



38度发烧友

BBS.38HOT.NET




34401 fluke 187



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38Hot Volt-Nuts --38Hot Volt-Nuts > Solartron 7081 Repairing



fluke 87v



TDS220



GDM-8055 (GDM-8055)

DL1740 500M

6612C



1454



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iddqd2001

Solartron 7081 Repairing

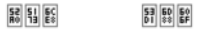
0: 2011-10-16

Hi everyone, I recently purchased a Solartron 7081 DMM. It's one of the first model, dated Apr. 1984, without input leads:

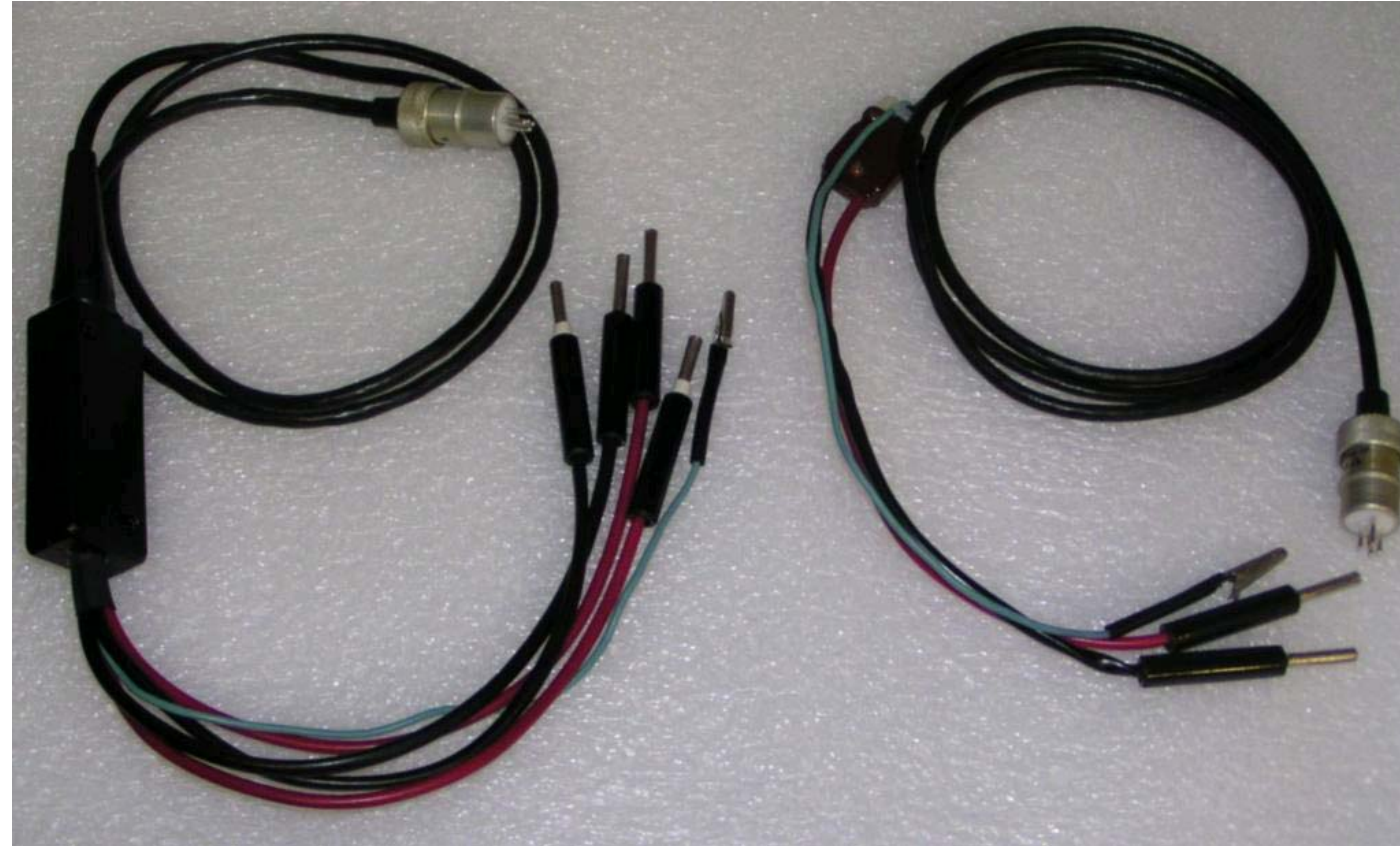




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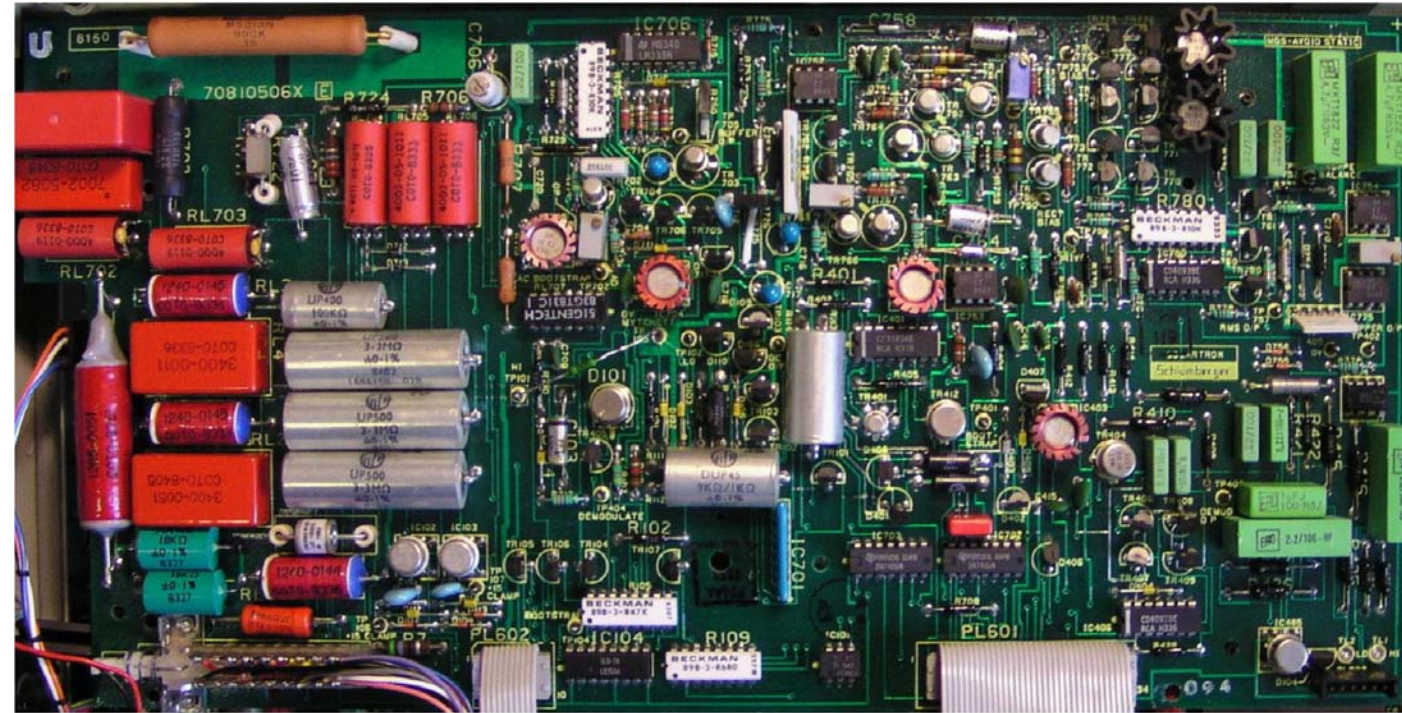




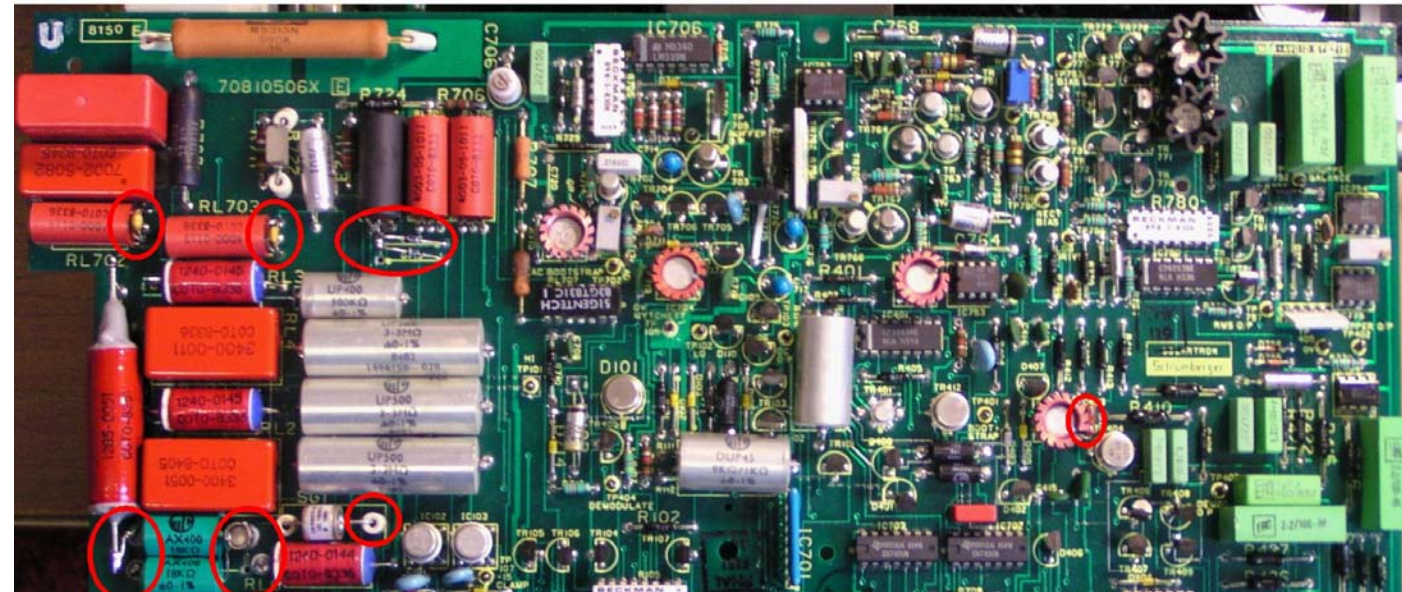
After some testing I suspect that 7081 not as close to accurate as it could be due to aging and storage in a humid environment. My test showed good accuracy, but the huge input bias current and suspiciously large noise. After 8 hours of heating at 25 Celsius degrees input current was 330 pA causing a zero shift in the short-circuited input – 12 μ V (internal protection resistance at the Hi input is 36 kOhms). Standard warm-up procedure after prolonged low-temperature storage did not help. One of the problem was found in the input amplifier and DC selector: surface and volumetric leakage in the PCB from the relays power supply channel (- 10 V), especially in places that are not protected by guard traces. After checking each critical item in the input circuits (attenuator, DC ranging, input amplifier with MDM channel) and

installing the PTFE bushings and insulators input bias has been reduced down to 1-2 pA!

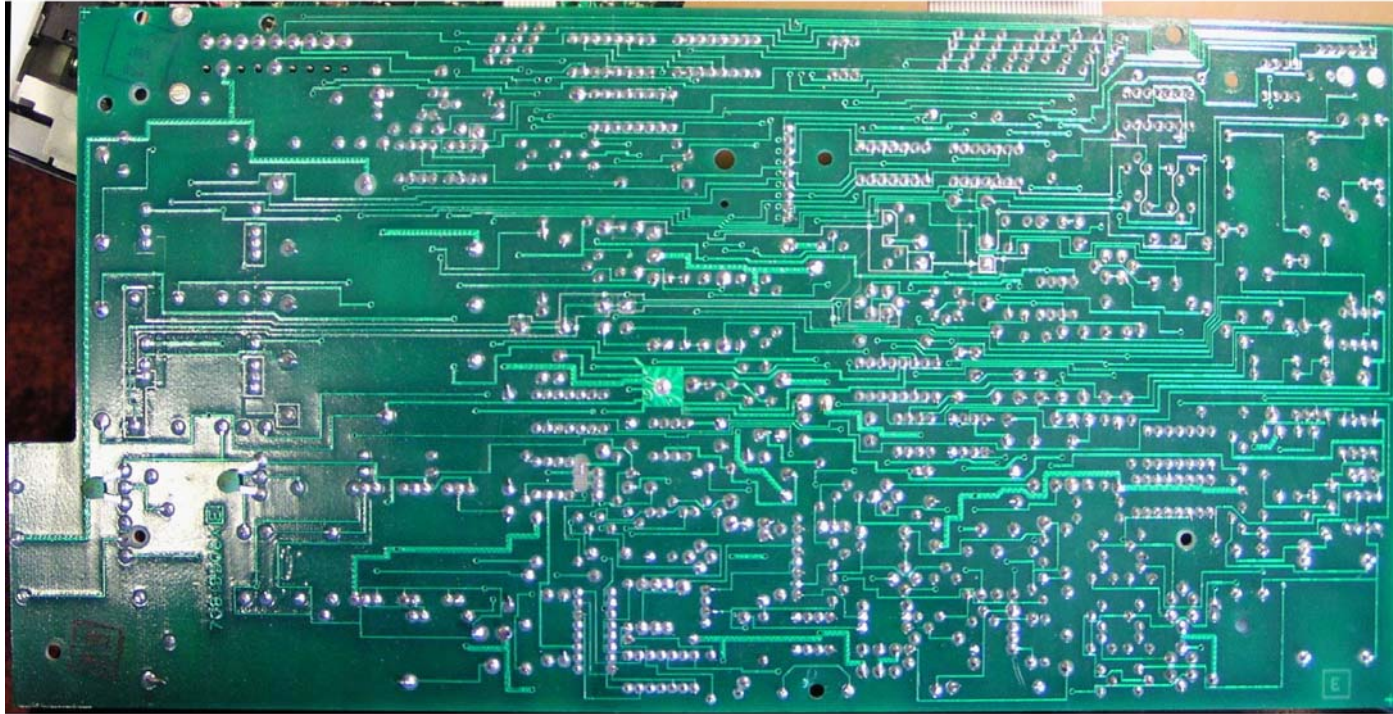
BEFORE



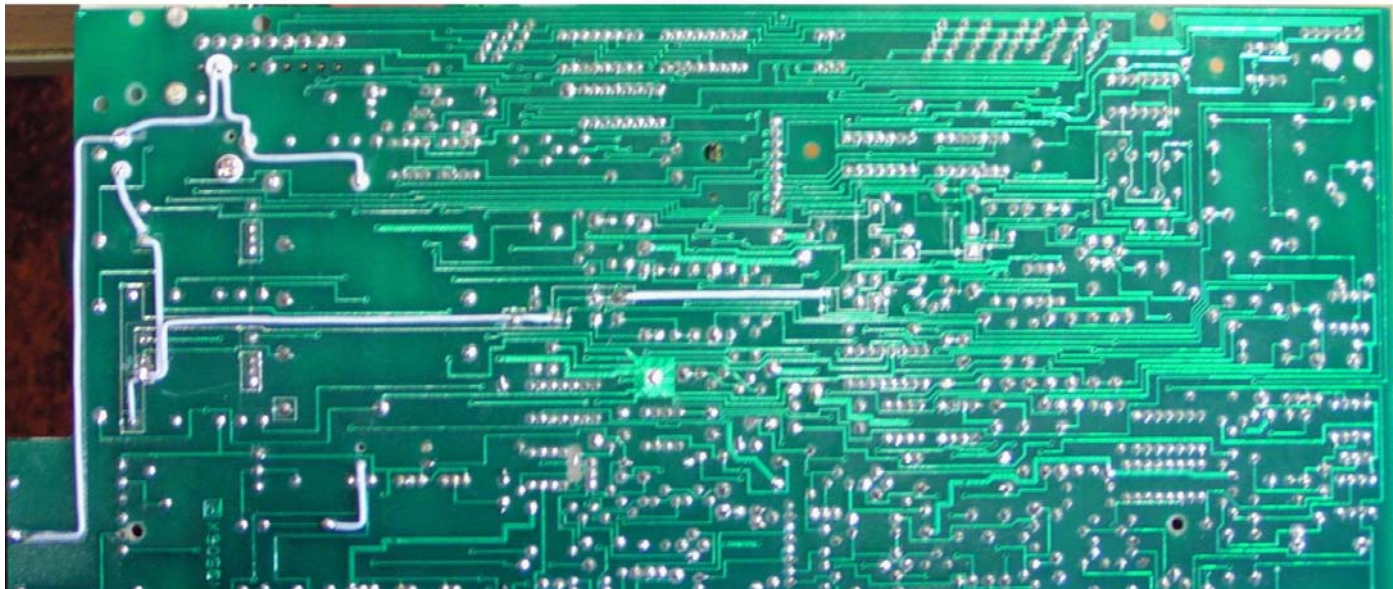
AFTER



BEFORE

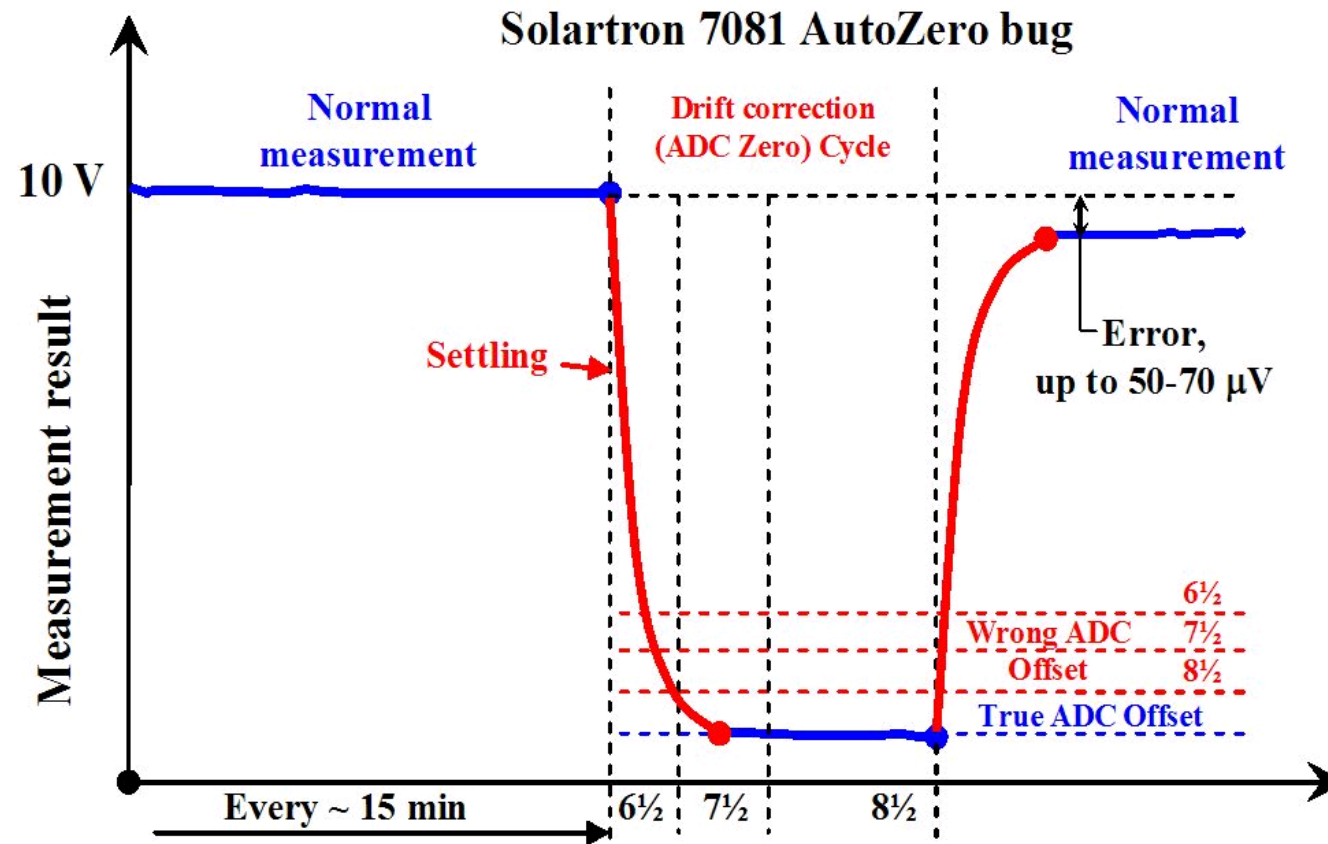


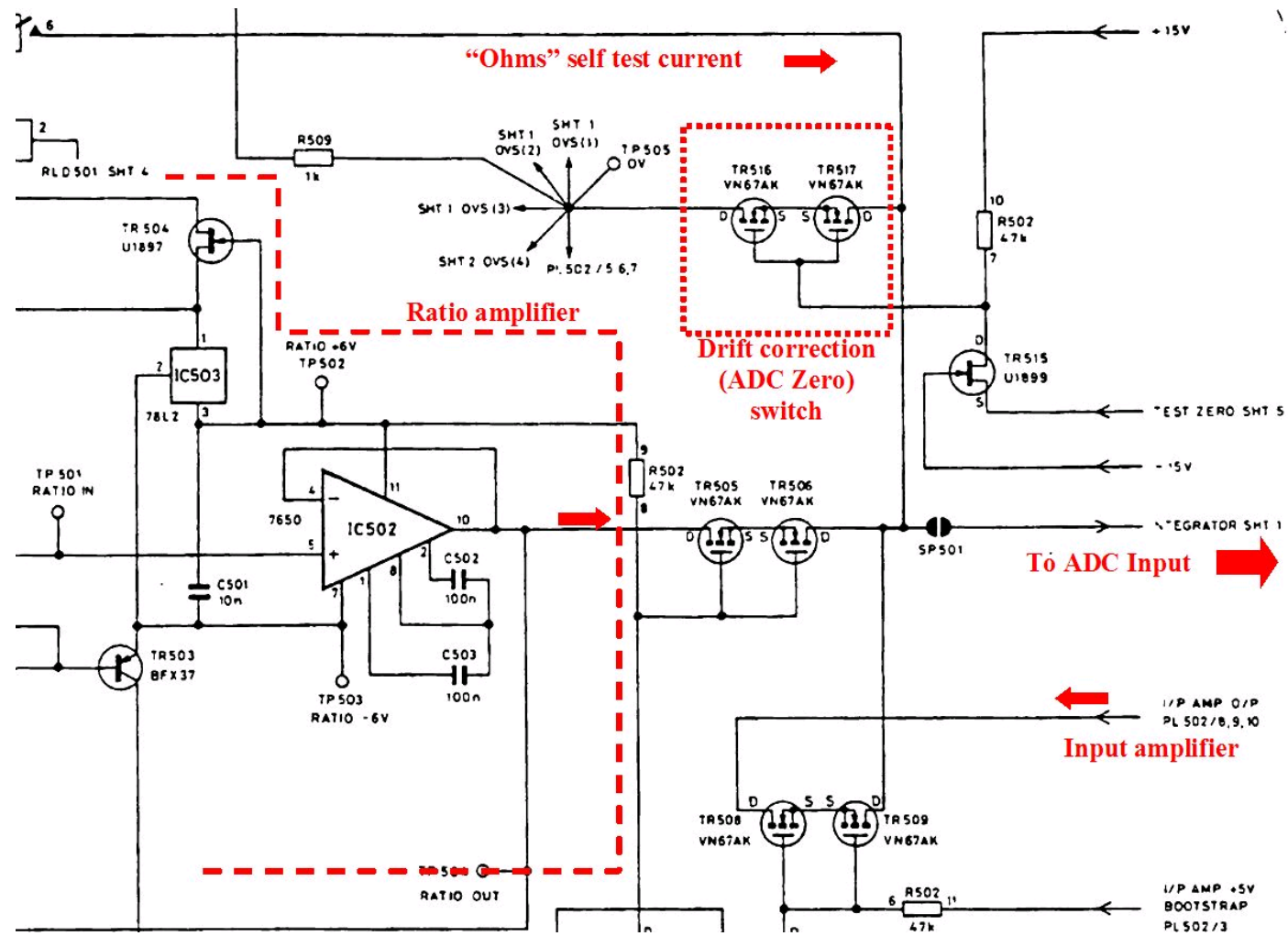
AFTER

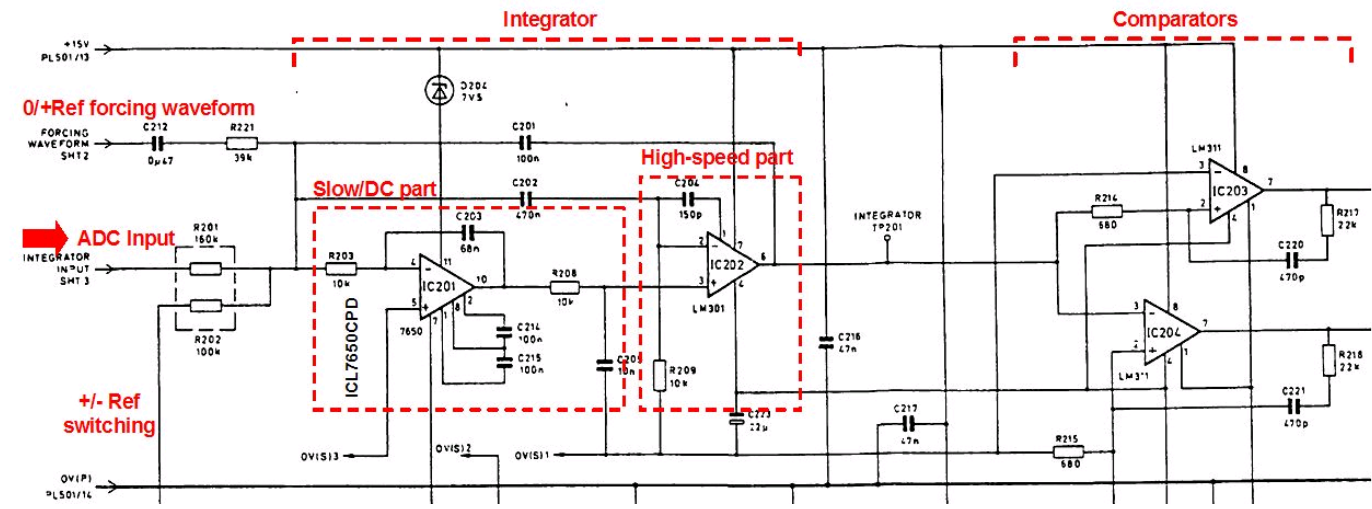


After analyzing of the results it seems that the next problems are:

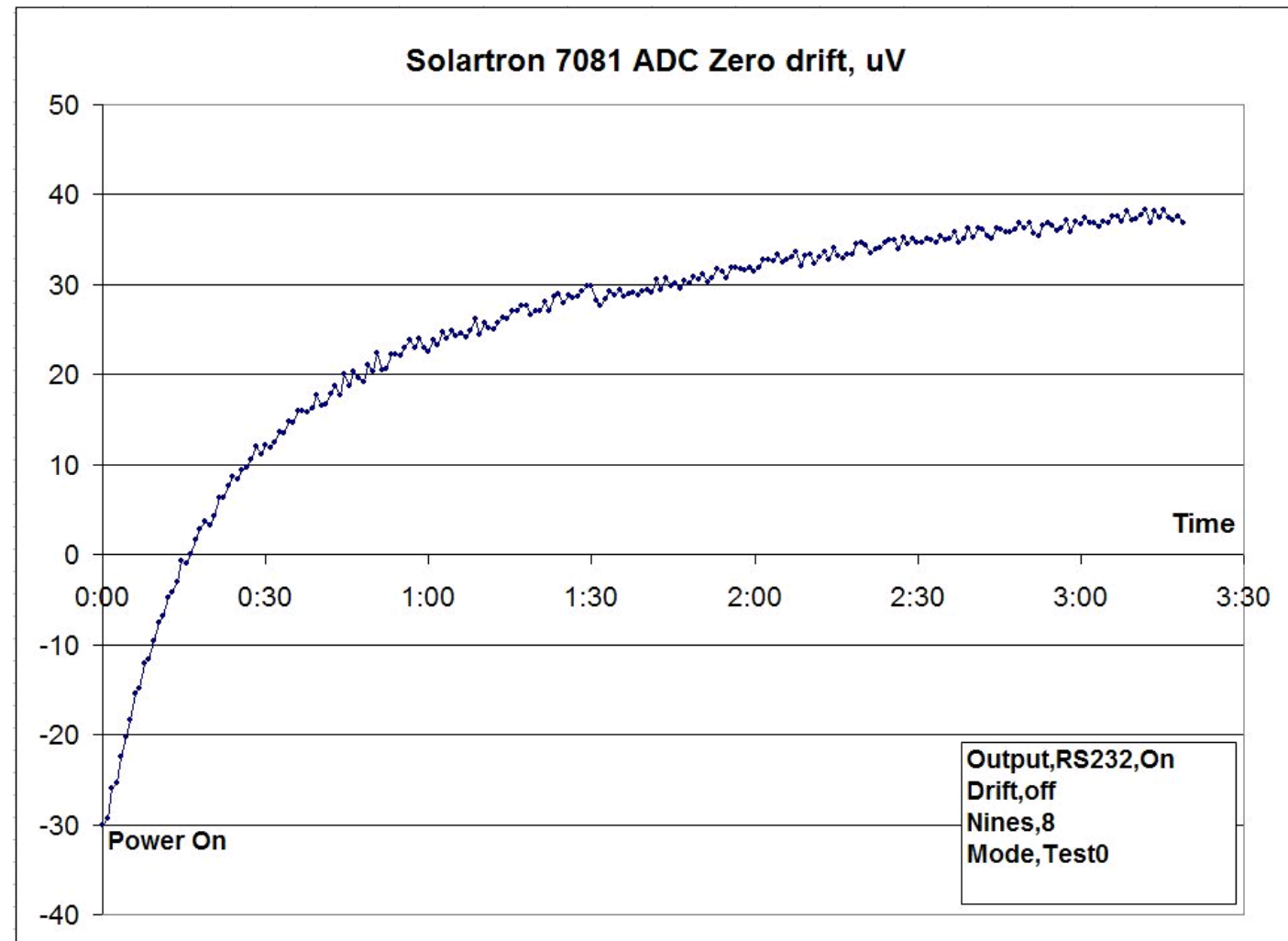
- 1) Big ADC noise (2-3 μV p-p and 0.5 μV rms at 10 V range), since its amplitude does not decrease even with a short ADC inputs during the test of zero (Mode, Test0).
- 2) Improper function of the periodic drift correction (ADC Zero, AutoZero), that lead to large DC voltage measurement errors, up to 5-7 ppm at the all ranges.







3) Extremely high ADC Zero drift after the power up (70 uV = 7 ppm).



After all I think I should try to change the integrators op-amp ICL7650CPD to less noisy, i.e. LTC1052CN.

Mickle T.(Russia) aka iddq2001

70 51 20 40
P0 13 06 40

New life of the Solartron 7081

56 54
DE 00

4E 4E
3E 3E

mars_hot



50 78 56
05 08 00



53 01 16

380

41 01 44

533

58 01 18

9

52 51 5C
00 13 05

53 01 50 5F

kentli

42 4E 52
1E 0E 30

1 15 53 01 44 4E 4E: 2011-10-16

53 17 58 4F 0A
00 00 00 00



great



56 54
DE 00

4E 4E
3E 3E

2 15 53 01 44 4E: 2011-10-16

53 00 58 4F 0A
00 00 00 00

Well done! Waiting to see your next modification for the integrators op-amp result. Better to have some test data



40 ES



50 DE

401

41 DE

20400

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16

50 DE

50 DE

suny-hyb

attached..



50 DE

40 ES

3: 2011-10-16

50 DE



Good article.

I have a 7071, for the convenience of testing, I want to change the input connector.



1063

1199

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happymanlxh



4 2011-10-16



gaoshou!!! 





2659

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137



fswqz

6 2011-10-16



Tai,niu.

13050112811





1181



737



23



longshort

7: 2011-10-16





744



20454



31



puff

8: 2011-10-16



wow. wonderful job





555



666



3



iddqd2001

10 2011-10-17



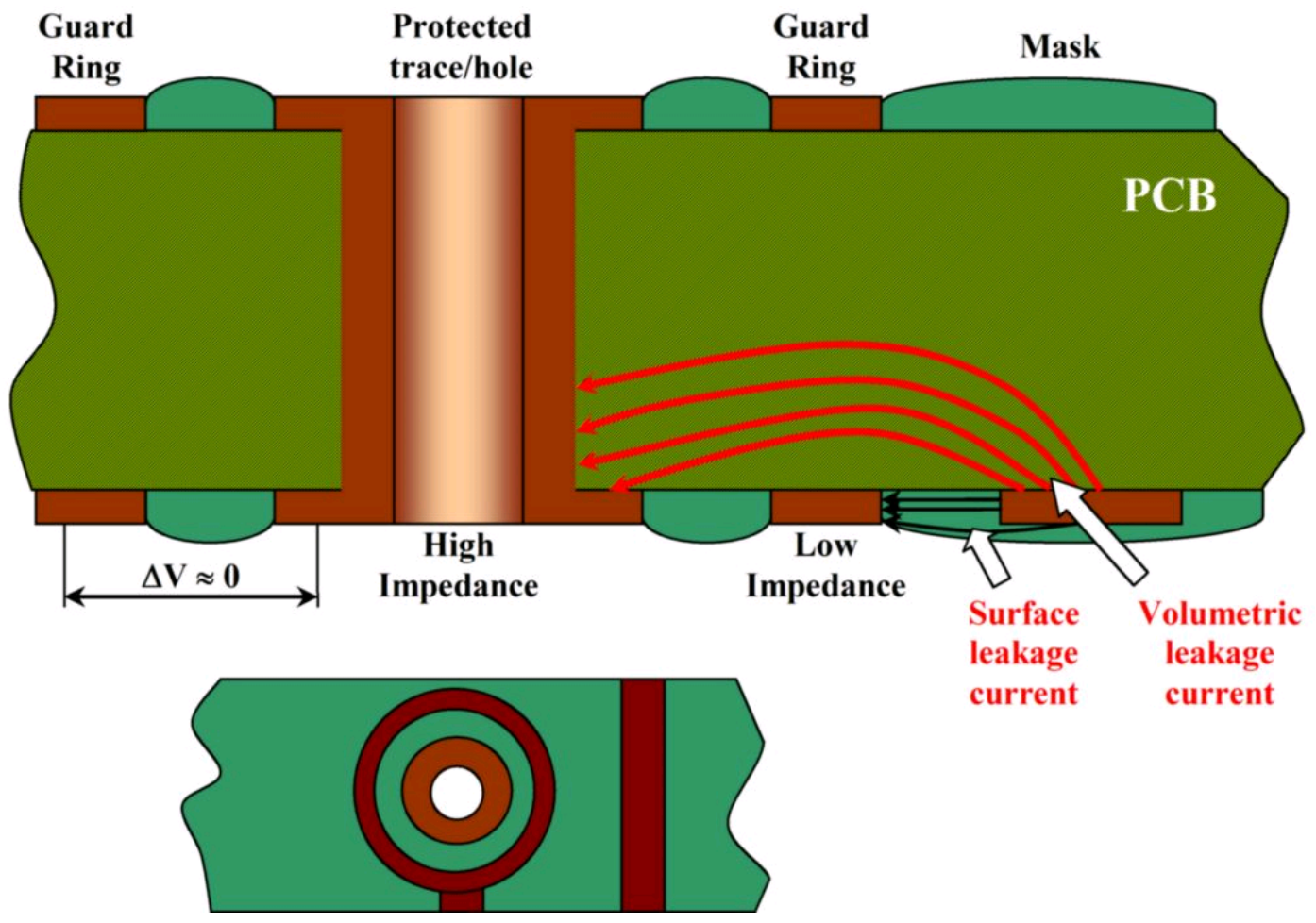
PCB's surface and volumetric leakage currents:



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mymodel

11 2011-10-17

DX ? , !



66



174



5



szsxmys



12:00:2011-11-17



Hello friends, did you have a UK Solartron 7151 datasheet or service book?

thanks.





88 7P



89 5E

22

91 94

127

88 01

0

88 91 8C

88 01 88 8F

iddqd2001

9E 8E

13 8E 81 88 8E: 2011-11-18

88 77 8E 8C 8A

<http://www.k7jrl.com/pub/manuals/solartron/s7151/>

91 1 87 84 88 8E 8C 81 87 +10

Ilycom

91 84 +10

9E 87 91 8E

2011-11-18

8E 8A

9E 8E



100



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szsxmys

14: 2011-11-19



iddqd2001

thanks.

thanks a lot.but this is a user manuals, not service manuals,there have no sch maps .



7P



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127

0



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Re:Solartron 7081 Repairing

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Navigation icons for the forum post.

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