VOLUME II

FINAL REPORT

of

PHASE III

A STUDY OF THE EFFECT OF SPACE RADIATION ON SILICON INTEGRATED MICROCIRCUITS

(10 April, 1967 to 9 April, 1968)

Contract No. NAS5-10308

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for

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Goddard Space Flight Center
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Goddard Space Flight Center
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APPENDIX I

CHARACTERIZATION PLANS

APPENDIX I

CHARACTERIZATION PLANS

This appendix contains the characterization plans for all of the 11 circuit types studied during this program. The characterization plans are arranged so that: first, there is a schematic of the circuit studied along with common test conditions and a listing of tests performed; second, the tested parameters and conditions of testing are listed; and third, the specific schematics and test procedures are given for each test. This system is followed for each circuit type.

The characterization plans are arranged in the following order.

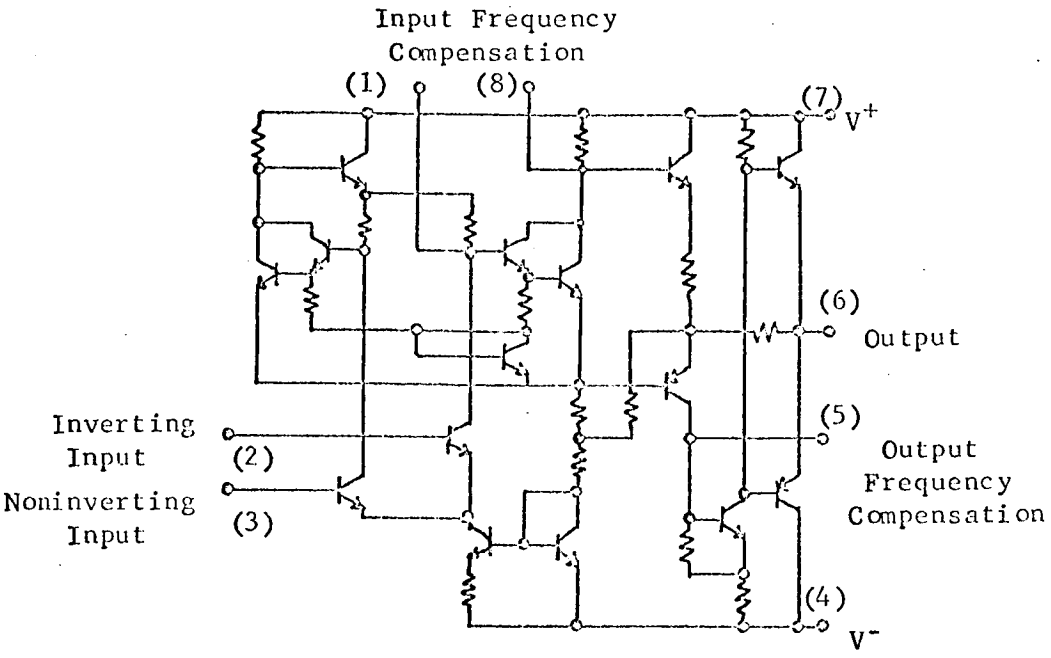
Amplifier Circuits

1. Fairchild μA709
2. National Semiconductor LM101
3. Amelco 807BE
4. Signetics SE501

Digital Circuits

1. Fairchild LPDTμL9040
2. Fairchild LPDTμL9042
3. Texas Instruments SN54L71
4. Texas Instruments SN54L20
5. Radiation, Inc. RD321
6. Radiation, Inc. RD310
7. DTL962 (Equivalent Circuits)

TEST PLAN FOR μA709 AMPLIFIER



TEST CONDITIONS:

1. Pin 4 -12 volts.
2. Pin 7 +12 volts.
3. Temperature 25 C.

TEST PARAMETERS:

1. Open loop gain.
2. Closed loop gain.
3. Input offset voltage.
4. Input bias current.
5. + Saturation voltage.
6. - Saturation voltage.
7. Common mode rejection ratio.
8. Input offset current.
9. Resistance.

CIRCUIT TYPE: μA709

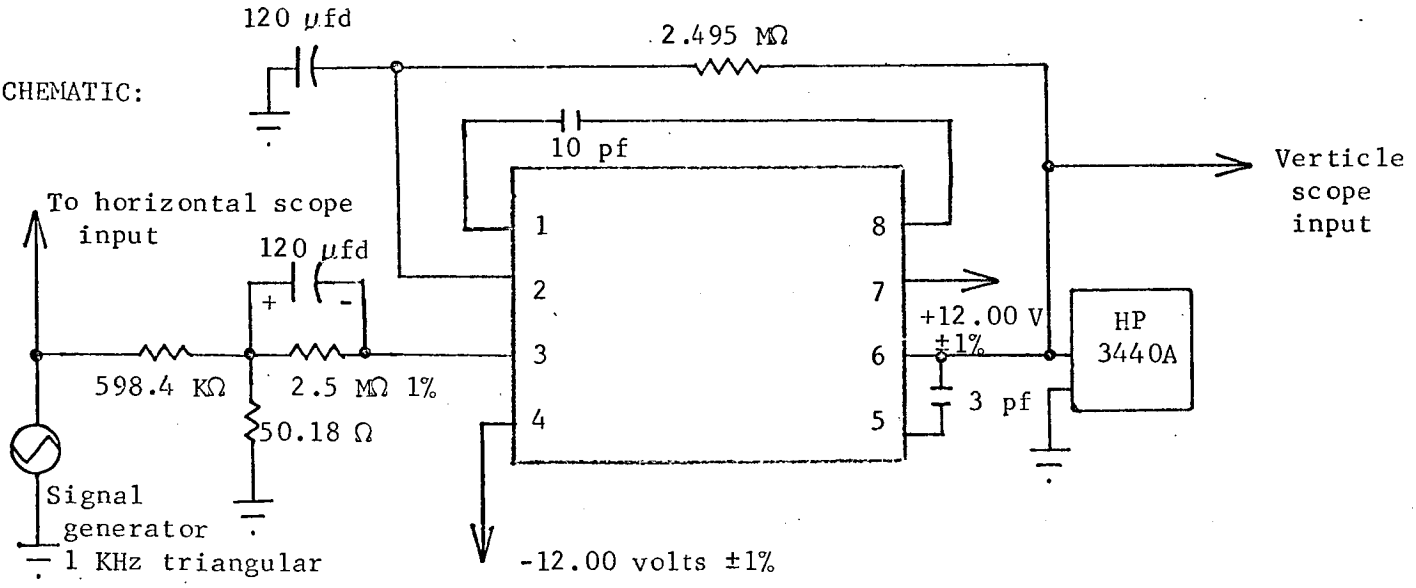
TEST NUMBER: 1

TEST TITLE: Open Loop Gain; Input Offset Current

TEST CONDITIONS:

1. Connect circuit as shown.
2. Examine circuit for oscillation with Tektronix 551 oscilloscope.
3. Set HP3440A for 1 volt full scale.
4. Use shielded wiring for all external circuits.
5. Measurement accuracy ±5 percent.
6. Use solid tantalum capacitors for the 120 μfd values.

SCHEMATIC:



TEST PROCEDURE:

1. Determine gain from scope after calibration

$$G = \frac{\Delta E_{out}}{\Delta E_{in}} \times 11{,}925.$$

2. To determine offset current measure output voltage with input removed. Calculate offset current using formula:

$$\frac{400\ nA}{volt} \times E_{out}.$$

CIRCUIT TYPE: uA709

TEST NUMBER: 1

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
Gain	40,000	10,000
I_{OFFSET}	100 nA	0 - 500 nA

COMMENTS:

Difficulties were experienced repeating offset current measurements. Differences on the order of 10 nA between readings were normal.

CHARACTERIZATION PLAN

CIRCUIT TYPE: uA709

BASIC CONDITIONS	NOTES
-12.00 volts Pin 4 +12.00 volts Pin 7 Temperature 25 C	

PARAMETER	APP TEST	CONDITIONS
Open loop gain	1	Use triangular wave input and record output. From oscilloscope obtain open loop gain.
Closed loop gain	2	Amplifier tied down to a gain of 100.
Input offset voltage	2	The output voltage at zero input divided by gain.
Input bias current	3	Average sum of both bias currents of the input transistors.
± Saturation voltage	2	Increase input voltage until output reaches saturation. Use closed loop configuration.
Common mode rejection ratio	4	Amplifier tied down to gain of 100. Input signal was 0.1 volt rms at 100 Hertz. CMMR measured in volts.
Input offset current	1	Open loop configuration. Difference between the input bias currents of the two input transistors.

CIRCUIT TYPE: μA709

PARAMETER	APP. TEST	CONDITIONS
Resistance	5	Resistance between Pin 7 and Pin 8.

ENGINEER L.J.P. DATE August 1, 1967

REVISIONS:

CIRCUIT TYPE: μA709

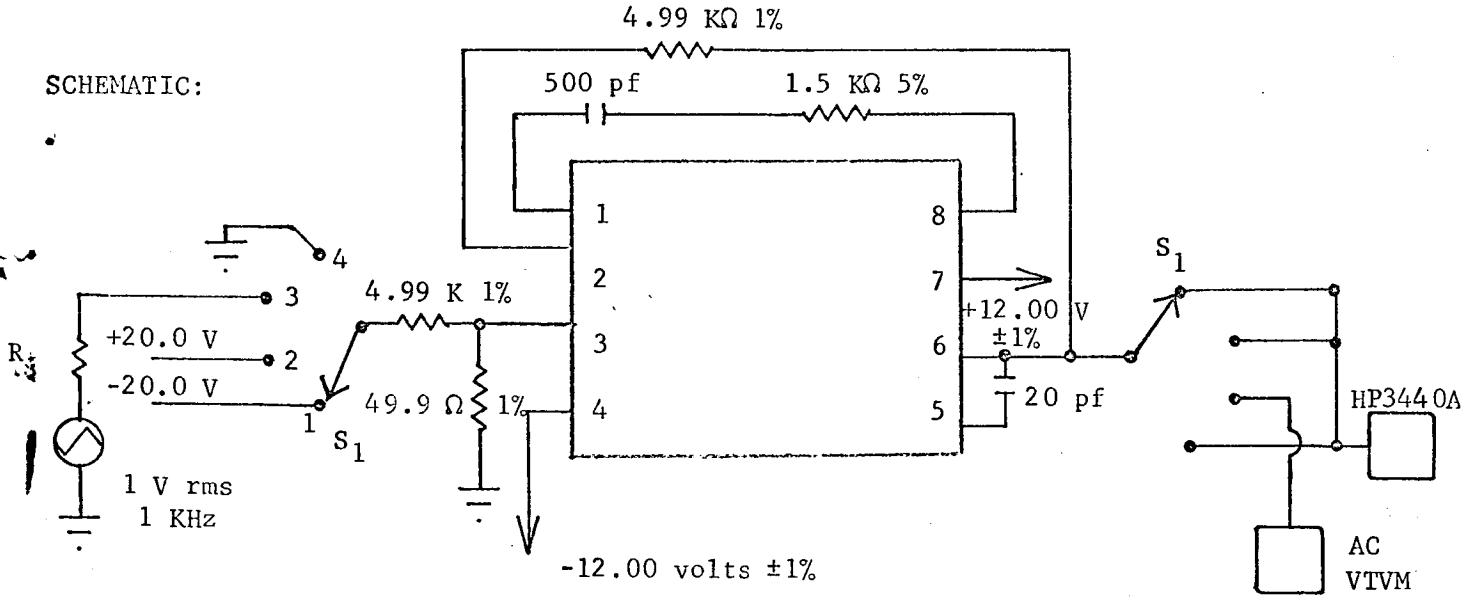
TEST NUMBER: 2

TEST TITLE: Closed Loop Gain, Input Offset Voltage, ± Saturation Levels

TEST CONDITIONS:

1. Connect circuit as shown.
2. Measurement accuracy ±2 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Set S_1 to Position 1 and 2 in succession and record output voltage as $-V_{SAT}$ and $+V_{SAT}$.
2. Set S_1 to Position 3 and record a-c output voltage as closed loop gain (multiply by 100).
3. Set S_1 to Position 4 and record output voltage (divided by closed loop gain) as input offset voltage.

CIRCUIT TYPE: μA709

TEST NUMBER: 2

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
Gain	100	90
V_{SAT} ±	±11 volts	±8 volts
V_{OFFSET}	±1 mV	±5 mV

COMMENTS:

CIRCUIT TYPE: μA709

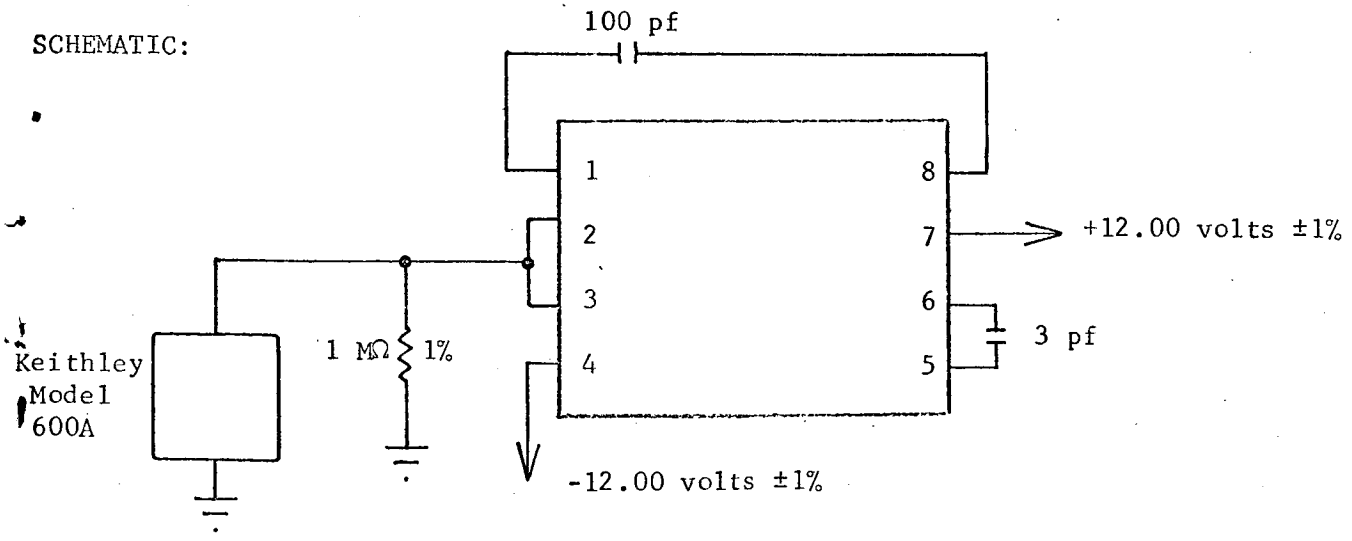
TEST NUMBER: 3

TEST TITLE: Input Bias Current

TEST CONDITIONS:

1. Connect circuit as shown.
2. Use Keithley Electrometer Model 600A on the voltmeter range.
3. Examine circuit for oscillations.
4. Measurement accuracy ±3 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Read and record electrometer (multiply by 10^{-6}) as input bias current, $I_{in\ BIAS}$.

CIRCUIT TYPE: μA709

TEST NUMBER: 3

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
$I_{in\ BIAS}$	400 nA	None

COMMENTS:

This measurement is actually the average sum of both input transistor bias currents.

CIRCUIT TYPE: μA709

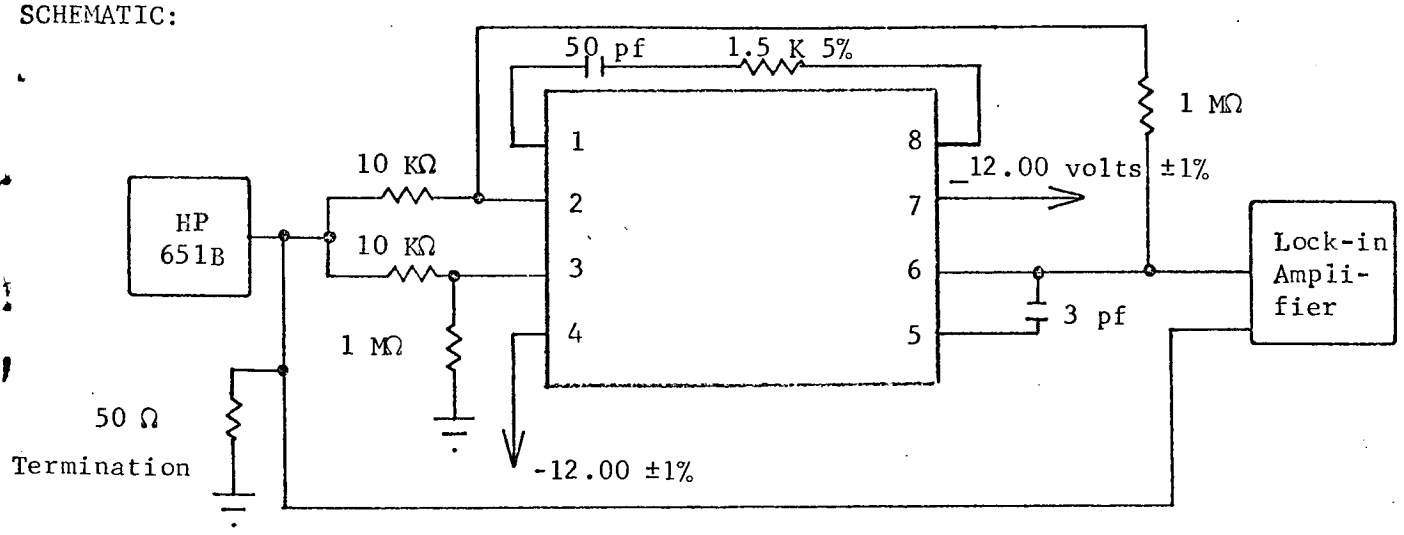
TEST NUMBER: 4

TEST TITLE: Common Mode Rejection Ratio

TEST CONDITIONS:

1. Connect circuit as shown.
2. Match 10 KΩ and 1 MΩ resistor to 0.02 percent.
3. Use Princeton Applied Research Model PAR-8 lock-in amplifier. Calibrate lock-in amplifier at 100 Hz in accordance with instruction manual.
4. Adjust signal generator (Model HP651B) for 0.1 volt rms at 100 Hz.
5. Examine circuit for oscillations.
6. Measurement accuracy ±5 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Adjust lock-in amplifier phase control for maximum meter indication.
2. Read and record output voltage (lock-in amplifier) as CMRR in volts.
3. $CMRR_{db} = -20 \log \left[\frac{E_{in}}{E_{out}} \times \text{Gain } (100) \right]$.

CIRCUIT TYPE: μA709

TEST NUMBER: 4

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
$CMRR_{db}$	-90	None
$CMRR_{mv}$	0.20	None

COMMENTS:

Difficulties were experienced in matching input resistors to the close tolerance specified.

CIRCUIT TYPE: μA709

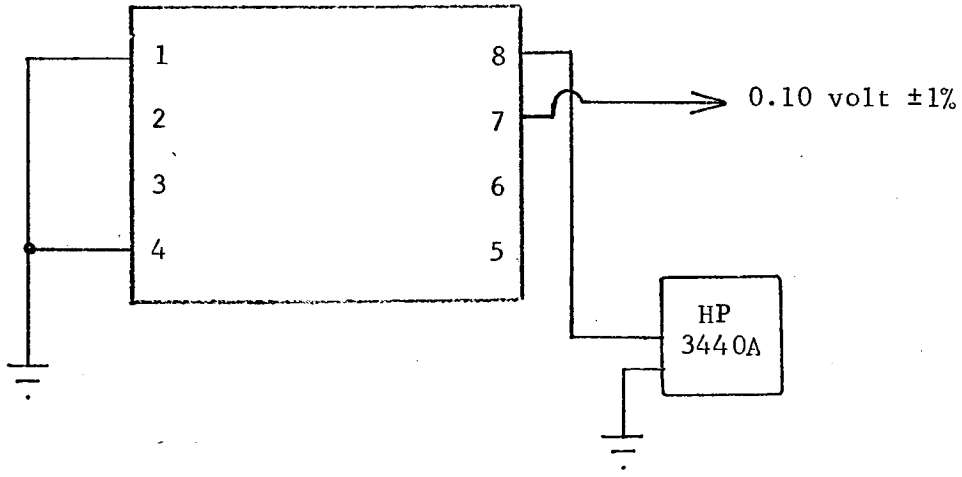
TEST NUMBER: 5

TEST TITLE: Resistance

TEST CONDITIONS:

1. Connect circuit as shown.
2. Set HP3440A function switch to the 1000 μA range.
3. Measurement accuracy ±3 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Record current as I_R and compute resistance using the following formula:

$$R = \frac{0.10}{I_R} .$$

CIRCUIT TYPE: μA709

TEST NUMBER: 5

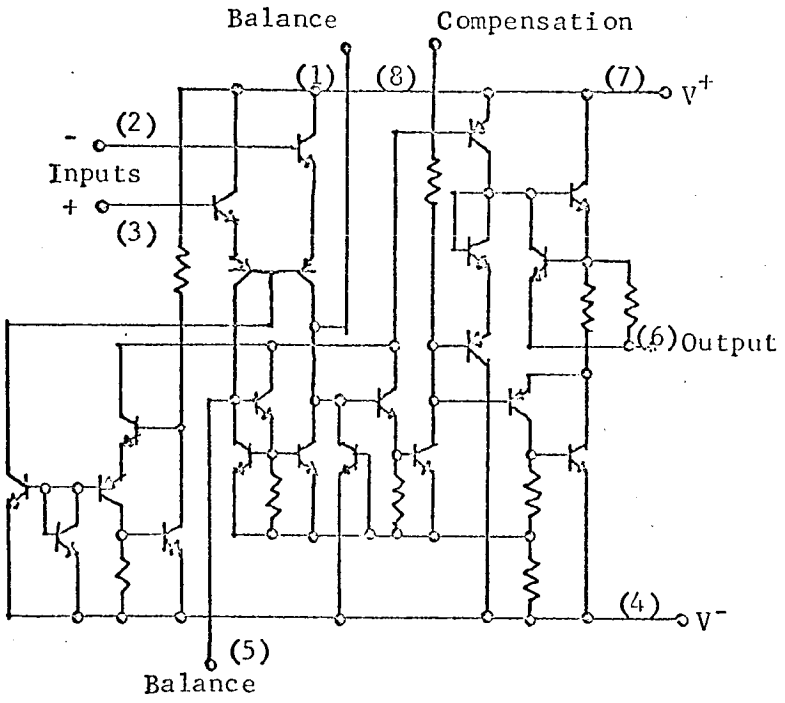
TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
R	10 K	None

COMMENTS:

TEST PLAN FOR LM 101 AMPLIFIER



TEST CONDITIONS:

1. Pin 4 -12 volts, -5 volts.
2. Pin 7 +12 volts, +5 volts.
3. Temperature 25 C.

TEST PARAMETERS:

1. Open loop gain.
2. Open loop gain (at V_{CC} = +5 volts and V_{BB} = -5 volts).
3. Closed loop gain.
4. Input offset voltage.
5. Input offset voltage (at V_{CC} = +5 volts and V_{BB} = -5 volts).
6. Input bias current.
7. + Saturation voltage.
8. - Saturation voltage.
9. Common mode rejection ratio.
10. Input offset current.
11. Power supply current.

CHARACTERIZATION PLAN

CIRCUIT TYPE: LM 101

BASIC CONDITIONS	NOTES
-12 volts Pin 4 +12 volts Pin 7 Temperature 25 C	+5 volts Pin 4 -5 volts Pin 7

PARAMETER	APP TEST	CONDITIONS
High gain mode High gain mode (±5 volts)	1	Use triangular wave input. From V_{in} versus V_{out} plot obtain gain. Repeat same measurement at V_{CC}, V_{BB} = ±5 volts.
Closed loop gain	2	Amplifier tied down to gain of 100.
Input offset voltage Input offset voltage (±5 volts)	2	The output voltage at zero input divided by gain. Operated under closed loop conditions (100). Repeat same measurement at V_{CC}, V_{BB} = 5 volts.
Input bias current	3	Input to ground - open loop configuration. Average sum of both input transistor bias currents.
± Saturation voltage	2	Increase input voltage until output reaches saturation. Use closed loop configuration.
Common mode rejection ratio	4	Amplifier tied down to gain of 100. Input signal was 1.0 volt rms at 100 Hz. CMRR measured in volts.
Input offset current	5	Open loop configuration. Difference between the input bias current of the two input transistors.

CIRCUIT TYPE: LM 101

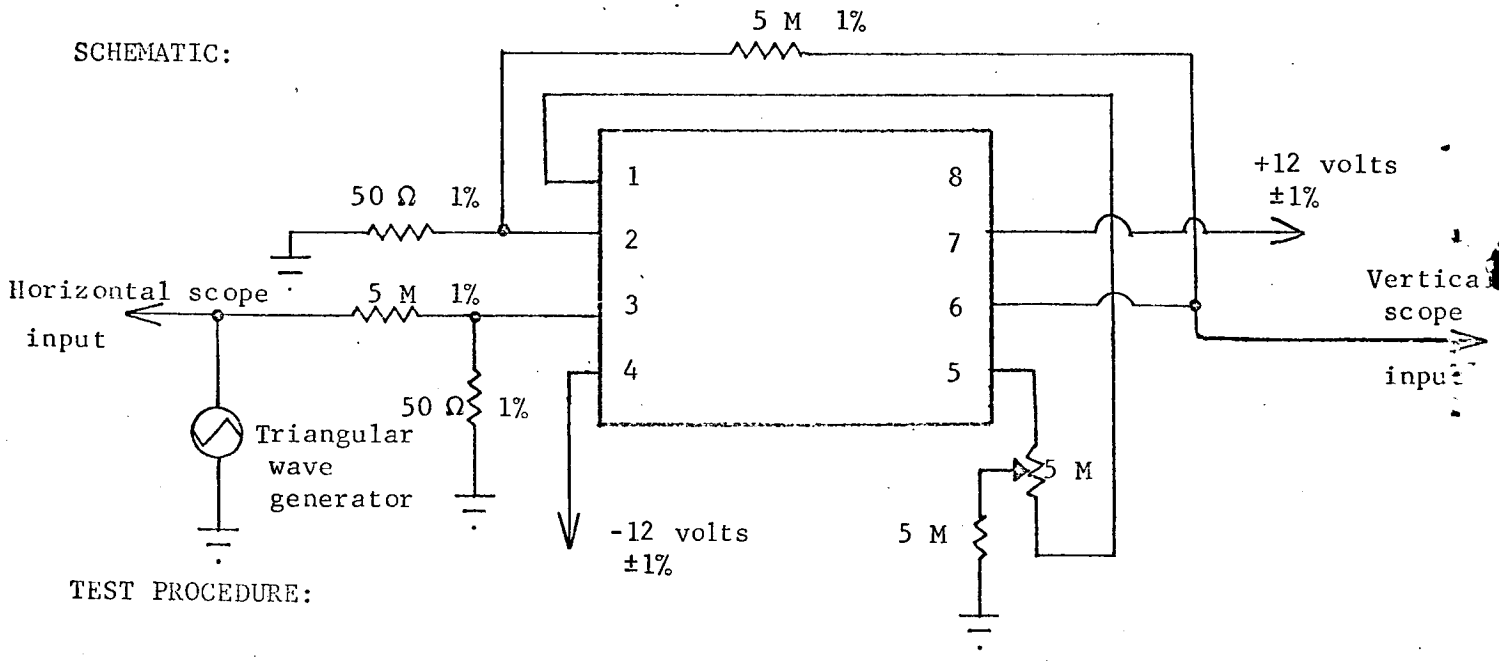
TEST NUMBER: 1

TEST TITLE: High Gain Mode

TEST CONDITIONS:

1. Connect circuit as shown.
2. Examine circuit for oscillations with Tektronix 551.
3. Use shielded wiring for all external circuits.
4. Measurement accuracy ±5 percent.
5. Adjust potentiometer for zero volts dc on Pin 6.

SCHEMATIC:



TEST PROCEDURE:

1. Determine gain from scope after calibration using the relation $G = \frac{\Delta E_{out}}{\Delta E_{in}} \times 100$ K.
2. Repeat measurement with voltage at Pins 4 and 7 at -5 and +5 volts, respectively.

CIRCUIT TYPE: LM 101

PARAMETER	APP. TEST	CONDITIONS
Supply current	2	Closed loop gain of 100. Power drain by circuit and load.

ENGINEER L.J.P. DATE September 1, 1967

REVISIONS:

CIRCUIT TYPE: LM 101

TEST NUMBER: 1

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
G	100 K	10 K

COMMENTS:

CIRCUIT TYPE: LM 101

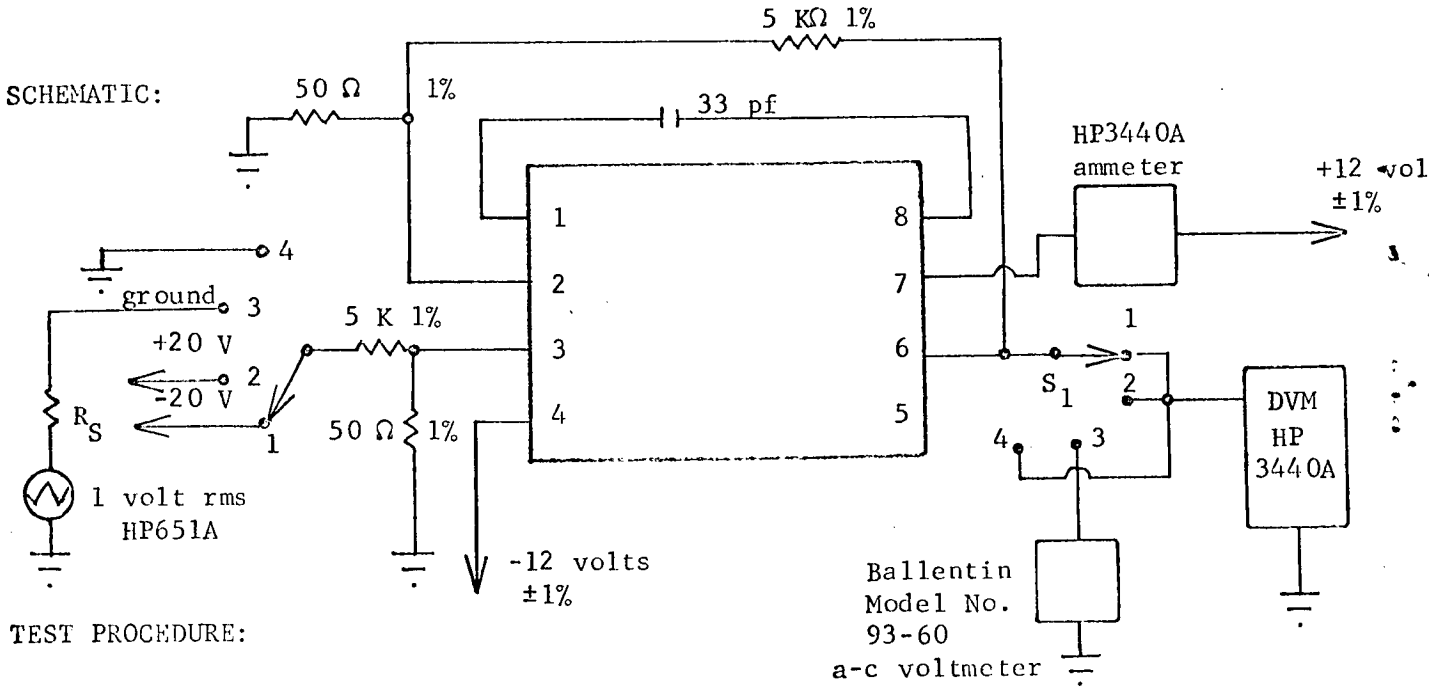
TEST NUMBER: 2

TEST TITLE: Closed Loop Gain, Input Offset Voltage, ± Saturation Levels and Supply Current

TEST CONDITIONS:

1. Connect circuit as shown.
2. Examine circuit for oscillations.
3. Measurement accuracy ±2 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Set S_1 to Position 1 and 2 in succession and record d-c DVM reading $+V_{SAT}$ and $-V_{SAT}$.
2. Set S_1 to Position 3 and record a-c DVM (multiply by 100) as closed loop gain.
3. Set S_1 in Position 4 and record d-c DVM reading (divide by closed loop gain) as input offset voltage. Also record ammeter reading as supply current.
4. Repeat offset voltage measurement for supply voltages of ±5 volts.

CIRCUIT TYPE: LM 101

TEST NUMBER: 2

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
Gain	100	90
V_{SAT} ±	±11 volts	±8 volts
V_{OFFSET}	±1 mV	±5 mV

COMMENTS:

CIRCUIT TYPE: LM 101

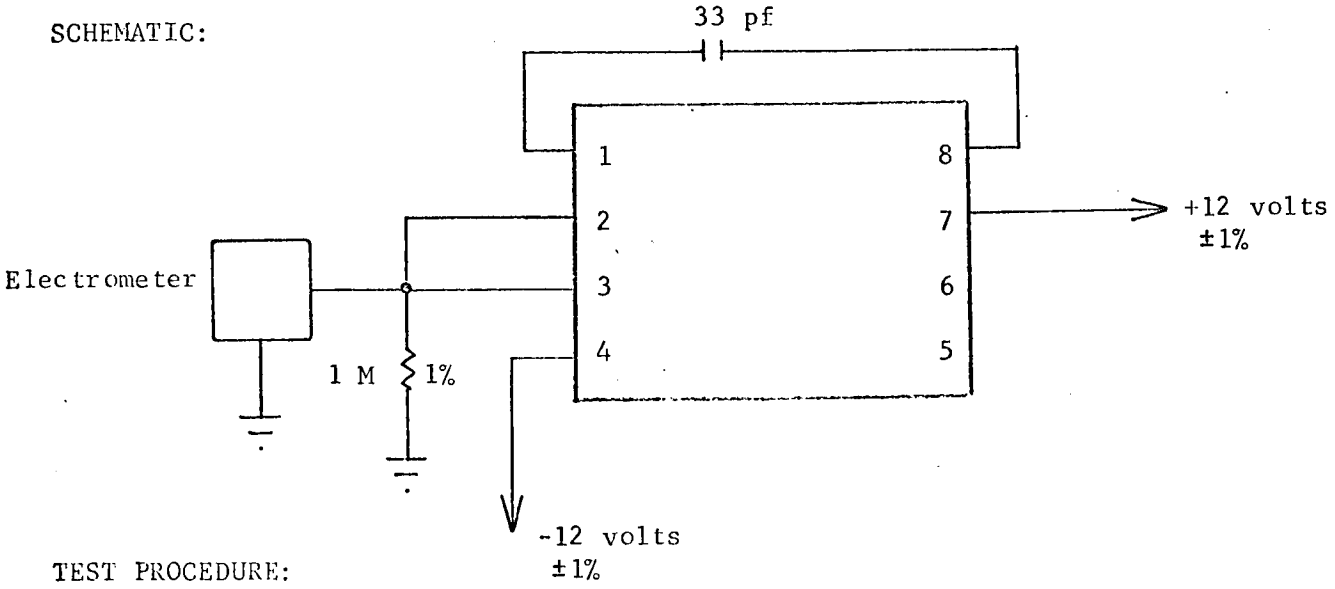
TEST NUMBER: 3

TEST TITLE: Input Bias Current

TEST CONDITIONS:

1. Connect circuit as shown.
2. Use Keithley Electrometer Model 600A on the voltmeter range.
3. Examine circuit for oscillations.
4. Measurement accuracy ±3 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Read and record electrometer reading (multiplied by 10^{-6} as input bias current, $I_{in\ BIAS}$.

CIRCUIT TYPE: LM 101

TEST NUMBER: 3

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
$I_{in\ BIAS}$	200 nA	None

COMMENTS:

This measurement is actually an average of both input transistor bias currents.

CIRCUIT TYPE: LM 101

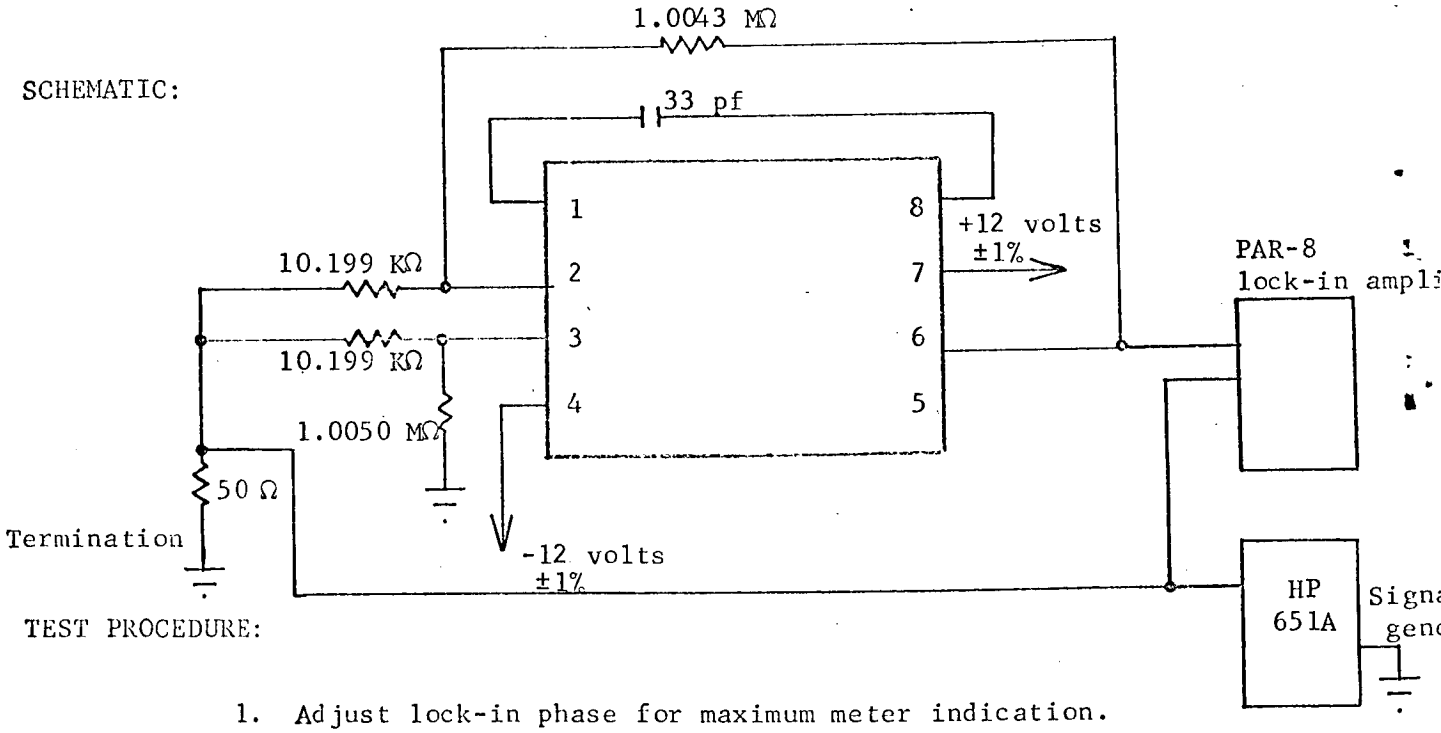
TEST NUMBER: 4

TEST TITLE: Common Mode Rejection Ratio

TEST CONDITIONS:

1. Connect circuit as shown.
2. Match 10 K and 1 meg resistors to 0.02 percent.
3. Calibrate the Princeton Applied Research Model PAR-8 lock-in amplifier in accordance with instruction manual.
4. Examine circuit for oscillations.
5. Adjust signal generator output for 1 volt rms at 100 Hz.
6. Measurement accuracy ±5 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Adjust lock-in phase for maximum meter indication.
2. Read and record output voltage (lock-in amplifier) as CMRR in volts.
3. $CMRR_{db} = -20 \log \frac{(E_{in})}{E_{out}} \times \text{Gain (100)}.$

CIRCUIT TYPE: LM 101

TEST NUMBER: 4

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
$CMRR_{db}$	-90	None
$CMRR_{mv}$	0.20	None

COMMENTS:

This measurement could not be repeated after the irradiation test.

CIRCUIT TYPE: LM 101

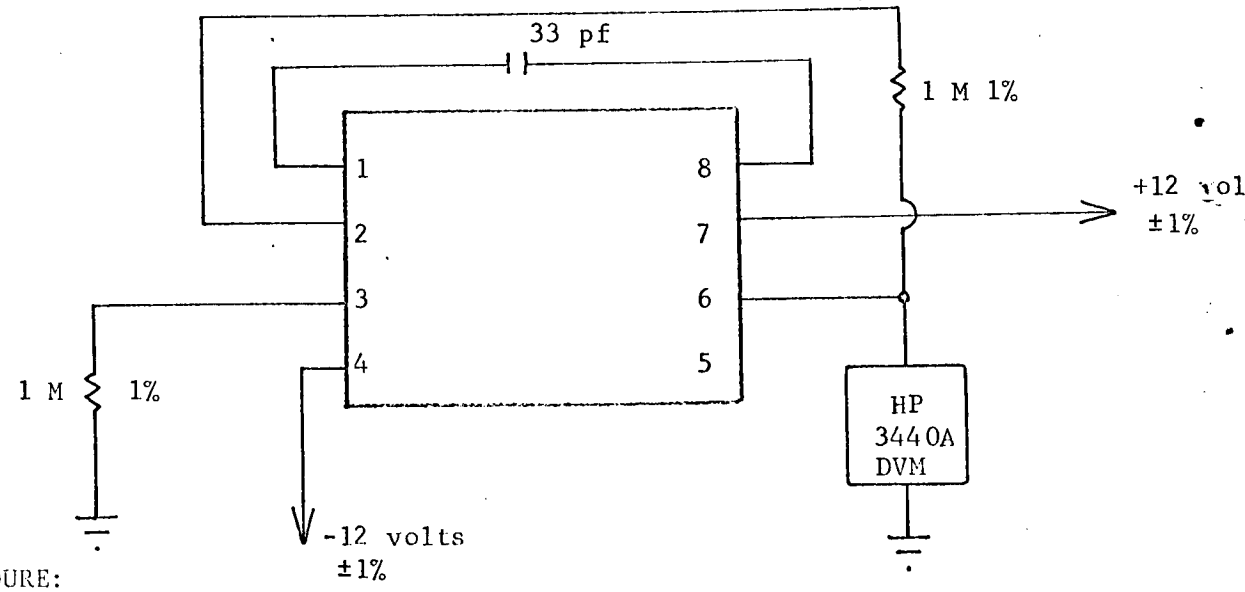
TEST NUMBER: 9

TEST TITLE: Input Offset Current

TEST CONDITIONS:

1. Connect circuit as shown.
2. Examine circuit for oscillations with Tektronix 551.
3. Measurement accuracy ±5 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Measure and record d-c output voltage.
2. Compute offset current, I_{OS}, using the following formula

$$I_{OS} = \frac{1\ nA}{mV} \times E_{out}\ (mV).$$

CIRCUIT TYPE: LM 101

TEST NUMBER: 5

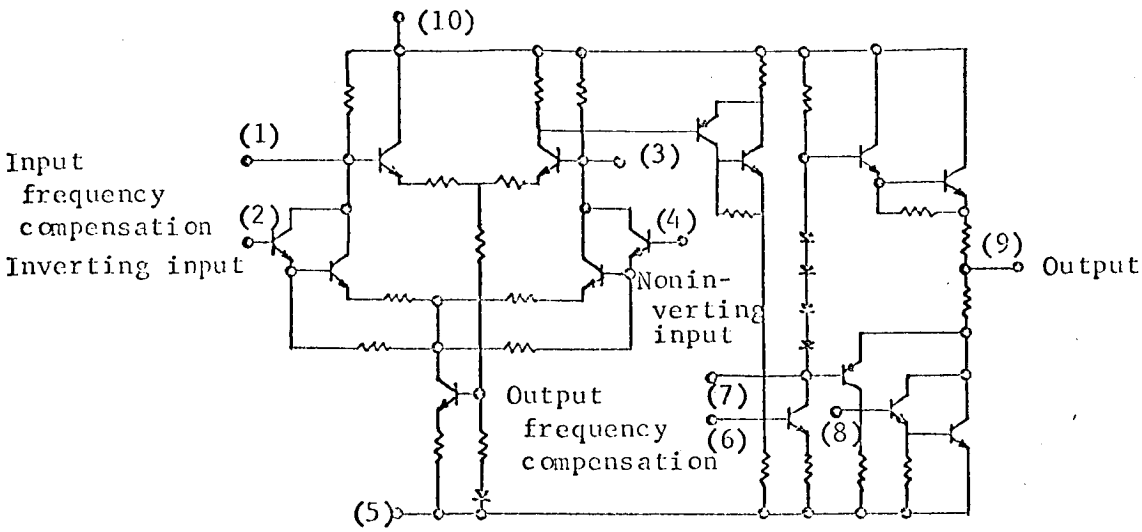
TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
I_{OS}	40 nA	200 nA

COMMENTS:

TEST PLAN FOR 807 BE AMPLIFIER



TEST CONDITIONS:

1. Pin 5 -12 volts.
2. Pin 10 +12 volts.
3. Temperature 25 C.

TEST PARAMETERS:

1. Open loop gain.
2. Closed loop gain.
3. Input offset voltage.
4. + Saturation voltage.
5. - Saturation voltage.
6. Input bias current.
7. Input offset current.
8. Common mode rejection.
9. Resistance.

CIRCUIT TYPE: 807 BE

PARAMETER	APP. TEST	CONDITIONS
Resistance	5	Resistance between Pin 1 and Pin 10.

ENGINEER L.J.P. DATE June 26, 1967

REVISIONS:

CHARACTERIZATION PLAN

CIRCUIT TYPE: 807 BE

BASIC CONDITIONS	NOTES
-12 volts Pin 5 +12 volts Pin 10 Temperature 25 C	

PARAMETER	APP TEST	CONDITIONS
Open loop gain	1	Use triangular wave input and record output. From oscilloscope obtain open loop gain.
Closed loop gain	2	Amplifier tied down to a gain of 100.
Input offset voltage	2	The output voltage at zero input divided by gain.
± Saturation voltage	2	Increase input voltage until output reaches saturation. Use closed loop configuration.
Input bias current	3	Average sum of both bias currents of the input transistors.
Common mode rejection ratio	4	Amplifier tied down to gain of 100. Input signal was 0.1 volt rms at 100 Hertz. CMRR measured in volts.
Input offset current	1	Open loop configuration. Difference between the input bias currents of the two input transistors.

CIRCUIT TYPE: 807 BE

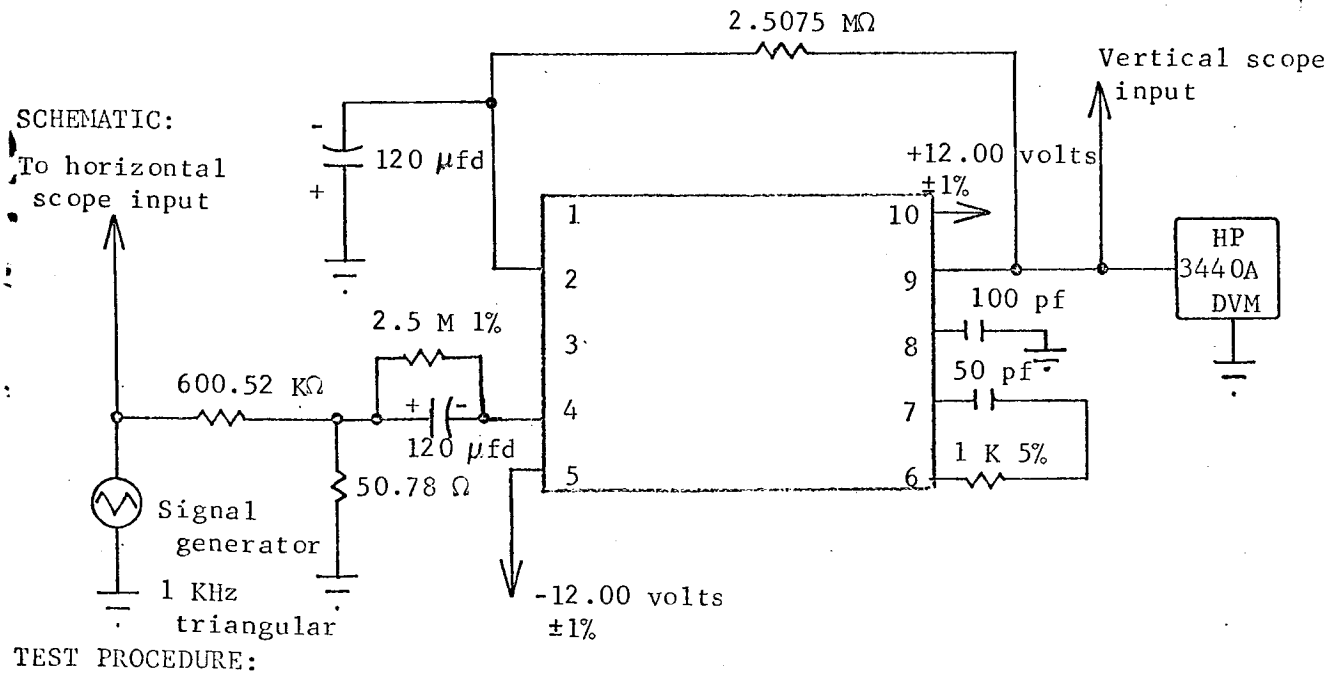
TEST NUMBER: 1

TEST TITLE: Open Loop Gain; Input Offset Current

TEST CONDITIONS:

1. Connect circuit as shown.
2. Examine circuit for oscillation with Tektronix 551 oscilloscope.
3. Set HP440A for 1 volt full scale.
4. Measurement accuracy ±5 percent.
5. Use shielded wiring for all external circuits.
6. Use solid tantalum capacitors (120 μfd).

SCHEMATIC:



TEST PROCEDURE:

1. Determine gain from scope after calibration using formula:

$$G = \frac{\Delta E_{out}}{\Delta E_{in}} \times 11{,}830.$$

2. To determine offset current measure output voltage with input removed. Calculate offset current using formula:

$$I_{OS} = \frac{400\ nA}{volt} \times E_{out}.$$

CIRCUIT TYPE: 807 BE

TEST NUMBER: 1

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
Gain	60,000	10,000
I_{OFFSET}	100 nA	0 - 500 nA

COMMENTS:

Difficulties were experienced repeating offset current measurements. Differences on the order of 10 nA between readings were normal.

CIRCUIT TYPE: 807 BE

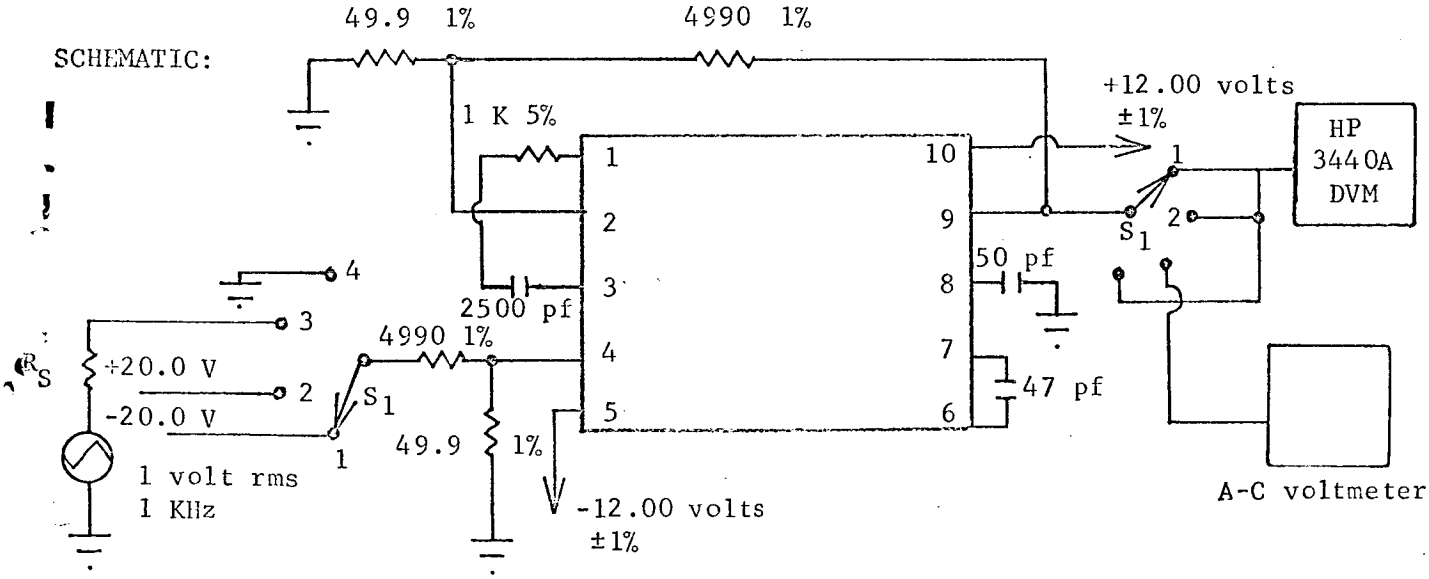
TEST NUMBER: 2

TEST TITLE: Closed Loop Gain, Input Offset Voltage (C.L.),± Saturation Levels

TEST CONDITIONS:

1. Connect circuit as shown.
2. Measurement accuracy ±2 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Set S_1 to Position 1 and 2 in succession and record output voltage as $-V_{SAT}$ and $+V_{SAT}$.
2. Set S_1 to Position 3 and record a-c output voltage as closed loop gain (multiply by 100).
3. Set S_1 to Position 4 and record output voltage (divided by closed loop gain) as input offset voltage.

CIRCUIT TYPE: 807 BE

TEST NUMBER: 2

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
Gain	100	90
V_{SAT} ±	±11 volts	±8 volts
V_{OFFSET}	±1 mV	±5 mV

COMMENTS:

CIRCUIT TYPE: 807 BE

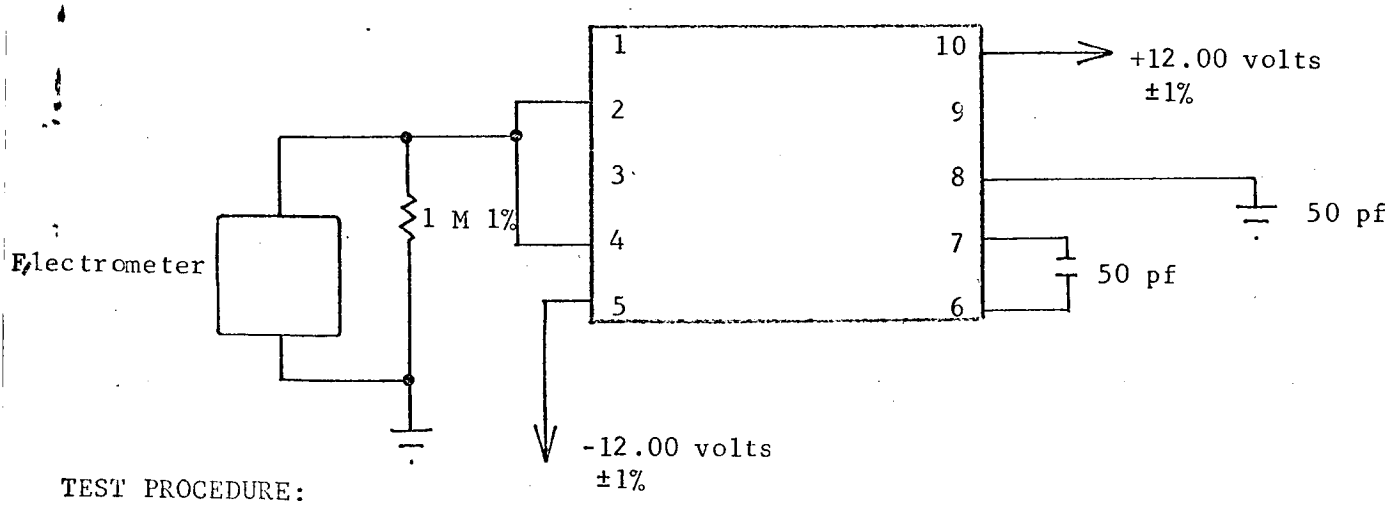
TEST NUMBER: 3

TEST TITLE: Input Bias Current

TEST CONDITIONS:

1. Connect circuit as shown.
2. Use Keithley Electrometer Model 600A on the voltmeter range.
3. Examine circuit for oscillations.
4. Measurement accuracy ±3 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Read and record electrometer (multiplied by 10^{-6}) as input bias current, $I_{in\ BIAS}$.

CIRCUIT TYPE: 807 BE

TEST NUMBER: 3

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
$I_{in\ BIAS}$	400 nA	None

COMMENTS:

This measurement is actually the average sum of both input transistor bias currents.

CIRCUIT TYPE: 807 BE

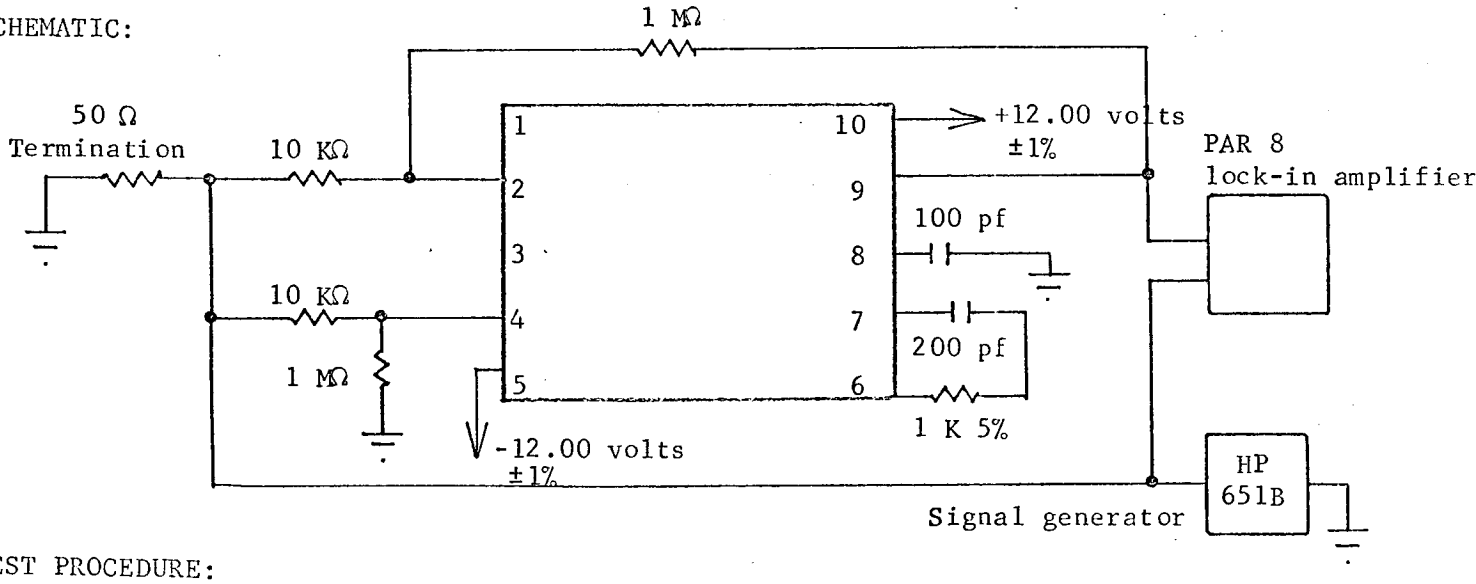
TEST NUMBER: 4

TEST TITLE: Common Mode Rejection Ratio

TEST CONDITIONS:

1. Connect circuit as shown.
2. Match 10 KΩ and 1 MΩ resistors to 0.02 percent.
3. Use Princeton Applied Research PAR 8 lock-in amplifier. Calibrate lock-in amplifier at 100 Hz in accordance with instruction manual.
4. Adjust signal generator (Model HP651B) for 0.1 volt rms at 100 Hz.
5. Examine circuit for oscillations.
6. Measurement accuracy ±5 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Adjust lock-in amplifier phase control for maximum meter indication.
2. Read and record output voltage (lock-in amplifier) as CMRR in volts.
3. $CMRR_{db} = -20 \text{ Log} \left[\frac{E_{in} \times \text{Gain (100)}}{E_{out}} \right]$.

CIRCUIT TYPE: 807 BE

TEST NUMBER: 4

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
$CMRR_{db}$	-90	None
$CMRR_{mv}$	0.20	None

COMMENTS:

Difficulties were experienced in matching the input resistors to the close tolerance specified.

CIRCUIT TYPE: 807 BE

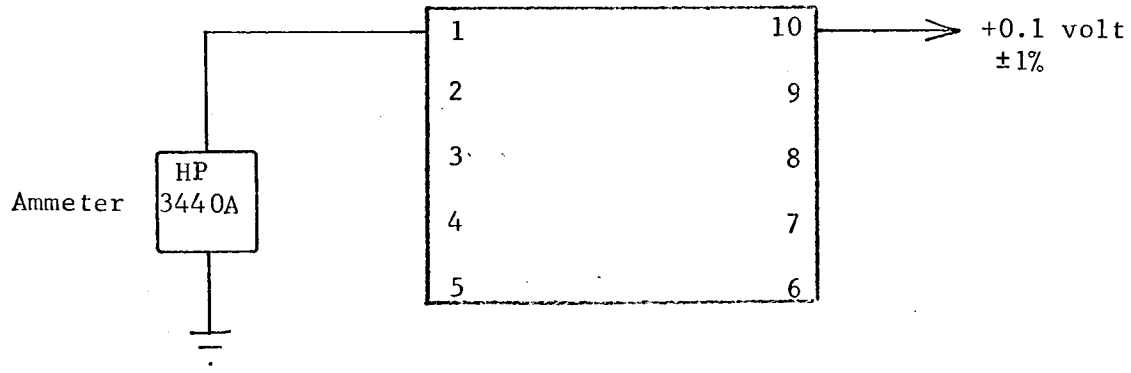
TEST NUMBER: 5

TEST TITLE: Resistance

TEST CONDITIONS:

1. Connect circuit as shown.
2. Set HP3440A function switch to the 1000 μA range.
3. Measurement accuracy ±3 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Record current as I_R and compute resistance using the following formula:

$$R = \frac{0.10}{I_R} .$$

CIRCUIT TYPE: 807 BE

TEST NUMBER: 5

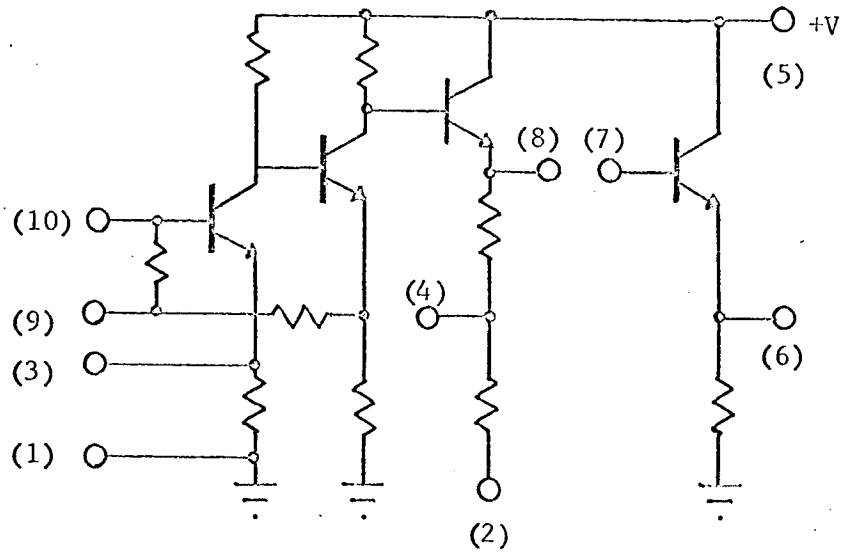
TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
R	20 K	None

COMMENTS:

TEST PLAN FOR SE 501G AMPLIFIER



TEST CONDITIONS:

1. Pin 5 +6 volts.
2. Temperature 25 C.

TEST PARAMETERS:

1. Voltage gain.
2. D-C output level.
3. D-C input level.
4. ± Saturation voltage.
5. Resistance.
6. Transistor leakage current.
7. Transistor gain 50 μA, 10 mA.
8. Transistor base-to-emitter voltage 50 μA, 10 mA.
9. Gain ratio.

CHARACTERIZATION PLAN

CIRCUIT TYPE: SE 501G

BASIC CONDITIONS	NOTES
+6 volts Pin 5 Temperature 25 C	

PARAMETER	APP TEST	CONDITIONS
Voltage gain	1	Closed loop voltage gain with amplifier operated at highest gain mode.
D-C output level	1	Output voltage with a-c ground applied to input.
D-C input level	1	Quiescent input level.
± Saturation voltage	1	Negative saturation with input grounded. Positive saturation with input at +1.0 volt.
Resistance	2	Resistance between Pins 9 and 10.
Transistor leakage current	3	Collector to base leakage current of output transistor.
Transistor gain	4	Common emitter current gain at 50 μA and 10 mA of collector current.

CIRCUIT TYPE: SE 501G

PARAMETER	APP. TEST	CONDITIONS
Transistor base-to-emitter voltage	5	Output transistor V_{BE} at 50 μA and 10 mA of collector current.
Gain ratio	4	Ratio of common emitter current gain taken at 10 mA and 50 μA of collector current.

ENGINEER L.J.P. DATE August 15, 1967

REVISIONS:

CIRCUIT TYPE: SE 501G

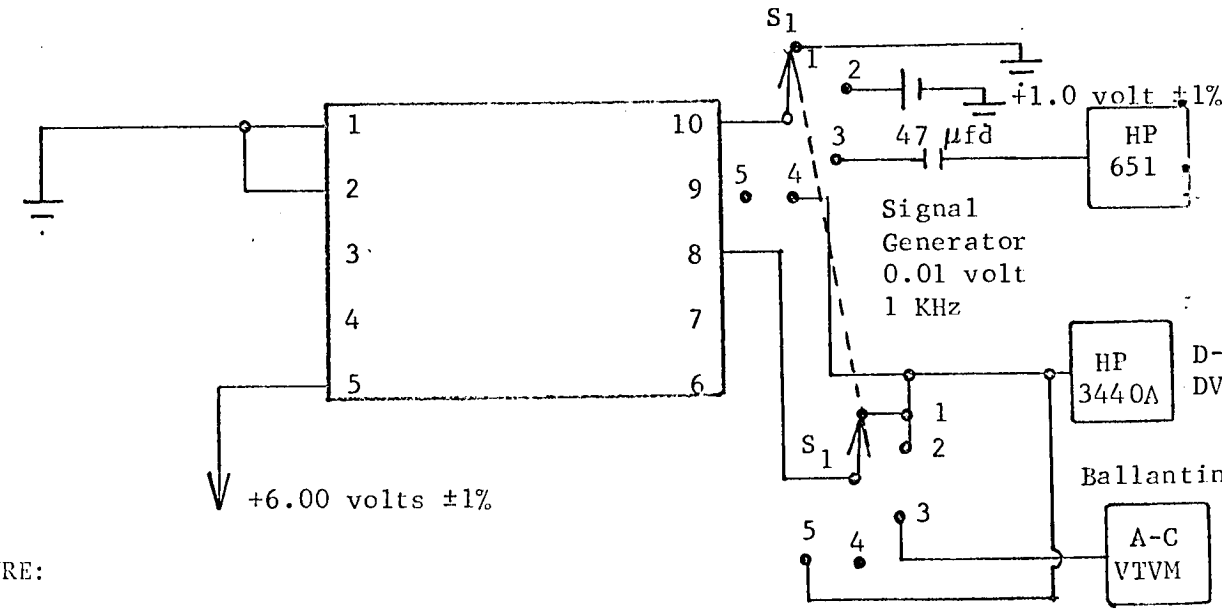
TEST NUMBER: 1

TEST TITLE: Gain, $\pm V_{SAT}$, D-C Input, and Output Levels

TEST CONDITIONS:

1. Connect circuit as shown.
2. Examine circuit for oscillation with Tektronix 551 oscilloscope.
3. Measurement accuracy ±5 percent.
4. Use shielded wiring for all external circuits.

SCHEMATIC:



TEST PROCEDURE:

1. Place switch in Position 1 and record reading on HP3440A as $-V_{SAT}$.
2. Place switch in Position 2 and record reading on HP3440A as $+V_{SAT}$.
3. Pleace switch in Position 3 and record reading on Ballantine No. 320 as gain (multiply by 100).
4. Place switch in Position 4 and record HP3440A reading as V_{in}.
5. Place switch in Position 5 and record HP3440A reading as V_{out}.

CIRCUIT TYPE: SE 501G

TEST NUMBER: 1

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
Voltage gain	50	30
$-V_{SAT}$	1.9 volts	2.5 volts
$+V_{SAT}$	5.2 volts	4.6 volts
V_{in}	0.9 volt	None
V_{out}	3.7 volts	None

COMMENTS:

CIRCUIT TYPE: SE 501G

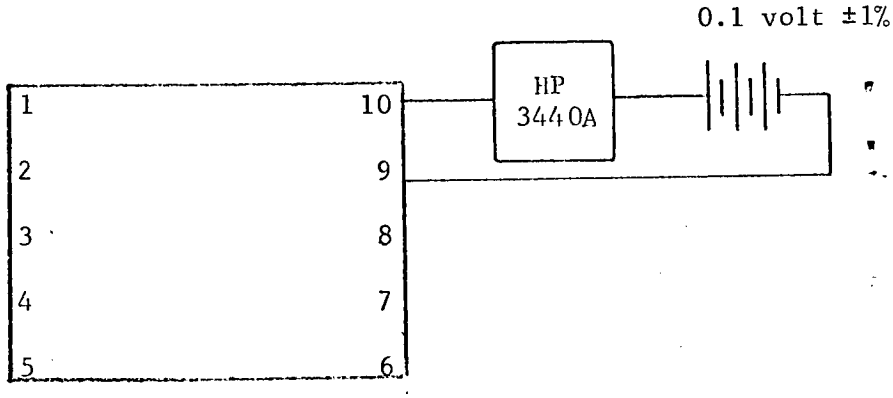
TEST NUMBER: 2

TEST TITLE: Resistance

TEST CONDITIONS:

1. Connect circuit as shown.
2. Set HP3440A function switch to 10 mA range.
3. Measurement accuracy ±2 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Record current as I_R and calculate resistance using following formula:

$$R = \frac{0.10}{I_R} .$$

CIRCUIT TYPE: SE 501G

TEST NUMBER: 2

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
R	5 KΩ	None

COMMENTS:

CIRCUIT TYPE: SE 501G

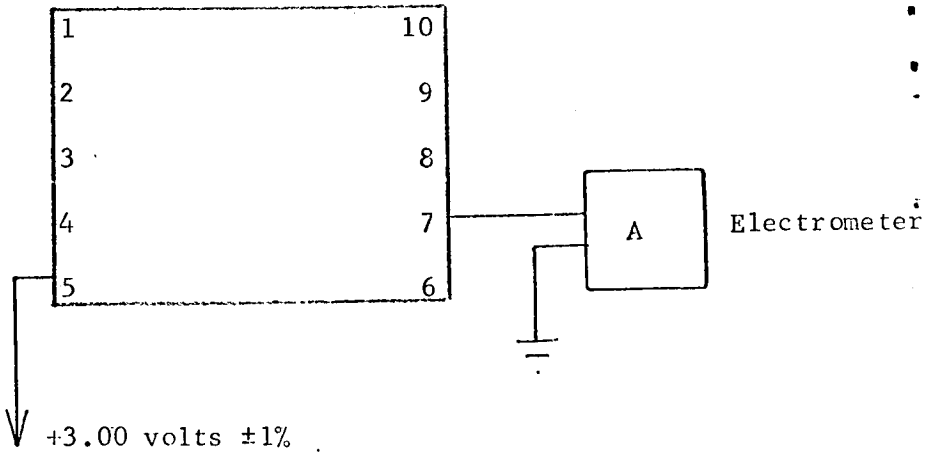
TEST NUMBER: 3

TEST TITLE: Transistor Base Leakage

TEST CONDITIONS:

1. Connect circuit as shown.
2. Use Keithley Electrometer Model No. 600A. Set multiplier to 0.01 range.
3. Measurement accuracy ±3 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Measure and record electrometer reading as leakage current, I_{CBO}.

CIRCUIT TYPE: SE 501G

TEST NUMBER: 3

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
I_{CBO}	1×10^{-10} A	None

COMMENTS:

CIRCUIT TYPE: SE 501G

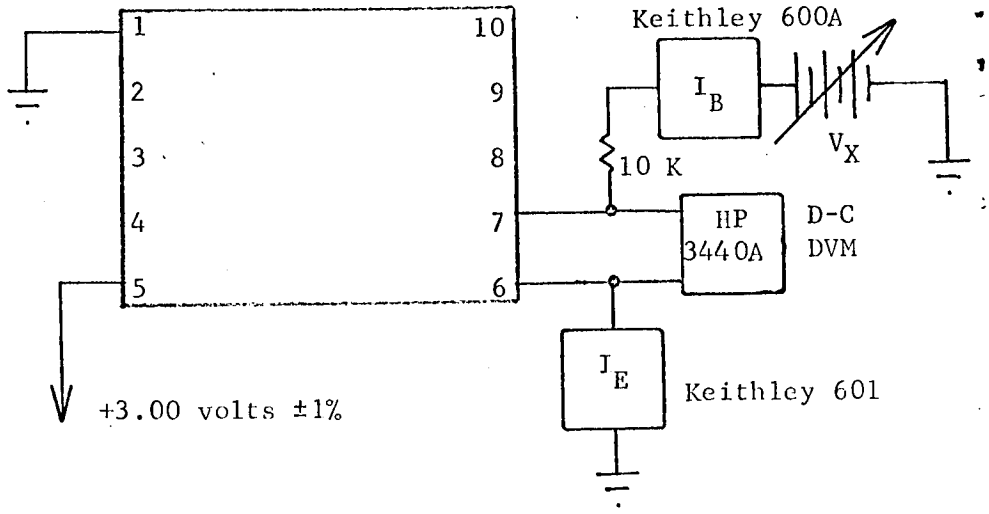
TEST NUMBER: 4

TEST TITLE: Transistor Current Gain, Base-to-Emitter Voltage, and Gain Ratio

TEST CONDITIONS:

1. Connect circuit as shown.
2. Set Keithley 601 meter to 10^{-1} ampere scale. For 50 μA measurement use 0.001 multiplier. For 10 mA measurement use 0.1 multiplier.

SCHEMATIC:



TEST PROCEDURE:

1. Starting with V_X at zero volts, adjust V_X for I_C = 50 μA, 10 mA ($I_C = I_E - I_B$).
2. Record I_B and V_{BE} at each step.
3. Calculate gain from relation $\beta = I_C/I_B$.
4. Do not permit I_E to exceed 15 mA. V_X must be turned to zero volts prior to removal or insertion of each device.

CIRCUIT TYPE: SE 501G

TEST NUMBER: 4

TEST PROCEDURE CONTINUED:

5. Calculate the gain ratio as follows:

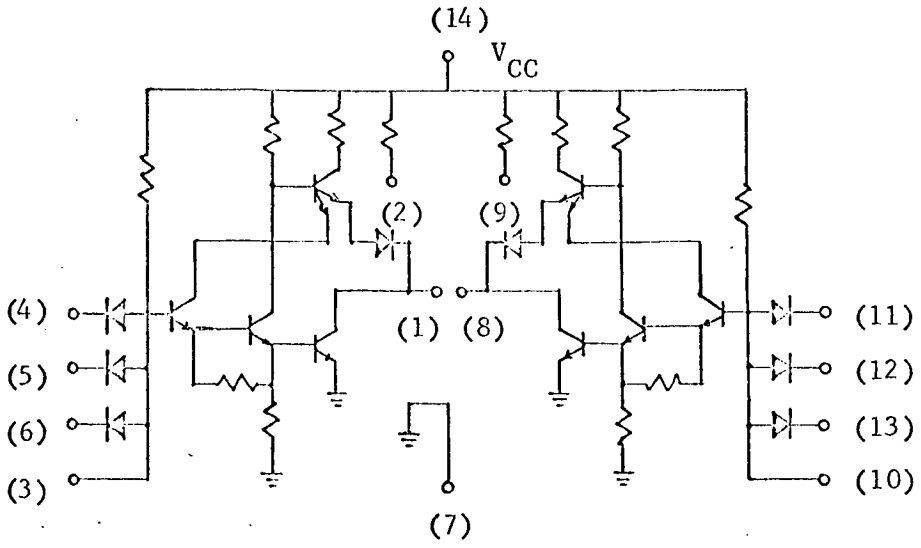
$$\text{Gain ratio} = \frac{\beta(10\text{ mA})}{\beta(50\ \mu\text{A})} .$$

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
β (50 μA)	30	None
β (10 mA)	60	None
V_{BE} (50 μA)	0.650 volt	None
V_{BE} (10 mA)	0.820 volt	None
Gain ratio	2	None

COMMENTS:

TEST PLAN FOR LPDTμL 9042 GATES



TEST CONDITIONS:

1. Pin 14 - 5.0 volts.
2. Pin 7 - ground.
3. Temperature 25 C.

TEST PARAMETERS:

1. Output voltage levels (V_{OH}, V_{OL}).
2. Input voltage levels (V_{IH}, V_{1L}).
3. Input leakage current.
4. Input diode forward voltage.
5. Input drive current.
6. Resistance.
7. Propagation delay.
8. Circuit gain.

CHARACTERIZATION PLAN

CIRCUIT TYPE: LPDTUL 9042

BASIC CONDITIONS	NOTES
V_{CC} = 5.00 volts on Pin 14 Ground Pin 7 Temperature 25 C	$V_{MIN\ ONE}$ = 2.45 volts $V_{MAX\ ZERO}$ = 0.25 volts

PARAMETER	APP TEST	CONDITIONS
Output voltage levels V_{ONE}, V_{ZERO}	1	At fan-out of 10 (R_L = 4 KΩ). For V_{OH}, V_{in} = 0.70 volts. For V_{OL}, V_{in} = 2.0 volts.
Input voltage levels V_{ONE}, V_{ZERO}	2	At fan-out of 1 (R_L = 40 KΩ). For V_{IH}, V_{out} = 0.25 volts. For V_{IL}, V_{out} = 2.45 volts.
Input leakage current	3	Reverse current in diode.
Input diode forward voltage	4	Diode forward voltage at forward current of 0.12 mA.
Input drive current	5	Input grounded through 100 Ω.
Resistance	5	Resistance between Pin 14 and Pin 3.
Propagation delay	6	Average delay between input and output of gate while at fan-out of 10.

Engineer: L.J.P. Date: July 20, 1967

CIRCUIT TYPE: LPDTTL 9042

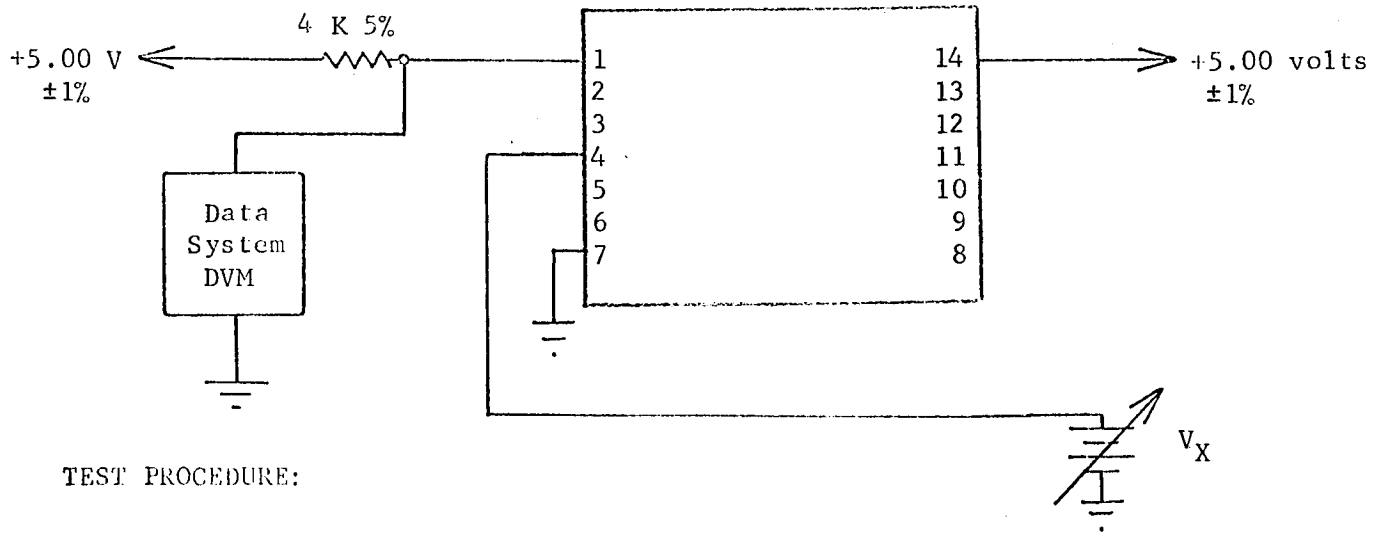
TEST NUMBER: ___

TEST TITLE: Output Voltage Levels (V_{OH}, V_{OL})

TEST CONDITIONS:

1. Connect the circuit below in the following sequence: Pin 1, Pin 14, others.
2. Measurement accuracy ±2 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Adjust V_X for 0.700 volts. Measure and record V_{OH} on all circuits.
2. Adjust V_X for 2.00 volts. Measure and record V_{OL} on all circuits.

CIRCUIT TYPE: LPDTL 9042

TEST NUMBER: 1

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
V_{OH}	5.00 volts	2.45 volts
V_{OL}	0.10 volts	0.25 volts

COMMENTS:

CIRCUIT TYPE: LPDTL 9042

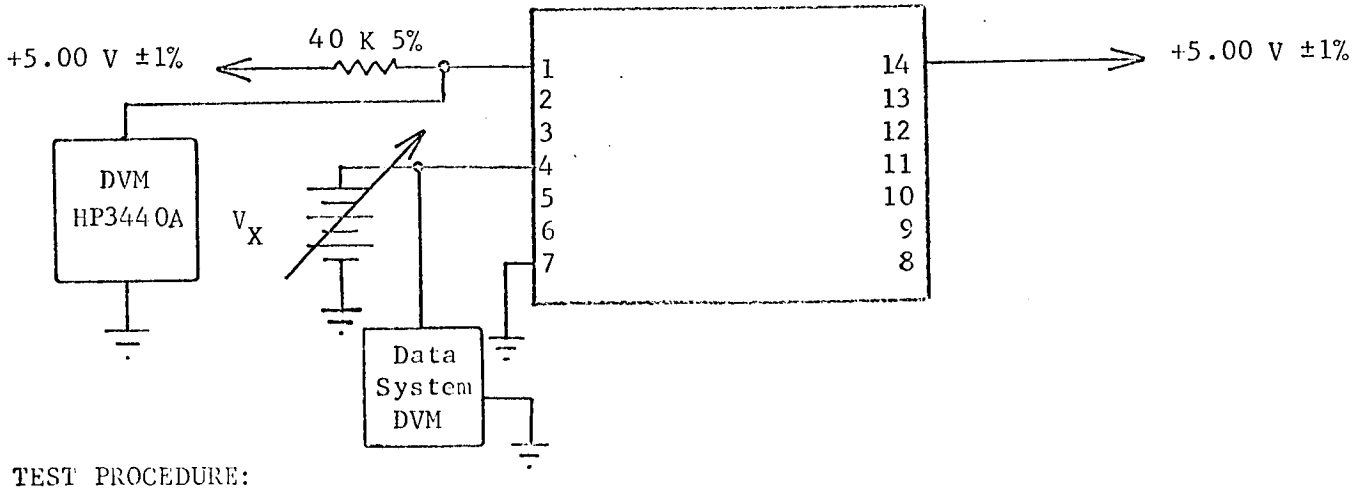
TEST NUMBER: 2

TEST TITLE: Input Voltage Levels (V_{IH}, V_{IL})

TEST CONDITIONS:

1. Connect the circuit below in the following sequence: Pin 1, Pin 14, others.
2. Measurement accuracy ±2 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Adjust V_X for 2.45 volts on HP3440A and record V_X as V_{IL}.
2. Adjust V_X for 0.40 volts on HP3440A and record V_X as V_{IH}.

CIRCUIT TYPE: LPDTTL 9042

TEST NUMBER: 2

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
V_{IL}	0.25 volts	0.7 volts
V_{IH}	1.30 volts	2.0 volts

COMMENTS:

CIRCUIT TYPE: LPDTµL 9042

TEST NUMBER: 3

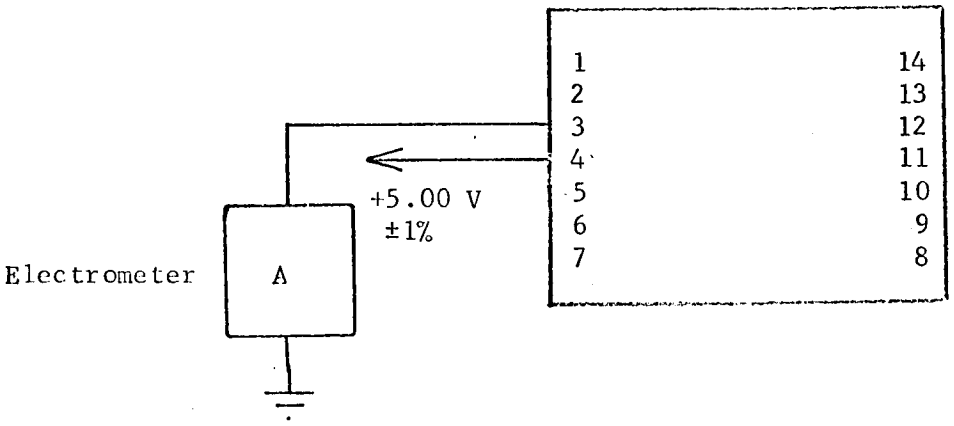
TEST TITLE: Input Leakage Current

TEST CONDITIONS:

1. Use Keithley Model 600A electrometer. Set multiplier to 0.01.

2. Measurement accuracy ±3 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Record current as I_L.

CIRCUIT TYPE: LPDTUL 9042

TEST NUMBER: 3

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
I_L	10^{-9} amperes	None

COMMENTS:

CIRCUIT TYPE: LPDTuL 9042

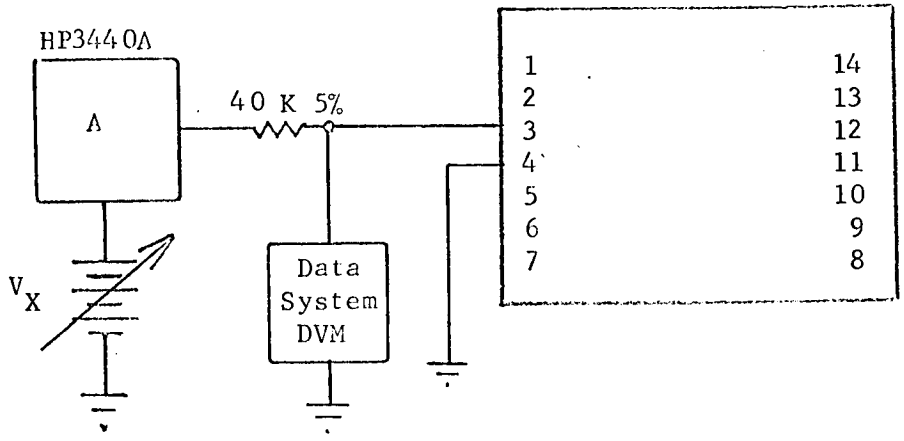
TEST NUMBER: 4

TEST TITLE: Input Diode Forward Voltage

TEST CONDITIONS:

1. Connect circuit below. Make ground connection prior to connection to power supply.
2. Measurement accuracy ±5 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Adjust V_X until current in ammeter is 0.12 mA.
2. Record DVM reading as V_{DF}.

CIRCUIT TYPE: LPDTL 9042

TEST NUMBER: 4

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
V_{DF}	0.3 volt	None

COMMENTS:

CIRCUIT TYPE: LPDTTL 9042

TEST NUMBER: 5

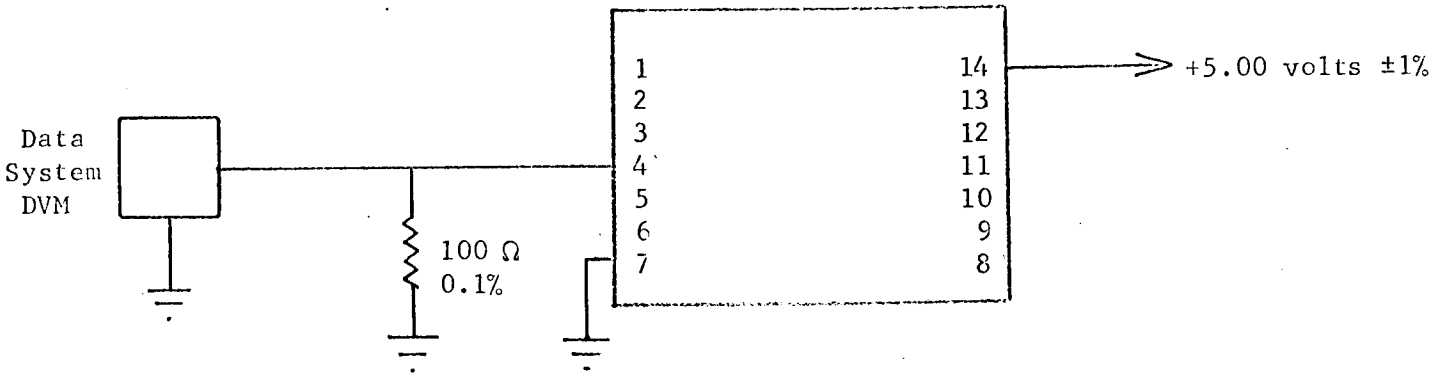
TEST TITLE: Input Drive Current

TEST CONDITIONS:

1. Connect the circuit below in the following sequence: Pin 7, Pin 4, Pin 14.

2. Measurement accuracy ±3 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Record input drive current as I_{in}.

CIRCUIT TYPE: LPDTµL 9042

TEST NUMBER: 5

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
I_{in}	0.125 mA	None

COMMENTS:

CIRCUIT TYPE: LPDTUL 9042

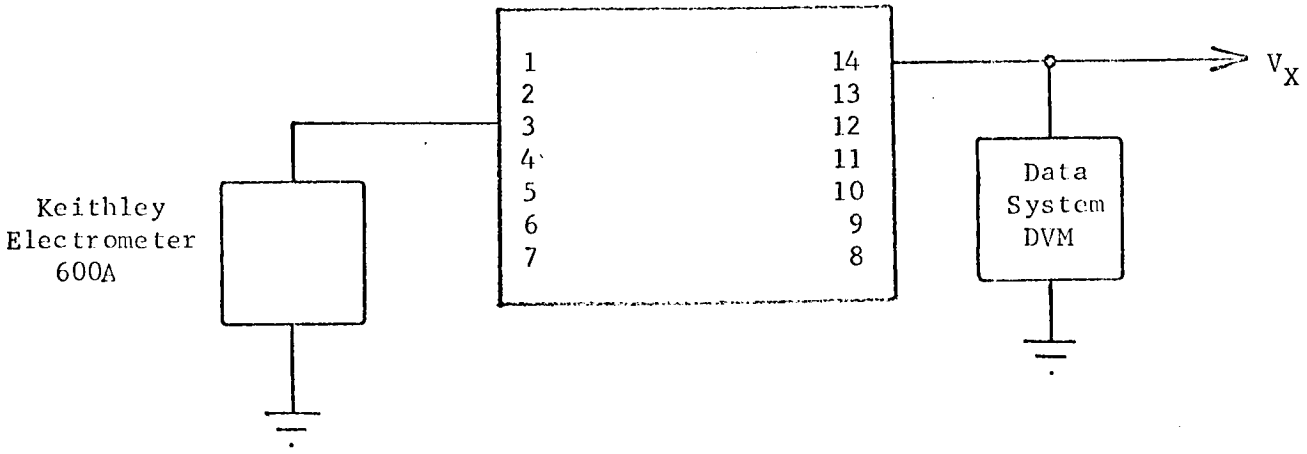
TEST NUMBER: 6

TEST TITLE: Resistance

TEST CONDITIONS:

1. Connect circuit below in the following sequence: Pin 3, Pin 14.
2. Set electrometer to 10^{-2} ampere range and 0.003 multiplier.
3. Measurement accuracy ±5 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Adjust V_X until electrometer reads 10^{-5} amperes.
2. Set exponent on data system to 10^{+4}.
3. Record DVM reading as R.

CIRCUIT TYPE: LPDTUL 9042

TEST NUMBER: 6

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
R	40 KΩ	None

COMMENTS:

CIRCUIT TYPE: LPDTTL 9042

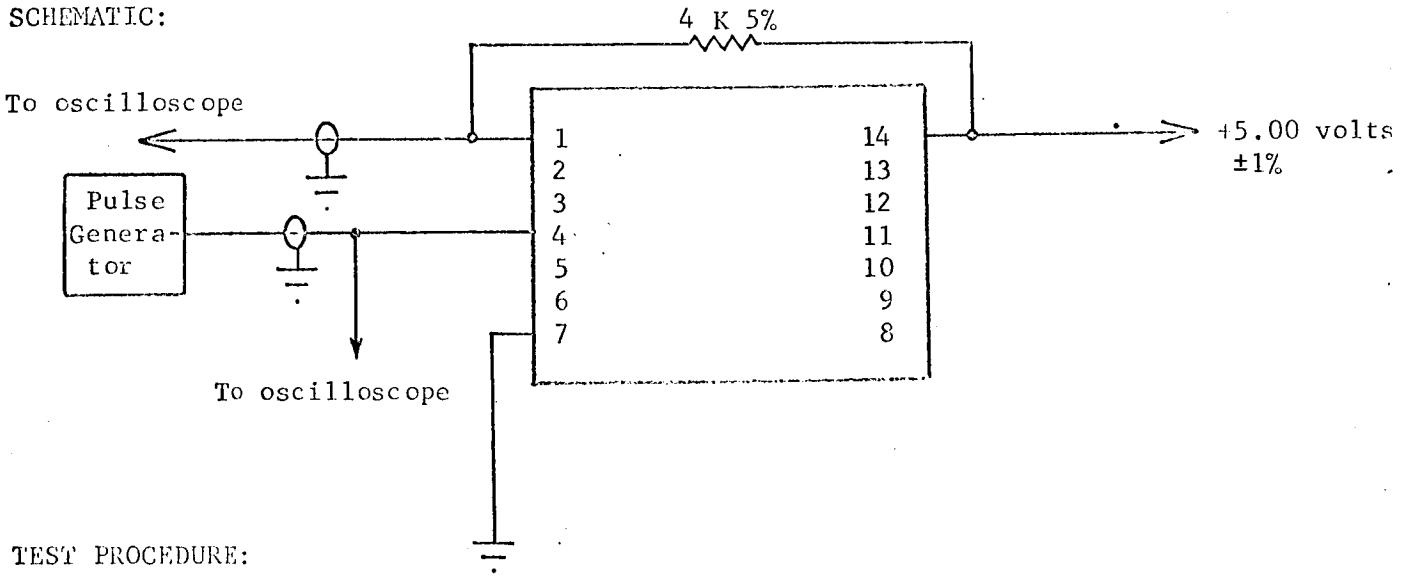
TEST NUMBER: 7

TEST TITLE: Propagation Delay

TEST CONDITIONS:

1. Input pulse: Amplitude +4.5 volts, 500 nsec, 1 MHz.
2. Use TI No. 6509 pulse generator. Terminate both ends of cable (RG62) in 93 Ω.

SCHEMATIC:



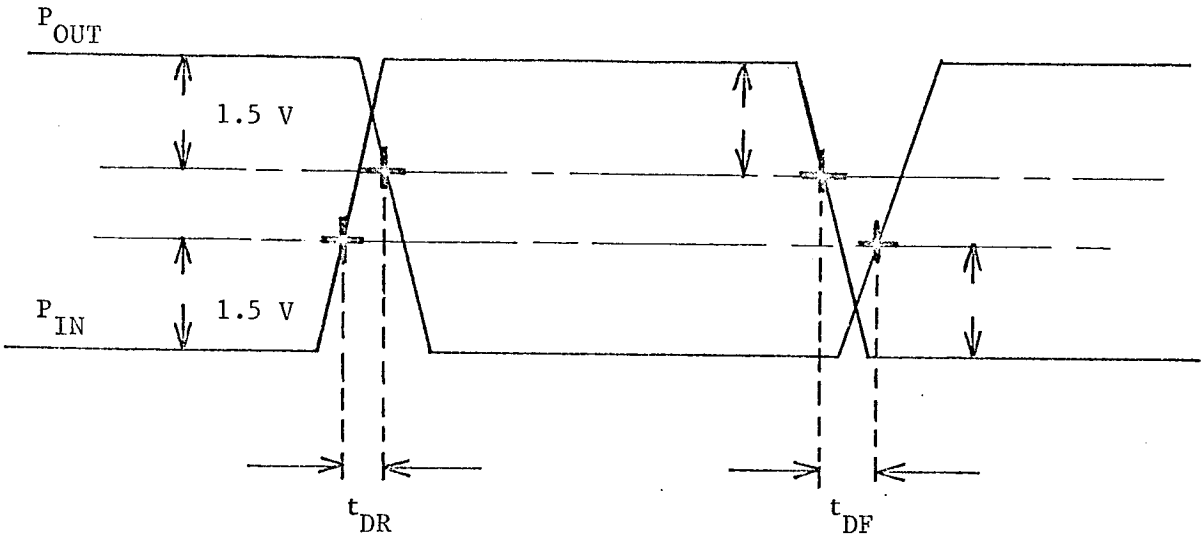
TEST PROCEDURE:

1. Measure and record propagation delay t_{DR} and t_{DF} as defined on the following page.

CIRCUIT TYPE: LPDTL 9042

TEST NUMBER: 7

TEST PROCEDURE CONTINUED:



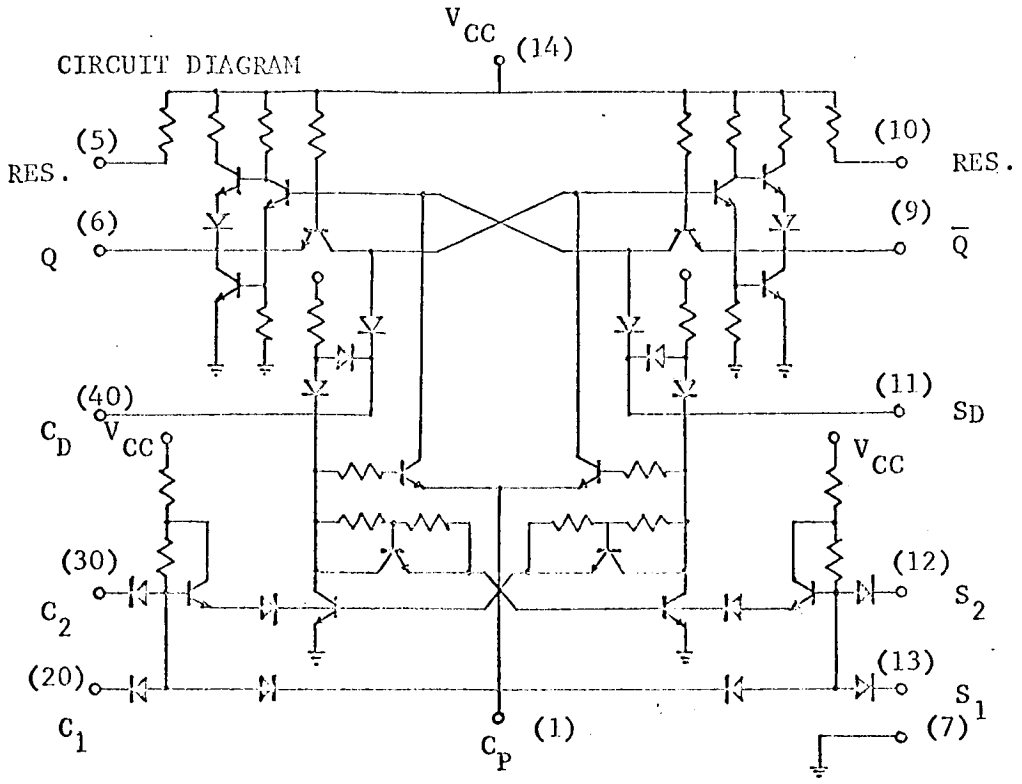
APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
t_{DR}	20 ns	None
t_{DF}	50 ns	None

COMMENTS:

TEST PLAN FOR LPDTUL 9040

CIRCUIT DIAGRAM



TEST CONDITIONS:

1. Pin 14 - 5.00 volts.
2. Pin 7 - ground.
3. Pin 11 - open.
4. Temperature 25 C.

TEST PARAMETERS:

1. Output voltage levels (Q, $\overline{Q}$) both V_H V_L.
2. Leakage current at C_D.
3. Input currents.
4. Resistance (15 KΩ).
5. Propagation delay.
6. Minimum clock amplitude.
7. Minimum input one voltage.

CHARACTERIZATION PLAN

CIRCUIT TYPE: LPDTL 9040

BASIC CONDITIONS	NOTES
V_{CC} = 5 volts on Pin 14 Ground on Pin 7 Pin 11 open Temperature 25 C	$V_{MAX\ ZERO}$ = 0.25 volts $V_{MIN\ ONE}$ = 2.45 volts Standard clock pulse: 4.5 volts 500 nsec, 1 MHz

PARAMETER	APP TEST	CONDITIONS
Output_one voltage for Q and Q	1	At fan-out of 10 (R_L = 4 KΩ).
Output_zero voltage for Q and Q	1	At fan-out of 10 (R_L = 4 KΩ).
Input leakage current at C_D	2	5 volts at C_D measure leakage to Pin 14.
Input zero current at C_D, S_C, CP	3	Current when the respective terminals are grounded.
Resistance	4	15 KΩ resistor between Pins 5 and 14.
Propagation delay	5	Delay between input and output at fan-out of 10.
Minimum clock amplitude	5	Reduce clock amplitude until toggle action stops.

CIRCUIT TYPE: LPDTOL 9040

PARAMETER	APP. TEST	CONDITIONS
Minimum input one voltage C_1 and S_1.	5	Reduce C_1 and S_1 voltage until toggle action stops.

ENGINEER L.J.P. DATE July 20, 1967

REVISIONS:

CIRCUIT TYPE: LPDTµL 904

TEST NUMBER: ___

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
VQ_{OL}, $V\bar{Q}_{OL}$	0.100 volts	0.25 volts
VQ_{OH}, $V\bar{Q}_{OH}$	5.00 volts	2.45 volts

COMMENTS:

CIRCUIT TYPE: [illegible]

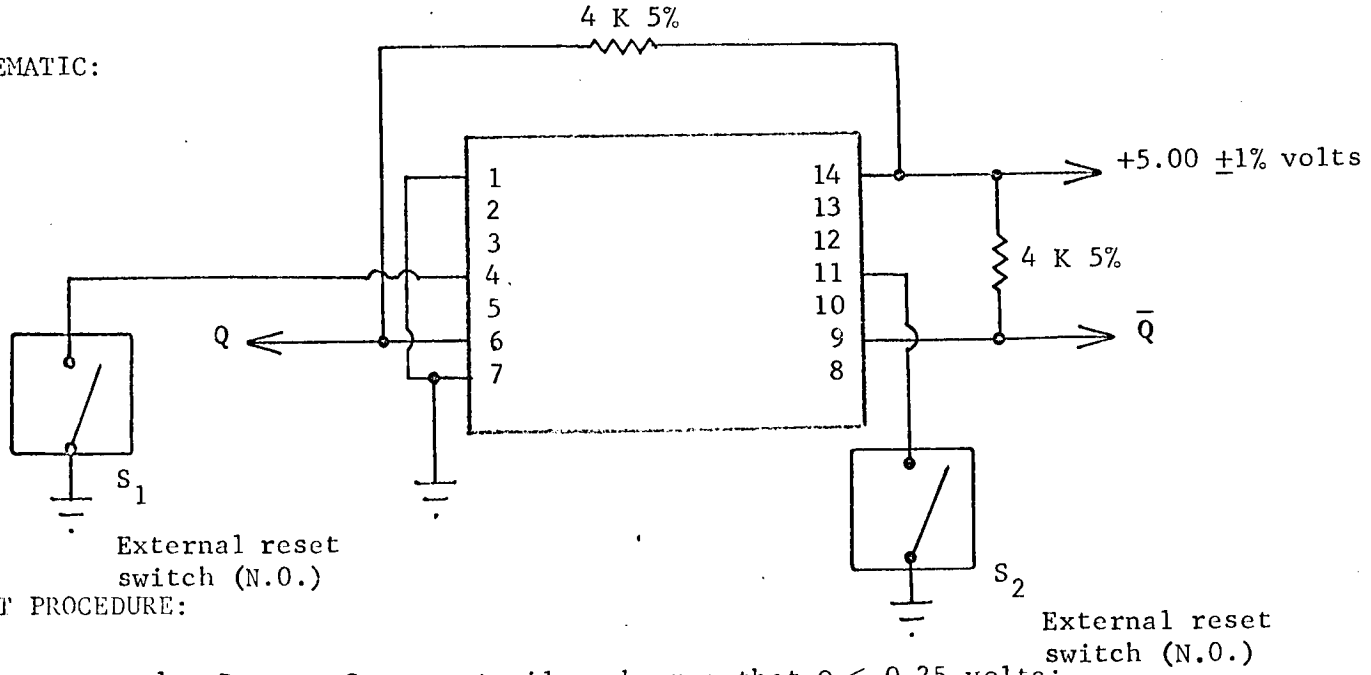
TEST NUMBER: 1

TEST TITLE: Output Voltage Levels for Q and $\overline{Q}$

TEST CONDITIONS:

1. Connect the circuit below in the following sequence: Pin 7, Pin 14, others.
2. Measurement accuracy ±2 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Depress S_1 momentarily; observe that Q < 0.25 volts; record Q as VQ_{OL}. Repeat for all devices.
2. Depress S_1 momentarily; observe that $\overline{Q}$ > 2.45 volts; record Q as VQ_{OH}. Repeat for all devices.
3. Depress S_2 momentarily; observe that Q > 2.45 volts; record Q as VQ_{OH}. Repeat for all devices.
4. Depress S_2 momentarily; observe that $\overline{Q}$ < 0.24 volts; record Q as VQ_{OL}. Repeat for all devices.

CIRCUIT TYPE: LPDTµL 9040

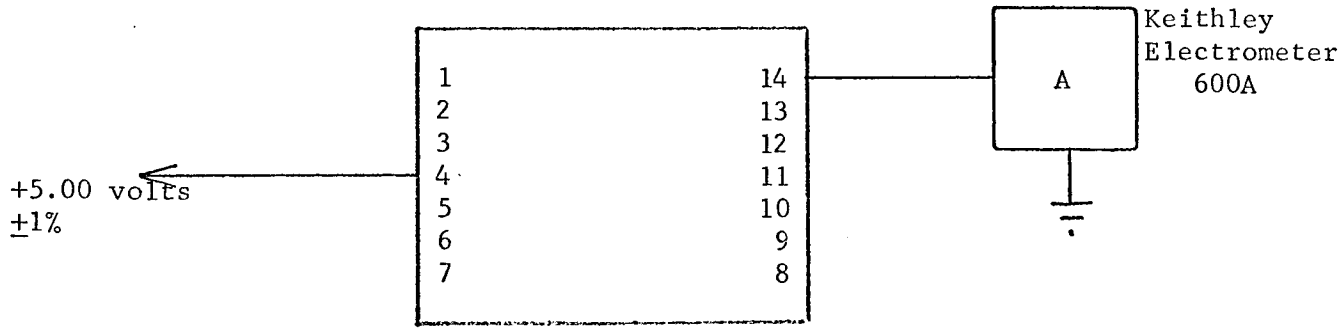
TEST NUMBER: 2

TEST TITLE: Input Leakage Current at C_D

TEST CONDITIONS:

1. Connect circuit as shown.
2. Set electrometer multiplier switch to 0.01.
3. Measurement accuracy ±3 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Read and record electrometer reading as I_{LCD}.

CIRCUIT TYPE: LPDUL 9040

TEST NUMBER: 2

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
I_{LCD}	10 nA	None

COMMENTS:

CIRCUIT TYPE: LPDTµL 9040

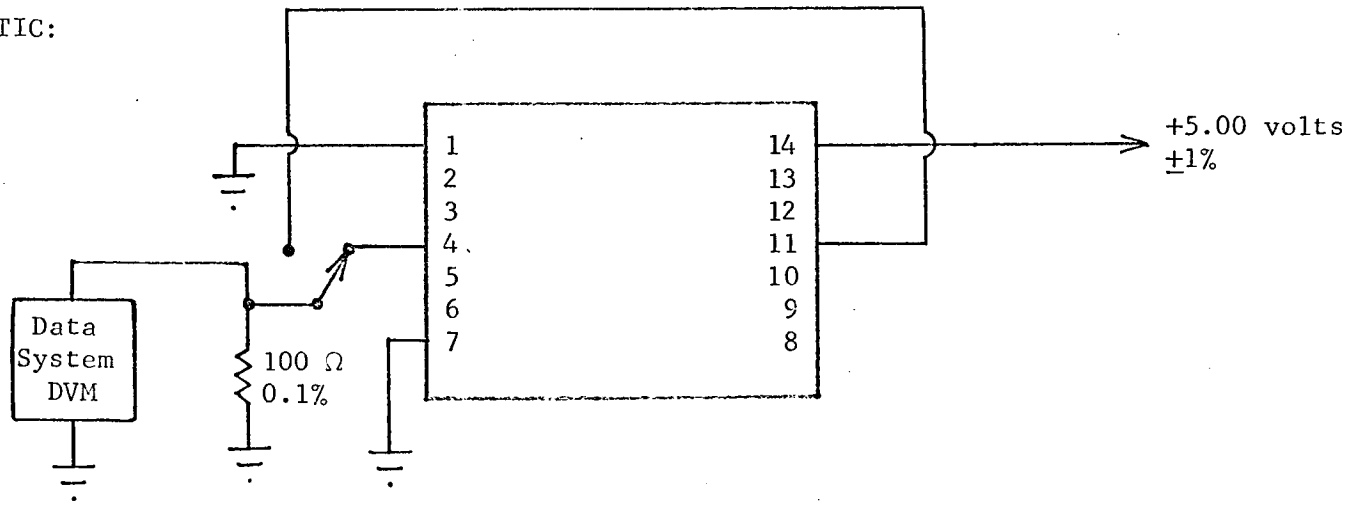
TEST NUMBER: 3

TEST TITLE: Input Currents

TEST CONDITIONS:

1. Connect the circuit shown in the following sequence: Pin 7, Pin 14, others.
2. Pin 1 should be grounded except when measuring I_{CP}.
3. Measurement accuracy ±2 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Record current as I_{CD}.
2. Connect DVM resistor combination to Pins 1 and 11 in succession. Record current as I_{CP}, I_{SD}.

CIRCUIT TYPE: LPDTUL 9040

TEST NUMBER: 3

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
I_{CP}	0.10 mA	0.31 mA
I_{SD}	0.100 mA	0.31 mA
I_{CD}	0.100 mA	0.31 mA

COMMENTS:

CIRCUIT TYPE: LPDTL 9040

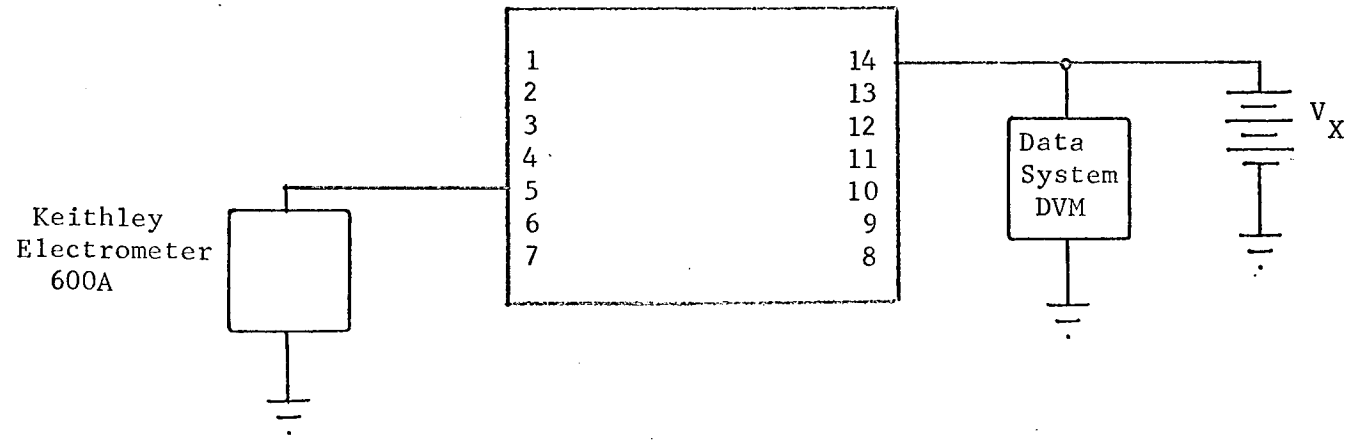
TEST NUMBER: 4

TEST TITLE: Resistance

TEST CONDITIONS:

1. Connect the circuit shown.
2. Set Keithley electrometer to 0.003 multiplier and 10^{-2} ampere range.
3. Measurement accuracy ±5 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Adjust V_X until current reading on Keithley is 10^{-5} amperes.
2. Set exponent on data system to 10^4.
3. Record V_X as resistance.

CIRCUIT TYPE: LPDTUL 904

TEST NUMBER: ___

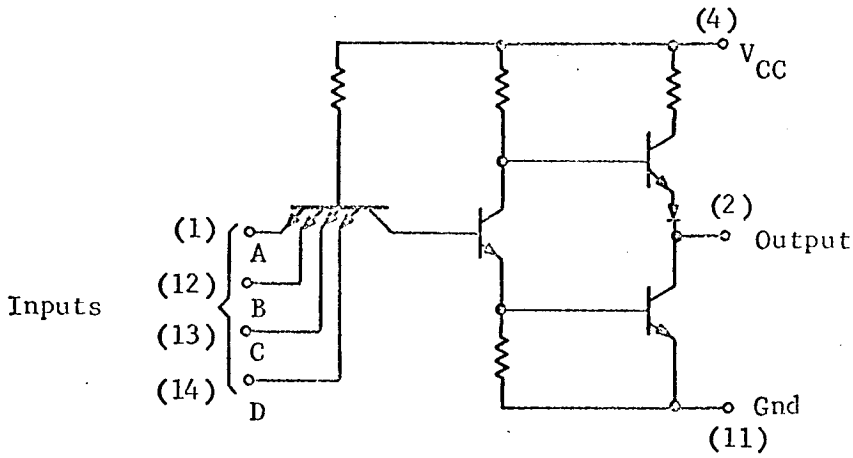
TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
R	15 K	None

COMMENTS:

TEST PLAN FOR SN 54L20



TEST CONDITIONS:

1. Pin 4 - 5.0 volts.
2. Pin 11 - ground.
3. Temperature 25 C.

TEST PARAMETERS:

L. Output voltage levels (V_{OH}, V_{OL}).
2. Input voltage levels (V_{IH}, V_{IL}).
3. Input leakage current.
4. Input drive current.
5. Power supply current.
6. Propagation delay.

CHARACTERIZATION PLAN

CIRCUIT TYPE: SN54L20

BASIC CONDITIONS	NOTES
V_{CC} = 5.0 volts on Pin 4 Ground Pin 11 Temperature 25 C	$V_{MIN\ ONE}$ = 2.40 volts $V_{MAX\ ZERO}$ = 0.30 volts

PARAMETER	APP TEST	CONDITIONS
Output voltage levels V_{ONE}, V_{ZERO}	1	At fan-out of 10 (R_L = 4 KΩ). For V_{OH}, V_{in} = 0.70 volts. For V_{OL}, V_{in} = 2.0 volts.
Input voltage levels V_{ONE}, V_{ZERO}	2	At fan-out of 1 (R_L = 40 KΩ). For V_{IH}, V_{out} = 0.30 volts. For V_{IL}, V_{out} = 2.40 volts.
Input leakage current	3	Input voltage of 5 volts.
Input drive current	4	Input current with input connected to ground through 100 Ω.
Power supply current	5	Current required to supply gate at zero and one level.
Propagation delay	6	Average delay between input and output of gate while at fan-out of 10.

Engineer: L.J.P. Date: July 15, 1967

CIRCUIT TYPE: LPDTuL 9040

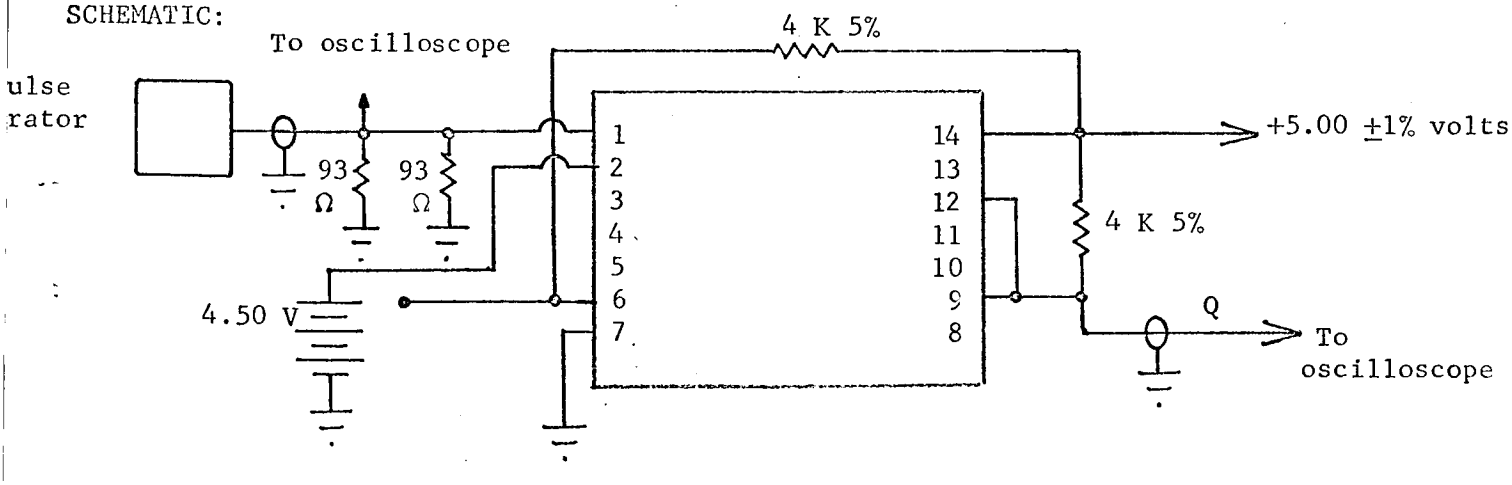
TEST NUMBER: 5

TEST TITLE: Propagation Delay

TEST CONDITIONS:

1. Clock pulse ±4.5 volts, 500 nsec, 1 MHz.
2. Use TI No. 6509X pulse generator, and terminate both ends of cable (RG62) in 93 Ω.
3. Measurement accuracy ±5 percent.

SCHEMATIC:



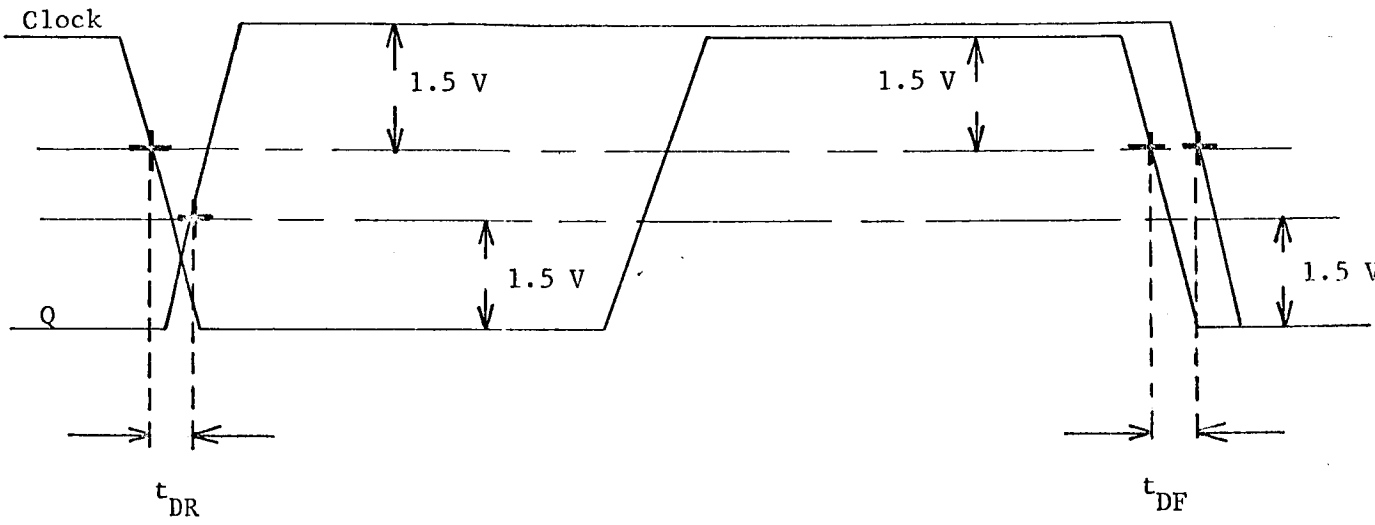
TEST PROCEDURE:

1. Measure and record t_{DR} and t_{DF} as defined on following page.
2. Decrease V_{C1} until toggle action stops. Record V_{C1} as $V_{MIN\ C1}$.
3. Determine and record minimum clock amplitude for toggle.

CIRCUIT TYPE: LPDTuL 9040

TEST NUMBER: 5

TEST PROCEDURE CONTINUED:



APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
t_{DR}	90 nsec	None
t_{DF}	150 nsec	
$V_{MIN\ CP}$	1.3 volts	
$V_{MIN\ C1}$	1.2 volts	

COMMENTS:

CIRCUIT TYPE: SN54L20

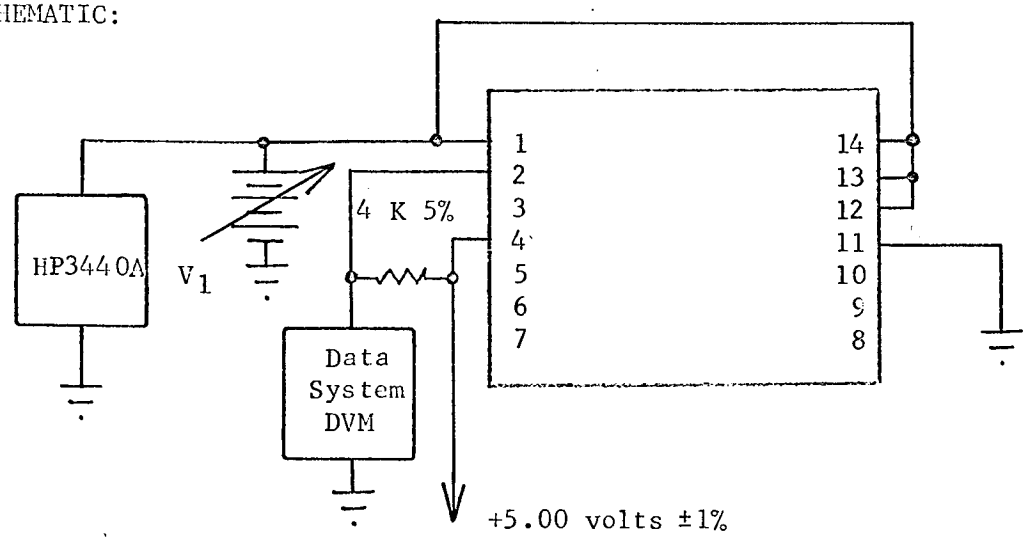
TEST NUMBER: 1

TEST TITLE: Output Voltage Levels (V_{OH}, V_{OL})

TEST CONDITIONS:

1. Connect the circuit below in the following sequence: Pin 11, Pin 4, others.
2. Measurement accuracy ±2 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Adjust V_1 for 2.00 volts.
2. Record DVM voltage as V_{OL}.
3. Adjust V_1 for 0.700 volts.
4. Record DVM voltage as V_{OH}.

CIRCUIT TYPE: SN54L20

TEST NUMBER: 1

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
V_{OL}	0.100 volts	0.3 volts
V_{OH}	5.00 volts	2.4 volts

COMMENTS:

CIRCUIT TYPE: SN54L20

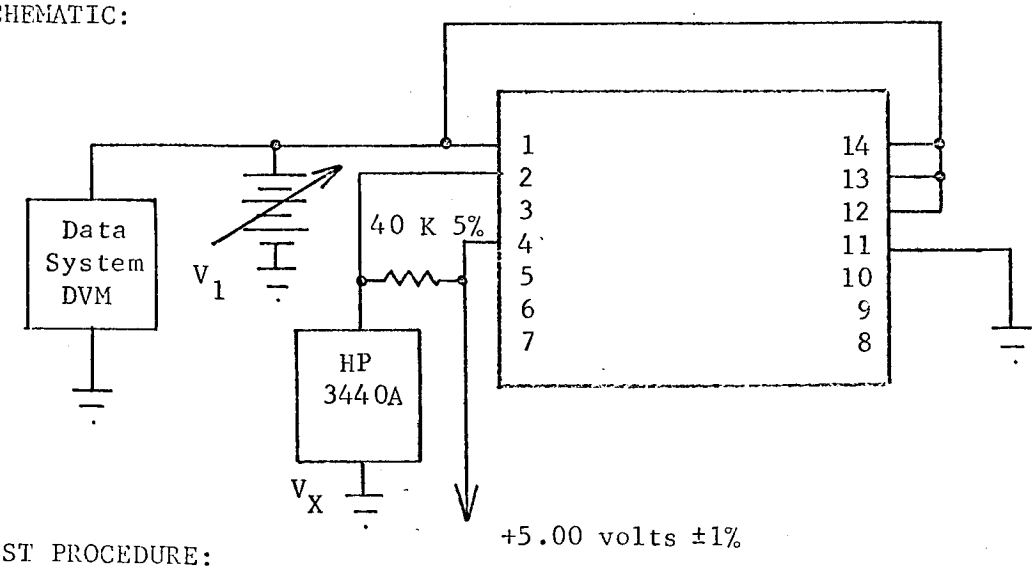
TEST NUMBER: 2

TEST TITLE: Input Voltage Levels (V_{IH}, V_{IL})

TEST CONDITIONS:

1. Connect the circuit below in the following sequence: Pin 11, Pin 4, others.
2. Measurement accuracy ±2 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Adjust V_1 for V_X = 0.50 volts (stable).
2. Record V_1 as V_{IH}.
3. Adjust V_1 for V_X = 2.40 volts (stable).
4. Record V_1 as V_{IL}.

CIRCUIT TYPE: SN54L20

TEST NUMBER: 2

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
V_{IH}	1.5 volts	2.0 volts
V_{IL}	0.5 volts	0.7 volts

COMMENTS:

CIRCUIT TYPE: SN54L20

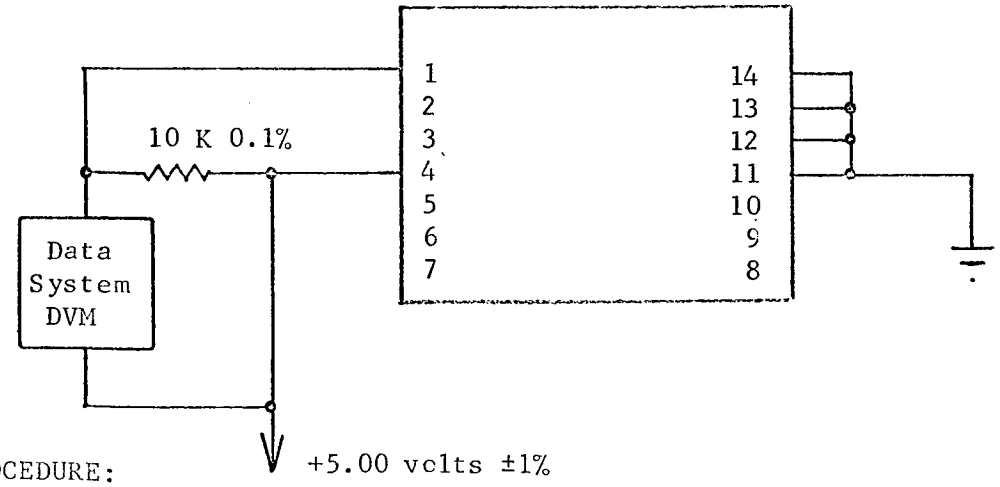
TEST NUMBER: 3

TEST TITLE: Input Leakage Current

TEST CONDITIONS:

1. Connect circuit below in the following sequence: Pin 11, Pin 4, others.
2. Measurement accuracy ±2 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Read and record DVM reading as I_L. $I_L = V_{DVM} \times 10^{-4}$.

CIRCUIT TYPE: SN54L20

TEST NUMBER: 3

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
I_L	50 μA	None

COMMENTS:

CIRCUIT TYPE: SN54L20

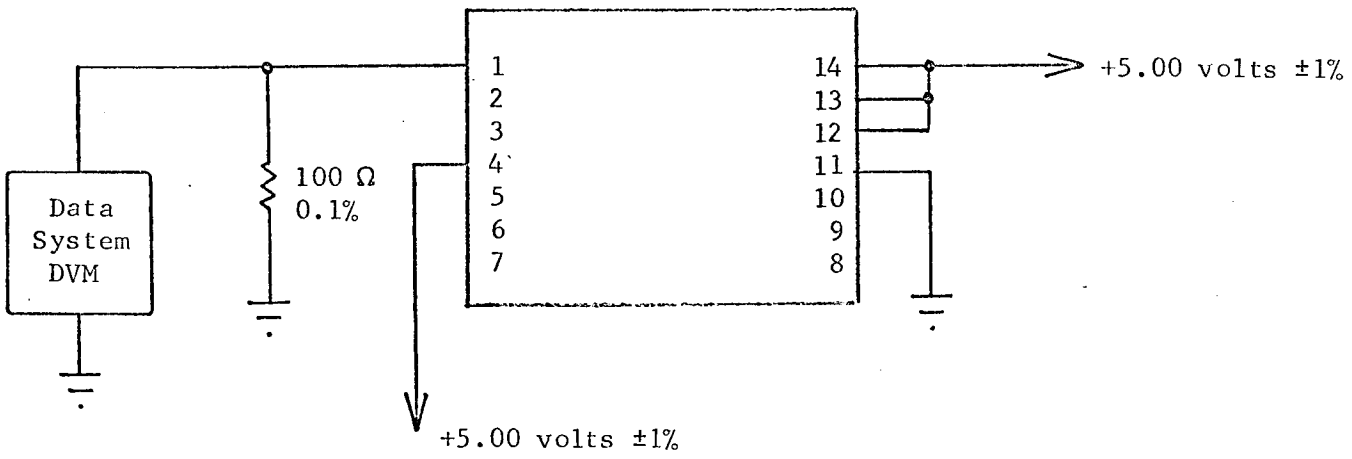
TEST NUMBER: 4

TEST TITLE: Input Drive Current

TEST CONDITIONS:

1. Connect circuit below in the following sequence: Pin 11, Pin 4, others.
2. Measurement accuracy ±2 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Read DVM as input drive current, I_{in}.

CIRCUIT TYPE: SN54L20

TEST NUMBER: 4

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
I_{in}	0.10 mA	0.18 mA

COMMENTS:

CIRCUIT TYPE: SN54L20

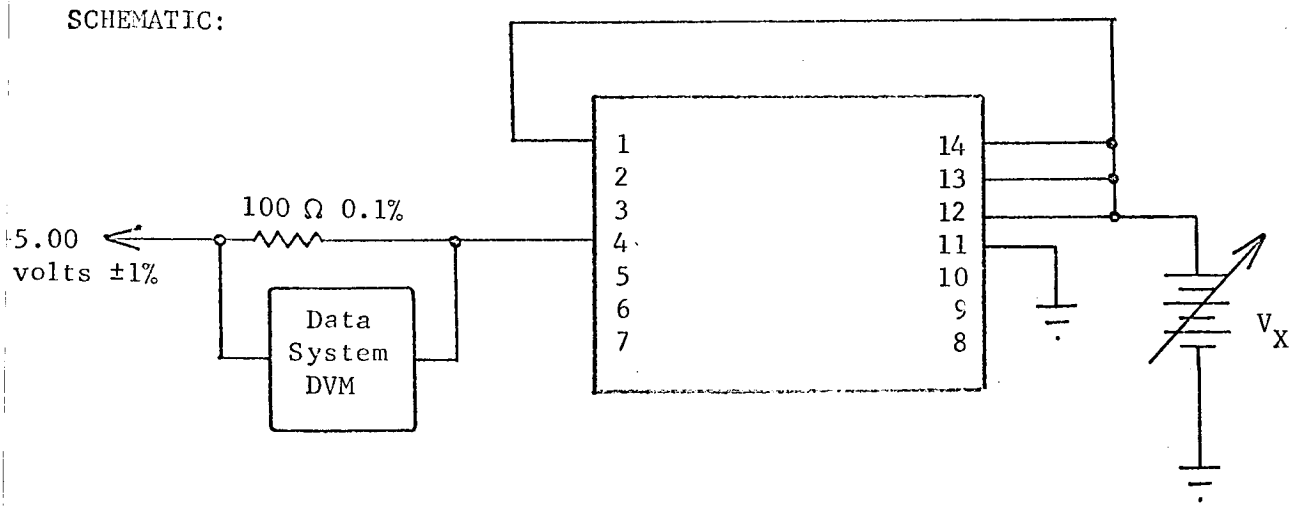
TEST NUMBER: 5

TEST TITLE: Power Supply Current

TEST CONDITIONS:

1. Connect the circuit below in the following sequence: Pin 11, Pin 4, others.
2. Measurement accuracy ±2 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Set V_X to zero and record current as I_{CC1}.
2. Set V_X to 5.00 volts and record current as I_{CC0}.

CIRCUIT TYPE: SN54L20

TEST NUMBER: 5

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
I_{CC0}	0.15 mA	0.29 mA
I_{CC1}	0.07 mA	0.11 mA

COMMENTS:

CIRCUIT TYPE: SN54L20

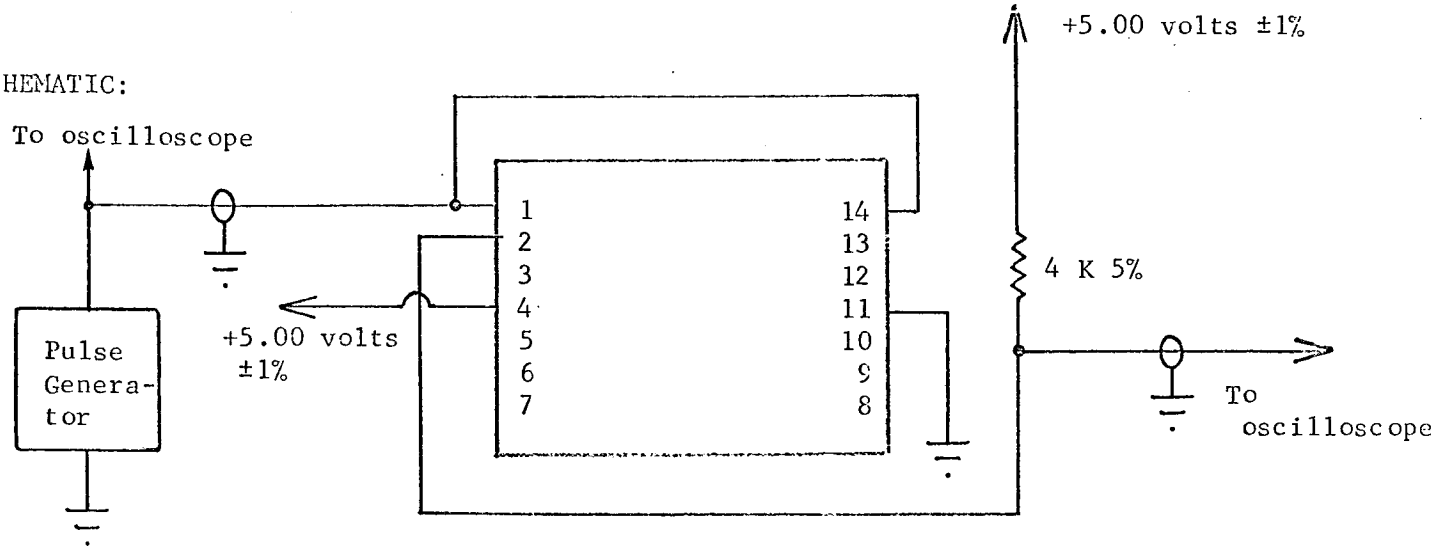
TEST NUMBER: 6

TEST TITLE: Propagation Delay

TEST CONDITIONS:

1. Input pulse: amplitude +4.5 volts, pulse width 500 nsec, 1 MHz.
2. Use TI No. 6509X pulse generator. Terminate both ends of cable (RG62) in 93 Ω.
3. Measurement accuracy ±5 percent.

SCHEMATIC:



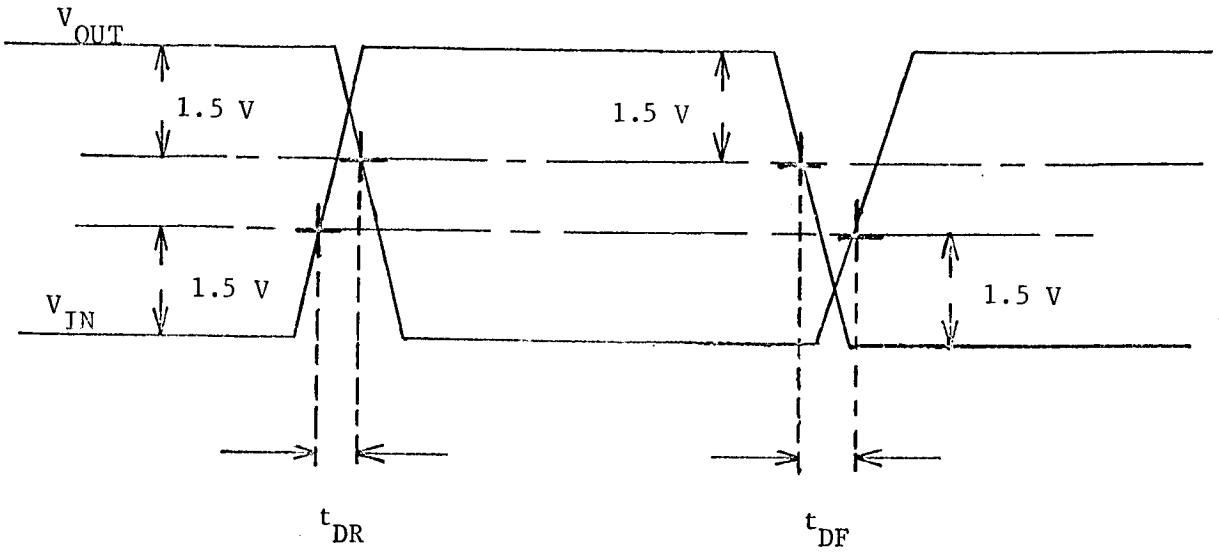
TEST PROCEDURE:

1. Measure and record t_{DL} and t_{DF} as defined on following page.

CIRCUIT TYPE: SN54L20

TEST NUMBER: 6

TEST PROCEDURE CONTINUED:

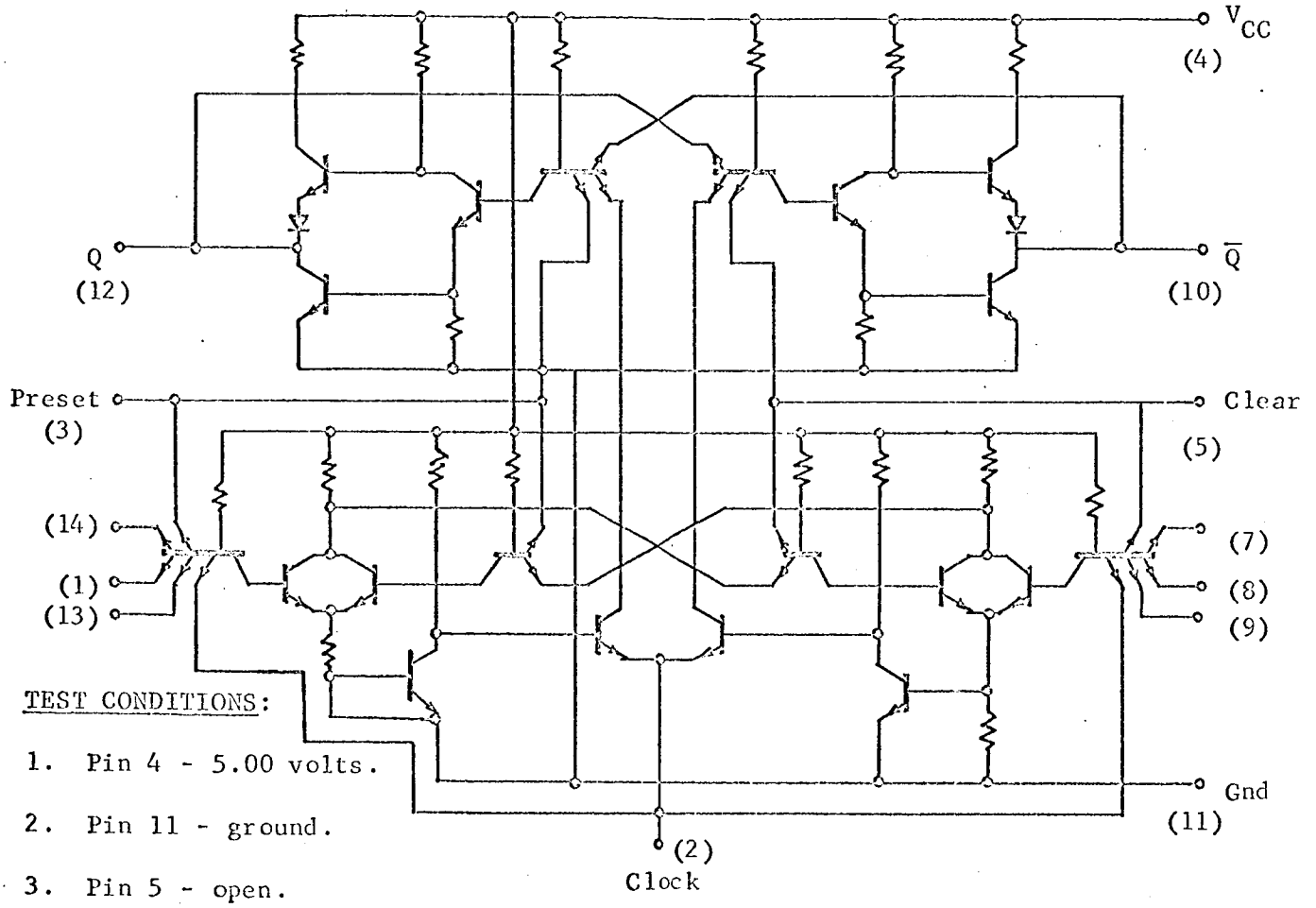


APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
t_{DF}	30 ns	None
t_{DR}	30 ns	None

COMMENTS:

TEST PLAN FOR SN 54L71 FLIP-FLOPS



TEST CONDITIONS:

1. Pin 4 - 5.00 volts.
2. Pin 11 - ground.
3. Pin 5 - open.
4. Temperature 25 C.

TEST PARAMETERS:

1. Output voltage levels (Q $\overline{Q}$ both V_H, V_L).
2. Leakage current (PRESET and R_1).
3. Input currents.
4. Power supply current.
5. Propagation delay.
6. Minimum clock amplitude.
7. Minimum input one voltage.

CHARACTERIZATION PLAN

CIRCUIT TYPE: SN 54L71

BASIC CONDITIONS	NOTES
V_{CC} = 5 volts on Pin 4 Ground on Pin 7 Pin 11 open Temperature 25 C	$V_{MAX\ ZERO}$ = 0.3 volts $V_{MIN\ ONE}$ = 2.4 volts Standard clock pulse: 4.5 volts, 500 nsec, 1 MHz

PARAMETER	APP TEST	CONDITIONS
Output_one voltage for Q and Q	1	At fan-out of 10 (R_L = 4 KΩ).
Output_zero voltage for Q and Q	1	At fan-out of 10 (R_L = 4 KΩ).
Leakage current at PRESET and R_1	2	5 volts at PRESET and R_1 measure leakage to ground.
Input current at PRESET and R_1	3	Current when respective terminals are grounded.
Power supply current	4	Current load to power supply.
Propagation delay	5	Delay between input and output at fan-out of 10.
Minimum clock amplitude	5	Reduce clock amplitude until toggle action stops.

CIRCUIT TYPE: SN 54L71

PARAMETER	APP. TEST	CONDITIONS
Minimum input one voltage R_1, S_1.		Reduce R_1 and S_1 voltage until toggle action stops.

ENGINEER L.J.P. DATE August 10, 1967

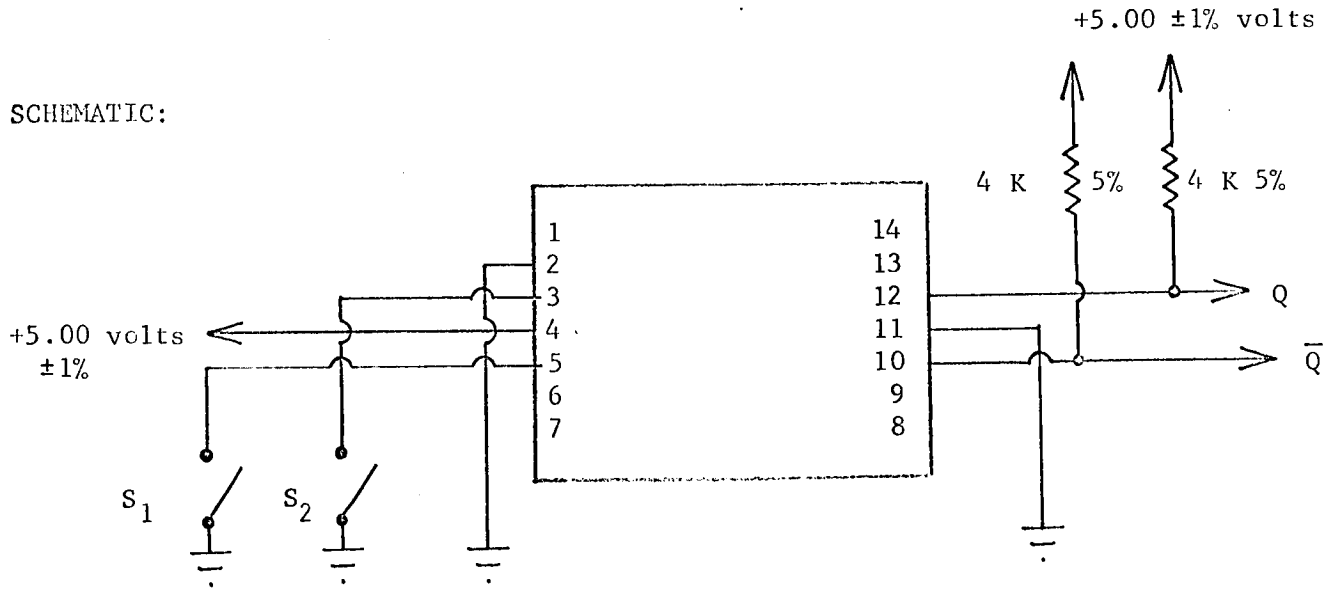
REVISIONS:

TEST TITLE: Output Voltage Levels Q and $\overline{Q}$

TEST CONDITIONS:

1. Connect the circuit below in the following sequence: Pin 11, Pin 4, others.
2. Measurement accuracy ±2 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Close S_1 momentarily; observe that $Q < 0.3$ volts; record Q as VQ_{OL}. Repeat for all devices.
2. Close S_1 momentarily; observe that $\overline{Q} > 2.4$ volts; record $\overline{Q}$ as VQ_{OH}. Repeat for all devices.
3. Close S_2 momentarily; observe that $Q > 2.4$ volts; record Q as VQ_{OH}. Repeat for all devices.
4. Close S_2 momentarily; observe that $\overline{Q} < 0.3$ volts; record $\overline{Q}$ as VQ_{OL}. Repeat for all devices.

CIRCUIT TYPE: SN 54L71

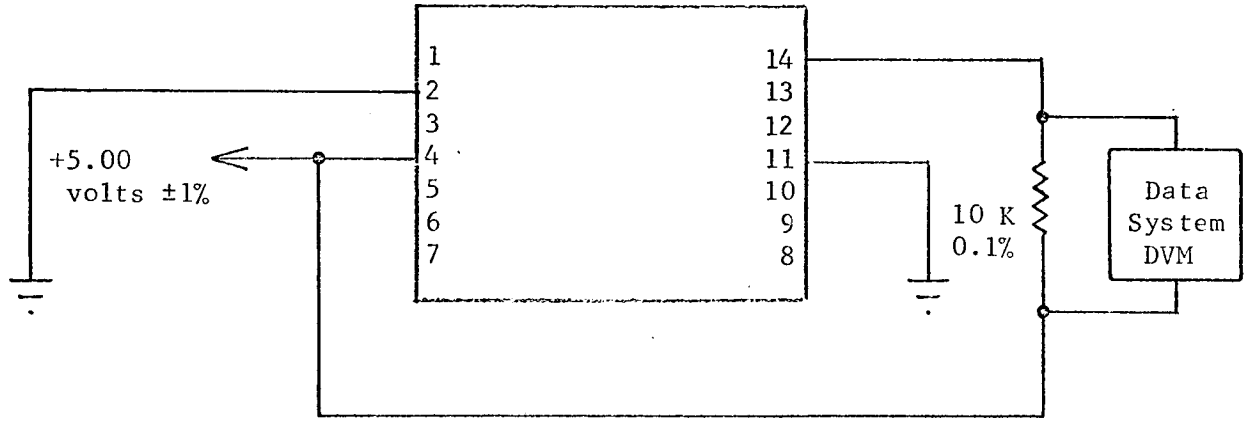
TEST NUMBER: 2

TEST TITLE: Input Leakage Currents

TEST CONDITIONS:

1. Connect circuit below in the following sequence: Pin 11, Pin 4, others.
2. Scan all devices before changing conditions.
3. Measurement accuracy ±3 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Scan all devices. Record current as I_{LR1}.
2. Place resistor DVM combination on Pin 3.
3. Record current as $I_{L\ PRESET}$.

CIRCUIT TYPE: SN 54L71

TEST NUMBER: 1

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
V_{OH} Q, $\overline{Q}$	5.00 volts	2.4 volts
V_{OL} Q, $\overline{Q}$	0.100 volts	0.3 volts

COMMENTS:

Set power supply voltage with DVM to 1.0 percent of nominal value.

CIRCUIT TYPE: SN 54L71

TEST NUMBER: 2

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
I_{LR1}	10 μA	None
$I_{L\ PRESET}$	20 μA	None

COMMENTS:

CIRCUIT TYPE: SN 54L71

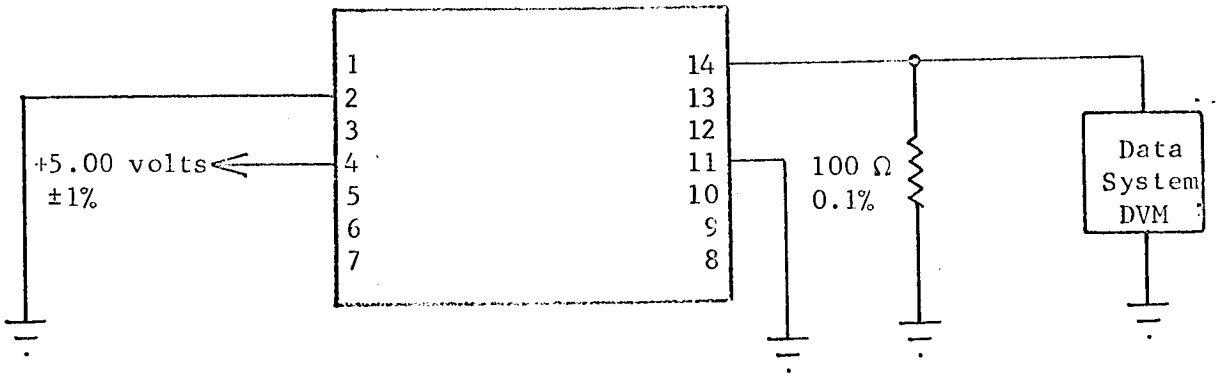
TEST NUMBER: 3

TEST TITLE: Input Currents

TEST CONDITIONS:

1. Connect circuit below in the following sequence: Pin 11, Pin 4, others.
2. Measurement accuracy ±3 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Scan all devices and record current as I_{R1}.
2. Place resistor DVM combination on Pin 3.
3. Record current as I_{PRESET}.

CIRCUIT TYPE: SN 54L71

TEST NUMBER: 3

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
I_R, I_{PRESET}	0.10 mA	0.36 mA

COMMENTS:

CIRCUIT TYPE: SN 54L71

TEST NUMBER: 4

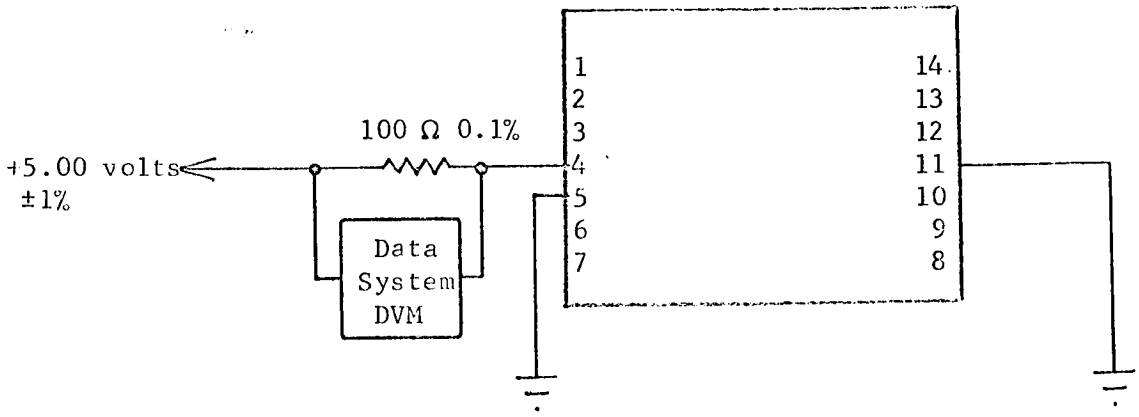
TEST TITLE: Power Supply Current

TEST CONDITIONS:

1. Connect circuit below in the following sequence: Pin 11, Pin 4, Pin 5.

2. Measurement accuracy ±3 percent

SCHEMATIC:



TEST PROCEDURE:

1. Scan all devices and record current as I_{CC}.

CIRCUIT TYPE: SN 54L71

TEST NUMBER: 4

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
I_{CC}	0.30 mA	0.76 mA

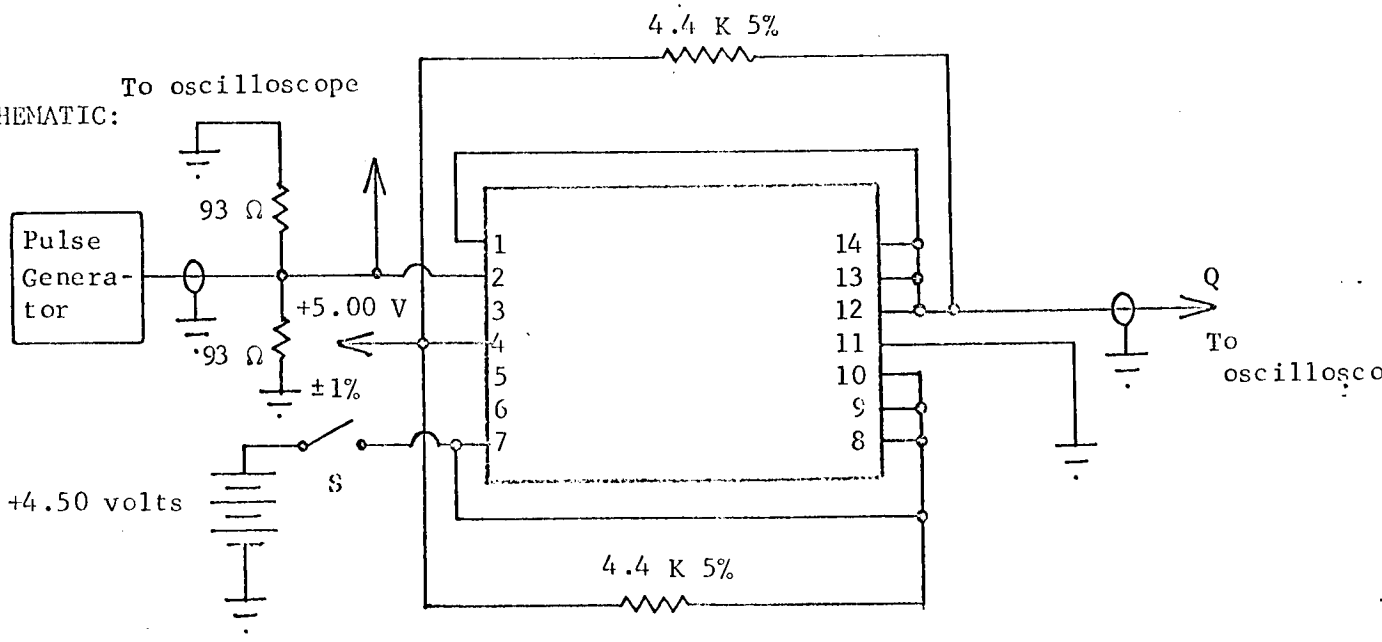
COMMENTS:

TEST TITLE: Propagation Delay; Minimum Clock Voltage; Minimum Input Voltage

TEST CONDITIONS:

1. Clock pulse +4.5 volts, 500 nsec, 1 MHz.
2. Use TI No. 6509X pulse generator. Terminate both ends of cable (RG62) in 93 Ω.
3. Measurement accuracy ±5 percent.

SCHEMATIC:



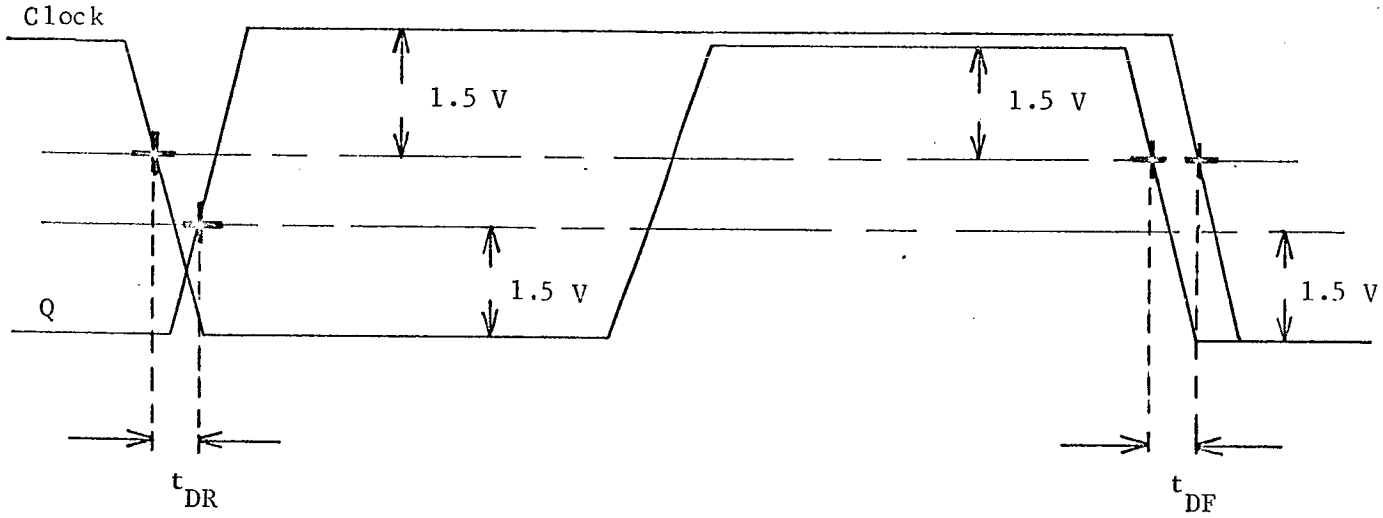
TEST PROCEDURE:

1. Measure and record t_{DR} and t_{DF} for Q as defined on following page.
2. Determine minimum clock amplitude for toggle.
3. Close S.
4. Decrease V_S until toggle fails and record V_S as $V_{MIN\ S}$.

CIRCUIT TYPE: SN 54L71

TEST NUMBER: 5

TEST PROCEDURE CONTINUED:

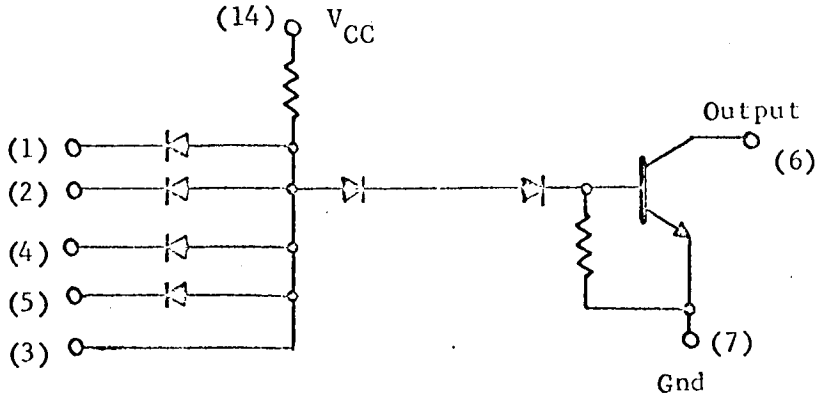


APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
t_{DF}	30 ns	None
t_{DR}	60 ns	
$V_{MIN\ CP}$	1.3 volts	
$V_{MIN\ S}$	1.3 volts	

COMMENTS:

TEST PLAN FOR RD 310 GATES



TEST CONDITIONS:

1. Pin 14 - 5.0 volts.
2. Pin 7 - ground.
3. Temperature 25 C.

TEST PARAMETERS:

1. Output voltage levels (V_{OH}, V_{OL}).
2. Input voltage levels (V_{IH}, V_{IL}).
3. Input leakage current.
4. Input drive current.
5. Diode forward voltage.
6. Resistance.
7. Propagation delay.

CHARACTERIZATION PLAN

CIRCUIT TYPE: RD 310

BASIC CONDITIONS	NOTES
V_{CC} = 5.00 volts on Pin 14 Ground Pin 7 Temperature 25 C	$V_{MIN\ ONE}$ = 3.7 volts $V_{MAX\ ZERO}$ = 0.45 volts

PARAMETER	APP TEST	CONDITIONS
Output voltage levels V_{ONE}, V_{ZERO}	1	At fan-out 5 (R_L = 360 Ω). For V_{OH}, V_{in} = 0.8 volts. For V_{OL}, V_{in} = 2.2 volts.
Input voltage levels V_{ONE}, V_{ZERO}	2	At fan-out 1 (R_L = 1.8 KΩ). For V_{IH}, V_{out} = 0.45 volts. For V_{IL}, V_{out} = 3.70 volts.
Input leakage current	3	Reverse current in diode.
Input drive current	4	Input grounded through 100 Ω.
Input diode forward voltage	5	Diode forward voltage at forward current of 2.5 mA.
Resistance	6	Resistance between Pin 3 and Pin 14.
Propagation delay	7	Average delay between input and output of gate while at fan-out of 5.

Engineer: L.J.P. Date: July 15, 1967

CIRCUIT TYPE: RD 310

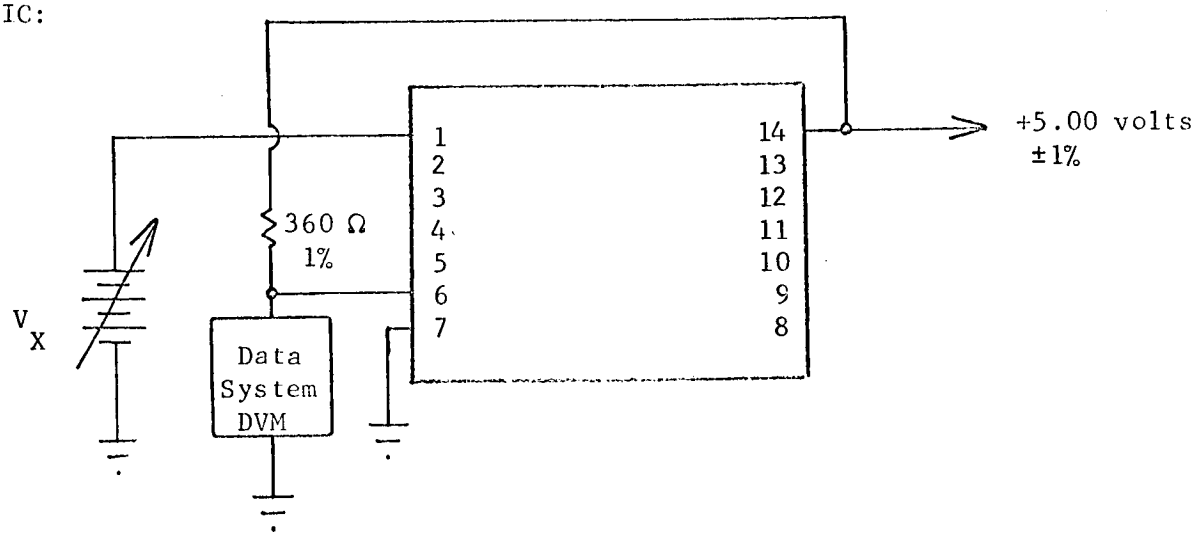
TEST NUMBER: 1

TEST TITLE: Output Voltage Levels (V_{OH}, V_{OL})

TEST CONDITIONS:

1. Connect the circuit below in the following sequence: Pin 7, Pin 14, others.
2. Measurement accuracy ±2 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Set V_X to 0.800 volts. Measure and record V_{OH} on all circuits.
2. Set V_X to 2.20 volts. Measure and record V_{OL} on all circuits.

CIRCUIT TYPE: RD 310

TEST NUMBER: 1

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
V_{OH}	5.00 volts	3.90 volts
V_{OL}	0.25 volts	0.45 volts

COMMENTS:

CIRCUIT TITLE: RD 510

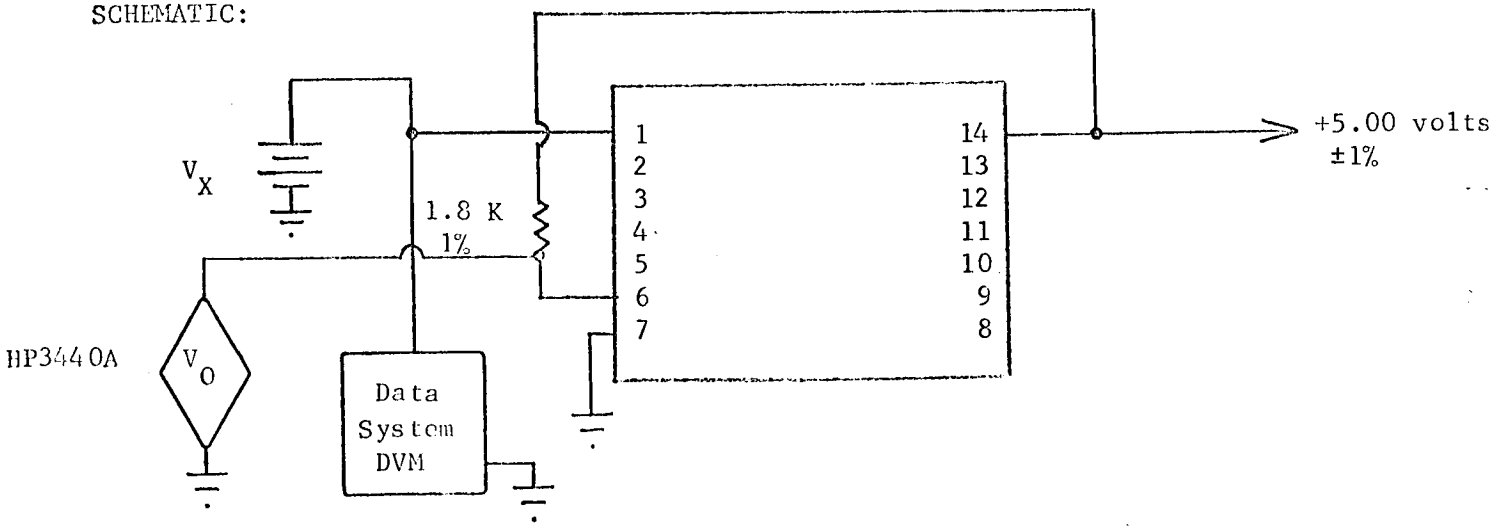
TEST NUMBER: 2

TEST TITLE: Input Voltage Levels (V_{IH}, V_{IL})

TEST CONDITIONS:

1. Connect the circuit below in the following sequence: Pin 7, Pin 14, others.
2. Measurement accuracy ±2 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Adjust V_X for 3.70 volts on HP3440A and record V_X as V_{IL}.
2. Adjust V_X for 0.45 volts on HP3440A and record V_X as V_{IH}.

CIRCUIT TYPE: RD 310

TEST NUMBER: 2

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
V_{IH}	0.30 volts	0.80 volts
V_{IL}	1.40 volts	2.2 volts

COMMENTS:

CIRCUIT TYPE: RD 310

TEST NUMBER: 3

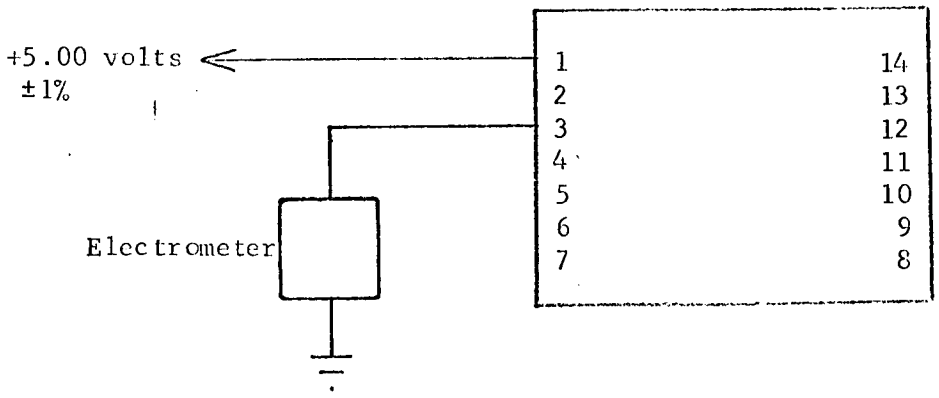
TEST TITLE: Input Leakage Current

TEST CONDITIONS:

1. Use Keithley Model 600A electrometer. Set multiplier to 0.01 (current range).

2. Measurement accuracy ±3 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Record current as I_L.

CIRCUIT TYPE: RD 310

TEST NUMBER: 3

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
I_L	10^{-9} amperes	None

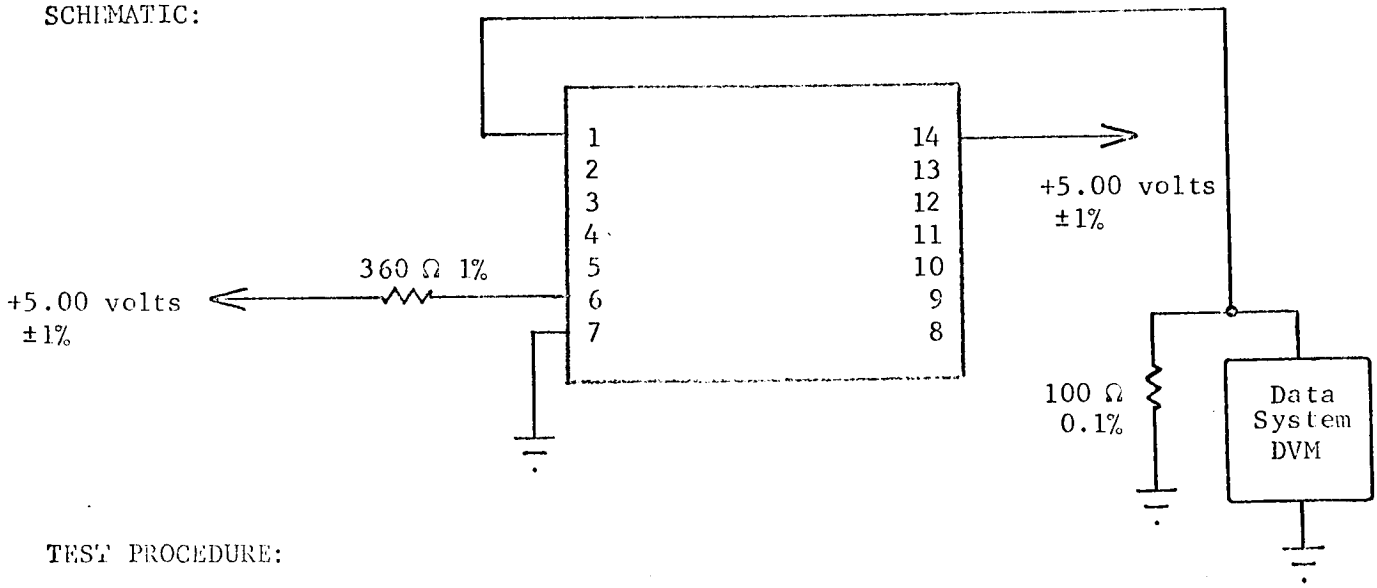
COMMENTS:

TEST TITLE: Input Drive Current

TEST CONDITIONS:

1. Connect the circuit below in the following sequence: Pin 7, Pin 14, others.
2. Measurement accuracy ±3 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Record input drive current I_{in}.

CIRCUIT TYPE: RD 310

TEST NUMBER: 4

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
I_{in}	0.150 mA	None

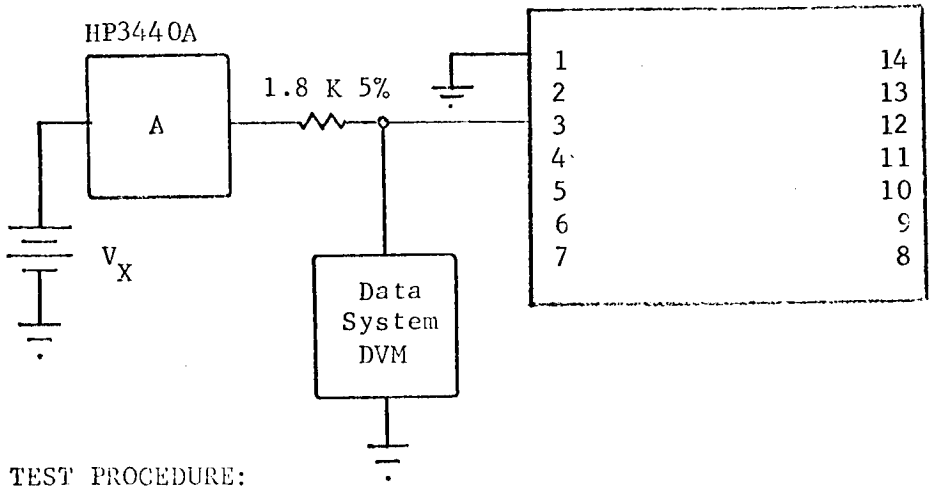
COMMENTS:

TEST TITLE: Input Diode Forward Voltage

TEST CONDITIONS:

1. Connect the circuit below in the following sequence: Pin 7, Pin 3.
2. Measurement accuracy ±5 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Adjust V_X until current in ammeter is 2.5 mA.
2. Record DVM reading as V_{DF}.

CIRCUIT TYPE: RD 310

TEST NUMBER: 5

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
V_{DF}	0.7 volts	None

COMMENTS:

CIRCUIT TYPE: RD 510

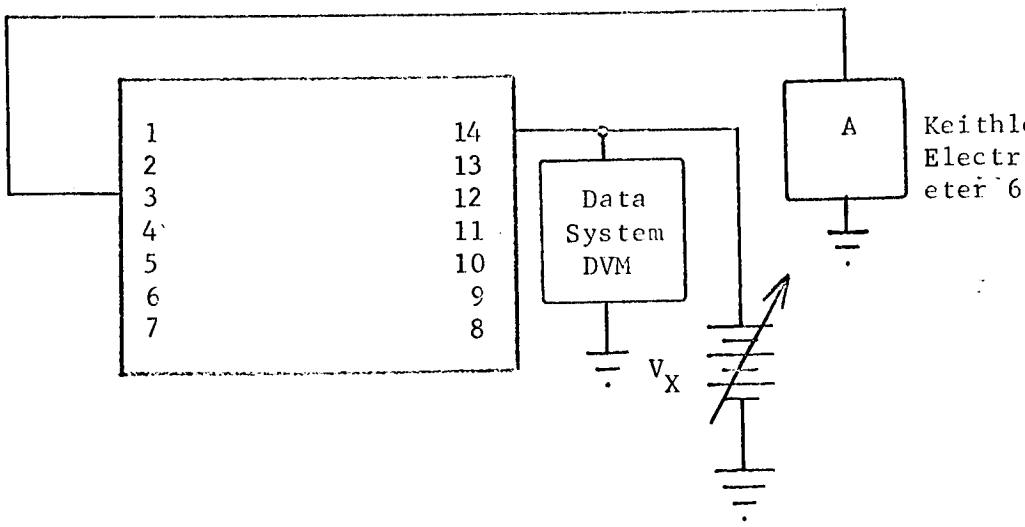
TEST NUMBER: 6

TEST TITLE: Resistance

TEST CONDITIONS:

1. Connect the circuit below in the following sequence: Pin 3, Pin 14.
2. Set electrometer to 0.003 multiplier.
3. Measurement accuracy ±5 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Set V_X until electrometer reads 0.1 mA.
2. Set exponent on data system to 10^3.
3. Record DVM reading as R.

CIRCUIT TYPE: RD 310

TEST NUMBER: 6

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
R	1.8 K	None

COMMENTS:

CIRCUIT TYPE: RD 310

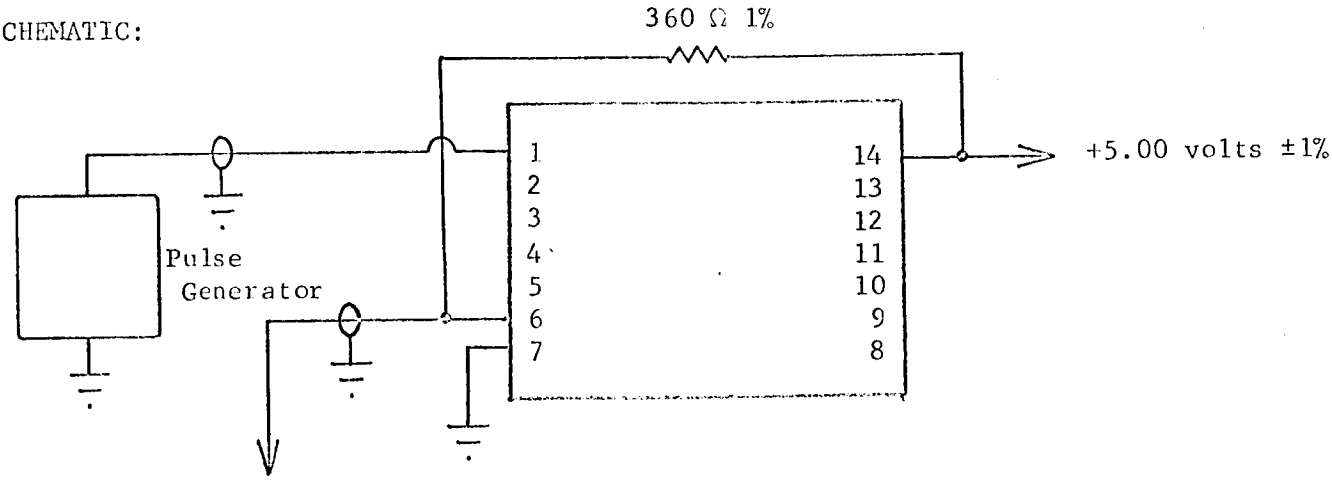
TEST NUMBER: 7

TEST TITLE: Propagation Delay

TEST CONDITIONS:

1. Input pulse: amplitude +4.5 volts, 500 nsec, 1 MHz.
2. Use TI No. 6509X pulse generator. Terminate both ends of cable (RG62) in 93 Ω.
3. Measurement accuracy ±5 percent.

SCHEMATIC:



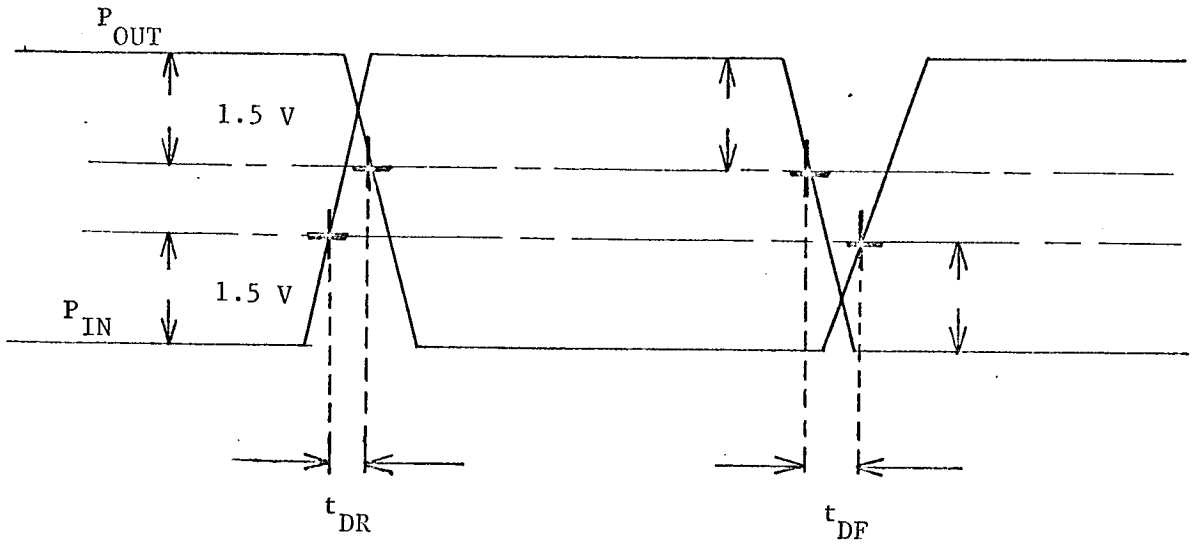
TEST PROCEDURE:

1. Measure and record propagation delay t_{DR} and t_{DF} as defined on following page.

CIRCUIT TYPE: RD 310

TEST NUMBER: 7

TEST PROCEDURE CONTINUED:

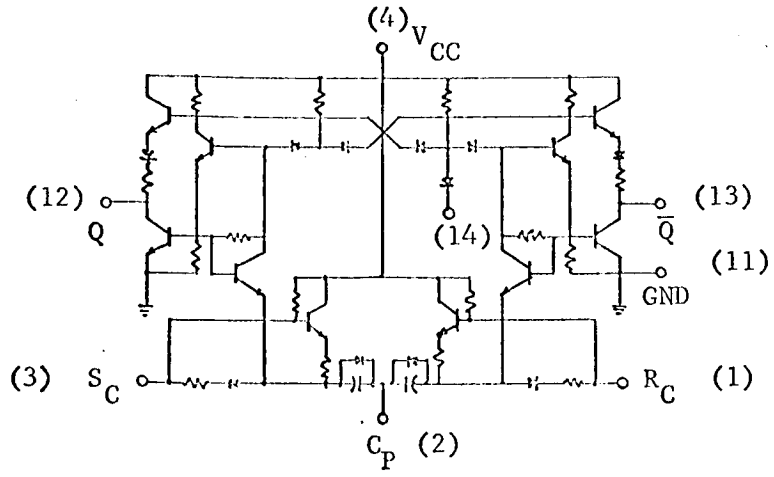


APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
t_{DR}	8 ns	None
t_{DF}	10 ns	None

COMMENTS:

TEST PLAN FOR RD 321 FLIP-FLOP



TEST CONDITIONS:

1. Pin 4 - 5.0 volts.
2. Pin 11 - ground.
3. Pin 14 - open.
4. Temperature 25 C.

TEST PARAMETERS:

1. Output voltage levels (Q, $\overline{Q}$) V_H, V_L.
2. Leakage current at R_D.
3. Input current at R_D, R_C, C_P.
4. Resistance.
5. Propagation delay.
6. Minimum clock amplitude.

CHARACTERIZATION PLAN

CIRCUIT TYPE: RD 321

BASIC CONDITIONS	NOTES
V_{CC} = 5 volts on Pin 4 Ground on Pin 11 Pin 14 open Temperature 25 C	$V_{MAX\ ZERO}$ = 0.45 volts $V_{MIN\ ONE}$ = 2.5 volts Standard clock pulse: 4.5 volts, 500 nsec, 1 MHz

PARAMETER	APP TEST	CONDITIONS
Output one voltage for Q and Q.	1	At fan-out of 5 (R_L = 360 Ω).
Output zero voltage for Q and Q.	1	At fan-out of 5 (R_L = 360 Ω).
Input leakage current at R_D	2	5 volts at R_D; measure leakage to Pin 4.
Input zero currents at R_C, R_D.	3	Current when respective terminal is grounded.
Input zero currents at CP.	4	Current when clock terminal is grounded.
Resistance.	5	8 KΩ resistor between Pins 4 and 3.
Propagation Delay.	6	Delay between input and output of fan-out of 5.

CIRCUIT TYPE: RD 321

PARAMETER	APP. TEST	CONDITIONS
Minimum clock amplitude	6	Reduce clock amplitude until toggle action stops.

ENGINEER L.J.P. DATE August 15, 1967

REVISIONS:

CIRCUIT TYPE: RD 321

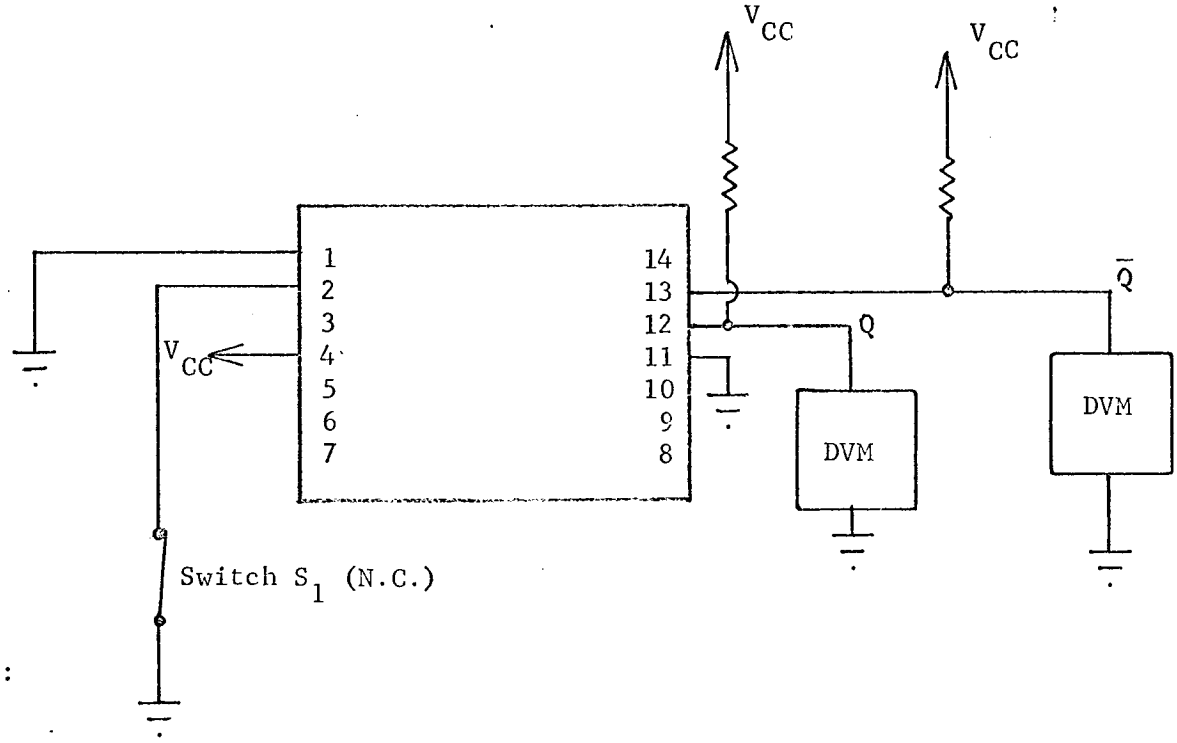
TEST NUMBER: 1

TEST TITLE: Output Voltage Levels Q, $\overline{Q}$

TEST CONDITIONS:

1. Connect the circuit below in the following sequence: Pin 11, Pin 4, others.
2. Resistors are 360 Ω ±5 percent.
3. Power supply (V_{CC}) set to 5.00 ±1 percent.
4. Measurement accuracy ±2 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Observe voltage at Q. If Q > 0.45 volts momentarily open S_1 as necessary to insure that Q is at logic zero.
2. Record voltage as VQ_{OL} on Pin 12 and record voltage on Pin 13 as VQ_{OH}.
3. Remove grounds from Pin 1 and ground Pin 3.
4. Repeat Step 1 for Pin 13.
5. Record voltage on Pin 12 as VQ_{OH}. Record voltage on Pin 13 as VQ_{OL}.

CIRCUIT TYPE: RD 321

TEST NUMBER: ___

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
V_{OL} Q, $\overline{Q}$	0.25 volts	0.45 volts
V_{OH} Q, $\overline{Q}$	5.00 volts	2.5 volts

COMMENTS:

Set power supply voltages to 1 percent of nominal value.

CIRCUIT TYPE: RD 321

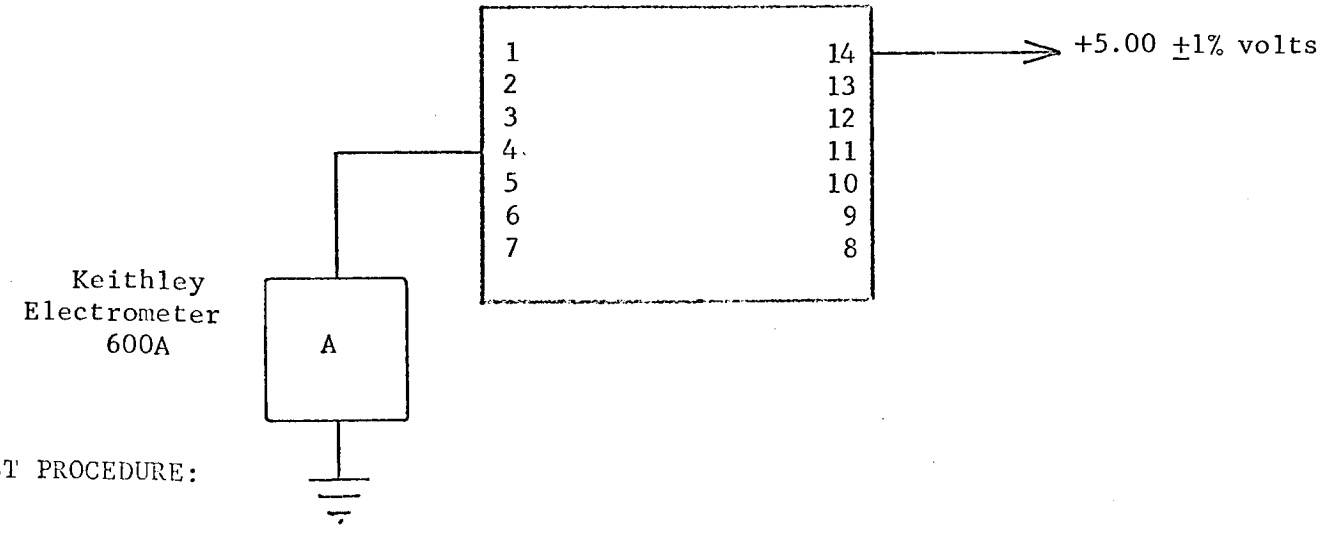
TEST NUMBER: 2

TEST TITLE: Diode Leakage Current

TEST CONDITIONS:

1. Connect circuit below.
2. Set electrometer multiplier to 0.01.
3. Measurement accuracy ±3 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Record current as $I_{L\ RD}$.

CIRCUIT TYPE: RD 321

TEST NUMBER: 2

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
$I_{L\ RD}$	10^{-9} amperes	None

COMMENTS:

CIRCUIT TYPE: RD 321

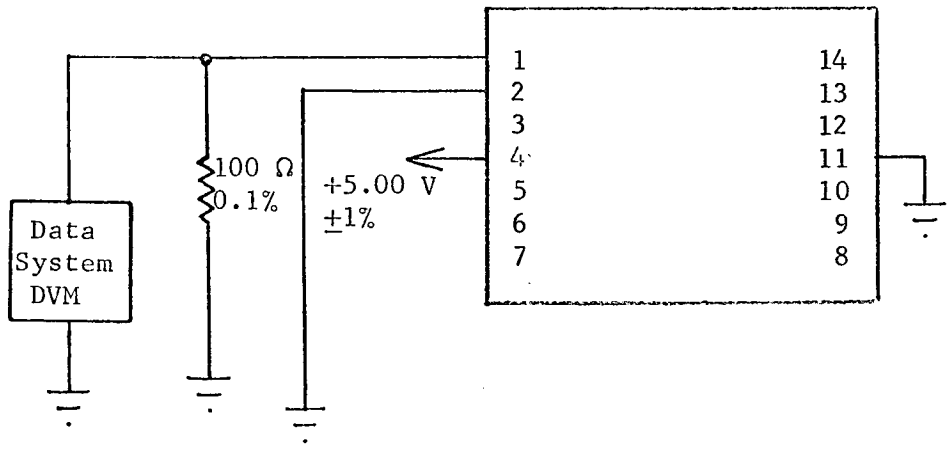
TEST NUMBER: 3

TEST TITLE: Input Currents

TEST CONDITIONS:

1. Connect circuit below in the following sequence: Pin 11, Pin 4, others.
2. Measurement accuracy ±3 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Measure current at Pin 1 and record as $I_{in\ RC}$.
2. Move meter combination to Pin 14; record current as $I_{in\ RD}$.

CIRCUIT TYPE: RD 321

TEST NUMBER:

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
I_{RD}	1.30 mA	≤ 1.76 mA
I_{RC}	0.95 mA	≤ 1.01 mA

COMMENTS:

CIRCUIT TYPE: RD 321

TEST NUMBER: 4

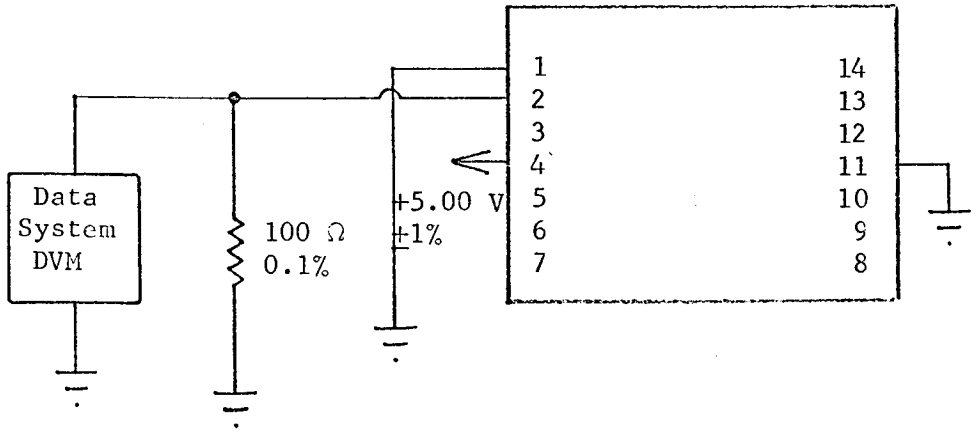
TEST TITLE: Clock Input Currents

TEST CONDITIONS:

1. Connect circuit below in the following sequence: Pin 11, Pin 4, others.

2. Measurement accuracy ±3 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Measure and record current at Pin 2 as I_{CP}.

CIRCUIT TYPE: RD 321

TEST NUMBER: 4

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
I_{CP}	1.20 mA	1.54 mA

COMMENTS:

CIRCUIT TYPE: RD 321

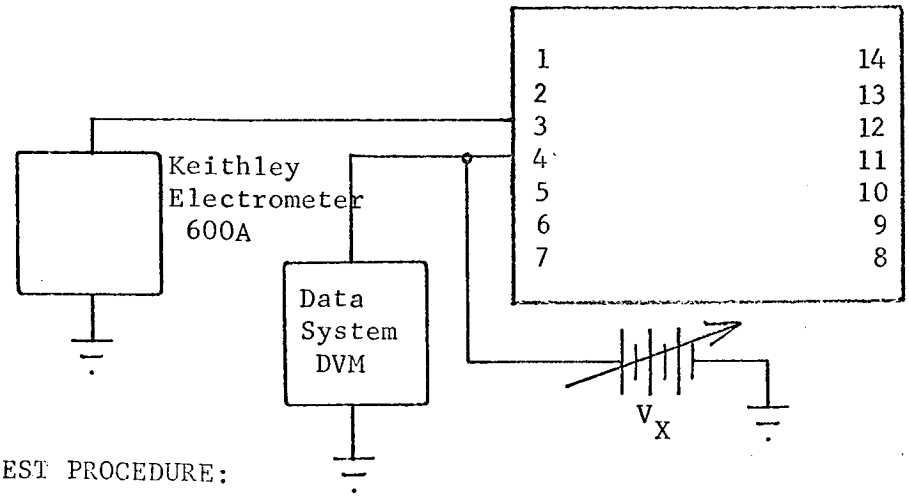
TEST NUMBER: 5

TEST TITLE: Resistance

TEST CONDITIONS:

1. Connect the circuit below in the following sequence: Pin 4, Pin 3.
2. Set Keithley electrometer to 0.003 multiplier and 10^{-1} current range.
3. Measurement accuracy ±5 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Adjust V_X until electrometer reads 10^{-4} amperes.
2. Set data system DVM to exponent 10^{3}.
3. Record V_X as R.

CIRCUIT TYPE: RD 321

TEST NUMBER: 5

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
R	8 KΩ	None

COMMENTS:

CIRCUIT TYPE: RD 321

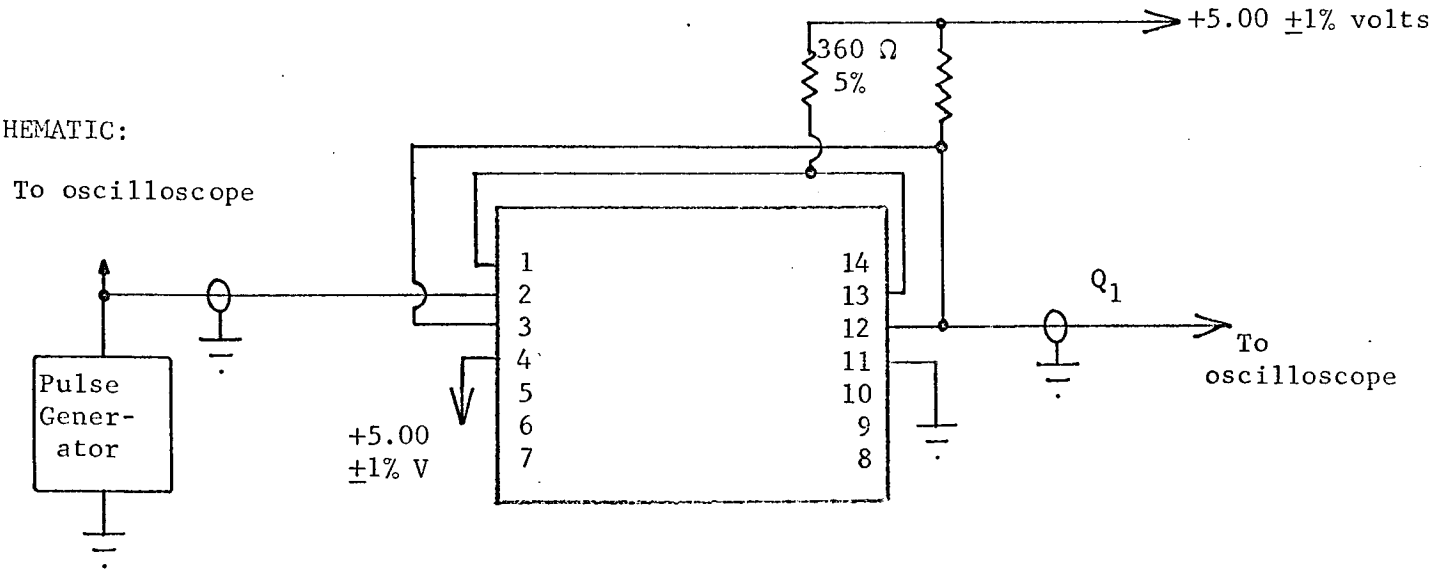
TEST NUMBER: 6

TEST TITLE: Propagation Delay

TEST CONDITIONS:

1. Clock pulse +4.50 volts, 500 nsec, 1 MHz.
2. Use TI No. 6509X pulse generator. Terminate both ends of cable (RG62) in 93 Ω.
3. Measurement accuracy ±5 percent.

SCHEMATIC:



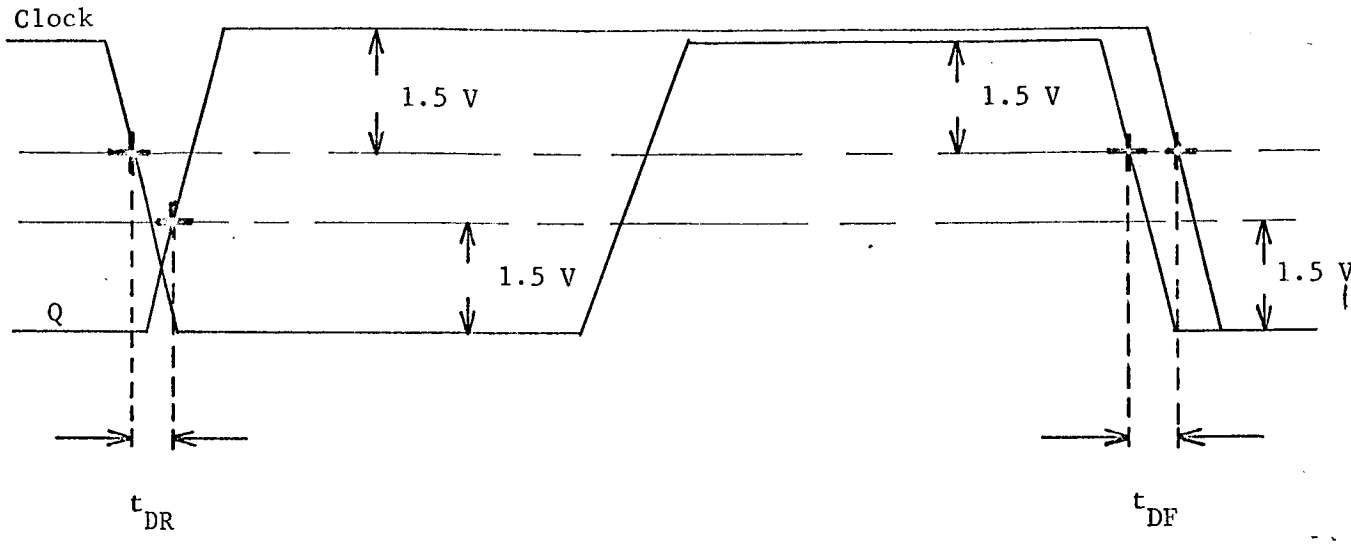
TEST PROCEDURE:

1. Measure and record delay times as defined on the following page.
2. Determine minimum clock amplitude for toggle.

CIRCUIT TYPE: RD 321

TEST NUMBER: ___

TEST PROCEDURE CONTINUED:

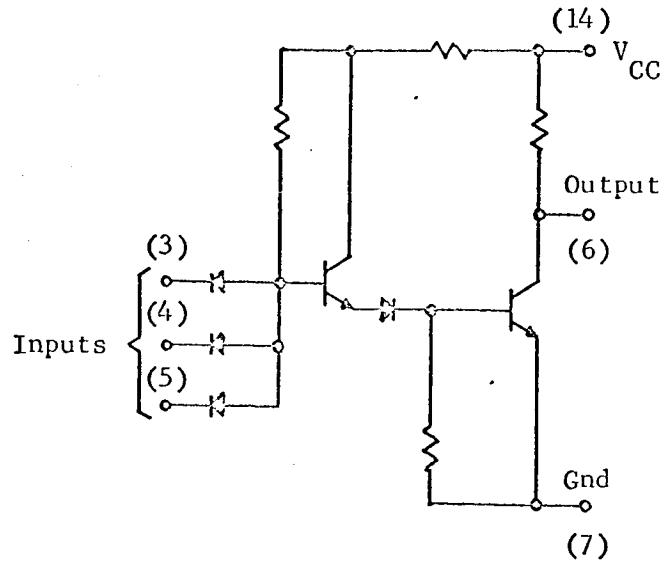


APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
t_{DR}	10 ns	None
t_{DF}	30 ns	None

COMMENTS:

TEST PLAN FOR EQUIVALENT CIRCUIT STUDY



CIRCUIT TYPES:

Fairchild DTμL962 Gates
Radiation 242 Gates
Philco PL962 Gates
Motorola SC1253 Gates
Motorola MC962 Gates
Motorola Dielectrically Isolated Gates
Texas Instrument SN15962 Gates

TEST CONDITIONS:

1. Pin 14 - 5.0 volts.
2. Pin 7 - ground.
3. Temperature 25 C.

TEST PARAMETERS:

1. Output voltage levels.
2. Input voltage levels.
3. Input leakage current.
4. Input drive current.
5. Resistance.
6. Propagation delay.

CHARACTERIZATION PLAN

CIRCUIT TYPE: 962

BASIC CONDITIONS	NOTES
V_{CC} = 5.0 volts on Pin 4 Ground Pin 7 Temperature 25 C	$V_{MIN\ ONE}$ = 2.50 volts $V_{MAX\ ZERO}$ = 0.45 volts

PARAMETER	APP TEST	CONDITIONS
Output voltage levels V_{ONE}, V_{ZERO}	1	At fan-out of 8 (R_L = 470 Ω). For V_{OH}, V_{in} = 1.10. For V_{OL}, V_{in} = 1.9.
Input voltage levels V_{ONE}, V_{ZERO}.	2	At no load. For V_{IH}, V_{out} = 0.45 volts. For V_{IL}, V_{out} = 2.50 volts.
Input leakage current	3	Reverse current in diode.
Input drive current	4	Input grounded through 10 Ω.
Resistance	5	Resistance between Pin 14 and Pin 6.
Propagation delay	6	Average delay between input and output of gate at fan-out of 8.

Engineer: L.J.P. Date: July 22, 1967

CIRCUIT TYPE: 962

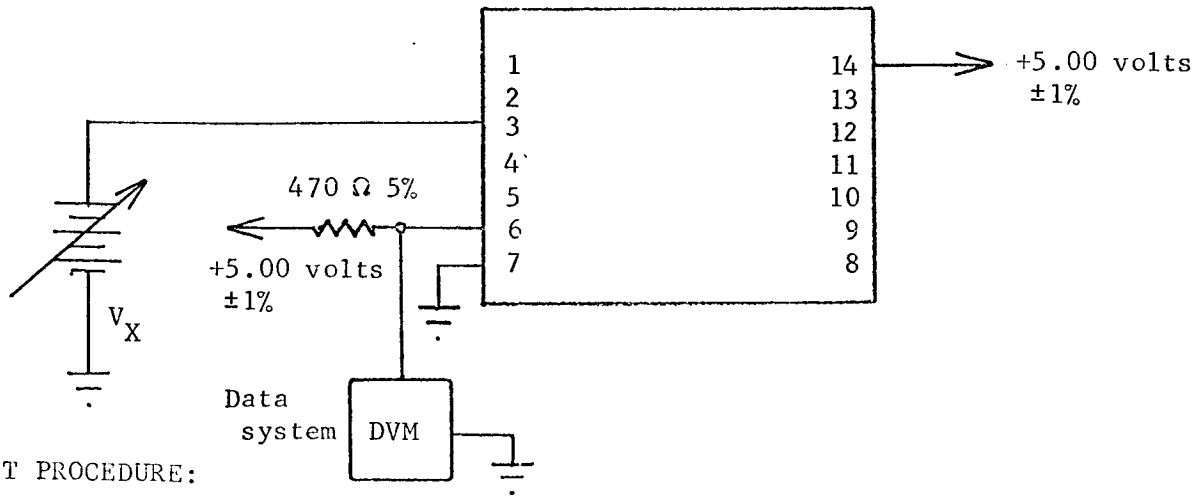
TEST NUMBER: 1

TEST TITLE: Output Voltage Levels (V_{OH}, V_{OL})

TEST CONDITIONS:

1. Connect the circuit below in the following sequence: Pin 7, Pin 14, others.
2. Measurement accuracy ±2 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Adjust V_X to 1.90 volts. Scan all devices and record data as V_{OL}.
2. Adjust V_X to 1.10 volts. Scan all devices and record data as V_{OH}.

CIRCUIT TYPE: 962

TEST NUMBER: 1

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
V_{OL}	0.25 volts	0.4 volts
V_{OH}	5.00 volts	2.6 volts

COMMENTS:

CIRCUIT TYPE: 962

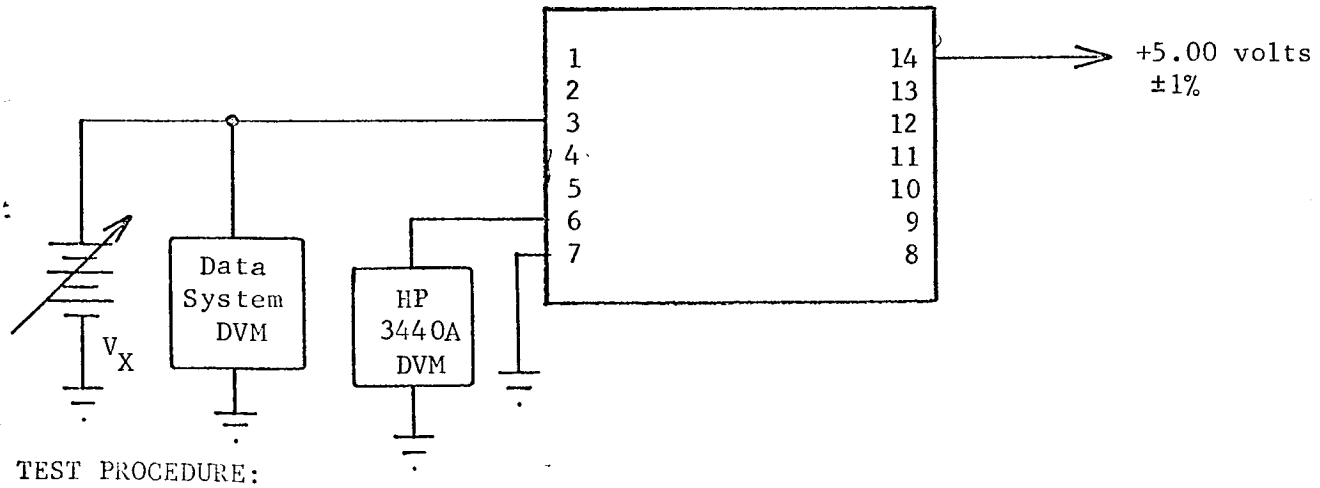
TEST NUMBER: 2

TEST TITLE: Input Voltage Levels (V_{IH}, V_{IL})

TEST CONDITIONS:

1. Connect circuit below in the following sequence: Pin 7, Pin 14, others.
2. Measurement accuracy ±2 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Adjust V_X for an indication of 2.50 volts on the HP3440A. Record V_X as V_{IL}.
2. Adjust V_X for an indication of 0.45 volts on the HP3440A. Record V_X as V_{IH}.

CIRCUIT TYPE: 962

TEST NUMBER: 2

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
V_{IL}	1.3 volts	1.1 volts
V_{IH}	1.4 volts	1.9 volts

COMMENTS:

CIRCUIT TYPE: 962

TEST NUMBER: 3

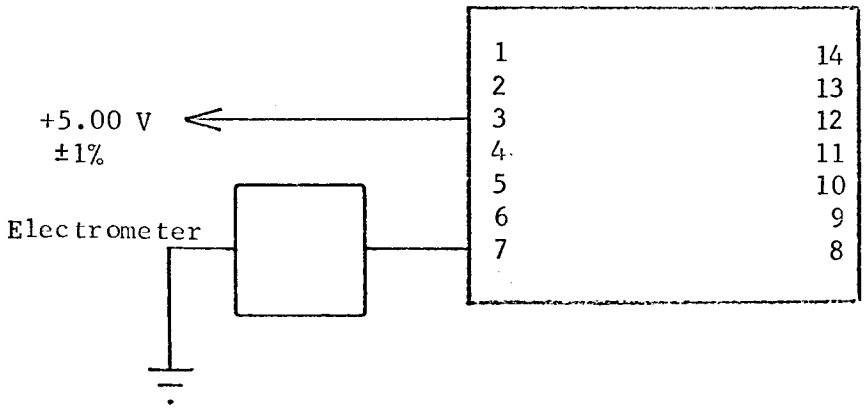
TEST TITLE: Input Leakage Current

TEST CONDITIONS:

1. Use Keithley Electrometer Model 600A. Set multiplier to 0.01 (current range).

2. Measurement accuracy ±3 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Record current as I_L.

CIRCUIT TYPE: 962

TEST NUMBER: 3

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
I_L	10^{-9} amperes	None

COMMENTS:

CIRCUIT TYPE: 962

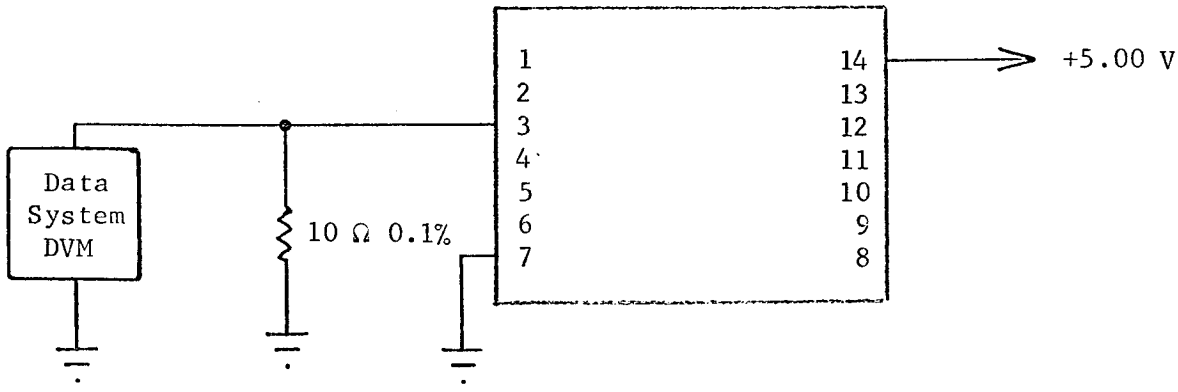
TEST NUMBER: 4

TEST TITLE: Input Drive Current

TEST CONDITIONS:

1. Connect the circuit below in the following sequence: Pin 7, Pin 14, others.
2. Measurement accuracy ±2 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Record DVM reading as input drive current I_{in}.

CIRCUIT TYPE: 962

TEST NUMBER: 4

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
I_{in}	1.0 mA	1.6 mA

COMMENTS:

CIRCUIT TYPE: 962

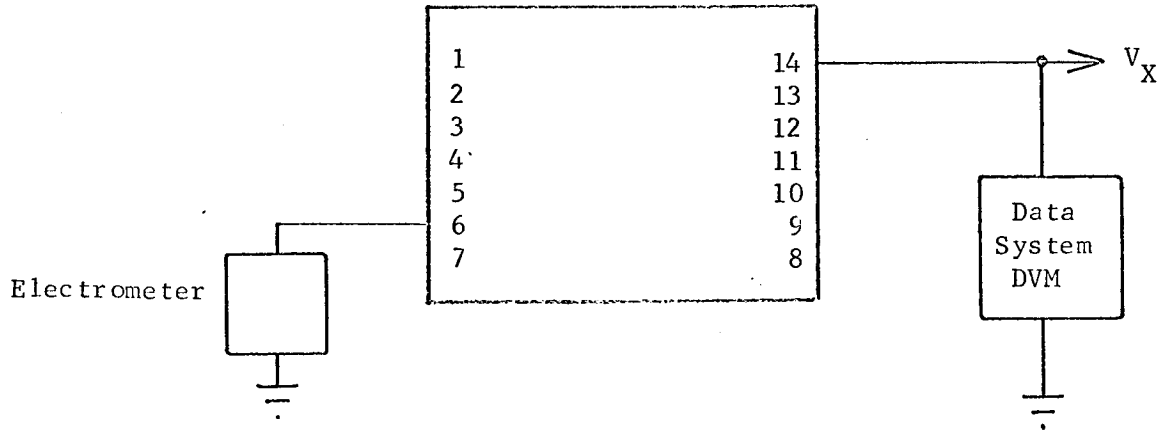
TEST NUMBER: 5

TEST TITLE: Resistance

TEST CONDITIONS:

1. Connect the circuit below in the following sequence: Pin 6, Pin 14.
2. Use Keithley Electrometer Model 600A. Set multiplier to 0.01 (current range).
3. Measurement accuracy ±3 percent.

SCHEMATIC:



TEST PROCEDURE:

1. Set V_X until Keithley reads 0.1 mA.
2. Set data system exponent to 10^3.
3. Record V_X as resistance, R.

CIRCUIT TYPE: 962

TEST NUMBER: 9

TEST PROCEDURE CONTINUED:

APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
R	6 KΩ	None

COMMENTS:

CIRCUIT TYPE: 962

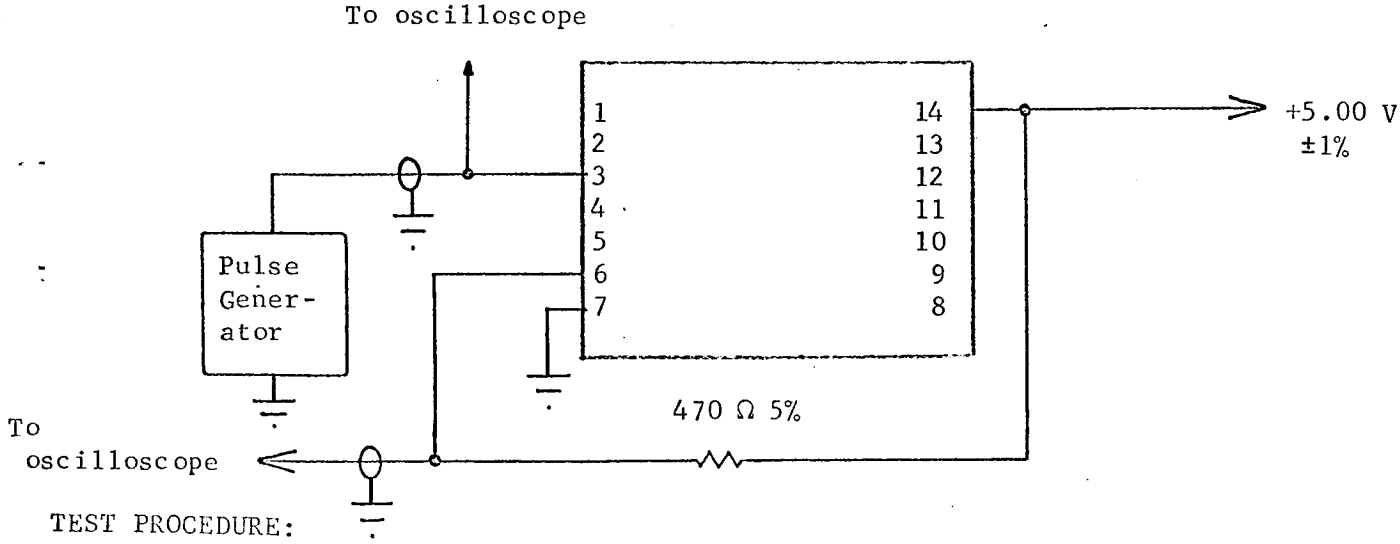
TEST NUMBER: 6

TEST TITLE: Propagation Delay

TEST CONDITIONS:

1. Input pulse: amplitude +4.5 volts, pulse width 500 nsec, 1 MHz.
2. Use TI No. 6509X pulse generator. Terminate both ends of cable (RG62) in 93 Ω.
3. Measurement accuracy ±5 percent.

SCHEMATIC:



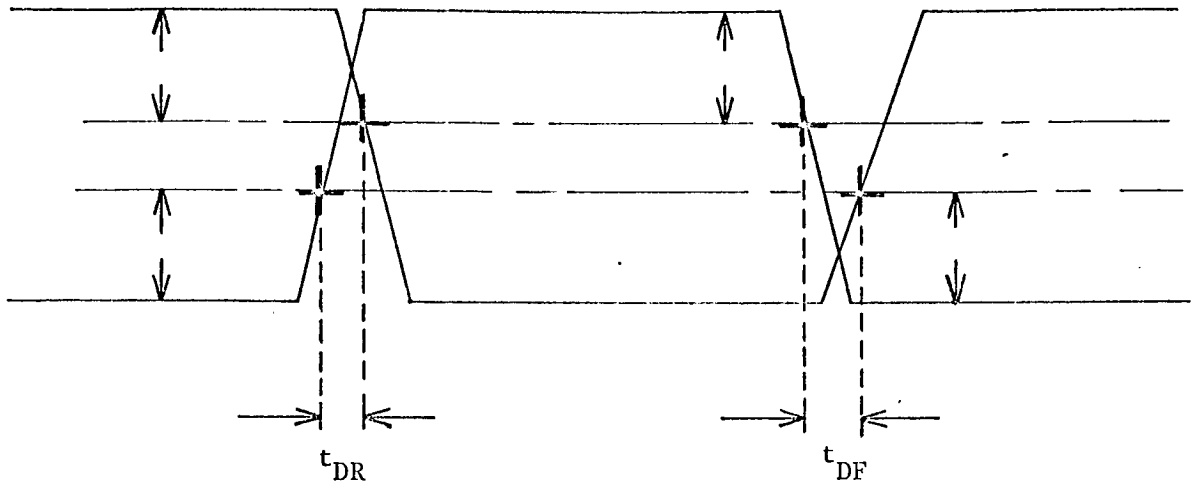
TEST PROCEDURE:

1. Measure and record propagation delay as t_{DR} and t_{DF} as defined on the following page.

CIRCUIT TYPE: 962

TEST NUMBER: 6

TEST PROCEDURE CONTINUED:



APPROXIMATE READINGS AND LIMITS EXPECTED

PARAMETERS	READINGS	LIMITS DURING TEST
t_{DR}	20 ns	None
t_{DF}	50 ns	None

COMMENTS:

APPENDIX II

MONITORING AND TEST CONFIGURATIONS DURING IRRADIATION

APPENDIX II

MONITORING AND TEST CONFIGURATIONS DURING IRRADIATION

This appendix contains the schematic diagrams and information concerning the procedures used in monitoring the behavior of the circuits during exposure to the electron radiation environment. The information is arranged in the same order as for Appendix I.

Amplifier Circuits

1. Fairchild μA709
2. National Semiconductor LM101
3. Amelco 807BE
4. Signetics SE501

Digital Circuits

1. Fairchild LPDTμL9040
2. Fairchild LPDTμL9042
3. Texas Instruments SN54L71
4. Texas Instruments SN54L20
5. Radiation, Inc. RD321
6. Radiation, Inc. RD310
7. DTL962 (Equivalent Circuits)

CIRCUIT TYPE: μA709

SUPPLY VOLTAGES

STATIC

V_{CC}: +12.00 ±1 percent

V_{BB}: -12.00 ±1 percent

PULSED:

V_{CC}: +12.0 ±5 percent DURATION: 10^{-3} second

V_{BB}: -12.0 ±5 percent DURATION: 10^{-3} second

INPUTS	OUTPUTS EXPECTED
STATIC	
1. +22.0 volts	1. +10.0 volts
2. -22.0 volts	2. -11.0 volts
3. Ground	3. ±0.10 volts
4. 1 volt rms at 1 KHz	4. 1 volt rms
PULSED	
1. 1.0 volt p to p, 10^{-3} second at 4 KHz	1. 1.0 volts p to p
2.	2.

FAILURE MODES

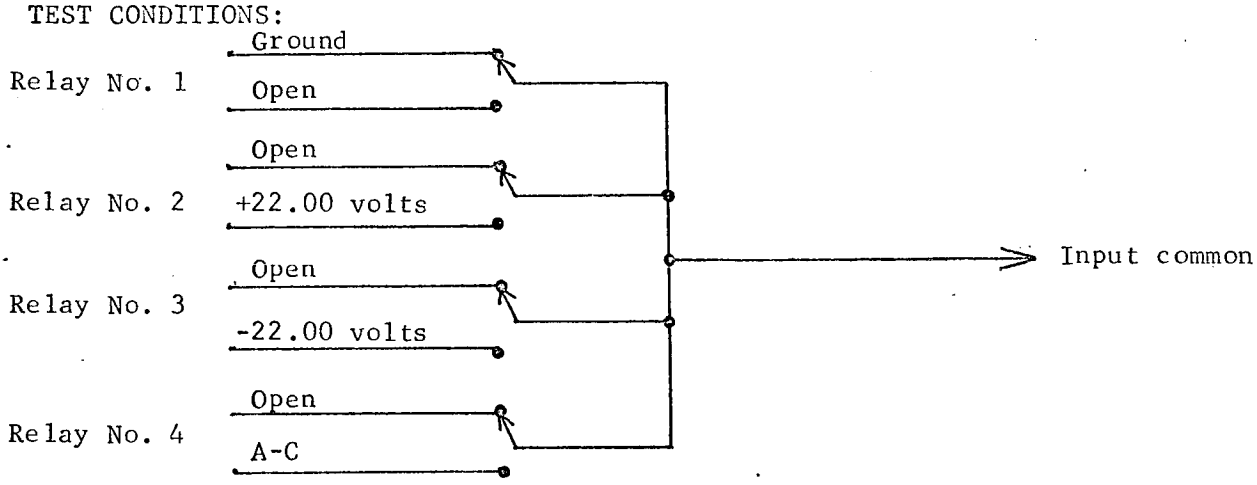
FAILURE MODE:	FAILURE LEVEL:
1. Gain (output a-c voltage)	1. 10 percent change in output volts
2. Offset voltage	2. ±2 volts
3. + Saturation	3. +9.5 volts
4. - Saturation	4. -9.5 volts
5.	5.

CIRCUIT TYPE: μA709

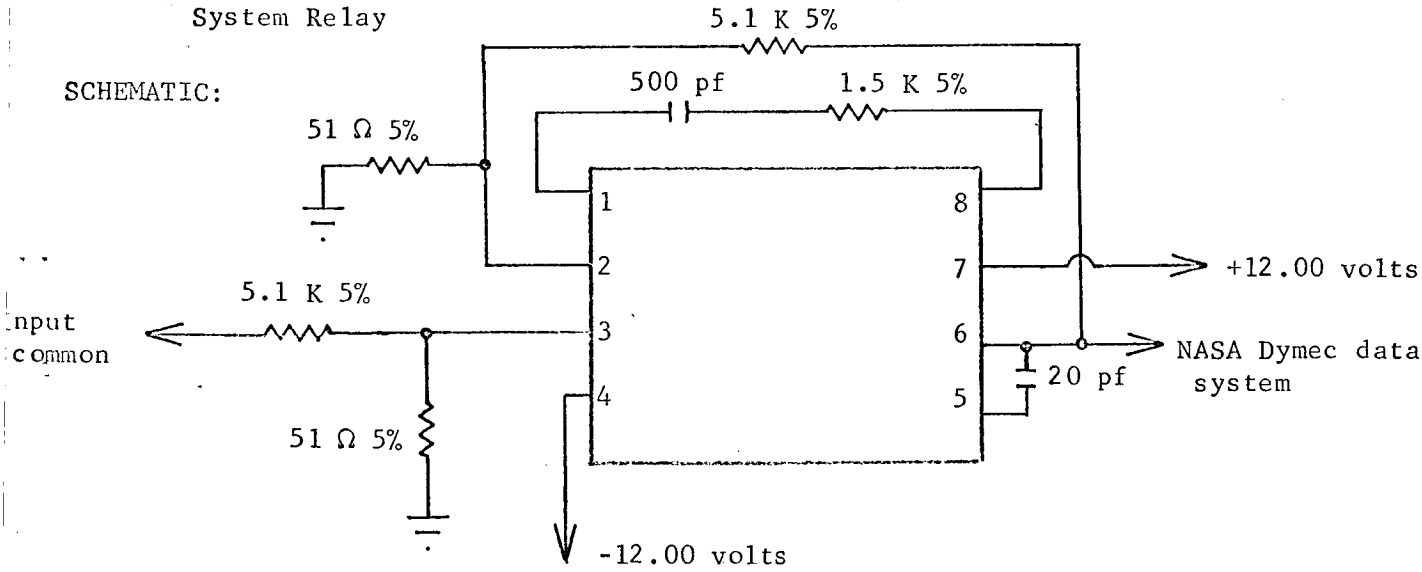
TEST NUMBER: Rad

TEST TITLE: Static Radiation Circuit

TEST CONDITIONS:



SCHEMATIC:



TEST PROCEDURE:

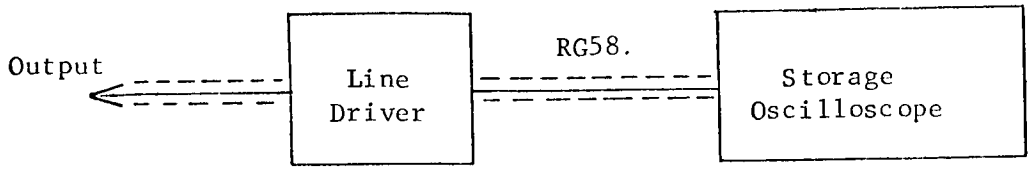
1. Scan all devices.
2. Energize Relay No. 1 and No. 2.
3. Scan all devices.
4. Energize Relay No. 1 and No. 3.
5. Scan all devices.
6. Energize Relay No. 1 and No. 4.
7. Scan all devices.

CIRCUIT TYPE: "A709

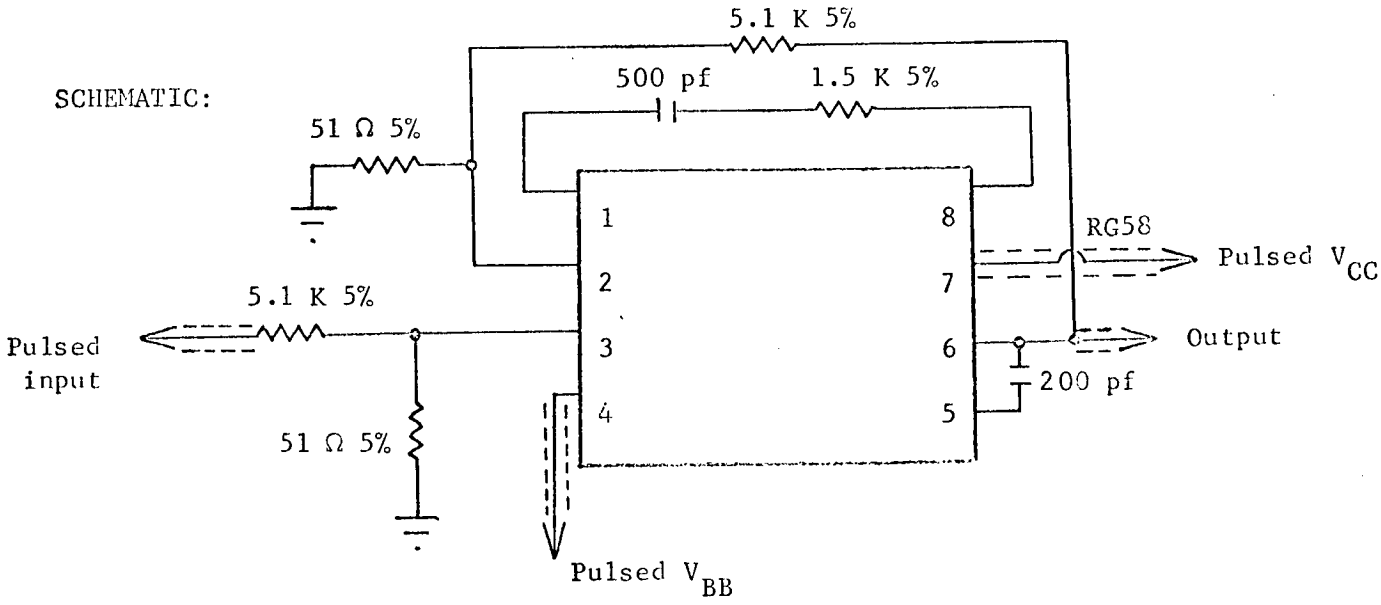
TEST NUMBER: Rad

TEST TITLE: Pulsed Radiation Circuit

TEST CONDITIONS:



SCHEMATIC:



TEST PROCEDURE:

1. Photograph output voltage waveform from storage oscilloscope.

CIRCUIT TYPE: LM 101

SUPPLY VOLTAGES

STATIC

V_{CC}: +12.00 ±1 percent

V_{BB}: -12.00 ±1 percent

PULSED:

V_{CC}: +12.0 ±5 percent DURATION: 10^{-3} second

V_{BB}: -12.0 ±5 percent DURATION: 10^{-3} second

INPUTS	OUTPUTS EXPECTED
STATIC	
1. +22.0 volts	1. +10.0 volts
2. -22.0 volts	2. -11.0 volts
3. Ground	3. 0.10 volt
4. 1.0 volt rms (ac), 1 KHz	4. 1.0 volt rms
PULSED	
1. 1.0 volt p to p (ac) for 10^{-3} second	1. 1.0 volts p to p
2. 4 KHz	2.

FAILURE MODES

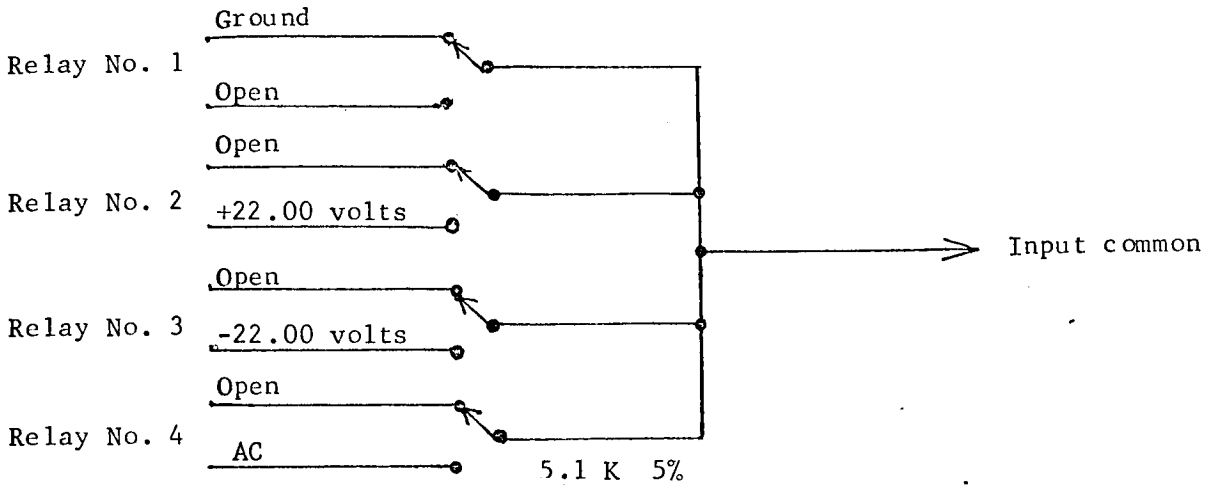
FAILURE MODE:	FAILURE LEVEL:
1. Gain (output a-c voltage)	1. 10 percent change in output volts
2. Offset voltage	2. ±2 volts
3. + Saturation voltage	3. +9.5 volts
4. - Saturation voltage	4. -9.5 volts
5.	5.

CIRCUIT TYPE: LM 101

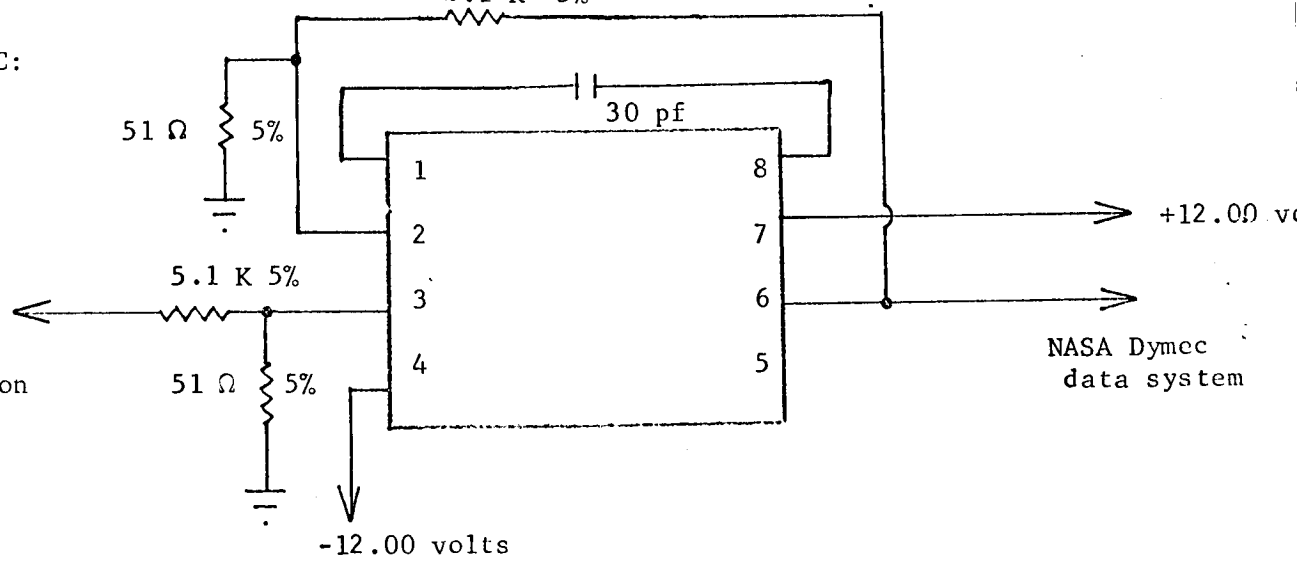
TEST NUMBER: R

TEST TITLE: Static Radiation Circuit

TEST CONDITIONS:



SCHEMATIC:



TEST PROCEDURE:

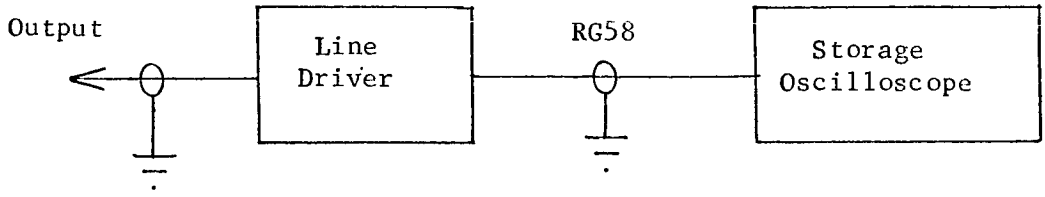
1. Scan all devices.
2. Energize Relay No. 1 and No. 2.
3. Scan all devices.
4. Energize Relay No. 1 and No. 3.
5. Scan all devices.
6. Energize Relay No. 1 and No. 4.
7. Scan all devices.

CIRCUIT TYPE: LM 101

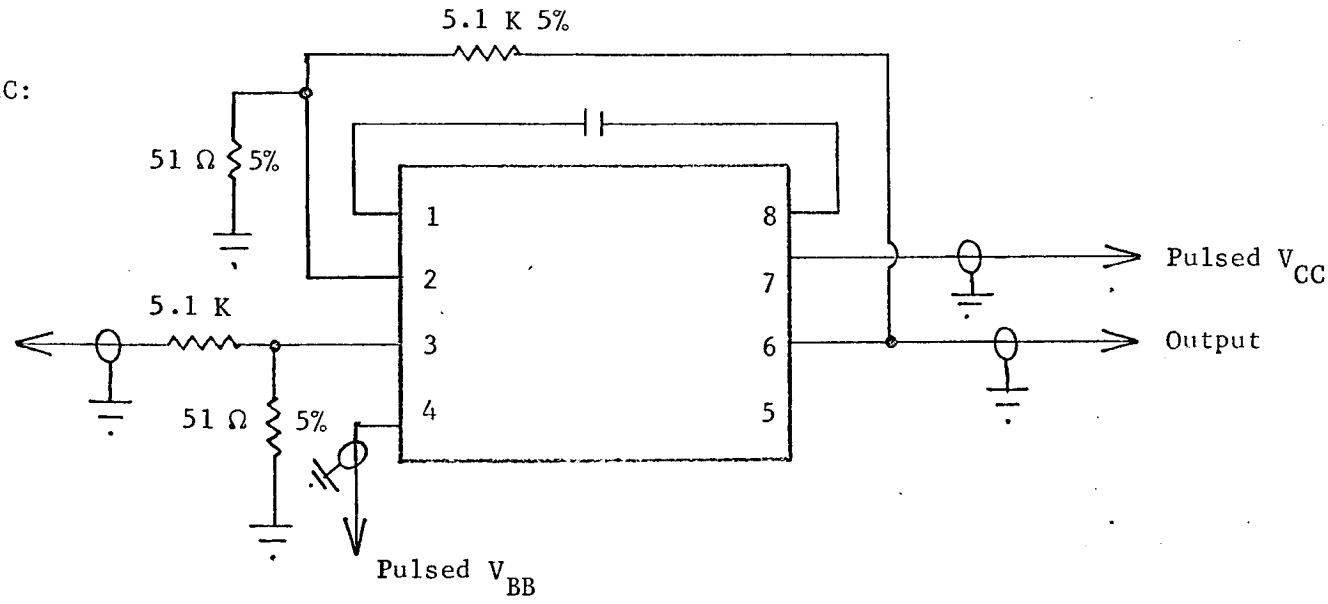
TEST NUMBER: Rad

TEST TITLE: Pulsed Radiation Circuit

TEST CONDITIONS:



SCHEMATIC:



TEST PROCEDURE:

1. Photograph output voltage waveform from storage oscilloscope.

CIRCUIT TYPE: 807 BE

SUPPLY VOLTAGES

STATIC

V_{CC}: +12.00 ±1 percent

V_{BB}: -12.00 ±1 percent

PULSED:

V_{CC}: +12.0 ±5 percent DURATION: 10^{-3} second

V_{BB}: -12.0 ±5 percent DURATION: 10^{-3} second

INPUTS	OUTPUTS EXPECTED
STATIC	
1. +22.0 volts	1. +11.0 volts
2. -22.0 volts	2. -11.0 volts
3. Ground	3. 0.10 volts
4. 1.0 volt rms 1 KHz	4. 1.0 volt rms
PULSED	
1. 1.0 volts p to p, 4 KHz for 10^{-3} second	1. 1.0 volts p to p
2.	2.

FAILURE MODES

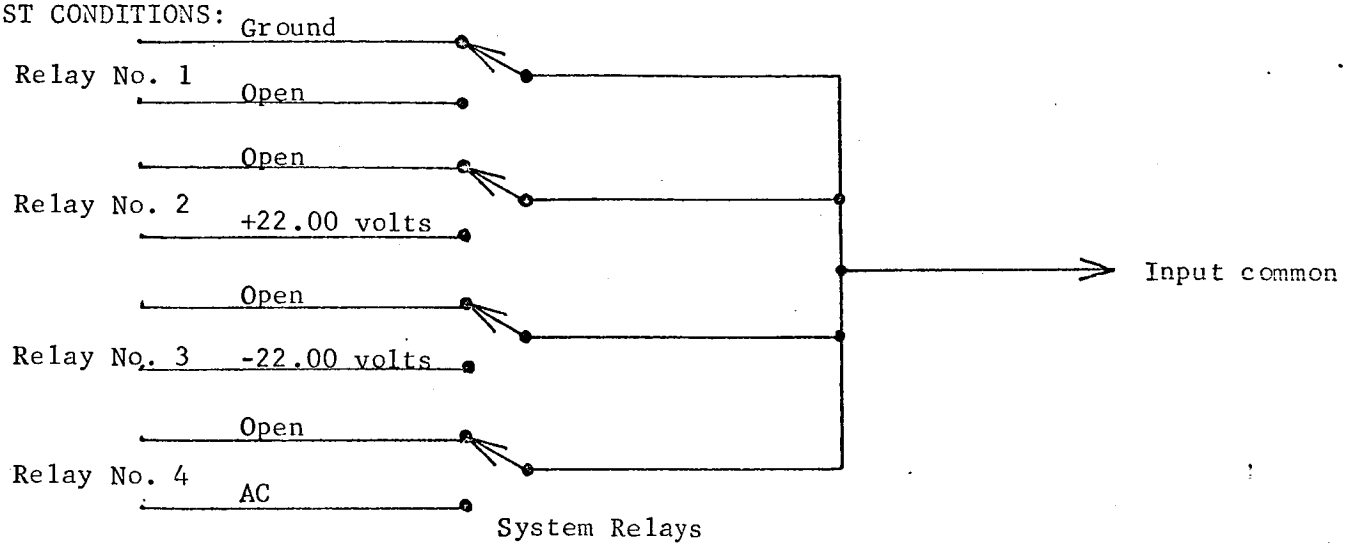
FAILURE MODE:	FAILURE LEVEL:
1. Gain (a-c output voltage)	1. 10 percent change in output volts
2. Offset voltage	2. ±2 volts
3. + Saturation	3. +9.5 volts
4. - Saturation	4. -9.5 volts
5.	5.

CIRCUIT TYPE: 807 BE

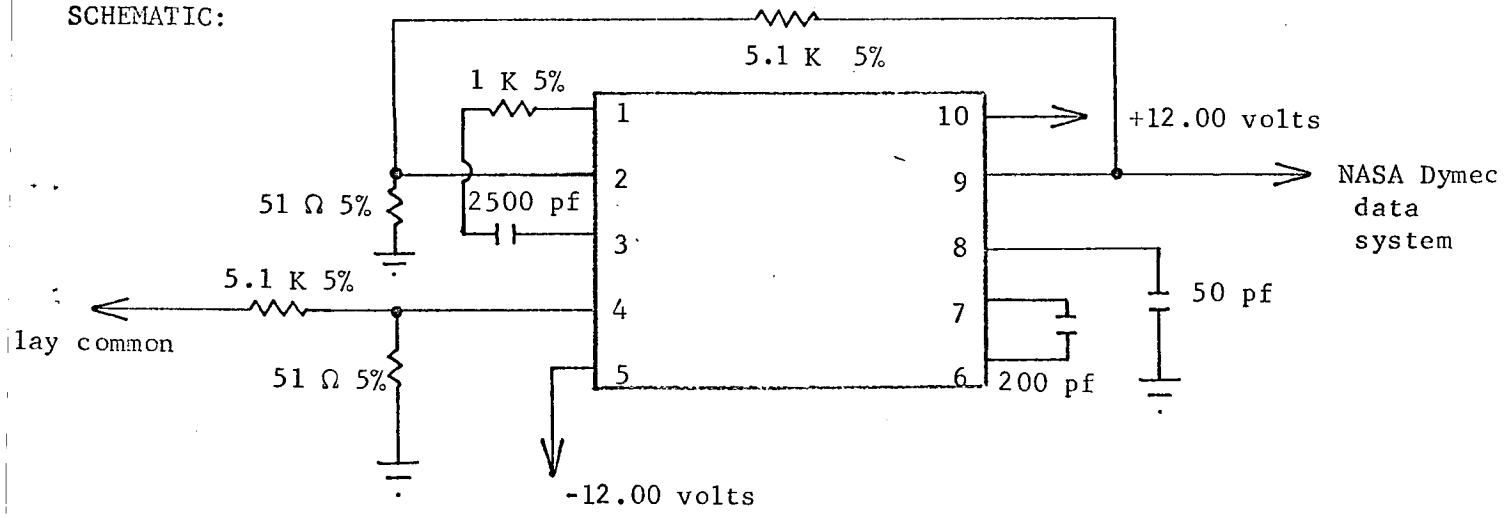
TEST NUMBER: Rad

TEST TITLE: Static Radiation Circuit

TEST CONDITIONS:



SCHEMATIC:



TEST PROCEDURE:

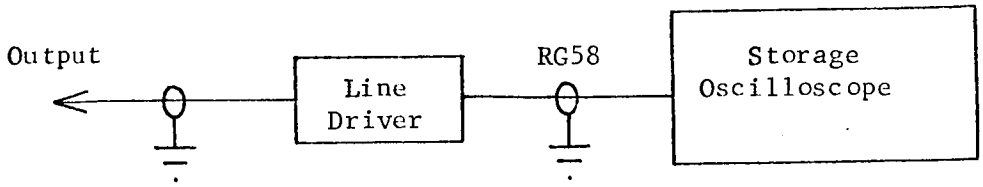
1. Scan all devices.
2. Energize Relay No. 1 and No. 2.
3. Scan all devices.
4. Energize Relay No. 1 and No. 3.
5. Scan all devices.
6. Energize Relay No. 1 and No. 4.
7. Scan all devices.

CIRCUIT TYPE: 807 BE

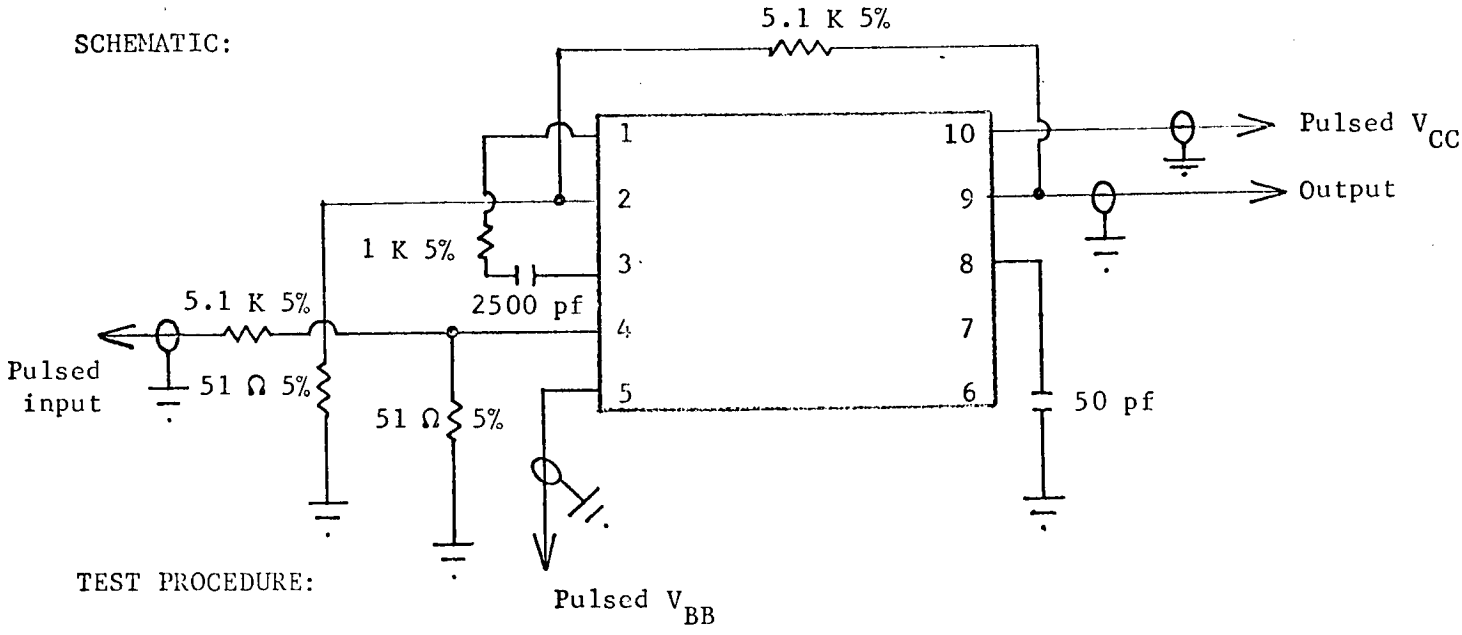
TEST NUMBER: Rad

TEST TITLE: Pulsed Radiation Circuit

TEST CONDITIONS:



SCHEMATIC:



TEST PROCEDURE:

1. Photograph output voltage waveform from storage oscilloscope.

CIRCUIT TYPE: SE 501G

SUPPLY VOLTAGES

STATIC

V_{CC}: 6.00 ±1 percent

V_{BB}: _____

PULSED:

V_{CC}: 6.00 ±1 percent DURATION: 10^{-3} second

V_{BB}: _____ DURATION: _____

INPUTS	OUTPUTS EXPECTED
STATIC	
1. D-C ground	1. +2.00 volts
2. A-C ground	2. +3.5 volts
3. +1.0 volt	3. +5.2 volts
4. 0.01 volt rms at 1 KHz	4. 0.45 volt rms
PULSED	
1. 0.01 volt p to p at 4 KHz for 10^{-3} second	1. 0.45 volt p to p
2.	2.

FAILURE MODES

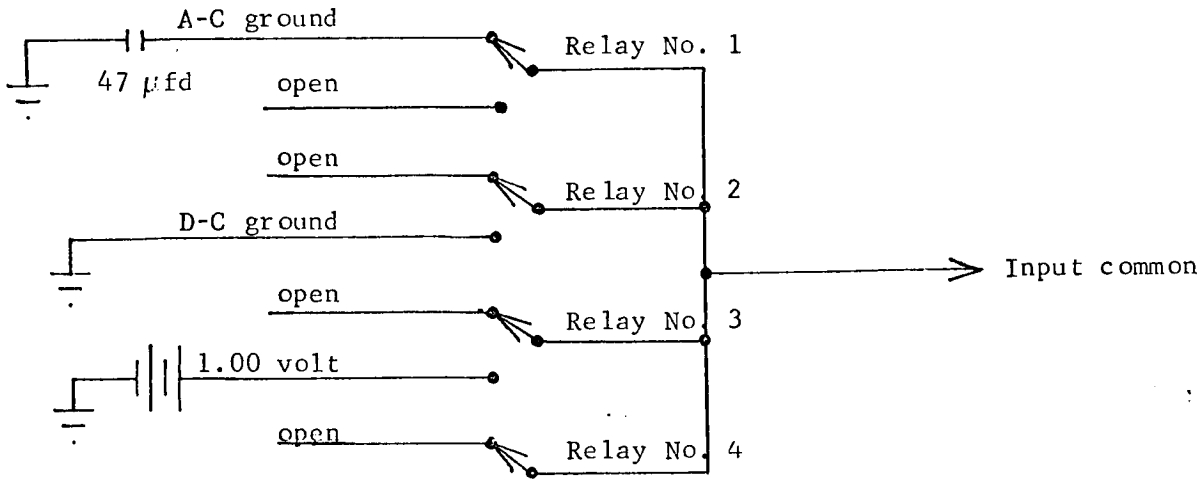
FAILURE MODE:	FAILURE LEVEL:
1. Gain (output voltage)	1. 25 percent change
2. + Saturation	2. 0.5 volt decrease
3. - Saturation	3. 0.5 volt increase
4. Quiescent output	4. 0.6 volt decrease
5.	5.

CIRCUIT TYPE: SE 501G

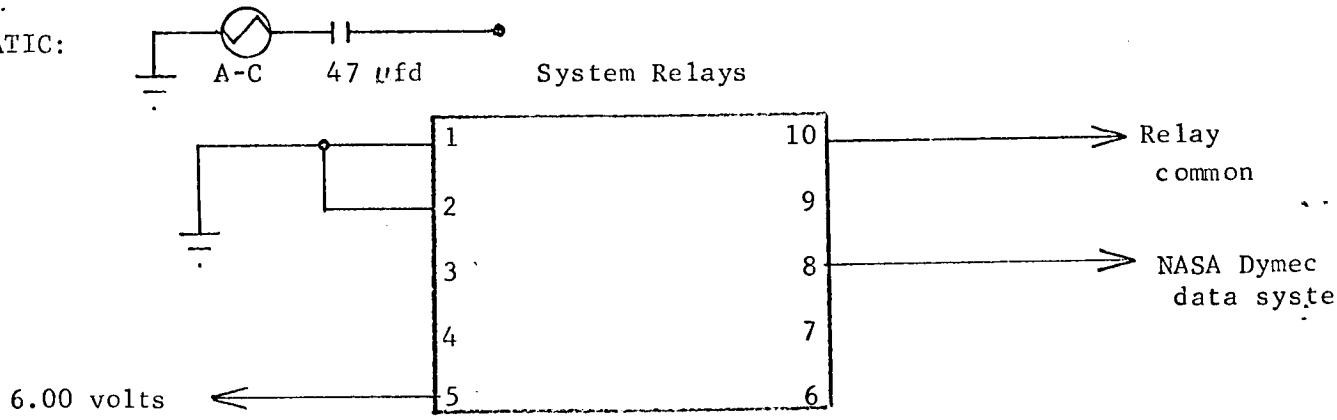
TEST NUMBER: R

TEST TITLE: Static Radiation Circuit

TEST CONDITIONS:



SCHEMATIC:



TEST PROCEDURE:

1. Scan all devices.
2. Energize Relay No. 1 and No. 2.
3. Scan all devices.
4. Energize Relay No. 1 and No. 3.
5. Scan all devices.
6. Energize Relay No. 1 and No. 4.
7. Scan all devices.

CIRCUIT TYPE: LPDT/L 9042

SUPPLY VOLTAGES

STATIC

V_{CC}: 5.00 ±1 percent

V_{BB}: _____

PULSED:

V_{CC}: 5.00 ±5 percent DURATION: 10^{-5} second

V_{BB}: _____ DURATION: _____

	INPUTS	OUTPUTS EXPECTED
STATIC		
1.	$V_{MIN\ ONE}$ = 0.7 volts	4.9 volts
2.	$V_{MAX\ ZERO}$ = 2.0 volts	0.20 volts
3.		
4.		
PULSED		
1.	V_{in} = open	0.20 volts
2.		

FAILURE MODES

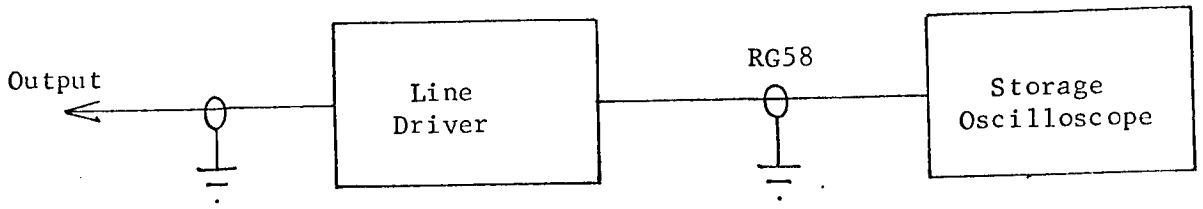
	FAILURE MODE:	FAILURE LEVEL:
1.	Output low level	0.25 volts
2.	Output high level	2.45 volts
3.		
4.		
5.		

CIRCUIT TYPE: SE 501G

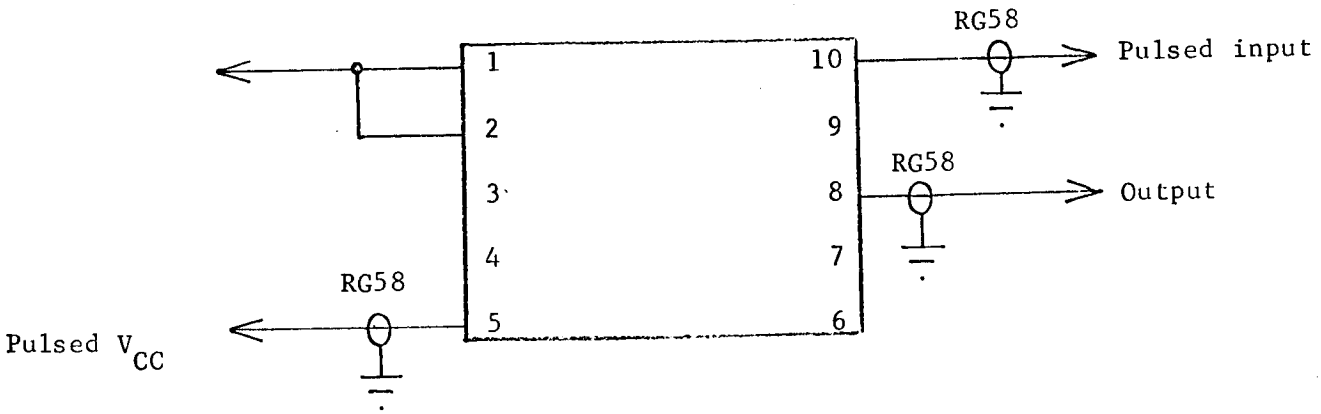
TEST NUMBER: Rad

TEST TITLE: Pulsed Radiation Circuit

TEST CONDITIONS:



SCHEMATIC:



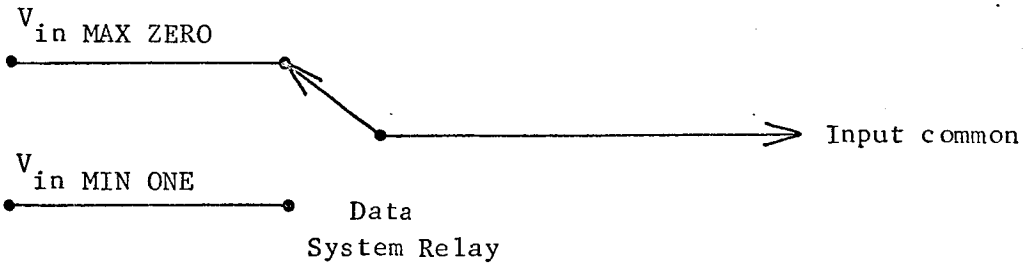
TEST PROCEDURE:

CIRCUIT TYPE: LPDTL 9042

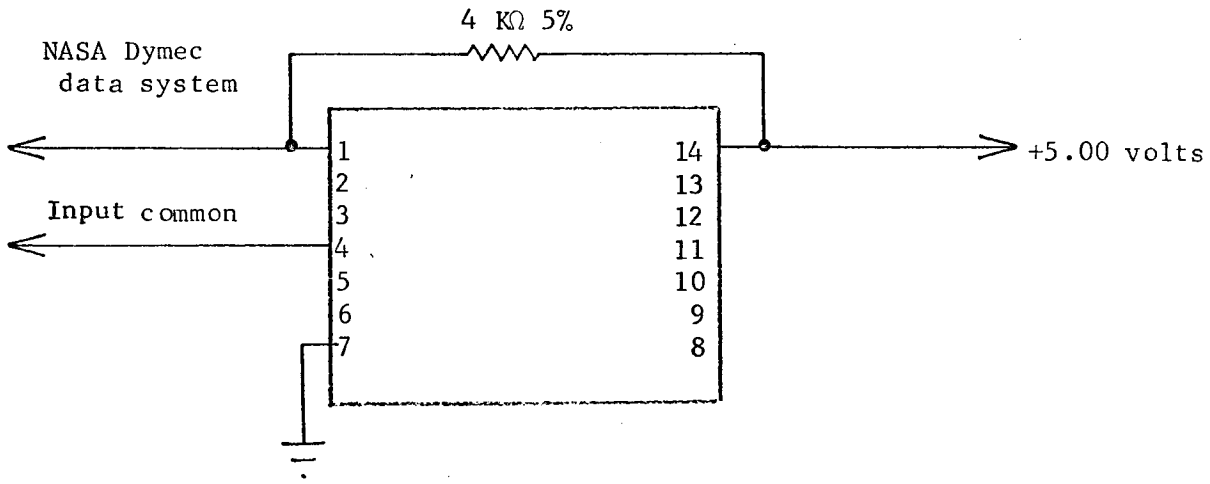
TEST NUMBER: Rad

TEST TITLE: Static Radiation Circuit

TEST CONDITIONS:



SCHEMATIC:



TEST PROCEDURE:

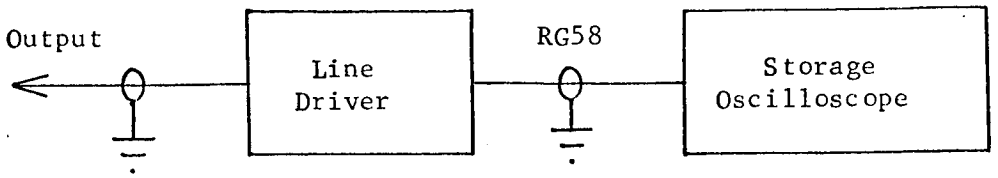
1. Scan all devices with $V_{in} = V_{MAX\ ZERO}$.
2. Energize relay.
3. Scan all devices with $V_{in} = V_{MIN\ ONE}$.

CIRCUIT TYPE: LPDTL 9042

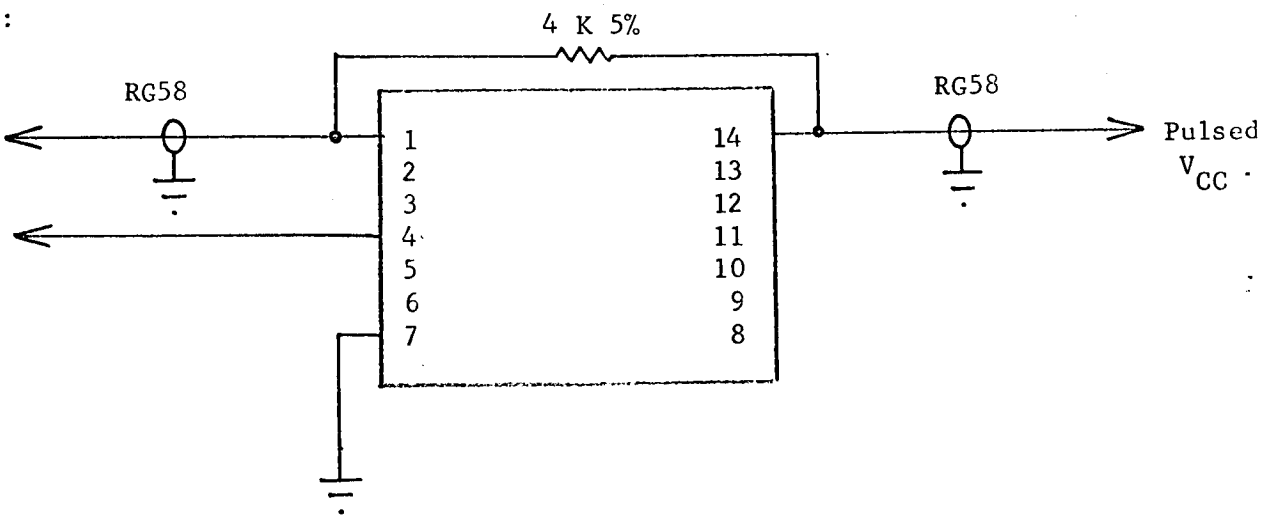
TEST NUMBER: R

TEST TITLE: Pulsed Radiation Circuit

TEST CONDITIONS:



SCHEMATIC:



TEST PROCEDURE:

1. Photograph or record output voltage pulse magnitude from storage oscilloscope.

CIRCUIT TYPE: LPDTμL 9040

SUPPLY VOLTAGES

STATIC

V_{CC}: 5.00 ±1 percent

V_{BB}: _____

PULSED:

V_{CC}: 5.00 ±5 percent DURATION: 10^{-5} second

V_{BB}: _____ DURATION: _____

INPUTS	OUTPUTS EXPECTED
STATIC	
1. _____	1. 4.9 volts at $\overline{Q}$
2. _____	2. 0.20 volts at Q
3. External reset	3. _____
4. _____	4. _____
PULSED	
1. _____	1. 0.20 volts at Q
2. _____	2. _____

FAILURE MODES

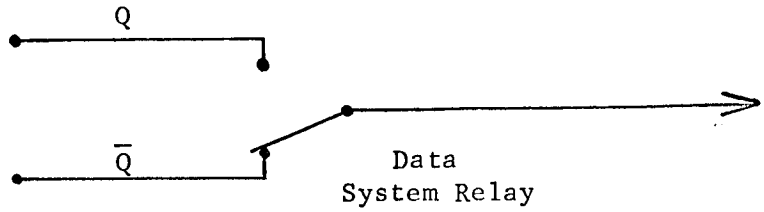
FAILURE MODE:	FAILURE LEVEL:
1. Output low level at $\overline{Q}$	1. 0.25 volts
2. Output high level at Q	2. 2.45 volts
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____

CIRCUIT TYPE: LPDT/L 9040

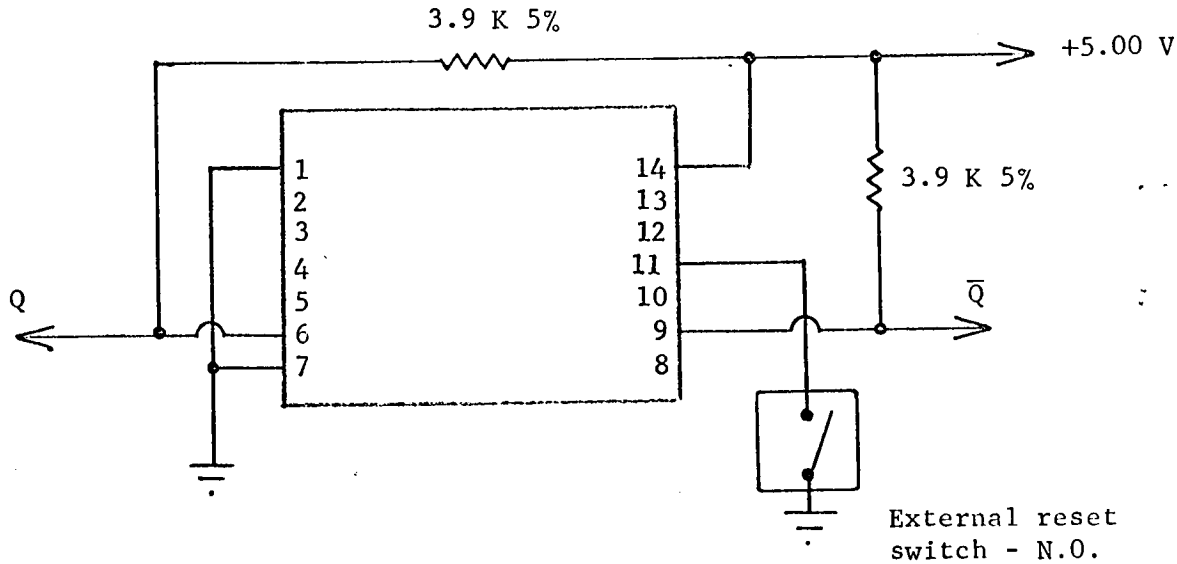
TEST NUMBER: Ra

TEST TITLE: Static Radiation Circuit

TEST CONDITIONS:



SCHEMATIC:



TEST PROCEDURE:

1. Scan all devices on $\overline{Q}$. If any changes in state are noted, close external reset switch and repeat scan.

2. Energize relays.

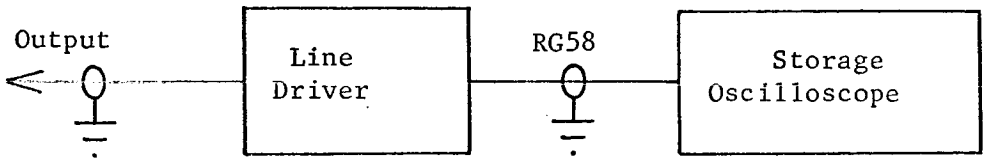
3. Scan all devices on Q.

CIRCUIT TYPE: LPDTuL 9040

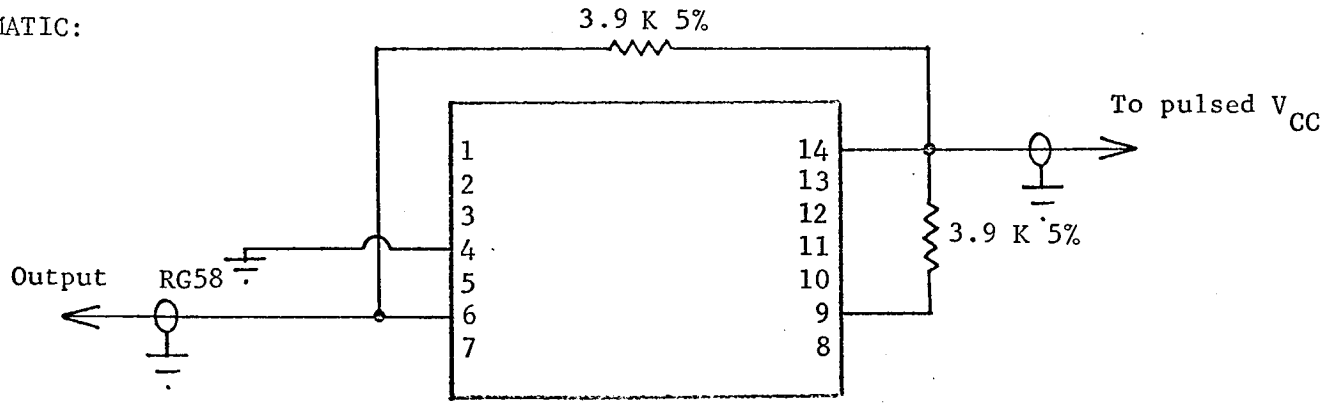
TEST NUMBER: Rad

TEST TITLE: Pulsed Radiation Circuit

TEST CONDITIONS:



SCHEMATIC:



TEST PROCEDURE:

1. Photograph or record output voltage pulse magnitude from storage oscilloscope.

CIRCUIT TYPE: SN54L20

SUPPLY VOLTAGES

STATIC

V_{CC}: 5.00 ±1 percent

V_{BB}: _____

PULSED:

V_{CC}: 5.00 ±5 percent DURATION: 10^{-5} second

V_{BB}: _____ DURATION: _____

INPUTS	OUTPUTS EXPECTED
STATIC	
1. $V_{MIN\ ONE}$ = 0.70 volts	1. 4.90 volts
2. $V_{MAX\ ZERO}$ = 2.00 volts	2. 0.20 volts
3.	3.
4.	4.
PULSED	
1. V_{in} = open	1. 0.20 volts
2.	2.

FAILURE MODES

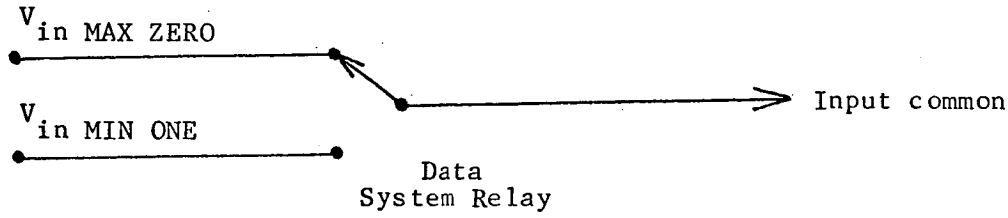
FAILURE MODE:	FAILURE LEVEL:
1. Output low level	1. 0.30 volts
2. Output high level	2. 2.40 volts
3.	3.
4.	4.
5.	5.

CIRCUIT TYPE: SN54L20

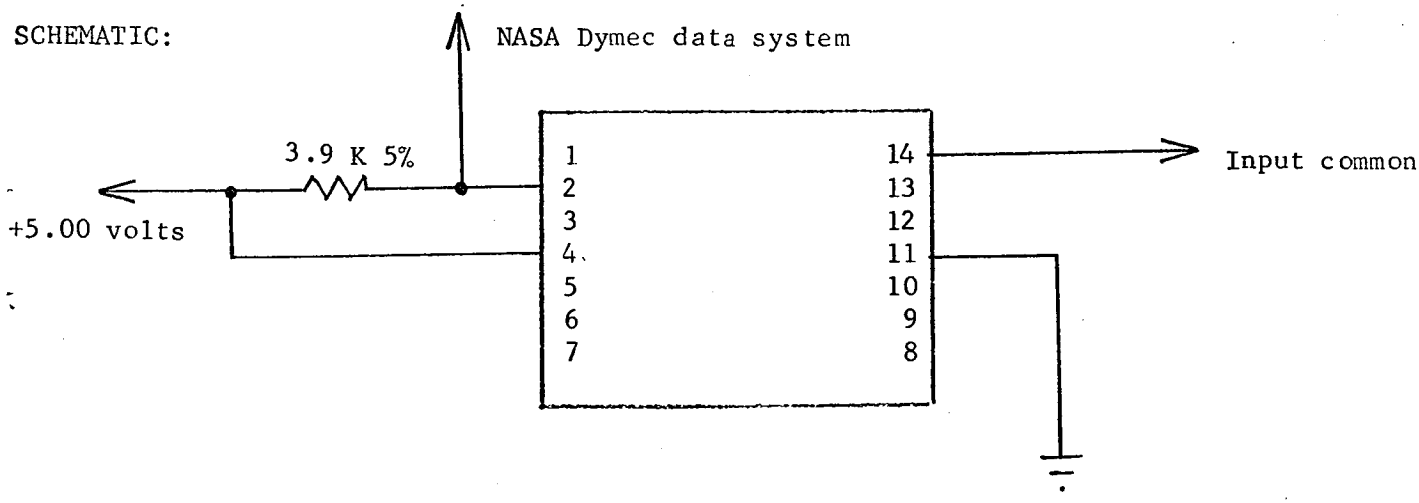
TEST NUMBER: Rad

TEST TITLE: Static Radiation Circuit

TEST CONDITIONS:



SCHEMATIC:



TEST PROCEDURE:

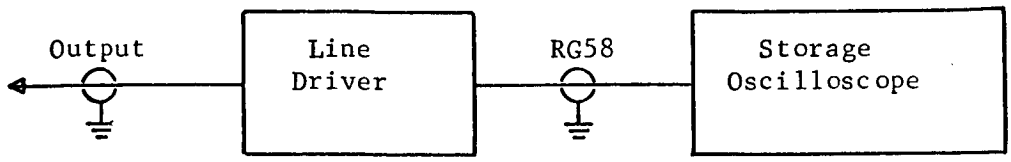
1. Scann all devices with $V_{in} = V_{MAX\ ZERO}$.
2. Energize relay.
3. Scan all devices with $V_{in} = V_{MIN\ ONE}$.

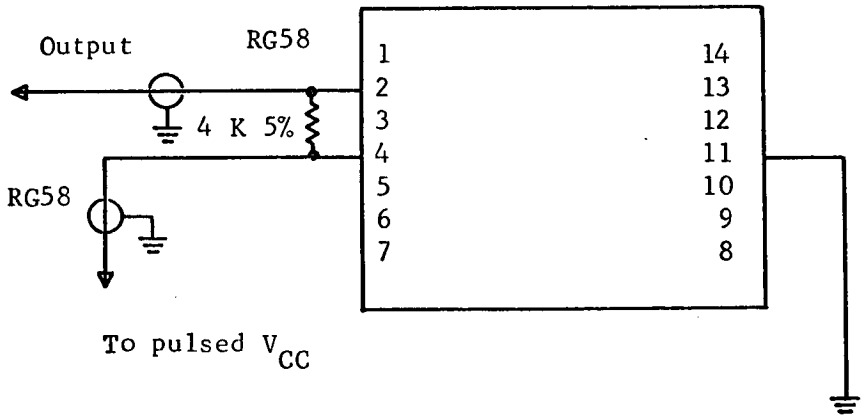
CIRCUIT TYPE: SN 54L20

TEST NUMBER: Rad

TEST TITLE: Pulsed Radiation Circuit

TEST CONDITIONS:





TEST PROCEDURES:

1. Photograph or record output voltage pulse magnitude from storage oscilloscope.

CIRCUIT TYPE: SN 54L71

SUPPLY VOLTAGES

STATIC

V_{CC}: 5.00 ±1 percent

V_{BB}: _____

PULSED:

V_{CC}: 5.00 ± percent DURATION: 10^{-5} second

V_{BB}: _____ DURATION: _____

INPUTS	OUTPUTS EXPECTED
STATIC	
1. _____	1. 4.9 volts at Q
2. _____	2. 0.25 volts at $\overline{Q}$
3. External preset	3. _____
4. _____	4. _____
PULSED	
1. _____	1. 0.25 volts at $\overline{Q}$
2. _____	2. _____

FAILURE MODES

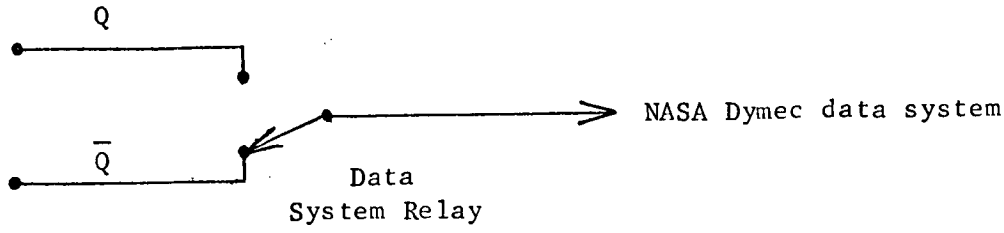
FAILURE MODE:	FAILURE LEVEL:
1. Output low level at $\overline{Q}$	1. 0.3 volts
2. Output high level at Q	2. 2.4 volts
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____

CIRCUIT TYPE: SN 54L71

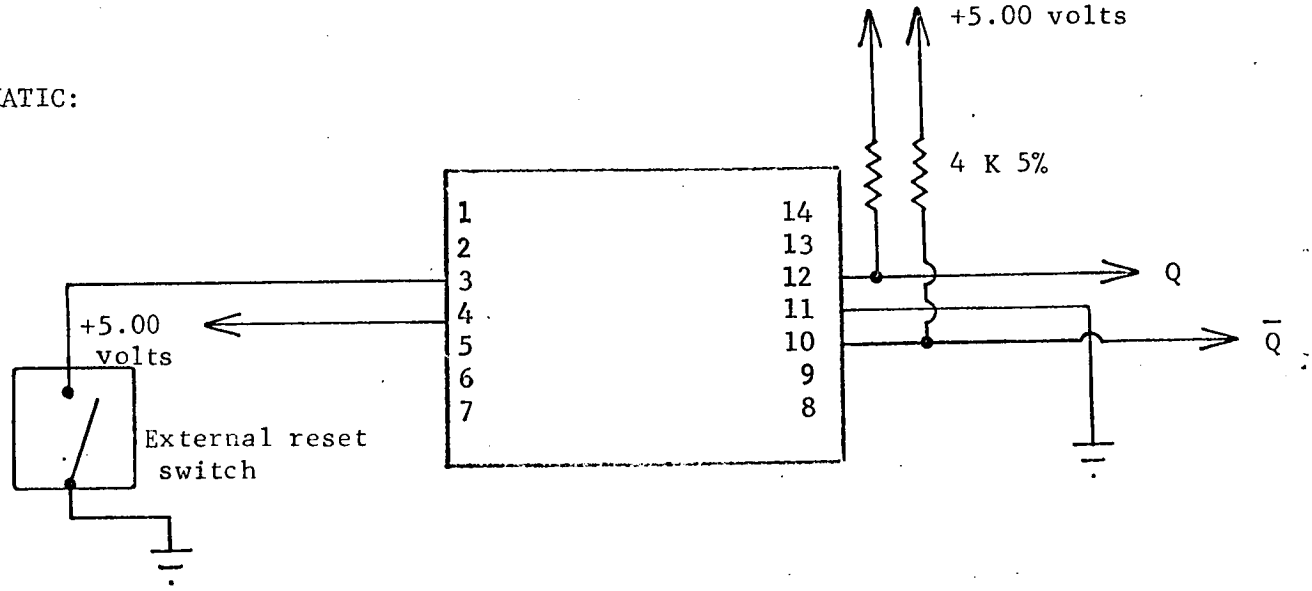
TEST NUMBER: Ra

TEST TITLE: Static Radiation Circuit

TEST CONDITIONS:



SCHEMATIC:



TEST PROCEDURE:

1. Scan all devices on $\bar{Q}$. If any changes in state are noted, close external reset switch and repeat scan.

2. Energize relays.

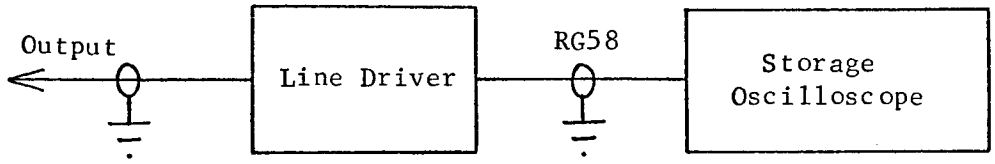
3. Scan all devices on Q.

CIRCUIT TYPE: SN 54L71

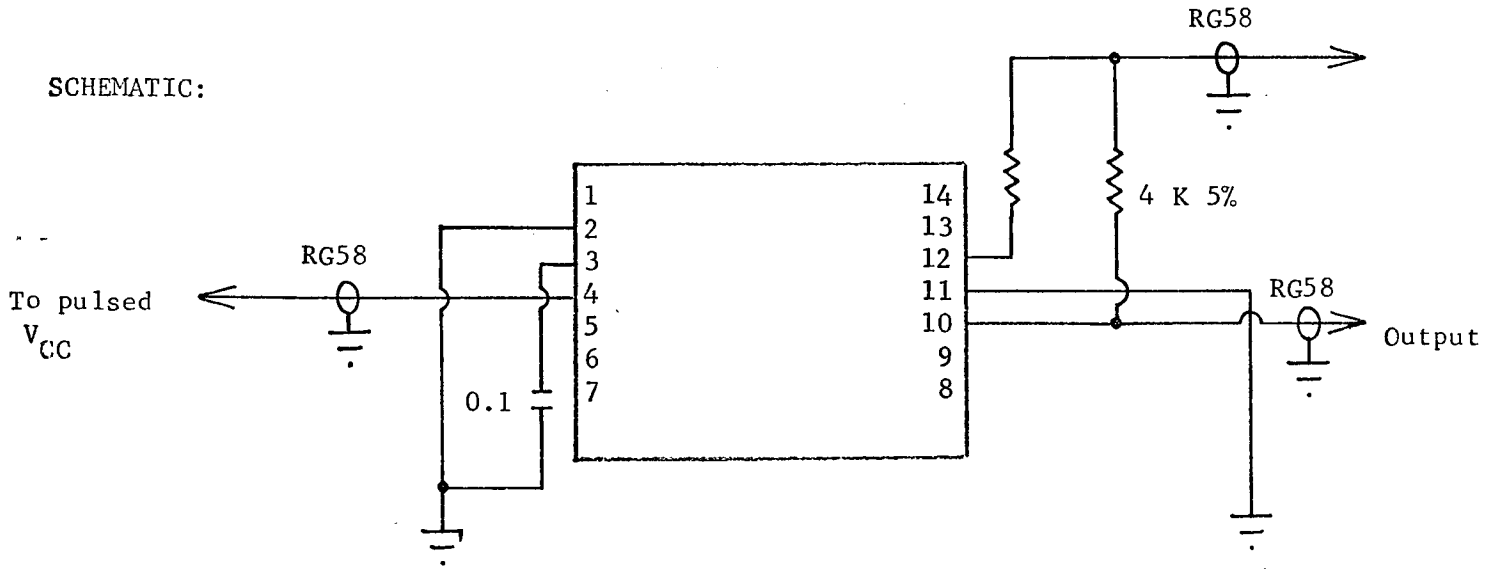
TEST NUMBER: Rad

TEST TITLE: Pulsed Radiation Circuit

TEST CONDITIONS:



SCHEMATIC:



TEST PROCEDURE:

1. Photograph or record output voltage pulse magnitude from storage oscilloscope.

CIRCUIT TYPE: RD 310

SUPPLY VOLTAGES

STATIC

V_{CC}: 5.00 ±1 percent

V_{BB}: _____

PULSED:

V_{CC}: 5.00 ±5 percent DURATION: 10^{-5} second

V_{BB}: _____ DURATION: _____

	INPUTS	OUTPUTS EXPECTED
STATIC		
1.	$V_{MIN\ ONE}$ = 0.80 volts	4.9 volts
2.	$V_{MAX\ ZERO}$ = 2.20 volts	0.25 volts
3.		
4.		
PULSED		
1.	V_{in} = open	0.25 volts
2.		

FAILURE MODES

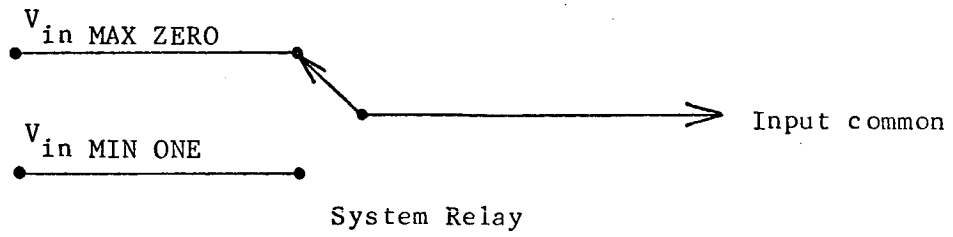
	FAILURE MODE:	FAILURE LEVEL:
1.	Output low level	0.45 volts
2.	Output high level	3.70 volts
3.		
4.		
5.		

CIRCUIT TYPE: RD 310

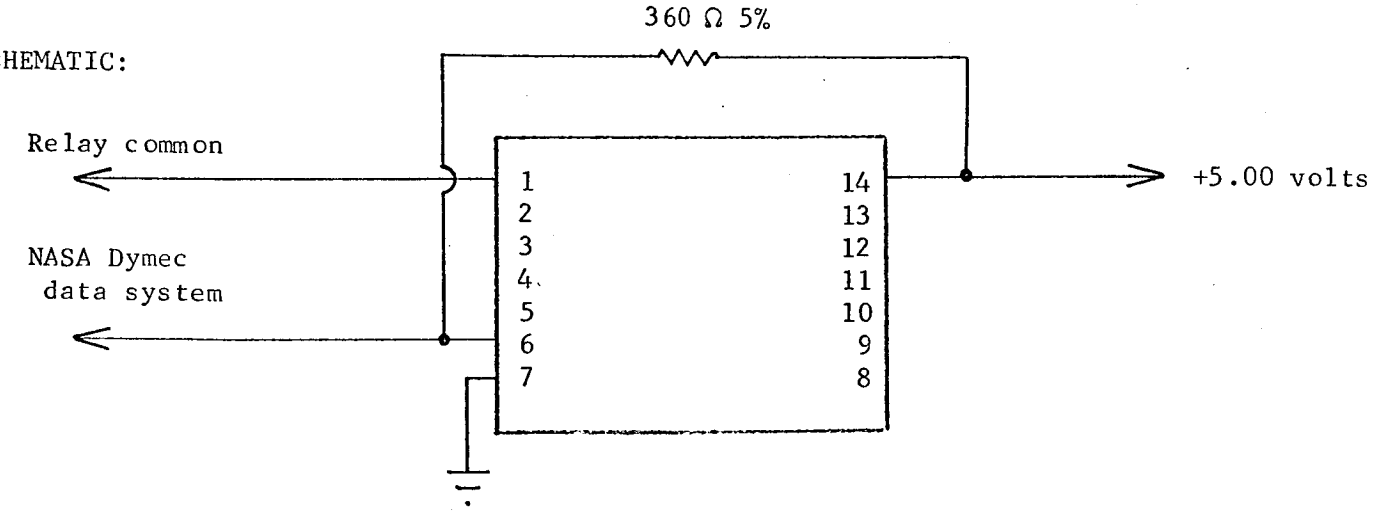
TEST NUMBER: Rad

TEST TITLE: Static Radiation Circuit

TEST CONDITIONS:



SCHEMATIC:



TEST PROCEDURE:

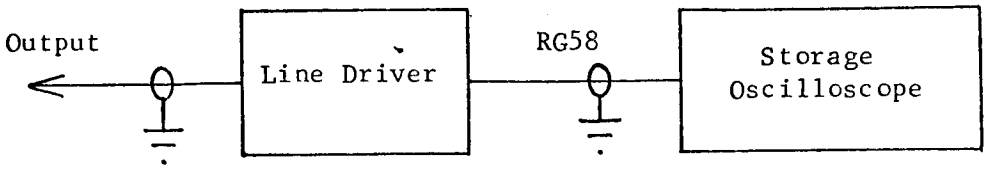
1. Scan all devices with $V_{in} = V_{MAX\ ZERO}$.
2. Energize relay.
3. Scan all devices with $V_{in} = V_{MIN\ ONE}$.

CIRCUIT TYPE: RD 310

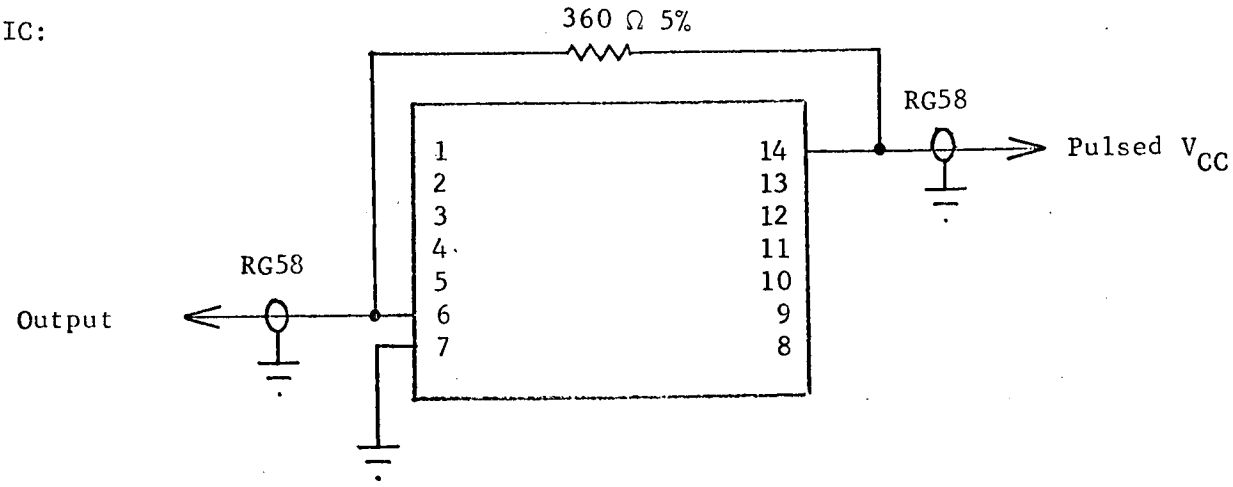
TEST NUMBER: R

TEST TITLE: Radiation Pulsed Circuit

TEST CONDITIONS:



SCHEMATIC:



TEST PROCEDURE:

1. Photograph or record output voltage pulse magnitude from storage oscilloscope.

CIRCUIT TYPE: RD 321

SUPPLY VOLTAGES

STATIC

V_{CC}: 5.00 ±1 percent

V_{BB}: _____

PULSED:

V_{CC}: 5.00 ±5 percent DURATION: 10^{-5} second

V_{BB}: _____ DURATION: _____

INPUTS	OUTPUTS EXPECTED
STATIC	
1. _____	1. 4.90 volts at $\overline{Q}$
2. _____	2. 0.250 volts at Q
3. External reset	3. _____
4. _____	4. _____
PULSED	
1. _____	1. 0.250 volts at Q
2. _____	2. _____

FAILURE MODES

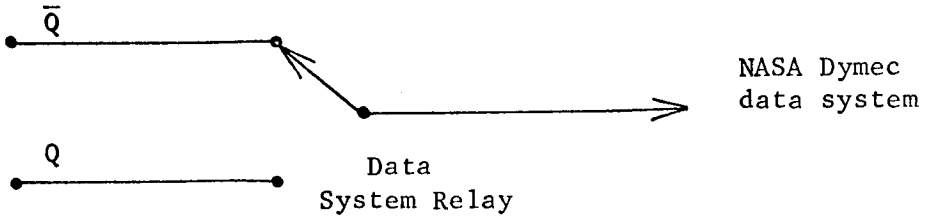
FAILURE MODE:	FAILURE LEVEL:
1. Output low level at Q	1. 0.45 volts
2. Output high level at $\overline{Q}$	2. 2.2 volts
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____

CIRCUIT TYPE: RD 521

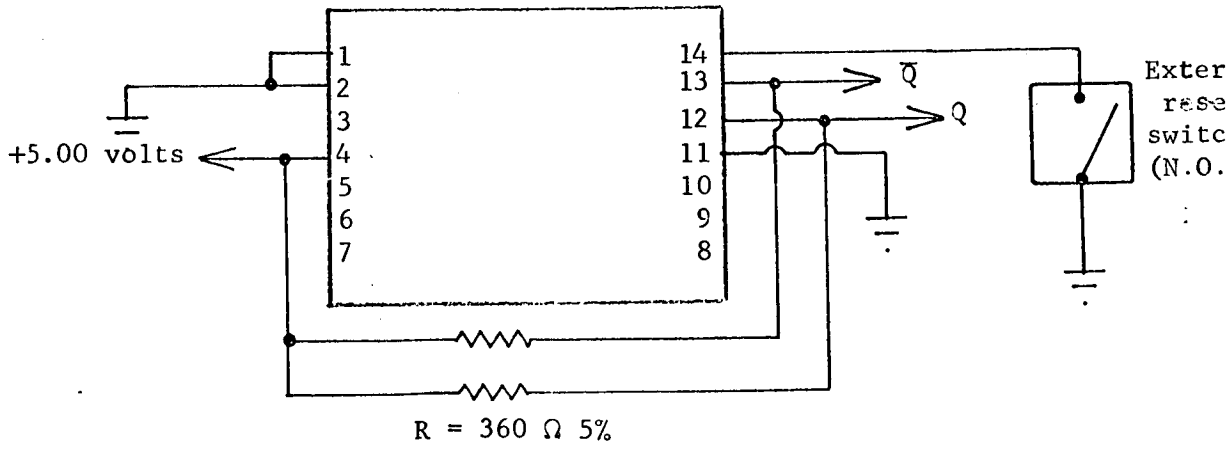
TEST NUMBER: Ra

TEST TITLE: Static Radiation Circuit

TEST CONDITIONS:



SCHEMATIC:



TEST PROCEDURE:

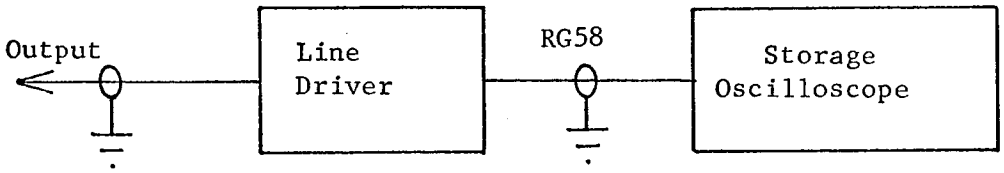
1. Scan all devices on $\overline{Q}$. If any changes in state are noted close external reset switch and repeat scan.
2. Energize relays.
3. Scan all devices on Q.

CIRCUIT TYPE: RD 321

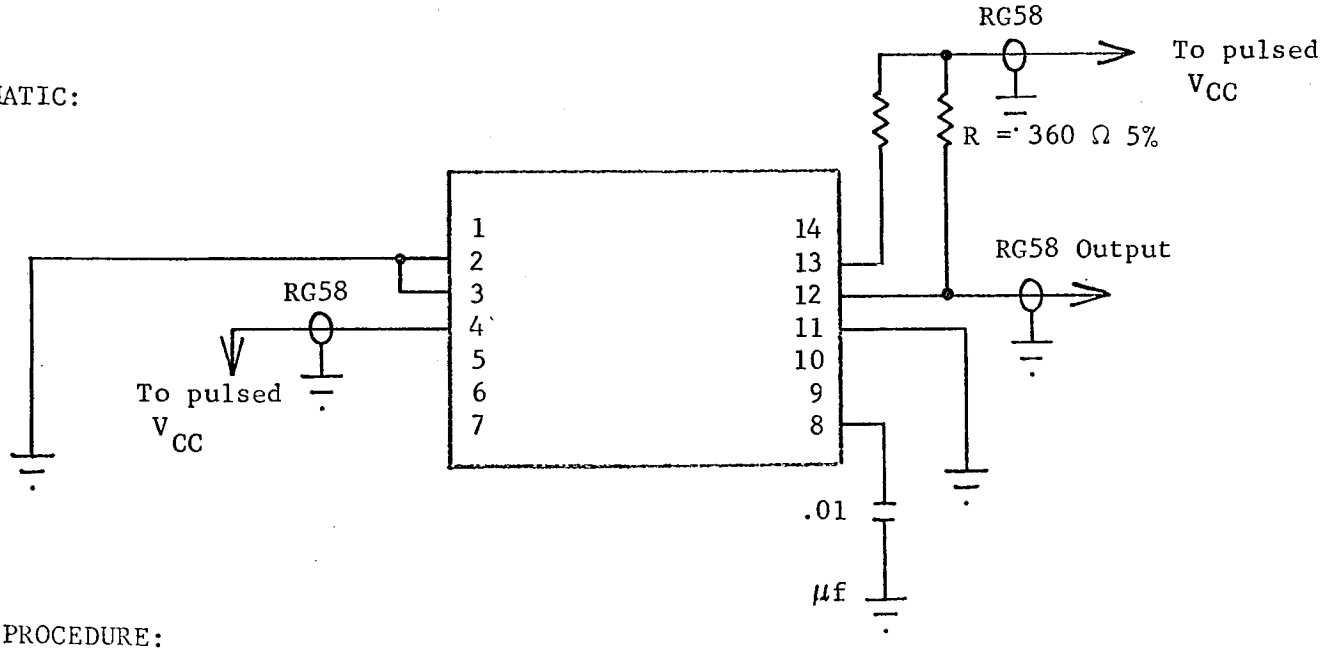
TEST NUMBER: Rad

TEST TITLE: Pulsed Radiation Circuit

TEST CONDITIONS:



SCHEMATIC:



TEST PROCEDURE:

1. Photograph or record output voltage pulse magnitude from storage oscilloscope.

CIRCUIT TYPE: 962

SUPPLY VOLTAGES

STATIC

V_{CC}: 5.00 ±1 percent

V_{BB}: _____

PULSED:

V_{CC}: 5.00 ±1 percent DURATION: 10^{-5} second

V_{BB}: _____ DURATION: _____

INPUTS	OUTPUTS EXPECTED
STATIC	
1. $V_{MIN\ ONE}$ = 1.10 or 1.00	1. V_{out} = 4.9 volts
2. $V_{MAX\ ZERO}$ = 1.90	2. V_{out} = 0.25 volts
3.	3.
4.	4.
PULSED	
1. V_{in} = open	1. V_{out} = 0.25 volts
2.	2.

FAILURE MODES

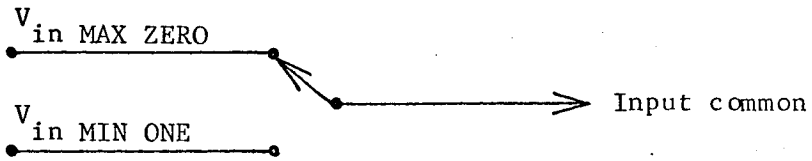
FAILURE MODE:	FAILURE LEVEL:
1. Output low level	1. 0.50 volts
2. Output high level	2. 2.50 volts
3.	3.
4.	4.
5.	5.

CIRCUIT TYPE: 962

TEST NUMBER: Rad

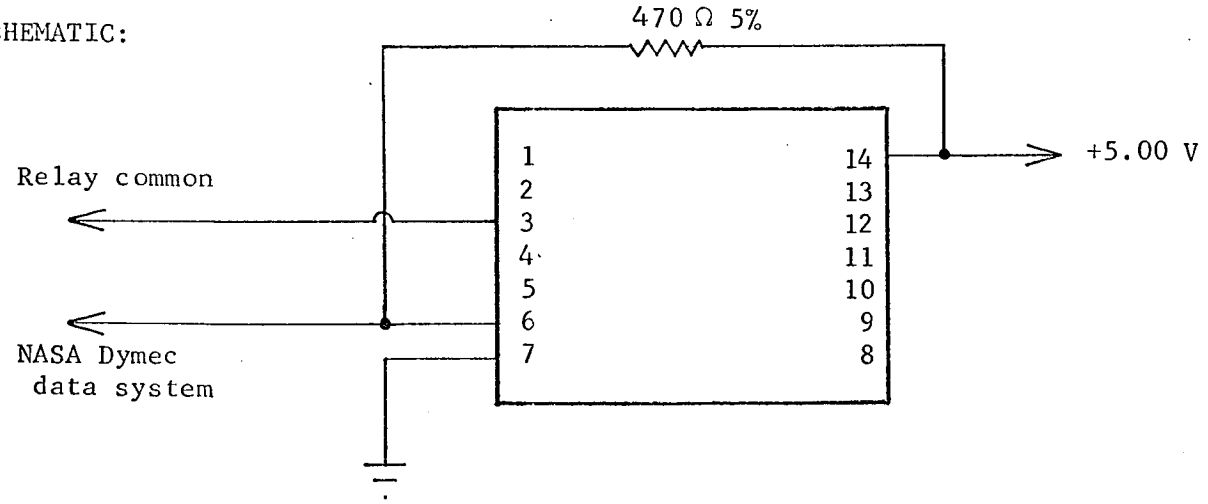
TEST TITLE: Static Radiation Circuit

TEST CONDITIONS:



Data System Relay

SCHEMATIC:



TEST PROCEDURE:

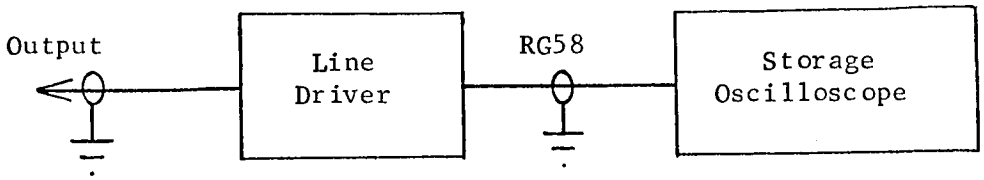
1. Scan all devices with $V_{in} = V_{MAX\ ZERO}$.
2. Energize relay.
3. Scan all devices with $V_{in} = V_{MIN\ ONE}$.

CIRCUIT TYPE: 962

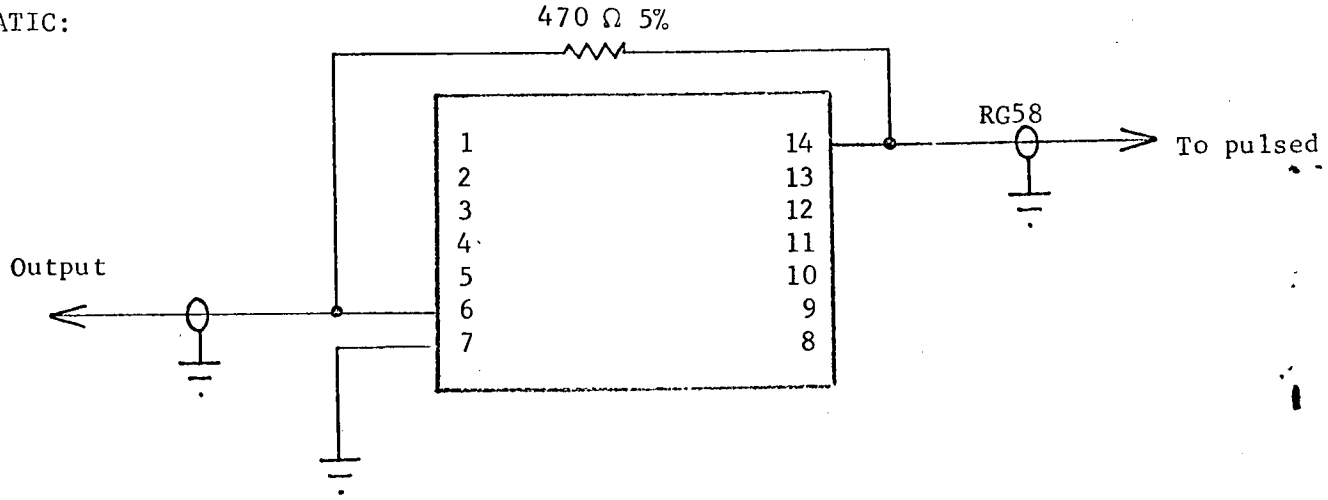
TEST NUMBER: Rad

TEST TITLE: Pulsed Radiation Circuit

TEST CONDITIONS:



SCHEMATIC:



TEST PROCEDURE:

1. Photograph or record output voltage pulse magnitude from storage oscilloscope.

APPENDIX III

CHARACTERIZATION DATA

APPENDIX III

CHARACTERIZATION AND RADIATION-MONITORING DATA

This appendix contains the results of pre/post irradiation measurements that were made following the characterization plans described in Appendix I. Both the pre/post irradiation data for a specific test and circuit type are recorded in one page.

Ordering arrangement of data and figures is as in Appendix I.

Amplifier Circuits

1. Fairchild μA709
2. National Semiconductor LM101
3. Amelco 807BE
4. Signetics SE501

Digital Circuits

1. Fairchild LPDTμL9040
2. Fairchild LPDTμL9042
3. Texas Instruments SN54L71
4. Texas Instruments SN54L20
5. Radiation, Inc. RD321
6. Radiation, Inc. RD310

Equivalent Circuits Study

1. Fairchild DTμL962
2. Motorola Dielectrically Isolated Circuits
3. Philco PL962
4. Radiation, Inc. RD242
5. Texas Instruments SN15962
6. Motorola MC962
7. Motorola SC1253

FAIRCHILD A709

		GAIN O.L.		I O.S.		V SAT -		V SAT +	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	22C	22C	21C	22C	22C	22C	22C	22C
DEVICE	1	0.382E+05	0.353E+05	-0.130E-07	-0.120E-07	-0.111E+02	-0.110E+02	0.111E+02	0.111E+02
	2	0.290E+05	0.265E+05	0.164E-06	0.160E-06	-0.111E+02	-0.110E+02	0.111E+02	0.111E+02
	3	0.318E+05	0.298E+05	0.880E-07	0.880E-07	-0.111E+02	-0.110E+02	0.112E+02	0.112E+02
	4	0.318E+05	0.286E+05	-0.190E-07	-0.248E-07	-0.110E+02	-0.110E+02	0.111E+02	0.111E+02
	5	0.308E+05	0.240E+05	-0.230E-07	-0.240E-07	-0.110E+02	-0.110E+02	0.112E+02	0.109E+02
	6	0.330E+05	0.313E+05	-0.128E-06	-0.120E-06	-0.110E+02	-0.110E+02	0.112E+02	0.112E+02
	7	0.308E+05	0.277E+05	-0.430E-07	-0.344E-07	-0.110E+02	-0.110E+02	0.112E+02	0.112E+02
	8	0.382E+05	0.360E+05	-0.580E-07	-0.580E-07	-0.109E+02	-0.109E+02	0.112E+02	0.112E+02
	9	0.308E+05	0.277E+05	-0.750E-07	-0.700E-07	-0.110E+02	-0.110E+02	0.112E+02	0.111E+02
	10	0.341E+05	0.326E+05	0.350E-07	0.380E-07	-0.110E+02	-0.110E+02	0.112E+02	0.112E+02
	11	0.354E+05	0.311E+05	0.240E-07	0.280E-07	-0.110E+02	-0.110E+02	0.112E+02	0.112E+02
	12	0.299E+05	0.246E+05	-0.260E-07	-0.288E-07	-0.110E+02	-0.110E+02	0.112E+02	0.111E+02
	13	0.330E+05	0.311E+05	-0.270E-07	-0.420E-07	-0.110E+02	-0.110E+02	0.111E+02	0.111E+02
	14	0.299E+05	0.277E+05	-0.240E-07	-0.100E-07	-0.110E+02	-0.110E+02	0.112E+02	0.112E+02
	15	0.354E+05	0.326E+05	-0.168E-06	-0.156E-06	-0.110E+02	-0.110E+02	0.112E+02	0.112E+02
	16	0.382E+05	0.159E+05	-0.370E-07	-0.920E-07	-0.111E+02	-0.108E+02	0.111E+02	0.102E+02
	17	0.341E+05	0.277E+05	0.430E-08	-0.600E-07	-0.110E+02	-0.107E+02	0.112E+02	0.106E+02
	18	0.290E+05	0.177E+05	0.152E-06	0.168E-06	-0.110E+02	-0.107E+02	0.112E+02	0.109E+02
	19	0.308E+05	0.144E+05	0.330E-07	0.740E-07	-0.111E+02	-0.108E+02	0.112E+02	0.105E+02
	20	0.341E+05	0.165E+05	0.330E-07	-0.320E-08	-0.110E+02	-0.107E+02	0.112E+02	0.106E+02
	21	0.330E+05	0.159E+05	0.910E-07	0.900E-07	-0.111E+02	-0.108E+02	0.112E+02	0.105E+02
	22	0.308E+05	0.191E+05	0.200E-07	0.400E-07	-0.110E+02	-0.107E+02	0.112E+02	0.108E+02
	23	0.354E+05	0.109E+05	0.120E-07	0.200E-06	-0.110E+02	-0.107E+02	0.111E+02	0.100E+02
	24	0.368E+05	0.171E+05	-0.150E-07	-0.120E-08	-0.110E+02	-0.107E+02	0.112E+02	0.106E+02
	25	0.330E+05	0.184E+05	0.780E-07	-0.740E-07	-0.110E+02	-0.108E+02	0.112E+02	0.108E+02
	26	0.265E+05	0.597E+04	-0.132E-06	-0.840E-07	-0.110E+02	-0.630E+01	0.110E+02	0.105E+02
	27	0.341E+05	0.171E+05	-0.930E-07	-0.920E-07	-0.110E+02	-0.104E+02	0.112E+02	0.107E+02
	28	0.330E+05	0.597E+04	-0.260E-07	0.480E-08	-0.110E+02	-0.830E+01	0.111E+02	0.104E+02
	29	0.330E+05	0.109E+05	-0.220E-07	-0.128E-07	-0.110E+02	-0.107E+02	0.111E+02	0.105E+02
	30	0.330E+05	0.990E+04	-0.200E-08	0.520E-08	-0.110E+02	-0.105E+02	0.111E+02	0.106E+02
	31	0.341E+05	0.104E+05	-0.340E-07	-0.216E-07	-0.110E+02	-0.102E+02	0.112E+02	0.104E+02
	32	0.308E+05	0.112E+05	0.700E-07	0.560E-07	-0.110E+02	-0.102E+02	0.112E+02	0.106E+02
	33	0.341E+05	0.105E+05	0.780E-07	0.120E-06	-0.110E+02	-0.103E+02	0.112E+02	0.104E+02
	34	0.382E+05	0.850E+04	0.200E-08	0.208E-07	-0.111E+02	-0.105E+02	0.112E+02	0.102E+02
	35	0.308E+05	0.750E+04	0.110E-07	-0.720E-08	-0.110E+02	-0.940E+01	0.111E+02	0.103E+02
	36	0.330E+05	0.630E+04	-0.168E-06	-0.136E-06	-0.110E+02	-0.720E+01	0.112E+02	0.103E+02
	37	0.330E+05	0.750E+04	0.860E-07	0.336E-07	-0.110E+02	-0.940E+01	0.112E+02	0.103E+02
	38	0.330E+05	0.700E+04	0.740E-07	-0.480E-07	-0.110E+02	-0.650E+01	0.111E+02	0.970E+01
	39	0.341E+05	0.750E+04	-0.	-0.980E-07	-0.110E+02	-0.990E+01	0.112E+02	0.102E+02
	40	0.354E+05	0.540E+04	-0.980E-07	-0.184E-06	-0.110E+02	-0.790E+01	0.111E+02	0.101E+02
	41	0.281E+05	0.	0.350E-07	0.	-0.110E+02	0.102E+02	0.111E+02	0.102E+02
	42	0.341E+05	0.	-0.200E-07	0.340E-08	-0.110E+02	0.533E+01	0.112E+02	0.105E+02
	43	0.330E+05	0.	-0.114E-06	0.270E-08	-0.110E+02	0.212E+01	0.112E+02	0.105E+02
	44	0.299E+05	0.	0.127E-06	0.260E-08	-0.110E+02	0.222E+01	0.111E+02	0.104E+02
	45	0.308E+05	0.	0.430E-08	0.	-0.110E+02	0.103E+02	0.111E+02	0.103E+02
	46	0.290E+05	0.298E+05	0.510E-07	0.480E-07	-0.110E+02	-0.110E+02	0.112E+02	0.112E+02
	47	0.318E+05	0.298E+05	-0.920E-07	-0.200E-06	-0.110E+02	-0.110E+02	0.111E+02	0.112E+02
	48	0.308E+05	0.298E+05	0.500E-07	0.560E-07	-0.110E+02	-0.110E+02	0.112E+02	0.112E+02
	49	0.330E+05	0.319E+05	-0.270E-07	-0.168E-07	-0.110E+02	-0.110E+02	0.112E+02	0.112E+02
	50	0.330E+05	0.319E+05	0.300E-07	0.380E-07	-0.110E+02	-0.110E+02	0.111E+02	0.111E+02

FAIRCHILD A709

		GAIN C.L.		V O.S.		I BIAS		CMRR	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	22C	22C	22C	22C	21C	22C	22C	22C
DEVICE	1	0.990E+03	0.990E+03	-0.852E-03	-0.860E-03	-0.235E-06	-0.255E-06	0.590E-03	-0.580E-03
	2	0.990E+03	0.990E+03	0.631E-03	0.680E-03	-0.400E-06	-0.460E-06	0.660E-03	-0.620E-03
	3	0.990E+03	0.990E+03	0.500E-03	0.510E-03	-0.520E-06	-0.540E-06	0.700E-03	-0.700E-03
	4	0.990E+03	0.990E+03	-0.594E-03	-0.610E-03	-0.385E-06	-0.510E-06	0.620E-03	-0.620E-03
	5	0.990E+03	0.990E+03	-0.982E-03	-0.130E-02	-0.360E-06	-0.460E-06	0.340E-03	-0.480E-03
	6	0.990E+03	0.990E+03	-0.450E-03	-0.450E-03	-0.380E-06	-0.400E-06	0.600E-03	-0.580E-03
	7	0.990E+03	0.990E+03	-0.116E-02	-0.115E-02	-0.495E-06	-0.540E-06	0.520E-03	-0.580E-03
	8	0.990E+03	0.990E+03	0.890E-05	-0.120E-04	-0.280E-06	-0.310E-06	0.560E-03	-0.580E-03
	9	0.990E+03	0.990E+03	0.143E-03	0.180E-03	-0.680E-06	-0.720E-06	0.900E-03	-0.820E-03
	10	0.990E+03	0.990E+03	0.600E-04	0.700E-04	-0.450E-06	-0.480E-06	0.400E-03	-0.480E-03
	11	0.990E+03	0.990E+03	-0.153E-02	-0.157E-02	-0.200E-06	-0.255E-06	0.370E-03	-0.420E-03
	12	0.990E+03	0.990E+03	-0.233E-02	-0.238E-02	-0.230E-06	-0.500E-06	0.500E-04	-0.140E-03
	13	0.990E+03	0.990E+03	-0.102E-02	-0.104E-02	-0.375E-06	-0.560E-06	0.640E-03	-0.640E-03
	14	0.990E+03	0.990E+03	0.252E-03	0.259E-03	-0.500E-06	-0.540E-06	0.580E-03	-0.600E-03
	15	0.990E+03	0.990E+03	0.139E-03	0.140E-03	-0.540E-06	-0.540E-06	0.860E-03	-0.780E-03
	16	0.990E+03	0.990E+03	-0.217E-02	-0.222E-02	-0.265E-06	-0.560E-06	0.390E-03	-0.440E-03
	17	0.990E+03	0.990E+03	0.748E-03	0.790E-03	-0.535E-06	-0.167E-05	0.860E-03	-0.840E-03
	18	0.990E+03	0.990E+03	-0.364E-03	-0.192E-03	-0.520E-06	-0.170E-05	0.580E-03	-0.560E-03
	19	0.990E+03	0.990E+03	0.657E-03	0.910E-03	-0.290E-06	-0.164E-05	0.660E-03	-0.640E-03
	20	0.990E+03	0.990E+03	-0.704E-03	-0.560E-03	-0.160E-06	-0.170E-05	0.420E-03	0.400E-04
	21	0.990E+03	0.990E+03	-0.690E-03	-0.550E-03	-0.365E-06	-0.123E-05	0.320E-03	-0.380E-03
	22	0.990E+03	0.990E+03	0.319E-03	0.490E-03	-0.240E-06	-0.162E-05	0.780E-03	-0.760E-03
	23	0.990E+03	0.985E+03	0.102E-02	0.590E-03	-0.460E-06	-0.470E-05	0.720E-03	-0.680E-03
	24	0.990E+03	0.990E+03	-0.347E-03	-0.224E-03	-0.200E-06	-0.195E-05	0.660E-03	-0.640E-03
	25	0.990E+03	0.990E+03	0.331E-03	0.429E-03	-0.510E-06	-0.233E-05	0.580E-03	-0.580E-03
	26	0.990E+03	0.970E+03	0.848E-03	0.228E-02	-0.755E-06	-0.263E-05	0.720E-03	-0.640E-03
	27	0.990E+03	0.990E+03	-0.214E-03	-0.780E-05	-0.590E-06	-0.200E-05	0.640E-03	-0.630E-03
	28	0.990E+03	0.980E+03	-0.146E-03	0.104E-02	-0.290E-06	-0.238E-05	0.700E-03	-0.640E-03
	29	0.990E+03	0.990E+03	0.143E-03	0.694E-03	-0.490E-06	-0.196E-05	0.720E-03	-0.680E-03
	30	0.990E+03	0.990E+03	0.272E-03	0.850E-03	-0.450E-06	-0.160E-05	0.550E-03	-0.560E-03
	31	0.990E+03	0.990E+03	-0.700E-03	-0.242E-03	-0.300E-06	-0.165E-05	0.420E-03	-0.460E-03
	32	0.990E+03	0.990E+03	-0.418E-03	-0.220E-04	-0.165E-06	-0.183E-05	0.320E-03	-0.400E-03
	33	0.990E+03	0.990E+03	-0.968E-03	-0.831E-03	-0.400E-06	-0.266E-05	0.220E-03	-0.520E-03
	34	0.990E+03	0.985E+03	-0.330E-03	0.299E-03	-0.160E-06	-0.235E-05	0.640E-03	-0.640E-03
	35	0.990E+03	0.980E+03	-0.233E-03	0.475E-03	-0.325E-06	-0.210E-05	0.540E-03	-0.580E-03
	36	0.990E+03	0.980E+03	0.465E-03	0.141E-02	-0.485E-06	-0.256E-05	0.840E-03	-0.780E-03
	37	0.990E+03	0.980E+03	-0.556E-03	0.305E-03	-0.260E-06	-0.260E-05	0.540E-03	-0.580E-03
	38	0.990E+03	0.965E+03	-0.284E-03	0.511E-03	-0.515E-06	-0.385E-05	0.620E-03	-0.600E-03
	39	0.990E+03	0.980E+03	-0.240E-03	0.475E-03	-0.240E-06	-0.257E-05	0.680E-03	-0.700E-03
	40	0.990E+03	0.980E+03	0.126E-02	0.232E-02	-0.375E-06	-0.310E-05	0.860E-03	-0.780E-03
	41	0.990E+03	0.	0.215E-03	0.	-0.580E-06	-0.250E-05	0.700E-03	0.100E-03
	42	0.990E+03	0.	-0.660E-03	0.469E-01	-0.310E-06	-0.245E-05	0.660E-03	-0.100E-03
	43	0.990E+03	0.	0.713E-04	0.140E-01	-0.525E-06	-0.275E-05	0.780E-03	-0.660E-03
	44	0.990E+03	0.	-0.744E-03	0.140E-01	-0.525E-06	-0.250E-05	0.260E-03	-0.670E-03
	45	0.990E+03	0.	0.203E-03	0.103E-03	-0.410E-06	-0.220E-05	0.540E-03	0.100E-03
	46	0.990E+03	0.990E+03	0.261E-03	0.270E-03	-0.330E-06	-0.320E-06	0.640E-03	-0.700E-03
	47	0.990E+03	0.990E+03	0.117E-03	0.150E-03	-0.290E-06	-0.400E-06	0.840E-03	-0.100E-02
	48	0.990E+03	0.990E+03	-0.116E-03	-0.100E-03	-0.360E-06	-0.350E-06	0.480E-03	-0.560E-03
	49	0.990E+03	0.990E+03	-0.242E-03	-0.240E-03	-0.380E-06	-0.360E-06	0.700E-03	-0.720E-03
	50	0.990E+03	0.990E+03	0.237E-03	0.260E-03	-0.740E-06	-0.720E-06	0.620E-03	-0.650E-03

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		RESISTANCE	
		PRE	POST
	TEMP =	22C	22C
DEVICE	1	0.127E+05	0.128E+05
	2	0.104E+05	0.105E+05
	3	0.103E+05	0.104E+05
	4	0.800E+04	0.810E+04
	5	0.103E+05	0.104E+05
	6	0.950E+04	0.962E+04
	7	0.870E+04	0.876E+04
	8	0.810E+04	0.824E+04
	9	0.980E+04	0.996E+04
	10	0.800E+04	0.811E+04
	11	0.110E+05	0.111E+05
	12	0.120E+05	0.122E+05
	13	0.102E+05	0.104E+05
	14	0.881E+04	0.889E+04
	15	0.102E+05	0.103E+05
	16	0.124E+05	0.131E+05
	17	0.756E+04	0.780E+04
	18	0.798E+04	0.824E+04
	19	0.102E+05	0.105E+05
	20	0.886E+04	0.919E+04
	21	0.131E+05	0.137E+05
	22	0.759E+04	0.782E+04
	23	0.990E+04	0.102E+05
	24	0.896E+04	0.922E+04
	25	0.736E+04	0.925E+04
	26	0.769E+04	0.757E+04
	27	0.894E+04	0.788E+04
	28	0.931E+04	0.955E+04
	29	0.854E+04	0.873E+04
	30	0.898E+04	0.100E+05
	31	0.103E+05	0.106E+05
	32	0.859E+04	0.892E+04
	33	0.892E+04	0.923E+04
	34	0.101E+05	0.104E+05
	35	0.916E+04	0.954E+04
	36	0.986E+04	0.102E+05
	37	0.919E+04	0.954E+04
	38	0.922E+04	0.960E+04
	39	0.956E+04	0.994E+04
	40	0.909E+04	0.943E+04
	41	0.972E+04	0.100E+05
	42	0.823E+04	0.846E+04
	43	0.788E+04	0.813E+04
	44	0.824E+04	0.847E+04
	45	0.926E+04	0.954E+04
	46	0.925E+04	0.935E+04
	47	0.102E+05	0.103E+05
	48	0.907E+04	0.917E+04
	49	0.896E+04	0.905E+04
	50	0.125E+05	0.125E+05

NATIONAL SEMICONDUCTOR LM101

		GAIN O.L. G(OL 5)				GAIN C.L.		V SAT +	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	23C	21C	23C	21C	22C	23C	22C	23C
DEVICE	1	0.667E+05	0.286E+05	0.400E+05	0.125E+05	0.100E+03	0.940E+02	0.112E+02	0.112E+02
	2	0.740E+05	0.286E+05	0.385E+05	0.105E+05	0.100E+03	0.940E+02	0.112E+02	0.112E+02
	3	0.714E+05	0.333E+05	0.417E+05	0.143E+05	0.100E+03	0.950E+02	0.112E+02	0.112E+02
	4	0.667E+05	0.222E+05	0.384E+05	0.950E+04	0.100E+03	0.920E+02	0.112E+02	0.112E+02
	5	0.714E+05	0.333E+05	0.400E+05	0.133E+05	0.100E+03	0.960E+02	0.112E+02	0.112E+02
	6	0.833E+05	0.400E+05	0.476E+05	0.182E+05	0.100E+03	0.980E+02	0.111E+02	0.112E+02
	7	0.100E+06	0.323E+05	0.588E+05	0.118E+05	0.100E+03	0.960E+02	0.111E+02	0.112E+02
	8	0.800E+05	0.333E+05	0.526E+05	0.133E+05	0.100E+03	0.960E+02	0.112E+02	0.112E+02
	9	0.667E+05	0.182E+05	0.385E+05	0.769E+04	0.100E+03	0.890E+02	0.112E+02	0.112E+02
	10	0.714E+05	0.333E+05	0.417E+05	0.133E+05	0.100E+03	0.980E+02	0.112E+02	0.112E+02
	11	0.667E+05	0.476E+05	0.400E+05	0.235E+05	0.100E+03	0.100E+03	0.111E+02	0.111E+02
	12	0.800E+05	0.500E+05	0.250E+05	0.274E+05	0.100E+03	0.100E+03	0.112E+02	0.112E+02
	13	0.833E+05	0.400E+05	0.308E+05	0.143E+05	0.980E+02	0.970E+02	0.111E+02	0.111E+02
	14	0.625E+05	0.465E+05	0.455E+05	0.222E+05	0.100E+03	0.100E+03	0.112E+02	0.112E+02
	15	0.833E+05	0.400E+05	0.333E+05	0.200E+05	0.100E+03	0.990E+02	0.111E+02	0.112E+02
	16	0.375E+05	0.250E+05	0.455E+05	0.118E+05	0.100E+03	0.990E+02	0.112E+02	0.110E+02
	17	0.769E+05	0.333E+05	0.476E+05	0.154E+05	0.100E+03	0.100E+03	0.111E+02	0.109E+02
	18	0.909E+05	0.250E+05	0.526E+05	0.111E+05	0.100E+03	0.100E+03	0.112E+02	0.111E+02
	19	0.833E+05	0.286E+05	0.417E+05	0.143E+05	0.100E+03	0.100E+03	0.112E+02	0.111E+02
	20	0.667E+05	0.143E+05	0.364E+05	0.560E+04	0.100E+03	0.980E+02	0.112E+02	0.103E+02
	21	0.740E+05	0.250E+05	0.400E+05	0.118E+05	0.100E+03	0.100E+03	0.111E+02	0.110E+02
	22	0.909E+05	0.250E+05	0.540E+05	0.118E+05	0.100E+03	0.100E+03	0.111E+02	0.110E+02
	23	0.952E+05	0.250E+05	0.556E+05	0.111E+05	0.100E+03	0.990E+02	0.112E+02	0.109E+02
	24	0.606E+05	0.250E+05	0.400E+05	0.118E+05	0.100E+03	0.100E+03	0.112E+02	0.111E+02
	25	0.769E+05	0.222E+05	0.444E+05	0.111E+05	0.100E+03	0.990E+02	0.112E+02	0.110E+02
	26	0.100E+06	0.111E+05	0.400E+05	0.870E+04	0.100E+03	0.980E+02	0.111E+02	0.339E+01
	27	0.625E+05	0.250E+05	0.286E+05	0.950E+04	0.100E+03	0.980E+02	0.111E+02	0.889E+01
	28	0.667E+05	0.222E+05	0.400E+05	0.950E+04	0.100E+03	0.990E+02	0.112E+02	0.973E+01
	29	0.952E+05	0.222E+05	0.571E+05	0.100E+05	0.100E+03	0.960E+02	0.112E+02	0.620E+01
	30	0.870E+05	0.222E+05	0.444E+05	0.950E+04	0.100E+03	0.980E+02	0.112E+02	0.898E+01
	31	0.667E+05	0.182E+05	0.400E+05	0.740E+04	0.100E+03	0.980E+02	0.112E+02	0.101E+02
	32	0.667E+05	0.133E+05	0.385E+05	0.530E+04	0.100E+03	0.960E+02	0.111E+02	0.869E+01
	33	0.714E+05	0.105E+05	0.476E+05	0.105E+05	0.100E+03	0.980E+02	0.112E+02	0.110E+02
	34	0.100E+06	0.200E+05	0.588E+05	0.830E+04	0.100E+03	0.970E+02	0.111E+02	0.109E+02
	35	0.667E+05	0.153E+05	0.333E+05	0.670E+04	0.100E+03	0.960E+02	0.111E+02	0.961E+01
	36	0.740E+05	0.200E+05	0.400E+05	0.830E+04	0.100E+03	0.960E+02	0.112E+02	0.103E+02
	37	0.740E+05	0.185E+05	0.400E+05	0.740E+04	0.100E+03	0.970E+02	0.112E+02	0.103E+02
	38	0.714E+05	0.200E+05	0.400E+05	0.830E+04	0.100E+03	0.970E+02	0.112E+02	0.102E+02
	39	0.833E+05	0.133E+05	0.500E+05	0.570E+04	0.100E+03	0.960E+02	0.111E+02	0.100E+02
	40	0.667E+05	0.625E+04	0.400E+05	0.440E+04	0.100E+03	0.960E+02	0.112E+02	0.862E+01
	41	0.100E+06	0.222E+05	0.556E+05	0.910E+04	0.100E+03	0.970E+02	0.111E+02	0.745E+01
	42	0.556E+05	0.769E+04	0.333E+05	0.250E+04	0.980E+02	0.620E+02	0.112E+02	0.310E+01
	43	0.667E+05	0.174E+05	0.217E+05	0.630E+04	0.980E+02	0.970E+02	0.112E+02	0.706E+01
	44	0.588E+05	0.154E+05	0.370E+05	0.630E+04	0.980E+02	0.960E+02	0.112E+02	0.608E+01
	45	0.769E+05	0.250E+05	0.250E+05	0.900E+04	0.100E+03	0.970E+02	0.111E+02	0.882E+01
	46	0.863E+05	0.769E+05	0.417E+05	0.455E+05	0.100E+03	0.980E+02	0.112E+02	0.112E+02
	47	0.690E+05	0.690E+05	0.400E+05	0.400E+05	0.100E+03	0.990E+02	0.112E+02	0.112E+02
	48	0.833E+05	0.870E+05	0.444E+05	0.476E+05	0.100E+03	0.990E+02	0.112E+02	0.112E+02
	49	0.833E+05	0.833E+05	0.444E+05	0.455E+05	0.100E+03	0.100E+03	0.111E+02	0.112E+02
	50	0.740E+05	0.741E+05	0.444E+05	0.417E+05	0.100E+03	0.100E+03	0.111E+02	0.112E+02

NATIONAL SEMICONDUCTOR LM101

		V SAT -		V O.S.		V(O.S. 5)		I(CC)	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	22C	23C	22C	23C	22C	23C	22C	23C
DEVICE	1	-0.104E+02	-0.104E+02	-0.236E-03	0.410E-03	-0.164E-03	0.107E-02	0.180E-02	0.143E-02
	2	-0.104E+02	-0.104E+02	0.189E-02	0.277E-02	0.167E-02	0.344E-02	0.184E-02	0.135E-02
	3	-0.104E+02	-0.104E+02	0.684E-03	0.165E-03	0.702E-03	-0.150E-03	0.180E-02	0.145E-02
	4	-0.105E+02	-0.104E+02	0.255E-02	0.275E-02	0.264E-02	0.332E-02	0.180E-02	0.143E-02
	5	-0.104E+02	-0.103E+02	0.664E-03	0.118E-02	0.566E-03	0.228E-02	0.165E-02	0.134E-02
	6	-0.104E+02	-0.103E+02	-0.127E-02	-0.380E-03	-0.121E-02	0.440E-03	0.155E-02	0.127E-02
	7	-0.104E+02	-0.103E+02	-0.371E-02	-0.361E-02	-0.386E-02	-0.357E-02	0.158E-02	0.122E-02
	8	-0.104E+02	-0.104E+02	-0.211E-02	-0.175E-02	-0.217E-02	-0.125E-02	0.184E-02	0.134E-02
	9	-0.104E+02	-0.104E+02	-0.566E-03	-0.112E-03	-0.524E-03	0.320E-03	0.190E-02	0.143E-02
	10	-0.104E+02	-0.103E+02	0.694E-03	0.408E-03	0.774E-03	0.790E-03	0.177E-02	0.136E-02
	11	-0.105E+02	-0.103E+02	0.164E-02	0.106E-02	0.191E-02	0.118E-02	0.129E-02	0.104E-02
	12	-0.104E+02	-0.103E+02	-0.236E-02	-0.232E-02	-0.217E-02	-0.190E-02	0.179E-02	0.138E-02
	13	-0.105E+02	-0.104E+02	0.209E-02	0.354E-02	0.216E-02	0.355E-02	0.613E-03	0.446E-03
	14	-0.104E+02	-0.103E+02	0.646E-03	0.981E-03	0.604E-03	0.114E-02	0.180E-02	0.133E-02
	15	-0.104E+02	-0.103E+02	0.179E-02	0.149E-02	0.200E-02	0.193E-02	0.155E-02	0.118E-02
	16	-0.104E+02	-0.102E+02	-0.409E-02	-0.679E-02	-0.374E-02	-0.554E-02	0.154E-02	0.568E-03
	17	-0.104E+02	-0.102E+02	0.160E-02	0.460E-03	0.185E-02	0.126E-02	0.122E-02	0.606E-03
	18	-0.104E+02	-0.102E+02	-0.341E-02	-0.464E-02	-0.336E-02	-0.333E-02	0.173E-02	0.645E-03
	19	-0.104E+02	-0.102E+02	0.106E-02	-0.300E-02	0.117E-02	-0.282E-02	0.195E-02	0.678E-03
	20	-0.104E+02	-0.102E+02	-0.994E-03	-0.138E-03	-0.956E-03	0.332E-02	0.169E-02	0.552E-03
	21	-0.104E+02	-0.102E+02	0.203E-02	-0.610E-03	0.225E-02	0.100E-03	0.168E-02	0.650E-03
	22	-0.104E+02	-0.102E+02	-0.120E-02	-0.252E-02	-0.132E-02	-0.206E-02	0.158E-02	0.600E-03
	23	-0.104E+02	-0.102E+02	-0.178E-02	-0.460E-02	-0.165E-02	-0.367E-02	0.171E-02	0.557E-03
	24	-0.104E+02	-0.102E+02	-0.143E-02	-0.513E-02	-0.109E-02	-0.431E-02	0.195E-02	0.718E-03
	25	-0.104E+02	-0.102E+02	-0.642E-03	-0.353E-02	-0.671E-03	-0.279E-02	0.160E-02	0.615E-03
	26	-0.104E+02	-0.102E+02	-0.538E-03	-0.223E-02	-0.264E-03	-0.129E-02	0.178E-02	0.822E-03
	27	-0.104E+02	-0.101E+02	0.735E-03	-0.230E-03	0.420E-03	-0.700E-04	0.142E-02	0.479E-03
	28	-0.105E+02	-0.103E+02	0.213E-03	0.170E-03	0.428E-03	0.107E-02	0.204E-02	0.594E-03
	29	-0.104E+02	-0.102E+02	-0.187E-02	-0.950E-03	-0.197E-02	0.100E-04	0.190E-02	0.472E-03
	30	-0.104E+02	-0.102E+02	0.215E-02	0.267E-02	0.181E-02	0.298E-02	0.196E-02	0.559E-03
	31	-0.104E+02	-0.111E+02	-0.335E-02	-0.797E-02	-0.333E-02	-0.745E-02	0.159E-02	0.450E-03
	32	-0.103E+02	-0.101E+02	0.452E-03	-0.166E-02	0.508E-03	-0.260E-03	0.200E-02	0.478E-03
	33	-0.104E+02	-0.102E+02	-0.224E-02	-0.577E-02	-0.209E-02	-0.505E-02	0.184E-02	0.554E-03
	34	-0.104E+02	-0.101E+02	-0.260E-02	-0.517E-02	-0.220E-02	-0.404E-02	0.150E-02	0.550E-03
	35	-0.104E+02	-0.102E+02	0.297E-02	-0.404E-02	0.328E-02	-0.306E-02	0.165E-02	0.470E-03
	36	-0.104E+02	-0.101E+02	0.232E-02	-0.129E-02	0.270E-02	-0.180E-03	0.173E-02	0.536E-03
	37	-0.104E+02	-0.101E+02	0.447E-03	-0.328E-02	0.450E-03	-0.251E-02	0.173E-02	0.524E-03
	38	-0.104E+02	-0.102E+02	0.110E-03	-0.392E-02	0.312E-03	-0.304E-02	0.174E-02	0.521E-03
	39	-0.104E+02	-0.101E+02	-0.440E-02	-0.572E-02	-0.445E-02	-0.445E-02	0.159E-02	0.477E-03
	40	-0.104E+02	-0.102E+02	-0.197E-03	-0.108E-02	-0.920E-04	0.920E-03	0.181E-02	0.479E-03
	41	-0.104E+02	-0.101E+02	-0.278E-03	0.120E-03	-0.423E-03	0.950E-03	0.170E-02	0.470E-03
	42	-0.104E+02	-0.101E+02	0.353E-03	0.378E-02	0.467E-03	0.502E-02	0.167E-02	0.286E-03
	43	-0.104E+02	-0.101E+02	-0.112E-02	-0.250E-03	-0.116E-02	0.900E-03	0.174E-02	0.495E-03
	44	-0.104E+02	-0.102E+02	-0.118E-02	-0.351E-02	-0.111E-02	-0.266E-02	0.188E-02	0.384E-03
	45	-0.104E+02	-0.101E+02	-0.169E-02	-0.323E-02	-0.143E-02	-0.249E-02	0.144E-02	0.496E-03
	46	-0.104E+02	-0.104E+02	0.895E-03	0.905E-03	0.111E-02	0.122E-02	0.183E-02	0.183E-02
	47	-0.105E+02	-0.105E+02	0.246E-02	0.248E-02	0.238E-02	0.238E-02	0.186E-02	0.188E-02
	48	-0.104E+02	-0.104E+02	-0.142E-02	-0.143E-02	-0.142E-02	-0.143E-02	0.179E-02	0.179E-02
	49	-0.103E+02	-0.103E+02	-0.822E-03	-0.902E-03	-0.506E-03	-0.590E-03	0.184E-02	0.184E-02
	50	-0.104E+02	-0.104E+02	0.273E-02	0.278E-02	0.274E-02	0.276E-02	0.173E-02	0.174E-02

NATIONAL SEMICONDUCTOR LM101

		I BIAS		I O.S.	
		PRE	POST	PRE	POST
	TEMP =	22C	20C	23C	20C
DEVICE	1	0.240E-06	0.175E-06	-0.200E-08	-0.600E-09
	2	0.300E-06	0.250E-06	-0.110E-07	0.340E-08
	3	0.290E-06	0.200E-06	0.270E-07	0.224E-07
	4	0.230E-06	0.225E-06	0.100E-10	0.280E-08
	5	0.245E-06	0.215E-06	0.200E-08	0.880E-08
	6	0.265E-06	0.200E-06	-0.140E-07	-0.540E-08
	7	0.380E-06	0.290E-06	-0.130E-07	-0.160E-07
	8	0.270E-06	0.270E-06	-0.600E-08	-0.290E-08
	9	0.210E-06	0.165E-06	0.100E-10	0.200E-09
	10	0.320E-06	0.320E-06	0.140E-07	0.920E-08
	11	0.300E-06	0.620E-06	-0.150E-07	-0.230E-07
	12	0.250E-06	0.560E-06	-0.120E-07	-0.190E-07
	13	0.290E-06	0.460E-06	0.190E-07	0.220E-07
	14	0.340E-06	0.690E-06	0.400E-08	0.200E-08
	15	0.210E-06	0.450E-06	-0.120E-07	-0.110E-07
	16	0.225E-06	0.160E-05	-0.160E-07	-0.740E-07
	17	0.245E-06	0.150E-05	0.100E-10	0.310E-08
	18	0.210E-06	0.160E-05	-0.300E-08	-0.170E-07
	19	0.320E-06	0.165E-05	0.180E-07	-0.130E-07
	20	0.300E-06	0.190E-05	0.120E-07	0.520E-07
	21	0.310E-06	0.160E-05	-0.160E-07	-0.460E-07
	22	0.300E-06	0.187E-05	0.600E-08	0.140E-07
	23	0.260E-06	0.177E-05	-0.700E-08	-0.640E-07
	24	0.205E-06	0.145E-05	-0.130E-07	-0.605E-07
	25	0.240E-06	0.172E-05	0.260E-07	0.104E-07
	26	0.295E-06	0.192E-05	0.130E-07	-0.114E-07
	27	0.210E-06	0.188E-05	-0.200E-08	-0.180E-08
	28	0.260E-06	0.185E-05	0.700E-08	-0.142E-07
	29	0.285E-06	0.225E-05	0.400E-08	0.420E-07
	30	0.245E-06	0.200E-05	0.150E-07	0.770E-07
	31	0.205E-06	0.170E-05	0.190E-07	-0.330E-07
	32	0.250E-06	0.160E-05	-0.120E-07	-0.382E-07
	33	0.240E-06	0.185E-05	0.220E-07	-0.550E-08
	34	0.300E-06	0.214E-05	-0.600E-08	-0.790E-07
	35	0.225E-06	0.145E-05	0.400E-08	-0.227E-06
	36	0.290E-06	0.175E-05	-0.400E-08	-0.273E-07
	37	0.290E-06	0.175E-05	0.470E-07	-0.490E-07
	38	0.235E-06	0.167E-05	0.160E-07	-0.162E-07
	39	0.287E-06	0.203E-05	0.700E-08	-0.310E-07
	40	0.290E-06	0.213E-05	0.200E-08	0.168E-07
	41	0.280E-06	0.213E-05	-0.280E-07	-0.300E-07
	42	0.225E-06	0.184E-05	0.100E-10	0.501E-07
	43	0.260E-06	0.195E-05	0.100E-07	0.334E-07
	44	0.235E-06	0.197E-05	0.400E-08	-0.430E-07
	45	0.360E-06	0.173E-05	-0.550E-07	-0.973E-07
	46	0.295E-06	0.310E-06	-0.300E-07	-0.322E-07
	47	0.265E-06	0.250E-06	0.260E-07	0.245E-07
	48	0.250E-06	0.280E-06	0.400E-08	0.529E-08
	49	0.340E-06	0.380E-06	0.170E-07	0.184E-07
	50	0.320E-06	0.350E-06	0.250E-07	0.264E-07

AMELCO 8078E

		I O.S.		V SAT -		V SAT +		GAIN C.L.	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	21C	22C	22C	22C	22C	22C	22C	22C
DEVICE	1	0.150E-08	-0.400E-08	-0.101E+02	-0.101E+02	0.104E+02	0.104E+02	0.100E+03	0.100E+03
	2	0.100E-09	0.560E-08	-0.101E+02	-0.101E+02	0.104E+02	0.104E+02	0.100E+03	0.100E+03
	3	-0.240E-08	-0.400E-08	-0.101E+02	-0.101E+02	0.104E+02	0.104E+02	0.100E+03	0.100E+03
	4	0.100E-07	0.210E-07	-0.101E+02	-0.101E+02	0.104E+02	0.104E+02	0.100E+03	0.100E+03
	5	0.100E-09	0.150E-07	-0.101E+02	-0.101E+02	0.104E+02	0.104E+02	0.100E+03	0.100E+03
	6	0.200E-07	0.260E-07	-0.100E+02	-0.101E+02	0.104E+02	0.104E+02	0.100E+03	0.100E+03
	7	-0.440E-07	-0.360E-07	-0.100E+02	-0.100E+02	0.104E+02	0.104E+02	0.100E+03	0.100E+03
	8	0.200E-08	0.920E-08	-0.100E+02	-0.101E+02	0.104E+02	0.104E+02	0.100E+03	0.100E+03
	9	-0.330E-08	0.124E-07	-0.101E+02	-0.101E+02	0.104E+02	0.104E+02	0.100E+03	0.100E+03
	10	0.200E-08	0.110E-07	-0.101E+02	-0.101E+02	0.104E+02	0.104E+02	0.100E+03	0.100E+03
	11	-0.440E-08	-0.440E-08	-0.100E+02	-0.101E+02	0.103E+02	0.104E+02	0.100E+03	0.100E+03
	12	-0.130E-08	-0.520E-08	-0.100E+02	-0.101E+02	0.104E+02	0.104E+02	0.100E+03	0.100E+03
	13	0.590E-08	0.800E-08	-0.101E+02	-0.101E+02	0.104E+02	0.104E+02	0.100E+03	0.100E+03
	14	-0.100E-08	0.840E-08	-0.100E+02	-0.101E+02	0.104E+02	0.104E+02	0.100E+03	0.100E+03
	15	0.580E-08	0.165E-07	-0.101E+02	-0.101E+02	0.104E+02	0.104E+02	0.100E+03	0.100E+03
	16	-0.800E-08	-0.364E-07	-0.100E+02	-0.100E+02	0.103E+02	0.103E+02	0.100E+03	0.100E+03
	17	-0.560E-08	-0.356E-07	-0.101E+02	-0.100E+02	0.104E+02	0.104E+02	0.100E+03	0.100E+03
	18	0.400E-08	-0.470E-07	-0.100E+02	-0.100E+02	0.103E+02	0.104E+02	0.100E+03	0.100E+03
	19	-0.440E-08	-0.428E-07	-0.100E+02	-0.100E+02	0.103E+02	0.103E+02	0.100E+03	0.100E+03
	20	-0.800E-08	-0.540E-07	-0.101E+02	-0.100E+02	0.105E+02	0.104E+02	0.100E+03	0.100E+03
	21	-0.100E-08	0.425E-07	-0.101E+02	-0.100E+02	0.104E+02	0.104E+02	0.100E+03	0.100E+03
	22	0.133E-06	0.262E-06	-0.100E+02	-0.998E+01	0.104E+02	0.103E+02	0.100E+03	0.100E+03
	23	0.100E-08	0.480E-08	-0.101E+02	-0.100E+02	0.104E+02	0.104E+02	0.100E+03	0.100E+03
	24	-0.120E-07	-0.835E-07	-0.100E+02	-0.270E+01	0.104E+02	0.102E+02	0.100E+03	0.980E+02
	25	-0.100E-08	0.200E-08	-0.100E+02	-0.100E+02	0.104E+02	0.104E+02	0.100E+03	0.100E+03
	26	0.110E-07	-0.304E-07	-0.101E+02	-0.995E+01	0.104E+02	0.103E+02	0.100E+03	0.100E+03
	27	-0.850E-08	-0.352E-07	-0.101E+02	-0.997E+01	0.104E+02	0.104E+02	0.100E+03	0.100E+03
	28	-0.900E-08	-0.352E-07	-0.101E+02	-0.997E+01	0.104E+02	0.104E+02	0.100E+03	0.100E+03
	29	-0.200E-08	-0.510E-07	-0.101E+02	-0.990E+01	0.104E+02	0.104E+02	0.100E+03	0.100E+03
	30	-0.600E-08	-0.475E-07	-0.101E+02	-0.990E+01	0.104E+02	0.104E+02	0.100E+03	0.100E+03
	31	0.160E-08	-0.920E-07	-0.100E+02	-0.990E+01	0.104E+02	0.104E+02	0.100E+03	0.990E+02
	32	0.280E-08	-0.140E-07	-0.100E+02	-0.870E+01	0.103E+02	0.102E+02	0.100E+03	0.970E+02
	33	-0.480E-08	-0.725E-07	-0.101E+02	-0.990E+01	0.104E+02	0.103E+02	0.100E+03	0.980E+02
	34	0.850E-09	0.	-0.101E+02	0.103E+02	0.104E+02	0.103E+02	0.100E+03	0.
	35	-0.120E-07	-0.168E-06	-0.100E+02	-0.980E+01	0.104E+02	0.103E+02	0.100E+03	0.980E+02
	36	0.320E-08	-0.200E-07	-0.101E+02	-0.740E+01	0.104E+02	0.103E+02	0.100E+03	0.990E+02
	37	-0.300E-08	-0.670E-07	-0.101E+02	-0.980E+01	0.104E+02	0.103E+02	0.100E+03	0.990E+02
	38	0.180E-07	0.625E-07	-0.100E+02	-0.580E+01	0.104E+02	0.103E+02	0.100E+03	0.980E+02
	39	0.200E-07	0.228E-07	-0.101E+02	-0.980E+01	0.104E+02	0.103E+02	0.100E+03	0.990E+02
	40	0.300E-07	0.120E-07	-0.100E+02	-0.950E+01	0.104E+02	0.103E+02	0.100E+03	0.980E+02
	41	0.300E-07	-0.117E-06	-0.101E+02	-0.420E+01	0.104E+02	0.102E+02	0.100E+03	0.960E+02
	42	-0.380E-07	-0.157E-06	-0.101E+02	-0.370E+01	0.104E+02	0.103E+02	0.100E+03	0.950E+02
	43	-0.640E-08	0.	-0.100E+02	0.102E+02	0.104E+02	0.104E+02	0.100E+03	0.
	44	0.300E-08	0.	-0.100E+02	0.588E+01	0.103E+02	0.102E+02	0.100E+03	0.
	45	0.800E-08	-0.166E-06	-0.101E+02	-0.350E+01	0.104E+02	0.103E+02	0.100E+03	0.960E+02
	46	-0.180E-08	-0.800E-08	-0.101E+02	-0.101E+02	0.104E+02	0.104E+02	0.100E+03	0.100E+03
	47	0.100E-08	-0.170E-07	-0.101E+02	-0.101E+02	0.104E+02	0.104E+02	0.100E+03	0.100E+03
	48	0.110E-07	0.640E-08	-0.101E+02	-0.101E+02	0.104E+02	0.104E+02	0.100E+03	0.100E+03
	49	-0.300E-08	-0.160E-08	-0.101E+02	-0.101E+02	0.104E+02	0.104E+02	0.100E+03	0.100E+03
	50	0.110E-07	0.210E-07	-0.100E+02	-0.101E+02	0.104E+02	0.104E+02	0.100E+03	0.100E+03

AMELCO 807BE

		V O.S.		I BIAS		CMRR		GAIN O.L.	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	22C	22C	21C	23C	21C	23C	21C	22C
DEVICE	1	0.187E-02	0.168E-02	0.430E-06	0.540E-06	0.400E-04	0.400E-04	0.730E+05	0.790E+05
	2	-0.350E-03	-0.302E-03	0.300E-06	0.400E-06	0.560E-03	0.560E-03	0.790E+05	0.855E+05
	3	0.500E-04	0.112E-03	0.280E-06	0.400E-06	0.580E-03	0.580E-03	0.790E+05	0.570E+05
	4	0.600E-03	0.710E-03	0.600E-06	0.680E-06	0.600E-03	0.610E-03	0.675E+05	0.610E+05
	5	0.185E-03	0.227E-03	0.350E-06	0.470E-06	0.640E-03	0.640E-03	0.675E+05	0.630E+05
	6	0.124E-02	0.132E-02	0.400E-06	0.780E-06	0.600E-03	0.600E-03	0.675E+05	0.610E+05
	7	0.219E-02	0.225E-02	0.580E-06	0.700E-06	0.500E-03	0.500E-03	0.556E+05	0.570E+05
	8	0.122E-02	0.125E-02	0.430E-06	0.540E-06	0.520E-03	0.530E-03	0.675E+05	0.630E+05
	9	0.840E-04	0.170E-03	0.370E-06	0.485E-06	0.500E-03	0.600E-03	0.675E+05	0.790E+05
	10	0.165E-02	0.173E-02	0.460E-06	0.570E-06	0.600E-03	0.580E-03	0.675E+05	0.610E+05
	11	0.184E-03	0.190E-03	0.500E-06	0.790E-06	0.640E-03	0.620E-03	0.630E+05	0.570E+05
	12	-0.290E-03	-0.270E-03	0.440E-06	0.680E-06	0.620E-03	0.580E-03	0.675E+05	0.590E+05
	13	0.820E-03	0.790E-03	0.380E-06	0.590E-06	0.540E-03	0.520E-03	0.730E+05	0.630E+05
	14	0.460E-03	0.450E-03	0.520E-06	0.820E-06	0.560E-03	0.640E-03	0.675E+05	0.525E+05
	15	-0.178E-02	0.183E-02	0.630E-06	0.920E-06	0.580E-03	0.580E-03	0.556E+05	0.472E+05
	16	-0.160E-04	0.264E-02	0.610E-06	0.360E-05	0.640E-03	0.640E-03	0.395E+05	0.785E+04
	17	-0.920E-03	-0.200E-03	0.340E-06	0.225E-05	0.660E-03	0.640E-03	0.790E+05	0.190E+05
	18	-0.330E-03	-0.130E-05	0.380E-06	0.285E-05	0.620E-03	0.740E-03	0.730E+05	0.143E+05
	19	-0.142E-02	-0.227E-03	0.390E-06	0.240E-05	0.740E-03	0.720E-03	0.790E+05	0.114E+05
	20	-0.830E-03	0.920E-03	0.690E-06	0.400E-05	0.710E-03	0.640E-03	0.556E+05	0.135E+05
	21	-0.700E-04	0.188E-02	0.330E-06	0.260E-06	0.540E-03	0.580E-03	0.730E+05	0.157E+05
	22	-0.310E-03	0.170E-02	0.120E-05	0.540E-05	0.640E-03	0.620E-03	0.525E+05	0.147E+05
	23	0.620E-03	0.160E-02	0.350E-06	0.255E-05	0.580E-03	0.580E-03	0.790E+05	0.197E+05
	24	0.128E-02	0.732E-02	0.640E-06	0.330E-05	0.590E-03	0.720E-03	0.410E+05	0.472E+04
	25	0.220E-03	0.103E-02	0.270E-06	0.240E-05	0.600E-03	0.620E-03	0.863E+05	0.197E+05
	26	0.300E-04	0.156E-02	0.400E-06	0.300E-05	0.600E-03	0.620E-03	0.730E+05	0.105E+05
	27	0.249E-02	0.304E-02	0.310E-06	0.230E-05	0.360E-03	0.300E-03	0.730E+05	0.157E+05
	28	0.182E-03	0.104E-02	0.430E-06	0.300E-05	0.580E-03	0.560E-03	0.675E+05	0.118E+05
	29	0.125E-03	0.700E-03	0.340E-06	0.270E-05	0.620E-03	0.600E-03	0.730E+05	0.148E+05
	30	0.125E-02	0.243E-02	0.380E-06	0.275E-05	0.520E-03	0.520E-03	0.730E+05	0.128E+05
	31	0.770E-03	0.431E-02	0.370E-06	0.540E-05	0.540E-03	0.580E-03	0.790E+05	0.501E+04
	32	0.560E-03	0.888E-02	0.740E-06	0.800E-05	0.660E-03	0.830E-03	0.473E+05	0.231E+04
	33	0.480E-03	0.535E-02	0.420E-06	0.560E-05	0.560E-03	0.640E-03	0.675E+05	0.437E+04
	34	0.370E-03	0.	0.650E-06	0.720E-05	0.560E-03	0.230E-02	0.590E+05	0.
	35	-0.740E-03	0.637E-02	0.720E-06	0.810E-05	0.760E-03	0.900E-03	0.559E+05	0.206E+04
	36	0.113E-02	0.818E-02	0.400E-06	0.680E-05	0.560E-03	0.740E-03	0.945E+05	0.412E+04
	37	0.380E-03	0.463E-02	0.370E-06	0.590E-05	0.560E-03	0.640E-03	0.790E+05	0.428E+04
	38	-0.100E-03	0.745E-02	0.450E-06	0.680E-05	0.600E-03	0.760E-03	0.630E+05	0.223E+04
	39	0.191E-02	0.695E-02	0.420E-06	0.560E-05	0.520E-03	0.640E-03	0.730E+05	0.421E+04
	40	0.180E-02	0.744E-02	0.590E-06	0.720E-05	0.640E-03	0.660E-03	0.556E+05	0.278E+04
	41	0.215E-02	0.996E-02	0.660E-06	0.810E-05	0.700E-03	0.820E-03	0.556E+05	0.132E+04
	42	0.600E-03	0.915E-02	0.670E-06	0.790E-05	0.580E-03	0.850E-03	0.675E+05	0.101E+04
	43	0.150E-03	0.	0.760E-06	0.850E-05	0.580E-03	0.220E-02	0.556E+05	0.
	44	0.350E-03	0.	0.570E-06	0.660E-05	0.560E-03	0.960E-03	0.590E+05	0.
	45	0.340E-03	0.800E-02	0.720E-06	0.760E-05	0.700E-03	0.960E-03	0.630E+05	0.164E+04
	46	0.120E-03	0.110E-03	0.700E-06	0.670E-06	0.580E-03	0.750E-03	0.630E+05	0.630E+05
	47	0.190E-03	0.180E-03	0.410E-06	0.390E-06	0.660E-03	0.650E-03	0.790E+05	0.790E+05
	48	-0.460E-03	-0.440E-03	0.360E-06	0.340E-06	0.640E-03	0.630E-03	0.730E+05	0.730E+05
	49	0.135E-02	0.136E-02	0.350E-06	0.340E-06	0.570E-03	0.550E-03	0.730E+05	0.755E+05
	50	0.750E-03	0.730E-03	0.660E-06	0.890E-06	0.580E-03	0.580E-03	0.556E+05	0.556E+05

SIGNETICS SE501

		V SAT -		V SAT +		GAIN C.L.		V(D.C. IN)	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	22C	24C	22C	24C	22C	24C	22C	24C
DEVICE	1	0.194E+01	0.195E+01	0.517E+01	0.521E+01	0.450E+02	0.445E+02	0.804E+00	0.797E+00
	2	0.188E+01	0.190E+01	0.514E+01	0.517E+01	0.490E+02	0.500E+02	0.811E+00	0.809E+00
	3	0.198E+01	0.199E+01	0.515E+01	0.517E+01	0.435E+02	0.438E+02	0.815E+00	0.818E+00
	4	0.189E+01	0.191E+01	0.519E+01	0.522E+01	0.510E+02	0.525E+02	0.804E+00	0.801E+00
	5	0.193E+01	0.195E+01	0.503E+01	0.506E+01	0.435E+02	0.440E+02	0.811E+00	0.809E+00
	6	0.192E+01	0.193E+01	0.513E+01	0.515E+01	0.455E+02	0.437E+02	0.810E+00	0.806E+00
	7	0.195E+01	0.197E+01	0.511E+01	0.514E+01	0.460E+02	0.460E+02	0.813E+00	0.810E+00
	8	0.246E+01	0.248E+01	0.514E+01	0.516E+01	0.445E+02	0.422E+02	0.817E+00	0.812E+00
	9	0.192E+01	0.194E+01	0.514E+01	0.518E+01	0.460E+02	0.469E+02	0.812E+00	0.809E+00
	10	0.197E+01	0.198E+01	0.519E+01	0.522E+01	0.490E+02	0.492E+02	0.796E+00	0.794E+00
	11	0.197E+01	0.199E+01	0.518E+01	0.518E+01	0.432E+02	0.435E+02	0.813E+00	0.804E+00
	12	0.192E+01	0.193E+01	0.521E+01	0.518E+01	0.480E+02	0.470E+02	0.810E+00	0.806E+00
	13	0.191E+01	0.192E+01	0.516E+01	0.515E+01	0.441E+02	0.440E+02	0.820E+00	0.818E+00
	14	0.195E+01	0.196E+01	0.516E+01	0.514E+01	0.433E+02	0.435E+02	0.817E+00	0.816E+00
	15	0.192E+01	0.193E+01	0.517E+01	0.516E+01	0.434E+02	0.438E+02	0.818E+00	0.816E+00
	16	0.199E+01	0.198E+01	0.522E+01	0.509E+01	0.432E+02	0.335E+02	0.822E+00	0.813E+00
	17	0.193E+01	0.194E+01	0.523E+01	0.511E+01	0.478E+02	0.395E+02	0.811E+00	0.802E+00
	18	0.193E+01	0.194E+01	0.526E+01	0.516E+01	0.497E+02	0.422E+02	0.803E+00	0.796E+00
	19	0.194E+01	0.194E+01	0.514E+01	0.502E+01	0.460E+02	0.365E+02	0.812E+00	0.803E+00
	20	0.189E+01	0.189E+01	0.520E+01	0.506E+01	0.445E+02	0.348E+02	0.822E+00	0.810E+00
	21	0.190E+01	0.191E+01	0.522E+01	0.508E+01	0.465E+02	0.320E+02	0.814E+00	0.803E+00
	22	0.189E+01	0.190E+01	0.523E+01	0.509E+01	0.492E+02	0.385E+02	0.812E+00	0.802E+00
	23	0.193E+01	0.194E+01	0.521E+01	0.508E+01	0.465E+02	0.364E+02	0.810E+00	0.799E+00
	24	0.184E+01	0.184E+01	0.523E+01	0.510E+01	0.519E+02	0.430E+02	0.805E+00	0.796E+00
	25	0.193E+01	0.193E+01	0.523E+01	0.508E+01	0.474E+02	0.365E+02	0.808E+00	0.796E+00
	26	0.195E+01	0.195E+01	0.517E+01	0.505E+01	0.440E+02	0.330E+02	0.810E+00	0.798E+00
	27	0.187E+01	0.188E+01	0.519E+01	0.504E+01	0.493E+02	0.340E+02	0.811E+00	0.795E+00
	28	0.191E+01	0.191E+01	0.519E+01	0.503E+01	0.472E+02	0.315E+02	0.813E+00	0.795E+00
	29	0.186E+01	0.186E+01	0.517E+01	0.500E+01	0.509E+02	0.330E+02	0.808E+00	0.789E+00
	30	0.196E+01	0.196E+01	0.515E+01	0.501E+01	0.436E+02	0.310E+02	0.819E+00	0.800E+00
	31	0.188E+01	0.187E+01	0.518E+01	0.507E+01	0.513E+02	0.370E+02	0.804E+00	0.792E+00
	32	0.188E+01	0.188E+01	0.510E+01	0.503E+01	0.520E+02	0.375E+02	0.803E+00	0.790E+00
	33	0.190E+01	0.191E+01	0.522E+01	0.513E+01	0.496E+02	0.380E+02	0.806E+00	0.794E+00
	34	0.196E+01	0.197E+01	0.516E+01	0.507E+01	0.420E+02	0.315E+02	0.815E+00	0.801E+00
	35	0.192E+01	0.193E+01	0.513E+01	0.503E+01	0.475E+02	0.355E+02	0.804E+00	0.794E+00
	36	0.192E+01	0.193E+01	0.518E+01	0.509E+01	0.475E+02	0.360E+02	0.810E+00	0.801E+00
	37	0.195E+01	0.197E+01	0.522E+01	0.516E+01	0.499E+02	0.405E+02	0.805E+00	0.795E+00
	38	0.187E+01	0.188E+01	0.515E+01	0.504E+01	0.475E+02	0.340E+02	0.805E+00	0.790E+00
	39	0.191E+01	0.192E+01	0.518E+01	0.510E+01	0.473E+02	0.360E+02	0.813E+00	0.802E+00
	40	0.192E+01	0.193E+01	0.518E+01	0.508E+01	0.475E+02	0.360E+02	0.808E+00	0.796E+00
	41	0.190E+01	0.190E+01	0.515E+01	0.496E+01	0.463E+02	0.270E+02	0.814E+00	0.793E+00
	42	0.190E+01	0.190E+01	0.514E+01	0.497E+01	0.450E+02	0.275E+02	0.812E+00	0.792E+00
	43	0.189E+01	0.189E+01	0.518E+01	0.503E+01	0.474E+02	0.315E+02	0.808E+00	0.792E+00
	44	0.191E+01	0.191E+01	0.522E+01	0.510E+01	0.475E+02	0.330E+02	0.806E+00	0.793E+00
	45	0.190E+01	0.190E+01	0.514E+01	0.494E+01	0.425E+02	0.250E+02	0.813E+00	0.790E+00
	46	0.204E+01	0.205E+01	0.517E+01	0.521E+01	0.460E+02	0.470E+02	0.812E+00	0.810E+00
	47	0.196E+01	0.198E+01	0.513E+01	0.517E+01	0.470E+02	0.475E+02	0.814E+00	0.812E+00
	48	0.194E+01	0.195E+01	0.513E+01	0.516E+01	0.440E+02	0.450E+02	0.818E+00	0.817E+00
	49	0.196E+01	0.196E+01	0.518E+01	0.521E+01	0.470E+02	0.475E+02	0.811E+00	0.810E+00
	50	0.192E+01	0.193E+01	0.517E+01	0.520E+01	0.480E+02	0.485E+02	0.809E+00	0.808E+00

SIGNETICS SE501

		V(O.C.OUI)		RESISTANCE		I(CBO)		V(BE) LOW	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	22C	24C	24C	26C	24C	26C	22C	22C
DEVICE	1	0.359E+01	0.344E+01	0.465E+04	0.476E+04	0.450E-09	0.550E-09	0.650E+00	0.649E+00
	2	0.362E+01	0.364E+01	0.476E+04	0.487E+04	0.250E-09	0.370E-09	0.666E+00	0.665E+00
	3	0.380E+01	0.380E+01	0.416E+04	0.427E+04	0.270E-09	0.380E-05	0.662E+00	0.669E+00
	4	0.386E+01	0.386E+01	0.500E+04	0.505E+04	0.280E-09	0.360E-09	0.650E+00	0.649E+00
	5	0.354E+01	0.356E+01	0.444E+04	0.454E+04	0.730E-08	0.800E-08	0.668E+00	0.667E+00
	6	0.367E+01	0.360E+01	0.408E+04	0.425E+04	0.410E-09	0.600E-09	0.655E+00	0.655E+00
	7	0.379E+01	0.376E+01	0.513E+04	0.526E+04	0.230E-09	0.370E-09	0.661E+00	0.660E+00
	8	0.373E+01	0.365E+01	0.426E+04	0.435E+04	0.730E-08	0.420E-08	0.671E+00	0.669E+00
	9	0.374E+01	0.376E+01	0.426E+04	0.427E+04	0.430E-08	0.500E-08	0.658E+00	0.659E+00
	10	0.392E+01	0.391E+01	0.500E+04	0.505E+04	0.250E-09	0.350E-09	0.643E+00	0.643E+00
	11	0.379E+01	0.381E+01	0.433E+04	0.435E+04	0.180E-05	0.260E-05	0.657E+00	0.657E+00
	12	0.374E+01	0.366E+01	0.433E+04	0.444E+04	0.220E-09	0.300E-09	0.652E+00	0.651E+00
	13	0.368E+01	0.368E+01	0.444E+04	0.454E+04	0.720E-08	0.840E-08	0.666E+00	0.669E+00
	14	0.364E+01	0.364E+01	0.400E+04	0.408E+04	0.195E-08	0.220E-08	0.665E+00	0.665E+00
	15	0.367E+01	0.367E+01	0.415E+04	0.418E+04	0.410E-09	0.490E-09	0.660E+00	0.660E+00
	16	0.381E+01	0.343E+01	0.441E+04	0.417E+04	0.300E-07	0.250E-08	0.651E+00	0.663E+00
	17	0.380E+01	0.349E+01	0.435E+04	0.444E+04	0.460E-09	0.800E-09	0.660E+00	0.660E+00
	18	0.368E+01	0.361E+01	0.435E+04	0.444E+04	0.110E-08	0.150E-08	0.649E+00	0.646E+00
	19	0.380E+01	0.345E+01	0.416E+04	0.425E+04	0.320E-08	0.350E-08	0.667E+00	0.656E+00
	20	0.363E+01	0.324E+01	0.467E+04	0.476E+04	0.250E-09	0.470E-09	0.667E+00	0.668E+00
	21	0.371E+01	0.336E+01	0.435E+04	0.444E+04	0.100E-08	0.100E-08	0.657E+00	0.651E+00
	22	0.367E+01	0.328E+01	0.459E+04	0.467E+04	0.560E-07	0.720E-07	0.666E+00	0.664E+00
	23	0.373E+01	0.335E+01	0.442E+04	0.454E+04	0.235E-09	0.530E-09	0.666E+00	0.663E+00
	24	0.366E+01	0.333E+01	0.483E+04	0.495E+04	0.250E-09	0.510E-09	0.660E+00	0.660E+00
	25	0.376E+01	0.337E+01	0.435E+04	0.444E+04	0.100E-08	0.130E-08	0.656E+00	0.658E+00
	26	0.374E+01	0.335E+01	0.424E+04	0.435E+04	0.230E-07	0.280E-07	0.659E+00	0.659E+00
	27	0.370E+01	0.321E+01	0.472E+04	0.487E+04	0.270E-09	0.540E-09	0.662E+00	0.662E+00
	28	0.375E+01	0.323E+01	0.439E+04	0.444E+04	0.180E-05	0.180E-05	0.657E+00	0.658E+00
	29	0.365E+01	0.311E+01	0.465E+04	0.467E+04	0.240E-09	0.500E-09	0.667E+00	0.668E+00
	30	0.372E+01	0.329E+01	0.427E+04	0.429E+04	0.940E-08	0.470E-08	0.662E+00	0.664E+00
	31	0.368E+01	0.322E+01	0.452E+04	0.454E+04	0.230E-09	0.480E-09	0.659E+00	0.661E+00
	32	0.367E+01	0.323E+01	0.472E+04	0.476E+04	0.220E-07	0.270E-07	0.664E+00	0.663E+00
	33	0.385E+01	0.349E+01	0.459E+04	0.467E+04	0.174E-09	0.420E-09	0.647E+00	0.647E+00
	34	0.375E+01	0.334E+01	0.420E+04	0.425E+04	0.390E-07	0.380E-07	0.660E+00	0.661E+00
	35	0.357E+01	0.320E+01	0.472E+04	0.487E+04	0.132E-08	0.210E-08	0.663E+00	0.663E+00
	36	0.378E+01	0.343E+01	0.431E+04	0.441E+04	0.285E-09	0.580E-09	0.657E+00	0.656E+00
	37	0.389E+01	0.362E+01	0.495E+04	0.503E+04	0.300E-09	0.600E-09	0.650E+00	0.650E+00
	38	0.365E+01	0.325E+01	0.459E+04	0.465E+04	0.210E-08	0.170E-08	0.662E+00	0.663E+00
	39	0.375E+01	0.335E+01	0.431E+04	0.446E+04	0.500E-08	0.780E-09	0.646E+00	0.649E+00
	40	0.372E+01	0.333E+01	0.433E+04	0.446E+04	0.260E-07	0.260E-07	0.661E+00	0.659E+00
	41	0.364E+01	0.306E+01	0.437E+04	0.444E+04	0.275E-09	0.540E-09	0.670E+00	0.669E+00
	42	0.363E+01	0.308E+01	0.455E+04	0.465E+04	0.180E-08	0.230E-08	0.668E+00	0.667E+00
	43	0.364E+01	0.311E+01	0.433E+04	0.444E+04	0.268E-09	0.480E-09	0.660E+00	0.658E+00
	44	0.387E+01	0.344E+01	0.465E+04	0.476E+04	0.174E-09	0.340E-09	0.646E+00	0.645E+00
	45	0.349E+01	0.299E+01	0.439E+04	0.444E+04	0.290E-07	0.300E-07	0.670E+00	0.669E+00
	46	0.384E+01	0.387E+01	0.524E+04	0.510E+04	0.240E-09	0.280E-09	0.656E+00	0.653E+00
	47	0.375E+01	0.379E+01	0.426E+04	0.435E+04	0.240E-09	0.340E-09	0.660E+00	0.656E+00
	48	0.370E+01	0.379E+01	0.416E+04	0.425E+04	0.140E-07	0.130E-07	0.664E+00	0.660E+00
	49	0.386E+01	0.384E+01	0.416E+04	0.425E+04	0.420E-09	0.420E-09	0.642E+00	0.638E+00
	50	0.378E+01	0.381E+01	0.435E+04	0.444E+04	0.280E-09	0.320E-09	0.653E+00	0.649E+00

SIGNETICS SE501

		H(FE) LOW		GAIN RATIO		V(BE) HIGH		H(FE) HIGH	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	22C	22C	22C	22C	22C	22C	22C	22C
DEVICE	1	0.467E+02	0.231E+02	0.145E+01	0.246E+01	0.809E+00	0.810E+00	0.675E+02	0.565E+02
	2	0.250E+02	0.169E+02	0.172E+01	0.219E+01	0.826E+00	0.830E+00	0.430E+02	0.371E+02
	3	0.321E+02	0.210E+00	0.156E+01	0.615E+02	0.819E+00	0.833E+00	0.503E+02	0.129E+02
	4	0.510E+02	0.271E+02	0.144E+01	0.219E+01	0.806E+00	0.810E+00	0.737E+02	0.595E+02
	5	0.212E+02	0.146E+02	0.147E+01	0.178E+01	0.829E+00	0.832E+00	0.311E+02	0.260E+02
	6	0.355E+02	0.140E+02	0.150E+01	0.254E+01	0.814E+00	0.817E+00	0.531E+02	0.355E+02
	7	0.312E+02	0.102E+02	0.159E+01	0.376E+01	0.826E+00	0.829E+00	0.497E+02	0.385E+02
	8	0.251E+02	0.144E+02	0.127E+01	0.158E+01	0.834E+00	0.841E+00	0.318E+02	0.228E+02
	9	0.234E+02	0.279E+02	0.170E+01	0.134E+01	0.820E+00	0.820E+00	0.398E+02	0.375E+02
	10	0.490E+02	0.202E+02	0.151E+01	0.295E+01	0.800E+00	0.800E+00	0.737E+02	0.596E+02
	11	0.268E+02	0.154E+02	0.174E+01	0.276E+01	0.820E+00	0.816E+00	0.466E+02	0.425E+02
	12	0.378E+02	0.154E+02	0.147E+01	0.276E+01	0.809E+00	0.810E+00	0.555E+02	0.425E+02
	13	0.990E+01	0.740E+01	0.314E+01	0.410E+01	0.830E+00	0.832E+00	0.303E+02	0.303E+02
	14	0.234E+02	0.124E+02	0.157E+01	0.252E+01	0.826E+00	0.827E+00	0.368E+02	0.313E+02
	15	0.277E+02	0.192E+02	0.134E+01	0.174E+01	0.825E+00	0.826E+00	0.370E+02	0.335E+02
	16	0.118E+02	0.616E+01	0.294E+01	0.222E+01	0.816E+00	0.855E+00	0.347E+02	0.137E+02
	17	0.312E+02	0.714E+01	0.149E+01	0.236E+01	0.820E+00	0.847E+00	0.466E+02	0.168E+02
	18	0.339E+02	0.977E+01	0.216E+01	0.252E+01	0.801E+00	0.826E+00	0.731E+02	0.246E+02
	19	0.312E+02	0.764E+01	0.157E+01	0.216E+01	0.815E+00	0.838E+00	0.490E+02	0.165E+02
	20	0.219E+02	0.586E+01	0.158E+01	0.230E+01	0.832E+00	0.865E+00	0.347E+02	0.135E+02
	21	0.194E+02	0.625E+01	0.212E+01	0.222E+01	0.819E+00	0.849E+00	0.421E+02	0.139E+02
	22	0.214E+02	0.638E+01	0.182E+01	0.216E+01	0.824E+00	0.853E+00	0.390E+02	0.137E+02
	23	0.213E+02	0.506E+01	0.177E+01	0.255E+01	0.823E+00	0.853E+00	0.378E+02	0.129E+02
	24	0.303E+02	0.764E+01	0.150E+01	0.225E+01	0.826E+00	0.855E+00	0.455E+02	0.172E+02
	25	0.246E+02	0.464E+01	0.189E+01	0.286E+01	0.816E+00	0.850E+00	0.466E+02	0.133E+02
	26	0.190E+02	0.706E+01	0.230E+01	0.222E+01	0.813E+00	0.846E+00	0.437E+02	0.157E+02
	27	0.279E+02	0.670E+01	0.158E+01	0.205E+01	0.825E+00	0.860E+00	0.441E+02	0.137E+02
	28	0.289E+02	0.673E+01	0.174E+01	0.211E+01	0.816E+00	0.852E+00	0.503E+02	0.142E+02
	29	0.256E+02	0.525E+01	0.138E+01	0.225E+01	0.830E+00	0.861E+00	0.354E+02	0.118E+02
	30	0.246E+02	0.578E+01	0.163E+01	0.236E+01	0.825E+00	0.851E+00	0.400E+02	0.137E+02
	31	0.295E+02	0.591E+01	0.151E+01	0.225E+01	0.817E+00	0.848E+00	0.445E+02	0.133E+02
	32	0.218E+02	0.548E+01	0.158E+01	0.218E+01	0.824E+00	0.852E+00	0.341E+02	0.120E+02
	33	0.490E+02	0.882E+01	0.152E+01	0.230E+01	0.804E+00	0.839E+00	0.746E+02	0.203E+02
	34	0.160E+02	0.435E+01	0.235E+01	0.306E+01	0.824E+00	0.851E+00	0.376E+02	0.133E+02
	35	0.228E+02	0.500E+01	0.152E+01	0.270E+01	0.824E+00	0.853E+00	0.345E+02	0.135E+02
	36	0.323E+02	0.697E+01	0.156E+01	0.237E+01	0.816E+00	0.840E+00	0.503E+02	0.165E+02
	37	0.517E+02	0.107E+02	0.147E+01	0.216E+01	0.806E+00	0.833E+00	0.759E+02	0.234E+02
	38	0.246E+02	0.464E+01	0.157E+01	0.264E+01	0.825E+00	0.862E+00	0.387E+02	0.122E+02
	39	0.323E+02	0.663E+01	0.183E+01	0.270E+01	0.809E+00	0.839E+00	0.596E+02	0.179E+02
	40	0.211E+02	0.506E+01	0.201E+01	0.275E+01	0.821E+00	0.852E+00	0.425E+02	0.139E+02
	41	0.261E+02	0.475E+01	0.125E+01	0.208E+01	0.830E+00	0.864E+00	0.326E+02	0.999E+01
	42	0.198E+02	0.443E+01	0.147E+01	0.228E+01	0.830E+00	0.864E+00	0.293E+02	0.101E+02
	43	0.246E+02	0.599E+01	0.184E+01	0.222E+01	0.819E+00	0.853E+00	0.455E+02	0.133E+02
	44	0.490E+02	0.900E+01	0.153E+01	0.207E+01	0.812E+00	0.872E+00	0.742E+02	0.186E+02
	45	0.109E+02	0.364E+01	0.232E+01	0.250E+01	0.832E+00	0.862E+00	0.253E+02	0.910E+01
	46	0.375E+02	0.375E+02	0.154E+01	0.153E+01	0.820E+00	0.821E+00	0.578E+02	0.572E+02
	47	0.284E+02	0.281E+02	0.160E+01	0.162E+01	0.817E+00	0.819E+00	0.465E+02	0.455E+02
	48	0.207E+02	0.205E+02	0.178E+01	0.183E+01	0.826E+00	0.824E+00	0.368E+02	0.375E+02
	49	0.517E+02	0.510E+02	0.166E+01	0.184E+01	0.797E+00	0.790E+00	0.860E+02	0.942E+02
	50	0.347E+02	0.342E+02	0.162E+01	0.164E+01	0.813E+00	0.810E+00	0.562E+02	0.568E+02

TEXAS INSTRUMENT SN54L71

		V(QL)		V(BAR Q L)		V(QH)		V(BAR Q H)	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	24C	25C	24C	25C	24C	25C	24C	25C
DEVICE	1	0.127E+00	0.141E+00	0.118E+00	0.130E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	2	0.894E-01	0.110E+00	0.917E-01	0.103E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	3	0.116E+00	0.128E+00	0.115E+00	0.125E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	4	0.972E-01	0.	0.104E+00	0.112E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	5	0.942E-01	0.114E+00	0.906E-01	0.106E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	6	0.131E+00	0.145E+00	0.133E+00	0.144E+00	0.499E+01	0.500E+01	0.499E+01	0.499E+01
	7	0.893E-01	0.111E+00	0.884E-01	0.105E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	8	0.836E-01	0.105E+00	0.853E-01	0.102E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	9	0.906E-01	0.111E+00	0.839E-01	0.101E+00	0.499E+01	0.498E+01	0.499E+01	0.499E+01
	10	0.112E+00	0.127E+00	0.106E+00	0.119E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	11	0.104E+00	0.125E+00	0.106E+00	0.123E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	12	0.910E-01	0.111E+00	0.903E-01	0.110E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	13	0.118E+00	0.133E+00	0.112E+00	0.127E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	14	0.983E-01	0.116E+00	0.972E-01	0.114E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	15	0.892E-01	0.107E+00	0.972E-01	0.113E+00	0.499E+01	0.499E+01	0.499E+01	0.500E+01
	16	0.956E-01	0.163E+00	0.949E-01	0.150E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	17	0.101E+00	0.158E+00	0.982E-01	0.147E+00	0.499E+01	0.498E+01	0.499E+01	0.499E+01
	18	0.106E+00	0.171E+00	0.107E+00	0.159E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	19	0.102E+00	0.167E+00	0.105E+00	0.157E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	20	0.109E+00	0.160E+00	0.102E+00	0.144E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	21	0.114E+00	0.159E+00	0.112E+00	0.157E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	22	0.118E+00	0.177E+00	0.115E+00	0.163E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	23	0.102E+00	0.164E+00	0.101E+00	0.154E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	24	0.904E-01	0.151E+00	0.879E-01	0.141E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	25	0.129E+00	0.180E+00	0.128E+00	0.172E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	26	0.124E+00	0.186E+00	0.122E+00	0.186E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	27	0.991E-01	0.171E+00	0.949E-01	0.171E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	28	0.122E+00	0.185E+00	0.122E+00	0.185E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	29	0.107E+00	0.169E+00	0.102E+00	0.165E+00	0.499E+01	0.500E+01	0.499E+01	0.499E+01
	30	0.903E-01	0.151E+00	0.916E-01	0.153E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	31	0.101E+00	0.212E+00	0.999E-01	0.178E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	32	0.975E-01	0.199E+00	0.100E+00	0.175E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	33	0.909E-01	0.180E+00	0.919E-01	0.163E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	34	0.120E+00	0.233E+00	0.109E+00	0.192E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	35	0.109E+00	0.233E+00	0.105E+00	0.194E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	36	0.107E+00	0.227E+00	0.109E+00	0.190E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	37	0.107E+00	0.190E+00	0.107E+00	0.170E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	38	0.877E-01	0.220E+00	0.849E-01	0.182E+00	0.498E+01	0.500E+01	0.499E+01	0.499E+01
	39	0.885E-01	0.207E+00	0.824E-01	0.177E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	40	0.964E-01	0.207E+00	0.951E-01	0.179E+00	0.499E+01	0.500E+01	0.499E+01	0.499E+01
	41	0.102E+00	0.187E+00	0.989E-01	0.186E+00	0.499E+01	0.500E+01	0.499E+01	0.499E+01
	42	0.113E+00	0.250E+00	0.114E+00	0.254E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	43	0.103E+00	0.201E+00	0.106E+00	0.203E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	44	0.944E-01	0.172E+00	0.895E-01	0.171E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	45	0.121E+00	0.226E+00	0.124E+00	0.232E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	46	0.765E-01	0.754E-01	0.819E-01	0.819E-01	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	47	0.998E-01	0.999E-01	0.939E-01	0.939E-01	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	48	0.104E+00	0.104E+00	0.102E+00	0.102E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	49	0.102E+00	0.102E+00	0.102E+00	0.102E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01
	50	0.114E+00	0.114E+00	0.115E+00	0.115E+00	0.499E+01	0.499E+01	0.499E+01	0.499E+01

TEXAS INSTRUMENT SN54L71

		I(LR1)		I(L PSET)		I(IN PSET)		I(IN R1)	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	24C	25C	24C	25C	24C	25C	24C	25C
DEVICE	1	0.339E-06	0.514E-06	0.529E-06	0.105E-05	0.151E-03	0.146E-03	0.340E-04	0.330E-04
	2	0.110E-05	0.178E-05	0.109E-05	0.285E-05	0.150E-03	0.147E-03	0.360E-04	0.350E-04
	3	0.559E-06	0.889E-06	0.905E-06	0.223E-05	0.161E-03	0.158E-03	0.390E-04	0.370E-04
	4	0.939E-06	0.	0.164E-05	0.	0.176E-03	0.	0.410E-04	0.
	5	0.130E-05	0.131E-05	0.214E-05	0.205E-05	0.149E-03	0.145E-03	0.360E-04	0.350E-04
	6	0.179E-06	0.294E-06	0.319E-06	0.540E-06	0.175E-03	0.169E-03	0.380E-04	0.380E-04
	7	0.129E-05	0.104E-05	0.215E-05	0.203E-05	0.169E-03	0.169E-03	0.410E-04	0.400E-04
	8	0.146E-05	0.113E-05	0.223E-05	0.213E-05	0.167E-03	0.166E-03	0.420E-04	0.410E-04
	9	0.138E-05	0.375E-05	0.215E-05	0.552E-05	0.154E-03	0.152E-03	0.400E-04	0.370E-04
	10	0.268E-06	0.449E-06	0.504E-06	0.797E-06	0.182E-03	0.177E-03	0.420E-04	0.410E-04
	11	0.736E-06	0.727E-06	0.122E-05	0.109E-05	0.153E-03	0.150E-03	0.360E-04	0.340E-04
	12	0.122E-05	0.939E-06	0.192E-05	0.158E-05	0.146E-03	0.145E-03	0.360E-04	0.350E-04
	13	0.578E-06	0.989E-06	0.117E-05	0.231E-05	0.141E-03	0.138E-03	0.320E-04	0.310E-04
	14	0.101E-05	0.104E-05	0.170E-05	0.149E-05	0.153E-03	0.151E-03	0.370E-04	0.350E-04
	15	0.140E-05	0.114E-05	0.213E-05	0.289E-05	0.161E-03	0.161E-03	0.380E-04	0.370E-04
	16	0.123E-05	0.492E-06	0.209E-05	0.119E-05	0.129E-03	0.130E-03	0.310E-04	0.310E-04
	17	0.819E-06	0.576E-06	0.134E-05	0.119E-05	0.144E-03	0.140E-03	0.350E-04	0.330E-04
	18	0.737E-06	0.580E-06	0.129E-05	0.102E-05	0.150E-03	0.153E-03	0.360E-04	0.340E-04
	19	0.648E-06	0.379E-06	0.110E-05	0.764E-06	0.155E-03	0.160E-03	0.370E-04	0.360E-04
	20	0.686E-06	0.544E-06	0.114E-05	0.910E-06	0.162E-03	0.163E-03	0.380E-04	0.360E-04
	21	0.661E-06	0.493E-06	0.233E-05	0.246E-05	0.149E-03	0.150E-03	0.350E-04	0.330E-04
	22	0.399E-06	0.531E-06	0.639E-06	0.788E-06	0.164E-03	0.160E-03	0.380E-04	0.350E-04
	23	0.732E-06	0.402E-06	0.124E-05	0.807E-06	0.157E-03	0.161E-03	0.370E-04	0.360E-04
	24	0.165E-05	0.729E-06	0.241E-05	0.132E-05	0.136E-03	0.141E-03	0.340E-04	0.320E-04
	25	0.259E-06	0.196E-06	0.459E-06	0.405E-06	0.177E-03	0.174E-03	0.400E-04	0.390E-04
	26	0.453E-06	0.268E-06	0.769E-06	0.545E-06	0.184E-03	0.186E-03	0.420E-04	0.420E-04
	27	0.112E-05	0.527E-06	0.168E-05	0.951E-06	0.149E-03	0.155E-03	0.350E-04	0.340E-04
	28	0.354E-06	0.290E-06	0.548E-06	0.603E-06	0.172E-03	0.173E-03	0.390E-04	0.380E-04
	29	0.655E-06	0.378E-06	0.101E-05	0.626E-06	0.178E-03	0.182E-03	0.430E-04	0.420E-04
	30	0.126E-05	0.604E-06	0.216E-05	0.130E-05	0.149E-03	0.155E-03	0.350E-04	0.340E-04
	31	0.783E-06	0.577E-06	0.139E-05	0.938E-06	0.147E-03	0.154E-03	0.340E-04	0.340E-04
	32	0.737E-06	0.458E-06	0.127E-05	0.917E-06	0.152E-03	0.156E-03	0.340E-04	0.320E-04
	33	0.128E-05	0.529E-06	0.208E-05	0.101E-05	0.151E-03	0.159E-03	0.360E-04	0.350E-04
	34	0.518E-06	0.667E-06	0.980E-06	0.155E-05	0.169E-03	0.173E-03	0.400E-04	0.380E-04
	35	0.809E-06	0.464E-06	0.121E-05	0.102E-05	0.160E-03	0.164E-03	0.390E-04	0.360E-04
	36	0.476E-06	0.306E-06	0.859E-06	0.701E-06	0.160E-03	0.162E-03	0.370E-04	0.380E-04
	37	0.499E-06	0.244E-06	0.860E-06	0.554E-06	0.162E-03	0.163E-03	0.380E-04	0.360E-04
	38	0.155E-05	0.433E-06	0.239E-05	0.929E-06	0.149E-03	0.156E-03	0.370E-04	0.390E-04
	39	0.175E-05	0.604E-06	0.274E-05	0.121E-05	0.148E-03	0.160E-03	0.370E-04	0.350E-04
	40	0.117E-05	0.438E-06	0.185E-05	0.109E-05	0.158E-03	0.165E-03	0.380E-04	0.380E-04
	41	0.105E-05	0.440E-06	0.169E-05	0.112E-05	0.150E-03	0.171E-03	0.360E-04	0.350E-04
	42	0.569E-06	0.213E-06	0.971E-06	0.475E-06	0.182E-03	0.187E-03	0.420E-04	0.400E-04
	43	0.618E-06	0.292E-06	0.108E-05	0.725E-06	0.149E-03	0.153E-03	0.350E-04	0.340E-04
	44	0.164E-05	0.795E-06	0.345E-05	0.383E-05	0.142E-03	0.156E-03	0.350E-04	0.340E-04
	45	0.452E-06	0.233E-06	0.792E-06	0.581E-06	0.160E-03	0.162E-03	0.370E-04	0.350E-04
	46	0.145E-05	0.145E-05	0.251E-05	0.260E-05	0.160E-03	0.160E-03	0.390E-04	0.390E-04
	47	0.139E-05	0.119E-05	0.209E-05	0.196E-05	0.146E-03	0.145E-03	0.370E-04	0.370E-04
	48	0.978E-06	0.965E-06	0.173E-05	0.174E-05	0.142E-03	0.141E-03	0.340E-04	0.340E-04
	49	0.859E-06	0.860E-06	0.148E-05	0.150E-05	0.159E-03	0.157E-03	0.370E-04	0.360E-04
	50	0.479E-06	0.425E-06	0.919E-06	0.888E-06	0.162E-03	0.161E-03	0.210E-04	0.250E-04

TEXAS INSTRUMENT SN54L71

		I(CC)		MIN CP AMP		MIN V(S1)		I(DR)	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	24C	25C	23C	24C	24C	24C	23C	23C
DEVICE	1	0.723E-03	0.697E-03	0.129E+01	0.126E+01	0.127E+01	0.127E+01	0.230E-07	0.250E-07
	2	0.762E-03	0.734E-03	0.130E+01	0.128E+01	0.131E+01	0.129E+01	0.240E-07	0.290E-07
	3	0.778E-03	0.752E-03	0.129E+01	0.126E+01	0.129E+01	0.127E+01	0.240E-07	0.270E-07
	4	0.943E-03	0.	0.129E+01	0.128E+01	0.130E+01	0.130E+01	0.220E-07	0.250E-07
	5	0.772E-03	0.739E-03	0.129E+01	0.128E+01	0.130E+01	0.129E+01	0.230E-07	0.260E-07
	6	0.804E-03	0.773E-03	0.125E+01	0.127E+01	0.127E+01	0.127E+01	0.210E-07	0.250E-07
	7	0.890E-03	0.857E-03	0.132E+01	0.129E+01	0.132E+01	0.131E+01	0.240E-07	0.250E-07
	8	0.867E-03	0.834E-03	0.129E+01	0.126E+01	0.132E+01	0.130E+01	0.250E-07	0.250E-07
	9	0.801E-03	0.770E-03	0.130E+01	0.127E+01	0.130E+01	0.	0.230E-07	0.260E-07
	10	0.889E-03	0.857E-03	0.132E+01	0.128E+01	0.131E+01	0.127E+01	0.220E-07	0.250E-07
	11	0.750E-03	0.719E-03	0.129E+01	0.127E+01	0.129E+01	0.128E+01	0.220E-07	0.250E-07
	12	0.740E-03	0.712E-03	0.130E+01	0.129E+01	0.130E+01	0.129E+01	0.250E-07	0.260E-07
	13	0.680E-03	0.659E-03	0.129E+01	0.125E+01	0.127E+01	0.126E+01	0.250E-07	0.250E-07
	14	0.769E-03	0.738E-03	0.130E+01	0.128E+01	0.131E+01	0.129E+01	0.250E-07	0.290E-07
	15	0.819E-03	0.790E-03	0.125E+01	0.126E+01	0.127E+01	0.127E+01	0.230E-07	0.250E-07
	16	0.725E-03	0.680E-03	0.129E+01	0.128E+01	0.130E+01	0.127E+01	0.260E-07	0.290E-07
	17	0.746E-03	0.707E-03	0.128E+01	0.126E+01	0.128E+01	0.125E+01	0.230E-07	0.270E-07
	18	0.749E-03	0.709E-03	0.130E+01	0.127E+01	0.130E+01	0.127E+01	0.240E-07	0.290E-07
	19	0.803E-03	0.761E-03	0.130E+01	0.128E+01	0.130E+01	0.128E+01	0.230E-07	0.280E-07
	20	0.820E-03	0.773E-03	0.130E+01	0.126E+01	0.130E+01	0.126E+01	0.230E-07	0.300E-07
	21	0.744E-03	0.700E-03	0.128E+01	0.126E+01	0.128E+01	0.126E+01	0.230E-07	0.290E-07
	22	0.774E-03	0.726E-03	0.130E+01	0.126E+01	0.130E+01	0.127E+01	0.240E-07	0.330E-07
	23	0.788E-03	0.745E-03	0.130E+01	0.128E+01	0.130E+01	0.127E+01	0.230E-07	0.280E-07
	24	0.699E-03	0.658E-03	0.130E+01	0.127E+01	0.131E+01	0.127E+01	0.260E-07	0.310E-07
	25	0.831E-03	0.790E-03	0.120E+01	0.125E+01	0.117E+01	0.126E+01	0.220E-07	0.280E-07
	26	0.885E-03	0.843E-03	0.125E+01	0.126E+01	0.129E+01	0.128E+01	0.200E-07	0.280E-07
	27	0.756E-03	0.719E-03	0.125E+01	0.126E+01	0.130E+01	0.127E+01	0.240E-07	0.290E-07
	28	0.813E-03	0.776E-03	0.125E+01	0.128E+01	0.130E+01	0.128E+01	0.220E-07	0.300E-07
	29	0.894E-03	0.853E-03	0.125E+01	0.126E+01	0.130E+01	0.129E+01	0.220E-07	0.290E-07
	30	0.789E-03	0.749E-03	0.125E+01	0.126E+01	0.128E+01	0.126E+01	0.230E-07	0.280E-07
	31	0.760E-03	0.707E-03	0.130E+01	0.125E+01	0.130E+01	0.127E+01	0.260E-07	0.310E-07
	32	0.816E-03	0.755E-03	0.125E+01	0.126E+01	0.129E+01	0.126E+01	0.230E-07	0.300E-07
	33	0.808E-03	0.751E-03	0.125E+01	0.126E+01	0.129E+01	0.126E+01	0.220E-07	0.280E-07
	34	0.839E-03	0.785E-03	0.125E+01	0.125E+01	0.128E+01	0.125E+01	0.230E-07	0.310E-07
	35	0.789E-03	0.732E-03	0.125E+01	0.126E+01	0.131E+01	0.127E+01	0.250E-07	0.320E-07
	36	0.782E-03	0.729E-03	0.123E+01	0.125E+01	0.128E+01	0.126E+01	0.230E-07	0.220E-07
	37	0.786E-03	0.735E-03	0.125E+01	0.126E+01	0.129E+01	0.126E+01	0.220E-07	0.220E-07
	38	0.776E-03	0.718E-03	0.129E+01	0.126E+01	0.131E+01	0.126E+01	0.250E-07	0.310E-07
	39	0.780E-03	0.720E-03	0.129E+01	0.126E+01	0.131E+01	0.126E+01	0.250E-07	0.310E-07
	40	0.819E-03	0.759E-03	0.129E+01	0.126E+01	0.131E+01	0.127E+01	0.260E-07	0.320E-07
	41	0.760E-03	0.713E-03	0.125E+01	0.127E+01	0.129E+01	0.127E+01	0.240E-07	0.320E-07
	42	0.929E-03	0.874E-03	0.128E+01	0.127E+01	0.131E+01	0.128E+01	0.260E-07	0.340E-07
	43	0.744E-03	0.699E-03	0.125E+01	0.125E+01	0.127E+01	0.125E+01	0.240E-07	0.330E-07
	44	0.812E-03	0.767E-03	0.125E+01	0.125E+01	0.129E+01	0.125E+01	0.230E-07	0.300E-07
	45	0.776E-03	0.730E-03	0.125E+01	0.125E+01	0.128E+01	0.126E+01	0.220E-07	0.320E-07
	46	0.846E-03	0.845E-03	0.129E+01	0.126E+01	0.129E+01	0.129E+01	0.230E-07	0.230E-07
	47	0.734E-03	0.732E-03	0.125E+01	0.126E+01	0.128E+01	0.127E+01	0.290E-07	0.300E-07
	48	0.725E-03	0.724E-03	0.125E+01	0.125E+01	0.128E+01	0.127E+01	0.250E-07	0.210E-07
	49	0.815E-03	0.814E-03	0.125E+01	0.125E+01	0.128E+01	0.127E+01	0.220E-07	0.170E-07
	50	0.245E-02	0.245E-02	0.126E+01	0.126E+01	0.130E+01	0.127E+01	0.240E-07	0.240E-07

TEXAS INSTRUMENT SN54L71

T(DF)

DEVICE	TEMP =	PRE 23C	POST 23C
	1	0.550E-07	0.750E-07
	2	0.590E-07	0.810E-07
	3	0.550E-07	0.690E-07
	4	0.570E-07	0.750E-07
	5	0.590E-07	0.770E-07
	6	0.460E-07	0.630E-07
	7	0.490E-07	0.690E-07
	8	0.510E-07	0.670E-07
	9	0.550E-07	0.690E-07
	10	0.540E-07	0.690E-07
	11	0.530E-07	0.650E-07
	12	0.570E-07	0.700E-07
	13	0.630E-07	0.790E-07
	14	0.640E-07	0.790E-07
	15	0.540E-07	0.640E-07
	16	0.690E-07	0.870E-07
	17	0.560E-07	0.740E-07
	18	0.570E-07	0.810E-07
	19	0.540E-07	0.740E-07
	20	0.620E-07	0.840E-07
	21	0.590E-07	0.750E-07
	22	0.570E-07	0.840E-07
	23	0.550E-07	0.740E-07
	24	0.650E-07	0.780E-07
	25	0.490E-07	0.730E-07
	26	0.450E-07	0.630E-07
	27	0.560E-07	0.690E-07
	28	0.450E-07	0.660E-07
	29	0.470E-07	0.660E-07
	30	0.600E-07	0.730E-07
	31	0.610E-07	0.910E-07
	32	0.600E-07	0.910E-07
	33	0.570E-07	0.800E-07
	34	0.550E-07	0.850E-07
	35	0.560E-07	0.870E-07
	36	0.540E-07	0.890E-07
	37	0.530E-07	0.800E-07
	38	0.580E-07	0.850E-07
	39	0.680E-07	0.850E-07
	40	0.610E-07	0.880E-07
	41	0.580E-07	0.780E-07
	42	0.530E-07	0.780E-07
	43	0.570E-07	0.780E-07
	44	0.720E-07	0.770E-07
	45	0.540E-07	0.750E-07
	46	0.500E-07	0.530E-07
	47	0.700E-07	0.710E-07
	48	0.670E-07	0.690E-07
	49	0.500E-07	0.530E-07
	50	0.480E-07	0.530E-07

TEXAS INSTRUMENT SN54L20

		V(OL)		V(OH)		V(IH)		V(TL)	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	24C	25C	24C	25C	24C	25C	24C	25C
DEVICE	1	0.161E+00	0.175E+00	0.500E+01	0.500E+01	0.134E+01	0.131E+01	0.124E+01	0.122E+01
	2	0.102E+00	0.123E+00	0.500E+01	0.500E+01	0.139E+01	0.135E+01	0.128E+01	0.126E+01
	3	0.907E-01	0.113E+00	0.500E+01	0.500E+01	0.139E+01	0.135E+01	0.129E+01	0.126E+01
	4	0.762E-01	0.101E+00	0.500E+01	0.500E+01	0.141E+01	0.137E+01	0.130E+01	0.127E+01
	5	0.121E+00	0.143E+00	0.500E+01	0.500E+01	0.138E+01	0.131E+01	0.127E+01	0.120E+01
	6	0.908E-01	0.118E+00	0.500E+01	0.500E+01	0.140E+01	0.135E+01	0.129E+01	0.127E+01
	7	0.871E-01	0.113E+00	0.500E+01	0.500E+01	0.140E+01	0.136E+01	0.130E+01	0.127E+01
	8	0.729E-01	0.968E-01	0.500E+01	0.500E+01	0.140E+01	0.136E+01	0.130E+01	0.127E+01
	9	0.161E+00	0.178E+00	0.500E+01	0.500E+01	0.134E+01	0.130E+01	0.124E+01	0.121E+01
	10	0.954E-01	0.115E+00	0.500E+01	0.500E+01	0.140E+01	0.136E+01	0.130E+01	0.127E+01
	11	0.164E+00	0.166E+00	0.500E+01	0.500E+01	0.135E+01	0.127E+01	0.124E+01	0.117E+01
	12	0.103E+00	0.124E+00	0.500E+01	0.500E+01	0.140E+01	0.136E+01	0.129E+01	0.127E+01
	13	0.109E+00	0.128E+00	0.500E+01	0.500E+01	0.139E+01	0.135E+01	0.129E+01	0.127E+01
	14	0.131E+00	0.150E+00	0.500E+01	0.500E+01	0.138E+01	0.134E+01	0.127E+01	0.125E+01
	15	0.102E+00	0.131E+00	0.500E+01	0.500E+01	0.139E+01	0.134E+01	0.128E+01	0.126E+01
	16	0.871E-01	0.167E+00	0.500E+01	0.500E+01	0.139E+01	0.132E+01	0.129E+01	0.124E+01
	17	0.996E-01	0.177E+00	0.500E+01	0.500E+01	0.140E+01	0.133E+01	0.130E+01	0.125E+01
	18	0.955E-01	0.187E+00	0.500E+01	0.500E+01	0.141E+01	0.134E+01	0.130E+01	0.126E+01
	19	0.103E+00	0.254E+00	0.500E+01	0.500E+01	0.139E+01	0.132E+01	0.129E+01	0.125E+01
	20	0.105E+00	0.191E+00	0.500E+01	0.500E+01	0.137E+01	0.131E+01	0.127E+01	0.123E+01
	21	0.107E+00	0.214E+00	0.500E+01	0.500E+01	0.139E+01	0.132E+01	0.126E+01	0.125E+01
	22	0.810E-01	0.161E+00	0.500E+01	0.500E+01	0.140E+01	0.133E+01	0.130E+01	0.125E+01
	23	0.873E-01	0.169E+00	0.500E+01	0.500E+01	0.140E+01	0.172E+01	0.130E+01	0.165E+01
	24	0.121E+00	0.197E+00	0.500E+01	0.500E+01	0.136E+01	0.130E+01	0.124E+01	0.122E+01
	25	0.154E+00	0.255E+00	0.500E+01	0.500E+01	0.133E+01	0.126E+01	0.123E+01	0.120E+01
	26	0.118E+00	0.231E+00	0.500E+01	0.500E+01	0.138E+01	0.133E+01	0.128E+01	0.125E+01
	27	0.785E-01	0.170E+00	0.500E+01	0.500E+01	0.140E+01	0.132E+01	0.129E+01	0.124E+01
	28	0.105E+00	0.203E+00	0.500E+01	0.500E+01	0.139E+01	0.133E+01	0.129E+01	0.125E+01
	29	0.142E+00	0.215E+00	0.500E+01	0.500E+01	0.135E+01	0.129E+01	0.124E+01	0.122E+01
	30	0.101E+00	0.204E+00	0.500E+01	0.500E+01	0.140E+01	0.134E+01	0.130E+01	0.126E+01
	31	0.957E-01	0.761E+00	0.500E+01	0.500E+01	0.139E+01	0.131E+01	0.129E+01	0.124E+01
	32	0.825E-01	0.269E+00	0.500E+01	0.500E+01	0.141E+01	0.131E+01	0.131E+01	0.123E+01
	33	0.145E+00	0.368E+00	0.500E+01	0.500E+01	0.132E+01	0.127E+01	0.123E+01	0.120E+01
	34	0.100E+00	0.232E+00	0.500E+01	0.500E+01	0.139E+01	0.131E+01	0.128E+01	0.123E+01
	35	0.162E+00	0.393E+00	0.473E+01	0.477E+01	0.132E+01	0.127E+01	0.120E+01	0.114E+01
	36	0.128E+00	0.301E+00	0.499E+01	0.500E+01	0.138E+01	0.132E+01	0.128E+01	0.124E+01
	37	0.645E-01	0.195E+00	0.499E+01	0.498E+01	0.141E+01	0.131E+01	0.130E+01	0.124E+01
	38	0.100E+00	0.306E+00	0.500E+01	0.500E+01	0.139E+01	0.131E+01	0.129E+01	0.124E+01
	39	0.169E+00	0.461E+00	0.500E+01	0.500E+01	0.134E+01	0.129E+01	0.124E+01	0.121E+01
	40	0.108E+00	0.353E+00	0.500E+01	0.500E+01	0.139E+01	0.131E+01	0.129E+01	0.124E+01
	41	0.938E-01	0.245E+00	0.500E+01	0.500E+01	0.139E+01	0.131E+01	0.129E+01	0.124E+01
	42	0.164E+00	0.359E+00	0.500E+01	0.500E+01	0.130E+01	0.128E+01	0.123E+01	0.120E+01
	43	0.102E+00	0.780E+00	0.500E+01	0.500E+01	0.139E+01	0.132E+01	0.129E+01	0.124E+01
	44	0.971E-01	0.102E+01	0.500E+01	0.500E+01	0.139E+01	0.133E+01	0.129E+01	0.125E+01
	45	0.120E+00	0.797E+00	0.499E+01	0.500E+01	0.138E+01	0.132E+01	0.121E+01	0.124E+01
	46	0.159E+00	0.160E+00	0.500E+01	0.500E+01	0.133E+01	0.131E+01	0.123E+01	0.123E+01
	47	0.114E+00	0.120E+00	0.500E+01	0.500E+01	0.139E+01	0.137E+01	0.126E+01	0.127E+01
	48	0.154E+00	0.155E+00	0.500E+01	0.500E+01	0.133E+01	0.131E+01	0.123E+01	0.122E+01
	49	0.631E-01	0.634E-01	0.500E+01	0.500E+01	0.141E+01	0.139E+01	0.131E+01	0.130E+01
	50	0.129E+00	0.130E+00	0.500E+01	0.500E+01	0.138E+01	0.137E+01	0.128E+01	0.127E+01

TEXAS INSTRUMENT SN54L20

		I DRIVE		I(CC1)		I(CC0)		I LEAKAGE	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	24C	25C	24C	25C	24C	25C	24C	25C
DEVICE	1	0.920E-04	0.890E-04	0.349E-03	0.333E-03	0.509E-03	0.481E-03	0.136E-06	0.302E-06
	2	0.990E-04	0.920E-04	0.371E-03	0.420E-03	0.539E-03	0.583E-03	0.990E-06	0.830E-06
	3	0.101E-03	0.950E-04	0.380E-03	0.363E-03	0.550E-03	0.529E-03	0.740E-06	0.670E-06
	4	0.100E-03	0.900E-04	0.369E-03	0.339E-03	0.529E-03	0.492E-03	0.259E-05	0.143E-05
	5	0.109E-03	0.102E-03	0.399E-03	0.374E-03	0.569E-03	0.539E-03	0.480E-06	0.260E-07
	6	0.990E-04	0.940E-04	0.380E-03	0.360E-03	0.549E-03	0.524E-03	0.946E-06	0.538E-06
	7	0.990E-04	0.920E-04	0.379E-03	0.353E-03	0.542E-03	0.515E-03	0.879E-06	0.597E-06
	8	0.980E-04	0.900E-04	0.359E-03	0.469E-03	0.519E-03	0.630E-03	0.257E-05	0.175E-05
	9	0.890E-04	0.790E-04	0.329E-03	0.306E-03	0.469E-03	0.440E-03	0.136E-06	0.182E-06
	10	0.101E-03	0.930E-04	0.379E-03	0.355E-03	0.549E-03	0.519E-03	0.990E-06	0.893E-06
	11	0.104E-03	0.429E-03	0.379E-03	0.459E-03	0.550E-03	0.575E-03	0.132E-06	0.315E-07
	12	0.100E-03	0.910E-04	0.360E-03	0.365E-03	0.529E-03	0.539E-03	0.101E-05	0.700E-06
	13	0.990E-04	0.930E-04	0.369E-03	0.353E-03	0.532E-03	0.513E-03	0.970E-06	0.658E-06
	14	0.109E-03	0.102E-03	0.400E-03	0.386E-03	0.579E-03	0.560E-03	0.350E-06	0.338E-06
	15	0.104E-03	0.100E-03	0.391E-03	0.369E-03	0.569E-03	0.535E-03	0.640E-06	0.656E-06
	16	0.100E-03	0.890E-04	0.359E-03	0.332E-03	0.529E-03	0.486E-03	0.133E-05	0.597E-06
	17	0.100E-03	0.920E-04	0.379E-03	0.352E-03	0.551E-03	0.513E-03	0.113E-05	0.436E-06
	18	0.119E-03	0.102E-03	0.423E-03	0.386E-03	0.619E-03	0.563E-03	0.876E-06	0.504E-06
	19	0.102E-03	0.940E-04	0.399E-03	0.155E-02	0.559E-03	0.169E-02	0.654E-06	0.320E-06
	20	0.100E-03	0.900E-04	0.369E-03	0.339E-03	0.539E-03	0.495E-03	0.429E-06	0.198E-06
	21	0.990E-04	0.890E-04	0.361E-03	0.330E-03	0.529E-03	0.482E-03	0.929E-06	0.320E-06
	22	0.109E-03	0.990E-04	0.360E-03	0.330E-03	0.523E-03	0.483E-03	0.139E-05	0.815E-06
	23	0.102E-03	0.900E-04	0.379E-03	0.341E-03	0.549E-03	0.432E-03	0.129E-05	0.384E-07
	24	0.104E-03	0.990E-04	0.391E-03	0.365E-03	0.569E-03	0.530E-03	0.261E-06	0.123E-06
	25	0.890E-04	0.790E-04	0.339E-03	0.309E-03	0.489E-03	0.445E-03	0.890E-07	0.319E-06
	26	0.109E-03	0.199E-03	0.399E-03	0.375E-03	0.579E-03	0.544E-03	0.529E-06	0.223E-06
	27	0.101E-03	0.990E-04	0.379E-03	0.352E-03	0.549E-03	0.513E-03	0.122E-05	0.445E-06
	28	0.100E-03	0.930E-04	0.369E-03	0.343E-03	0.539E-03	0.500E-03	0.100E-05	0.370E-06
	29	0.109E-03	0.102E-03	0.400E-03	0.379E-03	0.579E-03	0.545E-03	0.178E-06	0.125E-06
	30	0.110E-03	0.105E-03	0.419E-03	0.389E-03	0.599E-03	0.565E-03	0.719E-06	0.240E-06
	31	0.100E-03	0.890E-04	0.363E-03	0.329E-03	0.529E-03	0.476E-03	0.654E-06	0.142E-06
	32	0.990E-04	0.850E-04	0.359E-03	0.315E-03	0.519E-03	0.459E-03	0.259E-05	0.760E-06
	33	0.900E-04	0.800E-04	0.339E-03	0.306E-03	0.490E-03	0.443E-03	0.205E-06	0.200E-06
	34	0.101E-03	0.900E-04	0.379E-03	0.343E-03	0.550E-03	0.499E-03	0.934E-06	0.262E-06
	35	0.900E-04	0.820E-04	0.379E-03	0.345E-03	0.499E-03	0.449E-03	0.580E-07	0.502E-07
	36	0.110E-03	0.101E-03	0.419E-03	0.382E-03	0.599E-03	0.552E-03	0.455E-06	0.196E-06
	37	0.100E-03	0.860E-04	0.360E-03	0.329E-03	0.529E-03	0.471E-03	0.345E-05	0.605E-06
	38	0.109E-03	0.990E-04	0.419E-03	0.389E-03	0.609E-03	0.535E-03	0.705E-06	0.309E-06
	39	0.100E-03	0.910E-04	0.379E-03	0.343E-03	0.541E-03	0.494E-03	0.690E-07	0.339E-07
	40	0.990E-04	0.900E-04	0.369E-03	0.330E-03	0.529E-03	0.482E-03	0.780E-06	0.314E-06
	41	0.101E-03	0.930E-04	0.379E-03	0.344E-03	0.549E-03	0.501E-03	0.890E-06	0.238E-06
	42	0.100E-03	0.900E-04	0.362E-03	0.335E-03	0.529E-03	0.485E-03	0.750E-07	0.397E-07
	43	0.990E-04	0.890E-04	0.361E-03	0.330E-03	0.529E-03	0.482E-03	0.899E-06	0.182E-06
	44	0.950E-04	0.890E-04	0.360E-03	0.329E-03	0.520E-03	0.480E-03	0.701E-06	0.160E-06
	45	0.970E-04	0.910E-04	0.369E-03	0.336E-03	0.539E-03	0.490E-03	0.879E-06	0.197E-06
	46	0.930E-04	0.940E-04	0.349E-03	0.351E-03	0.505E-03	0.509E-03	0.690E-07	0.740E-07
	47	0.102E-03	0.104E-03	0.389E-03	0.389E-03	0.569E-03	0.563E-03	0.509E-06	0.540E-06
	48	0.890E-04	0.890E-04	0.329E-03	0.329E-03	0.479E-03	0.475E-03	0.590E-07	0.695E-07
	49	0.101E-03	0.102E-03	0.359E-03	0.351E-03	0.519E-03	0.514E-03	0.413E-05	0.480E-06
	50	0.109E-03	0.109E-03	0.415E-03	0.413E-03	0.593E-03	0.598E-03	0.491E-06	0.480E-06

TEXAS INSTRUMENT SN54L20

		T(DR)		T(DF)	
		PRE	POST	PRE	POST
	TEMP =	24C	21C	24C	21C
DEVICE	1	0.215E-07	0.320E-07	0.202E-07	0.250E-07
	2	0.245E-07	0.350E-07	0.225E-07	0.270E-07
	3	0.245E-07	0.320E-07	0.245E-07	0.260E-07
	4	0.325E-07	0.350E-07	0.310E-07	0.280E-07
	5	0.230E-07	0.300E-07	0.220E-07	0.240E-07
	6	0.250E-07	0.390E-07	0.250E-07	0.280E-07
	7	0.265E-07	0.360E-07	0.265E-07	0.270E-07
	8	0.295E-07	0.390E-07	0.272E-07	0.300E-07
	9	0.205E-07	0.340E-07	0.199E-07	0.250E-07
	10	0.295E-07	0.390E-07	0.249E-07	0.290E-07
	11	0.170E-07	0.100E-07	0.185E-07	0.240E-07
	12	0.285E-07	0.370E-07	0.235E-07	0.270E-07
	13	0.300E-07	0.370E-07	0.230E-07	0.260E-07
	14	0.210E-07	0.270E-07	0.195E-07	0.230E-07
	15	0.215E-07	0.310E-07	0.230E-07	0.240E-07
	16	0.330E-07	0.460E-07	0.270E-07	0.270E-07
	17	0.270E-07	0.420E-07	0.225E-07	0.250E-07
	18	0.250E-07	0.420E-07	0.222E-07	0.250E-07
	19	0.260E-07	0.520E-07	0.225E-07	0.270E-07
	20	0.210E-07	0.360E-07	0.230E-07	0.240E-07
	21	0.292E-07	0.490E-07	0.225E-07	0.270E-07
	22	0.295E-07	0.460E-07	0.249E-07	0.270E-07
	23	0.278E-07	0.430E-07	0.280E-07	0.250E-07
	24	0.200E-07	0.400E-07	0.195E-07	0.260E-07
	25	0.188E-07	0.410E-07	0.195E-07	0.240E-07
	26	0.232E-07	0.440E-07	0.240E-07	0.240E-07
	27	0.235E-07	0.400E-07	0.295E-07	0.270E-07
	28	0.260E-07	0.470E-07	0.222E-07	0.260E-07
	29	0.165E-07	0.330E-07	0.175E-07	0.220E-07
	30	0.240E-07	0.430E-07	0.232E-07	0.240E-07
	31	0.295E-07	0.620E-07	0.259E-07	0.360E-07
	32	0.305E-07	0.530E-07	0.315E-07	0.410E-07
	33	0.185E-07	0.500E-07	0.199E-07	0.390E-07
	34	0.272E-07	0.500E-07	0.229E-07	0.450E-07
	35	0.200E-07	0.510E-07	0.199E-07	0.410E-07
	36	0.208E-07	0.470E-07	0.215E-07	0.400E-07
	37	0.385E-07	0.480E-07	0.350E-07	0.450E-07
	38	0.208E-07	0.470E-07	0.250E-07	0.390E-07
	39	0.170E-07	0.480E-07	0.180E-07	0.310E-07
	40	0.288E-07	0.600E-07	0.225E-07	0.330E-07
	41	0.235E-07	0.480E-07	0.272E-07	0.260E-07
	42	0.180E-07	0.500E-07	0.185E-07	0.290E-07
	43	0.290E-07	0.660E-07	0.185E-07	0.370E-07
	44	0.288E-07	0.710E-07	0.250E-07	0.400E-07
	45	0.330E-07	0.680E-07	0.265E-07	0.380E-07
	46	0.189E-07	0.175E-07	0.192E-07	0.210E-07
	47	0.248E-07	0.250E-07	0.215E-07	0.225E-07
	48	0.219E-07	0.220E-07	0.215E-07	0.230E-07
	49	0.420E-07	0.310E-07	0.335E-07	0.360E-07
	50	0.209E-07	0.210E-07	0.205E-07	0.220E-07

FAIRCHILD LPDT L9040

		V(QL)		V(QH)		V(BAR Q H)		V(BAR Q L)	
	TEMP =	PRE 24C	POST 25C	PRE 24C	POST 25C	PRE 24C	POST 25C	PRE 24C	POST 25C
DEVICE	1	0.118E+00	0.120E+00	0.499E+01	0.500E+01	0.499E+01	0.500E+01	0.115E+00	0.118E+00
	2	0.932E-01	0.981E-01	0.499E+01	0.499E+01	0.499E+01	0.500E+01	0.953E-01	0.100E+00
	3	0.719E-01	0.752E-01	0.496E+01	0.497E+01	0.496E+01	0.500E+01	0.779E-01	0.810E-01
	4	0.932E-01	0.960E-01	0.499E+01	0.498E+01	0.498E+01	0.500E+01	0.919E-01	0.943E-01
	5	0.745E-01	0.776E-01	0.497E+01	0.498E+01	0.498E+01	0.500E+01	0.736E-01	0.763E-01
	6	0.119E+00	0.121E+00	0.499E+01	0.499E+01	0.499E+01	0.500E+01	0.115E+00	0.118E+00
	7	0.109E+00	0.112E+00	0.499E+01	0.499E+01	0.499E+01	0.500E+01	0.111E+00	0.114E+00
	8	0.103E+00	0.105E+00	0.499E+01	0.499E+01	0.499E+01	0.500E+01	0.104E+00	0.107E+00
	9	0.877E-01	0.899E-01	0.498E+01	0.499E+01	0.498E+01	0.500E+01	0.890E-01	0.912E-01
	10	0.821E-01	0.851E-01	0.498E+01	0.498E+01	0.498E+01	0.500E+01	0.841E-01	0.873E-01
	11	0.114E+00	0.118E+00	0.499E+01	0.500E+01	0.499E+01	0.500E+01	0.112E+00	0.109E+00
	12	0.855E-01	0.883E-01	0.498E+01	0.499E+01	0.498E+01	0.500E+01	0.857E-01	0.883E-01
	13	0.895E-01	0.942E-01	0.498E+01	0.499E+01	0.498E+01	0.500E+01	0.940E-01	0.939E-01
	14	0.895E-01	0.916E-01	0.498E+01	0.499E+01	0.499E+01	0.500E+01	0.865E-01	0.890E-01
	15	0.949E-01	0.965E-01	0.498E+01	0.499E+01	0.499E+01	0.500E+01	0.939E-01	0.956E-01
	16	0.964E-01	0.125E+00	0.498E+01	0.499E+01	0.499E+01	0.500E+01	0.956E-01	0.120E+00
	17	0.782E-01	0.981E-01	0.498E+01	0.499E+01	0.498E+01	0.500E+01	0.806E-01	0.970E-01
	18	0.102E+00	0.130E+00	0.499E+01	0.499E+01	0.499E+01	0.500E+01	0.102E+00	0.125E+00
	19	0.962E-01	0.121E+00	0.499E+01	0.499E+01	0.499E+01	0.500E+01	0.955E-01	0.117E+00
	20	0.777E-01	0.101E+00	0.497E+01	0.498E+01	0.497E+01	0.500E+01	0.811E-01	0.102E+00
	21	0.101E+00	0.124E+00	0.498E+01	0.499E+01	0.499E+01	0.500E+01	0.989E-01	0.121E+00
	22	0.106E+00	0.132E+00	0.499E+01	0.500E+01	0.499E+01	0.500E+01	0.105E+00	0.128E+00
	23	0.867E-01	0.108E+00	0.498E+01	0.499E+01	0.498E+01	0.500E+01	0.879E-01	0.107E+00
	24	0.964E-01	0.121E+00	0.498E+01	0.499E+01	0.499E+01	0.500E+01	0.960E-01	0.117E+00
	25	0.906E-01	0.115E+00	0.498E+01	0.499E+01	0.498E+01	0.500E+01	0.892E-01	0.109E+00
	26	0.855E-01	0.105E+00	0.497E+01	0.498E+01	0.498E+01	0.500E+01	0.835E-01	0.104E+00
	27	0.899E-01	0.123E+00	0.498E+01	0.499E+01	0.498E+01	0.500E+01	0.902E-01	0.123E+00
	28	0.666E-01	0.874E-01	0.496E+01	0.497E+01	0.496E+01	0.500E+01	0.647E-01	0.863E-01
	29	0.905E-01	0.123E+00	0.498E+01	0.499E+01	0.498E+01	0.500E+01	0.879E-01	0.120E+00
	30	0.811E-01	0.111E+00	0.498E+01	0.499E+01	0.498E+01	0.500E+01	0.831E-01	0.115E+00
	31	0.810E-01	0.140E+00	0.497E+01	0.499E+01	0.498E+01	0.500E+01	0.762E-01	0.129E+00
	32	0.927E-01	0.165E+00	0.499E+01	0.499E+01	0.499E+01	0.500E+01	0.936E-01	0.159E+00
	33	0.846E-01	0.171E+00	0.498E+01	0.499E+01	0.499E+01	0.500E+01	0.873E-01	0.152E+00
	34	0.999E-01	0.200E+00	0.499E+01	0.500E+01	0.499E+01	0.500E+01	0.100E+00	0.166E+00
	35	0.969E-01	0.198E+00	0.499E+01	0.500E+01	0.499E+01	0.500E+01	0.976E-01	0.169E+00
	36	0.836E-01	0.165E+00	0.498E+01	0.499E+01	0.498E+01	0.500E+01	0.867E-01	0.155E+00
	37	0.108E+00	0.508E+00	0.499E+01	0.500E+01	0.499E+01	0.500E+01	0.105E+00	0.181E+00
	38	0.853E-01	0.148E+00	0.498E+01	0.499E+01	0.497E+01	0.500E+01	0.830E-01	0.139E+00
	39	0.611E-01	0.120E+00	0.496E+01	0.498E+01	0.497E+01	0.500E+01	0.709E-01	0.121E+00
	40	0.104E+00	0.176E+00	0.499E+01	0.500E+01	0.499E+01	0.500E+01	0.103E+00	0.160E+00
	41	0.842E-01	0.187E+00	0.497E+01	0.499E+01	0.497E+01	0.500E+01	0.792E-01	0.173E+00
	42	0.821E-01	0.154E+00	0.498E+01	0.499E+01	0.497E+01	0.500E+01	0.822E-01	0.156E+00
	43	0.982E-01	0.259E+00	0.499E+01	0.500E+01	0.499E+01	0.500E+01	0.995E-01	0.269E+00
	44	0.991E-01	0.443E+00	0.499E+01	0.500E+01	0.499E+01	0.500E+01	0.969E-01	0.585E+00
	45	0.697E-01	0.153E+00	0.497E+01	0.499E+01	0.497E+01	0.500E+01	0.759E-01	0.163E+00
	46	0.602E-01	0.601E-01	0.495E+01	0.496E+01	0.495E+01	0.500E+01	0.660E-01	0.662E-01
	47	0.871E-01	0.875E-01	0.498E+01	0.498E+01	0.498E+01	0.500E+01	0.865E-01	0.899E-01
	48	0.996E-01	0.100E+00	0.498E+01	0.499E+01	0.499E+01	0.500E+01	0.993E-01	0.999E-01
	49	0.808E-01	0.811E-01	0.497E+01	0.498E+01	0.497E+01	0.500E+01	0.828E-01	0.832E-01
	50	0.929E-01	0.933E-01	0.498E+01	0.499E+01	0.498E+01	0.500E+01	0.914E-01	0.919E-01

FAIRCHILD LPDT L9040

		I(IN CD)		I(IN SD)		I(IN CP)		RESISTANCE	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	24C	25C	24C	25C	24C	25C	24C	25C
DEVICE	1	0.136E-03	0.134E-03	0.134E-03	0.131E-03	0.203E-03	0.201E-03	0.143E+05	0.144E+05
	2	0.138E-03	0.138E-03	0.138E-03	0.135E-03	0.209E-03	0.207E-03	0.138E+05	0.141E+05
	3	0.111E-03	0.111E-03	0.116E-03	0.110E-03	0.179E-03	0.176E-03	0.143E+05	0.146E+05
	4	0.125E-03	0.125E-03	0.124E-03	0.124E-03	0.191E-03	0.189E-03	0.143E+05	0.145E+05
	5	0.136E-03	0.137E-03	0.137E-03	0.135E-03	0.213E-03	0.210E-03	0.134E+05	0.135E+05
	6	0.149E-03	0.148E-03	0.149E-03	0.144E-03	0.222E-03	0.221E-03	0.134E+05	0.136E+05
	7	0.139E-03	0.139E-03	0.139E-03	0.136E-03	0.210E-03	0.207E-03	0.147E+05	0.147E+05
	8	0.134E-03	0.134E-03	0.136E-03	0.131E-03	0.200E-03	0.198E-03	0.144E+05	0.145E+05
	9	0.134E-03	0.134E-03	0.133E-03	0.134E-03	0.207E-03	0.194E-03	0.145E+05	0.144E+05
	10	0.151E-03	0.150E-03	0.149E-03	0.148E-03	0.226E-03	0.224E-03	0.125E+05	0.128E+05
	11	0.158E-03	0.159E-03	0.159E-03	0.226E-03	0.243E-03	0.233E-03	0.129E+05	0.132E+05
	12	0.125E-03	0.125E-03	0.123E-03	0.123E-03	0.189E-03	0.185E-03	0.141E+05	0.140E+05
	13	0.121E-03	0.121E-03	0.125E-03	0.120E-03	0.191E-03	0.189E-03	0.141E+05	0.142E+05
	14	0.141E-03	0.141E-03	0.139E-03	0.139E-03	0.210E-03	0.206E-03	0.143E+05	0.145E+05
	15	0.152E-03	0.151E-03	0.150E-03	0.149E-03	0.229E-03	0.226E-03	0.129E+05	0.130E+05
	16	0.146E-03	0.150E-03	0.146E-03	0.141E-03	0.213E-03	0.217E-03	0.137E+05	0.140E+05
	17	0.143E-03	0.149E-03	0.148E-03	0.145E-03	0.219E-03	0.221E-03	0.124E+05	0.126E+05
	18	0.130E-03	0.133E-03	0.131E-03	0.129E-03	0.194E-03	0.197E-03	0.147E+05	0.149E+05
	19	0.143E-03	0.145E-03	0.142E-03	0.142E-03	0.214E-03	0.216E-03	0.143E+05	0.144E+05
	20	0.136E-03	0.140E-03	0.132E-03	0.139E-03	0.203E-03	0.208E-03	0.137E+05	0.141E+05
	21	0.112E-03	0.113E-03	0.112E-03	0.111E-03	0.173E-03	0.175E-03	0.161E+05	0.163E+05
	22	0.112E-03	0.113E-03	0.112E-03	0.110E-03	0.170E-03	0.174E-03	0.157E+05	0.159E+05
	23	0.147E-03	0.149E-03	0.145E-03	0.149E-03	0.220E-03	0.222E-03	0.136E+05	0.138E+05
	24	0.135E-03	0.139E-03	0.116E-03	0.133E-03	0.205E-03	0.207E-03	0.151E+05	0.154E+05
	25	0.129E-03	0.131E-03	0.127E-03	0.129E-03	0.196E-03	0.197E-03	0.145E+05	0.147E+05
	26	0.138E-03	0.138E-03	0.137E-03	0.136E-03	0.209E-03	0.210E-03	0.144E+05	0.142E+05
	27	0.129E-03	0.132E-03	0.129E-03	0.130E-03	0.199E-03	0.205E-03	0.144E+05	0.149E+05
	28	0.122E-03	0.126E-03	0.122E-03	0.125E-03	0.194E-03	0.193E-03	0.144E+05	0.146E+05
	29	0.137E-03	0.140E-03	0.139E-03	0.137E-03	0.214E-03	0.224E-03	0.144E+05	0.146E+05
	30	0.134E-03	0.139E-03	0.130E-03	0.134E-03	0.200E-03	0.208E-03	0.145E+05	0.146E+05
	31	0.132E-03	0.140E-03	0.129E-03	0.136E-03	0.209E-03	0.221E-03	0.139E+05	0.143E+05
	32	0.130E-03	0.134E-03	0.128E-03	0.130E-03	0.192E-03	0.202E-03	0.147E+05	0.149E+05
	33	0.145E-03	0.159E-03	0.145E-03	0.154E-03	0.223E-03	0.239E-03	0.132E+05	0.135E+05
	34	0.145E-03	0.152E-03	0.145E-03	0.149E-03	0.214E-03	0.226E-03	0.138E+05	0.141E+05
	35	0.147E-03	0.152E-03	0.960E-04	0.144E-03	0.219E-03	0.234E-03	0.136E+05	0.140E+05
	36	0.141E-03	0.152E-03	0.140E-03	0.147E-03	0.210E-03	0.226E-03	0.122E+05	0.128E+05
	37	0.146E-03	0.153E-03	0.145E-03	0.147E-03	0.215E-03	0.230E-03	0.140E+05	0.142E+05
	38	0.105E-03	0.112E-03	0.104E-03	0.109E-03	0.154E-03	0.167E-03	0.157E+05	0.160E+05
	39	0.125E-03	0.139E-03	0.126E-03	0.136E-03	0.194E-03	0.210E-03	0.138E+05	0.143E+05
	40	0.150E-03	0.154E-03	0.148E-03	0.150E-03	0.223E-03	0.233E-03	0.139E+05	0.143E+05
	41	0.115E-03	0.129E-03	0.115E-03	0.124E-03	0.183E-03	0.199E-03	0.151E+05	0.153E+05
	42	0.128E-03	0.136E-03	0.127E-03	0.133E-03	0.191E-03	0.211E-03	0.145E+05	0.150E+05
	43	0.139E-03	0.147E-03	0.139E-03	0.142E-03	0.210E-03	0.224E-03	0.140E+05	0.142E+05
	44	0.143E-03	0.154E-03	0.143E-03	0.149E-03	0.219E-03	0.237E-03	0.139E+05	0.142E+05
	45	0.950E-04	0.112E-03	0.102E-03	0.110E-03	0.156E-03	0.175E-03	0.155E+05	0.158E+05
	46	0.960E-04	0.950E-04	0.108E-03	0.940E-04	0.164E-03	0.162E-03	0.141E+05	0.142E+05
	47	0.127E-03	0.126E-03	0.128E-03	0.124E-03	0.195E-03	0.192E-03	0.149E+05	0.149E+05
	48	0.110E-03	0.110E-03	0.111E-03	0.108E-03	0.170E-03	0.169E-03	0.152E+05	0.151E+05
	49	0.140E-03	0.140E-03	0.139E-03	0.138E-03	0.215E-03	0.213E-03	0.136E+05	0.137E+05
	50	0.159E-03	0.159E-03	0.156E-03	0.157E-03	0.239E-03	0.226E-03	0.128E+05	0.128E+05

FAIRCHILD LPDT L9040

		MIN CP AMP		MIN V(C1)		T(OR)		T(OF)	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	23C	25C	23C	21C	22C	25C	22C	25C
DEVICE	1	0.135E+01	0.138E+01	0.123E+01	0.135E+01	0.820E-07	0.840E-07	0.128E-06	0.136E-06
	2	0.135E+01	0.136E+01	0.125E+01	0.138E+01	0.850E-07	0.880E-07	0.162E-06	0.166E-06
	3	0.130E+01	0.134E+01	0.120E+01	0.133E+01	0.102E-06	0.104E-06	0.186E-06	0.190E-06
	4	0.128E+01	0.138E+01	0.123E+01	0.132E+01	0.940E-07	0.980E-07	0.190E-06	0.196E-06
	5	0.135E+01	0.138E+01	0.124E+01	0.137E+01	0.880E-07	0.900E-07	0.184E-06	0.188E-06
	6	0.135E+01	0.138E+01	0.126E+01	0.136E+01	0.760E-07	0.840E-07	0.140E-06	0.190E-06
	7	0.135E+01	0.138E+01	0.123E+01	0.136E+01	0.800E-07	0.860E-07	0.154E-06	0.162E-06
	8	0.135E+01	0.138E+01	0.124E+01	0.137E+01	0.840E-07	0.850E-07	0.162E-06	0.170E-06
	9	0.135E+01	0.140E+01	0.123E+01	0.139E+01	0.780E-07	0.760E-07	0.176E-06	0.150E-06
	10	0.132E+01	0.134E+01	0.120E+01	0.133E+01	0.660E-07	0.680E-07	0.132E-06	0.138E-06
	11	0.130E+01	0.140E+01	0.127E+01	0.140E+01	0.760E-07	0.760E-07	0.172E-06	0.184E-06
	12	0.135E+01	0.134E+01	0.123E+01	0.135E+01	0.840E-07	0.880E-07	0.160E-06	0.165E-06
	13	0.135E+01	0.136E+01	0.123E+01	0.136E+01	0.860E-07	0.880E-07	0.172E-06	0.176E-06
	14	0.132E+01	0.139E+01	0.123E+01	0.135E+01	0.740E-07	0.760E-07	0.148E-06	0.154E-06
	15	0.132E+01	0.138E+01	0.125E+01	0.138E+01	0.780E-07	0.800E-07	0.149E-06	0.154E-06
	16	0.135E+01	0.138E+01	0.123E+01	0.138E+01	0.800E-07	0.800E-07	0.152E-06	0.164E-06
	17	0.135E+01	0.138E+01	0.125E+01	0.138E+01	0.900E-07	0.900E-07	0.176E-06	0.186E-06
	18	0.135E+01	0.136E+01	0.124E+01	0.137E+01	0.800E-07	0.820E-07	0.142E-06	0.154E-06
	19	0.130E+01	0.136E+01	0.124E+01	0.137E+01	0.800E-07	0.820E-07	0.150E-06	0.162E-06
	20	0.125E+01	0.134E+01	0.120E+01	0.134E+01	0.780E-07	0.800E-07	0.154E-06	0.162E-06
	21	0.125E+01	0.130E+01	0.117E+01	0.131E+01	0.600E-07	0.820E-07	0.144E-06	0.150E-06
	22	0.132E+01	0.134E+01	0.122E+01	0.135E+01	0.860E-07	0.860E-07	0.150E-06	0.162E-06
	23	0.125E+01	0.134E+01	0.122E+01	0.135E+01	0.700E-07	0.740E-07	0.134E-06	0.145E-06
	24	0.128E+01	0.134E+01	0.121E+01	0.135E+01	0.800E-07	0.840E-07	0.152E-06	0.165E-06
	25	0.132E+01	0.136E+01	0.123E+01	0.136E+01	0.840E-07	0.840E-07	0.154E-06	0.158E-06
	26	0.130E+01	0.130E+01	0.119E+01	0.131E+01	0.680E-07	0.720E-07	0.138E-06	0.146E-06
	27	0.120E+01	0.134E+01	0.121E+01	0.134E+01	0.520E-07	0.620E-07	0.800E-07	0.160E-06
	28	0.130E+01	0.134E+01	0.119E+01	0.132E+01	0.720E-07	0.960E-07	0.940E-07	0.178E-06
	29	0.130E+01	0.134E+01	0.122E+01	0.134E+01	0.780E-07	0.800E-07	0.148E-06	0.152E-06
	30	0.130E+01	0.134E+01	0.120E+01	0.134E+01	0.800E-07	0.790E-07	0.156E-06	0.162E-06
	31	0.130E+01	0.132E+01	0.119E+01	0.133E+01	0.820E-07	0.780E-07	0.168E-06	0.182E-06
	32	0.132E+01	0.134E+01	0.122E+01	0.136E+01	0.860E-07	0.820E-07	0.160E-06	0.186E-06
	33	0.120E+01	0.136E+01	0.122E+01	0.137E+01	0.780E-07	0.740E-07	0.150E-06	0.169E-06
	34	0.135E+01	0.138E+01	0.120E+01	0.139E+01	0.800E-07	0.740E-07	0.140E-06	0.172E-06
	35	0.122E+01	0.138E+01	0.124E+01	0.140E+01	0.740E-07	0.600E-07	0.154E-06	0.189E-06
	36	0.120E+01	0.134E+01	0.123E+01	0.137E+01	0.780E-07	0.740E-07	0.150E-06	0.168E-06
	37	0.138E+01	0.140E+01	0.126E+01	0.140E+01	0.760E-07	0.800E-07	0.156E-06	0.180E-06
	38	0.115E+01	0.132E+01	0.118E+01	0.132E+01	0.900E-07	0.900E-07	0.166E-06	0.176E-06
	39	0.130E+01	0.134E+01	0.119E+01	0.133E+01	0.860E-07	0.800E-07	0.152E-06	0.168E-06
	40	0.125E+01	0.140E+01	0.124E+01	0.137E+01	0.760E-07	0.700E-07	0.148E-06	0.168E-06
	41	0.132E+01	0.132E+01	0.120E+01	0.133E+01	0.880E-07	0.800E-07	0.182E-06	0.182E-06
	42	0.130E+01	0.130E+01	0.119E+01	0.132E+01	0.800E-07	0.740E-07	0.156E-06	0.162E-06
	43	0.138E+01	0.138E+01	0.124E+01	0.139E+01	0.780E-07	0.740E-07	0.150E-06	0.114E-06
	44	0.135E+01	0.134E+01	0.125E+01	0.139E+01	0.800E-07	0.580E-07	0.154E-06	0.860E-07
	45	0.130E+01	0.132E+01	0.118E+01	0.131E+01	0.102E-06	0.940E-07	0.178E-06	0.184E-06
	46	0.130E+01	0.133E+01	0.119E+01	0.130E+01	0.150E-06	0.165E-06	0.210E-06	0.260E-06
	47	0.122E+01	0.130E+01	0.119E+01	0.131E+01	0.780E-07	0.820E-07	0.148E-06	0.154E-06
	48	0.130E+01	0.130E+01	0.117E+01	0.129E+01	0.840E-07	0.860E-07	0.146E-06	0.150E-06
	49	0.130E+01	0.132E+01	0.121E+01	0.133E+01	0.760E-07	0.800E-07	0.150E-06	0.148E-06
	50	0.135E+01	0.135E+01	0.123E+01	0.136E+01	0.950E-07	0.980E-07	0.142E-06	0.144E-06

FAIRCHILD LPDT L9040

I(L CD)

DEVICE	TEMP =	PRE 22C	POST 25C
	1	0.150E-08	0.140E-09
	2	0.100E-08	0.110E-08
	3	0.600E-09	0.710E-09
	4	0.630E-09	0.740E-09
	5	0.750E-09	0.950E-09
	6	0.110E-08	0.950E-09
	7	0.100E-08	0.160E-08
	8	0.100E-08	0.130E-08
	9	0.820E-09	0.140E-08
	10	0.990E-09	0.110E-08
	11	0.100E-08	0.130E-08
	12	0.600E-09	0.760E-09
	13	0.960E-09	0.130E-08
	14	0.110E-08	0.120E-08
	15	0.640E-09	0.780E-09
	16	0.780E-09	0.100E-08
	17	0.110E-08	0.120E-08
	18	0.950E-09	0.130E-08
	19	0.620E-09	0.900E-09
	20	0.600E-09	0.860E-09
	21	0.880E-09	0.120E-08
	22	0.100E-08	0.150E-08
	23	0.940E-09	0.110E-08
	24	0.760E-09	0.100E-08
	25	0.760E-09	0.130E-08
	26	0.140E-08	0.180E-08
	27	0.100E-08	0.880E-09
	28	0.880E-09	0.100E-08
	29	0.920E-09	0.100E-08
	30	0.780E-09	0.980E-09
	31	0.660E-09	0.940E-09
	32	0.980E-09	0.110E-08
	33	0.140E-08	0.100E-08
	34	0.110E-08	0.130E-08
	35	0.100E-08	0.990E-09
	36	0.690E-09	0.940E-09
	37	0.900E-09	0.100E-08
	38	0.100E-08	0.100E-08
	39	0.160E-08	0.150E-08
	40	0.120E-08	0.130E-08
	41	0.680E-09	0.930E-09
	42	0.780E-09	0.100E-08
	43	0.900E-09	0.100E-08
	44	0.600E-09	0.850E-09
	45	0.730E-09	0.890E-09
	46	0.840E-09	0.730E-09
	47	0.750E-09	0.820E-09
	48	0.950E-09	0.100E-08
	49	0.800E-09	0.850E-09
	50	0.790E-09	0.870E-09

FAIRCHILD LPDT L9042

		V(OH)		V(OL)		V(IL)		V(IH)	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	24C	25C	24C	25C	24C	25C	24C	25C
DEVICE	1	0.500E+01	0.500E+01	0.140E+00	0.	0.138E+01	0.	0.143E+01	0.
	2	0.500E+01	0.500E+01	0.127E+00	0.118E+00	0.138E+01	0.135E+01	0.142E+01	0.138E+01
	3	0.500E+01	0.500E+01	0.115E+00	0.114E+00	0.137E+01	0.138E+01	0.144E+01	0.141E+01
	4	0.500E+01	0.500E+01	0.112E+00	0.119E+00	0.141E+01	0.135E+01	0.148E+01	0.141E+01
	5	0.500E+01	0.500E+01	0.114E+00	0.130E+00	0.136E+01	0.137E+01	0.141E+01	0.140E+01
	6	0.500E+01	0.500E+01	0.113E+00	0.143E+00	0.136E+01	0.137E+01	0.143E+01	0.140E+01
	7	0.500E+01	0.500E+01	0.129E+00	0.132E+00	0.139E+01	0.138E+01	0.145E+01	0.143E+01
	8	0.500E+01	0.500E+01	0.120E+00	0.122E+00	0.136E+01	0.135E+01	0.142E+01	0.140E+01
	9	0.500E+01	0.500E+01	0.939E-01	0.944E-01	0.136E+01	0.134E+01	0.143E+01	0.140E+01
	10	0.500E+01	0.500E+01	0.982E-01	0.101E+00	0.137E+01	0.136E+01	0.145E+01	0.139E+01
	11	0.500E+01	0.500E+01	0.125E+00	0.127E+00	0.138E+01	0.137E+01	0.143E+01	0.140E+01
	12	0.500E+01	0.500E+01	0.119E+00	0.122E+00	0.137E+01	0.135E+01	0.144E+01	0.139E+01
	13	0.500E+01	0.500E+01	0.111E+00	0.114E+00	0.139E+01	0.138E+01	0.147E+01	0.141E+01
	14	0.500E+01	0.500E+01	0.104E+00	0.105E+00	0.137E+01	0.135E+01	0.144E+01	0.140E+01
	15	0.500E+01	0.500E+01	0.100E+00	0.102E+00	0.137E+01	0.135E+01	0.143E+01	0.140E+01
	16	0.500E+01	0.500E+01	0.972E-01	0.121E+00	0.136E+01	0.134E+01	0.143E+01	0.142E+01
	17	0.500E+01	0.500E+01	0.924E-01	0.116E+00	0.135E+01	0.133E+01	0.142E+01	0.139E+01
	18	0.500E+01	0.500E+01	0.690E-02	0.109E+00	0.133E+01	0.130E+01	0.140E+01	0.135E+01
	19	0.500E+01	0.500E+01	0.109E+00	0.133E+00	0.137E+01	0.134E+01	0.145E+01	0.145E+01
	20	0.500E+01	0.500E+01	0.889E-01	0.117E+00	0.135E+01	0.133E+01	0.143E+01	0.141E+01
	21	0.500E+01	0.500E+01	0.101E+00	0.122E+00	0.136E+01	0.134E+01	0.143E+01	0.140E+01
	22	0.500E+01	0.500E+01	0.103E+00	0.129E+00	0.138E+01	0.135E+01	0.146E+01	0.141E+01
	23	0.500E+01	0.500E+01	0.929E-01	0.116E+00	0.136E+01	0.133E+01	0.144E+01	0.139E+01
	24	0.500E+01	0.500E+01	0.992E-01	0.122E+00	0.137E+01	0.135E+01	0.142E+01	0.141E+01
	25	0.500E+01	0.500E+01	0.109E+00	0.135E+00	0.135E+01	0.134E+01	0.143E+01	0.143E+01
	26	0.500E+01	0.500E+01	0.109E+00	0.136E+00	0.134E+01	0.132E+01	0.144E+01	0.143E+01
	27	0.500E+01	0.500E+01	0.122E+00	0.149E+00	0.139E+01	0.137E+01	0.149E+01	0.147E+01
	28	0.500E+01	0.500E+01	0.902E-01	0.114E+00	0.135E+01	0.133E+01	0.144E+01	0.140E+01
	29	0.500E+01	0.500E+01	0.101E+00	0.129E+00	0.137E+01	0.135E+01	0.144E+01	0.144E+01
	30	0.500E+01	0.500E+01	0.123E+00	0.159E+00	0.137E+01	0.136E+01	0.145E+01	0.146E+01
	31	0.500E+01	0.500E+01	0.103E+00	0.205E+00	0.135E+01	0.134E+01	0.143E+01	0.145E+01
	32	0.500E+01	0.500E+01	0.132E+00	0.667E+00	0.137E+01	0.135E+01	0.145E+01	0.147E+01
	33	0.500E+01	0.500E+01	0.102E+00	0.303E+00	0.138E+01	0.135E+01	0.145E+01	0.147E+01
	34	0.500E+01	0.500E+01	0.119E+00	0.837E+00	0.138E+01	0.135E+01	0.147E+01	0.148E+01
	35	0.500E+01	0.500E+01	0.110E+00	0.207E+00	0.138E+01	0.136E+01	0.145E+01	0.142E+01
	36	0.500E+01	0.500E+01	0.131E+00	0.148E+01	0.139E+01	0.137E+01	0.147E+01	0.149E+01
	37	0.500E+01	0.500E+01	0.111E+00	0.202E+00	0.137E+01	0.135E+01	0.147E+01	0.147E+01
	38	0.500E+01	0.500E+01	0.132E+00	0.252E+00	0.137E+01	0.135E+01	0.147E+01	0.147E+01
	39	0.500E+01	0.500E+01	0.105E+00	0.184E+00	0.137E+01	0.135E+01	0.147E+01	0.142E+01
	40	0.500E+01	0.500E+01	0.103E+00	0.201E+00	0.137E+01	0.135E+01	0.144E+01	0.147E+01
	41	0.500E+01	0.500E+01	0.939E-01	0.158E+00	0.133E+01	0.131E+01	0.140E+01	0.143E+01
	42	0.500E+01	0.500E+01	0.109E+00	0.247E+00	0.135E+01	0.133E+01	0.143E+01	0.146E+01
	43	0.500E+01	0.500E+01	0.109E+00	0.294E+00	0.138E+01	0.146E+01	0.143E+01	0.159E+01
	44	0.500E+01	0.500E+01	0.929E-01	0.184E+00	0.135E+01	0.133E+01	0.141E+01	0.145E+01
	45	0.500E+01	0.500E+01	0.114E+00	0.315E+00	0.138E+01	0.136E+01	0.145E+01	0.148E+01
	46	0.500E+01	0.500E+01	0.130E+00	0.132E+00	0.139E+01	0.138E+01	0.146E+01	0.149E+01
	47	0.500E+01	0.500E+01	0.122E+00	0.122E+00	0.137E+01	0.138E+01	0.147E+01	0.147E+01
	48	0.500E+01	0.500E+01	0.130E+00	0.131E+00	0.137E+01	0.136E+01	0.144E+01	0.140E+01
	49	0.500E+01	0.500E+01	0.103E+00	0.105E+00	0.138E+01	0.136E+01	0.145E+01	0.142E+01
	50	0.500E+01	0.500E+01	0.927E-01	0.932E-01	0.135E+01	0.134E+01	0.143E+01	0.140E+01

FAIRCHILD LPDT L9042

		V(OF)		I DRIVE		RESISTANCE		I LEAKAGE	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	24C	25C	24C	25C	24C	25C	22C	22C
DEVICE	1	0.648E+00	0.653E+00	0.112E-03	0.	0.371E+05	0.401E+05	0.700E-09	0.900E-09
	2	0.640E+00	0.643E+00	0.115E-03	0.105E-03	0.355E+05	0.414E+05	0.760E-09	0.120E-08
	3	0.651E+00	0.640E+00	0.100E-03	0.115E-03	0.421E+05	0.379E+05	0.760E-09	0.900E-09
	4	0.639E+00	0.652E+00	0.119E-03	0.100E-03	0.365E+05	0.435E+05	0.780E-09	0.950E-09
	5	0.643E+00	0.639E+00	0.102E-03	0.118E-03	0.402E+05	0.369E+05	0.800E-09	0.120E-08
	6	0.651E+00	0.652E+00	0.105E-03	0.114E-03	0.391E+05	0.380E+05	0.820E-09	0.100E-08
	7	0.641E+00	0.641E+00	0.119E-03	0.115E-03	0.362E+05	0.380E+05	0.800E-09	0.100E-08
	8	0.639E+00	0.640E+00	0.105E-03	0.107E-03	0.399E+05	0.408E+05	0.920E-09	0.100E-08
	9	0.641E+00	0.639E+00	0.119E-03	0.116E-03	0.365E+05	0.375E+05	0.400E-07	0.320E-08
	10	0.646E+00	0.644E+00	0.108E-03	0.110E-03	0.381E+05	0.392E+05	0.600E-09	0.740E-09
	11	0.650E+00	0.653E+00	0.119E-03	0.119E-03	0.359E+05	0.365E+05	0.830E-09	0.980E-09
	12	0.644E+00	0.643E+00	0.104E-03	0.106E-03	0.400E+05	0.408E+05	0.730E-09	0.930E-09
	13	0.642E+00	0.640E+00	0.129E-03	0.128E-03	0.330E+05	0.340E+05	0.710E-09	0.830E-09
	14	0.644E+00	0.643E+00	0.149E-03	0.145E-03	0.257E+05	0.268E+05	0.680E-09	0.800E-09
	15	0.642E+00	0.641E+00	0.102E-03	0.104E-03	0.403E+05	0.421E+05	0.660E-09	0.780E-09
	16	0.642E+00	0.636E+00	0.111E-03	0.111E-03	0.370E+05	0.390E+05	0.650E-09	0.150E-08
	17	0.641E+00	0.636E+00	0.117E-03	0.115E-03	0.372E+05	0.380E+05	0.600E-09	0.890E-09
	18	0.639E+00	0.635E+00	0.124E-03	0.122E-03	0.342E+05	0.357E+05	0.740E-09	0.100E-08
	19	0.646E+00	0.644E+00	0.112E-03	0.110E-03	0.378E+05	0.393E+05	0.720E-09	0.980E-09
	20	0.646E+00	0.638E+00	0.110E-03	0.108E-03	0.389E+05	0.402E+05	0.580E-09	0.820E-09
	21	0.637E+00	0.632E+00	0.121E-03	0.118E-03	0.364E+05	0.370E+05	0.220E-08	0.100E-08
	22	0.644E+00	0.638E+00	0.117E-03	0.115E-03	0.364E+05	0.374E+05	0.580E-09	0.840E-09
	23	0.641E+00	0.635E+00	0.116E-03	0.114E-03	0.367E+05	0.382E+05	0.680E-09	0.140E-08
	24	0.643E+00	0.637E+00	0.112E-03	0.110E-03	0.383E+05	0.395E+05	0.590E-09	0.880E-09
	25	0.650E+00	0.650E+00	0.109E-03	0.106E-03	0.393E+05	0.412E+05	0.780E-09	0.110E-08
	26	0.657E+00	0.655E+00	0.111E-03	0.108E-03	0.393E+05	0.404E+05	0.620E-09	0.910E-09
	27	0.648E+00	0.644E+00	0.110E-03	0.108E-03	0.393E+05	0.405E+05	0.120E-08	0.360E-08
	28	0.647E+00	0.639E+00	0.109E-03	0.108E-03	0.395E+05	0.407E+05	0.560E-09	0.120E-07
	29	0.635E+00	0.629E+00	0.134E-03	0.131E-03	0.321E+05	0.333E+05	0.780E-09	0.100E-08
	30	0.645E+00	0.640E+00	0.111E-03	0.109E-03	0.384E+05	0.398E+05	0.110E-08	0.960E-09
	31	0.638E+00	0.625E+00	0.118E-03	0.114E-03	0.360E+05	0.360E+05	0.780E-09	0.960E-09
	32	0.641E+00	0.633E+00	0.980E-04	0.920E-04	0.432E+05	0.470E+05	0.150E-08	0.300E-08
	33	0.645E+00	0.629E+00	0.109E-03	0.105E-03	0.399E+05	0.417E+05	0.550E-09	0.700E-09
	34	0.647E+00	0.636E+00	0.106E-03	0.102E-03	0.380E+05	0.429E+05	0.800E-09	0.940E-09
	35	0.636E+00	0.625E+00	0.126E-03	0.122E-03	0.338E+05	0.360E+05	0.800E-09	0.
	36	0.640E+00	0.630E+00	0.112E-03	0.108E-03	0.380E+05	0.404E+05	0.810E-09	0.960E-09
	37	0.637E+00	0.625E+00	0.125E-03	0.121E-03	0.340E+05	0.362E+05	0.760E-09	0.960E-09
	38	0.656E+00	0.648E+00	0.109E-03	0.104E-03	0.391E+05	0.420E+05	0.910E-09	0.100E-08
	39	0.637E+00	0.625E+00	0.130E-03	0.126E-03	0.333E+05	0.352E+05	0.810E-09	0.980E-09
	40	0.637E+00	0.624E+00	0.129E-03	0.123E-03	0.336E+05	0.358E+05	0.760E-09	0.940E-09
	41	0.635E+00	0.622E+00	0.124E-03	0.122E-03	0.336E+05	0.358E+05	0.110E-08	0.120E-08
	42	0.653E+00	0.647E+00	0.117E-03	0.114E-03	0.357E+05	0.384E+05	0.780E-09	0.100E-08
	43	0.646E+00	0.633E+00	0.110E-03	0.106E-03	0.399E+05	0.414E+05	0.730E-09	0.940E-09
	44	0.642E+00	0.625E+00	0.114E-03	0.111E-03	0.378E+05	0.392E+05	0.640E-09	0.920E-09
	45	0.646E+00	0.633E+00	0.110E-03	0.107E-03	0.396E+05	0.411E+05	0.780E-09	0.100E-08
	46	0.642E+00	0.641E+00	0.114E-03	0.117E-03	0.362E+05	0.374E+05	0.790E-09	0.950E-09
	47	0.653E+00	0.654E+00	0.110E-03	0.110E-03	0.385E+05	0.390E+05	0.720E-09	0.960E-09
	48	0.645E+00	0.645E+00	0.108E-03	0.107E-03	0.391E+05	0.404E+05	0.980E-09	0.100E-08
	49	0.648E+00	0.648E+00	0.110E-03	0.110E-03	0.391E+05	0.396E+05	0.720E-09	0.950E-09
	50	0.641E+00	0.641E+00	0.119E-03	0.115E-03	0.369E+05	0.380E+05	0.680E-09	0.750E-09

FAIRCHILD LPDT L9042

		T(DR)		T(DF)	
		PRE	POST	PRE	POST
	TEMP =	22C	22C	22C	22C
DEVICE	1	0.200E-07	0.	0.490E-07	0.
	2	0.220E-07	0.190E-07	0.510E-07	0.570E-07
	3	0.215E-07	0.200E-07	0.370E-07	0.540E-07
	4	0.315E-07	0.320E-07	0.550E-07	0.620E-07
	5	0.195E-07	0.	0.420E-07	0.
	6	0.162E-07	0.	0.360E-07	0.
	7	0.250E-07	0.280E-07	0.420E-07	0.710E-07
	8	0.165E-07	0.150E-07	0.415E-07	0.510E-07
	9	0.215E-07	0.190E-07	0.510E-07	0.600E-07
	10	0.235E-07	0.300E-07	0.510E-07	0.780E-07
	11	0.179E-07	0.160E-07	0.410E-07	0.480E-07
	12	0.210E-07	0.170E-07	0.490E-07	0.560E-07
	13	0.218E-07	0.220E-07	0.470E-07	0.530E-07
	14	0.180E-07	0.180E-07	0.500E-07	0.590E-07
	15	0.255E-07	0.320E-07	0.560E-07	0.630E-07
	16	0.210E-07	0.310E-07	0.510E-07	0.550E-07
	17	0.215E-07	0.250E-07	0.510E-07	0.560E-07
	18	0.145E-07	0.140E-07	0.450E-07	0.500E-07
	19	0.195E-07	0.230E-07	0.470E-07	0.510E-07
	20	0.245E-07	0.310E-07	0.570E-07	0.580E-07
	21	0.220E-07	0.270E-07	0.490E-07	0.510E-07
	22	0.225E-07	0.300E-07	0.490E-07	0.500E-07
	23	0.215E-07	0.240E-07	0.510E-07	0.550E-07
	24	0.235E-07	0.280E-07	0.520E-07	0.550E-07
	25	0.215E-07	0.260E-07	0.510E-07	0.520E-07
	26	0.255E-07	0.340E-07	0.530E-07	0.550E-07
	27	0.315E-07	0.450E-07	0.500E-07	0.530E-07
	28	0.295E-07	0.340E-07	0.560E-07	0.590E-07
	29	0.185E-07	0.240E-07	0.430E-07	0.470E-07
	30	0.225E-07	0.220E-07	0.470E-07	0.450E-07
	31	0.225E-07	0.560E-07	0.490E-07	0.430E-07
	32	0.195E-07	0.700E-07	0.490E-07	0.460E-07
	33	0.200E-07	0.730E-07	0.550E-07	0.440E-07
	34	0.190E-07	0.700E-07	0.490E-07	0.480E-07
	35	0.210E-07	0.530E-07	0.450E-07	0.430E-07
	36	0.204E-07	0.860E-07	0.450E-07	0.560E-07
	37	0.150E-07	0.520E-07	0.450E-07	0.430E-07
	38	0.190E-07	0.530E-07	0.400E-07	0.420E-07
	39	0.184E-07	0.480E-07	0.450E-07	0.430E-07
	40	0.200E-07	0.500E-07	0.470E-07	0.420E-07
	41	0.200E-07	0.360E-07	0.480E-07	0.450E-07
	42	0.390E-07	0.600E-07	0.480E-07	0.420E-07
	43	0.230E-07	0.750E-07	0.550E-07	0.440E-07
	44	0.350E-07	0.520E-07	0.530E-07	0.450E-07
	45	0.290E-07	0.800E-07	0.540E-07	0.440E-07
	46	0.250E-07	0.280E-07	0.520E-07	0.550E-07
	47	0.160E-07	0.230E-07	0.450E-07	0.470E-07
	48	0.210E-07	0.140E-07	0.430E-07	0.440E-07
	49	0.230E-07	0.160E-07	0.430E-07	0.450E-07
	50	0.220E-07	0.180E-07	0.530E-07	0.560E-07

RADIATION RD321

		V(BAR Q L)		V(QH)		V(QL)		V(BAR Q H)	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	24C	26C	24C	26C	24C	26C	24C	26C
DEVICE	1	0.178E+00	0.200E+00	0.499E+01	0.500E+01	0.169E+00	0.186E+00	0.499E+01	0.500E+01
	2	0.211E+00	0.239E+00	0.499E+01	0.500E+01	0.205E+00	0.223E+00	0.499E+01	0.500E+01
	3	0.221E+00	0.243E+00	0.500E+01	0.500E+01	0.211E+00	0.228E+00	0.499E+01	0.500E+01
	4	0.185E+00	0.210E+00	0.499E+01	0.500E+01	0.180E+00	0.199E+00	0.499E+01	0.500E+01
	5	0.188E+00	0.209E+00	0.499E+01	0.500E+01	0.181E+00	0.197E+00	0.499E+01	0.500E+01
	6	0.252E+00	0.267E+00	0.499E+01	0.500E+01	0.243E+00	0.251E+00	0.499E+01	0.500E+01
	7	0.157E+00	0.178E+00	0.499E+01	0.500E+01	0.153E+00	0.168E+00	0.499E+01	0.500E+01
	8	0.179E+00	0.200E+00	0.499E+01	0.500E+01	0.175E+00	0.192E+00	0.499E+01	0.500E+01
	9	0.207E+00	0.230E+00	0.499E+01	0.500E+01	0.183E+00	0.201E+00	0.499E+01	0.500E+01
	10	0.133E+00	0.155E+00	0.499E+01	0.500E+01	0.129E+00	0.146E+00	0.499E+01	0.500E+01
	11	0.169E+00	0.195E+00	0.500E+01	0.500E+01	0.160E+00	0.183E+00	0.499E+01	0.500E+01
	12	0.225E+00	0.253E+00	0.499E+01	0.500E+01	0.215E+00	0.242E+00	0.499E+01	0.500E+01
	13	0.181E+00	0.211E+00	0.499E+01	0.500E+01	0.173E+00	0.203E+00	0.499E+01	0.500E+01
	14	0.177E+00	0.209E+00	0.499E+01	0.500E+01	0.170E+00	0.200E+00	0.499E+01	0.500E+01
	15	0.178E+00	0.208E+00	0.499E+01	0.500E+01	0.170E+00	0.199E+00	0.499E+01	0.500E+01
	16	0.205E+00	0.914E+00	0.499E+01	0.433E+01	0.185E+00	0.323E+00	0.499E+01	0.499E+01
	17	0.132E+00	0.304E+00	0.499E+01	0.389E+01	0.118E+00	0.206E+00	0.499E+01	0.499E+01
	18	0.134E+00	0.266E+00	0.499E+01	0.477E+01	0.123E+00	0.205E+00	0.499E+01	0.499E+01
	19	0.205E+00	0.971E+00	0.499E+01	0.347E+01	0.196E+00	0.319E+00	0.499E+01	0.498E+01
	20	0.181E+00	0.299E+00	0.500E+01	0.499E+01	0.179E+00	0.274E+00	0.499E+01	0.499E+01
	21	0.193E+00	0.137E+01	0.499E+01	0.301E+01	0.187E+00	0.341E+00	0.499E+01	0.499E+01
	22	0.140E+00	0.278E+00	0.500E+01	0.492E+01	0.139E+00	0.233E+00	0.499E+01	0.490E+01
	23	0.154E+00	0.303E+00	0.500E+01	0.499E+01	0.145E+00	0.251E+00	0.499E+01	0.499E+01
	24	0.227E+00	0.163E+01	0.500E+01	0.353E+01	0.220E+00	0.431E+00	0.499E+01	0.499E+01
	25	0.178E+00	0.100E+01	0.499E+01	0.244E+01	0.170E+00	0.280E+00	0.499E+01	0.499E+01
	26	0.163E+00	0.367E+01	0.499E+01	0.375E+01	0.162E+00	0.350E+01	0.499E+01	0.369E+01
	27	0.196E+00	0.325E+01	0.499E+01	0.331E+01	0.192E+00	0.292E+01	0.499E+01	0.325E+01
	28	0.209E+00	0.166E+01	0.500E+01	0.330E+01	0.193E+00	0.125E+01	0.499E+01	0.428E+01
	29	0.187E+00	0.340E+01	0.499E+01	0.371E+01	0.179E+00	0.306E+01	0.499E+01	0.340E+01
	30	0.181E+00	0.351E+01	0.500E+01	0.385E+01	0.177E+00	0.328E+01	0.499E+01	0.350E+01
	31	0.213E+00	0.154E+01	0.500E+01	0.371E+01	0.204E+00	0.401E+00	0.499E+01	0.499E+01
	32	0.179E+00	0.172E+01	0.499E+01	0.274E+01	0.177E+00	0.389E+00	0.499E+01	0.490E+01
	33	0.173E+00	0.327E+00	0.500E+01	0.472E+01	0.162E+00	0.259E+00	0.499E+01	0.499E+01
	34	0.165E+00	0.171E+01	0.499E+01	0.212E+01	0.161E+00	0.384E+00	0.499E+01	0.464E+01
	35	0.173E+00	0.121E+01	0.499E+01	0.325E+01	0.163E+00	0.296E+00	0.499E+01	0.499E+01
	36	0.246E+00	0.802E+00	0.499E+01	0.346E+01	0.240E+00	0.357E+00	0.499E+01	0.499E+01
	37	0.205E+00	0.178E+01	0.499E+01	0.263E+01	0.197E+00	0.405E+00	0.499E+01	0.492E+01
	38	0.159E+00	0.152E+01	0.499E+01	0.246E+01	0.156E+00	0.326E+00	0.499E+01	0.496E+01
	39	0.171E+00	0.405E+00	0.499E+01	0.485E+01	0.159E+00	0.260E+00	0.499E+01	0.499E+01
	40	0.196E+00	0.216E+01	0.499E+01	0.283E+01	0.193E+00	0.103E+01	0.499E+01	0.486E+01
	41	0.205E+00	0.123E+01	0.499E+01	0.329E+01	0.203E+00	0.885E+00	0.499E+01	0.495E+01
	42	0.177E+00	0.176E+01	0.499E+01	0.245E+01	0.170E+00	0.137E+01	0.499E+01	0.371E+01
	43	0.190E+00	0.251E+01	0.499E+01	0.307E+01	0.185E+00	0.220E+01	0.499E+01	0.321E+01
	44	0.201E+00	0.405E+00	0.499E+01	0.493E+01	0.182E+00	0.370E+00	0.499E+01	0.498E+01
	45	0.146E+00	0.167E+01	0.499E+01	0.248E+01	0.145E+00	0.136E+01	0.499E+01	0.403E+01
	46	0.194E+00	0.197E+00	0.499E+01	0.500E+01	0.188E+00	0.190E+00	0.499E+01	0.500E+01
	47	0.222E+00	0.226E+00	0.499E+01	0.500E+01	0.218E+00	0.221E+00	0.499E+01	0.500E+01
	48	0.201E+00	0.202E+00	0.499E+01	0.500E+01	0.202E+00	0.204E+00	0.499E+01	0.500E+01
	49	0.223E+00	0.225E+00	0.500E+01	0.500E+01	0.209E+00	0.211E+00	0.499E+01	0.500E+01
	50	0.183E+00	0.186E+00	0.500E+01	0.500E+01	0.167E+00	0.169E+00	0.499E+01	0.500E+01

RADIATION RD321

		I(IN RC)		I(IN RD)		I(IN CP)		RESISTANCE	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	24C	26C	24C	26C	24C	26C	24C	26C
DEVICE	1	0.883E-03	0.869E-03	0.134E-02	0.131E-02	0.985E-03	0.955E-03	0.568E+04	0.586E+04
	2	0.902E-03	0.887E-03	0.138E-02	0.135E-02	0.101E-02	0.972E-03	0.536E+04	0.543E+04
	3	0.675E-03	0.657E-03	0.103E-02	0.100E-02	0.756E-03	0.719E-03	0.741E+04	0.751E+04
	4	0.767E-03	0.751E-03	0.117E-02	0.114E-02	0.846E-03	0.796E-03	0.665E+04	0.665E+04
	5	0.839E-03	0.872E-03	0.135E-02	0.131E-02	0.965E-03	0.924E-03	0.570E+04	0.570E+04
	6	0.666E-03	0.670E-03	0.121E-02	0.122E-02	0.872E-03	0.818E-03	0.740E+04	0.752E+04
	7	0.799E-03	0.790E-03	0.122E-02	0.118E-02	0.895E-03	0.843E-03	0.621E+04	0.623E+04
	8	0.713E-03	0.677E-03	0.110E-02	0.108E-02	0.769E-03	0.733E-03	0.696E+04	0.712E+04
	9	0.803E-03	0.774E-03	0.120E-02	0.118E-02	0.890E-03	0.856E-03	0.630E+04	0.627E+04
	10	0.747E-03	0.739E-03	0.116E-02	0.113E-02	0.849E-03	0.811E-03	0.662E+04	0.672E+04
	11	0.579E-03	0.541E-03	0.846E-03	0.831E-03	0.627E-03	0.600E-03	0.919E+04	0.928E+04
	12	0.809E-03	0.802E-03	0.123E-02	0.120E-02	0.917E-03	0.851E-03	0.600E+04	0.614E+04
	13	0.842E-03	0.829E-03	0.129E-02	0.126E-02	0.908E-03	0.855E-03	0.613E+04	0.626E+04
	14	0.854E-03	0.840E-03	0.131E-02	0.128E-02	0.961E-03	0.904E-03	0.587E+04	0.584E+04
	15	0.849E-03	0.833E-03	0.129E-02	0.127E-02	0.942E-03	0.890E-03	0.588E+04	0.594E+04
	16	0.728E-03	0.691E-03	0.112E-02	0.108E-02	0.789E-03	0.667E-03	0.686E+04	0.700E+04
	17	0.856E-03	0.831E-03	0.130E-02	0.126E-02	0.960E-03	0.836E-03	0.586E+04	0.590E+04
	18	0.822E-03	0.795E-03	0.125E-02	0.121E-02	0.923E-03	0.793E-03	0.612E+04	0.620E+04
	19	0.825E-03	0.804E-03	0.125E-02	0.120E-02	0.915E-03	0.773E-03	0.609E+04	0.612E+04
	20	0.566E-03	0.511E-03	0.835E-03	0.806E-03	0.641E-03	0.571E-03	0.910E+04	0.947E+04
	21	0.731E-03	0.704E-03	0.113E-02	0.109E-02	0.835E-03	0.701E-03	0.679E+04	0.699E+04
	22	0.796E-03	0.752E-03	0.116E-02	0.114E-02	0.885E-03	0.779E-03	0.632E+04	0.638E+04
	23	0.631E-03	0.591E-03	0.929E-03	0.896E-03	0.680E-03	0.594E-03	0.858E+04	0.877E+04
	24	0.702E-03	0.674E-03	0.109E-02	0.102E-02	0.784E-03	0.660E-03	0.723E+04	0.735E+04
	25	0.819E-03	0.777E-03	0.123E-02	0.118E-02	0.909E-03	0.774E-03	0.622E+04	0.626E+04
	26	0.779E-03	0.753E-03	0.120E-02	0.114E-02	0.871E-03	0.620E-03	0.627E+04	0.642E+04
	27	0.839E-03	0.810E-03	0.127E-02	0.121E-02	0.932E-03	0.687E-03	0.596E+04	0.599E+04
	28	0.706E-03	0.661E-03	0.106E-02	0.102E-02	0.765E-03	0.629E-03	0.729E+04	0.743E+04
	29	0.853E-03	0.824E-03	0.130E-02	0.123E-02	0.932E-03	0.694E-03	0.578E+04	0.587E+04
	30	0.754E-03	0.726E-03	0.116E-02	0.111E-02	0.832E-03	0.607E-03	0.655E+04	0.673E+04
	31	0.676E-03	0.647E-03	0.966E-03	0.932E-03	0.759E-03	0.643E-03	0.758E+04	0.770E+04
	32	0.794E-03	0.770E-03	0.122E-02	0.117E-02	0.870E-03	0.715E-03	0.629E+04	0.635E+04
	33	0.809E-03	0.779E-03	0.123E-02	0.119E-02	0.903E-03	0.788E-03	0.628E+04	0.636E+04
	34	0.872E-03	0.860E-03	0.135E-02	0.129E-02	0.995E-03	0.811E-03	0.562E+04	0.559E+04
	35	0.776E-03	0.755E-03	0.117E-02	0.113E-02	0.809E-03	0.691E-03	0.688E+04	0.699E+04
	36	0.843E-03	0.817E-03	0.129E-02	0.124E-02	0.949E-03	0.807E-03	0.590E+04	0.599E+04
	37	0.816E-03	0.795E-03	0.125E-02	0.120E-02	0.899E-03	0.744E-03	0.591E+04	0.618E+04
	38	0.760E-03	0.742E-03	0.116E-02	0.112E-02	0.877E-03	0.723E-03	0.619E+04	0.635E+04
	39	0.749E-03	0.717E-03	0.113E-02	0.109E-02	0.850E-03	0.738E-03	0.666E+04	0.679E+04
	40	0.742E-03	0.727E-03	0.113E-02	0.109E-02	0.820E-03	0.670E-03	0.640E+04	0.647E+04
	41	0.685E-03	0.664E-03	0.106E-02	0.102E-02	0.804E-03	0.646E-03	0.703E+04	0.729E+04
	42	0.892E-03	0.865E-03	0.137E-02	0.132E-02	0.989E-03	0.785E-03	0.554E+04	0.567E+04
	43	0.830E-03	0.804E-03	0.125E-02	0.120E-02	0.925E-03	0.714E-03	0.602E+04	0.609E+04
	44	0.784E-03	0.738E-03	0.119E-02	0.115E-02	0.855E-03	0.724E-03	0.661E+04	0.667E+04
	45	0.855E-03	0.828E-03	0.130E-02	0.125E-02	0.952E-03	0.763E-03	0.597E+04	0.600E+04
	46	0.849E-03	0.849E-03	0.129E-02	0.128E-02	0.942E-03	0.941E-03	0.580E+04	0.580E+04
	47	0.724E-03	0.721E-03	0.111E-02	0.111E-02	0.803E-03	0.803E-03	0.699E+04	0.695E+04
	48	0.856E-03	0.850E-03	0.132E-02	0.131E-02	0.945E-03	0.945E-03	0.573E+04	0.569E+04
	49	0.612E-03	0.577E-03	0.863E-03	0.869E-03	0.676E-03	0.679E-03	0.787E+04	0.781E+04
	50	0.704E-03	0.655E-03	0.102E-02	0.102E-02	0.745E-03	0.743E-03	0.784E+04	0.785E+04

RADIATION RD321

I(LRD)

DEVICE	TEMP =	PRE 23C	POST 24C
	1	0.190E-08	0.230E-08
	2	0.190E-08	0.200E-08
	3	0.880E-08	0.900E-08
	4	0.160E-08	0.140E-08
	5	0.900E-09	0.100E-08
	6	0.110E-08	0.110E-08
	7	0.780E-09	0.780E-09
	8	0.880E-09	0.940E-09
	9	0.120E-07	0.130E-07
	10	0.160E-08	0.180E-08
	11	0.420E-09	0.150E-09
	12	0.200E-08	0.180E-08
	13	0.110E-08	0.110E-08
	14	0.250E-08	0.270E-08
	15	0.170E-08	0.170E-08
	16	0.110E-08	0.250E-08
	17	0.110E-08	0.330E-08
	18	0.120E-08	0.380E-08
	19	0.100E-08	0.280E-08
	20	0.500E-09	0.960E-09
	21	0.160E-08	0.350E-08
	22	0.930E-09	0.210E-08
	23	0.120E-08	0.170E-08
	24	0.380E-08	0.490E-08
	25	0.170E-08	0.360E-08
	26	0.620E-09	0.200E-08
	27	0.130E-08	0.250E-08
	28	0.260E-08	0.360E-08
	29	0.130E-08	0.280E-08
	30	0.260E-08	0.440E-08
	31	0.560E-08	0.650E-08
	32	0.100E-08	0.220E-08
	33	0.960E-09	0.290E-08
	34	0.500E-09	0.250E-08
	35	0.160E-08	0.230E-08
	36	0.470E-09	0.180E-08
	37	0.120E-08	0.220E-08
	38	0.330E-08	0.450E-08
	39	0.630E-09	0.110E-07
	40	0.300E-08	0.490E-08
	41	0.420E-09	0.110E-08
	42	0.230E-08	0.450E-08
	43	0.190E-08	0.340E-08
	44	0.930E-09	0.190E-08
	45	0.150E-08	0.360E-08
	46	0.900E-09	0.950E-09
	47	0.280E-07	0.280E-07
	48	0.280E-08	0.280E-08
	49	0.110E-07	0.750E-09
	50	0.650E-09	0.650E-09

RADIATION R0321

		MIN CP AMP		T(DR)		T(DF)	
		PRE	POST	PRE	POST	PRE	POST
	TEMP =	23C	24C	23C	22C	23C	22C
DEVICE	1	0.930E+00	0.930E+00	0.850E-08	0.900E-08	0.155E-07	0.150E-07
	2	0.950E+00	0.980E+00	0.880E-08	0.950E-08	0.155E-07	0.160E-07
	3	0.930E+00	0.940E+00	0.800E-08	0.800E-08	0.170E-07	0.175E-07
	4	0.890E+00	0.940E+00	0.820E-08	0.850E-08	0.155E-07	0.175E-07
	5	0.950E+00	0.950E+00	0.880E-08	0.900E-08	0.155E-07	0.165E-07
	6	0.107E+01	0.124E+01	0.820E-08	0.850E-08	0.150E-07	0.155E-07
	7	0.850E+00	0.920E+00	0.850E-08	0.900E-08	0.175E-07	0.180E-07
	8	0.900E+00	0.950E+00	0.820E-08	0.850E-08	0.162E-07	0.170E-07
	9	0.930E+00	0.960E+00	0.850E-08	0.900E-08	0.160E-07	0.160E-07
	10	0.850E+00	0.900E+00	0.850E-08	0.850E-08	0.155E-07	0.160E-07
	11	0.880E+00	0.900E+00	0.890E-08	0.900E-08	0.155E-07	0.160E-07
	12	0.980E+00	0.980E+00	0.890E-08	0.900E-08	0.179E-07	0.185E-07
	13	0.950E+00	0.940E+00	0.850E-08	0.900E-08	0.160E-07	0.160E-07
	14	0.930E+00	0.920E+00	0.850E-08	0.850E-08	0.150E-07	0.160E-07
	15	0.920E+00	0.940E+00	0.820E-08	0.850E-08	0.155E-07	0.165E-07
	16	0.900E+00	0.	0.820E-08	0.	0.170E-07	0.
	17	0.850E+00	0.	0.900E-08	0.	0.172E-07	0.
	18	0.840E+00	0.940E+00	0.890E-08	0.900E-08	0.160E-07	0.155E-07
	19	0.950E+00	0.	0.850E-08	0.	0.160E-07	0.
	20	0.920E+00	0.960E+01	0.880E-08	0.850E-08	0.150E-07	0.165E-07
	21	0.920E+00	0.	0.850E-08	0.	0.165E-07	0.
	22	0.870E+00	0.940E+01	0.850E-08	0.850E-08	0.150E-07	0.150E-07
	23	0.870E+00	0.960E+01	0.850E-08	0.800E-08	0.159E-07	0.165E-07
	24	0.950E+00	0.	0.850E-08	0.	0.160E-07	0.
	25	0.960E+00	0.	0.800E-08	0.	0.150E-07	0.
	26	0.890E+00	0.	0.900E-08	0.	0.170E-07	0.
	27	0.950E+00	0.	0.850E-08	0.	0.160E-07	0.
	28	0.920E+00	0.	0.820E-08	0.	0.150E-07	0.
	29	0.950E+00	0.	0.100E-07	0.	0.165E-07	0.
	30	0.900E+00	0.	0.850E-08	0.	0.170E-07	0.
	31	0.920E+00	0.	0.750E-08	0.	0.155E-07	0.
	32	0.950E+00	0.	0.800E-08	0.	0.165E-07	0.
	33	0.950E+00	0.	0.850E-08	0.	0.155E-07	0.
	34	0.900E+00	0.	0.750E-08	0.	0.170E-07	0.
	35	0.100E+01	0.104E+01	0.700E-08	0.750E-08	0.165E-07	0.150E-07
	36	0.950E+00	0.	0.800E-08	0.	0.155E-07	0.
	37	0.890E+00	0.	0.880E-08	0.	0.172E-07	0.
	38	0.135E+01	0.	0.800E-08	0.	0.170E-07	0.
	39	0.920E+00	0.230E+01	0.105E-07	0.850E-08	0.155E-07	0.150E-07
	40	0.900E+00	0.	0.880E-08	0.	0.152E-07	0.
	41	0.980E+00	0.	0.850E-08	0.	0.155E-07	0.
	42	0.950E+00	0.	0.850E-08	0.	0.152E-07	0.
	43	0.950E+00	0.	0.850E-08	0.	0.160E-07	0.
	44	0.950E+00	0.940E+01	0.850E-08	0.800E-08	0.155E-07	0.180E-07
	45	0.850E+00	0.	0.900E-08	0.	0.179E-07	0.
	46	0.850E+00	0.100E+01	0.850E-08	0.950E-08	0.165E-07	0.165E-07
	47	0.950E+00	0.980E+01	0.820E-08	0.850E-08	0.178E-07	0.175E-07
	48	0.980E+00	0.100E+01	0.850E-08	0.900E-08	0.175E-07	0.170E-07
	49	0.900E+00	0.140E+01	0.820E-08	0.115E-07	0.150E-07	0.155E-07
	50	0.900E+00	0.930E+00	0.850E-08	0.950E-08	0.150E-07	0.145E-07

RADIATION RD310

		V(OH)		V(OL)		V(IL)		V(IH)	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	24C	26C	24C	26C	24C	26C	24C	26C
DEVICE	1	0.500E+01	0.500E+01	0.231E+00	0.290E+00	0.139E+01	0.136E+01	0.145E+01	0.141E+01
	2	0.500E+01	0.500E+01	0.237E+00	0.294E+00	0.135E+01	0.135E+01	0.141E+01	0.139E+01
	3	0.500E+01	0.500E+01	0.271E+00	0.341E+00	0.137E+01	0.134E+01	0.142E+01	0.138E+01
	4	0.500E+01	0.500E+01	0.231E+00	0.272E+00	0.135E+01	0.134E+01	0.144E+01	0.132E+01
	5	0.500E+01	0.500E+01	0.228E+00	0.286E+00	0.139E+01	0.135E+01	0.144E+01	0.139E+01
	6	0.500E+01	0.500E+01	0.231E+00	0.290E+00	0.141E+01	0.135E+01	0.140E+01	0.140E+01
	7	0.500E+01	0.500E+01	0.229E+00	0.287E+00	0.141E+01	0.136E+01	0.140E+01	0.140E+01
	8	0.500E+01	0.500E+01	0.271E+00	0.332E+00	0.137E+01	0.133E+01	0.143E+01	0.137E+01
	9	0.500E+01	0.500E+01	0.248E+00	0.312E+00	0.139E+01	0.135E+01	0.145E+01	0.140E+01
	10	0.500E+01	0.500E+01	0.257E+00	0.332E+00	0.139E+01	0.134E+01	0.143E+01	0.139E+01
	11	0.500E+01	0.500E+01	0.234E+00	0.302E+00	0.138E+01	0.134E+01	0.143E+01	0.134E+01
	12	0.500E+01	0.500E+01	0.215E+00	0.247E+00	0.139E+01	0.134E+01	0.145E+01	0.138E+01
	13	0.500E+01	0.500E+01	0.204E+00	0.258E+00	0.139E+01	0.133E+01	0.144E+01	0.138E+01
	14	0.500E+01	0.500E+01	0.227E+00	0.327E+00	0.139E+01	0.135E+01	0.145E+01	0.140E+01
	15	0.500E+01	0.500E+01	0.227E+00	0.318E+00	0.138E+01	0.134E+01	0.144E+01	0.139E+01
	16	0.500E+01	0.500E+01	0.214E+00	0.348E+00	0.139E+01	0.132E+01	0.145E+01	0.137E+01
	17	0.500E+01	0.500E+01	0.235E+00	0.572E+00	0.137E+01	0.131E+01	0.144E+01	0.136E+01
	18	0.500E+01	0.500E+01	0.208E+00	0.378E+00	0.138E+01	0.130E+01	0.145E+01	0.136E+01
	19	0.500E+01	0.500E+01	0.218E+00	0.659E+00	0.137E+01	0.131E+01	0.144E+01	0.139E+01
	20	0.500E+01	0.500E+01	0.220E+00	0.647E+00	0.137E+01	0.130E+01	0.142E+01	0.130E+01
	21	0.500E+01	0.500E+01	0.272E+00	0.152E+01	0.140E+01	0.133E+01	0.145E+01	0.139E+01
	22	0.500E+01	0.500E+01	0.215E+00	0.109E+01	0.139E+01	0.133E+01	0.144E+01	0.138E+01
	23	0.500E+01	0.500E+01	0.194E+00	0.322E+00	0.139E+01	0.131E+01	0.144E+01	0.137E+01
	24	0.500E+01	0.500E+01	0.238E+00	0.687E+00	0.142E+01	0.133E+01	0.147E+01	0.139E+01
	25	0.500E+01	0.500E+01	0.219E+00	0.361E+00	0.138E+01	0.132E+01	0.144E+01	0.137E+01
	26	0.500E+01	0.500E+01	0.218E+00	0.116E+01	0.139E+01	0.131E+01	0.144E+01	0.137E+01
	27	0.500E+01	0.500E+01	0.214E+00	0.179E+01	0.139E+01	0.133E+01	0.145E+01	0.139E+01
	28	0.500E+01	0.500E+01	0.276E+00	0.146E+01	0.137E+01	0.131E+01	0.143E+01	0.137E+01
	29	0.500E+01	0.500E+01	0.195E+00	0.327E+00	0.140E+01	0.131E+01	0.145E+01	0.137E+01
	30	0.500E+01	0.500E+01	0.251E+00	0.142E+01	0.137E+01	0.132E+01	0.143E+01	0.137E+01
	31	0.500E+01	0.500E+01	0.232E+00	0.309E+00	0.137E+01	0.131E+01	0.143E+01	0.137E+01
	32	0.500E+01	0.500E+01	0.228E+00	0.108E+01	0.138E+01	0.133E+01	0.144E+01	0.139E+01
	33	0.500E+01	0.500E+01	0.205E+00	0.338E+00	0.139E+01	0.133E+01	0.145E+01	0.138E+01
	34	0.500E+01	0.500E+01	0.259E+00	0.524E+00	0.138E+01	0.133E+01	0.143E+01	0.138E+01
	35	0.500E+01	0.500E+01	0.220E+00	0.417E+00	0.139E+01	0.133E+01	0.144E+01	0.138E+01
	36	0.500E+01	0.500E+01	0.247E+00	0.375E+00	0.138E+01	0.132E+01	0.143E+01	0.137E+01
	37	0.500E+01	0.500E+01	0.200E+00	0.371E+00	0.139E+01	0.131E+01	0.144E+01	0.137E+01
	38	0.500E+01	0.500E+01	0.218E+00	0.857E+00	0.139E+01	0.133E+01	0.145E+01	0.138E+01
	39	0.500E+01	0.500E+01	0.209E+00	0.886E+00	0.137E+01	0.131E+01	0.145E+01	0.137E+01
	40	0.500E+01	0.500E+01	0.231E+00	0.114E+01	0.143E+01	0.132E+01	0.150E+01	0.137E+01
	41	0.500E+01	0.500E+01	0.245E+00	0.112E+01	0.137E+01	0.130E+01	0.143E+01	0.136E+01
	42	0.500E+01	0.500E+01	0.199E+00	0.171E+01	0.138E+01	0.131E+01	0.143E+01	0.134E+01
	43	0.500E+01	0.500E+01	0.198E+00	0.926E+00	0.140E+01	0.130E+01	0.147E+01	0.135E+01
	44	0.500E+01	0.500E+01	0.212E+00	0.174E+01	0.139E+01	0.132E+01	0.144E+01	0.134E+01
	45	0.500E+01	0.500E+01	0.234E+00	0.236E+01	0.139E+01	0.133E+01	0.144E+01	0.140E+01
	46	0.500E+01	0.500E+01	0.242E+00	0.241E+00	0.139E+01	0.138E+01	0.145E+01	0.143E+01
	47	0.500E+01	0.500E+01	0.234E+00	0.234E+00	0.139E+01	0.136E+01	0.145E+01	0.143E+01
	48	0.500E+01	0.500E+01	0.194E+00	0.193E+00	0.137E+01	0.138E+01	0.143E+01	0.141E+01
	49	0.500E+01	0.500E+01	0.232E+00	0.232E+00	0.138E+01	0.138E+01	0.145E+01	0.142E+01
	50	0.500E+01	0.500E+01	0.219E+00	0.220E+00	0.138E+01	0.136E+01	0.143E+01	0.142E+01

RADIATION 80310

		I DRIVE		V(OF)		RESISTANCE		T(OR)	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	24C	26C	24C	26C	24C	26C	22C	22C
DEVICE	1	0.196E-02	0.193E-02	0.779E+00	0.784E+00	0.204E+04	0.211E+04	0.800E-08	0.900E-08
	2	0.244E-02	0.239E-02	0.784E+00	0.788E+00	0.162E+04	0.167E+04	0.750E-08	0.950E-08
	3	0.243E-02	0.239E-02	0.785E+00	0.790E+00	0.164E+04	0.166E+04	0.750E-08	0.100E-07
	4	0.193E-02	0.188E-02	0.765E+00	0.770E+00	0.212E+04	0.218E+04	0.950E-08	0.850E-08
	5	0.189E-02	0.185E-02	0.770E+00	0.781E+00	0.218E+04	0.220E+04	0.800E-08	0.100E-07
	6	0.184E-02	0.181E-02	0.776E+00	0.781E+00	0.218E+04	0.226E+04	0.750E-08	0.100E-07
	7	0.249E-02	0.245E-02	0.770E+00	0.779E+00	0.163E+04	0.163E+04	0.750E-08	0.950E-08
	8	0.218E-02	0.213E-02	0.783E+00	0.786E+00	0.186E+04	0.191E+04	0.820E-08	0.950E-08
	9	0.204E-02	0.202E-02	0.776E+00	0.782E+00	0.198E+04	0.202E+04	0.750E-08	0.900E-08
	10	0.239E-02	0.235E-02	0.783E+00	0.788E+00	0.173E+04	0.171E+04	0.750E-08	0.950E-08
	11	0.246E-02	0.243E-02	0.785E+00	0.792E+00	0.162E+04	0.165E+04	0.750E-08	0.950E-08
	12	0.193E-02	0.190E-02	0.769E+00	0.773E+00	0.210E+04	0.216E+04	0.790E-08	0.850E-08
	13	0.235E-02	0.232E-02	0.774E+00	0.779E+00	0.175E+04	0.172E+04	0.720E-08	0.115E-07
	14	0.187E-02	0.185E-02	0.778E+00	0.785E+00	0.217E+04	0.221E+04	0.850E-08	0.850E-08
	15	0.201E-02	0.200E-02	0.781E+00	0.788E+00	0.203E+04	0.204E+04	0.890E-08	0.900E-08
	16	0.234E-02	0.230E-02	0.769E+00	0.779E+00	0.176E+04	0.176E+04	0.700E-08	0.800E-08
	17	0.192E-02	0.187E-02	0.766E+00	0.779E+00	0.213E+04	0.217E+04	0.900E-08	0.750E-08
	18	0.186E-02	0.182E-02	0.765E+00	0.779E+00	0.217E+04	0.225E+04	0.750E-08	0.900E-08
	19	0.201E-02	0.196E-02	0.771E+00	0.784E+00	0.206E+04	0.206E+04	0.890E-08	0.800E-08
	20	0.192E-02	0.188E-02	0.768E+00	0.781E+00	0.213E+04	0.217E+04	0.900E-08	0.800E-08
	21	0.233E-02	0.229E-02	0.787E+00	0.799E+00	0.175E+04	0.176E+04	0.850E-08	0.800E-08
	22	0.188E-02	0.185E-02	0.773E+00	0.787E+00	0.219E+04	0.221E+04	0.800E-08	0.900E-08
	23	0.240E-02	0.236E-02	0.787E+00	0.782E+00	0.168E+04	0.170E+04	0.700E-08	0.900E-08
	24	0.218E-02	0.214E-02	0.774E+00	0.788E+00	0.188E+04	0.189E+04	0.850E-08	0.800E-08
	25	0.231E-02	0.228E-02	0.767E+00	0.781E+00	0.175E+04	0.177E+04	0.720E-08	0.850E-08
	26	0.201E-02	0.196E-02	0.769E+00	0.783E+00	0.202E+04	0.207E+04	0.890E-08	0.750E-08
	27	0.208E-02	0.205E-02	0.777E+00	0.793E+00	0.197E+04	0.197E+04	0.730E-08	0.800E-08
	28	0.245E-02	0.241E-02	0.788E+00	0.804E+00	0.165E+04	0.166E+04	0.720E-08	0.800E-08
	29	0.196E-02	0.192E-02	0.762E+00	0.776E+00	0.207E+04	0.214E+04	0.850E-08	0.800E-08
	30	0.241E-02	0.238E-02	0.784E+00	0.798E+00	0.169E+04	0.169E+04	0.720E-08	0.850E-08
	31	0.213E-02	0.210E-02	0.765E+00	0.780E+00	0.187E+04	0.193E+04	0.750E-08	0.950E-08
	32	0.188E-02	0.186E-02	0.783E+00	0.793E+00	0.212E+04	0.219E+04	0.850E-08	0.800E-08
	33	0.238E-02	0.235E-02	0.768E+00	0.779E+00	0.171E+04	0.170E+04	0.750E-08	0.105E-07
	34	0.244E-02	0.241E-02	0.781E+00	0.791E+00	0.164E+04	0.167E+04	0.720E-08	0.800E-08
	35	0.249E-02	0.245E-02	0.779E+00	0.791E+00	0.160E+04	0.163E+04	0.750E-08	0.850E-08
	36	0.209E-02	0.206E-02	0.763E+00	0.776E+00	0.192E+04	0.198E+04	0.750E-08	0.850E-08
	37	0.234E-02	0.231E-02	0.768E+00	0.781E+00	0.173E+04	0.175E+04	0.720E-08	0.850E-08
	38	0.245E-02	0.241E-02	0.780E+00	0.793E+00	0.164E+04	0.166E+04	0.750E-08	0.800E-08
	39	0.192E-02	0.189E-02	0.770E+00	0.782E+00	0.212E+04	0.216E+04	0.820E-08	0.750E-08
	40	0.219E-02	0.215E-02	0.770E+00	0.784E+00	0.197E+04	0.197E+04	0.820E-08	0.800E-08
	41	0.181E-02	0.178E-02	0.765E+00	0.783E+00	0.226E+04	0.231E+04	0.820E-08	0.750E-08
	42	0.203E-02	0.201E-02	0.782E+00	0.802E+00	0.198E+04	0.201E+04	0.860E-08	0.800E-08
	43	0.216E-02	0.212E-02	0.769E+00	0.782E+00	0.188E+04	0.191E+04	0.800E-08	0.800E-08
	44	0.181E-02	0.179E-02	0.771E+00	0.790E+00	0.223E+04	0.229E+04	0.820E-08	0.800E-08
	45	0.200E-02	0.197E-02	0.784E+00	0.804E+00	0.204E+04	0.206E+04	0.850E-08	0.850E-08
	46	0.200E-02	0.200E-02	0.774E+00	0.774E+00	0.204E+04	0.205E+04	0.950E-08	0.800E-08
	47	0.198E-02	0.193E-02	0.784E+00	0.784E+00	0.204E+04	0.205E+04	0.950E-08	0.140E-07
	48	0.181E-02	0.181E-02	0.770E+00	0.770E+00	0.224E+04	0.226E+04	0.820E-08	0.210E-07
	49	0.188E-02	0.188E-02	0.783E+00	0.784E+00	0.213E+04	0.216E+04	0.900E-08	0.130E-07
	50	0.193E-02	0.192E-02	0.763E+00	0.763E+00	0.212E+04	0.212E+04	0.920E-08	0.850E-08

RADIATION R0310

		T(DF)		T LEAKAGE	
		PRE	POST	PRE	POST
	TEMP =	22C	22C	23C	22C
DEVICE	1	0.115E-07	0.850E-08	0.180E-09	0.300E-09
	2	0.110E-07	0.800E-08	0.220E-09	0.180E-09
	3	0.212E-07	0.800E-08	0.570E-09	0.380E-09
	4	0.700E-08	0.950E-08	0.440E-09	0.270E-09
	5	0.210E-07	0.800E-08	0.300E-09	0.280E-09
	6	0.140E-07	0.800E-08	0.210E-09	0.240E-09
	7	0.139E-07	0.750E-08	0.130E-09	0.230E-09
	8	0.900E-08	0.850E-08	0.900E-09	0.910E-09
	9	0.120E-07	0.800E-08	0.380E-09	0.400E-09
	10	0.129E-07	0.750E-08	0.720E-09	0.670E-09
	11	0.115E-07	0.750E-08	0.310E-09	0.380E-09
	12	0.790E-08	0.800E-08	0.700E-09	0.680E-09
	13	0.182E-07	0.750E-08	0.230E-09	0.360E-09
	14	0.150E-07	0.850E-08	0.280E-09	0.490E-09
	15	0.155E-07	0.750E-08	0.260E-09	0.560E-09
	16	0.205E-07	0.100E-07	0.290E-09	0.470E-09
	17	0.700E-08	0.850E-08	0.290E-09	0.700E-09
	18	0.690E-08	0.850E-08	0.660E-09	0.400E-09
	19	0.690E-08	0.950E-08	0.150E-08	0.130E-08
	20	0.700E-08	0.950E-08	0.410E-09	0.500E-09
	21	0.750E-08	0.950E-08	0.200E-08	0.220E-08
	22	0.220E-07	0.850E-08	0.150E-09	0.440E-09
	23	0.190E-07	0.750E-08	0.150E-09	0.440E-09
	24	0.750E-08	0.900E-08	0.440E-09	0.600E-09
	25	0.245E-07	0.750E-08	0.170E-09	0.620E-09
	26	0.650E-08	0.950E-08	0.170E-08	0.160E-08
	27	0.150E-07	0.900E-08	0.500E-09	0.100E-08
	28	0.205E-07	0.800E-08	0.580E-09	0.100E-08
	29	0.700E-08	0.950E-08	0.180E-08	0.240E-08
	30	0.750E-08	0.850E-08	0.450E-09	0.630E-08
	31	0.195E-07	0.750E-08	0.770E-09	0.840E-09
	32	0.165E-07	0.850E-08	0.280E-09	0.520E-09
	33	0.180E-07	0.800E-08	0.810E-09	0.780E-09
	34	0.135E-07	0.800E-08	0.860E-09	0.100E-08
	35	0.205E-07	0.800E-08	0.200E-09	0.500E-09
	36	0.195E-07	0.750E-08	0.100E-09	0.370E-09
	37	0.205E-07	0.750E-08	0.130E-09	0.440E-09
	38	0.175E-07	0.800E-08	0.720E-09	0.100E-08
	39	0.800E-08	0.900E-08	0.320E-09	0.550E-09
	40	0.790E-08	0.950E-08	0.410E-09	0.690E-09
	41	0.700E-08	0.900E-08	0.115E-09	0.420E-09
	42	0.145E-07	0.850E-08	0.460E-09	0.970E-09
	43	0.750E-08	0.900E-08	0.250E-08	0.290E-08
	44	0.210E-07	0.900E-08	0.250E-09	0.780E-09
	45	0.135E-07	0.100E-07	0.460E-09	0.130E-08
	46	0.750E-08	0.950E-08	0.520E-09	0.540E-09
	47	0.105E-07	0.850E-08	0.580E-09	0.480E-09
	48	0.170E-07	0.750E-08	0.360E-09	0.300E-09
	49	0.140E-07	0.850E-08	0.230E-09	0.240E-09
	50	0.170E-07	0.850E-08	0.340E-09	0.340E-09

FAIRCHILD DT L962

		V(OH)		V(OL)		V(IH)		V(IL)	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	24C	25C	24C	25C	24C	25C	24C	25C
DEVICE	1	0.500E+01	0.501E+01	0.207E+00	0.324E+00	0.140E+01	0.141E+01	0.137E+01	0.138E+01
	2	0.500E+01	0.500E+01	0.230E+00	0.367E+00	0.138E+01	0.139E+01	0.135E+01	0.135E+01
	3	0.500E+01	0.500E+01	0.194E+00	0.297E+00	0.136E+01	0.136E+01	0.134E+01	0.133E+01
	4	0.500E+01	0.500E+01	0.195E+00	0.291E+00	0.134E+01	0.134E+01	0.133E+01	0.132E+01
	5	0.500E+01	0.500E+01	0.208E+00	0.309E+00	0.138E+01	0.138E+01	0.136E+01	0.136E+01
	6	0.500E+01	0.500E+01	0.120E+00	0.241E+00	0.137E+01	0.137E+01	0.135E+01	0.135E+01
	7	0.500E+01	0.500E+01	0.165E+00	0.246E+00	0.136E+01	0.134E+01	0.130E+01	0.133E+01
	8	0.500E+01	0.500E+01	0.187E+00	0.276E+00	0.136E+01	0.134E+01	0.135E+01	0.134E+01
	9	0.500E+01	0.500E+01	0.179E+00	0.288E+00	0.137E+01	0.136E+01	0.134E+01	0.134E+01
	10	0.500E+01	0.500E+01	0.207E+00	0.296E+00	0.130E+01	0.130E+01	0.127E+01	0.127E+01
	11	0.500E+01	0.501E+01	0.226E+00	0.357E+00	0.132E+01	0.133E+01	0.130E+01	0.129E+01
	12	0.500E+01	0.501E+01	0.218E+00	0.337E+00	0.130E+01	0.132E+01	0.130E+01	0.130E+01
	13	0.500E+01	0.500E+01	0.304E+00	0.457E+00	0.129E+01	0.130E+01	0.127E+01	0.126E+01
	14	0.500E+01	0.500E+01	0.219E+00	0.313E+00	0.130E+01	0.131E+01	0.128E+01	0.128E+01
	15	0.500E+01	0.500E+01	0.210E+00	0.328E+00	0.132E+01	0.132E+01	0.129E+01	0.129E+01
	16	0.500E+01	0.500E+01	0.178E+00	0.182E+00	0.129E+01	0.126E+01	0.128E+01	0.126E+01
	17	0.500E+01	0.501E+01	0.201E+00	0.208E+00	0.133E+01	0.129E+01	0.131E+01	0.129E+01
	18	0.500E+01	0.500E+01	0.158E+00	0.207E+00	0.131E+01	0.129E+01	0.129E+01	0.127E+01
	19	0.500E+01	0.500E+01	0.189E+00	0.232E+00	0.134E+01	0.130E+01	0.131E+01	0.130E+01
	20	0.500E+01	0.500E+01	0.193E+00	0.356E+00	0.134E+01	0.136E+01	0.131E+01	0.131E+01
	21	0.500E+01	0.500E+01	0.205E+00	0.325E+00	0.134E+01	0.134E+01	0.131E+01	0.130E+01
	22	0.500E+01	0.500E+01	0.175E+00	0.176E+00	0.132E+01	0.127E+01	0.130E+01	0.128E+01
	23	0.501E+01	0.500E+01	0.167E+00	0.167E+00	0.130E+01	0.126E+01	0.127E+01	0.127E+01
	24	0.500E+01	0.501E+01	0.177E+00	0.178E+00	0.132E+01	0.127E+01	0.130E+01	0.127E+01
	25	0.500E+01	0.501E+01	0.207E+00	0.206E+00	0.134E+01	0.131E+01	0.132E+01	0.130E+01

FAIRCHILD DT L962

		I DRIVE		I LEAKAGE		RESISTANCE		T(DF)	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	24C	25C	23C	22C	24C	25C	23C	22C
DEVICE	1	0.138E-02	0.136E-02	0.120E-07	0.180E-07	0.553E+04	0.556E+04	0.280E-07	0.950E-08
	2	0.111E-02	0.109E-02	0.450E-07	0.680E-07	0.675E+04	0.690E+04	0.315E-07	0.950E-08
	3	0.126E-02	0.124E-02	0.260E-07	0.400E-07	0.617E+04	0.619E+04	0.335E-07	0.110E-07
	4	0.128E-02	0.126E-02	0.310E-07	0.440E-07	0.591E+04	0.604E+04	0.415E-07	0.125E-07
	5	0.119E-02	0.117E-02	0.260E-07	0.360E-07	0.638E+04	0.646E+04	0.285E-07	0.105E-07
	6	0.120E-02	0.117E-02	0.250E-08	0.620E-08	0.644E+04	0.648E+04	0.800E-07	0.125E-07
	7	0.129E-02	0.127E-02	0.460E-07	0.740E-07	0.596E+04	0.612E+04	0.315E-07	0.125E-07
	8	0.119E-02	0.116E-02	0.140E-07	0.240E-07	0.650E+04	0.666E+04	0.315E-07	0.125E-07
	9	0.124E-02	0.121E-02	0.360E-07	0.580E-07	0.605E+04	0.623E+04	0.285E-07	0.950E-08
	10	0.124E-02	0.121E-02	0.170E-06	0.240E-06	0.582E+04	0.603E+04	0.262E-07	0.110E-07
	11	0.103E-02	0.102E-02	0.640E-07	0.720E-07	0.704E+04	0.734E+04	0.225E-07	0.850E-08
	12	0.145E-02	0.142E-02	0.140E-07	0.220E-06	0.510E+04	0.523E+04	0.310E-07	0.110E-07
	13	0.116E-02	0.113E-02	0.480E-07	0.580E-07	0.647E+04	0.656E+04	0.285E-07	0.100E-07
	14	0.129E-02	0.126E-02	0.730E-07	0.920E-07	0.581E+04	0.588E+04	0.235E-07	0.100E-07
	15	0.117E-02	0.115E-02	0.930E-07	0.100E-06	0.635E+04	0.638E+04	0.249E-07	0.950E-08
	16	0.131E-02	0.131E-02	0.630E-07	0.820E-07	0.630E+04	0.618E+04	0.275E-07	0.290E-07
	17	0.137E-02	0.136E-02	0.200E-07	0.240E-07	0.566E+04	0.564E+04	0.260E-07	0.260E-07
	18	0.107E-02	0.104E-02	0.330E-07	0.460E-07	0.731E+04	0.759E+04	0.234E-07	0.150E-07
	19	0.132E-02	0.129E-02	0.340E-07	0.450E-07	0.584E+04	0.592E+04	0.215E-07	0.135E-07
	20	0.137E-02	0.133E-02	0.270E-07	0.440E-07	0.563E+04	0.583E+04	0.215E-07	0.750E-08
	21	0.119E-02	0.115E-02	0.230E-07	0.400E-07	0.628E+04	0.658E+04	0.225E-07	0.850E-08
	22	0.125E-02	0.125E-02	0.150E-06	0.190E-06	0.628E+04	0.623E+04	0.260E-07	0.235E-07
	23	0.107E-02	0.106E-02	0.200E-07	0.220E-07	0.707E+04	0.716E+04	0.260E-07	0.225E-07
	24	0.136E-02	0.136E-02	0.670E-07	0.810E-07	0.559E+04	0.561E+04	0.490E-07	0.490E-07
	25	0.124E-02	0.123E-02	0.350E-07	0.320E-07	0.609E+04	0.617E+04	0.220E-07	0.230E-07

FAIRCHILD DT L962

T(D2)

		PRE	POST
	TEMP =	23C	22C
DEVICE	1	0.860E-08	0.850E-08
	2	0.112E-07	0.115E-07
	3	0.810E-08	0.800E-08
	4	0.800E-08	0.800E-08
	5	0.900E-08	0.900E-08
	6	0.960E-08	0.950E-08
	7	0.750E-08	0.800E-08
	8	0.950E-08	0.950E-08
	9	0.820E-08	0.850E-08
	10	0.790E-08	0.820E-08
	11	0.980E-08	0.110E-07
	12	0.850E-08	0.900E-08
	13	0.820E-08	0.850E-08
	14	0.750E-08	0.800E-08
	15	0.920E-08	0.100E-07
	16	0.720E-08	0.700E-08
	17	0.800E-08	0.800E-08
	18	0.920E-08	0.900E-08
	19	0.830E-08	0.800E-08
	20	0.820E-08	0.850E-08
	21	0.830E-08	0.900E-08
	22	0.880E-08	0.820E-08
	23	0.880E-08	0.820E-08
	24	0.890E-08	0.850E-08
	25	0.820E-08	0.800E-08

MOTOROLA DIELECT. ISOLATED CTS

		V(OH)		V(OL)		V(IH)		V(IL)	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	24C	25C	24C	25C	24C	25C	24C	25C
DEVICE	1	0.500E+01	0.500E+01	0.397E+00	0.450E+00	0.133E+01	0.130E+01	0.130E+01	0.127E+01
	2	0.500E+01	0.500E+01	0.262E+00	0.328E+00	0.135E+01	0.133E+01	0.133E+01	0.130E+01
	3	0.500E+01	0.500E+01	0.346E+00	0.395E+00	0.134E+01	0.129E+01	0.131E+01	0.127E+01
	4	0.500E+01	0.500E+01	0.284E+00	0.335E+00	0.135E+01	0.129E+01	0.133E+01	0.128E+01
	5	0.500E+01	0.499E+01	0.341E+00	0.391E+00	0.133E+01	0.129E+01	0.131E+01	0.127E+01
	6	0.500E+01	0.500E+01	0.292E+00	0.338E+00	0.136E+01	0.132E+01	0.134E+01	0.129E+01
	7	0.500E+01	0.500E+01	0.321E+00	0.368E+00	0.134E+01	0.130E+01	0.132E+01	0.127E+01
	8	0.500E+01	0.500E+01	0.328E+00	0.380E+00	0.134E+01	0.129E+01	0.131E+01	0.128E+01
	9	0.500E+01	0.500E+01	0.231E+00	0.303E+00	0.139E+01	0.134E+01	0.137E+01	0.132E+01
	10	0.500E+01	0.500E+01	0.306E+00	0.360E+00	0.135E+01	0.132E+01	0.133E+01	0.129E+01
	11	0.500E+01	0.500E+01	0.331E+00	0.382E+00	0.136E+01	0.131E+01	0.133E+01	0.128E+01
	12	0.500E+01	0.500E+01	0.338E+00	0.390E+00	0.133E+01	0.129E+01	0.131E+01	0.127E+01
	13	0.500E+01	0.500E+01	0.348E+00	0.408E+00	0.136E+01	0.133E+01	0.134E+01	0.130E+01
	14	0.500E+01	0.500E+01	0.236E+00	0.313E+00	0.139E+01	0.134E+01	0.138E+01	0.131E+01
	15	0.500E+01	0.500E+01	0.255E+00	0.366E+00	0.137E+01	0.132E+01	0.135E+01	0.129E+01
	16	0.	0.	0.	0.	0.	0.	0.	0.
	17	0.	0.	0.	0.	0.	0.	0.	0.
	18	0.	0.	0.	0.	0.	0.	0.	0.
	19	0.	0.	0.	0.	0.	0.	0.	0.
	20	0.	0.	0.	0.	0.	0.	0.	0.
	21	0.	0.	0.	0.	0.	0.	0.	0.
	22	0.	0.	0.	0.	0.	0.	0.	0.
	23	0.	0.	0.	0.	0.	0.	0.	0.
	24	0.	0.	0.	0.	0.	0.	0.	0.
	25	0.	0.	0.	0.	0.	0.	0.	0.

MOTOROLA DIELECT. ISOLATED CTS

		I DRIVE		I LEAKAGE		RESISTANCE		T(DF)	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	24C	25C	23C	21C	24C	25C	24C	21C
DEVICE	1	0.123E-02	0.120E-02	0.110E-07	0.110E-07	0.552E+04	0.539E+04	0.500E-07	0.160E-07
	2	0.120E-02	0.115E-02	0.140E-07	0.140E-07	0.552E+04	0.541E+04	0.415E-07	0.140E-07
	3	0.121E-02	0.115E-02	0.110E-07	0.120E-07	0.552E+04	0.554E+04	0.520E-07	0.160E-07
	4	0.129E-02	0.126E-02	0.110E-07	0.110E-07	0.522E+04	0.524E+04	0.450E-07	0.155E-07
	5	0.140E-02	0.133E-02	0.110E-07	0.100E-07	0.522E+04	0.507E+04	0.445E-07	0.159E-07
	6	0.129E-02	0.123E-02	0.100E-07	0.120E-07	0.516E+04	0.523E+04	0.400E-07	0.150E-07
	7	0.125E-02	0.120E-02	0.110E-07	0.120E-07	0.530E+04	0.536E+04	0.385E-07	0.160E-07
	8	0.129E-02	0.123E-02	0.110E-07	0.130E-07	0.529E+04	0.511E+04	0.430E-07	0.155E-07
	9	0.107E-02	0.102E-02	0.340E-08	0.400E-08	0.657E+04	0.660E+04	0.365E-07	0.110E-07
	10	0.123E-02	0.117E-02	0.160E-07	0.180E-07	0.540E+04	0.535E+04	0.370E-07	0.135E-07
	11	0.124E-02	0.122E-02	0.930E-08	0.110E-07	0.523E+04	0.507E+04	0.480E-07	0.140E-07
	12	0.170E-02	0.114E-02	0.100E-07	0.120E-07	0.571E+04	0.569E+04	0.410E-07	0.155E-07
	13	0.135E-02	0.129E-02	0.150E-07	0.180E-07	0.513E+04	0.504E+04	0.340E-07	0.122E-07
	14	0.104E-02	0.100E-02	0.290E-08	0.520E-07	0.673E+04	0.675E+04	0.315E-07	0.100E-07
	15	0.790E-03	0.750E-03	0.230E-08	0.400E-08	0.885E+04	0.901E+04	0.334E-07	0.950E-08
	16	0.	0.	0.	0.	0.	0.	0.	0.
	17	0.	0.	0.	0.	0.	0.	0.	0.
	18	0.	0.	0.	0.	0.	0.	0.	0.
	19	0.	0.	0.	0.	0.	0.	0.	0.
	20	0.	0.	0.	0.	0.	0.	0.	0.
	21	0.	0.	0.	0.	0.	0.	0.	0.
	22	0.	0.	0.	0.	0.	0.	0.	0.
	23	0.	0.	0.	0.	0.	0.	0.	0.
	24	0.	0.	0.	0.	0.	0.	0.	0.
	25	0.	0.	0.	0.	0.	0.	0.	0.

MOTOROLA DIELECT. ISOLATED CTS

		T(DR)	
		PRE	POST
	TEMP =	24C	21C
DEVICE	1	0.720E-08	0.700E-08
	2	0.790E-08	0.790E-08
	3	0.700E-08	0.700E-08
	4	0.650E-08	0.690E-08
	5	0.650E-08	0.650E-08
	6	0.700E-08	0.700E-08
	7	0.740E-08	0.700E-08
	8	0.650E-08	0.690E-08
	9	0.600E-08	0.650E-08
	10	0.720E-08	0.750E-08
	11	0.620E-08	0.690E-08
	12	0.700E-08	0.720E-08
	13	0.740E-08	0.790E-08
	14	0.620E-08	0.690E-08
	15	0.700E-08	0.790E-08
	16	0.	0.
	17	0.	0.
	18	0.	0.
	19	0.	0.
	20	0.	0.
	21	0.	0.
	22	0.	0.
	23	0.	0.
	24	0.	0.
	25	0.	0.

PHILCO PL962

		V(OH)		V(OL)		V(IH)		V(IL)	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	24C	27C	24C	27C	24C	27C	24C	27C
DEVICE	1	0.499E+01	0.501E+01	0.266E+00	0.357E+00	0.135E+01	0.135E+01	0.133E+01	0.132E+01
	2	0.499E+01	0.501E+01	0.262E+00	0.369E+00	0.135E+01	0.135E+01	0.133E+01	0.132E+01
	3	0.499E+01	0.501E+01	0.300E+00	0.380E+00	0.134E+01	0.134E+01	0.133E+01	0.132E+01
	4	0.499E+01	0.501E+01	0.224E+00	0.317E+00	0.135E+01	0.135E+01	0.133E+01	0.133E+01
	5	0.499E+01	0.501E+01	0.240E+00	0.327E+00	0.133E+01	0.132E+01	0.132E+01	0.131E+01
	6	0.499E+01	0.500E+01	0.273E+00	0.356E+00	0.134E+01	0.134E+01	0.133E+01	0.132E+01
	7	0.499E+01	0.501E+01	0.241E+00	0.328E+00	0.135E+01	0.134E+01	0.134E+01	0.133E+01
	8	0.499E+01	0.501E+01	0.264E+00	0.364E+00	0.135E+01	0.133E+01	0.134E+01	0.133E+01
	9	0.499E+01	0.501E+01	0.281E+00	0.372E+00	0.135E+01	0.133E+01	0.133E+01	0.132E+01
	10	0.499E+01	0.501E+01	0.206E+00	0.297E+00	0.134E+01	0.134E+01	0.132E+01	0.131E+01
	11	0.499E+01	0.501E+01	0.234E+00	0.338E+00	0.136E+01	0.135E+01	0.134E+01	0.133E+01
	12	0.499E+01	0.501E+01	0.218E+00	0.324E+00	0.133E+01	0.135E+01	0.133E+01	0.132E+01
	13	0.499E+01	0.501E+01	0.257E+00	0.369E+00	0.135E+01	0.136E+01	0.134E+01	0.133E+01
	14	0.499E+01	0.501E+01	0.241E+00	0.355E+00	0.135E+01	0.136E+01	0.134E+01	0.133E+01
	15	0.499E+01	0.501E+01	0.267E+00	0.387E+00	0.135E+01	0.135E+01	0.133E+01	0.132E+01
	16	0.499E+01	0.501E+01	0.259E+00	0.270E+00	0.135E+01	0.132E+01	0.133E+01	0.132E+01
	17	0.499E+01	0.501E+01	0.190E+00	0.205E+00	0.134E+01	0.130E+01	0.132E+01	0.130E+01
	18	0.499E+01	0.501E+01	0.247E+00	0.319E+00	0.136E+01	0.134E+01	0.134E+01	0.133E+01
	19	0.499E+01	0.501E+01	0.236E+00	0.292E+00	0.135E+01	0.132E+01	0.134E+01	0.132E+01
	20	0.499E+01	0.501E+01	0.246E+00	0.383E+00	0.134E+01	0.135E+01	0.133E+01	0.131E+01
	21	0.499E+01	0.501E+01	0.230E+00	0.380E+00	0.134E+01	0.134E+01	0.132E+01	0.130E+01
	22	0.499E+01	0.501E+01	0.240E+00	0.248E+00	0.135E+01	0.130E+01	0.133E+01	0.130E+01
	23	0.499E+01	0.501E+01	0.252E+00	0.257E+00	0.136E+01	0.131E+01	0.134E+01	0.131E+01
	24	0.499E+01	0.501E+01	0.242E+00	0.246E+00	0.135E+01	0.131E+01	0.134E+01	0.131E+01
	25	0.499E+01	0.501E+01	0.240E+00	0.244E+00	0.136E+01	0.137E+01	0.138E+01	0.135E+01

PHILCO PL962

		I DRIVE		I LEAKAGE		RESISTANCE		T(DF)	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	24C	27C	23C	25C	24C	27C	23C	25C
DEVICE	1	0.109E-02	0.104E-02	0.100E-05	0.100E-05	0.658E+04	0.642E+04	0.240E-07	0.100E-07
	2	0.105E-02	0.102E-02	0.180E-06	0.150E-06	0.675E+04	0.679E+04	0.235E-07	0.950E-08
	3	0.112E-02	0.109E-02	0.120E-06	0.110E-06	0.642E+04	0.640E+04	0.225E-07	0.109E-07
	4	0.111E-02	0.109E-02	0.980E-07	0.930E-07	0.616E+04	0.640E+04	0.202E-07	0.920E-08
	5	0.110E-02	0.108E-02	0.200E-06	0.210E-06	0.630E+04	0.654E+04	0.224E-07	0.110E-07
	6	0.118E-02	0.115E-02	0.330E-06	0.350E-06	0.593E+04	0.610E+04	0.234E-07	0.105E-07
	7	0.118E-02	0.115E-02	0.690E-07	0.640E-07	0.593E+04	0.601E+04	0.225E-07	0.100E-07
	8	0.108E-02	0.105E-02	0.100E-06	0.970E-07	0.631E+04	0.643E+04	0.225E-07	0.900E-08
	9	0.113E-02	0.110E-02	0.150E-06	0.110E-06	0.616E+04	0.635E+04	0.212E-07	0.100E-07
	10	0.107E-02	0.105E-02	0.300E-07	0.340E-07	0.629E+04	0.652E+04	0.205E-07	0.100E-07
	11	0.120E-02	0.118E-02	0.110E-06	0.140E-06	0.595E+04	0.601E+04	0.185E-07	0.900E-08
	12	0.112E-02	0.110E-02	0.230E-07	0.340E-07	0.628E+04	0.640E+04	0.225E-07	0.950E-08
	13	0.115E-02	0.113E-02	0.980E-07	0.990E-07	0.607E+04	0.624E+04	0.225E-07	0.900E-08
	14	0.116E-02	0.113E-02	0.420E-07	0.550E-07	0.663E+04	0.665E+04	0.245E-07	0.890E-08
	15	0.108E-02	0.106E-02	0.130E-06	0.140E-06	0.663E+04	0.672E+04	0.232E-07	0.900E-08
	16	0.108E-02	0.107E-02	0.350E-07	0.360E-07	0.633E+04	0.637E+04	0.230E-07	0.215E-07
	17	0.101E-02	0.101E-02	0.700E-07	0.660E-07	0.670E+04	0.687E+04	0.228E-07	0.220E-07
	18	0.116E-02	0.113E-02	0.620E-07	0.730E-07	0.642E+04	0.661E+04	0.195E-07	0.125E-07
	19	0.108E-02	0.106E-02	0.120E-05	0.990E-06	0.608E+04	0.628E+04	0.239E-07	0.120E-07
	20	0.119E-02	0.114E-02	0.890E-07	0.970E-07	0.596E+04	0.610E+04	0.205E-07	0.890E-08
	21	0.103E-02	0.990E-03	0.590E-07	0.800E-07	0.667E+04	0.686E+04	0.230E-07	0.820E-08
	22	0.115E-02	0.115E-02	0.420E-07	0.430E-07	0.599E+04	0.603E+04	0.249E-07	0.240E-07
	23	0.115E-02	0.115E-02	0.780E-07	0.950E-07	0.599E+04	0.594E+04	0.190E-07	0.195E-07
	24	0.107E-02	0.107E-02	0.160E-07	0.140E-07	0.645E+04	0.652E+04	0.240E-07	0.240E-07
	25	0.118E-02	0.119E-02	0.520E-07	0.570E-07	0.600E+04	0.587E+04	0.220E-07	0.220E-07

PHILCO PL962

T(DR)

		PRE	POST
	TEMP =	23C	25C
DEVICE	1	0.650E-08	0.650E-08
	2	0.680E-08	0.750E-08
	3	0.620E-08	0.700E-08
	4	0.690E-08	0.750E-08
	5	0.620E-08	0.700E-08
	6	0.600E-08	0.650E-08
	7	0.620E-08	0.700E-08
	8	0.650E-08	0.750E-08
	9	0.650E-08	0.750E-08
	10	0.690E-08	0.790E-08
	11	0.650E-08	0.720E-08
	12	0.620E-08	0.720E-08
	13	0.650E-08	0.720E-08
	14	0.620E-08	0.720E-08
	15	0.650E-08	0.720E-08
	16	0.650E-08	0.690E-08
	17	0.700E-08	0.720E-08
	18	0.620E-08	0.650E-08
	19	0.700E-08	0.720E-08
	20	0.620E-08	0.700E-08
	21	0.650E-08	0.750E-08
	22	0.620E-08	0.620E-08
	23	0.650E-08	0.650E-08
	24	0.650E-08	0.620E-08
	25	0.650E-08	0.650E-08

RADIATION RD242

		V(OH)		V(OL)		V(IH)		V(IL)	
	TEMP =	PRE 24C	POST 25C	PRE 24C	POST 25C	PRE 24C	POST 25C	PRE 24C	POST 25C
DEVICE	1	0.499E+01	0.499E+01	0.236E+00	0.463E+00	0.131E+01	0.132E+01	0.129E+01	0.128E+01
	2	0.500E+01	0.499E+01	0.204E+00	0.307E+00	0.128E+01	0.127E+01	0.126E+01	0.124E+01
	3	0.499E+01	0.499E+01	0.186E+00	0.254E+00	0.128E+01	0.125E+01	0.125E+01	0.123E+01
	4	0.500E+01	0.499E+01	0.236E+00	0.138E+01	0.133E+01	0.134E+01	0.139E+01	0.130E+01
	5	0.499E+01	0.499E+01	0.232E+00	0.305E+00	0.127E+01	0.126E+01	0.125E+01	0.124E+01
	6	0.500E+01	0.499E+01	0.205E+00	0.125E+01	0.134E+01	0.134E+01	0.133E+01	0.131E+01
	7	0.500E+01	0.499E+01	0.169E+00	0.280E+00	0.128E+01	0.127E+01	0.128E+01	0.126E+01
	8	0.499E+01	0.499E+01	0.215E+00	0.339E+00	0.130E+01	0.129E+01	0.127E+01	0.127E+01
	9	0.500E+01	0.499E+01	0.221E+00	0.136E+01	0.130E+01	0.132E+01	0.129E+01	0.128E+01
	10	0.500E+01	0.499E+01	0.126E+00	0.228E+00	0.127E+01	0.127E+01	0.126E+01	0.124E+01
	11	0.500E+01	0.500E+01	0.205E+00	0.	0.127E+01	0.	0.125E+01	0.
	12	0.499E+01	0.499E+01	0.212E+00	0.233E+01	0.132E+01	0.132E+01	0.129E+01	0.128E+01
	13	0.499E+01	0.498E+01	0.185E+00	0.254E+00	0.128E+01	0.125E+01	0.124E+01	0.122E+01
	14	0.500E+01	0.499E+01	0.216E+00	0.272E+01	0.132E+01	0.135E+01	0.129E+01	0.130E+01
	15	0.500E+01	0.499E+01	0.252E+00	0.595E+00	0.132E+01	0.132E+01	0.129E+01	0.127E+01
	16	0.499E+01	0.499E+01	0.208E+00	0.211E+00	0.131E+01	0.126E+01	0.128E+01	0.126E+01
	17	0.500E+01	0.499E+01	0.189E+00	0.200E+00	0.127E+01	0.123E+01	0.125E+01	0.123E+01
	18	0.500E+01	0.499E+01	0.216E+00	0.327E+00	0.133E+01	0.132E+01	0.131E+01	0.129E+01
	19	0.500E+01	0.499E+01	0.261E+00	0.545E+00	0.132E+01	0.131E+01	0.130E+01	0.128E+01
	20	0.499E+01	0.499E+01	0.214E+00	0.881E+00	0.129E+01	0.129E+01	0.126E+01	0.125E+01
	21	0.500E+01	0.499E+01	0.229E+00	0.272E+01	0.133E+01	0.135E+01	0.131E+01	0.130E+01
	22	0.500E+01	0.499E+01	0.176E+00	0.176E+00	0.135E+01	0.132E+01	0.134E+01	0.131E+01
	23	0.500E+01	0.499E+01	0.195E+00	0.195E+00	0.130E+01	0.126E+01	0.129E+01	0.126E+01
	24	0.501E+01	0.499E+01	0.187E+00	0.183E+00	0.130E+01	0.127E+01	0.130E+01	0.127E+01
	25	0.500E+01	0.499E+01	0.217E+00	0.218E+00	0.127E+01	0.124E+01	0.125E+01	0.122E+01

RADIATION RD242

		I DRIVE		I LEAKAGE		RESISTANCE		T(DF)	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	24C	25C	22C	23C	24C	25C	22C	23C
DEVICE	1	0.115E-02	0.114E-02	0.820E-08	0.150E-07	0.517E+04	0.527E+04	0.230E-07	0.100E-07
	2	0.990E-03	0.990E-03	0.210E-08	0.570E-08	0.691E+04	0.700E+04	0.295E-07	0.135E-07
	3	0.118E-02	0.118E-02	0.150E-08	0.440E-07	0.565E+04	0.578E+04	0.670E-07	0.165E-07
	4	0.113E-02	0.113E-02	0.430E-08	0.180E-07	0.587E+04	0.584E+04	0.240E-07	0.100E-07
	5	0.110E-02	0.110E-02	0.500E-08	0.750E-08	0.553E+04	0.557E+04	0.340E-07	0.115E-07
	6	0.107E-02	0.107E-02	0.430E-09	0.550E-08	0.616E+04	0.620E+04	0.900E-07	0.900E-08
	7	0.122E-02	0.122E-02	0.260E-08	0.880E-08	0.552E+04	0.551E+04	0.144E-06	0.125E-07
	8	0.116E-02	0.115E-02	0.290E-08	0.680E-08	0.573E+04	0.581E+04	0.350E-07	0.100E-07
	9	0.102E-02	0.101E-02	0.380E-08	0.100E-07	0.659E+04	0.661E+04	0.240E-07	0.100E-07
	10	0.113E-02	0.113E-02	0.170E-08	0.160E-07	0.592E+04	0.603E+04	0.122E-06	0.140E-07
	11	0.118E-02	0.115E-02	0.260E-08	0.800E-08	0.509E+04	0.521E+04	0.280E-07	0.900E-08
	12	0.104E-02	0.103E-02	0.490E-08	0.150E-07	0.629E+04	0.639E+04	0.280E-07	0.120E-07
	13	0.129E-02	0.129E-02	0.440E-08	0.260E-06	0.520E+04	0.528E+04	0.410E-07	0.150E-07
	14	0.123E-02	0.121E-02	0.420E-08	0.200E-07	0.549E+04	0.551E+04	0.220E-07	0.125E-07
	15	0.122E-02	0.121E-02	0.680E-09	0.100E-07	0.499E+04	0.503E+04	0.300E-07	0.850E-08
	16	0.112E-02	0.111E-02	0.920E-08	0.120E-07	0.549E+04	0.547E+04	0.280E-07	0.270E-07
	17	0.115E-02	0.115E-02	0.150E-09	0.220E-08	0.597E+04	0.592E+04	0.900E-07	0.920E-07
	18	0.127E-02	0.126E-02	0.380E-08	0.880E-08	0.541E+04	0.534E+04	0.240E-07	0.100E-07
	19	0.110E-02	0.109E-02	0.700E-08	0.120E-07	0.616E+04	0.616E+04	0.220E-07	0.900E-08
	20	0.104E-02	0.102E-02	0.160E-08	0.100E-07	0.645E+04	0.649E+04	0.350E-07	0.850E-08
	21	0.115E-02	0.114E-02	0.640E-08	0.340E-07	0.587E+04	0.595E+04	0.200E-07	0.125E-07
	22	0.950E-03	0.950E-03	0.240E-08	0.260E-08	0.699E+04	0.705E+04	0.360E-07	0.350E-07
	23	0.110E-02	0.111E-02	0.520E-08	0.420E-08	0.606E+04	0.616E+04	0.300E-07	0.300E-07
	24	0.119E-02	0.119E-02	0.120E-07	0.820E-08	0.565E+04	0.571E+04	0.220E-07	0.210E-07
	25	0.108E-02	0.108E-02	0.120E-07	0.115E-07	0.612E+04	0.624E+04	0.240E-07	0.250E-07

RADIATION RD242

T(DB)

		PRE	POST
	TEMP =	22C	23C
DEVICE	1	0.900E-08	0.900E-08
	2	0.730E-08	0.850E-08
	3	0.700E-08	0.700E-08
	4	0.910E-08	0.105E-07
	5	0.800E-08	0.750E-08
	6	0.850E-08	0.100E-07
	7	0.750E-08	0.800E-08
	8	0.950E-08	0.850E-08
	9	0.105E-07	0.105E-07
	10	0.750E-08	0.750E-08
	11	0.700E-08	0.750E-08
	12	0.105E-07	0.125E-07
	13	0.730E-08	0.700E-08
	14	0.100E-07	0.130E-07
	15	0.750E-08	0.850E-08
	16	0.800E-08	0.750E-08
	17	0.700E-08	0.700E-08
	18	0.850E-08	0.950E-08
	19	0.920E-08	0.110E-07
	20	0.108E-07	0.100E-07
	21	0.110E-07	0.150E-07
	22	0.100E-07	0.950E-08
	23	0.850E-08	0.800E-08
	24	0.110E-07	0.100E-07
	25	0.850E-08	0.800E-08

TEXAS INSTRUMENT SN15942

		I DRIVE		I LEAKAGE		RESISTANCE		T(DF)	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	24C	25C	23C	21C	24C	25C	23C	21C
DEVICE	1	0.109E-02	0.	0.190E-08	0.620E-08	0.643E+04	0.654E+04	0.315E-07	0.120E-07
	2	0.112E-02	0.110E-02	0.780E-08	0.970E-08	0.613E+04	0.614E+04	0.445E-07	0.110E-07
	3	0.104E-02	0.102E-02	0.200E-08	0.530E-08	0.687E+04	0.683E+04	0.395E-07	0.115E-07
	4	0.125E-02	0.123E-02	0.510E-08	0.840E-08	0.559E+04	0.569E+04	0.415E-07	0.110E-07
	5	0.123E-02	0.120E-02	0.540E-08	0.750E-08	0.559E+04	0.576E+04	0.450E-07	0.105E-07
	6	0.125E-02	0.123E-02	0.880E-08	0.930E-08	0.552E+04	0.569E+04	0.390E-07	0.105E-07
	7	0.118E-02	0.116E-02	0.190E-08	0.430E-08	0.580E+04	0.601E+04	0.320E-07	0.950E-08
	8	0.105E-02	0.103E-02	0.320E-08	0.770E-08	0.660E+04	0.674E+04	0.405E-07	0.950E-08
	9	0.113E-02	0.111E-02	0.470E-08	0.800E-08	0.627E+04	0.633E+04	0.350E-07	0.950E-08
	10	0.134E-02	0.132E-02	0.870E-08	0.120E-07	0.530E+04	0.528E+04	0.345E-07	0.950E-08
	11	0.113E-02	0.111E-02	0.130E-08	0.590E-08	0.617E+04	0.627E+04	0.260E-07	0.850E-08
	12	0.123E-02	0.121E-02	0.950E-08	0.190E-07	0.580E+04	0.579E+04	0.275E-07	0.900E-08
	13	0.135E-02	0.132E-02	0.120E-07	0.220E-07	0.532E+04	0.534E+04	0.405E-07	0.850E-08
	14	0.129E-02	0.127E-02	0.750E-08	0.170E-07	0.537E+04	0.555E+04	0.365E-07	0.900E-08
	15	0.129E-02	0.126E-02	0.910E-08	0.190E-07	0.537E+04	0.549E+04	0.412E-07	0.100E-07
	16	0.121E-02	0.119E-02	0.840E-08	0.460E-08	0.567E+04	0.581E+04	0.330E-07	0.125E-07
	17	0.121E-02	0.119E-02	0.110E-07	0.400E-08	0.567E+04	0.588E+04	0.365E-07	0.130E-07
	18	0.106E-02	0.104E-02	0.500E-08	0.130E-07	0.651E+04	0.674E+04	0.342E-07	0.950E-08
	19	0.129E-02	0.126E-02	0.120E-07	0.220E-07	0.522E+04	0.543E+04	0.320E-07	0.105E-07
	20	0.127E-02	0.124E-02	0.130E-07	0.370E-07	0.542E+04	0.555E+04	0.355E-07	0.800E-08
	21	0.127E-02	0.124E-02	0.670E-08	0.250E-07	0.536E+04	0.549E+04	0.350E-07	0.850E-08
	22	0.123E-02	0.123E-02	0.140E-08	0.130E-08	0.562E+04	0.568E+04	0.290E-07	0.290E-07
	23	0.126E-02	0.121E-02	0.620E-08	0.590E-08	0.559E+04	0.561E+04	0.350E-07	0.365E-07
	24	0.133E-02	0.132E-02	0.770E-08	0.740E-08	0.527E+04	0.529E+04	0.360E-07	0.370E-07
	25	0.110E-02	0.110E-02	0.400E-07	0.420E-07	0.607E+04	0.611E+04	0.305E-07	0.310E-07

TEXAS INSTRUMENT SN15962

		V(OH)		V(OL)		V(IH)		V(IL)	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	24C	25C	24C	25C	24C	25C	24C	25C
DEVICE	1	0.500E+01	0.500E+01	0.209E+00	0.314E+00	0.131E+01	0.133E+01	0.129E+01	0.130E+01
	2	0.500E+01	0.500E+01	0.216E+00	0.338E+00	0.132E+01	0.134E+01	0.130E+01	0.130E+01
	3	0.500E+01	0.501E+01	0.194E+00	0.299E+00	0.131E+01	0.133E+01	0.129E+01	0.129E+01
	4	0.500E+01	0.501E+01	0.208E+00	0.321E+00	0.132E+01	0.135E+01	0.130E+01	0.131E+01
	5	0.500E+01	0.501E+01	0.246E+00	0.377E+00	0.134E+01	0.136E+01	0.132E+01	0.133E+01
	6	0.500E+01	0.501E+01	0.199E+00	0.313E+00	0.134E+01	0.135E+01	0.131E+01	0.132E+01
	7	0.500E+01	0.501E+01	0.306E+00	0.441E+00	0.134E+01	0.136E+01	0.131E+01	0.132E+01
	8	0.501E+01	0.501E+01	0.234E+00	0.376E+00	0.134E+01	0.135E+01	0.131E+01	0.131E+01
	9	0.501E+01	0.501E+01	0.209E+00	0.333E+00	0.135E+01	0.135E+01	0.132E+01	0.133E+01
	10	0.501E+01	0.501E+01	0.211E+00	0.337E+00	0.136E+01	0.138E+01	0.133E+01	0.134E+01
	11	0.501E+01	0.501E+01	0.291E+00	0.608E+00	0.135E+01	0.138E+01	0.132E+01	0.133E+01
	12	0.501E+01	0.501E+01	0.219E+00	0.364E+00	0.133E+01	0.136E+01	0.132E+01	0.132E+01
	13	0.501E+01	0.501E+01	0.220E+00	0.396E+00	0.134E+01	0.138E+01	0.133E+01	0.134E+01
	14	0.501E+01	0.501E+01	0.211E+00	0.376E+00	0.134E+01	0.138E+01	0.133E+01	0.134E+01
	15	0.501E+01	0.501E+01	0.222E+00	0.366E+00	0.134E+01	0.136E+01	0.132E+01	0.133E+01
	16	0.501E+01	0.501E+01	0.222E+00	0.349E+00	0.135E+01	0.136E+01	0.133E+01	0.133E+01
	17	0.501E+01	0.501E+01	0.219E+00	0.293E+00	0.134E+01	0.135E+01	0.133E+01	0.133E+01
	18	0.501E+01	0.501E+01	0.216E+00	0.367E+00	0.133E+01	0.135E+01	0.131E+01	0.132E+01
	19	0.501E+01	0.501E+01	0.230E+00	0.358E+00	0.134E+01	0.136E+01	0.131E+01	0.132E+01
	20	0.501E+01	0.501E+01	0.213E+00	0.559E+00	0.135E+01	0.138E+01	0.133E+01	0.134E+01
	21	0.500E+01	0.500E+01	0.197E+00	0.388E+00	0.134E+01	0.136E+01	0.131E+01	0.132E+01
	22	0.501E+01	0.500E+01	0.246E+00	0.248E+00	0.133E+01	0.130E+01	0.131E+01	0.130E+01
	23	0.501E+01	0.501E+01	0.220E+00	0.220E+00	0.134E+01	0.122E+01	0.132E+01	0.119E+01
	24	0.501E+01	0.501E+01	0.208E+00	0.209E+00	0.135E+01	0.131E+01	0.132E+01	0.130E+01
	25	0.501E+01	0.501E+01	0.229E+00	0.229E+00	0.131E+01	0.130E+01	0.130E+01	0.129E+01

TEXAS INSTRUMENT SN15942

T(DR)

		PRE	POST
	TEMP =	23C	21C
DEVICE	1	0.119E-07	0.125E-07
	2	0.125E-07	0.140E-07
	3	0.122E-07	0.140E-07
	4	0.105E-07	0.115E-07
	5	0.105E-07	0.120E-07
	6	0.105E-07	0.115E-07
	7	0.109E-07	0.125E-07
	8	0.112E-07	0.130E-07
	9	0.112E-07	0.130E-07
	10	0.110E-07	0.125E-07
	11	0.120E-07	0.145E-07
	12	0.105E-07	0.120E-07
	13	0.109E-07	0.120E-07
	14	0.115E-07	0.130E-07
	15	0.112E-07	0.125E-07
	16	0.115E-07	0.120E-07
	17	0.110E-07	0.115E-07
	18	0.119E-07	0.130E-07
	19	0.118E-07	0.125E-07
	20	0.115E-07	0.135E-07
	21	0.105E-07	0.120E-07
	22	0.110E-07	0.110E-07
	23	0.109E-07	0.105E-07
	24	0.119E-07	0.115E-07
	25	0.750E-08	0.700E-08

MOTOROLA MC962

		V(OH)		V(OL)		V(IH)		V(IL)	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	24C	27C	24C	27C	24C	27C	24C	27C
DEVICE	1	0.500E+01	0.500E+01	0.155E+00	0.248E+00	0.136E+01	0.138E+01	0.134E+01	0.134E+01
	2	0.500E+01	0.500E+01	0.166E+00	0.278E+00	0.138E+01	0.140E+01	0.136E+01	0.136E+01
	3	0.500E+01	0.500E+01	0.171E+00	0.274E+00	0.138E+01	0.140E+01	0.136E+01	0.136E+01
	4	0.500E+01	0.500E+01	0.167E+00	0.270E+00	0.138E+01	0.140E+01	0.136E+01	0.136E+01
	5	0.500E+01	0.500E+01	0.172E+00	0.271E+00	0.137E+01	0.139E+01	0.135E+01	0.135E+01
	6	0.500E+01	0.500E+01	0.181E+00	0.299E+00	0.139E+01	0.141E+01	0.137E+01	0.137E+01
	7	0.500E+01	0.500E+01	0.160E+00	0.259E+00	0.138E+01	0.139E+01	0.136E+01	0.136E+01
	8	0.500E+01	0.500E+01	0.152E+00	0.242E+00	0.136E+01	0.132E+01	0.134E+01	0.131E+01
	9	0.500E+01	0.500E+01	0.165E+00	0.261E+00	0.137E+01	0.137E+01	0.135E+01	0.135E+01
	10	0.500E+01	0.500E+01	0.169E+00	0.273E+00	0.138E+01	0.140E+01	0.136E+01	0.136E+01
	11	0.500E+01	0.500E+01	0.171E+00	0.283E+00	0.138E+01	0.140E+01	0.136E+01	0.136E+01
	12	0.500E+01	0.500E+01	0.161E+00	0.274E+00	0.138E+01	0.140E+01	0.136E+01	0.137E+01
	13	0.500E+01	0.500E+01	0.181E+00	0.348E+00	0.139E+01	0.141E+01	0.137E+01	0.137E+01
	14	0.500E+01	0.500E+01	0.157E+00	0.278E+00	0.138E+01	0.139E+01	0.136E+01	0.135E+01
	15	0.500E+01	0.500E+01	0.140E+00	0.247E+00	0.136E+01	0.137E+01	0.134E+01	0.133E+01
	16	0.500E+01	0.500E+01	0.175E+00	0.218E+00	0.138E+01	0.137E+01	0.136E+01	0.135E+01
	17	0.500E+01	0.500E+01	0.169E+00	0.216E+00	0.138E+01	0.137E+01	0.136E+01	0.135E+01
	18	0.500E+01	0.500E+01	0.167E+00	0.282E+00	0.138E+01	0.138E+01	0.136E+01	0.135E+01
	19	0.500E+01	0.500E+01	0.168E+00	0.275E+00	0.138E+01	0.137E+01	0.136E+01	0.133E+01
	20	0.499E+01	0.500E+01	0.155E+00	0.269E+00	0.135E+01	0.136E+01	0.133E+01	0.133E+01
	21	0.500E+01	0.500E+01	0.178E+00	0.359E+00	0.139E+01	0.140E+01	0.137E+01	0.136E+01
	22	0.500E+01	0.500E+01	0.173E+00	0.178E+00	0.138E+01	0.134E+01	0.136E+01	0.134E+01
	23	0.500E+01	0.500E+01	0.162E+00	0.166E+00	0.134E+01	0.134E+01	0.136E+01	0.133E+01
	24	0.500E+01	0.500E+01	0.178E+00	0.181E+00	0.139E+01	0.135E+01	0.137E+01	0.135E+01
	25	0.500E+01	0.500E+01	0.142E+00	0.144E+00	0.135E+01	0.133E+01	0.133E+01	0.131E+01

MOTOROLA MC962

		I DRIVE		I LEAKAGE		RESISTANCE		T(DF)	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	24C	27C	22C	22C	24C	25C	22C	22C
DEVICE	1	0.134E-02	0.124E-02	0.620E-07	0.550E-07	0.577E+04	0.587E+04	0.750E-08	0.900E-08
	2	0.136E-02	0.125E-02	0.640E-07	0.530E-07	0.576E+04	0.581E+04	0.750E-08	0.800E-08
	3	0.136E-02	0.125E-02	0.120E-07	0.120E-07	0.577E+04	0.587E+04	0.750E-08	0.800E-08
	4	0.137E-02	0.124E-02	0.180E-06	0.180E-06	0.577E+04	0.599E+04	0.750E-08	0.750E-08
	5	0.128E-02	0.119E-02	0.170E-08	0.280E-08	0.620E+04	0.622E+04	0.740E-08	0.800E-08
	6	0.134E-02	0.123E-02	0.620E-07	0.480E-07	0.600E+04	0.604E+04	0.740E-08	0.700E-08
	7	0.138E-02	0.126E-02	0.100E-06	0.100E-06	0.584E+04	0.580E+04	0.750E-08	0.800E-08
	8	0.129E-02	0.119E-02	0.450E-08	0.440E-08	0.630E+04	0.646E+04	0.790E-08	0.100E-07
	9	0.126E-02	0.119E-02	0.400E-08	0.530E-08	0.597E+04	0.605E+04	0.800E-08	0.800E-08
	10	0.138E-02	0.129E-02	0.280E-07	0.300E-07	0.579E+04	0.585E+04	0.750E-08	0.800E-08
	11	0.136E-02	0.124E-02	0.500E-07	0.490E-07	0.579E+04	0.584E+04	0.720E-08	0.750E-08
	12	0.136E-02	0.125E-02	0.540E-08	0.820E-08	0.586E+04	0.589E+04	0.750E-08	0.750E-08
	13	0.135E-02	0.124E-02	0.680E-07	0.740E-07	0.585E+04	0.583E+04	0.700E-08	0.650E-08
	14	0.130E-02	0.120E-02	0.230E-07	0.240E-07	0.590E+04	0.584E+04	0.720E-08	0.750E-08
	15	0.128E-02	0.119E-02	0.930E-09	0.180E-08	0.626E+04	0.632E+04	0.780E-08	0.900E-08
	16	0.140E-02	0.129E-02	0.220E-06	0.240E-06	0.568E+04	0.575E+04	0.720E-08	0.125E-07
	17	0.143E-02	0.134E-02	0.560E-07	0.490E-07	0.568E+04	0.575E+04	0.720E-08	0.130E-07
	18	0.136E-02	0.124E-02	0.100E-07	0.140E-07	0.561E+04	0.581E+04	0.750E-08	0.800E-08
	19	0.136E-02	0.123E-02	0.140E-07	0.150E-07	0.570E+04	0.588E+04	0.780E-08	0.800E-08
	20	0.133E-02	0.120E-02	0.500E-08	0.850E-08	0.617E+04	0.637E+04	0.720E-08	0.800E-08
	21	0.135E-02	0.122E-02	0.760E-08	0.110E-07	0.569E+04	0.599E+04	0.740E-08	0.650E-08
	22	0.136E-02	0.129E-02	0.430E-07	0.440E-07	0.568E+04	0.564E+04	0.750E-08	0.210E-07
	23	0.137E-02	0.130E-02	0.370E-07	0.340E-07	0.576E+04	0.575E+04	0.750E-08	0.230E-07
	24	0.134E-02	0.129E-02	0.590E-07	0.550E-07	0.576E+04	0.579E+04	0.740E-08	0.210E-07
	25	0.136E-02	0.129E-02	0.220E-08	0.220E-08	0.576E+04	0.579E+04	0.750E-08	0.350E-07

MOTOROLA MC962

T(OR)

	TEMP =	PRE 22C	POST 22C
DEVICE	1	0.750E-08	0.750E-08
	2	0.750E-08	0.750E-08
	3	0.750E-08	0.800E-08
	4	0.750E-08	0.800E-08
	5	0.750E-08	0.800E-08
	6	0.720E-08	0.800E-08
	7	0.790E-08	0.800E-08
	8	0.790E-08	0.800E-08
	9	0.750E-08	0.850E-08
	10	0.720E-08	0.800E-08
	11	0.720E-08	0.800E-08
	12	0.750E-08	0.800E-08
	13	0.720E-08	0.800E-08
	14	0.750E-08	0.800E-08
	15	0.780E-08	0.850E-08
	16	0.700E-08	0.750E-08
	17	0.720E-08	0.750E-08
	18	0.720E-08	0.800E-08
	19	0.720E-08	0.800E-08
	20	0.700E-08	0.750E-08
	21	0.720E-08	0.800E-08
	22	0.740E-08	0.700E-08
	23	0.740E-08	0.700E-08
	24	0.720E-08	0.700E-08
	25	0.750E-08	0.700E-08

MOTOROLA SC1253

		V(OH)		V(OL)		V(IH)		V(IL)	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	24C	25C	24C	25C	24C	25C	24C	25C
DEVICE	1	0.500E+01	0.500E+01	0.247E+00	0.347E+00	0.138E+01	0.134E+01	0.136E+01	0.130E+01
	2	0.500E+01	0.500E+01	0.242E+00	0.418E+00	0.138E+01	0.134E+01	0.136E+01	0.131E+01
	3	0.500E+01	0.499E+01	0.229E+00	0.317E+00	0.141E+01	0.137E+01	0.140E+01	0.134E+01
	4	0.500E+01	0.500E+01	0.229E+00	0.331E+00	0.139E+01	0.135E+01	0.138E+01	0.132E+01
	5	0.500E+01	0.500E+01	0.232E+00	0.339E+00	0.139E+01	0.135E+01	0.138E+01	0.132E+01
	6	0.500E+01	0.500E+01	0.206E+00	0.292E+00	0.140E+01	0.136E+01	0.139E+01	0.133E+01
	7	0.500E+01	0.500E+01	0.235E+00	0.332E+00	0.138E+01	0.134E+01	0.137E+01	0.131E+01
	8	0.500E+01	0.500E+01	0.240E+00	0.355E+00	0.138E+01	0.134E+01	0.137E+01	0.131E+01
	9	0.500E+01	0.500E+01	0.226E+00	0.323E+00	0.139E+01	0.135E+01	0.137E+01	0.131E+01
	10	0.500E+01	0.500E+01	0.226E+00	0.349E+00	0.139E+01	0.134E+01	0.138E+01	0.131E+01
	11	0.500E+01	0.500E+01	0.220E+00	0.334E+00	0.140E+01	0.134E+01	0.139E+01	0.131E+01
	12	0.500E+01	0.500E+01	0.228E+00	0.365E+00	0.139E+01	0.134E+01	0.138E+01	0.131E+01
	13	0.500E+01	0.500E+01	0.276E+00	0.888E+00	0.138E+01	0.133E+01	0.135E+01	0.130E+01
	14	0.500E+01	0.500E+01	0.231E+00	0.365E+00	0.140E+01	0.136E+01	0.138E+01	0.131E+01
	15	0.500E+01	0.500E+01	0.219E+00	0.328E+00	0.141E+01	0.135E+01	0.139E+01	0.132E+01
	16	0.500E+01	0.500E+01	0.227E+00	0.339E+00	0.140E+01	0.136E+01	0.138E+01	0.135E+01
	17	0.500E+01	0.500E+01	0.225E+00	0.337E+00	0.140E+01	0.136E+01	0.138E+01	0.135E+01
	18	0.500E+01	0.500E+01	0.223E+00	0.280E+00	0.139E+01	0.139E+01	0.137E+01	0.132E+01
	19	0.500E+01	0.500E+01	0.242E+00	0.429E+00	0.145E+01	0.142E+01	0.143E+01	0.139E+01
	20	0.499E+01	0.499E+01	0.218E+00	0.313E+00	0.140E+01	0.135E+01	0.138E+01	0.131E+01
	21	0.500E+01	0.500E+01	0.244E+00	0.337E+00	0.133E+01	0.127E+01	0.131E+01	0.124E+01
	22	0.	0.	0.	0.	0.	0.	0.	0.
	23	0.	0.	0.	0.	0.	0.	0.	0.
	24	0.	0.	0.	0.	0.	0.	0.	0.
	25	0.	0.	0.	0.	0.	0.	0.	0.

MOTOROLA SC1253

		I DRIVE		I LEAKAGE		RESISTANCE		T(DF)	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
	TEMP =	24C	25C	23C	22C	24C	25C	24C	22C
DEVICE	1	0.870E-03	0.830E-03	0.260E-08	0.340E-08	0.761E+04	0.775E+04	0.290E-07	0.900E-08
	2	0.910E-03	0.860E-03	0.200E-08	0.380E-08	0.774E+04	0.778E+04	0.395E-07	0.800E-08
	3	0.119E-02	0.112E-02	0.550E-08	0.590E-08	0.579E+04	0.577E+04	0.270E-07	0.900E-08
	4	0.103E-02	0.990E-03	0.480E-08	0.510E-08	0.683E+04	0.685E+04	0.265E-07	0.850E-08
	5	0.102E-02	0.960E-03	0.340E-08	0.470E-08	0.691E+04	0.698E+04	0.285E-07	0.850E-08
	6	0.910E-03	0.920E-03	0.170E-07	0.130E-08	0.650E+04	0.675E+04	0.244E-07	0.900E-08
	7	0.102E-02	0.970E-03	0.430E-08	0.480E-08	0.708E+04	0.704E+04	0.305E-07	0.920E-08
	8	0.920E-03	0.890E-03	0.320E-08	0.430E-08	0.758E+04	0.754E+04	0.290E-07	0.800E-08
	9	0.109E-02	0.104E-02	0.480E-08	0.600E-08	0.654E+04	0.648E+04	0.235E-07	0.850E-08
	10	0.104E-02	0.100E-02	0.320E-07	0.520E-08	0.685E+04	0.675E+04	0.308E-07	0.800E-08
	11	0.111E-02	0.105E-02	0.410E-08	0.700E-08	0.639E+04	0.639E+04	0.295E-07	0.850E-08
	12	0.102E-02	0.970E-03	0.300E-08	0.630E-08	0.690E+04	0.683E+04	0.290E-07	0.800E-08
	13	0.770E-03	0.730E-03	0.360E-08	0.600E-08	0.922E+04	0.922E+04	0.285E-07	0.750E-08
	14	0.990E-03	0.940E-03	0.300E-08	0.650E-08	0.699E+04	0.210E+02	0.295E-07	0.850E-08
	15	0.114E-02	0.109E-02	0.440E-08	0.740E-08	0.628E+04	0.598E+04	0.240E-07	0.800E-08
	16	0.107E-02	0.102E-02	0.300E-08	0.290E-08	0.681E+04	0.669E+04	0.285E-07	0.245E-07
	17	0.104E-02	0.100E-02	0.140E-07	0.640E-08	0.704E+04	0.694E+04	0.265E-07	0.205E-07
	18	0.102E-02	0.970E-03	0.110E-07	0.480E-08	0.698E+04	0.685E+04	0.300E-07	0.135E-07
	19	0.101E-02	0.950E-03	0.180E-07	0.170E-07	0.652E+04	0.639E+04	0.160E-07	0.750E-08
	20	0.970E-03	0.930E-03	0.170E-07	0.200E-07	0.730E+04	0.727E+04	0.255E-07	0.900E-08
	21	0.105E-02	0.100E-02	0.370E-08	0.680E-08	0.692E+04	0.689E+04	0.330E-07	0.100E-07
	22	0.	0.	0.	0.	0.	0.	0.	0.
	23	0.	0.	0.	0.	0.	0.	0.	0.
	24	0.	0.	0.	0.	0.	0.	0.	0.
	25	0.	0.	0.	0.	0.	0.	0.	0.

MOTOROLA SC1253

T(DR)

		PRE	POST
	TEMP =	24C	22C
DEVICE	1	0.650E-08	0.750E-08
	2	0.650E-08	0.750E-08
	3	0.590E-08	0.620E-08
	4	0.600E-08	0.700E-08
	5	0.620E-08	0.700E-08
	6	0.640E-08	0.720E-08
	7	0.600E-08	0.700E-08
	8	0.650E-08	0.720E-08
	9	0.600E-08	0.700E-08
	10	0.600E-08	0.700E-08
	11	0.650E-08	0.700E-08
	12	0.620E-08	0.700E-08
	13	0.750E-08	0.900E-08
	14	0.620E-08	0.700E-08
	15	0.600E-08	0.650E-08
	16	0.600E-08	0.600E-08
	17	0.600E-08	0.650E-08
	18	0.600E-08	0.620E-08
	19	0.850E-08	0.950E-08
	20	0.620E-08	0.700E-08
	21	0.580E-08	0.620E-08
	22	0.	0.
	23	0.	0.
	24	0.	0.
	25	0.	0.

APPENDIX IV

COMPUTER PROGRAMS

APPENDIX IV

COMPUTER PROGRAMS

This appendix contains a print-out of the computer programs used to tabulate, summarize, and plot the raw data.

Computer Program for Fundamental Study

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      PROGRAM FNDMTL (INPUT,OUTPUT,TAPE60=INPUT)                        FUND0000
C                                                                       FUND0010
C         THIS PROGRAM IS DESIGNED TO CALCULATE CERTAIN STATISTICAL     FUND0020
C         CHARACTERISTICS ABOUT MICROCIRCUITS AND TO COMPARE THESE      FUND0030
C         CHARACTERISTICS BY MEANS OF F- AND T-TESTS.                   FUND0040
C                                                                       FUND0050
C               INPUT AND DATA                                          FUND0060
000003        DIMENSION     PRE(   50,20), POST(  50,20)                FUND0070
000003        DIMENSION     IGRP(   7,10), NGRP(      7), TALFA(    20) FUND0080
000003        DIMENSION     NMEPAR(   54), NMEINS( 3,10), IPAR(    20)  FUND0090
000003        DIMENSION     XNUM(      6), PRE1(  50,20), POST1( 50,20) FUND0100
000003        DIMENSION     IDF(       6), IDT(      15), ITMPRE(   20) FUND0110
000003        DIMENSION     ITMPST(   20), IDPAR(    20), NMEGRP(  7,2) FUND0120
C             CALCULATED ARRAYS FOR STATISTICAL COMPUTATIONS            FUND0130
000003        DIMENSION     PCTA(   7,20), AVE(    7,20), XMEAN(  7,20) FUND0140
000003        DIMENSION     XBAR(   7,20), XBAR1(  7,20), XBARSQ( 7,20) FUND0150
000003        DIMENSION     STD(    7,20), PCT(    7,20), XNT1(   7,20) FUND0160
000003        DIMENSION     XNT2(   7,20)                               FUND0170
C             CALCULATED ARRAYS FOR F-TESTS                             FUND0180
000003        DIMENSION     FSUMN(  6,20), FSUMN1( 6,20), XBR1(   6,20) FUND0190
000003        DIMENSION     XBR1SQ( 6,20), XBRSQ(  6,20), FSSA(   6,20) FUND0200
000003        DIMENSION     FSSW(   6,20), FMSA(   6,20), FMSW(   6,20) FUND0210
000003        DIMENSION     FTEST(  6,20)                               FUND0220
C             CALCULATED ARRAYS FOR T-TESTS                             FUND0230
000003        DIMENSION     TSUMN1(15,20), TXBRSQ(15,20), TXBR12(15,20) FUND0240
000003        DIMENSION     TSSW(  15,20), TMSW(  15,20), TTEST( 15,20) FUND0250
000003        DIMENSION     IHAPEN(10,2)
C             GROUPING DATA                                             FUND0260
000003         DATA          IGRP/1,11, 16,26,31,41,46,2,12,17,27,32,42,47,3,13, FUND0270
             1      18,28,33,43,48,4,14,19,29,34,44,49,5,15,20,30,35,45,50,6,0, FUND0280
             2      21,0,36,0,0,7,0,22,0,37,0,0,8,0,23,0,38,0,0,9,0,24,0,39,0,0, FUND0290
             3      10,0,25,0,40,0,0/                                  FUND0300
000003         DATA          NGRP/10,5,10,5,10,5,5/                    FUND0310
C             INSTRUMENT NAMES                                          FUND0320
000003         DATA     NMEINS/10HFAIRCHILD ,10H A709      ,10H        , FUND0330
             1                10HAMELCO 807,10HBE         ,10H        , FUND0340
             2                10HSIGNETICS ,10HSE501      ,10H        , FUND0350
             3                10HNATIONAL S,10HEMICONDUCT,10HOR LM101 , FUND0360
             4                10HFAIRCHILD ,10HLPDT L9040,10H         , FUND0370
             5                10HFAIRCHILD ,10HLPDT L9042,10H         , FUND0380
             6                10HTEXAS INST,10HRUMENT SN5,10H4L20      , FUND0390
             7                10HTEXAS INST,10HRUMENT SN5,10H4L71      , FUND0400
             8                10HRADIATION ,10HRD310      ,10H        , FUND0410
             9                10HRADIATION ,10HRD321      ,10H        / FUND0420
C             PARAMETER NAMES                                           FUND0430
000003         DATA          NMEPAR/10HGAIN  O.L.,10HGAIN  C.L.,10H  V O.S.  , FUND0440
             1      10H  I BIAS  , 10H  V SAT + ,10H  V SAT - ,10H   CMRR   , FUND0450
             2      10H  I O.S.  , 10HRESISTANCE,10HV(D.C.OUI),10HV(D.C. IN), FUND0460
             3      10H  I(CBO)  , 10H H(FE) LOW,10HH(FE) HIGH,10H V(BE) LOW, FUND0470
             4      10HV(BE) HIGH, 10HGAIN RATIO,10H   V(OH)  ,10H   V(OL)  , FUND0480
             5      10H   V(IH)  , 10H   V(IL)  ,10H I LEAKAGE,10H   V(OF)  , FUND0490
             6      10H  I DRIVE , 10H   T(DR)  ,10H   GAIN   ,10H   V(QH)  , FUND0500
             7      10H   V(QL)  , 10HV(BAR Q H),10HV(BAR Q L),10H  I(L CD) , FUND0510
             8      10H I(IN CD) , 10H I(IN SD) ,10H I(IN CP) ,10HMIN CP AMP. FUND0520
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     9      10H MIN V(C1), 10H MIN V(S1),10H  I(CC0)  ,10H  I(CC1)  ,     FUND0530
     A      10H  I(LR1)  , 10H I(L PSET),10H I(IN R1) ,10HI(IN PSET),     FUND0540
     B      10H   I(CC)  , 10H MIN V(R1),10H MIN V(S1),10H  I(LRD)  ,     FUND0550
     C      10H I(IN RD) , 10H I(IN RC) ,10H I(IN CP) ,10H  G(OL 5) ,     FUND0560
     D      10H V(O.S. 5), 10H   I(CC)  ,10H   T(DF)  /                   FUND0570
C               I(ALPHA) TABLE                                            FUND0580
000003        DATA          TALFA/0.,12.71,4.303,3.182,2.776,2.571,2.447,2.365,  FUND0590
     1      2.306,2.262,2.228,2.201,2.179,2.160,2.145,2.131,2.120,2.110,  FUND0600
     2      2.101,2.093/                                                  FUND0610
000003        DATA          NMEGRP/10H0.5 MEV BI,10H0.5 MEV UN,10H1.0 MEV BI,   FUND0620
     1                          10H1.0 MEV UN,10H1.5 MEV BI,10H1.5 MEV UN,   FUND0630
     2                          10HCONTROL-G ,10HASED-A    ,10HBIASED-B  ,   FUND0640
     3                          10HASED-C    ,10HBIASED-D  ,10HASED-E    ,   FUND0650
     4                          10HBIASED-F  ,10H          /                FUND0660
000003        DATA          XNUM/2.,2.,2.,3.,3.,6./                       FUND0670
000003        DATA          MXXXX,IBLANK/20,10H          /                FUND0680
000003        DATA          IDF/7HA-B-G  ,7HC-D-G  ,7HE-F-G  ,7HA-C-E-G,  FUND0690
     1                        7HB-D-F-G,7HALL    /                       FUND0700
000003        DATA          IDT/7HA-B    ,7HC-D    ,7HE-F    ,7HA-G    ,  FUND0710
     1                        7HB-G    ,7HC-G    ,7HD-G    ,7HE-G    ,  FUND0720
     2                        7HF-G    ,7HA-C    ,7HA-E    ,7HC-E    ,  FUND0730
     3                        7HB-D    ,7HB-F    ,7HD-F    /             FUND0740
C                                                                         FUND0750
C               ZERO OUT NECESSARY ARRAYS                                 FUND0760
C                                                                         FUND0770
000003      1 DO 100 J=1,MXXXX                                            FUND0780
000005        IPAR(J) = 0                                                 FUND0790
000006        DO 80 I=1,6                                                 FUND0800
000010        FSUMN(I,J) = 0.                                             FUND0810
000013        FSUMN1(I,J) = 0.                                            FUND0820
000015        XBRISQ(I,J) = 0.                                            FUND0830
000016        XBR1(I,J) = 0.                                              FUND0840
000017     80 XBRSQ(I,J) = 0.                                             FUND0850
000022        DO 90 I=1,15                                                FUND0860
000024        TSUMN1(I,J) = 0.                                            FUND0870
000027        TXBRSQ(I,J) = 0.                                            FUND0880
000030     90 TXBR12(I,J) = 0.                                            FUND0890
000033        DO  95 I=1,7                                                FUND0900
000035        XMEAN(I,J) = 0.                                             FUND0910
000040        XBAR(I,J) = 0.                                              FUND0920
000041        XBARSQ(I,J) = 0.                                            FUND0930
000043     95 PCT(I,J) = 0.                                               FUND0940
000045        DO 100 I=1,50                                               FUND0950
000047        PRE(I,J) = 0.                                               FUND0960
000053        PRE1(I,J) = 0.                                              FUND0970
000054        POST(I,J) = 0.                                              FUND0980
000055        POST1(I,J) = 0.                                             FUND0990
000057    100 CONTINUE                                                    FUND1000
000063        IHAP = 0
000064        NCARD = 0                                                   FUND1010
C                                                                         FUND1020
C               READ DATA CARD                                            FUND1030
C                                                                         FUND1040
000065    120 READ 130,  IEND, MDC, MPC, ICTC, ICIR, DATA, ITEM, IFLAG    FUND1050
000111    130 FORMAT(A3,8X, I1, 3I2, E10.0, I2, X, I1 )                   FUND1060
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000111          IF (EOF,60)  750,135                                          FUND1070
000114      135 IF ( IEND .EQ. 3HEND) GO TO 210
000116          IF ( NCARD      .EQ. 0 )  ID = ICTC                           FUND1080
000121          NCARD = NCARD+1                                               FUND1090
000123          IF ( ICTC .EQ. ID )  GO TO 150                                FUND1100
000125          PRINT 140,  MCTC                                              FUND1110
000132      140 FORMAT ( * COMPONENT TYPE CODE DOES NOT MATCH*, I5 )          FUND1120
000132          GO TO 120                                                     FUND1130
000133      150 DO 160 J=1,MXXXX                                              FUND1140
000135          IF ( IPAR(J) .NE. 0 .AND. IPAR(J) .NE. MPC+1 )  GO TO 160     FUND1150
000145          IPAR(J) = MPC+1                                               FUND1160
000146          GO TO 180                                                     FUND1170
000147      160 CONTINUE                                                      FUND1180
000152          PRINT 170                                                     FUND1190
000155      170 FORMAT ( * MORE THAN 20 PARAMETER CODES* )                    FUND1200
000155          CALL EXIT                                                     FUND1210
000156      180 I = ICIR                                                      FUND1220
000160          IF ( I .EQ. 0 )  I = 50                                       FUND1230
000162          MDC = MDC+1                                                   FUND1240
000164          GO TO (190,200) MDC                                           FUND1250
000171      190 IF ( IFLAG .GT. 1 )  GO TO 195                                FUND1260
000175          PRE(I,J) = DATA                                               FUND1270
000201          ITMPRE(J) = ITEM                                              FUND1280
000203          GO TO 120                                                     FUND1290
000203      195 PRE1(I,J) = -1.                                               FUND1300
000210          PRE(I,J) = DATA                                               FUND1310
000211          GO TO 120                                                     FUND1320
000212      200 IF ( IFLAG .GT. 1 )  GO TO 205                                FUND1330
000216          POST(I,J) = DATA                                              FUND1340
000222          ITMPST(J) = ITEM                                              FUND1350
000224          GO TO 120                                                     FUND1360
000224      205 POST1(I,J) = -1.                                              FUND1370
000231          POST(I,J) = DATA                                              FUND1380
000232          GO TO 120                                                     FUND1390
000233      210 DO 220 I=1,MXXXX                                              FUND1400
000235          IF ( IPAR(I) .NE. 0 )  GO TO 220                              FUND1410
000236          MXPAR = I-1                                                   FUND1420
000240          GO TO 225                                                     FUND1430
000240      220 CONTINUE                                                      FUND1440
000243          MXPAR = 20
            C                                                                 FUND3320
            C                 PRINT PRE AND POST                              FUND3330
            C                                                                 FUND3340
000244      225 ID = ID+1                                                     FUND3350
000246          DO 510 J=1,MXPAR                                              FUND3360
000247          NME = IPAR(J)                                                 FUND3370
000251      510 IDPAR(J) = NMEPAR(NME)                                        FUND3380
000255          JBEG = -3                                                     FUND3390
000256      520 JBEG = JBEG+4                                                 FUND3400
000260          JEND = JBEG+3                                                 FUND3410
000262          IF ( JEND .GT. MXPAR )  JEND = MXPAR                          FUND3420
000265          PRINT 530,  ( NMEINS(J,ID), J=1,3 ), ( IDPAR(J), J=JBEG,JEND )  FUND3430
000307      530 FORMAT (1H1, //, 50X, 3A10, /, 14X,4(16X,A10) )               FUND3440
000307          PRINT 540, ( IBLANK, J=JBEG,JEND )                            FUND3450
000321      540 FORMAT ( 26X, 3(A2,*PRE         POST            * ) ,         FUND3460
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          1     A2, *PRE          POST* )                                    FUND3465
000321         PRINT 550,  ( ITMPRE(J), ITMPST(J), J=JBEG,JEND )            FUND3470
000336    550 FORMAT ( 18X, *TEMP =    *, 3(I2,*C*,9X,I2,*C*,13X),           FUND3480
          1     I2,*C*,9X,I2,*C* )                                           FUND3485
000336         I = 1                                                        FUND3490
000337         PRINT 560,  I, ( PRE(I,J), POST(I,J), J=JBEG,JEND )          FUND3500
000362    560 FORMAT ( 8X, *DEVICE  *, I2, 4X, 4(2E12.3,4X) )               FUND3510
000362         DO 580 I=2,50                                                FUND3520
000364         PRINT 570, I,(PRE(I,J), POST(I,J), J=JBEG,JEND )             FUND3530
000406    570 FORMAT ( 16X, I2, 4X, 4(2E12.3,4X) )                          FUND3540
000406    580 CONTINUE                                                      FUND3550
000410         IF (JEND .LT. MXPAR )  GO TO 520                             FUND3560
000413    230 DO 290 I=1,7                                                  FUND1450
000415         IP = 1                                                       FUND1460
000416    240 NMN = 0                                                       FUND1470
000417         NAVE = 0                                                     FUND1480
000420         NGP = NGRP(I)                                                FUND1490
000422         DO 260 J=1,NGP                                               FUND1500
000423         IG = IGRP(I,J)                                               FUND1510
000426         IF ( PRE(IG       ,IP) )  250,260,250                        FUND1520
          C                                                                 FUND1530
          C              BEGIN CALCULATING PRE-IRRADIATION MEAN             FUND1540
          C                                                                 FUND1550
000432    250 IF ( PRE1(IG       ,IP) ) 260,255,255                         FUND1560
000437    255 NMN = NMN+1                                                   FUND1570
000441         XMEAN(I,IP) = XMEAN(I,IP)+PRE(IG       ,IP)                FUND1580
000447    260 CONTINUE                                                      FUND1590
000452    265 DO 280 J=1,NGP
000454         IG = IGRP(I,J)                                               FUND1610
000457         IF ( POST(IG     ,IP) )  270,280,270                         FUND1620
000463    270 IF ( POST1(IG       ,IP)+PRE1(IG       ,IP))  280,272,272     FUND1630
000472    272 IF ( PRE(IG       ,IP) )  275,280,275                         FUND1640
          C                                                                 FUND1650
          C              BEGIN CALCULATING AVERAGE PARAMETRIC CHANGE        FUND1660
          C                                                                 FUND1670
000476    275 NAVE = NAVE+1                                                 FUND1680
000500         TEMP = POST(IG       ,IP)-PRE(IG       ,IP)                FUND1690
          C              XBAR(I,IP)/NAVE IS AVERAGE CHANGE                  FUND1700
000507         XBAR(I,IP) = XBAR(I,IP)+TEMP                                FUND1710
          C              XBARSQ IS USED IN CALCULATING FTESTS AND T TESTS    FUND1720
000512         XBARSQ(I,IP) = XBARSQ(I,IP)+TEMP*TEMP                       FUND1730
          C              PCT BEGINS CALCULATION FOR AVERAGE PERCENT CHANGE   FUND1740
000515         PCT(I,IP) = PCT(I,IP)+TEMP/PRE(IG       ,IP)                FUND1750
000523    280 CONTINUE                                                      FUND1760
000526         IF ( NAVE .NE. 0 )  GO TO 285
000527         IHAP = IHAP+1
000530         IHAPEN (IHAP,1) = I
000532         IHAPEN(IHAP,2) = IPAR(IP)
000534         DO 284 J = 1,NGP
000536         IG = IGRP(I,J)
000541         POST(IG,IP) = 1.0
000546    284 CONTINUE
000550         GO TO 265
000551    285 XNMN = NMN
000553         XMEAN(I,IP) = XMEAN(I,IP)/XNMN                               FUND1780
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000556          AVE(I,IP) = NAVE                                                FUND1790
000561          XBAR1(I,IP) = XBAR(I,IP)                                        FUND1800
000565          XBAR(I,IP) = XBAR(I,IP)/AVE(I,IP)                               FUND1810
          C               COMPUTE STANDARD DEVIATION                          FUND1820
000570          STD(I,IP) =SQRT((AVE(I,IP)*XBARSQ(I,IP)-XBAR1(I,IP)*XBAR1(I,IP) )/FUND1830
               1      ( (AVE(I,IP)-1. )*AVE(I,IP) ) )                         FUND1840
          C               COMPUTE  AVERAGE PERCENT CHANGE                     FUND1850
000607          PCT(I,IP) = PCT(I,IP)/AVE(I,IP)*100.                            FUND1860
          C               COMPUTE  PERCENT AVERAGE CHANGE                     FUND1870
000613          PCTA(I,IP)= XBAR(I,IP)/XMEAN(I,IP)*100.                         FUND1880
000617          S = (SQRT( (AVE(I,IP)*XBARSQ(I,IP)-XBAR1(I,IP)*XBAR1(I,IP) )/  FUND1890
               1      ( AVE(I,IP)*(AVE(I,IP)-1.) ) ) )/SQRT(AVE(I,IP) )       FUND1900
          C               COMPUTE INTERVAL ESTIMATES AS PERCENT OF THE INITIAL MEANFUND1910
000641          XNT1(I,IP) = ( XBAR(I,IP)-TALFA(NAVE)*S)/XMEAN(I,IP)*100.       FUND1920
000651          XNT2(I,IP) = ( XBAR(I,IP)+TALFA(NAVE)*S)/XMEAN(I,IP)*100.       FUND1930
000661          FSUMN(6,IP) = FSUMN(6,IP)+AVE(I,IP)                             FUND1940
000666          FSUMN1(6,IP) =FSUMN1(6,IP)+AVE(I,IP)-1.                         FUND1950
000673          XBR1SQ(6,IP) = XBR1SQ(6,IP)+XBAR1(I,IP)**2/AVE(I,IP)            FUND1960
000702          XBR1(6,IP) = XBR1(6,IP)+XBAR1(I,IP)                             FUND1970
000707          XBRSQ(6,IP) = XBRSQ(6,IP)+XBARSQ(I,IP)                          FUND1980
000713          IP = IP+1                                                       FUND1990
000714          IF ( IP .LE. MXPAR )  GO TO 240                                 FUND2000
000716      290 CONTINUE                                                        FUND2010
          C                                                                     FUND2020
          C               CALCULATE PRELIMINARY VALUES FOR F- AND T-TESTS      FUND2030
          C                                                                     FUND2040
000720          DO 300 J=1,MXPAR                                                FUND2050
000722          TEMP = XBAR1(7,J)**2/AVE(7,J)
000726          FSUMN(1,J) =              AVE(1,J)+AVE(2,J)+AVE(7,J)            FUND2060
000734          FSUMN(2,J) =              AVE(3,J)+AVE(4,J)+AVE(7,J)            FUND2070
000742          FSUMN(3,J) =              AVE(5,J)+AVE(6,J)+AVE(7,J)            FUND2080
000750          FSUMN(4,J) =              AVE(1,J)+AVE(3,J)+AVE(5,J)+AVE(7,J)   FUND2090
000760          FSUMN(5,J) =              AVE(2,J)+AVE(4,J)+AVE(6,J)+AVE(7,J)   FUND2100
000770          FSUMN1(1,J) = FSUMN (1,J)-3.                                    FUND2110
000776          FSUMN1(2,J) = FSUMN (2,J)-3.                                    FUND2120
001000          FSUMN1(3,J) = FSUMN (3,J)-3.                                    FUND2130
001002          FSUMN1(4,J) = FSUMN (4,J)-4.                                    FUND2140
001006          FSUMN1(5,J) = FSUMN (5,J)-4.                                    FUND2150
001010          XBR1SQ(1,J) =             XBAR1(1,J)*XBAR1(1,J)/AVE(1,J)+XBAR1(2,JFUND2160
               1      )*XBAR1(2,J)/AVE(2,J)+TEMP                               FUND2170
001021          XBR1SQ(2,J) =             XBAR1(3,J)**2/AVE(3,J)+XBAR1(4,J)**2/ FUND2180
               1      AVE(4,J)+TEMP                                            FUND2190
001031          XBR1SQ(3,J) =             XBAR1(5,J)**2/AVE(5,J)+XBAR1(6,J)**2/ FUND2200
               1      AVE(6,J)+TEMP                                            FUND2210
001041          XBR1SQ(4,J) =             XBAR1(1,J)**2/AVE(1,J)+XBAR1(3,J)**2/ FUND222
               1      AVE(3,J)+XBAR1(5,J)**2/AVE(5,J)+TEMP                     FUND2230
001055          XBR1SQ(5,J) =             XBAR1(2,J)**2/AVE(2,J)+XBAR1(4,J)**2/ FUND2240
               1      AVE(4,J)+XBAR1(6,J)**2/AVE(6,J)+TEMP                     FUND2250
001072          XBR1(1,J) =           XBAR1(1,J)+XBAR1(2,J)+XBAR1(7,J)          FUND2260
001100          XBR1(2,J) =           XBAR1(3,J)+XBAR1(4,J)+XBAR1(7,J)          FUND2270
001105          XBR1(3,J) =           XBAR1(5,J)+XBAR1(6,J)+XBAR1(7,J)          FUND2280
001112          XBR1(4,J) =           XBAR1(1,J)+XBAR1(3,J)+XBAR1(5,J)+XBAR1(7,J) FUND2290
001121          XBR1(5,J) =           XBAR1(2,J)+XBAR1(4,J)+XBAR1(6,J)+XBAR1(7,J) FUND2300
001130          XBRSQ(1,J) =            XBARSQ(1,J)+XBARSQ(2,J)+XBARSQ(7,J)     FUND2310
001135          XBRSQ(2,J) =            XBARSQ(3,J)+XBARSQ(4,J)+XBARSQ(7,J)     FUND2320
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001142          XBRSQ(3,J) =            XBARSQ(5,J)+XBARSQ(6,J)+XBARSQ(7,J)      FUND2330
001147          XBRSQ(4,J) =            XBARSQ(1,J)+XBARSQ(3,J)+XBARSQ(5,J)+     FUND2340
               1      XBARSQ(7,J)                                                FUND2350
001156          XBRSQ(5,J) =            XBARSQ(2,J)+XBARSQ(4,J)+XBARSQ(6,J)+     FUND2360
               1      XBARSQ(7,J)                                                FUND2370
001165       300 CONTINUE                                                       FUND2380
             C                                                                  FUND2390
             C              CALCULATE ARRAYS FOR T TESTS                        FUND2400
             C                                                                  FUND2410
001167          DO 320 J=1,MXPAR                                                FUND2420
001171          TSUMN1(1,J) =             AVE(1,J)+AVE(2,J)-2.                  FUND2430
001200          TSUMN1(2,J) =             AVE(3,J)+AVE(4,J)-2.                  FUND2440
001205          TSUMN1(3,J) =             AVE(5,J)+AVE(6,J)-2.                  FUND2450
001211          IG = 0                                                          FUND2460
001212          DO 310 I=4,9                                                    FUND2470
001214          IG = IG+1                                                       FUND2480
001216          TSUMN1(I,J) =             AVE(IG,J)+AVE(7,J)-2.                 FUND2490
001225          TXBRSQ(I,J) =             XBARSQ(IG,J)+XBARSQ(7,J)              FUND2500
001233          TXBR12(I,J) =             XBAR1(IG,J)**2/AVE(IG,J)+XBAR1(7,J)**2 FUND2510
               1      /AVE(7,J)                                                  FUND2520
001244       310 CONTINUE                                                       FUND2530
001246          TSUMN1(10,J) =              AVE(1,J)+AVE(3,J)-2.                FUND2540
001254          TSUMN1(11,J) =              AVE(1,J)+AVE(5,J)-2.                FUND2550
001261          TSUMN1(12,J) =              AVE(3,J)+AVE(5,J)-2.                FUND2560
001265          TSUMN1(13,J) =              AVE(2,J)+AVE(4,J)-2.                FUND2570
001272          TSUMN1(14,J) =              AVE(2,J)+AVE(6,J)-2.                FUND2580
001276          TSUMN1(15,J) =              AVE(4,J)+AVE(6,J)-2.                FUND2590
001303          TXBRSQ(1,J) =             XBARSQ(1,J)+XBARSQ(2,J)               FUND2600
001307          TXBRSQ(2,J) =             XBARSQ(3,J)+XBARSQ(4,J)               FUND2610
001313          TXBRSQ(3,J) =             XBARSQ(5,J)+XBARSQ(6,J)               FUND2620
001317          TXBRSQ(10,J) =              XBARSQ(1,J)+XBARSQ(3,J)             FUND2630
001323          TXBRSQ(11,J) =              XBARSQ(1,J)+XBARSQ(5,J)             FUND2640
001327          TXBRSQ(12,J) =              XBARSQ(3,J)+XBARSQ(5,J)             FUND2650
001333          TXBRSQ(13,J) =              XBARSQ(2,J)+XBARSQ(4,J)             FUND2660
001337          TXBRSQ(14,J) =              XBARSQ(2,J)+XBARSQ(6,J)             FUND2670
001343          TXBRSQ(15,J) =              XBARSQ(4,J)+XBARSQ(6,J)             FUND2680
001347          TXBR12(1,J) =             XBAR1(1,J)**2/AVE(1,J)+XBAR1(2,J)**2/ FUND2690
               1      AVE(2,J)                                                   FUND2700
001356          TXBR12(2,J) =             XBAR1(3,J)**2/AVE(3,J)+XBAR1(4,J)**2/ FUND2710
               1      AVE(4,J)                                                   FUND2720
001366          TXBR12(3,J) =             XBAR1(5,J)**2/AVE(5,J)+XBAR1(6,J)**2/ FUND2730
               1      AVE(6,J)                                                   FUND2740
001376          TXBR12(10,J) =              XBAR1(1,J)**2/AVE(1,J)+XBAR1(3,J)**2/ FUND2750
               1      AVE(3,J)                                                   FUND2760
001406          TXBR12(11,J) =              XBAR1(1,J)**2/AVE(1,J)+XBAR1(5,J)**2/ FUND2770
               1      AVE(5,J)                                                   FUND2780
001416          TXBR12(12,J) =              XBAR1(3,J)**2/AVE(3,J)+XBAR1(5,J)**2/ FUND2790
               1      AVE(5,J)                                                   FUND2800
001426          TXBR12(13,J) =              XBAR1(2,J)**2/AVE(2,J)+XBAR1(4,J)**2/ FUND2810
               1      AVE(4,J)                                                   FUND2820
001436          TXBR12(14,J) =              XBAR1(2,J)**2/AVE(2,J)+XBAR1(6,J)**2/ FUND2830
               1      AVE(6,J)                                                   FUND2840
001446          TXBR12(15,J) =              XBAR1(4,J)**2/AVE(4,J)+XBAR1(6,J)**2/ FUND2850
               1      AVE(6,J)                                                   FUND2860
001456       320 CONTINUE                                                       FUND2870
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C                                                                       FUND2880
C               CALCULATE F-TESTS                                       FUND2890
C                                                                       FUND2900
001461          DO 350 J=1,MXPAR                                        FUND2910
001462          DO 350 I=1,6                                            FUND2920
001463          FSSA(I,J) = XBR1SQ(I,J)-XBR1(I,J)*XBR1(I,J)/FSUMN(I,J)  FUND2930
001473          FSSW(I,J) = XBRSQ(I,J)-XBR1SQ(I,J)                      FUND2940
001477          FMSA(I,J) = FSSA(I,J)/XNUM(I)                           FUND2950
001502          FMSW(I,J) = FSSW(I,J)/FSUMN1(I,J)                       FUND2960
001506          FTEST(I,J) = FMSA(I,J)/FMSW(I,J)                        FUND2970
001512        350 CONTINUE                                              FUND2980
C                                                                       FUND2990
C               CALCULATE T-TESTS                                       FUND3000
C                                                                       FUND3010
001516          DO 460 J=1,MXPAR                                        FUND3020
001520          DO 460 I=1,15                                           FUND3030
001521          TSSW(I,J) = TXBRSQ(I,J)-TXBR12(I,J)                     FUND3040
001527        460 TMSW(I,J) = TSSW(I,J)/TSUMN1(I,J)                     FUND3050
001537          DO 500 J=1,MXPAR                                        FUND3060
001541          TTEST(1,J) = (XBAR(1,J)-XBAR(2,J) )/SQRT(TMSW(1,J)*(1./AVE(1,J)+  FUND3070
               1      1./AVE(2,J) ) )                                   FUND3080
001561          TTEST(2,J) = (XBAR(3,J)-XBAR(4,J) )/SQRT(TMSW(2,J)*(1./AVE(3,J)+  FUND3090
               1      1./AVE(4,J) ) )                                   FUND3100
001577          TTEST(3,J) = (XBAR(5,J)-XBAR(6,J) )/SQRT(TMSW(3,J)*(1./AVE(5,J)+  FUND3110
               1      1./AVE(6,J) ) )                                   FUND3120
001615          IG = 0                                                  FUND3130
001616          DO 480 I=4,9                                            FUND3140
001620          IG = IG+1                                               FUND3150
001622          TTEST(I,J) = (XBAR(IG,J)-XBAR(7,J))/SQRT(TMSW(I,J)*(1./AVE(IG,J)+  FUND3160
               1      1./AVE(7,J) ) )                                   FUND3170
001645        480 CONTINUE                                              FUND3180
001646          TTEST(10,J) = (XBAR(1,J)-XBAR(3,J) )/SQRT(TMSW(10,J)*(1./AVE(1,J)+FUND3190
               1      1./AVE(3,J) ) )                                   FUND3200
001664          TTEST(11,J) = (XBAR(1,J)-XBAR(5,J) )/SQRT(TMSW(11,J)*(1./AVE(1,J)+FUND3210
               1      1./AVE(5,J) ) )                                   FUND3220
001702          TTEST(12,J) = (XBAR(3,J)-XBAR(5,J) )/SQRT(TMSW(12,J)*(1./AVE(3,J)+FUND3230
               1      1./AVE(5,J) ) )                                   FUND3240
001720          TTEST(13,J) = (XBAR(2,J)-XBAR(4,J) )/SQRT(TMSW(13,J)*(1./AVE(2,J)+FUND3250
               1      1./AVE(4,J) ) )                                   FUND3260
001736          TTEST(14,J) = (XBAR(2,J)-XBAR(6,J) )/SQRT(TMSW(14,J)*(1./AVE(2,J)+FUND3270
               1      1./AVE(6,J) ) )                                   FUND3280
001754          TTEST(15,J) = (XBAR(4,J)-XBAR(6,J) )/SQRT(TMSW(15,J)*(1./AVE(4,J)+FUND3290
               1      1./AVE(6,J) ) )                                   FUND3300
001772        500 CONTINUE                                              FUND3310
C                                                                       FUND3570
C               PRINT OUT STATISTICAL, F- AND T-TESTS                   FUND3580
C                                                                       FUND3590
001775          JBEG = -6                                               FUND3600
001776        590 JBEG = JBEG+7                                         FUND3610
002000          JEND = JBEG+6                                           FUND3620
002002          IF ( JEND .GT. MXPAR )  JEND = MXPAR                    FUND3630
002005          I = 0                                                   FUND3640
002006        595 PRINT 600,  ( NMEINS(J,ID), J=1,3 ), (IDPAR(J), J=JBEG,JEND )  FUND3650
002030        600 FORMAT ( 1H1, //, 50X, 3A10, /, 34X, 7(A10,4X) )      FUND3660
002030        610 I = I+1                                               FUND3670
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002032          PRINT 620,  NMEGRP(I,1), NMEGRP(I,2), ( AVE(I,J), J=JBEG,JEND )    FUND3680
002051      620 FORMAT(1H0 8X,2A10 /, 10X, *NUMBER*, 14X, 7(12X,F2.0) )             FUND3690
002051          PRINT 630, ( XMEAN(I,J), J=JBEG,JEND )                             FUND3700
002065      630 FORMAT ( 10X, *INITIAL MEAN*, 8X, 7E14.3 )                         FUND3710
002065          PRINT 640,  ( XBAR(I,J), J=JBEG,JEND )                             FUND3720
002101      640 FORMAT ( 10X, *AVERAGE CHANGE*, 6X, 7E14.3 )                       FUND3730
002101          PRINT 650,  ( STD(I,J), J=JBEG,JEND )                              FUND3740
002115      650 FORMAT ( 10X, *STD OF MEAN*, 9X, 7E14.3 )                          FUND3750
002115          PRINT 660,  ( PCT(I,J), J=JBEG,JEND )                              FUND3760
002131      660 FORMAT ( 10X, *AVE PER CENT CHANGE *, 7E14.3 )                     FUND3770
002131          PRINT 670,  ( XNT1(I,J), J=JBEG,JEND )                             FUND3780
002145      670 FORMAT ( 10X, *INTERVAL ESTIMATE   *, 7E14.3 )                     FUND3790
002145          PRINT 680,  ( XNT2(I,J), J=JBEG,JEND )                             FUND3800
002161      680 FORMAT ( 10X, *     AS PER CENT    *, 7E14.3 )                     FUND3810
002161          PRINT 690,  ( PCTA(I,J), J=JBEG,JEND )                             FUND3820
002175      690 FORMAT ( 10X, *PER CENT AVE CHANGE *, 7E14.3, )                    FUND3830
002175          IF ( I .NE. 5 .AND. I .LT. 7 )  GO TO 610                          FUND3840
002205          IF ( I .EQ. 5 )  GO TO 595                                         FUND3850
002206          PRINT 700                                                          FUND3860
002211      700 FORMAT ( 1H0 8X, *F-TESTS* )                                       FUND3870
002211          DO 720 NF=1,6                                                      FUND3880
002213          PRINT 710,  IDF(NF), ( FTEST(NF,J), J=JBEG,JEND )                  FUND3890
002230      710 FORMAT(    10X,*GROUPS * A7, 6X, 7E14.3 )                          FUND3900
002230      720 CONTINUE                                                           FUND3910
002232          PRINT 730                                                          FUND3920
002236      730 FORMAT ( /, 8X, *T-TESTS* )                                        FUND3930
002236          DO 740 NT=1,15                                                     FUND3940
002240          PRINT 710,  IDT(NT), ( TTEST(NT,J), J=JBEG,JEND )                  FUND3950
002255      740 CONTINUE                                                           FUND3960
002257          IF ( JEND .LT. MXPAR )  GO TO 590                                  FUND3970
002262          IF ( IHAP .EQ. 0 )  GO TO 1
002263          PRINT 745
002266      745 FORMAT ( 1H1 // 6X, *ANY F- OR T-TESTS INVOLVING THE FOLLOWING* /
                1                   6X, *GROUPS WHICH HAD A SAMPLE SIZE OF ZERO* /
                2                   6X, *SHOULD BE CAREFULLY CONSIDERED.* //
                3                   6X, *          GROUP PARAMETER* )
002266          PRINT 746,  ( IHAPEN(I,1), IHAPEN(I,2), I=1,IHAP )
002303      746 FORMAT ( 1)X, 2I10 )
002303          GO TO 1
002304      750 CALL EXIT                                                          FUND3980
002305          END                                                                FUND3990
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Computer Program for Equivalent Circuit Study

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                PROGRAM EQUIV (INPUT,OUTPUT,TAPE60=INPUT)                                EQUI0000
      C                                                                                  EQUI0010
      C         THIS PROGRAM IS DESIGNED TO CALCULATE CERTAIN STATISTICAL                EQUI0020
      C         CHARACTERISTICS ABOUT MICROCIRCUITS AND TO COMPARE THESE                 EQUI0030
      C         CIRUITS AND CHARACTERISTICS BY MEANS OF F- AND T-TESTS.                  EQUI0040
      C                                                                                  EQUI0050
      C                INPUT AND DATA                                                    EQUI0060
000003          DIMENSION     PRE( 25,10,8), POST( 25,10,8), TALFA(     20)            EQUI0070
000003          DIMENSION     NMEPAR(    10), IDPAR(     10), NMEINS(   3,8)            EQUI0080
000003          DIMENSION     XNUM(       8), IDT(       21), ITMPRE(  10,8)            EQUI0090
000003          DIMENSION     ITMPST(  10,8), IDGRP(      3), PRET( 25,10,8)            EQUI0100
000003          DIMENSION     POSTT(25,10,8), IDTC(       3)                            EQUI0110
      C                CALCULATED ARRAYS FOR STATISTICAL COMPUTATION                     EQUI0120
000003          DIMENSION     AVE(   2,10,8), XMEAN( 2,10,8), XBAR(  2,10,8)            EQUI0130
000003          DIMENSION     XDIFF( 2,10,8), XBARSQ(2,10,8), STD(   2,10,8)            EQUI0140
000003          DIMENSION     PCT(   2,10,8), PCTA(  2,10,8), XNT1(  2,10,8)            EQUI0150
000003          DIMENSION     XNT2(  2,10,8)                                            EQUI0160
      C                CALCULATED ARRAYS FOR F-TESTS                                     EQUI0170
000003          DIMENSION     SUMN(    8,10), SUMN1(   8,10), FXDF(    8,10)           EQUI0180
000003          DIMENSION     FXDIF2(  8,10), FXBRSQ(  8,10), FSSA(    8,10)           EQUI0190
000003          DIMENSION     FSSW(    8,10), FMSA(    8,10), FMSW(    8,10)           EQUI0200
000003          DIMENSION     FTEST(   8,10)                                            EQUI0210
      C                CALCULATED ARRAYS FOR T-TESTS BY CIRCUIT                          EQUI0220
000003          DIMENSION     TSUMN1(3,10,7), TXDIF2(3,10,7), TXBRSQ(3,10,7)            EQUI0230
000003          DIMENSION     TMSW(  3,10,7), TTEST( 3,10,7)                            EQUI0240
      C                CALCULATED ARRAYS FOR T-TESTS FOR BIASED AND UNBIASED             EQUI0250
000003          DIMENSION     TSMN1(2,21,10), TXDF2(2,21,10), TXBR2(2,21,10)            EQUI0260
000003          DIMENSION     TXMSW(2,21,10), TTST( 2,21,10)                            EQUI0270
      C                CALCULATED ARRAYS FOR CONTROLS                                    EQUI0280
000003          DIMENSION     CAVE(      10), CXMEAN(    10), CXBAR(     10)           EQUI0290
000003          DIMENSION     CXDIFF(    10), CXBRSQ(    10), CSTD(      10)           EQUI0300
000003          DIMENSION     CPCT(      10), CPCTA(     10), CXNT1(     10)           EQUI0310
000003          DIMENSION     CXNT2(     10)                                           EQUI0320
      C                INSTRUMENT NAMES                                                  EQUI0330
000003           DATA         NME1NS/10HFAIRCHILD , 10HDT L962   , 10H          ,       EQUI0340
     7                              10HMOTOROLA D, 10HIELECT. IS, 10HOLATED CTS,       EQUI0410
     2                              10HPHILCO PL9, 10H62         , 10H          ,       EQUI0360
     3                              10HRADIATION , 10HR0242      , 10H          ,       EQUI0370
     4                              10HTEXAS INST, 10HRUMENT SN1, 10H5962       ,      EQUI0380
     5                              10HMOTOROLA M, 10HC962       , 10H          ,       EQUI0390
     6                              10HMOTOROLA S, 10HC1253      , 10H          ,       EQUI0400
     1                              10HFAIRCHILD , 10HDT L969    , 10H          /       EQUI0350
      C                PARAMETER NAMES                                                   EQUI0420
000003           DATA         NMEPAR/10H   V(OH)  , 10H   V(OL)  , 10H   V(IH)  ,      EQUI0430
     1                              10H   V(IL)  , 10H  I DRIVE , 10H I LEAKAGE,      EQUI0440
     2                              10HRESISTANCE,                 10H   T(DF)  ,      EQUI0450
     3                              10H   T(DR)  , 10H   GAIN   /                      EQUI0460
000003           DATA         IDPAR/17,18,19,20,23,21,8,53,24,25/                       EQUI0470
      C                T(ALPHA) TABLE                                                    EQUI0480
000003           DATA         TALFA/0.,12.71,4.303,3.182,2.776,2.571,2.447,2.365,       EQUI0490
     1      2.306,2.262,2.228,2.201,2.179,2.160,2.145,2.131,2.120,2.110,               EQUI0500
     2      2.101,2.093/                                                               EQUI0510
000003           DATA         XNUM/1.,1.,1.,1.,1.,1.,1.,7./                             EQUI0520
000003           DATA         IDT/4H1-2 ,4H1-3 ,4H1-4 ,4H1-5 ,4H1-6 ,4H1-7 ,           EQUI0530
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     1                  4H2-3 ,4H2-4 ,4H2-5 ,4H2-6 ,4H2-7 ,4H3-4 ,        EQUI0540
     2                  4H3-5 ,4H3-6 ,4H3-7 ,4H4-5 ,4H4-6 ,4H4-7 ,        EQUI0550
     3                  4H5-6 ,4H5-7 ,4H6-7 /                             EQUI0560
000003       DATA          IDTC/  10HGROUPS A-B, 10HGROUPS A-C, 10HGROUPS B-C/ EQUI0570
000003       DATA          IBLANK/10H          /                           EQUI0580
000003       DATA          IDGRP/ 10HBIASED-A  , 10HUNBIASED-B, 10HCONTROLS-C/ EQUI0590
      C                                                                    EQUI0600
      C              ZERO OUT STORAGE                                      EQUI0610
      C                                                                    EQUI0620
000003       DO 100 K=1,8                                                  EQUI0630
000005       DO 100 J=1,10                                                 EQUI0640
000006       DO 100 I=1,25                                                 EQUI0650
000007       PRE(I,J,K) = 0.                                               EQUI0660
000015       POST(I,J,K) = 0.                                              EQUI0670
000021       PRET(I,J,K) = 0.                                              EQUI0680
000026   100 POSTT(I,J,K) = 0.                                             EQUI0690
      C                                                                    EQUI0710
      C              READ DATA CARD                                        EQUI0720
      C                                                                    EQUI0730
000037   110 READ 120,  MDC, MPC, ICTC, ICIR, DATA, ITEM, IFLAG            EQUI0740
000061   120 FORMAT ( 1)X, I1, 3I2, E10.0, I2, X, I1 )                     EQUI0750
000061       IF (EOF,60)  210,130                                          EQUI0760
000064   130 K = ICTC-9                                                    EQUI0770
000066       IF ( K.EQ.2 )  K = 8                                          EQUI0772
000071       IF ( K.EQ.8 )  K = 2                                          EQUI0775
000074       DO 140 J=1,10                                                 EQUI0780
000076       IF ( MPC .EQ. IDPAR(J) )  GO TO 150                           EQUI0790
000100   140 CONTINUE                                                      EQUI0800
000102       PRINT 145,  MPC                                               EQUI0810
000107   145 FORMAT ( * PARAMETER MEASUREMENT CODE, NO MATCH*, I5 )        EQUI0820
000107       GO TO 110                                                     EQUI0830
000110   150 I = ICIR                                                      EQUI0840
000112       MDC = MDC+1                                                   EQUI0850
000113       GO TO (160,180)  MDC                                          EQUI0860
000121   160 IF ( IFLAG .GT. 1 )  GO TO 170                                EQUI0870
000125       PRE(I,J,K) = DATA                                             EQUI0880
000133       ITMPRE(J,K) = ITEM                                            EQUI0890
000136       GO TO 110                                                     EQUI0900
000137   170 PRET(I,J,K) = -1.                                             EQUI0910
000146       PRE(I,J,K) =  DATA                                            EQUI0920
000153       GO TO 110                                                     EQUI0930
000153   180 IF ( IFLAG .GT. 1 )  GO TO 190                                EQUI0940
000157       POST(I,J,K) = DATA                                            EQUI0950
000165       ITMPST(J,K) = ITEM                                            EQUI0960
000170       GO TO 110                                                     EQUI0970
000171   190 POSTT(I,J,K) = -1.                                            EQUI0980
000200       POST(I,J,K) = DATA                                            EQUI0990
000205       GO TO 110                                                     EQUI1000
      C              PRINT PRE AND POST INFORMATION                        EQUI2820
000205   210 DO 700 K=1,7                                                  EQUI2830
000207       JBEG = -3                                                     EQUI2840
000210   630 JBEG = JBEG+4                                                 EQUI2850
000212       JEND = JBEG+3                                                 EQUI2860
000214       IF ( JEND .GT. 9  )  JEND = 9                                 EQUI2870
000217       PRINT 640,  ( NMEINS(I,K), I=1,3 ), ( NMEPAR(J), J=JBEG,JEND ) EQUI2880
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000241      640 FORMAT ( 1H1 /// 50X, 3A10, // 30X, 4(A10,16X) )                    EQUI2890
000241          PRINT 650,  ( IBLANK, J=JBEG,JEND )                                 EQUI2900
000253      650 FORMAT ( 26X, 4(A2,*PRE         POST*, 9X) )                        EQUI2910
000253          PRINT 660,  ( ITMPRE(J,K), ITMPST(J,K), J=JBEG,JEND )               EQUI2920
000273      660 FORMAT ( 18X, *TEMP =*, 4X, 4(I2,*C*,9X,I2,*C*,11X) )               EQUI2930
000273          I = 1                                                               EQUI2940
000274          PRINT 670,  I, ( PRE(I,J,K), POST(I,J,K), J=JBEG,JEND )             EQUI2950
000323      670 FORMAT ( 8X, *DEVICE  *, I2, 2X, 4(2X,2E12.3) )                     EQUI2960
000323          DO 690 I=2,25                                                       EQUI2970
000325          PRINT 680, I, ( PRE(I,J,K), POST(I,J,K), J=JBEG,JEND )              EQUI2980
000353      680 FORMAT ( 16X, I2, 2X, 4(2X,2E12.3) )                                EQUI2990
000353      690 CONTINUE                                                            EQUI3000
000355          IF ( JEND .LT.  9 )  GO TO 630                                      EQUI3010
000360      700 CONTINUE                                                            EQUI3020
000362          DO 220 J=1,10                                                       EQUI1020
000363          CXMEAN(J) = 0.                                                      EQUI1030
000364          CXBAR(J) = 0.                                                       EQUI1040
000365          CXBRSQ(J) = 0.                                                      EQUI1050
000366          CPCT(J) = 0.                                                        EQUI1060
000367          DO 220 K=1,7                                                        EQUI1010
000371          TSUMN1(1,J,K) = 0.
000375          TXDIF2(1,J,K) = 0.
000400          TXBRSQ(1,J,K) = 0.
000404          DO 220 I=1,2                                                        EQUI1070
000405          XMEAN(I,J,K) = 0.                                                   EQUI1080
000411          XBAR(I,J,K) = 0.                                                    EQUI1090
000414          XBARSQ(I,J,K) = 0.                                                  EQUI1100
000417      220 PCT(I,J,K) = 0.                                                     EQUI1110
000430          DO 230 J=1,10                                                       EQUI1120
000431          DO 230 I=1,8                                                        EQUI1130
000432          SUMN(I,J) = 0.                                                      EQUI1140
000435          SUMN1(I,J) = 0.                                                     EQUI1150
000436          FXDF(I,J) = 0.                                                      EQUI1160
000437          FXDIF2(I,J) = 0.                                                    EQUI1170
000441      230 FXBRSQ(I,J) = 0.                                                    EQUI1180
000445          DO 440 K=1,7                                                        EQUI1190
000447          DO 440 JP=1,9                                                       EQUI1200
000450          JBEG = -9                                                           EQUI1210
000451          DO 400 I=1,2                                                        EQUI1220
000453          JBEG = JBEG+10                                                      EQUI1230
000455          JEND = 10                                                           EQUI1240
000456          IF ( I .EQ. 2 )  JEND = 15                                          EQUI1250
000460          NMN = 0                                                             EQUI1260
000461          NAVE = 0                                                            EQUI1270
000462          DO 290 J=JBEG,JEND                                                  EQUI1280
000463          IF ( PRE(J,JP,K) )  270,290,270                                     EQUI1290
000471      270 IF ( PRET(J,JP,K) )  290,280,280                                    EQUI1300
000500      280 NMN = NMN+1                                                         EQUI1310
          C                 CALCULATE PRE-IRRADIATION MEAN                        EQUI1320
000502          XMEAN(I,JP,K) = XMEAN(I,JP,K)+PRE(J,JP,K)                           EQUI1330
000513      290 CONTINUE                                                            EQUI1340
000516          DO 330 J=JBEG,JEND                                                  EQUI1350
000520          IF ( POST(J,JP,K) )  300,330,300                                    EQUI1360
000526      300 IF ( POSTT(J,JP,K)+PRET(J,JP,K) )  330,310,310                      EQUI1370
000540      310 IF ( PRE(J,JP,K) )  320,330,320                                     EQUI1380
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000546      320 NAVE = NAVE+1                                                   EQUI1390
000550          TEMP = POST(J,JP,K)-PRE(J,JP,K)                                 EQUI1400
            C               CALCULATE AVERAGE CHANGE AND AVERAGE PER CENT CHANGE EQUI1410
000562          XBAR(I,JP,K) = XBAR(I,JP,K)+TEMP                                EQUI1420
000567          XBARSQ(I,JP,K) = XBARSQ(I,JP,K)+TEMP*TEMP                       EQUI1430
000573          PCT(I,JP,K) = PCT(I,JP,K)+TEMP/PRE(J,JP,K)                      EQUI1440
000602      330 CONTINUE                                                        EQUI1450
000605          XNMN = NMN                                                      EQUI1460
000606          XMEAN(I,JP,K) = XMEAN(I,JP,K)/XNMN                              EQUI1470
000613          AVE(I,JP,K) = NAVE                                              EQUI1480
000617          XDIFF(I,JP,K) = XBAR(I,JP,K)                                    EQUI1490
000626          XBAR(I,JP,K) = XBAR(I,JP,K)/AVE(I,JP,K)                         EQUI1500
000630          TEMP = ABS( AVE(I,JP,K)*XBARSQ(I,JP,K)-XDIFF(I,JP,K)**2 )
            C               COMPUTE STANDARD DEVIATION                      EQUI1510
000636          STD(I,JP,K) =SQRT(TEMP/                                         EQUI1520
               1      ((AVE(I,JP,K)-1. )*AVE(I,JP,K) ) )                       EQUI1530
000651          PCT(I,JP,K) = PCT(I,JP,K)/AVE(I,JP,K)*100.                      EQUI1540
            C               COMPUTE PERCENT AVERAGE CHANGE                  EQUI1550
000655          PCTA(I,JP,K) = XBAR(I,JP,K)/XMEAN(I,JP,K)*100.                  EQUI1560
000662          S = STD(I,JP,K)/SQRT(AVE(I,JP,K)    )                           EQUI1570
000672          XNT1(I,JP,K) = ( XBAR(I,JP,K)-TALFA(NAVE)*S)/XMEAN(I,JP,K)*100. EQUI1590
000703          XNT2(I,JP,K) = ( XBAR(I,JP,K)+TALFA(NAVE)*S)/XMEAN(I,JP,K)*100. EQUI1600
000715          SUMN(K,JP) = SUMN(K,JP)+AVE(I,JP,K)                             EQUI1610
000723          SUMN(8,JP) = SUMN(8,JP)+AVE(I,JP,K)                             EQUI1620
000731          SUMN1(K,JP) = SUMN1(K,JP)+AVE(I,JP,K)-1.                        EQUI1630
000740          SUMN1(8,JP) = SUMN1(8,JP)+AVE(I,JP,K)-1.                        EQUI1640
000747          FXDIF2(K,JP) = FXDIF2(K,JP)+XDIFF(I,JP,K)**2/AVE(I,JP,K)        EQUI1650
000757          FXDIF2(8,JP) = FXDIF2(8,JP)+XDIFF(I,JP,K)**2/AVE(I,JP,K)        EQUI1660
000766          FXDF(K,JP) = FXDF(K,JP)+XDIFF(I,JP,K)                           EQUI1670
000774          FXDF(8,JP) = FXDF(8,JP)+XDIFF(I,JP,K)                           EQUI1680
001002          FXBRSQ(K,JP) = FXBRSQ(K,JP)+XBARSQ(I,JP,K)                      EQUI1690
001010          FXBRSQ(8,JP) = FXBRSQ(8,JP)+XBARSQ(I,JP,K)                      EQUI1700
001016          TSUMN1(1,JP,K) = TSUMN1(1,JP,K)+AVE(I,JP,K)-1.                  EQUI1710
001027          TXDIF2(1,JP,K) = TXDIF2(1,JP,K)+XDIFF(I,JP,K)**2/AVE(I,JP,K)    EQUI1720
001041          TXBRSQ(1,JP,K) = TXBRSQ(1,JP,K)+XBARSQ(I,JP,K)                  EQUI1730
001050      400 CONTINUE                                                        EQUI1740
001052      440 CONTINUE                                                        EQUI1750
            C               CALCULATE CONTROL VALUES                        EQUI1760
001056          DO 510 JP=1,9                                                   EQUI1770
001057          NAVE = 0                                                        EQUI1780
001060          NMN = 0                                                         EQUI1790
001061          K = -1                                                          EQUI1795
001062      445 K= K+2                                                          EQUI1800
001064      450 DO 470 I=22,25                                                  EQUI1810
001066          IF ( PRE(I,JP,K) )  455,470,455                                 EQUI1820
001074      455 IF ( PRET(I,JP,K) )  470,460,460                                EQUI1830
001103      460 NMN = NMN+1                                                     EQUI1840
            C               CALCULATE PRE-IRRADIATION MEAN                  EQUI1850
001105          CXMEAN(JP) = CXMEAN(JP)+PRE(I,JP,K)                             EQUI1860
001114      470 CONTINUE                                                        EQUI1870
001116          DO 490 I=22,25                                                  EQUI1880
001120          IF ( POST(I,JP,K) )  475,490,475                                EQUI1890
001126      475 IF ( PRET(I,JP,K)  +POSTT(I,JP,K) )  490,480,480               EQUI1900
001140      480 IF ( POSTT(I,JP,K) )  490,485,485                               EQUI1910
001147      485 NAVE = NAVE+1                                                   EQUI1920
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001151          TEMP = POST(I,JP,K)-PRE(I,JP,K)                                 EQUI1930
      C                 CALCULATE AVERAGE CHANGE                                EQUI1940
001163          CXBAR(JP) = CXBAR(JP)+TEMP                                      EQUI1950
001165          CXBRSQ(JP) = CXBRSQ(JP)+TEMP*TEMP                               EQUI1960
001167          CPCT(JP) = CPCT(JP)+TEMP/PRE(I,JP,K)                            EQUI1970
001174      490 CONTINUE                                                        EQUI1980
001176          IF ( K .EQ. 6 )  GO TO 500
001200          IF ( K .NE. 5 )  GO TO 445                                      EQUI1990
001202          K = 6                                                           EQUI2000
001203          GO TO 450                                                       EQUI2010
001203      500 CONTINUE                                                        EQUI2020
001203          XNMN = NMN                                                      EQUI2030
001205          CXMEAN(JP) = CXMEAN(JP)/XNMN                                    EQUI2040
001207          CAVE(JP) = NAVE                                                 EQUI2050
001211          CXDIFF(JP) = CXBAR(JP)                                          EQUI2060
001212          CXBAR(JP) = CXBAR(JP)/CAVE(JP)                                  EQUI2070
      C                 COMPUTE STANDARD DEVIATION, AVE. PCT. CHANGE, PCT. AVE. EQUI2080
      C                 CHANGE                                                  EQUI2090
001214          CSTD(JP) = SQRT((CAVE(JP)*CXBRSQ(JP)-CXDIFF(JP)**2 )/           EQUI2100
     1          (CAVE(JP)*(CAVE(JP)-1.) ) )
001227          CPCT(JP) = CPCT(JP)/CAVE(JP)*100.                               EQUI2110
001232          CPCTA(JP)= CXBAR(JP)/CXMEAN(JP)*100.                            EQUI2120
      C                 CALCULATE INTERVAL ESTIMATES                            EQUI2130
001234          S = CSTD(JP)/SQRT(CAVE(JP) )
001241          CXNT1(JP) = ( CXBAR(JP)-TALFA(NAVE)*S)/CXMEAN(JP)*100.          EQUI2140
001246          CXNT2(JP) = ( CXBAR(JP)+TALFA(NAVE)*S)/CXMEAN(JP)*100.          EQUI2150
001253          DO 510 I=1,8                                                    EQUI2160
001255          SUMN(I,JP) = SUMN(I,JP)+CAVE(JP)                                EQUI2170
001261          SUMN1(I,JP) = SUMN1(I,JP)+CAVE(JP)-1.                           EQUI2180
001265          FXDIF2(I,JP) = FXDIF2(I,JP)+CXDIFF(JP)**2/CAVE(JP)              EQUI2190
001272          FXDF(I,JP) = FXDF(I,JP)+CXDIFF(JP)                              EQUI2200
001276          FXBRSQ(I,JP) = FXBRSQ(I,JP)+CXBRSQ(JP)                          EQUI2210
001301      510 CONTINUE                                                        EQUI2220
      C                 CALCULATE F-TESTS                                       EQUI2230
001305          DO 520 JP=1,9                                                   EQUI2240
001306          DO 520 I=1,8                                                    EQUI2250
001307          FSSA(I,JP) = FXDIF2(I,JP)-FXDF(I,JP)**2/SUMN(I,JP)             EQUI2260
001317          FSSW(I,JP) = FXBRSQ(I,JP)-FXDIF2(I,JP)                          EQUI2270
001324          FMSA(I,JP) =FSSA(I,JP)/XNUM(I)                                  EQUI2280
001327          FMSW(I,JP) =FSSW(I,JP)/SUMN1(I,JP)                              EQUI2290
001333      520 FTEST(I,JP) = FMSA(I,JP)/FMSW(I,JP)                             EQUI2300
      C                 CALCULATE ARRAYS FOR T-TESTS BY CIRCUIT                 EQUI2310
001343          DO 550 K=1,7                                                    EQUI2320
001344          DO 550 JP=1,9                                                   EQUI2330
001345          DO 550 I=2,3                                                    EQUI2340
001346          IM1 = I-1                                                       EQUI2350
001350          TSUMN1(I,JP,K) = AVE(IM1,JP,K)+CAVE(JP)-2.                      EQUI2360
001361          TXDIF2(I,JP,K) = XDIFF(IM1,JP,K)**2/AVE(IM1,JP,K)+CXDIFF(JP)**2/ EQUI2370
     1       CAVE(JP)                                                           EQUI2380
001400          TXBRSQ(I,JP,K)=XBARSQ(IM1,JP,K)+CXBRSQ(JP)                      EQUI2390
001410      550 CONTINUE                                                        EQUI2400
      C                 CALCULATE T-TESTS BY DEVICE                             EQUI2410
001416          DO 570 K=1,7                                                    EQUI2420
001417          DO 560 JP=1,9                                                   EQUI2430
001420          DO 560 I=1,3                                                    EQUI2440
```

```
001421      560 TMSW(I,JP,K) = ( TXBRSQ(I,JP,K)-TXDIF2(I,JP,K) )/TSUMN1(I,JP,K)    EQUI2450
001443          DO 570 JP=1,9                                                      EQUI2460
001445          TTEST(1,JP,K) = ( XBAR(1,JP,K)-XBAR(2,JP,K))/SQRT(TMSW(1,JP,K)*   EQUI2470
                1       (1./AVE(1,JP,K)+1./AVE(2,JP,K) ) )                       EQUI2480
001476          TTEST(2,JP,K) = ( XBAR(1,JP,K)-CXBAR(JP))/SQRT(TMSW(2,JP,K)*      EQUI2490
                1       (1./AVE(1,JP,K)+1./CAVE(JP) ) )                          EQUI2500
001520          TTEST(3,JP,K) = ( XBAR(2,JP,K)-CXBAR(JP))/SQRT(TMSW(3,JP,K)*      EQUI2510
                1       (1./AVE(2,JP,K)+1./CAVE(JP) ) )                          EQUI2520
001542      570 CONTINUE                                                           EQUI2530
            C               CALCULATE ARRAYS FOR T-TESTS COMPARING DEVICES         EQUI2540
001546          DO 600 JP=1,9                                                      EQUI2550
001550          DO 600 I=1,2                                                       EQUI2560
001551          NT = 0                                                             EQUI2570
001552          DO 600 K=1,6                                                       EQUI2580
001554          KP1 = K+1                                                          EQUI2590
001556          DO 600 KK=KP1,7                                                    EQUI2600
001560          NT = NT+1                                                          EQUI2610
001562          TSMN1(I,NT,JP) = AVE(I,JP,K)+AVE(I,JP,KK)-2.                      EQUI2620
001577          TXDF2(I,NT,JP) = XDIFF(I,JP,K)**2/AVE(I,JP,K)+XDIFF(I,JP,KK)**2/  EQUI2630
                1       AVE(I,JP,KK)                                             EQUI2640
001621          TXBR2(I,NT,JP) = XBARSQ(I,JP,K)+XBARSQ(I,JP,KK)                   EQUI2650
001632      600 CONTINUE                                                           EQUI2660
            C               CALCULATE T-TESTS COMPARING DEVICES                    EQUI2670
001642          DO 610 JP=1,9                                                      EQUI2680
001643          DO 610 NT=1,21                                                     EQUI2690
001644          DO 610 I=1,2                                                       EQUI2700
001645      610 TXMSW(I,NT,JP)=ABS(TXBR2(I,NT,JP)-TXDF2(I,NT,JP) )/TSMN1(I,NT,JP) EQUI2710
001671          DO 620 JP=1,9                                                      EQUI2720
001673          DO 620 I=1,2                                                       EQUI2730
001674          NT = 0                                                             EQUI2740
001675          DO 620 K=1,6                                                       EQUI2750
001677          KP1 = K+1                                                          EQUI2760
001701          DO 620 KK=KP1,7                                                    EQUI2770
001703          NT = NT+1                                                          EQUI2780
001705          TTST(I,NT,JP) = ( XBAR(I,JP,K)-XBAR(I,JP,KK) )/SQRT(TXMSW(I,NT,JP)EQUI2790
                1       *(1./AVE(I,JP,K)+1./AVE(I,JP,KK) ) )                    EQUI2800
001742      620 CONTINUE                                                           EQUI2810
            C               PRINT STATISTICAL INFORMATION                          EQUI3030
001752          DO 850 K=1,7                                                       EQUI3040
001754          JBEG = -4                                                          EQUI3050
001755      710 JBEG = JBEG+5                                                      EQUI3060
001757          JEND = JBEG+4                                                      EQUI3070
001761          IF ( JEND .GT. 9 )  JEND = 9
001764          PRINT 720,  ( NMEINS(I,K), I=1,3 ), ( NMEPAR(J), J=JBEG,JEND )    EQUI3080
002006      720 FORMAT ( 1H1, // 50X, 3A10, // 40X, 5(A10,6X) )                    EQUI3090
002006          DO 810 I=1,2                                                       EQUI3100
002010          PRINT 730,  IDGRP(1), ( AVE(I,J,K), J=JBEG,JEND )                  EQUI3110
002027      730 FORMAT(1H0,7X,A10,/ 10X, *NUMBER*  18X, 5(14X,F2.0) )              EQUI3120
002027          PRINT 740,  ( XMEAN(I,J,K),  J=JBEG,JEND )                         EQUI3130
002045      740 FORMAT ( 10X, *INITIAL MEAN* 12X, 5E16.3 )                         EQUI3140
002045          PRINT 750,  ( XBAR(I,J,K), J=JBEG,JEND )                           EQUI3150
002063      750 FORMAT ( 10X, *AVERAGE CHANGE*  10X, 5E16.3 )                      EQUI3160
002063          PRINT 760,  ( STD(I,J,K), J=JBEG,JEND )                            EQUI3170
002101      760 FORMAT ( 10X, *STD OF MEAN*  13X, 5E16.3 )                         EQUI3180
002101          PRINT 770,  ( PCT(I,J,K), J=JBEG,JEND )                            EQUI3190
```

```
002117      770 FORMAT ( 10X, *AVE PER CENT CHANGE*  5X, 5E16.3 ) '                EQUI3200
002117          PRINT 780,  ( XNT1(I,J,K), J=JBEG,JEND )                           EQUI3210
002135      780 FORMAT ( 10X, *INTERVAL ESTIMATE*  7X, 5E16.3 )                    EQUI3220
002135          PRINT 790,  ( XNT2(I,J,K), J=JBEG,JEND )                           EQUI3230
002153      790 FORMAT ( 10X, *     AS PER CENT*  8X, 5E16.3 )                     EQUI3240
002153          PRINT 800,  ( PCTA(I,J,K), J=JBEG,JEND )                           EQUI3250
002171      800 FORMAT ( 10X, *PER CENT AVE CHANGE*  5X, 5E16.3)                   EQUI3260
002171      810 CONTINUE                                                           EQUI3270
002173          PRINT 730,  IDGRP(3), ( CAVE(J), J=JBEG,JEND )                     EQUI3280
002210          PRINT 740,  ( CXMEAN(J), J=JBEG,JEND )                             EQUI3290
002223          PRINT 750,  ( CXBAR(J), J=JBEG,JEND )                              EQUI3300
002236          PRINT 760,  ( CSTD(J), J=JBEG,JEND )                               EQUI3310
002251          PRINT 770,  ( CPCT(J), J=JBEG,JEND )                               EQUI3320
002264          PRINT 780,  ( CXNT1(J), J=JBEG,JEND )                              EQUI3330
002277          PRINT 790,  ( CXNT2(J), J=JBEG,JEND )                              EQUI3340
002312          PRINT 800,  ( CPCTA(J), J=JBEG,JEND )                              EQUI3350
002325          PRINT 820,  ( FTEST(K,J), J=JBEG,JEND )                            EQUI3360
002341      820 FORMAT ( 1H0, 7X, *F-TEST*  / 10X, *GROUPS A-B-C*  12X, 5E16.3 )   EQUI3370
002341          PRINT 825
002345      825 FORMAT ( 1H0 7X, *T-TESTS* )
               1      8X, *T-TESTS* )                                             EQUI3380
002345          DO 840 I=1,3                                                       EQUI3390
002347          PRINT 830,  IDTC(I), ( TTEST(I,J,K), J=JBEG,JEND )                 EQUI3400
002366      830 FORMAT ( 10X, A10, 14X, 5E16.3 )                                   EQUI3410
002366      840 CONTINUE                                                           EQUI3420
002370          IF ( JEND .LT. 9  )  GO TO 710                                     EQUI3430
002373      850 CONTINUE                                                           EQUI3440
002375          JBEG = -4                                                          EQUI3450
002376      860 JBEG = JBEG+5                                                      EQUI3460
002400          JEND = JBEG+4                                                      EQUI3470
002402          IF ( JEND .GT. 9 )  JEND = 9
002405          PRINT 870,  ( NMLPAR(J), J= JBEG,JEND )                            EQUI3480
002420      870 FORMAT ( 1H1, // 50X, *CORRELATION BETWEEN CIRCUIT TYPES*,//  38X,EQUI3500
               1      5(A10,6X) )                                                 EQUI3510
002420          PRINT 875,  ( FTEST(8,J), J=JBEG,JEND )
002433      875 FORMAT ( 8X, *F-TEST* / 10X, *ALL CIRCUIT TYPES* 5X, 5E16.3 )
               2      5(E16.3) )                                                  EQUI3520
002433          DO 920 I=1,2                                                       EQUI3530
002435          IF ( I .EQ. 1 )  PRINT 880                                         EQUI3540
002442          IF ( I .EQ. 2 )  PRINT 890                                         EQUI3550
002450      880 FORMAT ( 1H0, 7X, *T-TESTS COMPARING BIASED CIRCUIT TYPES* )       EQUI3560
002450      890 FORMAT ( 1H0, 7X, *T-TESTS COMPARING UNBIASED CIRCUIT TYPES* )     EQUI3570
002450          DO 910 NT=1,21                                                     EQUI3580
002452          PRINT 900,  IDT(NT), ( TTST(I,NT,J), J=JBEG,JEND )                 EQUI3590
002471      900 FORMAT ( 10X, *CIRCUITS  *  A4, 8X, 5E16.3 )                       EQUI3600
002471      910 CONTINUE                                                           EQUI3610
002473      920 CONTINUE                                                           EQUI3620
002475          IF ( JEND .LT.  9 )  GO TO 860                                     EQUI3630
002500          CALL EXIT                                                          EQUI3640
002501          END                                                                EQUI3650
```

Computer Program to Read Dymec-Data-Acquisition-System Tape

```
      PROGRAM TPREAD (INPUT,OUTPUT,TAPE30,PUNCH)
      C
      C                                                THIS PROGRAM READS PAPER***
      C                                                TAPE, PRINTS TABLES, AND***
      C                                                WRITES THE DATA ON MAG*****
      C                                                TAPE
      C
000003      DIMENSION    INP(   100), ICHECK(  22), ICPM(   22), ITEMP(  10)
000003      DIMENSION    ICMMNT(  8)
000003      DIMENSION    DATAPT(20,40,4),FLUNCE(  40,4), FLOG(    40,4)
000003      DIMENSION    CHAN21(   40,4),CHAN23(  40,4), IPAR(       4)
000003      DIMENSION    IDEVTP(      2)
      C
      C                                                DECODER TABLE          *****
      C
000003      INTEGER      TSW
000003      DATA         ICHECK/ 40B,  1B,  2B, 23B,  4B, 25B, 26B,  7B, 10B,
     1                         31B,172B,160B,100B,166B,122B,124B, 20B,177B,
     2                         43B,130B,200B,141B/
000003      DATA         ICPM/    0,   1,   2,   3,   4,   5,   6,   7,   8,
     1                            9, 1HE, 1H+, 1H-, 1HA, 1HA, 1HA, 1HS, 1HF,
     2                        1HT, 1HO, 1HW, 1HV/
      C
      C                                                TAPE MARKS             *****
      C
000003      DATA         IBEGIN, IEND/ 111B, 222B/
      C
      C                                                READ DATA DESCRIPTION *****
      C
000003      READ 1,  IDEVTP, IPAR, NP, FMEV
000017    1 FORMAT ( 6A10, I10, E10.0 )
000017      PRINT 10,  IDEVTP, IPAR, NP, FMEV
000033   10 FORMAT ( 1X, 6A10, I10, F5.1 )
000033      DO 40 K=1,3
000035      DO 40 J=1,40
000036      FLUNCE(J,K) = 0.
000041      FLOG(J,K) = 0.
000043      CHAN21(J,K) = 0.
000044      CHAN23(J,K) = 0.
000045      DO 40 I=1,10
000047      DATAPT(I,J,K) = 0.
000055   40 CONTINUE
000064      NF = 1
000065      IP = 1
000066      IFRAME = 0
000067      IT = 1
000070      ISW = 0
      C
      C                                                FIND BEGINNING OF TAPE*****
      C
000071      IB = 1
000072      TSW = 0
000073   100 READ (30)   ( INP(I), I=1,100 )
000104      IFRAME = IFRAME+100
```

```
000106          DO 110 I=IB,100
000110          IF ( INP(I) .EQ. IBEGIN )  GO TO 120
000112      110 CONTINUE
000114          GO TO 100
000114      120 IF ( I .LE. 100 )  GO TO 140
000117      130 READ (30)  ( INP(I), I=1,100 )
000130          IFRAME = IFRAME+100
000132          I = 1
000133      140 IB = I
000135          DO 150 I=IB,100
000136          IF ( INP(I) .EQ. ICHECK(11) )  GO TO 160
000140      150 CONTINUE
000142          GO TO 130
000142      160 IF ( I+1.LE.100 )  GO TO 180
000145      170 READ (30) ( INP(I), I=1,100 )
000156          IFRAME = IFRAME+100
000160          I = 0
000161          IF ( TSW .EQ. 1 )  GO TO 310
000163      180 I  = I+1
000165      200 CONTINUE
            C
            C                                       CHECK FOR END OF SCAN, ETC.*****
            C
000165          IF ( INP(I) .EQ. ICHECK(21) )  GO TO 300
000170          IF ( INP(I) .EQ. 08 )  GO TO 500
000172          IF ( INP(I) .EQ. IEND )  GO TO 1000
000174          IF ( INP(I) .EQ. ICHECK(19) )  GO TO 310
000176      205 IF ( INP(I) .EQ. ICHECK(11) )  GO TO 500
000201          IF ( INP(I) .EQ. ICHECK(17) )  GO TO 500
000203          IF ( IT .EQ. 3 )  GO TO 230
            C
            C                                       FIND CORRESPONDING VALUE IN*****
            C                                       TABLE                      *****
            C
000205          DO 210 J=1,10
000206          IF ( INP(I) .EQ. ICHECK(J) )  GO TO 250
000211      210 CONTINUE
000213          PRINT 220,  INP(I), IT
000222      220 FORMAT ( * BAD DATA * 03, * FRAME NUMBER* I3 )
000222          ITEMP(IT) = 0
000224          IT = IT+1
000225          IF ( IT .GT. 10 )  GO TO 260
000230          GO TO 500
000230      230 DO 240 J=12,13
000232          IF ( INP(I) .EQ. ICHECK(J) )  GO TO 250
000235      240 CONTINUE
000237          IF ( INP(I) .EQ. ICHECK(22) )  GO TO 250
000241          PRINT 220,  INP(I), IT
000251          ITEMP(IT) = 1H
000253          IT = IT+1
000254          GO TO 500
000255      250 ITEMP(IT) = ICPM(J)
000260          IT = IT+1
000261          IF ( IT .LE. 10 )  GO TO 500
            C
```

```
C                                                  WORD IS COMPLETE'          *****
C
000263      260 ICHAN = ITEMP(1)*10+ITEMP(2)
000266          ISIGN = ITEMP(3)
000270          IDATA = ITEMP(4)*100000+ITEMP(5)*10000+ITEMP(6)*1000+ITEMP(7)*100+
               1      ITEMP(8)*10+ITEMP(9)
000304          ILOG = ITEMP(10)
000306          PRINT 270,  ICHAN, ISIGN, IDATA, ILOG
000321      270 FORMAT ( I3, A1, I6, I1 )
000321          IF ( ICHAN .GT. 25 )  GO TO 279
C
C                                                  STORE DATA                 *****
C
000325          IF ( ISIGN .EQ. 1H- )  IDATA = -1*IDATA
000331          FDATA = IDATA
000333          IF ( ICHAN .GT. 20 )  GO TO 271
000336          DATAPT(ICHAN,NF,IP) = FDATA/10.**(ILOG)
000347          GO TO 279
000347      271 NUM = ICHAN-20
000351          GO TO (272,273,274,275,276)  NUM
000361      272 CHAN21(NF,IP) = FDATA/10.**ILOG
000371          GO TO 279
000371      274 CHAN23(NF,IP) = FDATA/10.**ILOG
000401          GO TO 279
000401      273 FLOG(NF,IP) = FDATA/10.**ILOG+8.0
000412          GO TO 279
000412      275 FLUNCE(NF,IP) = FDATA/10.**ILOG+0.2
000423          GO TO 279
000423      276 IDATA = FLUNCE(NF,IP)
000427          IPOWER = FDATA/10.**ILOG+0.2
000436          FLUNCE(NF,IP) = IDATA*10.**IPOWER
000445          IP = IP+1
000447          IF ( IP .LE. NP )  GO TO 279
000451          IP = 1
000452          NF = NF+1
000453          IF ( NF.LE. 40 )  GO TO 279
000455          PRINT 277
000461      277 FORMAT ( * MORE THAN 40 FLUENCE POINTS*)
000461          NF = NF-1
000463      279 IT = 1
000464      280 I = I+1
C
C                                                  CHECK FOR END OF WORD      *****
C
000466          IF ( I .GT. 100 )  GO TO 510
000471          IF ( INP(I) .EQ. 0B )  GO TO 280
000473          IF ( INP(I) .EQ. ICHECK(17) )  GO TO 280
000475      285 IF ( INP(I) .EQ. ICHECK(21) )  GO TO 300
000500          PRINT 290,  INP(I)
000505      290 FORMAT ( * 11TH FRAME NOT END OF WORD * 03 )
000505          GO TO 280
000506      300 I = I+1
C
C                                                  CHECK FOR TIME             *****
C
```

```
000510          IF ( I .GT. 100 )  GO TO 510
000513          IF ( INP(I) .EQ. 0B )  GO TO 300
000515          IF ( INP(I) .NE. ICHECK(19) )  GO TO 205
000517      310 TSW = 1
000520      320 I = I+1
000522          IF ( I .GT. 100 )  GO TO 510
000525          IF ( INP(I) .NE. ICHECK(21) )  GO TO 320
000527          TSW = 0
000530      500 I = I+1
000532          IF ( I .LE.100 )  GO TO 200
000534      510 GO TO 170
000535     1000 CONTINUE
000535          PRINT 1010,  IFRAME
000543     1010 FORMAT ( I20, * FRAMES* )
000543     1100 IBEG = -9
000544          NF = NF-1
000546          ND = 0
000547     1110 IBEG = IBEG+10
000551          ND = ND+1
000552          IEND = IBEG+9
000554          DO 1180 K=1,NP
000555          PRINT 1120,  IDEVTP(ND), FMEV, IPAR(K), ( J, J=1,10 )
000573     1120 FORMAT ( 1H1 // 50X, A10, *  AT  * F4.1, * MEV* /
               1 54X, A10 / 13X, *FLUENCE* 12X, 10(I2,8X) )
000573          DO 1150 J=1,NF
000575          PRINT 1130,  FLUNCE(J,K), ( DATAPT(I,J,K), I=IBEG,IEND )
000617     1130 FORMAT ( 5X, E15.6, 4X, 10F10.6 )
000617          PUNCH 1140,  ( IDEVTP(ND), IPAR(K), DATAPT(I,J,K), FLUNCE(J,K),
               1             FMEV, I=IBEG,IEND )
000650     1140 FORMAT ( 2A10, F10.6, E10.1, F5.1 )
000650     1150 CONTINUE
000653          PRINT 1160,  IDEVTP(ND), FMEV, IPAR(K)
000664     1160 FORMAT ( 1H1 // 50X, A10, *  AT  * F4.1, * MEV* /
               1 54X, A10 /
               2 13X, *FLUENCE* 12X, *21* 8X, *23    LOG FLUENCE*)
000664          PRINT 1170,  ( FLUNCE(J,K), CHAN21(J,K), CHAN23(J,K), FLOG(J,K),
               1 J=1,NF )
000713     1170 FORMAT ( 5X, E15.6, 4X, 2F10.6, 6X, F10.6 )
000713     1180 CONTINUE
000716          IF ( IBEG .EQ. 1 )  GO TO 1110
000720          CALL EXIT
000721          END
```

Computer Program to Plot Circuit Output Voltage vs. Fluence

```
      PROGRAM PLOTPT (INPUT,OUTPUT,PLOT,TAPE60=INPUT,TAPE99=PLOT)
C
C                                THIS PROGRAM PLOTS FROM CARDS PUNCHED*****
C                                BY A PREVIOUS PROGRAM. IT CALCULATES *****
C                                THE MAX, MIN, AND MEAN OF A SET OF   *****
C                                DATA POINTS AND PLOTS THESE VERSUS THE*****
C                                ELECTRON FLUENCE.                    *****
C
C                                INPUT ARRAYS                         *****
C
000003       DIMENSION     IX(      8), IY(      8), DATAPT(  10,50)
000003       DIMENSION     IPT(    10), FLUNCE( 52), IANNOT(     3)
C                                CALCULATED ARRAYS                    *****
C
000003       DIMENSION     FMAX(   50), FMIN(   50), FMEAN(      50), Y(   100)
000003       DIMENSION     JANNOT(  3), KANNOT(  3)
000003       KANNOT(1) = 10HELECTRON F
000005       KANNOT(2) = 10HLUENCE (F/
000006       KANNOT(3) = 10HCM )
000010       CALL NAMPLT
000011       CALL PLOT ( 0.0,-0.5,-3 )
C
C                                READ IN CONTROL VARIABLES            *****
C
000014         1 READ 100,  IX
000022       100 FORMAT ( 8A10 )
000022           IF (EOF,60)  1000,110
000025       110 READ 100,  IY
000033           READ 100,  IANNOT
000041           READ 120,  NPNT, IPT
000051       120 FORMAT ( 11I5 )
000051           READ 130,  FACTOR
000057       130 FORMAT ( E10.0 )
000057           PRINT 100,  IX
000065           PRINT 100,  IY
000073           PRINT 100,  IANNOT
000101           PRINT 120,  NPNT, IPT
000111           PRINT 135,  FACTOR
000117       135 FORMAT ( F10.2 )
C
C                                READ DATA                            *****
C
000117           DO 160 J=1,50
000121           READ 140,  ICRCT, IPAR, DATAPT(1,J), FLUNCE(J), FMEV
000140       140 FORMAT ( 2A10, F10.6, F10.1, F5.1 )
000140           DATAPT(1,J) = DATAPT(1,J)*FACTOR
000144           IF ( ICRCT .EQ. 3HEND )  GO TO 170
000146           DO 150 I=2,10
000147           READ 140,  IC, ITEMP, DATAPT(I,J)
C                                IS IDENTIFICATION THE SAME           *****
000162           IF ( IC .EQ. ICRCT )  GO TO 145
000164           PRINT 142,  IC, ITEMP, ICRCT, IPAR
000200       142 FORMAT ( * IDENTIFICATION INCORRECT * 4A10 )
000200           CALL EXIT
```

```
000201      145 DATAPT(I,J) = DATAPT(I,J)*FACTOR
000205      150 CONTINUE
000207      160 CONTINUE
000211      170 NUMF = J-1
000213          PRINT 179,  NUMF
000221      179 FORMAT ( I10, *  FLUENCE PTS * )
            C
            C                                CALCULATE THE MIN, MAX, AND MEAN      *****
            C
000221          DO 200 J=1,NUMF
000223          ISW = 0
000224          I = 0
000225      171 I = I+1
000227          I1 = IPT(I)
000231          IF ( DATAPT(I1,J) .NE. 0. )  GO TO 172
000234          ISW = ISW+1
000236          GO TO 171
000236      172 TMAX = DATAPT(I1,J)
000242          TMIN = DATAPT(I1,J)
000243          TMEAN = DATAPT(I1,J)
000245          IF (NPNT.EQ. 1 )  GO TO 190
000247          I2 = I +1
000250          DO 180  I=I2,NPNT
000251          I1 = IPT(I)
000253          IF ( DATAPT(I1,J) .EQ. 0. )  GO TO 175
000256          IF ( DATAPT(I1,J) .GT. TMAX )  TMAX = DATAPT(I1,J)
000264          IF ( DATAPT(I1,J) .LT. TMIN )  TMIN = DATAPT(I1,J)
000274          TMEAN = TMEAN+DATAPT(I1,J)
000300          GO TO 180
000301      175 ISW = ISW+1
000303      180 CONTINUE
000306      190 FMAX(J) = TMAX
000310          FMIN(J) = TMIN
000312          FMEAN(J) = TMEAN/(NPNT-ISW)
000316      200 CONTINUE
            C
            C                                ESTABLISH ARRAYS FOR SCALING          *****
            C
000320          I=0
000321          DO 210 J=1,NUMF
000322          I = I+1
000324          Y(I) = FMAX(J)
000326      210 CONTINUE
000330          DO 220 J=1,NUMF
000331          I = I+1
000333          Y(I) = FMIN(J)
000335      220 CONTINUE
000337          N = 2*NUMF
            C
            C                                SET UP SCALE                          *****
            C
000340          CALL SCALE  ( Y,6.0,N,1)
000343          DO 230 J=1,2
000345          FMAX(NUMF+J) = Y(N+J)
000351          FMIN(NUMF+J) = Y(N+J)
```

```
000353          FMEAN(NUMF+J) = Y(N+J)
000356      230 CONTINUE
000360          CALL SCALOG ( FLUNCE,8.0,NUMF,1)
                C
                C                               DRAW THE AXES                   *****
                C
000363          CALL AXIS  ( 1.0,1.5,IY,66,6.0,90.0,Y(N+1),Y(N+2),0)
000400          CALL LGAXIS ( 1.0,1.5,KANNOT,-30,8.0,0.0,FLUNCE(NUMF+1),
                1 FLUNCE(NUMF+2) )
                C
                C                           PUT EXTRA ANNOTATION ON GRAPH       *****
                C
000414          CALL SYMBOL ( 5.82,1.1,.1,1H2,0.0,1 )
000420          CALL SYMBOL ( .86,1.0,.14,3HPRE,0.0,3 )
000424          CALL SYMBOL ( 1.0,.75,.14,IX,0.0,80 )
                C                           ELECTRON ENERGY                     *****
000430          CALL SYMBOL ( 1.5,7.6,.14,IANNOT,0.0,30 )
                C
                C                               PLOT CURVES                     *****
                C
000434      238 CALL PLOT ( 1.0,1.5,-3 )
000437          IF (NPNT.EQ. 1 )  GO TO 240
000441          CALL LGLINE ( FLUNCE,FMAX,NUMF,1,-1,1,-1 )
000450          CALL LGLINE ( FLUNCE,FMIN,NUMF,1,-1,2,-1 )
000457      240 CALL LGLINE ( FLUNCE,FMEAN,NUMF,1,-1,11,-1 )
                C
                C                               MOVE PEN                        *****
                C
000466          CALL PLOT ( 10.0,-2.0,-3 )
000471          GO TO 1
000472     1000 CALL ENDPLT
000473          CALL EXIT
000474          END
```