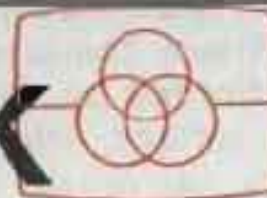


# JVC

## SERVICE MANUAL

### STEREO RECEIVER

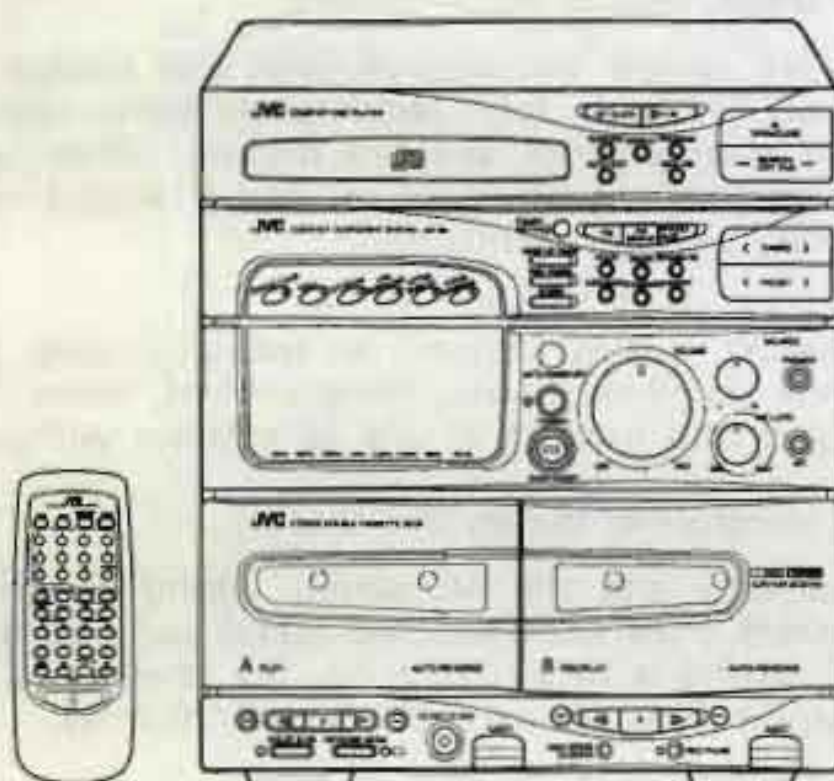
## CA-MXS3BK



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COMPACT  
**disc**  
DIGITAL AUDIO

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## Safety Precautions

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

### 5. Leakage current check (Electrical shock hazard testing)

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

Do not use a line isolation transformer during this check.

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

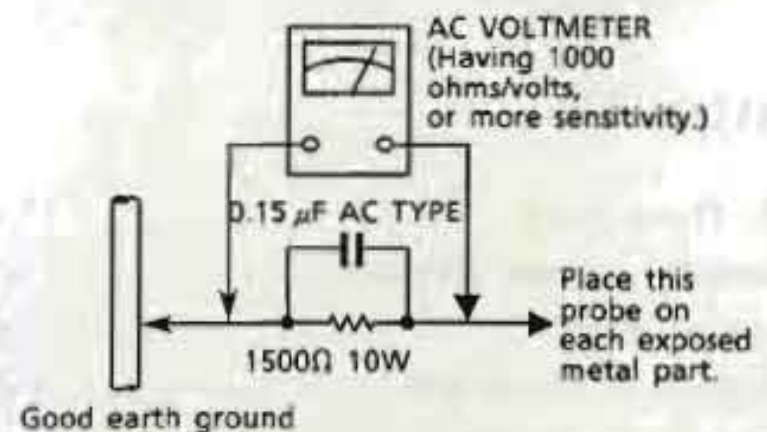
#### • Alternate check method

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

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

Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor.

Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75 V AC (r.m.s.). This corresponds to 0.5 mA AC (r.m.s.).



## Warning

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



# Important for Laser Products

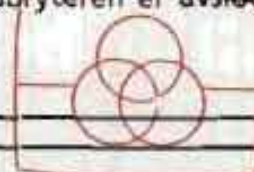
1. **CLASS 1 LASER PRODUCT**
2. **DANGER** : Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.
3. **CAUTION** : There are no serviceable parts inside the Laser Unit. Do not disassemble the Laser Unit. Replace the complete Laser Unit if it malfunctions.
4. **CAUTION** : The compact disc player uses invisible laser radiation and is equipped with safety switches which prevent emission of radiation when the drawer is open and the safety interlocks have failed or are defeated. It is dangerous to defeat the safety switches.
5. **CAUTION** : If safety switches malfunction, the laser is able to function.
6. **CAUTION** : Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
7. **CAUTION** : The compact disc player provides a laser diode of wavelength 780-790nm and optical output power typical 3mW at the laser diode.

**VARNING** : Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.

**VARO** : Avattaessa ja suojalukitus ohitettaessa olet alltiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

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

**ADVARSEL** : Usynlig laserstrålning ved åbning, når sikkerhedsbryteren er avsiott. unngå utsettelse for stråling.

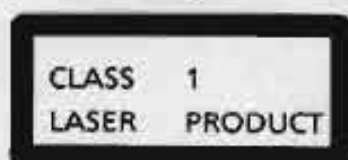
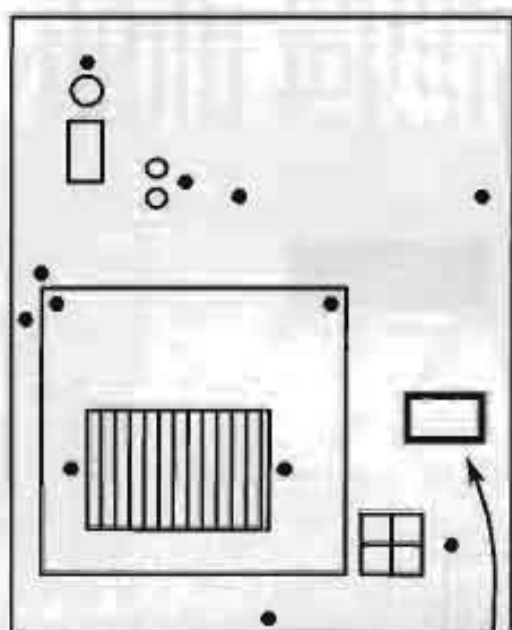


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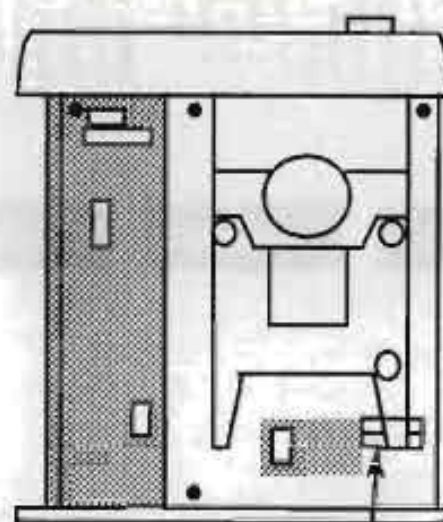
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## REPRODUCTION AND POSITION OF LABELS

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



**WARNING LABEL**  
(Except for the U. S. A.)

**DANGER:** Invisible laser radiation when open and interlock failed or defeated. AVOID DIRECT EXPOSURE TO BEAM. (e)

**VARNING:** Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen. (s)

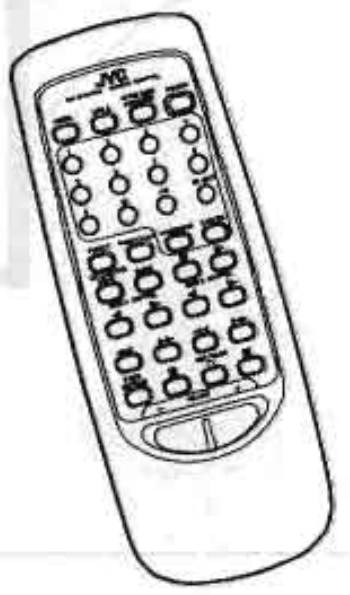
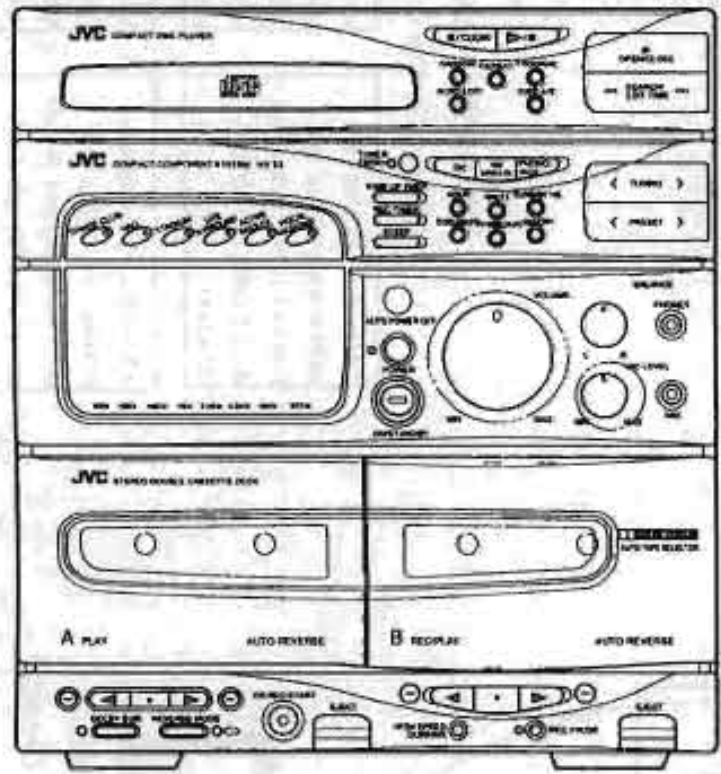
**ADVARSEL:** Usynlig laserstrålning ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling. (d)

**VARO:** Avattaessa ja suojalukitus ohitettaessa olet alltiina näkymättömälle lasersäteilylle. Älä katso säteeseen. (f)



# Instruction Book

**Control Panel and Remote—Illustrations**  
**Bedienfeld und Fernbedienung—Abbildungen**  
**Panneau des commandes et télécommande—**  
**Illustrations**  
**Bedieningspaneel en afstandsbediening —**  
**Afbeeldingen**  
**Ilustraciones del panel de control y del controlador**  
**remoto**  
**Pannelo comandi e telecomando—Illustrazioni**



English  
English

Deutsch

Français

Nederlands

Español

Italiano

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## Features

### Great Sound

Here are some of the things that make your CA-MXS3BK powerful and easy to use.

- To get such **great sound** from such a compact package the CA-MXS3BK has pre-programmed sound effects like **DANCE CLUB, HALL, STADIUM, and LIVE SURROUND** so you don't have to be a sound engineer to get great effects.
- The controls and operations have been redesigned to make them very easy to use so you can spend your time listening to music.
  - With the One Touch Operation feature of JVC's new **COMPUPLAY** you can turn on the CA-MXS3BK and start the radio, the tape deck, or the CD player with a single touch.
  - Four timers, **WAKE UP TIMER, SLEEP, AUTO POWER OFF, and REC TIMER** are extremely easy to set so you can really use them.
  - The **Display area** is large and clear. It's organized so you can tell at a glance what's happening because functions light up as you use them, and blink to tell you they are ready.
  - **Auto Edit** figures out how to arrange CD tracks on a tape. When you are recording a tape from a CD, the selections aren't cut off if the tape ends before the selection does.
- Now use conventional tapes and CDs for **singing along** with the voice canceller system. With an optional microphone, you can replace the lead singer's voice on your favourite songs with your own.

### Easy Operation



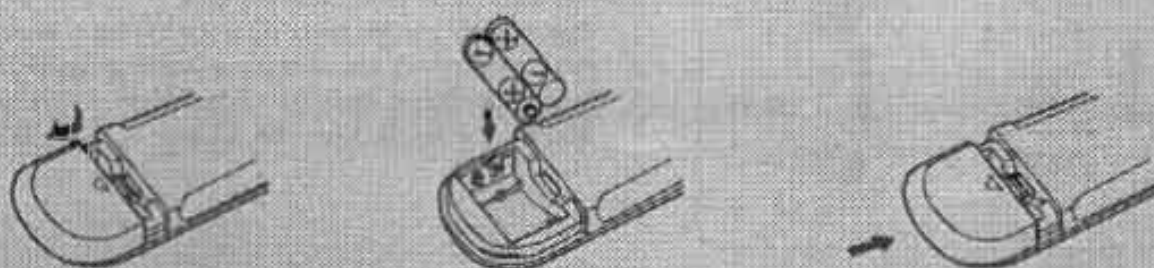
### Sing Along

#### IMPORTANT CAUTIONS

1. **Installation of the Unit**
  - Select a place which is level, dry and neither too hot nor too cold (between 5°C and 35°C).
  - Leave sufficient distance between the Unit and your TV.
  - Do not use the Unit in a place subject to vibrations.
2. **Power cord**
  - Do not handle the power cord with wet hands!
  - When unplugging from the wall outlet, always pull the plug, not the power cord.
3. **Malfunctions, etc.**
  - There are no user serviceable parts inside. If anything goes wrong, unplug the power cord and consult your dealer.
  - Do not insert any metallic object into the Unit.

#### How to Put Batteries in the Remote Control

Match the polarity (+ and -) on the batteries with the + and - markings on the battery compartment.



#### CAUTION: Observe Proper Handling of Batteries.

To avoid battery leakage or explosion:

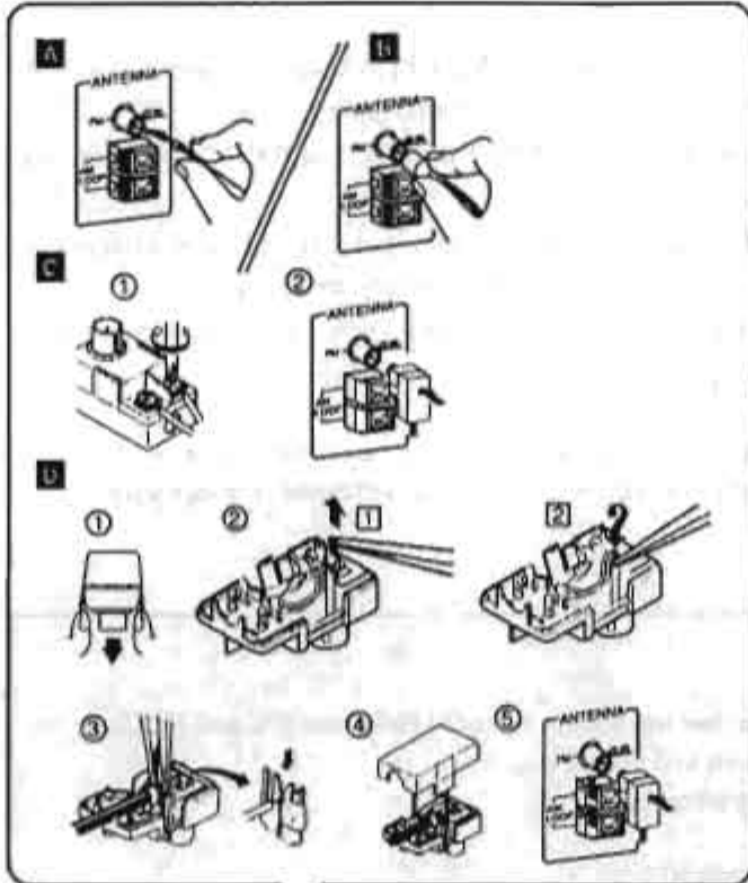
- Remove batteries when the Remote will not be used for a long time.
- When you need to replace the batteries, replace both batteries at the same time with new ones.
- Don't use an old battery together with a new one.
- Don't use different types of batteries together.



# Connection Diagrams and Instructions

## Connecting the AM (MW/LW) and FM Antennas

### FM Antenna Connections



#### For Germany

##### A Using the Supplied Wire Antenna

The FM wire antenna provided can be connected to a FM 75-ohm COAXIAL as a temporary measure.

##### B Using the Coaxial Type Connector (Not Supplied)

A 75-ohm antenna with coaxial type connector (DIN 45332) should be connected to the FM 75-ohm COAXIAL terminal.

#### For Other Continental Europe

##### C Using the Supplied Feeder Antenna

- ① Attach the feeder antenna to the FM connector as shown in the figure.
- ② Connect the FM connector to the FM 75-ohm COAXIAL terminal.

##### D Using FM 75-ohm Antenna Cable (Not Supplied)

- ① Open the claws at both sides and remove the cover.
- ② Move the conductor wire from ① to ② using tweezers or similar tool (only when using coaxial cable).
- ③ Fix the coaxial cable and its core.
- ④ Put on the cover.
- ⑤ Connect the FM connector on the FM 75-ohm COAXIAL terminal.

#### Note:

Make sure the antenna conductor do not touch any other terminals, connecting cords and power cord on the system. This could cause poor reception.

#### For Germany

Extend the supplied wire antenna horizontally.

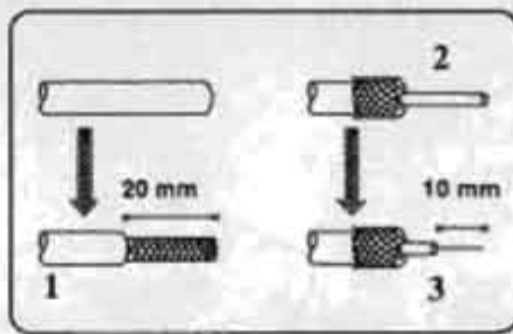
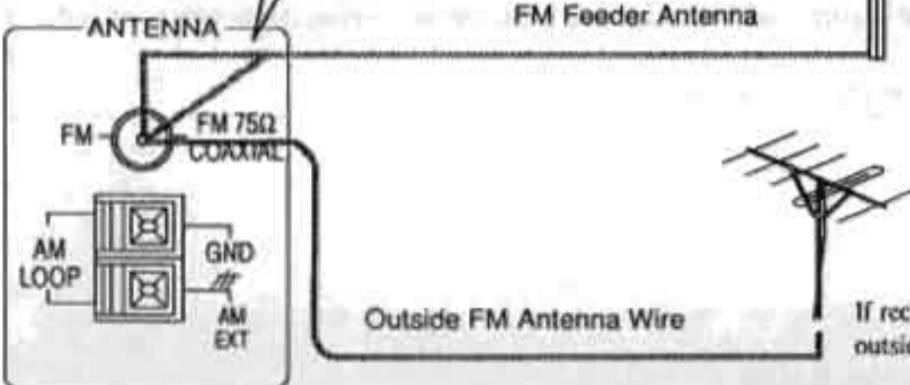
#### For other continental Europe

Unfold the loops of the supplied dipole FM feeder antenna and extend them as shown. Fasten them up in the position which gives you the best FM reception.



Before attaching a 75 ohm coaxial lead (the kind of round wire going to an outside antenna), disconnect the supplied dipole indoor antenna.

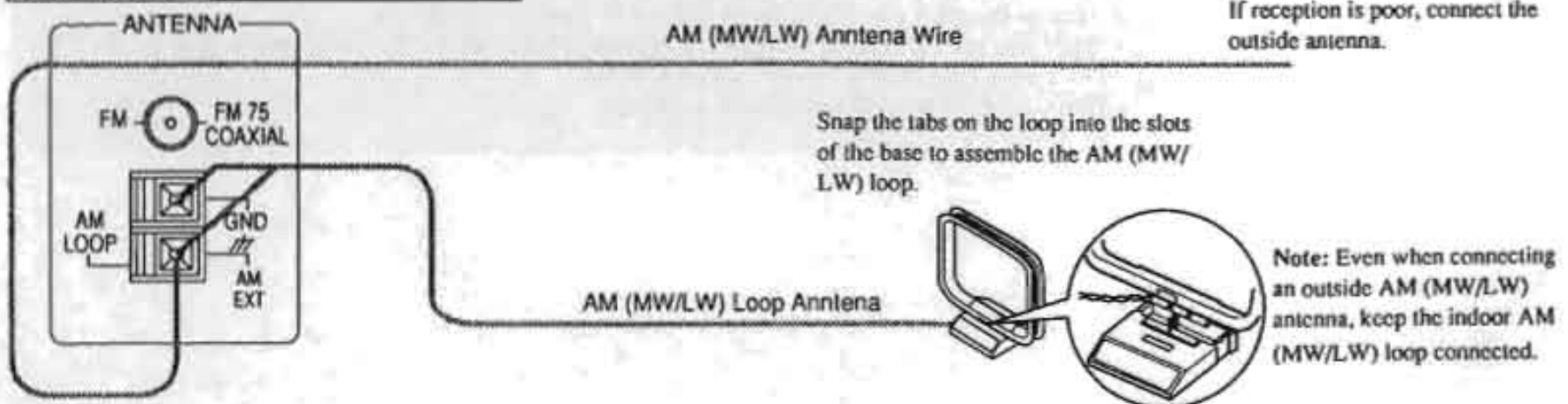
If reception is poor, connect the outside antenna.



#### How to Strip the 75-ohm Coaxial Cable

1. Strip back the outside covering of the 75 ohm coaxial cable to expose the braided metallic mesh.
2. Pull the mesh back and twist into a single connector as shown.
3. Strip the insulation about 10 mm back from the central wire.
4. Attach to the supplied Antenna Adaptor, as shown in the diagram above.

### AM (MW/LW) Antenna Connections



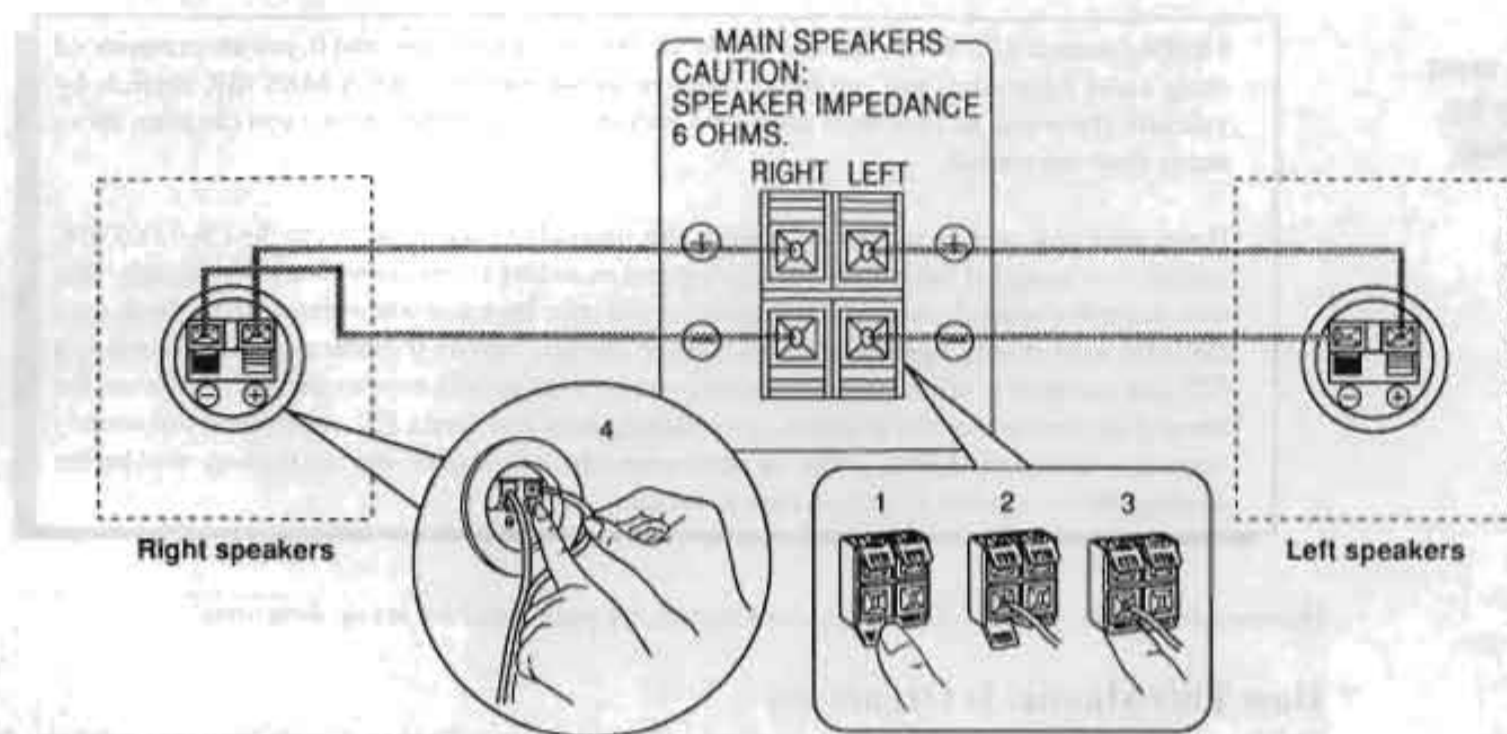
If reception is poor, connect the outside antenna.

Snap the tabs on the loop into the slots of the base to assemble the AM (MW/LW) loop.

Note: Even when connecting an outside AM (MW/LW) antenna, keep the indoor AM (MW/LW) loop connected.



## Connecting the Speakers



For each speaker connect one end of the speaker wire to the speaker terminals on the back of the CA-MXS3BK and one end to the speaker. On the back panel:

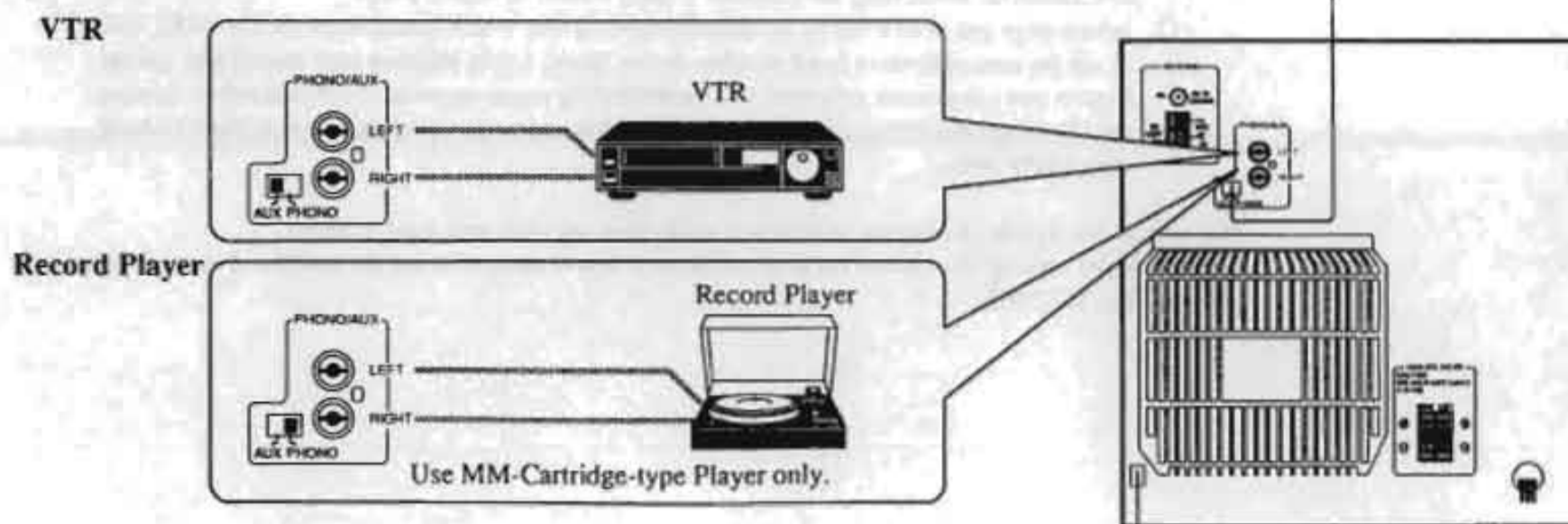
1. Open each terminal.
2. Insert the end of the speaker wire as shown (be sure to remove the insulation at the end of each wire first).
3. Close the terminals to clamp the speaker wires firmly in place.
4. Connect the red (+) and black (-) terminals of the right side speaker to the red (+) and black (-) terminals marked RIGHT on the CA-MXS3BK.  
Connect the red (+) and black (-) terminals of the left side speaker to the red (+) and black (-) terminals marked LEFT on the CA-MXS3BK.

**IMPORTANT:** Match the polarity of the speaker terminals with the polarity of the terminals on the CA-MXS3BK, red (+) to red (+) and black (-) to black (-). Check your speakers for correct impedance: Main speakers 6 ohms only, surround speakers 16 ohms only.

Set this selector to either PHONO or AUX.  
For a Record Player, set to PHONO; for others, set to AUX.

**IMPORTANT**  
Make sure that the power is turned off before setting this selector.

## Connecting Auxiliary Equipment



When recording an AM (LW/MW) broadcasting program, beat sounds may be heard and recorded. Set the BEAT CUT selector to either 1 or 2, so that beat sounds will not be heard nor recorded.



## Read Me First

**How to get the most for your money by using this manual.**


The Engineers at JVC have made the CA-MXS3BK very easy to use, and if you are experienced using audio equipment, you can figure out how to use some of the CA-MXS3BK controls by yourself. However, we have built some new features into this model, which you can learn about easily from the manual.

If you are a new user or just want a review, this manual explains how to use the CA-MXS3BK and take advantage of its features for playing and recording music, as well as other sounds. One way to use this manual is to read it through now and refer back to it when you need to refresh your skills for some special operation. Of course you can just look up the topics, such as recording a CD, that you want to do, but remember that you may need to refer to other parts of the manual for some of the instruction: for instance, in explaining how to record a CD, we assume you already know how to load a CD. That's why we recommend that you read the manual through once before starting. We've made it short, and easy to follow.

However before you proceed, please read the Cautions on page 2 and the set-up directions.

### How This Manual Is Organized

This is a special manual, designed to accommodate several languages. To keep the size from becoming too great, yet still give you a top quality instruction manual, we have incorporated some special features:

- A fold-out page to look at while you read the instructions shows the front controls of the CA-MXS3BK. Some procedures have the illustrations of which control to use right with them, and for some you will need to look at the fold-out for the illustration.
- Basic information that is the same for many different functions is grouped in one place, and not repeated in each procedure. For instance, in the section on playing a CD, we do not repeat the information about setting the volume and the sound conditioning, which are talked about in the Common Operations section.
- Names of buttons, controls and function names that light up on the display panel are written in all Capital letters like this: POWER.
- When we are talking about the Function, rather than the BUTTON or DISPLAY, then we just capitalize the first letter of the words.
- The  alerts you to important information or how to solve special problems that may occur when using the CA-MXS3BK.

The column on the left of the page is a special place to make it easier to find just what you want to know about, with little headlines announcing what each part of the page is about. Sometimes illustrations and helpful hints are placed here also.

Basically we use three kinds of information to help you understand and use the CA-MXS3BK:

- Information about what you can do (such as record a CD or preset a radio station) and how the Unit is designed to make doing this activity easy.
- Procedures, usually numbered in the order you do the steps, to guide you in exactly what to do to accomplish something, such as tune a radio station or record a tape.
- Information you need to know to make decisions about which functions of the CA-MXS3BK to use for particular tasks (such as when to use Dolby NR to improve tape sound) and special hints to make your work go smoothly, like reminding you to set the sound effects before starting the CD to tape recording, since they cannot be changed once recording begins without starting completely over.

The manual has a table of contents to help you easily look up what you want to know.

We've enjoyed making this manual for you, and hope you will use it to enjoy the sound and many features built into your CA-MXS3BK.



## Getting Started Right

### Inside the packing box....

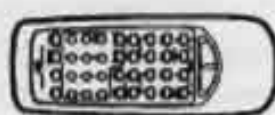
### Unpacking

Of course you have already opened your CA-MXS3BK carton, since you are reading this manual. Although the Unit is quite sturdy, you may want to save the packing to re-pack your CA-MXS3BK in case you are moving it some distance.

Check to be sure you have all of the following things, which are supplied with the CA-MXS3BK:



AM (MW/LW) Antenna



Remote Control



Batteries



FM Wire Antenna  
(only for Germany)



FM Feeder Antenna  
(except for Germany)



Antenna Adaptor  
(except for Germany)

If any are missing, contact your dealer immediately.

### Where can you put it?

### Location

You can place the CA-MXS3BK in many different kinds of locations to suit your needs; just observe the cautions on page 2: keep away from moisture and heat; leave some space between the Unit and its surroundings, more than 1 cm at the sides of the console and 10 cm at the back.

### Very little assembly required

### Set Up

You will need to do the following four things to get your CA-MXS3BK ready to use.

1. Connect the Antenna(s).
2. Connect the Speakers.
3. Put Batteries (included) in the Remote.
4. Connect other sound sources (VTR, Record Player) if used.

Please look at the diagrams on pages 3 and 4 to do these things.

#### 1. Connect the Antenna(s)

Follow the diagrams on page 3. Here's what you need to know:

- For AM (MW/LW) reception you must connect the supplied loop antenna. If reception is poor, connect the outside antenna, but leave the loop antenna in place—the AM (MW/LW) will not work correctly without it.
- For FM reception, connect the supplied wire as shown. However, if you use an outdoor antenna, disconnect the indoor FM antenna first.
- To avoid noise, keep antennas away from metallic parts of the CA-MXS3BK, connecting cords and the AC power cord.

#### 2. Connect the Speakers

Basically, you look at the diagrams on page 4 and follow the pictured instructions.

#### 3. Put Batteries in the Remote

Pay close attention to getting the batteries in correctly—we've made it very easy, just match the + and - marks on the batteries with the + and - markings on the Remote. See page 2 for instructions

**CAUTION:** Handle batteries with care. See page 2 for proper use of batteries.

#### 4. Connect Other Sound Sources, such as VTR or Record Player (Optional)

You can play the sound portion of a TV program or video tape through your CA-MXS3BK's sound system, often improving it greatly. A VTR or Record Player can also be hooked up to play through the CA-MXS3BK. Just follow the diagram on page 4. In order to play a connected source through the CA-MXS3BK, you have to set the PHONO/AUX selector on the rear panel in place

Now you can plug the AC power cord into the wall socket, and your CA-MXS3BK is at your command!

**CAUTION:** First make all connections before plugging the Unit into any AC power outlet.

Read on and find out how to use the many features built into your Unit.....



## Common Operations

Here are the things that apply to all the functions of your CA-MXS3BK. If something in a procedure is unclear to you, check back here.

### The Magic of **COMPUPLAY**

Power on.....



.....Power Off.

Making it sound the way You want it to:

•Volume

•DANCE CLUB  
•HALL  
•STADIUM  
•LIVE SURROUND  
•ACTIVE BASS  
EX. (extension)  
•VOCAL MASKING

### COMPUPLAY

COMPUPLAY is JVC's new feature that lets you control the most used functions of the CA-MXS3BK with a single touch. This One Touch Operation starts playing a CD, turns on the radio, plays a tape, etc. with a single press of the play button for that function. What One Touch Operation does for you is to turn the power on, then start the function you have called for. If the Unit is not ready, such as no CD or tape in place, the Unit still comes on and then pauses so you can put in a CD or tape.

How One Touch Operation works in each case is explained in the section about that function.

### Turning the CA-MXS3BK On

Press POWER; the stand-by indicator on POWER goes out.

- The CA-MXS3BK comes on ready to do whatever it was doing when the power was last shut off. So if the last thing you were doing was listening to a tape in deck B, you now are ready to listen to a tape again in deck B, or you can change to another source.
- If you were listening to the radio last, the radio comes on playing that last station.

Be sure to read the caution at the end of this section concerning sound levels, and possible damage to your hearing or the equipment.

### Turning the CA-MXS3BK Off

You probably guessed this one: Just press POWER. The stand-by indicator on POWER lights up and the display blanks, except for the clock display.

- A small amount of power (13 watts) is consumed even in the STANDBY mode. To switch the power off completely, unplug the power cord from the AC outlet.

### Controlling the Sound

The same set of buttons and knobs control the sound, no matter which function is producing it. Here we will briefly explain how these controls work, and how you can use them to increase your enjoyment of the music.

#### Volume Control

Rotate clockwise to increase loudness, counter-clockwise to reduce loudness. Be sure to read the caution at the end of this section about high sound levels damaging your hearing or your equipment.

#### Speaker Balance Control

If the sounds you hear from the right and left speakers are not well-balanced, you can adjust the speaker output balance with the BALANCE control.

#### Special Effects Controls

These six buttons on the main Unit, each with a LED that lights up to tell you when it's on, are located just above the display window.

These buttons, singly and in combination, give you real control of the way your music sounds. We can give you some idea of how each one affects the music, but the only way to really tell is try them yourself. Depending on the way each recording is made, or the quality of the radio signal, they will affect different pieces differently. Feel free to experiment!

Things to remember about using special effects:

- Experiment with and set your special effects *before* you start recording with CD Direct or Auto Edit, because once recording starts, the special effects cannot be changed without stopping recording, and often having to start over. If you need different sound effects for each selection, use the standard recording features described on page 14, rather than Auto Edit or CD Direct.
- When DANCE CLUB, HALL, or STADIUM is pressed, LIVE SURROUND also comes on. If you don't want to use it, just press LIVE SURROUND, and when the LED goes off, so does LIVE SURROUND.
- Each of the special effects changes the sound in a different way by changing which parts of the sound are increased or reduced. To see how each part of the sound will be changed, watch the display just as you press an effect button when music is playing. You will see a graphical display showing the effect's pattern for just a short time before the effect starts.





- **DANCE CLUB**—Increases resonance and bass
- **HALL**—Adds depth and brilliance to the sound, like in a concert hall
- **STADIUM**—Adds clarity and spreads the sound, like the sound in an outdoor stadium
- **LIVE SURROUND**—With this function the sound coming from only two speakers approaches the quality of sound from four speakers.
- **ACTIVE BASS EX.**—The richness and fullness of the sound is maintained regardless of how high or low you set the **VOLUME** control.
- **VOCAL MASKING**—Cancels the voice part of a song so you can broadcast your own voice through the Microphone in place of the lead singer. Now it sounds as if you are singing directly with the band. See page 20 for a more complete discussion of this new function.

On the Remote, you can't find buttons for **DANCE CLUB**, **HALL**, and **STADIUM**. By pressing **MODE** on the Remote, you can get these three special effects sequentially.

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### Using the Tuner Entry Function

With Tuner Entry on, the Unit automatically shifts to the most recently played radio station when a tape or CD comes to an end.

- Switch between Tuner Entry on and Tuner Entry off by pressing **TUNER ENTRY**. The LED next to it lights up when Tuner Entry is on and is off when Tuner Entry is off.
- In two situations even if Tuner Entry is on, it will not take effect:
  - When you intentionally stop the CD or tape deck by pressing **■/CLEAR** on the CD player or **■** on the tape deck.
  - When any timer activated CD or tape stops playing.



### Listening with Headphones

A standard pair of headphones can be connected at the **PHONES** jack on the front panel. **Be sure to turn down the volume before connecting or putting on headphones, as high volume can damage both the headphones and your hearing.**

### The Display and the LEDs—Two Very Useful Hints

- The Display Panel tells you many useful things about what your Unit is doing. Watch it as you give instructions to the CA-MXS3BK by pressing buttons.
- Most of the controls have a small light, called an LED right next to or even right on the function button or knob itself. The light comes on when the function is on, and goes out when it is not in use.

### What's Next?

Now that you know how to control the sound, go on to learn how to enjoy each sound source: Tape, CD, Radio, Connected Equipment, and Microphone.

**CAUTION:** Always set the **VOLUME** control to **MIN** before turning on a connected source such as a VTR or Record Player, or starting any other of the sound sources such as the radio, tape, or CD player. Otherwise, if the **VOLUME** control is turned up, the sudden blast of sound energy can permanently damage your hearing and/or ruin your speakers.

### The Display and The LEDs

#### Caution: Too LOUD!





## Listening to the Radio

The controls for the radio are located in the Tuner/Amplifier section. With these controls you can browse through all the stations or use the preset function to go immediately to a particular station.

- To record from the radio, see "Recording any Sound Source to Tape," page 15.
- To set the timer to turn on the radio at a certain time, see "How to Use the Timers and Set the Clock," page 17.

First we'll explain how to tune in stations, and then how to preset the ones you listen to often.



### Three ways to tune in a station



### One Touch Radio

Just press AM (MW/LW) to turn on the Unit and start playing the most recent AM (MW/LW) station tuned in, or press FM to start the most recent FM station playing. If you press TUNER on the Remote instead, you can start playing the most recent station tuned in.

- You can switch from any other sound source to the radio by pressing either AM (MW/LW) or FM.

### Tuning in a Station

Press AM (MW/LW) or FM to turn on the radio. The display shows the frequency of the station tuned to.

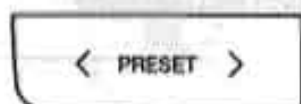
You have 3 ways to select a station:

1. Press and release TUNING < or > to move from station to station until you find the one you want.  
OR
2. Hold down TUNING < or >, and the display cycles through all the stations one after the other. Release the button when you see the one you want.  
OR
3. Press once and release PRESET > to go to the next preset station, or hold PRESET < to cycle through the preset stations: release the button when the preset station you want shows on the display.

You can also use the Remote to tune in stations and preset channels:

- To tune preselected stations with the Remote:
  1. Press TUNER so that you can receive the most recent station tuned in.
  2. Select the station by entering the preset channel number in the 10 Key pad of the Remote. The display shows the new channel number and frequency.

### How to preset AM (MW/LW) and FM radio stations



FM MODE/MUTE



### Presetting Stations

Once a station is assigned to a channel number, the station can be quickly tuned either from the Remote using the 10 Key pad of the Remote or the CA-MXS3BK itself using PRESET < or > to call up the channel number.

- You can preset 40 AM (MW/LW) and FM stations at random.
- Preset stations may be erased when power is cut off to the Unit, as when it is unplugged from the AC outlet or a power failure occurs. If the preset stations are lost, simply set the stations again using the following procedure.

To preset radio stations:

1. Tune in the station you want to set.
2. Press MEMORY.
  - On the display, MEMORY will blink for 8 seconds. During these 8 seconds while MEMORY is blinking you can assign a channel number to the station and enter it into the memory.
3. Select a channel number by pressing PRESET < or > until you find the channel number you want.
4. Press MEMORY and the station will be assigned to the channel number showing on the display.

### Receiving in Stereo or Mono

When an FM stereo broadcast is hard to receive or noisy:

- Press FM MODE/MUTE so that reception improves although you lose the stereo effect. In this state, you will hear noise while tuning into stations.
- To restore stereo effect, press FM MODE/MUTE again so that "AUTO" appears on the display. In this state, when a program is broadcast in stereo, you will hear stereo sound; when in monaural, you will hear monaural sounds. Furthermore, in this state, you won't hear noise while tuning into stations.



## Listening to a Compact Disc



The quickest way to start a CD is with the One Touch Operation:

- Press Play/Pause ▷/|| on the CD player or Play ► for CD control on the Remote.
- If a CD is already loaded, the Unit automatically turns on and starts to play it from track 1.
- If no CD is loaded, the CD tray opens, and you can put in a CD, printed side up, press Play/Pause ▷/|| and the tray closes and the CD starts playing.

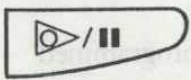
### Basics of Using the CD Player

Here are the basic things you need to know to play a CD and locate the different selections on it. Each selection is called a track, so when we are talking about locating a track, we are also talking about how you find a certain song or performance.

### To Load, Play, and Stop a CD

1. Press ▲ OPEN /CLOSE.
2. Put a CD, printed side up, into the tray.
3. Press ▲ OPEN/CLOSE again to close the tray.
4. If you want to listen to the CD now, press ▷/|| and adjust the volume.
  - The display shows the track being played and the length of time since it started.
5. To stop the CD, press ■/CLEAR. When you start again, the CD begins with track 1.
6. To pause the play, press ▷/|| while the CD is playing so when you press ▷/|| again the CD starts just where you left off.
7. To remove a CD, press ▲ OPEN/CLOSE, take the CD out, and press ▲ OPEN/CLOSE again to close the tray. Keep the tray closed except during loading and unloading to protect the mechanism from dust and damage.

**How to use the CD player: from the most basic to advanced**



**PLAY/PAUSE**

### How to Find the Track or a Particular Point You Want

- Each time you press briefly and release SEARCH /EDIT TIME ◀◀ or ▶▶ the track changes by one.
  - Press and release SEARCH /EDIT TIME ▶▶ to go ahead one track at a time.
  - Press and release SEARCH /EDIT TIME ◀◀ to go back one track at a time.
- Holding down SEARCH /EDIT TIME ◀◀ or ▶▶ will fast forward or fast reverse the CD so you can quickly find the particular part of a track you want to listen to.
- Although fast forward and fast reverse are not usable when the CD is off, the track change function is available, so you can select the track you want to start playing when you start the CD. The track number is shown on the display.

**CD**

**Find track**

### Locating a Track with the Remote

Using the 10 key pad on the Remote allows you to go directly to the beginning of any track.

1. Press CD 10 KEY.
2. Enter the number of the track you want using the 10 key pad.
  - Example: for track 5, press 5. For track 15, press +10 then 5. For track 20, press +10, then 10.
3. As long as a CD is loaded and the Unit is on, as soon as you enter the number of the track you want, it will start to play.

**Using the Remote to find a track**

### Programming the Playing Order of the Tracks

In addition to the high quality sound which makes the CD such a good way to listen to music, you can change the order in which the tracks play.

### Random Play

Before starting a CD, press RANDOM on the CD player.

- The tracks will play in no special order.
- When all of the tracks have been played, the CD shuts off.
- Press REPEAT before or during random play to instruct the CA-MXS3BK to continue with a different random track selection after the last selection is played.
- To cancel random play, press ■/CLEAR.

**With programming, you can play back tracks in any order**

**RANDOM**





### Program with the Remote

#### How to program: just 5 easy steps

### Programmed Play

You can arrange the tracks to play in any order you like with the Program function. The Remote is very useful for this because you can select tracks by number with the key pad. See "How to Use the Remote Control," page 22, if you need more information about its use. You can also use the main Unit.

#### To program the CD track order from the Remote, follow this procedure:

1. Press PROGRAM.
2. Press CD 10KEY.
3. Press the number of the first track you want to hear, then the number of the second track, and so on until you have entered all the track numbers you want to play.
  - Refer to the section "How to use the Remote Control" on page 22 if you have questions about how to enter numbers above 10.
  - Your program can include up to 32 tracks, and you can repeat tracks if you wish.
4. Press Play/Pause ▷/|| to start the program—the first track you programmed will start to play, followed by the next one you entered, until all the selected tracks are played.
5. To stop the CD during Programmed Play, Press Stop ◻. To cancel the program, press PROGRAM on the Remote or ■/CLEAR on the main Unit.

### Programming from the front panel

#### To program the CD from the main Unit, follow this procedure

1. Press PROGRAM.
2. Press SEARCH/EDIT TIME ◀◀ or ▶▶ to locate the track you want to start with.
3. Press PROGRAM to store the selected track.
4. Repeat steps 2 and 3 until you have entered all the tracks you want to program.
5. Press Play/Pause ▷/|| and the Unit will begin playing the tracks in the order you programmed them.

### Programming Hints

#### A Few Hints to Make Programming Easier

- If you want to change the number of a track you just entered, press CANCEL on the Remote, and enter another number. (When the display shows the total program time, press CANCEL twice to remove the last selection entered.)
- If you want to change the entire program, press ■/CLEAR on the main Unit, and then you can start over.
- To view the order of the tracks in your program when it's playing, press Stop ◻, then press CD CONTROL ◀◀ or ▶▶ on the Remote to display the order of the tracks. Each time you press CD CONTROL ▶▶ the next selection in your program is displayed. (Press CD CONTROL ◀◀ for the previous selections.)
- To add a track to your program, follow the steps listed on the previous page in "To program the CD track order from the Remote." Any tracks you add will appear at the end of the current program.

### Repeat a selection or the whole CD

#### Repeating a Selection or the Entire Disc

- You can have either the program or the individual selection currently playing repeat as many times as you like by pressing REPEAT. Each time you press REPEAT, it cycles from OFF, which turns the REPEAT indication out on the display, to REPEAT which will repeat all tracks in order or according to the program you have set, and REPEAT 1 which will repeat the currently playing track. To cancel Repeat, just press REPEAT until the REPEAT indication on the display goes off.



## Listening to a Tape

### Listen to a tape: How to use your tape deck

The tape deck allows you to play, record and dub audio tapes.

- To record or dub, see Recording page 14.
- With Automatic Tape Type Detection, you can listen to type I, II, or IV tapes without changing any settings.
- To play a tape and learn about the many easy to use features of the dual tape deck built into your CA-MXS3BK, read on here!

### Playing Back a Tape

You can play a tape from either deck A or deck B; but remember: only deck B can record.



#### One Touch Play

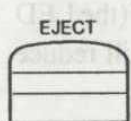
By pressing either Play Forward  $\triangleright$  / Play Reverse  $\triangleleft$  (or Play Forward  $\triangleright$  / Play Reverse  $\triangleleft$  for deck A and B control on the Remote) the power will come on, and if a tape is in the deck, it will start to play. If no tape is loaded, the Unit will come on and wait for further instructions.

#### Regular Play

When power is already on, you can use this basic procedure:

1. Press EJECT, which is located just to the right of the deck, for the deck you want to use.
2. When the cassette carrier opens, put the cassette in, with the exposed part of the tape down toward the base of the CA-MXS3BK.
  - If the cassette carrier does not open, turn the Unit off, then back on again and press EJECT.
3. Close the carrier gently.
4. Turn the volume down. (See the Caution on page 8 about possible damage from setting the volume too high.)
5. Press Play Forward  $\triangleright$  to play the front side, or Play Reverse  $\triangleleft$  to play the reverse side.
6. To stop playing, press Stop  $\blacksquare$ . To remove the tape, press EJECT.

### Playback Procedure



### Fast Left and Fast Right

- While the tape is stopped, press Fast Left  $\lll$  and the tape will wind rapidly onto the left side of the cassette without playing.
- While the tape is stopped, press Fast Right  $\ggg$  and the tape will wind rapidly onto the right side of the cassette without playing.

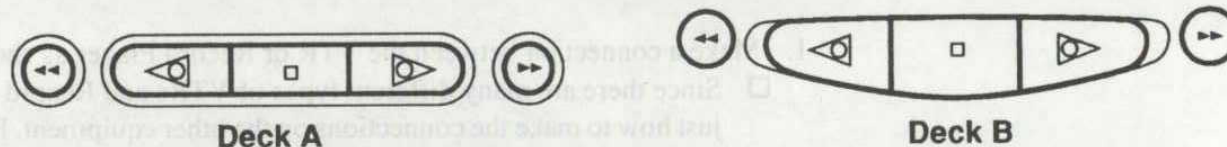
### Music Scan

#### Finding the place you want:

#### Music Scan

To use the Scan function, you need to understand one basic idea, which might just make you a Master of Tape Control!

- Look at the Play Forward and Play Reverse Controls:



- When the power is on, the glowing LED shows the direction the tape was last moving. When the LED is blinking slowly, the tape is playing in the direction of the arrow. Now comes the tricky part: when the LED is blinking rapidly, the tape can be moving either the direction the arrow points, or the opposite direction, **depending on whether you pushed Fast Right  $\ggg$  or Fast Left  $\lll$** . The tape will be going at high speed in the direction of the arrows of the button you pushed. The direction of the arrow with the rapidly blinking LED shows which way the tape will start playing when the fast search is done. Put in a tape and try it out.
- The Scan function works by detecting a 4 second blank at the beginning of each selection, so it won't work well if your tape has:
  - No blank at the beginning of a track.
  - Noise (often caused by much use or poor quality dubbing) which fills the blank with noise.
  - Long very soft passages or pauses in a selection. The scan will detect these instead of the 4 second blanks. If this happens, just go ahead and scan again until you reach the selection you want.
- Music scan only works on one tape at a time.
  - If you are recording on Deck B, music scan will not work on deck A.



**Scan Forward.....****Scan Forward**

With the tape playing, to find the beginning of the next selection, press Fast Right ►► or Fast Left ◀◀ whichever one points in the same direction as the arrow with the slowly blinking LED.

- The tape will fast forward to the next selection and begin playing it.

**.....Scan Back****Scan Back**

With the tape playing, to find the beginning of the selection now playing, press the Fast Right ►► or Fast Left ◀◀ button pointing the opposite direction from the arrow with the slowly blinking LED.


- The tape will fast reverse to the beginning of the piece and start playing it again.

**More Useful Things to Know:**

- Continuous Play
- Reverse Mode
- Dolby

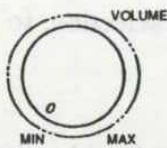
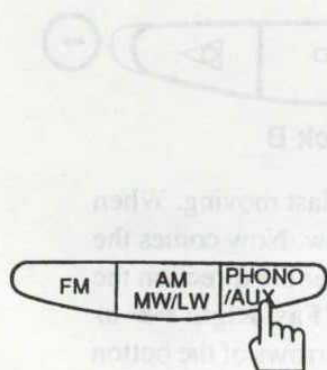
**Useful hints and features to know about when using your tape deck**

- Continuous Play:** When a tape finishes playing, the Unit always checks to see if a tape is in the other deck. If one is there, it automatically starts playing it while rewinding the first tape. This Continuous Play happens regardless of which deck starts first.
- Use Reverse Mode** to make the tape automatically reverse at the end of a side and start playing the other side. Press REVERSE MODE to change from Reverse Mode on (the LED is lit) to Reverse Mode off, or from off, to on.
  - If there is a tape in the other deck, it will start playing when both sides of the first tape have been played. As long as the Reverse Mode LED is lit, the tapes will continue to play in the above sequence.
  - If the Reverse Mode LED is not lit, the tape will play to the end of the current side, switch to the other deck and start playing a tape there while rewinding the first tape.
- Press DOLBY B NR to switch **Dolby Noise Reduction** on (the LED lights up) or off (the LED goes off). If a tape is recorded with Dolby B NR, playing it back with Dolby on will reduce tape noise and improve the clarity of the sound.

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

**Listening to a VTR or Record Player through your CA-MXS3BK****Advantages in Connecting a VTR or Record Player**

By playing the sound from a VTR or Record Player through the CA-MXS3BK, you can often dramatically improve the quality, and gain control over how the music or program sounds. Once the connected equipment is playing through the CA-MXS3BK, you can apply the sound effects, make recordings, or listen with the headphones. Here are the steps to take:



1. Make a connection between the VTR or Record Player as shown on page 4.
  - Since there are many different types of VTRs and Record Players, we can't tell you here just how to make the connections on the other equipment. However, the diagrams on page 4 will cover most cases, and you can also look in the instruction manual for the VTR or Record Player you have.
  - Before using the connected equipment, you have to tell the CA-MXS3BK whether a Record Player or something else is connected. To do this, set the PHONO/AUX selector on the rear panel to PHONO for a Record Player, or AUX for any other kind of equipment.
2. Press PHONO/AUX either on the Unit or Remote.
  - The Unit is turned on and PHONO lights up on the display. (Even though you have selected AUX by the PHONO/AUX selector, the indication on the display is always PHONO.)
3. Switch on the connected equipment and start it playing.
4. Set the Unit's volume to its lowest setting. Use FADE/MUTING on the Remote, or turn the VOLUME control all the way counterclockwise.
5. To cancel PHONO/AUX setting, change the source by starting any one of the CA-MXS3BK's built-in sound sources, such as the radio or CD player.

**CAUTION: DO NOT** set the PHONO/AUX selector while the Unit is turned on.



# Recording

## What can you record?

- Tapes
- Radio
- CDs
- Microphone
- Connected Source

Recording onto cassette tape from any of the sound sources is easy and the CA-MXS3BK does most of the work. Just have a tape in deck B, have the source ready, make one or two settings, and you're ready to record.

For each source the procedure is a little different and now we'll explain just what to do for each one. If you forget, just come back to the section which has the specific procedures you need. But first, here are a few things to make your recordings better.

## Things to Know before You Start Recording:

### Copyright

- It may be unlawful to record or playback copyrighted material without the consent of the copyright owner.

### Reduce Hiss—Dolby NR

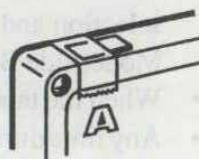
- Press DOLBY B NR (noise reduction)—the LED lights up—to reduce tape hiss, except when dubbing from a tape which was already recorded with Dolby NR. Then it is better to leave the Dolby function off.

### Recording Level

- The recording level, which is the volume at which the new tape is being made, is automatically set correctly, so it is not affected by the VOLUME control on the CA-MXS3BK. Thus, you can adjust the sound you are actually listening to without changing the recording. If you don't want to listen to the sound, you can turn the VOLUME control all the way down, or press FADE/MUTING on the Remote.

### Erasure Protection

- Cassettes have a special feature so you won't accidentally record over a tape you want to save. Two small tabs on the back, one for side A and one for side B, can be removed to prevent erasure or re-recording. To record on a cassette with the tabs removed, you must cover the holes with tape first. However, when a Type II tape is used, only cover part of the hole as shown below, since the other part of the hole is used to detect the tape type.



### Select Sound Effects

- When recording, you can select the sound effects with the preset sound effect buttons to condition the music as it is recorded. But when recording using Auto Edit or CD Direct, once recording has started, these settings cannot be changed. When recording from tape Deck A to Deck B, the sound effects cannot be used, because the signal doesn't go through the amplifier first. This method gives you the highest quality dubbed tapes.
- Type I and type II tapes can be used for recording. While type IV tapes can be played, type IV tapes cannot be used for recording on the CA-MXS3BK.

ⓘ If recordings you make have excessive noise or static, the Unit may be too close to a TV which was on during the recording. Either turn off the TV or increase the distance between the TV and the CA-MXS3BK.

## Standard Recording

### Standard Recording: Any Source to Tape

This is the basic method for recording any source. The CA-MXS3BK also has special ways for recording CD to tape, and tape to tape, which save you time and effort, as well as give you some special effects. However, when you need to add a selection to a tape you have made, or are combining selections from several sources on one tape, use the method we describe here; just substitute the source you want, such as a tape in deck A, or CD, or radio in this procedure. You can also record from the microphone or an auxiliary source with this procedure.

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**Source to Tape: Step by Step****Recording any Sound Source to Tape**

Follow these steps to record from any sound source onto a tape in deck B.

1. Press POWER so the LED on the VOLUME control glows.
  - Press REVERSE MODE if you want to record on both sides of the tape.
2. Load the tape you are making into Deck B.
3. Press REC PAUSE. The LED lights up.
4. Prepare the source, for example, tuning in a radio station, loading a CD, turning on a connected Record Player or VTR, etc.
  - If the source is already playing, Just press REC PAUSE, then press either Play Forward ▷ to record on side A, or Play Reverse ◁ to record on side B.
  - If the source is a Record Player or VTR, make sure you have set the PHONO/AUX selector on the rear panel in place.
5. When you want to start recording, press either Play Forward ▷ to record on side A, or Play Reverse ◁ to record on side B of the tape.
  - Hint: any time a source other than deck B is playing, you can record by putting a tape in deck B, pressing REC PAUSE, then Play Forward ▷ or Play Reverse ◁ to start recording that source.

**CD to Tape, Introduction****CD to Tape Recording**

There are three ways to record from CD to tape:

- The standard method described above.
- CD Direct Record—Everything on the CD goes onto the tape in the order it is on the CD, or according to an order you have set in a program.
- Auto Edit—Your CA-MXS3BK figures out which selections to put on which side of the tape, so a selection isn't cut off before it's finished when the tape runs out.

**CD Direct Record, Step by Step****CD Direct Record**

1. Put a cassette in deck B.
2. Load a CD into the tray and press ▲ OPEN/CLOSE.
  - If you want to record on both sides of the tape, press REVERSE MODE on the tape deck (the LED will light up).
3. Press CD REC START on the tape deck.
  - The Unit will automatically rewind the tape to the beginning of side A, create a 10 second blank, turn on the CD and start recording.
    - At the end of the tape, the CA-MXS3BK automatically goes back to the beginning of the last selection and re-records it, this time gently fading out at the end. If you selected the Reverse Mode, side B starts with the last selection on side A.
    - When the tape is finished, the Unit shuts off the CD and the tape deck goes into Stand-by mode.
    - Any time during the recording process, you can interrupt by pushing either ■/CLEAR on the CD player or Stop ■ on deck B.

CD REC START

**Auto Edit, CD to tape, Introduction****Recording a CD onto a Tape Using Auto Edit**

Using Auto Edit, you can arrange the CD tracks to fit the tape, so a selection isn't cut off when the tape runs out first. Auto Edit is one of the best ways to copy all of a CD onto a tape.

The selection of which tracks go on which side is based on the lengths of the tracks and the length of the tape. The CA-MXS3BK can figure out most of what it needs to know, but you will have to tell it the tape size you are using if your tape is a different size than the one picked by the program. Follow this procedure to record a CD using Auto Edit.

**Auto Edit, CD to tape, Step by Step**

1. Put the cassette in deck B.
  - Press REVERSE MODE if you want to record on both sides of the cassette.
2. Load the CD into the CD Player.
  - If the CD is already loaded, be sure the power is on.
3. Set the sound effects you want now, since the sound environment cannot be changed once recording starts.
4. Press ■/CLEAR.
  - This cancels the previous edit or program setting.



AUTO EDIT



SIDE A/B

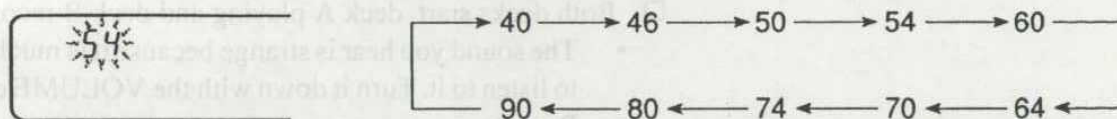


CD REC START



5. Press AUTO EDIT on the CD player. The system tells you the minimum standard tape length to use.

- You can select a different length of tape, depending on the actual size of the tape you are using, from ten possibilities programmed into the CA-MXS3BK: 40, 46, 50, 54, 60, 64, 70, 74, 80, 90. Cycle through these choices using the SEARCH/EDIT TIME  $\lll$  or  $\ggg$  until you find the length closest to your tape's actual length.

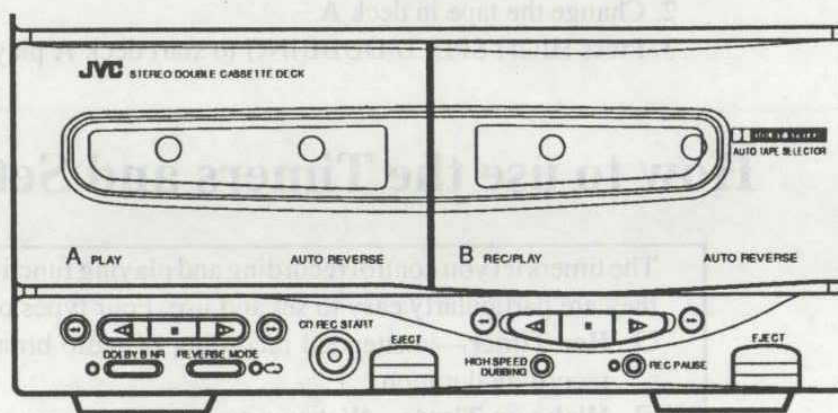


6. Press SIDE A/B, and the display shows which tracks will go on side A and which on side B. Each time you press SIDE A/B the display switches between A and B.

7. Now press CD REC START on the tape deck.

- The tape automatically rewinds to the beginning of side A, a 10 second blank is created, and the CD begins to play and be recorded.
- To stop recording any time during the process, press either Stop  $\blacksquare$  on deck B or  $\blacksquare$ /CLEAR on the CD player. But remember: after you stop, if you restart, the tape will rewind and start recording the CD from the beginning.

### Tape to Tape Recording (Dubbing)



Recording from one tape to another is called dubbing.

You can dub at regular speed for highest quality, or at high speed with a slight loss in sound quality. With high speed it takes only about one-half the time to copy a tape.

#### Tape to Tape Dubbing, Introduction

- Refer back to "Things to Know before You Start Recording" on page 14.
- Refer back to "Listening to a Tape" on page 12 if you have other questions about operating the tape deck.

#### How to Copy a Tape With Regular Speed Dubbing

#### Regular Speed Dubbing, Step by Step

1. Put the cassette you want to copy *from* into deck A for playback.
2. Put the cassette you want to copy *onto* into deck B for recording.
  - Anything already on the cassette in Deck B will be erased as the new sound from deck A is copied onto it.
3. Press REC PAUSE on deck B.
4. Press the Play Forward  $\triangleright$  (or Play Reverse  $\triangleleft$ ) on deck A.
  - Deck A starts playing and you are set to start recording deck A to deck B.
5. Press the Play Forward  $\triangleright$  (or Play Reverse  $\triangleleft$ ) on deck B.
  - Recording starts, deck A playing and deck B recording.

#### Important Dubbing Information

The type of tape (Normal or CrO<sub>2</sub>) you record *from* must be the same as the type you record *onto*.

- When the tape you are recording from in deck A has been recorded with Dolby B NR, you should turn off the Dolby function by pressing DOLBY B NR on the tape deck so the LED is off.
- During regular speed dubbing you can only listen to the source tape. If you don't want to hear it, turn down the VOLUME control or press FADE/MUTING on the Remote. Only the sound you hear will be affected; the recording level is controlled automatically.
- You cannot dub using the sound effects such as DANCE CLUB, HALL, etc.



## High Speed Dubbing, Step by Step

### High Speed Dubbing

Although the quality of the dubbed tape is a little less, high speed dubbing is a very convenient way to record from one tape to another.

1. Put the cassette you want to copy *from* into deck A, and the cassette to be copied *onto* in deck B.
2. Press HIGH SPEED DUBBING on the tape deck.
  - Both decks start, deck A playing and deck B recording.
    - The sound you hear is strange because it is much faster than usual, and you may not want to listen to it. Turn it down with the VOLUME control, or press FADE/MUTING on the Remote.
    - When using high speed dubbing, you can also listen to another source such as the radio or the CD player, just as if you weren't dubbing.
    - During high speed dubbing, if you listen to a CD with Auto Power Off turned on, the whole Unit, including the tape decks, may turn off when the CD ends.

### Recording selections from several different tapes

When you want to take selections from several different tapes and combine them on one tape during high speed dubbing, follow these steps:

1. Press Stop ■ on deck A.
  - This causes deck A to stop, so you can change tapes, and deck B makes a 4 second blank and pauses.
2. Change the tape in deck A.
3. Press HIGH SPEED DUBBING to start deck A playing and deck B recording again.

### Four Timers:

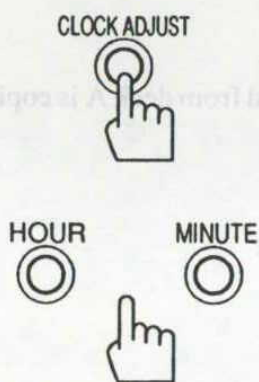
- Record
- Wake up
- Sleep
- Auto Power Off

## How to use the Timers and Set the Clock

The timers let you control recording and playing functions automatically. With the CA-MXS3BK they are particularly easy to set and use. Four types of timers are available:

- Rec Timer**—unattended recording of radio broadcasts. You can set the starting time and recording duration.
- Wake up Timer**—Wake up to music from any source.
- Sleep Timer**—Fall asleep and have your CA-MXS3BK turn off automatically after a certain length of time.
- Auto Power Off**—Automatically turns off the Unit when the CD or tape finishes.

### IMPORTANT! set your clock!



### Clock Setting

The timers depend on the clock: If the clock is right, the timers will work like you expect, but if the time is incorrect on the clock then the timers will also be incorrect.

#### Special Notice: The clock must be set, or the timers cannot be set!

So, let's set the clock first.

1. Press CLOCK ADJUST.
2. Set the hour by pressing HOUR. Each time you press it, the hour advances by one. Hold the button down, and the clock will advance one hour at a time as long as HOUR is held down.
3. Set the minutes by pressing MINUTE. Each time you press MINUTE the minutes advance by one. Hold the button down, and the minutes advance in 10 minute increments as long as MINUTE is held down.
4. Press CLOCK ADJUST again and the clock is set and starts from zero second.

**⚠** If there is a power failure, the clock loses its setting, the display shows "0:00," and it must be reset.



## Recording when you're not there

### Setting the Recording Timer

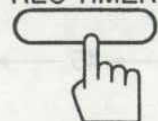
With the recording timer you can make a tape of a radio broadcast automatically whether or not you are there to start the CA-MXS3BK. For the timer to work correctly, you need to make sure of two things in addition to setting the time for the radio and tape recorder to come on:

- The tape you want to record onto must be in deck B.
- The radio station whose program you want to tape must be the last one played before timer comes on.

Follow this procedure to set the Recording Timer:

1. Press REC TIMER— REC TIMER flashes on the display. As long as it is flashing, you can continue with the setting process. If you wait too long, and it stops before you are done, just press REC TIMER twice and start over.
2. Set the time you want the radio to come on and the tape in deck B to start recording.
  - Use HOUR and MINUTE just like setting the clock. See page 17.
3. Press SOURCE/REC TIME to set the length of time for the recording.
  - Each time you press this button, the duration increases by one minute. If you hold the button down, it will advance in ten minute increments up to 120 minutes, which is the maximum time you can set.
  - At the end of the set length of time the radio and deck B will shut off.
  - If you set no time, but leave the display showing —:—, the CA-MXS3BK will not shut off, but keep playing until you shut it off.
4. Press REC TIMER again, or wait eight seconds, and the Unit will memorize the setting. Now the CA-MXS3BK is set to turn on and record the last station set when the Unit was last turned off.
  - Notice that the REC TIMER indicator is lighted up on the display whenever the Recording Timer is set.
5. To cancel the Recording Timer setting, press the REC TIMER button again; the REC TIMER indicator on the display goes off.

REC TIMER



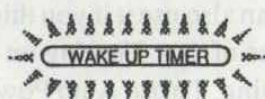
- It is very easy, and can be very disappointing, to forget to put in a tape, or to accidentally leave a tape in deck B you don't want recorded over. Although this happens to almost everyone sometimes, we hope it won't happen to you!
- When the recording timer switches on the CA-MXS3BK, the volume coming out of the speakers is controlled by the VOLUME control, so set it to MIN if you will be out during the recording.

### Wake up Timer

#### Wake up to music with the Wake Up Timer

With this timer you can wake up to music from a CD, tape or your favourite radio program.

1. Press WAKE UP TIMER—The WAKE UP TIMER display will light up the display screen.
2. Set the time you want the Unit to turn on.
  - Use HOUR and MINUTE just like setting the clock. See page 17.
3. Set the source by pressing SOURCE/REC TIME. Each time you press this button, the display screen shows one of the four possible sources: CD, TAPE, FM or AM (MW/LW). Leave the one you want lit.
4. Press WAKE UP TIMER again, or wait eight seconds, and the CA-MXS3BK memorizes your settings.
  - The WAKE UP TIMER indicator remains lit on the display screen to let you know that the Wake Time is set.
5. To cancel the WAKE UP TIMER setting, press WAKE UP TIMER again, and the WAKE UP TIMER indicator on the display will turn off.



#### Hints for using your Wake up Timer:

- If you select AM (MW/LW) or FM as the source, the last played station is the one which comes on at Wake Up time set.
- The volume when the timer turns on the source is the volume last set when the CA-MXS3BK was turned off. This can be quite a surprise first thing in the morning, so you might want to reset it before going to sleep.
- If the CD is the source, it starts playing from the first track.



**Sleep Timer: turns the Unit off automatically after a set time**



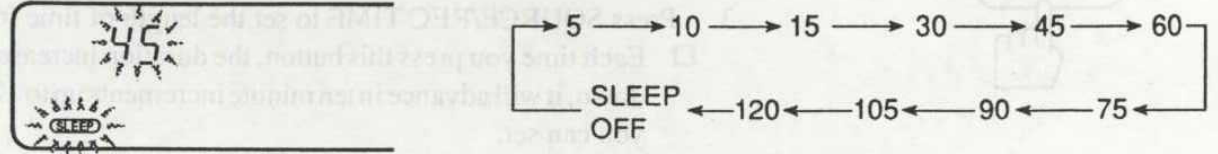
## Sleep Timer

Use the sleep timer to turn the Unit off after a certain number of minutes when it is playing. Using this timer, you can fall asleep to music and know your CA-MXS3BK will turn off by itself rather than play all night.

- You can only set the Sleep Timer when the CA-MXS3BK is on and a source is playing.
- To cancel the Sleep Timer setting simply press SLEEP until the SLEEP indication disappears from the display. Turning off the Unit also cancels the Sleep Timer.

To set the Sleep Timer follow this procedure:

1. With the CA-MXS3BK on and a source playing, press SLEEP. The SLEEP indicator on the display will start blinking.
2. Set the length of time you want the source to play before shutting off.
  - Each time you press SLEEP while the SLEEP indication is blinking, it changes the number of minutes shown on the display in this sequence:



- The actual time when the CA-MXS3BK will shut off shows in the right hand corner of the display where the clock time is usually displayed.
- When the number of minutes you want shows on the display, just wait 8 seconds until the indicator stops blinking, but remains lighted.

The Unit will now turn off after the number of minutes you set.

## Timer Priority

Since each timer can be set independently, you may have wondered what happens if the settings overlap: for instance, suppose you set the Recording Timer to record a broadcast from 1 am to 1:30 am, and then you set the sleep timer at midnight to run until 2 am. Will you still get your radio program recorded? Here are the priorities for each timer:

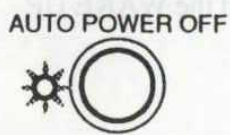
- The Recording Timer always has priority. This means that:
  - If another timer is set to come on during a time the Recording Timer is operating, the other timer just won't come on at all, so you will always get the entire program on tape.
  - If the Recording Timer is set to come on while another timer is in charge, the other timer will shut off 10 seconds before the Recording Timer is set to turn on, and the Recording Timer will then take over.
- The Sleep Timer has priority over the Wake up Timer. This is important because if you set the Sleep Timer to end after the Wake up Timer would start, the Wake up Timer doesn't come on. So if you want your alarm to go off as scheduled, be sure the Sleep Timer shuts off before the Wake up Timer is to turn on the Unit.

## Turning off the CA-MXS3BK Automatically

When playing either a tape or a CD, Auto Power Off will shut the Unit off when the tape or CD comes to the end. Although Auto Power Off is very useful for shutting off the CA-MXS3BK at night, you can also use it if you think you might forget to turn the Unit off when leaving the house or your room at other times of day. Turning on or off the Auto Power Off is easy, but there are a few things to know about it if a tape is playing. To use Auto Power Off:

- Press AUTO POWER OFF, which is located between the display screen and the VOLUME control.
  - If the LED is on, Auto Power Off is on, and the source will automatically turn off when the tape or CD finishes.
  - If the LED is off, Auto Power Off is also off.
- Even if the Tuner Entry function is on, Auto Power Off will not switch at the end of the CD or tape to the radio as is usual with Tuner Entry on. Instead, Auto Power Off shuts everything off.
- Even if both tape decks are loaded, the Unit turns off when the currently playing deck finishes; however, in reverse play mode, the Unit plays the side currently playing, reverses and plays the other side, then shuts off.

**Auto Power Off: turns off your CA-MXS3BK automatically**





## Singing Along

### What is Vocal Masking?

Have you ever wished you could sing with a real band, in place of the lead singer? The VOCAL MASKING (voice canceller) button lets you use regular tapes, CDs or records as sources of sing-along music. When you press VOCAL MASKING, the lead vocal is reduced, and you can replace it by singing into the microphone as the music plays. No microphone is supplied with the CAMXS3BK, so you can select your own from the many kinds available. Remember: the sound quality is greatly affected by the quality of the microphone.

### Singing-Along Procedure

#### How to Sing Along with Vocal Masking:

1. Turn the MIC LEVEL control all the way counterclockwise to the MIN position.
2. Attach the microphone (not supplied) by plugging it into the MIC jack in the amplifier section.
3. Start the source—CD, Tape, connected VTR, Record Player.
4. Press VOCAL MASKING—the LED will light up.
5. Now adjust the volume of the source with the main VOLUME control, and the volume of your voice with the MIC LEVEL control as you sing into the microphone.

### Recording a Singing-Along Session

#### Recording Your Singing-Along

You can record a singing-along session under certain conditions.

- You cannot record your singing-along when the main source is a tape in deck A.

Here's the procedure for recording your singing-along:

1. Put the cassette you want to record onto in deck B.
2. Press REC PAUSE—see Recording, page 14 if you need more information about tape recording.
3. Follow the above procedure "How to Sing Along with Vocal Masking."
4. Press Play Forward ▷ (or Play Reverse ◁) on deck B, and deck B will start recording the source together with your voice in place of the lead vocal.

#### Important information about Vocal Masking

- Because the radio signal is not as reliable as signals coming from a tape or CD, you may not always get satisfactory results using the radio as a source for Vocal Masking.
- Some tapes and CDs are better sources for singing along than others.
  - Mono sources are not suitable for Vocal Masking.
  - On sources with duets, strong echoes, a chorus, or with only a few instruments, the singer's voice may not be completely reduced.
  - Poorly dubbed tapes may not work well for Vocal Masking.



## Recording from the Microphone

### Two ways of recording with the Microphone

You can use the microphone for two kinds of recording:

- Mixing**—Sound going into the microphone is mixed with sound sent to the tape in deck B from some other source, such as the CD, or radio.
- Regular recording**—Only sound picked up by the microphone is recorded.

### Mixing

1. Put the cassette you want to record onto in deck B.
2. Connect the microphone to the MIC Jack.
3. Set deck B to recording pause mode by pressing REC PAUSE.
4. Start the source (radio, CD, and PHONO/AUX) and set the VOLUME control.
5. Adjust the microphone volume with the MIC LEVEL control.
6. When you are ready to record, press Play Forward ▷ (or Play Reverse ◁) on deck B, and both sound from the microphone and from the playing source will be recorded.

### Regular Microphone Recording

1. Put the cassette you want to record onto in deck B.
2. Connect the microphone to the MIC Jack.
3. Set deck B to recording pause mode by pressing REC PAUSE.
4. Adjust the volume of the microphone with the MIC LEVEL control.
5. Now when you press Play Forward ▷ (or Play Reverse ◁) on deck B, whatever sounds the microphone picks up will be recorded.

### Important information for using the microphone

### Special Techniques for using the microphone

- You may have to experiment some to see just where to set the MIC LEVEL control to get the best recorded sound.
- To prevent howling and squealing when using the microphone, adjust the MIC LEVEL control and the VOLUME control, and try not to point the microphone at the speakers.
- When you are not using the microphone, keep the MIC LEVEL control set to MIN. It is best to disconnect the microphone when you will not be using it for a while.



# How to Use the Remote Control

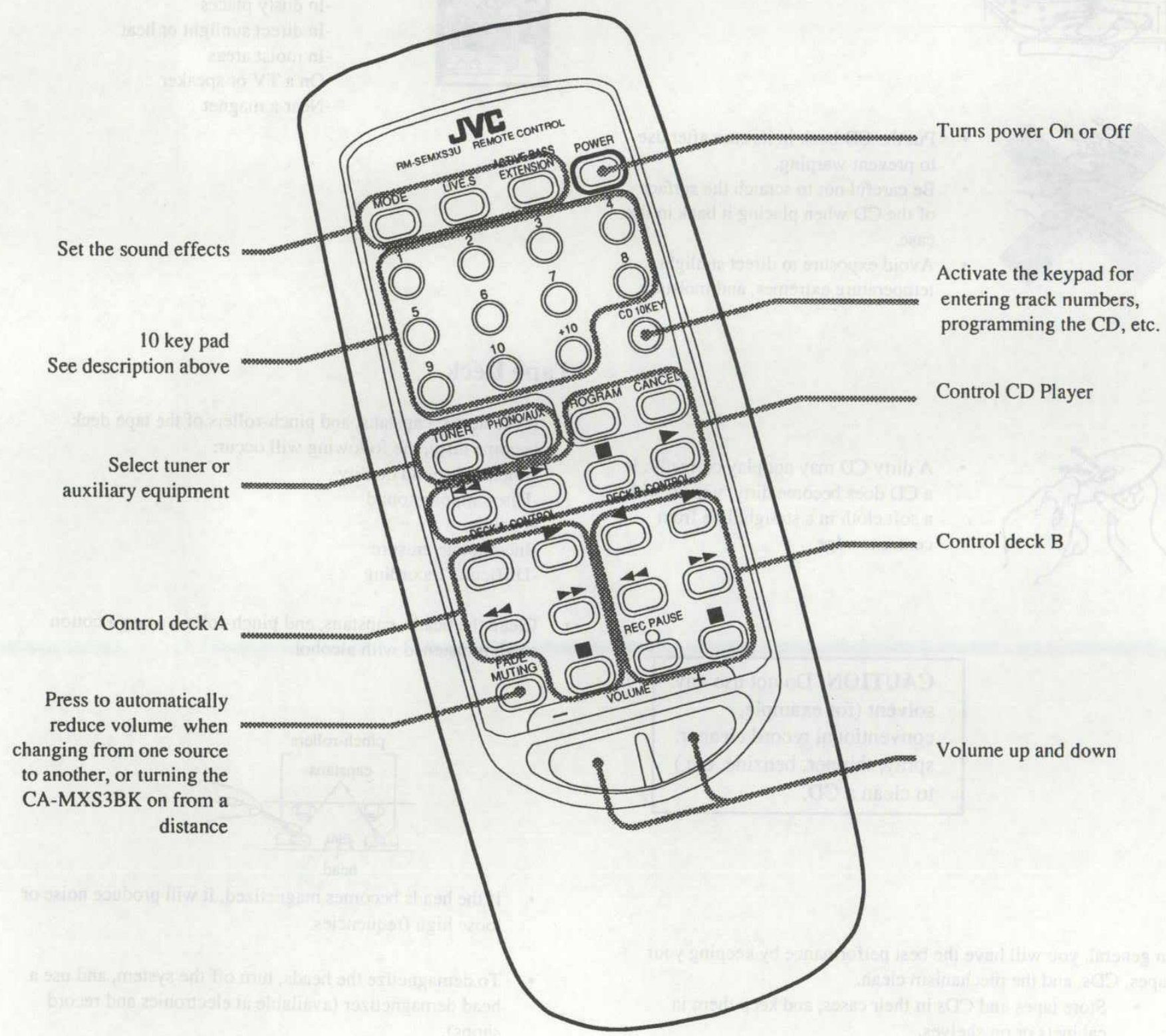
The Remote Control makes it easy to control many of the functions of the CA-MXS3BK from a distance of up to 20 feet away. You do need to point the remote sensor at the CA-MXS3BK console.

Most of the buttons on the Remote Control do just what the ones on the front of the CA-MXS3BK do, and they are explained in the manual. A few functions are available only by using the Remote Control, and those are described below.

## Using the Keypad

The Keypad is used to specify a CD track or the number you have assigned to a preset radio station. To enter a number using the key pad follow these steps:

- For numbers between 1 and 10, just press the button with the number you want.
- For numbers from 11 to 20, first press the +10 key, then the one's digit of the number you want—to get 15, first press +10, then 5. For 20 press +10 and 10 .
- For numbers from 21 to 30, press the +10 key twice; then press the one's digit—to get 25, press +10 +10 and 5 . For 30, press +10 +10 and 10
- For numbers from 31 and 40, follow the same procedure, only press the +10 key three times, then the one's digit—to get 32, press +10 +10 +10 and 2.





## Care and Maintenance—General Notes

### Compact Discs

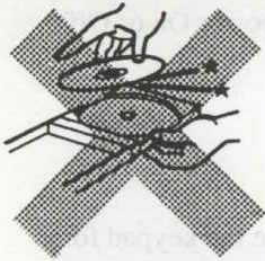
Handle your compact discs, cassette tapes, and tape deck carefully, and they will last a long time.



- Remove the CD from the case by holding it at the edges while pressing the center hole lightly.
- Do not touch the shiny surface of the CD, or bend the CD.



- Place the CD into the open tray with the label facing up.



- Put the CD back in its case after use to prevent warping.
- Be careful not to scratch the surface of the CD when placing it back in the case.
- Avoid exposure to direct sunlight, temperature extremes, and moisture.



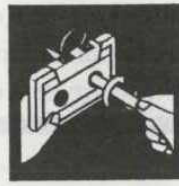
- A dirty CD may not play correctly. If a CD does become dirty, wipe it with a soft cloth in a straight line from center to edge.

**CAUTION:** Do not use any solvent (for example, conventional record cleaner, spray, thinner, benzine, etc.) to clean a CD.

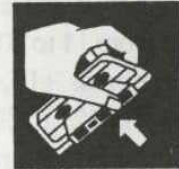
In general, you will have the best performance by keeping your tapes, CDs, and the mechanism clean.

- Store tapes and CDs in their cases, and keep them in cabinets or on shelves.
- Keep the tape deck tape carriers and the CD tray closed when not in use.

### Cassette Tapes



- If the tape is loose in its cassette, take up the slack by inserting a pencil in one of the reels and rotating.
- If the tape is loose it may get stretched, cut, or caught in the cassette.



- Do not touch the tape surface.

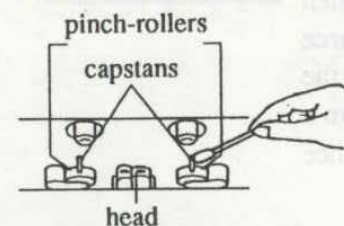


- Do not store the tape:
  - In dusty places
  - In direct sunlight or heat
  - In moist areas
  - On a TV or speaker
  - Near a magnet

### Tape Deck

- If the heads, capstans, and pinch-rollers of the tape deck become dirty, the following will occur:
  - Impaired sound quality
  - Discontinuous sound
  - Fading
  - Incomplete erasure
  - Difficulty recording

- Clean the heads, capstans, and pinch-rollers using a cotton swab moistened with alcohol.



- If the heads becomes magnetized, it will produce noise or loose high frequencies.
- To demagnetize the heads, turn off the system, and use a head demagnetizer (available at electronics and record shops).

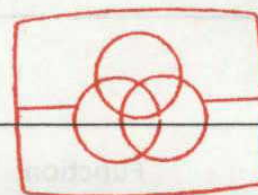


## Troubleshooting

- If you are having a problem with your CA-MXS3BK, check this list for a possible solution before calling for service.
- If you cannot solve the problem from the hints given here, or the Unit has been physically damaged, call a qualified person, such as your dealer, for service.

Symptom	Possible Cause	ACTION
No sound is heard.	Connections are incorrect, or loose.	Check all connections and make corrections. (See pages 3 and 4.)
Impossible to record.	Cassette record protect tabs are removed.	Cover holes on back edge of cassette with tape.
Hard to listen to broadcasts because of noise.	The antenna is disconnected. The loop antenna is too close to the system. The feeder/wire antenna is not properly extended and positioned.	Re-connect the antenna securely. Change the position and direction of the loop antenna. Extend feeder/wire antenna at the best reception position.
The CD sound is discontinuous.	The CD is scratched or dirty.	Clean or replace the CD.
Unable to operate the Remote.	The path between the Remote and the sensor on the Unit is blocked. The batteries are discharged.	Remove the obstruction. Replace the batteries.
The CD tray cannot be operated.	The main AC power cord is not plugged in.	Plug in the AC power plug.
The CD does not play.	The CD is upside down.	Put the CD in with the label side up.
Operations are disabled.	The built in microprocessor may malfunction due to external electrical interference.	Unplug the system then plug it back in.
The cassette carrier cannot be opened.	The system was turned off because the timer was operated while the tape was running.	Turn On the system.

## Specifications



Free service manuals  
Gratis schema's

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[www.freeservicemanuals.info](http://www.freeservicemanuals.info)

<b>Amplifier</b>		<b>AM Tuner</b>	
Output Power (IEC 268-3/DIN)		MW- Tuning Range 522 ~ 1,629 kHz	
25 watts per channel, min. RMS, both channels driven, into 6 ohms at 1 kHz with no more than 0.9% total harmonic distortion.		LW- Tuning Range 144 ~ 353 kHz	
Input Sensitivity/Impedance (1 kHz)		144 ~ 290 kHz (Italy only)	
PHONO/AUX (selectable)		<b>Compact Disc Player</b>	
PHONO	3 mV/50 kohms	Dynamic Range (1 kHz) 90 dB	
AUX	300mV/50 kohms	Signal-to-Noise Ratio 100 dB	
MIC	2 mV/10 kohms	Wow and Flutter Unmeasurable	
Speaker terminals		<b>General</b>	
Main speakers	6 ohms	Power Requirements 230 V AC, 50 Hz	
<b>Tape deck</b>		Power Consumption 94 Watts	
Frequency response		Dimensions (Approx.) 245 x 265 x 344.5 mm (W/H/D)	
CrO <sub>2</sub> :	30 ~ 16,000 Hz	(9 <sup>3</sup> / <sub>4</sub> x 10 <sup>1</sup> / <sub>2</sub> x 13 <sup>3</sup> / <sub>16</sub> in.)	
Normal:	30 ~ 15,000 Hz	Weight (Approx.) 7.3 kg (16.1 lbs)	
Wow and Flutter	0.08% (WRMS)	<b>Supplied Accessories</b>	
<b>Tuner</b>		FM wire antenna (only for Germany) (1)	
<b>FM Tuner</b>		FM feeder antenna (except for Germany) (1)	
Tuning Range	87.5 ~ 108.0 MHz	AM loop antenna (1)	
Usable Sensitivity	0.95 μV/75 ohms (10.8 dBf)	Remote control (RM-SEMXS3U) (1)	
Signal-to-Noise Ratio	MONO (at 85 dBf) 80 dB	Batteries R03(UM-4)/AAA(24F) (2)	
(IHF-A weighted)	STEREO (at 85 dBf) 73 dB	Antenna adaptor (except for Germany) (1)	
Design and specifications subject to change without notice.			



# Description of Major LSIs

## ■ HD404019RC02S(IC801) : CD/TUNER controller

### 1. Terminal Layout

F OUT	1	64	MONO
CLK	2	63	MUTE
DATA	3	62	PLAY LED
CS	4	61	CD POWER
TDATAI	5	60	FOK
TCLK	6	59	DFCT SW
TDATA	7	58	XRST
TCE	8	57	SENS
	9	56	LOCK
CS 0 BAND0	10	55	DCS OUT
CS 1 BAND1	11	54	DCS IN
CS 2 9K/10K LW	12	53	GND
CS 3 GI	13	52	OSC 2
9K.T.P.	14	51	OSC 1
STEREO	15	50	TEST
TUNED	16	49	RESET
INH IN	17	48	KI3
TUNER TEST	18	47	KI2
V DISP	19	46	KI1
CL SW	20	45	KI0
OP SW	21	44	
CD TEST	22	43	KO6
SCOR	23	42	KO5
L.ON	24	41	KO4
XCX	25	40	KO3
CLOSE	26	39	KO2
OPEN	27	38	KO1
CD CLK	28	37	KO0
CD DATA	29	36	
XLT	30	35	
AMP RESET	31	34	SQSO
VCC	32	33	SCLK

### 2. Key Matrix

	KEY I 0 (PIN 45)	KEY I 1 (PIN 46)	KEY I 2 (PIN 47)	KEY I 3 (PIN 48)
KEY O 0 (PIN 37)	RANDOM	WAKE UP	SLEEP	REC TIME
KEY O 1 (PIN 38)	JUST EDIT	FM	Hour	CLOCK ADJ
KEY O 2 (PIN 39)	REPEAT	AM	Min	AUTO PRESET
KEY O 3 (PIN 40)	A/B	TUN V	REC TIME	MEMORY
KEY O 4 (PIN 41)	PROGRAM	TUN ^	PRESET <	-
KEY O 5 (PIN 42)	⏮	▶	PRESET >	-
KEY O 6 (PIN 43)	⏭	■	▲	-

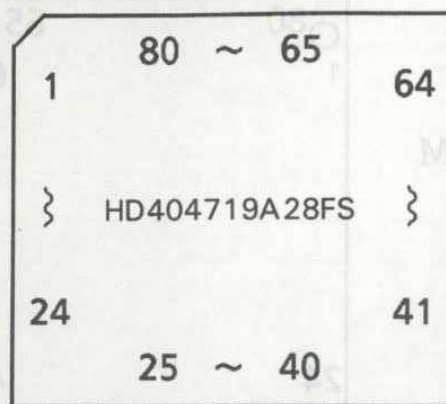
### 3. Terminal Functions

Pin No.	Symbol	I/O	Function	Pin No.	Symbol	I/O	Function
1	F OUT	O	Frequency output (TP801)	28	CD CLK	O	Clock for data transmission
2	CLK	O	Clock to transmit data to IC802 (FL driver)	29	CD DATA	O	Serial data for signal processor of cd
3	DATA	O	Data output to IC802 (FL driver)	30	XLT	O	Latch signal for data transmission
4	CS	O	Chip select signal to IC802	31	AMP RESET	O	Reset signal to IC901
5	TDATAI	I	Data from IC102	32	VCC	--	Power supply
6	TCLK	O	Clock to transmit data to IC102	33	SCLK	O	Clock output for SQSO transmission
7	TDATA	O	Data output to IC102	34	SQSO	I	Input of Q-data of subcode
8	TCE	O	Chip select signal to IC102	35,36	-	--	Connected to GND
9	-	--	Connected to GND	37~43	KO0~KO6	O	Key matrix (out)
10	CS 0 BAND0	--	Tuner chip select	44	-	--	Connected to GND
11	CS 1 BAND1	--	Tuner chip select	45~48	KI0~KI3	I	Key matrix (in)
12	CS 2 9K/10K LW	--	Tuner chip select	49	RESET	I	Reset signal input
13	CS 3 GI	--	Not used	50	TEST	--	Pulled up
14	9K.T.P.	--	Not used	51	OSC 1	I/O	Oscillation terminal
15	STEREO	I	Input for 'STEREO' indication	52	OSC 2	I/O	Oscillation terminal
16	TUNED	I	Input for 'TUNED' indication	53	GND	--	GND
17	INH IN	I	Inhibition signal	54	DCS IN	I	DCS signal input
18	TUNER TEST	--	TEST mode terminal (TP801)	55	DCS OUT	O	DCS signal output
19	V DISP	--	Connected to GND	56	LOCK	I	Input terminal for LOCK signal
20	CL SW	I	'L' with the tray closed	57	SENS	I	Input terminal for SENS signal
21	OP SW	I	'L' with the tray opened	58	XRST	O	Reset signal output
22	CD TEST	--	TEST mode terminal (T.P.2)	59	DFCT SW	O	'H' with focus searching
23	SCOR	I	Subcode synchronizing signal is input	60	FOK	I	Input terminal for focus ok signal
24	L.ON	O	Laser control signal	61	CD POWER	O	Power control signal to cd section
25	XCX	O	'H' with tracking loop is off.	62	PLAY LED	O	Output terminal for indication of cd
26	CLOSE	O	'H' with the tray closing	63	MUTE	O	Muting signal to tuner section
27	OPEN	O	'H' with the tray opening	64	MONO	--	Not used.



## ■ HD404719A28FS(IC901) : System controller

### 1. Terminal Layout



### 2. Key input

IN1	IN2	IN3	IN4	IN5	IN6	IN7
A CrO <sub>2</sub>	REV REC	KARAOKE	POWER	A ◀◀	B ◀◀	DOLBY B
B CrO <sub>2</sub>	FWD REC	BASS	AI SLEEP	A ◀	B ◀	REV. MODE
A PACK	B PACK	SURR.	TUNER ENTRY	A ■	B ■	CD D REC
—	—	STADIUM	AUX	A ▶	B ▶	H.S.D.
—	—	HALL	—	A ▶▶	B ▶▶	REC P
—	—	DISCO	—	—	—	—

### 3. Terminal Functions

Pin No.	Symbol	I/O	Function	Pin No.	Symbol	I/O	Function
1	IN1	I	Detecting buttons and switches	41	BFR	O	Reel motor control signal (forward)
2	IN2	I	Detecting buttons and switches	42	BRR	O	Reel motor control signal (reverse)
3	PRT	I	Input from protector circuit	43	BRC	O	Cam motor control signal (counterclockwise)
4	AD GND	---	Ground for A/D converter	44	BFC	O	Cam motor control signal (clockwise)
5	AMP RESET	I	Reset signal from IC801	45	AFR	O	Reel motor control signal (forward)
6	OSC1	---	Oscillation terminal	46	ARR	O	Reel motor control signal (reverse)
7	OSC2	---	Oscillation terminal	47	ARC	O	Cam motor control signal (counterclockwise)
8	LGND	---	GND	48	AFC	O	Cam motor control signal (clockwise)
9	—	---	Connected to GND	49	—	---	Connected to GND
10	—	---	Connected to GND	50	ASC2	I	Input of mechanism information (deck A)
11	TEST	---	Connected to +5V	51	ASC1	I	Input of mechanism information (deck A)
12	+5V	---	Power supply	52	ACS0	I	Input of mechanism information (deck A)
13	DCS IN	I	DCS signal input	53	BCS2	I	Input of mechanism information (deck B)
14	DCS OUT	O	DCS signal output	54	BCS1	I	Input of mechanism information (deck B)
15	FADE	O	Fade recording control	55	BCS0	I	Input of mechanism information (deck B)
16	BIAS	O	Bias circuit control (on/off)	56	SMT	O	Muting control (Power on/off)
17	ACAP	O	Drive signal for the capstan motor of deck A	57	G	O	Control signal for IC909
18	BCAP	O	Drive signal for the capstan motor of deck B	58	ADSO	O	Serial data to IC909
19	AMC	O	Speed control signal for deck A	59	RCK	O	Strobe output to IC909
20	BMC	O	Speed control signal for deck B	60	AD SCK	O	Clock output to IC909
21	APLS	I	Input of reel pulse (Deck A)	61	RMIN	I	Input from remote signal detector
22	BPLS	I	Input of reel pulse (Deck B)	62	SP CLK	O	Clock output to IC803
23	RMT	O	Recording mute control	63	DI	O	Data output to IC803
24	NR	O	Noise reduction control	64	CS	O	Chip select signal to IC803
25	NR REC	O	Mode control of NR (REC/PLAY)	65	MSI	I	Blank detection terminal for music scanning
26	H.S.D.	O	Control signal for high-speed dubbing	66	CLK	O	Clock output to IC403 (Tone selector)
27	PBCR	O	Playback equalizer control	67	STB	O	Strobe output to IC403 (Tone selector)
28	DISCO	O	Indication signal	68	DATA	O	Data output to IC403 (Tone selector)
29	LC	O	Rec. EQ control (Normal speed : CrO <sub>2</sub> )	69	POWER	O	Power control
30	HC	O	Rec. EQ control (High speed : CrO <sub>2</sub> )	70	SPK	O	Speaker relay control
31	HN	O	Rec. EQ control (High speed : Normal)	71	VOL DOWN	O	Master volume control
32	BCR	O	'L' when using high position tape	72	VOL UP	O	Master volume control
33	SURR	O	Indication signal	73	A PLAY	O	'H' with deck A playing
34	AI SLEEP	O	Indication signal	74	PB MUTE	O	Muting control for cassette decks
35	BGM.M	O	Indication signal	75	AD VCC	---	+5V
36	KARAOKE	O	Indication signal	76	IN3	I	Detecting buttons and switches
37	A.BASS	O	Indication signal	77	IN4	I	Detecting buttons and switches
38	STB-BY	O	Indication signal	78	IN5	I	Detecting buttons and switches
39	STADIUM	O	Indication signal	79	IN6	I	Detecting buttons and switches
40	HALL	O	Indication signal	80	IN7	I	Detecting buttons and switches



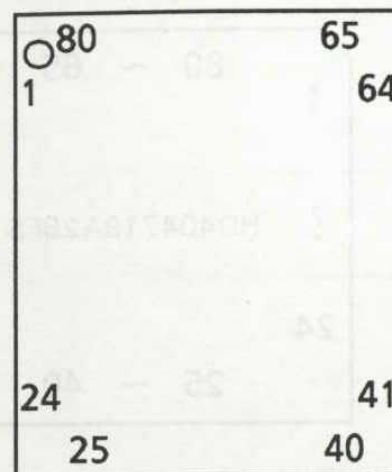
### ■ CXD2505Q(IC701) : DIGITAL SIGNAL PROCESSOR

#### 1. Outline

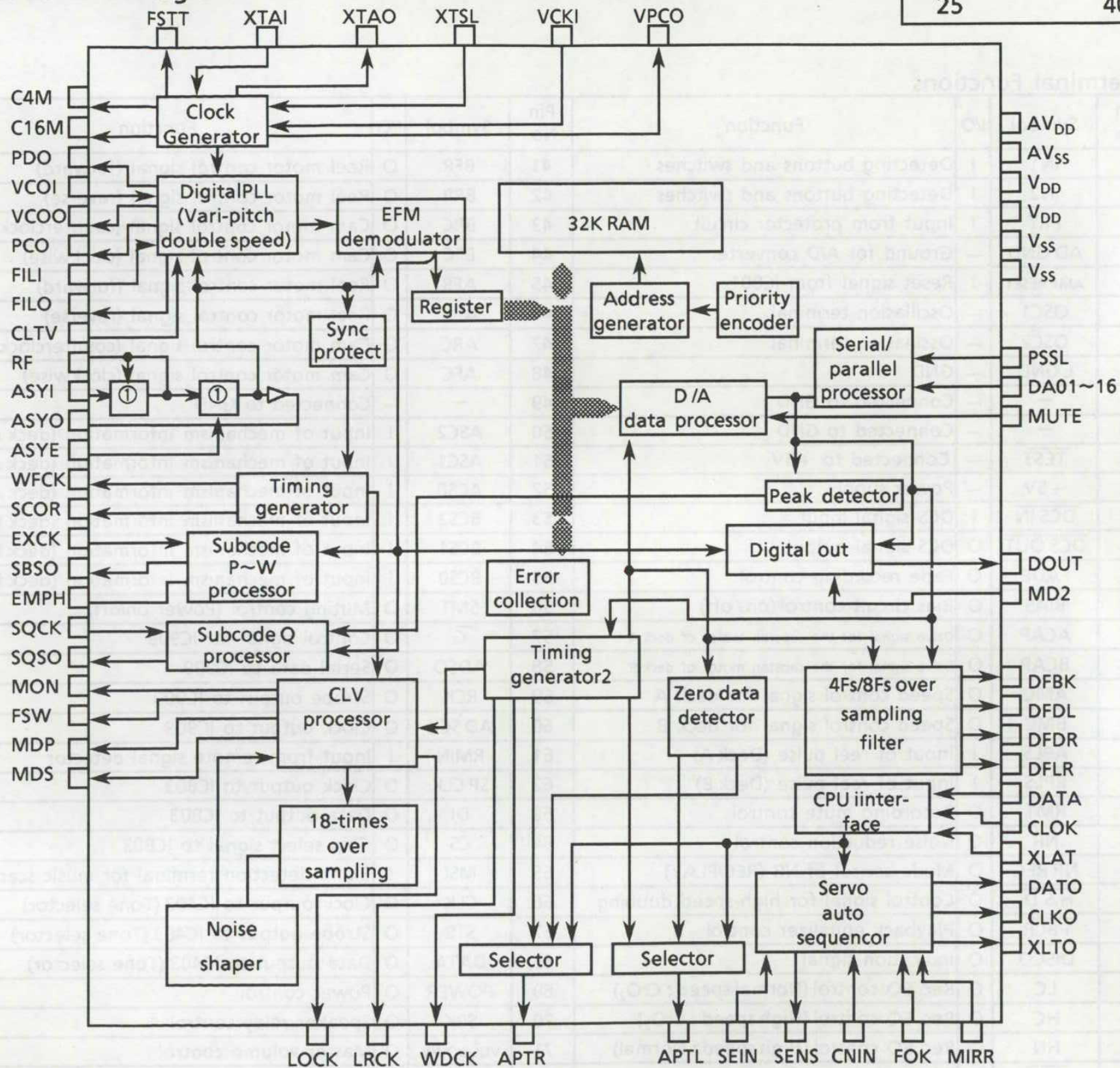
The CXD2505Q is a digital signal processing LSI designed for use in compact disc players. It has the following functions:

- All digital signals for regeneration are processed using one chip.
- The built-in RAM enables high-integration mounting.
- Generation by the use of a digital PLL of bit clock pulses for strobing the EFM signal.
- EFM data demodulation
- Subcode demodulation and subcode Q data error detection
- Digital spindle servo system (incorporating an oversampling filter)

#### 2. Terminal Layout



#### 3. Internal Block Diagram



#### Notes:

- The data at the 64-bit slot is output in 2's complements on an LSB-first basis. The data at the 48-bit slot is output in 2's complements on an MSB-first basis.
- GTOP monitors the state of Frame Sync protection. ("H" : Sync protection window released)
- XUFG is a negative Frame Sync pulse obtained from the EFM signal before Frame Sync protection is effected.
- XPLCK is an inversion of the EFM PLL clock. The PLL is designed so that the falling edge of XPLCK coincides with a change point of the EFM signal.
- The GFS signal turns "H" upon coincidence between Frame Sync and the timing of interpolation protection.
- RFCK is a signal generated at 136- $\mu$ s periods using a crystal oscillator.
- C2PO is a signal to indicate a data error.
- XRAOF is a signal issued when a jitter margin of  $\pm 28F$  is exceeded by the 32K RAM.