Installation

Power

This set operates on an AC mains supply, the voltage is as indicated on the label on the back cover. Never apply DC power to the set. In the event of thunderstorms or powercuts, please pull out the aerial and mains plugs.

Warning

To prevent fire or shock hazard, do not expose the set to rain or moisture.

Service

Never remove the back cover of the set as this can expose you to very high voltage and other hazards. If the set does not operate properly, unplug it and call your dealer.

Aerial

Connect the aerial cable to the socket marked]Γ75¥ on the back cover. For the best reception an outdoor aerial should be used.

Location

Position your set so that no bright light or sunlight falls directly onto the screen. Care should be taken not to expose the set to any unnecessary vibration, moisture, dust or heat. Also ensure that the set is placed in a position to allow a free flow of air. Do not cover the ventilation openings on the back cover.

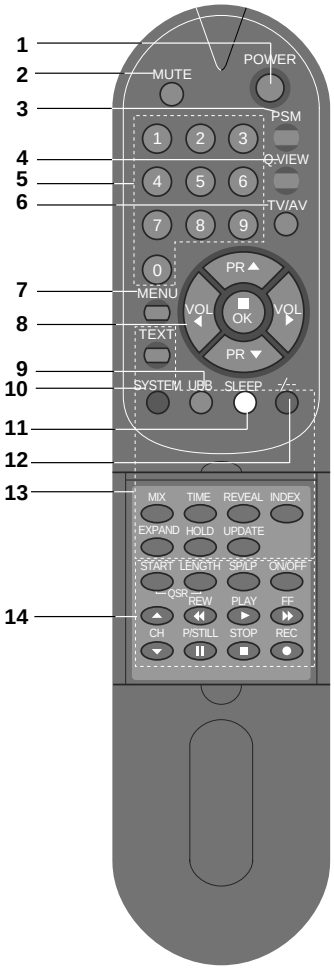
Battery installation

The remote control handset is powered by two AA type batteries. Gently pull down the cover of the remote control handset until the battery compartment is exposed. Install two batteries as indicated by the polarity symbols(§] and §^) marked inside the compartment.

***Note** : To avoid damage from possible battery leakage, remove the batteries if you do not plan to use the remote control handset for an extended period of time.*

Location and function of controls

Remote control handset



(With TELETEXT)

All the functions can be controlled with the remote control handset. Some functions can also be adjusted with the buttons on the front panel of the set.

Before you use the remote control handset, please install the batteries.

1. **POWER**
   switches the set on from standby or off to standby.

2. **MUTE**
   switches the sound on or off.

3. **PSM (Picture Status Memory)**
   recalls your preferred picture setting.

4. **QUICK VIEW**
   returns to the previously viewed programme.

5. **NUMBER BUTTONS**
   switch the set on from standby or directly select a number.

6. **TV/AV**
   selects TV or AV mode.

7. **MENU**
   selects a menu.

8. ¡ª/¡ (**Programme Up/Down)**
   switches the set on from standby.
   selects a programme or a menu item.

   ¢,/¢″ (**Volume Down/Up)**
   adjusts the volume.
   adjusts menu settings.

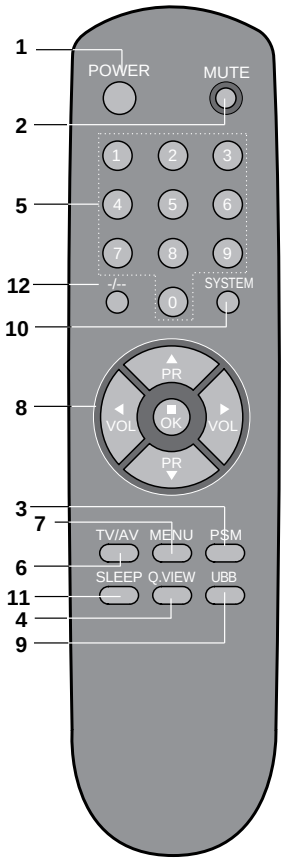
   OK
   accepts your selection or displays the current mode.

9. **UBB (option)**
   switches the UBB sound on or off.

10. **SYSTEM**
    displays the system selection mode.

Location and function of controls

Remote control handset



(Without TELETEXT)

11. SLEEP
sets the sleep timer.

12. UNIT
selects single or double digit.

13. TELETEXT BUTTONS (option)
These buttons are used for teletext.
For further details, see the 'Teletext' section.

14. VCR BUTTONS (option)
control the video cassette recorder of our brand.

15. MAIN POWER (⏻)
switches the set on or off.

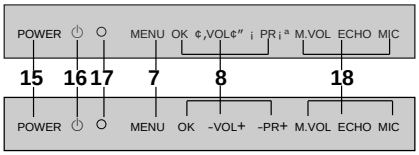
16. STANDBY INDICATOR
illuminates red when the set is in standby mode.
flashes when a button on the remote control handset is pressed.

17. REMOTE CONTROL SENSOR

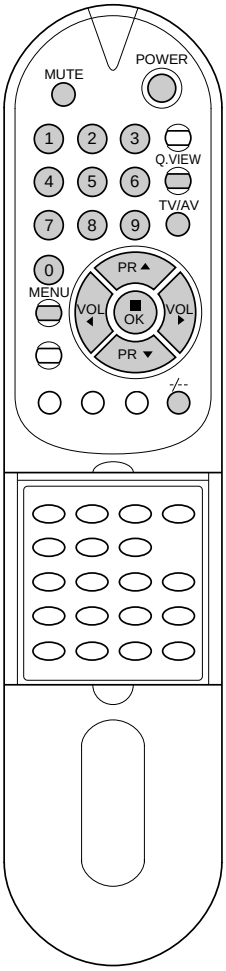
18. KARAOKE (option)
These controls are used for karaoke function.
See the 'Karaoke' section.

Front panel

Shown is a simplified representation of front panel. Here shown may be somewhat different from your set.



Basic operation



On and off

1. Press the main power button to switch the set on.
2. If the set is in standby mode, press the **POWER**, ¡ª/¡ , **TV/AV** or NUMBER buttons on the remote control handset to switch it on fully.
3. Press the **POWER** button on the remote control handset.
   The set reverts to standby mode.
4. Press the main power button again to switch the set off.

Note : *If, while the set is switched on, the mains plug is disconnected the set will switch to standby when the mains plug is replaced in the mains power socket.*

Programme selection

You can select a programme number with the ¡ª/¡ or NUMBER buttons.
Before entering double digit programme numbers, press the **-/--** button until the display **--** appears on the screen.

Volume adjustment

Press the ¢,/¢" button to adjust the volume.

Mute function

Press the **MUTE** button. The sound is switched off and the display appears. You can cancel it by pressing the **MUTE** or ¢,/¢" button.

Quick view

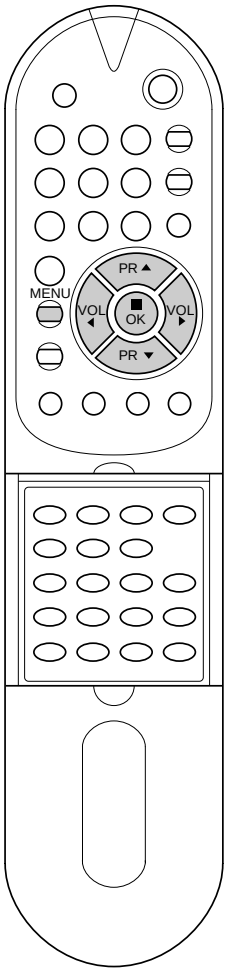
Press the **Q.VIEW** button to view the last programme you were watching.

On screen language selection (option)

This is an optional function. In the models which have on screen language function, the menu can be displayed on the screen in the desired language. First select your language.

1. Repeatedly press the **MENU** button to select MENU 3.
2. Press the ¡ª/¡ button to select **LANGUAGE**.
3. Press the **OK** button to display the sub menu.
4. Press the ¡ª/¡ button to select the desired language.
   All the on screen displays will appear in the selected language.
5. Press the **MENU** button repeatedly or **TV/AV** button once to return to normal TV viewing.

On screen menus



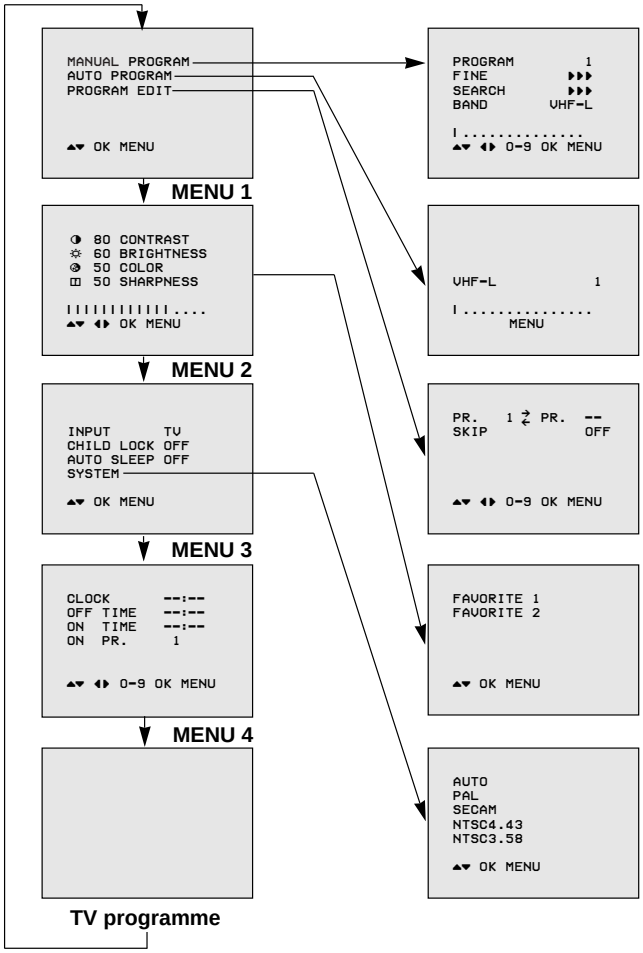
The dialogue between you and your set takes place on screen with an operator menu. The buttons required for the operating steps are also displayed.

Menu selection

1. Repeatedly press the **MENU** button to display each menu.
2. Press the ¡ª/¡ button to select a menu item.
   The selected menu item changes from green to purple.
3. Press the ¢,/¢" button to change the setting of a menu item or **OK** button to display the sub menu.

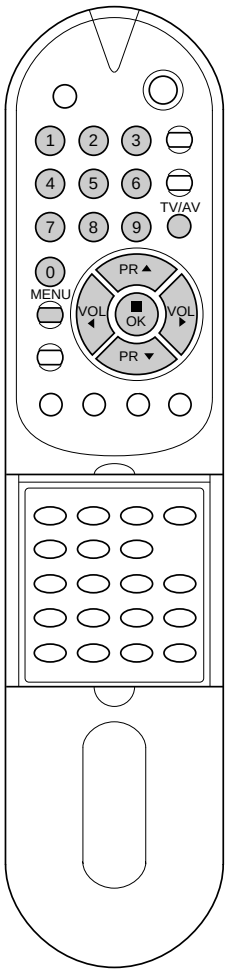
Note :

a. The menus automatically disappear in about 12 seconds if you do not press a button.
b. In the AV mode, MENU 1 is not displayed.
c. In the teletext mode, MENUs are not displayed.
*d. In some models, the menu item **LANGUAGE** is also displayed on the screen in MENU 3.*
*e. In some models, the menu item **TETRIS** is also displayed on the screen in MENU 3.*



Setting up TV stations

MENU 1



Up to 80 or 100 TV stations can be stored in this set by programme numbers (0 to 79 or 99). Once you have preset the stations, you will be able to use the ¡ª/¡ or NUMBER buttons to scan the stations you programmed.
Stations can be tuned using an automatic or a manual mode.

Auto programme tuning

All stations that can be received are stored by this method. It is recommended that you use auto programme during installation of this set.

1. Press the **MENU** button to select MENU 1.
2. Press the ¡ª/¡ button to select **AUTO PROGRAM**.
3. Press the **OK** button to begin auto programming.

The band automatically changes
VHF-L ¤A**VHF-H** ¤A**UHF**.

When auto programming is completed, the station stored into pro-gramme number 1 will appear on the screen.

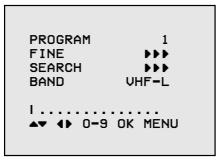
To stop auto programming, press the **MENU** button. The active station at that time will be displayed.

Note : *Some undesired stations may be stored, such as noisy or unclear signals from distant transmitters. You can easily skip these stations by entering* ***PROGRAM EDIT*** *mode.*

Manual programme tuning

Manual programme lets you manually tune and arrange the stations in whatever order you desire.

1. Press the **MENU** button to select MENU 1.
2. Press the ¡ª/¡ button to select **MANUAL PROGRAM**.
3. Press the **OK** button to display the **MANUAL PROGRAM** mode.



4. Press the ¡ª/¡ button to select **PROGRAM**. Select the desired programme number with the ¢,/¢″ or NUMBER buttons.
5. Press the ¡ª/¡ button to select **BAND**. Press the ¢,/¢″ button to select **VHF-L**, **VHF-H** or **UHF** as required.
6. Press the ¡ª/¡ button to select **SEARCH**. Press the ¢,/¢″ button to commence searching. To stop the search at any time press the **MENU** or ¡ª/¡ button.
7. If this station is the one required store it with the **OK** button, if not press the ¢,/¢″ button again.
8. To store another station repeat steps 4 to 7.
9. Press the **MENU** button repeatedly or **TV/AV** button once to return to normal TV viewing.

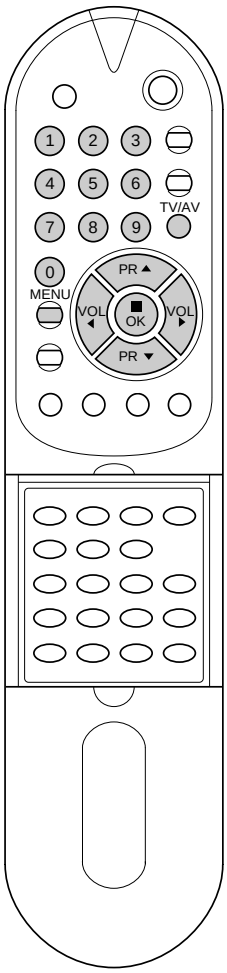
Fine tuning

Normally fine tuning is only necessary if reception is poor.

1. Repeat steps 1 to 3 above.
2. Press the ¡ª/¡ button to select **FINE**.
3. Press the ¢,/¢″ button to fine tune for the best picture and sound. If the ¢″ button is pressed, the display ▶▶▶ will appear. And if the ¢, button is pressed, the display ◀◀◀ will appear.
4. Press the **OK** button to store the new setting. The display **STORED** will appear.
5. Press the **MENU** button repeatedly or **TV/AV** button once to return to normal TV viewing.
   The finely tuned programme will be indicated by yellow number during programme selection.

Setting up TV stations

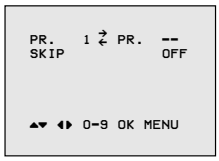
MENU 1



Programme edit

This function enables you to rearrange the programmes stored by auto programming in whatever order you desire. Also you can skip particular programme numbers stored by auto programming.

1. Press the **MENU** button to select MENU 1.
2. Press the ¡ª/¡ button to select **PROGRAM EDIT**.
3. Press the **OK** button, and the **PROGRAM EDIT** mode will appear.



Exchanging programmes

1. Press the ¢,/¢" button to change the left hand programme number. The viewing station corresponding to the new programme number is shown on the screen.
2. Press the NUMBER buttons to enter the desired right hand programme number. Any number under 10 is entered with a numeric '**0**' in front of it, i.e. '**05**' for 5.
3. Press the **OK** button. The station stored in the right hand programme number will now appear as the left hand programme number.
4. Repeat steps 1 to 3 to exchange other programmes.

Skipping the stored programme

1. Press the ¢,/¢" button to select the programme you want to skip. The viewing station corresponding to the selected programme number is shown on the screen.
2. Press the ¡ª/¡ button to select **SKIP**.
3. Press the ¢,/¢" button to select **ON** or **OFF**.
   If you select **ON**, the selected station is skipped.
4. Press the **OK** button. The display **STORED** will appear.
5. Press the ¡ª/¡ button to select first menu item then repeat steps 1 to 4 to skip another programme.

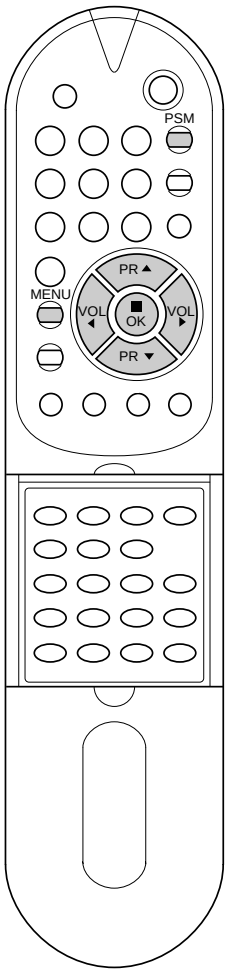
The selection of the skipped programme numbers with the NUMBER buttons is still possible and they will be indicated by cyan numbers during programme selection.

Note : *You cannot skip the programme number 1.*

Press the **MENU** button repeatedly or **TV/AV** button once to return to normal TV viewing.

Picture adjustment

MENU 2



You can adjust picture contrast, brightness, colour intensity, sharpness and tint (NTSC input only) to the levels you prefer.

1. Repeatedly press the **MENU** button to select MENU 2.
2. Press the ¡ª/¡ button to select the desired picture item.
3. Press the ¢,/¢" button to make appropriate adjustments.

At this point you can complete your adjustments or store your setting for immediate recall by following steps 4 to 6.

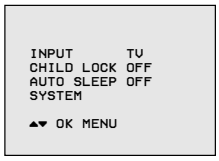
4. Press the **OK** button.

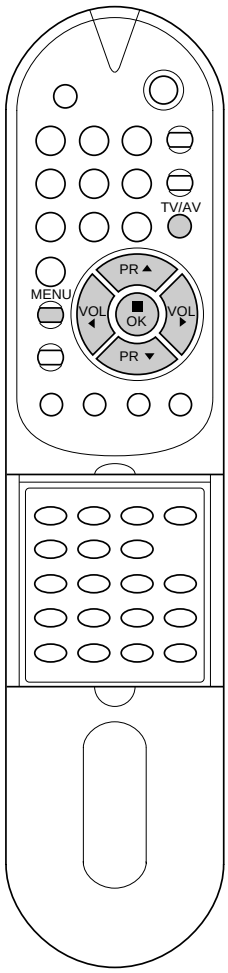
5. Select **FAVORITE 1** or **FAVORITE 2** with the ¡ª/¡ button. The **FAVORITE 1** or **FAVORITE 2** options allow you to programme two entirely different picture settings for various lighting conditions such as day and night.
6. Press the **OK** button. The display **STORED** will appear.

To recall your preferred setting, press the **PSM** button until the desired picture (**STANDARD**, **FAVORITE 1** or **FAVORITE 2**) appears. The **STANDARD** picture is programmed for good picture reproduction at the factory and cannot be changed.

Other functions

MENU 3





TETRIS game (option)

In the set with TETRIS function, the set can be used TETRIS game. You can enjoy the TETRIS game with this set. To make a good score, try to pile up bricks neatly without leaving empty spaces.

1. Repeatedly press the **MENU** button to select MENU 3.
2. Press the ¡ª/¡ button to select **TETRIS**.
3. Press the **OK** button to display the **TETRIS** mode.
4. Select and adjust **SPEED** (**1** to **9**), **LEVEL** (**1** to **5**) or **MODE** (**0** to **1**) with the ¡ª/¡ and ¢,/¢" button. As the background of TETRIS game mode, the TV reception mode in **MODE 0** and the muted picture in **MODE 1** will appear.
5. Select **START** with the ¡ª/¡ button then press the **OK** button to start the game.
6. Rotate bricks with the **OK** button, move them to left or right direction with the ¢,/¢" button, and set them down straightly with the ¡ button when playing the game. The game score will automatically be displayed.
   If you want to exit this mode while the game is being played press the **TV/AV** button.
7. When the game is finished, select **EXIT** with the ¡ª/¡ button if you want to exit the TETRIS game. If not, select **START**.
8. Press the **OK** button.

TV and AV modes

Inputs can be set for TV or AV mode. AV mode is used when a video cassette recorder (VCR), or other equipment is connected to the set.

Note : *When a VCR is connected via the aerial socket the set is used in TV mode. See the 'Connection of external equipment' section.*

1. Repeatedly press the **MENU** button to select MENU 3.
2. Press the ¡ª/¡ button to select **INPUT**.
3. Press the ¢,/¢" button to select **TV** or **AV**.
4. Press the **OK** button.

Alternatively you can select the TV or AV mode by pressing the **TV/AV** button.

Child lock

The TV can be set so that the remote control handset is needed to control it. This feature can be used to prevent unauthorised viewing.

1. Repeatedly press the **MENU** button to select MENU 3.
2. Press the ¡ª/¡ button to select **CHILD LOCK**.
3. Press the ¢,/¢" button on the remote control handset to select **ON**.
4. Press the **OK** button to return to normal TV viewing.

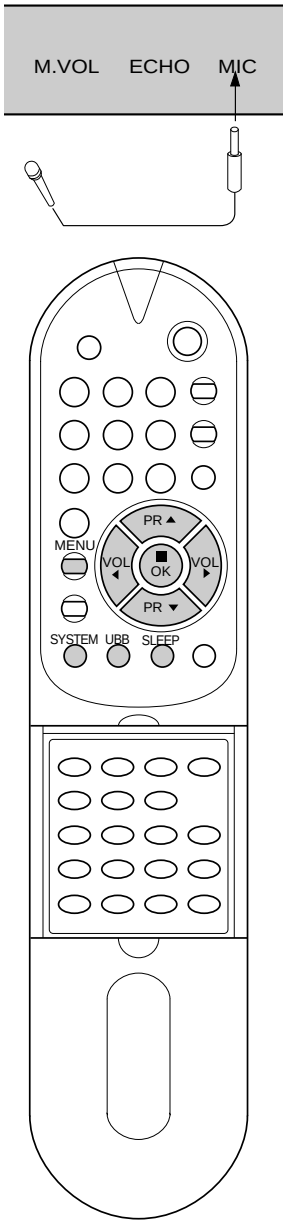
With the lock on, the display **CHILD LOCK ON** appears on the screen if any button on the front panel is pressed while viewing the TV.

Auto sleep

If you select **AUTO SLEEP ON** the set will automatically switch itself to standby mode approximately ten minutes after a TV station stops broadcasting.

1. Repeatedly press the **MENU** button to select MENU 3.
2. Press the ¡ª/¡ button to select **AUTO SLEEP**.
3. Press the ¢,/¢" button to select **ON**.
4. Press the **OK** button to return to normal TV viewing.

Other functions



Colour system setting

This set is adjusted for the main TV system in your area. Under normal circumstances, select **AUTO**. If necessary (if input signal is weak, colour and sound are poor), change the colour system by using the instructions below.

1. Repeatedly press the **MENU** button to select MENU 3.
2. Press the ¡ª/¡ button to select **SYSTEM** .
3. Press the **OK** button to display the sub menu .
4. Press the ¡ª/¡ button to select the correct colour system.
5. Press the **OK** button to store the setting. The display **STORED** will appear.

You can directly display the system selection mode by pressing the **SYSTEM** button. And then repeat steps 4 to 5 above.

Note :

*a. If you adjusted the system as shown steps above, the colour system appears in cyan when the current mode is displayed by pressing the **OK** button.*

b. The colour system which the set cannot receive could be selected but not operated.

Sleep timer

You don't have to remember to switch the set off before you go to sleep. The sleep timer automatically switches the set to standby after the preset time elapses.

For selecting your desired number of minutes, press the **SLEEP** button several times or continuously. **---** will appear on the screen, followed by **120**, **90**, **60**, **30**, **20** and **10**.

The timer begins to count down from the number of minutes selected.

Note :

*a. To view the remaining sleep time, press the **SLEEP** button once.*

*b. To cancel the sleep time, repeatedly press the **SLEEP** button until the display **SLEEP**--- appears.*

c. When you switch the set off, the set releases the preset sleep time.

Karaoke (option)

In the set with karaoke function, the set can be used as a karaoke monitor by connecting a microphone (not supplied) and using a VCR or VDP etc.

1. Connect a microphone (¥ 6.3 mm) to the **MIC** socket on the front panel.
2. Switch the microphone on.
3. Turn the **M.VOL** knob clockwise to increase the microphone volume or counterclockwise to decrease.
4. Press the **ECHO** button to switch on (▬) or off (■) the echo effect function.

Note : *When a microphone connected to the set is moved too close to the set, high-pitched feedback may be heard. Then, move the microphone further from the set or decrease the microphone volume.*

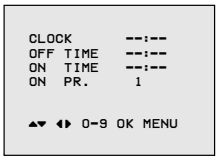
UBB sound (option)

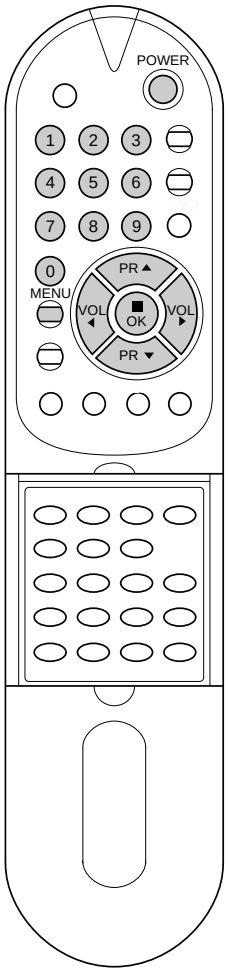
In the set with UBB function, the set can be used UBB sound. Only a set with UBB sound option can perform this function. UBB (Ultra Bass Booster) sound stresses and emphasizes heavy sound.

Press the **UBB** button to switch on or off the UBB sound. The display **UBB ON** or **UBB OFF** will appear.

Time setting

MENU 4





Clock

The clock uses the 24 hour system, and must be set to the correct time before operating the set. You must set the clock correctly before using on/off time functions.

1. Repeatedly press the **MENU** button to select MENU 4.
2. Press the ¡ª/¡ button to select **CLOCK**.
3. Adjust hour and minute with the ¢,/¢" button or NUMBER buttons.
4. Press the **OK** button to return to normal TV viewing.

Off time

The set automatically switches off at the preset time.

1. Repeatedly press the **MENU** button to select MENU 4.
2. Press the ¡ª/¡ button to select **OFF TIME** .
3. Adjust hour and minute with the ¢,/¢" button or NUMBER buttons.
4. Press the **OK** button to return to normal TV viewing.

On time

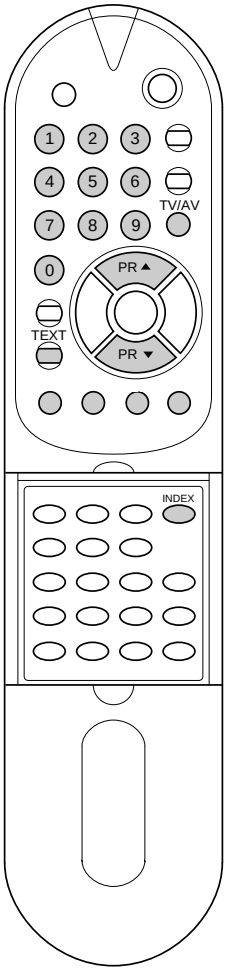
The set automatically switches on at the preset time and station.

1. Repeatedly press the **MENU** button to select MENU 4.
2. Press the ¡ª/¡ button to select **ON TIME**.
3. Adjust hour and minute with the ¢,/¢" button or NUMBER buttons.
4. Press the ¡ª/¡ button to select **ON PR.** then press the ¢,/¢" button or NUMBER buttons to select the desired programme number.
5. Press the **OK** button to return to normal TV viewing.

Note :

a. In the event of power interruption (disconnection or power failure), the clock, on time and off time must be reset.
b. If the same time is set for the on time and the off time, only the off time operates.
*c. This set must be put into standby mode with the **POWER** button on the remote control handset to operate the on time function.*
d. If the on time function activates, the TV will automatically switch to the on time programme number, even during viewing.
e. Two hours after the set is turned on by the on time function it will automatically switch back to standby mode unless a button has been pressed.
f. Once the on or off time is set, these functions operate daily at the preset time.

Teletext (option)



Teletext is an optional function, therefore only a set with the teletext system can receive the teletext broadcast.

Teletext is a free service broadcast by most TV stations which gives up-to-the-minute information on news, weather, television programmes, share prices and many other topics.

The teletext decoder of this TV can support the Simple, TOP and FASTEXT systems. Simple mode consists of a number of pages which are selected by directly entering the corresponding page number. TOP and FASTEXT are more modern methods allowing quick and easy selection of teletext information.

Switch on/off

Press the **TEXT** button to switch to teletext. The initial page or last selected page appears on the screen.
Two page numbers, TV station name, date and time are displayed on the screen headline. The first page number indicates your selection, while the second shows the current page displayed.
Press the **TEXT** or **TV/AV** button to switch off teletext. The previous mode reappears.

Simple mode

Page selection

1. Enter the desired page number as a three digit number with the NUMBER buttons. If during selection you press a wrong number, you must complete the three digit number and then re-enter the correct page number.
2. The ¡ª/¡ button can be used to select the preceding or following page.

TOP mode

The user guide displays four fields-red, green, yellow and blue at the bottom of the screen. The yellow field denotes the next group and the blue field indicates the next block.

Block/group/page selection

1. With the BLUE button you can progress from block to block.
2. Use the YELLOW button to proceed to the next group with automatic overflow to the next block.
3. With the GREEN button you can proceed to the next existing page with automatic overflow to the next group. Alternatively the ¡ª button can be used.
4. The RED button permits to return to previous selection. Alternatively the ¡ button can be used.

Direct page selection

Corresponding to the Simple mode, you can select a page by entering it as a three digit number using the NUMBER buttons in TOP mode.

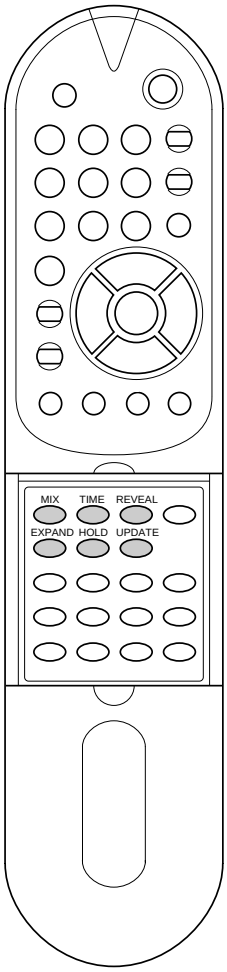
FASTEXT mode

The teletext pages are colour coded along the bottom of the screen and are selected by pressing the corresponding coloured button.

Page selection

1. Press the **INDEX** button to select the index page.
2. You can select the pages which are colour coded along the bottom line with the same coloured buttons.
3. Corresponding to the Simple mode, you can select a page by entering its three digit page number with the NUMBER buttons in FASTEXT mode.
4. The ¡ª/¡ button can be used to select the preceding or following page.

Teletext (option)



Special teletext functions

REVEAL
Press this button to display concealed information, such as solutions of riddles or puzzles.
Press this button again to remove the information from the display.

EXPAND
Selects double height text.
Press this button to enlarge the top half of the page.
Press this button again to enlarge the bottom half of the page.
Press this button again to return to the normal display.

UPDATE
Displays the TV picture on the screen while waiting for the new teletext page. The display ☰ will appear at the top left hand corner of the screen. When the updated page is available then display ☰ will change to the page number.
Press this button to view the updated teletext page.

HOLD
Stops the automatic page change which will occur if a teletext page consists of 2 or more sub pages. The number of sub pages and the sub page displayed is, usually, shown on the screen below the time. When this button is pressed the stop symbol is displayed at the top left-hand corner of the screen and the automatic page change is inhibited.
To continue press this button again.

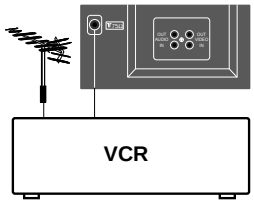
MIX
Displays the teletext pages superimposed on the TV picture.
To switch the TV picture off press this button again.

TIME
When viewing a TV programme, press this button to display the time at the top right hand corner of the screen. Press this button again to remove the display. In the teletext mode, press this button to select a sub page number. The sub page number is displayed at the bottom of the screen. To hold or change the sub page, press the RED/GREEN, ¡ª/¡ or NUMBER buttons. Press again to exit this function.

Connection of external equipment

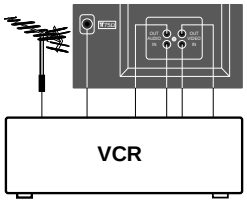
You can connect additional equipment, such as VCRs, camcorders etc. to your set. Here shown may be somewhat different from your set.

Aerial socket



1. Connect the RF out socket of the VCR to the aerial socket on the back of the set.
2. Connect the aerial cable to the RF aerial in socket of the VCR.
3. Store the VCR channel on a desired programme number using the 'Manual programme tuning' section.
4. Select the programme number where the VCR channel is stored.
5. Press the **PLAY** button on the VCR.

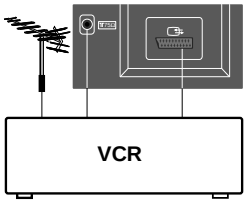
Audio/Video in/out sockets



1. Connect the audio/video out sockets of the VCR to audio/video in sockets of the set and in sockets of the VCR to out sockets of the set.
2. Press the **TV/AV** button to select **AV**.
3. Press the **PLAY** button on the VCR.
   The VCR playback picture appears on the screen.

   You can also record programmes received by the TV on video tape via audio/video out sockets.

Euro scart socket

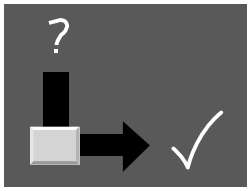


If your set has the Euro scart socket,

1. Connect the euro scart socket of the VCR to the Euro scart socket of the set.
2. Press the **PLAY** button on the VCR.
   If your VCR outputs a switching voltage the set will switch to AV mode automatically.
   Otherwise, press the **TV/AV** button on the remote control handset to select **AV**. The VCR playback picture appears on the screen.

Troubleshooting check list

Symptoms



No picture, no sound

Sound OK, poor picture

Picture OK, poor sound

Picture blurred

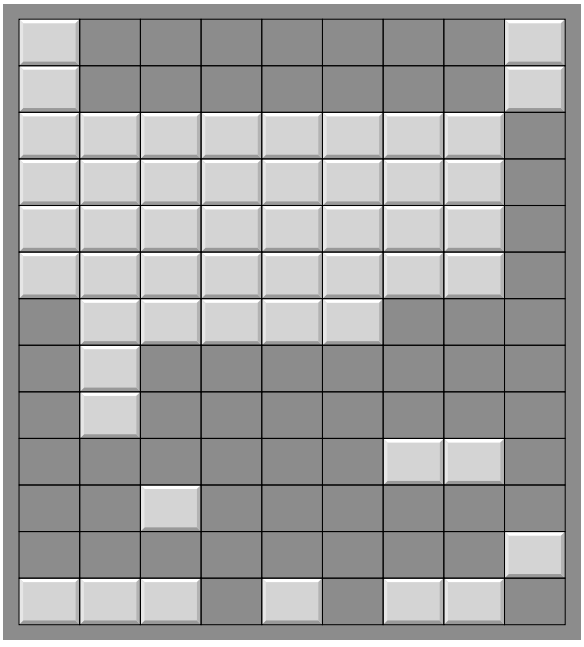
Lines or streaks in picture

Poor reception on some channels

No colour

Poor colour

Remote control does not work



Check these items and try to adjust these

The mains plug-(plugged in and switched on)

Is the TV switched on

Try another channel (weak signal)

Check aerial (plugged into TV?)

Check aerial (broken lead?)

Check aerial

Check for local interference

Adjust contrast

Adjust brightness

Adjust colour

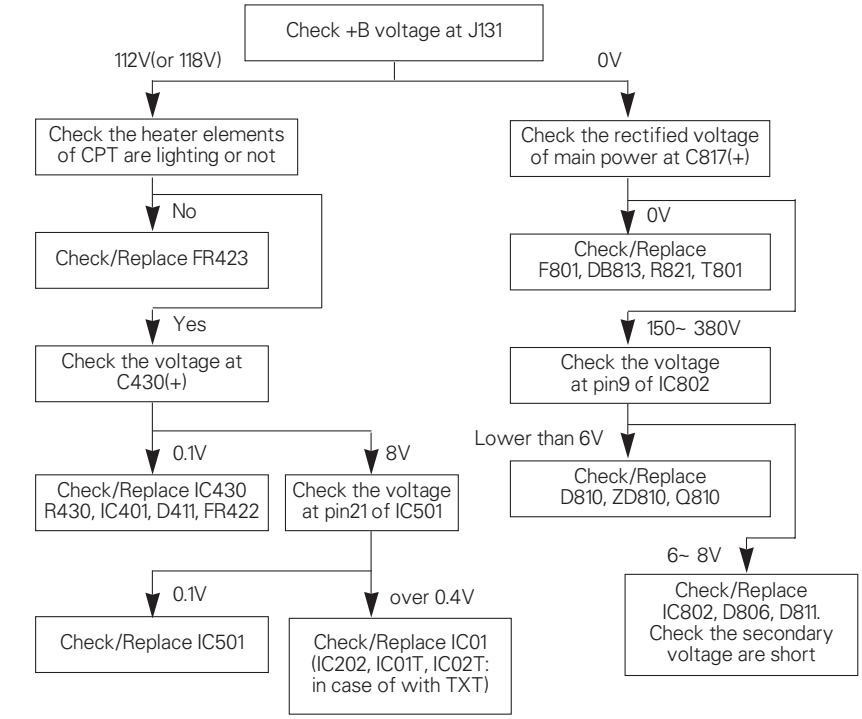
Adjust volume

Check the batteries in remote control

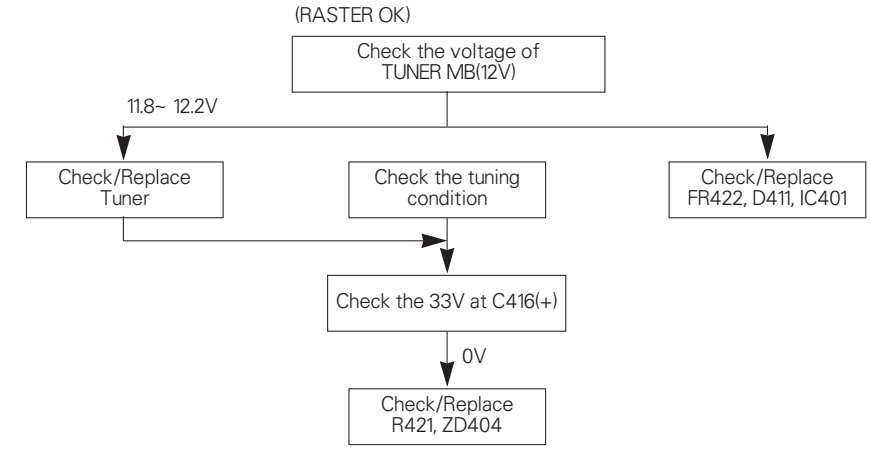
Check Audio/Video sockets (VCR only)

Troubleshooting Guide

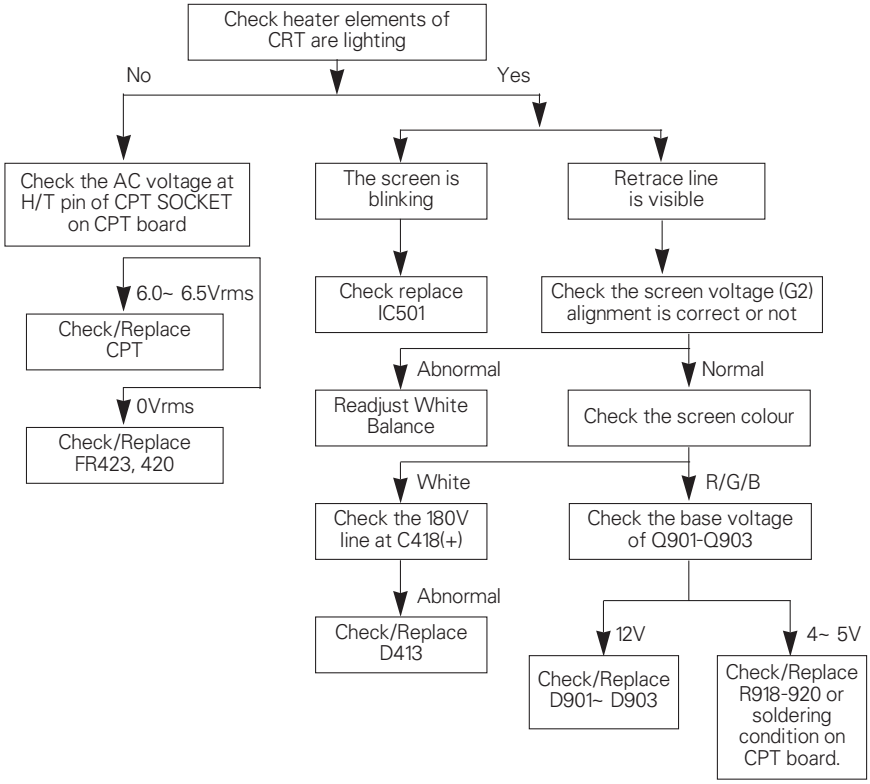
DEAD SET
(NO RASTER/NO SOUND)



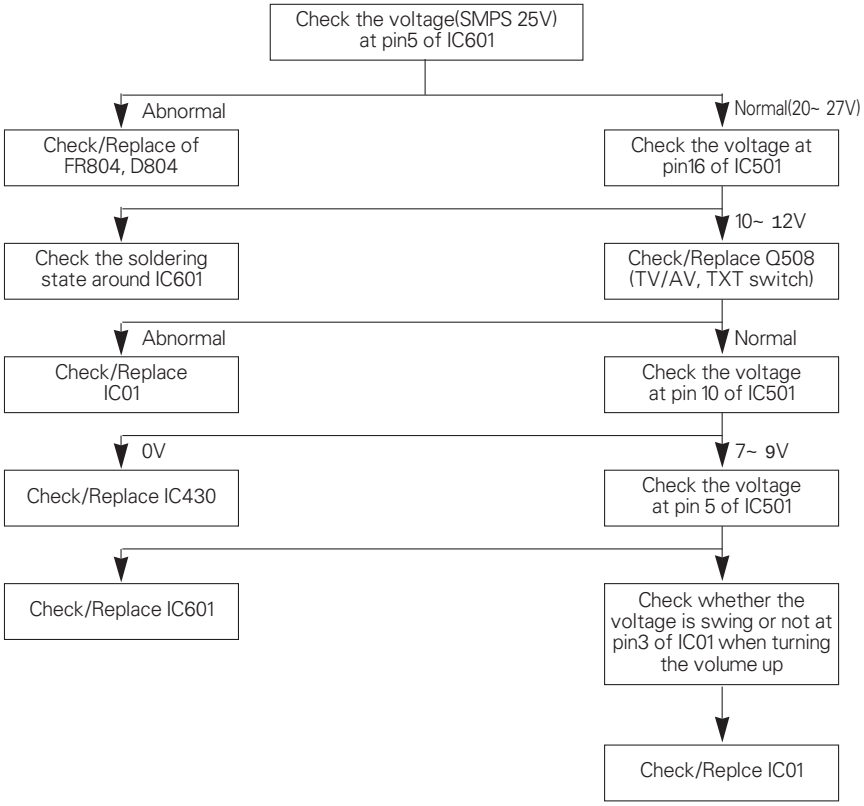
NO PICTURE/NO SOUND



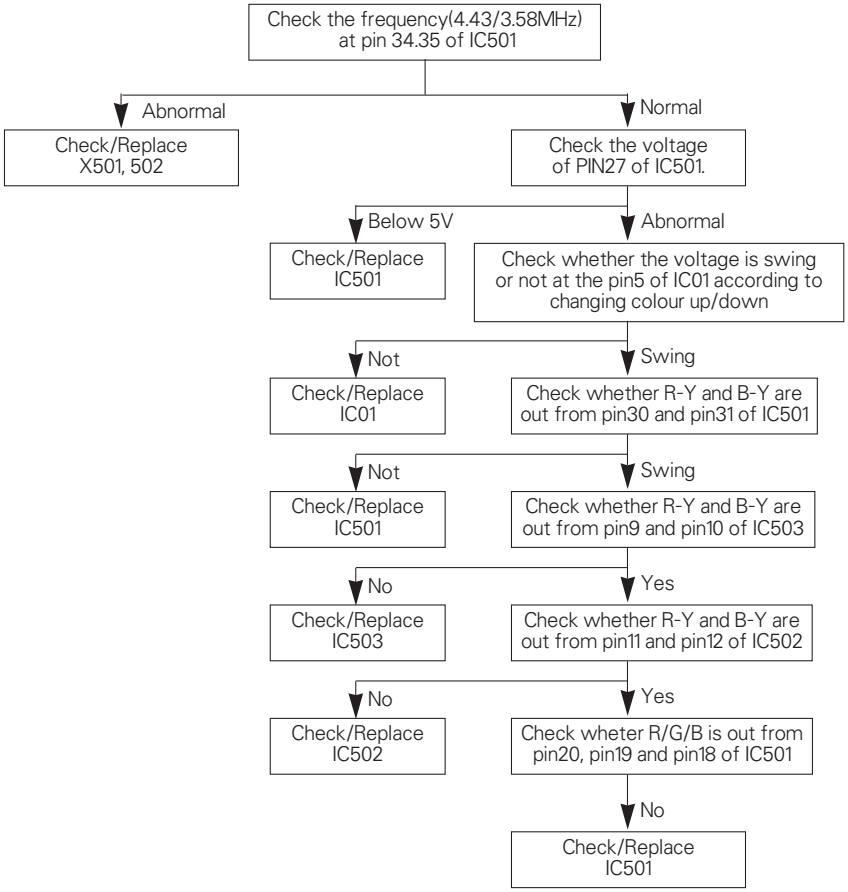
NO RASTER(SOUND OK)



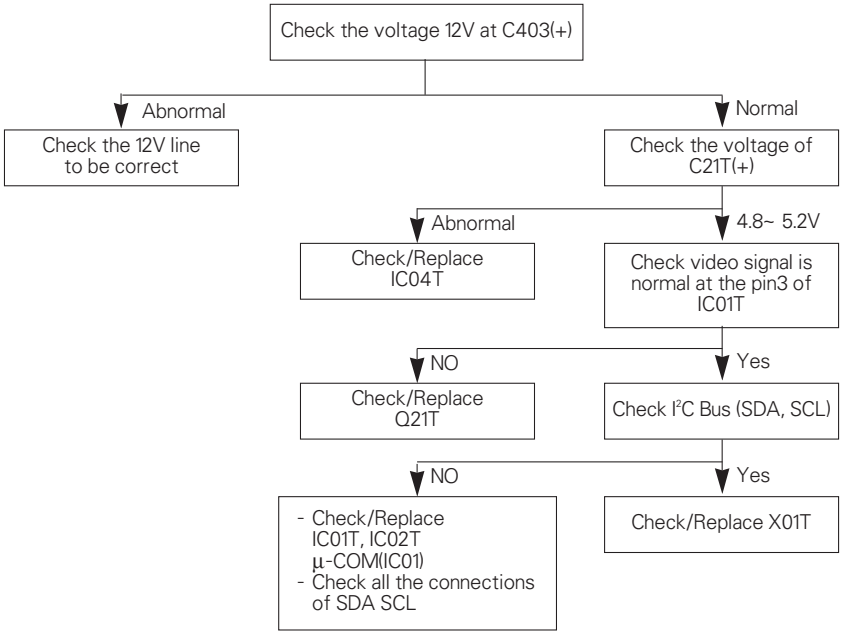
NO SOUND(PICTURE OK)



NO COLOR


Check the frequency(4.43/3.58MHz) at pin 34.35 of IC501
Abnormal
Check/Replace X501, 502
Normal
Check the voltage of PIN27 of IC501.
Below 5V
Check/Replace IC501
Abnormal
Check whether the voltage is swing or not at the pin5 of IC01 according to changing colour up/down
Not
Check/Replace IC01
Swing
Check whether R-Y and B-Y are out from pin30 and pin31 of IC501
Not
Check/Replace IC501
Swing
Check whether R-Y and B-Y are out from pin9 and pin10 of IC503
No
Check/Replace IC503
Yes
Check whether R-Y and B-Y are out from pin11 and pin12 of IC502
No
Check/Replace IC502
Yes
Check wheter R/G/B is out from pin20, pin19 and pin18 of IC501
No
Check/Replace IC501

NO TELETEXT


Check the voltage 12V at C403(+)
Abnormal
Check the 12V line to be correct
Normal
Check the voltage of C21T(+)
Abnormal
Check/Replace IC04T
4.8~ 5.2V
Check video signal is normal at the pin3 of IC01T
NO
Check/Replace Q21T
Yes
Check I²C Bus (SDA, SCL)
NO
- Check/Replace IC01T, IC02T μ-COM(IC01)
- Check all the connections of SDA SCL
Yes
Check/Replace X01T

ADJUSTMENT INSTRUCTIONS

* Safety precautions

1. It is safe to adjust after using insulating transformer between the power supply line and chassis input to prevent the risk of electric shock and protect the instrument.
2. Never disconnect leads while the TV receiver is on.
3. Don't short any portion of circuits while power is on.
4. The adjustment must be done by the correct appliances. But this is changeable in view of productivity.
5. Unless otherwise noted, set the line voltage to 220Vac+_ 20%, 50/60Hz.

*Test Equipment required

1. Swee p Generator
2. Marker Generator(38.0MHz: Picture/32.5MHz: Sound)
3. Alignmen t Scope(5121A)
4. Patter n Generator(PAL/SECAM)
5. DC Power Supply
6. Color analyzer
7. Multimeter(Volt meter)

Preparation for VCO Adjustment

1. Connect the measuring equipment to the TV as shown in Fig. 1
2. Set RF output level of Sweep Generator to 90dBuV.

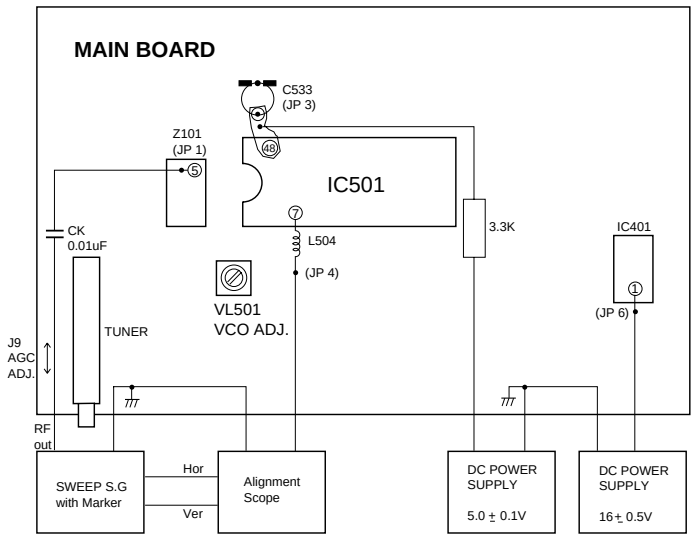


Fig. 1: Connection Diagram of Equipment for VCO Adjustment

* VCO (Voltage Controlled Oscillator) Adjustment

Test Point	**JP4(L504)**
Adjust	**VL501**

1) Turn on DC power supplies.
2) Adjust VCO ADJ. coil(**L501**) so that the level of Picture Carrier (PC) may be at the lowest position as shown Fig. 2.

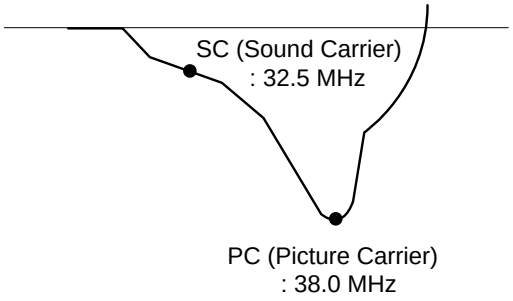


Fig. 2: Output waveform on Alignment Scope

NOTE When performing this adjustment, if there are 2 adjusted point in VL501, select the lower core position.

* RF AGC (Auto Gain Control) Adjustment

Test Point	**J9(AGC ADJ.) or Observing Display**
Adjust	**VR501**

The RF AGC control **VR501** was aligned at the time of manufacture for optimum performance over a wide range conditions. Readjust **VR501** should not be necessary unless unusual local conditions exist, such as;

1) Channel interference in a CATV system
2) Picture bending and/or color beats, which are unusually due to excessive RF signal input when the reciever is too close to a transmitting tower or when the receiver is connected to an antenna distribution system where the RF signal has been amplified.
   In this case, the input signal should be attenuated(with pad or filter) to a satisfactory level.
3) Picture noise caused by "broadcast noise" or weak signal.
   If the broadcast is "clean" and the RF signal is at least 1mV (60dBu), the picture will be noise free in any area.

Adjusting the **VR501(RF AGC)** control to one end of rotation will usually cause a relatively poor signal to noise ratio;
Adjusting to the other end of rotation will usually cause a degradation of over load capabilities resulting on color beats or adjacent channel interference.
For the best results, adjust **VR501** contol while performing on all other local channels, or **Refer to the following Table 1.**

Tuner P/N	Maker	Adjustment Voltage	REMARK
113-118C/D/F	LG-ALPS	5.7+_0.1Vdc	RF 60+_1dBuV
113-238H	LG-ALPS	6.0+_0.1Vdc	RF 60+_1dBuV
6700VMV001A	SANYO	4.9+_0.1Vdc	RF 60+_1dBuV

<Table 1>

* Vertical Height, Center Adjustment

Test Poin t : **Observing display**

Adjust : **VR301 (Vertical Height)**
VR302 (Vertical Center)

1) Tune the TV set to receive a digital test pattern.
2) Set standard picture mode(contrast: 80, bright :60, color: 50).
3) Adjust the Vertical height control (**VR301**) so that the circle of a digital test pattern may be located within the effective screen of the CPT.
4) Adjust the Vertical center control (**VR302**) for obtaining geometric center of valuable display vertically.

* Focus A djustment

NOTE: This adjustment should be performed after warming up for 10 minutes.

Test Poin t : **Observing display**

Adjust : **Focus control of FBT**

1) Tune the TV set to receive a digital test pattern.
2) Adjust the Focus control for the best overall focus.

* Horizontal Center Adjustment

Test Poin t : **Observing display**

Adjust : **VR502**

1) Tune the TV set to receive a PAL digital pattern.
2) Adjust the Horizontal center control(**VR502**) for obtaining geometric center of valubale display horizontally.

* Scr een & White Balance (color temperature) Adjustment

NOTE: 1. This adjustment should be performed after warming up for 20 minutes.
2. The color bias controls (VR901, VR902, VR903) affect the low light (dark) area of the picture while the color drive controls (VR904, VR905) affect the high light (white) areas.

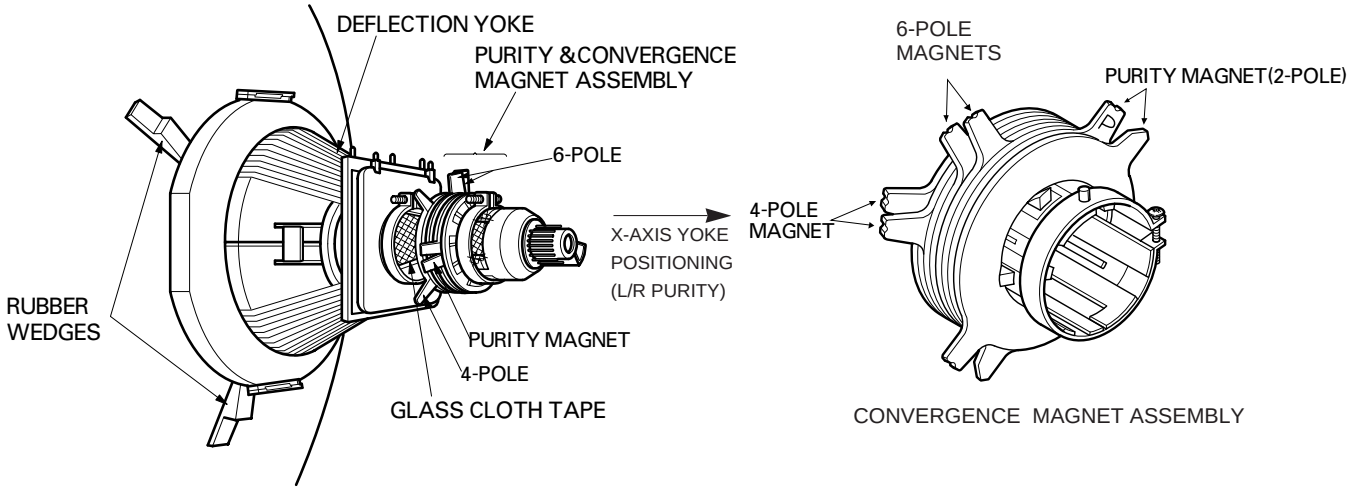
1) Set all the controls (VR901-VR905) on CPT Board to geometric center position.
2) Set the standard mode (contrast : 80, bright : 60, color : 50).
3) Set the AV mode, adjust and set the screen volume of FBT at just cut-off position(No AV input signal).
4) Set the TV mode, tune the TV set to receive white pattern.
5) By using color analyzer (white balance checker), adjust X position equals to 281+_8 and Y position equals to 288 +_8, it means that color temperature is 10,000+_800 at low light (4.5ftL) and high light (over 45ftL).

PURITY & CONVERGENCE ADJUSTMENT

Caution:
Convergence and Purity have been factory aligned. Do not attempt to tamper with these alignments.
However, the effects of adjacent receiver components, or replacement of picture tube or deflection yoke may require the need to readjust purity any convergence.

5. Reconnect the internal degaussing coil.

6. Position the beam bender locking rings at the 9 o'clock position and the other three pairs of tabs (2,4 and 6 pole magnets) at the 12 o'clock position.



* Purity Adjustment

This procedure DOES NOT apply to bonded yoke and picture tube assemblies.
The instrument should be at room temperature (60 degrees F or above) for six (6) hours and be operating at low beam current (dark background) for approximately 20 to 30 minutes before performing purity adjustments.

CAUTION: Do not remove any trim magnets that may be attached to the bell of the picture tube.

1. Remove the AC power and disconnect the internal degaussing coil.

2. Remove the yoke from the neck of the picture tube.

3. If the yoke has the tape version beam bender, remove it and replace it with a adjustable type beam bender (follow the instructions provided with the new beam bender)

4. Replace the yoke on the picture tube neck, temporarily remove the three (3) rubber wedges from the bell of the picture tube and then slide the yoke completely forward.

7. Perform the following steps, in the order given, to prepare the receiver for the purity adjustment procedure.

   a. Face the receiver in the "magnetic north" direction.

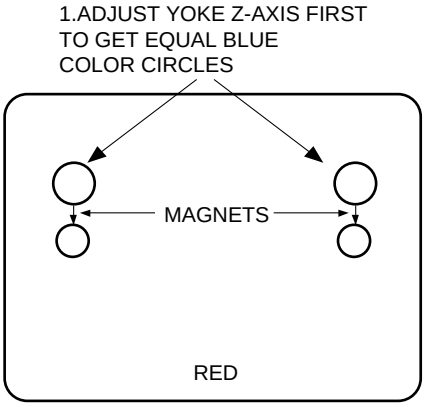
   b. Externally degauss the receiver screen with the television power turned off.

   c. Turn the television on for approximately 10 seconds to perform internal degaussing and then turn the TV off.

   d. Unplug the internal degaussing coil. This allows the thermistor to cool down while you are performing the purity adjustment. DO NOT MOVE THE RECEIVER FROM ITS "MAGNETIC NORTH" POSITION.

   e. Turn the receiver on and obtain a red raster by increasing the red bias control (CW) and decreasing the bias controls for the remaining two colors (CCW).

   f. Attach two round magnets on the picture tube screen at 3 o'clock and 9 o'clock positions, approximately one (1) inch from the edge of the mask (use double-sided tape).



8. Referring to above, perform the following two steps:
   a. Adjust the yoke Z-axis to obtain equal blue circles.
   b. Adjust the appropriate beam bender tabs to obtain correct purity (four equal circles).

9. After correct purity is set, tighten the yoke clamp screw and remove the two screen magnets.

10. Remove the AC power and rotate the receiver 180 degrees (facing "magnetic south").

11. Reconnect the internal degaussing coil.

12. Turn the receiver on for 10 seconds (make sure the receiver came on) to perform internal degaussing, and then turn the receiver off.

13. Unplug the internal degaussing coil.

14. Turn on the receiver and check the purity by holding one (1) round magnet at the 3 o'clock and a second round magnet at 9 o'clock position. If purity is not satisfactory, repeat steps 8 through 14.

15. Turn off the receiver and reconnect the internal degaussing coil.

* Convergence Adjustment

Caution: This procedure DOES NOT apply to bonded yoke and picture tube assemblies.
Do not use screen magnets during this adjustment procedure. Use of screen magnets will cause an incorrect display.

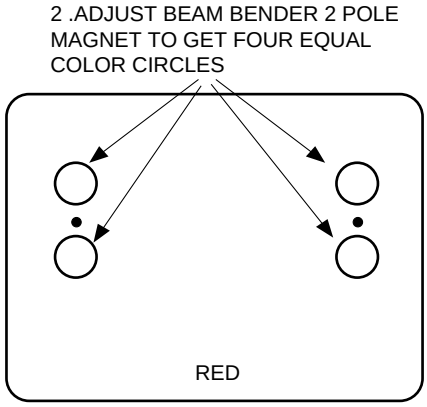
1. Remove AC power and disconnect the internal degaussing coil.

2. Apply AC Power and set the brightness to the Picture Reset condition. Set the Color control to minimum.

3. Apply 8V to the pin.

4. Adjust the Red, Green and Blue Bias controls to get a dim white line.

5. Remove the AC power and 8V from the pin.



6. Reconnect the internal degaussing coil and apply AC power.

7. Turn the receiver on for 10 seconds to perform internal degaussing and then turn the receiver off again.

8. Unplug the internal degaussing-coil.

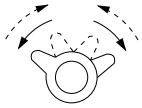
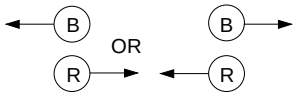
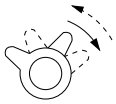
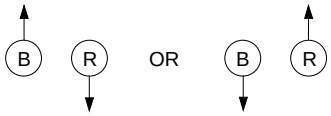
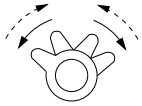
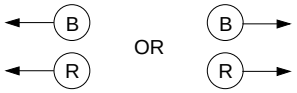
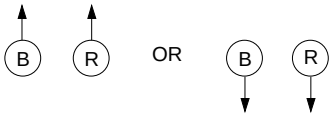
9. Turn on the receiver, connect a signal generator to the VHF antenna terminal and apply a crosshatch signal.

Caution: During the convergence adjustment procedure, be very careful not to disturb the purity adjustment tabs are accidentally move, purity should be confirmed before proceeding with the convergence adjustments.

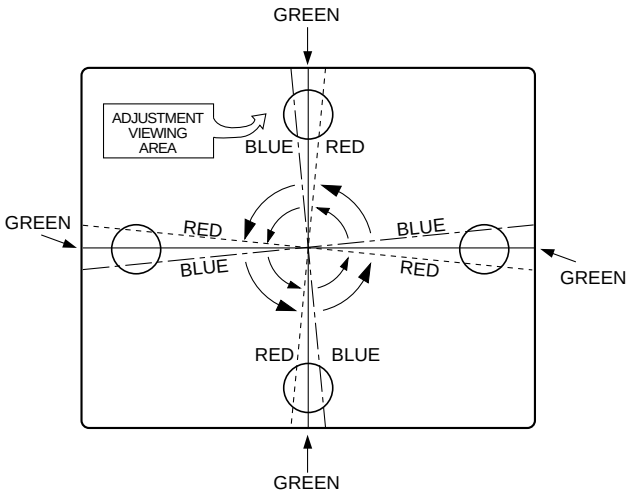
Note: Make sure the focus is set correctly on this instrument before proceeding with the following adjustment.

10. Converge the red and blue vertical lines to the green vertical line at the center of the screen by performing the following steps (below TABLE).
    a. Carefully rotate both tabs of the 4-pole ring magnet simultaneously in opposite directions from the 12 o'clock position to converge the red and blue vertical lines.
    b. Carefully rotate both tabs of the 6-pole ring magnet simultaneously in opposite directions form the 12 o'clock position to converge the red and blue (now purple) vertical lines with the green vertical line.

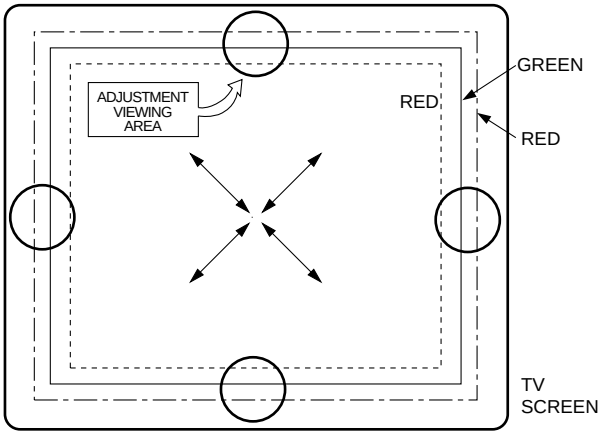
11. Converge the red and blue horizontal with the green line at the center of the screen by performing the following steps. (below TABLE)
    a. Carefully rotate both tabs of the 4-pole ring magnet simultaneously in the same direction (keep the spacing between the two tabs the same) to converge the red and blue horizontal lines.
    b. Carefully rotate both tabs of the 6-pole ring magnet simultaneously in same direction (keep the spacing between the two tabs the same) to converge the red and blue (now purple) horizontal lines with the green horizontal line.
    c. Secure the tabs previsouly adjusted by locking them in place with the locking tabs on the beam bender.

RING PAIRS	ROTATION DIRECTION OF BOTH TABS		MOVEMENT OF RED AND BLUE BEAMS
4 POLE		OPPOSITE	
		SAME	
6 POLE		OPPOSITE	
		SAME	

UP/DOWN ROCKING OF THE YOKE CAUSES OPPOSITE ROTATION OF RED AND BLUE RASTERS

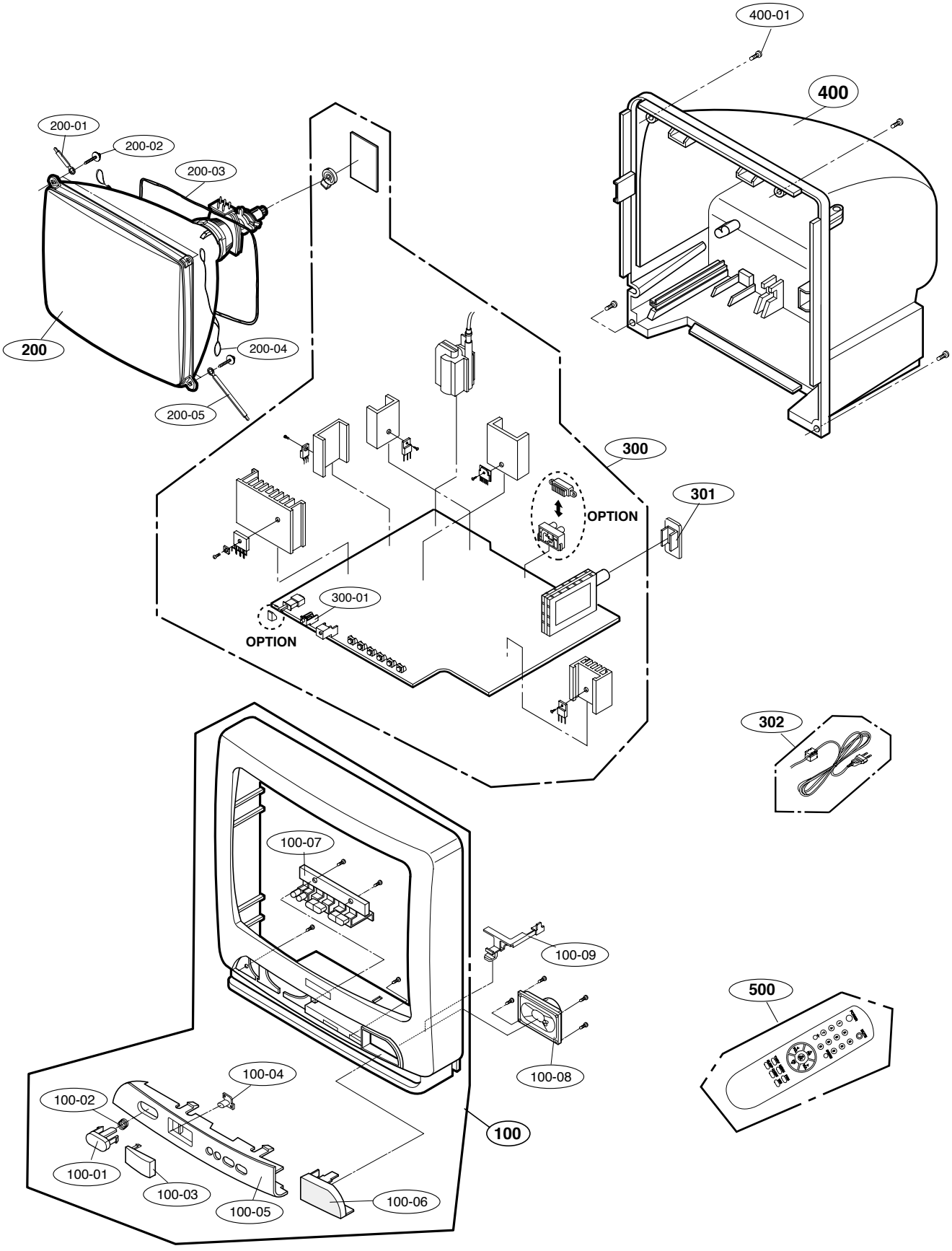


LEFT/RIGHT ROCKING OF THE YOKE CAUSES OPPOSITE SIZE CHANGE OF THE RED AND BLUE RASTERS



12. While watching the 6 o'clock positions on the screen, rock the front of the yoke in a vertical (up/down) direction to converge the red and blue vertical lines. (Fig upper left)
13. Temporarily place a rubber wedge at the 12 o'clock position to hold the vertical position or the yoke.
14. Check the 3 o'clock and 9 o'clock areas to confirm that the red and blue horizontal lines are converged.
    If the lines are not converged, slightly offset the vertical tilt of the yoke (move the rubber wedge if necessary) to equally balance the convergence error of the horizontal lines at 3 o'clock and 9 o'clock and the vertical lines at 6 o'clock and 12 o'clock.
15. Place a 1.5 inch piece of glass tape over the rubber foot at the rear of the 12 o'clock wedge.
16. While watching the 6 o'clock and 12 o'clock areas of the screen, rock the front of the yoke in the horizontal (left to right) motion to converge the red and blue horizontal lines. (Fig. upper right)
17. Temporarily place a rubber wedge at the 5 o'clock and 7 o'clock positions to hold the horizontal position of the yoke.
18. Check the 3 o'clock and 9 o'clock areas to confirm that the red and blue vertical lines are converged. If the lines are not converged, slightly offset the horizontal tilt of the yoke (move the temporary rubber wedges if necessary) to equally balance the convergence error of the horizontal lines at 6 o'clock and 12 o'clock and the vertical lines at 3 o'clock and 9 o'clock.
19. Using a round magnet confirm purity at the center, right and left sides and corners. See Purity Adjustment Procedure.
20. Reconfirm convergence and apply a 1.5 inch piece of glass tape over the rubber foot at the rear of the 5 o'clock and the 7 o'clock wedges.

EXPLODED VIEW



EXPLODED VIEW PARTS LIST

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

LOCA. NO	PART NO	DESCRIPTIONS
100 ƒN	300-B81Y	CABINET ASSY KCA14A86 HXLRG7
100-01 ƒN	441-494A	BUTTON, POWER
100-02	320-070G	SPRING, COIL
100-03	316-410C	WINDOW, FILTER
100-04	454-027A	INDICATOR, PRE-AMP
100-05 ƒN	313-263Y	PANEL ASSY, CONTROL
100-06	314-284B	GRILL, SPEAKER
100-07 ƒN	441-308A	BUTTON,CONTROL
100-08	120-D04C	SPEAKER C072P(8 OHM)
100-09	341-745B	HOLDER, PCB
⚠ 200	2055-00781U	CPT A34KVK02XX 00S7ND(-0.5G)
200-01	341-721A	HOLDER, D-COIL (FOR AUTO.L=65)
200-02	332-057B	SCREW ASSY,HEXAGON HEAD
⚠ 200-03	150-D02B	COIL, DEGAUSSING,CU 14” 42T 5.7OHM
⚠ 200-04	170-A01A	LEAD SET,CPT EARTH(14”)
200-05	341-721B	HOLDER, D-COIL (FOR AUTO.L=130)
300	6871VMM071A	PWB ASSY,MAIN (64A) 4ANSNPBREN
	6871VMM071U	PWB ASSY, MAIN(64A)4ANHNPBREN, MT-RK
300-01	341-783A	HOLDER, LED
301	303-F62A	COVER, TUNER
⚠ 302	174-222A	CORD ASSY, POWER(174-219A,L=220)
400 ƒN	303-H59A	COVER ASSY,BACK(A/V-IN-OUT)
400-01	1PPF0403116	SCREW,PAN HEAD D4 L16
500	105-230M	REMOTE CONTROLLER MC-64A,W/O TXT,LG
	105-230D	TRANSMITTER MC64A W/O TXT, G/S

The parts which are marked with "ƒN" are Local parts.

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

REPLACEMENT PARTS LIST

LOCA. NO	PART NO	DESCRIPTION
		ICs
IC01	0IGS863415D	IC,LG8634-15D
IC02	0IAL240210A	IC,AT24C02-10PC 8D EEPROM(2K,IIC)
IC03	0IKE704200B	IC,KIA7042P 3P 4.2V RESET
IC201	0ISA722200A	IC,LA7222 (1280 AUDIO)
IC301	0ISA783300A	IC,LA7833 7SIP V/OUT 2.2A(P-P)
IC401	0IKE781200C	IC,KIA7812PI 3P(TO-220IS) 12V,1A
IC430	0IKE780800A	IC,KIA7808PI 3P(TO-220IS) 1A,8V
IC501	0IPH836255B	IC,TDA8362B/N5 52SD P/N/S 1CHIP
IC502	0IPH466500B	IC,TDA4665-V4 16D 1H D/L(TAIWAN)
IC601	0ISG200600A	IC,TDA2006,SOUND
⚠ IC801	0ITF435000A	IC,4N35(G)V 6D PHOTO COUPLER
⚠ IC802	0ISK570700A	IC,STR/S5707(LF.953) 9P SMPS-CNTR
IC840	0IKE780500K	IC,KIA7805PI 3P(TO-220IS) 5V,1A
		DIODES
⚠ DB813	0DD260000BD	DIODE BRIDGE D2SBA60
D01	0DD414809ED	DIODE DS4148
D101	0DD414809ED	DIODE DS4148
D301	0DD400509AA	DIODE 1N4005 GP
D401	0DD414809ED	DIODE DS4148
D406	0DD060009AC	DIODE TVR06J 0.6A/600V 250NS
D408	0DD414809ED	DIODE DS4148
D410	0DD060009AC	DIODE TVR06J 0.6A/600V 250NS
D411	0DD150009CA	DIODE RGP15J
D413	0DD060009AC	DIODE TVR06J 0.6A/600V 250NS
D415	0DD414809ED	DIODE DS4148
D416	0DD414809ED	DIODE DS4148
D501	0DD414809ED	DIODE DS4148
D601	0DD414809ED	DIODE DS4148
D801	0DD150009CA	DIODE RGP15J
D805	0DD060009AC	DIODE TVR06J 0.6A/600V 250NS
D806	0DD560009AA	DIODE BYT56M TEMIC TP TEMIC
D809	0DD100009AM	DIODE EU1ZV
D810	0DD100009AM	DIODE EU1ZV
D811	0DD060009AC	DIODE TVR06J 0.6A/600V 250NS
D812	0DD060009AC	DIODE TVR06J 0.6A/600V 250NS
D901	0DD414809ED	DIODE DS4148
D902	0DD414809ED	DIODE DS4148
D903	0DD414809ED	DIODE DS4148
LD01	0DD000000BA	DIODE LAMP(DIFFUSION TYPE)
ZD01	0DZ750009AA	DIODE ZENER MTZ7.5B
ZD02	0DZ750009AA	DIODE ZENER MTZ7.5B
ZD03	0DZ750009AA	DIODE ZENER MTZ7.5B
ZD401	0DZ910009BA	DIODE ZENER MTZ9.1B
ZD402	0DZ510009AB	DIODE ZENER MTZ5.1B
ZD404	0DZ330009BA	DIODE ZENER HZT33
ZD551	0DZ510009AB	DIODE ZENER MTZ5.1B
ZD801	0DZ910009BA	DIODE ZENER MTZ9.1B
ZD810	0DZ750009AA	DIODE ZENER MTZ7.5B
		TRANSISTORS
Q01	0TR126609AA	TRANSISTOR KTA1266-TP-Y (KTA1015)
Q02	0TR319809AA	TRANSISTOR KTC3198-TP-Y (KTC1815)
Q101	0TR319809AB	TRANSISTOR KTC3198-TP-GR (KTC1815)
Q102	0TR319709AB	TRANSISTOR KTC3197,TP(KTC388A)
Q180	0TR126609AA	TRANSISTOR KTA1266-TP-Y (KTA1015)
Q181	0TR126609AA	TRANSISTOR KTA1266-TP-Y (KTA1015)
Q182	0TR126609AA	TRANSISTOR KTA1266-TP-Y (KTA1015)
Q201	0TR126609AA	TRANSISTOR KTA1266-TP-Y (KTA1015)
Q202	0TR319809AA	TRANSISTOR KTC3198-TP-Y (KTC1815)
Q220	0TR319809AA	TRANSISTOR KTC3198-TP-Y (KTC1815)
Q301	0TR319809AA	TRANSISTOR KTC3198-TP-Y (KTC1815)
Q302	0TR319809AA	TRANSISTOR KTC3198-TP-Y (KTC1815)
Q303	0TR319809AA	TRANSISTOR KTC3198-TP-Y (KTC1815)
Q401	0TR102609AA	TRANSISTOR KTC1026-Y TP(KTC2230A)
⚠ Q402	0TR525000AA	TRANSISTOR 2SC5250 TO-3PFM
Q503	0TR126609AA	TRANSISTOR KTA1266-TP-Y (KTA1015)
Q508	0TR102009AB	TRANSISTOR KRC102M,TP(KRC1202)
Q512	0TR126609AA	TRANSISTOR KTA1266-TP-Y (KTA1015)
Q513	0TR126609AA	TRANSISTOR KTA1266-TP-Y (KTA1015)
Q514	0TR126609AA	TRANSISTOR KTA1266-TP-Y (KTA1015)
Q515	0TR319809AA	TRANSISTOR KTC3198-TP-Y (KTC1815)
Q517	0TR126609AA	TRANSISTOR KTA1266-TP-Y (KTA1015)
Q601	0TR102009AB	TRANSISTOR KRC102M,TP(KRC1202)
Q802	0TR320209AA	TRANSISTOR KTC3202-TP-Y (KTC1959)
Q803	0TR319809AB	TRANSISTOR KTC3198-TP-GR (KTC1815)
Q804	0TR319809AA	TRANSISTOR KTC3198-TP-Y (KTC1815)
Q810	0TR102609AA	TRANSISTOR KTC1026-Y TP(KTC2230A)
Q901	0TR322900AA	TRANSISTOR KTC3229 (KTC2068)
Q902	0TR322900AA	TRANSISTOR KTC3229 (KTC2068)
Q903	0TR322900AA	TRANSISTOR KTC3229 (KTC2068)
		CAPACITORS
C01	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C02	0CN4710K519	C,TUBULA(HIGH DIELE) 470PF 50V K
C03	0CN3910K519	C,TUBULA(HIGH DIELE) 390P 50V K
C04	0CQ4731N509	C,POLYESTER(MYLAR) 0.047U 100V K
C05	0CN1010K519	C,TUBULA(HIGH DIELE) 100PF 50V K
C06	0CN2710K519	C,TUBULA(HIGH DIELE) 270PF 50V K
C08	0CC2200K415	C,CERAMIC(TEMP COMP) 22P 50V J
C09	0CC2200K415	C,CERAMIC(TEMP COMP) 22P 50V J
C10	0CC1500K415	C,CERAMIC(TEMP COMP) 15P 50V J
C103	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C11	0CC1000K115	C,CERAMIC(TEMP COMP) 10PF 50V D
C111	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C112	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C113	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C12	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C13	0CE335DK618	C,ELECTROLYTIC 3.3UF STD 50V M
C14	0CE475DK618	C,ELECTROLYTIC 4.7UF STD 50V M
C16	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C17	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C181	0CE475DK618	C,ELECTROLYTIC 4.7UF STD 50V M
C182	0CE475DK618	C,ELECTROLYTIC 4.7UF STD 50V M
C183	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L

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LOCA. NO	PART NO	DESCRIPTION
C184	0CQ1042K439	C,POLYESTER(MYLAR) 0.1UF S 50V J
C185	0CE475DK618	C,ELECTROLYTIC 4.7UF STD 50V M
C186	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C187	0CE337DF618	C,ELECTROLYTIC 330UF STD 16V M
C188	0CE107DF618	C,ELECTROLYTIC 100UF STD 16V M
C189	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C20	0CN2210K519	C,TUBULA(HIGH DIELE) 220PF 50V K
C203	0CE107DF618	C,ELECTROLYTIC 100UF STD 16V M
C21	0CN1010K519	C,TUBULA(HIGH DIELE) 100PF 50V K
C218	0CE227DD618	C,ELECTROLYTIC 220UF STD 10V M
C219	0CE226DF618	C,ELECTROLYTIC 22UF STD 16V M
C22	0CN1010K519	C,TUBULA(HIGH DIELE) 100PF 50V K
C220	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C221	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C222	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C223	0CE107DF618	C,ELECTROLYTIC 100UF STD 16V M
C224	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C226	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C227	0CQ1021N509	C,POLYESTER(MYLAR) 0.001U 100V K
C228	0CE107DD618	C,ELECTROLYTIC 100UF STD 10V M
C23	0CN1010K519	C,TUBULA(HIGH DIELE) 100PF 50V K
C301	0CN3310K519	C,TUBULA(HIGH DIELE) 330P 50V K
C303	0CC5600K415	C,CERAMIC(TEMP COMP) 56P 50V J
C304	0CQ1021N509	C,POLYESTER(MYLAR) 0.001U 100V K
C305	0CE227DJ618	C,ELECTROLYTIC 220UF STD 35V M
C306	0CQ6831N509	C,POLYESTER(MYLAR) 0.068U 100V K
C308	181-0322	C,TANTAL 2.2MF 25V K
C310	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C311	0CE476DF618	C,ELECTROLYTIC 47UF STD 16V M
C312	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C314	0CE108DH618	C,ELECTROLYTIC 1000UF STD 25V M
C402	0CQ1531N509	C,POLYESTER(MYLAR) 0.015MF 100V K
C403	0CE227DF618	C,ELECTROLYTIC 220UF STD 16V M
C404	0CE225DK618	C,ELECTROLYTIC 2.2UF STD 50V M
C407	0CE475DP618	C,ELECTROLYTIC 4.7000UF STD 160V M
C408	0CE105DP618	C,ELECTROLYTIC 1UF STD 160V M
C409	0CQ3931N509	C,POLYESTER(MYLAR) 0.039UF 100V K
C411	0CK4710W515	C,CERAMIC(HIGH DIELE) 470PF 500V K
C412	0CE108DJ618	C,ELECTROLYTIC 1000UF STD 35V M
C413	0CK4710W515	C,CERAMIC(HIGH DIELE) 470PF 500V K
C414	0CE337DH618	C,ELECTROLYTIC 330UF STD 25V M
C416	0CE475DK618	C,ELECTROLYTIC 4.7UF STD 50V M
C418	0CE1061R618	C,ELECTROLYTIC 10M SM 250V M
C419	0CK4710W515	C,CERAMIC(HIGH DIELE) 470PF 500V K
⚠ C420	181-013H	C,MPP 200V 0.62UF J
⚠ C421	181-015E	C,MPP 1600V 0.0068UF H
C422	181-009V	CAPACITOR PP 200V 0.047UF K
C430	0CE227DD618	C,ELECTROLYTIC 220UF STD 10V M
C501	0CQ2721N409	C,POLYESTER(MYLAR) 2700PF 100V J
C502	0CX1000K409	C,TUBULA(T.C) 10P 50V J
C503	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M

LOCA. NO	PART NO	DESCRIPTION
C505	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C507	0CN1040K949	C,TUBULA(HIGH DIELE) 0.1M 50V Z
C508	0CN2230H949	C,TUBULA(HIGH DIELE) 22000P 25V Z F
C509	0CE107DF618	C,ELECTROLYTIC 100UF STD 16V M
C510	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C511	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C512	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C513	0CQ1042K439	C,POLYESTER(MYLAR) 0.1UF S 50V J
C514	0CE476DF618	C,ELECTROLYTIC 47UF STD 16V M
C515	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C516	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C517	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C518	0CE476DF618	C,ELECTROLYTIC 47UF STD 16V M
C519	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C520	0CE475DK618	C,ELECTROLYTIC 4.7UF STD 50V M
C521	0CQ4721N509	C,POLYESTER(MYLAR) 0.0047U 100V K
C522	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C523	0CC1300K415	C,CERAMIC(TEMP COMP) 13P 50V J
C524	0CC1300K415	C,CERAMIC(TEMP COMP) 13P 50V J
C525	0CN2230H949	C,TUBULA(HIGH DIELE) 22000P 25V Z F
C526	0CE476DF618	C,ELECTROLYTIC 47UF STD 16V M
C527	0CQ4721N509	C,POLYESTER(MYLAR) 0.0047U 100V K
C528	0CE105DK618	C,ELECTROLYTIC 1UF STD 50V M
C529	0CQ4721N509	C,POLYESTER(MYLAR) 0.0047U 100V K
C530	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C531	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C532	0CQ2231N509	C,POLYESTER(MYLAR) 0.022MF 100V K
C533	0CE225DK618	C,ELECTROLYTIC 2.2UF STD 50V M
C534	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C535	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C536	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C537	0CN2230H949	C,TUBULA(HIGH DIELE) 22000P 25V Z F
C538	0CE225DK618	C,ELECTROLYTIC 2.2UF STD 50V M
C539	0CQ3321N509	C,POLYESTER(MYLAR) 0.0033U 100V K
C551	0CE476DF618	C,ELECTROLYTIC 47UF STD 16V M
C552	0CN2230H949	C,TUBULA(HIGH DIELE) 22000P 25V Z F
C553	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C554	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C555	0CQ1021N509	C,POLYESTER(MYLAR) 0.001U 100V K
C556	0CQ1021N509	C,POLYESTER(MYLAR) 0.001U 100V K
C557	0CN2230H949	C,TUBULA(HIGH DIELE) 22000P 25V Z F
C601	0CE108DJ618	C,ELECTROLYTIC 1000UF STD 35V M
C602	0CQ1031N509	C,POLYESTER(MYLAR) 0.01U 100V K
C603	0CE477DF618	C,ELECTROLYTIC 470UF STD 16V M
C604	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C605	0CE225DK618	C,ELECTROLYTIC 2.2UF STD 50V M
C606	0CE336DK618	C,ELECTROLYTIC 33UF STD 50V M
C607	0CQ1031N509	C,POLYESTER(MYLAR) 0.01U 100V K
C608	0CE475DK618	C,ELECTROLYTIC 4.7UF STD 50V M
C609	0CE475DK618	C,ELECTROLYTIC 4.7UF STD 50V M
C610	0CE226DK618	C,ELECTROLYTIC 22UF STD 50V M
C658	0CN1020K519	C,TUBULA(HIGH DIELE) 1000PF 50V K

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

LOCA. NO	PART NO	DESCRIPTION
C664	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C665	0CX5600K409	C,TUBULA(T.C) 56P 50V J
C667	0CX4700K409	C,TUBULA(T.C) 47PF 50V J
C804	0CK4710W515	C,CERAMIC(HIGH DIELE) 470PF 500V K
C805	0CE477DJ618	C,ELECTROLYTIC 470UF STD 35V M
⚠ C810	181-120E	C,ACT 4KV E 222M FL10
C811	0CE475DK618	C,ELECTROLYTIC 4.7UF STD 50V M
C812	0CK4710W515	C,CERAMIC(HIGH DIELE) 470PF 500V K
C813	0CK47101515	C,CERAMIC 470P 1KV K
C814	0CE227DP650	C,ELECTROLYTIC 220UF STD 160V M
C817	181-001W	C,AL.ELECTROLYTIC CE 450V 220UF M
C818	0CK47102515	C,CERAMIC(HIGH DIELE) 470P 2KV K
C819	0CK4710W515	C,CERAMIC(HIGH DIELE) 470PF 500V K
C820	0CE227DJ618	C,ELECTROLYTIC 220UF STD 35V M
⚠ C822	0CQZVBK002B	C,POLYESTER A.C 275V 0.15UF K
C823	0CN1020K519	C,TUBULA(HIGH DIELE) 1000PF 50V K
C824	0CE475DK618	C,ELECTROLYTIC 4.7UF STD 50V M
C825	0CE227DJ618	C,ELECTROLYTIC 220UF STD 35V M
C826	181-120E	C,ACT 4KV E 222M FL10
C827	0CE1071P650	C,ELECTROLYTIC 100M SM 160V M
⚠ C828	0CQZVBK002B	C,POLYESTER A.C 275V 0.15UF K
C830	0CE477DF618	C,ELECTROLYTIC 470UF STD 16V M
C832	0CK10201515	C,CERAMIC(HIGH DIELE) 1000P 1KV K
C833	0CK10201515	C,CERAMIC(HIGH DIELE) 1000P 1KV K
C834	0CK10201515	C,CERAMIC(HIGH DIELE) 1000P 1KV K
C835	0CK10201515	C,CERAMIC(HIGH DIELE) 1000P 1KV K
C840	0CE227DD618	C,ELECTROLYTIC 220UF STD 10V M
C841	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C901	0CN2710K519	C,TUBULA(HIGH DIELE) 270PF 50V K
C902	0CN2710K519	C,TUBULA(HIGH DIELE) 270PF 50V K
C903	0CN3310K519	C,TUBULA(HIGH DIELE) 330P 50V K
C904	0CE476DF618	C,ELECTROLYTIC 47UF STD 16V M
C905	181-033S	CAPACITOR 2KV B 122K TP7.5

COILS & TRANSFORMERS

J103	0LA0102K119	INDUCTOR 10UH K
J106	0LA0102K119	INDUCTOR 10UH K
L01	0LA0392K119	INDUCTOR 39UH K
L103	0LA0101K119	INDUCTOR 1.0UH K
L103	150-C01D	COIL, CHOKE 0.55UH A 1105 *HYPER TUNER
L181	0LA0331K119	INDUCTOR 3.3UH K 2.3*3.4 TP
⚠ L402	150-L01W	COIL, H-LINEARITY 57UH
L403	125-022K	CORE, FERRITE 1UH
L501	0LA1000K119	INDUCTOR 100UH K
L504	0LA0331K119	INDUCTOR 3.3UH K 2.3*3.4 TP
L653	0LA0681K119	INDUCTOR 6.8UH K
L654	0LA0122K119	INDUCTOR 12UH K
L802	150-C02F	COIL, CHOKE 82UH R1217
L803	125-022K	CORE, FERRITE 1UH
L804	125-123A	CORE, FERRITE BFD3565R2F
L805	125-022K	CORE, FERRITE 1UH
L901	150-C02A	COIL, CHOKE 10UH R0814
T402	151-C02H	TRANSFORMER, H-DRIVE,EI-19,BULK

LOCA. NO	PART NO	DESCRIPTION
⚠ T801	150-F06N	COIL,LINE FILTER SQE2424 7MH
⚠ T802	151-B06Q	TRANSFORMER, SMPS EER4215 STR-S5707 W
VL501	150-E08N	COIL, VAR,07S 1B 38.9MHZ

RESISTORS

⚠ FR421	0RF0101J607	R,FUSIBLE 1 1W 5%
⚠ FR422	0RF0470J607	R,FUSIBLE 0.47 1W 5%
⚠ FR423	180-D02P	R,RNF RND(S) CR 2W 3.0 J
⚠ FR804	0RF0201K607	R,FUSIBLE 2 2W 5%
⚠ FR812	0RF0470H609	R,FUSIBLE 0.47 1/2W 5
J94	0RD1503F609	R,CARBON FILM 150K 1/6W 5
R02	0RD2702F609	R,CARBON FILM 27K 1/6W 5
R03	0RD9101F609	R,CARBON FILM 9.1K 1/6W 5
R04	0RD2200F609	R,CARBON FILM 220 1/6W 5
R05	0RD0912F609	R,CARBON FILM 91 1/6W 5
R06	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R07	0RD3300F609	R,CARBON FILM 330 1/6W 5
R08	0RD4700F609	R,CARBON FILM 470 1/6W 5
R105	0RD3302F609	R,CARBON FILM 33K 1/6W 5
R106	0RD1003F609	R,CARBON FILM 100K 1/6W 5
R107	0RD3302F609	R,CARBON FILM 33K 1/6W 5
R108	0RD2402F609	R,CARBON FILM 24K 1/6W 5
R11	0RD5601F609	R,CARBON FILM 5.6K 1/6W 5
R112	0RD2200F609	R,CARBON FILM 220 1/6W 5
R113	0RD5101F609	R,CARBON FILM 5.1K 1/6W 5
R114	0RD6800F609	R,CARBON FILM 680 1/6W 5
R116	0RD0682F609	R,CARBON FILM 68 1/6W 5
R116	0RD1200F609	R,CARBON FILM 120 1/6W 5 *HYPER TUNER
R117	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R118	0RD0562F609	R,CARBON FILM 56 1/6W 5
R118	0RD0392F609	R,CARBON FILM 39 1/6W 5 *HYPER TUNER
R12	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R13	0RD1601F609	R,CARBON FILM 1.6K 1/6W 5
R14	0RD1201F609	R,CARBON FILM 1.2K 1/6W 5
R15	0RD2001F609	R,CARBON FILM 2.0K 1/6W 5
R16	0RD3901F609	R,CARBON FILM 3.9K 1/6W 5
R17	0RD2201F609	R,CARBON FILM 2.2K 1/6W 5
R18	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R180	0RD4702F609	R,CARBON FILM 47K 1/6W 5
R181	0RD4702F609	R,CARBON FILM 47K 1/6W 5
R182	0RD4702F609	R,CARBON FILM 47K 1/6W 5
R183	0RD3302F609	R,CARBON FILM 33K 1/6W 5
R184	0RD9102F609	R,CARBON FILM 91K 1/6W 5
R185	0RD1003F609	R,CARBON FILM 100K 1/6W 5
R186	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R187	0RD1802F609	R,CARBON FILM 18K 1/6W 5
R187	0RD2402F609	R,CARBON FILM 24K 1/6W 5 *HYPER TUNER
R188	0RD1202F609	R,CARBON FILM 12K 1/6W 5
R20	0RD8201F609	R,CARBON FILM 8.2K 1/6W 5
R201	0RD0752F609	R,CARBON FILM 75 1/6W 5
R203	0RD3300F609	R,CARBON FILM 330 1/6W 5
R204	0RD3300F609	R,CARBON FILM 330 1/6W 5

LOCA. NO	PART NO	DESCRIPTION
R205	0RD0822F609	R,CARBON FILM 82 1/6W 5
R21	0RD2702F609	R,CARBON FILM 27K 1/6W 5
R212	0RD2202F609	R,CARBON FILM 22K 1/6W 5
R217	0RD4700F609	R,CARBON FILM 470 1/6W 5
R218	0RD3001F609	R,CARBON FILM 3.0K 1/6W 5
R22	0RD1502F609	R,CARBON FILM 15K 1/6W 5
R220	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R221	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R224	0RD2001F609	R,CARBON FILM 2.0K 1/6W 5
R225	0RD4700F609	R,CARBON FILM 470 1/6W 5
R226	0RD1101F609	R,CARBON FILM 1.1K 1/6W 5
R227	0RD2001F609	R,CARBON FILM 2.0K 1/6W 5
R228	0RD0562F609	R,CARBON FILM 56 1/6W 5
R229	0RD3900F609	R,CARBON FILM 390 1/6W 5
R23	0RD6801F609	R,CARBON FILM 6.8K 1/6W 5
R230	0RD3301F609	R,CARBON FILM 3.3K 1/6W 5
R231	0RD6801F609	R,CARBON FILM 6.8K 1/6W 5
R232	0RD2200F609	R,CARBON FILM 220 1/6W 5
R26	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R27	0RD4701F609	R,CARBON FILM 4.7K 1/6W 5
R29	0RD6802F609	R,CARBON FILM 68K 1/6W 5
R30	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R301	0RD6200F609	R,CARBON FILM 620 1/6W 5
R302	0RD8200H609	R,CARBON FILM 820 1/2W 5
R303	0RD1203F609	R,CARBON FILM 120K 1/6W 5
R304	0RD0822F609	R,CARBON FILM 82 1/6W 5
R305	0RD4700F609	R,CARBON FILM 470 1/6W 5
R306	0RD3002F609	R,CARBON FILM 30K 1/6W 5
R307	0RN2402F409	R,METAL FILM 24K 1/6W 1% TA52
R308	0RD6800F609	R,CARBON FILM 680 1/6W 5
R309	0RD1202F609	R,CARBON FILM 12K 1/6W 5
R31	0RD1201F609	R,CARBON FILM 1.2K 1/6W 5
R310	0RS3300J607	R,METAL FILM OXIDE 330 1W 5%
R311	0RD0221H609	R,CARBON FILM 2.2 1/2W 5
R312	0RD3902F609	R,CARBON FILM 39K 1/6W 5
R313	0RD4702F609	R,CARBON FILM 47K 1/6W 5
R314	0RD2002F609	R,CARBON FILM 20K 1/6W 5
R315	0RD4701H609	R,CARBON FILM 4.7K 1/2W 5
R316	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R317	0RD0471H609	R,CARBON FILM 4.7 1/2W 5
R32	0RD3002F609	R,CARBON FILM 30K 1/6W 5
R33	0RD4702F609	R,CARBON FILM 47K 1/6W 5
R34	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R35	0RD2200F609	R,CARBON FILM 220 1/6W 5
R36	0RD4701F609	R,CARBON FILM 4.7K 1/6W 5
R37	0RD4701F609	R,CARBON FILM 4.7K 1/6W 5
R38	0RD4701F609	R,CARBON FILM 4.7K 1/6W 5
R39	0RD3301F609	R,CARBON FILM 3.3K 1/6W 5
R40	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R410	0RD3903H609	R,METAL FILM OXIDE 390K 1/2W 5
R411	180-B01U	R,CEMENT RS RECT S 5W 4.7K J
R412	0RD1202F609	R,CARBON FILM 12K 1/6W 5
R413	0RS3901J607	R,METAL FILM OXIDE 3.90K 1W 5% TA62

LOCA. NO	PART NO	DESCRIPTION
R414	0RD2701H609	R,CARBON FILM 2.7K 1/2W 5
R416	0RD2702F609	R,CARBON FILM 27K 1/6W 5
R417	0RD1000F609	R,CARBON FILM 100 1/6W 5
R421	0RS1802K607	R,METAL FILM OXIDE 18K 2W 5%
R422	0RD1003H609	R,CARBON FILM 100K 1/2W 5
R423	0RD1003H609	R,CARBON FILM 100K 1/2W 5
R424	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R425	0RS1002K607	R,METAL FILM OXIDE 10K 2W 5%
R426	0RD0392H609	R,CARBON FILM 39 1/2W 5
R430	0RS0681K607	R,METAL FILM OXIDE 6.8 2W 5%
R48	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R49	0RD4701F609	R,CARBON FILM 4.7K 1/6W 5
R501	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R503	0RN3903F609	R,METAL FILM OXIDE 390K 1/6W 5% TA52
R504	0RD1000F609	R,CARBON FILM 100 1/6W 5
R505	0RD1501F609	R,CARBON FILM 1.5K 1/6W 5
R506	0RD3300F609	R,CARBON FILM 330 1/6W 5
R508	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R509	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R510	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R511	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R512	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R513	0RD1500F609	R,CARBON FILM 150 1/6W 5
R514	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R515	0RD4702F609	R,CARBON FILM 47K 1/6W 5
R516	0RD2002F609	R,CARBON FILM 20K 1/6W 5
R517	0RD2701F609	R,CARBON FILM 2.7K 1/6W 5
R518	0RD1201F609	R,CARBON FILM 1.2K 1/6W 5
R519	0RD1203F609	R,CARBON FILM 120K 1/6W 5
R520	0RD2403F609	R,CARBON FILM 240K 1/6W 5
R521	0RD2001F609	R,CARBON FILM 2.0K 1/6W 5
R522	0RD1202F609	R,CARBON FILM 12K 1/6W 5
R523	0RD1003F609	R,CARBON FILM 100K 1/6W 5
R524	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R525	0RD1000F609	R,CARBON FILM 100 1/6W 5
R526	0RD1502F609	R,CARBON FILM 15K 1/6W 5
R527	0RD6203F609	R,CARBON FILM 620K 1/6W 5
R528	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R535	0RD8200F609	R,CARBON FILM 820 1/6W 5
R536	0RD2002F609	R,CARBON FILM 20K 1/6W 5
R538	0RD4700F609	R,CARBON FILM 470 1/6W 5
R539	0RD1500F609	R,CARBON FILM 150 1/6W 5
R54	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R540	0RD5600F609	R,CARBON FILM 560 1/6W 5
R541	0RD5600F609	R,CARBON FILM 560 1/6W 5
R542	0RD5600F609	R,CARBON FILM 560 1/6W 5
R543	0RD6803F609	R,CARBON FILM 680K 1/6W 5
R544	0RD2401F609	R,CARBON FILM 2.4K 1/6W 5
R545	0RD2401F609	R,CARBON FILM 2.4K 1/6W 5
R546	0RD2401F609	R,CARBON FILM 2.4K 1/6W 5
R547	0RD1000F609	R,CARBON FILM 100 1/6W 5
R548	0RD3301F609	R,CARBON FILM 3.3K 1/6W 5
R549	0RD2401F609	R,CARBON FILM 2.4K 1/6W 5

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

LOCA. NO	PART NO	DESCRIPTION
R551	0RD1200F609	R,CARBON FILM 120 1/6W 5
R56	0RD1000F609	R,CARBON FILM 100 1/6W 5
R57	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R58	0RD1000F609	R,CARBON FILM 100 1/6W 5
R59	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R60	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R601	0RD1201F609	R,CARBON FILM 1.2K 1/6W 5
R602	0RD0221H609	R,CARBON FILM 2.2 1/2W 5
R603	0RD9102F609	R,CARBON FILM 91K 1/6W 5
R604	0RD1003F609	R,CARBON FILM 100K 1/6W 5
R605	0RD1003F609	R,CARBON FILM 100K 1/6W 5
R606	0RD6201F609	R,CARBON FILM 6.2K 1/6W 5
R607	0RD1003F609	R,CARBON FILM 100K 1/6W 5
R608	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R609	0RD2001F609	R,CARBON FILM 2.0K 1/6W 5
R61	0RD1000F609	R,CARBON FILM 100 1/6W 5
R610	0RD8201F609	R,CARBON FILM 8.2K 1/6W 5
R611	0RD2001F609	R,CARBON FILM 2.0K 1/6W 5
R62	0RD1000F609	R,CARBON FILM 100 1/6W 5
R63	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R64	0RD1000F609	R,CARBON FILM 100 1/6W 5
R65	0RD2701F609	R,CARBON FILM 2.7K 1/6W 5
R66	0RD2701F609	R,CARBON FILM 2.7K 1/6W 5
R665	0RD1501F609	R,CARBON FILM 1.5K 1/6W 5
R67	0RD2701F609	R,CARBON FILM 2.7K 1/6W 5
R671	0RD1500F609	R,CARBON FILM 150 1/6W 5
R675	0RD2200F609	R,CARBON FILM 220 1/6W 5
R677	0RD2200F609	R,CARBON FILM 220 1/6W 5
R68	0RD2701F609	R,CARBON FILM 2.7K 1/6W 5
R72	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R73	0RD1202F609	R,CARBON FILM 12K 1/6W 5
R74	0RD1202F609	R,CARBON FILM 12K 1/6W 5
R75	0RD1202F609	R,CARBON FILM 12K 1/6W 5
R77	0RD2200F609	R,CARBON FILM 220 1/6W 5
R79	0RD1000F609	R,CARBON FILM 100 1/6W 5
R80	0RD1000F609	R,CARBON FILM 100 1/6W 5
R803	0RD3302F609	R,CARBON FILM 33K 1/6W 5
R804	0RD3302F609	R,CARBON FILM 33K 1/6W 5
R805	0RD2001F609	R,CARBON FILM 2.0K 1/6W 5
R806	0RD0102F609	R,CARBON FILM 10 1/6W 5
R81	0RD3301F609	R,CARBON FILM 3.3K 1/6W 5
⚠ R811	180-C02H	R,CARBON COMPOSIT C12GK825V(RC 1/2W 8.2M K)
R814	0RD9100F609	R,CARBON FILM 910 1/6W 5
R817	0RD3001H609	R,CARBON FILM 3.0K 1/2W 5
R818	0RD3902H609	R,CARBON FILM 39K 1/2W 5
R819	0RD1601F609	R,CARBON FILM 1.6K 1/6W 5
R82	0RD2200F609	R,CARBON FILM 220 1/6W 5
R820	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R821	180-A03Q	R,RW RECT G 7W 1.0 J DOUBLE(SP)
R822	0RD1000H609	R,CARBON FILM 100 1/2W 5
R823	0RD5601H609	R,CARBON FILM 5.6K 1/2W 5
R824	0RS0182J607	R,METAL FILM OXIDE 18 1W 5% TA62

LOCA. NO	PART NO	DESCRIPTION
R825	180-A01E	R,RW ROUND G 2W 0.33 J
R827	0RS2202K607	R,METAL FILM OXIDE 22K 2W 5%
R828	0RN0680H609	R,METAL FILM 0.68 1/2W 5
R829	0RS2202K607	R,METAL FILM OXIDE 22K 2W 5%
R83	0RD1801F609	R,CARBON FILM 1.8K 1/6W 5
R830	0RS0152H609	R,METAL FILM OXIDE 15 1/2W 5
R84	0RD4701F609	R,CARBON FILM 4.7K 1/6W 5
R85	0RD4701F609	R,CARBON FILM 4.7K 1/6W 5
R86	0RD4701F609	R,CARBON FILM 4.7K 1/6W 5
R901	0RD1000F609	R,CARBON FILM 100 1/6W 5
R902	0RD1000F609	R,CARBON FILM 100 1/6W 5
R903	0RD1000F609	R,CARBON FILM 100 1/6W 5
R904	0RS1002K607	R,METAL FILM OXIDE 10K 2W 5%
R905	0RS1002K607	R,METAL FILM OXIDE 10K 2W 5%
R906	0RS1002K607	R,METAL FILM OXIDE 10K 2W 5%
R907	0RD2701H609	R,CARBON FILM 2.7K 1/2W 5
R908	0RD2701H609	R,CARBON FILM 2.7K 1/2W 5
R909	0RD2701H609	R,CARBON FILM 2.7K 1/2W 5
R910	0RD1801F609	R,CARBON FILM 1.8K 1/6W 5
R911	0RD1801F609	R,CARBON FILM 1.8K 1/6W 5
R912	0RD1801F609	R,CARBON FILM 1.8K 1/6W 5
R913	0RD3000F609	R,CARBON FILM 300 1/6W 5
R914	0RD3900F609	R,CARBON FILM 390 1/6W 5
R915	0RD3000F609	R,CARBON FILM 300 1/6W 5
R916	0RD1800F609	R,CARBON FILM 180 1/6W 5
R917	0RD1000F609	R,CARBON FILM 100 1/6W 5
R921	0RD0562F609	R,CARBON FILM 56 1/6W 5
R922	0RD0562F609	R,CARBON FILM 56 1/6W 5
R923	0RD0562F609	R,CARBON FILM 56 1/6W 5
VR301	180-F03A	R,SEMI-FIX(H) EVN-DJAA03 B201
VR302	180-F03H	R,SEMI-FIX(H) EVN-DJAA03 B103
VR501	180-F03G	R,SEMI-FIX(H) EVN-DJAA03 B502
VR502	180-F03H	R,SEMI-FIX(H) EVN-DJAA03 B103
VR901	180-F03G	R,SEMI-FIX(H) EVN-DJAA03 B502
VR902	180-F03G	R,SEMI-FIX(H) EVN-DJAA03 B502
VR903	180-F03G	R,SEMI-FIX(H) EVN-DJAA03 B502
VR904	180-F03C	R,SEMI FIX(H) EVN-DJAA03 B501
VR905	180-F03C	R,SEMI FIX(H) EVN-DJAA03 B501

SWITCHES

SW01	140-315A	SWITCH, TACT VERT
SW02	140-315A	SWITCH, TACT VERT
SW03	140-315A	SWITCH, TACT VERT
SW04	140-315A	SWITCH, TACT VERT
SW05	140-315A	SWITCH, TACT VERT
SW06	140-315A	SWITCH, TACT VERT
⚠ SW801	140-343A	SWITCH 70063-001(TV5/120A/250V)

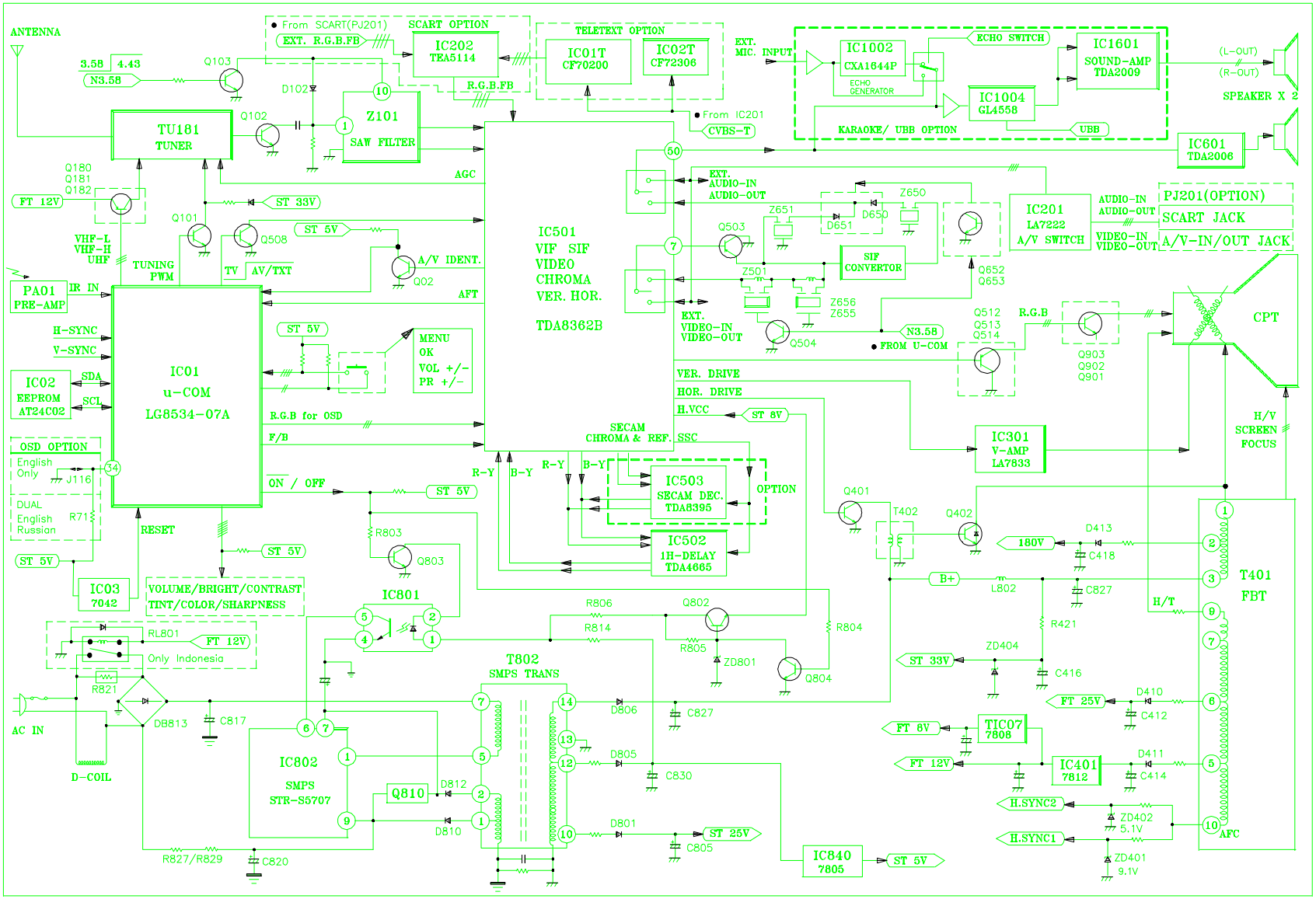
FILTERS & OSCILLATORS

X01	156-A01U	CRYSTAL 3.6 15PF 90 OHM BULK
X501	156-A01B	CRYSTAL 3.579545 16PF 90 OHM
X502	156-A01H	CRYSTAL 4.433619 16PF 80 OHM BULK

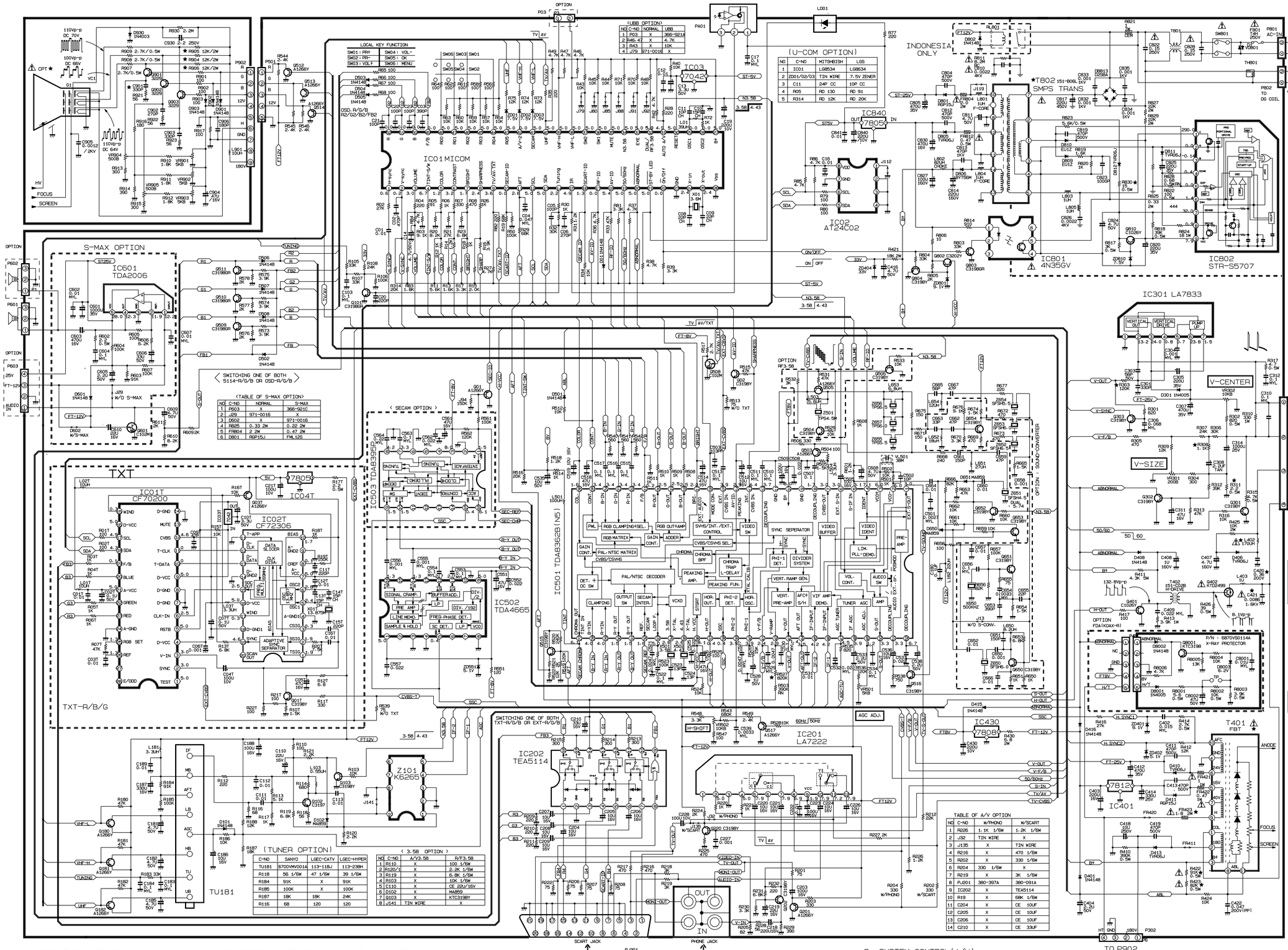
The parts which are marked with "ƒN" are Local parts.

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

LOCA. NO	PART NO	DESCRIPTION
Z101	166-A01S	FILTER OFWK2958M
Z654	166-B02C	FILTER B.P FILTER SFSH5.5MCB-TF21
Z657	166-C02C	FILTER TRAP TPS5.5MB-TF21
	MISCELLANEOUS	
⚠	153-113V	DY DCAD2*113V-14SNAB
	327-062G	SEAT, RUBBER
	341-242F	HOLDER, POWER CORD
	450-018C	ADAPTER, ANT.(300 TO 75) PAL
⚠ F801	131-098B	FUSE 4A/250V HBC TIME DELAY 5X20
PA01	106-049A	PRE-AMP LIM 9051-4(38.0KHZ),LITEON
PJ201	380-397A	JACK, PHONE 4P(AUDIO MONO) PJ
⚠ P901	381-100F	SOCKET, CPT 022.5 S/LESS PCS625-11A
⚠ TH801	163-012C	THERMISTOR J502P54E180M220
TU181ƒN	6700VMV001A	TUNER 115-B-4101SP
TU181	113-238H	TUNER, TUKG4-C07M(HYPER)
⚠ T401	154-064P	FBT FCB2-14SP3
VD801	164-003D	VARISTOR SVC 561D-14A


ANTENNA
TU181
TUNER
Q180
Q181
Q182
FT 12V
VHF-L
VHF-H
UHF
TUNING
PWM
Q103
3.58 4.43
N3.58
Q102
Q101
Q508
ST 33V
ST 5V
TV AV/TXT
A/V IDENT.
Q02
AFT
D102
Z101
SAW FILTER
AGC
From SCART(PJ201)
EXT. R.G.B.FB
SCART OPTION
IC202
TEA5114
R.G.B.FB
TELETEXT OPTION
IC01T
CF70200
IC02T
CF72306
From IC201
CVBS-T
IC501
VIF SIF
VIDEO
CHROMA
VER. HOR.
TDA8362B
EXT.
AUDIO-IN
AUDIO-OUT
Z650
Z651
D650
D651
Q503
SIF
CONVERTOR
Z501
Z656
Z655
Q652
Q653
EXT.
VIDEO-IN
VIDEO-OUT
Q504
N3.5B
FROM U-COM
Q512
Q513
Q514
R.G.B
Q903
Q902
Q901
CPT
IC201
LA7222
A/V SWITCH
AUDIO-IN
AUDIO-OUT
VIDEO-IN
VIDEO-OUT
PJ201(OPTION)
SCART JACK
A/V-IN/OUT JACK
EXT.
MIC. INPUT
IC1002
CXA1644P
ECHO GENERATOR
ECHO SWITCH
IC1004
GL4558
KARAOKE/ UBB OPTION
UBB
IC1601
SOUND-AMP
TDA2009
(L-OUT)
(R-OUT)
SPEAKER X 2
IC601
TDA2006
PA01
PRE-AMP
IR IN
IC01
u-COM
LG8534-07A
H-SYNC
V-SYNC
IC02
EEPROM
AT24C02
SDA
SCL
MENU
OK
VOL +/-
PR +/-
R.G.B for OSD
F/B
ON / OFF
RESET
OSD OPTION
English
Only
J116
DUAL
English
Russian
R71
IC03
7042
VOLUME/BRIGHT/CONTRAST
TINT/COLOR/SHARPNESS
R803
Q803
IC801
RL801
FT 12V
Only Indonesia
R821
DB813
AC IN
D-COIL
C817
R827/R829
C820
IC802
SMPS
STR-S5707
Q810
D812
D810
T802
SMPS TRANS
D806
D805
D801
C827
C830
C805
ST 25V
IC840
7805
ST 5V
R806
R814
Q802
R805
ZD801
Q804
R804
VER. DRIVE
HOR. DRIVE
H.VCC
ST 8V
SECAM
CHROMA & REF.
SSC
IC503
SECAM DEC.
TDA8395
OPTION
IC502
1H-DELAY
TDA4665
R-Y
B-Y
IC301
V-AMP
LA7833
H/V
SCREEN
FOCUS
Q401
T402
Q402
180V
D413
C418
B+
L802
C827
H/T
R421
ZD404
ST 33V
C416
FT 25V
D410
C412
FT 8V
TIC07
7808
FT 12V
IC401
7812
D411
C414
H.SYNC2
H.SYNC1
ZD402
5.1V
ZD401
9.1V
T401
FBT
AFC

SCHEMATIC DIAGRAM OF MC-64A



NOTICE

Since this is a basic schematic diagram,

the value of components and some partial connection are subject to be changed for improvement without notice.

The components marked ⚠ conform VDE orIEC guidelines and essential for safe operation of the TV receiver. while those marked ⚠ are required for correct operation. Use specified parts only when replacing.

VALUE OF RESISTER, CAPACITOR AND INDUCTOR

1. Resistance is shown in ohm. K=1,000 M=1,000,000.
2. Unless otherwise noted in schematic, all capacitor values less than 1 are expressed in mfd and the values more than 1 in pF
3. Unless otherwise noted in schematic, all inductor values less than 1 are expressed in uH, and the values less than 1 in H.

OBSERVATION OF VOLTAGE AND WAVEFORMS

1. Voltages read with VTVM from point to ground line voltages 180 ~ 270 volts. color bar signal.
2. Voltages reading may vary +/- 20 %.
3. The schematic shown is representative only.
4. All waveforms aretaken using a wide band oscilloscope and a low capacity prove
5. Check FINE TUNING, AGC, BRIGHTNESS, CONTRAST and COLOR controls for best picture. make sure that BRIGHTNESS and COLOR controls are in mid position and CONTRST controls is almost in maximum position
6. Waveforms are taken using a standard color signal.

TABLE OF INCH CONVERSION (★142 changing parts)

CIRCUIT NO.	14"	16" (ORION	INCH 20"	21"	REMARK
T401	154-064P	154-064P	154-375H	154-375F	FBT
L402	150-L01W	150-L01W	150-L02C	150-L02C	LINEARITY COIL
R308	680	680	1.1K	1.1K	RESI. RD 1/6W
R311	2.2	2.2	2.2	2.2	RESI. RD 0.5W
R423	100K	100K	82K	82K	RESI. RD 0.5W
R422	100K	100K	91K	75K	RESI. RD 0.5W
C420	0.47	0.36	0.36	0.47	CAPA. MPP 200V
C421	6200P	6800P	8600P	8600P	CAPA. MPP 1.6KV
R830	12	12		15	RESI.RS 0.5W
R830		27	27	22	RESI.RS 0.5W S-MAX
T802	151-B06G	151-B06G	151-B06G	151-B06L	TRANS SMPS M/L
T802		151-B05H	151-B06H	151-B05J	TRANS SMPS S-MAX
P901	381-100F	381-100F	381-226D	381-226D	SOCKET CPT
PCB	111-M54C	111-M54C	111-M54B	111-M54B	PCB MAIN
R304	82	120	300	360	RESI.RD 2W
FR423	3.0	3.0	1.8	1.6	RESI RF 2W
R919	10K	12K	12K	12K	RESI. RS 2W
R520	10K	12K	12K	12K	RESI. RS 2W
R521	10K	12K	12K	12K	RESI. RS 2W
C901	270PF	270PF	330PF	330PF	CN 50V
R08	470	470	1.5K	470	RESI. RD 1/6W
C409	0.039	0.039	0.022	0.022	CQ 100V
R411	4.7K	4.7K	4.3K	4.3K	5W
R303	120K	75K	120K	91K	RESI. RD 1/6W
R527	620K	620K	820K	620K	RESI. RD 1/6W

1. RF/AV/TXT SWITCHING

MODE	SUB MODE	LA7222-2,4	B362-16	u-COM-40	u-COM-9	VIDEO	AUDIO
RF	RF(TV)	H	L	H	H	RF	TV-A
RF	TXT	H	H	L	L	RF-SYNC	TV-A
AV	AV-VIDEO	L	H	L	L	AV	AV-A
AV	AV-TXT	L	H	L	L	AV-SYNC	AV-A

2. SAW FILTER SWITCHING

MODE	D102	SAW FILTER 1 AND 10	G103	
PAL	OFF	NOT CONNECT	ON	3.58 / 4.43
NTSC	ON	CONNECT	OFF	

3. SOUND TRAP SWITCHING

SYSTEM	u-COM(31)	Q506	Q504	Q505	Z501
PAL	H	ON	OFF	ON	OFF
NTSC	L	OFF	ON	OFF	ON

4. SOUND FILTER SWITCHING

SYSTEM	u-COM(31)	Q652	Q653	D651	D650	SOUND-IF
PAL	H	ON	OFF	OFF	ON	5.5/6.0/6.5
NTSC	L	OFF	ON	ON	OFF	4.5

5. H-SHIFT

V-FREQ.	u-COM(19)	Q517	PH1-2(V)	H-SHIFT	SYSTEM
60Hz	L	ON	↓	RIGHT	NTSC
50Hz	H	OFF	↑	LEFT	P/S

6. V-CENTER SHIFT

V-FREQ.	u-COM(19)	Q301	IV	V-CENTER
60Hz	L	OFF		DOWN
50Hz	H	ON	↑	UP

7. SYSTEM CONTROL(AUTO)

S-ID(16)	V-FREQ.	SYSTEM	3.58-SW(31)	50/60(19)	TINT(14)	TINT CONTROL
H	50HZ	SECAM	H	H	H	X
L	50Hz	PAL	H	H	H	X
L	60Hz	N4.43	L	L	M	0
L	60Hz	N3.58	L	L	M	0

8. SYSTEM CONTROL(FORCED)

SYSTEM	3.58-SW(31)	50/60(19)	TINT SW(14)	TINT CONTROL
PAL	H	H	H	X
SECAM	H	H	H	X
N4.43	L	L	1 - 3.5	0
N3.58	H	L	1 - 3.5	0

9. SYSTEM CONTROL(A/V)

S-ID(16)	V-FREQ.	SYSTEM	3.58-SW(31)	50/60(19)	TINT-SW(14)	TINT-CONTROL
H	50	SECAM	H	H	H	X
L	50	PAL	H	H	H	X
L	60	N3.58	L	L	1 - 3.5	0
L	60	N4.43	H	L	1 - 3.5	0

10. AV-ID/SHARPNESS

PICTURE	TDA8362(14)	Q02	u-COM(17)	REMARKS
NO SIGNAL	L	OFF	H	AV DISPLAY ON SCREEN
SIGNAL	1.5 ~ 4(V)	ON	L	VOLT. IS CHANGED BY SHARPNESS

NO	C-NO	NORMAL	USB
1	P03	X	356-5214
2	R45, 47	X	4.7K
3	R43	X	10K
4	J79, 871-0016		X

NO	C-NO	MITSHBISH	LGS
1	IC01	L08634	L08634
2	ZD01/02/03	TIN WIRE	7.5V ZENER
3	C11	24P CC	10P CC
4	R05	RD 130	RD 91
5	R314	RD 12K	RD 20K

NO	C-NO	W/PHONO	W/SCART
1	R226	1.1K 1/6W	1.2K 1/6W
2	J32	TIN WIRE	X
3	J135	X	TIN WIRE
4	R216	X	470 1/6W
5	R202	X	330 1/6W
6	R204	330 1/6W	X
7	R219	X	3K 1/6W
8	PJ201	380-397A	380-091A
9	IC202	X	TEA5114
10	R19	X	68K 1/6W
11	C204	X	CE 10UF
12	C205	X	CE 10UF
13	C206	X	CE 10UF
14	C210	X	CE 33UF

NO	C-NO	A/V3.58	P/T3.58
1	R110	X	100 1/6W
2	R120/1	X	2.2K 1/6W
3	R119	X	6.8K 1/6W
4	R103	X	10K 1/6W
5	C110	X	CE 22U/16V
6	D102	X	MA8S9
7	G103	X	KTC3198Y
8	J141	TIN WIRE	X

NO	C-NO	NORMAL	S-MAX
1	P803	X	366-521C
2	U59	971-0016	X
3	D502	X	971-0016
4	R505	0.33 2W	0.22 2W
5	FR804	2.2W	0.47 2W
6	D801	RGP15J	FML12S

C-NO	SANYO	LGEC-CATV	LGEC-HYPER
TU181	6700VMV001A	113~118J	113~236H
R118	56 1/6W	47 1/6W	39 1/6W
R184	91K	X	91K
R185	100K	X	100K
R187	18K	18K	24K
R116	68	120	120

LOCAL KEY FUNCTION	
SW01 : PRH	SW04 : VOL-
SW02 : PR-	SW05 : OK
SW03 : VOL+	SW06 : MENU

TABLE OF A/V OPTION			
NO	C-NO	W/PHONO	W/SCART
1	R226	1.1K 1/6W	1.2K 1/6W
2	J32	TIN WIRE	X
3	J135	X	TIN WIRE
4	R216	X	470 1/6W
5	R202	X	330 1/6W
6	R204	330 1/6W	X
7	R219	X	3K 1/6W
8	PJ201	380-397A	380-091A
9	IC202	X	TEA5114
10	R19	X	68K 1/6W
11	C204	X	CE 10UF
12	C205	X	CE 10UF
13	C206	X	CE 10UF
14	C210	X	CE 33UF

CIRCUIT DIAGRAM
MC-64A
484-935A

ADJUSTMENT INSTRUCTIONS

* Safety precautions

1. It is safe to adjust after using insulating transformer between the power supply line and chassis input to prevent the risk of electric shock and protect the instrument.
2. Never disconnect leads while the TV receiver is on.
3. Don't short any portion of circuits while power is on.
4. The adjustment must be done by the correct appliances. But this is changeable in view of productivity.
5. Unless otherwise noted, set the line voltage to 220Vac+_ 20%, 50/60Hz.

*Test Equipment required

1. Swee p Generator
2. Marker Generator(38.0MHz: Picture/32.5MHz: Sound)
3. Alignmen t Scope(5121A)
4. Patter n Generator(PAL/SECAM)
5. DC Power Supply
6. Color analyzer
7. Multimeter(Volt meter)

Preparation for VCO Adjustment

1. Connect the measuring equipment to the TV as shown in Fig. 1
2. Set RF output level of Sweep Generator to 90dBuV.

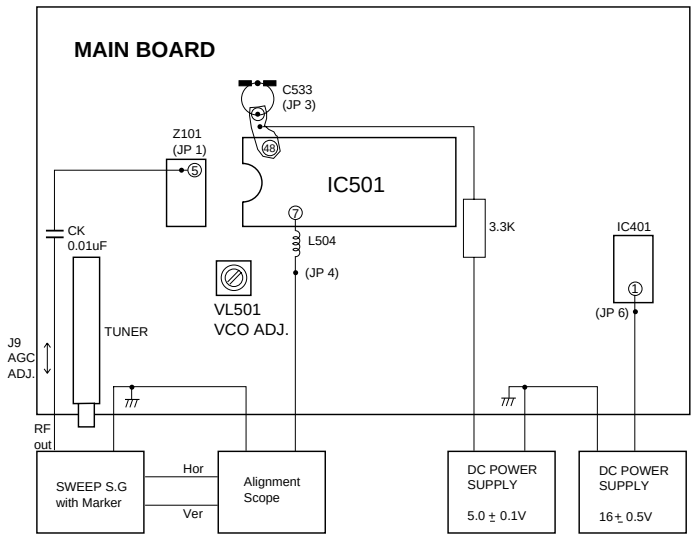


Fig. 1: Connection Diagram of Equipment for VCO Adjustment

* VCO (Voltage Controlled Oscillator) Adjustment

Test Point	**JP4(L504)**
Adjust	**VL501**

1) Turn on DC power supplies.
2) Adjust VCO ADJ. coil(**L501**) so that the level of Picture Carrier (PC) may be at the lowest position as shown Fig. 2.

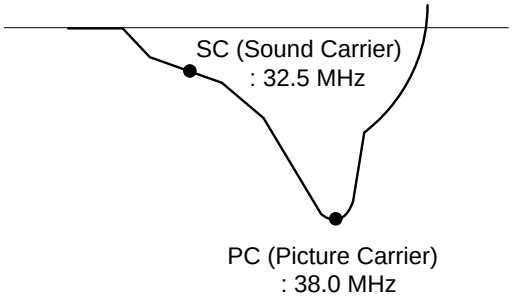


Fig. 2: Output waveform on Alignment Scope

NOTE When performing this adjustment, if there are 2 adjusted point in VL501, select the lower core position.

* RF AGC (Auto Gain Control) Adjustment

Test Point	**J9(AGC ADJ.) or Observing Display**
Adjust	**VR501**

The RF AGC control **VR501** was aligned at the time of manufacture for optimum performance over a wide range conditions. Readjust **VR501** should not be necessary unless unusual local conditions exist, such as;

1) Channel interference in a CATV system
2) Picture bending and/or color beats, which are unusually due to excessive RF signal input when the reciever is too close to a transmitting tower or when the receiver is connected to an antenna distribution system where the RF signal has been amplified.
   In this case, the input signal should be attenuated(with pad or filter) to a satisfactory level.
3) Picture noise caused by "broadcast noise" or weak signal.
   If the broadcast is "clean" and the RF signal is at least 1mV (60dBu), the picture will be noise free in any area.

Adjusting the **VR501(RF AGC)** control to one end of rotation will usually cause a relatively poor signal to noise ratio;
Adjusting to the other end of rotation will usually cause a degradation of over load capabilities resulting on color beats or adjacent channel interference.
For the best results, adjust **VR501** contol while performing on all other local channels, or **Refer to the following Table 1.**

Tuner P/N	Maker	Adjustment Voltage	REMARK
113-118C/D/F	LG-ALPS	5.7+_0.1Vdc	RF 60+_1dBuV
113-238H	LG-ALPS	6.0+_0.1Vdc	RF 60+_1dBuV
6700VMV001A	SANYO	4.9+_0.1Vdc	RF 60+_1dBuV

<Table 1>

* Vertical Height, Center Adjustment

Test Poin t : **Observing display**

Adjust : **VR301 (Vertical Height)**
VR302 (Vertical Center)

1) Tune the TV set to receive a digital test pattern.
2) Set standard picture mode(contrast: 80, bright :60, color: 50).
3) Adjust the Vertical height control (**VR301**) so that the circle of a digital test pattern may be located within the effective screen of the CPT.
4) Adjust the Vertical center control (**VR302**) for obtaining geometric center of valuable display vertically.

* Focus A djustment

NOTE: This adjustment should be performed after warming up for 10 minutes.

Test Poin t : **Observing display**

Adjust : **Focus control of FBT**

1) Tune the TV set to receive a digital test pattern.
2) Adjust the Focus control for the best overall focus.

* Horizontal Center Adjustment

Test Poin t : **Observing display**

Adjust : **VR502**

1) Tune the TV set to receive a PAL digital pattern.
2) Adjust the Horizontal center control(**VR502**) for obtaining geometric center of valubale display horizontally.

* Scr een & White Balance (color temperature) Adjustment

NOTE: 1. This adjustment should be performed after warming up for 20 minutes.
2. The color bias controls (VR901, VR902, VR903) affect the low light (dark) area of the picture while the color drive controls (VR904, VR905) affect the high light (white) areas.

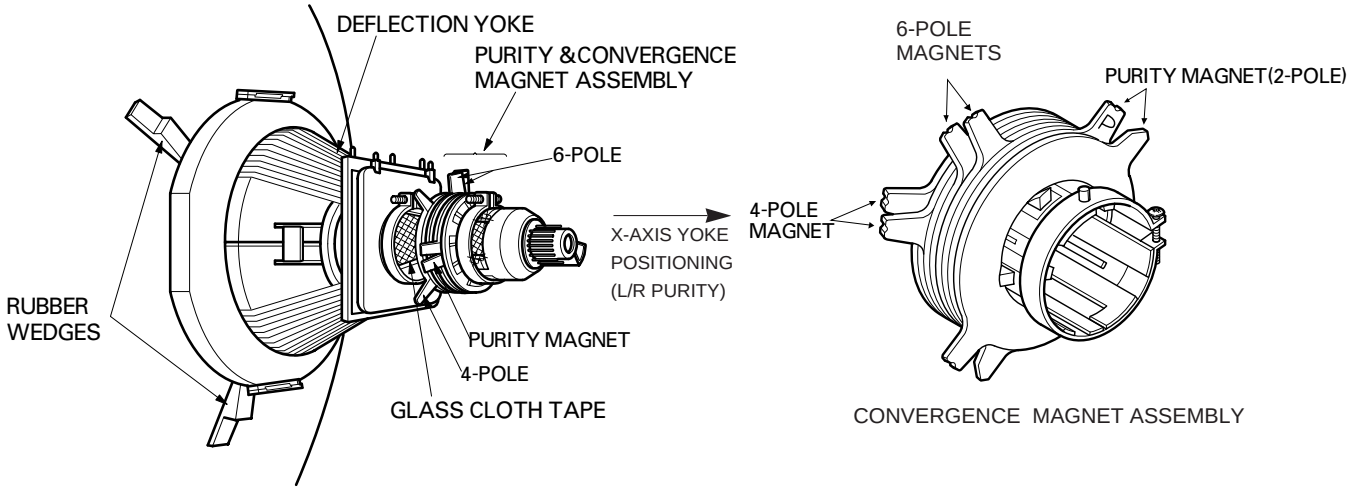
1) Set all the controls (VR901-VR905) on CPT Board to geometric center position.
2) Set the standard mode (contrast : 80, bright : 60, color : 50).
3) Set the AV mode, adjust and set the screen volume of FBT at just cut-off position(No AV input signal).
4) Set the TV mode, tune the TV set to receive white pattern.
5) By using color analyzer (white balance checker), adjust X position equals to 281+_8 and Y position equals to 288 +_8, it means that color temperature is 10,000+_800 at low light (4.5ftL) and high light (over 45ftL).

PURITY & CONVERGENCE ADJUSTMENT

Caution:
Convergence and Purity have been factory aligned. Do not attempt to tamper with these alignments.
However, the effects of adjacent receiver components, or replacement of picture tube or deflection yoke may require the need to readjust purity any convergence.

5. Reconnect the internal degaussing coil.

6. Position the beam bender locking rings at the 9 o'clock position and the other three pairs of tabs (2,4 and 6 pole magnets) at the 12 o'clock position.



* Purity Adjustment

This procedure DOES NOT apply to bonded yoke and picture tube assemblies.
The instrument should be at room temperature (60 degrees F or above) for six (6) hours and be operating at low beam current (dark background) for approximately 20 to 30 minutes before performing purity adjustments.

CAUTION: Do not remove any trim magnets that may be attached to the bell of the picture tube.

1. Remove the AC power and disconnect the internal degaussing coil.

2. Remove the yoke from the neck of the picture tube.

3. If the yoke has the tape version beam bender, remove it and replace it with a adjustable type beam bender (follow the instructions provided with the new beam bender)

4. Replace the yoke on the picture tube neck, temporarily remove the three (3) rubber wedges from the bell of the picture tube and then slide the yoke completely forward.

7. Perform the following steps, in the order given, to prepare the receiver for the purity adjustment procedure.

   a. Face the receiver in the "magnetic north" direction.

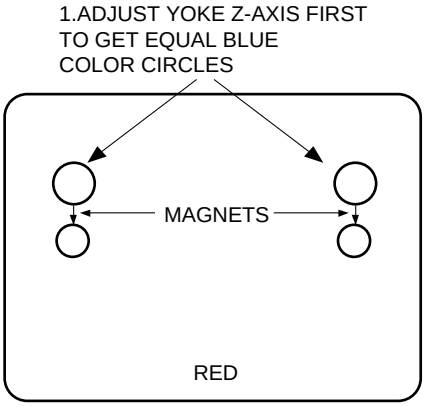
   b. Externally degauss the receiver screen with the television power turned off.

   c. Turn the television on for approximately 10 seconds to perform internal degaussing and then turn the TV off.

   d. Unplug the internal degaussing coil. This allows the thermistor to cool down while you are performing the purity adjustment. DO NOT MOVE THE RECEIVER FROM ITS "MAGNETIC NORTH" POSITION.

   e. Turn the receiver on and obtain a red raster by increasing the red bias control (CW) and decreasing the bias controls for the remaining two colors (CCW).

   f. Attach two round magnets on the picture tube screen at 3 o'clock and 9 o'clock positions, approximately one (1) inch from the edge of the mask (use double-sided tape).



8. Referring to above, perform the following two steps:
   a. Adjust the yoke Z-axis to obtain equal blue circles.
   b. Adjust the appropriate beam bender tabs to obtain correct purity (four equal circles).

9. After correct purity is set, tighten the yoke clamp screw and remove the two screen magnets.

10. Remove the AC power and rotate the receiver 180 degrees (facing "magnetic south").

11. Reconnect the internal degaussing coil.

12. Turn the receiver on for 10 seconds (make sure the receiver came on) to perform internal degaussing, and then turn the receiver off.

13. Unplug the internal degaussing coil.

14. Turn on the receiver and check the purity by holding one (1) round magnet at the 3 o'clock and a second round magnet at 9 o'clock position. If purity is not satisfactory, repeat steps 8 through 14.

15. Turn off the receiver and reconnect the internal degaussing coil.

* Convergence Adjustment

Caution: This procedure DOES NOT apply to bonded yoke and picture tube assemblies.
Do not use screen magnets during this adjustment procedure. Use of screen magnets will cause an incorrect display.

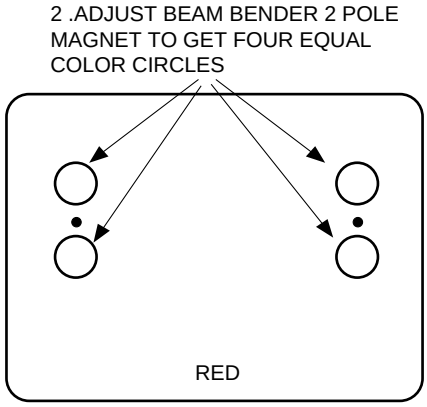
1. Remove AC power and disconnect the internal degaussing coil.

2. Apply AC Power and set the brightness to the Picture Reset condition. Set the Color control to minimum.

3. Apply 8V to the pin.

4. Adjust the Red, Green and Blue Bias controls to get a dim white line.

5. Remove the AC power and 8V from the pin.



6. Reconnect the internal degaussing coil and apply AC power.

7. Turn the receiver on for 10 seconds to perform internal degaussing and then turn the receiver off again.

8. Unplug the internal degaussing-coil.

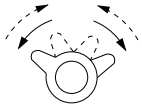
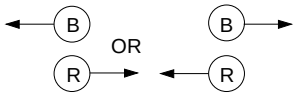
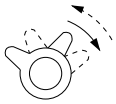
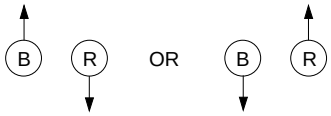
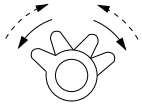
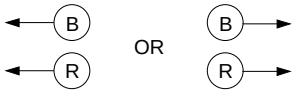
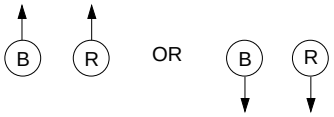
9. Turn on the receiver, connect a signal generator to the VHF antenna terminal and apply a crosshatch signal.

Caution: During the convergence adjustment procedure, be very careful not to disturb the purity adjustment tabs are accidentally move, purity should be confirmed before proceeding with the convergence adjustments.

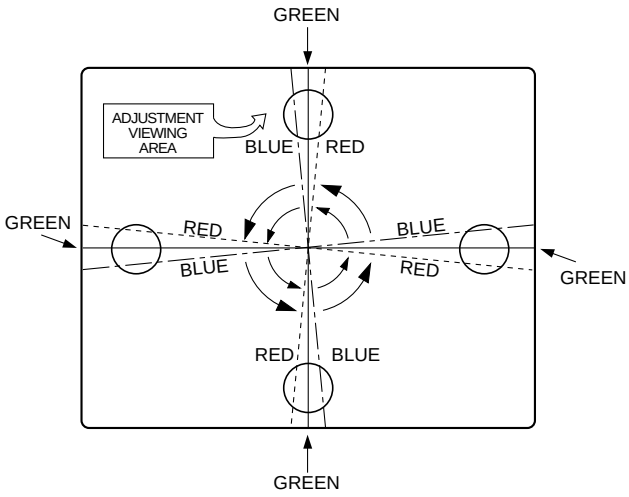
Note: Make sure the focus is set correctly on this instrument before proceeding with the following adjustment.

10. Converge the red and blue vertical lines to the green vertical line at the center of the screen by performing the following steps (below TABLE).
    a. Carefully rotate both tabs of the 4-pole ring magnet simultaneously in opposite directions from the 12 o'clock position to converge the red and blue vertical lines.
    b. Carefully rotate both tabs of the 6-pole ring magnet simultaneously in opposite directions form the 12 o'clock position to converge the red and blue (now purple) vertical lines with the green vertical line.

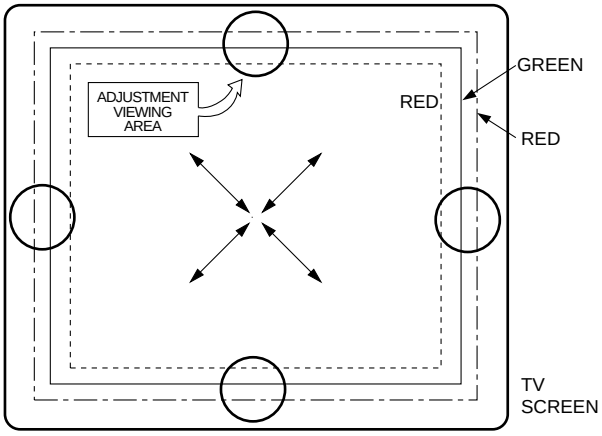
11. Converge the red and blue horizontal with the green line at the center of the screen by performing the following steps. (below TABLE)
    a. Carefully rotate both tabs of the 4-pole ring magnet simultaneously in the same direction (keep the spacing between the two tabs the same) to converge the red and blue horizontal lines.
    b. Carefully rotate both tabs of the 6-pole ring magnet simultaneously in same direction (keep the spacing between the two tabs the same) to converge the red and blue (now purple) horizontal lines with the green horizontal line.
    c. Secure the tabs previsouly adjusted by locking them in place with the locking tabs on the beam bender.

RING PAIRS	ROTATION DIRECTION OF BOTH TABS		MOVEMENT OF RED AND BLUE BEAMS
4 POLE		OPPOSITE	
		SAME	
6 POLE		OPPOSITE	
		SAME	

UP/DOWN ROCKING OF THE YOKE CAUSES OPPOSITE ROTATION OF RED AND BLUE RASTERS



LEFT/RIGHT ROCKING OF THE YOKE CAUSES OPPOSITE SIZE CHANGE OF THE RED AND BLUE RASTERS



12. While watching the 6 o'clock positions on the screen, rock the front of the yoke in a vertical (up/down) direction to converge the red and blue vertical lines. (Fig upper left)
13. Temporarily place a rubber wedge at the 12 o'clock position to hold the vertical position or the yoke.
14. Check the 3 o'clock and 9 o'clock areas to confirm that the red and blue horizontal lines are converged.
    If the lines are not converged, slightly offset the vertical tilt of the yoke (move the rubber wedge if necessary) to equally balance the convergence error of the horizontal lines at 3 o'clock and 9 o'clock and the vertical lines at 6 o'clock and 12 o'clock.
15. Place a 1.5 inch piece of glass tape over the rubber foot at the rear of the 12 o'clock wedge.
16. While watching the 6 o'clock and 12 o'clock areas of the screen, rock the front of the yoke in the horizontal (left to right) motion to converge the red and blue horizontal lines. (Fig. upper right)
17. Temporarily place a rubber wedge at the 5 o'clock and 7 o'clock positions to hold the horizontal position of the yoke.
18. Check the 3 o'clock and 9 o'clock areas to confirm that the red and blue vertical lines are converged. If the lines are not converged, slightly offset the horizontal tilt of the yoke (move the temporary rubber wedges if necessary) to equally balance the convergence error of the horizontal lines at 6 o'clock and 12 o'clock and the vertical lines at 3 o'clock and 9 o'clock.
19. Using a round magnet confirm purity at the center, right and left sides and corners. See Purity Adjustment Procedure.
20. Reconfirm convergence and apply a 1.5 inch piece of glass tape over the rubber foot at the rear of the 5 o'clock and the 7 o'clock wedges.

REPLACEMENT PARTS LIST

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

LOCA. NO	PART NO	DESCRIPTION
		ICs
IC01	OIGS863417A	IC, LG8634-17A GMS84512
IC02	0IAL240210A	IC, AT24C02-10PC 8D EEPROM(2K,IIC)
IC03	0IKE704200B	IC, KIA7042P 3P 4.2V RESET
IC201	0ISA722200A	IC, LA7222 (1280 AUDIO)
IC301	0ISA783300A	IC, LA7833 7SIP V/OUT 2.2A(P-P)
IC401	0IKE781200C	IC, KIA7812PI 3P(TO-220IS) 12V,1A
IC430	0IKE780800A	IC, KIA7808PI 3P(TO-220IS) 1A,8V
IC501	0IPH836255B	IC, TDA8362B/N5 52SD P/N/S 1CHIP
IC502	0IPH466500B	IC, TDA4665-V4 16D 1H D/L(TAIWAN)
IC503	0IPH839520A	IC, TDA8395P/N2 16D SECAM DETECT.
IC601	0ISG200600A	IC, TDA2006,SOUND
⚠ IC801	0ITF435000A	IC, 4N35(G)V 6D PHOTO COUPLER
⚠ IC802	0ISK570700A	IC, STR/S5707(LF.953) 9P SMPS-CNTR
IC840	0IKE780500K	IC, KIA7805PI 3P(TO-220IS) 5V,1A
		DIODES
⚠ DB813	0DD260000BD	DIODE,BRIDGE D2SBA60 SHINDENKEN
D01	0DD414809ED	DIODE,DS4148
D101	0DD414809ED	DIODE,DS4148
D301	0DD400509AA	DIODE,1N4005 GP
D401	0DD414809ED	DIODE,DS4148
D406	0DD060009AC	DIODE,TVR06J 0.6A/600V 250NS
D408	0DD414809ED	DIODE,DS4148
D410	0DD060009AC	DIODE,TVR06J 0.6A/600V 250NS
D411	0DD150009CA	DIODE,RGP15J
D413	0DD060009AC	DIODE,TVR06J 0.6A/600V 250NS
D415	0DD414809ED	DIODE,DS4148
D416	0DD414809ED	DIODE,DS4148
D501	0DD414809ED	DIODE,DS4148
D601	0DD414809ED	DIODE,DS4148
D801	0DD150009CA	DIODE,RGP15J
D805	0DD060009AC	DIODE,TVR06J 0.6A/600V 250NS
D806	0DD560009AA	DIODE,BYT56M TEMIC TP TEMIC
D809	0DD100009AM	DIODE,EU1ZV
D810	0DD100009AM	DIODE,EU1ZV
D811	0DD060009AC	DIODE,TVR06J 0.6A/600V 250NS
D812	0DD060009AC	DIODE,TVR06J 0.6A/600V 250NS
D901	0DD414809ED	DIODE,DS4148
D902	0DD414809ED	DIODE,DS4148
D903	0DD414809ED	DIODE,DS4148
LD01	0DD000000BA	DIODE,LAMP(DIFFUSION TYPE)
ZD01	0DZ750009AA	DIODE,ZENER MTZ7.5B
ZD02	0DZ750009AA	DIODE,ZENER MTZ7.5B
ZD03	0DZ750009AA	DIODE,ZENER MTZ7.5B
ZD401	0DZ910009BA	DIODE,ZENER MTZ9.1B
ZD402	0DZ510009AB	DIODE,ZENER MTZ5.1B
ZD404	0DZ330009BA	DIODE,ZENER HZT33
ZD551	0DZ510009AB	DIODE,ZENER MTZ5.1B
ZD801	0DZ910009BA	DIODE,ZENER MTZ9.1B
ZD810	0DZ750009AA	DIODE,ZENER MTZ7.5B

LOCA. NO	PART NO	DESCRIPTION
		TRANSISTORS
Q01	0TR126609AA	TRANSISTOR,KTA1266-TP-Y (KTA1015)
Q02	0TR319809AA	TRANSISTOR,KTC3198-TP-Y (KTC1815)
Q101	0TR319809AB	TRANSISTOR,KTC3198-TP-GR (KTC1815)
Q102	0TR319709AB	TRANSISTOR,KTC3197,TP(KTC388A)
Q180	0TR126609AA	TRANSISTOR,KTA1266-TP-Y (KTA1015)
Q181	0TR126609AA	TRANSISTOR,KTA1266-TP-Y (KTA1015)
Q182	0TR126609AA	TRANSISTOR,KTA1266-TP-Y (KTA1015)
Q201	0TR126609AA	TRANSISTOR,KTA1266-TP-Y (KTA1015)
Q202	0TR319809AA	TRANSISTOR,KTC3198-TP-Y (KTC1815)
Q220	0TR319809AA	TRANSISTOR,KTC3198-TP-Y (KTC1815)
Q301	0TR319809AA	TRANSISTOR,KTC3198-TP-Y (KTC1815)
Q302	0TR319809AA	TRANSISTOR,KTC3198-TP-Y (KTC1815)
Q303	0TR319809AA	TRANSISTOR,KTC3198-TP-Y (KTC1815)
Q401	0TR102609AA	TRANSISTOR,KTC1026-Y TP(KTC2230A)
⚠ Q402	0TR249900AA	TRANSISTOR,KTD2499 TO-3P(H)IS
Q503	0TR126609AA	TRANSISTOR,KTA1266-TP-Y (KTA1015)
Q508	0TR102009AB	TRANSISTOR,KRC102M,TP(KRC1202)
Q512	0TR126609AA	TRANSISTOR,KTA1266-TP-Y (KTA1015)
Q513	0TR126609AA	TRANSISTOR,KTA1266-TP-Y (KTA1015)
Q514	0TR126609AA	TRANSISTOR,KTA1266-TP-Y (KTA1015)
Q515	0TR319809AA	TRANSISTOR,KTC3198-TP-Y (KTC1815)
Q517	0TR126609AA	TRANSISTOR,KTA1266-TP-Y (KTA1015)
Q601	0TR102009AB	TRANSISTOR,KRC102M,TP(KRC1202)
Q650	0TR319809AA	TRANSISTOR,KTC3198-TP-Y (KTC1815)
Q651	0TR319809AA	TRANSISTOR,KTC3198-TP-Y (KTC1815)
Q654	0TR319809AA	TRANSISTOR,KTC3198-TP-Y (KTC1815)
Q802	0TR320209AA	TRANSISTOR,KTC3202-TP-Y (KTC1959)
Q803	0TR319809AB	TRANSISTOR,KTC3198-TP-GR (KTC1815)
Q804	0TR319809AA	TRANSISTOR,KTC3198-TP-Y (KTC1815)
Q810	0TR102609AA	TRANSISTOR,KTC1026-Y TP(KTC2230A)
Q901	0TR322900AA	TRANSISTOR,KTC3229 (KTC2068)
Q902	0TR322900AA	TRANSISTOR,KTC3229 (KTC2068)
Q903	0TR322900AA	TRANSISTOR,KTC3229 (KTC2068)
		CAPACITORS
C01	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C02	0CN4710K519	C,TUBULA(HIGH DIELE) 470PF 50V K
C03	0CN3910K519	C,TUBULA(HIGH DIELE) 390P 50V K
C04	0CQ4731N509	C,POLYESTER(MYLAR) 0.047U 100V K
C05	0CN1010K519	C,TUBULA(HIGH DIELE) 100PF 50V K
C06	0CN2710K519	C,TUBULA(HIGH DIELE) 270PF 50V K
C08	0CC2200K415	C,CERAMIC(TEMP COMP) 22P 50V J
C09	0CC2200K415	C,CERAMIC(TEMP COMP) 22P 50V J
C10	0CC1500K415	C,CERAMIC(TEMP COMP) 15P 50V J
C103	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C11	0CC1000K115	C,CERAMIC(TEMP COMP) 10PF 50V D
C111	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C112	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C113	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C12	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C13	0CE335DK618	C,ELECTROLYTIC 3.3UF STD 50V M

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

LOCA. NO	PART NO	DESCRIPTION
C14	0CE475DK618	C,ELECTROLYTIC 4.7UF STD 50V M
C16	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C17	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C180	0CN1040K949	C,TUBULA(HIGH DIELE) 0.1M 50V Z
C181	0CE475DK618	C,ELECTROLYTIC 4.7UF STD 50V M
C182	0CE475DK618	C,ELECTROLYTIC 4.7UF STD 50V M
C183	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C184	0CQ1042K439	C,POLYESTER(MYLAR) 0.1UF S 50V J
C185	0CE475DK618	C,ELECTROLYTIC 4.7UF STD 50V M
C186	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C187	0CE337DF618	C,ELECTROLYTIC 330UF STD 16V M
C188	0CE107DF618	C,ELECTROLYTIC 100UF STD 16V M
C189	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C20	0CN2210K519	C,TUBULA(HIGH DIELE) 220PF 50V K
C203	0CE107DF618	C,ELECTROLYTIC 100UF STD 16V M
C21	0CN1010K519	C,TUBULA(HIGH DIELE) 100PF 50V K
C218	0CE227DD618	C,ELECTROLYTIC 220UF STD 10V M
C219	0CE226DF618	C,ELECTROLYTIC 22UF STD 16V M
C22	0CN1010K519	C,TUBULA(HIGH DIELE) 100PF 50V K
C220	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C221	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C222	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C223	0CE107DF618	C,ELECTROLYTIC 100UF STD 16V M
C224	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C226	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C227	0CQ1021N509	C,POLYESTER(MYLAR) 0.001U 100V K
C228	0CE107DD618	C,ELECTROLYTIC 100UF STD 10V M
C23	0CN1010K519	C,TUBULA(HIGH DIELE) 100PF 50V K
C301	0CN3310K519	C,TUBULA(HIGH DIELE) 330P 50V K
C303	0CC5600K415	C,CERAMIC(TEMP COMP) 56P 50V J
C304	0CQ1021N509	C,POLYESTER(MYLAR) 0.001U 100V K
C305	0CE227DJ618	C,ELECTROLYTIC 220UF STD 35V M
C306	0CQ6831N509	C,POLYESTER(MYLAR) 0.068U 100V K
C307	0CE477DJ618	C,ELECTROLYTIC 470UF STD 35V M
C308	181-0322	C,TANTAL 2.2MF 25V K
C310	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C311	0CE476DF618	C,ELECTROLYTIC 47UF STD 16V M
C312	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C314	0CE108DH618	C,ELECTROLYTIC 1000UF STD 25V M
C402	0CQ1031N509	C,POLYESTER(MYLAR) 0.01U 100V K
C403	0CE227DF618	C,ELECTROLYTIC 220UF STD 16V M
C404	0CE225DK618	C,ELECTROLYTIC 2.2UF STD 50V M
C407	0CE475BP618	C,ELECTROLYTIC 4.7U KME(RG) 160V
C408	0CE105DP618	C,ELECTROLYTIC 1UF STD 160V M
C409(14")	0CQ3931N509	C,POLYESTER(MYLAR) 0.039UF 100V K
(20")	0CQ2231N509	C,POLYESTER(MYLAR) 0.022UF 100V K
C411	0CK4710W515	C,CERAMIC(HIGH DIELE) 470PF 500V K
C412	0CE477DJ618	C,ELECTROLYTIC 470UF STD 35V M
C413	0CK4710W515	C,CERAMIC(HIGH DIELE) 470PF 500V K
C414	0CE337DH618	C,ELECTROLYTIC 330UF STD 25V M
C416	0CE475DK618	C,ELECTROLYTIC 4.7UF STD 50V M
C418	0CE1061R618	C,ELECTROLYTIC 10M SM 250V M

LOCA. NO	PART NO	DESCRIPTION
C419	0CK4710W515	C,CERAMIC(HIGH DIELE) 470PF 500V K
⚠ C420(14")	181-013D	CAPACITOR MPP 200V 0.43uF J
⚠ (20")	181-013B	CAPACITOR MPP 200V 0.36uF J
⚠ C421(14")	181-015D	CAPACITOR MPP 1600V 0.0062UF H
⚠ (20")	181-015J	CAPACITOR MPP 1600V 0.0086UF H
C422	181-009V	CAPACITOR PP 200V 0.047UF K
C430	0CE227DD618	C,ELECTROLYTIC 220UF STD 10V M
C501	0CQ2721N409	C,POLYESTER(MYLAR) 2700PF 100V J
C502	0CX1000K409	C,TUBULA(T.C) 10P 50V J
C503(20")	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C505	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C507	0CN1040K949	C,TUBULA(HIGH DIELE) 0.1M 50V Z
C508	0CN2230H949	C,TUBULA(HIGH DIELE) 22000P 25V Z F
C509	0CE107DF618	C,ELECTROLYTIC 100UF STD 16V M
C510	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C511	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C512	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C513	0CQ1042K439	C,POLYESTER(MYLAR) 0.1UF S 50V J
C514	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C515	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C516	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C517	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C518	0CE336DF618	C,ELECTROLYTIC 33UF STD 16V M
C519	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C520	0CE475DK618	C,ELECTROLYTIC 4.7UF STD 50V M
C521	0CQ4721N509	C,POLYESTER(MYLAR) 0.0047U 100V K
C522	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C523	0CC1300K415	C,CERAMIC(TEMP COMP) 13P 50V J
C524	0CC1300K415	C,CERAMIC(TEMP COMP) 13P 50V J
C525	0CN2230H949	C,TUBULA(HIGH DIELE) 22000P 25V Z F
C526	0CE476DF618	C,ELECTROLYTIC 47UF STD 16V M
C527	0CQ4721N509	C,POLYESTER(MYLAR) 0.0047U 100V K
C528	0CE105DK618	C,ELECTROLYTIC 1UF STD 50V M
C529	0CQ4721N509	C,POLYESTER(MYLAR) 0.0047U 100V K
C530	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C531	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C532	0CQ2231N509	C,POLYESTER(MYLAR) 0.022MF 100V K
C533	0CE225DK618	C,ELECTROLYTIC 2.2UF STD 50V M
C534	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C535	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C536	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C537	0CN2230H949	C,TUBULA(HIGH DIELE) 22000P 25V Z F
C538	0CE225DK618	C,ELECTROLYTIC 2.2UF STD 50V M
C539	0CQ3321N509	C,POLYESTER(MYLAR) 0.0033U 100V K
C551	0CE476DF618	C,ELECTROLYTIC 47UF STD 16V M
C552	0CN2230H949	C,TUBULA(HIGH DIELE) 22000P 25V Z F
C553	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C554	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C555	0CQ1021N509	C,POLYESTER(MYLAR) 0.001U 100V K
C556	0CQ1021N509	C,POLYESTER(MYLAR) 0.001U 100V K
C557	0CN2230H949	C,TUBULA(HIGH DIELE) 22000P 25V Z F
C561	0CE476DF618	C,ELECTROLYTIC 47UF STD 16V M

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

LOCA. NO	PART NO	DESCRIPTION
C562	0CQ2231N509	C,POLYESTER(MYLAR) 0.022MF 100V K
C563	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C564	0CQ2242K439	C,POLYESTER(MYLAR) 0.22UF S 50V J
C601	0CE108DJ618	C,ELECTROLYTIC 1000UF STD 35V M
C602	0CQ1031N509	C,POLYESTER(MYLAR) 0.01U 100V K
C603	0CE477DF618	C,ELECTROLYTIC 470UF STD 16V M
C604	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C605	0CE225DK618	C,ELECTROLYTIC 2.2UF STD 50V M
C606	0CE336DK618	C,ELECTROLYTIC 33UF STD 50V M
C607	0CQ1031N509	C,POLYESTER(MYLAR) 0.01U 100V K
C608	0CE475DK618	C,ELECTROLYTIC 4.7UF STD 50V M
C609	0CE475DK618	C,ELECTROLYTIC 4.7UF STD 50V M
C610	0CE226DK618	C,ELECTROLYTIC 22UF STD 50V M
C650	0CN1020K519	C,TUBULA(HIGH DIELE) 1000PF 50V K
C651	0CN1510K519	C,TUBULA(HIGH DIELE) 150P 50V K
C652	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C653	0CC3910K405	C,CERAMIC(TEMP COMP) 390P 50V J
C654	0CQ3321N509	C,POLYESTER(MYLAR) 0.0033U 100V K
C655	0CX2200K409	C,TUBULA(T.C) 22PF 50V J
C656	0CQ1042K439	C,POLYESTER(MYLAR) 0.1UF S 50V J
C657	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C658	0CN1020K519	C,TUBULA(HIGH DIELE) 1000PF 50V K
C662	0CX4700K409	C,TUBULA(T.C) 47PF 50V J
C663	0CX3300K409	C,TUBULA(T.C) 33PF 50V J
C664	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C665	0CX5600K409	C,TUBULA(T.C) 56P 50V J
C666	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C667	0CX4700K409	C,TUBULA(T.C) 47PF 50V J
C804	0CK4710W515	C,CERAMIC(HIGH DIELE) 470PF 500V K
C805	0CE477DJ618	C,ELECTROLYTIC 470UF STD 35V M
⚠ C810	181-120E	C,ACT 4KV E 222M FL10
C811	0CE475DK618	C,ELECTROLYTIC 4.7UF STD 50V M
C812	0CK4710W515	C,CERAMIC(HIGH DIELE) 470PF 500V K
C813	181-091C	C,DE0705 R 471K 1KV
C814	0CE227DP650	C,ELECTROLYTIC 220UF STD 160V M
C817	181-001F	C,ELECTROLYTIC 400V 220UF M
C818	0CK47102515	C,CERAMIC(HIGH DIELE) 470P 2KV K
C819	0CK4710W515	C,CERAMIC(HIGH DIELE) 470PF 500V K
C820	0CE227DJ618	C,ELECTROLYTIC 220UF STD 35V M
⚠ C822	0CQZVBK002B	C,POLYESTER AC270V 0.15UF K
C823	0CN1020K519	C,TUBULA(HIGH DIELE) 1000PF 50V K
C824	0CE475DK618	C,ELECTROLYTIC 4.7UF STD 50V M
C825	0CE227DJ618	C,ELECTROLYTIC 220UF STD 35V M
C826	181-120E	C,ACT 4KV E 222M FL10
C827	0CE1071P650	C,ELECTROLYTIC 100M SM 160V M
⚠ C828	0CQZVBK002B	C,POLYESTER AC270V 0.15UF K
C830	0CE477DF618	C,ELECTROLYTIC 470UF STD 16V M
C832	0CK10201515	C,CERAMIC(HIGH DIELE) 1000P 1KV K
C833	0CK10201515	C,CERAMIC(HIGH DIELE) 1000P 1KV K
C834	0CK10201515	C,CERAMIC(HIGH DIELE) 1000P 1KV K
C835	0CK10201515	C,CERAMIC(HIGH DIELE) 1000P 1KV K
C840	0CE227DD618	C,ELECTROLYTIC 220UF STD 10V M

LOCA. NO	PART NO	DESCRIPTION
C841	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C901(14")	0CN2710K519	C,TUBULA(HIGH DIELE) 270PF 50V K
(20")	0CN3310K519	C,TUBULA(HIGH DIELE) 330PF 50V K
C902	0CN2710K519	C,TUBULA(HIGH DIELE) 270PF 50V K
C903	0CN3310K519	C,TUBULA(HIGH DIELE) 330P 50V K
C904	0CE476DF618	C,ELECTROLYTIC 47UF STD 16V M
C905	181-033S	CAPACITOR 2KV B 122K TP7.5
C906(20")	0CN1810K519	C,TUBULA(HIGH DIELE) 180P 50V K

COILS & TRANSFORMERS

L01	0LA0392K119	INDUCTOR 39UH K
L103	150-C01D	COIL,CHOKE 0.55UH A 1105
L181	0LA0331K119	INDUCTOR 3.3UH K 2.3*3.4 TP
L182	0LA0222K119	INDUCTOR 22UH K
⚠ L402(14")	150-L01W	COIL,H-LINEARITY 57UH
⚠ (20")	150-L02C	COIL,H-LINEARITY 170UH
L403	125-022K	CORE,FERRITE 1UH
L501	0LA1000K119	INDUCTOR 100UH K
L504	0LA0331K119	INDUCTOR 3.3UH K 2.3*3.4 TP
L650	0LA0821K119	INDUCTOR 8.2UH K
L652	0LA0182K119	INDUCTOR 18UH K
L653	0LA0681K119	INDUCTOR 6.8UH K
L654	0LA0122K119	INDUCTOR 12UH K
L802	150-C02F	COIL,CHOKE 82UH R1217
L803	125-022K	CORE,FERRITE 1UH
L804	125-123A	CORE,FERRITE BFD3565R2F
L805	125-022K	CORE,FERRITE 1UH
L901	150-C02A	COIL,CHOKE 10UH R0814
⚠ T402	151-C02B	TRANSFORMER,H-DRIVE,EI-19,BULK
⚠ T801	150-F06N	COIL,LINE FILTER SQE2424 7MH
⚠ T802	151-B06Q	TRANSFORMER,SMPS FOIL EER4215 STR-S5707 W
VL501	150-E08N	COIL,VAR,07S 1B 38.9MHZ

RESISTORS

⚠ FR421	0RF0101J607	R,FUSIBLE 1 1W 5%
⚠ FR422	0RF0470J607	R,FUSIBLE 0.47 1W 5%
⚠ FR423(14")	180-D02P	R,RNF RND(S) CR 2W 3.0 J
⚠ (20")	180-D02J	R,RNF RND(S) CR 2W 1.6 J
⚠ FR804	0RF0201K607	R,FUSIBLE 2 2W 5%
⚠ FR812	0RF0470H609	R,FUSIBLE 0.47 1/2W 5
J94	0RD1503F609	R,CARBON FILM 150K 1/6W 5
R02	0RD2702F609	R,CARBON FILM 27K 1/6W 5
R03	0RD9101F609	R,CARBON FILM 9.1K 1/6W 5
R04	0RD2200F609	R,CARBON FILM 220 1/6W 5
R05	0RD0912F609	R,CARBON FILM 91 1/6W 5
R06	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R07	0RD3300F609	R,CARBON FILM 330 1/6W 5
R08(14")	0RD4700F609	R,CARBON FILM 470 1/6W 5
(20")	0RD1501F609	R,CARBON FILM 1.5K 1/6W 5
R105	0RD3302F609	R,CARBON FILM 33K 1/6W 5
R106	0RD1003F609	R,CARBON FILM 100K 1/6W 5
R107	0RD3302F609	R,CARBON FILM 33K 1/6W 5

LOCA. NO	PART NO	DESCRIPTION
R108	0RD2402F609	R,CARBON FILM 24K 1/6W 5
R11	0RD5601F609	R,CARBON FILM 5.6K 1/6W 5
R112	0RD2200F609	R,CARBON FILM 220 1/6W 5
R113	0RD5101F609	R,CARBON FILM 5.1K 1/6W 5
R114	0RD6800F609	R,CARBON FILM 680 1/6W 5
R116	0RD0682F609	R,CARBON FILM 68 1/6W 5
R117	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R118	0RD0562F609	R,CARBON FILM 56 1/6W 5
R12	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R13	0RD1601F609	R,CARBON FILM 1.6K 1/6W 5
R14	0RD1201F609	R,CARBON FILM 1.2K 1/6W 5
R15	0RD2001F609	R,CARBON FILM 2.0K 1/6W 5
R16	0RD3901F609	R,CARBON FILM 3.9K 1/6W 5
R17	0RD3301F609	R,CARBON FILM 3.3K 1/6W 5
R18	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R180	0RD4702F609	R,CARBON FILM 47K 1/6W 5
R181	0RD4702F609	R,CARBON FILM 47K 1/6W 5
R182	0RD4702F609	R,CARBON FILM 47K 1/6W 5
R183	0RD3302F609	R,CARBON FILM 33K 1/6W 5
R184	0RD9102F609	R,CARBON FILM 91K 1/6W 5
R185	0RD1003F609	R,CARBON FILM 100K 1/6W 5
R186	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R187	0RD1802F609	R,CARBON FILM 18K 1/6W 5
R188	0RD1202F609	R,CARBON FILM 12K 1/6W 5
R20	0RD8201F609	R,CARBON FILM 8.2K 1/6W 5
R201	0RD0752F609	R,CARBON FILM 75 1/6W 5
R203	0RD3300F609	R,CARBON FILM 330 1/6W 5
R204	0RD3300F609	R,CARBON FILM 330 1/6W 5
R205	0RD0822F609	R,CARBON FILM 82 1/6W 5
R21	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R212	0RD2202F609	R,CARBON FILM 22K 1/6W 5
R217	0RD4700F609	R,CARBON FILM 470 1/6W 5
R218	0RD3001F609	R,CARBON FILM 3.0K 1/6W 5
R22	0RD1502F609	R,CARBON FILM 15K 1/6W 5
R220	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R221	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R224	0RD2001F609	R,CARBON FILM 2.0K 1/6W 5
R225	0RD4700F609	R,CARBON FILM 470 1/6W 5
R226	0RD1101F609	R,CARBON FILM 1.1K 1/6W 5
R227	0RD2001F609	R,CARBON FILM 2.0K 1/6W 5
R228	0RD0562F609	R,CARBON FILM 56 1/6W 5
R229	0RD3900F609	R,CARBON FILM 390 1/6W 5
R23	0RD6801F609	R,CARBON FILM 6.8K 1/6W 5
R230	0RD3301F609	R,CARBON FILM 3.3K 1/6W 5
R231	0RD6801F609	R,CARBON FILM 6.8K 1/6W 5
R232	0RD2200F609	R,CARBON FILM 220 1/6W 5
R26	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R27	0RD4701F609	R,CARBON FILM 4.7K 1/6W 5
R29	0RD6802F609	R,CARBON FILM 68K 1/6W 5
R30	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R301	0RD6200F609	R,CARBON FILM 620 1/6W 5
R302	0RD8200H609	R,CARBON FILM 820 1/2W 5

LOCA. NO	PART NO	DESCRIPTION
R303	0RD1203F609	R,CARBON FILM 120K 1/6W 5
R304(14")	0RD0822F609	R,CARBON FILM 82 1/6W 5
(20")	0RD3000F609	R,CARBON FILM 300 1/6W 5
R305	0RD4700F609	R,CARBON FILM 470 1/6W 5
R306	0RD3002F609	R,CARBON FILM 30K 1/6W 5
R307	0RN2402F409	R,METAL FILM 24K 1/6W 1% TA52
R308(14")	0RD6800F609	R,CARBON FILM 680 1/6W 5
(20")	0RD1101F609	R,CARBON FILM 1.1K 1/6W 5
R309	0RD1202F609	R,CARBON FILM 12K 1/6W 5
R31	0RD1201F609	R,CARBON FILM 1.2K 1/6W 5
R310	0RS3300J607	R,METAL FILM OXI330 1W 5%
R311	0RD0221H609	R,CARBON FILM 2.2 1/2W 5
R312	0RD3902F609	R,CARBON FILM 39K 1/6W 5
R313	0RD4702F609	R,CARBON FILM 47K 1/6W 5
R314	0RD1202F609	R,CARBON FILM 12K 1/6W 5
R315	0RD4701H609	R,CARBON FILM 4.7K 1/2W 5
R316	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R317	0RD0471H609	R,CARBON FILM 4.7 1/2W 5
R32	0RD3002F609	R,CARBON FILM 30K 1/6W 5
R33	0RD4702F609	R,CARBON FILM 47K 1/6W 5
R34	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R35	0RD2200F609	R,CARBON FILM 220 1/6W 5
R36	0RD4701F609	R,CARBON FILM 4.7K 1/6W 5
R37	0RD4701F609	R,CARBON FILM 4.7K 1/6W 5
R38	0RD4701F609	R,CARBON FILM 4.7K 1/6W 5
R39	0RD3301F609	R,CARBON FILM 3.3K 1/6W 5
R40	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R410	0RD3903H609	R,METAL FILM OXIDE 390K 1/2W 5
R411(14")	180-B01U	R,CEMENT RS RECT S 5W 4.7K J DOUBLE
(20")	180-B01W	R,CEMENT RS RECT S 5W 4.3K J DOUBLE
R412	0RD1202F609	R,CARBON FILM 12K 1/6W 5
R413	0RS3901J607	R,METAL FILM OXIDE 3.90K 1W 5%
R414	0RD2701H609	R,CARBON FILM 2.7K 1/2W 5
R416	0RD2702F609	R,CARBON FILM 27K 1/6W 5
R417	0RD1000F609	R,CARBON FILM 100 1/6W 5
R421	0RS1802K607	R,METAL FILM OXIDE 18K 2W 5%
R422(14")	0RD1003H609	R,CARBON FILM 100K 1/2W 5
(20")	0RD9102H609	R,CARBON FILM 91K 1/2W 5
R423(14")	0RD1003H609	R,CARBON FILM 100K 1/2W 5
(20")	0RD8202H609	R,CARBON FILM 82K 1/2W 5
R424	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R425	0RS1002K607	R,METAL FILM OXIDE 10K 2W 5%
R426	0RD0392H609	R,CARBON FILM 39 1/2W 5
R430	0RS0681K607	R,METAL FILM OXIDE 6.8 2W 5%
R48	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R49	0RD4701F609	R,CARBON FILM 4.7K 1/6W 5
R50	0RD1003F609	R,CARBON FILM 100K 1/6W 5
R501	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R502	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R503	0RN3903F609	R,METAL FILM OXIDE 390K 1/6W 5%
R504	0RD1000F609	R,CARBON FILM 100 1/6W 5
R505	0RD1501F609	R,CARBON FILM 1.5K 1/6W 5

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

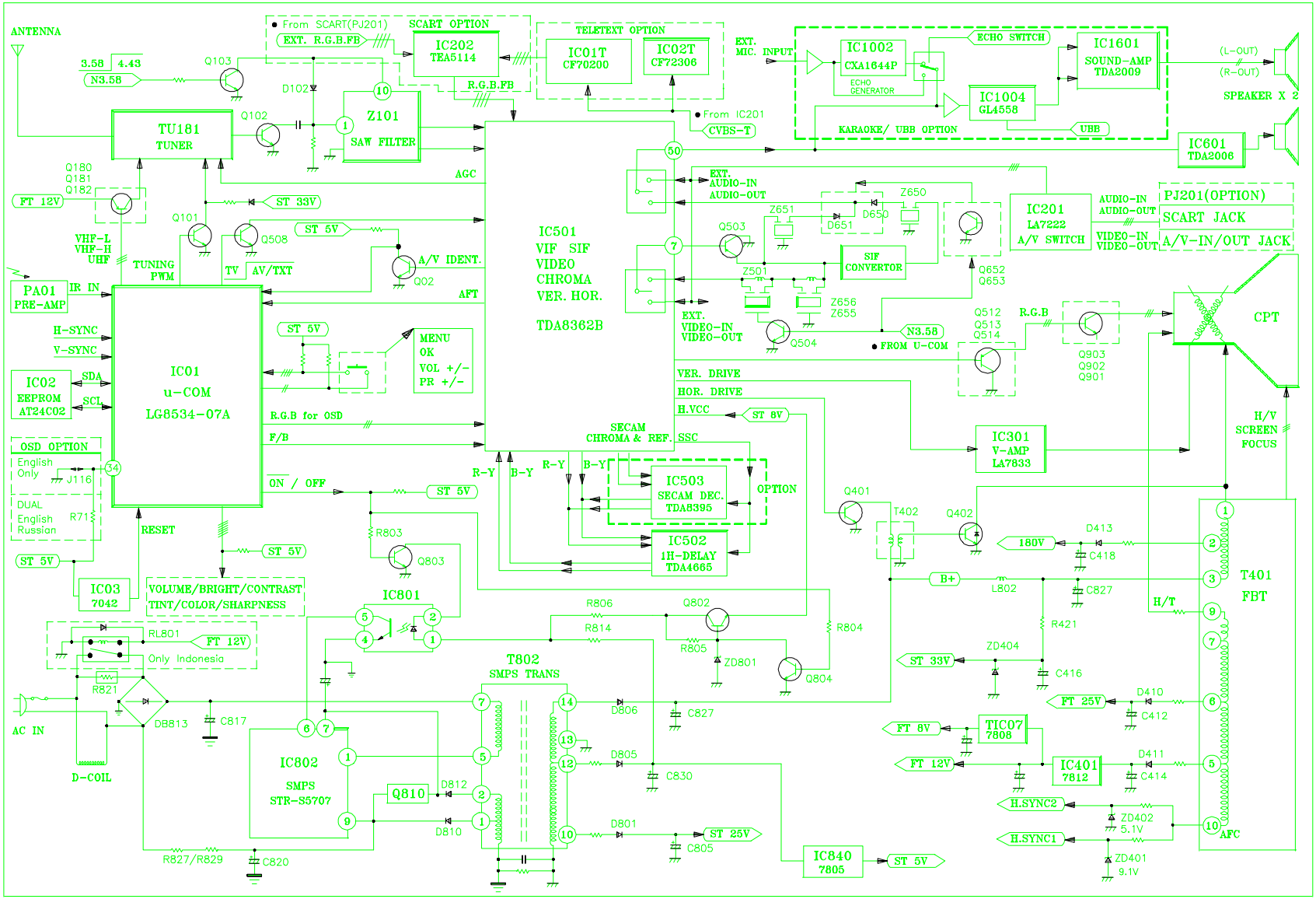
LOCA. NO	PART NO	DESCRIPTION
R506	0RD3300F609	R,CARBON FILM 330 1/6W 5
R508	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R509	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R510	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R511	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R512	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R513	0RD1500F609	R,CARBON FILM 150 1/6W 5
R514	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R515	0RD4702F609	R,CARBON FILM 47K 1/6W 5
R516	0RD2002F609	R,CARBON FILM 20K 1/6W 5
R517	0RD2701F609	R,CARBON FILM 2.7K 1/6W 5
R518	0RD1201F609	R,CARBON FILM 1.2K 1/6W 5
R519	0RD1203F609	R,CARBON FILM 120K 1/6W 5
R520	0RD2403F609	R,CARBON FILM 240K 1/6W 5
R521	0RD2001F609	R,CARBON FILM 2.0K 1/6W 5
R522	0RD1202F609	R,CARBON FILM 12K 1/6W 5
R523	0RD1003F609	R,CARBON FILM 100K 1/6W 5
R524	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R525	0RD1000F609	R,CARBON FILM 100 1/6W 5
R526	0RD1502F609	R,CARBON FILM 15K 1/6W 5
R527(14")	0RD6203F609	R,CARBON FILM 620K 1/6W 5
(20")	0RD8203F609	R,CARBON FILM 820K 1/6W 5
R528	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R535	0RD8200F609	R,CARBON FILM 820 1/6W 5
R536	0RD2002F609	R,CARBON FILM 20K 1/6W 5
R538	0RD7500F609	R,CARBON FILM 750 1/6W 5
R539	0RD1500F609	R,CARBON FILM 150 1/6W 5
R54	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R540	0RD5600F609	R,CARBON FILM 560 1/6W 5
R541	0RD5600F609	R,CARBON FILM 560 1/6W 5
R542	0RD5600F609	R,CARBON FILM 560 1/6W 5
R543	0RD6803F609	R,CARBON FILM 680K 1/6W 5
R544	0RD2401F609	R,CARBON FILM 2.4K 1/6W 5
R545	0RD2401F609	R,CARBON FILM 2.4K 1/6W 5
R546	0RD2401F609	R,CARBON FILM 2.4K 1/6W 5
R547	0RD1000F609	R,CARBON FILM 100 1/6W 5
R548	0RD3301F609	R,CARBON FILM 3.3K 1/6W 5
R549	0RD2401F609	R,CARBON FILM 2.4K 1/6W 5
R551	0RD1200F609	R,CARBON FILM 120 1/6W 5
R56	0RD1000F609	R,CARBON FILM 100 1/6W 5
R561	0RD1003F609	R,CARBON FILM 100K 1/6W 5
R562	0RD1003F609	R,CARBON FILM 100K 1/6W 5
R57	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R58	0RD1000F609	R,CARBON FILM 100 1/6W 5
R59	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R60	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R601	0RD1201F609	R,CARBON FILM 1.2K 1/6W 5
R602	0RD0221H609	R,CARBON FILM 2.2 1/2W 5
R603	0RD9102F609	R,CARBON FILM 91K 1/6W 5
R604	0RD1003F609	R,CARBON FILM 100K 1/6W 5
R605	0RD1003F609	R,CARBON FILM 100K 1/6W 5
R606	0RD6201F609	R,CARBON FILM 6.2K 1/6W 5

LOCA. NO	PART NO	DESCRIPTION
R607	0RD1003F609	R,CARBON FILM 100K 1/6W 5
R608	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R609	0RD2001F609	R,CARBON FILM 2.0K 1/6W 5
R61	0RD1000F609	R,CARBON FILM 100 1/6W 5
R610	0RD8201F609	R,CARBON FILM 8.2K 1/6W 5
R611	0RD2001F609	R,CARBON FILM 2.0K 1/6W 5
R62	0RD1000F609	R,CARBON FILM 100 1/6W 5
R63	0RD1002F609	R,CARBON FILM 10K 1/6W 5
R64	0RD1000F609	R,CARBON FILM 100 1/6W 5
R65	0RD2701F609	R,CARBON FILM 2.7K 1/6W 5
R650	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R651	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R653	0RD6801F609	R,CARBON FILM 6.8K 1/6W 5
R654	0RD1501F609	R,CARBON FILM 1.5K 1/6W 5
R655	0RD0752F609	R,CARBON FILM 75 1/6W 5
R656	0RD8202F609	R,CARBON FILM 82K 1/6W 5
R657	0RD1003F609	R,CARBON FILM 100K 1/6W 5
R658	0RD1000F609	R,CARBON FILM 100 1/6W 5
R66	0RD2701F609	R,CARBON FILM 2.7K 1/6W 5
R665	0RD1501F609	R,CARBON FILM 1.5K 1/6W 5
R669	0RD4700F609	R,CARBON FILM 470 1/6W 5
R67	0RD2701F609	R,CARBON FILM 2.7K 1/6W 5
R670	0RD3301F609	R,CARBON FILM 3.3K 1/6W 5
R671	0RD1500F609	R,CARBON FILM 150 1/6W 5
R672	0RD4700F609	R,CARBON FILM 470 1/6W 5
R673	0RD4700F609	R,CARBON FILM 470 1/6W 5
R674	0RD1501F609	R,CARBON FILM 1.5K 1/6W 5
R675	0RD1500F609	R,CARBON FILM 150 1/6W 5
R676	0RD9101F609	R,CARBON FILM 9.1K 1/6W 5
R677	0RD2200F609	R,CARBON FILM 220 1/6W 5
R68	0RD2701F609	R,CARBON FILM 2.7K 1/6W 5
R72	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R73	0RD1202F609	R,CARBON FILM 12K 1/6W 5
R74	0RD1202F609	R,CARBON FILM 12K 1/6W 5
R75	0RD1202F609	R,CARBON FILM 12K 1/6W 5
R77	0RD2200F609	R,CARBON FILM 220 1/6W 5
R79	0RD1000F609	R,CARBON FILM 100 1/6W 5
R80	0RD1000F609	R,CARBON FILM 100 1/6W 5
R803	0RD3302F609	R,CARBON FILM 33K 1/6W 5
R804	0RD3302F609	R,CARBON FILM 33K 1/6W 5
R805	0RD2001F609	R,CARBON FILM 2.0K 1/6W 5
R806	0RD0102F609	R,CARBON FILM 10 1/6W 5
R81	0RD3301F609	R,CARBON FILM 3.3K 1/6W 5
⚠ R811	180-C02H	R,CARBON COMPOSITC12GK825V(RC 1/2W 8.2M K TA)
R814	0RD9100F609	R,CARBON FILM 910 1/6W 5
R817	0RD3001H609	R,CARBON FILM 3.0K 1/2W 5 TA52
R818	0RD3902H609	R,CARBON FILM 39K 1/2W 5
R819	0RD1601F609	R,CARBON FILM 1.6K 1/6W 5
R82	0RD2200F609	R,CARBON FILM 220 1/6W 5
R820	0RD1001F609	R,CARBON FILM 1.0K 1/6W 5
R821	180-A03Q	R,RW RECT G 7W 1.0 J DOUBLE(SP)
R822	0RD1000H609	R,CARBON FILM 100 1/2W 5

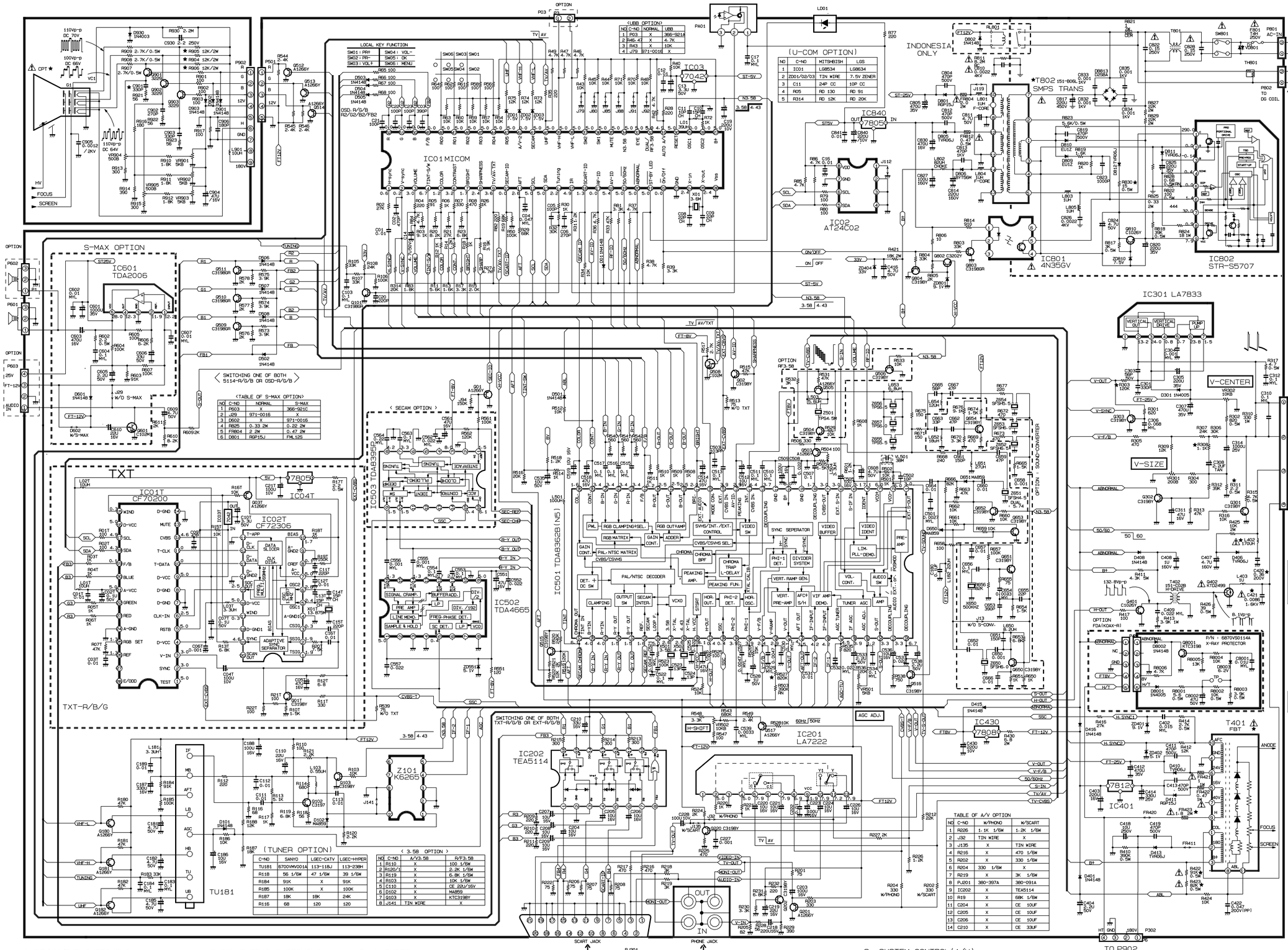
The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

LOCA. NO	PART NO	DESCRIPTION
R823	0RD5601H609	R,CARBON FILM 5.6K 1/2W 5
R824	0RS0182J607	R,METAL FILM OXIDE 18 1W 5%
R825	180-A01E	R,RW ROUND G 2W 0.33 J
R827	0RS2202K607	R,METAL FILM OXIDE 22K 2W 5%
R828	0RN0680H609	R,METAL FILM 0.68 1/2W 5
R829	0RS2202K607	R,METAL FILM OXIDE 22K 2W 5%
R83	0RD1801F609	R,CARBON FILM 1.8K 1/6W 5
R830	0RS0152H609	R,METAL FILM OXIDE 15 1/2W 5
R84	0RD4701F609	R,CARBON FILM 4.7K 1/6W 5
R85	0RD4701F609	R,CARBON FILM 4.7K 1/6W 5
R86	0RD4701F609	R,CARBON FILM 4.7K 1/6W 5
R901	0RD1000F609	R,CARBON FILM 100 1/6W 5
R902	0RD1000F609	R,CARBON FILM 100 1/6W 5
R903	0RD1000F609	R,CARBON FILM 100 1/6W 5
R904(14")	0RS1002K607	R,METAL FILM OXIDE 10K 2W 5%
(20")	0RS1202K607	R,METAL FILM OXIDE 12K 2W 5%
R905(14")	0RS1002K607	R,METAL FILM OXIDE 10K 2W 5%
(20")	0RS1202K607	R,METAL FILM OXIDE 12K 2W 5%
R906(14")	0RS1002K607	R,METAL FILM OXIDE 10K 2W 5%
(20")	0RS1202K607	R,METAL FILM OXIDE 12K 2W 5%
R907	0RD2701H609	R,CARBON FILM 2.7K 1/2W 5
R908	0RD2701H609	R,CARBON FILM 2.7K 1/2W 5
R909	0RD2701H609	R,CARBON FILM 2.7K 1/2W 5
R910	0RD1801F609	R,CARBON FILM 1.8K 1/6W 5
R911	0RD1801F609	R,CARBON FILM 1.8K 1/6W 5
R912	0RD1801F609	R,CARBON FILM 1.8K 1/6W 5
R913	0RD3000F609	R,CARBON FILM 300 1/6W 5
R914	0RD3900F609	R,CARBON FILM 390 1/6W 5
R915	0RD3000F609	R,CARBON FILM 300 1/6W 5
R916	0RD1800F609	R,CARBON FILM 180 1/6W 5
R917	0RD1000F609	R,CARBON FILM 100 1/6W 5
R921	0RD0562F609	R,CARBON FILM 56 1/6W 5
R922	0RD0562F609	R,CARBON FILM 56 1/6W 5
R923	0RD0562F609	R,CARBON FILM 56 1/6W 5
VR301	180-F03A	R,SEMI-FIX(H) EVN-DJAA03 B201
VR302	180-F03H	R,SEMI-FIX(H) EVN-DJAA03 B103
VR501	180-F03G	R,SEMI-FIX(H) EVN-DJAA03 B502
VR502	180-F03H	R,SEMI-FIX(H) EVN-DJAA03 B103
VR901	180-F03G	R,SEMI-FIX(H) EVN-DJAA03 B502
VR902	180-F03G	R,SEMI-FIX(H) EVN-DJAA03 B502
VR903	180-F03G	R,SEMI-FIX(H) EVN-DJAA03 B502
VR904	180-F03C	R,SEMI FIX(H) EVN-DJAA03 B501
VR905	180-F03C	R,SEMI FIX(H) EVN-DJAA03 B501
SWITCHES		
SW01	140-315A	SWITCH,TACT VERT
SW02	140-315A	SWITCH,TACT VERT
SW03	140-315A	SWITCH,TACT VERT
SW04	140-315A	SWITCH,TACT VERT
SW05	140-315A	SWITCH,TACT VERT
SW06	140-315A	SWITCH,TACT VERT
⚠ SW801	140-343A	SWITCH,70063-001(TV5/120A/250V)

LOCA. NO	PART NO	DESCRIPTION
FILTERS & OSCILLATORS		
X01	156-A01U	CRYSTAL, 3.6 15PF 90 OHM BULK
X501	156-A01B	CRYSTAL, 3.579545 16PF 90 OHM
X502	156-A01H	CRYSTAL, 4.433619 16PF 80 OHM BULK
X650	166-E03A	FILTER, RESO CSB500E25 500
Z101	166-A01M	FILTER, 0FWK6265K(MONO)
Z650	166-B02D	FILTER, B.P FILTER SFSH6.0MCB-TF21
Z652	166-B02E	FILTER, B.P FILTER SFSH6.5MCB-TF21
Z653	166-B02D	FILTER, B.P FILTER SFSH6.0MCB-TF21
Z654	166-B02C	FILTER, B.P FILTER SFSH5.5MCB-TF21
Z655	166-C02C	FILTER, TRAP TPS5.5MB-TF21
Z656	166-C02E	FILTER, TRAP TPS6.5MB-TF21
Z657	166-C02D	FILTER, TRAP TPS6.0MB-TF21
TRANSMITTER PARTS		
	0IGS848905A	IC, GS8489-05A(GMS30140-R015) 24SO
	303-M22A	COVER, BATTERY(105-230 TX)
MISCELLANEOUS		
	132-210A	ANTENNA, ROD,W/ADAPTER L=500 14"
	132-210B	ANTENNA, ROD,W/ADAPTER L=650 20"
⚠	153-360A	DY DNF-DB1402(SNN,153-113V) 14"
⚠	153-276A	DY DCAM1-20PLAA 20"
	351-008A	LINK, POWER S/W
⚠ F801	131-098B	FUSE 4A/250V HBC TIME DELAY 5X20
PA01	106-049A	PRE-AMP LIM 9051-4(38.0KHZ),LITEON
PJ201	380-397A	JACK,PHONE 4P(AUDIO MONO) PJ
⚠ P901(14")	381-100F	SOCKET, CPT 022.5 S/LESS PCS625-11A
⚠ (20")	381-226D	SOCKET, CPT PCS628-01S/LESS BULK
⚠ TH801	163-012C	THERMISTOR J502P54E180M220
TU181	6700VMV001A	TUNER, 115-B-4101SP
⚠ T401(14")	6174V-8001A	FBT DNF-F01403
⚠ (20")	154-375H	FBT DNF-FP0008
VD801	164-003D	VARISTOR SVC 561D-14A


ANTENNA
From SCART(PJ201)
EXT. R.G.B.FB
SCART OPTION
IC202
TEA5114
R.G.B.FB
TELETEXT OPTION
IC01T
CF70200
IC02T
CF72306
EXT. MIC. INPUT
IC1002
CXA1644P
ECHO GENERATOR
ECHO SWITCH
IC1601
SOUND-AMP
TDA2009
IC1004
GL4558
KARAOKE/ UBB OPTION
UBB
(L-OUT)
(R-OUT)
SPEAKER X 2
IC601
TDA2006
3.58
4.43
N3.58
Q103
D102
Z101
SAW FILTER
TU181
TUNER
Q102
From IC201
CVBS-T
Q180
Q181
Q182
FT 12V
VHF-L
VHF-H
UHF
TUNING PWM
Q101
Q508
ST 33V
ST 5V
AGC
A/V IDENT.
Q02
TV
AV/TXT
AFT
IC501
VIF SIF
VIDEO
CHROMA
VER. HOR.
TDA8362B
EXT. AUDIO-IN
AUDIO-OUT
Z650
Z651
D650
D651
Q503
SIF CONVERTOR
Z501
Z656
Z655
Q652
Q653
EXT. VIDEO-IN
VIDEO-OUT
Q504
N3.58
FROM U-COM
IC201
LA7222
A/V SWITCH
AUDIO-IN
AUDIO-OUT
VIDEO-IN
VIDEO-OUT
PJ201(OPTION)
SCART JACK
A/V-IN/OUT JACK
PA01
PRE-AMP
IR IN
H-SYNC
V-SYNC
IC02
EEPROM
AT24C02
SDA
SCL
IC01
u-COM
LG8534-07A
MENU
OK
VOL +/-
PR +/-
R.G.B for OSD
F/B
ON / OFF
RESET
Q512
Q513
Q514
R.G.B
Q903
Q902
Q901
CPT
VER. DRIVE
HOR. DRIVE
H.VCC
ST 8V
SECAM
CHROMA & REF. SSC
IC503
SECAM DEC.
TDA8395
OPTION
IC502
1H-DELAY
TDA4665
R-Y
B-Y
IC301
V-AMP
LA7833
H/V
SCREEN
FOCUS
OSD OPTION
English Only
DUAL
English
Russian
J116
R71
IC03
7042
VOLUME/BRIGHT/CONTRAST
TINT/COLOR/SHARPNESS
R803
Q803
IC801
Q401
T402
Q402
180V
D413
C418
B+
L802
C827
T401
FBT
H/T
R421
ZD404
C416
ST 33V
FT 25V
D410
C412
RL801
Only Indonesia
R821
DB813
AC IN
D-COIL
C817
R806
R814
Q802
R805
ZD801
Q804
R804
T802
SMPS TRANS
D806
C827
D805
C830
IC802
SMPS
STR-S5707
Q810
D812
D810
D801
ST 25V
C805
R827/R829
C820
TIC07
7808
FT 8V
FT 12V
IC401
7812
D411
C414
H.SYNC2
H.SYNC1
ZD402
5.1V
ZD401
9.1V
AFC
IC840
7805
ST 5V

SCHEMATIC DIAGRAM OF MC-64A



NOTICE

Since this is a basic schematic diagram,

the value of components and some partial connection are subject to be changed for improvement without notice.

The components marked ⚠ conform VDE orIEC guidelines and essential for safe operation of the TV receiver. while those marked ⚠ are required for correct operation. Use specified parts only when replacing.

VALUE OF RESISTER, CAPACITOR AND INDUCTOR

1. Resistance is shown in ohm. K=1,000 M=1,000,000.
2. Unless otherwise noted in schematic, all capacitor values less than 1 are expressed in mfd and the values more than 1 in pF
3. Unless otherwise noted in schematic, all inductor values less than 1 are expressed in uH, and the values less than 1 in H.

OBSERVATION OF VOLTAGE AND WAVEFORMS

1. Voltages read with VTVM from point to ground line voltages 180 ~ 270 volts. color bar signal.
2. Voltages reading may vary +/- 20 %.
3. The schematic shown is representative only.
4. All waveforms aretaken using a wide band oscilloscope and a low capacity prove
5. Check FINE TUNING, AGC, BRIGHTNESS, CONTRAST and COLOR controls for best picture. make sure that BRIGHTNESS and COLOR controls are in mid position and CONTRST controls is almost in maximum position
6. Waveforms are taken using a standard color signal.

TABLE OF INCH CONVERSION (★142 changing parts)

CIRCUIT NO.	14"	16" (ORION	INCH 20"	21"	REMARK
T401	154-064P	154-064P	154-375H	154-375F	FBT
L402	150-L01W	150-L01W	150-L02C	150-L02C	LINEARITY COIL
R308	680	680	1.1K	1.1K	RESI. RD 1/6W
R311	2.2	2.2	2.2	2.2	RESI. RD 0.5W
R423	100K	100K	82K	82K	RESI. RD 0.5W
R422	100K	100K	91K	75K	RESI. RD 0.5W
C420	0.47	0.36	0.36	0.47	CAPA. MPP 200V
C421	6200P	6800P	8600P	8600P	CAPA. MPP 1.6KV
R830	12	12		15	RESI.RS 0.5W
R830		27	27	22	RESI.RS 0.5W S-MAX
T802	151-B06G	151-B06G	151-B06G	151-B06L	TRANS SMPS M/L
T802		151-B05H	151-B06H	151-B05J	TRANS SMPS S-MAX
P901	381-100F	381-100F	381-226D	381-226D	SOCKET CPT
PCB	111-M54C	111-M54C	111-M54B	111-M54B	PCB MAIN
R304	82	120	300	360	RESI.RD 2W
FR423	3.0	3.0	1.8	1.6	RESI RF 2W
R919	10K	12K	12K	12K	RESI. RS 2W
R520	10K	12K	12K	12K	RESI. RS 2W
R521	10K	12K	12K	12K	RESI. RS 2W
C901	270PF	270PF	330PF	330PF	CN 50V
R08	470	470	1.5K	470	RESI. RD 1/6W
C409	0.039	0.039	0.022	0.022	CQ 100V
R411	4.7K	4.7K	4.3K	4.3K	5W
R303	120K	75K	120K	91K	RESI. RD 1/6W
R527	620K	620K	820K	620K	RESI. RD 1/6W

1. RF/AV/TXT SWITCHING

MODE	SUB MODE	LA7222-2,4	B362-16	u-COM-40	u-COM-9	VIDEO	AUDIO
RF	RF(TV)	H	L	H	H	RF	TV-A
RF	TXT	H	H	L	L	RF-SYNC	TV-A
AV	AV-VIDEO	L	H	L	L	AV	AV-A
AV	AV-TXT	L	H	L	L	AV-SYNC	AV-A

2. SAW FILTER SWITCHING

MODE	D102	SAW FILTER 1 AND 10	G103	
PAL	OFF	NOT CONNECT	ON	3.58 / 4.43
NTSC	ON	CONNECT	OFF	

3. SOUND TRAP SWITCHING

SYSTEM	u-COM(31)	Q506	Q504	Q505	Z501
PAL	H	ON	OFF	ON	OFF
NTSC	L	OFF	ON	OFF	ON

4. SOUND FILTER SWITCHING

SYSTEM	u-COM(31)	Q652	Q653	D651	D650	SOUND-IF
PAL	H	ON	OFF	OFF	ON	5.5/6.0/6.5
NTSC	L	OFF	ON	ON	OFF	4.5

5. H-SHIFT

V-FREQ.	u-COM(19)	Q517	PH1-2(V)	H-SHIFT	SYSTEM
60Hz	L	ON	↓	RIGHT	NTSC
50Hz	H	OFF	↑	LEFT	P/S

6. V-CENTER SHIFT

V-FREQ.	u-COM(19)	Q301	IV	V-CENTER
60Hz	L	OFF		DOWN
50Hz	H	ON	↑	UP

7. SYSTEM CONTROL(AUTO)

S-ID(16)	V-FREQ.	SYSTEM	3.58-SW(31)	50/60(19)	TINT(14)	TINT CONTROL
H	50HZ	SECAM	H	H	H	X
L	50Hz	PAL	H	H	H	X
L	60Hz	N4.43	L	L	M	0
L	60Hz	N3.58	L	L	M	0

8. SYSTEM CONTROL(FORCED)

SYSTEM	3.58-SW(31)	50/60(19)	TINT SW(14)	TINT CONTROL
PAL	H	H	H	X
SECAM	H	H	H	X
N4.43	L	L	1 - 3.5	0
N3.58	H	L	1 - 3.5	0

9. SYSTEM CONTROL(A/V)

S-ID(16)	V-FREQ.	SYSTEM	3.58-SW(31)	50/60(19)	TINT-SW(14)	TINT-CONTROL
H	50	SECAM	H	H	H	X
L	50	PAL	H	H	H	X
L	60	N3.58	L	L	1 - 3.5	0
L	60	N4.43	H	L	1 - 3.5	0

10. AV-ID/SHARPNESS

PICTURE	TDA8362(14)	Q02	u-COM(17)	REMARKS
NO SIGNAL	L	OFF	H	AV DISPLAY ON SCREEN
SIGNAL	1.5 ~ 4(V)	ON	L	VOLT. IS CHANGED BY SHARPNESS

NO	C-NO	NORMAL	USB
1	P03	X	356-5214
2	R45, 47	X	4.7K
3	R43	X	10K
4	J79, 871-0016		X

NO	C-NO	MITSHBISH	LGS
1	IC01	L08634	L08634
2	ZD01/02/03	TIN WIRE	7.5V ZENER
3	C11	24P CC	10P CC
4	R05	RD 130	RD 91
5	R314	RD 12K	RD 20K

NO	C-NO	W/PHONO	W/SCART
1	R226	1.1K 1/6W	1.2K 1/6W
2	J32	TIN WIRE	X
3	J135	X	TIN WIRE
4	R216	X	470 1/6W
5	R202	X	330 1/6W
6	R204	330 1/6W	X
7	R219	X	3K 1/6W
8	PJ201	380-397A	380-091A
9	IC202	X	TEA5114
10	R19	X	68K 1/6W
11	C204	X	CE 10UF
12	C205	X	CE 10UF
13	C206	X	CE 10UF
14	C210	X	CE 33UF

NO	C-NO	A/V3.58	P/T3.58
1	R110	X	100 1/6W
2	R120/1	X	2.2K 1/6W
3	R119	X	6.8K 1/6W
4	R103	X	10K 1/6W
5	C110	X	CE 22U/16V
6	D102	X	MA8S9
7	G103	X	KTC3198Y
8	J141	TIN WIRE	X

NO	C-NO	NORMAL	S-MAX
1	P803	X	366-521C
2	U59	971-0016	X
3	D502	X	971-0016
4	R505	0.33 2W	0.22 2W
5	FR804	2.2W	0.47 2W
6	D801	RGP15J	FML12S

C-NO	SANYO	LGEC-CATV	LGEC-HYPER
TU181	6700VMV001A	113~118J	113~236H
R118	56 1/6W	47 1/6W	39 1/6W
R184	91K	X	91K
R185	100K	X	100K
R187	18K	18K	24K
R116	68	120	120

LOCAL KEY FUNCTION	
SW01 : PRH	SW04 : VOL-
SW02 : PR-	SW05 : OK
SW03 : VOL+	SW06 : MENU

TABLE OF A/V OPTION			
NO	C-NO	W/PHONO	W/SCART
1	R226	1.1K 1/6W	1.2K 1/6W
2	J32	TIN WIRE	X
3	J135	X	TIN WIRE
4	R216	X	470 1/6W
5	R202	X	330 1/6W
6	R204	330 1/6W	X
7	R219	X	3K 1/6W
8	PJ201	380-397A	380-091A
9	IC202	X	TEA5114
10	R19	X	68K 1/6W
11	C204	X	CE 10UF
12	C205	X	CE 10UF
13	C206	X	CE 10UF
14	C210	X	CE 33UF

CIRCUIT DIAGRAM
MC-64A
484-935A