

# KR-V990D/V9080

## SERVICE MANUAL

# KENWOOD

BS1-5166-00

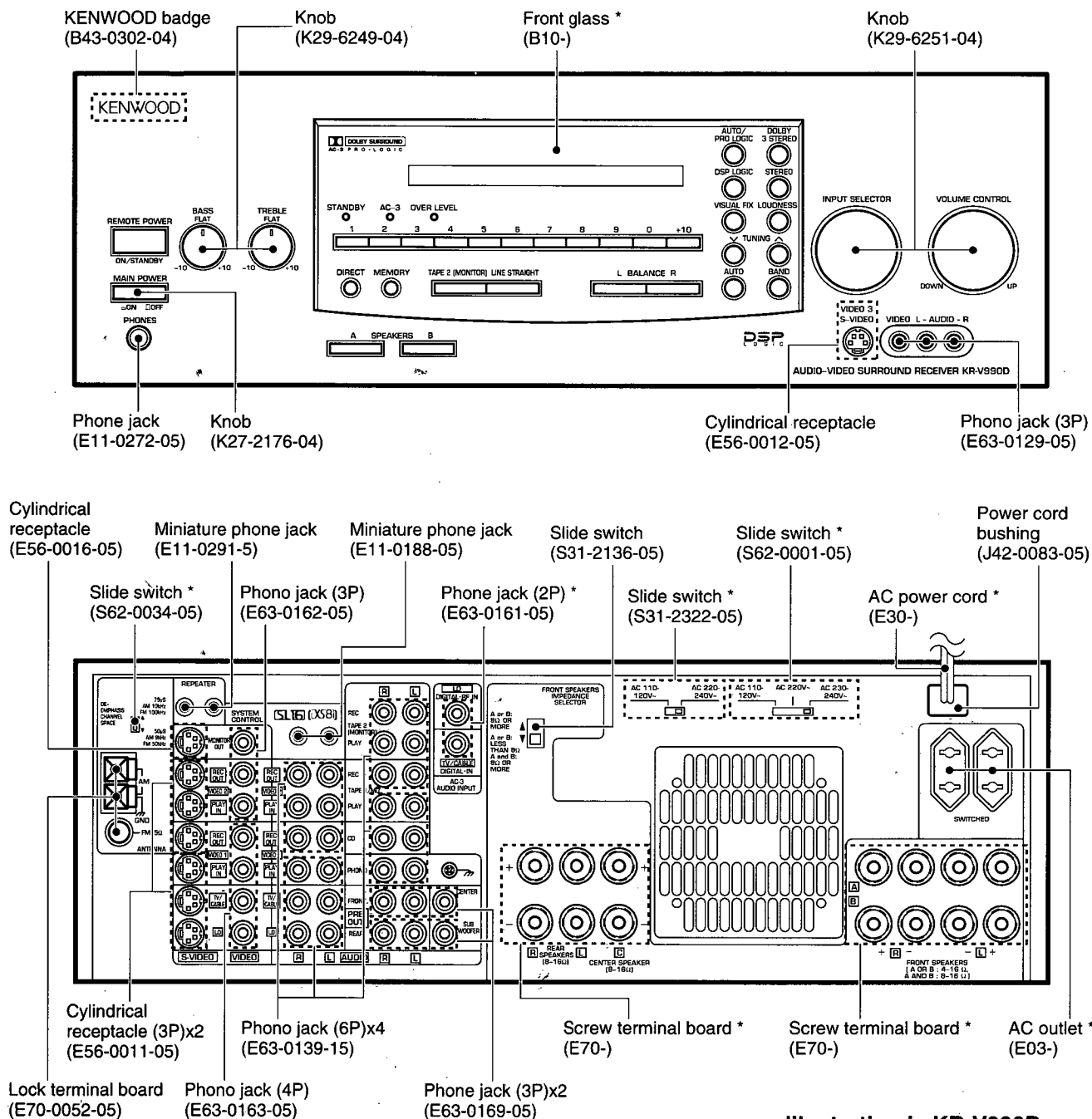


Illustration is KR-V990D.

\* Refer to parts list on page 89.

### PRECAUTIONS FOR REPAIR

- Can not use jig **KSJ-0816** for the transmission frequency  $455 \pm 2.2\text{kHz}$  of remote controller.
- For the serial test mode of the **CIRCUIT DESCRIPTION**, see Service Manual (**B51-5162-00**) of **KR-V7080/V8080**.

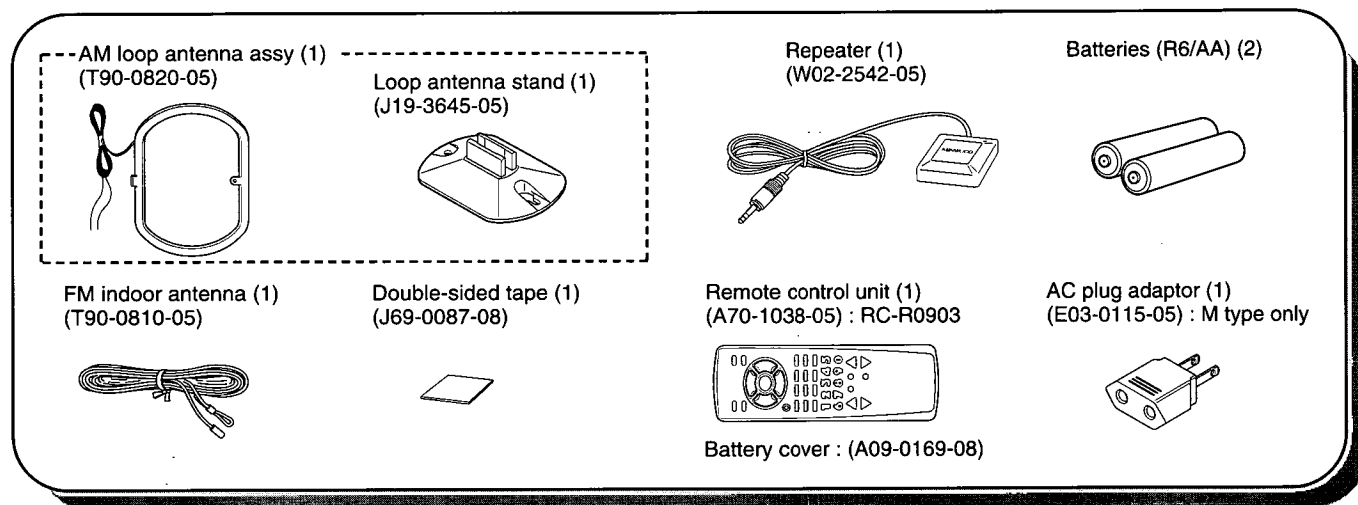
# KR-V990D/V9080

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### Accessories



### SWITCHING FROM [ XS8 ] TO [ SL16 ]

You can easily change the system control mode with the following operation. Do this operation after completing all connections.

Switching to [ SL16 ] : Hold down the AUTO key and switch the MAIN POWER key from OFF to ON.

Switching back to [ XS8 ] : Hold down the BAND key and switch the MAIN POWER key from OFF to ON.

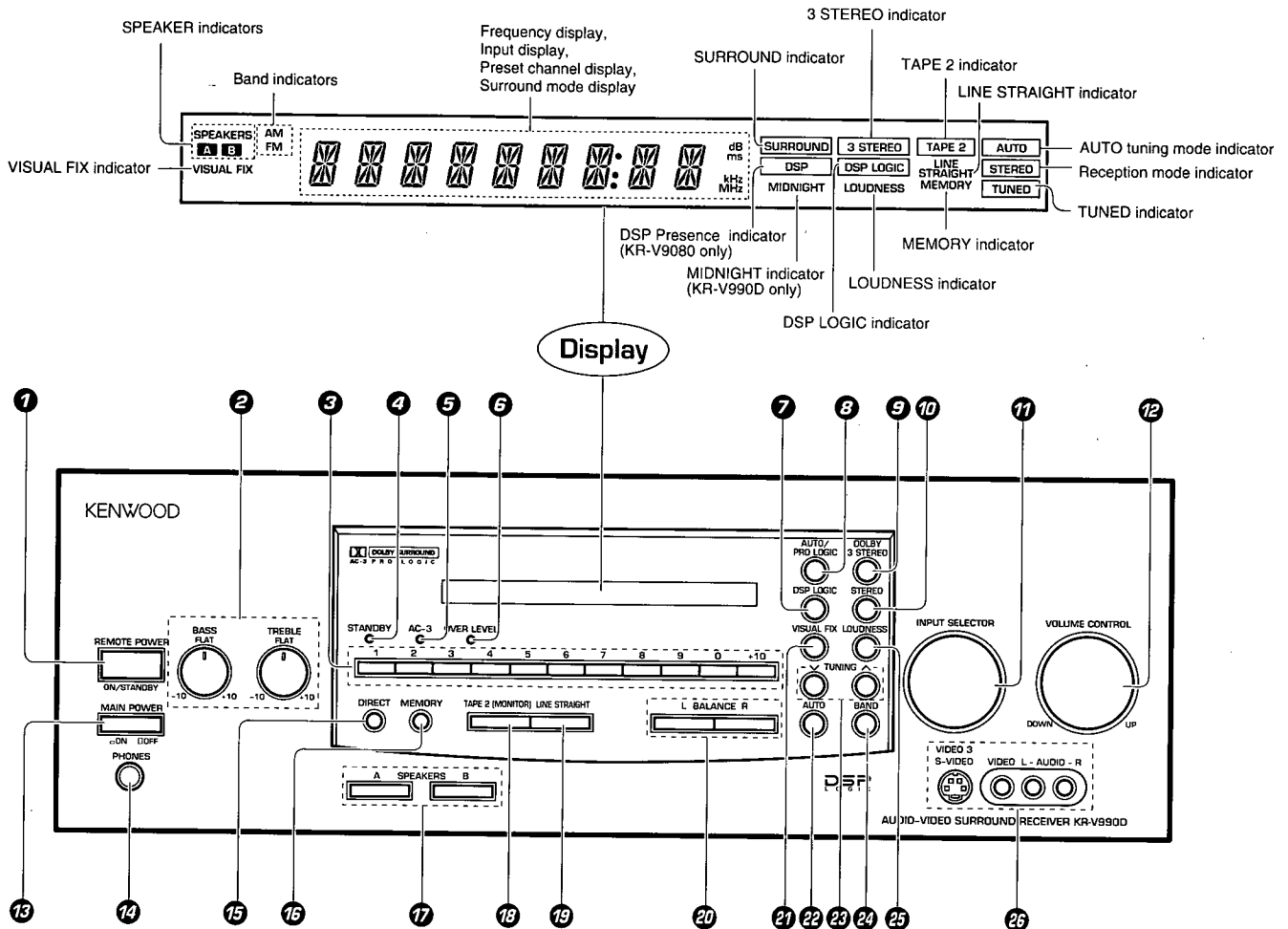
- This operation will not affect items stored in the memory.

**Note :** The system control mode will revert to [ XS8 ] if the unit is not turned on for three consecutive days. If you would like to make the unit completely (and permanently) [ SL16 ] compatible, please consult your nearest retailer or the Kenwood Marketing Department.

μ-COM (hard) match : Can be set 8pin of main μ-COM (UPD78058GC-XXX).

# KR-V990D/V9080

## CONTROLS



- 1 REMOTE POWER key**  
Use to switch the power ON/STANDBY when the MAIN POWER is turned ON.
- 2 Tone Control knobs**
- 3 Numeric keys**
- 4 STANDBY indicator**
- 5 AC-3 indicator (KR-V990D only)**  
Lights when an AC-3 format signal is being played back.
- 6 OVER LEVEL indicator (KR-V990D only)**  
Lights when the level of the signal being input is too high.
- 7 DSP LOGIC key (KR-V990D)**  
**DSP/DSP LOGIC key (KR-V9080)**  
Use to turn on, or switch, the DSP LOGIC mode.
- 8 AUTO/PRO LOGIC key (KR-V990D)**  
**DOLBY PRO LOGIC key (KR-V9080)**  
Use to turn on, or switch, the DOLBY SURROUND mode.
- 9 DOLBY 3 STEREO key**  
Use to turn on the DOLBY 3 STEREO mode.
- 10 STEREO key**  
Use to cancel the surround mode.
- 11 INPUT SELECTOR knob**  
Use to select the input sources.
- 12 VOLUME CONTROL knob**
- 13 MAIN POWER key**  
Use to turn the POWER ON/OFF.
- 14 PHONES jack**  
Use for headphone listening.
- 15 DIRECT key**  
Use to tune radio stations directly by numerical input.
- 16 MEMORY key**  
Use to store radio stations in the preset memory.
- 17 SPEAKERS A/B keys**  
Use to turn the speakers ON/OFF.
- 18 TAPE 2 [MONITOR] key**  
Use to monitor a recording.
- 19 BALANCE keys**  
Use to adjust the volume balance between left and right.
- 20 BALANCE keys**  
Use to adjust the volume balance between left and right.
- 21 VISUAL FIX key**  
Use to lock on to the current video input.
- 22 AUTO key**  
Use to select the auto tuning mode.
- 23 TUNING keys**  
Use to tune in radio broadcasts.
- 24 BAND key**  
Use to select the broadcast band.
- 25 LOUDNESS key**  
Use to emphasize deep base sounds.
- 26 VIDEO-3 terminals**

### REMOTE POWER switch STANDBY mode

When the receiver's power cord is plugged in to an AC outlet and the **MAIN POWER** key is turned ON, the **STANDBY** indicator will remain lit, regardless of the ON/STANDBY setting of the **REMOTE POWER** switch. This indicates that a small amount of current is being supplied to the receiver in order to back up the memory contents. This is called the Standby mode. When the standby indicator is lit, the receiver can be switched ON/STANDBY from the remote control.

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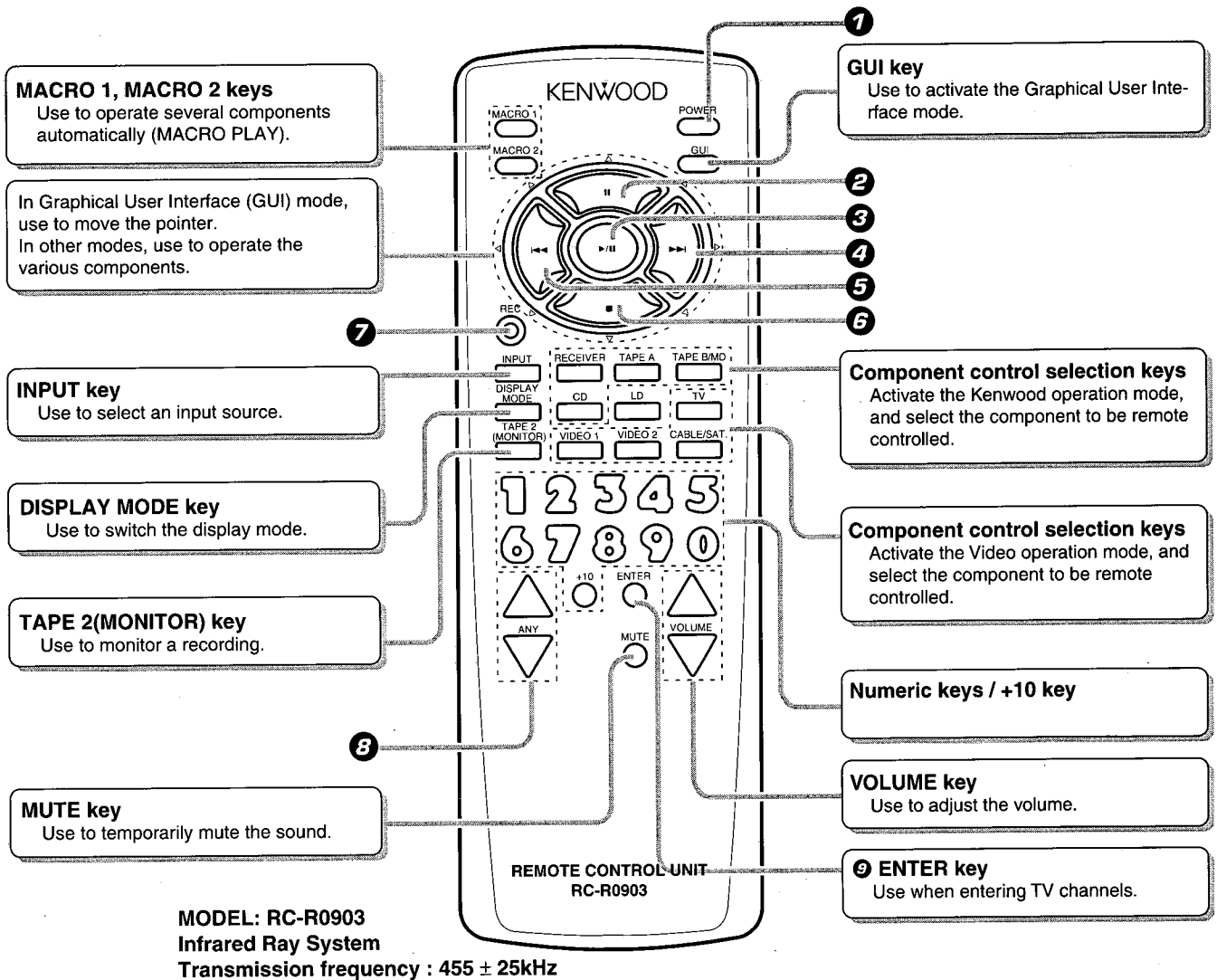
## REMOTE CONTROL OPERATION

The remote control unit provided with unit functions in the following two modes so that it can be used to control other KENWOOD system components as well as video components from other manufacturers.

**KENWOOD component control mode** ..... This mode is used to control the KENWOOD source components including cassette decks and a CD player. (The controlled components must be connected to this unit through system control cords.)

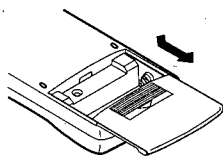
**Video component control mode** ..... This mode allows to control the basic operations of video components from KENWOOD as well as other manufacturers.

Some of the keys act in different ways depending on the modes described above. Therefore, be sure to adjust the required mode before pressing these keys.

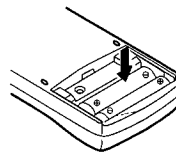


### Loading batteries

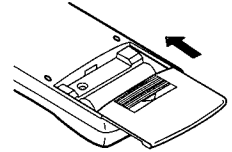
① Remove the cover.



② Insert batteries.



③ Close the cover.



• Insert two AA-size (R6 / SUM-3) batteries as indicated by the polarity markings.



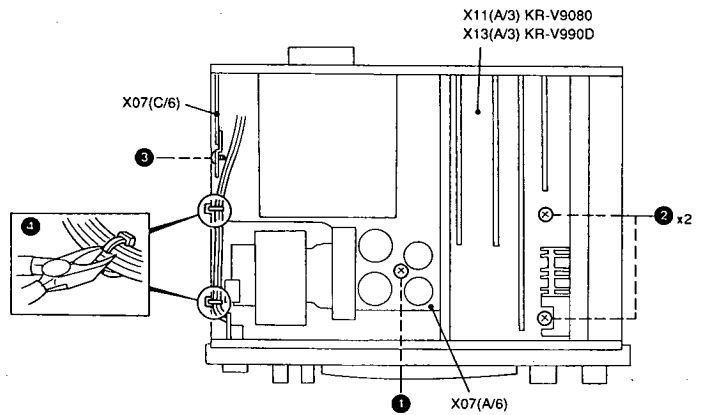
# KR-V990D/V9080

## DISASSEMBLY FOR REPAIR

### 1. How to remove the Power transistor

#### Illust. 1

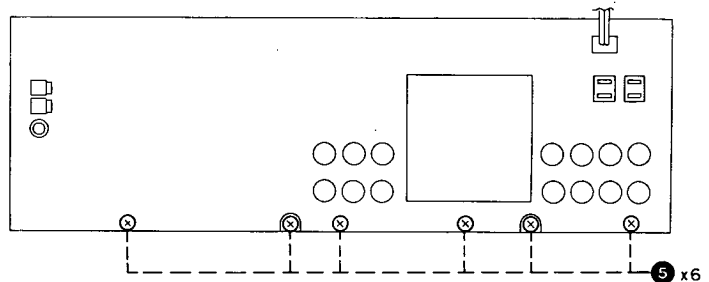
1. Remove the one screw ❶, two screws ❷ and the one screw ❸ on the Mounting hardware.
2. Cut the two Wire bands ❹ with the Cutting nipper, etc.



Illust. 1

#### Illust. 2

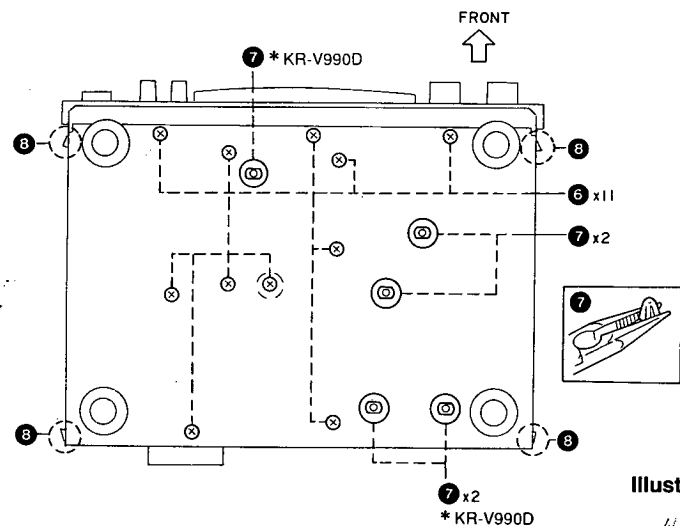
3. Remove the six screws ❺ on the Rear panel.



Illust. 2

#### Illust. 3

4. Remove the eleven screws ❻ at the bottom.
5. Remove the Unit holders ❼ while pushing them with the Pliers, etc.
6. Remove the Bottom plate while pushing the four clicks ❸.



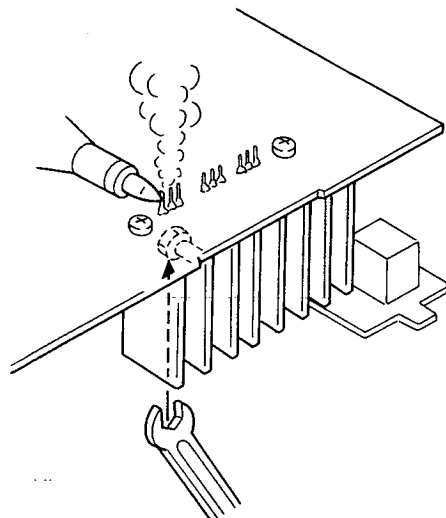
Illust. 3

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## DISASSEMBLY FOR REPAIR

### Illust. 4

7. Remove the Power transistors with the Soldering iron.
8. Remove the screws on the Power transistors with the Hexagon wrench.

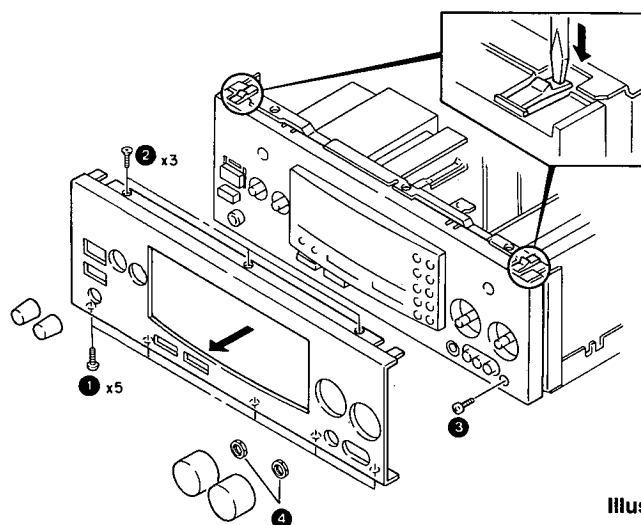


Illust. 4

### 2. How to remove the Display unit (X14-, A/6)

#### Illust. 5

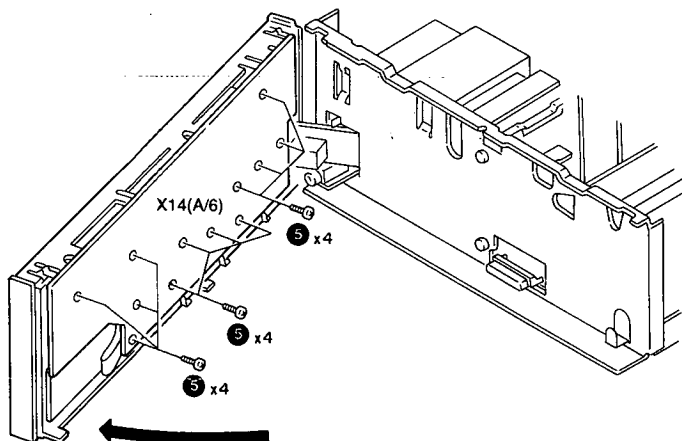
1. Remove the five screws ❶ at the bottom and the three screws ❷ at the top.
2. Remove the following Knobs; VOLUME CONTROL, INPUT SELECTOR, TREBLE, BASS.
3. Remove the Front panel while pushing the clicks.
4. Remove the one screw ❸, then remove the Sub panel.



Illust. 5

#### Illust. 5 / Illust. 6

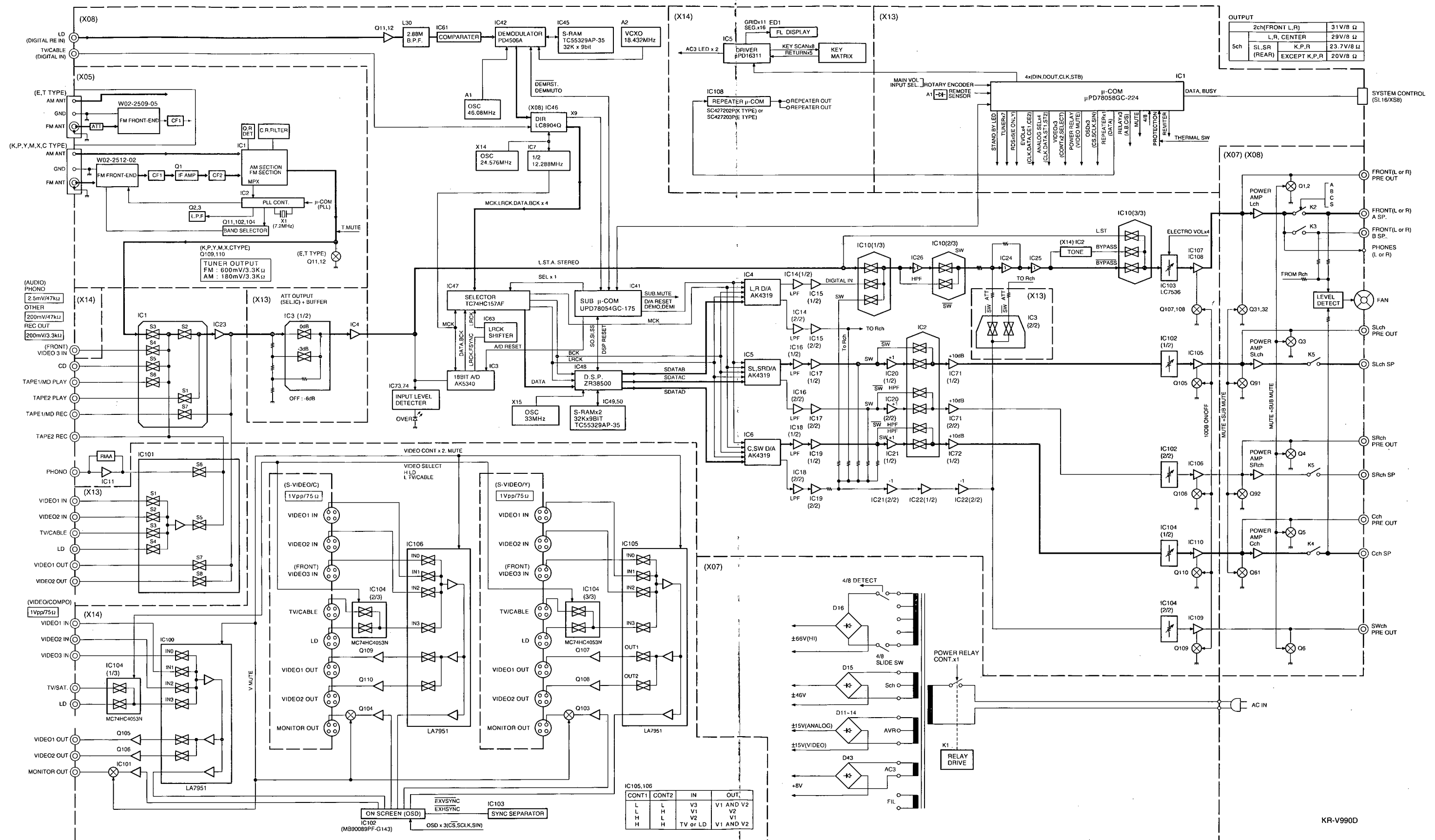
5. Remove the two Hexagon nuts ❹, the twelve screws ❺, then remove the Display unit (X14-, A/6).



Illust. 6

## BLOCK DIAGRAM

KR-V990D

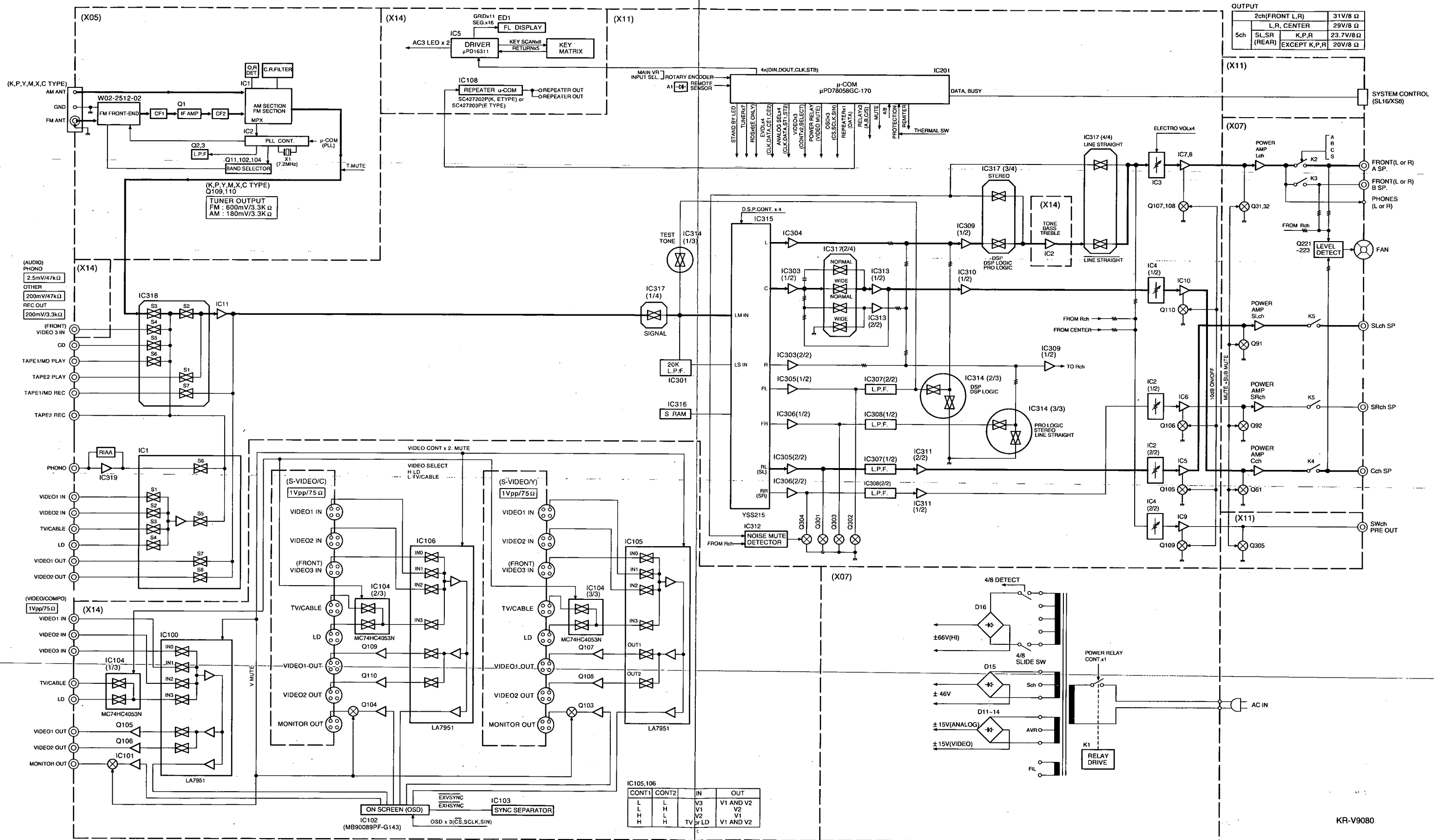


KR-V990D

# KR-V990D/V9080

## BLOCK DIAGRAM

KR-V9080



KR-V9080

# KR-V990D/V9080

## CIRCUIT DESCRIPTION

### 1. Function

#### 1-1. XS8/SL16 system changeover

Implements an additional operation by the system in order to shift a system operated by XS8 to SL16.

##### 1-1-1. SL16

Easy operation one way amplifier and receiver. Other source devices are compatible with one-way and two-way easy operation. Operation is 16-bit. Operation is two way and compatible with operating mode display. Also, adding MD to input selector makes it compatible with easy operation. Apart from TUNER, source devices are operating mode display compatible and input selector MD compatible. Since it is not possible for the amplifier and receiver to be always compatible with operating mode displays, they are only input selector MD compatible and SL16 compatible.

##### 1-1-2. Addition of a selector source

Adding a system operation adds selector sources MD and controls MD system operation.

###### (1) Selector source switching

MD are switched as TAPE1 background modes separately from the normal selector functions.

- Switch the selector source by holding down the AUTO panel key for at least two seconds.

TAPE1'MD

(If another key is entered while the key is being entered, the key input is set to off and the key is made ineffective.)

When a MD is used, the MD is connected to the RCA Pin of TAPE1.

- The operation of the system controls only the currently selected source and as no control whatsoever over the operation of the side which is not selected. For example, while MD is selected, even if the "Deck B Play" serial code is received, MD will remain selected without switching from MD to TAPE1.

###### (2) Settings during microprocessor backup or initialization

- During microprocessor initialization the selector is set to TAPE1. The current selector mode (TAPE1/MD) is maintained except when the backup is disrupted.

###### (3) Other items be noted

- This selector switching function has been developed in accordance with new serial codes. Therefore, if XS8 is used, since there is no code for MD, the selector source function will not work if the 8/16-bit serial mode is 8-bit. It works only in 16-bit mode. Also, if serial mode has been switched from 16-bit to 8-bit when MD are being selected, it will force a switch to TAPE1.

#### 1-2. GUI (Graphic User Interface) function

This function enables the user to control each unit from the screen by combining the OSD-IC (On-Screen Display-IC) with a split (arrow on the screen) and the remote controller with a direction key that moves a split.

#### 1-3. OSD (On Screen Display) display by new 16-bit serial communication

In a new 16-bit system, the current state of other models (CD deck, etc.) that communicate data in series can be displayed on the OSD screen.

#### 1-4. Repeater function

This function enables the units (television, video, etc.) of other companies to be controlled using remote control code libraries and external remote control output units in the world that the UEI company (U.S.A.) has.

#### 1-5. Macro play

This function enables the user to continuously output the preset remote control code. (Two channels)

#### 1-6. Outline of AC-3 (KR-V990D)

##### 1-6-1. Introduction

The sound in major motion pictures such as "Forest Gump" is recorded on film with AC-3, a highly efficient coding system developed by the Dolby Corporation called Dolby SR-D. To be precise, the sound on these movies is recorded on both a 4-channel Dolby optical track and a 5.1-channel Dolby SR-D digital track. Up to now, when a motion picture is recorded on video cassette, laser disc player, etc., the optically recorded 4-channel track has been matrix encoded to two channels and recorded on the video cassette or laser disc. On playback the channels were passed through a decoder called Pro Logic which restored the original four channels for surround playback.

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## CIRCUIT DESCRIPTION



**Figure 1 : Channel configuration**

With AC-3, the 5.1-channel SR-D track is recorded to laser disc without change (actually the bit rate is slightly altered) and the AC-3 decoder restores the original 5.1-channels. The important factor here is that with AC-3, the original channel conditions are not changed by any transmission circuit. In other words, even with a directional booster circuit, the best inter-channel separation obtainable with Pro Logic was about 30 dB but with AC-3, the original separation can be reproduced without change. AC-3 is not only for motion pictures. It is scheduled to be available for use with the currently topical DVD (SD standard) and it is said that it can also be used with a variety of other media.

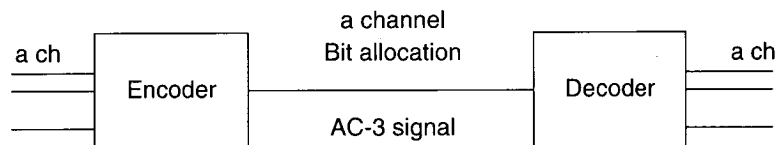
### 1-6-2. Comparison with Other Types

Table shows a comparison with the currently topical MD and DCC bit compression systems.

| System             | PASC     | ATRAC     | AC-3           |
|--------------------|----------|-----------|----------------|
| Number of channels | 2        | 2         | $\leq 3+2+0.1$ |
| Bit rate           | 384kbps  | 256kbps   | 384kbps        |
| Processing Type    | Sub-band | Transform | Transform      |
| Application        | DCC      | MD        | CATC/HDTV      |

**Table 1 : High efficient digital audio coders for general use**

AC-3 uses adaptive transform coding which is closer to MD's ATRAC than it is to the PASC used by digital compact cassettes. Even here, their greatest feature is that they are multi-channel based. That is to say, if we use appropriate words, it means that the bit allocation conforms to the number of channels. It means that if the source has two channels, compression in respect of those two channels is applied not independently but as if they were one channel. In other words, if at an time there is more information on one channel than on the other channel, more bits are allocated to the channel with more information and less bits to the other channel. In total, the bit rate is held at a certain fixed level. This is given by the number of source channels up to a maximum of 5.1-channels. This is called global bit allocation and the most important feature of AC-3. Despite AC-3 being multi-channel, this enables a low bit rate to be achieved, but if the signal conditions are such that processing at the prescribed bit rate is not possible, the high frequency component only is separated into an envelope component and a carrier component and the envelope data is coded with great accuracy. This is based on the psychological nature of sound perceived from the envelope derived from the signal itself, positioned at the high end of the human hearing system.



**Figure 2 : Bit allocation complies with number of channels**

### 1-6-3. AC-3 Performance

AC-3 is capable of compressed transmissions up to a maximum of 24 bits but at present most actual transmissions seem to be 16-bit compressed transmissions. No formal specifications have been released yet but the following representative specifications have been extracted from data issued by the Dolby Corporation.

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## CIRCUIT DESCRIPTION

|                                              |                                                   |
|----------------------------------------------|---------------------------------------------------|
| Frequency characteristics L, C, R, SL, SR ch | : 20~20 kHz $\pm$ 0.5 dB (−3 dB : 3 Hz, 20.3 kHz) |
| LFE ch                                       | : 20~120 Hz $\pm$ 0.5 dB (−3 dB : 3 Hz, 121 Hz)   |
| THD                                          | : 0.1% or less @ 1 kHz                            |
| Dynamic range                                | : 120 dB or more                                  |
| Separation                                   | : 90 dB or more                                   |
| Sampling frequency                           | : 48, 44.1, 32 kHz                                |
| Quantification                               | : 16, 18, 20, 24 bits/sample                      |
| Bit rate                                     | : 32 kbps ~ 640 kbps                              |

### 1-6-4. AC-3 Features

AC-3 has a number of interesting features other than global bit allocation. These are shown below.

#### (1) Dynamic Range Control

People watching a movie at home late at night may wish to reduce the sound volume when there is an explosion scene, for instance. But they want a level at which they can listen to dialog. To satisfy these conflicting demands, AC-3 is equipped with two functions called dynamic range control and dialog normalization. These are joined by two modes, "Line-out mode" and "RF mode". The first has comparatively little compression and the extent to which it is applied is selectable by the user. The second applies strong compression and has no provision for user selection. Since it changes the gain setting, a gain shift of +11 dB occurs. Since AC-3 holds in its bit stream the information on the dB count of the dialog level when the signal was recorded, this information can also be used to adjust the electronic volume and set the playback level automatically.

#### (2) Output Configurations

It is stipulated that products which incorporate AC-3 decoders must have the following two configurations.

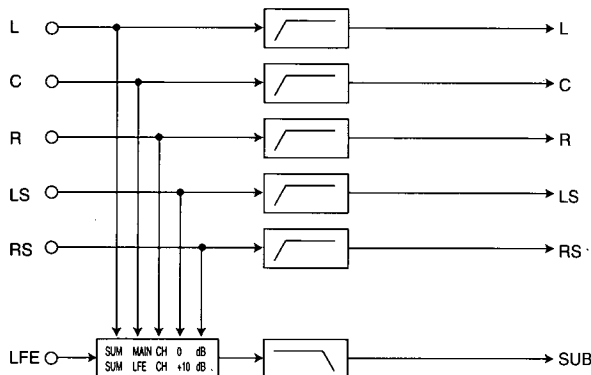


Figure 3 : Output configuration 1

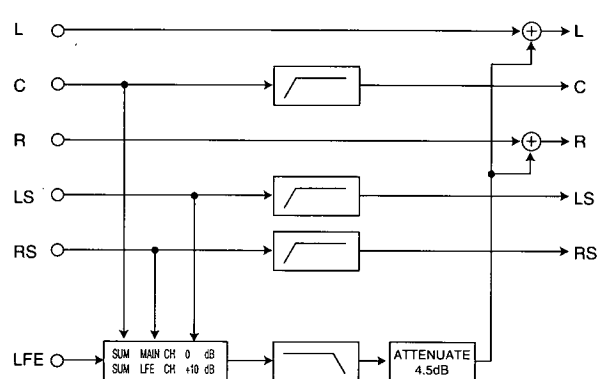


Figure 4 : Output configuration 2

As we can see from Figures 3 and 4, it is not the low frequency effect (LFE) channel alone which is output to the sub-woofer. It is mixed with the low register components of the other channels and output to the sub-woofer. In effect, this LFE channel was conceived originally to supply independent bass sound from 70 mm movie film to a sub-woofer behind the screen. Consequently, base signals appear on the LFE channel only when there are earth-shaking base notes from scenes such as explosions or earthquakes. In effect, it can be considered to be a channel which serves to preserve the bass sounds. This channel is probably called a 0.1 channel because it handles only a band of low frequencies which seldom appear. In configuration 1, all the speakers are small and all contribute base sounds to a sub-woofer. Configuration 2 is a case where the left and right speakers are large, there is not sub-woofer, and the bass notes are handled by the channels with left and right type speakers. Other than these, a configuration 3 has been stipulated as an option in which the speakers other than the center speaker are large. (These output configurations have not been formalized. They are liable to be changed.)

#### (3) Down-Mixing

Concerning 5.1-channel audio, since not all users will use a 5.1-channel (that is a 6-channel) system for playback, it is extremely convenient to provide for 2-channel stereo or monaural playback. The AC-3 decoder system has a mode which is used when the system is being set up, to enter the number of speakers which the user has. In accordance with this information, the DSP automatically down-mixes the 5.1-channels into the channels which can be played back. Also, since normal tape output is 2-channel, this down-mixing is essential for outputting a 5.1-channel source. However, at the same

# KR-V990D/V9080

## CIRCUIT DESCRIPTION

time, it is inconvenient for 5.1-channel playback. For this reason, the use of 2-channel analog input is recommended at such times. Therefore, when connecting the signal lead from the source device to a product which incorporates the AC-3 decoder, it is essential to have analog and digital cables as well as a RF cable which can transmit the AC-3 bit stream. Down-mixing is also required when listening to 5.1-channel sound through headphones but then it is not possible to have surround playback. This inconvenience would disappear if a DSP engine with the power to handle 5.1-channel playback and down-mixing at the same time could be achieved but this would require an extremely fast DSP IC. Figure 5 shows the configuration of a laser disc player. Existing laser discs have the same audio signal recorded on a 2-channel analog FM track and a digital track which has the same format as a 16-bit compact disc. An AC-3 compatible laser disc uses the right channel of the analog FM track to record the AC-3 bit stream signal. Therefore, when the analog track is played back, a buzzing noise is heard from the right channel. But nearly all laser disc players which are being sold now will select the digital track if one is present, do a DA conversion and send out the analog output, so there is no problem with hearing noise.

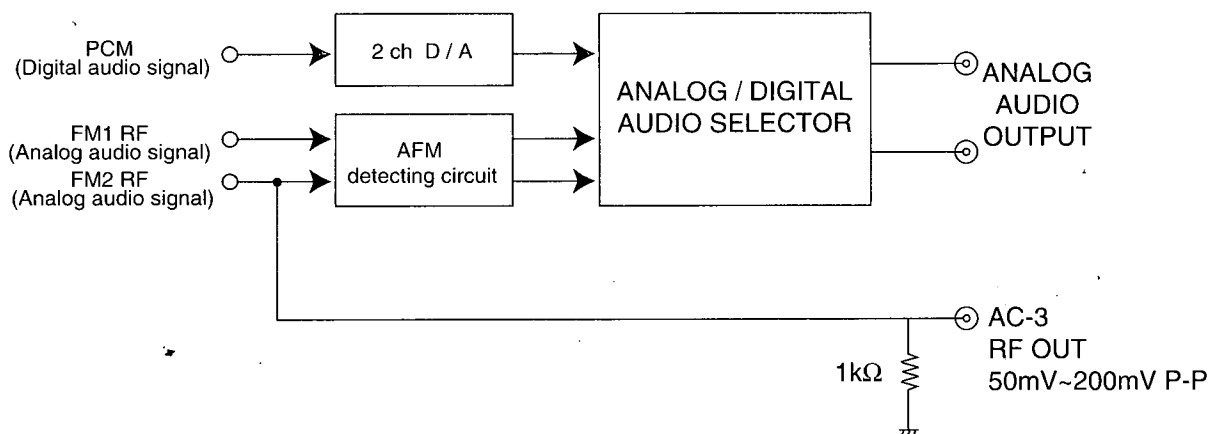


Figure 5 : Basic configuration of a laser disc player

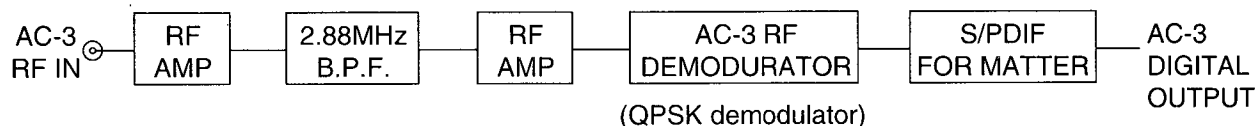


Figure 6 : Essential block for LD side

Since the AC-3 bit stream is designed to be mounted in the IEC-958 S/PDIF format, it should really be output as a bit stream in the digital output but the demodulator IC to do this is still expensive and, ostensibly to avoid high cost in LD players, it is output as a RF signal from the LD player. The RF output from the LD player will probably disappear when mass production makes this demodulator IC cheaper.

#### (4) Bit Stream Data

The AC-3 synchronization frame sequence is as shown in the diagram below.

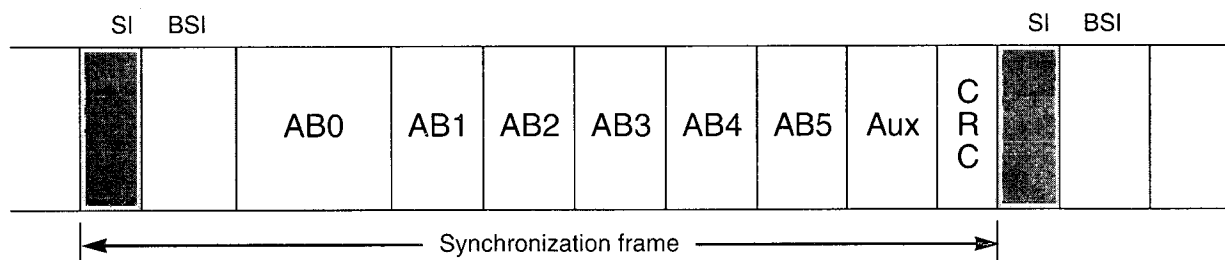


Figure 7 : AC-3 synchronization frame



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## CIRCUIT DESCRIPTION

Various data other than audio can enter into the BSI. Here we pick up and describe some characteristic features.

- Bit stream mode, the main service, has a three bit code to distinguish between quasi-services and, in the case of quasi-services, apart from dialog and commentaries, to notify those with impaired sight and hearing or to give warning of an emergency.
- Audio coding mode, a 3-bit code, contains code to identify the channel which a particular signal is occupying.
- Bit stream data can carry an 8-bit language code to identify the languages of 128 world countries. By looking at this data, it is possible to know which language is being used for that AC-3 signal. DVD (SD standard) allows up to 8 languages to be entered on a disc at the same time. However, playback is limited to one language at a time. Only one language may be entered at one time on a laser disc.
- 2-bit data giving the size of the mixing room which was used for final mixing.
- It is also possible to enter data to tell whether a bit stream is original or copied from another bit stream (a 1-bit code identifying whether a signal has been Dolby surround encoded).

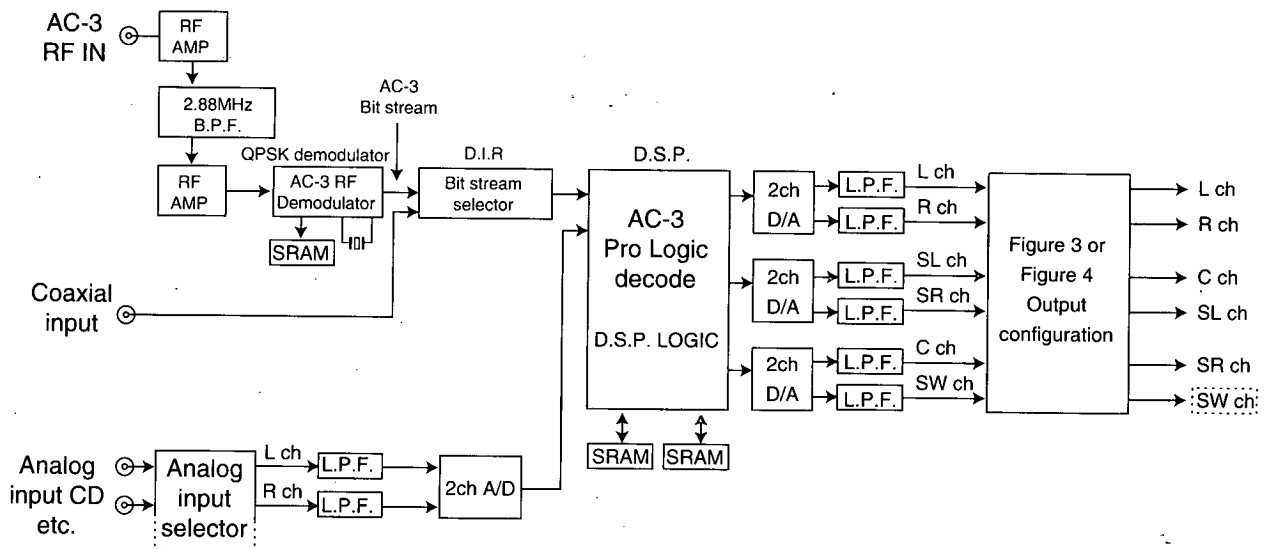


Figure 8 : KR-V990D AC-3 related block diagram

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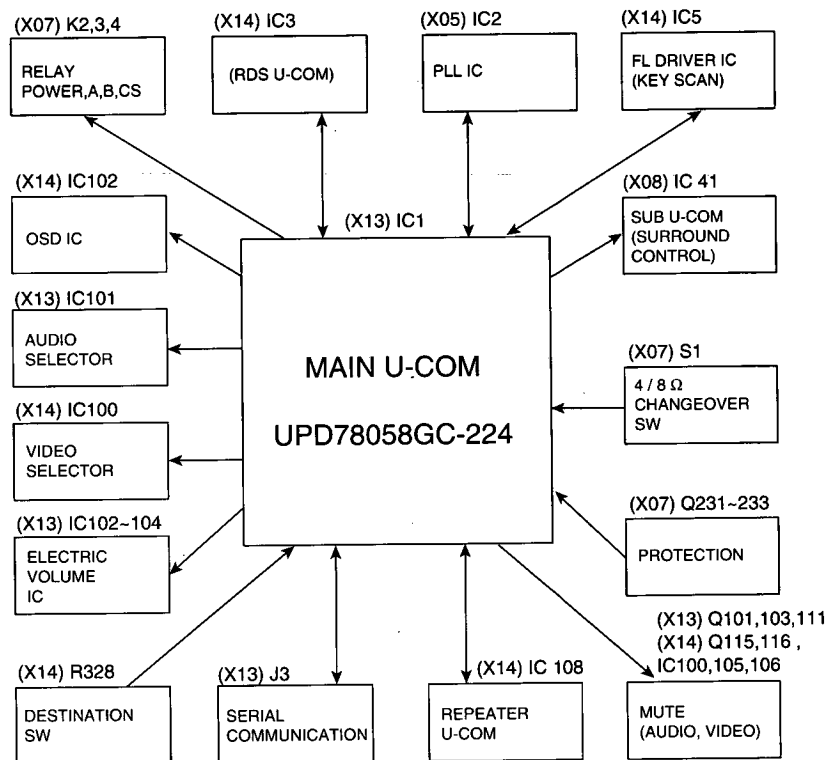
## CIRCUIT DESCRIPTION

### 2. Main microprocessor KR-V990D: UPD78058GC-224(X13:IC1)

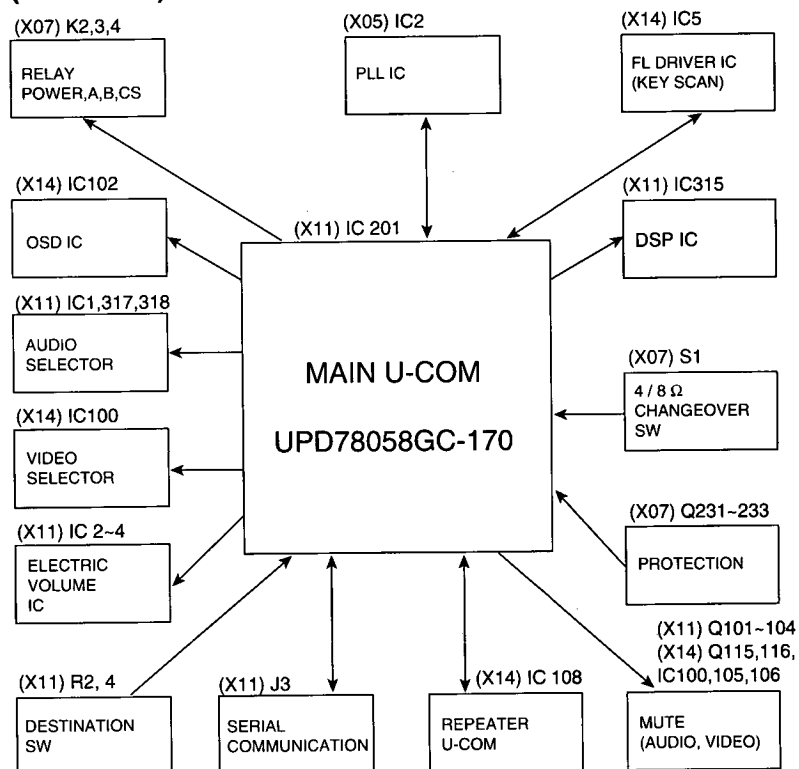
\*KR-V9080: UPD78058GC-170(X11:IC201)

#### 2-1. Microprocessor periphery block diagram

##### (KR-V990D)



##### (KR-V9080)



# KR-V990D/V9080

## CIRCUIT DESCRIPTION

### 2-2. Pin description

| Pin No. | Name       | I/O | Description                                  |
|---------|------------|-----|----------------------------------------------|
| 1       | PROTECT    | I   | Protection input                             |
| 2       | 4/8        | I   | 4/8 changeover input                         |
| 3       | LIMITER    | I   | Limiter input                                |
| 4       | AVSS       |     | A/D GND                                      |
| 5       | SUB RELAY  | O   | +5V (sub u-com,DSP) relay control            |
| *5      |            |     | Unused                                       |
| 6       | OSD CS     | O   | MB90089 CS                                   |
| 7       | AVREF1     |     | Unused                                       |
| 8       | 8/16       | I   | Serial XS8/SL16 Bit distinction              |
| 9       | OSD SIN    | O   | MB90089 SIN                                  |
| 10      | OSD SCLK   | O   | MB90089 SCLK                                 |
| 11      | SUB SI     | I   | Control u-com communication SI               |
| *11     |            |     | Unused                                       |
| 12      | SUB SO     | O   | Control u-com communication SO               |
| *12     | YSS215 CD  | O   | YSS215 CD                                    |
| 13      | SUB CLK    | O   | Control u-com communication CLK              |
| *13     | YSS215 BCK | O   | YSS215 BCK                                   |
| 14      | SUB REQ1   | O   | Control u-com communication REQ1             |
| *14     | YSS215 WCK | O   | YSS215 WCK                                   |
| 15      | SUB REQ2   | I   | Control u-com communication REQ2             |
| *15     | YSS215 IC  | O   | YSS215 IC                                    |
| 16      | FL DOUT    | I   | UPD16311 DOUT (key scan input)               |
| 17      | FL DIN     | O   | UPD16311 DIN (display data output)           |
| 18      | FL CLK     | O   | UPD16311 clock                               |
| 19      | 990D/9080  | I   | KR-V990D/V8090 changeover SW                 |
| 20,21   | SEL 2,1    | I   | Selector encoder input2,1                    |
| 22,23   | VOL 2,1    | I   | Volume encoder input2,1                      |
| 24-26   | TSW0-2     | I   | Destination changeover SW0,SW1(CH.SPACE),SW2 |
| 27      | FL STB     | O   | UPD16311 strobe                              |
| 28-30   | 9215 C-A   | O   | TC9215 C,B,A,                                |
| 31,32   | 4035 B,A   | O   | TC4053 B,A                                   |
| 33      | VSS        |     | GND                                          |
| 34      | SEL STB    | O   | NJU7311-7313 strobe                          |
| 35      | SEL DATA   | O   | NJU7311-7313 data                            |
| 36      | MUTE 10DB  | O   | Â[10dB mute                                  |
| 37      | TSW3       | I   | Destination changeover SW3                   |
| *37     |            |     | Unused                                       |
| 38      | V SELECT   | O   | TA4053 video select                          |
| 39      |            |     | Unused                                       |
| 40      | SEL CLK    | O   | NJU7311-7313 clock                           |

# KR-V990D/V9080

## CIRCUIT DESCRIPTION

| Pin No. | Name         | I/O | Description                           |
|---------|--------------|-----|---------------------------------------|
| 41,42   | VOL CE2,1    | O   | Electric volume CE2,CE1               |
| 43      | VOL DATA     | O   | Electric volume data                  |
| 44      | VOL CLK      | O   | Electric volume clock                 |
| 45      | SBUSY        | I/O | Serial busy                           |
| 46      | SDATA        | I/O | Serial data                           |
| 47      | MUTE         | O   | Mute                                  |
| 48      | REPEATER     | O   | Repeater output                       |
| 49      | SYNC DET     | I   | OSD video comparison signal detection |
| 50      | V MUTE       | O   | Video mute                            |
| 51,52   | V CONT 2,1   | O   | LA7951 video control 2,1              |
| 53      | T MUTE       | O   | Tuner mute                            |
| 54      | PLL CLK      | O   | LC7218 clock                          |
| 55      | PLL DATA     | O   | LC7218 data                           |
| 56      | PLL CE       | O   | LC7218 CE                             |
| 57      | SD           | I   | SD input                              |
| 58      | STEREO       | I   | Stereo input                          |
| 59      | PLL DO       | I   | LC7218 DO                             |
| 60      | RESET        | I   | Reset                                 |
| 61      | REMOCON      | I   | Remote control input                  |
| *62-66  |              |     | Unused                                |
| 62      | RDS START    | I   | RDS start                             |
| 63      | RDS DATA     | I   | RDS data                              |
| 64      | RDS CLK      | I   | RDS clock                             |
| 65      | RDS ATT      | O   | RDS attenuater                        |
| 66      | RDS RST      | O   | RDS reset                             |
| 67      | CE           | I   | CE (backup)                           |
| 68      | VDD          |     | Power supply (+5V)                    |
| 69,70   | X1,X2        | I   | Connected to system clock             |
| 71-73   |              |     | Unused                                |
| 74      | AVSS         |     | A/D analog power supply               |
| 75      | AVREF0       |     | A/D reference voltage input (+5V)     |
| 76      | RDS SLEVEL   | I   | RDS signal level                      |
| 77      | RELAY POWER  | O   | Relay POWER control                   |
| 78-80   | RELAY A,B,CS | O   | Relay Asp,Bsp,C/Ssp control           |

# KR-V990D/V9080

## CIRCUIT DESCRIPTION

### 2-3. Initial state

|                       |                                                 |
|-----------------------|-------------------------------------------------|
| POWER ON/OFF          | : OFF                                           |
| MAIN VOLUME LEVEL     | : -65dB                                         |
| L/R BALANCE           | : CENTER                                        |
| AUDIO INPUT SELECTOR  | : TUNER                                         |
| VIDEO INPUT SELECTOR  | : VIDEO1                                        |
| SPEAKER A             | : ON                                            |
| SPEAKER B             | : OFF                                           |
| TAPE2 / MONITOR       | : OFF                                           |
| LINE STRAIGHT         | : OFF                                           |
| DIMMER                | : DIMMER 1                                      |
| VISUAL FIX            | : OFF                                           |
| OSD DISPLAY MODE      | : OFF                                           |
| FL DISPLAY MODE       | : INPUT SELECTOR                                |
| SURROUND MODE         | : STEREO                                        |
| CENTER SPEAKER        | : ON                                            |
| REAR SPEAKER          | : ON                                            |
| SUB WOOFER (KR-V990D) | : OFF                                           |
| SUB WOOFER (KR-V9080) | : ON                                            |
| TUNING MODE           | : AUTO                                          |
| PRESET MEMORY         | : TEST PRESET<br>FREQUENCY                      |
| LAST BAND             | : FM                                            |
| FM FREQUENCY          | : 87.5 MHz                                      |
| AM FREQUENCY          | : CH SPACE 9K 531 kHz<br>: CH SPACE 10K 530 kHz |
| P. CH DISPLAY         | : [- -ch]                                       |
| PTY SELECT MODE       | : OFF                                           |
| PTY SEARCH MODE       | : OFF                                           |
| RDS DISPLAY MODE      | : FREQUENCY DISPLAY                             |
| TA / NEWS / INFO.     | : OFF                                           |
| SYSTEM CONTROL        | : XS8                                           |

### • TEST PRESET FREQUENCY

| Channel | BAND | K1 TYPE   | BAND | K2 TYPE   | BAND | E TYPE    |
|---------|------|-----------|------|-----------|------|-----------|
| 01ch    | FM   | 87.50MHz  | FM   | 87.50MHz  | FM   | 87.50MHz  |
| 02ch    | FM   | 98.00MHz  | FM   | 98.00MHz  | FM   | 98.00MHz  |
| 03ch    | FM   | 108.00MHz | FM   | 108.00MHz | FM   | 108.00MHz |
| 04ch    | AM   | 630kHz    | AM   | 630kHz    | AM   | 630kHz    |
| 05ch    | AM   | 1000kHz   | AM   | 1000kHz   | AM   | 999kHz    |
| 06ch    | AM   | 1440kHz   | AM   | 1440kHz   | AM   | 1440kHz   |
| 07ch    | FM   | 87.50MHz  | FM   | 87.50MHz  | FM   | 87.50MHz  |
| 08ch    | FM   | 87.50MHz  | FM   | 87.50MHz  | FM   | 87.50MHz  |
| 09ch    | FM   | 87.50MHz  | FM   | 87.50MHz  | FM   | 87.50MHz  |
| 10ch    | FM   | 89.10MHz  | FM   | 89.10MHz  | FM   | 89.10MHz  |
| 11ch    | FM   | 90.00MHz  | FM   | 90.00MHz  | FM   | 90.00MHz  |
| 12ch    | FM   | 97.50MHz  | FM   | 97.50MHz  | FM   | 97.50MHz  |
| 13ch    | FM   | 98.50MHz  | FM   | 98.50MHz  | FM   | 98.50MHz  |
| 14ch    | FM   | 106.00MHz | FM   | 106.00MHz | FM   | 106.00MHz |
| 15ch    | AM   | 530kHz    | AM   | 530kHz    | AM   | 531kHz    |
| 16ch    | AM   | 990kHz    | AM   | 990kHz    | AM   | 990kHz    |
| 17ch    | AM   | 1700kHz   | AM   | 1610kHz   | AM   | 1602kHz   |
| 18ch    | FM   | 87.50MHz  | FM   | 87.50MHz  | FM   | 87.50MHz  |
| 19ch    | FM   | 87.50MHz  | FM   | 87.50MHz  | FM   | 87.50MHz  |
| 20ch    | FM   | 87.50MHz  | FM   | 87.50MHz  | FM   | 87.50MHz  |

The initial setting is performed in a following event:

1. When backup memory data is destroyed when reset is applied to the microprocessor.
2. When the power cord is plugged in to the AC wall outlet while pressing the POWER key.

### 2-4. Contents of backup data to be held

POWER ON/OFF  
MAIN VOLUME LEVEL  
L/R BALANCE  
AUDIO INPUT SELECTOR  
VIDEO INPUT SELECTOR  
  
SPEAKER A ON/OFF  
SPEAKER B ON/OFF  
TAPE2/MONITOR ON/OFF  
LINE STRAIGHT ON/OFF  
DIMMER MODE  
VISUAL FIX ON/OFF

DISPLAY MODE  
SURROUND MODE  
CH. LEVEL  
SPEAKER SETTING

INPUT LEVEL

# KR-V990D/V9080

## CIRCUIT DESCRIPTION

TUNING MODE  
 PRESET MEMORY 1~40ch  
 LAST BAND  
 LAST CHANNEL  
 LAST FM FREQUENCY  
 LAST FM CHANNEL  
 LAST AM FREQUENCY  
 LAST AM CHANNEL

### 2-5. Destination and model list

| MODEL    |             | KR-V990D      | KR-V9080  |
|----------|-------------|---------------|-----------|
| Function | Destination | K P M X Y E T | K P M X Y |
|          |             |               |           |
| AMP      | DSP         | ○○○○○○○○      | ○○○○○     |
|          | AC-3        | ○○○○○○○○      | XXXXX     |
| TUNER    | K1          | X○X X X X X   | X○X X X   |
|          | K2          | ○○○X○X X      | ○○○X○     |
|          | E1          | X X ○○○○○     | X X ○○○   |
|          | E3 (RDS)    | X X X X X ○○  | X X X X X |

○: YES X: NO

### 2-6. Destination list of tuner

| Destination | BAND | Receive frequency range | channel space | iF      | PLL reference frequency | destination TSW(X13- or X11-) |      |      |
|-------------|------|-------------------------|---------------|---------|-------------------------|-------------------------------|------|------|
|             |      |                         |               |         |                         | TSW2                          | TSW1 | TSW0 |
|             |      |                         |               |         |                         | P26                           | P25  | P24  |
| K1          | FM   | 87.5MHz ~ 108.0 MHz     | 100kHz        | 10.7MHz | 50kHz                   | 0                             | 1    | 0    |
|             | AM   | 530kHz ~ 1700kHz        | 10kHz         | 450kHz  | 10kHz                   |                               |      |      |
| K2          | FM   | 87.5MHz ~ 108.0MHz      | 100kHz        | 10.7MHz | 50kHz                   | *1                            |      |      |
|             | AM   | 530kHz ~ 1610kHz        | 10kHz         | 450kHz  | 10kHz                   |                               |      |      |
| E1          | FM   | 87.5MHz ~ 108.0MHz      | 50kHz         | 10.7MHz | 50kHz                   | 0                             | 0    | 1    |
|             | AM   | 531kHz ~ 1602kHz        | 9kHz          | 450kHz  | 9kHz                    |                               |      |      |
| E3          | FM   | 87.5MHz ~ 108.0MHz      | 50kHz         | 10.7MHz | 50kHz                   | 1                             | 1    | 1    |
|             | AM   | 531kHz ~ 1602kHz        | 9kHz          | 450kHz  | 9kHz                    |                               |      |      |

\*1 Set as K2 for except when the data for destination description is K1, E1, and E3.

(0 : PORT PULL DOWN  
 1 : PORT PULL UP)

### ※ ATTENTION

The RDS PTY AF search always corresponds to a span search of 50kHz.

# KR-V990D/V9080

## CIRCUIT DESCRIPTION

### 2-7. Key matrix

No. of ○ : (X14) IC5 Port No.

|       | ⑩ KR1          | ⑪ KR2      | ⑫ KR3             | ⑬ KR4         |
|-------|----------------|------------|-------------------|---------------|
| ⑮ KS1 | DOLBY SURROUND | DSP LOGIC  | DOLBY 3 STEREO    | —             |
| ⑯ KS2 | —              | VISUAL FIX | LOUDNESS          | STEREO        |
| ⑰ KS3 | BAND           | DOWN       | AUTO              | UP            |
| ⑱ KS4 | +10            | 9          | 0                 | BALANCE R     |
| ⑲ KS5 | 7              | 6          | BALANCE L         | 8             |
| ⑳ KS6 | 5              | 4          | TAPE2             | LINE STRAIGHT |
| ㉑ KS7 | DISPLAY        | PTY        | TA / NEWS / INFO. | —             |
| ㉒ KS8 | 3              | 2          | MEMORY            | SPEAKER B     |
| ㉓ KS9 | DIRECT         | 1          | SPEAKER A         | POWER         |

### 2-8. KR-V990D Switching port control table

#### (1) AUDIO SELECTOR

|                  |              | NJU7311AL (X08 : IC1) |      |      |      |      |      |      | NJU7313AL (X13 : IC 101) |      |      |      |      |      |      |      |
|------------------|--------------|-----------------------|------|------|------|------|------|------|--------------------------|------|------|------|------|------|------|------|
|                  |              | ② 27                  | ③ 26 | ⑤ 24 | ⑥ 23 | ⑧ 21 | ⑨ 20 | ⑪ 18 | ② 27                     | ③ 26 | ④ 25 | ⑤ 24 | ⑦ 22 | ⑧ 21 | ⑩ 19 | ⑪ 18 |
|                  |              | L1R1                  | L2R2 | L3R3 | L4R4 | L5R5 | L6R6 | L7R7 | L1R1                     | L2R2 | L3R3 | L4R4 | L5R5 | L6R6 | L7R7 | L8R8 |
| TAPE<br>2<br>OFF | TUNER        | 0                     | 1    | 1    | 0    | 0    | 0    | 1    | 0                        | 0    | 0    | 0    | 0    | 0    | 1    | 1    |
|                  | PHONO        | 0                     | 1    | 0    | 0    | 0    | 0    | 1    | 0                        | 0    | 0    | 0    | 0    | 1    | 1    | 1    |
|                  | CD           | 0                     | 1    | 0    | 0    | 1    | 0    | 1    | 0                        | 0    | 0    | 0    | 0    | 0    | 1    | 1    |
|                  | TAPE1        | 0                     | 1    | 0    | 0    | 0    | 1    | 0    | 0                        | 0    | 0    | 0    | 0    | 0    | 1    | 1    |
|                  | VIDEO1       | 0                     | 1    | 0    | 0    | 0    | 0    | 1    | 1                        | 0    | 0    | 0    | 1    | 0    | 0    | 1    |
|                  | VIDEO2       | 0                     | 1    | 0    | 0    | 0    | 0    | 1    | 0                        | 1    | 0    | 0    | 1    | 0    | 1    | 0    |
|                  | VIDEO3       | 0                     | 1    | 0    | 1    | 0    | 0    | 1    | 0                        | 0    | 0    | 0    | 0    | 0    | 1    | 1    |
|                  | LD           | 0                     | 1    | 0    | 0    | 0    | 0    | 1    | 0                        | 0    | 0    | 1    | 1    | 0    | 1    | 1    |
|                  | TV<br>/CABLE | 0                     | 1    | 0    | 0    | 0    | 0    | 1    | 0                        | 0    | 1    | 0    | 1    | 0    | 1    | 1    |
| TAPE<br>2<br>ON  | TUNER        | 1                     | 0    | 1    | 0    | 0    | 0    | 1    | 0                        | 0    | 0    | 0    | 0    | 0    | 1    | 1    |
|                  | PHONO        | 1                     | 0    | 0    | 0    | 0    | 0    | 1    | 0                        | 0    | 0    | 0    | 0    | 1    | 1    | 1    |
|                  | CD           | 1                     | 0    | 0    | 0    | 1    | 0    | 1    | 0                        | 0    | 0    | 0    | 0    | 0    | 1    | 1    |
|                  | TAPE1        | 1                     | 0    | 0    | 0    | 0    | 1    | 0    | 0                        | 0    | 0    | 0    | 0    | 0    | 1    | 1    |
|                  | VIDEO1       | 1                     | 0    | 0    | 0    | 0    | 0    | 1    | 1                        | 0    | 0    | 0    | 1    | 0    | 0    | 1    |
|                  | VIDEO2       | 1                     | 0    | 0    | 0    | 0    | 0    | 1    | 0                        | 1    | 0    | 0    | 1    | 0    | 1    | 0    |
|                  | VIDEO3       | 1                     | 0    | 0    | 1    | 0    | 0    | 1    | 0                        | 0    | 0    | 0    | 0    | 0    | 1    | 1    |
|                  | LD           | 1                     | 0    | 0    | 0    | 0    | 0    | 1    | 0                        | 0    | 0    | 1    | 1    | 0    | 1    | 1    |
|                  | TV<br>/CABLE | 1                     | 0    | 0    | 0    | 0    | 0    | 1    | 0                        | 0    | 1    | 0    | 1    | 0    | 1    | 1    |

(0 : OFF, 1 : ON)

#### (2) VIDEO SELECTOR

|          | LA7951 (X14:IC105,106) |       | MC74HC4053N<br>(X14 : IC104) |   |   |
|----------|------------------------|-------|------------------------------|---|---|
|          | ⑬                      | ⑨     |                              |   |   |
|          | CONT1                  | CONT2 | A                            | B | C |
| VIDEO1   | L                      | H     | *                            | * | * |
| VIDEO2   | H                      | L     | *                            | * | * |
| VIDEO3   | L                      | L     | *                            | * | * |
| LD       | H                      | H     | L                            | L | L |
| TV/CABLE | H                      | H     | H                            | H | H |

#### (3) INPUT LEVEL CHANGEOVER

|                      | TC9215P (X13 : IC3) |   |
|----------------------|---------------------|---|
|                      | ⑫                   | ② |
|                      | A                   | C |
| INPUT LEVEL ATT 0dB  | L                   | L |
| INPUT LEVEL ATT -3dB | H                   | L |
| INPUT LEVEL ATT -6dB | L                   | H |

\*Don't care

# KR-V990D/V9080

## CIRCUIT DESCRIPTION

### 2-9. KR-V9080 Switching port control table

#### (1) AUDIO SELECTOR

|                  |           | NJU7312AL (X11 : IC318) |        |        |        |        |        |         |         | NJU7313AL (X11 : IC1) |        |        |        |        |        |         |         |
|------------------|-----------|-------------------------|--------|--------|--------|--------|--------|---------|---------|-----------------------|--------|--------|--------|--------|--------|---------|---------|
|                  |           | (2) 27                  | (3) 26 | (4) 25 | (6) 23 | (7) 22 | (8) 21 | (10) 19 | (11) 18 | (2) 27                | (3) 26 | (4) 25 | (5) 24 | (7) 22 | (8) 21 | (10) 19 | (11) 18 |
|                  |           | L1R1                    | L2R2   | L3R3   | L4R4   | L5R5   | L6R6   | L7R7    | L8R8    | L1R1                  | L2R2   | L3R3   | L4R4   | L5R5   | L6R6   | L7R7    | L8R8    |
| TAPE<br>2<br>OFF | TUNER     | 0                       | 0      | 0      | 1      | 0      | 0      | 1       | 0       | 0                     | 0      | 0      | 0      | 1      | 0      | 1       | 1       |
|                  | PHONO     | 0                       | 0      | 1      | 0      | 0      | 0      | 1       | 0       | 0                     | 0      | 0      | 0      | 1      | 0      | 1       | 1       |
|                  | CD        | 0                       | 1      | 0      | 0      | 0      | 0      | 1       | 0       | 0                     | 0      | 0      | 0      | 1      | 0      | 1       | 1       |
|                  | TAPE1     | 1                       | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 0                     | 0      | 0      | 0      | 1      | 0      | 1       | 1       |
|                  | VEDEO1    | 0                       | 0      | 0      | 0      | 0      | 0      | 1       | 0       | 1                     | 0      | 0      | 0      | 1      | 0      | 0       | 1       |
|                  | VIDEO2    | 0                       | 0      | 0      | 0      | 0      | 0      | 1       | 0       | 0                     | 1      | 0      | 0      | 1      | 0      | 1       | 0       |
|                  | VIDEO3    | 0                       | 0      | 0      | 0      | 1      | 0      | 1       | 0       | 0                     | 0      | 0      | 0      | 1      | 0      | 1       | 1       |
|                  | LD        | 0                       | 0      | 0      | 0      | 0      | 0      | 1       | 0       | 0                     | 0      | 0      | 1      | 1      | 0      | 1       | 1       |
| TAPE<br>2<br>ON  | TUNER     | 0                       | 0      | 0      | 1      | 0      | 0      | 1       | 0       | 0                     | 0      | 0      | 0      | 0      | 1      | 1       | 1       |
|                  | PHONO     | 0                       | 0      | 1      | 0      | 0      | 0      | 1       | 0       | 0                     | 0      | 0      | 0      | 0      | 1      | 1       | 1       |
|                  | CD        | 0                       | 1      | 0      | 0      | 0      | 0      | 1       | 0       | 0                     | 0      | 0      | 0      | 0      | 1      | 1       | 1       |
|                  | TAPE1     | 1                       | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 0                     | 0      | 0      | 0      | 0      | 1      | 1       | 1       |
|                  | VIDEO1    | 0                       | 0      | 0      | 0      | 0      | 0      | 1       | 0       | 1                     | 0      | 0      | 0      | 0      | 1      | 0       | 1       |
|                  | VIDEO2    | 0                       | 0      | 0      | 0      | 0      | 0      | 1       | 0       | 0                     | 1      | 0      | 0      | 0      | 1      | 1       | 0       |
|                  | VIDEO3    | 0                       | 0      | 0      | 0      | 1      | 0      | 1       | 0       | 0                     | 0      | 0      | 0      | 0      | 1      | 1       | 1       |
|                  | LD        | 0                       | 0      | 0      | 0      | 0      | 0      | 1       | 0       | 0                     | 0      | 0      | 1      | 0      | 1      | 1       | 1       |
|                  | TV /CABLE | 0                       | 0      | 0      | 0      | 0      | 0      | 1       | 0       | 0                     | 0      | 1      | 0      | 1      | 0      | 1       | 1       |
|                  | TUNER     | 0                       | 0      | 0      | 1      | 0      | 0      | 1       | 0       | 0                     | 0      | 0      | 0      | 0      | 1      | 1       | 1       |
|                  | PHONO     | 0                       | 0      | 1      | 0      | 0      | 0      | 1       | 0       | 0                     | 0      | 0      | 0      | 0      | 1      | 1       | 1       |
|                  | CD        | 0                       | 1      | 0      | 0      | 0      | 0      | 1       | 0       | 0                     | 0      | 0      | 0      | 0      | 1      | 1       | 1       |
|                  | TAPE1     | 1                       | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 0                     | 0      | 0      | 0      | 0      | 1      | 1       | 1       |
|                  | VIDEO1    | 0                       | 0      | 0      | 0      | 0      | 0      | 1       | 0       | 1                     | 0      | 0      | 0      | 0      | 1      | 0       | 1       |
|                  | VIDEO2    | 0                       | 0      | 0      | 0      | 0      | 0      | 1       | 0       | 0                     | 1      | 0      | 0      | 0      | 1      | 1       | 0       |
|                  | VIDEO3    | 0                       | 0      | 0      | 0      | 1      | 0      | 1       | 0       | 0                     | 0      | 0      | 0      | 0      | 1      | 1       | 1       |
|                  | LD        | 0                       | 0      | 0      | 0      | 0      | 0      | 1       | 0       | 0                     | 0      | 0      | 1      | 0      | 1      | 1       | 1       |
|                  | TV /CABLE | 0                       | 0      | 0      | 0      | 0      | 0      | 1       | 0       | 0                     | 0      | 1      | 0      | 0      | 1      | 1       | 1       |

(0 : OFF, 1 : ON)

#### (2) VIDEO SELECTOR

|          | LA7951<br>(X14: IC105,106) |       | MC74HC4053N<br>(X14: IC104) |      |     |
|----------|----------------------------|-------|-----------------------------|------|-----|
|          | (13)                       | (9)   | (11)                        | (10) | (9) |
|          | CONT1                      | CONT2 | A                           | B    | C   |
| VIDEO1   | L                          | H     | *                           | *    | *   |
| VIDEO2   | H                          | L     | *                           | *    | *   |
| VIDEO3   | L                          | L     | *                           | *    | *   |
| LD       | H                          | H     | L                           | L    | L   |
| TV/CABLE | H                          | H     | H                           | H    | H   |

\* Don't care

#### (3) LINE STRAIGHT CHANGEOVER

|              | NJU7311AL (X11: IC317) |        |
|--------------|------------------------|--------|
|              | (5) 22                 | (6) 23 |
|              | L3R3                   | L4R4   |
| LINE ST. ON  | 1                      | 0      |
| LINE ST. OFF | 0                      | 1      |

(0 : OFF, 1 : ON)

#### (4) TEST TONE CHANGEOVER

|               | NJU7311AL<br>(X11: IC317) | TC92159P<br>(X11: IC314) |
|---------------|---------------------------|--------------------------|
|               | (11) 18                   |                          |
|               | L7R7                      | (5)                      |
| TEST TONE ON  | 0                         | H                        |
| TEST TONE OFF | 1                         | L                        |

#### (5) SURROUND CHANGEOVER

|                             | NJU7311AL (X11 : IC317) |        |        |        | TC9215P<br>(X11: IC314) |
|-----------------------------|-------------------------|--------|--------|--------|-------------------------|
|                             | (2) 27                  | (3) 26 | (8) 21 | (9) 20 | (12)                    |
|                             | L1R1                    | L2R2   | L5R5   | L6R6   |                         |
| STEREO                      | 0                       | 1      | 1      | 0      | H                       |
| AUTO (WIDE)                 | 0                       | 1      | 0      | 1      | H                       |
| AUTO (Except for WIDE)      | 1                       | 0      | 0      | 1      | H                       |
| PRO LOGIC (WIDE)            | 0                       | 1      | 0      | 1      | H                       |
| PRO LOGIC (Except for WIDE) | 1                       | 0      | 0      | 1      | H                       |
| 3 STEREO (WIDE)             | 0                       | 1      | 0      | 1      | H                       |
| 3 STEREO (Except for WIDE)  | 1                       | 0      | 0      | 1      | H                       |
| DSP/DSP LOGIC               | 0                       | 1      | 0      | 1      | L                       |

(0 : OFF, 1 : ON)

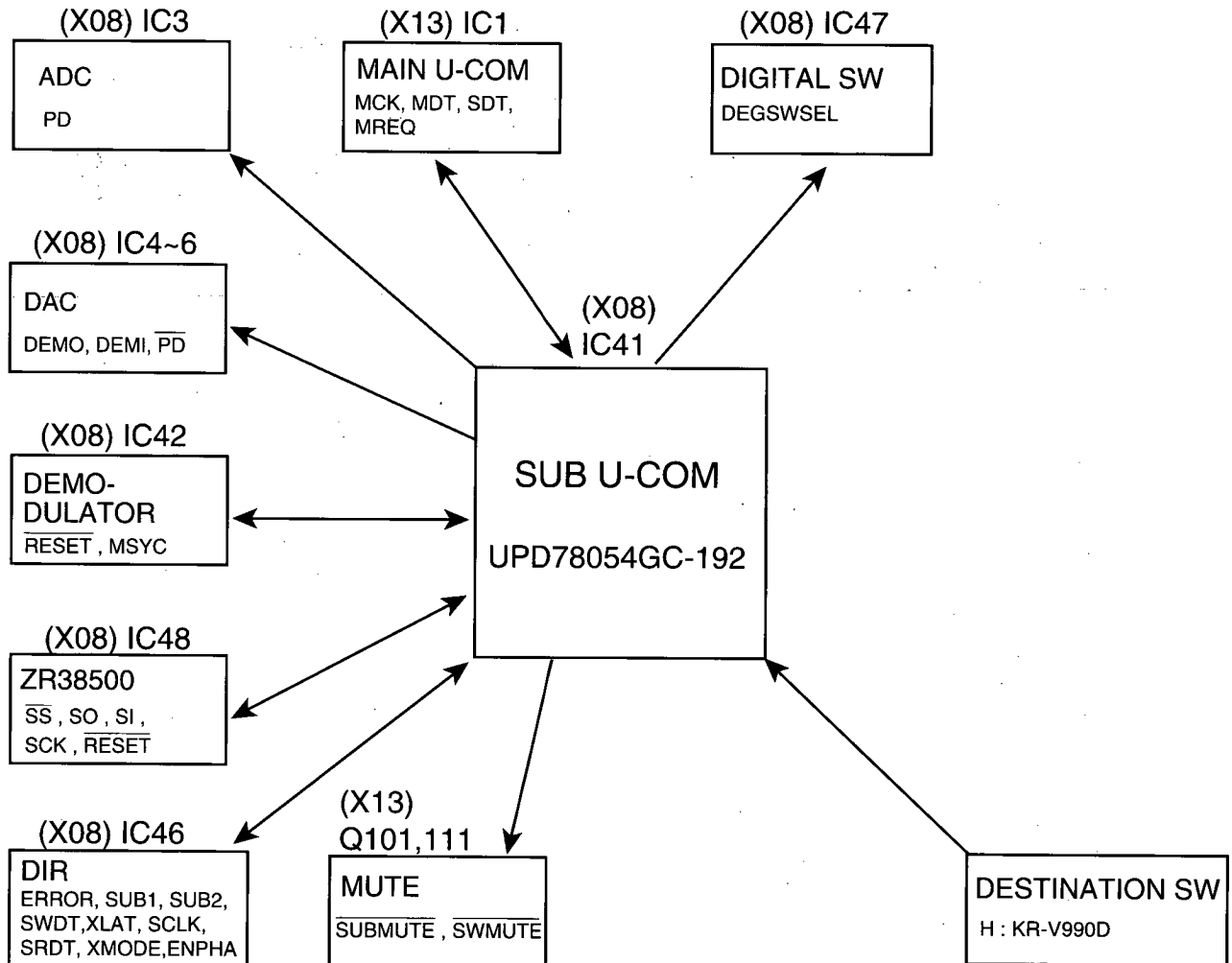


# KR-V990D/V9080

## CIRCUIT DESCRIPTION

3. Sub microprocessor : UPD78054GC-192 (X08 : IC41) : KR-V990D only

3-1. Microprocessor periphery block diagram



# KR-V990D/V9080

## CIRCUIT DESCRIPTION

### 3-2. Pin description

| Pin No. | Name      | I/O | Description                                            |
|---------|-----------|-----|--------------------------------------------------------|
| 1-3     |           |     | Unused                                                 |
| 4       | AVSS      |     | A/D reference voltage (GND)                            |
| 5,6     |           | O   | Unused                                                 |
| 7       | AVREF1    |     | A/D reference voltage (VDD)                            |
| 8-10    |           |     | Unused                                                 |
| 11      | MDT       | I   | Master data (communicated with main u-com)             |
| 12      | SDT       | O   | Slave data (communicated with main u-com)              |
| 13      | MCK       | I   | Master clock (communicated with main u-com)            |
| 14      | MREQ      | I   | Master request (communicated with main u-com)          |
| 15      | SREQ      | O   | Slave request (communicated with main u-com)           |
| 16      | ZRSI      | I   | ZR38500 slave data                                     |
| 17      | ZRSO      | O   | ZR38500 master data                                    |
| 18      | ZRCK      | O   | ZR38500 master clock                                   |
| 19      | ZRSS      | O   | ZR38500 strobe                                         |
| 20      | ZRRST     | O   | ZR38500 reset                                          |
| 21      | ADPD      | O   | ADC AK 5340 power down                                 |
| 22,23   | DADEMO0,1 | O   | DAC PCM1702/AK4319 sample rate select                  |
| 24      | DAPD      | O   | DAC PCM1702/AK4319 reset                               |
| 25      | DEMRST    | O   | Demodulator reset                                      |
| 26      |           | I   | Unused                                                 |
| 27      | DEMMSYC   | I   | Demodulator AC3 data sync check L: AC3 SYNCRO H: ERROR |
| 28-31   |           | I   | Unused                                                 |
| 32      | PLLMUTE   | I   | PLL lock/unlock detect                                 |
| 33      | VSS       | I   | GND                                                    |
| 34      | SUBMUTE   | O   | Sub mute                                               |
| 35      | SWMUTE    | O   | SW.mute (controlled with TEST TONE)                    |
| 36-40   |           | I   | Unused                                                 |
| 41      | DIRSRDT   | I   | DIR LC8904Q channel status output (32Bit)              |
| 42      | DIRSCLK   | O   | DIR LC8904Q clock                                      |
| 43      | DIRXLAT   | O   | DIR LC8904Q data latch                                 |
| 44      | DIRSWDT   | O   | DIR LC8904Q data                                       |
| 45,46   | DIRSUB1,2 | I   | DIR LC8904Q sampling frequency output                  |
| 47      | DIRERROR  | I   | DIR LC8904Q error check L: PCM H: ERROR                |
| 48      | DIRXMODE  | O   | DIR LC8904Q reset                                      |
| 49      | DIRENPHA  | I   | DIR LC8904Q-emphasis                                   |
| 50-54   |           |     | Unused                                                 |
| 55      | DEGSWSEL  | O   | TC74HC157 analog/digital select L: ANALOG H: DIGITAL   |
| 56,57   |           |     | Unused                                                 |
| 58      | TYPESEL   | I   | Model distinction L: KR-V990D                          |
| 59      |           | I   | Unused                                                 |
| 60      | RESET     | I   | Sub u-com reset                                        |
| 61-67   |           | I   | Unused                                                 |
| 68      | VDD       |     | Power supply (+5V)                                     |
| 69-70   | X2,X1     |     | 4.19MHz ceramics                                       |
| 71      | IC(VPP)   |     | GND                                                    |
| 72-80   |           |     | Unused                                                 |

# KR-V990D/V9080

## CIRCUIT DESCRIPTION

### 4. Test mode

#### 4-1. Test mode of main unit

##### (1) Setting the test mode

The main unit is put into the test mode when the AC power is turned ON while pressing the "TUNING DOWN" key. The following state is obtained when the test mode of the main unit is set.

- The power is turned ON automatically.
- All the fluorescent display indicators and LEDs light. (The all-illuminated state is cleared by pressing any main unit key.)
- The backup state except when the power is turned ON and OFF is initialized.

##### (2) Canceling the test mode

Turn OFF the AC power.

##### (3) Tuner functions

- Preset channel call function

1) Calls channels 1 to 9 (keys 1 to 9) and channel 10 (key 0) when the +10 key is not operated.

2) Calls channels 11 to 19 (keys 1 to 9) and channel 20 (key 0) when the +10 key is operated once.

3) Calls channels 21 to 29 (keys 1 to 9) and channel 30 (key 0) when the +10 key is operated two times and calls channels 31 to 39 (keys 1 to 9) and channel 40 (key 0) when the +10 key is operated three times.

4) Shifts to the operation obtained when the +10 key is not operated if it is operated four times.

- S level hexadecimal data display function (E, T type)

With the selector on TUNER, when the "AUTO/DOLBY PRO LOGIC" or "DOLBY PRO LOGIC" key on the main unit is operated, the frequency display ceases and the S level is displayed in hexadecimal while the key is pressed.

When "3 STEREO" is operated, the display is switched to restore the normal display.

- MUTE signal output

The tuner MUTE signal is set to OFF at all times and is not controlled at all.

- RDS display mode

Pressing the "DSP LOGIC" key enables the RDS display operation irrespective of the tuned operation.

To return to the normal display, press any key of the main unit.

- Repeater (IR remote control) pin check mode

Pressing the "BAL-L" key enables the POWER ON remote control code of an LD (KENWOOD) to be output from the repeater pin. Message "LD ON" is then displayed on the fluorescent indicator tube.

To return to the normal display, press any key of the main unit.

- E2PROM check mode

Pressing the "BAL-R" key enables data to be written in E2PROM. If the data read from the area in which data

was written is the same as the written data, the operation is proper. If it is different from the written data, message "NG" is displayed on the fluorescent indicator tube.

To return to the normal display, press any key of the main unit.

- Total go-off function

Pressing the "MEMORY" key enables the total go-off operation and normal lighting operation to be performed cyclically.

- Dimmer operation function

Pressing the "VISUAL FIX" key enables the dimmer operation. After that, the cyclic operation that cancels the dimmer operation is performed when the "VISUAL FIX" key is pressed.

- RDS attenuator (E, T type)

With the selector on TUNER, when the "SP A" key on the main unit is operated, the "SP A" display is erased and ATT is on. If the "SP A" on the main unit is operated again after that, "SP A" is displayed and ATT is switched off. The SP A operation and ATT operation work together and are combined with switching the ATT display on and off.

The ATT operation is done from ATT off.

If SP A was turned off with the selector on something other than TUNER, it will come on when TUNER is selected.

##### (4) AMP function

The original function of each key is executed when the SELECTOR mode is set to TUNER. The test mode operation is not performed in this case.

- One touch max, mid, min setting for Main VOL. input level, Speaker distance and Speaker level. If the selector is on something other than TUNER, max, mid, min settings can be made with the operation rotary encoder and the number keys. (All channel working mode)

(a) Max is number key "3".

(b) Mid is number key "2".

(c) Min is number key "1".

- One touch setting for Main VOL. input level, Speaker distance and Speaker level items. The items of 1) can be specified with respective keys and, if the selector is on something other than TUNER, direct settings can be made with the number keys. (Initial state is Main VOL.)

(a) Input level is number key "4" + key of 1) : IL

(b) Speaker distance is number key "5" + key of 1) : SD

(c) Speaker level FRONT L is number key "6" + key of 1) : IL

(d) Speaker level FRONT R is number key "7" + key of 1) : FR

(e) Speaker level CENTER is number key "8" + key of 1) : C

# KR-V990D/V9080

## CIRCUIT DESCRIPTION

(f) Speaker level REAR L is number key "9" + key of 1) : SL

(g) Speaker level REAR R is number key "0" + key of 1) : SR

(h) Speaker level Sub woofer is number key "+10" + key of 1) : SW

- Mute operation

Pressing the "AUTO" key enables the mute operation. After that, the cyclic operation that cancels the mute operation is performed when the "AUTO" key is pressed.

- Midnight operation function

Pressing the "TUNING UP" key enables the midnight operation. After that, the cyclic operation that cancels the midnight operation is performed when the "TUNING UP" key is pressed.

- Dolby surround center mode function

Pressing the "TUNING DOWN" key enables the Dolby surround key to be cyclically changed in the order of normal ' phantom ' normal ' .....

- Balance L and R setting in a one-touch motion

Pressing the "BAL-L" key enables the unit to enter the L-channel balance MAX state. After that, the balance center state is returned when the "BAL-L" key is pressed. The cyclic operation is then performed.

Pressing the "BAL-R" key enables the unit to enter the R-channel balance MAX state. After that, the balance center state is returned when the "BAL-R" key is pressed. The cyclic operation is then performed.

- Unconditional AC-3 digital input function (KR-V990D)

This function is used when the AC-3 digital signal based on the DAT source is received. Pressing the "BAND" key enables the unit to enter the unconditional AC-3 digital input state. The "TUNED" lamp on the fluorescent indicator tube then lights. To return to the normal state, press the "BAND" key.

- Sub-woofer SP ON/OFF setting

The sub-woofer ON/OFF operation is set by the cyclic operation every time the "MEMORY" key is pressed.

The "SPEAKERS" display on the fluorescent indicator tube disappears when the switch is turned off.

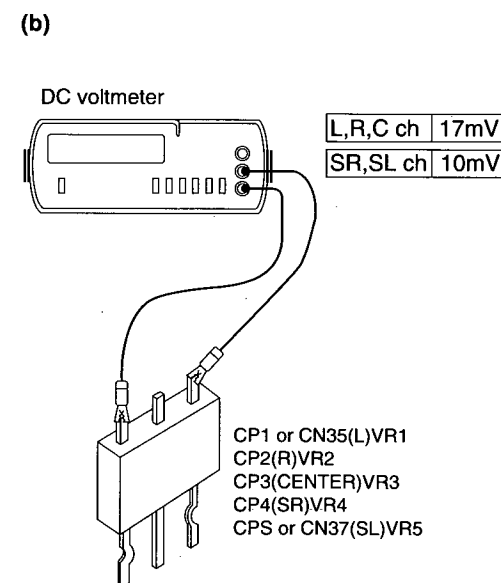
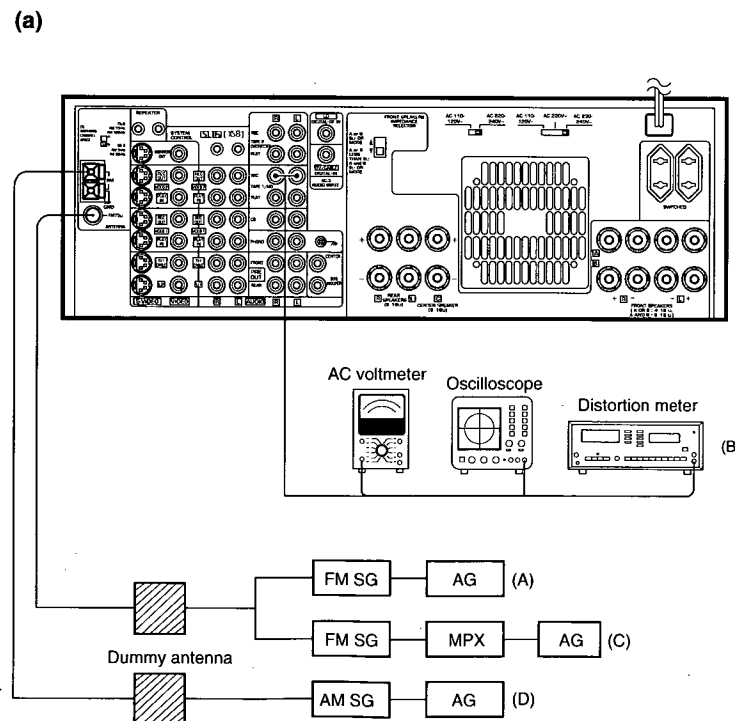
- TEST TONE operation

Uses the "DIRECT" key instead of the "TEST TONE" key.

# KR-V990D/V9080

## ADJUSTMENT

| No.                                        | ITEM                            | INPUT SETTINGS                                                                              | OUTPUT SETTINGS                                                                                       | TUNER SETTINGS                                                                | ALIGNMENT POINTS                                 | ALIGN FOR                      | FIG. |
|--------------------------------------------|---------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|--------------------------------------------------|--------------------------------|------|
| <b>FM SECTION (E,T type) SELECTOR : FM</b> |                                 |                                                                                             |                                                                                                       |                                                                               |                                                  |                                |      |
| 1                                          | DISCRIMINATOR                   | (A)<br>98.0MHz<br>1kHz, ±40kHz dev.<br>(E,T type)<br>60dBμ (ANT input)                      | Connect a DC voltmeter between TP3 and TP4 (X05-)                                                     | AUTO or MONO 98.0MHz                                                          | 1.3 (X05-)                                       | 0V                             | (a)  |
| 2                                          | DISTORTION (STEREO)             | (C)<br>98.0MHz<br>1kHz, ±40kHz dev.<br>Pilot: ±6kHz dev.<br>(E,T type)<br>60dBμ (ANT input) | (B)                                                                                                   | AUTO 98.0MHz                                                                  | IFT (W02-)                                       | Minimum distortion.            | (a)  |
| <b>AUDIO SECTION</b>                       |                                 |                                                                                             |                                                                                                       |                                                                               |                                                  |                                |      |
| <1>                                        | IDLE CURRENT                    | —                                                                                           | (E)<br>Connect a DC voltmeter across CP1 or CN35(L) CP2(R) CP3(CENTER) CP4(SR) CP5 or CN37(SL) (X07-) | Volume:0                                                                      | VR1(L) VR2(R) VR3(CENTER) VR4(SR) VR5(SL) (X07-) | (L,R,CENTER) 17mv (SR,SL) 10mv | (b)  |
| <2>                                        | ON SCREEN Color burst frequency | —                                                                                           | Connect a frequency counter between port 10 (check round of HSYNC) of IC102 and GND (X14-)            | After power ON, connect port 21 (check round of TEST) of IC102 and GND (X14-) | TC1 (X14-)                                       | 3.57954MHz ±25Hz               |      |



# KR-V990D/V9080

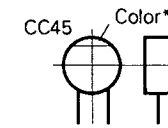
## PARTS DESCRIPTIONS

### CAPACITORS

CC 45 TH 1H 220 J  
1 2 3 4 5 6

1 = Type ... ceramic, electrolytic, etc.  
2 = Shape ... round, square, ect.  
3 = Temp. coefficient

4 = Voltage rating  
5 = Value  
6 = Tolerance



### Capacitor value

010 = 1pF  
100 = 10pF  
101 = 100pF  
102 = 1000pF = 0.001μF  
103 = 0.01μF

Multiplier  
2nd number  
1st number

### Temperature coefficient

| 1st Word | C     | L   | P      | R      | S     | T    | U      |
|----------|-------|-----|--------|--------|-------|------|--------|
| Color*   | Black | Red | Orange | Yellow | Green | Blue | Violet |
| ppm/°C   | 0     | -80 | -150   | -220   | -330  | -470 | -750   |

| 2nd Word | G   | H   | J    | K    | L    |
|----------|-----|-----|------|------|------|
| ppm/°C   | ±30 | ±60 | ±120 | ±250 | ±500 |

Example : CC45TH = -470 ± 60ppm/°C

### Tolerance (More than 10pF)

| Code | C     | D    | G  | J  | K   | M   | X          | Z          | P          | No code                                                 |
|------|-------|------|----|----|-----|-----|------------|------------|------------|---------------------------------------------------------|
| (%)  | ±0.25 | ±0.5 | ±2 | ±5 | ±10 | ±20 | +40<br>-20 | +80<br>-20 | +100<br>-0 | More than 10μF - 10 ~ +50<br>Less than 4.7μF - 10 ~ +75 |

### (Less than 10pF)

| Code | B    | C     | D    | F  | G  |
|------|------|-------|------|----|----|
| (pF) | ±0.1 | ±0.25 | ±0.5 | ±1 | ±2 |

### Voltage rating

| 2nd word | A    | B    | C    | D    | E    | F    | G    | H    | J    | K    | V  |
|----------|------|------|------|------|------|------|------|------|------|------|----|
| 1st word | 0    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10 |
| 0        | 1.0  | 1.25 | 1.6  | 2.0  | 2.5  | 3.15 | 4.0  | 5.0  | 6.3  | 8.0  | —  |
| 1        | 10   | 12.5 | 16   | 20   | 25   | 31.5 | 40   | 50   | 63   | 80   | 35 |
| 2        | 100  | 125  | 160  | 200  | 250  | 315  | 400  | 500  | 630  | 800  | —  |
| 3        | 1000 | 1250 | 1600 | 2000 | 2500 | 3150 | 4000 | 5000 | 6300 | 8000 | —  |

### Chip capacitors

(EX) C C 7 3 F S L 1 H 0 0 0 J  
1 2 3 4 5 6 7

(Chip) (CH, RH, UJ, SL)

Refer to the table above.

1 = Type  
2 = Shape  
3 = Dimension  
4 = Temp. coefficient  
5 = Voltage rating  
6 = Value  
7 = Tolerance

(EX) C K 7 3 F F 1 H 0 0 0 Z  
1 2 3 4 5 6 7

(Chip) (B, F)

### Dimension (Chip capacitors)

| Dimension code | L         | W          | T              |
|----------------|-----------|------------|----------------|
| Empty          | 5.6 ± 0.5 | 5.0 ± 0.5  | Less than 2.0  |
| A              | 4.5 ± 0.5 | 3.2 ± 0.4  | Less than 2.0  |
| B              | 4.5 ± 0.5 | 2.0 ± 0.3  | Less than 2.0  |
| C              | 4.5 ± 0.5 | 1.25 ± 0.2 | Less than 1.25 |
| D              | 3.2 ± 0.4 | 2.5 ± 0.3  | Less than 1.5  |
| E              | 3.2 ± 0.2 | 1.6 ± 0.2  | Less than 1.25 |
| F              | 2.0 ± 0.3 | 1.25 ± 0.2 | Less than 1.25 |
| G              | 1.6 ± 0.2 | 0.8 ± 0.2  | Less than 1.0  |

### RESISTORS

#### Chip resistor (Carbon)

(EX) R K 7 3 E B 2 B 0 0 0 J  
1 2 3 4 5 6 7

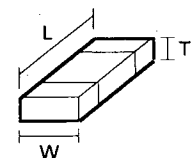
(Chip) (B, F)

#### Carbon resistor (Normal type)

(EX) R D 1 4 B B 2 C 0 0 0 J  
1 2 3 4 5 6 7

1 = Type  
2 = Shape  
3 = Dimension  
4 = Temp. coefficient  
5 = Rating wattage  
6 = Value  
7 = Tolerance

### Dimension



### Dimension (Chip resistor)

| Dimension code | L         | W          | T         |
|----------------|-----------|------------|-----------|
| E              | 3.2 ± 0.2 | 1.6 ± 0.2  | 1.0       |
| F              | 2.0 ± 0.3 | 1.25 ± 0.2 | 1.0       |
| G              | 1.6 ± 0.2 | 0.8 ± 0.2  | 0.5 ± 0.1 |

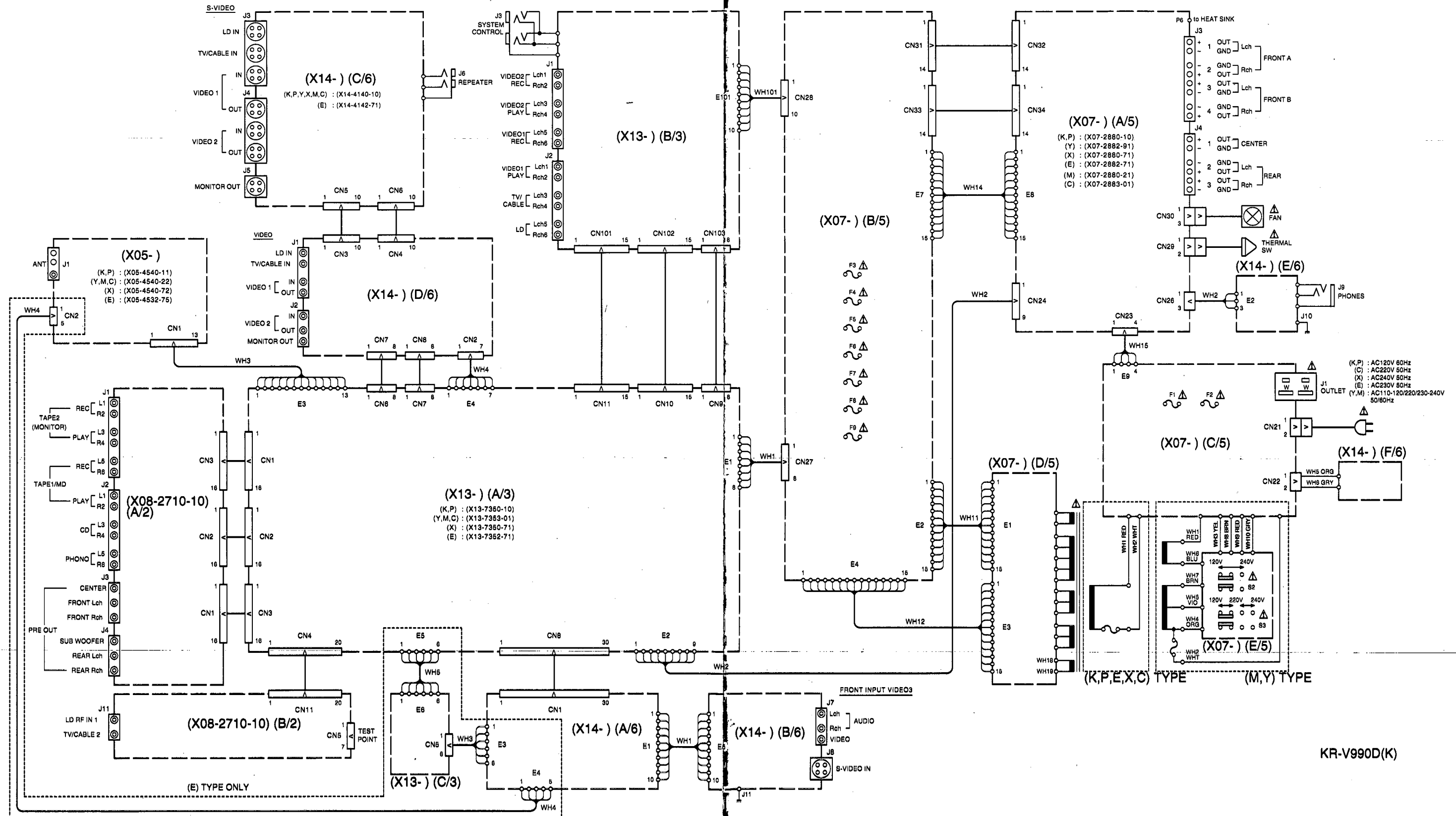
### Rating wattage

| Code | Wattage | Code | Wattage | Code | Wattage |
|------|---------|------|---------|------|---------|
| 1J   | 1/16W   | 2C   | 1/6W    | 3A   | 1W      |
| 2A   | 1/10W   | 2E   | 1/4W    | 3D   | 2W      |
| 2B   | 1/8W    | 2H   | 1/2W    |      |         |

# KR-V990D/V9080 KR-V990D/V9080

## WIRING DIAGRAM

KR-V990D





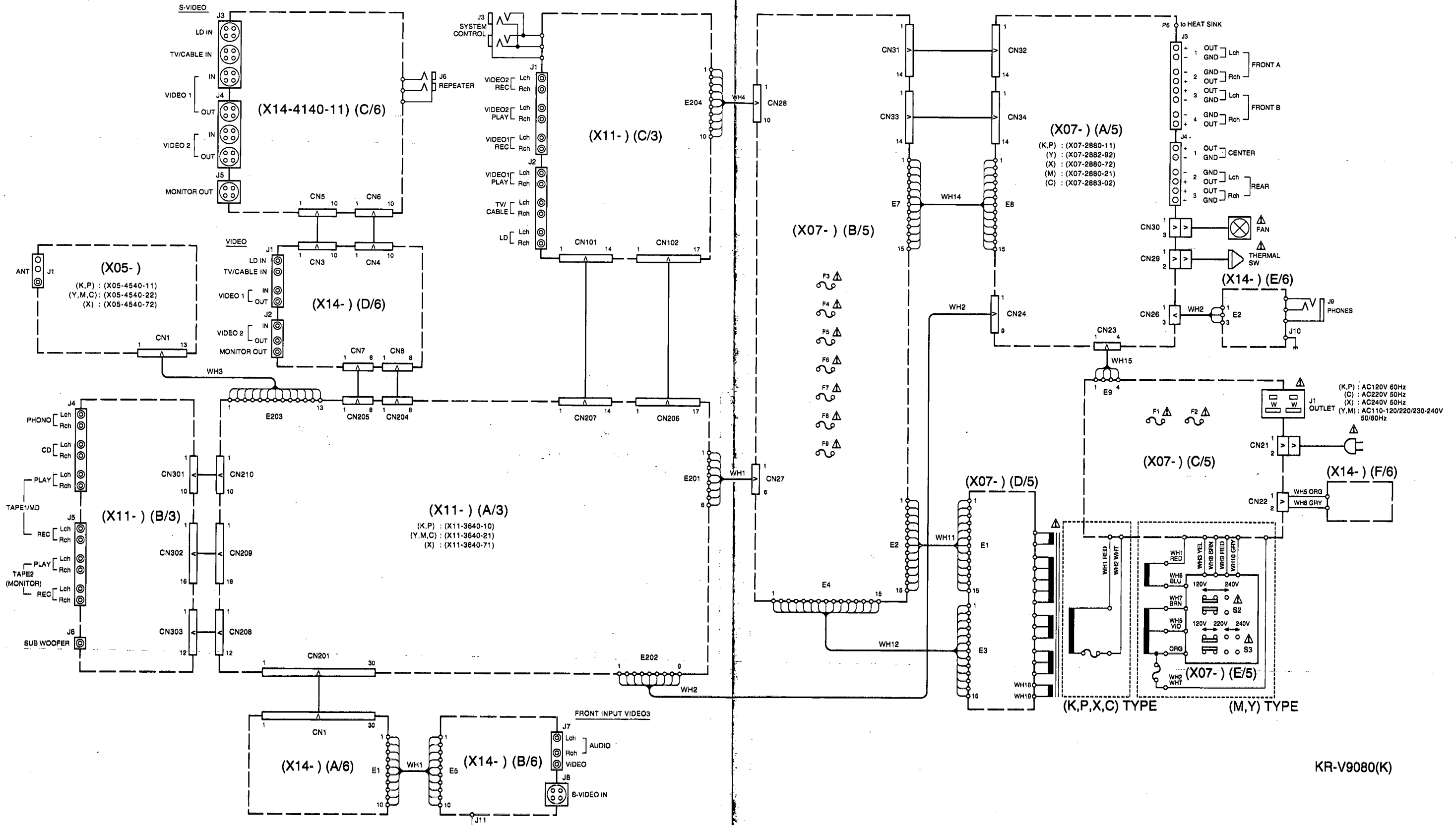
## 34



# KR-V990D/V9080 KR-V990D/V9080

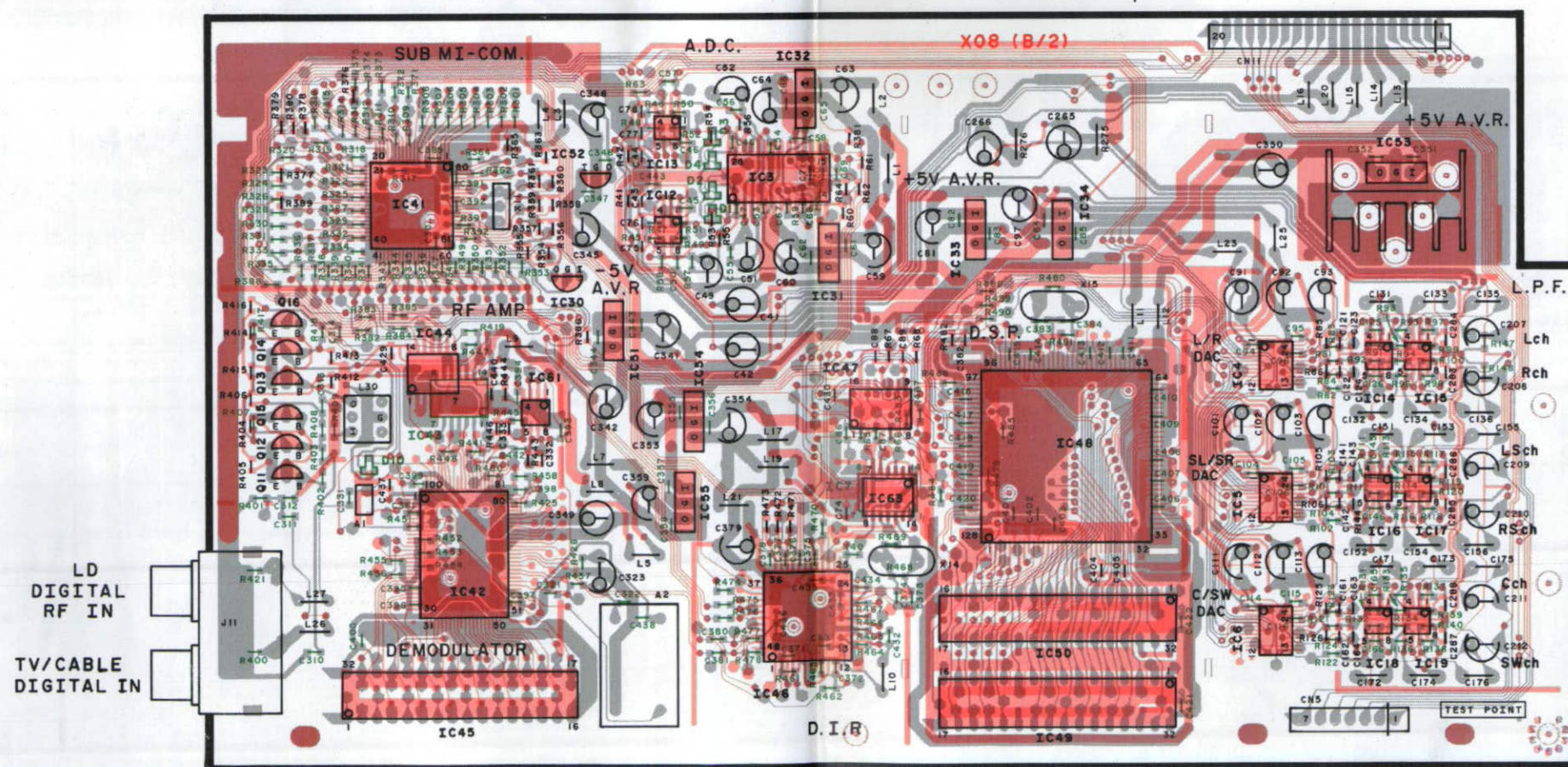
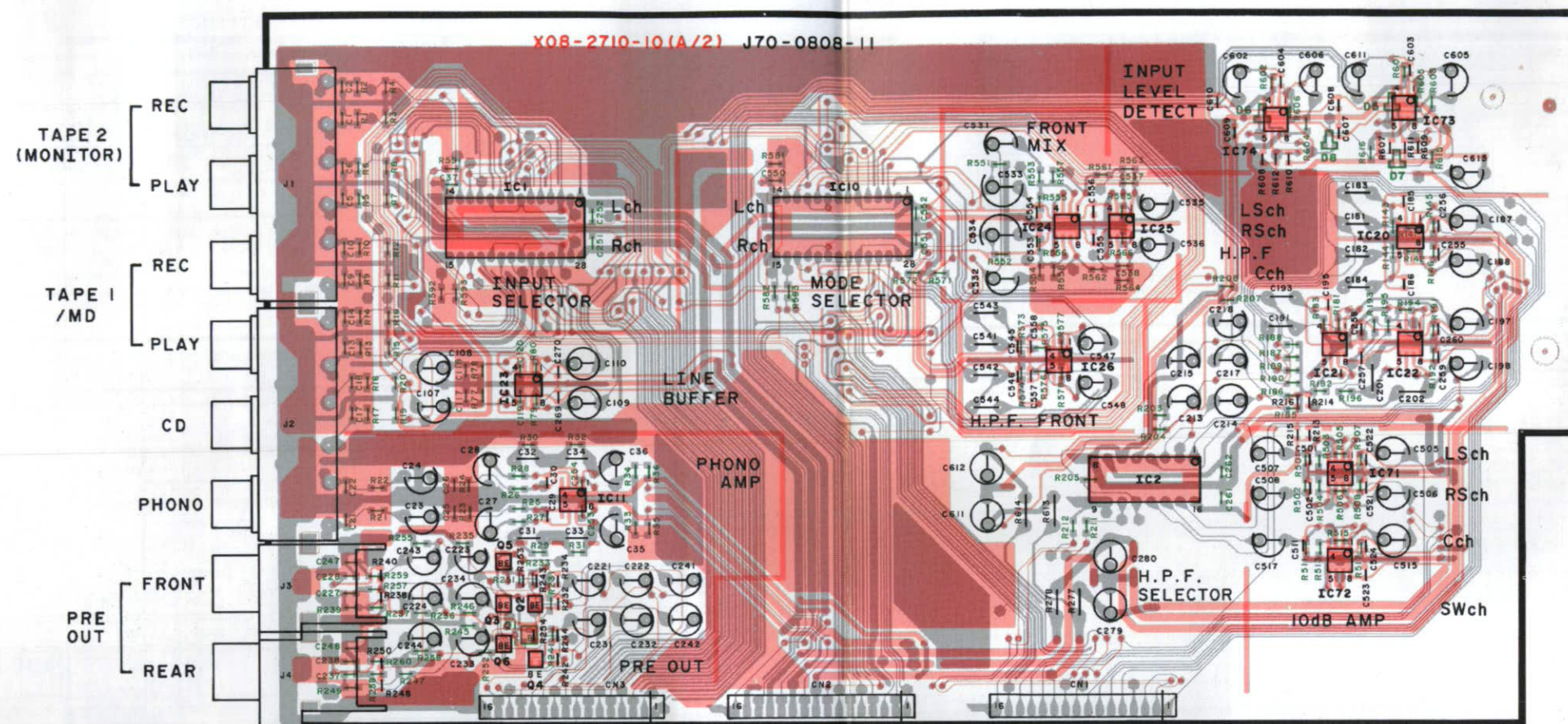
## WIRING DIAGRAM

KR-V9080





# PC BOARD (Component side view) SURROUND UNIT X08-2710-10 (KR-V990D only)

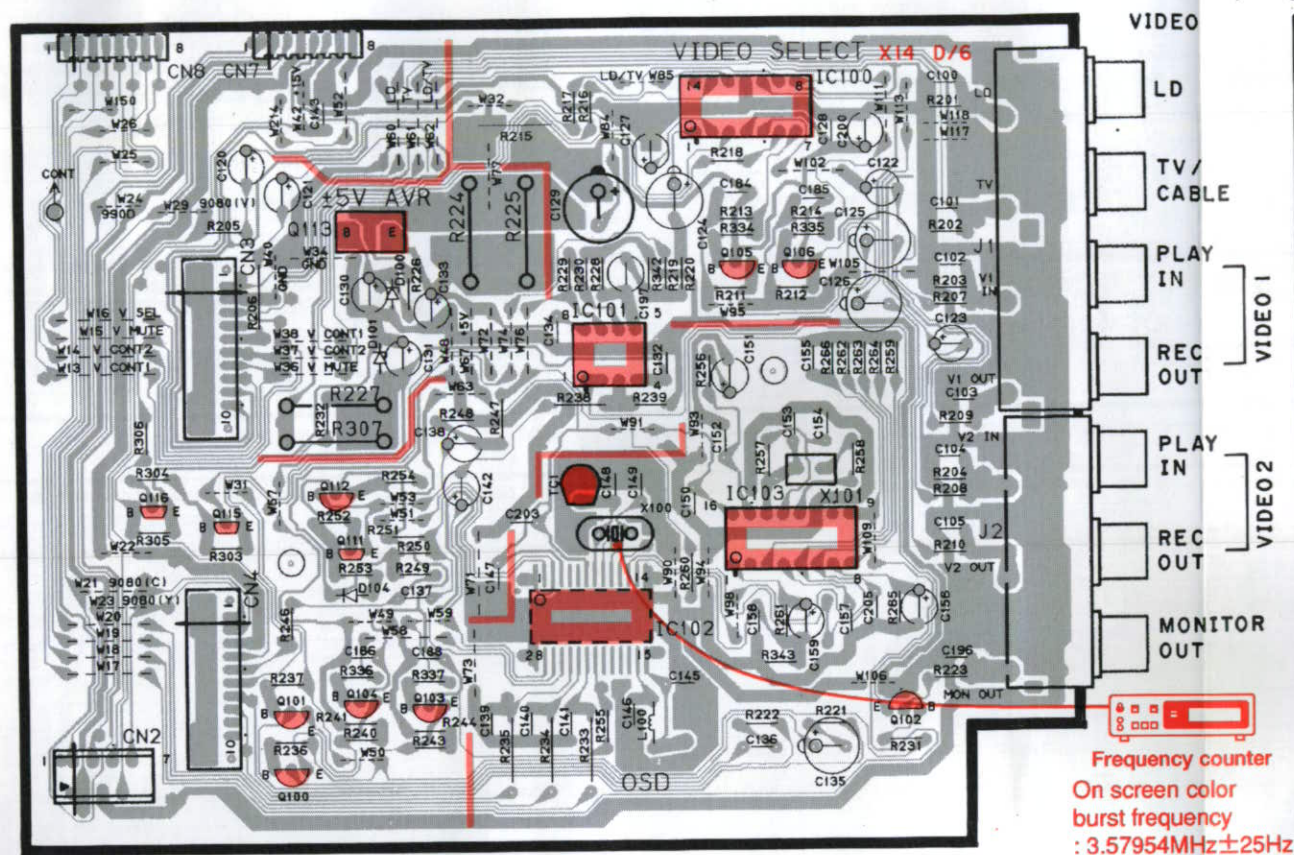








PC BOARD (Component side view) SUB-CIRCUIT UNIT (X13-735X-XX) 0-10; KP (KR-V990D only) 0-71; X (KR-V990D only)  
2-71; E (KR-V990D only) 3-01; YMC (KR-V990D only)





# PC BOARD (Component side view)

CONTROL UNIT (X11-364X-XX)

0-10; KP (KR-V9080 only)

0-21; YMC (KR-V9080 only)

0-71; X (KR-V9080 only)

SYSTEM  
CONTROL

REC  
OUT

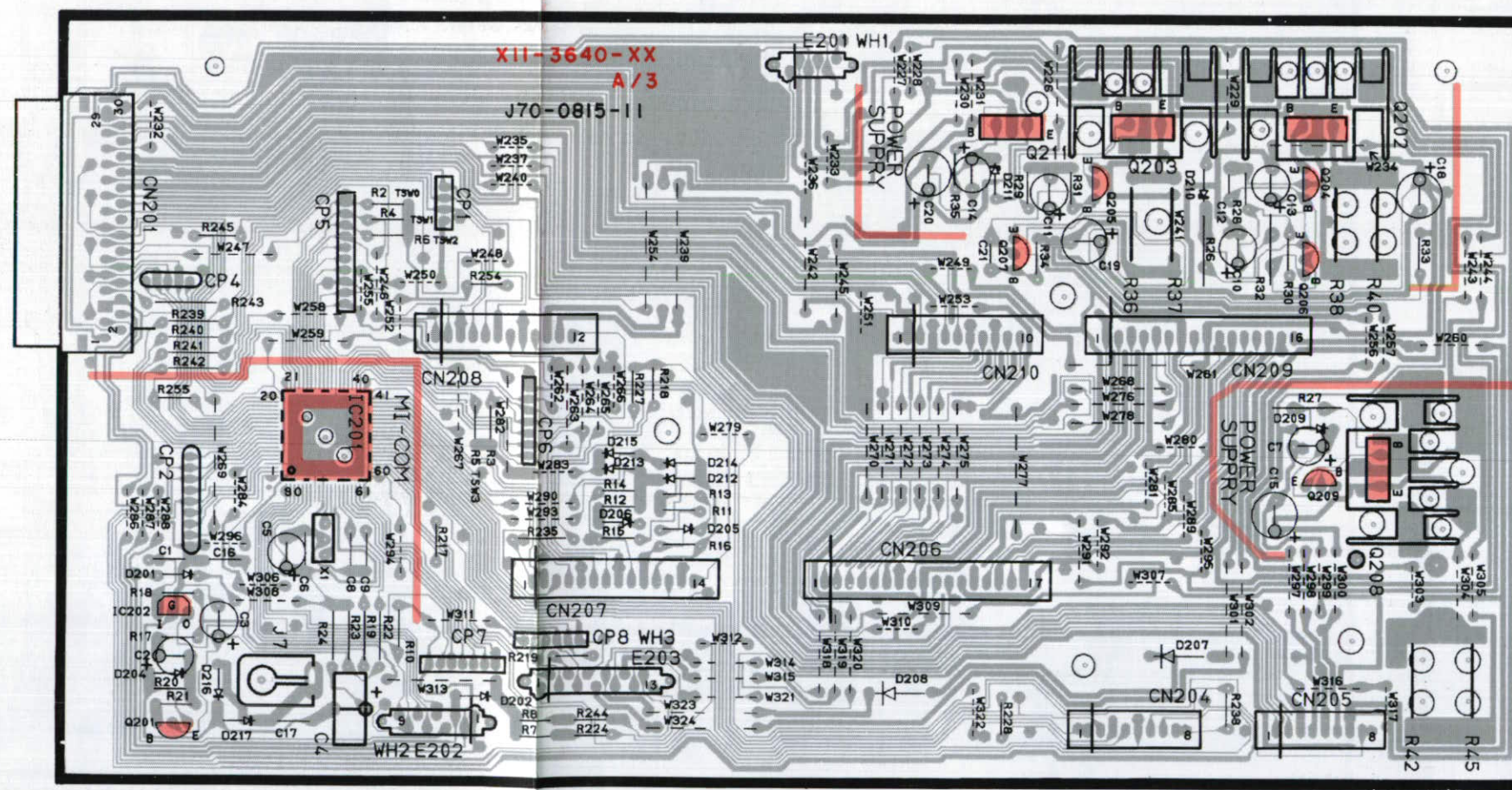
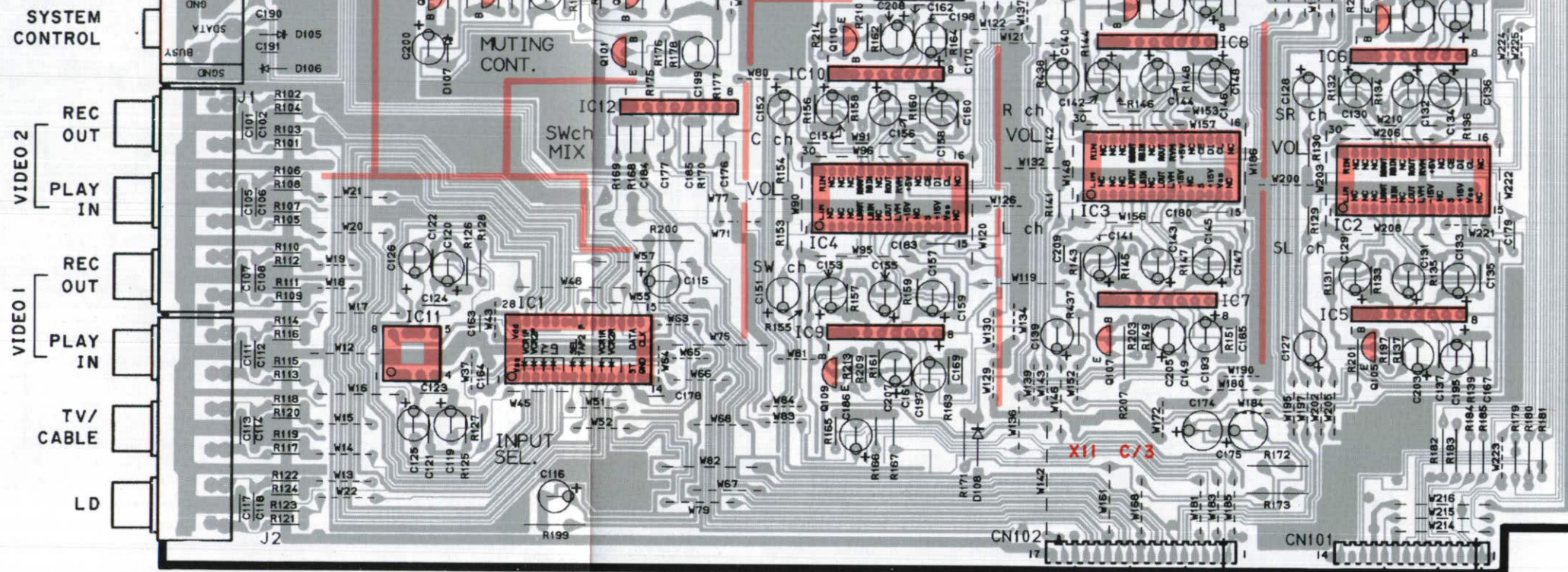
PLAY  
IN

REC  
OUT

PLAY  
IN

TV/  
CABLE

LD





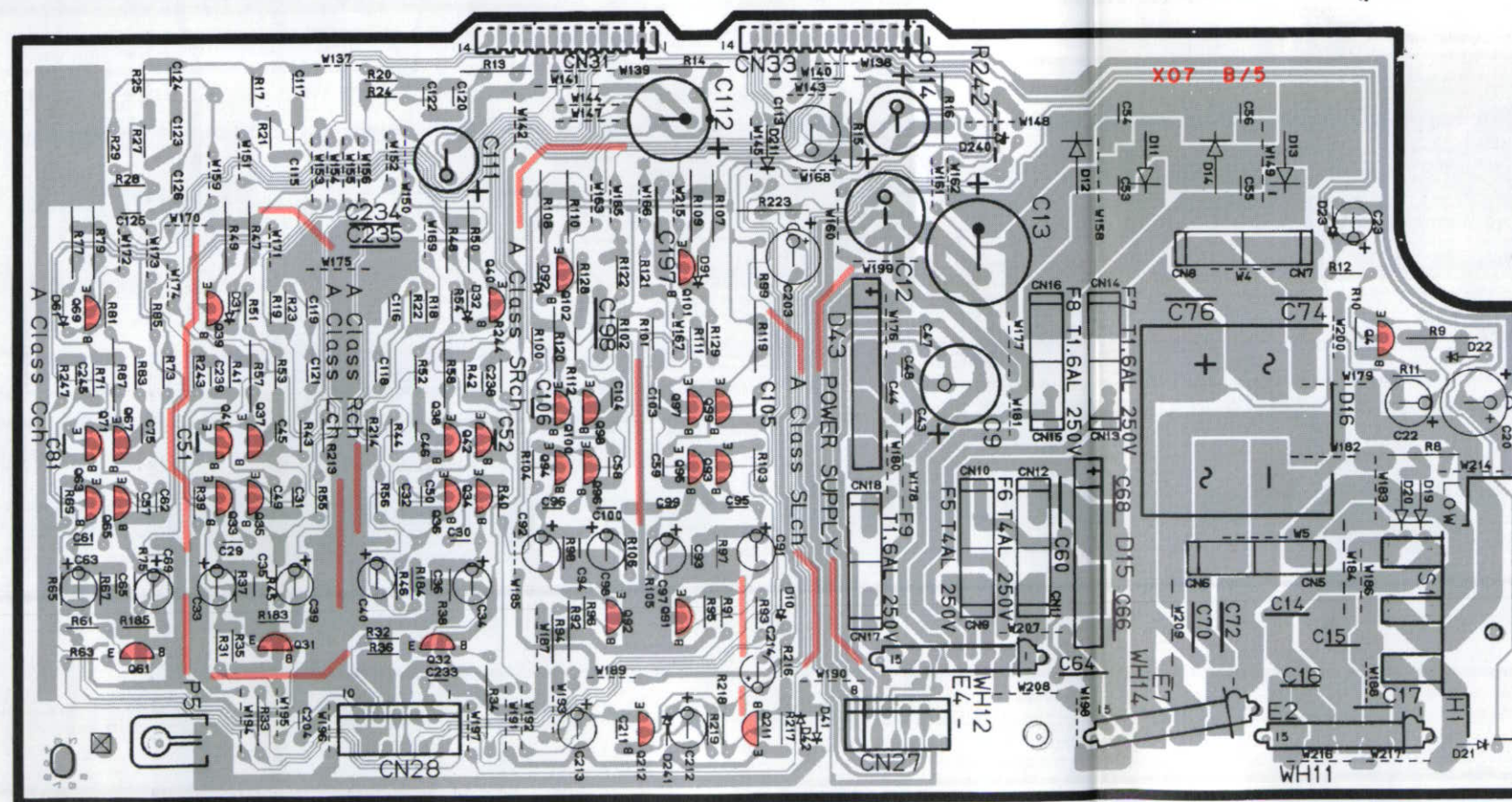
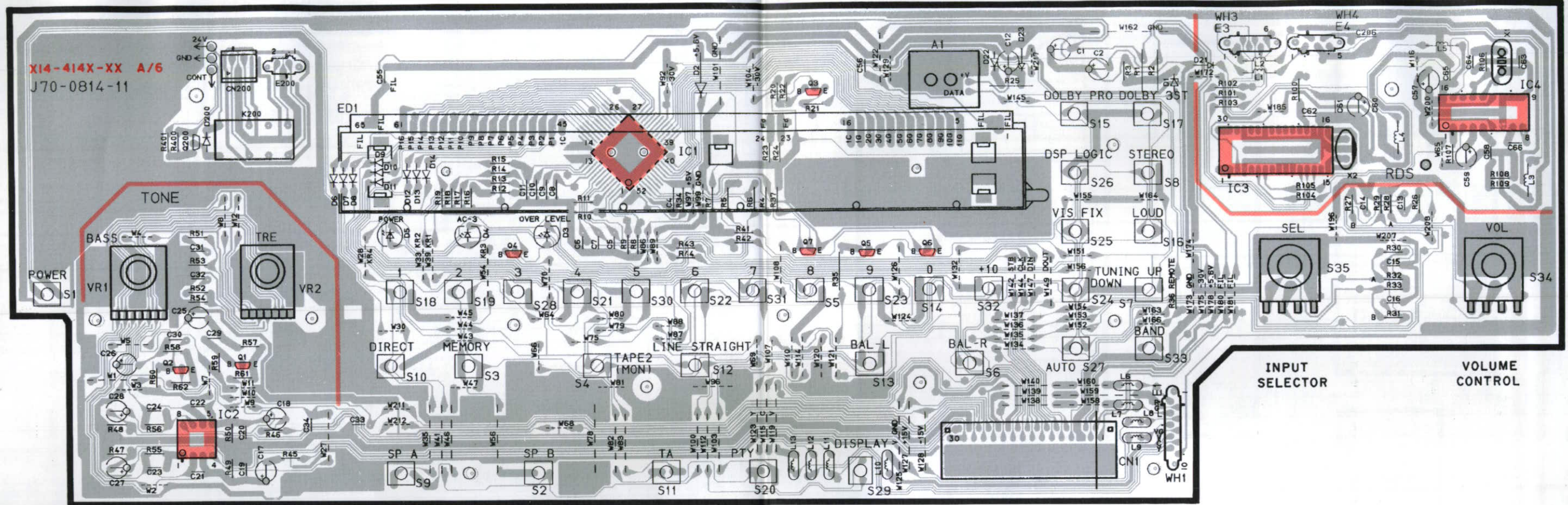
# PC BOARD (Component side view)

DISPLAY UNIT (X14-414X-XX)

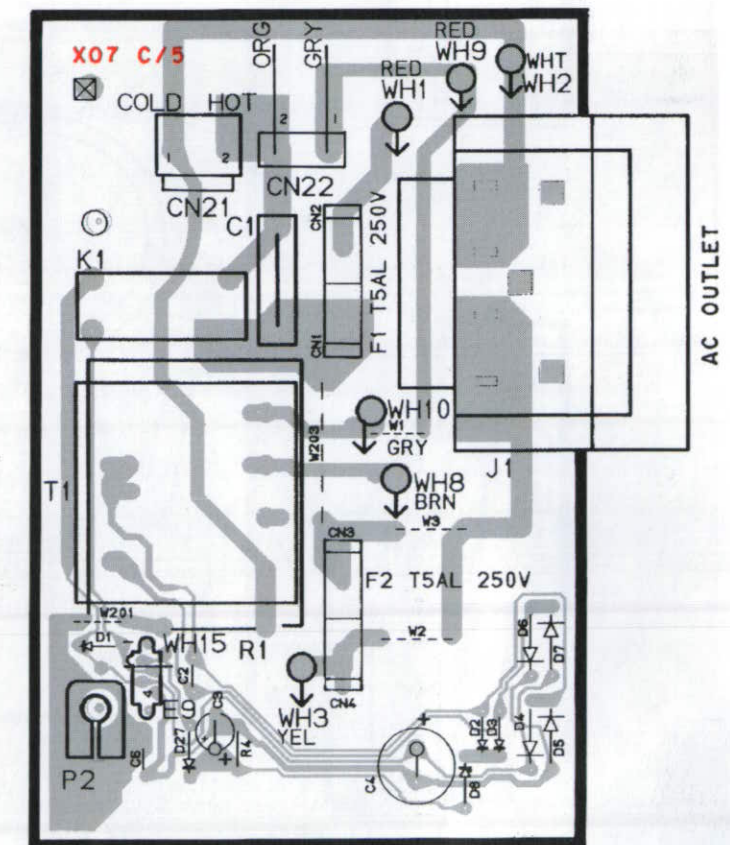
0-10; KPYXMC (KR-V990D)

0-11; KPYXMC (KR-V9080)

2-71; E (KR-V990D)



FRONT SPEAKERS  
IMPEDANCE  
SELECTOR



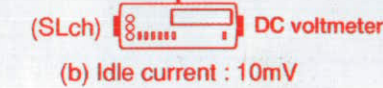
AC OUTLET



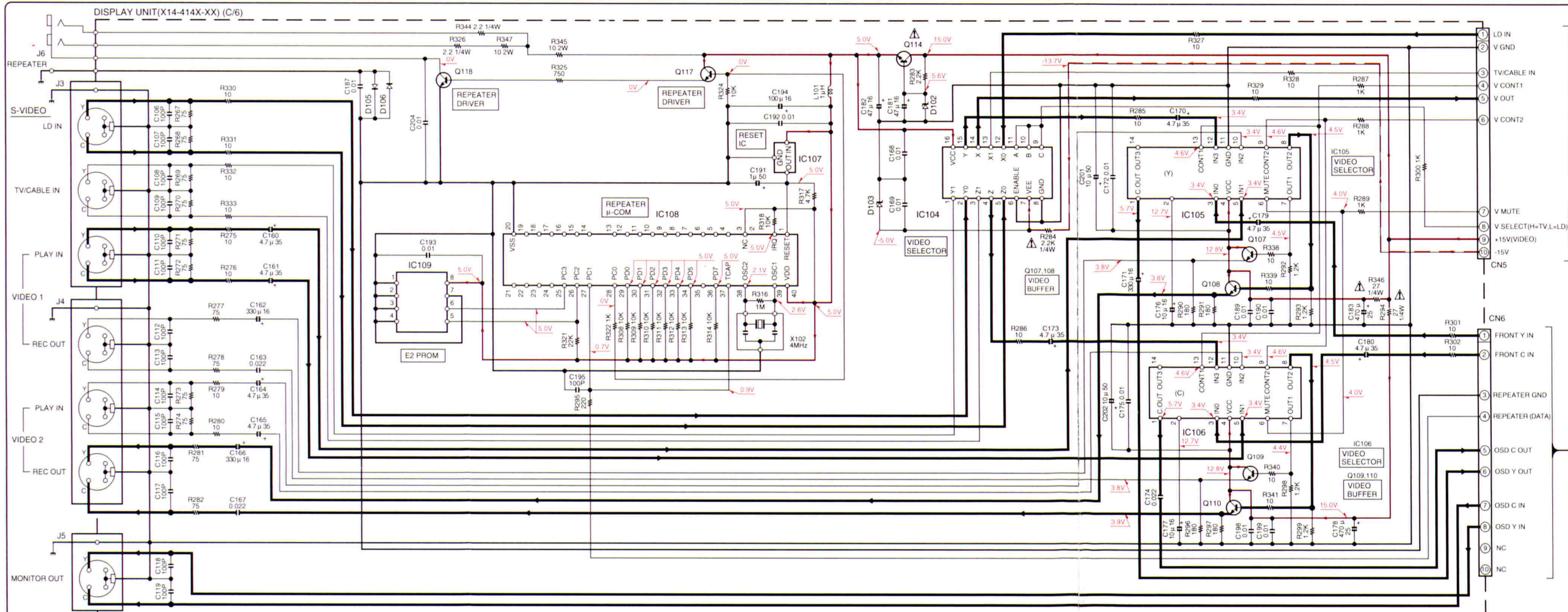
0-22; M (KR-V9080)

2-91; Y (KR-V990D)

3-02; C (KR-V9080)







KR-V990D  
(X14-414X-XX)

| DESTINATION    | COUNTRY | ABB | UNIT No | CN2 | W24 | W21,23,29 | IC108   |
|----------------|---------|-----|---------|-----|-----|-----------|---------|
| U.S.A.         | K       |     | 0-10    | YES | YES | NO        | SC42720 |
| CANADA         | P       |     |         |     |     |           |         |
| FX             | Y       |     |         |     |     |           |         |
| GENERAL MARKET | M       |     |         |     |     |           |         |
| AUSTRALIA      | X       |     |         |     |     |           |         |
| CHINA          | C       |     |         |     |     |           |         |
| EUROPE         | E       |     | 2-71    | YES | YES | NO        | SC42720 |

KR-V9080  
(X14-414X-XX)

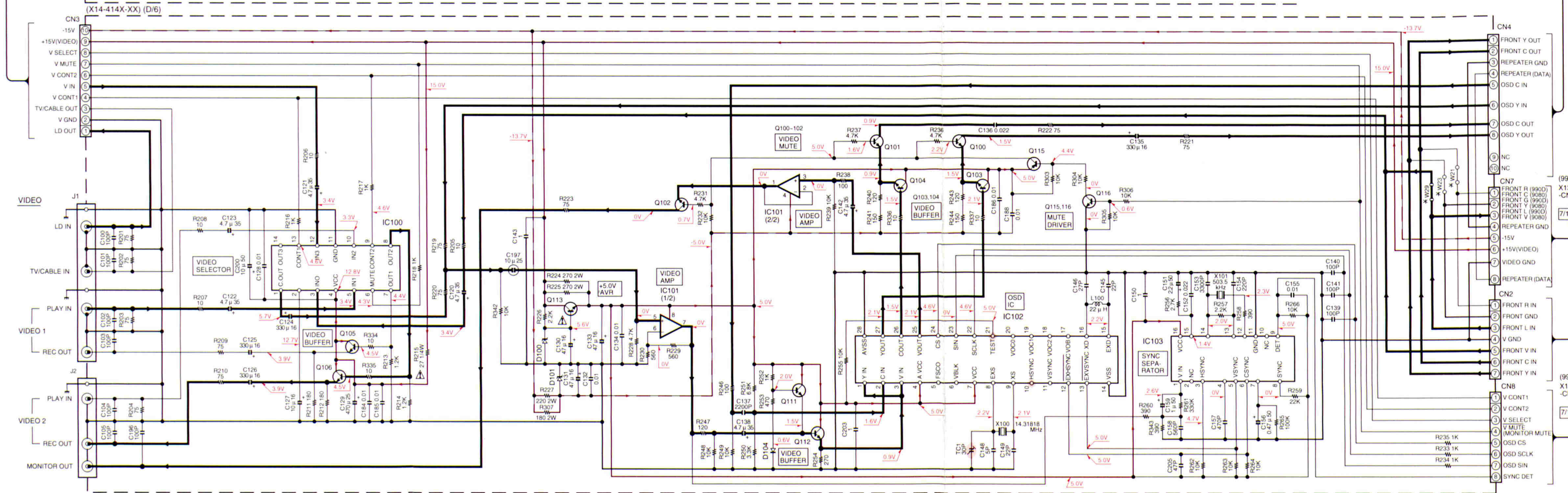
| DESTINATION    | COUNTRY | ABB | UNIT No | CN2 | W24 | W21,23,29 | IC108   |
|----------------|---------|-----|---------|-----|-----|-----------|---------|
| U.S.A.         | K       |     | 0-11    | NO  | NO  | YES       | SC42720 |
| CANADA         | P       |     |         |     |     |           |         |
| FX             | Y       |     |         |     |     |           |         |
| GENERAL MARKET | M       |     |         |     |     |           |         |
| AUSTRALIA      | X       |     |         |     |     |           |         |
| CHINA          | C       |     |         |     |     |           |         |

- IC100,105,106 : LA7951  
 IC101 : MC14577CP  
 IC102 : MB90089PF-G143  
 IC103 : MM1067XD  
 IC104 : MC74HC4053N  
 IC105 : S-806D-Z or PST993D-T  
 IC106 : \*  
 IC107 : XL24C01AP  
 IC108 :  
 IC109 :  
 Q100-102 : 2SC2878(B)  
 Q103-110,112 : 2SC2003(K)  
 Q111,116,117 : 2SC2458(Y,GR) or 2SC3311A(Q,R)  
 Q113,114 : 2SD2681 or 2SD2012  
 Q115 : 2SA1048(Y,GR) or 2SA1309A(Q,R)  
 Q118 :  
 D100,102 : RD5.6ES(B2) or HZS5.6N(B2)  
 D101,103 : RD5.1ES(B2) or HZS5.1N(B2)  
 D104 : 1SS131 or HSS104A  
 D105,106 : 1SS133 or HSS104

IC105,106

| ③CONT1 | ④CONT2 | IN       | OUT       |
|--------|--------|----------|-----------|
| L      | L      | V3       | V1 AND V2 |
| L      | L      | V1       | V2        |
| H      | L      | V2       | V1        |
| H      | H      | TV or LD | V1 AND V2 |

— SIGNAL LINE  
 — GND LINE  
 — +B LINE  
 — -B LINE



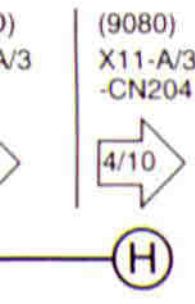
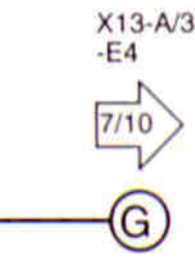
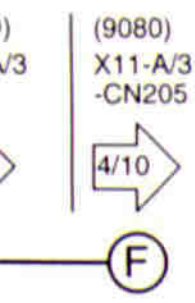


**CAUTION:** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list).  indicates safety critical components. For continued protection against risk of fire, replace only with same type and rating fuse(s). To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

The DC voltage is an actual reading measured with a high impedance type voltmeter as the AM/FM signal generator is specified to the conditions as shown in the list below. The measurement value may vary depending on the measuring instruments used or on the product. The value shown in ( ) is actual reading measured in the AM mode.

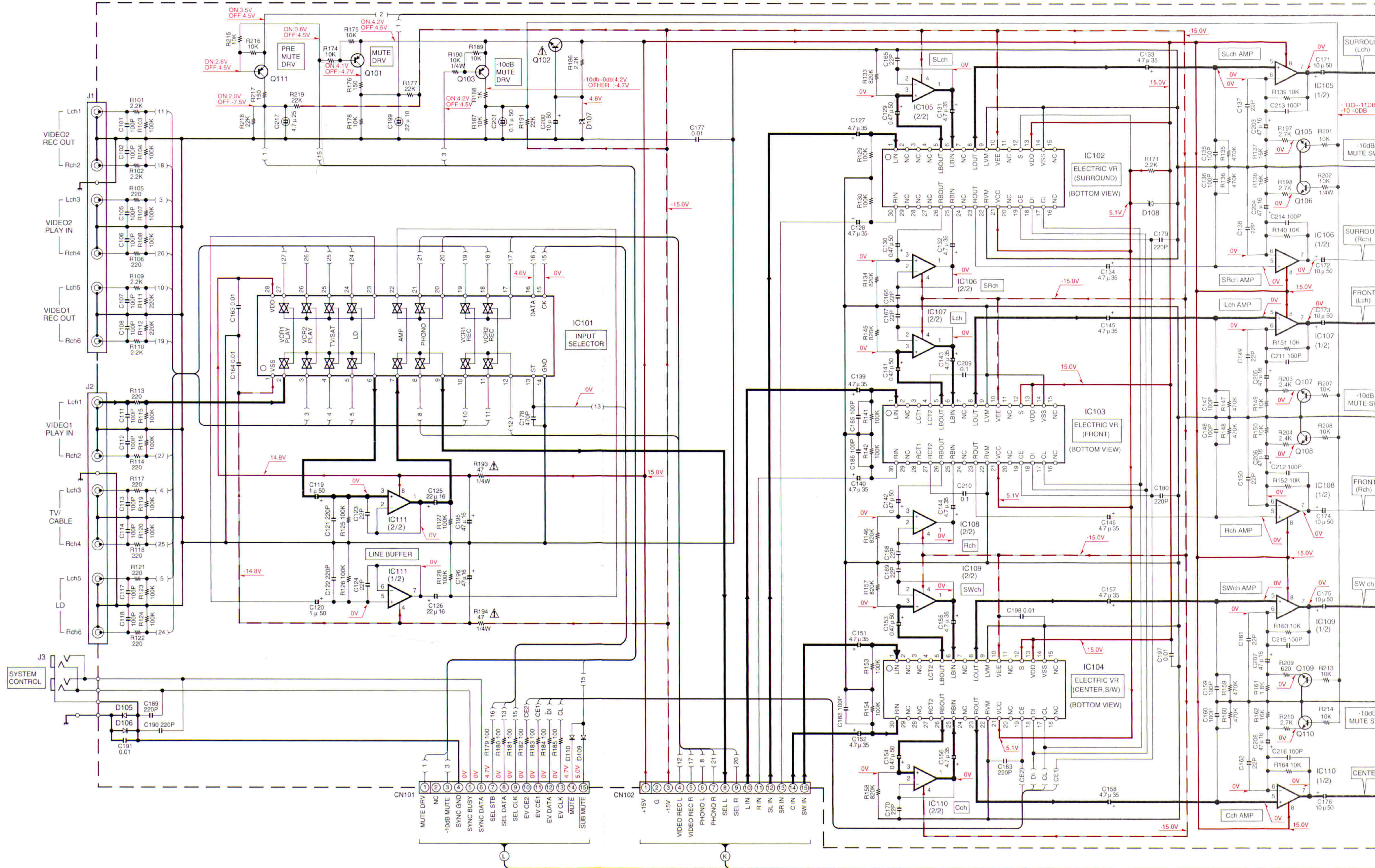
| MODE | CARRIER      | MODULATION |                              | ANT INPUT |
|------|--------------|------------|------------------------------|-----------|
|      |              | FREQUENCY  | DEVIATION                    |           |
| FM   | 98MHz        | 1kHz       | STEREO 67.5kHz 7.5kHz(Pilot) | 60dB      |
| AM   | 1000(999)kHz | 400Hz      | MONO 30% MOD                 | 60dB      |

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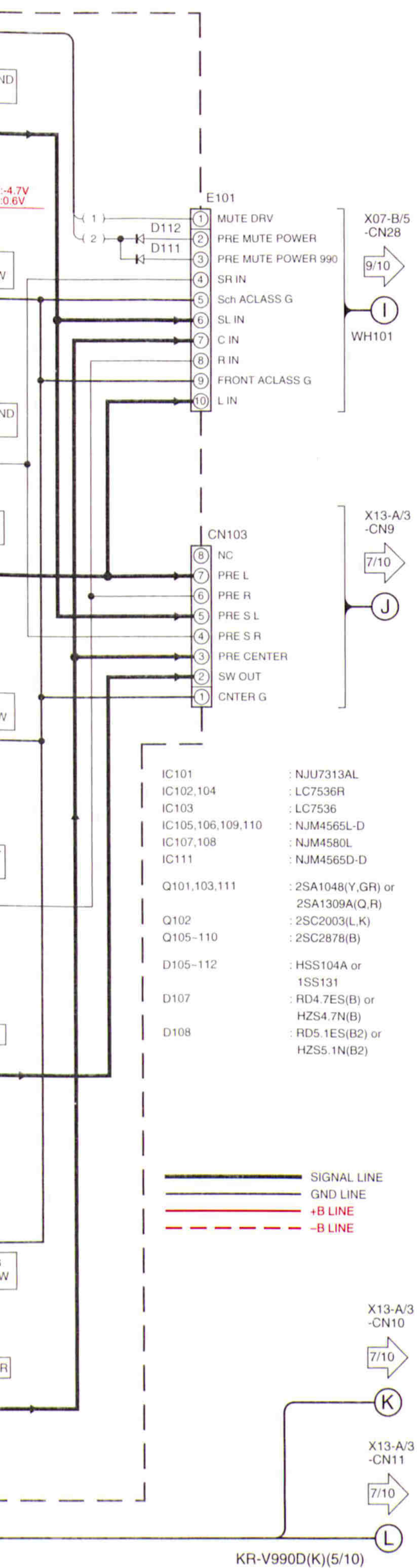




SUB-CIRCUIT UNIT (X13-735X-XX)(B/3) KR-V990D ONLY







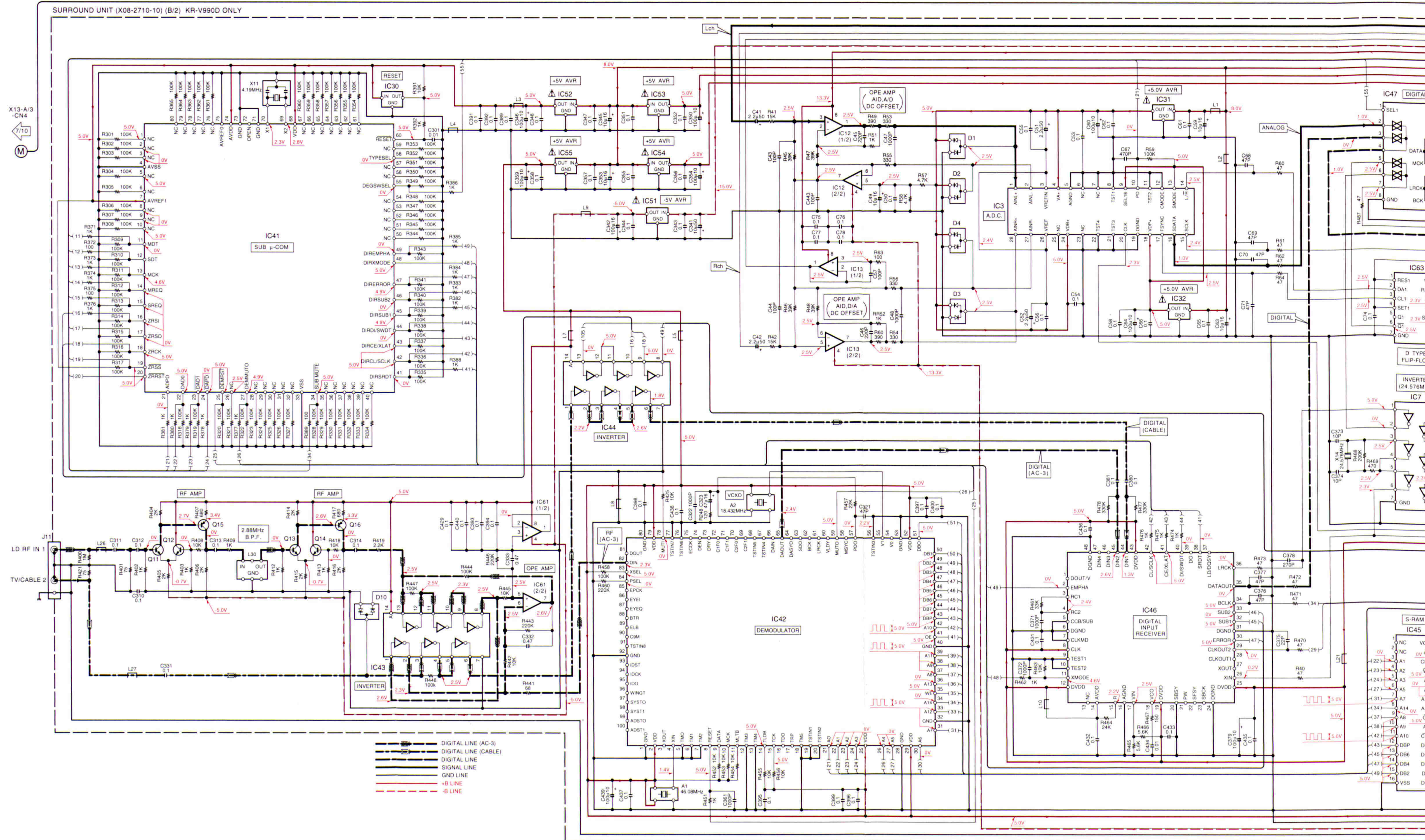
**CAUTION:** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ indicates safety critical components. For continued protection against risk of fire, replace only with same type and rating fuse(s). To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

The DC voltage is an actual reading measured with a high impedance type voltmeter as the AM/FM signal generator is specified to the conditions as shown in the list below. The measurement value may vary depending on the measuring instruments used or on the product. The value shown in ( ) is actual reading measured in the AM mode.

| MODE | CARRIER      | MODULATION |                              | ANT INPUT |
|------|--------------|------------|------------------------------|-----------|
|      |              | FREQUENCY  | DEVIATION                    |           |
| FM   | 98MHz        | 1kHz       | STEREO 67.5kHz 7.5kHz(Pilot) | 60dB      |
| AM   | 1000(999)kHz | 400Hz      | MONO 30% MOD                 | 60dB      |

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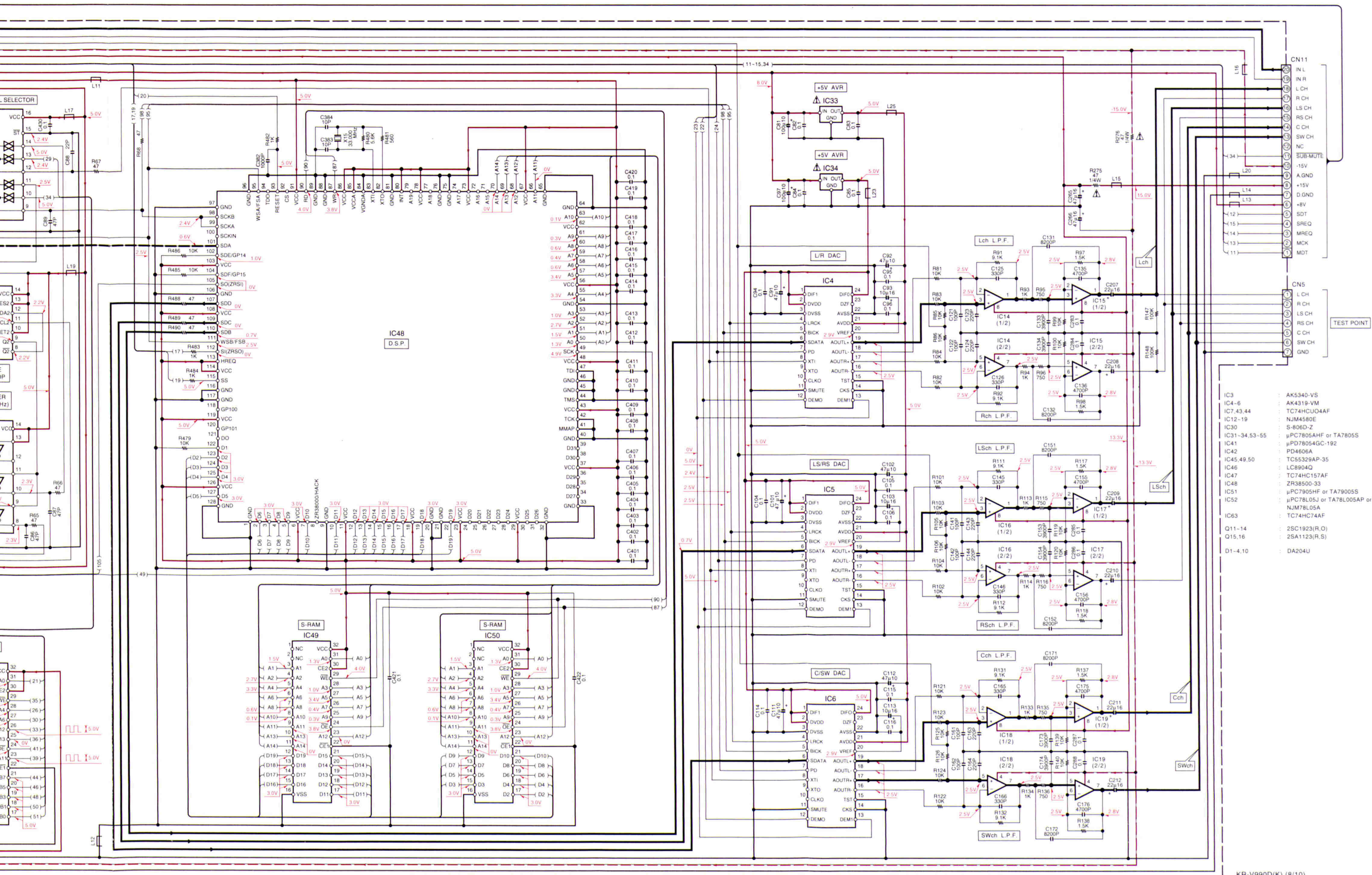


**CAUTION:** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ indicates safety critical components. For continued protection against risk of fire, replace only with same type and rating fuse(s). To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

The DC voltage is an actual reading measured with a high impedance type voltmeter as the AM/FM signal generator is specified to the conditions as shown in the list below. The measurement value may vary depending on the measuring instruments used or on the product. The value shown in ( ) is actual reading measured in the AM mode.

| MODE | CARRIER      | FRE |
|------|--------------|-----|
| FM   | 98MHz        |     |
| AM   | 1000(999)kHz |     |





- IC3

IC4-6

IC7,43,44

IC12-19

IC30

IC31-34,53-55

IC41

IC42

IC45,49,50

IC46

IC47

IC48

IC51

IC52

IC63

Q11-14

Q15,16

D1-4,10
- AK5340-VS

AK4319-VM

TC74HC04AF

NJM4580E

S-806D-Z

μPC7805AHF or TA7805S

μPD78054GC-192

PD4606A

TC55329AP-35

LC8904Q

TC74HC157AF

ZR38500-33

μPC7905HF or TA79005S

μPC78L05J or TA78L005AP or NJM78L05A

TC74HC74AF

2SC1923(R,O)

2SA1123(R,S)

DA204U

| MODULATION |                              | ANT INPUT |
|------------|------------------------------|-----------|
| FREQUENCY  | DEVIATION                    |           |
| 1kHz       | STEREO 67.5kHz 7.5kHz(Pilot) | 60dB      |
| 400Hz      | MONO 30% MOD                 | 60dB      |

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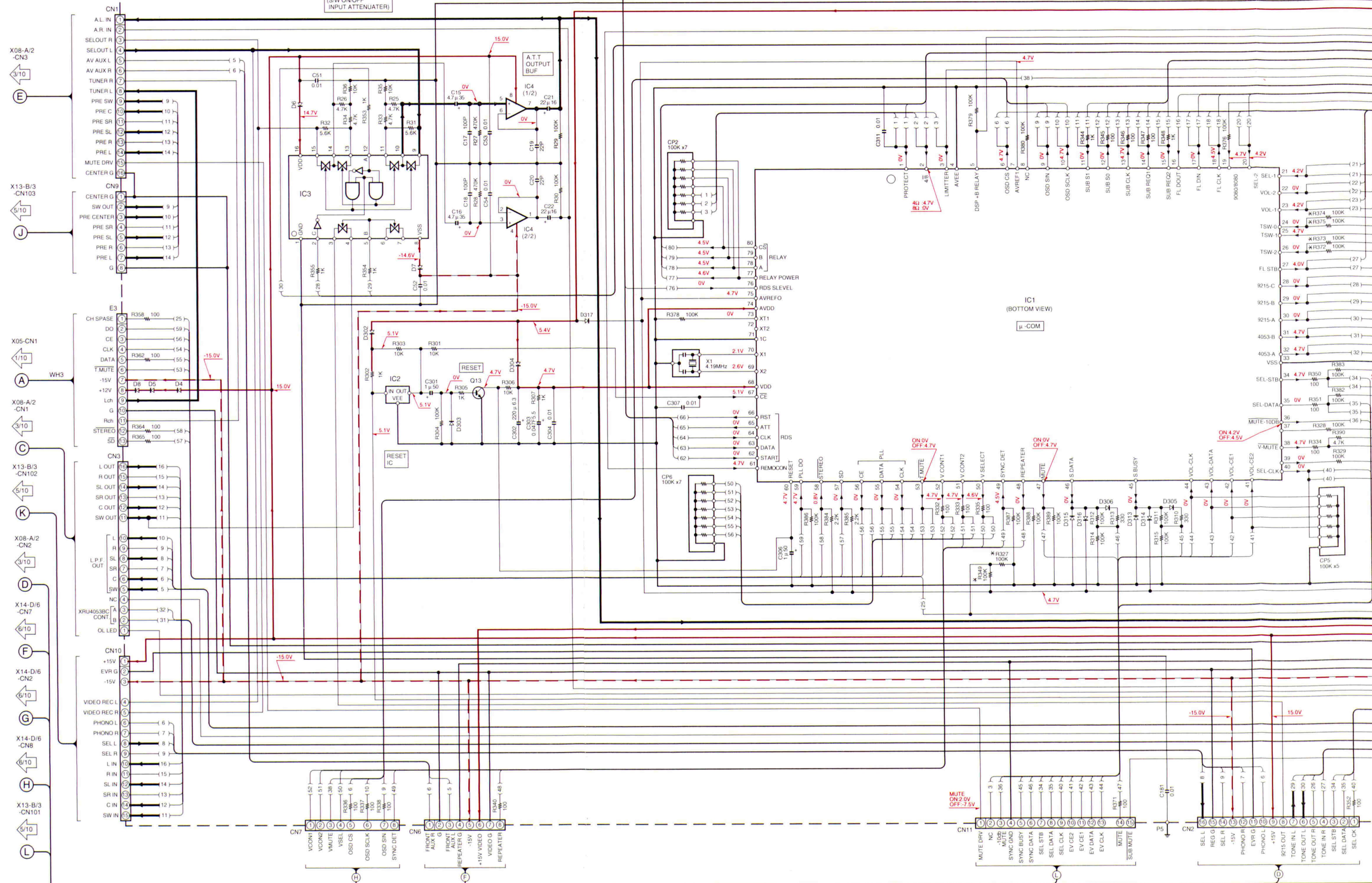
Y05-3070-10

KR-V990D-V9080

KENWOOD



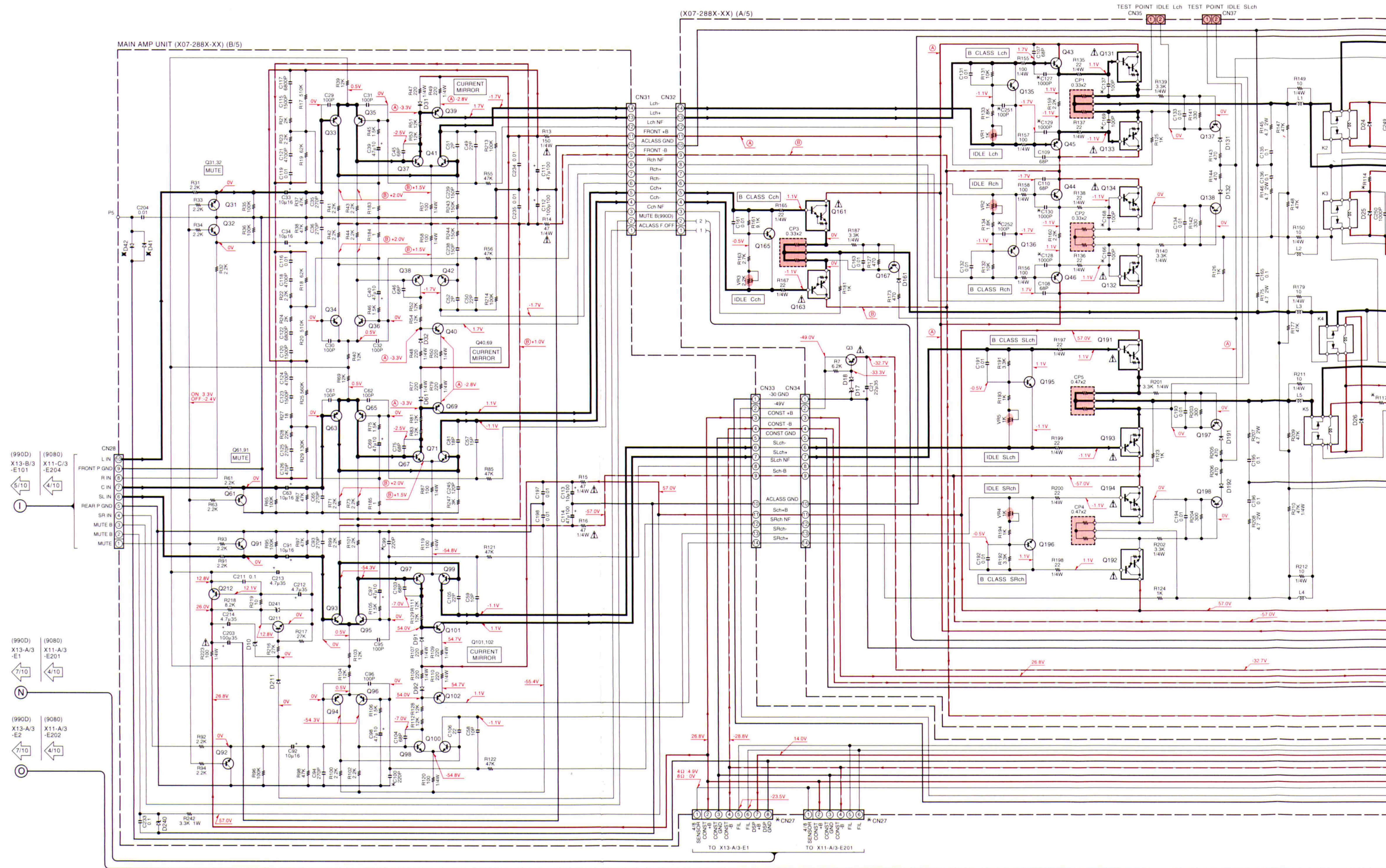
IC3 ANALOG SELECTOR  
(S/W ON/OFF  
INPUT ATTENUATOR)



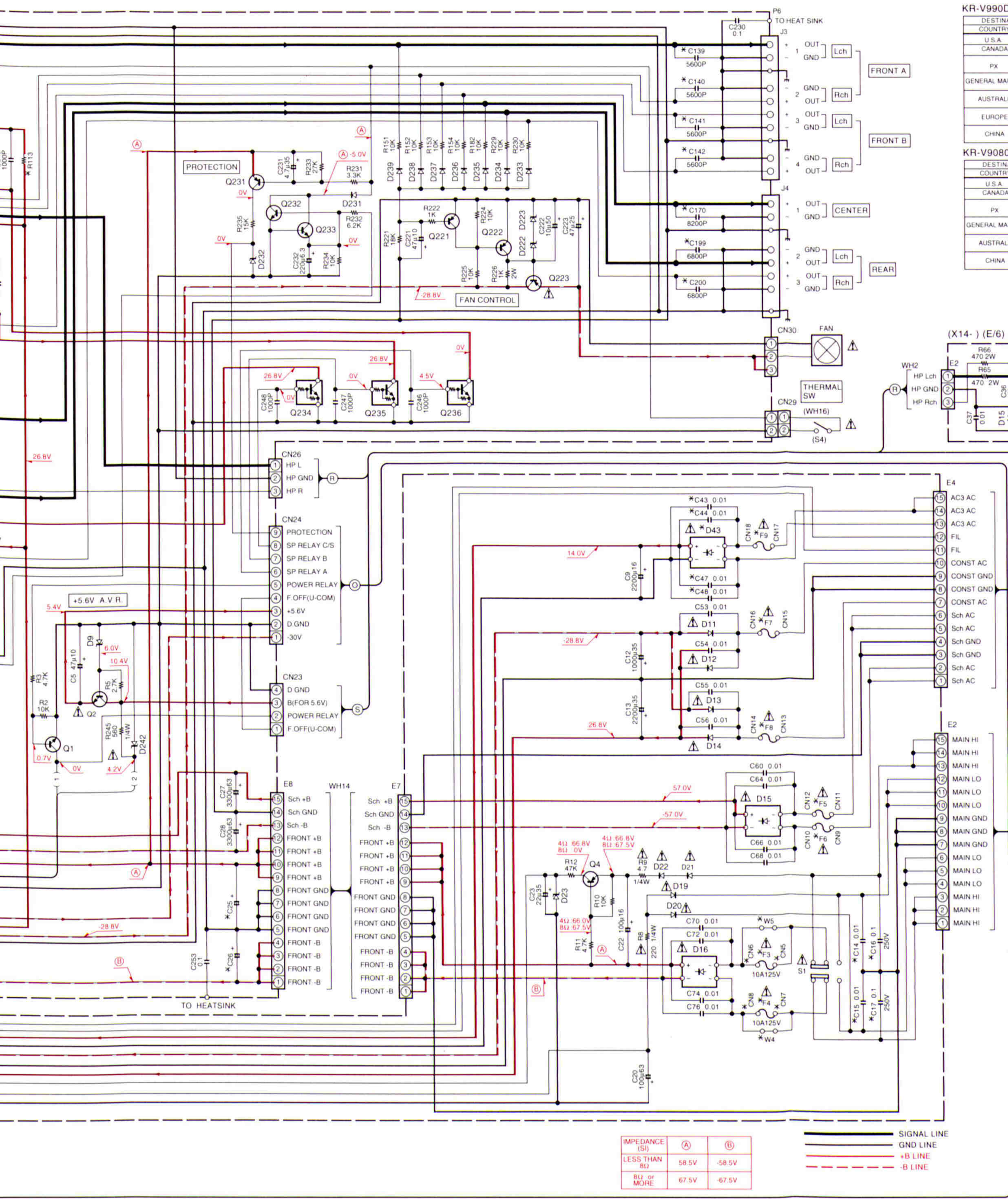








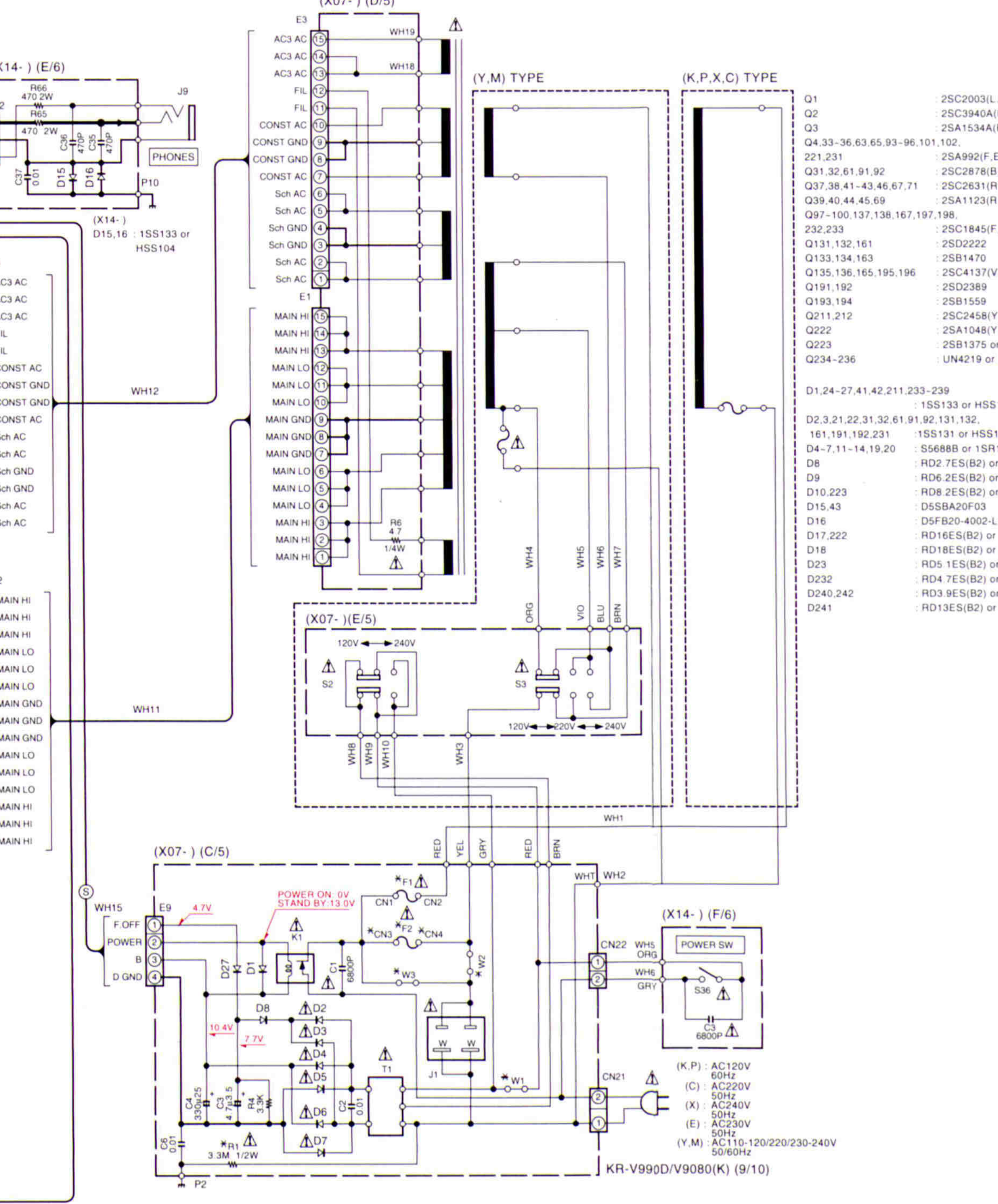




| KR-V990D       |     |             |           |    |      |      |           |              |              |       |        |        |                                  |         |     |                             |          |        |      |     |              |     |     |     |      |    |
|----------------|-----|-------------|-----------|----|------|------|-----------|--------------|--------------|-------|--------|--------|----------------------------------|---------|-----|-----------------------------|----------|--------|------|-----|--------------|-----|-----|-----|------|----|
| DESTINATION    |     | UNIT No     | F1        | F2 | F3.4 | F5.6 | F7.8      | F9           | CN3.4        | CN5-8 | C14-17 | C25,26 | C43,44,47,48,137,166,169,251,252 |         |     | C99,100,139-142,170,199,200 | C127-130 | D41-43 | CN27 | R1  | R113,114,117 | W1  | W2  | W3  | W4.5 |    |
| COUNTRY        | ABB |             |           |    |      |      |           |              |              |       |        |        |                                  |         |     |                             |          |        |      |     |              |     |     |     |      |    |
| U.S.A          | K   | X07-2880-10 | 10A       |    | NO   | YES  | 5A 125V   | 2A 250V      | 1.6A 250V    | NO    | NO     | YES    | NO                               | 8200p80 | YES | NO                          | YES      | 8pin   | NO   | YES | 10 1/4W      | YES | NO  | YES | NO   |    |
| CANADA         | P   |             | TSAL 250V |    | NO   | NO   | T4AL 250V | 1.1 6AL 250V | 1.1 6AL 250V | YES   | NO     | YES    | NO                               |         |     |                             |          |        |      | NO  | 33 1/4W      | NO  | NO  | YES | YES  |    |
|                | Y   | X07-2882-91 | TSAL 250V |    | NO   | NO   | T4AL 250V | 1.1 6AL 250V | 1.1 6AL 250V | YES   | NO     | YES    | NO                               |         |     |                             |          |        |      | NO  | 33 1/4W      | NO  | NO  | YES | YES  |    |
| GENERAL MARKET | M   | X07-2880-21 | NO        |    | NO   | NO   | T4AL 250V | 1.1 6AL 250V | 1.1 6AL 250V | NO    | NO     | YES    | NO                               |         |     |                             |          |        |      | NO  | 33 1/4W      | NO  | NO  | YES | YES  |    |
| AUSTRALIA      | X   | X07-2880-71 | TSAL 250V |    | NO   | NO   | T4AL 250V | 1.1 6AL 250V | 1.1 6AL 250V | YES   | NO     | YES    | NO                               |         |     |                             |          |        |      | NO  | 33 1/4W      | NO  | NO  | YES | YES  |    |
| EUROPE         | E   | X07-2882-71 | TSAL 250V |    | NO   | NO   | T4AL 250V | 1.1 6AL 250V | 1.1 6AL 250V | YES   | NO     | YES    | NO                               | YES     | YES | YES                         | YES      | YES    | YES  | YES | YES          | YES | YES | YES | YES  |    |
| CHINA          | C   | X07-2883-01 | TSAL 250V |    | NO   | NO   | T4AL 250V | 1.1 6AL 250V | 1.1 6AL 250V | NO    | NO     | YES    | NO                               |         |     |                             |          |        |      |     |              |     |     |     |      | NO |

KR-V9080

| DESTINATION    |     | UNIT No.    | F1           | F2           | F3.4 | F5.6         | F7.8           | F9 | CN3.4 | CN5-8 | C14-17 | C25,26  | C43,44,47,48,137,166,168,169,251,252 | C99,100,139-142,170,199,200 | C127-130 | D41-43 | CN27 | R1  | R113,114,117 | W1      | W2      | W3  | W4.5 |     |     |         |    |    |     |     |
|----------------|-----|-------------|--------------|--------------|------|--------------|----------------|----|-------|-------|--------|---------|--------------------------------------|-----------------------------|----------|--------|------|-----|--------------|---------|---------|-----|------|-----|-----|---------|----|----|-----|-----|
| COUNTRY        | ABB |             |              |              |      |              |                |    |       |       |        |         |                                      |                             |          |        |      |     |              |         |         |     |      |     |     |         |    |    |     |     |
| U.S.A.         | K   | X07-2880-11 | 10A<br>125V  | NO           | YES  | 5A<br>125V   | 2A<br>250V     | NO | NO    | YES   | NO     | 7500μ80 | NO                                   | NO                          | YES      | NO     | 6pin | YES | 10 1/4W      | YES     | NO      | YES | NO   |     |     |         |    |    |     |     |
| CANADA         | P   |             |              |              |      |              |                |    | YES   | NO    | YES    |         |                                      |                             |          |        |      |     |              |         |         |     |      |     | NO  | 33 1/4W | NO | NO | YES | YES |
| FX             | Y   | X07-2882-92 | T5AL<br>250V | T5AL<br>250V | NO   | T4AL<br>250V | T1.6AL<br>250V |    | NO    | NO    | YES    |         |                                      |                             |          |        |      |     |              |         |         |     |      |     | NO  | 33 1/4W | NO | NO | YES | YES |
| GENERAL MARKET | M   | X07-2880-22 |              |              |      |              |                |    |       | NO    |        |         |                                      |                             |          |        |      |     |              |         |         |     |      |     |     |         |    |    |     |     |
| AUSTRALIA      | X   | X07-2880-72 | T5AL<br>250V | NO           | NO   | T4AL<br>250V | T1.6AL<br>250V |    | YES   | NO    | NO     |         |                                      |                             |          |        |      |     | NO           | 10 1/4W | YES     | NO  | YES  | YES |     |         |    |    |     |     |
| CHINA          | C   | X07-2883-02 | T5AL<br>250V |              | NO   | T4AL<br>250V | T1.6AL<br>250V |    | NO    | NO    | YES    |         |                                      |                             |          |        |      |     |              | NO      | 10 1/4W | YES | NO   | YES | YES |         |    |    |     |     |



|           |      |
|-----------|------|
| ANT INPUT | 60dB |
| ANT INPUT | 60dB |

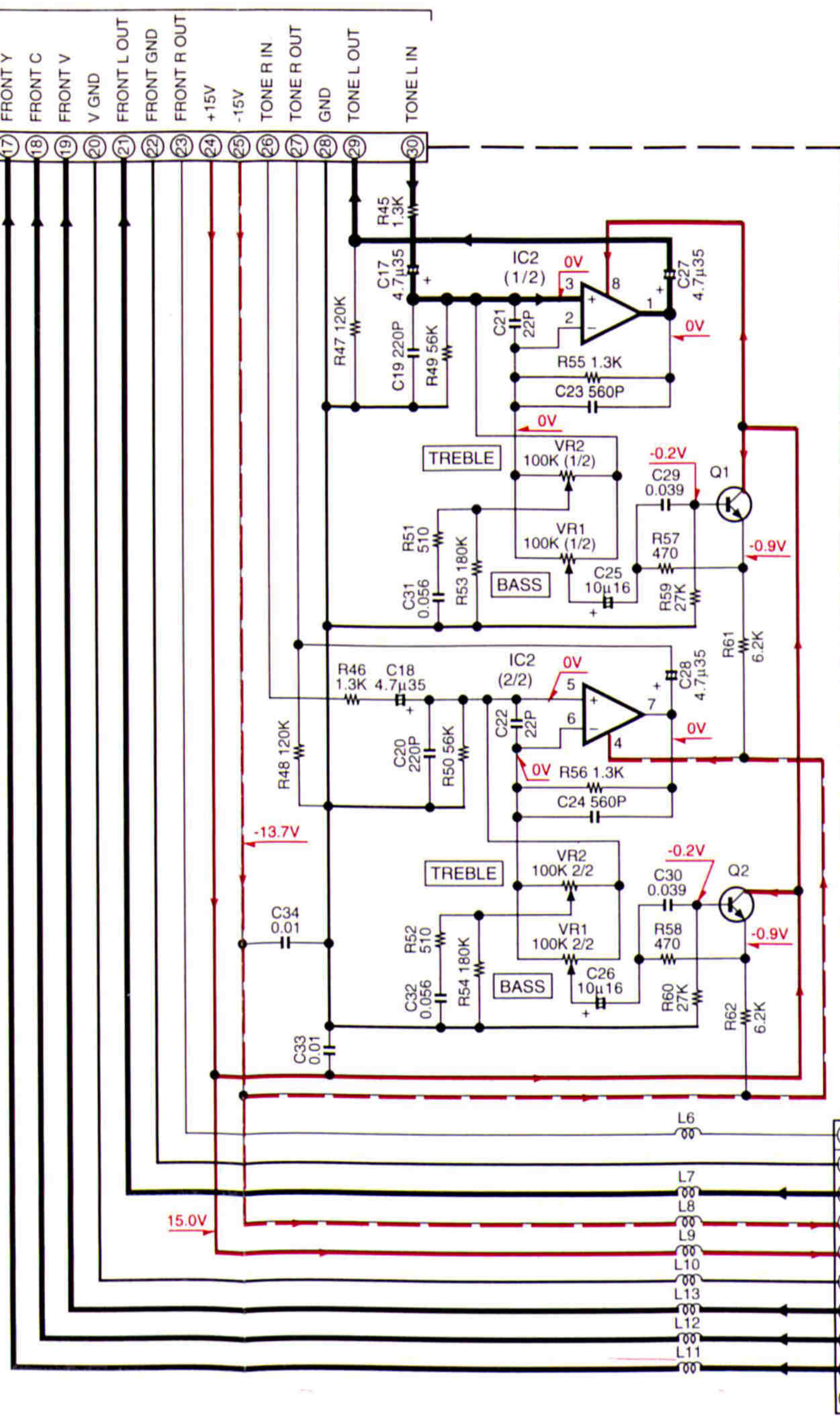
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Y05-3070-10









KR-V990D  
(X14-414X-XX)

| DESTINATION    | UNIT No. | (A)  | D3,4 | D8  | S11,20,29 | Q4-7 | R4,5,35,37 |
|----------------|----------|------|------|-----|-----------|------|------------|
| COUNTRY        | ABB      |      |      |     |           |      |            |
| U.S.A.         | K        |      |      |     |           |      |            |
| CANADA         | P        |      |      |     |           |      |            |
| PX             | Y        | 0-10 | NO   | YES | NO        | YES  | YES        |
| GENERAL MARKET | M        |      |      |     |           |      |            |
| AUSTRALIA      | X        |      |      |     |           |      |            |
| CHINA          | C        |      |      |     |           |      |            |
| EUROPE         | E        | 2-71 | YES  | YES | YES       | YES  | YES        |

KR-V9080  
(X14-414X-XX)

| DESTINATION    | UNIT No. | (A)  | D3,4 | D8 | S11,20,29 | Q4-7 | R4,5,35,37 |
|----------------|----------|------|------|----|-----------|------|------------|
| COUNTRY        | ABB      |      |      |    |           |      |            |
| U.S.A.         | K        |      |      |    |           |      |            |
| CANADA         | P        |      |      |    |           |      |            |
| PX             | Y        | 0-11 | NO   | NO | NO        | NO   | NO         |
| GENERAL MARKET | M        |      |      |    |           |      |            |
| AUSTRALIA      | X        |      |      |    |           |      |            |
| CHINA          | C        |      |      |    |           |      |            |

IC1 :  $\mu$ PD16311  
IC2 : NJM4580D-D  
IC3 : LC6543H-4D68  
IC4 : SAA6579  
IC5 : NJM4565L-D  
Q1-3 : 2SC245B(Y,GR) or 2SC3311A(Q,R)  
Q4 : UN4119 or DTA113ZS  
Q5-7 : UN4219 or DTC113ZS  
D1 : RD8.2ES(B2) or HZS8.2N(B2)  
D2,6-14,21,22 : 1SS131 or HSS104A  
D3,4 : B30-1291-05  
D5 : B30-1290-05  
D17-20 : 1SS133 or HSS104  
ED1 : 11-MT-103GK

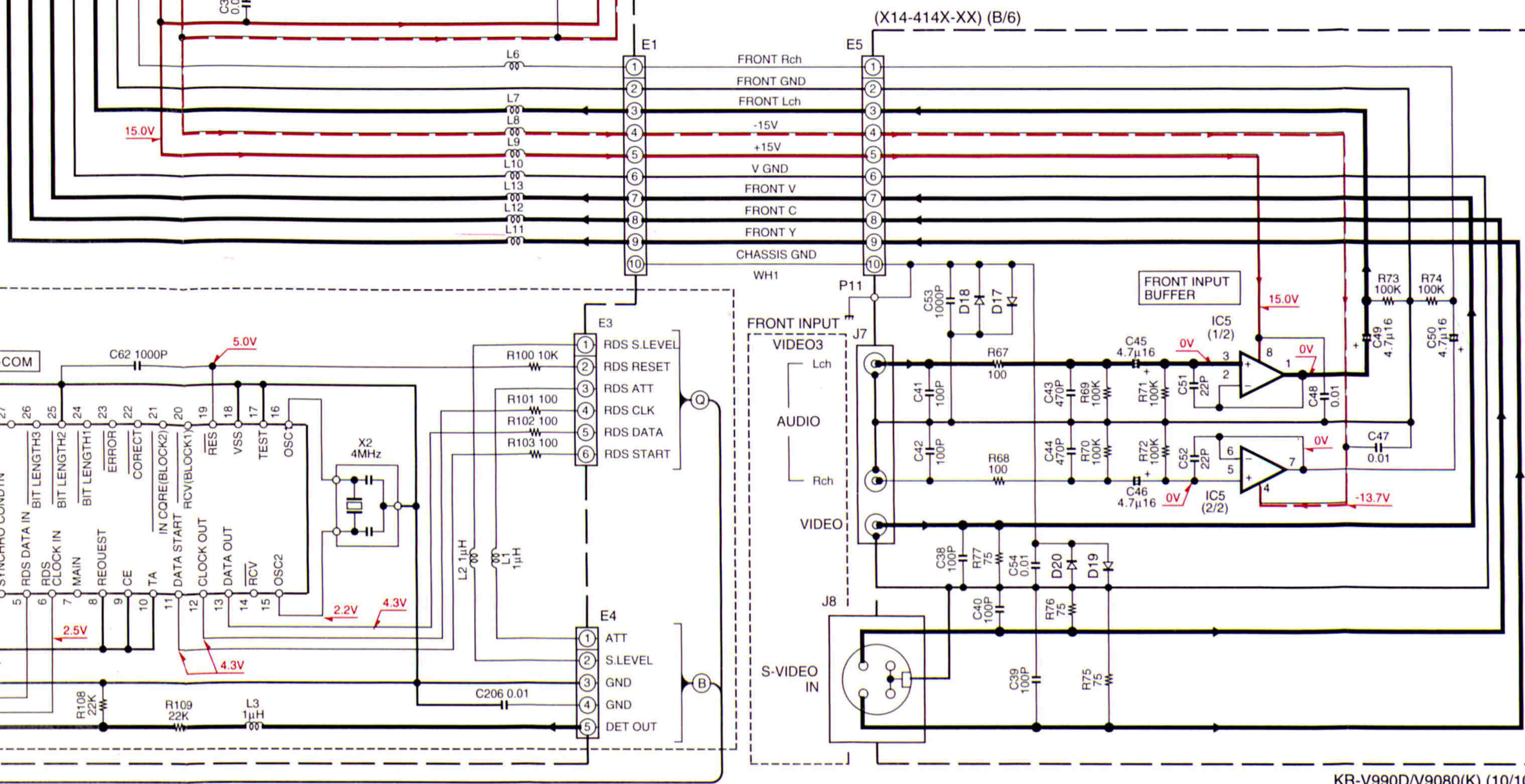
— SIGNAL LINE  
— GND LINE  
— +B LINE  
- - - -B LINE

**CAUTION:** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list).  $\Delta$  indicates safety critical components. For continued protection against risk of fire, replace only with same type and rating fuse(s). To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

The DC voltage is an actual reading measured with a high impedance type voltmeter as the AM/FM signal generator is specified to the conditions as shown in the list below. The measurement value may vary depending on the measuring instruments used or on the product. The value shown in ( ) is actual reading measured in the AM mode.

| MODE | CARRIER      | MODULATION |                              | ANT INPUT |
|------|--------------|------------|------------------------------|-----------|
|      |              | FREQUENCY  | DEVIATION                    |           |
| FM   | 98MHz        | 1kHz       | STEREO 67.5kHz 7.5kHz(Pilot) | 60dB      |
| AM   | 1000(999)kHz | 400Hz      | MONO 30% MOD                 | 60dB      |

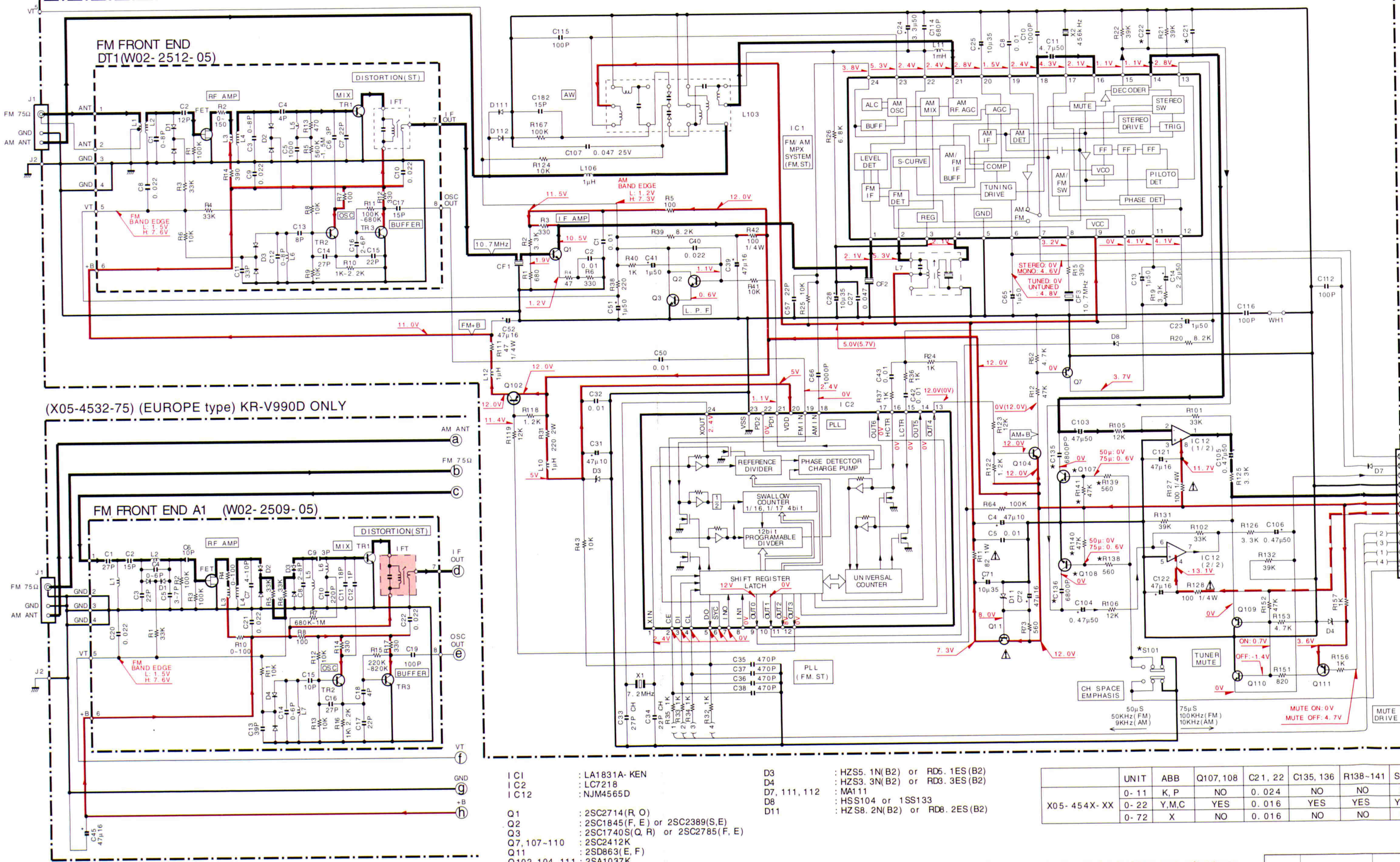
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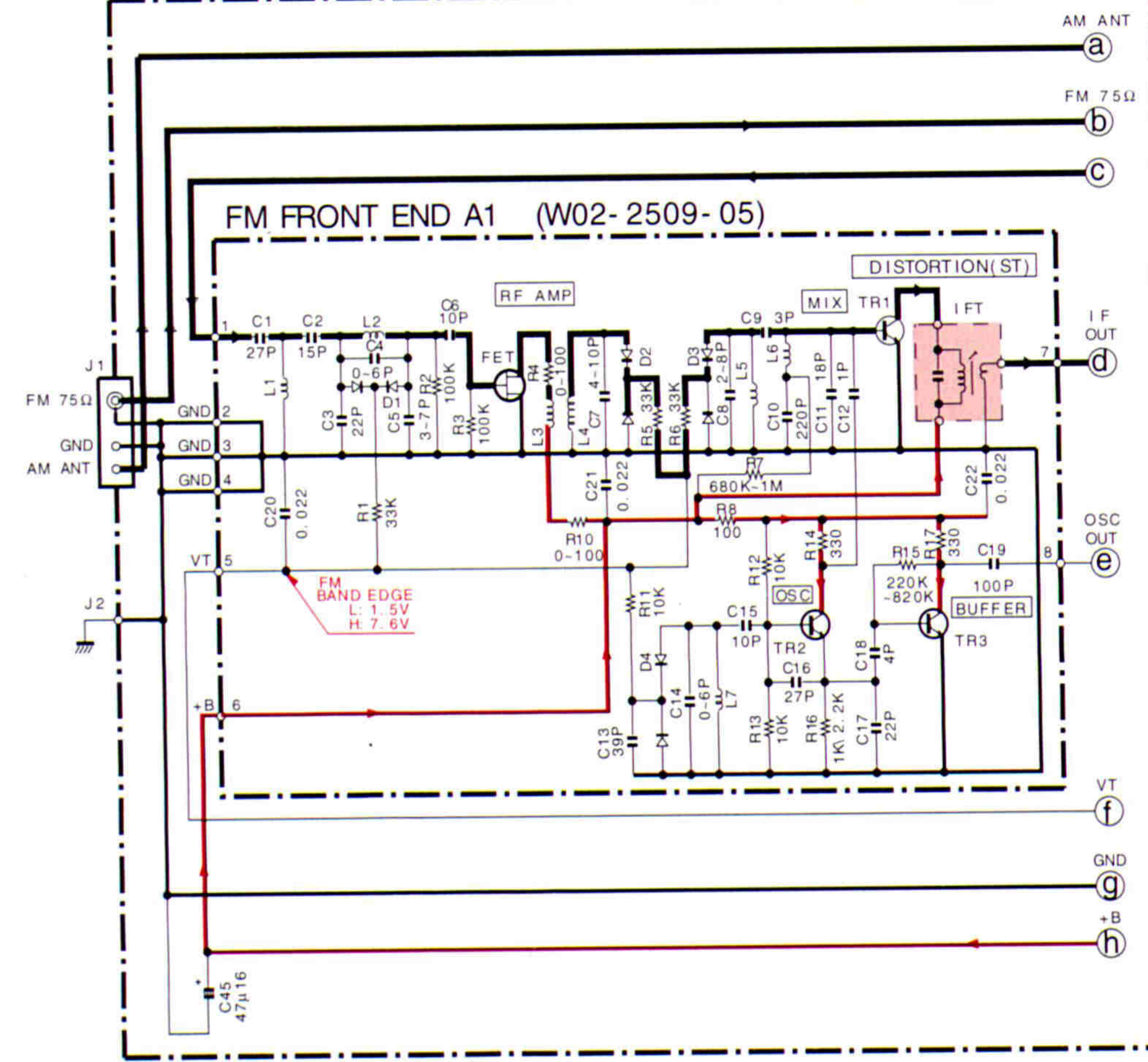
KR-V990D/V9080(K) (10/10)



# TUNER UNIT (X05-4540-XX) (Except for EUROPE type)



## (X05-4532-75) (EUROPE type) KR-V990D ONLY



- |                |                                   |              |                              |
|----------------|-----------------------------------|--------------|------------------------------|
| IC1            | : LA1831A-KEN                     | D3           | : HZS5.1N(B2) or RD5.1ES(B2) |
| IC2            | : LC7218                          | D4           | : HZS3.3N(B2) or RD3.3ES(B2) |
| IC12           | : NJM4565D                        | D7, 111, 112 | : MA111                      |
| Q1             | : 2SC2714(R, O)                   | D8           | : HSS104 or 1SS133           |
| Q2             | : 2SC1845(F, E) or 2SC2389(S, E)  | D11          | : HZS8.2N(B2) or RD8.2ES(B2) |
| Q3             | : 2SC1740S(Q, R) or 2SC2785(F, E) |              |                              |
| Q7, 107-110    | : 2SC2412K                        |              |                              |
| Q11            | : 2SD863(E, F)                    |              |                              |
| Q102, 104, 111 | : 2SA1037K                        |              |                              |

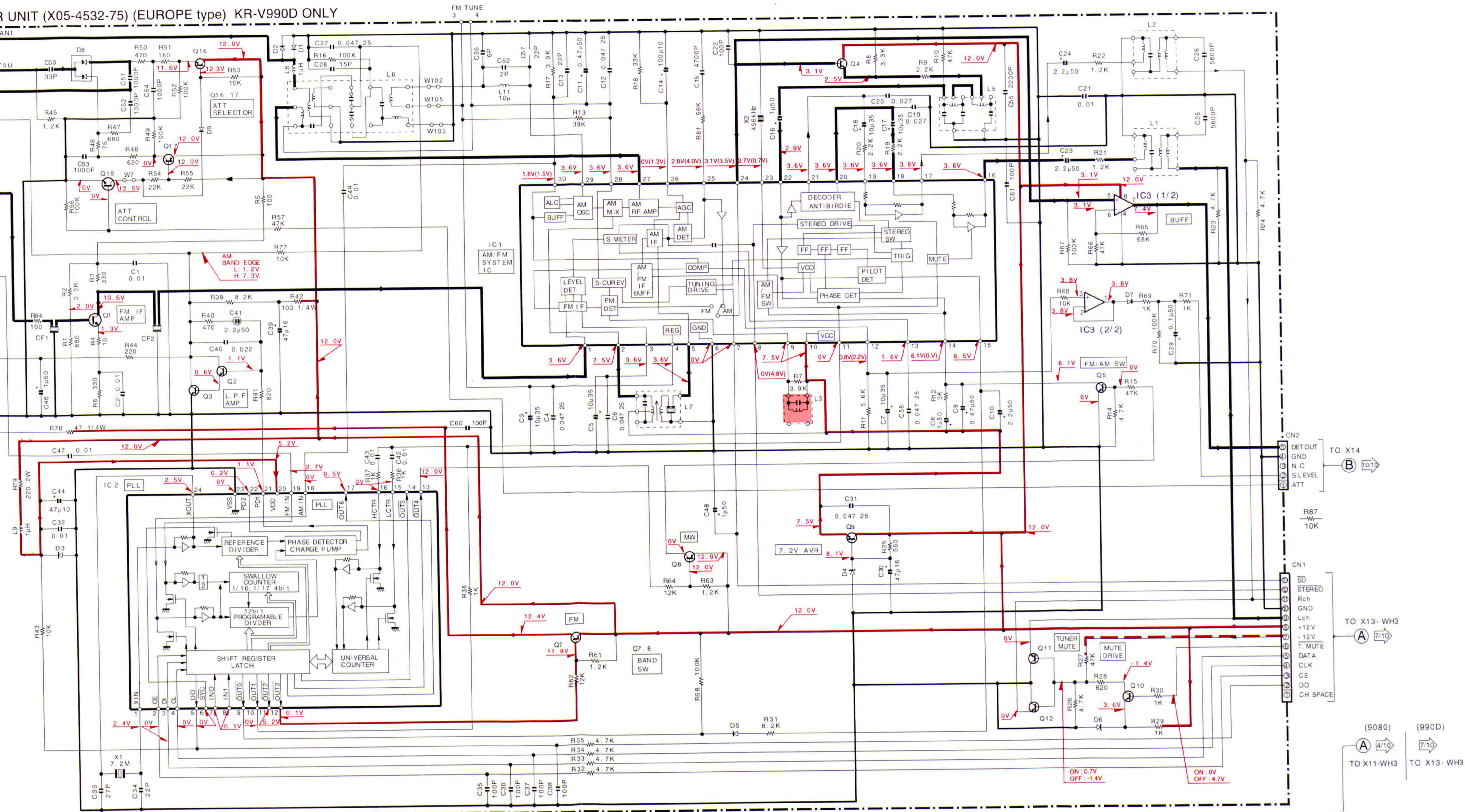
| UNIT | ABB     | Q107, 108 | C21, 22 | C135, 136 | R138-141 | S101 |
|------|---------|-----------|---------|-----------|----------|------|
| 0-11 | K, P    | NO        | 0.024   | NO        | NO       | NO   |
| 0-22 | Y, M, C | YES       | 0.016   | YES       | YES      | YES  |
| 0-72 | X       | NO        | 0.016   | NO        | NO       | NO   |

**CAUTION:** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list).  $\Delta$  indicates safety critical components. For continued protection against risk of fire, replace only with same type and rating fuse(s). To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

The DC voltage is an actual reading measured with a high impedance type voltmeter as the AM/FM signal generator is specified to the conditions as shown in the list below. The measurement value may vary depending on the measuring instruments used or on the product. The value shown in ( ) is actual reading measured in the AM mode.

| MODE | CARRIER      | MODUL     |        |
|------|--------------|-----------|--------|
|      |              | FREQUENCY |        |
| FM   | 98MHz        | 1kHz      | STEREO |
| AM   | 1000(999)kHz | 400Hz     | MONO 3 |



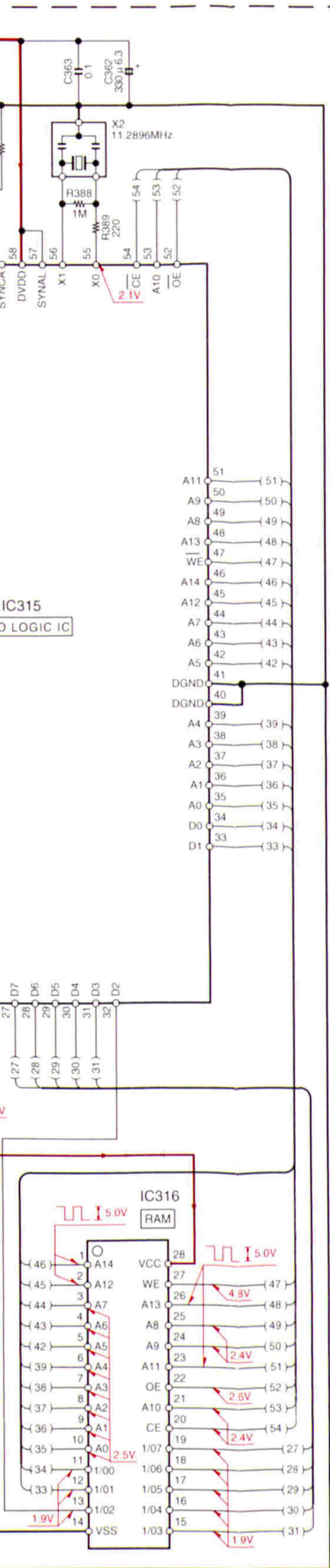


|                       |      |
|-----------------------|------|
| ANT INPUT             |      |
| DEVIATION             |      |
| 67.5kHz 7.5kHz(Pilot) | 60dB |
| 30% MOD               | 60dB |









IC301,302,307-313 : NJM4565L  
IC303,304 : NJM4580L  
IC305,306 : NJM072BL or NJM2082L  
IC314 : TC9215P  
IC315 : YSS215-F  
IC316 : HM65256BLFP-10  
IC317 : NJU7311AL  
IC318 : NJU7312AL  
IC319 : NJM4580D-D  
IC320 : NJM78L05A

Q301-305 : 2SC2878(B)  
D301-309,313-316, 318-321,327 : HSS104 or 1SS133

— SIGNAL LINE  
— GND LINE  
— +B LINE  
— -B LINE

KR-V9080(K) (2/10)

**CAUTION:** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ indicates safety critical components. For continued protection against risk of fire, replace only with same type and rating fuse(s). To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

The DC voltage is an actual reading measured with a high impedance type voltmeter as the AM/FM signal generator is specified to the conditions as shown in the list below. The measurement value may vary depending on the measuring instruments used or on the product. The value shown in ( ) is actual reading measured in the AM mode.

| MODE | CARRIER      | MODULATION |                              | ANT INPUT |
|------|--------------|------------|------------------------------|-----------|
|      |              | FREQUENCY  | DEVIATION                    |           |
| FM   | 98MHz        | 1kHz       | STEREO 67.5kHz 7.5kHz(Pilot) | 60dB      |
| AM   | 1000(999)kHz | 400Hz      | MONO 30% MOD                 | 60dB      |

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2SA1123  
2SA1534A  
2SA992  
2SC1845  
2SC1923  
2SC2003  
2SC2631

2SC2878  
2SC3940A  
2SD863

2SC2785

2SA1048  
2SC1740S  
2SC2458

2SA1037K  
2SA1576  
2SC2412K  
2SC2714  
2SC4081  
2SD1757K

2SC4137

2SB1470  
2SD2222

2SB1370  
2SD2061

UN4219  
2SA1309A  
2SC3311A

2SB1375  
2SD2012

2SB1559  
2SD2389

NJM4565D  
NJM4565D-D  
NJM4580E

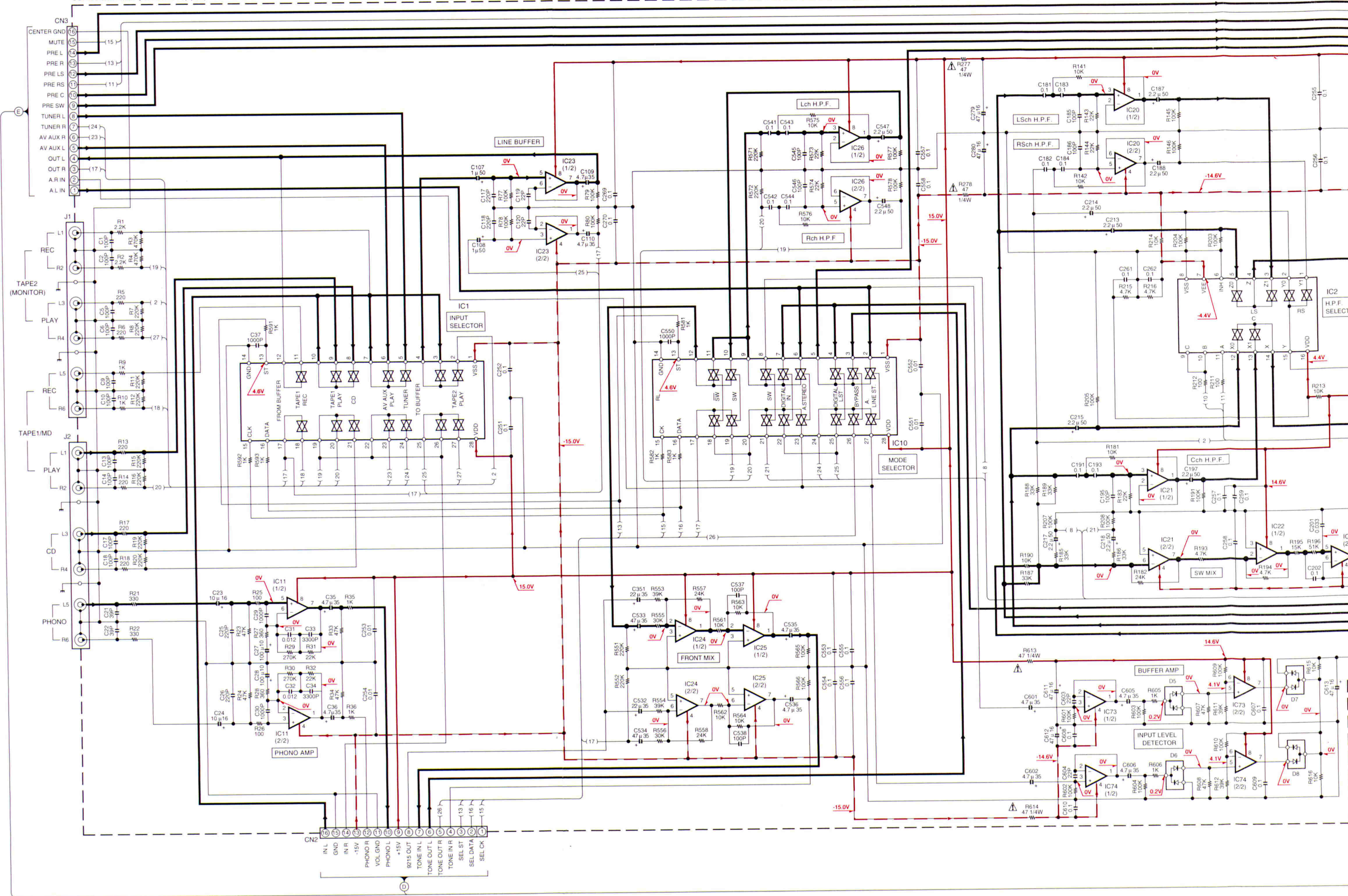
LA7951

MM1067XD

MC74HC4053N



SURROUND UNIT (X08-2710-10) (A/2) KR-V990D ONLY

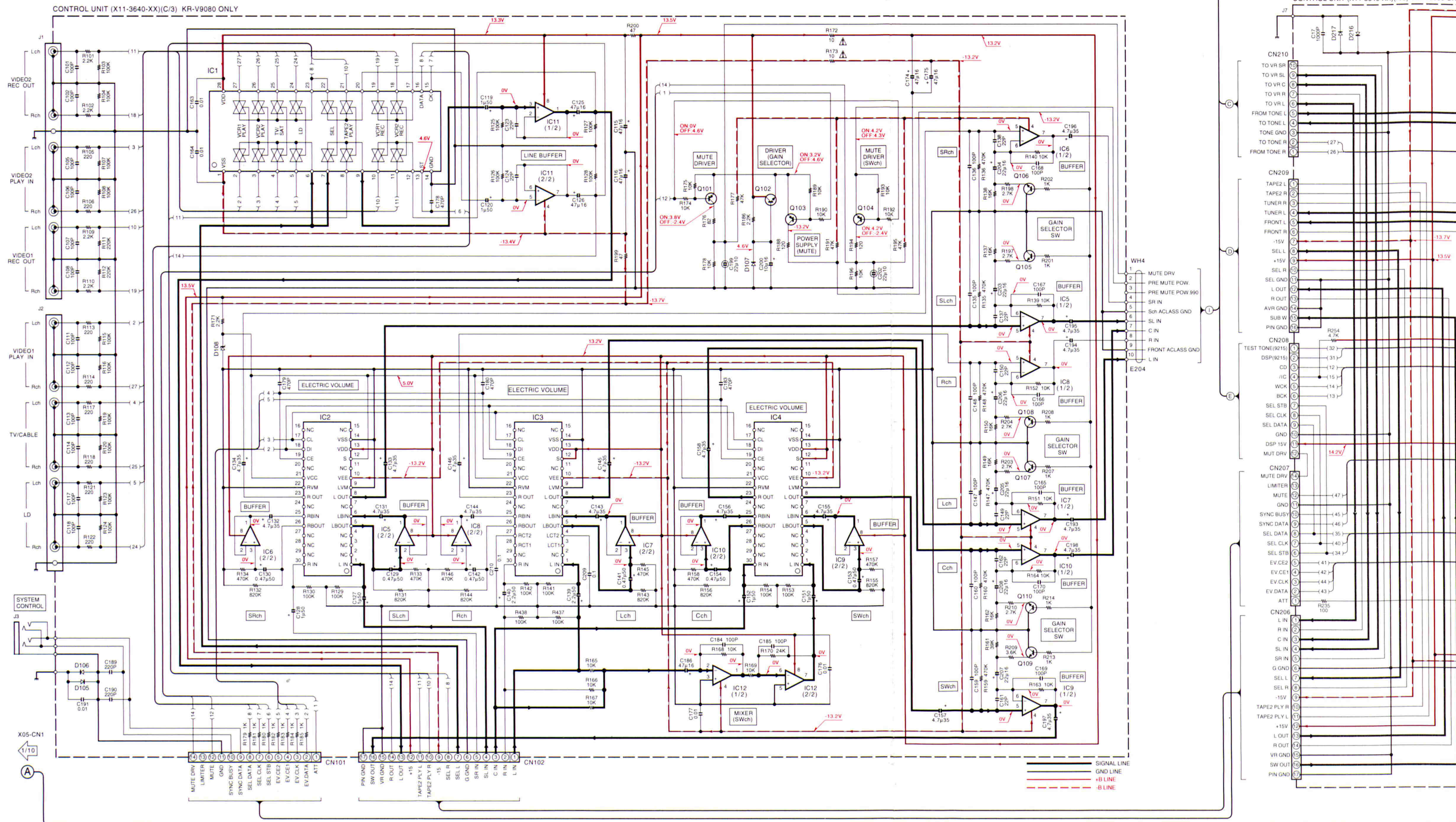




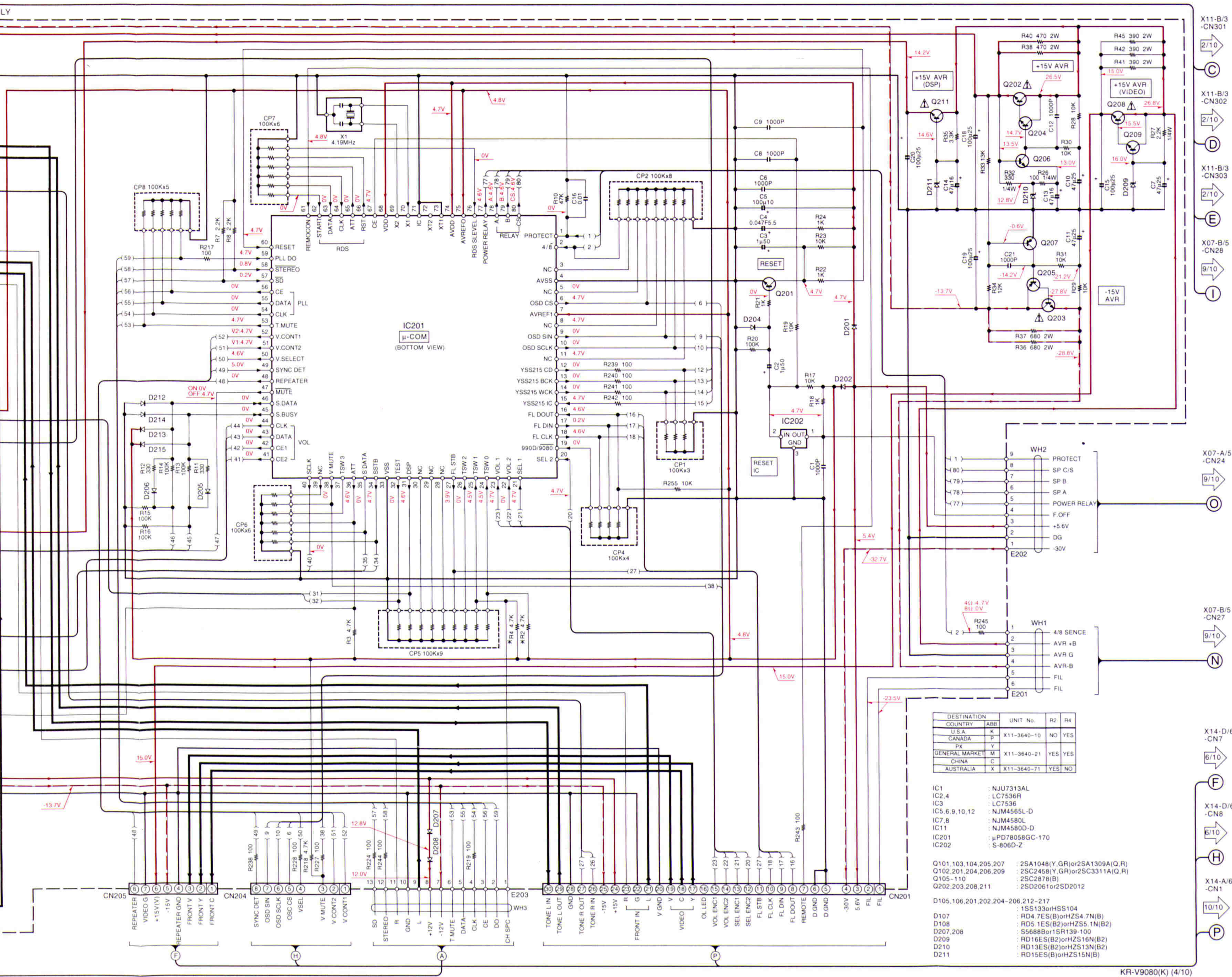


Y05-3070-10











\* New Parts  
Parts without **Parts No.** are not supplied.  
Les articles non mentionnés dans le **Parts No.** ne sont pas fournis.  
Teile ohne **Parts No.** werden nicht geliefert.

1

| Ref. No               | Add-ress | New Parts | Parts No.   | Description                      | Desti-nation | Re-marks |
|-----------------------|----------|-----------|-------------|----------------------------------|--------------|----------|
| <b>KR-V990D/V9080</b> |          |           |             |                                  |              |          |
| 601                   | 1A       | *         | A01-3271-01 | METALLIC CABINET                 | YXEMC        |          |
| 601                   | 1A       | *         | A01-3283-01 | METALLIC CABINET                 | KP           |          |
| 602                   | 1A       | *         | A09-0169-08 | BATTERY COVER                    | KPY          | D        |
| 608                   | 3A       | *         | A60-0799-22 | PANEL                            | KPY          | 9        |
| 608                   | 3A       | *         | A60-0801-22 | PANEL                            | KPY          | 9        |
| 608                   | 3A       | *         | A60-0802-22 | PANEL                            | KPY          | 9        |
| 608                   | 3A       | *         | A60-0830-22 | PANEL                            | KPY          | 9        |
| 608                   | 3A       | *         | A60-0893-22 | PANEL                            | KPY          | 9        |
| 609                   | 1A       | *         | A70-1038-05 | REMO-CON ASSY (RC-R0903)         | KPY          | 9        |
| 615                   | 3B       | *         | B01-0525-01 | PANEL ESCUTCHEON                 | KPYXMC       |          |
| 615                   | 3B       | *         | B01-0527-01 | PANEL ESCUTCHEON                 | KPYXMC       |          |
| 616                   | 3A       | *         | B10-2171-02 | FRONT GLASS                      | KPYXMC       | D        |
| 616                   | 3A       | *         | B10-2172-02 | FRONT GLASS                      | KPYXMC       | D        |
| 616                   | 3A       | *         | B10-2252-02 | FRONT GLASS                      | KPYXMC       | D        |
| 617                   | 3B       | *         | B11-0295-03 | COLOR FILTER                     | KPYXMC       | D        |
| 618                   | 3A       | *         | B43-0302-04 | KENWOOD BADGE                    | KPYXMC       | D        |
| -                     | -        | *         | B46-0092-43 | WARRANTY CARD                    | KPYXMC       | D        |
| -                     | -        | *         | B46-0096-53 | WARRANTY CARD                    | KPYXMC       | D        |
| -                     | -        | *         | B46-0121-33 | WARRANTY CARD                    | KPYXMC       | D        |
| -                     | -        | *         | B46-0197-00 | QUESTIONNAIRE CARD               | KPYXMC       | D        |
| -                     | -        | *         | B46-0310-03 | WARRANTY CARD                    | KPYXMC       | D        |
| -                     | -        | *         | B46-0326-03 | WARRANTY CARD                    | KPYXMC       | D        |
| -                     | -        | *         | B58-0964-13 | CAUTION CARD (CAUTION UL)        | KPYXMC       | D        |
| -                     | -        | *         | B58-0965-13 | CAUTION CARD (TX TYPE PL)        | KPYXMC       | D        |
| -                     | -        | *         | B58-0966-13 | CAUTION CARD (ELM TYPE PL)       | KPYXMC       | D        |
| -                     | -        | *         | B58-0967-13 | CAUTION CARD (P TYPE PL)         | KPYXMC       | D        |
| -                     | -        | *         | B58-0968-04 | CAUTION CARD                     | KPYXMC       | D        |
| -                     | -        | *         | B59-1104-00 | SERVICE DIRECTORY                | KPYXMC       | D        |
| -                     | -        | *         | B60-2390-10 | INST. MANUAL (KR-V990D EN)       | KPYXMC       | D        |
| -                     | -        | *         | B60-2391-10 | INST. MANUAL (KR-V990D FR)       | KPYXMC       | D        |
| -                     | -        | *         | B60-2392-10 | INST. MANUAL (KR-V990D C)        | KPYXMC       | D        |
| -                     | -        | *         | B60-2393-10 | INST. MANUAL (KR-V990D SP/IT)    | KPYXMC       | D        |
| -                     | -        | *         | B60-2394-00 | INST. MANUAL (KR-V990D TAIWAN)   | KPYXMC       | D        |
| -                     | -        | *         | B60-2499-10 | INST. MANUAL (KR-V990D FR/D)     | KPYXMC       | D        |
| -                     | -        | *         | B60-2500-10 | INST. MANUAL (KR-V990D GER)      | KPYXMC       | D        |
| -                     | -        | *         | B60-2501-00 | INST. MANUAL (KR-V990D SP)       | KPYXMC       | D        |
| -                     | -        | *         | B60-2503-10 | INST. MANUAL (CARD/KR-V990D EN)  | KPYXMC       | D        |
| -                     | -        | *         | B60-2503-10 | INST. MANUAL (CARD/KR-V990D D)   | KPYXMC       | D        |
| -                     | -        | *         | B60-2506-10 | INST. MANUAL (CARD/KR-V990D GER) | KPYXMC       | D        |
| -                     | -        | *         | B60-2507-10 | INST. MANUAL (CARD/KR-V990D IT)  | KPYXMC       | D        |
| -                     | -        | *         | B60-2508-10 | INST. MANUAL (CARD/KR-V990D SP)  | KPYXMC       | D        |
| -                     | -        | *         | B60-2508-10 | INST. MANUAL (CARD/KR-V990D SP)  | KPYXMC       | D        |
| -                     | -        | *         | B60-2509-10 | INST. MANUAL (CARD/KR-V990D FR)  | KPYXMC       | D        |
| -                     | -        | *         | B60-2509-10 | INST. MANUAL (CARD/KR-V990D FR)  | KPYXMC       | D        |
| -                     | -        | *         | B60-2510-00 | INST. MANUAL (CARD/KR-V990D C)   | KPYXMC       | D        |
| -                     | -        | *         | B60-2510-00 | INST. MANUAL (CARD/KR-V990D C)   | KPYXMC       | D        |
| -                     | -        | *         | B60-2512-10 | INST. MANUAL (KR-V990D EN)       | KPYXMC       | D        |
| -                     | -        | *         | B60-2513-10 | INST. MANUAL (KR-V990D FR)       | KPYXMC       | D        |
| -                     | -        | *         | B60-2514-00 | INST. MANUAL (KR-V990D SP)       | KPYXMC       | D        |
| -                     | -        | *         | B60-2515-00 | INST. MANUAL (KR-V990D C)        | KPYXMC       | D        |
| -                     | -        | *         | B60-2516-00 | INST. MANUAL (KR-V990D TAIWAN)   | KPYXMC       | D        |

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|---------|----------|-----------|-------------|--------------------------------|--------------|----------|
| 620     | 2A       | *         | E03-0115-05 | AC PLUG ADAPTER                | M            |          |
| 621     | 1D       | *         | E30-2592-15 | AC POWER CORD                  | M            |          |
| 621     | 1D       | *         | E30-2739-05 | AC POWER CORD                  | M            |          |
| 621     | 1D       | *         | E30-2787-05 | AC POWER CORD                  | KP           |          |
| 621     | 1D       | *         | E30-2788-05 | AC POWER CORD                  | E            |          |
| 621     | 1D       | *         | E30-2790-05 | AC POWER CORD                  | X            |          |
| 621     | 1D       | *         | E30-2825-05 | AC POWER CORD                  | C            |          |
| 625     | 1D       | *         | F07-0769-13 | COVER                          | KP           |          |
| 626     | 1D       | *         | F09-0100-05 | FAN                            | YXEMC        |          |
| 626     | 1D       | *         | F09-0102-05 | FAN                            | YXEMC        |          |
| 627     | 1C       | *         | F20-1462-14 | INSULATING BOARD               | YXEMC        |          |
| 627     | 2D       | *         | F20-1464-13 | INSULATING BOARD               | YXEMC        |          |
| 630     | 2D       | *         | G11-0132-04 | SOFT TAPE (15X10X8)            | X            |          |
| 631     | 3A       | *         | G11-0155-14 | SOFT TAPE (40X9X2)             | X            |          |
| 634     | 1A       | *         | G11-1167-04 | SOFT TAPE                      | X            |          |
| -       | -        | *         | H10-7101-12 | POLYSTYRENE FOAMED FIXTURE (L) | X            |          |
| -       | -        | *         | H10-7102-02 | POLYSTYRENE FOAMED FIXTURE (R) | X            |          |
| -       | -        | *         | H13-0223-04 | CARTON BOARD                   | X            |          |
| -       | -        | *         | H25-0232-04 | PROTECTION BAG (235X350X0.03)  | X            |          |
| -       | -        | *         | H25-0661-04 | PROTECTION BAG                 | X            |          |
| -       | -        | *         | H50-1675-14 | ITEM CARTON CASE (KR-V990D)    | KPYXE        | D        |
| -       | -        | *         | H50-1676-14 | ITEM CARTON CASE (KR-V990D)    | M            |          |
| -       | -        | *         | H50-1678-14 | ITEM CARTON CASE (KR-V990D)    | KPYX         | 9        |
| -       | -        | *         | H50-1705-14 | ITEM CARTON CASE (KR-V990D)    | M            |          |
| -       | -        | *         | H50-1884-14 | ITEM CARTON CASE (KR-V990D)    | C            |          |
| -       | -        | *         | H50-1885-14 | ITEM CARTON CASE (KR-V990D)    | C            |          |
| 640     | 3C,3D    | *         | J02-1147-13 | FOOT (D=46,H=18.5)             | D            |          |
| 641     | 3D       | *         | J19-3300-05 | UNIT HOLDER                    | D            |          |
| 642     | 3C       | *         | J19-3324-15 | UNIT HOLDER                    | D            |          |
| 643     | 2C       | *         | J19-3324-15 | UNIT HOLDER                    | D            |          |
| 644     | 1C       | *         | J19-3325-05 | UNIT HOLDER                    | D            |          |
| 645     | 3C       | *         | J19-3732-04 | UNIT HOLDER                    | D            |          |
| 645     | 1D       | *         | J42-0083-05 | POWER CORD BUSHING             | D            |          |
| 652     | 2A       | *         | J69-0087-08 | ADHESIVE DOUBLE-COATED TAPE    | D            |          |
| -       | -        | *         | J61-0098-05 | WIRE BAND                      | D            |          |
| -       | -        | *         | J61-0307-05 | WIRE BAND                      | D            |          |
| 655     | 2A       | *         | K27-2176-04 | KNOB (BUTTON)                  | MC           |          |
| 656     | 3A       | *         | K29-6249-04 | KNOB                           | MC           |          |
| 657     | 3A       | *         | K29-6251-04 | KNOB                           | MC           |          |
| 660     | 2A       | *         | L07-2038-05 | POWER TRANSFORMER              | KP           |          |
| 660     | 2A       | *         | L07-2039-05 | POWER TRANSFORMER              | D            |          |
| 660     | 2A       | *         | L07-2040-05 | POWER TRANSFORMER              | D            |          |
| 660     | 2A       | *         | L07-2041-05 | POWER TRANSFORMER              | D            |          |
| 660     | 2A       | *         | L07-2043-05 | POWER TRANSFORMER              | D            |          |
| 660     | 2A       | *         | L07-2044-05 | POWER TRANSFORMER              | D            |          |
| 660     | 2A       | *         | L07-2064-05 | POWER TRANSFORMER              | D            |          |
| 660     | 2A       | *         | L07-2103-05 | POWER TRANSFORMER              | D            |          |
| 660     | 2A       | *         | L07-2104-05 | POWER TRANSFORMER              | D            |          |
| 660     | 2A       | *         | L07-2145-05 | POWER TRANSFORMER              | D            |          |
| 660     | 2A       | *         | L07-2147-05 | POWER TRANSFORMER              | D            |          |
| 665     | 2A       | *         | T90-0820-05 | LOOP ANTENNA                   | M            |          |

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|--------------------------------------------------|----------|-----------|---------------|-------------------|--------------|----------|
| 666                                              | 2A       | *         | J19-3645-05   | ANTENNA STAND     |              |          |
| 667                                              | 1A       | *         | T90-0810-05   | JEAD WIRE ANTENNA |              |          |
| 670                                              | 2A       | *         | W02-2542-05   | TRANSMITTING ASSY |              |          |
| <b>TUNER UNIT (X05-4532-75) EUROPE type only</b> |          |           |               |                   |              |          |
| C1,2                                             |          |           | CK73FB1H103K  | CHIP C            | 0.010UF      | K        |
| C3                                               |          |           | CE04LW1V100M  | ELECTRO           | 10UF         | 35VV     |
| C4                                               |          |           | CK73FB1E473K  | CHIP C            | 0.047UF      | K        |
| C5                                               |          |           | CE04LW1V100M  | ELECTRO           | 10UF         | 35VV     |
| C6                                               |          |           | CK73FB1E473K  | CHIP C            | 0.047UF      | K        |
| C7                                               |          |           | CE04LW1V100M  | ELECTRO           | 10UF         | 35VV     |
| C8                                               |          |           | CE04LW1H101M  | ELECTRO           | 1.0UF        | 50VV     |
| C9                                               |          |           | CE04LW1HR47M  | ELECTRO           | 0.47UF       | 50VV     |
| C10                                              |          |           | CE04LW1H2R2M  | ELECTRO           | 2.2UF        | 50VV     |
| C11                                              |          |           | CE04LW1HR47M  | ELECTRO           | 0.47UF       | 50VV     |
| C12                                              |          |           | CK73FB1E473K  | CHIP C            | 0.047UF      | K        |
| C13                                              |          |           | CK73FCH1H220J | CHIP C            | 22PF         | J        |
| C14                                              |          |           | CE04LW1A101M  | ELECTRO           | 100UF        | 10VV     |
| C15                                              |          |           | CK73FB1H472K  | CHIP C            | 4700PF       | K        |
| C16                                              |          |           | CE04LW1H101M  | ELECTRO           | 1.0UF        | 50VV     |
| C17, 18                                          |          |           | CE04LW1V100M  | ELECTRO           | 10UF         | 35VV     |
| C19, 20                                          |          |           | CQ92FM1H273J  | MYLAR             | 0.027UF      | J        |
| C21                                              |          |           | CK73FB1H103K  | CHIP C            | 0.010UF      | K        |
| C22                                              |          |           | CK73FSL1H101J | CHIP C            | 100PF        | J        |
| C23, 24                                          |          |           | CE04LW1H2R2M  | ELECTRO           | 2.2UF        | 50VV     |
| C25, 26                                          |          |           | CK73FB1H562K  | CHIP C            | 5600PF       | K        |
| C27                                              |          |           | CK73FB1E473K  | CHIP C            | 0.047UF      | K        |
| C28                                              |          |           | CK73FSL1H150J | CHIP C            | 15PF         | J        |
| C29                                              |          |           | CE04LW1H01M   | ELECTRO           | 0.1UF        | 50VV     |
| C30                                              |          |           | CE04LW1C470M  | ELECTRO           | 47UF         | 16VV     |
| C31                                              |          |           | CK73FB1E473K  | CHIP C            | 0.047UF      | K        |
| C32                                              |          |           | CK73FB1H103K  | CHIP C            | 0.010UF      | K        |
| C33                                              |          |           | CK73FCH1H270J | CHIP C            | 27PF         | J        |
| C34                                              |          |           | CK73FCH1H220J | CHIP C            | 22PF         | J        |
| C35 -38                                          |          |           | CK73FSL1H101J | CHIP C            | 100PF        | J        |
| C39                                              |          |           | CE04LW1C470M  | ELECTRO           | 47UF         | 16VV     |
| C40                                              |          |           | CQ92FM1H223J  | MYLAR             | 0.022UF      | J        |
| C41                                              |          |           | CE04HW1H2R2M  | NP-ELEC           | 2.2UF        | 50VV     |
| C42, 43                                          |          |           | CK73FB1H103K  | CHIP C            | 0.010UF      | K        |
| C44                                              |          |           | CE04LW1A470M  | ELECTRO           | 47UF         | 10VV     |
| C45                                              |          |           | CE04LW1C470M  | ELECTRO           | 47UF         | 16VV     |
| C46                                              |          |           | CE04LW1H01M   | ELECTRO           | 1.0UF        | 50VV     |
| C47                                              |          |           | CK73FB1H103K  | CHIP C            | 0.010UF      | K        |
| C48                                              |          |           | CE04LW1H01M   | ELECTRO           | 1.0UF        | 50VV     |
| C49                                              |          |           | CK73FB1H103K  | CHIP C            | 0.010UF      | K        |
| C50                                              |          |           | CK73FCH1H330J | CHIP C            | 33PF         | J        |
| C51, 54                                          |          |           | CK73FB1H102K  | CHIP C            | 1000PF       | K        |
| C55                                              |          |           | CK73FB1H222K  | CHIP C            | 2200PF       | K        |
| C56                                              |          |           | CK73FCH1H060D | CHIP C            | 6.0PF        | J        |
| C57                                              |          |           | CK73FCH1H220J | CHIP C            | 22PF         | J        |
| C58                                              |          |           | CK73FB1E473K  | CHIP C            | 0.047UF      | K        |
| C60                                              |          |           | CK73FSL1H101J | CHIP C            | 100PF        | J        |
| C61                                              |          |           | C91-0745-05   | CERAMIC           | 100PF        | K        |
| C62                                              |          |           | CC45FSL1H020C | CERAMIC           | 2.0PF        | C        |
| C63                                              |          |           | CC45SL1H101J  | CERAMIC           | 100PF        | J        |

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# KR-V990D/V9080

## PARTS LIST

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## PARTS LIST



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|--------------------------------------------------------|----------|-----------|---------------|--------------------------------|--------------|----------|
| A1                                                     |          |           | W02-2509-05   | FM FRONT-END ASSY              |              |          |
| <b>TUNER UNIT (X05-454X-XX) Except for EUROPE type</b> |          |           |               |                                |              |          |
| C1,2                                                   |          |           | CK73FB1H103K  | CHIP C                         | 0.010UF      | K        |
| C4                                                     |          |           | CE04LW1A470M  | ELECTRO                        | 47UF         | 10WV     |
| C5                                                     |          |           | CK73FB1H103K  | CHIP C                         | 0.010UF      | K        |
| C8                                                     |          |           | CK73FB1H103K  | CHIP C                         | 0.010UF      | K        |
| C10                                                    |          |           | CK73FB1H102K  | CHIP C                         | 1000PF       | K        |
| C11                                                    |          |           | CE04LW1H4R7M  | ELECTRO                        | 47UF         | 50WV     |
| C13                                                    |          |           | CE04LW1H010M  | ELECTRO                        | 1.0UF        | 50WV     |
| C14                                                    |          |           | CE04LW1H2R2M  | ELECTRO                        | 2.2UF        | 50WV     |
| C21, 22                                                |          |           | CQ92FM1H163J  | MYLAR                          | 0.016UF      | J        |
| C21, 22                                                |          |           | CQ92FM1H243J  | MYLAR                          | 0.024UF      | J        |
| C23                                                    |          |           | CE04LW1H010M  | ELECTRO                        | 1.0UF        | 50WV     |
| C24                                                    |          |           | CE04LW1H3R3M  | ELECTRO                        | 3.3UF        | 50WV     |
| C25                                                    |          |           | CE04LW1V100M  | ELECTRO                        | 10UF         | 35WV     |
| C27                                                    |          |           | CK73FB1E473K  | CHIP C                         | 0.047UF      | K        |
| C28                                                    |          |           | CE04LW1V100M  | ELECTRO                        | 10UF         | 35WV     |
| C31                                                    |          |           | CE04LW1A470M  | ELECTRO                        | 47UF         | 10WV     |
| C32                                                    |          |           | CK73FB1H103K  | CHIP C                         | 0.010UF      | K        |
| C33                                                    |          |           | CC73FCH1H270J | CHIP C                         | 27PF         | J        |
| C34                                                    |          |           | CC73FCH1H220J | CHIP C                         | 22PF         | J        |
| C35 -38                                                |          |           | CK73FB1H471K  | CHIP C                         | 470PF        | K        |
| C39                                                    |          |           | CE04LW1C470M  | ELECTRO                        | 47UF         | 16WV     |
| C40                                                    |          |           | CK73FB1H223K  | CHIP C                         | 0.022UF      | K        |
| C41                                                    |          |           | CE04LW1H010M  | ELECTRO                        | 1.0UF        | 50WV     |
| C42, 43                                                |          |           | CK73FB1H103K  | CHIP C                         | 0.010UF      | K        |
| C50                                                    |          |           | C91-0769-05   | CERAMIC                        | 0.010UF      | K        |
| C51                                                    |          |           | CE04LW1H010M  | ELECTRO                        | 1.0UF        | 50WV     |
| C52                                                    |          |           | CE04LW1C470M  | ELECTRO                        | 47UF         | 16WV     |
| C57                                                    |          |           | CC73FSL1H220J | CHIP C                         | 22PF         | J        |
| C65                                                    |          |           | CE04LW1H010M  | ELECTRO                        | 1.0UF        | 50WV     |
| C66                                                    |          |           | CK73FB1H102K  | CHIP C                         | 1000PF       | K        |
| C71                                                    |          |           | CE04LW1V100M  | ELECTRO                        | 10UF         | 35WV     |
| C72                                                    |          |           | CE04LW1C470M  | ELECTRO                        | 47UF         | 16WV     |
| C103-106                                               |          |           | CE04LW1HR47M  | ELECTRO                        | 0.47UF       | 50WV     |
| C107                                                   |          |           | CK73FB1E473K  | CHIP C                         | 0.047UF      | K        |
| C112                                                   |          |           | CC73FSL1H101J | CHIP C                         | 100PF        | J        |
| C114                                                   |          |           | CK73FB1H681K  | CHIP C                         | 680PF        | K        |
| C115, 116                                              |          |           | CC73FSL1H101J | CHIP C                         | 100PF        | J        |
| C121, 122                                              |          |           | CE04LW1C470M  | ELECTRO                        | 47UF         | 16WV     |
| C135, 136                                              |          |           | CQ92FM1H682J  | MYLAR                          | 6800PF       | J        |
| C182                                                   |          |           | CC73FSL1H150J | CHIP C                         | 15PF         | J        |
| CN1                                                    |          |           | E40-4234-05   | FLAT CABLE CONNECTOR (13P)     |              |          |
| J1                                                     |          |           | E70-0052-05   | LOCK TERMINAL BOARD (ANTENNA)  |              |          |
| CF1, 2                                                 |          |           | L72-0531-05   | CERAMIC FILTER                 |              |          |
| CF3                                                    |          |           | L72-0574-05   | CERAMIC FILTER                 |              |          |
| L7                                                     |          |           | L30-0467-05   | AM IFT                         |              |          |
| L10                                                    |          |           | L40-1091-17   | SMALL FIXED INDUCTOR (1UH)     |              |          |
| L11                                                    |          |           | L40-1021-14   | SMALL FIXED INDUCTOR (1.0MH/K) |              |          |
| L12                                                    |          |           | L40-1091-17   | SMALL FIXED INDUCTOR (1UH)     |              |          |
| L103                                                   |          |           | L39-1328-05   | COMBINATION COIL               |              |          |
| L106                                                   |          |           | L40-1091-17   | SMALL FIXED INDUCTOR (1UH)     |              |          |
| X1                                                     |          |           | L77-2159-05   | CRYSTAL RESONATOR (7.2MHZ)     |              |          |
| X2                                                     |          |           | L78-0295-05   | RESONATOR (456KHZ)             |              |          |

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|-----------|----------|-----------|--------------|-------------------------------|--------------|----------|
| R51       |          |           | RK73FB2A181J | CHIP R                        | 180          | 1/10W    |
| R52       |          |           | RK73FB2A104J | CHIP R                        | 100K         | 1/10W    |
| R53       |          |           | RK73FB2A103J | CHIP R                        | 10K          | 1/10W    |
| R54, 55   |          |           | RK73FB2A223J | CHIP R                        | 22K          | 1/10W    |
| R56       |          |           | RK73FB2A104J | CHIP R                        | 100K         | 1/10W    |
| R57       |          |           | RK73FB2A473J | CHIP R                        | 47K          | 1/10W    |
| R58       |          |           | RK73FB2A104J | CHIP R                        | 100K         | 1/10W    |
| R61       |          |           | RK73FB2A122J | CHIP R                        | 1.2K         | 1/10W    |
| R62       |          |           | RK73FB2A123J | CHIP R                        | 12K          | 1/10W    |
| R63       |          |           | RK73FB2A122J | CHIP R                        | 1.2K         | 1/10W    |
| R64       |          |           | RK73FB2A123J | CHIP R                        | 12K          | 1/10W    |
| R65       |          |           | RK73FB2A683J | CHIP R                        | 68K          | 1/10W    |
| R66       |          |           | RK73FB2A473J | CHIP R                        | 47K          | 1/10W    |
| R67       |          |           | RK73FB2A104J | CHIP R                        | 100K         | 1/10W    |
| R69       |          |           | RK73FB2A102J | CHIP R                        | 1.0K         | 1/10W    |
| R70       |          |           | RK73FB2A104J | CHIP R                        | 100K         | 1/10W    |
| R71       |          |           | RK73FB2A102J | CHIP R                        | 1.0K         | 1/10W    |
| R77       |          |           | RK73FB2B103J | CHIP R                        | 10K          | 1/8W     |
| R78       |          |           | RD14NB2E470J | RD                            | 47           | 1/4W     |
| R79       |          |           | RS14KB3D221J | FL-PROOF RS                   | 220          | 2W       |
| R81       |          |           | RK73FB2A563J | CHIP R                        | 56K          | 1/10W    |
| R84       |          |           | RK73FB2A101J | CHIP R                        | 100          | 1/10W    |
| W101-106  |          |           | R92-0670-05  | CHIP R                        | 0 OHM        |          |
| W108-112  |          |           | R92-0670-05  | CHIP R                        | 0 OHM        |          |
| W114-119  |          |           | R92-0670-05  | CHIP R                        | 0 OHM        |          |
| W121, 122 |          |           | R92-0670-05  | CHIP R                        | 0 OHM        |          |
| W201-203  |          |           | R92-0679-05  | CHIP R                        | 0 OHM        |          |
| W207, 208 |          |           | R92-0679-05  | CHIP R                        | 0 OHM        |          |
| D1,2      |          |           | HSS104       | DIODE                         |              |          |
| D1,2      |          |           | 1SS133       | DIODE                         |              |          |
| D3        |          |           | HZS5.1N(B2)  | ZENER DIODE                   |              |          |
| D3        |          |           | RD5.1ES(B2)  | ZENER DIODE                   |              |          |
| D4        |          |           | HZS8.2N(B2)  | ZENER DIODE                   |              |          |
| D4        |          |           | RD8.2ES(B2)  | ZENER DIODE                   |              |          |
| D5        |          |           | HSS104       | DIODE                         |              |          |
| D5        |          |           | 1SS133       | DIODE                         |              |          |
| D6        |          |           | HZS3.3N(B2)  | ZENER DIODE                   |              |          |
| D6        |          |           | RD3.3ES(B2)  | ZENER DIODE                   |              |          |
| D7        |          |           | MA111        | DIODE                         |              |          |
| D8        |          |           | 1SS268       | DIODE                         |              |          |
| D9        |          |           | MA111        | DIODE                         |              |          |
| IC1       |          |           | LA1836       | ANALOGUE IC                   |              |          |
| IC2       |          |           | LC7218       | IC(PLL FREQUENCY SYNTHESIZER) |              |          |
| IC3       |          |           | M5223P       | IC(OP AMP X2)                 |              |          |
| Q1        |          |           | 2SC2714(R,O) | TRANSISTOR                    |              |          |
| Q2        |          |           | 2SC1845(F,E) | TRANSISTOR                    |              |          |
| Q3-5      |          |           | 2SC4081(R,S) | TRANSISTOR                    |              |          |
| Q7,8      |          |           | 2SA1576(R,S) | TRANSISTOR                    |              |          |
| Q9        |          |           | 2SD863(F,F)  | TRANSISTOR                    |              |          |
| Q10       |          |           | 2SA1576(R,S) | TRANSISTOR                    |              |          |
| Q11, 12   |          |           | 2SD1757(K)   | TRANSISTOR                    |              |          |
| Q16       |          |           | 2SC4081(R,S) | TRANSISTOR                    |              |          |
| Q17       |          |           | 2SA1576(R,S) | TRANSISTOR                    |              |          |
| Q18       |          |           | 2SC4081(R,S) | TRANSISTOR                    |              |          |

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# KR-V990D/V9080

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| Q1       |          |           | 2SC2714(R.O)  | TRANSISTOR        |             |          |
| Q2       |          |           | 2SC1845(F.E)  | TRANSISTOR        |             |          |
| Q3       |          |           | 2SC2369S(S.E) | TRANSISTOR        |             |          |
| Q7       |          |           | 2SC1740S(Q.R) | TRANSISTOR        |             |          |
| Q11      |          |           | 2SC2785(F.E)  | TRANSISTOR        |             |          |
| Q102     |          |           | 2SC2412K      | TRANSISTOR        |             |          |
| Q104     |          |           | 2SD863(E.F)   | TRANSISTOR        |             |          |
| Q107,108 |          |           | 2SA1037K      | TRANSISTOR        |             |          |
| Q109,110 |          |           | 2SC2412K      | TRANSISTOR        |             |          |
| Q111     |          |           | 2SA1037K      | TRANSISTOR        |             |          |
| DT1      |          |           | W02-2512-05   | FM FRONT-END ASSY |             |          |

### MAIN AMP UNIT (X07-288X-XX)

|        |  |  |               |         |         |  |
|--------|--|--|---------------|---------|---------|--|
| C1     |  |  | C91-1488-05   | MF      | 6800PF  |  |
| C2     |  |  | CK45FF1H103Z  | CERAMIC | 0.010UF |  |
| C3     |  |  | CE04KW1V4R7M  | ELECTRO | 4.7UF   |  |
| C4     |  |  | CE04DW1E331M  | ELECTRO | 330UF   |  |
| C5     |  |  | CE04KW1A470M  | ELECTRO | 47UF    |  |
| C6     |  |  | CK45FF1H103Z  | CERAMIC | 0.010UF |  |
| C9     |  |  | C90-3379-05   | ELECTRO | 16WV    |  |
| C12    |  |  | CE04KW1V102M  | ELECTRO | 1000UF  |  |
| C13    |  |  | CE04KW1V222M  | ELECTRO | 2200UF  |  |
| C14,15 |  |  | C91-1416-05   | MP      | 0.010UF |  |
| C16,17 |  |  | C91-1422-05   | MP      | 0.10UF  |  |
| C20    |  |  | CE04DW1J101M  | ELECTRO | 100UF   |  |
| C21    |  |  | CE04KW1V220M  | ELECTRO | 22UF    |  |
| C22    |  |  | CE04KW1C101M  | ELECTRO | 100UF   |  |
| C23    |  |  | CE04KW1V220M  | ELECTRO | 22UF    |  |
| C25,26 |  |  | C90-3609-05   | ELECTRO | 8200UF  |  |
| C27,28 |  |  | C90-3610-05   | ELECTRO | 7500UF  |  |
| C29,32 |  |  | C90-3611-05   | ELECTRO | 3300UF  |  |
| C33,34 |  |  | CE04KW1C100M  | MYLAR   | 100PF   |  |
| C35,36 |  |  | CC45FSL1H271J | ELECTRO | 10UF    |  |
| C39,40 |  |  | CE04KW1A470M  | ELECTRO | 47UF    |  |
| C43,44 |  |  | CK45FF1H103Z  | CERAMIC | 0.010UF |  |
| C45,46 |  |  | CK45FSL1H680J | CERAMIC | 68PF    |  |
| C47,48 |  |  | CK45FF1H103Z  | CERAMIC | 0.010UF |  |
| C49,50 |  |  | CC45FSL1H220J | CERAMIC | 22PF    |  |
| C51,52 |  |  | CC45FSL2H020C | CERAMIC | 2.0PF   |  |
| C53,56 |  |  | CK45FF1H103Z  | CERAMIC | 0.010UF |  |
| C57,58 |  |  | CC45FSL1H150J | CERAMIC | 15PF    |  |
| C58,59 |  |  | CC45FSL1H100D | CERAMIC | 10PF    |  |
| C60    |  |  | CK45FE2H103P  | CERAMIC | 0.010UF |  |
| C61,62 |  |  | CQ93FMG1H101K | MYLAR   | 100PF   |  |
| C63    |  |  | CE04KW1C100M  | ELECTRO | 10UF    |  |
| C64    |  |  | CK45FE2H103P  | CERAMIC | 0.010UF |  |
| C65    |  |  | CC45FSL1H271J | CERAMIC | 270PF   |  |
| C66    |  |  | CK45FE2H103P  | CERAMIC | 0.010UF |  |
| C68    |  |  | CE04KW1A470M  | ELECTRO | 47UF    |  |
| C69    |  |  | CK45FE2H103P  | CERAMIC | 0.010UF |  |
| C70    |  |  | CK45FE2H103P  | CERAMIC | 0.010UF |  |
| C72    |  |  | CK45FE2H103P  | CERAMIC | 0.010UF |  |

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|----------|----------|-----------|--------------|-------------------------------|-------------|----------|
| R1       |          |           | RK73FB2A881J | CHIP R                        | 1/10W       |          |
| R2       |          |           | RK73FB2A332J | CHIP R                        | 3.3K        |          |
| R3       |          |           | RK73FB2A331J | CHIP R                        | 330         |          |
| R4       |          |           | RK73FB2A470J | CHIP R                        | 47          |          |
| R6       |          |           | RK73FB2A331J | CHIP R                        | 330         |          |
| R11      |          |           | RS14KB3A820J | FL-PROOF RS                   | 1W          |          |
| R15      |          |           | RK73FB2A391J | CHIP R                        | 390         |          |
| R19      |          |           | RK73FB2A332J | CHIP R                        | 3.3K        |          |
| R21,22   |          |           | RK73FB2A393J | CHIP R                        | 39K         |          |
| R24      |          |           | RK73FB2A102J | CHIP R                        | 1.0K        |          |
| R25      |          |           | RK73FB2A103J | CHIP R                        | 10K         |          |
| R31      |          |           | RS14KB3D221J | FL-PROOF RS                   | 2W          |          |
| R32,37   |          |           | RK73FB2A102J | CHIP R                        | 1.0K        |          |
| R38      |          |           | RK73FB2A221J | CHIP R                        | 220         |          |
| R39      |          |           | RK73FB2A822J | CHIP R                        | 8.2K        |          |
| R40      |          |           | RK73FB2A102J | CHIP R                        | 10K         |          |
| R42      |          |           | RD14NB2E101J | RD                            | 100         |          |
| R43      |          |           | RK73FB2A103J | CHIP R                        | 10K         |          |
| R52      |          |           | RK73FB2A472J | CHIP R                        | 4.7K        |          |
| R64      |          |           | RK73FB2A104J | CHIP R                        | 100K        |          |
| R101,102 |          |           | RK73FB2A333J | CHIP R                        | 33K         |          |
| R105,106 |          |           | RK73FB2A123J | CHIP R                        | 12K         |          |
| R111     |          |           | RD14NB2E470J | RD                            | 47          |          |
| R118     |          |           | RK73FB2A122J | CHIP R                        | 1.2K        |          |
| R119     |          |           | RK73FB2A123J | CHIP R                        | 12K         |          |
| R122     |          |           | RK73FB2A122J | CHIP R                        | 1.2K        |          |
| R123     |          |           | RK73FB2A123J | CHIP R                        | 12K         |          |
| R124     |          |           | RK73FB2A103J | CHIP R                        | 10K         |          |
| R125,126 |          |           | RK73FB2A332J | CHIP R                        | 3.3K        |          |
| R127,128 |          |           | RD14NB2E101J | RD                            | 100         |          |
| R131,132 |          |           | RK73FB2A393J | CHIP R                        | 39K         |          |
| R138,139 |          |           | RK73FB2A561J | CHIP R                        | 560         |          |
| R140,141 |          |           | RK73FB2A473J | CHIP R                        | 47K         |          |
| R151     |          |           | RK73FB2A821J | CHIP R                        | 820         |          |
| R152     |          |           | RK73FB2A473J | CHIP R                        | 47K         |          |
| R153     |          |           | RK73FB2A472J | CHIP R                        | 4.7K        |          |
| R156,157 |          |           | RK73FB2A102J | CHIP R                        | 1.0K        |          |
| R167     |          |           | RK73FB2A104J | CHIP R                        | 100K        |          |
| W46      |          |           | R92-0670-05  | CHIP R                        | 0 OHM       |          |
| W48      |          |           | R92-0670-05  | CHIP R                        | 0 OHM       |          |
| S101     |          |           | S62-0034-05  | SLIDE SWITCH (DE-EMPHASIS)    |             |          |
| D3       |          |           | HZS5.1N(B2)  | ZENER DIODE                   |             |          |
| D4       |          |           | RD5.1ES(B2)  | ZENER DIODE                   |             |          |
| D4       |          |           | HZS3.3N(B2)  | ZENER DIODE                   |             |          |
| D4       |          |           | RD3.3ES(B2)  | ZENER DIODE                   |             |          |
| D7       |          |           | MA111        | DIODE                         |             |          |
| D8       |          |           | HSS104       | DIODE                         |             |          |
| D8       |          |           | 1SS133       | DIODE                         |             |          |
| D11      |          |           | HZS8.2N(B2)  | ZENER DIODE                   |             |          |
| D11,112  |          |           | RD8.2ES(B2)  | ZENER DIODE                   |             |          |
| IC1      |          |           | MA111        | DIODE                         |             |          |
| IC2      |          |           | LA1831A-KEN  | ANALOGUE IC                   |             |          |
| IC12     |          |           | LC7218       | IC(PLL FREQUENCY SYNTHESIZER) |             |          |
|          |          |           | NJM4565D     | IC(OP AMP X2)                 |             |          |

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|----------|----------|-----------|---------------|---------------------------------|--------------|----------|
| C232     |          |           | CE04KW0221M   | ELECTRO                         |              |          |
| C233     |          |           | CQ93FMG1H104J | 220UF                           |              |          |
| C234,235 |          |           | CK45FE2H103P  | 0.10UF                          |              |          |
| C238,239 |          |           | CQ93FMG1H151K | 150PF                           |              |          |
| C245     |          |           | CQ93FMG1H121K | 120PF                           |              |          |
| C246-250 |          |           | CQ93FMG1H102J | 1000PF                          |              |          |
| C251,252 |          |           | CQ93FMG1H104J | 100PF                           |              |          |
| C253     |          |           | CQ93FMG1H104J | 0.10UF                          |              |          |
| CN21     |          |           | E40-4245-05   | PIN ASSY                        |              |          |
| CN22     |          |           | E40-3385-05   | PIN ASSY                        |              |          |
| CN23     |          |           | E40-4294-05   | FLAT CABLE CONNECTOR (4P)       |              |          |
| CN24     |          |           | E40-4807-05   | PIN ASSY (9P)                   |              |          |
| CN26     |          |           | E40-4293-05   | FLAT CABLE CONNECTOR (3P)       |              |          |
| CN27     |          |           | E40-4233-05   | FLAT CABLE CONNECTOR (8P)       |              |          |
| CN28     |          |           | E40-4296-05   | FLAT CABLE CONNECTOR (8P)       |              |          |
| CN29     |          |           | E40-4284-05   | FLAT CABLE CONNECTOR (10P)      |              |          |
| CN30     |          |           | E40-3246-05   | PIN ASSY                        |              |          |
| CN31     |          |           | E40-3247-05   | PIN ASSY                        |              |          |
| CN32     |          |           | E40-9830-05   | SOCKET FOR PIN ASSY (14P)       |              |          |
| CN33     |          |           | E40-9847-05   | PIN ASSY                        |              |          |
| CN34     |          |           | E40-9830-05   | SOCKET FOR PIN ASSY (14P)       |              |          |
| CN35     |          |           | E40-9847-05   | PIN ASSY                        |              |          |
| CN37     |          |           | E40-0211-05   | PIN ASSY                        |              |          |
| J1       |          |           | E03-0148-05   | AC OUTLET (SWITCHED)            |              |          |
| J1       |          |           | E03-0149-05   | AC OUTLET (SWITCHED)            |              |          |
| J1       |          |           | E03-0325-05   | AC OUTLET (SWITCHED)            |              |          |
| J1       |          |           | E03-0330-05   | AC OUTLET (SWITCHED)            |              |          |
| J3       |          |           | E70-0018-05   | SCREW TERMINAL BOARD(FRONT A,B) |              |          |
| J3       |          |           | E70-0063-05   | SCREW TERMINAL BOARD(FRONT A,B) |              |          |
| J4       |          |           | E70-0049-05   | SCREW TERMINAL BOARD(CENT/REAR) |              |          |
| J4       |          |           | E70-0064-05   | SCREW TERMINAL BOARD(CENT/REAR) |              |          |
| 887      | 1A       |           | F20-1322-15   | INSULATING BOARD                |              |          |
| F1       |          |           | F05-5025-05   | FUSE (SEMKO) (250V T5A L)       |              |          |
| F1       |          |           | F50-0078-05   | FUSE (SEMKO) (125V 10A)         |              |          |
| F2       |          |           | F05-2525-05   | FUSE (SEMKO) (250V T2.5A L)     |              |          |
| F2       |          |           | F05-5025-05   | FUSE (SEMKO) (250V T5A L)       |              |          |
| F3,4     |          |           | F50-0078-05   | FUSE (SEMKO) (125V 10A)         |              |          |
| F5,6     |          |           | F05-4025-05   | FUSE (SEMKO) (250V T4A L)       |              |          |
| F5,6     |          |           | F50-0074-05   | FUSE (SEMKO) (125V 5A)          |              |          |
| F7,8     |          |           | F04-2025-05   | FUSE (UL) (250V 2A)             |              |          |
| F7,8     |          |           | F05-1623-05   | FUSE (SEMKO) (250V T1.6A L)     |              |          |
| F9       |          |           | F05-1623-05   | FUSE (SEMKO) (250V T1.6A L)     |              |          |
| F9       |          |           | F05-1628-05   | FUSE (UL) (250V 1.6A)           |              |          |
| CN1,2    |          |           | J13-0075-05   | FUSE CLIP                       |              |          |
| CN3,4    |          |           | J13-0075-05   | FUSE CLIP                       |              |          |
| CN5-8    |          |           | J13-0075-05   | FUSE CLIP                       |              |          |
| CN9-16   |          |           | J13-0075-05   | FUSE CLIP                       |              |          |
| CN17,18  |          |           | J13-0075-05   | FUSE CLIP                       |              |          |
| J11-13   |          |           | J11-0808-05   | WIRE CLAMPER                    |              |          |
| L1-5     |          |           | L39-0085-05   | PHASE COMPENSATION COIL         |              |          |
| T1       |          |           | L07-0864-05   | POWER TRANSFORMER               |              |          |
| T1       |          |           | L07-0865-05   | POWER TRANSFORMER               |              |          |

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|----------|----------|-----------|---------------|-------------|--------------|----------|
| C74      |          |           | CK45FE2H103P  | 0.010UF     |              |          |
| C75      |          |           | CK45SL1H680J  | 68PF        |              |          |
| C76      |          |           | CK45FE2H103P  | 0.010UF     |              |          |
| C81      |          |           | CK45SL2H180J  | 18PF        |              |          |
| C91,92   |          |           | CE04KW1C100M  | 10UF        |              |          |
| C93,94   |          |           | CC45FSL1H271J | 270PF       |              |          |
| C95,96   |          |           | CC45FSL1H101J | 100PF       |              |          |
| C97,98   |          |           | CE04KW1A470M  | 47UF        |              |          |
| C99,100  |          |           | CC45FSL1H221J | 220PF       |              |          |
| C103,104 |          |           | CC45FSL1H680J | 68PF        |              |          |
| C105,106 |          |           | CC45FSL2H220J | 22PF        |              |          |
| C107-110 |          |           | CC45FSL2H680J | 68PF        |              |          |
| C111     |          |           | CE04KW2A470M  | 47UF        |              |          |
| C112     |          |           | CE04KW2A101M  | 100UF       |              |          |
| C113     |          |           | CE04KW2A100M  | 100UF       |              |          |
| C114     |          |           | CE04KW2A470M  | 47UF        |              |          |
| C115     |          |           | CQ93FMG1H152J | 1500PF      |              |          |
| C116     |          |           | CQ93FMG1H103J | 0.010UF     |              |          |
| C117     |          |           | CQ93FMG1H682J | 6800PF      |              |          |
| C118     |          |           | CQ93FMG1H472J | 4700PF      |              |          |
| C119     |          |           | CQ93FMG1H103J | 0.010UF     |              |          |
| C120     |          |           | CQ93FMG1H152J | 1500PF      |              |          |
| C121     |          |           | CQ93FMG1H472J | 4700PF      |              |          |
| C122     |          |           | CQ93FMG1H682J | 6800PF      |              |          |
| C123     |          |           | CQ93FMG1H152J | 1500PF      |              |          |
| C124     |          |           | CQ93FMG1H472J | 4700PF      |              |          |
| C125     |          |           | CQ93FMG1H271K | 270PF       |              |          |
| C126     |          |           | CQ93FMG1H471J | 470PF       |              |          |
| C127-130 |          |           | CK45FSL1H101J | 100PF       |              |          |
| C131-134 |          |           | CK45FF1H103Z  | 0.010UF     |              |          |
| C135,136 |          |           | CQ93FMG1H104J | 0.10UF      |              |          |
| C137     |          |           | CK45FSL1H101J | 100PF       |              |          |
| C137     |          |           | CQ93FMG1H101K | 100PF       |              |          |
| C139-142 |          |           | CQ93FMG1H562J | 5600PF      |              |          |
| C161     |          |           | CK45FF1H103Z  | 0.010UF     |              |          |
| C163     |          |           | CK45FF1H103Z  | 0.010UF     |              |          |
| C165     |          |           | CQ93FMG1H104J | 0.10UF      |              |          |
| C166     |          |           | CK45FSL1H101J | 100PF       |              |          |
| C166,169 |          |           | CQ93FMG1H101K | 100PF       |              |          |
| C168,169 |          |           | CC45FSL1H101J | 100PF       |              |          |
| C170     |          |           | CQ93FMG1H101K | 100PF       |              |          |
| C191-194 |          |           | CQ93FMG1H822J | 8200PF      |              |          |
| C195,196 |          |           | CK45FF1H103Z  | 0.010UF     |              |          |
| C197,198 |          |           | CK45FE2H103P  | 0.010UF     |              |          |
| C199,200 |          |           | CQ93FMG1H682J | 6800PF      |              |          |
| C203     |          |           | CE04KW1V101M  | 100UF       |              |          |
| C204     |          |           | CK45FF1H103Z  | 0.010UF     |              |          |
| C211     |          |           | CQ93FMG1H104J | 0.10UF      |              |          |
| C212-214 |          |           | CE04KW1V477M  | 47UF        |              |          |
| C221     |          |           | CE04KW1A470M  | 47UF        |              |          |
| C222     |          |           | CE04KW1H100M  | 10UF        |              |          |
| C223     |          |           | CE04KW1E470M  | 47UF        |              |          |
| C230     |          |           | CQ93FMG1H104J | 0.10UF      |              |          |
| C231     |          |           | CE04KW1V477M  | 47UF        |              |          |

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|------------|--------------|--------------|----------------|-------------------------------|------------------|--------------|
| Δ S3       |              |              | S31-2322-05    | SLIDE SWITCH (AC VOLTAGE SEL) | YM               |              |
| Δ D1       |              |              | HSS104         | DIODE                         |                  |              |
| Δ D1       |              |              | 1SS133         | DIODE                         |                  |              |
| Δ D2,3     |              |              | HSS104A        | DIODE                         |                  |              |
| Δ D4,7     |              |              | 1SS131         | DIODE                         |                  |              |
| Δ D4,7     |              |              | S5688B         | DIODE                         |                  |              |
| Δ D4-7     |              |              | 1SR139-100     | DIODE                         |                  |              |
| Δ D8       |              |              | HZS2.7N(B2)    | ZENER DIODE                   |                  |              |
| Δ D8       |              |              | RD2.7ES(B2)    | ZENER DIODE                   |                  |              |
| Δ D9       |              |              | HZS6.2N(B2)    | ZENER DIODE                   |                  |              |
| Δ D9       |              |              | RD6.2ES(B2)    | ZENER DIODE                   |                  |              |
| Δ D10      |              |              | HZS8.2N(B2)    | ZENER DIODE                   |                  |              |
| Δ D10      |              |              | RD8.2ES(B2)    | ZENER DIODE                   |                  |              |
| Δ D11-14   |              |              | S5688B         | DIODE                         |                  |              |
| Δ D11-14   |              |              | 1SR139-100     | DIODE                         |                  |              |
| Δ D15      |              |              | D5SBA20F03     | DIODE                         |                  |              |
| Δ D16      |              |              | D5FB20-4002-L1 | DIODE                         |                  |              |
| Δ D17      |              |              | HZS16N(B2)     | ZENER DIODE                   |                  |              |
| Δ D17      |              |              | RD16ES(B2)     | ZENER DIODE                   |                  |              |
| Δ D18      |              |              | HZS18N(B2)     | ZENER DIODE                   |                  |              |
| Δ D18      |              |              | RD18ES(B2)     | ZENER DIODE                   |                  |              |
| Δ D19,20   |              |              | S5688B         | DIODE                         |                  |              |
| Δ D19,20   |              |              | 1SR139-100     | DIODE                         |                  |              |
| Δ D21,22   |              |              | HSS104A        | DIODE                         |                  |              |
| Δ D21,22   |              |              | 1SS131         | DIODE                         |                  |              |
| Δ D23      |              |              | HZS5.1N(B2)    | ZENER DIODE                   |                  |              |
| Δ D23      |              |              | RD5.1ES(B2)    | ZENER DIODE                   |                  |              |
| Δ D24-27   |              |              | HSS104         | DIODE                         |                  |              |
| Δ D24-27   |              |              | 1SS133         | DIODE                         |                  |              |
| Δ D31,32   |              |              | HSS104A        | DIODE                         |                  |              |
| Δ D31,32   |              |              | 1SS131         | DIODE                         |                  |              |
| Δ D41,42   |              |              | HSS104         | DIODE                         |                  |              |
| Δ D41,42   |              |              | 1SS133         | DIODE                         |                  |              |
| Δ D61      |              |              | D5SBA20F03     | DIODE                         |                  |              |
| Δ D61      |              |              | HSS104A        | DIODE                         |                  |              |
| Δ D91,92   |              |              | HSS104A        | DIODE                         |                  |              |
| Δ D91,92   |              |              | 1SS131         | DIODE                         |                  |              |
| Δ D131,132 |              |              | HSS104A        | DIODE                         |                  |              |
| Δ D131,132 |              |              | 1SS131         | DIODE                         |                  |              |
| Δ D161     |              |              | HSS104A        | DIODE                         |                  |              |
| Δ D161     |              |              | 1SS131         | DIODE                         |                  |              |
| Δ D191,192 |              |              | HSS104A        | DIODE                         |                  |              |
| Δ D191,192 |              |              | 1SS131         | DIODE                         |                  |              |
| Δ D211     |              |              | HSS104         | DIODE                         |                  |              |
| Δ D211     |              |              | 1SS133         | DIODE                         |                  |              |
| Δ D222     |              |              | HZS16N(B2)     | ZENER DIODE                   |                  |              |
| Δ D222     |              |              | RD16ES(B2)     | ZENER DIODE                   |                  |              |
| Δ D223     |              |              | HZS8.2N(B2)    | ZENER DIODE                   |                  |              |
| Δ D223     |              |              | RD8.2ES(B2)    | ZENER DIODE                   |                  |              |
| Δ D231     |              |              | HSS104A        | DIODE                         |                  |              |
| Δ D231     |              |              | 1SS131         | DIODE                         |                  |              |
| Δ D232     |              |              | HZS4.7N(B2)    | ZENER DIODE                   |                  |              |
| Δ D232     |              |              | RD4.7ES(B2)    | ZENER DIODE                   |                  |              |

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|------------|--------------|--------------|--------------|-------------------------------|------------------|--------------|
| Δ T1       |              |              | L07-0866-05  | POWER TRANSFORMER             | X                |              |
| Δ T1       |              |              | L07-0867-05  | POWER TRANSFORMER             | E                |              |
| Δ T1       |              | *            | L07-2114-05  | POWER TRANSFORMER             | C                |              |
| Δ CP1-3    |              |              | R90-0888-05  | MULTI-COMP                    | J 5W             |              |
| Δ CP4,5    |              |              | R90-0186-05  | 0.33X2                        | J K              |              |
| Δ R1       |              |              | R92-1769-05  | 0.47X2                        | J 1/2W           |              |
| Δ R6       |              |              | RD14NB2E4R7J | 3.3M                          | J 1/4W           |              |
| Δ R8       |              |              | RD14NB2E221J | 4.7                           | J 1/4W           |              |
| Δ R9       |              |              | RD14NB2E221J | 220                           | J 1/4W           |              |
| Δ R13      |              |              | RD14NB2E4R7J | 4.7                           | J 1/4W           |              |
| Δ R14-16   |              |              | RD14NB2E151J | 150                           | J 1/4W           |              |
| Δ R47-50   |              |              | RD14NB2E470J | 47                            | J 1/4W           |              |
| Δ R57,58   |              |              | RD14NB2E221J | 220                           | J 1/4W           |              |
| Δ R77      |              |              | RD14NB2E101J | 100                           | J 1/4W           |              |
| Δ R79      |              |              | RD14NB2E221J | 220                           | J 1/4W           |              |
| Δ R87      |              |              | RD14NB2E101J | 100                           | J 1/4W           |              |
| Δ R107-110 |              |              | RD14NB2E221J | 220                           | J 1/4W           |              |
| Δ R113,114 |              |              | RD14NB2E100J | 10                            | J 1/4W           | KPXC         |
| Δ R113,114 |              |              | RD14NB2E330J | 33                            | J 1/4W           | YM           |
| Δ R117     |              |              | RD14NB2E100J | 10                            | J 1/4W           | KPXC         |
| Δ R117     |              |              | RD14NB2E330J | 33                            | J 1/4W           | YM           |
| Δ R119,120 |              |              | RD14NB2E101J | 100                           | J 1/4W           |              |
| Δ R135-138 |              |              | RD14NB2E220J | 22                            | J 1/4W           |              |
| Δ R139,140 |              |              | RD14NB2E332J | 3.3K                          | J 1/4W           |              |
| Δ R145,146 |              |              | RS14KB3D4R7J | 4.7                           | J 2W             |              |
| Δ R149,150 |              |              | RD14NB2E100J | 10                            | J 1/4W           |              |
| Δ R155-158 |              |              | RD14NB2E101J | 100                           | J 1/4W           |              |
| Δ R165     |              |              | RD14NB2E220J | 22                            | J 1/4W           |              |
| Δ R167     |              |              | RD14NB2E220J | 22                            | J 1/4W           |              |
| Δ R175     |              |              | RD14NB2E100J | 10                            | J 1/4W           |              |
| Δ R179     |              |              | RD14NB2E100J | 10                            | J 1/4W           |              |
| Δ R187     |              |              | RD14NB2E332J | 3.3K                          | J 1/4W           |              |
| Δ R197-200 |              |              | RD14NB2E220J | 22                            | J 1/4W           |              |
| Δ R201,202 |              |              | RD14NB2E332J | 3.3K                          | J 1/4W           |              |
| Δ R207,208 |              |              | RS14KB3D4R7J | 4.7                           | J 2W             |              |
| Δ R211,212 |              |              | RD14NB2E100J | 10                            | J 1/4W           |              |
| Δ R223     |              |              | RD14NB2E101J | 100                           | J 1/4W           |              |
| Δ R226     |              |              | RS14KB3D102J | 1.0K                          | J 2W             |              |
| Δ R242     |              |              | RS14KB3A332J | 3.3K                          | J 1W             |              |
| Δ R245     |              |              | RD14NB2E561J | 560                           | J 1/4W           |              |
| Δ VR1,2    |              |              | R12-1616-05  | TRIMMING POT.(1K)             | E                |              |
| Δ VR3      |              |              | R12-1617-05  | TRIMMING POT.(2.2K)           | KP               |              |
| Δ VR4,5    |              |              | R12-1616-05  | TRIMMING POT.(1K)             | YXMC             |              |
| Δ 690      | 1A,1B        |              | S79-0013-05  | THERMAL SWITCH                |                  |              |
| Δ 690      | 1C           |              | S79-0025-05  | THERMAL SWITCH                |                  |              |
| Δ 690      | 1C           |              | S79-0026-05  | THERMAL SWITCH                |                  |              |
| Δ K1       |              | *            | S76-0002-05  | MAGNETIC RELAY                |                  |              |
| Δ K2,3     |              |              | S51-2088-05  | MAGNETIC RELAY                |                  |              |
| Δ K4       |              | *            | S76-0038-05  | MAGNETIC RELAY                |                  |              |
| Δ K4       |              | *            | S76-0045-05  | MAGNETIC RELAY                |                  |              |
| Δ K5       |              | *            | S76-0005-05  | MAGNETIC RELAY                |                  |              |
| Δ K5       |              | *            | S76-0045-05  | MAGNETIC RELAY                |                  |              |
| Δ S1       |              |              | S31-2136-05  | SLIDE SWITCH (POWER TYPE)     |                  |              |
| Δ S2       |              |              | S62-0001-05  | SLIDE SWITCH (AC VOLTAGE SEL) | YM               |              |

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| C5,6     |          |           | CC73FSL1H101J | CHIP C      | J            |          |
| C9,10    |          |           | CC73FSL1H101J | CHIP C      | J            |          |
| C13,14   |          |           | CC73FSL1H101J | CHIP C      | J            |          |
| C17,18   |          |           | CC73FSL1H101J | CHIP C      | J            |          |
| C21,22   |          |           | CC73FSL1H390J | CHIP C      | J            |          |
| C23,24   |          |           | CE04KW1C100M  | ELECTRO     | 16WV         |          |
| C25,26   |          |           | CC73FSL1H221J | CHIP C      | J            |          |
| C27,28   |          |           | CE04KW1A101M  | ELECTRO     | 10WV         |          |
| C29,30   |          |           | CK73FB1H102K  | CHIP C      | J            |          |
| C31,32   |          |           | CQ93FMG1H123J | MYLAR       | 0.012UF      |          |
| C33,34   |          |           | CQ93FMG1H332J | MYLAR       | 3300PF       |          |
| C35,36   |          |           | CE04KW1V4R7M  | ELECTRO     | 4.7UF        |          |
| C37      |          |           | CK73FB1H102K  | CHIP C      | 35WV         |          |
| C41,42   |          |           | CE04KW1H2R2M  | ELECTRO     | 2.2UF        |          |
| C43,44   |          |           | CC73FSL1H101J | CHIP C      | 50WV         |          |
| C45,46   |          |           | CC73FSL1H221J | CHIP C      | J            |          |
| C47,48   |          |           | CK73FB1H102K  | CHIP C      | K            |          |
| C49      |          |           | CE04KW1C100M  | ELECTRO     | 10UF         |          |
| C50      |          |           | CK73FF1E104Z  | CHIP C      | 16WV         |          |
| C51,52   |          |           | CE04KW1H2R2M  | ELECTRO     | 2.2UF        |          |
| C53,56   |          |           | CK73FF1E104Z  | CHIP C      | Z            |          |
| C57      |          |           | CC73FSL1H101J | CHIP C      | J            |          |
| C58      |          |           | CK73FF1E104Z  | CHIP C      | Z            |          |
| C59      |          |           | CE04KW1C100M  | ELECTRO     | 10UF         |          |
| C60      |          |           | CE04KW1A101M  | ELECTRO     | 100UF        |          |
| C61,62   |          |           | CK73FF1E104Z  | CHIP C      | Z            |          |
| C63      |          |           | CE04KW1C100M  | ELECTRO     | 10UF         |          |
| C64      |          |           | CE04KW1A101M  | ELECTRO     | 100UF        |          |
| C65,66   |          |           | CK73FF1E104Z  | CHIP C      | Z            |          |
| C67      |          |           | CK73FB1H471K  | CHIP C      | K            |          |
| C68,71   |          |           | CC73FCH1H470J | CHIP C      | J            |          |
| C74,78   |          |           | CK73FF1E104Z  | CHIP C      | Z            |          |
| C81      |          |           | CE04KW1A101M  | ELECTRO     | 100UF        |          |
| C82,85   |          |           | CK73FF1E104Z  | CHIP C      | 10WV         |          |
| C86,87   |          |           | CC73FCH1H470J | CHIP C      | J            |          |
| C88      |          |           | CC73FCH1H220J | CHIP C      | J            |          |
| C89      |          |           | CC73FCH1H470J | CHIP C      | J            |          |
| C91,92   |          |           | CE04KW1A470M  | ELECTRO     | 47UF         |          |
| C93      |          |           | CE04KW1C100M  | ELECTRO     | 10UF         |          |
| C94,96   |          |           | CK73FF1E104Z  | CHIP C      | Z            |          |
| C97      |          |           | CE04KW1A101M  | ELECTRO     | 100UF        |          |
| C101,102 |          |           | CE04KW1A470M  | ELECTRO     | 47UF         |          |
| C103     |          |           | CE04KW1C100M  | ELECTRO     | 10UF         |          |
| C104,106 |          |           | CK73FF1E104Z  | CHIP C      | 0.10UF       |          |
| C107,108 |          |           | CE04KW1H010M  | ELECTRO     | 1.0UF        |          |
| C109,110 |          |           | CE04KW1V4R7M  | ELECTRO     | 4.7UF        |          |
| C111,112 |          |           | CE04KW1A470M  | ELECTRO     | 47UF         |          |
| C113     |          |           | CE04KW1C100M  | ELECTRO     | 10UF         |          |
| C114,116 |          |           | CK73FF1E104Z  | CHIP C      | 0.10UF       |          |
| C117,118 |          |           | CC73FSL1H221J | CHIP C      | 220PF        |          |
| C119,120 |          |           | CC73FCH1H220J | CHIP C      | J            |          |
| C121,122 |          |           | CC73FSL1H101J | CHIP C      | J            |          |
| C123,124 |          |           | CC73FSL1H221J | CHIP C      | J            |          |
| C125,126 |          |           | CC73FSL1H331J | CHIP C      | J            |          |
| C131,132 |          |           | CQ93FMG1H822J | MYLAR       | 8200PF       |          |

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| D233-239                                         |          |           | HSS104        | DIODE              |              |          |
| D233-239                                         |          |           | 1SS133        | DIODE              |              |          |
| D240                                             |          |           | HZS3.9N(B2)   | ZENER DIODE        |              |          |
| D240                                             |          |           | RD3.9ES(B2)   | ZENER DIODE        |              |          |
| D241                                             |          |           | HZS13N(B2)    | ZENER DIODE        |              |          |
| D241                                             |          |           | RD13ES(B2)    | ZENER DIODE        |              |          |
| D242                                             |          |           | HZS3.9N(B2)   | ZENER DIODE        |              |          |
| D242                                             |          |           | RD3.9ES(B2)   | ZENER DIODE        |              |          |
| Q1                                               |          |           | 2SC2003(L,K)  | TRANSISTOR         |              |          |
| Q2                                               |          |           | 2SC3940A(R,S) | TRANSISTOR         |              |          |
| Q3                                               |          |           | 2SA1534A(R,S) | TRANSISTOR         |              |          |
| Q4                                               |          |           | 2SA992(F,E)   | TRANSISTOR         |              |          |
| Q31,32                                           |          |           | 2SC2878(B)    | TRANSISTOR         |              |          |
| Q33,36                                           |          |           | 2SA992(F,E)   | TRANSISTOR         |              |          |
| Q37,38                                           |          |           | 2SC2631(R,S)  | TRANSISTOR         |              |          |
| Q39,40                                           |          |           | 2SA1123(R,S)  | TRANSISTOR         |              |          |
| Q41,43                                           |          |           | 2SC2631(R,S)  | TRANSISTOR         |              |          |
| Q44,45                                           |          |           | 2SA1123(R,S)  | TRANSISTOR         |              |          |
| Q46                                              |          |           | 2SC2631(R,S)  | TRANSISTOR         |              |          |
| Q63                                              |          |           | 2SA992(F,E)   | TRANSISTOR         |              |          |
| Q65                                              |          |           | 2SA992(F,E)   | TRANSISTOR         |              |          |
| Q67                                              |          |           | 2SC2631(R,S)  | TRANSISTOR         |              |          |
| Q69                                              |          |           | 2SA1123(R,S)  | TRANSISTOR         |              |          |
| Q71                                              |          |           | 2SC2631(R,S)  | TRANSISTOR         |              |          |
| Q91,92                                           |          |           | 2SC2878(B)    | TRANSISTOR         |              |          |
| Q93,96                                           |          |           | 2SA992(F,E)   | TRANSISTOR         |              |          |
| Q97,100                                          |          |           | 2SC1845(F,E)  | TRANSISTOR         |              |          |
| Q101,102                                         |          |           | 2SA992(F,E)   | TRANSISTOR         |              |          |
| Q131,132                                         | *        |           | 2SD2222       | TRANSISTOR         |              |          |
| Q133,134                                         | *        |           | 2SB1470       | TRANSISTOR         |              |          |
| Q135,136                                         |          |           | 2SC4137(V,W)  | TRANSISTOR         |              |          |
| Q137,138                                         |          |           | 2SC1845(F,E)  | TRANSISTOR         |              |          |
| Q161                                             | *        |           | 2SD2222       | TRANSISTOR         |              |          |
| Q163                                             | *        |           | 2SB1470       | TRANSISTOR         |              |          |
| Q165                                             |          |           | 2SC4137(V,W)  | TRANSISTOR         |              |          |
| Q167                                             |          |           | 2SC1845(F,E)  | TRANSISTOR         |              |          |
| Q191,192                                         |          |           | 2SD2389       | TRANSISTOR         |              |          |
| Q193,194                                         |          |           | 2SB1559       | TRANSISTOR         |              |          |
| Q195,196                                         |          |           | 2SC4137(V,W)  | TRANSISTOR         |              |          |
| Q197,198                                         |          |           | 2SC1845(F,E)  | TRANSISTOR         |              |          |
| Q211,212                                         |          |           | 2SC2458(Y,GR) | TRANSISTOR         |              |          |
| Q211,212                                         |          |           | 2SC3311A(Q,R) | TRANSISTOR         |              |          |
| Q221                                             |          |           | 2SA992(F,E)   | TRANSISTOR         |              |          |
| Q222                                             |          |           | 2SA1048(Y,GR) | TRANSISTOR         |              |          |
| Q222                                             |          |           | 2SA1309A(Q,R) | TRANSISTOR         |              |          |
| Q223                                             |          |           | 2SB1370       | TRANSISTOR         |              |          |
| Q223                                             |          |           | 2SB1375       | TRANSISTOR         |              |          |
| Q231                                             |          |           | 2SA992(F,E)   | TRANSISTOR         |              |          |
| Q232,233                                         |          |           | 2SC1845(F,E)  | TRANSISTOR         |              |          |
| Q234-236                                         |          |           | DTC113ZS      | DIGITAL TRANSISTOR |              |          |
| Q234-236                                         |          |           | UN4219        | TRANSISTOR         |              |          |
| <b>SURROUND UNIT (X08-2710-10) KR-V990D only</b> |          |           |               |                    |              |          |
| C1,2                                             |          |           | CC73FSL1H101J | CHIP C             | 100PF        | J        |

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# KR-V990D/V9080

## PARTS LIST

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|-----------|--------------|--------------|---------------|-----------------------------------|------------------|--------------|
| C354      |              |              | CE04KW1A101M  | ELECTRO                           |                  |              |
| C355-358  |              |              | CK73FF1E104Z  | CHIP C                            | 100UF            |              |
| C359      |              |              | CE04KW1A101M  | ELECTRO                           | 0.10UF           | 10WV         |
| C361      |              |              | CK73FB1H102K  | CHIP C                            | 1000PF           | 10WV         |
| C371, 372 |              |              | CK73FB1H102K  | CHIP C                            | 1000PF           | K            |
| C373, 374 |              |              | CC73FCH1H100D | CHIP C                            | 10PF             | D            |
| C375      |              |              | CC73FCH1H220J | CHIP C                            | 22PF             | J            |
| C376, 377 |              |              | CC73FCH1H470J | CHIP C                            | 47PF             | J            |
| C378      |              |              | CC73FCH1H271J | CHIP C                            | 270PF            | J            |
| C379      |              |              | CE04KW1A101M  | ELECTRO                           | 100UF            | 10WV         |
| C380, 381 |              |              | CK73FF1E104Z  | CHIP C                            | 0.10UF           | Z            |
| C382      |              |              | CK73FB1H102K  | CHIP C                            | 1000PF           | K            |
| C383, 384 |              |              | CC73FCH1H100D | CHIP C                            | 10PF             | D            |
| C389      |              |              | CK73FF1E104Z  | CHIP C                            | 0.10UF           | Z            |
| C391-422  |              |              | CK73FF1E104Z  | CHIP C                            | 0.10UF           | Z            |
| C429-433  |              |              | CK73FF1E104Z  | CHIP C                            | 0.10UF           | Z            |
| C434      |              |              | CK73FB1H103K  | CHIP C                            | 0.10UF           | K            |
| C435-438  |              |              | CK73FF1E104Z  | CHIP C                            | 0.10UF           | Z            |
| C439      |              |              | CE04KW1A101M  | ELECTRO                           | 100UF            | 10WV         |
| C440      |              |              | CK73FF1E104Z  | CHIP C                            | 0.10UF           | Z            |
| C443      |              |              | CC73FSL1H101J | CHIP C                            | 100PF            | J            |
| C501, 502 |              |              | CE04KW1H2R2M  | ELECTRO                           | 2.2UF            | 50WV         |
| C505-508  |              |              | CE04KW1H2R2M  | ELECTRO                           | 2.2UF            | 50WV         |
| C511      |              |              | CE04KW1H101J  | CHIP C                            | 100PF            | J            |
| C515      |              |              | CE04KW1H2R2M  | ELECTRO                           | 2.2UF            | 50WV         |
| C517      |              |              | CE04KW1H2R2M  | ELECTRO                           | 2.2UF            | 50WV         |
| C521-524  |              |              | CK73FF1E104Z  | CHIP C                            | 0.10UF           | Z            |
| C531, 532 |              |              | CE04KW1V220M  | ELECTRO                           | 22UF             | 35WV         |
| C533, 534 |              |              | CE04KW1V470M  | ELECTRO                           | 47UF             | 35WV         |
| C535, 536 |              |              | CE04KW1V470M  | ELECTRO                           | 47UF             | 35WV         |
| C537, 538 |              |              | CC73FSL1H101J | CHIP C                            | 100PF            | J            |
| C541, 544 |              |              | CQ93FMG1H104J | MYLAR                             | 0.10UF           | J            |
| C545, 546 |              |              | CC73FSL1H101J | CHIP C                            | 100PF            | J            |
| C547, 548 |              |              | CE04KW1H2R2M  | ELECTRO                           | 2.2UF            | 50WV         |
| C550      |              |              | CK73FB1H102K  | CHIP C                            | 1000PF           | K            |
| C551, 552 |              |              | CK73FB1H103K  | CHIP C                            | 0.010UF          | K            |
| C553, 558 |              |              | CK73FF1E104Z  | CHIP C                            | 0.10UF           | Z            |
| C601, 602 |              |              | CE04KW1V470M  | ELECTRO                           | 4.7UF            | 35WV         |
| C603, 604 |              |              | CC73FCH1H220J | CHIP C                            | 22PF             | J            |
| C605, 606 |              |              | CE04KW1V470M  | ELECTRO                           | 4.7UF            | 35WV         |
| C607-610  |              |              | CK73FF1E104Z  | CHIP C                            | 0.10UF           | Z            |
| C611-613  |              |              | CE04KW1C470M  | ELECTRO                           | 47UF             | 16WV         |
| CN1-3     |              |              |               | SOCKET FOR PIN ASSY (16P)         |                  |              |
| CN11      |              |              |               | SOCKET FOR PIN ASSY (20P)         |                  |              |
| J1, 2     |              |              | E40-9832-05   | PHONO JACK (6P/TAPE 1/2 CD/PHONO) |                  |              |
| J3, 4     |              |              | E40-9836-05   | PHONO JACK (6P/TAPE 1/2 CD/PHONO) |                  |              |
| J11       |              |              | E63-0139-15   | PHONO JACK (3P/PRE OUT)           |                  |              |
| L1-5      |              |              | E63-0161-05   | PHONO JACK (2P/AC3 AUDIO INPUT)   |                  |              |
| L7-17     |              |              | L92-0044-05   | FERRITE CORE                      |                  |              |
| L19-21    |              |              | L92-0044-05   | FERRITE CORE                      |                  |              |
| L23       |              |              | L92-0044-05   | FERRITE CORE                      |                  |              |
| L25-27    |              |              | L92-0044-05   | FERRITE CORE                      |                  |              |
| L30       |              |              | L79-0788-05   | LC FILTER                         |                  |              |
| X11       |              |              | L78-0267-05   | RESONATOR                         | (4.194MHZ)       |              |

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|-----------|--------------|--------------|---------------|-------------|------------------|--------------|
| C133, 134 |              |              | CQ93FMG1H392J | MYLAR       | 3900PF           | J            |
| C135, 136 |              |              | CQ93FMG1H472J | MYLAR       | 4700PF           | J            |
| C141, 142 |              |              | CC73FSL1H101J | CHIP C      | 100PF            | J            |
| C143, 144 |              |              | CC73FSL1H221J | CHIP C      | 220PF            | J            |
| C145, 146 |              |              | CC73FSL1H331J | CHIP C      | 330PF            | J            |
| C151, 152 |              |              | CQ93FMG1H822J | MYLAR       | 8200PF           | J            |
| C153, 154 |              |              | CQ93FMG1H392J | MYLAR       | 3900PF           | J            |
| C155, 156 |              |              | CQ93FMG1H472J | MYLAR       | 4700PF           | J            |
| C161, 162 |              |              | CC73FSL1H101J | CHIP C      | 100PF            | J            |
| C163, 164 |              |              | CC73FSL1H221J | CHIP C      | 220PF            | J            |
| C165, 166 |              |              | CC73FSL1H331J | CHIP C      | 330PF            | J            |
| C171, 172 |              |              | CQ93FMG1H822J | MYLAR       | 8200PF           | J            |
| C173, 174 |              |              | CQ93FMG1H392J | MYLAR       | 3900PF           | J            |
| C175, 176 |              |              | CQ93FMG1H472J | MYLAR       | 4700PF           | J            |
| C181-184  |              |              | CQ93FMG1H104J | MYLAR       | 0.10UF           | J            |
| C185, 186 |              |              | CC73FSL1H101J | CHIP C      | 100PF            | J            |
| C187, 188 |              |              | CE04KW1H2R2M  | ELECTRO     | 2.2UF            | 50WV         |
| C191      |              |              | CQ93FMG1H104J | MYLAR       | 0.10UF           | J            |
| C193      |              |              | CQ93FMG1H104J | MYLAR       | 0.10UF           | J            |
| C195      |              |              | CC73FSL1H101J | CHIP C      | 100PF            | J            |
| C197, 198 |              |              | CE04KW1H2R2M  | ELECTRO     | 2.2UF            | 50WV         |
| C201      |              |              | CQ93FMG1H333J | MYLAR       | 0.033UF          | J            |
| C202      |              |              | CQ93FMG1H104J | MYLAR       | 0.10UF           | J            |
| C207-212  |              |              | CE04KW1C220M  | ELECTRO     | 22UF             | 16WV         |
| C213-215  |              |              | CE04KW1H2R2M  | ELECTRO     | 2.2UF            | 50WV         |
| C217, 218 |              |              | CE04KW1H2R2M  | ELECTRO     | 2.2UF            | 50WV         |
| C221-224  |              |              | CE04KW1V470M  | CHIP C      | 4.7UF            | 35WV         |
| C227, 228 |              |              | CC73FSL1H101J | CHIP C      | 100PF            | J            |
| C231, 234 |              |              | CE04KW1V470M  | ELECTRO     | 4.7UF            | 35WV         |
| C237, 238 |              |              | CC73FSL1H101J | CHIP C      | 100PF            | J            |
| C241, 244 |              |              | CE04KW1V470M  | ELECTRO     | 4.7UF            | 35WV         |
| C247, 248 |              |              | CC73FSL1H101J | CHIP C      | 100PF            | J            |
| C251, 252 |              |              | CK73FF1E104Z  | CHIP C      | 0.10UF           | Z            |
| C253, 254 |              |              | CK73FB1H103K  | CHIP C      | 0.010UF          | K            |
| C255-262  |              |              | CK73FF1E104Z  | CHIP C      | 0.10UF           | Z            |
| C265, 266 |              |              | CE04KW1C470M  | ELECTRO     | 47UF             | 16WV         |
| C269, 270 |              |              | CK73FF1E104Z  | CHIP C      | 0.10UF           | Z            |
| C279, 280 |              |              | CE04KW1C470M  | ELECTRO     | 47UF             | 16WV         |
| C283-288  |              |              | CK73FF1E104Z  | CHIP C      | 0.10UF           | Z            |
| C301      |              |              | CK73FB1H103K  | CHIP C      | 0.010UF          | K            |
| C310-314  |              |              | CK73FF1E104Z  | CHIP C      | 0.10UF           | Z            |
| C321      |              |              | CC73FCH1H470J | CHIP C      | 47PF             | J            |
| C322      |              |              | CK73FB1H102K  | CHIP C      | 1000PF           | K            |
| C323      |              |              | CE04KW1C470M  | ELECTRO     | 47UF             | 16WV         |
| C331      |              |              | CK73FF1E104Z  | CHIP C      | 0.10UF           | Z            |
| C332, 333 |              |              | CK73FF1E474Z  | CHIP C      | 0.47UF           | Z            |
| C341      |              |              | CE04KW1H100M  | ELECTRO     | 100UF            | 50WV         |
| C342      |              |              | CE04KW1C101M  | ELECTRO     | 100UF            | 16WV         |
| C343, 344 |              |              | CK73FF1E104Z  | CHIP C      | 0.10UF           | Z            |
| C345      |              |              | CE04KW1C100M  | ELECTRO     | 10UF             | 16WV         |
| C346      |              |              | CE04KW1A101M  | ELECTRO     | 100UF            | 10WV         |
| C347, 348 |              |              | CK73FF1E104Z  | CHIP C      | 0.10UF           | Z            |
| C350      |              |              | CE04KW1A101M  | ELECTRO     | 100UF            | 10WV         |
| C351, 352 |              |              | CK73FF1E104Z  | CHIP C      | 0.10UF           | Z            |
| C353      |              |              | CE04KW1C100M  | ELECTRO     | 10UF             | 16WV         |

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|-----------|----------|-----------|--------------|-------------|--------------|----------|
| R190      |          |           | RK73FB2A103J | CHIP R      | J            | 1/10W    |
| R191, 192 |          |           | RK73FB2A104J | CHIP R      | J            | 1/10W    |
| R193, 194 |          |           | RK73FB2A107J | CHIP R      | J            | 1/10W    |
| R195      |          |           | RK73FB2A153J | CHIP R      | J            | 1/10W    |
| R196      |          |           | RK73FB2A153J | CHIP R      | J            | 1/10W    |
| R203-205  |          |           | RK73FB2A104J | CHIP R      | J            | 1/10W    |
| R207, 208 |          |           | RK73FB2A104J | CHIP R      | J            | 1/10W    |
| R211, 212 |          |           | RK73FB2A101J | CHIP R      | J            | 1/10W    |
| R213, 214 |          |           | RK73FB2A103J | CHIP R      | J            | 1/10W    |
| R215, 216 |          |           | RK73FB2A104J | CHIP R      | J            | 1/10W    |
| R231-234  |          |           | RK73FB2A102J | CHIP R      | J            | 1/10W    |
| R235-238  |          |           | RK73FB2A104J | CHIP R      | J            | 1/10W    |
| R239, 240 |          |           | RK73FB2A101J | CHIP R      | J            | 1/10W    |
| R241-244  |          |           | RK73FB2A102J | CHIP R      | J            | 1/10W    |
| R245-248  |          |           | RK73FB2A104J | CHIP R      | J            | 1/10W    |
| R249, 250 |          |           | RK73FB2A101J | CHIP R      | J            | 1/10W    |
| R251      |          |           | RK73FB2A102J | CHIP R      | J            | 1/10W    |
| R252      |          |           | RK73FB2A222J | CHIP R      | J            | 1/10W    |
| R253, 254 |          |           | RK73FB2A102J | CHIP R      | J            | 1/10W    |
| R255-258  |          |           | RK73FB2A104J | CHIP R      | J            | 1/10W    |
| R259, 260 |          |           | RK73FB2A101J | CHIP R      | J            | 1/10W    |
| R275-278  |          |           | RD14NB2E470J | RD          | J            | 1/4W     |
| R301-341  |          |           | RK73FB2A104J | CHIP R      | J            | 1/10W    |
| R343-365  |          |           | RK73FB2A104J | CHIP R      | J            | 1/10W    |
| R371      |          |           | RK73FB2A102J | CHIP R      | J            | 1/10W    |
| R372      |          |           | RK73FB2A101J | CHIP R      | J            | 1/10W    |
| R373, 374 |          |           | RK73FB2A102J | CHIP R      | J            | 1/10W    |
| R375      |          |           | RK73FB2A101J | CHIP R      | J            | 1/10W    |
| R376-386  |          |           | RK73FB2A102J | CHIP R      | J            | 1/10W    |
| R388      |          |           | RK73FB2A102J | CHIP R      | J            | 1/10W    |
| R389      |          |           | RK73FB2A101J | CHIP R      | J            | 1/10W    |
| R391      |          |           | RK73FB2A103J | CHIP R      | J            | 1/10W    |
| R392      |          |           | RK73FB2A102J | CHIP R      | J            | 1/10W    |
| R400      |          |           | RK73FB2A105J | CHIP R      | J            | 1/10W    |
| R401      |          |           | RK73FB2A750J | CHIP R      | J            | 1/10W    |
| R402, 403 |          |           | RK73FB2A102J | CHIP R      | J            | 1/10W    |
| R404-406  |          |           | RK73FB2A202J | CHIP R      | J            | 1/10W    |
| R407      |          |           | RK73FB2A681J | CHIP R      | J            | 1/10W    |
| R408      |          |           | RK73FB2A103J | CHIP R      | J            | 1/10W    |
| R409      |          |           | RK73FB2A102J | CHIP R      | J            | 1/10W    |
| R412, 413 |          |           | RK73FB2A102J | CHIP R      | J            | 1/10W    |
| R414-416  |          |           | RK73FB2A202J | CHIP R      | J            | 1/10W    |
| R417      |          |           | RK73FB2A681J | CHIP R      | J            | 1/10W    |
| R418      |          |           | RK73FB2A103J | CHIP R      | J            | 1/10W    |
| R419      |          |           | RK73FB2A222J | CHIP R      | J            | 1/10W    |
| R421      |          |           | RK73FB2A750J | CHIP R      | J            | 1/10W    |
| R425      |          |           | RK73FB2A104J | CHIP R      | J            | 1/10W    |
| R428      |          |           | RK73FB2A121J | CHIP R      | J            | 1/10W    |
| R441      |          |           | RK73FB2A680J | CHIP R      | J            | 1/10W    |
| R442      |          |           | RK73FB2A103J | CHIP R      | J            | 1/10W    |
| R443      |          |           | RK73FB2A224J | CHIP R      | J            | 1/10W    |
| R444      |          |           | RK73FB2A104J | CHIP R      | J            | 1/10W    |
| R445      |          |           | RK73FB2A103J | CHIP R      | J            | 1/10W    |
| R446      |          |           | RK73FB2A224J | CHIP R      | J            | 1/10W    |
| R447, 448 |          |           | RK73FB2A104J | CHIP R      | J            | 1/10W    |

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| Ref. No   | Add-ress | New Parts | Parts No.    | Description                  | Desti-nation | Re-marks |
|-----------|----------|-----------|--------------|------------------------------|--------------|----------|
| X14       |          |           | L77-1125-05  | CRYSTAL RESONATOR(24.576MHz) |              |          |
| X15       |          | *         | L77-2158-05  | CRYSTAL RESONATOR(33MHz)     |              |          |
| R1, 2     |          |           | RK73FB2A222J | CHIP R                       | J            | 1/10W    |
| R3, 4     |          |           | RK73FB2A474J | CHIP R                       | J            | 1/10W    |
| R5, 6     |          |           | RK73FB2A221J | CHIP R                       | J            | 1/10W    |
| R7, 8     |          |           | RK73FB2A224J | CHIP R                       | J            | 1/10W    |
| R9, 10    |          |           | RK73FB2A102J | CHIP R                       | J            | 1/10W    |
| R11, 12   |          |           | RK73FB2A224J | CHIP R                       | J            | 1/10W    |
| R13, 14   |          |           | RK73FB2A221J | CHIP R                       | J            | 1/10W    |
| R15, 16   |          |           | RK73FB2A224J | CHIP R                       | J            | 1/10W    |
| R17, 18   |          |           | RK73FB2A221J | CHIP R                       | J            | 1/10W    |
| R19, 20   |          |           | RK73FB2A224J | CHIP R                       | J            | 1/10W    |
| R21, 22   |          |           | RK73FB2A331J | CHIP R                       | J            | 1/10W    |
| R23, 24   |          |           | RK73FB2A473J | CHIP R                       | J            | 1/10W    |
| R25, 26   |          |           | RK73FB2A101J | CHIP R                       | J            | 1/10W    |
| R27, 28   |          |           | RK73FB2A361J | CHIP R                       | J            | 1/10W    |
| R29, 30   |          |           | RK73FB2A274J | CHIP R                       | J            | 1/10W    |
| R31, 32   |          |           | RK73FB2A223J | CHIP R                       | J            | 1/10W    |
| R33, 34   |          |           | RK73FB2A473J | CHIP R                       | J            | 1/10W    |
| R35, 36   |          |           | RK73FB2A102J | CHIP R                       | J            | 1/10W    |
| R40       |          |           | RK73FB2A470J | CHIP R                       | J            | 1/10W    |
| R41, 42   |          |           | RK73FB2A153J | CHIP R                       | J            | 1/10W    |
| R45-48    |          |           | RK73FB2A393J | CHIP R                       | J            | 1/10W    |
| R49, 50   |          |           | RK73FB2A391J | CHIP R                       | J            | 1/10W    |
| R51, 52   |          |           | RK73FB2A102J | CHIP R                       | J            | 1/10W    |
| R53-56    |          |           | RK73FB2A331J | CHIP R                       | J            | 1/10W    |
| R57, 58   |          |           | RK73FB2A472J | CHIP R                       | J            | 1/10W    |
| R59       |          |           | RK73FB2A104J | CHIP R                       | J            | 1/10W    |
| R60-62    |          |           | RK73FB2A470J | CHIP R                       | J            | 1/10W    |
| R63       |          |           | RK73FB2A101J | CHIP R                       | J            | 1/10W    |
| R64-68    |          |           | RK73FB2A470J | CHIP R                       | J            | 1/10W    |
| R77-80    |          |           | RK73FB2A104J | CHIP R                       | J            | 1/10W    |
| R81-86    |          |           | RK73FB2A103J | CHIP R                       | J            | 1/10W    |
| R91, 92   |          |           | RK73FB2A912J | CHIP R                       | J            | 1/10W    |
| R93, 94   |          |           | RK73FB2A102J | CHIP R                       | J            | 1/10W    |
| R95, 96   |          |           | RK73FB2A751J | CHIP R                       | J            | 1/10W    |
| R97, 98   |          |           | RK73FB2A152J | CHIP R                       | J            | 1/10W    |
| R99-106   |          |           | RK73FB2A103J | CHIP R                       | J            | 1/10W    |
| R111, 112 |          |           | RK73FB2A912J | CHIP R                       | J            | 1/10W    |
| R113, 114 |          |           | RK73FB2A102J | CHIP R                       | J            | 1/10W    |
| R115, 116 |          |           | RK73FB2A751J | CHIP R                       | J            | 1/10W    |
| R117, 118 |          |           | RK73FB2A152J | CHIP R                       | J            | 1/10W    |
| R119-126  |          |           | RK73FB2A103J | CHIP R                       | J            | 1/10W    |
| R131, 132 |          |           | RK73FB2A912J | CHIP R                       | J            | 1/10W    |
| R133, 134 |          |           | RK73FB2A102J | CHIP R                       | J            | 1/10W    |
| R135, 136 |          |           | RK73FB2A751J | CHIP R                       | J            | 1/10W    |
| R137, 138 |          |           | RK73FB2A152J | CHIP R                       | J            | 1/10W    |
| R139-142  |          |           | RK73FB2A103J | CHIP R                       | J            | 1/10W    |
| R143, 144 |          |           | RK73FB2A223J | CHIP R                       | J            | 1/10W    |
| R145-148  |          |           | RK73FB2A104J | CHIP R                       | J            | 1/10W    |
| R181      |          |           | RK73FB2A103J | CHIP R                       | J            | 1/10W    |
| R182      |          |           | RK73FB2A243J | CHIP R                       | J            | 1/10W    |
| R183      |          |           | RK73FB2A223J | CHIP R                       | J            | 1/10W    |
| R185-189  |          |           | RK73FB2A333J | CHIP R                       | J            | 1/10W    |

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|-------------------------------------------------|----------|-----------|----------------|--------------------------------|--------------|----------|
| IC4-6                                           |          | *         | AK4319-VM      | MOS-IC                         |              |          |
| IC7                                             |          |           | TC74HC004AF    | IC(HEX INVERTER SMD)           |              |          |
| IC10                                            |          |           | NJU7312AL      | ANALOGUE IC                    |              |          |
| IC11                                            |          |           | NJM4580ED      | ANALOGUE IC                    |              |          |
| IC12-26                                         |          |           | NJM4580E       | ANALOGUE IC                    |              |          |
| IC30                                            |          |           | S-806D-Z       | ANALOGUE IC                    |              |          |
| IC31-34                                         |          |           | TA7805S        | IC(VOLTAGE REGULATOR/ +5V)     |              |          |
| IC31-34                                         |          |           | UPC7805AHF     | IC(VOLTAGE REGULATOR/ +5V)     |              |          |
| IC41                                            |          | *         | UPD78054GC-192 | ML-COM IC                      |              |          |
| IC42                                            |          | *         | PD4606A        | MOS-IC                         |              |          |
| IC43-44                                         |          |           | TC74HC004AF    | IC(HEX INVERTER SMD)           |              |          |
| IC45                                            |          | *         | TC55329AP-35   | MEMORY IC                      |              |          |
| IC46                                            |          | *         | LC8904Q        | MOS-IC                         |              |          |
| IC47                                            |          | *         | TC74HC157AF    | MOS-IC                         |              |          |
| IC48                                            |          | *         | ZR39500-33     | MOS-IC                         |              |          |
| IC49-50                                         |          | *         | TC55329AP-35   | MEMORY IC                      |              |          |
| IC51                                            |          | *         | TA79005S       | IC(VOLTAGE REGULATOR/ -5V)     |              |          |
| IC51                                            |          | *         | UPC7905HF      | IC(VOLTAGE REGULATOR/ -5V)     |              |          |
| IC52                                            |          | *         | NJM78L05A      | IC(VOLTAGE REGULATOR/ +5V)     |              |          |
| IC52                                            |          | *         | TA78L005AP     | IC(VOLTAGE REGULATOR/ +5V)     |              |          |
| IC52                                            |          | *         | UPC78L05J      | IC(VOLTAGE REGULATOR/ +5V)     |              |          |
| IC53-55                                         |          | *         | UPC7805AHF     | IC(VOLTAGE REGULATOR/ +5V)     |              |          |
| IC53-55                                         |          | *         | NJM4565M       | IC(OP AMP X2)                  |              |          |
| IC61                                            |          | *         | TC74HC74AF     | IC(DUAL D-TYPE FLIP FLOP)      |              |          |
| IC63                                            |          | *         |                |                                |              |          |
| IC71-72                                         |          | *         | NJM4580E       | ANALOGUE IC                    |              |          |
| IC73-74                                         |          | *         | NJM4565M       | IC(OP AMP X2)                  |              |          |
| Q1-6                                            |          | *         | 2SC4213(B)     | TRANSISTOR                     |              |          |
| Q11-14                                          |          | *         | 2SC1923(R,O)   | TRANSISTOR                     |              |          |
| Q15-16                                          |          | *         | 2SA1123(R,S)   | TRANSISTOR                     |              |          |
| A1                                              |          | *         | W02-2560-05    | OSCILLATING MODULE (46.08MHZ)  |              |          |
| A2                                              |          | *         | W02-2544-05    | OSCILLATING MODULE (18.432MHZ) |              |          |
| <b>CONTROL UNIT (X11-364X-XX) KR-V9080 only</b> |          |           |                |                                |              |          |
| C1-1                                            |          |           | C91-0757-05    | CERAMIC                        |              |          |
| C2-3                                            |          |           | CE04KW1H010M   | ELECTRO                        |              |          |
| C4                                              |          |           | C90-1826-05    | BACKUP-C                       |              |          |
| C5                                              |          |           | CE04KW1A101M   | ELECTRO                        |              |          |
| C6                                              |          |           | C91-0757-05    | CERAMIC                        |              |          |
| C7                                              |          |           | CE04KW1E470M   | ELECTRO                        |              |          |
| C8-9                                            |          |           | C91-0757-05    | CERAMIC                        |              |          |
| C10-11                                          |          |           | CE04KW1E470M   | ELECTRO                        |              |          |
| C12                                             |          |           | CK45FB1H102K   | CERAMIC                        |              |          |
| C13-14                                          |          |           | CE04KW1C470M   | ELECTRO                        |              |          |
| C15                                             |          |           | CE04KW1E101M   | ELECTRO                        |              |          |
| C16                                             |          |           | C91-0757-05    | CERAMIC                        |              |          |
| C17                                             |          |           | C91-0757-05    | CERAMIC                        |              |          |
| C18-20                                          |          |           | CE04KW1E101M   | ELECTRO                        |              |          |
| C21                                             |          |           | CK45FB1H102K   | CERAMIC                        |              |          |
| C101-102                                        |          |           | C91-0745-05    | CERAMIC                        |              |          |
| C105-108                                        |          |           | C91-0745-05    | CERAMIC                        |              |          |
| C111-114                                        |          |           | C91-0745-05    | CERAMIC                        |              |          |
| C115,116                                        |          |           | CE04KW1C470M   | ELECTRO                        |              |          |
| C117,118                                        |          |           | C91-0745-05    | CERAMIC                        |              |          |
| C119,120                                        |          |           | CE04KW1H010M   | ELECTRO                        |              |          |

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|----------|----------|-----------|--------------|-------------|--------------|----------|
| R451     |          |           | RK73FB2A102J | CHIP R      | 1/10W        |          |
| R452-456 |          |           | RK73FB2A103J | CHIP R      | 1/10W        |          |
| R457     |          |           | RK73FB2A223J | CHIP R      | 1/10W        |          |
| R458     |          |           | RK73FB2A104J | CHIP R      | 1/10W        |          |
| R460     |          |           | RK73FB2A224J | CHIP R      | 1/10W        |          |
| R461     |          |           | RK73FB2A333J | CHIP R      | 1/10W        |          |
| R462     |          |           | RK73FB2A102J | CHIP R      | 1/10W        |          |
| R463     |          |           | RK73FB2A103J | CHIP R      | 1/10W        |          |
| R464     |          |           | RK73FB2A243J | CHIP R      | 1/10W        |          |
| R465,466 |          |           | RK73FB2A562J | CHIP R      | 1/10W        |          |
| R467     |          |           | RK73FB2A151J | CHIP R      | 1/10W        |          |
| R468     |          |           | RK73FB2A204J | CHIP R      | 1/10W        |          |
| R469     |          |           | RK73FB2A471J | CHIP R      | 1/10W        |          |
| R470-473 |          |           | RK73FB2A470J | CHIP R      | 1/10W        |          |
| R474-476 |          |           | RK73FB2A102J | CHIP R      | 1/10W        |          |
| R477-478 |          |           | RK73FB2A334J | CHIP R      | 1/10W        |          |
| R479     |          |           | RK73FB2A103J | CHIP R      | 1/10W        |          |
| R480     |          |           | RK73FB2A562J | CHIP R      | 1/10W        |          |
| R481     |          |           | RK73FB2A561J | CHIP R      | 1/10W        |          |
| R482-484 |          |           | RK73FB2A102J | CHIP R      | 1/10W        |          |
| R485,486 |          |           | RK73FB2A103J | CHIP R      | 1/10W        |          |
| R487-490 |          |           | RK73FB2A470J | CHIP R      | 1/10W        |          |
| R501-502 |          |           | RK73FB2A104J | CHIP R      | 1/10W        |          |
| R503-504 |          |           | RK73FB2A472J | CHIP R      | 1/10W        |          |
| R505-506 |          |           | RK73FB2A103J | CHIP R      | 1/10W        |          |
| R507-508 |          |           | RK73FB2A104J | CHIP R      | 1/10W        |          |
| R511     |          |           | RK73FB2A104J | CHIP R      | 1/10W        |          |
| R513     |          |           | RK73FB2A472J | CHIP R      | 1/10W        |          |
| R515     |          |           | RK73FB2A103J | CHIP R      | 1/10W        |          |
| R517     |          |           | RK73FB2A104J | CHIP R      | 1/10W        |          |
| R551-552 |          |           | RK73FB2A224J | CHIP R      | 1/10W        |          |
| R553-554 |          |           | RK73FB2A393J | CHIP R      | 1/10W        |          |
| R555-556 |          |           | RK73FB2A303J | CHIP R      | 1/10W        |          |
| R557-558 |          |           | RK73FB2A243J | CHIP R      | 1/10W        |          |
| R561-564 |          |           | RK73FB2A103J | CHIP R      | 1/10W        |          |
| R565-566 |          |           | RK73FB2A104J | CHIP R      | 1/10W        |          |
| R571-572 |          |           | RK73FB2A224J | CHIP R      | 1/10W        |          |
| R573-574 |          |           | RK73FB2A223J | CHIP R      | 1/10W        |          |
| R575-576 |          |           | RK73FB2A103J | CHIP R      | 1/10W        |          |
| R577-578 |          |           | RK73FB2A104J | CHIP R      | 1/10W        |          |
| R581-583 |          |           | RK73FB2A102J | CHIP R      | 1/10W        |          |
| R591-593 |          |           | RK73FB2A102J | CHIP R      | 1/10W        |          |
| R601-604 |          |           | RK73FB2A104J | CHIP R      | 1/10W        |          |
| R605-606 |          |           | RK73FB2A102J | CHIP R      | 1/10W        |          |
| R607-608 |          |           | RK73FB2A473J | CHIP R      | 1/10W        |          |
| R609-610 |          |           | RK73FB2A104J | CHIP R      | 1/10W        |          |
| R611-612 |          |           | RK73FB2A393J | CHIP R      | 1/10W        |          |
| R613-614 |          |           | RD14NB2E470J | RD          | 1/4W         |          |
| R615,616 |          |           | RK73FB2A103J | CHIP R      | 1/10W        |          |
| D1-8     |          |           | DA204U       | DIODE       |              |          |
| D10      |          |           | DA204U       | DIODE       |              |          |
| IC1      |          |           | NJU7311AL    | ANALOGUE IC |              |          |
| IC2      |          | *         | XRU4053BC    | MOS-IC      |              |          |
| IC3      |          | *         | AK5340-VS    | MOS-IC      |              |          |

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|----------|----------|-----------|---------------|---------------------------|--------------|----------|
| C335,336 |          |           | CE04KW1V4R7M  | ELECTRO                   |              |          |
| C337     |          |           | CO93FMG1H153J | MYLAR                     | 35WV         |          |
| C338     |          |           | CO93FMG1H223J | MYLAR                     | J            |          |
| C339     |          |           | CK45FB1H821K  | CERAMIC                   | 0.022UF      |          |
| C340     |          |           | CK45FB1H102K  | CERAMIC                   | 820PF        |          |
| C341     |          |           | CO93FMG1H223J | MYLAR                     | 1000PF       |          |
| C342     |          |           | CO93FMG1H243J | MYLAR                     | 0.022UF      |          |
| C343     |          |           | CE04KW1V4R7M  | ELECTRO                   | 0.024UF      |          |
| C344     |          |           | CE04FSL1H181J | CERAMIC                   | 4.7UF        |          |
| C345,346 |          |           | CE04KW1V4R7M  | ELECTRO                   | 180PF        |          |
| C347     |          |           | CK45FF1H103Z  | CERAMIC                   | 4.7UF        |          |
| C348     |          |           | CE04KW1V4R7M  | ELECTRO                   | 0.010UF      |          |
| C349,350 |          |           | CK45FB1H391K  | CERAMIC                   | 4.7UF        |          |
| C351     |          |           | CE04FSL1H390J | CERAMIC                   | 390PF        |          |
| C352     |          |           | CF92FV1H184J  | MF-C                      | 300PF        |          |
| C353     |          |           | C91-0745-05   | CERAMIC                   | 0.18UF       |          |
| C355,356 |          |           | CO93FMG1H121J | CERAMIC                   | 100PF        |          |
| C357,358 |          |           | CO93FMG1H473J | MYLAR                     | 120PF        |          |
| C359-361 |          |           | CE04FSL1H101J | CERAMIC                   | 0.047UF      |          |
| C362     |          |           | CE04KW0J331M  | ELECTRO                   | 100PF        |          |
| C363     |          |           | CO93FMG1H104J | MYLAR                     | 330UF        |          |
| C367,368 |          |           | CO93FMG1H104J | MYLAR                     | 6.3WV        |          |
| C369     |          |           | CE04KW0J331M  | ELECTRO                   | 3300PF       |          |
| C370,371 |          |           | CK45FB1H332K  | CERAMIC                   | 10UF         |          |
| C372     |          |           | CE04KW1C100M  | ELECTRO                   | 16WV         |          |
| C373     |          |           | CO93FMG1H104J | MYLAR                     | J            |          |
| C374     |          |           | CK45FB1H102K  | CERAMIC                   | 0.10UF       |          |
| C375,376 |          |           | CK45FF1H103Z  | CERAMIC                   | 0.010UF      |          |
| C377,378 |          |           | CE04KW1C470M  | ELECTRO                   | 47UF         |          |
| C386     |          |           | CE04FSL1H101J | CERAMIC                   | 100PF        |          |
| C387-389 |          |           | CE04KW1V4R7M  | ELECTRO                   | 35WV         |          |
| C391     |          |           | CE04KW1V220M  | ELECTRO                   | 4.7UF        |          |
| C393     |          |           | CE04KW1H010M  | ELECTRO                   | 22UF         |          |
| C394     |          |           | CO93FMG1H104J | MYLAR                     | 1.0UF        |          |
| C395     |          |           | CK45FF1H103Z  | CERAMIC                   | 0.010UF      |          |
| C398,399 |          |           | CE04KW1V4R7M  | ELECTRO                   | 4.7UF        |          |
| C401,402 |          |           | C91-0745-05   | CERAMIC                   | 35WV         |          |
| C405,406 |          |           | C91-0745-05   | CERAMIC                   | 100PF        |          |
| C409,410 |          |           | C91-0745-05   | CERAMIC                   | 100PF        |          |
| C413,414 |          |           | C91-0745-05   | CERAMIC                   | 100PF        |          |
| C417,418 |          |           | C91-0745-05   | CERAMIC                   | 100PF        |          |
| C421,422 |          |           | CC45FSL1H390J | CERAMIC                   | 39PF         |          |
| C423,424 |          |           | CE04KW1C100M  | ELECTRO                   | 10UF         |          |
| C425,426 |          |           | CE04FSL1H221J | CERAMIC                   | 220PF        |          |
| C427,428 |          |           | CE04KW1A101M  | ELECTRO                   | 100UF        |          |
| C429,430 |          |           | CK45FB1H102K  | CERAMIC                   | 1000PF       |          |
| C431,432 |          |           | CO93FMG1H123J | MYLAR                     | 0.012UF      |          |
| C433,434 |          |           | CO93FMG1H392J | MYLAR                     | 3300PF       |          |
| C435,436 |          |           | CE04KW1V4R7M  | ELECTRO                   | 4.7UF        |          |
| C437,438 |          |           | CK45FF1H103Z  | CERAMIC                   | 0.010UF      |          |
| C439     |          |           | CK45FB1H102K  | CERAMIC                   | 1000PF       |          |
| C443     |          |           | C91-0745-05   | CERAMIC                   | 100PF        |          |
| C445,446 |          |           | CK45FF1H103Z  | CERAMIC                   | 0.010UF      |          |
| CN101    |          | *         | E40-9830-05   | SOCKET FOR PIN ASSY (14P) |              |          |

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|----------|----------|-----------|---------------|-------------|--------------|----------|
| C123,124 |          |           | C91-0729-05   | CERAMIC     | 22PF         |          |
| C125,126 |          |           | CE04KW1C470M  | ELECTRO     | 47UF         |          |
| C127,128 |          |           | CE04KW1H010M  | ELECTRO     | 1.0UF        |          |
| C129,130 |          |           | CE04KW1H47M   | ELECTRO     | 0.47UF       |          |
| C131-134 |          |           | CE04KW1V4R7M  | ELECTRO     | 4.7UF        |          |
| C135,136 |          |           | C91-0745-05   | CERAMIC     | 100PF        |          |
| C137,138 |          |           | C91-0729-05   | CERAMIC     | 22PF         |          |
| C139,140 |          |           | CE04KW1H2R2M  | ELECTRO     | 2.2UF        |          |
| C141,142 |          |           | CE04KW1H47M   | ELECTRO     | 0.47UF       |          |
| C143-146 |          |           | CE04KW1V4R7M  | ELECTRO     | 4.7UF        |          |
| C147,148 |          |           | C91-0745-05   | CERAMIC     | 100PF        |          |
| C149,150 |          |           | C91-0729-05   | CERAMIC     | 22PF         |          |
| C151,152 |          |           | CE04KW1H010M  | ELECTRO     | 1.0UF        |          |
| C153,154 |          |           | CE04KW1H47M   | ELECTRO     | 0.47UF       |          |
| C155-158 |          |           | CE04KW1V4R7M  | ELECTRO     | 4.7UF        |          |
| C159,160 |          |           | C91-0745-05   | CERAMIC     | 100PF        |          |
| C161,162 |          |           | C91-0729-05   | CERAMIC     | 22PF         |          |
| C163,164 |          |           | CK45FF1H103Z  | CERAMIC     | 0.010UF      |          |
| C165-170 |          |           | C91-0745-05   | CERAMIC     | 100PF        |          |
| C174,175 |          |           | CE04KW1C470M  | ELECTRO     | 47UF         |          |
| C176,177 |          |           | CK45FF1H103Z  | CERAMIC     | 0.010UF      |          |
| C178     |          |           | CK45FB1H471K  | CERAMIC     | 470PF        |          |
| C179,180 |          |           | C91-0753-05   | CHIP C      | 470PF        |          |
| C183     |          |           | C91-0753-05   | CHIP C      | 470PF        |          |
| C184,185 |          |           | C91-0745-05   | CERAMIC     | 100PF        |          |
| C186     |          |           | CE04KW1C470M  | ELECTRO     | 47UF         |          |
| C189,190 |          |           | CK45FSL1H221J | CERAMIC     | 220PF        |          |
| C191     |          |           | CK45FF1H103Z  | CERAMIC     | 0.010UF      |          |
| C193-198 |          |           | CE04KW1V4R7M  | ELECTRO     | 4.7UF        |          |
| C199     |          |           | CE04HW1A220M  | NP-ELEC     | 22UF         |          |
| C200     |          |           | CE04KW1C100M  | ELECTRO     | 10UF         |          |
| C202     |          |           | CE04HW1A220M  | NP-ELEC     | 22UF         |          |
| C203-208 |          |           | CE04KW1C220M  | ELECTRO     | 22UF         |          |
| C209,210 |          |           | CO93FMG1H104J | MYLAR       | 0.10UF       |          |
| C301,302 |          |           | CE04KW1V4R7M  | ELECTRO     | 4.7UF        |          |
| C303,304 |          |           | CC45FSL1H101J | CERAMIC     | 100PF        |          |
| C305,306 |          |           | CE04KW1H2R2M  | ELECTRO     | 2.2UF        |          |
| C307-310 |          |           | CE04KW1V4R7M  | ELECTRO     | 4.7UF        |          |
| C311,312 |          |           | CE04FSL1H331J | CERAMIC     | 330PF        |          |
| C313,314 |          |           | CE04KW1H2R2M  | ELECTRO     | 2.2UF        |          |
| C315     |          |           | CE04KW1V4R7M  | ELECTRO     | 4.7UF        |          |
| C316     |          |           | CC45FSL1H331J | CERAMIC     | 330PF        |          |
| C317     |          |           | CE04KW1H2R2M  | ELECTRO     | 2.2UF        |          |
| C318     |          |           | CE04KW1A70M   | ELECTRO     | 47UF         |          |
| C319     |          |           | CO93FMG1H104J | MYLAR       | 0.10UF       |          |
| C321     |          |           | CC45FSL1H101J | CERAMIC     | 100PF        |          |
| C322     |          |           | CO93FMG1H104J | MYLAR       | 0.10UF       |          |
| C323,324 |          |           | CC45FSL1H101J | CERAMIC     | 100PF        |          |
| C325-328 |          |           | CE04KW1V4R7M  | ELECTRO     | 4.7UF        |          |
| C329     |          |           | CO93FMG1H223J | MYLAR       | 0.022UF      |          |
| C330     |          |           | CO93FMG1H153J | MYLAR       | 0.015UF      |          |
| C331     |          |           | CO93FMG1H243J | MYLAR       | 0.024UF      |          |
| C332     |          |           | CO93FMG1H223J | MYLAR       | 0.022UF      |          |
| C333     |          |           | CK45FB1H102K  | CERAMIC     | 1000PF       |          |
| C334     |          |           | CK45FB1H821K  | CERAMIC     | 820PF        |          |

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|-----------|----------|-----------|----------------|---------------------------|--------------|----------|
| D211      |          |           | RD15ES(B)      | ZENER DIODE               |              |          |
| D212-217  |          |           | HSS104         | DIODE                     |              |          |
| D212-217  |          |           | 1SS133         | DIODE                     |              |          |
| D301-309  |          |           | HSS104         | DIODE                     |              |          |
| D301-309  |          |           | 1SS133         | DIODE                     |              |          |
| D313-316  |          |           | HSS104         | DIODE                     |              |          |
| D313-316  |          |           | 1SS133         | DIODE                     |              |          |
| D318-321  |          |           | HSS104         | DIODE                     |              |          |
| D318-321  |          |           | 1SS133         | DIODE                     |              |          |
| D327      |          |           | HSS104         | DIODE                     |              |          |
| D327      |          |           | 1SS133         | DIODE                     |              |          |
| IC1       |          |           | NJU7313AL      | ANALOGUE IC               |              |          |
| IC2       |          |           | LC7536R        | ANALOGUE IC               |              |          |
| IC3       |          |           | LC7536         | ANALOGUE IC               |              |          |
| IC4       |          |           | LC7536R        | ANALOGUE IC               |              |          |
| IC5 6     |          |           | NJM4565L-D     | ANALOGUE IC               |              |          |
| IC7 8     |          |           | NJM4580L       | IC(OP AMP X2)             |              |          |
| IC9 10    |          |           | NJM4565L-D     | ANALOGUE IC               |              |          |
| IC11      |          |           | NJM4580D-D     | IC(OP AMP X2)             |              |          |
| IC12      |          |           | NJM4565L-D     | ANALOGUE IC               |              |          |
| IC201     |          |           | UPD78058GC-170 | MI-COM IC                 |              |          |
| IC202     |          |           | S-806D-Z       | ANALOGUE IC               |              |          |
| IC301 302 |          |           | NJM4565L       | ANALOGUE IC               |              |          |
| IC303 304 |          |           | NJM4580L       | IC(OP AMP X2)             |              |          |
| IC305 306 |          |           | NJM072BL       | IC(OP AMP)                |              |          |
| IC305 306 |          |           | NJM2082L       | ANALOGUE IC               |              |          |
| IC307 313 |          |           | NJM4565L       | ANALOGUE IC               |              |          |
| IC314     |          |           | TC9215P        | IC(ANALOG SWITCH X 6)     |              |          |
| IC315     |          |           | YSS215-F       | IC(DOLBY PROLOGIC)        |              |          |
| IC316     |          |           | HM63258BLP-10  | IC(8bit MICROPROCESSOR)   |              |          |
| IC317     |          |           | NJU7311AL      | ANALOGUE IC               |              |          |
| IC318     |          |           | NJU7312AL      | ANALOGUE IC               |              |          |
| IC319     |          |           | NJM4580D-D     | IC(OP AMP X2)             |              |          |
| IC320     |          |           | NJM78L05A      | IC(VOLTAGE REGULATOR +5V) |              |          |
| Q101      |          |           | 2SA1048(Y,GR)  | TRANSISTOR                |              |          |
| Q101      |          |           | 2SA1309A(Q,R)  | TRANSISTOR                |              |          |
| Q102      |          |           | 2SC2458(Y,GR)  | TRANSISTOR                |              |          |
| Q102      |          |           | 2SC3311A(Q,R)  | TRANSISTOR                |              |          |
| Q103 104  |          |           | 2SA1048(Y,GR)  | TRANSISTOR                |              |          |
| Q103 104  |          |           | 2SA1309A(Q,R)  | TRANSISTOR                |              |          |
| Q105-110  |          |           | 2SC2878(B)     | TRANSISTOR                |              |          |
| Q201      |          |           | 2SC2458(Y,GR)  | TRANSISTOR                |              |          |
| Q202 203  |          |           | 2SC3311A(Q,R)  | TRANSISTOR                |              |          |
| Q202 203  |          |           | 2SD2012        | TRANSISTOR                |              |          |
| Q202 203  |          |           | 2SD2061        | TRANSISTOR                |              |          |
| Q204      |          |           | 2SC2458(Y,GR)  | TRANSISTOR                |              |          |
| Q204      |          |           | 2SC3311A(Q,R)  | TRANSISTOR                |              |          |
| Q205      |          |           | 2SA1048(Y,GR)  | TRANSISTOR                |              |          |
| Q205      |          |           | 2SA1309A(Q,R)  | TRANSISTOR                |              |          |
| Q206      |          |           | 2SC2458(Y,GR)  | TRANSISTOR                |              |          |
| Q206      |          |           | 2SC3311A(Q,R)  | TRANSISTOR                |              |          |
| Q207      |          |           | 2SA1048(Y,GR)  | TRANSISTOR                |              |          |
| Q207      |          |           | 2SA1309A(Q,R)  | TRANSISTOR                |              |          |
| Q208      |          |           | 2SD2012        | TRANSISTOR                |              |          |
| Q208      |          |           | 2SD2061        | TRANSISTOR                |              |          |

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|-----------|----------|-----------|--------------|--------------------------------|--------------|----------|
| CN102     |          |           | E40-9833-05  | SOCKET FOR PIN ASSY (17P)      |              |          |
| CN201     |          |           | E40-4804-05  | SOCKET FOR PIN ASSY (30P)      |              |          |
| CN204 205 |          |           | E40-9841-05  | PIN ASSY (8P)                  |              |          |
| CN206     |          |           | E40-9850-05  | PIN ASSY (17P)                 |              |          |
| CN207     |          |           | E40-9847-05  | PIN ASSY (14P)                 |              |          |
| CN208     |          |           | E40-9845-05  | PIN ASSY (12P)                 |              |          |
| CN209     |          |           | E40-9849-05  | PIN ASSY (16P)                 |              |          |
| CN210     |          |           | E40-9843-05  | PIN ASSY (10P)                 |              |          |
| CN301     |          |           | E40-9826-05  | SOCKET FOR PIN ASSY (10P)      |              |          |
| CN302     |          |           | E40-9832-05  | SOCKET FOR PIN ASSY (16P)      |              |          |
| CN303     |          |           | E40-9828-05  | SOCKET FOR PIN ASSY (12P)      |              |          |
| J1 2      |          |           | E63-0139-15  | PHONO JACK(6P/MVIDEO1,2(TV/LD) |              |          |
| J3        |          |           | E11-0188-05  | MINIATURE PHONE JACK(2P/SYSTEM |              |          |
| J4 5      |          |           | E63-0139-15  | PHONO JACK(6P/TAPE1,2(CD/PHONO |              |          |
| J6        |          |           | E63-0164-05  | PHONO JACK(1P/SUB WOOFER)      |              |          |
| L1 2      |          |           | L79-0799-05  | LC FILTER                      |              |          |
| X1        |          |           | L78-0267-05  | RESONATOR                      |              |          |
| X2        |          |           | L78-0291-05  | RESONATOR                      |              |          |
| CP1       |          |           | R90-0850-05  | MULTI-COMP                     |              |          |
| CP2       |          |           | R90-0492-05  | MULTI-COMP                     |              |          |
| CP4       |          |           | R90-0482-05  | MULTI-COMP                     |              |          |
| CP5       |          |           | R90-0493-05  | MULTI-COMP                     |              |          |
| CP6 7     |          |           | R90-0500-05  | MULTI-COMP                     |              |          |
| CP8       |          |           | R90-0855-05  | MULTI-COMP                     |              |          |
| R26       |          |           | RD14NB2E101J | RD                             |              |          |
| R27       |          |           | RD14NB2E222J | RD                             |              |          |
| R32       |          |           | RD14NB2E331J | RD                             |              |          |
| R36 37    |          |           | RS14KB3D681J | FL-PROOF RS                    |              |          |
| R38       |          |           | RS14KB3D471J | FL-PROOF RS                    |              |          |
| R40       |          |           | RS14KB3D471J | FL-PROOF RS                    |              |          |
| R41       |          |           | RS14KB3D391J | FL-PROOF RS                    |              |          |
| R42       |          |           | RS14KB3D331J | FL-PROOF RS                    |              |          |
| R45       |          |           | RS14KB3D331J | FL-PROOF RS                    |              |          |
| R172 173  |          |           | RD14NB2E100J | RD                             |              |          |
| R195 200  |          |           | RD14NB2E470J | RD                             |              |          |
| R392      |          |           | RS14KB3D820J | FL-PROOF RS                    |              |          |
| R393 394  |          |           | RD14NB2E100J | RD                             |              |          |
| D105 106  |          |           | HSS104       | DIODE                          |              |          |
| D105 106  |          |           | 1SS133       | DIODE                          |              |          |
| D107      |          |           | HZS4.7N(B)   | ZENER DIODE                    |              |          |
| D107      |          |           | RD4.7ES(B)   | ZENER DIODE                    |              |          |
| D108      |          |           | HZS5.1N(B2)  | ZENER DIODE                    |              |          |
| D108      |          |           | RD5.1ES(B2)  | ZENER DIODE                    |              |          |
| D201 202  |          |           | HSS104       | DIODE                          |              |          |
| D201 202  |          |           | 1SS133       | DIODE                          |              |          |
| D204-206  |          |           | HSS104       | DIODE                          |              |          |
| D204-206  |          |           | 1SS133       | DIODE                          |              |          |
| D207 208  |          |           | S5688B       | DIODE                          |              |          |
| D207 208  |          |           | 1SR139-100   | ZENER DIODE                    |              |          |
| D209      |          |           | HZS16N(B2)   | ZENER DIODE                    |              |          |
| D210      |          |           | RD16ES(B2)   | ZENER DIODE                    |              |          |
| D210      |          |           | HZS13N(B2)   | ZENER DIODE                    |              |          |
| D210      |          |           | RD13ES(B2)   | ZENER DIODE                    |              |          |
| D211      |          |           | HZS15N(B)    | ZENER DIODE                    |              |          |

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|----------|----------|-----------|---------------|---------------------------------|----------|
| C188     |          | *         | CQ93FMG1H101K | MYLAR                           |          |
| C189,190 |          |           | CC45FSL1H221J | CERAMIC                         | K        |
| C191     |          |           | CK45FF1H103Z  | CERAMIC                         | 0.010UF  |
| C195,196 |          |           | CE04KW1C470M  | ELECTRO                         | 47UF     |
| C197,198 |          |           | CQ93FMG1H103J | MYLAR                           | 0.010UF  |
| C199     |          |           | CE04HW1A220M  | NP-ELEC                         | 22UF     |
| C200     |          |           | CE04KW1H100M  | ELECTRO                         | 10UF     |
| C201     |          |           | CE04HW1H0R1M  | NP-ELEC                         | 0.1UF    |
| C203,208 |          |           | CE04KW1C470M  | ELECTRO                         | 47UF     |
| C209,210 |          |           | CF92FV1H104J  | MF-C                            | 0.10UF   |
| C211-216 |          |           | C91-0745-05   | CERAMIC                         | 100PF    |
| C217     |          |           | CE04HW1E4R7M  | NP-ELEC                         | 4.7UF    |
| C301     |          |           | CE04KW1H010M  | ELECTRO                         | 1.0UF    |
| C302     |          |           | CE04KW0J221M  | ELECTRO                         | 22UF     |
| C303     |          |           | C90-1826-05   | BACKUP-C                        | 0.047F   |
| C304     |          |           | CQ93FMG1H103J | MYLAR                           | 0.010UF  |
| C306     |          |           | CE04KW1H010M  | ELECTRO                         | 1.0UF    |
| C307     |          |           | CK45FF1H103Z  | CERAMIC                         | 0.010UF  |
| C310     |          |           | CK45FF1H103Z  | CERAMIC                         | 0.010UF  |
| C311     |          |           | C91-0769-05   | CERAMIC                         | 0.010UF  |
| CN1-3    |          | *         | E40-9849-05   | PIN ASSY                        | (16P)    |
| CN4      |          | *         | E40-9853-05   | PIN ASSY                        | (20P)    |
| CN5      |          | *         | E40-4296-05   | FLAT CABLE CONNECTOR (6P)       |          |
| CN6,7    |          | *         | E40-9841-05   | PIN ASSY                        | (8P)     |
| CN8      |          | *         | E40-4804-05   | SOCKET FOR PIN ASSY (30P)       |          |
| CN9      |          | *         | E40-9841-05   | PIN ASSY                        | (8P)     |
| CN10     |          | *         | E40-9848-05   | PIN ASSY                        | (15P)    |
| CN11     |          | *         | E40-4634-05   | PIN ASSY                        | (15P)    |
| CN101    |          | *         | E40-4636-05   | SOCKET FOR PIN ASSY (15P)       |          |
| CN102    |          | *         | E40-9831-05   | SOCKET FOR PIN ASSY (15P)       |          |
| CN103    |          | *         | E40-9824-05   | SOCKET FOR PIN ASSY (8P)        |          |
| J1,2     |          |           | E63-0139-15   | PHONO JACK(6P/VIDEO/TV/ILD)     |          |
| J3       |          |           | E11-0188-05   | MINIATURE PHONE JACK(2P/SYSTEM) |          |
| X1       |          |           | L78-0267-05   | RESONATOR (4.194MHZ)            |          |
| CP1      |          |           | R90-0500-05   | MULTI-COMP                      | 100KX6   |
| CP2      |          |           | R90-0803-05   | MULTI-COMP                      | 100KX7   |
| CP3      |          |           | R90-0875-05   | MULTI-COMP                      | 100KX15  |
| CP4,5    |          |           | R90-0855-05   | MULTI-COMP                      | 100KX5   |
| CP6      |          |           | R90-0803-05   | MULTI-COMP                      | 100KX7   |
| R49      |          |           | RD14NB2E331J  | RD                              | 330      |
| R60-63   |          |           | RS14KB3D331J  | FL-PROOF RS                     | 330      |
| R64-66   |          |           | RS14KB3D561J  | FL-PROOF RS                     | 560      |
| R67,68   |          |           | RS14KB3D271J  | FL-PROOF RS                     | 270      |
| R69      |          |           | RD14NB2E1R0J  | RD                              | 1.0      |
| R70      |          |           | RS14KB3D561J  | FL-PROOF RS                     | 560      |
| R71      |          |           | RS14KB3A100J  | FL-PROOF RS                     | 10       |
| R72      |          |           | RD14NB2E1R0J  | RD                              | 1.0      |
| R193,194 |          |           | RD14NB2E470J  | RD                              | 47       |
| K1       |          | *         | S76-0050-05   | MAGNETIC RELAY                  |          |
| D1       |          |           | HZS6.8N(B2)   | ZENER DIODE                     |          |
| D1       |          |           | RD6.8ES(B2)   | ZENER DIODE                     |          |
| D2       |          |           | HZS10N(B)     | ZENER DIODE                     |          |
| D2       |          |           | RD10ES(B)     | ZENER DIODE                     |          |

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|-----------------------------------------------------|----------|-----------|---------------|-------------|----------|
| Q209                                                |          |           | 25C2458(Y,GR) | TRANSISTOR  |          |
| Q211                                                |          |           | 25C3311A(Q,R) | TRANSISTOR  |          |
| Q211                                                |          |           | 25D2012       | TRANSISTOR  |          |
| Q211                                                |          |           | 25D2061       | TRANSISTOR  |          |
| Q301-305                                            |          |           | 25C2878(B)    | TRANSISTOR  |          |
| <b>SUB-CIRCUIT UNIT (X13-735X-XX) KR-V990D only</b> |          |           |               |             |          |
| C15,16                                              |          |           | CE04KW1V4R7M  | ELECTRO     | 4.7UF    |
| C17,18                                              |          |           | CC45FSL1H101J | CERAMIC     | 35WV     |
| C19,20                                              |          |           | C91-0729-05   | CERAMIC     | 22PF     |
| C21,22                                              |          |           | CF92FV1H104J  | ELECTRO     | 22UF     |
| C32                                                 |          |           | CF92FV1H104J  | MF-C        | 0.10UF   |
| C33                                                 |          |           | CQ93FMG1H471J | MYLAR       | 470PF    |
| C34                                                 |          |           | CE04KW1V101M  | ELECTRO     | 10UF     |
| C37,38                                              |          |           | CE04KW1V470M  | ELECTRO     | 47UF     |
| C39,40                                              |          |           | CE04KW1C470M  | ELECTRO     | 470UF    |
| C43                                                 |          |           | CE04KW1C470M  | ELECTRO     | 47UF     |
| C44                                                 |          |           | CE04KW1C101M  | ELECTRO     | 100UF    |
| C45                                                 |          |           | CK45FF1H103Z  | CERAMIC     | 0.010UF  |
| C46                                                 |          |           | CE04KW1C220M  | ELECTRO     | 22UF     |
| C47                                                 |          |           | CK45FF1H103Z  | CERAMIC     | 0.010UF  |
| C48                                                 |          |           | CE04KW1C470M  | ELECTRO     | 47UF     |
| C49,50                                              |          |           | CK45FB1H102K  | CERAMIC     | 1000PF   |
| C51-54                                              |          |           | CQ93FMG1H103J | MYLAR       | 0.010UF  |
| C101,102                                            |          |           | C91-0745-05   | CERAMIC     | 100PF    |
| C105-108                                            |          |           | C91-0745-05   | CERAMIC     | 100PF    |
| C111-114                                            |          |           | C91-0745-05   | CERAMIC     | 100PF    |
| C117,118                                            |          |           | C91-0745-05   | CERAMIC     | 100PF    |
| C119,120                                            |          |           | CE04KW1H010M  | ELECTRO     | 1.0UF    |
| C121,122                                            |          |           | C91-0749-05   | CERAMIC     | 220PF    |
| C123,124                                            |          |           | C91-0729-05   | CERAMIC     | 22PF     |
| C125,126                                            |          |           | CE04KW1C220M  | ELECTRO     | 22UF     |
| C127,128                                            |          |           | CE04KW1V4R7M  | ELECTRO     | 4.7UF    |
| C129,130                                            |          |           | CE04KW1HR47M  | ELECTRO     | 0.47UF   |
| C131-134                                            |          |           | CE04KW1V4R7M  | ELECTRO     | 4.7UF    |
| C135,136                                            |          |           | C91-0745-05   | CERAMIC     | 100PF    |
| C137,138                                            |          |           | C91-0729-05   | CERAMIC     | 22PF     |
| C139,140                                            |          |           | CE04KW1V4R7M  | ELECTRO     | 4.7UF    |
| C141,142                                            |          |           | CE04KW1HR47M  | ELECTRO     | 0.47UF   |
| C143-146                                            |          |           | CE04KW1V4R7M  | ELECTRO     | 4.7UF    |
| C147,148                                            |          |           | C91-0745-05   | CERAMIC     | 100PF    |
| C149,150                                            |          |           | C91-0729-05   | CERAMIC     | 22PF     |
| C151,152                                            |          |           | CE04KW1V4R7M  | ELECTRO     | 4.7UF    |
| C153,154                                            |          |           | CE04KW1HR47M  | ELECTRO     | 0.47UF   |
| C155-158                                            |          |           | CE04KW1V4R7M  | ELECTRO     | 4.7UF    |
| C159,160                                            |          |           | C91-0745-05   | CERAMIC     | 100PF    |
| C161,162                                            |          |           | C91-0729-05   | CERAMIC     | 22PF     |
| C163,164                                            |          |           | CQ93FMG1H103J | MYLAR       | 0.010UF  |
| C165-170                                            |          |           | C91-0729-05   | CERAMIC     | 22PF     |
| C171-176                                            |          |           | CE04KW1H100M  | ELECTRO     | 10UF     |
| C177                                                |          |           | CK45FF1H103Z  | CERAMIC     | 0.010UF  |
| C178                                                |          |           | CK45FB1H471K  | CERAMIC     | 470PF    |
| C179,180                                            |          |           | C91-0749-05   | CERAMIC     | 220PF    |
| C181                                                |          |           | C91-0769-05   | CERAMIC     | 0.010UF  |
| C183                                                |          |           | C91-0749-05   | CERAMIC     | 220PF    |
| C185,186                                            |          |           | CQ93FMG1H101K | MYLAR       | 100PF    |

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C: CHINA

D: KR-V990D  
9: KR-V9080

Δ indicates safety critical components.



## PARTS LIST

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|-----------------------------------|----------|-----------|---------------|-------------|--------------|----------|
| Q103                              |          |           | 2SA1309A(Q,R) | TRANSISTOR  |              |          |
| Q105-110                          |          |           | 2SC2878(B)    | TRANSISTOR  |              |          |
| Q111                              |          |           | 2SA1048(Y,GR) | TRANSISTOR  |              |          |
| Q111                              |          |           | 2SA1309A(Q,R) | TRANSISTOR  |              |          |
| <b>DISPLAY UNIT (X14-414X-XX)</b> |          |           |               |             |              |          |
| D3,4                              |          |           | B30-1291-05   | LED         |              |          |
| D5                                |          |           | B30-1290-05   | LED         |              |          |
| C1,2                              |          |           | CE04KW1V4R7M  | ELECTRO     |              |          |
| C3                                |          |           | C91-1488-05   | MF          |              |          |
| C4                                |          |           | C91-0769-05   | CERAMIC     |              |          |
| C5-7                              |          |           | CC45FSL1H101J | CERAMIC     |              |          |
| C8-11                             |          |           | C91-0745-05   | CERAMIC     |              |          |
| C12                               |          |           | CE04KW1C330M  | ELECTRO     |              |          |
| C13-16                            |          |           | CK45FF1H103Z  | CERAMIC     |              |          |
| C17, 18                           |          |           | CE04KW1V4R7M  | ELECTRO     |              |          |
| C19, 20                           |          |           | CC45FSL1H221J | CERAMIC     |              |          |
| C21, 22                           |          |           | CC45FSL1H220J | CERAMIC     |              |          |
| C23, 24                           |          |           | CK45FB1H561K  | CERAMIC     |              |          |
| C25, 26                           |          |           | CE04KW1C100M  | ELECTRO     |              |          |
| C27, 28                           |          |           | CE04KW1V4R7M  | ELECTRO     |              |          |
| C29, 30                           |          |           | CQ93FMG1H393J | MYLAR       |              |          |
| C31, 32                           |          |           | CQ93FMG1H563J | MYLAR       |              |          |
| C33, 34                           |          |           | CQ93FMG1H103J | MYLAR       |              |          |
| C35, 36                           |          |           | CK45FB1H471K  | CERAMIC     |              |          |
| C37                               |          |           | C91-0769-05   | CERAMIC     |              |          |
| C38-42                            |          |           | C91-0745-05   | CERAMIC     |              |          |
| C43-44                            |          |           | C91-0753-05   | CHIP C      |              |          |
| C45, 46                           |          |           | C90-3224-05   | ELECTRO     |              |          |
| C47, 48                           |          |           | CK45FF1H103Z  | CERAMIC     |              |          |
| C49, 50                           |          |           | C90-3224-05   | ELECTRO     |              |          |
| C51, 52                           |          |           | C91-0729-05   | CERAMIC     |              |          |
| C53                               |          |           | C91-0757-05   | CERAMIC     |              |          |
| C54, 56                           |          |           | C91-0769-05   | CERAMIC     |              |          |
| C57                               |          |           | CK45FF1H103Z  | CERAMIC     |              |          |
| C58                               |          |           | C90-3225-05   | ELECTRO     |              |          |
| C59                               |          |           | CC45FSL1H331J | CERAMIC     |              |          |
| C60                               |          |           | CE04KW1H2R2M  | ELECTRO     |              |          |
| C61                               |          |           | C90-3225-05   | ELECTRO     |              |          |
| C62                               |          |           | CK45FF1H103Z  | CERAMIC     |              |          |
| C63                               |          |           | CK45FB1H102K  | CERAMIC     |              |          |
| C64                               |          |           | CC45FCH1H220J | CERAMIC     |              |          |
| C65                               |          |           | CK45FF1H103Z  | CERAMIC     |              |          |
| C66                               |          |           | CK45FB1H561K  | CERAMIC     |              |          |
| C100-119                          |          |           | CC45FSL1H101J | CERAMIC     |              |          |
| C120-123                          |          |           | CE04KW1V4R7M  | ELECTRO     |              |          |
| C124-126                          |          |           | CE04KW1C331M  | ELECTRO     |              |          |
| C127                              |          |           | CE04KW1C100M  | ELECTRO     |              |          |
| C128                              |          |           | CK45FF1H103Z  | CERAMIC     |              |          |
| C129                              |          |           | CE04KW1E471M  | ELECTRO     |              |          |
| C130, 131                         |          |           | CE04KW1C470M  | ELECTRO     |              |          |
| C132                              |          |           | CK45FF1H103Z  | CERAMIC     |              |          |
| C133                              |          |           | CE04KW1C470M  | ELECTRO     |              |          |
| C134                              |          |           | CK45FF1H103Z  | CERAMIC     |              |          |

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|------------|----------|-----------|----------------|-----------------------|--------------|----------|
| D3         |          |           | HZS16N(B)      | ZENER DIODE           |              |          |
| D4         |          |           | RD16ES(B)      | ZENER DIODE           |              |          |
| D4,5       |          |           | S5688B         | DIODE                 |              |          |
| D6,7       |          |           | 1SR139-100     | DIODE                 |              |          |
| D6,7       |          |           | HSS104A        | DIODE                 |              |          |
| D8         |          |           | 1SS131         | DIODE                 |              |          |
| D8         |          |           | S5688B         | DIODE                 |              |          |
| D9         |          |           | 1SR139-100     | DIODE                 |              |          |
| D9         |          |           | HZS8,2S(B2)    | ZENER DIODE           |              |          |
| D10        |          |           | HSS104A        | DIODE                 |              |          |
| D105, 106  |          |           | 1SS131         | DIODE                 |              |          |
| D105, 106  |          |           | 1SS131         | DIODE                 |              |          |
| D107       |          |           | HZS4,7N(B)     | ZENER DIODE           |              |          |
| D107       |          |           | RD4,7ES(B)     | ZENER DIODE           |              |          |
| D108       |          |           | HZS5,1N(B2)    | ZENER DIODE           |              |          |
| D108       |          |           | RD5,1ES(B2)    | ZENER DIODE           |              |          |
| D109-112   |          |           | HSS104A        | DIODE                 |              |          |
| D109-112   |          |           | 1SS131         | DIODE                 |              |          |
| D302-306   |          |           | HSS104A        | DIODE                 |              |          |
| D302-306   |          |           | 1SS131         | DIODE                 |              |          |
| D311-317   |          |           | HSS104A        | DIODE                 |              |          |
| D311-317   |          |           | 1SS131         | DIODE                 |              |          |
| IC1        |          |           | UPD78058GC-224 | MI-COM IC             |              |          |
| IC2        |          |           | S-806D-Z       | ANALOGUE IC           |              |          |
| IC3        |          |           | IC3215P        | IC(ANALOG SWITCH X 6) |              |          |
| IC4        |          |           | NJM4580L       | IC(OP AMP X2)         |              |          |
| IC101      |          |           | NUJ7313AL      | ANALOGUE IC           |              |          |
| IC102      |          |           | LC7536R        | ANALOGUE IC           |              |          |
| IC103      |          |           | LC7536R        | ANALOGUE IC           |              |          |
| IC104      |          |           | LC7536R        | ANALOGUE IC           |              |          |
| IC105, 106 |          |           | NJM4585L-D     | ANALOGUE IC           |              |          |
| IC107, 108 |          |           | NJM4580L       | IC(OP AMP X2)         |              |          |
| IC109, 110 |          |           | NJM4585L-D     | ANALOGUE IC           |              |          |
| IC111      |          |           | NJM4565D-D     | IC(OP AMP X2)         |              |          |
| Q1,2       |          |           | 2SD2061        | TRANSISTOR            |              |          |
| Q3         |          |           | 2SC2458(Y,GR)  | TRANSISTOR            |              |          |
| Q4         |          |           | 2SC3311A(Q,R)  | TRANSISTOR            |              |          |
| Q4         |          |           | 2SA1048(Y,GR)  | TRANSISTOR            |              |          |
| Q4         |          |           | 2SA1309A(Q,R)  | TRANSISTOR            |              |          |
| Q5         |          |           | 2SC2458(Y,GR)  | TRANSISTOR            |              |          |
| Q5         |          |           | 2SC3311A(Q,R)  | TRANSISTOR            |              |          |
| Q6         |          |           | 2SA1048(Y,GR)  | TRANSISTOR            |              |          |
| Q6         |          |           | 2SA1309A(Q,R)  | TRANSISTOR            |              |          |
| Q7         |          |           | 2SD2061        | TRANSISTOR            |              |          |
| Q8,9       |          |           | 2SC2458(Y,GR)  | TRANSISTOR            |              |          |
| Q8,9       |          |           | 2SC3311A(Q,R)  | TRANSISTOR            |              |          |
| Q10, 11    |          |           | 2SD2061        | TRANSISTOR            |              |          |
| Q12, 13    |          |           | 2SC2458(Y,GR)  | TRANSISTOR            |              |          |
| Q12, 13    |          |           | 2SC3311A(Q,R)  | TRANSISTOR            |              |          |
| Q101       |          |           | 2SA1048(Y,GR)  | TRANSISTOR            |              |          |
| Q101       |          |           | 2SA1309A(Q,R)  | TRANSISTOR            |              |          |
| Q102       |          |           | 2SC2003(L,K)   | TRANSISTOR            |              |          |
| Q103       |          |           | 2SA1048(Y,GR)  | TRANSISTOR            |              |          |

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# KR-V990D/V9080

## PARTS LIST

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| Ref. No   | Add-ress | New Parts | Parts No.    | Description                     | Desti-nation | Re-marks |
|-----------|----------|-----------|--------------|---------------------------------|--------------|----------|
| CN3, 4    |          |           | E40-4738-05  | SOCKET FOR PIN ASSY (10P)       |              |          |
| CN5, 6    |          |           | E40-4730-05  | PIN ASSY (10P)                  |              |          |
| CN7, 8    |          |           | E40-9824-05  | SOCKET FOR PIN ASSY (8P)        |              |          |
| J1        |          |           | E63-0163-05  | PHONE JACK(4P/VIDEO1/TV/LD)     |              |          |
| J2        |          |           | E63-0162-05  | PHONE JACK(3P/VIDEO2/MONITOR)   |              |          |
| J3, 4     |          |           | E56-0011-05  | CYLINDRICAL RECEPTACLE(3P)      |              |          |
| J5        |          |           | E56-0016-05  | CYLINDRICAL RECEPTACLE(1P/MOMI) |              |          |
| J6        |          |           | E11-0291-05  | MINIATURE PHONE JACK(2P/REPEAT) |              |          |
| J7        |          |           | E63-0129-05  | PHONE JACK(3P/VIDEO3/AUDIO)     |              |          |
| J8        |          |           | E56-0012-05  | CYLINDRICAL RECEPTACLE(1P/SVID) |              |          |
| J9        |          |           | E11-0272-05  | PHONE JACK                      |              |          |
| J12       |          |           | J11-0808-05  | WIRE CLAMPER                    |              |          |
| L1-3      |          |           | L40-1091-17  | SMALL FIXED INDUCTOR(10UH,K)    | E            |          |
| L4,5      |          |           | L40-1001-17  | SMALL FIXED INDUCTOR(10UH,K)    | E            |          |
| L6-13     |          |           | L92-0044-05  | FERRITE CORE                    |              |          |
| L100      |          |           | L40-2201-17  | SMALL FIXED INDUCTOR(22UH,K)    |              |          |
| L101      |          |           | L40-1091-17  | SMALL FIXED INDUCTOR(10UH)      |              |          |
| X1        |          |           | L77-2002-05  | CRYSTAL RESONATOR(4.332MHZ)     | E            |          |
| X2        |          |           | L78-0244-05  | RESONATOR (4.000M)              |              |          |
| X100      |          |           | L77-1182-05  | CRYSTAL RESONATOR(14.31818M)    |              |          |
| X101      |          |           | L78-0272-05  | RESONATOR (503.5K)              |              |          |
| X102      |          |           | L78-0244-05  | RESONATOR (4.000M)              |              |          |
| R1,2      |          |           | RD14NB2E221J | RD                              |              |          |
| R25       |          |           | RD14NB2E100J | RD                              |              |          |
| R65, 66   |          |           | RS14KB3D471J | FL-PROOF RS                     |              |          |
| R215      |          |           | RD14NB2E270J | RD                              |              |          |
| R224, 225 |          |           | RS14KB3D271J | FL-PROOF RS                     |              |          |
| R227      |          |           | RS14KB3D221J | FL-PROOF RS                     |              |          |
| R284      |          |           | RD14NB2E222J | RD                              |              |          |
| R294      |          |           | RD14NB2E270J | RD                              |              |          |
| R307      |          |           | RS14KB3D181J | FL-PROOF RS                     |              |          |
| R326      |          |           | RD14NB2E2R2J | RD                              |              |          |
| R344      |          |           | RD14NB2E2R2J | RD                              |              |          |
| R345      |          |           | RS14KB3D100J | FL-PROOF RS                     |              |          |
| R346      |          |           | RD14NB2E270J | RD                              |              |          |
| R347      |          |           | RS14KB3D100J | FL-PROOF RS                     |              |          |
| VR1, 2    |          |           | R31-0063-05  | VARIABLE RESISTOR               |              |          |
| S1-10     |          |           | S70-0031-05  | TACT SWITCH                     | E            |          |
| S11       |          |           | S70-0031-05  | TACT SWITCH                     |              |          |
| S12-19    |          |           | S70-0031-05  | TACT SWITCH                     | E            |          |
| S20       |          |           | S70-0031-05  | TACT SWITCH                     |              |          |
| S21-28    |          |           | S70-0031-05  | TACT SWITCH                     |              |          |
| S29       |          |           | S70-0031-05  | TACT SWITCH                     | E            |          |
| S30-33    |          |           | S70-0031-05  | TACT SWITCH                     |              |          |
| S36       |          |           | S40-1138-05  | PUSH SWITCH (POWER)             |              |          |
| S34       |          |           | T99-0559-05  | ROTARY ENCODER (VOLUME)         |              |          |
| S35       |          |           | T99-0571-05  | ROTARY ENCODER (INPUT SEL)      |              |          |
| D1        |          |           | HZS8.2N(B2)  | ZENER DIODE                     |              |          |
| D1        |          |           | RD6.2ES(B2)  | ZENER DIODE                     |              |          |
| D2        |          |           | HSS104A      | DIODE                           |              |          |
| D2        |          |           | 1SS131       | DIODE                           |              |          |
| D6,7      |          |           | HSS104A      | DIODE                           |              |          |

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|-----------|----------|-----------|---------------|---------------------------------|--------------|----------|
| C135      |          |           | CE04KW1C331M  | ELECTRO                         |              |          |
| C136      |          |           | CK45FF1H223Z  | CERAMIC                         |              |          |
| C137      |          |           | CK45FB1H222K  | CERAMIC                         |              |          |
| C138      |          |           | CE04KW1V4R7M  | ELECTRO                         |              |          |
| C139-141  |          |           | CC45FSL1H101J | CERAMIC                         |              |          |
| C142      |          |           | CE04KW1V4R7M  | ELECTRO                         |              |          |
| C143      |          |           | CF92FV1H105J  | MF-C                            |              |          |
| C145      |          |           | CC45FSL1H220J | CERAMIC                         |              |          |
| C146      |          |           | CC45FSL1H270J | CERAMIC                         |              |          |
| C148      |          |           | CC45FCH1H050C | CERAMIC                         |              |          |
| C149      |          |           | CC45FCH1H220J | CERAMIC                         |              |          |
| C150      |          |           | CF92FV1H105J  | MF-C                            |              |          |
| C151      |          |           | CE04KW1H2R2M  | ELECTRO                         |              |          |
| C152      |          |           | CK45FF1H223Z  | CERAMIC                         |              |          |
| C153      |          |           | CK45FB1H332K  | CERAMIC                         |              |          |
| C154      |          |           | CC45FSL1H221J | CERAMIC                         |              |          |
| C155      |          |           | CK45FE1H103Z  | CERAMIC                         |              |          |
| C156      |          |           | CE04KW1H4R7M  | ELECTRO                         |              |          |
| C157      |          |           | CK45FB1H471K  | CERAMIC                         |              |          |
| C158      |          |           | CK45FB1H561K  | CERAMIC                         |              |          |
| C159      |          |           | CE04KW1H010M  | ELECTRO                         |              |          |
| C160, 161 |          |           | CE04KW1V4R7M  | ELECTRO                         |              |          |
| C162      |          |           | CE04KW1C331M  | ELECTRO                         |              |          |
| C163      |          |           | CK45FF1H223Z  | CERAMIC                         |              |          |
| C164, 165 |          |           | CE04KW1V4R7M  | ELECTRO                         |              |          |
| C166      |          |           | CE04KW1C331M  | ELECTRO                         |              |          |
| C167      |          |           | CK45FE1H223Z  | CERAMIC                         |              |          |
| C168, 169 |          |           | CK45FE1H103Z  | CERAMIC                         |              |          |
| C170      |          |           | CE04KW1V4R7M  | ELECTRO                         |              |          |
| C171      |          |           | CE04KW1C331M  | ELECTRO                         |              |          |
| C172      |          |           | CK45FF1H103Z  | CERAMIC                         |              |          |
| C173      |          |           | CE04KW1V4R7M  | ELECTRO                         |              |          |
| C174      |          |           | CK45FF1H223Z  | CERAMIC                         |              |          |
| C175      |          |           | CK45FF1H103Z  | CERAMIC                         |              |          |
| C176, 177 |          |           | CE04KW1C100M  | ELECTRO                         |              |          |
| C178      |          |           | CE04KW1E471M  | ELECTRO                         |              |          |
| C179, 180 |          |           | CE04KW1V4R7M  | ELECTRO                         |              |          |
| C181, 182 |          |           | CE04KW1C470M  | ELECTRO                         |              |          |
| C183      |          |           | CE04KW1E471M  | ELECTRO                         |              |          |
| C184-190  |          |           | CK45FF1H103Z  | CERAMIC                         |              |          |
| C191      |          |           | CE04KW1H010M  | ELECTRO                         |              |          |
| C192, 193 |          |           | CK45FF1H103Z  | CERAMIC                         |              |          |
| C194      |          |           | CE04KW1C101M  | ELECTRO                         |              |          |
| C195, 196 |          |           | CC45FSL1H101J | CERAMIC                         |              |          |
| C197      |          |           | CE04HW1E100M  | NP-ELEC                         |              |          |
| C198, 199 |          |           | CK45FE1H103Z  | CERAMIC                         |              |          |
| C200-202  |          |           | CE04KW1H100M  | ELECTRO                         |              |          |
| C203      |          |           | CF92FV1H105J  | MF-C                            |              |          |
| C204      |          |           | CK45FF1H103Z  | CERAMIC                         |              |          |
| C205      |          |           | CC45FSL1H470J | CERAMIC                         |              |          |
| C206      |          |           | C91-0769-05   | CERAMIC TRIMMER CAPACITOR(30PF) | E            |          |
| TC1       |          |           | C05-0097-05   | PIN ASSY (30P)                  |              |          |
| CN1       |          |           | E40-4796-05   | FLAT CABLE CONNECTOR (7P)       |              |          |
| CN2       |          |           | E40-4297-05   | FLAT CABLE CONNECTOR (7P)       |              |          |

L : Scandinavia K : USA P : Canada R : Mexico D : KR-V990D  
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V : AAFES(Europe) X : Australia M : Other Areas C : China  
Δ indicates safety critical components.



# KR-V990D/V9080

## PARTS LIST

\* New Parts  
Parts without **Parts No.** are not supplied.  
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Teile ohne **Parts No.** werden nicht geliefert.

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| Ref. No   | Add-<br>ress | New<br>Parts | Parts No. | Description | Desi-<br>nation | Re-<br>marks |
|-----------|--------------|--------------|-----------|-------------|-----------------|--------------|
| D6.7      |              |              | 1SS131    | DIODE       | E               |              |
| D8        |              |              | HSS104A   | DIODE       | E               |              |
| D9-14     |              |              | 1SS131    | DIODE       |                 |              |
| D9-14     |              |              | HSS104A   | DIODE       |                 |              |
| D15-20    |              |              | 1SS131    | DIODE       |                 |              |
| D15-20    |              |              | HSS104    | DIODE       |                 |              |
| D21       |              |              | 1SS133    | DIODE       | E               |              |
| D21       |              |              | HSS104A   | DIODE       | E               |              |
| D22       |              |              | 1SS131    | DIODE       |                 |              |
| D22       |              |              | HSS104    | DIODE       |                 |              |
| D100      |              |              | HSS104    | DIODE       |                 |              |
| D100      |              |              | HSS104    | DIODE       |                 |              |
| D101      |              |              | HSS104    | DIODE       |                 |              |
| D101      |              |              | HSS104    | DIODE       |                 |              |
| D102      |              |              | HSS104    | DIODE       |                 |              |
| D102      |              |              | HSS104    | DIODE       |                 |              |
| D103      |              |              | HSS104    | DIODE       |                 |              |
| D103      |              |              | HSS104    | DIODE       |                 |              |
| D104      |              |              | HSS104    | DIODE       |                 |              |
| D104      |              |              | HSS104    | DIODE       |                 |              |
| D105.106  |              |              | HSS104    | DIODE       |                 |              |
| D105.106  |              |              | HSS104    | DIODE       |                 |              |
| ED1       |              |              | HSS104    | DIODE       |                 |              |
| IC1       |              |              | HSS104    | DIODE       |                 |              |
| IC2       |              |              | HSS104    | DIODE       |                 |              |
| IC3       |              |              | HSS104    | DIODE       |                 |              |
| IC4       |              |              | HSS104    | DIODE       |                 |              |
| IC5       |              |              | HSS104    | DIODE       |                 |              |
| IC100     |              |              | HSS104    | DIODE       |                 |              |
| IC101     |              |              | HSS104    | DIODE       |                 |              |
| IC102     |              |              | HSS104    | DIODE       |                 |              |
| IC103     |              |              | HSS104    | DIODE       |                 |              |
| IC104     |              |              | HSS104    | DIODE       |                 |              |
| IC105.106 |              |              | HSS104    | DIODE       |                 |              |
| IC107     |              |              | HSS104    | DIODE       |                 |              |
| IC107     |              |              | HSS104    | DIODE       |                 |              |
| IC108     |              |              | HSS104    | DIODE       |                 |              |
| IC108     |              |              | HSS104    | DIODE       |                 |              |
| IC109     |              |              | HSS104    | DIODE       |                 |              |
| Q1-3      |              |              | HSS104    | DIODE       |                 |              |
| Q1-3      |              |              | HSS104    | DIODE       |                 |              |
| Q4        |              |              | HSS104    | DIODE       |                 |              |
| Q4        |              |              | HSS104    | DIODE       |                 |              |
| Q5-7      |              |              | HSS104    | DIODE       |                 |              |
| Q5-7      |              |              | HSS104    | DIODE       |                 |              |
| Q100-102  |              |              | HSS104    | DIODE       |                 |              |
| Q103-110  |              |              | HSS104    | DIODE       |                 |              |
| Q111      |              |              | HSS104    | DIODE       |                 |              |
| Q111      |              |              | HSS104    | DIODE       |                 |              |
| Q112      |              |              | HSS104    | DIODE       |                 |              |
| Q113.114  |              |              | HSS104    | DIODE       |                 |              |
| Q113.114  |              |              | HSS104    | DIODE       |                 |              |
| Q115      |              |              | HSS104    | DIODE       |                 |              |
| Q115      |              |              | HSS104    | DIODE       |                 |              |

Δ Δ

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C: CHINA

D: KR-V990D  
9: KR-V9080

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32

| Ref. No  | Add-<br>ress | New<br>Parts | Parts No.     | Description             | Desi-<br>nation | Re-<br>marks |
|----------|--------------|--------------|---------------|-------------------------|-----------------|--------------|
| Q116.117 |              |              | 2SC2458(Y,GR) | TRANSISTOR              |                 |              |
| Q116.117 |              |              | 2SC3311A(Q,R) | TRANSISTOR              |                 |              |
| Q118     |              |              | 2SC3940A(R,S) | TRANSISTOR              |                 |              |
| Q118     |              |              | 2SD863(E,F)   | TRANSISTOR              |                 |              |
| A1       |              |              | W02-2541-05   | ELECTRIC CIRCUIT MODULE |                 |              |

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# KR-V990D/V9080

## SPECIFICATIONS

### For U.S.A. and Canada

Rated power output during STEREO operation

120 watts per channel minimum RMS, both channels driven, at 8  $\Omega$  from 20 Hz to 20 kHz with no more than 0.03 % total harmonic distortion. (FTC)

Rated power output during SURROUND operation

Front

105 watts per channel minimum RMS, both channels driven, at 8  $\Omega$ , 1kHz with no more than 0.7 % total harmonic distortion.

Center

105 minimum RMS at 8  $\Omega$ , 1kHz with no more than 0.7 % total harmonic distortion.

Rear

70 watts per channel minimum RMS, both channels driven, at 8  $\Omega$ , 1kHz with no more than 0.7 % total harmonic distortion.

Total harmonic distortion.....0.005%(1 kHz, 60W, 8 $\Omega$ )

Frequency response

LINE(CD, AUX, TAPE).....10 Hz ~ 75 kHz, + 0 dB, -3 dB

Signal to noise ratio (IHF'66)

PHONO (MM) .....75 dB

LINE (CD, AUX, TAPE) .....98 dB

Input sensitivity / impedance

PHONO (MM) .....2.5 mV / 47 k $\Omega$

LINE (CD, AUX, TAPE).....200 mV / 47 k $\Omega$

Output level / impedance

TAPE REC .....200 mV / 2.2 k $\Omega$

PRE OUT (SUBWOOFER) .....1V / 1 k $\Omega$  (KR-V9080)

PRE OUT (FRONT, CENTER, REAR, SUBWOOFER)  
.....1V / 1k $\Omega$  (KR-V990D)

Tone Control

BASS ..... $\pm 10$  dB (at 100 Hz)

TREBLE ..... $\pm 10$  dB (at 10 kHz)

LOUDNESS control

VOLUME at -30 dB level .....+8 dB (at 100 Hz)

### DIGITAL AUDIO section (KR-V990D)

Sampling frequency.....32 kHz, 44.1 kHz, 48 kHz

Input level / impedance

Coaxial (TV / CABLE) .....0.5 Vp-p / 75  $\Omega$

### VIDEO section

TELEVISION format.....NTSC

VIDEO inputs / outputs

VIDEO (composite).....1 Vp-p / 75  $\Omega$

S-VIDEO (luminance signal).....1 Vp-p / 75  $\Omega$

(chrominance signal) .....0.286 Vp-p / 75  $\Omega$

### FM tuner section

Tuning frequency range .....87.5 MHz ~ 108 MHz

Usable sensitivity (MONO)

.....1.2 $\mu$ V (75  $\Omega$ ) / 13.2 dBf (75 kHz DEV., S/N 30 dB)

50dB quieting sensitivity

STEREO .....32 $\mu$ V (75  $\Omega$ ) / 41.2 dBf (75 kHz DEV.)

Total harmonic distortion (1 kHz)

MONO .....0.6 % (65.2 dBf input)

STEREO .....0.7 % (65.2 dBf input)

Signal to noise ratio (1 kHz, 75 kHz DEV.)

MONO .....75 dB (65.2 dBf input)

STEREO .....68 dB (65.2 dBf input)

Selectivity ( $\pm 400$  kHz) .....50 dB

Stereo separation (1 kHz) .....40 dB

Frequency response .....30 Hz ~ 15 kHz, +0.5 dB, -3.0 dB

### AM tuner section

Tuning frequency range .....530 kHz ~ 1,700 kHz

Usable sensitivity (30% mod., S/N 20 dB)

.....16 $\mu$ V / (500  $\mu$ V / m)

Total harmonic distortion .....0.7 %

Signal to noise ratio (30 % mod. 1mV input) .....45 dB

Selectivity .....30 dB

### GENERAL

Power consumption .....5.2 A

AC outlet

SWITCHED .....2 (total 150 W, 1.2 A max.)

Dimensions .....W : 440 mm (17 - 5 / 16")

H : 162 mm (6-3 / 8")

D : 396 mm (15 - 9 / 16")

Weight (Net).....12.8 kg (28.2 lb) KR-V9080

13.1 kg (28.9 lb) KR-V990D

**Note :** KENWOOD follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.



# KR-V990D/V9080

**Note:**

Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on the U.S.A. (K) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

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