

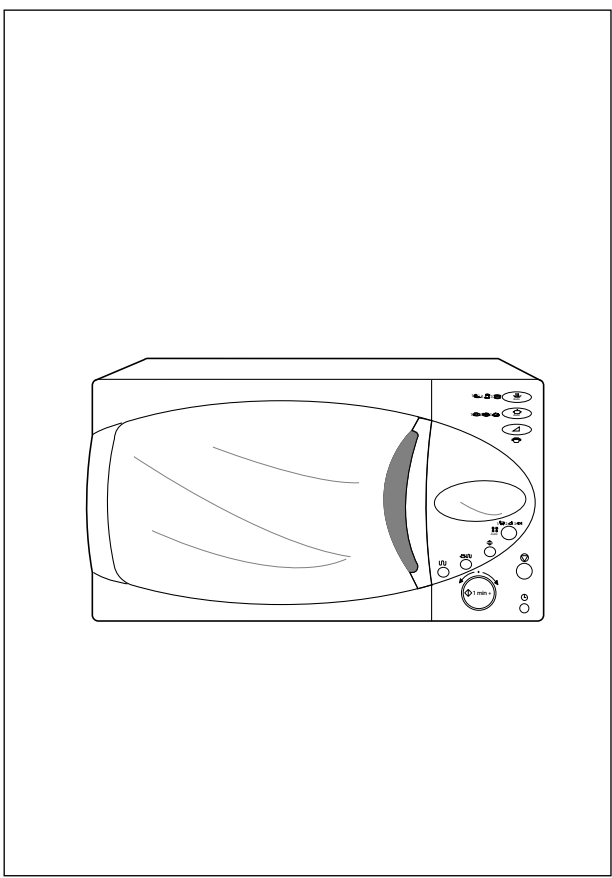
# MICROWAVE OVEN

## CE959GT (DARK GRAY)

# SERVICE *Manual Supplement*

THIS SUPPLEMENT CONTAINS EXPLODED VIEW AND PARTS LIST FOR MODEL CE959GT(DARK GRAY). FOR MORE SERVICING INFORMATION, PLEASE CONSULT THE PREVIOUS SERVICE MANUAL FOR CE959G WHICH WAS DISTRIBUTED IN JULY 1998.

### MICROWAVE OVEN



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| Specifications      |   |
|---------------------|---|
| TIMER               | 99 MINUTES 90 SECONDS   |
| POWER SOURCE        | 230V/50HZ, AC   |
| POWER CONSUMPTION   | MICROWAVE : 1,500W<br>GRILL : 1,300W                            |
| OUTPUT POWER        | FROM 90 TO 900W<br>(10 LEVEL POWER)<br>(IEC-705 TEST PROCEDURE) |
| OPERATING FREQUENCY | 2,450MHz  |
| MAGNETRON           | OM75PH(31)  |
| COOLING METHOD      | COOLING FAN MOTOR   |
| OUTSIDE DIMENSIONS  | 517(W) x 297(H) x 410(D)  |
| NET WEIGHT          | 20 Kg   |
| SHIPPING WEIGHT     | 22 Kg   |

AMFO

## **PRECAUTIONS TO BE OBSERVED BEFORE AND DURING SERVICING TO AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY**

- (a) Do not operate or allow the oven to be operated with the door open.
- (b) Make the following safety checks on all ovens to be serviced before activating the magnetron or other microwave source, and make repairs as necessary:
  - (1) Interlock operation,
  - (2) proper door closing,
  - (3) seal and sealing surfaces (arcing, wear, and other damage),
  - (4) damage to or loosening of hinges and latches,
  - (5) evidence of dropping or abuse.
- (c) Before turning on microwave power for any service test or inspection within the microwave generating compartments, check the magnetron, wave guide or transmission line, and cavity for proper alignment, integrity, and connections.
- (d) Any defective or misadjusted components in the interlock, monitor, door seal, and microwave generation and transmission systems shall be repaired, replaced, or adjusted by procedures described in this manual before the oven is released to the owner.
- (e) A Microwave leakage check to verify compliance with the Federal performance standard should be performed on each oven prior to release to the owner.

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# 1. Precaution

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Follow these special safety precautions. Although the microwave oven is completely safe during ordinary use, repair work can be extremely hazardous due to possible exposure to microwave radiation, as well as potentially lethal high voltages and currents.

## 1-1 Safety precautions ( )

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1. All repairs should be done in accordance with the procedures described in this manual. This product complies with Federal Performance Standard 21 CFR Subchapter J (DHHS).
2. Microwave emission check should be performed to prior to servicing if the oven is operative.
3. If the oven operates with the door open : Instruct the user not to operate the oven and contact the manufacturer and the center for devices and radiological health immediatly.
4. Notify the Central Service Center if the microwave leakage exceeds  $5 \text{ mW/cm}^2$
5. Check all grounds.
6. Do not power the MWO from a "2-prong" AC cord. Be sure that all of the built-in protective devices are replaced. Restore any missing protective shields.
7. When reinstalling the chassis and its assemblies, be sure to restore all protective devices, including: nonmetallic control knobs and compartment covers.
8. Make sure that there are no cabinet openings through which people--particularly children--might insert objects and contact dangerous voltages. Examples: Lamp hole, ventilation slots.
9. Inform the manufacturer of any oven found to have emmission in excess of  $5 \text{ mW/cm}^2$ , Make repairs to bring the unit into compliance at no cost to owner and try to determine cause.  
Instruct owner not to use oven until it has been brought into compliance.
10. Service technicians should remove their watches while repairing an MWO.
11. To avoid any possible radiation hazard, replace parts in accordance with the wiring diagram. Also, use only the exact replacements for the following parts: Primary and secondary interlock switches, interlock monitor switch.
12. If the fuse is blown by the Interlock Monitor Switch: Replace all of the following at the same time: Primary and secondary switches, as well as the Interlock Monitor Switch. The correct adjustment of these switches is described elsewhere in this manual. Make sure that the fuse has the correct rating for the particular model being repaired.
13. Design Alteration Warning:  
Use exact replacement parts only, i.e., only those that are specified in the drawings and parts lists of this manual. This is especially important for the Interlock switches, described above. Never alter or add to the mechanical or electrical design of the MWO. Any design changes or additions will void the manufacturer's warranty.  
10. Always unplug the unit's AC power cord from the AC power source before attempting to remove or reinstall any component or assembly.
14. Never defeat any of the B+ voltage interlocks. Do not apply AC power to the unit (or any of its assemblies) unless all solid-state heat sinks are correctly installed.
15. Some semiconductor ("solid state") devices are easily damaged by static electricity. Such components are called Electrostatically Sensitive Devices (ESDs). Examples include integrated circuits and field-effect transistors.  
  
Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground.
16. Always connect a test instrument's ground lead to the instrument chassis ground *before* connecting the positive lead; always remove the instrument's ground lead last.

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## 1-2 Special Servicing Precautions (Continued)

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17. When checking the continuity of the switches or transformer, always make sure that the power is OFF, and one of the lead wires is disconnected.
18. Components that are critical for safety are indicated in the circuit diagram by shading, ▲ or ▲.
19. Use replacement components that have the same ratings, especially for flame resistance and dielectric strength specifications. A replacement part that does not have the same safety characteristics as the original might create shock, fire or other hazards.

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## 1-3 Special High Voltage Precautions

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1. High Voltage Warning  
Do not attempt to measure any of the high voltages--this includes the filament voltage of the magnetron. High voltage is present during any cook cycle.  
  
Before touching any components or wiring, always unplug the oven and discharge the high voltage capacitor (See Figure 1-1)
2. The high-voltage capacitor remains charged about 30 seconds after disconnection. Short the negative terminal of the high-voltage capacitor to the oven chassis. (Use a screwdriver.)
3. High voltage is maintained within specified limits by close-tolerance, safety-related components and adjustments. If the high voltage exceeds the specified limits, check each of the special components.

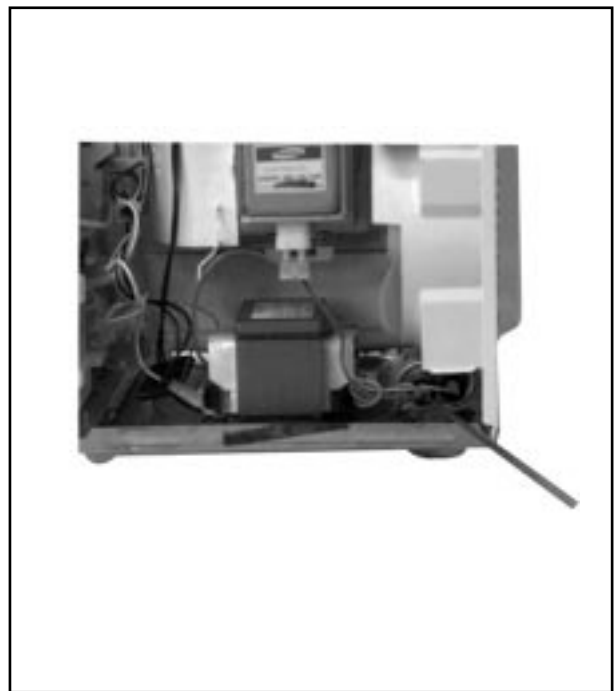
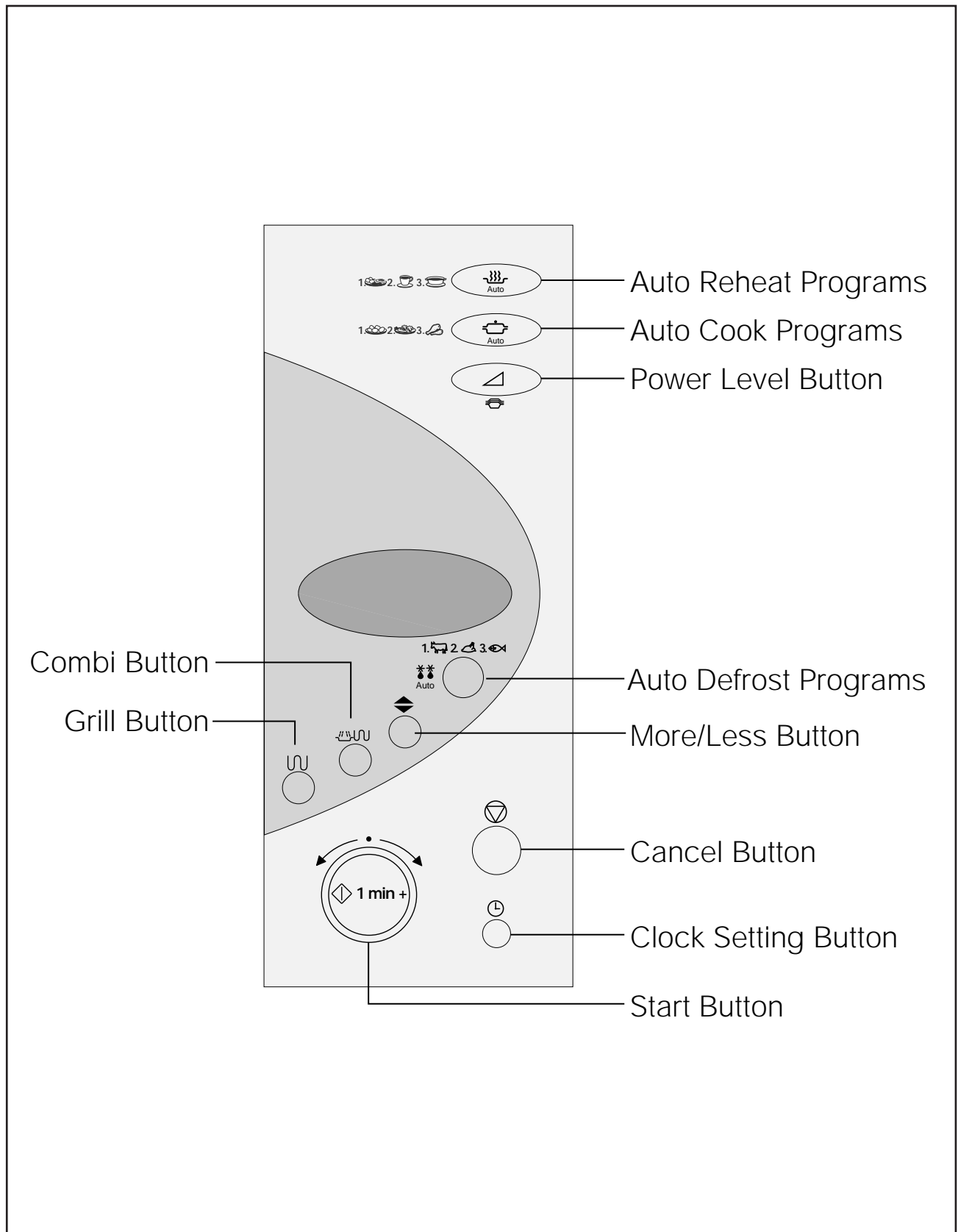


Fig. 1-1. Discharging the High Voltage Capacitor

## 2. Control Panel



## 2. Specifications

### 2-1 Table of Specifications

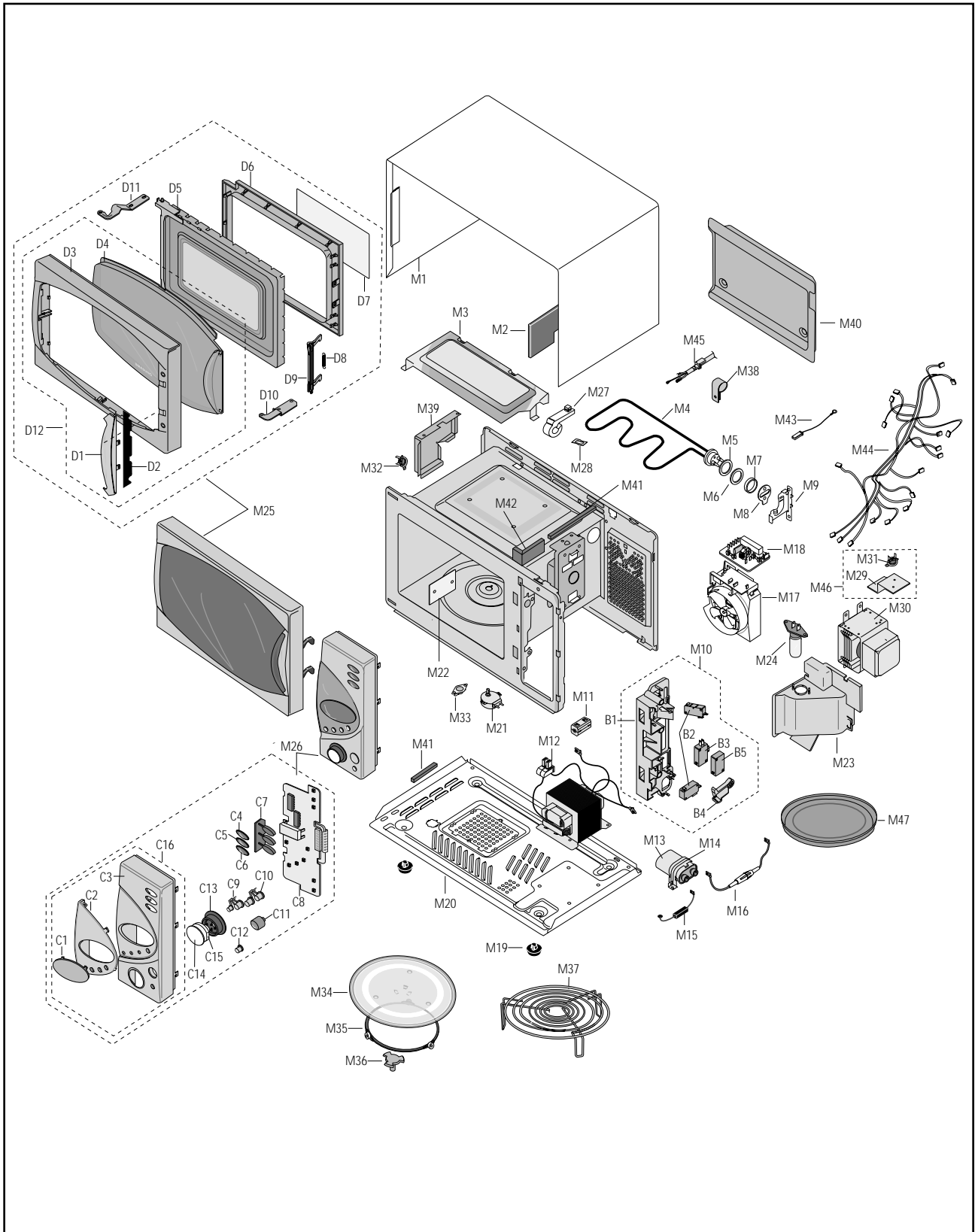
| ITEM                | MODEL | CE959G                   |          |         |          |
|---------------------|-------|--------------------------|----------|---------|----------|
| TIMER               |       | 99 MINUTES 90 SECONDS    |          |         |          |
| POWER SOURCE        |       | 230V/50HZ, AC            |          |         |          |
| POWER CONSUMPTION   |       | MICROWAVE : 1,500W       |          |         |          |
| OUTPUT POWER        |       | GRILL : 1,300W           |          |         |          |
|                     |       | FROM90 TO 900W           |          |         |          |
|                     |       | (10 LEVEL POWER)         |          |         |          |
|                     |       | (IEC-705 TEST PROCEDURE) |          |         |          |
|                     |       |                          | 2,450MHz |         |          |
| OPERATING FREQUENCY |       | 2,450MHz                 |          |         |          |
| MAGNETRON           |       | OM75PH(31)               |          |         |          |
| COOLING METHOD      |       | COOLING FAN MOTOR        |          |         |          |
| OUTSIDE DIMENSIONS  |       | 517(W) x 297(H) x 410(D) |          |         |          |
| NET WEIGHT          |       | 20 Kg                    |          |         |          |
| SHIPPING WEIGHT     |       | 22 Kg                    |          |         |          |
|                     |       | POWER LEVEL              |          | ON TIME | OFF TIME |
|                     |       | %                        | CE959G   |         |          |
|                     |       | 10%                      | 90W      | 4 sec   | 26 sec   |
|                     |       | 20%                      | 180W     | 7 sec   | 23 sec   |
|                     |       | 30%                      | 270W     | 10 sec  | 20 sec   |
|                     |       | 40%                      | 360W     | 13 sec  | 17 sec   |
|                     |       | 50%                      | 450W     | 16 sec  | 14 sec   |
|                     |       | 60%                      | 540W     | 19 sec  | 11 sec   |
|                     |       | 70%                      | 630W     | 22 sec  | 8 sec    |
|                     |       | 80%                      | 720W     | 25 sec  | 5 sec    |
|                     |       | 90%                      | 810W     | 28 sec  | 2 sec    |
|                     |       | 100%                     | 900W     | 30 sec  | 0 sec    |

### 2-2 Comparison Chart

| FEATURE          | MODEL | CE959G |
|------------------|-------|--------|
| MORE/LESS        |       | ○      |
| AUTO REHEAT      |       | ○      |
| AUTO DEFROST     |       | ○      |
| AUTO COOK        |       | ○      |
| TIME COOK        |       | ○      |
| POWER LEVEL (10) |       | ○      |
| CHILD LOCK       |       | ○      |
| CLOCK            |       | ○      |
| GRILL            |       | ○      |
| COMBI            |       | ○      |
| BEEPER ON/OFF    |       | ○      |

# 3. Exploded Views and Parts List

## 3-1 Exploded Views



## 4-2 Main Parts List

| Ref. No. | Parts No.   | Description/Specification                          | Q'ty | Remarks |
|----------|-------------|--|------|---------|
| M 1      | DE70-30001C | PANEL-OUTER;V/STEEL,T0.7,360,1128,STONE-GR         | 1    |         |
| M 2      | DE63-90035G | CUSHION-RUBBER;DFA20,T2,W190,L100,BLK              | 1    |         |
| M 3      | DE61-50017A | BRACKET-UPPER;SECC1,T0.6,340,216                   | 1    |         |
| M 4      | DE47-70031G | HEATER-GRILL;D6.6,230V1280W,M9G45,SJH              | 1    |         |
| M 5      | DE63-20017A | GASKET-HEATER;BRASS,T1.5,OD30.5,ID22.5             | 1    |         |
| M 6      | DE60-40009B | WASHER-TEFLON;SLOT,ID22.2,OD28,T1.2,TEFLON         | 1    |         |
| M 7      | DE61-50021A | BRACKET-FLANGE;SECC1,T0.8,32,32                    | 1    |         |
| M 8      | DE61-50347A | BRACKET-EARTH;BSS2-A,T1.0,W35,L43,MBGF45           | 1    |         |
| M 9      | DE61-50027B | BRACKET-HEATER;SECC,T1.0,W51,L55,CE945GF           | 1    |         |
| M 10     | DE93-20020A | ASSY BODY LATCH;RE-43B/90B                         | 1    |         |
| M 11     | DE73-90027A | FERRITE-CORE;NI-ZN,T13.8,W21.0,L28.0,BNF-14        | 1    |         |
| M 12     | DE26-10100A | TRANS-H.V.;SHV-945EG1,230V,2280V/3.15V,50          | 1    |         |
| M 13     | 2501-001030 | C-OIL;1.1uF,2100V,BK,35x54x95,20mm                 | 1    |         |
| M 14     | DE61-50106A | BRACKET-HVC;SECC,T0.8,W31,L125.8                   | 1    | ▲       |
| M 15     | DE59-40001A | DIODE-H.V.;HVR-1X-32B-12                           | 1    |         |
| M 16     | DE91-70061A | ASSY-H.V.FUSE;THV060T-0800-H,5KV/0.8A,WHT          | 1    |         |
| M 17     | DE31-10156A | MOTOR-FAN;SMF-945EA,230/50,2400,M97G45             | 1    |         |
| M 18     | DE91-40095A | ASSY NOISE FILTER;SN-E10D(N),250V,10A,2ND-WD-TYP   | 1    |         |
| M 19     | DE61-40017A | FOOT;PP(A353),BLK,MW5630T                          | 2    |         |
| M 20     | DE80-10001A | BASE-PLATE;SGCC,T0.8,345,565,                      | 1    |         |
| M 21     | DE31-10154A | MOTOR-DRIVE;M2HJ49ZR02,ST-16,21V,5/6               | 1    |         |
| M 22     | DE71-60382A | COVER-CEILING;MICASHEET,T0.5,70,133                | 1    |         |
| M 23     | DE71-60016A | COVER-AIR;PP,2,WHT,M945/M245                       | 1    |         |
| M 24     | 4713-001031 | LAMP-INCANDESCENT;230V,173mA,40W,ORG,-,-,25x69mm   | 1    |         |
| M 25     | DE94-00024A | ASSY DOOR;CE959GT-D,DARK-GRAY,AMFO                 | 1    |         |
| M 26     | DE94-00025A | ASSY CONTROL-BOX;230V50HZ,CE959GT-D,DARK-GRAY,AMFO | 1    |         |
| M 27     | DE61-30006A | SUPPORTER-HEATER;ALUMINA,5G,2ND-W/P                | 1    |         |
| M 28     | DE61-70060A | SPRING-PLATE;SK-5,T0.5                             | 1    |         |
| M 29     | DE61-50490A | BRACKET-TCO;SECC1,T0.6,34,58                       | 1    |         |
| M 30     | DE03-30035A | MAGNETRON;OM75PH((31)ESS                           | 1    |         |
| M 31     | DE47-20009A | THERMOSTAT;PW2N-520PB,160/60,250V/7.5A,H,          | 1    |         |
| M 32     | DE47-20161A | THERMOSTAT;PW2N(120/110)187Z23.,250V/7.5A          | 1    |         |
| M 33     | DE47-20008A | THERMOSTAT;PW2N-52JC,100/60,250V/7.5A,H,1          | 1    |         |
| M 34     | DE74-20015B | TRAY-COOKING;GLASS,T6.0,PI318,1050G,MW5630T        | 1    |         |
| M 35     | DE92-90189D | ASSY-GUIDE ROLLER;D19,STD                          | 1    |         |
| M 36     | DE67-60075A | COUPLER;PPS,7G,BRN,M97G45                          | 1    |         |
| M 37     | DE74-70003A | RACK WIRE;MSWR3,3,290,125,SNC2,CE945G              | 1    |         |
| M 38     | DE65-20014A | CABLE CLAMP;DA-6N,NY-66                            | 1    |         |
| M 39     | DE72-60005A | GUIDE-AIR;SECC1-P,T0.5,210,225                     | 1    |         |
| M 40     | DE92-90524A | ASSY-COVER BACK;CE945G                             | 1    |         |
| M 41     | DE63-90065N | CUSHION-GUIDE;PUT-FOAM,T10,W10,L200,BLK,MW55       | 2    |         |
| M 42     | DE63-90065O | CUSHION-GUIDE;PUT-FOAM,T35,W20,L135,BLK,MW55       | 1    |         |
| M 43     | DE39-40409A | WIRE HARNESS-E;230V50HZ,M9G45,CTW                  | 1    |         |
| M 44     | DE39-40568A | WIRE HARNESS-A;230V50HZ,CE745G/CE945G              | 1    |         |
| M 45     | DE39-20058C | ASSY POWER CORD;KKP-4819D/B232,250V16A,L1700,G     | 1    |         |
| M 46     | DE91-70101C | ASSY-THERMOSTAT;MW5574W,160/60,187-HORIZ           | 1    |         |
| M 47     | DE74-20107A | TRAY BROILER;CE945GF(SSW),MW5574W                  | 1    |         |



### 3-3 Door Parts List

| Ref. No. | Parts No.   | Description/Specification                  | Q'ty | Remarks |
|----------|-------------|--|------|---------|
| D 1      | DE64-20112J | HANDLE;ABS(HR0370),30G,-,-,D/GRAY,M959-D   | 1    |         |
| D 2      | DE94-00013A | ASSY DOOR-A;M959-D,D/GRAY                  | 1    |         |
| D 3      | DE64-40263P | DOOR-A;ABS,-,M959-D                        | 1    |         |
| D 4      | DE64-40265D | DOOR-SCREEN;ACRYL(IF850)ED17,M959          | 1    |         |
| D 5      | DE92-50127H | ASSY DOOR-E;COATING,BLACK,T0.8             | 1    |         |
| D 6      | DE64-40012A | DOOR-C;RESIN-PP(TB53),T2.0,CE945GF,BL      | 1    |         |
| D 7      | DE01-00002A | FILM-DOOR;PET,T0.15,275,175,NTR,CE945GF    | 1    |         |
| D 8      | DE61-70126A | SPRING-KEY;0.8,0,36,6,BLUIING"             | 1    |         |
| D 9      | DE64-40264C | DOOR-KEY;POM(F20-02),5g,BLK,1,2ND,HANDL    | 1    |         |
| D 10     | DE61-80003A | HINGE-LOWER;SCP1,T2.3,26,77,ZPC3,WHT,CE945 | 1    |         |
| D 11     | DE61-80002A | HINGE-UPPER;SCP1,T2.3,26,77,ZPC3,WHT,CE945 | 1    |         |

### 3-4 Control Parts List

| Ref. No. | Parts No.   | Description/Specification                         | Q'ty | Remarks |
|----------|-------------|---|------|---------|
| C 1      | DE71-00002A | COVER-PANEL;ABS(HR0370D),-,-,CE959GT-D,DARK-GRAY  | 1    |         |
| C 2      | DE67-40145A | WINDOW-DISPLAY;ACRYL,T2,W40,L77,SMOG,30G          | 1    |         |
| C 3      | DE72-70211Q | CONTROL-PANEL;ABS(HR0370D),WHT,-,-,CE959GT-D      | 1    |         |
| C 4      | DE66-00001A | BUTTON-SELECT(A);PC                               | 1    |         |
| C 5      | DE66-20197V | BUTTON-SELECT(A-B);PC,-,-,M959-D,D/GRAY           | 1    |         |
| C 6      | DE66-20198V | BUTTON-SELECT(A-C);PC,-,-,M959-D,D/GRAY           | 1    |         |
| C 7      | DE66-20179A | BUTTON-SELECT;ABS(HR0370),NTR,30G,RE-445          | 1    |         |
| C 8      | DE91-10537A | ASSY PCB-MAIN;RC-959G-00,230V50Hz,VFD,CE959G      | 1    | ● ▲     |
| C 9      | DE66-20175L | BUTTON-SELECT(B);ABS(HR0370),-,-,M959-D,D/GRAY    | 1    |         |
| C 10     | DE66-20176L | BUTTON-SELECT(C);ABS(HR0370),-,-,M959-D,D/GRAY    | 1    |         |
| C 11     | DE66-20177M | BUTTON-SELECT(D);ABS(HR0370),-,-,M959-D,D/GRAY    | 1    |         |
| C 12     | DE66-20178M | BUTTON-SELECT(E);ABS(HR0370),-,-,M959-D,D/GRAY    | 1    |         |
| C 13     | DE64-10127F | KNOB-COVER;ABS(HR0370D),-,CE959GT-D               | 1    |         |
| C 14     | DE66-20182G | BUTTON-START;ABS(HR0370D),-,-,DE959GT-D,DARK-GRAY | 1    |         |
| C 15     | DE71-60378A | COVER-LAMP;POM,T2,W19.4,L27,3G,NTR,RE-446         | 1    |         |
| C 16     | DE94-00021A | ASSY CONTROL-PANEL;-,-,CE959GT-D,DARK-GRAY,AMFO   | 1    |         |

### 3-5 Body Latch Parts List

| Ref. No. | Parts No.   | Description/Specification                | Q'ty | Remarks |
|----------|-------------|--|------|---------|
| B 1      | DE66-40001A | LATCH-BODY;POM(F20-02) 40GR NTR          | 1    |         |
| B 2      | 3405-000178 | SWITCH-MICRO;VP-533A-OF-PS(T85) 250V,15A | 2    |         |
| B 3      | 3405-000175 | SWITCH-MICRO;VP-531A-OF(T85) 250V,15A,20 | 1    |         |
| B 4      | DE66-90001A | LEVER-SWITCH;P.O.M(F20-02) 2 6 NTR 2ND-W | 1    |         |

● : Option Parts

▲ : Warning

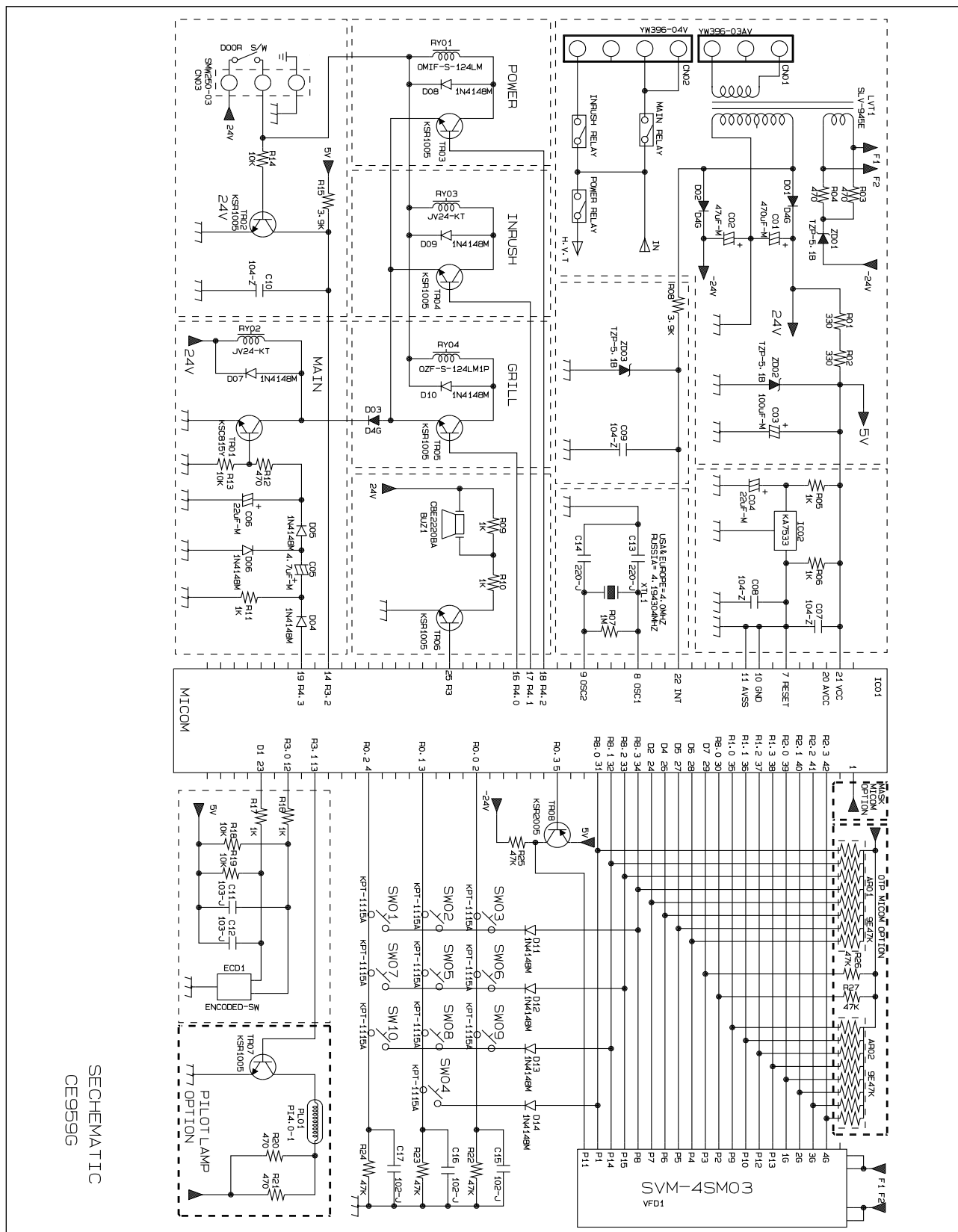
▲ :Electrostatically Sensitive Devices

### 3-6 Standard Parts List

| Parts No.   | Description / Specification                        | Q'ty | Remarks   |
|-------------|--|------|-----------|
| DE60-10012A | SCREW-TAP TITE;TH,+,3,M4,L10,SWR10,ZPC2,TOOTH      | 1    | N-F-EA    |
| DE60-10012A | SCREW-TAP TITE;TH,+,3,M4,L10,SWR10,ZPC2,TOOTH      | 1    | P-C-EA    |
| DE60-10012A | SCREW-TAP TITE;TH,+,3,M4,L10,SWR10,ZPC2,TOOTH      | 1    | S-M-EA    |
| DE60-10013A | SCREW-ASSY TAP;TH,2S,4,L12,MSWR3,ZPC3,FIBER        | 1    | MO/FAN    |
| DE60-10018A | SCREW-ASSY MACHINE;PH,M4X0.7P,8,MSWR10,SN1,WS      | 2    | B/EATH    |
| DE60-10024A | SCREW-PH;PH,+,M4,L8,MSWR10,ZPC3                    | 2    | B/HEAT    |
| DE60-10045A | SCREW-TAP PH;PH,M3,L6,FEFZY                        | 2    | MG-TCO    |
| DE60-10069A | SCREW-TAP TH;TH,M4,L10,FRFZY                       | 3    | B/UPPE    |
| DE60-10069A | SCREW-TAP TH;TH,M4,L10,FRFZY                       | 1    | CV/AIR    |
| DE60-10072A | SCREW-TAP TH;TH,M4,L16,FEFZY,2-SLOT                | 1    | CB-CMP    |
| DE60-10080A | SCREW-WASHER;M5,L12,2S                             | 4    | MGT       |
| DE60-10080A | SCREW-WASHER;M5,L12,2S                             | 4    | TNS-HV    |
| DE60-10082H | SCREW-A;2S-4X12,TOOTHED                            | 2    | B-PLTE    |
| DE60-10082H | SCREW-A;2S-4X12,TOOTHED                            | 2    | CN-BOX    |
| DE60-10082H | SCREW-A;2S-4X12,TOOTHED                            | 2    | LATCH     |
| DE60-10082H | SCREW-A;2S-4X12,TOOTHED                            | 5    | PN-OUT    |
| DE60-10098A | SCREW-ASSY TAP TITE;PH,TC,M4X8,SWRCH18A,ZPC2,GLD,W | 1    | CV-TCO    |
| DE60-10098A | SCREW-ASSY TAP TITE;PH,TC,M4X8,SWRCH18A,ZPC2,GLD,W | 2    | M/DRIV    |
| DE60-10122A | SCREW-TAP TH;TAP,TH,2-4X8,FE,FN                    | 2    | C-CEIL    |
| DE60-20063A | BOLT-FLANGE;M4,10,ZPC3,YEL,MSWR                    | 2    | HI-LOW    |
| DE60-20063A | BOLT-FLANGE;M4,10,ZPC3,YEL,MSWR                    | 2    | HI-UPP    |
| DE60-10045A | SCREW-TAP PH;PH,M3,L6,FEFZY                        | 1    | -         |
| DE60-10066A | SCREW-TAP TH;TH,M4,L8,FEFZY,2-SLOT                 | 2    | H/DOOR    |
| DE60-10012A | SCREW-TAP TITE;TH,+,3,M4,L10,SWR10,ZPC2,TOOTH      | 1    | -         |
| DE60-10098A | SCREW-ASSY TAP TITE;PH,TC,M4X8,SWRCH18A,ZPC2,GLD,W | 1    | -         |
| DE60-10088A | SCREW-TAP PH;PH,M3,L8,FEFZY,PLAIN                  | 12   | CON/PANEL |
| DE60-10045A | SCREW-TAP PH;PH,M3,L6,FEFZY                        | 1    | GR-TCO    |

# 4. P.C.B Diagrams

## 4-1 P.C.B Diagrams



## 4-2 P.C.B Parts List

| Parts No.   | Description / Specification                        | Q'ty | Remarks  |
|-------------|--|------|--|
| 3501-001050 | RELAY-MINIATURE;24VDC,200mW,5A,1FormA,10mS,5mS     | 2    | RY02,RY03  |
| 3501-001062 | RELAY-POWER;24VDC,523.2mW,16A,1FormA,15mS          | 1    | RY01   |
| 3501-001068 | RELAY-POWER;24Vdc,523mW,16A,1FormA,15mS,10         | 1    | RY04   |
| DE07-10081A | V.F.DISPLAY;SVM-4SM03,GRN/RSHORG,4,51,81.7         | 1    | VFD1   |
| DE09-30725A | IC-MCU;HD404316-D48S,CE959G                        | 1    | IC01   |
| DE26-20141A | TRANS-L.V;SLV-945E,230V,50HZ,AC17/2.9V             | 1    | LVT1   |
| DE30-20016A | BUZZER;CBE2220BA,STICK                             | 1    | BUZ1   |
| DE39-40723A | WIRE HARNESS;DC35V,C-959G,80mm,12PIN               | 1    | CN05   |
| DE61-90320A | HOLDER-DIGITRON;PP,-,W37,L83.3,-,CE959G            | 1    | -  |
| DE91-20635A | ASSY PCB AUTO-MAIN;230V50Hz,VFD,CE959G             | 1    | -  |
| 0401-001002 | DIODE-SWITCHING;1N4148M,100V,200mA,500mW,3nS,D     | 11   | D04~D14  |
| 0402-001103 | DIODE-RECTIFIER;1T4,400V,1A,TS-1,TP                | 3    | D01~D03  |
| 0403-000717 | DIODE-ZENER;MTZJ5.1B,5.1V,4.94-5.2V,500mW          | 3    | ZD01~ZD03  |
| 0501-000388 | TR-SMALL SIGNAL;KSC815,NPN,400mW,TO-92,BK,120      | 1    | TR01   |
| 0504-001014 | TR-DIGITAL;KSR1005,NPN,300mW,4.7K-10K,TO-          | 5    | TR02~TR06  |
| 0504-001015 | TR-DIGITAL;KSR2005,PNP,300mW,4.7K-10K,TO-          | 1    | TR08   |
| 2001-000037 | R-CARBON(S);330ohm,5%,1/2W,AA,TP,2.4x6.4mm         | 2    | R01,R02  |
| 2001-000290 | R-CARBON;10Kohm,5%,1/8W,AA,TP,1.8x3.2mm            | 4    | R13,R14,R18,R19  |
| 2001-000429 | R-CARBON;1Kohm,5%,1/8W,AA,TP,1.8x3.2mm             | 7    | R05,R06,R09~R11,R16,R17  |
| 2001-000435 | R-CARBON;1Mohm,5%,1/8W,AA,TP,1.8x3.2mm             | 1    | R07  |
| 2001-000613 | R-CARBON;3.9Kohm,5%,1/8W,AA,TP,1.8x3.2m            | 2    | R08R15   |
| 2001-000780 | R-CARBON;470ohm,5%,1/8W,AA,TP,1.8x3.2mm            | 3    | R03,R04,R12  |
| 2001-000786 | R-CARBON;47Kohm,5%,1/8W,AA,TP,1.8x3.2mm            | 4    | R22~R25  |
| 2202-000127 | C-CERAMIC,MLC-AXIAL;10nF,+80-20%,25V,Y5V,TP,-,7.5  | 2    | C11,C12  |
| 2202-000780 | C-CERAMIC,MLC-AXIAL;100nF,+80-20%,50V,Y5V,TP,3.5x1 | 4    | C07~C10  |
| 2202-000796 | C-CERAMIC,MLC-AXIAL;1nF,10%,50V,Y5P,TP,3.5x19      | 3    | C15~C17  |
| 2401-000247 | C-AL;100uF,20%,10V,GP,-,6.3x11mm,5m                | 1    | C03  |
| 2401-000914 | C-AL;22uF,20%,16V,GP,TP,5x11,5                     | 2    | C04,C06  |
| 2401-001268 | C-AL;4.7uF,20%,50V,GP,TP,5x11,5                    | 1    | C05  |
| 2401-001412 | C-AL;470uF,20%,35V,GP,TP,10x16,5                   | 1    | C01  |
| 2401-001573 | C-AL;47uF,20%,50V,GP,TP,6.3x11,2.5                 | 1    | C02  |
| 2802-000161 | RESONATOR-CERAMIC;4MHz,0.5%,TP,10.0x5.0x7.5mm      | 1    | XTL1   |
| 3404-000282 | SWITCH-TACT;12Vdc,50mA,120+-30gf,6.2x3.6mm         | 10   | SW01~SW10  |
| 3711-000203 | CONNECTOR-HEADER;1WALL,3P,1R,3.96mm,ANGLE,SN       | 1    | CN01   |
| 3711-000240 | CONNECTOR-HEADER;1WALL,4P,1R,3.96mm,STRAIGHT,SN    | 1    | CN02   |
| 3711-000881 | CONNECTOR-HEADER;BOX,3P,1R,2.5mm,STRAIGHT,SN       | 1    | CN03   |
| DE13-20009A | IC;KA7533,DIP                                      | 1    | IC02  |
| DE39-60001A | WIRE-SO COPPER;PI0.6,SN,T,52MM,TAPING_WIRE         | 14   | J01~J03,J05~J15  |
| DE41-10463A | P.C.B-MAIN;FR-1,T1.6,W89,L330,CE959G               | 1    | -  |
| DE60-60012A | PIN-EYELET;ID2.1,OD2.5,L3.0,SN,BSP,T0.25           | 5    | -  |

# 5. Schematic Diagrams

## 5-1 Schematic Diagrams

