3) Connect the power plug to AC 120V/60Hz, turn on the power switch, wait for normal raster, Check B^+ = 100V±0.2V.

Test point	B+	B1-5V	B2-9V	B3-10V	B4-32V	TH-12V	TH-20V	TH-200V
DC(V)	100	5	9	12	32	12	20(22)	200

INSTALLATION AND SERVICE ADJUSTMENTS

GENERAL

In the majority of cases, a color television receiver will need only slight touch – up adjustment upon installation. Check the basic characteristics such as FS,EHV,and focus. Observe the picture for good black and white details without objectionable color shading. If color shading is evident, demagnetize the receiver.
If color shading still persists, perform purity and convergence adjustments. This should be all that is necessary to achieve optimum receiver perfomance.

FOCUS ADJUSTMENT

Adjust the FOCUS control (on T301) for well defined scanning lines on the picture screen.

HIGH VOLTAGE CHECK

CAUTION: These is no HIGH VOLTAGE ADJUSTMENT on this chassis. Checking should be done following the steps below.

1. Connect an accurate high voltage meter to the second anode of the picture tube.
2. Turn on the receiver. Set the BRIGHTNESS and CONTRAST controls to minimum (zero beam current).
3. High voltage will be measured below 29 (20")KV.
4. Vary the BRIGHINESS control to both extremes to be sure the high voltage does not exceed the limit under any conditions.

General instruction

1. This chassis' EEPROM（N801　M24C08） should copy standard data, if necessary, deal it with "factory adjustment". If directly use blank EEPROM, should first preset I^2C data, then go on other common alignment. For factory adjustment method, refer to **The appendix: factory menu.**
2. If without special indication, the alignment is conducted on the below condition:
   a）AC power supply 120 V/60 Hz.
   b）The whole unit is preheated for more than 30 min.
3. There is built-in auto degaussing circuit, it will degauss automatically within 1second after turning on.
4. If CRT is with magnetism and affects color purity and convergence, the internal degaussing can not degauss completely, can use degaussor to degauss externally. If color purity and convergence is still poor, then do color purity and convergence adjustment.

Alignment items and procedure

1. B+ voltage check
2. RF AGC voltage adjustment
3. Focus adjustment
4. Screen-grid voltage and white balance adjustment
5. Horizontal,vertical scan center adjustment
6. Horizontal,vertical scan amplitude adjustment
7. Pattern correction adjustment
8. The alignment flow chart see figure below.

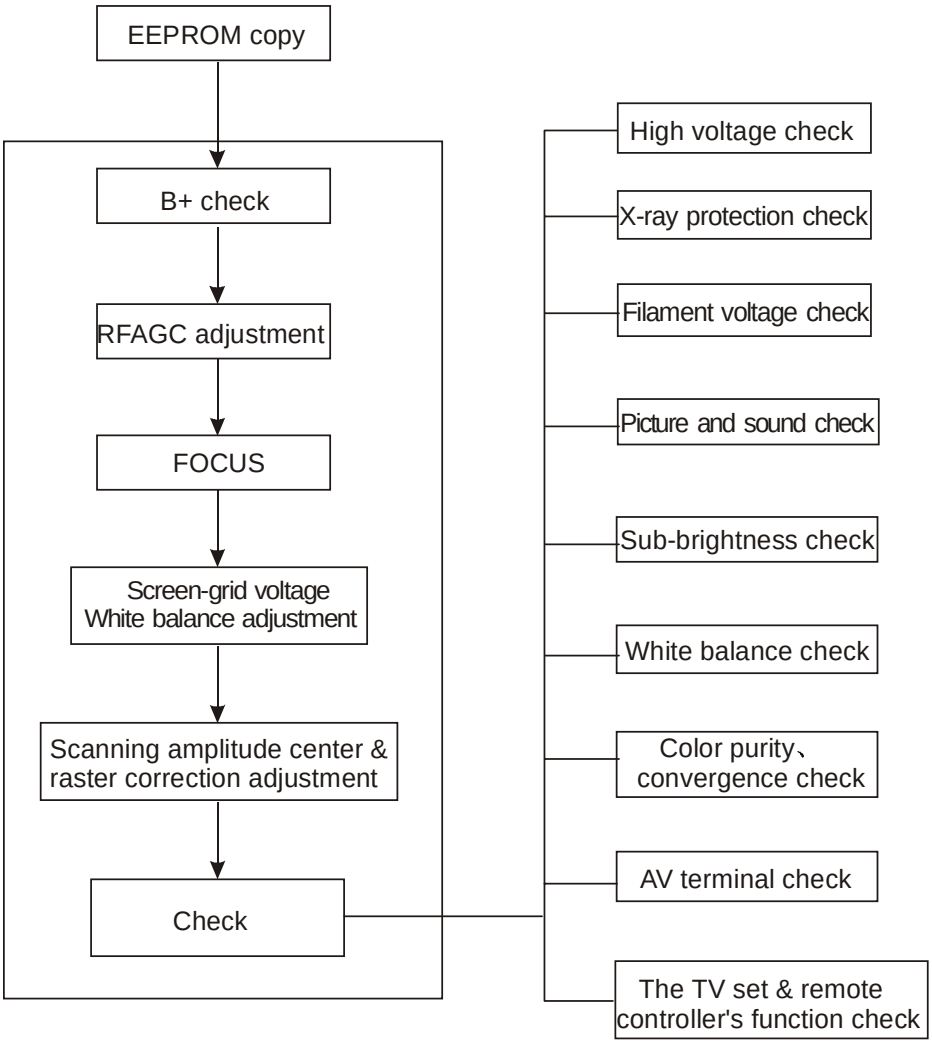


Figure 1: Alignment flow chart

Factory adjustment mode

1. B+ voltage test

a） Make sure the AC power is 120 V/60 Hz

b) Connect digital voltmeter to B+ test point, receive A-7 signal, set picture control to "DYNAMIC" state，test B+，the test voltage should be 100 V±0.5 V (21" PF), or 110V±0.5 V (14" PF AND 21"), or 140V (25").

2. AGC adjustment

a）Receive 60 dB split field A-7 signal.

b）Use oscilloscope or digital voltmeter to monitor test N201 pin 43 voltage（AGC output）.

c）Press R-AGC button，by making use of [←][→] button, increase the value from low to high until the voltage just reach 4.0 V， at this time picture noisy spot should basically disappear, otherwise continue fine tune R-AGC button.

3. Focus adjustment

3. 1 Receive A-12 signal, set user control to "DYNAMIC" state.

3. 2 Adjust FBT's focus potentiometer, to make the screen's B area's focus optimum.

4. Acelerating electrode adjustment method (use A-7 signal)

4.1 Roughly adjust white balance, fix GCUT value, adjust RCUT、BCUT、RDRV、BDRV's value to make

white balance basically normal.

4.2 Set the color to 0, contrast to 10, use oscilloscope to adjust CRT's red gun's waveform (see below figure), adjust brightness to make the seventh step's (the darkest) DC level be 180V, adjust accelerating electrode to make the seventh step slightly light up (just can separate the seventh step and below dark field).

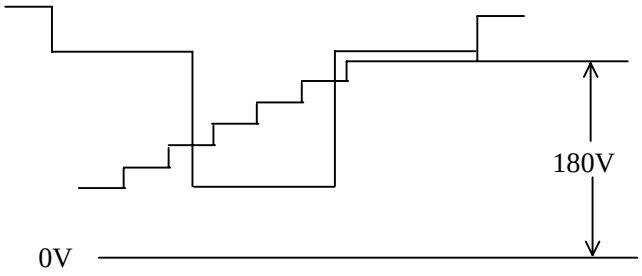


Fig 2: red gun waveform

4.3 Fine adjust white balance (color temperature: 12000K±8MPCD X=0.270±0.008 Y=0.283±0.008)

4.4 Set contrast,brightness,color all to 0, adjust BRTN to make A-7's upper left 2 lattice slightly light up.

5. Horizontal,vertical scan center adjustment

NTSC（60Hz）H-center,V-center adjustment

Receive A6 signal, set user control to "DYNAMIC" state, adjust V-center V-SHIFT， H-PHASE to make picture's center be in accordance with screen's center.

6. Vertical scan amplitude adjustment

NTSC（60 Hz）V-amplitude adjustment

Receive A 12 signal, set user control to "DYNAMIC" state, adjust V-amplitude V-SIZE to make picture's upper and lower overscanning be screen size's 8%.

Checking point

1. High voltage check

1.1 Connect high voltage meter to CRT's second anode and GND.

1.2 Receive A-7 signal, set user control to "DYNAMIC" state, the high voltage should be 29.0 kV±1 kV (21" PF and 25") or 25.0kV±1kV (14" PF) or 26.5kV±1kV (21").

1.3 When brightness and contrast be set to minimum (zero beam current), the high voltage should not exceed 32 kV.

2. CRT filament voltage check

Receive A-7 signal, set picture control to "DYNAMIC" state, use effective value voltmeter to test CRT filament voltage, the reading should be (6.3±0.3)Vrms.

3. X-ray protection check

3.1 Receive A-7 signal, set user control to "DYNAMIC" state.

3.2 Short R305（TP301,TP302），X-ray protection circuit should effect.

4. Picture and sound check

4.1 Receive standard TV signal.

4.2 Making use of picture control buttons to check color,contrast,brightness,sharpness,tint's control function.

4.3 Making use of sound control buttons to check volume control function.

5. Sub-brightness check

Receive A-7 signal, set color ,contrast,brightness all to 0， picture's left side first grid slightly lights.

6. Color purity and convergence check（Use common regulation）

7. AV terminals (AV IN/OUT check)

8. Other control buttons (on the set and on the remote controller) function check.

Preset the following in factory

1. Picture menu：

CONTRAST	60
BRIGHTNESS	30
COLOR	30
SHARPNESS	30
TINT	±00
PICTURE MODE	PERSONAL
▽MORE	

2. Volume preset to 30.

3. Set OSD language to English.

4. TV mode：channel position number CABLE 3.

Factory menu

1. Enter into factory menu to operate.

1.1 Press "DSP SLEEP PIC" button(The period of two-press should be within 5 seconds)，enter into factory menu.

1.2 Use CH+/CH- button to select the menu，use VOL+/VOL- button to enter the function menu.

1.3 In factory menu status, press MENU button to exit.

2. Factory menu contents

1: VCJ ADJ	
1. VIF VCO AUTO ADJ OFF	Use for adjustment of VIF VCO free running frequency
2. RF DELAY ADJ	Use for adjustment tuner AGC takeover point
2: RASTER ADJ	
1. V POSITION	Vertical ramp start timing adjustment
2. V-SIZE	Vertical ramp amplitude adjustment
3. H-POSITION	Horizontal phase adjustment
4. WHITE-BACK	White back mode selection
3: CRT ADJ	
1.CUT OFF-R	R OUT pedestal level adjustment (factory control only)
2. CUT OFF-G	G OUT pedestal level adjustment (factory control only)
3. CUT OFF-B	B OUT pedestal level adjustment (factory control only)
4. DRIVE R	R OUT amplitude adjustment (factory control only)
5. DRIVE B	B OUT amplitude adjustment (factory control only)
4: PICTURE ADJ	
1. SUB BRIGHTNESS	Brightness control (end user control)
2. SUB CONTRAST	Contrast control (end user control)
5: USER MENU RESET OFF	
6: SERVICE MENU	
1. H VCO ADJ	H VCO free running-frequency adjustment
2. TRAP FINE ADJ	Chroma trap adjustment
3. SUB TINT	TV tint control (end user control)
4. SUB TINT AV	AV tint control (end user control)
5. SUB TINT YUV	YUV tint control (end user control)
6. SUB COLOR	Color control (end user control)
7.C-ANGLE95	Chroma relational angle fo demodulation switch
8. TAKE OFF	Chroma BPF/Take off switch
9.OSD LEVEL	OSD output level switch
10.Y-DL TIME	Luminance delay time adjustment
11. S-SLICE DOWN	Sync det slice level selection
12. AFC12	Horizontal AFC12 gain switch
13.Y SW LPF	Y SW OUT, LPF ON/OFF
14. ABCL	Auto brightness and contrast limiter
15. ABCL GAIN	ABCL GAIN low or high switch
16. GAMMA	Luminance gamma threshold
17. BLACK ST OFF	Black stretch function ON/OFF
18. BLACK ST ADJ	Charging time adjustment
19. AV OPTION	Av out mode switch
20. INT MONITORING	
21. AUDIO ATT	AUDIO OUT pin 51 amplitude adjustment
22. ODS HR ADJ	OSD position adjustment
23. NUM ADJ	EEPROM data adjustment
24. LANGUAGE	OSD language switch.

CONVERGENCE MAGNET ASSEMBLY POSITIONING

Convergence magnet assembly and rubber wedges need mechanical positioning. Refer to below figure 1.

COLOR PURITY ADJUSTMENT

NOTE: Before attempting any purity adjustment, the receiver should be operated for at least fifteen minutes.

1. Demagnetize the picture tube and cabinet using a degaussing coil.
2. Set the CONTRAST and BRIGHTNESS controls to the maximum.
3. Receive PM5515 monochromatic signal (such as G) to provide a green raster on the screen.
4. Loosen the clamp screw holding the yoke, and slide the yoke backward to provide vertical green belt (zone) in the picture screen.
5. Remove the Rubber Wedges.
6. Rotate and spread the tabs of the purity magnet around the neck of the picture tube until the green belt is in the center of the screen. At the same time, center the raster vertically by adjusting the magnet.
7. Move the yoke slowly forward or backward until a uniform green screen is obtained. Tighten the clamp screw of the yoke temporarily.
8. Check the purity of the red and blue raster.
9. Obtain a white raster, referring to “CRT WHITE BALANCE ADJUSTMENT”.
10. Proceed with convergence adjustment.

FIG.3

CONVERGENCE ADJUSTMENT

NOTE: Before attempting any convergence adjustments, the receiver should be operated for at least fifteen minutes.

CENTER CONVERGENCE ADJUSTMENT

1. Receive crosshatch pattern with a color bar signal generator.
2. Adjust the BRIGHTNESS and CONTRAST controls for well defined pattern.

3. Adjust two tabs of the 4-Pole Magnets to change the angle between them (see figure 4) and superimpose red and blue vertical lines in the center area of the picture screen. (see figure 5)
4. Turn the both tabs at the same time keeping the constant angle to superimpose red and blue horizontal lines at the center of the screen.(see figure 5)
5. Adjust two tabs of 6-Pole Magnets to superimpose red/blue line with green one. Adjusting the angle affects the vertical lines and rotating both magnets affects the horizontal lines.
6. Repeat adjustments 3,4,5, keeping in mind red, green and blue movement, because 4-Pole Magnets and 6-Pole Magnets interact and make dot movement complex.

CIRCUMFERENCE CONVERGENCE ADJUSTMENT

1. Loosen the clamping screw of deflection yoke to allow the yoke to tilt.
2. Put a wedge as shown in figure 1 temporarily. (Do not remove cover paper on adhesive part of the wedge.)
3.Tilt front of the deflection yoke up or down to obtain better convergence in circumference. (See figure 5). Push the mounted wedge into the space between the picture tube and the yoke to hold the yoke temporarily.
4. Put other wedge into bottom space and remove cover paper to stick.
5. Tilt front of the yoke right or left to obtain better convergence in circumference (see figure 5)
6. Keep the yoke position and put another wedge in either upper space. Remove cover paper and stick the wedge on the picture tube to fix the yoke.
7. Detach the temporarily mounted wedge and put it in another upper space. Stick it on the picture tube to fix the yoke.
8. After fixing three wedges, recheck overall convergence. Tighten the screw firmly to fix the yoke tightly in place.
9. Stick three adhesive tapes on wedges as shown in figure 3.

Fig5. Dot Movement Pattern

USA CHANNEL FREQUENCY TABLE (181 CH)

P IF=45.75 MHz
C IF=42.17MHz
S IF=41.25MHz
UNIT: MHz

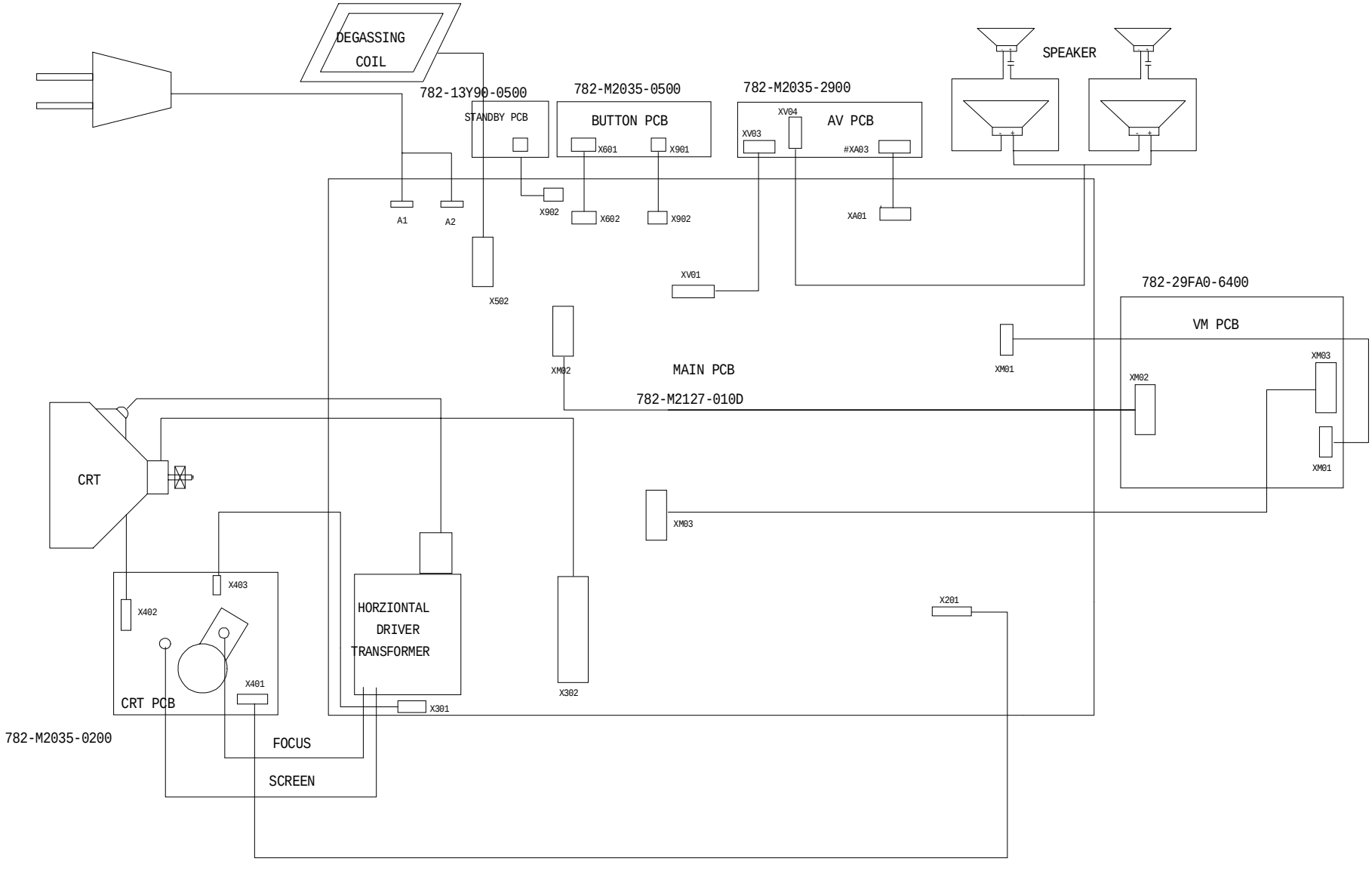
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VHF Low	2	55.25	59.75	101
	3	61.25	65.75	107
	4	67.25	71.75	113
	5	77.25	81.75	123
	6	83.25	87.75	129
	A-6	85.25	89.75	131
	A-5	91.25	95.75	137
	A-4	97.25	101.75	143
	A-3	103.25	107.75	149
	A-2	109.25	113.75	155
	A-1	115.25	119.75	161
	A	121.25	125.75	167
	B	127.25	131.75	173
VHF High	C	133.25	137.75	179
	D	139.25	143.75	185
	E	145.25	149.75	191
	F	151.25	155.75	197
	G	157.25	161.75	203
	H	163.25	167.75	209
	I	169.25	173.75	215
	7	175.25	179.75	221
	8	181.25	185.75	227
	9	187.25	191.75	233
	10	193.25	197.75	239
	11	199.25	203.75	245
	12	205.25	209.75	251
	13	211.25	215.75	257
	J	217.25	221.75	263
	K	223.25	227.75	269
	L	229.25	233.75	275
	M	235.25	239.75	281
	N	241.25	245.75	287
	O	247.25	251.75	293
	P	253.25	257.75	299
	Q	259.25	263.75	305
	R	265.25	269.75	311
	S	271.25	275.75	317
	T	277.25	281.75	323
	U	283.25	287.75	329
	V	289.25	293.75	335
	W	295.25	299.75	341
	W+1	301.25	305.75	347
	W+2	307.25	311.75	353
	W+3	313.25	317.75	359
	W+4	319.25	323.75	365
	W+5	325.25	329.75	371
	W+6	331.25	335.75	377
	W+7	337.25	341.75	383
	W+8	343.25	347.75	389
	W+9	349.25	353.75	395
	W+10	355.25	359.75	401

BAND	CHANNEL	P CARRIER	S CARRIER	LOCAL
UHF	W+11	361.25	365.75	407
	W+12	367.25	371.75	413
	W+13	373.25	377.75	419
	W+14	379.25	383.75	425
	W+15	385.25	389.75	431
	W+16	391.25	395.75	437
	W+17	397.25	401.75	443
	W+18	403.25	407.75	449
	W+19	409.25	413.75	455
	W+20	415.25	419.75	461
	W+21	421.25	425.75	467
	W+22	427.25	431.75	473
	W+23	433.25	437.75	479
	W+24	439.25	443.75	485
	W+25	445.25	449.75	491
	W+26	451.25	455.75	497
	W+27	457.25	461.75	503
	W+28	463.25	467.75	509
	W+29	469.25	473.75	515
	14	471.25	475.75	517
	15	477.25	481.75	523
	16	483.25	487.75	529
	17	489.25	493.75	535
	18	495.25	499.75	541
	19	501.25	505.75	547
	20	507.25	511.75	553
	21	513.25	517.75	559
	22	519.25	523.75	565
	23	525.25	529.75	571
	24	531.25	535.75	577
	25	537.25	541.75	583
	26	543.25	547.75	589
	27	549.25	553.75	595
	28	555.25	559.75	601
	29	561.25	565.75	607
	30	567.25	571.75	613
	31	573.25	577.75	619
	32	579.25	583.75	625
	33	585.25	589.75	631
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	36	603.25	607.75	649
	37	609.25	613.75	655
	38	615.25	619.75	661
	39	621.25	625.75	667
	40	627.25	631.75	673
	41	633.25	637.75	679
	42	639.25	643.75	685
	43	645.25	649.75	691
	44	651.25	655.75	697
	45	657.25	661.75	703

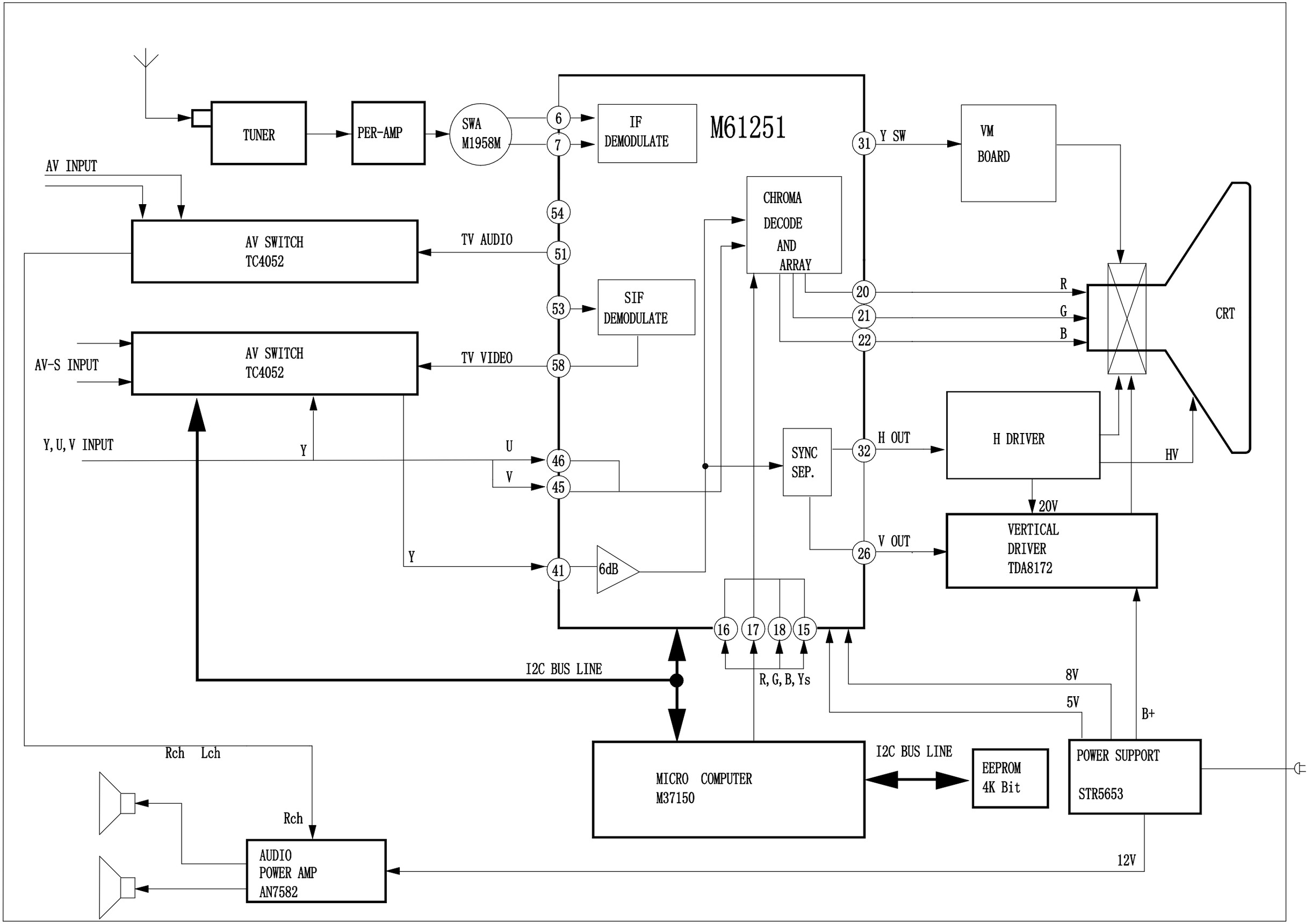
USA CHANNEL FREQUENCY TABLE (181 CH)

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C IF=42.17MHz
S IF=41.25MHz
UNIT: MHz

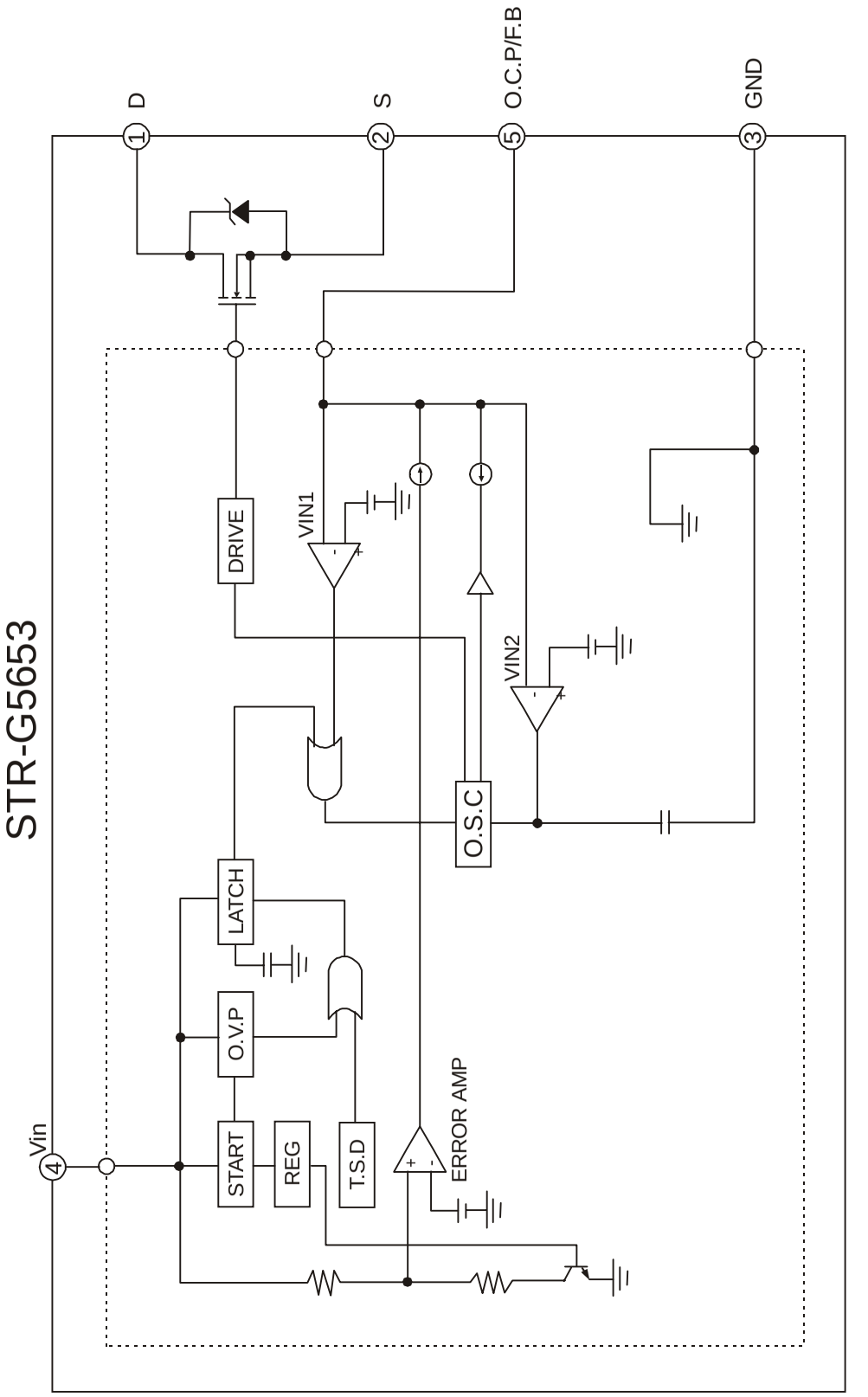
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UHF	46	663.25	667.75	709
	47	669.25	673.75	715
	48	675.25	679.75	721
	49	681.25	685.75	727
	50	687.25	691.75	733
	51	693.25	697.75	739
	52	699.25	703.75	745
	53	705.25	709.75	751
	54	711.25	715.75	757
	55	717.25	721.75	763
	56	723.25	727.75	769
	57	729.25	733.75	775
	58	735.25	739.75	781
	59	741.25	745.75	787
	60	747.25	751.75	793
	61	753.25	757.75	799
	62	759.25	763.75	805
	63	765.25	769.75	811
	64	771.25	775.75	817
	65	777.25	781.75	823
	66	783.25	787.75	829
	67	789.25	793.75	835
	68	795.25	799.75	841
	69	801.25	805.75	847

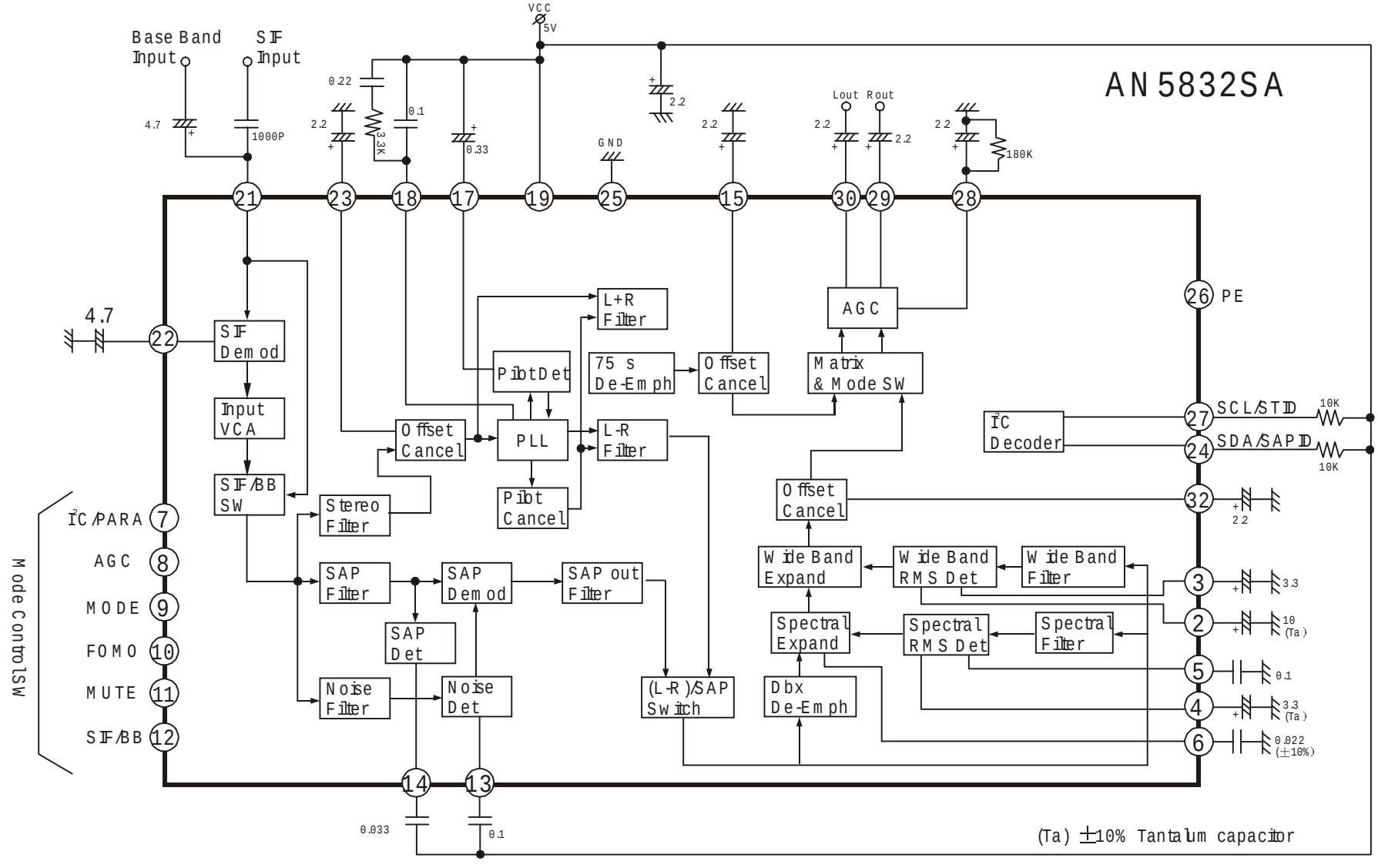

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782-M2035-0500
BUTTON PCB
X601
X901
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XV04
AV PCB
XV03
#XA03
SPEAKER
A1
A2
X902
X602
X902
XA01
X502
XV01
782-29FA0-6400
VM PCB
XM03
XM02
XM01
XM02
MAIN PCB
XM01
782-M2127-010D
CRT
XM03
X403
X402
HORZIONTAL
DRIVER
TRANSFORMER
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X302
CRT PCB
X401
X301
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FOCUS
SCREEN

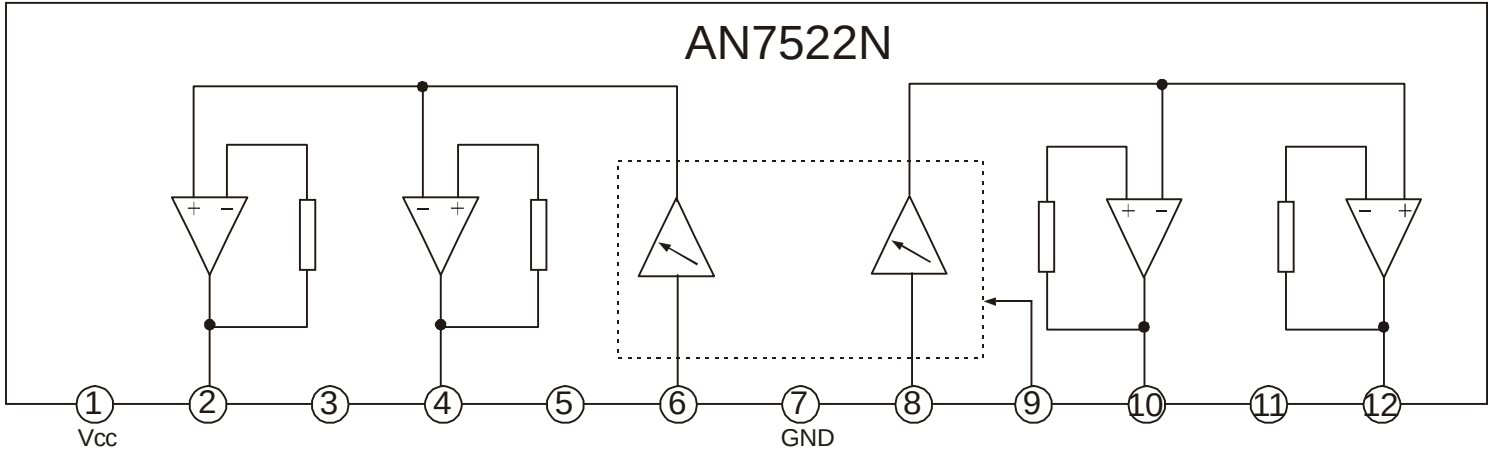
BLOCK DIAGRAM



IC BLOCK DIAGRAM




AN5832SA
Base Band Input
SIF Input
VCC
5V
GND
Lout
Rout
4.7
1000P
0.22
3.3K
0.1
0.33
2.2
180K
SIF Demod
Input VCA
SIF/BB SW
Stereo Filter
SAP Filter
SAP Demod
SAP out Filter
SAP Det
Noise Filter
Noise Det
(L-R)/SAP Switch
L+R Filter
L-R Filter
PilotDet
Pilot Cancel
PLL
75 s De-Emph
Offset Cancel
Matrix & Mode SW
AGC
Dbx De-Emph
Spectral Expand
Spectral RMS Det
Spectral Filter
Wide Band Expand
Wide Band RMS Det
Wide Band Filter
I2C Decoder
SCL/STD
SDA/SAPD
10K
PE
I2C/PARA
AGC
MODE
FOMO
MUTE
SIF/BB
Mode Control SW
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0.022 (±10%)
(Ta) ±10% Tantalum capacitor


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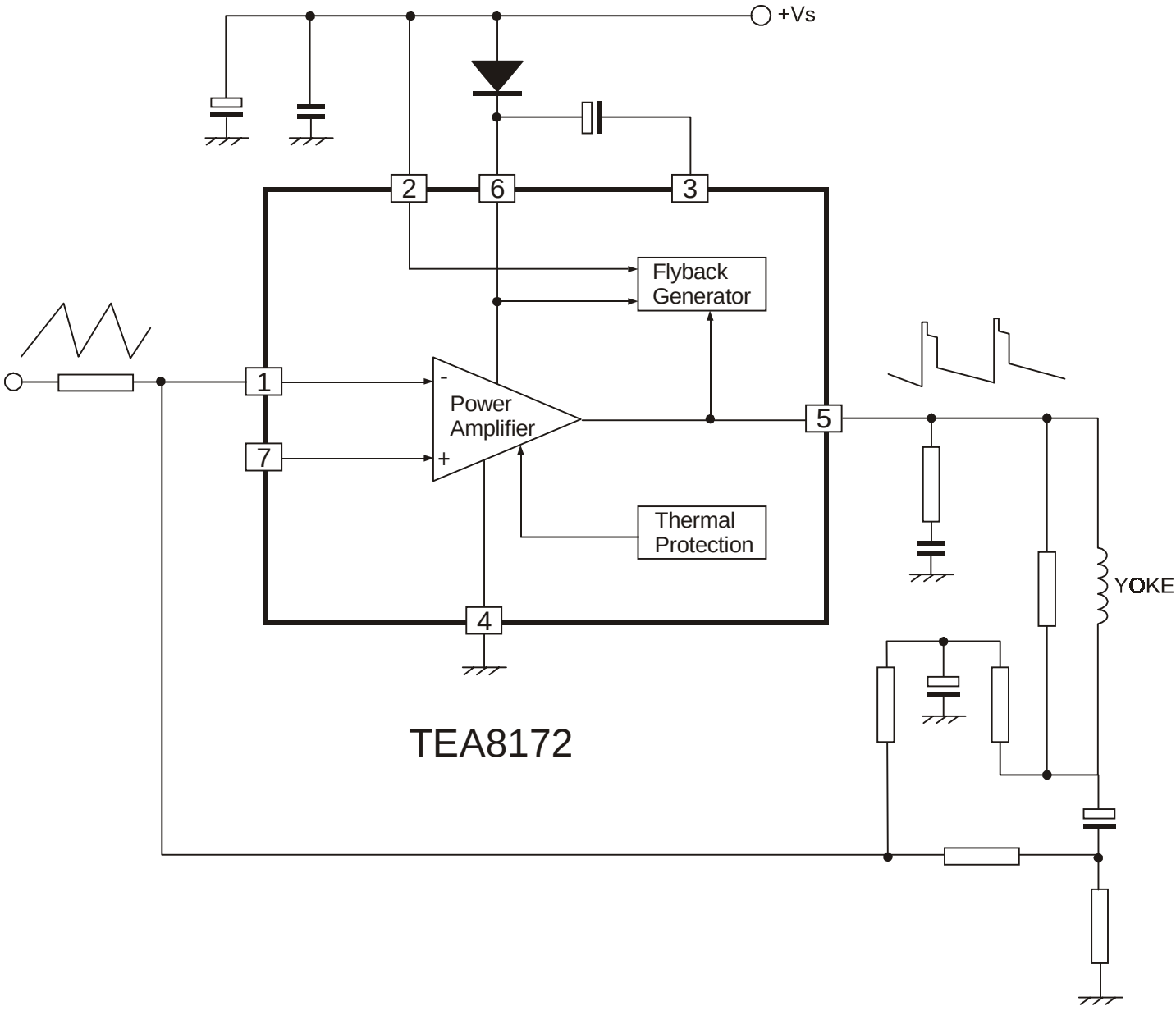
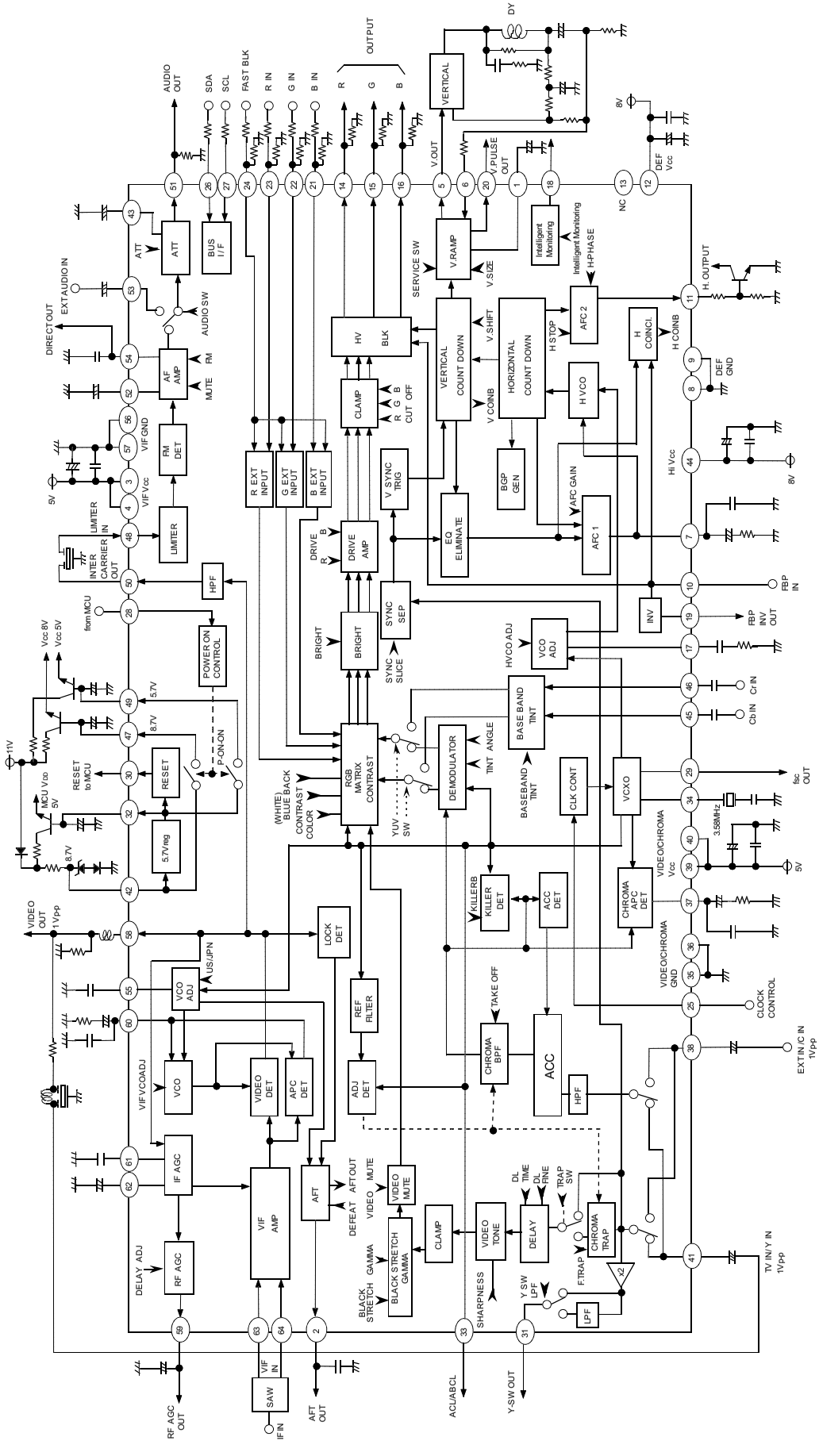

+Vs
2
6
3
Flyback
Generator
1
-
Power
Amplifier
+
7
5
Thermal
Protection
4
YOKE
TEA8172

Fig. 1 M61251FP block diagram



782-M2035-0200

X903
GZS10-2-10B

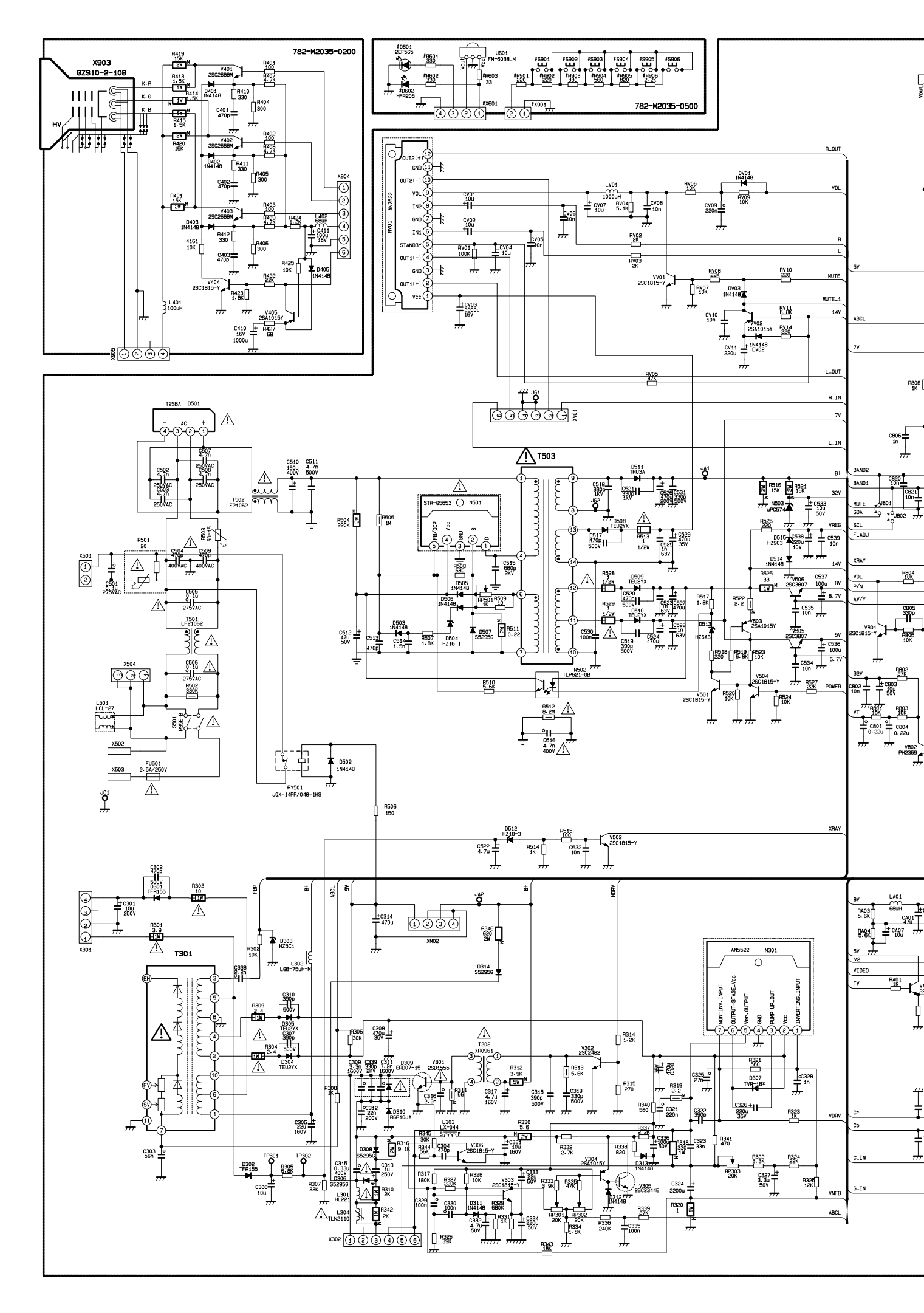
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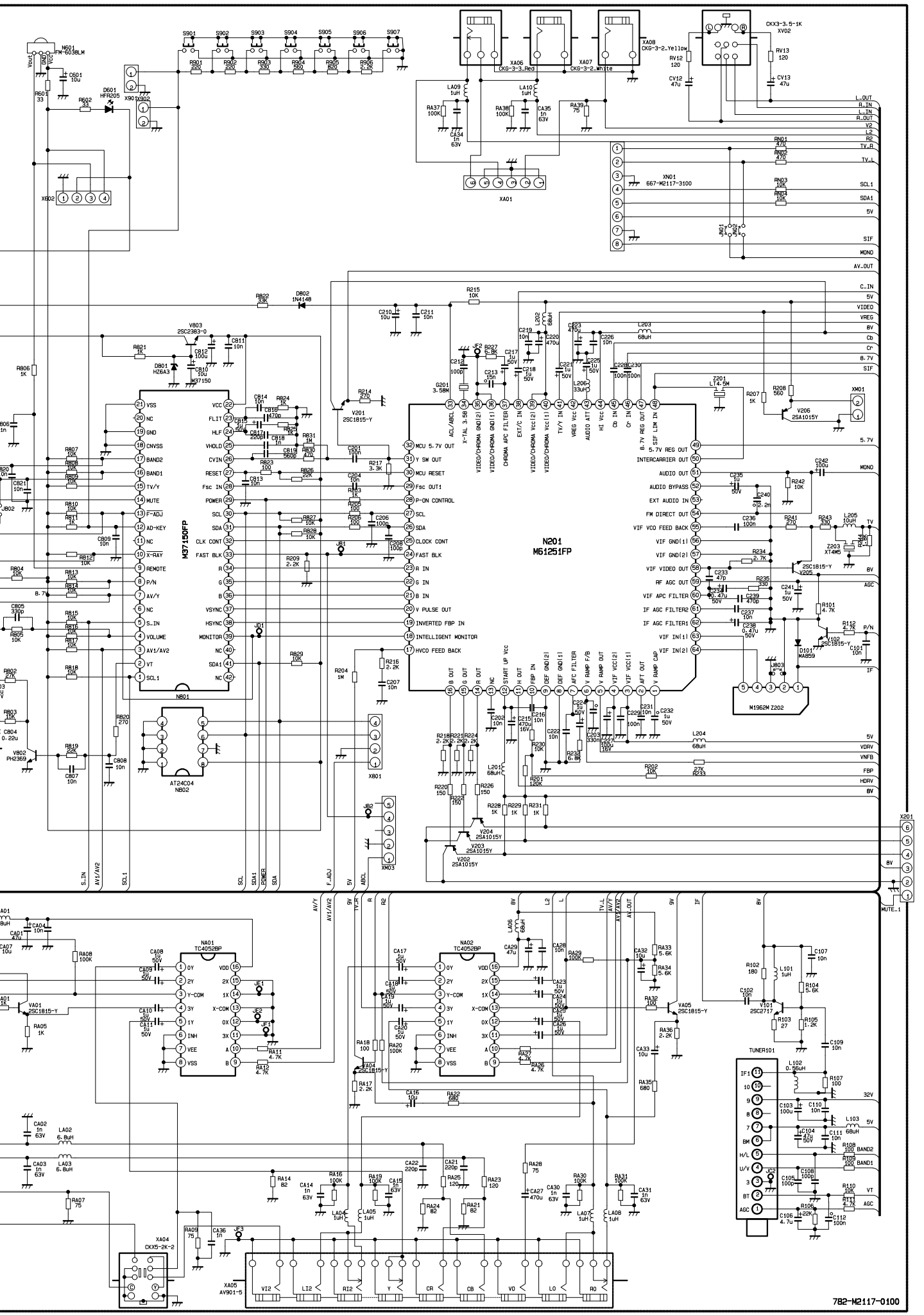
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N201
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K-G
K-B
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X901
X601
U601
FM-6038LM
AN7522
NV01
R_OUT
L_OUT
R_IN
L_IN
VOL
MUTE
MUTE_1
ABCL
14V
7V
5V
R
L
T503
T502
LF21062
T501
LF21062
T301
STR-G5653
N501
N502
TLP621-GB
AN5522
N301
JQX-14FF/048-1HS
RY501
XR0961
XM02
XW01
XS01
XS02
XS03
XS04
XS05
XS06
XS07
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