

# WM-FX241

## SERVICE MANUAL

*E Model*

Ver 1.0 2001.03

The WM-FX241 (E Model) is approximately the same as the WM-FX277 (5E Model). Consequently, only difference between WM-FX241 (E Model) and WM-FX277 (5E Model) are listed. For other information, please refer to the WM-FX277 service manual (9-927-695-31) previously issued.

### ● DIFFERENCE PARTS LIST

**EXPLODED VIEWS** (Service Manual See page 17)

Ref. No.	WM-FX277 (5E Model)			WM-FX241 (E Model)		
	Part No.	Description	Remark	Part No.	Description	Remark
1	3-227-307-11	CABINET(FRONT)		3-227-307-01	CABINET(FRONT)	
2	3-227-308-11	WINDOW(LCD)		3-227-308-01	WINDOW(LCD)	
14	3-227-306-11	CABINET(CENTER)		3-227-306-01	CABINET(CENTER)	
16	3-227-313-11	LID, BATTERY CASE		3-227-313-01	LID, BATTERY CASE	

### ● ACCESSORIES & PACKING MATERIALS

Ref. No.	Part No.	Description	Remark
	3-225-744-11	MANUAL, INSTRUCTION (ENGLISH, SPANISH, PORTUGUESE)	
	3-229-494-01	CASE, CARRYING	
	8-953-130-90	HEADPHONE MDR-E805LP	

**RADIO CASSETTE PLAYER**



# WM-FX277

## SERVICE MANUAL

Ver 1.0 2001.03

*E Model*  
*Chinese Model*



Model Name Using Similar Mechanism	NEW
MD Mechanism Type	MF-WMFX241-114

### SPECIFICATIONS

- **Frequency range**  
FM: 87.5 - 108 MHz  
AM: 530 - 1 710 kHz (Central and South America)  
531 - 1 602 kHz (Other countries)
- **Power requirements**  
3V DC batteries R6 (AA) x 2
- **Dimensions (w/h/d)**  
Approx. 91.4 x 115.5 x 35.6 mm (3  $\frac{5}{8}$  x 4  $\frac{5}{8}$  x 1  $\frac{7}{16}$  inches)  
incl. projecting parts and controls
- **Mass**  
Approx. 148 g (5.3 oz) (main unit only)
- **Supplied accessories**  
Stereo headphones or Stereo earphones (1)  
Carrying case with belt clip (1)

Design and specifications are subject to change without notice.

	Battery life (approximate hours)	
	(EIAJ*)	
	Sony alkaline LR6 (SG)**	Sony R6P (SR)
Tape playback	25	7.5
Radio reception	40	14

\* Measured value by the standard of EIAJ (Electronic Industries Association of Japan). (Using a Sony HF series cassette tape)

\*\*When using a Sony LR6(SG) "STAMINA" alkaline dry battery (produced in Japan).

#### Note

- The battery life may be shorter depending on the operating condition, the surrounding temperature and battery type.

## RADIO CASSETTE PLAYER

9-927-695-31  
2001C0200-1  
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**Sony Corporation**  
Audio Entertainment Group  
General Engineering Dept.

# SONY®

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**Flexible Circuit Board Repairing**

- Keep the temperature of the soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

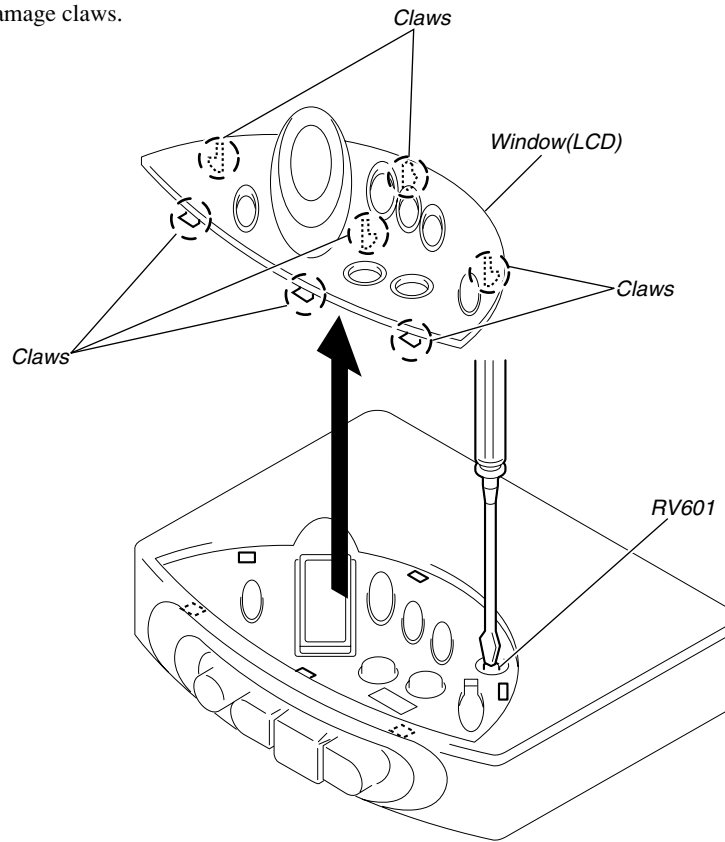
**Notes on chip component replacement**

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

## SECTION 1 SERVICING NOTE

In case of adjusting Tape Speed, you can easily to adjust RV601 by removing 7 claws on Window (LCD) and itself as shown in the figure.  
 1.Insert the precision screwdriver (Cover a point by cloth) in to the slit at claw.  
 2.Remove the window(LCD).

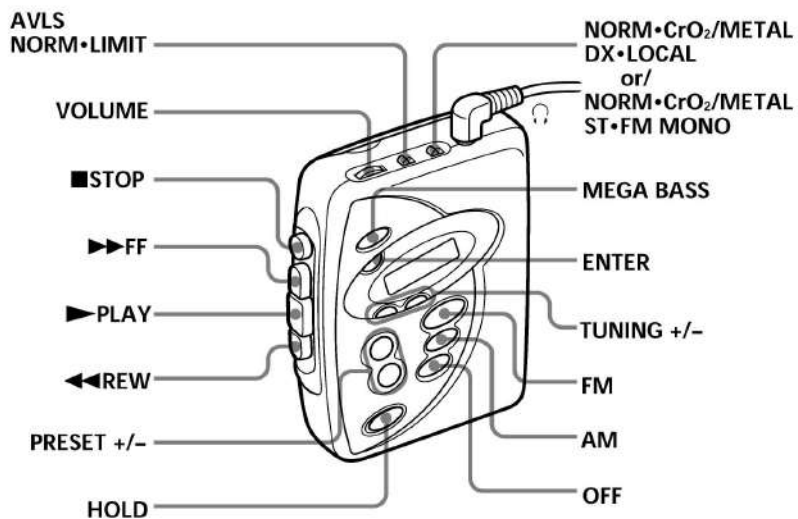
**Note:** Be careful not to damage claws.



## SECTION 2 GENERAL

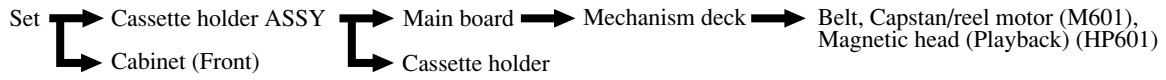
This section is extracted from instruction manual.

### LOCATION AND FUNCTION OF CONTROLS



## SECTION 3 DISASSEMBLY

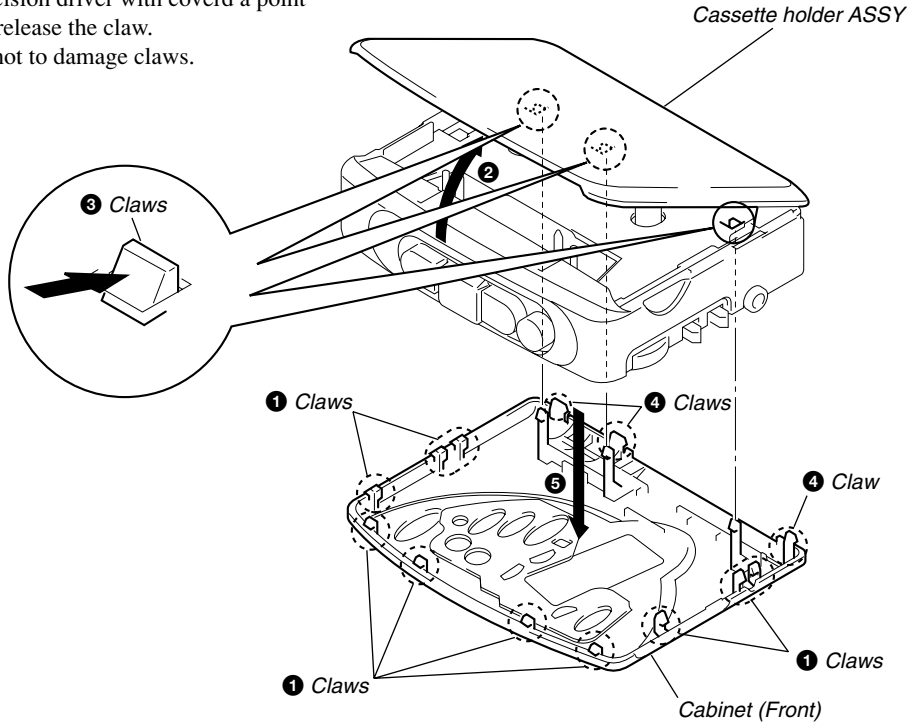
• The equipment can be removed using the following procedure.



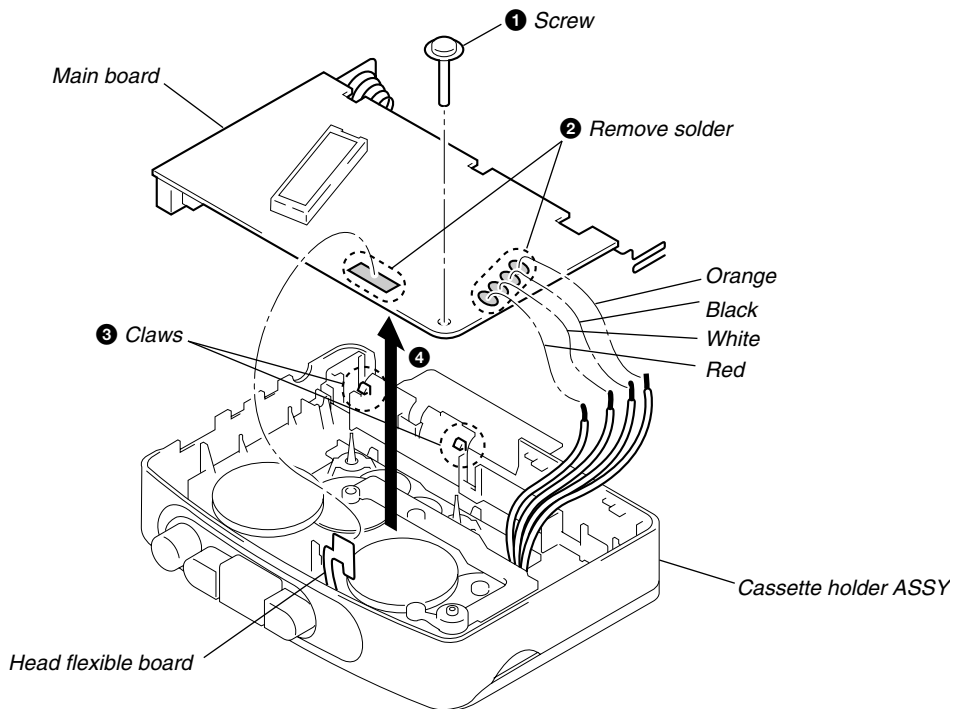
**Note :** Follow the disassembly procedure in the numerical order given.

### 3-1. CASSETT HOLDER ASSY, CABINET (FRONT)

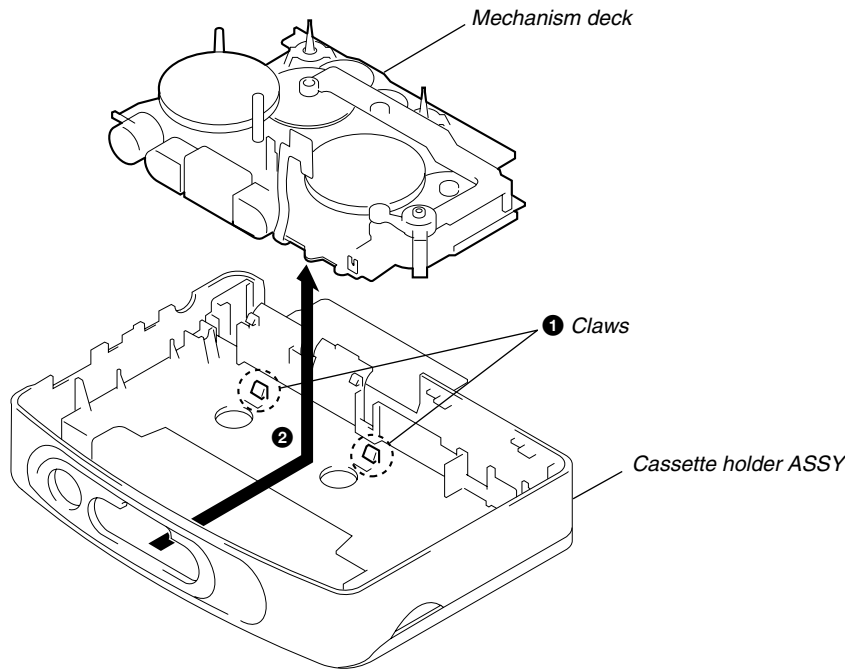
**Note :** Use the precision driver with cover a point by cloth to release the claw.  
Be careful not to damage claws.



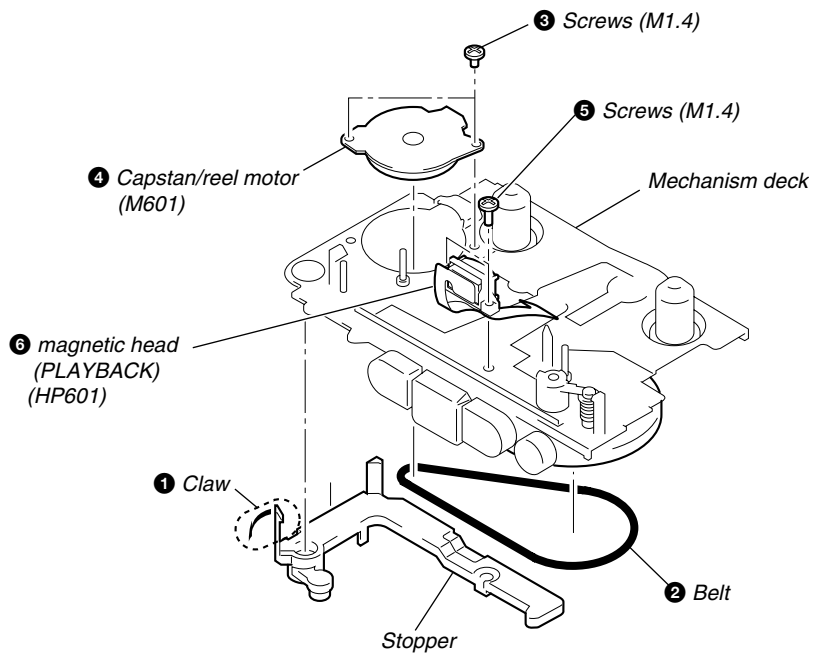
### 3-2. MAIN BOARD



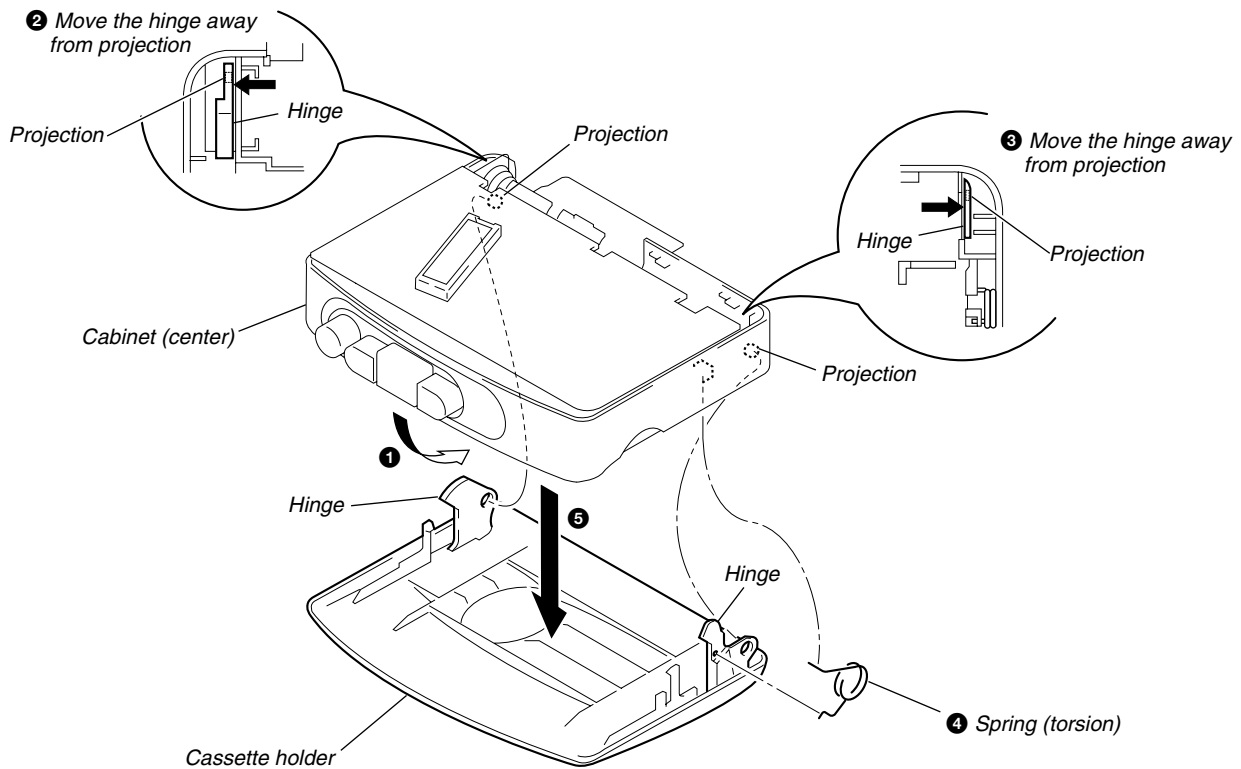
3-3. MECHANISM DECK



3-4. BELT, CAPSTAN/REEL MOTOR (M601), MAGNETIC HEAD (PLAYBACK)(HP601)

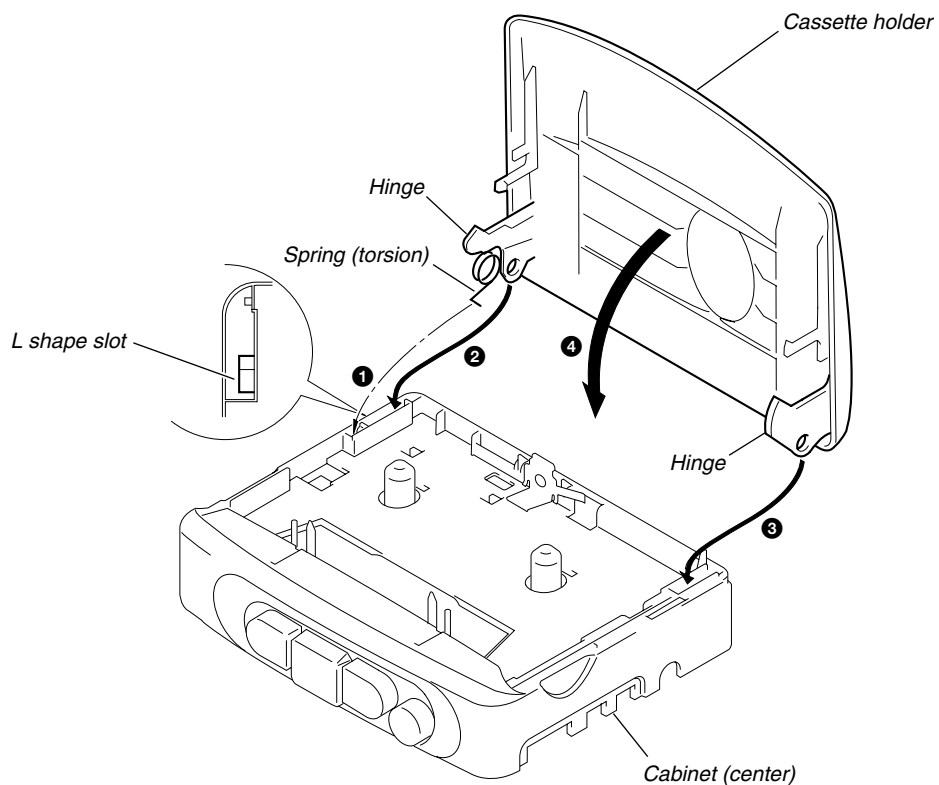


3-5. CASSETTE HOLDER



● CAUTIONS DURING ASSEMBLY

- 1 Insert the spring (torsion) to the L shape slot as shown in the figure.
- 2, 3 Insert the hinge of the "Cassette holder".
- 4 Close the "Cassette holder" then press it.





## SECTION 4 ADJUSTMENTS

### 4-1. MECHANICAL ADJUSTMENTS

#### PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab :
 

playback head	pinch roller
capstan	rubber belt
2. Demagnetize the playback head with a head demagnetizer.  
Do not use a magnetized screwdriver for the adjustments.
3. These measurement and adjustment should be performed with the rated power supply voltage (2.5 V) unless otherwise noted.

#### Torque Measurement

Mode	Torque meter	Meter reading
FWD	CQ-102C	1.97 to 4.90 mN•m 20 to 50 g • cm (0.28 to 0.69 oz• inch)
FWD back tension		less than 0.19 mN•m less than 2 g • cm (less than 0.027 oz• inch)
FF, REW	CQ-201B	5.89 to 19.61 mN•m 60 to 200 g • cm (0.84 to 2.77 oz• inch)

### 4-2. ELECTRICAL ADJUSTMENTS

#### PRECAUTION

- Supplied voltage : 2.5V.
- Switch and control position  
MEGA BASS (S709) : OFF  
VOLUME control (RV301) : maximum  
AVLS (S304) : NORM

**TAPE SECTION**

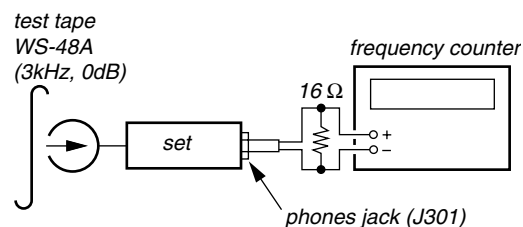
0 dB = 0.775V

#### Test Tape

Type	Signal	Used for
WS-48A	3kHz, 0dB	Tape Speed Adjustment

#### Tape Speed Adjustment

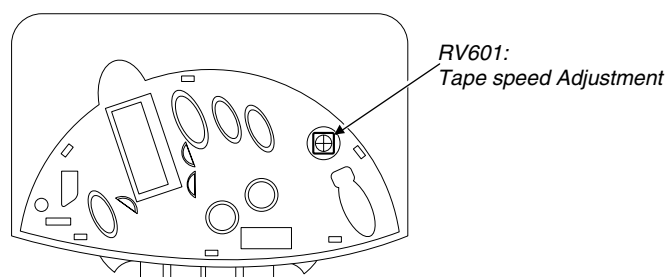
##### Procedure :



1. Playback WS-48A (tape center part) and adjust RV601 so that the frequency counter reading becomes 3,000Hz.  
Standard value : 2,985–3,015Hz
2. Playback WS-48A (tape top and end) .  
Check that frequency counter reading is within  $\pm 1.0\%$  of the reading of step 1.

#### Adjustment Location :

Refer to page 3 for Servicing note



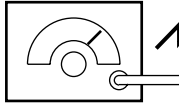
**TUNER SECTION**

0 dB = 1μV

**AM section**

BAND : AM

AM RF signal generator



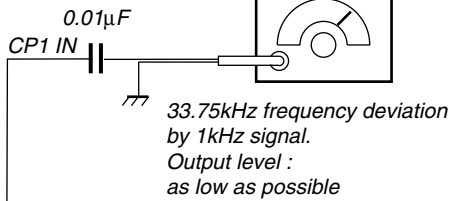
Put the lead-wire antenna close to the set.

30% amplitude modulation by 400Hz signal.  
Output level : as low as possible

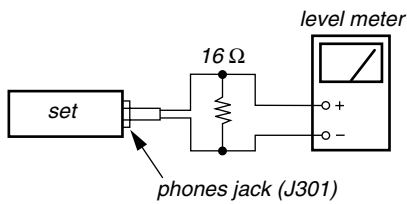
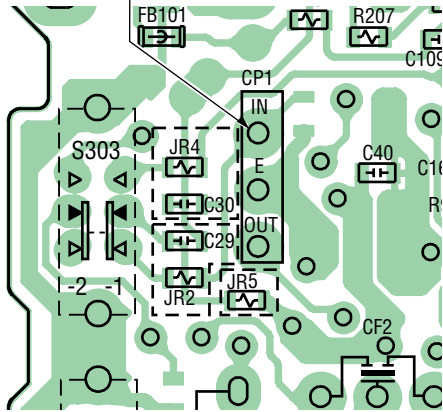
**FM section**

BAND : FM

FM RF signal generator



**[MAIN BOARD]**  
(Side B)



- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

no mark : 10kHz step  
< : 9kHz step

AM IF ADJUSTMENT	
Adjust for a maximum reading on level meter.	
T1	1400kHz <1395kHz>

AM FREQUENCY COVERAGE ADJUSTMENT		
Adjust parts	Frequency display	Reading on digital voltmeter
L4	530kHz <531kHz>	Adjustment value : 1.2V Standard value : 1.1-1.3V
Confirmation	1,710kHz <1,602kHz>	Standard value : 9V or less

AM TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L1	620kHz <621kHz>
CT1	1,400kHz <1,395kHz>

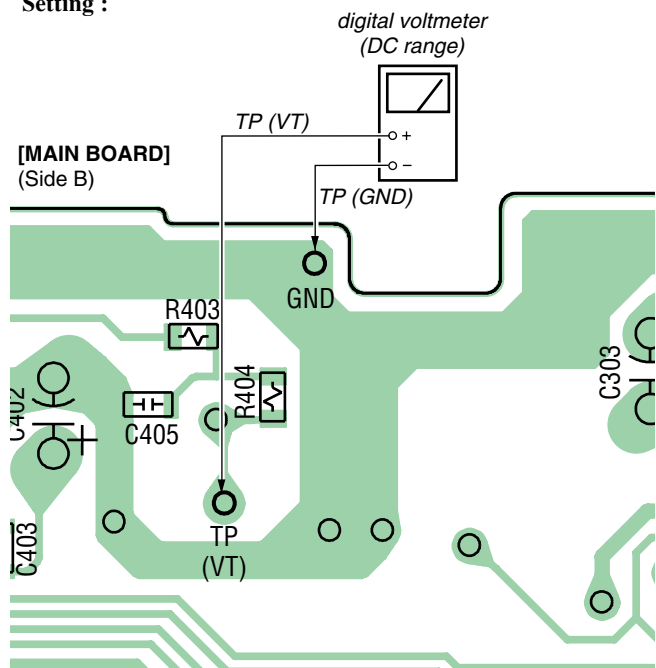
FM FREQUENCY COVERAGE ADJUSTMENT		
	Frequency display	Reading on digital voltmeter
L3	108MHz	Adjustment value : 9.0V Standard value : 8.7-9.3V

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L2	98MHz
Confirmation	108MHz

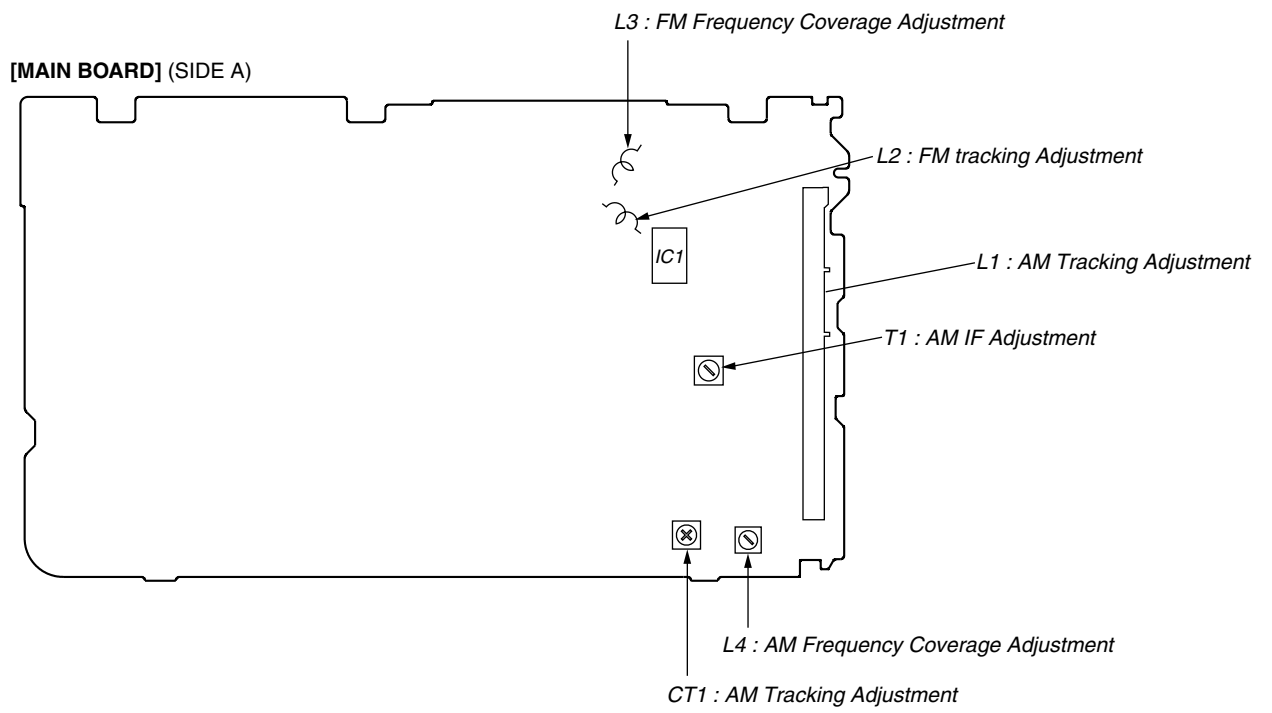
Adjustment Location : Main board

**Frequency Coverage Adjustment**

Setting :



Adjustment Location :



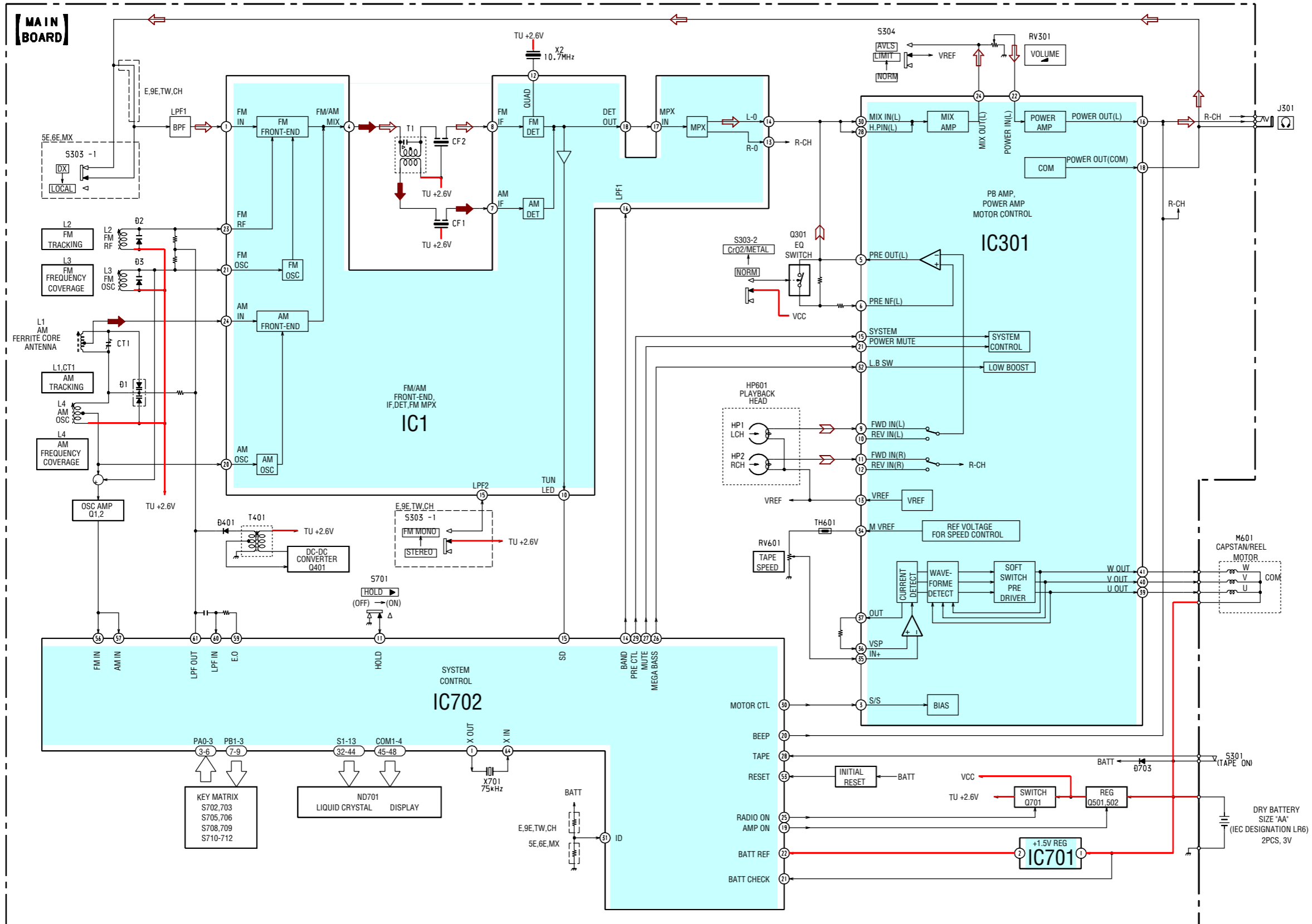
## SECTION 5 DIAGRAMS

### 5-1. EXPLANATION OF IC TERMINALS

#### IC702 LC72348W-9A36 SYSTEM CONTROL

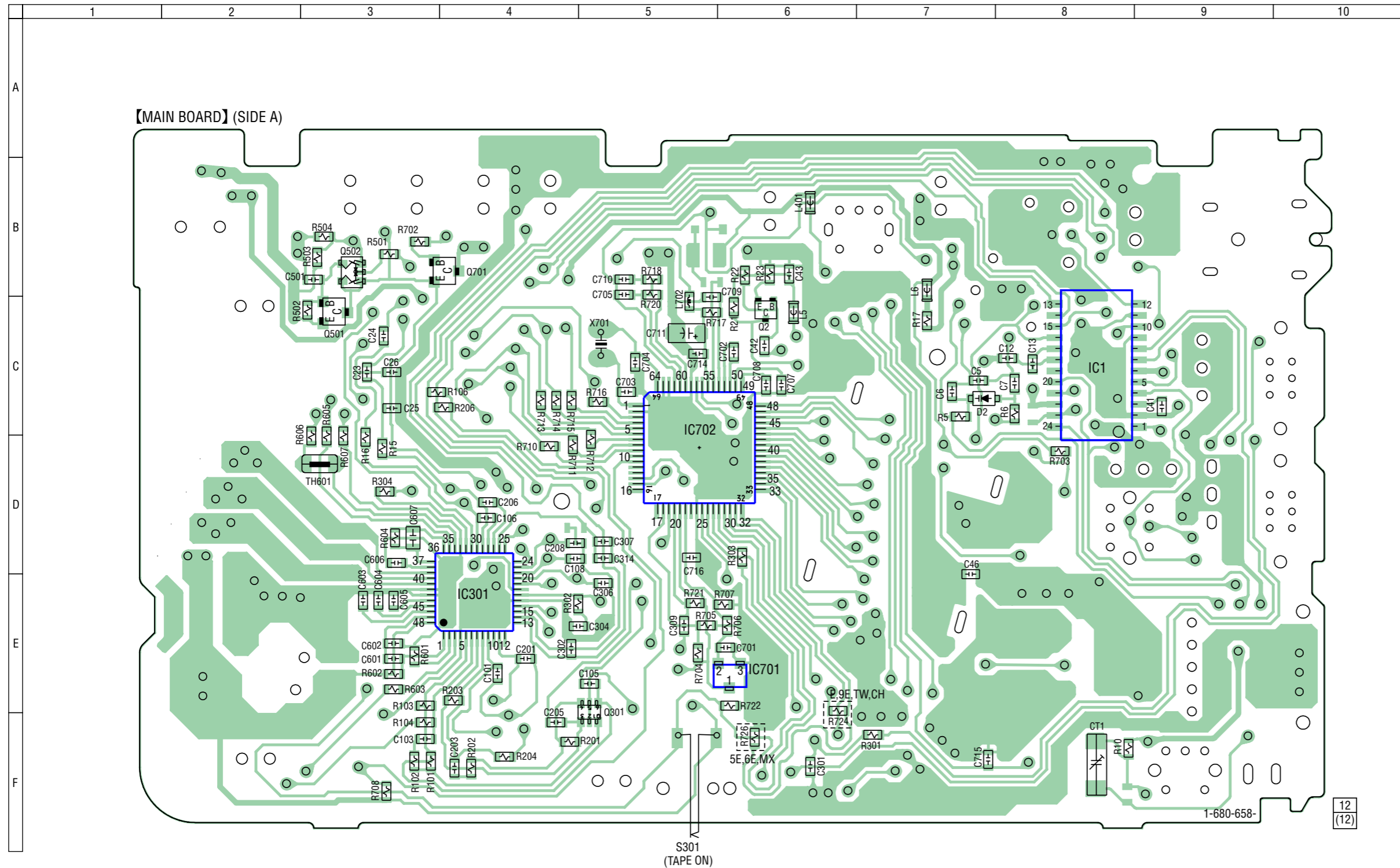
Pin No.	Pin name	I/O	Description
1	XOUT	O	Crystal oscillator output (75kHz).
2	TEST2	–	Not used (Ground).
3	PA3	I	Key input.
4	PA2	I	Key input.
5	PA1	I	Key input.
6	PA0	I	Key input.
7	PB3	O	Key output.
8	PB2	O	Key output.
9	PB1	O	Key output.
10	LOCAL/DX	–	Not used (OPEN).
11	HOLD	I	HOLD switch input. “H”: ON, “L”: OFF
12	LOCAL SW	–	Not used (OPEN).
13	TV (H)	–	Not used (OPEN).
14	BAND	O	Band select signal output.
15	SD	I	Tuning signal detect input.
16	COMP	–	Not used (OPEN)
17	N/R SW	–	Not used (OPEN)
18	BACK UP	I	Back up voltage input.
19	AMP ON	O	Power ON/OFF signal output.
20	BEEP	O	Beep signal output.
21	BATT CHECK	I	Back up cancel input.
22	BATT REF	I	A/D reference voltage input.
23	—————	–	Not used (Ground).
24	VSS	–	Ground terminal.
25	RADIO ON	O	Radio ON signal output.
26	MEGA BASS	O	MEGA BASS ON signal output.
27	MUTE	O	Mute ON signal output.
28	TAPE	I	Tape ON input.
29	PRE CTL	O	Preamplifier control output.
30	MOTOR CTL	O	Motor control output.
31	ID	I	Destination select input.
32-44	S1-13	O	LCD segment output.
45-48	COM1-4	O	LCD common output.
49-52	DBR1-4	–	LCD power supply.
53	RESET	I	Reset input (Fixed “H”).
54	TU VCC	–	Not used (OPEN).
55	VDD	–	Power supply.
56	FM IN	I	FM osc frequency input.
57	AM IN	I	AM osc frequency input.
58	VSS	–	Ground terminal.
59	E.O	O	Error (PWM) signal output.
60	LPF IN	I	LPF input.
61	LPF OUT	O	LPF output.
62	LPF GND	–	Ground terminal.
63	TEST 1	–	Not used (Ground).
64	X IN	I	Crystal oscillator input (75kHz).

5-2. BLOCK DIAGRAMS



R-CH IS OMITTED: SAME AS L-CH

5-3. PRINTED WIRING BOARDS – MAIN SECTION (SIDE A) –



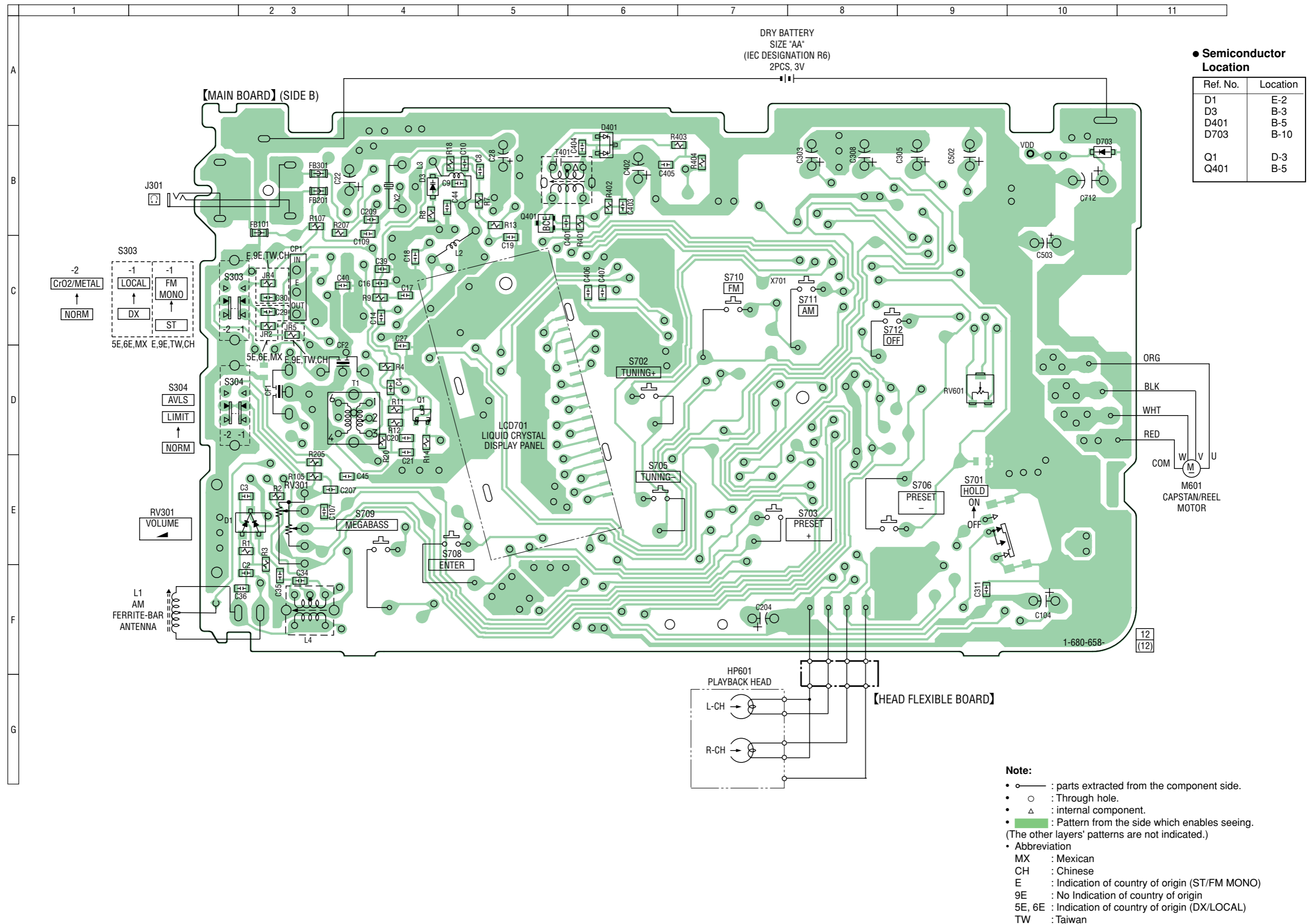
● Semiconductor Location

Ref. No.	Location
D2	C-7
IC1	C-8
IC301	E-4
IC701	E-6
IC702	D-5
Q2	C-6
Q301	F-5
Q501	C-3
Q502	B-3
Q701	B-4

Note:

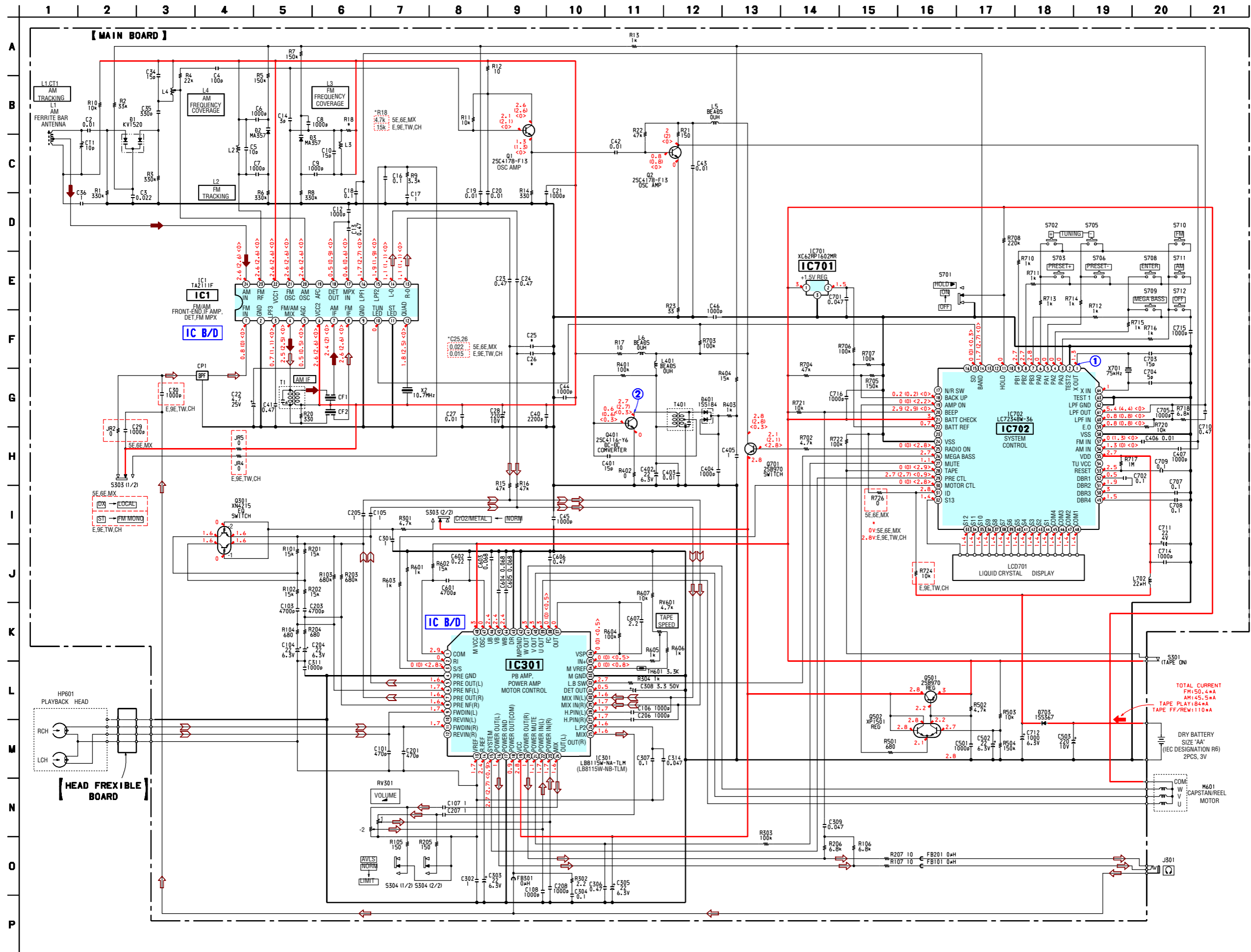
- : parts extracted from the component side.
- : Through hole.
- : Pattern from the side which enables seeing. (The other layers' patterns are not indicated.)
- Abbreviation
  - MX : Mexican
  - CH : Chinese
  - E : Indication of country of origin (ST/FM MONO)
  - 9E : No Indication of country of origin
  - 5E, 6E : Indication of country of origin (DX/LOCAL)
  - TW : Taiwan

5-4. PRINTED WIRING BOARDS – MAIN SECTION (SIDE B) –



5-5. SCHEMATIC DIAGRAM

• Refer to page 15 for Notes. • Refer to page 15 for Waveforms. • Refer to page 16 for IC Block Diagrams.

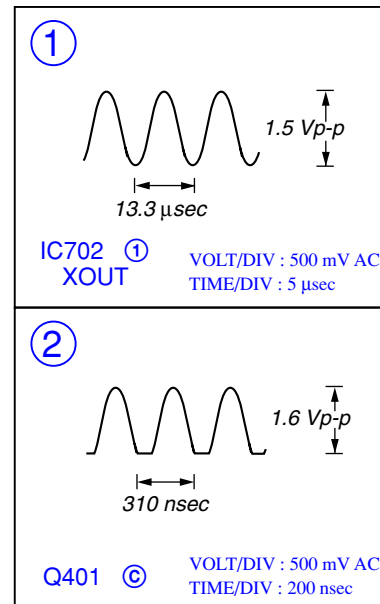




**Note on Schematic Diagram: MAIN SECTION**

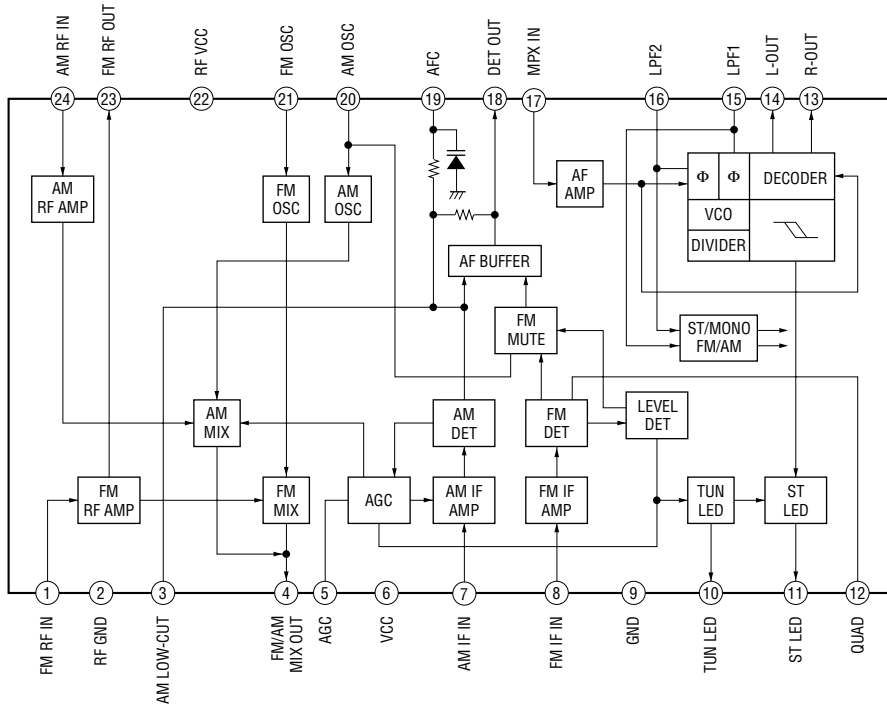
- All capacitors are in  $\mu\text{F}$  unless otherwise noted. pF:  $\mu\text{F}$  50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $1/4\text{ W}$  or less unless otherwise specified.
- $\Delta$  : internal component.
- $\square$  : panel designation.
- $\color{red}\blacksquare$  : B+ Line.
- $\color{red}\square$  : adjustment for repair.
- Power voltage is dc 3V and fed with regulated dc power supply from battery terminal.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- no mark : FM  
( ) : AM  
< > : PLAY(TAPE)
- Voltages are taken with a VOM (Input impedance 10 M $\Omega$ ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path.  
 $\Rightarrow$  : FM  
 $\Rightarrow$  : AM  
 $\Rightarrow$  : PB
- Abbreviation  
 MX : Mexican  
 CH : Chinese  
 E : Indication of country of origin (ST/FM MONO)  
 9E : No Indication of country of origin  
 5E, 6E : Indication of country of origin (DX/LOCAL)  
 TW : Taiwan

● **Waveforms**

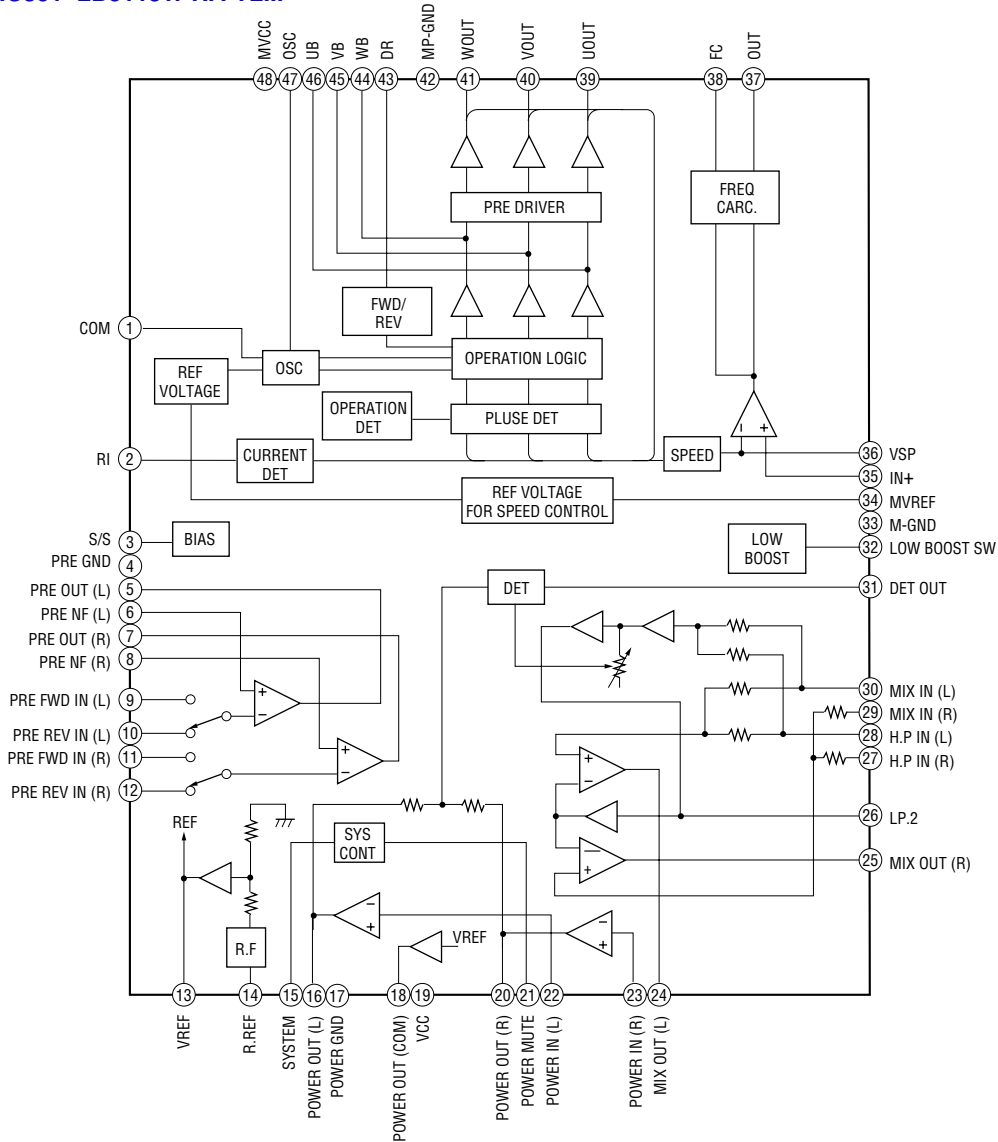


• IC BLOCK DIAGRAMS

IC1 TA2111F-(EL)



IC301 LB8115W-NA-TLM

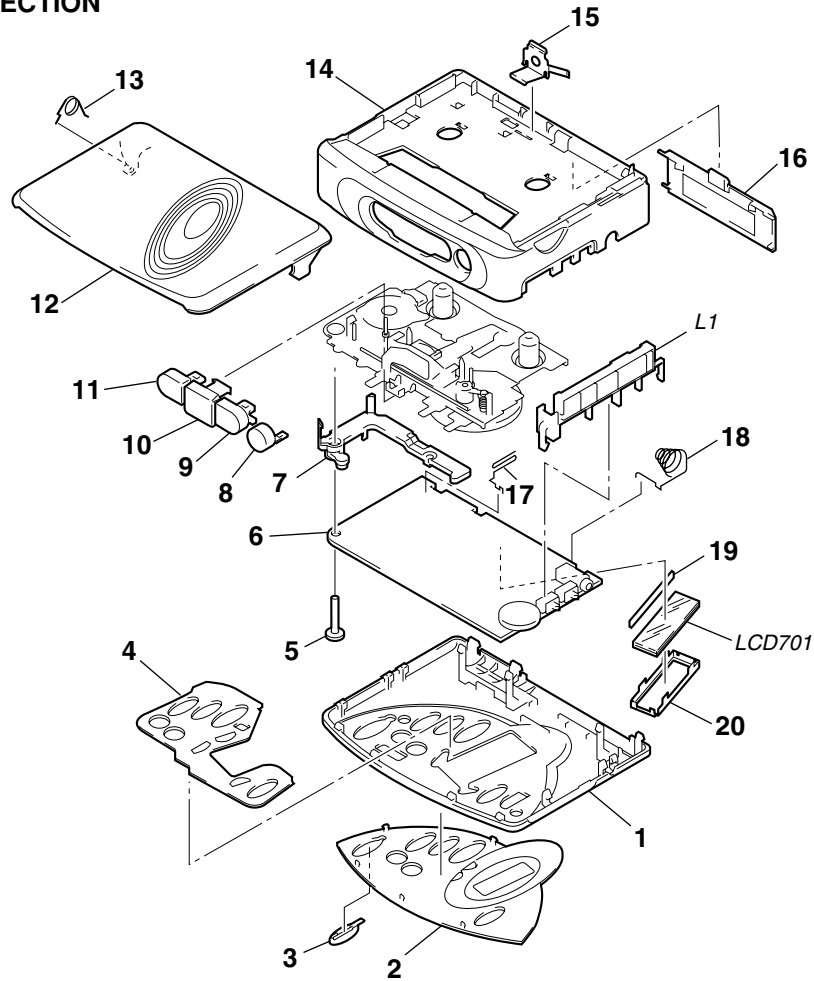


## SECTION 6 EXPLODED VIEWS

## NOTE :

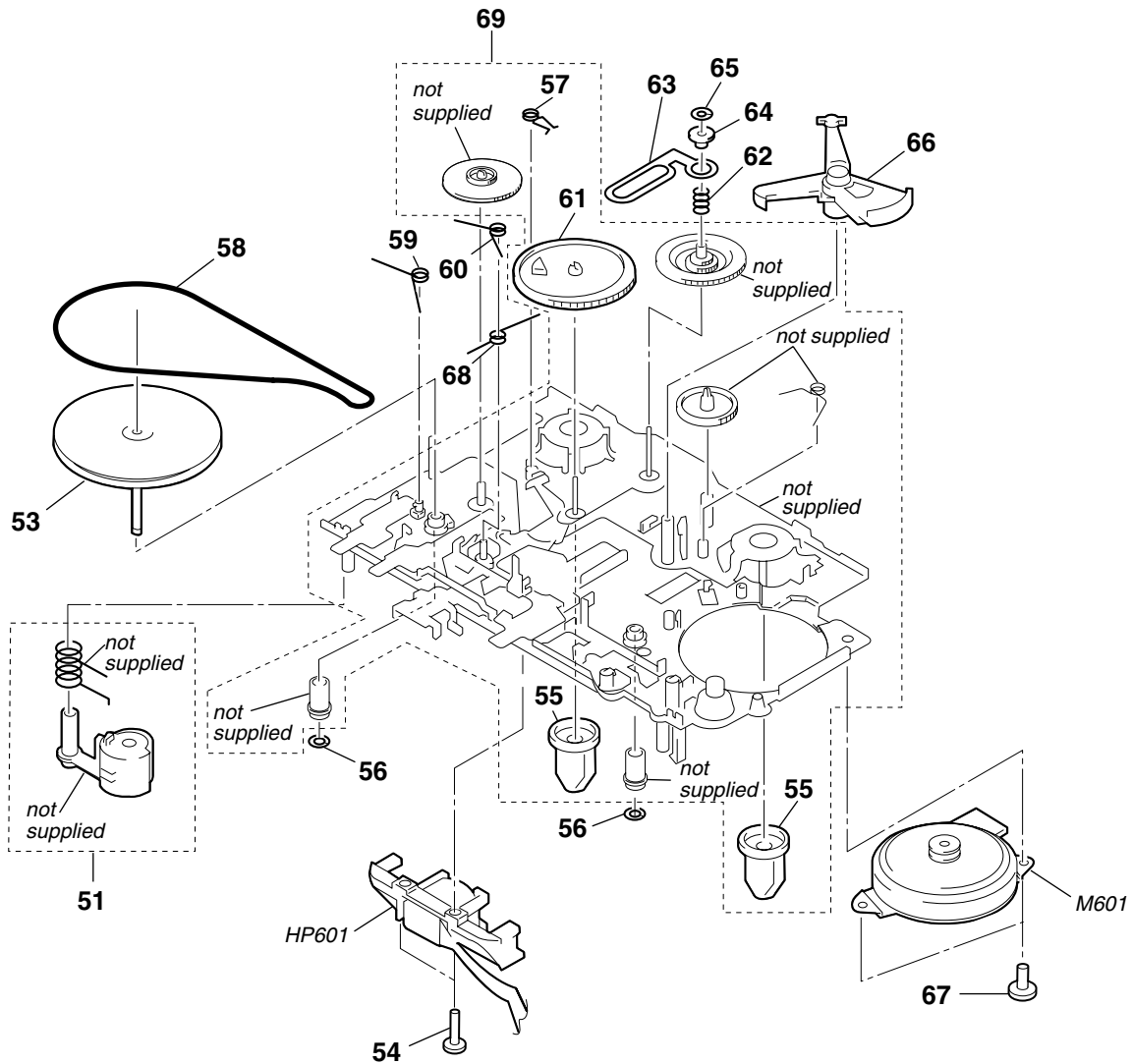
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked “ \* ” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation
  - MX :Mexican
  - CH :Chinese
  - E :Indication of country of origin (ST/FM MONO)
  - 9E :No Indication of country of origin
  - 5E, 6E :Indication of country of origin (DX/LOCAL)
  - TW :Taiwan

### 6-1. CABINET SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	3-227-307-11	CABINET (FRONT)		12	3-227-305-11	CASSETTE, HOLDER	
2	3-227-308-11	WINDOW (LCD)		13	3-007-012-01	SPRING (TORSION)	
3	3-227-309-01	KNOB (HOLD)		14	3-227-306-11	CABINET (CENTER) (5E,6E,MX)	
4	3-227-310-01	BUTTON (PRESET)		14	3-227-306-21	CABINET (CENTER) (E,9E,TW,CH)	
5	3-015-285-01	SCREW (M1.4),TOOTHED LOCK (WH)		15	3-227-741-01	SPRING (CASSETTE)	
* 6	A-3021-397-A	MAIN PC BOARD ASSY (5E,6E,MX)		16	3-227-313-11	LID, BATTERY CASE	
* 6	A-3021-398-A	MAIN PC BOARD ASSY (E,9E,TW,CH)		17	3-229-320-01	TERMINAL (+), BATTERY	
7	3-227-312-01	STOPPER		18	3-229-321-01	TERMINAL (-), BATTERY	
8	3-227-317-01	BUTTON (STOP)		19	3-229-658-01	PLATE, CONNECTION CONDUCTIVE	
9	3-227-315-01	BUTTON (FF)		20	3-227-311-01	HOLDER (LCD)	
10	3-227-314-01	BUTTON (PLAY)		L1	1-754-176-11	COIL, FERRITE-ROD ANTENNA (MW)	
11	3-227-316-01	BUTTON (REW)		LCD701	1-804-311-11	DISPLAY PANEL, LIQUID CRYSTAL	

6-2. MECHANISM DECK SECTION  
(MF-WMFX241-114)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	X-3369-749-1	PINCH LEVER (N) ASSY		62	3-920-990-01	SPRING (UD), COMPRESSION	
53	X-3372-619-1	WHEEL ASSY (SP), CAPSTAN		63	3-921-335-01	WASHER, LEVER	
54	3-703-816-73	SCREW (M1.4), SPECIAL HEAD		64	3-019-778-01	SLEEVE (MS)	
55	3-019-776-01	GEAR (REEL-S)		65	3-728-091-01	WASHER, STOPPER	
56	3-921-797-01	WASHER		66	3-019-777-01	LEVER (OWS), DETECTION	
57	3-036-664-01	SPRING (FR LEVER OWN)		67	3-704-197-01	SCREW (M1.4), SPECIAL HEAD	
58	3-013-560-11	BELT		68	3-025-454-01	SPRING (SW-S)	
59	3-022-094-01	SPRING (STOP-S)		* 69	X-3374-601-1	CHASSIS ASSY (GL-OS)	
60	3-022-093-01	SPRING (FR-S)		HP601	1-500-641-11	HEAD, MAGNETIC (PLAYBACK)	
61	X-3374-598-1	CLUTCH ASSY (S)		M601	1-763-468-13	MOTOR, DC (CAPSTAN/REEL)	(INCLUDING PULLEY)

**MAIN**

**SECTION 7  
ELECTRICAL PARTS LIST**

**NOTE :**

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS  
All resistors are in ohms  
METAL : Metal-film resistor  
METAL OXIDE :Metal oxide-film resistor  
F : nonflammable

- Items marked “ \* ” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS  
In each case, u :  $\mu$ , for example :  
uA.... :  $\mu$  A.... , uPA.... :  $\mu$  PA....  
uPB.... :  $\mu$  PB.... , uPC.... :  $\mu$  PC....  
uPD.... :  $\mu$  PD....
- CAPACITORS  
uF :  $\mu$  F
- COILS  
uH :  $\mu$  H

When indicating parts by reference number, please include the board.

- Abbreviation  
MX :Mexican  
CH :Chinese  
E :Indication of country of origin (ST/FM MONO)  
9E :No Indication of country of origin  
5E, 6E :Indication of country of origin (DX/LOCAL)  
TW :Taiwan

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	A-3021-397-A	MAIN BOARD, COMPLETE	(5E,6E,MX)	C43	1-162-974-11	CERAMIC CHIP	0.01uF 50V
*	A-3021-398-A	MAIN BOARD, COMPLETE	(E,9E,TW,CH)	C44	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
		*****		C45	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
		<CAPACITOR>		C46	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
C2	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C101	1-162-962-11	CERAMIC CHIP	470PF 10% 50V
C3	1-162-995-11	CERAMIC CHIP	0.022uF 50V	C103	1-162-968-11	CERAMIC CHIP	0.0047uF 10% 50V
C4	1-162-927-11	CERAMIC CHIP	100PF 5% 50V	C104	1-126-153-11	ELECT	22uF 20% 6.3V
C5	1-162-915-11	CERAMIC CHIP	10PF 0.5PF 50V	C105	1-115-156-11	CERAMIC CHIP	1uF 10V
C6	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V	C106	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
C7	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V	C107	1-115-156-11	CERAMIC CHIP	1uF 10V
C8	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V	C108	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
C9	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V	C201	1-162-962-11	CERAMIC CHIP	470PF 10% 50V
C10	1-162-917-11	CERAMIC CHIP	15PF 5% 50V	C203	1-162-968-11	CERAMIC CHIP	0.0047uF 10% 50V
C12	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V	C204	1-126-153-11	ELECT	22uF 20% 6.3V
C13	1-113-619-11	CERAMIC CHIP	0.47uF 10V	C205	1-115-156-11	CERAMIC CHIP	1uF 10V
C14	1-162-908-11	CERAMIC CHIP	3PF 0.25PF 50V	C206	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
C16	1-164-360-11	CERAMIC CHIP	0.1uF 16V	C207	1-115-156-11	CERAMIC CHIP	1uF 10V
C17	1-115-156-11	CERAMIC CHIP	1uF 10V	C208	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
C18	1-164-360-11	CERAMIC CHIP	0.1uF 16V	C301	1-115-156-11	CERAMIC CHIP	1uF 10V
C19	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C302	1-115-156-11	CERAMIC CHIP	1uF 10V
C20	1-162-974-11	CERAMIC CHIP	0.01uF 50V	C303	1-126-514-11	ELECT	22uF 20% 6.3V
C21	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V	C304	1-164-360-11	CERAMIC CHIP	0.1uF 16V
C22	1-126-794-11	ELECT	4.7uF 20% 25V	C305	1-126-514-11	ELECT	22uF 20% 6.3V
C23	1-113-619-11	CERAMIC CHIP	0.47uF 10V	C306	1-117-863-11	CERAMIC CHIP	0.47uF 10% 6.3V
C24	1-113-619-11	CERAMIC CHIP	0.47uF 10V	C307	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V
C25	1-164-227-11	CERAMIC CHIP	0.022uF 10% 25V (5E,6E,MX)	C308	1-115-873-11	ELECT	3.3uF 20% 50V
C25	1-164-245-11	CERAMIC CHIP	0.015uF 10% 25V (E,9E,TW,CH)	C309	1-165-176-11	CERAMIC CHIP	0.047uF 10% 16V
C26	1-164-227-11	CERAMIC CHIP	0.022uF 10% 25V (5E,6E,MX)	C311	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
C26	1-164-245-11	CERAMIC CHIP	0.015uF 10% 25V (E,9E,TW,CH)	C314	1-165-176-11	CERAMIC CHIP	0.047uF 10% 16V
C27	1-162-974-11	CERAMIC CHIP	0.01uF 50V	C401	1-162-917-11	CERAMIC CHIP	15PF 5% 50V
C28	1-126-176-11	ELECT	220uF 20% 10V	C402	1-126-514-11	ELECT	22uF 20% 6.3V
C29	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V (5E,6E,MX)	C403	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C30	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V (E,9E,TW,CH)	C404	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
C34	1-162-917-11	CERAMIC CHIP	15PF 5% 50V	C405	1-115-156-11	CERAMIC CHIP	1uF 10V
C35	1-162-961-11	CERAMIC CHIP	330PF 10% 50V	C406	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C36	1-115-156-11	CERAMIC CHIP	1uF 10V	C407	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
C40	1-162-966-11	CERAMIC CHIP	0.0022uF 10% 50V	C501	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
C41	1-113-619-11	CERAMIC CHIP	0.47uF 10V	C502	1-126-514-11	ELECT	22uF 20% 6.3V
C42	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C503	1-126-176-11	ELECT	220uF 20% 10V
				C601	1-162-968-11	CERAMIC CHIP	0.0047uF 10% 50V
				C602	1-115-467-11	CERAMIC CHIP	0.22uF 10% 10V
				C603	1-110-563-11	CERAMIC CHIP	0.068uF 10% 16V
				C604	1-110-563-11	CERAMIC CHIP	0.068uF 10% 16V
				C605	1-110-563-11	CERAMIC CHIP	0.068uF 10% 16V
				C606	1-117-863-11	CERAMIC CHIP	0.47uF 10% 6.3V

Ref. No.	Part No.	Description	Remark
C607	1-125-838-11	CERAMIC CHIP 2.2uF 10%	6.3V
C701	1-164-361-11	CERAMIC CHIP 0.047uF	16V
C702	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V
C703	1-162-917-11	CERAMIC CHIP 15PF 5%	50V
C704	1-162-910-11	CERAMIC CHIP 5PF 0.25PF	50V
C705	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V
C707	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V
C708	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V
C709	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V
C710	1-117-863-11	CERAMIC CHIP 0.47uF 10%	6.3V
C711	1-104-847-11	TANTAL. CHIP 22uF 20%	4V
C712	1-126-916-11	ELECT 1000uF 20%	6.3V
C714	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V
C715	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V
C716	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V
<FILTER>			
CF1	1-781-344-12	FILTER, AM CERAMIC	
CF2	1-795-298-11	FILTER, CERAMIC	
<COMPOSITION CIRCUIT BLOCK>			
CP1	1-236-711-21	FILTER, BAND PASS	
CT1	1-141-422-11	CAP, ADJ 10PF(AM TRCKING)	
<DIODE>			
D1	8-719-076-70	DIODE KV1520TL	
D2	8-719-050-97	DIODE MA357(E)-(TX).SO	
D3	8-719-050-97	DIODE MA357(E)-(TX).SO	
D401	8-719-801-78	DIODE 1SS184	
D703	8-719-049-09	DIODE 1SS367-T3SONY	
<FERRITE BEAD>			
FB101	1-500-329-21	FERRITE 0uH	
FB201	1-500-329-21	FERRITE 0uH	
FB301	1-500-329-21	FERRITE 0uH	
<IC>			
IC1	8-759-493-20	IC TA2111F-(EL)	
IC301	8-759-665-91	IC LB8115W-NA-TLM	
IC701	8-759-457-70	IC XC62RP1602MR	
IC702	6-800-319-01	IC LC72348W-9A36	
<JACK>			
J301	1-565-287-11	JACK(?,)	
<JUMPER RESISTOR>			
JR2	1-216-864-91	SHORT 0 (5E,6E,MX)	
JR4	1-216-864-91	SHORT 0 (E,9E,TW,CH)	
JR5	1-216-864-91	SHORT 0 (E,9E,TW,CH)	
<COIL>			
L1	1-754-176-11	COIL, FERRITE-ROD ANTENNA (MW) (AM TRACKING)	
L2	1-416-528-11	COIL, AIR-CORE(FM TRACKING)	
L3	1-416-449-11	COIL, AIR-CORE(FM FREQUENCY COVERAGE)	
L4	1-424-727-11	COIL (WITH CORE) (AM OSC) (AM FREQUENCY COVERAGE)	
L5	1-414-760-21	FERRITE 0uH	

Ref. No.	Part No.	Description	Remark
L6	1-414-760-21	FERRITE 0uH	
L401	1-414-760-21	FERRITE 0uH	
L702	1-412-995-21	INDUCTOR 22uH	
<TRANSISTOR>			
Q1	8-729-117-72	TRANSISTOR 2SC4178-F13	
Q2	8-729-117-72	TRANSISTOR 2SC4178-F13	
Q301	8-729-427-51	TRANSISTOR XP4215-TXE	
Q401	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q501	8-729-046-89	TRANSISTOR 2SB970-S(TX).SO	
Q502	8-729-429-44	TRANSISTOR XP1501	
Q701	8-729-046-89	TRANSISTOR 2SB970-S(TX).SO	
<RESISTOR>			
R1	1-216-851-11	METAL CHIP 330K 5%	1/16W
R2	1-216-839-11	METAL CHIP 33K 5%	1/16W
R3	1-216-851-11	METAL CHIP 330K 5%	1/16W
R4	1-216-837-11	METAL CHIP 22K 5%	1/16W
R5	1-216-847-11	METAL CHIP 150K 5%	1/16W
R6	1-216-851-11	METAL CHIP 330K 5%	1/16W
R7	1-216-847-11	METAL CHIP 150K 5%	1/16W
R8	1-216-851-11	METAL CHIP 330K 5%	1/16W
R9	1-216-827-11	METAL CHIP 3.3K 5%	1/16W
R10	1-216-833-11	METAL CHIP 10K 5%	1/16W
R11	1-216-833-11	METAL CHIP 10K 5%	1/16W
R12	1-216-797-11	METAL CHIP 10 5%	1/16W
R13	1-216-821-11	METAL CHIP 1K 5%	1/16W
R14	1-216-815-11	METAL CHIP 330 5%	1/16W
R15	1-216-841-11	METAL CHIP 47K 5%	1/16W
R16	1-216-841-11	METAL CHIP 47K 5%	1/16W
R17	1-216-797-11	METAL CHIP 10 5%	1/16W
R18	1-216-829-11	METAL CHIP 4.7K 5%	1/16W
R18	1-216-835-11	METAL CHIP 15K 5%	1/16W (5E,6E,MX)
R20	1-216-815-11	METAL CHIP 330 5%	1/16W (E,9E,TW,CH)
R21	1-216-811-11	METAL CHIP 150 5%	1/16W
R22	1-216-841-11	METAL CHIP 47K 5%	1/16W
R23	1-216-803-11	METAL CHIP 33 5%	1/16W
R101	1-216-835-11	METAL CHIP 15K 5%	1/16W
R102	1-216-835-11	METAL CHIP 15K 5%	1/16W
R103	1-216-855-11	METAL CHIP 680K 5%	1/16W
R104	1-216-819-11	METAL CHIP 680 5%	1/16W
R105	1-216-811-11	METAL CHIP 150 5%	1/16W
R106	1-216-831-11	METAL CHIP 6.8K 5%	1/16W
R107	1-216-797-11	METAL CHIP 10 5%	1/16W
R201	1-216-835-11	METAL CHIP 15K 5%	1/16W
R202	1-216-835-11	METAL CHIP 15K 5%	1/16W
R203	1-216-855-11	METAL CHIP 680K 5%	1/16W
R204	1-216-819-11	METAL CHIP 680 5%	1/16W
R205	1-216-811-11	METAL CHIP 150 5%	1/16W
R206	1-216-831-11	METAL CHIP 6.8K 5%	1/16W
R207	1-216-797-11	METAL CHIP 10 5%	1/16W
R301	1-216-829-11	METAL CHIP 4.7K 5%	1/16W
R302	1-216-789-11	METAL CHIP 2.2 5%	1/16W
R303	1-216-845-11	METAL CHIP 100K 5%	1/16W
R304	1-216-821-11	METAL CHIP 1K 5%	1/16W

## MAIN

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
R401	1-216-845-11	METAL CHIP	100K 5%	1/16W		<VIBRATOR>	
R402	1-216-864-91	SHORT	0				
R403	1-216-821-11	METAL CHIP	1K 5%	1/16W	X2	1-795-233-11	FILTER, CERAMIC(10.7MHz)
R404	1-216-835-11	METAL CHIP	15K 5%	1/16W	X701	1-760-130-11	VIBRATOR, CRYSTAL(75kHz) (E,9E,TW,CH)
					X701	1-781-592-11	VIBRATOR, CRYSTAL(75kHz) (5E,6E,MX)
							*****
R501	1-216-819-11	METAL CHIP	680 5%	1/16W		MISCELLANEOUS	
R502	1-216-829-11	METAL CHIP	4.7K 5%	1/16W		*****	
R503	1-216-833-11	METAL CHIP	10K 5%	1/16W			
R504	1-216-847-11	METAL CHIP	150K 5%	1/16W			
R601	1-216-821-11	METAL CHIP	1K 5%	1/16W			
R602	1-216-835-11	METAL CHIP	15K 5%	1/16W	L1	1-754-176-11	COIL, FERRITE-ROD ANTENNA (MW)
R603	1-216-821-11	METAL CHIP	1K 5%	1/16W	LCD701	1-804-311-11	DISPLAY PANEL, LIQUID CRYSTAL
R604	1-216-845-11	METAL CHIP	100K 5%	1/16W	M601	1-763-468-13	MOTOR (CAPSTAN/REEL) (INCLUDING PULLY)
R605	1-216-821-11	METAL CHIP	1K 5%	1/16W	HP601	1-500-641-11	HEAD, MAGNETIC (PLAYBACK)
R606	1-216-821-11	METAL CHIP	1K 5%	1/16W			*****
						ACCESSORIES & PACKING MATERIALS	
						*****	
R607	1-216-833-11	METAL CHIP	10K 5%	1/16W	3-229-494-01	CASE, CARRYING	
R702	1-216-829-11	METAL CHIP	4.7K 5%	1/16W	3-229-495-11	MANUAL, INSTRUCTION	
R703	1-216-845-11	METAL CHIP	100K 5%	1/16W		(ENGLISH,FRENCH,SIMPLIFIED CHINESE)(CH)	
R704	1-216-841-11	METAL CHIP	47K 5%	1/16W	3-229-495-21	MANUAL, INSTRUCTION	
R705	1-216-847-11	METAL CHIP	150K 5%	1/16W		(SPANISH,PORTUGUESE,GERMAN,ITALIAN)	
						(5E,6E,MX)	
R706	1-216-845-11	METAL CHIP	100K 5%	1/16W	3-229-495-61	MANUAL, INSTRUCTION	
R707	1-216-845-11	METAL CHIP	100K 5%	1/16W		(ENGLISH,TRDITIONAL CHINESE,KOREAN)	
R708	1-216-849-11	METAL CHIP	220K 5%	1/16W		(E,TW)	
R710	1-216-821-11	METAL CHIP	1K 5%	1/16W	3-229-495-71	MANUAL, INSTRUCTION	
R711	1-216-821-11	METAL CHIP	1K 5%	1/16W		(ENGLISH,TRDITIONAL CHINESE,KOREAN)(9E)	
R712	1-216-821-11	METAL CHIP	1K 5%	1/16W			
R713	1-216-821-11	METAL CHIP	1K 5%	1/16W			
R714	1-216-821-11	METAL CHIP	1K 5%	1/16W			
R715	1-216-821-11	METAL CHIP	1K 5%	1/16W	8-953-130-90	HEADPHONE MDR-E805LP	
R716	1-216-821-11	METAL CHIP	1K 5%	1/16W			
R717	1-216-857-11	METAL CHIP	1M 5%	1/16W			
R718	1-216-831-11	METAL CHIP	6.8K 5%	1/16W			
R720	1-216-833-11	METAL CHIP	10K 5%	1/16W			
R721	1-216-833-11	METAL CHIP	10K 5%	1/16W			
R722	1-216-845-11	METAL CHIP	100K 5%	1/16W			
R724	1-216-833-11	METAL CHIP	10K 5%	1/16W			
						(E,9E,TW,CH)	
R726	1-216-864-91	SHORT	0			(5E,6E,MX)	
						<VARIABLE RESISTOR>	
RV301	1-225-953-31	RES, VAR, MAIN CARBON 10K/10K(VOLUME)					
RV601	1-238-663-11	RES, ADJ, CARBON 4.7K(TAPE SPEED)					
						<SWITCH>	
S301	1-762-742-61	SWITCH, DETECTION (SMALL TYPE)(TAPE ON)					
S303	1-771-350-21	SWITCH, SLIDE(ST/FM MONO,DX/ LOCAL,NORM/CrO <sub>2</sub> /METAL)					
S304	1-771-350-21	SWITCH, SLIDE(AVLS)					
S701	1-572-922-11	SWITCH, SLIDE(HOLD)					
						<TRANSFORMER>	
T1	1-435-958-11	TRANSFORMER, IF (AM IF)					
T401	1-435-959-11	TRANSFORMER, DC-DC CONVERTER					
						<THERMISTOR>	
TH601	1-803-751-21	THERMISTOR, POSITIVE					

