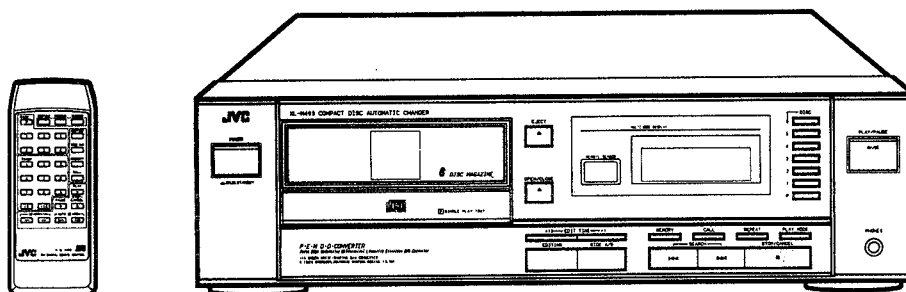


JVC

SERVICE MANUAL

MODEL NO. **XL-M403BK**



(XL-M403BK)

COMPACT
disc
DIGITAL AUDIO

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Safety Precautions

1. The design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the product have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by (Δ) on the Parts List in the Service Manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the Parts List of Service Manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.

5. Leakage current check (Electrical shock hazard testing)

After re-assembling the product, always perform an isolation check on the exposed metal parts of the product (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

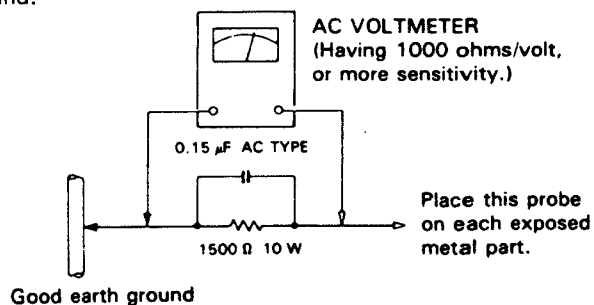
Do not use a line isolation transformer during this check.

- Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5 mA AC (r.m.s.).
- Alternate check method

Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1,500 Ω 10 W resistor paralleled by a 0.15 μ F AC-type capacitor between an exposed metal part and a known good earth ground.

Measure the AC voltage across the resistor with the AC voltmeter.

Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75 V AC (r.m.s.). This corresponds to 0.5 mA AC (r.m.s.).



Warning

1. This equipment has been designed and manufactured to meet international safety standards.
2. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
3. Repairs must be made in accordance with the relevant safety standards.
4. It is essential that safety critical components are replaced by approved parts.
5. If mains voltage selector is provided, check setting for local voltage.

Important for Laser Products

1. CLASS 1 LASER PRODUCT
2. DANGER: Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.
3. CAUTION: There are no serviceable parts inside the Laser Unit.
4. CAUTION: Do not disassemble the Laser Unit. Replace the complete Laser Unit if it malfunctions.
5. CAUTION: The compact disc player uses invisible laser radiation and is equipped with safety switches which prevent emission of radiation when the drawer is open and the safety interlocks have failed or are defeated. It is dangerous to defeat the safety switches.
6. CAUTION: If safety switches malfunction, the laser is able to function.
7. CAUTION: Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

VARNING: OSYNLIG LASERSTRÅLNING UP-
PSTÅR VID KOMPONENTENS ÖPPNING NÄR
SÄKERHETSBRYTAREN ÄR FRÄNSLAGEN.

ADVARSEL: USYNLIG LASERSTRÅLING VED
ÅBNING, NÄR SIKKERHEDSAFBRYDERE ER UDE
AF FUNKTION.
UNDGÅ UDSÆTTELSE FOR STRÅLING.

ADVARSEL: USYNLIG LASERSTRÅLING VED
ÅPNING NÄR SIKKERHETSBRYTEREN ER
AVSLOTT.
UNNGÅ UTSETTELSE FOR STRÅLING.

VAROITUS: LAITE SISÄLTÄÄ LASERDIOODIN,
JOKA LÄHETTÄÄ (NÄKYMÄTÖNTÄ) SILMILLE
VAARALLISTA LASERSÄTEILYÄ.

REPRODUCTION AND POSITION OF LABELS

IDENTIFICATION LABEL BY DHHS (Only for the U.S.A.)

JVC	MODEL NO. *1
COMPACT DISC PLAYER	
AC 120V ~ 60Hz 18W	
US JVC CORP	
41 SLATER DRIVE ELMWOOD PARK, N.J. 07407	
MANUFACTURED AT Y.P.	
MADE IN JAPAN	
MANU- FACTURED	*2
SERIAL NO.	*3

Note:

- *1 Model number
- *2 The date of manufacture
- *3 The serial number of production

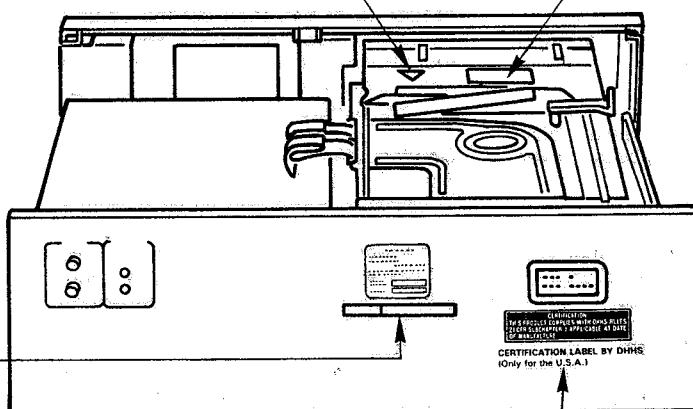
HAZARD SYMBOL LABEL (Only for Continental Europe)



WARNING LABEL

DANGER Invisible laser radiation when
open and interlock failed or defeated.
AVOID DIRECT EXPOSURE TO BEAM

ADVARSEL Usynlig laserstråling ved åbning,
når sikkerhedsafbrydere er ude af funktion.
Undgå udsættelse for stråling.



CERTIFICATION LABEL BY DHHS
(Only for the U.S.A.)

CLASS 1
LASER PRODUCT

CLASSIFICATION LABEL
(Except for the U.S.A. and Canada)

We would like to thank you for purchasing one of our JVC products.

Before connecting this unit to the wall outlet please read the instructions carefully to ensure that you obtain the best possible performance.

If you have any questions, please consult your JVC dealer.

COMPU LINK Remote Control System

The COMPU LINK Remote Control System is a system of convenience, it utilises the COMPU LINK-1/SYN-CHRO terminals, located on the rear panel.
For further details please refer to page 3.

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Multi-mode display7
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PRECAUTIONS IN USE

Installation

- Select a location which is level, dry and neither too cold nor too hot (temperature range 5°C (41°F) and 35°C (95°F)).
- Avoid dusty locations or any location subject to vibration.

Power points

- When unplugging from the wall socket, always pull the plug body, never the power cable.

Preventing malfunctions

- Never insert any metallic object into any part of the CD player-changer.
- Only use compact-discs bearing the mark shown below in Fig. 1.
- Placing anything other than a compact disc on the platter may cause the player to malfunction.
- If something goes wrong, turn the power off immediately. If the same problem reoccurs when the power is turned on once more, turn the power off again and consult your JVC dealer.

Volume settings

A CD player has almost zero background noise.

The technique of listening to the background level and then setting volume before the music starts, as used in analog turn-tables or tape decks, cannot be used. If you raise volume levels too high speaker damage may result.

Condensation

Since the CD player uses optical components, if either you move it from a cold location to a warm one, or you use it in a room subject to excessive humidity, equally if it is used in a room where a fire has just been lit, condensation could form on these optical components.

This may prevent the laser beam from being properly received and thus cause noise, even a malfunction. If condensation has formed and the CD machine does not function correctly, we recommend that you leave it turned on for some hours.

If at the end of this time the CD player still does not function properly, please consult your JVC dealer.

Notes:

- When this equipment is placed near either a tuner or a radio receiver tuned to AM frequencies, interference may occur. If this has happened, we recommend either that you move this unit as far away from the tuner or receiver as possible, or you turn off the power to this unit, briefly.
- When carrying this unit, it is best if you avoid either tilting it or turning it upside-down. Where you cannot avoid doing so, please remove the magazine first.



Fig. 1

BEFORE USING FOR THE FIRST TIME

How to insert the CDs

1. When the CD magazine provided is already loaded in machine, press the [EJECT (▲)] button and slide the magazine out.

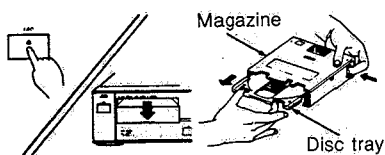


Fig. 2

2. The disk trays in the magazine are removable. Depress the tray-lock button and slide the disk tray "part-way" out.
3. Withdraw the disk tray carefully with both hands and locate a disc, label side up, while holding the disc tray with the other hand.

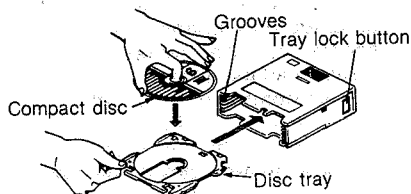


Fig. 3

4. Line up the disc tray with the grooves in the magazine and push the disc tray right in. Never bend the disc tray, or force it into the magazine. It is unnecessary to press the tray-lock button when inserting the disc tray.

Please notes:

- A disc tray inserted skewed may cause a malfunction.

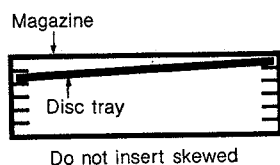


Fig. 4

- The openings in the disc trays are for the passage of the laser signal. These openings leave a part of the shiny surface of the disc exposed. Please take care not to touch this shiny surface.
- It is not possible to play from the disc if it is located upside-down.
- Never place a single disc directly in the magazine. Always keep the magazine loaded with all six disc trays.
- When removing or inserting disc trays always hold the magazine horizontally.

How to place CDs

Connect the power cord into AC outlet. Turn "ON" the power switch.

In case of the SINGLE PLAY TRAY

1. Press the [OPEN/CLOSE (▲)] button, and slide the disc tray out.

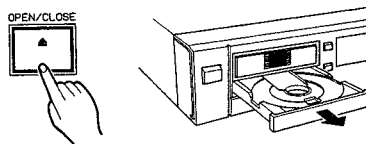


Fig. 5

2. Place a disc on the disc tray with its label side up.
3. Press the [OPEN/CLOSE (▲)] button again to slide the disc tray in.

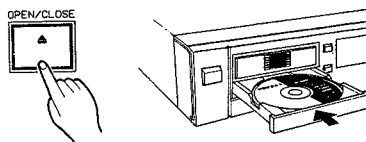


Fig. 6

Note:

- When the disc is placed on the tray, be careful not to let the disc stick out from the tray.

How to install batteries (Fig. 7 - Fig. 9)

1. Remove the rear cover of the remote control unit by pressing down on it with your thumb and simultaneously pulling it backwards, as shown in Fig. 7.

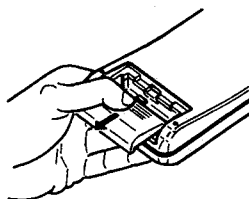


Fig. 7

2. Install batteries (AAA, R03, UM-4) as shown in Fig. 8. Be sure batteries are installed with correct polarity, (+) and (-).

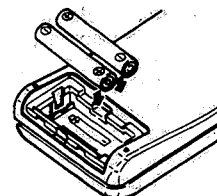


Fig. 8

3. Reinstall the rear cover of the remote control unit. Slide the rear cover back as shown in Fig. 9.

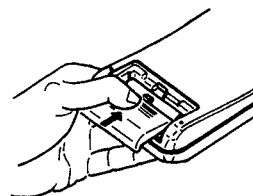


Fig. 9

Batteries

Incorrect use of batteries can cause corrosion or damage. Note the following points to lengthen battery life.

1. Install batteries observing the correct polarity, (+) and (-).
2. Do not use new and old batteries simultaneously.
3. Batteries with similar shapes may have different voltage ratings. Be sure to use the correct batteries.
4. Remove batteries from the remote control unit if it will not be used for a long period of time.

Notes:

- The lower the temperature, the shorter the battery life.
- Battery replacement.

The service life of the batteries depends on the condition of use; the standard life is about one year.

When the batteries become weak, the effective distance of the remote control unit will become shorter. If this happens, replace the batteries with new ones.

COMPU-LINK CONTROL SYSTEM

This is a system of convenience, both originated and developed by JVC. The following is a brief explanation of its more important features:

Automatic Source Selection

When the remote cables provided are utilised to connect this unit to others which have SYNCHRO terminals incorporated, switching-in of each system component can be done via a single touch on the source selector button located on a JVC amplifier or receiver. When selection is carried out in this manner, the corresponding unit will automatically start operation. On pressing the play button, the source selector for either an amplifier or a receiver will be automatically changed. When the new unit has been switched-in, the previously selected component will stop within five seconds.

Synchronized Recording

Synchronized recording refers to the process in which the cassette deck starts recording, synchronised with the CD player-changer.

Synchronized recording is carried out as follows:

1. Set the cassette deck to the REC/PAUSE mode, in accordance with its instructions.
2. When you want programmed recording, program the music to be selected in any order, as required.
3. Press the CD player-changer [PLAY (▶)] button. The cassette deck is now set in record mode and automatically synchronised with the CD player-changer for recording. Synchronised recording can now take place.

Notes:

- Synchronised recording automatically halts when the CD player-changer stops playing.
- To deselect synchronised recording, press the [STOP (■)] button located on the CD player-changer or the cassette deck.
- Press the cassette deck [REC (○)] and [PLAY (▶)] buttons when starting in the middle of a selection.
- When the REC/PAUSE mode has been set by pressing the [PAUSE (||)] button after pressing the [REC (○)] and [PLAY (▶)] buttons have been pressed simultaneously, synchronised recording is no longer possible. For details, please refer to the cassette deck instructions.
- Abnormal operation will result if the units power supply is interrupted while in operation. When this occurs, pressing the activation button once more will restart the unit.
- Please ensure that the SYNCHRO terminals located on this and other units are only connected using the special remote cables provided. Please read the instructions for each system component carefully.
- The source unit is locked to the CD setting during synchronised recording, so as to avoid any accidental halt to recording or switching over to another component. When you wish to switch another unit in, it is necessary to first deselect the synchronised recording mode.
- Synchronized recording is only possible when using JVC products incorporating SYNCHRO connectors. For further details, consult your JVC dealer.
- Only JVC cassette decks incorporating the synchronised recording feature can be used with this equipment in synchronised recording mode. Contact your JVC dealer for details.

CONNECTION DIAGRAM

— Do not connect to the wall socket until all unit connections are made —

This diagram is given as an example.

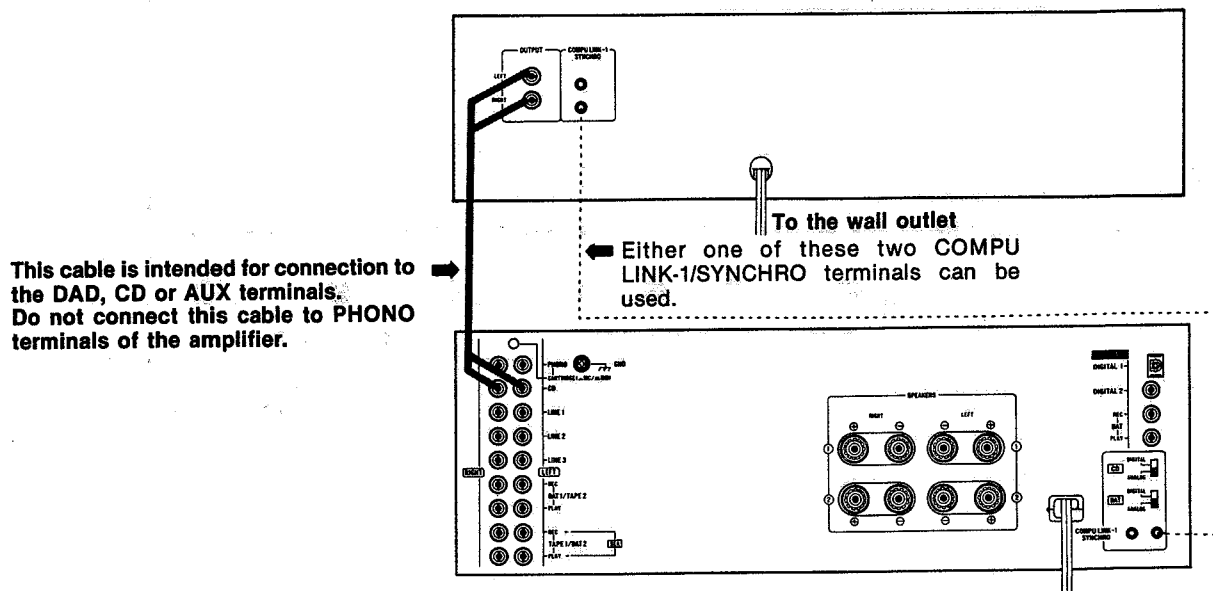


Fig. 10

DESCRIPTION AND FUNCTIONS

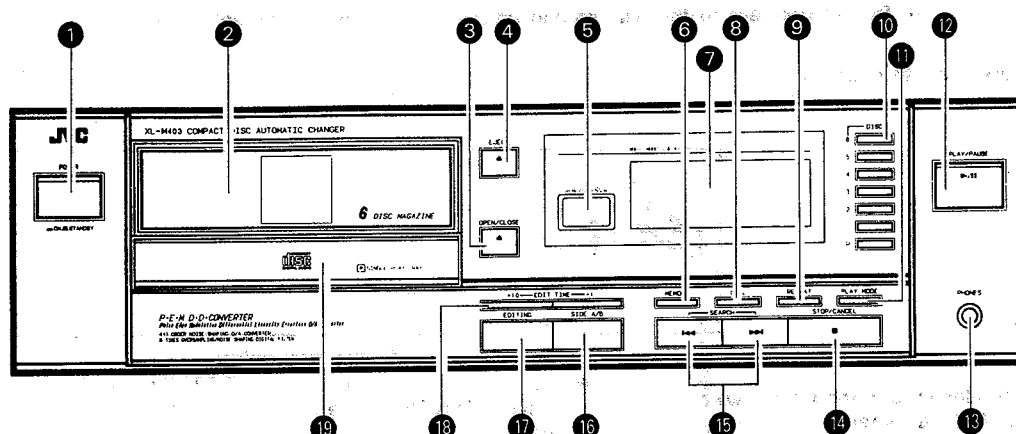


Fig. 11

1 POWER (— ON/ ■ STANDBY)

Press this button to turn the power ON. Press again to turn the power off and activate the standby mode. A small amount of power (2 watts) is consumed in the standby mode. To turn the power off completely, disconnect the power cord from the wall outlet.

2 Magazine slot

Insert a six disc capacity magazine. Push the magazine in 'till it clicks into place.

3 OPEN/CLOSE (▲)

Press this button for loading a disc into or taking a disc out of the SINGLE PLAY TRAY. If this button is depressed during the play of the single disc, the play will stop and the disc will move out of the tray. However, pushing this button does not affect the play of a disc in the 6 disc magazine.

Note:

- Do not hold the tray with your hand during open/close movement.

4 EJECT (▲)

Push this button to eject the magazine. If this button is pushed during play, play will automatically stop and the magazine will eject.

Note:

- This control does not function when the power is off. Damage could be caused if you put too much weight on the magazine as the EJECT button ejects it. Take care to avoid doing this.

5 REMOTE SENSOR

6 MEMORY

When in PROGRAM mode, press this button to programme the selections you require, while the selected discs and tracks numbers, in the MULTI-MODE DISPLAY are flashing on and off.

7 MULTI-MODE DISPLAY

This shows both the programmed selections data and disc status information. For further details please refer to the "MULTI-MODE DISPLAY" section on page 7.

8 CALL

This button is used to check the programmed selections data. When pressed, this button displays the disc, track and step numbers, programmed earlier, in the MULTI-MODE DISPLAY, starting with the first selection programmed.

9 REPEAT

This button is pressed when you wish to repeat the selections in either CONTINUE or in PROGRAM mode. When this button is pressed, the REPEAT indicator lights up. The repeat function has a change cycle that follows the sequence: "Complete disc repeat" (all the selections on all 7 discs, or all the programmed selections on that disc) "single tune repeat" "release"

10 DISC

P : Push this button to play or program a disc on the SINGLE PLAY TRAY.

1~6 : Push these buttons to play or program discs in the magazine.

11 PLAY MODE

Press this button to select the play mode when stopped. Press this button repeatedly to change the play mode functions, i.e. PROGRAM RANDOM & CONTINUE, in that sequence. These functions are displayed in the "play mode" indicators.

12 PLAY (▶) / PAUSE (||)

Press this button to start playing either from the first selection or the programmed selection. Press this button once more to pause. To restart, press this button once again.

13 PHONES

Plug the headphones into this jack for private listening.

14 STOP/CANCEL (■)

Press this button once to stop playing. Pressing this button during a break in the PROGRAM MODE cancels the program displayed.

15 SEARCH (◀) (Backwards)

Press once (for approx. 1/2 second) during play to return the sensor to the start of the current selection. Press twice to return the sensor to the start of the previous selection. Each time this button is pressed, the sensor is moved backwards by one selection. Continue pressing this button to retrace your selections

SEARCH (▶) (Forwards)

Press once (for approx. 1/2 second) during play to move the sensor to the start of the next selection. Each time this button is pressed, the sensor moves forward one step. (When this button is pressed at the end of the last track the sensor moves to the first selection on the next CD disc.)

Continue pressing this button to progress through the programme.

16 SIDE (A/B)

Use this button to select the tape side when programming for edit recording.

17 EDITING

This button is used when you are edit recording. Whenever this button is pressed "A. Edit" and "P.Edit" appear in turn.

18 EDIT TIME (+10, +1)

These buttons are used to set the tape recording time allowed for edit recording.

19 SINGLE PLAY TRAY

Use this tray for playing a single disc.

MULTI-MODE DISPLAY

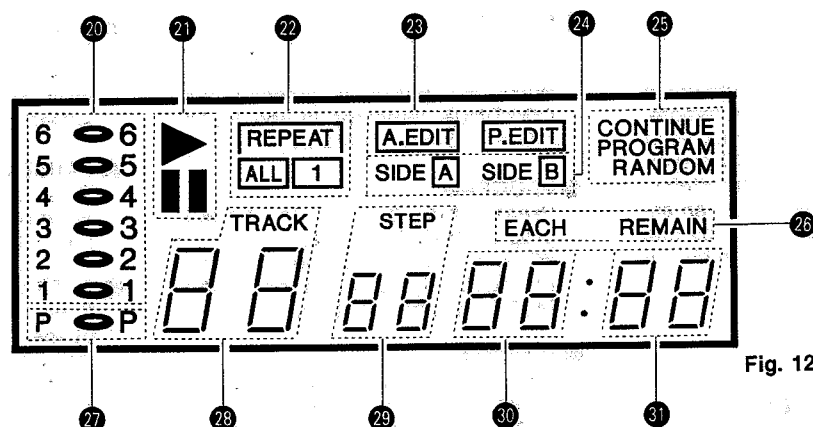


Fig. 12

20 Pictorial indication of the disc status
The discs in the magazine, the disc being played currently, or the movements of the individual disc within the magazine are pictorially displayed.

21 PLAY/PAUSE indicators
▶ : Lights during play
⏸ : Lights in the pause mode

22 REPEAT
Lights when the repeat selection is ready
[ALL] : Lights up when "repeat play" of all selections is made.
[1] : Lights up when "repeat play" of one only selection is made.

23 EDITING indicators
Lights up during editing recording.
[A. EDIT] : Lights up during Auto Edit Recording.
[P. EDIT] : Lights up during Program Edit Recording.

24 TAPE SIDE indicators
SIDE [A] : Lights up when the A side of a tape is selected.
SIDE [B] : Lights up when the B side of a tape is selected.

25 PLAY MODE indicators
CONTINUE : Lights up in continuous play mode
PROGRAM : Lights up in programmed play mode
RANDOM : Lights up in random play mode

26 EACH/REMAIN
EACH : Shows the elapsed time for each selection.
REMAIN : Shows the remaining time for each selection.

27 Pictorial indication of the disc status
Shows the disc status on the single tray.

28 TRACK
Lights up when all the selections on the disc are shown
Shows either the programmed selection numbers, or the current selection number of the disc, during programmed play.

29 STEP
STEP : Shows the numbers of the memory steps corresponding with the programmed selections.
When the indicator "STEP" does not light, it shows the index number.

30 Time indicator (MINUTE)
Shows:
the total playing time, elapsed playing time, or remaining playing time, in minutes.
(Shows nothing when the total number of selections is greater than 32).

31 Time indicator (SECONDS)
Shows:
the total playing time, elapsed playing time, or remaining playing time, in seconds.

REMOTE CONTROL UNIT

HOW TO OPERATE

Point the remote control unit towards the remote sensor on the front panel of the CD player-changer, always operating it steadily and carefully. If the remote-control unit is within about 7 metres of the CD player-changer, the CD player-changer can be operated comfortably. Do not point the remote unit at an angle to the remote sensor because this will reduce the distance from which you can control the unit.

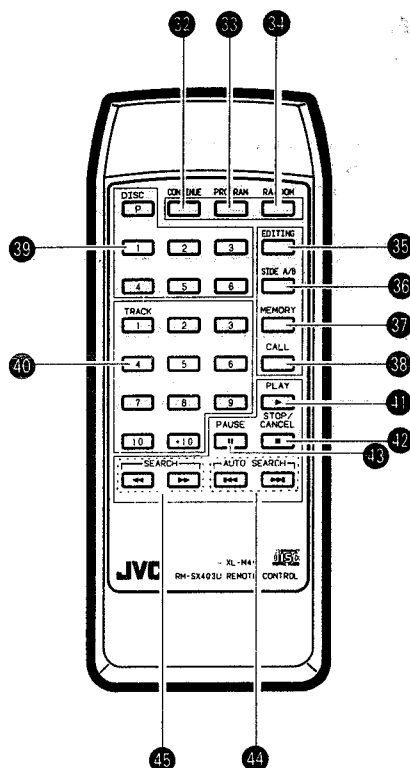


Fig. 13

32 CONTINUE

Press this button to select continuous play mode. When this button is pressed, the CONTINUE indicator in the PLAY MODE indicator lights up.

33 PROGRAM

Press this button to select programmed play mode. When this button is pressed, the PROGRAM indicator in the PLAY MODE indicator lights up.

34 RANDOM

Press this button for random play. When this button is pressed, the RANDOM indicator in the MULTI-MODE DISPLAY lights up.

35 EDITING

Press this button to select edit recording mode. Each time this button is pressed, the [A EDIT] or [P EDIT] indications appear, in sequence.

36 SIDE A/B

Press this button to select the tape side, when programming for edit recording.

37 MEMORY

Press this button to program selections. See page 13 for further details.

38 CALL

This button is used to check programmed data. While this button is pressed, the previously programmed disc, track and step numbers are indicated in the display, as from the first step.

39 DISC

Use these buttons to assign the disc numbers (P, 1 to 6).

40 TRACK

This button is used to assign track numbers (range: 1-99) for a disc either to be played or programmed. Whenever track numbers greater than 10 are to be assigned, use a combination of the [+ 10] button and [1] - [10] key numbered buttons.

[For Example]

17 : Press the [+ 10] button and [1] - [10] key operation number 7.

30 : Press the [+ 10] button twice and [1] - [10] key operation number 10.

41 PLAY (▶)

Press this button to begin play.

42 STOP/CANCEL (■)

Press this button to stop play. This button is pressed when you wish to cancel the programmed selection displayed (see page 14).

43 PAUSE (||)

Press this button to stop play temporarily. To restart, press the [PLAY (▶)] button

44 AUTO SEARCH (◀, ▶)

Press this button to locate the start of the current selection, or else to return to the previous selection during play.

The track selected will retrace by one selection each time the button is pressed. If the button is held down, the track selected will retrace by one selection continuously until the button is released.

Press this button, during play, to locate the next selection. Holding it down moves the pickup forward one selection.

Please Note :

- During programmed play mode, pressing the [AUTO SEARCH (◀, ▶)] buttons selects, respectively, the previous or next programmed step.

45 SEARCH (◀, ▶)

Press this button, during play, to scan backwards. When this button is held down, the CD player-changer performs a backward search. Press this button, during play, to scan forwards. When this button is held down, the CD player-changer performs a forward search.

JVC

SERVICE MANUAL

COMPACT DISC AUTOMATIC CHANGER

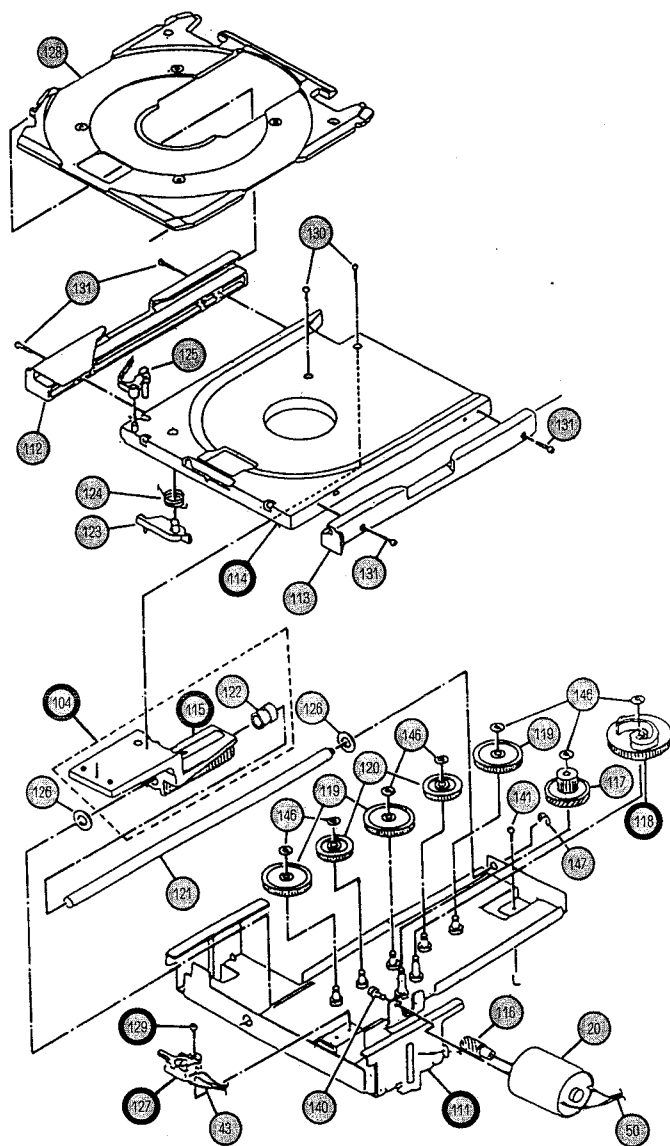
MODEL No. **XL-M403BK**

Supplement

The mechanism assembly in this unit is modified for the purpose of superior quality.

Use this manual referring to the previously published Service Manual (No.20161 Mar. 1990).

Modification of Plus 1 tray assembly for improving reliability



※ If the only 1 piece of the above part is replaced in the previous unit as service part , if is necessary to replace not only the part itself but also all the other parts of the above.

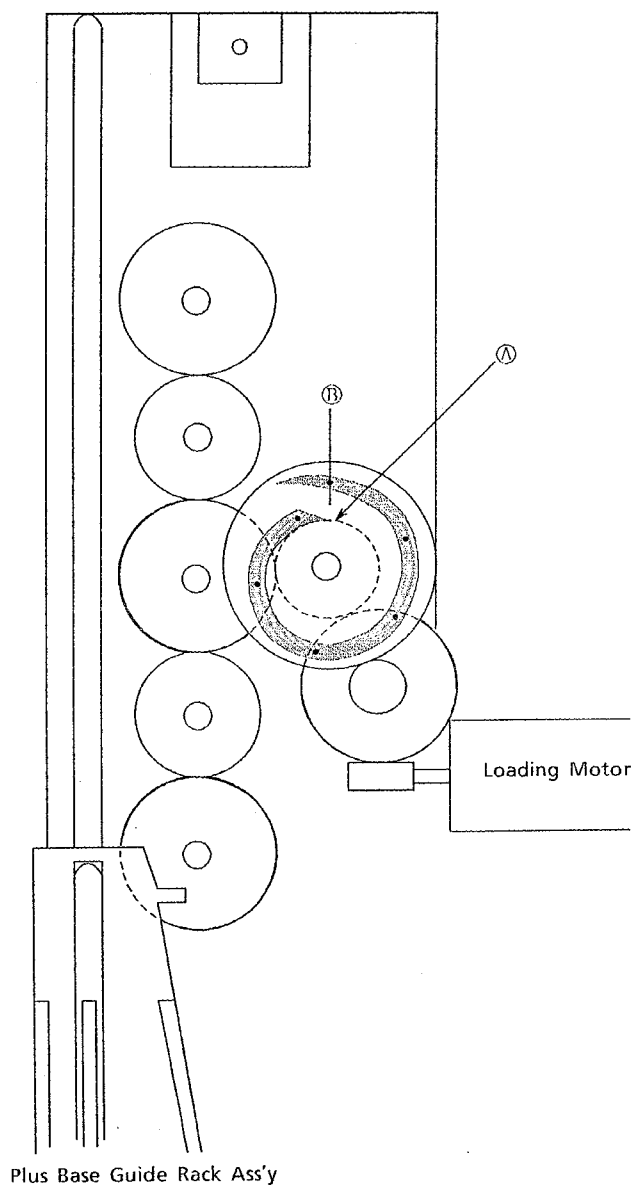
■ Parts List

Item	Part Number		Part Name	Q'ty	Description
	Previous	New			
104	300504302T	300504303T	Plus Base Guide Rack Ass'y	1	
111	300504501T	300504502T	Plus Base Ass'y	1	
114	30050404T	30050435T	Plus Rail Base	1	
115	30050405T	30050436T	Plus Base Guide Rack	1	
118	30050408T	30050434T	Plus Gear C	1	
127	SSCF21015A	MCV00240MPDO	Leaf Switch	1	
129	9P0626041T	SPSR2005R	Screw	1	

the U.S.A. #24370~
Canada #1020~
Australia #1~
Continental Europe #504~

How to install the "Plus Gear C".

Install the "Plus Gear C" and set ① position on it to the marked ② on "Plus Base Ass'y" when "Plus Base Guide Rack Ass'y" is pulled forward.

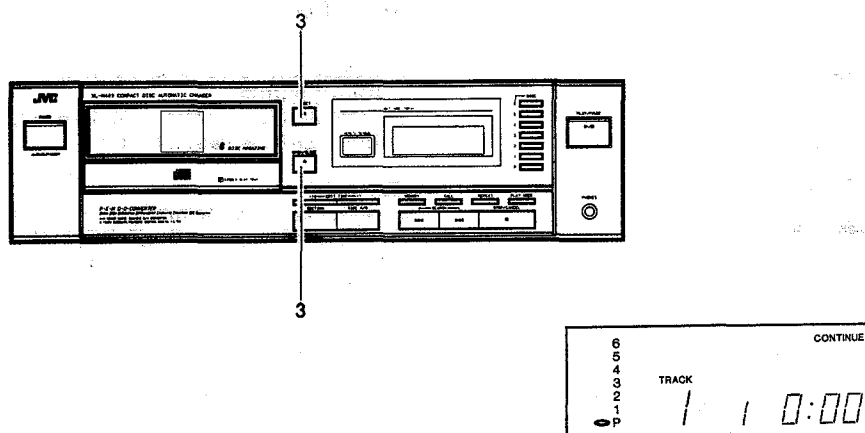


Packing Materials and Part Numbers

Part Number		Part Name	Q'ty	Description
Previous	New			
E306842-001	E306842-002	Sheet Ass'y	1	
E406071-001	Deletion	Sheet Ass'y	1	

the U.S.A. #24370~
 Canada #1020~
 Australia #1~
 Continental Europe #504~

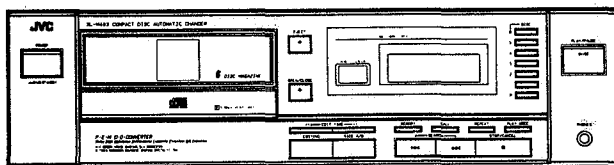
HOW TO OPERATE



Preliminary Operation

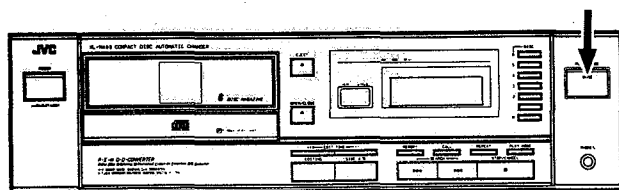
1. Switch on and carry out any necessary adjustments to system components, such as the amplifier connected to the CD player-changer, driving the speakers.
2. Switch on the CD player-changer. The MULTI-MODE DISPLAY lights up.
3. When loading two or more discs, use the provided magazine. When loading only one disc, press the [OPEN/CLOSE (▲)] button to slide the SINGLE PLAY TRAY out. If the CD changer has the magazine installed, press the [EJECT (▲)] button to remove it out.
4. With its label side up, load a disc on the SINGLE PLAY TRAY or in the magazine. The magazine can hold up to six discs. For more details, see "How to place CDs" on page 3.
5. Insert the SINGLE PLAY TRAY or magazine as follows:
In case of the SINGLE PLAY TRAY, press the OPEN/CLOSE (▲) button.
When using the magazine, push it gently until it clicks in place.
Up to seven discs can be played by using both the SINGLE PLAY TRAY and magazine.

Normal Play

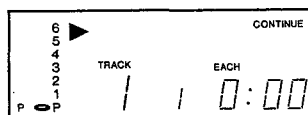


In normal play, you may play any of the selections on any disc, to the final selection on the 7 disc, continuously.

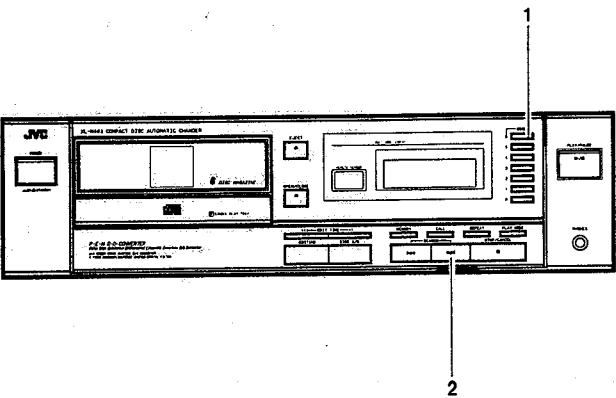
To Play From the First Selection



Press the [PLAY (▶)/PAUSE (||)] button.



How to operate

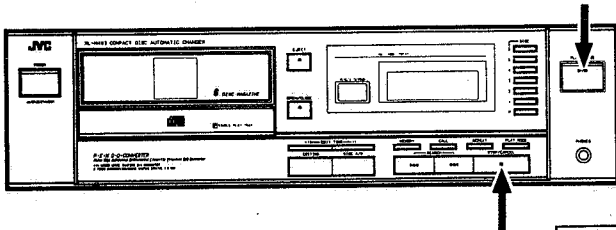
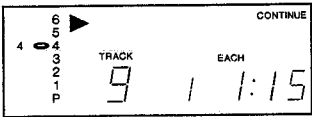


To Play From Any Desired Selection

1. Select the disc desired with the [DISC] button.
2. Indicate the selection required with the [SEARCH (▶▶)] button.

[Example]
To start play from the ninth selection on the fourth disc, press the [DISC] button No. 4 and press the [SEARCH ▶▶] button eight times.

- Please Note:
- When the track number selected on a certain disc does not exist, play starts from the final selection on that disc.
 - When the disc selected is not located in the magazine, the light for that disc (●) in the MULTI-MODE DISPLAY goes out within about 4 seconds, then the play will start on the next disc.

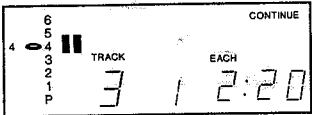


To Stop Play

Press the [STOP (■)/CANCEL] button.

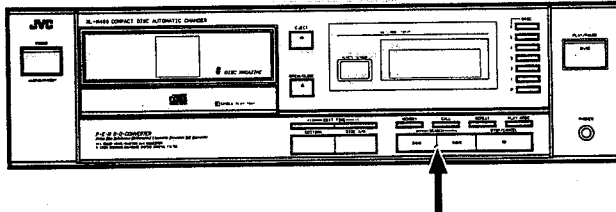
To Stop Play Temporarily

Press the [PLAY (▶)/PAUSE (||)] button.



How to operate the [SEARCH (◀◀, ▶▶)] button.

The button function changes if the button is held down.
If the button is pressed for:
less than 1/2 seconds - skip
more than 1/2 seconds - rapid traverse and replay of selection

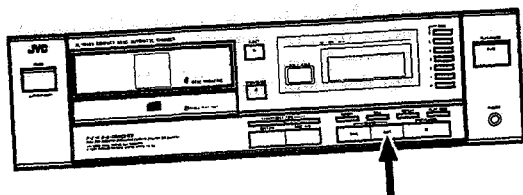


How to operate**To Skip the Next Selection During Play**

Press the [SEARCH (▶▶)] button.

[Example]

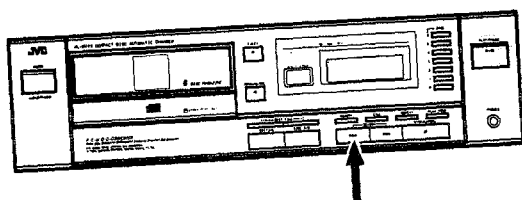
To switch, say, the second selection on the fifth disc to the seventh selection on the same disc, press the [SEARCH (▶▶)] button five times.

**To Skip to the Previous Selection During Play**

Press the [SEARCH (◀◀)] button and locate the start of the current selection, immediately after this press the [SEARCH (◀◀)] button until the track number required appears in the MULTI-MODE DISPLAY.

[Example]

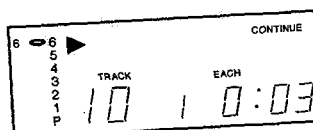
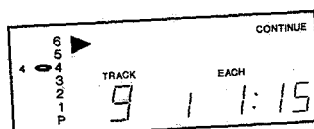
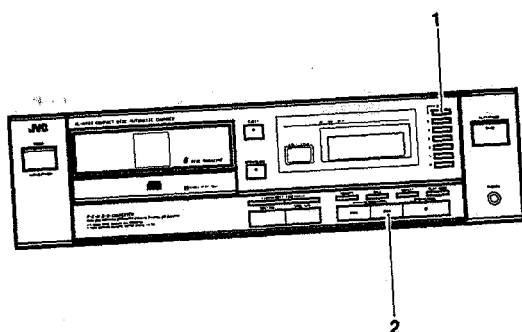
To switch, say, the seventh selection on the fifth disc to the second selection on the same disc, press the [SEARCH (◀◀)] button six times.

**To Switch Selections During Play**

1. Choose the disc required, using the [DISC] button.
2. Indicate the selections required, using the [SEARCH (▶▶)] button.

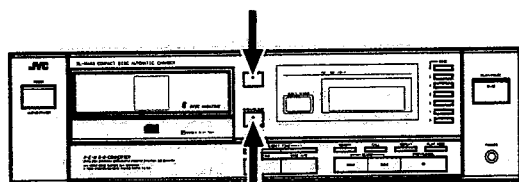
[Example]

During play, if, for example, you want to switch from the ninth selection on the fourth disc to the tenth selection on the sixth disc, press the [DISC] button No. 6 and the [SEARCH (▶▶)] button nine times.



To Remove the Disc

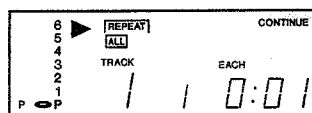
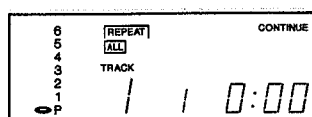
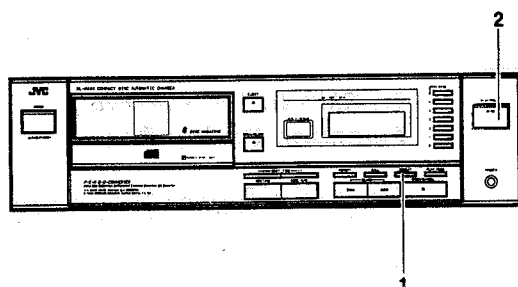
To take out the disc, push the [OPEN/CLOSE (▲)] button for removing a disc on the SINGLE PLAY TRAY and the [EJECT (▲)] button for removing the magazine.



Repeat Play

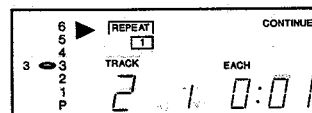
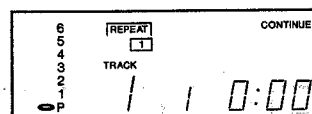
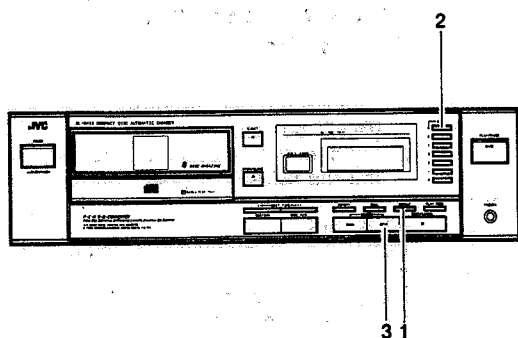
To Repeat the Whole Programme of Selections

1. Press the [REPEAT] button once.
2. Press the [PLAY (▶)/PAUSE (⏸)] button.

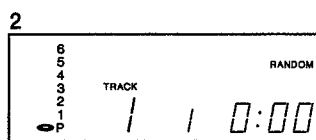
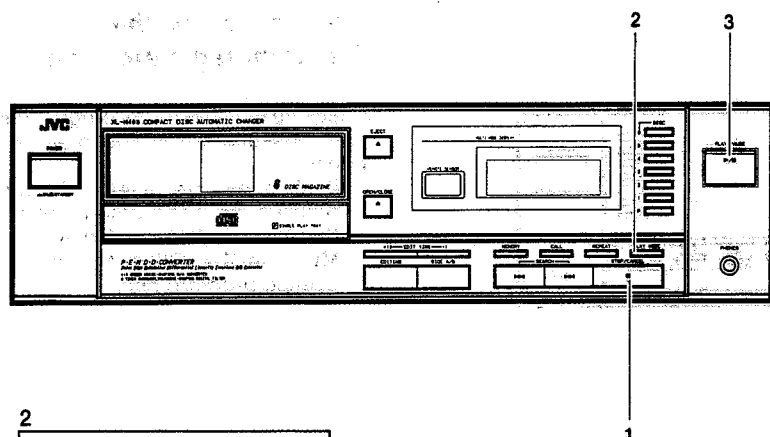


To Repeat One Selection

1. Press the [REPEAT] button twice.
2. Select the disc required with the [DISC] button.
3. Indicate the selection number required with the [SEARCH (▶▶)] button.



How to operate



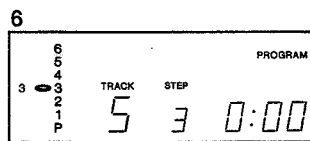
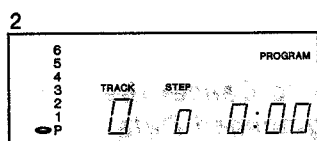
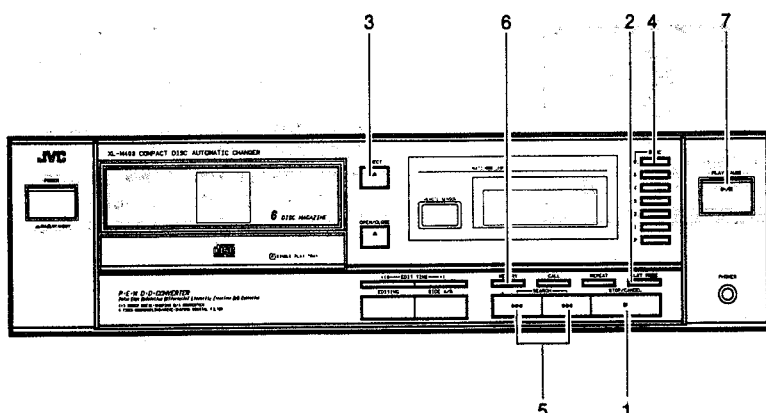
Random Play

The CD player-changer selects and plays tracks at random, from among the 7 discs in the magazine and the SINGLE PLAY TRAY, in RANDOM MODE.

1. Press the [STOP (■)/CANCEL] button.
2. Press the [PLAY MODE] button to select the RANDOM Mode.
3. Press the [PLAY (▶)/PAUSE (⏸)] button to start random play. Press the [STOP (■)/CANCEL] button to stop random play.

Please Notes:

- In random mode, selections can be made anywhere from the first track to the sixty-fourth track on a disc.
- To cancel the RANDOM play mode, press the PLAY MODE button until CONTINUE is displayed.



Programmed Play

32 steps can be programmed to play in any desired order from the 7 discs loaded into the magazine or single play tray.

How to Program and Play

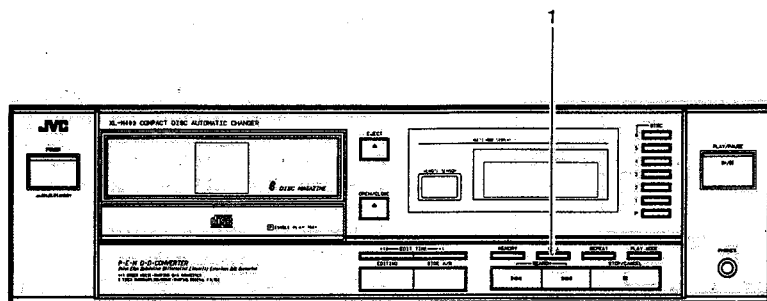
1. Press the [STOP (■)/CANCEL] button.
2. Press the [PLAY MODE] button to set the PROGRAM indicator within the display.

3. When the PROGRAM indicator is already lit, this indicates that a step has been programmed, proceed as follows:
If some of the selections are to be changed, carry out the corrections as indicated in "How to Correct the Programmed Data", on page 14.
If none of the programmed selections are required, remove the magazine, using the [EJECT (▲)] button and insert it again.

4. Press the [DISC] button to select the disc required.
5. Select the track required with the [SEARCH (◀)] or [SEARCH (▶)] button.
If the whole disc is to be played, carrying out this operation is unnecessary.
6. Press the [MEMORY] button while the step and track numbers are flashing.
Repeat procedures 4, 5 and 6, above, to programme the tracks you require in sequence (a maximum of 32 steps are programmable).
7. Press the [PLAY (▶)/PAUSE (⏸)] button. Play begins in the sequence programmed.

Please note:

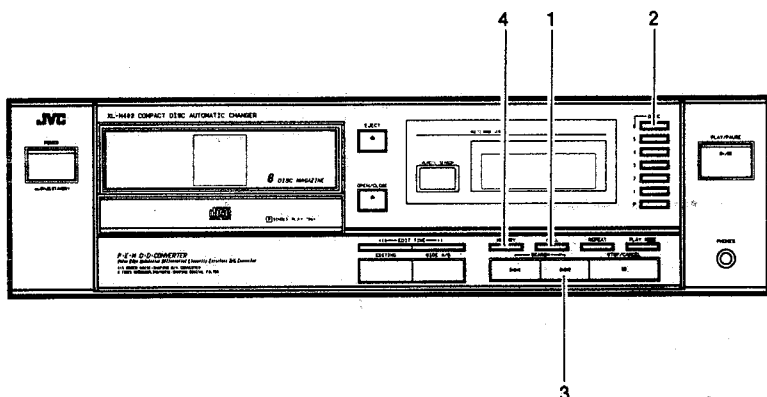
- During programmed play or when in the pause mode, pressing the [SEARCH (▶)] button causes a skip to the next selection in the programmed sequence.
- To stop play temporarily during programmed play, press the [PLAY (▶)/PAUSE (⏸)] button. Press again to restart.
- If the disc indicators (●) are not lit, none of the discs loaded in the magazine can be programmed.
In this case, remove the magazine, using the [EJECT (▲)] button. Reinsert the magazine. The disc indicator (●) will light up. (When the disc indicator (●) is lit, the discs in the magazine can be programmed.)
- To cancel the programmed play mode, press the PLAY MODE button until CONTINUE is displayed.



How to Check the Programmed Selections

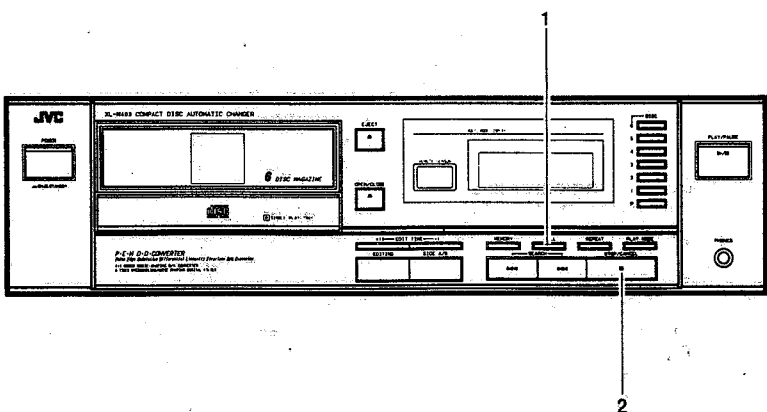
Checking the selections programmed is only possible when the disc is stationary.

1. Each time the [CALL] button is pressed, both the disc number and the track number are displayed, in the MULTI-MODE DISPLAY, in the sequence programmed.



How to Correct the Programmed Data

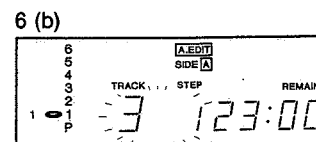
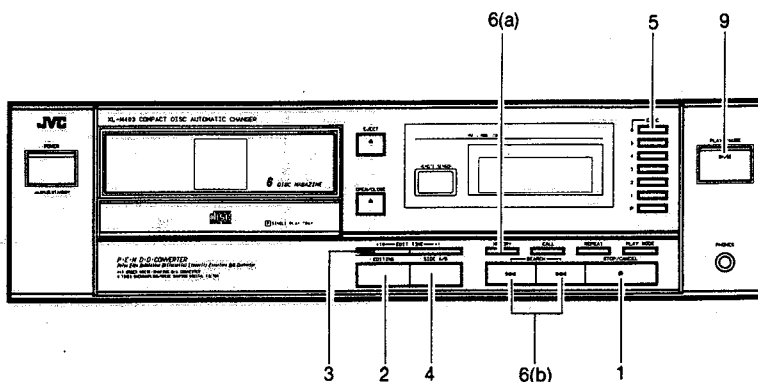
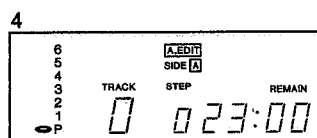
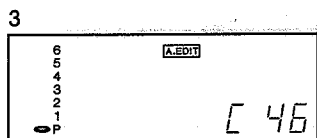
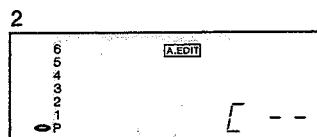
1. Press the [CALL] button, repeatedly, until the particular selection which needs to be corrected appears in the MULTI-MODE DISPLAY.
2. Press the [DISC] button to select the appropriate disc.
3. Press the [SEARCH (F)] buttons to indicate the required selection.
4. Press the [MEMORY] button to store.



How to Cancel the Programmed Data

1. Press the [CALL] button, repeatedly, until the particular selection which needs to be corrected appears in the MULTI-MODE DISPLAY.
2. Press the [STOP (■)/CANCEL] button.
Repeat the above procedure to cancel the whole programme.

How to operate



To Perform Edit Recording

Auto Edit Recording

As much as possible of the selections chosen will be automatically recorded on the A and B sides of the cassette in sequence.

1. Load a magazine and press the [STOP (■)/CANCEL] button.
2. Press the [EDITING] button so that A EDIT is displayed in the MULTI-MODE DISPLAY.
3. Set the recording time according to the type of tape cassette loaded, using the [EDIT TIME (+10, +1)] buttons.
To set a period of 30 minutes, press the [+10] button three times.
To set a period of 46 minutes, press

the [+10] button four times and then the [+1] button six times.

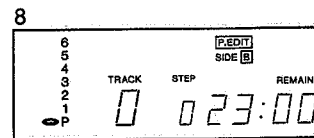
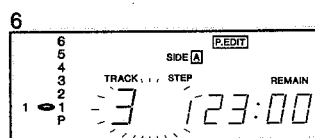
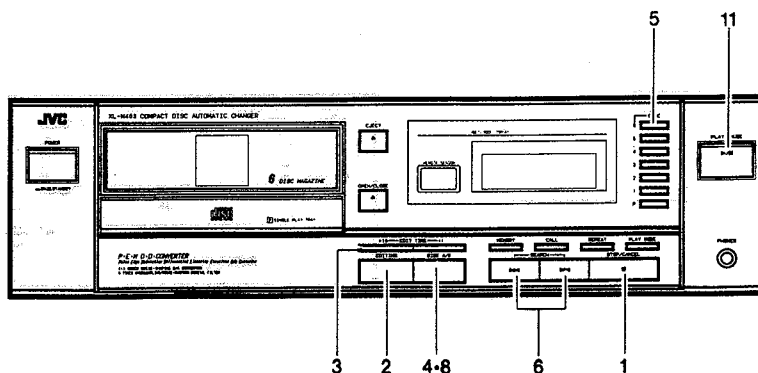
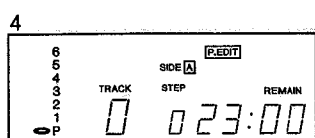
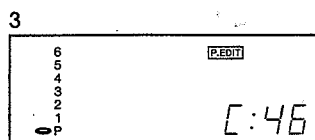
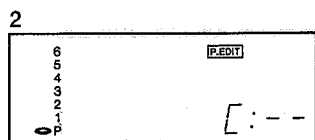
4. Press the [SIDE A/B] button
5. Press the [DISC] button to specify the disc required.
6. There are two possibilities:
 - (a) When editing is started from the first selection of the disc, press the [MEMORY] button, while both the track number and the step number are flashing.
 - (b) When starting editing from any particular selection of the disc, press the [SEARCH (◀▶, ▶▶)] button to indicate the selection and then press the [MEMORY] button, while both the track number and the step number are flashing.

7. Repeat steps 5 and 6 to programme the other discs.

8. Set the cassette deck to the REC PAUSE mode.

This feature is limited to units incorporating JVC's COMPU LINK system. For other cassette decks, set the deck to record mode before pressing the [PLAY (▶)/PAUSE (⏏)] button.

9. Press the [PLAY (▶)/PAUSE (⏏)] button. When the final selection, programmed on the A side, ends, edit recording stops automatically. To record on the other side of the tape, turn the tape over and repeat steps 8 and 9.



Programming Edit Recording

You can make your favorite selections from 7 CD and record them on cassette.

1. Load a magazine and press the [STOP (■)/CANCEL] button.
2. Press the [EDITING] button until P EDIT is displayed in the MULTI-MODE DISPLAY.
3. Set the recording time according to the type of tape cassette loaded, using the [EDIT TIME (+10 & +1)] buttons.
To set a period of 30 minutes, press the [+10] button three times.
To set a period of 46 minutes, press the [+10] button four times and then the [+1] button six times.
4. Press the [SIDE A/B] button
5. Press the [DISC] button to specify the disc required.
6. Press the [SEARCH (◀▶)] button to indicate the selection required and then press the [MEMORY] button, while both the track number and the step number are flashing.
Once a selection has been

programmed, its playing time is automatically subtracted from the set recording time and the time remaining is displayed.

7. Repeat steps 5 and 6 to programme the other discs.
8. When programming of the A side of the tape is completed, press the [SIDE A/B] button.
9. Repeat steps 5 and 6.
10. Set the cassette deck to the REC PAUSE mode.
This feature is limited to units incorporating JVC's COMPU LINK system. For other cassette decks, set the deck to record mode before pressing the [PLAY (▶)/PAUSE (⏏)] button.
11. Press the [PLAY (▶)/PAUSE (⏏)] button. When the final selection, programmed on the A side, ends, edit recording stops automatically. To record on the other side of the tape, turn the tape over and repeat steps 10 and 11.

Please Notes:

- When the record time programmed is greater than the set recording time, the excess time is indicated in the display while flashing.
- To cancel the edit record mode, press the [PLAY MODE] button.
- The maximum program step is sixteen per one side of the tape.

HANDLING COMPACT DISCS & THE MAGAZINE

How to handle CDs

Since compact discs are made of plastic, they are easily damaged. If the disc gets dirty, dusty, scratched or warped, the sound will not be picked up correctly and, in addition, such discs may cause the CD player-changer to malfunction. When handling compact discs, take the following precautions:

When handling compact discs, do not touch the surface of the disc (reflective silver side - the side without the label).

Storage

Make sure that the discs are kept in their cases.

If the discs are piled, one on top of another, without their protective cases, they can be damaged.

Do not put discs in any location where they can be exposed to direct sunlight - or in any place where the humidity or the temperature are high.

Avoid leaving discs in your car!

Maintenance of Discs

- When there are fingerprints or other dirt adhering to a disc, wipe the disc with a soft, dry cloth, with a movement going from the inside, outwards.
- If it is difficult to clean, wipe the disc with a cloth moistened with water.
- Never use record cleaners, petrol, alcohol or any anti-static agents.
- Do not damage the label side, or stick paper to, or use any adhesive on this surface.
- If you wish to use 8cm (3") CDs, please obtain the special magazine (XC-M73), designed for these.

Recommendations on handling the magazine

1. Always keep the magazine loaded with its six disc trays.
2. When removing or inserting the disc trays, the magazine should be held horizontal.
3. Only load the magazine with compact discs already located on disc trays. Never load a disc directly into the magazine without a disc tray.
4. Do not expose it to high temperatures or to direct sunlight.
5. Do not dismantle the magazine.
6. Take care not to drop or bang the magazine.
Do not apply any high loadings to the disc trays, particularly when removed from the magazine.
7. Never apply such solvents as petrol or thinners, nor insecticide to the surfaces of the magazine or the disc trays. Such solvents may damage their surfaces.

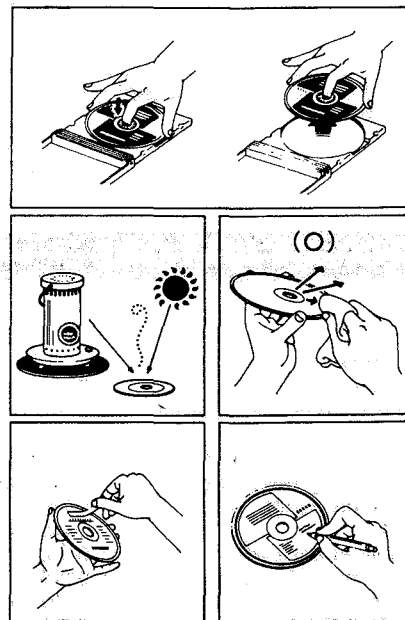


Fig. 14

TROUBLESHOOTING

What appears to be malfunction may not always be serious. Go through the following list before requesting service.

Symptom	Possible causes	Remedy
The magazine does not eject when the [EJECT (▲)] button is pressed.	• The power is off. • The magazine has not been inserted correctly. • The [EJECT (▲)] button was pressed while the CD driver was selecting a CD.	• Press the [POWER] button and switch-on the power to the CD player changer. • Push the magazine all the way in and try pressing the [EJECT (▲)] button again. • Press the [EJECT (▲)] button again after the CD change has been completed and switch the power off and on again to make sure that all the problems are resolved.
When the operating buttons are pushed nothing happens.	• The operating controls are being pressed too quickly and repeatedly. • The operating controls are being pressed while the CD player changer was selecting a disc.	• Switch the power off and on again. • Press the operating controls after the disc has been selected.
A selection on a CD was not played.	• A CD is missing. • A CD is upside-down.	• Load the missing CD. • Reload the CD, label-side up, on the disc tray.
Programming is not possible.	• The PROGRAM indicator is not switched on.	• Light the PROGRAM indicator by pressing the [PLAY MODE] button. Please see "How to Programme and Play", on page 13.
The sound is intermittent and difficult to listen to.	• The CD is dirty. • The CD is scratched. • The CD is warped.	• Wipe the surface of the CD with a soft, dry cloth. • Replace the damaged CD with a new one. • Replace the damaged CD with a new one.

SPECIFICATIONS

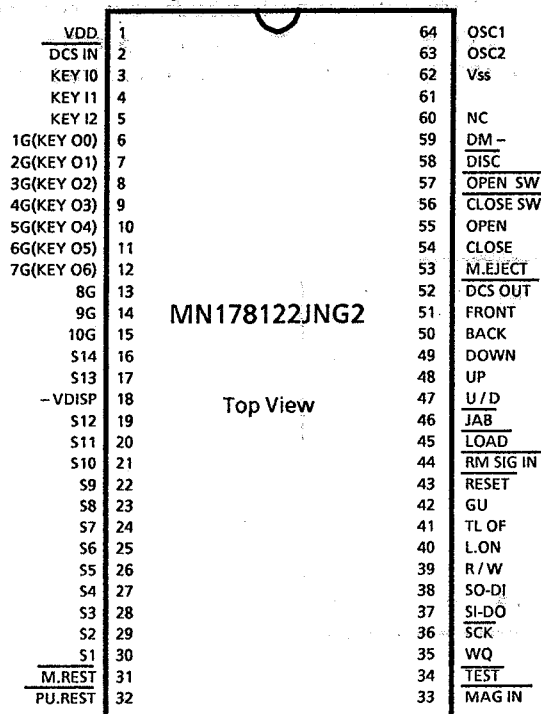
System		Power consumption	: 18W
CD capacity	: 7 discs	Line voltage & frequency	: AC 120V ~ , 60Hz
Signal detection system	: Non-contact optical system pick-up	Dimensions	: 435 (W) × 126 (H) × 319 (D) mm (17-3/16" × 5" × 12-9/16")
Number of channels	: 2 Channels	Weight	: 5.1kg (11.3lbs)
Frequency response	: 2Hz - 20kHz	Accessories	: Magazine 1
Dynamic range	: 98dB		Remote cable (1m • 3.28ft) 1
S/N	: 104dB at digital 0		Signal cord (1m • 3.28ft) 1
Channel separation	: 94dB (1kHz)		Remote control unit (RM-SX403U) 1
Total harmonic distortion	: 0.0025% (1kHz)		Battery (UM-4 "AAA" R03 (1.5V)) .2
Wow and flutter	: Below the measurable limit		
Output level	: 2.0V rms (full scale)		
Number of program steps	: 32 steps		

Design and specifications subject to change without notice.

Description of Major LSIs

■ MN178122JNG2 (IC201) : CD SYSTEM CONTROLLER

1. Terminal Layout



2. Key Matrix

	KEY IN 0	KEY IN 1	KEY IN2
KEY OUT 0		▲	4
KEY OUT 1	■	+1	5
KEY OUT 2	PLAY MODE	EDIT	6
KEY OUT 3	REP	EJECT	3
KEY OUT4	▶▶	A / B	2
KEY OUT5	MEMO	◀◀	1
KEY OUT6	CALL	+ 10	P

3. Pin Function Description

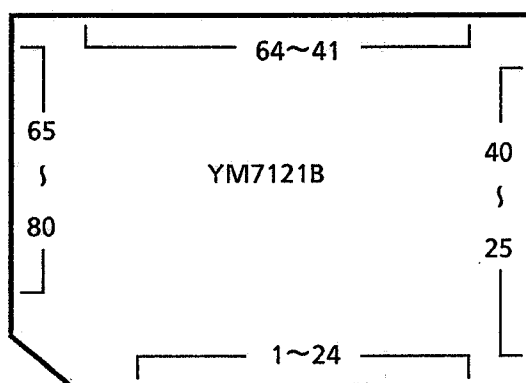
Pin NO.	symbol	I/O	Function and Operations	Pin NO.	symbol	I/O	Function and Operations
1	VDD	I	Power supply	33	MAG-IN	I	Magazine in signal
2	DCS IN	I	Compulink signal input	34	TEST	I	Entering test mode with "L"
3	KEY I0	I	Key matrix input	35	WQ	I	Write request input
4	KEY I1	I	Key matrix input	36	SCK	O	Clock output for data transfers
5	KEY I2	I	Key matrix input	37	SI-DO	I	Serial data input
6	1G(KEY O0)	O	FL grid control output (Key matrix output)	38	SO-DI	O	Serial data output
7	2G(KEY O1)	O	FL grid control output (Key matrix output)	39	R/W	O	Read / Write signal output
8	3G(KEY O2)	O	FL grid control output (Key matrix output)	40	L.ON	O	Turns on laser
9	4G(KEY O3)	O	FL grid control output (Key matrix output)	41	TLOF	O	Tracking servo off signal
10	5G(KEY O4)	O	FL grid control output (Key matrix output)	42	GU	O	Increases tracking gain
11	6G(KEY O5)	O	FL grid control output (Key matrix output)	43	RESET	I	Reset signal input
12	7G(KEY O6)	O	FL grid control output (Key matrix output)	44	RMSIGIN	I	Remote control signal input
13	8G	O	FL grid control output	45	LOAD	I	Disc load detect signal
14	9G	O	FL grid control output	46	JAB	I	JAB switch signal
15	10G	O	FL grid control output	47	U/D	I	Height detection signal
16	S14	O	FL segment control output	48	UP	O	Lifter driving control signal
17	S13	O	FL segment control output	49	DOWN	O	Lifter driving control signal
18	-V DISP	I	FL power supply	50	BACK	O	Loading motor control
19	S12	O	FL segment control output	51	FRONT	O	Loading motor control
20	S11	O	FL segment control output	52	DCSOUT	O	Compulink signal output
21	S10	O	FL segment control output	53	M.EJECT	O	Magazine eject signal
22	S9	O	FL segment control output	54	CLOSE	O	"CLOSE" signal output
23	S8	O	FL segment control output	55	OPEN	O	"OPEN" signal output
24	S7	O	FL segment control output	56	CLOSE SW	I	"L" with tray closed
25	S6	O	FL segment control output	57	OPEN SW	I	"L" with tray opened
26	S5	O	FL segment control output	58	DISC	I	Disc height detect signal
27	S4	O	FL segment control output	59	DM -	I	Spindle signal input
28	S3	O	FL segment control output	60	NC	-	Non connect
29	S2	O	FL segment control output	61		-	Connect to GND
30	S1	O	FL segment control output	62	Vss	-	GND
31	M.REST	I	"L" with mechanism at rest position	63	OSC2	O	Clock oscillation output
32	PU.REST	I	"L" with pickup at rest position	64	OSC1	I	Clock oscillation input

■ YM7121B(IC401)

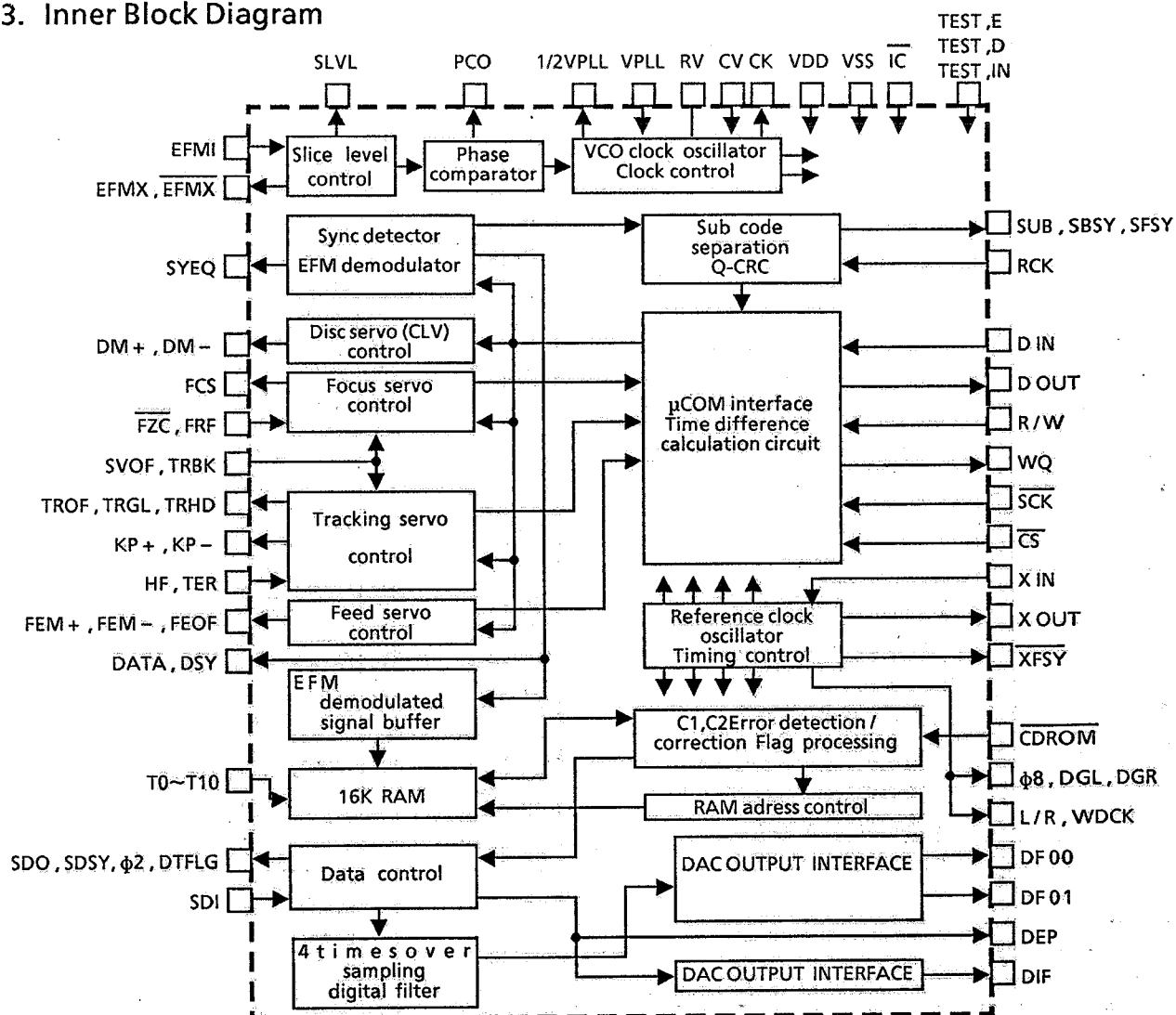
1. Outline

YM7121 is a C-MOS LSI for signal processing and servo control (SVC) in a CD player. It is used for the demodulation of the EFM signal from the laser pick up, detection / correction of the error signal, signal processing in digital filtering, etc. and for various servo controls (focusing, disc, tracking and feed servos).

2. Top View



3. Inner Block Diagram



4. Terminal Function

Pin No.	Symbol	I/O	Function and Operation
1	CV	I	Adequate time constant is added to this terminal and input the PCO output. This makes the structure of clock reproduce circuit by inner VCO circuit.
2	RV	—	RV terminal is standard voltage terminal of inner VCO. And capacity for stabilizing is added to this terminal.
3 32 72	VDD	—	These are +5V power supply terminals.
4 5 70	TEST. IN TEST. E TEST. D	I I I	These terminals are for test.
6	SYEQ	O	This is the check output terminal, it becomes high when flame synchronizing signal detected from EFM pattern coincides frame synchronizing signal from internal counter.
7	DSY	—	DSY is synchronizing signal which becomes high when first signal of data output comes in. This terminal is the check terminal. (Not used)
8	DATA	O	This terminal is for checks. The DATA is a serial signal of CK bit rate and it contains 8 bit EFM demodulation signal and 5 bit data control signal in 17 bit. (Not used)
9	CK	O	CK has 4.3218 MHz clock.
10~19	T0~T9	I	This terminal is internal RAM test terminal, and connected GND.
22	DEP	O	De-emphasis is necessary when this terminal is high.
23	DIF	O	DIF is digital audio interface format output matched EIAJ standards. (Not used)
24	SDO	O	SDO is a serial signal output of $\phi 2$ bit rate. (The MSB puts in at first.)
25	SDI	I	SDI is the input terminal of 4 times over sampling digital filter. It is usually connected with SDO.
26	SDSY	O	This terminal changes the Lch/Rch by LSB of the SDO.
27	DTFLG	O	Not used.
28	$\phi 2$	O	$\phi 2$ is 2.1168 MHz crystal clock.
29, 52, 77	VSS	—	GND
30	XOUT	O	Not used.
31	XIN	I	Input from crystal clock.
33 34 35 36 37 38 39 40 41 42 43 44 45	$\overline{\text{XFSY}}$ SUB SBSY RCK SFSY $\overline{\text{CDROM}}$ $\Phi 8$ WDCK L/R DGL DGR DF01 DF00	O O O I O O O O O O O O O	Not used.
46	$\overline{\text{SCK}}$	I	This terminal is connected to μCOM . It is an input terminal that carries the clock signal for data transfers.
47	R/W	I	This connects with microcomputer and it is an output terminal for switching data transmission mode. it enables to transmit data from SVC to microcomputer when R/M is "L" and from microcomputer to SVC when R/W is "H".
48	$\overline{\text{CS}}$	I	This is a chip select terminal for YM7121.
49	DOUT	O	This terminal is the data output terminal connected to μCOM . When R/W is low, data is transferred from YM7121 to μCOM , according to the SCK clock input.

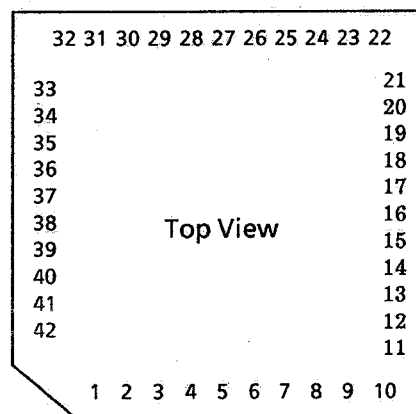
Pin No.	Symbol	I/O	Function and Operation
50	WQ	O	This terminal is connected to μ COM. It is a request signal which demands to μ COM inputting the data transfer (YM7121 to μ COM).
51	DIN	I	This is a data input terminal connected to μ COM. When R/W is high, the data is transferred from μ COM to YM7121 according to the SCK clock input.
53 54	DM+ DM-	O O	These terminals output the PWM to control the speed of spindle motor. The speed of the motor goes up when DM+ is high, and slows down when DM- is high: both terminals can not become high simultaneously.
55 56 60 61 62 63 64	HF TER TRHD TRGL TROF KP- KP+	I I O O O O O	When tracks are being crossed during serches, the amplitude variation of the generated HF signal is sampled at the zero - cross point of the tracking error signal TER and the TROF signal is output. The level variations of this signal turn the servo on and off, greatly facilitaing track acquisition. KP+ or KP- is output to conduct tracking, and TRHD is output during tracking to cause generation of the tracking error signal. The TRGL signal is for increasing the tracking gain after tracking is completed.
57 58 59	FEM+ FEM- FEOF	O O O	The FEM+ and FEM- are output as high speed feed signals, and FEOF signal is output for cutting the feed servo during high speed feed.
65	TRBK	I	TRBK is input to apply tracking brake from outside. TRGL becomes low with high input and inner control signal TBKE becomes high.
66	SVOF	I	When the signal inputs to SVOF, tracking and feed srvo set to OFF. TROF and FEOF become "H" with high input, and TRHD, KP+, KP- become low.
67 68 69	FZC FCS FRF	I O I	These terminals are used for controlling the focus servo. The FCS is for a leading signal of Focusing; the signal, generated when the focus point is achieved, terminate the focusing operation; and FCO flag is dropped internally by FRF signal generated when reflected light is detected.
71	TC	I	YM7121 needs initializing when power supply turn on. IC will be low more than 400 μ s since XIN is input clock with VDD standard.
73 74 75	SLVL EFMX EFMX	O O O	Amplitude limited, mutually anti-phased signals are output from EFMX and $\overline{\text{EMFX}}$. Slice level is controlled by these signals and external amplifier. SLVL is output amplitude alteration component of both terminals. When integral circuit is connected to external. YM7121 easily can control slice level.
76	EFMI	I	This terminal is input EFM signal. (1~2 Vpp)
78	PCO	O	This terminal outputs the phase difference when the polarity of the clock and the EFM pattern changes.
79	VPLL	I	This terminal is input D.C. voltage matched VCO free run frequency. (17.2872 MHz)
80	1/2 VPLL	O	This terminal outputs a half of VPLL input, and capacity for stabilizing is added to this terminal.

■ JCE4302A (IC703): Digital filter and D / A Converter

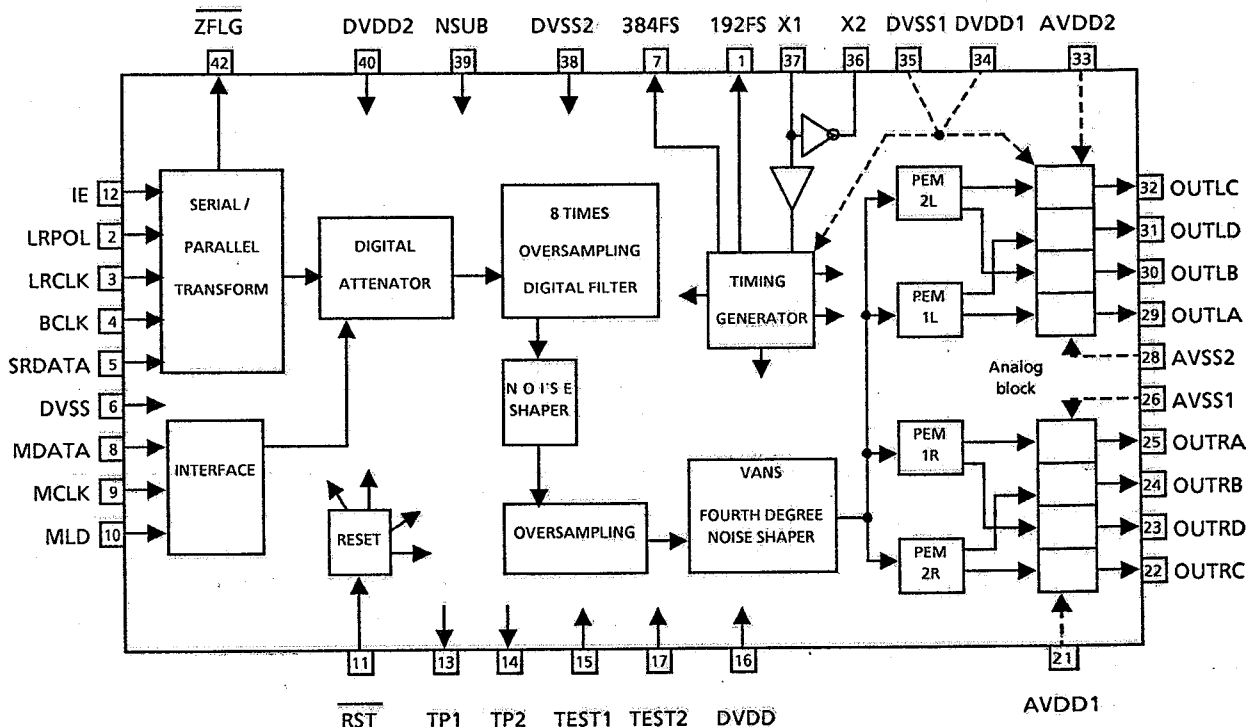
1. Outline

The JCE4302A is a D / A Converter IC with good linearity and high resolution more than 20 bits, and built-in 8 times oversampling digital filter and noise shaping DAC. High resolution data from digital filter is once sampled over sampling and compressed by unstarated fourth degree noise shaper for VANS (Victor Advanced Noise Shaper), while repress quantization noise of audio range at non problem level (-120dB). Then it changed pulse wave (A,B,C,D) at changing for crystal clock by PEM (Pulse Edge Moduration) method which has no high frequency distortion, and directly transform to analog signal. Zero cross and glitch distortion which were generated at rather type DAC are bad for quality; and they are excluded in principle by 1 bit movement of pulse wave so that correct linearity is obtainable. Pulse wave A,B,C,D are compounded at external, and become analog signals which is faithful to input.

2. Terminal Layout



3. Internal Block Diagram



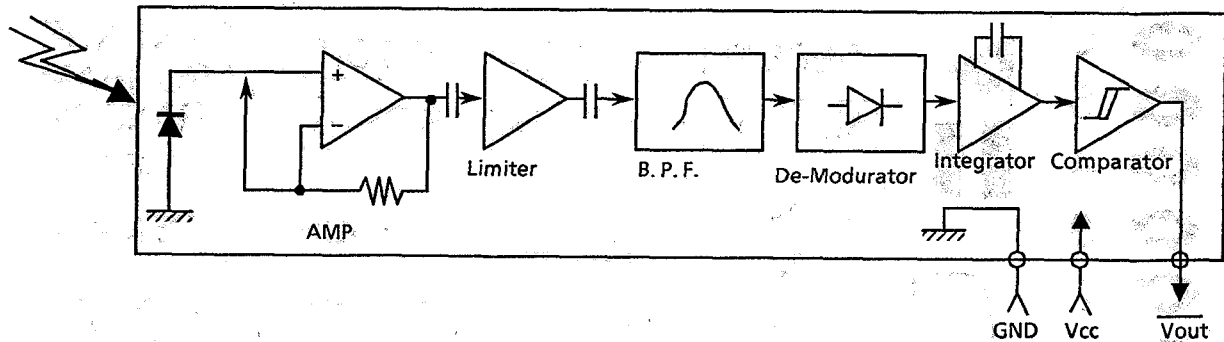
4. Terminal Function

Pin No.	Symbol	I/O	Active	Function
1	192FS	O	—	192fs output pin (Not used)
2	LRPOL	I	H	L-ch / R-ch switching pin.(H: When LRCLK is H, SRDATA is L-ch)
3	LRCLK	I		L / R switching signal of SRDATA.
4	BCLK	I		Bit transfer instruction input. (bit transfer at rise)
5	SRDATA	I		Serial data input.
6	DVSS	—		Digital system ground pin.
7	384FS	O		384fs output pin.
8	MDATA	I	L	Microprocessor command input pin. (Connect to GND)
9	MCLK	I	H	Microprocessor clock input pin. (bit transfer at rise)
10	MLD	I	H	Latch signal of MDATA.
11	RST	I		Reset signal input pin. (L : Active)
12	IE	I	L	Changing the format of SRDATA. (Connect to GND)
13	TP1	O	—	Digital filter test output pin 1. (Not used)
14	TP2	O	—	Digital filter test output pin 2. (Not used)
15	TEST1	I	L	Digital filter test input pin 1. (Connect to GND)
16	DVDD	—	H	Digital system power supply pin. (common fixed electrical potential pin)
17	TEST2	I	L	Digital filter inspection test signal input pin. (Connect to GND)
18	NC		—	(Not used)
19	NC		—	(Not used)
20	NC		—	(Not used)
21	AVDD1	—		Analog system power supply pin.
22	OUT RC	O		Rch output C.
23	OUT RD	O		Rch output D.
24	OUT RB	O		Rch output B.
25	OUT RA	O		Rch output A.
26	AVSS1	—		Analog system ground. (Rch)
27	NC		—	(Not used)
28	AVSS2	—		Analog system ground. (Lch)
29	OUT LA	O		Lch output A.
30	OUT LB	O		Lch output B.
31	OUT LD	O		Lch output D.
32	OUT LC	O		Lch output C.
33	AVDD2	—		Analog system ground.
34	DVDD1	—		Digital system power supply pin.(timing generator section)
35	DVSS1	—		Digital system ground.
36	X2	O		X'tal oscillator pin.
37	X1	I		X'tal oscillator pin. (384fs = 16.9344MHz)
38	DVSS2	—		Digital system ground.
39	NSUB	—	H	Connects to D-Vdd.(silicon substrate fixed electrical potential pin)
40	DVDD2	—		Digital system power supply pin.
41	NC		—	(Not used)
42	ZFLG	O		Detect the input data "0". (When input data is "0", ZFLG is L.)

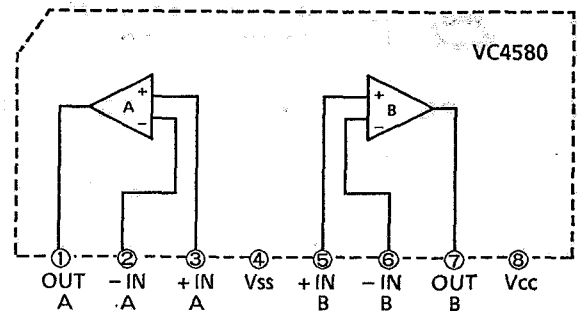
▲ ——— ("—" is open)

Internal Block Diagram of Other ICs

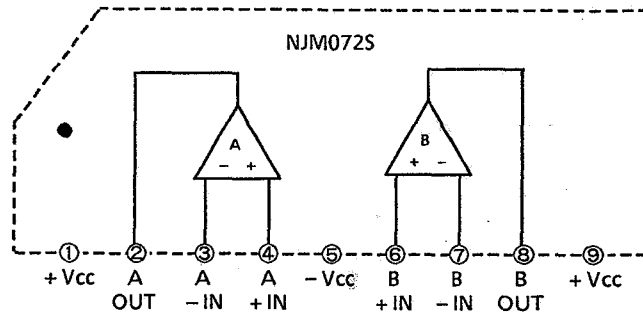
■ GP1U501X (IC203) : Remocon Module IC



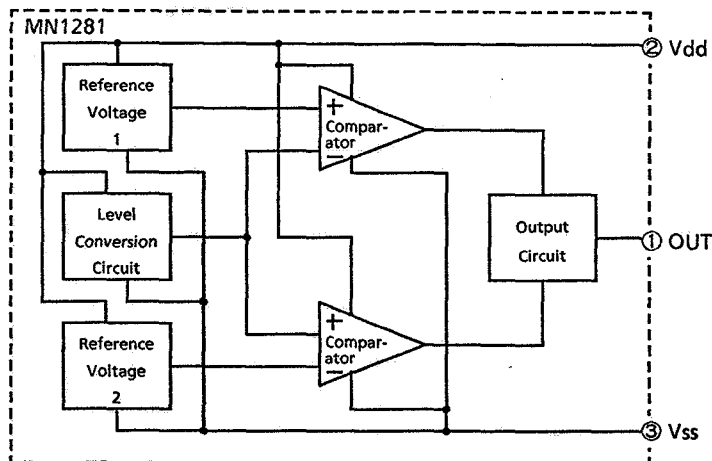
■ VC4580 (IC251,503,802, 804, 871, 701, 702, 851) : Dual OP Amp.



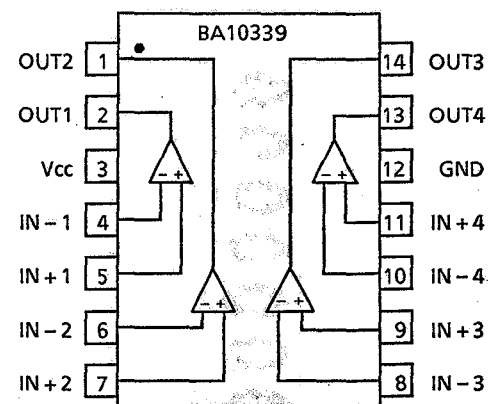
■ NJM072S (IC501) : Dual OP Amp.



■ MN1280, MN1281 (IC202) : Reset IC



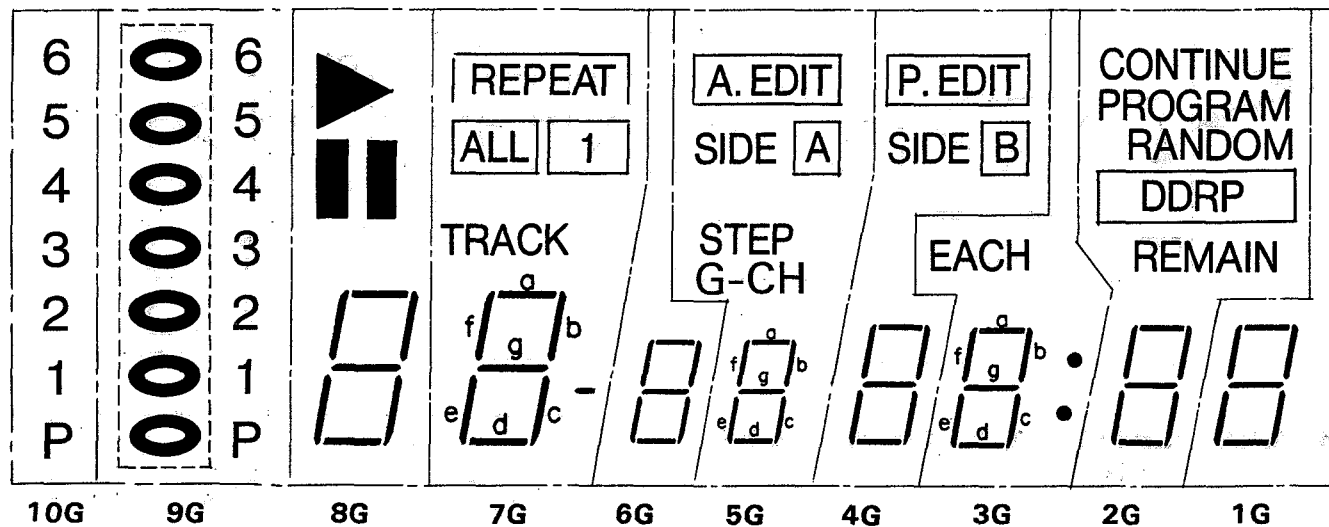
■ BA10339 (IC502) : Comparator



Internal Connections for the FL Display Tube

■ FL201:ELU0001-094

(1) Grid Layout



(2) Pin Connections

TERMINAL No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
ELECTRODE	F(L)	F(L)	NP	10G	NC	9G	S12	S11	8G	S10	S9	S8	7G	S13	6G	S14

TERMINAL No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
ELECTRODE	S7	5G	S6	S5	4G	S4	3G	S3	S2	2G	S1	1G	NC	NP	F(R)	F(R)

Notes F: Filament
G: Grid
S: Segment
NP: No Pin
NC: No Connection

(3) Anode Connection Table.

	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
S 1		6	▶	REPEAT		A.EDIT	P.EDIT		CONTINUE	
S 2		5		ALL		SIDE A	SIDE B		PROGRAM	
S 3		4		1		STEP		EACH	RANDOM	
S 4		3		TRACK				:	DDRP	
S 5		2		—					REMAIN	
S 6		1	a	a	a	a	a	a	a	a
S 7	6	(6)	b	b	b	b	b	b	b	b
S 8	5	(5)	f	f	f	f	f	f	f	f
S 9	4	(4)	g	g	g	g	g	g	g	g
S10	3	(3)	c	c	c	c	c	c	c	c
S11	2	(2)	e	e	e	e	e	e	e	e
S12	1	(1)	d	d	d	d	d	d	d	d
S13	P	(P)				G-CH				
S14		P								

Disassembly Procedures

(1) Removing the top cover

1. Remove the 4 screws fastening both sides of the top cover, and 2 screws fastening the rear side.

(2) Removing the front panel

1. Remove the top cover.
2. Remove the 3 screws fastening the top of the front panel, and 3 screws fastening the bottom.
3. Loose 2 special screws at the bottom of the front panel.
4. Remove the connector(P251).
5. Remove the front panel.

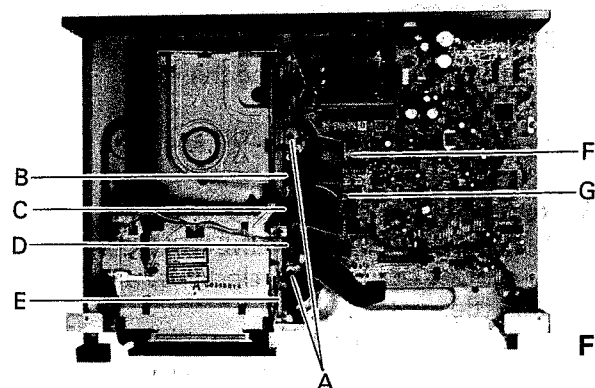


Fig. 1

(3) Removing the changer Ass'y (Fig.1,2)

1. Remove the top cover.
2. Remove the front panel.
3. Remove the 4 screws (A) fastening the changer Ass'y.
4. Remove the 6 connectors. (B, C, D, E, F, G)
5. Remove the Changer Ass'y.

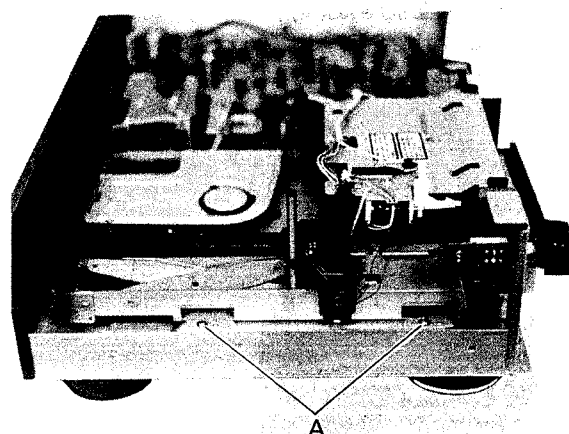


Fig. 2

(4) Removing the TURN TABLE BASE (Fig.3)

1. Remove the changer Ass'y.
2. Turn over the set(the bottom up).
3. Remove the WIRE PROTECTOR
4. Remove the 3 screws (H).
- NOTICE: The left spring different to the other springs.)
5. Take the TURN TABLE BASE out.

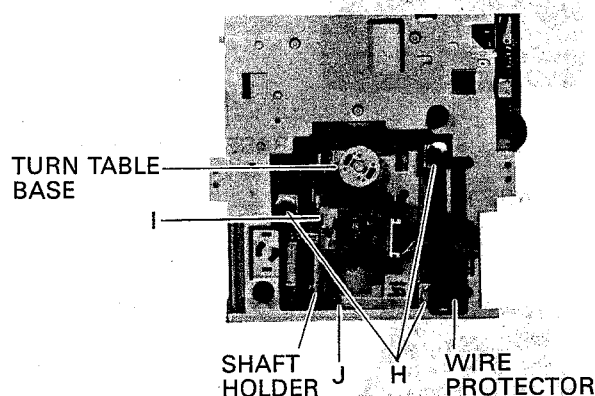


Fig. 3

(5) Exchanging the PICKUP (Fig.3,4)

1. Remove the turn table base.
2. Cut the Tie Band.
3. Remove the screw (I), and remove the FEED NUT SUPPORT.
4. Remove the FEED SCREW Ass'y.
5. Remove the screw (J), and remove the PICKUP with the SHAFT HOLDER and the PICKUP SHAFT.
6. Exchange the PICKUP.

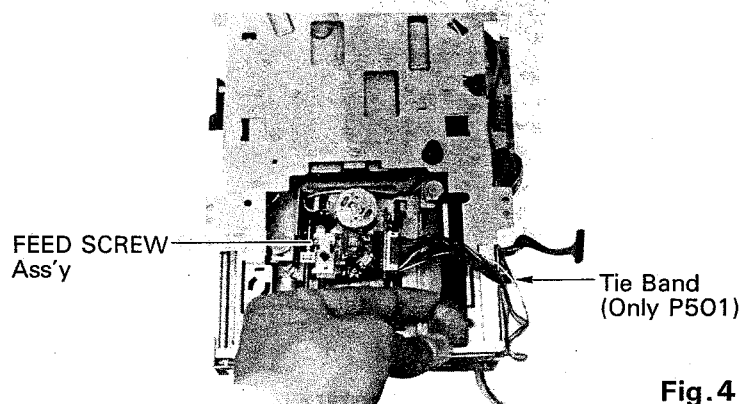


Fig. 4

(6) Removing the MAGAZINE HOLDER (Fig.5,6)

1. Remove the 2 screws(K) fastening the MAGAZINE HOLDER.
2. Remove the DETECTOR SWITCH P.C. Board and connector (L).
3. Slide the MAGAZINE HOLDER to direction of ①.
4. Remove the MAGAZINE HOLDER to upside, and remove the TRAY STOPPER at the same time.

(7) Removing the LIFTER UNIT Ass'y (Fig.7)

1. Remove the MAGAZINE HOLDER.
2. Lift the LIFTER UNIT Ass'y to the top position.
3. Remove the ELEVATOR ARMS from the CHASSIS BASE and the RAIL BASE Ass'y.
4. Remove the LIFTER UNIT Ass'y.

(8) Removing the P1 RAIL BASE (Fig.8,9)

1. Remove the MAGAZINE HOLDER.
2. Rotate the gear (M) clockwise a little.
3. Draw out the P1 RAIL BASE.
4. Pull out the P1 TRAY to back with pulling the STOPPER.
5. Remove 2 screws(N).
6. Pull out the P1 RAIL BASE with lifting it up a little.

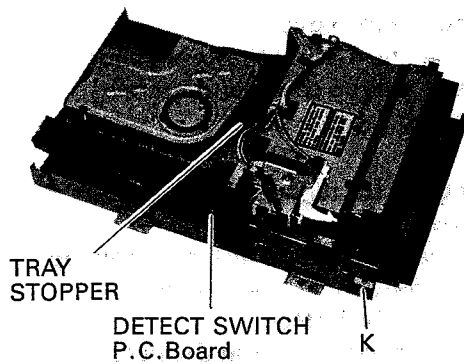


Fig. 5

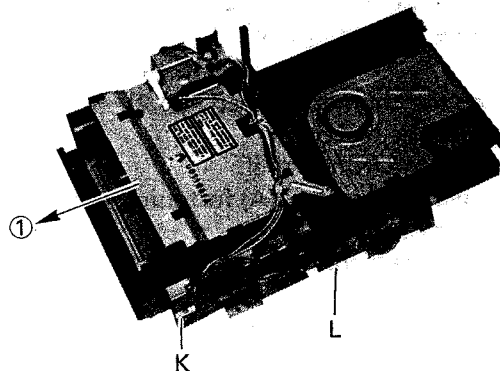


Fig. 6

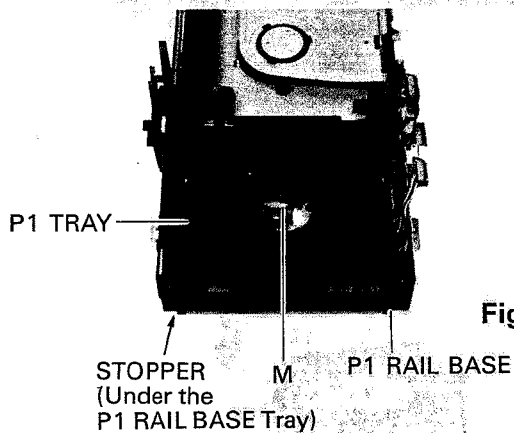


Fig. 8

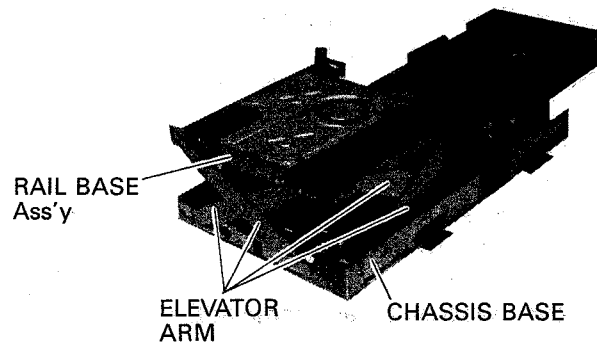


Fig. 7

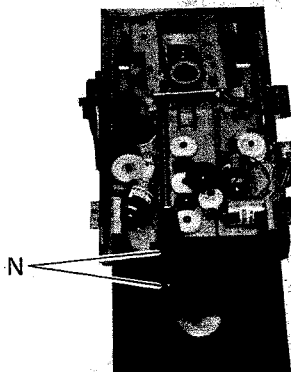
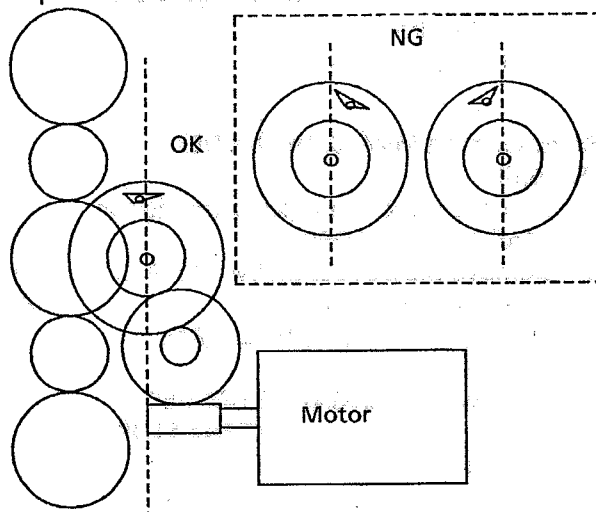


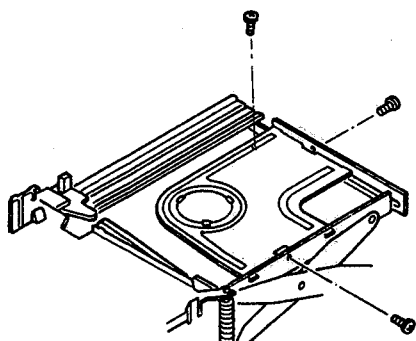
Fig. 9

The Gear Position when the P1 Rail Base is pulled out forward.

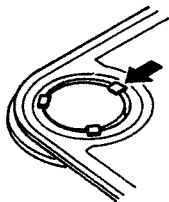


(9) Removing the stabilizer

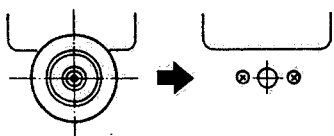
1. Remove the top cover.
2. Remove three screws and the stabilizer bracket while holding up the mechanism assembly.



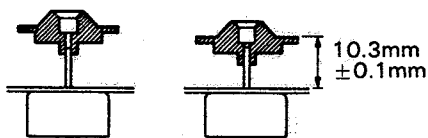
3. Remove pawls and the stabilizer from the stabilizer holder.

**(10) Removing the spindle motor**

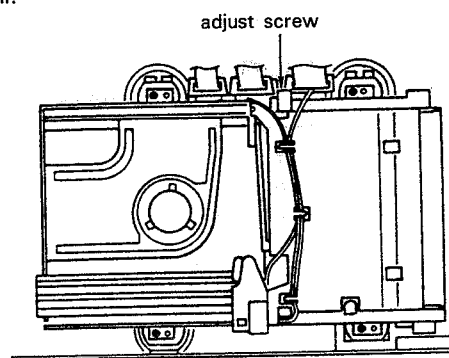
1. Remove the TURN TABLE BASE.
2. Turn over TURN TABLE BASE.
3. Remove the pressed-in turn table.
4. Remove 2 screws fastening the motor.
5. Remove the spindle motor.

**(11) Mounting the spindle motor.**

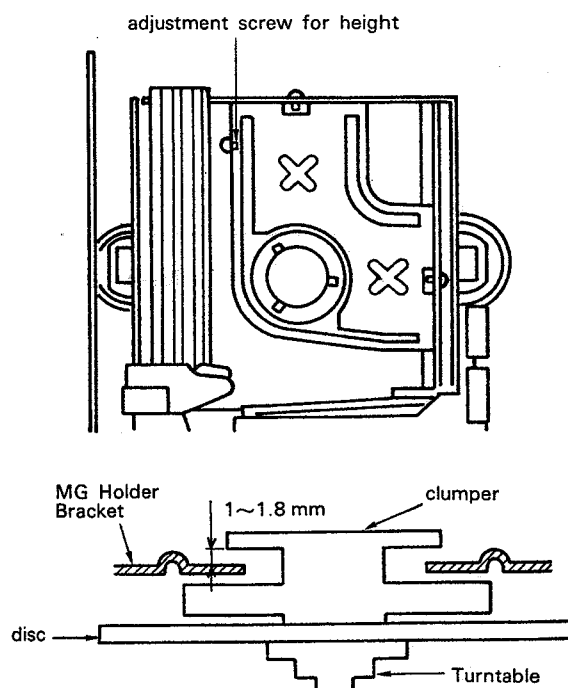
1. Fasten two screws with well-balanced torque.
2. Press in the turntable. While pressing in, push up rightly the center of the turntable and adjust the height from the mechanism base to the top of the turntable to be $10.3\text{mm} \pm 0.1\text{mm}$.

**(12) Adjusting the height of the lifter unit assembly.**

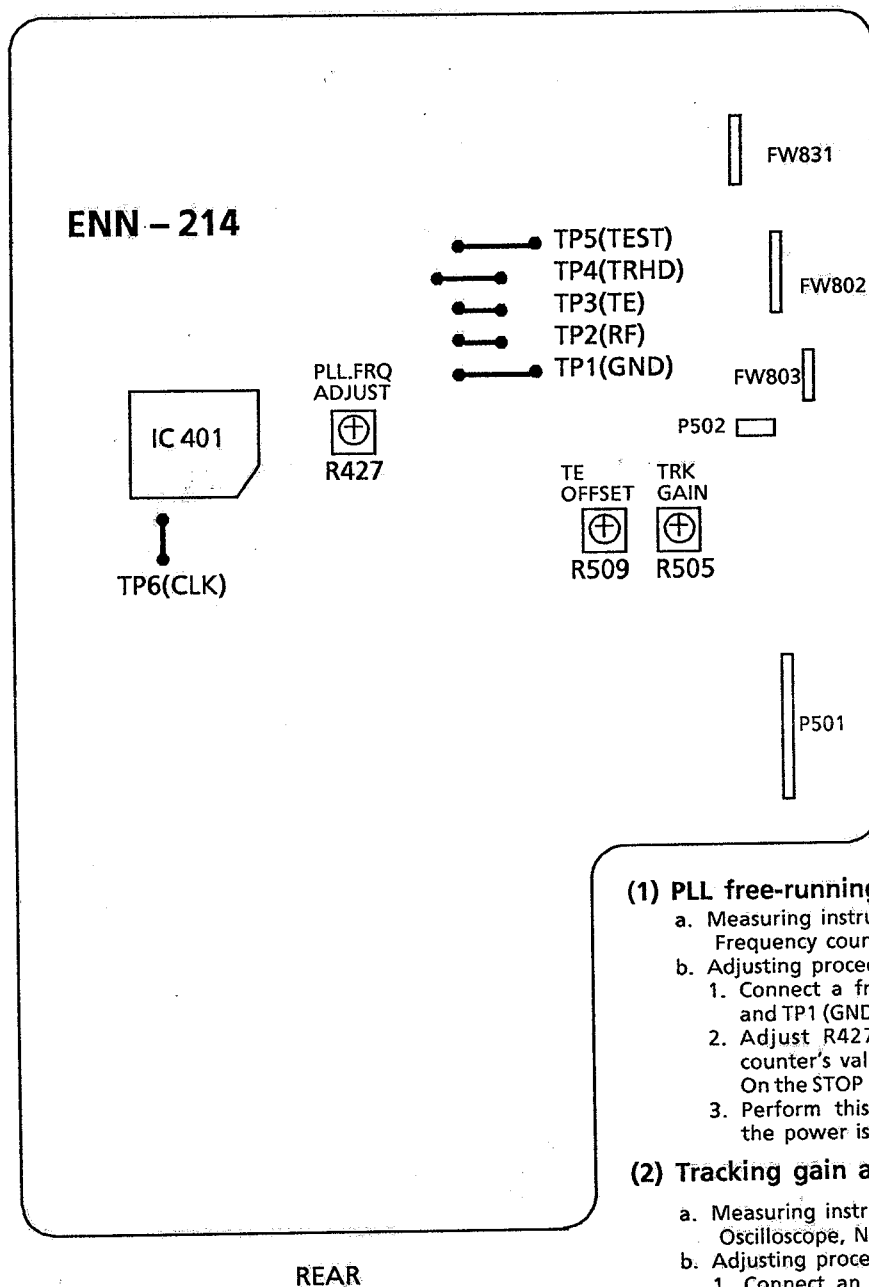
1. Turn on the power. Insert the magazine with no trays.
2. Select disc 3 and turn off the power immediately after the lifter unit reaches the height of disc 3 in the magazine.
3. Look into the window on the front side of the magazine, and confirm that the rail of the lifter unit and the guides in the third slot are at the same level.
4. The adjust screw which is shown in the figure is used for adjusting the lifter mecha. This screw is adjusted by electricity. So, the height does not change at that point. Every time when the screw is turned, check the height of the guide and the rail.



5. When the height of the mecha is reajusted or MG Holder Bracket is removed, turn the adjusting screw to adjust the height of the clumper. The space between clumper and MG Holder Bracket when the disc is played, is shown as following figure.



Adjustment Procedures



(1) PLL free-running adjustment

- a. Measuring instrument
Frequency counter
- b. Adjusting procedure
 1. Connect a frequency counter with TP6 (CK) and TP1 (GND) on the main PC board.
 2. Adjust R427 for setting the frequency counter's value becomes $4.295 \pm 0.005\text{MHz}$. (On the STOP MODE)
 3. Perform this adjustment immediately after the power is turned on.

(2) Tracking gain adjustment

- a. Measuring instruments
Oscilloscope, Normal disc
- b. Adjusting procedure
 1. Connect an oscilloscope with TP3 (TE) and TP1 (GND) on the main PC board.
 2. Play the disc.
 3. Short circuit TP5 (TEST) to TP1 (GND).
 4. Adjust R505 for setting tracking error signal becomes $2.0 V_{p-p}$.

(3) Tracking offset adjustment

- a. Measuring instruments
Oscilloscope, Normal disc
- b. Adjusting procedure
 1. Connect an oscilloscope with TP3 (TE) and TP1 (GND) on the main PC board.
 2. Play the disc.
 3. Short circuit TP5 (TEST) to TP1 (GND).
 4. Adjust R509 for setting the DC level of the tracking error (off set) becomes 0.

Note: Adjust R509 for setting the waveform becomes symmetrical around the 0 level.

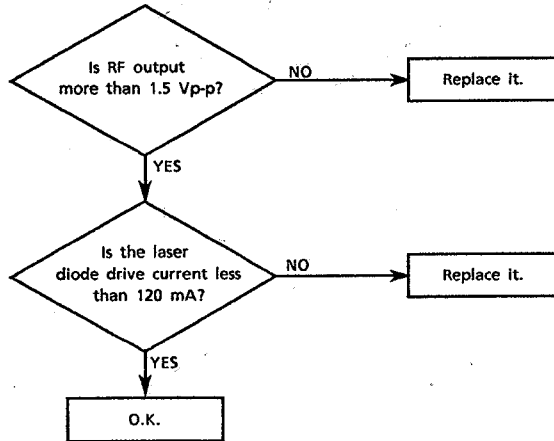
Maintenance of Laser Pickup

(1) Life of the laser diode

When the life of the laser diode has expired, the following symptoms will appear.

1. The level of RF output (EFM output: amplitude of eye pattern) will be low.
2. The drive current required by the laser diode will be increased.

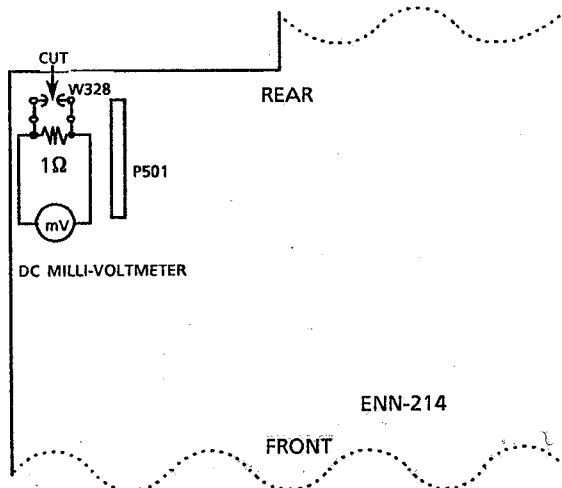
In such a case, check the life of the laser diode following the flowchart below



(2) Measurement of laser diode drive current

Replace the jump wire (W328) shown below with the resistor (1Ω).

Measure the voltage across the resistor with a milli-voltmeter. When the voltage is more than 120mV, it shows that the life of the laser diode has expired



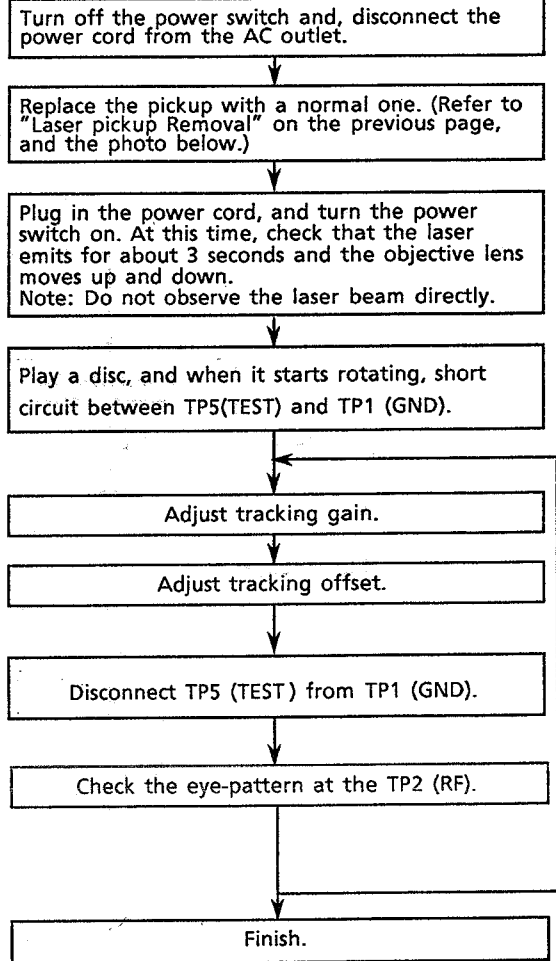
(3) Semi-fixed resistor on the APC PC board

The semi-fixed resistor on the APC printed circuit board which is attached to the pickup is used to adjust the laser power. Since this adjustment should be performed to match the characteristics of the whole optical block, do not touch the semi-fixed resistor.

If the laser power is lower than the specified value, the laser diode is almost worn out, and the laser pickup should be replaced.

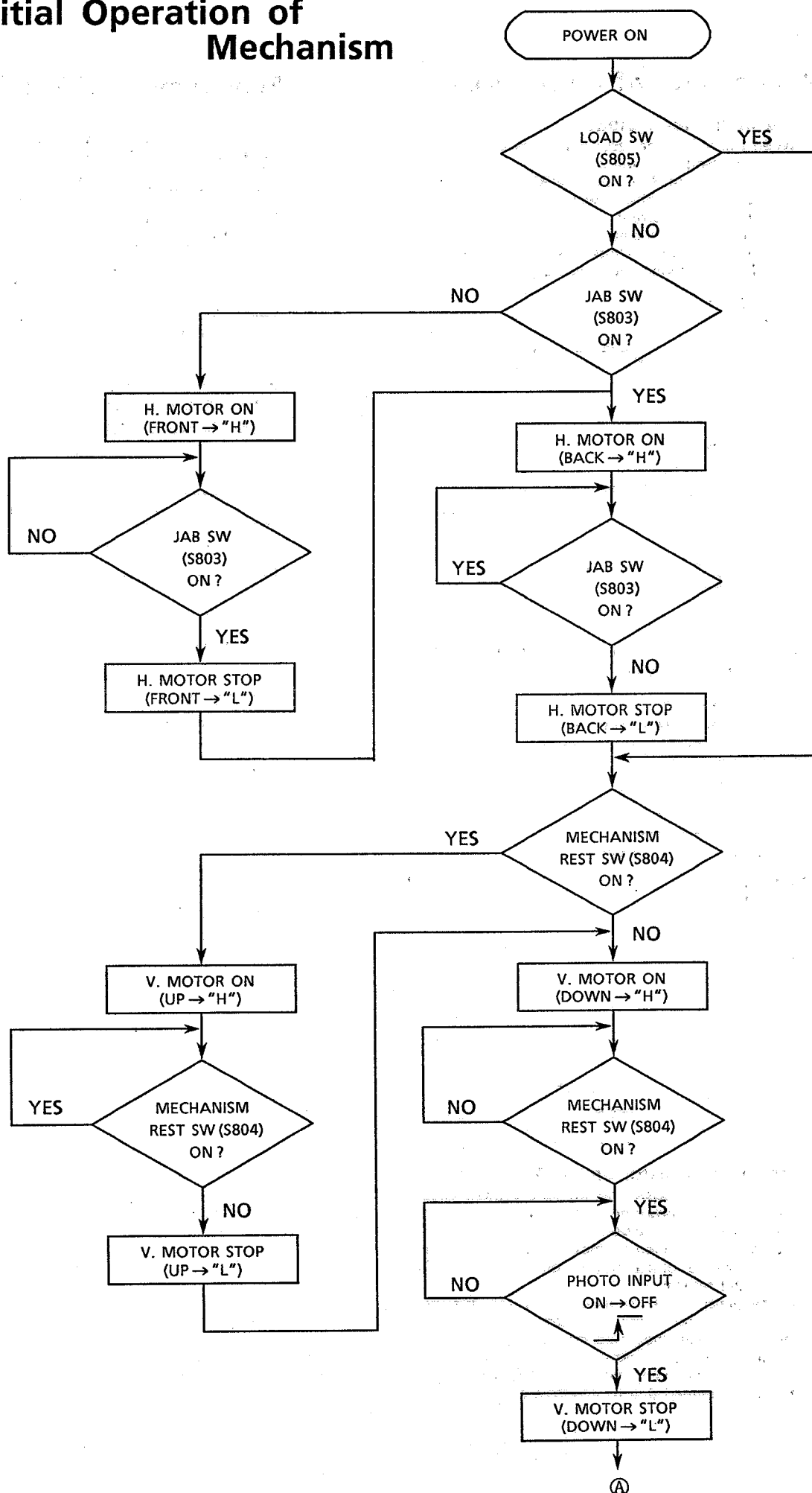
If the semi-fixed resistor is adjusted while the pickup is functioning normally, the laser pickup may be damaged due to excessive current.

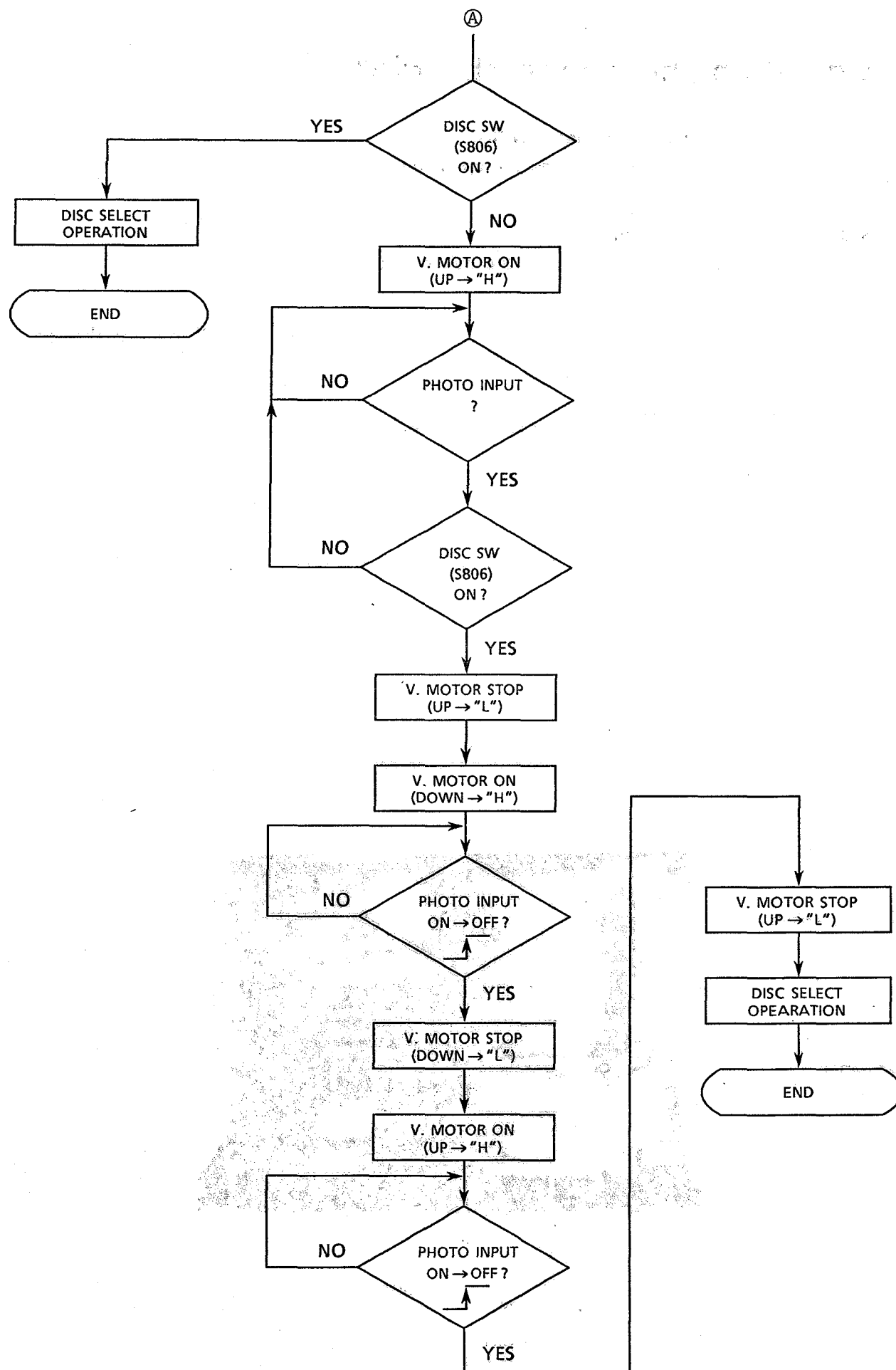
Replacement of Laser Pickup



Note: Since one adjustment may affect other settings, repeat these adjustments a few times.

Initial Operation of Mechanism





Operation check by each switch.

S801 : Single tray open / close detect switch.

When a single tray is ejected, the open signal is "L" and when it is closed, the close signal is "L"

S802 : Magazine in switch.

When a magazine is inserted, the switch is turned on.

S803 : JAB switch.

When drive plate comes toward, the switch is turned on. (The switch is turned on only in a moment.)

S804 : Mechanism rest switch.

When the mechanism comes to the initial height, the switch is turned on.

S805 : Tray load switch.

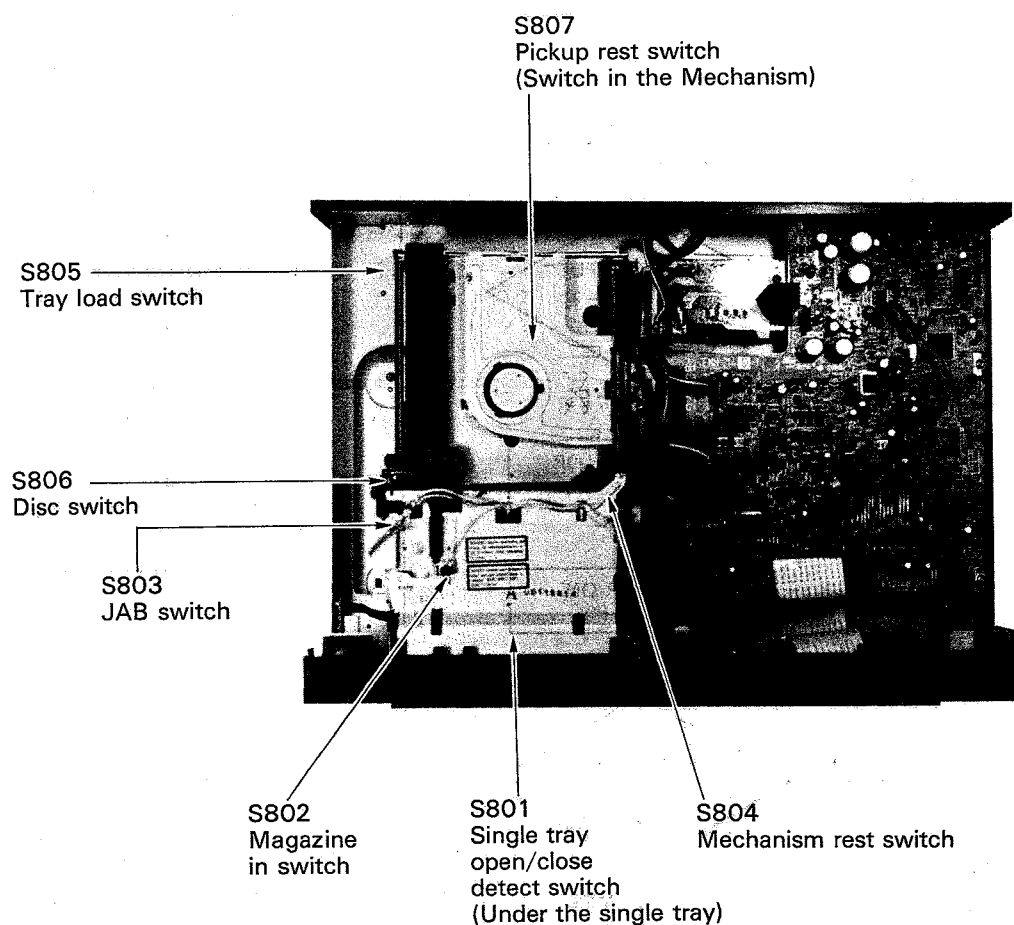
When the tray of a disc is set, the switch is turned on.

S806 : Disc switch.

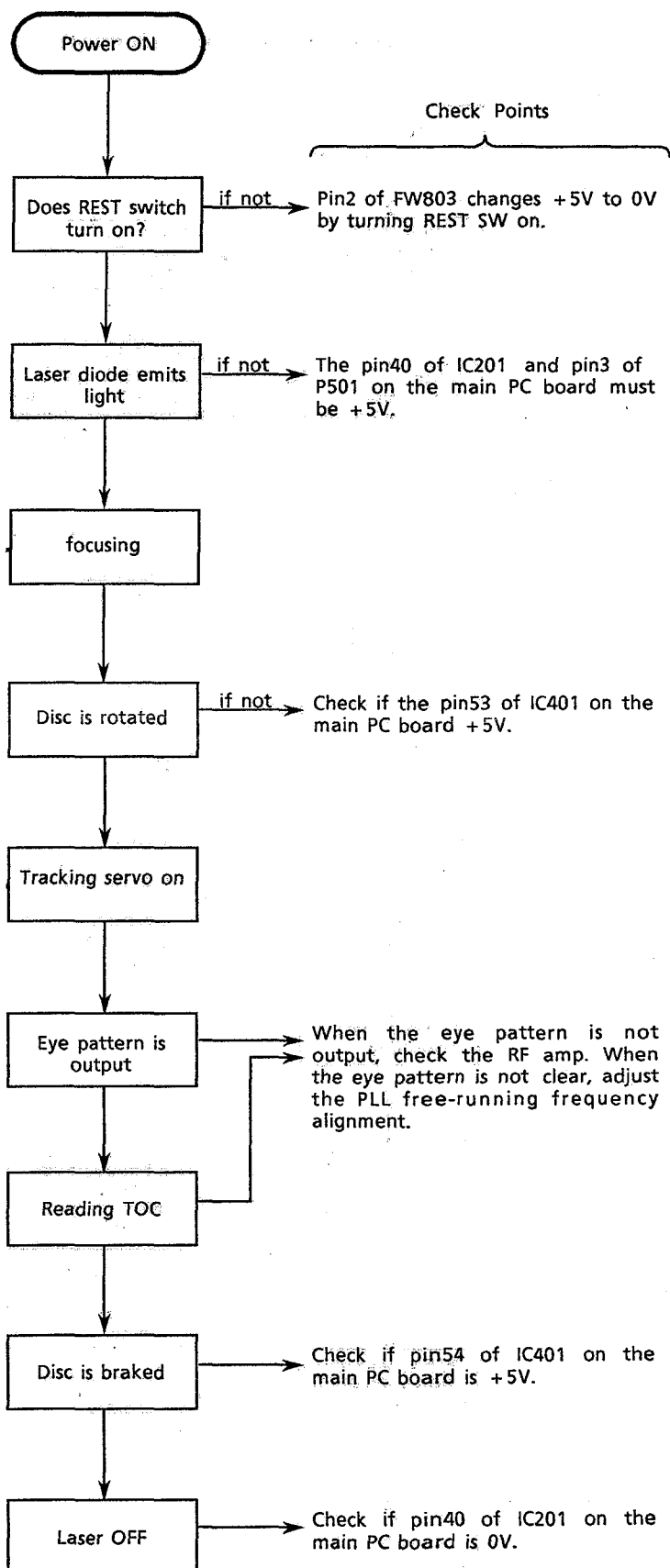
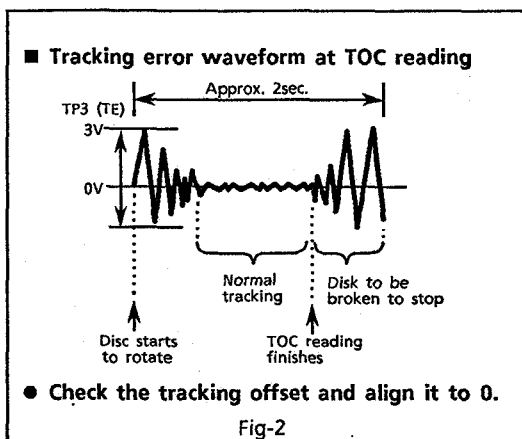
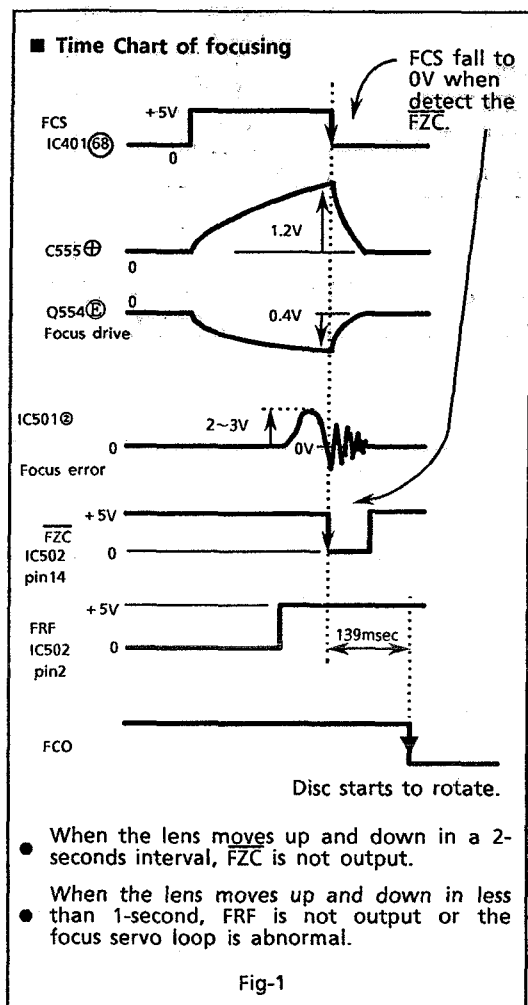
The height of the tray is detected by whether the switch is ON or OFF.

S807 : Pickup rest switch.

When pickup comes to the initial position, the switch is turned on.

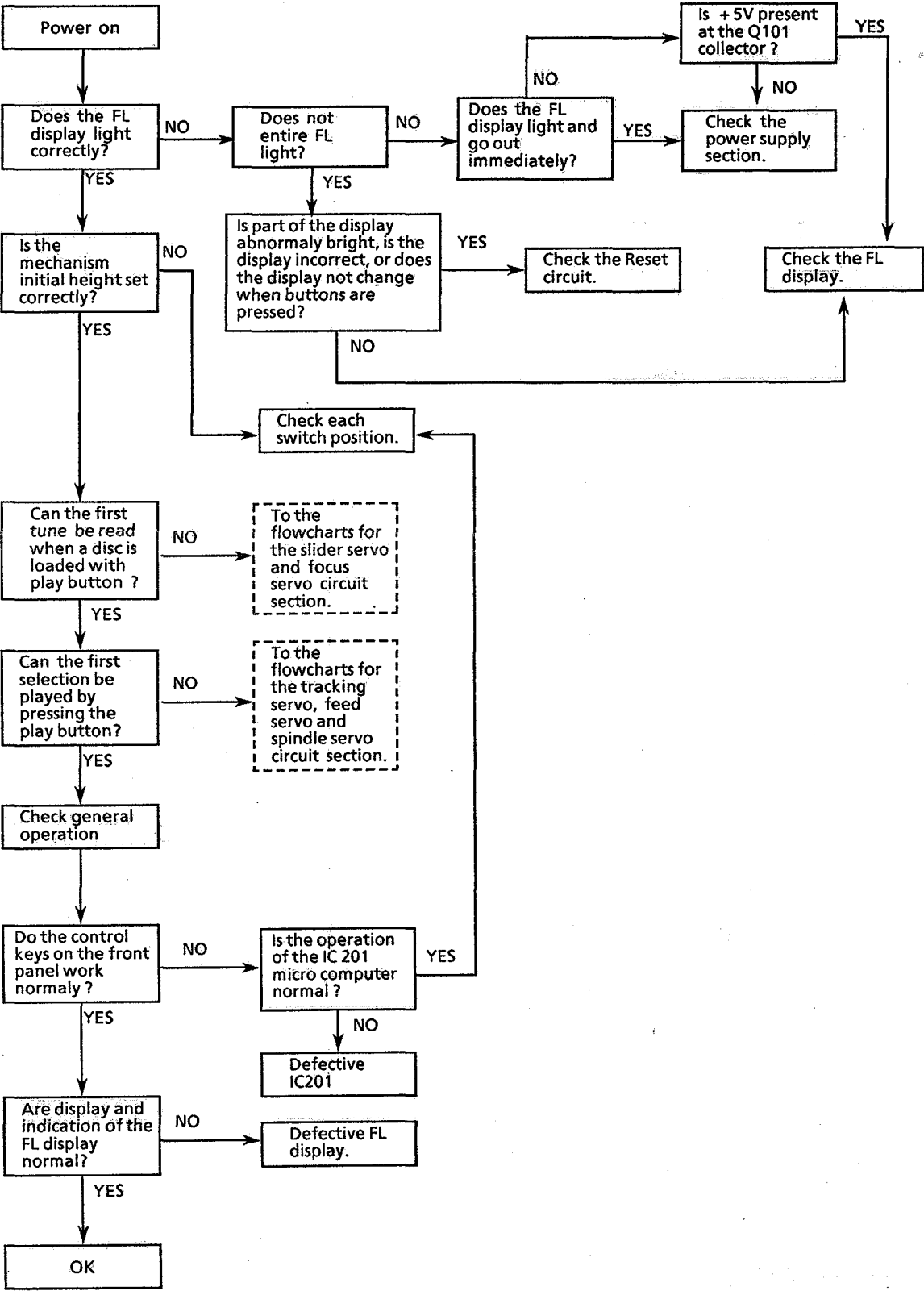


Flow of Functional Operation Until TOC is Read



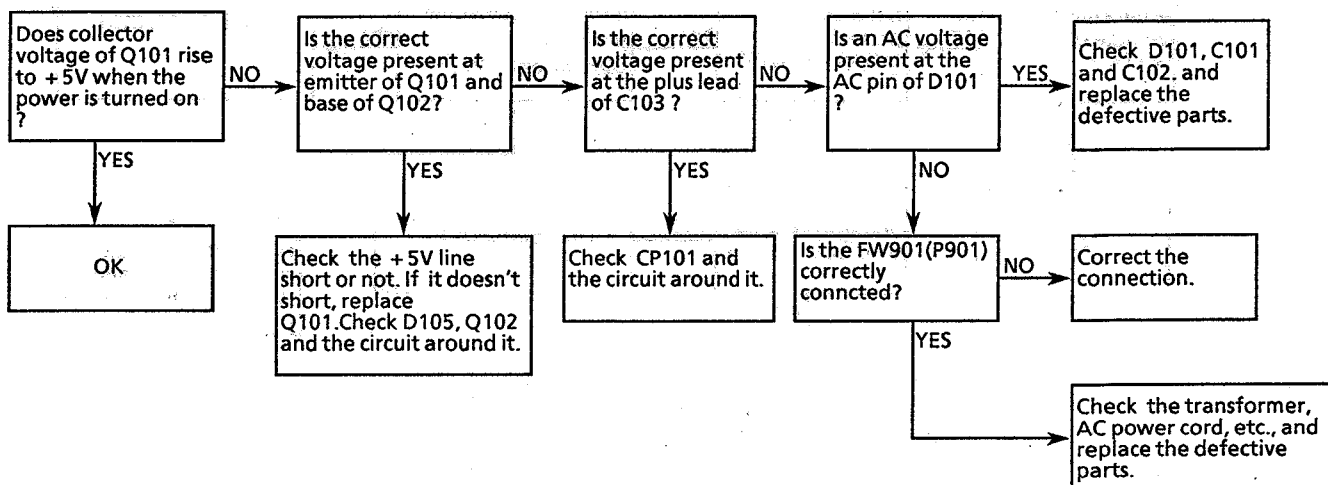
Troubleshooting

The following flowchart shows each circuit's condition about from "power on" until "ready to play".

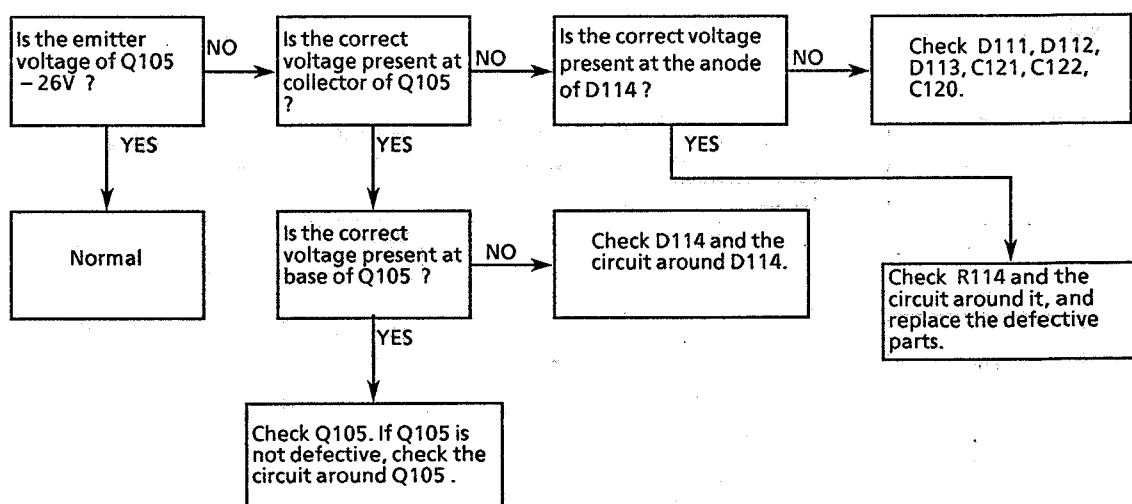


Power supply circuit section

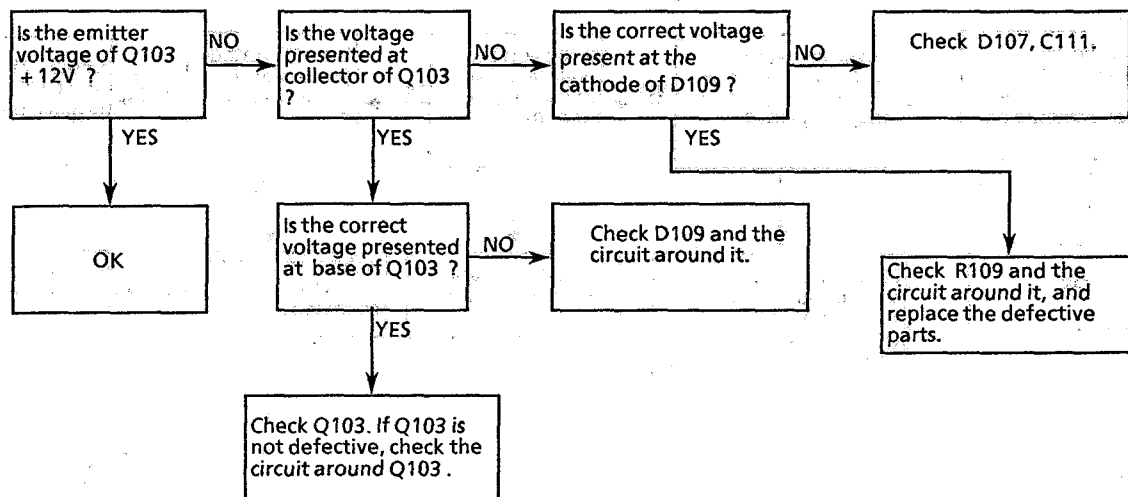
① Checking of +5V line



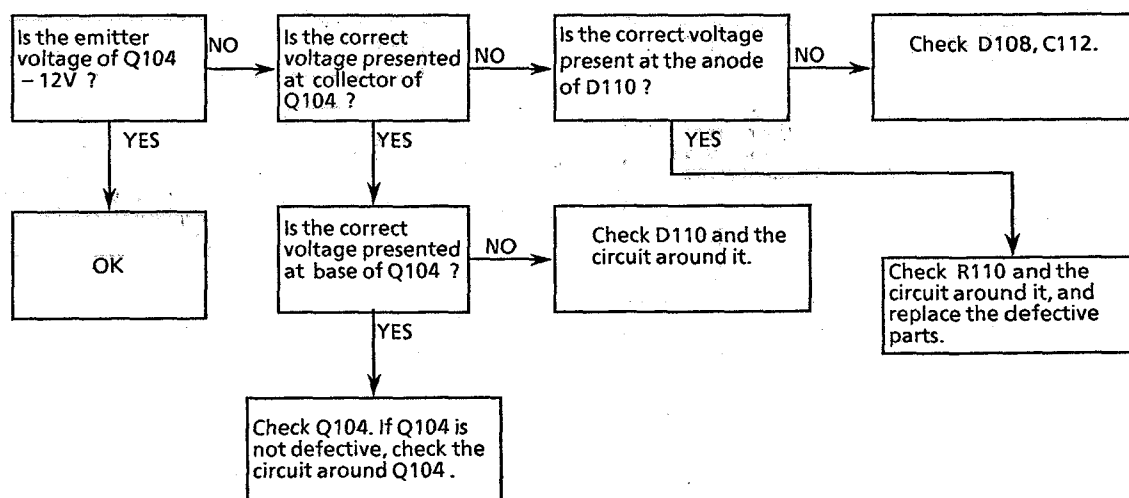
② Checking of -26V line



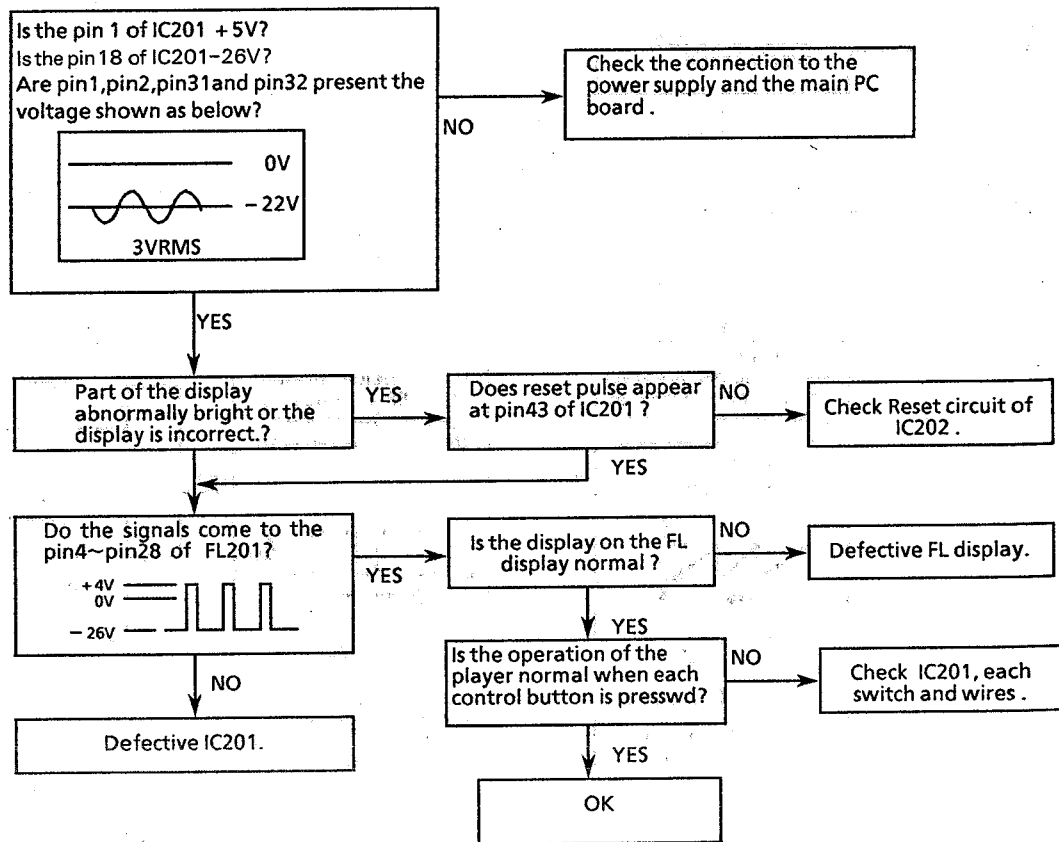
③ Checking of + 12V line



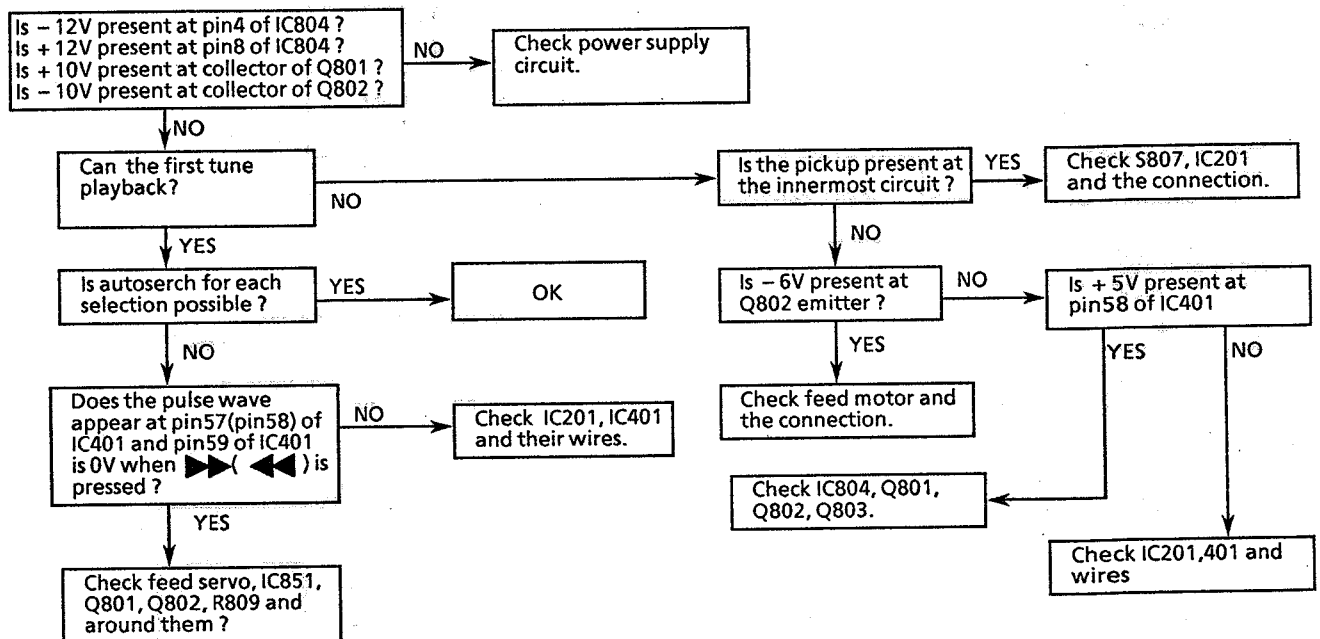
④ Checking of - 12V line



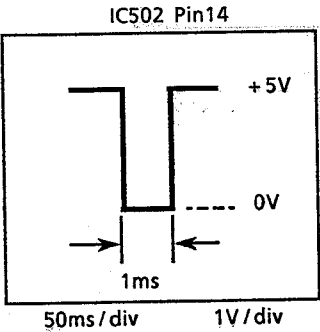
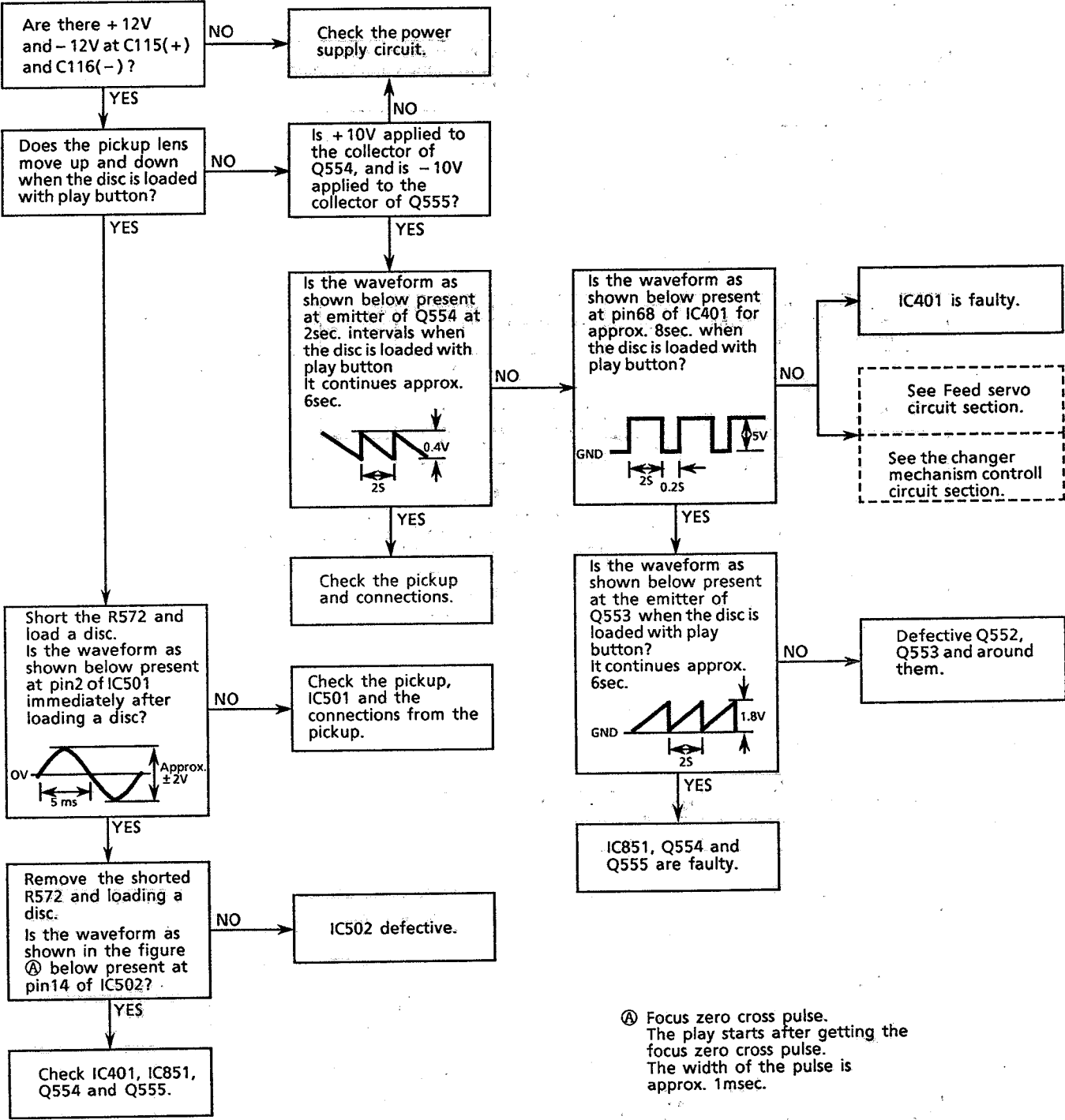
Front circuit Section



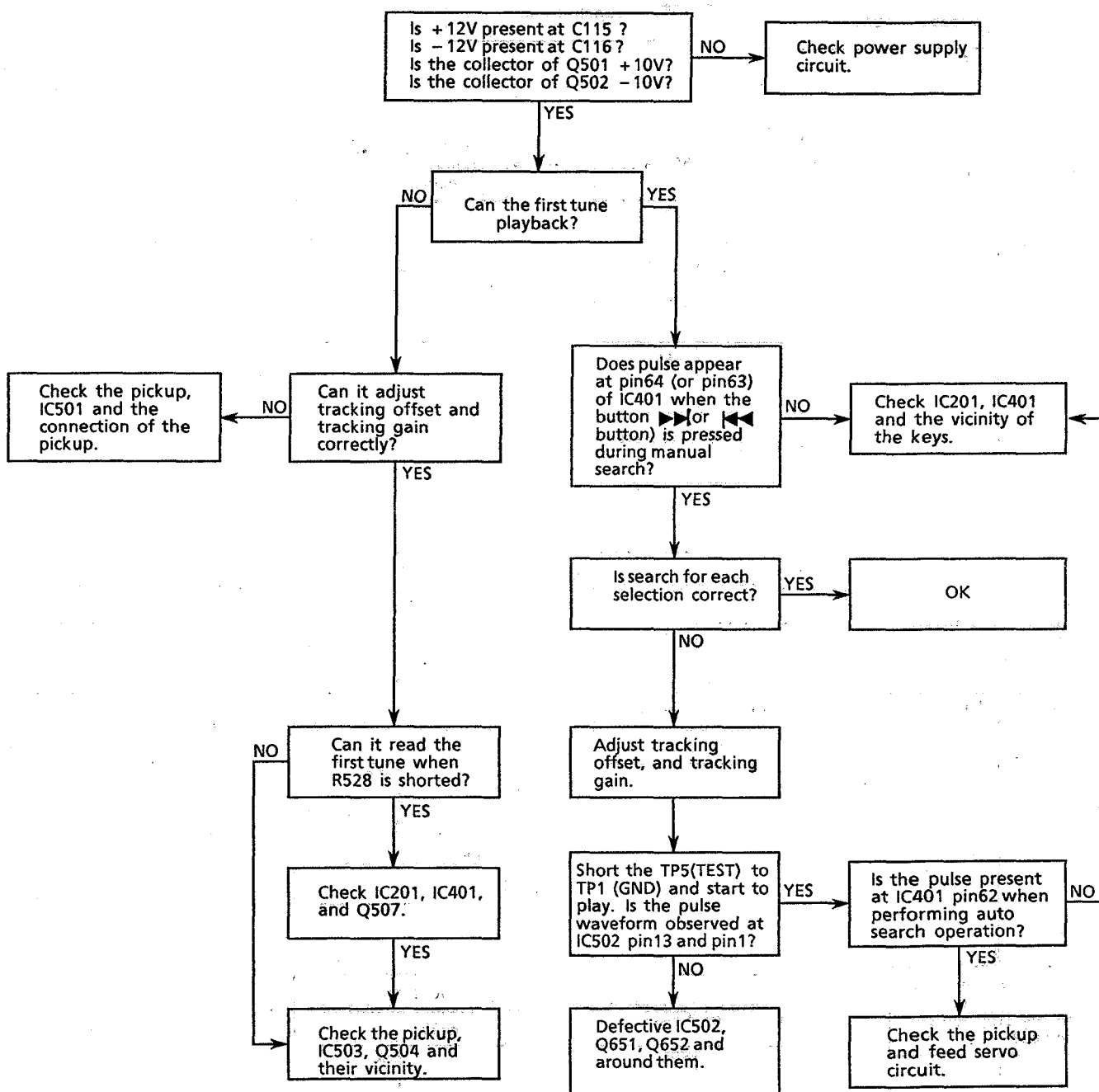
Feed servo circuit section



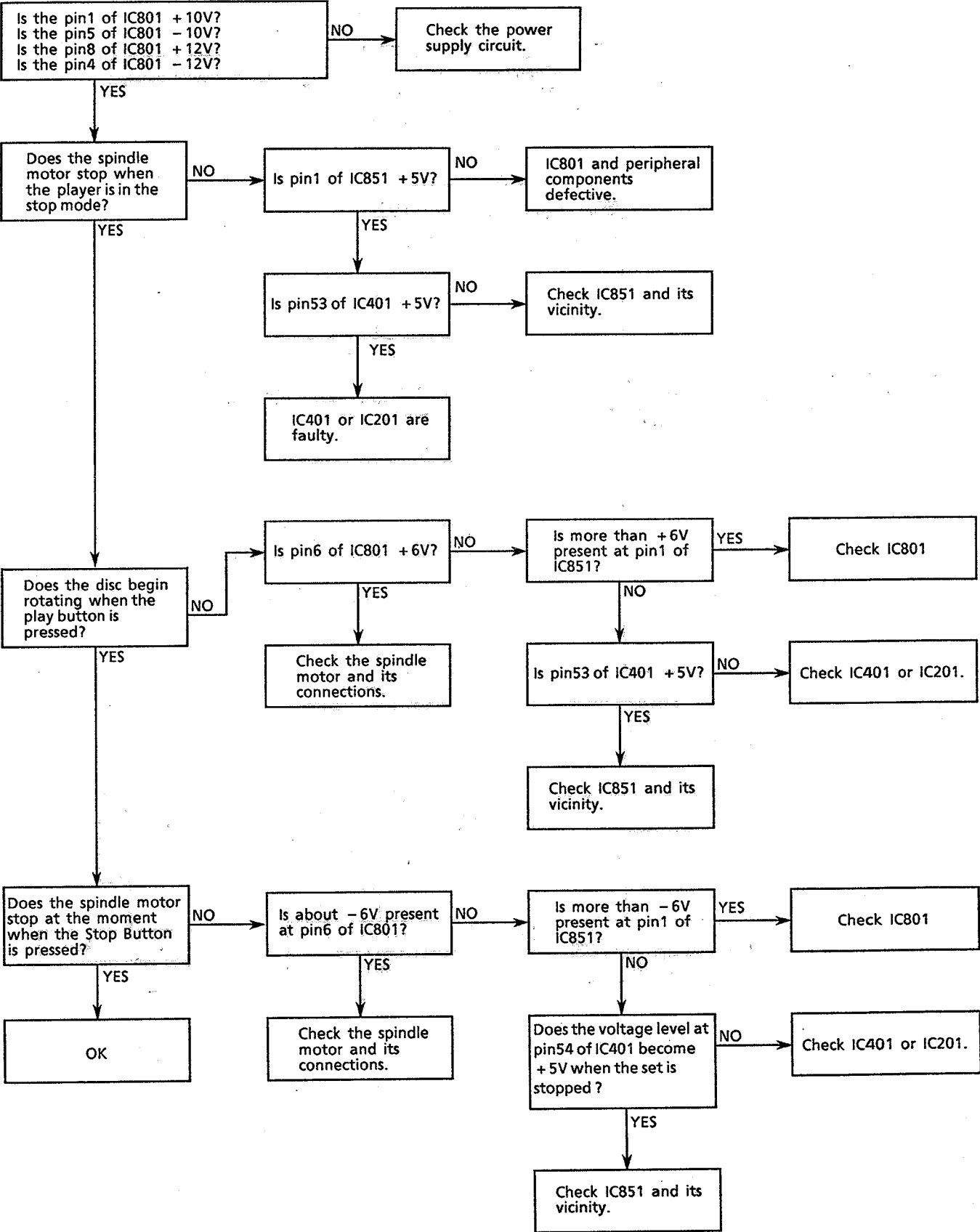
Focus servo circuit section



Tracking servo circuit section



Spindle servo circuit section

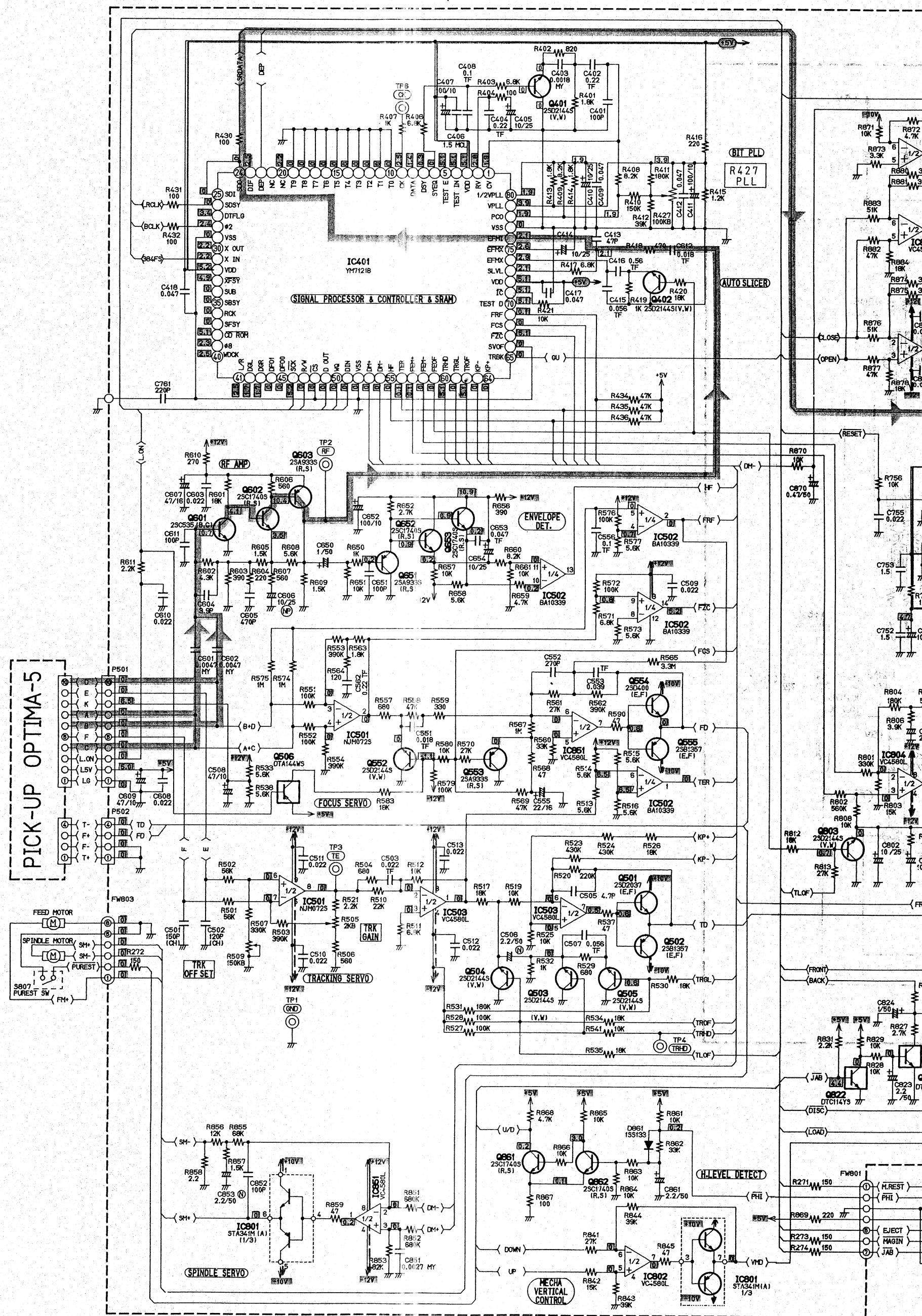


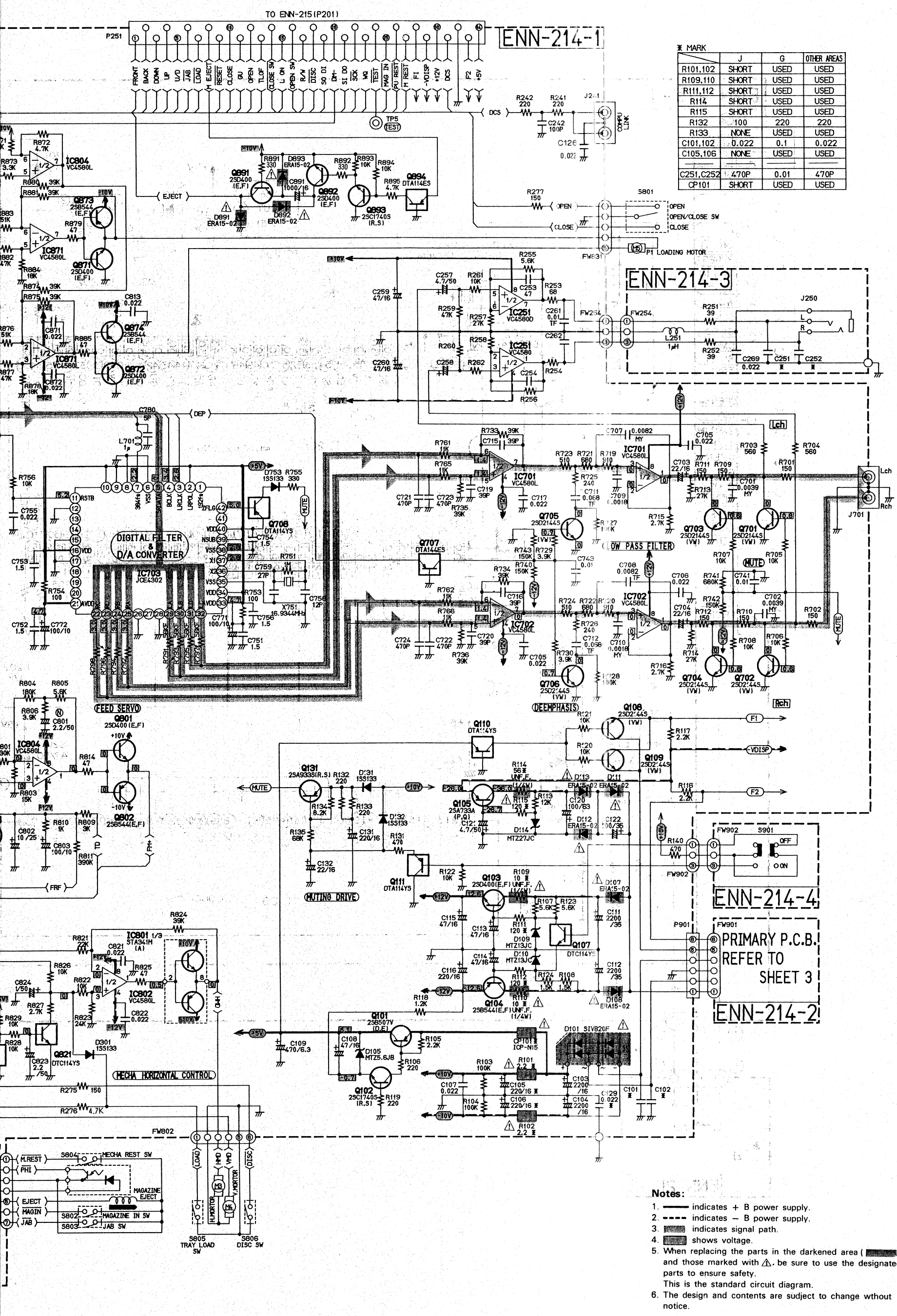
MEMO

MEMO

SCHEMATIC DIAGRAM

(1) Main P.C. Board Section

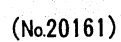


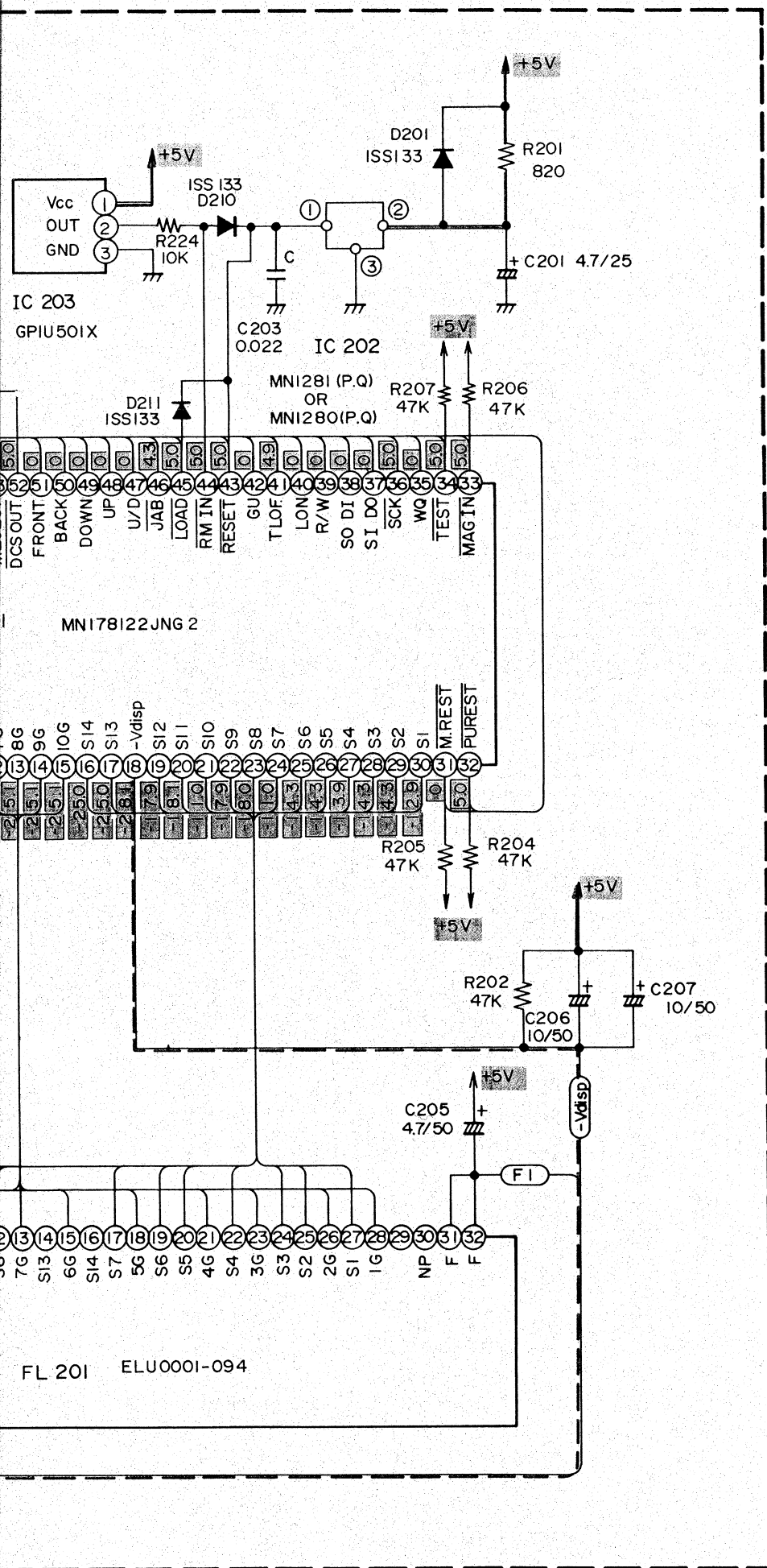


* MARK

	J	G	OTHER AREAS
R101,102	SHORT	USED	USED
R109,110	SHORT	USED	USED
R111,112	SHORT	USED	USED
R114	SHORT	USED	USED
R115	SHORT	USED	USED
R132	100	220	220
R133	NONE	USED	USED
C101,102	0.022	0.1	0.022
C105,106	NONE	USED	USED
C251,C252	470P	0.01	470P
CP101	SHORT	USED	USED

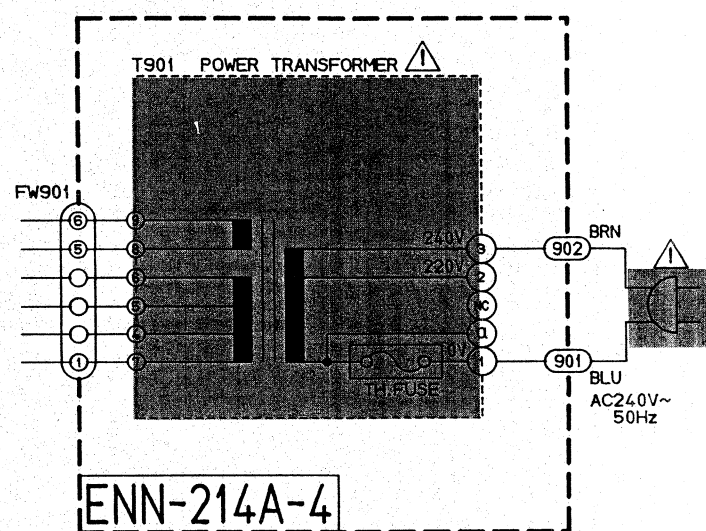
- Notes:
1. — indicates + B power supply.
 2. - - - indicates - B power supply.
 3. [shaded box] indicates signal path.
 4. [darkened area] shows voltage.
 5. When replacing the parts in the darkened area ([shaded box]) and those marked with Δ , be sure to use the designated parts to ensure safety. This is the standard circuit diagram.
 6. The design and contents are subject to change without notice.



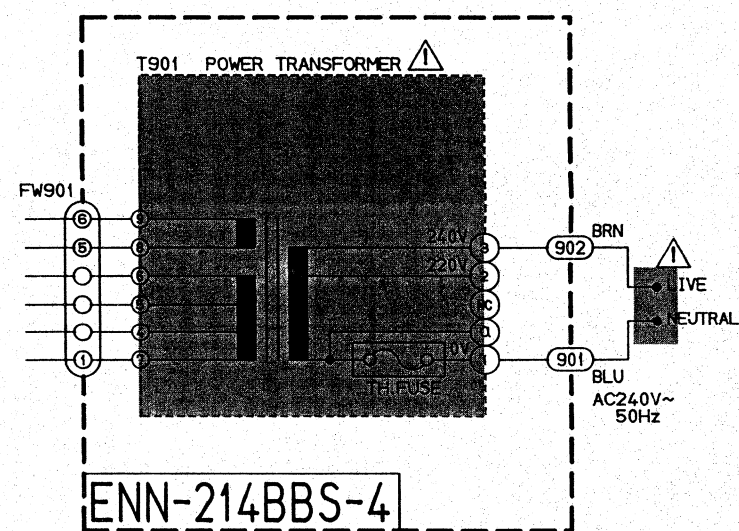


(3) Power Supply Section

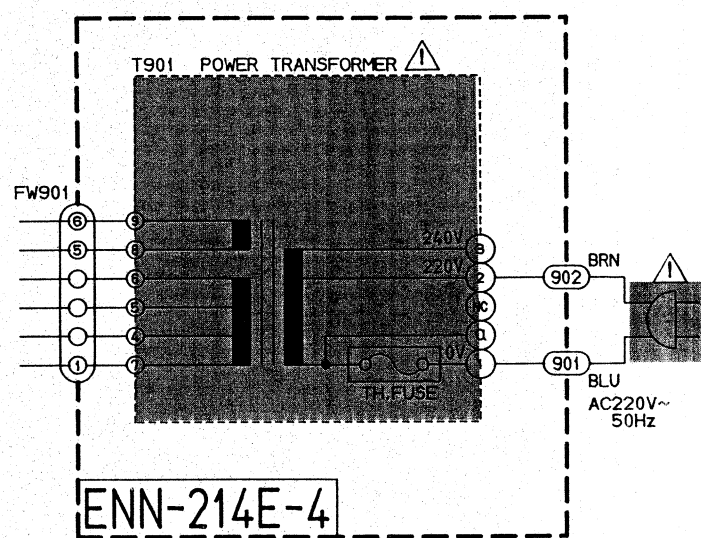
A (FOR AUSTRALIA)



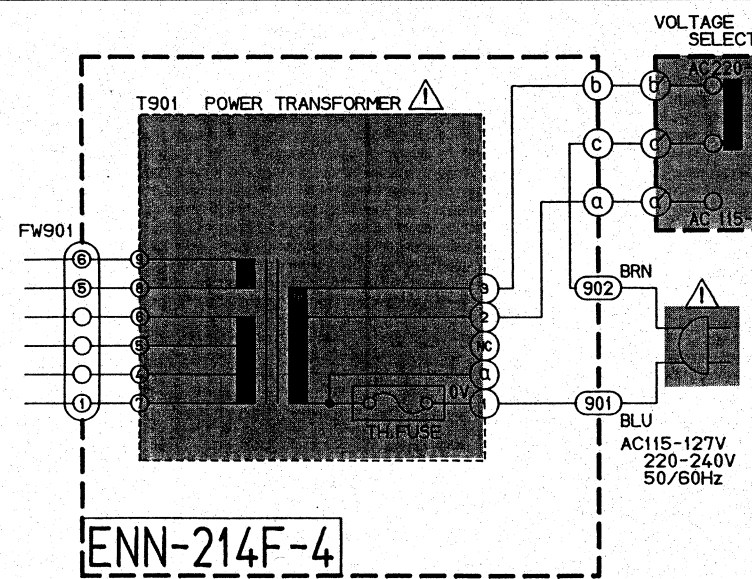
BS (FOR U.K.)



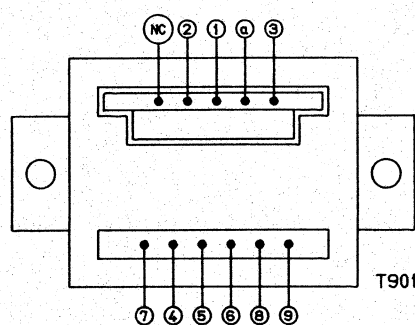
E (FOR CONTINENTAL EUROPE)



U (FOR OTHER AREAS)

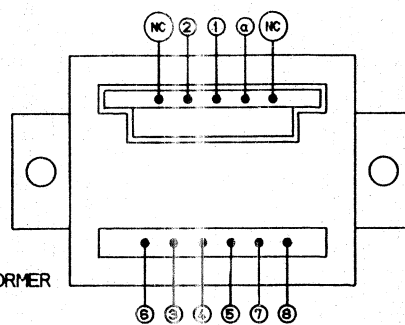


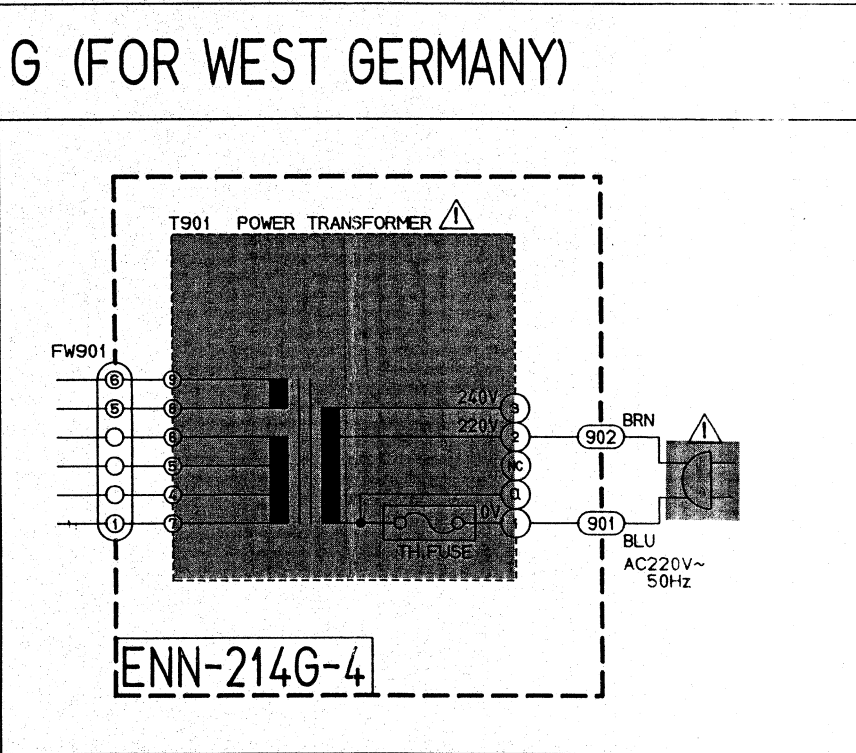
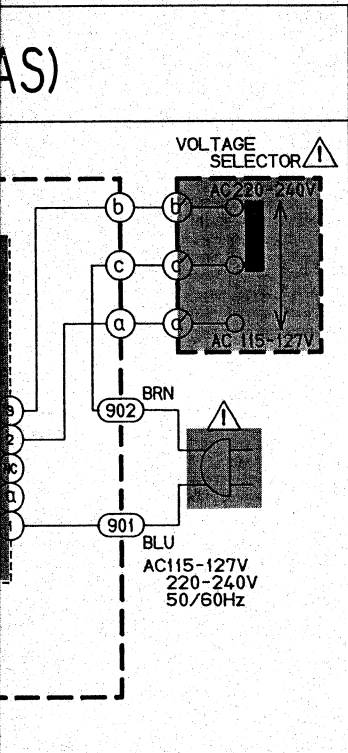
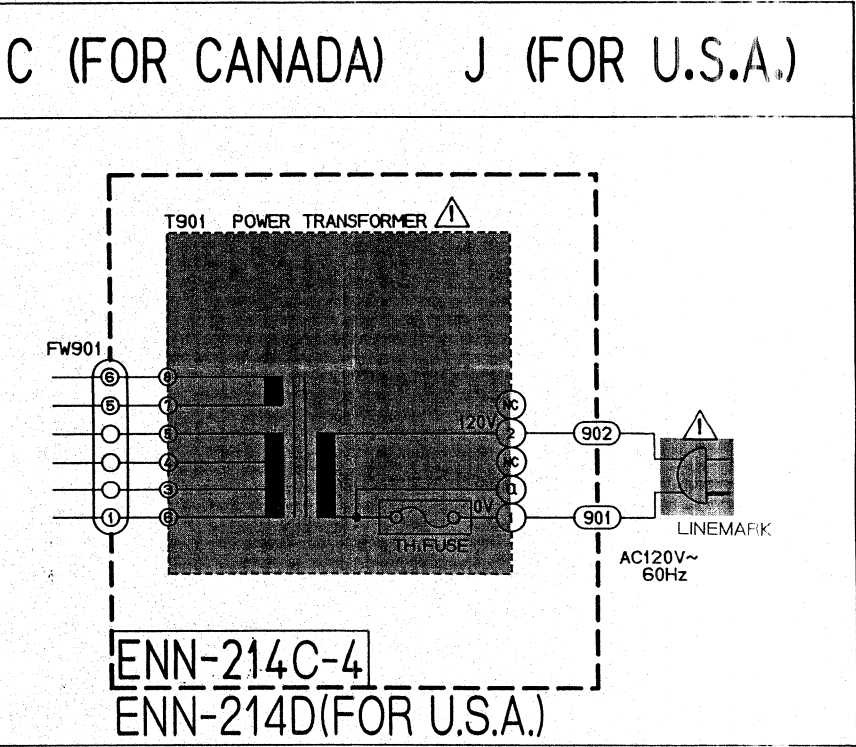
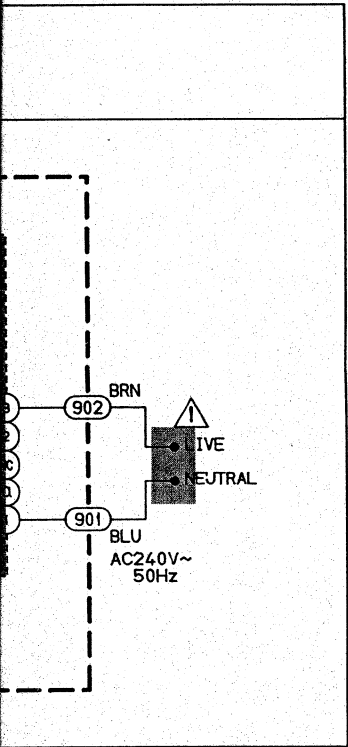
A,BS,E,U,G



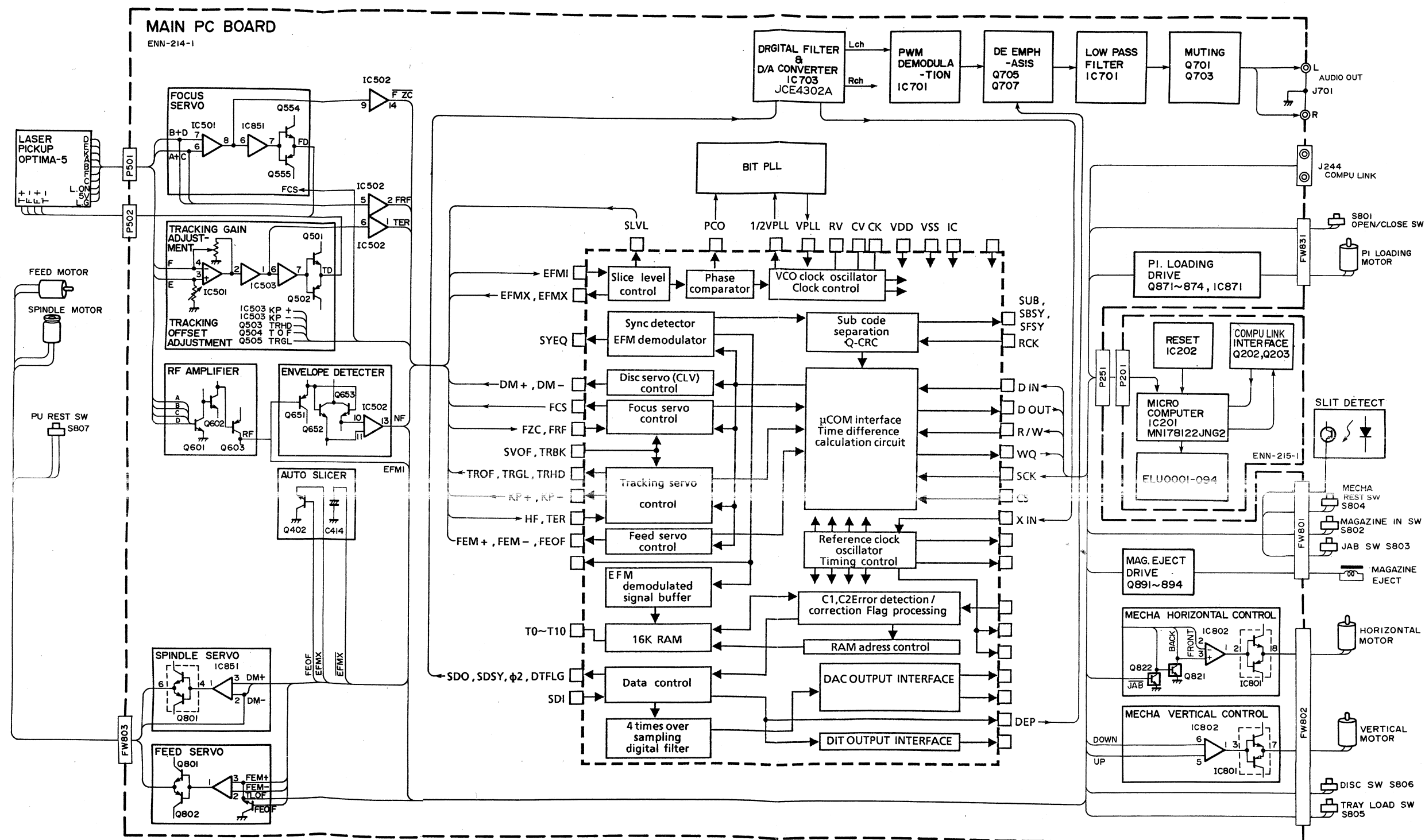
T901 POWER TRANSFORMER (BOTTOM VIEW)

C,J

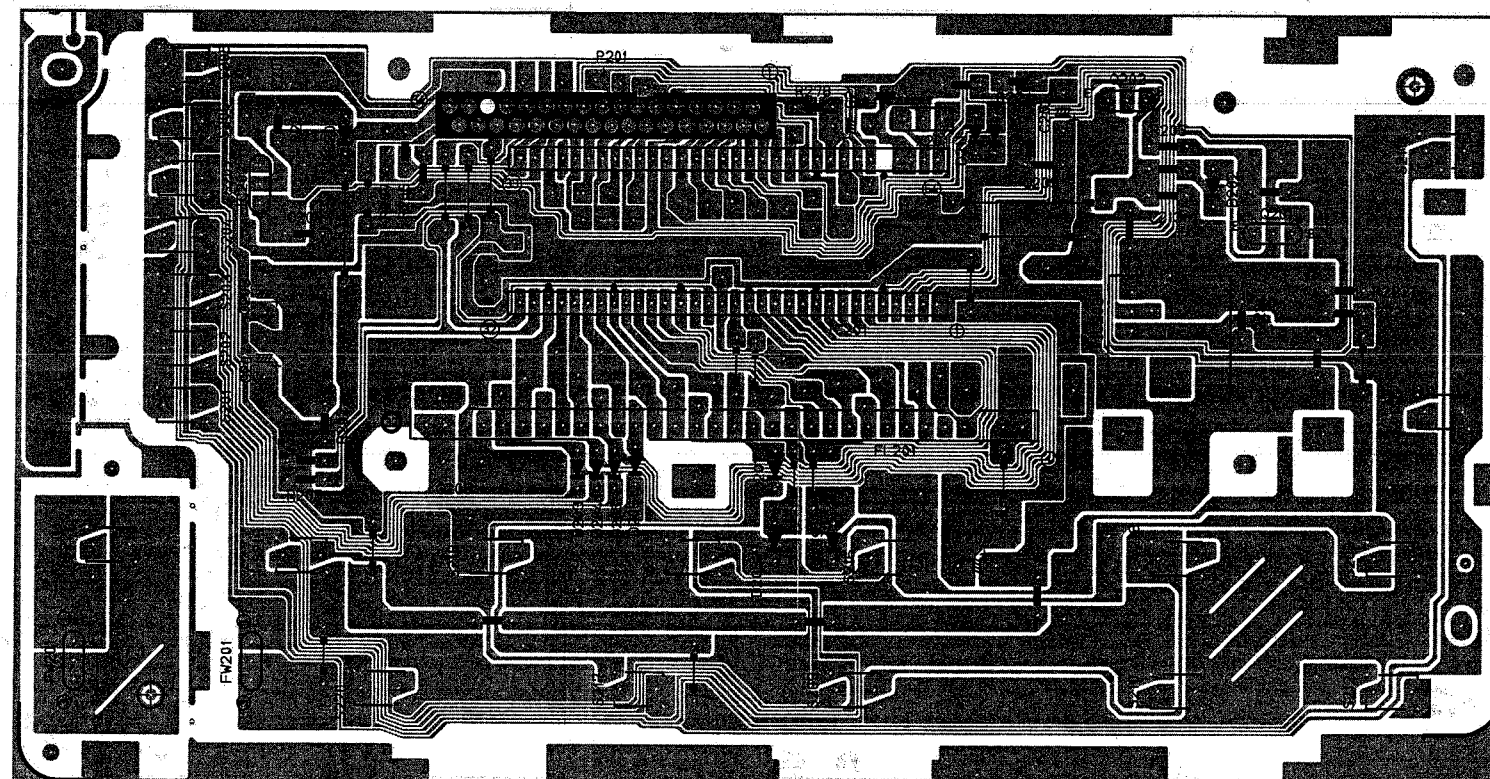




Block Diagram

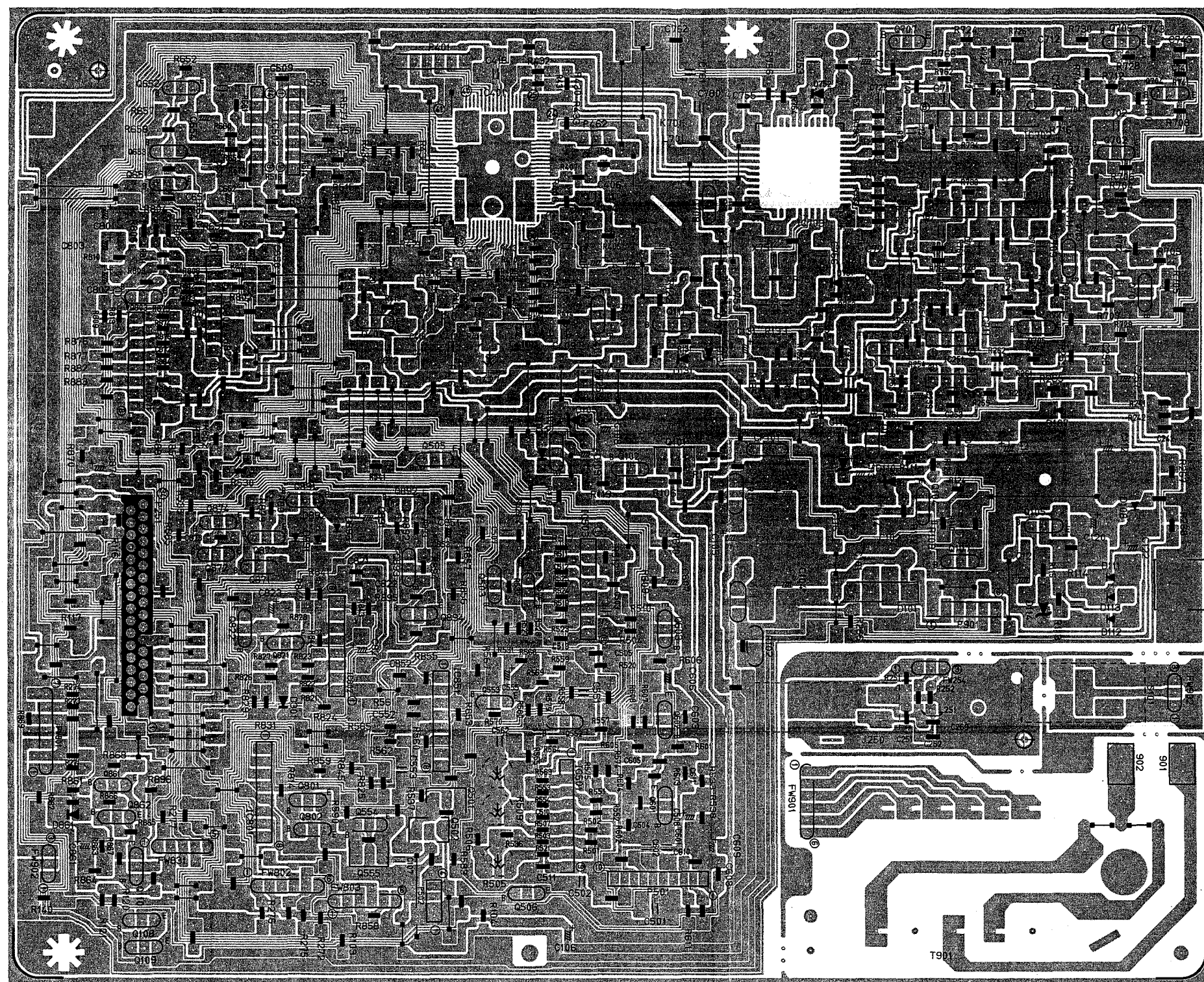


■ Front P.C.Board (ENN-215)



Printed Circuit Boards

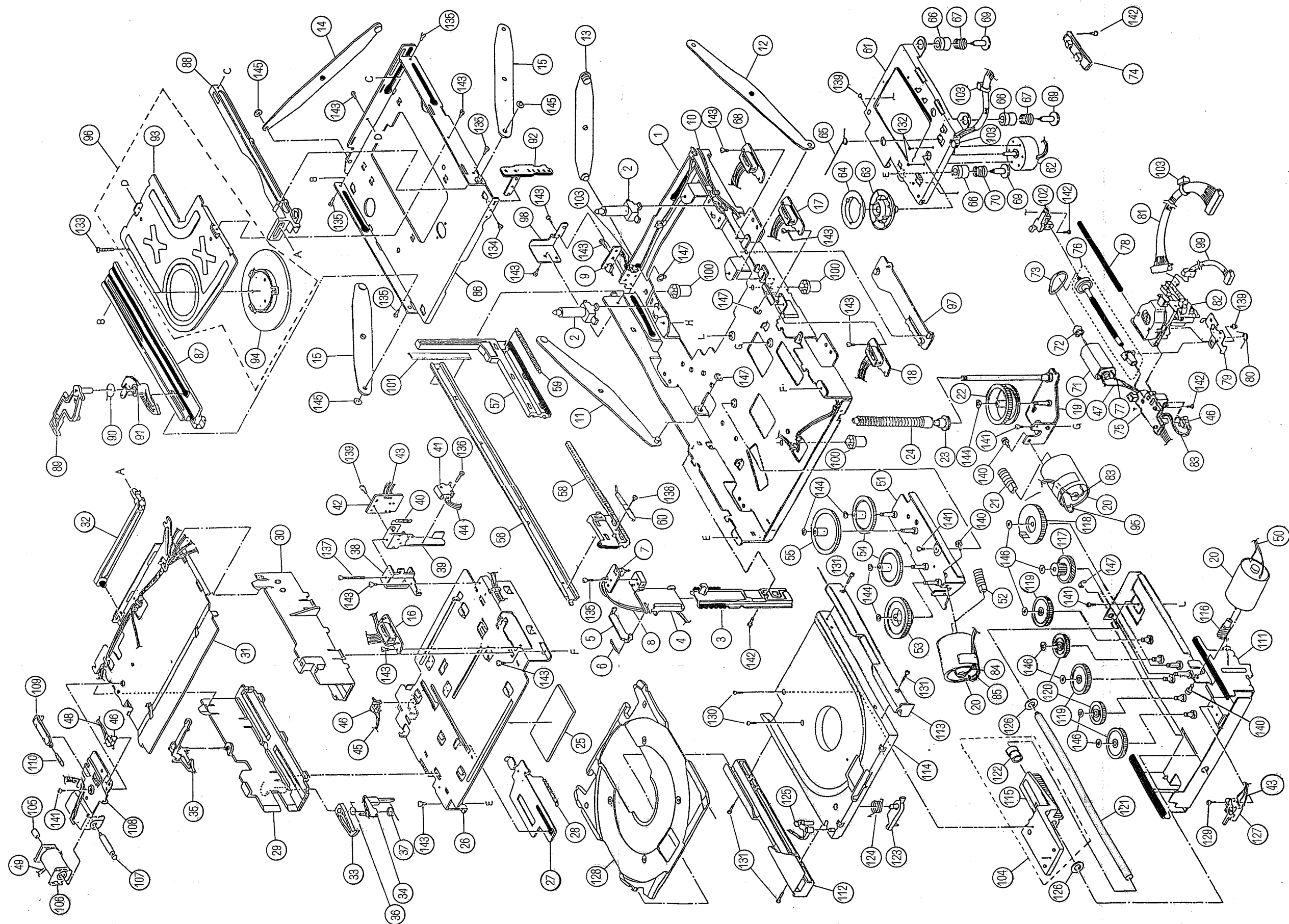
■ Main P.C. Board (ENN-214)



Exploded View of Assemblies and Application Points for Grease.

XL-M403BK

XL-M403BK

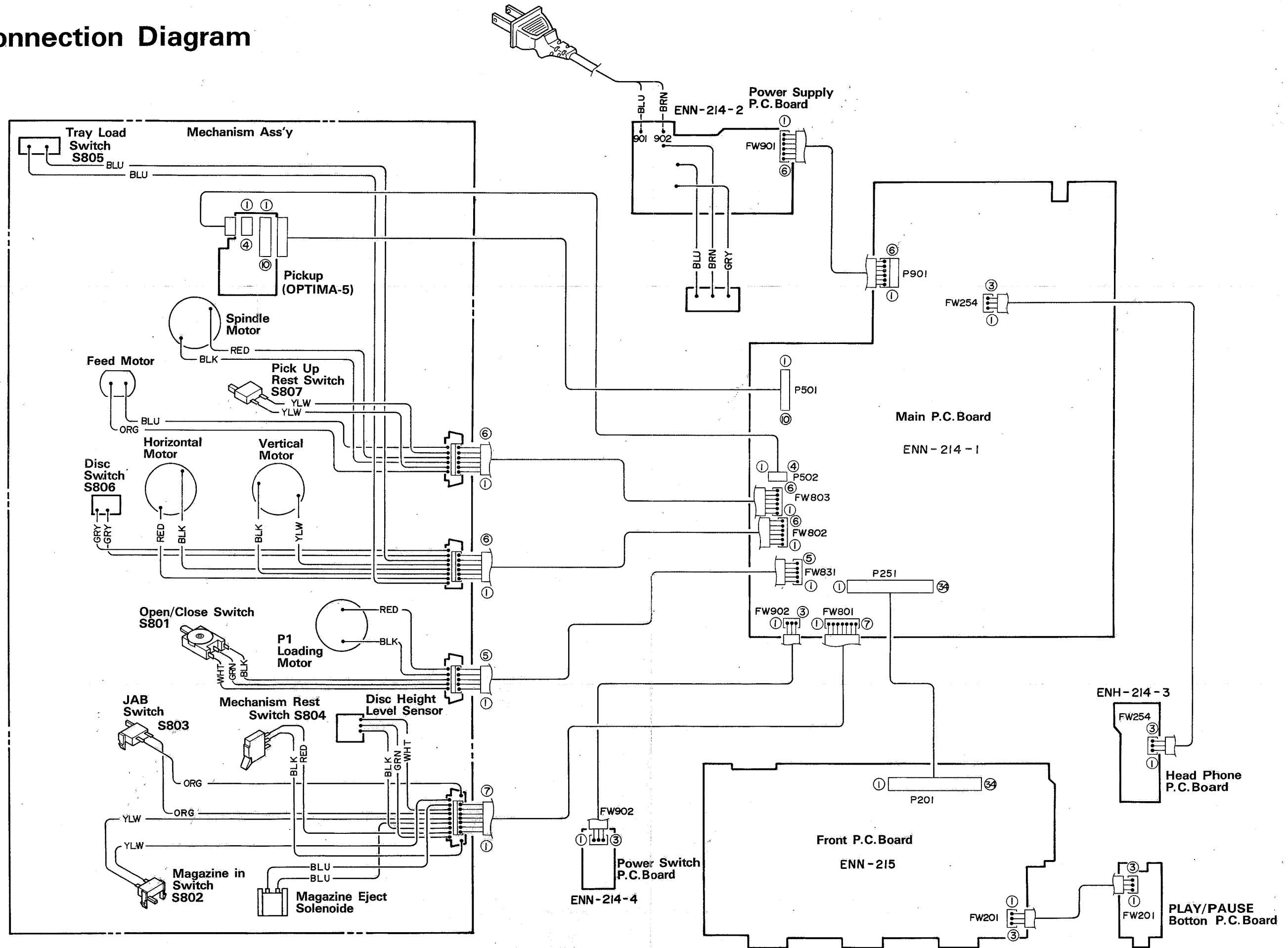


G-425A
G-488M
G-474C

(No.20161)

(No.20161)

Connection Diagram



PARTS LIST

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Accessories List	2-16
Packing Materials and Part Numbers	2-17

General Exploded View and Parts List

■ Parts List

△	Item	Part Number	Part Name	Q'ty	Description	Areas
	1	E12239-001	Front Panel	1		
	2	E306626-001	Fitting	1		
	3	E72968-001	JVC Mark	1		
	4	SBSG3006M	Screw	6		
	5	SBSF3008Z	Screw	6		
	6	E25834-005	Metal Cover	1		
	7	E61660-004	Special Screw	4		
	8	SBSG3008M	Screw	2		
	9	E72313-003	Line Volts Label	1		U
	10	GBSG3008CC	Screw	7		
	11	EWR10E-20TT	Flat Cord	1		
	12	E12188-009	Chassis Base	1		U
		E12188-010	Chassis Base	1		Except U
	13	SBSF2608M	Screw	2		U
	14	E305771-002	Stay Bracket	1	Right	
	15	SBSG3006Z	Screw	4		
	16	E306618-001	Stay Bracket	1	Center	
	17	E75079-001	Power Button	1		
	18	SBST3006Z	Screw	3		
	19	E305770-004	Stay Bracket	1	Left	
	20	E75088-001	Foot	2	Front	
	21	E75088-002	Foot	2	Rear	
	22	SBSG3008Z	Screw	4	for Foot	
	23	E303875-004	Caution Label	1		
	24	E71541-001	Etch Mark	1		E,EF
△	25	—	CD Changer Mechanism Unit Ass'y	1	See page 2-5	
△	26	ETP1010-46JA	Power Transformer	1		J,C
△		ETP1010-46LA	Power Transformer	1		U
△		ETP1010-46EA	Power Transformer	1		A,E,EF,G
△		ETP1010-46EABS	Power Transformer	1		BS
	27	E65389-004	Special Screw	2		
	28	E306232-001	Fastener	1		
△	29	QSS1L22-E01	Voltage Selector	1		U
	30	E306620-002	Cover	1		
	31	E48729-008	Plastic Rivet	1		
	32	E26233-029	Rear Panel	1		J
		E26233-030	Rear Panel	1		C
		E26233-031	Rear Panel	1		Except J,C,U
		E26233-032	Rear Panel	1		U
	—	E25536-039	Rating Label	1		J
		E25096-820	Rating Label	1		U
		E25096-920	Rating Label	1		E,EF
		E25096-920F	Rating Label	1		G
△	33	E73273-006	Special Screw	8		
	34	QHS3876-162	Cord Stopper	1		Except BS
△		QHS3876-162BS	Cord Stopper	1		BS
△	35	QMP1480-200	Power Cord	1		J,C
△		QMP2560-244	Power Cord	1		A
△		QMP3900-200	Power Cord	1		E,EF,G
△		QMP7520-200	Power Cord	1		U
△		QMP9017-008BS	Power Cord	1		BS
	36	EXO020005R10S10	Spacer	3		
	37	E74727-006	Special Screw	2		
	38	EXO010010H05S	Spacer	3		
	—	E61029-005	Number Label	1		C,A,BS
	—	QZL1001-001	UL Label	1		J
	—	E45858-002	CSA Label	1		C
	—	E70028-001	Approval Label	1		E
	—	E70419-002F	F. Mark Label	1		G
	—	E60965-001BS	Warning Label	1		BS
	—	E70891-001	Class 1 Label	1		

The Marks for Designated Areas

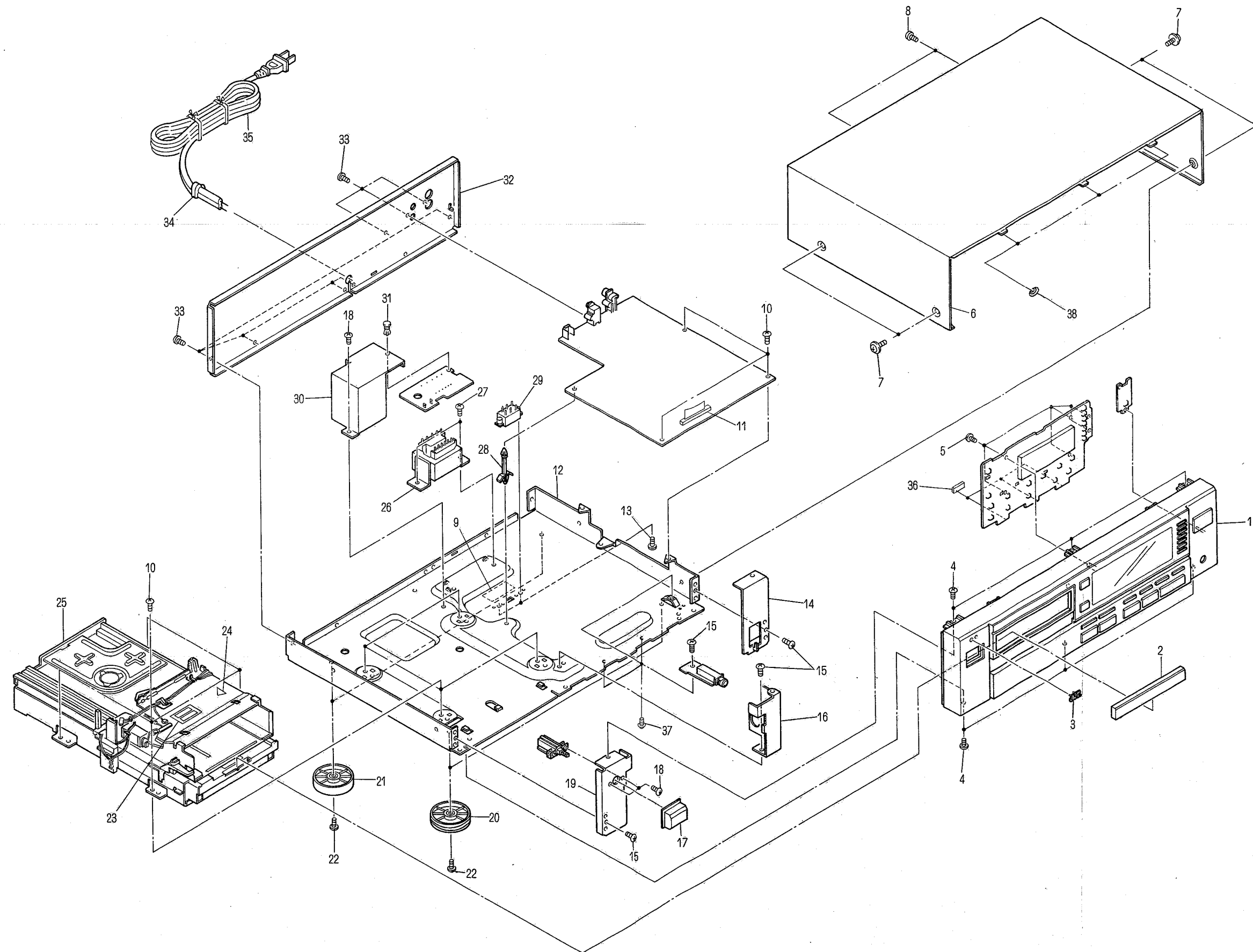
J.....the U.S.A.
 C.....Canada
 A.....Australia
 E,EF.....Continental Europe
 G.....West Germany
 BS.....the U.K.
 U.....Other Countries
 No mark indicates all areas.

△ Safety Parts

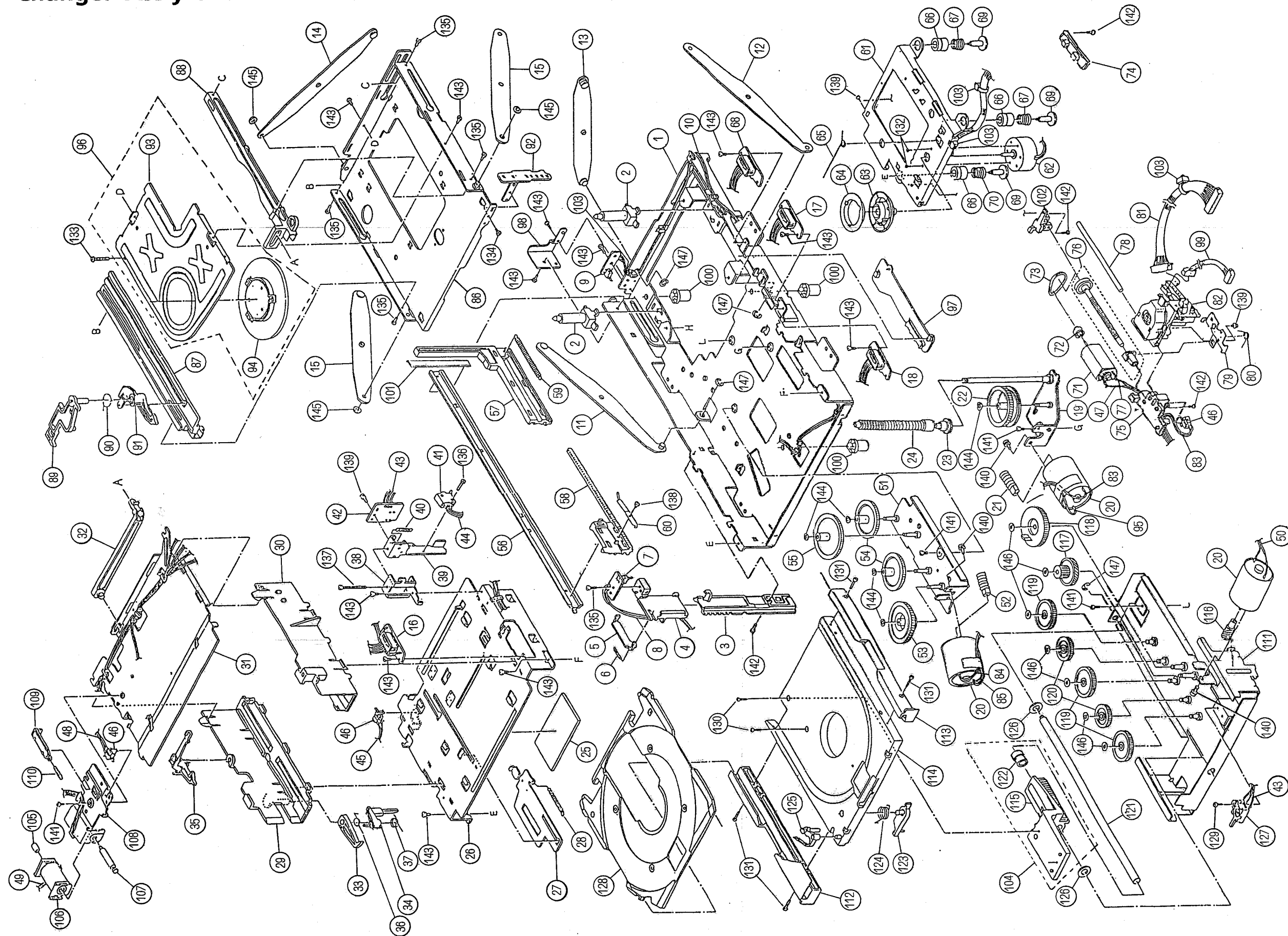
XL-M403BK

XL-M403BK

■ Exploded View



CD Changer Ass'y and Parts List



■ Parts List

Item	Part Number	Part Name	Q'ty	Description	Areas
1	30050101T	Chassis Base	1		
2	30050115T	Guide Boss	2		
3	30051016T	Tray Switch Guide	1		
4	30050105T	Tray Switch Bracket	1		
5	30050106T	Sensor	1		
6	30050107T	Sensor Spring	1		
7	300501301T	Detect Switch PC Board Ass'y	1		
8	30051022T	Wire	2	Gray	
9	300505301T	FR. Detect PC Board Ass'y	1		
10	30051008T	Wire	2	Blue	
11	300502501T	Elevator Side Arm A	1	Left	
12	300502502T	Elevator Side Arm A	1	Right	
13	300502503T	Elevator Rear Arm A	1		
14	300502504T	Elevator Rear Arm B	1		
15	300502505T	Elevator Side Arm B	2		
16	300501302T	Connector PC Board A Ass'y	1		
17	300501304T	Connector PC Board D Ass'y	1		
18	300504301T	Connector PC Board P Ass'y	1		
19	300502507T	Elevator Motor Bracket	1		
20	RF-370C-15370	Motor	3		
21	30050207T	Elevator Gear A	1		
22	30050205T	Elevator Gear B	1		
23	30050219T	Elevator Gear C1	1		
24	30050220T	Elevator Gear C2	1		
25	30050432T	Disk Guard Mat	1		
26	30050316T	Guide Base	1		
27	30050423T	Elevator Slide lever	1		
28	30050333T	Elevator Slide Lever Spring	1		
29	30050302T	Magazine Guide	1	Left	
30	30050303T	Magazine Guide	1	Right	
31	30050304T	Guide Cover	1		
32	30050309T	Tray Stopper	1		
33	30050429T	Open Lever 1	1		
34	30050430T	Open Lever 2	1		
35	30050421T	Lock Lever	1		
36	30050431T	Open Lever Spring	1		
37	30050322T	Open Lever Spring	1		
38	30050323T	Switch Bracket	1		
39	30050319T	Switch Holder	1		
40	11521001T	Switch Holder Spring	1		
41	64020404T	SSCTL Shorting Switch	1		
42	300503301T	Switch PC Board Ass'y	1		
43	30051025T	Wire	2		
44	30051024T	Wire	1		
45	30051021T	Wire	1		
46	64020403T	Push Switch	3		
47	30051007T	Wire	1	Orange	
48	30051019T	Wire	1		
49	30051020T	Wire	1		
50	30051023T	Wire	1		
51	300505502T	Feed Motor Bracket	1		
52	30050508T	Feed Gear A	1		
53	30050509T	Feed Gear B	1		
54	30050511T	Feed Gear D	2		
55	30050512T	Feed Gear E	1		
56	30050501T	Feed Rail	1		
57	30050518T	Hook Slide Lever	1		
58	30050503T	Rack Gear	1		
59	30050504T	Rack Gear Spring	1		
60	30050515T	Lock Spring Plate	1		

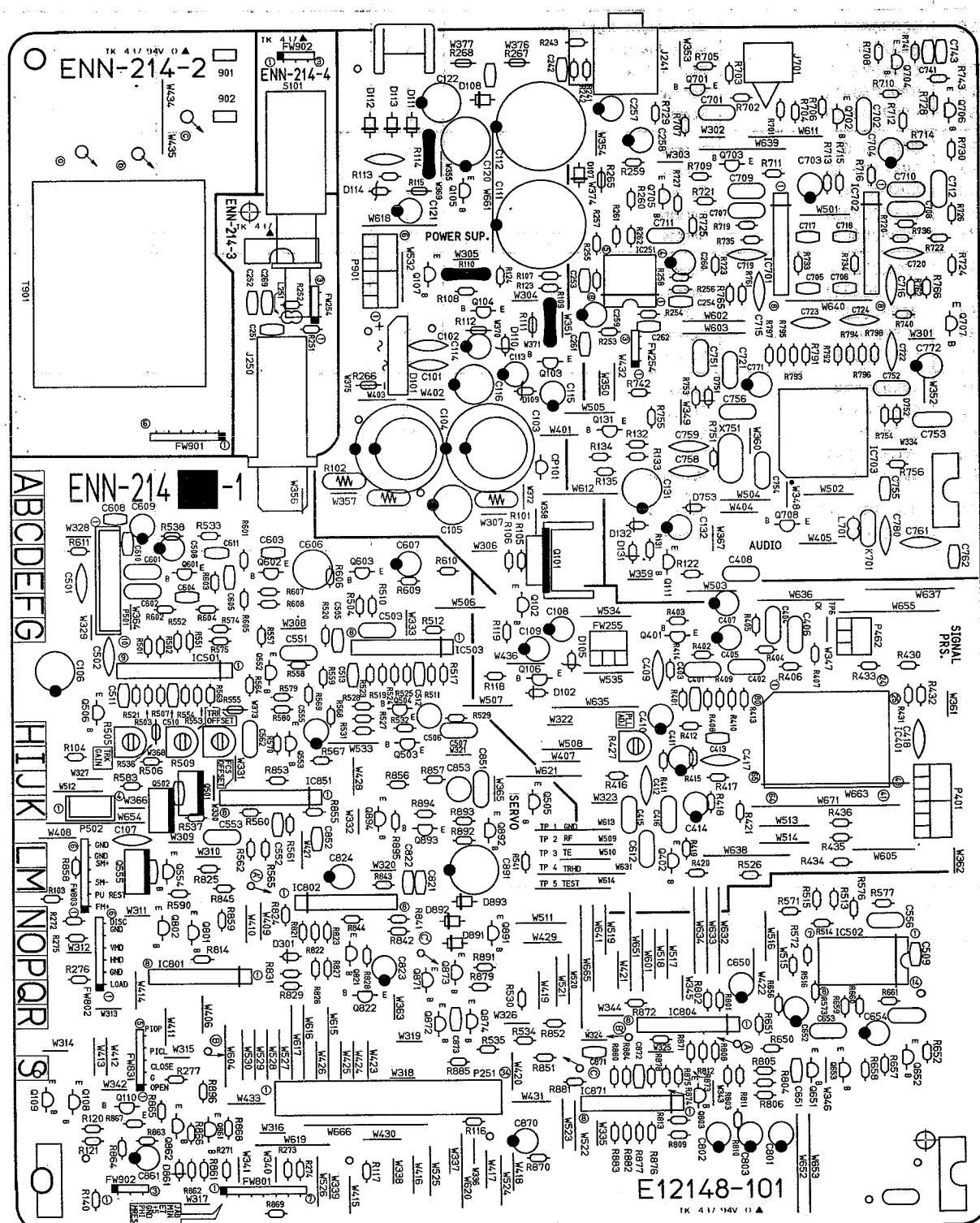
Item	Part Number	Part Name	Q'ty	Description	Areas
61	30050738T	Turn Table Base	1		
62	60020705T	Motor	1		
63	30050729T	Turn Table	1		
64	30050713T	Turn Table Plate	1		
65	30050742T	Controller Spring	1		
66	30050721T	Floating Rubber	3		
67	30050715T	Floating Spring (B)	2		
68	300501303T	Connector PC Board C Ass'y	1		
69	30050722T	Floating Screw	3		
70	30050740T	Floating Spring	1		
71	60021103T	Motor	1		
72	30050709T	Motor Pulley	1		
73	30050714T	Feed Motor Belt	1		
74	30050737T	Pick up Support	1		
75	30050724T	Shaft Holder A	1		
76	300507303T	Feed Screw As'y	1		
77	30051014T	Wire	1	Blue	
78	30050728T	Pick up Shaft	1		
79	30050735T	Feed Nut Holder	1		
80	30050739T	Feed Nut Spring	1		
81	EWS25A-B218	Wire	1	10P	
82	OPTIMA-5S	Pick up	1		
83	30051011T	Wire	3	Yellow	
84	30051009T	Wire	1	Black	
85	30051010T	Wire	1	Red	
86	300508502T	Rail Base Ass'y	1		
87	30050802T	Rail	1	left	
88	30050803T	Rail	1	Right	
89	30050804T	Hook Lever	1		
90	30050805T	Hook Spring	1		
91	30050811T	Hook	1		
92	30050424T	Switch Detect Plate A	1		
93	30050806T	Magnet Holder Bracket	1		
94	300508301T	Clamper Ass'y	1		
95	30051012T	Wire	1	Black	
96	300508303T	Magnet Holder Ass'y	1		
97	30051015T	Wire Protector	1		
98	30050113T	Bracket	1		
99	EWS254-B222	Wire	1	4P	
100	30050114T	Chassis Support	3		
101	30050519T	Bracket	1		
102	30050725T	Shaft Holder B	1		
103	12030105T	Tie Band	11		
104	300504302T	Plus Base Guide Rack Ass'y	1		
105	30010317T	Plunger Holder	1		
106	300103302T	Coil Ass'y	1		
107	30050422T	Plunger	1		
108	30050419T	Solenoid Bracket	1		
109	30050420T	Switch Slide Lever	1		
110	30050426T	Switch Slide Lever Spring	1		
111	300504501T	Plus Base Ass'y	1		
112	30050402T	Plus Rail	1	Left	
113	30050403T	Plus Rail	1	Right	
114	30050404T	Plus Rail Base	1		
115	30050405T	Plus Base Guide Rack	1		
116	30050406T	Plus Gear A	1		
117	30050407T	Plus Gear B	1		
118	30050408T	Plus Gear C	1		
119	30050409T	Plus Gear D	3		
120	30050410T	Plus Gear E	2		

Item	Part Number	Part Name	Q'ty	Description	Areas
121	30050414T	Guide Shaft	1		
122	30050415T	Guide Rack Metal	1		
123	30050416T	Stopper	1		
124	30050417T	Stopper Spring	1		
125	30050418T	Plus Lock Lever	1		
126	30050425T	Absorbent Rubber	2		
127	64020801T	Slide Switch	1		
128	E26609-001	Plus 1 Tray	1		
129	9P0626041T	Screw	1		
130	9P0720083T	Screw	2		
131	9P0720101T	Screw	4		
132	SPSK1722M	Screw	2		
133	SPSP2014Z	Screw	1		
134	SPSK2003M	Screw	1		
135	9C0820601T	Screw	5		
136	SPSK2008M	Screw	1		
137	9F2220321T	Screw	1		
138	9C2620251T	Screw	1		
139	LPSP2003Z	Screw	3		
140	LPSP3004Z	Screw	3		
141	SPSR2003R	Screw	4		
142	SPSR2005R	Screw	4		
143	SPSR2004Z	Screw	12		
144	WDM210540	Washer	5		
145	WDM300650	Washer	3		
146	9W0250110T	Washer	7		
147	REE3000	E.Ring	4		

Printed Circuit Board Ass'y and Parts List

■ ENN-214 □ Main PC Board Ass'y

Note : ENN-214 ☐ varies according to the areas employed. See note (1) when placing an order.



Note(1)

PC Board Ass'y	Designated Areas
ENN-214 [A]	Australia
ENN-214 [B]BS	the U.K.
ENN-214 [C]	Canada
ENN-214 [D]	the U.S.A.
ENN-214 [E]	Continental Europe
ENN-214 [F]	Other Countries
ENN-214 [G]	West Germany

Transistors

ITEM	PART NUMBER	DESCRIPTION	AREA
Q101	2SB507V(D,E)	SILICON SANYO	
Q102	2SC1740S(R,S)	SILICON ROHM	
Q103	2SD400MP(E,F)	SILICON SANYO	
Q104	2SB544MP(E,F)	SILICON SANYO	
Q105	2SA733A(P,Q)	SILICON NEC	
Q107	DT114YS	SILICON ROHM	
Q108	2SD2144S(VW)	SILICON ROHM	
Q109	2SD2144S(VW)	SILICON ROHM	
Q110	DTA114YS	SILICON ROHM	
Q111	DTA114YS	SILICON ROHM	
Q131	2SA933S(R,S)	SILICON ROHM	
Q401	2SD2144S(VW)	SILICON ROHM	
Q402	2SD2144S(VW)	SILICON ROHM	
Q501	2SD2037(E,F)	SILICON ROHM	
Q502	2SB1357(E,F)	SILICON ROHM	
Q503	2SD2144S(VW)	SILICON ROHM	
Q504	2SD2144S(VW)	SILICON ROHM	
Q505	2SD2144S(VW)	SILICON ROHM	
Q506	DTA144WS	SILICON ROHM	
Q552	2SD2144S(VW)	SILICON ROHM	
Q553	2SA933S(R,S)	SILICON ROHM	
Q554	2SD400MP(E,F)	SILICON SANYO	
Q555	2SB1357(E,F)	SILICON ROHM	
Q601	2SC535(B,C)	SILICON HITACHI	
Q602	2SC1740S(R,S)	SILICON ROHM	
Q603	2SA933S(R,S)	SILICON ROHM	
Q651	2SA933S(R,S)	SILICON ROHM	
Q652	2SC1740S(R,S)	SILICON ROHM	
Q653	2SC1740S(R,S)	SILICON ROHM	
Q701	2SD2144S(VW)	SILICON ROHM	
Q702	2SD2144S(VW)	SILICON ROHM	
Q703	2SD2144S(VW)	SILICON ROHM	
Q704	2SD2144S(VW)	SILICON ROHM	
Q705	2SD2144S(VW)	SILICON ROHM	
Q706	2SD2144S(VW)	SILICON ROHM	
Q707	DTA144ES	SILICON ROHM	
Q708	DTA114YS	SILICON ROHM	
Q801	2SD400MP(E,F)	SILICON SANYO	
Q802	2SB544MP(E,F)	SILICON SANYO	
Q803	2SD2144S(VW)	SILICON ROHM	
Q821	DT114YS	SILICON ROHM	
Q822	DT114YS	SILICON ROHM	
Q861	2SC1740S(R,S)	SILICON ROHM	
Q862	2SC1740S(R,S)	SILICON ROHM	
Q871	2SD400MP(E,F)	SILICON SANYO	
Q872	2SD400MP(E,F)	SILICON SANYO	
Q873	2SB544MP(E,F)	SILICON SANYO	
Q874	2SB544MP(E,F)	SILICON SANYO	
Q891	2SD400MP(E,F)	SILICON SANYO	
Q892	2SD400MP(E,F)	SILICON SANYO	
Q893	2SC1740S(R,S)	SILICON ROHM	
Q894	DTA114ES	SILICON ROHM	

△ ISIAIETI PARTS

I.C.s

ITEM	PART NUMBER	DESCRIPTION	AREA
IC251	VC4580D	I.C.	
IC401	YM7121B	I.C.	YAMAHA
IC501	NJM072S	I.C.	DAINICHI
IC502	BA10339	I.C.	DAINICHI
IC503	VC4580L	I.C.	DAINICHI

I.C.s

ITEM	PART NUMBER	DESCRIPTION	AREA
IC701	VC4580L	I.C.	DAINICHI
IC702	VC4580L	I.C.	DAINICHI
IC703	JCE4302A	I.C.	MATSUSHITA
IC801	STA341M(A)	I.C.	SANKEN
IC802	VC4580L	I.C.	DAINICHI
IC804	VC4580L	I.C.	DAINICHI
IC851	VC4580L	I.C.	DAINICHI
IC871	VC4580L	I.C.	DAINICHI

△ ISIAIETI PARTS

Diodes

ITEM	PART NUMBER	DESCRIPTION	AREA
D101	S1VB20F	SILICON SINDENGEN	
D105	MTZ5.6JB	ZENER ROHM	
D107	ERA15-02L19	SILICON KYOUDOU	
D108	ERA15-02L19	SILICON KYOUDOU	
D109	MTZ13JC	ZENER ROHM	
D110	MTZ13JC	ZENER ROHM	
D111	ERA15-02L19	SILICON KYOUDOU	
D112	ERA15-02L19	SILICON KYOUDOU	
D113	ERA15-02L19	SILICON KYOUDOU	
D114	MTZ27JC	ZENER ROHM	
D131	1SS133	SILICON ROHM	
D132	1SS133	SILICON ROHM	
D301	1SS133	SILICON ROHM	
D753	1SS133	SILICON ROHM	
D861	1SS133	SILICON ROHM	
D891	ERA15-02L19	SILICON KYOUDOU	
D892	ERA15-02L19	SILICON KYOUDOU	
D893	ERA15-02L19	SILICON KYOUDOU	

△ ISIAIETI PARTS

Capacitors

ITEM	PART NUMBER	DESCRIPTION	AREA
C101	QFVB1HJ-104	0.1MF 50V T.FILM	A
C101	QFVB1HJ-104	0.1MF 50V T.FILM	BBS
C101	QCF21HP-223	0.022MF 50V CERAMIC	C
C101	QCF21HP-223	0.022MF 50V CERAMIC	D
C101	QFVB1HJ-104	0.1MF 50V T.FILM	E
C101	QFVB1HJ-104	0.1MF 50V T.FILM	F
C101	QFVB1HJ-104	0.1MF 50V T.FILM	G
C102	QFVB1HJ-104	0.1MF 50V T.FILM	A
C102	QFVB1HJ-104	0.1MF 50V T.FILM	BBS
C102	QCF21HP-223	0.022MF 50V CERAMIC	C
C102	QCF21HP-223	0.022MF 50V CERAMIC	D
C102	QFVB1HJ-104	0.1MF 50V T.FILM	E
C102	QFVB1HJ-104	0.1MF 50V T.FILM	F
C102	QFVB1HJ-104	0.1MF 50V T.FILM	G
C103	QETB1CM-228	2200MF 16V ELECTRO	
C104	QETB1CM-228	2200MF 16V ELECTRO	
C105	QETB1CM-227	220MF 16V ELECTRO	A
C105	QETB1CM-227	220MF 16V ELECTRO	BBS
C105	QETB1CM-227	220MF 16V ELECTRO	C
C105	QETB1CM-227	220MF 16V ELECTRO	E
C105	QETB1CM-227	220MF 16V ELECTRO	F
C105	QETB1CM-227	220MF 16V ELECTRO	G
C106	QETB1CM-227	220MF 16V ELECTRO	A
C106	QETB1CM-227	220MF 16V ELECTRO	BBS
C106	QETB1CM-227	220MF 16V ELECTRO	C
C106	QETB1CM-227	220MF 16V ELECTRO	E
C106	QETB1CM-227	220MF 16V ELECTRO	F
C106	QETB1CM-227	220MF 16V ELECTRO	G
C107	QCF21HP-223	0.022MF 50V CERAMIC	
C108	QETB1HM-225	2.2MF 50V ELECTRO	
C109	QETB1AM-107	100MF 10V ELECTRO	
C111	QETB1VM-228N	2200MF 35V ELECTRO	
C112	QETB1VM-228N	2200MF 35V ELECTRO	
C113	QETB1CM-476	47MF 16V ELECTRO	
C114	QETB1CM-476	47MF 16V ELECTRO	
C115	QETB1CM-476	47MF 16V ELECTRO	
C116	QETB1CM-227	220MF 16V ELECTRO	
C120	QETB1JM-107	100MF 63V ELECTRO	
C121	QETB1HM-475	4.7MF 50V ELECTRO	
C122	QETB1VM-107	100MF 35V ELECTRO	
C126	QCHB1EZ-223	0.022MF 25V CERAMIC	
C129	QCHB1EZ-223	0.022MF 25V CERAMIC	
C131	QETB1CM-227	220MF 16V ELECTRO	
C132	QETB1CM-226	22MF 16V ELECTRO	
C242	QCBBIHK-101	100PF 50V CERAMIC	
C251	QCVB1CM-103	0.01MF 16V CERAMIC	A
C251	QCVB1CM-103	0.01MF 16V CERAMIC	BBS
C251	QCBBIHK-471	470PF 50V CERAMIC	C
C251	QCBBIHK-471	470PF 50V CERAMIC	D
C251	QCVB1CM-103	0.01MF 16V CERAMIC	E

Capacitors

Δ	ITEM	PART NUMBER	DESCRIPTION			AREA
	C251	QCVB1CM-103	0.01MF	16V	CERAMIC	F
	C251	QCVB1CM-103	0.01MF	16V	CERAMIC	G
	C252	QCVB1CM-103	0.01MF	16V	CERAMIC	A
	C252	QCVB1CM-103	0.01MF	16V	CERAMIC	BBS
	C252	QCB81HK-471	470PF	50V	CERAMIC	C
	C252	QCB81HK-471	470PF	50V	CERAMIC	D
	C252	QCVB1CM-103	0.01MF	16V	CERAMIC	E
	C252	QCVB1CM-103	0.01MF	16V	CERAMIC	F
	C252	QCVB1CM-103	0.01MF	16V	CERAMIC	G
	C253	QCSB1HJ-470	47PF	50V	CERAMIC	
	C254	QCSB1HJ-470	47PF	50V	CERAMIC	
	C257	QETB1HM-475	4.7MF	50V	ELECTRO	
	C258	QETB1HM-475	4.7MF	50V	ELECTRO	
	C259	QETB1CM-476	47MF	16V	ELECTRO	
	C260	QETB1CM-476	47MF	16V	ELECTRO	
	C261	QCVB1CM-103	0.01MF	16V	CERAMIC	
	C262	QCVB1CM-103	0.01MF	16V	CERAMIC	
	C269	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C401	QCB81HK-101	100PF	50V	CERAMIC	
	C402	QFV81HJ-105	1MF	50V	T.FILM	
	C403	QFN81HJ-182	1800PF	50V	MYLAR	
	C404	QFV81HJ-224	0.22MF	50V	T.FILM	
	C405	QETB1EM-106	10MF	25V	ELECTRO	
	C406	QCZ0205-155	1.5MF	25V	CERAMIC	
	C407	QETB1AM-107	100MF	10V	ELECTRO	
	C408	QFV81HJ-104	0.1MF	50V	T.FILM	
	C409	QCF21HP-473	0.047MF	50V	CERAMIC	
	C410	QETB1EM-106	10MF	25V	ELECTRO	
	C411	QETB1AM-107	100MF	10V	ELECTRO	
	C412	QCC21EM-473	0.047MF	25V	CERAMIC	
	C413	QCSB1HJ-470	47PF	50V	CERAMIC	
	C414	QETB1EM-106	10MF	25V	ELECTRO	
	C415	QFV81HJ-563	0.056MF	50V	T.FILM	
	C416	QFV81HJ-564	0.56MF	50V	T.FILM	
	C417	QCC21EM-473	0.047MF	25V	CERAMIC	
	C418	QCF21HP-473	0.047MF	50V	CERAMIC	
	C501	QCT26CH-151	150PF	50V	CERAMIC	
	C502	QCT26CH-121	120PF	50V	CERAMIC	
	C503	QFV81HJ-223	0.022MF	50V	T.FILM	
	C505	QCSB1HJ-470	47PF	50V	CERAMIC	
	C506	QEN51HM-225	2.2MF	50V	NON POLE	
	C507	QFV81HJ-563	0.056MF	50V	T.FILM	
	C508	QETB1AM-476	47MF	10V	ELECTRO	
	C509	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C510	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C511	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C512	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C513	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C551	QFV81HJ-183	0.018MF	50V	T.FILM	
	C552	QCB81HK-271	270PF	50V	CERAMIC	
	C553	QFV81HJ-393	0.039MF	50V	T.FILM	
	C555	QETB1CM-226	22MF	16V	ELECTRO	
	C556	QFV81HJ-104	0.1MF	50V	T.FILM	
	C562	QFV81HJ-224	0.22MF	50V	T.FILM	
	C601	QFN81HJ-472	4700PF	50V	MYLAR	
	C602	QFN81HJ-472	4700PF	50V	MYLAR	
	C603	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C604	QCSB1HJ-3R9	3.9PF	50V	CERAMIC	
	C605	QCB81HK-471	470PF	50V	CERAMIC	
	C606	QEN51HM-106	10MF	50V	NON POLE	
	C607	QETB1CM-476	47MF	16V	ELECTRO	
	C608	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C609	QETB1AM-476	47MF	10V	ELECTRO	
	C610	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C611	QCB81HK-101	100PF	50V	CERAMIC	
	C612	QFV81HJ-183	0.018MF	50V	T.FILM	
	C650	QETB1HM-105	1MF	50V	ELECTRO	
	C651	QCB81HK-101	100PF	50V	CERAMIC	
	C652	QETB1AM-107	100MF	10V	ELECTRO	
	C653	QFV81HJ-473	0.047MF	50V	T.FILM	
	C654	QETB1EM-106	10MF	25V	ELECTRO	
	C701	QFN81HJ-392	3900PF	50V	MYLAR	
	C702	QFN81HJ-392	3900PF	50V	MYLAR	
	C703	QETB1CM-226	22MF	16V	ELECTRO	
	C704	QETB1CM-226	22MF	16V	ELECTRO	
	C705	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C706	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C707	QFN81HJ-822	8200PF	50V	MYLAR	
	C708	QFN81HJ-822	8200PF	50V	MYLAR	
	C709	QFN81HJ-182	1800PF	50V	MYLAR	
	C710	QFN81HJ-182	1800PF	50V	MYLAR	
	C711	QFV81HJ-683	0.068MF	50V	T.FILM	
	C712	QFV81HJ-683	0.068MF	50V	T.FILM	
	C715	QCS21HJ-390	39PF	50V	CERAMIC	
	C716	QCS21HJ-390	39PF	50V	CERAMIC	
	C717	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C718	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C719	QCS21HJ-390	39PF	50V	CERAMIC	
	C720	QCS21HJ-390	39PF	50V	CERAMIC	
	C721	QCS21HJ-471	470PF	50V	CERAMIC	
	C722	QCS21HJ-471	470PF	50V	CERAMIC	
	C723	QCS21HJ-471	470PF	50V	CERAMIC	
	C724	QCS21HJ-471	470PF	50V	CERAMIC	
	C741	QCVB1CM-103	0.01MF	16V	CERAMIC	
	C743	QCVB1CM-103	0.01MF	16V	CERAMIC	
	C751	QCZ0205-155	1.5MF	25V	CERAMIC	
	C752	QCZ0205-155	1.5MF	25V	CERAMIC	
	C753	QCZ0205-155	1.5MF	25V	CERAMIC	
	C754	QCZ0205-155	1.5MF	25V	CERAMIC	
	C755	QCHB1EZ-223	0.022MF	25V	CERAMIC	

Capacitors

Δ	ITEM	PART NUMBER	DESCRIPTION			AREA
	C756	QCZ0205-155	1.5MF	25V	CERAMIC	
	C758	QCT26CH-120	12PF	50V	CERAMIC	
	C759	QCT26CH-270	27PF	50V	CERAMIC	
	C761	QCS21HJ-221	220PF	50V	CERAMIC	
	C771	QETB1AM-107	100MF	10V	ELECTRO	
	C772	QETB1AM-107	100MF	10V	ELECTRO	
	C780	QCS21HJ-5R0	5PF	50V	CERAMIC	
	C801	QEN51HM-225	2.2MF	50V	NON POLE	
	C802	QETB1EM-106	10MF	25V	ELECTRO	
	C803	QETB1AM-107	100MF	10V	ELECTRO	
	C821	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C822	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C823	QETB1HM-225	2.2MF	50V	ELECTRO	
	C824	QETB1HM-105	1MF	50V	ELECTRO	
	C851	QFN81HJ-272	2700PF	50V	MYLAR	
	C852	QCB81HK-101	100PF	50V	CERAMIC	
	C853	QEN51HM-225	2.2MF	50V	NON POLE	
	C861	QETB1HM-225	2.2MF	50V	ELECTRO	
	C870	QETB1HM-474	0.47MF	50V	ELECTRO	
	C871	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C872	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C873	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C891	QETB1CM-108	1000MF	16V	ELECTRO	

Δ (SAFETY PARTS)

Resistors

Δ	ITEM	PART NUMBER	DESCRIPTION			AREA
	R101	PTH61G30BD2R2N			FUSIBLE	A
	R101	PTH61G30BD2R2N			FUSIBLE	BBS
	R101	PTH61G30BD2R2N			FUSIBLE	C
	R101	PTH61G30BD2R2N			FUSIBLE	E
	R101	PTH61G30BD2R2N			FUSIBLE	F
	R101	PTH61G30BD2R2N			FUSIBLE	G
	R102	PTH61G30BD2R2N			FUSIBLE	A
	R102	PTH61G30BD2R2N			FUSIBLE	BBS
	R102	PTH61G30BD2R2N			FUSIBLE	C
	R102	PTH61G30BD2R2N			FUSIBLE	E
	R102	PTH61G30BD2R2N			FUSIBLE	F
	R102	PTH61G30BD2R2N			FUSIBLE	G
	R103	QRD167J-104	100K	1/6W	CARBON	
	R104	QRD167J-104	100K	1/6W	CARBON	
	R105	QRD167J-222	2.2K	1/6W	CARBON	
	R106	QRD167J-221	220	1/6W	CARBON	
	R107	QRD167J-562	5.6K	1/6W	CARBON	
	R108	QRD167J-152	1.5K	1/6W	CARBON	
	R109	QRZ0077-100	10	1/4W	FUSIBLE	A
	R109	QRZ0077-100	10	1/4W	FUSIBLE	BBS
	R109	QRZ0077-100	10	1/4W	FUSIBLE	C
	R109	QRZ0077-100	10	1/4W	FUSIBLE	E
	R109	QRZ0077-100	10	1/4W	FUSIBLE	F
	R109	QRZ0077-100	10	1/4W	FUSIBLE	G
	R110	QRZ0077-100	10	1/4W	FUSIBLE	A
	R110	QRZ0077-100	10	1/4W	FUSIBLE	BBS
	R110	QRZ0077-100	10	1/4W	FUSIBLE	C
	R110	QRZ0077-100	10	1/4W	FUSIBLE	E
	R110	QRZ0077-100	10	1/4W	FUSIBLE	F
	R110	QRZ0077-100	10	1/4W	FUSIBLE	G
	R111	QRD167J-121	120	1/6W	CARBON	A
	R111	QRD167J-121	120	1/6W	CARBON	BBS
	R111	QRD167J-121	120	1/6W	CARBON	C
	R111	QRD167J-121	120	1/6W	CARBON	E
	R111	QRD167J-121	120	1/6W	CARBON	F
	R111	QRD167J-121	120	1/6W	CARBON	G
	R112	QRD167J-121	120	1/6W	CARBON	A
	R112	QRD167J-121	120	1/6W	CARBON	BBS
	R112	QRD167J-121	120	1/6W	CARBON	C
	R112	QRD167J-121	120	1/6W	CARBON	E
	R112	QRD167J-121	120	1/6W	CARBON	F
	R112	QRD167J-121	120	1/6W	CARBON	G
	R113	QRD167J-123	12K	1/6W	CARBON	
	R114	QRZ0077-560	56	1/4W	FUSIBLE	A
	R114	QRZ0077-560	56	1/4W	FUSIBLE	BBS
	R114	QRZ0077-560	56	1/4W	FUSIBLE	C
	R114	QRZ0077-560	56	1/4W	FUSIBLE	E
	R114	QRZ0077-560	56	1/4W	FUSIBLE	F
	R114	QRZ0077-560	56	1/4W	FUSIBLE	G
	R115	QRD167J-121	120	1/6W	CARBON	A
	R115	QRD167J-121	120	1/6W	CARBON	BBS
	R115	QRD167J-121	120	1/6W	CARBON	C
	R115	QRD167J-121	120	1/6W	CARBON	E
	R115	QRD167J-121	120	1/6W	CARBON	F
	R115	QRD167J-121	120	1/6W	CARBON	G
	R116	QRD167J-222	2.2K	1/6W	CARBON	
	R117	QRD167J-222	2.2K	1/6W	CARBON	
	R118	QRD167J-122	1.2K	1/6W	CARBON	
	R119	QRD167J-221	220	1/6W	CARBON	
	R120	QRD167J-103	10K	1/6W	CARBON	
	R121	QRD167J-103	10K	1/6W	CARBON	
	R122	QRD167J-103	10K	1/6W	CARBON	
	R123	QRD167J-562	5.6K	1/6W	CARBON	
	R124	QRD167J-152	1.5K	1/6W	CARBON	
	R131	QRD167J-471	470	1/6W	CARBON	

Resistors

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	R132	QRD167J-221	220 1/6W CARBON	A
	R132	QRD167J-221	220 1/6W CARBON	BBS
	R132	QRD167J-221	220 1/6W CARBON	C
	R132	QRD167J-101	100 1/6W CARBON	D
	R132	QRD167J-221	220 1/6W CARBON	E
	R132	QRD167J-221	220 1/6W CARBON	F
	R132	QRD167J-221	220 1/6W CARBON	G
	R133	QRD167J-221	220 1/6W CARBON	A
	R133	QRD167J-221	220 1/6W CARBON	BBS
	R133	QRD167J-221	220 1/6W CARBON	C
	R133	QRD167J-221	220 1/6W CARBON	E
	R133	QRD167J-221	220 1/6W CARBON	F
	R133	QRD167J-221	220 1/6W CARBON	G
	R133	QRD167J-822	8.2K 1/6W CARBON	
	R135	QRD167J-683	68K 1/6W CARBON	
	R140	QRD167J-471	470 1/6W CARBON	
	R241	QRD167J-221	220 1/6W CARBON	
	R242	QRD167J-221	220 1/6W CARBON	
	R251	QRD167J-390	39 1/6W CARBON	
	R252	QRD167J-390	39 1/6W CARBON	
	R253	QRD167J-680	68 1/6W CARBON	
	R254	QRD167J-680	68 1/6W CARBON	
	R255	QRD167J-562	5.6K 1/6W CARBON	
	R256	QRD167J-562	5.6K 1/6W CARBON	
	R257	QRD167J-273	27K 1/6W CARBON	
	R258	QRD167J-273	27K 1/6W CARBON	
	R259	QRD167J-473	47K 1/6W CARBON	
	R260	QRD167J-473	47K 1/6W CARBON	
	R261	QRD167J-103	10K 1/6W CARBON	
	R262	QRD167J-103	10K 1/6W CARBON	
	R271	QRD167J-151	150 1/6W CARBON	
	R272	QRD167J-151	150 1/6W CARBON	
	R273	QRD167J-151	150 1/6W CARBON	
	R274	QRD167J-151	150 1/6W CARBON	
	R275	QRD167J-151	150 1/6W CARBON	
	R276	QRD167J-472	4.7K 1/6W CARBON	
	R277	QRD167J-151	150 1/6W CARBON	
	R401	QRD167J-182	1.8K 1/6W CARBON	
	R402	QRD167J-821	820 1/6W CARBON	
	R403	QRD167J-682	6.8K 1/6W CARBON	
	R404	QRD167J-101	100 1/6W CARBON	
	R406	QRD167J-682	6.8K 1/6W CARBON	
	R407	QRD167J-102	1K 1/6W CARBON	
	R408	QRD167J-822	8.2K 1/6W CARBON	
	R409	QRD167J-822	8.2K 1/6W CARBON	
	R410	QRD167J-154	150K 1/6W CARBON	
	R411	QRD167J-184	180K 1/6W CARBON	
	R412	QRD167J-393	39K 1/6W CARBON	
	R413	QRD167J-182	1.8K 1/6W CARBON	
	R414	QRD167J-182	1.8K 1/6W CARBON	
	R415	QRD167J-122	1.2K 1/6W CARBON	
	R416	QRD167J-221	220 1/6W CARBON	
	R417	QRD167J-682	6.8K 1/6W CARBON	
	R418	QRD167J-471	470 1/6W CARBON	
	R419	QRD167J-102	1K 1/6W CARBON	
	R420	QRD167J-183	18K 1/6W CARBON	
	R421	QRD167J-103	10K 1/6W CARBON	
	R427	QVPA601-104A	100K VARIABLE	
	R430	QRD167J-101	100 1/6W CARBON	
	R431	QRD167J-101	100 1/6W CARBON	
	R432	QRD167J-101	100 1/6W CARBON	
	R434	QRD167J-472	4.7K 1/6W CARBON	
	R435	QRD167J-472	4.7K 1/6W CARBON	
	R436	QRD167J-472	4.7K 1/6W CARBON	
	R501	QRD167J-563	56K 1/6W CARBON	
	R502	QRD167J-563	56K 1/6W CARBON	
	R503	QRD167J-394	390K 1/6W CARBON	
	R504	QRD167J-681	680 1/6W CARBON	
	R505	QVPA601-202A	2K VARIABLE	
	R506	QRD167J-561	560 1/6W CARBON	
	R507	QRD167J-334	330K 1/6W CARBON	
	R509	QVPA601-154A	150K VARIABLE	
	R510	QRD167J-223	22K 1/6W CARBON	
	R511	QRD167J-682	6.8K 1/6W CARBON	
	R512	QRD167J-103	10K 1/6W CARBON	
	R513	QRD167J-562	5.6K 1/6W CARBON	
	R514	QRD167J-562	5.6K 1/6W CARBON	
	R515	QRD167J-562	5.6K 1/6W CARBON	
	R516	QRD167J-562	5.6K 1/6W CARBON	
	R517	QRD167J-183	18K 1/6W CARBON	
	R519	QRD167J-103	10K 1/6W CARBON	
	R520	QRD167J-224	220K 1/6W CARBON	
	R521	QRD167J-222	2.2K 1/6W CARBON	
	R523	QRD167J-434	430K 1/6W CARBON	
	R524	QRD167J-434	430K 1/6W CARBON	
	R525	QRD167J-103	10K 1/6W CARBON	
	R526	QRD167J-183	18K 1/6W CARBON	
	R527	QRD167J-104	100K 1/6W CARBON	
	R528	QRD167J-104	100K 1/6W CARBON	
	R529	QRD167J-681	680 1/6W CARBON	
	R530	QRD167J-183	18K 1/6W CARBON	
	R531	QRD167J-184	180K 1/6W CARBON	
	R532	QRD167J-102	1K 1/6W CARBON	
	R533	QRD167J-562	5.6K 1/6W CARBON	
	R534	QRD167J-183	18K 1/6W CARBON	
	R535	QRD167J-183	18K 1/6W CARBON	
	R537	QRD167J-470	47 1/6W CARBON	
	R538	QRD167J-562	5.6K 1/6W CARBON	
	R541	QRD167J-103	10K 1/6W CARBON	
	R551	QRD167J-104	100K 1/6W CARBON	

Resistors

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	R552	QRD167J-104	100K 1/6W CARBON	
	R553	QRD167J-394	390K 1/6W CARBON	
	R554	QRD167J-394	390K 1/6W CARBON	
	R557	QRD167J-681	680 1/6W CARBON	
	R558	QRD167J-473	47K 1/6W CARBON	
	R559	QRD167J-331	330 1/6W CARBON	
	R560	QRD167J-333	33K 1/6W CARBON	
	R561	QRD167J-273	27K 1/6W CARBON	
	R562	QRD167J-394	390K 1/6W CARBON	
	R563	QRD167J-182	1.8K 1/6W CARBON	
	R564	QRD167J-121	120 1/6W CARBON	
	R565	QRD167J-335	3.3M 1/6W CARBON	
	R567	QRD167J-105	1M 1/6W CARBON	
	R568	QRD167J-470	47 1/6W CARBON	
	R569	QRD167J-473	47K 1/6W CARBON	
	R570	QRD167J-272	2.7K 1/6W CARBON	
	R571	QRD167J-682	6.8K 1/6W CARBON	
	R572	QRD167J-104	100K 1/6W CARBON	
	R573	QRD167J-562	5.6K 1/6W CARBON	
	R574	QRD167J-105	1M 1/6W CARBON	
	R575	QRD167J-105	1M 1/6W CARBON	
	R576	QRD167J-104	100K 1/6W CARBON	
	R577	QRD167J-562	5.6K 1/6W CARBON	
	R579	QRD167J-104	100K 1/6W CARBON	
	R580	QRD167J-103	10K 1/6W CARBON	
	R583	QRD167J-183	18K 1/6W CARBON	
	R590	QRD167J-470	47 1/6W CARBON	
	R601	QRD167J-183	18K 1/6W CARBON	
	R602	QRD167J-432	4.3K 1/6W CARBON	
	R603	QRD167J-391	390 1/6W CARBON	
	R604	QRD167J-221	220 1/6W CARBON	
	R605	QRD167J-152	1.5K 1/6W CARBON	
	R606	QRD167J-561	560 1/6W CARBON	
	R607	QRD167J-561	560 1/6W CARBON	
	R608	QRD167J-562	5.6K 1/6W CARBON	
	R609	QRD167J-152	1.5K 1/6W CARBON	
	R610	QRD167J-271	270 1/6W CARBON	
	R611	QRD167J-222	2.2K 1/6W CARBON	
	R650	QRD167J-102	1K 1/6W CARBON	
	R651	QRD167J-103	10K 1/6W CARBON	
	R652	QRD167J-272	2.7K 1/6W CARBON	
	R656	QRD167J-391	390 1/6W CARBON	
	R657	QRD167J-103	10K 1/6W CARBON	
	R658	QRD167J-562	5.6K 1/6W CARBON	
	R659	QRD167J-472	4.7K 1/6W CARBON	
	R660	QRD167J-822	8.2K 1/6W CARBON	
	R661	QRD167J-103	10K 1/6W CARBON	
	R701	QRD167J-151	150 1/6W CARBON	
	R702	QRD167J-151	150 1/6W CARBON	
	R703	QRD167J-561	560 1/6W CARBON	
	R704	QRD167J-561	560 1/6W CARBON	
	R705	QRD167J-103	10K 1/6W CARBON	
	R706	QRD167J-103	10K 1/6W CARBON	
	R707	QRD167J-103	10K 1/6W CARBON	
	R708	QRD167J-103	10K 1/6W CARBON	
	R709	QRD167J-151	150 1/6W CARBON	
	R710	QRD167J-151	150 1/6W CARBON	
	R711	QRD167J-151	150 1/6W CARBON	
	R712	QRD167J-151	150 1/6W CARBON	
	R713	QRD167J-273	27K 1/6W CARBON	
	R714	QRD167J-273	27K 1/6W CARBON	
	R715	QRD167J-272	2.7K 1/6W CARBON	
	R716	QRD167J-272	2.7K 1/6W CARBON	
	R719	QRD167J-911	910 1/6W CARBON	
	R720	QRD167J-911	910 1/6W CARBON	
	R721	QRD167J-681	680 1/6W CARBON	
	R722	QRD167J-681	680 1/6W CARBON	
	R723	QRD167J-511	510 1/6W CARBON	
	R724	QRD167J-511	510 1/6W CARBON	
	R725	QRD167J-241	240 1/6W CARBON	
	R726	QRD167J-241	240 1/6W CARBON	
	R727	QRD167J-104	100K 1/6W CARBON	
	R728	QRD167J-104	100K 1/6W CARBON	
	R729	QRD167J-392	3.9K 1/6W CARBON	
	R730	QRD167J-392	3.9K 1/6W CARBON	
	R733	QRD167J-393	39K 1/6W CARBON	
	R734	QRD167J-393	39K 1/6W CARBON	
	R735	QRD167J-393	39K 1/6W CARBON	
	R736	QRD167J-393	39K 1/6W CARBON	
	R740	QRD167J-154	150K 1/6W CARBON	
	R741	QRD167J-684	680K 1/6W CARBON	
	R742	QRD167J-154	150K 1/6W CARBON	
	R743	QRD167J-684	680K 1/6W CARBON	
	R751	QRD167J-105	1M 1/6W CARBON	
	R753	QRD167J-101	100 1/6W CARBON	
	R754	QRD167J-101	100 1/6W CARBON	
	R755	QRD167J-331	330 1/6W CARBON	
	R756	QRD167J-103	10K 1/6W CARBON	
	R761	QRD167J-113	11K 1/6W CARBON	
	R762	QRD167J-113	11K 1/6W CARBON	
	R765	QRD167J-113	11K 1/6W CARBON	
	R766	QRD167J-113	11K 1/6W CARBON	
Δ	R791	QRV144F-5602	56K 1/4W M.FILM	
Δ	R792	QRV144F-5602	56K 1/4W M.FILM	
Δ	R793	QRV144F-5602	56K 1/4W M.FILM	
Δ	R794	QRV144F-5602	56K 1/4W M.FILM	
Δ	R795	QRV144F-5602	56K 1/4W M.FILM	
Δ	R796	QRV144F-5602	56K 1/4W M.FILM	
Δ	R797	QRV144F-5602	56K 1/4W M.FILM	
Δ	R798	QRV144F-5602	56K 1/4W M.FILM	

Resistors

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	R801	QRD167J-334	330K 1/6W CARBON	
	R802	QRD167J-564	560K 1/6W CARBON	
	R803	QRD167J-153	15K 1/6W CARBON	
	R804	QRD167J-184	180K 1/6W CARBON	
	R805	QRD167J-562	5.6K 1/6W CARBON	
	R806	QRD167J-392	3.9K 1/6W CARBON	
	R808	QRD167J-103	10K 1/6W CARBON	
	R809	QRD167J-302	3K 1/6W CARBON	
	R810	QRD167J-102	1K 1/6W CARBON	
	R811	QRD167J-394	390K 1/6W CARBON	
	R812	QRD167J-183	18K 1/6W CARBON	
	R813	QRD167J-273	27K 1/6W CARBON	
	R814	QRD167J-470	47 1/6W CARBON	
	R821	QRD167J-223	22K 1/6W CARBON	
	R822	QRD167J-103	10K 1/6W CARBON	
	R823	QRD167J-243	24K 1/6W CARBON	
	R824	QRD167J-393	39K 1/6W CARBON	
	R825	QRD167J-470	47 1/6W CARBON	
	R826	QRD167J-103	10K 1/6W CARBON	
	R827	QRD167J-272	2.7K 1/6W CARBON	
	R828	QRD167J-103	10K 1/6W CARBON	
	R829	QRD167J-103	10K 1/6W CARBON	
	R831	QRD167J-222	2.2K 1/6W CARBON	
	R841	QRD167J-273	27K 1/6W CARBON	
	R842	QRD167J-153	15K 1/6W CARBON	
	R843	QRD167J-393	39K 1/6W CARBON	
	R844	QRD167J-393	39K 1/6W CARBON	
	R845	QRD167J-470	47 1/6W CARBON	
	R851	QRD167J-684	680K 1/6W CARBON	
	R852	QRD167J-684	680K 1/6W CARBON	
	R853	QRD167J-823	82K 1/6W CARBON	
	R855	QRD167J-683	68K 1/6W CARBON	
	R856	QRD167J-123	12K 1/6W CARBON	
	R857	QRD167J-152	1.5K 1/6W CARBON	
	R858	QRD167J-2R2	2.2 1/6W CARBON	
	R859	QRD167J-470	47 1/6W CARBON	
	R861	QRD167J-103	10K 1/6W CARBON	
	R862	QRD167J-333	33K 1/6W CARBON	
	R863	QRD167J-103	10K 1/6W CARBON	
	R864	QRD167J-103	10K 1/6W CARBON	
	R865	QRD167J-103	10K 1/6W CARBON	
	R866	QRD167J-103	10K 1/6W CARBON	
	R867	QRD167J-101	100 1/6W CARBON	
	R868	QRD167J-472	4.7K 1/6W CARBON	
	R869	QRD167J-221	220 1/6W CARBON	
	R870	QRD167J-103	10K 1/6W CARBON	
	R871	QRD167J-103	10K 1/6W CARBON	
	R872	QRD167J-472	4.7K 1/6W CARBON	
	R873	QRD167J-332	3.3K 1/6W CARBON	
	R874	QRD167J-393	39K 1/6W CARBON	
	R875	QRD167J-393	39K 1/6W CARBON	
	R876	QRD167J-513	51K 1/6W CARBON	
	R877	QRD167J-473	47K 1/6W CARBON	
	R878	QRD167J-183	18K 1/6W CARBON	
	R879	QRD167J-470	47 1/6W CARBON	
	R880	QRD167J-393	39K 1/6W CARBON	
	R881	QRD167J-393	39K 1/6W CARBON	
	R882	QRD167J-513	51K 1/6W CARBON	
	R883	QRD167J-473	47K 1/6W CARBON	
	R884	QRD167J-183	18K 1/6W CARBON	
	R885	QRD167J-470	47 1/6W CARBON	
	R891	QRD167J-331	330 1/6W CARBON	
	R892	QRD167J-331	330 1/6W CARBON	
	R893	QRD167J-103	10K 1/6W CARBON	
	R894	QRD167J-472	4.7K 1/6W CARBON	
	R895	QRD167J-472	4.7K 1/6W CARBON	

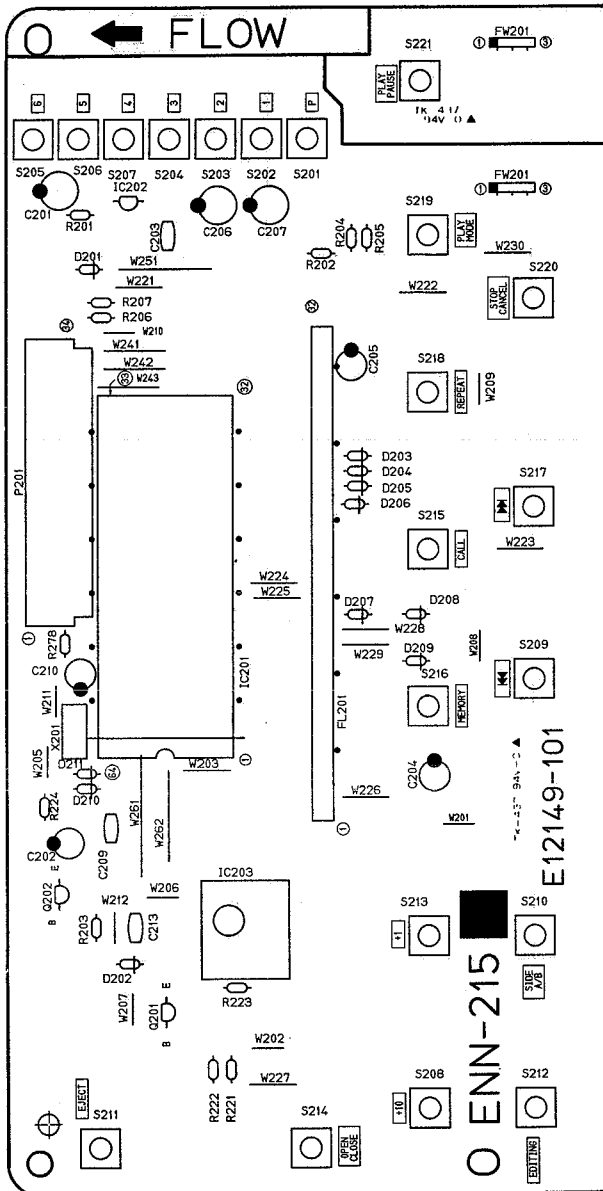
Δ SAFETY PARTS

Others

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
		E65508-002	TAB	
		E70225-001	EARTH PLATE	
		E70306-001	HEAT SINK	
		E70859-001	EARTH PLATE	
		SBSE3008Z	SCREW	
		E12148-101	CIRCUIT BOARD	A
		E12148-101BS	CIRCUIT BOARD	BBS
		E12148-101	CIRCUIT BOARD	C
		E12148-101	CIRCUIT BOARD	D
		E12148-101	CIRCUIT BOARD	E
		E12148-101	CIRCUIT BOARD	F
		E12148-101	CIRCUIT BOARD	G
	J241	QMS3501-020	MINI JACK	
	J250	QMS6302-131	HEADPHONE JACK	
	J701	EMN00TV-214A	2P PIN JACK	
	L251	EQL4004-1R0	INDUCTOR	
	L701	EQL4004-1R0	INDUCTOR	
	P251	EMV7123-034	CONNECTOR	
	P501	EMV5109-010A	PLUG ASSY	
	P502	EMV5109-004A	PLUG ASSY	
	S101	QST4101-E19	PUSH SWITCH	
	X751	ECX0169-344KW	RESONATOR	
Δ	CP101	ICP-N15	I.C. PROTECTOR	A
Δ	CP101	ICP-N15	I.C. PROTECTOR	BBS
Δ	CP101	ICP-N15	I.C. PROTECTOR	C
Δ	CP101	ICP-N15	I.C. PROTECTOR	E
Δ	CP101	ICP-N15	I.C. PROTECTOR	F
Δ	CP101	ICP-N15	I.C. PROTECTOR	G
	FW254	EWR338-30SST	FLAT WIRE	
	FW801	EWR378-20KST	FLAT WIRE	
	FW802	EWR368-16KST	FLAT WIRE	
	FW803	EWR368-16KST	FLAT WIRE	
	FW831	EWR358-16KST	FLAT WIRE	
	FW901	EWR368-10LST	FLAT WIRE	
	FW902	EWR338-40SST	FLAT WIRE	
	JT901	EMV7122-003	CONNECTOR	
	JT902	EMV7122-003	CONNECTOR	

Δ SAFETY PARTS

■ ENN-215 [A] Front PC Board Ass'y



Transistors

ITEM	PART NUMBER	DESCRIPTION	AREA
Q201	DTA114YS	SILICON ROHM	
Q202	DTC144ES	SILICON ROHM	

△ SAFETY PARTS

I.C.s

ITEM	PART NUMBER	DESCRIPTION	AREA
IC201	MN178122JNG2	I.C.	
IC202	MN1281(P,Q)	I.C.	MATSUSHITA
IC203	GP1U501X	I.C.	SHARP

△ SAFETY PARTS

Diodes

ITEM	PART NUMBER	DESCRIPTION	AREA
D201	1SS133	SILICON ROHM	
D202	1SS133	SILICON ROHM	
D203	1SS119	SILICON HITACHI	
D204	1SS119	SILICON HITACHI	
D205	1SS119	SILICON HITACHI	
D206	1SS119	SILICON HITACHI	
D207	1SS119	SILICON HITACHI	
D208	1SS119	SILICON HITACHI	
D209	1SS119	SILICON HITACHI	
D210	1SS133	SILICON ROHM	
D211	1SS133	SILICON ROHM	

△ SAFETY PARTS

Capacitors

ITEM	PART NUMBER	DESCRIPTION	AREA
C201	QER61EM-475G	4.7MF 25V ELECTRO	
C202	QETB1AM-107	100MF 10V ELECTRO	
C203	QCHB1EZ-223	0.022MF 25V CERAMIC	
C204	QER61HM-475	4.7MF 50V ELECTRO	
C205	QER61HM-475	4.7MF 50V ELECTRO	
C206	QER51HM-106	10MF 50V ELECTRO	
C207	QER51HM-106	10MF 50V ELECTRO	
C209	QCHB1EZ-223	0.022MF 25V CERAMIC	
C213	QCBH1HK-331	330PF 50V CERAMIC	

△ SAFETY PARTS

Resistors

ITEM	PART NUMBER	DESCRIPTION	AREA
R201	QRD167J-821	820 1/6W CARBON	
R202	QRD167J-473	47K 1/6W CARBON	
R203	QRD167J-472	4.7K 1/6W CARBON	
R204	QRD167J-473	47K 1/6W CARBON	
R205	QRD167J-473	47K 1/6W CARBON	
R206	QRD167J-473	47K 1/6W CARBON	
R207	QRD167J-473	47K 1/6W CARBON	
R221	QRD167J-473	47K 1/6W CARBON	
R222	QRD167J-473	47K 1/6W CARBON	
R223	QRD167J-473	47K 1/6W CARBON	
R224	QRD167J-103	10K 1/6W CARBON	
R278	QRD167J-151	150 1/6W CARBON	

△ SAFETY PARTS

Others

ITEM	PART NUMBER	DESCRIPTION	AREA
	E12149-101(S)	CIRCUIT BOARD	
	E3400-439	SPACER	
	E75819-001	HOLDER	
	E75820-001	HOLDER	
P201	EMV7123-034R	CONNECTOR	
S201	ESP0001-018	TACT SWITCH	
S202	ESP0001-018	TACT SWITCH	
S203	ESP0001-018	TACT SWITCH	
S204	ESP0001-018	TACT SWITCH	
S205	ESP0001-018	TACT SWITCH	
S206	ESP0001-018	TACT SWITCH	
S207	ESP0001-018	TACT SWITCH	
S208	ESP0001-018	TACT SWITCH	
S209	ESP0001-018	TACT SWITCH	
S210	ESP0001-018	TACT SWITCH	
S211	ESP0001-018	TACT SWITCH	
S212	ESP0001-018	TACT SWITCH	
S213	ESP0001-018	TACT SWITCH	
S214	ESP0001-018	TACT SWITCH	
S215	ESP0001-018	TACT SWITCH	
S216	ESP0001-018	TACT SWITCH	
S217	ESP0001-018	TACT SWITCH	
S218	ESP0001-018	TACT SWITCH	
S219	ESP0001-018	TACT SWITCH	
S220	ESP0001-018	TACT SWITCH	
S221	ESP0001-018	TACT SWITCH	
X201	ECX0072-000EM	RESONATOR	
FL201	ELU0001-094	FL TUBE	
FW201	EWR33B-16SST	FLAT WIRE	

△ SAFETY PARTS

Accessories List

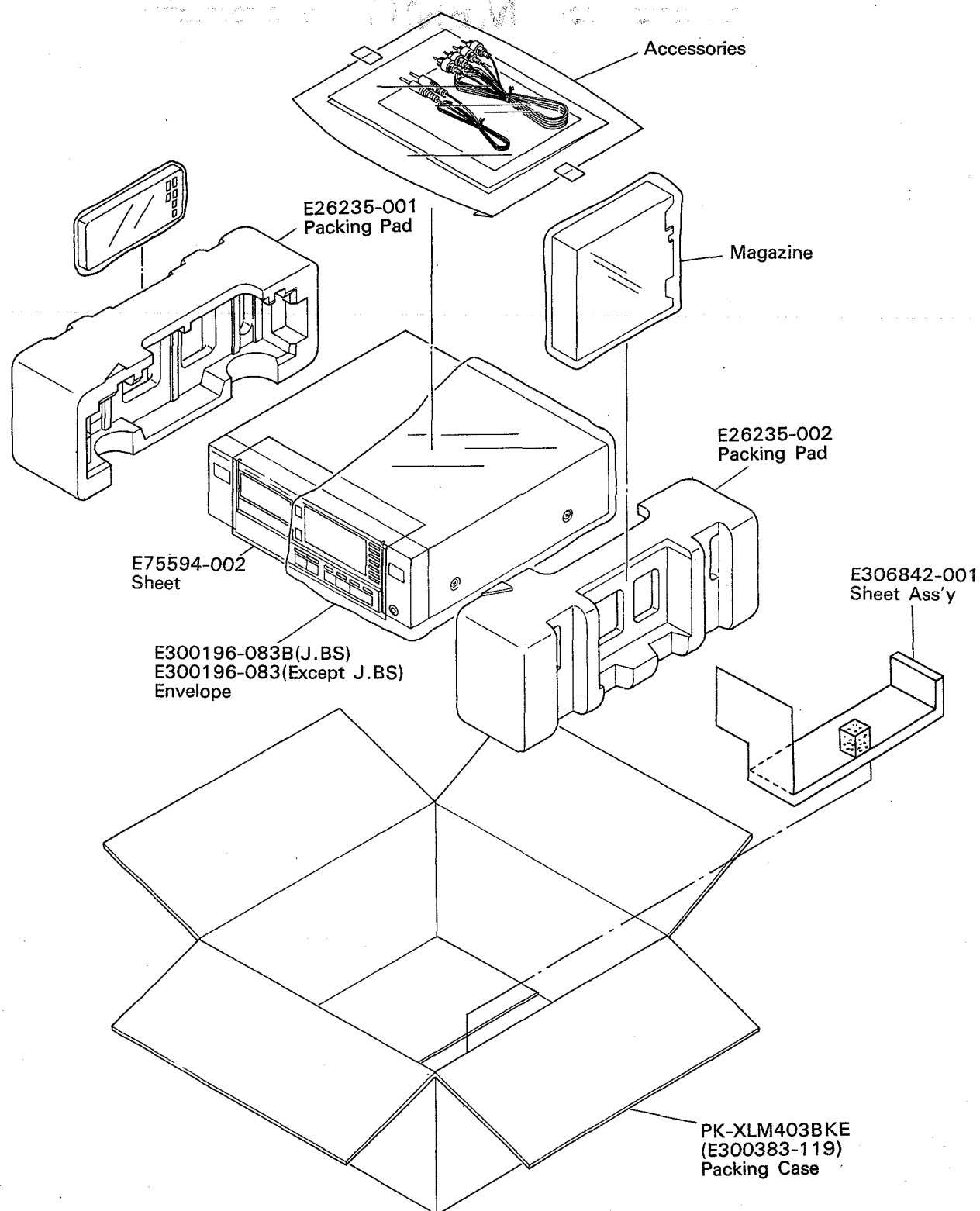
⚠	Part Number	Part Name	Q'ty	Description	Areas
	E30580-1563A	Instruction Book	1		J
	E30580-1564A	Instruction Book	1		Except J,BS
	E30580-1564ABS	Instruction Book	1		BS
	BT20047D	Warranty Card	1		J
	BT-20025K	Warranty Card	1		C
	BT20029C	Warranty Card	1		A
	BT-20117	Warranty Card	1		G
	BT20060	Warranty Card	1		BS
	BT-20119	Audio Warranty Card	1	for New Zealand	A
	BT20108	Service Information Card	1		J
	BT20044F	Safety Instruction Sheet	1		J
	BT20071A	Service Center List	1		C
	BT20066A	EEC Agency	1		BS
	E43486-340A	Safety Sheet	1		BS
	EWP302-013K	Signal Cord	1		
⚠	EWP805-009K	1P Plug Cord	1	220V	U
	E35497-022	Caution Sheet	1		U
	E04056	Siemens Plug	1		
	E26072-005	Magazine	1		
	RM-SX403U	Remote Control	1		
	RM-SX521BATC	Battery Cover	1		J
	UM-4NJ-2PSA	Battery	1		J,BS
	E66416-003	Envelope	1		Except J,BS
	E300196-010B	Envelope	1		
	E300196-010	Envelope	1		

The Marks for Designated Areas

J.....the U.S.A.
 C.....Canada
 A.....Australia
 E,EF.....Continental Europe
 G.....West Germany
 BS.....the U.K.
 U.....Other Countries
No mark indicates all areas.

⚠ Safety Parts

Packing Materials and Part Numbers



The Marks for Designated Areas

J.....the U.S.A.	G.....West Germany
C.....Canada	BS.....the U.K.
A.....Australia	U.....Other Countries
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