TECHNICAL MEMO

Geotronics AB, Technical Support Dept., Danderyd, SWEDEN, **September 1997** **TI/9702A**

Level: 3.

Instrument type: Geodimeter system 600.

Subject: Vertical servo not working.

Description: The vertical servo function on the SRV and SRV2 boards can break due to ESD through the vertical servo knob. Replace IC46 and IC49 on the SRV/SRV2 boards to LM6482 RAIL-RAIL OP X2.

IC46, IC49 LM6482 RAIL-RAIL OP X2 Part no: 571 804 246

Mark the SRV board with rev. D02/08 and SRV2 board with rev. D00/04.

Perform this modification if the vertical servo is not working.

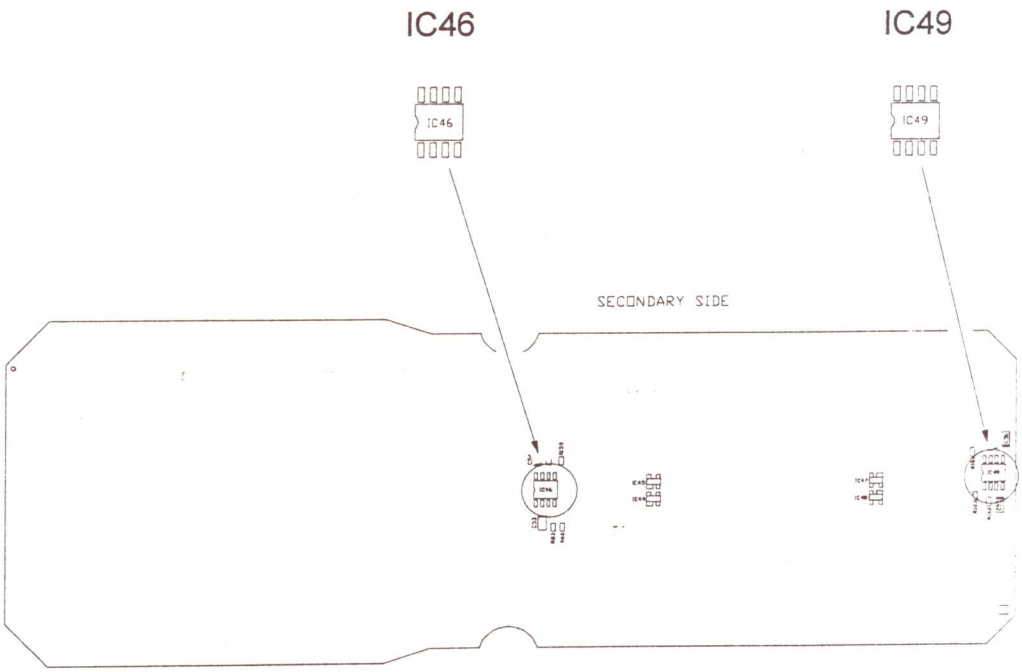

Fig. secondary side of the SRV/SRV2 board.

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TECHNICAL MEMO

Geotronics AB, Technical Support Dept., Danderyd, SWEDEN, **June 1997** **TM/9701A**

Level: 2.

Instrument type: Geodimeter system 600 card memory and Geotracer system 2200.

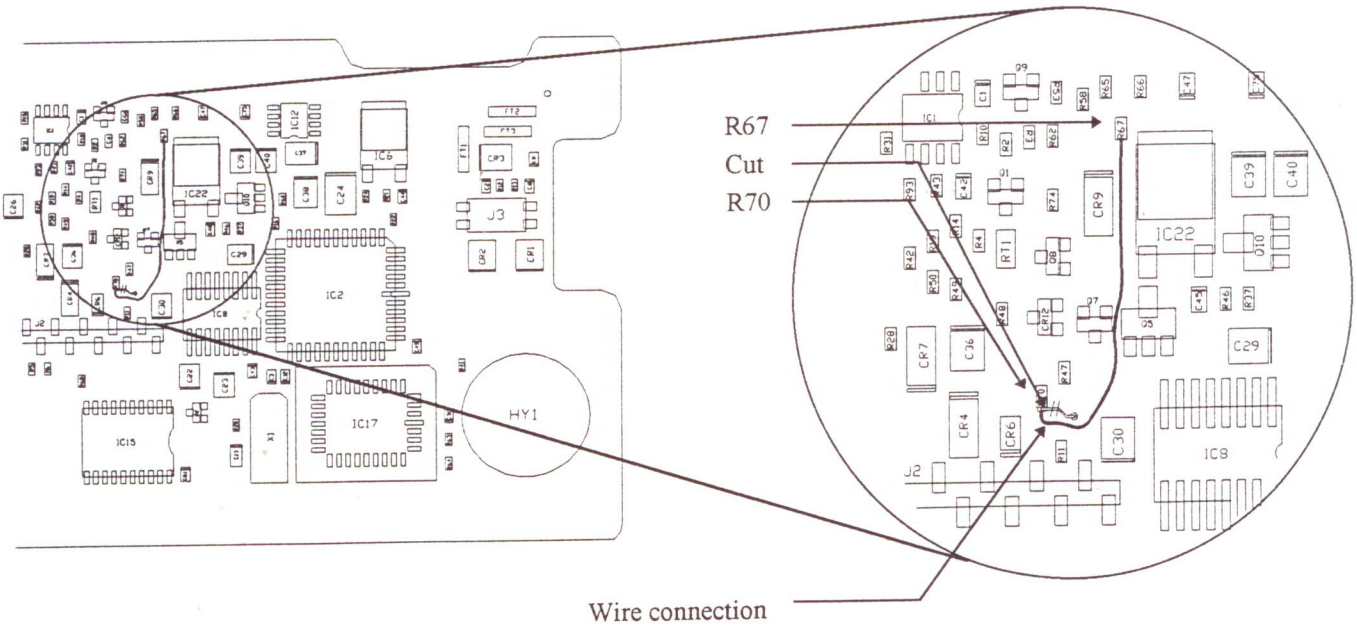
Subject: MEM board 571 223 020 and MEM-M board 571 213 240.

Description: MEM and MEM-M board could not read PCMCIA cards of other types then SunDisk 1,8 and 5,2 Mb.
The reset pull-up pin was connected to GND instead of VCC.

Changes rev. C00 → C01:

The reset card signal will be connected to VCC via 100 kohm (R70) instead of GND.

- Change R70 to 100 kohm part number 571 806 501.
- Solder a wire between R70 and R67.
- Cut connection from R70 to GND.



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TECHNICAL MEMO

Geotronics AB, Technical Support Dept., Danderyd, SWEDEN, December 1996 TM/9605A

Level: 3

Instrument type: Geodimeter system 600, control unit.

Subject:

1. Intermittent shut down.
2. Info 30.x, Info 21.1 and improved batt. low function (*<powered of by illegal action>* could appear instead of *<continue yes/no>*).

Description:

Perform these modifications at the next service occasion.

1. When mounting the backup battery, the connecting pins soldered to the MAP board can break due to mechanical stress. The breaking point (cracks) might almost be invisible.
2. To eliminate theses infos and to improve the batt. low function perform this modification. Mark the MAP board with rev D03.

Remedy:

1. Open the control unit (*Fig. 1*).
2. Resolder the "crack" on the battery connecting pins (*Fig. 2 and 3*).
3. - Replace R12 from 1 MΩ to 470 kΩ (*Fig. 4*). Part nr. 571 806 517
   - Replace R93 from 47 kΩ to 4.7 kΩ (*Fig. 4*). Part nr. 571 806 317
   - Remove pin 4, IC30 from the pad and connect to pin 5, IC30 (*Fig. 4*).

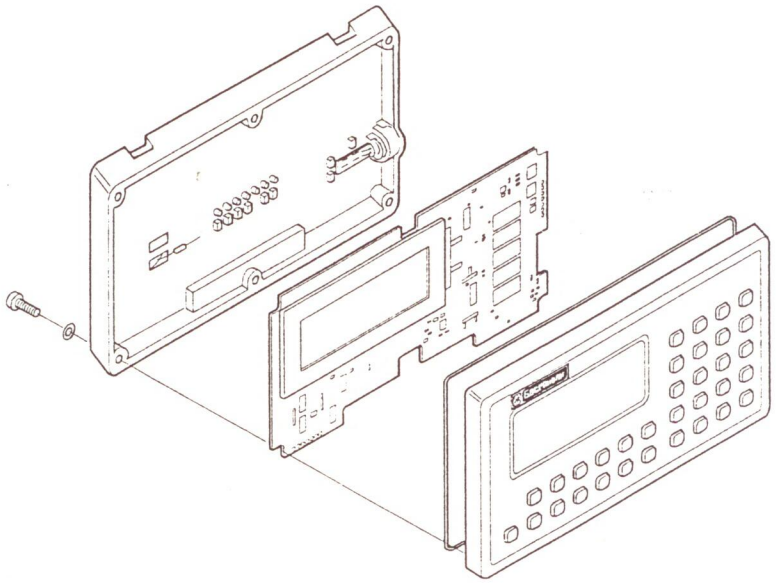

Fig. 1, opening of control unit.

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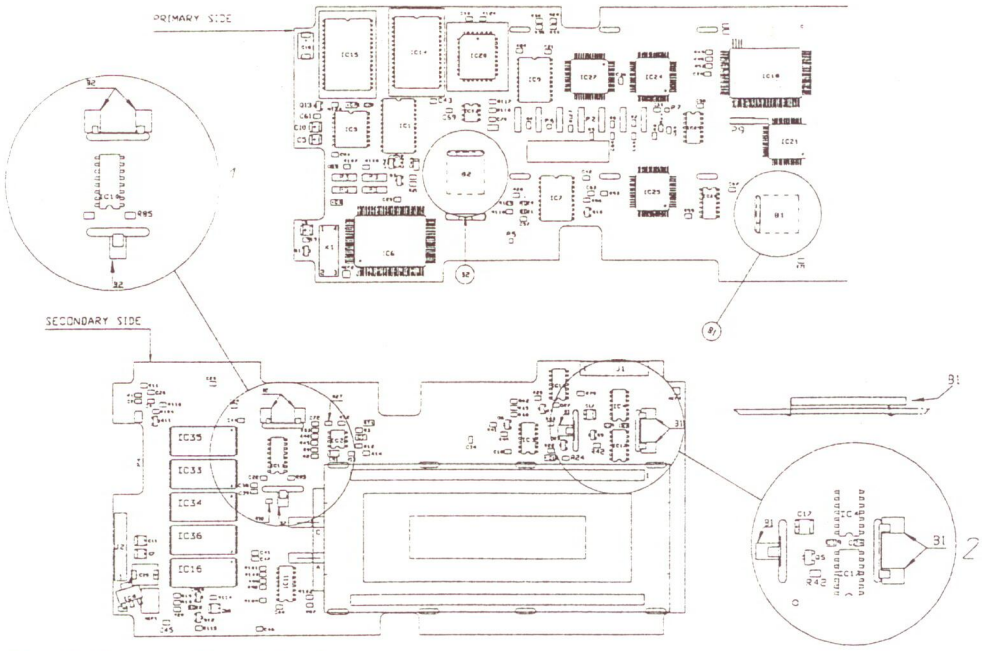

Fig. 2, battery 1 and 2 placement.

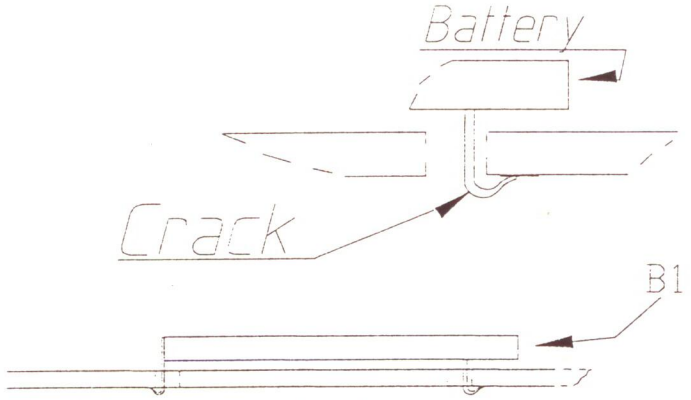

Fig. 3, battery connecting pins.

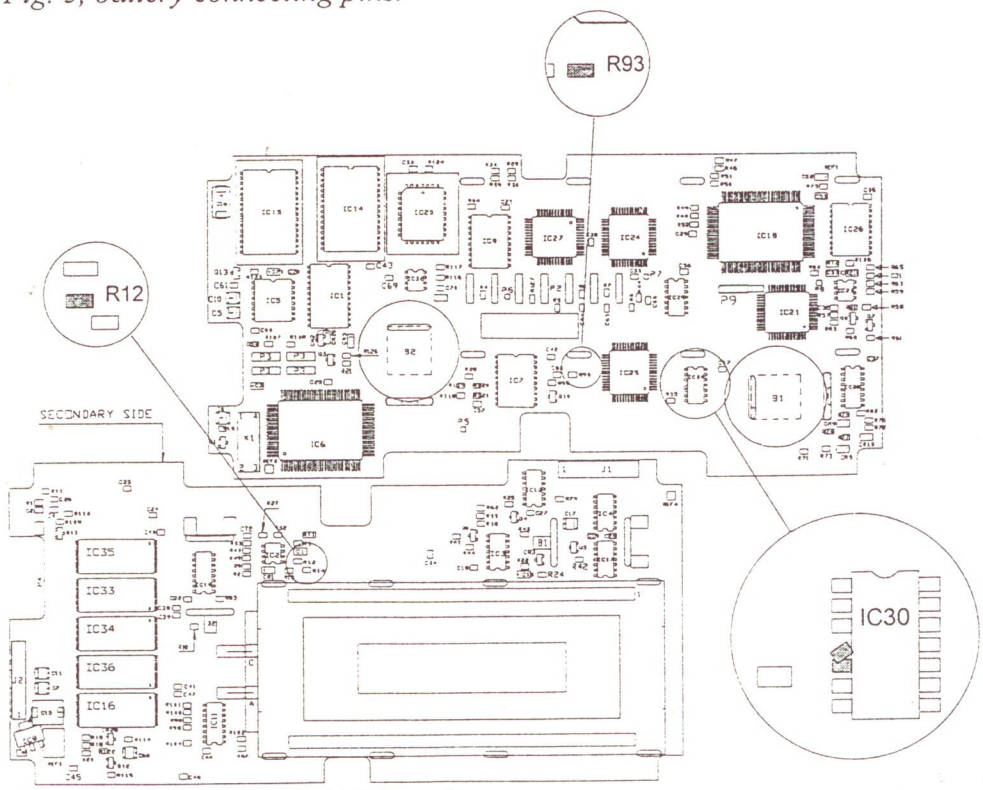

Fig. 4, modification of MAP board.

TECHNICAL MEMO

Geotronics AB, Technical Support Dept., Danderyd, SWEDEN, November 1996 TM/9604A

Level: 3

Instrument type: Geodimeter system 600 servo.

Subject: Cover for the bearing plate can make contact with the batteries on the PVX/PVX2 board.

Symptom: Memory loss of the PVX/PVX2 board.

Description: The cover for the bearing plate is mounted with two screws at the top (*Fig.1*). Therefore there is a possibility that the cover for the bearing plate will make contact with the batteries and cause memory loss of the PVX/PVX2 board.

Remedy: Cover the batteries with mylar tape (*Fig.2*). A new ESD protection will be made in the near future that also will cover the batteries. This ESD protection shield will replace the existing, 571 200 528.

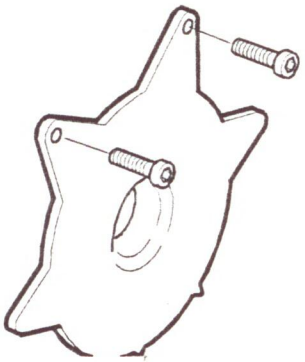

Fig. 1 Cover for bearing plate.

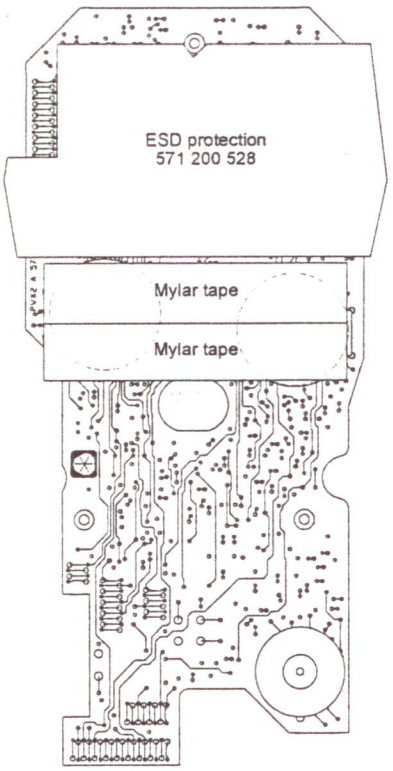

Fig. 2 PVX2 board with mylar tape.

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TECHNICAL MEMO

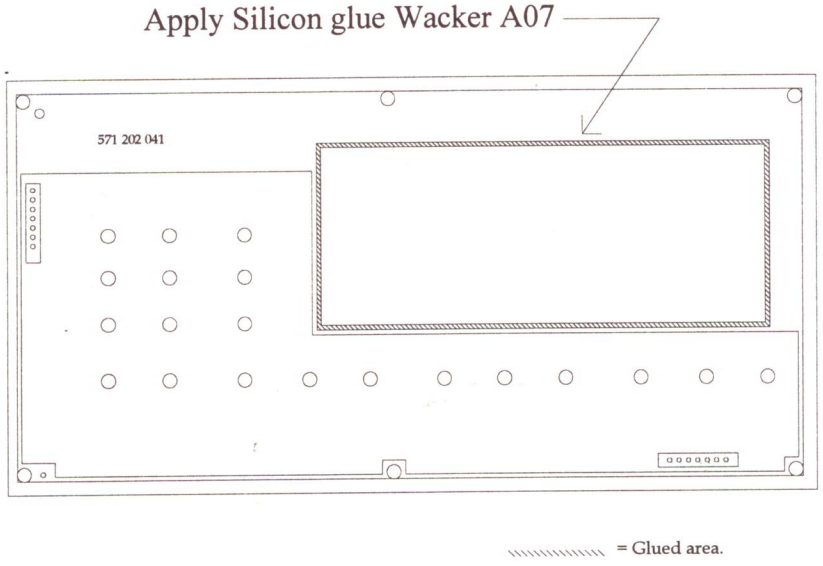
Geotronics AB, Technical Support Dept., Danderyd, SWEDEN, **September 1996** **TM/9602A**

Level: 3.

Instrument type: Geodimeter 600.

Subject: Control unit 603/604

Description: Occasionally moisture has been detected inside the front glass.
To prevent this, apply Silicon glue on the inside of the front cover according to the description below.
Silicon glue Wacker A07, part no: **571 904 134**.
Disassemble the CU unit and remove the MAP board. Apply Silicon on the inside of the front cover towards the display glass.
This operation should be performed at first possible service occasion, on all CU units.



This procedure was default from factory delivery, May 1996.
Aprox. serial no: 604 11000
603 11000

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TECHNICAL MEMO

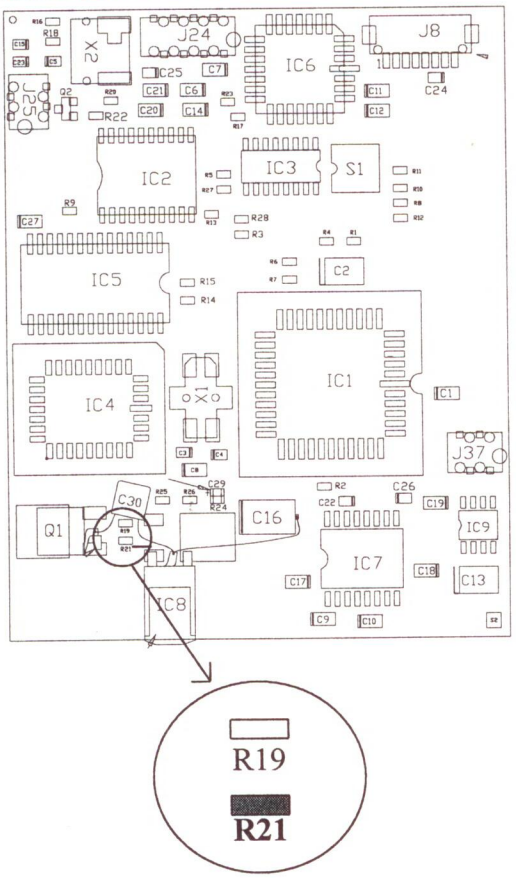
Geotronics AB, Technical Support Dept., Danderyd, SWEDEN, **May 1995** **TM/9505A**

Instrument type: Geodimeter System 600

Subject: Unable to switch off the radio in the instrument.

Description: Remove R21 on the RAC board to prevent discharge of batteries.
Revision of the RAC board is unchanged C02.
Perform this modification at the next service occasion.

RAC board in the radio side cover:



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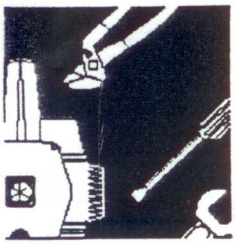

TECHNICAL MEMO

Geotronics AB, Technical Support Dept., Danderyd, SWEDEN, **March 1995** **TM/9504A**

Instrument type: Geotracer system 2000.

Subject: Problem with Point Code and Point Info.

Symptom: Receiver can loose its firmware if used for Stop and Go.

Description: Geotracer receivers shipped from December 22 , 1994 to February 10 , 1995 with the following serial numbers:

Geotracer 2100 Serial number **30010049** to **30010059**
Geotracer 2102 Serial number **30110154** to **30110221**

These Geotracers have been initialised with incorrect content in the labels for Point Code and Point Info (labels 603 and 604).
There are a risk these receivers will loose their firmware if they are used for Stop and Go.

Remedy: It is necessary to do the following :

1. Connect a CU to the receiver.
2. Enter Survey menu.
3. Select Survey parameters.
4. Move the cursor to the Point Code and type any letter.
5. Move the cursor to the Point Info and type any letter.
6. Press ESC to go back to Main menu.

After this procedure it is OK to use the receiver for Stop & Go.

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TECHNICAL MEMO

Geotronics AB, Technical Support Dept., Danderyd, SWEDEN, **January 1995** **TM/9503A**

Instrument type: Geodimeter System 600.

Subject: Modification for Robotic instruments.

Symptom: Incorrect function of battery low and illumination.

Description: This modification must be done on all MAP-Boards revision D Ref.no: 571 203 140 which are to be installed in Robotic instruments.

Install: **CR29** Bat 48 Ref.no: 571 803 010. The anode of CR29 shall be soldered directly onto CR2 pin 2, and the cathode (marked with a ring) shall be connected with a wire to CR2 pin 3 as shown in picture 1.

Note ! When soldering the wire to the cathode of CR29, put a piece of paper between IC1 and the soldering point to prevent short circuit to the substrate pin sticking out in the middle of the short side of IC 1.

Change the following resistors: **R 58** from 4.7 kohm
to 3.3 kohm Ref.no: 571 806 313.
R 96 from 100 kohm
to 220 kohm Ref.no: 571 806 509.
Shown in picture 2.

Remove the following resistor: **R 20** 4.7 kohm
Shown in picture 3.

Change: **IC 8** from LM 317 MDT
to LT 1129-5 Ref.no: 571 804 108.
The LT 1129-5 shall be rotated 1/3 of a revolution ccw in relation to the old IC8
Connect IC8 pin 2 (cooling flange) to ground on C15, as shown in picture 3.

The modified MAP-Board shall be marked : **D02**

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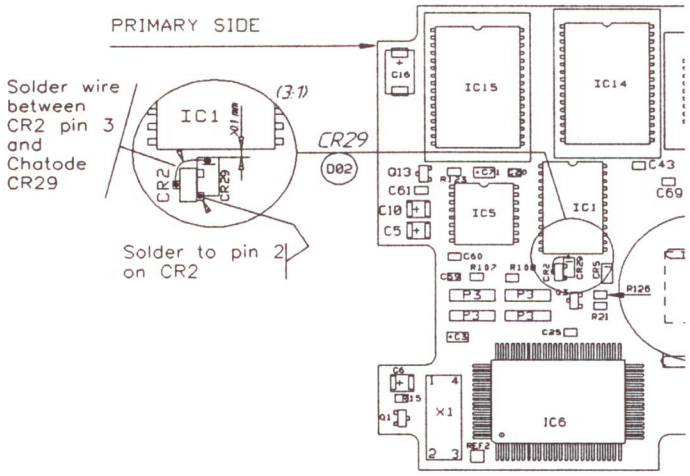
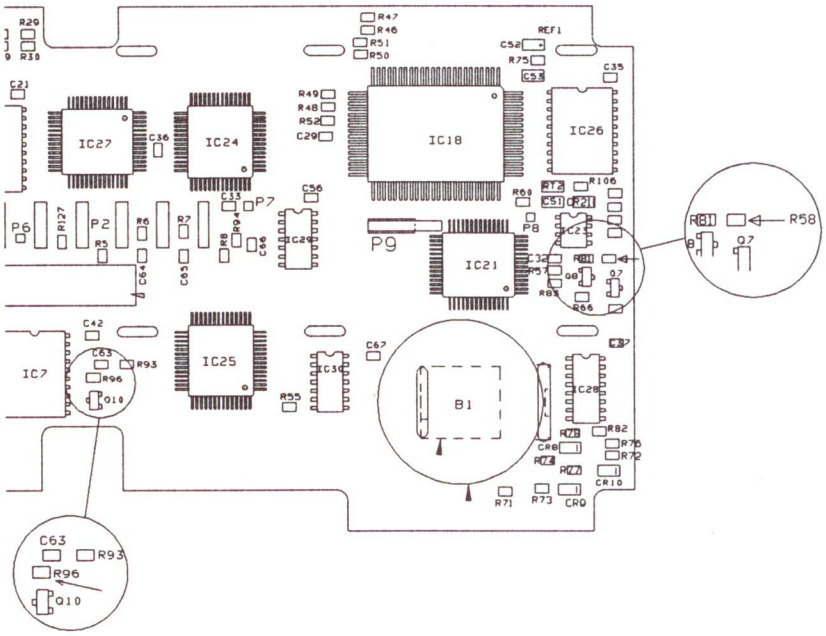
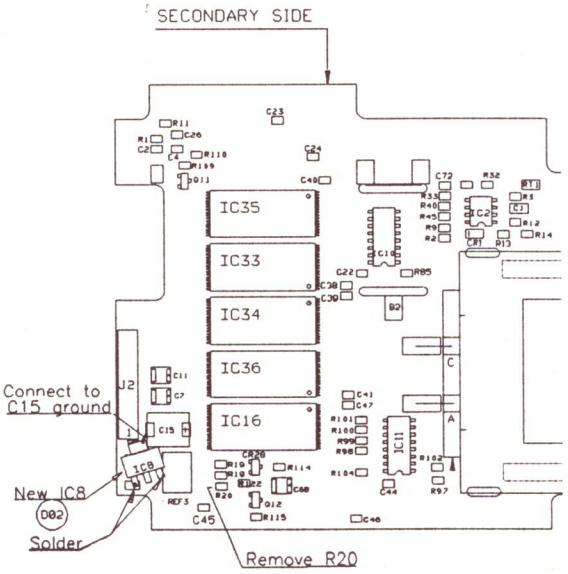
Picture 1:



Picture 2:



Picture 3:



TECHNICAL MEMO

Geotronics AB, Technical Support Dept., Danderyd, SWEDEN, **August 1995.** **TM/9501B**

Instrument type: GDM System 400, 500, 4000 and Geodolite

Subject: PWS2 and PWS2R

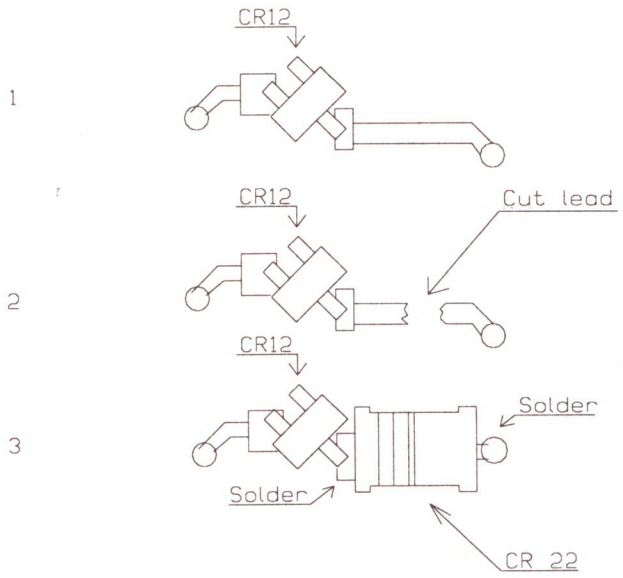
Description: Difficulties starting the instrument, from the GDM keyboard or from the RPU unit, depending on batch variations of the IC9.

Remedy: Cut lead and add the diode CR22 (TMM, BAT 48) part no: 571 803 010 between IC9 pin 5 and CR12 pin 3.

* Change PWS2 rev from B07 → B08.
* Change PWS2R rev from A04 → A05

Note orientation. See figure.

PWS2/PWS2R, primary (lower right) component side.



* **New information:** changes from TM/9501A to TM/9501B

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TECHNICAL MEMO

January 1995, Geotronics AB, Technical Support Dept., Danderyd, SWEDEN TM/9501A

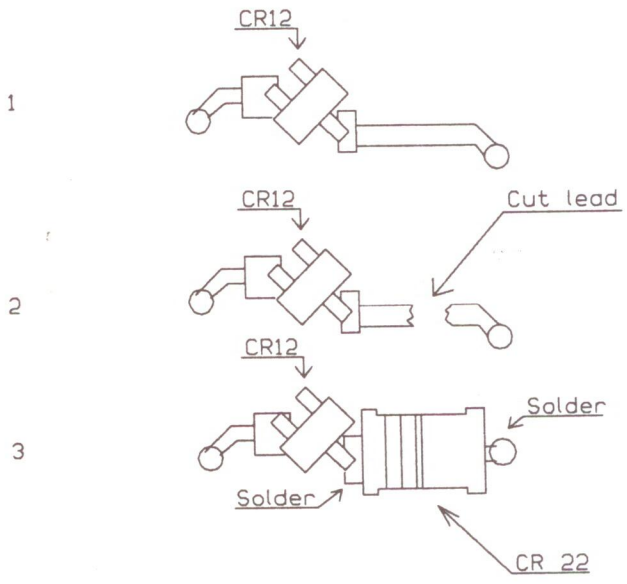
Instrument type: GDM System 400, 500, 4000 and Geodolite

Subject: **PWS2 and PWS2R**

Description: Difficulties starting the instrument, from the GDM keyboard or from the RPU unit, depending on batch variations of the IC9.

Remedy: Cut lead and add the diode CR22 (TMM, BAT 48) part no: 571 803 010 between IC9 pin 5 and CR12 pin 3.
Note orientation.
See figure.

PWS2/PWS2R, primary (lower right) component side.



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Geotronics

TECHNICAL MEMO

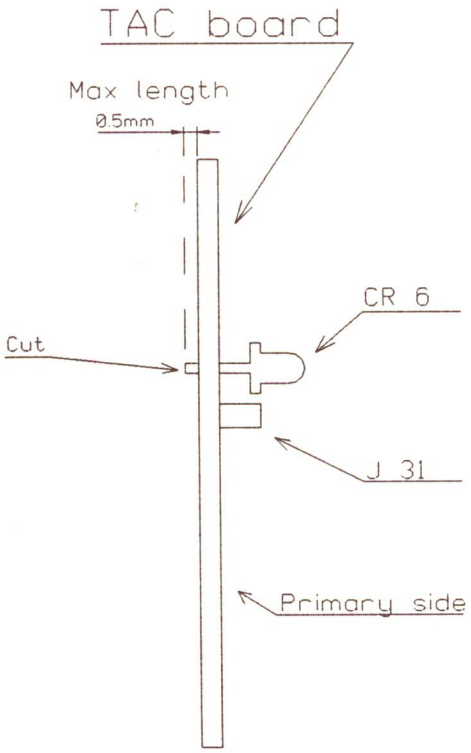
December 1994
GEOTRONICS AB
Technical Support Dept.
Danderyd SWEDEN
TM/9419A

Instrument type: GDM System 600

Subject: TAC - Board

Description: Prevent risk of shortcircuiting between CR6 and the Trackerunit

Remedy: Cut pins on CR 6 to a max. length of 0.5mm, on the secondary side. See figure.



TECHNICAL MEMO 1(1)

Geotronics AB, Technical Support Dept., Danderyd, SWEDEN, **January 1995** **TM/9418B**

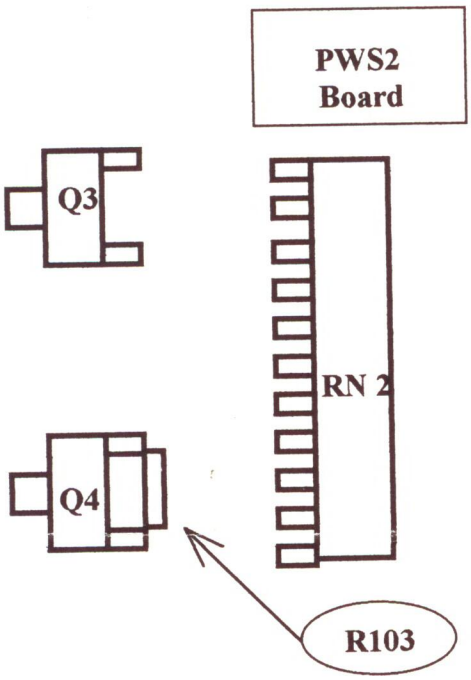
Instrument type: Geodimeter System 4000 Instruments

Subject: Switching GDM on from RPU unit

Symptom: Unable to turn GDM on from RPU unit (**Info 103**).

Description: When the RPU sends the "On" command to the GDM a spike can appear on the PWS2 board and turn the radio in the GDM off.

Remedy: Solder a resistor **R103** (4.7k ohm) part no: **571 806 317** between pins on **Q4** on the **PWS2** board, see figure. Mark the board, rev "B07"



New information: Value of resistor and number of revision on the board

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Geotronics

TECHNICAL MEMO

December 1994
GEOTRONICS AB
Technical Support Dept.
Danderyd SWEDEN
TM/9418A

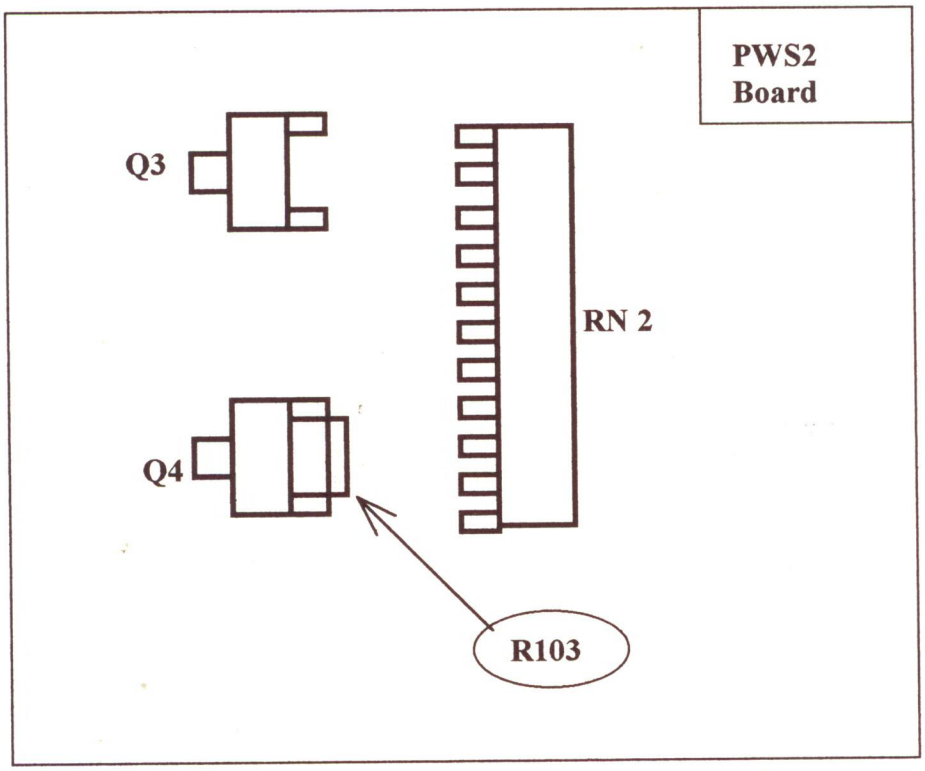
Instrument type: Geodimeter System 4000 Instruments

Subject: Switching GDM on from RPU unit

Symptom: Unable to turn GDM on from RPU unit (**Info 103**).

Description: When the RPU sends the "On" command to the GDM a spike can appear on the PWS2 board and turn the radio in the GDM off.

Remedy: Solder a resistor **R103** part no: **571 806 317** between pins on **Q4** on the **PWS2** board, see figure.



Geotronics

TECHNICAL MEMO

December 1994
GEOTRONICS AB
Technical Support Dept.
Danderyd SWEDEN
TM/9417A

Instrument type: Geodimeter System 600 Instruments

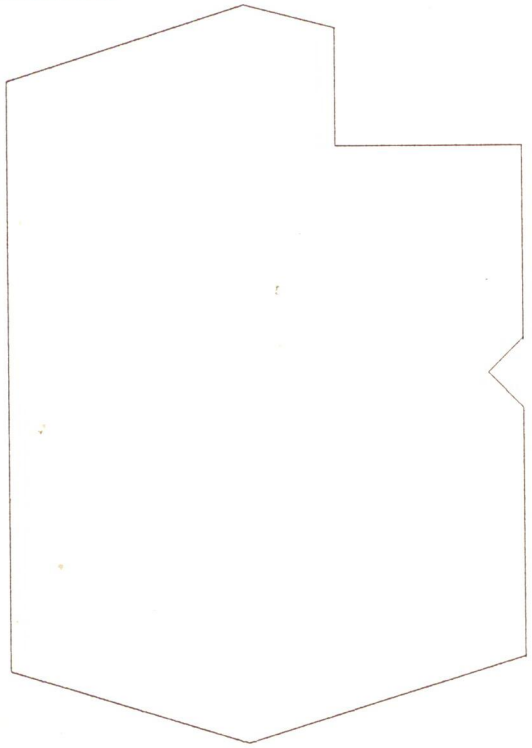
Subject: ESD protection.

Description: To prevent ESD on the PVX board caused by the grounding-cable, connected between the yoke and the alidad.

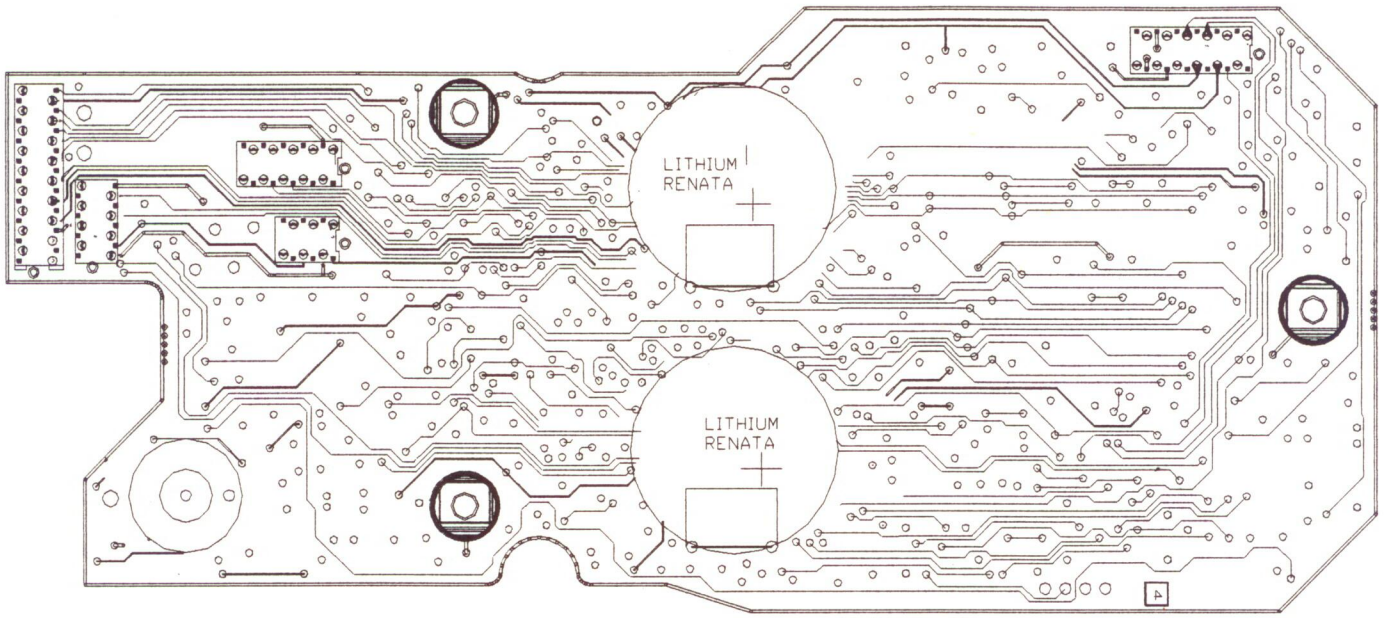
Symptom: E.g. unrelated Info messages or function disturbances.

Remedy: Place a piece of non chargeable insulation protection, part no: 571 200 528 on the PVX board as shown on next page, fix with pliobond on the top PVX screw.

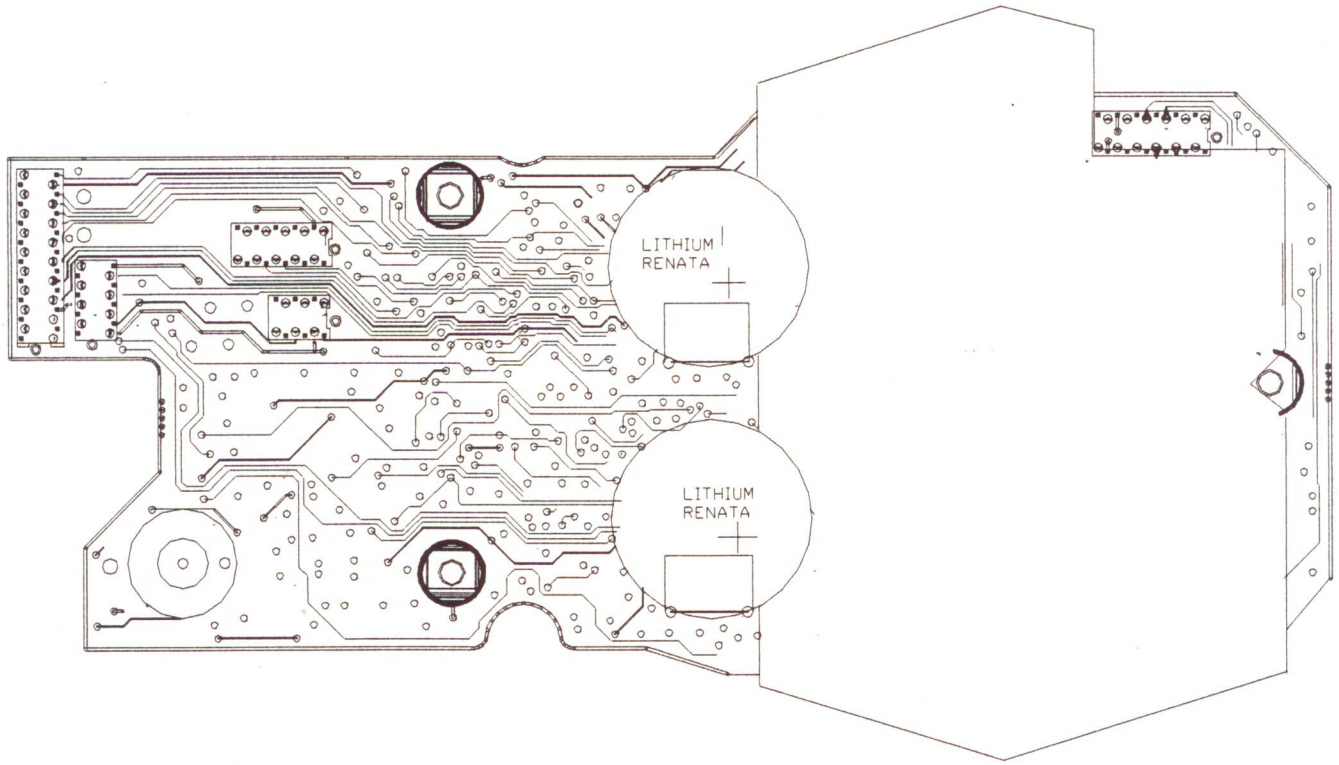
Part no: 571 200 528



PVX - Board, whiteout protection.



PVX - Board, with protection mounted.



Geotronics

TECHNICAL MEMO

SEPTEMBER 1994
GEOTRONICS AB
Technical Support Dept.
Danderyd, SWEDEN
TM/ 9413A

Instrument type: Geodimeter System 500 and 600 Instruments;

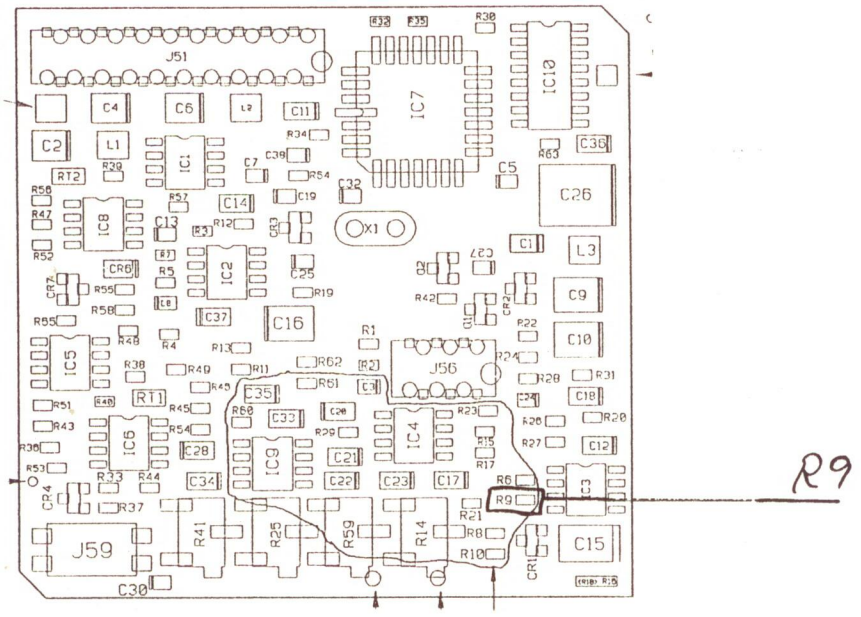
Subject: Modification and surface treatment of the DIP-board;

Description: "G" in display or random distance readings due to high sensitivity to dampness,

Remedy: 1) Replace resistor R9, 10.0 Kohm to 1.0 Kohm => Part no: 571 806 301
2) Verify action by making a dampness test.

Mark the board **Rev.D06**

When problems remain the board must be treated with a special laquer, pls return the board to the factory for replacement.



Geotronics

TECHNICAL MEMO

SEPTEMBER 1994
GEOTRONICS AB
Technical Support Dept.
Danderyd, SWEDEN
TM/ 9412A

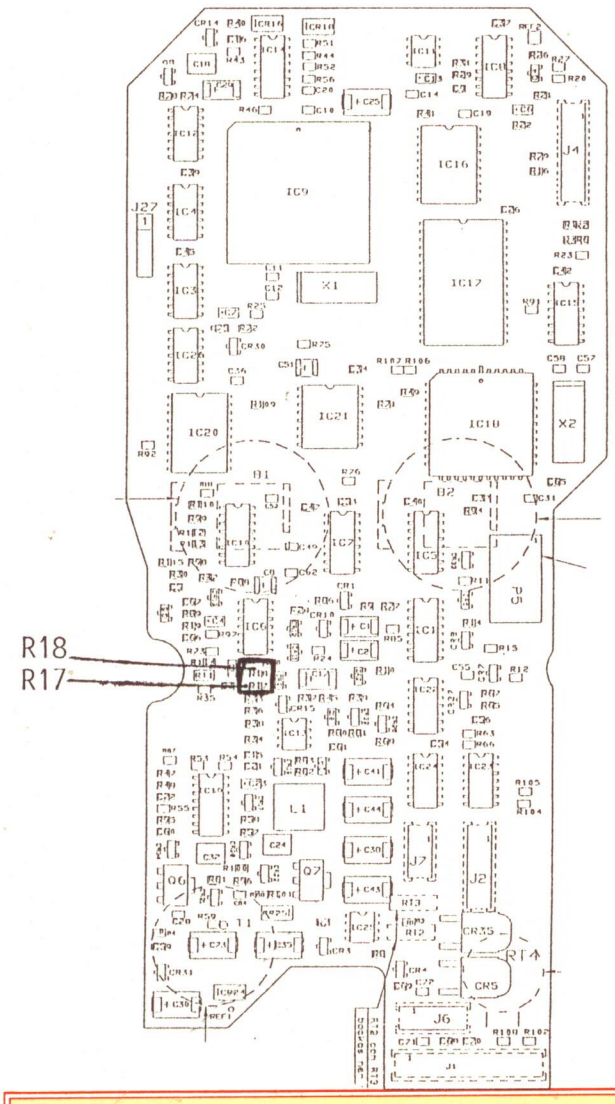
Instrument type: Geodimeter System 600 Instruments

Subject: Modification of the PVX-board (D00/03) => D00/04 ;

Description: Unreliable **Switch Off** function;

Remedy: Replace R17, 10,0 Kohm to 47,0 Kohm => Part no: 571 806 417
Replace R18, 1,0 Kohm to 4,7 Kohm => Part no: 571 806 317

Mark the board **Rev. D00/04**



Geotronics

TECHNICAL MEMO

September 1994
GEOTRONICS AB
Technical Support Dept.
Danderyd, SWEDEN
TM/ 9411A

Instrument type: Geodimeter System 400, 500 and 4000 Instruments

Subject: Board PRS-2, rev F00

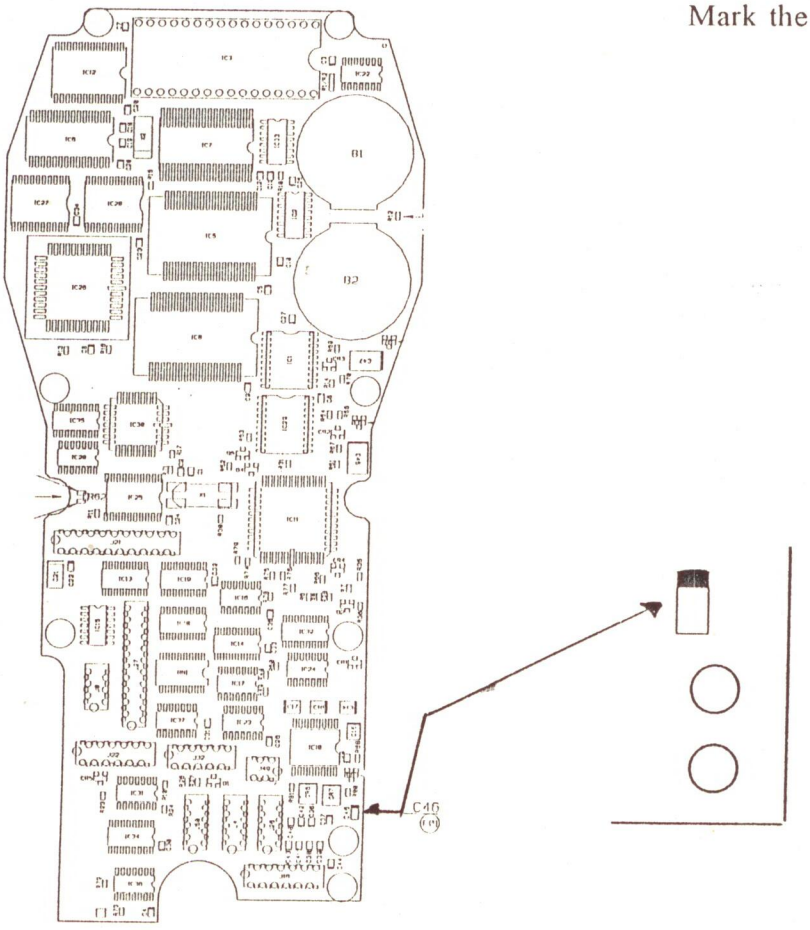
Description: Malfunctioning RS-232 communication ;

Remedy: Capacitor C46, (1.0 µF, 16V) polarized, must be positioned as specified.

Verify position of polarity => see fig. below.

Replace capacitor when faulty connection found ! Part no: 571 802 101

Mark the board **Rev. F01**



Geotronics

TECHNICAL MEMO

December 1994
GEOTRONICS AB
Technical Support Dept.
Danderyd SWEDEN
TM/9408B

Instrument type: Geodimeter System 600 Instruments

Subject: Modification of SRV-board (571 203 040), **rev C and D00**
Upgrading of SRV - program, 571 123 602 - **04.00**

Description: Calibration values for the servos can be "randomised" when the instrument is switched off/on => resulting in erratic positioning.
Positioning diff. 0-66^{cc} , => an error of 0-9 mm / 100m.

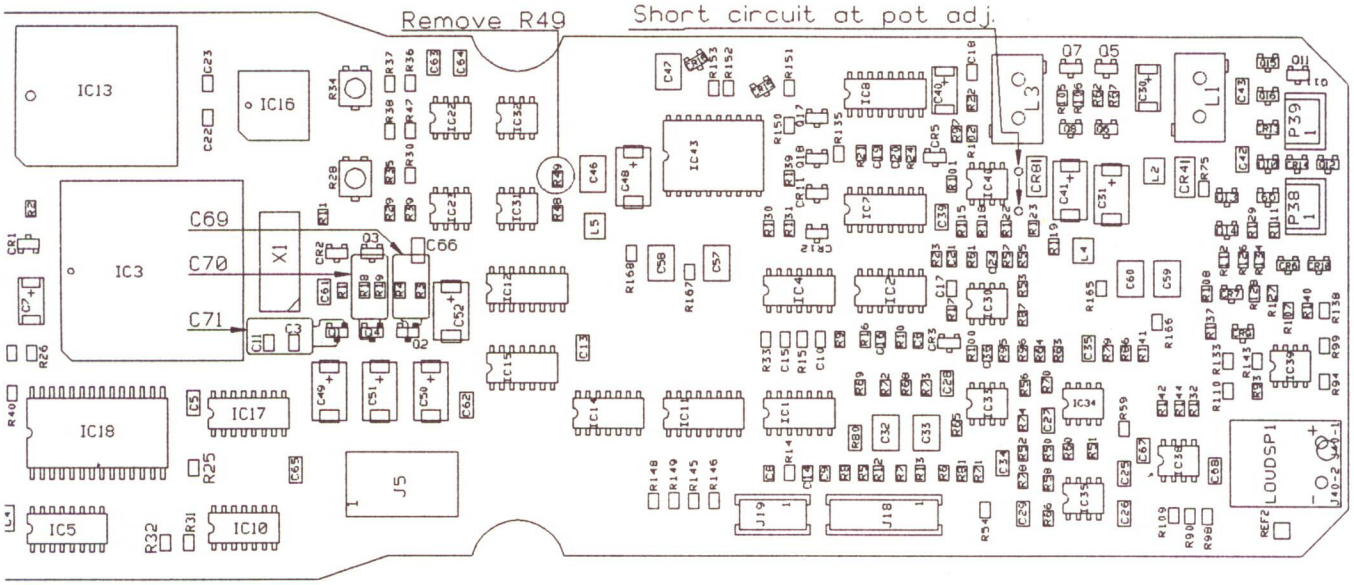
Remedy:

1) Replace the PROM (IC13) to valid revision;
   Always use special tool to take the prom out of the socket!
2) Remove resistor R49 => see diagram;

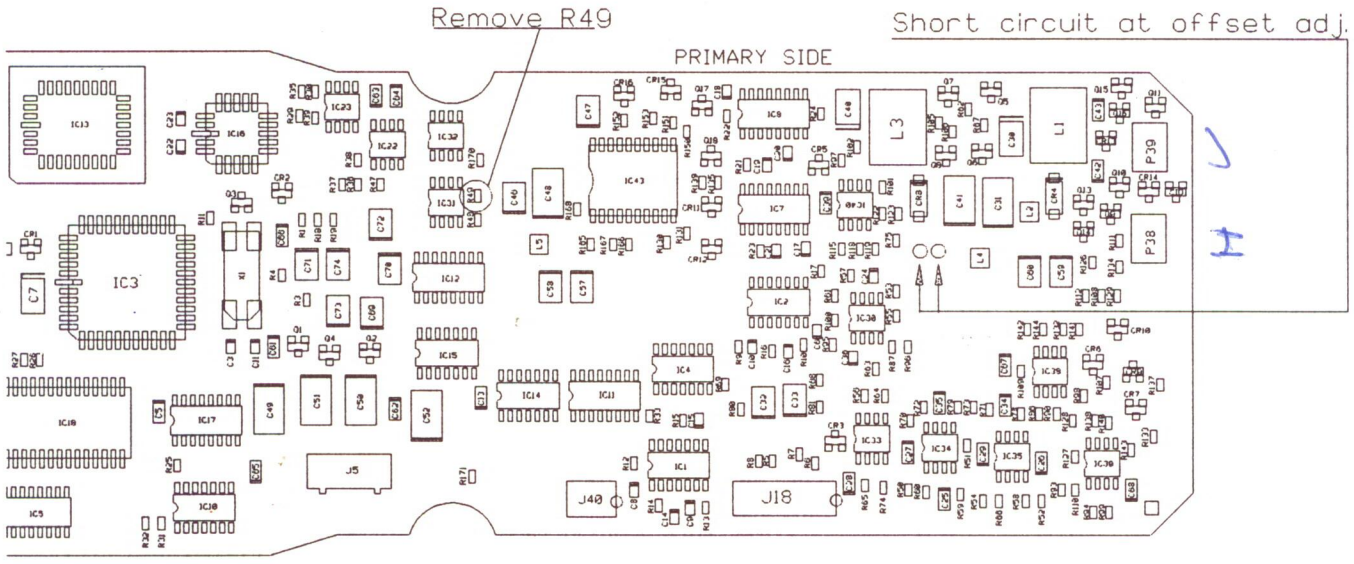
3) Perform a calibration of the servos, see SST program.

Mark the board rev D00/05
(No change on the rev C board)

SRV rev C



SRV rev D00



Geotronics

TECHNICAL MEMO

September 1994
GEOTRONICS AB
Technical Support Dept.
Danderyd, SWEDEN
TM/ 9409A

Instrument type: Geodimeter System 600 Instruments

Subject: Modification of SRV- board (571 203 040), **rev. C and D00**

Must be done at the next service occation.

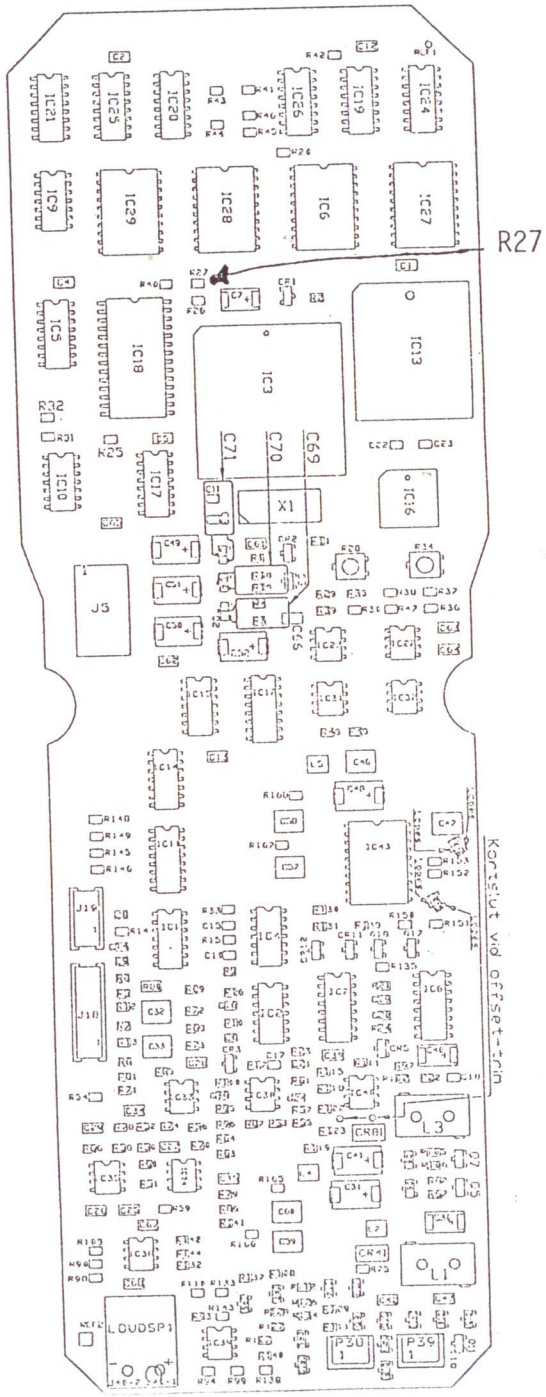
Description: Ensure correct allocation of the memory (IC18) ,

Remedy: Remove resistor **R 27** => see diagram, R 26 must be mounted only.

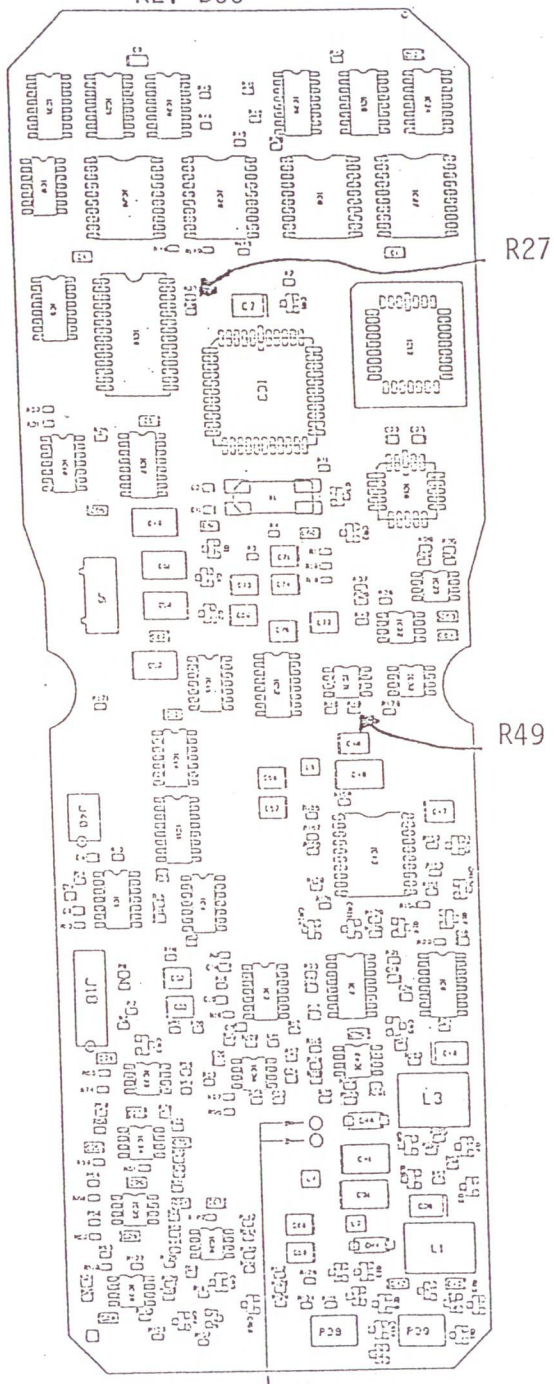
Mark the board rev. **D00/05** **(incl. TM/ 9408A)**

Rev.C boards => no change of rev.

REV C



REV D00



Geotronics

TECHNICAL MEMO

September 1994
GEOTRONICS AB
Technical Support Dept.
Danderyd, SWEDEN
TM/ 9408A

Instrument type:

Geodimeter System 600 Instruments;
Information regarding serialnumbers will be distributed separately.

Subject:

Modification of SRV-board (571 203 040), **rev. D00**
Upgrading of SRV- program, 571 123 602 - **04.00**

Changes 571 123 602 - 02.00 => - 04.00, described in TI/ 9418A

Description:

Calibration values for the servos can be "randomized" when the Instrument is switched off/on => Resulting in erratic positioning.
Positioning diff. 0-60cc, => an error of 0-9 mm / 100m.

Remedy:

1) Replace the **Prom (IC13)** to valid revision;
   Always use special tool to take the prom out of the socket!!!
2) Remove resistor **R 49** => see diagram;
3) Connect a jumper across the two pin holes;
4) Make a calibration of the servos, see SST program;
5) Remove jumper;

Mark the board rev. D00/05. **incl.TM/ 9409A**

TECHNICAL MEMO

September 1994
GEOTRONICS AB
Technical Support Dept.
Danderyd, SWEDEN
TM/ 9409A(prel)

Instrument type: Geodimeter System 600 Instruments

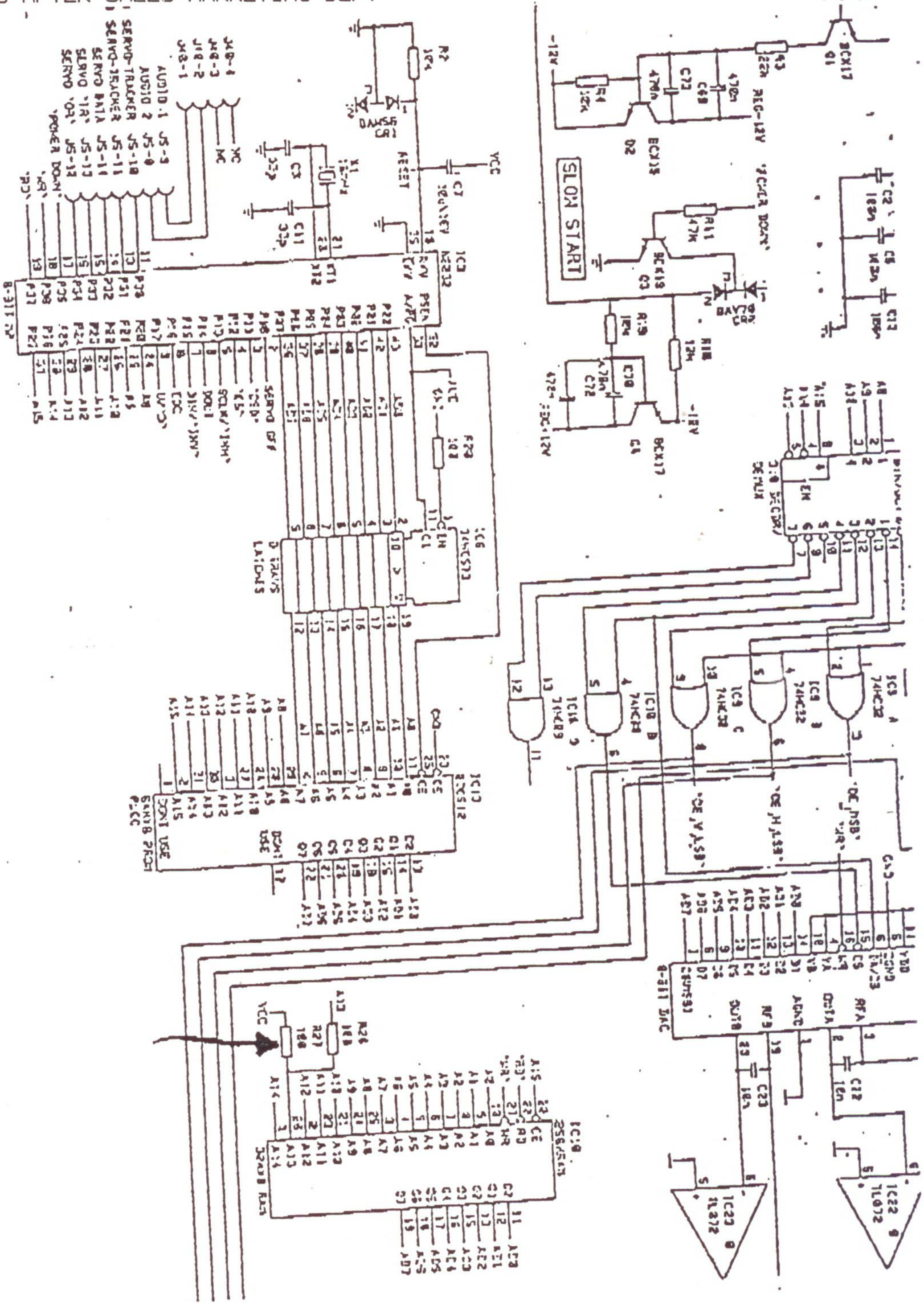
Subject: Modification of SRV- board (571 203 040), rev. C and D00

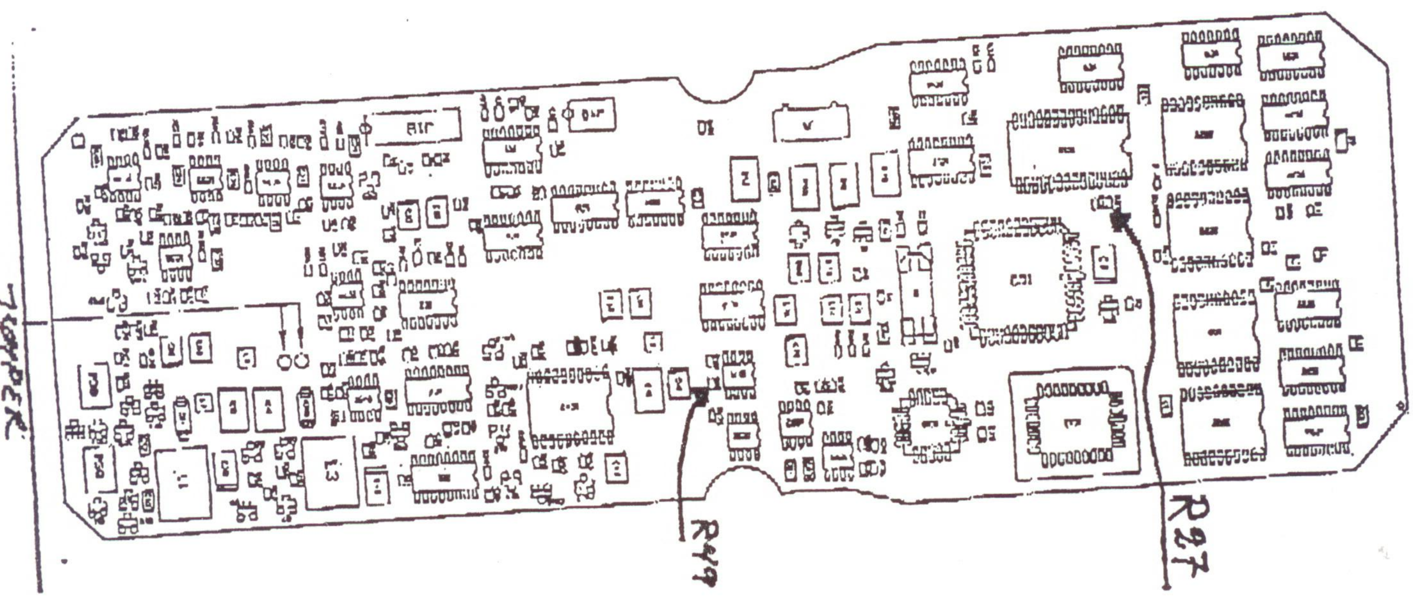
Must be done at the next service occation.

Description: Ensure correct allocation of the memory (IC18) ,

Remedy: Remove resistor R 27 => see diagram, R 26 will then always be selected.

Mark the board rev. D00/05 (incl. TM/ 9408A)


SLOW START
8-BIT DAC
D TRANS LATCHES


R27
R49
JUMPER

TECHNICAL MEMO

September 1994
GEOTRONICS AB
Technical Support Dept.
Danderyd, SWEDEN
TM/ 9408A(prel.)

Instrument type: Geodimeter System 600 Instruments

Subject: Modification of SRV-boards (571 203 040), **rev. D00**
Upgrading of SRV- program, 571 123 602 - **04.00**
Changes 571 123 602 - 02.00 => - 04.00, described in TI/ 9418A

Description: Calibration values for the servos are "randomized" when the Instrument is switched off/on => Resulting in erratic positioning. Positioning diff. 0-60cc, => 0-9 mm/100m.

Remedy:

1) Replace the Prom (IC13) to valid revision;
   Always use special tool to remove prom from socket!!!
2) Remove resistor R 49 => see diagram;
3) Connect a jumper across the two pin holes;
4) Make a calibration of the servos, see SST program;
5) Remove jumper;

Mark the board rev. D00/05

Geotronics

TECHNICAL MEMO

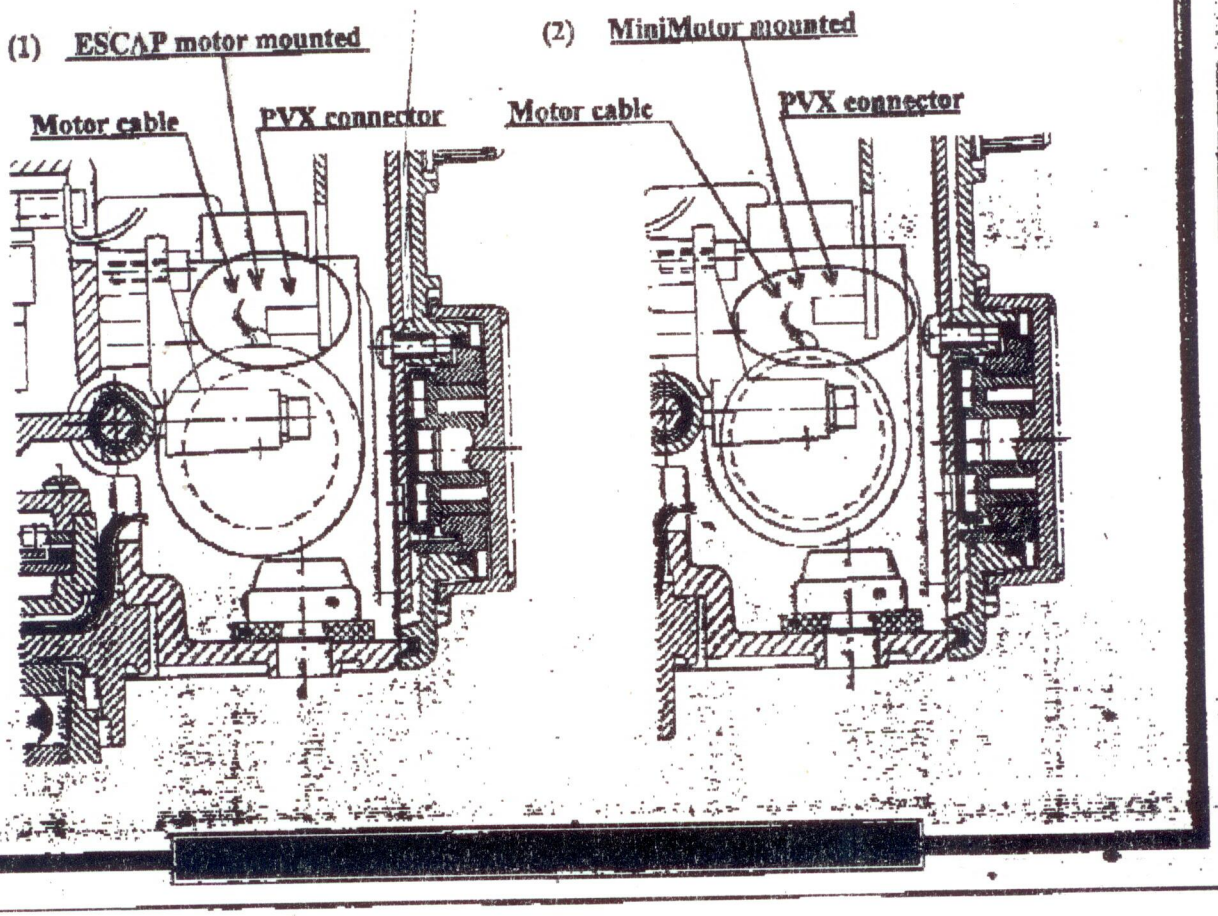
June 1994
GEOTRONICS AB
Technical Support Dept.
Danderyd, SWEDEN
TM/9407A

Instrument type: Geodimeter System 600

Subject: Possible damage of power cable to horizontal motor

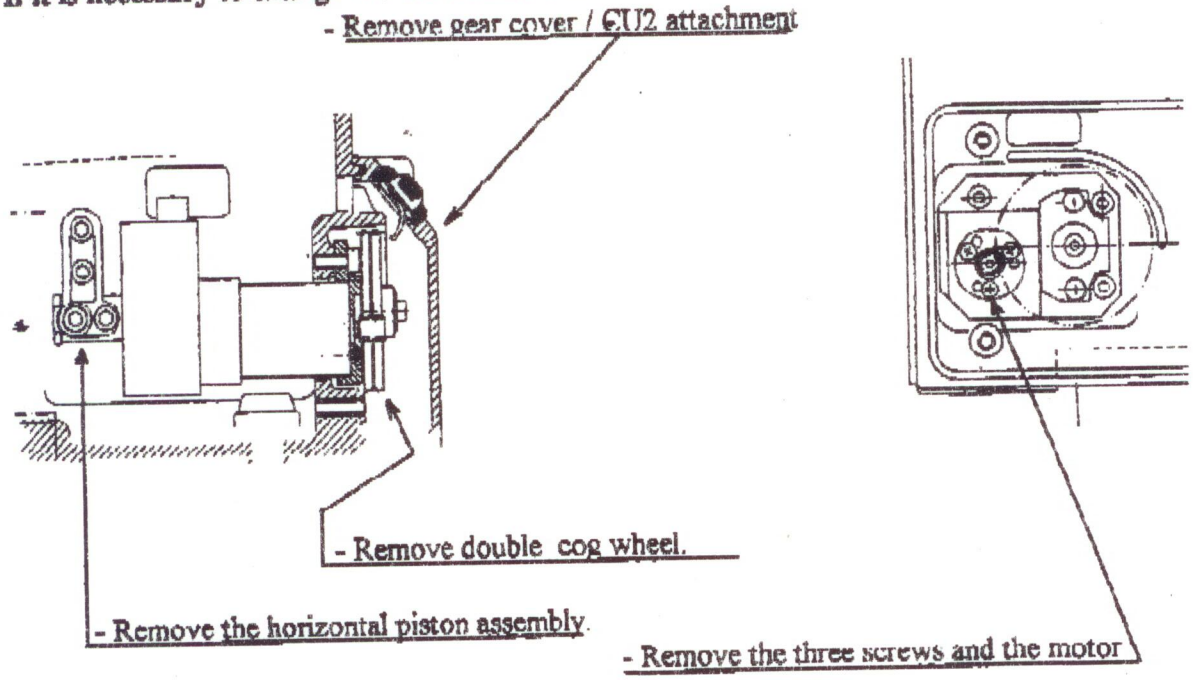
Description: If a motor of type **ESCAP*** (1. To tight fit) is mounted in horizontal position, it has to be changed to a type **MiniMotor** (2. Correct fit).

*** New type of ESCAP motor with correct fit will be provided in the future.**



- Remove the side cover and verify motor type

If it is necessary to change the horizontal motor:



- Replace the horizontal motor with a type MiniMotor.
- Tighten the three screws with 30Ncm torque.
- Check end stop play and torque at the horizontal piston assembly according to adjustment procedures described in the Geodimeter System 600 Maintenance Manual, chapter 15.18

Geotronics

TECHNICAL MEMO

May 1994
GEOTRONICS AB
Technical Support Dept.
Danderyd, SWEDEN
TM/ 9405A

Instrument type Geodimeter System 600 Instruments

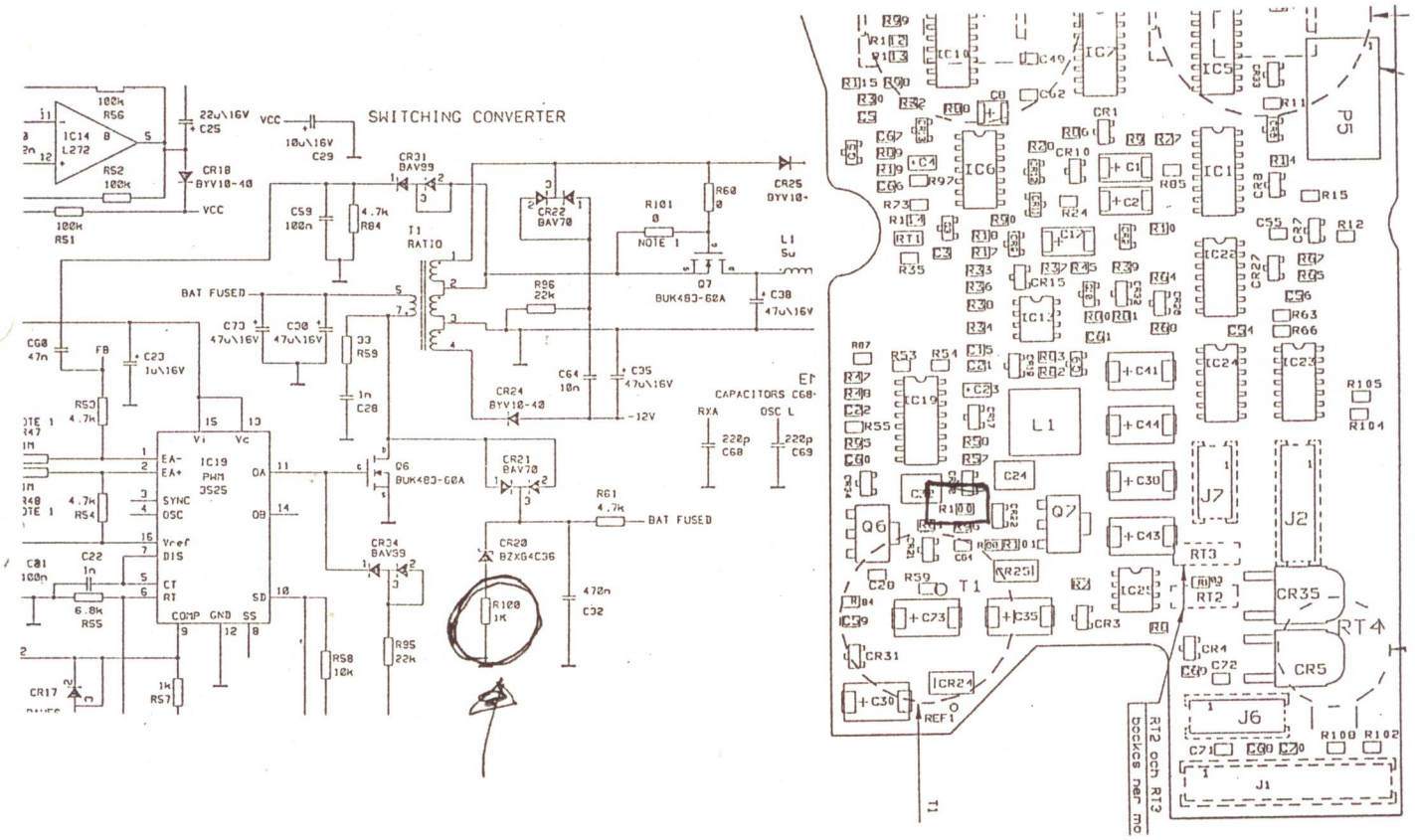
Subject: Modification of the PVX - board to bring down transient voltages when switching on the instrument.

Description: Q5 and Q6 are at risk to become damaged by transients from T1 at switch on.

Replace resistor R100, 1Kohm **to 22,0 ohm ==> part no: 571 806 109**

All instruments must be modified at the very next service occation!!

Components encl. Board is then marked D00/03



Geotronics

TECHNICAL MEMO

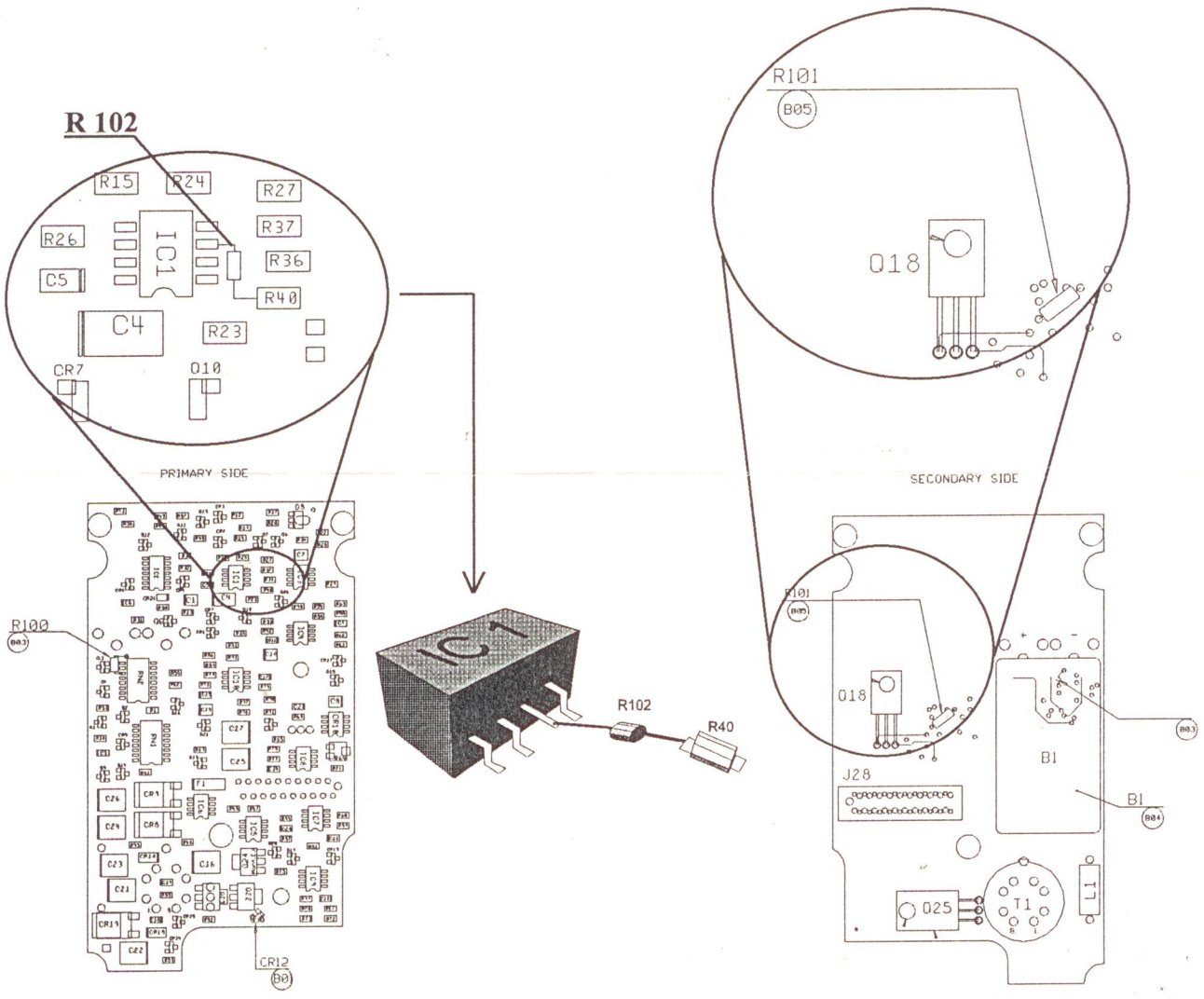
May 1994
GEOTRONICS AB
Technical Support Dept.
DANDERYD, Sweden
TM/9404B

Instrument type: GDM 4000

Subject: Correction of the voltage reference on the PWS2 board.

Symptom: Poor range of radio, info 103

Description: Remove the revision B05 modification TM9303A(if modified).
Lift pin 3 on IC 1 from soldering pad.
Connect R102 (571 902 400) 10k resistor between IC 1 pin 3 and R40 see picture below. Mark the board **B06**



Geotronics

TECHNICAL MEMO

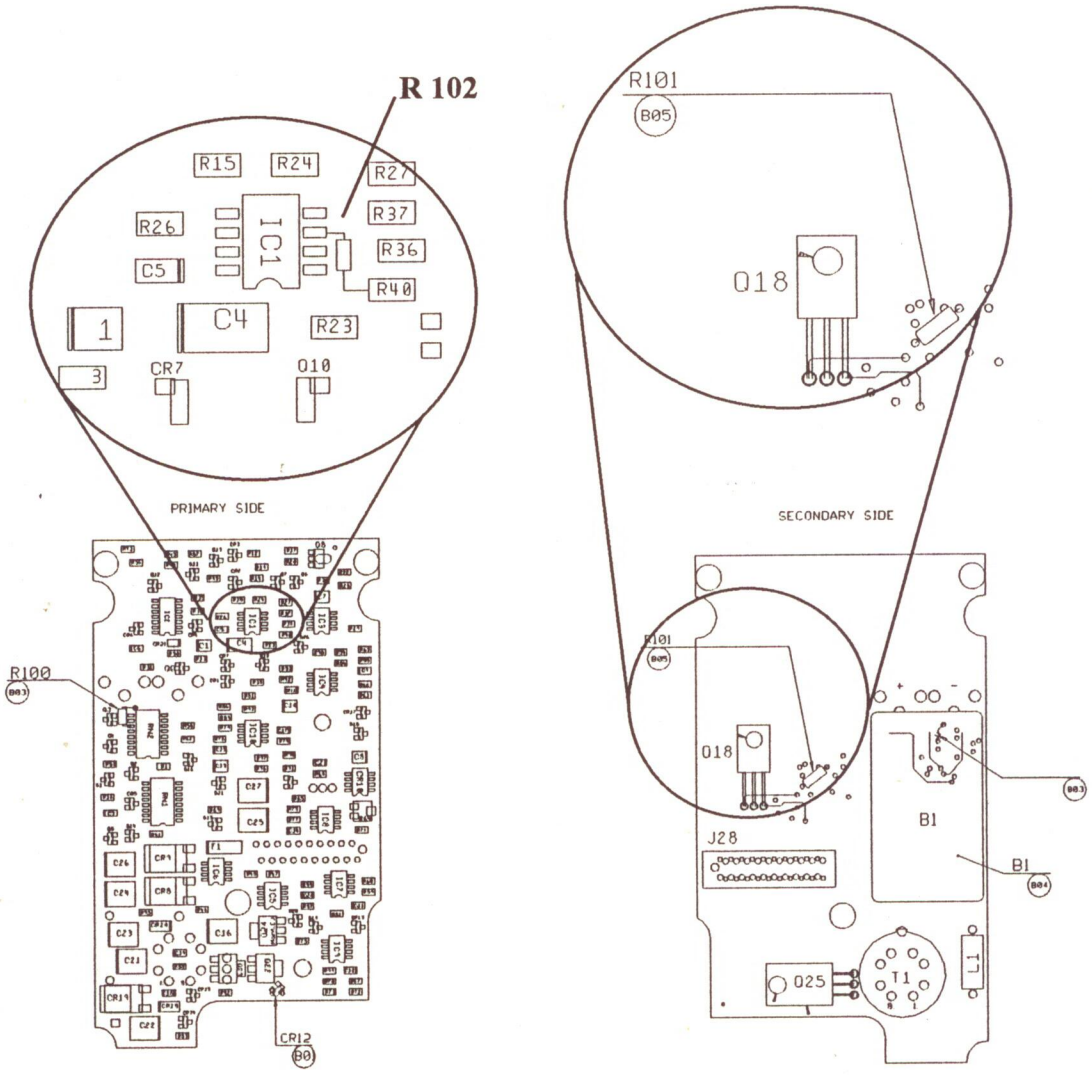
May 1994
GEOTRONICS AB
Technical Support Dept.
DANDERYD, Sweden
TM/9404A

Instrument type: GDM 4000

Subject: To secure range of the radio, by correcting the voltage reference on the PWS2 board.

Symptom: Poor range of radio, info 103

Description: Remove the revision B05 modification TM9303A(if modified) connect a 10k resistor R102 (571 902 400) between IC1 pin 3 and R40 according to picture below. Mark the board **B06**



Geotronics

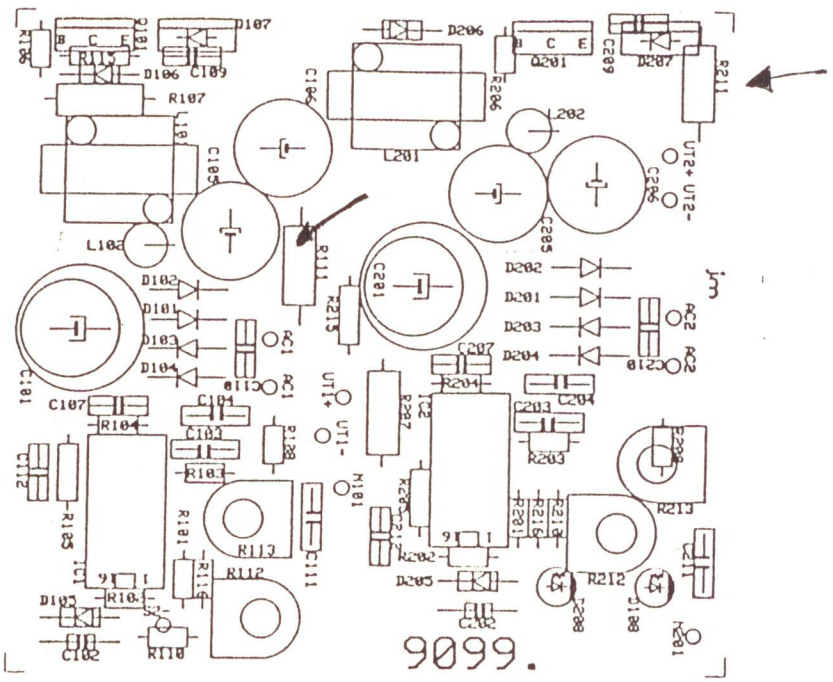
TECHNICAL MEMO

March 1994
GEOTRONICS AB
Technical Support Dept.
Danderyd, SWEDEN
TM/ 9403A

Instrument type: Battery charger ; part no: 571 901 017 (type 9230)

Subject: Malfunctioning output(s)

Description: Resistors R 111(output 1) and R 211(output 2) => 0,68 ohm 1/4 W are due to over heating giving an "open line". Resistors must be replaced by 1/2 W components.



Geotronics

TECHNICAL MEMO

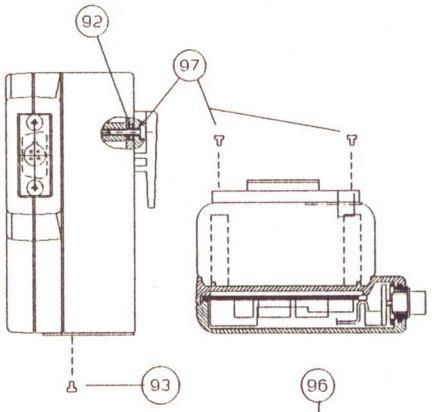
February 1994
GEOTRONICS AB
Technical Support Dept.
DANDERYD, Sweden
TM/9402A

Instrument type: Radio unit 571 180 810 (sep. radio)

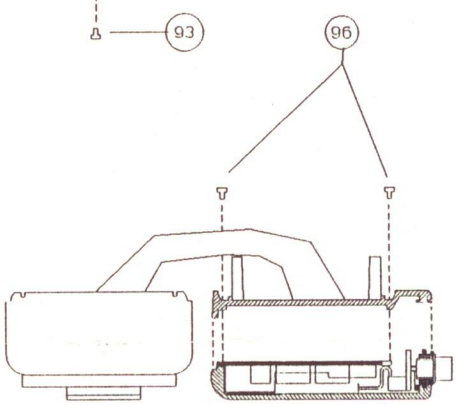
Subject: Connector fastening

Description: Glue connector to holder according to following description

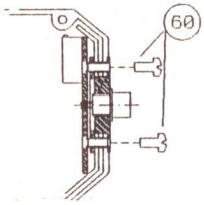
1. **Remove the screws 93 and 97 (note washers 92)**



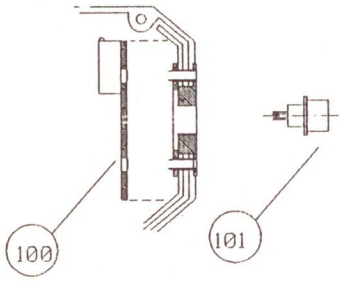
2. **Loosen the screws on the connector remove the screws 96 and open the cover of external unit as in figure**



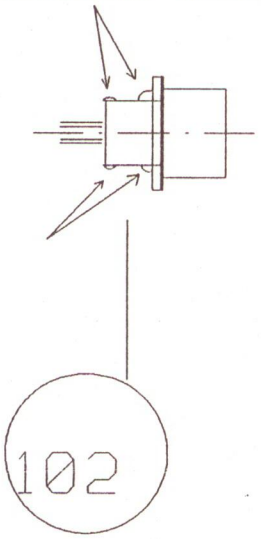
3. **Remove the screws 60**



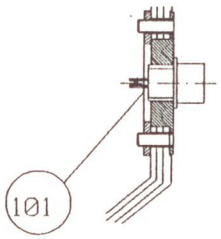
4. **Unsolder the board 100 and remove connector 101**



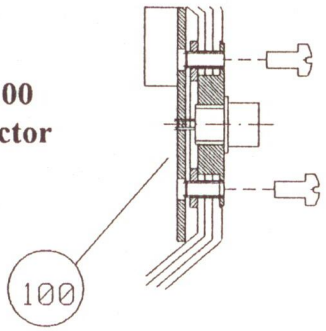
5. Glue connector with "Loctite 638" as in figure



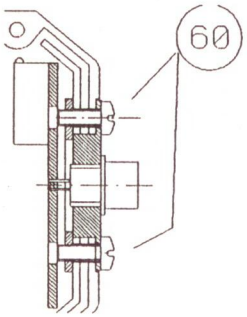
6. Mount connector 101 as in figure and let it harden for 3 hours



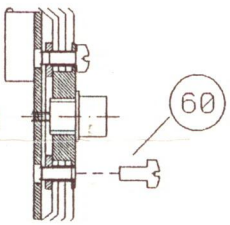
7. Solder the board 100 back on the connector



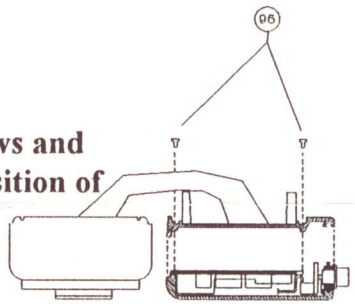
8. Define position of board by mounting the screws 60



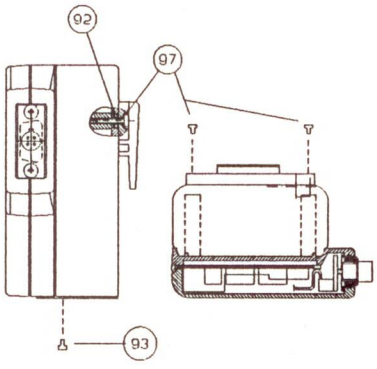
9. Remove one screw at a time and glue with pliobond on the treads and remount



10. Reassemble screws and cover, ensure position of sealing gasket



11. Reassemble the radio unit



Geotronics

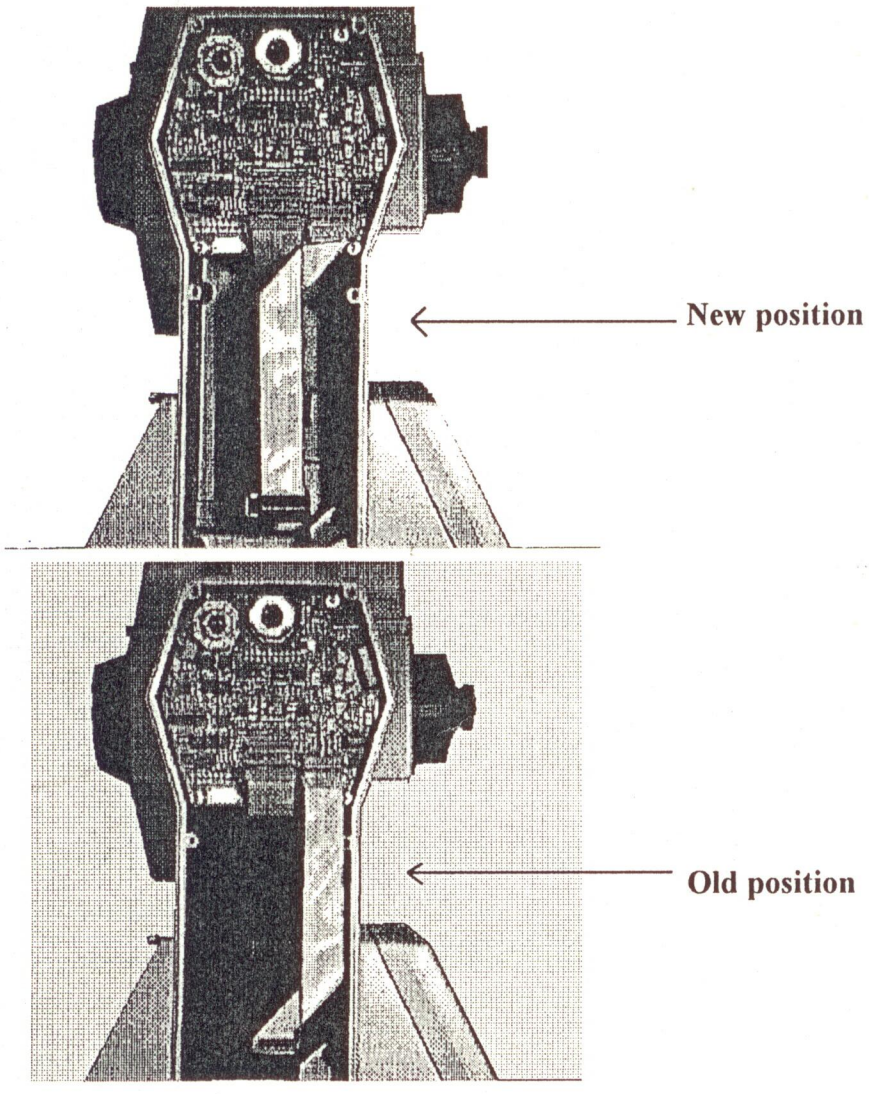
TECHNICAL MEMO

Jan 1994
GEOTRONICS AB
Technical Support Dept.
DANDERYD, Sweden
TM/9401A

Instrument type: Geodimeter System 600

Subject: Eliminate interference between POA - Compensator cable and POA - COP1 cable. Could cause a change of the compensator offset by 20 - 40^{cc}.

Description: Change position of cable from POA - Compensator according to pictures bellow.



Geotronics

TECHNICAL MEMO

June 1992
GEOTRONICS AB
Geodimeter Division
Technical Support Dept.
DANDERYD, Sweden
571/92006

Instrument type: GEODIMETER SYSTEM 400, 500, 4000.

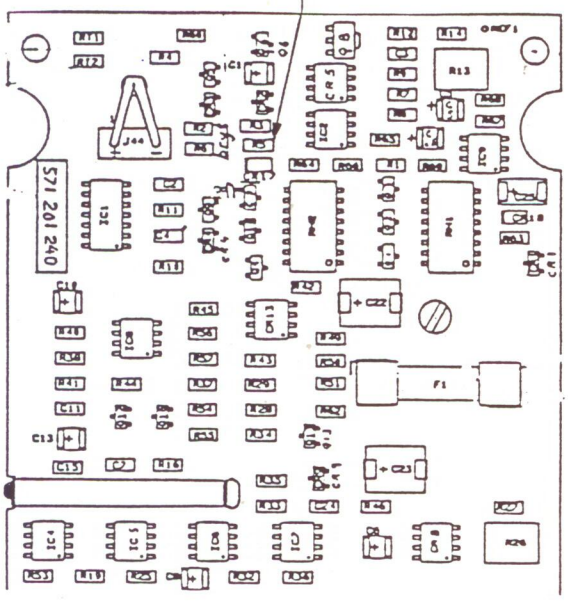
Subject: No power off

Description: Some GDM SYS 400, 500, 4000 instruments have intermittently been unable to switch off. The cause of that is a timing mismatch on the power board, this concerns PWS, PWS-R, PWS2 and PWS2-R.

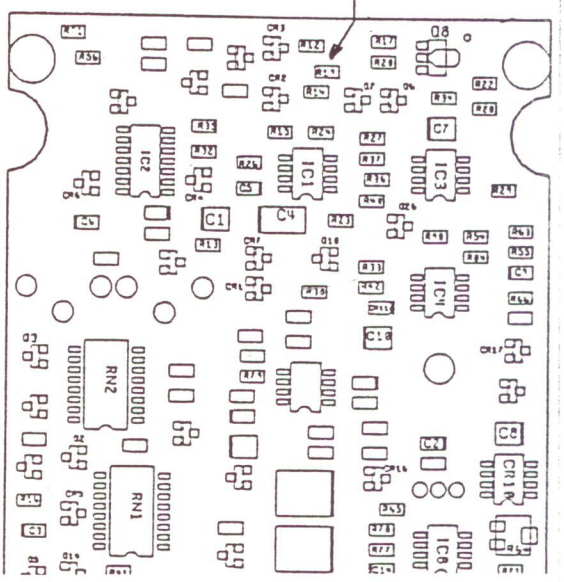
To prevent the instrument to malfunction of this reason following steps has to be made:

Modify PWS and PWS-R by changing the resistor R5 from 10k ohm to 100k ohm part no:571 800 501.
Modify PWS2 and PWS2-R by changing resistor R19 from 10k ohm to 100k ohm part no:571 800 501.

PWS, PWS-R, R5



PWS2, PWS2-R, R19



Geotronics

TECHNICAL MEMO

June 1992
GEOTRONICS AB
Geodimeter Division
Technical Support Dept.
DANDERYD, Sweden
571/92005

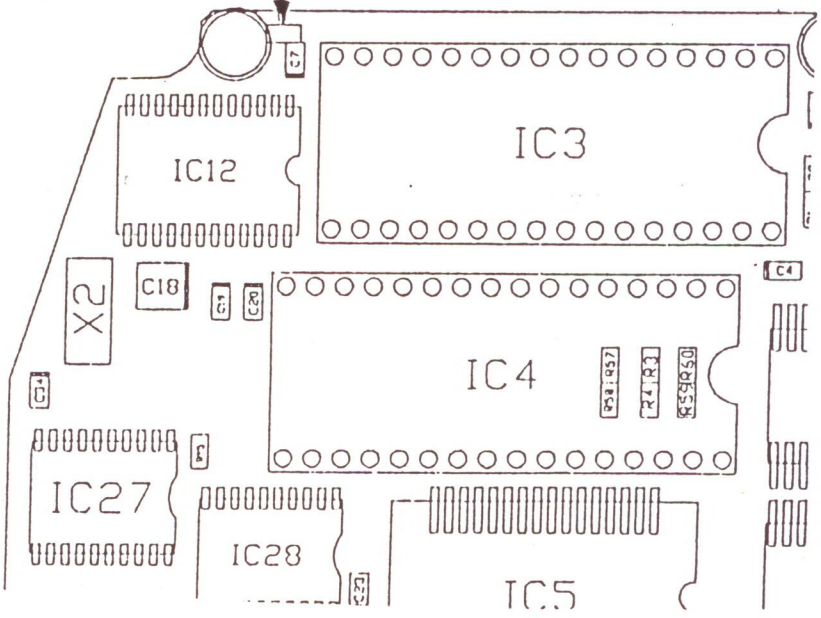
Instrument type: GEODIMETER 400, 4000 and 500-Systems

Subject: Modification of PRS2-board

Symptom: Program irregularities

Description: Modification must be carried out on all PRS2-boards at first possible time!!

Ground connection of PROM 21 (IC3) is open but must be closed by connection of a jumper resistor (571 800 000) or a piece of wire between C7 and ground plane.



Remove the screw permanently and solder to the ground plane (around the hole).
Revision changed to C01.

Geotronics

TECHNICAL MEMO

May 1992
GEOTRONICS AB
Geodimeter Division
Technical Support Dept.
DANDERYD, Sweden
571/92004

Instrument type: GEODIMETER SYSTEM 500.

Subject: INFO 174.7

Description: Some GDM SYS 500 instruments have intermittently displayed info message 174.7, malfunction may be caused of:

1. The locking of the local oscillator is not working properly caused by temperature variation.

2. To much molycote grease placed under the ferul holder may cause the signal beam to be partly or completely blocked and therefore the instrument will indicate info 174.7.

3. The innerpath is not firmly mounted, the two wheels that holds the two end stops together or the inner path prism in the greywedge can be out of tolerance.

To prevent the instrument to malfunction of any of these 3 reasons following steps can and in certain cases has to be made:

1. Local oscillator not locking properly. If the crystal on the DIP board is manufactured by K O Y O, change to a type manufactured by TELEQUARTZ (18TQG92) Mark the DIP board with revision B03/08.
DIP boards as from distance units serial no:20650 should already be fitted with TELEQUARTZ crystal.

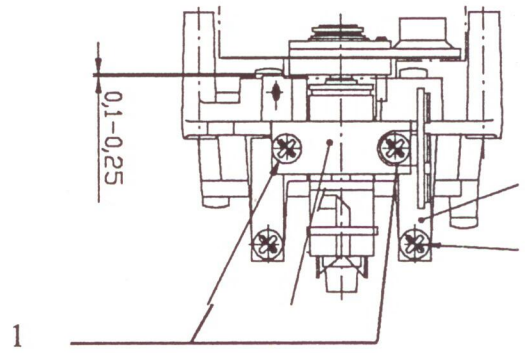
2. To much grease. Clean the grease from the ferul holder. Should be performed if info 174.7 occurs by this reason. The ferul holder should already be cleaned at the factory as from distance units serial no:20488 (Remove top cover to read serial no).

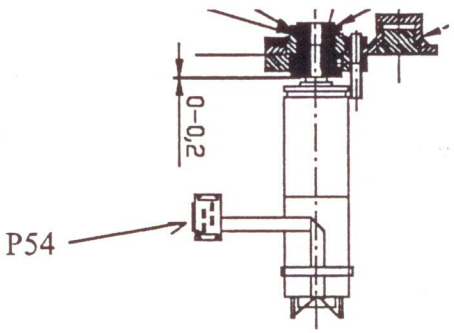
3. Mechanical assembly of greywedge unit out of tolerance. Change greywedge unit. Should be performed if info 174.7 occurs by this reason.

GREYWEDGE UNIT (571 200 060)

3. Changing motor with greywedge caused by mechanical assembly tolerances.

Loosen the three screws that holds the top cover and remove it, verify that the info 174.7 is mechanily related to the greywedge unit, by turning the greywedge so that the innerpath prism is visible, and check that it is firmly mounted in the greywedge. Also check that the stop pin is firmly mounted. If problem is verified change greywedge motor unit by disconnecting connector P54 from the DIC board, loosen the two screws (1) that holds the greywedge motor, mount a new unit and be sure to position the unit in the same way as the old unit. Remount the instrument and verify function.

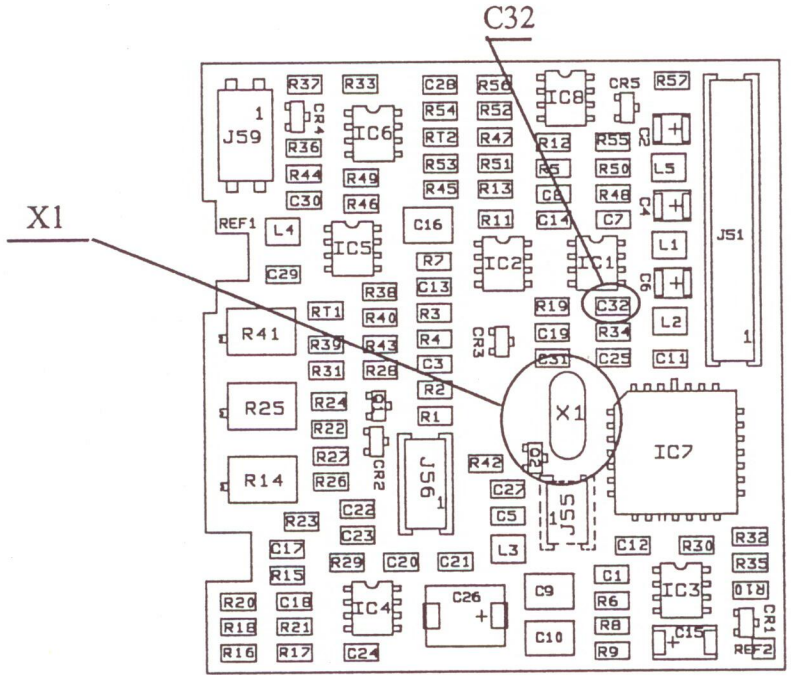




DIP BOARD (571 201 040)

1. Changing X1 on the DIP board.

Loosen the three screws and remove the top cover of the GDM. Loosen the DIT(-H) and DIC boards, check the X1 type and if it is a KOYO type, remove the DIP board and carefully remove X1 and remount a TELEQUARTZ type X1. The KOYO type is identified by the KOYO name thats printed in black text on the crystal. When changing crystal also change C32 to 100pf .



Additional parts
X1 part no: 571 905 570
C32 part no: 571 801 201

Remount DIP, DIC, DIT(-T) boards and top cover, verify function.

GREYWEDGE UNIT (571 200 060)

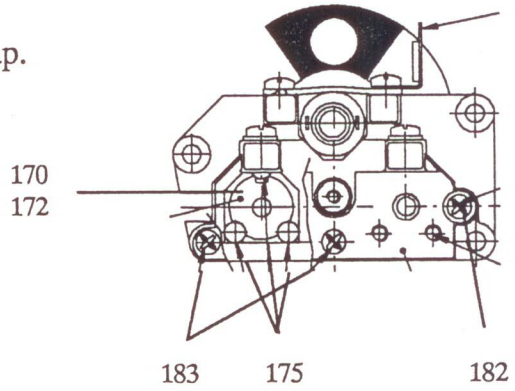
2. Cleaning the greywedge unit from "Molycote".

Loosen the three screws and remove the top cover of the GDM.

Loosen and remove the
DIT-H, DIC and DIP boards carefully.

Loosen and remove both reciver and transmitter diodes.

Protect the fiber end with a plastic cap.

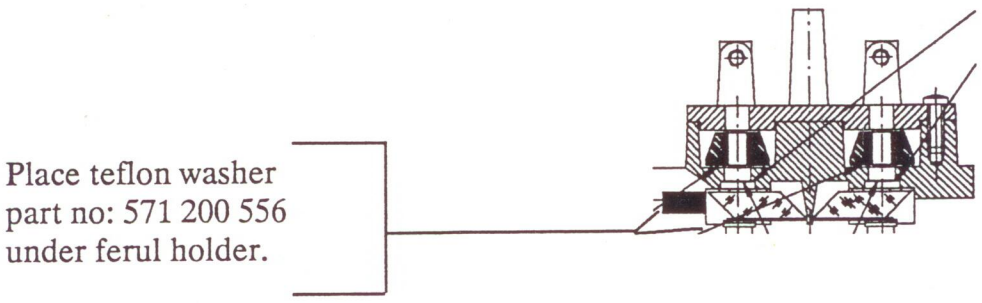


Loosen and remove the three screws
182,183 in the picture.

Carefully remove the cover, the
three steel balls 175 and the ferul
holder 170,172.

Clean the ferul holder 170,172 from "Molycote" with a cloth.

If there is "Molycote" in the fiber compartment use vacuum tool or similar to clean and be carefull not to let it fall down in the hole on to the prism. If it falls down to the prism and not possible to remove, the whole greywedge unit has to be replaced.
After cleaning, assemble the greywedge unit add a teflon washer,
part no: 571 200 556 under the ferul holder. Remount the boards and perform optical and electrical adjustments.



Geotronics

TECHNICAL MEMO

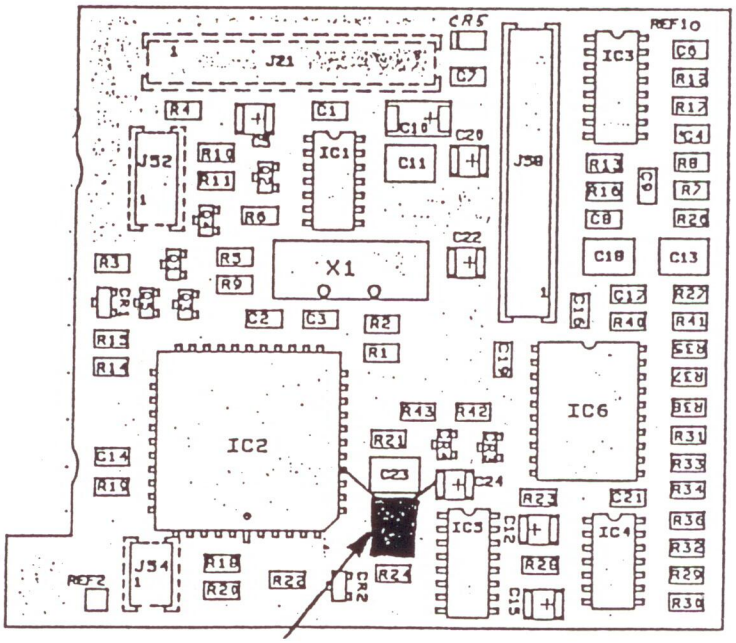
February 1992
GEOTRONICS AB
Geodimeter Division
Technical Support Dept.
DANDERYD, Sweden
571/92003

Instrument type: Geodimeter 500-System

Subject: Improved ESD-protection DIC-Board

Description: Capacitor C26 (100nF) 571 902 773
connected to IC2/10 to ground at C24

REVISION CHANGED TO B03



Geotronics

TECHNICAL MEMO

January 1992
GEOTRONICS AB
Geodimeter Division
Technical Support Dept.
DANDERYD, Sweden
571/92001

Instrument Model: Geodimeter 400/500/4000-System instruments fitted with
- TOK-Board (571 181 100)
- DAK-Board (571 143 920)

Subject: Spread in distancereadings

Description: "Large" spreads at certain distances, caused by disturbance generated in the display-illuminationcircuitry

Remedy: Modification of the TOK/DAK-Board

Additional components:

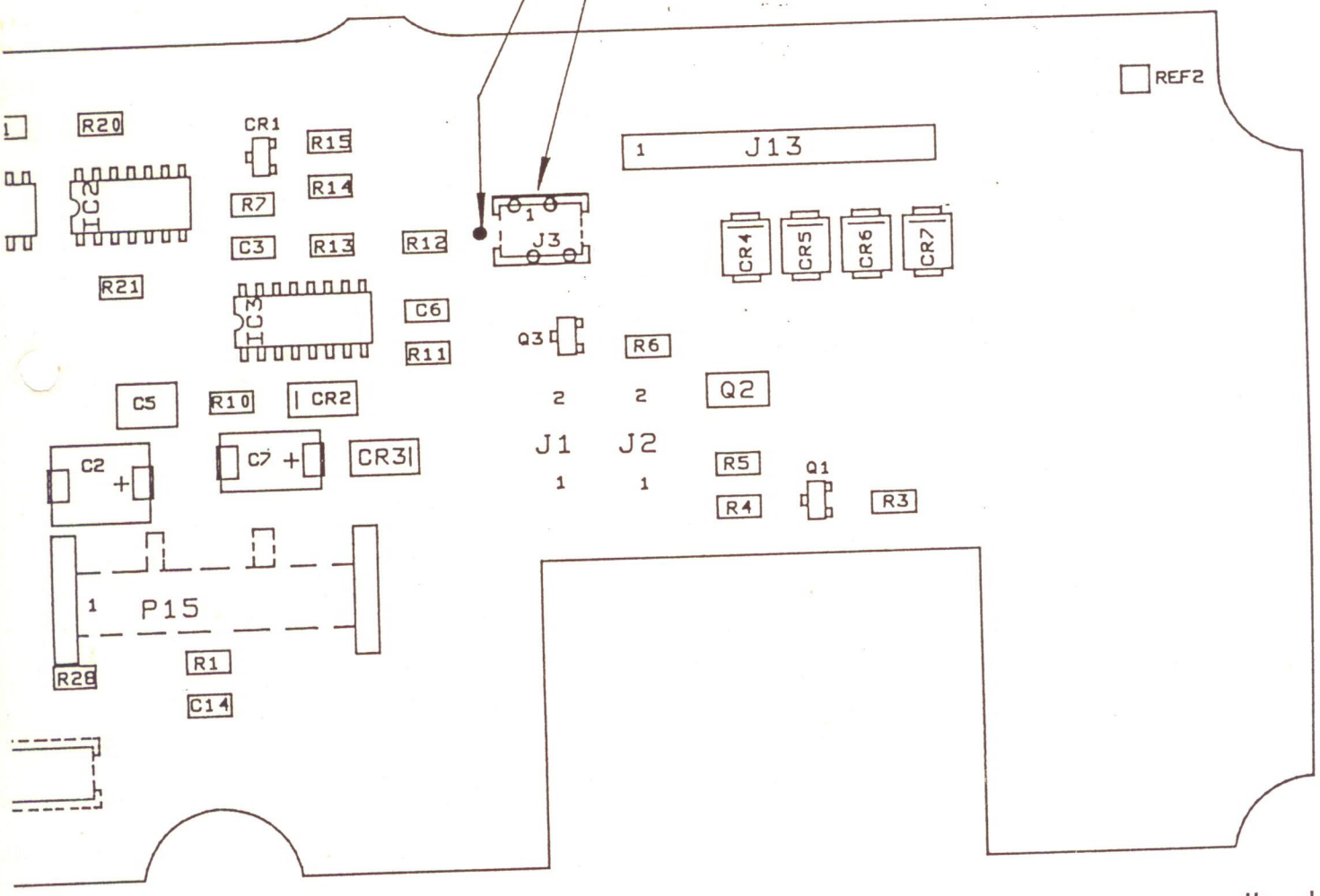
R6	571 800 309	2,2kohm
C15	571 112 760	100nF, 10V

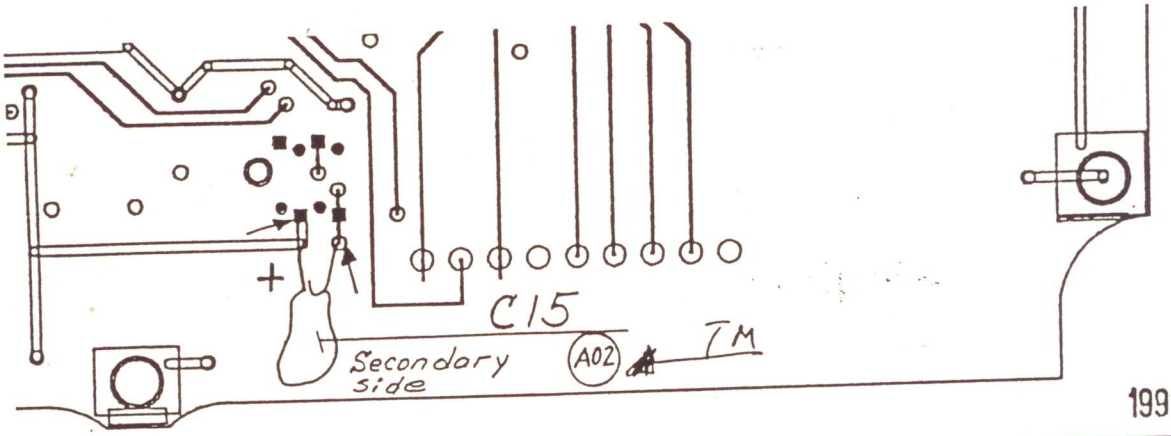
1. Change R6 6,8kohm to 2,2kohm
2. Fit C15 to J3-1 (+5V) and J3-2

Rev A01 ->	A02	See Fig.
Rev B01 ->	B02	See Fig.
Rev C00 ->	C01	See Fig.

Encl. Diagram
- 571 181 101
- 571 181 102
- 571 143 921
- 571 143 922

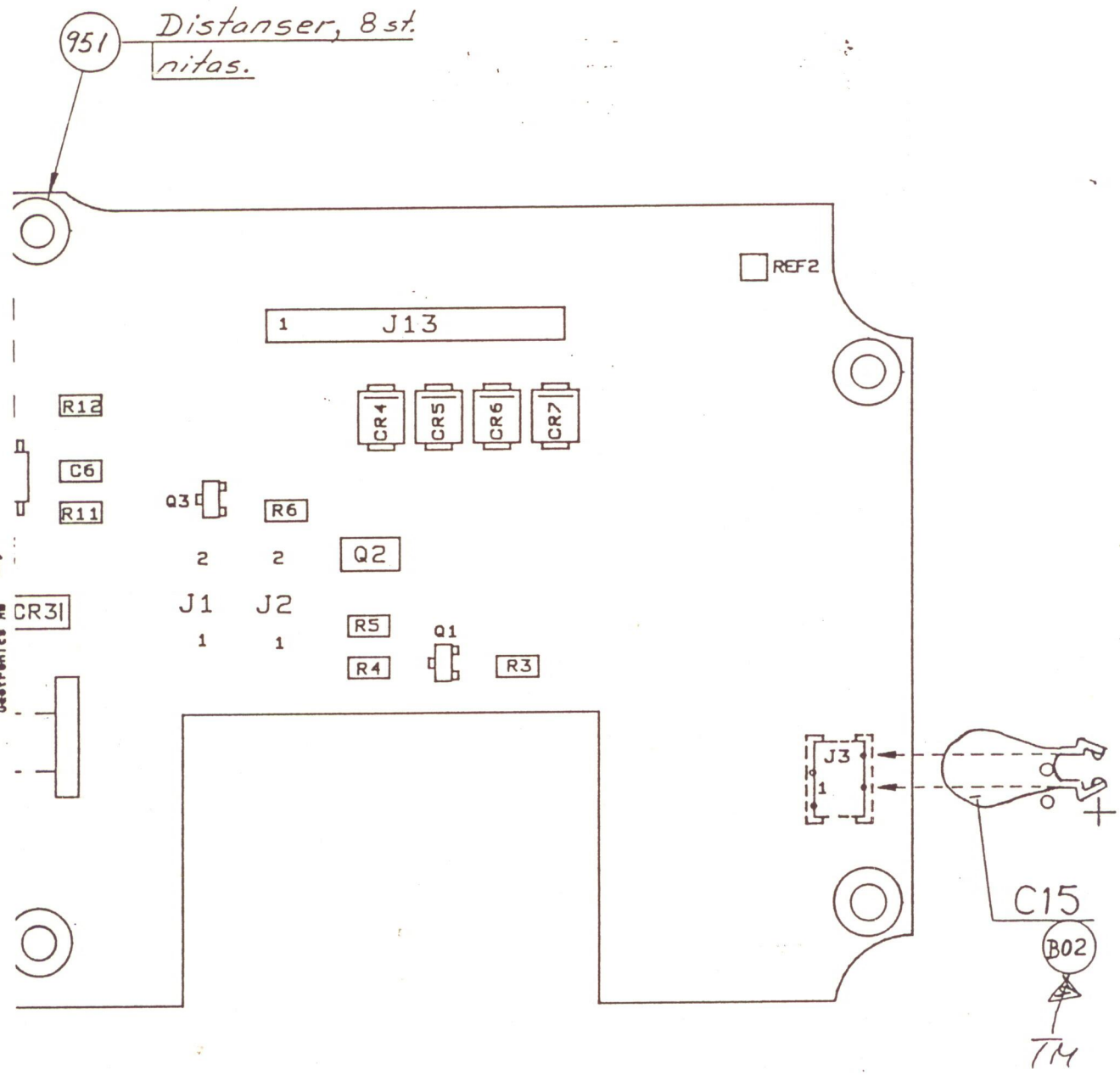
Polarisering märkes på kort-
ytan medelst spritpenna.
hål mont. på komp. sidan.





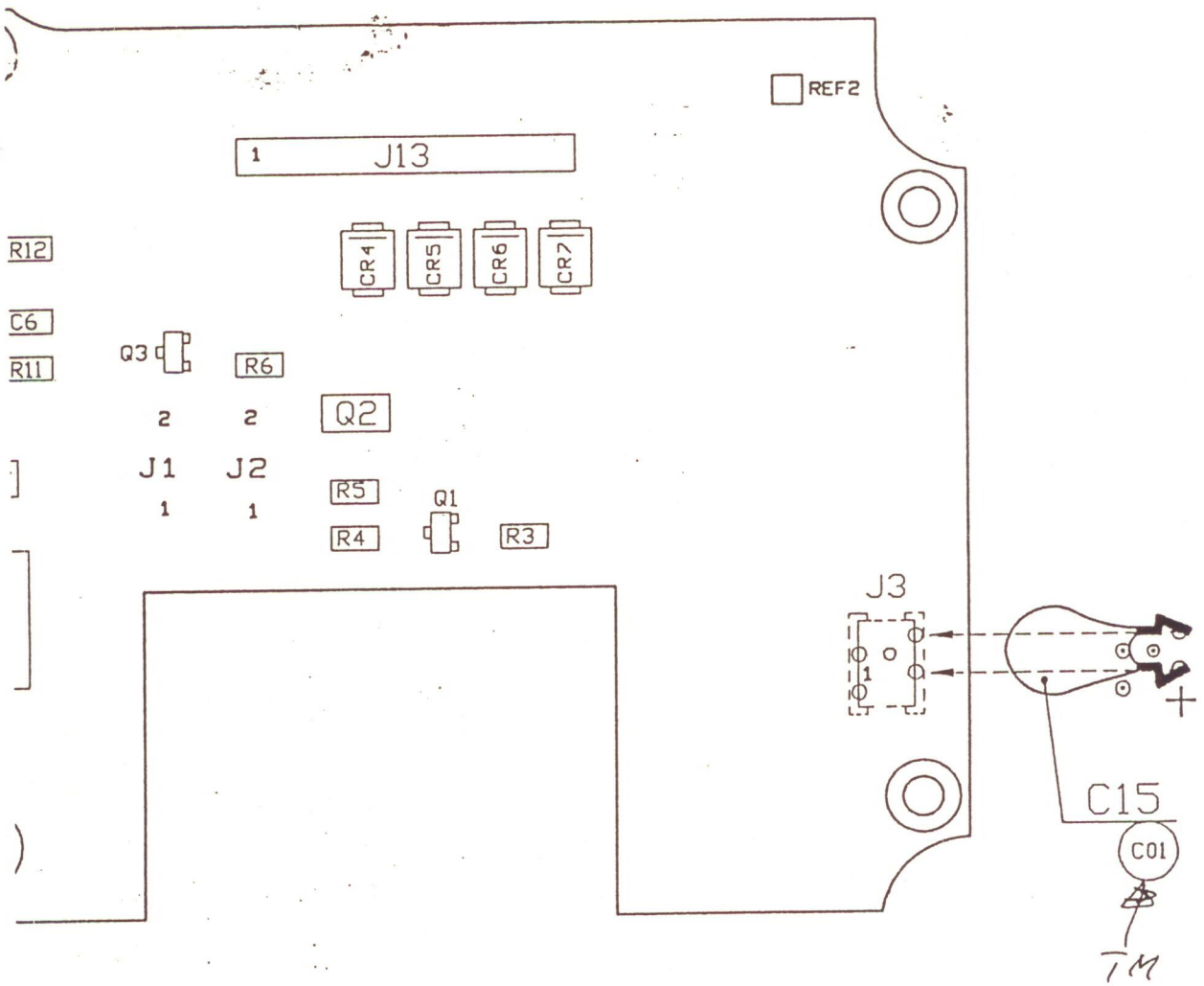
1991 -1

LAMODMATT. UTDRAG UR SMS 715 BASMATT MEDEL GROV - 3 ±0.1 (3)- 6 ±0.1 ±0.2 (6)- 30 ±0.2 ±0.5 (30)- 120 ±0.3 ±0.8 (120)- 315 ±0.5 ±1.2 (315)-1000 ±0.8 ±2	TOL.UNLESS OTHERW.STATED	MATERIAL
	SCALE 2:1	DESIGN
	TITLE CC-ASSY TOK	CHECKED To / R.A. DATE 90-09-13 APPROVED
		ART NO 571 181 100
Geotronics Danderyd	NEXT HIGHER ASSEMBLY	DWG NO 571 181 101 REV A02



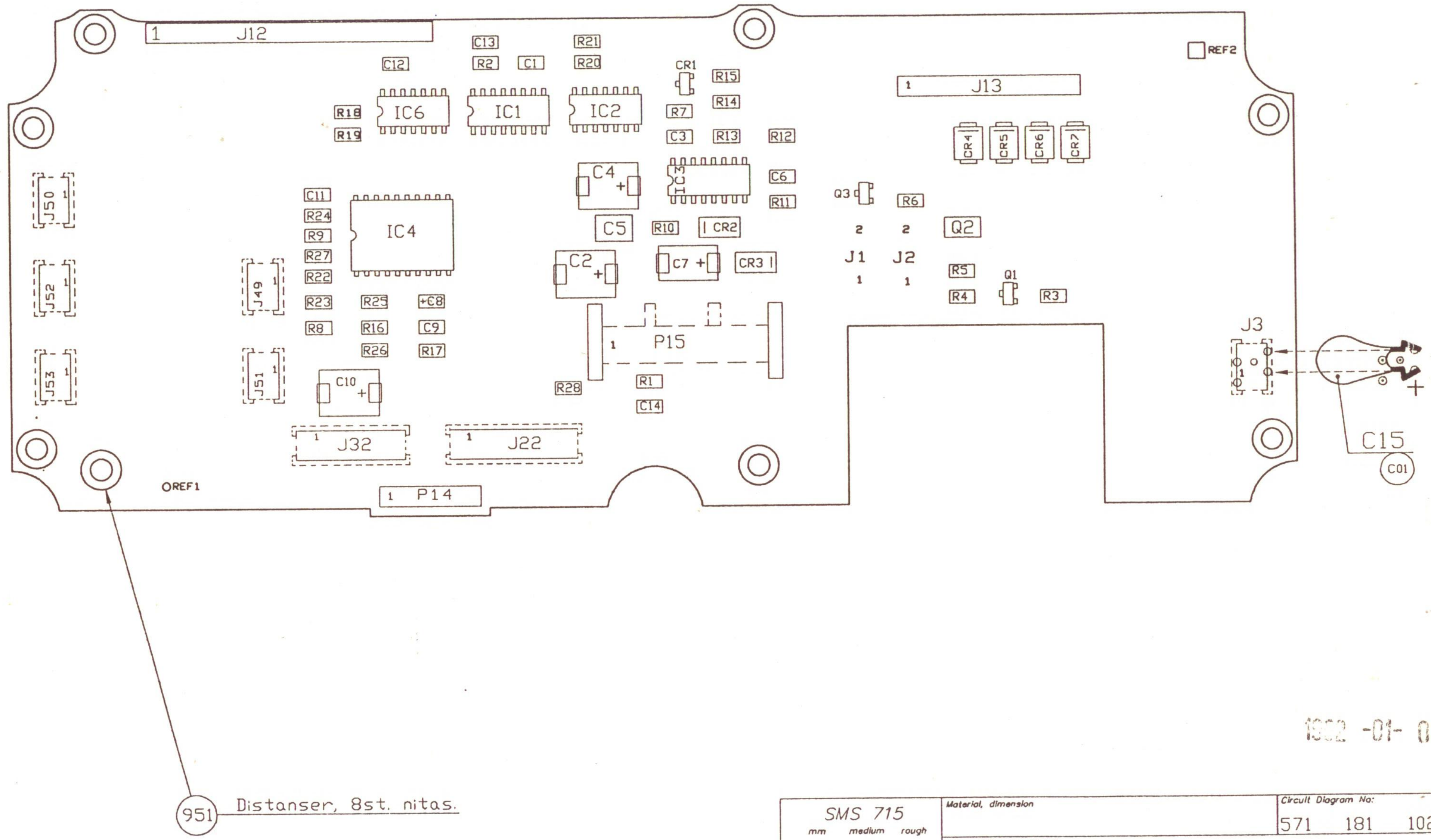
1991 -12- 12

LÄNGDMÅTT. UTDRAG UR SMS 715 BASMÅTT MEDEL GROV - 3 ±0.1 (3)- 6 ±0.1 ±0.2 (6)- 30 ±0.2 ±0.5 (30)- 120 ±0.3 ±0.8 (120)- 315 ±0.5 ±1.2 (315)-1000 ±0.8 ±2	TOL.-UNLESS OTHERW.STATED	MATERIAL		
	SCALE 2:1	DESIGN		DATE 1990-08-14
	TITLE CC-ASSY TOK	CHECKED Io	DATE 90.10.11	APPROVED / DATE
Geotronics Danderyd		ART NO 571 181 100		SIZE A3
	NEXT HIGHER ASSEMBLY	DWG NO 571 181 101	REV B02	SHT NO 1 / OF SHTS 1



1991 -12- 12

SMS 715 mm / medium / rough -3 ±0.1 (3)-6 ±0.1 ±0.2 (6)-30 ±0.2 ±0.5 (30)-120 ±0.3 ±0.8 (120)-315 ±0.5 ±1.2 (315)-1000 ±0.8 ±2.0	Material, dimension	Circuit Diagram No: 571 181 102	C01
	Unless Otherwise Stated Tolerances Chamfered edge Fillet Rmax Roughness values R_a		
	Scale 2:1 / Date 91-05-03	Drawn By 231 / Arnold	
Geotronics Danderyd Sweden	Name CC-ASSY TOK	Ctrl / Approved / Format A3 Article. No 571 181 100	
	Next Higher Assembly	Dwg. No 571 ,181 ,101	Rev C0



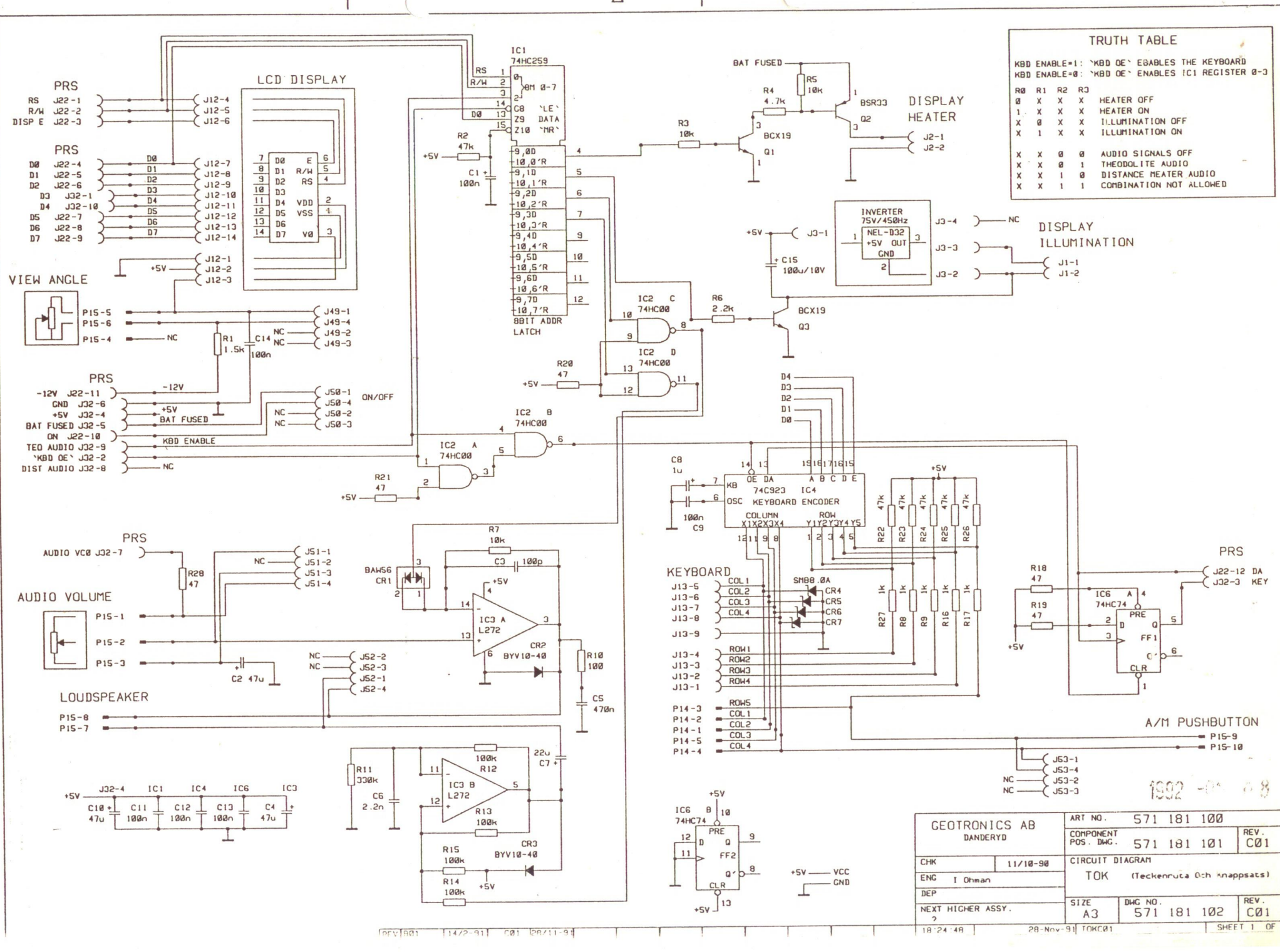
a

1992-01-08

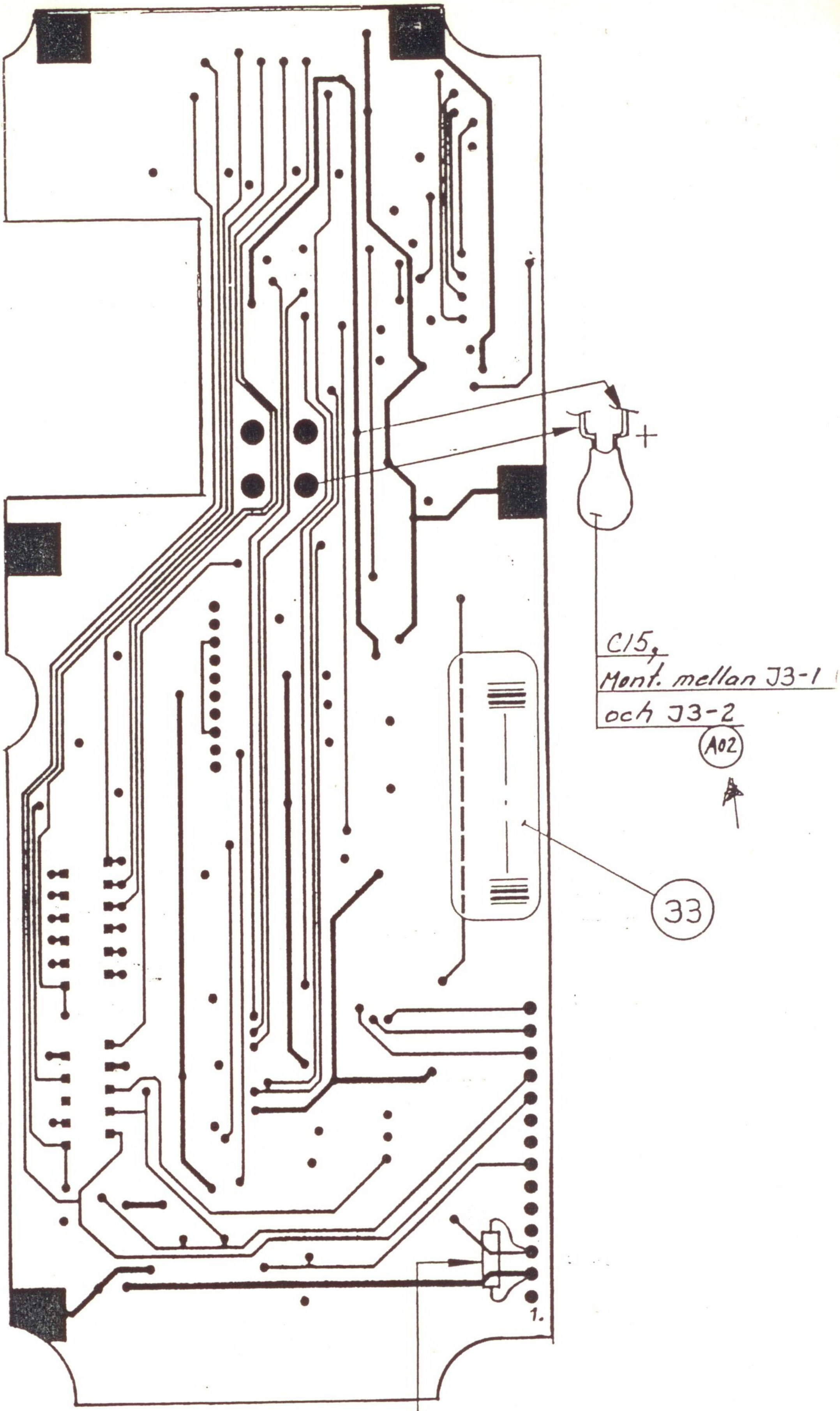
SMS 715		
mm	medium	rough
-3	±0.1	
(3)-6	±0.1	±0.2
(6)-30	±0.2	±0.5
(30)-120	±0.3	±0.8
(120)-315	±0.5	±1.2
(315)-1000	±0.8	±2.0

Geotronics
Danderyd

Material, dimension		Circuit Diagram No: 571 181 102	C01
Unless Otherwise Stated			
Tolerances	Chamfered edge	Fillet Rmax	Roughness values R_a
Scale 2:1	Date 91-05-03	Drawn By 231 / Arnold	
Name CC-ASSY TDK		Ctrl / Approved / Format A3	
		Article. No 571 181 100	
Next Higher Assembly		Dwg. No	Rev



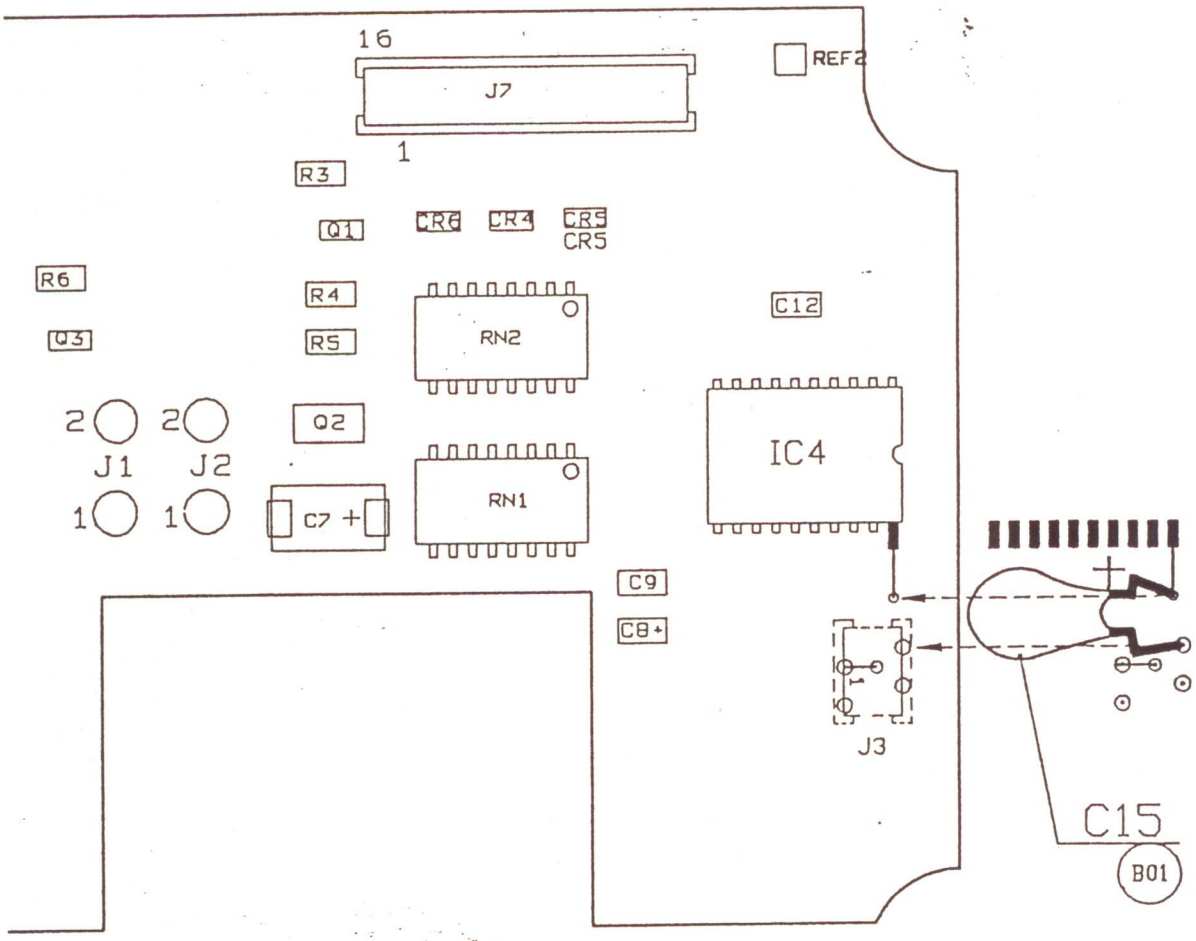
Sekundärsida



DAK-BOARD

A01 —> A02

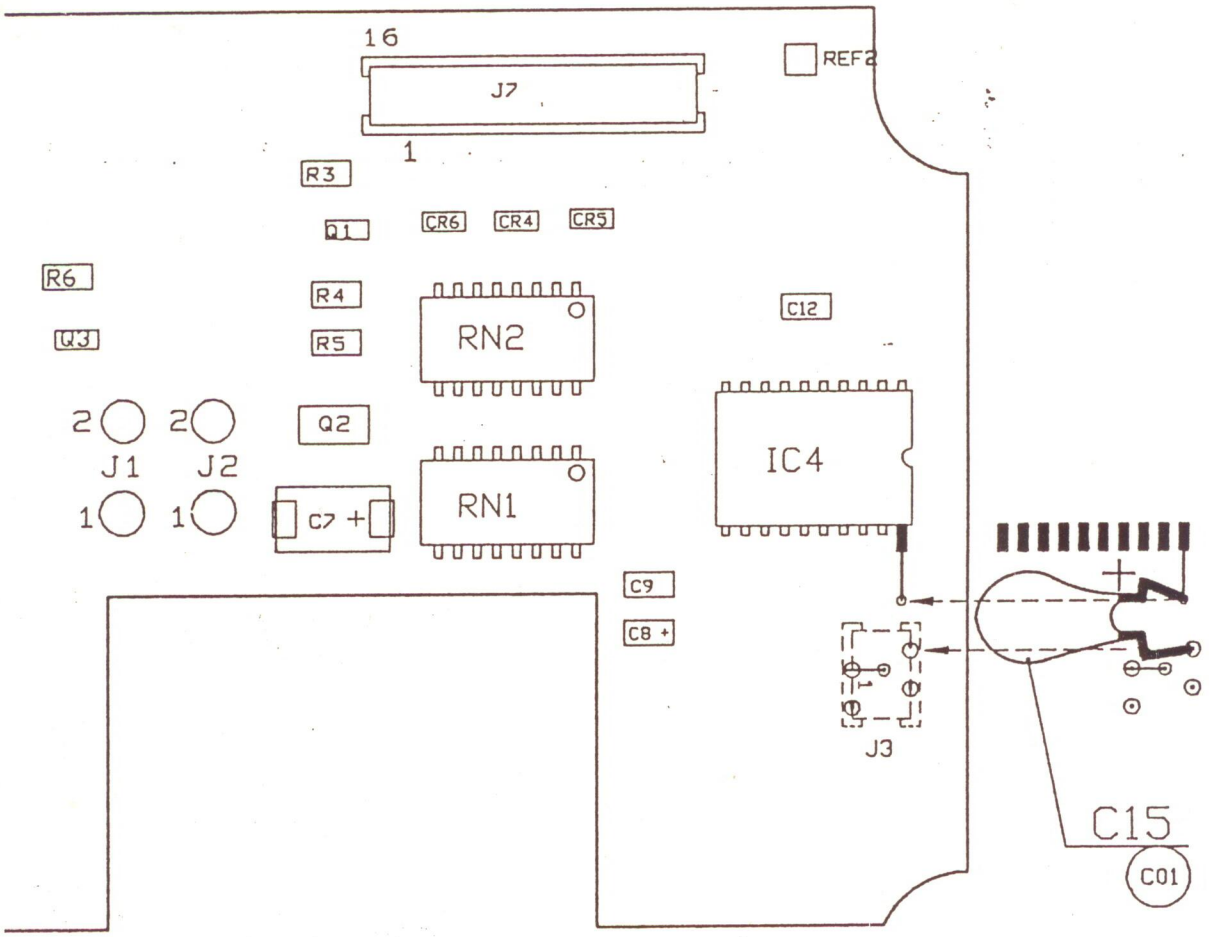
Rev.	A01	22/5 90/RA	A02	19/11 91/RA							



ASSEMBLY PRIMARY SIDE

1991 -12- 14

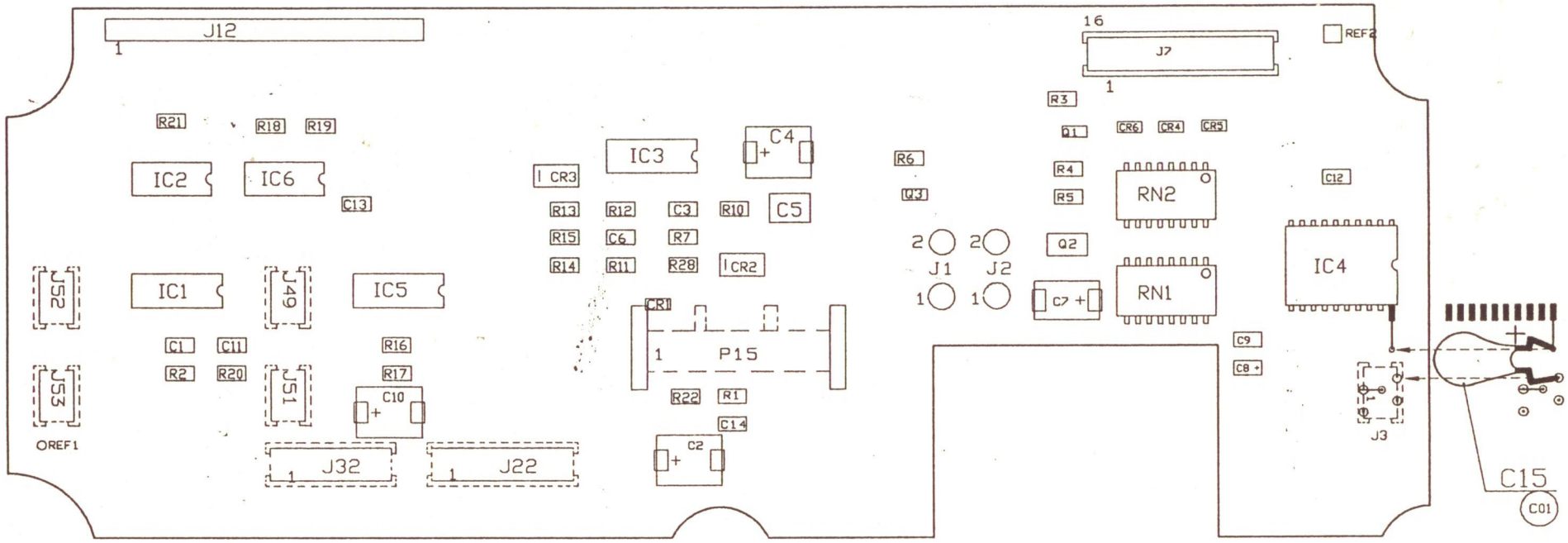
SMS 715 mm / medel / grov -3 ±0.1 (3)-6 ±0.1 ±0.2 (6)-30 ±0.2 ±0.5 (30)-120 ±0.3 ±0.8 (120)-315 ±0.5 ±1.2 (315)-1000 ±0.8 ±2.0	Material, dimension Dör ej annat anges gäller: Toleranser / Kanter brytes / Kolar Rmax / Ytjämnhet R_a Skala 2:1 / Datum 91-08-08	Schema 571,143,922 B01 Avd, konstr 231 / Arnold Kontr / Godk / Format A3 Artikelnr 571 143 920 Ritning nr 571,143,921 B0		
Geotronics Danderyd	Benämning CC-ASSY DAK Ingår i:			



ASSEMBLY PRIMARY SIDE

1991 -12- 14

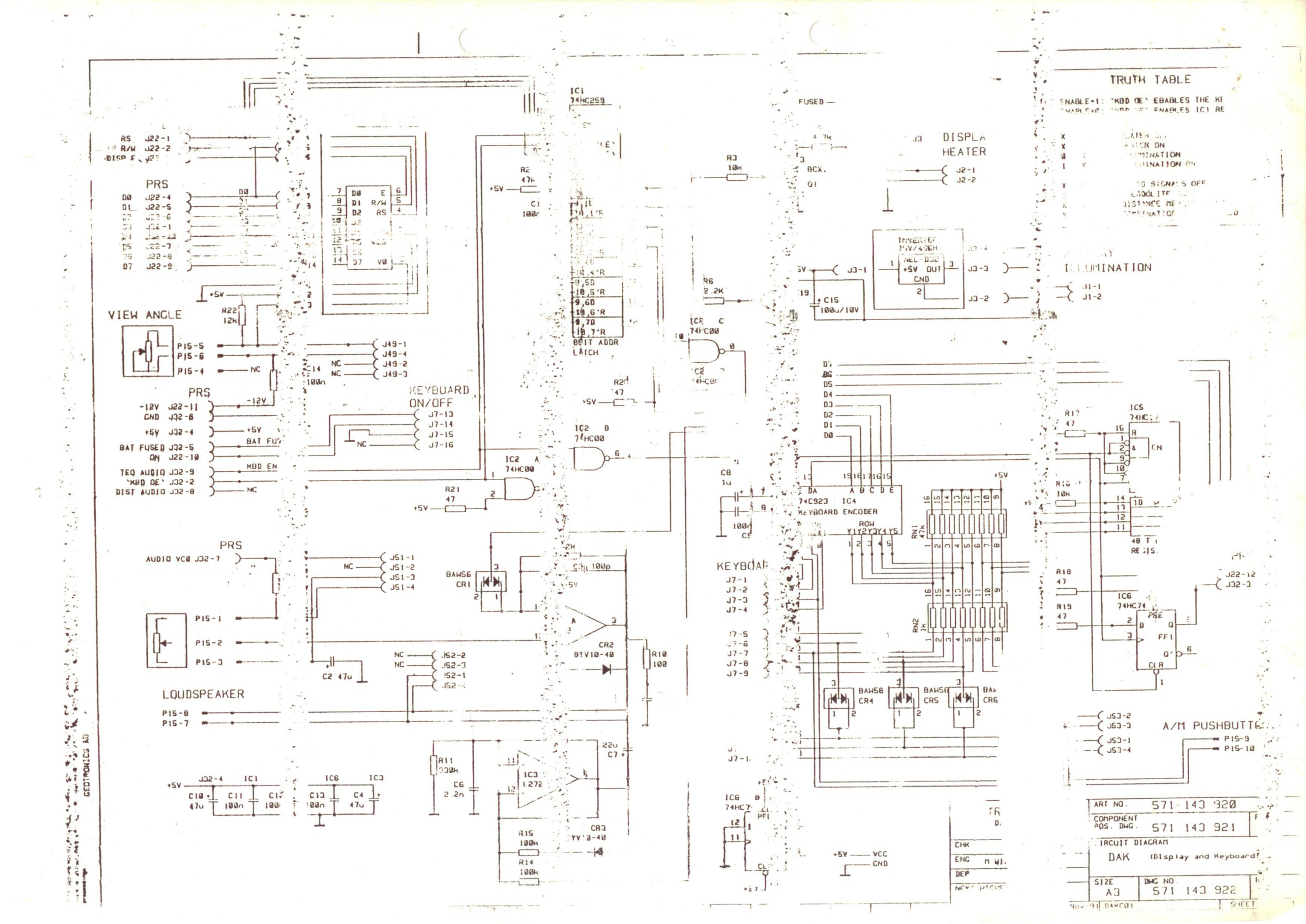
SMS 715 mm / medel / grov -3 ±0.1 (3)-6 ±0.1 ±0.2 (6)-30 ±0.2 ±0.5 (30)-120 ±0.3 ±0.8 (120)-315 ±0.5 ±1.2 (315)-1000 ±0.8 ±2.0	Material, dimension Där ej annat anges gäller: Toleranser / Kanter brytes / Kolar Rmax / Ytjämnhet R_a Skala: 2:1 Datum: 91-09-19	Schema: 571 ,143 ,922 C01 Avd, konstr: 231 / Arnold Kontr / Godk / Format: A3 Artikelnr: 571 143 920 Ritning nr: 571 ,143 ,921 C01	Geotronics Danderyd Benämning: CC-Assy DAK

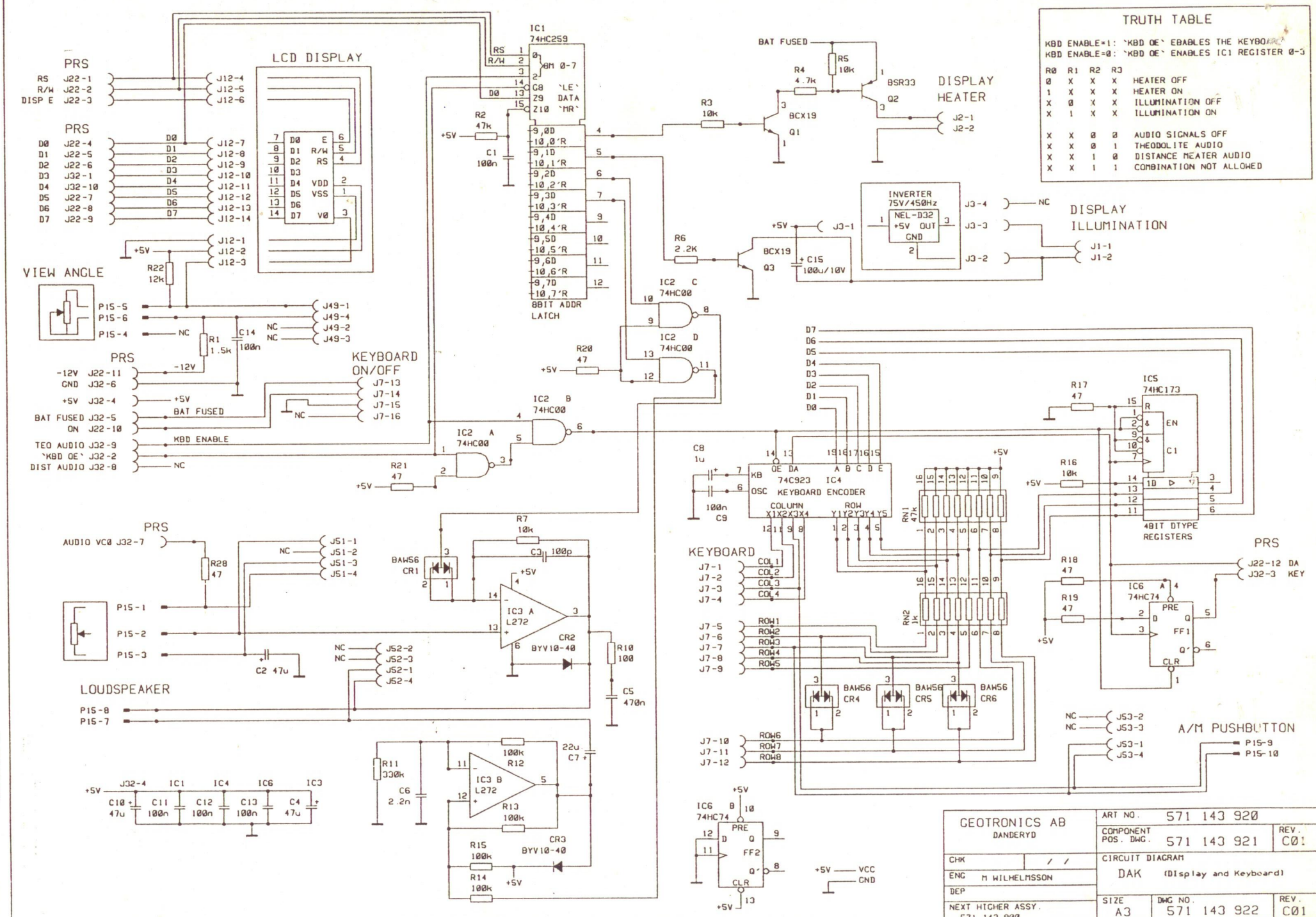


ASSEMBLY PRIMARY SIDE

91-12-18

SMS 715	Material, dimension	Schema	
mm / medel / grov		571 143 922	C01
-3 ±0.1	Där ej annat anges gäller:		
(3)-6 ±0.1 ±0.2	Toleranser / Kanter brytes / Kolar Rmax / Ytjämnhet R_a		
(6)-30 ±0.2 ±0.5	Skala: 2:1	Datum: 91-09-19	Avd, konstr: 231 / Arnold
(30)-120 ±0.3 ±0.8			
(120)-315 ±0.5 ±1.2			
(315)-1000 ±0.8 ±2.0			
Geotronics Danderyd	Benämning: CC-Assy DAK	Kontr / Godk / Format: A3	
		Artikelnr: 571 143 920	
		Ritning nr: 571 143 921	C0


TRUTH TABLE
VIEW ANGLE
PRS
KEYBOARD ON/OFF
LOUDSPEAKER
DISPLA
HEATER
ILLUMINATION
KEYBOARD ENCODER
A/M PUSHBUTTE
ART NO. 571 143 920
COMPONENT POS. DWG. 571 143 921
CIRCUIT DIAGRAM
DAK (Display and Keyboard)
SIZE A3
DWG NO. 571 143 922
SHEET

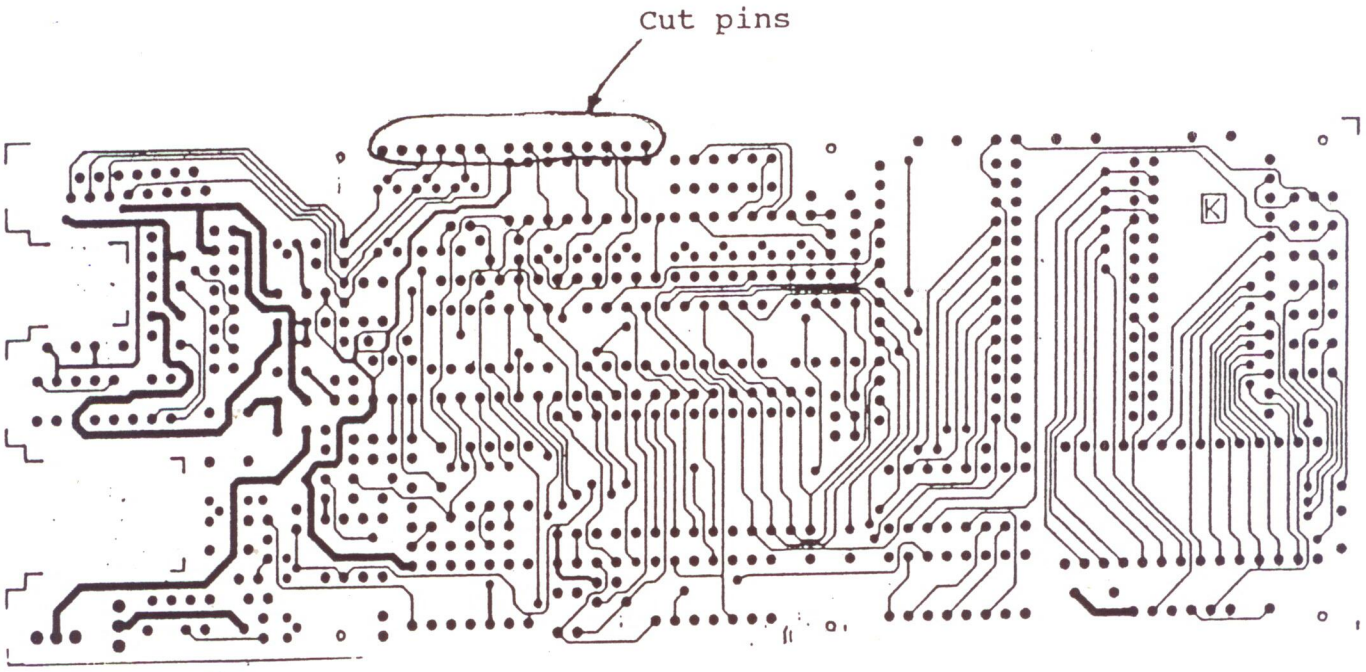


Geotronics

TECHNICAL MEMO

October 1991
GEOTRONICS AB
Technical Support Dept.
DANDERYD, Sweden
571/5704

Instrument type:	Geodat 400, 402
Subject:	To reduce the possibility for error 5050
Description:	On some of the boards is pin 6 RN8 shorting out to the metal casing
Remedy:	Make sure the pins on RN8 and RN2 are cut



Geotronics

TECHNICAL MEMO

September,1991
GEOTRONICS AB
Technical Support Dept.
DANDERYD, Sweden
571/5703

Subject: PRS-board Circuitdiagram 571 143 791
TM 571/5692 November 1990

Decription: Positioning of Jumper (R2) for JC3 when fitting 256k prom.

CHANGE EARLIER DOCUMENTS (TM+DIAGRAM IN MAINTENANCE MANUAL).

Jumpers are connected to suit type of Prom-circuit used for the actual PRS-Program (571 123 582)

R2 - R5 IC3 = PROM 1
R6 - R9 IC4 = PROM 2

	32	64	128	256k
R2	-	0	0	0
R3	0	-	-	-
R4	-	-	-	0
R5	0	0	0	-
R6	-	0	0	0
R7	0	-	-	-
R8	-	-	-	0
R9	0	0	0	-

27C256 = 32k
27C512 = 64k
27C010 = 128k
27C020 = 256k

= 27C1001

Unsolder the 0-resistor (jumper) carefully and refit in appropriate position.

Geotronics

TECHNICAL MEMO

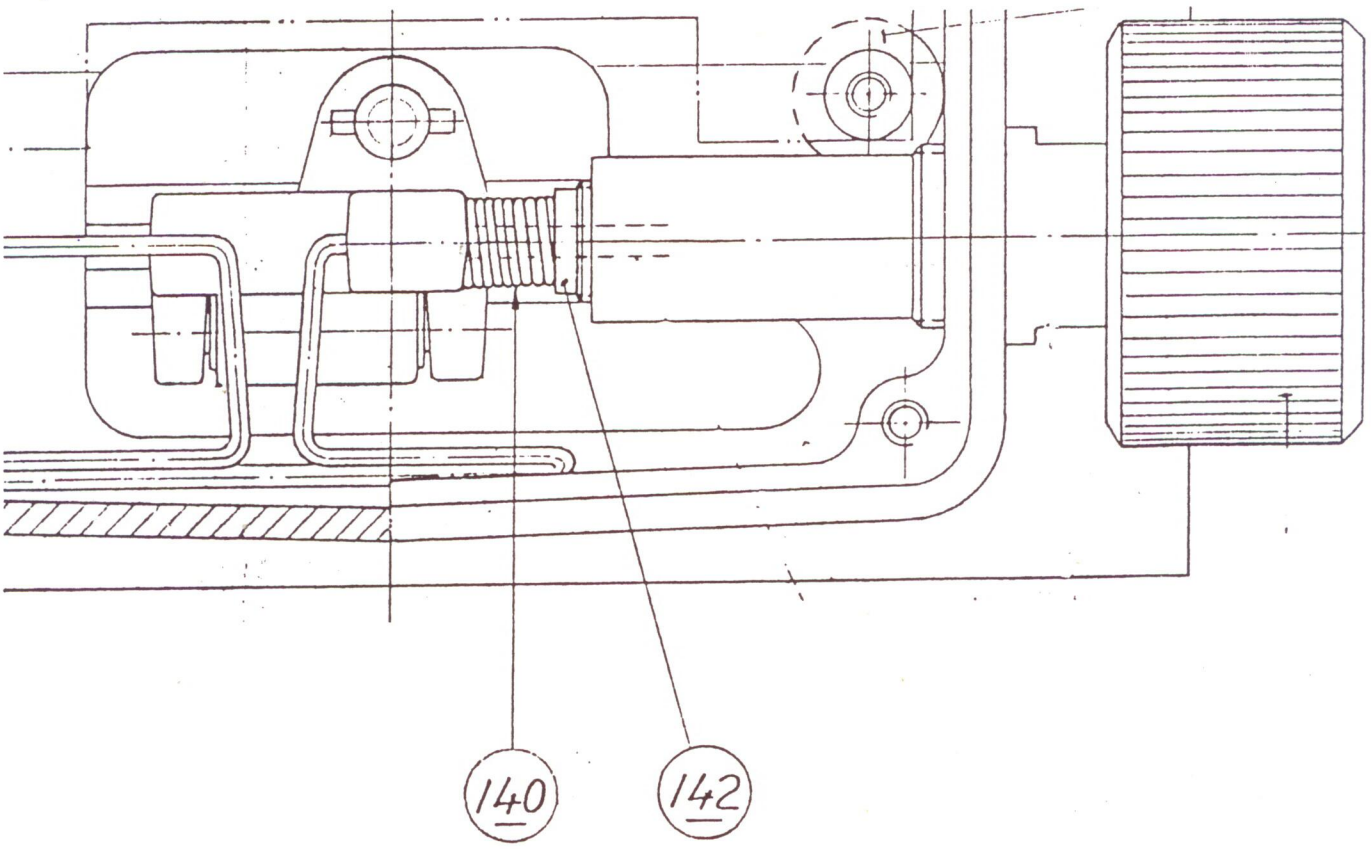
Sept 1991
GEOTRONICS AB
Technical Support Dept.
DANDERYD, Sweden
571/5700

Instrument model: GDM 400 - System.

Subject: Secure accurate instrument positioning to target.

Symptom: Erratic movment of instrument unit when motionadjustments completed, haircross not fixed to measuringpoint.

Description: Take out the motionadjustment screw and remove the spring (140) and teflon insert (142). Remount and check function.



Geotronics

TECHNICAL MEMO

May 1991
GEOTRONICS AB
TECHNICAL SUPPORT DEPT
DANDERYD, SWEDEN

571/5696

INSTRUMENT TYPE: Geodimeter 400/4000 system.

SUBJECT: Modification of PRS board. Note that in most cases this modification may not be needed.

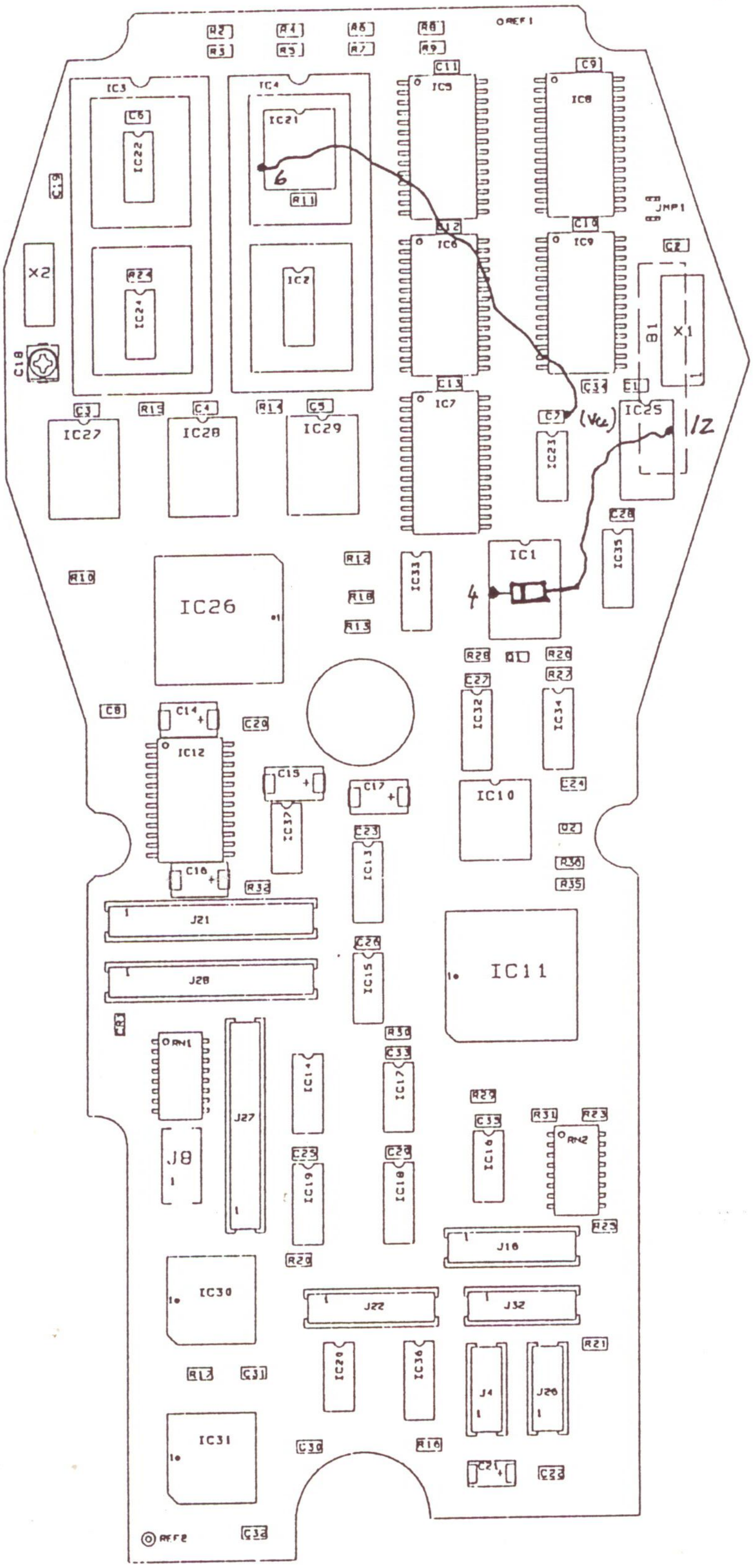
DESCRIPTION: Remote risk for ERROR 54 loss due to V_{CC} loading has been observed when the `RES` pulse from IC 21 is issued at a V_{CC} threshold of 4.5 volts while the power fail detector IC 1 connects the V_{RAM} supply (backup supply) to the RAM at a V_{CC} threshold of 4.7 volts. In other words the processor gets reset before the power fail detector has connected in the V_{RAM} supply to the RAM.

REMEDY: Connect diode CR 3 between IC 1 pin 4 and IC 25 pin 12 with the cathode on IC 1.

Disconnect IC 21 pin 6 from the PCB and connect it to V_{CC} (C 7). Note that extra caution must be excercised when disconnecting pin 6 of IC 21 from the PCB. Access to the pin is limited by the socket of IC 4. Use of a long-nosed side cutter is therefore recommended strongly.

ADDITIONAL COMPONENTS:

1) CR 3 (1N4151) - 571.902.971



1990-01-18

MATERIAL	
DESIGN	DATE 1989-09-2
CHECKED	DATE
APPROVED	DATE
TOL. UNLESS OTHERW. STATED	
SCALE	1,5:1
TITLE	CC-ASSY PRS
ART NO	571 143 790
DWG NO	571 143 791
REV	B00
SIZE	A3
SHT NO	1
OF SHTS	1
NEXT HIGHER ASSEMBLY	

LÄNGDMÅTT. UTDRAG UR SMS 715

BASMÅTT	MEDEL	GROV
- 3	±0.1	±0.2
(3)- 6	±0.1	±0.5
(6)- 30	±0.2	±0.5
(30)- 120	±0.3	±0.8
(120)- 315	±0.5	±1.2
(315)-1000	±0.8	±2

Geotronics
Danderyd

REVISION

Geotronics

May 1991
GEOTRONICS AB
TECHNICAL SUPPORT DEPT.
DANDERYD, SWEDEN

571/5694

TECHNICAL MEMO

INSTRUMENT TYPE: Geodimeter 400/4000 system.

SUBJECT: Modification of PRS-2 board at the next instrument service.

DESCRIPTION: Increased risk for memory loss due to V_{cc} loading.

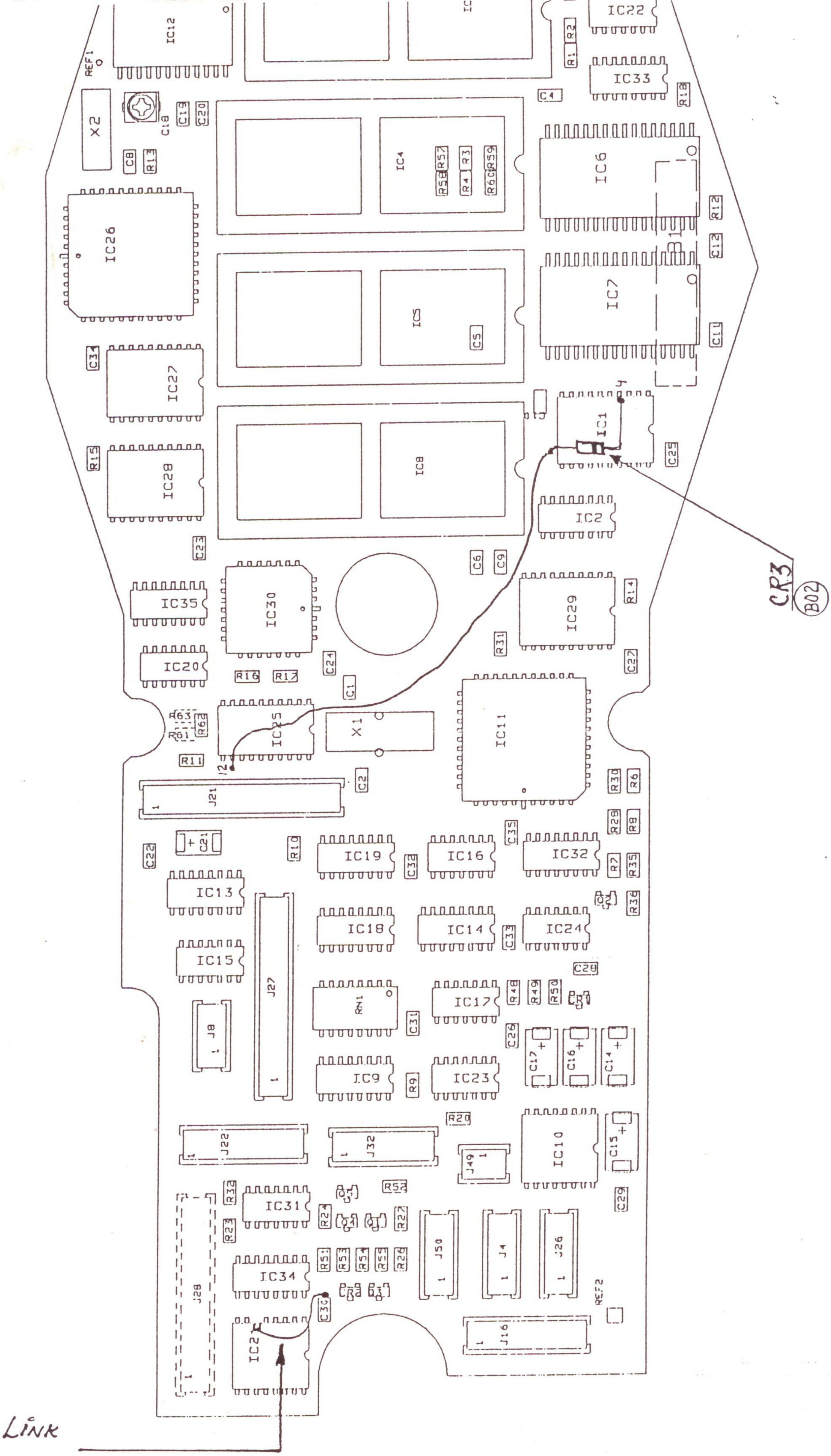
REMEDY: Connect the diode CR 3 between IC 1 pin 4 and IC 25 pin 12 with the cathode on IC 1.

Disconnect IC 21 pin 6 from the PCB and connect it to V_{cc} (C 30).

Mark the board with revision B-02.

ADDITIONAL COMPONENTS:

1) CR 3 - 571.902.971



LINK
CR3
B02
IC1
IC2
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
IC19
IC20
IC22
IC23
IC24
IC25
IC26
IC27
IC28
IC29
IC30
IC31
IC32
IC33
IC34
IC35
RN1
X1
X2
J4
J8
J16
J21
J22
J26
J27
J28
J32
J49
J50
REF1
REF2

Geotronics

November 1990
GEOTRONICS AB
Technical Support Dept.
DANDERYD, Sweden
~~571/5692~~

TECHNICAL MEMO

Instrument type: GDM 400/4400-system instruments fitted with PRS-BOARD.

Subject: Jumpers (R2-R9)

Description: Jumpers are connected to suit type of Prom-circuit used for the actual PRS-Program (571 123 582)

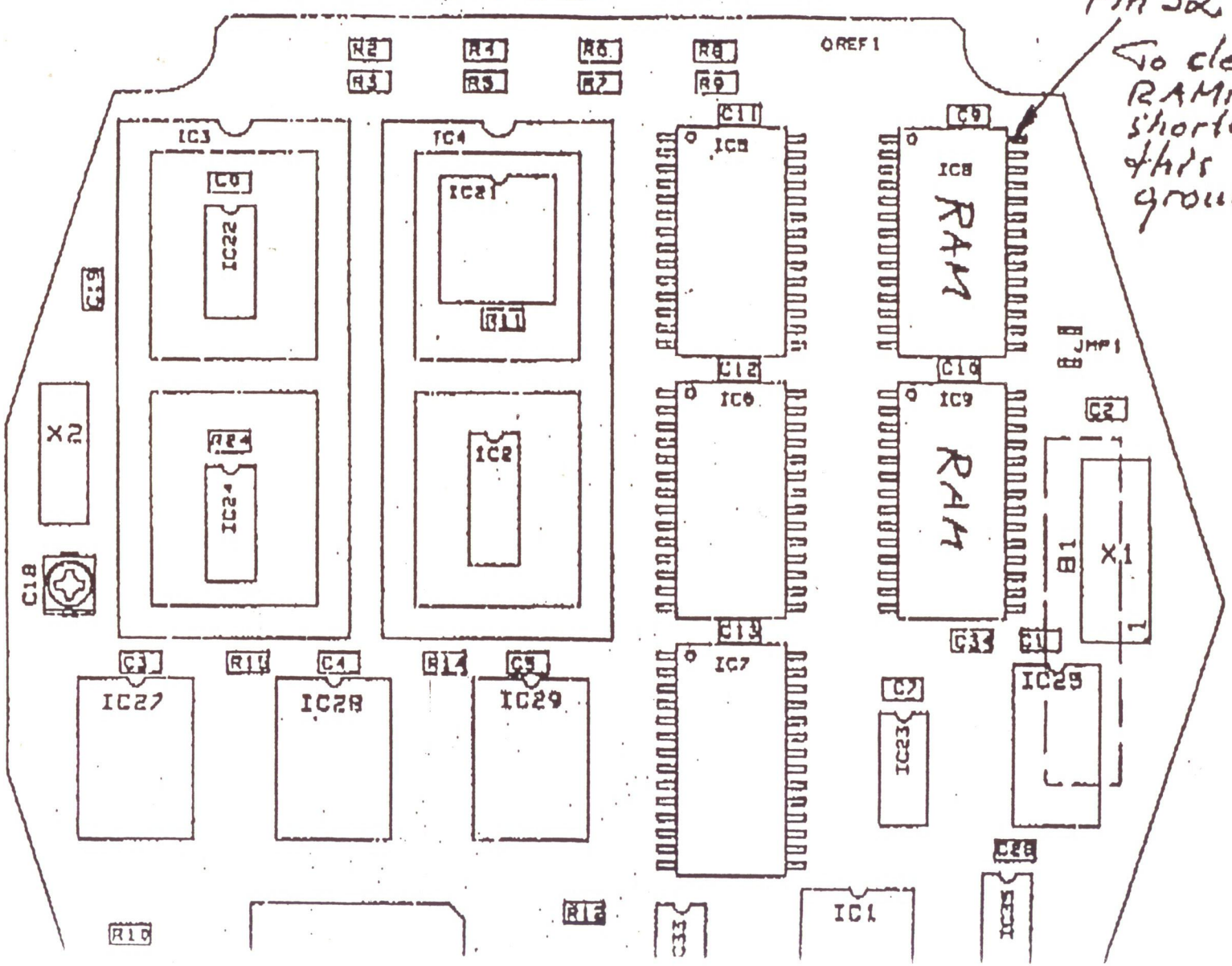
R2 - R5 IC3 = PROM 1
R6 - R9 IC4 = PROM 2

	32	64	128	256k
R2	-	0	0	-
R3	0	-	-	-
R4	-	-	-	0
R5	0	0	0	-
R6	-	0	0	0
R7	0	-	-	-
R8	-	-	-	0
R9	0	0	0	-

27C256 = 32k
27C512 = 64k
27C010 = 128k
= 256k

Unsolder the 0-resistor (jumper) carefully and refit in appropriat position.

PRS



2

IC8
Pin 32

To clear RAMs short circuit this to ground.