

ADJUSTMENT PROCEDURE

The remote control is used for entering and storing adjustments, with the exception of Cut-off adjustments, which must always be done prior to service adjustment. Perform adjustments in accordance with screen display. The display on the screen also specifies the software version as well as the approx. setting values. The adjustment sequence for the service mode is indicated below.

1. Set the Bass to maximum position, set the Treble to minimum position, press the F button followed by the volume down button on the customer controls at the front of the TV and at the same time press the "INDEX" button on the remote control, this will place the TV into the Service Mode.
2. Press the **RED / GREEN** buttons to step up / down through the functions.
3. Press the **YELLOW / BLUE** buttons to alter the function values.
4. Press the **STR** button after each adjustment has been made to store the required values.
5. To exit the Service Mode, press the "N" button.

NOTE: This TV also has the option of using a Memory Pack which enables you to copy the preset TV channels into the Memory Pack and then download them onto this or any other EURO-4 TV set.

TV to Memory Pack process

1. Plug the memory pack into the AV1 21 pin terminal at the back of the TV and switch the TV on.
2. Go into Service Mode as explained above. The screen will show :-

Program
External>>TV

3. Press the **BLUE** button on the remote control. The screen will show :-

Program
TV>>External

4. Press the **STR** button on the TV. The screen will show :-

Please Wait

5. All the tuning information stored inside the TV will now be transferred to the Memory Pack. This process will take 2-3 minutes to complete and when finished the screen will show :-

Complete

Memory Pack to TV process

1. Plug the memory pack into the AV1 21 pin terminal at the back of the TV and switch the TV on.
2. Go into Service Mode as explained above. The screen will show :-

Program
External>>TV

3. Press the **STR** button on the TV. The screen will show :-

Please Wait

4. All the tuning information stored inside the Memory Pack will now be transferred to the TV. This process will take 2-3 minutes to complete and when finished the screen will show :-

Complete

5. The tuning information from the Memory Pack has now been copied into the TV.
6. To exit from the Service Mode press the "N" button.
7. The process has now been completed and the Memory Pack can now be removed.

ERRORS

If an error occurs while using the Memory Pack the TV will detect this and the screen will show :-

Error !!

If this happens then press the "N" button and repeat the process that was being used. If the errors continue to occur then check the connectors between the TV and the memory pack and check the 9V battery inside the memory pack.

ADJUSTMENT PROCEDURE

Item / Preparation	Adjustments
+B SET-UP 1. Receive a Greyscale signal. 2. Set the controls :- Brightness Minimum Contrast Minimum Volume Minimum	1. Set the +B voltage up as follows:- Adjust R811 so that B2 shows 148V±1V [130V±1V TX-21MD4P] 2. Confirm the following voltages. B9 5 ± 0,25V B10 5 ± 0,25V B5 12 ± 0,5V B11 33 ± 1,5V B4 16 ± 1V B7 8 ± 0,5V B12 26 ± 1V B8 5,5 ± 0,5V B3 35 ± 1V B13 15 ± 1V B1 200 ± 10V B14 -15 ± 1V
CUT OFF / Ug2 Test 1. Receive a Greyscale signal. 2. Degauss the tube externally. 3. Set the TV into Service Mode 1. 4. Select Cut off mode.	To adjust Cutoff connect an oscilloscope to the Blue cathode, adjust "cutoff" value using the "Yellow" and "Blue" buttons until the black level is 160V±5V press " STR " to store the value. Remove the oscilloscope. Select Ug2 adjustment and adjust the screen VR until the display shows "O.K."

SELF CHECK

Self-check is used to automatically check the bus lines and hexadecimal code of the TV set. To get into the Self-Check mode press the down (-/v) button on the customer controls at the front of the set, at the same time pressing the **STATUS** button on the remote control, and the screen will show :-

VDP	O.K.	PCB	O.K.
TUN	O.K.	Cab	O.K.
E2	O.K.	Sum	Factory use only
MSP	O.K.		
DPL	--		
OPTION 1	3D [3D]		
OPTION 2	0C [0E]		
OPTION 3	1F [1F]		
OPTION 4	00 [00]		
OPTION 5	EF [EF]		
OPTION 6	21 [21]		

If the CCU ports have been checked and found to be incorrect or not located then " - - " will appear in place of "O.K.".

Service Aids

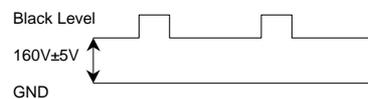
To aid in the service of our current chassis there are a number of Service Aids which have been made available.

- LUCI** interface kit (Linked Utility Computer Interface)
 Part number: TZS6EZ002
 This contains interface and cables for connecting TV service connector and a PC as well as diagnostic software. As new models are introduced upgrade software will become available.
- VICI** (Visual Interactive Computer Information)
 These C.D.'s contain multimedia documentation providing quick access to service information.
 Part No. TZS7EZ006 & TZS7EZ005
 - Service Manuals
 - Instruction Books
 - Technical Information
- TASMIN** (Technically Advanced System for Multimedia Interactive Notes)
 As well as providing a first step towards more interactive training this product also achieves quick access to Technical Information.

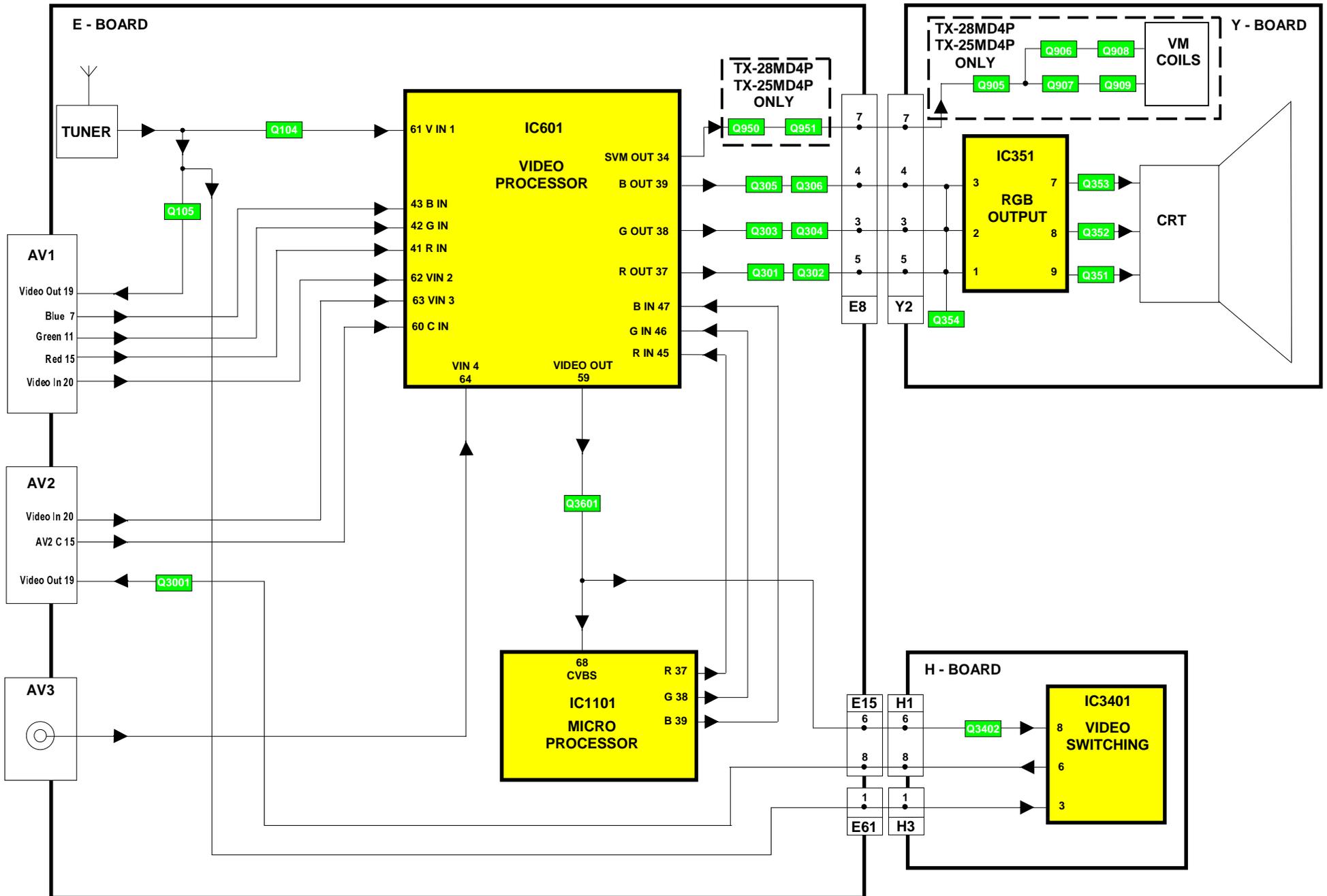
ALIGNMENT SETTINGS

(The figures below are nominal and used for representative purposes only.)

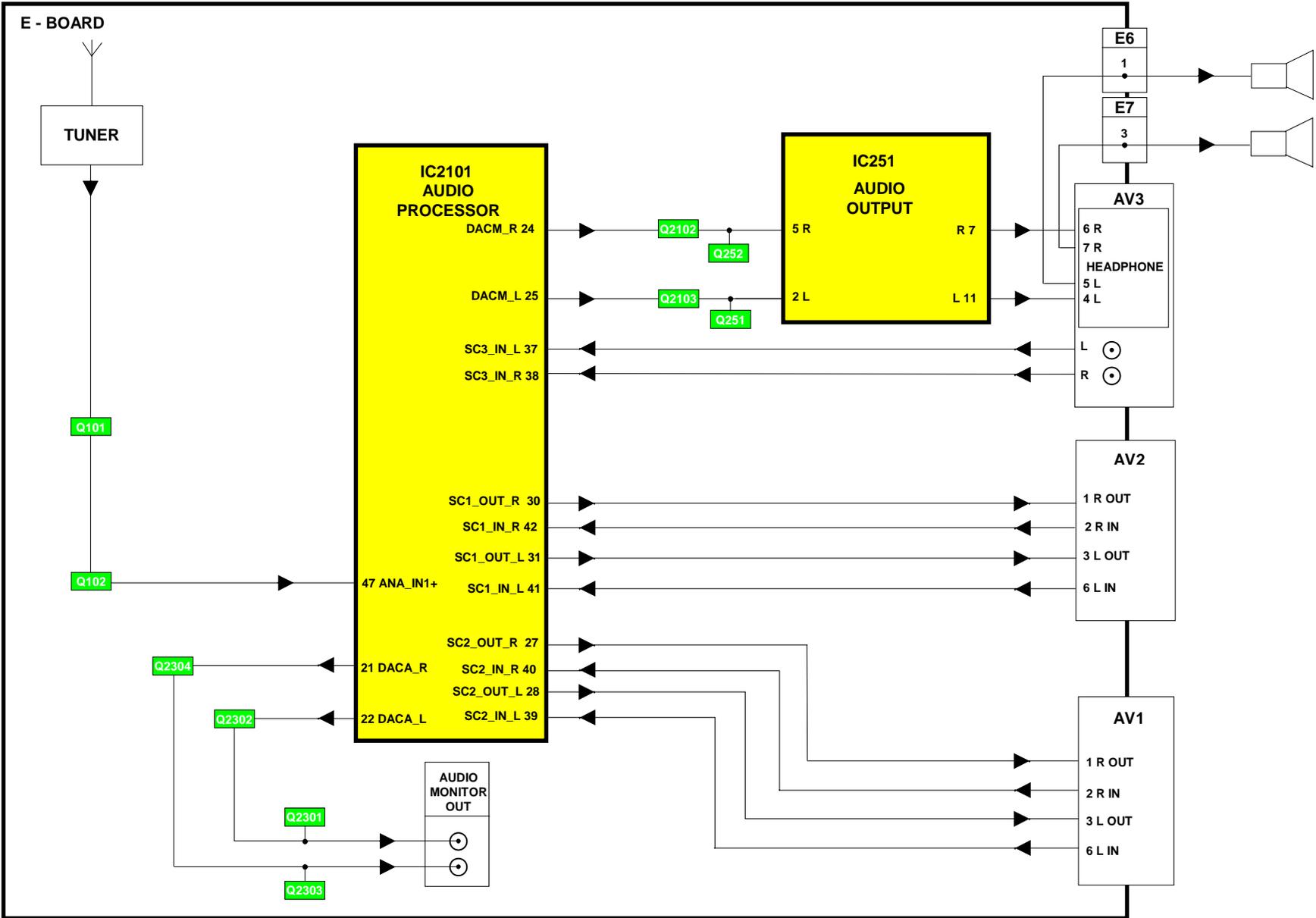
Alignment Function		Settings / Special features
Horizontal Position	H-Pos 061	Optimum setting.
Vertical Position	V-Pos 005	Optimum setting.
Horizontal Amplitude	H-Amp 055	Optimum setting.
Vert. Amplitude	V-Amp 054	Optimum setting.
EW-amplitude	EW-Amp1 -128	Optimum setting.
EW-amplitude	EW-Amp2 006	Optimum setting.
Trapezium-comp	Trapez-1 047	Optimum setting.
Trapezium-comp	Trapez-2 -128	Optimum setting.
Vertical Linearity	V-Lin 006	Optimum setting.
Vertical Symmetry	V-Sym 002	Optimum setting.
DVCO	DVCO -005	Receive a PAL Colour Bar Pattern. For DVCO alignment press " Blue " button, wait until the colours are changing slowly and press " STR ".
Cut-off DC	Cut-off 0171	To adjust Cutoff connect an oscilloscope to the blue cathode, adjust "cutoff" value using the " Yellow " and " Blue " buttons until the black level is $160V \pm 5V$ press " STR " to store the value. Remove the oscilloscope. Select Ug2 adjustment and adjust the screen VR until the display shows "O.K."
Ug2 Test	Ug2 055 O.K.	
Highlight Lowlight	High 0902 0777 0864 Low 0117 0132 0112	Optimum setting.
Sub-Brightness	Sub-Brightness 255	Optimum setting.



VIDEO BLOCK DIAGRAM

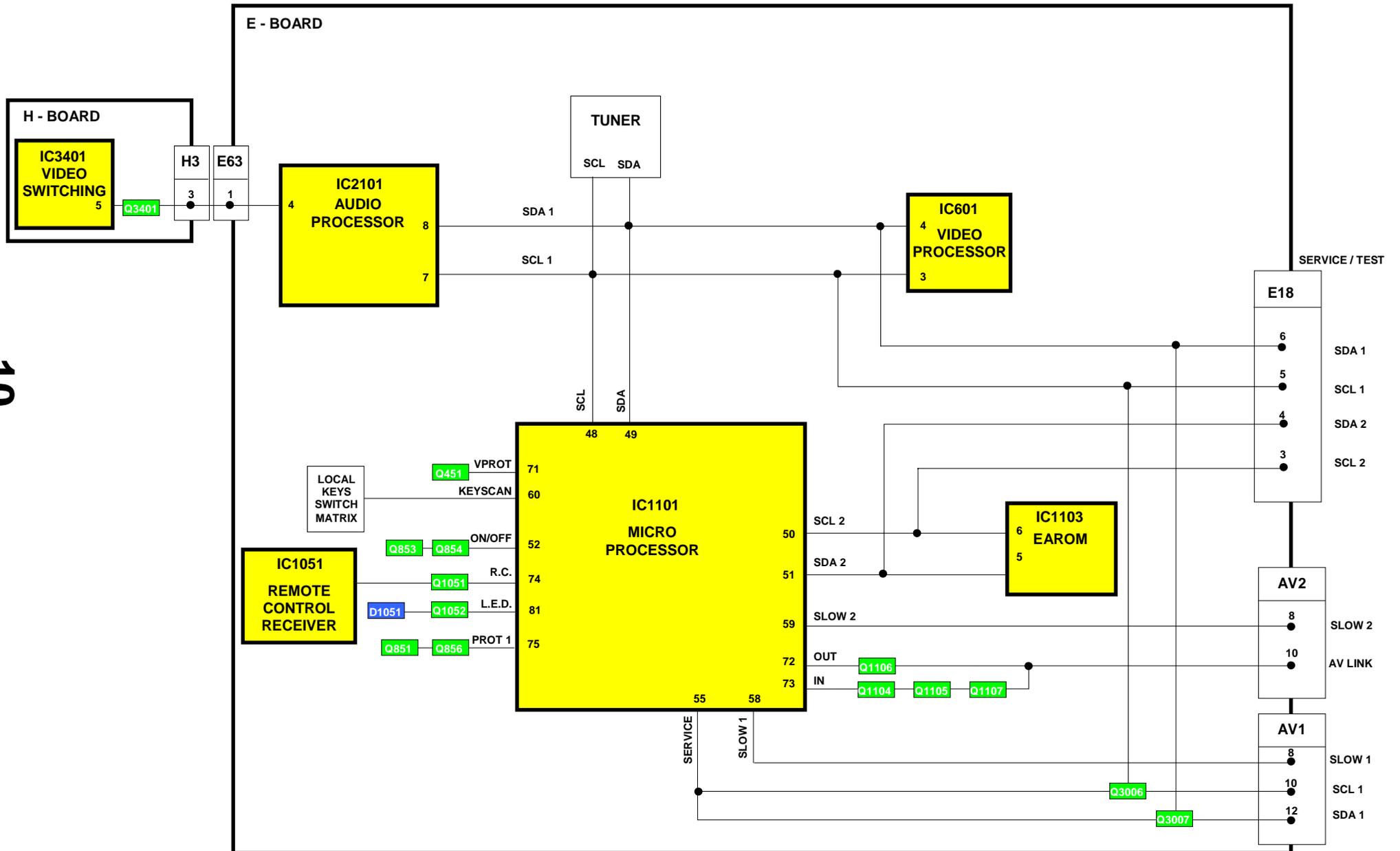


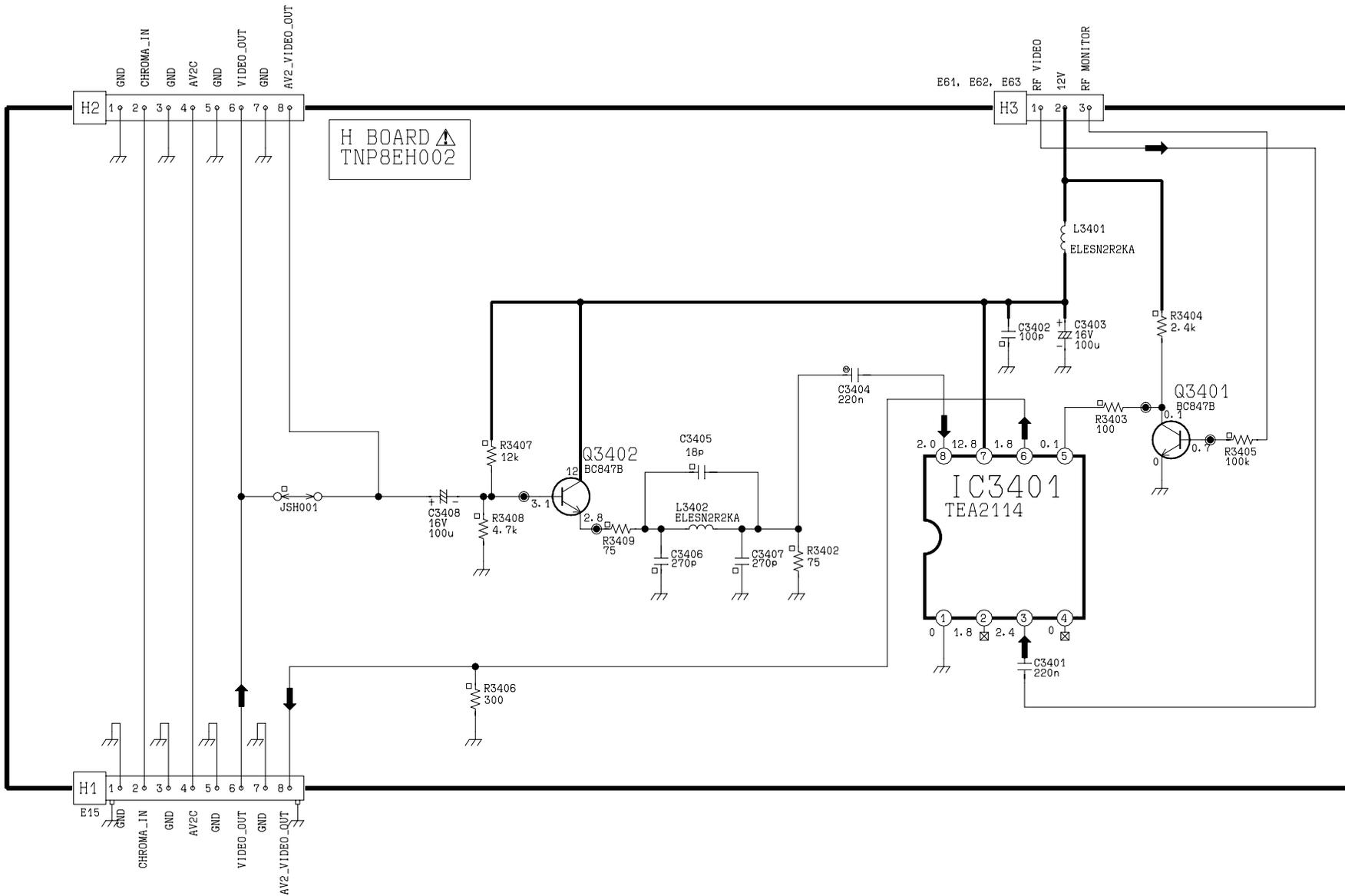
AUDIO BLOCK DIAGRAM



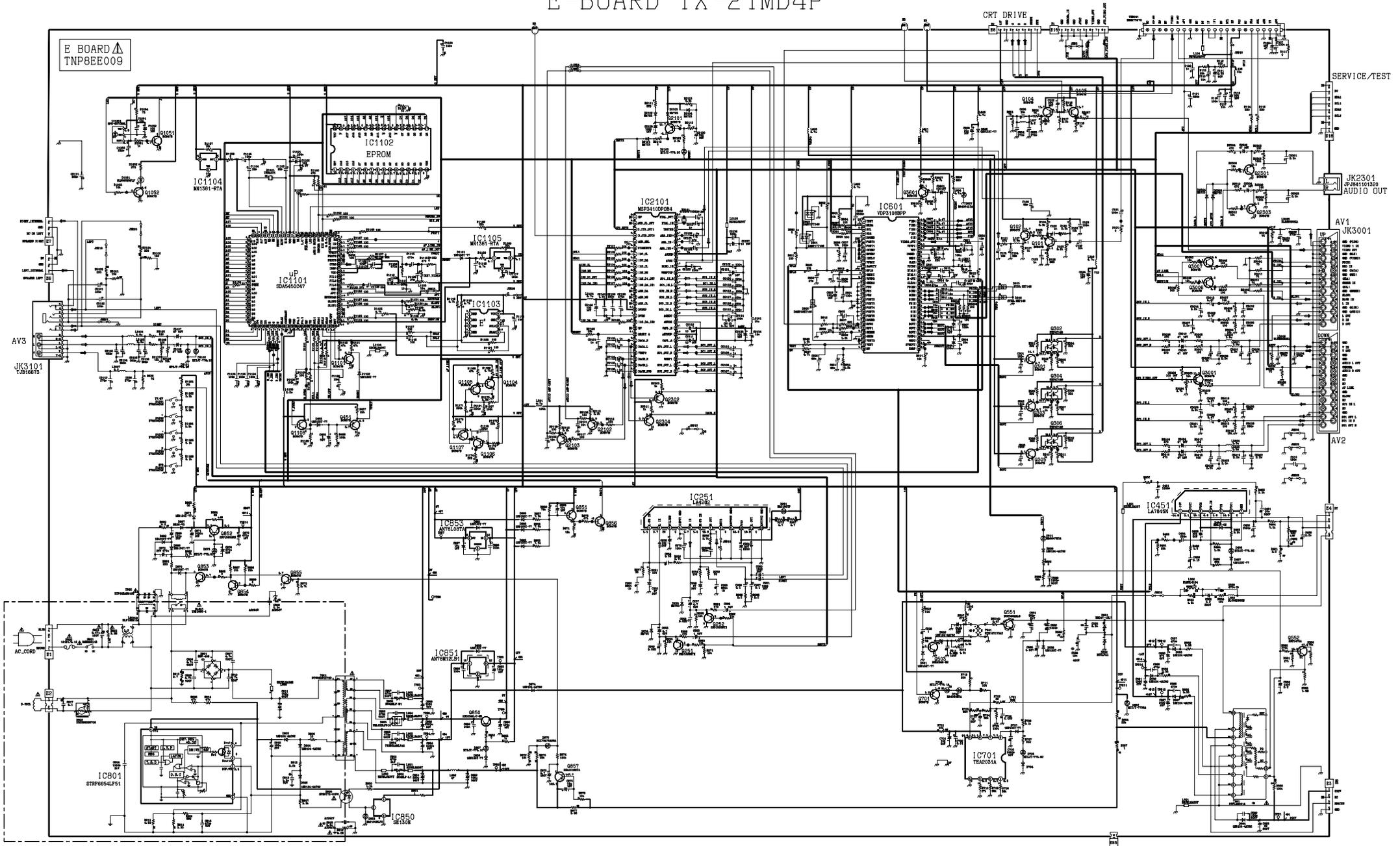
CONTROL BLOCK DIAGRAM

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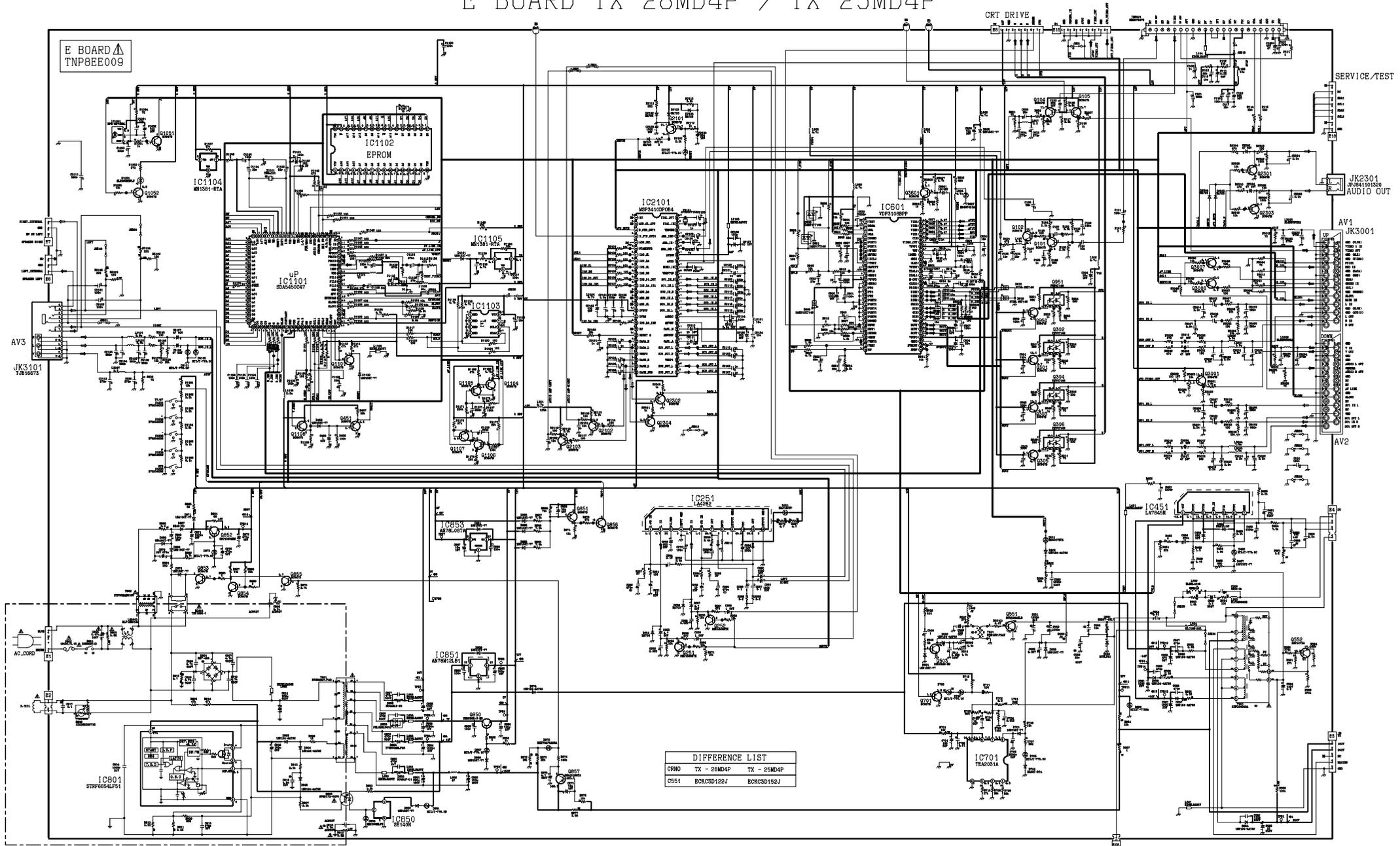




E-BOARD TX-21MD4P



E-BOARD TX-28MD4P / TX-25MD4P



DIFFERENCE LIST

ORNO	TX - 28MD4P	TX - 25MD4P
C551	EKCKC3D122J	EKCKC3D152J

Y-BOARD TX-21MD4P

Y BOARD ⚠
TNP8EY013

