

SOLAR STAR



**Saitek**<sup>TM</sup>

RH30

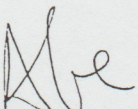


Project : Solar Star (RH30)  
Doc No. : RH30-PG-026  
Rev. : 1  
Date : 1 April, 1996

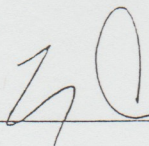
RH30 SOLAR STAR GENERAL PRODUCT SPECIFICATIONS

- A. Battery requirement : 1.5 Volt (size 'AA' or 'UM-3') x 3 pcs  
Alkaline type recommended
- B. Operating voltage : 3.3 - 5.1 Volts
- C. Current consumption : a) Turbo mode at V.Batt = 4.5V and  
solar cell at dark environment  
1.2 mA typical  
1.6 mA max.  
b) Eco mode at V.Batt = 4.5V and  
solar cell at dark environment  
90  $\mu$ A typical  
130  $\mu$ A max.  
c) Memory current at V.Batt = 4.5V and  
solar cell at dark environment  
55  $\mu$ A typical  
75  $\mu$ A max
- D. Power consumption : 7.2 mW max
- E. Main system clock frequency : 4MHz  $\pm$ 5% (V.Batt = 4.5V)  
(Resonator)
- F. Sub-system clock frequency : 96kHz  $\pm$ 1% (V.Batt = 4.5V)  
(Crystal)

PREPARED BY :

  
K. H. AU

APPROVED BY :



DIST : BDM, QAM, SED, AA

Filename : RH30\_PS.DOC







Project : SOLAR STAR (RH30)  
Doc No. : RH30-PS-027  
Rev. : 0  
Date : 4 March, 1996

## ADJUSTMENT PROCEDURE FOR SOLAR STAR

Object : To adjust system clock frequency.

Equipment needed : Frequency counter or Oscilloscope capable of frequency measurement up to 20MHz.

System & sub-system: 4MHz  $\pm$  5% (V. Batt = 4.5V) at Pin 37 of U1  
clock frequency 96kHz  $\pm$  1% (V. Batt = 4.5V) at Pin 40 of U1

- Procedure :
1. Disassemble unit by removing screws (7) on bottom cabinet.
  2. Power on unit with voltage at battery contact = 4.5V.
  3. Place probe of counter/scope at X1 pin near to C3.  
If frequency measured is out of specified range (3.8-4.2MHz), replace X1 until counter/scope reading is within specification.
  4. Place probe of counter/scope at X2 pin near to C6.  
If frequency measured is out of specified range (95.04-96.96kHz), replace X2 until counter/scope reading is within specification.
  5. Reassemble unit.

Prepared by :           A H            
K. H. AU

Approved by :           Z Q          

Dist : QAM, SED, AA, BDM

Filename : RH30\_PS.DOC



Project : Solar Star (RH30)  
 Doc No. : RH30-PS-028  
 Rev. : 0  
 Date : 12 March, 1996

*Handwritten signature/initials*

### Trouble Shooting Chart For Mephisto Solar Star

| SYMPTOMS                                                                                                                       | POSSIBLE CAUSES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unit cannot be turned ON                                                                                                       | <ol style="list-style-type: none"> <li>1. Check if Vcc within the range of 4.2V to 5.1V. If Vcc is not within this range, check for:               <ol style="list-style-type: none"> <li>i) Dead or weak batteries.</li> <li>ii) Broken connections in battery wiring.</li> <li>iii) Open or shorted circuit in Ground and Vcc traces.</li> <li>iv) Check if ACL switch is shorted to Ground.</li> <li>v) Defective components in power supply circuit (i.e. R1, C1, C2).</li> </ol> </li> <li>2. Check for main system clock signal (in Turbo mode only):<br/>Look for 4MHz +/- 5% (V.Batt = 4.5V) at U1 pin 37. If not, check if X1, C3, C4 are defective.</li> <li>3. Check for sub-system clock signal (in all modes):<br/>Look for 96kHz +/- 1% (V.Batt = 4.5V) at U1 pin 40. If not, check if X2, C6, C7 are defective.</li> <li>4. Check for reset signal:<br/>Check for U1 pin 34 is logic 'HIGH'. If not, check if C5, R2, D3 are defective.</li> <li>5. Check if U1 is defective.</li> <li>6. Check if slide switch is defective.</li> </ol> |
| No sound                                                                                                                       | <ol style="list-style-type: none"> <li>1. Check for broken wirings from beeper to PCB.</li> <li>2. Check if beeper is defective.</li> <li>3. Check if D1, D2 are defective.</li> <li>4. Check for pulse output from U1 pin 45 when sound should be issued.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| LCD missing or turn on when it should not                                                                                      | <ol style="list-style-type: none"> <li>1. Check for broken or shorted traces on PCB.</li> <li>2. Check if LCD is defective or misaligned.</li> <li>3. Check for dust or oxide on gold finger of PCB.</li> <li>4. Check if U1 is defective.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| No response or improper response to command keys or chessboard                                                                 | <ol style="list-style-type: none"> <li>1. Check for loose contacts or misalignment between sensor and PCB traces.</li> <li>2. Check for bad contacts in sensor connectors.</li> <li>3. Check for broken or shorted traces on PCB or sensor.</li> <li>4. Check for broken connection between sensor PCB and logic PCB.</li> <li>5. Check for logic 'HIGH' at U1 pin 28, 29, 30-33 and 41-44 when no key is pressed.</li> <li>6. Check if U1 is defective.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| No memory function                                                                                                             | <ol style="list-style-type: none"> <li>1. Check if batteries are dead or weak.</li> <li>2. Defective U1.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Excessive current drain<br>Current > 1.6 mA in 'Turbo' mode<br>Current > 100µA in 'Eco' mode<br>Current > 40 µA in 'Stop' mode | <ol style="list-style-type: none"> <li>1. Check for component wirings or shorted traces on PCB.</li> <li>2. Check for contaminations and/or foreign particles on PCB.</li> <li>3. Check for no leakages on C1 and C2.</li> <li>4. Check if U1 is defective.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |



|                                                          |          |                                                                                                                            |
|----------------------------------------------------------|----------|----------------------------------------------------------------------------------------------------------------------------|
| Cannot run Eco mode after start up with solar cell only. | 1.<br>2. | Check for solar cell wirings broken or shorted.<br>Check if the solar cell output voltage greater than 3.3V under 600 lux. |
|----------------------------------------------------------|----------|----------------------------------------------------------------------------------------------------------------------------|

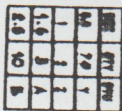
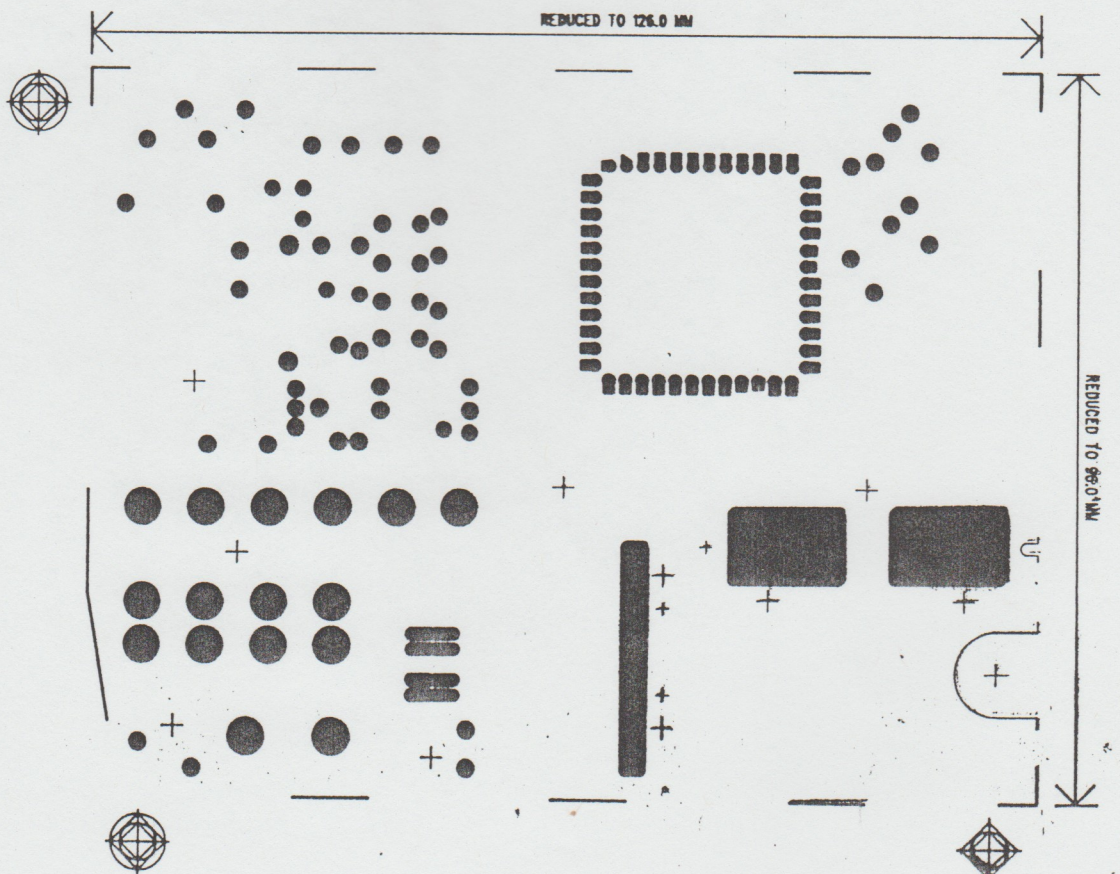
Dist : BDM, QAM, SED, AA

Filename : RH30\_PS.DOC





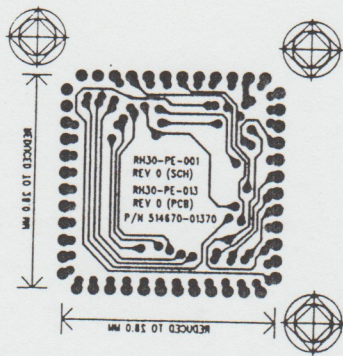


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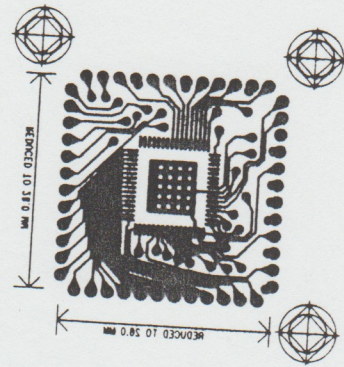




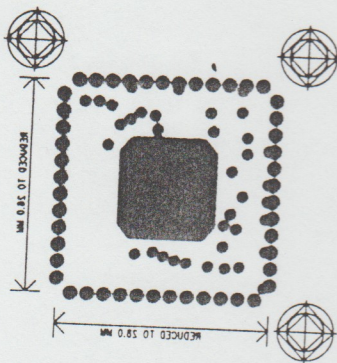




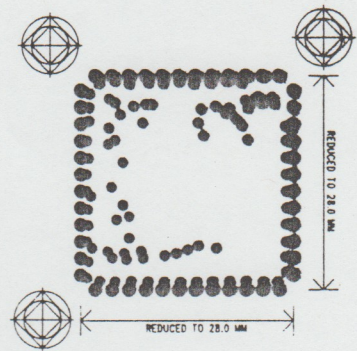
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| 01370 | 11-27-88 | Initial     |    |      |



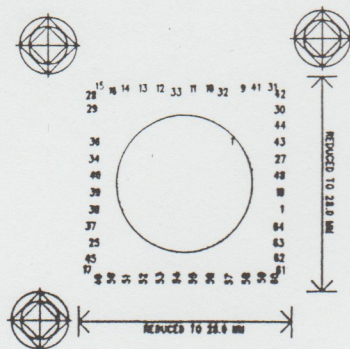
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| 01370 | 11-27-88 | Initial     |    |      |
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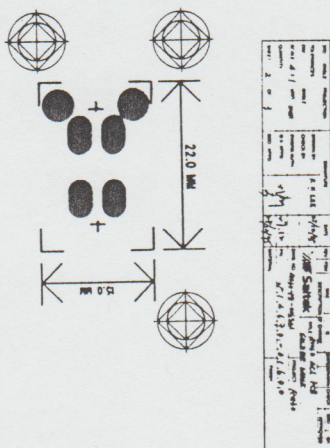
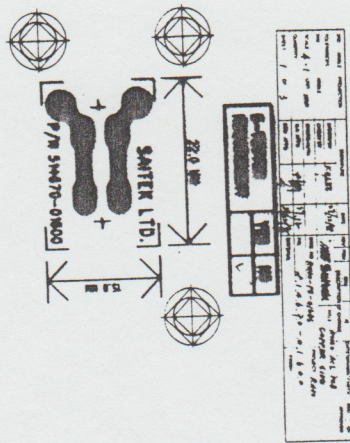


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| 01370 | 11-27-88 | Initial     |    |      |



| REV   | DATE     | DESCRIPTION | BY | CHKD |
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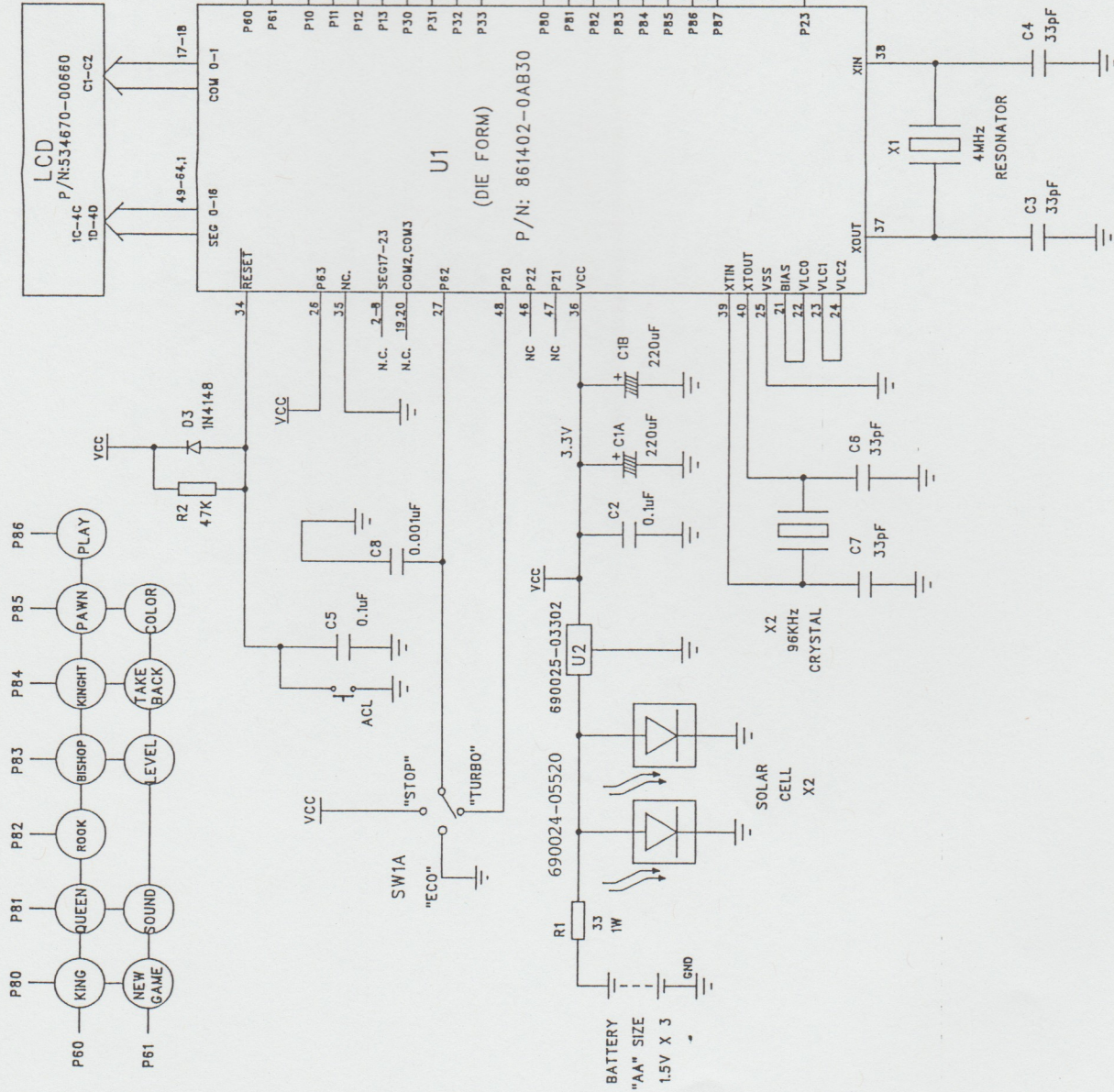


ORIGINAL

| REVISION |             | ECN REV. NO. |
|----------|-------------|--------------|
| DATE     | DESCRIPTION |              |
|          |             |              |

7+5 KEY MATRIX

8 X 8 CHESSBOARD



| APPROVALS | DATE   | Saitek Ltd.                |  |
|-----------|--------|----------------------------|--|
| DRAWN     | 9/2/96 | SCHEMATIC DIAGRAM          |  |
| Q.A.      | 9/2/96 | TITLE: MEPHISTO SOLAR STAR |  |
| B.D.D.    | 9/2/96 | DWG. NO. RH30 - PE - 001   |  |
|           |        | REV. 0                     |  |

Dst: EDM, QAM, PE, SED

11/20



## SAITEK

BILL OF MATERIALS

PROJECT : RH30 (Mephisto Solar Star)  
ART.NO. : 467  
SHIP VER. : EV  
REVISION : 5

REVISION HISTORY

| <u>REVISION</u> | <u>DATE</u> | <u>BY</u> | <u>DESCRIPTION OF CHANGES</u>                      |
|-----------------|-------------|-----------|----------------------------------------------------|
| P1              | 9/1/96      | K.H. Au   | Preliminary BOM.                                   |
| 1               | 5/2/96      | K.H. Au   | Added components and changed component's reference |
| 2               | 28/2/96     | K.H. Au   | Added components and changed component's reference |
| 3               | 11/6/96     | K.H. Au   | ECN : 96090, 96129, 96148                          |
| 4               | 26/11/96    | K.H. Au   | ECN: 96173, 96206, 96291                           |
| 5               | 14/4/97     | K.H. Au   | ECN: 96154                                         |

RELATED DOCUMENTSREV

Schematic dwg : RH30-PE-001 0

Prepared By :

Abraham Au

Approved by :

BDM

Distribution :

+1.00 [X] MMM, FAM, SE; QAM  
+0.10 [ ] MMM, FAM, SE; QAM  
+0.01 [ ] MMM, IEM

Date issue :

13 APR 1997

CHG MOD:NW=new component; \*=desc/PN/Ref changed +/-cost up/down; C/NC=consiged/non-consiged; +/-Q=QTY up/down

Run : 14/04/97 16:18 Page 1  
Prog: KPSPC/6B03

REPORTS BILL OF MATERIAL - SAITEK

SAITEK LTD.



REPORTS BILL OF MATERIAL - SAITEK

SAITEK LTD.

994670 - RH30. MEPHISTO SOLAR STAR

Rev : 5

| Level | Item | Chg | Stock         | Code | Rev | Cons | Description                                   | Qty    | Per | Reference         |
|-------|------|-----|---------------|------|-----|------|-----------------------------------------------|--------|-----|-------------------|
| 1     |      |     | 984670-00000  |      | 1   |      | UNIT ASSEMBLY, FOR RH30                       | 1.000  |     |                   |
| 2     |      |     | 914670-00001  |      | 1   |      | GUT ASSEMBLY - LOGIC, FOR RH30                | 1.000  |     |                   |
| 3     | 1    |     | 514670-01210  |      | RC  |      | PCB, LOGIC, S.S., 1.6MM, PAPER PHENOLIC, RH30 | 1.000  |     | PCB1              |
| 3     |      |     | 924670-01030  |      | 1   |      | MODULE ASSEMBLY, FOR MICROPROCESSOR, RH30     | 1.000  |     |                   |
| 4     | 2    |     | 514670-01370  |      | RC  |      | PCB, BONDING, D.S., 1MM, FR4, RH30            | 1.000  |     | PCB2              |
| 4     | 3    |     | 861402-04B30  |      | RC  |      | MICROPROCESSOR, SX30, DIE, 56C220, 20M, RH30  | 1.000  |     | U1                |
| 4     |      |     | 924670-01030C |      |     |      | BONDING CHARGE, FOR RH30                      | 1.000  |     |                   |
| 3     | 5    |     | 614735-31102  |      | RC  |      | RESISTOR, FIXED C-FILM, 47K, 5%, 1/4W         | 1.000  |     | R2                |
| 3     | 6    |     | 613305-51102  |      | RC  |      | RESISTOR, FIXED C-FILM, 33, 5%, 1W            | 1.000  |     | R1                |
| 3     | 7    |     | 62330M-01611  |      | RC  |      | CAPACITOR, C-CAP, 33PF, +/-20%, 16V           | 4.000  |     | C3, 4, 6, 7       |
| 3     | 8    |     | 62102M-01611  |      | RC  |      | CAPACITOR, C-CAP, 0.001UF, +/-20%, 16V        | 1.000  |     | C8                |
| 3     | 9    |     | 62104M-01611  |      | RC  |      | CAPACITOR, C-CAP, 0.1UF, +/-20%, 16V          | 2.000  |     | C2, C5            |
| 3     | 10   |     | 62227Z-0161X  |      | RC  |      | CAPACITOR, E-CAP, 220UF, +80-20%, 16V, MINI   | 2.000  |     | C1A, C1B          |
| 3     | 11   |     | 644000-02250  |      | RC  |      | CERAMIC RESONATOR, 4MHZ, 50 PPM               | 1.000  |     | X1                |
| 3     | 12   |     | 524670-00870  |      | RC  |      | SWITCH, 1P3T, FOR RH30, SPACE, SS36-V23       | 1.000  |     | SW1               |
| 3     | 13   |     | 690025-03302  |      | RC  |      | ELECT. REGULATOR, 3.3V, 300MW, TO-92          | 1.000  |     | U2                |
| 3     | 14   |     | 654148-10000  |      | RC  |      | DIODE, SWITCHING, IN4148                      | 3.000  |     | D1, D2, D3        |
| 3     | 15   |     | 649600-00150  |      | RC  |      | RESONATOR, CRYSTAL, 96KHZ, 50PPM              | 1.000  |     | X2                |
| 3     | 16   |     | 000050-50155  |      | RC  |      | JUMPER, L=5MM, LL=15MM, D=0.5MM               | 2.000  |     | J10, J11          |
| 3     | 17   |     | 000050-80155  |      | RC  |      | JUMPER, L=8MM, LL=15MM, D=0.5MM               | 5.000  |     | J2, 3, 6, 7, 9    |
| 3     | 18   |     | 000051-20155  |      | RC  |      | JUMPER, L=12MM, LL=15MM, D=0.5MM              | 2.000  |     | J1, 8             |
| 3     | 19   |     | 000051-50155  |      | RC  |      | JUMPER, L=15MM, LL=15MM, D=0.5MM              | 1.000  |     | J4                |
| 3     | 20   |     | 000051-70155  |      | RC  |      | JUMPER, L=17MM, LL=15MM, D=0.5MM              | 1.000  |     | J5                |
| 3     | 21   |     | 000052-00155  |      | RC  |      | JUMPER, L=20MM, LL=15MM, D=0.5MM              | 1.000  |     | J12               |
| 2     |      |     | 964670-00000  |      | 1   |      | CASING ASSEMBLY, FOR RH30                     | 1.000  |     |                   |
| 3     | 22   |     | 324670-01001  |      | RC  |      | OVERLAY, FOR RH30, 0.38MM TH'K, LEXAN         | 1.000  |     |                   |
| 3     | 23   |     | 314670-00900  |      | RC  |      | SENSOR, FOR RH30                              | 1.000  |     |                   |
| 3     | 24   |     | 31146B-00901  |      | RC  |      | SENSOR, SEPARATOR, SH19                       | 1.000  |     |                   |
| 3     | 25   |     | 000080-00130  |      | RC  |      | WASHER, S/T, ID=2.8MM, OD=9.5MM, T=0.5MM      | 1.000  |     | ECN:96090         |
| 3     | 26   |     | 224670-02900  |      | RC  |      | METAL, METAL SHAFT, WITH STOPPER, RH30        | 2.000  |     | ECN:96129         |
| 3     | 27   |     | 22146B-02400  |      | RC  |      | METAL, FRONT BUTTON SPRING                    | 1.000  |     |                   |
| 3     | 28   |     | 22146B-02510  |      | RC  |      | METAL, COMPRESSION SPRING HINGE, HEAT TREA    | 2.000  |     |                   |
| 3     | 29   |     | 22146B-02700  |      | RC  |      | METAL, E-RING, OD=4, ID=1.5, THK=0.4MM        | 2.000  |     |                   |
| 3     | 30   |     | 29146B-01501  |      | RC  |      | FOAM FRICTION PAD, CHESSBOARD, SH19           | 1.000  |     |                   |
| 3     | 31   |     | 250000-00150  |      | RC  |      | RUBBER ROD, 48X2.9X2.8MM, COMPRESS KE951U     | 1.000  |     |                   |
| 3     | 32   |     | 254670-00400  |      | RC  |      | RUBBER, KEYS, FOR RH30                        | 1.000  |     |                   |
| 3     | 33   |     | 222510-00500  |      | RC  |      | METAL, B-CONT, "+", PH. BRONZE, NI-PLT, ST3   | 1.000  |     |                   |
| 3     | 34   |     | 222510-03601  |      | RC  |      | METAL, B-CONT, "-", PH. BRONZE, NI-PLT, ST3   | 1.000  |     |                   |
| 3     | 35   |     | 000106-01205  |      | RC  |      | SPONGE, 60X12X5MM                             | 1.000  |     | FOR BATT. LID     |
| 3     | 36   |     | 000130-00270  |      | RC  |      | BUZZER, D=27MM                                | 1.000  |     |                   |
| 3     | 37   |     | 000021-00100  |      | RC  |      | RUBBER FT, 3M/MIG, FREE, D6.5X1.6MM ADHE.     | 4.000  |     |                   |
| 3     | 38   |     | 000073-23000  |      | RC  |      | SCREW, S/T, +PAN, M1.7X4MM, B, BLACK          | 1.000  |     | F. BTM, ECN:96090 |
| 3     | 39   |     | 000073-11434  |      | RC  |      | SCREW, S/T, +BIND, M2.6X8MM, A                | 4.000  |     | ECN:96148         |
| 3     | 40   |     | 000073-21434  |      | RC  |      | SCREW, S/T, +PAN, M2.6X8MM, A                 | 1.000  |     | FOR CAB           |
| 3     | 41   |     | 000073-12414  |      | RC  |      | SCREW, S/T, +BIND, M2.6X5MM, BT               | 14.000 |     | LOGIC & RETAIN    |
| 3     | 42   |     | 000060-30043  |      | RC  |      | STRAND WIRE, BLACK, L=300MM, E=3.5MM, AWG28   | 1.000  |     | BATT-             |
| 3     | 43   |     | 000060-03243  |      | RC  |      | STRAND WIRE, BLACK, L=32MM, E=3.5MM, AWG28    | 2.000  |     | LINK UP SOLARS    |

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MEMPHISTO SOLAR STAR

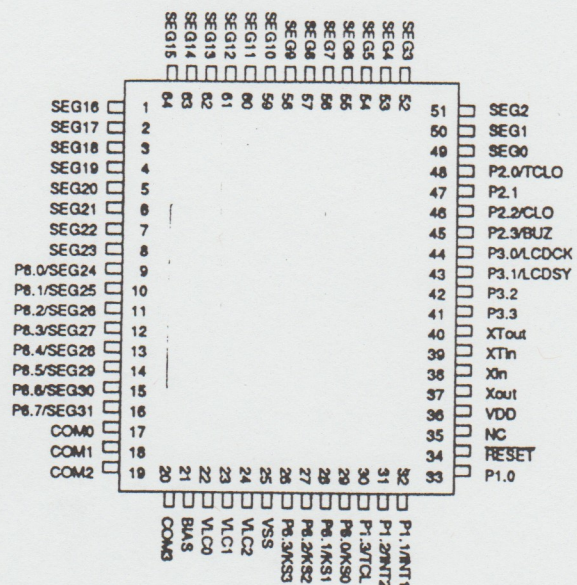
Rev : 5

- RH30,

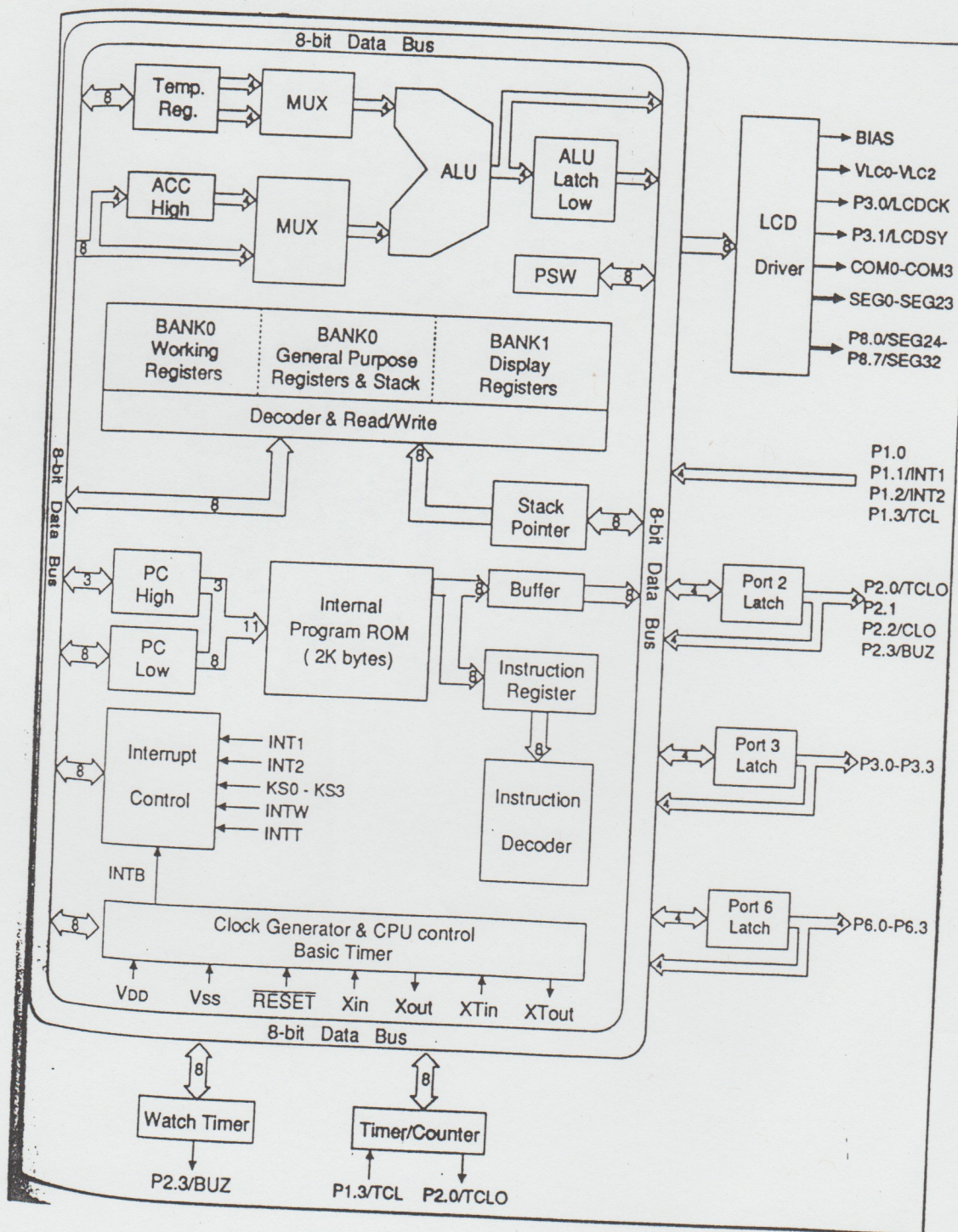
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|-------|------|--------------|-------|------|-----|------|--------------------------------------------|-------|----------------|-----------|
| 3     | 44   | 000060-20043 | RC    |      |     |      | STRAND WIRE BLACK,L=200MM,E=3.5MM,AWG28    | 1.000 | SOL            | ECN:96129 |
| 3     | 45   | 000062-20043 | RC    |      |     |      | STRAND WIRE,RED,L=200MM,E=3.5MM,AWG28      | 1.000 | SOL            | ECN:96129 |
| 3     | 46   | 000062-15043 | RC    |      |     |      | STRAND WIRE,RED L=150MM,E=3.5MM,AWG28      | 1.000 | BATT+          |           |
| 3     | 47   | 000068-20043 | RC    |      |     |      | STRAND WIRE,GREY,L=200MM,E=3.5MM,AWG28     | 2.000 | BUZZ           |           |
| 3     | 48   | 000066-11043 | RC    |      |     |      | STRAND WIRE AWG28,E=3.5MM,L=110MM,BLUE     | 2.000 | ACL TO LOGIC   |           |
| 3     | 49   | 954670-00000 | 1     |      |     |      | CABINET SET, FOR RH30                      | 1.000 |                |           |
| 4     | 49   | 214670-00300 | RC    |      |     |      | PLASTIC,T.CAB, ABS,BLACK, FOR RH30         | 1.000 |                |           |
| 4     | 50   | 21146B-00305 | RC    |      |     |      | PLASTIC,B.CAB,ABS,BLACK                    | 1.000 | ECN:96173      |           |
| 4     | 51   | 21146B-00404 | RC    |      |     |      | PLASTIC,TOP COVER,ABS,BLACK,SILKSCREEN     | 1.000 | ECN:96129      |           |
| 4     | 52   | 21146B-00500 | RC    |      |     |      | PLASTIC,BATTERY LID,ABS,BLACK              | 1.000 |                |           |
| 4     | 53   | 21146B-01601 | RC    |      |     |      | PLASTIC,FRONT BUTTON,ABS,BLACK             | 1.000 |                |           |
| 4     | 54   | 21146B-01700 | RC    |      |     |      | PLASTIC,END CAP,ABS,BLACK                  | 2.000 |                |           |
| 4     | 55   | 21146B-00802 | RC    |      |     |      | PLASTIC,RETAINER,ABS,BLACK                 | 1.000 |                |           |
| 4     | 56   | 21146B-04400 | RC    |      |     |      | PLASTIC,END CAP SEAL,ABS,BLACK             | 2.000 |                |           |
| 4     | 57   | 214670-00800 | RC    |      |     |      | PLASTIC,SLIDE SWITCH CAB.,ABS,BLACK,RH30   | 1.000 |                |           |
| 3     | 58   | 690024-05520 | RC    |      |     |      | ELECT,SOLAR CELL, 55X20MM, 3V,14UA         | 2.000 |                |           |
| 3     | 59   | 334670-01801 | RC    |      |     |      | RATING PLATE, FOR RH30,PVC, FOR CE         | 1.000 | ECN:96154      |           |
| 3     | 60   | 534670-00660 | RC    |      |     |      | LCD, FOR RH30,HIGH TEMP,+80-20 DEGREE      | 1.000 |                |           |
| 3     | 61   | 250000-00552 | RC    |      |     |      | ZEBRA CONNECTOR,SG,33.8X10.8X2MM,P=0.18    | 1.000 |                |           |
| 3     | 62   | 000090-00550 | RC    |      |     |      | FOAM PAD,34X17X8.3, FOR RH30               | 1.000 | FOR LCD        |           |
| 3     | 63   | 514670-01600 | RC    |      |     |      | PCB,ACL,S.S.,1.6MM,PAPER PHENOLIC,RH30     | 1.000 | PCR3           |           |
| 3     | 64   | 000010-00100 | RC    |      |     |      | ACL,RESET CONTACT,D=10MM,CR STEEL          | 1.000 |                |           |
| 3     | 65   | 294670-02500 | RC    |      |     |      | DOUBLE SIDE TAPE,47X19X1,WITH FOAM,RH30    | 2.000 | FOR SOLAR CELL |           |
| 3     | 66   | 000260-00009 | RC    |      |     |      | BATTERY, ALKALINE, AA, 1.5V                | 3.000 |                |           |
| 1     | 67   | 944670-10000 | 1     |      |     |      | PACKING ASSEMBLY, FOR RH30                 | 1.000 |                |           |
| 2     | 67   | 46A133-00400 | RC    |      |     |      | ACCESSORY,BUBBLE BAG FOR ST13A,35X27CM     | 1.000 | FOR UNIT       |           |
| 2     | 68   | 000123-00200 | RC    |      |     |      | POLYBAG,300X200X0.045MM                    | 1.000 | FOR MANUAL     |           |
| 2     | 69   | 360000-00230 | RC    |      |     |      | LABEL, FOR SERIAL NO.ADHESIVE PAPER, SMALL | 1.000 |                |           |
| 2     | 70   | 45146B-02900 | RC    |      |     |      | INSERT, FOR SH19, PAPER                    | 1.000 |                |           |
| 2     | 71   | 451320-01200 | RC    |      |     |      | CARTON, 10PCS/CTN, FOR SH23                | .100  |                |           |
| 2     | 72   | 454670-03000 | RC    |      |     |      | CARTON, FOR RH30, 8PCS/CTN, KARSTADT       | .000  | ECN:96291      |           |
| 2     | 73   | 24A139-26200 | 1     |      |     |      | CHESSMEN SET, FOR SH23A, 20X2, 211+212     | 1.000 |                |           |
| 3     | 73   | 24146B-21110 | RC    |      |     |      | CHESSMEN,SH19,20,L.GREY,PT#427C,S.PIN      | 1.000 |                |           |
| 3     | 74   | 24146B-21210 | RC    |      |     |      | CHESSMEN,SH19,20,D.GREY,PT#CG11C,S.PIN     | 1.000 |                |           |
| 1     | 75   | 974670-00000 | 1     |      |     |      | OPTIONS ASSEMBLY, FOR RH30                 | 1.000 |                |           |
| 2     | 75   | 414670-61200 | RC    |      |     |      | MANUAL, FOR RH30,G/F/E/D/I/S               | 1.000 | ECN:96129      |           |
| 2     | 76   | 424670-61100 | RC    |      |     |      | GIFTBOX, FOR RH30,G/F/E/D/I/S              | 1.000 |                |           |
| 2     | 77   | 370000-00000 |       |      |     |      | LABEL ASSEMBLY                             | 1.000 |                |           |

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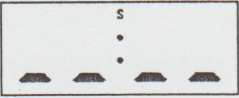
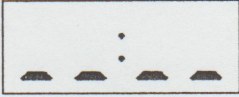
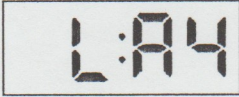
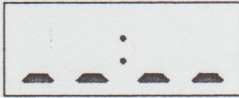
### BLOCK DIAGRAM





## 8. FUNCTIONAL TEST PROCEDURE FOR SOLAR STAR

Preset the switch to ECO position and insert 3 AA size batteries into the battery compartment then perform the following procedure:-

| <u>Purpose</u>                | <u>Procedure</u>                      | <u>Observation</u>                                                                                                                               |
|-------------------------------|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Power up                   | - Press ACL                           | - LCD shows<br>                                               |
|                               | - Slide the switch to TURBO position. |                                                                                                                                                  |
|                               | - Press NEWGAME                       | - Beep Beep Beep sound is given out.                                                                                                             |
|                               |                                       | - LCD shows<br>                                               |
| 2. Check LEVEL and chessboard | - Press LEVEL                         | - LCD shows<br>                                              |
|                               | - Press 64 chessboard squares         | - Corresponding square coordinate (i.e. "L : XX" where XX is the square coordinate) shown on LCD and a beep sound is given out on each keypress. |
|                               | - Press LEVEL                         | - LCD shows<br>                                             |
|                               |                                       |                                                                                                                                                  |

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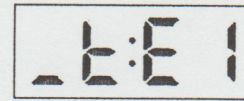


PurposeProcedureObservation

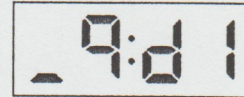
3. Check verify

- Press 

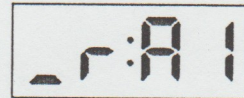
- LCD shows

- Press 

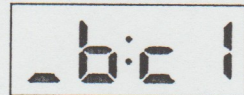
- LCD shows

- Press 

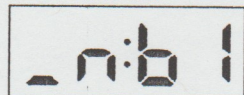
- LCD shows

- Press 

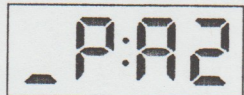
- LCD shows

- Press 

- LCD shows

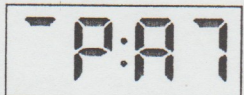
- Press 

- LCD shows



- Press COLOR

- LCD shows

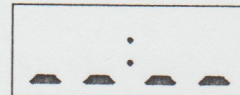


4. Reset unit

- Press ACL

- Beep Beep Beep sound is given out

- LCD shows



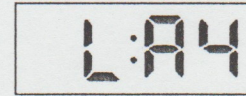


PurposeProcedureObservation

5. Check chess mode

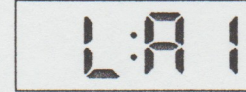
- Press LEVEL

LCD shows



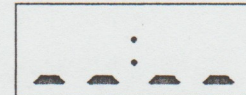
- Press A1 square

LCD shows



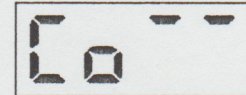
- Press LEVEL

- LCD shows

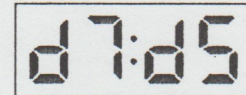


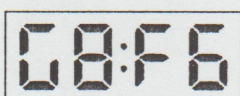
- Press d2, d4

- LCD shows



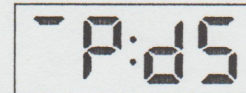
then

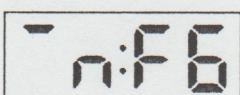


(or )

- Press d7 (or G8)

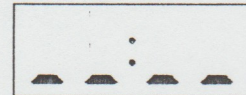
- LCD shows



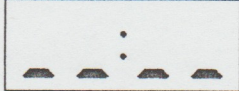
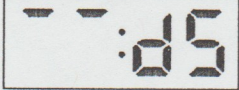
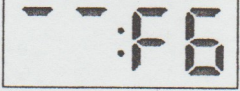
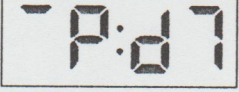
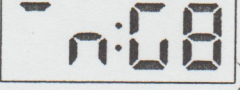
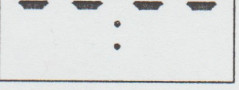
(or )

- Press d5 (or F6)

- LCD shows





| <u>Purpose</u>    | <u>Procedure</u>                                                                                                                                                           | <u>Observation</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6. Check memory   | <ul style="list-style-type: none"> <li>- Slide the switch to its STOP position</li> <li>- Press Newgame twice</li> <li>- Slide the switch to its TURBO position</li> </ul> | <ul style="list-style-type: none"> <li>- LCD turns off</li> <li>- No response</li> <li>- LCD shows<br/> </li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 7. Check sound    | <ul style="list-style-type: none"> <li>- Press SOUND</li> </ul>                                                                                                            | <ul style="list-style-type: none"> <li>- A beep sound is given out</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 8. Check takeback | <ul style="list-style-type: none"> <li>- Press TAKEBACK</li> </ul>                                                                                                         | <ul style="list-style-type: none"> <li>- LCD shows<br/> <br/>           (or )         </li> <li>- Press d5 (or F6)</li> <li>- LCD shows<br/> <br/>           (or )         </li> <li>- Press d7 (or G8)</li> <li>- LCD shows<br/> </li> </ul> |

Note: Beep is given out on each keypress on or before step 7.  
 i.e. No beep sound will be emitted on step 8 or afterward.

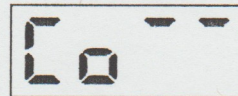


PurposeProcedureObservation

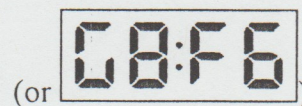
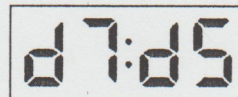
9. Check PLAY  
key

- Press PLAY

- LCD shows



then

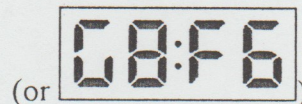
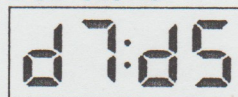


(or

10. Test solar cell

- Shine the solar cell with 100W  
frosted light bulb at intensity  
22000 lux

- LCD shows



(or

- Remove the batteries from the  
compartment (make sure that  
the solar cell is still facing the  
light bulb)
- Press and hold ACL for 2  
seconds or more (make sure  
that the solar cell is still facing  
the light bulb)

- Same as above

- Beep Beep Beep sound is  
emitted

- LCD shows

