	TI Range	Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	2 kΩ	1 kΩ	1.00000				0.99800 to 1.00200
”	20 kΩ	10 kΩ	10.0000				9.9800 to 10.0200
”	200 kΩ	100 kΩ	100.000				99.800 to 100.200
”	2000 kΩ	1 MΩ	1000.00				998.00 to 1002.00
	TI Range	Calibrator	(MΩ)	(MΩ)			(MΩ)
4.3.2	20 MΩ	10 MΩ	10.0000				9.9700 to 10.0300
			Ω	Ω			Ω
”	200 Ω	100 Ω	100.0				99.6 to 100.4
	Affix a special calibration label stating: 1. The TI 200 mV V dc range, and the 2 V V ac range frequency response have not been calibrated. 2. The TI 200 Ω, 2 kΩ, 20 kΩ, 200 kΩ, and 2000 kΩ resistance ranges have been calibrated to ±0.1% of range. 3. The 20, 200 and 1200 V ac Ranges have been calibrated up to 50 kHz only.						

CALIBRATION CHECKLIST

TEST INST (S) Hewlett–Packard 3465A Digital Multimeter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements					
	TI Range* Calibrator	(V)	(V)			(V)
4.1.3	10 V 10 V x 0	0.000				–0.001 to 0.001
”	10 V 10 V x .1	1.000				0.999 to 1.001
”	10 V 10 V x .2	2.000				1.999 to 2.001
”	10 V 10 V x .3	3.000				2.998 to 3.002
”	10 V 10 V x .4	4.000				3.998 to 4.002
”	10 V 10 V x .5	5.000				4.998 to 5.002
”	10 V 10 V x .6	6.000				5.998 to 6.002
”	10 V 10 V x .7	7.000				6.998 to 7.002
”	10 V 10 V x .8	8.000				7.997 to 8.003
”	10 V 10 V x .9	9.000				8.997 to 9.003
4.1.6	–10 V 10 V x 1	10.000				9.997 to 10.003
4.1.9	1 V 1 V x 1	1.0000				0.9997 to 1.0003
”	100 V 100 V	100.00				99.97 to 100.03
”	1000 V 100 V	100.0				99.87 to 100.13
	TI 10 mV Range	(µV)	(µV)			(µV)
4.1.13	1 µV LSD	502				501 to 503
4.1.14	1 µV LSD	498				497 to 499
4.2	Alternating–Voltage Measurements					
	TI Range* Calibrator	(V)	(V)			(V)
4.2.2	1 V 400 Hz–1 V	1.0000				0.9980 to 1.0020
”	10 V 400 Hz–10 V	10.000				9.980 to 10.020
”	10 V 4 kHz–10 V	10.000				9.945 to 10.055
”	100 V 4 kHz–10 V	10.00				9.90 to 10.10
”	100 V 400 Hz–100 V	100.00				99.80 to 100.20
”	1000 V 400 Hz–100 V	100.0				99.3 to 100.7
	1000 V 4 kHz–10 V	10.0				9.4 to 10.6
	*In more recent TI models, range sequences are in terms of: 2, 20, 200, etc.					

CALIBRATION CHECKLIST

TEST INST (S) Hewlett–Packard 3465A Digital Multimeter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements					
	TI Range* & Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	1 kΩ	1.0000				0.9980 to 1.0020
”	10 kΩ	10.000				9.980 to 10.020
”	100 kΩ	100.00				99.80 to 100.20
”	1000 kΩ	1000.0				998.0 to 1002.0
	TI Range* & Calibrator	(MΩ)	(MΩ)			(MΩ)
4.3.2	10 MΩ range	10.000				9.980 to 10.020
	Affix a special calibration label stating:					
	1. The 10 and 100 mV ranges, and the 100 mV V ac range have not been calibrated.					
	2. All resistance ranges have been calibrated to ±0.2% of range.					
	3. The DC and AC current functions have not been calibrated.					
	*In more recent models, range sequence are: 2, 20, 200 etc.					

CALIBRATION CHECKLIST

TEST INST (S) Vidar 520 Integrating Digital Voltmeter*

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements					
	TI Range Calibrator	(V)	(V)			(V)
4.1.3	10 V 10 V x 0	0.0000				–0.0004 to 0.0004
”	10 V 10 V x .1	1.0000				0.9995 to 1.0005
”	10 V 10 V x .2	2.0000				1.9995 to 2.0005
”	10 V 10 V x .3	3.0000				2.9994 to 3.0006
”	10 V 10 V x .4	4.0000				3.9994 to 4.0006
”	10 V 10 V x .5	5.0000				4.9993 to 5.0007
”	10 V 10 V x .6	6.0000				5.9993 to 6.0007
”	10 V 10 V x .7	7.0000				6.9992 to 7.0008
”	10 V 10 V x .8	8.0000				7.9992 to 8.0008
”	10 V 10 V x .9	9.0000				8.9991 to 9.0009
4.1.6	–10 V 10 V x 1	10.0000				9.9991 to 10.0009
4.1.9	100 V 100 V	100.000				99.991 to 100.009
”	1000 V 100 V	100.00				99.95 to 100.05
	TI Range Calibrator	(mV)	(mV)			(mV)
”	1000 mV 1 V	1000.00				999.89 to 1000.11
	TI 100 mV Range	(µV)	(µV)			(µV)
4.1.13	1 µV LSD	502				501 to 503
4.1.14	1 µV LSD	498				497 to 499
	Affix a special calibration label stating: ”The 10 mV and 100 mV ranges have not been calibrated.”					
	*Calibration is in two parts: First, calibrate the TI electronic–counter function in accordance with VF–06; then, calibrate the voltmeter function with this procedure, VQ–05.					

CALIBRATION CHECKLIST

TEST INST (S) Vidar 500 Digital Voltmeter Counter*

PROC. NO. NA 17–20VQ–05 MFG. MODEL SER. NO.

PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	10 V	10 V x 0	0.00				–0.01 to 0.01
”	10 V	10 V x .1	1.00				0.99 to 1.01
”	10 V	10 V x .2	2.00				1.99 to 2.01
”	10 V	10 V x .3	3.00				2.99 to 3.01
”	10 V	10 V x .4	4.00				3.99 to 4.01
”	10 V	10 V x .5	5.00				4.98 to 5.02
”	10 V	10 V x .6	6.00				5.98 to 6.02
”	10 V	10 V x .7	7.00				6.98 to 7.02
”	10 V	10 V x .8	8.00				7.98 to 8.02
”	10 V	10 V x .9	9.00				8.98 to 9.02
4.1.6	–10 V	10 V x 1	10.00				9.98 to 10.02
4.1.9	1 V	1 V x 1	1.000				0.998 to 1.002
”	100 V	100 V	100.0				99.8 to 100.2
”	1000 V	100 V	100				99 to 100
	TI Range	Calibrator	(mV)	(mV)			(mV)
”	100 mV	1 V x .1	100.0				99.8 to 100.2
	TI 100 mV Range		(µV)	(µV)			(µV)
4.1.13	100 µV LSD		700				600 to 800
4.1.14	100 µV LSD		300				200 to 400

*Calibration is in two parts: First, calibrate the TI electronic counter function in accordance with VF–06; then, calibrate the voltmeter function with this procedure, VQ–05.

CALIBRATION CHECKLIST

TEST INST (S) Hewlett–Packard 34740A/34703A Digital Multimeter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements					
	TI Range Calibrator	(V)	(V)			(V)
4.1.3	10 V 10 V x 0	0.000				–0.002 to 0.002
”	10 V 10 V x .1	1.000				0.997 to 1.003
”	10 V 10 V x .2	2.000				1.979 to 2.003
”	10 V 10 V x .3	3.000				2.996 to 3.004
”	10 V 10 V x .4	4.000				3.996 to 4.004
”	10 V 10 V x .5	5.000				4.995 to 5.005
”	10 V 10 V x .6	6.000				5.995 to 6.005
”	10 V 10 V x .7	7.000				6.994 to 7.006
”	10 V 10 V x .8	8.000				7.994 to 8.006
”	10 V 10 V x .9	9.000				8.993 to 9.007
4.1.6	–10 V 10 V x 1	10.000				9.993 to 10.007
4.1.9	1 V 1 V x 1	1.0000				0.9995 to 1.0005
”	100 V 100 V	100.00				99.93 to 100.07
”	1000 V 100 V	100.0				99.7 to 100.3
	TI 10 mV Range	(µV)	(µV)			(µV)
4.1.13	1 µV LSD	502				501 to 503
4.1.14	1 µV LSD	498				497 to 499
4.3	Resistance Measurements					
	TI Range & Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	1 kΩ	1.0000				0.9980 to 1.0020
”	10 kΩ	10.000				9.993 to 10.007
”	100 kΩ	100.00				99.93 to 100.07
	TI Range & Calibrator	(MΩ)	(MΩ)			(MΩ)
4.3.2	1 MΩ	1.0000				0.9993 to 1.0007
”	10 MΩ	10.000				9.987 to 10.013
	Affix a special calibration label stating: ”The Direct–Current measurement function, the 10 mV, 100 mV, and the 1 Ω through 100 ranges have not been calibrated. Also, the 1 kΩ range has been calibrated to ±0.2% of range.”					

CALIBRATION CHECKLIST

TEST INST (S) Data Precision 245 Digital Multimeter

PROC. NO. NA 17–20VQ–05 MFG. MODEL SER. NO.

PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range*	Calibrator	(V)	(V)			(V)
4.1.3	10 V	10 V x 0	0.000				–0.001 to 0.001
”	10 V	10 V x .1	1.0000				0.998 to 1.002
”	10 V	10 V x .2	2.00				1.998 to 2.002
”	10 V	10 V x .3	3.000				2.997 to 3.003
”	10 V	10 V x .4	4.000				3.997 to 4.003
”	10 V	10 V x .5	5.000				4.996 to 5.004
”	10 V	10 V x .6	6.000				5.996 to 6.004
”	10 V	10 V x .7	7.000				6.995 to 7.005
”	10 V	10 V x .8	8.000				7.995 to 8.005
”	10 V	10 V x .9	9.000				8.994 to 9.006
4.1.6	–10 V	10 V x 1	10.000				9.994 to 10.006
4.1.9	1 V	1 V x 1	1.00000				0.9994 to 1.0006
”	100 V	100 V	100.00				99.94 to 100.06
”	1000 V	100 V	100.0				99.8 to 100.2
	TI 1 V Range		(µV)	(µV)			(µV)
4.1.13	100 µV LSD		700				600 to 800
4.1.14	100 µV LSD		300				200 to 400
4.2	Alternating–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.2.2	1 V	400 Hz–1 V	1.0000				0.9990 to 1.0010
”	10 V	400 Hz–10 V	10.000				9.990 to 10.010
”	10 V	4 kHz–10 V	10.000				9.938 to 10.062
”	10 V	50 kHz–10 V	10.000				9.895 to 10.105
”	100 V	50 kHz–10 V	10.00				9.85 to 10.15
”	100 V	400 Hz–100 V	100.00				99.90 to 100.10
”	1000 V	400 Hz–100 V	100.0				99.7 to 100.3
”	1000 V	50 kHz–10 V	10.0				9.4 to 10.6

CALIBRATION CHECKLIST

TEST INST (S) Data Precision 245 Digital Multimeter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements					
	TI Range Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	1 kΩ 1 kΩ	1.0000				0.9980 to 1.0020
”	10 kΩ 10 kΩ	10.000				9.992 to 10.008
”	100 kΩ 100 kΩ	100.00				99.92 to 100.08
”	1000 kΩ 1 MΩ	1000.0				998.9 to 1001.1
	TI Range & Calibrator	(MΩ)	(MΩ)			(MΩ)
4.3.2	10 MΩ	10.000				9.974 to 10.026
	Affix a special calibration label stating: “The current functions have not been calibrated and the 1 kΩ range has been calibrated to ±0.2% of range. The V ac frequency response has not been calibrated.”					

CALIBRATION CHECKLIST

TEST INST (S) Dana 4300 Digital Multimeter

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.	
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)	
4.1	Direct–Voltage Measurements							
	TI Range	Calibrator	(V)	(V)			(V)	
4.1.3	+10 V	10 V x 0	0.000				–0.002 to	0.002
”	+10 V	10 V x .1	1.000				0.997 to	1.003
”	+10 V	10 V x .2	2.000				1.997 to	2.003
”	+10 V	10 V x .3	3.000				2.996 to	3.004
”	+10 V	10 V x .4	4.000				3.995 to	4.005
”	+10 V	10 V x .5	5.000				4.994 to	5.006
”	+10 V	10 V x .6	6.000				5.994 to	6.006
”	+10 V	10 V x .7	7.000				6.993 to	7.007
”	+10 V	10 V x .8	8.000				7.992 to	8.008
”	+10 V	10 V x .9	9.000				8.992 to	9.008
”	+10 V	10 V x 1	10.000				9.991 to	10.009
4.1.6	–100 V	10 V x 1	10.000				9.991 to	10.009
	TI Range	Calibrator	(V)	(V)			(V)	
4.1.9	0.1 V	1 V x .1	0.10000				0.09989 to	0.10011
”	1 V	1 V x 1	1.0000				0.9991 to	1.0009
”	100 V	100 V	100.00				99.91 to	100.09
”	1000 V	100 V	100.0				99.7 to	100.3
	TI 0.1 V Range		(µV)	(µV)			(µV)	
4.1.13	10 µV LSD		520				510 to	530
4.1.14	10 µV LSD		480				470 to	490
4.2	Alternating–Voltage Measurements							
	TI Range	Calibrator	(V)	(V)			(V)	
4.2.2	1 V	400 Hz–1 V	1.0000				0.9967 to	1.0033
”	10 V	400 kHz–10 V	10.000				9.967 to	10.033
”	10 V	4 kHz–10 V	10.000				9.967 to	10.033
”	100 V	400 Hz–100 V	100.00				99.67 to	100.33
”	1000 V	400 Hz–100 V	100.0				99.4 to	100.6

CALIBRATION CHECKLIST

TEST INST (S) Dana 4300 Digital Multimeter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements					
	kΩ Ranges:	(kΩ)	(kΩ)			(kΩ)
4.3.2	1	1.0000				0.9968 to 1.0032
”	10	10.000				9.968 to 10.032
”	100	100.00				99.68 to 100.32
	MΩ Ranges:	(MΩ)	(MΩ)			(MΩ)
”	1	1.0000				0.9928 to 1.0072
”	10	10.000				9.928 to 10.072
	Affix a special calibration label stating: ”The V ac frequency response has not been calibrated.”					

CALIBRATION CHECKLIST

TEST INST (S) Dana 4324 Multimeter (with or without Options)

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.	
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)	
4.1	Direct–Voltage Measurements							
	TI Range	Calibrator	(V)	(V)			(V)	
4.1.3	+10 V	10 V x 0	0.000				–0.002 to	0.002
”	+10 V	10 V x .1	1.000				0.998 to	1.002
”	+10 V	10 V x .2	2.000				1.998 to	2.002
”	+10 V	10 V x .3	3.000				2.998 to	3.002
”	+10 V	10 V x .4	4.000				3.998 to	4.002
”	+10 V	10 V x .5	5.000				4.997 to	5.003
”	+10 V	10 V x .6	6.000				5.997 to	6.003
”	+10 V	10 V x .7	7.000				6.997 to	7.003
”	+10 V	10 V x .8	8.000				7.997 to	8.003
”	+10 V	10 V x .9	9.000				8.997 to	9.003
”	10 V	10 V x 1	10.000				9.997 to	10.003
4.1.6	–10 V	10 V x 1	10.000				9.997 to	10.003
	TI Range	Calibrator	(V)	(V)			(V)	
4.1.9	0.1 V	1 V x .1	0.10000				0.09993 to	0.10007
”	1 V	1 V x 1	1.0000				0.9997 to	1.0003
”	100 V	100 V	100.00				99.97 to	100.03
”	1000 V	100 V	100.0				99.8 to	100.2
	TI 0.1 V Range		(µV)	(µV)			(µV)	
4.1.13	10 µV LSD		520				510 to	530
4.1.14	10 µV LSD		480				470 to	490
4.2	Alternating–Voltage Measurements							
	Range	Calibrator	(V)	(V)			(V)	
4.2.2	1 V	400 Hz–1 V	1.0000				0.9972 to	1.0028
”	10 V	400 Hz–10 V	10.000				9.972 to	10.028
”	10 V	4 kHz–10 V	10.000				9.972 to	10.028
”	100 V	4 kHz–10 V	10.00				9.90 to	10.10
”	100 V	400 Hz–100 V	100.00				99.72 to	100.28
”	1000 V	400 Hz–100 V	100.0				99 to	101

CALIBRATION CHECKLIST

TEST INST (S) Dana 4324 Multimeter (with or without Options)

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements					
	kΩ Ranges:	(kΩ)	(kΩ)			(kΩ)
4.3.2	1	1.0000				0.9980 to 1.0020
”	10	10.000				9.980 to 10.020
”	100	100.00				99.80 to 100.20
	MΩ Ranges:	(MΩ)	(MΩ)			(MΩ)
4.3.2	1	1.0000				0.991 to 1.0009
”	10	10.000				9.998 to 10.020
	Affix a special calibration label stating: 1. The V ac frequency response has not been calibrated. 2. Only the 1 MΩ range has been calibrated to the manufacturer tolerance; all other resistance ranges have been calibrated to ±0.2% of range.					

CALIBRATION CHECKLIST

TEST INST (S) Hewlett–Packard 5306A Multimeter/Counter*

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.	
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)	
4.1	Direct–Voltage Measurements							
	TI Range	Calibrator	(V)	(V)			(V)	
4.1.3	+10 V	10 V x 0	0.0000				–0.0003 to	0.0003
”	+10 V	10 V x .1	1.0000				0.9994 to	1.0006
”	+10 V	10 V x .2	2.0000				1.9991 to	2.0009
”	+10 V	10 V x .3	3.0000				2.9988 to	3.0012
”	+10 V	10 V x .4	4.0000				3.9985 to	4.0015
”	+10 V	10 V x .5	5.0000				4.9982 to	5.0018
”	+10 V	10 V x .6	6.0000				5.9979 to	6.0021
”	+10 V	10 V x .7	7.0000				6.9976 to	7.0024
”	+10 V	10 V x .8	8.0000				7.9973 to	8.0027
”	+10 V	10 V x .9	9.0000				8.9970 to	9.0030
4.1.6	–10 V	10 V x .9	9.0000				8.9970 to	9.0030
	TI Range	Calibrator	(V)	(V)			(V)	
4.1.9	100 V	10 x .1	10.000				9.994 to	10.006
”	100 V	100	100.000	ck ( )			99.967 to	100.033**
”	1000 V	100	100.00				99.60 to	100.40
	TI 10 V Range		(µV)	(µV)			(µV)	
4.1.13	100 µV LSD		700				600 to	800
4.1.14	100 µV LSD		300				200 to	400
4.2	Alternating–Voltage Measurements							
	TI Range	Calibrator	(V)	(V)			(V)	
4.2.2	10 V	400 Hz–1 V	1.0000				0.9882 to	1.0118
”	10 V	4 kHz–10 V	10.0000	ck ( )			9.9000 to	10.1000**
”	10 V	50 kHz–10 V	10.0000	ck ( )			9.8920 to	10.1080**
”	100 V	400 Hz–10 V	10.000				9.800 to	10.200
”	100 V	400 Hz–100 V	100.000	ck ( )			98.450 to	101.550**
”	1000 V	400 Hz–100 V	100.00				98.00 to	102.00

*The TI calibration is in two parts: First, calibrate the counter function in accordance with VF–06; then, calibrate the Multimeter function with this procedure, VQ–05.

**The TI may not indicate this value; however, an overrange indication is considered acceptable.

CALIBRATION CHECKLIST

TEST INST (S) Hewlett–Packard 5306A Multimeter/Counter

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements						
	TI Range	Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	10 kΩ	1 kΩ	1.0000				0.9947 to 1.0053
”	10 kΩ	10 kΩ	10.0000	ck ( )			9.9497 to 10.0503
”	100 kΩ	10 kΩ	10.000				9.947 to 10.053
”	100 kΩ	100 kΩ	100.000	ck ( )			99.497 to 100.503
	TI Range	Calibrator	(MΩ)	(MΩ)			(MΩ)
4.3.2	10 MΩ	1 MΩ	1.0000				0.9922 to 1.0078
”	10 MΩ	10 MΩ	10.0000	ck ( )			9.9247 to 10.0753
	Affix a special calibration label stating: ”The V ac measurements function of the TI has been calibrated up to 50 kHz only.”						

CALIBRATION CHECKLIST

TEST INST (S) Digitec 2110 Multimeter

PROC. NO. NA 17–20VQ–05 MFG. MODEL SER. NO.

PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+20 V	10 V x 0	0.00				–0.02 to 0.02
”	+20 V	10 V x .1	1.00				0.98 to 1.02
”	+20 V	10 V x .2	2.00				1.97 to 2.03
”	+20 V	10 V x .3	3.00				2.97 to 3.03
”	+20 V	10 V x .4	4.00				3.97 to 4.03
”	+20 V	10 V x .5	5.00				4.97 to 5.03
”	+20 V	10 V x .6	6.00				5.96 to 6.04
”	+20 V	10 V x .7	7.00				6.96 to 7.04
”	+20 V	10 V x .8	8.00				7.96 to 8.04
”	+20 V	10 V x .9	9.00				8.96 to 9.04
4.1.6	–20 V	10 V x 1	10.00				9.95 to 10.05
4.1.9	2 V	10 V x 1	1.000				0.995 to 1.005
”	200 V	100 V	100.0				99.5 to 100.5
”	1000 V	100 V	100				99 to 101
	TI Range	Calibrator	(mV)	(mV)			(mV)
4.1.9	200 mV 1 V x .1		100.0				99.7 to 100.3
	TI 200 mV Range		(µV)	(µV)			(µV)
4.1.13	100 µV LSD		700				600 to 800
4.1.14	100 µV LSD		300				200 to 400
4.2	Alternating–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.2.2	2 V	400 Hz–1 V	1.000				0.993 to 1.007
”	20 V	400 Hz–10 V	10.00				9.93 to 10.07
”	20 V	4 kHz–10 V	10.00				9.93 to 10.07
”	200 V	400 Hz–100 V	100.0				99.3 to 100.7
”	500 V	400 Hz–100 V	100				99 to 101

CALIBRATION CHECKLIST

TEST INST (S) Digitec 2110 Multimeter

PROC. NO. NA 17–20VQ–05			MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements						
	TI Range	Calibrator	(Ω)	(Ω)			(Ω)
4.3.2	200 Ω	100 kΩ	1.000				0.997 to 1.003
	TI Range	Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	2 kΩ	1 kΩ	1.000				0.993 to 1.007
”	20 kΩ	10 kΩ	10.00				9.93 to 10.07
”	200 kΩ	100 kΩ	100.0				99.3 to 100.7
”	2000 kΩ	1 MΩ	1000				992 to 1008
	TI Range	Calibrator	(MΩ)	(MΩ)			(MΩ)
4.3.2	20 MΩ	10 MΩ	10.00				9.86 to 10.14

CALIBRATION CHECKLIST

TEST INST (S) United Systems Corp. (Digitec) 251–3 Digital Voltmeter

PROC. NO.	NA 17–20VQ–05	MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements					
	TI Range Calibrator	(mV)	(mV)			(mV)
4.1.3	+1000 mV 1 V x 0	000.0				–000.1 to 000.1
”	+1000 mV 1 V x .1	100.0				099.8 to 100.2
”	+1000 mV 1 V x .2	200.0				199.8 to 200.2
”	+1000 mV 1 V x .3	300.0				299.7 to 300.3
”	+1000 mV 1 V x .4	400.0				399.7 to 400.3
”	+1000 mV 1 V x .5	500.0				499.6 to 500.4
”	+1000 mV 1 V x .6	600.0				599.6 to 600.4
”	+1000 mV 1 V x .7	700.0				699.5 to 700.5
”	+1000 mV 1 V x .8	800.0				799.5 to 800.5
”	+1000 mV 1 V x .9	900.0				899.4 to 900.6
4.1.6	–1000 mV 1 V x .9	900.0				899.4 to 900.6
4.1.9	100 mV 1 V x .1	100.00				99.91 to 100.09
	TI 100 mV Range	(µV)	(µV)			(µV)
4.1.13	10 µV LSD	520				510 to 530
4.1.14	10 µV LSD	480				470 to 490
	Affix a special calibration label stating: ”The 100 mV range has been calibrated to ±0.09% of range.”					

CALIBRATION CHECKLIST

TEST INST (S) Dana 5000 Digital Voltmeter

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.0000				–0.0002 to 0.0002
”	+10 V	10 V x .1	1.0000				0.9997 to 1.0003
”	+10 V	10 V x .2	2.0000				1.9996 to 2.0004
”	+10 V	10 V x .3	3.0000				2.9995 to 3.0005
”	+10 V	10 V x .4	4.0000				3.9994 to 4.0006
”	+10 V	10 V x .5	5.0000				4.9993 to 5.0007
”	+10 V	10 V x .6	6.0000				5.9992 to 6.0008
”	+10 V	10 V x .7	7.0000				6.9991 to 7.0009
”	+10 V	10 V x .8	8.0000				7.9990 to 8.0010
”	+10 V	10 V x .9	9.0000				8.9989 to 9.0011
4.1.6	–10 V	10 V x 1	10.0000				9.9988 to 10.0012
4.1.9	100 mV	1 V x .1	10.0000				0.099910 to 0.100090
”	1 V	1 V x 1	1.00000				0.99988 to 1.00012
”	100 V	100 V	100.000				99.988 to 100.012
”	1000 V	100 V	100.00				99.97 to 100.03
	TI 100 mV Range		(µV)	(µV)			(µV)
4.1.13	1 µV LSD		502				501 to 503
4.1.14	1 µV LSD		498				497 to 499
4.2	Alternating–Voltage Measurements (Model 34 AC Converter)						
	TI Range	Calibrator	(V)	(V)			(V)
4.2.2	1 V	400 Hz–1 V	1.00000				0.99880 to 1.00120
”	10 V	400 Hz–10 V	10.0000				9.9880 to 10.0120
”	10 V	4 kHz–10 V	10.0000				9.9880 to 10.0120
”	10 V	50 kHz–10 V	10.0000				9.9830 to 10.0170
”	100 V	50 kHz–10 V	10.000				9.965 to 10.035
”	100 V	4 kHz–10 V	10.000				9.970 to 10.030
”	100 V	400 Hz–100 V	100.000				99.880 to 100.120
”	1000 V	400 Hz–100 V	100.00				99.70 to 100.30
”	1000 V	4 kHz–10 V	10.000				9.79 to 10.21
”	1000 V	50 kHz–10 V	10.00				9.78 to 10.22

CALIBRATION CHECKLIST

TEST INST (S) Dana 5000 Digital Voltmeter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements (model 54 ohms Converter)					
	TI Range Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	1 kΩ 1kΩ	1.00000				0.99800 to 1.00200
”	10 kΩ 10kΩ	10.0000				9.9800 to 10.0200
”	100 kΩ 100 kΩ	100.000				99.800 to 100.200
”	1000 kΩ 1 MΩ	1000.00				998.00 to 1002.00
”	10000 kΩ 10 MΩ	10000.0				9980.0 to 10020.0
	Affix a special calibration label stating the following as applicable: 1. The 100 mV of the direct voltage range has been calibrated to ±0.09% of range. 2. If the TI consists of a model 54 ohms Converter, the 0.1 kΩ range has not been calibrated and all other resistance ranges have been calibrated to ±0.2% of range. 3. If the TI consists of an option 64, the AC/DC ratio measurement function has not been calibrated. 4. If the TI consist of a model 34 AC Converter, the V ac function has been calibrated up to 50 kHz only.					

CALIBRATION CHECKLIST

TEST INST (S) Cimron 6753 or 6753–1424 Digital Multimeter with the 5775 or 5789 Plug in Unit

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.	
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)	
4.1	Direct–Voltage Measurements							
	TI Range	Calibrator	(V)	(V)			(V)	
4.1.3	+10 V	10 V x 0	0.0000				–0.0002 to	0.0002
”	+10 V	10 V x .1	1.0000				0.9997 to	1.0003
”	+10 V	10 V x .2	2.0000				1.9996 to	2.0004
”	+10 V	10 V x .3	3.0000				2.9995 to	3.0005
”	+10 V	10 V x .4	4.0000				3.9994 to	4.0006
”	+10 V	10 V x .5	5.0000				4.9993 to	5.0007
”	+10 V	10 V x .6	6.0000				5.9992 to	6.0008
”	+10 V	10 V x .7	7.0000				6.9991 to	7.0009
”	+10 V	10 V x .8	8.0000				7.9990 to	8.0010
”	+10 V	10 V x .9	9.0000				8.9989 to	9.0011
4.1.6	–10 V	10 V x 1	10.0000				9.9988 to	10.0012
4.1.9	1 V	1 V x 1	1.00000				0.99985 to	1.00015
4.1.9	100 V	100 V	100.000				99.988 to	100.012
”	1000 V	100 V	100.000				99.97 to	100.03
	TI 10 mV Range (5789)		(µV)	(µV)			(µV)	
4.1.13	1 µV LSD		502				501 to	503
4.1.14	1 µV LSD		498				497 to	499
4.2	Alternating–Voltage Measurements							
	Range	Calibrator	(V)	(V)			(V)	
4.2.2	1 V	400 Hz–1 V	1.00000				0.99850 to	1.00150
”	10 V	400 Hz–10 V	10.0000				9.9850 to	10.0150
”	10 V	4 kHz–10 V	10.0000				9.9850 to	10.0150
”	10 V	50 kHz–10 V	10.0000				9.9500 to	10.0500
”	100 V	50 kHz–10 V	10.000				9.930 to	10.070
”	100 V	4 kHz–10 V	10.000				9.972 to	10.028
”	100 V	400 Hz–100 V	100.000				99.850 to	100.150
”	1000 V	400 Hz–100 V	100.00				99.72 to	100.28
”	1000 V	4 kHz–10 V	10.00				9.79 to	10.21
”	1000 V	50 kHz–10 V	10.00				9.48 to	10.52

CALIBRATION CHECKLIST

TEST INST (S) Cimron 6753 or 6753–1424 Digital Multimeter with the 5775 or 5789 Plug in Unit

PROC. NO. NA 17–20VQ–05 MFG. MODEL SER. NO.

PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements (5789)						
	TI Range	Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	1 kΩ	1 kΩ	1.00000				0.99800 to 1.00200
”	10 kΩ	10 kΩ	10.0000				9.9800 to 10.0200
”	100 kΩ	100 kΩ	100.000				99.800 to 100.200
”	1000 kΩ	1 MΩ	1000.00				998.00 to 1002.00
”	10000 kΩ	10 MΩ	10000.0				9980.0 to 10020.0
	Affix a special calibration label stating the following information as applicable: 1. The TI direct voltage ratio function has not been calibrated. 2. If the TI consists of a 5789 plug in, the 10 mV and the 100 mV V dc ranges have not been calibrated; also, all resistace ranges have been calibrated to ±0.2% of range. 3. If the TI consists of a 5775 converter or plug–in, the V ac frequency response, and measurements above 50 kHz have not been calibrated; also, the 1, 10, and 100 V V ac ranges have been calibrated to ±0.15% of range at 400 Hz.						

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8000A Digital Multimeter

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.		
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)		
4.1	Direct Voltage Measurements								
	TI Range	Calibrator	(V)	(V)			(V)		
4.1.3	+20 V	10 V x 0	0.00				–0.01	to	0.0001
”	+20 V	10 V x .1	1.00				0.99	to	1.01
”	+20 V	10 V x .2	2.00				1.99	to	2.01
”	+20 V	10 V x .3	3.00				2.99	to	3.01
”	+20 V	10 V x .4	4.00				3.99	to	4.01
”	+20 V	10 V x .5	5.00				4.98	to	5.02
”	+20 V	10 V x .6	6.00				5.98	to	6.02
”	+20 V	10 V x .7	7.00				6.98	to	7.02
”	+20 V	10 V x .8	8.00				7.98	to	8.02
”	+20 V	10 V x .9	9.00				8.98	to	9.02
4.1.6	–20 V	10 V x 1	10.00				9.98	to	10.02
4.1.9	2 V	1 V x 1	1.000				0.998	to	1.002
”	200 V	100 V	100.0				99.8	to	100.2
”	1200 V	100 V	100				99	to	101
	TI Range	Calibrator	(mV)	(mV)			(mV)		
4.1.9	200 mV	1 V x .1	100.0				99.8	to	100.2
	TI 200 mV Range		(µV)	(µV)			(µV)		
4.1.13	100 µV LSD		700				600	to	800
4.1.14	100 µV LSD		300				200	to	400
4.2	Alternating–Voltage Measurements								
	TI Range	Calibrator	(V)	(V)			(V)		
4.2.2	2 V	400 Hz–1 V	1.000				0.993	to	1.007
”	20 V	400 Hz–10 V	10.00				9.93	to	10.07
”	20 V	4 kHz–10 V	10.00				9.93	to	10.07
”	200 V	4 kHz–10 V	10.0				9.7	to	10.3
”	200 V	400 Hz–100 V	100.0				99.3	to	100.7
”	1200 V	400 Hz–100 V	100				97	to	103
”	1200 V	4 kHz–10 V	10				8	to	12

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8000A Digital Multimeter

PROC. NO. NA 17–20VQ–05 MFG. MODEL SER. NO.

PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements						
	TI Range	Calibrator	(Ω)	(Ω)			(Ω)
4.3.2	200 Ω	100 Ω	100.0				9943 to 100.6
	TI Range	Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	2 kΩ	1 kΩ	1.000				0.997 to 1.003
”	20 kΩ	10 kΩ	10.00	”			9.97 to 10.03
”	200 kΩ	100 kΩ	100.0	”			99.7 to 100.3
”	2000 kΩ	1 MΩ	1000				997 to 1003
	TI Range	Calibrator	(MΩ)	(MΩ)			(MΩ)
4.3.2	20 MΩ	10 MΩ	10.00				9.94 to 10.06

Affix a special calibration label stating:
“The AC/DC current functions have not been calibrated; also, the 200 Ω range has been calibrated to ±0.5% of indication ±1 digit.”

CALIBRATION CHECKLIST

TEST INST (S) Hewlett–Packard 970A Probe Digital Voltmeter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements					
	TI Range Calibrator	(V)	(V)			(V)
4.1.3	V– 1 V x 0	0.0000				–0.0002 to 0.0002
”	V– 1 V x .1	0.1000				0.0991 to 0.1009
”	V– 1 V x 1	1.000				0.991 to 1.009
”	V– 10 V x .2	2.00				1.97 to 2.03
”	V– 10 V x .3	3.00				2.96 to 3.04
”	V– 10 V x .4	4.00				3.95 to 4.05
”	V– 10 V x .5	5.00				4.94 to 5.06
”	V– 10 V x .6	6.00				5.94 to 6.06
”	V– 10 V x .7	7.00				6.93 to 7.07
”	V– 10 V x .8	8.00				7.92 to 8.08
”	V– 10 V x .9	9.00				8.92 to 9.08
4.1.6	Negative V– 10 V x 1	10.00				9.91 to 10.09
4.1.9	V– 100	100.0				99.1 to 100.9
	TI 0.1 V Range	(μV)	(μV)			(μV)
4.1.13	100 μV LSD	700				600 to 800
4.1.14	100 μV LSD	300				200 to 400
4.2	Alternating–Voltage Measurements					
	FUNCTION Calibrator	(V)	(V)			(V)
4.2.2	V∼ 400 Hz–1 V	1.0000				0.975 to 1.025
”	V∼ 400 Hz–10 V	10.0000				9.75 to 10.25
”	V∼ 4 kHz–10 V	10.0000				9.60 to 10.40
”	V∼ 400 Hz–100 V	100.000				97.5 to 102.5

CALIBRATION CHECKLIST

TEST INST (S) Hewlett–Packard 970A Probe Digital Voltmeter

PROC. NO.	NA 17–20VQ–05	MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements					
	FUNCTION Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	kΩ 1 kΩ	1.000				0.983 to 1.017
”	kΩ 10 kΩ	10.00				9.83 to 10.17
”	kΩ 100 kΩ	100.0				98.3 to 101.7
”	kΩ 1 MΩ	1000				983 to 1017
”	kΩ 10 MΩ	10000				9830 to 10170
	Affix a special calibration label stating: “The 0.1 and the 1000 V V ac ranges have not been calibrated. 1000 V range may not be calibrated.”					

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8600A Digital Multimeter (Including Options 001 and/or 002)

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+20 V	10 V x 0	0.000				–0.002 to 0.002
”	+20 V	10 V x .1	1.000				0.998 to 1.002
”	+20 V	10 V x .2	2.000				1.997 to 2.003
”	+20 V	10 V x .3	3.000				2.997 to 3.003
”	+20 V	10 V x .4	4.000				3.996 to 4.004
”	+20 V	10 V x .5	5.000				4.996 to 5.004
”	+20 V	10 V x .6	6.000				5.996 to 6.004
”	+20 V	10 V x .7	7.000				6.995 to 7.005
”	+20 V	10 V x .8	8.000				7.995 to 8.005
”	+20 V	10 V x .9	9.000				8.994 to 9.006
4.1.6	–20 V	10 V x 1	10.000				9.994 to 10.006
4.1.9	2 V	1 V x 1	1.0000				0.9994 to 1.0006
”	200 V	100 V	100.00				99.94 to 100.06
”	1200 V	100 V	100.0				99.8 to 100.2
	TI Range Calibrator		(mV)	(mV)			(mV)
4.1.9	200 mV	1 V x .1	100.00				99.91 to 100.09
	TI 200 mV Range		(µV)	(µV)			(µV)
4.1.13	10 µV LSD		520				510 to 530
4.1.14	10 µV LSD		480				470 to 490
4.2	Alternating–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.2.2	2 V	400 Hz–1 V	1.0000				0.9966 to 1.0034
”	20 V	400 Hz–10 V	10.000				9.966 to 10.034
”	20 V	4 kHz–10 V	10.000				9.966 to 10.034
”	20 V	50 kHz–10 V	10.000				9.929 to 10.071
”	200 V	50 kHz–10 V	10.00				9.87 to 10.13
”	200 V	4 kHz–10 V	10.00				9.93 to 10.07
”	200 V	400 Hz–100 V	100.00				99.66 to 100.34
”	1200 V	400 Hz–100 V	100.0				99.2 to 100.8
”	1200 V	4 kHz–10 V	10.0				9.5 to 10.5

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8600A Digital Multimeter (Including Options 001 and/or 002)

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.	
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)	
4.3	Resistance Measurements							
	TI Range	Calibrator	(Ω)	(Ω)			(Ω)	
4.3.2	200 Ω	100 Ω	100.00				99.36 to	100.64
	TI Range	Calibrator	(kΩ)	(kΩ)			(kΩ)	
”	2 kΩ	1 kΩ	1.0000				0.9968 to	1.032
”	20 kΩ	10 kΩ	10.000				9.968 to	10.032
”	200 kΩ	100 kΩ	100.00				99.68 to	100.32
”	2000 kΩ	1 MΩ	1000.0				996.8 to	1003.2
	TI Range	Calibrator	(MΩ)	(MΩ)			(MΩ)	
4.3.2	20 MΩ	10MΩ	10.000				9.958 to	10.042
	Affix a special calibration label stating:							
	1. The 200 mV V ac range, the V ac frequency response, and the current functions have not been calibrated.							
	2. The 200 Ω resistance range has been calibrated to ±(0.6% iv +0.02% of range).							
	3. The V ac function has been calibrated up to 50 kHz only.							

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8800A Digital Multimeter

PROC. NO. NA 17–20VQ–05			MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+20 V	10 V x 0	0.0000				–0.0003 to 0.0003
”	+20 V	10 V x .1	1.0000				0.9993 to 1.0007
”	+20 V	10 V x .2	2.0000				1.9989 to 2.00011
”	+20 V	10 V x .3	3.0000				2.9985 to 3.00015
”	+20 V	10 V x .4	4.0000				3.9981 to 4.00019
”	+20 V	10 V x .5	5.0000				4.9977 to 5.00023
”	+20 V	10 V x .6	6.0000				5.9973 to 6.00027
”	+20 V	10 V x .7	7.0000				6.9969 to 7.00031
”	+20 V	10 V x .8	8.0000				7.9965 to 8.00035
”	+20 V	10 V x .9	9.0000				8.9961 to 9.0039
4.1.6	+20 V	10 V x 1	10.0000				9.9957 to 10.0043
4.1.9	–2 V	1 V x 1	1.00000				0.99957 to 1.00043
”	200 V	100 V	100.000				99.957 to 100.043
”	1200 V	100 V	100.00				99.94 to 100.06
	TI Range	Calibrator	(mV)	(mV)			(mV)
4.1.9	200 mV	1 V x .1	100.000				99.910 to 100.099
	TI 200 mV Range		(µV)	(µV)			(µV)
4.1.13	1 µV LSD		502				501 to 503
4.1.14	1 µV LSD		498				497 to 499
4.2	Alternating–Voltage Measurements						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	2 V	400 Hz–1 V	1.00000				0.99690 to 1.0310
”	20 V	400 Hz–10 V	10.0000				9.9690 to 10.0310
”	20 V	4 kHz–10 V	10.0000				9.9690 to 10.0310
”	20 V	50 kHz–10 V	10.0000				9.8440 to 10.1560
”	200 V	50 kHz–10 V	10.000				9.790 to 10.210
”	200 V	4 kHz–10 V	10.000				9.960 to 10.040
”	200 V	400 Hz–100 V	100.000				99.690 to 100.310
”	1200 V	400 Hz–100 V	100.00				99.58 to 100.42
”	1200 V	4 kHz–10 V	10.00				9.85 to 10.15

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8800A Digital Multimeter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements					
	TI Range Calibrator	(Ω)	(Ω)			(Ω)
4.3.2	200 Ω 100 Ω	100.00				99.370 to 100.630
	TI Range Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	2 kΩ 1 kΩ	1.00000				0.99800 to 1.00200
”	20 kΩ 10 kΩ	10.0000				9.9800 to 10.0200
”	200 kΩ 100 kΩ	100.000				99.800 to 100.200
”	2000 kΩ 1 MΩ	1000.00				998.96 to 1001.04
	TI Range Calibrator	(MΩ)	(MΩ)			(MΩ)
4.3.2	20 MΩ 10 MΩ	10.0000				9.9594 to 10.0406
	Affix a special calibration label stating the following: 1. The V ac frequency response has been calibrated only at: 400 Hz, 4 kHz, & 50 kHz. 2. The 200 Ω resistance range has been calibrated to ±(0.62% iv + 0.005% of range). 3. The 2, 20 and 200 kΩ resistance ranges have been calibrated to ±(0.196% iv + 0.002% of range). 4. The 200 mV range of the direct voltage function has been calibrated to ±(0.087 + 0.0015% of range).					

CALIBRATION CHECKLIST

TEST INST (S) Cubic 242 Instrument System

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements					
	TI Range Calibrator	(V)	(V)			(V)
4.1.3	+10 V 10 V x 0	0.000				–0.001 to 0.001
”	+10 V 10 V x .1	1.000				0.999 to 1.001
”	+10 V 10 V x .2	2.000				1.999 to 2.001
”	+10 V 10 V x .3	3.000				2.999 to 3.001
”	+10 V 10 V x .4	4.000				3.999 to 4.001
”	+10 V 10 V x .5	5.000				4.998 to 5.002
”	+10 V 10 V x .6	6.000				5.998 to 6.002
”	+10 V 10 V x .7	7.000				6.998 to 7.002
”	+10 V 10 V x .8	8.000				7.998 to 8.002
”	+10 V 10 V x .9	9.000				8.998 to 9.002
4.1.6	–10 V 10 V x 1	10.000				9.998 to 10.002
4.1.9	100 V 100	100.00				9.998 to 10.002
”	1000 V 100	100.0				99.9 to 100.1
	Affix a special calibration label stating: “The ratio measurement function has not been calibrated.”					

CALIBRATION CHECKLIST

TEST INST (S) Dana 2000 Danameter

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+20 V	10 V x 0	0.00				–0.01 to 0.01
”	+20 V	10 V x .1	1.00				0.98 to 1.02
”	+20 V	10 V x .2	2.00				1.97 to 2.03
”	+20 V	10 V x .3	3.00				2.97 to 3.03
”	+20 V	10 V x .4	4.00				3.96 to 4.04
”	+20 V	10 V x .5	5.00				4.95 to 5.05
”	+20 V	10 V x .6	6.00				5.94 to 6.06
”	+20 V	10 V x .7	7.00				6.94 to 7.06
”	+20 V	10 V x .8	8.00				7.93 to 8.07
”	+20 V	10 V x .9	9.00				8.92 to 9.08
4.1.6	–20 V	10 V x 1	10.00				9.91 to 10.09
4.1.9	2 V	1 V x 1	1.000				0.994 to 1.006
”	100 V	100 V	100.0				99.1to 100.9
”	1 kV	100 V	100				99to 101
4.2	Alternating–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.2.2	2 V	400 Hz–1V	1.000				0.972to 1.028
”	20 V	400 Hz–10 V	10.00				9.72to 10.28
”	20 V	4 kHz–10 V	10.00				9.72to 10.28
”	200 V	4 kHz–10 V	10.0				9.4to 10.6
”	1 kV	4 kHz–10 V	10				8 to 12
”	1 kV	400 Hz–100 V	100				96to 104
”	200 V	400 Hz–100 V	100.0				97.2to 102.8
4.3	Resistance Measurements						
	TI Range	Calibrator					
4.3.2	200 Ω	100 Ω	100.0 Ω				96.7to 103.3 Ω
”	20 kΩ	10 kΩ	10.00 kΩ				9.88to 10.12 kΩ
”	2 MΩ	1 MΩ	1.000 MΩ				0.969to 1.031 MΩ
”	200 MΩ	10 MΩ	10.0 MΩ				9.1to 10.9 MΩ
	Affix a special calibration label stating: ”The DC current function has not been calibrated.”						

CALIBRATION CHECKLIST

TEST INST (S) Electro Instrument 3500A DC Voltmeter/Ratiometer

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements					
	TI Range Calibrator	(V)	(V)			(V)
4.1.3	Auto 10 V x 0	0.0000				–0.0001 to 0.0001
”	Auto 10 V x .1	1.0000				0.9999 to 1.0001
”	Auto 10 V x .2	2.0000				1.9998 to 2.0002
”	Auto 10 V x .3	3.0000				2.9997 to 3.0003
”	Auto 10 V x .4	4.0000				3.9996 to 4.0004
”	Auto 10 V x .5	5.0000				4.9995 to 5.0005
”	Auto 10 V x .6	6.0000				5.9994 to 6.0006
”	Auto 10 V x .7	7.0000				6.9993 to 7.0007
”	Auto 10 V x .8	8.0000				7.9992 to 8.0008
”	Auto 10 V x .9	9.0000				8.9991 to 9.0009
4.1.6	Auto 10 V x .9	9.0000				8.9991 to 9.0009
4.1.9	Auto 1 V x .9	0.9000				0.8999 to 0.9001
”	Auto 100 V	100.00				99.990 to 100.001
4.1.13	100 µV LSD	700				600 to 800
4.1.14	100 µV LSD	300				200 to 400
	Affix a special calibration label stating: “The Ratiometer function of this test instrument has not been calibrated.”					

CALIBRATION CHECKLIST

TEST INST (S) United Systems Corporation *2120 Digital Multimeter

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.		
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)		
4.1	Direct–Voltage Measurements								
	TI Range	Calibrator	(V)	(V)			(V)		
4.1.3	+20 V	10 V x 0	0.00				–0.01	to	0.01
”	+20 V	10 V x .1	1.00				0.99	to	1.01
”	+20 V	10 V x .2	2.00				1.99	to	2.01
”	+20 V	10 V x .3	3.00				2.99	to	3.01
”	+20 V	10 V x .4	4.00				3.99	to	4.01
”	+20 V	10 V x .5	5.00				4.98	to	5.02
”	+20 V	10 V x .6	6.00				5.98	to	6.02
”	+20 V	10 V x .7	7.00				6.98	to	7.02
”	+20 V	10 V x .8	8.00				7.98	to	8.02
”	+20 V	10 V x .9	9.00				8.98	to	9.02
4.1.6	–20 V	10 V x 1	10.00				–9.98	to	10.02
	TI Range Calibrator		(mV)	(mV)			(mV)		
4.1.9	200 mV	1 V x 0.1	100.0				99.8	to	100.2
	TI Range	Calibrator	(V)	(V)			(V)		
4.1.9	2 V	1 V x 1	1.000				0.998	to	1.002
”	200 V	100 V	100.0				99.8	to	100.2
”	1000 V	100 V	100				99	to	101
	TI 200 mV Range		(μV)	(μV)			(μV)		
4.1.13	100 μV LSD		700				600	to	800
4.1.14	100 μV LSD		300				200	to	400
4.2	Alternating–Voltage Measurements								
	TI Range	Calibrator	(V)	(V)			(V)		
4.2.2	2 V	400 Hz–1 V	1.000				0.993	to	1.007
”	20 V	400 Hz–10 V	10.00				9.93	to	10.07
”	20 V	4 kHz–10 V	10.00				9.93	to	10.7
”	200 V	4 kHz–10 V	10.0				9.7	to	10.3
”	200 V	400 Hz–10 V	10.0				9.7	to	10.3
”	200 V	400 Hz–100 V	100.0				99.3	to	100.7
”	1000 V	400 Hz–100 V	100				98	to	102
	*Same as Digitec, a subsidiary of Monsanto.								

CALIBRATION CHECKLIST

TEST INST (S) United Systems Corporation *2120 Digital Multimeter

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements						
	TI Range	Calibrator	(Ω)	(Ω)			(Ω)
4.3.2	200 Ω	100 Ω	100.0				99.1 to 100.9
	TI Range	Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	2 kΩ	1 kΩ	1.000				0.940 to 1.006
”	20 kΩ	10 kΩ	10.00				9.94 to 10.06
”	200 kΩ	100 kΩ	100.0				99.4 to 100.6
	TI Range	Calibrator	(MΩ)	(MΩ)			(MΩ)
4.3.2	2 MΩ	1 MΩ	1.000				0.994 to 1.006
”	20 MΩ	10 MΩ	10.00				9.94 to 10.06
	Affix a special calibration label stating: 1. The 200 Ω range has been calibrated to ±(0.5% iv + 0.175% fs). 2. The V ac frequency response has not been calibrated; the highest frequency tested is 4 kHz. 3. The AC – and DC – Current function have not been calibrated.						
	*Same as Digitec, a subsidary of Monsanto.						

CALIBRATION CHECKLIST

TEST INST (S) Dana 4600 Digital Multimeter

PROC. NO. NA 17–20VQ–05 MFG. MODEL SER. NO.

PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	DCV AUTO	10 x 0	0.00000				–0.00002 to 0.00002
”	”	10 x .1	1.000				0.999 to 1.001
”	”	10 x .2	2.000				1.999 to 2.001
”	”	10 x .3	3.000				2.999 to 3.001
”	”	10 x .4	4.000				3.999 to 4.001
”	”	10 x .5	5.000				4.998 to 5.002
”	”	10 x .6	6.000				5.998 to 6.002
”	”	10 x .7	7.000				6.998 to 7.002
”	”	10 x .8	8.000				7.998 to 8.002
”	”	10 x .9	9.000				8.998 to 9.002
”	”	10 x 1	10.000				9.998 to 10.002
4.1.6	” (–20 V)	10 x 1	10.000				9.998 to 10.002
4.1.9	” (0.2 V)	1 x .1	0.10000				0.9996 to 0.10004
”	” (2 V)	10 x .1	1.0000				0.9998 to 1.0002
”	” (200 V)	100	100.00				99.98 to 100.02
”	” (1000 V)	100	100.0				99.9 to 100.1
	TI 0.2 V Range	(µV)	(µV)				(µV)
4.1.13	10 µV LSD		520				510 to 530
4.1.14	10 µV LSD		480				470 to 490
4.2	Alternating–Voltage Measurements						
	Range	Calibrator	(V)	(V)			(V)
4.2.2	ACV AUTO	400 Hz–1 V	1.0000				0.9981 to 1.0019
”	”	400 Hz–10 V	10.000				9.981 to 10.019
”	”	4 kHz–10 V	10.000				9.981 to 10.19
”	”	50 kHz–10 V	10.000				9.970 to 10.030
”	”	400 Hz–100 V	100.00				99.81 to 100.19

CALIBRATION CHECKLIST

TEST INST (S) Dana 4600 Digital Multimeter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements					
	TI Range Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	kΩ AUTO 100 Ω	0.10000				0.09916 to 0.10084
”	” 1 kΩ	1.0000				0.9980 to 1.0020
”	” 10 kΩ	10.000				99.800 to 10.020
”	” 100 kΩ	100.00				9.980 to 100.20
”	” 1 MΩ	1000.0				998.00 to 1002.0
”	” 10 MΩ	10000				9979 to 10021
	Affix a special calibration label stating:					
	1. The 0.2 V ac & the 1000 V ac range have not been calibrated.					
	2. The V ac frequency response has been calibrated only at 400 Hz, 4 kHz, and 50 kHz. At 50 kHz, the test instrument is calibrated to: ±(0.14% iv + 16 digits).					
	3. The AC/DC current functions have not been calibrated.					
	4. The 200 Ω range has been calibrated to ±(0.82% iv + 2 digits) and the remaining ranges, 2 kΩ through 2 MΩ, have been calibrated to : ±(0.18% iv + 1 digit).					

CALIBRATION CHECKLIST

TEST INST (S) B & K Precision 280 Digital Multimeter

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.		
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)		
4.1	Direct–Voltage Measurements								
	TI Range	Calibrator	(V)	(V)			(V)		
4.1.3	10 V	10 V x 0	0.00				–0.06	to	0.06
”	10 V	10 V x .1	1.00				0.94	to	1.07
”	10 V	10 V x .2	2.00				1.93	to	2.07
”	10 V	10 V x .3	3.00				2.92	to	3.08
”	10 V	10 V x .4	4.00				3.92	to	4.08
”	10 V	10 V x .5	5.00				4.91	to	5.09
”	10 V	10 V x .6	6.00				5.91	to	6.09
”	10 V	10 V x .7	7.00				6.90	to	7.10
”	10 V	10 V x .8	8.00				7.90	to	8.10
”	10 V	10 V x .9	9.00				8.89	to	9.11
4.1.6	–10 V	10 V x .9	9.00				8.89	to	9.11
4.1.9	1000 mV	1 x .9	0.900				0.889	to	0.911
”	100 V	10 x 1	10.0				9.8	to	10.2
”	100 V	100 V	100*	ck ( )			98.9	to	(101.1)*
”	1000 V	100 V	100				93	to	107
4.3	Resistance Measurements								
	TI Range	Calibrator	(Ω)	(Ω)			(Ω)		
4.3.2	100 Ω	100 Ω	100*	ck ( )			97.9	to	(102.1)
”	1000 Ω	100 Ω	100				88	to	112
”	1000 Ω	1 kΩ	1000*	ck ( )			979	to	(1021)*
	Range	Calibrator	(kΩ)	(kΩ)			(kΩ)		
”	10 kΩ	1 kΩ	1.00				0.88	to	1.12
”	10 kΩ	10 kΩ	10.0*	ck ( )			9.79	to	(10.21)*
”	100 kΩ	10 kΩ	10.0				8.8	to	11.2
”	100 kΩ	100 kΩ	100*	ck ( )			97.9	to	(102.1)*
	*The TI may not indicate this value; however, an overrange indication is considered acceptable. (Functional Test only)								

CALIBRATION CHECKLIST

TEST INST (S) B & K Precision 280 Digital Multimeter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.	
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)	
	Range Calibrator	(MΩ)	(MΩ)			(MΩ)	
4.3.2	10 MΩ 1 MΩ	1.00				0.87 to 1.13	
”	10 MΩ 10 MΩ	10.0*				9.74 to (10.26)*	
	Affix a special calibration label on the test instrument stating: “The V ac voltage and the AC/DC current functions have not been calibrated.”						
	*The TI may not indicate this value; however, an overrange indication is considered acceptable. (Functional Test only)						

CALIBRATION CHECKLIST

TEST INST (S) Weston 1241 Digital Multimeter

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.	
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)	
4.1	Direct–Voltage Measurements							
	TI Range	Calibrator	(V)	(V)			(V)	
4.1.3	+20 V	10 x 0	0.00				–0.01 to	0.01
”	+20 V	10 x .1	1.00				0.99 to	1.01
”	+20 V	10 x .2	2.00				1.99 to	2.01
”	+20 V	10 x .3	3.00				2.99 to	3.01
”	+20 V	10 x .4	4.00				3.99 to	4.01
”	+20 V	10 x .5	5.00				4.98 to	5.02
”	+20 V	10 x .6	6.00				5.98 to	6.02
”	+20 V	10 x .7	7.00				6.98 to	7.02
”	+20 V	10 x .8	8.00				7.98 to	8.02
”	+20 V	10 x .9	9.00				8.98 to	9.02
”	+20 V	10 x 1	10.00				9.98 to	10.02
4.1.6	–20 V	10 x 1	10.00				9.98 to	10.02
4.1.9	0.2 V	1 x .1	0.100				0.0998 to	0.1002
”	2 V	10 x .1	1.000				0.998 to	1.002
”	200 V	100	100.0				99.8 to	100.2
”	1000 V	100	100				99 to	101
	TI 0.2 V range		(µV)	(µV)			(µV)	
4.1.13	100 µV LSD		700				600 to	800
4.1.14	100 µV LSD		300				200 to	400
4.3	Resistance Measurements							
	TI Range	Calibrator	(kΩ)	(kΩ)			(kΩ)	
4.3.2	2 kΩ	1 kΩ	1.000				0.996 to	1.004
”	20 kΩ	10 kΩ	10.00				9.96 to	10.04
”	200 kΩ	100 kΩ	100.0				99.6 to	100.4
	TI Range	Calibrator	(MΩ)	(MΩ)			(MΩ)	
”	2 MΩ	1 MΩ	1.000				0.989 to	1.011
”	10 MΩ	10 MΩ	10.0				9.89 to	10.11
	Affix a special calibration label on the test instrument stating: “The 200 Ω range has not been calibrated.”							

CALIBRATION CHECKLIST

TEST INST (S) Hewlett–Packard 2401A, 2401AOPTM40, 2401B, 2401BOPTM40, 2401C, and 2401COPTM5 Digital Voltmeter

PROC. NO. NA 17–20VQ–05 MFG. MODEL SER. NO.

PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements (Set TI to 1 Sec sample period)						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.0000				–0.0006 to 0.0006
”	+10 V	10 V x .1	1.0000				0.9993 to 1.0007
”	+10 V	10 V x .2	2.0000				1.9992 to 2.0008
”	+10 V	10 V x .3	3.0000				2.9991 to 3.0009
”	+10 V	10 V x .4	4.0000				3.9990 to 4.0010
”	+10 V	10 V x .5	5.0000				4.9989 to 5.0011
”	+10 V	10 V x .6	6.0000				5.9988 to 6.0012
”	+10 V	10 V x .7	7.0000				6.9987 to 7.0013
”	+10 V	10 V x .8	8.0000				7.9986 to 8.0014
”	+10 V	10 V x .9	9.0000				8.9985 to 9.0015
”	+10 V	10 V x 1	10.0000				9.9984 to 10.0016
4.1.6	–10 V	10 V x 1	1.00000				9.9984 to 10.0016
4.1.9	TI Range	Calibrator	(mV)	(mV)			(mV)
”	0.1 V	1 x .1	100.000				99.000 to 101.000
”	1 V	1 x 1	1000.00				999.00 to 1001.00
”	1 V	10 x .2	2000.00				1999.59 to 2000.41
”	1 V	10 x .3	3000.00	ck ( )			2999.24 to 3000.76
	TI Range	Calibrator	(V)	(V)			(V)
”	100 V	100 V	100.000				99.984 to 100.016
”	1000 V	100 V	100.00				99.93 to 100.07
	TI 100 mV Range Calibrator		(µV)	(µV)			(µV)
4.1.13	1 µV LSD		502				501 to 503
4.1.14	1 µV LSD		498				497 to 499

Affix a special calibration label to the TI stating:
“The test instrument frequency sensitivity has not been calibrated.
The 100 mV V dc range has been calibrated to 1% of range; the 1 V V dc range to 0.1% of range.”

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8000A/BU Digital Multimeter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements					
	TI Range Calibrator	(V)	(V)			(V)
4.1.3	+20 V 10 V x 0	0.00				–0.01 to 0.01
”	+20 V 10 V x .1	1.00				0.99 to 1.01
”	+20 V 10 V x .2	2.00				1.99 to 2.01
”	+20 V 10 V x .3	3.00				2.99 to 3.01
”	+20 V 10 V x .4	4.00				3.99 to 4.01
”	+20 V 10 V x .5	5.00				4.98 to 5.02
”	+20 V 10 V x .6	6.00				5.98 to 6.02
”	+20 V 10 V x .7	7.00				6.98 to 7.02
”	+20 V 10 V x .8	8.00				7.98 to 8.02
”	+20 V 10 V x .9	9.00				8.98 to 9.02
4.1.6	–20 V 10 V x 1	10.00				9.98 to 10.02
4.1.9	2 V 1 V x 1	1.000				0.998 to 1.002
”	200 V 100 V	100.0				99.8 to 100.2
”	1200 V 100 V	100				99 to 101
	TI Range Calibrator	(mV)	(mV)			(mV)
4.1.9	200 mV 1 V x .1	100.0				99.8 to 100.2
	TI 200 mV Range	(µV)	(µV)			(µV)
4.1.13	100 µV LSD	700				600 to 800
4.1.14	100 µV LSD	300				200 to 400
4.2	Alternating–Voltage Measurements					
	TI Range Calibrator	(V)	(V)			(V)
4.2.2	2 V 400 Hz–1 V	1.000				0.993 to 1.007
”	20 V 400 Hz–10 V	10.00				9.93 to 10.07
”	20 V 4 kHz–10 V	10.00				9.93 to 10.07
”	20 V 50 kHz–10 V	10.00				9.68 to 10.32
”	200 V 4 kHz–10 V	10.0				9.7 to 10.3
”	200 V 400 Hz–100 V	100.0				99.3 to 100.7
”	1200 V 400 Hz–100 V	100				97 to 103
”	1200 V 4 kHz–10 V	10				8 to 12
”	1200 V 50 kHz–10 V	10				8 to 12

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8000A/BU Digital Multimeter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements					
	TI Range Calibrator	(Ω)	(Ω)			(Ω)
4.3.2	200 Ω 100 Ω	100.0				99.4 to 100.6
	TI Range Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	2 kΩ 1 kΩ	1.000				0.997 to 1.003
”	20 kΩ 10 kΩ	10.00				9.97 to 10.03
”	200 kΩ 100 kΩ	100.0				99.7 to 100.3
”	2000 kΩ 1 MΩ	1000				997 to 1003
	TI Range Calibrator	(MΩ)	(MΩ)			(MΩ)
”	20 MΩ 10 MΩ	10.00				9.94 to 10.06
	Affix a special calibration label stating: “The AC/DC current functions have not been calibrated: also, the 200 Ω range has been calibrated to ±0.05% of indication ± 1 digit.”					

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8500A/AEOPT1/2/5/8 as used with the TS 3846/ASM608 Inertial Measuring Unit Test Set

PROC. NO. NA 17–20VQ–05			MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	+10 V	10 V x 0	0.00000				–0.0000–1 to 0.0000–1
”	+10 V	10 V x .1	1.00000				0.9991–0 to 1.0009–0
”	+10 V	10 V x .2	2.00000				1.9991–0 to 2.0009–0
”	+10 V	10 V x .3	3.00000				2.9991–0 to 3.0009–0
”	+10 V	10 V x .4	4.00000				3.9991–0 to 4.0009–0
”	+10 V	10 V x .5	5.00000				4.9991–0 to 5.0009–0
”	+10 V	10 V x .6	6.00000				5.9991–0 to 6.0009–0
”	+10 V	10 V x .7	7.00000				6.9991–0 to 7.0009–0
”	+10 V	10 V x .8	8.00000				7.9991–0 to 8.0009–0
”	+10 V	10 V x .9	9.00000				8.9991–0 to 9.0009–0
”	+10 V	10 V x 1	10.00000				9.9991–0 to 10.0009–0
4.1.6	–10 V	10 V x 1	–10.00000				–9.9991–0 to 10.0009–0
4.1.9	1 V	1 V x 1	1.00000				0.9999–1 to 1.0000–9
”	100 V	100 V	100.0000				99.991–0 to 100.009–0
”	1000 V	100 V	100.0000				99.910–0 to 100.090–0
	TI 0.1 V Range		(μV)	(μV)			(μV)
	1 μV LSD		502				501 to 503
	1 μV LSD		498				497 to 499
4.2	Alternating–Voltage Measurements (01)						
	TI Range	Calibrator	(V)	(V)			(V)
4.2.2	1 V	400 Hz–1 V	1.00000				0.99850 to 1.00150
”	10 V	400 Hz–10 V	10.0000				9.9880 to 10.0120
”	100 V	400 Hz–100 V	100.000				99.880 to 100.120
”	1000 V	400 Hz–100 V	100.000				98.200 to 101.800
”	10 V	4 kHz–10 V	10.0000				9.9880 to 10.0120
”	10 V	50 kHz–10 V	10.0000				9.9005 to 10.1005

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8500A/AEOPT1/2/5/8 as used with the TS 3846/ASM608 Inertial Measuring Unit Test Set

PROC. NO.	NA 17–20VQ–05		MFG.	MODEL			SER. NO.	
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)	
4.3	Resistance Measurements (5789)							
	TI Range	Calibrator	(Ω)	(Ω)			(Ω)	
4.3.2	1 kΩ	kΩ range	1000.0				998.000 to	1002.00
”	10 kΩ	kΩ range	10000.0				9980.0 to	10020.0
”	100 kΩ	kΩ range	100000.				99980.0 to	100020
	TI Range	Calibrator	(MΩ)	(MΩ)			(MΩ)	
”	1 MΩ	1 MΩ	1.000				0.998 to	1.002
”	10 MΩ	10 MΩ	10.00				9.98 to	10.02
”	100 MΩ	10 MΩ	10.00				9.8 to	10.2

*Affix a special calibration label to the TI stating:
“Calibration is performed in accordance with the usage requirement of the TS3846/ASM608 Inertial Measuring Unit Test Set.”

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8010A Digital Multimeter

PROC. NO. NA 17–20VQ–05			MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V dc)	(V dc)			(V dc)
4.1.3	+20 V	10 x 0	0.00				–0.01 to 0.01
”	+20 V	10 x .1	1.00				0.98 to 1.02
”	+20 V	10 x .3	3.00				2.98 to 3.02
”	+20 V	10 x .5	5.00				4.98 to 5.02
”	+20 V	10 x .7	7.00				6.98 to 7.02
”	+20 V	10 x .9	9.00				8.98 to 9.02
4.1.6	–20 V	10 x .9	–9.00				–8.98 to –9.02
	TI Range	Calibrator	(V dc)	(V dc)			(V dc)
4.1.9	200 mV	1 V x 0.1	100.0				99.8 to 100.2 mV
”	2 V	1 V x 1	1.000				0.998 to 1.002
”	200 V	100 V	100.0				99.8 to 100.2
”	1000 V	100 V	100.0				99.8 to 100.2
	TI 200 mV Range		(μV)	(μV)			(μV)
4.1.13	100 μV LSD		700				600 to 800
4.1.14	100 μV LSD		300				200 to 400
4.2	Alternating–Voltage Measurements						
	TI Range	Calibrator	(V ac)	(V ac)			(V ac)
4.2.2	2 V	400 Hz–1 V	1.000				0.993 to 1.007
”	20 V	400 Hz–10 V	10.00				9.93 to 10.07
”	20 V	4 kHz–10 V	10.00				9.93 to 10.07
”	20 V	50 kHz–10 V	10.00				9.47 to 10.53
”	200 V	50 kHz–10 V	10.00				9.47 to 10.53
”	200 V	4 kHz–10 V	10.00				9.93 to 10.07
”	200 V	400 Hz–100 V	100.0				99.3 to 100.7
”	750 V	400 Hz–100 V	100.0				99.3 to 100.7

CALIBRATION CHECKLIST

TEST INST (S) Fluke 8010A Digital Multimeter

PROC. NO. NA 17–20VQ–05 MFG. MODEL SER. NO.

PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements						
	TI Range	Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	200 Ω	1 Ω	0.1000				0.0997 to .1003
4.3.2	2 kΩ	1 kΩ	1.000				0.997 to 1.003
”	20 kΩ	10 kΩ	10.00				9.97 to 10.03
”	200 kΩ	100.0 kΩ	100.0				99.7 to 100.3
	TI Range	Calibrator	(MΩ)	(MΩ)			(MΩ)
4.3.2	2000 MΩ	1.000	1.000				0.994 to 1.006
”	20 MΩ	10 MΩ	10.00				9.94 to 10.06
	Affix a special calibration label stating the following:						
	1. The V ac frequency response has been calibrated only at: 400 Hz, 4 kHz, and 50 kHz.						
	2. The AC/DC current functions have not been tested.						
	3. The 200 mV AC range has not been calibrated.						

CALIBRATION CHECKLIST

TEST INST (S) Beckman 310 or TECH 310 Digital Multimeter

PROC. NO. NA 17–20VQ–05		MFG.	MODEL			SER. NO.
PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)	NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.1	Direct–Voltage Measurements					
	TI Range Calibrator	(V)	(V)			(V)
4.1.3	+20 V 10 x 0	0.00				–0.01 to 0.01
”	+20 V 10 x .1	1.00				0.98 to 1.02
”	+20 V 10 x .3	3.00				2.98 to 3.02
”	+20 V 10 x .5	5.00				4.97 to 5.03
”	+20 V 10 x .7	7.00				6.97 to 7.03
”	+20 V 10 x .9	9.00				8.96 to 9.04
4.1.6	–20 V 10 x .9	–9.00				–8.96 to –9.04
	TI Range Calibrator	(V dc)	(V dc)			(V dc)
4.1.9	200 mV 1 V x .1	100.0 mV				99.6to 100.4 mV
”	2 V 1 V x 1	1.000				0.996to 1.004
”	200 V 100 V	100.0				99.6to 100.4
”	1500 V 100 V	100.0				99.6to 100.4
	TI 200 mV Range	(µV dc)	(µV dc)			(µV dc)
4.1.13	100 µV LSD	700				600 to 800
4.1.14	100 µV LSD	300				200 to 400
4.2	Alternating–Voltage Measurements					
	TI Range Calibrator	(V ac)	(V ac)			(V ac)
4.2.2	2 V 400 Hz–1 V	1.000				0.989to 1.011
”	20 V 400 Hz–10 V	10.00				9.89to 10.11
”	20 V 4 kHz–10 V	10.00				9.80to 10.20
”	200 V 4 kHz–10 V	10.00				9.80to 10.20
”	200 V 400 Hz–100 V	100.0				98.9to 101.1
”	1000 V 400 Hz–100 V	100.0				98.9to 101.1

CALIBRATION CHECKLIST

TEST INST (S) Beckman 310 or TECH 310 Digital Multimeter

PROC. NO. NA 17–20VQ–05 MFG. MODEL SER. NO.

PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements						
4.3.2	TI Range	Calibrator	(kΩ)	(kΩ)			(kΩ)
”	2 kΩ	1 kΩ	1.000				0.940 to 1.006
”	20 kΩ	10 kΩ	10.00				9.94 to 10.06
”	200 kΩ	100 kΩ	100.0				99.4 to 100.6
	TI Range	Calibrator	(MΩ)	(MΩ)			(MΩ)
4.3.2	2 kΩ	1 MΩ	1.000				0.994 to 1.006
”	20 MΩ	10 MΩ	10.00				9.94 to 10.06

Affix a special calibration label stating the following:

1. The V ac frequency response has been calibrated only at: 400 Hz and 4 kHz.
2. The AC/DC current functions have not been tested.
3. The 200 mV AC range has not been calibrated.

CALIBRATION CHECKLIST

TEST INST (S) Fluke 77/AN Digital Multimeter

PROC. NO. NA 17–20VQ–05 MFG. MODEL SER. NO.

PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
NOTE;	The TI RANGE HOLD allows a fixed measurement range. Enable the TI RANGE HOLD as necessary to set the measurement to the TI Range listed in this checklist.						
4.1	Direct–Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.1.3	3.2 V	1 V x 0	0.000				–0.001 to 0.001
”	”	1 V x .6	0.600				0.593 to 0.607
”	”	10 V x .1	1.000				0.989 to 1.011
”	”	10 V x .2	2.000				1.979 to 2.021
”	”	10 V x .3	3.000				2.969 to 3.031
4.1.6	–3.2 V	10 V x .3	3.000				2.969 to 3.031
4.1.9	TI RANGE Calibrator		(mV)	(mV)			(mV)
”	320 mV	1 V x .1	100.0				98.9 to 101.1
”	320 mV	1 V x .2	200.0				197.9 to 202.1
”	320 mV	1 V x .3	300.0				296.9 to 303.1
	TI Range	Calibrator	(V)	(V)			(V)
4.1.9	32 V	10 V x 1	10.00				9.89 to 10.11
”	320 V	100 V	100.0				98.9 to 101.1
”	1000 V	100 V	100				97.7 to 102.3
	TI 320 mV Range		(µV)	(µV)			(µV)
4.1.13	100 µV LSD		700				600 to 800
4.1.14	100 µV LSD		300				200 to 400
4.2	Alternating Voltage Measurements						
	TI Range	Calibrator	(V)	(V)			(V)
4.2.2	3.2 V	400 Hz–1 V	1.000				0.958 to 1.042
”	32 V	400 Hz–10 V	10.00				9.58 to 10.42
”	320 V	400 Hz–100 V	100.0				95.8 to 104.2
”	750 V	400 Hz–100 V	100				94 to 106
”	750 V	4 kHz–100 V	100				53 to 147
”	320 V	4 kHz–100 V	100.0				54.5 to 145.5
”	32 V	4 kHz–10 V	10.00				5.45 to 14.55
”	3.2 V	4 kHz–1 V	1.000				0.545 to 1.455

CALIBRATION CHECKLIST

TEST INST (S) Fluke 77/AN Digital Multimeter

PROC. NO. NA 17–20VQ–05 MFG. MODEL SER. NO.

PROCEDURE STEP NO. (1)	FUNCTION TESTED (2)		NOMINAL (3)	MEASURED VALUES FIRST RUN (4)	MEASURED VALUES SECOND RUN (5)	OUT OF TOL (6)	CALIBRATION TOLERANCES (7)
4.3	Resistance Measurements						
	TI Range	Calibrator	(Ω)	(Ω)			(Ω)
4.3.2	320 Ω	100 Ω	100.0				97.8 to 102.2
”	3200 Ω	1 kΩ	1000				979 to 1021
	TI Range	Calibrator	(kΩ)	(kΩ)			(kΩ)
4.3.2	32 kΩ	10 kΩ	10.00				9.79 to 10.21
”	320 kΩ	100 kΩ	100.0				97.9 to 102.1
	TI Range	Calibrator	(MΩ)	(MΩ)			(MΩ)
4.3.2	3.2 MΩ	1 MΩ	1.000				979 to 1021
”	32	10 MΩ	10.00				9.69 to 10.31

Additional Test: Diode Test

1. Select the TI DIODE TEST, function  Observe that the TI positive terminals are respectively connected to the Calibrator HI and LO terminals, LO is connected to Calibrator GUARD.
2. Set calibrator for 0.6 V output (1 V x 0.6) and verify that the TI indication is within 0.593 to 0.607 and that the TI ”beeped’ briefly.
3. Set Calibrator for minimum output, disconnect TI from Calibraor and with TI terminals ”open circuit”, verify that the TI indicates overload: OL
4. Short TI input terminals and verify the TI emits a continuous tone. (end of test)

Affix a special calibration label stating:

1. The TI DC and AC current functions have not been calibrated.
2. The 32 and 320 V ranges (both DC and AC function) have been calibrated only at approx 1/3 of full range.
3. The TI 1000 V dc and 750 V ac ranges have been calibrated only at 100 V level.

APPENDIX A

REPRESENTATIVE TEST INSTRUMENTS

A.1 Test Instrumens that can be calibrated by this procedure include, but are not limited to, the following:

Model	Manufacturer	Nomenclature	Checklist Page No.
AN/USM–192		Digital Voltmeter	61
ANUSM216		Digital Multimeter	47
DM501	Tektronix	”	65
DM501OPT01	”	”	”
DM501OPT02	”	”	”
DMM40	Cimron	”	67
DMM50	”	”	69
DY–2401A	Dymec	Digital Voltmeter	97
DY–2401AOPTM40	”	”	”
DY–2401B	”	”	”
DY–2401BOPTM40	”	”	”
DY–2401C	”	”	”
DY–2401COPTM5	”	”	”
ME–229/ASM–35		Digital Multimeter	51
ME–310		”	47
ME–346/ASM–308		Digital Voltmeter	71
TECH310	Beckman Instruments	Digital Multimeter	155
V35	Non–Linear System	Digital Voltmeter	75
V35A	”	”	”
V35B	”	”	”
V35BR	”	”	”
V72–1000–1	Cubic	”	7
0309020	”	”	9
0309020–1	”	”	”
111	Simpson	”	61
1201	Non–Linear System	AC–DC Converter	75
1202	”	”	”
1203	”	”	”
1204	”	”	”
1241	Weston	Digital Multimeter	145
125A	Non–Linear System	AC–DC Converter	75
125B	”	”	”
125C	”	”	”
125E	”	”	”
200A	Monsanto	Digital Multimeter	77
2000	Dana	Danameter	135
2110	Digitec	Multimeter	117
2120	United Systems Corp (Digitec)	Digital Multimeter	139
2401A	Hewlett–Packard	Digital Voltmeter	147
2401AOPTM40	”	”	”
2401B	”	”	”
2401BOPTM40	”	”	”
2401C	”	”	”
2401COPTM5	”	”	”
2402A	”	Digital Multimeter	11
242	Cubic	Instrument System	133

Model	Manufacturer	Nomenclature	Checklist Page No.
245	Data Precision	Digital Multimeter	109
251–3	United Systems Corp (Digitec)	Digital Voltmeter	119
280	B & K Precision	Digital Multimeter	143
3000	Non–Linear System	Digital Voltmeter	75
3005896G1	Cimron	Digital Multimeter	13
3026	Non–Linear System	Digital Voltmeter	75
310	Beckman Instruments	Digital Multimeter	155
3100	Non–Linear System	Digital Voltmeter	75
3300	Hickok	Digital Multimeter	83
3300A	”	”	73
3301	”	”	”
3439A	Hewlett–Packard	Digital Voltmeter	79
3440A	”	”	”
3441A	”	Range Selector Unit	”
3442A	”	”	”
3443A	”	High Gain Range Unit	”
3444A	”	Multimeter Unit	”
3445A	”	AC/DC Range Unit	”
3446A	”	AC/DC Remote Unit	”
3460B	”	Digital Voltmeter	15
3465A	”	”	101
34703AOPTE01	”	Marden System	17
34740A/34703A	”	Digital Multimeter	107
3490A	”	”	19
350	Data Tech Corp	”	81
3500A	Electro Instruments	DC Voltmeter/Ratiometer	137
3800	Dana	Digital Voltmeter	85
3800A	”	”	”
3846/ASM608	Fluke	Inertial Measureing Unit	151
3860A	Dana	Digital Voltmeter	85
4010	Electro Instruments	DC Voltmeter	21
405A	Hewlett–Packard	Digital Voltmeter	23
405AR	”	”	”
405BR	”	”	”
405CR	”	”	”
429883–01–01	Dana	”	85
4300	”	Digital Multimeter	111
4324	”	”	113
4324OPT06	”	”	”
4430	”	Digital Voltmeter	29
4432	”	”	”
4400	”	”	”
4600	”	Digital Multimeter	141
4700	”	Digital Voltmeter	25
4700A	”	”	”
500	Vidar	Digital Voltmeter Counter	105
50–1122–1	Cubic	Digital Voltmeter	7
5000	Dana	”	121
5005	Non–Linear System	”	27
501B	Cohu	”	31
501BZ	”		”
502B	”	”	”
502BZ	”	”	”
5010	Non–Linear System	Digital Voltmeter	27

Model	Manufacturer	Nomenclature	Checklist Page No.
520	Vidar	Digital Voltmeter	103
53E04005	McDonnell	Digital Multimeter	47
5306A	Hewlett–Packard	Multimeter/Counter	115
5400	Dana	Digital Voltmeter	33
5403	”	”	”
5500	”	”	87
5600	”	”	”
5600OPT20	”	”	”
5600–S638	”	”	”
5775	Cimron	Plug–in	123
5789	”	”	”
6453A	”	Digital Multimeter	35
6453A–1	”	”	”
6453A–2	”	”	”
6453A–3	”	”	”
6700A	”	AC Converter	89
6710A	”	”	”
6753	”	Digital Multimeter	123
6753–1424	”	”	”
6770	”	AC Converter	91
6771	”	”	”
6801A	”	DC Preamplifier	89
6802A	”	”	”
6980B	”	AC Converter	71/95
6990	”	Ohm Converter	91
6910A	”	”	89
6911A	”	”	”
7000A	”	Digital Multimeter	”
7005	Systron Donner	Digital Volt/Multimeter	37
7005A	”	”	”
7005AOPT02	”	”	”
7005AOPT03	”	”	”
7005AOPT07	”	”	”
7050	”	Digital Voltmeter	39
7050	Fairchild	”	”
7200A	Cimron	Digital Multimeter	89
72–1000–1	Cubic	Digital Voltmeter	7
7200A	Cimron	Digital Multimeter	89
7300A–631	”	”	”
7400A	”	”	”
7500A	”	”	”
76	”	Digital Multimeter	91
7630	”	”	”
7650	”	”	”
7650–969	”	”	”
77/AN	Fluke	”	157
8000A	Fluke	”	125
8000ABU	”	”	149
8010A	”	”	153
8100A	”	”	41
8100AOPT001	”	”	”
8100AOPT002	”	”	”
8100B	”	”	”
8110A	”	”	43
8110AOPT001	”	”	”

Model	Manufacturer	Nomenclature	Checklist Page No.
8120A	Fluke	Digital Multimeter	93
8120AOPT001	”	”	”
8120AOPT002	”	”	”
8125A	”	”	43
8125AOPT001	”	”	43
8200A	”	Digital Voltmeter	45
8200AOPT001	”	”	”
8200AOPT002	”	”	”
8200AOPT003	”	”	”
8200ABM	”	”	”
8300A	”	”	63
8300AOPT001	”	”	”
8300AOPT002	”	”	”
8350	”	Digital Multimeter	57
8375A	”	”	59
8375AOPT003	”	”	59
8375AOPT007	”	”	”
8400A	”	Digital Voltmeter	49
8400AOPT001	”	”	”
8400AOPT002	”	”	”
8400AOPT005	”	”	”
8400AOPT007	”	”	”
8425A	”	”	”
8425A/AF	”	”	”
8425B	”	”	”
8425BOPT001	”	”	”
8425BOPT002	”	”	”
8500A/AEOPT1/2/5/8	”	”	151
851–8014A	Electro Instruments	Digital Multimeter	51
851–8014B	”	”	”
8600A	Fluke	”	129
8600AOPT001	”	”	”
8600AOPT002	”	”	”
8800A	”	”	131
8800A/AA	”	”	99
8800A/BU	”	”	149
9000	Systron Donner	Digital Volt/Multimeter	53
9015	”	”	”
9025	”	”	”
93–1015–1SECD	Cubic	Digital Multimeter	47
9200B	Cimron	Digital Voltmeter	71
9300B	”	”	”
9400B	”	”	”
9500B	”	”	”
9310	Systron Donner	”	55
9320	”	”	”
9330	”	”	”
9340	”	”	”
9340–5B	”	”	”
9500B–355	Cimron	”	95
970A	Hewlett–Packard	Probe Digital Multimeter	127