

# Panoramic

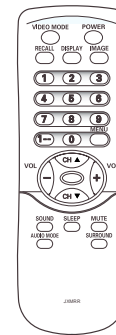
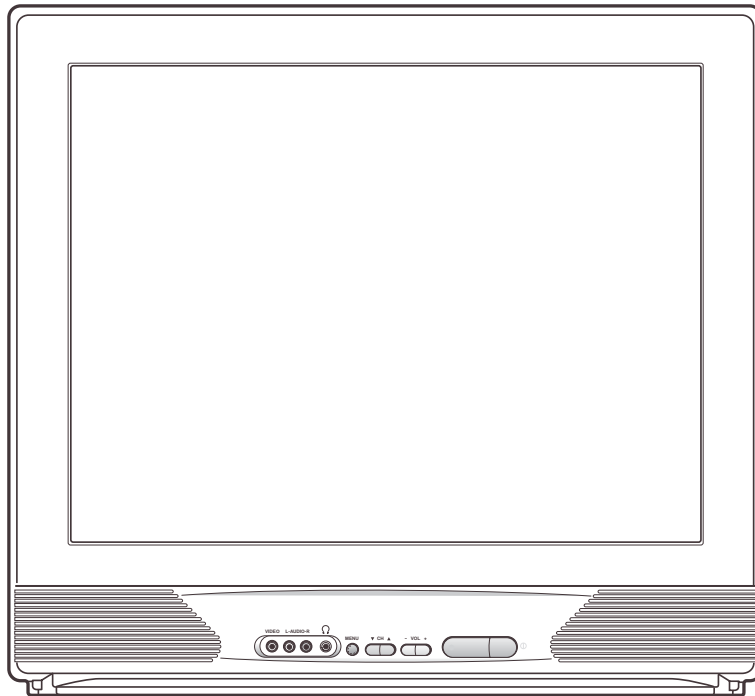
FILE NO.

## SERVICE MANUAL Colour Television

Model No. TVP-2905AS

(Argentina)

Service Ref. No. TVP-2905AS-00



### Specifications

Power Source . . . . . AC220V, 50Hz / 60Hz  
Receiving System . . . . . PAL (M/M, N/N), NTSC (M/M)  
Channel Coverage  
    Antenna mode VHF: CH02-CH13, UHF: CH14-CH69  
    CATV mode VHF band: CH01-CH13, Mid band: CH14-CH22  
                Super band: CH23-CH36, Hyper band: CH37-CH64  
                Ultra band: CH65-CH94 and CH100-CH125  
                Low mid band: CH95-CH99  
Video IF . . . . . 45.75MHz  
Aerial Input Impedance . . 75 $\Omega$   
Ext. Terminals  
    Video inputs: Phono jack X 2 (1Vp - p, 75 $\Omega$ )  
    Audio inputs: Phono jack (R/L) X 2 (436mVrms, more than 40K $\Omega$ )  
    Headphone Jack: Mini stereo jack X 1  
Sound Output (RMS) . . . 3W + 3W  
Speakers . . . . . 5cm x 9cm x 2 pcs.  
Dimensions . . . . . 656(W) X 600(H) X 496(D)mm  
Weight . . . . . approx. 31.7 Kg

*Specifications subject to change without notice.*

**Product Code: 111334312**

**Original Version**

**Chassis Series: LA5-A**

Give complete "SERVICE REF. NO." for parts order or servicing. It is shown on the rating plate at the cabinet back of the unit.

This T.V. receiver will not work properly in foreign countries where the television transmission system and power source differ from the design specifications. Refer to the specification table.



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## Safety Notice

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### SAFETY PRECAUTIONS




- 1: An isolation transformer should be connected in the power line between the receiver and the AC line when a service is performed on the primary of the converter transformer of the set.

2: Comply with all caution and safety-related notes provided on the cabinet back, inside the cabinet, on the chassis or the picture tube.
- 3: When replacing a chassis in the cabinet, always be certain that all the protective devices are installed properly, such as, control knobs, adjustment covers or shields, barriers, isolation resistor-capacitor networks etc.. Before returning any television to the customer, the service technician must be sure that it is completely safe to operate without danger of electrical shock.

### X-RADIATION PRECAUTION

The primary source of X-RADIATION in television receiver is the picture tube. The picture tube is specially constructed to limit X-RADIATION emissions. For continued X-RADIATION protection, the replacement tube must be the same type as the original including suffix letter. Excessive high voltage may produce potentially hazardous X - RADIATION. To avoid such hazards, the high voltage must be maintained within specified limit. Refer to this service manual, high voltage adjustment for specific high voltage limit. If high voltage exceeds specified limits, take necessary corrective action. Carefully follow the instructions for + B1 volt power supply adjustment, and high voltage check to maintain the high voltage within the specified limits.

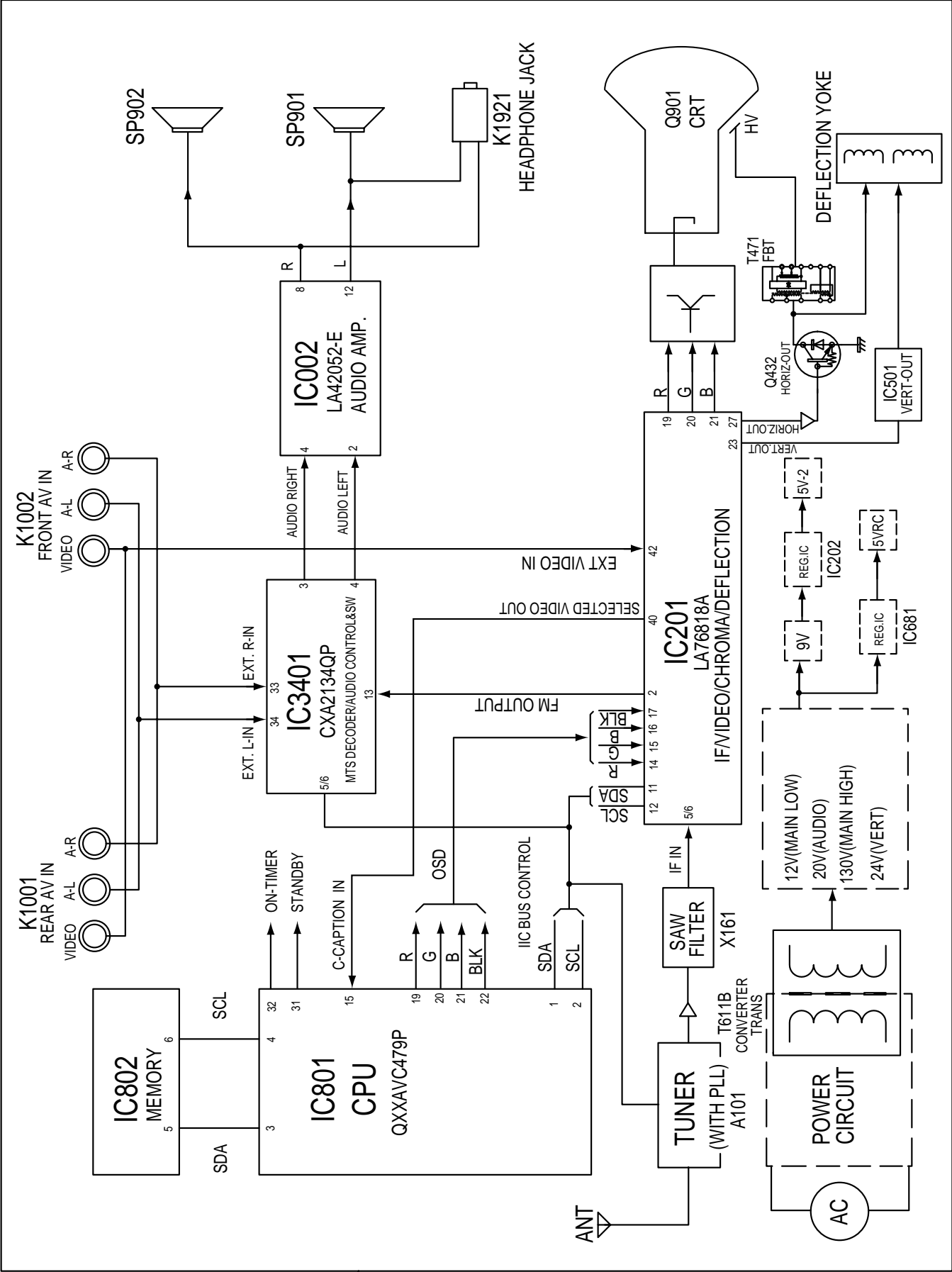
### PRODUCT SAFETY NOTICE

Product safety should be considered when a component replacement is made in any area of a receiver. Components indicated by mark  in the parts list and the schematic diagram designate components in which safety can be of special significance. It is particularly recommended that only parts designated on the parts list in this manual be used for component replacement designated by mark . No deviations from resistance wattage or voltage ratings may be made for replacement items designated by mark .



# Chassis Block Diagrams

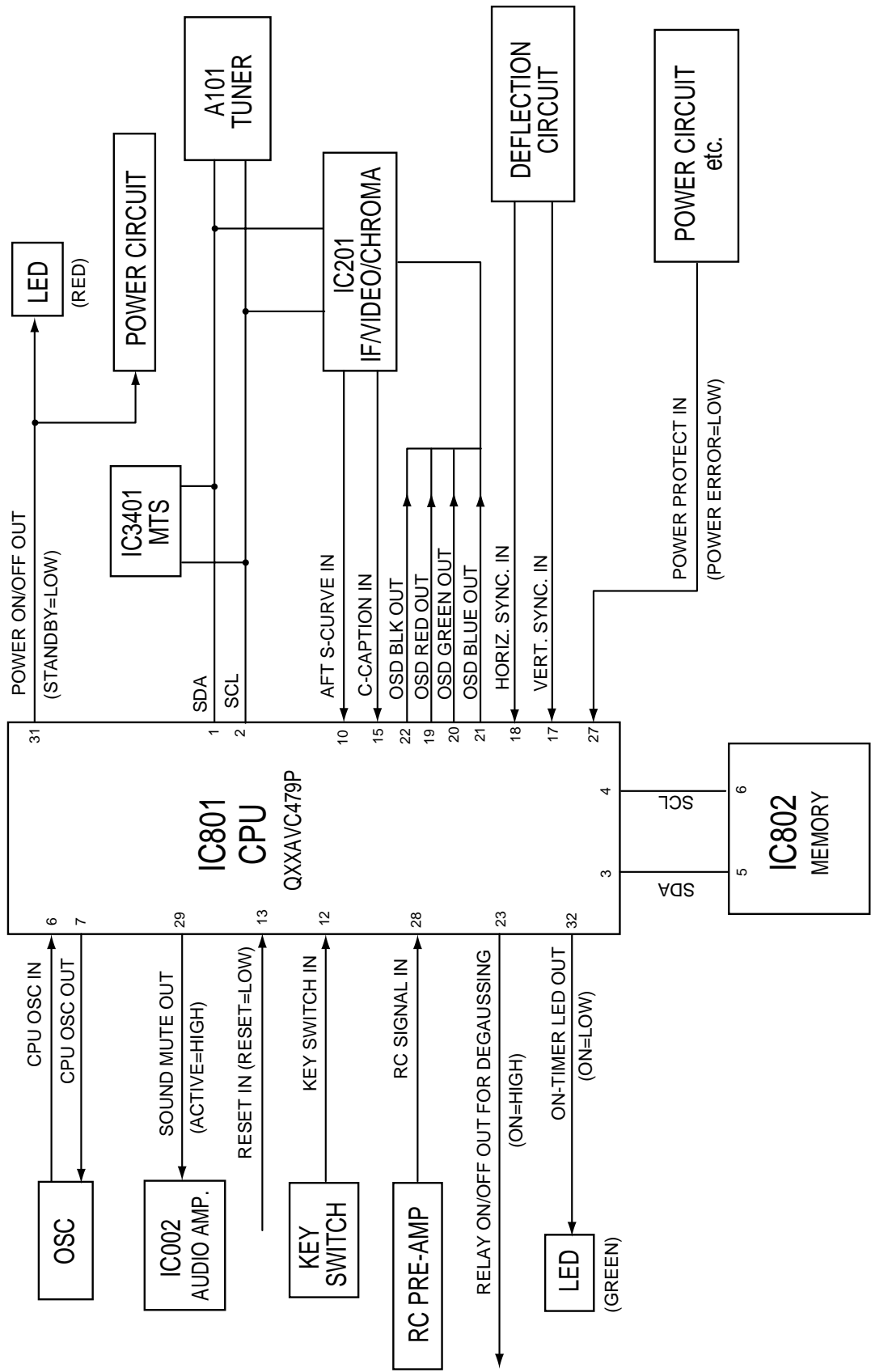
## MAIN SIGNAL PROCESSING CIRCUIT





# Chassis Block Diagrams

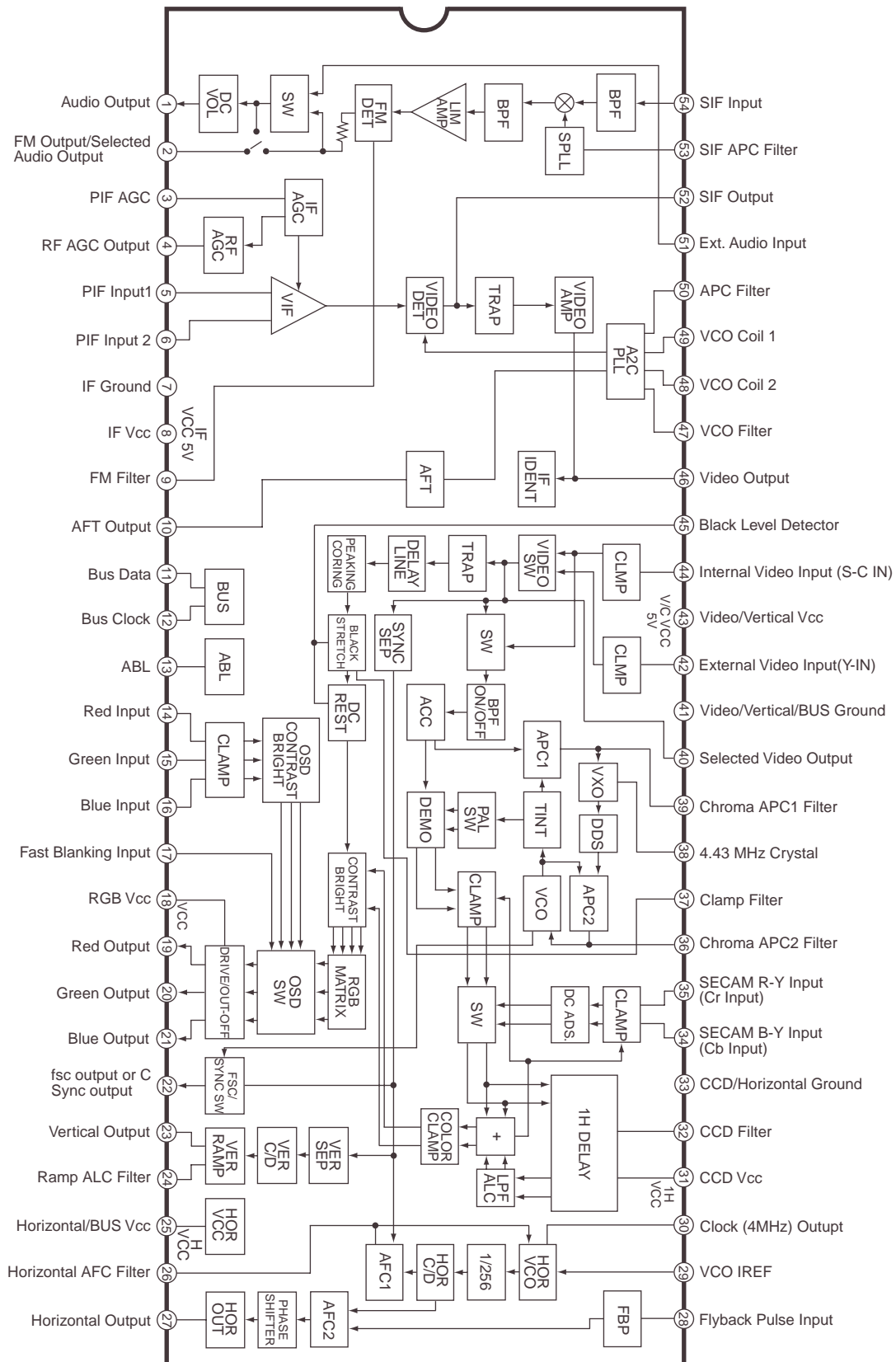
## SYSTEM CONTROL





# IC Block Diagrams

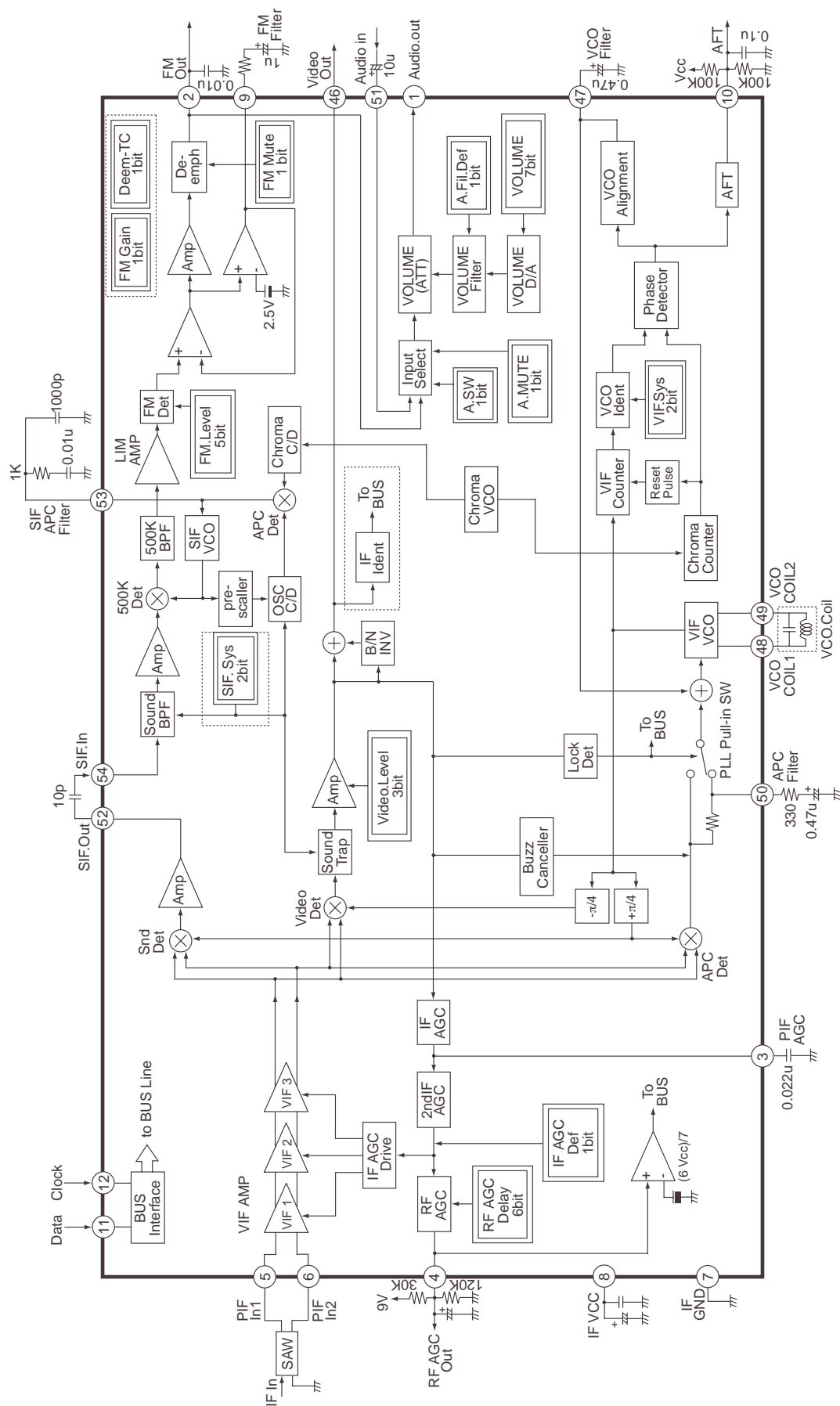
IC201 < IF/Video/Chroma/Def. > LA76818A





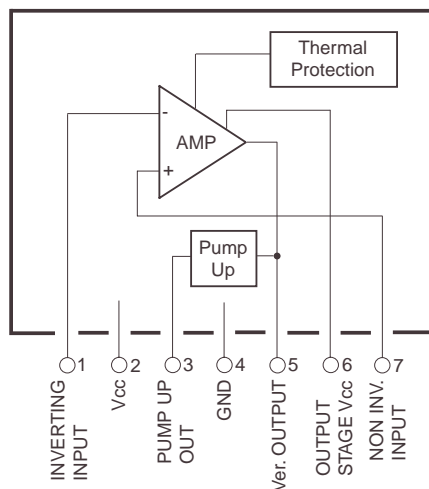
# IC Block Diagrams

## IC201 <IF System Block Diagram> LA76818A





## IC501 &lt; Vertical Output &gt; LA78041N, STV9379AN



The block diagram illustrates the internal architecture of the TDA7490, showing the flow of audio signals from input to output. Key components include:

- Input Section:** COMPIN (13) for audio multiplexing, VCC (19), Analog Block GND (17), NOISETC (23), and SAPTC (18).
- Processing Section:** VCA, LFT, VCO, 1/4, 1/2, FLT, LPF, DeEm, STIND, LOGIC, BPF, SAPVCO, NOISE DET, SAPIND, AMP (+4dB), LPF, HPF, RMSDET, SPECTRAL, and VE.
- Output Section:** SUBOUT (21), MAIN OUT (9), MATRIX, TVSW, SURROUND, BASS, TREB, VOL-L, VOL-R, LSOUT-L, and LSOUT-R.
- Control and Reference Section:** IREF, IREF, SCL, SDA, PONRES, and IREF.

The diagram also shows various internal signals and outputs, such as STEREO, NOISE, SAP, and SPECTRAL, and their connections to the pins.



# Service Adjustments

## General

This set has an On-screen Service Menu system included in the CPU that allows remote operation for most of the service adjustments.

### IC802 (EEPROM) Replacement

When IC802 (EEPROM) is replaced, IC801 (CPU) will automatically write the initial reference data into IC802 for basic TV operation. However, the bus data should be checked and some bus data should be set up before attempting the service adjustments. (See pages 9 ~ 10 for detailed information.)

### Initial Bus Data Setup

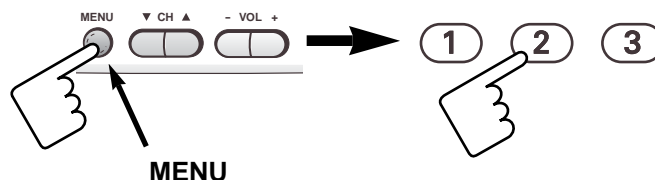
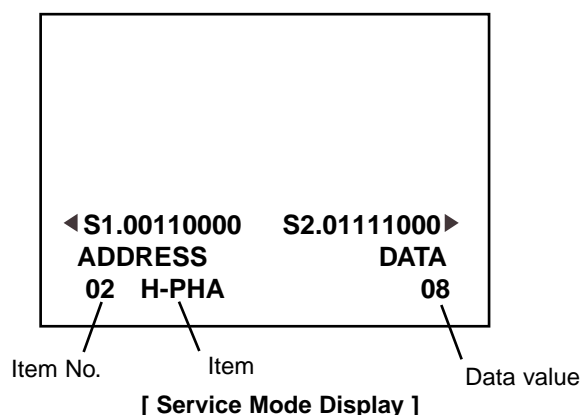
Note: When IC802 (EEPROM) is replaced, following Service Menu should be set up for proper TV operation before attempting the service adjustments.

NO.01 RFAGC (Adjust the data 06 to 10)	NO.82 CHMT (Adjust the data 12 to 05)	NO.308 R08 (Adjust the data FF to 21)
NO.05 V-SCO (Adjust the data 17 to 11)	NO.84 RELAY (Adjust the data 80 to 20)	NO.309 R09 (Adjust the data FF to 95)
NO.06 V-LIN (Adjust the data 15 to 16)	NO.85 CCD (Adjust the data 26 to 31)	NO.310 R10 (Adjust the data FF to 50)
NO.11 VLI60 (Adjust the data +1 to 0)	NO.300 R00 (Adjust the data FF to 93)	NO.311 R11 (Adjust the data FF to 00)
NO.19 RDRIV (Adjust the data 63 to 64)	NO.301 R01 (Adjust the data FF to 0E)	↓ ↓
NO.20 GDRIV (Adjust the data 07 to 08)	NO.302 R02 (Adjust the data FF to 00)	NO.371 R71 (Adjust the data FF to 00)
NO.21 BDRIV (Adjust the data 63 to 64)	NO.303 R03 (Adjust the data FF to 00)	NO.372 R72 (Adjust the data FF to A2)
NO.24 B-YD (Adjust the data 10 to 08)	NO.304 R04 (Adjust the data FF to 01)	
NO.25 R-YD (Adjust the data 10 to 08)	NO.305 R05 (Adjust the data FF to 00)	
NO.68 AFCAV (Adjust the data 00 to 01)	NO.306 R06 (Adjust the data FF to 00)	
NO.81 POMT (Adjust the data 12 to 08)	NO.307 R07 (Adjust the data FF to 00)	

## Service Adjustment-1

### 1. Enter the Service Menu

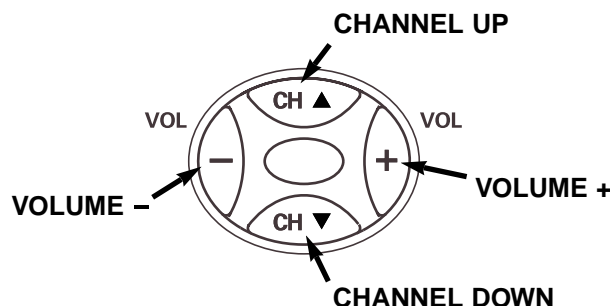
While pressing the **MENU** button on the television, press the Number Key **2** on the remote control unit.  
The Service Menu now appear.



### 2. Service Adjustments:

Press the **CHANNEL UP** or **CHANNEL DOWN** button on the remote control handset to select the desired service menu item you want to adjust.

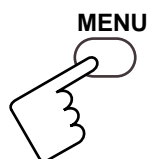
Use the **VOLUME +** or **-** to adjust the data. The **+** or **-** button will increase or decrease the data sequentially.



### 3. Exit from the Service Menu

Press the **MENU** button to turn off the Service Menu display.

The data which is set in the service mode is stored into the memory IC automatically.





# Service Adjustments

## On-screen Service Menu

Following table shows the initial values which have been stored in the CPU ROM, and items for the service adjustments. When IC802 (EEPROM) is replaced, check the bus data to confirm they are the same as below. The shaded menu should be checked and be set up or readjusted according to the procedures described in the following pages. Initial Setup Data marked with an \* should be changed from Initial Value Data.

No.	Item	Initial value	Range	Description
01	RFAGC	06→10*	00~63	RF AGC adjustment
02	H-PHA	08	00~31	H-PHASE adjustment (50Hz)
03	V-POS	32	00~63	Vertical position adjustment (50Hz)
04	V-SIZ	54	00~127	Vertical size adjustment (50Hz)
05	V-SCO	17→11*	00~31	Vertical-S compensation (50Hz)
06	VLIN	15→16*	00~31	Vertical linearity adjustment (50Hz)
07	H-P60	+4	-16~+15	Difference value of H-PHASE adjustment (60Hz)
08	V-P60	0	-32~+31	Difference value of V-POSITION adjustment (60Hz)
09	V-S60	+1	-64~+63	Difference value of V-SIZE adjustment (60Hz)
10	VSC60	0	-16~+15	Difference value of Vertical-S compensation (60Hz)
11	VLI60	+1→0*	-16~+15	Difference value of Vertical linearity adjustment (60Hz)
12	OSDHP	30	01~255	OSD horizontal remark position
13	OSDC	50	00~127	OSD contrast
14	V-SCP	07	00~07	V-SIZE COMP (50Hz)
15	SBIAS	70	00~127	Sub Bias adjustment
16	RBIAS	00	00~255	Red Bias adjustment
17	GBIAS	00	00~255	Green Bias adjustment
18	BBIAS	00	00~255	Blue Bias adjustment
19	RDRIV	63→64*	00~127	Red Drive adjustment
20	GDRIV	07→08*	00~15	Green Drive adjustment
21	BDRIV	63→64*	00~127	Blue Drive adjustment
22	--	--	--	White balance (a lateral line)
23	DRV	--	--	Brightness and dark of White balance adjustment
24	B-YD	10→08*	00~15	B-Y DC Level
25	R-YD	10→08*	00~15	R-Y DC Level
26	B-YND	0	-16~+15	Difference value of NTSC B-Y DC Level
27	R-YND	0	-16~+15	Difference value of NTSC R-Y DC Level
28	G-YA	00	00,01	G-Y Angle
29	RBGB	08	00~15	R-Y/B-Y Gain Balance
30	RBAG	08	00~15	R-Y/B-Y Angle
31	G-YAN	00	00,01	Difference value of NTSC G-Y Angle
32	RBGBN	0	-8~+7	Difference value of NTSC R-Y/B-Y Gain Balance
33	RBABN	0	-8~+7	Difference value of NTSC R-Y/B-Y Angle
34	COGV	01	00~03	Coring gain
35	BLK	03	00~03	BLK. STR. Start (W/Defeat)
36	BLKG	03	00~03	BLK. STR. Gain
37	BRTA	00	00, 01	BRT. ABL Defeat
38	BRST	00	00, 01	Mid. Stp. Defeat
39	BRTH	00	00~07	Bright. ABL. Threshold
40	WPL	00	00~03	WPL Ope. Point (W/Defeat)
41	YGAM	00	00~03	Y Gamma Start
42	PORW	00	00, 01	AV Mode Pre/Over SW
43	PORS	02	00~03	AV Mode Pre/Over-shoot adjustment
44	RFCO	0	00~03	Difference Value of RF Corring Gain
45	PORWN	01	00, 01	RF Pre/Over SW
46	PORSN	03	00~03	RF Pre/Over-shoot adjustment
47	TINT	0	-16~+15	Tint
48	SHRF	0	-16~+15	Difference Value of RF Sharpness
49	TEXC	08	00~127	OSD Text Contrast
50	AUFL	00	00, 01	Auto. Fresh



# Service Adjustments

No.	Item	Initial value	Range	Description
51	COOP	07	00~07	Colour Killer
52	Y-APF	01	00, 01	Y-APF Select
53	DEEM	00	00, 01	De-emphasis TC
54	V-LVL	04	00~07	Video Level
55	FMLVL	16	00~31	FM Level
56	TTEST	00	00~07	Trap Test
57	IFOM-S	00	00, 01	Over Mod. SW
58	IFMN-S	00	00, 01	Audio Monitor SW, Monitor/FM
59	IFTRPS	01	00, 01	IC Built-in SIF Trap ON/OFF
60	IFMLVL	136	00~255	Video Level Coarse Adjustment & Mod. Operating Dot Setting
61	VBSW	00	00, 01	VBLK SW
62	FBTS	00	00, 01	FBP Blanking SW
63	HBLKL	06	00~07	H-Blanking Control Left
64	HBLKR	04	00~07	H-Blanking Control Right
65	AFCRF	00	00, 01	Adjustment of AFC Gain & Gate (RF)
66	VSURF	00	00, 01	Adjustment of Vertical Sync. Separation Sensitivity (RF)
67	CDMRF	00	00~07	Vertical Count Down Loop Adjustment (RF)
68	AFCAV	00→01*	00, 01	Adjustment of AFC Gain & Gate (AV)
69	VSUAV	00	00, 01	Adjustment of Vertical Sync. Separation Sensitivity (AV)
70	CDMAV	00	00~07	Vertical Count Down Loop Adjustment (AV)
71	HLK-T	00	00, 01	H-lock, V-Det. (RF)
72	HLK-V	00	00, 01	H-lock, V-Det. (AV)
73	VCO-SW	00	00, 01	C. VCO Adjustment SW
74	VCOADJ	03	00~03	C. VCO Adjustment
75	GRAY	00	00, 01	Gray Mode
76	CROSS	00	00~03	Cross Black/White
77	HL-SW	01	00, 01	Half Tone ON/OFF
78	HL-TON	00	00~03	Half Tone Level
79	AVNCON	64	00~127	Contrast (No Signal in AV)
80	AVNBRI	64	00~127	Brightness (No Signal in AV)
81	POMT	12→08*	00~127	Power Mute Time
82	CHMT	12→05*	00~31	Channel Mute Time
83	SYST	03	00~255	System-N
84	RELAY	80→20*	00~255	Power Relay Time
85	CCD	26→31*	00~31	Horizontal Remark Position Compensation Register
86	TVAVTM	00	00~255	AV/TV Mute Time
300	R00	FF→93*	00~FF	ROM CORRECTION
301	R01	FF→0E*	00~FF	ROM CORRECTION
302	R02	FF→00*	00~FF	ROM CORRECTION
303	R03	FF→00*	00~FF	ROM CORRECTION
304	R04	FF→01*	00~FF	ROM CORRECTION
305	R05	FF→00*	00~FF	ROM CORRECTION
306	R06	FF→00*	00~FF	ROM CORRECTION
307	R07	FF→00*	00~FF	ROM CORRECTION
308	R08	FF→21*	00~FF	ROM CORRECTION
309	R09	FF→95*	00~FF	ROM CORRECTION
310	R10	FF→50*	00~FF	ROM CORRECTION
311	R12	FF→00*	00~FF	ROM CORRECTION
312	R13	FF→00*	00~FF	ROM CORRECTION
---	---	---	---	---
---	---	---	---	---
---	---	---	---	---
---	---	---	---	---
370	R72	FF→00*	00~FF	ROM CORRECTION
371	R72	FF→00*	00~FF	ROM CORRECTION
372	R72	FF→A2*	00~FF	ROM CORRECTION



# Service Adjustments

## Important Notice:

Do not attempt to adjust service adjustments not listed on below otherwise it may cause loss of performance and for correct operation.

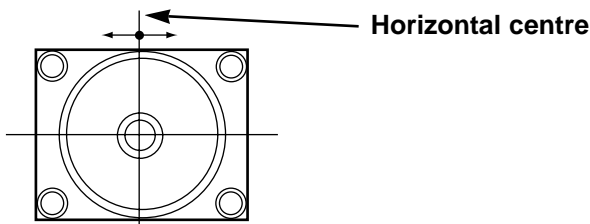
### Item 01 [RFAGC] AGC

NOTE: Do not attempt this adjustment with weak signal.

1. Tune the receiver to most clearest (or strongest) VHF station in your area. Set the brightness and contrast to maximum. Set the colour control to minimum.
2. Select Item No. 01 [RFAGC] in the service mode.
3. Change value until the snow noise just disappears.
4. Exit from the service mode.

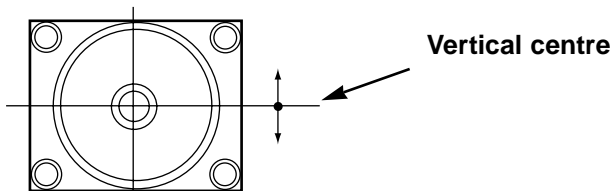
### Item 02 [H-PHA] HORIZONTAL CENTRE

1. Receive a monochrome circular pattern.
2. Set the brightness and contrast to normal.
3. Select Item No. 02 [H-PHA] in the service mode.
4. Change value to be optimum horizontal centre position.
5. Exit from the service mode.



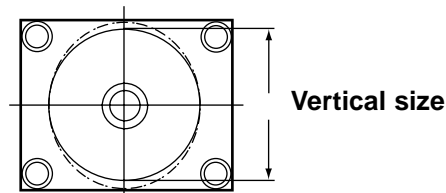
### Item 03 [V-POS] VERTICAL CENTRE

1. Receive a monochrome circular pattern.
2. Set the brightness and contrast to maximum.
3. Select Item No. 03 [V-POS] in the service mode.
4. Change value to be optimum vertical centre position.
5. Exit from the service mode.



### Item 04 [V-SIZ] VERTICAL SIZE

1. Receive a monochrome circular pattern.
2. Set the brightness and contrast to maximum.
3. Select Item No. 04 [V-SIZ] in the service mode.
4. Change value to be optimum vertical size.
5. Exit from the service mode.

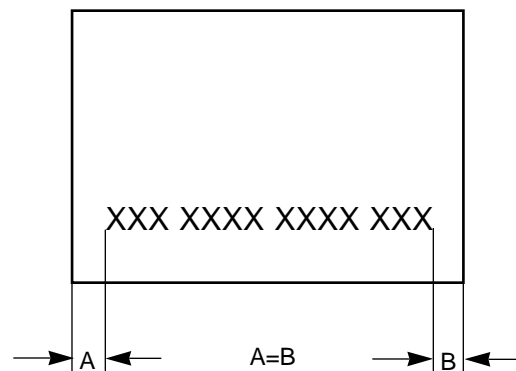


### Item 12 [OSDHP] OSD POSITION

1. Receive a monochrome circular pattern.
2. Set the brightness and contrast to normal.
3. Select Item No. 12 [OSDHP] in the service mode.
4. Change value to be proper OSD position.
5. Exit from the service mode.

### Item 85 [CCD] CAPTION H-POSITION ADJ.

1. Tune receiver to a caption channel.
2. Check that CAPTION position is in the horizontal center of the screen. If CAPTION center is too right or left, perform steps 3-6. (See figure below.)
3. Select Item No. 85 [CCD] in the service mode.
4. Adjust data with + or - key for proper horizontal center.
5. Exit from the service mode.



Caption H-position Adj.

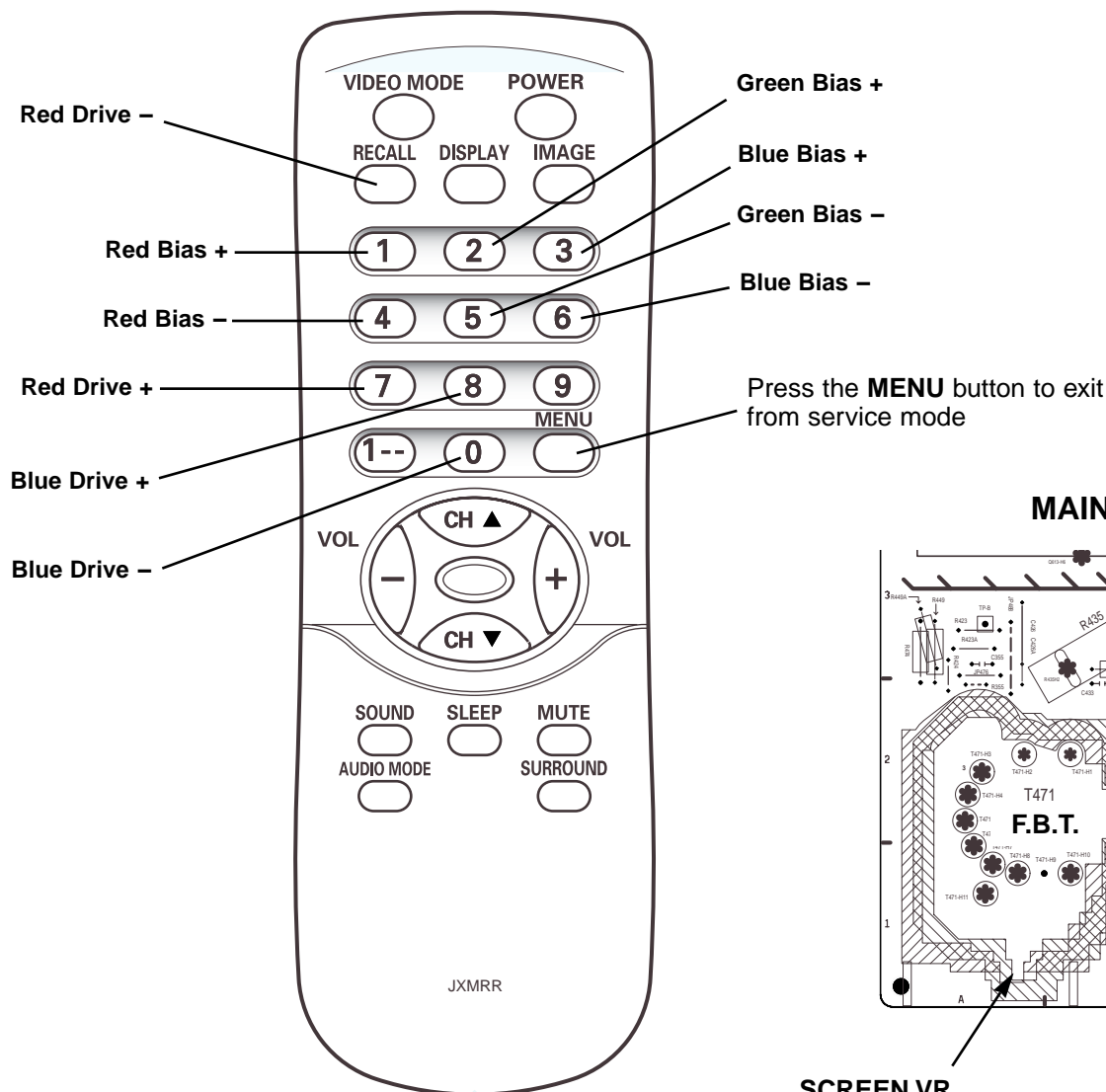


# Service Adjustments

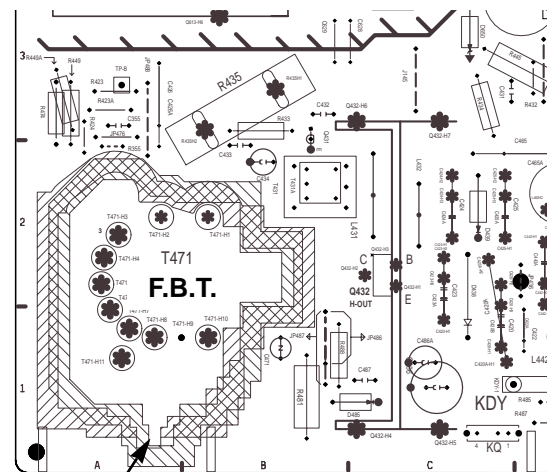
## Items 16-23 GREY SCALE

1. Receive a monochrome circular pattern.
2. Set the brightness and colour to normal, contrast to maximum.
3. Enter to the service mode.
4. Set each value of Item-16 **RBIAS**, 17 **GBIAS**, 18 **BBIAS** mode to 00. Set each value of Item-19 **RDRIV**, 21 **BDRIV** mode to 63, 20 **GDRIV** to 08.
5. Select Item-22 mode to be one horizontal scanning line and turn the screen volume on the FBT to obtain just visible one coloured line.
6. Press the **1 (Red Bias +)**, **4 (Red Bias -)**, **2 (Green Bias +)**, **5 (Green Bias -)**, **3 (Blue Bias +)** or **6 (Blue Bias -)** button to adjust the brightness of each colour until a dim white line produced. Please see the control button allocations in this mode.
7. Select Item-23 **DRV** mode to enter the white balance adjusting mode.
8. Press the **7 (Red Drive +)**, **RECALL (Red Drive -)**, **8 (Blue Drive +)** or **0 (Blue Drive -)** button alternately to produce normal black and white picture.
9. Exit from the service mode.
10. Check for proper grey scale tracking at all brightness levels.

NOTE: If the grey scale adjustment is made after picture tube replacement, check the high voltage.



## MAIN BOARD



**SCREEN VR**  
(Under side)



# Service Adjustments

## Service Adjustment-2 (MTS Adjustment)

Following table shows the initial values of MTS Adjustment which have been stored in the CPU ROM.

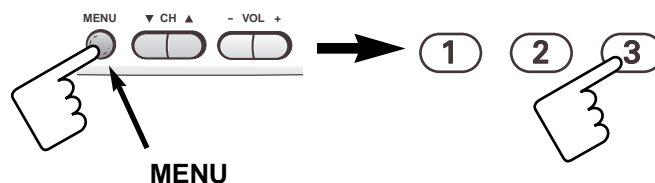
No.	Item	Initial value	Range
01	INPUT LEVEL	08	00~63
02	HIGH SEPARATION	21	00~63
03	LOW SEPARATION	34	00~63

### 1. Enter the Service Menu

While pressing the **MENU** button on the television, press the Number Key **3** on the remote control unit. The Service Menu now appear.

<b>INPUT LEVEL</b>	<b>08</b>
HI SEPARATION	21
LOW SEPARATION	34
ADJUST: -/+	
CHOOSE: ▲▼	
EXIT : MENU	

[ MTS Adjustment Mode ]

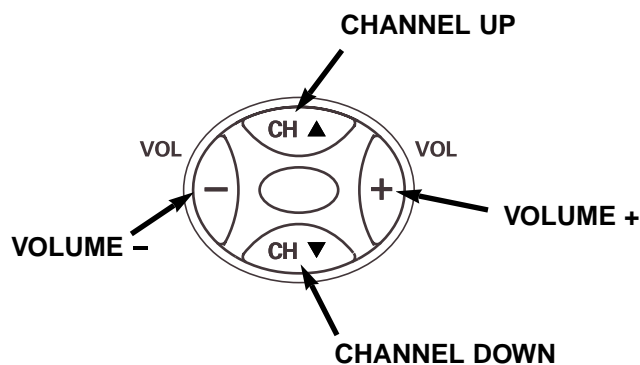


[ Entering the Service Menu ]

### 2. Service Adjustments:

Press the **CHANNEL UP** or **CHANNEL DOWN** button on the remote control handset to select the desired service menu item you want to adjust.

Use the **VOLUME +** or **-** to adjust the data. The **+** or **-** button will increase or decrease the data sequentially.

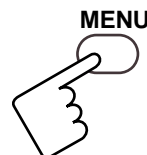


[ Service Adjustment ]

### 3. Exit from the Service Menu

Press the **MENU** button to turn off the Service Menu display.

The data which is set in the service mode is stored into the memory IC automatically.



[ Exit from the Service Menu ]



# Service Adjustments

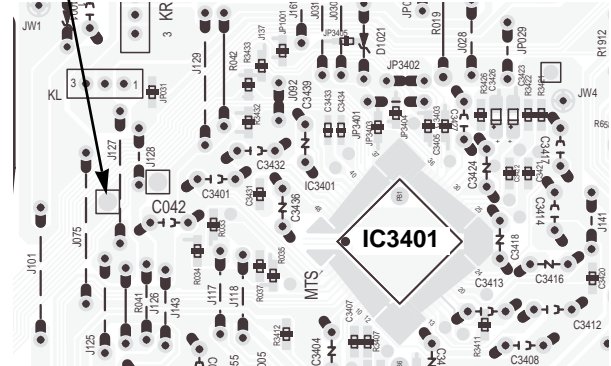
## SOUND LEVEL ADJUSTMENT

1. Connect a signal to the antenna terminal with audio signal of 1KHz at 100% modulated.
2. Connect a DC Volt-Meter to **TP-317** ( pin-38 of IC3401) and the ground.
3. Switch the TV set on, and set the Surround OFF.  
Press and hold the **MENU** button on the TV set, and press "**3**" button on the remote control transmitter to enter to the service mode.

INPUT LEVEL      08  
HI SEPARATION      21  
LOW SEPARATION    34

ADJUST: - /+  
CHOOSE: ▲▼  
EXIT : MENU

TP-317(pin-38 of IC3401)



MAIN BOARD  
(Solder side)

5. Adjust voltage to become DC 400mVrms±20mVrms at TP317 by pressing the **VOLUME**(+/-) button on the remote control or TV set.
6. To exit from the service mode, press the **MENU** button.

## STEREO SEPARATION ADJUSTMENT

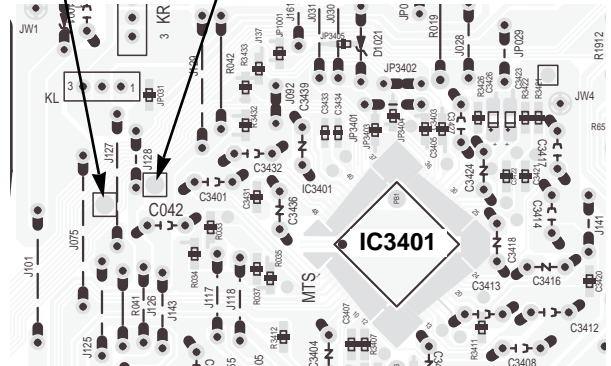
1. Connect an oscilloscope:  
Probe-A to TP-317 (pin-38 of IC3401) and the ground.  
Probe-B to TP-318 (pin-39 of IC3401) and the ground.
2. Turn on the TV set, and receive the multi sound programme.
3. Press and hold the **MENU** button on the TV set, and press "**3**" button on the remote control transmitter to enter the service mode.
4. Select "**LOW SEPARATION**" by pressing the CHANNEL UP/DOWN button on the remote control or TV set.

INPUT LEVEL      08  
HI SEPARATION      21  
LOW SEPARATION    34

ADJUST: - /+  
CHOOSE: ▲▼  
EXIT : MENU

TP-317(pin-38 of IC3401)

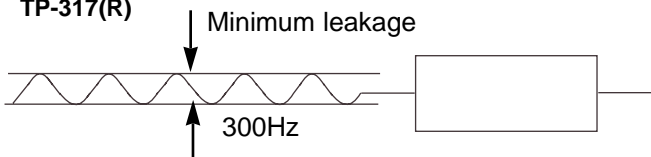
TP-318 (pin-39 of IC3401)



MAIN BOARD  
(Solder side)

5. Adjust the level of 300Hz at TP-317 (pin-38 of IC3401) to become minimum level by pressing the **VOLUME**(+/-) button on the remote control or TV set.

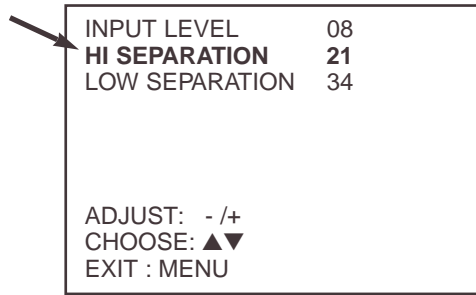
TP-317(R)



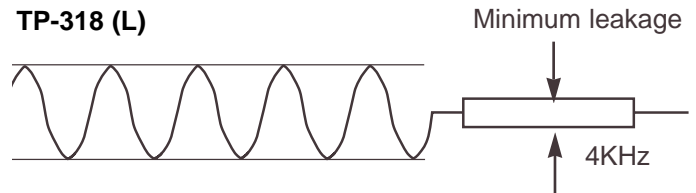


# Service Adjustments

- Select "HI SEPARATION" by pressing the **CHANNEL UP/DOWN** button on the remote control or TV set.



- Adjust the level of 4KHz at TP-318 (pin-39 of IC3401) to become minimum level by pressing the **VOLUME (+/-)** button on the remote control or TV set.
- To exit from the service mode, press the **MENU** button.



## Service Adjustment-3

### FINE TUNING

This adjustment is used to do a fine tuning of the channels with poor reception after they have been stored by the automatic tuning.

This function is available for one channel only and the fine-tuned channel is memorized into IC802 (EEPROM).

#### 1. Enter the Service Menu

While pressing the **MENU** button on the television, press the "4" or **MENU** button on the remote control unit. The Service Menu now appear.



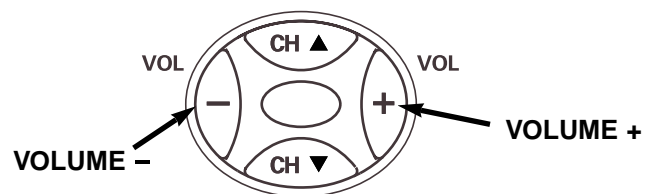
Fine tuning service mode



[ Entering the Service Menu ]

#### 2. Service Adjustments:

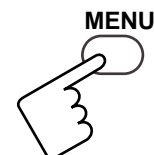
Press and hold the **VOLUME +** or **VOLUME -** button on the remote control handset or TV set to make fine tuning adjustment. Press and hold the **VOLUME +** button for higher frequency tuning, and press and hold the **VOLUME -** for lower frequency tuning.



[ Service Adjustment ]

Fine tuning data value will be automatically stored in memory.

To return to normal TV mode, press the **MENU** button on the TV set or remote control handset. (Or will automatically return to normal TV mode after 5 seconds.)



[ Exit from the Service Menu ]

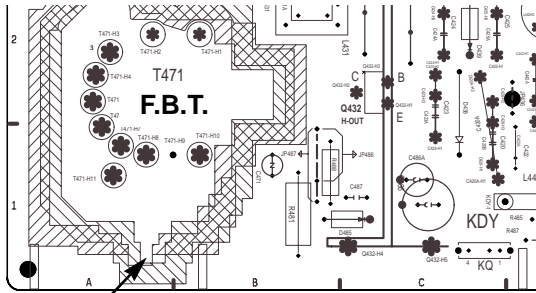


# Service Adjustments

## Service Adjustment-4

### FOCUS ADJUSTMENT

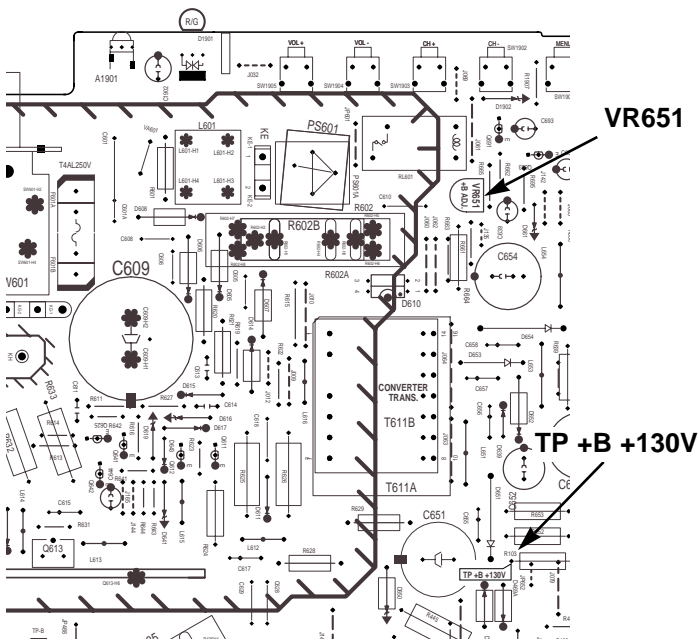
1. Receive the monochrome circular pattern.
2. Set the brightness to normal and contrast to maximum.
3. Adjust the focus control on the F.B.T. for the best focus on the screen centre.



FOCUS VR (Upper side)

### +B POWER SUPPLY ADJUSTMENT

1. Connect a DC voltmeter to TP-"B +130V" and the ground. Set the +B adjustment control (VR651) to middle range.
2. Set the brightness to normal and contrast to maximum.
3. Tune the receiver to an active channel and synchronized picture.
4. Adjust +B voltage to  $130 \pm 0.5$  volt DC by using VR651.



### HIGH VOLTAGE CHECK

**Note:** +B (+130V) Voltage and Grayscale Adjustment must be completed before attempting High Voltage Check.

1. Connect high voltage voltmeter negative lead to ground, and connect + lead to anode of picture tube.
2. Tune receiver to an active channel and confirm TV is operating properly.
3. The high voltage must be  $28.5KV \pm 1KV$  and less than 32KV at 0 beam current (Brightness and contrast minimum setting).

Note: If the picture tube is replaced, check the high voltage.

### Protection Circuit

This TV set has a built-in power supply protection circuit. It is provided to protect the TV set in case of a power supply circuit malfunctions. When something abnormality occurs during TV reception, the TV set goes to the stand-by mode.

When an abnormality occurs during TV reception, it causes pin 27 of the CPU to go continually Low voltage for about one second. The CPU detects that this has occurred and outputs the signal from pin 31 to switch off the power supply lines.

### Releasing the protective circuit and restoring power supply

To release the protective circuit and restore power supply, turn the power to the TV set OFF and then ON again via either the main power switch or the ON-OFF button on the remote control. This will work only if the power supply trouble was temporary. If there is permanent trouble such as a damaged circuit, power cannot be restored and the circuit will have to be repaired.



# Purity and Convergence Adjustment

**CAUTION:** The Convergence and Purity adjustments have been made at the factory. Readjustment should be made only after picture tube or deflection yoke replacement, following the steps below:

## PURITY ADJUSTMENT

1. Demagnetize the picture tube and receiver using an external degaussing coil. When replacing picture tube or deflection yoke, mount deflection yoke and purity-convergence magnets assembly properly, see figures 1 and 4.
2. Turn Red and Blue guns on and provide only Green raster. Rotate Screen control to fully counterclockwise. Rotate Red and Blue Bias controls fully counterclockwise. Slowly rotate Green Bias control clockwise to produce Green raster.
3. Loosen the screw holding the Deflection Yoke and remove the 3 Rubber Wedges, and slide the Deflection Yoke fully forward.
4. Rotate and spread the Tabs of the two Purity Magnets to centre the vertical green belt in the picture screen. The Purity Magnets are also adjusted to obtain vertical centring of the raster.
5. Slowly slide the Deflection Yoke backward until a uniform green screen is obtained.
6. Check the purity of the red and blue screens for uniformity, turn off other colours to check this (use bias controls). Readjust the yoke position if necessary until all screens are pure.
7. Adjust each Bias control and screen control to obtain white raster. Refer to Gray Scale Adjustment. If part of the picture screen is coloured, adjust the Deflection Yoke position forward or backward slightly.

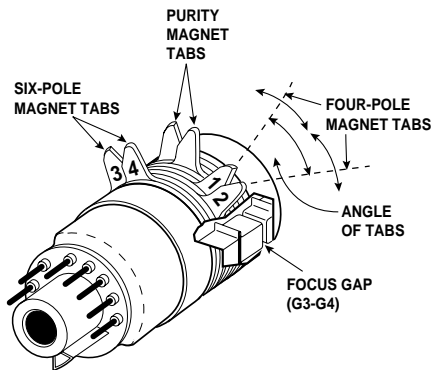


Figure 1. Purity and Convergence Magnets

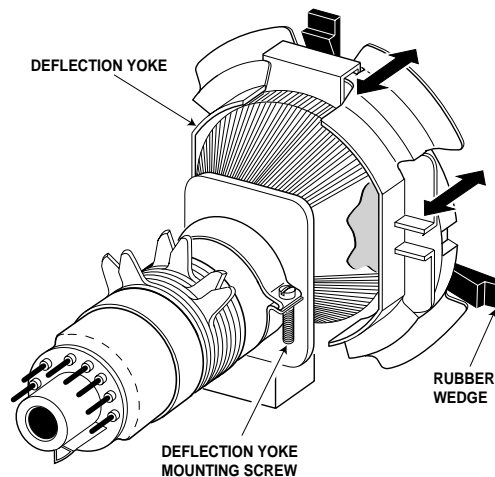


Figure 4. Deflection Yoke Movement

8. Tighten the mounting screw of the Deflection Yoke. Adjust Convergence next.

## CENTRE CONVERGENCE ADJUSTMENT

1. Use a dot crosshatch pattern signal.
2. Turn Red and Blue guns on and turn off Green gun. Adjust the angle between the Tabs of the Four Pole Magnet 1 and 2, and superimpose the Red and Blue vertical lines in the centre area of the picture screen. Refer to figure 2.
3. Keeping the mutual angle of the Tabs of the Four Pole Magnet turn them together to superimpose the Blue and Red horizontal lines in the centre area of the picture screen. Refer to figure 2.
4. Turn Green gun on and adjust Six Pole Magnet 3 and 4 that the Green line superimposed on the Red/Blue lines. This is the same procedure used in steps 2 and 3. Refer to figure 3.

## OUTER AREA CONVERGENCE ADJUSTMENT

Slightly loosen the screw holding the Deflection Yoke. Adjust the Deflection Yoke to converge the detail in the outer area (left side and right side) of the picture screen by orbital movement of the front of the Yoke, then secure the Deflection Yoke in appropriate position by putting the wedges as illustrated. Tighten screw holding the Deflection Yoke.

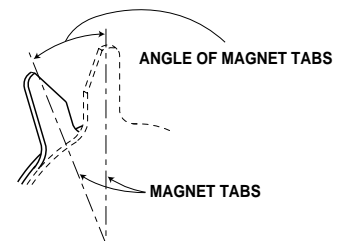


Figure 5. Adjusting Magnet

Adjust tabs angle to superimpose blue and red vertical line.

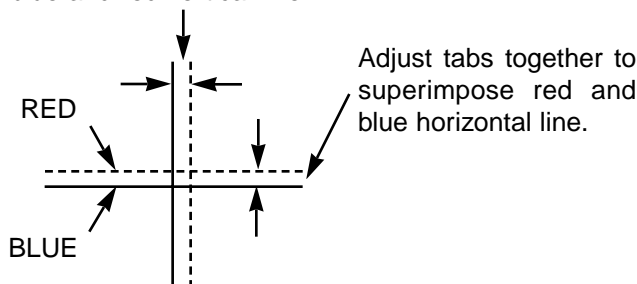


Figure- 2 BLUE AND RED LINE MOVEMENT

Adjust tabs angle to superimpose red/blue and green vertical line.

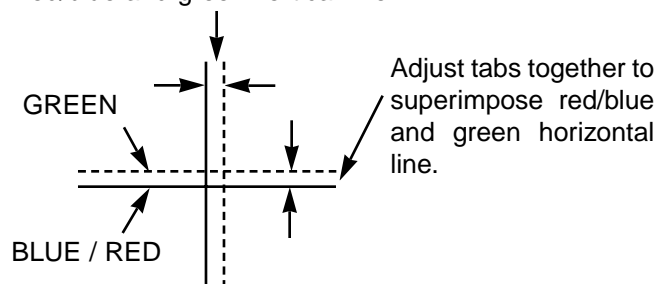
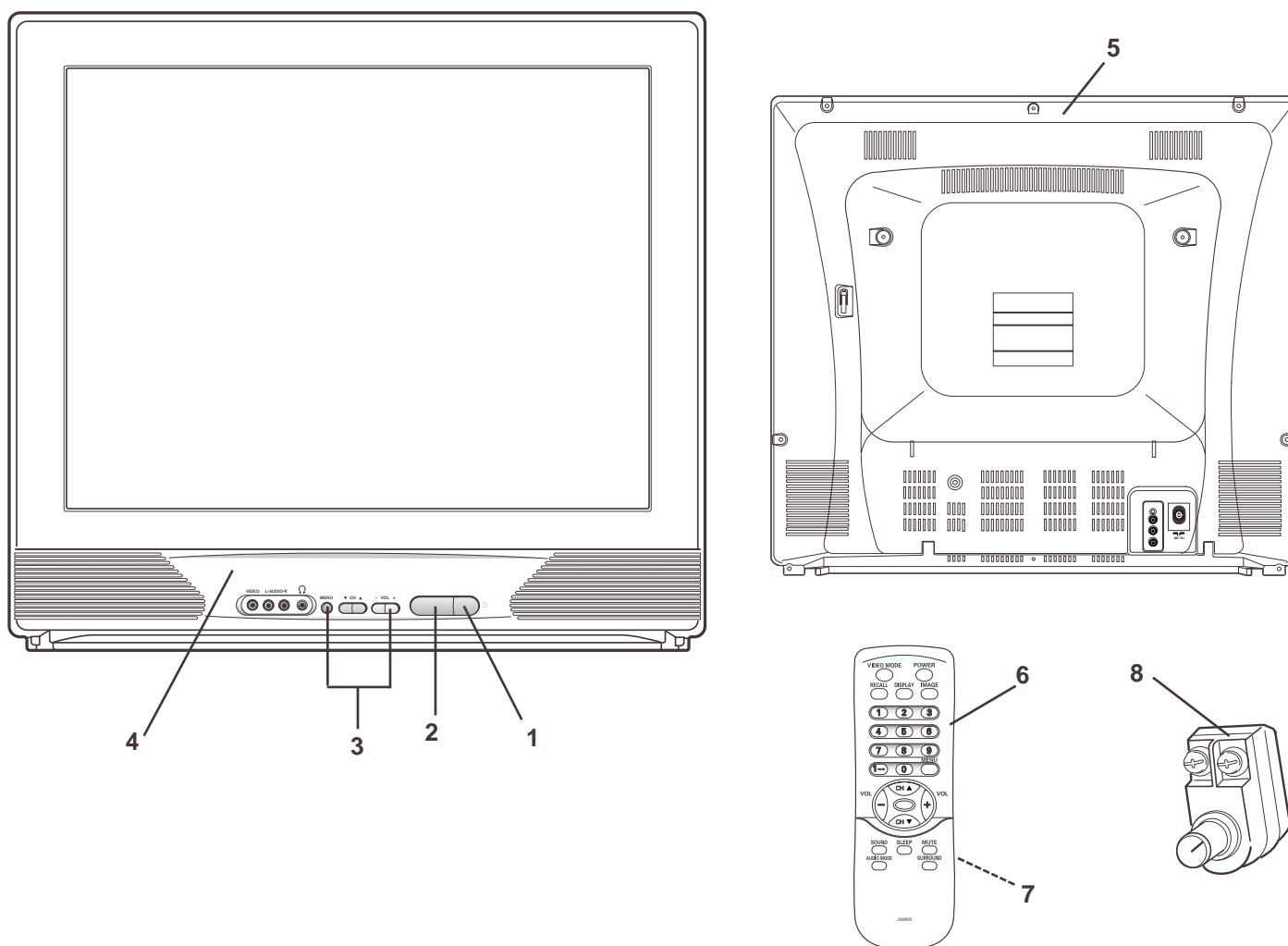


Figure- 3 BLUE/RED AND GREEN MOVEMENT



## Cabinet Parts List

Note: Parts order must contain Service Ref. No., Part No., and descriptions.



Key No.	Part No.	Description	Key No.	Part No.	Description
1	610 266 7974	BUTTON POWER-F5AD			
	610 252 8725	SPRING-S-S6KL			
or	610 270 5591	SPRING-HKG-S6KL			
2	610 266 7998	DEC INLAY-F5AD			
3	610 266 7981	BUTTON UNITED-F5AD			
4	610 270 3146	CABINET FRONT-F5AA			
5	610 270 3153	CABINET BACK-F5AA			
6	645 069 4608	ASSY,REMOCON JXMRR			
7	610 297 3723	RC-BATTERY LID-JXMRA			
8	645 004 3925	ANTENNA MATCHING BOX			
	645 005 0251	ANTENNA MATCHING BOX			
	610 320 1344	INSTRUCTIONS MANUAL-C4BR			



# Chassis Electrical Parts List

F5AP

Product safety should be considered when a component replacement is made in any area of a receiver. Components indicated by a  $\Delta$  mark in this parts list and the circuit diagram show components whose value have special significance to product safety. It is particularly recommended that only parts specified on the following parts list be used for components replacement pointed out by the mark.

Note: Parts order must contain Service Ref. No., Part No., and descriptions. The main PCB unit will be supplied without tuner and flyback transformer. They should be ordered separately.

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
<div>NOTES:</div> <div>Read description in the Capacitor and Resistor as follows:</div> <div>CAPACITOR</div> <div>CERAMIC100PK50V</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></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Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
Q611	405 163 1602	TR 2SC2812N-L6-TB0	Q681	405 173 9902	TR 2SC3928A1S
	405 163 1701	TR 2SC2812N-L7-TB0		405 011 8401	TR 2SC1740S-Q
	405 173 9803	TR 2SC3928A1R		405 011 8500	TR 2SC1740S-R
	405 173 9902	TR 2SC3928A1S		405 011 8609	TR 2SC1740S-S
	405 013 6801	TR 2SC2274-E		405 012 2002	TR 2SC1815-GR
Q612	405 013 7006	TR 2SC2274-F		405 012 2101	TR 2SC1815-O
	405 006 6504	TR 2SA984-E		405 012 2309	TR 2SC1815-Y
Q613	405 006 6702	TR 2SA984-F	Q691	405 157 0505	TR 2SC536NF-NPA
	405 181 4609	TR 2SK3264		405 151 8705	TR 2SC536NG-NPA
Q625	405 013 6801	TR 2SC2274-E		405 020 7501	TR 2SC945A-PA
	405 013 7006	TR 2SC2274-F		405 020 7709	TR 2SC945A-QA
Q641	406 000 6804	TR 2SA1015-GR(SAN)		405 020 7907	TR 2SC945A-RA
	405 001 7605	TR 2SA1015-Y(SAN)		405 011 8401	TR 2SC1740S-Q
	405 004 3208	TR 2SA564A-R(CU)		405 011 8500	TR 2SC1740S-R
	405 151 3304	TR 2SA608NF-NPA		405 011 8609	TR 2SC1740S-S
	405 006 1806	TR 2SA933S-R	Q693	405 012 2002	TR 2SC1815-GR
Q642	405 011 8401	TR 2SC1740S-Q		405 012 2309	TR 2SC1815-Y
	405 011 8500	TR 2SC1740S-R		405 157 0505	TR 2SC536NF-NPA
	405 011 8609	TR 2SC1740S-S		405 151 8705	TR 2SC536NG-NPA
	405 012 2002	TR 2SC1815-GR		405 020 7501	TR 2SC945A-PA
Q651	405 012 2309	TR 2SC1815-Y		405 020 7709	TR 2SC945A-QA
	405 157 0505	TR 2SC536NF-NPA	Q818	405 011 8401	TR 2SC1740S-Q
	405 151 8705	TR 2SC536NG-NPA		405 011 8500	TR 2SC1740S-R
	405 020 7501	TR 2SC945A-PA		405 011 8609	TR 2SC1740S-S
	405 020 7709	TR 2SC945A-QA		405 012 2002	TR 2SC1815-GR
Q652	405 011 8401	TR 2SC1740S-Q		405 012 2309	TR 2SC1815-Y
	405 011 8500	TR 2SC1740S-R	Q861	405 157 0505	TR 2SC536NF-NPA
	405 011 8609	TR 2SC1740S-S		405 151 8705	TR 2SC536NG-NPA
	405 012 2002	TR 2SC1815-GR		405 020 7501	TR 2SC945A-PA
	405 012 2101	TR 2SC1815-O		405 020 7709	TR 2SC945A-QA
Q654	405 012 2309	TR 2SC1815-Y		405 014 4509	TR 2SC2412K T146 R
	405 157 0505	TR 2SC536NF-NPA	Q871	405 014 4608	TR 2SC2412K T146 S
	405 151 8705	TR 2SC536NG-NPA		405 015 8704	TR 2SC2812-L6-TB
	405 020 7501	TR 2SC945A-PA		405 015 8902	TR 2SC2812-L7-TB
	405 020 7709	TR 2SC945A-QA		405 163 1602	TR 2SC2812N-L6-TB0
Q661	405 020 7907	TR 2SC945A-RA		405 163 1701	TR 2SC2812N-L7-TB0
	405 089 0000	TR 2SA1707-S	Q881	405 173 9803	TR 2SC3928A1R
	405 089 0109	TR 2SA1707-T		405 173 9902	TR 2SC3928A1S
	405 009 6907	TR 2SB985-S		405 014 4509	TR 2SC2412K T146 R
	405 009 7003	TR 2SB985-T		405 014 4608	TR 2SC2412K T146 S
Q662	405 059 9804	TR 2SD1913-Q-RA	Q886	405 015 8704	TR 2SC2812-L6-TB
	405 059 9903	TR 2SD1913-R-RA		405 015 8902	TR 2SC2812-L7-TB
	405 014 4509	TR 2SC2412K T146 R		405 163 1602	TR 2SC2812N-L6-TB0
	405 014 4608	TR 2SC2412K T146 S		405 163 1701	TR 2SC2812N-L7-TB0
	405 015 8704	TR 2SC2812-L6-TB		405 173 9803	TR 2SC3928A1R
Q663	405 015 8902	TR 2SC2812-L7-TB		405 173 9902	TR 2SC3928A1S
	405 163 1602	TR 2SC2812N-L6-TB0	Q886	405 014 4509	TR 2SC2412K T146 R
	405 163 1701	TR 2SC2812N-L7-TB0		405 014 4608	TR 2SC2412K T146 S
	405 173 9803	TR 2SC3928A1R		405 015 8704	TR 2SC2812-L6-TB
	405 173 9902	TR 2SC3928A1S			



Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
	405 015 8902	TR 2SC2812-L7-TB	C210	403 047 5005	ELECT 470U M 25V
	405 163 1602	TR 2SC2812N-L6-TB0	C212	403 155 4204	CERAMIC 15P J 50V
	405 163 1701	TR 2SC2812N-L7-TB0	C221	403 342 3300	CERAMIC 0.1U K 25V
	405 173 9803	TR 2SC3928A1R	C222	403 342 3300	CERAMIC 0.1U K 25V
	405 173 9902	TR 2SC3928A1S	C223	403 342 3300	CERAMIC 0.1U K 25V
<b>INTEGRATED CIRCUIT</b>			C224	403 342 3300	CERAMIC 0.1U K 25V
IC002	409 569 1907	IC LA42052-E	C225	403 049 0008	ELECT 1U M 50V
IC201	409 517 5902	IC LA76818A	C226	403 086 2300	NP-ELECT 1U M 50V
IC202	409 241 5407	IC BA178M05T	C227	403 049 4204	ELECT 10U M 50V
	409 265 4806	IC L78M05CV	C230	403 215 2201	CERAMIC 0.01U K 50V
	409 172 1509	IC MC78M05CT	C231	403 260 2904	MT-COMPO 0.33U J 50V
	409 320 5700	IC UPC78M05AHF	C232	403 260 2904	MT-COMPO 0.33U J 50V
IC3401	409 467 1108	IC CXA2134Q-T6	C233	403 045 1504	ELECT 1000U M 25V
IC501	409 453 5905	IC LA78041	C240	403 215 2201	CERAMIC 0.01U K 50V
	409 511 3102	IC STV9379A	C243	403 215 2201	CERAMIC 0.01U K 50V
IC681	409 241 5407	IC BA178M05T	C244	403 051 3103	ELECT 47U M 50V
	409 265 4806	IC L78M05CV	C245	403 086 2300	NP-ELECT 1U M 50V
	409 172 1509	IC MC78M05CT	C246	403 049 0008	ELECT 1U M 50V
	409 320 5700	IC UPC78M05AHF	C247	403 049 9803	ELECT 2.2U M 50V
IC801	410 527 1907	IC LC863440W-53Z0-TLM	C273	403 342 3300	CERAMIC 0.1U K 25V
IC802	409 495 7004	IC CAT24WC04P	C3401	404 087 1200	ELECT 0.1U M 50V
	409 470 3403	IC KS24C041C	C3404	404 089 6500	NP-ELECT 4.7U M 50V
	409 427 4705	IC M24C04-BN6	C3406	403 215 2300	CERAMIC 0.012U K 50V
	410 499 0908	IC AT24C04-10PI-2.7	C3407	403 155 2408	CERAMIC 5600P K 50V
<b>CAPACITOR</b>			C3408	404 084 3702	ELECT 0.47U M 50V
C007	403 342 3300	CERAMIC 0.1U K 25V	C3411	404 089 6906	NP-ELECT 0.47U M 50V
C008	403 342 3300	CERAMIC 0.1U K 25V	C3412	404 084 3207	ELECT 47U M 16V
C031	404 089 2700	ELECT 100U M 25V	C3413	404 084 4204	ELECT 4.7U M 50V
C032	403 049 0008	ELECT 1U M 50V	C3414	403 042 2405	ELECT 100U M 16V
C033	403 049 0008	ELECT 1U M 50V	C3416	404 089 6500	NP-ELECT 4.7U M 50V
C034	404 084 4204	ELECT 4.7U M 50V	C3417	404 084 4204	ELECT 4.7U M 50V
	403 051 0607	ELECT 4.7U M 50V	C3418	404 089 6500	NP-ELECT 4.7U M 50V
C035	403 045 1504	ELECT 1000U M 25V	C3420	403 215 2201	CERAMIC 0.01U K 50V
C037	403 342 3300	CERAMIC 0.1U K 25V	C3421	403 157 7104	CERAMIC 2700P K 50V
C038	403 342 3300	CERAMIC 0.1U K 25V	C3423	403 342 9203	TA-SOLID 3.3U K 10V
C041	403 047 5005	ELECT 470U M 25V	C3424	404 089 6500	NP-ELECT 4.7U M 50V
C042	403 047 5005	ELECT 470U M 25V	C3426	403 299 1800	TA-SOLID 10U K 10V
C101	403 044 1703	ELECT 470U M 16V	C3427	404 084 3801	ELECT 1U M 50V
C1011	404 084 3900	ELECT 10U M 50V	C3431	403 155 2309	CERAMIC 4700P K 50V
	403 049 4204	ELECT 10U M 50V	C3432	404 087 1200	ELECT 0.1U M 50V
C1013	404 084 3900	ELECT 10U M 50V	C3433	403 155 2309	CERAMIC 4700P K 50V
	403 049 4204	ELECT 10U M 50V	C3434	403 284 4304	CERAMIC 0.022U K 50V
C1021	404 084 3900	ELECT 10U M 50V	C3436	404 089 6500	NP-ELECT 4.7U M 50V
	403 049 4204	ELECT 10U M 50V	C3439	404 089 6500	NP-ELECT 4.7U M 50V
C106	403 051 3103	ELECT 47U M 50V	C358	403 049 0008	ELECT 1U M 50V
C107	404 084 4303	ELECT 47U M 50V	C420	404 087 9107	MT-POLYPRO 5600P H 1.5K
	403 051 3103	ELECT 47U M 50V		403 372 0409	MT-POLYPRO 5600P H 1.5K
C111	403 215 2201	CERAMIC 0.01U K 50V	C423	404 086 0303	MT-POLYPRO 6200P H 1.5K
C112	403 215 2201	CERAMIC 0.01U K 50V	C426	403 066 6106	MT-POLYEST 0.47U J 250V
C113	403 215 2201	CERAMIC 0.01U K 50V	C432	403 075 7101	CERAMIC 1000P K 500V
C121	403 215 2201	CERAMIC 0.01U K 50V	C433	403 076 3102	CERAMIC 3900P K 500V
C122	403 042 2405	ELECT 100U M 16V	C434	403 051 3103	ELECT 47U M 50V
C132	403 048 6308	ELECT 0.47U M 50V	C441	403 344 9201	MT-POLYPRO 0.22U J 400V
C135	403 048 6308	ELECT 0.47U M 50V	C442	403 344 9201	MT-POLYPRO 0.22U J 400V
C138	403 284 4304	CERAMIC 0.022U K 50V	C469	403 049 4204	ELECT 10U M 50V
C171	403 155 2101	CERAMIC 1500P K 50V	C471	404 056 5208	NP-ELECT 2.2U M 100V
C172	403 215 2201	CERAMIC 0.01U K 50V		404 056 5307	NP-ELECT 2.2U M 100V
C1902	403 050 2800	ELECT 22U M 50V		404 045 6605	NP-ELECT 2.2U M 50V
C201	403 086 2300	NP-ELECT 1U M 50V	C486	403 055 8401	ELECT 22U M 250V
C202	403 058 2604	POLYESTER 0.015U J 50V	C487	403 076 5304	CERAMIC 680P K 500V
	403 179 3207	POLYESTER 0.015U J 50V	C510	404 084 4204	ELECT 4.7U M 50V
C203	403 215 2201	CERAMIC 0.01U K 50V		403 051 0607	ELECT 4.7U M 50V
C204	403 049 4204	ELECT 10U M 50V	C514	403 049 4204	ELECT 10U M 50V
C205	403 049 4204	ELECT 10U M 50V	C515	403 045 9807	ELECT 2200U M 25V
C209	403 048 6308	ELECT 0.47U M 50V	C517	403 053 2104	ELECT 220U M 35V
			C518	403 246 2201	MT-COMPO 0.01U J 50V
			C520	403 064 1202	POLYESTER 0.1U K 100V



Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
	403 276 9706	POLYESTER 0.1U K 100V	C851	403 157 3106	CERAMIC 56P J 50V
C521	403 054 1502	ELECT 470U M 35V	C852	403 157 3106	CERAMIC 56P J 50V
C524	403 219 4904	MT-COMPO 0.27U J 50V	C853	403 157 3106	CERAMIC 56P J 50V
C527	403 049 4204	ELECT 10U M 50V	C861	403 049 0008	ELECT 1U M 50V
△C601	404 072 7705	MT-POLYEST 0.068U M 250V	C862	403 342 3300	CERAMIC 0.1U K 25V
	404 079 6503	MT-POLYEST 0.068U M 250V	C880	403 155 2200	CERAMIC 3300P K 50V
	404 073 7506	MT-POLYEST 0.068U M 275V	C891	403 049 0008	ELECT 1U M 50V
	404 092 0700	MT-POLYEST 0.068U M 275	C893	403 049 9803	ELECT 2.2U M 50V
C608	403 076 6707	CERAMIC 1000P K 1K	C894	403 281 5007	CERAMIC 0.033U K 25V
	403 312 8205	CERAMIC 1000P K 1K	C896	403 113 3805	CERAMIC 1000P K 50V
C609	404 047 1608	ELECT 270U M 400V	RESISTOR		
	404 072 8405	ELECT 270U M 400V			
	404 078 7600	ELECT 270U M 400V	R003	401 026 3905	CARBON 330 JA 1/6W
	404 096 1901	ELECT 270U M 400V	R006	401 026 8108	CARBON 4.7 JA 1/6W
△C610	404 073 3904	CERAMIC 1000P K 250V	R019	401 007 7601	CARBON 150 JA 1/2W
	404 073 2105	CERAMIC 1000P M 250V	R029	401 007 7601	CARBON 150 JA 1/2W
	404 071 3302	CERAMIC 1000P M 400V	R031	401 027 5205	CARBON 680 JA 1/6W
	404 086 0907	CERAMIC 1000P M 400V	R033	401 105 1006	MT-GLAZE 1.2K JA 1/16W
C611	403 056 9704	POLYESTER 0.01U J 50V	R034	401 105 0504	MT-GLAZE 1K JA 1/16W
	403 178 9309	POLYESTER 0.01U J 50V	R035	401 105 1006	MT-GLAZE 1.2K JA 1/16W
C613	403 181 8207	POLYESTER 0.1U K 50V	R036	401 026 8108	CARBON 4.7 JA 1/6W
C614	403 237 7901	MT-COMPO 0.22U J 50V	R037	401 105 0504	MT-GLAZE 1K JA 1/16W
C615	403 325 5109	CERAMIC 220P K 1K	R041	401 012 5708	CARBON 1K JA 1/4W
C617	403 325 5109	CERAMIC 220P K 1K	R042	401 012 5708	CARBON 1K JA 1/4W
C618	403 083 8107	POLYPRO 0.01U J 630V	R1004	401 027 6608	CARBON 75 JA 1/6W
△C628	404 073 5106	CERAMIC 470P K 250V	R1011	401 105 0504	MT-GLAZE 1K JA 1/16W
	404 073 3300	CERAMIC 470P M 250V	R1013	401 105 0504	MT-GLAZE 1K JA 1/16W
	404 071 4507	CERAMIC 470P K 400V	R1014	401 105 0702	MT-GLAZE 100K JA 1/16W
	404 087 0302	CERAMIC 470P M 400V	R1021	401 105 0504	MT-GLAZE 1K JA 1/16W
△C629	404 073 4505	CERAMIC 2200P K 250V	R1022	401 105 0702	MT-GLAZE 100K JA 1/16W
	404 073 2907	CERAMIC 2200P M 250V	R1023	401 105 7909	MT-GLAZE 0.000 ZA 1/16W
	404 071 4101	CERAMIC 2200P M 400V	R103	401 061 8101	OXIDE-MT 39K JA 1W
	404 084 5904	CERAMIC 2200P M 400V	R106	401 024 6700	CARBON 100 JA 1/6W
C639	403 049 0008	ELECT 1U M 50V	R107	401 105 0405	MT-GLAZE 100 JA 1/16W
C643	403 043 1902	ELECT 2200U M 16V	R108	401 105 2102	MT-GLAZE 18K JA 1/16W
C644	404 084 4105	ELECT 3.3U M 50V	R109	401 105 8203	MT-GLAZE 68K JA 1/16W
	403 046 1602	ELECT 3.3U M 25V	R111	401 105 0504	MT-GLAZE 1K JA 1/16W
C651	404 073 9005	ELECT 220U M 160V	R112	401 105 6001	MT-GLAZE 5.6K JA 1/16W
C652	404 087 3402	ELECT 1000U M 35V	R114	401 105 4007	MT-GLAZE 330 JA 1/16W
	403 052 8503	ELECT 1000U M 35V	R115	401 027 2105	CARBON 56 JA 1/6W
C654	403 046 8007	ELECT 3300U M 25V	R116	401 105 4403	MT-GLAZE 39 JA 1/16W
C655	403 247 5003	CERAMIC 470P K 1K	R130	401 105 7909	MT-GLAZE 0.000 ZA 1/16W
	403 269 1809	CERAMIC 470P K 1K	R132	401 105 5202	MT-GLAZE 470 JA 1/16W
C656	403 222 1303	CERAMIC 1000P K 1K	R140	401 105 5905	MT-GLAZE 560 JA 1/16W
	403 271 9602	CERAMIC 1000P K 1K	R141	401 105 5905	MT-GLAZE 560 JA 1/16W
C657	403 247 5003	CERAMIC 470P K 1K	R171	401 105 1402	MT-GLAZE 150 JA 1/16W
	403 269 1809	CERAMIC 470P K 1K	R172	401 105 4601	MT-GLAZE 3.9K JA 1/16W
C658	403 247 5003	CERAMIC 470P K 1K	R173	401 024 7004	CARBON 1K JA 1/6W
	403 269 1809	CERAMIC 470P K 1K	R176	401 105 0504	MT-GLAZE 1K JA 1/16W
C663	404 084 3801	ELECT 1U M 50V	R1902	401 105 2102	MT-GLAZE 18K JA 1/16W
	403 049 0008	ELECT 1U M 50V	R1903	401 105 6605	MT-GLAZE 6.8K JA 1/16W
C664	404 084 2705	ELECT 10U M 16V	R1904	401 105 5301	MT-GLAZE 4.7K JA 1/16W
	403 041 8804	ELECT 10U M 16V	R1905	401 105 3307	MT-GLAZE 2.7K JA 1/16W
C665	403 044 1703	ELECT 470U M 16V	R1906	401 105 2805	MT-GLAZE 2.2K JA 1/16W
C681	403 039 9004	ELECT 1000U M 10V	R1907	401 026 0607	CARBON 270 JA 1/6W
C691	403 039 6508	ELECT 100U M 10V	R1908	401 105 0405	MT-GLAZE 100 JA 1/16W
C693	403 043 9106	ELECT 47U M 16V	R1910	401 105 0405	MT-GLAZE 100 JA 1/16W
C801	403 155 4204	CERAMIC 15P J 50V	R1911	401 105 5202	MT-GLAZE 470 JA 1/16W
C802	403 157 2505	CERAMIC 27P J 50V	R1912	401 026 9600	CARBON 470 JA 1/6W
C803	403 215 2201	CERAMIC 0.01U K 50V	R1913	401 105 5202	MT-GLAZE 470 JA 1/16W
C805	403 049 4204	ELECT 10U M 50V	R211	401 025 1308	CARBON 150 JA 1/6W
C824	403 342 3300	CERAMIC 0.1U K 25V	R212	401 105 1402	MT-GLAZE 150 JA 1/16W
C835	403 049 0008	ELECT 1U M 50V	R221	401 105 0504	MT-GLAZE 1K JA 1/16W
C837	403 145 9905	CERAMIC 22P J 50V	R222	401 105 0504	MT-GLAZE 1K JA 1/16W
C838	403 145 9905	CERAMIC 22P J 50V	R223	401 105 0504	MT-GLAZE 1K JA 1/16W
C841	403 145 9905	CERAMIC 22P J 50V	R224	401 105 5301	MT-GLAZE 4.7K JA 1/16W
C842	403 145 9905	CERAMIC 22P J 50V	R225	401 105 5301	MT-GLAZE 4.7K JA 1/16W



Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
R226	401 105 3406	MT-GLAZE 27K JA 1/16W		402 098 0601	WIRE WOUND 3.9 KA 7W
R227	401 105 4205	MT-GLAZE 33K JA 1/16W	R611	401 020 0801	CARBON 470 JA 1/4W
R228	401 024 7707	CARBON 100K JA 1/6W	△R613	402 001 8106	FUSIBLE RES 680 J- 1/4W
R229	401 105 6704	MT-GLAZE 680K JA 1/16W	R614	401 025 8208	CARBON 22K JA 1/6W
R230	401 026 9303	CARBON 47 JA 1/6W	R615	401 025 7409	CARBON 220 JA 1/6W
R234	401 105 0900	MT-GLAZE 120 JA 1/16W	R616	401 025 4606	CARBON 18K JA 1/6W
R235	401 105 0900	MT-GLAZE 120 JA 1/16W	R619	401 016 1508	CARBON 22 JA 1/4W
R236	401 105 0900	MT-GLAZE 120 JA 1/16W	R620	401 010 4802	CARBON 470K JA 1/2W
R243	401 068 3703	OXIDE-MT 470 JA 2W	R621	401 010 4802	CARBON 470K JA 1/2W
R244	401 105 5400	MT-GLAZE 47K JA 1/16W	R622	401 019 9600	CARBON 47 JA 1/4W
R245	401 105 5400	MT-GLAZE 47K JA 1/16W	R623	401 026 4902	CARBON 330K JA 1/6W
R263	401 105 0603	MT-GLAZE 10K JA 1/16W	△R624	402 001 8502	FUSIBLE RES 10 J- 1/2W
R264	401 024 9008	CARBON 120 JA 1/6W	R625	401 069 4501	OXIDE-MT 68K JA 2W
R265	401 105 3901	MT-GLAZE 33 JA 1/16W	R626	401 069 4501	OXIDE-MT 68K JA 2W
R267	401 026 9600	CARBON 470 JA 1/6W	R627	401 025 8208	CARBON 22K JA 1/6W
R271	401 105 0405	MT-GLAZE 100 JA 1/16W	△R628	402 000 8305	SOLID 5.6M KA 1/2W
R272	401 105 0405	MT-GLAZE 100 JA 1/16W	△R629	402 000 8305	SOLID 5.6M KA 1/2W
R280	401 105 0405	MT-GLAZE 100 JA 1/16W	R631	401 027 0309	CARBON 47K JA 1/6W
R286	401 203 9904	MT-GLAZE 4.7K FA 1/16W	R632	401 180 8402	OXIDE-MT 0.47 JA 2W
R289	401 105 0405	MT-GLAZE 100 JA 1/16W	R633	401 180 8402	OXIDE-MT 0.47 JA 2W
R291	401 068 1600	OXIDE-MT 4.7 JA 2W	R641	401 024 7400	CARBON 10K JA 1/6W
R3401	401 105 2706	MT-GLAZE 220 JA 1/16W	R642	401 027 0309	CARBON 47K JA 1/6W
R3402	401 105 2706	MT-GLAZE 220 JA 1/16W	R643	401 025 4606	CARBON 18K JA 1/6W
R3406	401 105 0702	MT-GLAZE 100K JA 1/16W	R644	401 025 8208	CARBON 22K JA 1/6W
R3407	401 105 8005	MT-GLAZE 1M JA 1/16W	R652	401 012 7009	CARBON 10K JA 1/4W
R3412	401 105 7909	MT-GLAZE 0.000 ZA 1/16W	△R653	645 017 6944	PROTECTOR, 1.5A 125V
R3421	401 105 4106	MT-GLAZE 3.3K JA 1/16W	R655	401 012 7009	CARBON 10K JA 1/4W
R3426	401 105 4601	MT-GLAZE 3.9K JA 1/16W	R656	401 060 7402	OXIDE-MT 270 JA 1W
R3432	401 105 0603	MT-GLAZE 10K JA 1/16W	R657	401 009 9801	CARBON 3.9K JA 1/2W
R3433	401 105 0603	MT-GLAZE 10K JA 1/16W	R658	401 066 3002	OXIDE-MT 2.2 JA 2W
R351	401 105 7404	MT-GLAZE 8.2K JA 1/16W	R661	401 012 8105	CARBON 100K JA 1/4W
R352	401 012 7009	CARBON 10K JA 1/4W	R662	401 026 9907	CARBON 4.7K JA 1/6W
R354	401 025 8208	CARBON 22K JA 1/6W	R663	401 014 6109	CARBON 150K JA 1/4W
R355	401 012 7009	CARBON 10K JA 1/4W	R664	401 060 9307	OXIDE-MT 27K JA 1W
R356	401 105 0603	MT-GLAZE 10K JA 1/16W	R665	401 013 6407	CARBON 12K JA 1/4W
R357	401 025 4200	CARBON 1.8K JA 1/6W	R666	401 105 2904	MT-GLAZE 22K JA 1/16W
R358	401 105 3406	MT-GLAZE 27K JA 1/16W	R667	401 105 0603	MT-GLAZE 10K JA 1/16W
R423	401 020 2904	CARBON 47K JA 1/4W	R669	401 067 3100	OXIDE-MT 3.9 JA 2W
R423A	401 019 3004	CARBON 39K JA 1/4W	R670	401 057 3103	OXIDE-MT 0.22 JA 1W
R424	401 024 7004	CARBON 1K JA 1/6W	R671	401 105 5301	MT-GLAZE 4.7K JA 1/16W
R426	401 024 7400	CARBON 10K JA 1/6W	R672	401 024 9701	CARBON 12K JA 1/6W
R432	401 026 9600	CARBON 470 JA 1/6W	R673	401 105 0702	MT-GLAZE 100K JA 1/16W
R433	401 058 3706	OXIDE-MT 1K JA 1W	R681	401 105 2904	MT-GLAZE 22K JA 1/16W
R434	401 063 0103	OXIDE-MT 68 JA 1W	R682	401 105 6100	MT-GLAZE 560K JA 1/16W
R435	402 082 0402	WIRE WOUND 5.6 KA 7W	R691	401 105 0603	MT-GLAZE 10K JA 1/16W
	402 074 4906	WIRE WOUND 5.6 KA 7W	R692	401 105 7404	MT-GLAZE 8.2K JA 1/16W
	402 097 9308	WIRE WOUND 5.6 KA 7W	R693	401 105 4601	MT-GLAZE 3.9K JA 1/16W
R441	401 064 8702	OXIDE-MT 1K JA 2W	R694	401 105 0504	MT-GLAZE 1K JA 1/16W
R442	401 058 3706	OXIDE-MT 1K JA 1W	R695	401 019 3004	CARBON 39K JA 1/4W
R475	401 009 5803	CARBON 330 JA 1/2W	R696	401 105 5400	MT-GLAZE 47K JA 1/16W
R479	401 105 5301	MT-GLAZE 4.7K JA 1/16W	R697	401 105 5400	MT-GLAZE 47K JA 1/16W
R481	401 064 5701	OXIDE-MT 1.8 JA 2W	R698	401 105 0504	MT-GLAZE 1K JA 1/16W
△R488	402 079 5106	FUSIBLE RES 2.2 J- 1W	R801	401 105 3505	MT-GLAZE 270K JA 1/16W
R510	401 024 7400	CARBON 10K JA 1/6W	R804	401 105 7909	MT-GLAZE 0.000 ZA 1/16W
R511	401 024 7400	CARBON 10K JA 1/6W	R805	401 105 7909	MT-GLAZE 0.000 ZA 1/16W
R514	401 027 2600	CARBON 5.6K JA 1/6W	R812	401 105 0603	MT-GLAZE 10K JA 1/16W
R515	401 025 1902	CARBON 15K JA 1/6W	R813	401 105 0603	MT-GLAZE 10K JA 1/16W
R516	401 027 8602	CARBON 8.2K JA 1/6W	R814	401 105 0603	MT-GLAZE 10K JA 1/16W
R518	401 057 8009	OXIDE-MT 1 JA 1W	R816	401 105 0603	MT-GLAZE 10K JA 1/16W
R519	401 024 5604	CARBON 1 JA 1/6W	R818	401 024 7004	CARBON 1K JA 1/6W
R522	401 026 0607	CARBON 270 JA 1/6W	R819	401 105 0603	MT-GLAZE 10K JA 1/16W
R524	401 065 6509	OXIDE-MT 150 JA 2W	R830	401 024 7004	CARBON 1K JA 1/6W
R527	401 027 3003	CARBON 56K JA 1/6W	R831	401 026 9600	CARBON 470 JA 1/6W
R529	401 059 3903	OXIDE-MT 1.5K JA 1W	R832	403 157 3601	CERAMIC 100P J 50V
R601	401 008 8607	CARBON 220K JA 1/2W	R834	401 105 0603	MT-GLAZE 10K JA 1/16W
R602	402 071 1205	WIRE WOUND 3.9 KA 7W	R835	401 105 0603	MT-GLAZE 10K JA 1/16W
	402 072 4304	WIRE WOUND 3.9 KA 7W	R836	401 105 0603	MT-GLAZE 10K JA 1/16W



Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
R837	401 105 5301	MT-GLAZE 4.7K JA 1/16W		408 047 8605	ZENER DIODE MTZJ6.8A
R838	401 105 5301	MT-GLAZE 4.7K JA 1/16W	D103	407 100 0204	ZENER DIODE MTZJ36A
R839	401 105 4007	MT-GLAZE 330 JA 1/16W		407 056 2307	ZENER DIODE RD36EB1
R840	401 105 4007	MT-GLAZE 330 JA 1/16W	D106	407 206 5608	ZENER DIODE UDZS-TE-1710B
R841	401 105 5301	MT-GLAZE 4.7K JA 1/16W	D107	407 206 5608	ZENER DIODE UDZS-TE-1710B
R842	401 105 5301	MT-GLAZE 4.7K JA 1/16W	D1201	407 149 0807	DIODE 1SS355-TE-17
R851	401 025 1605	CARBON 1.5K JA 1/6W	D1202	407 149 0807	DIODE 1SS355-TE-17
R853	401 027 8602	CARBON 8.2K JA 1/6W	D1901	407 158 9204	LED SPR-39MVWF
R855	401 027 8602	CARBON 8.2K JA 1/6W	D1908	407 149 0807	DIODE 1SS355-TE-17
R857	401 027 8602	CARBON 8.2K JA 1/6W	D1909	407 149 0807	DIODE 1SS355-TE-17
R861	401 105 1501	MT-GLAZE 1.5K JA 1/16W	D1910	407 206 5608	ZENER DIODE UDZS-TE-1710B
R862	401 105 7404	MT-GLAZE 8.2K JA 1/16W	D249	407 099 6003	ZENER DIODE MTZJ9.1B
R863	401 105 5301	MT-GLAZE 4.7K JA 1/16W	D352	407 063 8705	ZENER DIODE MTZJ5.1C
R866	401 024 6700	CARBON 100 JA 1/6W		407 056 9801	ZENER DIODE RD5.6EB1
R869	401 024 6700	CARBON 100 JA 1/6W	D421	407 099 7208	ZENER DIODE MTZJ16A
R870	401 105 2904	MT-GLAZE 22K JA 1/16W		407 054 7007	ZENER DIODE RD16EB1
R871	401 105 0603	MT-GLAZE 10K JA 1/16W	D441	407 006 6300	DIODE ERC05-10B
R872	401 105 3406	MT-GLAZE 27K JA 1/16W		407 009 6901	DIODE RM11C
R873	401 105 4205	MT-GLAZE 33K JA 1/16W	D450	407 149 0807	DIODE 1SS355-TE-17
R875	401 105 0603	MT-GLAZE 10K JA 1/16W	D451	407 149 0807	DIODE 1SS355-TE-17
R876	401 105 2003	MT-GLAZE 1.8K JA 1/16W	D467	408 008 2406	DIODE 1N4148
R877	401 105 6001	MT-GLAZE 5.6K JA 1/16W		407 013 4306	DIODE 1S2076A
R881	401 105 4106	MT-GLAZE 3.3K JA 1/16W	D468	408 008 2406	DIODE 1N4148
R882	401 105 4106	MT-GLAZE 3.3K JA 1/16W		407 012 4406	DIODE 1SS133
R883	401 105 4205	MT-GLAZE 33K JA 1/16W		407 013 4306	DIODE 1S2076A
R886	401 105 2904	MT-GLAZE 22K JA 1/16W		407 013 7109	DIODE 1S2473
R887	401 105 2904	MT-GLAZE 22K JA 1/16W	D476	407 063 9702	ZENER DIODE MTZJ9.1C
R888	401 105 2706	MT-GLAZE 220 JA 1/16W	D485	407 005 9609	DIODE ERA22-04
R891	401 105 7305	MT-GLAZE 820 JA 1/16W		407 007 7405	DIODE EU1
R892	401 105 5509	MT-GLAZE 470K JA 1/16W	D501	407 005 7308	DIODE EM01Z
R893	401 105 8005	MT-GLAZE 1M JA 1/16W		407 005 8602	DIODE ERA15-02
R894	401 105 0405	MT-GLAZE 100 JA 1/16W		408 009 9008	DIODE BYD33D
R895	401 105 5202	MT-GLAZE 470 JA 1/16W	D512	407 005 7308	DIODE EM01Z
<b>VARIABLE RESISTOR</b>				407 005 8602	DIODE ERA15-02
VR651	645 006 5125	VR,SEMI,2K N	D519	408 009 9008	DIODE BYD33D
	652 000 0100	VR,SEMI,2K N	D605	407 118 2207	ZENER DIODE 1Z75
<b>TRANSFORMER</b>				407 006 6300	DIODE ERC05-10B
T431	610 000 1077	DRIVE TRANS		407 009 6901	DIODE RM11C
	610 223 1656	DRIVE TRANS	D606	407 006 6300	DIODE ERC05-10B
	645 047 3371	TRANS,DRIVE		407 009 6901	DIODE RM11C
	652 000 0704	TRANS,DRIVE	D607	407 006 6300	DIODE ERC05-10B
△ T471	645 067 7236	TRANS,FLYBACK		407 009 6901	DIODE RM11C
	652 001 4411	TRANS,FLYBACK	D608	407 006 6300	DIODE ERC05-10B
△ T611A	652 001 4398	TRANS,POWER,PULSE	△ D610	407 009 6901	DIODE RM11C
<b>COIL</b>				407 234 8701	PHOTO COUPLE PC123X5YFZ
L171	645 053 9015	TRANS,OSC,45.75MHZ		407 230 3908	PHOTO COUPLE PC123Y52
L431	610 032 5821	FILTER COIL	D611	407 231 7707	PC TLP421F(D4-BL)
	645 008 5628	INDUCTOR,1U M	D612	407 146 8103	DIODE EG01C
L432	645 002 2364	CORE,PIPE	D614	407 005 9807	DIODE ERA81-004
L441	652 000 1343	COIL,LINERITY	D616	407 007 6606	DIODE ES1
L442	652 000 1596	INDUCTOR,39UH		407 099 7901	ZENER DIODE MTZJ20B
△ L601	645 057 2791	LINE FILTER		407 055 1806	ZENER DIODE RD20EB2
L612	645 018 9722	CORE,PIPE	D617	408 008 2406	DIODE 1N4148
	652 001 0147	CORE,PIPE		407 012 4406	DIODE 1SS133
L614	645 018 9722	CORE,PIPE		407 013 4306	DIODE 1S2076A
	652 001 0147	CORE,PIPE	D619	407 013 7109	DIODE 1S2473
L615	645 018 9722	CORE,PIPE		407 063 9306	ZENER DIODE MTZJ7.5C
	652 001 0147	CORE,PIPE		407 057 6502	ZENER DIODE RD7.5EB3
L616	645 005 0763	CORE,PIPE	D643	407 012 4406	DIODE 1SS133
L653	645 017 6944	PROTECTOR,1.5A 125V	D646	408 008 2406	DIODE 1N4148
<b>DIODE</b>				407 012 4406	DIODE 1SS133
D102	407 099 5600	ZENER DIODE MTZJ6.8A		407 013 4306	DIODE 1S2076A
	407 057 4003	ZENER DIODE RD6.8EB1		407 013 7109	DIODE 1S2473
			D651	407 211 5808	DIODE FE201-6L43
				407 129 7000	DIODE RU4AM LF-L1
			D652	407 210 5700	DIODE RN1Z
			D653	407 106 2806	DIODE RU3YX



Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
D654	408 045 8508	DIODE RU3YX	△ SW601	645 050 4129	SWITCH,PUSH POWER 2P-2T
	407 106 2806	DIODE RU3YX		652 001 4565	SWITCH,PUSH POWER 2P-2T
	408 045 8508	DIODE RU3YX	X161	421 009 9403	SAW F TSF5246P
D655	408 008 2406	DIODE 1N4148	X211	652 001 0154	OSC,CRYSTAL 4.433619MHZ
	407 012 4406	DIODE 1SS133	X801	645 004 1938	OSC,CRYSTAL 32.768KHZ
	407 013 4306	DIODE 1S2076A		645 004 1945	OSC,CRYSTAL 32.768KHZ
	407 013 7109	DIODE 1S2473	<b>610 313 5168 ASSY,PWB,CRT C4CM 1AA0B10E6900B</b>		
D661	407 099 5501	ZENER DIODE MTZJ6.2C	<b>TRANSISTOR</b>		
	407 057 2801	ZENER DIODE RD6.2EB3	Q701	406 000 3605	TR 2SC3620(LB-SAN-1)
D662	407 099 5600	ZENER DIODE MTZJ6.8A		405 041 6507	TR 2SC2621-D-RA
	408 047 8605	ZENER DIODE MTZJ6.8A		405 041 6705	TR 2SC2621-E-RA
D664	407 099 6102	ZENER DIODE MTZJ10B		405 066 9903	TR 2SC2688(1)-K
	407 054 0008	ZENER DIODE RD10EB2		405 067 0008	TR 2SC2688(1)-L
	408 047 2306	ZENER DIODE MTZJ10B		405 067 0107	TR 2SC2688(1)-M
D671	408 008 2406	DIODE 1N4148	Q711	406 000 3605	TR 2SC3620(LB-SAN-1)
	407 012 4406	DIODE 1SS133		405 041 6507	TR 2SC2621-D-RA
	407 013 4306	DIODE 1S2076A		405 041 6705	TR 2SC2621-E-RA
	407 013 7109	DIODE 1S2473		405 066 9903	TR 2SC2688(1)-K
D691	407 149 0807	DIODE 1SS355-TE-17		405 067 0008	TR 2SC2688(1)-L
D692	407 149 0807	DIODE 1SS355-TE-17		405 067 0107	TR 2SC2688(1)-M
D693	408 008 2406	DIODE 1N4148	Q721	406 000 3605	TR 2SC3620(LB-SAN-1)
	407 012 4406	DIODE 1SS133		405 041 6507	TR 2SC2621-D-RA
	407 013 4306	DIODE 1S2076A		405 041 6705	TR 2SC2621-E-RA
	407 013 7109	DIODE 1S2473		405 066 9903	TR 2SC2688(1)-K
D694	407 149 0807	DIODE 1SS355-TE-17		405 067 0008	TR 2SC2688(1)-L
D801	407 206 5608	ZENER DIODE UDZS-TE-1710B		405 067 0107	TR 2SC2688(1)-M
D802	407 206 5608	ZENER DIODE UDZS-TE-1710B	Q741	405 134 5905	TR 2SA1037AK-T146-R
D803	407 206 5608	ZENER DIODE UDZS-TE-1710B		405 147 2205	TR 2SA1037AK-S-T146
D804	407 206 5608	ZENER DIODE UDZS-TE-1710B		405 002 0308	TR 2SA1037K T146 R
D805	407 206 5608	ZENER DIODE UDZS-TE-1710B		405 002 0407	TR 2SA1037K T146 S
D861	407 055 7907	ZENER DIODE RD3.6EL		405 002 6706	TR 2SA1179-M6-TB
	408 041 2005	ZENER DIODE RD3.6EL		405 002 6904	TR 2SA1179-M7-TB
<b>MISCELLANEOUS</b>				405 163 1503	TR 2SA1179N-M6-TB
△ F601	423 028 8603	FUSE 250V 4A		405 163 2708	TR 2SA1179N-M7-TB
	423 024 8409	FUSE 250V 4A		405 173 9605	TR 2SA1235A1E
	423 007 2103	FUSE 250V 4A		405 173 9704	TR 2SA1235A1F
F601A	645 000 5077	HOLDER,FUSE	Q751	405 134 5905	TR 2SA1037AK-T146-R
	645 016 0479	HOLDER,FUSE		405 147 2205	TR 2SA1037AK-S-T146
F601B	645 000 5077	HOLDER,FUSE		405 002 0308	TR 2SA1037K T146 R
	645 016 0479	HOLDER,FUSE		405 002 0407	TR 2SA1037K T146 S
A101	645 064 2777	TUNER,U/V		405 002 6706	TR 2SA1179-M6-TB
A1901	645 047 6228	UNIT,REMOCON RECEIVER		405 002 6904	TR 2SA1179-M7-TB
K1001	645 006 3787	JACK,RCA-3		405 163 1503	TR 2SA1179N-M6-TB
	652 000 1916	JACK,RCA-3		405 163 2708	TR 2SA1179N-M7-TB
K1002	652 001 1380	JACK,RCA-3		405 173 9605	TR 2SA1235A1E
K1921	645 006 4708	JACK,PHONE D3.6		405 173 9704	TR 2SA1235A1F
	652 000 0155	JACK,PHONE D3.5	<b>CAPACITOR</b>		
	652 001 2882	JACK,PHONE D3.6	C701	403 157 6602	CERAMIC 470P K 50V
△ PS601	408 046 4400	TH PTDAALBF9R0Q200	C711	403 157 6602	CERAMIC 470P K 50V
△ RL601	645 028 2713	RELAY	C721	403 157 6602	CERAMIC 470P K 50V
	645 030 5597	RELAY	C731	403 077 2807	CERAMIC 1000P Z 2K
SW1901	645 003 4701	SWITCH,PUSH 1P-1TX1	C741	403 041 8804	ELECT 10U M 16V
	645 019 4887	SWITCH,PUSH 1P-1TX1	C751	403 044 1703	ELECT 470U M 16V
	645 027 7382	SWITCH,PUSH 1P-1TX1	<b>RESISTOR</b>		
SW1902	645 003 4701	SWITCH,PUSH 1P-1TX1	R701	401 105 1907	MT-GLAZE 180 JA 1/16W
	645 019 4887	SWITCH,PUSH 1P-1TX1	R703	401 105 2706	MT-GLAZE 220 JA 1/16W
	645 027 7382	SWITCH,PUSH 1P-1TX1	R704	401 065 4604	OXIDE-MT 12K JA 2W
SW1903	645 003 4701	SWITCH,PUSH 1P-1TX1	R705	401 009 1508	CARBON 2.7K JA 1/2W
	645 019 4887	SWITCH,PUSH 1P-1TX1	R711	401 105 1907	MT-GLAZE 180 JA 1/16W
	645 027 7382	SWITCH,PUSH 1P-1TX1	R713	401 105 2706	MT-GLAZE 220 JA 1/16W
SW1904	645 003 4701	SWITCH,PUSH 1P-1TX1	R714	401 065 4604	OXIDE-MT 12K JA 2W
	645 019 4887	SWITCH,PUSH 1P-1TX1			
	645 027 7382	SWITCH,PUSH 1P-1TX1			
SW1905	645 003 4701	SWITCH,PUSH 1P-1TX1			
	645 019 4887	SWITCH,PUSH 1P-1TX1			
	645 027 7382	SWITCH,PUSH 1P-1TX1			

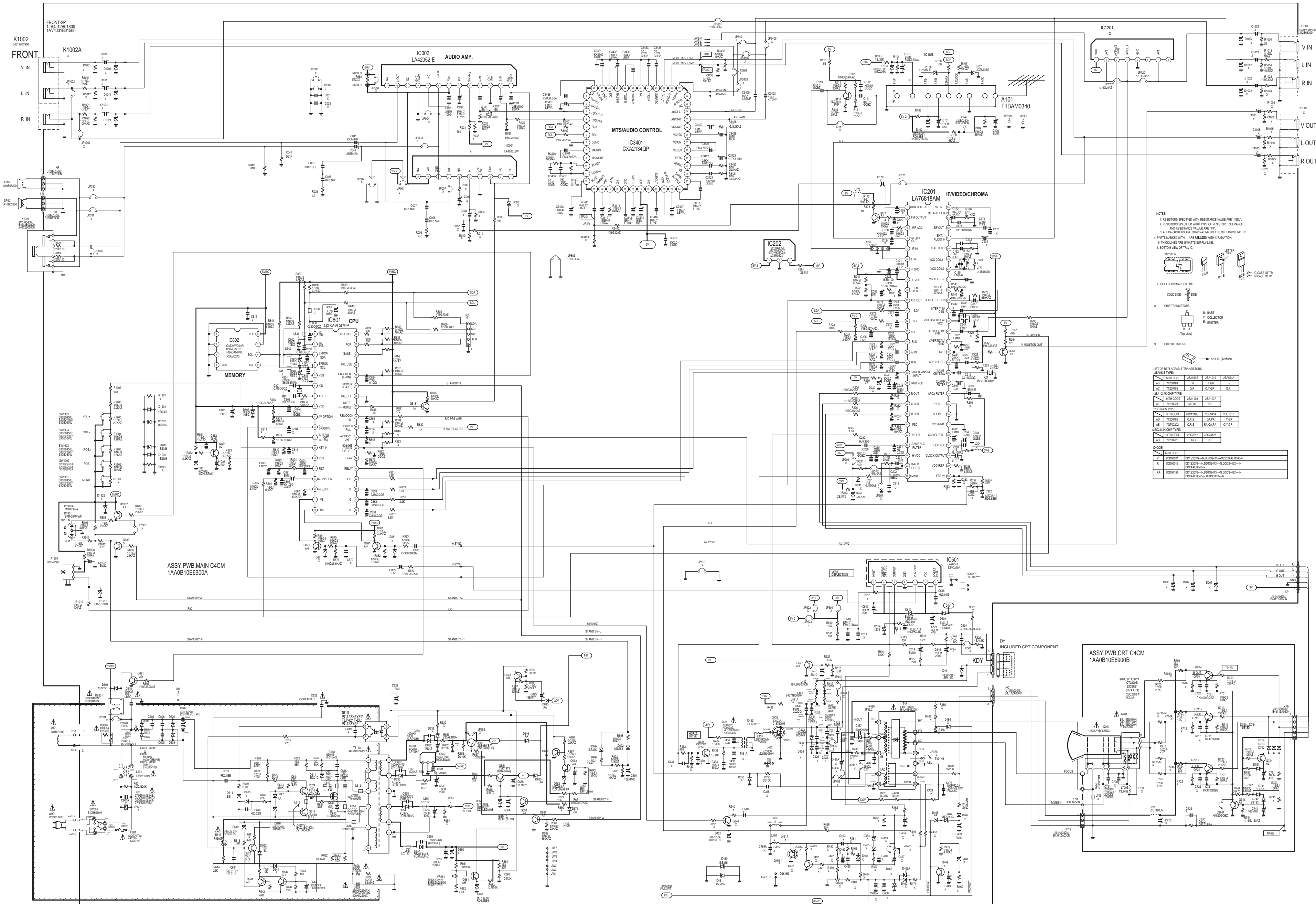



Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
R715	401 009 1508	CARBON 2.7K JA 1/2W			
R721	401 105 1907	MT-GLAZE 180 JA 1/16W			
R723	401 105 2706	MT-GLAZE 220 JA 1/16W			
R724	401 065 4604	OXIDE-MT 12K JA 2W			
R725	401 009 1508	CARBON 2.7K JA 1/2W			
R732	401 015 6504	CARBON 2.2 JA 1/4W			
	402 086 3904	CARBON 2.2 JA 1/4W			
R741	401 020 0801	CARBON 470 JA 1/4W			
R742	401 105 1501	MT-GLAZE 1.5K JA 1/16W			
R744	401 105 1402	MT-GLAZE 150 JA 1/16W			
R751	401 105 7909	MT-GLAZE 0.000 ZA 1/16W			
R752	401 105 0603	MT-GLAZE 10K JA 1/16W			
R753	401 105 0603	MT-GLAZE 10K JA 1/16W			
<b>COIL</b>					
L700Z	401 057 6807	OXIDE-MT 0.68 JA 1W			
L701	645 001 4826	INDUCTOR,180U K			
<b>DIODE</b>					
D741	407 012 4406	DIODE 1SS133			
D742	407 012 4406	DIODE 1SS133			
D751	407 012 4406	DIODE 1SS133			
D752	407 012 4406	DIODE 1SS133			
D753	407 012 4406	DIODE 1SS133			
D754	407 012 4406	DIODE 1SS133			
<b>MISCELLANEOUS</b>					
△ K701	645 026 2005	SOCKET,CRT 8P			
	652 001 0321	SOCKET,CRT 8P			
	652 001 1465	SOCKET,CRT 8P			
	652 001 3247	SOCKET,CRT 12P			










**THE SERVICE PRECAUTION:**  
The area enclosed by this line(  ) is directly connected with AC mains voltage. When servicing the area, connect an isolating transformer between TV receiver and AC line to eliminate hazard of electric shock.

**COLOUR TELEVISION**  
**LA5-A** CHASSIS SERIES  
**SERVICE** TVP-2905AS-00  
**REF. NO.**

**PRODUCT SAFETY NOTICE:**  
Product safety should be considered when a component replacement is made in any area of a receiver.  
Components indicated by a mark  in this circuit diagram show components whose values have special significance to product safety. It is particularly recommended that only parts specified on the part service manual be used for components replacement pointed out by the mark.

**CIRCUIT DIAGRAM NOTICE:**  
1. All resistance value are in ohms, K=1,000, M=1,000,000.  
2. All resistance rated wattages are 1/6W unless otherwise noted.  
3. Excepting electrolytic capacitors, all capacitance values of less than 1 are expressed in  $\mu$ F and more than 1 are pF.  
4. All capacitance rated voltages are 50V unless otherwise noted.  
5. All inductance values are in  $\mu$ H.  
6. Voltage readings take with a "VTVM" are from point indicated chassis ground. Voltage readings taken by using NTSC colour bar signal are with all controls at normal position. Some voltage may vary with signal strength.  
7. Waveform were taken with NTSC colour bar and controls adjusted for normal picture. Waveforms were taken by using a wide band oscilloscope and a low capacity probe.  
8. This circuit diagram covers a basic or representative chassis only. There may be some components or partial circuit differences between the actual chassis and the circuit diagram.  
9. Parts specified with "X" are not installed in this model.  
10. Parts specified with "J" are just jumper wires.

11. Expression of capacitance and resistance in circuit diagram.  
Capacitance (Example)  
1000  $\mu$  M 2000  $\mu$   
Resistance (Example)  
1/2 N J 1.2  
Characteristic Capacitance value (220pF)  
Allowable error ( $\pm$ 20%)  
Kind (Ceramic)  
Rated voltage (1,000V)  
Resistance value (1.2 $\Omega$ )  
Allowable error ( $\pm$ 5%)  
Kind (M carbon)  
Rated wattage (1/2W)  
J =  $\pm$  5%  
K =  $\pm$  10%  
M =  $\pm$  20%  
T, A, U, D:  
Electrolytic  
C, K, B: Ceramic  
F: Mylar film  
M, N: Polypropylene  
Z: Metalized paper  
D: Carbon  
N: Metalized carbon  
S: Oxidized metalized  
W: Wire winding  
C: Solid

**TRANSISTOR, DIODE AND INTEGRATED CIRCUIT TERMINAL GUIDE**  
C: COLLECTOR  
B: BASE  
E: EMITTER  
A: ANODE  
K: KATHODE  
N2  
N2 + 1  
D: CARBON  
N: METALIZED CARBON  
S: OXIDIZED METALIZED  
W: WIRE WOUNDING  
C: SOLID  
CHIP COMPONENTS  
TRANSISTOR  
DIODE  
RESISTOR  
PARTICULAR PARTS SYMBOL  
FUSIBLE RESISTOR  
NON POLE ELECTRIC CAPACITOR  
POSISTER



**(On the Main Board)**

(On the CRT Board)

Q701	Q711	Q721	Q741	Q751				
B 2.3V	B 2.3V	B 2.3V	B 0.8V	B 9.2V				
C 164.7V	C 165.1V	C 179.4V	C 0V	C 0V				
E 2.2V	E 2.2V	E 2.2V	E 1.4V	E 9.3V				

Q701-C <B-out>	Q701-B <B drive>	Q711-C <R-out>	Q711-B <R drive>	Q721-C <G-out>	Q721-B <G drive>
123Vp-p	4.2Vp-p	111Vp-p	4.4Vp-p	121Vp-p	4.3Vp-p