

# Service Manual

## AUTOMOTIVE CONSUMER ELECTRONICS

**CQ-FX620N****CQ-FX420N****CQ-FX220N**

High-Power Cassette Player / RDS  
Receiver with Changer Control



&lt;CQ-FX620N&gt;

### Specification\*

#### General

Power Supply	DC 12V (11V - 16V), Test Voltage 14.4V Negative Ground
Tone Controls	Bass ; $\pm 12\text{dB}$ at 100Hz Treble ; $\pm 12\text{dB}$ at 10kHz
Current Consumption	Less than 2.5A (tape mode ; 0.5W $\times$ 4-speaker)
Maximum Power Output	
<CQ-FX620/400N>	45W $\times$ 4ch (at 4 $\Omega$ )
<CQ-FX220N>	40W $\times$ 4ch (at 4 $\Omega$ )
Power Output	
<CQ-FX620/400N>	22W $\times$ 4ch (DIN45 324, at 4 $\Omega$ )
<CQ-FX220N>	20W $\times$ 4ch (DIN45 324, at 4 $\Omega$ )
Speaker Impedance	4-8 $\Omega$
Pre-Amp Output Voltage	2.0V
Pre-Amp Output Impedance	600 $\Omega$
Sub-Woofer Output Voltage	2V <Only for CQ-FX620/420N>

#### FM Stereo Radio

Frequency Range	87.5 - 108.0MHz
Usable Sensitivity	6dB/ $\mu\text{V}$ (S/N 30dB)

#### MW Radio

Frequency Range	531 - 1,602kHz
Usable Sensitivity	28dB/ $\mu\text{V}$ (S/N 20dB)

#### LW Radio

Frequency Range	153 - 279kHz
Usable Sensitivity	32dB/ $\mu\text{V}$ (S/N 20dB)

#### Cassette Player

Reproduction System	4-track, 2-program stereo
Tape Speed	4.76 cm/sec
FF/REW Time	Less than 110 sec (C-60)
Frequency Response	30Hz to 17,000Hz (normal) 30Hz to 18,000Hz (metal)
Signal to Noise Ratio	52dB (Dolby off) 62dB (Dolby B NR on)
Wow and Flutter	0.12% (WRMS)


Dimensions**	178 $\times$ 50 $\times$ 150mm
--------------	--------------------------------

Weight**	1.5kg
----------	-------

\* Specifications and the design are subject to possible modification without notice due to improvements.

\*\* Dimensions and Weight shown are approximate.

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.

"Dolby" and the double-D symbol  are trade marks of Dolby Laboratories Licensing Corporation.

# Panasonic

© 2000 Matsushita Communication Industrial Co., Ltd. All rights reserved. Unauthorized copying and distribution is a violation of law.

**⚠ WARNING**

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

**IMPORTANT SAFETY NOTICE**

There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

**CONTENTS**

	Page		Page
1 FEATURES .....	2	12 ALIGNMENT INSTRUCTIONS .....	15
2 REPLACING THE FUSE .....	2	13 ALIGNMENT POINTS .....	15
3 MAINTENANCE .....	2	14 RE-ASSEMBLY PROCEDURE for REEL PWB ASS'Y .....	16
4 RADIO ALIGNMENT .....	2	15 PACKAGE AND IC BLOCK DIAGRAM .....	17
5 ALIGNMENT JIG .....	2	16 REPLACEMENT PARTS LIST .....	20
6 NOTES .....	2	17 EXPLODED VIEW (Unit) .....	25
7 DIMENSIONS .....	2	18 TAPE PLAYER PARTS .....	26
8 OPERATING INSTRUCTIONS .....	3	19 EXPLODED VIEW (Tape Deck) .....	28
9 WIRING CONNECTION .....	12	20 WIRING DIAGRAM .....	29
10 BLOCK DIAGRAM .....	13	21 SCHEMATIC DIAGRAM .....	35
11 TERMINALS DESCRIPTION .....	14		

**1 FEATURES**

- PLL (Phase Locked Loop) synthesized tuning.
- 18-FM, 6-AM presets with preset scan.
- RDS (Radio Data System) function.
- TPS operation.
- Dolby NR function.
- CD Changer control function.
- Electronic control of Volume, Bass, Treble, Balance and Fader.
- Detachable face plate security.

**2 REPLACING THE FUSE**

Use fuses of the same specified rating (15amps). Using different substitutes or fuses with higher ratings, or connecting the unit directly without a fuse, could cause fire or damage to the stereo unit.

**3 MAINTENANCE**

Your product is designed and manufactured to ensure a minimum of maintenance. Use a soft cloth for routine exterior cleaning. Never use benzine, thinner or other solvents.

**4 RADIO ALIGNMENT**

Do not align the AM/FM/RDS package block. When the package block is necessary, it will be supplied already aligned at the factory.

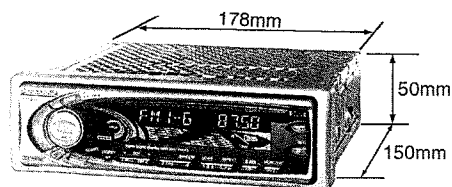
**5 ALIGNMENT JIG**

- Dolby NR Alignment Test Tape : RFKZ0038

**6 NOTES**

This operating instruction manual is for 3 models CQ-FX620N, CQ-FX420N and CQ-FX220N. The differences between these models are mentioned below. All illustrations throughout this manual represent model CQ-FX620N unless otherwise specified.

	CQ-FX620N	CQ-FX420N	CQ-FX220N
Max. Output Power	45W	45W	40W
Sub-Woofer Out	Yes (2V)	Yes (2V)	None
LCD Color	Blue	Multi Color	Blue
S.HDB	Yes	Yes	None
Loudness	None	None	Yes
Remote Control	Supplied	Supplied	Option
Pre-Out	2 (Front/Rear)	2 (Front/Rear)	1 (Rear)
CD Changer Input	Cord type	Cord type	Fix type

**7 DIMENSIONS**

# 8 OPERATING INSTRUCTIONS

## Precautions (ISO Connector)

- Wiring for the power connector conforms to the arrangement of standard ISO connectors.
- In case of some car types, the arrangement of connector may differ from the standard ISO as shown in Table 1, even though ISO connectors are adopted.

Table 1

	Fig. 1 Pin No.	
	A4	A7
Car for standard ISO	Battery (permanent 12 V supply)	"IGN" or "ACC" (switched 12 V supply)
In case of Car type A	"IGN" or "ACC" (switched 12 V supply)	Battery (permanent 12 V supply)
In case of Car type B	No connection	Battery (permanent 12 V supply)

- Make sure the ISO connector arrangement in your car side is as the same as the standard ISO. (Table 1, Fig. 1)
- In case of arrangement for Car type A or B, change connections of the red/yellow leads at the re-connectable joint (\*) as shown in Fig. 1.

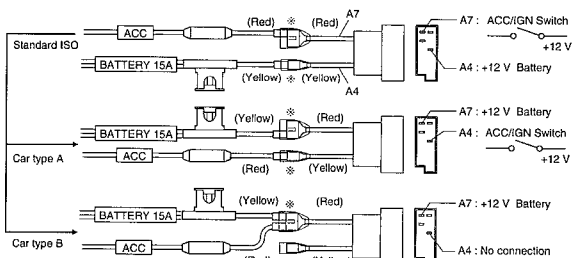
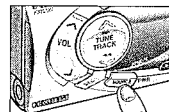
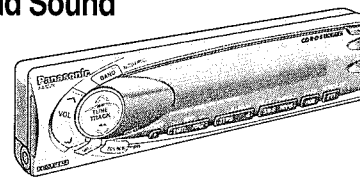


Fig. 1

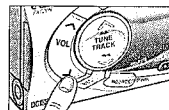
- After fixing the connections, the part (\*) should be insulated with electrical tape to keep away from unit damage.

## Power and Sound Controls



### Power

Turn the key in the ignition until the accessory indicator lights. Press [SOURCE](PWR) to switch on the power. Press and hold [SOURCE](PWR) again for more than 2 seconds to switch off the power. When the power is switched off, the panel removal alarm sounds. (See page 42 about the panel removal alarm.)  
**Note:** When the power is switched on for the first time, a demonstration message appears on the display. To cancel this display, press [ ] (DISP/CT).



### Volume

- Press [ ^VOL ] or [ V/VOL ] to increase or decrease the volume.

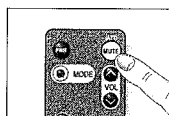
VOL 20 — Volume Level (0 to 40)

- Press and hold [ ^VOL ] or [ V/VOL ] for more than 0.5 seconds to change the numeric level in sequence.

**Note:** In the VOL mode, the display will be back to regular operation mode with no operation for more than 2 seconds.

### Anti-Volume-Blast Circuit

This unit has a safety function which slowly raises volume level when power is switched back on after it is turned off at a specific level (20) or higher.



### Mute (Only for Remote Control)

- Press [MUTE] to mute the sound completely.



- Press [MUTE] again to cancel.

4

CQ-FX620/FX420/FX220N

Panasonic welcomes you to their constantly growing family of electronic products owners. We endeavor to give you the advantages of precise electronic and mechanical engineering, manufactured with carefully selected components, and assembled by people who are proud of the reputation their work has built for our company. We know this product will bring you many hours of enjoyment, and after you discover the quality, value and reliability we have built into it, you too will be proud to be a member of our family.

## Precautions

### Volume Level

For your driving safety, keep the volume level low enough to be aware of road and traffic conditions.

### Car Washing

To avoid electrical shorts which may cause fire, or other damage, do not expose this product (including the speakers and tape) to water or excessive moisture.

### Car Ventilation

If your car is parked for several hours in direct sunlight, the temperature inside the car may become very high. It is advisable to drive the car and give the interior a chance to cool down before switching the unit on.

### Power Supply

This product is designed to be used in a car having 12-volt negative ground battery system.

### Tape Mechanism

Keep magnets, screwdrivers and other metallic objects away from the tape mechanism and tape head.

### Service

This product is made of precision parts. Do not attempt to disassemble or adjust any parts. For repair, please consult your nearest authorized Panasonic Service Center.

### About Preset Memory

The preset memory is cleared to return to the original factory setting when the power connector or battery is disconnected.

**Note:** This operating instruction manual is for three models CQ-FX620N, CQ-FX420N and CQ-FX220N. The differences between these models are mentioned below. All illustrations throughout this manual represent model CQ-FX620N unless otherwise specified.

Features	Model	CQ-FX620N	CQ-FX420N	CQ-FX220N
Max. Output Power		45 W	45 W	40 W
Sub-Woofers Out (Level)		Yes (2V)	Yes (2V)	None
LCD Color		Blue	Multi Color	Blue
S+HDB		Yes	Yes	None
Loudness		None	None	Yes
Remote Control		Supplied	Supplied	Option
Pre-out		2 (Front/Rear)	2 (Front/Rear)	1 (Rear)
CD Changer Input		Cord type	Cord type	Fix type

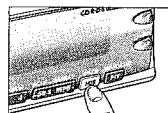
CQ-FX620/FX420/FX220N

11

18

CQ-FX620/FX420/FX220N

&lt;Only for CQ-FX620/FX420N&gt;



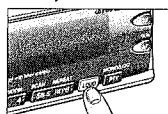
## S+HDB (Super High Definition Bass)

(Only for CQ-FX620/FX420N)

Especially for rock music, the bass-sound will be more powerful.  
 • Press [HDB](S+HDB) to be able to listen to high-definition bass.

- Press [HDB](S+HDB) again to cancel.

&lt;Only for CQ-FX220N&gt;

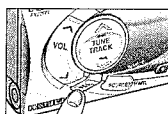


## Loudness

(Only for CQ-FX220N)

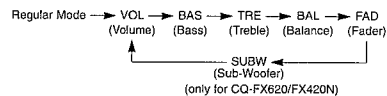
• Press [LOUD] to enhance bass and treble tones when listening at low or medium volume.

- Press [LOUD] again to cancel.



## Audio Mode

Press [SEL] to change the audio mode setting as follows.



**Note:** In the audio mode (BAS/TRE/BAL/FAD/SUBW), the display will be back to regular operation mode with no operation for more than 5 seconds (2 seconds in the VOL mode).

2 20-102m

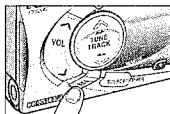
CQ-FX620/FX420/FX220N

19

## Power and Sound Controls (continued)

## Bass and Treble

Press [SEL] to change to the bass (or treble) mode. Press [ $\wedge$ VOL] or [ $\vee$ VOL] to increase or decrease the bass (or treble) level by 3 dB step.

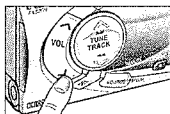


BASS +3dB  
-12 to +12

TREBLE +3dB  
-12 to +12

## Balance

Press [SEL] to change to the balance mode. Press [ $\wedge$ VOL] or [ $\vee$ VOL] to shift the sound volume to the right or left speakers.



BAL L 2  
1 to 15

BAL CNT  
Balance Center

BAL R 2  
1 to 15

## Fader

Press [SEL] to change to the fader mode. Press [ $\wedge$ VOL] or [ $\vee$ VOL] to shift the sound volume to the front or rear speakers.

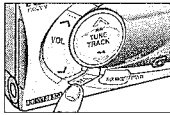
FAD F 3  
1 to 15

FAD CNT  
Fader Center

FAD R 3  
1 to 15

## Sub-Woofer

<Only for CQ-FX620/FX420N>



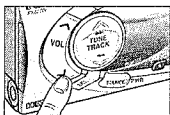
## Sub-Woofer Volume

(Only for CQ-FX620/FX420N)

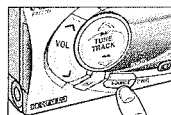
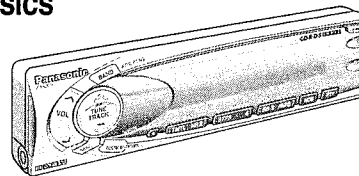
Press [SEL] to change to the Sub-Woofer volume mode. Press [ $\wedge$ VOL] or [ $\vee$ VOL] to increase or decrease the Sub-Woofer volume.

SUBW 4

Sub-Woofer  
Volume Level: MUTE (0) to 8 (Default: level 4)



## Radio Basics

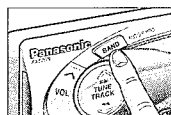


## Tuner Mode

Press [SOURCE] to change the source as follows.

Radio → Cassette Tape Player → CD Changer Control  
(When a tape is inserted) (When a CD changer is connected)

FM 1 87.50

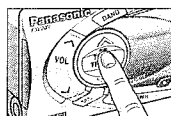


## Band

Press [BAND] to change the band setting as follows.

FM1 → FM2 → FM3 → AM(LW/MW)

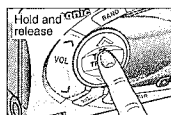
The stereo indicator lights during reception of an FM stereo broadcast.



## Manual Tuning

Press [ $\wedge$ TUNE] or [ $\vee$ TUNE] to tune in a higher or lower frequency.

FM 1 102.50



## Seek Tuning

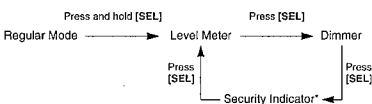
Press and hold [ $\wedge$ TUNE] or [ $\vee$ TUNE] for more than 0.5 seconds, then release it. Seeking will automatically stop when a signal of the next broadcast station is received.

## Display Controls



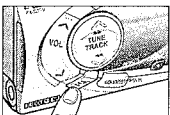
## Change to the Display Control Mode

- Press and hold [SEL] for more than 2 seconds to change to the display control mode.
- Press [SEL] to change the display control mode as follows.



\* See page 42 about the Security Indicator.

Note: In the display control mode, the display will be back to the previous mode with no operation for more than 5 seconds.

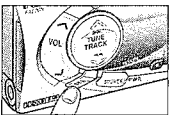


## Level Meter

Press [SEL] during the display control mode to change to the level meter mode. Press [ $\wedge$ TUNE] to change the level meter setting as follows. Select your desired pattern.

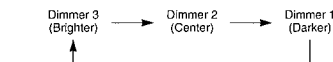


( [ $\vee$ TUNE ] : opposite direction )



## Dimmer

Press [SEL] during the display control mode to change to the dimmer change mode. Press [ $\vee$ TUNE] to change the dimmer level setting as follows. (Default: Dimmer 3)

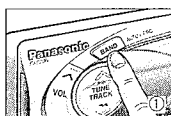


( [ $\wedge$ TUNE ] : opposite direction )

## Station Preset

FM1, FM2, FM3 and AM (LW/MW) can save maximum 6 stations each in their preset station memories.

Caution: To ensure safety, never attempt to preset stations while you are driving.



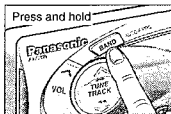
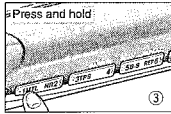
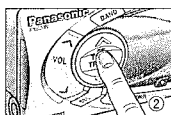
## Manual Station Preset

- Press [BAND] to select a desired band.
- Use manual or seek tuning to find a station which is to be preset in the memory.
- Press and hold one of the preset buttons [1] to [6] for more than 2 seconds until the display blinks once.

FM 1 102.50

Preset Number

Note: You can change the memory presetting by repeating the above procedure.

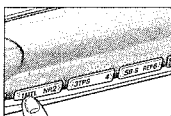


## Auto Station Preset

Select the band, press and hold [BAND](AUTO•P) for more than 2 seconds (Auto Preset Memory).

- The 6 strongest available stations will be automatically saved in the memory on preset buttons [1] to [6].
- Once set, the preset stations are sequentially scanned for 5 seconds each.

Note: The stations manually preset on the selected band will be deleted.



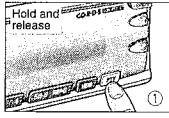
## Tuning in a Preset Station

Press the corresponding preset buttons [1] to [6] to tune in a preset station.

## Radio Basics (continued)

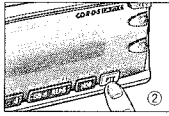
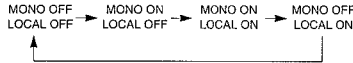
### MONO/LOCAL Selection

- At the MONO setting, noise is significantly decreased when weak signals are received from an FM broadcast station.
- At the LOCAL setting, only strong signals of stations are searched in seek tuning, while at the LOCAL OFF setting, relatively weak signals are also searched.



#### ① FM Broadcasts

Press and hold [PTY](MONO/LOC) to change the mode until the desired mode is reached, then release it.



#### ② AM Broadcasts

Press [PTY](MONO/LOC) to switch the Local mode as follows.



24

CQ-FX620/FX420/FX220N

## RDS (Radio Data System) Reception

Many FM stations are broadcasting added data compatible with RDS. This radio set offers convenient functions using such data.

### AF (Alternative Frequency)

When receiving condition becomes poor, an RDS station with the same program will be automatically selected.

### EON (Enhanced Other Networks)

When EON data is received, the EON indicator lights and the TA and AF functions are expanded.

TA: Traffic information from not only the station now tuned in to but also other network stations can be received.

AF: The frequency list of the RDS stations preset by received EON data is updated.

### TA (Traffic Announcement)

When an FM station that periodically provides the latest traffic information is received, the TP indicator lights. If TA ON is set, FM traffic information automatically interrupts your listening to a tape or CD changer until it ends, then you will listen again to whatever you have been listening to.

### Best Station Research

If a preset RDS station is in poor condition of reception when you try to tune in to it, the best frequency is selected from the AF list of that station.

### REG (Region)

The AF, Best Station Research, PI seek functions will be as follows:

**REG ON** : The frequency changes only with the same regional program. This function is mainly used while driving in the same area, for example, in a city.

**REG OFF** : The frequency changes even with a different regional program if the station is in the same network. The broadcast may be different depending on the case. This function is mainly used when driving far from one region to another.

### What Provides EON Capabilities

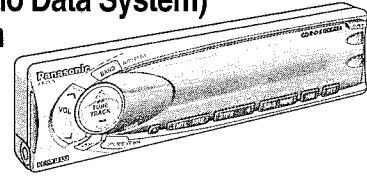
EON lets the radio set take advantage of RDS information much more than before. It constantly updates the AF list of all presets, including the station currently tuned in to. So, even if you change preset far from home, you will be able to receive the same station at an alternative frequency, or another station serving the same program if any. EON also keeps track of locally available TP stations for quick reception.

Note: When you're in AF ON mode, auto preset memory only works for RDS station. When in TA ON mode, it only works for TP stations. To make auto preset for ordinary stations, cancel AF mode and change to TA off in advance.

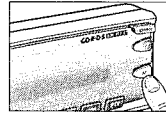
CQ-FX620/FX420/FX220N

25

## RDS (Radio Data System) Reception (continued)



### A. Basic Operation in RDS Reception (PS, AF, CT, PI)

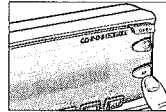


#### RDS Reception

Press [AF] when receiving a station in the FM1, FM2 or FM3 band.

- The AF ON/OFF can be set in each FM band.

- Select AF ON if you wish to use the AF network of an RDS station. Best station research is activated at the same time.
- Select AF OFF if the AF network of an RDS station is not necessary.



#### Changing AF Mode

Press [AF] to change AF ON and activate best station research at the same time. (3 seconds maximum)



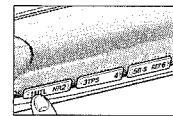
#### Notes:

- Default mode is AF1.
- AF1 has a low level of AF operating sensitivity in urban areas. Therefore, AF does not frequently operate even when sensitivity is temporarily lowered between skyscrapers, for example.
- AF2 is for suburban areas with a higher level of sensitivity than AF1.

26

CQ-FX620/FX420/FX220N

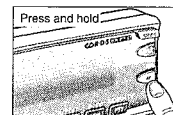
For Seek Tuning, RDS Station Preset, Tuning in a RDS Preset Station, and Auto RDS Station Preset, please refer to Radio Basics (pages 22 to 24).



### RDS Seek Tuning (PI Seek)

The PI seek function may be used if an RDS station selected from the memory is poor in receiving condition. Press the preset button again for the station now tuned in to.

PI seek: If Best Station Research fails in selecting the best station, the PI seek function operates to automatically tune in to the same program.



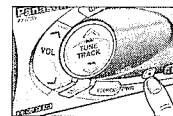
### Region (REG) Switching

Press and hold [AF](REG) for more than 2 seconds in AF mode to alternately select between REG ON and REG OFF.



Note: If you wish to stay with the same program, keep REG ON. In REG OFF mode, there is a higher possibility of returning to an AF station in better receiving condition.

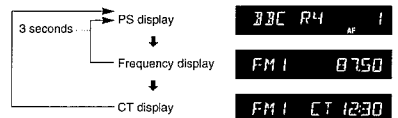
The relationship of the PI seek function with REG ON and REG OFF is as described above.



### Changing Display

Press [DISP/CT] to change the display as follows.

(Frequency display continues for only 3 seconds, returning to PS display after that.)



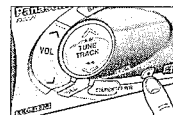
### Clock Time (CT) System

The CT (24-hour) system may not properly operate in areas where RDS CT service is not available. Once CT service is received, the CT system keeps operating. "NO CT" appears on the display in areas where no CT service is available.



### Clock Display

Press [DISP/CT] to indicate the clock display.

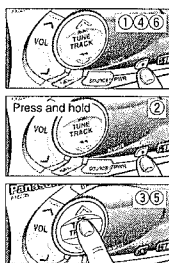


CQ-FX620/FX420/FX220N

27

## RDS (Radio Data System) Reception (continued)

11



### Initial Time Setting

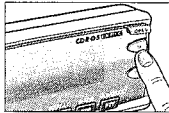
Press [BAND] to change to AM mode.

- Press [DISP/CT], "NO CT" appears on the display.
- Press and hold [DISP/CT] again for more than 2 seconds, "hours" blinks and the time setting mode is activated.
- To set hours, press [TUNE] or [VOLUME].
- Hold [TUNE] or [VOLUME] to change numbers rapidly.
- Press [DISP/CT] again for minutes setting.
- To set minutes, press [TUNE] or [VOLUME].
- After setting the time, press [DISP/CT].

#### Notes:

- If CT display is kept on, it remains on even if [SOURCE] (PWR) and accessory are turned off and back on again.
- In other modes, press [DISP/CT] to get RDS CT-service.

## B. TP Reception



### Select Traffic Announcement (TA on) Mode

Press [TA] to switch on and keep it there when you wish to listen to traffic information. Press [TA] again to switch off.

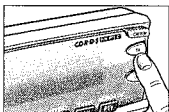


### Volume Setting (Only for TA on Mode)

Adjust the volume as desired by pressing [VOL] or [VOLUME] while receiving Traffic Announcement (TA).

After volume for Traffic Announcement (TA) is set, the difference between normal volume and TA volume is automatically stored in the memory (up to 5 levels) so that next traffic information will be received at the preceding TA volume which may be higher or lower than normal volume.

Normal volume can be changed up to 5 levels upward or downward. If the volume level is over 40 or less than 0, any further change will not be made.

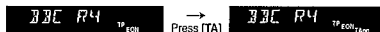


When receiving a station other than TP station (including EON stations)

A traffic information station is automatically searched for and the radio automatically stops the next available TP station.

#### EON capabilities:

EON lets the radio take advantage of much more RDS information than before. It constantly updates the AF lists for all switch presets far from home, you will receive an alternative frequency for the same station, or another station carrying the same program, when such exists. EON also keeps track of locally available TP station.



28

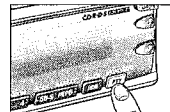
CQ-FX620/FX420/FX220N

## RDS (Radio Data System) Reception (continued)

13

### C. PTY Reception

(There are some areas where PTY service may not be available.)



### Switching to PTY Mode

Press [PTY] to select PTY display mode, and the PTY of the broadcast now received appears on the display.



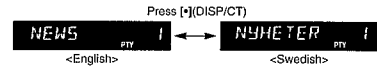
"NO PTY" appears on the display if there is no corresponding program type.



### Changing PTY Display Language

The display language can be changed to Swedish as required.

Press [DISP/CT] in PTY mode to alternate the language between English and Swedish.



### Program Type Selection

Press [TUNE] or [VOLUME] to select the program type as follows.

SPEECH - MUSIC - NEWS - AFFAIRS - INFO - SPORT - EDUCATE - DRAMA
ROCK M - POP M - VARIED - SCIENCE - CULTURES
M.O.R.M - LIGHT M - CLASSICS - OTHER M - WEATHER - FINANCE
LEISURE - TRAVEL - PHONE IN - RELIGION - SOCIAL A - CHILDREN
JAZZ - COUNTRY - NATIONAL - OLDIES - FOLK M - DOCUMENT

When a desired selection has been made, press [BAND]. Then automatic seek will start to tune in to the station broadcasting the selected program type.

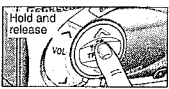
Note: Seek tuning does not operate as long as "NO PTY" appears on the display.

30

CQ-FX620/FX420/FX220N

### TP Seek Tuning

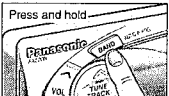
Press and hold [TUNE] or [VOLUME] for more than 0.5 seconds, then release. The seeking automatically stops at the next available TP station.



### Auto TP Station Preset

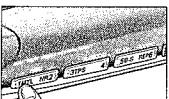
Press and hold [BAND] (AUTO•P) for more than 2 seconds. The six strongest available TP stations are automatically saved in the memory on the preset button [1] to [6].

Once saved, the preset stations are sequentially scanned for 5 seconds each.



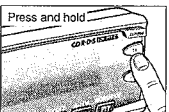
### Tuning in a TP Station Preset

Press any of the preset buttons [1] to [6] that you want to listen to. Best Station Research function is activated to automatically select the strongest available frequency for the TP station (through the built-in frequency) lists, if reception is weak.



### Muting TA on

Press and hold [TA] for more than 2 seconds to light "TA on". Then Traffic Announcement (TA) function is activated to operate, allowing you to listen to only Traffic Program whenever it is available.

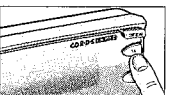


### Muting TA on Canceling (Muting TA on → TA on)

Press [TA] again.  
Or press [VOL] to increase the volume level.

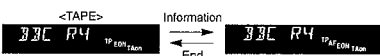
### TP Auto Search

If receiving conditions are poor when TA is on during muting and if there is no other alternative frequency in the same network, a traffic announcement station in good receiving condition is automatically searched for.



### Tape/CD changer TA on

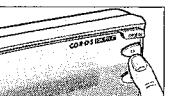
Press [TA] during tape or CD changer mode.  
When TA on mode is selected while listening to the source in that mode, wait for Traffic Announcement to begin.



### Switching to TA off Mode

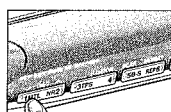
Select either one of the following steps.

- Press [TA] when TA is on.
- Press and hold [TA] for more than 2 seconds when Muting TA is on.
- Press [TA] when tape/CD changer TA is on.



CQ-FX620/FX420/FX220N

29

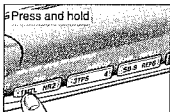


### Table of PTY Code and Program Type

Press any of the preset buttons [1] to [6] according to your preference. Those buttons already have the program types as follows. (Default setting)

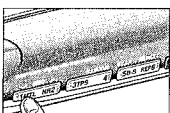
### <Preset PTY>

Preset No.	1	2	3	4	5	6
Program Type	News	Speech	Sport	Pop. Music	Classics	Music
Display	NEWS 1	SPEECH 2	SPORT 3	POP M 4	CLASSICS 5	MUSIC 6
	NEWS	AFFAIRS INFO EDUCATE DRAMA CULTURES SCIENCE VARIED WEATHER FINANCE CHILDREN SOCIAL A RELIGION PHONE IN TRAVEL LEISURE DOCUMENT	SPORT	POPM	CLASSICS	ROCK M M.O.R.M LIGHT M OTHER M JAZZ COUNTRY NATIONAL OLDIES FOLK M



### Program Type Preset

Press and hold one of the buttons [1] to [6] for more than 2 seconds to preset the desired program type selection in the button.



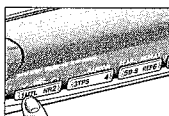
### Tuning in a PTY Preset Station

Press any of the preset buttons [1] to [6] that you want to listen to.

CQ-FX620/FX420/FX220N

31

## RDS (Radio Data System) Reception (continued)

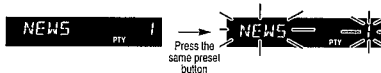


### Searching for PTY

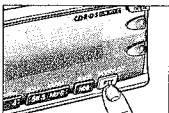
- Select the desired station from preset in the preset number buttons [1] to [6]. Then, the preset PTY and that preset number appear on the display for 5 seconds.



- While the desired type from 6 presets appears on the display, take either of the following two steps.
  - Press the same preset button again.
  - Press [BAND].
 If the desired PTY station is available, it is directly received. If it is not, "NO PTY" blinks and the radio returns to the station that was received before the search.



Press the same button again to cancel.



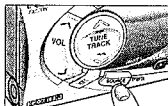
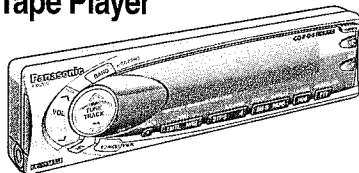
### Canceling of PTY Mode

Press [PTY] to cancel.  
The set returns to the state existing before PTY mode while the receiving frequency remains unchanged.

### Emergency Announcement Reception

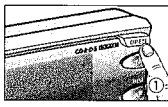
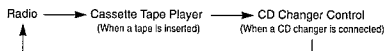
(Some areas are not covered by emergency announcement service.)  
When an emergency announcement is broadcast, the unit is automatically switched to receiving that broadcast. If this happens in a mode other than radio mode (Tape mode, CD Changer mode) or in Muting in TA mode, "ALARM" blinks on the display.

## Cassette Tape Player Basics



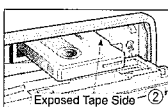
### Mode Selection

Press [SOURCE] to change the source as follows.



### Tape Insert

- Press [OPEN] to open the front panel.
- Insert a cassette with the exposed tape side facing to the right. Close the front panel manually. Play will start automatically.

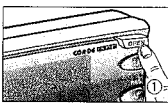


Playing Side Indicator — **1 TAPE PLAY**

**Caution:** Do not apply a strong downward force onto the face plate and do not put anything on it while it is open, or it might be damaged.

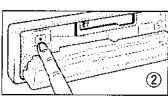
#### Notes:

- While a cassette tape is inserted, no sound is heard (MUTE). And the volume is back to the previous level when the front panel is closed completely.
- When a tape is in the deck, " " indicator lights.



### Tape Eject

- Press [OPEN] to open the front panel.
- Press [EJECT] to eject the tape. After the tape is removed, close the front panel manually. The previous operation mode will resume.



**Caution:** When ejecting a cassette tape, do not close the front panel until the cassette tape is ejected and removed from the cassette slot completely.

#### Notes:

- Always remove the cassette tape from the unit when the cassette tape player is not being used.
- While the cassette tape is ejected, no sound is heard (MUTE). And the volume is back to the previous level when the front panel is closed completely.

## Cassette Tape Player Basics (continued)



### Rewind and Fast Forward

Press [◀TRACK] or [▶TRACK] to activate rewind or fast forward of the tape.



Press [BAND](PRG) to resume the tape play.



### Play Side Change

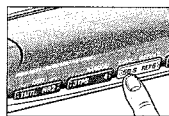
Press [BAND](PRG) to reverse.



Top Side Playing



Bottom Side Playing



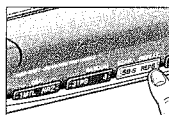
### Blank Skip

- Press [5](B•S) to skip unrecorded portions longer than 15 seconds on the tape.
- Press [5](B•S) again to cancel.



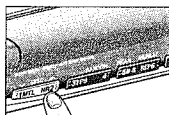
#### Notes:

- When repeat is on, the blank skip does not work because the repeat has priority over the blank skip.
- The blank skip does not work when an unrecorded portion of a tape is less than 15 seconds.



### Repeat Play

- Press [6](REP) to repeat the current program.
- Press [6](REP) again to cancel.

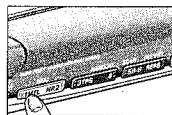


### Dolby Noise Reduction

- Press [2](NR) to set the Dolby B NR mode.
- Press [2](NR) again to cancel.



**Note:** Set the Dolby B NR mode when playing back a tape recorded with Dolby B Noise Reduction.

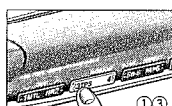


### Metal Tape Mode

- Press [1](MTL) when playing metal or chromium dioxide (CrO<sub>2</sub>) tapes.
- Press [1](MTL) again to cancel.



**Note:** Playing non-metal tapes in MTL mode causes high frequency imbalance, which affects tone quality.

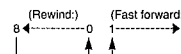


### TPS Operation (Tape Program Search)

- Press [3](TPS) to activate the Tape Program Search mode.



- To select a desired program, press [▲TUNE] or [▼TUNE] corresponding times to go forward (up to 9) or backward (up to 8).



Ex.1. To select the current program again, press [3](TPS) and [▼TUNE].



Ex.2. To select the last program, press [3](TPS) and [▼TUNE] twice.



Ex.3. To select the next program, press [3](TPS) and [▲TUNE].



Ex.4. To select the next 3rd program, press [3](TPS) and [▲TUNE] three times.



- Press [3](TPS) again to cancel.

#### Notes:

The TPS mode may not work correctly in the following cases. This, however, does not mean that the unit is defective.

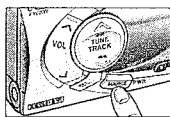
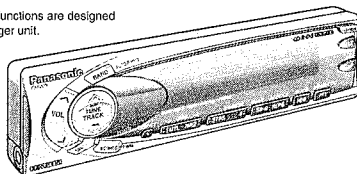
- There is an interval less than 3 seconds or having a high level of noise or hum between programs.
- There is particularly low-level passage during the program.

#### Notes:

- To maintain your cassette player in top condition, avoid using tapes that are longer than 90 minutes (C-90).
- If you insert into the unit a cassette with a loose tape caused by forcing it into cassette with a finger or the like, the cassette may not be properly reproduced. In such a case, eject the cassette, make the tape tight, then insert it back into the deck.

## CD Changer Basics

Note: The CD changer functions are designed for an optional CD changer unit.

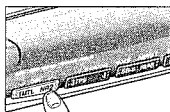


### Starting the CD Changer

Once the CD changer has been connected, press [SOURCE] to change to the CD changer mode as follows. When a disc magazine is inserted, CD play starts automatically.

Radio → Cassette Tape Player (When a tape is inserted) → CD Changer Control (When a CD changer is connected)

1-01 0'10  
Disc Number Track Play Time



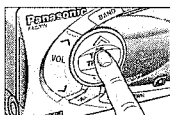
### Disc Selection

Press [1](V/DISC) or [2](^/DISC) to select a disc in descending or ascending order.

3-01 12'34

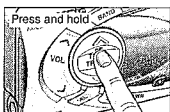
Then, the selected disc will start to play from the first track.

Note: The number of discs you can load the CD changer with is specific to each model.



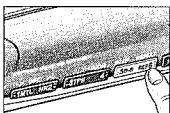
### Track Selection

- Press [▶▶TRACK] to advance to the next track.
- Press [◀◀TRACK] to start play from the beginning of the track now playing.
- Press [▶▶TRACK] or [◀◀TRACK] repeatedly to skip the desired number of tracks.



### Track Search

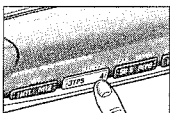
- Press and hold [▶▶TRACK] or [◀◀TRACK] for more than 0.5 seconds to activate fast forward or reverse.
- Release [▶▶TRACK] or [◀◀TRACK] to resume regular CD changer play from the released position.



### Track Repeat

- Press [6](REPEAT) to repeat the current selection.

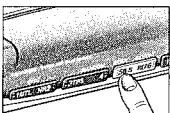
- Press [6](REPEAT) again to cancel.



### Track Random

- Press [4](RANDOM). All the available tracks on all discs in the magazine will be played in a random sequence.

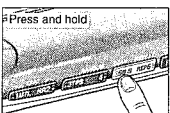
- Press [4](RANDOM) again to cancel.



### Track Scan

- Press [5](SCAN). The display blinks and the first 10 seconds of each track on the discs play in sequence.

- Press [5](SCAN) again to cancel.

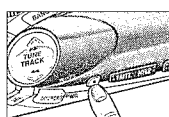


### Disc Scan

- Press and hold [5](SCAN) for more than 2 seconds. The 1st track of all the discs in the magazine is played for 10 seconds each.

- Press [5](SCAN) again to cancel.

## CD Changer Basics (continued)



### Changing the Display

Press [4](DISP/CT) to switch the display as follows.

Disc/Track/Play Time ↔ CT Display  
3-01 12'34 CDE CT 1451

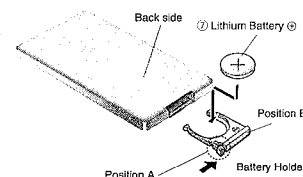
### Error Display Messages

CDC E1	Appears on the display when the compact disc is dirty or inverted. Selects the next available compact disc.
CDC E2	Appears on the display when compact disc is scratched. Selects the next available compact disc.
CDC E3	Appears on the display when the unit stops operating for some reason. Press the reset switch on the CD changer.
CDC 0000	Appears on the display when there is no disc in the magazine.

## Remote Control Basics (Supplied for CQ-FX620/FX420N Option for CQ-FX220N)

### Battery Installation

1. Remove the battery holder. Take hold of the holder at position B and pull it out by pushing position A in the direction shown by the arrow.
2. Install the battery on the battery holder. Set a new battery properly with its (+) side facing up as shown in the figure.
3. Insert the battery holder. Push in the battery holder back into its original position.



### Battery Notes

Remove and dispose of an old battery immediately.

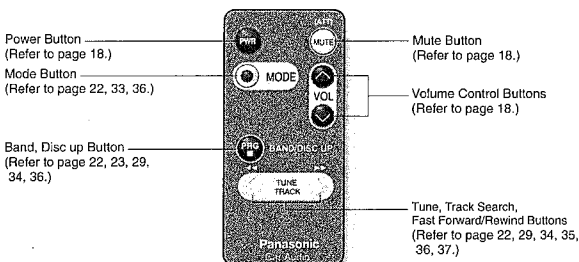
Battery Information:

- Battery type: Panasonic lithium battery (CR2025)
- Battery Life: Approximately 6 months under normal use (at room temperature)

Caution: Improper use of batteries may cause overheating, an explosion or ignition, resulting in injury or a fire. Battery leakage may damage the unit.

- Do not disassemble or short the battery. Do not throw a battery into a fire.
- Keep batteries away from children to avoid the risk of accidents.
- Be careful to the disposal rules when you dispose of batteries.

### Main Controls





## Anti-Theft System

This unit is equipped with a removable face plate. By removing this face plate, the radio becomes totally inoperable. The security indicator will blink.

### To Remove the Removable Face Plate

- ① Switch off the power.
- ② Press [OPEN]. The face plate will be opened.

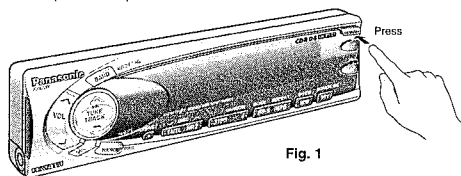


Fig. 1

- ③ Push the face plate to either the right or left, then pull it out toward you.

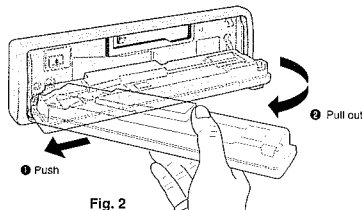


Fig. 2

- ④ As shown in Fig. 3, gently push the lower side of the case and open its cover. Keep the face plate in the case. Then, you can bring the plate safely.

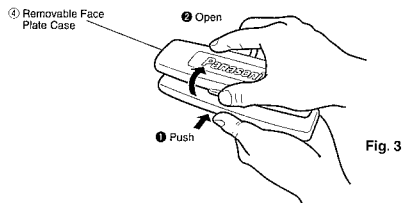


Fig. 3

40

CQ-FX620/FX420/FX220N

### To Install the Removable Face Plate

- ① Fit either the edge of the right or left hole in the face plate over the main unit's pins.
- ② Fit it over on the other side while pushing it.

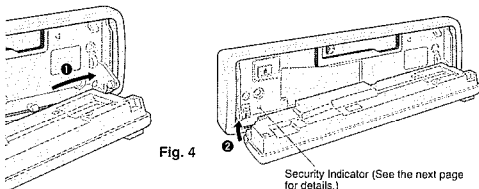


Fig. 4

Security Indicator (See the next page for details.)

- ③ After fitting the face plate holes, try moving the face plate up and down a few times to make sure that it has been fitted securely. Close the front panel and press the right side of the face plate until a "click" is heard.

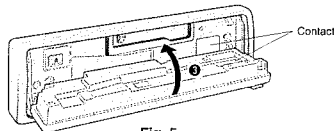


Fig. 5

#### Cautions:

1. Before removing the face plate, make sure the power is off.
2. This face plate is not water-proof. Do not expose it to water or excessive moisture.
3. Do not remove the face plate while driving your car.
4. Do not place the face plate on the dashboard or nearby areas where the temperature rises to high levels.
5. Do not touch the contacts on the face plate or on the main unit, since this may result in poor electrical contacts.
6. If dirt or other foreign substances get on the contacts, wipe them off with clean and dry cloth.
7. Do not apply a strong downward force onto the face plate and do not put anything on it while it is open, or it might be damaged.

CQ-FX620/FX420/FX220N

41

## Anti-Theft System (continued)

### Security Indicator

The security indicator blinks when the removable face plate is removed from the unit. (See Fig. 4 on the previous page.)

### Activate Security Indicator

1. ① Press and hold [SEL] for more than 2 seconds to change to the display control mode when the power is on.
- ② Press [SEL] during the display control mode to change to the security indicator mode. (See page 21.)
- ③ Press [^TUNE] or [vTUNE] to turn the security indicator on or off. (LED On or OFF)  
(Default: The security indicator is on.)

Note: "LED On" appears on the display when the security indicator is on.

2. To check whether the unit is set in the LED On mode, make sure that the security indicator blinks when the removable face plate is removed.

Display	Security Indicator	Panel Removal Alarm
LED On	Blinks	ON
↑ ↓	(Press [^TUNE] or [vTUNE].)	
LED OFF	OFF	OFF

Note: In the display control mode, the display will be back to the previous mode with no operation for more than 5 seconds.

### Panel Removal Alarm

This alarm sounds to warn you not to forget to remove the panel before leaving your car. This function is activated when the security indicator is on.

42

CQ-FX620/FX420/FX220N

## Installation

### Preparation

- Before installation, check the radio operation with antenna and speakers.
- Disconnect the cable from the negative (-) battery terminal (see caution below).
- Unit should be installed in a horizontal position with the front end up at a convenient angle, but not more than 30°.

Caution: For installation to cars with trip or navigational computers, all electronic memory settings previously registered in the computer will be lost when the battery terminal is disconnected. For this type of car, battery could not be disconnected. Therefore, extra care should be taken to prevent short circuiting.

### In-dash Installation

#### Installation Opening

In-dash installation can be done if the car's dashboard has an opening for this unit as shown in Fig. 6. The car's dashboard should have a thickness of 4.5 mm - 6 mm in order to make the installation of the unit.

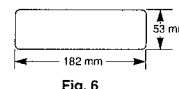


Fig. 6

#### Installation Precautions

This product, if possible, should be installed by a professional installer.

In case of difficulty, please consult your nearest authorized Panasonic Service Center.

1. This system is to be used only in a 12-volt, DC battery system (car) with negative ground.
2. Follow the electrical connections on pages 46 to 47 or 48 to 49 carefully. Failure to do so may result in damage to the unit.
3. Connect the power lead (red) after all other connections are made.
4. Be sure to connect the battery lead (yellow) to the positive terminal (+) of the battery or fuse block (BAT) terminal.
5. Insulate all exposed wires to prevent short circuiting.
6. Secure all loose wires after installing the unit.
7. Please carefully read the operating and installation instructions of the respective equipment before connecting it to this unit.

### Supplied Hardware

No.	Item	Diagram	Q'ty	No.	Item	Diagram	Q'ty
①	Mounting Collar		1	⑤	Remote Control Unit (only for CQ-FX620/FX420N)		1
②	Mounting Bolt (5 mm)		1	⑥	Trim Plate		1
③	Power Connector		1	⑦	Lithium Battery (CR2025) (only for CQ-FX620/FX420N)		1
④	Removable Face Plate Case		1	⑧	ISO Antenna Adaptor		1

CQ-FX620/FX420/FX220N

43

## Installation (continued)

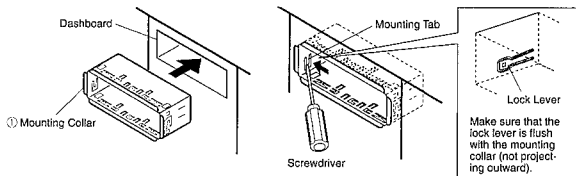
- When bending the mounting tab of the mounting collar with a screwdriver, be careful not to injure your hands and fingers.
- We strongly recommend you to wear gloves for installation work to protect yourself from injuries.

### Installation Procedures

Note: Disconnect the cable from the negative (-) battery terminal.

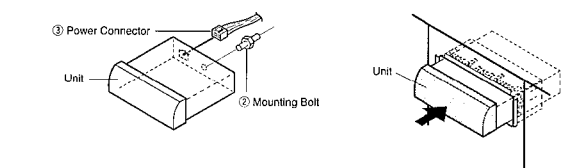
#### 1. Secure the Mounting Collar ①.

Insert Mounting Collar ① into the dashboard, and bend the mounting tabs out with a screwdriver.



#### 2. Secure the rear of the unit.

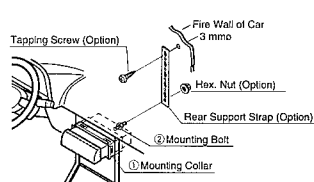
- Check the electrical connections by referring to this operating instructions.
- Connect Mounting Bolt ②, using a suitable wrench.
- Insert Power Connector ③ to the unit.
- Insert the unit into Mounting Collar ① and push it in until a "click" is heard.



- Secure the rear of the unit to the car by either of the two recommended methods.

##### • Using the Rear Support Strap (Option)

Affix one end of the Rear Support Strap to the rear of the unit, and the other end to the fire wall of car, or some other metallic area.



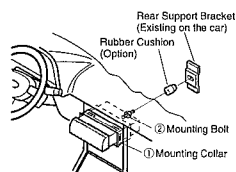
44

CQ-FX620/FX420/FX220N

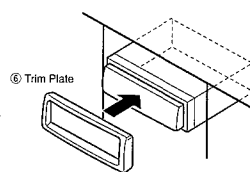
##### • Using the Rubber Cushion (Option)

(If there is an existing Rear Support Bracket on the fire wall of car.)

Cover Mounting Bolt ② on the rear of the unit with Rubber Cushion, and mount it into the existing Rear Support Bracket.



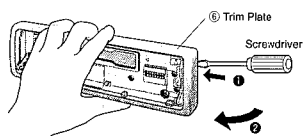
#### 3. Insert Trim Plate ⑥.



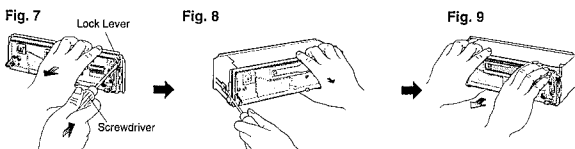
#### 4. After installation reconnect the negative (-) battery terminal.

#### To Remove the Unit

- Remove the removable face plate. (See page 40.)
- Remove Trim Plate ⑥ with a screwdriver as shown in the figure.



- Pull out the unit while pushing the lock lever using screwdriver. (Fig. 7, Fig. 8)
- Remove the unit pulling with both hands. (Fig. 9)



CQ-FX620/FX420/FX220N

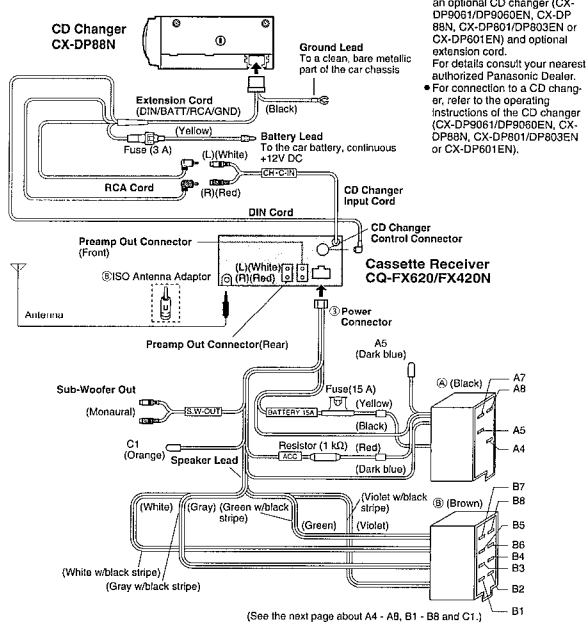
45

## Electrical Connection

### Cautions:

- Confirm the note on page 4, and make connections to the connectors on car side.
- This unit is designed to be used in a car having 12-volt negative ground battery system.
- To prevent damage to the unit, be sure to follow the connection diagram below.
- Remove the covering of the leads about 5 mm long from their end before connecting. (except for ISO connector's cords)
- Do not insert the power connector into the unit until the wiring is completed.
- Be sure to insulate any exposed wires from a possible short-circuit from the car chassis. Bundle all cables and keep cable terminals free from touching any metal parts.

### <For CQ-FX620/FX420N>



46

CQ-FX620/FX420/FX220N

### Loudspeakers (Connector ⑧ : B1 - B8)

	Left +	Left -	Right +	Right -
Front	B5 (White)	B6 (White w/black stripe)	B3 (Gray)	B4 (Gray w/black stripe)
Rear	B7 (Green)	B8 (Green w/black stripe)	B1 (Violet)	B2 (Violet w/black stripe)

#### A4

**Battery Lead (Yellow)**  
To the car battery, continuous +12V DC

#### A8

**Ground Lead (Black)**  
To a clean, bare metallic part of the car chassis

#### A5

**Motor Antenna Relay Control Lead (Dark blue)**  
(To motor antenna) (Max. 500 mA)  
This lead is not intended for use with switch actuated power antenna.  
**Amp. Relay Control Power Lead (Dark blue)**  
This lead is for connection to Panasonic power amplifier.

#### C1

**Telephone Mute Lead (Orange)**  
Connect to the car telephone mute lead.  
Note: This telephone mute lead is for connection only to the radio mute lead. Be sure to ascertain this because it will not work with other type of output system.  
**Navl Mute Lead (Orange)**  
Connect to the Navl Mute lead of the Panasonic car navigation system (for example, CN-DV2000 EN).

#### A7

**Power Lead (ACC or IGN) (Red)**  
To ACC power, +12V DC

#### Notes:

##### Telephone Mute

The sound from the speakers cannot be heard while the telephone conversation is in progress.

##### Navl Mute

The sound from the speakers cannot be heard while the navigation voice guide is on.

47

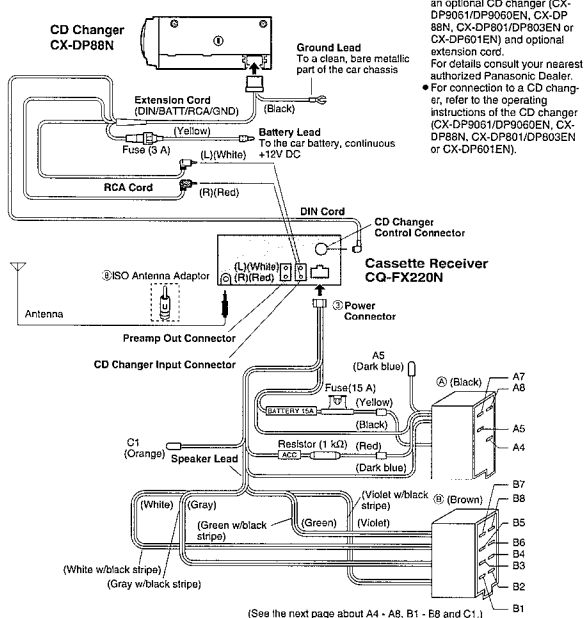
CQ-FX620/FX420/FX220N

## Electrical Connection (continued)

### Cautions:

- Confirm the note on page 4, and make connections to the connectors on car side.
- This unit is designed to be used in a car having 12-volt negative ground battery system.
- To prevent damage to the unit, be sure to follow the connection diagram below.
- Remove the covering of the leads about 5 mm long from their end before connecting. (except for ISO connector's cords)
- Do not insert the power connector into the unit until the wiring is completed.
- Be sure to insulate any exposed wires from a possible short-circuit from the car chassis. Bundle all cables and keep cable terminals free from touching any metal parts.

<For CQ-FX220N>



48

CQ-FX620/FX420/FX220N

### Loudspeakers (Connector ⑧ : B1 - B8)

	Left +	Left -	Right +	Right -
Front	B5 (White)	B6 (White w/black stripe)	B3 (Gray)	B4 (Gray w/black stripe)
Rear	B7 (Green)	B8 (Green w/black stripe)	B1 (Violet)	B2 (Violet w/black stripe)

#### A4

**Battery Lead (Yellow)**  
To the car battery, continuous +12V DC

#### A8

**Ground Lead (Black)**  
To a clean, bare metallic part of the car chassis

#### A5

**Motor Antenna Relay Control Lead (Dark blue)**  
(To motor antenna) (Max. 500 mA)  
This lead is not intended for use with switch actuated power antenna.  
**Amp. Relay Control Power Lead (Dark blue)**  
This lead is for connection to Panasonic power amplifier.

#### C1

**Telephone Mute Lead (Orange)**  
Connect to the car telephone mute lead.  
**Note:** This telephone mute lead is for connection only to the radio mute lead. Be sure to ascertain this because it will not work with other type of output system.  
**Navi Mute Lead (Orange)**  
Connect to the Navi Mute lead of the Panasonic car navigation system (for example, CN-DV2000 EN).

#### A7

**Power Lead (ACC or IGN) (Red)**  
To ACC power, +12V DC

#### Notes:

**Telephone Mute**  
The sound from the speakers cannot be heard while the telephone conversation is in progress.  
**Navi Mute**  
The sound from the speakers cannot be heard while the navigation voice guide is on.

CQ-FX620/FX420/FX220N

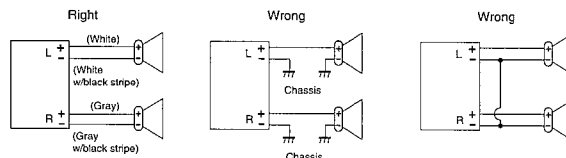
49

## Speaker Connections

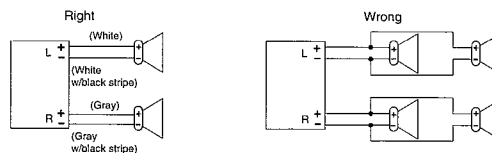
### Cautions:

- Use ungrounded speakers only.
- The speakers to be used with this unit should be able to handle more than 45 W (CQ-FX620/FX420N), 40 W (CQ-FX220N) of audio power. If an optional amplifier is used, the speakers should be able to handle the maximum output power of the amplifier. Use of speakers with small input ratings can cause damage to the speakers.
- The speaker impedance should be 4 - 8  $\Omega$ . If the impedance is too large or too small, it affects the output and may cause damage to the speakers or this unit.
- Do not use 3-wire type speaker system having a common earth lead. Never connect the speaker cord to the body of the car. This unit uses the BTCL circuit, so each speaker should be connected separately using parallel vinyl insulated cords.
- The speaker cords and the power amplifier unit should be kept away (about 30 cm apart) from the antenna and antenna extension cord.
- Follow the connection diagram below carefully. Failure to do so may cause damage to both unit and speakers.

Unit will be damaged if speakers (Front, Rear) are not connected properly.



Do not connect more than one speaker to one set of speaker leads.



## Fuse

Use fuses of the same specified rating (15 A). Using different substitutes or fuses with higher ratings, or connecting the unit directly without a fuse, could cause fire or damage to the unit. If the replacement fuse fails, contact your nearest authorized Panasonic Service Center.

## Maintenance

Your product is designed and manufactured to ensure the minimum of maintenance. Use a soft cloth for routine exterior cleaning. Never use benzine, thinner, or other solvents.

50

CQ-FX620/FX420/FX220N

## Specifications

General	
Power Supply	DC 12 V (11 V - 16 V), test voltage 14.4 V, negative ground
Tone Controls	Bass: $\pm 12$ dB at 100 Hz Treble: $\pm 12$ dB at 10 kHz
Current Consumption	Less than 2.5 A (tape mode, 0.5 W 4-speaker)
Maximum Power Output	45 W x 4 (at 4 $\Omega$ ) (CQ-FX620/FX420N) 40 W x 4 (at 4 $\Omega$ ) (CQ-FX220N)
Power Output	22 W x 4 (DIN45 324, at 4 $\Omega$ ) (CQ-FX620/FX420N) 20 W x 4 (DIN45 324, at 4 $\Omega$ ) (CQ-FX220N)
Speaker Impedance	4 - 8 $\Omega$
Dimensions (Main Unit)	178(W) x 50(H) x 150(D) mm
Weight (Main Unit)	1.5 kg
Pre-Amp Output Voltage	2 V
Pre-Amp Output Impedance	600 $\Omega$
Sub-Woofer Output Voltage	2 V (CQ-FX620/FX420N)
FM Stereo Radio	
Frequency Range	87.5 - 108 MHz
Usable Sensitivity	6 dB $\mu$ V (S/N 30 dB)
Stereo Separation	35 dB (at 1 kHz)
MW Radio	
Frequency Range	531 - 1,602 kHz
Usable Sensitivity	28 dB $\mu$ V (S/N 20 dB)
LW Radio	
Frequency Range	153 - 279 kHz
Usable Sensitivity	32 dB $\mu$ V (S/N 20 dB)
Cassette Player	
Reproduction System	4-track, 2-program stereo
Tape Speed	4.76 cm/sec.
FF/REW Time	Less than 110 sec. (C-60)
Frequency Response	30 - 17,000 Hz (normal) 30 - 18,000 Hz (metal)
Wow and Flutter	0.12 % (WRMS)
Signal to Noise Ratio	52 dB (Dolby off) 62 dB (Dolby B NR on)

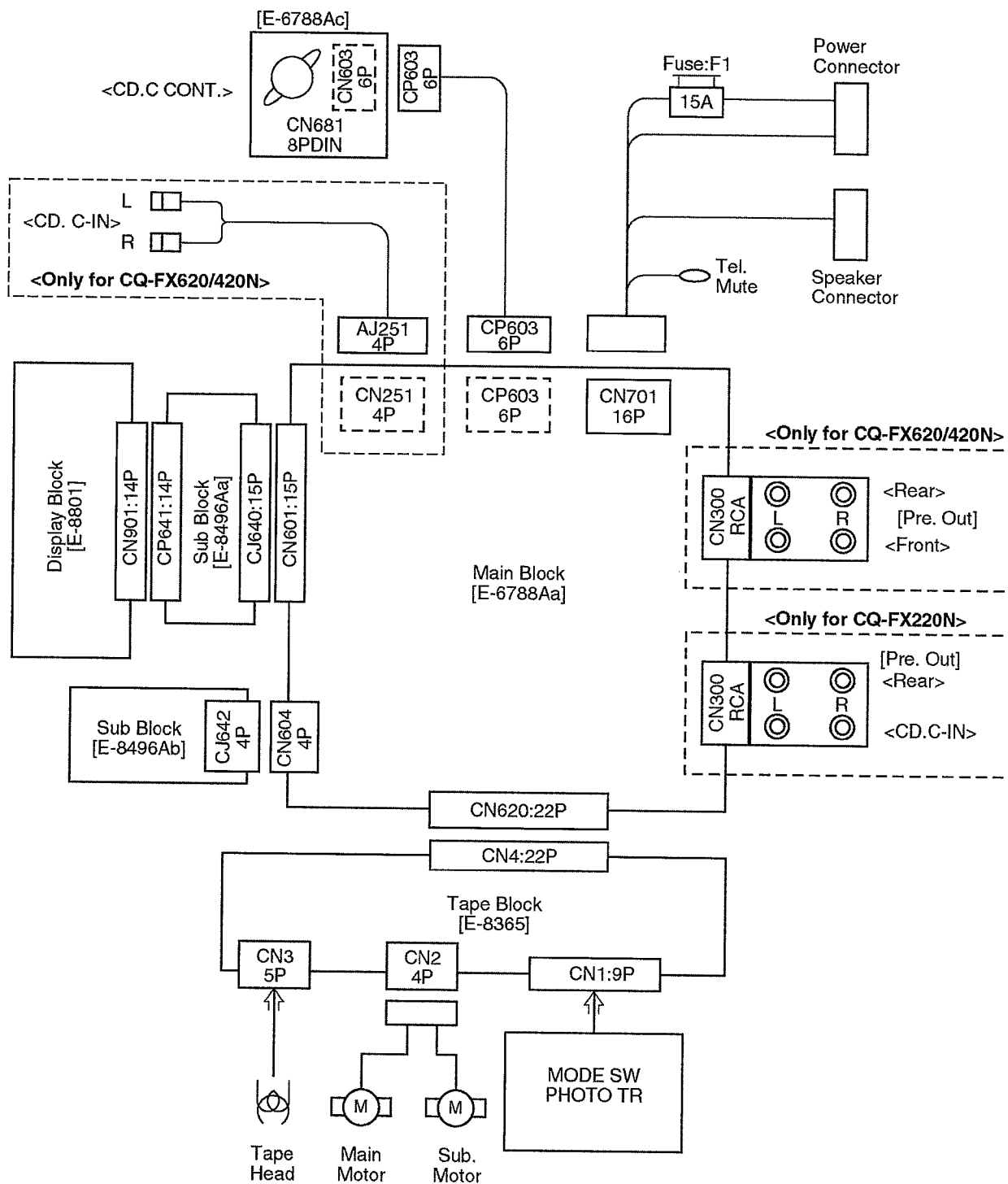
Note: Specifications and the design are subject to modification without notice due to improvements in technology.

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

CQ-FX620/FX420/FX220N

51

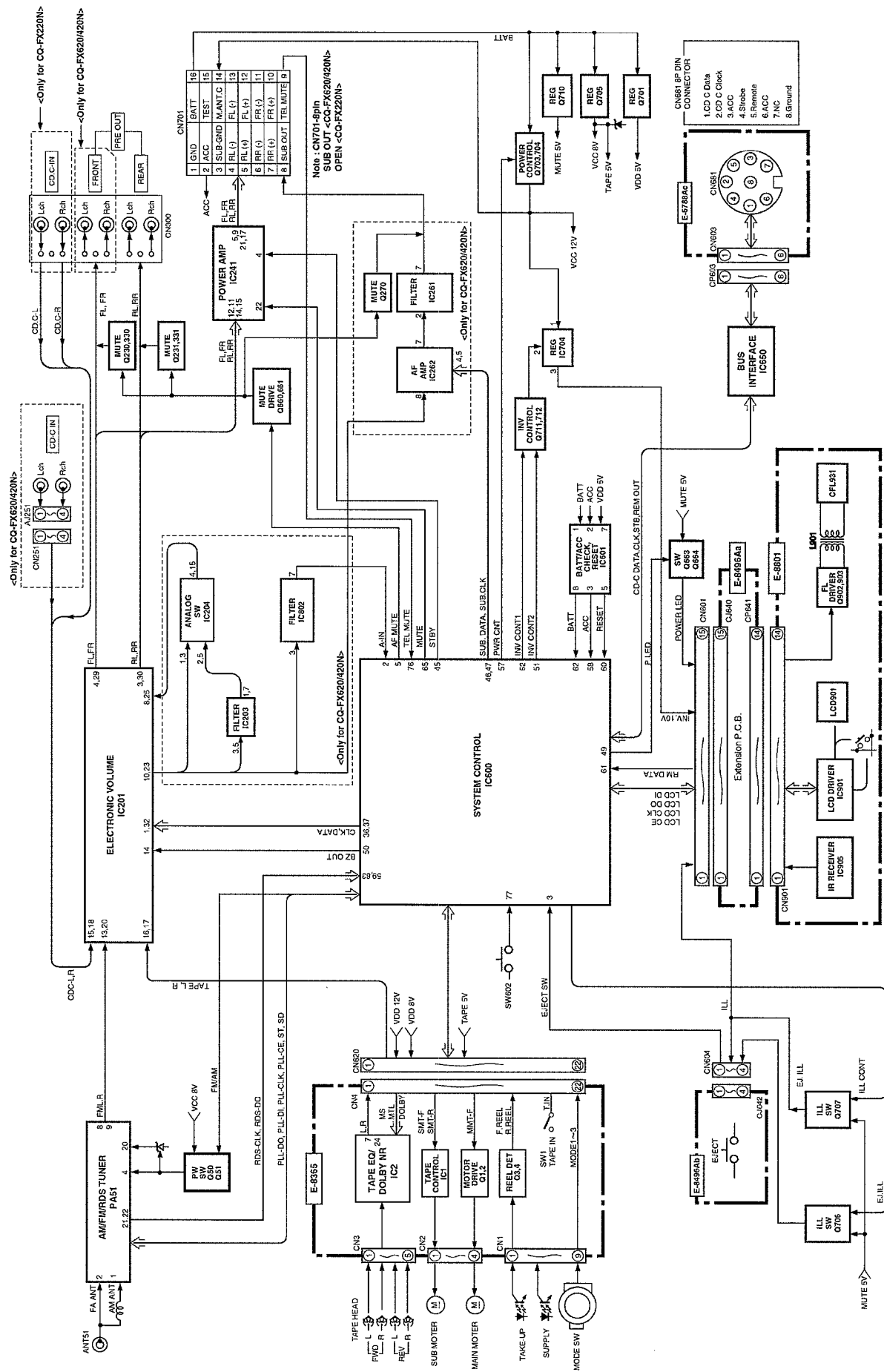
# 9 WIRING CONNECTION



**<Note> :**

- .....This mark shows a Ref. No. of connector
- .....This mark shows a mounting position of connector.

## 10 BLOCK DIAGRAM



# 11 TERMINALS DESCRIPTION

## 11.1. Main Block

IC600 : C2BBGF000110

Pin No.	Port	Description	I/O	(V)
1	INIT C	Initial C	I	0
2	A-IN	Spectrum analyzer data	I	0
3	EJECT	Tape eject SW	I	5.3
4	AVss	Analog ground	-	0
5	AF MUTE	AF mute	O	5.0
6	N.C.	No connection	-	-
7	AVREF	Reference voltage	-	5.0
8	MODE1	Tape mode SW	I	5.1
9	MODE2	Tape mode SW	I	5.1
10	MODE3	Tape mode SW	I	5.1
11	CD.C DATA	CD changer data	I	0
12	N.C.	No connection	-	-
13	CD.C CLK	CD changer clock	I	0
14	REM OUT	CD changer remote control	O	5.3
15	PLL CE	PLL controller chip enable	O	0
16	PLL DATA (MI)	Data from PLL	I	5.2
17	PLL DATA (MO)	Data for PLL	O	0
18	PLL CLK	Clock for PLL	O	5.3
19	S.HDB	Supper High Deffinition Bass ( <b>Note 2</b> )	O	5.3
20	MMT-F	Main motor control	O	0
21	SMT-F	Sub motor control	O	5.3
22	DOLBY	Dolby control	O	5.3
23	F/R	Tape FF/REW detection	I	5.3
24	MS GAIN	MS gain control	O	5.3
25	MTL	Motor tape select	O	0
26	SMT-R	Sub motor control	O	5.3
27	R.REEL	Tape REW detection	I	1.5
28	F.REEL	Tape FF detection	I	1.5
29	MS IN	TPS input	I	0
30	T-IN	Tape in detection	I	0
31	N.C.	No connection	-	-
32	N.C.	No connection	-	-
33	VSS	Ground	-	0
34	FM/AM	FM/AM selection	O	5.1
35	IF-SEL	Not used	-	-
36	IC2-CLK	Electronic volume clock	O	5.2
37	IC2-DATA	Electronic volume data	I/O	5.2
38	LED	Warning alarm LED control	O	4.1
39	EJ.ILL	Eject SW Illumi.	O	5.6
40	/ST	FM stereo detection	I	5.1
41	LCD-DI	LCD data input	O	0
42	LCD-DO	LCD data output	I	4.5
43	LCD-CLK	LCD clock	O	0
44	LCD-CE	LCD chip enable output	O	0
45	STBY	Power Amp. stand-by	O	5.3
46	SUB.W.DAT A	Sub. woofer data ( <b>Note 2</b> )	O	0
47	SUB.W.CLK	Clock for sub. woofer data ( <b>Note 2</b> )	O	0
48	NC	No connection	-	-
49	POWER.LE D	Power LED control	O	5.3
50	BZOUT	Beep output	O	0
51	INV CONT2	Invertor control	O	0
52	INV CONT1	Invertor control	O	0
53	DECK.CNTN	Not used	-	-
54	NC	No connection	-	-
55	FP OPN/CLS	Front panel open/close	I	0
56	ILL CONT	Illumi. control	O	5.3

57	PWR CNT	Power control	O	5.3
58	ACC	ACC detection	I	5.0
59	RDS DATA	RDS data	I	2.9
60	/RESET	Reset input	I	5.0
61	REM	Remocon data input	I	4.2
62	BATT	Battery detection	I	5.0
63	RDS-CLK	Clock for RDS data	I	2.6
64	CD.C.STB	CD changer strobe input	I	0
65	MUTE	Mute control	O	5.3
66	N.C.	No connection	-	-
67	VSS	Ground	-	0
68	VDD	+5V power supply	-	5.0
69	X2	Crystal oscillator	-	3.0
70	X1	Crystal oscillator	-	2.6
71	VSS	Ground	-	0
72	SUB.X2	No connection	-	-
73	SUB.X1	(Connecting to ground)	-	0
74	AVDD	+5V power supply	-	5.0
75	AVREF	(Connecting to VDD)	-	5.0
76	TEL.MUTE	Telephone mute	I	5.0
77	PANEL	Panel detection	I	5.0
78	SD	B/S detection	I	0
79	INIT A	Initial value A ( <b>Note 3</b> )	I	(#1)
80	INIT B	Initial value B ( <b>Note 3</b> )	I	(#2)

### Note 1 :

Voltage measuerments are with respect to ground, with a voltmeter (Internal resistance : 10M ohms.)

### Note 2 :

Only for CQ-FX620/420N

### Note 3 :

(#1) : IC600-79pin voltage ;

5.0V <CQ-FX620/420N>

2.7V <CQ-FX220N>

(#2) : IC600-80pin vlotage ;

0V <CQ-FX620/420N>

5.0V <CQ-FX220N>

## 11.2. Display Block

IC901 : YEAMLC75884W

Pin No.	Port	Description	I/O	(V)
1-51	S3 ~ 53	LCD segment data	O	2.4
52-55	COM1-4	LCD common	O	2.4
56,57	S54,55	LCD segment data	O	2.4
58-61	KS3-6	Key strobe	O	4.8
62-66	KI1-5	Key data	I	0
67	VDD	+5V power supply	-	5.0
68	VLCD	+5V power supply	-	5.0
69	VLCD1	LCD angle	-	3.2
70	VLCD2	LCD angle	-	1.6
71	VSS	Ground	-	0
72	TEST	(Connecting to ground)	-	0
73	OSC	Oscillator terminal	-	3.4
74	/RESET	(Connecting to VCC)	-	5.0
75	DO	Key data output	O	5.0
76	CE	LCD driver chip enable	I	0
77	CLK	LCD clock	I	0
78	DI	LCD data	I	0
79	S1	LCD segment data	O	2.4
80	S2	LCD segment data	O	2.4

# 12 ALIGNMENT INSTRUCTIONS

## 12.1. Alignment Conditions

- Power Supply Voltage : DC14.4V
- Output Impedance :  $4\Omega$
- Output Power : 0.5W
- Balance, Fader Control : Center
- Bass, Treble Control : Center

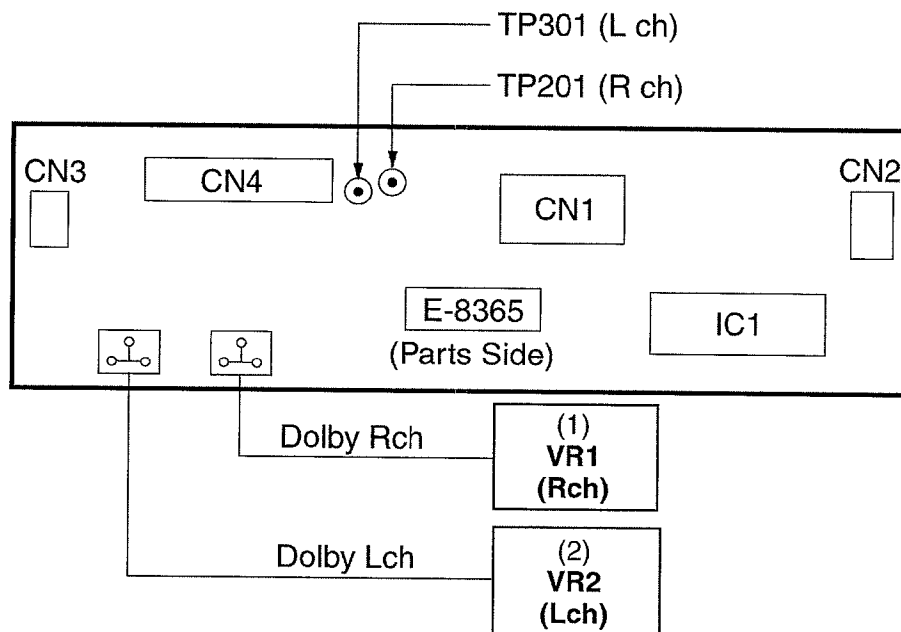
### Note:

Do not align the FM/AM package block. When the package block is necessary, it will be supplied already aligned at the factory.

## 12.2. Dolby NR Alignment

Step	Alignment Item	Test Tape	VTVM Connection	Adjust	Remarks
(1)	DOLBY NR Rch	RFKZ0038	TP201	VR1	Adjust for 388mV $\pm 20$ mV
(2)	DOLBY NR Lch	RFKZ0038	TP301	VR2	Adjust for 388mV $\pm 20$ mV

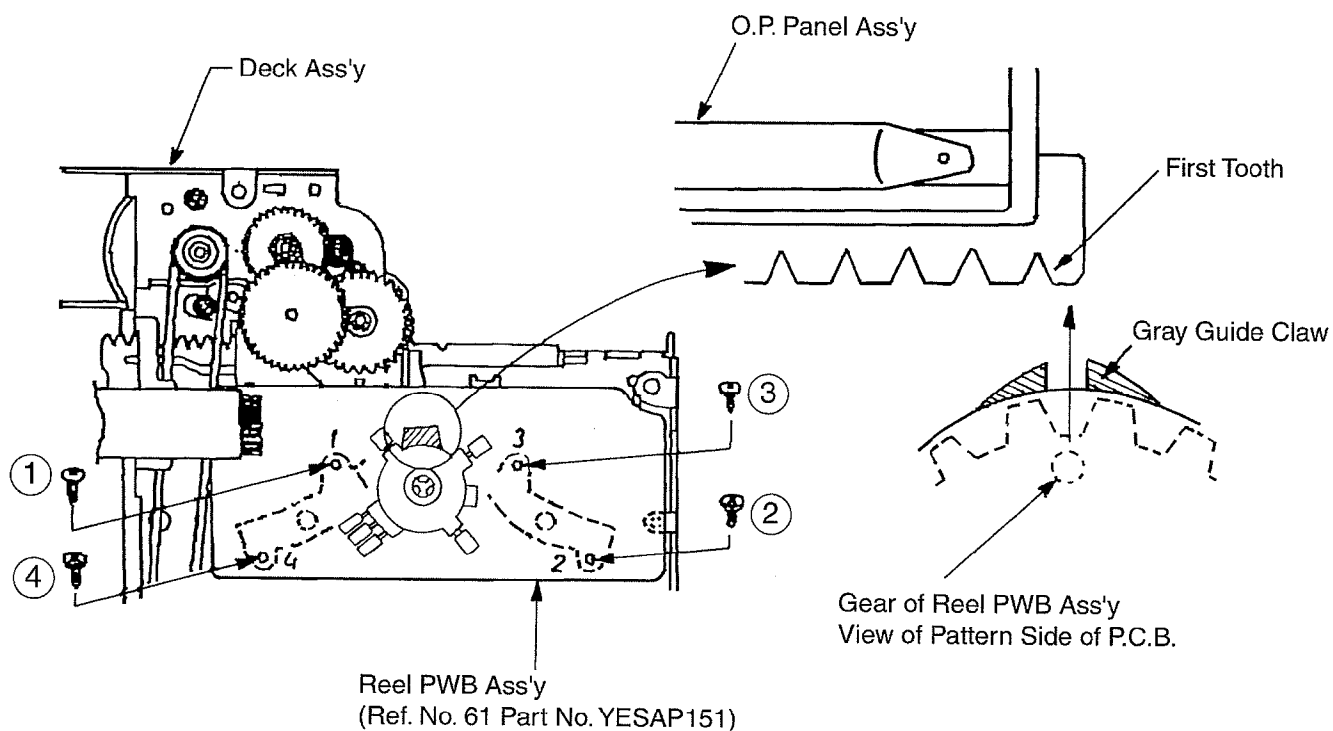
# 13 ALIGNMENT POINTS



# 14 RE-ASSEMBLY PROCEDURE for REEL PWB ASS'Y

• When you re-assemble the REEL PWB Ass'y please refer to the following procedure.

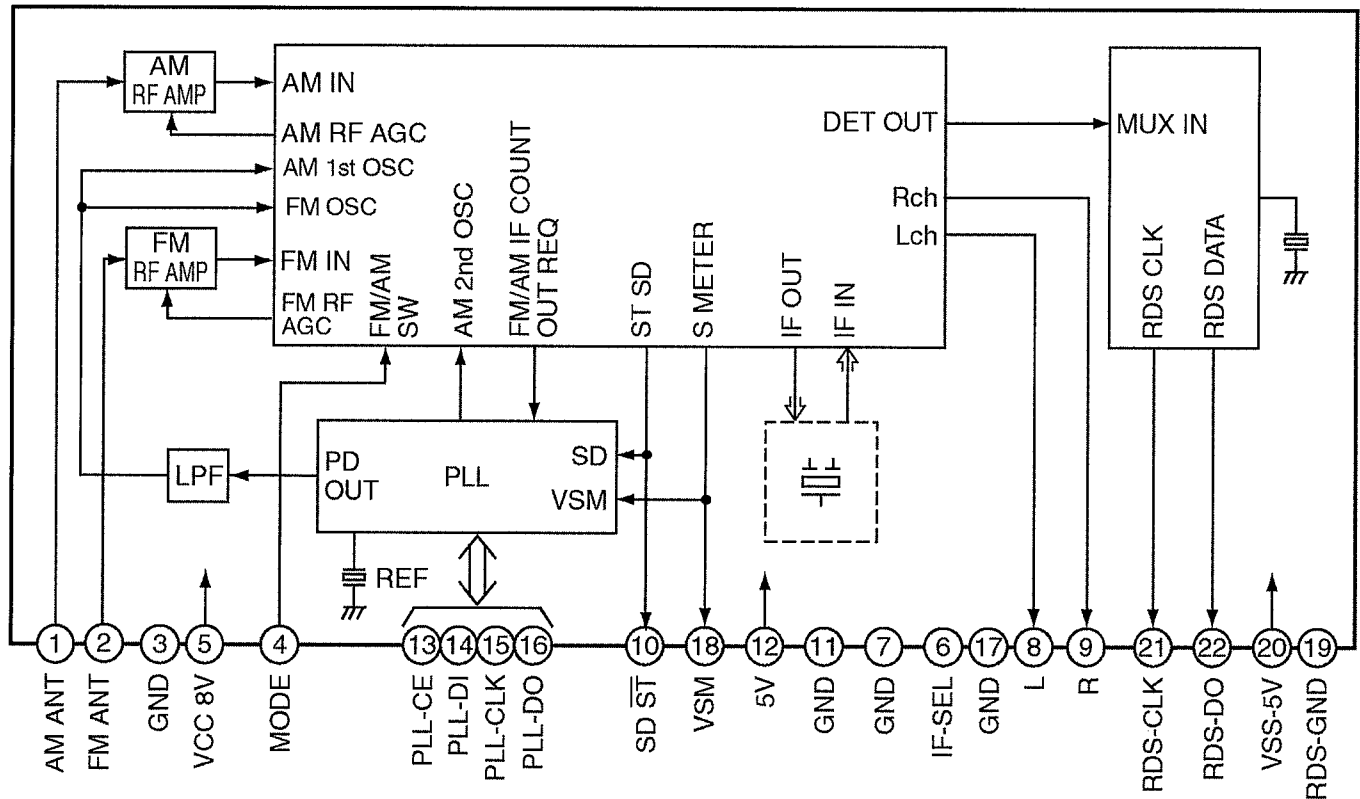
1. Set the gear of Reel PWB Ass'y (Ref. No. 61) into the first tooth of O.P. Plate Ass'y (Ref. No. 20) as shown below.
2. Tighten the (1-4) screws of Reel PWB Ass'y shown in the figure.



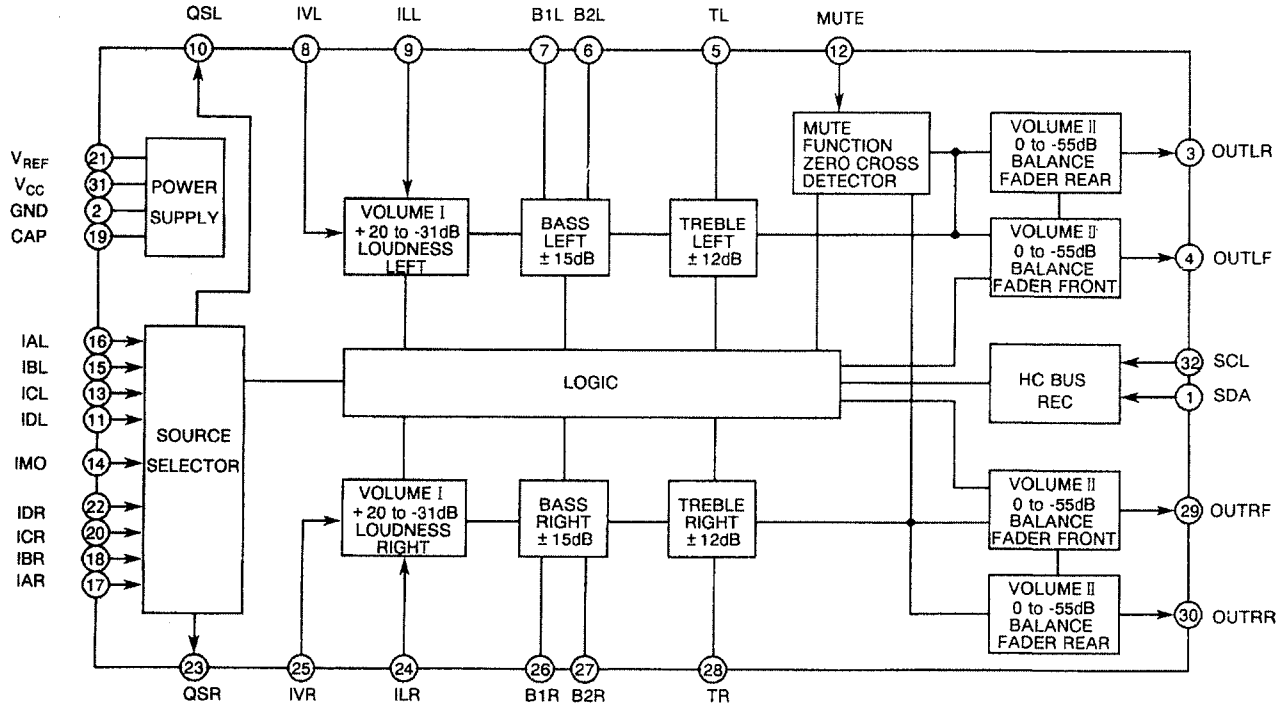


# 15 PACKAGE AND IC BLOCK DIAGRAM

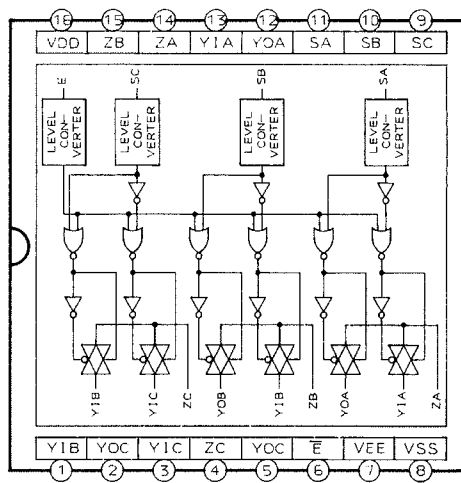
## 15.1. Main Block



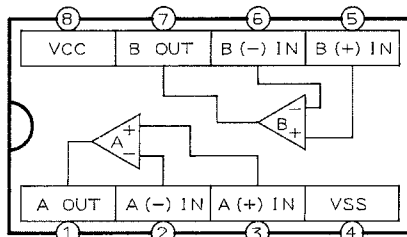
PA51 : C5AB0000053



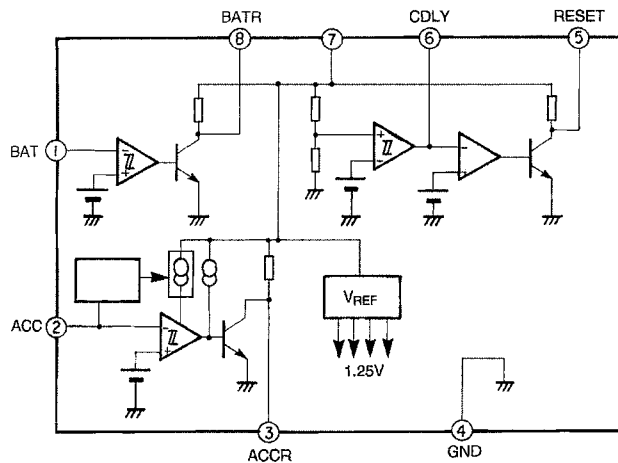
IC201 : YEAMEA6320TT



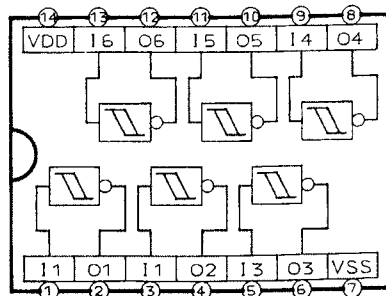
IC204 : YEAMPD4053E2



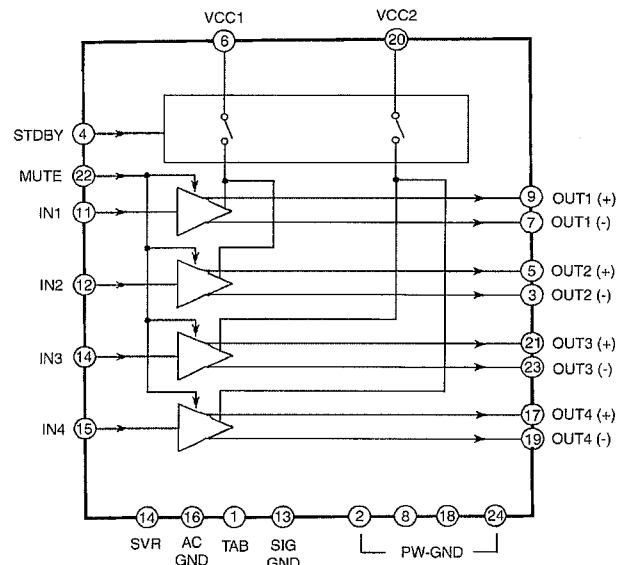
IC203, 261, 802 : YEAMM5218AFE



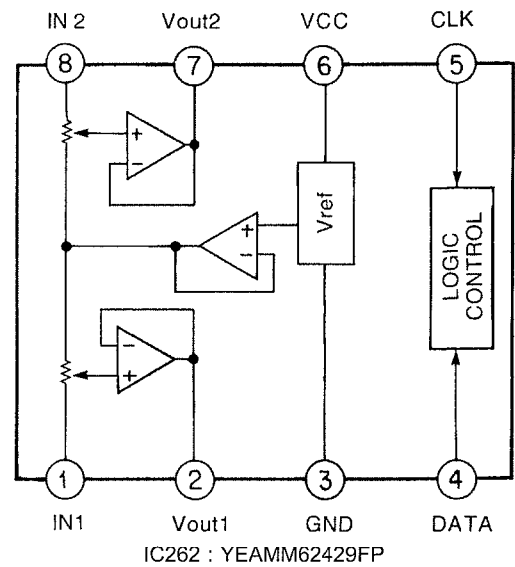
IC601 : AN8065SE1



IC650 : YEAMC14584BE

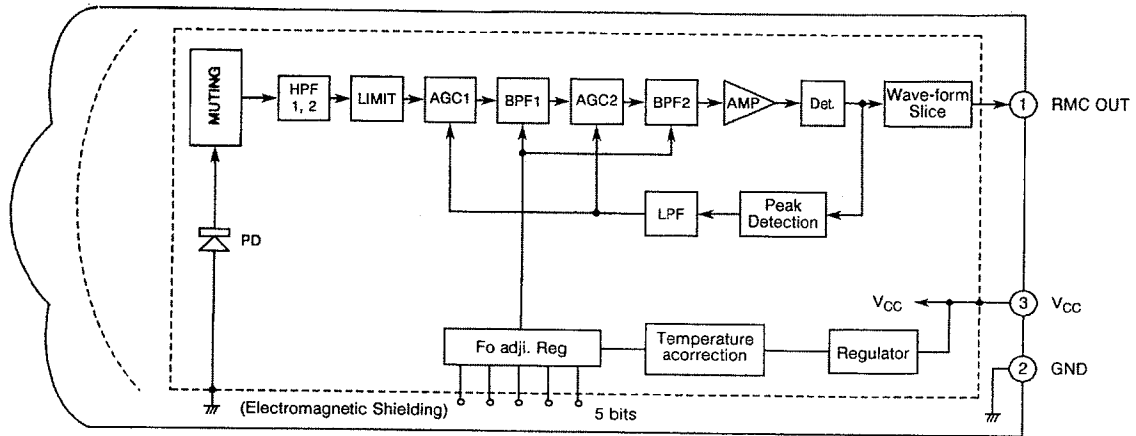


IC241 : C1EA00000021 <CQ-FX620/420N>  
IC241 : YEAMTDA7384 <CQ-FX220N>



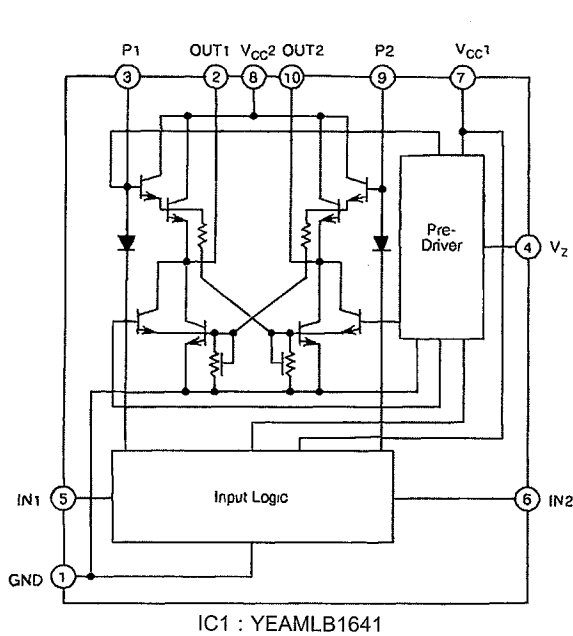
IC262 : YEAMM62429FP

## 15.2. Display Block

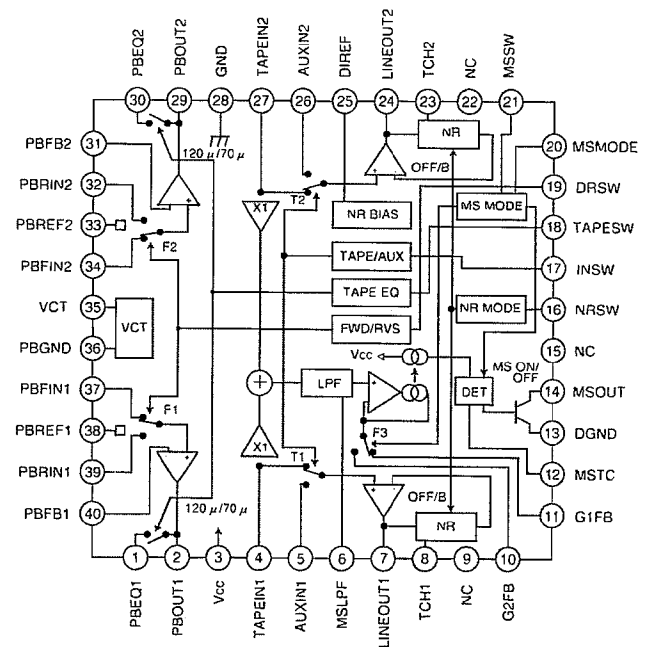


IC905 : YEAMSBX8035F

## 15.3. Tape Block



IC1 : YEAMLB1641



IC2 : YEAMCX2510AQ

# 16 REPLACEMENT PARTS LIST

Notes :

1. Be sure to make your orders of replacement parts according to this list.
2. Important safety notice: Components, identified by  $\Delta$  mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. Location keys in the remarks column indicates the general location of the parts shown in the exploded drawing, as in a road map.
4. The marking (RTL) indicates that Retention Time is limited for this item. After the discontinuation of assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependent on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.
5. "A", "B" or "C" marks in remarks column are indicate as follows :

- A : CQ-FX620N
- B : CQ-FX420N
- C : CQ-FX220N

## 16.1. IC's and Transistors

MAIN BLOCK [E6788A]

Ref. No.	Part No.	Part Name & Description	Remarks
IC201	YEAMEA6320TT	IC	
IC203	YEAMM5218AFE	IC	A,B
IC204	YEAMPD4053E2	IC	A,B
IC241	C1EA00000021	IC	A,B
IC241	YEAMTDA7384	IC	C
IC261	YEAMM5218AFE	IC	A,B
IC262	YEAMM62429FP	IC	A,B
IC600	C2BBGF000110	IC	
IC601	AN8065SE1	IC	
IC650	YEAMC14584BE	IC	
IC704	C0CBAEG000003	IC	
IC802	YEAMM5218AFE	IC	
PA51	C5BA00000053	IC	
Q50	YEANFPLF3PT1	Transistor	
Q51	B1GBCFNN0005	Transistor	
Q230	YEANC323TUTX	Transistor	
Q231	YEANC323TUTX	Transistor	
Q270	YEANC323TUTX	Transistor	A,B
Q330	YEANC323TUTX	Transistor	
Q331	YEANC323TUTX	Transistor	
Q660	YEANA114EKT	Transistor	
Q661	YEANA114EKT	Transistor	
Q663	YEANA114EKT	Transistor	
Q664	B1GBCFNN0005	Transistor	
Q701	YEAND1859T	Transistor	
Q703	YEANB1243QRT	Transistor	
Q704	B1GBCFNN0005	Transistor	
Q705	2SD2139TA	Transistor	
Q706	YEANA114EKT	Transistor	
Q707	YEANA114EKT	Transistor	
Q710	YEAND1859T	Transistor	
Q711	B1GBCFNN0005	Transistor	
Q712	B1GBCFNN0005	Transistor	

DISPLAY BLOCK [E8801]

Ref. No.	Part No.	Part Name & Description	Remarks
IC901	YEAMLC75884W	IC	
IC905	YEAMSBX8035F	IC	
Q902	YEANSSTA06T	Transistor	
Q903	YEANSSTA06T	Transistor	

## 16.2. Diodes

MAIN BLOCK [E6788A]

Ref. No.	Part No.	Part Name & Description	Remarks
D50	YEADRD51MBT1	Diode	
D201	MA165TA	Diode	A,B
D602	LN25RP	LED	
D701	YEADSR1544TL	Diode	
D702	MA165TA	Diode	
D703	B0BA5R700006	Diode	
D707	YEADRB100AT	Diode	
D708	YEADRD91M1T2	Diode	
D709	MA153TX	Diode	
D710	YEADRD27M2T1	Diode	
D715	YEADDAM3MA47	Diode	
D717	MA151ATX	Diode	
D720	YEADRD51MBT1	Diode	
D803	MA165TA	Diode	
D804	YEADRD51MBT1	Diode	

DISPLAY BLOCK [E8801]

Ref. No.	Part No.	Part Name & Description	Remarks
D900	LN1271RAL	LED	
D926	MA8056LMHTX	Diode	
D927	MA8056LMHTX	Diode	
D928	MA8056LMHTX	Diode	
D929	MA8056LMHTX	Diode	
D930	MA8047MTX	Diode	

SUB BLOCK [E8496A]

Ref. No.	Part No.	Part Name & Description	Remarks
D641	LNJ306G5TUWQ	LED	
D643	LNJ306G5TUWQ	LED	

## 16.3. Capacitors

MAIN BLOCK [E6788A]

Ref. No.	Part No.	Part Name & Description	Remarks
C50	F1J1H8R0A007	Ceramic, 8PF 50WV	
C51	ECA1AM221I	Electrolytic, 220pF 10WV	
C53	YECUS1H103KX	Ceramic, 0.01pF 50WV	
C54	ECA1AM221I	Electrolytic, 220pF 10WV	
C55	ECEA1AKS221I	Electrolytic, 220pF 10WV	
C56	YECUS1H103KX	Ceramic, 0.01pF 50WV	
C57	ECEA0JKS331I	Electrolytic, 330pF 6.3WV	
C58	ECEA1AKS220I	Electrolytic, 22pF 10WV	
C59	YECUS1H103KX	Ceramic, 0.01pF 50WV	
C62	YECUS1H183KX	Ceramic, 0.018pF 50WV	
C63	YECUS1H183KX	Ceramic, 0.018pF 50WV	
C66	ECEA1AKS221I	Electrolytic, 220pF 10WV	
C68	YECUS1H221JM	Ceramic, 220PF 50WV	
C203	ECA1HSA3R3I	Electrolytic, 3.3pF 50WV	
C204	ECA1HSA3R3I	Electrolytic, 3.3pF 50WV	
C205	YECUV1C224KX	Ceramic, 0.22pF 16WV	
C207	YECUS1C224KX	Ceramic, 0.22pF 16WV	A,B
C208	YECUS1E333KX	Ceramic, 0.033pF 25WV	
C209	YECUS1H562KX	Ceramic, 0.0056pF 50WV	
C210	ECA1CSA470I	Electrolytic, 47pF 16WV	
C211	YECUS1H103KX	Ceramic, 0.01pF 50WV	
C217	YECUS1C104KX	Ceramic, 0.1pF 16WV	A,B
C218	YECUS1C104KX	Ceramic, 0.1pF 16WV	A,B
C220	YECUS1H123KX	Ceramic, 0.012pF 50WV	A,B
C221	ECA1HSA010I	Electrolytic, 1pF 50WV	A,B
C223	ECA0JSA470I	Electrolytic, 47pF 6.3WV	A,B

Ref. No.	Part No.	Part Name & Description	Remarks
C230	ECA1HSA3R3I	Electrolytic, 3.3pF 50WV	
C231	ECA1HSA3R3I	Electrolytic, 3.3pF 50WV	
C241	ECA1HSAR47I	Electrolytic, 0.47pF 50WV	
C242	YECUS1H122KX	Ceramic, 0.0012pF 50WV	
C244	ECA1HSAR47I	Electrolytic, 0.47pF 50WV	
C245	YECUS1H122KX	Ceramic, 0.0012pF 50WV	
C246	YECUS1C104KX	Ceramic, 0.1pF 16WV	
C248	ECA1CDT472Y	Electrolytic, 4700pF 16WV	
C249	YECUS1C104KX	Ceramic, 0.1pF 16WV	
C250	ECA1CSA470I	Electrolytic, 47pF 16WV	
C251	ECA1HSA2R2I	Electrolytic, 2.2pF 50WV	
C252	ECEA1AKS10I	Electrolytic, 100pF 10WV	
C260	ECA1CSA100I	Electrolytic, 10pF 16WV	A,B
C261	ECA0JSA470I	Electrolytic, 47pF 6.3WV	A,B
C262	YECUS1C224KX	Ceramic, 0.22pF 16WV	A,B
C263	YECUS1E223KX	Ceramic, 0.022pF 25WV	A,B
C264	ECA1HSA2R2I	Electrolytic, 2.2pF 50WV	A,B
C265	ECA1HSA3R3I	Electrolytic, 3.3pF 50WV	A,B
C266	ECA0JSA470I	Electrolytic, 47pF 6.3WV	A,B
C303	ECA1HSA3R3I	Electrolytic, 3.3pF 50WV	
C304	ECA1HSA3R3I	Electrolytic, 3.3pF 50WV	
C305	YECUV1C224KX	Ceramic, 0.22pF 16WV	
C307	YECUS1C224KX	Ceramic, 0.22pF 16WV	A,B
C308	YECUS1E333KX	Ceramic, 0.033pF 25WV	
C309	YECUS1H562KX	Ceramic, 0.0056pF 50WV	
C310	ECA0JSA101I	Electrolytic, 100pF 6.3WV	
C311	ECA1CSA470I	Electrolytic, 47pF 16WV	
C317	YECUS1C104KX	Ceramic, 0.1pF 16WV	A,B
C318	YECUS1C104KX	Ceramic, 0.1pF 16WV	A,B
C320	YECUS1H123KX	Ceramic, 0.012pF 50WV	A,B
C321	ECA1HSA010I	Electrolytic, 1pF 50WV	A,B
C323	ECA0JSA470I	Electrolytic, 47pF 6.3WV	A,B
C330	ECA1HSA3R3I	Electrolytic, 3.3pF 50WV	
C331	ECA1HSA3R3I	Electrolytic, 3.3pF 50WV	
C332	YECUS1H103KX	Ceramic, 0.01pF 50WV	A,B
C341	ECA1HSAR47I	Electrolytic, 0.47pF 50WV	
C342	YECUS1H122KX	Ceramic, 0.0012pF 50WV	
C344	ECA1HSAR47I	Electrolytic, 0.47pF 50WV	
C345	YECUS1H122KX	Ceramic, 0.0012pF 50WV	
C348	YECUV1H104ZF	Ceramic, 0.1pF 50WV	
C366	YECUS1H103KX	Ceramic, 0.01pF 50WV	A,B
C601	YECUS1H220JM	Ceramic, 22PF 50WV	
C602	YECUS1H220JM	Ceramic, 22PF 50WV	
C603	YECUS1C104KX	Ceramic, 0.1pF 16WV	
C604	YECUS1H103KX	Ceramic, 0.01pF 50WV	
C605	ECEA0JKS331I	Electrolytic, 330pF 6.3WV	
C607	EES5R5T473	Electrolytic, 0.047FD 5.5WV	
C608	YECUS1C104KX	Ceramic, 0.1pF 16WV	
C611	YECUV1H104ZF	Ceramic, 0.1pF 50WV	
C612	YECUV1H104ZF	Ceramic, 0.1pF 50WV	
C617	YECUS1H221JM	Ceramic, 220PF 50WV	
C618	YECUS1H221JM	Ceramic, 220PF 50WV	
C637	YECUS1C104KX	Ceramic, 0.1pF 16WV	
C650	YECUS1H103KX	Ceramic, 0.01pF 50WV	
C660	ECA1HSA2R2I	Electrolytic, 2.2pF 50WV	
C661	YECUS1H103KX	Ceramic, 0.01pF 50WV	
C662	ECA1HSA010I	Electrolytic, 1pF 50WV	
C666	YECUS1H103KX	Ceramic, 0.01pF 50WV	
C667	YECUS1H221JM	Ceramic, 220PF 50WV	
C668	YECUS1H221JM	Ceramic, 220PF 50WV	
C690	YECUS1H103KX	Ceramic, 0.01pF 50WV	
C702	ECA1HSA4R7I	Electrolytic, 4.7pF 50WV	A,B
C702	ECEA1HKS4R7I	Electrolytic, 4.7pF 50WV	C
C703	ECA0JSA470I	Electrolytic, 47pF 6.3WV	
C705	ECA1HSAR47I	Electrolytic, 0.47pF 50WV	
C706	YECUS1C104KX	Ceramic, 0.1pF 16WV	
C707	ECA1AM471B	Electrolytic, 470pF 10WV	
C710	ECA1CHG102B	Electrolytic, 1000pF 16WV	
C716	ECA1CSA470I	Electrolytic, 47pF 16WV	
C718	F1K1E334A022	Ceramic, 0.33pF 25WV	
C719	F1K1E334A022	Ceramic, 0.33pF 25WV	
C720	ECEA0JKS470I	Electrolytic, 47pF 6.3WV	
C723	ECEA1AKS221I	Electrolytic, 220pF 10WV	

Ref. No.	Part No.	Part Name & Description	Remarks
C724	YECUS1C104KX	Ceramic, 0.1pF 16WV	
C727	EEVFC1C470P	Electrolytic, 47pF 16WV	
C728	YECUS1E104ZF	Ceramic, 0.1pF 25WV	
C810	ECA0JSA220I	Electrolytic, 22pF 6.3WV	
C811	YECUS1H102KX	Ceramic, 0.001pF 50WV	
C812	YECUS1C104KX	Ceramic, 0.1pF 16WV	
C813	YECUS1H103KX	Ceramic, 0.01pF 50WV	
C814	ECEA1HKS2R2I	Electrolytic, 2.2pF 50WV	

## DISPLAY BLOCK [E8801]

Ref. No.	Part No.	Part Name & Description	Remarks
C905	F0F2A2230001	Plastic Film, 0.022pF 100WV	
C906	YECUS1C104KX	Ceramic, 0.1pF 16WV	
C907	ECEV1CA101WP	Electrolytic, 100pF 16WV	
C910	YECUS1H102KX	Ceramic, 0.001pF 50WV	
C911	YECUS1C104KX	Ceramic, 0.1pF 16WV	
C914	YECUS1C104KX	Ceramic, 0.1pF 16WV	
C915	YECUS1C104KX	Ceramic, 0.1pF 16WV	
C920	YECUS1C104KX	Ceramic, 0.1pF 16WV	
C921	YECUS1C104KX	Ceramic, 0.1pF 16WV	
C923	YECUS1H681JM	Ceramic, 680PF 50WV	
C934	F1L3F1200001	Ceramic, 12PF 3160WV	

## 16.4. Resistors

## MAIN BLOCK [E6788A]

Ref. No.	Part No.	Part Name & Description	Remarks
C615	ERJ6GEY0R00V	Chip, 0Ω 1/10W	
J59	ERJ6GEY0R00V	Chip, 0Ω 1/10W	
J401	ERJ8GX0R00V	Chip, 0Ω 1/8W	
J402	ERJ8GX0R00V	Chip, 0Ω 1/8W	
J601	ERJ8GX0R00V	Chip, 0Ω 1/8W	
R50	ERJ6GEYJ5R6	Chip, 5.6Ω 1/10W	
R51	ERJ6GEYJ103	Chip, 10kΩ 1/10W	
R52	ERJ6GEYJ822	Chip, 8.2kΩ 1/10W	
R53	ERJ6GEYJ333	Chip, 33kΩ 1/10W	
R56	ERJ6GEY0R00V	Chip, 0Ω 1/10W	
R58	ERJ6GEYJ331	Chip, 330Ω 1/10W	
R60	ERJ6GEYJ473	Chip, 47kΩ 1/10W	
R64	ERJ6GEY0R00V	Chip, 0Ω 1/10W	
R201	ERJ6GEY0R00V	Chip, 0Ω 1/10W	
R202	ERJ6GEYJ562	Chip, 5.6kΩ 1/10W	
R204	ERJ6GEYJ822	Chip, 8.2kΩ 1/10W	
R205	ERJ6GEYJ332	Chip, 3.3kΩ 1/10W	
R206	ERJ6GEY0R00V	Chip, 0Ω 1/10W	C
R209	ERJ6GEYJ392	Chip, 3.9kΩ 1/10W	
R211	ERJ6GEYJ123	Chip, 12kΩ 1/10W	A,B
R212	ERJ6GEYJ473	Chip, 47kΩ 1/10W	A,B
R213	ERJ6GEYJ103	Chip, 10kΩ 1/10W	A,B
R214	ERJ6GEYJ392	Chip, 3.9kΩ 1/10W	A,B
R215	ERJ6GEYJ272	Chip, 2.7kΩ 1/10W	A,B
R216	ERJ6GEYJ682	Chip, 6.8kΩ 1/10W	A,B
R217	ERJ6GEYJ103	Chip, 10kΩ 1/10W	A,B
R218	ERJ6GEYJ103	Chip, 10kΩ 1/10W	A,B
R225	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R226	ERJ6GEYJ333	Chip, 33kΩ 1/10W	
R230	ERJ6GEYJ101	Chip, 100Ω 1/10W	
R231	ERJ6GEYJ561	Chip, 560Ω 1/10W	A,B
R235	ERJ6GEYJ101	Chip, 100Ω 1/10W	
R236	ERJ6GEYJ561	Chip, 560Ω 1/10W	
R240	ERJ6GEYJ681	Chip, 680Ω 1/10W	
R241	ERJ6GEYJ103	Chip, 10kΩ 1/10W	
R242	ERJ6GEYJ681	Chip, 680Ω 1/10W	
R243	ERJ6GEYJ103	Chip, 10kΩ 1/10W	
R250	ERJ6GEYJ104	Chip, 100kΩ 1/10W	
R251	ERJ6GEY0R00V	Chip, 0Ω 1/10W	C
R257	ERJ6GEYJ103	Chip, 10kΩ 1/10W	A,B
R261	ERJ6GEY0R00V	Chip, 0Ω 1/10W	A,B
R262	ERJ6GEYJ103	Chip, 10kΩ 1/10W	A,B
R263	ERJ6GEYJ822	Chip, 8.2kΩ 1/10W	A,B
R264	ERJ6GEYJ433V	Chip, 43kΩ 1/10W	A,B
R265	ERJ6GEY0R00V	Chip, 0Ω 1/10W	A,B

Ref. No.	Part No.	Part Name & Description	Remarks
R267	ERJ6GEYJ153	Chip, 15kΩ 1/10W	A,B
R268	ERJ6GEYJ223	Chip, 22kΩ 1/10W	A,B
R270	ERJ6GEYJ104	Chip, 100kΩ 1/10W	A,B
R273	ERJ6GEYJ561	Chip, 560Ω 1/10W	A,B
R274	ERJ6GEYJ473	Chip, 47kΩ 1/10W	A,B
R275	ERJ6GEYJ393	Chip, 39kΩ 1/10W	A,B
R276	ERJ6GEYJ101	Chip, 100Ω 1/10W	A,B
R277	ERJ6GEYJ103	Chip, 10kΩ 1/10W	A,B
R301	ERJ6GEY0R00V	Chip, 0Ω 1/10W	
R302	ERJ6GEYJ562	Chip, 5.6kΩ 1/10W	
R304	ERJ6GEYJ822	Chip, 8.2kΩ 1/10W	
R305	ERJ6GEYJ332	Chip, 3.3kΩ 1/10W	
R306	ERJ6GEY0R00V	Chip, 0Ω 1/10W	C
R309	ERJ6GEYJ392	Chip, 3.9kΩ 1/10W	
R311	ERJ6GEYJ123	Chip, 12kΩ 1/10W	A,B
R312	ERJ6GEYJ473	Chip, 47kΩ 1/10W	A,B
R313	ERJ6GEYJ103	Chip, 10kΩ 1/10W	A,B
R314	ERJ6GEYJ392	Chip, 3.9kΩ 1/10W	A,B
R315	ERJ6GEYJ272	Chip, 2.7kΩ 1/10W	A,B
R316	ERJ6GEYJ682	Chip, 6.8kΩ 1/10W	A,B
R317	ERJ6GEYJ103	Chip, 10kΩ 1/10W	A,B
R318	ERJ6GEYJ103	Chip, 10kΩ 1/10W	A,B
R330	ERJ6GEYJ101	Chip, 100Ω 1/10W	
R331	ERJ6GEYJ561	Chip, 560Ω 1/10W	A,B
R335	ERJ6GEYJ101	Chip, 100Ω 1/10W	
R336	ERJ6GEYJ561	Chip, 560Ω 1/10W	
R340	ERJ6GEYJ681	Chip, 680Ω 1/10W	
R341	ERJ6GEYJ103	Chip, 10kΩ 1/10W	
R342	ERJ6GEYJ681	Chip, 680Ω 1/10W	
R343	ERJ6GEYJ103	Chip, 10kΩ 1/10W	
R350	ERJ6GEYJ104	Chip, 100kΩ 1/10W	
R351	ERJ6GEY0R00V	Chip, 0Ω 1/10W	C
R370	ERJ6GEYJ104	Chip, 100kΩ 1/10W	A,B
R600	ERJ6GEYJ330	Chip, 33Ω 1/10W	
R602	ERJ6GEYJ473	Chip, 47kΩ 1/10W	
R603	ERJ6GEYJ563	Chip, 56kΩ 1/10W	C
R604	ERJ6GEYJ473	Chip, 47kΩ 1/10W	C
R605	ERJ6GEYJ473	Chip, 47kΩ 1/10W	A,B
R607	ERJ6GEYJ473	Chip, 47kΩ 1/10W	
R608	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R609	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R610	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R611	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R614	ERJ6GEYJ681	Chip, 680Ω 1/10W	
R615	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R617	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R618	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R619	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R620	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R621	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R622	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R623	ERJ6GEYJ184	Chip, 180kΩ 1/10W	
R625	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R629	ERJ6GEY0R00V	Chip, 0Ω 1/10W	
R631	ERJ6GEY0R00V	Chip, 0Ω 1/10W	
R632	ERJ6GEYJ473	Chip, 47kΩ 1/10W	
R633	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R639	ERJ6GEYJ184	Chip, 180kΩ 1/10W	
R642	ERJ6GEYJ103	Chip, 10kΩ 1/10W	
R643	ERJ6GEYJ104	Chip, 100kΩ 1/10W	
R645	ERJ6GEYJ273	Chip, 27kΩ 1/10W	
R649	ERJ6GEYJ473	Chip, 47kΩ 1/10W	
R650	ERJ6GEYJ104	Chip, 100kΩ 1/10W	
R651	ERJ6GEYJ104	Chip, 100kΩ 1/10W	
R652	ERJ6GEYJ104	Chip, 100kΩ 1/10W	
R653	ERJ6GEYJ473	Chip, 47kΩ 1/10W	
R655	ERJ6GEYJ473	Chip, 47kΩ 1/10W	
R656	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R657	ERJ6GEYJ473	Chip, 47kΩ 1/10W	
R658	ERJ6GEYJ562	Chip, 5.6kΩ 1/10W	
R659	ERJ6GEYJ223	Chip, 22kΩ 1/10W	
R660	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R661	ERJ6GEYJ393	Chip, 39kΩ 1/10W	

Ref. No.	Part No.	Part Name & Description	Remarks
R663	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R665	ERJ6GEYJ473	Chip, 47kΩ 1/10W	
R666	ERJ6GEYJ473	Chip, 47kΩ 1/10W	
R667	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R668	ERJ6GEY0R00V	Chip, 0Ω 1/10W	A,B
R670	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R671	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R672	ERJ6GEYJ102	Chip, 1kΩ 1/10W	A,B
R673	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R676	ERJ6GEY0R00V	Chip, 0Ω 1/10W	
R677	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R680	ERJ6GEYJ331	Chip, 330Ω 1/10W	
R681	ERJ6GEYJ331	Chip, 330Ω 1/10W	
R684	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R685	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R690	ERJ6GEYJ184	Chip, 180kΩ 1/10W	
R691	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R692	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R693	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R694	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R695	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R696	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R697	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R698	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R699	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R701	ERDS2FJ470	Carbon, 47Ω 1/4W	
R702	ERDS2FJ470	Carbon, 47Ω 1/4W	
R703	ERJ6GEYJ682	Chip, 6.8kΩ 1/10W	
R704	ERJ6GEYJ274	Chip, 270kΩ 1/10W	
R705	ERJ6GEYJ433	Chip, 43kΩ 1/10W	
R706	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R707	ERJ6GEYJ224	Chip, 220kΩ 1/10W	
R708	ERJ6GEYJ433V	Chip, 43kΩ 1/10W	
R709	ERJ6GEYJ473	Chip, 47kΩ 1/10W	
R710	ERDS1FJ681	Carbon, 680Ω 1/2W	
R711	ERDS1FJ681	Carbon, 680Ω 1/2W	
R712	ERDS2TJ1R0	Carbon, 1.0Ω 1/4W	
R714	ERJ6GEYJ561	Chip, 560Ω 1/10W	
R715	ERJ8GEYJ151V	Chip, 150 ohms 1/8W	
R716	ERJ8GEYJ151V	Chip, 150 ohms 1/8W	
R720	ERJ6GEYJ103	Chip, 10kΩ 1/10W	
R721	ERJ6GEYJ103	Chip, 10kΩ 1/10W	
R722	ERJ6GEYJ473	Chip, 47kΩ 1/10W	
R723	ERJ6GEYJ222	Chip, 2.2kΩ 1/10W	
R724	ERJ6GEYJ222	Chip, 2.2kΩ 1/10W	
R725	ERJ6GEYJ154	Chip, 150kΩ 1/10W	
R726	ERJ6GEYJ472	Chip, 4.7kΩ 1/10W	
R727	ERJ6GEY0R00V	Chip, 0Ω 1/10W	
R729	ERJ6GEYJ103	Chip, 10kΩ 1/10W	
R730	ERJ6GEY0R00V	Chip, 0Ω 1/10W	
R801	ERJ6GEYJ473	Chip, 47kΩ 1/10W	
R804	ERJ6GEYJ103	Chip, 10kΩ 1/10W	
R805	ERJ6GEYJ104	Chip, 100kΩ 1/10W	
R806	ERJ6GEYJ473	Chip, 47kΩ 1/10W	
R807	ERJ6GEYJ123	Chip, 12kΩ 1/10W	
R808	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R809	ERJ6GEYJ472	Chip, 4.7kΩ 1/10W	
R902	ERJ6GEYJ103	Chip, 10kΩ 1/10W	
R903	ERJ6GEYJ103	Chip, 10kΩ 1/10W	

## DISPLAY BLOCK [E8801]

Ref. No.	Part No.	Part Name & Description	Remarks
R906	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R907	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R908	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R909	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R910	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R911	ERJ6GEYJ102	Chip, 1kΩ 1/10W	
R930	ERJ6GEYJ222	Chip, 2.2kΩ 1/10W	
R931	ERJ6GEYJ222	Chip, 2.2kΩ 1/10W	
R938	ERJ6GEYJ4R7	Chip, 4.7Ω 1/10W	
R941	ERJ6GEYJ103	Chip, 10kΩ 1/10W	
R942	ERJ6GEYJ433V	Chip, 43kΩ 1/10W	

Ref. No.	Part No.	Part Name & Description	Remarks
R961	ERJ6GEYJ103	Chip, 10kΩ 1/10W	
R962	ERJ6GEYJ103	Chip, 10kΩ 1/10W	
R963	ERJ6GEYJ103	Chip, 10kΩ 1/10W	
R964	ERJ6GEYJ103	Chip, 10kΩ 1/10W	
R965	ERJ6GEYJ103	Chip, 10kΩ 1/10W	
R970	ERJ6GEY0R00V	Chip, 0Ω 1/10W	

## 16.5. Connectors

### MAIN BLOCK [E6788A]

Ref. No.	Part No.	Part Name & Description	Remarks
AJ251	K2KF49Z00005	Connector, 4P	A,B
CJ620	YEAES22B100B	Connector, 22P flexible	
CN251	YEAES04BPHT1	Connector, 4P	A,B
CN300	YEAEO2166	Connector, 4P RCA	
CN601	YEAEO115MX	Connector, 15P	
CN604	YEAEO104MX	Connector, 4P	
CN620	K1KB22B00006	Connector, 22P	
CN681	YEAEO12307	Connector, 8P DIN	
CN701	YEAEO12748	Connector, 16P	
CN603	YEAEO106TUCX	Connector, 6P	
CP603	YEAEO106TUCP	Connector, 6P	

### DISPLAY BLOCK [E8801]

Ref. No.	Part No.	Part Name & Description	Remarks
CN901	YEAEO12760	Connector, 14P	

### SUB BLOCK [E8496A]

Ref. No.	Part No.	Part Name & Description	Remarks
CJ640	YEAEO115MPA	Connector, 15P	
CJ642	YEAEO104MPA	Connector, 4P	
CP641	YEAEO12761	Connector, 14P	

## 16.6. Electric Parts

### SWITCHES

Ref. No.	Part No.	Part Name & Description	Remarks
SW602	YEAS09248R	Switch	
SW610	YEAS09267	Switch	
SW901	YEAS09312	Switch	
SW902	YEAS09312	Switch	
SW903	KOH1BA000285	Switch	A
SW903	YEAS09312	Switch	B,C
SW904	KOH1BA000285	Switch	A
SW904	YEAS09312	Switch	B,C
SW905	YEAS09312	Switch	
SW906	YEAS09312	Switch	
SW907	YEAS09312	Switch	
SW908	KOH1BA000285	Switch	A
SW908	YEAS09312	Switch	B,C
SW909	KOH1BA000285	Switch	A
SW909	YEAS09312	Switch	B,C
SW910	YEAS09312	Switch	
SW911	YEAS09312	Switch	
SW912	KOH1BA000285	Switch	A
SW912	YEAS09312	Switch	B,C
SW913	KOH1BA000285	Switch	A
SW913	YEAS09312	Switch	B,C
SW914	KOH1BA000285	Switch	A
SW914	YEAS09312	Switch	B,C
SW915	YEAS09312	Switch	
SW916	YEAS09312	Switch	
SW917	KOH1BA000285	Switch	A
SW917	YEAS09312	Switch	B,C
SW918	KOH1BA000285	Switch	A
SW918	YEAS09312	Switch	B,C

### CRYSTALS

Ref. No.	Part No.	Part Name & Description	Remarks
XL600	YEXL49U0419T	Crystal OSC	

### COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L50	YELT03A330KT	Coil	
L51	YELT02C330KT	Coil	
L52	YELT02C330KT	Coil	
L600	YELT02C101KT	Coil	
L601	YELT02C101KT	Coil	
L702	YETQ026F143	Coil	
L703	ELEAR330KA	Coil	
L901	ETJ11K92AM	Transformer	
L902	YELTD75F101T	Coil	

### LCD

Ref. No.	Part No.	Part Name & Description	Remarks
LCD901	L5ACALC00003	LCD Display	A,C
LCD901	L5ACCLC00015	LCD Display	B

### LAMPS

Ref. No.	Part No.	Part Name & Description	Remarks
CFL931	A2CA000000019	Display Tube	A,C
CFL931	A2CA000000018	Display Tube	B
Z50	J0LE000000002	Neon Tube	

### THERMISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
PT701	YERT7AR4R7MT	Thermistor	

## 16.7. Accessories

### PRINTING

Ref. No.	Part No.	Part Name & Description	Remarks
	YEFM283501	Operating Instructions	

### INSTALLATION PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
	YEAJ02827	Power Cord	A,B
	YEAJ02793	Power Cord	C
	YEA33144	Antenna Accessory	
	CR2025/1F	Battery	A,B
	YEP9BS1111	Screws	
	YEF131302	Detachable Unit Cover	
	YEFX0214198	Mounting Collar	
	YEFX9992013	Remote Controller	A,B

## 16.8. Mechanical Parts

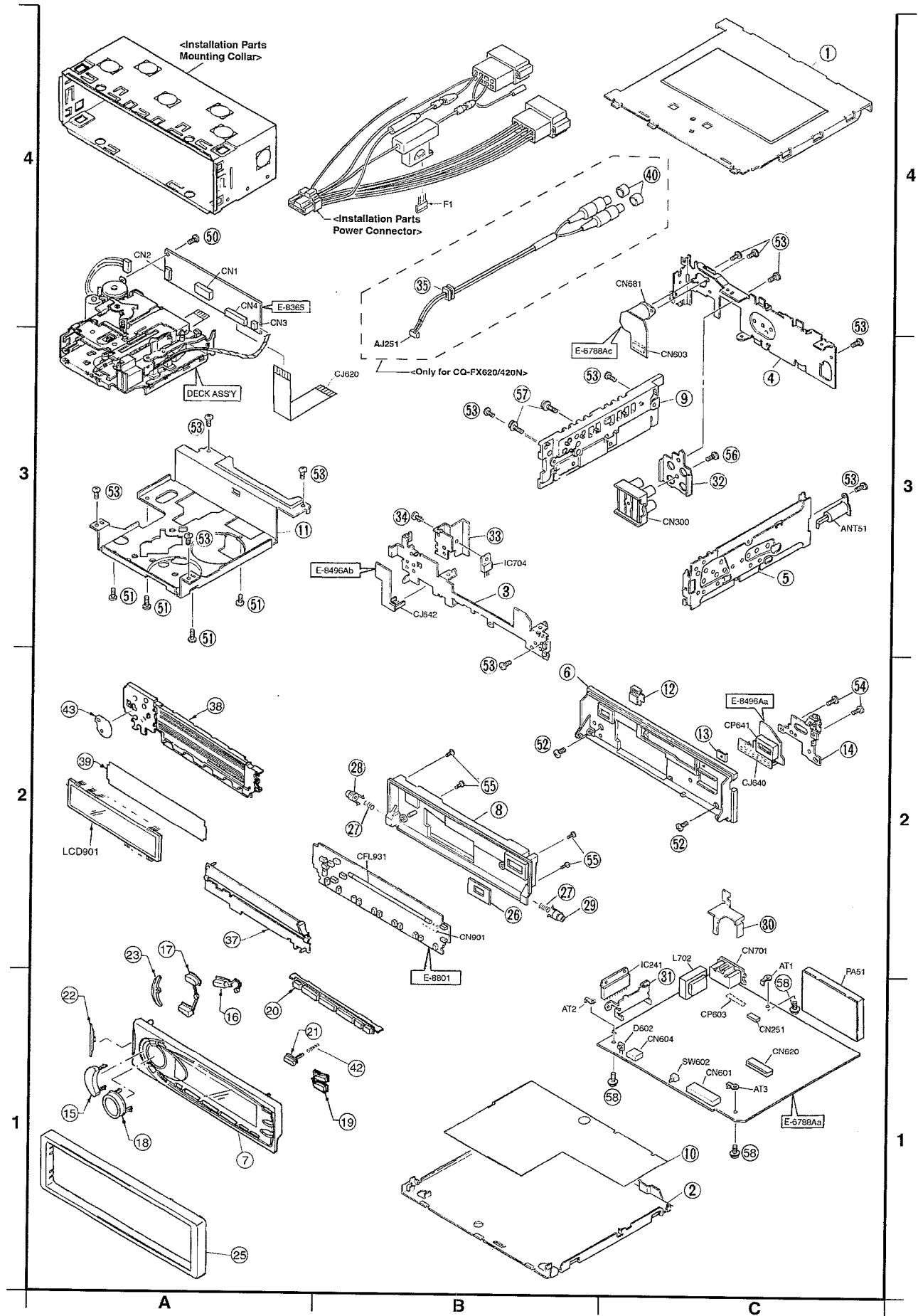
### MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
F1	YEAFO2015	Fuse, 15A	△
ANT51	YGAA10082	Antenna Receptacle	
AT1-3	K4ZZ01000048	Terminal	
1	YEFA031354E	Upper Cover	(4-C)
2	YEFA05594B	Bottom Cover	(1-B)
3	YEP9FX066A	Front Chassis Ass'y	(3-B)
4	YEFA08462AK	Rear Plate	A,B (3-C)
4	YEFA08518AK	Rear Plate	C (3-C)
5	YEFA09505	Side Plate	(3-C)
6	YEF025659A	Escutcheon Ass'y, Unit	(2-C)
7	YEF026679	Escutcheon Ass'y, Detachable	A (1-A)
7	YEF026681	Escutcheon Ass'y, Detachable	B (1-A)
7	YEF026683	Escutcheon Ass'y, Detachable	C (1-A)
8	YEFA131413	Cover, Detachable	(2-B)
9	YEFF01922	Heat Sink	(3-C)
10	YEFV011813	Insulator	(1-B)
11	YEFX0214197B	Bracket, Deck	(3-A)
12	YEF135147	Button, EJECT	(2-C)
13	YEFX0011816	Transparent Plate	(2-C)
14	YEP9FX069	Hook Bracket Ass'y	(2-C)
15	YEF135435	Button, VOL	(1-A)

Ref. No.	Part No.	Part Name & Description	Remarks
16	YEFE135436	Button, SEL	(1-A)
17	YEFE135713	Button, BAND/SOURCE	(1-A)
18	YEFE135439	Button, TUNE/TRACK	(1-A)
19	YEFE135534	Button, TA/AF	(1-B)
20	YEFE135930	Button, PRESET	A (1-B)
20	YEFE135931	Button, PRESET	B (1-B)
20	YEFE136146	Button, PRESET	C (1-B)
21	YEFE135442	Button, OPEN	(1-A)
22	YEFX0011904	Transparent Plate	(1-A)
23	YEFX0011905	Transparent Plate	(1-A)
25	YEFX05570	Trim Plate	(1-A)
26	YEFV011928	Insulator	(2-B)
27	YEFX0052253	Spring	(2-B)
28	YEFW04156	Shaft Collar	(2-B)
29	YEFW04157	Shaft Collar	(2-B)
30	YEFX0214422	Bracket, CN701	(2-C)
31	YEFX0213945B	Bracket, IC241	(1-C)
32	YEFX0213650	Bracket, RCA	(3-C)
33	YEFX0214423	Bracket, IC704	(3-B)
34	YEFJ05046	Color Rivet	(3-B)
35	YEFX007380	Cord Clamper	A,B (4-B)
37	YEFK06835	Holder, LCD	(2-A)
38	YEFX0011903	Transparent Plate	(2-A)
39	YEFV021596	Optical Shade	(2-A)
40	YEFR04187	Lead Cap	A,B (4-C)
42	YEFX0052396	Spring	(1-A)
43	YEFX025137	Color Screen	(2-A)
50	YEJT03163	Tapping Screw, 2mm * 6mm	
51	YEJS03022	Screw, 3mm * 3mm	
52	YEJT03156	Tapping Screw, 2.6mm * 4mm	
53	XTB3+6FFX	Tapping Screw, 3mm * 6mm	
54	YEJS03020	Screw, 2mm * 4mm	
55	XTN2+8GFZ	Tapping Screw, 2mm * 8mm	
56	XTB3+8GFX	Tapping Screw, 3mm * 8mm	
57	YEJS06092	Screw, 3mm * 10mm	
58	YEJT03009	Tapping Screw, 3mm * 8mm	



# 17 EXPLODED VIEW (Unit)



# 18 TAPE PLAYER PARTS

## 18.1. IC's and Transistors

[E8365]

Ref. No.	Part No.	Part Name & Description	Remarks
IC1	YEAMLB1641	IC	
IC2	YEAMCX2510AQ	IC	
Q1	YEANB1237QRT	Transistor	
Q2	YEANC113ZKTX	Transistor	
Q3	YEANC113ZKTX	Transistor	
Q4	YEANC113ZKTX	Transistor	

## 18.2. Diodes

[E8365]

Ref. No.	Part No.	Part Name & Description	Remarks
D1	YEAD11ES2	Diode	
D2	YEADRD43EST1	Diode	

## 18.3. Capacitors

[E8365]

Ref. No.	Part No.	Part Name & Description	Remarks
C1	YECUS1H103KX	Ceramic, 0.01pF 50WV	
C2	YECUS1H103KX	Ceramic, 0.01pF 50WV	
C3	YECUS1H103KX	Ceramic, 0.01pF 50WV	
C4	YECUS1H103KX	Ceramic, 0.01pF 50WV	
C5	ECEA1AKS330I	Electrolytic, 33pF 10WV	
C6	ECEA1CKS470I	Electrolytic, 47pF 16WV	
C7	ECEA1CKS470I	Electrolytic, 47pF 16WV	
C8	ECEA1HKS2R2I	Electrolytic, 2.2pF 50WV	
C9	ECEA1HKS2R2I	Electrolytic, 2.2pF 50WV	
C10	YECUS1C104KX	Ceramic, 0.1pF 16WV	
C11	YECUS1C104KX	Ceramic, 0.1pF 16WV	
C12	YECUS1C104KX	Ceramic, 0.1pF 16WV	
C15	YECUS1E223KX	Ceramic, 0.022pF 25WV	
C16	YECUS1C224KX	Ceramic, 0.22pF 16WV	
C17	ECEA1CKS100I	Electrolytic, 10pF 16WV	
C18	ECEA1CKS100I	Electrolytic, 10pF 16WV	
C19	YECUS1H391JM	Ceramic, 390PF 50WV	
C20	YECUS1H391JM	Ceramic, 390PF 50WV	
C21	YECUS1H391JM	Ceramic, 390PF 50WV	
C22	YECUS1H391JM	Ceramic, 390PF 50WV	
C24	YECUS1H822KX	Ceramic, 0.0082pF 50WV	

## 18.4. Resistors

[E8365]

Ref. No.	Part No.	Part Name & Description	Remarks
J101	ERJ8GEY0R00V	Chip, 0Ω 1/8W	
J102	ERJ8GEY0R00V	Chip, 0Ω 1/8W	
J103	ERJ8GEY0R00V	Chip, 0Ω 1/8W	
J104	ERJ8GEY0R00V	Chip, 0Ω 1/8W	
J105	ERJ8GEY0R00V	Chip, 0Ω 1/8W	
J106	ERJ8GEY0R00V	Chip, 0Ω 1/8W	
J107	ERJ8GEY0R00V	Chip, 0Ω 1/8W	
J108	ERJ8GEY0R00V	Chip, 0Ω 1/8W	
J109	ERJ8GEY0R00V	Chip, 0Ω 1/8W	
J110	ERJ8GEY0R00V	Chip, 0Ω 1/8W	
J111	ERJ8GEY0R00V	Chip, 0Ω 1/8W	
J112	ERJ8GEY0R00V	Chip, 0Ω 1/8W	
J113	ERJ8GEY0R00V	Chip, 0Ω 1/8W	
J114	ERJ8GEY0R00V	Chip, 0Ω 1/8W	
J115	ERJ8GEY0R00V	Chip, 0Ω 1/8W	
J116	ERJ8GEY0R00V	Chip, 0Ω 1/8W	
J117	ERJ8GEY0R00V	Chip, 0Ω 1/8W	
J118	ERJ8GEY0R00V	Chip, 0Ω 1/8W	
J119	ERJ8GEY0R00V	Chip, 0Ω 1/8W	
J120	ERJ8GEY0R00V	Chip, 0Ω 1/8W	

Ref. No.	Part No.	Part Name & Description	Remarks
J121	ERJ8GEY0R00V	Chip, 0Ω 1/8W	
J122	ERJ8GEY0R00V	Chip, 0Ω 1/8W	
J123	ERJ8GEY0R00V	Chip, 0Ω 1/8W	
J124	ERJ8GEY0R00V	Chip, 0Ω 1/8W	
J125	ERJ8GEY0R00V	Chip, 0Ω 1/8W	
J126	ERJ8GEY0R00V	Chip, 0Ω 1/8W	
R1	ERJ6GEYJ683	Chip, 68kΩ 1/10W	
R2	ERJ6GEYJ223	Chip, 22kΩ 1/10W	
R3	ERJ6GEYJ683	Chip, 68kΩ 1/10W	
R4	ERJ6GEYJ683	Chip, 68kΩ 1/10W	
R5	ERJ6GEYJ683	Chip, 68kΩ 1/10W	
R6	ERJ6GEYJ271	Chip, 270Ω 1/10W	
R7	ERJ6GEYJ271	Chip, 270Ω 1/10W	
R8	ERJ6GEYJ104	Chip, 100kΩ 1/10W	
R9	ERJ6GEYJ392	Chip, 3.9kΩ 1/10W	
R12	ERJ8GEYJ103V	Chip, 10kΩ 1/8W	
R13	ERJ8GEYJ103V	Chip, 10kΩ 1/8W	
R14	ERJ8GEYJ103V	Chip, 10kΩ 1/8W	
R15	ERJ8GEYJ222V	Chip, 2.2kΩ 1/8W	
R17	ERJ6GEYJ223	Chip, 22kΩ 1/10W	
R18	ERG1SJ100	Metal Oxid, 10Ω 1W	
R19	ERJ6GEYJ121	Chip, 120Ω 1/10W	
R22	ERJ6GEYJ473	Chip, 47kΩ 1/10W	
R23	ERJ6GEYJ473	Chip, 47kΩ 1/10W	
R24	ERJ6GEYJ183	Chip, 18kΩ 1/10W	
R25	ERJ6GEYJ183	Chip, 18kΩ 1/10W	
R26	ERJ6GEYJ183	Chip, 18kΩ 1/10W	
R27	ERJ6GEYJ123	Chip, 12kΩ 1/10W	
R28	ERJ6GEYJ123	Chip, 12kΩ 1/10W	
R29	ERJ6GEYJ334	Chip, 330kΩ 1/10W	
R30	ERJ6GEYJ334	Chip, 330kΩ 1/10W	
R31	ERJ8GEYJ152V	Chip, 1.5kΩ 1/8W	
R33	ERJ8GEYJ101V	Chip, 100Ω 1/8W	

## 18.5. Connectors

[E8365]

Ref. No.	Part No.	Part Name & Description	Remarks
CN1	YEAE5597A09	Connector, 9P	
CN2	YEAE5325404	Connector, 4P	
CN3	YEAE012684	Connector, 5P	
CN4	YEAE012659	Connector, 22P	

## 18.6. Electric Parts

SWITCHES

Ref. No.	Part No.	Part Name & Description	Remarks
SW1	YEAS08031B62	Switch	

VARIABLE RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
VR1	EVNDCAA03BQ2	Variabl'r resistor	
VR2	EVNDCAA03BQ2	Variabl'r resistor	

OTHER

Ref. No.	Part No.	Part Name & Description	Remarks
TP201	YEAT03240	Terminal	
TP301	YEAT03240	Terminal	

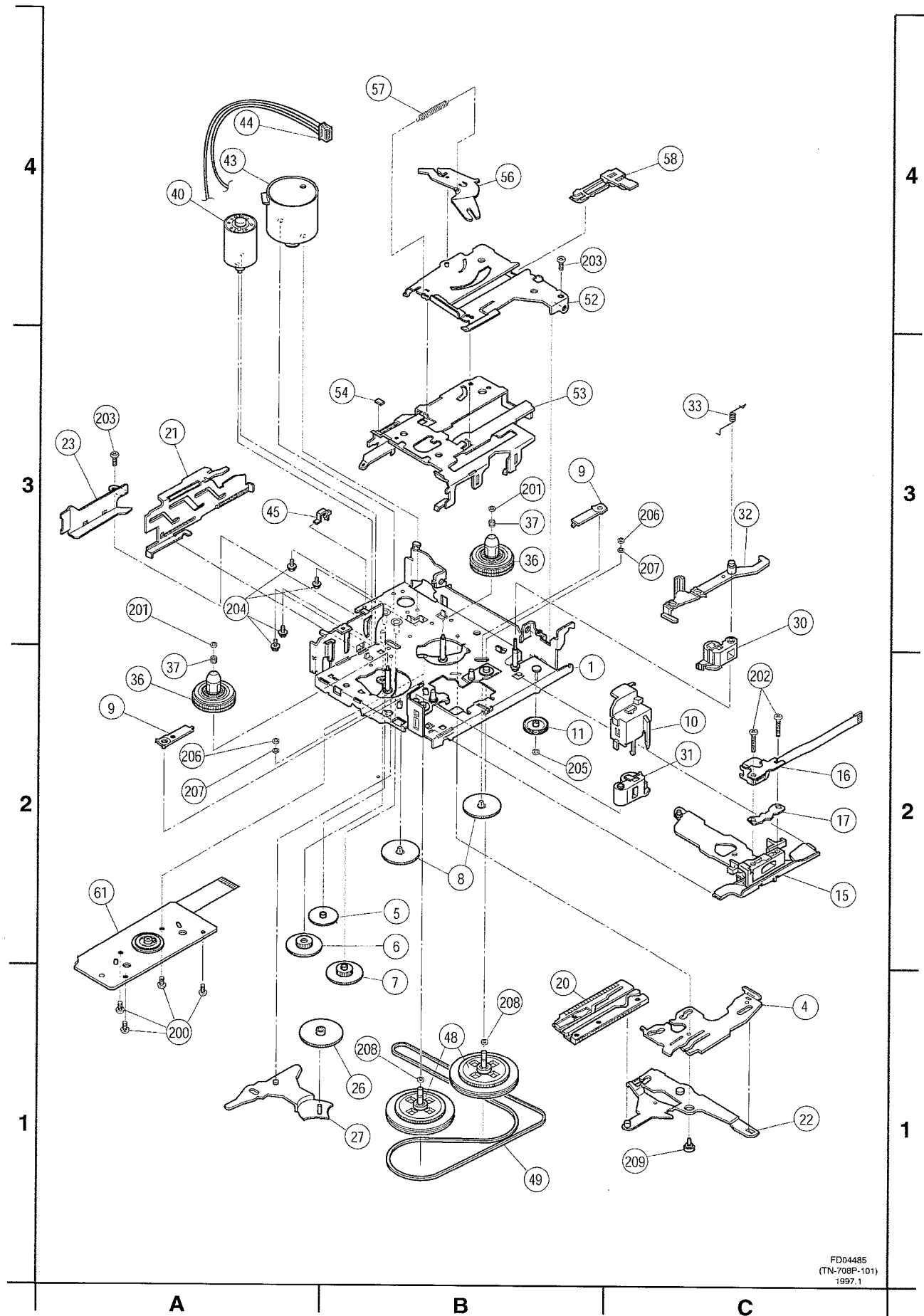
## 18.7. Mechanical Parts

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
1	YESFA01055	Chassis Rivet Ass'y	(2-B)
4	YESFX046056	Main Plate	(1-C)
5	YESFX003049	B Gear	(2-B)

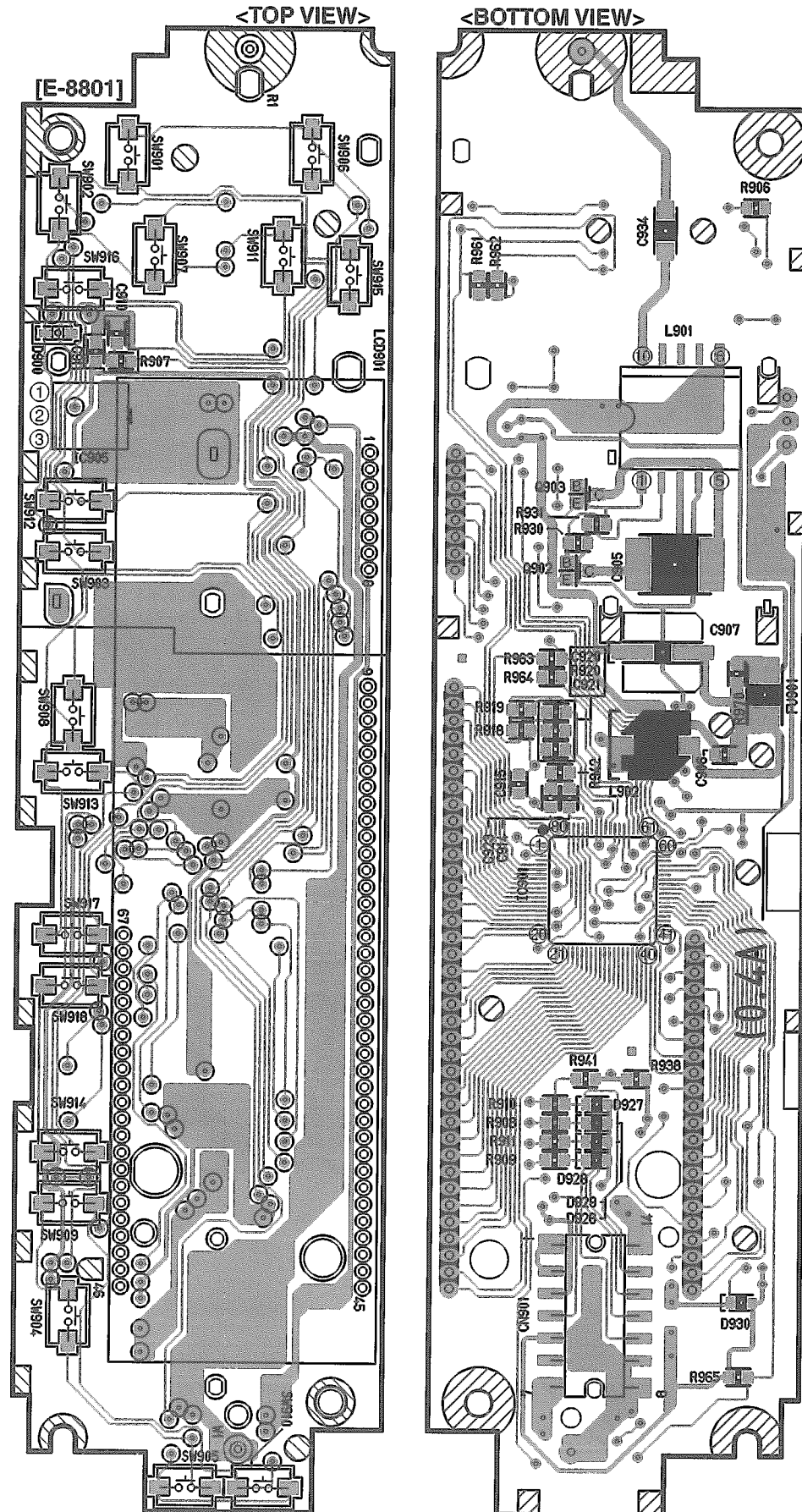
Ref. No.	Part No.	Part Name & Description	Remarks
6	YESFX003050	C Gear	(2-A)
7	YESFX003051	D Gear	(1-B)
8	YESFX003052	P Gear	(2-B)
9	YESFX003053	P.G Plate	(2-A) (3-B)
10	YESFG02021	Guide BKT	(2-C)
11	YESFX026013	Middle Pulley	(2-B)
15	YESFX046057	Head Panel Ass'y	(2-C)
16	YESAH006	P.Head P-5544SD-9949	(2-C)
17	YESFX046058	Head SP Plate	(2-C)
20	YESFX046059	O.P Plate Ass'y	(1-B)
21	YESFX215015	Eject Lever Rivet Ass'y	(3-A)
22	YESFX046060	S.B Plate Rivet Ass'y	(1-C)
23	YESFX046061	O.P Plate Holder	(3-A)
26	YESFX003054	FR Gear	(1-B)
27	YESFX046062	FR Plate	(1-A)
30	YESFX218011	Pinch Roller Arm (F) Ass'y	(3-C)
31	YESFX218012	Pinch Roller Arm (R) Ass'y	(2-C)
32	YESFX046063	SW Actuator B	(3-C)
33	YESFX005088	SA Spring M	(3-C)
36	YESFX209007	Reel Ass'y	(2-A) (3-B)
37	YESFX005074	B.Tension Spring (F)	(2-A) (3-B)
40	YESAK01013	Sub Motor Ass'y	(4-A)
43	YESAK01014	Main Motor Ass'y	(4-A)
44	YESAE283	M Conector Ass'y	(4-A)
45	YESFX006002	Wire Clamper	(3-A)
48	YESFX213004	FL Capstan Ass'y	(1-B)
49	YEFSTR03003	Main Belt	(1-B)
52	YESFX046064	Case Lifter	(4-B)
53	YESFX239006	Cassette Case	(3-B)
54	YESFS04007	Cusion Rubber	(3-B)
56	YESFX046065	P.S Actuator Plate	(4-B)
57	YESFX005075	P.S Spring	(4-B)
58	YESFX046066	Pack Slider	(4-B)
61	YESAP151	Reel PWB Ass'y	(2-A)
200	YESJS01090	Camera Screw (Tams) 2.0~2.2	(1-A)
201	YESJW01019	Lumilar Washer (Cut) 1.55~3.5~0.5	(3-A) (3-B)
202	YEJS01070	Adjust Screw 2.0~13	(2-C)
203	YEFT03084	Camera Tapping Screw S 2.0~3.0	(3-A) (4-B)
204	YEJS06130	Tams Screw 2.0~3.0	(3-A)
205	YEJW05130	P.Washer (Cut) 0.85~2.8~0.25	(2-B)
206	YESJW01012	P.Washer (Cut) 1.55~3.5~0.5	(2-A) (3-C)
207	YESJW01013	P.Washer 2.1~3.5~0.2	(2-A) (3-C)
208	YESJW01014	Lumilar Washer 2.1~3.5~0.1	(1-B)
209	YESJS01091	PK Collar Screw A	(1-C)

# 19 EXPLODED VIEW (Tape Deck)



# 20 WIRING DIAGRAM

## 20.1. Display Block



### 20.2. Main Block (Top View)

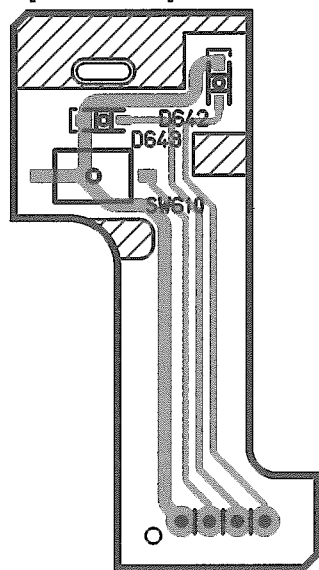




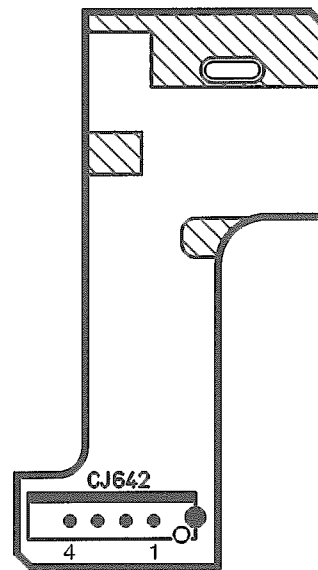


## 20.4. Sub. Block

[E-8496Ab]

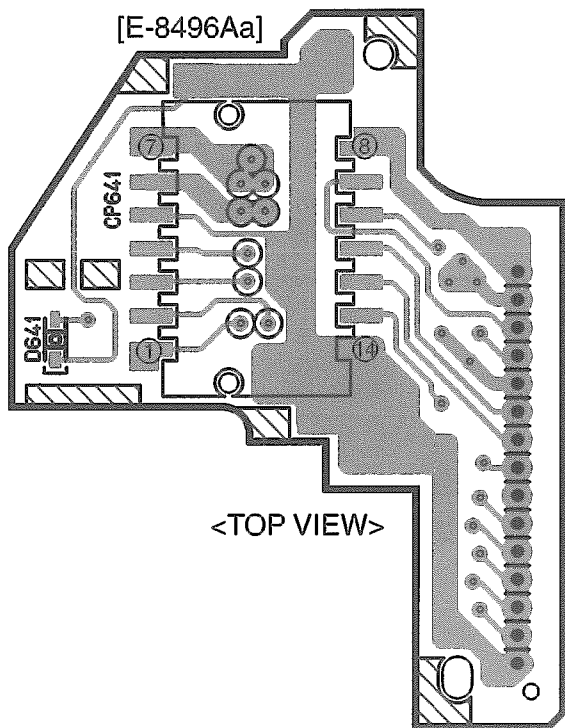


&lt;TOP VIEW&gt;

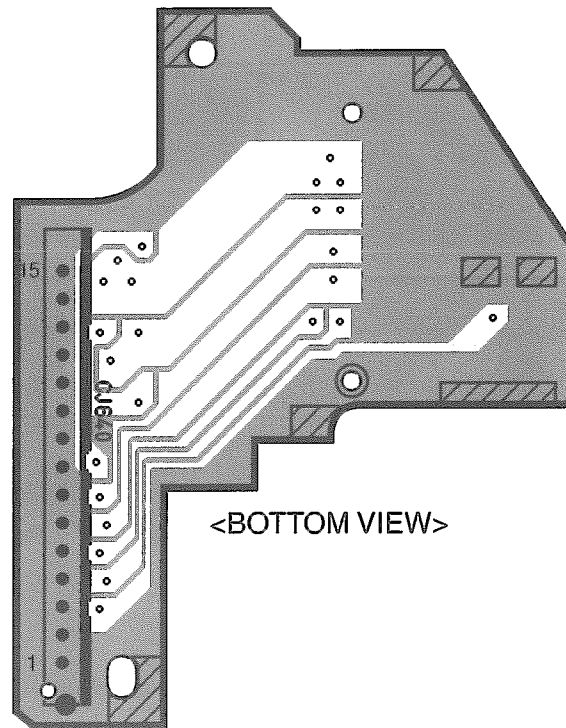


&lt;BOTTOM VIEW&gt;

[E-8496Aa]



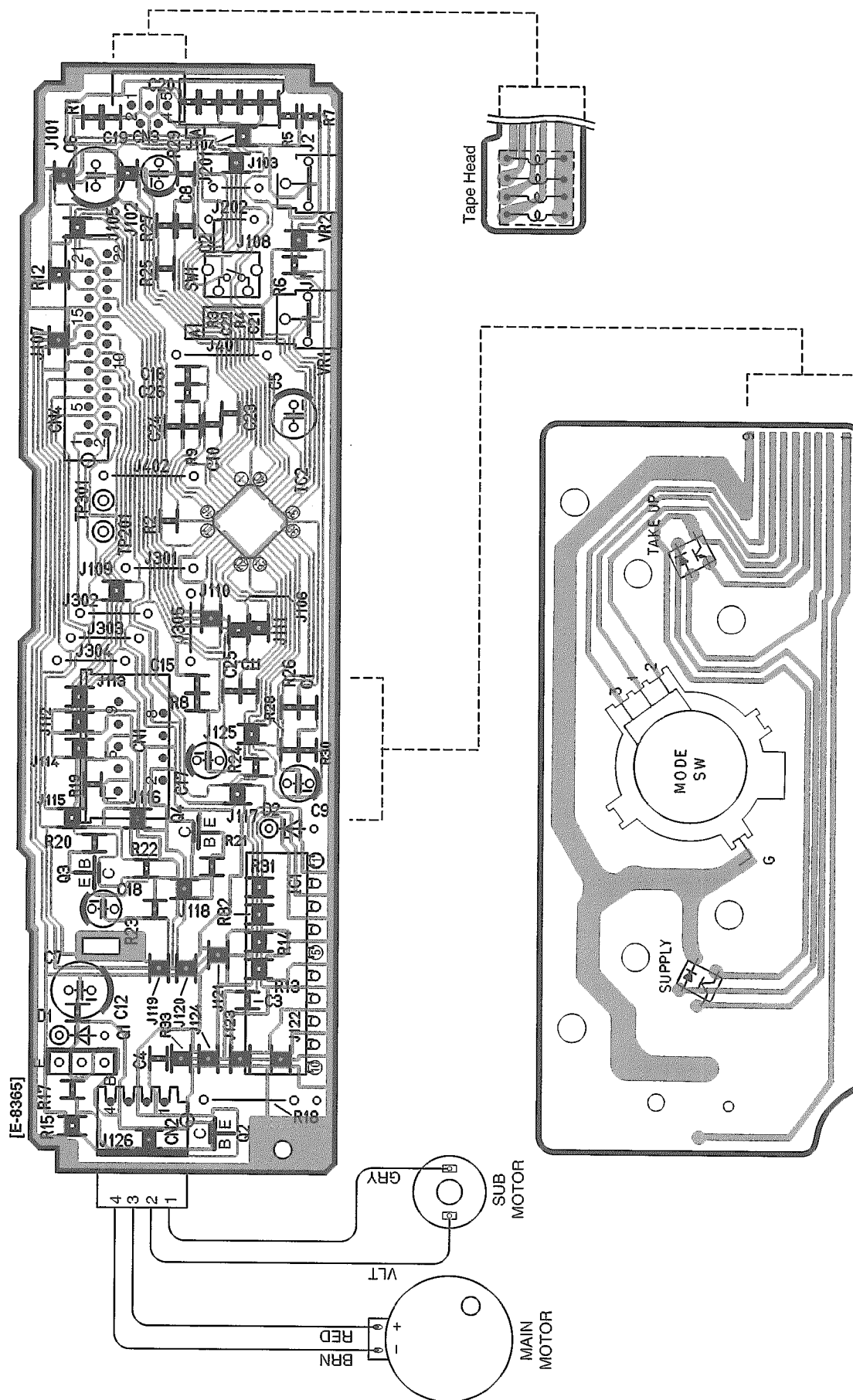
&lt;TOP VIEW&gt;



&lt;BOTTOM VIEW&gt;

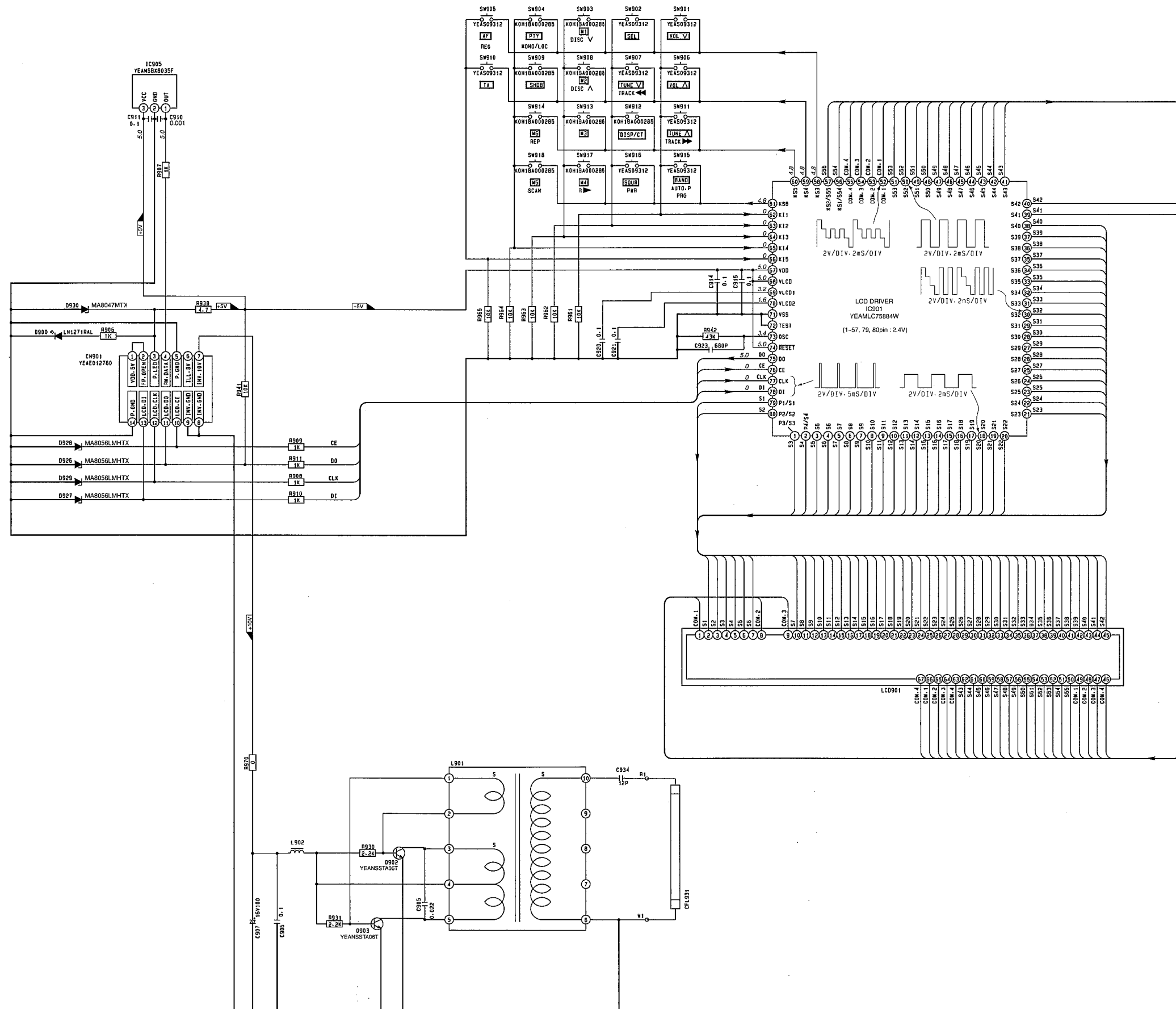


## 20.5. Tape Block

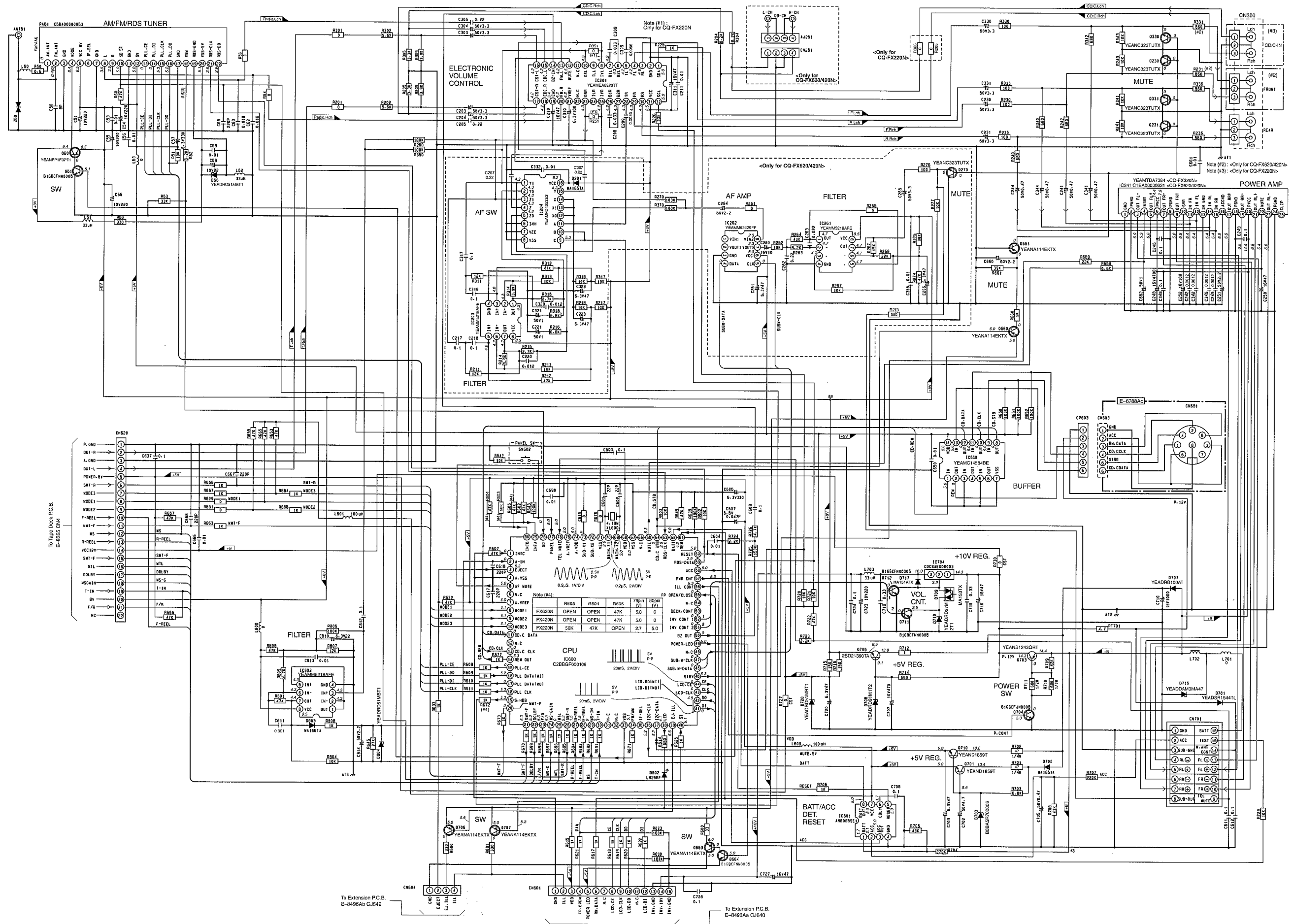


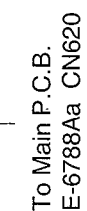
## 21 SCHEMATIC DIAGRAM

## 21.1. Display Block



## 21.2. Main Block





21.4. Pre. Amp. Block

