Self Diagnosis Supported model

# SERVICE MANUAL

# FE-2 CHASSIS

| MODEL | COMMANDER | DEST | CHASSIS NO. | MODEL | COMMANDER | DEST | CHASSIS NO. |
|---|---|---|---|---|---|---|---|
| KV-28LS35B | RM-932 | FR | SCC-Q54L-A | KV-32LS35B | RM-932 | FR | SCC-Q54K-A |
| KV-28LS35E | RM-932 | ESP | SCC-Q53M-A | KV-32LS35E | RM-932 | ESP | SCC-Q53L-A |
| KV-28LS35U | RM-932 | UK | SCC-Q52H-A | KV-32LS35U | RM-932 | UK | SCC-Q52G-A |

## FD Trinitron






TRINITRON ® COLOR TV

SONY®

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**CAUTION**

**SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR THE CARBON PAINTED ON THE CRT, AFTER REMOVAL OF THE ANODE CAP.**

WARNING !!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE WORK TO AVOID POSSIBLE SHOCK HAZARD DUE TO LIVE CHASSIS, THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE POWER LINE.

*SAFETY-RELATED COMPONENT WARNING !!*

*COMPONENTS IDENTIFIED BY SHADING AND MARKED ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.*

**ATTENTION**

**APRES AVOIR DECONNECTE LE CAP DE'LANODE, COURT-CIRCUITER L'ANODE DU TUBE CATHODIQUE ET CELUI DE L'ANODE DU CAP AU CHASSIS METALLIQUE DE L'APPAREIL, OU AU COUCHE DE CARBONE PEINTE SUR LE TUBE CATHODIQUE OU AU BLINDAGE DU TUBE CATHODIQUE.**

ATTENTION !!

AFIN D'EVITER TOUT RISQUE D'ELECTROCUTION PROVENANT D'UN CHÁSSIS SOUS TENTION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÈ LORS DE TOUT DÈPANNAGE LE CHÁSSIS DE CE RÈCEPTEUR EST DIRECTMENT RACCORDÈ Á L'ALIMENTATION SECTEUR.

*ATTENTION AUX COMPOSANTS RELATIFS Á LA SECURITÈ!!*

*LES COMPOSANTS IDENTIFIÈS PAR UNE TRAME ET PAR UNE MARQUE ⚠ SUR LES SCHÈMAS DE PRINCIPE, LES VUES EXPLOSÈES ET LES LISTES DE PIECES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SÈCURITÈ DU FONCTIONNEMENT, NE LES REMPLACER QUE PAR DES COMPSANTS SONY DONT LE NUMÈRO DE PIÈCE EST INDIQUÈ DANS LE PRÈSENT MANUEL OU DANS DES SUPPLÈMENTS PUBLIÈS PAR SONY.*

| ITEM MODEL | Television System | Stereo System | Channel Coverage | Color System |
|---|---|---|---|---|
| B | B/G/H, D/K, I, L | GERMAN/NICAM Stereo | VHF : E2-E12, F2-F10<br>UHF : E21-E69, F21-F69, B21-B69<br>CABLE TV : S01-S03, S1-S20, B-Q<br>HYPER : S21-S41 | PAL, SECAM<br>NTSC4.43, NTSC3.58<br>(VIDEO IN) |
| E | B/G/H, D/K | GERMAN/NICAM Stereo | VHF : E2-E12<br>UHF : E21-E69<br>CABLE TV : S01-S03, S1-S20<br>HYPER : S21-S41 | PAL, SECAM<br>NTSC4.43, NTSC3.58<br>(VIDEO IN) |
| U | I | NICAM Stereo | I UHF : E21-E69 | PAL, SECAM<br>NTSC4.43, NTSC3.58<br>(VIDEO IN) |

| | | | | |
|---|---|---|---|---|
| Picture Tube | Flat Display FD Trinitron<br>Approx 71 cm (28 inches)<br>(Approx 66 cm picture measured diagonally) KV-28LS35<br>Approx 82 cm (32 inches)<br>(Approx 76 cm picture measured diagonally) KV-32LS35 | **Sound output** | | |
| | | Right and Left speaker | 2x14W (Music Power) 2x7W (RMS) | |
| | | Sub Woofer | 1x20W (Music Power) 1x10W (RMS) | |
| **Input/Output Terminals [REAR]** | | **General Specifications** | | |
| 1: 21-pin Euro connector (CENELEC standard) | Inputs for Audio and Video signals.<br>Inputs for RGB.<br>Outputs of TV Video and Audio signals. | Power Requirements | 220 - 240V | |
| | | Power Consumption | 90 W (KV-28LS35)<br>88 W (KV-32LS35) | |
| 2: 21-pin Euro connector | Inputs for Audio and Video signals.<br>Inputs for S Video.<br>Outputs of TV Video and Audio signals.<br>(selectable) | Dimensions | Approx 806x497x540mm (KV-28LS35)<br>Approx 891x564x584mm (KV-32LS35) | |
| | | Weight | Approx 43kg (KV-28LS35)<br>Approx 60.5kg (KV-32LS35) | |
| Phono Jacks | Output Connectors variable for Audio Signals | Supplied Accessories | RM-932 Remote Commander (1)<br>IEC designated R6 battery (2) | |
| **Input/Output Terminals [SIDE]** | | Other Features | TV system Autodetection, Teletext<br>Virtual Dolby | |
| Headphone jack | stereo mini jack | **Remote Control System : Infrared Control** | | |
| Audio inputs | phono jacks | Power requirements | 3V dc<br>2 batteries IEC designation<br>R6 (size AA) | |
| Video inputs | phono jacks | | | |
| S Video input | 4 pin DIN | | | |
| **Design and specifications are subject to change without notice.** | | | | |

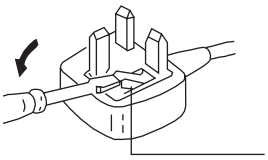
| Model Name / Item | KV-28LS35B | KV-28LS35E | KV-28LS35U | KV-32LS35B | KV-32LS35E | KV-32LS35U |
|---|---|---|---|---|---|---|
| Pal Comb | OFF | OFF | OFF | OFF | OFF | OFF |
| PIP | OFF | OFF | OFF | OFF | OFF | OFF |
| RGB Priority | ON | ON | ON | ON | ON | ON |
| Woofer Box | ON | ON | ON | ON | ON | ON |
| Scart 1 | ON | ON | ON | ON | ON | ON |
| Scart 2 | ON | ON | ON | ON | ON | ON |
| Front in (3) | ON | ON | ON | ON | ON | ON |
| Scart 4 | OFF | OFF | OFF | OFF | OFF | OFF |
| Projector | OFF | OFF | OFF | OFF | OFF | OFF |
| Norm B/G | ON | ON | OFF | ON | ON | OFF |
| Norm I | OFF | OFF | ON | OFF | OFF | ON |
| Norm D/K | ON | ON | OFF | ON | ON | OFF |
| Norm AUS | OFF | OFF | OFF | OFF | OFF | OFF |
| Norm L | OFF | OFF | OFF | OFF | OFF | OFF |
| Norm SAT | OFF | OFF | OFF | OFF | OFF | OFF |
| Norm M | OFF | OFF | OFF | OFF | OFF | OFF |
| Teletext | ON | ON | ON | ON | ON | ON |
| Nicam Stereo | ON | ON | ON | ON | ON | ON |

## WARNING (UK Models only)

The flexible mains lead is supplied connected to a **B.S. 1363** fused plug having a fuse of **5 AMP** rating. Should the fuse need to be replaced, use a **5 AMP FUSE** approved by ASTA to **BS 1362**, ie one that carries the ASTA mark.

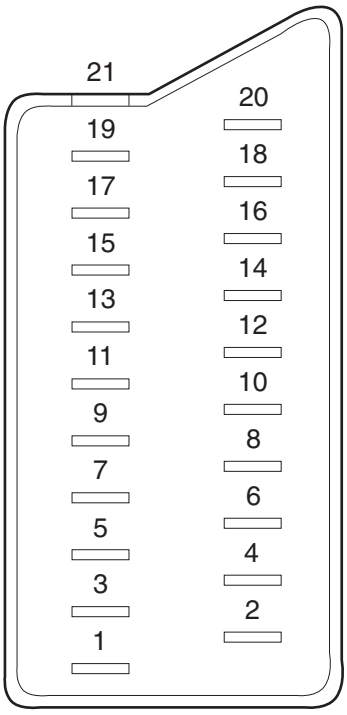
IF THE PLUG SUPPLIED WITH THIS APPLIANCE IS NOT SUITABLE FOR THE OUTLET SOCKETS IN YOUR HOME, IT SHOULD BE CUT OFF AND AN APPROPRIATE PLUG FITTED. THE PLUG SEVERED FROM THE MAINS LEAD MUST BE DESTROYED AS A PLUG WITH BARED WIRES IS DANGEROUS IF ENGAGED IN A LIVE SOCKET.

When an alternative type of plug is used, it should be fitted with a **5 AMP FUSE**, otherwise the circuit should be protected by a **5 AMP FUSE** at the distribution board.




How to replace the fuse.
Open the fuse compartment with a screwdriver blade and replace the fuse.

## 21 pin connector




| Pin No | 1 | 2 | 4 | Signal | Signal level |
|---|---|---|---|---|---|
| 1 | ○ | ○ | ○ | Audio output B (right) | Standard level : 0.5V rms<br>Output impedence : Less than 1kohm* |
| 2 | ○ | ○ | ○ | Audio output B (right) | Standard level : 0.5V rms<br>Output impedence : More than 10kohm* |
| 3 | ○ | ○ | ○ | Audio output A (left) | Standard level : 0.5V rms<br>Output impedence : Less than 1kohm* |
| 4 | ○ | ○ | ○ | Ground (audio) | |
| 5 | ○ | ○ | ○ | Ground (blue) | |
| 6 | ○ | ○ | ○ | Audio input A (left) | Standard level : 0.5V rms<br>Output impedence : More than 10kohm* |
| 7 | ○ | ● | ● | Blue input | 0.7 +/- 3dB, 75 ohms positive |
| 8 | ○ | ○ | ○ | Function select (AV control) | High state (9.5-12V) : Part mode<br>Low state (0-2V) : TV mode<br>Input impedence : More than 10K ohms<br>Input capacitance : Less than 2nF |
| 9 | ○ | ○ | ○ | Ground (green) | |
| 10 | ○ | ○ | ○ | Open | |
| 11 | ○ | ● | ● | Green | Green signal : 0.7 +/- 3dB, 75 ohms, positive |
| 12 | ○ | ○ | ○ | Open | |
| 13 | ○ | ○ | ○ | Ground (red) | |
| 14 | ○ | ○ | ○ | Ground (blanking) | |
| 15 | ○ | – | – | Red input | 0.7 +/- 3dB, 75 ohms, positive |
| | – | ○ | ○ | (S signal Chroma input) | 0.3 +/- 3dB, 75 ohms, positive |
| 16 | ○ | ● | ● | Blanking input (Ys signal) | High state (1-3V) Low state (0-0.4V)<br>Input impedence : 75 ohms |
| 17 | ○ | ○ | ○ | Ground (video output) | |
| 18 | ○ | ○ | ○ | Ground (video input) | |
| 19 | ○ | ○ | ○ | Video output | 1V +/- 3dB, 75ohms, positive sync 0.3V (-3+10dB) |
| 20 | ○ | – | – | Video input | 1V +/- 3dB, 75ohms, positive sync 0.3V (-3+10dB) |
| | – | ○ | ○ | Video input Y (S signal) | 1V +/- 3dB, 75ohms, positive sync 0.3V (-3+10dB) |
| 21 | ○ | ○ | ○ | Common ground (plug, shield) | |

○ Connected ● Not Connected (open) * at 20Hz - 20kHz

## Rear Connection Panel



## Front Connection Panel

S-Video socket



| S Video socket pin configuration | | |
|---|---|---|
| Pin No | Signal | Signal Level |
| 1 | Ground | - |
| 2 | Ground | - |
| 3 | Y (S signal) input | 1V+/- 3dB 75ohm, positive Sync. 0.3V -3 +10dB |
| 4 | C (S signal) input | 0.3V+/- 3dB 75ohm, positive Sync. |

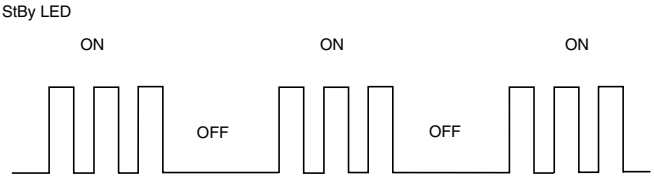
# FE-2 SELF DIAGNOSTIC SOFTWARE

The identification of errors within the FE-2 chassis is triggered in one of two ways :- 1: Busy or 2: Device failure to respond to IIC. In the event of one of these situations arising the software will first try to release the bus if busy (Failure to do so will report with a continuous flashing LED) and then communicate with each device in turn to establish if a device is faulty. If a device is found to be faulty the relevant device number will be displayed through the LED (Series of flashes which must be counted) See table 1., non fatal errors are reported using this method. Each time the software detects an error it is stored within the NVM. See Table 2.

Table 1

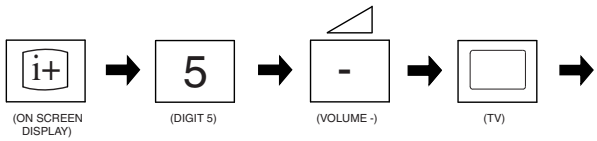
| Error Message | LED Code |
|---|---|
| No error | 00 |
| Reserved | 01 |
| OCP ( Over Current Protection ) | 02 |
| Not Used | 03 |
| No Vertical Sync | 04 |
| IKR Error at power on | 05 |
| IIC bus clock and/or data lines low at power on | 06 |
| NVM no IIC bus acknowledge at power on | 07 |
| Not Used | 08 |
| Tuner no acknowledge at power on | 09 |
| Sound Processor Error | 10 |
| Jungle controller 8 volts error | 11 |

**Flash Timing Example : e.g. error number 3**




**How to enter into Table 2**

1. Turn on the main power switch of the TV set and enter into the 'Stanby Mode'.
2. Press the following sequence of buttons on the Remote Commander.




3. The following table will be displayed indicating the error count.

Table 2

| ERROR MENU | | | |
|---|---|---|---|
| E02 | OCP | (0, 255) | 0 |
| E03 | OVP N/A | (0, 255) | 0 |
| E04 | VSYNC | (0, 255) | 0 |
| E05 | IKR | (0, 255) | 0 |
| E06 | IIC | (0, 255) | 0 |
| E07 | NVM | (0, 255) | 0 |
| E08 | JUNGLE | (0, 255) | 0 |
| E09 | TUNER | (0, 255) | 0 |
| E10 | SOUNDP | (0, 255) | 0 |
| E11 | 8V | (0, 255) | 0 |
| **WORKING TIME** | | | |
| HOURS | | | 2 |
| MINUTES | | | 11 |

**Note:** To clear the error count data press '80' on the Remote commander.

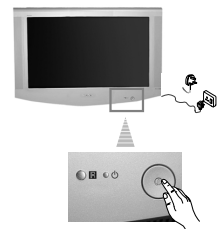
The operating instructions mentioned here are partial abstracts from the 'Operating Instruction Manual'. The page numbers of the 'Operating Instruction Manual' remain as in the manual.



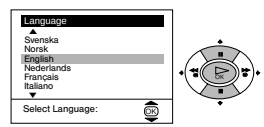
# Switching On the TV and Automatically Tuning

The first time you switch on your TV, a sequence of menu screens appear on the TV enabling you to: 1) choose the language of the menu screen, 2) adjust the picture slant 3) search and store all available broadcast channels and 4) change the order in which the broadcast channels appear on the screen.
However, if you need to change any of these settings at a later date, you can do that by selecting the appropriate option in the (Set Up menu) or by pressing the Auto Start Up Button on the TV set.

**1** Connect the TV plug to the mains socket (220-240V AC, 50Hz)
The first time the TV set is connected, it is usually turned on. If the TV is off, press the on/off button on the TV set to turn on the TV.
The first time you switch on the TV, a **Language** menu displays automatically on the TV screen.



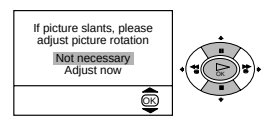
**2** Press the ▼ or ▲ button on the remote control to select the language, then press the **OK** button to confirm your selection. From now on all the menus will appear in the selected language.




**3** Because of the earth's magnetism, the picture might slant. The **Picture Rotation** menu allows you to correct the picture slants if it is necessary.

**a)** If it is not necessary, press ▼ or ▲ to select **Not necessary** and press **OK**.

**b)** If it is necessary, press ▼ or ▲ to select **Adjust now**, then press **OK** and correct any slant of the picture between –5 and +5 by pressing ▼ or ▲ . Finally press **OK** to store.

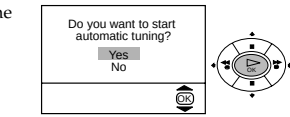



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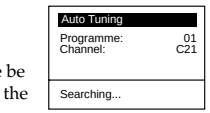


**4** The Auto Tuning menu appears on the screen. Press the **OK** button to select **Yes**.

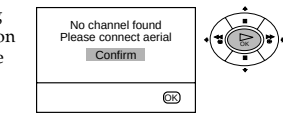



**5** The TV starts to automatically search and store all available broadcast channels for you.

This procedure could take some minutes. Please be patient and do not press any buttons, otherwise the automatic tuning will not be completed.




If no channels were found during the auto tuning process then a new menu appears automatically on the screen asking you to connect the aerial. Please connect the aerial (see page 6) and press **OK**. The auto tuning process will start again.




**6** After all available broadcast channels are captured and stored, the **Programme Sorting** menu appears automatically on the screen enabling you to change the order in which the broadcast channels appear on the screen.

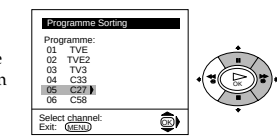
**a)** If you wish to keep the broadcast channels in the tuned order, go to step 7.

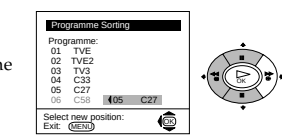
**b)** If you wish to store the broadcast channels in a different order:

**1** Press the ▼ or ▲ button to select the programme number with the broadcast channel you wish to rearrange, then press the ▶ button.

**2** Press the ▼ or ▲ button to select the new programme number position for your selected broadcast channel, then press ◀ .

**3** Repeat steps b)1 and b)2 if you wish to change the order of the other broadcast channels.




**7** Press the **MENU** button to remove the menu from the screen.




*Your TV is now ready for use*

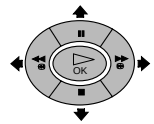
# Introducing and Using the Menu System

Your TV uses an on-screen menu system to guide you through the operations. Use the following buttons on the Remote Control to operate the menu system:

**1** Press the **MENU** button to switch the first level menu on.




**2** • To highlight the desired menu or option, press ▼ or ▲.
- To enter to the selected menu or option, press ▶.
- To return to the last menu or option, press ◀.
- To alter settings of your selected option, press ▼ / ▲ / ◀ or ▶.
- To confirm and store your selection, press **OK**.




**3** Press the **MENU** button to remove the menu from the screen.

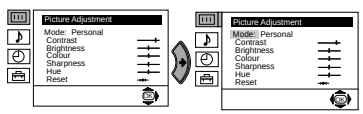



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# Menu Guide

| Level 1 | Level 2 | Level 3 / Function |
|---|---|---|



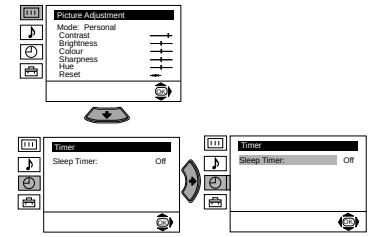

**PICTURE ADJUSTMENT**
The "Picture Adjustment" menu allows you to alter the picture adjustments.

To do this: after selecting the item you want to alter press ▶, then press repeatedly ▼ / ▲ / ◀ or ▶ to adjust it and finally press **OK** to store the new adjustment.
This menu also allows you to customise the picture mode based on the programme you are watching:

- ▼ **Personal** (for individual settings).
- ▼ **Live** (for live broadcast programmes, DVD and Digital Set Top Box receivers).
- ▼ **Movie** (for films).

- ***Brightness, Colour** and **Sharpness** can only be altered if "Personal" mode is selected.*
- ***Hue** is only available for NTSC colour signal (e.g: USA video tapes).*
- *Select **Reset** and press **OK** to reset the picture to the factory preset levels.*

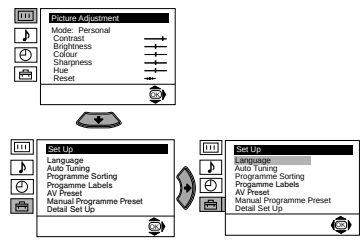
| Level 1 | Level 2 | Level 3 / Function |
|---|---|---|




**SLEEP TIMER**
The "Sleep Timer" option in the "Timer" menu allows you to select a time period for the TV to switch itself automatically into the standby mode.

To do this: after selecting the option press ▶, then press ▼ or ▲ to set the time period delay (max. of 4 hours) and finally press **OK** to store.

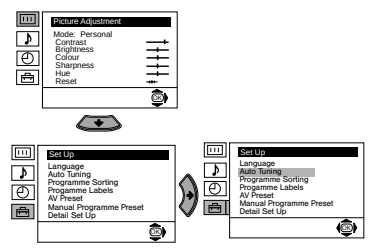
- *While watching the TV, you can press the ⓘ button on the remote control to display the time remaining.*
- *One minute before the TV switches itself into standby mode, the time remaining is displayed on the TV screen automatically.*




**LANGUAGE**
The "Language" option in the "Set Up" menu allows you to select the language that the menus are displayed in.

To do this: after selecting the option, press ▶ and then proceed in the same way as in the step 2 of the section "Switching On the TV and Automatically Tuning".

GB

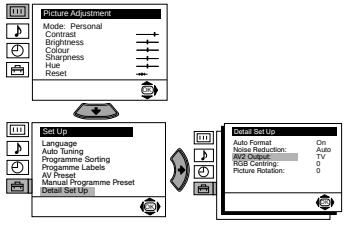



**AUTO TUNING**
The "Auto Tuning" option in the "Set Up" menu allows you to automatically search for and store all available TV broadcast channels.

To do this: after selecting the option, press ▶ and then proceed in the same way as in TV steps 4 and 5 of the section "Switching On the TV and Automatically Tuning".

continued...

| Level 1 | Level 2 | Level 3 / Function |
|---|---|---|



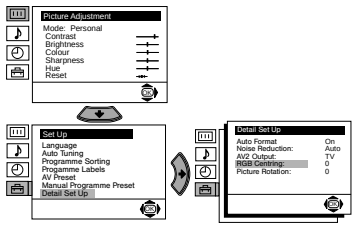

**AV2 OUTPUT**
The "AV2 Output" option in the "Detail Set Up" menu allows you to select the source to be output from the Scart connector 2/S. You can record from this Scart any signal coming from the TV or from external equipment connected to the Scart connector 1/ or side connectors 3 and 3.

If your VCR supports Smartlink, this procedure is not necessary.

To do this: after selecting the option, press ▶. Then press ▼ or ▲ to select the desired output signal: **TV, AV1, AV3, YC3** or **AUTO**.

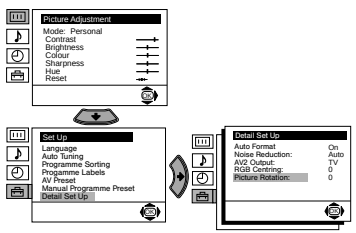
If you select "AUTO", the output signal will always be the same one that is displayed on the screen.

If you have connected a decoder to the Scart 2/S or to a VCR connected to this Scart, please remember to change back the "AV2 Output" to "AUTO" or "TV" for correct unscrambling.




**RGB CENTRING**
When connecting an RGB source, such as a "PlayStation", you may need to readjust the horizontal position of the picture. In that case, you can readjust it through the "RGB Centring" option in the "Detail Set Up".

To do this: while watching an RGB source select the "RGB Centring" option and press ▶. Then press ▼ or ▲ to adjust the centre of the picture between –10 and +10. Finally press **OK** to confirm and store.




**PICTURE ROTATION**
Because of the earth's magnetism, the picture might slant. In this case, you can correct the picture slant by using the option "Picture Rotation" in the "Detail Set Up" menu.

To do this: after selecting the option, press ▶. Then press ▼ or ▲ to correct any slant of the picture between -5 and +5 and finally press **OK** to store.



# Teletext

Teletext is an information service transmitted by most TV stations. The index page of the teletext service (usually page 100) gives you information on how to use the service. To operate teletext, use the remote control buttons as indicated below.

Make sure to use a broadcast channel with a strong signal, otherwise teletext errors may occur.

**To Switch On Teletext :**
After selecting the TV channel which carries the teletext service you wish to view, press ☰.




**To Select a Teletext page:**
Input 3 digits for the page number, using the numbered buttons.
- *If you have made a mistake, retype the correct page number.*
- *If the counter on the screen continues searching, it is because this page is not available. In that case, input another page number*

**To access the next or preceding page:**
Press **PROG +** (▲) or **PROG -** (▼).

**To superimpose teletext on to the TV:**
Whilst you are viewing teletext, press ☰. Press it again to cancel teletext mode.

**To freeze a teletext page:**
Some teletext pages have sub-pages which follow on automatically. To stop them, press /. Press it again to cancel the freeze.

**To reveal concealed information (e.g: answer to a quiz):**
Press /?. Press it again to conceal the information.

**To Switch Off Teletext:**
Press ▢.

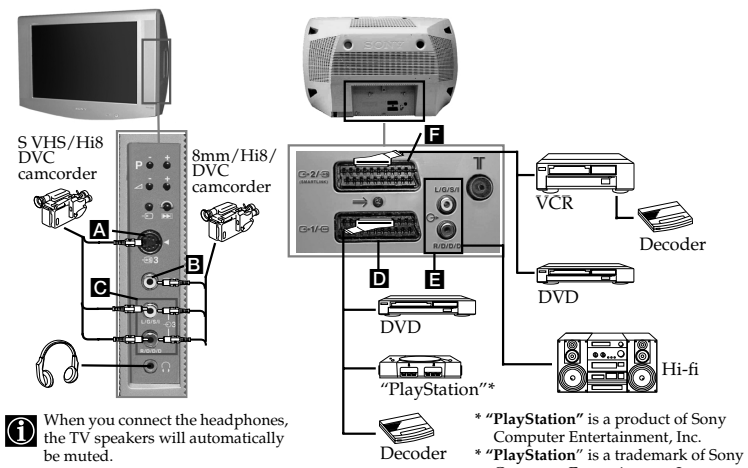
GB

# Fastext

Fastext service lets you access pages with one button push.
While you are in Teletext mode and Fastext is broadcast, a colour coded menu appears at the bottom of the teletext page. Press the colour button (red, green, yellow or blue) to access the corresponding page.

# Connecting Optional Equipment

Using the following instructions you can connect a wide range of optional equipment to your TV set. (Connecting cables are not supplied).




When you connect the headphones, the TV speakers will automatically be muted.

* **"PlayStation"** is a product of Sony Computer Entertainment, Inc.
* **"PlayStation"** is a trademark of Sony Computer Entertainment, Inc.

To avoid picture distorsion, do not connect external equipment to connectors **A** and **B** at the same time.

## Connecting a VCR:

To connect a VCR, please refer to the section "Connecting the aerial and VCR" of this instruction manual. We recommend you connect your VCR using a scart lead. If you do not have a scart lead, tune in the VCR test signal to the TV programme number "0" by using the "Manual Programme Preset" option. (for details of how to manually programme these presets, see page 13, step a).
Refer to your VCR instruction manual to find out how to find the output channel of your VCR.

## Connecting a VCR that supports Smartlink:

Smartlink is a direct link between the TV set and the VCR. For more information on Smartlink, please refer to the instruction manual of your VCR.
If you use a VCR that supports Smartlink, please connect the VCR by using a Scart lead to the Scart ⇨2/⇨S **F**.

continued...

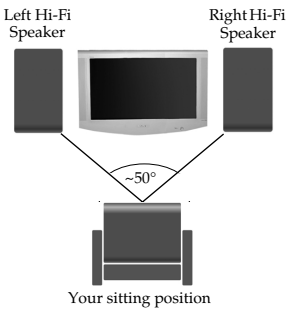


## Connecting to external Audio Equipment:

Plug in your Hi-Fi equipment to the audio output sockets **E** if you wish to amplify the audio output from TV. Next, using the menu system, select the "Sound Adjustment" menu. Enter the "Detail Adjustment" option and set "TV Speakers" to "Off".

The audio level of the external speakers can be modified by pressing the volume buttons on the remote control. Also treble and bass settings can be modified through the "Sound Adjustment" menu.

**To enjoy "Dolby Virtual" sound effect through your Hi-Fi equipment:**
Place the speakers of your equipment in front of your sitting place and besides the TV set but keep a distance of 50 cm from each speaker to the TV set.
Then by using the menu system, select the menu "Sound Adjustment". Next select "Detail Adjustment" and set "Dolby Virtual" to "On".




# Using Optional Equipment



1 Connect your equipment to the designated TV socket, as indicated in the previous page.

2 Switch on the connected equipment.

3 To watch the picture of the connected equipment, press the ⇨ button repeatedly until the correct input symbol appears on the screen.

| Symbol | Input Signals |
|---|---|
| ⇨1 | • Audio / video input signal through the Scart connector **D** |
| ⇨ | • RGB input signal through the Scart connector **D**. This symbol appears only if a RGB source has been connected. |
| ⇨2 | • Audio / video input signal through the Scart connector **F**. |
| ⇨S2 | • S Video input signal through the Scart connector **F**. |
| ⇨3 | • Video input signal through the phono socket **B** and Audio input signal through **C**. |
| ⇨S3 | • S Video Input signal through the front S Video input jack **A** and Audio signal through **C**. |

4 Press ▢ button on the remote control to return to the normal TV picture.

**For Mono Equipment**
Connect the phono plug to the L/G/S/I socket on the front of the TV and select ⇨3 or ⇨S3 input signal using the instructions above. Finally, refer to the "Sound Adjustment" section of this manual and select "Dual Sound" "A" on the sound menu screen.

# Specifications

**TV system:**
I

**Colour system:**
PAL,
SECAM, NTSC 3.58, 4.43 (only Video In)

**Channel Coverage:**
I: UHF B21-B69

**Picture Tube:**
Flat Display FD Trinitron WIDE
- KV-28LS35U: 28" (approx. 71 cm. measured diagonally)
- KV-32LS35U: 32" (approx. 82 cm. measured diagonally)

**Rear Terminals**

| | |
|---|---|
| 1/ | 21-pin scart connector (CENELEC standard) including audio/video input, RGB input, TV audio/video output. |
| 2/ (SMARTLINK) | 21-pin Scart connector (CENELEC standard) including audio / video input, S video input, selectable audio / video output and Smartlink interface. |
| | audio outputs (Left/ Right) - phono jacks |

**Side Terminals**

| | |
|---|---|
| 3 | S Video input – 4 pin DIN |
| 3 | video input – phono jack |
| 3 | audio input – phono jacks |
| | headphones jack |

**Sound Output:**
2 x 14 W (music power)
2 x 7 W (RMS)
**Woofer:**
20 W (music power)
10 W (RMS)

**Power Consumption:**
KV-28LS35U: 90 W
KV-32LS35U: 88 W

**Standby Power Consumption:**
0.54 W

**Dimensions (w x h x d) :**
KV-28LS35U: Approx. 806 x 497 x 540 mm.
KV-32LS35U: Approx. 891 x 564 x 584 mm.

**Weight:**
KV-28LS35U: 43 Kg.
KV-32LS35U: 60.5 Kg.

**Accessories supplied:**
1 Remote Control (RM-932)
2 Batteries (IEC designated)

**Other features:**
- Teletext, Fastext, TOPtext
- Sleep Timer
- Smartlink (direct link between your TV set and a compatible VCR. For more information on Smartlink, please refer to the Instruction Manual of your VCR).
- Dolby Virtual
- Auto Format

**Design and specifications are subject to change without notice.**

**Ecological Paper- Totally Chlorine Free**





# Troubleshooting

Here are some simple solutions to the problems which may affect the picture and sound.

| Problem | Solution |
|---|---|
| No picture (screen is dark) and no sound. | • Check the aerial connection.<br>• Plug the TV in and press the button on the front of the TV.<br>• If the standby indicator is on, press **TV** I/ button on the remote control. |
| Poor or no picture (screen is dark), but good sound. | • Using the menu system, select the "Picture Adjustment" menu and select "Reset" to return to the factory settings. |
| No picture or no menu information from equipment connected to the Scart connector. | • Check that the optional equipment is on and press the button repeatedly on the remote control until the correct input symbol is displayed on the screen. |
| Good picture, no sound. | • Press the +/- button on the remote control.<br>• Check that "TV Speakers" is "On" on the "Sound Adjustment" menu.<br>• Check that headphones are not connected. |
| No colour on colour programmes. | • Using the menu system, select the "Picture Adjustment" menu and select "Reset" to return to factory settings. |
| Distorted picture when changing programmes or selecting teletext. | • Turn off any equipment connected to the Scart connector on the rear of the TV. |
| Picture slanted | • Using the menu system, select the "Picture Rotation" option in the "Detail Set Up" menu to correct the picture slant. |
| Noisy picture when viewing a TV channel. | • Using the menu system, select the "Manual Programme Preset" menu and adjust Fine Tuning (AFT) to obtain better picture reception.<br>• Using the menu system, select the "Noise Reduction" option in the "Detail Set Up" menu and select "Auto" to reduce the noise in the picture. |
| No unscrambling or unstable picture whilst viewing a scrambling channel with a decoder connected through the Scart connector 2/. | • Using the menu system, select the "Set Up" menu. Then enter to "Detail Set Up" option and set "AV2 Output" to "TV". |
| Remote control does not function. | • Check that the Media Selector on the remote control is set according to the device you are using (VCR, TV or DVD).<br>• If the remote control does not operate the VCR or DVD even when the Media Selector has been set correctly. Enter the necessary code set as explained on "Remote Control Configuration for VCR/DVD" chapter of this instruction manual.<br>• Replace the batteries. |
| The standby indicator on the TV flashes. | • Contact your nearest Sony service centre. |

If you continue to experience problems, have your TV serviced by qualified personnel. Never open the casing yourself.

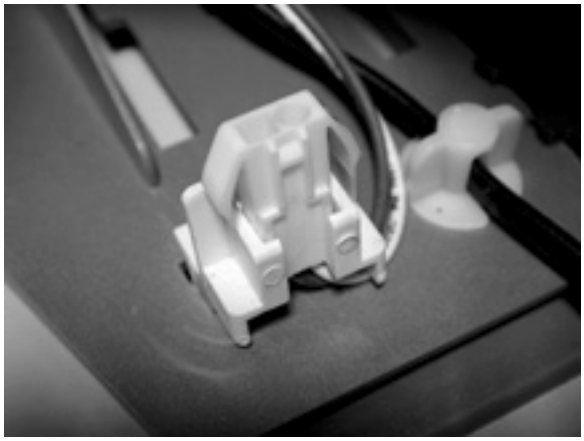
# SECTION 2 DISASSEMBLY

## 2-1. Rear Cover Removal




Release the mains power cable from its securing posts. Remove the rear cover fixing screws indicated. Pull the rear cover away from the front beznet. Take care when removing the rear cover not to damage the speaker cables as speakers are fitted inside the rear cover.

## 2-2. Speaker Connector Disconnection

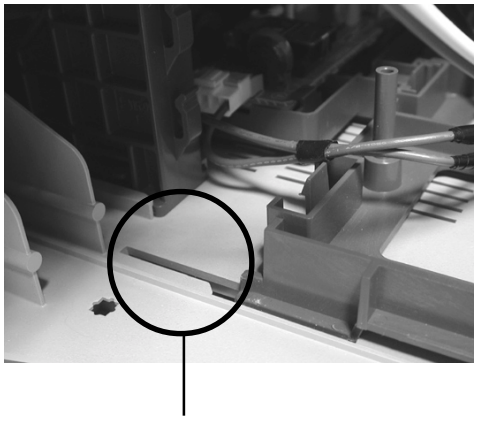


Before completely removing the rear cover disconnect the speaker connectors which are located on the inside base of the beznet.

## 2-3. Chassis Removal and Refitting

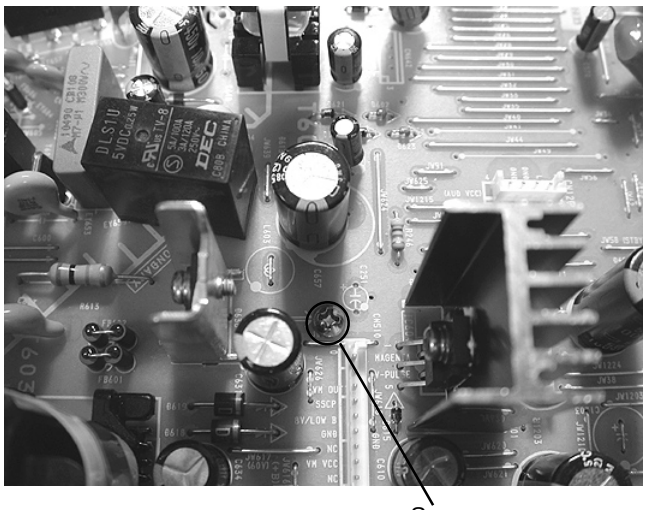


To remove lift the main bracket rear slightly and slide the chassis away from the beznet. Ensure that the interconnecting leads are released from their purse locks to prevent damage being caused.



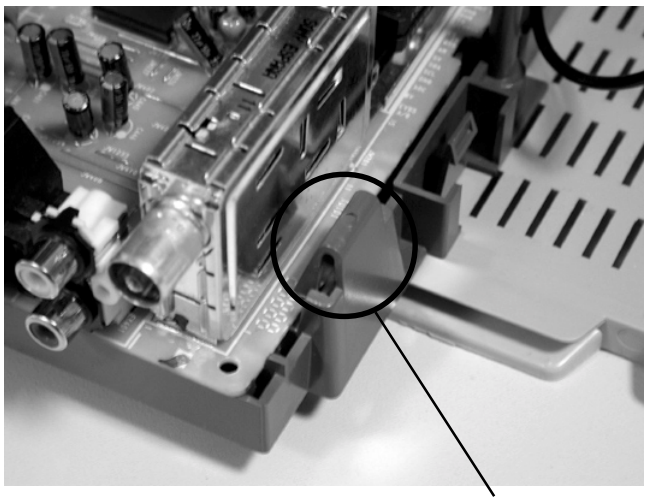
When refitting the chassis ensure that the main bracket is located in the beznet guide slots before sliding the chassis forwards. Refit the interconnecting leads in their respective purse locks.

## 2-4. A Board PWB Removal [ Step 1 ]



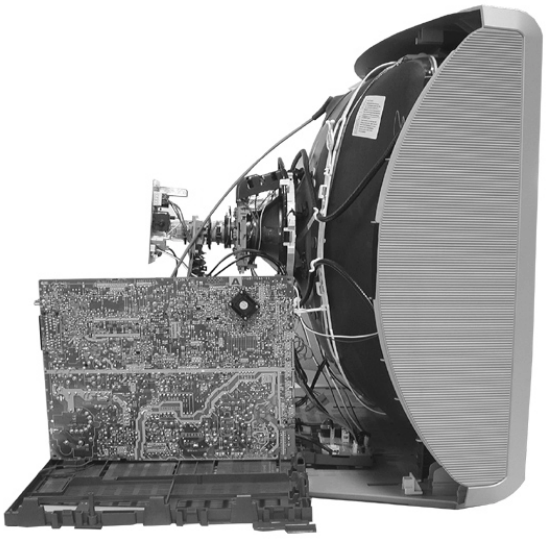

Remove the screw securing the PWB to the main bracket.

## 2-5. A Board PWB Removal [ Step 2 ]



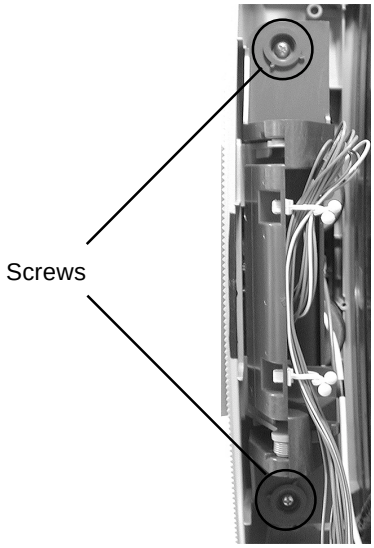

Release the 5 securing clips located at the side and front of the chassis and slide the PWB clear of the bracket.

## 2-6. Service Position



Place the A Board PWB in the position indicated to carry out servicing.

## 2-7. Side Control Module Removal

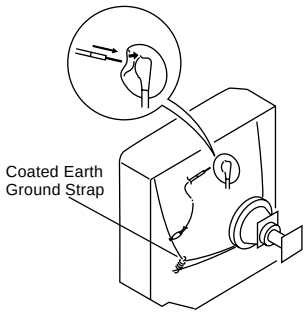


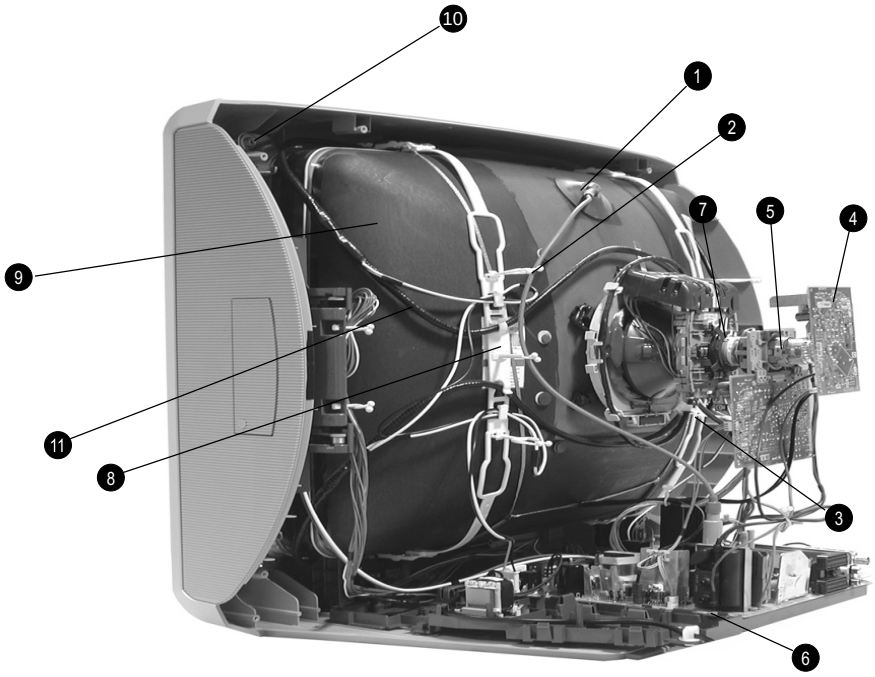

Remove the two screws fixing the user control module to the side of the set. The control module can then be removed by sliding it towards the rear of the set allowing access to the H2 Board.

## 2-8. Picture Tube Removal

**WARNING:**
**BEFORE REMOVING**
**THE ANODE CAP**

High voltage remains in the CRT even after the power is disconnected. To avoid electric shock, discharge CRT ***before*** attempting to remove the anode cap. Short between anode and CRT coated earth ground strap.

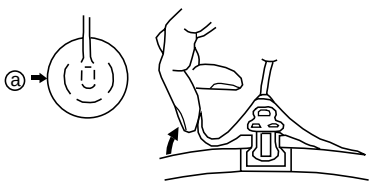


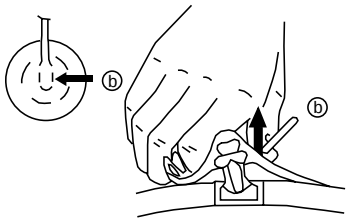

1. Discharge the anode of the CRT and remove the anode cap.
2. Release the EHT lead from its CRT support bracket.
3. Unplug all interconnecting leads from the Deflection yoke, degaussing coils, Rotation coil and CRT grounding strap.
4. Remove the C Board from the CRT.
5. Loosen the VM Block fixing screw and remove.
6. Remove the chassis assembly.
7. Loosen the Deflection yoke fixing screw and remove.
8. Remove the Degaussing Coil holders.
9. Place the set with the CRT face down on a cushion.
10. Unscrew the four CRT fixing screws [ located on each CRT corner ] and remove the CRT.
11. Remove the Degaussing Coils.
    Remove the CRT grounding strap and spring tentioners.
    [Take care not to handle the CRT by the neck.]

## Removal of the Anode-Cap

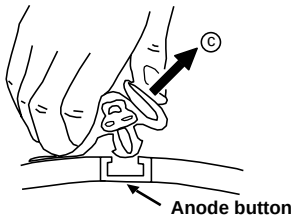
*** REMOVING PROCEDURES.**




① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ



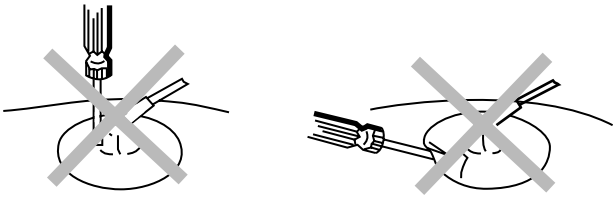

② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ




③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling it up in the direction of the arrow ⓒ

## How to handle the Anode-Cap

1. To prevent damaging the surface of the anode-cap do not use sharp materials.
2. Do not apply too great a pressure on the rubber, as this may cause damage to the anode connector.
3. A metal fitting called a shatter hook terminal is fitted inside the rubber cap.
4. Do not turn the rubber foot over excessively, this may cause damage if the shatter hook sticks out.



# SECTION 3 SET-UP ADJUSTMENTS

- When complete readjustment is necessary or a new picture tube is installed, carry out the following adjustments.
- Unless there are specific instructions to the contrary, carry out these adjustments with the rated power supply.
- Unless there are specific instructions to the contrary, set the controls and switches to the following settings :

Contrast ..... 80% [or remote control normal]

Brightness ..... 50%

**Carry out the adjustments in the following order :**

3-1. Beam Landing.
3-2. Convergence.
3-3. Focus.
3-4. White Balance.

**Note :** Test equipment required.
1. Color bar/pattern generator.
2. Degausser.
3. Oscilloscope.
4. Digital multimeter.

---

**Preparation:**

1. In order to reduce the influence of geomagnetism on the set's picture tube, face it in an easterly or westerly direction.
2. Switch on the set's power and degauss with the degausser.

## 3-1. Beam Landing

1. Input an all white signal from the pattern generator. Set the Contrast and Brightness to normal.
2. Set the pattern generator raster signal to Red.
3. Move the deflection yoke forward and adjust with the purity control so that the Red is at the centre and the Blue and Green take up equally sized areas on each side of the screen. [See Fig.3-1 - 3-3].
4. Move the deflection yoke backwards and adjust so that the entire screen becomes Red. [See Fig.3-1]
5. Switch the raster signal to Blue, then to Green and verify the condition.
6. When the position of the deflection yoke has been determined, fasten the deflection yoke with the screws.
7. If the beam does not land correctly in all the corners, use a magnet to correct it. [See Fig.3-4]

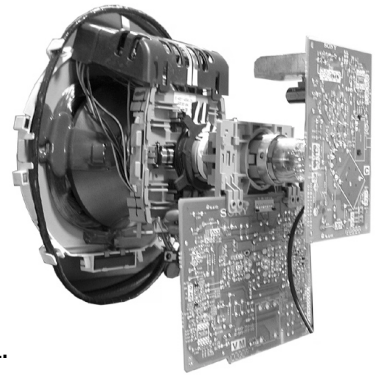


**Fig. 3-1.**

**Caution :**

High voltages are present on the Deflection yoke terminals - take care when handling the Deflection yoke whilst carrying out adjustments.

**Fig. 3-2.**

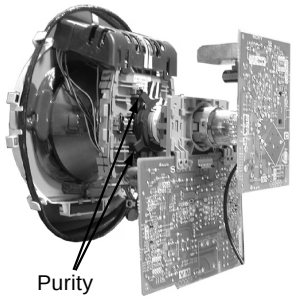
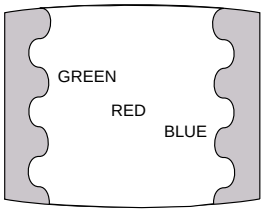



**Fig. 3-3.**



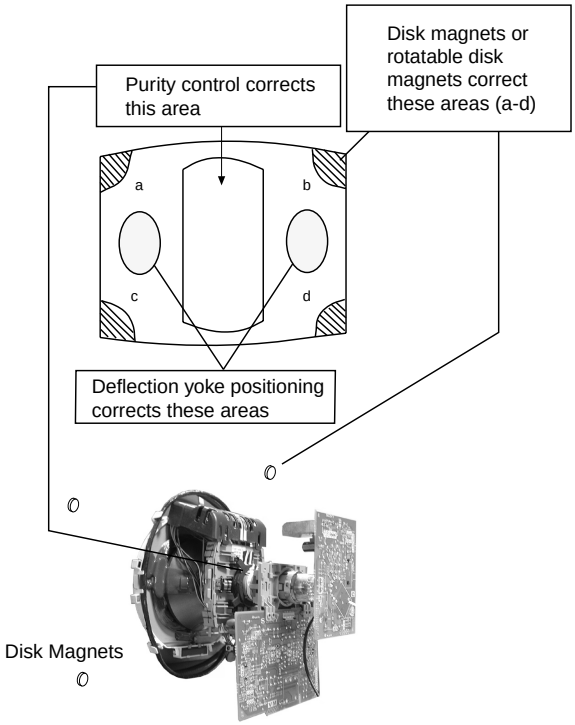




**Fig.3-4**

## 3-2. Convergence

**Preparation:**

- Before starting this adjustment, adjust the focus, horizontal size and vertical size.
- Minimize the Brightness setting.
- Input a dot pattern from the pattern generator.

### Horizontal and Vertical Static Convergence

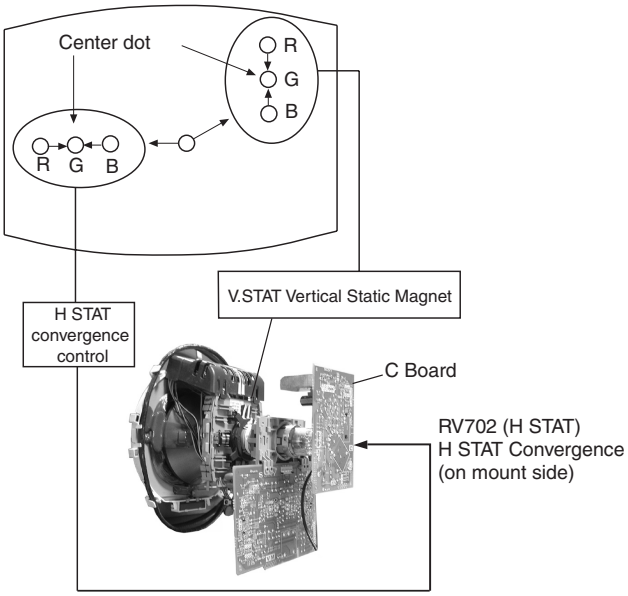
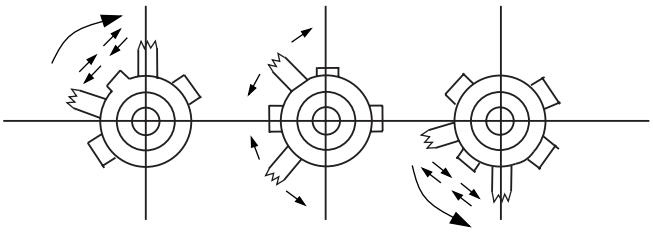


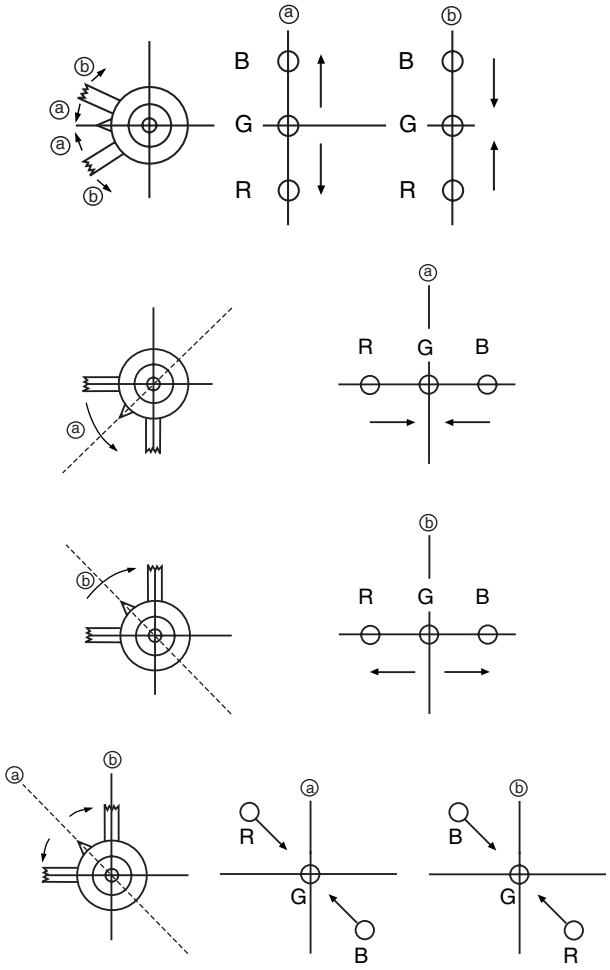

**Fig.3-5**

1. [Moving horizontally], adjust the H.STAT control so that the Red, Green and Blue points are on top of each other at the centre of the screen.
2. [Moving vertically], adjust the V.STAT magnet so that the Red, Green and Blue points are on top of each other at the centre of the screen.
3. If the H.STAT variable resistor is unable to bring the Red, Green and Blue points together at the centre of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V.STAT magnet in the manner indicated below.
   [In this case, the H.STAT variable resistor and the V.STAT magnet influence each other].

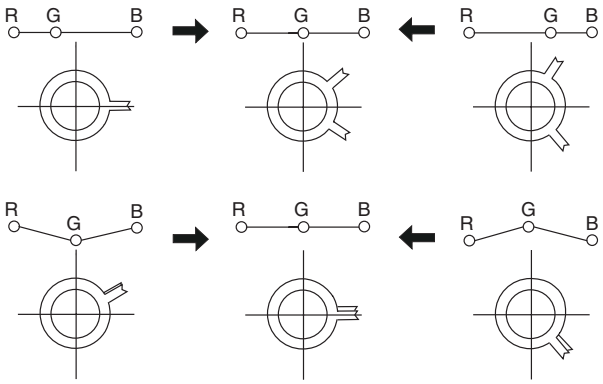
   - Tilt the V.STAT magnet and adjust the static convergence by opening or closing the V.STAT magnet.



4. If the V.STAT magnet is moved in the direction of the (a) and (b) arrows, the Red, Green and Blue points move as indicated below.




### Operation of the BMC (Hexapole) magnet.



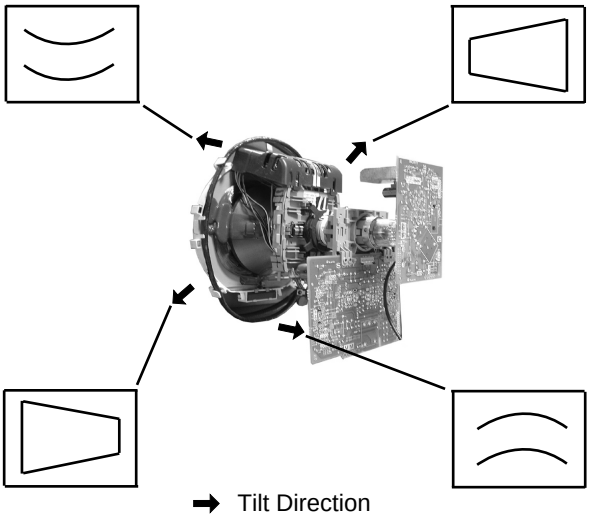

The movement of the magnets interact with each other and so the respective dot position should be monitored while carrying out this adjustment.
Use the H.STAT VR to adjust the Red, Green and Blue dots so that they coincide at the centre of the screen
(by moving the dots in the horizontal direction).

## Geometry Adjustment.

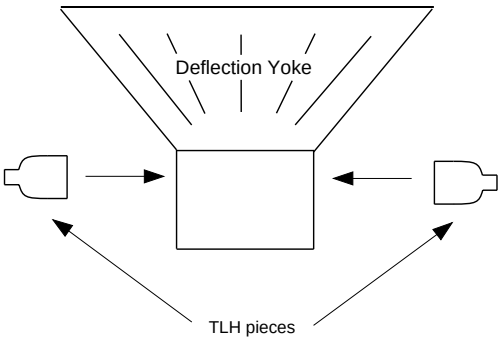
**Preparation:**

Before starting this adjustment, adjust the horizontal and vertical static convergence.

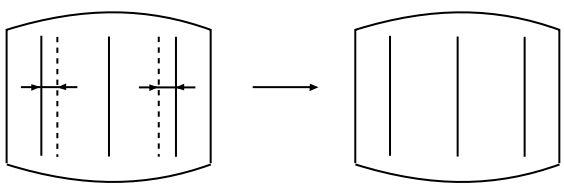
1. Remove the deflection yoke spacer.
2. Tilt the deflection yoke as indicated in the figure below and optimise the geometry.
   Tilting the DY Up and Down will balance the upper and lower pin adjustment.
   Tilting the DY Left and Right will balance the H-Trap adjustment.
3. Re-install the deflection yoke spacer.



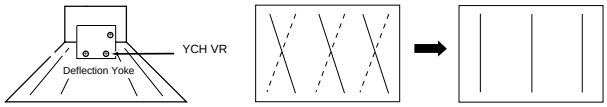

## HTIL Adjustment



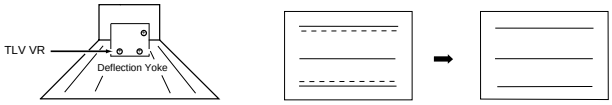

HTIL correction can be performed by adding a TLH correction assembly to the Deflection yoke.



## YCH Adjustment

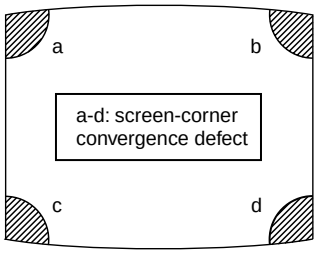


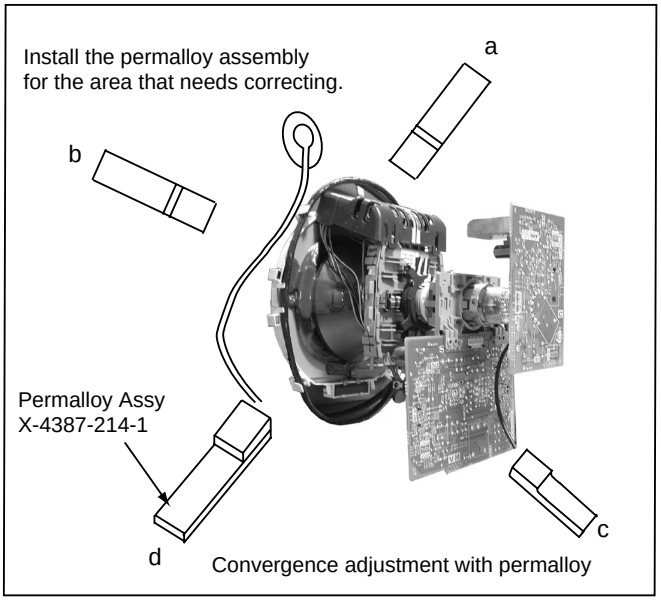

## TLV Adjustment



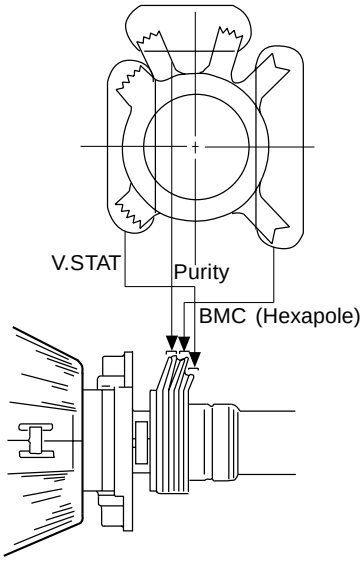

## Screen Corner Convergence

If you are unable to adjust the corner convergence properly, this can be corrected with the use of permalloy magnets.



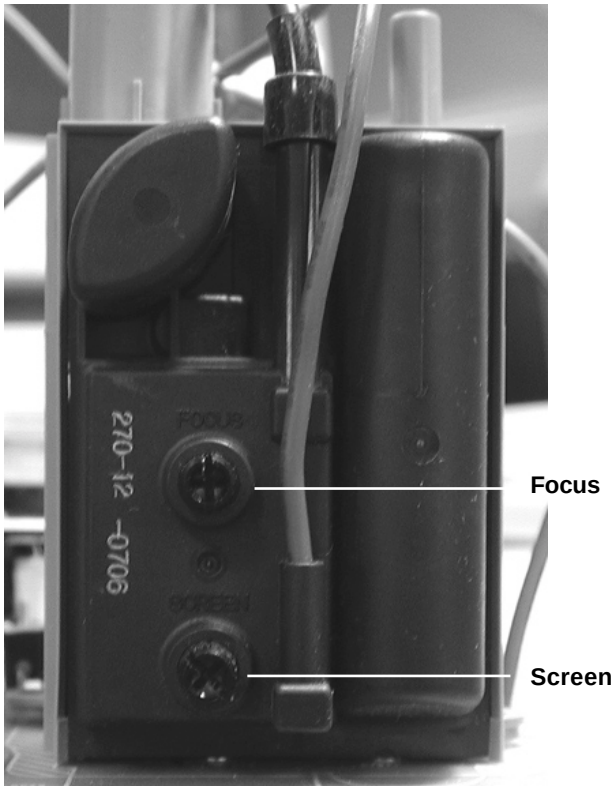



### Layout of each control




## 3-3. Focus Adjustment

1. Receive a television broadcast signal.
2. Normalize the picture setting.
3. Adjust the focus control located on the flyback transformer to obtain the best focus at the centre of the screen.
   Bring only the centre area of the screen into focus, the magenta-ring appears on the screen. In this case, adjust the focus to optimize the screen uniformly.




## 3-4. Screen (G2), White Balance

**[Adjustment in the service mode using the remote commander]**

### G2 adjustment

1. Input a dot signal from the pattern generator.
2. Enter the 'Service Mode' by pressing 'TEST', 'TEST' and '38' (TT-38) on the remote commander, to set up the G2 service adjustment mode.
3. Whilst watching the picture, adjust the G2 control [SCREEN] located on the Flyback Transformer to the point where the OSD menu indication shows "OK".

### White balance adjustment for TV mode

1. Input an all-white signal from the pattern generator.
2. Enter into the 'Service Mode' by pressing 'TEST', 'TEST' and 'MENU' on the Service Commander.
3. Select 'Service' from the on screen menu display and press the right arrow button on the remote commander.
4. The 'Service' menu will appear on the screen.
   [See Page 19]
5. Set the 'Contrast' to MAX.
6. Set the 'R-Drive' to 25.
7. Adjust the 'G-Drive' and the 'B-Drive' so that the white balance becomes optimum.
8. Press the 'OK' button to write the data for each item.
9. Set the 'Contrast' to MIN.
10. Adjust the 'G-Cutoff', and the 'R-Cutoff' with the left and right buttons on the remote commander so that the white balance becomes optimum.
11. Press the 'OK' button to write the data for each item.

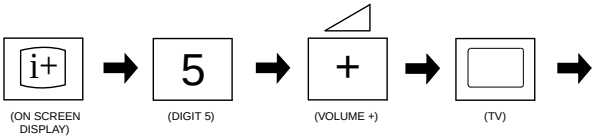
# SECTION 4 CIRCUIT ADJUSTMENTS

## 4-1. Electrical Adjustments

Service adjustments to this model can be performed using the supplied remote Commander RM-932.

### How to enter into the Service Mode

1. Turn on the main power switch and enter into the stand-by mode.
2. Press the following sequence of buttons on the Remote Commander.




'TT—' will appear in the upper right corner of the screen. Other status information will also be displayed.

3. Press 'MENU' on the remote commander to obtain the following menu on the screen.

```
Geometry
Service
Design
Status
Sound
IF adjust
Error Menu

FE-2 Stereo v1.30
Factory data    FFh    FFh
MSP Device : MSP3411G
```

4. Move to the corresponding adjustment item using the up or down arrow buttons on the Remote Commander.
5. Press the right arrow button to enter into the required menu item.
6. Press the 'Menu' button on the Remote Commander to quit the Service Mode when all adjustments have been completed.

**Note :**

- Before performing any adjustments ensure that the correct model has been selected in the 'Model Setting' menu.
- After carrying out the service adjustments, to prevent the customer accessing the 'Service Menu' switch the TV set OFF and then ON.

**ERROR MENU**

| | | | |
|---|---|---|---|
| E02 | OCP | (0, 255) | 0 |
| E03 | OVP N/A | (0, 255) | 0 |
| E04 | VSYNC | (0, 255) | 0 |
| E05 | IKR | (0, 255) | 0 |
| E06 | IIC | (0, 255) | 0 |
| E07 | NVM | (0, 255) | 0 |
| E08 | JUNGLE | (0, 255) | 0 |
| E09 | TUNER | (0, 255) | 0 |
| E10 | SOUNDP | (0, 255) | 0 |
| E11 | 8V | (0, 255) | 0 |

**WORKING TIME**

| | |
|---|---|
| HOURS | 2 |
| MINUTES | 11 |

**SERVICE**

| | | |
|---|---|---|
| Offset-R | (0, 63) | Adj |
| Offset-G | (0, 63) | Adj |
| R-Drive | (0, 63) | 25 |
| G-Drive | (0, 63) | Adj |
| B-Drive | (0, 63) | Adj |
| Peak-Freq | (0, 3) | 0 |
| Luma-Delay | (0, 15) | 8 |
| SC0 | (0, 3) | 2 |
| White-Peak | (0, 15) | 15 |
| Subcont | (0, 15) | 4 |
| Subright | (0, 63) | 31 |
| Subcol | (0, 63) | Adj |
| Subsharp | (0, 63) | 31 |
| Cutoff Br. | (0, 63) | 60 |
| Br OSD | (0, 15) | 10 |
| Br TXT | (0, 15) | 9 |

**GEOMETRY**

| | | |
|---|---|---|
| V-Linearity | (0, 63) | Adj |
| V-Scroll | (0, 63) | 32 |
| Left-HBlk | (0, 15) | 8 |
| Right-HBlk | (0, 15) | 6 |
| V-Angle | (0, 63) | Adj |
| V-Bow | (0, 63) | Adj |
| H-Centre | (0, 63) | Adj |
| H-Size | (0, 63) | Adj |
| Pin-Amp | (0, 63) | Adj |
| U-Corner-Pin | (0, 63) | Adj |
| L-Corner-Pin | (0, 63) | Adj |
| Pin Phase | (0, 63) | Adj |
| V-Slope | (0, 63) | 35 |
| V-Size | (0, 63) | Adj |
| S-Correction | (0, 63) | Adj |
| V-Centre | (0, 63) | Adj |
| V-Zoom | (0, 63) | 23 |
| Magenta | (0, 63) | 40 |

**IF ADJUST**

| | | |
|---|---|---|
| AGC Adjust | (-16, +15) | +0 |
| Automute | | 1 |
| Audio Gain | | 0 |
| L Gating | | 0 |

### Sub Brightness Adjustment

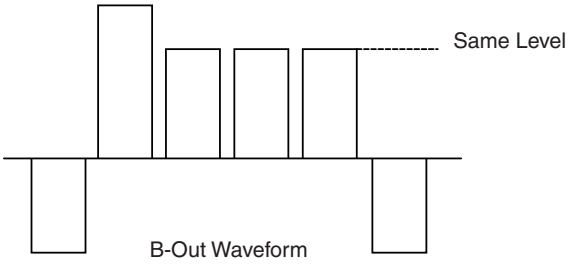
1. Input a Monoscope pattern.
2. Press 'TEST' 'TEST' 13 on the Remote Commander.
3. Adjust the 'Sub-Brightness' data so that there is barely a difference between the 0 IRE and 10 IRE signal levels.

### Sub Contrast Adjustment

1. Input a video signal that contains a small 100% white area on a black background.
2. Connect an digital voltmeter to Pin 10 of J701 [C Board].
3. Adjust the Sub-Contrast ['TT11'] to obtain a voltage of 105 +/- 5V.

## Sub Colour Adjustment

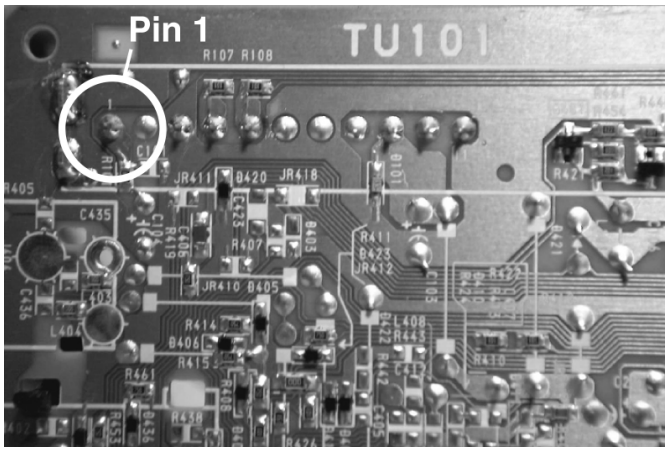
1. Receive a PAL colour bar signal.
2. Connect an oscilloscope to Pin 5 of CN003 [A Board].
3. Enter into the 'Service' service menu.
4. Adjust the 'Sub Colour' data so that the Cyan, Magenta and Blue colour bars are of equal levels as indicated below.




## Tuner AGC Adjustment

**Note:**
There should be no need to adjust the AGC as this is pre-adjusted during manufacture of the FRONTEND. If the AGC does need adjustment then follow steps 1. to 4. below.

1. Receive a signal of 62dBuV / 75 ohm terminated via the tuner antenna socket.
2. Connect a voltmeter to pin1 of TU101 [print side of A Board] or to the AGC pin of CN001 [mount side of A Board].
3. Confirm that the AGC voltage is 3.5volts +/- 0.3volts.
4. If adjustment is required, then re-adjust the AGC variable resistor (located at the top rear of the FRONTEND) to obtain a voltage of 3.5V +/- 0.3V.



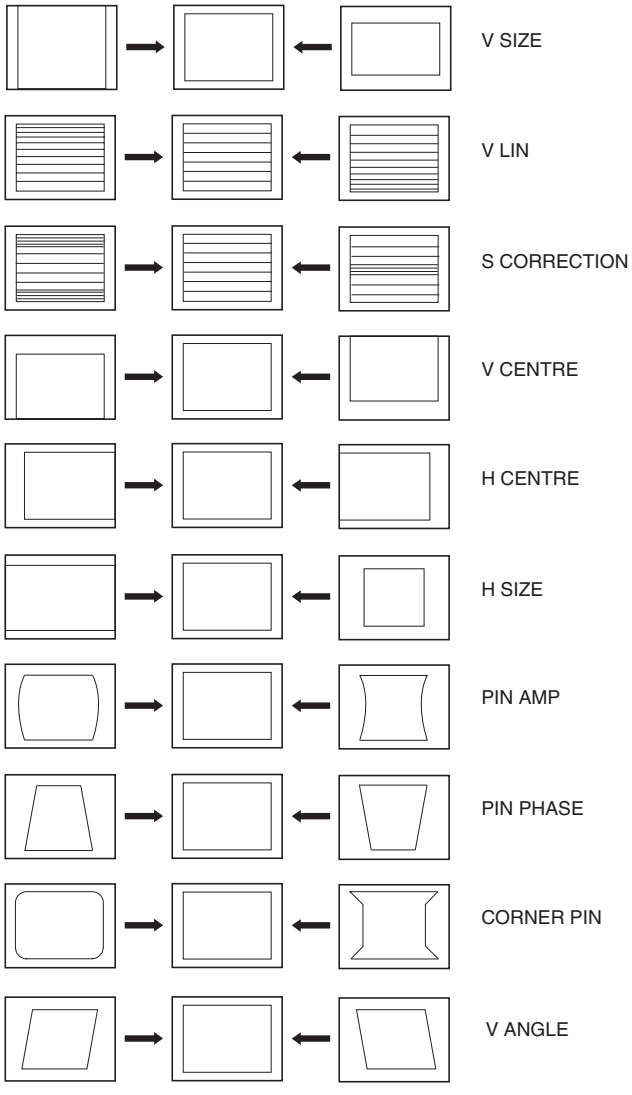

**[ Print side of A board ]**

## Deflection System Adjustment

1. Enter into the 'Geometry' service menu.
2. Select and adjust each item in order to obtain the optimum image.

**GEOMETRY**

| | | |
|---|---|---|
| V-Linearity | (0, 63) | Adj |
| V-Scroll | (0, 63) | 32 |
| Left-HBlk | (0, 15) | 8 |
| Right-HBlk | (0, 15) | 6 |
| V-Angle | (0, 63) | Adj |
| V-Bow | (0, 63) | Adj |
| H-Centre | (0, 63) | Adj |
| H-Size | (0, 63) | Adj |
| Pin-Amp | (0, 63) | Adj |
| U-Corner-Pin | (0, 63) | Adj |
| L-Corner-Pin | (0, 63) | Adj |
| Pin Phase | (0, 63) | Adj |
| V-Slope | (0, 63) | 35 |
| V-Size | (0, 63) | Adj |
| S-Correction | (0, 63) | Adj |
| V-Centre | (0, 63) | Adj |
| V-Zoom | (0, 63) | 23 |
| Magenta | (0, 63) | 40 |



## 4-2. TEST MODE 1:

Test Mode 1 is available by pressing the 'TEST' button once, OSD 'T' appears. The functions described below are available by selecting the indicated keys. The 'T' is released automatically after each command is executed.

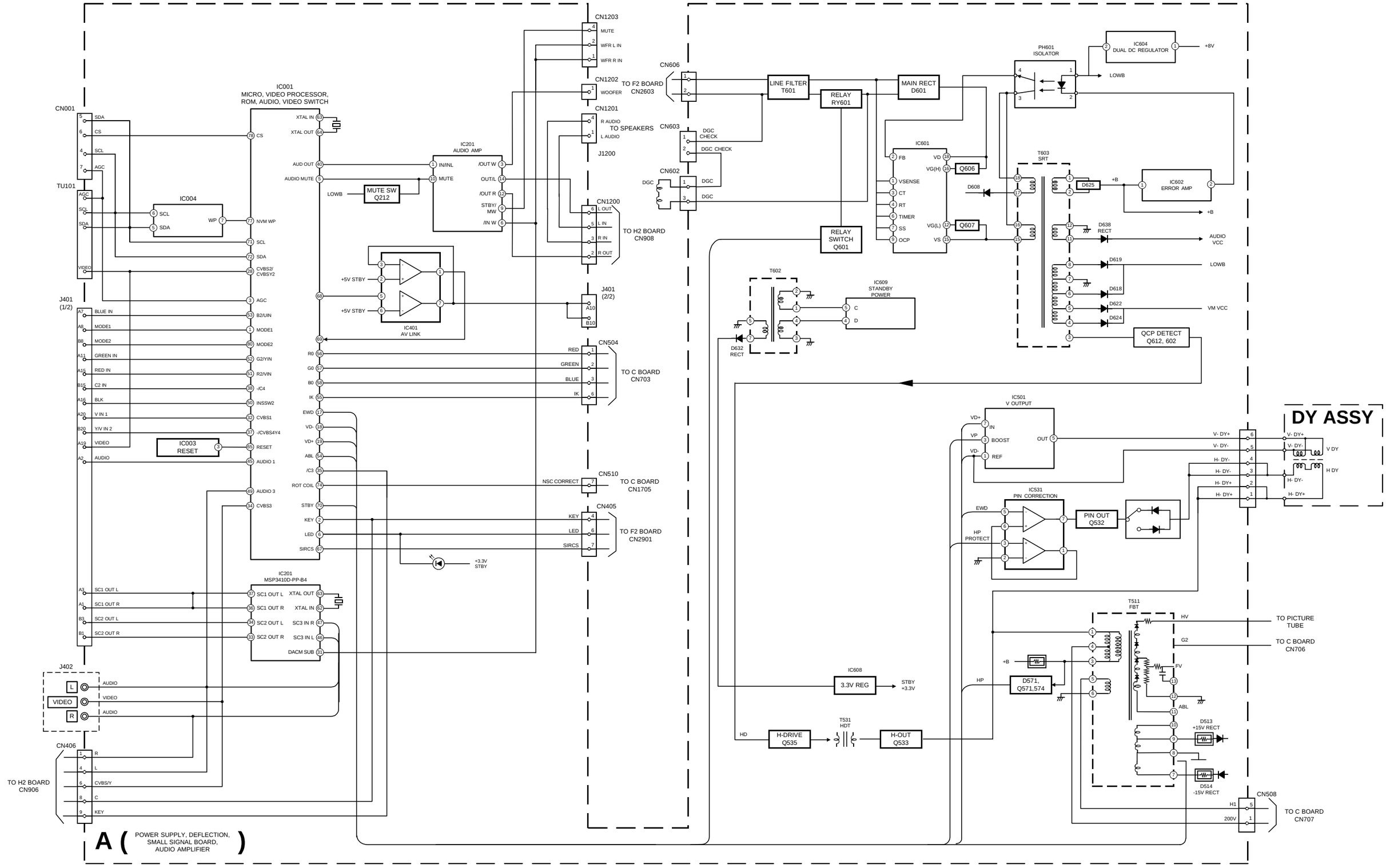
| KEY | T-MODE FUNCTION |
|---|---|
| volume + | volume maximum |
| volume - | Picture minimum |
| picture + | Picture maximum |
| picture - | Picture minimum |
| colour up | colour maximum |
| colour down | colour minimum |
| brightness - bright | brightness maximum |
| brightness - dark | brightness minimum |
| hue - purplish | hue - purplish |
| hue - greenish | hue - greenish |
| sharpness - sharp | sharpness maximum |
| sharpness - soft | sharpness minimum |
| balance left | balance full left |
| balance right | balance full right |
| treble up | treble maximum |
| treble down | treble minimum |
| bass up | bass maximum |
| bass down | bass minimum |

## 4-3. TEST MODE 2:

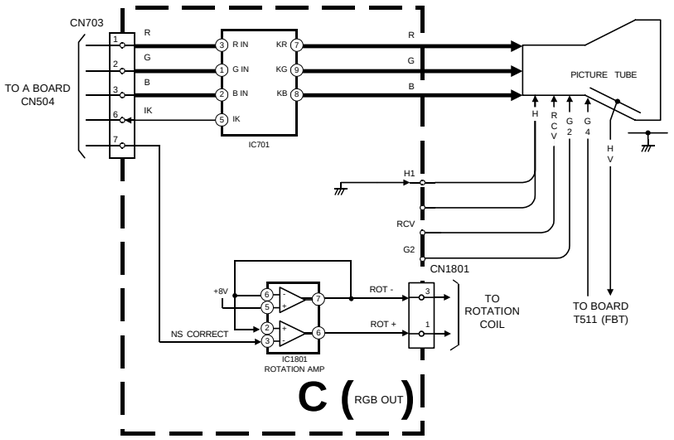
Test Mode 2 is available by pressing the 'TEST' button twice, OSD 'TT' appears. The functions described below are available by selecting the two numbers. To release the 'Test mode 2', press 00, 10, 20 ... twice or switch the TV set into Stand-by mode. In 'TT Menu' mode, it is possible to remove the Menu from the screen by pressing the Speaker Off button once. Pressing the Speaker OFF button a second time will cause the Menu to reappear. The function is kept even when the menu is not displayed on screen !!.

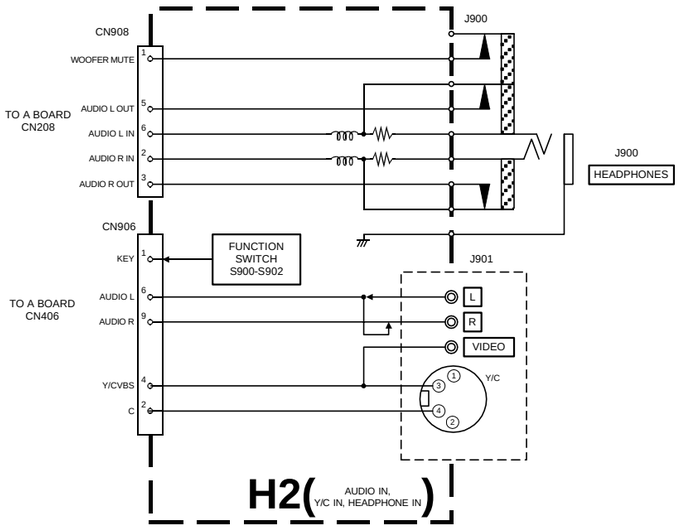
| | |
|---|---|
| **00** | 'TT' mode off |
| **01** | Picture maximum |
| **02** | Picture minimum |
| **03** | Set speaker/headphone Volume to 35% |
| **04** | Set speaker/headphone Volume to 50% |
| **05** | Set speaker/headphone Volume to 65% |
| **06** | Set speaker/headphone Volume to 80% |
| **07** | Ageing mode |
| **08** | Shipping Condition |
| **11** | Sub picture adjustment |
| **12** | Sub colour adjustment |
| **13** | Sub Brightness adjustment |
| **14** | Text H Position adjustment |
| **15** | Rotation Coil Test |
| **16** | Picture level 50% |
| **19** | Factory Mode Enable/Disable |
| **21** | Destination ADEKR |
| **22** | Destination BL |
| **23** | Destination ADEKR |
| **24** | Destination U |
| **25** | Destination ADEKR |
| **26** | Destination BL |
| **27** | Destination ADEKR |
| **28** | Destination ADEKR |
| **31** | Auto Shutoff Enable/Disable |
| **33** | Rotation ON/OFF |
| **35** | CRT 4:3 <> 16:9 ; Display TV status |
| **36** | Velocity Modulation (VM) OFF/ON test |
| **38** | G2 adjustment |
| **41** | Re-initialise NVM |
| **43** | Select Dual A sound |
| **44** | Select Dual B sound |
| **45** | Select Mono sound |
| **46** | Select Stereo sound |
| **48** | Set NVM as non virgin |
| **49** | Set NVM as virgin |
| **51** | Virtual Dolby on/off |
| **52** | Subwoofer / MPB (Bass enhancement) Enable |
| **54** | Dot structure C/M (chroma trap)ination ADEKR |
| **55** | Tuner selection (SONY/ALPS) |
| **56** | BBE enable/disable |
| **57** | BBE menu line enable/disable |
| **61** | Auto AGC Adjustment |
| **62** | AM from baseband enable/disable |
| **63** | Enable/Disable YC3 connector |
| **64** | Enable/Disable RGB priority |
| **65** | RGB auto-detect enable/disable |
| **66** | On timer enable/disable |
| **67** | Manual AGC Adjustment |
| **68** | Enable/Disable X26 countermeasure (N problem) |
| **69** | Enable/Disable ACI feature |
| **71** | Force PAL video |
| **72** | Un-force PAL (restore normal video condition) |
| **73** | Enable Zweiton D/K2 system (6.5/6.74) |
| **74** | Enable Zweiton D/K3 system (6.5/5.74) |
| **78** | Balance full left |
| **79** | Balance full right |
| **87** | Local keys test |
| **89** | Enable/Disable watchdog |
| **91** | Set 14:9 zoom mode |
| **92** | Set SMART zoom mode |
| **93** | Set 16:9 zoom mode |
| **94** | Set ZOOM mode |
| **95** | Set 4:3 zoom mode |
| **99** | Display Error and Working Time menu |

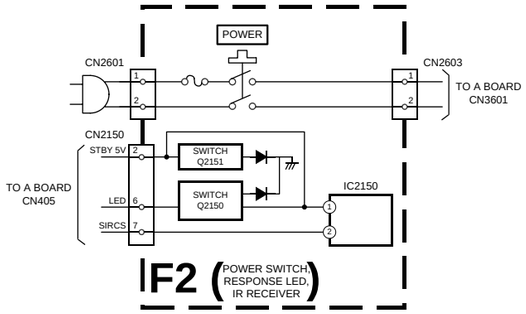
# 5-1. BLOCK DIAGRAMS (1)

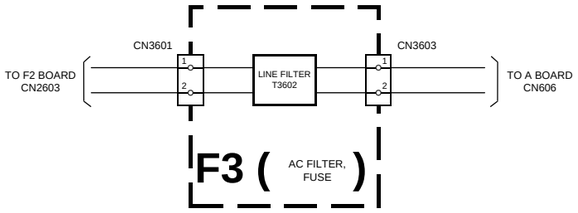


# 5-1. BLOCK DIAGRAMS (2)



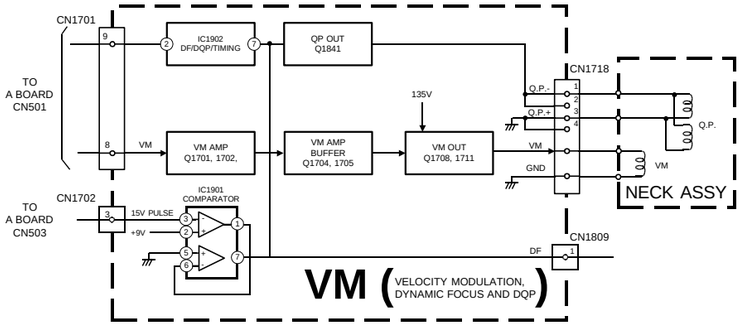



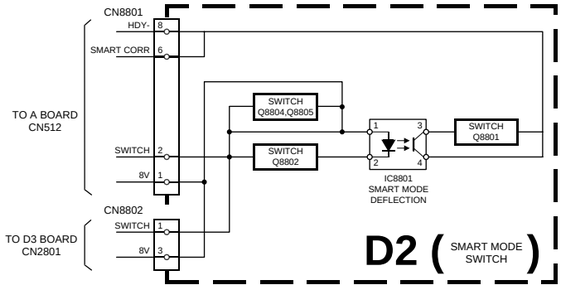





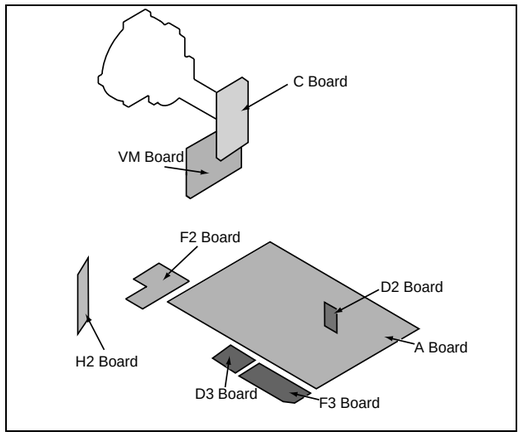







# 5-2. CIRCUIT BOARD LOCATION




## 5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

**Note :**

- All capacitors are in µF unless otherwise noted.
- pF : µµF 50WV or less are not indicated except for electrolytic types.
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch : 5mm
Electrical power rating : 1/4W

- Chip resistors are 1/10W
- All resistors are in ohms.
  k = 1000 ohms, M = 1000,000 ohms
- : nonflammable resistor.
- : fusible resistor.
- : internal component.
- : panel designation or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- All voltages are in Volts.
- Readings are taken with a 10Mohm digital mutimeter.
- Readings are taken with a color bar input signal.
- Voltage variations may be noted due to normal production tolerences.
- : B + bus.
- : B - bus.
- : RF signal path.
- : earth - ground.
- : earth - chassis.

**Reference Information**

| | | |
|---|---|---|
| **RESISTOR** | **RN** | : METAL FILM |
| | **RC** | : SOLID |
| | **FPRD** | : NON FLAMMABLE CARBON |
| | **FUSE** | : NON FLAMMABLE FUSIBLE |
| | **RS** | : NON FLAMMABLE METAL OXIDE |
| | **RB** | : NON FLAMMABLE CEMENT |
| | **RW** | : NON FLAMMABLE WIREWOUND |
| | ⨻ | : ADJUSTMENT RESISTOR |
| **COIL** | **LF-8L** | : MICRO INDUCTOR |
| **CAPACITOR** | **TA** | : TANTALUM |
| | **PS** | : STYROL |
| | **PP** | : POLYPROPYLENE |
| | **PT** | : MYLAR |
| | **MPS** | : METALIZED POLYESTER |
| | **MPP** | : METALIZED POLYPROPYLENE |
| | **ALB** | : BIPOLAR |
| | **ALT** | : HIGH TEMPERATURE |
| | **ALR** | : HIGH RIPPLE |

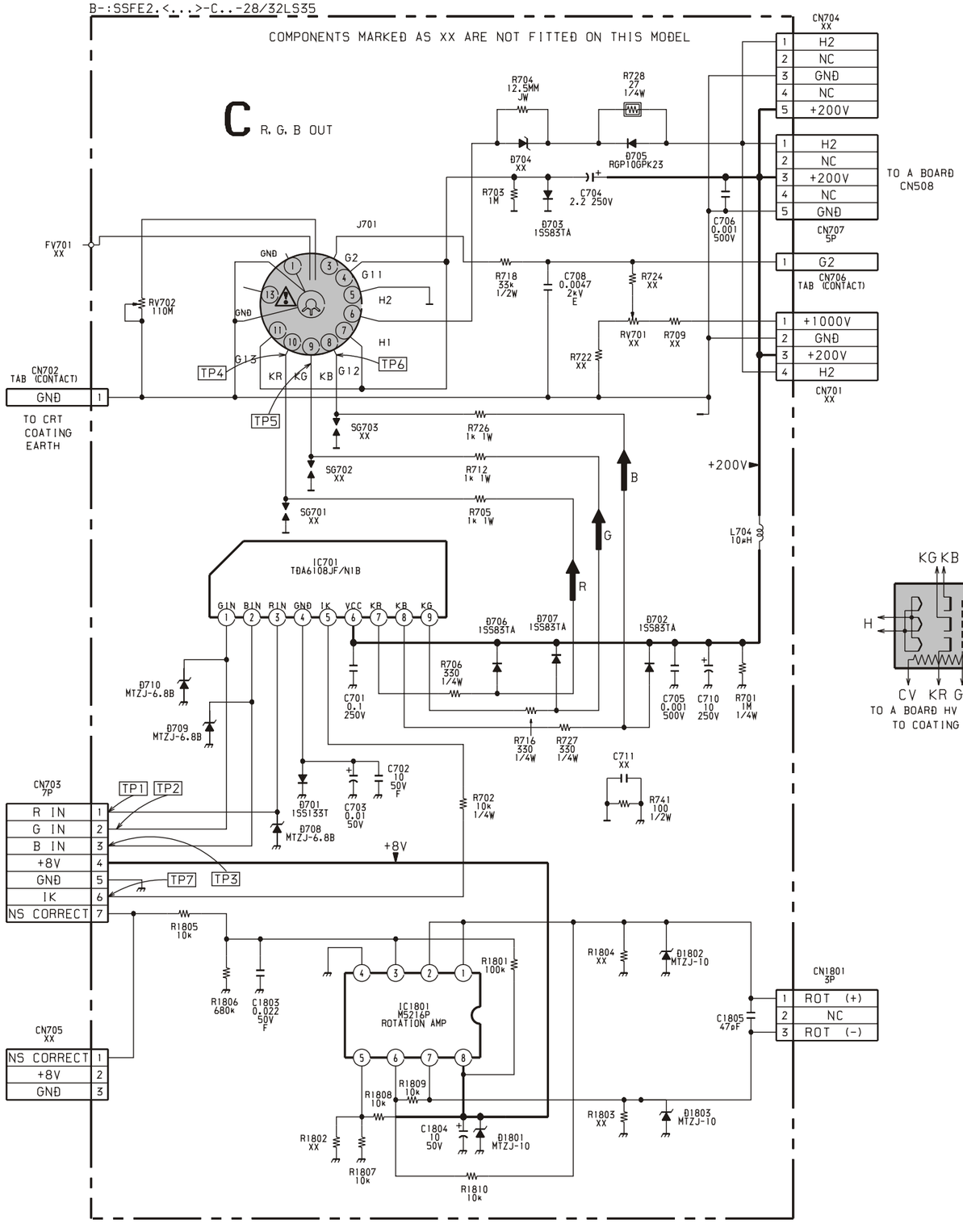
**Note :** The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

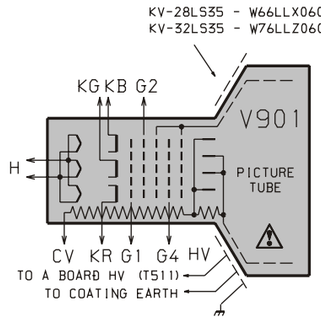
**Note :** Les composants identifiés par une trame et par une marque ⚠ sont d'une importance critique pour la sécurité. Ne les remplacer que par des pièces de numéro spécifié. specified.

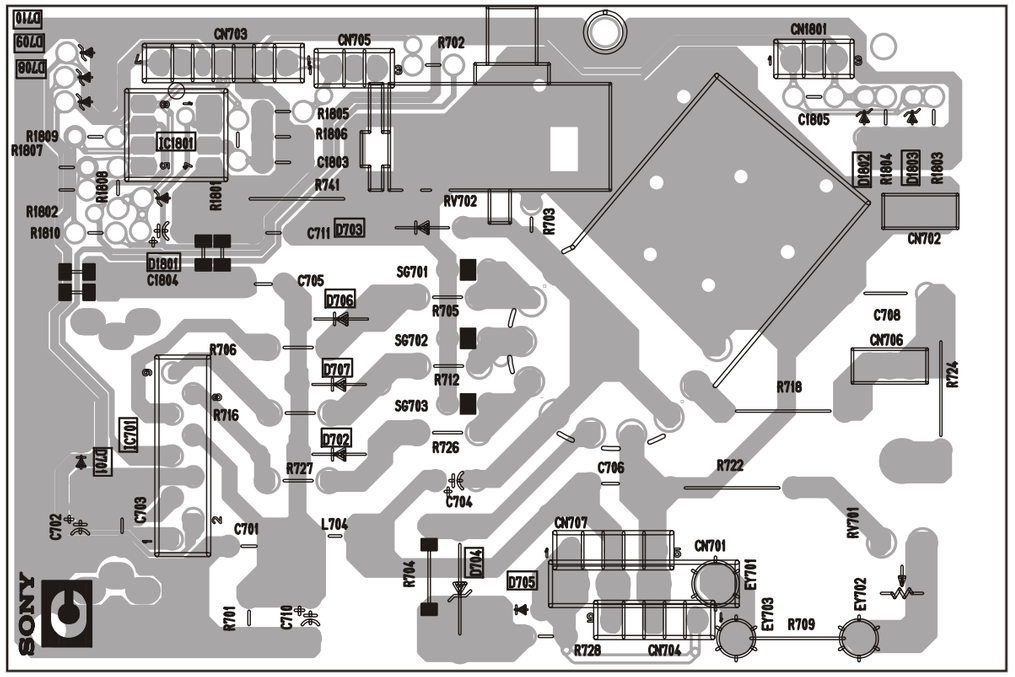
B-:SSFE2.<...>-C..-28/32LS35

COMPONENTS MARKED AS XX ARE NOT FITTED ON THIS MODEL

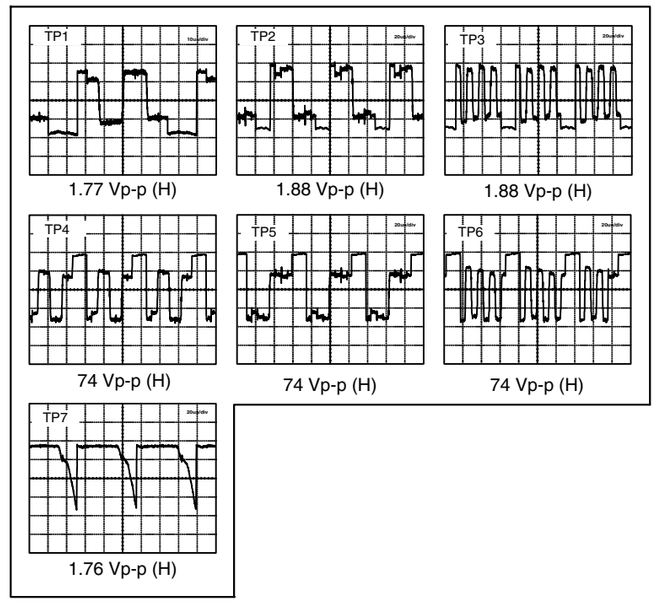
**C** R, G, B OUT




## C Board Waveforms



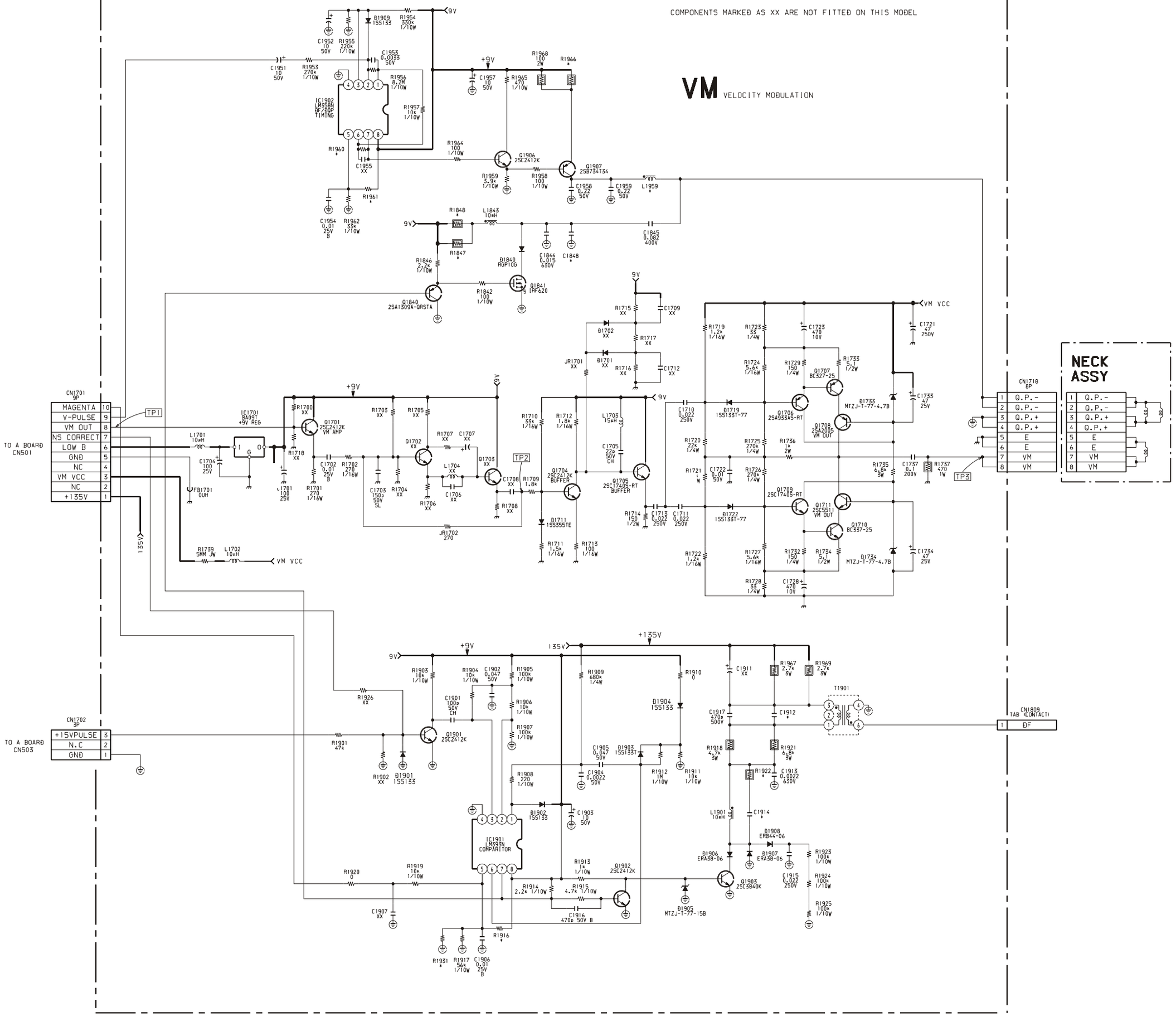

## IC Voltage Table

| Ref No | Pin No | Voltage (V) | Ref No | Pin No | Voltage (V) |
|---|---|---|---|---|---|
| IC1701 | 1 | 3.1 | IC1801 | 1 | 1.3 |
| | 2 | 2.1 | | 2 | 1.3 |
| | 3 | 3.0 | | 3 | 1.4 |
| | 5 | 5.5 | | 5 | 4.1 |
| | 7 | 131 | | 6 | 4.1 |
| | 8 | 123 | | 7 | 7.0 |
| | 9 | 124.6 | | 8 | 8.0 |

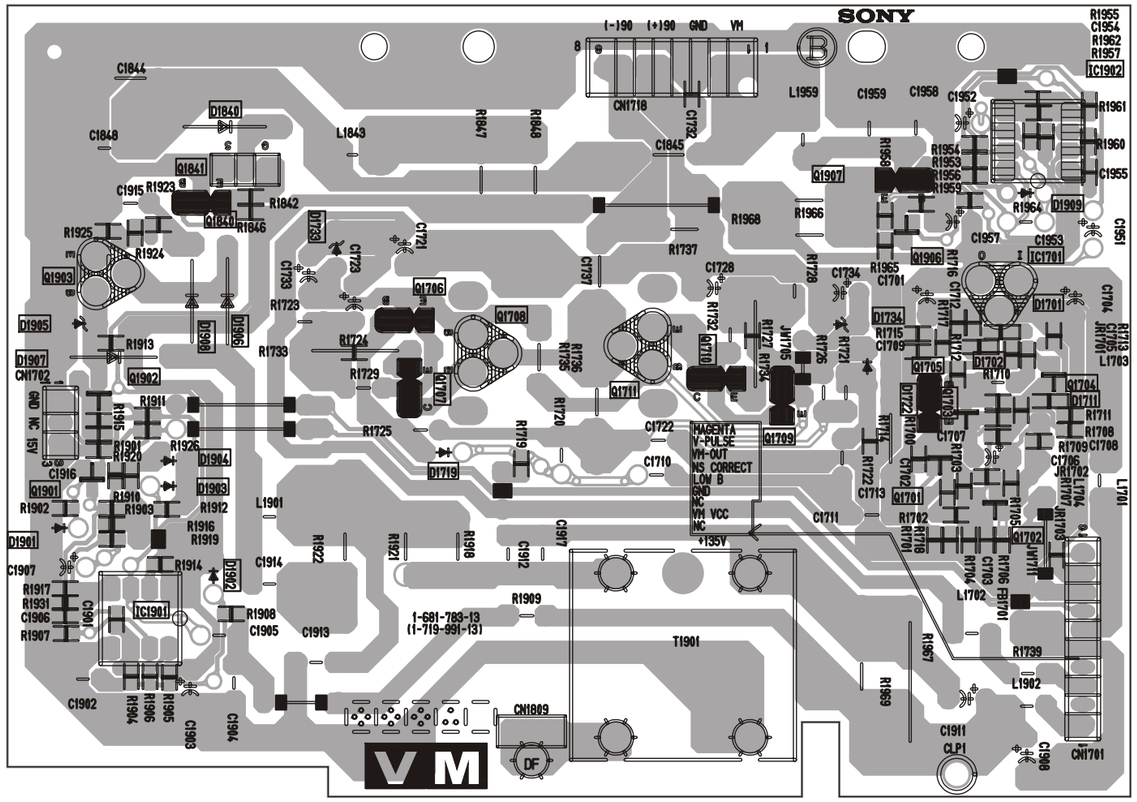
B-:SSFE2.<...>-VM.-28/32LS35

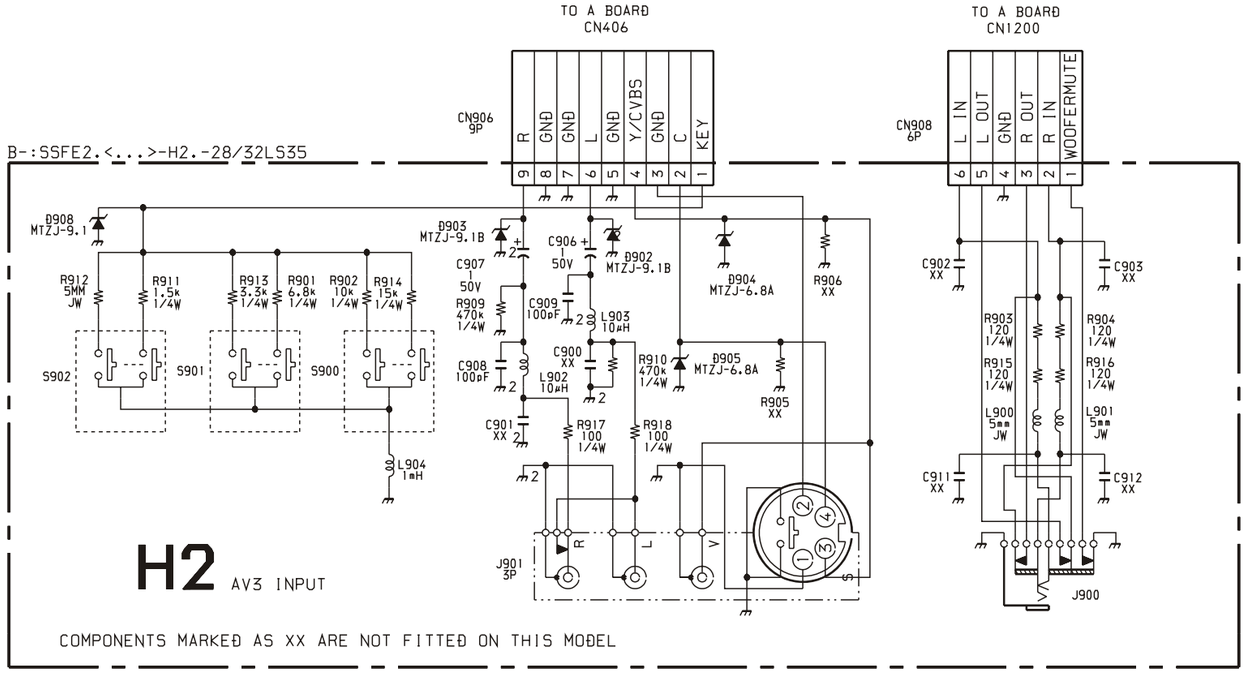
COMPONENTS MARKED AS XX ARE NOT FITTED ON THIS MODEL

# VM VELOCITY MODULATION



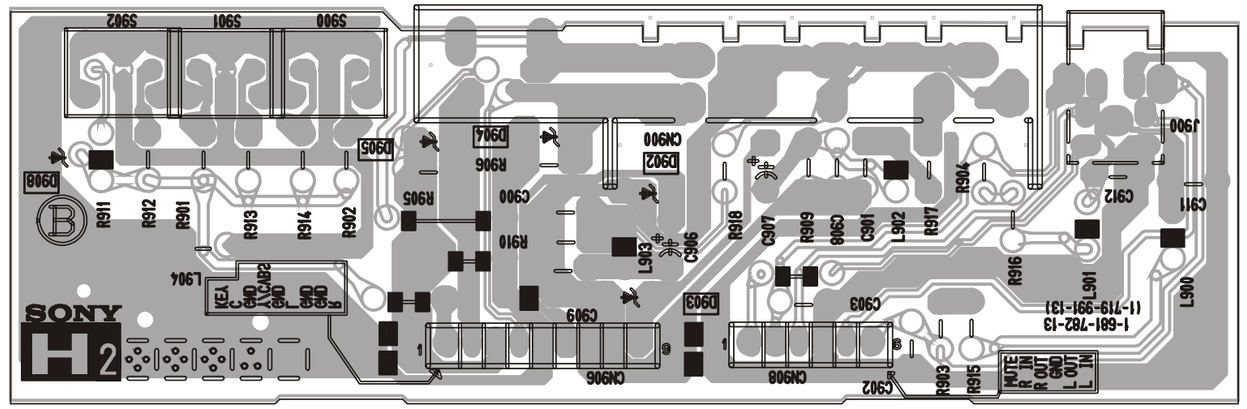

# VM [ VELOCITY MODULATION ]



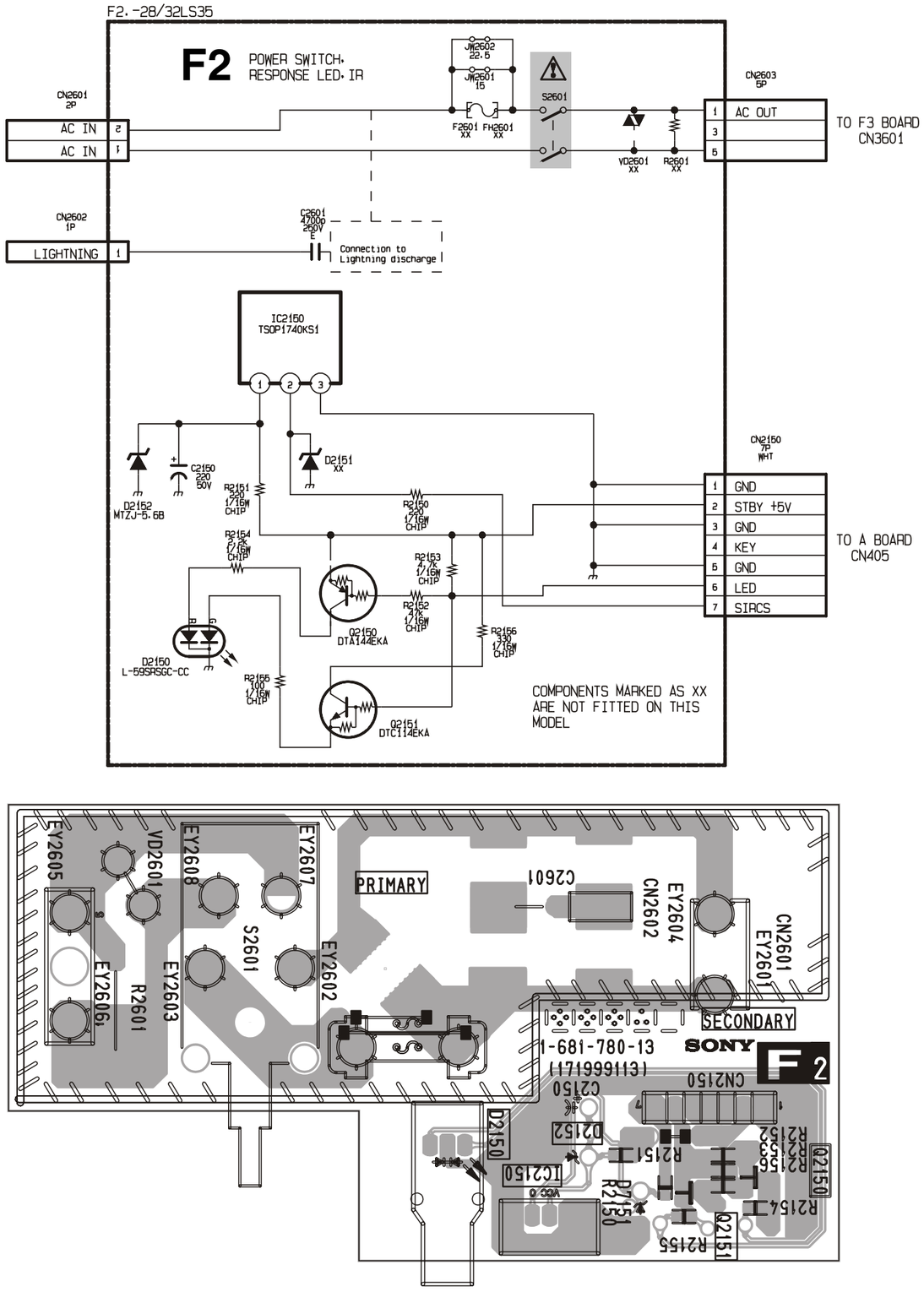

## Difference Table

| Ref | 28LS35B | 28LS35E | 28LS35U | 32LS35B | 32LS35E | 32LS35U |
|---|---|---|---|---|---|---|
| C1803 | - | - | - | 0.022UF | 0.022UF | 0.022UF |
| C1804 | - | - | - | 10UF | 10UF | 10UF |
| C1805 | - | - | - | 47PF | 47PF | 47PF |
| C1912 | 100PF | 100PF | 100PF | - | - | - |
| C1913 | 0.0022UF | 0.0022UF | 0.0022UF | 0.0015UF | 0.0015UF | 0.0015UF |
| C1914 | 330PF | 330PF | 330PF | 150PF | 150PF | 150PF |
| CN1801 | - | - | - | 3P | 3P | 3P |
| D1801 | - | - | - | MTZJ-T-77-10 | MTZJ-T-77-10 | MTZJ-T-77-10 |
| D1802 | - | - | - | MTZJ-T-77-10 | MTZJ-T-77-10 | MTZJ-T-77-10 |
| D1803 | - | - | - | MTZJ-T-77-10 | MTZJ-T-77-10 | MTZJ-T-77-10 |
| L1901 | 10MH | 10MH | 10MH | 15MH | 15MH | 15MH |
| L1959 | 22MH | 22MH | 22MH | 10MH | 10MH | 10MH |
| R1801 | - | - | - | 100K | 100K | 100K |
| R1805 | - | - | - | 10K | 10K | 10K |
| R1806 | - | - | - | 680K | 680K | 680K |
| R1807 | - | - | - | 10K | 10K | 10K |
| R1808 | - | - | - | 10K | 10K | 10K |
| R1809 | - | - | - | 10K | 10K | 10K |
| R1810 | - | - | - | 10K | 10K | 10K |
| R1847 | 180 | 180 | 180 | 68 | 68 | 68 |
| R1848 | 100 | 100 | 100 | 68 | 68 | 68 |
| R1916 | 5.6K | 5.6K | 5.6K | 3.9K | 3.9K | 3.9K |
| R1931 | 33K | 33K | 33K | 39K | 39K | 39K |
| R1966 | 390 | 390 | 390 | 150 | 150 | 150 |




**VM** [ PRINTED WIRING BOARD ]

**H2** [ AV3 INPUT ]

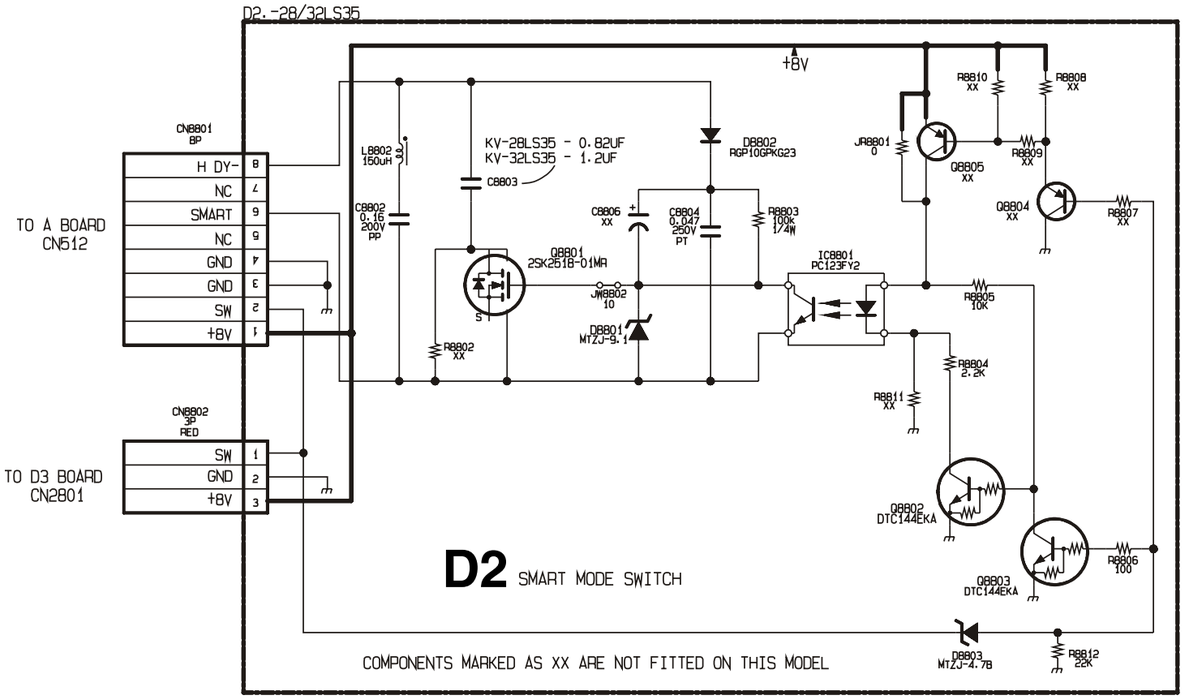


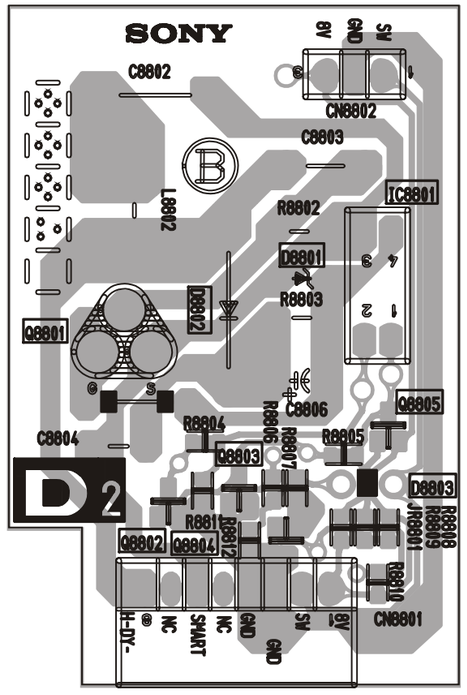




**F2** [ POWER SWITCH, RESPONSE LED, IR ]

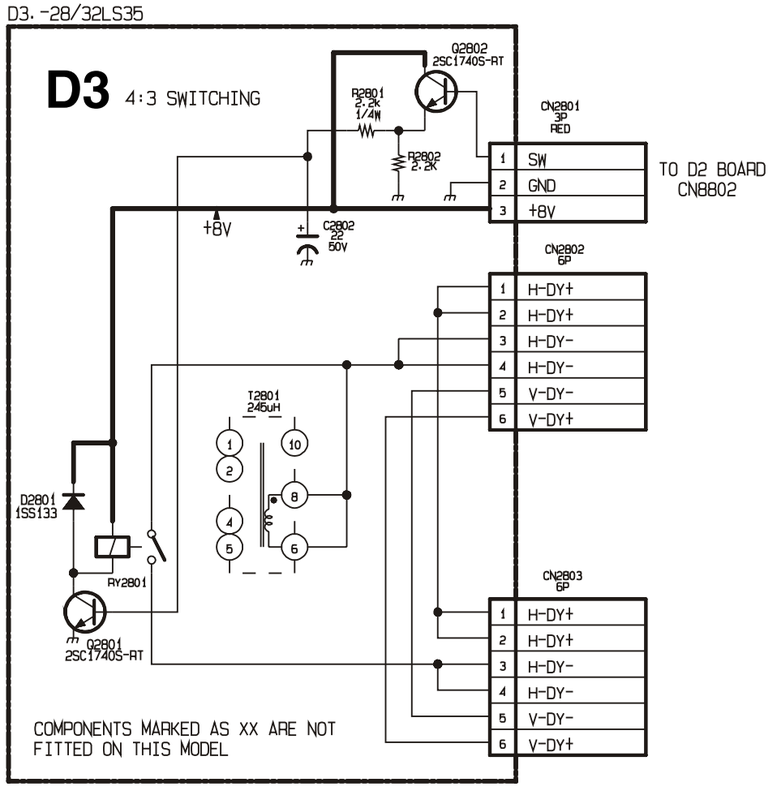


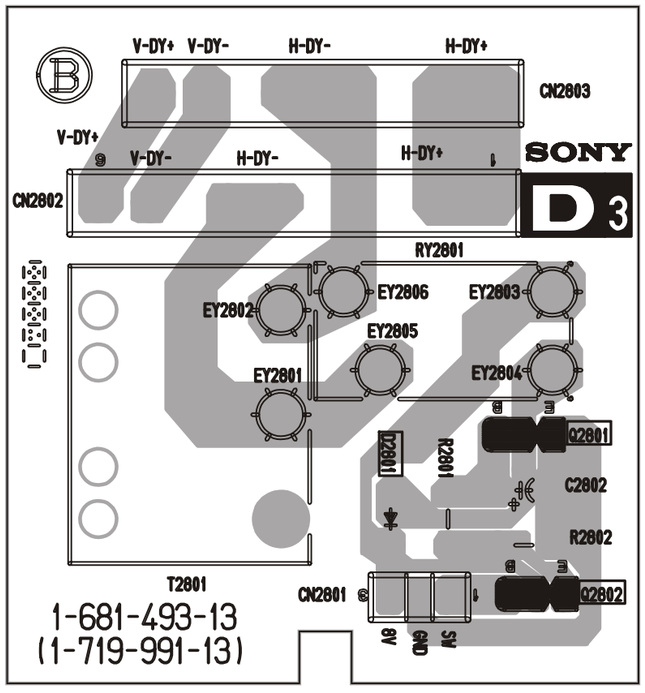



**D2** [ SMART MODE SWITCH ]

D3. -28/32LS35

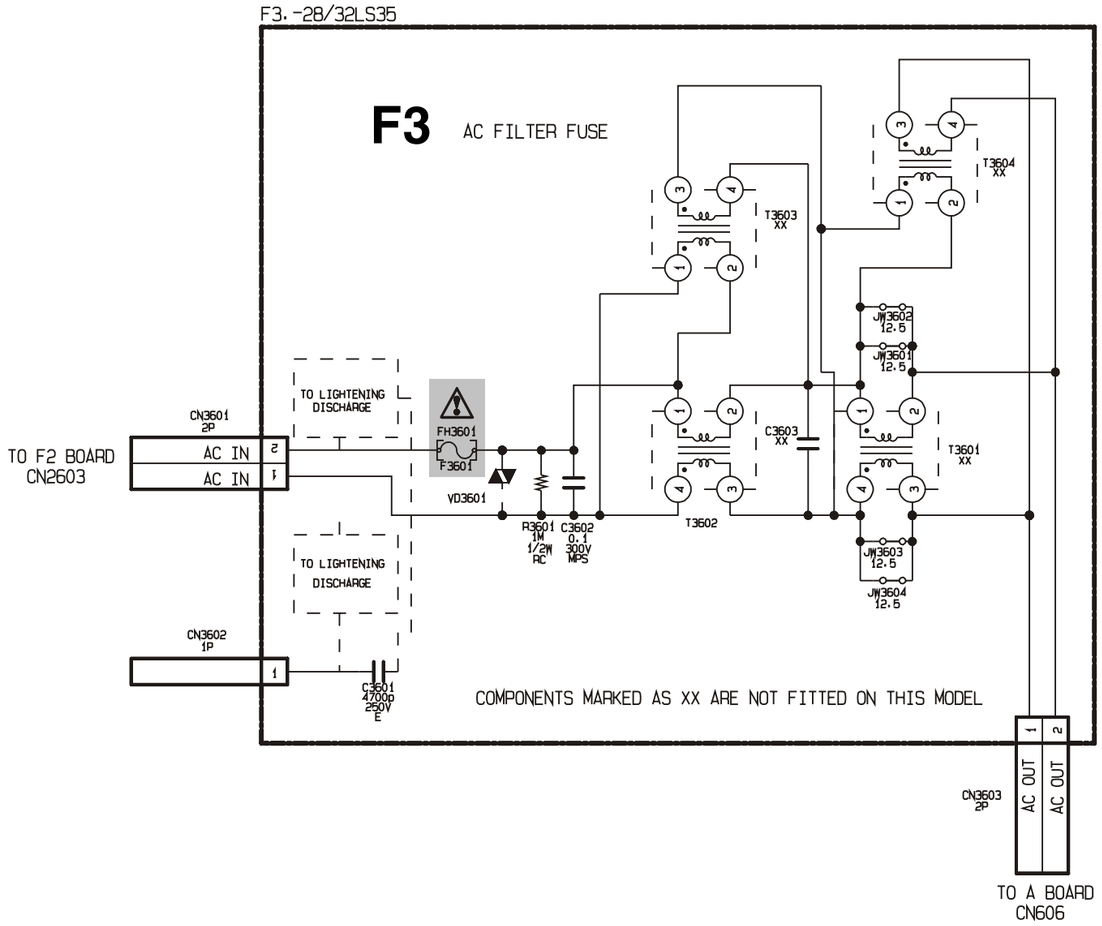


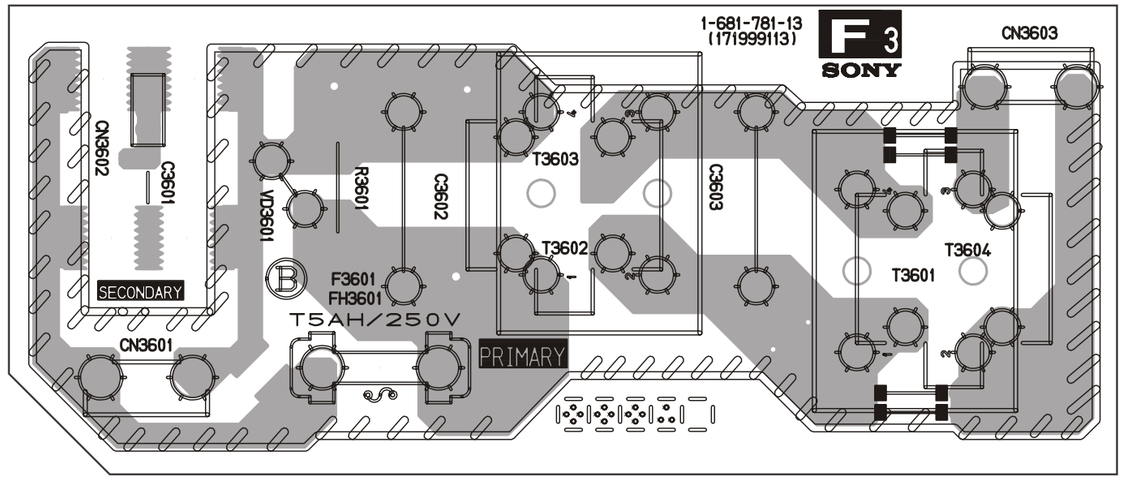




**D3** [ 4:3 SWITCHING ]

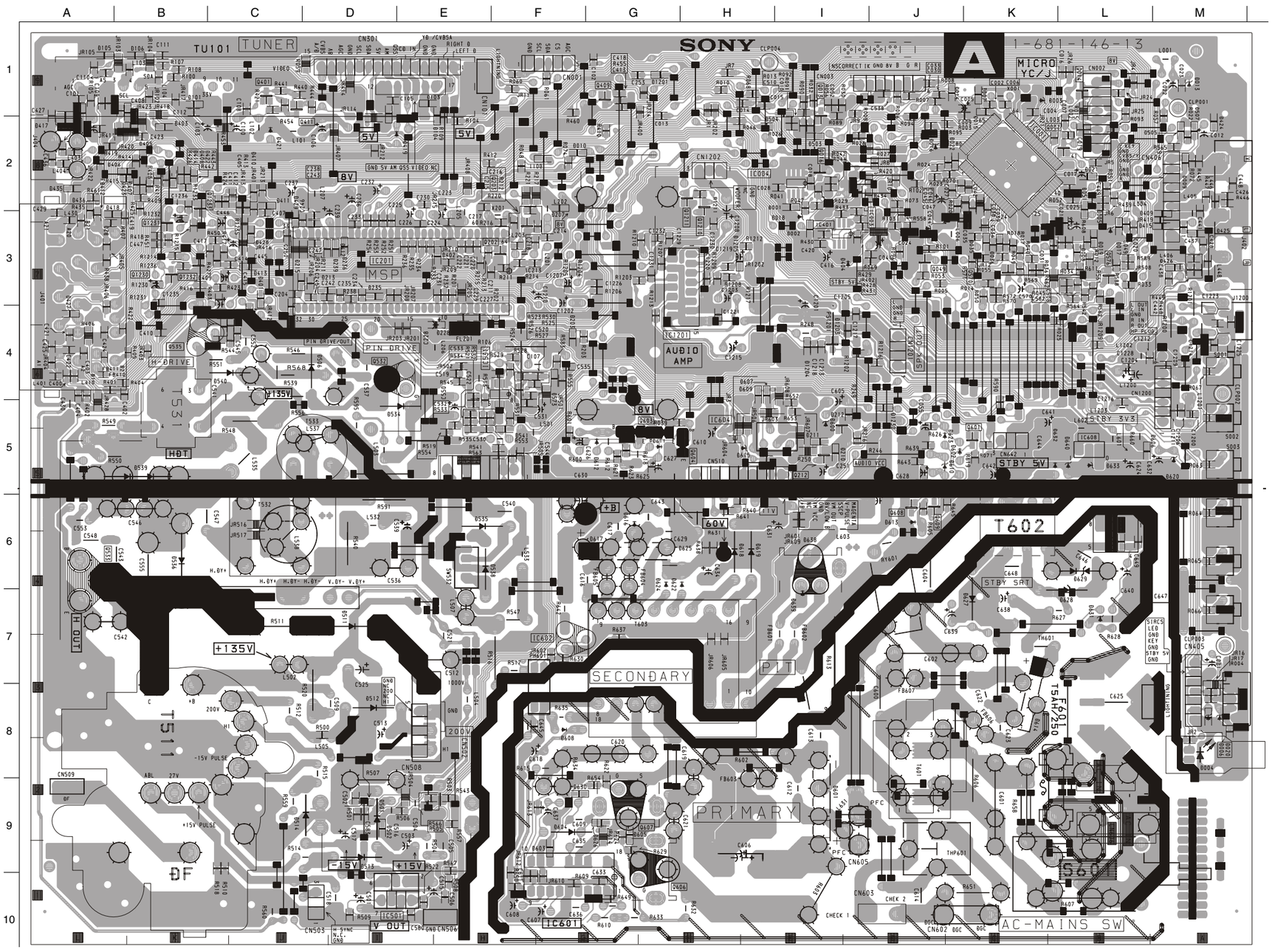


F3. -28/32LS35




**F3** [ AC FILTER, FUSE ]




## IC Voltage Table

| Ref No | Pin No | Volts (V) | Ref No | Pin No | Volts (V) | Ref No | Pin No | Volts (V) |
|---|---|---|---|---|---|---|---|---|
| IC001 | 1 | 0 | IC001 | 50 | 0.2 | IC501 | 6 | 13.9 |
| | 2 | 3.2 | | 51 | 2.5 | | 7 | 0.3 |
| | 3 | 2.9 | | 52 | 2.5 | IC531 | 1 | 1.4 |
| | 5 | 0 | | 53 | 2.5 | | 2 | 2.3 |
| | 6 | 2.0 | | 54 | 2.1 | | 3 | 1.8 |
| | 8 | 2.3 | | 55 | 5.2 | | 5 | 2.4 |
| | 9 | 8.0 | | 56 | 3.0 | | 6 | 1.6 |
| | 10 | 5.0 | | 57 | 3.1 | | 7 | 6.4 |
| | 12 | 0 | | 58 | 3.1 | IC601 | 1 | -80.4 |
| | 13 | 0 | | 59 | 3.2 | | 2 | -80.5 |
| | 14 | 4.0 | | 62 | 0 | | 3 | -80.2 |
| | 16 | 1.4 | | 63 | 0 | | 4 | -80.2 |
| | 17 | 1.5 | | 64 | 0 | | 5 | -81.5 |
| | 18 | 0 | | 65 | 0 | | 6 | -81.6 |
| | 19 | 0 | | 67 | 4.8 | | 7 | -77.8 |
| | 20 | 3.8 | | 68 | 0.4 | | 9 | -81.8 |
| | 21 | 3.8 | | 69 | 0 | | 10 | -76 |
| | 22 | 5.0 | | 70 | 0 | | 11 | -81.9 |
| | 26 | 0 | | 71 | 0 | | 12 | -79.4 |
| | 28 | 3.5 | | 72 | 0 | | 14 | 16.5 |
| | 29 | 3.6 | | 73 | 7.1 | | 15 | 11 |
| | 30 | 1.9 | | 74 | 5.0 | | 16 | 14.4 |
| | 31 | 0.3 | | 75 | 8.1 | | 18 | 86.4 |
| | 32 | 3.6 | | 76 | -3.5 | IC1201 | 1 | 11 |
| | 34 | 1.9 | | 77 | 0 | | 3 | 4.9 |
| | 35 | 1.4 | | 78 | 3.2 | | 5 | 0 |
| | 36 | 3.9 | | 79 | 3.2 | | 6 | 0 |
| | 38 | 1.8 | | 80 | 0 | | 7 | 11.3 |
| | 40 | 3.3 | IC501 | 1 | 1.4 | | 9 | 0.3 |
| | 42 | 3.3 | | 2 | 2.3 | | 10 | 0 |
| | 43 | 1.4 | | 3 | 1.8 | | 12 | 0 |
| | 45 | 0 | | 5 | 2.4 | | 14 | 11.35 |

## Semiconductor Voltage Table

| Ref | (e) | (b) | (c) |
|---|---|---|---|
| Q013 | 0 | 0.7 | 0 |
| Q016 | 0 | 0 | 3.3 |
| Q212 | 0 | 0.7 | 0 |
| Q401 | 4.8 | 4.2 | 1.8 |
| Q411 | 1.1 | 1.7 | 4.2 |
| Q601 | 5.6 | 4.8 | 5.3 |
| Q602 | 14.2 | 5.1 | 8 |
| Q603 | 8 | 8 | 0 |
| Q604 | 0 | 0 | 2.5 |
| Q608 | 0 | 0 | 5.6 |
| Q609 | 5.6 | 5.6 | 0 |
| **Ref** | **(s)** | **(g)** | **(d)** |
| Q606 | 10.9 | 14.5 | 86.7 |
| Q607 | -82.4 | -79.9 | 10.9 |
| Q535 | 0 | 2.5 | 95.2 |

## Difference Table

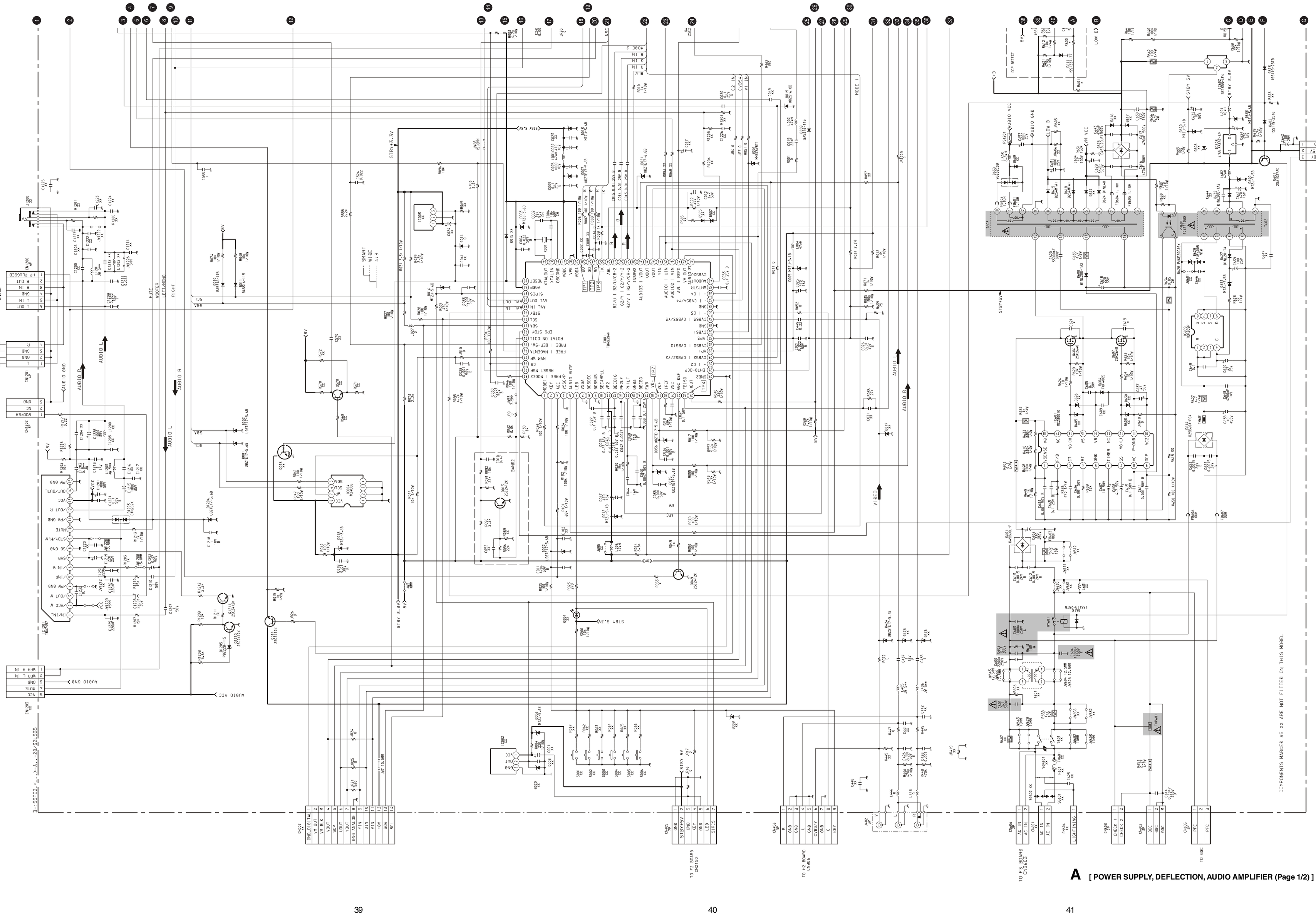
| Ref | 28LS35B | 28LS35E | 28LS35U | 32LS35B | 32LS35E | 32LS35U |
|---|---|---|---|---|---|---|
| C019 | 22PF | 22PF | 22PF | - | - | - |
| C536 | 0.82UF | 0.82UF | 0.82UF | IUF | IUF | IUF |
| C542 | 680PF | 680PF | 680PF | 0.001UF | 0.001UF | 0.001UF |
| C546 | 0.056UF | 0.056UF | 0.056UF | 0.051UF | 0.051UF | 0.051UF |
| C555 | 22000PF | 22000PF | 22000PF | 19000PF | 19000PF | 19000PF |
| C619 | - | - | - | 330PF | 330PF | 330PF |
| C621 | - | - | - | 330PF | 330PF | 330PF |
| JR21 | 560 | 560 | 560 | - | - | - |
| JR421 | SHORT 0 | SHORT 0 | SHORT 0 | - | - | - |
| L002 | 47UH | 47UH | 47UH | - | - | - |
| R001 | SHORT 0 | SHORT 0 | SHORT 0 | - | - | - |
| R105 | - | - | - | 0UH | 0UH | 0UH |
| R513 | 4.7K | 4.7K | 4.7K | 22K | 22K | 22K |
| R517 | 10K | 10K | 10K | 22K | 22K | 22K |
| R521 | 100K | 100K | 100K | 220K | 220K | 220K |
| R532 | 1K | 1K | 1K | 4.7K | 4.7K | 4.7K |
| R533 | 10K | 10K | 10K | 15K | 15K | 15K |
| R534 | 82K | 82K | 82K | SHORT 0 | SHORT 0 | SHORT 0 |
| R535 | - | - | - | 220K | 220K | 220K |
| R546 | 820 | 820 | 820 | 1K | 1K | 1K |
| R568 | 680 | 680 | 680 | 820 | 820 | 820 |
| R583 | 22K | 22K | 22K | 15K or 22K | 15K or 22K | 15K or 22K |
| T511 | 1-453-308-31 | 1-453-308-31 | 1-453-308-31 | 1-453-308-41 | 1-453-308-41 | 1-453-308-41 |
| T533 | 1-433-980-12 | 1-433-980-12 | 1-433-980-12 | 1-429-306-11 | 1-429-306-11 | 1-429-306-11 |
| TU101 | BTF-EF411 | BTF-EC411 | BTF-EU611 | BTF-EF411 | BTF-EC411 | BTF-EU611 |

**NOTE:**
**Portions of the circuit marked as shown are high voltage areas. Use care to prevent electric shock during inspection or repair.**

**A [ PRINTED WIRING BOARD ]**

## Semiconductor Location Table

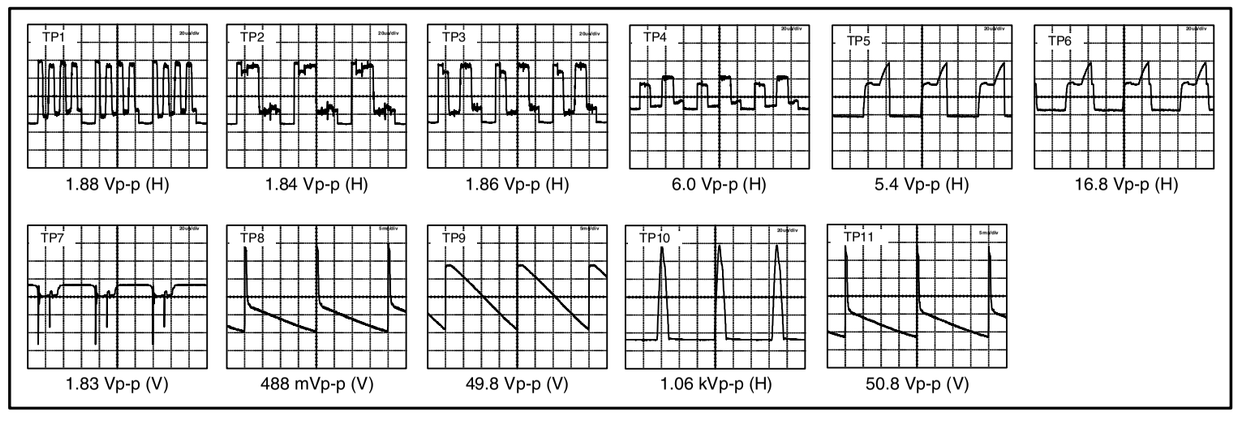
| DIODE | | | | | | | | | | | | | | | | | | TRANSISTOR | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D001 | I - 2 | D013 | M - 1 | D103 | E - 1 | D236 | D - 3 | D411 | C - 3 | D424 | M - 2 | D505 | M - 2 | D538 | E - 6 | D612 | G - 5 | D625 | H - 6 | Q013 | I - 3 | Q532 | D - 4 | Q609 | J - 6 | IC004 | H - 2 |
| D002 | I - 3 | D016 | J - 2 | D104 | E - 2 | D239 | D - 3 | D412 | D - 3 | D427 | A - 4 | D506 | D - 4 | D539 | B - 5 | D613 | J - 6 | D627 | K - 7 | Q014 | L - 1 | Q533 | A - 6 | Q1210 | H - 3 | IC401 | I - 3 |
| D003 | K - 2 | D018 | I - 3 | D105 | A - 1 | D402 | E - 3 | D413 | C - 3 | D428 | C - 3 | D507 | M - 2 | D541 | F - 5 | D614 | K - 8 | D628 | L - 7 | Q049 | J - 3 | Q535 | B - 4 | Q1211 | H - 3 | IC501 | E - 10 |
| D004 | M - 4 | D020 | M - 8 | D106 | B - 1 | D403 | B - 2 | D414 | B - 2 | D429 | D - 3 | D512 | D - 8 | D573 | F - 5 | D615 | H - 5 | D629 | L - 7 | Q202 | E - 3 | Q601 | K - 5 | Q1230 | B - 3 | IC531 | F - 4 |
| D006 | M - 8 | D021 | L - 2 | D107 | B - 2 | D404 | I - 3 | D418 | B - 3 | D435 | A - 2 | D513 | D - 9 | D601 | I - 9 | D618 | H - 6 | D631 | L - 7 | Q203 | F - 2 | Q602 | G - 5 | Q1231 | B - 3 | IC601 | F - 10 |
| D007 | K - 1 | D022 | J - 2 | D207 | F - 3 | D405 | B - 2 | D419 | E - 2 | D436 | A - 2 | D514 | C - 9 | D602 | J - 5 | D619 | H - 6 | D632 | K - 5 | Q212 | I - 5 | Q603 | G - 5 | Q1232 | B - 3 | IC602 | F - 7 |
| D008 | L - 3 | D035 | K - 3 | D210 | I - 5 | D406 | B - 2 | D420 | B - 2 | D501 | D - 9 | D534 | E - 5 | D604 | F - 9 | D620 | M - 5 | D633 | L - 5 | Q401 | C - 1 | Q604 | H - 5 | Q1233 | C - 2 | IC604 | H - 5 |
| D010 | G- 2 | D036 | K - 3 | D211 | I - 5 | D407 | B - 2 | D421 | C - 2 | D502 | D - 9 | D535 | E - 6 | D608 | F - 8 | D621 | J - 5 | D638 | I - 6 | Q409 | G - 1 | Q606 | G - 10 | IC'S | | IC608 | L - 5 |
| D011 | F - 2 | D051 | L - 3 | D212 | I - 5 | D408 | B - 2 | D422 | C - 2 | D503 | I - 2 | D536 | B - 6 | D610 | J - 5 | D622 | H - 7 | D640 | L - 5 | Q411 | D - 2 | Q607 | G - 9 | IC001 | K - 2 | IC609 | L - 6 |
| | | D101 | B - 1 | D228 | E - 4 | D410 | C - 2 | D423 | C - 2 | D504 | I - 2 | D537 | C - 4 | D611 | G - 5 | D623 | J - 5 | | | | | Q608 | J - 6 | IC002 | M - 8 | IC1201 | H - 4 |




**A** [ POWER SUPPLY, DEFLECTION, AUDIO AMPLIFIER (Page 1/2) ]

A POWER SUPPLY, DEFLECTION SMALL SIGNAL BOARD AUDIO AMP

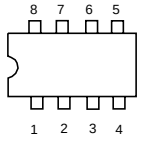
A Board Waveforms




**A [ POWER SUPPLY, DEFLECTION, AUDIO AMPLIFIER (Page 2/2) ]**

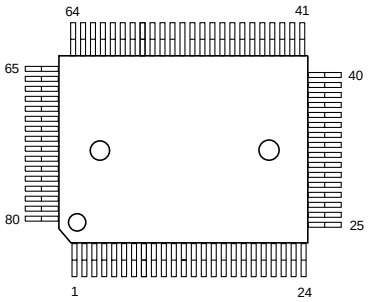
# 5-4. SEMICONDUCTORS

LM358N
LM393DT
LM393N
M5216P
TDA2822M
TEA2124



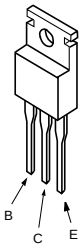
( TOP VIEW )

TDA9394H

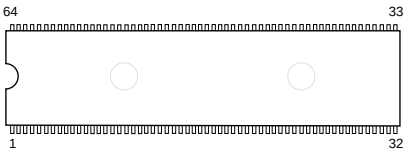


( MARKING SIDE VIEW )

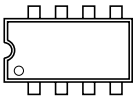
IRF614-005
IRF614-037
IRF620



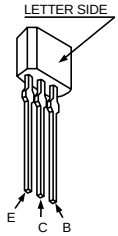

MSP3411G-PP-B9



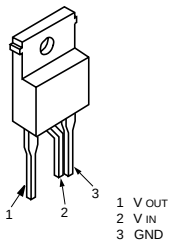

TOP209P


( TOP VIEW )

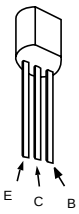
2SA933AS-QT
2SAG33ASQT
2SA933AS-RT
2SC1740S-RT
2SC2785-HFE



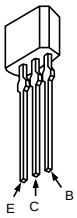

SE-135N
SE135N-LF4



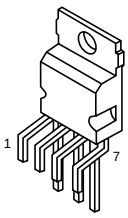

BF421-AMMO
2SA1091-O



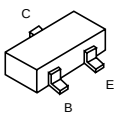

2SC2785-HFE



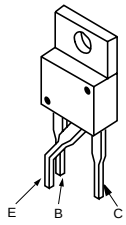

STV9379



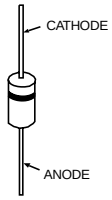

DTA144ESA
DTA144ESA
DTC114ESA
DTC114EKA-T146
DTC143TKA-T146
DTC144EKA-T-146R
R2SA1162-G
2SA1037AK-T146
2SC1623-L5L6
2SD601A-Q-TX
2SC1623-L5-L6
2SC2412K-QR
2SC2412K-T-146-QR



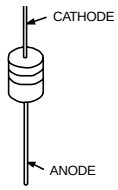

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2SK2251-01-F19
2SK2640-01MR



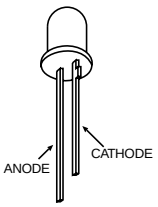
AK04-V1
AU-01Z-V1
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BYD33G-AMMO
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D1NL20U
DINL40-TA2
ERB44-06TP1
EGP20G
EG-1Z-V1
EL1Z
ERD28-06S
ERD28-06S
ERC06-15S
FMN-G12S
GP08D
RGP10GPKG23
RG15GPKG23
RG1CLF-B1
RU-3AM
RU3YX-LF-C4
RU3YX-V1
RU-4AM-T3
1SS292T-77



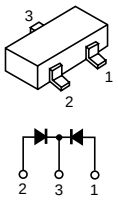

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ERA83-006
MTZJ-3.6A
MTZJ-T-77-2.2A
HZS9.1NB2
MTZJ-T-77-3.6B
MTZJ-4.7C
MTZJ-T-77-5.1B
MTZJ-T-77-5.6B
MTZJ-T-77-6.8A
MTZJ-T-77-8.2B
MTZJ-7.5B
MTZJ-T-77-9.1A
MTZJ-T-77-9.1B
MTZJ-T-77-10
MTZJ-T-72-10A
MTZJ-T-72-10B
MTZJ-T-77-15B
MTZJ-T-77-33A
MTZJ-33C
MTZJ-7.5B
P6KE200ASY
RD3.6ES-B2
RD3.9ES-B2
RD5.1ESB2
RD5.6ESB2
RD6.8ES-B2
RD7.5ESB2
RD9.1ES-B3
RD10ESB2
RD15ESB2
1SS119-25
1SS133T-77




SLA-570KT3F

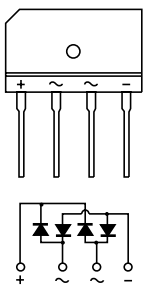


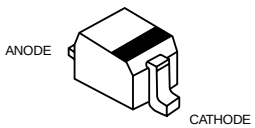

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MA8330-TX
DTZ33B



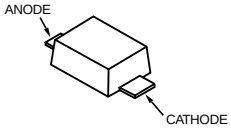

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RD12SB2
UDZS-TE-17-4.7B
UDZSTE-175.6B
UDZS-TE-17-6.8B
UDZSTE-179.1B
UDZ-TE-17-22B

D4SB60L



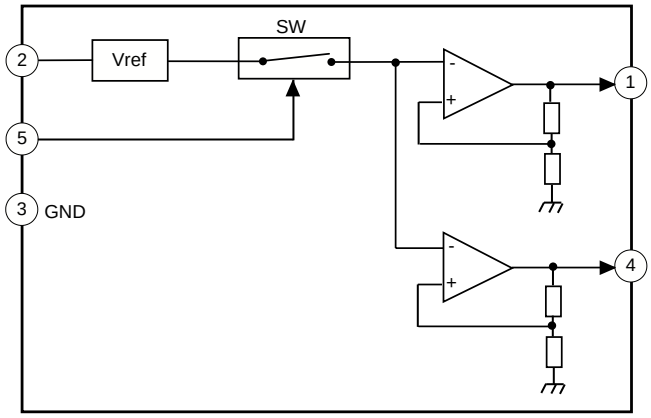




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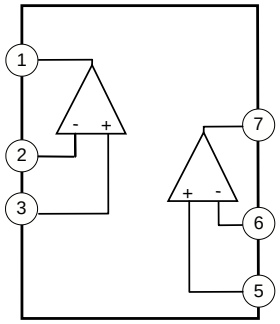


# 5-5 IC BLOCK DIAGRAMS

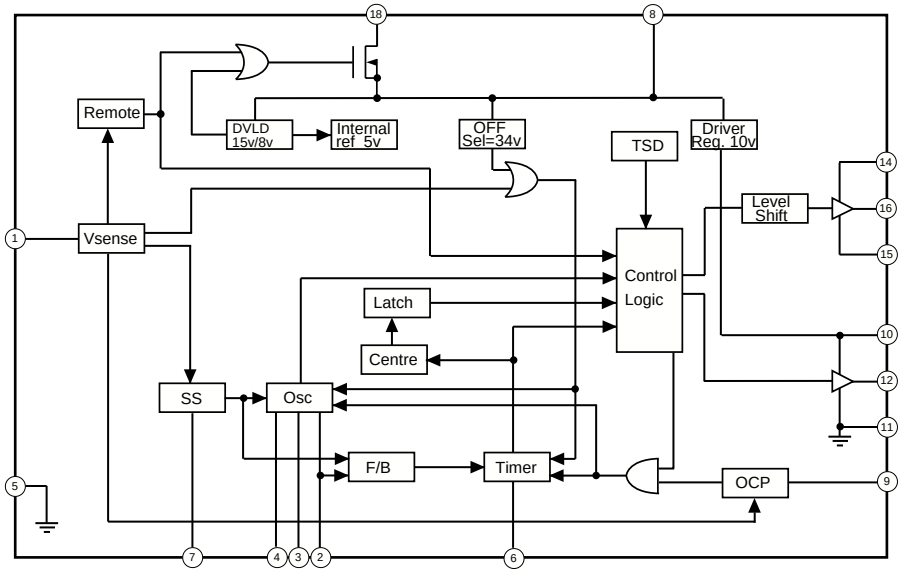
**A BOARD IC604 BA41W12ST-V5**



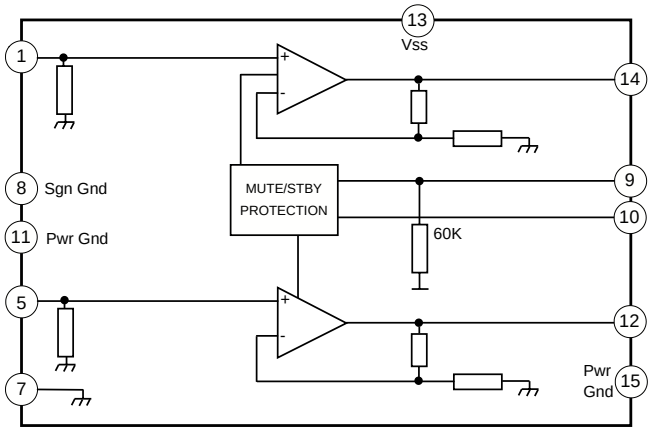

**A BOARD IC401/IC531 LM393DT**




**A BOARD IC601 MCZ3001D**




**A BOARD IC1201 TDA7497**



# SECTION 6
# EXPLODED VIEWS

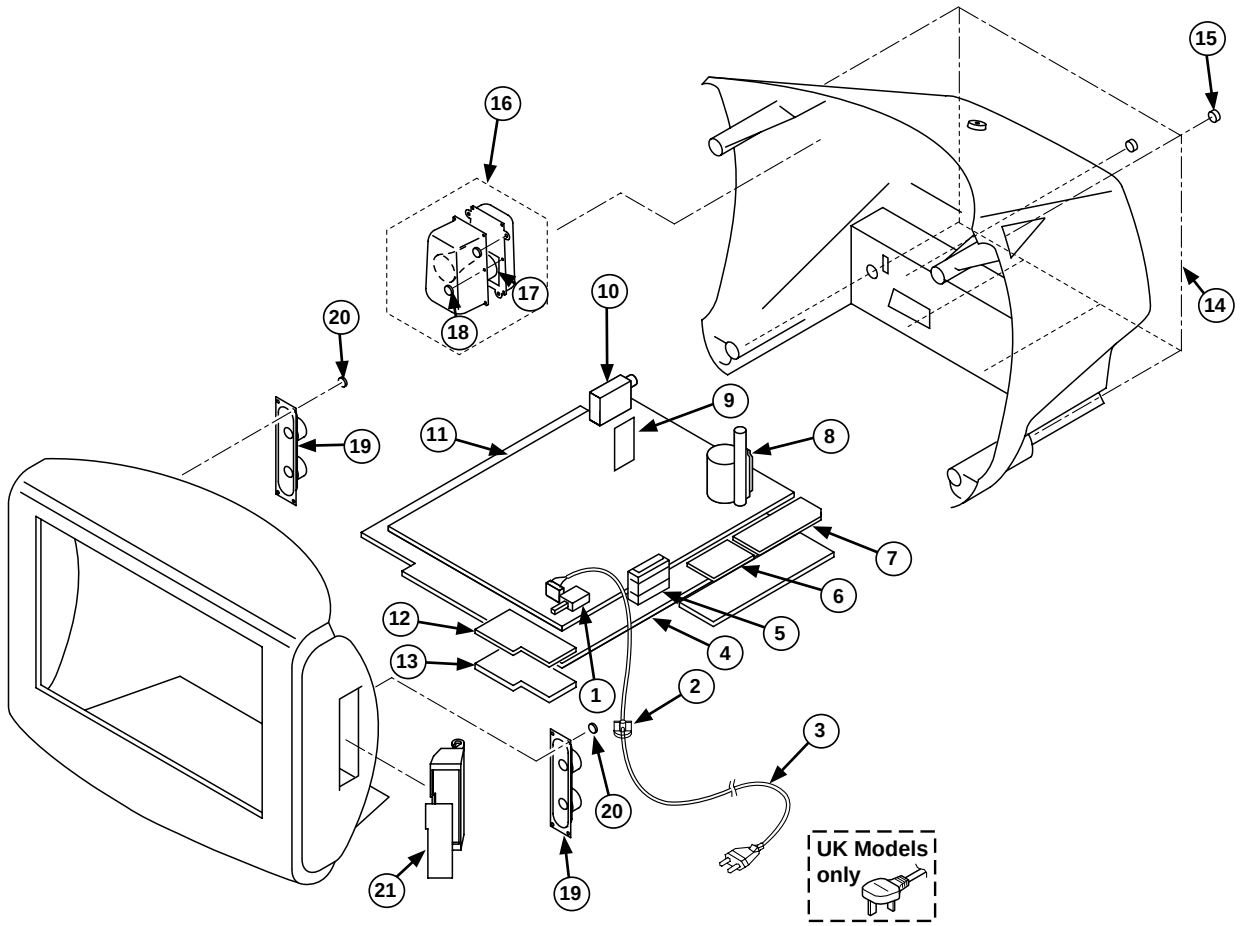
**Note :** Les composants indentifies par une trame et par une marque ⚠ sonte d'une importance critique pour la securite. Ne les remplacer que par des pieces du numero specifie.

**Note :** The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

**NOTE :**

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remarks column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

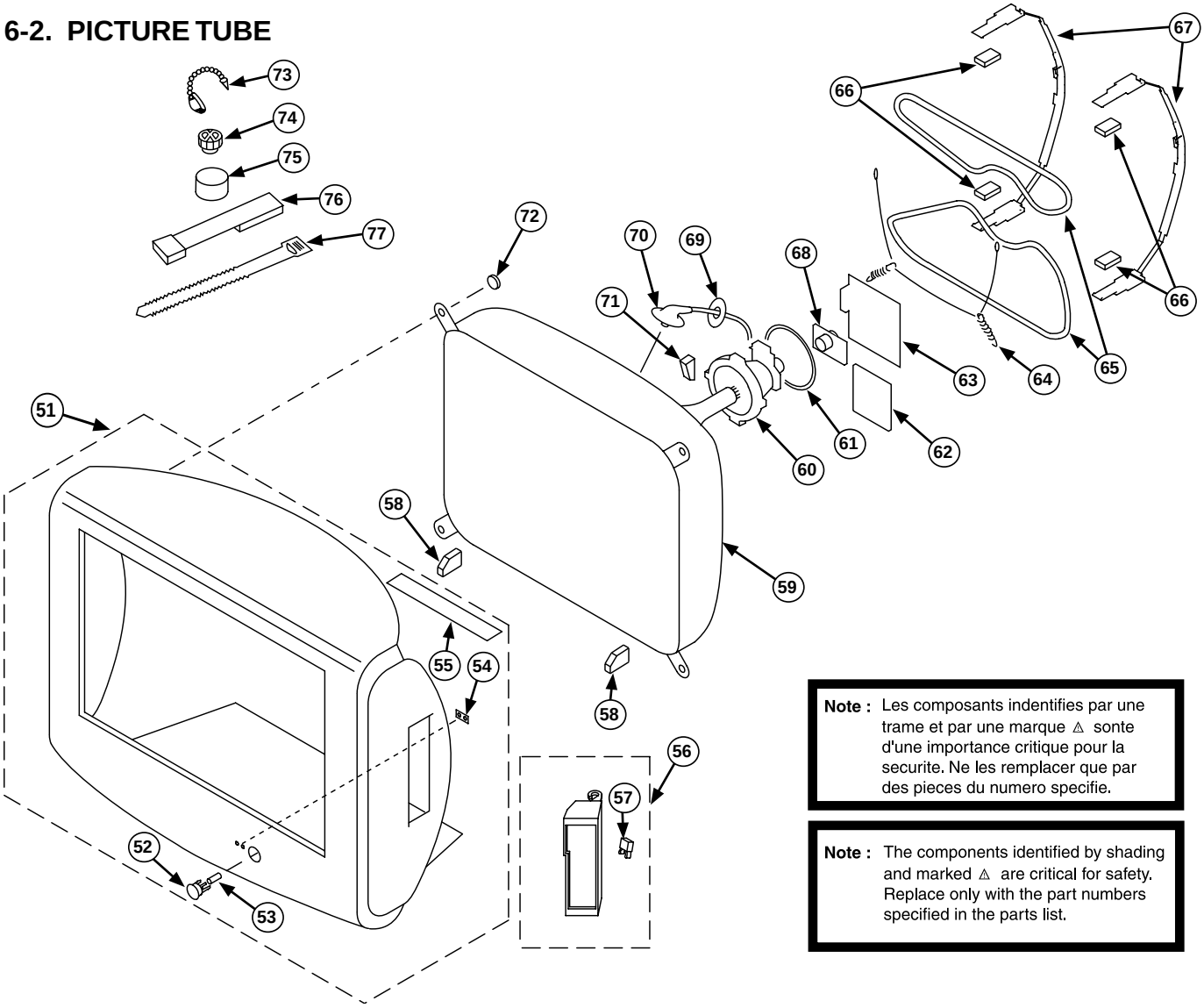
## 6-1. CHASSIS




| REF.NO. | | PART.NO | DESCRIPTION | REMARK |
|---|---|---|---|---|
| 1 | ⚠ | 1-571-433-21 | SWITCH, PUSH (AC POWER) | |
| 2 | | *4-202-531-01 | AC CORD LOCK (SC) | |
| 3 | ⚠ | 1-765-286-11 | CORD, POWER (KV-28LS35B/28LS35E/ KV-32LS35B/32LS35E) | |
| | ⚠ | 1-776-204-12 | CORD, POWER (FILTER) (KV-28LS35U/32LS35U) | |
| 4 | | *4-206-048-01 | BRACKET, MAIN (KV-28LS35) | |
| | | *4-206-048-11 | BRACKET, MAIN (KV-32LS35) | |
| 5 | | 1-424-733-11 | COIL, PFC CHOKE 65MMH | |
| 6 | | *A-1640-431-A | D3 BOARD, COMPLETE | |
| 7 | | *A-1624-100-A | F3 BOARD, COMPLETE | |
| 8 | ⚠ | 1-453-308-41 | TRANSFORMER ASSY, FLYBACK (NX4521//Z2B4) (KV-28LS35) | |
| | ⚠ | 1-453-308-31 | TRANSFORMER ASSY, FLYBACK (NX4521//Z2B4) (KV-32LS35) | |
| 9 | | *A-1642-285-A | D2 BOARD, COMPLETE (KV-28LS35) | |
| | | *A-1642-281-A | D2 BOARD, COMPLETE (KV-32LS35) | |
| 10 | | 8-598-535-10 | FRONTEND (BTF-EF411) (KV-28LS35B) | |
| | | 8-598-533-00 | FRONTEND (BTF-EC411) (KV-28LS35E) | |
| | | 8-598-529-00 | FRONTEND (BTF-EU611) (KV-28LS35U) | |
| | | 1-693-555-11 | TUNER STEREO (KV-32LS35B) | |
| | | 1-693-556-11 | TUNER STEREO (KV-32LS35E) | |
| | | 1-693-557-11 | TUNER STEREO (KV-32LS35U) | |

| REF.NO. | PART.NO | DESCRIPTION | REMARK |
|---|---|---|---|
| 11 | *A-1632-945-A | A BOARD, COMPLETE (KV-28LS35B) | |
| | *A-1632-946-A | A BOARD, COMPLETE (KV-28LS35E) | |
| | *A-1632-934-A | A BOARD, COMPLETE (KV-28LS35U) | |
| | *A-1632-939-A | A BOARD, COMPLETE (KV-32LS35B) | |
| | *A-1632-940-A | A BOARD, COMPLETE (KV-32LS35E) | |
| | *A-1632-931-A | A BOARD, COMPLETE (KV-32LS35U) | |
| 12 | *A-1624-099-A | F2 BOARD, COMPLETE | |
| 13 | *4-206-055-01 | BRACKET, F2 (KV-28LS35) | |
| | *4-206-055-11 | BRACKET, F2 (KV-32LS35) | |
| 14 | 4-206-089-01 | COVER, REAR (KV-28LS35) | |
| | 4-206-062-01 | COVER, REAR (KV-32LS35) | |
| 15 | 7-685-663-79 | SCREW +BVTP 4x16 TYPE 2 IT-3 (KV-28LS35) | |
| | 4-039-358-01 | SCREW (4x16), (+) BV TAPPING (KV-32LS35) | |
| 16 | *A-1678-212-A | WOOFER COMPLETE ASSY (KV-28LS35) 17,18 | |
| | *A-1678-205-B | WOOFER COMPLETE ASSY (KV-32LS35) 17,18 | |
| 17 | 1-529-417-11 | SPEAKER (8CM) | |
| 18 | 7-685-663-71 | SCREW +BVTP 4x16 TYPE 2 IT-3 (KV-28LS35) | |
| | 4-039-358-01 | SCREW (4x16), (+) BV TAPPING (KV-32LS35) | |
| 19 | 1-529-408-11 | SPEAKER (4.2x24CM) | |
| 20 | 4-058-870-01 | SCREW, (4x16) W (+) P TAPPING (KV-28LS35) | |
| | 4-039-358-01 | SCREW (4x16), (+) BV TAPPING (KV-32LS35) | |
| 21 | *A-1646-242-A | H2 BOARD, COMPLETE | |

## 6-2. PICTURE TUBE




**Note :** Les composants indentifies par une trame et par une marque ⚠ sonte d'une importance critique pour la securite. Ne les remplacer que par des pieces du numero specifie.

**Note :** The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

| REF.NO. | | PART.NO | DESCRIPTION | REMARK |
|---|---|---|---|---|
| 51 | | X-4200-736-1 | BEZNET ASSY (KV-28LS35) | 52-55 |
| | | X-4200-724-1 | BEZNET ASSY (KV-32LS35) | 52-55 |
| 52 | | 4-205-948-01 | POWER BUTTON (KV-28LS35) | |
| | | 4-205-948-11 | POWER BUTTON (KV-32LS35) | |
| 53 | | 4-204-426-01 | SPRING (KV-28LS35) | |
| | | 4-202-964-11 | SPRING (KV-32LS35) | |
| 54 | | 4-205-375-01 | GUIDE, LIGHT (KV-28LS35) | |
| | | 4-205-375-11 | GUIDE, LIGHT (KV-32LS35) | |
| 55 | | 4-204-865-01 | SHEET, BLOTTING (KV-28LS35) | |
| | | 4-204-058-41 | SHEET, BLOTTING (KV-32LS35) | |
| 56 | | X-4200-712-1 | DOOR ASSY (KV-28LS35) | 57 |
| | | X-4200-712-2 | DOOR ASSY (KV-32LS35) | 57 |
| 57 | | 4-047-464-01 | CATCHER, PUSH | |
| 58 | | 4-203-098-01 | SUPPORTER,CRT (KV-32LS35) | |
| 59 | ⚠ | 8-737-786-05 | PICTURE TUBE (W66LLX060X) (KV-28LS35) | |
| | ⚠ | 8-735-054-05 | PICTURE TUBE (W76LLZ060X) (KV-32LS35) | |
| 60 | | 8-451-521-11 | DEFLECTION YOKE (Y28RVC3-B) (KV-28LS35) | |
| | | 1-451-520-11 | DEFLECTION YOKE (Y32RVC3) (KV-32LS35) | |
| 61 | | 1-452-896-11 | COIL, NA ROTATION (RT-200) | |
| 62 | | *A-1645-050-A | VM BOARD, COMPLETE (KV-28LS35) | |
| | | *A-1645-049-A | VM BOARD, COMPLETE (KV-32LS35) | |
| 63 | | *A-1638-156-A | C BOARD, COMPLETE | |

| REF.NO. | | PART.NO | DESCRIPTION | REMARK |
|---|---|---|---|---|
| 64 | | 4-369-318-21 | SPRING, TENSION (KV-28LS35) | |
| | | 4-200-433-01 | SPRING, EXTENSION (KV-32LS35) | |
| 65 | ⚠ | 1-416-466-21 | COIL, DEMAGNETIC (KV-28LS35) | |
| | ⚠ | 1-416-769-11 | COIL, DEMAGNETIC (KV-32LS35) | |
| 66 | | *4-203-390-71 | CUSHION, DGC | |
| 67 | | *4-202-745-01 | HOLDER, DGC (KV-28LS35) | |
| | | *4-059-569-01 | HOLDER, DGC (KV-32LS35) | |
| 68 | | 8-453-011-11 | NECK ASSY, NA299-M | |
| 69 | | *4-202-693-01 | HOLDER, HV CABLE (KV-32LS35) | |
| 70 | ⚠ | 1-251-537-22 | CAP ASSY, HIGH VOLTAGE (KV-28LS35) | |
| | ⚠ | 1-251-946-11 | CAP ASSY, HIGH VOLTAGE (KV-32LS35) | |
| 71 | | 3-704-495-01 | SPACER, DY (KV-28LS35) | |
| | | 4-203-658-01 | SPACER, DY (KV-32LS35) | |
| 72 | | 4-046-765-12 | SCREW, TAPPING 7 + CROWN WASHER (KV-28LS35) | |
| | | 4-204-225-01 | PT-SCREW (KV-32LS35) | |
| 73 | | 4-308-870-00 | CLIP, LEAD WIRE | |
| 74 | | 1-452-094-00 | MAGNET, ROTATABLE DISK; 15MM Ø | |
| 75 | | 1-452-032-00 | MAGNET, DISK; 10MM Ø | |
| 76 | | X-4387-214-1 | PERMALLOY ASSY, CORRECTION | |
| 77 | | 3-701-007-00 | BAND, BINDING | |

# SECTION 7
# ELECTRICAL PARTS LIST

**PARTS LISTING TABLE OF CONTENTS**


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**F3 BOARD COMPLETE Parts List :** ..... 51
**A BOARD COMMON Parts List :** Parts common to all models listed in this manual ..... 51
**A BOARD VARIANT Parts List :** Parts that belong only to the model specified
Model
KV-28LS35 ..... 59
KV-32LS35 ..... 59
**C BOARD COMPLETE Parts List :** ..... 59
**D3 BOARD COMPLETE Parts List :** ..... 60
**D2 BOARD COMMON Parts List :** Parts common to all models listed in this manual ..... 60
**D2 BOARD VARIANT Parts List :** Parts that belong only to the model specified
Model
KV-28LS35 ..... 61
KV-32LS35 ..... 61
**VM BOARD COMMON Parts List :** Parts common to all models listed in this manual ..... 61
**VM BOARD VARIANT Parts List :** Parts that belong only to the model specified
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KV-32LS35 ..... 63
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**MISCELLANEOUS :** ..... 64
**ACCESSORIES AND PACKAGING MATERIALS :** ..... 64


**Note :** Refer to the designated variant parts list when seeking a part indicated by an asterisk (*)
Parts indicated (XX) on the Schematic Diagram are not used in this model and therefore do not appear in the Parts List.

**Note :** The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.



| REF.NO. | PART.NO | DESCRIPTION | REMARK |
|---|---|---|---|

## *A-1624-099-A F2 Board, Complete

| | | | |
|---|---|---|---|
| | 4-205-711-01 | HOLDER, LED | |
| | | < CAPACITOR > | |
| C2150 | 1-126-969-11 | ELECT 220UF | 20.00% 50V |
| C2601 | 1-113-924-11 | CERAMIC 0.0047UF | 20.00% 250V |
| | | < CONNECTOR > | |
| CN2150 | *1-564-510-11 | PLUG, CONNECTOR 7P | |
| CN2601 | *1-580-844-11 | PIN, CONNECTOR (POWER) | |
| CN2602 | 1-695-915-11 | TAB (CONTACT) | |
| CN2603 | *1-691-291-11 | PIN, CONNECTOR (PC BOARD) 5P | |
| | | < DIODE > | |
| D2150 | 8-719-081-56 | DIODE L-59SRSGC-CC | |
| D2152 | 8-719-109-89 | DIODE RD5.6ESB2 | |
| | | < IC > | |
| IC2150 | 8-749-014-59 | IC TSOP1740KS1 | |
| | | < TRANSISTOR > | |
| Q2150 | 8-729-027-38 | TRANSISTOR DTA144EKA-T146 | |
| Q2151 | 8-729-027-43 | TRANSISTOR DTC114EKA-T146 | |
| | | < RESISTOR > | |
| R2150 | 1-216-813-91 | RES CHIP 220 5% | 1/16W |
| R2151 | 1-216-813-91 | RES CHIP 220 5% | 1/16W |
| R2152 | 1-216-841-91 | RES CHIP 47K 5% | 1/16W |
| R2153 | 1-216-829-91 | RES CHIP 4.7K 5% | 1/16W |
| R2154 | 1-216-825-91 | RES CHIP 2.2K 5% | 1/16W |
| R2155 | 1-216-809-91 | RES CHIP 100 5% | 1/16W |
| R2156 | 1-216-815-91 | RES CHIP 330 5% | 1/16W |
| | | < SWITCH > | |
| S2601 | ⚠ 1-571-433-21 | SWITCH, PUSH (AC POWER) | |

## *A-1624-100-A F3 Board, Complete

| | | | |
|---|---|---|---|
| | *4-374-846-01 | COVER, CAPACITOR, CAP TYPE | |
| | | < CAPACITOR > | |
| C3601 | 1-113-924-11 | CERAMIC 0.0047UF | 20.00% 250V |
| C3602 | 1-136-212-12 | FILM 0.1UF | 20.00% 300V |
| | | < CONNECTOR > | |
| CN3601 | 1-580-843-11 | PIN, CONNECTOR (POWER) | |
| CN3602 | 1-695-915-11 | TAB (CONTACT) | |
| CN3603 | 1-580-843-11 | PIN, CONNECTOR (POWER) | |
| | | < FUSE > | |
| F3601 | ⚠ 1-576-232-21 | FUSE (H.B.C.) 5A/250V | |
| | *1-533-725-11 | HOLDER, FUSE (F3601) | |
| | | < RESISTOR > | |
| R3601 | 1-202-719-00 | SOLID 1M 10% | 1/2W |
| | | < TRANSFORMER > | |
| T3602 | 1-433-488-11 | TRANSFORMER, LINE FILTER | |
| | | < VARISTOR > | |
| VD3601 | 1-803-830-31 | VARISTOR (ERZV14D621) | |

***A-1632-945-A A Board, Complete (KV-28LS35B)**
***A-1632-946-A A Board, Complete (KV-28LS35E)**
***A-1632-934-A A Board, Complete (KV-28LS35U)**
***A-1632-939-A A Board, Complete (KV-32LS35B)**
***A-1632-940-A A Board, Complete (KV-32LS35E)**
***A-1632-931-A A Board, Complete (KV-32LS35U)**

## A Board, Common Parts

| | | | |
|---|---|---|---|
| | 1-900-903-72 | LEAD ASSY, FOCUS | |
| | 4-382-854-01 | SCREW (M3X8), P, SW (+) | |
| | 4-382-854-01 | SCREW (M3X8), P, SW (+) | |
| | | < CAPACITOR > | |
| C002 | 1-163-233-91 | CERAMIC CHIP 18PF | 5.00% 50V |
| C004 | 1-163-037-11 | CERAMIC CHIP 0.022UF | 10.00% 50V |
| C005 | 1-126-926-91 | ELECT 1000UF | 20.00% 10V |
| C006 | 1-163-233-91 | CERAMIC CHIP 18PF | 5.00% 50V |
| C009 | 1-164-004-11 | CERAMIC CHIP 0.1UF | 10.00% 25V |
| C010 | 1-164-005-11 | CERAMIC CHIP 0.47UF | 16V |
| C011 | 1-163-005-91 | CERAMIC CHIP 470PF | 10.00% 50V |
| C012 | 1-126-963-11 | ELECT 4.7UF | 20.00% 50V |
| C013 | 1-162-970-11 | CERAMIC CHIP 0.01UF | 10.00% 25V |
| C014 | 1-162-970-11 | CERAMIC CHIP 0.01UF | 10.00% 25V |
| C015 | 1-162-970-11 | CERAMIC CHIP 0.01UF | 10.00% 25V |
| C016 | 1-216-295-91 | SHORT 0 | |
| C018 | 1-162-970-11 | CERAMIC CHIP 0.01UF | 10.00% 25V |
| C019 | 1-162-919-91 | CERAMIC CHIP 22PF | 5.00% 50V |
| C020 | 1-164-004-11 | CERAMIC CHIP 0.1UF | 10.00% 25V |
| C021 | 1-163-037-11 | CERAMIC CHIP 0.022UF | 10.00% 50V |
| C022 | 1-126-935-11 | ELECT 470UF | 20.00% 10V |
| C025 | 1-126-935-11 | ELECT 470UF | 20.00% 16V |
| C026 | 1-162-970-11 | CERAMIC CHIP 0.01UF | 10.00% 25V |
| C027 | 1-164-004-11 | CERAMIC CHIP 0.1UF | 10.00% 25V |
| C028 | 1-163-009-91 | CERAMIC CHIP 0.001UF | 10.00% 50V |
| C030 | 1-163-009-91 | CERAMIC CHIP 0.001UF | 10.00% 50V |
| C033 | 1-163-009-91 | CERAMIC CHIP 0.001UF | 10.00% 50V |

# A

| REF.NO. | PART.NO | DESCRIPTION | REMARK |
|---|---|---|---|
| C035 | 1-163-009-91 | CERAMIC CHIP 0.001UF | 10.00% 50V |
| C036 | 1-163-009-91 | CERAMIC CHIP 0.001UF | 10.00% 50V |
| C037 | 1-136-244-11 | FILM 0.1UF | 2.00% 50V |
| C038 | 1-163-038-91 | CERAMIC CHIP 0.1UF | 25V |
| C039 | 1-164-505-11 | CERAMIC CHIP 2.2UF | 16V |
| C040 | 1-163-017-00 | CERAMIC CHIP 0.0047UF | 10.00% 50V |
| C042 | 1-162-625-11 | CERAMIC CHIP 0.0047UF | 5.00% 50V |
| C043 | 1-163-037-11 | CERAMIC CHIP 0.022UF | 10.00% 50V |
| C044 | 1-164-346-11 | CERAMIC CHIP 1UF | 16V |
| C045 | 1-164-489-11 | CERAMIC CHIP 0.22UF | 10.00% 16V |
| C046 | 1-163-037-11 | CERAMIC CHIP 0.022UF | 10.00% 50V |
| C047 | 1-126-935-11 | ELECT 470UF | 20.00% 16V |
| C053 | 1-164-004-11 | CERAMIC CHIP 0.1UF | 10.00% 25V |
| C055 | 1-126-960-11 | ELECT 1UF | 20.00% 50V |
| C100 | 1-126-933-11 | ELECT 100UF | 20.00% 16V |
| C103 | 1-126-965-91 | ELECT 22UF | 20.00% 50V |
| C105 | 1-162-970-11 | CERAMIC CHIP 0.01UF | 10.00% 25V |
| C106 | 1-126-933-11 | ELECT 100UF | 20.00% 16V |
| C112 | 1-162-970-11 | CERAMIC CHIP 0.01UF | 10.00% 25V |
| C204 | 1-115-340-11 | CERAMIC CHIP 0.22UF | 10.00% 25V |
| C211 | 1-162-970-91 | CERAMIC CHIP 10000PF | 10.00% 25V |
| C213 | 1-163-249-11 | CERAMIC CHIP 82PF | 5.00% 50V |
| C214 | 1-163-139-00 | CERAMIC CHIP 820PF | 5.00% 50V |
| C215 | 1-163-084-00 | CERAMIC CHIP 1.5PF | 0.25PF 50V |
| C216 | 1-163-117-00 | CERAMIC CHIP 100PF | 5.00% 50V |
| C217 | 1-163-084-00 | CERAMIC CHIP 1.5PF | 0.25PF 50V |
| C218 | 1-163-249-11 | CERAMIC CHIP 82PF | 5.00% 50V |
| C221 | 1-163-109-00 | CERAMIC CHIP 47PF | 5.00% 50V |
| C222 | 1-163-117-00 | CERAMIC CHIP 100PF | 5.00% 50V |
| C223 | 1-126-965-91 | ELECT 22UF | 20.00% 50V |
| C224 | 1-163-117-91 | CERAMIC CHIP 100PF | 5.00% 50V |
| C225 | 1-126-157-11 | ELECT 10UF | 20.00% 16V |
| C226 | 1-164-004-11 | CERAMIC CHIP 0.1UF | 10.00% 25V |
| C227 | 1-163-117-91 | CERAMIC CHIP 100PF | 5.00% 50V |
| C228 | 1-126-965-91 | ELECT 22UF | 20.00% 50V |
| C229 | 1-163-017-00 | CERAMIC CHIP 0.0047UF | 10.00% 50V |
| C230 | 1-164-336-11 | CERAMIC CHIP 0.33UF | 25V |
| C232 | 1-126-157-11 | ELECT 10UF | 20.00% 16V |
| C233 | 1-164-004-11 | CERAMIC CHIP 0.1UF | 10.00% 25V |
| C234 | 1-107-823-11 | CERAMIC CHIP 0.47UF | 10.00% 16V |
| C235 | 1-164-005-11 | CERAMIC CHIP 0.47UF | 25V |
| C236 | 1-126-157-11 | ELECT 10UF | 20.00% 16V |
| C237 | 1-126-965-91 | ELECT 22UF | 20.00% 50V |
| C238 | 1-163-117-91 | CERAMIC CHIP 100PF | 5.00% 50V |
| C239 | 1-126-157-11 | ELECT 10UF | 20.00% 16V |
| C242 | 1-163-009-91 | CERAMIC CHIP 0.001UF | 10.00% 50V |
| C245 | 1-163-009-91 | CERAMIC CHIP 0.001UF | 10.00% 50V |
| C401 | 1-126-964-11 | ELECT 10UF | 20.00% 50V |
| C404 | 1-162-970-11 | CERAMIC CHIP 0.01UF | 10.00% 25V |
| C405 | 1-163-009-91 | CERAMIC CHIP 0.001UF | 10.00% 50V |
| C407 | 1-164-346-11 | CERAMIC CHIP 1UF | 16V |
| C408 | 1-127-715-91 | CERAMIC CHIP 0.22UF | 10% 16V |
| C409 | 1-126-964-11 | ELECT 10UF | 20.00% 50V |
| C410 | 1-162-970-11 | CERAMIC CHIP 0.01UF | 10.00% 25V |
| C411 | 1-163-009-91 | CERAMIC CHIP 0.001UF | 10.00% 50V |
| C412 | 1-164-346-11 | CERAMIC CHIP 1UF | 16V |
| C414 | 1-164-346-11 | CERAMIC CHIP 1UF | 16V |
| C415 | 1-164-346-11 | CERAMIC CHIP 1UF | 16V |
| C416 | 1-126-964-11 | ELECT 10UF | 20.00% 50V |
| C417 | 1-162-970-11 | CERAMIC CHIP 0.01UF | 10.00% 25V |
| C418 | 1-164-346-91 | CERAMIC CHIP 1UF | 16V |
| C419 | 1-162-964-11 | CERAMIC CHIP 0.001UF | 10.00% 50V |
| C423 | 1-127-715-91 | CERAMIC CHIP 0.22UF | 10% 16V |
| C424 | 1-163-009-91 | CERAMIC CHIP 0.001UF | 10.00% 50V |
| C426 | 1-163-009-91 | CERAMIC CHIP 0.001UF | 10.00% 50V |
| C427 | 1-163-009-91 | CERAMIC CHIP 0.001UF | 10.00% 50V |
| C428 | 1-163-009-91 | CERAMIC CHIP 0.001UF | 10.00% 50V |
| C429 | 1-163-009-91 | CERAMIC CHIP 0.001UF | 10.00% 50V |
| C430 | 1-102-114-00 | CERAMIC 470PF | 10.00% 50V |
| C435 | 1-163-017-00 | CERAMIC CHIP 0.0047UF | 10.00% 50V |
| C436 | 1-163-017-00 | CERAMIC CHIP 0.0047UF | 10.00% 50V |
| C437 | 1-164-346-11 | CERAMIC CHIP 1UF | 16V |
| C438 | 1-164-346-11 | CERAMIC CHIP 1UF | 16V |
| C445 | 1-126-964-11 | ELECT 10UF | 20.00% 50V |
| C446 | 1-126-964-11 | ELECT 10UF | 20.00% 50V |
| C447 | 1-162-970-11 | CERAMIC CHIP 0.01UF | 10.00% 25V |
| C449 | 1-127-715-91 | CERAMIC CHIP 0.22UF | 10% 16V |
| C501 | 1-126-968-11 | ELECT 100UF | 20.00% 50V |
| C502 | 1-163-038-91 | CERAMIC CHIP 0.1UF | 25V |
| C503 | 1-115-832-91 | ELECT 100UF | 20.00% 50V |
| C504 | 1-106-220-00 | MYLAR 0.1UF | 10.00% 100V |
| C505 | 1-137-194-81 | FILM 0.47UF | 5.00% 50V |
| C506 | 1-162-970-11 | CERAMIC CHIP 0.01UF | 10.00% 25V |
| C509 | 1-107-364-11 | MYLAR 0.01UF | 10.00% 400V |
| C510 | 1-163-005-91 | CERAMIC CHIP 470PF | 10.00% 50V |
| C513 | 1-107-662-11 | ELECT 22UF | 20.00% 250V |
| C515 | 1-104-666-11 | ELECT 220UF | 20.00% 25V |
| C517 | 1-115-781-91 | ELECT 220UF | 20.00% 25V |
| C518 | 1-106-375-12 | MYLAR 0.022UF | 10.00% 250V |
| C519 | 1-163-275-11 | CERAMIC CHIP 0.001UF | 5.00% 50V |
| C520 | 1-163-038-91 | CERAMIC CHIP 0.1UF | 25V |
| C524 | 1-163-037-11 | CERAMIC CHIP 0.022UF | 10.00% 50V |
| C525 | 1-123-024-21 | ELECT 33UF | 160V |
| C531 | 1-126-964-11 | ELECT 10UF | 20.00% 50V |
| C532 | 1-163-037-11 | CERAMIC CHIP 0.022UF | 10.00% 50V |
| C537 | 1-137-417-11 | MYLAR 0.0047UF | 10.00% 200V |
| C538 | 1-165-319-11 | CERAMIC CHIP 0.1UF | 50V |
| C539 | 1-111-230-11 | ELECT 1UF | 20.00% 160V |
| C541 | 1-106-383-00 | MYLAR 0.047UF | 10.00% 200V |
| C543 | 1-162-134-11 | CERAMIC 470PF | 10.00% 2KV |

**Note :** The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

**A**

| REF.NO. | | PART.NO | DESCRIPTION | REMARK |
|---|---|---|---|---|
| C545 | | 1-164-004-11 | CERAMIC CHIP 0.1UF | 10.00% 25V |
| C546 | | 1-129-723-51 | FILM 0.056UF | 5.00% 630V |
| C547 | | 1-109-844-11 | FILM 0.68UF | 5.00% 250V |
| C548 | | 1-162-134-11 | CERAMIC 470PF | 10.00% 2KV |
| C550 | | 1-107-638-11 | ELECT 33UF | 20.00% 160V |
| C552 | | 1-102-212-00 | CERAMIC 820PF | 10.00% 500V |
| C553 | | 1-137-417-11 | MYLAR 0.0047UF | 10.00% 200V |
| C580 | | 1-162-970-11 | CERAMIC CHIP 0.01UF | 10.00% 25V |
| C582 | | 1-163-259-91 | CERAMIC CHIP 220PF | 5.00% 50V |
| C583 | | 1-163-009-91 | CERAMIC CHIP 0.001UF | 10.00% 50V |
| C600 | | 1-119-888-51 | CERAMIC 2200PF | 20.00% 250V |
| C601 | ⚠ | 1-136-516-12 | FILM 0.1UF | 20.00% 300V |
| C602 | ⚠ | 1-136-516-12 | FILM 0.1UF | 20.00% 300V |
| C603 | ⚠ | 1-119-899-51 | CERAMIC 1000PF | 10.00% 250V |
| C604 | ⚠ | 1-119-899-51 | CERAMIC 1000PF | 10.00% 250V |
| C605 | | 1-111-036-91 | ELECT 470UF | 20.00% 16V |
| C606 | | 1-117-751-11 | ELECT(BLOCK) 220UF | 20.00% 450V |
| C607 | | 1-126-964-11 | ELECT 10UF | 20.00% 50V |
| C608 | | 1-126-963-11 | ELECT 4.7UF | 20.00% 50V |
| C610 | | 1-126-941-11 | ELECT 470UF | 20.00% 25V |
| C611 | | 1-163-009-91 | CERAMIC CHIP 0.001UF | 10.00% 50V |
| C612 | | 1-104-571-91 | CERAMIC 0.0015UF | 10.00% 2KV |
| C613 | | 1-104-571-91 | CERAMIC 0.0015UF | 10.00% 2KV |
| C614 | | 1-161-964-51 | CERAMIC 0.0047UF | 250V |
| C615 | | 1-115-339-11 | CERAMIC CHIP 0.1UF | 10.00% 50V |
| C616 | | 1-165-127-11 | CERAMIC 470PF | 10.00% 500V |
| C617 | | 1-165-127-11 | CERAMIC 470PF | 10.00% 500V |
| C618 | | 1-126-949-11 | ELECT 220UF | 20.00% 35V |
| C620 | | 1-137-990-21 | FILM 33000PF | 3% 800V |
| C622 | | 1-104-571-91 | CERAMIC 0.0015UF | 10.00% 2KV |
| C623 | | 1-104-571-91 | CERAMIC 0.0015UF | 10.00% 2KV |
| C624 | | 1-126-935-11 | ELECT 470UF | 20.00% 16V |
| C626 | | 1-126-967-11 | ELECT 47UF | 20.00% 50V |
| C627 | | 1-126-964-11 | ELECT 10UF | 20.00% 50V |
| C628 | | 1-126-963-11 | ELECT 4.7UF | 20.00% 50V |
| C629 | | 1-165-127-11 | CERAMIC 470PF | 10.00% 500V |
| C630 | | 1-107-641-11 | ELECT 220UF | 20.00% 160V |
| C631 | | 1-126-942-61 | ELECT 1000UF | 20.00% 25V |
| C632 | | 1-126-964-11 | ELECT 10UF | 20.00% 50V |
| C633 | | 1-163-009-91 | CERAMIC CHIP 0.001UF | 10.00% 50V |
| C634 | | 1-128-562-11 | ELECT 47UF | 20.00% 100V |
| C635 | | 1-136-165-00 | FILM 0.1UF | 5.00% 50V |
| C636 | | 1-136-479-11 | FILM 0.001UF | 2.00% 50V |
| C637 | | 1-126-967-11 | ELECT 47UF | 20.00% 50V |
| C638 | | 1-107-679-91 | ELECT 10UF | 20.00% 450V |
| C639 | | 1-104-665-11 | ELECT 100UF | 20.00% 25V |
| C640 | | 1-104-664-11 | ELECT 47UF | 20.00% 25V |
| C641 | | 1-115-785-11 | ELECT 470UF | 20.00% 16V |
| C642 | | 1-104-665-11 | ELECT 100UF | 20.00% 25V |
| C643 | | 1-165-127-11 | CERAMIC 470PF | 10.00% 500V |

| REF.NO. | PART.NO | DESCRIPTION | REMARK |
|---|---|---|---|
| C645 | 1-164-004-11 | CERAMIC CHIP 0.1UF | 10.00% 25V |
| C648 | 1-125-782-91 | CERAMIC 4700PF | 10.00% 1KV |
| C649 | 1-163-038-91 | CERAMIC CHIP 0.1UF | 25V |
| C657 | 1-126-952-11 | ELECT 1000UF | 20.00% 35V |
| C1201 | 1-126-972-11 | ELECT 1000UF | 20.00% 50V |
| C1202 | 1-126-959-91 | ELECT 0.47UF | 20.00% 50V |
| C1203 | 1-535-143-61 | LEAD JUMPER (5.0MM) | |
| C1207 | 1-126-960-11 | ELECT 1UF | 20.00% 50V |
| C1208 | 1-126-953-11 | ELECT 2200UF | 20.00% 35V |
| C1209 | 1-163-033-91 | CERAMIC CHIP 0.022UF | 50V |
| C1210 | 1-126-960-11 | ELECT 1UF | 20.00% 50V |
| C1211 | 1-163-033-91 | CERAMIC CHIP 0.022UF | 50V |
| C1213 | 1-164-346-91 | CERAMIC CHIP 1UF | 16V |
| C1215 | 1-126-952-11 | ELECT 1000UF | 20.00% 35V |
| C1218 | 1-109-982-11 | CERAMIC CHIP 1UF | 10.00% 10V |
| C1219 | 1-104-666-11 | ELECT 220UF | 20.00% 25V |
| C1221 | 1-115-339-11 | CERAMIC CHIP 0.1UF | 10.00% 50V |
| C1228 | 1-126-952-11 | ELECT 1000UF | 20.00% 35V |
| C1229 | 1-163-001-11 | CERAMIC CHIP 220PF | 10.00% 50V |
| C1230 | 1-163-001-11 | CERAMIC CHIP 220PF | 10.00% 50V |
| C1231 | 1-163-001-11 | CERAMIC CHIP 220PF | 10.00% 50V |
| C1232 | 1-115-339-11 | CERAMIC CHIP 0.1UF | 10.00% 50V |
| C1235 | 1-126-960-11 | ELECT 1UF | 20.00% 50V |
| C1236 | 1-126-960-11 | ELECT 1UF | 20.00% 50V |

< CONNECTOR >

| | | |
|---|---|---|
| CN001 | *1-564-508-11 | PLUG, CONNECTOR 5P |
| CN003 | 1-564-510-51 | PLUG, CONNECTOR 7P |
| CN405 | *1-564-510-11 | PLUG, CONNECTOR 7P |
| CN406 | *1-564-512-11 | PLUG, CONNECTOR 9P |
| CN501 | 1-580-798-11 | CONNECTOR PIN (DY) |
| CN503 | *1-564-506-11 | PLUG, CONNECTOR 3P |
| CN506 | 1-695-915-11 | TAB (CONTACT) |
| CN508 | *1-564-508-11 | PLUG, CONNECTOR 5P |
| CN509 | 1-695-915-11 | TAB (CONTACT) |
| CN510 | 1-691-771-11 | PLUG (MICRO CONNECTOR) 9P |
| CN512 | *1-770-723-11 | CONNECTOR, BOARD TO BOARD 8P |
| CN602 | 1-508-765-00 | PIN, CONNECTOR (5MM PITCH) 3P |
| CN603 | *1-508-786-00 | PIN, CONNECTOR (5MM PITCH) 2P |
| CN605 | *1-691-960-11 | PIN, CONNECTOR (PC BOARD) 3P |
| CN606 | *1-695-292-11 | PIN, CONNECTOR (POWER) |
| CN1200 | *1-564-509-11 | PLUG, CONNECTOR 6P |
| CN1201 | *1-564-507-11 | PLUG, CONNECTOR 4P |
| CN1202 | *1-564-506-11 | PLUG, CONNECTOR 3P |

< DIODE >

| | | |
|---|---|---|
| D001 | 8-719-069-55 | DIODE UDZSTE-175.6B |
| D002 | 8-719-069-55 | DIODE UDZSTE-175.6B |
| D003 | 8-719-109-69 | DIODE RD3.6ES-B2 |
| D005 | 8-719-929-15 | DIODE HZS9.1NB2 |

# A

| REF.NO. | PART.NO | DESCRIPTION | REMARK |
|---|---|---|---|
| D006 | 8-719-109-89 | DIODE RD5.6ES-B2 | |
| D007 | 8-719-069-55 | DIODE UDZSTE-175.6B | |
| D008 | 8-719-074-43 | DIODE BAS316-115 | |
| D010 | 8-719-074-43 | DIODE BAS316-115 | |
| D011 | 8-719-074-43 | DIODE BAS316-115 | |
| D012 | 8-719-929-15 | DIODE HZS9.1NB2 | |
| D013 | 8-719-109-69 | DIODE RD3.6ES-B2 | |
| D014 | 1-216-295-91 | SHORT 0 | |
| D016 | 8-719-109-89 | DIODE RD5.6ES-B2 | |
| D018 | 8-719-109-69 | DIODE RD3.6ES-B2 | |
| D019 | 8-719-978-33 | DIODE DTZ-TT11-6.8B | |
| D021 | 8-719-978-33 | DIODE DTZ-TT11-6.8B | |
| D022 | 8-719-069-55 | DIODE UDZSTE-175.6B | |
| D035 | 8-719-069-55 | DIODE UDZSTE-175.6B | |
| D036 | 8-719-069-55 | DIODE UDZSTE-175.6B | |
| D051 | 8-719-081-98 | DIODE MM3Z6V8T1 | |
| D101 | 8-719-977-81 | DIODE DTZ33B | |
| D103 | 8-719-081-98 | DIODE MM3Z6V8T1 | |
| D104 | 8-719-069-55 | DIODE UDZSTE-175.6B | |
| D105 | 8-719-069-55 | DIODE UDZSTE-175.6B | |
| D106 | 8-719-069-55 | DIODE UDZSTE-175.6B | |
| D107 | 8-719-069-55 | DIODE UDZSTE-175.6B | |
| D203 | 8-719-069-55 | DIODE UDZSTE-175.6B | |
| D207 | 8-719-069-60 | DIODE UDZSTE-179.1B | |
| D210 | 8-719-069-55 | DIODE UDZSTE-175.6B | |
| D211 | 8-719-069-60 | DIODE UDZSTE-179.1B | |
| D212 | 8-719-914-43 | DIODE DAN202K | |
| D228 | 8-719-069-55 | DIODE UDZSTE-175.6B | |
| D235 | 8-719-069-55 | DIODE UDZSTE-175.6B | |
| D236 | 8-719-069-60 | DIODE UDZSTE-179.1B | |
| D401 | 8-719-069-57 | DIODE UDZSTE-176.8B | |
| D402 | 8-719-081-98 | DIODE MM3Z6V8T1 | |
| D403 | 8-719-978-33 | DIODE DTZ-TT11-6.8B | |
| D404 | 8-719-109-89 | DIODE RD5.6ESB2 | |
| D405 | 8-719-081-98 | DIODE MM3Z6V8T1 | |
| D406 | 8-719-081-98 | DIODE MM3Z6V8T1 | |
| D407 | 8-719-081-98 | DIODE MM3Z6V8T1 | |
| D408 | 8-719-069-57 | DIODE UDZSTE-176.8B | |
| D410 | 8-719-069-57 | DIODE UDZSTE-176.8B | |
| D411 | 8-719-069-57 | DIODE UDZSTE-176.8B | |
| D412 | 8-719-081-98 | DIODE MM3Z6V8T1 | |
| D413 | 8-719-069-57 | DIODE UDZSTE-176.8B | |
| D414 | 8-719-081-98 | DIODE MM3Z6V8T1 | |
| D418 | 8-719-069-60 | DIODE UDZSTE-179.1B | |
| D419 | 8-719-049-26 | DIODE RB721Q | |
| D420 | 8-719-081-98 | DIODE MM3Z6V8T1 | |
| D421 | 8-719-049-26 | DIODE RB721Q | |
| D422 | 8-719-069-57 | DIODE UDZSTE-176.8B | |
| D423 | 8-719-081-98 | DIODE MM3Z6V8T1 | |
| D424 | 8-719-069-60 | DIODE UDZSTE-179.1B | |
| D427 | 8-719-082-01 | DIODE MM3Z12VT1 | |
| D428 | 8-719-069-57 | DIODE UDZSTE-176.8B | |
| D429 | 8-719-069-57 | DIODE UDZSTE-176.8B | |
| D435 | 8-719-069-60 | DIODE UDZSTE-179.1B | |
| D436 | 8-719-069-60 | DIODE UDZSTE-179.1B | |
| D501 | 8-719-979-85 | DIODE EGP20G | |
| D502 | 8-719-081-90 | DIODE PDZ22B-115 | |
| D503 | 8-719-069-55 | DIODE UDZSTE-175.6B | |
| D504 | 8-719-074-43 | DIODE BAS316-115 | |
| D506 | 8-719-908-03 | DIODE GP08D | |
| D512 | 8-719-302-43 | DIODE EL1Z | |
| D513 | 8-719-979-85 | DIODE EGP20G | |
| D514 | 8-719-979-85 | DIODE EGP20G | |
| D534 | 8-719-302-43 | DIODE ELIZ | |
| D535 | 8-719-908-03 | DIODE GP08D | |
| D536 | 8-719-945-80 | DIODE ERC06-15S | |
| D537 | 8-719-070-62 | DIODE PDZ9.1B-115 | |
| D538 | 8-719-908-03 | DIODE GP08D | |
| D539 | 8-719-312-10 | DIODE RU4AM-T3 | |
| D541 | 1-216-295-91 | SHORT 0 | |
| D573 | 8-719-082-00 | DIODE MM3Z4V7T1 | |
| D601 | 8-719-510-53 | DIODE D4SB60L | |
| D602 | 8-719-911-19 | DIODE 1SS119-25 | |
| D604 | 8-719-083-94 | DIODE FUF4005 | |
| D608 | 8-719-063-70 | DIODE D1NL20U | |
| D610 | 8-719-110-41 | DIODE RD15ES-B2 | |
| D611 | 8-719-991-33 | DIODE 1SS133T-77 | |
| D612 | 8-719-991-33 | DIODE 1SS133T-77 | |
| D613 | 8-719-911-19 | DIODE 1SS119-25 | |
| D614 | 8-719-077-76 | DIODE D2SB60A-F04 | |
| D615 | 8-719-929-15 | DIODE HZS9.1NB2 | |
| D618 | 8-719-022-97 | DIODE D2S4MF | |
| D619 | 8-719-022-97 | DIODE D2S4MF | |
| D620 | 8-719-109-85 | DIODE RD5.1ESB2 | |
| D621 | 8-719-109-89 | DIODE RD5.6ESB2 | |
| D623 | 8-719-911-19 | DIODE 1SS119-25 | |
| D624 | 8-719-052-90 | DIODE D1NL40-TA2 | |
| D625 | 8-719-062-39 | DIODE D4SBL20UF1 | |
| D627 | 8-719-063-70 | DIODE D1NL20U | |
| D628 | 8-719-083-49 | DIODE P6KE200ASY | |
| D629 | 8-719-083-94 | DIODE FUF4005 | |
| D631 | 8-719-921-63 | DIODE MTZJ-7.5B | |
| D632 | 8-719-063-70 | DIODE D1NL20U | |
| D633 | 8-719-109-69 | DIODE RD3.6ES-B2 | |
| D638 | 8-719-083-92 | DIODE YG802C09RF122 | |
| D640 | 8-719-921-63 | DIODE MTZJ-7.5B | |
| D1203 | 8-719-914-43 | DIODE DAN202K | |
| D1204 | 8-719-069-55 | DIODE UDZSTE-175.6B | |
| D1205 | 8-719-081-90 | DIODE PDZ22B-115 | |
| D1230 | 8-719-074-43 | DIODE BAS316-115 | |

**Note :** The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

**A**

| REF.NO. | PART.NO | DESCRIPTION | REMARK |
|---|---|---|---|
| | < FERRITE BEAD > | | |
| FB601 | 1-410-397-21 | FERRITE 1.1UH | |
| FB602 | 1-410-397-21 | FERRITE 1.1UH | |
| FB603 | 1-412-911-21 | FERRITE 0UH | |
| FB604 | 1-410-397-21 | FERRITE 1.1UH | |
| FB605 | 1-410-397-21 | FERRITE 1.1UH | |
| FB606 | 1-412-911-21 | FERRITE 0UH | |
| FB607 | 1-412-911-21 | FERRITE 0UH | |
| | < FILTER > | | |
| FL201 | 1-239-803-11 | FILTER, EMI | |
| | < IC > | | |
| IC001 | 6-800-338-01 | IC TDA9394H/N1/4/0334 | |
| IC004 | 8-759-575-72 | IC M24C08-WMN6T | |
| IC201 | 6-700-411-01 | IC MSP3411G-PP-B8 | |
| IC401 | 8-759-665-11 | IC LM393DT | |
| IC501 | 8-759-192-71 | IC STV9379 | |
| IC531 | 8-759-665-11 | IC LM393DT | |
| IC601 | 8-759-670-30 | IC MCZ3001D | |
| IC602 | 8-749-016-19 | IC SE135N-LF4 | |
| IC604 | 8-759-668-87 | IC BA41W12ST-V5 | |
| IC608 | 8-759-591-02 | IC L78L33ABZ-AP | |
| IC609 | 8-759-468-89 | IC TOP209P | |
| IC1201 | 8-759-831-56 | IC TDA7497 | |
| | < JACK > | | |
| J401 | 1-766-296-21 | CONNECTOR, DUAL SCART | |
| J402 | 1-770-329-11 | JACK, PIN 3P | |
| J404 | 1-784-632-11 | JACK, PIN 2P | |
| | < COIL > | | |
| L001 | 1-408-611-31 | INDUCTOR 47UH | |
| L002 | 1-414-938-21 | INDUCTOR 47UH | |
| L004 | 1-408-611-31 | INDUCTOR 47UH | |
| L006 | 1-408-611-31 | INDUCTOR 47UH | |
| L027 | 1-216-295-91 | SHORT 0 | |
| L101 | 1-412-534-41 | INDUCTOR 56UH | |
| L102 | 1-408-611-31 | INDUCTOR 47UH | |
| L103 | 1-412-002-31 | INDUCTOR 4.7UH | |
| L104 | 1-412-002-31 | INDUCTOR 4.7UH | |
| L201 | 1-408-602-31 | INDUCTOR 8.2UH | |
| L202 | 1-408-591-11 | INDUCTOR 1UH | |
| L203 | 1-408-602-31 | INDUCTOR 8.2UH | |
| L205 | 1-408-591-21 | INDUCTOR 1UH | |
| L206 | 1-535-143-61 | LEAD, JUMPER (5.0MM) | |
| L207 | 1-408-591-21 | INDUCTOR 1UH | |
| L401 | 1-410-993-42 | INDUCTOR 1UH | |
| L403 | 1-410-993-42 | INDUCTOR 1UH | |
| L404 | 1-410-993-42 | INDUCTOR 1UH | |
| L405 | 1-535-143-61 | LEAD, JUMPER (5.0MM) | |
| L406 | 1-535-143-61 | LEAD, JUMPER (5.0MM) | |
| L410 | 1-216-025-11 | RES-CHIP 100 5% | 1/10W |
| L430 | 1-412-002-31 | INDUCTOR 4.7UH | |
| L446 | 1-216-295-91 | SHORT 0 | |
| L448 | 1-216-295-91 | SHORT 0 | |
| L501 | 1-414-187-11 | INDUCTOR 47UH | |
| L502 | 1-412-529-11 | INDUCTOR 22UH | |
| L503 | 1-412-521-31 | INDUCTOR 4.7UH | |
| L504 | 1-535-143-61 | LEAD, JUMPER (5.0MM) | |
| L505 | 1-412-542-41 | INDUCTOR 270UH | |
| L507 | 1-412-533-21 | INDUCTOR 47UH | |
| L532 | 1-412-553-11 | INDUCTOR 3.3MH | |
| L533 | 1-406-989-21 | INDUCTOR 10MH | |
| L534 | 1-216-025-11 | RES-CHIP 100 5% | 1/10W |
| L535 | 1-459-111-00 | INDUCTOR 10MH | |
| L601 | 1-408-603-31 | INDUCTOR 10UH | |
| L602 | 1-408-611-31 | INDUCTOR 47UH | |
| L603 | 1-412-523-41 | INDUCTOR 6.8UH | |
| L1201 | 1-535-143-61 | LEAD, JUMPER (5.0MM) | |
| L1203 | 1-535-143-61 | LEAD, JUMPER (5.0MM) | |
| | < PHOTO COUPLER > | | |
| PH601 | ⚠ 8-749-016-21 | IC TCET1103G | |
| | < IC LINK > | | |
| PS1201 | 1-533-597-31 | LINK, IC | |
| | < TRANSISTOR > | | |
| Q002 | 8-729-027-56 | TRANSISTOR DTC143TKA-T146 | |
| Q013 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | |
| Q014 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | |
| Q049 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | |
| Q202 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | |
| Q203 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | |
| Q212 | 8-729-422-33 | TRANSISTOR 2SD601A-Q-TX | |
| Q401 | 8-729-026-49 | TRANSISTOR 2SA1037AK-T146 | |
| Q409 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | |
| Q411 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | |
| Q532 | 8-729-053-33 | TRANSISTOR IRF614-037 | |
| Q533 | 8-729-049-08 | TRANSISTOR BU2515DX-127 | |
| Q535 | 8-729-053-33 | TRANSISTOR IRF614-037 | |
| Q576 | 8-729-422-33 | TRANSISTOR 2SD601A-Q-TX | |
| Q601 | 8-729-026-49 | TRANSISTOR 2SA1037AK-T146 | |
| 602 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q603 | 8-729-029-56 | TRANSISTOR DTA144ESA | |
| Q604 | 8-729-030-02 | TRANSISTOR DTC144ESA | |

# A

| REF.NO. | PART.NO | DESCRIPTION | | | REMARK |
|---|---|---|---|---|---|
| Q606 | 8-729-053-36 | TRANSISTOR 2SK2640-01MR | | | |
| Q607 | 8-729-053-36 | TRANSISTOR 2SK2640-01MR | | | |
| Q608 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | | |
| Q609 | 8-729-026-49 | TRANSISTOR 2SA1037AK-T146 | | | |
| Q1210 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | | |
| Q1211 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | | |
| Q1230 | 8-729-027-56 | TRANSISTOR DTC143TKA-T146 | | | |
| Q1231 | 8-729-027-56 | TRANSISTOR DTC143TKA-T146 | | | |
| Q1232 | 8-729-026-49 | TRANSISTOR 2SA1037AK-T146 | | | |
| Q1233 | 8-729-026-49 | TRANSISTOR 2SA1037AK-T146 | | | |
| | | < RESISTOR > | | | |
| JR3 | 1-216-296-11 | SHORT | 0 | | |
| JR5 | 1-216-295-91 | SHORT | 0 | | |
| JR9 | 1-216-295-91 | SHORT | 0 | | |
| JR16 | 1-216-296-11 | SHORT | 0 | | |
| JR17 | 1-216-295-91 | SHORT | 0 | | |
| JR21 | 1-216-818-91 | RES-CHIP | 560 | 5% | 1/16W |
| JR204 | 1-216-296-11 | SHORT | 0 | | |
| JR206 | 1-216-295-91 | SHORT | 0 | | |
| JR209 | 1-216-295-91 | SHORT | 0 | | |
| JR210 | 1-216-295-91 | SHORT | 0 | | |
| JR211 | 1-216-296-11 | SHORT | 0 | | |
| JR213 | 1-216-295-91 | SHORT | 0 | | |
| JR401 | 1-216-295-91 | SHORT | 0 | | |
| JR418 | 1-216-296-11 | SHORT | 0 | | |
| JR423 | 1-216-296-11 | SHORT | 0 | | |
| JR505 | 1-216-295-91 | SHORT | 0 | | |
| JR506 | 1-216-296-11 | SHORT | 0 | | |
| R001 | 1-216-295-91 | SHORT | 0 | | |
| R003 | 1-216-065-91 | RES-CHIP | 4.7K | 5% | 1/10W |
| R004 | 1-216-033-00 | RES-CHIP | 220 | 5% | 1/10W |
| R005 | 1-216-041-00 | RES-CHIP | 470 | 5% | 1/10W |
| R006 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R007 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R008 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R009 | 1-216-049-11 | RES-CHIP | 1K | 5% | 1/10W |
| R010 | 1-216-049-11 | RES-CHIP | 1K | 5% | 1/10W |
| R011 | 1-216-295-91 | SHORT | 0 | | |
| R012 | 1-216-121-11 | RES-CHIP | 1M | 5% | 1/10W |
| R014 | 1-216-069-00 | RES-CHIP | 6.8K | 5% | 1/10W |
| R015 | 1-216-198-91 | RES-CHIP | 1K | 5% | 1/8W |
| R017 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R018 | 1-208-820-11 | METAL CHIP | 39K | 0.5% | 1/10W |
| R020 | 1-216-077-91 | RES-CHIP | 15K | 5% | 1/10W |
| R022 | 1-216-089-91 | RES-CHIP | 47K | 5% | 1/10W |
| R023 | 1-216-035-00 | RES-CHIP | 270 | 5% | 1/10W |
| R024 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R025 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R026 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R027 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R028 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R029 | 1-216-061-91 | RES-CHIP | 3.3K | 5% | 1/10W |
| R030 | 1-216-821-11 | RES-CHIP | 1K | 5% | 1/16W |
| R031 | 1-216-061-91 | RES-CHIP | 3.3K | 5% | 1/10W |
| R032 | 1-216-061-91 | RES-CHIP | 3.3K | 5% | 1/10W |
| R033 | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |
| R034 | 1-216-129-00 | RES-CHIP | 2.2M | 5% | 1/10W |
| R035 | 1-216-101-00 | RES-CHIP | 150K | 5% | 1/10W |
| R036 | 1-216-083-00 | RES-CHIP | 27K | 5% | 1/10W |
| R039 | 1-216-065-91 | RES-CHIP | 4.7K | 5% | 1/10W |
| R040 | 1-216-033-00 | RES-CHIP | 220 | 5% | 1/10W |
| R041 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R042 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R044 | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |
| R045 | 1-216-129-00 | RES-CHIP | 2.2M | 5% | 1/10W |
| R046 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R047 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R048 | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |
| R049 | 1-216-049-11 | RES-CHIP | 1K | 5% | 1/10W |
| R050 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R051 | 1-216-295-91 | SHORT | 0 | | |
| R052 | 1-216-295-91 | SHORT | 0 | | |
| R055 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R056 | 1-216-081-00 | RES-CHIP | 22K | 5% | 1/10W |
| R060 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R061 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R070 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R071 | 1-216-049-11 | RES-CHIP | 1K | 5% | 1/10W |
| R072 | 1-216-295-91 | SHORT | 0 | | |
| R073 | 1-216-057-00 | RES-CHIP | 2.2K | 5% | 1/10W |
| R074 | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |
| R090 | 1-216-057-00 | RES-CHIP | 2.2K | 5% | 1/10W |
| R091 | 1-216-081-00 | RES-CHIP | 22K | 5% | 1/10W |
| R092 | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |
| R094 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R095 | 1-216-065-91 | RES-CHIP | 4.7K | 5% | 1/10W |
| R096 | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |
| R101 | 1-216-093-91 | RES-CHIP | 68K | 5% | 1/10W |
| R102 | 1-216-097-11 | RES-CHIP | 100K | 5% | 1/10W |
| R103 | 1-216-061-91 | RES-CHIP | 3.3K | 5% | 1/10W |
| R104 | 1-216-295-91 | SHORT | 0 | | |
| R105 | 1-414-813-21 | INDUCTOR | 0UH | | |
| R106 | 1-215-900-11 | METAL OXIDE | 22K | 5% | 2W |
| R107 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R108 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R201 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R202 | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |
| R203 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R211 | 1-216-081-00 | RES-CHIP | 22K | 5% | 1/10W |

| REF.NO. | PART.NO | DESCRIPTION | | | REMARK |
|---|---|---|---|---|---|
| R212 | 1-216-069-00 | RES-CHIP | 6.8K | 5% | 1/10W |
| R213 | 1-216-081-00 | RES-CHIP | 22K | 5% | 1/10W |
| R214 | 1-216-041-00 | RES-CHIP | 470 | 5% | 1/10W |
| R215 | 1-216-037-00 | RES-CHIP | 330 | 5% | 1/10W |
| R216 | 1-216-097-11 | RES-CHIP | 100K | 5% | 1/10W |
| R217 | 1-216-222-00 | RES-CHIP | 10K | 5% | 1/8W |
| R220 | 1-216-031-00 | RES-CHIP | 180 | 5% | 1/10W |
| R221 | 1-216-190-00 | RES-CHIP | 470 | 5% | 1/8W |
| R232 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R233 | 1-216-069-00 | RES-CHIP | 6.8K | 5% | 1/10W |
| R234 | 1-216-069-00 | RES-CHIP | 6.8K | 5% | 1/10W |
| R235 | 1-216-295-91 | SHORT | 0 | | |
| R236 | 1-216-295-91 | SHORT | 0 | | |
| R238 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R246 | 1-260-107-11 | CARBON | 4.7K | 5% | 1/2W |
| R248 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R249 | 1-216-097-11 | RES-CHIP | 100K | 5% | 1/10W |
| R250 | 1-216-230-00 | RES-CHIP | 22K | 5% | 1/8W |
| R251 | 1-216-069-00 | RES-CHIP | 6.8K | 5% | 1/10W |
| R252 | 1-216-069-00 | RES-CHIP | 6.8K | 5% | 1/10W |
| R253 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R254 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R401 | 1-410-993-42 | INDUCTOR | 1UH | | |
| R402 | 1-216-041-00 | RES-CHIP | 470 | 5% | 1/10W |
| R403 | 1-216-113-00 | RES-CHIP | 470K | 5% | 1/10W |
| R404 | 1-216-113-00 | RES-CHIP | 470K | 5% | 1/10W |
| R405 | 1-216-033-00 | RES-CHIP | 220 | 5% | 1/10W |
| R406 | 1-216-296-11 | SHORT | 0 | | |
| R407 | 1-216-022-00 | RES-CHIP | 75 | 5% | 1/10W |
| R408 | 1-216-022-00 | RES-CHIP | 75 | 5% | 1/10W |
| R409 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R410 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R411 | 1-216-022-00 | RES-CHIP | 75 | 5% | 1/10W |
| R412 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R413 | 1-216-113-00 | RES-CHIP | 470K | 5% | 1/10W |
| R414 | 1-216-022-00 | RES-CHIP | 75 | 5% | 1/10W |
| R415 | 1-216-022-00 | RES-CHIP | 75 | 5% | 1/10W |
| R416 | 1-216-027-00 | RES-CHIP | 120 | 5% | 1/10W |
| R417 | 1-216-113-00 | RES-CHIP | 470K | 5% | 1/10W |
| R418 | 1-216-113-00 | RES-CHIP | 470K | 5% | 1/10W |
| R419 | 1-216-022-00 | RES-CHIP | 75 | 5% | 1/10W |
| R420 | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |
| R421 | 1-216-049-11 | RES-CHIP | 1K | 5% | 1/10W |
| R422 | 1-216-831-91 | RES-CHIP | 6.8K | 5% | 1/16W |
| R423 | 1-216-113-00 | RES-CHIP | 470K | 5% | 1/10W |
| R424 | 1-216-113-00 | RES-CHIP | 470K | 5% | 1/10W |
| R425 | 1-216-085-91 | RES-CHIP | 33K | 5% | 1/10W |
| R426 | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |
| R427 | 1-216-113-00 | RES-CHIP | 470K | 5% | 1/10W |
| R428 | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |
| R429 | 1-216-089-91 | RES-CHIP | 47K | 5% | 1/10W |
| R430 | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |
| R431 | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |
| R433 | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |
| R434 | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |
| R435 | 1-216-295-91 | SHORT | 0 | | |
| R438 | 1-216-022-00 | RES-CHIP | 75 | 5% | 1/10W |
| R439 | 1-216-022-00 | RES-CHIP | 75 | 5% | 1/10W |
| R440 | 1-216-049-11 | RES-CHIP | 1K | 5% | 1/10W |
| R441 | 1-216-051-00 | RES-CHIP | 1.2K | 5% | 1/10W |
| R442 | 1-216-085-91 | RES-CHIP | 33K | 5% | 1/10W |
| R443 | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |
| R444 | 1-216-061-91 | RES-CHIP | 3.3K | 5% | 1/10W |
| R446 | 1-216-113-00 | RES-CHIP | 470K | 5% | 1/10W |
| R447 | 1-216-295-91 | SHORT | 0 | | |
| R448 | 1-216-113-00 | RES-CHIP | 470K | 5% | 1/10W |
| R449 | 1-216-295-91 | SHORT | 0 | | |
| R450 | 1-216-041-00 | RES-CHIP | 470 | 5% | 1/10W |
| R451 | 1-216-041-00 | RES-CHIP | 470 | 5% | 1/10W |
| R453 | 1-216-171-00 | RES-CHIP | 75 | 5% | 1/8W |
| R454 | 1-216-001-00 | RES-CHIP | 10 | 5% | 1/10W |
| R460 | 1-216-049-11 | RES-CHIP | 1K | 5% | 1/10W |
| R461 | 1-216-022-00 | RES-CHIP | 75 | 5% | 1/10W |
| R462 | 1-216-178-91 | RES-CHIP | 150 | 5% | 1/8W |
| R500 | 1-216-061-91 | RES-CHIP | 3.3K | 5% | 1/10W |
| R501 | 1-216-091-00 | RES-CHIP | 56K | 5% | 1/10W |
| R502 | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |
| R503 | 1-215-888-00 | METAL OXIDE | 220 | 5% | 2W |
| R504 | 1-249-385-11 | CARBON | 2.2 | 5% | 1/4W |
| R505 | 1-216-671-11 | METAL CHIP | 6.8K | 0.5% | 1/10W |
| R506 | 1-208-796-11 | METAL CHIP | 3.9K | 0.5% | 1/10W |
| R507 | 1-216-349-00 | METAL OXIDE | 1 | 5% | 1W |
| R508 | 1-216-673-11 | METAL CHIP | 8.2K | 0.5% | 1/10W |
| R509 | 1-208-796-11 | METAL CHIP | 3.9K | 0.5% | 1/10W |
| R510 | 1-216-113-00 | RES-CHIP | 470K | 5% | 1/10W |
| R512 | 1-249-382-11 | CARBON | 1.2 | 5% | 1/4W |
| R514 | 1-249-377-11 | CARBON | 0.47 | 5% | 1/4W |
| R515 | 1-249-377-11 | CARBON | 0.47 | 5% | 1/4W |
| R516 | 1-214-905-11 | METAL | 47K | 1% | 1/2W |
| R520 | 1-215-884-11 | METAL OXIDE | 47 | 5% | 2W |
| R522 | 1-216-097-11 | RES-CHIP | 100K | 5% | 1/10W |
| R523 | 1-216-121-11 | RES-CHIP | 1M | 5% | 1/10W |
| R524 | 1-216-075-00 | RES-CHIP | 12K | 5% | 1/10W |
| R525 | 1-216-057-00 | RES-CHIP | 2.2K | 5% | 1/10W |
| R526 | 1-216-089-91 | RES-CHIP | 47K | 5% | 1/10W |
| R527 | 1-216-077-91 | RES-CHIP | 15K | 5% | 1/10W |
| R528 | 1-216-097-11 | RES-CHIP | 100K | 5% | 1/10W |
| R529 | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |
| R530 | 1-216-085-91 | RES-CHIP | 33K | 5% | 1/10W |
| R531 | 1-216-057-00 | RES-CHIP | 2.2K | 5% | 1/10W |

**A**

**Note :** The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

| REF.NO. | | PART.NO | DESCRIPTION | | | REMARK |
|---|---|---|---|---|---|---|
| R532 | | 1-216-065-91 | RES-CHIP | 4.7K | 5% | 1/10W |
| R533 | | 1-216-077-91 | RES-CHIP | 15K | 5% | 1/10W |
| R538 | | 1-535-143-71 | LEAD, JUMPER (7.5MM) | | | |
| R539 | | 1-215-892-81 | METAL OXIDE | 1K | 5% | 2W |
| R540 | | 1-212-970-00 | FUSIBLE | 33 | 5% | 1/2W |
| R543 | | 1-216-065-91 | RES-CHIP | 4.7K | 5% | 1/10W |
| R547 | | 1-535-143-71 | LEAD, JUMPER (7.5MM) | | | |
| R548 | | 1-249-387-11 | CARBON | 3.3 | 5% | 1/4W |
| R549 | | 1-535-143-71 | LEAD, JUMPER (7.5MM) | | | |
| R551 | | 1-215-873-00 | METAL OXIDE | 4.7K | 5% | 1W |
| R552 | | 1-216-848-91 | RES-CHIP | 180K | 5% | 1/16W |
| R553 | | 1-249-381-11 | CARBON | 1 | 5% | 1/4W |
| R555 | | 1-216-059-00 | RES-CHIP | 2.7K | 5% | 1/10W |
| R556 | | 1-215-916-00 | METAL OXIDE | 680 | 5% | 3W |
| R557 | | 1-216-067-00 | RES-CHIP | 5.6K | 5% | 1/10W |
| R558 | | 1-216-057-00 | RES-CHIP | 2.2K | 5% | 1/10W |
| R589 | | 1-216-097-11 | RES-CHIP | 100K | 5% | 1/10W |
| R590 | | 1-216-230-00 | RES-CHIP | 22K | 5% | 1/8W |
| R591 | | 1-215-892-11 | METAL OXIDE | 1K | 5% | 2W |
| R602 | | 1-202-968-11 | CEMENTED | 1.2 | 5% | 10W |
| R603 | | 1-202-933-61 | FUSIBLE | 0.1 | 10% | 1/2W |
| R605 | | 1-216-049-11 | RES-CHIP | 1K | 5% | 1/10W |
| R608 | | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |
| R609 | | 1-216-677-11 | METAL CHIP | 12K | 0.5% | 1/10W |
| R610 | | 1-215-481-00 | METAL | 330K | 1% | 1/4W |
| R611 | | 1-216-059-00 | RES-CHIP | 2.7K | 5% | 1/10W |
| R612 | | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R613 | ⚠ | 1-219-720-91 | METAL | 10M | 5% | 1W |
| R615 | | 1-215-385-00 | METAL | 33 | 1% | 1/4W |
| R618 | | 1-247-889-00 | CARBON | 270K | 5% | 1/4W |
| R619 | | 1-216-065-91 | RES-CHIP | 4.7K | 5% | 1/10W |
| R621 | | 1-216-113-00 | RES-CHIP | 470K | 5% | 1/10W |
| R622 | | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |
| R623 | | 1-216-081-00 | RES-CHIP | 22K | 5% | 1/10W |
| R624 | | 1-216-001-00 | RES-CHIP | 10 | 5% | 1/10W |
| R625 | | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |
| R627 | | 1-249-389-11 | CARBON | 4.7 | 5% | 1/4W |
| R628 | | 1-247-791-91 | CARBON | 22 | 5% | 1/4W |
| R629 | | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |
| R631 | | 1-216-101-91 | RES-CHIP | 150K | 5% | 1/10W |
| R632 | | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R633 | | 1-215-481-00 | METAL | 330K | 1% | 1/4W |
| R634 | | 1-217-625-00 | METAL | 0.05 | 10% | 2W |
| R635 | | 1-260-300-11 | CARBON | 4.7 | 5% | 1/2W |
| R636 | | 1-249-413-11 | CARBON | 470 | 5% | 1/4W |
| R637 | | 1-216-041-00 | RES-CHIP | 470 | 5% | 1/10W |
| R639 | | 1-208-814-91 | METAL CHIP | 22K | 0.5% | 1/10W |
| R640 | | 1-208-830-11 | METAL CHIP | 100K | 0.5% | 1/10W |
| R641 | | 1-216-097-11 | RES-CHIP | 100K | 5% | 1/10W |
| R642 | | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R643 | | 1-216-089-91 | RES-CHIP | 47K | 5% | 1/10W |
| R645 | | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |
| R647 | | 1-216-049-11 | RES-CHIP | 1K | 5% | 1/10W |
| R648 | | 1-215-481-00 | METAL | 330K | 1% | 1/4W |
| R649 | | 1-208-805-11 | METAL CHIP | 9.1K | 0.5% | 1/10W |
| R650 | | 1-208-758-11 | METAL CHIP | 100 | 0.5% | 1/10W |
| R651 | | 1-220-926-11 | FUSIBLE | 0.47 | 10% | 1/2W |
| R652 | | 1-216-081-00 | RES-CHIP | 22K | 5% | 1/10W |
| R653 | | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |
| R654 | | 1-216-001-00 | RES-CHIP | 10 | 5% | 1/10W |
| R656 | | 1-216-365-00 | METAL OXIDE | 0.47 | 5% | 2W |
| R658 | | 1-202-968-11 | CEMENTED | 1.2 | 5% | 10W |
| R660 | | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R1202 | | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |
| R1203 | | 1-216-049-11 | RES-CHIP | 1K | 5% | 1/10W |
| R1207 | | 1-216-077-91 | RES-CHIP | 15K | 5% | 1/10W |
| R1208 | | 1-216-067-00 | RES-CHIP | 5.6K | 5% | 1/10W |
| R1209 | | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |
| R1210 | | 1-216-077-91 | RES-CHIP | 15K | 5% | 1/10W |
| R1211 | | 1-216-049-11 | RES-CHIP | 1K | 5% | 1/10W |
| R1212 | | 1-216-057-00 | RES-CHIP | 2.2K | 5% | 1/10W |
| R1213 | | 1-216-049-11 | RES-CHIP | 1K | 5% | 1/10W |
| R1214 | | 1-216-049-11 | RES-CHIP | 1K | 5% | 1/10W |
| R1215 | | 1-216-049-11 | RES-CHIP | 1K | 5% | 1/10W |
| R1216 | | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W |
| R1217 | | 1-216-341-11 | METAL OXIDE | 0.22 | 5% | 1W |
| R1230 | | 1-216-041-00 | RES-CHIP | 470 | 5% | 1/10W |
| R1231 | | 1-216-113-00 | RES-CHIP | 470K | 5% | 1/10W |
| R1232 | | 1-216-041-00 | RES-CHIP | 470 | 5% | 1/10W |
| R1233 | | 1-216-113-00 | RES-CHIP | 470K | 5% | 1/10W |
| R1235 | | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |
| R1236 | | 1-216-073-91 | RES-CHIP | 10K | 5% | 1/10W |

< RELAY >

| | | | | |
|---|---|---|---|---|
| RY601 | ⚠ | 1-755-388-11 | RELAY (AC POWER) | |

< SWITCH >

| | | | | |
|---|---|---|---|---|
| SW532 | | 1-572-707-11 | SWITCH, LEVER | |

< TRANSFORMER >

| | | | | |
|---|---|---|---|---|
| T531 | | 1-437-210-11 | TRANSFORMER, HORIZONTAL DRIVE | |
| T532 | | 1-426-981-91 | TRANSFORMER, FERRITE (PMT) | |
| T602 | ⚠ | 1-431-732-31 | TRANSFORMER, CONVERTER (SRT) | |
| T603 | ⚠ | 1-435-976-11 | TRANSFORMER, CONVERTER (PIT) | |

< THERMISTOR >

| | | | | |
|---|---|---|---|---|
| TH601 | | 1-803-586-41 | THERMISTOR | |
| THP601 | ⚠ | 1-803-951-11 | THERMISTOR, PTC | |

**Note :** The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

A C

| REF.NO. | PART.NO | DESCRIPTION | | | REMARK |
|---|---|---|---|---|---|
| | | < CRYSTAL > | | | |
| X001 | 1-578-774-71 | VIBRATOR, CRYSTAL | | | |
| X201 | 1-760-628-11 | VIBRATOR, CRYSTAL | | | |

## A Board Variant Parts KV-28LS35

| | | | | | |
|---|---|---|---|---|---|
| | | < CAPACITOR > | | | |
| C522 | 1-137-447-11 | MYLAR | 0.27UF | 5.00% | 50V |
| C536 | 1-115-521-11 | FILM | 0.82UF | 5.00% | 250V |
| C542 | 1-162-115-51 | CERAMIC | 330PF | 10.00% | 2KV |
| C555 | 1-117-652-11 | FILM | 22000PF | 3.00% | 1.2KV |
| | | < RESISTOR > | | | |
| JR421 | 1-216-295-91 | SHORT | 0 | | |
| R053 | 1-216-077-91 | RES-CHIP | 15K | 5% | 1/10W |
| R455 | 1-216-295-91 | SHORT | 0 | | |
| R513 | 1-216-105-91 | RES-CHIP | 220K | 5% | 1/10W |
| R517 | 1-215-449-91 | METAL | 15K | 1% | 1/4W |
| R521 | 1-216-105-91 | RES-CHIP | 220K | 5% | 1/10W |
| R534 | 1-216-097-91 | RES-CHIP | 100K | 5% | 1/10W |
| R535 | 1-216-097-91 | RES-CHIP | 100K | 5% | 1/10W |
| R546 | 1-216-480-11 | METAL OXIDE | 820 | 5% | 3W |
| R568 | 1-215-916-00 | METAL OXIDE | 680 | 5% | 3W |
| R583 | 1-216-081-91 | RES-CHIP | 22K | 5% | 1/10W |
| R600 | 1-216-641-11 | METAL CHIP | 390 | 0.5% | 1/10W |
| R601 | 1-216-643-11 | METAL CHIP | 470 | 0.5% | 1/10W |
| | | < TRANSFORMER > | | | |
| T511 | ⚠ 1-453-308-41 | TRANSFORMER ASSY, FLYBACK (NX4521//Z2B4) | | | |
| T533 | 1-433-980-12 | TRANSFORMER, HORIZONTAL LINEAR | | | |
| | | < TUNER > | | | |
| TU101 | 8-598-535-00 | FRONTEND BTF-EF411 (KV-28LS35B) | | | |
| | 8-598-533-00 | FRONTEND BTF-EC411 (KV-28LS35E) | | | |
| | 8-598-529-00 | FRONTEND BTF-EU611 (KV-28LS35U) | | | |

## A Board Variant Parts KV-32LS35

| | | | | | |
|---|---|---|---|---|---|
| | | < CAPACITOR > | | | |
| C536 | 1-115-522-21 | FILM | 1UF | 5.00% | 250V |
| C540 | 1-137-051-91 | FILM | 0.033UF | 10.00% | 400V |
| C542 | 1-161-754-61 | CERAMIC | 0.001UF | 10.00% | 2KV |
| C555 | 1-127-717-11 | FILM | 19000PF | 3.00% | 1.2KV |
| C619 | 1-164-644-51 | CERAMIC | 330PF | 10.00% | 500V |
| C621 | 1-164-644-51 | CERAMIC | 330PF | 10.00% | 500V |
| | | < RESISTOR > | | | |
| JR101 | 1-216-295-91 | SHORT | 0 | | |
| R053 | 1-216-095-91 | RES-CHIP | 82K | 5.00% | 1/10W |
| R455 | 1-412-002-41 | INDUCTOR | 4.7UH | | |
| R517 | 1-215-453-91 | METAL | 22K | 1% | 1/4W |
| R518 | 1-216-069-91 | RES-CHIP | 6.8K | 5% | 1/10W |
| R534 | 1-216-111-91 | RES-CHIP | 390K | 5% | 1/10W |
| R535 | 1-216-105-91 | RES-CHIP | 220K | 5% | 1/10W |
| R544 | 1-216-065-91 | RES-CHIP | 4.7K | 5% | 1/10W |
| R546 | 1-215-917-91 | METAL OXIDE | 1K | 5% | 3W |
| R568 | 1-216-480-91 | METAL OXIDE | 820 | 5% | 3W |
| R583 | 1-216-077-91 | RES-CHIP | 15K | 5% | 1/10W |
| R600 | 1-216-629-91 | RES-CHIP | 120 | 0.50% | 1/10W |
| R601 | 1-216-647-91 | RES-CHIP | 680 | 0.50% | 1/10W |
| | | < TRANSFORMER > | | | |
| T511 | ⚠ 1-453-308-31 | TRANSFORMER ASSY, FLYBACK (NX4521//Z2B4) | | | |
| T533 | 1-429-306-11 | TRANSFORMER, HORIZONTAL LINEAR | | | |
| | | < TUNER > | | | |
| TU101 | 1-693-555-11 | TUNER STEREO (KV-32LS35B) | | | |
| | 1-693-556-11 | TUNER STEREO (KV-32LS35E) | | | |
| | 1-693-557-11 | TUNER STEREO (KV-32LS35U) | | | |

## *A-1638-156-A C Board, Complete

| | | | | | |
|---|---|---|---|---|---|
| | *1-681-784-11 | PWB, C | | | |
| | 4-382-854-01 | SCREW (M3X8), P, SW (+) | | | |
| | | < CAPACITOR > | | | |
| C701 | 1-136-189-00 | MYLAR | 0.1UF | 10.00% | 250V |
| C702 | 1-126-964-11 | ELECT | 10UF | 20.00% | 50V |
| C703 | 1-101-004-00 | CERAMIC | 0.01UF | | 50V |
| C704 | 1-107-649-11 | ELECT | 2.2UF | 20.00% | 250V |
| C705 | 1-162-318-11 | CERAMIC | 0.001UF | 10.00% | 500V |
| C706 | 1-162-318-11 | CERAMIC | 0.001UF | 10.00% | 500V |
| C708 | 1-162-114-00 | CERAMIC | 0.0047UF | | 2KV |
| C710 | 1-107-652-11 | ELECT | 10UF | 20.00% | 250V |
| C1803 | 1-101-005-00 | CERAMIC | 0.022UF | | 50V |
| C1804 | 1-126-964-11 | ELECT | 10UF | 20.00% | 50V |
| C1805 | 1-101-880-00 | CERAMIC | 47PF | 5.00% | 50V |
| | | < CONNECTOR > | | | |
| CN702 | 1-695-915-11 | TAB (CONTACT) | | | |
| CN703 | *1-564-510-11 | PLUG, CONNECTOR 7P | | | |
| CN706 | 1-695-915-11 | TAB (CONTACT) | | | |
| CN707 | *1-564-508-11 | PLUG, CONNECTOR 5P | | | |
| CN1801 | *1-564-506-11 | PLUG, CONNECTOR 3P | | | |
| | | < DIODE > | | | |
| D701 | 8-719-991-33 | DIODE 1SS133T-77 | | | |
| D702 | 8-719-901-83 | DIODE 1SS83 | | | |

C D3 D2

**Note :** The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

| REF.NO. | PART.NO | DESCRIPTION | REMARK |
|---|---|---|---|
| D703 | 8-719-901-83 | DIODE 1SS83 | |
| D705 | 8-719-302-43 | DIODE ELIZ | |
| D706 | 8-719-901-83 | DIODE 1SS83 | |
| D707 | 8-719-901-83 | DIODE 1SS83 | |
| D708 | 8-719-109-97 | DIODE RD6.8ES-B2 | |
| D709 | 8-719-109-97 | DIODE RD6.8ES-B2 | |
| D710 | 8-719-109-97 | DIODE RD6.8ES-B2 | |
| D1801 | 8-719-110-17 | DIODE RD10ESB2 | |
| D1802 | 8-719-110-17 | DIODE RD10ESB2 | |
| D1803 | 8-719-110-17 | DIODE RD10ESB2 | |
| | | < IC > | |
| IC701 | 8-759-562-43 | IC TDA6108JF/N1B | |
| IC1801 | 8-759-603-37 | IC M5216P | |
| | | < SOCKET > | |
| J701 ⚠ | 1-251-732-11 | SOCKET, CRT | |
| | | < COIL > | |
| L704 | 1-414-183-41 | INDUCTOR 10UH | |
| | | < RESISTOR > | |
| R701 | 1-247-903-00 | CARBON 1M 5% 1/4W | |
| R702 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R703 | 1-247-903-00 | CARBON 1M 5% 1/4W | |
| R704 | 1-535-143-21 | LEAD, JUMPER (12.5MM) | |
| R705 | 1-215-869-11 | METAL OXIDE 1K 5% 1W | |
| R706 | 1-249-411-11 | CARBON 330 5% 1/4W | |
| R712 | 1-215-869-11 | METAL OXIDE 1K 5% 1W | |
| R716 | 1-249-411-11 | CARBON 330 5% 1/4W | |
| R718 | 1-202-814-11 | SOLID 33K 10% 1/2W | |
| R726 | 1-215-869-11 | METAL OXIDE 1K 5% 1W | |
| R727 | 1-249-411-11 | CARBON 330 5% 1/4W | |
| R728 | 1-249-398-11 | CARBON 27 5% 1/4W | |
| R741 | 1-202-549-00 | SOLID 100 20% 1/2W | |
| R1801 | 1-249-441-11 | CARBON 100K 5% 1/4W | |
| R1805 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R1806 | 1-247-899-11 | CARBON 680K 5% 1/4W | |
| R1807 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R1808 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R1809 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R1810 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| | | < VARIABLE RESISTOR > | |
| RV702 | 1-241-656-21 | RES, ADJ, METAL FILM 110M | |

| REF.NO. | PART.NO | DESCRIPTION | REMARK |
|---|---|---|---|
| ***A-1640-431-A D3 Board, Complete** | | | |
| | | < CAPACITOR > | |
| C2802 | 1-126-965-91 | ELECT 22UF 20.00% 50V | |
| | | < CONNECTOR > | |
| CN2801 | *1-564-506-11 | PLUG, CONNECTOR 3P | |
| CN2802 | *1-785-270-12 | PIN, DY CONNECTOR (PC BOARD) | |
| CN2803 | *1-580-798-11 | CONNECTOR PIN (DY) 6P | |
| | | < DIODE > | |
| D2801 | 8-719-991-33 | DIODE 1SS133T-77 | |
| | | < TRANSISTOR > | |
| Q2801 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q2802 | 8-729-900-95 | TRANSISTOR 2SC1740S-RT | |
| | | < RESISTOR > | |
| R2801 | 1-249-421-11 | CARBON 2.2K 5% 1/4W | |
| R2802 | 1-247-839-91 | CARBON 2.2K 5% 1/4W | |
| | | < RELAY > | |
| RY2801 | 1-755-172-11 | RELAY | |
| | | < TRANSFORMER > | |
| T2801 | 1-411-981-11 | INDUCTOR 245UH | |
| ***A-1642-285-A D2 Board, Complete (KV-28LS35)**<br>***A-1642-281-A D2 Board, Complete (KV-32LS35)** | | | |
| **D2 Board, Common Parts** | | | |
| | | < CAPACITOR > | |
| C8802 | 1-136-104-00 | FILM 0.16UF 5.00% 200V | |
| C8804 | 1-136-207-11 | MYLAR 0.047UF 10.00% 250V | |
| | | < CONNECTOR > | |
| CN8801 | *1-778-770-11 | CONNECTOR,BOARD TO BOARD(PLUG) | |
| CN8802 | *1-564-506-11 | PLUG, CONNECTOR 3P | |
| | | < DIODE > | |
| D8801 | 8-719-923-60 | DIODE MTZJ-T-77-9.1A | |
| D8802 | 8-719-936-85 | DIODE RGP10GPKG23 | |
| D8803 | 8-719-921-39 | DIODE MTZJ4.7B | |
| | | < IC > | |
| IC8801 | 8-749-010-64 | PHOTO COUPLER PC123F2 | |

| REF.NO. | PART.NO | DESCRIPTION | | | REMARK |
|---|---|---|---|---|---|
| | < COIL > | | | | |
| L8802 | 1-406-978-21 | COIL CHOKE | 150UH | | |
| | < TRANSISTOR > | | | | |
| Q8801 | 8-729-034-09 | TRANSISTOR 2SK2518-01MR | | | |
| Q8802 | 8-729-027-59 | TRANSISTOR DTC144EKA-T146 | | | |
| Q8803 | 8-729-027-59 | TRANSISTOR DTC144EKA-T146 | | | |
| | < RESISTOR > | | | | |
| JR8801 | 1-216-864-91 | SHORT | 0 | | |
| R8803 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W |
| R8804 | 1-216-825-91 | RES-CHIP | 2.2K | 5% | 1/16W |
| R8805 | 1-216-825-91 | RES-CHIP | 10K | 5% | 1/16W |
| R8806 | 1-216-809-91 | RES-CHIP | 100 | 5% | 1/16W |
| R8812 | 1-218-879-91 | RES-CHIP | 22K | 0.5% | 1/16W |

**D2 Board Variant Parts KV-28LS35**

| | | | | | |
|---|---|---|---|---|---|
| | < CAPACITOR > | | | | |
| C8803 | 1-115-521-11 | FILM | 0.82UF | 5.00% | 250V |

**D2 Board Variant Parts KV-32LS35**

| | | | | | |
|---|---|---|---|---|---|
| | < CAPACITOR > | | | | |
| C8803 | 1-115-356-11 | FILM | 1.2UF | 5.00% | 250V |

***A-1645-050-A VM Board, Complete (KV-28LS35)**
***A-1645-049-A VM Board, Complete (KV-32LS35)**

**VM Board, Common Parts**

| | | | | | |
|---|---|---|---|---|---|
| | 4-352-844-01 | PIN, LEAD, COATING | | | |
| | < CAPACITOR > | | | | |
| C1701 | 1-104-665-11 | ELECT | 100UF | 20.00% | 25V |
| C1702 | 1-162-970-11 | CERAMIC CHIP | 0.01UF | 10.00% | 25V |
| C1703 | 1-162-955-11 | CERAMIC CHIP | 150PF | 5.00% | 50V |
| C1704 | 1-104-665-11 | ELECT | 100UF | 20.00% | 25V |
| C1705 | 1-162-919-11 | CERAMIC CHIP | 22PF | 5.00% | 50V |
| C1710 | 1-106-375-12 | MYLAR | 0.022UF | 10.00% | 250V |
| C1711 | 1-106-375-12 | MYLAR | 0.022UF | 10.00% | 250V |
| C1713 | 1-106-375-12 | MYLAR | 0.022UF | 10.00% | 250V |
| C1721 | 1-107-655-91 | ELECT | 47UF | 20.00% | 250V |
| C1722 | 1-136-153-00 | FILM | 0.01UF | 5.00% | 50V |
| C1723 | 1-126-935-11 | ELECT | 470UF | 20.00% | 10V |
| C1728 | 1-126-935-11 | ELECT | 470UF | 20.00% | 10V |
| C1733 | 1-104-664-11 | ELECT | 47UF | 20.00% | 25V |
| C1734 | 1-104-664-11 | ELECT | 47UF | 20.00% | 25V |
| C1737 | 1-104-999-51 | FILM | 0.1UF | 5.00% | 200V |
| C1844 | 1-129-716-00 | FILM | 0.015UF | 5.00% | 630V |
| C1845 | 1-129-725-00 | FILM | 0.082UF | 5.00% | 400V |
| C1901 | 1-162-927-11 | CERAMIC CHIP | 100PF | 5.00% | 50V |
| C1902 | 1-137-374-11 | MYLAR | 0.047UF | 5.00% | 50V |
| C1903 | 1-126-964-11 | ELECT | 10UF | 20.00% | 50V |
| C1904 | 1-137-366-11 | MYLAR | 0.0022UF | 5.00% | 50V |
| C1905 | 1-137-374-11 | MYLAR | 0.047UF | 5.00% | 50V |
| C1906 | 1-162-970-11 | CERAMIC CHIP | 0.01UF | 10.00% | 25V |
| C1913 | 1-129-898-91 | FILM | 0.0022UF | 5.00% | 630V |
| C1915 | 1-136-205-11 | MYLAR | 0.022UF | 10.00% | 250V |
| C1916 | 1-162-962-91 | CERAMIC CHIP | 470PF | 10.00% | 50V |
| C1917 | 1-102-228-00 | CERAMIC | 470PF | 10.00% | 500V |
| C1951 | 1-126-964-11 | ELECT | 10UF | 20.00% | 50V |
| C1952 | 1-126-964-11 | ELECT | 10UF | 20.00% | 50V |
| C1953 | 1-137-367-11 | MYLAR | 0.0033UF | 5.00% | 50V |
| C1954 | 1-162-970-11 | CERAMIC CHIP | 0.01UF | 10.00% | 25V |
| C1957 | 1-126-964-11 | ELECT | 10UF | 20.00% | 50V |
| C1958 | 1-136-169-00 | FILM | 0.22UF | 5.00% | 50V |
| C1959 | 1-136-169-00 | FILM | 0.22UF | 5.00% | 50V |
| | < CONNECTOR > | | | | |
| CN1701 | *1-691-771-11 | PLUG, CONNECTOR 9P | | | |
| CN1702 | *1-564-506-11 | PLUG, CONNECTOR 3P | | | |
| CN1718 | *1-770-723-11 | CONNECTOR, BOARD TO BOARD 8P | | | |
| CN1809 | 1-695-915-11 | TAB (CONTACT) | | | |
| | < DIODE > | | | | |
| D1711 | 8-719-988-61 | DIODE 1SS355TE-17 | | | |
| D1719 | 8-719-991-33 | DIODE 1SS133T-77 | | | |
| D1722 | 8-719-991-33 | DIODE 1SS133T-77 | | | |
| D1733 | 8-719-921-40 | DIODE MTZJ-4.7C | | | |
| D1734 | 8-719-921-40 | DIODE MTZJ-4.7C | | | |
| D1840 | 8-719-302-43 | DIODE EL1Z | | | |
| D1901 | 8-719-991-33 | DIODE 1SS133T-77 | | | |
| D1902 | 8-719-991-33 | DIODE 1SS133T-77 | | | |
| D1903 | 8-719-991-33 | DIODE 1SS133T-77 | | | |
| D1904 | 8-719-991-33 | DIODE 1SS133T-77 | | | |
| D1905 | 8-719-110-41 | DIODE RD15ES-B2 | | | |
| D1906 | 8-719-970-87 | DIODE ERA38-06 | | | |
| D1907 | 8-719-970-87 | DIODE ERA38-06 | | | |
| D1908 | 8-719-300-33 | DIODE RU-3AM | | | |
| D1909 | 8-719-991-33 | DIODE 1SS133T-77 | | | |
| | < FERRITE BEAD > | | | | |
| FB1701 | 1-535-143-61 | LEAD, JUMPER (5.0MM) | | | |
| | < IC > | | | | |
| IC1701 | 8-759-394-36 | IC BA09T | | | |
| IC1901 | 8-759-450-95 | IC LM393N | | | |
| IC1902 | 8-759-008-70 | IC LM358N | | | |

VM

| REF.NO. | PART.NO | DESCRIPTION | | | REMARK |
|---|---|---|---|---|---|
| | < COIL > | | | | |
| L1701 | 1-414-183-41 | INDUCTOR | 10UH | | |
| L1702 | 1-412-525-41 | INDUCTOR | 10UH | | |
| L1703 | 1-414-184-31 | INDUCTOR | 15UH | | |
| L1843 | 1-406-989-21 | INDUCTOR | 10MH | | |
| L1901 | 1-406-677-21 | INDUCTOR | 10MMH | | |
| | < TRANSISTOR > | | | | |
| Q1701 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | | |
| Q1704 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | | |
| Q1705 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | |
| Q1706 | 8-729-026-39 | TRANSISTOR 2SA933AS-QT | | | |
| Q1707 | 8-729-049-09 | TRANSISTOR BC327-25 | | | |
| Q1708 | 8-729-045-05 | TRANSISTOR 2SA2005 | | | |
| Q1709 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | | |
| Q1710 | 8-729-049-10 | TRANSISTOR BC337-25 | | | |
| Q1711 | 8-729-045-04 | TRANSISTOR 2SC5511 | | | |
| Q1840 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | | | |
| Q1841 | 8-729-039-68 | TRANSISTOR IRF620 | | | |
| Q1901 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | | |
| Q1902 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | | |
| Q1903 | 8-729-043-95 | TRANSISTOR 2SC3840(3) | | | |
| Q1906 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | | |
| Q1907 | 8-729-140-97 | TRANSISTOR 2SB734-34 | | | |
| | < RESISTOR > | | | | |
| JR1702 | 1-216-814-11 | RES-CHIP | 270 | 5% | 1/16W |
| R1701 | 1-216-814-11 | RES-CHIP | 270 | 5% | 1/16W |
| R1702 | 1-216-814-11 | RES-CHIP | 270 | 5% | 1/16W |
| R1709 | 1-216-824-91 | RES-CHIP | 1.8K | 5% | 1/16W |
| R1710 | 1-216-839-11 | RES-CHIP | 33K | 5% | 1/16W |
| R1711 | 1-216-823-11 | RES-CHIP | 1.5K | 5% | 1/16W |
| R1712 | 1-216-824-11 | RES-CHIP | 1.8K | 5% | 1/16W |
| R1713 | 1-216-809-11 | RES-CHIP | 100 | 5% | 1/16W |
| R1714 | 1-260-089-11 | CARBON | 150 | 5% | 1/2W |
| R1719 | 1-216-822-11 | RES-CHIP | 1.2K | 5% | 1/16W |
| R1720 | 1-247-863-91 | CARBON | 22K | 5% | 1/4W |
| R1721 | 1-247-863-91 | CARBON | 22K | 5% | 1/4W |
| R1722 | 1-216-822-11 | RES-CHIP | 1.2K | 5% | 1/16W |
| R1723 | 1-249-399-11 | CARBON | 33 | 5% | 1/4W |
| R1724 | 1-216-830-91 | RES-CHIP | 5.6K | 5% | 1/16W |
| R1725 | 1-247-889-91 | CARBON | 270K | 5% | 1/4W |
| R1726 | 1-247-889-91 | CARBON | 270K | 5% | 1/4W |
| R1727 | 1-216-830-91 | RES-CHIP | 5.6K | 5% | 1/16W |
| R1728 | 1-249-399-11 | CARBON | 33 | 5% | 1/4W |
| R1729 | 1-249-407-11 | CARBON | 150 | 5% | 1/4W |
| R1732 | 1-249-407-11 | CARBON | 150 | 5% | 1/4W |
| R1733 | 1-214-809-81 | METAL | 5.1 | 1% | 1/2W |
| R1734 | 1-214-809-81 | METAL | 5.1 | 1% | 1/2W |
| R1735 | 1-215-922-11 | METAL OXIDE | 6.8K | 5% | 3W |
| R1736 | 1-215-892-21 | METAL OXIDE | 1K | 5% | 2W |
| R1737 | 1-215-867-00 | METAL OXIDE | 470 | 5% | 1W |
| R1739 | 1-535-143-61 | LEAD JUMPER | (5.00MM) | | |
| R1842 | 1-216-809-11 | RES-CHIP | 100 | 5% | 1/16W |
| R1846 | 1-216-825-11 | RES-CHIP | 2.2K | 5% | 1/16W |
| R1901 | 1-216-841-11 | RES-CHIP | 47K | 5% | 1/16W |
| R1903 | 1-216-833-11 | RES-CHIP | 10K | 5% | 1/16W |
| R1904 | 1-216-833-11 | RES-CHIP | 10K | 5% | 1/16W |
| R1905 | 1-216-845-11 | RES-CHIP | 100K | 5% | 1/16W |
| R1906 | 1-216-833-11 | RES-CHIP | 10K | 5% | 1/16W |
| R1907 | 1-216-845-11 | RES-CHIP | 100K | 5% | 1/16W |
| R1908 | 1-216-813-11 | RES-CHIP | 220 | 5% | 1/16W |
| R1909 | 1-215-489-00 | METAL | 680K | 1% | 1/4W |
| R1910 | 1-216-864-91 | SHORT | 0 | | |
| R1911 | 1-216-833-11 | RES-CHIP | 10K | 5% | 1/16W |
| R1912 | 1-216-857-11 | RES-CHIP | 1M | 5% | 1/16W |
| R1913 | 1-216-821-11 | RES-CHIP | 1K | 5% | 1/16W |
| R1914 | 1-216-825-11 | RES-CHIP | 2.2K | 5% | 1/16W |
| R1915 | 1-216-829-11 | RES-CHIP | 4.7K | 5% | 1/16W |
| R1917 | 1-216-842-11 | RES-CHIP | 56K | 5% | 1/16W |
| R1918 | 1-215-921-11 | METAL OXIDE | 4.7K | 5% | 3W |
| R1919 | 1-218-871-91 | RES-CHIP | 10K | 5% | 1/16W |
| R1920 | 1-216-864-91 | SHORT | 0 | | |
| R1921 | 1-215-922-11 | METAL OXIDE | 6.8K | 5% | 3W |
| R1923 | 1-216-845-11 | RES-CHIP | 100K | 5% | 1/16W |
| R1924 | 1-216-845-11 | RES-CHIP | 100K | 5% | 1/16W |
| R1925 | 1-216-845-11 | RES-CHIP | 100K | 5% | 1/16W |
| R1953 | 1-216-850-11 | RES-CHIP | 270K | 5% | 1/16W |
| R1954 | 1-216-851-11 | RES-CHIP | 330K | 5% | 1/16W |
| R1955 | 1-216-849-11 | RES-CHIP | 220K | 5% | 1/16W |
| R1956 | 1-218-463-11 | RES-CHIP | 8.2M | 5% | 1/10W |
| R1957 | 1-216-833-11 | RES-CHIP | 10K | 5% | 1/16W |
| R1958 | 1-216-809-11 | RES-CHIP | 100 | 5% | 1/16W |
| R1959 | 1-216-828-11 | RES-CHIP | 3.9K | 5% | 1/16W |
| R1962 | 1-216-839-11 | RES-CHIP | 33K | 5% | 1/16W |
| R1964 | 1-216-809-11 | RES-CHIP | 100 | 5% | 1/16W |
| R1965 | 1-216-817-11 | RES-CHIP | 470 | 5% | 1/16W |
| R1967 | 1-216-483-11 | METAL OXIDE | 2.7K | 5% | 3W |
| R1968 | 1-215-886-11 | METAL OXIDE | 100 | 5% | 2W |
| R1969 | 1-216-483-11 | METAL OXIDE | 2.7K | 5% | 3W |
| | < TRANSFORMER > | | | | |
| T1901 | 1-424-584-11 | TRANSFORMER, DYNAMIC FOCUS | | | |

| REF.NO. | PART.NO | DESCRIPTION | | | REMARK |
|---|---|---|---|---|---|
| **VM Board Variant Parts KV-28LS35** | | | | | |
| | | < CAPACITOR > | | | |
| C1848 | 1-136-347-91 | FILM | 0.0047UF | 5.00% | 630V |
| C1912 | 1-162-117-00 | CERAMIC | 100PF | 10.00% | 500V |
| C1914 | 1-102-030-00 | CERAMIC | 330PF | 10.00% | 500V |
| | | < COIL > | | | |
| L1959 | 1-406-679-11 | INDUCTOR | 22MH | | |
| | | < RESISTOR > | | | |
| R1847 | 1-216-476-11 | METAL OXIDE | 180 | 5% | 3W |
| R1848 | 1-215-911-11 | METAL OXIDE | 100 | 5% | 3W |
| R1916 | 1-216-669-11 | METAL CHIP | 5.6K | 0.5% | 1/10W |
| R1922 | 1-215-919-11 | METAL | 2.2K | 5% | 3W |
| R1931 | 1-216-085-91 | RES-CHIP | 33K | 5% | 1/10W |
| R1960 | 1-216-833-91 | RES-CHIP | 10K | 5% | 1/16W |
| R1961 | 1-216-839-91 | RES-CHIP | 33K | 5% | 1/16W |
| R1966 | 1-216-454-21 | METAL OXIDE | 390 | 5% | 2W |
| **VM Board Variant Parts KV-32LS35** | | | | | |
| | | < CAPACITOR > | | | |
| C1848 | 1-130-338-51 | FILM | 0.01UF | 5.00% | 630V |
| C1914 | 1-102-244-91 | CERAMIC | 220PF | 10.00% | 500V |
| | | < COIL > | | | |
| L1959 | 1-406-677-21 | INDUCTOR | 10MH | | |
| | | < RESISTOR > | | | |
| R1847 | 1-216-474-21 | METAL OXIDE | 82 | 5% | 3W |
| R1848 | 1-216-474-21 | METAL OXIDE | 82 | 5% | 3W |
| R1916 | 1-216-665-91 | METAL CHIP | 3.9K | 0.5% | 1/10W |
| R1922 | 1-215-918-00 | METAL | 1.5K | 5% | 3W |
| R1931 | 1-216-689-91 | RES-CHIP | 39K | 5% | 1/10W |
| R1960 | 1-216-831-91 | RES-CHIP | 6.8K | 5% | 1/16W |
| R1961 | 1-216-838-91 | RES-CHIP | 27K | 5% | 1/16W |
| R1966 | 1-215-886-21 | METAL FILM | 100 | 5% | 2W |
| ***A-1646-242-A H2 Board, Complete** | | | | | |
| | | < CAPACITOR > | | | |
| C906 | 1-126-960-11 | ELECT | 1UF | 20.00% | 50V |
| C907 | 1-126-960-11 | ELECT | 1UF | 20.00% | 50V |
| C908 | 1-102-106-91 | CERAMIC | 100PF | 10.00% | 50V |
| C909 | 1-102-106-91 | CERAMIC | 100PF | 10.00% | 50V |
| | | < CONNECTOR > | | | |
| CN906 | *1-564-524-11 | PLUG, CONNECTOR 9P | | | |
| CN908 | 1-564-521-11 | PLUG, CONNECTOR 6P | | | |
| | | < DIODE > | | | |
| D902 | 8-719-929-15 | DIODE HZS9.1NB2 | | | |
| D903 | 8-719-929-15 | DIODE HZS9.1NB2 | | | |
| D904 | 8-719-109-97 | DIODE RD6.8ES-B2 | | | |
| D905 | 8-719-109-97 | DIODE RD6.8ES-B2 | | | |
| D908 | 8-719-923-60 | DIODE MTZJ-T-77-9.1A | | | |
| | | < JACK > | | | |
| J900 | 1-750-264-11 | JACK | | | |
| J901 | 1-779-947-11 | TERMINAL BLOCK, S | | | |
| | | < COIL > | | | |
| L900 | 1-535-143-61 | LEAD, JUMPER (5.0MM) | | | |
| L901 | 1-535-143-61 | LEAD, JUMPER (5.0MM) | | | |
| L902 | 1-408-603-41 | INDUCTOR | 10UH | | |
| L903 | 1-408-603-41 | INDUCTOR | 10UH | | |
| L904 | 1-410-119-11 | INDUCTOR | 1MH | | |
| | | < RESISTOR > | | | |
| R901 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W |
| R902 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R903 | 1-249-406-11 | CARBON | 120 | 5% | 1/4W |
| R904 | 1-249-406-11 | CARBON | 120 | 5% | 1/4W |
| R909 | 1-247-895-91 | CARBON | 470K | 5% | 1/4W |
| R910 | 1-247-895-91 | CARBON | 470K | 5% | 1/4W |
| R911 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W |
| L912 | 1-535-143-61 | LEAD, JUMPER (5.0MM) | | | |
| R913 | 1-247-843-11 | CARBON | 3.3K | 5% | 1/4W |
| R914 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W |
| R915 | 1-249-406-11 | CARBON | 120 | 5% | 1/4W |
| R916 | 1-249-406-11 | CARBON | 120 | 5% | 1/4W |
| R917 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R918 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| | | < SWITCH > | | | |
| S900 | 1-692-979-11 | SWITCH, TACTILE | | | |
| S901 | 1-692-979-11 | SWITCH, TACTILE | | | |
| S902 | 1-692-979-11 | SWITCH, TACTILE | | | |

**Note :** The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

| REF.NO. | PART.NO | DESCRIPTION | REMARK |
|---|---|---|---|

## MISCELLANEOUS

| | | | |
|---|---|---|---|
| ⚠ | 1-571-433-21 | SWITCH, PUSH (AC POWER) | |
| ⚠ | 1-765-286-11 | CORD, POWER (KV-28LS35B/28LS35E/ KV-32LS35B/32LS35E) | |
| ⚠ | 1-776-204-12 | CORD, POWER (FILTER) (KV-28LS35U/32LS35U) | |
| | 1-424-733-11 | COIL, PFC CHOKE 65MMH | |
| ⚠ | 1-453-308-41 | TRANSFORMER ASSY, FLYBACK (NX4521//Z2B4) (KV-28LS35) | |
| ⚠ | 1-453-308-31 | TRANSFORMER ASSY, FLYBACK (NX4521//Z2B4) (KV-32LS35) | |
| | 8-598-535-10 | FRONTEND BTF-EF411 (KV-28LS35B) | |
| | 8-598-533-00 | FRONTEND BTF-EC411 (KV-28LS35E) | |
| | 8-598-529-00 | FRONTEND BTF-EU611 (KV-28LS35U) | |
| | 1-693-555-11 | TUNER STEREO (KV-32LS35B) | |
| | 1-693-556-11 | TUNER STEREO (KV-32LS35E) | |
| | 1-693-557-11 | TUNER STEREO (KV-32LS35U) | |
| | 1-529-417-11 | SPEAKER (8CM) | |
| | 1-529-408-11 | SPEAKER (4.2x24CM) | |
| ⚠ | 8-737-786-05 | PICTURE TUBE (W66LLX060X) (KV-28LS35) | |
| ⚠ | 8-735-054-05 | PICTURE TUBE (W76LLZ060X) (KV-32LS35) | |
| | 8-451-521-11 | DEFLECTION YOKE (Y28RVC3-B) (KV-28LS35) | |
| | 1-451-520-11 | DEFLECTION YOKE (Y32RVC3) (KV-32LS35) | |
| | 1-452-896-11 | COIL, NA ROTATION (RT-200) | |
| ⚠ | 1-416-466-21 | COIL, DEMAGNETIC (KV-28LS35) | |
| ⚠ | 1-416-769-11 | COIL, DEMAGNETIC (KV-32LS35) | |
| | 8-453-011-11 | NECK ASSY, NA299-M | |
| ⚠ | 1-251-537-22 | CAP ASSY, HIGH VOLTAGE (KV-28LS35) | |
| ⚠ | 1-251-946-11 | CAP ASSY, HIGH VOLTAGE (KV-32LS35) | |
| | 1-452-094-00 | MAGNET, ROTATABLE DISK; 15MM | |
| | 1-452-032-00 | MAGNET, DISK; 10MM | |

## ACCESSORIES AND PACKAGING MATERIALS

| | | |
|---|---|---|
| *4-029-168-01 | BAG, PROTECTION | |
| *4-205-939-01 | INDIVIDUAL CARTON (KV-28LS35) | |
| *4-205-934-01 | INDIVIDUAL CARTON (KV-32LS35) | |
| 4-206-161-61 | INSTRUCTION MANUAL (KV-28LS35B) (ENGLISH) | |
| 4-206-161-21 | INSTRUCTION MANUAL (KV-28LS35B) (GERMAN/FRENCH/ITALIAN/DUTCH) | |
| 4-206-161-11 | INSTRUCTION MANUAL (KV-28LS35E) (GERMAN/GREEK) | |
| 4-206-161-41 | INSTRUCTION MANUAL (KV-28LS35E) (ITALIAN) | |
| 4-206-161-51 | INSTRUCTION MANUAL (KV-28LS35E) (DANISH/SPANISH/NORWEGIAN/PORTUGUESE/ SWEDISH/FINNISH) | |
| 4-206-161-31 | INSTRUCTION MANUAL (KV-28LS35U) (ENGLISH) | |
| 4-206-095-61 | INSTRUCTION MANUAL (KV-32LS35B) (ENGLISH) | |
| 4-206-095-21 | INSTRUCTION MANUAL (KV-32LS35B) (GERMAN/FRENCH/ITALIAN/DUTCH) | |
| 4-206-095-11 | INSTRUCTION MANUAL (KV-32LS35E) (GERMAN/GREEK) | |
| 4-206-095-41 | INSTRUCTION MANUAL (KV-32LS35E) (ITALIAN) | |
| 4-206-095-51 | INSTRUCTION MANUAL (KV-32LS35E) (DANISH/SPANISH/NORWEGIAN/PORTUGUESE/ SWEDISH/FINNISH) | |
| 4-206-095-31 | INSTRUCTION MANUAL (KV-32LS35U) (ENGLISH) | |

## REMOTE COMMANDER

| | | |
|---|---|---|
| 1-476-702-11 | REMOTE COMMANDER (RM-932) | |

# TRACE

A new TV Repair Assistance Tool that combines ease of use and powerful PC software tools to allow you to save valuable time during many TV repairs.




The TRACE interface connects to the PC's serial port. It provides connection to the TV's I²C bus and can be provided with an InfraRed transmitter (optional).

The interface is powered by a standard 9 V PP3 battery for portable use, and can also be powered by an external 9V/25mA DC power supply.

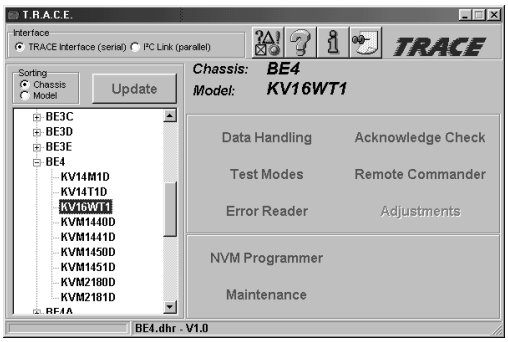
The TRACE software that is supplied with the interface allows you to:

- Read, restore and compare NVM contents via the I²C bus
- Acknowledge check of all I²C devices in the TV set
- Read Error Codes (emulation of the Error Reader tool)

With the optional IR Add-on kit, the following features can be added:

- Remote Commander emulation
- User programmable Functional Check through Infrared
- Fast and documented Test Mode setting of all Sony TV chassis

Additional features such as Adjustments and Troubleshooting are available in chassis-dependent software modules. Please contact your local Sony Service organisation for the latest information.




*Note: For workshops already using the existing I²C Link parallel port interface (9-948-320-30), this software can be used as well, replacing the TV Data Handling software (9-948-340-50), but Error Reader and IR functions can only be accessed with the TRACE interface.*

| | | |
|---|---|---|
| Partnumbers: | TRACE Starter Kit (TRACE interface + software): | 9-948-320-70 |
| | TRACE Software (for users of the I²C Link interface): | 9-948-340-80 |
| | TRACE IR Add-on (IR interface + Remote Commander software): | 9-948-320-80 |

PC requirements: IBM-compatible PC with operating system Windows95, Windows98, or WindowsNT*.

* WindowsNT only supported with TRACE interface


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# NOTES




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