# MZ-R2

# SERVICE MANUAL

Ver 1.0 2001.05 With SUPPLEMENT-1 (9-959-214-89) With SUPPLEMENT-2 (9-959-799-81)



US Model Canadian Model AEP Model UK Model E Model Australian Model Tourist Model



Model Name Using Similer Mechanism	NEW	
Mechanism Type	MT-MZR2-109	
Optical Pick-up Type	KMS-190A	

#### **SPECIFICATIONS**

Audio playing system

MiniDisc digital audio system

Laser diode properties

Material: GaAlAs

Wavelength:  $\lambda = 780 \text{ nm}$ 

Emission duration: continuous

Laser output: less than 44.6 µW

(This output is the value measured at a distance of 200 mm from

the lens surface on the optical pick-up block.)

Revolutions

400 rpm to 900 rpm (CLV)

Error correction

Advanced Cross Interleave Reed Solomon Code (ACIRC)

Sampling frequency 44.1 kHz

Adaptive TRansform Acoustic Coding (ATRAC) Coding

Modulation system

EFM (Eight to Fourteen Modulation)

Number of channels

2 stereo channels

Frequency response

20 to 20,000 Hz ± 1 dB

Wow and Flutter

Below measurable limit

	Jack Type	Rated Input	Minimum Input
Microphone	Stereo mini-jack	0.78 mV	0.22 mV
Line In	Stereo mini-jack	194 mV	69 mV

9-959-214-12 Sony Corporation

2001E0200-1

**Personal Audio Company** 

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**Shinagawa Tec Service Manual Production Group** 

## **Outputs**

	Jack Type	Rated Output	Maximum Output Level	Load Impedance
Headphones	Stereo mini- jack		5 mW + 5 mW	16 ohm
Line Out	Stereo mini- jack	194 mV	_	10 kilohm

## General

Power requirements

- LIP-12 Rechargeable Battery (Lithium-ion Battery Pack, supplied)
- Three R6 (size AA) batteries (not supplied)
- Sony AC Power Adaptor (supplied) connected at the DC IN 6V 220-230 V AC, 50/60 Hz (AEP model)

120 V AC, 60 Hz (US, Canadian model) 240 V AC, 50Hz (UK, Austrarian model) 100-240 V AC, 50/60 Hz (E, Tourist model)

Battery operation time

120 minutes of consecutive recording with fully charged LIP-12 150 minutes of consecutive playback with fully charged LIP-12

Dimensions

Approx.  $84 \times 29.9 \times 106.8 \text{ mm (w/h/d)} (3^{3}/8 \times 1^{3}/16 \times 4^{1}/4 \text{ in.)}$ Approx. 310 g (10.9 oz) incl. rechargeable battery Mass

- Continued on next page -



#### **Accessories**

#### Optional

- LIP-12 Lithium-ion Battery Pack
- ACP-MZ60A AC Power Adaptor/Battery Charger
- POC-MZ1, POC-MZ2 Optical Cable
- CPM-MZR2K Car Mount Kit
- CPA-8 Car Connecting Pack
- ECM-909A, ECM-727P Stereo Microphones
- MDR-D55, MDR-D77 Stereo Headphones
- SRS-58 Sony Active Speakers
- Recordable MDs: MDW-60, MDW-74
- CK-MD4 MiniDisc Carrying Case
- CK-MD10 MiniDisc Filing Box

Your dealer may not handle some of the above listed accessories. Please ask the dealer for detailed information about the accessories in your country.

US and foreign patents licensed from Dolby Laboratories Licensing Corporation.

Design and specifications are subject to change without notice.

This appliance conforms with EEC Directive 89/336/EEC regarding interference suppression.

#### For Customers in Europe

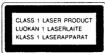


This MiniDisc Recorder is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT label is located on the bottom exterior.

#### For Customers in Canada

This apparatus complies with the Class B limits for radio noise emissions set out in Radio Interference Regulations.

#### For Customers in the United Kingdom



This MiniDisc Recorder is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT label is located on the bottom exterior.

The built-in battery should be replaced by qualified personnel only.

#### For Customers in Australia

If the supply cord of AC power adaptor is damaged the AC power adaptor must be returned to the manufacturer or his agent for the cord to be replaced.

IN NO EVENT SHALL SELLER BE LIABLE FOR ANY DIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE, OR LOSSES OR EXPENSES RESULTING FROM ANY DEFFECTIVE PRODUCT OR THE USE OF ANY PRODUCT.

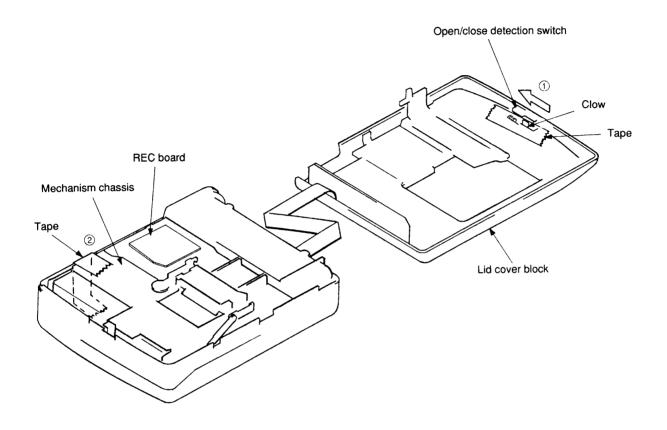
"MD WALKMAN" is a trademark of Sony Corporation.

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# SECTION 1 SERVICING NOTE

Open the cover assembly when measuring the REC board, etc. This will prevent the unit from operating.

- ① Secure the open/close detection switch claw with tape in the direction of the arrow.
- 2 Secure the mechanism chassis with tape so that it does not move.



#### Notes on chip component replacement

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

#### Fiexible Circuit Board Repairing

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

## SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK A OR DOTTED LINE WITH MARK A ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

# ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

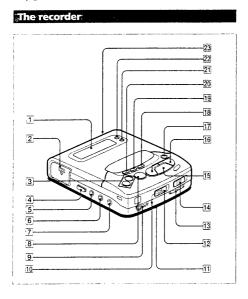
LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ASUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

# **SECTION 2 GENERAL**

This section is extracted from instruction manual.

## Looking at the controls

See pages in ( ) for more details.



- Display window (43, 64)Rechargeable battery compartment (11)
- 3 VOL(volume) +/- buttons (14, 36) 4 BASS BOOST (41)
- Select to emphasize low frequency (bass) sounds
- 5 LINE OUT jack (49)
  6 OPT(optical)/LINE IN jack
- (7, 16, 17)

  7 MIC PLUG IN POWER jack
- (30)
- (50) (50) (50) (50) (60) (60) (70)
- 10 Record indicator (28, 33)
- 11 CLOCK SET (14) Press here with a pen nib to
- set the clock.
  12 REC (record) (8, 20, 22, 25, 27 30)
- 13 HOLD (40) Slide to lock the controls of the recorder.

  14 OPEN (8, 20, 21, 24, 26, 37)
- Slide here to open the lid and insert or remove an MD.
- 15 ► (play) button (9, 22, 36)

- 16 I◀◀/▶► (search, AMS)
- buttons (14, 22, 35, 37)
  17 II (pause) button (20, 22, 24, 25, 26, 30, 37, 46)
- ERASE (48)
  Press to erase the recorded
- tracks. 19 END SEARCH (25)
  Press to search for the end of
- recording.
  20 TRACK MARK (34, 44, 46) Press to add or erase track
- marks on a recording.
  [21] PLAY MODE (39) Each time you press here the recorder plays the MD in different play modes: normal play, all repeat, single repeat, or shuffle repeat.
- 22 DISPLAY (42)
  Press to display the current play mode, the remaining time of the current track, the
- remaining time of the disc, or the date and time recorded.

  23 DC IN 6 V jack (7, 10, 11, 50)

  Connect the supplied AC power adaptor here.

62 For your information

For your information | 63

⇒Looking at the controls

The display window 14 2 3 <u>888</u>#188:88 4 百万亩亩 11

- 1 Disc indication Shows that the MD is rotating for recording,
- playing or editing.

  REC(record) indication (21, 23, 26, 31, 32, 34) Lights up while recording. When it is flashing, the recorder is in recording
- standby mode.

  3 REC DATE (recorded date) indication (14, 43) Lights up along with the date and time the MD was recorded. When only "DATE" lights up, the current date and time are displayed.
- 4 Level meter (32)
- Shows the volume of the MD
- being played or recorded.

  5 REMAIN(remaining time) indication (20, 22, 31, 36, 43)
- Lights up along with the remaining number of tracks or remaining time of the track or the MD.

  Battery indication (11, 13)
- Shows battery condition.

  7 CHG(charging) indication (11)

(20, 21, 43)

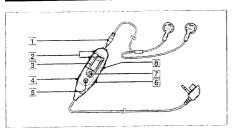
Lights up while the recharge-able battery is charged.

8 Track number indication

- 9 TRACK indication (43) Lights up along with the track number and elapsed time indications.
- 10 Play mode indication (39) Shows the play modes of the MD
- BASS BOOST indication (41) Lights up when low frequency (bass) sound is emphasized.
- 12 Time display (14, 20, 43) Shows the time recorded and the current time.
- 13 AM/PM indication (14, 15) Lights up along with the time indication in 12-hour system.
- 14 Character information display (14, 20, 21, 34, 36, 43) Displays the disc and track names, date, error messages,

#### ⇒Looking at the controls

#### The remote controller



- Microplug (6)
  2 VOL(volume) +/- buttons
- [2] VOL(volume) +/- buttons
  (36)

  3) ► (play)/|-4-/ト►! (search,
  AMS) button (37)
  While the recorder isn't
  operating, press ► to play.
  While playing, press the |-4
  side to find the beginning of
  the current or preceding
  tracks or search backward, or
  press the ▶►! side to find the
  beginning of the succeeding
  tracks or search forward.
- TRACK MARK (34, 44)
  Press to add track marks while recording.
- while recording

  [5] II (pause) button (37)

  [6] AVLS (Automatic Volume Limiter System) (42)

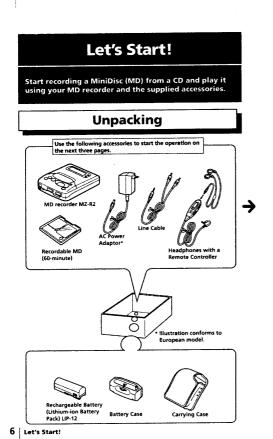
  Slide to ON to limit the maximum volume.
- (5) (stop) button (37)

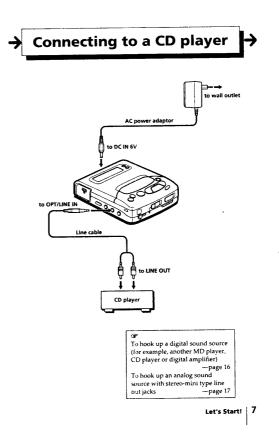
  8 HOLD (40)

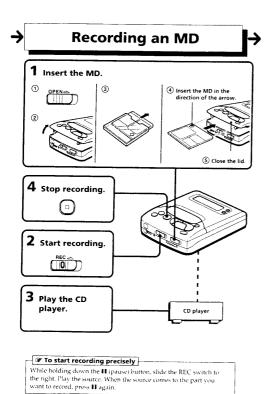
  Slide to lock the controls

Slide to lock the controls of the remote controller.

66 | For your information







# **Choosing power sources**

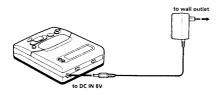
The recorder is operable on AC, rechargeable battery, and dry battery

## Using on AC power

8 | Let's Start!

To record for hours, you should operate the recorder on AC power. If you use the rechargeable battery or dry batteries, the batteries may weaken and interrupt the recording.

Connect the supplied AC power adaptor to the DC IN 6V jack of the recorder and the wall outlet.



F After using, leave the recorder connected to the AC power for about 24 hours to charge the built-in battery for the clock and the recorder's memory.

the recorder's memory.

The built-in battery operates the clock and powers the recorder's memory. It requires charging when you use the recorder for the first time or after a long period of

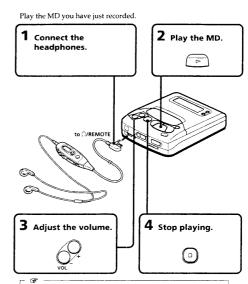
The recorder will automatically charge the built-in battery while connected to AC power, rechargeable battery, or dry batteries. Once charged, the built-in battery should last about 2 months without connecting to any of the power sources

#### Note on the AC power adaptor

Use the supplied AC power adaptor only. Do not use any other AC power adaptor.



## Listening to an MD



- After you stopped recording, press ▶. The recorder will play from the point where you started recording.

  When you have stopped playing the MD partway through, press ▶ to resume playing from the point where the MD stopped.

  If you have opened the lid or taken the MD out after you stopped playing it partway, the recorder will play from the first track when you press ▶.

Let's Start! | 9

## Using on the rechargeable battery

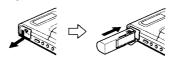
Before using the supplied rechargeable battery for the first time, you must charge it.

The battery can be recharged about 300 times.

## 1 Connect the supplied AC power adaptor.



2 Open the battery compartment lid and insert the



"CHG" and the battery indication appear in the display and charging begins.

While  $\$  Charging  $\$  "CHG" charging.  $\$  completed. disappears.

Charging a completely discharged battery takes: about 3 hours for 80% charging, or about 5 hours for 100% charging.

10 | Setting up

Setting up | 11

#### ⇔Choosing power sources

#### 3 Disconnect the AC power adaptor.

As long as the recorder is connected to the AC power, the power will be supplied from AC.

#### Notes on recharging

- Be sure to use the supplied AC
- Be sure to use the supplied AC power adaptor.
   When you use the battery for the first time or after a long period of disuse, the battery life may be diminished. In this case, charge and discharge the battery several times. The battery life will be restored.

#### Notes on the rechargeable battery

- To charge the battery, use only the recorder or the specified
- charger.

   Do not disassemble or shortcircuit the battery.

  • Do not leave the battery at high
- temperature for an extended period of time.

   Keep the battery away from the
- fire.
   Do not expose the battery to
- Do not drop the battery or subject it to mechanical schock.

G Battery charging tips

• You can charge the battery at any time.

The rechargeable battery does not need discharging before recharging. You can recharge a half-charged battery flowever, the rechargeable battery discharges little by little even while it is not in use. We recommend that you charge it before every use.

Keep a few spare batteries.

To avoid power shortage, prepare a few rechargeable batteries. IIP-12 (not supplied). To remind yourself of the battery condition, set the switch on the battery to the position where no mark is visible when the battery has finished charging. Set the switch to the position where the red mark is visible when the battery has been discharged.



To ensure the maximum number of chargings and dischargings, we recommend storing the batters in a cool place and charging it under temperatures ranging from 50 to 86°F (10° to 30°C).
When the batters and to be used. When the battery is not to be used for a long time, be sure to remove it from the recorder.

## Using on dry batteries

#### 1 Mount the battery case. \



#### 2 Install three R6 (size AA) alkaline batteries.

After you install a battery in the lower compartment, put the black tape, and install another battery on it. And then, install the other battery as illustrated.

#### F When to replace the batteries

You can check the battery condition with the battery indication displayed while using the recorder.



Weak batteries. Replace all the batteries.

The batteries have gone out. "LOW BATT" flashes in the display, and the power goes off.

#### Battery life

Batteries	Recording	Playback
Rechargeable battery**	Approx. 2 hours	Approx. 2.5 hours
Rn (size AA) alkaline batteries	Approx. 2 hours	Approx. 2.5 hours
Rechargeable and Rhisize AAI batteries	Approx. 4.5 hours	Approx. 6.5 hours

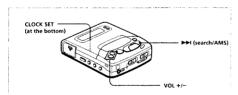
- When you record, use a fully charged battery or new dry batteries.
  If the rechargeable battery capacity becomes half the normal life, replace it with a new one.

Setting up | 13

12 | Setting up

## **Setting the clock**

To stamp the date and time on the MD when you record, you need to set the time. When you use the recorder for the first time or after a long time of disuse, charge the built-in battery for the clock and the recorder's memory before setting the clock (See *Using on AC power*, page 10.) Set the clock while the recorder isn't operating after connecting to the power source.



1 Press CLOCK SET at the bottom of the recorder with a pen nib.

The digits of the year flash.



2 Enter the current year by pressing VOL + or -.

To change the digits rapidly, keep pressing + or -.

3 Press ►►I.

The year you set is stored in memory and the digit of the month flashes.



4 Repeating steps 2 and 3, enter the current month,

date, hour, and minute. The time display appears with "AM" or "PM". ("AM 12:00" means midnight and "PM 12:00" means noon.) When you press ►► to set the minute, the clock starts operating.



#### If you make a mistake while setting the clock

Press ■, and set the clock again from step 1.

## TOn the clock display

• To display the time Press DISPLAY twice in stop mode. The time indication disappears after 5 seconds.

• If the clock loses time or the

display flashes
The built-in battery is weak. If you keep using the weak battery, the recorder will not record the recorded date and time. Note that the built-in clock normally loses about 2 minutes a month.

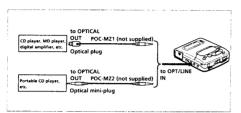
• To display the time in the 24-hour system While setting the clock, press DISPLAY. To display the time in the 12-hour system, press DISPLAY

14 | Setting up

## Recording from a CD, etc.

When you connect the MD recorder to a sound source, the recorder automatically recognizes the sound source and switches to digital or analog recording.

#### Hooking up a digital source



Connect the optical cable (POC-MZ1 or POC-MZ2, not supplied) to the OPT/LINE IN jack.

The recorder switches to digital input automatically

#### Notes

- The MD recorder's sampling frequency is 44.1 kHz. A digital source which has a different sampling frequency (such as the DAT recorder/ player) cannot be recorded using the digital connection. Use instead the analog (line out) connection (see the next section)
- You can make a digital recording only from an optical type output.

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Recording an MD | 17

## Three ways of recording

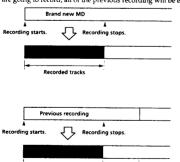
You can record an MD in three ways according to the points where the recording should start on the MD.

#### •Recording from the first track of an MD (page 20)

When recording on a brand new MD, recording starts from the first track of the MD. To record over a previous recording to be erased entirely, recording should also start from the first track of the MD.

Note that all the tracks will be erased as soon as you start

Even if the previous recording is longer than the new tracks you are going to record, all of the previous recording will be erased.



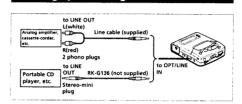
Newly recorded tracks

18 | Recording an MD

 If you use the digital (optical out) connection to record your MD, you will not be able to make copies from the recorded disc copy. You can only make copies from a home-recorded MD by using the analog (line out) connection.



### Hooking up an analog source



Connect the supplied line cable (or RK-G136, not supplied) to the OPT/LINE IN jack. The recorder switches to analog input automatically

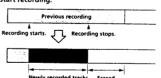
If a microphone is connected, the recorder will not switch to analog input. To record from the analog source, you must first disconnect the microphone.

F When the recorder has nnected at the same time The recorder switches to digital, microphone, and analog source in this order of priority.

# Recording from a specific point of a previous recording (page 22)

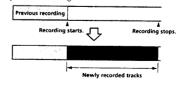
To keep a part of a recorded MD and record over the remaining previous recording, start recording at the end of the part you want to keep (at the beginning of the part you want to erase).

Note that all the succeeding tracks will be erased as soon as you start recording.



#### Recording on the blank portion of a recorded MD (page 25)

To keep all of the previous recording and record new tracks on the blank portion of the MD, start recording from the last point of the previous recording.



⇒Recording from a CD, etc.

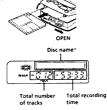
### Recording from the first track of an MD

Before you start recording, connect the MD recorder to a sound source. When you record on the first track of a used MD, note that all the succeeding tracks will be erased as soon as you start recording.



#### 1 Insert the recordable MD.

Slide OPEN to open the lid, insert the recordable MD with the arrow pointing toward the opening, and close the lid. Once you open the lid, the recorder will start recording from the beginning of the first



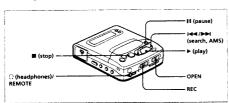
\* No indication appears with MDs that have not been electronically labeled

20 | Recording an MD

⇒Recording from a CD, etc.

# Recording from a specific point of a previous recording

You can record over a part of the previous recording. Note that all the succeeding tracks will be erased as soon as you start recording.



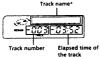
- 1 Connect the headphones to \(\text{\cappa}/\text{REMOTE.}
- 2 Insert the recordable MD.
- 3 Press ► to find the start point of recording.

The recorder plays the previous recording.

To find the beginning of the next track, press ►►.

To find the beginning of succeeding tracks, press

repeatedly. If you
keep pressing >>, you can
fast-forward the playback
while listening to the sound. To find the beginning of



No indication appears with MDs that have not been electronically labeled

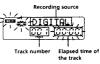
the current or preceding tracks, use |

22 | Recording an MD

# 2 While holding down II, slide REC to the right pressing the red button in the center of REC.

"REC" flashes in the display and the recorder enters recording standby mode.

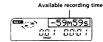
When you record over a previous recording, all the succeeding tracks will be erased as soon as you start recording.



#### 3 Play the sound source.

#### 4 Press II again to release standby and start recording.

"REC" lights up and recording starts. The recording level is adjusted automatically (AGC-Automatic Gain Control).



## 5 Press ■ to end recording.

"Toc Edit" flashes and the recorder starts writing the new data to the MD. The indication goes out when writing is completed.



#### ₩ Note

Do not move or jog the recorder while "Toc Edit" is flashing in the display.

То	Press/Slide
Pause/release pause	II
Eject the MD	After stop (■), slide OPEN and open the lid

Recording an MD | 21

- 4 Press to stop at the point you want to start recording over.
- 5 While holding down II, slide REC to the right pressing the red button in the center of REC.

"REC" flashes in the display and the recorder enters recording standby mode. Check the display to make sure the recording start from the right track.



■ Note
All tracks following this point will be erased as soon as you start recording.

#### 6 Play the sound source.

#### 7 Press II again to release standby and start recording.

The new track is recorded as a succeeding track from this point.
The recording level is adjusted automatically (AGC—Automatic Gain Control).



#### ⇔Recording from a CD, etc.

## 8 Press ■ to end recording.

"Toc Edit" flashes and the recorder starts rewriting the new data to the MD. The indication goes out when rewriting is completed.



■ Note
Do not move or jog the recorder while "Toc Edit" is flashing in the display

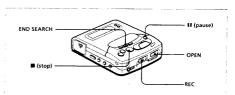
То	Press/Slide
Pause/release pause	11
Eject the MD	After stop (■), slide OPEN and open the lid

# F If you want to keep the latter tracks of the recorded MD

Erase the preceding tracks so that the latter tracks are renumbered from the beginning of the MD (see Erasing recordings, page 48). Then start recording new tracks from the last point of the track you want to keep. keep.

# Recording on a blank portion of a recorded MD

You can record new tracks after the previous recording.



## 1 Insert the recordable MD.

#### 2 Press END SEARCH.

The recorder quickly searches for the end of the previous recording and displays the remaining time available for recording.
Recording will be made from this point.



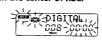
Recording an MD | 25

24 Recording an MD

⇒Recording from a CD, etc.

3 While holding down II, slide REC to the right pressing the red button in the center of REC.

"REC" flashes in the display and the recorder enters recording standby mode.



4 Play the sound source.

**5** Press II again to release standby and start recording.

The recording level is adjusted automatically (AGC--Automatic Gain Control).



6 Press ■ to end recording.

"Toc Edit" flashes and the recorder starts rewriting the new data to the MD. The indication goes out when rewriting is completed.



**□** Note

Do not move or jog the recorder while "Toc Edit" is flashing in the display.

То	Press/Slide
Pause/release pause	11
Eject the MD	After stop (■), slide OPEN and open the lid

#### Useful tips on recording

#### To monitor the sound being recorded

Connect the headphones to \(\Omega/REMOTE\) and adjust the volume by pressing VOL +/-. Sound levels are copied to the MD automatically and independently of the volume for monitoring.

#### To check the tracks recorded

Connect the headphones to ∩/REMOTE and press ▶ after you stop recording. The recorder will play from the point where you stopped recording.

#### To resume recording from the point the MD stopped (Resume function)

If you stop recording and do not eject the MD nor open the lid, the recorder will resume recording from the point where the MD

stopped.

Note
As soon as you start recording, all the succeeding tracks of the previous recording will be erased.

#### To start recording quickly

You can start recording simply by sliding REC to the right. Tou can start recording simply by sliding IKE. to the right. In some cases, however, the recorder does not enter the recording mode immediately after you slide the switch—when you try to start recording as soon as you insert an MD, when you try to start recording over from a specific point of a previous recording as soon as you search the point, and so on. In these cases, start playing the sound source after the record indicator lights up.

26 | Recording an MD

#### How sources and their track divisions are marked

Recording source	Track divisions are
Digital source (CDs, MDs)	Marked (copied)
Analog source (tapes)	Marked (copied) after more than 2 seconds of silence
Microphone	Not marked (copied) (can be added manually)

When you press II while recording from any source, the recorder ognizes it as a track division. When pause is released, the recording sumes on a new track number.

To add and erase track marks, see Track marking a recording, page 44.

- Track divisions may be copied incorrectly
   when you record from some CD players or mult disc players.
   when the source is in shuffle or program play mode.
  In this case, play the source in normal play mode.

#### Knowing the recording condition

Condition	Record indicator
Recording	lights up
Recording standby	flashes
Recording with less than 3 minutes' recording time available	slowly flashes

The record indicator shows the recording condition.

28 | Recording an MD

#### Recording an MD | 29

Protecting a recorded MD

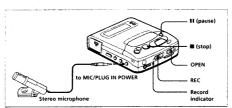
To record protect an MD, slide open the tab at the side of the MD (so the tab is concealed). In this position, the MD cannot be recorded.

70

## Recording from a microphone

#### Recording

This section explains how to record from the first track of an MD. To record from a specific point of a previous recording, see page 22. To record on a blank portion of a recorded MD, see page 25. When you record over a previous recording, note that all the succeeding tracks will be erased as soon as you start recording.



#### 1 Connect a microphone at MIC/PLUG IN POWER

Use a stereo microphone (ECM-909A, ECM-727P, etc., not supplied).

To record from a microphone, you must first disconnect the digital source. If connected, the recorder will not switch to microphone input

2 Insert a recordable MD.

Notes

When you record from a portable CD player using the digital connection, "NO SIGNAL" may appear in the display after you set the recorder to recording standby mode. This

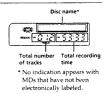
to recording standary mode. Inshappens when the sound source does not send the digital signals correctly. In this case set the CD player to play pause before you start recording.

• This recorder does not label or count because the standard stand

copy character information such as disc names and track names.

**ℱ** Maximum number of tracks On this MD recorder 254 tracks can

> Slide OPEN to open the lid, insert a recordable MD (supplied) with the arrow pointing toward the opening, and close the lid.
> Once you open the lid, the recorder will start recording from the beginning of the first track.

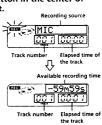


# 3 While pressing the red button in the center of REC, slide REC to the right.

Recording starts when the record indicator lights up. The recording level is adjusted automatically (AGC—Automatic Gain Control).

#### **₩** Note

When you record over a previous recording, all the succeeding tracks will be erased as soon as you start recording.



#### 4 Press ■ to end recording.

"Toc Edit" flashes and the recorder starts writing the new data to the MD. The indication goes out when writing is completed.



#### **II** Note

Do not move or jog the recorder while "Toc Edit" is flashing in the

Recording an MD | 31

30 | Recording an MD

#### ⇒Recording from a microphone

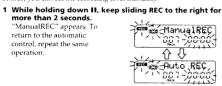
#### To start recording precisely

- While holding down II, slide REC to the right pressing the red button in the center of REC.
   The recorder enters recording standby mode.
- 2 When you want to record, press II again.

#### Adjusting the recording level (Manual recording)

Sound levels of digital sources are automatically copied to the MD. However, if you are recording from a microphone or an analog source, you can set the recording level manually.

operation.



#### 2 Play the source.

# 3 While observing the level meter, adjust the recording level using |◄◀▶▶|. Press ▶▶ to increase. Press | Volume decreases | Increase. | Volume decreases | Volume

Adjust the level to around the middle of the level

meter. Excessive level will make the playback sound distorted.



#### **□** Note

Once you start manual recording, you cannot adjust the recording level or the volume for monitoring. Adjust the level or the volume while the recorder is in standby mode.

32 | Recording an MD

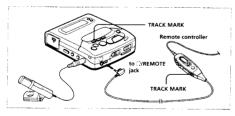
Recording an MD | 33

#### ⇒Recording from a microphone

#### Track marking while recording

Track marking essentially adds tracks while recording and enables you to quickly find and play from the marked position. The track marking feature is useful particularly when recording from a microphone. For example, when recording a discussion where a number of people are speaking, insert a track mark (a new track number) every time the speaker changes. You can also insert a track mark when recording from a digital or analog source connected to the OPT/LINE IN jack.
The remote controller will help you easily insert a track mark while

recording.



# While recording, press TRACK MARK. The record indicator flashes and

a short beep sounds in the headphones.
The track number will increase

by one.



#### Searching for the marked point

After recording, press ◄◄ /▶► to find the points where you inserted track marks.

4 Press II to release pause and start recording. 5 Press **I** to end recording.

The recording level control is switched to automatic control.

The record indicator shows the recording condition while recording

Record indicator

flashes according to loudness of the source (voice mirror)

Knowing the recording condition

from a microphone

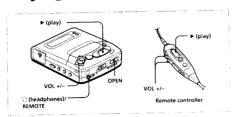
Recording standby Recording with less than 3 minutes' recording time available

Condition

Recording

34 | Recording an MD

## Playing an MD



#### 1 Connect the headphones at \(\cappa/\text{REMOTE}\).

#### 2 Insert an MD.

Slide OPEN to open the lid, insert an MD with the label side up and the arrow pointing toward the opening, and close the lid.



\* No indication appears with MDs that have not been electronically labeled.

## 3 Press ►.

The recorder will play from the beginning of the first track.



No indication appears with MDs that have not been electronically labeled.

4 Adjust the volume by pressing VOL +/-.



A Note
If you cannot increase the volume, the AVLS switch on the remote controller is set to ON. Set the switch to OFF. When you try to increase the volume while the switch is set to ON, the volume indication flashes and you cannot increase the volume to the maximum. (See Useful typs or playing an MD on page 42.)

То	Press	Beep on the headphones (when operating on the remote controller)
pause/release pause	11	(continuous short beep
stop	H	— (one long beep)
search while listening	keep pressing	(none)
quickly search without listening	II (pause) and keep pressing I◀ /▶►	(none)
find the beginning of the current or preced- ing tracks (AMS)	slightly press I◀◀	(three short beeps)
find the beginning of the next or succeeding tracks (AMS)	slightly press ►►I	(two short beeps)
eject the MD	after ■ (stop), slide OPEN and open the lid	(none)

Listening to an MD | 37

36 Listening to an MD

#### ⇒Playing an MD

## Playing specific tracks

You can find a specific track before playing an MD and start playing from that track. For this operation, only the controls on the recorder

1 Press ►►I or I◄ on the recorder to find a specific track.



2 Press ▶ on the

⇒ BEAUTIFUL

⊕ 003 00:00

#### Notes

- This recorder has a shock-resistant memory. However, if it is subject to continuous vibration, the sound may skip or mute while playing an MD. In this case, use the recorder in a stable place.

   Tracks that are very short, such as a brief narration or introduction, and the stable place is the sound to stable place.
- may cause the sound to skip while being played.

Fyou can resume playing from the point the MD stopped (Resume function). If you stop playing partway and do not eject the MD nor open the lid, the recorder will resume playing from the point where the MD stopped.

# Playing tracks repeatedly

You can play tracks repeatedly in three ways—all repeat, single repeat, and shuffle repeat.



#### Press PLAY MODE while the MD is playing.

Each time you press PLAY MODE, the play mode indication changes as follows.



To play	Indication
all the tracks once (normal play)	(none)←
all the tracks repeatedly (all repeat)	Ġ
a single track repeatedly (single repeat)	Ç 1
all the tracks in random order repeatedly (shuffle repeat)	SHUF

Listening to an MD | 39

## Useful tips on playing an MD

#### Locking the controls (Hold function)

To prevent the buttons from being accidentally operated while you are walking, use the Hold function.

## Slide HOLD in the direction

of the arrow.
On the recorder, slide HOLD to lock the controls of the recorder On the remote controller, slide HOLD to lock the controls of the remote controller.





#### **Emphasizing the bass (Bass Boost feature)**

The Bass Boost feature intensifies low frequency sound for richer bass reproduction

# While the MD is playing, press BASS BOOST. Each time you press BASS

BOOST, you can get two stages of the Bass Boost.



To emphasize	Indication
no emphasis (normal play)	(none)
slightly	BASS ■
strongly	BASS =

#### **■** Note

If the volume is too high, the sound may crack or distort. If this happens, turn down the volum

40 | Listening to an MD

#### ⇒ Useful tips on playing an MD

#### Adjusting the sound to an appropriate level (AVLS function)

The AVLS (Automatic Volume Limiter System) function allows you to limit the maximum volume of the recorder without degrading the sound quality.

Hearing experts advise against continuous, loud and extended play. Use the AVLS function to avoid excessive pressure to your ears.

#### Set AVLS on the remote controller to ON. The volume is kept at a

moderate level without degradation of the sound quality, even if you attempt to turn the volume up higher.



#### Displaying disc and track names

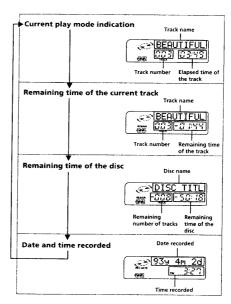
If you are playing a premastered or recorded MD that has been electronically labeled, you can display information on the MD while it is playing.

# While the MD is playing,

press DISPLAY.
Each time you press the button, the display changes as follows.



Listening to an MD | 41



#### **□** Notes

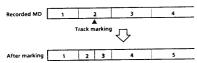
- No character information appears with MDs that have not been electronically labeled.
   This recorder does not label or copy any character information such as discinames and track names.

Listening to an MD  $\mid$  43

42 | Listening to an MD

## Track marking a recording

You can add track marks so that you can quickly find and play from the marked position.
The track numbers will increase as follows.





#### While playing or recording, press TRACK MARK on the recorder at the point you want to mark.

The TRACK MARK button on the remote controller can be used only while recording.

If you want to add more marks, press the button at the desired



44 | Editing recorded tracks

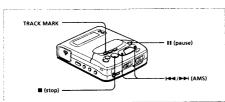
⇒Track marking a recording

#### Erasing a track mark

When a track mark is erased, the two tracks preceding and following the mark will be combined. The track numbers will change as



To erase a track mark, use TRACK MARK on the recorder. You cannot erase a track mark with TRACK MARK on the remote controller.



1 While the MD is playing, press II to pause.

46 | Editing recorded tracks

#### To erase the track mark

Refer to the next section, Erasing a track mark, page 46.

#### Notes

- When you press after adding track marks, "Toc Edit" flashes and the recorder starts writing the new data to the MD. Do not move or jog the recorder while "Toc Edit" is flashing, in the display.

  You cannot add track marks if the MD has the tha open for record-
- MD has the tab open for record-protection. Before adding track marks, close the tab on the side of

The recorder adds the elapsed time of the previous track to the date and time it was recorded. These will be stamped on the new track.

recorded.

Editing recorded tracks | 45

#### 2 Find the track mark you want to erase by pressing I◀◀ or ▶▶i slightly.

For example, if you want to erase the third track mark, find the beginning of the third track. "00:00" flashes in the display.



# 3 Press TRACK MARK on the recorder to erase the

The track mark is erased and the two tracks are

and the two tracks are combined.
The pause is released and the recorder starts to play from the point you erased the track mark. If you want to erase more

marks, repeat steps 1, 2 and 3



**To add a track mark again** Search for the position and add a track mark again. Refer to the previous section, *Track marking a recording*.

#### Notes

- Notes

   When you press after erasing track marks, "Toe Edit" flashes and the recorder starts writing the new the recorder starts writing the new the recorder while "Toe Edit" is flashing in the display.

   You cannot erase track marks if the MD has the tab open for record-protection. Before erasing track marks, close the tab on the side of the MD.

   It you have recorded or erased many times on the same disc, the data of a single track may be scattered throughout the disc.

When the data is scattered in groups of less than 8 seconds long, the recorder will not be able to combine the tracks. In this case you cannot erase track marks. This is one of the features of the MD system, not a malfunction.

© Date and time recorded
The combined track whose mark has been erased is recorded with the date and time of the beginning of the first of the two combined tracks.

Editing recorded tracks | 47

## **Erasing recordings**

You can quickly erase a recorded track. Note that once a recording has been erased, you cannot retrieve it.



## 1 Play the track you want to erase.

Check the tracks preceding and succeeding the track you want to erase, and make sure it is the right one.

### 2 Press ERASE.

"Erase OK?" and "PushErase" appear in the display alternately, and the recorder enters pause mode. Check the track number again in the display. To cancel erasing, press ■.

#### **3** Press ERASE again to erase the track.

The track is erased from the MD and the remaining tracks are renumbered. The recorder then starts to play the succeeding track. If you have erased the last track of the MD, the recorder pauses at the end of the preceding track.
To erase more tracks, repeat steps 1, 2, and 3

- When you press after erasing recordings, "Toc Edit" flashes and the recorder starts writing the new data to the MD. Do not move or jog the recorder while "Toc Edit" is flashing in the display
- You cannot erase tracks if the MD has the tab open for record-protection. Before erasing tracks, close the tab on the side of the MD.

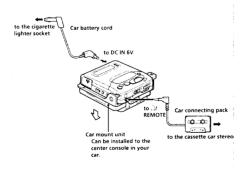
#### 48 | Editing recorded tracks

## Using in a car

### Hooking up a car stereo system

You can listen to MDs with your car stereo system using the following equipment.

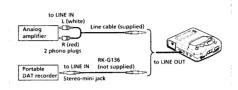
-Car Mount Kit CPM-MZR2K (not supplied, contents: Car mount unit, Car connecting pack, Car battery cord)
Refer to the operating manual of the equipment for more details.



**Q** Note

Do not put the recorder on a dashboard or leave it in a car parked in direct sunlight since the temperature may rise excessively.

#### Connecting to a stereo system



Connect the line cable (supplied, or RK-G136, not supplied) to the LINE OUT jack of the recorder and the LINE IN jack of your stereo system. The output is analog.

Playing an MD with other equipment  $\mid 49$ 

## **Error messages**

If the recorder cannot carry out an operation, one of the following error messages may flash in the display window

This message will flash	If
BLANKDISC	you try to play an MD with no recording on it.
BUSY	you try to operate the recorder while it is accessing the recorded data. Wait until the message goes out (in rare cases, it may take 2-3 minutes).
CANNOT	you try to record over or edit a track which has been track protected.*
	you try to erase a track mark at the beginning of the first track
	you try to erase a track mark to combine tracks the recorder cannot combine.**
DISC ERR	the recorder cannot read the MD (it is scratched or dirty). Reinsert the MD. If the same message still appears, replace the MD.
DISC FULL	there is no more space on the MD (less than 12 seconds available).
ERR STOP	there is a malfunction while you are recording.     the recorder cannot read the recorded data on the MD. Replace the MD.
HOLD	you try to operate the recorder with the HOLD switch slid in the direction of the arrow.
LOW BATT	the rechargeable battery or dry batteries are weak. Charge the rechargeable battery or replace the dry batteries.
NO COPY	you try to make a copy from an MD that is protected by the Serial Copy Management System. You cannot make copies from a digitally connected source which was itself recorded using the digital connection. Use the analog connection instead.
NO DISC	you try to play or record with no MD in the recorder.

This message will flash	If
NO SIGNAL	the recorder cannot detect digital input signals. Make sure that the source is connected firmly and it has the same sampling frequency as the recorder (44.1 kHz).
PB DISC	<ul> <li>you try to record or edit on a pre-mastered MD (PB means playback.)</li> </ul>
PROTECTED	you try to record or edit on a MD with the tab in the record-protect position.
TEMP OVER	heat has built up in the recorder. Leave the recorder to cool down.
TRK FULL	there is no more space for new data when you are recording or editing the MD. The MD cannot be edited nor recorded any further.

- \* Track-protected MDs Some MD recorders will let you protect individual tracks from being recorded over. This recorder, however, does not offer this feature.
- \*\* If you have recorded or erased many times on the same MD, the data of a single track may be scattered throughout the MD. When the data is scattered in groups of less than 8 seconds long, the recorder will not be able to combine the tracks.

For your information | 57

#### **Quick Random Access**

Like CDs, MDs offer instantaneous random access to the beginning of any music track. Premastered MDs are recorded with location addresses corresponding to each music selection.

#### **Shock-Resistant Memory**

One major drawback of optical read systems is that they can skip or mute when subject to vibration. The MD system resolves this problem by using a buffer memory that stores audio data.

#### What is the MD?

#### **How MiniDiscs work**

MiniDiscs (MD) come in two types: premastered (prerecorded) and recordable (blank). Premastered MDs, recorded at music studios, can be played back almost endlessly. However, they cannot be recorded on or over like cassette tapes. To record, you must use a "recordable MD".

Premastered MDs.
Premastered MDs are recorded and played like regular CDs. A laser beam focuses on the pits in the surface of the MD and reflects the information back to the lens in the recorder. The recorder then decodes the signals and plays them back as music.

Recordable MDs.

Recordable MDs, which use magneto-optical (MO) technology, can be recorded again and again. The laser inside the recorder applies heat to the MD, demagnetizing the magnetic layer of the MD. The recorder then applies a magnetic field to the layer. This magnetic field corresponds exactly to the audio signals generated by the connected source. (The north and south polarities equate to digital "1" and "0".) The demagnetized MD adopts the polarity of the magnetic field, resulting in a recorded MD.

#### How the MiniDisc got so small

The 2.5-inch MiniDisc, encased in a plastic cartridge that looks like a 3.5-inch diskette (see illustration below), uses a new digital audio compression technology called ATRAC (Adaptive TRansform Acoustic Coding). To store more sound in less space, ATRAC extracts and encodes only those frequency components actually audible to the human ear.

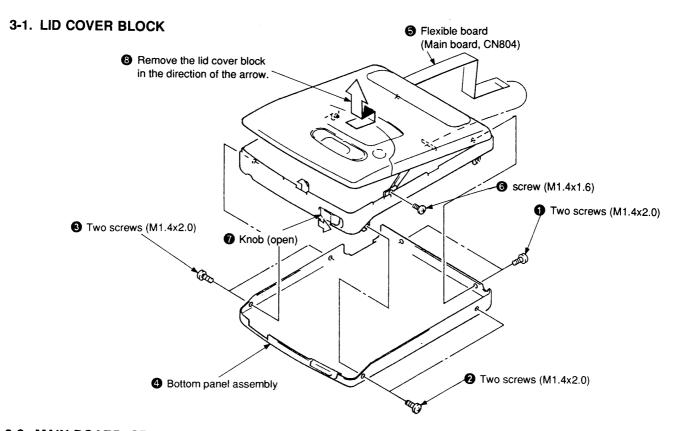


 $60 \mid$  For your information

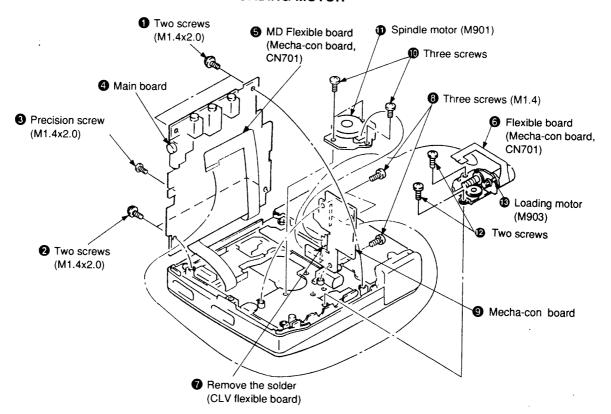
For your information | 61

# SECTION 3 DISASSEMBLY

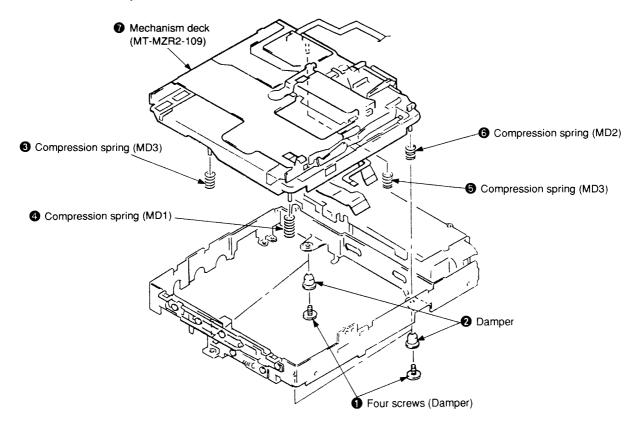
Note: Follow the disassembly procedure in the numerical order given.



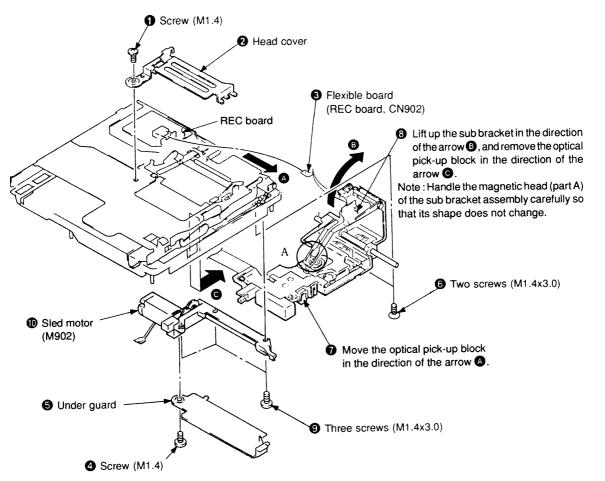
# 3-2. MAIN BOARD, SPINDLE MOTOR AND LOADING MOTOR



## 3-3. MECHANISM DECK (MT-MZR2-109)



# 3-4. SLED MOTOR AND OPTICAL PICK-UP BLOCK (KSM-190A)



# SECTION 4 TEST MODE

#### **OUTLINE**

This unit uses an EVR (electric variable resistor) instead of the conventional semi-fixed resistor as its adjusting device. The EVR is controlled by the main microprocessor (IC805). The main microprocessor reads the data written in the EEPROM (IC804) and the EVR D-A converts this data to produce the adjusting voltage. Therefore, when adjusting this unit, this adjustment data written in the EEPROM must be rewritten. It can be rewritten by setting the unit into the test mode.

#### **SETTING THE TEST MODE**

Method 1: Short-circuit the soldering bridge of JP801 (TEST) of the main board (connect Pin (18) of IC803 to GND) and supply the power. (If the test mode is not set, press the RESET switch at the bottom of the unit or turn on and off the power four to five times.)

Method 2: Set the HOLD switch of the unit to "HOLD" and supply the power while pressing the ▶ key and ■ key of this unit and ■ key of the headphone remote controller.

#### **RELEASING THE TEST MODE**

When set using method 1: Turn off the power and open the

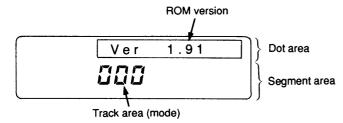
soldering bridge of JP801 (TEST)

of the main board.

When set using method 2: Turn off the power.

#### **TEST MODE OPERATIONS**

When the test mode is set, the LCD will display the following.



- Dot area: Repeats the following.
  - ROM version-All light up-All go off-
- · Segment area: Repeats the following.

→Mode 000→All light up→All go off→

- While the **II** key is pressed, the display will be preserved and therefore can be checked.
- As a 1 kHz, 0 dB signal will be output from the line output and headphone output, the audio system can be checked.

#### **TEST MODE STRUCTURE**

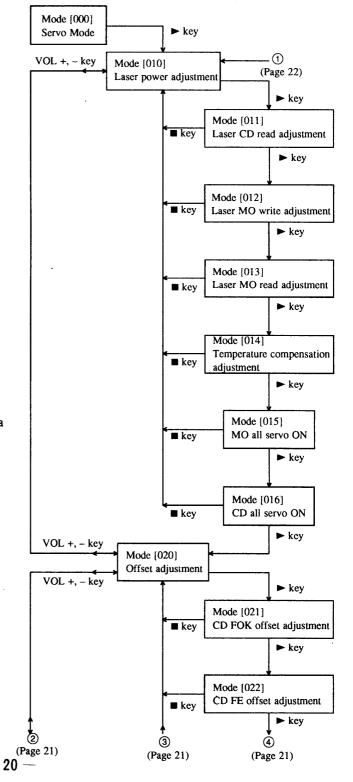
The test mode of this unit is made up of the following four modes.

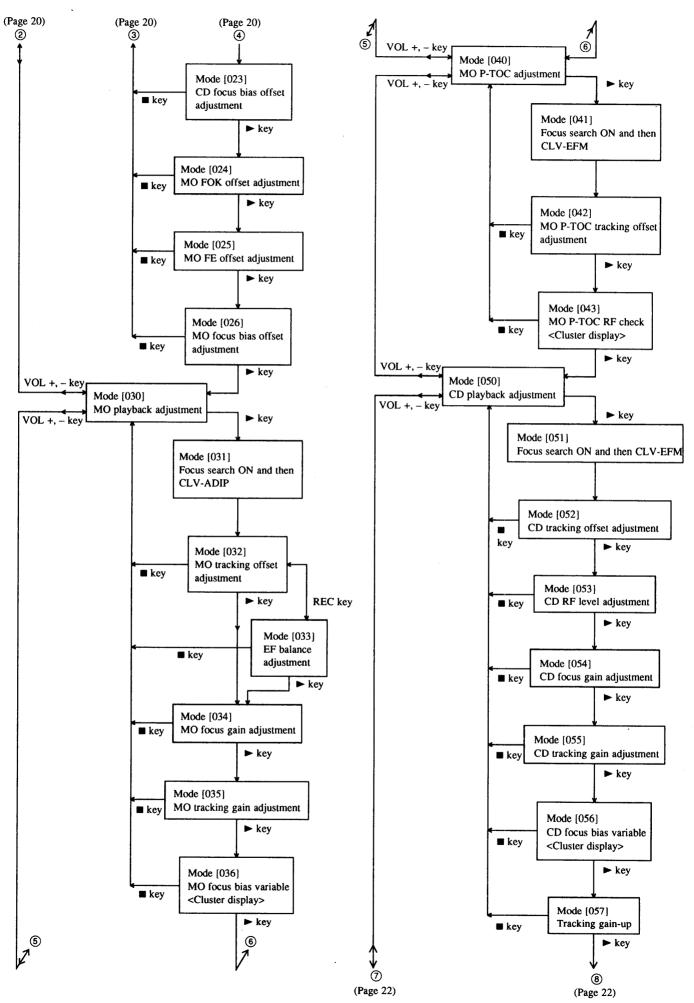
- Servo mode (0XX displayed at mode)
- Audio mode (1XX displayed at mode)
- Mechanism mode (2XX displayed at mode)
- Power mode (3XX displayed at mode)

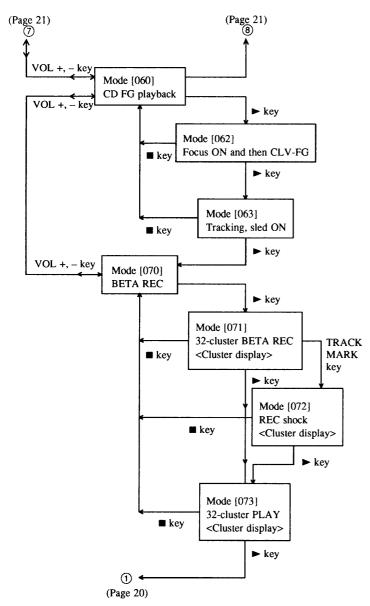
#### **SERVO MODE**

- When the test mode is set and the mode displayed is set to 000 using the VOL +, key, the servo mode will be set and displayed as "Test Mode Operations".
- When the ►►I or I◄ key is pressed, the optical pick-up will move to the external or internal periphery.
- To set other modes, press the VOL +, key.

#### · Structure of Servo Mode



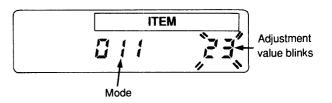




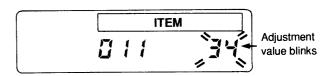
#### Adjusting Method

 Press the VOL +, - key and ► key, and set the adjustment mode.

(The values written in the EEPROM will be displayed blinking.)

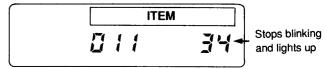


2. Press the VOL +, - key and change the adjustment value. (The adjustment value changes and blinks.)



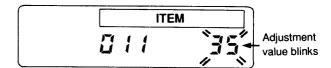
3. Press the **II** key. The adjustment data written in the EEPROM will be rewritten.

(The adjustment value lights up.)

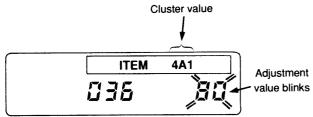


Note: The adjustment data will not be rewritten if the II key is not pressed and the original data will remain.

4. Press the VOL +, - key again and set the adjustment mode again.



#### · Cluster Display



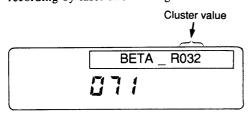
Mode No.	Mode	Dot Area Display
036	MO playback focus bias variable	MO _ ALL <clustervalue></clustervalue>
043	MO P-TOC RF check	CDL _ AL <cluster value=""></cluster>
056	CD playback focus bias variable	CD _ ALL <cluster value=""></cluster>
071	32-cluster BETA REC	BETA _ R < Cluster Value>
072	REC shock	RSHOCK <cluster value=""></cluster>
073	32-cluster PLAY	RCHECK <cluster value=""></cluster>

### · Continuous Recording

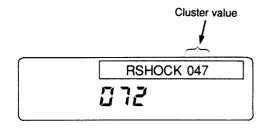
1. Set the BETA REC mode (mode 070).



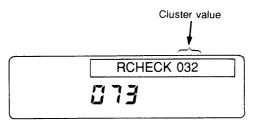
2. Press the ▶ key. Focus search will turn on, servo all will turn on, 32-cluster access will start, and continuous recording by laser MO writing will start.



3. Press the TRACK MARK key. REC shock will start and n track jump to the external periphery will occur.



4. Press the ▶ key. Laser MO reading will start and after the head of the 32-cluster is accessed, PLAY will start.

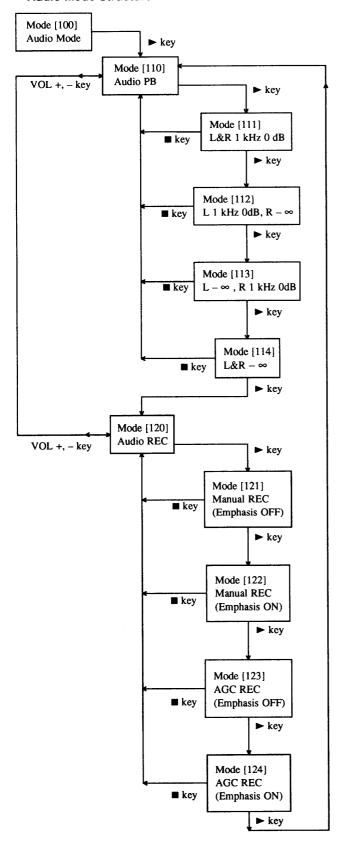


5. Press the ■ key. The BETA REC mode will be set again.

#### **AUDIO MODE**

- To set the audio mode, set the test mode, and set the mode display to 100 using the VOL +, - key.
- To set other modes, press the VOL +, key.

#### Audio Mode Structure

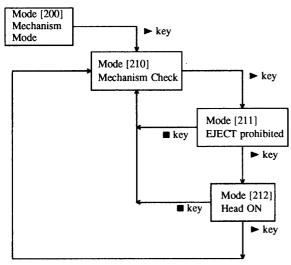


- When the II key is pressed when the mode number is [111], [112], or [113], the buzzer will sound for approximately 1 second. (When the buzzer sounds, it indicates that the Lch and Rch can be muted. The channels can also be switched even if the II key is not pressed.)
- When the VOL +, key is pressed when the mode number is [111], [112], or [113], the headphones output volume will move up and down. When the ◄ or ► key is pressed, the headphones output volume will become minimum and maximum.
- When the VOL +, key is pressed when the mode number is [121] or [122], the recording level will move up and down.
   When the ◄ or ► key is pressed, the recording level will become minimum and maximum.
- When the VOL +, key is pressed when the mode number is [123] or [124], the headphones output volume will move up and down. When the ◄ or ► key is pressed, the recording level will become minimum and maximum.
- When the mode number is [121], [122], [123], and [124], the recording LED will be lit.

#### **MECHANISM MODE**

- To set the mechanism mode, set the test mode, and set the mode display to 200 using the VOL +, key.
- When the ►► or ► key is pressed, the optical pick-up will move to the external or internal periphery.
- To set other modes, press the VOL +, key.

#### · Mechanism Mode Structure



#### **POWER MODE**

- To set the power mode, set the test mode, and set the mode display to 300 using the VOL +, key.
- To set other modes, press the VOL +, key.

#### · Power Mode Structure

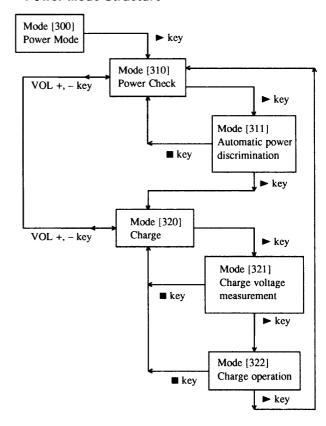


TABLE OF DOT AREA DISPLAYS

Mode	Dot Area Display	Mode	Dot Area Display	Mode	Dot Area Display	Mode	Dot Area Display
000	ROM VERSION	036	MO_ALL <cluster></cluster>	100	AUDIO	200	MECHANIZM
010	LD_POWER	040	CDL_TEST	110	AUDIO_PB	210	MECHATEST
011	LD_CD_RD	041	CDL_FOCUS	111	L/R=1K0dB	211	EJECT
012	LD_MO_WR	042	CDL_TRKOF	112	L=1K0dB	212	HEAD_ON
013	LD_MO_RD	043	CDL_AL <cluster></cluster>	113	R=1K0dB		
014	TEMP_MO_W	050	CD_TEST	114	INFI_ZERO	300	PWR_TEST
015	ALLON_MOR	051	CD_FOCUS	120	AUDIO_REC	310	PWR_SUPLY
016	ALLON_CDR	052	CD_TRKOFS	121	DEMP_LINA	311	LI_ION
020	OFFSET	053	LD_CD_RD		DEMP_OPTA		AM3
021	CD_FOKOFS	054	CD_FCS_GA		DEMP_MICA		DC_IN
022	CD_FEOFS	055	CD_TRK_GA	122	LINE_REC	320	CHG_TEST
023	CD_FCBIAS	056	CD_ALL <cluster></cluster>		OPT_REC	321	CHG_AUTO
024	MO_FOKOFS	057	CD_TG_UP		MIC_REC	322	CHG_ON
025	MO_FEOFS	060	CDFG_TEST	123	DEMP_LINM		
026	MO_FCBIAS	062	CDFG_FON	1	DEMP_OPTM		
030	MO_TEST	063	CDFG_AL1		DEMP_MICM		
031	MO_FOCUS	070	REC_TEST	124	LINE_MANU		
032	MO_TRKOFS	071	BETA_R <cluster></cluster>		OPT_MANU		
033	MOW_EFBA	072	RSHOCK <cluster></cluster>	]	MIC_MANU		
034	MO_FCS_GA	073	RCHECK <cluster></cluster>			_	
035	MO_TRK_GA			_			

### **OTHER DISPLAYS**

• During the test mode, the displays shown for the detection switch of the disc are as follows.

	Segment Area Display
Disc low reflectance rate detection	G
Disc present/absent detection	SHUF
Non-erasable switch detection	1
OPEN/CLOSE switch detection	OF*

 $\star$ : Displayed at the dot area when OPEN in mode number [010].

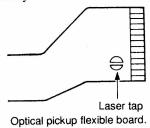
# SECTION 5 ELECTRICAL ADJUSTMENTS

# LASER DIODE EMISSION CHECKING PROCAUTIONS

When checking the laser diode emission during adjustments, never check it from directly above as this can be blinding.

# OPTICAL PACK-UP BLOCK (KMS-190A) USING PRECAUTIONS

As the laser diode in the optical pick-up is easily damaged by static electricity, make a solder bridge on the laser tap of the flexible board when using it. Also carry out thorough antistatic electricity measures. Handle the flexible board carefully as it damages easily.

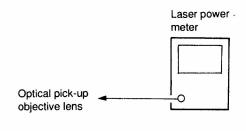


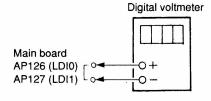
#### **ADJUSTING PRECAUTIONS**

- 1) To perform adjustments, set the test mode.
- 2) After completing adjustments, exit the test mode.
- 3) Use the following jigs and measurement tools.
  - CD test disc TDYS-1 (Parts No: 4-963-646-01)
  - SONY MO disc available on the market.
  - LPM-8001 laser power meter (Parts No.: J-2501-046-A)
  - MDPE-1 error rate counter (Parts No.: J-2501-047-A)
  - Oscilloscope (Above 40 MHz band. Measure after calibrating the probe.)
  - · Digital voltmeter
  - Thermometer
- 4) Unless specified otherwise, supply a power of DC6V to the DC IN 6V jack.
- 5) Positions of switch and knob
  - HOLD switch...OFF(Opposite \_\_\_\_)
  - · AVLS switch (remote controller)...OFF

#### LASER POWER ADJUSTMENT

#### Connection:



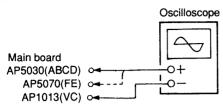


### Adjusting Method:

- Set the servo mode of the test mode (Mode display: 000).
- 2. Press the ► key and set the laser power adjustment mode (Mode display: 010).
- Press the 
   ✓ key and move the optical pick-up to the inner-most periphery.
- 4. Open the lid and set the laser power meter above the optical pick-up objective lens.
- Press the ► key and set the laser CD read adjustment mode (Mode display: 011).
- 6. Check that the laser power meter reads  $0.4 \pm 0.1$  mW.
- 7. Press the ► key and set the laser MO write adjustment mode (Mode display : 012).
- 8. Press the VOL +, key so that the laser power meter reads  $6.8 \pm 0.05$  mW.
- 9. Press the II key and fix the adjustment data.
- 10. Check that the voltage between AP126 (LDI0) and AP127 (LDI1) is below 600 mV.
- 11. Press the ► key and set the laser MO read adjustment mode (Mode display: 013).
- 12. Press the VOL +, key so that the laser power meter reads  $0.85 \pm 0.05$  mW.
- 13. Press the **II** key and fix the adjustment data.
- 14. Check that the voltage between AP126 (LDI0) and AP127 (LDI1) is below 350 mV.
- 15. Press the ► key and set the temperature compensation adjustment mode (Mode display : 014).
- 16. Measure the temperature of the periphery of the main board using the thermometer.
- 17. Press the VOL +, key so that the value measured shown at the LCD segment becomes ± 1.
- 18. Press the II key and fix the adjustment data.
- 19. Release the test mode.

#### **OFFSET ADJUSTMENT**

#### Connection:

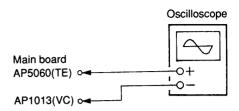


#### **Adjusting Method:**

- 1. Set the servo mode of the test mode (Mode display: 000).
- 2. Press the ▶key and VOL + key, and set the offset adjustment mode (Mode display: 020).
- 3. Press the ▶key and set the CD FOK offset adjustment mode (Mode display: 021).
- 4. Press the VOL +, key so that the voltage between AP5030 (ABCD) and AP1013 (VC) becomes  $0 \pm 50$  mV.
- 5. Press the II key and fix the adjustment data.
- 6. Press the ► key and set the CD FE offset adjustment mode (Mode display: 022).
- 7. Press the VOL +, key so that the voltage between AP5070 (FE) and AP1013 (VC) becomes  $0 \pm 50$  mV.
- 8. Press the II key and fix the adjustment data.
- 9. Press the ► key and set the CD focus bias offset adjustment mode (Mode display: 023).
- 10. Press the VOL +, key so that the voltage between AP5070 (FE) and AP1013 (VC) becomes  $0 \pm 50$  mV.
- 11. Press the II key and fix the adjustment data.
- 12. Press the ► key and set the MO FOK offset adjustment mode (Mode display:024).
- 13. Press the VOL +, key so that the voltage between AP5030 (ABCD) and AP1013 (VC) becomes  $0 \pm 50$  mV.
- 14. Press the II key and fix the adjustment data.
- 15. Press the ► key and set the MO FE offset adjustment mode (Mode display: 025).
- 16. Press the VOL +, key so that the voltage between AP5070 (FE) and AP1013 (VC) becomes  $0 \pm 50$  mV.
- 17. Press the II key and fix the adjustment data.
- 18. Press the ► key and set the MO focus bias offset adjustment mode (Mode display: 026).
- 19. Press the VOL +, key so that the voltage between AP5070 (FE) and AP1013 (VC) becomes  $150 \pm 50$  mV.
- 20. Press the II key and fix the adjustment data.
- 21. Release the test mode.

#### MO TRAVERSE ADJUSTMENT

#### Connection:



#### **Adjusting Method:**

- 1. Set the servo mode of the test mode (Mode display:
- 2. Press the ▶key and VOL + key (twice), and set the MO playback adjustment mode (Mode display: 030).
- 3. Press the ►►I or ►► key and move the optical pick-up near the center.
- 4. Insert a MO disc. (Any available on the market.)
- 5. Press the ▶ key and after the focus search turns on, set the CLV ADIP mode (Mode display: 031). (After the focus is turned on, the MO tracking offset adjustment mode is set (Mode display: 032).)
- 6. Slide the REC key and set the EF balance adjustment mode (Mode display: 033).
- 7. Press the VOL +, key so that the traverse waveform of AP5060 (TE) becomes symmetrical in respect to 0V.

#### (Traverse Waveform)



Specification : A=B, C≥2.0 Vp-p

- 8. Press the II key and fix the adjustment data.
- 9. Check that this traverse level is above 2.0 Vp-p.
- 10. Slide the REC key and set the MO tracking offset adjustment mode (Mode display: 032).
- 11. Press the VOL +, key so that the traverse waveform of AP5060 (TE) becomes symmetrical in respect to 0V.

#### (Traverse Waveform)



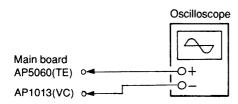
Specification : A=B, C≥2.0 Vp-p

- 12. Press the II key and fix the adjustment data.
- 13. Check that this traverse level is above 2.0 Vp-p.
- 14. Repeat steps 6 to 13 until the specification is satisfied.
- 15. Press the key.
- 16. Release the test mode.

Note: The data will be erased if a recorded disc is used for this adjustment.

#### MO P-TOC TRAVERSE ADJUSTMENT

#### Connection:



#### **Adjusting Method:**

- Set the servo mode of the test mode (Mode display: 000).
- Press the ►key and VOL + key (three times), and set the MO P-TOC adjustment mode (Mode display: 040).
- 3. Insert a MO disc. (Any available on the market.)
- 4. Press the ► key and after the focus search turns on, set the CLV EFM mode (Mode display: 041). (After the focus is turned on, the MO P-TOC tracking offset adjustment mode is set (Mode display: 042).)
- 5. Press the VOL +, key so that the traverse waveform of AP5060 (TE) becomes symmetrical in respect to 0V.

#### (Traverse Waveform)

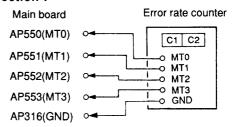


Specification : A=B, C ≥ 2.0 Vp-p

- 6. Press the II key and fix the adjustment data.
- 7. Check that this traverse level is above 2.0 Vp-p.
- 8. Press the key.
- 9. Release the test mode.

#### MO ERROR RATE CHECK

#### Connection:

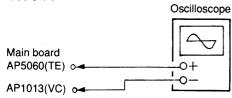


#### Checking Method:

- Set the servo mode of the test mode (Mode display: 000).
- 2. Press the ▶key and VOL + key (six times), and set the BETA REC mode (Mode display:070).
- Press the ►►I or ►►I wey and move the optical pick-up near the center.
- 4. Insert a MO disc. (Any available on the market.)
- Press the ► key and set the 32-cluster BETA REC mode (Mode display: 070). (After the focus search is turned on and the 32-cluster is accessed, continuous recording is started.)
- 6. Record for approximately 10 seconds.
- 7. Press the ► key and set the 32-cluster PLAY mode (Mode display: 073).
- 8. Check that the error rate (C1) shown on the error rate counter is below 100 and there is no compensation (C2).
- 9. Press the key.
- 10. Release the test mode.

#### **CD TRAVERSE ADJUSTMENT**

#### Connection:



#### Adjusting Method:

- Set the servo mode of the test mode (Mode display : 000).
- 2. Press the ► key and VOL +, key (four times), and set the CD playback adjustment mode (Mode display: 050).
- 3. Press the ►►I or I◄ key and move the optical pick-up near the center.
- 4. Insert the CD test disc (TDYS-1).
- Press the ► key and after the focus search turns on, set the CLV EFM mode (Mode display: 051). (After the focus is turned on, the CD tracking offset adjustment mode is set (Mode display: 052).)
- 6. Press the VOL +, key so that the traverse waveform of AP5060 (TE) becomes symmetrical in respect to 0V.

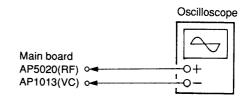
#### (Traverse Waveform)

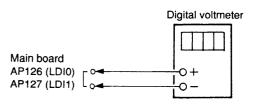


- Specification : A=B, C≥2.0 Vp-p
- 7. Press the II key and fix the adjustment data.
- 8. Check that this traverse level is above 2.0 Vp-p.
- 9. Press the key.
- 10. Release the test mode.

### **CD RF LEVEL ADJUSTMENT**

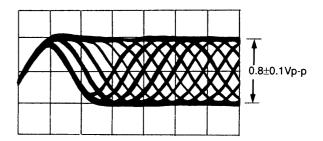
#### Connection:





#### **Adjusting Method:**

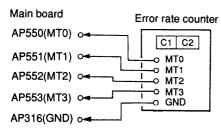
- Set the servo mode of the test mode (Mode display: 000).
- Press the ►key and VOL + key (four times), and set the CD playback adjustment mode (Mode display: 050).
- 3. Press the ►►I or I◄ key and move the optical pick-up near the center.
- 4. Insert the CD test disc (TDYS-1).
- 5. Press the ► key (twice) and set the CD RF level adjustment mode (Mode display: 053).
- 6. Press the VOL +, key so that RF level of AP5020 (RF) becomes 0.8 ± 0.1 Vp-p.



- 7. Press the II key and fix the adjustment data.
- 8. Check that the voltage between AP126 (LDI0) and AP127 (LDI1) is below 300 mV.
- 9. Press the key.
- 10. Release the test mode.

#### **CD ERROR RATE CHECK**

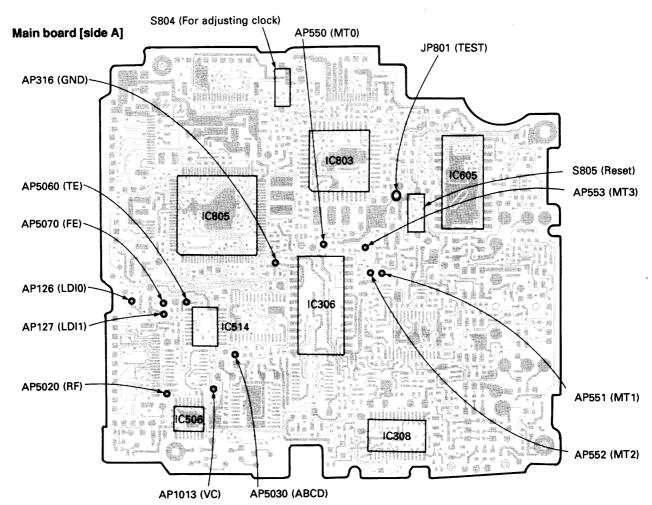
#### Connection:



#### **Checking Method:**

- 1. Set the servo mode of the test mode (Mode display: 000).
- 2. Press the ▶key and VOL + key (four times), and set the CD playback adjustment mode (Mode display: 050).
- 3. Press the ►►I or ► key and move the optical pick-up near the center.
- 4. Insert the CD test disc (TDYS-1).
- 5. Press the ▶ key (five times) and set the CD focus bias variable mode (Mode display: 056).
- 6. Check that the error rate (C1) shown on the error rate counter is below 100 and there is no compensation (C2).
- 7. Press the key.
- 8. Release the test mode.

#### **ADJUSTING/CONNECTING POINTS**



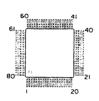
# SECTION 6 **DIAGRAMS**

## 6-1. SEMICONDUCTOR LEAD LAYOUTS

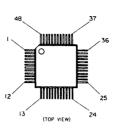
#### AK4502-VS-E1



#### CXD2525R-1 CXD2526AR CXD2531BR



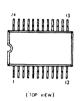
MB89133A-PFM-170



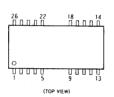
TK11230MTL TK11245AMTL **TK15210MTL** 



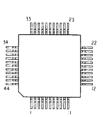
**CXA1380N** CXA8027N



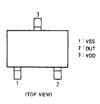
CXK41V4400ATM-10



MPC1718FU



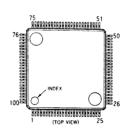
XC61AN1102MR XC61AN1902MR XC62AP3102MR XC62AP3201MR



#### **CXA1497N** CXD8498N-ELL2000 LA4805V-TLM



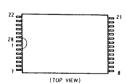
CXP81848-603R



NJM2107F NJM2107F S-80725SL-AN S-80745SL-A9 **TC4S66F** TC7S04FU TC7S08FU TC7S66FU



#### **CXA1602R**

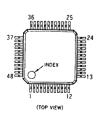


DS1267-50





#### **CXA1861R**



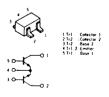
DS1267E-10 MC74ACT540DTEL MPC1730VMEL



NJM4580E-D RS5RJ3720B TC4W53FU TLV2362IPW-ELM1500

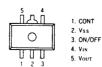


#### FMG2



#### MB88347ATFV-EF





#### S-2900AUT





UMD2

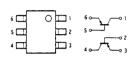
**UMD3** 

UMZ1

### UMH2



### XN4404



2SB1308-QR



2SJ305 2SK2035



## 2SK2315TYTR



DA221 SB007-03Q SB007T03Q





# DAN222 KV1450 MA786WK



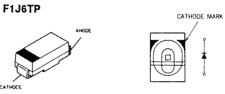


### SB01-05CP





### CL-181UR-C-TS



MA2S082 MA2S111 MA2S728



## MA724

- 1. CATHODE 2. CATHODE 3. ANODE 4. ANODE

## **RB110C**



RB715F RB717F





# 6-2. IC PIN FUNCTIONS

Pin No.	Signal Name	I/O	* (3) represents state output and (A) represents analog output in I/O colum  Function
1	MDP	0 (3)	Spindle motor servo control
2	MDS	0 (3)	Spindle motor servo control
3	EFMI	I	Playback EFM input
4	ASY	0	Playback EFM full swing output
5	LOCK	0	Spindle servo (CLV) lock monitor. "H": Lock
6	VCOO	0	EFM decoder analog PLL oscillation output (196 Fs=8.6436 MHz)
7	VCOI	I	EFM decoder analog PLL oscillation input (196 Fs=8.6436 MHz)
8	TEST1	I	Test pin. Normally GND
9	PDO	0 (3)	EFM decoder analog PLL phase comparison output
10	VSS	_	Digital GND
11	EFMO	0	EFM output during recording
12	ATER	0	ADIP CRC flag output. "H": Error
13	CNIN	I	Track jump number count signal input
14	SENS	0 (3)	Internal status output for serial bus address
15	SYPL	I	SQSY, ADSY, DQSY polarity switching input. Active high when "H"
16	FILO	O (A)	Digital PLL master PLL filter output
17	FILI	I	Digital PLL master PLL filter input
18	PCO	O (3)	Digital PLL master PLL phase comparison output
19	AVSS		Analog GND
20	CLTV	I	Digital PLL master PLL VCO control voltage input
21	AVDD	_	Analog power supply
22	XRST	I	System reset input. Active low
23	REC	I	"L": Decoder, "H": Encoder
24	TEST8	I	Test pin. Normally GND
25	SCLK	I	Serial bus clock input
26	XLAT	I	Serial bus latch input
27	SWDT	I	Serial bus write data input
28	SRDT	O (3)	Serial bus read data output
29	ADSY	0	ADIP sync output
30	SQSY	0	Subcode Q sync output
31	VDD	-	Digital power supply
32	DQSY	0	Subcode Q sync (SCOR) output of digital in U-bit CD format
33	TEST7	0	Open
34	DTI	I	Recording audio signal input
35	DTO	O (3)	Playback audio signal output. High impedance during recording
36	C2PO	0	C2PO: Playback, D. In-VFLAG: Digital REC, 0: Analog REC
37	BCK	0	2.8224 MHz output (MCLK system)
38	XBCK	0	BCK inversion output (MCLK system)
39	LRCK	0	44.1 kHz (=Fs) (MCLK system)
40	WDCK	0	88.2 kHz (MCLK system)

Pin No.	Signal Name	I/O	Fui	nction
41	FS4	0	176.4 kHz	(MCLK system)
42	GTOP	0	"H": Releases sync protection window	(INPUT EFM SYNC monitor output)
43	XUGFS	0	"L": Unguarded frame sync	(INPUT EFM SYNC monitor output)
44	XPLCK	0	EFM decoder PLL clock output	(98 Fs=4.3218 MHz)
45	GFS	0	"H": Frame sync OK	(INPUT EFM SYNC monitor output)
46	EPDO	O (3)	EFM encoder external PLL phase comparison	output Frequency: Low→"H"
<b>4</b> 7	RFCK	0	7.35 kHz output	(MCLK system)
48	EVCI	I	EFM encoder external PLL oscillation input	(196 Fs=8.6436 MHz)
49	EVCO	0	EFM encoder external PLL oscillation output	(196 Fs=8.6436 MHz)
50	VSS		Digital GND	
51	MCLK	0	22.579 MHz output	
52	XTAI	I	Crystal oscillation input	(512 Fs=22.5792 MHz)
53	XTAO	0	Crystal oscillation output	(512 Fs=22.5792 MHz)
54	TEST9	I	Fixed at "L"	
55	MVCI	I	Digital in PLL oscillation input	(512 Fs=22.5792 MHz)
56	MVCO	0	Digital in PLL oscillation output	(512 Fs=22.5792 MHz)
57	TEST2	0	Fixed at "open"	
58	DIPD	O (3)	Digital in PLL phase comparison output	Frequency: Low→"H"
59	RAOF	0	RAM overflow output	(decoder monitor output)
60	MT3	0	Correction status monitor output during playba	
61	MT2	0	Correction status monitor output during playba	ack
62	MT1	0	Correction status monitor output during playba	ack
63	MT0	0	Correction status monitor output during playba	ack
64	WFCK	0	7.35 kHz (EFM decoder PLL system during pl recording)	layback, EFM encoder PLL system during
65	DIN	I	Digital audio input	
66	MD2	I	Digital audio out ON/OFF. "H": ON	
67	DOUT	0	Digital audio output	
68	DIDT	0	Audio data output for digital audio input	
69	DODT	ı	16-bit data input for digital audio output	
70	DOVF	I	Validity flag input for digital audio	
71	VDD	-	Digital power supply	
72	TEST3	I	Fixed at "L"	
73	TEST4	0	Fixed at "open"	
74	TEST5	I	Fixed at "L"	
75	TEST6	I	Fixed at "L"	
76	FMCK	I	ADIP read clock input (6.3 kHz)	(TTL Schmidt input)
77	FMDT	I	ADIP data input	(TTL schmidt input)
78	ADFG	I	ADIP carrier signal input (20.05 kHz)	(TTL schmidt input)
79	FSW	O (3)	Spindle motor output filter switching output. "."	- /
80	NON	O	Spindle motor ON/OFF control output. "H": O	

Note: • XUGFS is a Frame Sync (negative pulse) created from EFM signal. This signal has not been sync protected.

- As for XPLCK, PLL is adjusted so that EFM PLL clock inversion and falling edge coincide with its changing point.
- GFS becomes "H" when Frame Sync coincides with insertion protection timing.
- C2PO represents data error status.
- RAOF is generated when 32 kRAM exceeds  $\pm$  4F jitter margin.

## IC602 SHOCK PROOF MEMORY CONTROLLER (CXD2526AR)

A16 A17 A18 A19 A20 ARCK BCK C2PO DATA //SS TEST GRST MIN RDT WDT	O O O O I I I I/O - I I I (HiZ) O O	SRAM address bus A16 when RMSL="H", WFOVF when "L" (Note)  SRAM address bus A17 when RMSL="H", WDTM when "L" (Note)  SRAM address bus A18 when RMSL="H", ZERO when "L" (Note)  SRAM address bus A19 when RMSL="H", MDTSC when "L" (Note)  SRAM address bus A20 when RMSL="H", CMPSY when "L" (Note)  LRCK input from EFM encoder/decoder  BCK input from EFM encoder/decoder  C2PO input from EFM decoder  Input/output data from decoder during playback and to encoder during recording  GND  Test pin. Normally fixed at "L"  Reset input. "L": Reset  Monitor signal input for external input. Inputs a desired monitor signal
A18 A19 A20 ARCK BCK BCK BCY BATA BYSS BEST BEST BEST BEST BEST BEST BEST BE	O O O I I I I/O - I I I I (HiZ)	SRAM address bus A18 when RMSL="H", ZERO when "L" (Note)  SRAM address bus A19 when RMSL="H", MDTSC when "L" (Note)  SRAM address bus A20 when RMSL="H", CMPSY when "L" (Note)  LRCK input from EFM encoder/decoder  BCK input from EFM encoder/decoder  C2PO input from EFM decoder  Input/output data from decoder during playback and to encoder during recording  GND  Test pin. Normally fixed at "L"  Reset input. "L": Reset
A19 A20 ACK BCK BCK BCY BATA CSS BEST GRST MIN RDT	O O I I I I/O - I I I I (HiZ)	SRAM address bus A19 when RMSL="H", MDTSC when "L" (Note)  SRAM address bus A20 when RMSL="H", CMPSY when "L" (Note)  LRCK input from EFM encoder/decoder  BCK input from EFM encoder/decoder  C2PO input from EFM decoder  Input/output data from decoder during playback and to encoder during recording  GND  Test pin. Normally fixed at "L"  Reset input. "L": Reset
A20 RCK BCK BCK BCATA CSS BEST BCST BCST BCST BCST BCST BCST BCST BC	O I I I I/O - I I I I (HiZ)	SRAM address bus A20 when RMSL="H", CMPSY when "L" (Note)  LRCK input from EFM encoder/decoder  BCK input from EFM encoder/decoder  C2PO input from EFM decoder  Input/output data from decoder during playback and to encoder during recording  GND  Test pin. Normally fixed at "L"  Reset input. "L": Reset
ARCK BCK BCK BCATA CASS BEST ARST AIN RDT WDT	I I I I/O - I I I (HiZ)	LRCK input from EFM encoder/decoder  BCK input from EFM encoder/decoder  C2PO input from EFM decoder  Input/output data from decoder during playback and to encoder during recording  GND  Test pin. Normally fixed at "L"  Reset input. "L": Reset
CCK C2PO DATA /SS EST CRST MIN RDT	I I/O  I I I (HiZ)	BCK input from EFM encoder/decoder  C2PO input from EFM decoder  Input/output data from decoder during playback and to encoder during recording  GND  Test pin. Normally fixed at "L"  Reset input. "L": Reset
C2PO DATA /SS FEST CRST MIN RDT	I I/O - I I (HiZ)	C2PO input from EFM decoder  Input/output data from decoder during playback and to encoder during recording  GND  Test pin. Normally fixed at "L"  Reset input. "L": Reset
PATA //SS PEST (IRST //IN RDT	I/O  I  I  (HiZ)	Input/output data from decoder during playback and to encoder during recording GND Test pin. Normally fixed at "L" Reset input. "L": Reset
YSS PEST REST RINI RDT WDT	I I I (HiZ)	GND Test pin. Normally fixed at "L" Reset input. "L": Reset
EST  KRST  MIN  RDT  WDT	I I I (HiZ)	Test pin. Normally fixed at "L"  Reset input. "L": Reset
KRST MIN RDT WDT	I I (HiZ)	Reset input. "L": Reset
IIN RDT WDT	I (HiZ)	
RDT WDT	(HiZ)	Monitor signal input for external input. Inputs a desired monitor signal
WDT	' '	
		Microprocessor serial data output. "Hi-z" when CXD2526 read register is not selected
	I	Microprocessor serial data input
OLI	I	Microprocessor serial data latch signal input
CK	I	Microprocessor serial data shift clock input
CTX	I	
СГА	I	Data output enable signal input during recording mode  "L": Playback mode, "H": Recording mode
VRMN	I	"H": Write mode, "L": Monitor mode
		"H": Records input signal according to SDCT, "L": Records according to DCT
		Interruption request output. "L" when interruption status occurs
		Input data MD sync detection signal
		"H" when main data area becomes full with data
		"H" when main data area is empty
		"H" when RMS < THUND
		"H" when RMS ≥ THOVR
		"H" when data which C2PO is effective is written into RAM
		"H" when BCT ≥ 400 (Hex)
	U	"H" during data transfer
	-	System power supply
		"H": RAM access
		Test signal. Fixed at "L"
<del></del>		Test signal. Fixed at "L"
		Test signal. Fixed at "L"
		Data ready or latch signal to CXD2527
		Data input from CXD2527
		Data output to CXD2527
		Data input/output clock output to CXD2527
		Output data C2PO output to CXD2527
		Data request input signal from CXD2527
		External sub data I/F shift clock input  External sub data I/F data output during playback mode, data input during recording mode
	BMN  NT  DSY  EMFUL  EMEMP  NDER  VER  RWR  FOV4  KST  DD  JSY  Z2  Z1  Z0  ALT  DT1  DT0  CK  C2  RQ  DCK  BDT	BMN I  NT O  DSY O  EMFUL O  EMEMP O  NDER O  VER O  RWR O  TOV4 O  KST O  DD  JSY I/O  Z2 I  Z1 I  Z0 I  ALT O  DT1 I  DTO O  CK O  C2 O  RQ I  OCK I

Pin No.	Signal Name	I/O	Function
44	XWT	О	External sub data I/F wait signal. Clock for reading a new data should not be transferred when "L"
45	SRDY	0	External sub data I/F access enable signal. Ignores clock for sub data R/W when "H"
46	MCK	0	128 fs output
47	F256	0	256 fs output
48	XTLO	0	System clock output (22.5792 MHz)
49	XTLI	I	System clock input (22.5792 MHz)
50	VSS	_	GND
51	TEST	I	Fixed at "L"
52	RMSL	I	External RAM select signal. "H": SRAM, "L": DRAM
53	ERR	I/O	EXTC2R="H": C2PO input
54	D7	0	SRAM data bus D7 when RMSL="H", Test signal when "L"
55	D4	I/O	RAM data bus D4 when RMSL="H", Test signal when "L"
56	D0	I/O	RAM data bus D0
57	D1	I/O	RAM data bus D1
58	D3	I/O	RAM data bus D3
59	D2	I/O	RAM data bus D2
60	XCAS	I/O	RMSL="L": DRAM CAS output, "H": Data bus D6
61	XOE	0	RAM output enable
62	A10	0	RAM address bus A10
63	XWE	0	RAM write enable
64	XRAS	I/O	DRAM RAS output when RMSL="L", Data bus D5 when "H"
65	All	0	RAM address bus A11
66	A9	0	RAM address bus A9
67	A0	0	RAM address bus A0
68	Al	0	RAM address bus A1
69	A2	0	RAM address bus A2
70	A3	0	RAM address bus A3
71	VDD	0	System power supply
72	A8 ·	0	RAM address bus A8
73	A7	0	RAM address bus A7
74	A6	0	RAM address bus A6
75	A5.	0	RAM address bus A5
76	A4	0	RAM address bus A4
77	A12	0	RAM address bus A12 when RMSL="H", CS output when "L"
78	A13	0	RAM address bus A13 when RMSL="H", SYOK output when "L"
79	A14	0	SRAM address bus A14 when RMSL="H", WFFUL when "L" (Note)
80	A15	0	SRAM address bus A16 when RMSL="H", RFEMP when "L" (Note)

Note: WFOVF: "H" When write FIFO becomes overflow.
WDTM: Outputs window timing within DI block.

ZERO: Outputs "H" when BCT=0.

MDTSC: "H" when input data header selector becomes 00 to IF, "L" when others.

CMPSY: Insertion sync timing

WFFUL: "H" when write FIFO becomes full.
RFEMP: "H" when read FIFO becomes empty.

#### IC803 SUB SYSTEM CONTROL (MB89133A-PFM-170)

Pin No.	Signal Name	I/O	Function
1	AVCC	_	3.7V
2	RST	I	Reset signal
3	MODE0	I	
4	MODE1	I	Mode setting (Connected to GND)
5	хо	I	
6	X1	0	System clock (4.19 MHz)
7	VCC	_	3.1V
8	X0A	I	
9	X1A	0	Time clock (32.768 kHz)
10	CE	0	Chip enable signal to 3.7V regulator
11	MRST	0	Reset signal to main microprocessor
12	<del>-</del>	0	Not used
13	PCONT	0	DC-DC converter ON/OFF control. "H": ON
14	CHG	0	Charge ON/OFF control. "H": ON
15	00	0	Not used
16	BATCHK	0	Battery voltage check switch ON/OFF control. "H": ON
17	PMUTE	0	Not used
18	TEST	I	Test mode setting. "L": Test mode
19	VSS	_	GND
20	3.5V	I	External power supply present/absent detection. "H": Present
21	OP/CL	I	OPEN/CLOSE switch input. "H": Open
22	PACK IN	I	Disc present/absent detection. "H": Present
23	AVLSPB	I	Not used
24	CLOCK	I	CLOCK SET key input
25	AVLSI	I	Headphone remote controller AVLS switch input
26	5010	I	Fixed at "L" in this unit
27	4.5V	I	External power supply 4.5V present/absent detection. "L": Present
28	4.5 V	0	Not used
29	BOOST	I	
30	PLAY		BASS BOOST key input
	RECKEY	I	PLAY key input
31		I	REC key input
32	HOLD	1	HOLD switch input. "L": ON
33	POK	0	Laser power OK signal output
34	DEED	0	Not used
35	BEEP	0	Headphone buzzer output
36	WP2	I	Key wake-up input
37	WPI	I	Wake-up input for power supply and disc detecting
38	SLVREQ	I	Request signal from main microprocessor
39	KEYON	0	Key of remote controller reception switch. "H": ON
40	SDO1	I	Serial data from main microprocessor
41	SDI1	0	Serial data to main microprocessor
42	SCK1	I	Serial clock from main microprocessor
43	AVSS	_	GND
44	AVR		Reference voltage
45	KEY0	I	Unit key input (A/D input)
46	KEY1	I	Headphones remote controller key input (A/D input)
47	BATMNT	I	Rithium ion battery – terminal voltage input (A/D input)
48	UNREG	I	Power supply voltage input (A/D input)

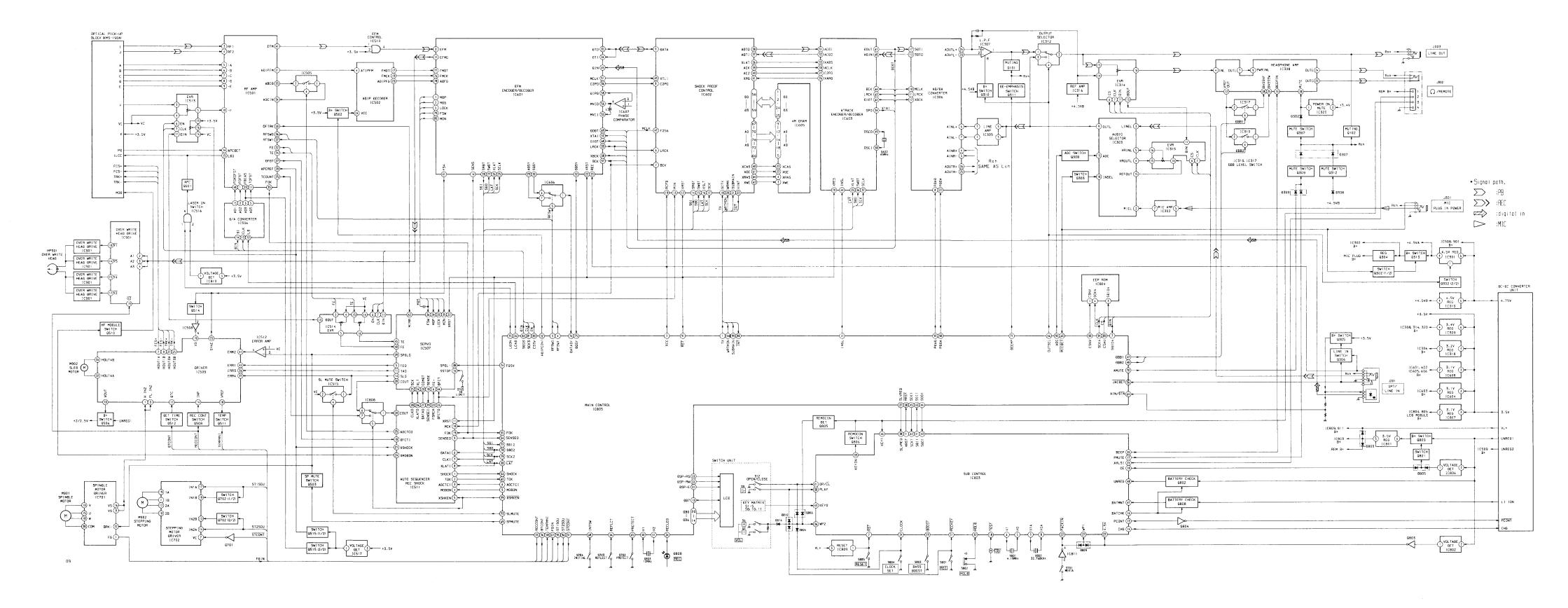
#### IC805 MAIN SYSTEM CONTROL (CXP81848-603R)

Pin No.	Signal Name	I/O	Function	Connection
1	TX	0	Data output enable signal during REC. "L": Active	
2	REC	0	"H": REC mode, "L": PLAY mode	
3	RFSW0	0	"H": High reflectance disc  "L": Low reflectance disc  "H": PIT area  SW0 SW1  H H PREMASTER  L H PTOC	CXA1861R
4	RFSW1	0	"L": GROOVE area	
5	MODON	0	High frequency module ON/OFF control. "H": ON	CXD8498N
6	AGCTCI	О	RF AGC amplifier time constant control  "L" when WRITE ←→ READ laser power switching (approx.  30 msec) and when focus search (until focus is successful)	CXD8498N
7	SDIO4	0	Serial data to EVR (IC314, IC315) and EEPROM	
8 to 10			Not used	
11	INSL	0	Digital input/analog input switching. "H": Digital input	CXD2531AR
12			Not used	
13	DB7	I/O	Data BIT7 to LCD driver and BUSY check	
14 to 20	DB6 to DB0	0	Data BIT6 to BIT0 to LCD driver	
21	DSP-E	0	Enable signal to LCD driver	
22	DSP-RW	0	READ/WRITE signal to LCD driver	
23	DSP-RS	0	Display register select signal to LCD driver	
24	ASYMUTE	О	ASY reference voltage muting during track jump (MO disc only) (Not used)	
25	LDON	0	Laser ON signal. 'H": ON	
26	LOAD	0	Load signal to EVR (IC506)	
27	SLVREQ	0	Request signal to sub-microprocessor	MB89133A
28			Not used	
29	XSHKEN	0	Enable signal to REC shock detection IC	CXD8948N
30	LAT	0	Latch signal to REC shock detection IC	CXD8948N
31	STCONT	0	Stepping motor control. "L": ON	
32	ADIPCONT	0	Servo system power supply ON/OFF control. "L": ON	
33	RECCONT	0	REC driver control. "L": ON	
34	RECLED	0	REC LED control. "L": ON	
35			Not used	
36	DTCONT	0	Dead time control	MPC1718FU
37	MP		Connected to GND	
38	MRST	I	Reset signal from sub-microprocessor	MB89133A
39	VSS	_	GND	
40	X1	I	System clock (12 MHz)	
41	X2	0	System Clock (12 IVII 12)	
42	CSO		Connected to 3.1V	
43	SDI1	I	Serial data from sub-microprocessor	MB89133A
44	SDO1	0	Serial data to sub-microprocessor	MB89133A
45	SCK1	0	Serial clock to sub-microprocessor	MB89133A

Pin No.	Signal Name	I/O	Function	Connection
46	OUTSEL	0	REC monitor signal switching	
47	DBB1	0	DPD (dynamic boss boost) control	
48	DBB2	0	DBB (dynamic bass boost) control	
49			Not used	
50	AVSS	_	GND	
51	AVREF		3.1V	
52	AVDD		3.1 V	
53	SHOCK	I	Shock detection signal during REC	
54	SENSEO	I	SENSE signal	CXD2525R-1, CXD8498N
55	FOK	I	Focus OK signal	CXA1861R
56	JACDET	I	LINE IN jack detection signal. "L": Jack insertion	
57			Not used	
58	TEMPMNI	I	Temperature detection (A/D input)	
59	OUTLS	I	Pick-up outer periphery detection (A/D input) (Not used)	
60			Not used	
61	FGIN	I	Spindle FG input	
62	TOK	I	Tracking OK signal	CXD8498N
63	MIC DET	I	MIC jack detection signal. "L": Jack insertion	
64	DIN/AIN	I	Digital in/analog in detection. "H": Digital in	
65	PROTECT	I	Disc write protect switch input. "H": Write protect	
66	REFLCT	I	Disc reflectance detection switch input. "H": Low reflectance disc	
67	5010/5011	I	Fixed at GND in this unit	
68	INTSW	I	Stepping motor initial position detection switch input	
69	SPMUTE	0	Spindle motor mute signal. "H": Mute	
70	AMUTE	0	Audio mute signal. "H": Mute	
71	DEEMP	0	Audio de-emphasis control. "H": De-emphasis on	
72			Not used	
73	SLMUTE	0	Sled motor mute signal. "H": Mute (PWM output)	
74	FGSV	0	FG servo (PWM output)	
75	DQSY	I	Subcode Q sync of digital in U-bit CD format	CXD2525R-1
76	DATASY	I	ADIP sync/subcode Q sync	CXD2525R-1
77	SDI2	I	Serial data	CXD2525R-1, CXD2526AR
78	SDO2	0	Serial data	CXD2525R-1, CXD2526AR, CXD2531AR, CXD8498N
79	SCK2	I/O	Serial clock	CXD2525R-1, CXD2526AR, CXD2531AR, CXD8498N
80	ĪNT	I	Interruption request from shock proof memory controller	CXD2526AR
81	SCK3	0	Serial clock to EVR (IC508, IC513, IC514)	
82	SDO3	0	Serial data to EVR (IC506, IC513, IC514)	
83	CSSV	0	Enable signal to EVR (IC513, IC514)	
84	XTI	ı		
85	XT2	0	Not used	

Pin No.	Signal Name	I/O	Function	0
	Signal Name	1/0	Function	Connection
86	VSS	_	GND	
87	VDD	_	3.1V	
88	NC	_	Not used	
89	CSAU	0	Chip select signal to EVR (IC314, IC315)	
90	CSNV	0	Chip select signal to EEPROM	
91	RST	0	Reset signal	
92	AGC	0	Audio AGC ON/OFF control. "H": ON	
93			Not used	
94	SCK4	0	Serial clock to EVR (IC314, IC315) and EEPROM	
95	ST1 SOU	0	Canada	NADOLESCO DA
96	ST2 SOU	0	Stepping motor signal	MPC1730VM
97	PDAD	0	A/D converter power down detect during playback. "H": Power down	AK4502-VS
98	PDDA	0	D/A converter power down detect during recording. "H": Power down	AK4502-VS
99	SUB MAIN	0	"H": Sub data, "L": Main data	CXD2526AR
100	WRTMON	0	"H": Write mode, "L": Monitor mode	CXD2526AR

### 6-3. BLOCK DIAGRAM

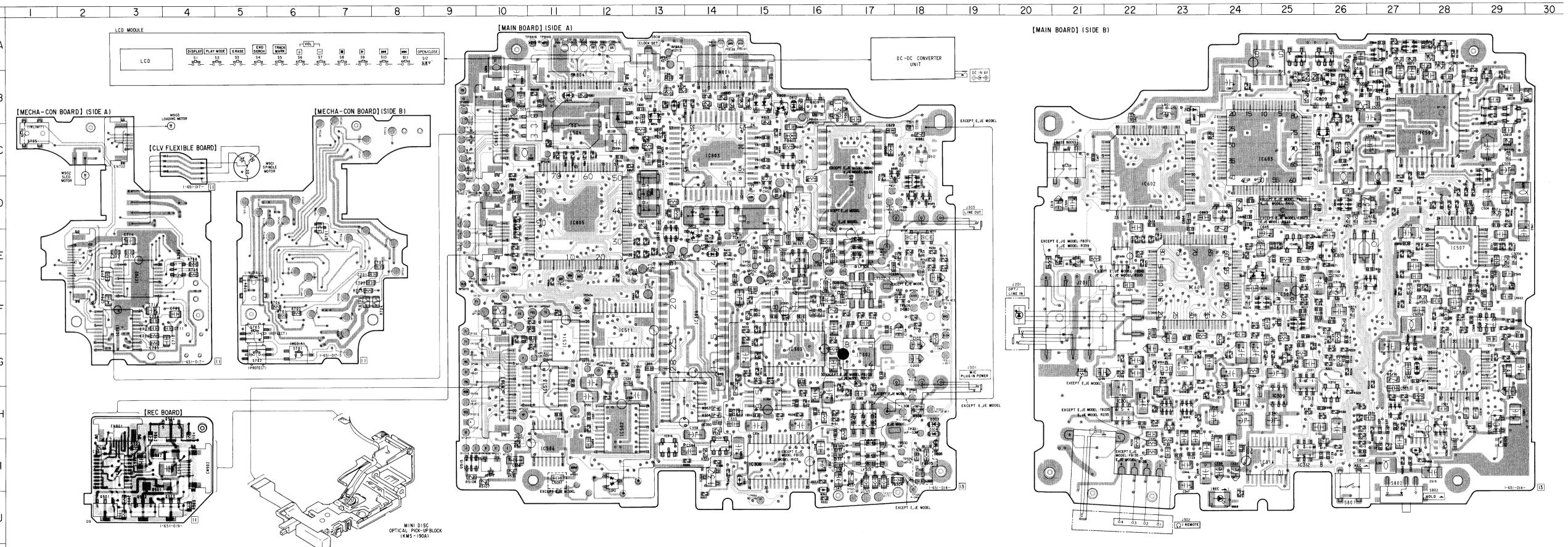


6-4. PRINTED WIRING BOARDS
• See page 32, 33 for Semiconductor Lead Layouts.

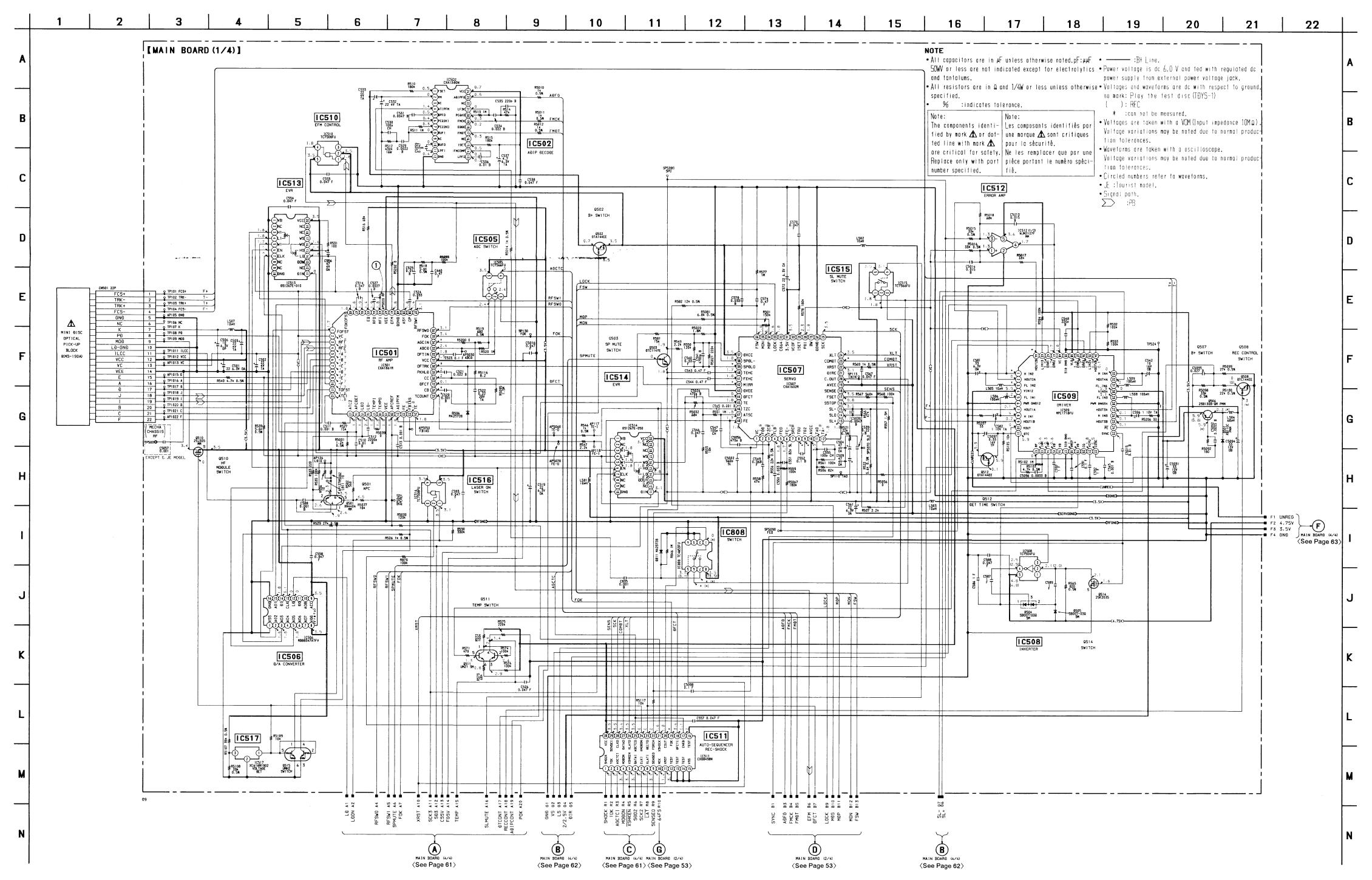
#### Semiconductor Location

Ref. No.	Location	Ref. No.	Location	
D301 D302 D303 D304 D305 D307 D308 D309 D310 D501 D504 D505 D506 D601 D801 D802 D803 D804 D805 D806 D808 D808 D809 D810	I-15 J-16 H-18 I-18 I-18 I-18 D-18 D-18 J-12 C-12 B-27 B-27 B-27 B-28 E-24 B-23 B-15 E-14 B-13 B-15 E-13 B-26 C-13 J-24 B-26	IC601 IC602 IC603 IC604 IC605 IC606 IC607 IC608 IC701 IC702 IC801 IC802 IC803 IC804 IC805 IC806 IC807 IC808 IC809 IC810 IC811 IC901	F-23 D-22 C-25 B-17 D-17 E-22 E-25 D-24 F-3 E-3 A-25 A-26 C-14 E-27 D-11 A-25 D-27 H-28 B-26 E-26 C-16	
D811 D812 D813 D814 D901 D902 IC301 IC302 IC303 IC304 IC305 IC306 IC307 IC308 IC309 IC311 IC315 IC316 IC317 IC318 IC319 IC320 IC501 IC502 IC506 IC507 IC508 IC506 IC507 IC508 IC509 IC511 IC513 IC514 IC515 IC516 IC517	B-16 E-14 B-11 I-3 I-3 I-3 I-22 G-17 G-16 H-15 F-15 H-25 I-15 H-25 I-25 H-13 H-26 I-14 G-16 I-14 G-28 H-127 I-11 E-28 H-11 E-27 F-12 B-30 H-27 F-12 B-30 H-28 H-11 D-29 H-28 I-10	Q101 Q102 Q201 Q202 Q302 Q303 Q304 Q305 Q306 Q307 Q308 Q309 Q311 Q312 Q313 Q501 Q502 Q503 Q506 Q508 Q510 Q511 Q515 Q701 Q702 Q801 Q802 Q803 Q804 Q805 Q808 Q808 Q808 Q809 Q901 Q902 Q903 Q904	I-26 E-18 G-25 E-18 G-25 E-18 H-23 H-23 H-23 F-18 E-21 H-23 B-25 F-25 H-23 G-29 G-28 I-29 A-29 A-29 B-26 I-9 E-4 B-26 B-13 B-26 B-12 J-3 J-4 H-4	

parts extracted from the component side.
Through hole.
internal component.
Pattern on the side which enable seeing.
Pattern of the rear side.



6-5. SCHEMATIC DIAGRAM — RF/SERVO SECTION —
• Refer to page 45 for Printed Wiring Boards.
• See page 65 to 70 for IC Block Diagrams.



**— 51 —** 

• Waveforms.

1
1
2.4Vp-p
1.0501 (43) PLAY

2
1.0501 (51) (22.579MHz)

3
1.0503 (34) (22.579MHz)

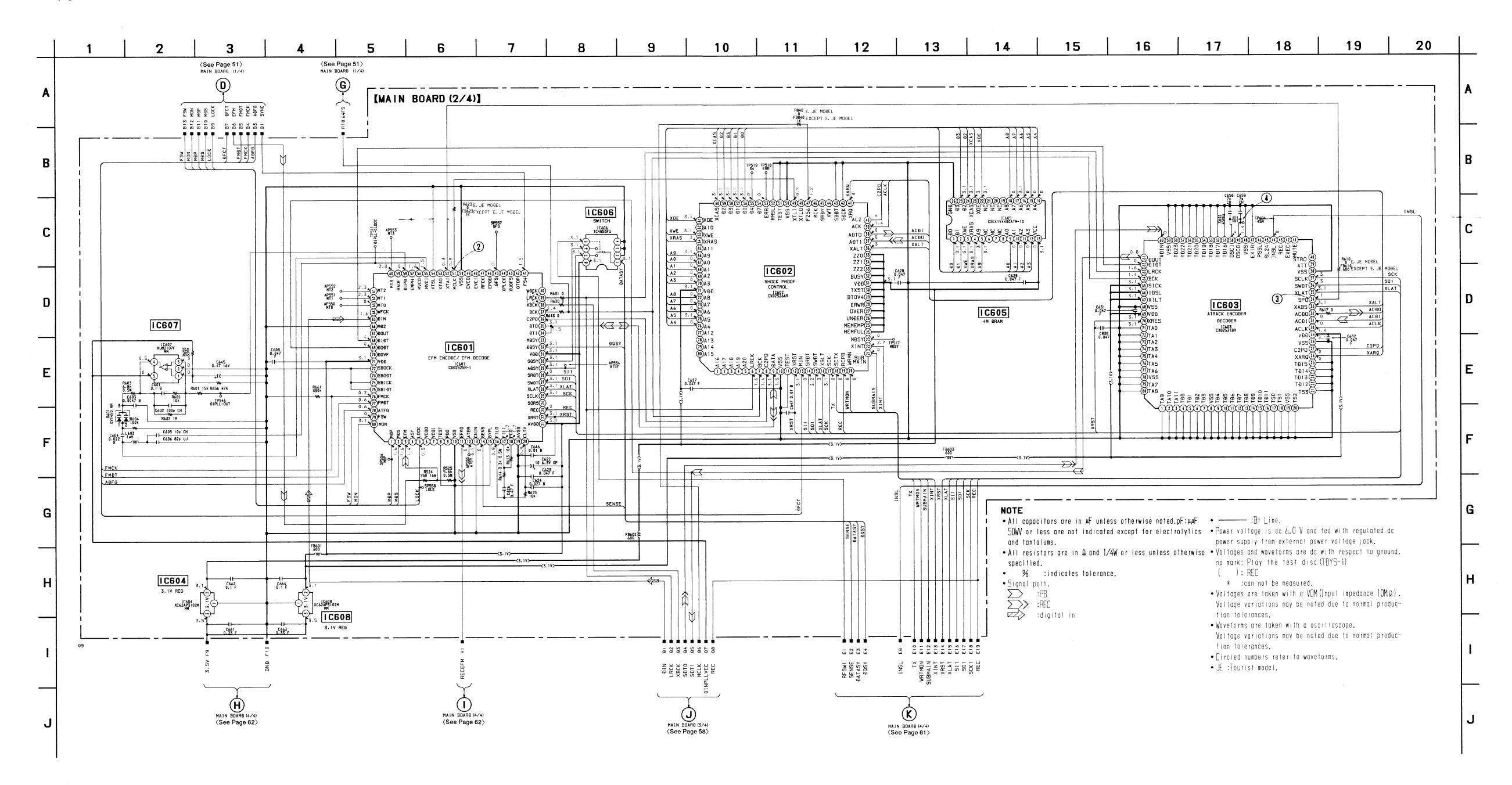
4
1.0503 (45MHz)

5
1.0503 (5) (4.19MHz)

1.0503 (8) (32.768kHz)

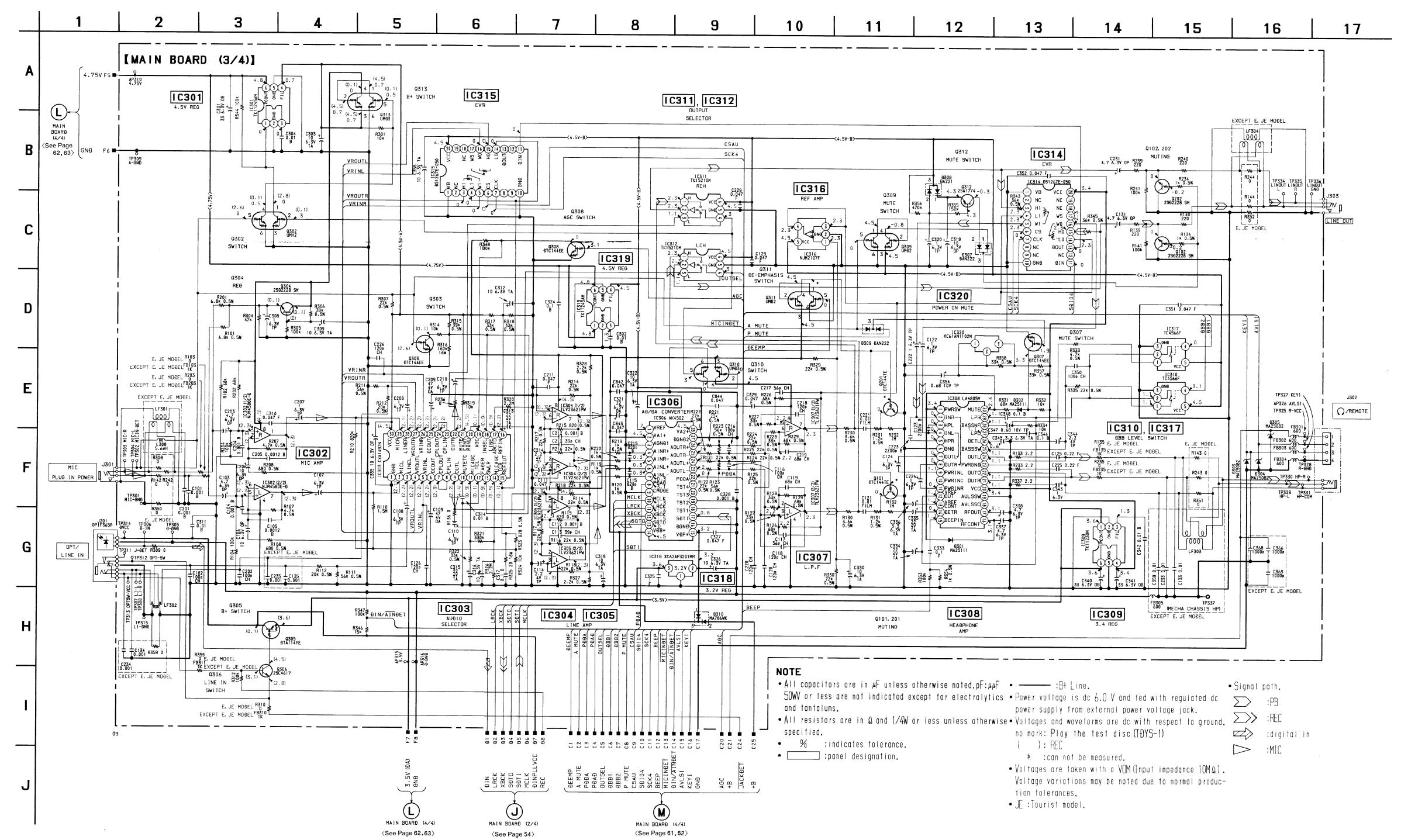
7
1.0505 (40) (12MHz)

6-6. SCHEMATIC DIAGRAM — PROCESS SECTION —
• Refer to page 45 for Printed Wiring Boards.
• See page 34 to 41 for IC Pin Functions.
• See page 49 for Waveforms.
• See page 65 to 70 for IC Block Diagrams.



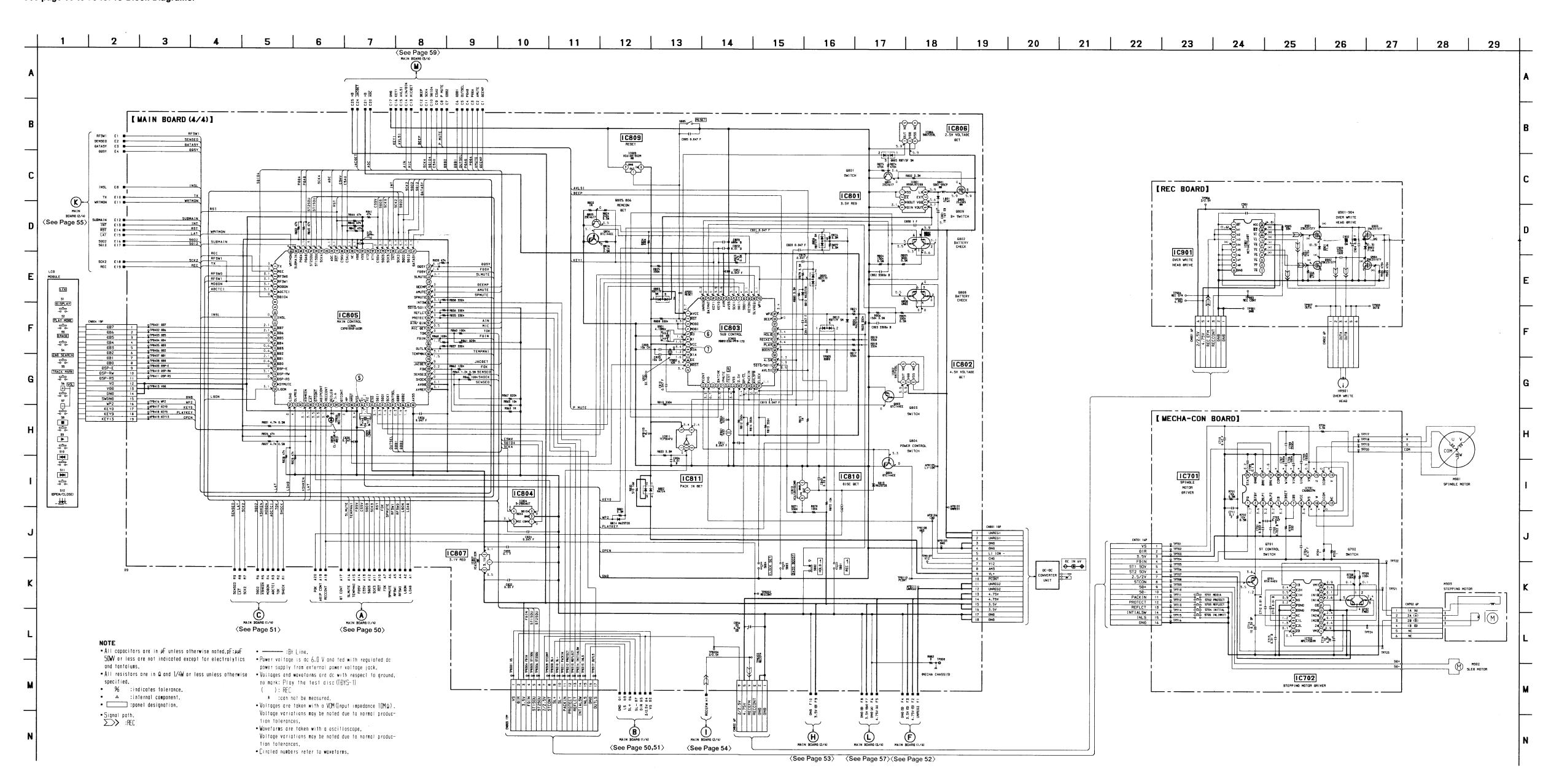
**— 56** —

6-7. SCHEMATIC DIAGRAM — AUDIO SECTION —
• Refer to page 45 for Printed Wiring Boards.
• See page 65 to 70 for IC Block Diagrams.



**— 58 —** 

6-8. SCHEMATIC DIAGRAM — MICRO COMPUTER/MD SECTION —
Refer to page 45 for Printed Wiring Boards.
See page 34 to 41 for IC Pin Functions.
See page 49 for Waveforms.
See page 65 to 70 for IC Block Diagrams.

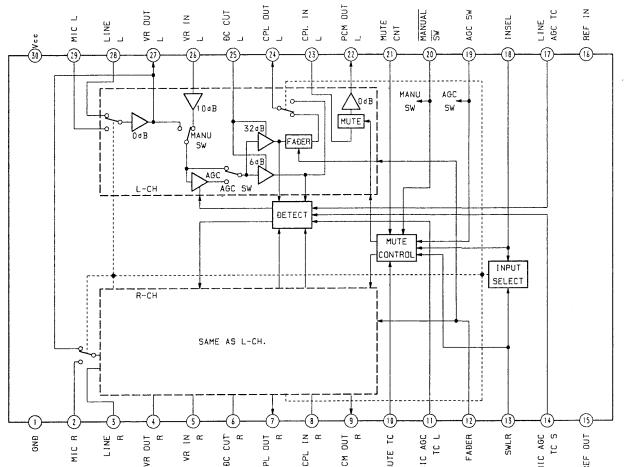


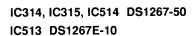
**— 64 —** 

**- 62 -**



IC306 AK4502-VS-E1





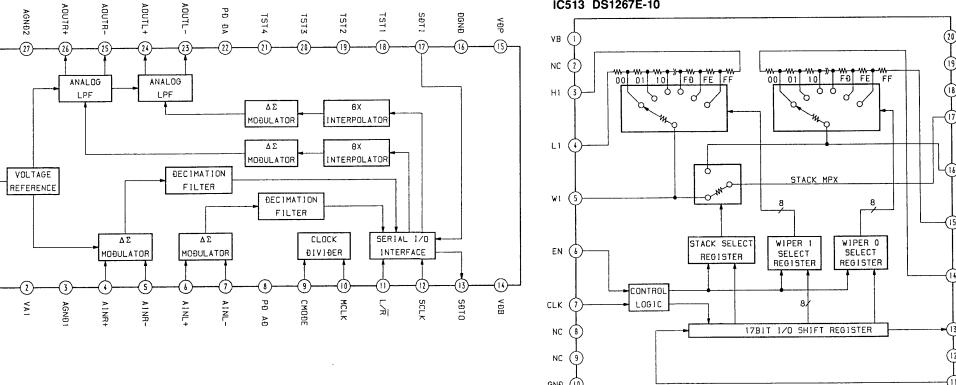
IC308 LA4805V

MT.SW --

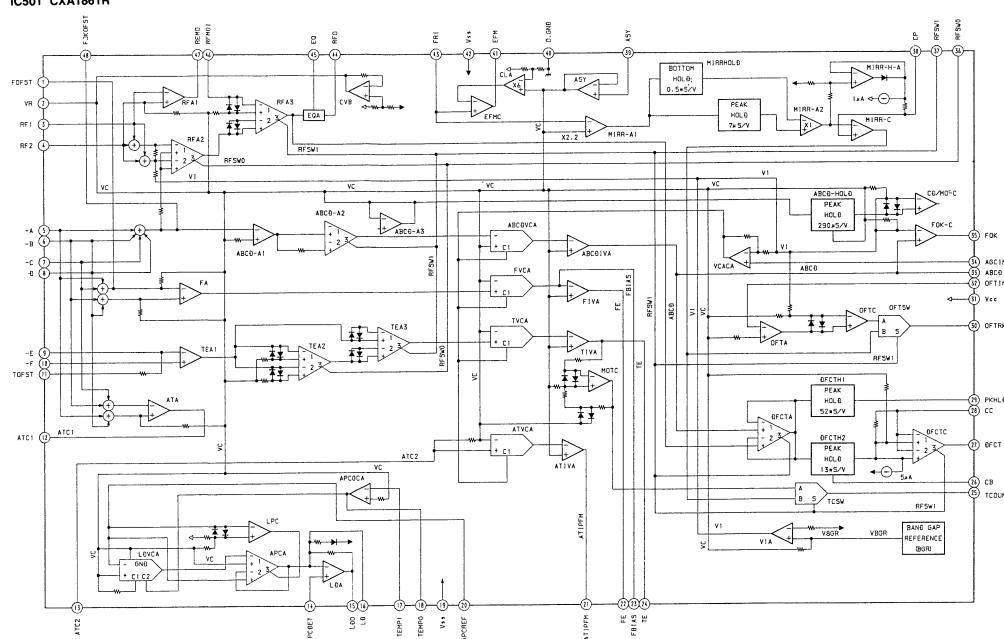
RIPPLE

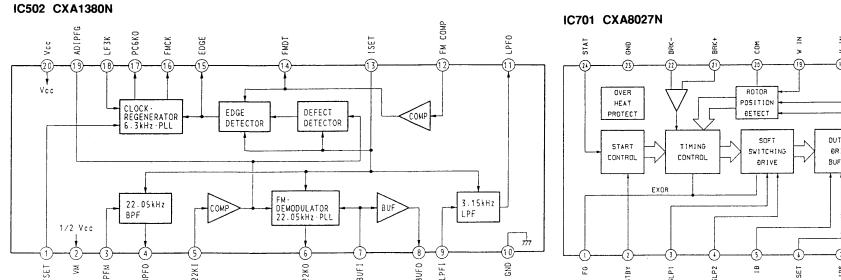
FILTER

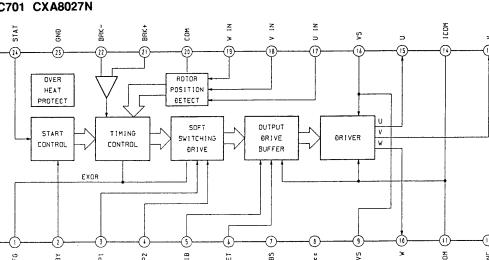
DEEP [

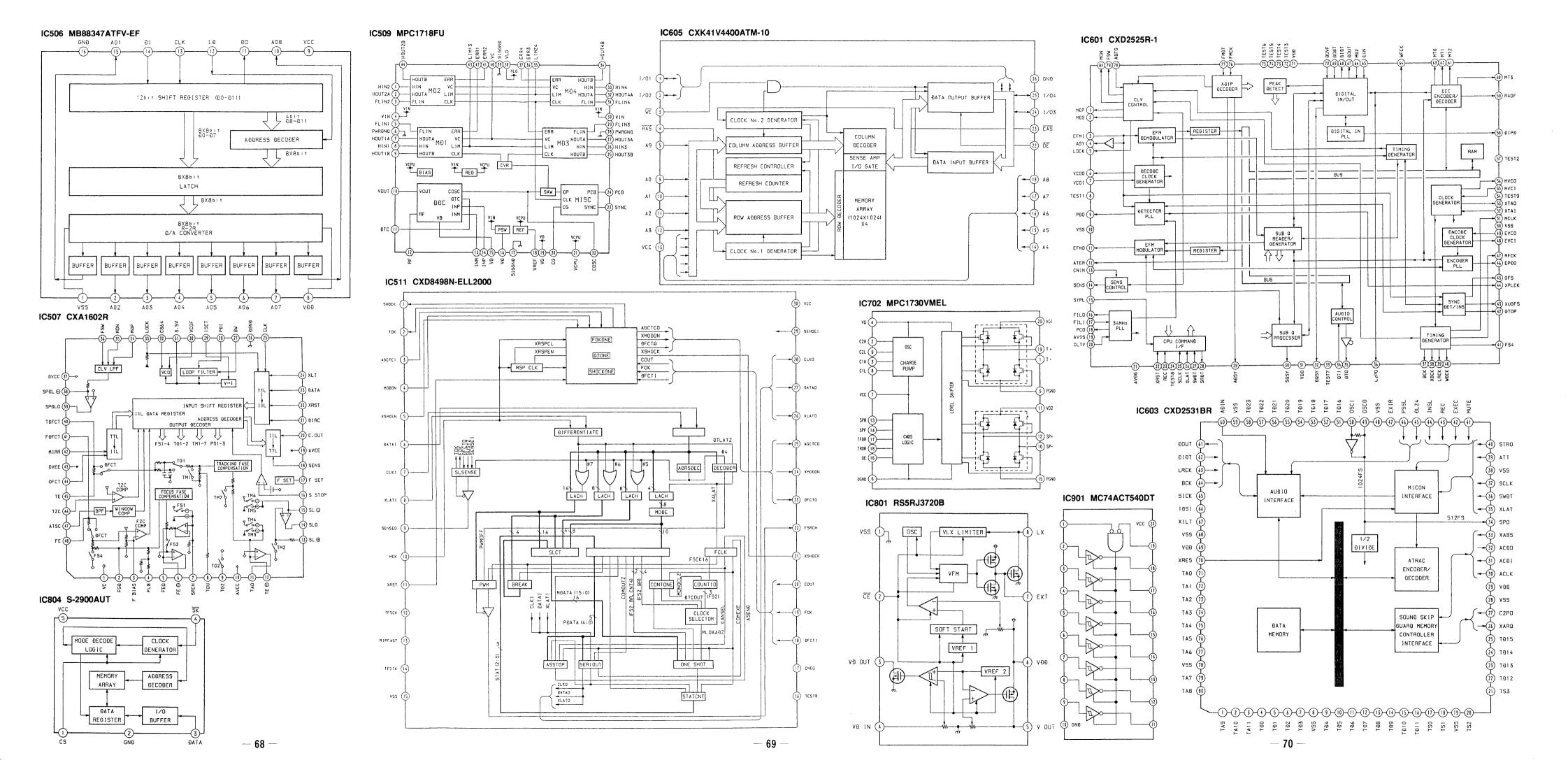


#### IC501 CXA1861R









## SECTION 7 EXPLODED VIEWS

#### NOTE:

- Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Color Indication of Appearance Parts Example: KNOB, BALANCE (WHITE) . . . (RED)

Parts color

Cabinet's color

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- CND : Canadian model
- AUS : Australian model
- JE : Tourist model

The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety

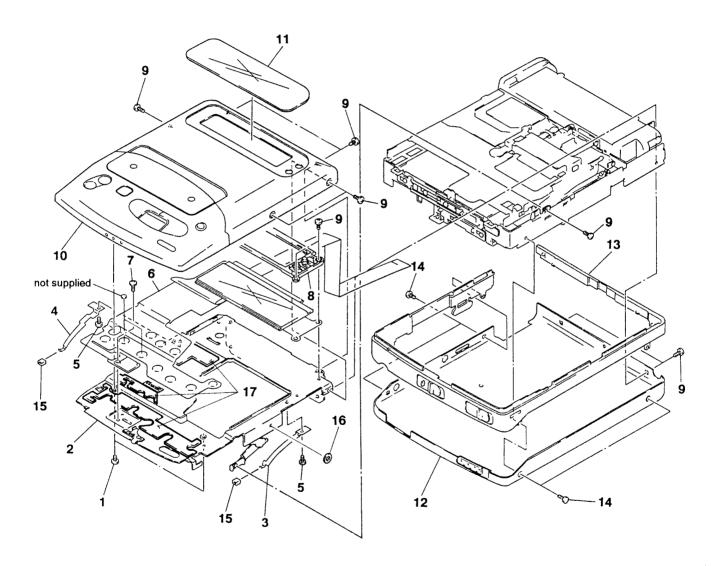
recritical for safety.

Replace only with part number specified.

Les composants identifiés par une marque  $ilde{\Lambda}$  sont critiques pour la sécurité.

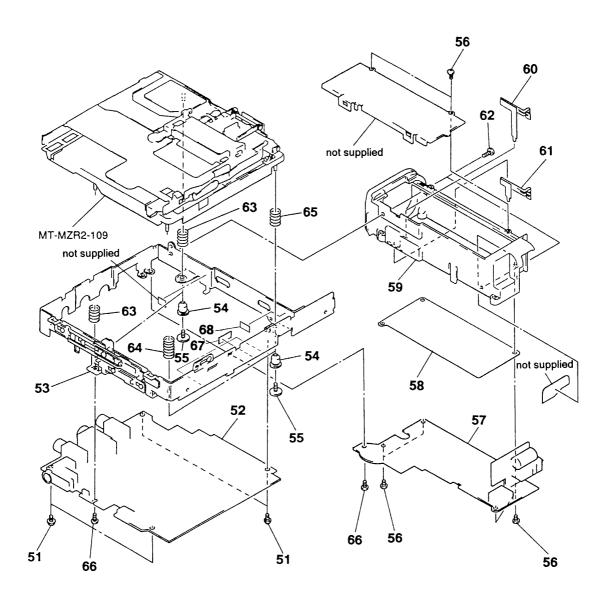
Ne les remplacer que par une piéce portant le numéro spécifié.

#### 7-1. CABINET BLOCK



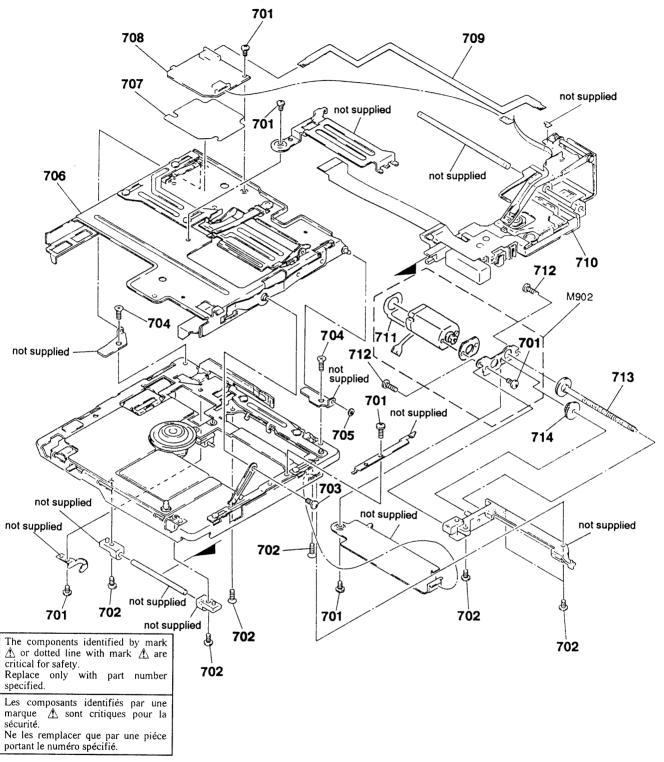
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1 2		SCREW (1.7X3), TAPPING (B) COVER ASSY, LID		10	X-4944-459-1	PANEL ASSY, UPPER	
3		SPRING (MD RETAINER A), LEAF		11	4-963-925-01	WINDOW (LCD)	
4		SPRING (MD RETAINER B), LEAF		12		PANEL ASSY, BOTTOM	
5	3-366-890-11	SCREW (M1.4)		13	X-4944-453-1	PLATE (CABINET) ASSY, ORNAMENTAL	
				14	3-704-197-13	SCREW (M1. 4X2. 0), LOCKING	
6	1-810-410-11			15		CUSHION (DAMPER)	
7	3-366-890-01					•	
8		HOLDER (LCD)		* 16	3-563-124-11	WASHER, RATTLE ABSORBER	
9	3-704-197-03	SCREW (M1. 4X1. 6), LOCKING		17	4-964-707-01	SHEET (LCD FLEXIBLE), ADHESIVE	

#### 7-2. MAIN BOARD BLOCK



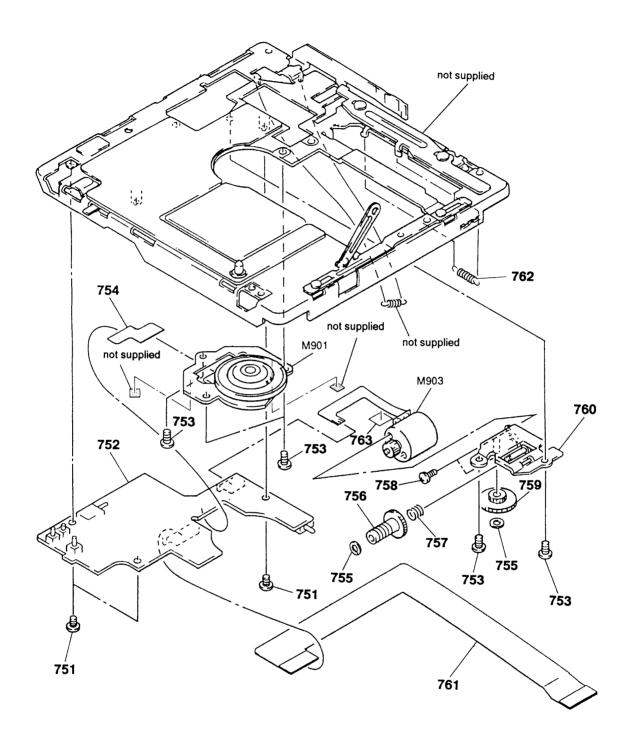
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51 52 52 53 54	A-3264-999-A A-3276-264-A	SCREW (M1.4X2), TOOTHED LOCK MAIN BOARD, COMPLETE (US, CND, AEP, UK MAIN BOARD, COMPLETE (E, JE) CHASSIS ASSY, INNER DAMPER	, AUS)	60 61 62 63 64	4-963-935-01 3-704-197-13 4-963-922-01	TERMINAL (PLUS), BATTERY TERMINAL (MINUS), BATTERY SCREW (M1. 4X2. 0), LOCKING SPRING (MD3), COMPRESSION SPRING (MD1), COMPRESSION	
55 56 57 58 59	3-893-942-41 1-467-509-11 4-963-936-01	SCREW (DAMPER) SCREW (1.7X3), TAPPING (B) DD CONVERTER UNIT SHEET, INSULATING CASE ASSY, BATTERY		65 66 * 67 * 68	3-348-160-71	SPRING (MD2), COMPRESSION SCREW (M1.4X2), PRECISION PAN SHEET, REC.SW SHEET	

#### 7-3. MECHANISM DECK 1 (MT-MZR2-109)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
701 702 703 704 705 706 707 * 708	3-704-197-33 4-963-883-31 4-964-538-01 3-338-645-31 X-4944-451-1	SHEET (REC PC BOARD), INSULATING		709 ↑710  711  712  713  714  M902	A-3300-221-A 1-651-018-11 4-964-537-01 A-3300-218-A 4-963-904-01	REC FLEXIBLE BOARD OPTICAL PICK-UP BLOCK  SLED FLEXIBLE BOARD SCREW (M1. 4X4.5), TAPPING SCREW BLOCK ASSY, LEAD GEAR (B) MOTOR BLOCK ASSY, SLED	

### 7-4. MECHANISM DECK 2 (MT-MZR2-109)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
751 752 753 754 755	A-3276-233-A 4-955-841-01 1-651-017-11	SCREW (M1.4) MECHA CON BOARD, COMPLETE SCREW CLV FLEXIBLE BOARD WASHER, STOPPER		759 760 761 762	X-4944-449-2 1-651-015-11	GEAR (WORM WHEEL) CHASSIS ASSY, GEAR MD FLEXIBLE BOARD SPRING (LOCK), TENSION	
756 757 758		GEAR, WORM SPRING, COMPRESSION SCREW (M1. 2X1. 6)		763 M901 M903	3-309-595-11 1-698-313-11	SHEET, INSULATING, PACK	

## SECTION 8 ELECTRICAL PARTS LIST



#### NOTE:

The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety.

Replace only with part number specified.

Les composants identifiés par une marque  $\triangle$  sont critiques pour la sécurité.

Ne les remplacer que par une piéce portant le numéro spécifié.

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

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts Example: KNOB, BALANCE (WHITE) . . . (RED)

Cabinet's color

Parts color

D : Canadian model

CND : Canadian modelAUS : Australian modelJE : Tourist model

- RESISTORS
   All resistors are in ohms
   METAL: Metal-film resistor
   METAL OXIDE: Metal Oxide-film resistor
   F : nonflammable
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μ A..., uPA...: μ PA...,
  uPB...: μ PB..., uPC...: μ PC...,
  uPD...: μ PD...
- CAPACITORS uF : μF
- COILS uH : μH

<del></del>			• JE :	I ourist i	model						
Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
	A-3261-999-1	MAIN ROARD	COMPLETE (EXC	EPT E	IE)	C201	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
	11 0201 000 1	-	********			C202		CERAMIC CHIP	100PF	5%	16V
		********	************			C203		TANTAL. CHIP	4. 7uF	20%	6. 3V
	A 2276 264	A MATH DOADD	COMPLETE (E, J	IC)		C204		CERAMIC CHIP	0. 001uF	10%	16V
	A-3210-204-1	•				C204	1-104-337-11	CERAMIC CITI	0. 001ui	1070	101
		******	******	***		COOL	1 164 720 11	CEDAMIC CUID	0. 0012uF	10%	50V
_	0 550 004 0	OURDA (D)	ADUPOLIE			C205		L CERAMIC CHIP			
*		1 SHEET (F),				C206		I TANTAL. CHIP	10uF	20%	6. 3V
	3-831-441-X	X SPACER, KNO	В			C207		TANTAL, CHIP	1uF	20%	6. 3V
						C208		I TANTAL. CHIP	luF	20%	6. 3V
		< CAPACITOR	: <b>&gt;</b>			C209	1-107-811-1.	I TANTAL. CHIP	47uF	20%	4V
C101	1-164-937-1	1 CERAMIC CHI	P 0.001uF	10%	16V	C210	1-135-337-1	I TANTAL. CHIP	1uF	20%	6. 3V
C102		1 CERAMIC CHI		5%	16V	C211		CERAMIC CHIP	0. 047uF		16V
C102		1 TANTAL. CHI		20%	6. 3V	C212		CERAMIC CHIP	0. 001uF	10%	16V
C104		1 CERAMIC CHI		10%	16V	C213		CERAMIC CHIP	39PF	5%	16V
C104		1 CERAMIC CHI		10%	50V	C214		I TANTAL. CHIP	2. 2uF	20%	4 V
C103	1 104 150 1	1 CERTAIN CONT	0.001241	10/0	501	0211	1 101 010 1	i minimbi omi	D. Dui	2070	.,
C106	1-107-813-1	1 TANTAL, CHI	P 10uF	20%	6. 3V	C215	1-164-473-1	1 CERAMIC CHIP	820PF	10%	50V
C107	1-135-337-1	1 TANTAL. CHI	P luF	20%	6. 3V	C216	1-164-874-1	1 CERAMIC CHIP	100PF	5%	16V
C108	1-135-337-1	1 TANTAL. CHI	P luF	20%	6. 3V	C217	1-164-868-1	1 CERAMIC CHIP	56PF	5%	16V
C109		1 TANTAL. CHI		20%	4V	C218	1-164-876-1	1 CERAMIC CHIP	120PF	5%	16V
C110		1 TANTAL. CHI		20%	6. 3V	C219	1-164-870-1	1 CERAMIC CHIP	68PF	5%	16V
C111		1 CERAMIC CHI			16V	C220		1 CERAMIC CHIP	120PF	5%	16V
C112	1-164-937-1	1 CERAMIC CHI		10%	16V	C221	1-104-551-1		0.01uF	5%	16V
C113	1-164-864-1	1 CERAMIC CHI	P 39PF	5%	16V	C222	1-135-337-1	1 TANTAL. CHIP	luF	20%	6. 3V
C114	1-107-815-1	1 TANTAL. CHI	P 2. 2uF	20%	4V	C223	1-164-939-1	1 CERAMIC CHIP	0. 0022uF	10%	16V
C115	1-164-473-1	1 CERAMIC CHI	P 820PF	10%	50 <b>V</b>	C224	1-135-337-1	1 TANTAL. CHIP	luF	20%	6. 3V
C116	1 164 974-1	1 CERAMIC CHI	P 100PF	5%	16V	C225	1-165-128-1	1 CERAMIC CHIP	0. 22uF		16V
C116		1 CERAMIC CHI		5%	16V	C226		1 CERAMIC CHIP	120PF	5%	16V
C117					16V			1 CERAMIC CHIP	0. 047uF	3/0	16V
C118		1 CERAMIC CHI		5 <b>%</b>		C229				200	
C119		1 CERAMIC CHI		5 <b>%</b>	16V	C231		1 TANTAL. CHIP	4. 7uF	20%	6. 3V
C120	1-164-876-1	1 CERAMIC CHI	P 120PF	5%	16V	C233	1-164-937-1	1 CERAMIC CHIP	0.001uF	10%	16V
C121	1-104-551-1	1 FILM CHIP	0. 01uF	5 <b>%</b>	16V	-				(EXC	CEPT E, JE)
C121		1 TANTAL. CHI		20%	6. 3V	C234	1-164-937-1	1 CERAMIC CHIP	0.001uF	10%	16V
C122		1 CERAMIC CHI			16V	0204	1 104 557 1	1 CDIMINIC CITT	0.00101		CEPT E, JE)
C123		1 TANTAL. CHI		20%	6. 3V	C235	1_164_037_1	1 CERAMIC CHIP	0.001uF	10%	16V
C124		1 CERAMIC CHI		20/0	16V	(233	1-104-551-1	1 CERAMIC CITI	0. 001di		CEPT E, JE)
C145	1-100-140-1	1 CENTAILS CHI	. U. 44UF		101	C301	1-104-630-1	1 TANTAL. CHIP	33uF	20%	6. 3V
C19C	1 104 976 1	1 CEDAMIC CIL	D 190DE	CØ/	1 C V				0. 01uF		
	1-164-876-1	1 CERAMIC CHI		5%	16V			1 CERAMIC CHIP 1 TANTAL. CHIP		20%	16V 6.3V
C129				200	16V	C303	1-135-259-1	I IANIAL. CHIP	10uF	20%	0.31
C131		1 TANTAL. CHI		20%	6. 3V	C204	1 164 042 1	1 CEDANIC CUID	0.010	100	161
C133	1-104-931-1	1 CERAMIC CHI	IP 0.001uF	10%	16V	C304		1 CERAMIC CHIP	0.01uF	10%	16V
0104	1 104 007 1	1 CEDANIC CUI	D 0 001 D		EPT E, JE)	C308		I TANTAL. CHIP	luF	20%	6. 3V
C134	1-164-937-1	1 CERAMIC CHI	IP 0.001uF	10%	167	C309		1 TANTAL. CHIP	10uF	20%	6. 3V
				(EXC	EPT E, JE)	C310		1 CERAMIC CHIP	0. 047uF	1.00/	16V
0105	1 104 007 :	1 0004440 000	D 0 001 5	1.00/	1.017	C311	1-164-943-1	1 CERAMIC CHIP	0.01uF	10%	16V
C135	1-164-937-1	1 CERAMIC CHI	IP 0.001uF	10%	167	0010	1 105 050 1	1 TANTAL OUT	10	000	0.011
				(EXC	EPT E, JE)	•	1-135-259-1	1 TANTAL. CHIP	10uF	20%	6. 3V
					— 7	75 —					

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
C313	1-104-847-11	TANTAL, CHIP	22uF	20%	4V	C508	1-164-937-11	CERAMIC CHIP	0. 001uF	10%	16V
C314		CERAMIC CHIP	0. 01uF	10%	16V	C509		TANTAL. CHIP	47uF	20%	4V
C315		TANTAL. CHIP	22uF	20%	4V	0000	1 101 011 11	IMMIAL. CIIII	4 rui	2070	4 V
C316		TANTAL. CHIP	10uF	20%	6. 3V	C510	1-164-943-11	CERAMIC CHIP	0. 01uF	10%	16V
0010	1 100 200 11	imaino. Citt	1001	20%	0.01	C511		CERAMIC CHIP	0. 01ur 0. 001uF	10%	16V
C317	1-164-004-11	CERAMIC CHIP	0. 1uF	10%	25V	C511		CERAMIC CHIP	0. 001ur 0. 0022uF	10%	16V
C318		TANTAL. CHIP	10uF	20%	6. 3V	C512		CERAMIC CHIP	0. 0022ur 0. 001uF		
										10%	16V
C319		TANTAL CHIP	10uF	20%	6. 3V	C514	1-105-170-11	CERAMIC CHIP	0. 047uF	10%	16V .
C320		TANTAL CHIP	luF	20%	6. 3V	0510	1 104 000 11	TANTAL CHID	00 D	0.00/	0 011
C321	1-104-929-11	TANTAL. CHIP	22uF	20%	6. 3V	C519		TANTAL. CHIP	22uF	20%	6. 3V
0000	1 105 050 11	TANTA OULD	10 B	0.00/	0.07	C520		CERAMIC CHIP	0.001uF	10%	16V
C322		TANTAL, CHIP	10uF	20%	6. 3V	C521		CERAMIC CHIP	0. 022uF	10%	25V
C324		CERAMIC CHIP	0. 1uF	10%	25V	C522		TANTAL. CHIP	0. 22uF	10%	20V
C325		CERAMIC CHIP	luF		16 <b>V</b>	C523	1-164-360-11	CERAMIC CHIP	0. 1uF		16V
C326		TANTAL. CHIP	10uF	20%	6. 3V						
C327	1-164-949-11	CERAMIC CHIP	0. 047uF		16V	C524		CERAMIC CHIP	0.033uF	10%	16V
						C525	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C328	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V	C526		CERAMIC CHIP	0. 047uF		16V
C329	1-164-949-11	CERAMIC CHIP	0. 047uF		16V	C527	1-162-979-11	CERAMIC CHIP	0. 0027uF	10%	50V
C330	1-135-259-11	TANTAL. CHIP	10uF	20%	6. 3V	C529	1-164-939-11	CERAMIC CHIP	0. 0022uF	10%	16V
C333	1-164-360-11	CERAMIC CHIP	0. 1uF		16V						
C334	1-104-847-11	TANTAL. CHIP	22uF	20%	4 V	C530	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
						C531	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C335	1-104-847-11	TANTAL, CHIP	22uF	20%	4V	C532		TANTAL, CHIP	22uF	20%	4 V
C336		TANTALUM CHIP	3. 3uF	20%	6. 3V	C533		TANTAL. CHIP	22uF	20%	4 V
C337		TANTAL. CHIP	4. 7uF	20%	6. 3V	C534		CERAMIC CHIP	0. 022uF	10%	25V
C338		TANTAL. CHIP	4. 7uF	20%	6. 3V	****	1 101 227 11		0. 02241	1070	201
C340		TANTAL. CHIP	33uF	20%	6. 3V	C535	1-164-933-11	CERAMIC CHIP	220PF	10%	16V
00.10			oour	2070	0.01	C536		CERAMIC CHIP	0. 01uF	10%	16V
C341	1-104-630-11	TANTAL. CHIP	33uF	20%	6. 3V	C537		TANTALUM CHIP	4. 7uF	20%	6. 3V
C342		CERAMIC CHIP	0. 01uF	10%	16V	C538		CERAMIC CHIP	0. 047uF	2070	16V
C343		TANTAL. CHIP	luF	20%	6. 3V	C539		CERAMIC CHIP	0. 22uF	10%	16V
C344		TANTAL. CHIP	2. 2uF	20%	4V	0000	1 104 403 11	CERAMIC CITI	0. 22ui	1070	101
C345		TANTALUM CHIP	3. 3uF	20%	6. 3V	C540	1-165-112-11	CERAMIC CHIP	0. 33uF		16V
C0 10	1 100 100 21	Thirthbom Citt	o. our	2070	0.01	C541		CERAMIC CHIP	0. 0047uF	10%	16V
C346	1-164-004-11	CERAMIC CHIP	0. 1uF	10%	25V	C542		TANTAL. CHIP	10uF	20%	16V
C347		TANTAL, CHIP	0. 68uF	20%	10V	C542		CERAMIC CHIP	0. 47uF	20%	
C348		CERAMIC CHIP	0. 1uF	10%	25V	C544		CERAMIC CHIP	0. 47uF		25V 25V
C350		CERAMIC CHIP	100PF	5%	16V	C344	1-104-005-11	CERAMIC CHIF	0. 47ur		45 V
C351		CERAMIC CHIP	0. 047uF	J/0	16V	CEAE	1 164 027 11	CEDAMIC CIUD	0.001	1.00/	1.07
(331	1-104-545-11	CERAMIC CHIF	0. 04 / ur		101	C545		CERAMIC CHIP	0.001uF	10%	16V
Cara	1 164 040 11	CEDANIC CILID	0.047		1.077	C546		CERAMIC CHIP	0. 047uF	10%	16V
C352		CERAMIC CHIP	0. 047uF	0.04/	16V	C547		CERAMIC CHIP	100PF	5%	16V
C354		TANTAL, CHIP	0. 68uF	20%	10V	C548		CERAMIC CHIP	220PF	10%	16V
C355		TANTAL, CHIP	10uF	20%	6. 3V	C549	1-164-490-11	CERAMIC CHIP	0.068uF		16V
C358		TANTAL. CHIP	10uF	20%	6. 3V						
C359	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V	C550		CERAMIC CHIP	0. 033uF	10%	16V
				(EXCE	PT E, JE)	C551		CERAMIC CHIP	82PF	5%	16V
						C552		CERAMIC CHIP	0. 1uF	10%	25V
C366	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V	C553		CERAMIC CHIP	0. 047uF		16V
				(EXCE	PT E, JE)	C554	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C368	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V						
				(EXCE	PT E, JE)	C555	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C369	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16 <b>V</b>	C556	1-107-811-11	TANTAL. CHIP	47uF	20%	4 V
				(EXCE	PT E, JE)	C557	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C501	1-104-929-11	TANTAL. CHIP	22uF	20%	6. 3V	C558	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C502	1-104-847-11	TANTAL. CHIP	22uF	20%	4 V	C561		TANTAL. CHIP	22uF	20%	6. 3V
										2	
C503	1-104-847-11	TANTAL. CHIP	22uF	20%	4 V	C565	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C504	1-107-811-11	TANTAL. CHIP	47uF	20%	4 V	C567		CERAMIC CHIP	0. 047uF		16V
C506		TANTAL. CHIP	10uF	20%	6. 3V	C570		CERAMIC CHIP	0. 047uF		16V
				-					, u.		-0,

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
C572 C574		TANTAL. CHIP CERAMIC CHIP	22uF 0. 47uF	20%	6. 3V 25V	C815 C820		CERAMIC CHIP CERAMIC CHIP	0. 047uF 0. 047uF		16V 16V
C578 C581 C582 C586 C587	1-135-246-11 1-135-208-11 1-164-346-11	CERAMIC CHIP TANTAL. CHIP TANTAL. CHIP CERAMIC CHIP CERAMIC CHIP	0. 033uF 33uF 1uF 1uF 1uF	10% 20% 10%	16V 6. 3V 10V 16V	C821 C822 C823 C824 C826	1-164-943-11 1-164-936-11 1-164-949-11	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0. 047uF 0. 01uF 680PF 0. 047uF 0. 047uF	10% 10%	16V 16V 16V 16V 16V
C588 C589 C590 C591 C592	1-164-346-11 1-164-346-11 1-164-360-11	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0. 047uF 1uF 1uF 0. 1uF 1uF		16V 16V 16V 16V 16V	C827 C830 C831 C832 C833	1-164-346-11 1-165-176-11 1-165-112-11	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0. 047uF 1uF 0. 047uF 0. 33uF 0. 1uF	10%	16V 16V 16V 16V
C593 C596 C601 C602 C603	1-135-208-11 1-164-004-11 1-164-874-11	CERAMIC CHIP TANTAL. CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0. 047uF 1uF 0. 1uF 100PF 0. 0047uF	10% 10% 5% 10%	16V 10V 25V 16V	C834 C835 C838 C839 C840	1-164-937-11 1-164-949-11 1-164-949-11	TANTAL. CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	33uF 0. 001uF 0. 047uF 0. 047uF 0. 33uF	20% 10%	6. 3V 16V 16V 16V
C604 C605 C606 C608 C622	1-164-850-11 1-162-952-11 1-164-949-11	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP TANTAL. CHIP	0. 022uF 10PF 82PF 0. 047uF 10uF	10% 0. 5PF 5% 20%	25V 16V 50V 16V 6. 3V	C841 C842 C843 C844 C5013	1-164-949-11 1-164-949-11	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0. 047uF 0. 047uF 0. 047uF 0. 047uF 0. 015uF	10%	16V 16V 16V 16V 25V
C623 C624 C626 C627 C628	1-104-700-11 1-164-005-11 1-164-949-11	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0. 047uF 0. 027uF 0. 47uF 0. 047uF 0. 047uF	10%	16V 16V 25V 16V	C5015 C5016 C5022	1-164-245-11 1-164-943-11 1-164-949-11 1-164-363-11 1-164-935-11	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0. 015uF 0. 01uF 0. 047uF 560PF 470PF	10% 10% 5% 10%	25V 16V 16V 50V 16V
C629 C631 C632 C645 C646	1-164-949-11 1-164-949-11 1-109-847-11	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP TANTAL. CHIP CERAMIC CHIP	0. 047uF 0. 047uF 0. 047uF 0. 47uF 0. 01uF	20% 10%	16V 16V 16V 16V 16V	C5030 C5031	1-164-941-11 1-107-814-11 1-164-935-11	CERAMIC CHIP TANTAL. CHIP	0. 0047uF 33uF 470PF 0. 001uF	10% 20% 10% 10%	16V 10V 16V 16V PT E, JE)
C647 C658 C659 C660 C661	1-164-943-11 1-164-847-11 1-164-847-11 1-164-005-11	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0. 01uF 7PF 7PF 0. 47uF 0. 33uF	10% 0. 5PF	16V 16V 16V 25V 16V	C5092 C5094 C5095	1-165-176-11 1-164-940-11 1-107-814-11 1-104-700-11 1-164-940-11	CERAMIC CHIP TANTAL. CHIP CERAMIC CHIP	0. 047uF 0. 0033uF 33uF 0. 027uF 0. 0033uF	10% 10% 20% 10% 10%	16V 16V 10V 16V 16V
C662 C663 C664 C801 C802	1-164-360-11 1-165-112-11 1-107-820-11 1-104-813-11	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP TANTAL. CHIP CERAMIC CHIP	0. 1uF 0. 33uF 0. 1uF 10uF 0. 0033uF	20% 10%	16V 16V 16V 16V 16V	C5097	1-104-340-11 1-107-817-11 1-164-360-11	TANTAL. CHIP	0. 33uF 0. 1uF	20%	16V 16V
C803 C805 C806 C808 C809	1-164-940-11 1-164-949-11 1-164-943-11 1-164-850-11	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0. 0033uF 0. 047uF 0. 01uF 10PF 10PF	10% 10% 10% 0. 5PF 0. 5PF	16V 16V 16V 16V 16V	CN801 CN802 CN803	1-573-927-11 1-573-346-21 1-573-357-11	CONNECTOR, FFC/CONNECTOR, FFC/CONNECTOR, FFC/CONNECTOR, FFC/CONNECTOR, FFC/	FPC (ZIF) FPC 6P FPC 17P	18P	
C810 C811 C813	1-164-949-11 1-164-949-11	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0. 047uF 0. 047uF 0. 047uF	·	16V 16V 16V	D301 D302	8-719-046-90 8-719-046-90				

Ref. No.	Part No.	Descript	<u>tion</u>	Remark	Ref. No.	Part No.	Descr	ription	Remark
D303	8-719-046-88		MA2S082		IC305	8-759-252-90	IC	TLV23621PW-ELM1500	
D304	8-719-046-88		MA2S082						
D305	8-719-046-88	DIODE	MA2S082		•	8-759-252-39		AK4502-VS-E1	
D307	8-719-989-03	DIODE	DAN222		•	8-759-252-90 8-759-166-95		TLV23621PW-ELM1500	
D307	8-719-989-00		DA221		1	8-759-165-04		LA4805V-TLM TK11230MTL	
D309	8-719-989-03		DAN222			8-759-234-77		TC4S66F	
D310	8-719-026-26		MA786WK		10010	0 100 204 11	10	1045001	
D501	8-719-975-33		RB110C		IC311	8-759-252-43	IC	TK15210MTL	
						8-759-252-43		TK15210MTL	
D504	8-719-023-69	DIODE	SB007T03Q		IC314	8-759-255-51	IC	DS1267E-50	
D505	8-719-031-17	DIODE	SB007-03Q			8-759-255-51		DS1267E-50	
D506	8-719-046-88	DIODE	MA2S082		IC316	8-759-710-79	IC	NJM2107F	
D601	8-719-981-25		KV1450						
D801	8-719-938-72	DIODE	SB01-05CP			8-759-234-77		TC4S66F	
						8-759-255-92		XC62AP3201MR	
D802	8-719-420-79		MA724			8-759-257-94		TK11245AMTL	
D803	8-719-989-08		RB717F		1	8-759-173-00		XC61AN1102MR	
D804	8-719-046-84		MA2S728		1C501	8-752-068-49	IC	CXA1861R	
D805 D806	8-719-988-82		RB715F		10500	0 750 004 00	10	CVALOOON	
Doug	8-719-989-08	DIODE	RB717F			8-752-064-33		CXA1380N	
D808	8-719-033-72	LED	CL-181UR-C-TS (REC →)			8-759-082-60		TC7S66FU	
D809	8-719-989-08		RB717F			8-759-252-31 8-752-055-94		MB88347APFV-EF CXA1602R	
D810	8-719-989-08		RB717F		1	8-759-058-57		TC7S04FU-TE85L	
D811	8-719-046-84		MA2S728		10000	0 100 000 01	10	TCTOOTI O TEOSE	
D812	8-719-046-84		MA2S728		IC509	8-759-084-72	IC	MPC1718FU	
						8-759-058-61		TC7S08FU-TE85L	
D813	8-719-046-84	DIODE	MA2S728		1	8-759-252-38		CXD8498N-ELL2000	
D814	8-719-046-84	DIODE	MA2S728		IC512	8-759-710-79	IC	NJM2107F	
					IC513	8-759-255-49	IC	DS1267E-10	
		< FERRIT	TE BEAD >						
PD100		*******				8-759-255-51		DS1267E-50	
			R, FERRITE BEAD 1K (EXCEPT			8-759-082-60		TC7S66FU	
			R, FERRITE BEAD 1K (EXCEPT			8-759-058-61		TC7S08FU	
			R, FERRITE BEAD 1K (EXCEPT R, FERRITE BEAD 1K (EXCEPT			8-759-259-06		XC61AN1902MR	
			R, FERRITE BEAD 600	E, JE)	10001	8-752-364-98	IC	CXD2525R-1	
1 0001	1 414 220 11	INDUCTOR	, IEMNIE BEAD 000		10602	8-752-363-57	ıc	CXD2526AR	
FB302	1-414-228-11	INDUCTOR	R, FERRITE BEAD 600			8-752-365-90		CXD2526AR CXD2531BR	
			R, FERRITE BEAD 600			8-759-255-94		XC62AP3102MR	
			R, FERRITE BEAD 600			8-752-362-58		CXK41V4400ATM-10	
			R, FERRITE BEAD 600 (EXCEP	T E, JE)		8-759-082-61		TC4W53FU	
			R, FERRITE BEAD 1K (EXCEPT						
				•	IC607	8-759-710-79	IC	NJM2107F	
			R, FERRITE BEAD 1K (EXCEPT	E, JE)	IC608	8-759-255-94	IC	XC62AP3102MR	
			R, FERRITE BEAD 600		IC801	8-759-252-27	IC	RS5RJ3720B	
			R, FERRITE BEAD 600			8-759-252-54		S-80745SL-A9	
			R, FERRITE BEAD 600	>	IC803	8-759-267-57	IC	MB89133A-PFM-170	
FB610	1-414-385-11	INDUCTOR	R, FERRITE BEAD 1K (EXCEPT	E, JE)	10001	0 770 070 57		0.0000417	
EDEGO	1-414-295 11	INDUCTOR	R, FERRITE BEAD 1K (EXCEPT	ומו ס		8-759-252-57		S-2900AUT	
			k, FERRITE BEAD IK (EXCEPT R, FERRITE BEAD 600 (EXCEP			8-752-852-81		CXP81848-603R	
1 1040	1 111 000 II	THEOCION	, IDMITITE BEAD OUD (EACER	1 15, JE)		8-759-252-29 8-759-255-94		S-80725SL-AN XC62AP3102MR	
		< IC >		İ		8-759-082-61		TC4W53FU	
					10000	0 100 002-01	10	TO THOUSE U	
IC301	8-759-257-94	IC TK1	1245AMTL		IC809	8-759-259-06	IC	XC61AN1902MR	
	8-759-711-85		14580E-D			8-759-259-06		XC61AN1902MR	
	8-759-512-62		1497N			8-759-058-57		TC7S04FU	
IC304	8-759-252-90	IC TLV	2362IP\-ELM1500	1					

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description				Remark
		< JACK >		Q512 Q514	8-729-928-27 8-729-024-46		DTA144EE 2SK2035			
J201 J301 J302 J303	1-764-460-21 1-764-453-11	IC GP1F365R (OPT/LINE IN) JACK (MIC, PLUG IN POWER) JACK (()/REMOTE) JACK (LINE OUT)  < COIL >		Q515 Q801 Q802 Q803 Q804	8-729-930-13 8-729-927-99 8-729-930-00 8-729-928-81 8-729-928-81	TRANSISTOR TRANSISTOR TRANSISTOR	UMH2 2SC4617 UMD2 DTC144EE DTC144EE			
L308 L501 L502 L503 L504	1-414-410-21 1-414-410-21 1-414-410-21	INDUCTOR 5.6uH (EXCEPT E, INDUCTOR (SMALL TYPE) 10. INDUCTOR (SMALL TYPE) 10. INDUCTOR (SMALL TYPE) 10. COIL, CHOKE 68uH	OuH OuH	Q805 Q806 Q808 Q809	8-729-927-99 8-729-928-81 8-729-930-00 8-729-023-89	TRANSISTOR TRANSISTOR	2SC4617 DTC144EE UMD2 2SJ305			
L505 L506 L507 L508 L509	1-414-203-11 1-412-991-11 1-414-203-11 1-414-203-11	INDUCTOR (SMALL TYPE) 10. INDUCTOR 100uH INDUCTOR 100uH INDUCTOR 100uH INDUCTOR 100uH	ОиН	R101 R102 R103 R107 R108	1-208-703-11 1-218-975-11 1-216-864-11 1-208-699-11 1-208-679-11	METAL CHIP METAL GLAZE METAL CHIP METAL CHIP	6. 8K 68K 0		1/16W 1/16W 1/16W	(E, JE)
L603 L801 LF301	1-412-031-11	INDUCTOR 1uH INDUCTOR CHIP 47uH  < LINE FILTER >  FILTER, COMMON MODE (EXCEP	T E, JE)	R110 R111 R112 R114 R115	1-220-398-11 1-218-734-11 1-208-714-11 1-208-715-11 1-208-681-11	METAL CHIP METAL CHIP METAL CHIP	1.5M 56K 20K 22K 820	5% 0. 50% 0. 50% 0. 50% 0. 50%	1/16W 1/16W	
LF303	1-403-601-21	FILTER, COMMON MODE FILTER, COMMON MODE (EXCEP FILTER, COMMON MODE (EXCEP  < TRANSISTOR >		R116 R117 R118 R119	1-208-715-11 1-208-715-11 1-208-715-11 1-208-683-11	METAL CHIP METAL CHIP METAL CHIP	22K 22K 22K 1K	0. 50% 0. 50% 0. 50% 0. 50%	1/16W 1/16W 1/16W	
Q101 Q102 Q201 Q202 Q302	8-729-929-32 8-729-144-16 8-729-929-32 8-729-144-16 8-729-930-13	TRANSISTOR 2SD2228-D44D4 TRANSISTOR DTC144TE TRANSISTOR 2SD2228-D44D4		R120 R121 R122 R123 R124 R125	1-208-683-11 1-208-715-11 1-208-715-11 1-218-734-11 1-208-715-11 1-208-715-11	METAL CHIP METAL CHIP METAL CHIP METAL CHIP	1K 22K 22K 56K 22K 22K	0. 50% 0. 50% 0. 50% 0. 50% 0. 50%	1/16W 1/16W 1/16W 1/16W	
Q303 Q304 Q305 Q306 Q307	8-729-928-81 8-729-144-16 8-729-928-31 8-729-927-99 8-729-928-81	TRANSISTOR 2SD2228-D44D4 TRANSISTOR DTA114YE TRANSISTOR 2SC4617 TRANSISTOR DTC144EE	15	R126 R127 R128 R129 R130	1-218-736-11 1-208-719-11 1-208-719-11 1-218-736-11 1-208-696-11	METAL CHIP METAL CHIP METAL CHIP METAL CHIP	68K 33K 33K 68K	0. 50% 0. 50% 0. 50%	1/16W 1/16W 1/16W 1/16W	
Q308 Q309 Q310 Q311 Q312	8-729-928-81 8-729-930-00 8-729-930-00 8-729-930-00 8-729-928-19	TRANSISTOR UMD2 TRANSISTOR UMD3 TRANSISTOR UMD2 TRANSISTOR 2SA1774R		R131 R132 R133 R134 R135	1-208-685-11 1-218-989-11 1-216-789-11 1-208-683-11 1-216-864-11	METAL GLAZE METAL CHIP METAL CHIP	1. 2K 1M 2. 2 1K 0	0.50% 5% 5% 0.50% 5%	1/16W 1/16W 1/16W	(E, JE)
Q313 Q501 Q502 Q503 Q506	8-729-930-05 8-729-422-39 8-729-928-27 8-729-928-85 8-729-923-45	TRANSISTOR XN4404 TRANSISTOR DTA144EE TRANSISTOR DTC114YE TRANSISTOR 2SB1308-QR		R136 R139 R140 R141 R142	1-218-990-11 1-218-945-11 1-218-945-11 1-218-977-11 1-218-990-11	METAL GLAZE METAL GLAZE METAL GLAZE	0 220 220 100K 0	5% 5% 5% 5% 5%	1/16W 1/16W 1/16W 1/16W 1/16W	(E, JE)
Q508 Q510 Q511	8-729-928-81 8-729-023-89 8-729-927-59	TRANSISTOR 2SJ305		R143 R144	1-218-990-11 1-218-990-11		0	5% 5%		(E, JE) (E, JE)

Ref. No.	Part No.	Description				Remark	Ref. No.	Part No.	Description				Remark
R201 R202 R203	1-208-703-11 1-218-975-11 1-216-864-11	METAL GLAZE	6. 8K 68K 0		1/16W		R318 R319 R320	1-208-719-11 1-218-965-11 1-216-861-11	METAL GLAZE	33K 10K 2. 2M	5%	1/16W 1/16W 1/16W	
R207 R208 R210 R211 R212	1-208-699-11 1-208-679-11 1-218-988-11 1-218-734-11 1-208-714-11	METAL CHIP METAL GLAZE METAL CHIP	4. 7K 680 820K 56K 20K	0. 50% 0. 50% 5% 0. 50% 0. 50%	1/16W 1/16W 1/16W		R321 R322 R323 R324 R325	1-218-983-11 1-208-719-11 1-208-681-11 1-218-965-11 1-220-162-11	METAL CHIP METAL CHIP METAL GLAZE	330K 33K 820 10K 20	5% 0.50% 0.50% 5% 5%	1/16W 1/16W 1/16W 1/16W 1/16W	
R214 R215 R216 R217 R218	1-208-715-11 1-208-681-11 1-208-715-11 1-208-715-11 1-208-715-11	METAL CHIP METAL CHIP METAL CHIP	22K 820 22K 22K 22K	0. 50% 0. 50% 0. 50% 0. 50% 0. 50%	1/16W 1/16W 1/16W		R326 R327 R328 R329 R330	1-216-861-11 1-208-691-11 1-208-691-11 1-208-715-11 1-208-715-11	METAL GLAZE METAL GLAZE METAL CHIP		5% 0. 5% 0. 5% 0. 50% 0. 50%	1/16W 1/16W	
R219 R220 R221 R222 R223	1-208-683-11 1-208-683-11 1-208-715-11 1-208-715-11 1-218-734-11	METAL CHIP METAL CHIP METAL CHIP	1K 1K 22K 22K 56K	0.50% 0.50% 0.50% 0.50% 0.50%	1/16W 1/16W 1/16W		R331 R332 R333 R334 R335	1-218-975-11 1-218-965-11 1-208-699-11 1-218-965-11 1-208-715-11	METAL GLAZE METAL CHIP METAL GLAZE	68K 10K 4. 7K 10K 22K	5% 5% 0. 50% 5% 0. 50%	1/16W	
R224 R225 R226 R227 R228	1-208-715-11 1-208-715-11 1-218-736-11 1-208-719-11 1-208-719-11	METAL CHIP METAL CHIP METAL CHIP	22K 22K 68K 33K 33K	0.50% : 0.50% : 0.50% : 0.50% :	1/16W 1/16W 1/16W	,	R337 R343 R344 R345 R346	1-216-789-11 1-208-720-11 1-218-977-11 1-208-720-11 1-218-967-11	METAL CHIP METAL GLAZE METAL CHIP	2. 2 36K 100K 36K 15K	5% 0.50% 5% 0.50% 5%	1/16₩	
R229 R230 R231 R232 R233	1-218-736-11 1-208-696-11 1-208-685-11 1-218-989-11 1-216-789-11	METAL CHIP METAL CHIP METAL GLAZE			1/16W		R347 R348 R350 R351 R352	1-218-977-11 1-218-977-11 1-218-990-11 1-218-990-11 1-218-990-11	METAL GLAZE METAL GLAZE METAL GLAZE	100K 100K 0 0		1/16W 1/16W 1/16W 1/16W 1/16W	(E, JE)
R234 R235 R236 R239 R240	1-208-683-11 1-216-864-11 1-218-990-11 1-218-945-11 1-218-945-11	METAL CHIP METAL GLAZE METAL GLAZE	1K 0 0 220 220	5% I		(E, JE)	R353 R354 R355 R356 R357	1-218-977-11 1-208-683-11 1-218-979-11 1-218-985-11 1-208-721-11	METAL CHIP METAL GLAZE METAL GLAZE	100K 1K 150K 470K 39K	0.50% 5%	1/16\ 1/16\	
R241 R242 R243 R244 R301	1-218-977-11 1-218-990-11 1-218-990-11 1-218-990-11 1-218-965-11	METAL GLAZE METAL GLAZE METAL GLAZE	100K 0 0 0 0 10K	5% 1 5% 1 5% 1	1/16W	(E, JE) (E, JE) (E, JE)	R358 R359 R501 R502 R506	1-208-719-11 1-216-864-11 1-218-979-11 1-218-950-11 1-218-976-11	METAL CHIP METAL GLAZE METAL GLAZE	33K 0 150K 560 82K		1/16W 1/16W 1/16W 1/16W 1/16W	
R304 R305 R306 R307 R308	1-218-973-11 1-218-977-11 1-208-721-11 1-208-715-11 1-216-864-11	METAL GLAZE METAL CHIP METAL CHIP	47K 100K 39K 22K 0	5% 1 0.50% 1 0.50% 1	1/16W	(E, JE)	R507 R510 R511 R512 R513	1-218-957-11 1-218-980-11 1-218-989-11 1-220-214-11 1-218-989-11	METAL GLAZE METAL GLAZE METAL GLAZE	2. 2K 180K 1M 430K 1M	5%	1/16W 1/16W 1/16W 1/16W 1/16W	
R309 R310 R312 R314 R315	1-216-864-11 1-216-864-11 1-218-977-11 1-218-965-11 1-208-721-11	METAL CHIP METAL GLAZE METAL GLAZE	10K	5% 1 5% 1	l/16₩ l/16₩	(E, JE)	R514 R515 R516 R518 R519	1-218-973-11 1-218-980-11 1-218-975-11 1-208-701-11 1-208-679-11	METAL GLAZE METAL GLAZE METAL CHIP	47K 180K 68K 5. 6K 680	5% 5%		
R316 R317	1-220-209-11 1-208-719-11		160K 33K	5% 1 0.50% 1	1/16 <b>W</b> 1/16 <b>W</b>		R520 R521	1-218-989-11 1-208-715-11		1M 22K	5% 0. 50%	1/16W 1/16W	

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description				Remark
R522	1-208-701-11	METAL CHIP	5. 6K	0.50% 1/16	7	R617	1-216-864-11	METAL CHIP	0	5%	1/16W	
R524	1-220-181-11	METAL GLAZE	750	5% 1/16	<b>V</b>	R623	1-216-864-11	METAL CHIP	0	5%	,	(E, JE)
R525	1-208-701-11	METAL CHIP	5. 6K	0.50% 1/16	7	R630	1-216-864-11	METAL CHIP	0	5%	1/16W	.,,,
R526	1-208-683-11	METAL CHIP	1K	0.50% 1/16	T .	R631	1-218-990-11	METAL CLAZE	٥	5%	1 /100	
R527	1-218-967-11		15K	5% 1/16		R637	1-218-989-11		0 1M	5%	1/16W 1/16W	
R529	1-208-717-11		27K	0.50% 1/16		R643	1-216-864-11		0	5%	1/16W	
R531	1-218-941-11		100	5% 1/16		R655	1-218-983-11		330K		1/16W	
R533	1-218-945-11		220	5% 1/16		R656	1-218-983-11		330K		1/16W	
DESE	1 010 077 11	METAL CLASS	1007	F0/ 1/10		D001	1 010 004 11					
R535 R536	1-218-977-11		100K			R661	1-218-984-11		390K		1/16W	
R539	1-216-001-00		10	5% 1/10		R802	1-202-974-11		3. 3M		1/16W	
R540	1-208-701-11 1-208-699-11			0.50% 1/16 <sup>1</sup> 0.50% 1/16 <sup>1</sup>		R803	1-218-751-11			0.50%		
R546	1-208-683-11		4. 7K	0.50% 1/16		R804	1-218-744-11			0.50%		
11340	1 200 005-11	METAL CITT	11/	0.30% 1/10	•	R805	1-218-751-11	METAL CHIP	300K	0.50%	1/16W	
R547	1-218-957-11	METAL GLAZE	2. 2K	5% 1/16	7	R806	1-218-744-11	METAL CHIP	150K	0.50%	1/16W	
R549	1-218-957-11	METAL GLAZE	2. 2K	5% 1/16	7	R808	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R550	1-218-978-11	METAL GLAZE	120K	5% 1/16	7	R810	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R551	1-218-989-11		1M	5% 1/16	7	R812	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R553	1-218-968-11	METAL GLAZE	18K	5% 1/16	7	R813	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R556	1-208-715-11	METAL CHIP	22K	0.50% 1/16	7	R814	1-218-983-11	METAL CLAZE	330K	EØ/	1 /1 CW	
R557	1-220-398-11		1.5M			R815	1-218-989-11		330K 1M	5%	1/16W 1/16W	
R558	1-218-973-11		47K	5% 1/16		R816	1-208-706-11			0.50%		
R559	1-218-977-11		100K			R817	1-218-983-11		330K		1/16W	
R561	1-218-977-11		100K			R818	1-218-983-11		330K		1/16W	
				•			1 210 000 11	METRIC GEREE	OOON	J/0	1/10#	
R565	1-208-681-11		820	0.50% 1/16		R819	1-218-983-11		330K	5%	1/16₩	
R566	1-218-973-11		47K	5% 1/16		R820	1-218-983-11	METAL GLAZE	330K	5%	1/16₩	
R567	1-218-986-11		560K			R821	1-218-989-11		1M	5%	1/16W	
R568	1-218-977-11		100K	•		R822	1-218-989-11		1M	5%	1/16W	
R569	1-208-683-11	METAL CHIP	1K	0.50% 1/16	I	R823	1-218-732-11	METAL CHIP	47K	0.50%	1/16W	
R571	1-218-949-11	METAL GLAZE	470	5% 1/16	7	R824	1-218-749-11	METAL CHIP	240K	0.50%	1/16W	
R572	1-218-977-11	METAL GLAZE	100K			R825	1-218-983-11		330K		1/16W	
R573	1-218-975-11	METAL GLAZE	68K	5% 1/16	1	R826	1-218-973-11		47K		1/16W	
R574	1-218-977-11	METAL GLAZE	100K	5% 1/16	1	R827	1-208-699-11			0.50%		
R575	1-218-981-11	METAL GLAZE	220K	5% 1/167	1	R828	1-218-973-11	METAL GLAZE	47K		1/16W	
R576	1-218-977-11	METAL CLAZE	100K	5% 1/16	1	R829	1-218-973-11	METAL CLASE	4777	F0/	1 /100	
R577	1-218-989-11		100M	5% 1/16		R830	1-220-179-11		47K 510		1/16W 1/16W	
	1-218-980-11		180K				1-208-699-11			0.50%		
R581	1-218-967-11		15K	5% 1/16		R832	1-218-973-11		47K		1/16W	
R582	1-208-709-11		12K	0.50% 1/16		R833	1-202-974-11		3. 3M		1/16W	
5500											-, -•	
R590	1-218-983-11		330K			R834	1-218-983-11		330K		1/16W	
R592	1-218-977-11		100K	•		R835	1-218-983-11		330K		1/16W	
R593	1-218-977-11		100K			R836	1-218-983-11		330K		1/16W	
R594	1-218-977-11		100K			R837	1-218-983-11		330K		1/16W	
R601	1-218-967-11	METAL GLAZE	15K	5% 1/16		R838	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R602	1-218-965-11	METAL GLAZE	10K	5% 1/16W		R839	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R603	1-208-703-11	METAL CHIP	6.8K	0.50% 1/16		R840	1-216-864-11		0		1/16W	(E, JE)
R604	1-218-977-11	METAL GLAZE	100K			R841	1-218-973-11		47K		1/16W	(-,)
R610	1-216-864-11		0		(E, JE)	R842	1-218-973-11		47K		1/16W	
R613	1-218-965-11	METAL GLAZE	10K	5% 1/16W	'	R843	1-218-973-11	METAL GLAZE	47K		1/16W	
R614	1-208-695-11	METAL CHIP	3 3K	0.50% 1/16%	,	D9 4 4	1_919_079_11	METAL CLAZE	4717	F0/	1 /100	
R615	1-218-965-11		3. 3K 10K	5% 1/16W		R844 R845	1-218-973-11 1-218-973-11		47K		1/16W	
	_ 510 000 11	GUNDU	1011	U/U 1/10	,	N040	1-210-313-11	MEIAL ULAZE	47K	5%	1/16W	

## MAIN MECHA CON

Ref. No.	Part No.	Description				Remark	Ref. No.	Part No.	Description				Remark
R846	1-218-989-11	METAL GLAZE	1M	5%	1/16W		R5107	1-208-721-11	METAL CHIP	39K (	. 50%	1/16W	
R860	1-218-977-11	METAL GLAZE	100K	5%	1/16W		R5108	1-208-721-11	METAL CHIP			1/16W	
R861	1-218-988-11	METAL GLAZE	820K	5%	1/16W		R5109	1-218-965-11	METAL GLAZE	10K 5	%	1/16W	
R862	1-218-978-11	METAL GLAZE	120K	5%	1/16W		R5116	1-216-796-11	METAL GLAZE	8. 2 5	%	1/16W	
R863	1-218-989-11	METAL GLAZE	1 M	5%	1/16W		R5117	1-218-965-11	METAL GLAZE		%	1/16W	
R864	1-208-685-11	METAL CHIP	1.2K	0.50%	1/16W			1-216-864-11				1/16W	
R865	1-218-965-11	METAL GLAZE	10K	5%	1/16W			1-218-990-11				1/16W	
R866	1-218-977-11		100K		1/16W		l .	1-216-013-00				1/10W	
R867	1-218-988-11	METAL GLAZE	820K	5%	1/16W		R5207	1-216-013-00	METAL CHIP	33 5	%	1/10W	
R868	1-218-977-11		100K		1/16W					00 0	,•	1, 1011	
R870	1-218-977-11		100K		1/16W				< SWITCH >				
R871	1-218-983-11		330K		1/16W				· Dillon				
R872	1-218-965-11		10K	5%	1/16W		S801		SWITCH, PUSH (1				
2050							S802		SWITCH, SLIDE (				
R873	1-218-977-11		100K		1/16W		S803		SWITCH, TACTILE				
R874	1-218-985-11		470K		1/16W		S804		SWITCH, TACTIL		ET)		
R875	1-218-985-11		470K		1/16W		S805	1-572-473-11	SWITCH, TACTIL	(RESET)			
R876	1-202-974-11		3. 3M		1/16W								
R877	1-202-974-11	METAL GLAZE	3. 3M	5%	1/16W				< VIBRATOR >				
R878	1-202-974-11	METAL GLAZE	3.3M	5%	1/16W		X602	1-760-173-11	VIBRATOR, CRYST	AL. (45MF	7)		
R880	1-202-974-11		3. 3M		1/16W		X801		VIBRATOR, CERAM		/		
R881	1-202-974-11		3. 3M		1/16W		X802		VIBRATOR, CRYST			7)	
R882	1-218-990-11		0	5%	1/16W		X803		VIBRATOR, CERAM			• /	
	1-208-685-11			0.50%				1 .00 11.1 11	TEMPON, CERTAIN	10 (12)	2)		
					-,		******	********	******	******	****	****	******
R5010	1-208-683-11	METAL CHIP	1K	0.50%	1/16W								
R5011	1-208-683-11	METAL CHIP	1K	0.50%	1/16W			A-3276-233-A	MECHA CON BOARD	. COMPLE	TE		
R5012	1-208-683-11	METAL CHIP	1K	0.50%	1/16W				******	•			
R5014	1-208-683-11	METAL CHIP	1K	0.50%	1/16W								
R5015	1-208-719-11	METAL CHIP	33K	0.50%	1/16W			1-651-017-11	CLV FLEXIBLE BO	ARD			
R5016	1-208-719-11	METAL CHIP	33K	0.50%	1/16W				< CAPACITOR >				
R5017	1-218-975-11	METAL GLAZE	68K	5%	1/16W								
R5018	1-218-975-11	METAL GLAZE	68K	5%	1/16W		C701	1-164-227-11	CERAMIC CHIP	0. 022uF	10	)%	25V
R5020	1-216-860-11	METAL GLAZE	1.8M	5%	1/16W		C702		CERAMIC CHIP	0. 047uF			16V
R5021	1-218-981-11	METAL GLAZE	220K		1/16W		C703		CERAMIC CHIP	0. 022uF			25V
							C704		CERAMIC CHIP	0. 47uF			25V
R5027	1-218-965-11	METAL GLAZE	10K	5%	1/16W		C705		CERAMIC CHIP	0. 001uF	10		50V
	1-218-978-11		120K	5%	1/16W								
R5032	1-218-975-11	METAL GLAZE	68K	5%	1/16W		C706	1-162-964-11	CERAMIC CHIP	0.001uF	10	)%	50V
R5039	1-218-990-11	METAL GLAZE	0	5%	1/16W		C707	1-162-964-11		0. 001uF			50V
R5055	1-218-977-11	METAL GLAZE	100K	5%	1/16W		C708	1-162-967-11		0. 0033u			50V
							C709	1-164-004-11		0. 1uF	10		25V
R5056	1-218-990-11	METAL GLAZE	0	5%	1/16W		C710		CERAMIC CHIP	0. 47uF			25V
	1-218-980-11		180K		1/16W					0. 1. 42			501
R5081	1-208-703-11	METAL CHIP	6.8K	0.50%			C711	1-164-156-11	CERAMIC CHIP	0. 1uF			25 <b>V</b>
	1-216-001-00		10	5%	1/10W		C712	1-162-970-11		0. 01uF	10		25 <b>V</b>
	1-218-944-11		180	5%	1/16₩		C713	1-162-970-11		0. 01uF	10		25 <b>V</b>
					-,"		C714	1-107-813-11		10uF	20		6. 3V
R5095	1-220-398-11	METAL GLAZE	1.5M	5%	1/16W		C715	1-162-970-11		0. 01uF	10		25 <b>V</b>
			33K	0.50%			0,10			o. orui	10	.,,,	501
	1-208-719-11	METAL CHIP											
R5099					1/16W		C716	1-107-813-11	TANTAL CHIP	10uF	20	192	R 3V
	1-208-717-11	METAL CHIP	27K	0.50%			C716	1-107-813-11	TANTAL. CHIP	10uF	20	1% (	6. 3V
R5100		METAL CHIP METAL CHIP		0.50% 0.50%			C716	1-107-813-11	TANTAL. CHIP  < CONNECTOR >	10uF	20	)% (	6. 3V
R5100 R5102	1-208-717-11 1-208-715-11 1-218-989-11	METAL CHIP METAL CHIP METAL GLAZE	27K 22K 1M	0. 50% 0. 50% 5%	1/16W 1/16W				< CONNECTOR >				6. 3V
R5100 R5102 R5103	1-208-717-11 1-208-715-11	METAL CHIP METAL CHIP METAL GLAZE	27K 22K 1M	0.50% 0.50%	1/16W 1/16W		* CN701	1-573-925-11		FPC (ZIF	) 16F		6. 3V

## MECHA CON REC

Ref. No.	Part No.	<u>Description</u> <u>Remark</u>	Ref. No.	Part No. Description Remark
		< IC >	Q904	8-729-024-44 TRANSISTOR 2SK2315TYTR
	8-759-098-52 8-759-252-32			< RESISTOR >
		< TRANSISTOR >	R901 R902	1-216-853-11 METAL CHIP 470K 5% 1/16W 1-216-853-11 METAL CHIP 470K 5% 1/16W
Q701 Q702	8-729-905-12 8-729-904-07		R903 R904 R905	1-216-853-11 METAL CHIP 470K 5% 1/16W 1-216-853-11 METAL CHIP 470K 5% 1/16W 1-216-839-11 METAL CHIP 33K 5% 1/16W
		< RESISTOR >	******	***************************************
R701 R702 R703 R704	1-218-716-11 1-218-716-11 1-216-815-11 1-217-671-11	METAL CHIP 10K 0.50% 1/16W METAL CHIP 330 5% 1/16W	6	MISCELLANEOUS ************* 1-810-410-11 LCD MODULE
R705	1-217-671-11		57 709	1-467-509-11 DD CONVERTER UNIT 1-651-016-11 REC FLEXIBLE BOARD
R706 R708 R709	1-216-827-11 1-216-845-11 1-216-845-11	METAL CHIP 100K 5% 1/16W	<u>1</u> 710 711	A-3300-221-A OPTICAL PICK-UP BLOCK 1-651-018-11 SLED FLEXIBLE BOARD
		< SWITCH >	754 761	1-651-017-11 CLV FLEXIBLE BOARD 1-651-015-11 MD FLEXIBLE BOARD
S701 S702 S703	1-692-847-21 1-692-377-31	SWITCH, PUSH (1 KEY) (MEDIA) SWITCH, PUSH (1 KEY) (PROTECT) SWITCH, PUSH (1 KEY) (REFLECT)	M901 M902 M903	1-698-313-11 MOTOR A-3300-219-A MOTOR BLOCK ASSY, SLED A-3300-216-A STEPPER BLOCK ASSY
S704 S705		SWITCH, PUSH (1 KEY)(INITIAL) SWITCH, PUSH (1 KEY)(INLIMMIT)	******	*************************************
******	*****	***********		ACCESSORIES & PACKING MATERIALS ************************************
*	1-651-019-11	REC BOARD		1-467-505-11 REMOCON UNIT (RM-MZR2-MP)
		********* < CAPACITOR >	Δ Δ Δ Δ	1-467-510-11 ADAPTOR, AC (AC-MZ60) (US, CND) 1-467-511-11 ADAPTOR, AC (AC-MZ60) (AEP) 1-467-512-11 ADAPTOR, AC (AC-MZ60) (UK) 1-467-513-11 ADAPTOR, AC (AC-MZ60) (AUS)
C901 C902 C903 C904	1-164-360-11 1-107-810-11 1-109-814-11 1-165-112-11	TANTAL. CHIP 33uF 20% 4V CAP, CHIP MICA 220PF 100V	<u> </u>	1-467-514-31 ADAPTOR, AC (AC-MZ60) (E, JE) 1-528-501-11 BATTERY CASE 1-528-502-13 BATTERY, LITHIUM ION (LIP-12(H))
		< CONNECTOR >	Δħ	1-559-906-32 CORD, CONNECTION 1-569-007-11 ADAPTER, CONVERSION 2P (E, JE)
		CONNECTOR, FFC/FPC (ZIF) 6P CONNECTOR, FFC/FPC (ZIF) 6P		3-758-089-11 MANUAL, INSTRUCTION (ENGLISH, FRENCH, GERMAN, SPANISH) (CND, AEP, E, JE)
		< DIODE >		3-758-089-21 MANUAL, INSTRUCTION (ENGLISH) (US, UK, AUS) 3-758-089-41 MANUAL, INSTRUCTION (DUTCH, SWEDISH, ITALIAN, PORTUGUESE) (AEP)
D901 D902	8-719-046-86 8-719-046-86			3-758-089-51 MANUAL, INSTRUCTION (JAPANESE, KOREAN) (JE)
		< IC >	*	4-963-933-01 CASE, CARRYING 4-964-419-01 CASE, INDIVIDUAL (JE)
IC901	8-759-252-34	IC MC74ACT540DTEL	*	4-964-420-01 CASE, ACCESSORY
		< TRANSISTOR >	* * *	4-964-926-01 CUSHION, MAIN 4-966-814-01 INDIVIDUAL CARTON (U) 4-966-819-01 INDIVIDUAL CARTON (CND, AEP, UK, E, AUS)
Q901 Q902 Q903	8-729-024-44 8-729-024-44 8-729-024-44	TRANSISTOR 2SK2315TYTR		8-953-537-94 HEADPHONE MDR-E741MP/K2 SET (CND, AEP, UK, E, AUS, JE)

The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety.

Replace only with part number specified

Les composants identifiés par une marque  $\Lambda$  sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

specified.

#### MZ-R2

# MZ-R2

## SERVICE MANUAL

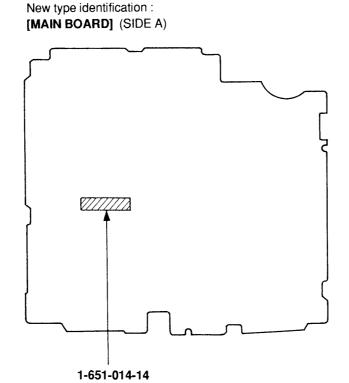
1994.05

## **SUPPLEMENT-1**

File this Supplement with the Service Manual.

Subjict: Main board change

US Model
Canadian Model
AEP Model
UK Model
E Model
Australian Model
Tourist Model



SCHEMATIC DIAGRAM — RF/SERVO SECTION — Refer to page 19 for Printed Wiring Boards.
Refer to pages 65 to 70 of Service Manual for IC Block Diagrams. 10 | 11 | 12 | 13 | 14 | 15 | 16 7 | 8 | 9 | 17 18 19 20 21 22 [MAIN BOARD (1/4)] • All capacitors are in #F unless otherwise noted.pF:##F • ————— :B+ Line. 50WV or less are not indicated except for electrolytics . Power voltage is dc 6.0 V and fed with regulated dc power supply from external power voltage jack. and tantalums, - All resistors are in Q and 1/4W or less unless otherwise - Voltages and waveforms are dc with respect to ground. no mark: Play the test disc (TĐYS-1) specified. • % :indicates tolerance. ( ): REC \* :can not be measured. •Voltages are taken with a VOM(Input impedance 10M $\Omega$ ). The components identi- Les composants identifiés par Voltage variations may be noted due to normal producfied by mark \Lambda or dot- une marque \Lambda sont critiques ted line with mark 🛕 🛮 pour la sécurité. Waveforms are taken with a oscilloscope. are critical for safety. Ne les remplacer que par une Replace only with part pièce portant le numèro spècition tolerances. number specified. fie. • Circled numbers refer to waveforms. JE :Tourist model. • Signal path. Q502 B+ SWITCH IC505 MINI ĐISC OPTICAL
PICK-UP
BLOCK
(KMS-190A) Q503 SP MUTE SWITCH SERVO ICSO7 CXA1602R IC514 2581308-QR PMM 0.001 F1 UNREG F2 4.75V F3 3.5V MAIN BOARB (4/4) (See Page 17) IC508 INVERTER IC506 HFSW0 A4

HFSW1 A5

SPMUTE A6

SCK3 A11

SCK3 SHOCK
TOK
AGCTC1
MOBON
XSHKEN
SB02
SCK2
LAT
SENSE0 SYNC AÐFG FMCK FMBT EFM BFCT LOCK MÐS MÐP MÐN MAIN BOARD (4/4) MAIN BOARD (2/4) (See Page 16) (See Page 16) (See Page 15) (See Page 7) (See Page 7) (See Page 16)

**-3-**

IC501 4 PLAY

IC603 3 (22.579MHz)

IC603 49 (45MHz)

 $\wedge \wedge \perp$ 

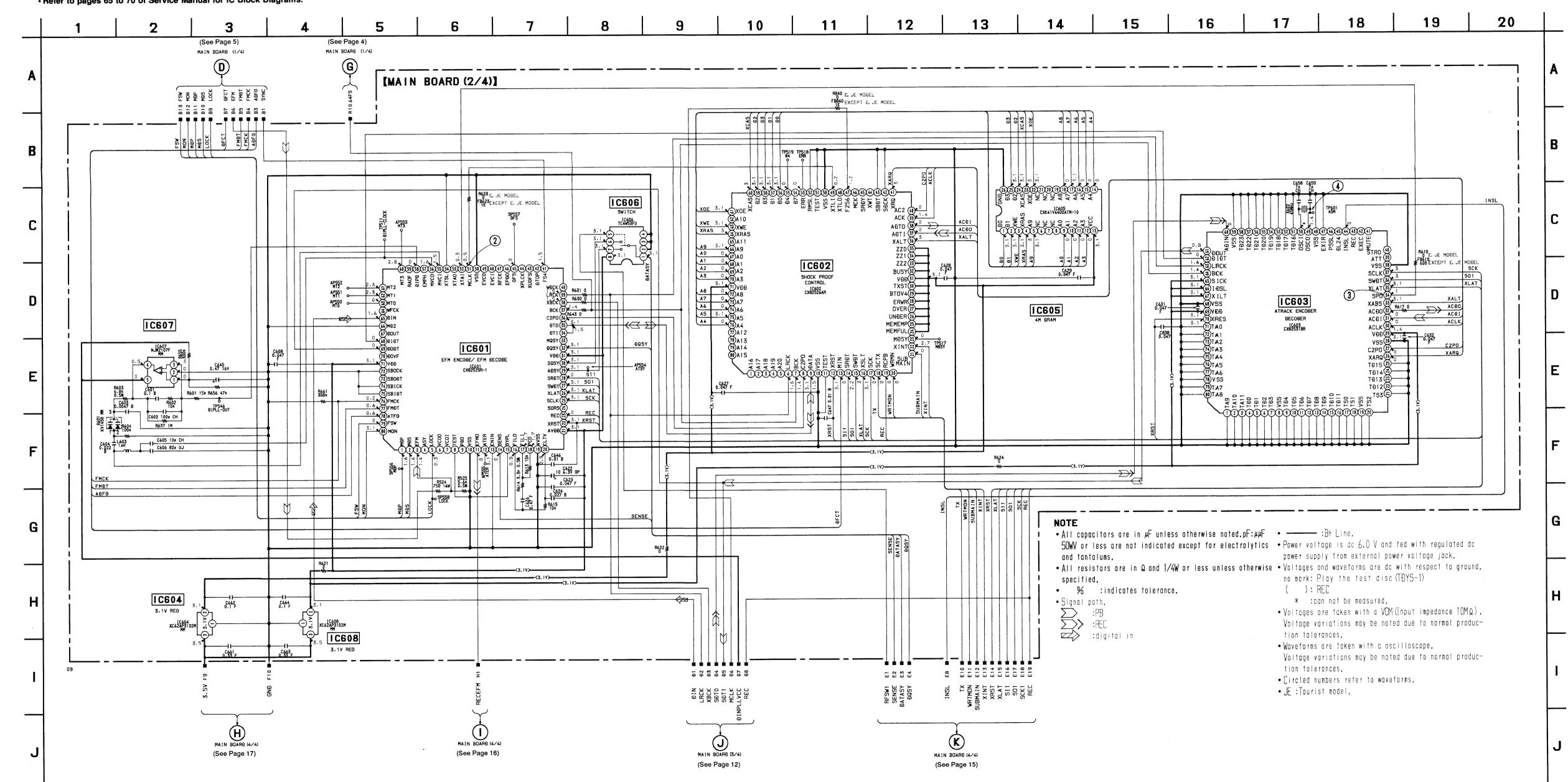
IC803 ® (32.768kHz)

2.74

IC805 4 (12MHz)

**-6-**

SCHEMATIC DIAGRAM — PROCESS SECTION —
• Refer to page 19 for Printed Wiring Boards.
• See page 3 for Waveforms.
• Refer to pages 34 to 41 of Service Manual for IC Pin Functions.
• Refer to pages 65 to 70 of Service Manual for IC Block Diagrams.

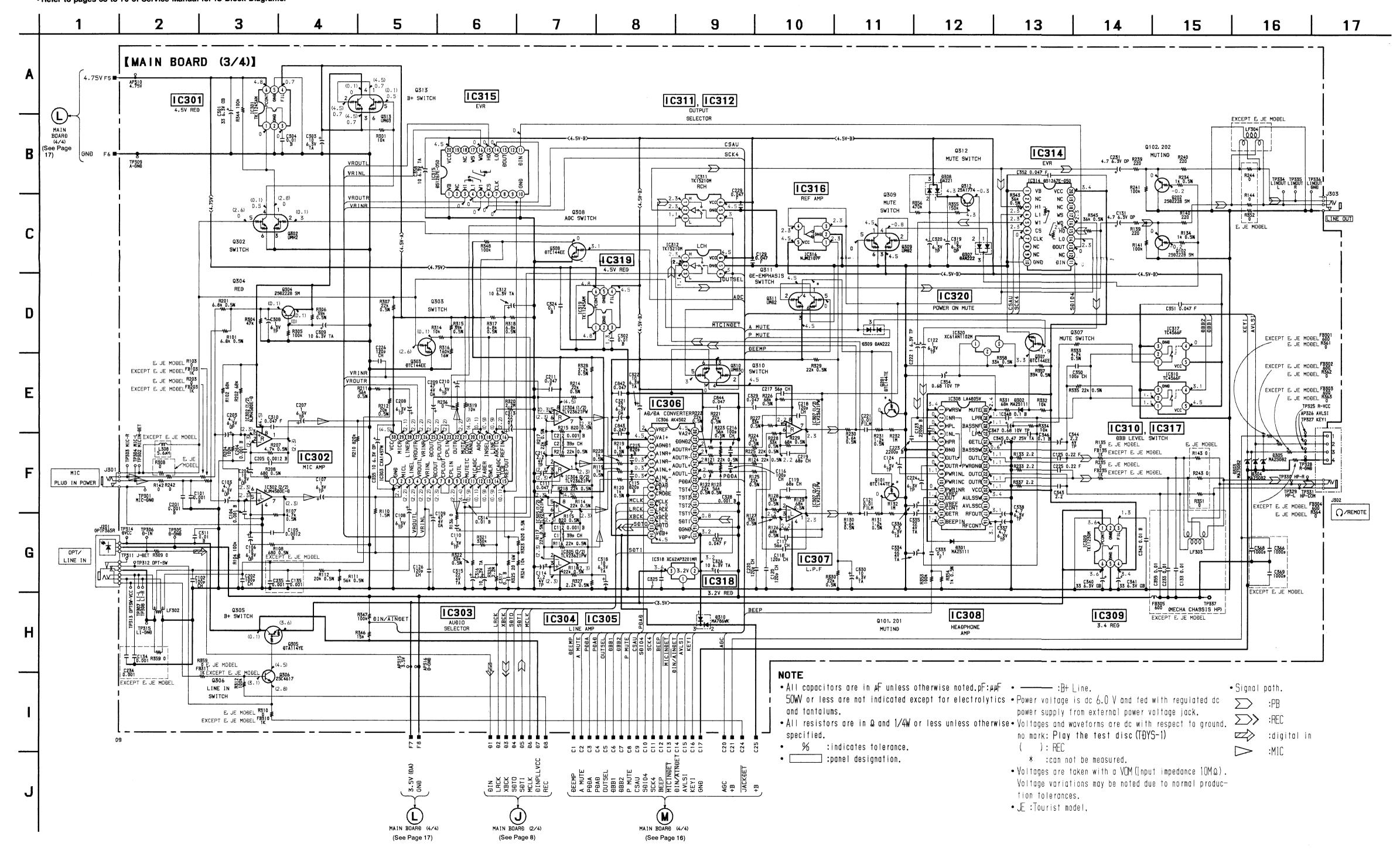


**— 8** —

**- 9** -

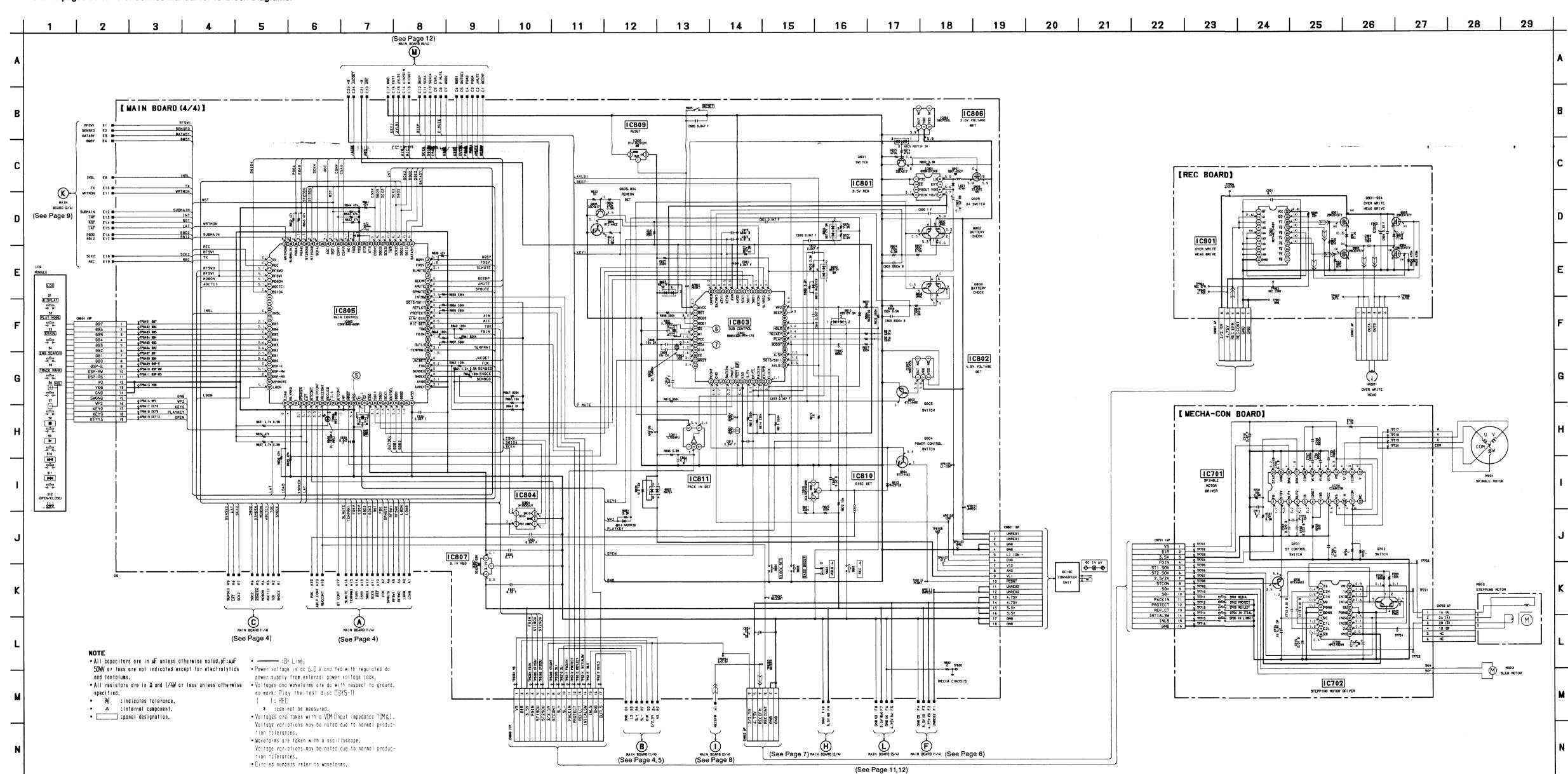
SCHEMATIC DIAGRAM — AUDIO SECTION —

Refer to page 19 for Printed Wiring Boards.
Refer to pages 65 to 70 of Service Manual for IC Block Diagrams.



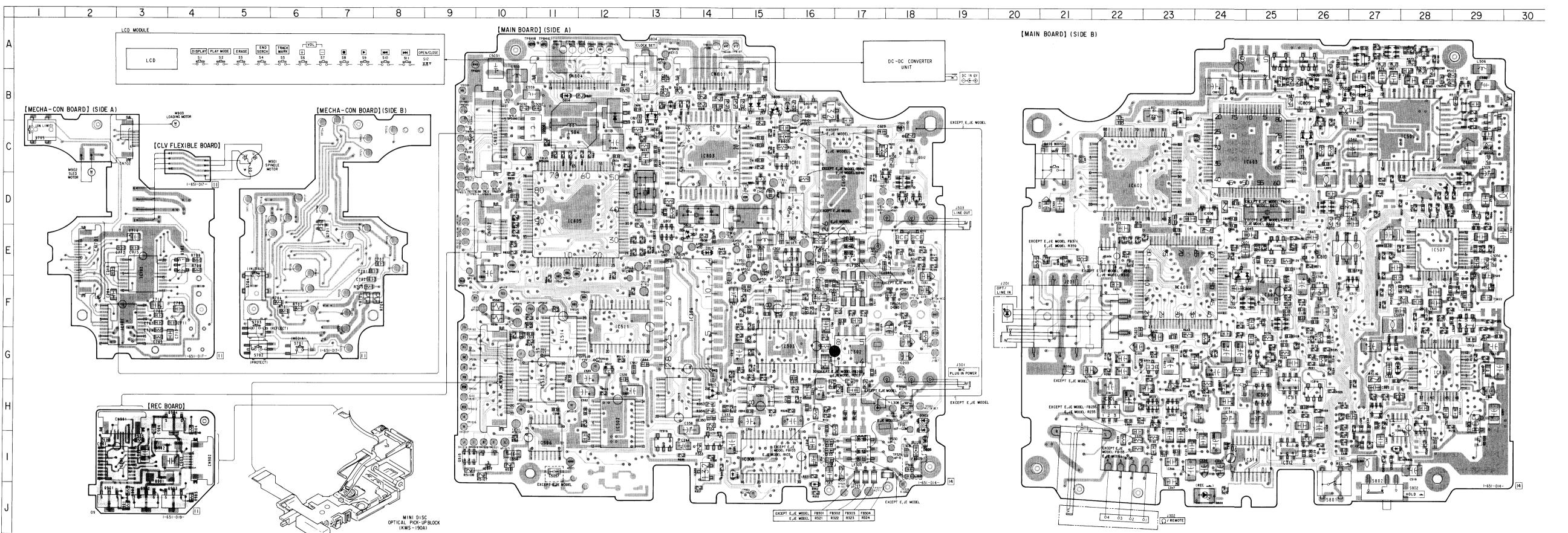
- 13 -

SCHEMATIC DIAGRAM — MICRO COMPUTER SECTION —
• Refer to page 19 for Printed Wiring Boards.
• See page 3 for Waveforms.
• Refer to pages 34 to 41 of Service Manual for IC Pin Functions.
• Refer to pages 65 to 70 of Service Manual for IC Block Diagrams.



**— 16 —** 

PRINTED WIRING BOARDS
• Refer to pages 32, 33 of Service Manual for Semiconductor Lead Layouts.



-21-

#### Semiconductor Location

· Semice	Jilauctor	Locatio	11
Ref. No.	Location	Ref. No.	Location
D301 D302 D303 D304 D305 D307 D308 D309 D310 D501 D504 D505 D506 D601 D801 D802 D802 D803 D804 D805 D806 D808 D808 D808	I-15 J-16 H-18 I-18 I-18 I-18 I-18 I-18 I-18 I-18 I	IC601 IC602 IC603 IC604 IC605 IC606 IC607 IC608 IC701 IC802 IC803 IC804 IC805 IC806 IC807 IC808 IC808 IC809 IC809 IC810 IC811 IC801	F-23 D-22 C-25 B-17 D-17 E-25 E-25 D-24 F-3 E-3 A-25 A-26 C-14 E-27 D-11 A-25 D-27 H-28 B-26 C-16 I-3
D811 D812 D813 D814 D901 D902 IC301 IC302 IC303 IC304 IC305 IC306 IC307 IC308 IC309 IC310 IC311 IC312	I-28 B-16 E-14 I-3 I-3 H-227 G-16 G-15 F-15 F-25 I-25 I-25 I-25	Q101 Q102 Q201 Q202 Q302 Q303 Q305 Q306 Q307 Q306 Q307 Q310 Q311 Q312 Q312 Q313 Q501 Q502 Q503	I-26 E-18 G-25 E-18 H-23 H-23 F-18 E-21 H-23 H-23 H-23 F-25 C-18 H-25 F-25 F-25 C-18
IC314 IC315 IC316 IC317 IC318 IC319 IC320 IC501 IC502 IC505 IC506 IC507 IC508 IC509 IC511 IC511 IC512 IC513 IC514 IC515 IC516 IC516 IC516 IC517	I-25 H-14 H-26 I-14 F-26 I-16 I-128 H-27 I-11 E-27 I-12 B-30 H-11 G-111 G-111 G-110 H-28 I-10	Q506 Q508 Q5110 Q5111 Q512 Q514 Q515 Q702 Q801 Q802 Q803 Q804 Q808 Q808 Q809 Q808 Q809 Q904	C-11 A-28 I-29 A-27 B-26 I-9 E-7 E-4 D-13 B-26 D-13 B-26 D-26 B-16 J-2 J-3 H-4

- o----: parts extracted from the component side.

- O : Through hole.
   △ : internal component.
   Pattern from the side which enable seeing.
- : Pattern of the rear side.

## SECTION 8 **ELECTRICAL PARTS LIST**

MAIN

MAIN

			EL		IRICA	LPA	415 LIS				
NOTE:			• Due to	standa	rdization, rep	olacements	in the parts	• RESISTORS			
The cor	nponents identi	fied by mark	list ma	y be di	ifferent from	the parts	specified in	All resistors a			
⚠ or d	otted line with				or the compo			METAL: Met			
	or safety. only with	nort number			"*" are not			METAL OXI F : nonflamm		ide-film.	ı resistor
specified		part number		-	ed for routin cipated when		•	SEMICONDI			
	nposants identi	fiés par une			n standardize	v		In each case,		nole:	
marque	⚠ sont critic	ques pour la			ference from			uA: μ A,			
sécurité.					on of Appear	_		uPB: μPB.		Э,	
portant l	remplacer que <sub>l</sub> e numéro spécif	ié.			ANCE (WHI			uPD: μPD.			
				Posts a			<b>↑</b>	• CAPACITOR uF: μF	i.S		
	ndicating parts		- 10	Parts c		Cabinet's c	color	• COILS			
number, name.	please includ	e the board	• JE :	lourisi	t model			uH: μH			
Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
	A-3264-999-A	MAIN BOARD,	COMPLETE (EXC	EPT E.	. JE)	C201	1-164-937-1	CERAMIC CHIP	0.001uF	10%	16V
			********			C202		CERAMIC CHIP	100PF	5%	16V
						C203		I TANTAL. CHIP	4. 7uF	20%	6. 3V
	A-3276-264-A	MAIN BOARD,	, ,			C204	1-164-937-1	CERAMIC CHIP	0.001uF	10%	16V
		********	**********	<b>*</b> **							
*	3-556-804-01	SHEET (F), A	DUECIVE			C205		CERAMIC CHIP	0. 0012uF	10%	50 <b>V</b>
т		SPACER, KNOE				C206 C207		I TANTAL CHIP	10uF	20%	6. 3V
	0 001 111 111	Of Hebri, Milot	,			C207		I TANTAL. CHIP	luF luF	20% 20%	6. 3V
		< CAPACITOR	>			C209		TANTAL. CHIP	47uF	20%	6. 3V 4V
						-	1 10. 011 1	Thirmb. Chin	Trui	2070	41
C101		CERAMIC CHIE		10%	16V	C210	1-135-337-11	TANTAL. CHIP	luF	20%	6. 3V
C102		CERAMIC CHIE		5%	16V	C211	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C103		TANTAL. CHIP		20%	6. 3V	C212	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C104		CERAMIC CHIP		10%	16V	C213	1-164-864-11	CERAMIC CHIP	39PF	5%	16V
C105	1-164-730-11	CERAMIC CHIP	0. 0012uF	10%	50V	C214	1-107-815-11	TANTAL. CHIP	2. 2uF	20%	4 V
C106	1-107-912-11	TANTAL, CHIP	10uF	200	C 0V	0015	1 104 450 1	000			
C100		TANTAL. CHIP		20% 20%	6. 3V 6. 3V	C215 C216		CERAMIC CHIP	820PF	10%	50V
C108		TANTAL. CHIP		20%	6. 3V	C216 C217		CERAMIC CHIP	100PF	5%	16V
C100		TANTAL. CHIP		20%	0. 3V 4V	1		CERAMIC CHIP	56PF	5%	16V
C110		TANTAL. CHIP		20%	6. 3V	C218		CERAMIC CHIP	120PF	5%	16V
CIIO	1 100 001 11	TANTAL. CITT	Tur	20%	0. 31	C219	1-164-870-11	CERAMIC CHIP	68PF	5%	16V
C111	1-164-949-11	CERAMIC CHIP	0.047uF		16V	C220	1-164-876-11	CERAMIC CHIP	120PF	5%	16V
C112	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V	C221	1-104-551-11		0. 01uF	5%	16V
C113	1-164-864-11	CERAMIC CHIP	39PF	5%	16V	C222		TANTAL, CHIP	luF	20%	6. 3V
C114	1-107-815-11	TANTAL. CHIP	2. 2uF	20%	4 V	C223		CERAMIC CHIP	0. 0022uF	10%	16V
C115	1-164-473-11	CERAMIC CHIP	820PF	10%	50 <b>V</b>	C224		TANTAL. CHIP	luF	20%	6. 3V
C116	1-164-874-11	CERAMIC CHIP	100PF	5%	16V	C225	1-165-128-11	CERAMIC CHIP	0. 22uF		1 C V
C117		CERAMIC CHIP		5%	16V	C223		CERAMIC CHIP	0. 22ur 120PF	5%	16V
C118		CERAMIC CHIP	120PF	5%	16V	C220		CERAMIC CHIP	0.047uF	576	16V
C119		CEDAMIC CHID	CODE	- CΦ	107	C223	1 107-343-11	CDIVAMIC CUIP	0. 04/Ur		16V

specifie					icipated whe			• SEMI	ICONDU	CTORS			C316	1-135
Les con	mposants identi	ifiés par une	• -XX,	-X mea	n standardiz	ed parts, s	o they may			$\mu$ , for exar	•			
sécurité	⚠ sont criti	ques pour la	have s	ome di	fference from	n the origina	al one.			PA: μ PA			C317	1-164
	remplacer que <sub>l</sub>		Color	Indicati	ion of Appea	rance Parts	Example:			, uPC: μ P0	C,		C318	1-135
	le numéro spécif				ANCE (WHI			uPD	.: <i>μ</i> PD				C319	1-107
portant	ie numero specii	IC.	]	1	` `	, (	<b>^</b>	<ul><li>CAPA</li></ul>	ACITORS	6			C320	
When i	ndicating parts	by reference	1	Parts of	color	Cabinet's o	color	uF:μ	ιF				C321	1-104
	, please includ		• JE	Touris	st model			• COIL	S				C321	1-104
name.	, picase merad	ic the board	"-	· rouric	i model			uH : ,					C322	1 121
			J											1-135
													C324	1-164
Ref. No.	Part No.	Description	1		Remark	Ref. No.	Part No.	Docanina	tion			ъ.	C325	1-164
		Debet Tpt Tot	•		iteliai k	101.110.	Tart No.	Descript	LION			Remark	C326	1-135
	A-3264-999-	A MAIN BOARD	, COMPLETE (EX	CEPT E	15)	C201	1 164 027 1	1 CEDANIC	CHID	0 001 5	1.00/	1011	C327	1-164
	11 0204 000 1		**********			C201	1-164-937-1			0.001uF	10%	16V		
		*****	*****	****	****	C202	1-164-874-1	1 CERAMIC	CHIP	100PF	5%	16V	C328	1-164
	1-2276-261-	A MAIN DOADD	COMPLETE (E	TEA		C203	1-107-812-1			4. 7uF	20%	6. 3V	C329	1-164
	K-3210-204-1		, COMPLETE (E,	,		C204	1-164-937-1	1 CERAMIC	CHIP	0.001uF	10%	16 <b>V</b>	C330	1-135
		*******	******	***		1							C333	1-164
	0 == 0 001 01					C205	1-164-730-1			0. 0012uF	10%	50 <b>V</b>	C334	1-104
*		1 SHEET (F),				C206	1-107-813-1			10uF	20%	6.3V		
	3-831-441-XX	X SPACER, KNO	OB			C207	1-135-337-1	1 TANTAL.	CHIP	luF	20%	6. 3V	C335	1-104
						C208	1-135-337-1	1 TANTAL.	CHIP	1uF	20%	6. 3V	C336	1-135
		< CAPACITO	₹ >			C209	1-107-811-1	1 TANTAL.	CHIP	47uF	20%	4 V	C337	1-107
									*****		20,0	.,		
C101	1-164-937-11	I CERAMIC CHI	IP 0.001uF	10%	16V	C210	1-135-337-1	1 TANTAI	CHIP	luF	20%	6. 3V	C338	1-107
C102	1-164-874-11	I CERAMIC CHI		5%	16V	C211	1-164-949-1			0. 047uF	20%	0. 3V 16V	C340	1-104
C103	1-107-812-11			20%	6. 3V	C212	1-164-937-1				1.00/			
C104	1-164-937-11			10%	16V	C212	1-164-864-1			0.001uF	10%	16V	C341	1-104
C105	1-164-730-11			10%	50V	C213				39PF	5%	16V	C342	1-164
0100	1 101 100 11	CDIMINIC CIT	0.001241	10/0	301	C214	1-107-815-1	I IANIAL.	CHIP	2. 2uF	20%	4 V	C343	1-164
C106	1107 919 11	TANTAL CUI	(D 10D	0.00/	0.01/	0015							C344	1-107
C100	1-107-813-11			20%	6. 3V	C215	1-164-473-1			820PF	10%	50V	C345	1-135
	1-135-337-11			20%	6. 3V	C216	1-164-874-1			100PF	5%	16V		
C108	1-135-337-11			20%	6. 3V	C217	1-164-868-1			56PF	5%	16V	C346	1-164
C109	1-107-811-11			20%	4 V	C218	1-164-876-1	1 CERAMIC	CHIP	120PF	5%	16V	C347	1-107
C110	1-135-337-11	TANTAL. CHI	IP luF	20%	6. 3V	C219	1-164-870-1	1 CERAMIC	CHIP	68PF	5%	16V	C348	1-164
													C350	1-164
C111	1-164-949-11				16V	C220	1-164-876-1	1 CERAMIC	CHIP	120PF	5%	16V	C351	1-164
C112	1-164-937-11			10%	16V	C221	1-104-551-1	1 FILM CH	IP	0. 01uF	5%	16V	0001	1 104
C113	1-164-864-11	CERAMIC CHI	P 39PF	5%	16 <b>V</b>	C222	1-135-337-1			luF	20%	6. 3V	C352	1 164
C114	1-107-815-11	TANTAL. CHI	P 2. 2uF	20%	4 V	C223	1-164-939-1			0. 0022uF	10%	16V		1-164
C115	1-164-473-11	CERAMIC CHI		10%	50 <b>V</b>	C224	1-135-337-1			luF	20%		C354	1-107
						035.	1 100 001 1	i imiini.	CIIII	Tur	20/0	6. 3V	C355	1-107
C116	1-164-874-11	CERAMIC CHI	P 100PF	5%	16V	C225	1-165-128-1	1 CEDAMIC	CUID	0.22		1.017	C358	1-135
C117	1-164-868-11			5%	16V	C226	1-164-876-1			0. 22uF	E0/	16V	C359	1-164
C118	1-164-876-11			5%	16V	C229				120PF	5%	16V		
C119	1-164-870-11						1-164-949-1			0. 047uF		16V		
C120	1-164-876-11			5% 5%	16V	C231	1-107-812-1			4. 7uF	20%	6. 3V	C366	1-164
C120	1 104-070-11	CENAMIC CHI	P 120PF	5%	16V	C233	1-164-937-1	1 CERAMIC	CHIP	0.001uF	10%	16V		
C1 01	1 104 551 11	DILM CUID									(EXC	EPT E, JE)	C368	1-164
C121	1-104-551-11		0. 01uF	5%	16V									
C122	1-135-337-11			20%	6. 3V	C234	1-164-937-13	l CERAMIC	CHIP	0.001uF	10%	16V	C369	1-164
C123	1-164-939-11			10%	16V						(EXC	EPT E, JE)	2000	1 101
C124	1-135-337-11			20%	6. 3V	C235	1-164-937-13	CERAMIC	CHIP	0. 001uF	10%	16V	C501	1-104
C125	1-165-128-11	CERAMIC CHI	P 0. 22uF		16V							EPT E, JE)	C501	1-104
						C301	1-104-630-11	L TANTAL.	CHIP	33uF	20%	6. 3V	C302	1-104
C126	1-164-876-11	CERAMIC CHI	P 120PF	5%	16V	C302	1-164-943-11			0. 01uF	10%	16V	CCOO	1 104
C129	1-164-949-11	CERAMIC CHI	P 0.047uF		16V	C303	1-135-259-11						C503	1-104
C131	1-107-812-11			20%	6. 3V		. 100 200 11	I INNIAL.	CITI	10uF	20%	6. 3V	C504	1-107
C133	1-164-937-11			10%	16V	C304	1_164 049 11	CEDANTO	CHID	0 01 5	1.00/	1.01/	C506	1-107
0100	TOT OUT II	ODMINIC CIT	. o. oorur		CEPT E, JE)	C304	1-164-943-11			0. 01uF	10%	16V		
C134	1-164-937-11	CERAMIC CUT	P 0.001uF	10%		C308	1-135-337-11			luF	20%	6. 3V		
0101	2 101 001 11	CLAMINIC CIT	. O. OUTUR		16V	C309	1-135-259-11			10uF	20%	6. 3V		
				(EAL	CEPT E, JE)	C310	1-164-949-11			0. 047uF		16V		
C135	1_164_027_11	CEDAMIC CUT	D 0 001 F	1.00/	1.01*	C311	1-164-943-11	CERAMIC	CHIP	0. 01uF	10%	16V		
(100	1-164-937-11	CERAMIC CHI.	P 0.001uF	1 U%	101	l								

	•																										
	Part No.	Description					Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark Remark	ef. No. Pa	rt No. Description		Remark	Ref. No. I	Part No. De	escription	Remark	Ref. No. Part No.	Description
C314	1-164-943-	11 TANTAL. CHIP 11 CERAMIC CHIP 11 TANTAL. CHIP	22uF 0. 01uF 22uF	20% 10% 20%	16V			1 CERAMIC CHIP 1 TANTAL. CHIP		7 10% 20%				ll TANTAL. CHI 11 CERAMIC CHI		20%	6. 3V 25V		164-949-11 CERAMIC CHIP 164-949-11 CERAMIC CHIP		16V 16V	D304	8-719-046-88 D	OIODE MA2S082 OIODE MA2S082		IC305 8-759-252-90	IC TLV2362IPW-ELM1500
		11 TANTAL. CHIP	10uF	20%		C510 C511	1-164-943-1 1-164-937-1	1 CERAMIC CHIP	0.01uF 0.001uF	10% 10%				11 CERAMIC CHI			16V 6. 3V		164-949-11 CERAMIC CHIP 164-943-11 CERAMIC CHIP		16V 16V		8-719-046-88 D 8-719-989-03 D	NODE MA2S082			IC TLV2362IPW-ELM1500
C318	1-135-259-	11 CERAMIC CHIP 11 TANTAL. CHIP	0. 1uF 10uF	10% 20%	6. 3V	C512 C513	1-164-939-1 1-164-937-1	1 CERAMIC CHIP 1 CERAMIC CHIP	0. 0022u 0. 001uF	ıF 10% F 10%	16V	C582 C586	1-135-208-1 1-164-346-1	1 TANTAL. CHI 1 CERAMIC CHI	P luF P luF	10%	10V	C823 1-	164-936-11 CERAMIC CHIP 164-949-11 CERAMIC CHIP	680PF 10%	16V 16V 16V	D308	8-719-989-00 D 8-719-989-03 D	IODE DA221		IC308 8-759-166-95 IC309 8-759-165-04 IC310 8-759-234-77	IC TK11230MTL
C320	1-135-337-	11 TANTAL. CHIP 11 TANTAL. CHIP 11 TANTAL. CHIP	10uF 1uF 22uF	20% 20% 20%	6. 3V			1 CERAMIC CHIP 1 TANTAL. CHIP		20%				1 CERAMIC CHI					164-949-11 CERAMIC CHIP		16V	D310		IODE MA786WK		IC311 8-759-252-43	IC TK15210MTL
C322	1-135-259-	11 TANTAL. CHIP	10uF	20%		C520	1-164-937-1	1 CERAMIC CHIP 1 CERAMIC CHIP	0.001uF	7 10% 7 10%	16V	C589	1-164-346-1	1 CERAMIC CHI 1 CERAMIC CHI 1 CERAMIC CHI	luF			C830 1-	164-949-11 CERAMIC CHIP 164-346-11 CERAMIC CHIP 165-176-11 CERAMIC CHIP	luF	16V 16V 16V			IODE SB007T03Q IODE SB007-03Q		IC312 8-759-252-43 IC314 8-759-255-51 IC315 8-759-255-51	IC DS1267E-50
C325	1-164-346-	11 CERAMIC CHIP 11 CERAMIC CHIP 11 TANTAL. CHIP	0. 1uF 1uF 10uF	10% 20%	16V			1 TANTAL, CHIP 1 CERAMIC CHIP		10%	20V 16V			1 CERAMIC CHI			16V 16V	C832 1-	165-112-11 CERAMIC CHIP 164-360-11 CERAMIC CHIP	0. 33uF	16V 16V	D506 D601	8-719-046-88 D 8-719-981-25 D	IODE MA2S082 IODE KV1450		IC316 8-759-710-79	IC NJM2107F
C327	1-164-949-	11 CERAMIC CHIP	0. 047uF		16V			1 CERAMIC CHIP 1 CERAMIC CHIP						1 CERAMIC CHI			16V 10V		104-630-11 TANTAL. CHIP 164-937-11 CERAMIC CHIP		6.3V 16V		8-719-938-72 D 8-719-420-79 D	IODE SB01-05CP		IC317 8-759-234-77 IC318 8-759-255-92 IC319 8-759-257-94	IC XC62AP3201MR
C329	1-164-949-	11 CERAMIC CHIP 11 CERAMIC CHIP 11 TANTAL. CHIP			16V	C527	1-162-979-1	1 CERAMIC CHIP 1 CERAMIC CHIP 1 CERAMIC CHIP	0. 0027u	r ıF 10% ıF 10%		C602	1-164-874-1	1 CERAMIC CHIL 1 CERAMIC CHIL 1 CERAMIC CHIL	100PF	5%	16V	C838 1- C839 1-	164-949-11 CERAMIC CHIP 164-949-11 CERAMIC CHIP	0. 047uF 0. 047uF	16V 16V	D803 D804	8-719-989-08 D 8-719-046-84 D	IODE RB717F IODE MA2S728		IC320 8-759-173-00 IC501 8-752-068-49	IC XC61AN1102MR
C333	1-164-360-	11 CERAMIC CHIP 11 TANTAL. CHIP			16V			1 CERAMIC CHIP	100PF		16V			1 CERAMIC CHI					165-112-11 CFRAMIC CHIP 164-949-11 CERAMIC CHIP		16V 16V		8-719-988-82 D 8-719-989-08 D			IC502 8-752-064-33 IC505 8-759-082-60	
		11 TANTAL. CHIP 21 TANTALUM CHIP		20% 20%		C532	1-104-847-1	1 CERAMIC CHIP 1 TANTAL. CHIP 1 TANTAL. CHIP	22uF	1F 10% 20% 20%	4 V	C606	1-162-952-1	1 CERAMIC CHII 1 CERAMIC CHII 1 CERAMIC CHII	82PF		50V	C843 1-	164-949-11 CERAMIC CHIP 164-949-11 CERAMIC CHIP	0.047uF	16V 16V	D809 8	8-719-033-72 L 8-719-989-08 D	IODE RB717F	(REC →)	IC506 8-759-252-31 IC507 8-752-055-94	IC MB88347APFV-EF IC CXA1602R
C337 C338	1-107-812- 1-107-812-	11 TANTAL. CHIP 11 TANTAL. CHIP	4. 7uF 4. 7uF	20% 20%	6. 3V 6. 3V			1 CERAMIC CHIP						1 TANTAL. CHII		20%			164-949-11 CERAMIC CHIP 164-245-11 CERAMIC CHIP		16V 25V	D811 8	8-719-989-08 D 8-719-046-84 D 8-719-046-84 D	IODE MA2S728		IC508 8-759-058-57 IC509 8-759-084-72	
		11 TANTAL. CHIP	33uF 33uF	20% 20%		C536	1-164-943-1	1 CERAMIC CHIP 1 CERAMIC CHIP 1 TANTALUM CHIP	0. 01uF	10% 10% 20%	16V	C624	1-104-700-1	1 CERAMIC CHII 1 CERAMIC CHII 1 CERAMIC CHII	0. 027uF	10%	16V	C5015 1-	164-245-11 CERAMIC CHIP 164-943-11 CERAMIC CHIP	0.01uF 10%	25V 16V	D813 8	8-719-046-84 D	IODE MA2S728		IC510 8-759-058-61 IC511 8-759-252-38	IC TC7S08FU-TE85L IC CXD8498N-ELL2000
C342 C343	1-164-943- 1-164-505-	11 CERAMIC CHIP 11 CERAMIC CHIP	0. 01uF 2. 2uF	10%		C538	1-164-949-1	1 CERAMIC CHIP 1 CERAMIC CHIP	0. 047uF	,	16V	C627	1-164-949-1	1 CERAMIC CHII 1 CERAMIC CHII	0. 047uF		16V	C5022 1-	164-949-11 CERAMIC CHIP 164-363-11 CERAMIC CHIP 164-935-11 CERAMIC CHIP	560PF 5%	16V 50V 16V	D814 8	8-719-046-84 D	IODE MA2S728  FERRITE BEAD >		IC512 8-759-710-79 IC513 8-759-255-49	
		11 TANTAL. CHIP 11 TANTALUM CHIP	2. 2uF 0. 47uF	20% 20%				1 CERAMIC CHIP 1 CERAMIC CHIP		.E 100	16V	C629	1-164-949-1	1 CERAMIC CHIE	0.047uF		16V	C5030 1-	164-941-11 CERAMIC CHIP	0.0047uF 10%	16V		1-414-385-11 II	NDUCTOR, FERRITE BEAD		IC514 8-759-255-51 IC515 8-759-082-60	IC TC7S66FU
C347	1-107-816-	11 CERAMIC CHIP 11 TANTAL. CHIP	0. 1uF 0. 68uF	10 <b>%</b> 20 <b>%</b>	10V	C542 C543	1-104-813-1 1-164-005-1	1 TANTAL. CHIP 1 CERAMIC CHIP	10uF 0. 47uF		16V 16V 25V	C632	1-164-949-1	1 CERAMIC CHIE 1 TANTAL, CHIE	0. 047uF		16V	C5056 1-	107-814-11 TANTAL. CHIP 164-935-11 CERAMIC CHIP 164-937-11 CERAMIC CHIP	470PF 10%	10V 16V 16V	FB203	1-414-385-11 II	NDUCTOR, FERRITE BEAD NDUCTOR, FERRITE BEAD NDUCTOR, FERRITE BEAD	) 1K (EXCEPT E, JE)	IC516 8-759-058-61 IC517 8-759-259-06 IC601 8-752-364-98	IC XC61AN1902MR
C350	1-164-874-	11 CERAMIC CHIP 11 CERAMIC CHIP 11 CERAMIC CHIP	0. 1uF 100PF 0. 047uF	10% 5%				1 CERAMIC CHIP 1 CERAMIC CHIP		100	25V			1 CERAMIC CHIE 1 CERAMIC CHIE			16V		165-176-11 CERAMIC CHIP	(EX	(CEPT E, JE)	FB301	1-414-228-11 II	NDUCTOR, FERRITE BEAD	0 600 (EXCEPT E, JE)	IC602 8-752-363-57	IC CXD2526AR
C352	1-164-949-	11 CERAMIC CHIP	0. 047uF		16V	C546 C547	1-165-176-1 1-164-874-1	1 CERAMIC CHIP 1 CERAMIC CHIP	0. 047uF 100PF	10% 5%	16V 16V	C658 C659	1-164-847-1 1-164-847-1	1 CERAMIC CHIE 1 CERAMIC CHIE	7PF 7PF	0. 5PF 1	16V		164-940-11 CERAMIC CHIP 107-814-11 TANTAL. CHIP		16V 10V	FB303	1-414-228-11 II	NDUCTOR, FERRITE BEAD NDUCTOR, FERRITE BEAD NDUCTOR, FERRITE BEAD	600 (EXCEPT E, JE)	IC603 8-752-365-90 IC604 8-759-255-94 IC605 8-752-362-58	
C355	1-107-813-	11 TANTAL. CHIP 11 TANTAL. CHIP 11 TANTAL. CHIP		20% 20% 20%	6. 3V			1 CERAMIC CHIP 1 CERAMIC CHIP		10%	16V 16V			1 CERAMIC CHIE 1 CERAMIC CHIE			16V	C5096 1-	104-700-11 CERAMIC CHIP 164-940-11 CERAMIC CHIP 107-817-11 TANTAL. CHIP	0.027uF 10% 0.0033uF 10%	16V 16V			NDUCTOR, FERRITE BEAD NDUCTOR, FERRITE BEAD		IC606 8-759-082-61	IC TC4W53FU
		11 CERAMIC CHIP	0. 001uF	10%		C551	1-164-916-1	1 CERAMIC CHIP 1 CERAMIC CHIP	82PF	5%	16V	C663	1-165-112-1	1 CERAMIC CHIE	0. 33uF	;	16V 16V		164-360-11 CERAMIC CHIP		16V	FB601 1	1-414-228-11 II	NDUCTOR, FERRITE BEAD NDUCTOR, FERRITE BEAD	600 (EXCEPT E, JE)	IC607 8-759-710-79 IC608 8-759-255-94 IC801 8-759-252-27	IC XC62AP3102MR
		11 CERAMIC CHIP		(EXCEP	T E, JE)	C553	1-164-949-1	1 CERAMIC CHIP 1 CERAMIC CHIP 1 CERAMIC CHIP	0. 047uF		25V 16V 16V	C801	1-104-813-1	1 CERAMIC CHIE 1 TANTAL. CHIE 1 CERAMIC CHIE	10uF	20%			< CONNECTOR	>		FB603 1	1-414-228-11 I	NDUCTOR, FERRITE BEAD NDUCTOR, FERRITE BEAD NDUCTOR, FERRITE BEAD	0 600 (EXCEPT E, JE)	IC802 8-759-252-54	
		11 CERAMIC CHIP		(EXCEP	T E, JE)			1 CERAMIC CHIP 1 TANTAL, CHIP		5% 20%		C803	1-164-940-11	1 CERAMIC CHIF 1 CERAMIC CHIF	0. 0033uF	10%	16V	CN801 1-	573-931-11 CONNECTOR, F1 573-927-11 CONNECTOR, F1	FC/FPC (ZIF) 18P		FB623 1	1-414-385-11 I!	NDUCTOR, FERRITE BEAD	) 1K (EXCEPT E, JE)	IC804 8-759-252-57 IC805 8-752-852-81	IC CXP81848-603R
C501	1-104-929-	11 TANTAL. CHIP	22uF	(EXCEP 20%	T E, JE) 6. 3V	C557 C558	1-164-949-1 1-164-949-1	1 CERAMIC CHIP 1 CERAMIC CHIP	0. 047uF 0. 047uF		16V 16V	C806	1-164-943-1	1 CERAMIC CHIF 1 CERAMIC CHIF 1 CERAMIC CHIF	0. 01uF		16V	CN803 1-	573-346-21 CONNECTOR, F1 573-357-11 CONNECTOR, F1 573-928-11 CONNECTOR, F1	FC/FPC 17P		FB840 1		NDUCTOR, FERRITE BEAD	0 600 (EXCEPT E, JE)	IC806 8-759-252-29 IC807 8-759-255-94 IC808 8-759-082-61	IC XC62AP3102MR
		11 TANTAL. CHIP		20% 20%	İ			1 TANTAL. CHIP 1 CERAMIC CHIP		20%				1 CERAMIC CHIF 1 CERAMIC CHIF		0. 5PF 1			< DIODE >	, , ==•			8-759-257-94 IO	C TK11245AMTL		IC809 8-759-288-49	IC XC61AN2202MR
C504	1-107-811-3	11 TANTAL. CHIP	47uF	20% 20%	4V	C567	1-164-949-1	1 CERAMIC CHIP 1 CERAMIC CHIP	0.047uF		16V 16V	C811	1-164-949-11	1 CERAMIC CHIF 1 CERAMIC CHIF	0.047uF	]	16V		719-046-90 DIODE MA2S 719-046-90 DIODE MA2S			IC303 8	8-759-512-62 IC	C NJM4580E-D C CXA1497N C TLV2362IPW-ELM150	00	IC810 8-759-259-06 IC811 8-759-058-57	

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MAIN

MAIN

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(EXCEPT E, JE) | C312 1-135-259-11 TANTAL. CHIP 10uF 20% 6.3V

C135 1-164-937-11 CERAMIC CHIP 0.001uF 10% 16V

Ref. No	o. Part No.	Description	on	Remark	Ref. No.	Part No.	Description				
		< JACK >	_		Q514						Remark
100					W314	8-729-024-46	TRANSISTOR	2SK203	5		
J201 J301	1 8-759-252-45 1 1-764-460-21	JACK (MIC.	SR (OPT/LINE IN) PLUG IN POWER)		Q515 Q801	8-729-930-13	TRANSISTOR	UMH2			
J302	2 1-764-453-11	JACK (O/F	REMOTE)		Q802	8-729-927-99 8-729-930-00	TRANSISTOR	2SC461	7		
J303	3 1-764-460-11	JACK (LINE	E OUT)		Q803	8-729-928-81	TRANSISTOR	UMD2 DTC144I	7 E		
		< COIL >			Q804	8-729-928-81	TRANSISTOR	DTC144E			
		COIL /			Q805	9 700 007 00	TD INC. COC.				
L308	1-412-988-11	INDUCTOR	5. 6uH (EXCEPT E, JE)		Q806	8-729-927-99 8-729-928-81	TRANSISTOR	2SC4617			
L501 L502	1-414-410-21	INDUCTOR (	SMALL TYPE) 10. OuH		Q808	8-729-930-00	TRANSISTOR	DTC144E UMD2	LE		
L502		INDUCTOR (	·		Q809	8-729-023-89	TRANSISTOR	2SJ305			
L504		COIL, CHOK	SMALL TYPE) 10.0uH E 68uH				/ DEGramon :				
1.505							< RESISTOR >				
L505 L506	1-414-410-21 1-414-203-11	INDUCTOR (	SMALL TYPE) 10.0uH	ļ	R101	1-208-703-11	METAL CHIP	6. 8K	0.50	% 1/16Y	7
L507		INDUCTOR	100UH 100H	J	R102	1-218-975-11	METAL GLAZE	68K	5%	1/16	
L508	1-414-203-11	INDUCTOR	100uH		R103 R107	1-216-864-11 1-208-699-11	METAL CHIP	0	5%	1/16	(E, JE)
L509	1-414-203-11	INDUCTOR	100uH		R108	1-208-679-11	METAL CHIP	4. 7K 680		% 1/16W	
L603	1-414-357-41	INDUCTOR	111	1				000	0. 30,	6 1/16W	
L801	1-412-031-11	INDUCTOR C	IUH HTP 47:14		R110	1-220-398-11	METAL GLAZE	1.5M	5%	1/16	•
		INDUCTOR C	III 4(UII	İ	R111 R112	1-218-734-11	METAL CHIP	56K		6 1/16W	
		< LINE FILT	TER >		R114	1-208-714-11 1-208-715-11	WEIAL CHIP	20K		6 1/16W	
1 5200	2 1 402 601 01	D11.000		Ì	R115	1-208-681-11	METAL CHIP	22K 820		6 1/16W 6 1/16W	
LF302	2 1-403-601-21	FILTER, COM	MMON MODE MMON MODE (EXCEPT E, JE)					020	0.00%	) 1/10#	
LF304	1-403-601-21	FILTER, COM	IMON MODE (EXCEPT E, JE)	}	R116	1-208-715-11	METAL CHIP	22K		1/16W	
			MODE (EACEL I E, JE)	-	R117 R118	1-208-715-11 1-208-715-11	METAL CHIP	22K		1/16W	
	•	< TRANSISTO	OR >	ļ	R119	1-208-683-11	METAL CHIP	22K 1K		1/16W 1/16W	
Q101	8-729-929-32	TDANC I CTAD	DTC1 ( ATD		R120	1-208-683-11	METAL CHIP	1K		1/16W	
Q102	8-729-144-16	TRANSISTOR	DTC144TE 2SD2228-D44D45		D101	1 000 515				2, 2011	
Q201	8-729-929-32 1	TRANSISTOR	DTC144TE	1	R121 R122	1-208-715-11   1-208-715-11	METAL CHIP	22K		1/16W	
Q202	8-729-144-16 1	TRANSISTOR	2SD2228-D44D45		R123	1-218-734-11	METAL CHIP	22K 56K	0.50%	1/16W 1/16W	
Q302	8-729-930-13 1	RANSISTOR	UMH2	į	R124	1-208-715-11	METAL CHIP	22K		1/16W	
Q303	8-729-928-81 T	RANSISTOR	DTC144EE		R125	1-208-715-11	METAL CHIP	22K		1/16W	
Q304	8-729-144-16 T	RANSISTOR	2SD2228-D44D45		R126	1-218-736-11 M	METAL CHID	COV	0 500	1 /100	
Q305	8-729-928-31 T	RANSISTOR	DTA114YE		R127	1-208-719-11 M	METAL CHIP	68K 33K	0.50% 0.50%		
Q306 Q307	8-729-927-99 T 8-729-928-81 T	RANSISTOR	2SC4617 DTC144EE		R128	1-208-719-11 N	METAL CHIP	33K			
QOO!	0 123 320 01 1	MAISISION	DICIAACE		R129 R130	1-218-736-11 M	METAL CHIP	68K	0.50%	1/16W	
Q308	8-729-928-81 T	RANSISTOR	DTC144EE		K130	1-208-696-11 M	METAL CHIP	3. 6K	0.50%	1/16₩	
Q309	8-729-930-00 T	RANSISTOR	UMD2	1	R131	1-208-685-11 M	ETAL CHIP	1 2K	0.50%	1 /1 CW	
Q310 Q311	8-729-930-05 T 8-729-930-00 T	RANSISTOR PANSISTOR	UMD3 UMD2		R132	1-218-989-11 M	ETAL GLAZE	1M	5%	1/16W	
Q312	8-729-928-19 T	RANSISTOR	2SA1774R	j	R133	1-216-789-11 M	ETAL CHIP	2. 2	5%	1/16₩	
					R134 R135	$\begin{array}{c} 120868311 \text{ M} \\ 121686411 \text{ M} \end{array}$	ETAL CHIP	1K	0.50%		<b>-</b>
Q313	8-729-930-05 TI	RANSISTOR	UMD3	1	00	- 910 004-11 W	PIVE CUIL	0	5%	1/16₩	(E, JE)
Q501 Q502	8-729-422-39 TE 8-729-928-27 TE	RANSISTOR	XN4404	İ	R136	1-218-990-11 M	ETAL GLAZE	0	5%	1/16W	
Q503	8-729-928-85 TF	RANSISTOR	DTA144EE DTC114YE		R139	1-218-945-11 M	ETAL GLAZE	220	5%	1/16W	
Q506	8-729-923-45 TF	RANSISTOR	2SB1308-QR		R140 R141	1-218-945-11 M 1-218-977-11 M	ETAL GLAZE			1/16W	
0500					R141	1-218-977-11 M 1-218-990-11 M	ETAL GLAZE	_		1/16W	
Q508 Q510	8-729-928-81 TF	RANSISTOR	DTC144EE					V	JA	1/16₩	
Q510 Q511	8-729-023-89 TF 8-729-927-59 TF	MUSISTOR	2SJ305 UMZ1	1	R143	1-218-990-11 MJ	ETAL GLAZE	0	5%	1/16W	(E, JE)
Q512	8-729-928-27 TR	RANSISTOR	DTA144EE	}	R144 R201	1-218-990-11 MI	ETAL GLAZE		5%	1/16W	(E, JE)
				1	11001	1-208-703-11 MI	DIAL CHIP	6. 8K	0.50%	1/16W	

R202   1-218-975-11 METAL CHIP   CSM   SM   1/169   CSM	Ref. No.	Part No.	Description				Remark	Ref. No.	Part No.	Description				Remark
R207   1-208-699-11 METAL CHIP   4.7%   0.50% 1/16F   R208   1-208-679-11 METAL CHIP   40.0   0.50% 1/16F   R208   1-208-679-11 METAL CHIP   40.0   0.50% 1/16F   R201   1-218-985-11 METAL CHIP   33%   0.50% 1/16F   R201   1-218-985-11 METAL CHIP   20.0   0.50% 1/16F   R201   1-218-985-11 METAL CHIP   20.0   0.50% 1/16F   R201   1-208-6715-11 METAL CHIP   22%   0.50% 1/16F   R201   1-208-6715-11 METAL CHIP   22%   0.50% 1/16F   R201   1-208-681-11 METAL CHIP   22%   0.50% 1/16F   R201   1-208-683-11 METAL CHIP   22%   0.50% 1/16F   R202   1-208-683-11 METAL CHIP   22%   0.50% 1/16F   R202   1-208-683-11 METAL CHIP   22%   0.50% 1/16F   R202   1-208-683-11 METAL CHIP   22%   0.50% 1/16F   R202   1-208-683-11 METAL CHIP   22%   0.50% 1/16F   R202   1-208-683-11 METAL CHIP   22%   0.50% 1/16F   R202   1-208-683-11 METAL CHIP   22%   0.50% 1/16F   R202   1-208-683-11 METAL CHIP   22%   0.50% 1/16F   R202   1-208-683-11 METAL CHIP   22%   0.50% 1/16F   R202   1-208-683-11 METAL CHIP   22%   0.50% 1/16F   R202   1-208-683-11 METAL CHIP   22%   0.50% 1/16F   R202   1-208-683-11 METAL CHIP   22%   0.50% 1/16F   R202   1-208-715-11 METAL CHIP   0.50% 1/16F   R202   1-208-715-11 METAL CHI														
R203   1-208-679-11 METAL CHIP   S8D   D. 50% 1/16%   R323   1-208-719-11 METAL CHIP   S8K   D. 50% 1/16%   R324   1-218-736-11 METAL CHIP   S6K   D. 50% 1/16%   R324   1-218-736-11 METAL CHIP   S6K   D. 50% 1/16%   R325   1-208-689-11 METAL CHIP   S6K   D. 50% 1/16%   R326   1-218-969-11 METAL CHIP   Z6K   D. 50% 1/16%   R326   1-218-969-11 METAL CHIP   Z6K   D. 50% 1/16%   R326   1-218-969-11 METAL CHIP   Z6K   D. 50% 1/16%   R328   1-208-699-11 METAL CHIP   Z6K   D. 50% 1/16%   R329   1-208-699-11 METAL CHIP   Z6K   D. 50% 1/16%   R329   1-208-715-11 METAL CHIP   Z6K   D. 50% 1/16%   R329   1-218-955-11 METAL CHIP   Z6K   D. 50% 1/16%   R329   1-218-715-11 METAL CHIP   Z6K   D. 50%	R203	1-216-864-11	METAL CHIP	U	5%	1/16W	(E, JE)	R320	1-216-861-11	METAL CHIP	2. 2M	5%	1/16₩	
### ### ### ### ### ### ### ### ### ##														
R214   1-218-734-11 METAL CHIP   56K   0.50K 1/16W   R325   1-2216-855-11 METAL CHIP   2.0K   0.50K 1/16W   R325   1-220-162-11 METAL CHIP   2.0K   0.50K 1/16W   R325   1-220-162-11 METAL CHIP   2.0K   0.50K 1/16W   R325   1-220-162-11 METAL CHIP   2.0K   0.50K 1/16W   R326   1-208-831-11 METAL CHIP   2.0K   0.50K 1/16W   R327   1-208-831-11 METAL CHIP   2.0K   0.50K 1/16W   R327   1-208-831-11 METAL CHIP   2.0K   0.50K 1/16W   R328   1-208-715-11 METAL CHIP   2.0K   0.50K 1/16W   R328   1-208-715-11 METAL CHIP   2.0K   0.50K 1/16W   R329   1-208-715-11 METAL CHIP   2.0K   0.50K 1/16W   R329   1-208-715-11 METAL CHIP   2.0K   0.50K 1/16W   R329   1-208-715-11 METAL CHIP   2.0K   0.50K 1/16W   R329   1-208-715-11 METAL CHIP   2.0K   0.50K 1/16W   R329   1-208-715-11 METAL CHIP   2.0K   0.50K 1/16W   R329   1-218-95-11 METAL CHIP   2.0K   0.50K 1/16W   R329   1-218-75-11 METAL CHIP   2.0K   0.50K 1/16W   R329   1-218-75-11 METAL CHIP   2.0K   0.50K 1/16W   R329   1-218-75-11 METAL CHIP   2.0K   0.50K 1/16W   R329   1-218-738-11 METAL CHIP   2.0K   0.50K 1/16W														
R212   1-208-714-11 METAL CHIP   20K   0.50K 1/16F   R325   1-220-162-11 METAL CHIP   2.2K   0.50K 1/16F   R326   1-208-691-11 METAL CHIP   2.2K   0.50K 1/16F   R326   1-208-691-11 METAL CHIP   2.2K   0.50K 1/16F   R326   1-208-691-11 METAL CHIP   2.2K   0.50K 1/16F   R328   1-208-691-11 METAL CHIP   2.2K   0.50K 1/16F   R328   1-208-691-11 METAL CHIP   2.2K   0.50K 1/16F   R328   1-208-715-11 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-715-11 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-715-11 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-715-11 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-715-11 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-715-11 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-715-11 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-715-11 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-715-1 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-715-11 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-715-11 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-715-11 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-715-1 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-715-1 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-715-1 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-715-1 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-715-1 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-715-1 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-715-1 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-715-1 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-715-1 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-710-1 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-710-1 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-710-1 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-710-1 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-710-1 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-710-1 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-710-1 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-710-1 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-710-1 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-710-1 METAL CHIP   2.2K   0.50K 1/16F   R329   1-208-														
R214   1-208-715-11 METAL CHIP   22X   0.50X 1/16V   R225   1-208-861-11 METAL CHIP   22X   0.50X 1/16V   R227   1-208-861-11 METAL CHIP   22X   0.50X 1/16V   R227   1-208-715-11 METAL CHIP   22X   0.50X 1/16V   R227   1-208-715-11 METAL CHIP   22X   0.50X 1/16V   R227   1-208-715-11 METAL CHIP   22X   0.50X 1/16V   R228   1-208-715-11 METAL CHIP   22X   0.50X 1/16V   R229   1-208-715-11 METAL CHIP   22X   0.50X 1/16V   R229   1-208-715-11 METAL CHIP   22X   0.50X 1/16V   R220   1-208-863-11 METAL CHIP   22X   0.50X 1/16V   R220   1-208-715-11 METAL CHIP   22X   0.50X 1/16V   R220   1-208-720-11 METAL CHIP													-	
R225   1-208-80-11-11 METAL CHIP   820	NZ1Z	1 200 /14 11	METAL CITT	ZUK	0. 30%	1/10#		K323	1-220-102-11	METAL GLAZE	20	576	1/10#	
R216   1-208-715-11 METAL CHIP   22K   0.50K 1/16F   R229   1-208-715-11 METAL CHIP   22K   0.50K 1/16F   R230   1-208-715-11 METAL CHIP   25K   0.50K 1/16F   R230   1-208-715-11 METAL CHIP   22K   0.50K 1/16F   R230   1-208-715-11 METAL CHIP   22K   0.50K 1/16F   R230   1-208-715-11 METAL CHIP   35K   0.50K 1/16F   R230   1-208-720-11 METAL CHIP   35K   0.50K 1/16F   R230   1-208-720-11 METAL CHIP   35K   0.50K 1/16F   R230   1-208-685-11 METAL CHIP   3.6K   0.50K 1/16F   R230   1-218-990-11														
R217   1-208-715-11 METAL CHIP   22K   0.50k 1/16V   R330   1-208-715-11 METAL CHIP   22K   0.50k 1/16V   R330   1-208-715-11 METAL CHIP   22K   0.50k 1/16V   R331   1-218-95-11 METAL CHIP   22K   0.50k 1/16V   R332   1-218-95-11 METAL CHIP   22K   0.50k 1/16V   R332   1-218-95-11 METAL CHIP   22K   0.50k 1/16V   R332   1-218-95-11 METAL CHIP   22K   0.50k 1/16V   R334   1-218-95-11 METAL CHIP   22K   0.50k 1/16V   R334   1-218-95-11 METAL CHIP   22K   0.50k 1/16V   R334   1-218-95-11 METAL CHIP   22K   0.50k 1/16V   R335   1-208-715-11 METAL CHIP   22K   0.50k 1/16V   R335   1-208-710-11 METAL CHIP   22K   0.50k 1/16V   R335   1-208-710-11 METAL CHIP   30K   0.50k 1/16V   R346   1-208-720-11 METAL CHIP   30K   0.50k 1/16V   R346   1-218-940-11 METAL CHIP   30K   0.50k 1/16V   R351   1-208-868-11 METAL CHIP   30K														
R218   1-208-715-11 METAL CHIP   22K   0.50% 1/16W   R330   1-208-715-11 METAL CHIP   22K   0.50% 1/16W   R320   1-208-768-31 METAL CHIP   1K   0.50% 1/16W   R332   1-218-965-11 METAL GLAZE   68K   5K   1/16W   R322   1-218-965-11 METAL GLAZE   10K   5K   1/16W   R333   1-208-999-11 METAL GLAZE   10K   5K   1/16W   R334   1-208-709-11 METAL GLAZE   10K   5K   1/16W   R336   1-208-715-11 METAL GLAZE   10K   5K   1/16W   R334   1-208-720-11 METAL GLAZE   10K   5K   1/16W   R334   1-218-990-11 METAL GLAZE   10K   5K   1/16W   R334   1-218-990-11 METAL GLAZE   10K   5K   1/16W   R335   1-218-990-11 METAL GLAZE   10K   5K   1/16W   R335   1-218-990-11 METAL GLAZE   10K   5K   1/16W   R335   1-218-990-11 METAL GLAZE   10K   5K   1/16W   R336   1-218-990-11 METAL GLAZE   10K   5K   1/16W   R336   1-218-990-11 METAL GLAZE   10K   5K   1/16W   R336   1-218-990-11 METAL GLAZE   10K   5K   1/16W   R336   1-218-990-11 METAL GLAZE   10K   5K   1/16W   R336   1-218-990-11 METAL GLAZE   10K   5K   1/16W   R336   1-218-990-11 METAL GLAZE   10K   5K   1/16W   R336   1-218-990-11 METAL GLAZE   10K   5K   1/16W   R336   1-218-990-11 METAL GLAZE														
R219														
R220   1-208-183-11 METAL CHIP   IX   0.50% 1/16F   R332   1-218-965-11 METAL CHIP   22K   0.50% 1/16F   R334   1-218-965-11 METAL CHIP   27K   0.50% 1/16F   R335   1-208-715-11 METAL CHIP   22K   0.50% 1/16F   R335   1-208-715-11 METAL CHIP   22K   0.50% 1/16F   R335   1-208-715-11 METAL CHIP   22K   0.50% 1/16F   R336   1-208-715-11 METAL CHIP   22K   0.50% 1/16F   R346   1-218-97-11 METAL CHIP   26K   0.50% 1/16F   R346   1-218-97-11 METAL CHIP   36K   0.50% 1/16F   R346   1-218-97-11 METAL CHIP   36K   0.50% 1/16F   R346   1-218-97-11 METAL CHIP   36K   0.50% 1/16F   R346   1-218-967-11 METAL CHIP   36K   0.50% 1/16F   R346   1-218-990-11 METAL CHIP   36K   0.50% 1/16F   R346   1-218-990-11 METAL CHIP   36K   0.50% 1/16F   R355   1-218-990-11 METAL CHIP   36K   0.50% 1/16F   R355   1-218-990-11 METAL CHIP   36K   0.50% 1/16F   R355   1-218-990-11 METAL CHIP   36K   0.50% 1/16F   R355   1-218-990-11 METAL CHIP   36K   0.50% 1/16F   R355   1-218-990-11 METAL CHIP   36K   0.50% 1/16F   R355   1-218-990-11 METAL CHIP   36K   0.50% 1/16F   R355   1-218-990-11 METAL CHIP   36K   0.50% 1/16F   R355   1-218-990-11 METAL CHIP   36K   0.50% 1/16F   R355   1-218-990-11 METAL CHIP   36K   0.50% 1/16F   R355   1-218-990-11 METAL CHIP   36K   0.50% 1/16F   R355   1-218-990-11 METAL CHIP   36K   0.50% 1/16F   R355   1-218-990-11 METAL CHIP   36											5511	0. 00%		
R221   1-208-T15-11 METAL CHIP   22K   0.50K   1/16V   R334   1-218-969-11 METAL CHIP   22K   0.50K   1/16V   R335   1-208-715-11 METAL CHIP   22K   0.50K   1/16V   R335   1-208-720-11 METAL CHIP   22K   0.50K   1/16V   R345   1-208-720-11 METAL CHIP   2.2   5K   1/16V   R225   1-208-715-11 METAL CHIP   33K   0.50K   1/16V   R345   1-208-720-11 METAL CHIP   36K   0.50K   1/16V   R346   1-218-967-11 METAL CHIP   36K   0.50K   1/16V   R348   1-218-977-11 METAL CHIP   3.6K   0.50K   1/16V   R348   1-218-977-11 METAL CHIP   3.6K   0.50K   1/16V   R348   1-218-977-11 METAL CHIP   3.6K   0.50K   1/16V   R345   1-218-990-11 METAL CHIP   3.6K   0.50K   1/16V   R348   1-218-997-11 METAL CHIP   3.6K   0.50K   1/16V   R345   1-218-990-11 METAL CHIP   3.6K   0.50K   1/16V   R351   1-218-990-11 METAL CHIP   3.6K   0.50K   1/16V   R351   1-218-990-11 METAL CHIP   3.6K   0.50K   1/16V   R351   1-218-990-11 METAL CHIP   3.6K   0.50K   1/16V   R351   1-218-990-11 METAL CHIP   3.6K   0.50K   1/16V   R351   1-218-990-11 METAL CHIP   3.6K   0.50K   1/16V   R351   1-218-990-11 METAL CHIP   3.6K   0.50K   1/16V   R351   1-218-990-11 METAL CHIP   3.6K   0.50K   1/16V   R351   1-218-990-11 METAL CHIP   3.6K   0.50K   1/16V   R351   1-218-990-11 METAL CHIP   0.5K   1/16V   R351   1-218-990-11 METAL														
R222   1-208-715-11 METAL CHIP   22K   0.50K   1/16W   R334   1-218-965-11 METAL CHIP   22K   0.50K   1/16W   R335   1-208-715-11 METAL CHIP   22K   0.50K   1/16W   R335   1-208-715-11 METAL CHIP   22K   0.50K   1/16W   R336   1-208-715-11 METAL CHIP   22K   0.50K   1/16W   R344   1-218-977-11 METAL CHIP   36K   0.50K   1/16W   R346   1-218-967-11 METAL CHIP   36K   0.50K   1/16W   R346   1-218-990-11 METAL CHIP   36K   0.50K   1/16W   R346   1-								1						
R223   1-218-734-11 METAL CHIP   56K   0.50K 1/16W   R335   1-208-715-11 METAL CHIP   22K   0.50K 1/16W   R345   1-208-715-11 METAL CHIP   22K   0.50K 1/16W   R343   1-208-710-11 METAL CHIP   36K   0.50K 1/16W   R343   1-208-710-11 METAL CHIP   36K   0.50K 1/16W   R343   1-208-710-11 METAL CHIP   36K   0.50K 1/16W   R345   1-208-710-11 METAL CHIP   36K   0.50K 1/16W   R345   1-208-710-11 METAL CHIP   36K   0.50K 1/16W   R345   1-208-710-11 METAL CHIP   36K   0.50K 1/16W   R345   1-208-70-11 METAL CHIP   36K   0.50K 1/16W   R345   1-218-967-11 METAL CHIP   3.6K   0.50K 1/16W   R345   1-218-967-11 METAL CHIP   3.6K   0.50K 1/16W   R345   1-218-967-11 METAL CHIP   3.6K   0.50K 1/16W   R345   1-218-990-11 METAL CHIP   3.6K   3.6K   3.6K   3.6K   3.6K   3														
R224   1-208-715-11   METAL CHIP   22%   0.50% 1/16W   R347   1-218-977-11   METAL CHIP   22%   0.50% 1/16W   R343   1-208-720-11   METAL CHIP   36%   0.50% 1/16W   R344   1-218-977-11   METAL CHIP   36%   0.50% 1/16W   R346   1-218-967-11   METAL CHIP   1.2%   0.50% 1/16W   R348   1-218-967-11   METAL CHIP   1.2%   0.50% 1/16W   R348   1-218-967-11   METAL CHIP   1.2%   0.50% 1/16W   R348   1-218-997-11   METAL CHIP   1.2%   0.50% 1/16W   R351   1-218-990-11   METAL CHIP   0.5% 1/16W   R351   1-218-990-11   METAL CHIP   0.5% 1/16W   R353   1-218-990-11   METAL CHIP   0.5% 1/16W   R353   1-218-990-11   METAL CHIP   0.5% 1/16W   R353   1-218-990-11   METAL CHIP   0.5% 1/16W   R353   1-218-990-11   METAL CHIP   0.5% 1/16W   R353   1-218-990-11   METAL CHIP   0.5% 1/16W   R355   1-218-990-11   METAL CHIP   0.5% 1/16W   R355   1-218-990-11   METAL CHIP   0.5% 1/16W   R355   1-218-990-11   METAL CHIP   0.5% 1/16W   R355   1-218-990-11   METAL CHIP   0.5% 1/16W   R355   1-218-990-11   METAL CHIP   0.5% 1/16W   R355   1-218-990-11   METAL CHIP   0.5% 1/16W   R356   1-218-990-11   METAL CHIP   0.5% 1/16W   R356   1-218-990-11   METAL CHIP   0.5% 1/16W   R356   1-218-990-11   METAL CHIP   0.5% 1/16W   R356   1-218-990-11   METAL CHIP   0.5% 1/16W   R356   1-218-990-11   METAL CHIP   0.5% 1/16W   R356   1-218-990-11   METAL CHIP   0.5% 1/16W   R356   1-218-990-11   METAL CHIP   0.5% 1/16W   R356   1-218-990-11   METAL CHIP   0.5% 1/16W   R356   1-218-990-11   METAL CHIP   0.5% 1/16W   R366   1-218-990-11														
R225   1-208-715-11 METAL CHIP   22K   0.50K   1/16W   R344   1-218-977-11 METAL CHIP   36K   0.50K   1/16W   R344   1-218-977-11 METAL CHIP   36K   0.50K   1/16W   R345   1-208-720-11 METAL CHIP   36K   0.50K   1/16W   R346   1-218-967-11 METAL CHIP   1.2K   0.50K   1/16W   R348   1-218-977-11 METAL CHIP   1.2K   0.50K   1/16W   R351   1-218-990-11 METAL CHIP   1.2K   0.50K   1/16W   R352   1-218-990-11 METAL CHIP   1.2K   0.50K   1/16W   R352   1-218-990-11 METAL CHIP   1.2K   0.50K   1/16W   R352   1-218-990-11 METAL CHIP   1.2K   0.50K   1/16W   R352   1-218-990-11 METAL CHIP   1.2K   0.50K   1/16W   R353   1-218-990-11 METAL CHIP   1.2K   0.50K   1/16W   R353   1-218-990-11 METAL CHIP   1.2K   0.50K   1/16W   R355   1-218-990-11 METAL CHIP   1.2K   0.50K   1/16W   R356   1-218-990-11 METAL CHIP   1.2K   0.50K   1/16W   R356   1-218-990-11 METAL CHIP   1.2K   0.50K   1/16W   R356   1-218-990-11 METAL CHIP   1.2K   0.50K   1/16W   R356   1-218-990-11 METAL CHIP   30K   0.50K   1/16W   R356   1-218-990-11 METAL CHIP   0.5K   1/16W   R356   1-218-990-11 META				0011				Roos	1 200 713 11	MIDIAL CITT	22N	0.30%	1/10#	
R226   -218-736-11 METAL CHIP   68K   0.50% 1/16W   R345   1-208-712-11 METAL GLAZE   100K   5% 1/16W   R345   1-208-712-11 METAL GLAZE   100K   5% 1/16W   R345   1-208-712-11 METAL GLAZE   100K   5% 1/16W   R345   1-208-722-11 METAL GLAZE   100K   5% 1/16W   R346   1-218-907-11 METAL GLAZE   100K   5% 1/16W   R347   1-218-907-11 METAL GLAZE   100K   5% 1/16W   R348   1-218-907-11 METAL GLAZE   100K   5% 1/16W   R348   1-218-907-11 METAL GLAZE   100K   5% 1/16W   R348   1-218-907-11 METAL GLAZE   100K   5% 1/16W   R348   1-218-907-11 METAL GLAZE   100K   5% 1/16W   R352   1-218-909-11 METAL GLAZE   100K   5% 1/16W   R352   1-218-909-11 METAL GLAZE   100K   5% 1/16W   R353   1-218-909-11 METAL GLAZE   100K   5% 1/16W   R353   1-218-907-11 METAL GLAZE   100K   5% 1/16W   R355   1-218-907-11 METAL GLAZE   100K   5% 1/16W   R355   1-218-907-11 METAL GLAZE   100K   5% 1/16W   R355   1-218-907-11 METAL GLAZE   100K   5% 1/16W   R356   1-218-907-11 METAL GLAZE   100K   5% 1/16W   R356   1-218-907-11 METAL GLAZE   100K   5% 1/16W   R356   1-218-907-11 METAL GLAZE   100K   5% 1/16W   R356   1-218-907-11 METAL GLAZE   100K   5% 1/16W   R356   1-218-907-11 METAL GLAZE   100K   5% 1/16W   R356   1-218-907-11 METAL GLAZE   100K   5% 1/16W   R356   1-218-907-11 METAL GLAZE   100K   5% 1/16W   R356   1-218-907-11 METAL GLAZE   100K   5% 1/16W   R356   1-218-907-11 METAL GLAZE   100K   5% 1/16W   R356   1-218-907-11 METAL GLAZE   100K   5% 1/16W   R356   1-218-907-11 METAL GLAZE   100K   5% 1/16W   R356   1-218-907-11 METAL GLAZE   100K   5% 1/16W   R350   1-218-907-11 METAL GLAZE   100K   5% 1/16W   R350   1-218-907-11 METAL GLAZE   100K   5% 1/16W   R350   1-218-907-11 METAL GLAZE   100K   5% 1/16W   R350   1-218-907														
R227 1-208-719-11 METAL CHIP 33K 0.50% 1/16W R346 1-218-967-11 METAL CHIP 15K 5% 1/16W R346 1-218-967-11 METAL CHIP 15K 5% 1/16W R346 1-218-967-11 METAL CHIP 15K 5% 1/16W R346 1-218-967-11 METAL CHIP 15K 5% 1/16W R346 1-218-967-11 METAL CHIP 15K 5% 1/16W R346 1-218-967-11 METAL CHIP 10K 5% 1/16W R346 1-218-967-11 METAL CHIP 10K 0.50% 1/16W R348 1-218-977-11 METAL CHIZE 0 5% 1/16W (E, JE) R330 1-218-989-11 METAL CHIP 1.2K 0.50% 1/16W R351 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE) R333 1-216-789-11 METAL CHIZE 1 M 5% 1/16W R352 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE) R333 1-216-789-11 METAL CHIZE 0 5% 1/16W (E, JE) R333 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE) R335 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE) R335 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE) R335 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE) R335 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE) R335 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE) R335 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE) R355 1-218-995-11 METAL CHIZE 0 5% 1/16W (E, JE) R355 1-218-995-11 METAL CHIZE 0 5% 1/16W (E, JE) R356 1-218-995-11 METAL CHIZE 0 5% 1/16W (E, JE) R358 1-208-719-11 METAL CHIZE 0 5% 1/16W (E, JE) R358 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE) R358 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE) R359 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE) R359 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE) R359 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE) R359 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE) R359 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE) R359 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE) R359 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE) R359 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE) R359 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE) R359 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE) R359 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE) R359 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE) R359 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE) R359 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE) R359 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE) R359 1-218-990-11 METAL CHIZE 0 5% 1/16W (E, JE														
R228 1-208-719-11 METAL CHIP 33K 0.50% 1/16\( \) R346 1-218-967-11 METAL CLIZE 15K 5% 1/16\( \) R230 1-208-695-11 METAL CHIP 3.6\( \) 0.50% 1/16\( \) R348 1-218-977-11 METAL GLAZE 100K 5% 1/16\( \) R348 1-218-977-11 METAL GLAZE 100K 5% 1/16\( \) R348 1-218-977-11 METAL GLAZE 100K 5% 1/16\( \) R348 1-218-977-11 METAL GLAZE 100K 5% 1/16\( \) R348 1-218-977-11 METAL GLAZE 100K 5% 1/16\( \) R352 1-218-989-11 METAL GLAZE 100K 5% 1/16\( \) R353 1-218-989-11 METAL GLAZE 100K 5% 1/16\( \) R353 1-218-977-11 METAL GLAZE 100K 5% 1/16\( \) R354 1-218-990-11 METAL GLAZE 20 5% 1/16\( \) R355 1-218-977-11 METAL GLAZE 470K 5% 1/16\( \) R356 1-218-990-11 METAL GLAZE 20 5% 1/16\( \) R356 1-218-997-11 METAL GLAZE 470K 5% 1/16\( \) R357 1-208-721-11 METAL GLAZE 470K 5% 1/16\( \) R358 1-208-721-11 METAL GLAZE 470K 5% 1/16\( \) R358 1-208-721-11 METAL GLAZE 470K 5% 1/16\( \) R358 1-208-721-11 METAL GLAZE 470K 5% 1/16\( \) R358 1-208-721-11 METAL GLAZE 470K 5% 1/16\( \) R358 1-208-721-11 METAL GLAZE 470K 5% 1/16\( \) R358 1-208-721-11 METAL GLAZE 470K 5% 1/16\( \) R359 1-218-965-11 METAL GLAZE 470K 5% 1/16\( \) R359 1-218-965-11 METAL GLAZE 50 5% 1/16\( \) R359 1-218-965-11 METAL GLAZE 50 5% 1/16\( \) R361 1-218-965-11 METAL GLAZE 50 5% 1/16\( \) R361 1-218-965-11 METAL GLAZE 50 5% 1/16\( \) R361 1-218-965-11 METAL GLAZE 50 5% 1/16\( \) R361 1-218-965-11 METAL GLAZE 50 5% 1/16\( \) R361 1-218-965-11 METAL GLAZE 50 5% 1/16\( \) R361 1-218-965-11 METAL GLAZE 50 5% 1/16\( \) R361 1-218-965-11 METAL GLAZE 50 5% 1/16\( \													-	
R229   1-218-736-11   METAL CHIP   6.8K   0.50K   1/16V   R331   1-208-696-11   METAL CHIP   3.6K   0.50K   1/16V   R334   1-218-977-11   METAL GLAZE   100K   5%   1/16V   R331   1-208-685-11   METAL CHIP   1.2K   0.50K   1/16V   R351   1-218-990-11   METAL GLAZE   100K   5%   1/16V   C.JE)   R231   1-218-989-11   METAL GLAZE   10K   5%   1/16V   R351   1-218-990-11   METAL GLAZE   0   5%   1/16V   C.JE)   R231   1-218-981   METAL CHIP   2.2   5%   1/16V   R352   1-218-990-11   METAL GLAZE   0   5%   1/16V   C.JE)   R232   1-218-990-11   METAL GLAZE   0   5%   1/16V   C.JE)   R233   1-216-789-11   METAL CHIP   0   5%   1/16V   C.JE)   R353   1-218-977-11   METAL GLAZE   0   5%   1/16V   R356   1-218-995-11   METAL GLAZE   0.5K   1/16V   R356   1-218-995-11   METAL GLAZE   0   5%   1/16V   R356   1-218-995-11   METAL GLAZE   0   5%   1/16V   R356   1-218-995-11   METAL CHIP   36K   0.50%   1/16V   R356   1-218-995-11   METAL CHIP   36K   0.50%   1/16V   R356   1-218-995-11   METAL CHIP   0   5%   1/16V   R357   1-208-715-11   METAL CHIP   0   5%   1/16V   R356   1-218-995-11   METAL CHIP														
R230 1-208-696-11 METAL CHIP	11220	1 200 713 11	METAL CITT	JJN	U. 3U/n	1/10#		N340	1-210-907-11	METAL GLAZE	15%	576	1/16₩	
R231 1-208-685-11 METAL CHIP 1. 2K 0.50% 1/16W R351 1-218-990-11 METAL GLAZE 0 5% 1/16W (E, JE) R232 1-218-989-11 METAL GLAZE 1M 5% 1/16W R352 1-218-990-11 METAL GLAZE 0 5% 1/16W (E, JE) R353 1-216-789-11 METAL GLAZE 0 5% 1/16W (E, JE) R353 1-218-977-11 METAL GLAZE 100K 5% 1/16W R353 1-218-977-11 METAL GLAZE 100K 5% 1/16W R353 1-218-977-11 METAL GLAZE 100K 5% 1/16W R353 1-218-977-11 METAL GLAZE 100K 5% 1/16W R353 1-218-977-11 METAL GLAZE 100K 5% 1/16W R353 1-218-977-11 METAL GLAZE 100K 5% 1/16W R353 1-218-985-11 METAL GLAZE 150K 5% 1/16W R353 1-218-985-11 METAL GLAZE 100K 5% 1/16W R353 1-218-985-11 METAL GLAZE 150K 5% 1/16W R353 1-218-985-11 METAL GLAZE 150K 5% 1/16W R353 1-218-985-11 METAL GLAZE 150K 5% 1/16W R354 1-208-719-11 METAL GLAZE 150K 5% 1/16W R357 1-208-721-11 METAL GLAZE 150K 5% 1/16W R358 1-208-719-11 METAL GLAZE 150K 5% 1/16W R358 1-208-719-11 METAL GLAZE 150K 5% 1/16W R359 1-218-990-11 METAL GLAZE 150K 5% 1/16W R359 1-218-985-11 METAL GLAZE 150K 5% 1/16W R359 1-218-985-11 METAL GLAZE 150K 5% 1/16W (E, JE) R361 1-218-990-11 METAL GLAZE 150K 5% 1/16W (E, JE) R361 1-218-990-11 METAL GLAZE 150K 5% 1/16W (E, JE) R361 1-218-990-11 METAL GLAZE 150K 5% 1/16W (E, JE) R361 1-218-970-11 METAL GLAZE 150K 5% 1/16W (E, JE) R361 1-218-970-11 METAL GLAZE 150K 5% 1/16W (E, JE) R361 1-218-970-11 METAL GLAZE 150K 5% 1/16W (E, JE) R361 1-218-970-11 METAL GLAZE 150K 5% 1/16W (E, JE) R361 1-218-970-11 METAL GLAZE 22 22 22 22 23 24 24 24 24 24 24 24 24 24 24 24 24 24								R347	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R232 1-218-989-11 METAL GLAZE 1M 5% 1/16W R353 1-218-990-11 METAL GLAZE 100K 5% 1/16W R353 1-218-997-11 METAL GLAZE 150K 5% 1/16W R353 1-218-997-11 METAL GLAZE 150K 5% 1/16W R353 1-218-997-11 METAL GLAZE 150K 5% 1/16W R356 1-218-998-11 METAL GLAZE 470K 5% 1/16W R357 1-208-683-11 METAL GLAZE 470K 5% 1/16W R357 1-208-721-11 METAL GLAZE 470K 5% 1/16W R357 1-208-721-11 METAL GLAZE 20 5% 1/16W R358 1-208-721-11 METAL CHIP 39K 0.50% 1/16W R358 1-208-721-11 METAL CHIP 39K 0.50% 1/16W R358 1-218-990-11 METAL GLAZE 0 5% 1/16W R358 1-218-990-11 METAL GLAZE 0 5% 1/16W R358 1-218-980-11 METAL CHIP 0 5% 1/16W (E, JE) R344 1-218-990-11 METAL GLAZE 0 5% 1/16W (E, JE) R344 1-218-990-11 METAL GLAZE 0 5% 1/16W (E, JE) R344 1-218-990-11 METAL GLAZE 0 5% 1/16W (E, JE) R344 1-218-990-11 METAL GLAZE 0 5% 1/16W (E, JE) R344 1-218-990-11 METAL GLAZE 10K 5% 1/16W R361 1-216-864-11 METAL CHIP 0 5% 1/16W (E, JE) R344 1-218-997-11 METAL GLAZE 10K 5% 1/16W R361 1-216-864-11 METAL CHIP 0 5% 1/16W (E, JE) R364 1-216-864-11 METAL CHIP 0 5% 1/16W (E, JE) R364 1-216-864-11 METAL GLAZE 10K 5% 1/16W R367 1-218-997-11 METAL GLAZE 10K 5% 1/16W R367 1-218-998-11 METAL GLAZE 10K 5% 1/16W R367 1-218-998-11 METAL GLAZE 10K 5% 1/16W R361 1-218-998-11 METAL GLAZE 10K 5% 1/16W R361 1-218-998-11 METAL GLAZE 10K 5% 1/16W R361 1-218-998-11 METAL GLAZE 10K 5% 1/16W R361 1-218-998-11 METAL GLAZE 10K 5% 1/16W R361 1-218-998-11 METAL GLAZE 10K 5% 1/16W R361 1-218-998-11 METAL GLAZE 10K 5% 1/16W R361 1-218-998-11 METAL GLAZE 10K 5% 1/16W R361 1-218-989-11										100K				
R233 1-216-789-11 METAL CHIP 2. 2 5% 1/16W R353 1-218-977-11 METAL CLIZE 100K 5% 1/16W R235 1-216-864-11 METAL CHIP 0 5% 1/16W (E, JE) R355 1-218-979-11 METAL CLIZE 150K 5% 1/16W R235 1-218-945-11 METAL GLAZE 0 5% 1/16W R355 1-218-975-11 METAL GLAZE 150K 5% 1/16W R239 1-218-945-11 METAL GLAZE 220 5% 1/16W R357 1-208-721-11 METAL CHIP 39K 0.50% 1/16W R239 1-218-945-11 METAL GLAZE 220 5% 1/16W R357 1-208-721-11 METAL CHIP 39K 0.50% 1/16W R358 1-218-979-11 METAL CHIP 39K 0.50% 1/16W R242 1-218-990-11 METAL GLAZE 20 5% 1/16W R358 1-208-719-11 METAL CHIP 33K 0.50% 1/16W R242 1-218-990-11 METAL GLAZE 0 5% 1/16W R358 1-216-864-11 METAL CHIP 0 5% 1/16W (E, JE) R243 1-218-990-11 METAL GLAZE 0 5% 1/16W (E, JE) R362 1-216-864-11 METAL CHIP 0 5% 1/16W (E, JE) R361 1-218-990-11 METAL GLAZE 0 5% 1/16W (E, JE) R362 1-218-965-11 METAL GLAZE 10K 5% 1/16W (E, JE) R363 1-218-979-11 METAL GLAZE 10K 5% 1/16W (E, JE) R364 1-218-973-11 METAL GLAZE 10K 5% 1/16W (E, JE) R364 1-218-973-11 METAL GLAZE 10K 5% 1/16W R360 1-218-975-11 METAL GLAZE 15K 5% 1/16W R360 1-208-721-11 METAL GLAZE 10K 5% 1/16W R502 1-218-950-11 METAL GLAZE 15K 5% 1/16W R366 1-208-721-11 METAL CHIP 0 5% 1/16W R506 1-218-975-11 METAL GLAZE 22K 5% 1/16W R360 1-218-975-11 METAL GLAZE 22K 5% 1/16W R360 1-218-975-11 METAL CHIP 0 5% 1/16W R506 1-218-975-11 METAL GLAZE 22K 5% 1/16W R361 1-218-980-11 METAL GLAZE 30K 5% 1/16W R361 1-218-980-11 METAL GLAZE 30K 5% 1/16W R361 1-218-980-11 METAL GLAZE 30K 5% 1/16W R361 1-218-980-11 METAL GLAZE 30K 5% 1/16W R361 1-218-980-11														
R234 1-208-683-11 METAL CHIP 0 5% 1/16W (E, JE) R236 1-218-990-11 METAL GLAZE 0 5% 1/16W (E, JE) R236 1-218-945-11 METAL GLAZE 220 5% 1/16W R355 1-218-979-11 METAL GLAZE 470K 5% 1/16W R356 1-218-945-11 METAL GLAZE 220 5% 1/16W R357 1-208-721-11 METAL CHIP 30K 0.50% 1/16W R358 1-218-945-11 METAL GLAZE 220 5% 1/16W R358 1-208-719-11 METAL CHIP 30K 0.50% 1/16W R358 1-208-719-11 METAL CHIP 30K 0.50% 1/16W R358 1-208-719-11 METAL CHIP 30K 0.50% 1/16W R358 1-208-719-11 METAL CHIP 30K 0.50% 1/16W R358 1-208-719-11 METAL CHIP 30K 0.50% 1/16W R358 1-208-719-11 METAL CHIP 30K 0.50% 1/16W R358 1-208-719-11 METAL CHIP 30K 0.50% 1/16W R358 1-218-990-11 METAL GLAZE 0 5% 1/16W (E, JE) R364 1-218-990-11 METAL GLAZE 0 5% 1/16W (E, JE) R364 1-218-990-11 METAL GLAZE 0 5% 1/16W (E, JE) R364 1-218-990-11 METAL GLAZE 0 5% 1/16W (E, JE) R364 1-218-990-11 METAL GLAZE 10K 5% 1/16W (E, JE) R364 1-218-965-11 METAL GLAZE 10K 5% 1/16W (E, JE) R364 1-218-965-11 METAL GLAZE 10K 5% 1/16W (E, JE) R364 1-218-977-11 METAL GLAZE 10K 5% 1/16W R506 1-218-970-11 METAL GLAZE 560 5% 1/16W R306 1-218-977-11 METAL GLAZE 10K 5% 1/16W R506 1-218-950-11 METAL GLAZE 560 5% 1/16W R306 1-208-721-11 METAL CHIP 0 5% 1/16W R506 1-218-950-11 METAL GLAZE 2.2 K 5% 1/16W R308 1-216-864-11 METAL CHIP 0 5% 1/16W (E, JE) R501 1-218-950-11 METAL GLAZE 2.2 K 5% 1/16W R507 1-218-950-11 METAL GLAZE 2.2 K 5% 1/16W R507 1-218-950-11 METAL GLAZE 32K 5% 1/16W R507 1-218-950-11 METAL GLAZE 32K 5% 1/16W R507 1-218-950-11 METAL GLAZE 32K 5% 1/16W R507 1-218-950-11 METAL GLAZE 32K 5% 1/16W R507 1-218-950-11 METAL GLAZE 32K 5% 1/16W R507 1-218-950-11 METAL GLAZE 32K 5% 1/16W R507 1-218-950-11 METAL GLAZE 32K 5% 1/16W R501 1-218-950-11 METAL GLAZE 32K 5% 1/16W R501 1-218-950-11 METAL GLAZE 32K 5% 1/16W R501 1-218-950-11 METAL GLAZE 32K 5% 1/16W R501 1-218-950-11 METAL GLAZE 32K 5% 1/16W R501 1-218-950-11 METAL GLAZE 32K 5% 1/16W R501 1-218-950-11 METAL GLAZE 32K 5% 1/16W R501 1-218-950-11 METAL GLAZE 32K 5% 1/16W R501 1-218-950-11 METAL GLAZE 32K 5% 1/16W R501 1-218-950-11 METAL GLA														(E, JE)
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D010 1 000 F00 11 MDELY CHIEF							1		1-218-975-11	METAL GLAZE				
кото 1-200-703-11 METAL CHIP 6.8K 0.50% 1/16W   R519 1-208-679-11 METAL CHIP 680 0.50% 1/16W														
	кзів	1-208-703-11	MEIAL CHIP	o. 8K	U. 5U%	1/16W	1	к519	1-208-679-11	METAL CHIP	680	0.50%	1/16W	

Ref. No.	Part No.	Description				Remark	Ref. No.	Part No.	Description				Remark
R520 R521	1-218-989-11 1-208-715-11		1M 22K	5% 0. 50%	1/16W 1/16W		R614 R615	1-208-695-11 1-218-965-11		3.3K 10K	0.50% 5%	1/16W 1/16W	
R522	1-208-701-11			0.50%			R617	1-216-864-11		0	5%	1/16W	(=\)
R524	1-220-181-11		750		1/16W		R621	1-216-864-11		0			(E, JE)
R525	1-208-701-11			0.50%			R622	1-216-864-11		0	5%		(E, JE)
R526	1-208-683-11		1K	0.50%			R623	1-216-864-11		0	5%		(E, JE)
R527	1-218-967-11	METAL GLAZE	15K	5%	1/16W		R624	1-216-864-11	METAL CHIP	0	5%	1/16W	(E, JE)
R529	1-208-717-11		27K	0.50%			R630	1-216-864-11		0	5%	1/16W	
R531	1-218-941-11		100		1/16W		R631	1-218-990-11		0	5% 5°	1/16W	
R533	1-218-945-11		220		1/16W		R637	1-218-989-11		1M	5% 5%	1/16W	
R535	1-218-977-11		100K		1/16₩		R643	1-216-864-11		0		1/16W	
R536	1-216-001-00	METAL CHIP	10	5%	1/10W		R655	1-218-983-11	METAL GLAZE	330K	<b>37</b> 6	1/16W	
R539	1-208-701-11	METAL CHIP		0.50%			R656	1-218-983-11		330K		1/16W	
R540	1-208-699-11	METAL CHIP	4.7K	0.50%			R661	1-218-984-11		390K		1/16W	
R546	1-208-683-11	METAL CHIP	1K	0.50%	1/16W		R802	1-202-974-11	METAL GLAZE	3.3M		1/16W	
R547	1-218-957-11	METAL GLAZE	2. 2K	5%	1/16W		R803	1-218-751-11	METAL CHIP		0.50%		
R549	1-218-957-11	METAL GLAZE	2. 2K	5 <b>%</b>	1/16W		R804	1-218-744-11	METAL CHIP	150K	0.50%	1/16W	
R550	1-218-978-11	METAL GLAZE	120K	5%	1/16W		R805	1-218-751-11	METAL CHIP	300K	0.50%	1/16W	
R551	1-218-989-11		1M		1/16W		R806	1-218-744-11			0.50%		
R553		METAL GLAZE			1/16W		R808	1-218-983-11		330K		1/16W	
R556	1-208-715-11		22K	0.50%			R810		METAL GLAZE	330K		1/16W	
R557		METAL GLAZE	1. 5M		1/16W		R812	1-218-983-11		330K		1/16W	
Root	1 220 000 11	morno dende	1. 0	070	1, 10							-,	
R558	1-218-973-11	METAL GLAZE	47K	5%	1/16W		R813	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R559	1-218-977-11	METAL GLAZE	100K	5%	1/16W		R814	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R561		METAL GLAZE	100K	5%	1/16W		R815	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R565	1-208-681-11		820	0.50%	1/16W		R816	1-208-706-11	METAL CHIP	9.1K	0.50%	1/16W	
R566	1-218-973-11	METAL GLAZE	47K	5%	1/16W		R817	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R567	1_219_096_11	METAL GLAZE	560K	592	1/16W		R818	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R568		METAL GLAZE	100K		1/16W		R819	1-218-983-11		330K		1/16W	
R569	1-208-683-11		160K	0.50%			R820		METAL GLAZE	330K		1/16W	
R571		METAL GLAZE	470	5%	1/16W		R821	1-218-989-11		1M	5%	1/16W	
R572		METAL GLAZE	100K		1/16W		R822		METAL GLAZE	1M	5%	1/16W	
DE 7.0	1 010 075 11	METAL CLATE	COV	rα	1 /100		Dogg	1 210 722 11	METAL CUID	47V	0 500	1 /1 CW	
R573		METAL GLAZE	68K		1/16W		R823	1-218-732-11 1-218-749-11		47K		1/16W	
R574		METAL GLAZE	100K		1/16W		R824		-		0.50%		
R575		METAL GLAZE	220K		1/16W		R825		METAL GLAZE	330K		1/16W	
R576	1-218-977-11		100K		1/16W			1-218-973-11			5%		
R577	1-218-989-11	METAL GLAZE	1 <b>M</b>	5%	1/16W		R827	1-208-699-11	MEIAL CHIP	4. /K	0.50%	1/16₩	
R578	1-218-980-11	METAL GLAZE	180K	5%	1/16W		R828	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R581		METAL GLAZE	15K	5%	1/16W		R829	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R582	1-208-709-11		12K	0.50%			R830		METAL GLAZE	510	5%	1/16W	
R590		METAL GLAZE	330K		1/16W		R831	1-208-699-11	METAL CHIP		0.50%		
R592		METAL GLAZE	100K		1/16W		R832		METAL GLAZE	47K	5%	1/16₩	
R593	1-218-077-11	METAL GLAZE	100K	5%	1/16W		R833	1-202-071-11	METAL GLAZE	3. 3M	5%	1/16W	
R594		METAL GLAZE	100K		1/16W		R834		METAL GLAZE	330K		1/16W	
R601		METAL GLAZE	15K	5%	1/16W		R835		METAL GLAZE	330K		1/16W	
R602		METAL GLAZE	10K	5%	1/16W		R836		METAL GLAZE	330K		1/16W	
R603	1-218-965-11			0.50%			R837		METAL GLAZE	330K		1/16W	
6007	1-200-100-11	METAL CHIL	o. on	0.30%	1/10#		1001	1 410-300-11	METUT ATVE	2201	J/0	1/10#	
R604		METAL GLAZE	100K		1/16W		R838		METAL GLAZE	330K		1/16W	
R610	1-216-864-11		0	5%		(E, JE)	R839		METAL GLAZE	47K	5%	1/16W	
R613	1-218-965-11	I METAL GLAZE	10K	5%	1/16W		R840	1-216-864-11	METAL CHIP	0	5%	1/16W	(E, JE)

Ref. No.	Part No.	$\underline{\text{Description}}$				Remark	Ref. No.	Part No.	Description				Remark
R841 R842	1-218-973-11 1-218-973-11		47K 47K	5% 5%	1/16\ 1/16\			1-208-717-11 1-208-715-11		27K 22K	0.50% 0.50%		
R843	1-218-973-11		47K	5%	1/16W			1-218-989-11		1M	5%	1/16W	
R844	1-218-973-11		47K	<b>5%</b>	1/16W			1-208-699-11		4.7K	0.50%	1/16₩	
R845	1-218-973-11		47K	5%	1/16W			1-218-965-11		10K	5%	1/16W	
R846	1-218-989-11		1M	5%	1/16₩			1-208-721-11		39K	0.50%	1/16W	
R860	1-218-977-11	METAL GLAZE	100K	5%	1/16₩		R5108	1-208-721-11	METAL CHIP	39K	0.50%	1/16W	
R861	1-218-988-11		820K		1/16W		ı	1-218-965-11		10K		1/16W	
R862	1-218-978-11		120K		1/16W		ı	1-216-796-11		8. 2		1/16₩	
R863	1-218-989-11		1M	5%	1/16W			1-218-965-11		10K		1/16W	
R864	1-208-685-11			0.50%				1-216-864-11		0		1/16W	
R865	1-218-965-11	METAL GLAZE	10K	5%	1/16W		R5202	1-218-990-11	METAL GLAZE	0	5%	1/16₩	
R866	1-218-977-11		100K		1/16W			1-216-013-00		33		1/10W	
R867	1-218-988-11		820K		1/16W		R5207	1-216-013-00	METAL CHIP	33	5%	1/10W	
R868	1-218-977-11		100K		1/16W								
R870	1-218-977-11		100K		1/16W				< SWITCH >				
R871	1-218-983-11	METAL GLAZE	330K	5%	1/16₩		S801	1-572-467-31	SWITCH, PUSH (1	KEV) (	RFC)		
R872	1-218-965-11	METAL GLAZE	10K	5%	1/16W		S802		SWITCH, SLIDE (				
R873	1-218-977-11	-	100K		1/16W		S803		SWITCH, TACTILE				
R874	1-218-985-11		470K		1/16W		S804		SWITCH, TACTIL				
R875	1-218-985-11		470K		1/16W		S805		SWITCH, TACTIL				
R876	1-202-974-11		3. 3M		1/16W		5000	1 012 410 11	Owitch, Therib	(ILLOUI	,		
			0. 0	0.0	1, 10				< VIBRATOR >				
R877	1-202-974-11	METAL GLAZE	3.3M	5%	1/16W								
R878	1-202-974-11	METAL GLAZE	3.3M	5%	1/16W		X602	1-760-173-11	VIBRATOR, CRYST.	AL (45)	MHz)		
R880	1-202-974-11	METAL GLAZE	3.3M	5%	1/16W		X801		VIBRATOR, CERAM				
R881	1-202-974-11	METAL GLAZE	3.3M	5%	1/16W		X802		VIBRATOR, CRYST.	•	,	)	
R882	1-218-990-11	METAL GLAZE	0	5%	1/16W		X803		VIBRATOR, CERAM			,	
R5001	1-208-685-11	METAL CHIP	1. 2K	0.50%	1/16W		******	******	*******	*****	******	*****	*****
R5010	1-208-683-11	METAL CHIP	1K	0.50%	1/16W								
R5011	1-208-683-11	METAL CHIP	1K	0.50%	1/16W								
R5012	1-208-683-11	METAL CHIP	1K	0.50%	1/16W								
R5014	1-208-683-11	METAL CHIP	1K	0.50%	1/16W								
R5015	1-208-719-11	METAL CHIP	33K	0.50%	1/16W								
R5016	1-208-719-11	METAL CHIP	33K	0.50%	1/16W								
R5017	1-218-975-11	METAL GLAZE	68K	5%	1/16₩								
R5018	1-218-975-11	METAL GLAZE	68K	5%	1/16₩								
R5020	1-216-860-11	METAL GLAZE	1.8M		1/16W								
R5021	1-218-981-11	METAL GLAZE	220K	5%	1/16W								
	1-218-965-11		10K		1/16W								
R5030	1-218-978-11	METAL GLAZE	120K		1/16W	l							
	1-218-975-11		68K		1/16W								
	1-218-990-11		0		1/16W								
R5055	1-218-977-11	METAL GLAZE	100K	5%	1/16W								
	1-218-990-11		0		1/16W	ļ							
	1-218-980-11		180K		1/16W	ļ							
	1-208-703-11			0.50%		]							
	1-216-001-00		10		1/10W								
	1-218-944-11		180		1/16W								
	1-220-398-11		1.5M		1/16W								
K2038	1-208-719-11	METAL CHIP	33K	0.50%	1/16W	J							

# MZ-R2

## SONY. SERVICE MANUAL

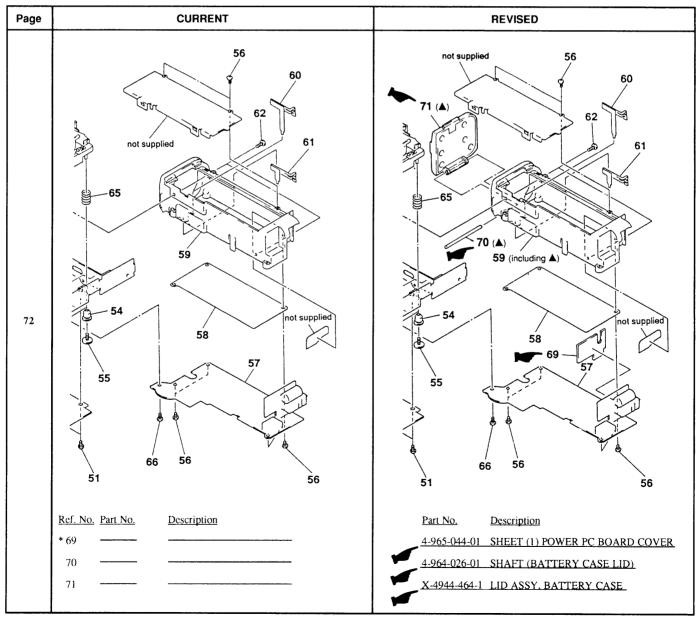
1994.09

US Model Canadian Model AEP Model UK Model E Model Australian Model Tourist Model

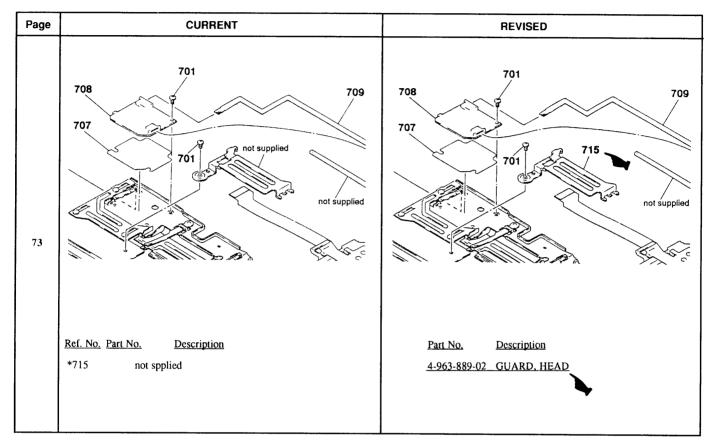
## **SUPPLEMENT-2**

Revise your service manual as shown below due to parts supply classification has been changed.

#### : indicates revised portion.



#### : indicates revised portion.



### **REVISION HISTORY**

Clicking the version allows you to jump to the revised page.

Also, clicking the version at the upper right on the revised page allows you to jump to the next revised page.

Ver.	Date	Description of Revision
1.0	2001.05	Correction of electrical adjustment. (SPM-01014)
		Addition of accessory.
		PDF registration.
	1994.09	SUPPLEMENT-2
	1994.05	SUPPLEMENT-1
	1994.02	New.