

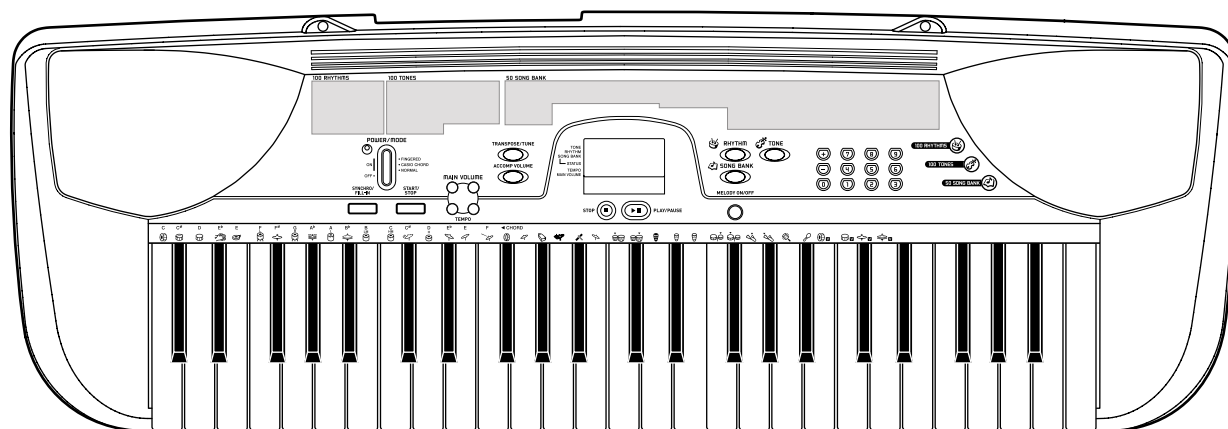
CASIO®

Service Manual

(without price)

CTK-230

SEP. 2003



CTK-230

HIGH-GRADE KEYBOARD

Ver.1 : Jan. 2004

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SPECIFICATIONS

GENERAL

| | |
|-------------------|--|
| Keyboard: | 49 standard-size keys, 4 octaves |
| Tones: | 100 |
| Polyphony: | 12 notes maximum (6 for certain tones) |

Auto Accompaniment

| | |
|--------------------|---|
| Rhythm Patterns: | 100 |
| Tempo: | Variable (236 steps, ♩ = 20 to 255) |
| Chords: | 2 fingering methods (CASIO CHORD, FINGERED) |
| Rhythm Controller: | START/STOP, SYNCHRO/FILL-IN |
| Accomp Volume: | 0 to 9 (10 steps) |

Song Bank

| | |
|--------------|---------------------------------|
| Tunes: | 50 |
| Controllers: | PLAY/PAUSE, STOP, MELODY ON/OFF |

Display

| | |
|-------------------|---|
| Name display: | TONE, RHYTHM, SONG BANK name/number, keyboard setting names/values |
| Tempo: | Tempo value, metronome, synchro standby, beat indicator, volume setting |
| Chord: | Chord name |
| Song Bank Status: | PLAY, PAUSE, MELODY ON/OFF |

Other Functions

| | |
|------------|---|
| Transpose: | 12 steps (-6 semitones to +5 semitones) |
| Tuning: | Variable (A4 = approximately 440Hz ±50 cents) |
| Volume: | 0 to 9 (10 steps) |

Terminals

| | |
|-------------------------|---|
| Phones/Output Terminal: | Stereo standard jack (Output is monaural.) Output Impedance: 78Ω Output Voltage: 3V (RMS) MAX |
|-------------------------|---|

| | |
|------------------------|-------|
| Power Supply Terminal: | 9V DC |
|------------------------|-------|

Power Supply:

| | |
|-----------------|---|
| Batteries: | Dual power supply system 6 AA-size batteries |
| Battery Life: | Approximately 6 hours continuous operation on alkaline batteries Approximately 3 hours continuous operation on manganese batteries |
| AC Adaptor: | AD-5 |
| Auto Power Off: | Turns power off approximately 6 minutes after last operation. Enabled under battery power only, can be disabled manually. |

Speaker Output:

Power Consumption:

Dimensions:

Weight:

| |
|--|
| ø 10cm × 2 (1.6W + 1.6W) |
| 9V = 6.5W |
| 87.5 × 30.0 × 10.0 cm (34 1/2 × 11 13/16 × 3 15/16 inch) |
| Approximately 3.2 kg (7.1 lbs) (without batteries) |

ELECTRICAL

Current drain with 9 V DC:

| | |
|---|---------------|
| No sound output | 79 mA ± 20 % |
| Maximum volume | 426 mA ± 20 % |
| with 12 keys C3 to G4 pressed in Synth-Lead 1 | |
| Volume: 9 (Max.) | |

Phone output level (Vrms with 32 Ω load each channel):

| | |
|-------------------------------------|---------------|
| with key C5 pressed in Synth-Lead 1 | 200 mV ± 20 % |
|-------------------------------------|---------------|

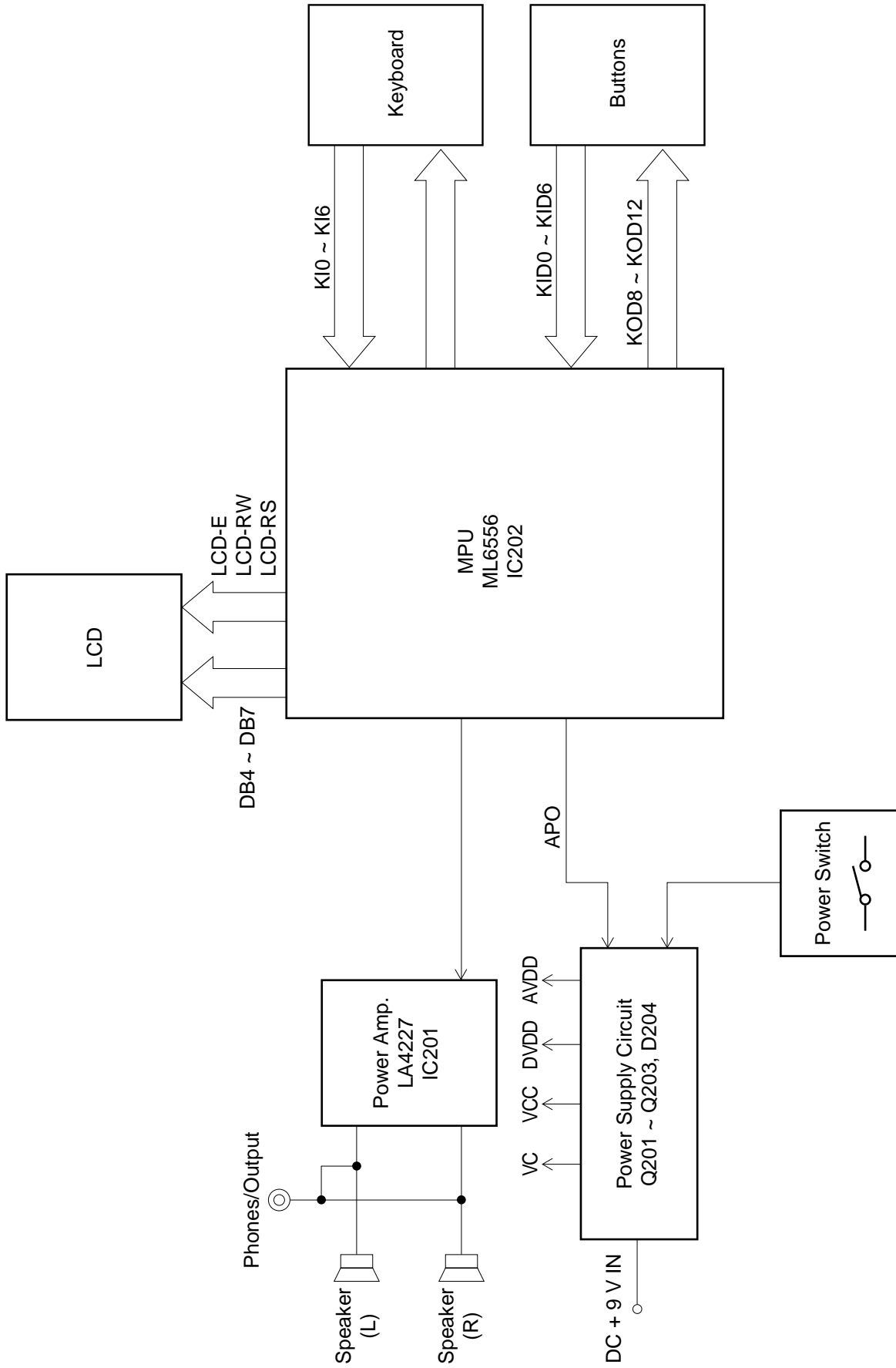
Speaker output level (Vrms with 4 Ω load each channel):

| | |
|-------------------------------------|---------------|
| with key E2 pressed in Synth-Lead 1 | 640 mV ± 20 % |
|-------------------------------------|---------------|

Output level (Vrms with 47 KΩ load each channel):

| | |
|-------------------------------------|---------------|
| with key C5 pressed in Synth-Lead 1 | 675 mV ± 20 % |
|-------------------------------------|---------------|

BLOCK DIAGRAM

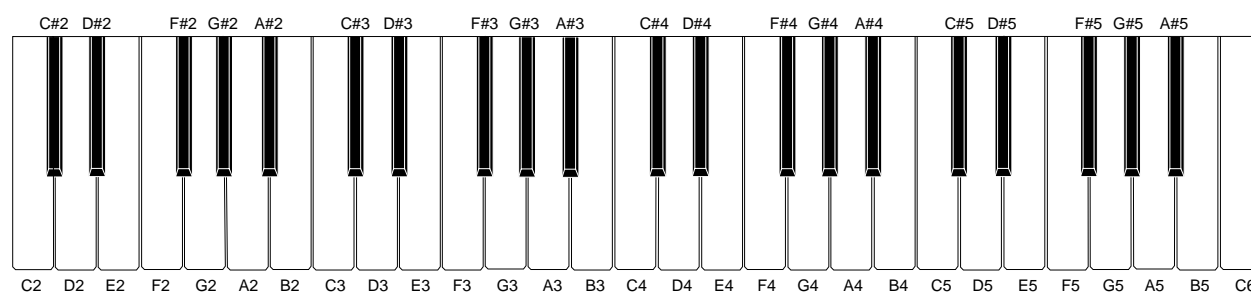


CIRCUIT DESCRIPTION

KEY MATRIX

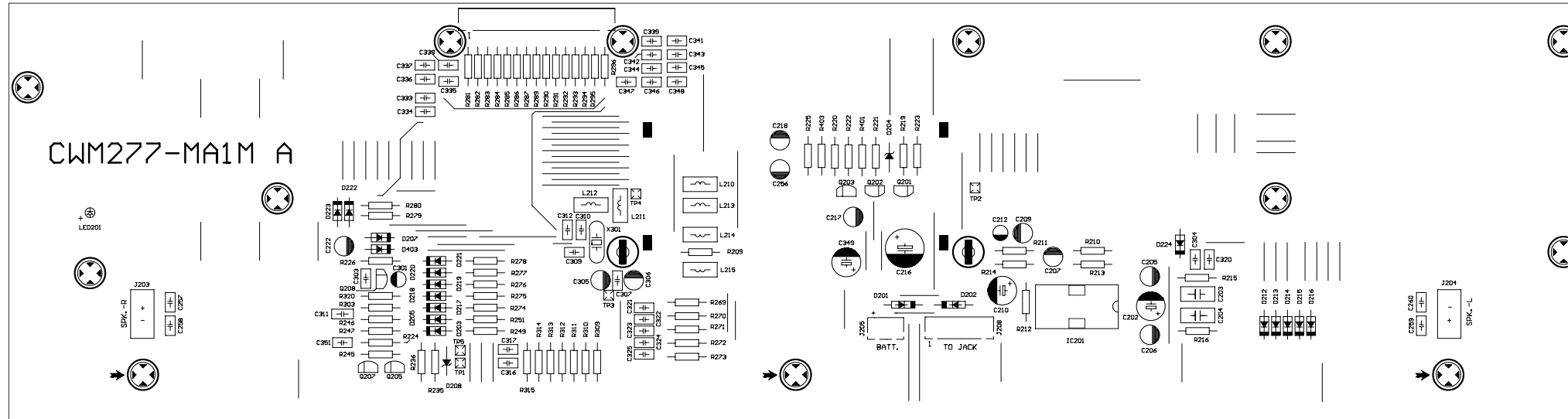
| | KID0 | KID1 | KID2 | KID3 | KID4 | KID5 | KID6 |
|-------|------|------------------|----------------|-------------------|--------------------|-------------|------------------|
| KOD8 | — | + | 0 | TEMPO ▼ | TEMPO ▲ | VOLUME ▼ | VOLUME ▲ |
| KOD9 | 3 | 2 | 1 | START/ STOP | SYNCRO/ FILL IN | F5 | ACCOMP VOLUME |
| KOD10 | 6 | 5 | 4 | TRANPOSE/ TUNE | SONG BANK | RHYTHM | TONE |
| KOD11 | 9 | 8 | 7 | FINGERED | CASIO CHORD | NORMAL | OFF |
| KOD12 | E2 | MELODY ON/OFF | PLAY/ PAUSE | STOP | | | |

NOMENCLATURE OF KEYS

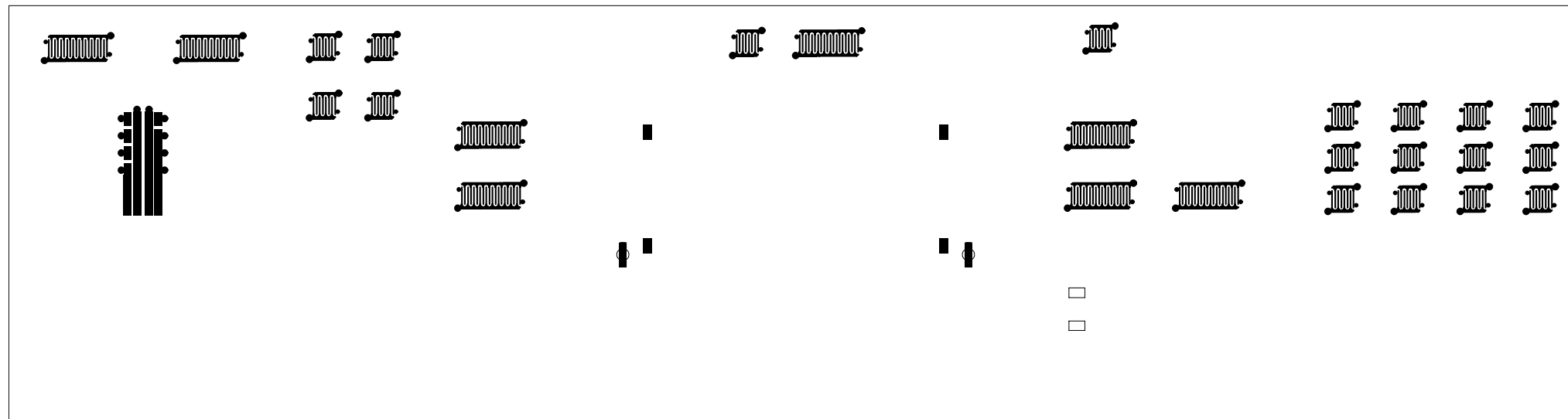


PRINTED CIRCUIT BOARDS

Main PCB CMW277-MAIN

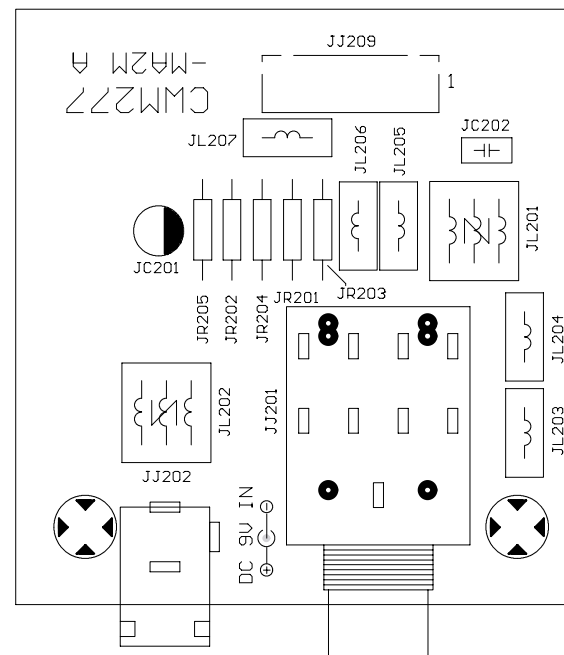


Top View



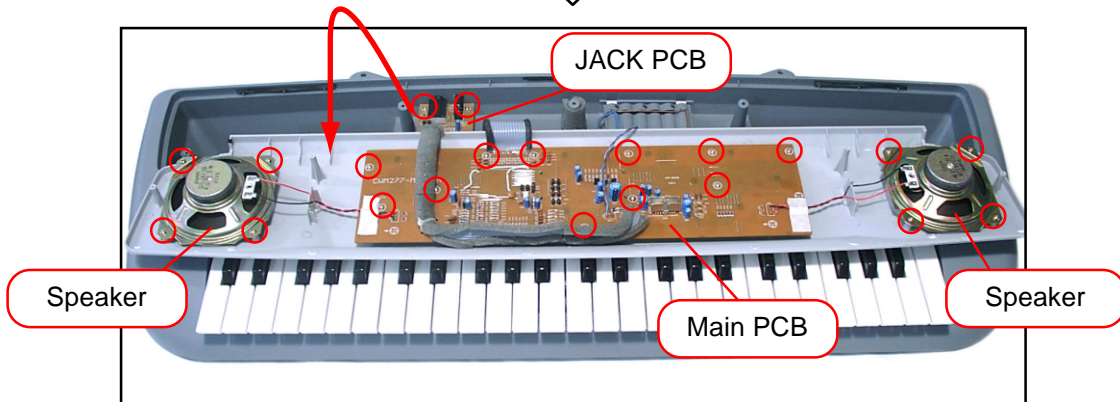
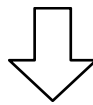
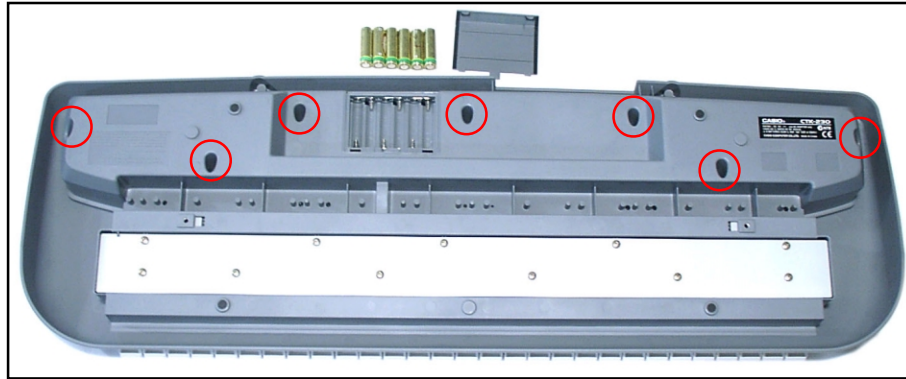
Bottom View

JACK PCB CMW277-MA2M



DISASSEMBLY

1. Remove the battery cover and then take out the battery.
2. Remove 7 screws and then the console panel.



3. Remove 12 screws and then the Main PCB.
4. Remove 2 screws and then the JACK PCB.
5. Remove 8 screws and then the Speaker.

DIAGNOSTIC PROGRAM

Message on LCD

Initial Setting

1. Connect an AC adaptor.

AD-5

How to start diagnostic program

1. Press the "POWER" button while pressing the "0 Up" and "START/STOP" buttons.

SONG BANK ◀ TEST

Diagnostic program

1. MODE Switch check

- ① Press "CASIO CHORD" button.
- ② Press "FINGERED" button.
- ③ Press "NORMAL" button.

RHYTHM ◀ TEST

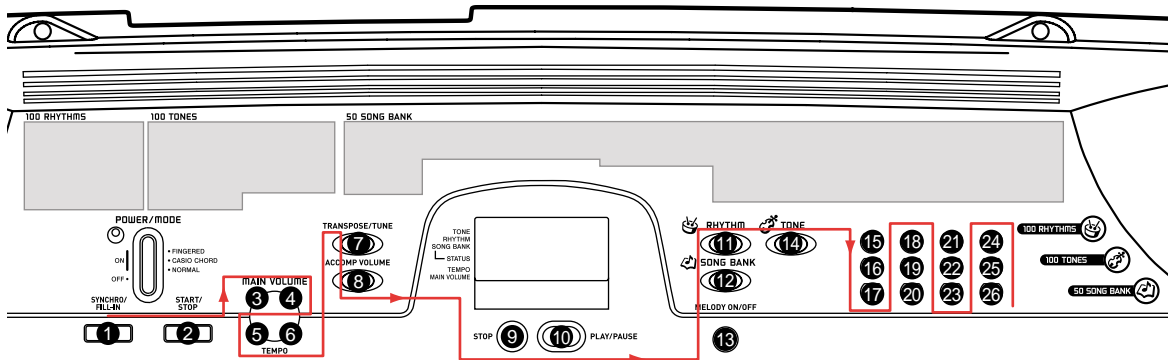
TONE ◀ TEST

SONG BANK ◀ TEST

2. SWITCH check

- ① Press "0" button.
- ② Press the buttons in the following order.

◀ SWITCH



- ③ OK sound must be audible with the display as Message on LCD

SWIT OK

3. ROM check

- ① Press "2" button.

ROM TEST

↓
ROM 0000

↓
ROM OK

OK sound must ne audible.

4. ROM Ver. check

- ① Press "1" button.
Pip sound must be audible.

277Vr170

5. D/A check

- ① Press "4" button.
Minimum sine wave sound must be audible at center position.
- ② Press "5" button.
Middle sine wave sound must be audible at center position.
- ③ Press "6" button.
Maximum sine wave sound must be audible at center position.

MIN

MID

MAX

6. LCD check

- ① Press "TONE" button.
- ② Press "TONE" button.
*Pip sound must be audible.
The display must be changed to turn on all dots.
- ③ Press "TONE" button.
The display must be changed to no display.
- ④ Press "TONE" button.
The display must be changed to pattern 1 dot matrix.
- ⑤ Press "TONE" button.
The display must be changed to pattern 2 dot matrix.
- ⑥ Press "TONE" button.
The display must be changed to pattern 1 characters.
- ⑦ Press "TONE" button.
The display must be changed to pattern 2 characters.
- ⑧ Press "TONE" button.
The display must be changed to as remark.

LCD

TEST

7. AC Adaptor check

- ① Press "SONG BANK" button.
OK sound must be audible.

P=AC ADP

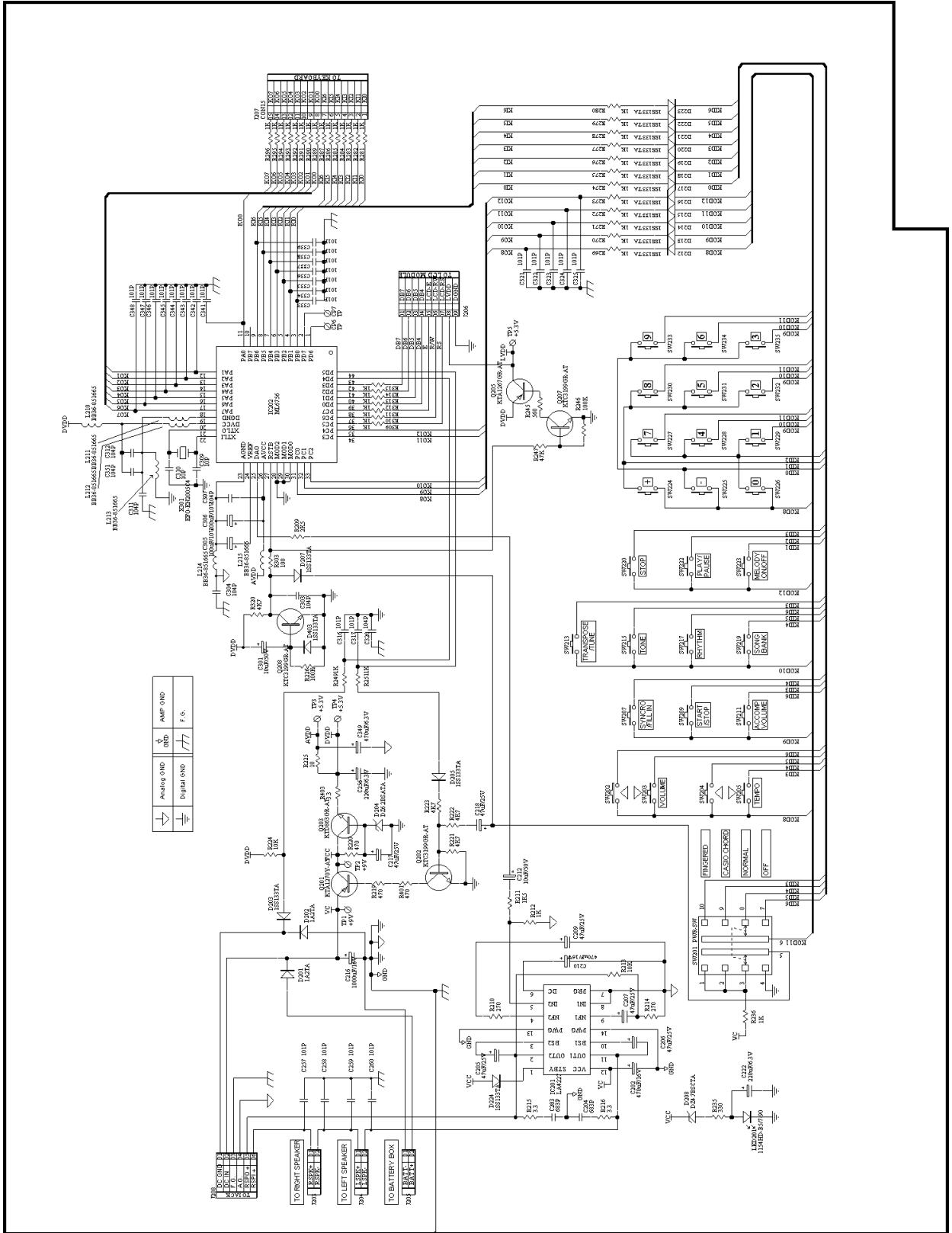
8. APO check

- ① Press "STOP" button.
* Go out from TEST mode (Power off).
* The LCD turns off.

DIAGNOSTIC PROGRAM IS FINISHED.

SCHEMATIC DIAGRAMS

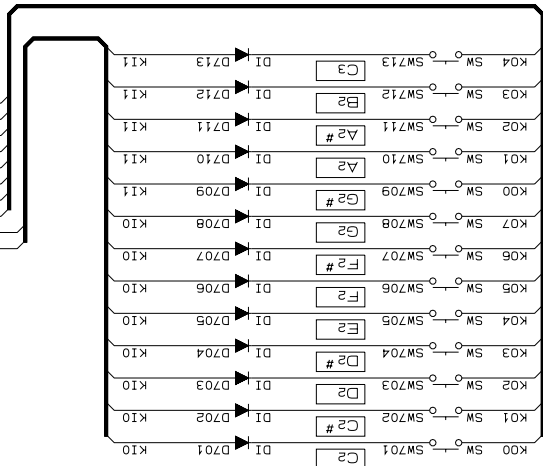
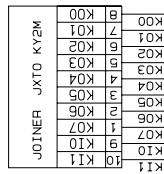
Main PCB CMW277-MAIM



Keyboard PCBs JCM4911K-KY1M/KY2M

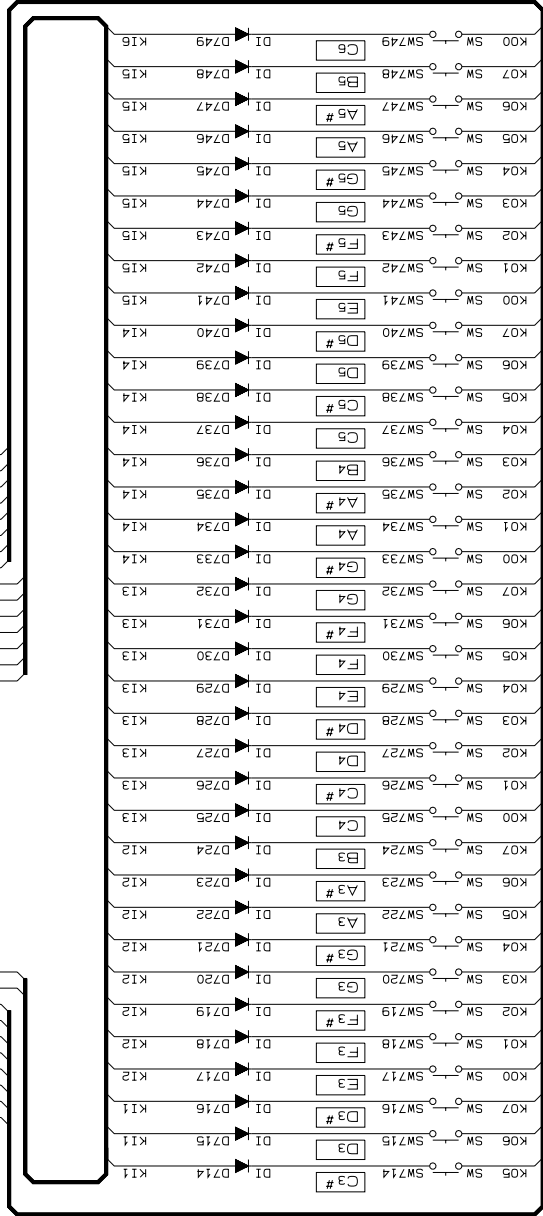
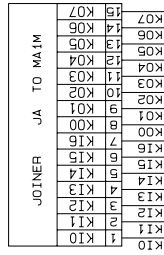
JCM4911K-KY1M

DI ◀ : 1S2473T-77-T

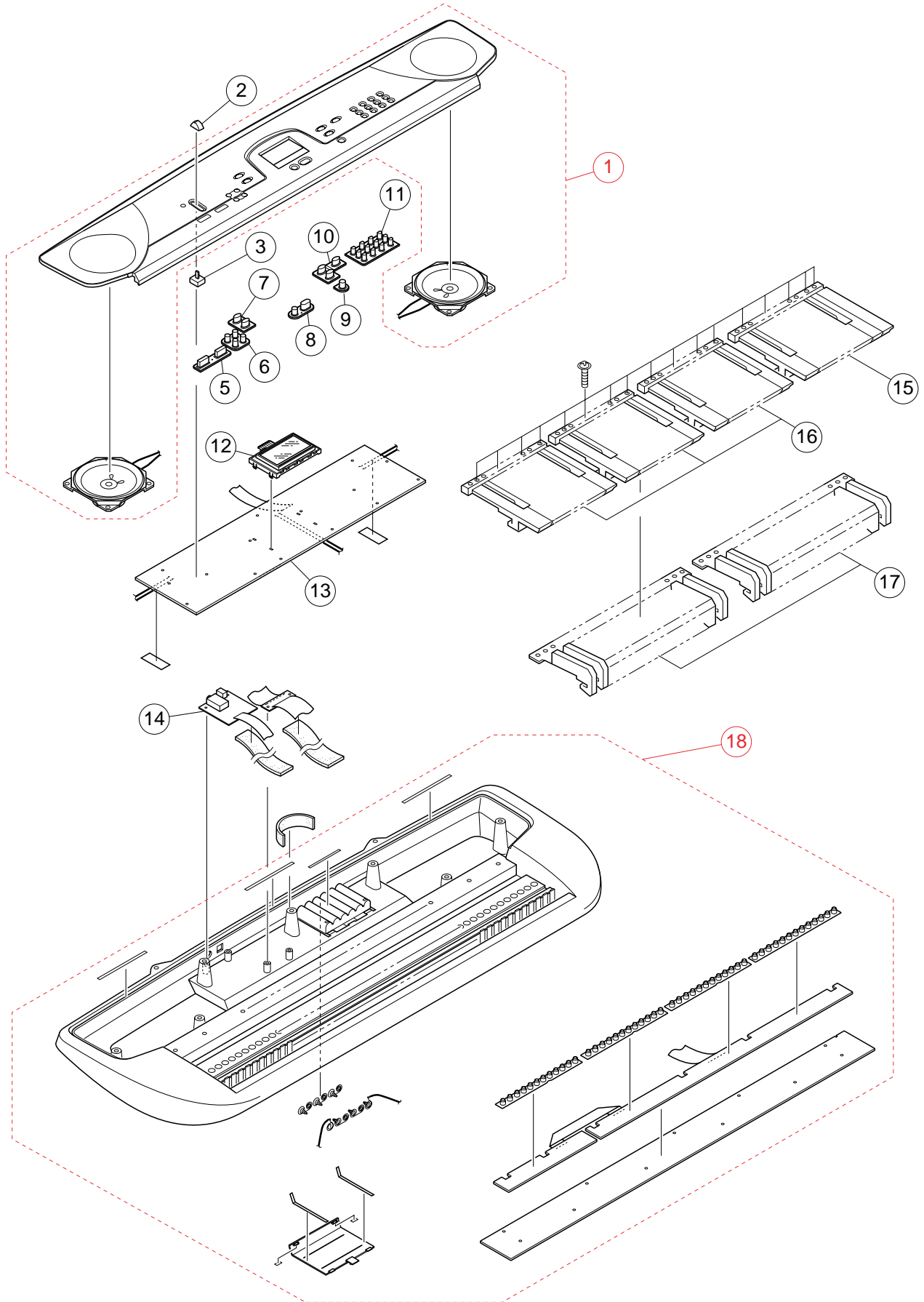


JCM4911K-KY2M

DI ◀ : 1S2473T-77-T



EXPLODED VIEW



PARTS LIST

CTK-230

Notes: This parts list does not include the cosmetic parts, which parts are marked with item No. "R-X" in the exploded view.

Contact our spare parts department if you need these parts for refurbish.

1. Prices and specifications are subject to change without prior notice.
2. As for spare parts order and supply, refer to the "GUIDEBOOK for Spare parts Supply", published separately.
3. The numbers in item column correspond to the same numbers in drawing.

| N | Item | Parts code | Parts name | Specification | Q | Price Code | R | Remarks |
|------------------|------|------------|--------------------|------------------|---|------------|---|---------|
| N | 1 | 9481 2403 | ASSY/PANEL/SPEAKER | CTK-230-1 | 1 | BG | C | |
| N | 2 | 1014 9232 | KNOB | ##073-49104000 | 1 | AA | C | |
| N | 3 | 1014 9231 | SWITCH/SLIDE KNOB | ##051-40000080 | 1 | AD | C | |
| - | 4 | 3831 1043 | SPEAKER | S10JA13B | 2 | BE | B | |
| N | 5 | 1014 9219 | RUBBER/BUTTON | ##072-49105000 | 1 | AA | C | |
| N | 6 | 1014 9229 | RUBBER/BUTTON | ##072-49109000 | 1 | AB | C | |
| N | 7 | 1014 9226 | RUBBER/BUTTON | ##072-49108000 | 1 | AB | C | |
| N | 8 | 1014 9224 | RUBBER/BUTTON | ##072-49107000 | 1 | AA | C | |
| N | 9 | 1014 9218 | RUBBER/BUTTON | ##072-49104000 | 1 | AA | C | |
| N | 10 | 1014 9222 | RUBBER/BUTTON | ##072-49106000 | 1 | AC | C | |
| N | 11 | 1014 9216 | RUBBER/BUTTON | ##072-49103000 | 1 | AD | C | |
| N | 12 | 1014 9178 | LCD ASSY | 8CA-120-49102000 | 1 | BG | C | |
| N | 13 | 1014 9174 | PCB ASSY/MAIN | 8CA-120-49101000 | 1 | CF | A | |
| N | 14 | 1014 9188 | PCB ASSY/JACK | 8CA-120-49103000 | 1 | AO | C | |
| N | 15 | 1014 9258 | SET KEY/WHITE | ##150-49102000 | 1 | AO | C | |
| N | 16 | 1014 9234 | SET KEY/WHITE | ##150-49101000 | 3 | AN | C | |
| N | 17 | 1014 9259 | SET KEY/BLACK | ##150-49103000 | 2 | AK | C | |
| N | 18 | 9481 2404 | ASSY/CASE/PCB | CTK-230-2 | 1 | BR | C | |
| ACCESSORY | | | | | | | | |
| N | - | 1014 9205 | STAND/NOTE | ##040-49104000 | 1 | AI | C | |

Notes : Q- Quantity per unit

R- Rank

Ver.1 : Jan. 2004

Replacement of the EXPLODED VIEW and PARTS LIST

CASIO TECHNO CO.,LTD.
Overseas Service Division

6-2, Hon-machi 1-Chome
Shibuya-ku, Tokyo 151-8543, Japan