

Service Manual



Synthesizer FM/AM Stereo Receiver

SA-1010

[PA], [PE], [PC]

SA-1010(K)

[PC]

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 repairtips, servicemanuals
 forum, chassispictures...

06140246 91833565 38
 SM-SA1010
 SERVICE MANUAL

Areas

- [PA] is available in Far East PX.
 [PE] is available in European Military.
 [PC] is available in European Audio Club.

- *The colors of this model include silver and black.
 *The black type model is provided with (K) in the Service Manual.

Please use this manual together with the service manual for Model No. SA-1010, Order No. SD83062585C1.

CHANGES

Specifications

[M]

■ FM TUNER SECTION	
Frequency range	87.9~107.9MHz
■ AM TUNER SECTION	
Frequency range	530~1620kHz
■ GENERAL	
Power consumption	430W, 550VA
Power supply	AC120V, 60Hz
Weight	14.6 kg (32.2 lb.)



[PA, PE, PC]

■ FM TUNER SECTION	
Frequency range	87.50~108.00MHz 87.525~108.025MHz (+25kHz shift)
■ AM TUNER SECTION	
Frequency range	522~1611kHz (9kHz step) 530~1620kHz (10kHz step)
■ GENERAL	
Power consumption	600W
Power supply	AC 50Hz/60Hz, 110V/120V/220V/240V
Weight	15.8 kg (34.8 lb.)

LOCATION OF CONTROLS (Addition Only)



Technics

Matsushita Electric Trading Co., Ltd.
 P.O. Box 288, Central Osaka Japan

Panasonic Tokyo
 Matsushita Electric Industrial Co., Ltd.
 1-2, 1-chome, Shibakoen, Minato-ku, Tokyo 105 Japan

REPLACEMENT PARTS LIST

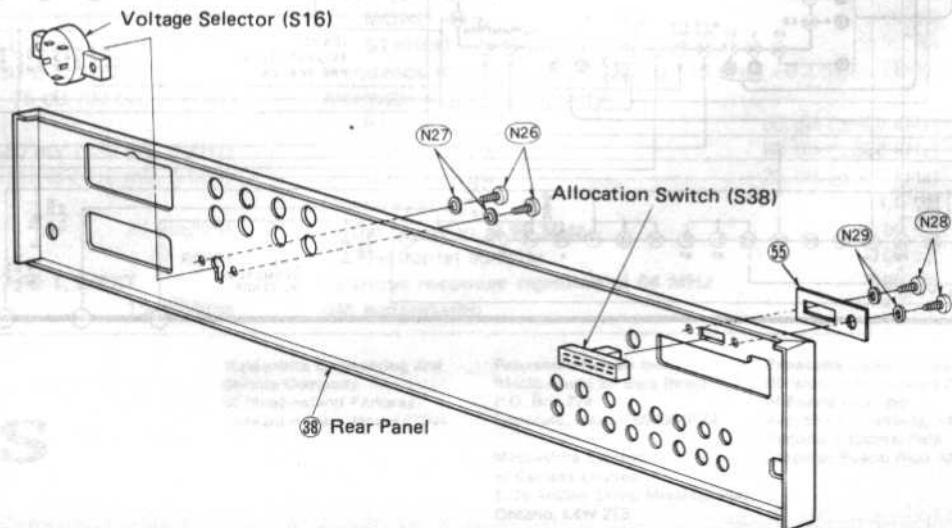
Notes:

- (1) Mentioned in this parts list are only those changed in Model No. SA-1010 for destination [M] area.
- (2) Important safety notice:
Components identified by Δ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- (3) The "S" mark is service standard parts and may differ from production parts.
- (4) "K" marked parts are used for black type only, while "O" marked parts are for silver type only.
- (5) Parts other than "K" and "O" marked are used for both black and silver types.

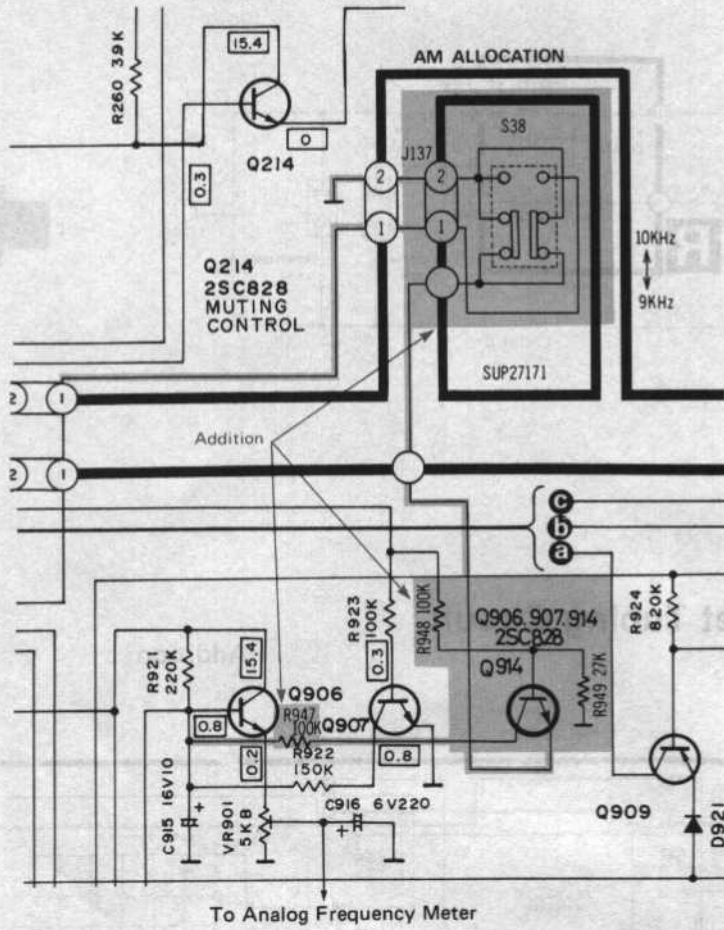
Ref. No.	Change of Part No.		Part Name & Description	Per Set (Pcs.)	Remarks
	SA-1010 [M]	SA-1010 [PA,PE,PC,K-PC]			
TRANSISTOR					
Q914	Addition	2SC1328-T	Transistor (Product Part is 2SC828-R)	1	
DIODES					
D832	LN31GCPHLG	O LN31GCPHLG	Diode, Signal Strength (3)	1	
		K LN41YCPHL	Diode, Signal Strength (3)	1	
D932	MA162A	MA1110L	Diode	1	
D933,939,940	Addition	MA162A	Diode	3	S
D935	MA1110L	Deletion		0	
TRANSFORMER					
T1	SLT5Q131	SLT5R53	Power Source	1	Δ
FUSES					
F1	XBA1F70NU14	XBA2C63TR0	250V, T6.3A	1	Δ
F2	XBA1F20NU14	XBA2C20TR0	250V, T2A	1	Δ
F3	Addition	XBA2C31TR0	250V, T3.15A	1	Δ
FLUORESCENT DISPLAY TUBE					
FL	SAD8MT07ZB3	O SAD8MT17ZB3	FL Tube (Silver)	1	
		K SAD8MT07ZB3	FL Tube (Black)	1	
SWITCHES					
S16	Addition	ESE37200	Voltage Selector	1	Δ
S38	Addition	SSS43	Allocation	1	
RESISTORS					
R232	ERD25FJ103	ERD25TJ153	Carbon, 15k Ω , 1/4W, \pm 5%	1	S
R701	ERC12ZGK335	Deletion		0	
R911	ERD25FJ103	Deletion		0	
R912	ERD25FJ102	Deletion		0	
R941	ERD25TJ683	ERD25FJ102	Carbon, 1k Ω , 1/4W, \pm 5%	1	S
R942	ERD25TJ224	ERD25TJ473	Carbon, 47k Ω , 1/4W, \pm 5%	1	S
R943	ERD25TJ683	ERD25FJ103	Carbon, 10k Ω , 1/4W, \pm 5%	1	S
R946	Addition	ERD25TJ333	Carbon, 33k Ω , 1/4W, \pm 5%	1	S
R947,948	Addition	ERD25TJ104	Carbon, 100k Ω , 1/4W, \pm 5%	2	S
R949	Addition	ERD25TJ273	Carbon, 27k Ω , 1/4W, \pm 5%	1	S
R972	ERD25TJ104	Deletion		0	
CAPACITORS					
C625,626	ECQM1H473KV	ECQM1H104KV	Polyester, 50V, 0.1 μ F	2	
C627,628	Addition	ECQM1H104KV	Polyester, 50V, 0.1 μ F	2	
C931	ECEA50Z1	ECBT1C103ZYY	Ceramic, 16V, 0.01 μ F	1	

Ref. No.	Change of Part No.		Part Name & Description	Per Set (Pcs.)	Remarks
	SA-1010 [M]	SA-1010 [PA,PE,PC,K-PC]			
CABINET and CHASSIS PARTS					
1	SGWA1010M	<input type="radio"/> SGWA1010M	Front Panel Ass'y (Silver)	1	
		<input checked="" type="radio"/> SGWA1010KQ	Front Panel Ass'y (Black)	1	
2	SGXA1010M	<input type="radio"/> SGXA1010P	Grille (Silver)	1	
		<input checked="" type="radio"/> SGXA1010KQ	Grille (Black)	1	
7	SDU197	<input type="radio"/> SDU197-1	Filter (Silver)	1	
		<input checked="" type="radio"/> SDU197	Filter (Black)	1	
8	SSM175-6	<input type="radio"/> SSM175-8	Meter (Silver)	1	
		<input checked="" type="radio"/> SSM175-6	Meter (Black)	1	
10	SBD67	<input type="radio"/> SDD67-1	Button (Silver)	1	
		<input checked="" type="radio"/> SDD67	Button (Black)	1	
20	SGX7557	<input type="radio"/> SGX7557	Holder (Silver)	1	
		<input checked="" type="radio"/> SGX7557-1	Holder (Black)	1	
21	SGX7555	<input type="radio"/> SGX7555	Holder (Silver)	1	
		<input checked="" type="radio"/> SGX7555-1	Holder (Black)	1	
38	SGP3770A	SGP3770-1A	Rear Panel	1	
45	RJA9Y	RJA52Z	Cord. AC Power	1	Ⓢ ⚠
46	RHR111	SHR127	Bushing	1	
48	SML115-2	SML115-1	Bracket	1	
54	SKC770S1	<input type="radio"/> SKC770S1	Cabinet (Silver)	1	
		<input checked="" type="radio"/> SKC770BB1	Cabinet (Black)	1	
55	Addition	SHR5025-1	Spacer, Allocation Switch	1	
SCREWS and WASHERES					
N17	XTB4+8BFN	<input type="radio"/> XTB4+8BFN	⊕ 4x8 (Silver)	8	Ⓢ
		<input checked="" type="radio"/> XTB4+8BFZ	⊕ 4x8 (Black)	8	Ⓢ
N26	Addition	XSN3+6FZS	Allocation Switch, ⊕ 3x6	2	Ⓢ
N27	Addition	XWA3BFZ	Allocation Switch, φ3	2	Ⓢ
N28	Addition	XSN26+6BV	Voltage Selector, ⊕ 2.6x6	2	Ⓢ
N29	Addition	XWA26BFZ	Voltage Selector, φ2.6	2	Ⓢ
PACKING PART					
P5	SPP707	<input type="radio"/> SPP707	Polyethylene Sheet (Silver type)	1	
		<input checked="" type="radio"/> SPP655	" (Black type)	1	
ACCESSORIES					
A6	SQF11735	PA,PE SQF11843	Instruction Book (For PA, PE area)	1	
		PC SQF11843-1	" " (For PC area)	1	
A7	Addition	SJP9215	Plug Adaptor	1	⚠

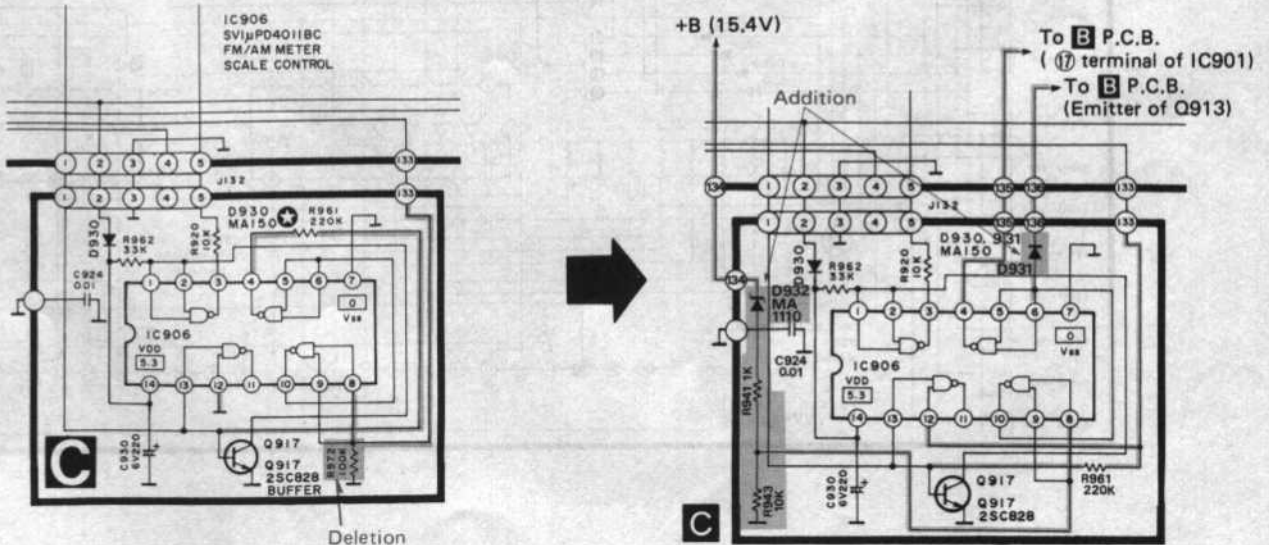
EXPLODED VIEW (Addition Only)



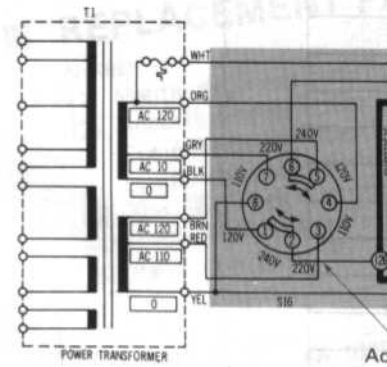
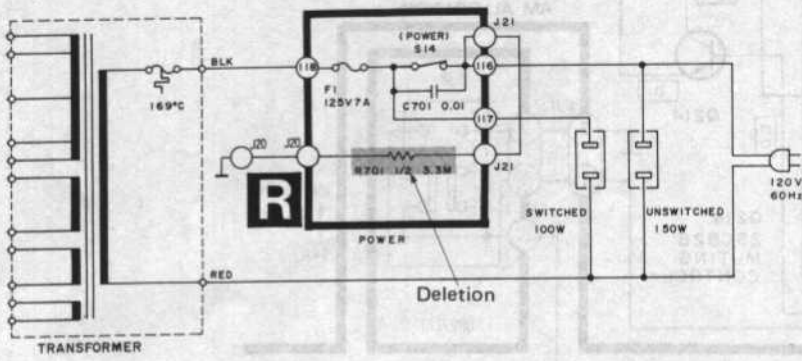
FM/AM Tuner Circuit



Analog Meter Scale Control Circuit



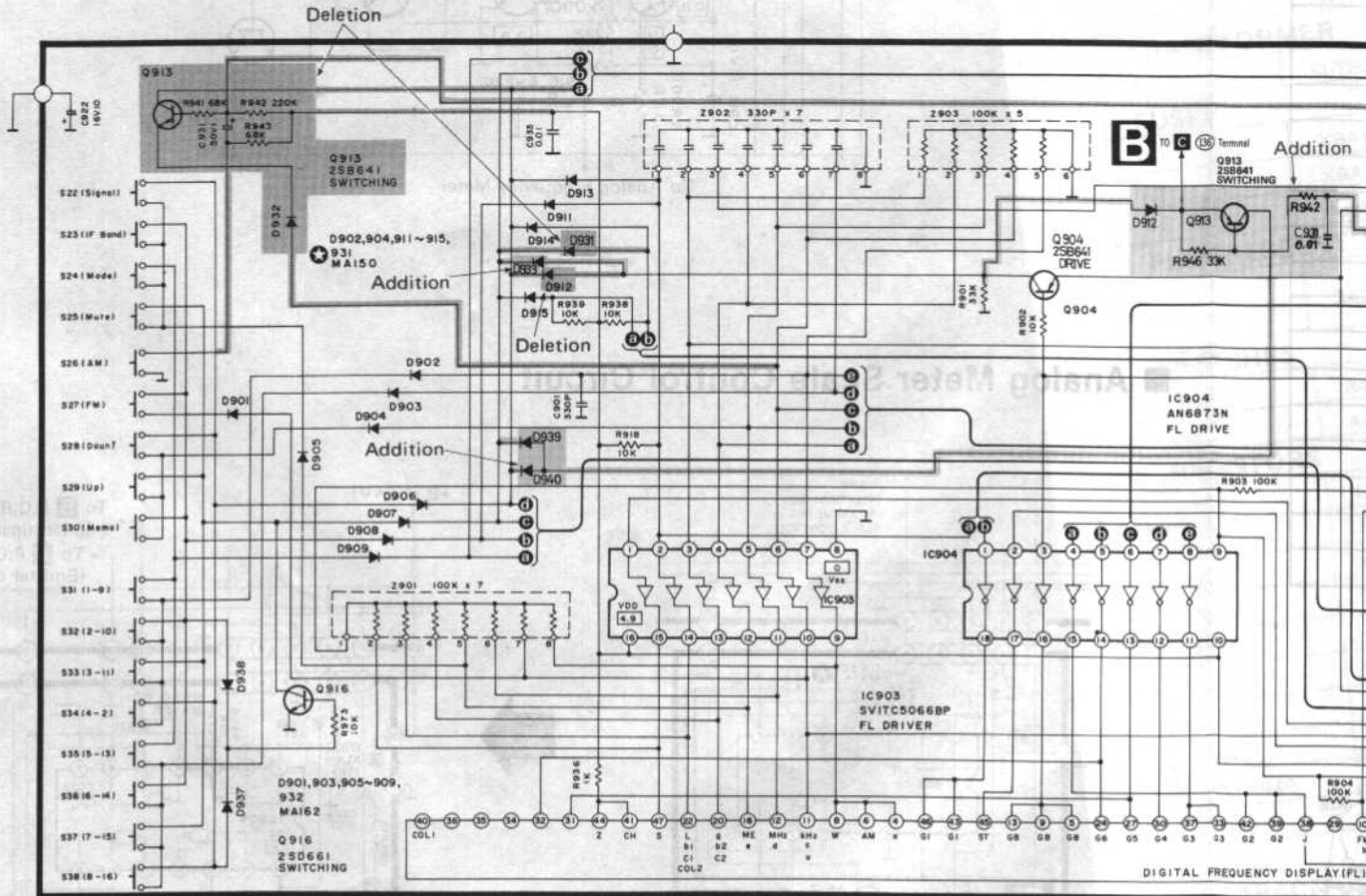
■ Power Source Circuit



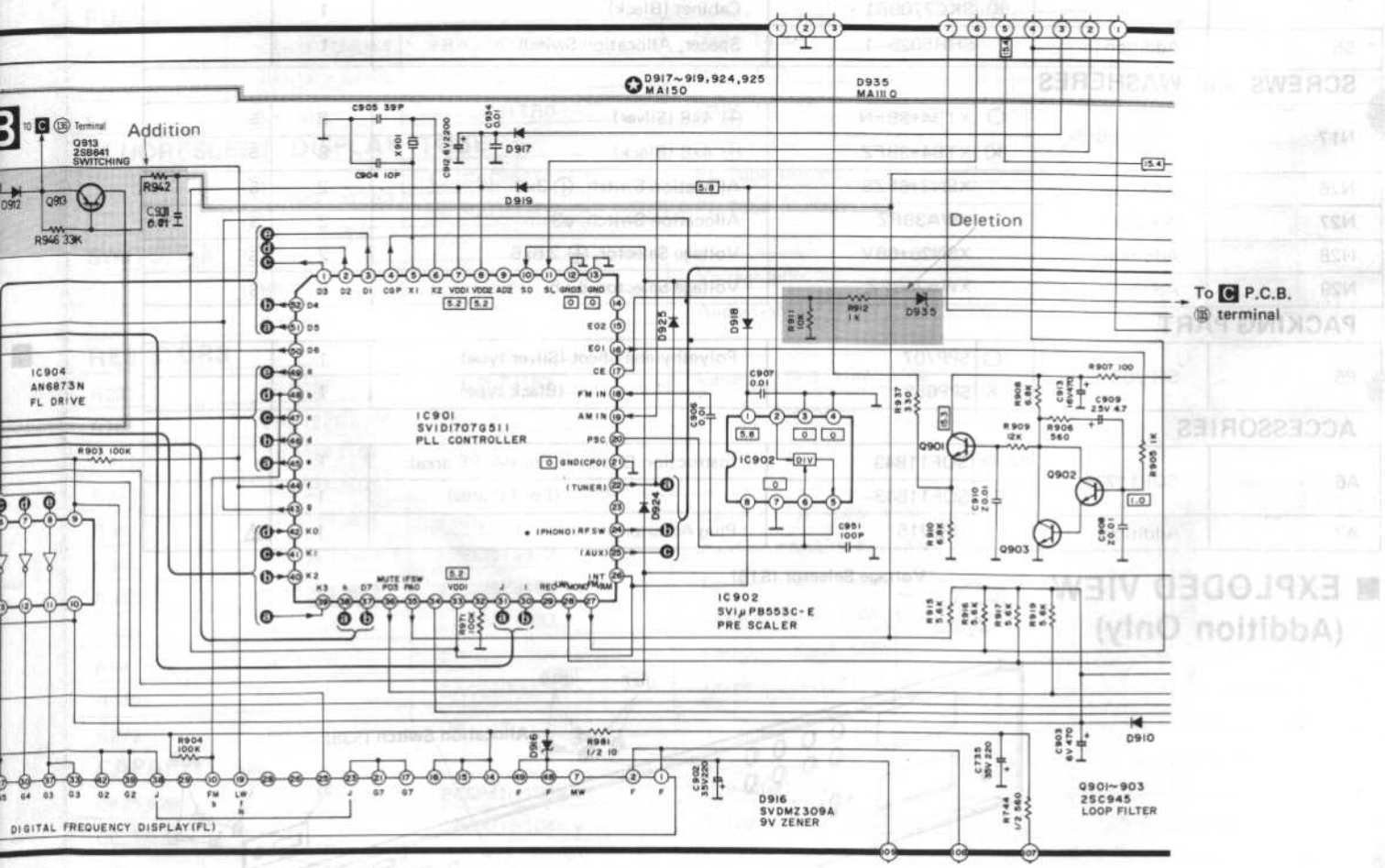
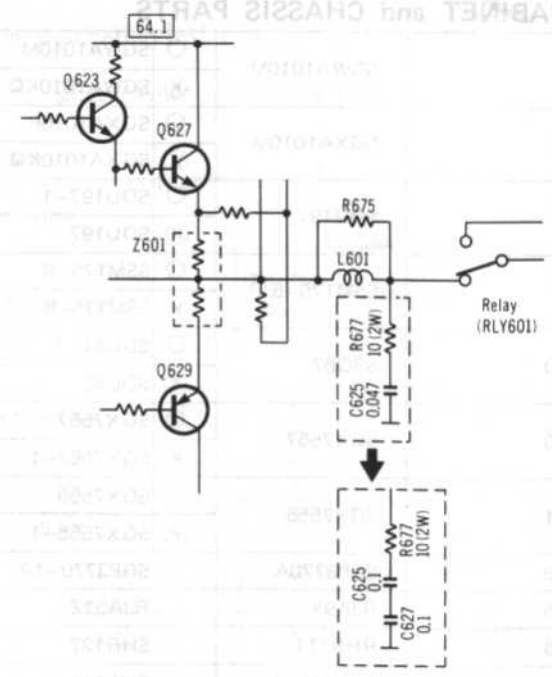
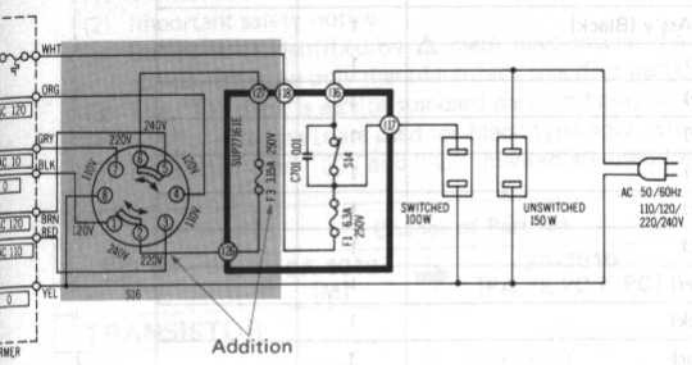
■ FM/AM Preset Tuning Circuit

Addition

Deletion



■ Power Amplifier Output Circuit



Service Manual

QUARTZ Synthesizer FM/AM Stereo Receiver

SA-1010

[M], [MC]



www.rtvcenter.com
 repair tips, service manuals
 forum, chassis pictures...

Areas

- * [M] is available in U.S.A.
- * [MC] is available in Canada.

Specifications

(Specifications are subject to change without notice for further improvement.)

■ AMPLIFIER SECTION

Rated minimum sine wave RMS power output

20 Hz~20 kHz both channels driven

0.003% total harmonic distortion

120W per channel (8 ohms)

1 kHz continuous power output

both channels driven

0.003% total harmonic distortion

125W per channel (8 ohms)

Dynamic headroom

1.1 dB (8 ohms)

Total harmonic distortion

rated power at 20 Hz~20 kHz

0.003% (8 ohms)

half power at 20 Hz~20 kHz

0.003% (8 ohms)

half power at 1 kHz

0.001% (8 ohms)

SMPT E intermodulation distortion

0.01% (8 ohms)

Frequency response

PHONO RIAA standard curve ± 0.2 dB

AUX/CD/VIDEO, GRAPHIC EQ, TAPE 1, 2/EXT

3 Hz~100 kHz, -3 dB

Input sensitivity

PHONO MM 0.23 mV (2.5 mV, IHF '66)

MC 14 μ V (150 μ V, IHF '66)

AUX/CD/VIDEO, GRAPHIC EQ, TAPE 1, 2/EXT

14 mV (150 mV, IHF '66)

S/N (IHF, A)

PHONO MM 73 dB (87 dB, IHF '66)

MC 72 dB (70 dB, 250 μ V INPUT '66)

AUX/CD/VIDEO, GRAPHIC EQ, TAPE 1, 2/EXT

75 dB (90 dB, IHF '66)

Maximum input voltage

PHONO MM 150 mV (170 mV, 1 kHz)

MC 10 mV (10 mV, 1 kHz)

Input impedance

PHONO MM 47 kilohms

MC 47 ohms

AUX/CD/VIDEO, GRAPHIC EQ, TAPE 1, 2/EXT

15 kilohms

Tone controls

BASS 50 Hz, $+10$ dB~ -10 dB

TREBLE 20 kHz, $+10$ dB~ -10 dB

Subsonic filter 30 Hz, -6 dB/oct.

High filter 7 kHz, -6 dB/oct.

Loudness control (volume at -30 dB) 50 Hz, $+9$ dB

AF muting -20 dB

Low frequency damping factor 56 (8 ohms)

28 (4 ohms)

Load impedance

MAIN or REMOTE 4~16 ohms

MAIN and REMOTE 8~16 ohms

■ FM TUNER SECTION

Frequency range 87.9~107.9 MHz

Sensitivity 10.8 dBf (1.9 μ V, IHF '58)

50 dB quieting sensitivity

MONO 13.7 dBf (2.7 μ V IHF '58)

STEREO 37.2 dBf (39.7 μ V IHF '58)

Total harmonic distortion

100 Hz 0.05% (MONO), 0.15% (STEREO)

1 kHz 0.05% (MONO), 0.08% (STEREO)

6 kHz 0.1% (MONO), 0.15% (STEREO)

S/N

MONO 78 dB

STEREO 72 dB

Frequency response 20 Hz~15 kHz, $+0.2$ dB, -0.8 dB

Alternate channel selectivity

normal 55 dB (± 400 kHz)

super narrow 80 dB (± 300 kHz)

super narrow 25 dB (± 200 kHz)

Capture ratio 1.0 dB

Image rejection at 98 MHz 80 dB

IF rejection at 98 MHz 100 dB

Spurious response rejection at 98 MHz 100 dB

AM suppression 55 dB

Technics

Matsushita Engineering and
 Service Company
 50 Meadowland Parkway,
 Secaucus, New Jersey 07094

Panasonic Hawaii Inc.
 91-238 Kauh St. Ewa Beach
 P.O. Box 774
 Honolulu, Hawaii 96808-0774

Matsushita Electric
 of Canada Limited
 5770 Ambler Drive, Mississauga,
 Ontario, L4W 2T3

Panasonic Sales Company,
 Division of Matsushita Electric
 of Puerto Rico, Inc.
 Ave. 65 De Infanteria, KM 9.7
 Victoria Industrial Park
 Carolina, Puerto Rico 00630

MEASUREMENTS AND ADJUSTMENTS

AMPLIFIER ADJUSTMENT

1. Adjustment of Load Impedance Detection Circuit (after repairing the speaker impedance detection circuit). [Fig. 13]

- (1) Connect a load with 6.7Ω (1/2W, carbon, resistor) or series connected 3.3Ω and 3.3Ω (1/2W, $\pm 5\%$) to the "main" speaker terminals.
- (2) Set the speaker selector to the "main" position.
- (3) Connect **TP753** and chassis
- (4) Connect a DC voltmeter between **TP751** and chassis (Lch.) or **TP752** and chassis (Rch.)
- (5) Adjust VR752 (Lch.) so that the voltage of **TP751** is 0mV ($-200\text{mV} \sim +50\text{mV}$)
- (6) Adjust VR751 (Rch.) so that the voltage of **TP752** is 0mV ($-200\text{mV} \sim +50\text{mV}$)

NOTE:

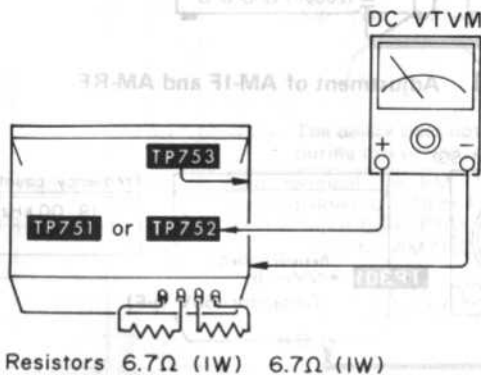
Be sure to adjust VR752 (Lch.) after adjusting VR751 (Rch.)

2. Idling (ICQ) Adjustment (after repairing the main amp.) [Fig. 14]

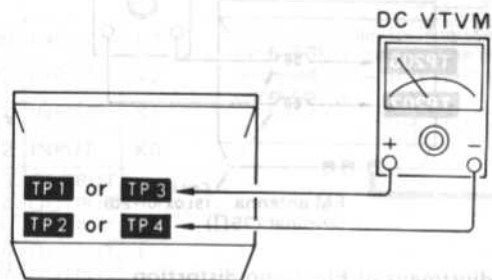
- (1) After the repair, set the sound volume to minimum before turning on the power switch, and connect nothing to the speaker terminals.
 - (2) Completely turn ICQ control (VR601, VR602) counter-clockwise.
 - (3) Increase the voltage applied to the amplifier gradually from 0V by means of a power supply voltage controller, and make sure of the value in the Figure on page 4 before starting the adjustment.
 - (4) Connect the DC electronic voltmeter to **TP1** (+) and **TP2** (-) (L ch) or **TP3** (+) and **TP4** (-) (R ch).
 - (5) When 5 or 15 seconds have lapsed after computer drive monitor "auto" lights up, adjust VR601 (L ch) or VR602 (R ch) to $8 \sim 12\text{mV}$.
- * In this set, ICQ is controlled by microcomputer, and ICQ a little more than the normal level is applied by "PREHEAT" for about 15 sec. after power ON. After that, the output level and transistor temperature are detected by "AUTO", thereby automatically controlling ICQ.

3. Clock Adjustment (after replacing the microcomputer)

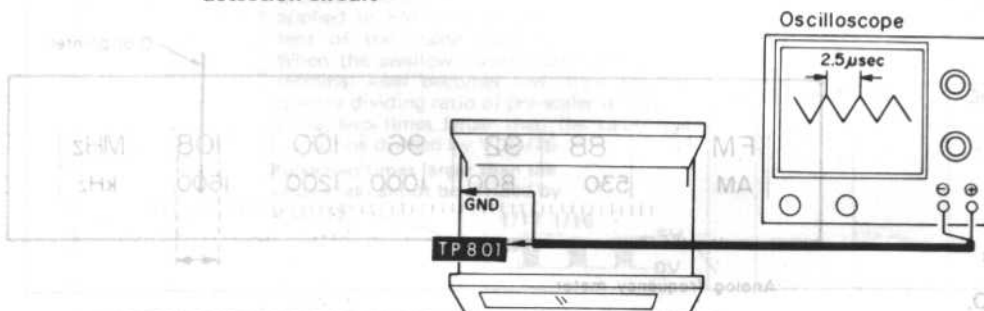
- (1) Connect the oscilloscope to **TP801**.
- (2) Adjust VR801 so that period of waveform is $2.5\mu\text{sec}$ (Refer to Fig. 15).



[Fig. 13] Adjustment of load impedance detection circuit

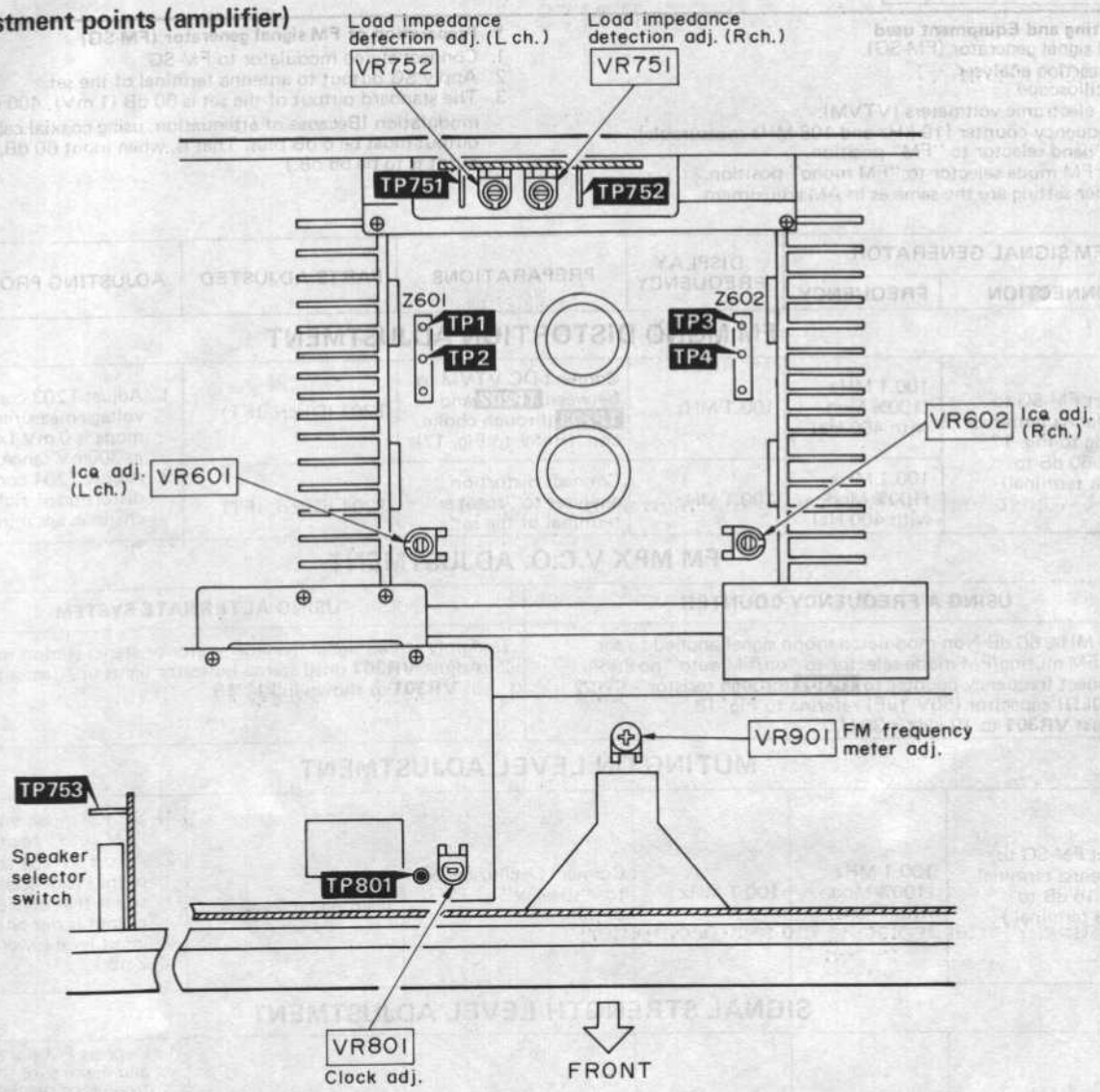


[Fig. 14] Idling (ICQ) adjustment



[Fig. 15] Clock adjustment

• Adjustment points (amplifier)



AM ADJUSTMENT

Note: AM IFT (T201) and AM OSC coil (L203) have been already adjusted, and require no adjustment.

* Setting and Equipment used					
1. AC electronic voltmeters (VTVM).		5. Output of signal generator should be no higher than necessary to obtain an output reading.			
2. AM signal generator (AM-SG).		6. Use a non-metal screwdriver for the adjustment.			
3. Set Band selector to "AM" position.					
4. Maintain line voltage at 120 voltage.					
AM SIGNAL GENERATOR		DISPLAY FREQUENCY	PREPARATIONS	PARTS ADJUSTED	ADJUSTING PROCEDURE
CONNECTION	FREQUENCY				
AM-IF ADJUSTMENT					
1	Connect AM-SG to AM antenna terminal through 200pF capacitor. Common to chassis. (Powerful input) (Refer to Fig. 16)	450 kHz (30% Mod. with 400 Hz)	Frequency of non-interference	Connect AC VTVM or scope to "speaker" terminals.	* Adjust the input frequency and adjustment points so that the output becomes maximum.
AM-RF ADJUSTMENT					
2	Connect AM-SG to AM antenna terminal through 200pF capacitor. Common to chassis. (Weak input)	612 kHz (30% Mod. with 400 Hz)	612 kHz	Connect AC VTVM or scope to "speaker" terminals.	1. Adjust for maximum output. 2. Adjust core of L202 by screwdriver.
3	(Refer to Fig. 16)	1503 kHz (30% Mod. with 400 Hz)	1503 kHz	Connect AC VTVM or scope to "speaker" terminals.	1. Adjust for maximum output. 2. Repeat steps (2) and (3) until the frequency correctly matches the frequency display.

FM ADJUSTMENT

* Setting and Equipment used

1. FM signal generator (FM-SG).
2. Distortion analyser.
3. Oscilloscope
4. DC electronic voltmeters (VTVM).
5. Frequency counter (19 kHz and 108 MHz measurable).
6. Set band selector to "FM" position.
7. Set FM mode selector to "FM mono" position.
8. Other setting are the same as in AM adjustment.

* Preparation of FM signal generator (FM-SG)

1. Connect stereo modulator to FM-SG.
2. Apply SG output to antenna terminal of the set.
3. The standard output of the set is 60 dB (1 mV), 400 Hz, 100% modulation (Because of attenuation, using coaxial cables. SG output must be 6 dB plus. That is, when input 60 dB, SG output is to be 66 dB.)

Step No.

FM SIGNAL GENERATOR		DISPLAY FREQUENCY	PREPARATIONS	PARTS ADJUSTED	ADJUSTING PROCEDURE	
CONNECTION	FREQUENCY					
FM MONO DISTORTION ADJUSTMENT						
4	Connect FM-SG to FM antenna terminal referring to Fig. 17. (Apply 60 dB to antenna terminal)	100.1 MHz (100% Mod. with 400 Hz)	100.1 MHz	Connect DC VTVM to between TP202 and TP203 through choke coil. (Refer to Fig. 17)	T203 (Discr. IFT)	
5		100.1 MHz (100% Mod. with 400 Hz)	100.1 MHz	Connect distortion analyser to "speaker" terminal of the set.	T204 (Discr. IFT)	
FM MPX V.C.O. ADJUSTMENT						
USING A FREQUENCY COUNTER			USING ALTERNATE SYSTEM			
6	<ol style="list-style-type: none"> 1. 100 MHz, 60 dB Non-modulated mono signal applied to set. 2. Set FM muting/FM mode selector to "on/FM auto" position. 3. Connect frequency counter to TP301 through resistor (100kΩ) capacitor (50V 1μF) referring to Fig. 18. 4. Adjust VR301 to 19 kHz \pm 30 Hz. 			<ol style="list-style-type: none"> 1. Apply stereo signal from generator or stereo station to tuner. 2. Adjust VR301 until stereo indicator lights up. Cement arm of VR301 as shown in Fig. 19. 		
MUTING ON LEVEL ADJUSTMENT						
7	Connect FM-SG to FM antenna terminal. (Apply 16 dB to antenna terminal.)	100.1 MHz (100% Mod. with 1 kHz)	100.1 MHz	Connect Oscilloscope to "speaker" terminal.	VR201 (Muting on level)	
SIGNAL STRENGTH LEVEL ADJUSTMENT						
8	Connect FM-SG to FM antenna terminal. (Apply 54 dB to antenna terminal.)	100.1 MHz (100% Mod. with 400 Hz)	100.0 MHz	—	VR202 (Signal strength level)	
SEPARATION ADJUSTMENT						
9	Connect FM-SG to FM antenna terminal. (Apply 60 dB to antenna terminal.) (Pilot 10% Mod. stereo signal.)	100.1 MHz (90% Mod. with 1 kHz) (L or R mode)	100.1 MHz	Connect AC VTVM or oscilloscope to "speaker" terminals.	VR302 (Separation)	
ANALOG FREQUENCY METER ADJUSTMENT						
10	—	No-Signal	107.9 MHz	—	VR901 (Frequency meter)	

1. Adjust T203 core so that voltage measured in signal mode is 0 mV (\pm 50mV) in 300mV range.
2. Adjust T204 core so that distortion of right and left channels are minimized.

1. Set FM mode selector to "FM auto" position.
2. Adjust VR201 so that signal output is delivered. (Check to see that delivery of output is discontinued with input level lowered by 1 ~ 2 dB.)

1. Depress FM signal switch and make sure the digital frequency display changes from frequency to signal level display.
2. Adjust VR202 so that 54 dB is indicated.
3. Make sure that the signal strength level is 22 ~ 38 dB when the input is 30 dB.

1. Set mode switch to "auto" position.
2. Adjust VR302 so that R output is minimized when stereo modulator is in L (L ch. modulation) mode and that L output is minimized in R mode.

1. Adjust VR901 so that the analog frequency meter indicates 107.9 MHz. (Refer to Fig. 20)
2. Next operate the tuning button so that 88.1 MHz and 96.1 MHz are indicated in the digital frequency display. Then make sure that the indicator is in contact with each letter.
3. If the requirement in step 2 is not satisfied, go back to step 1 and adjust the indicator within the dotted line of Fig. 20.

• Adju

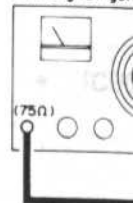
AM
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A
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level

FM Signal gen



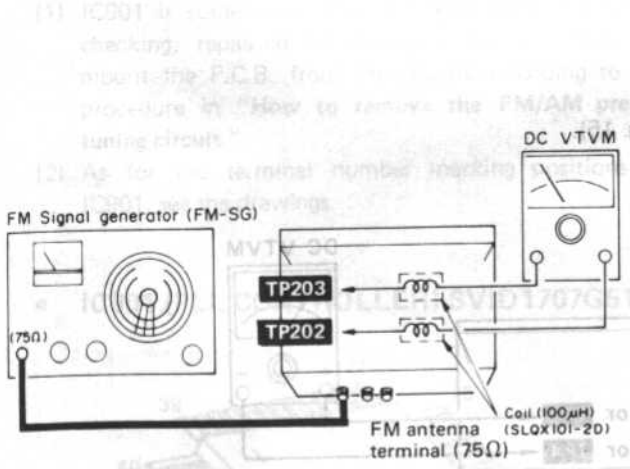
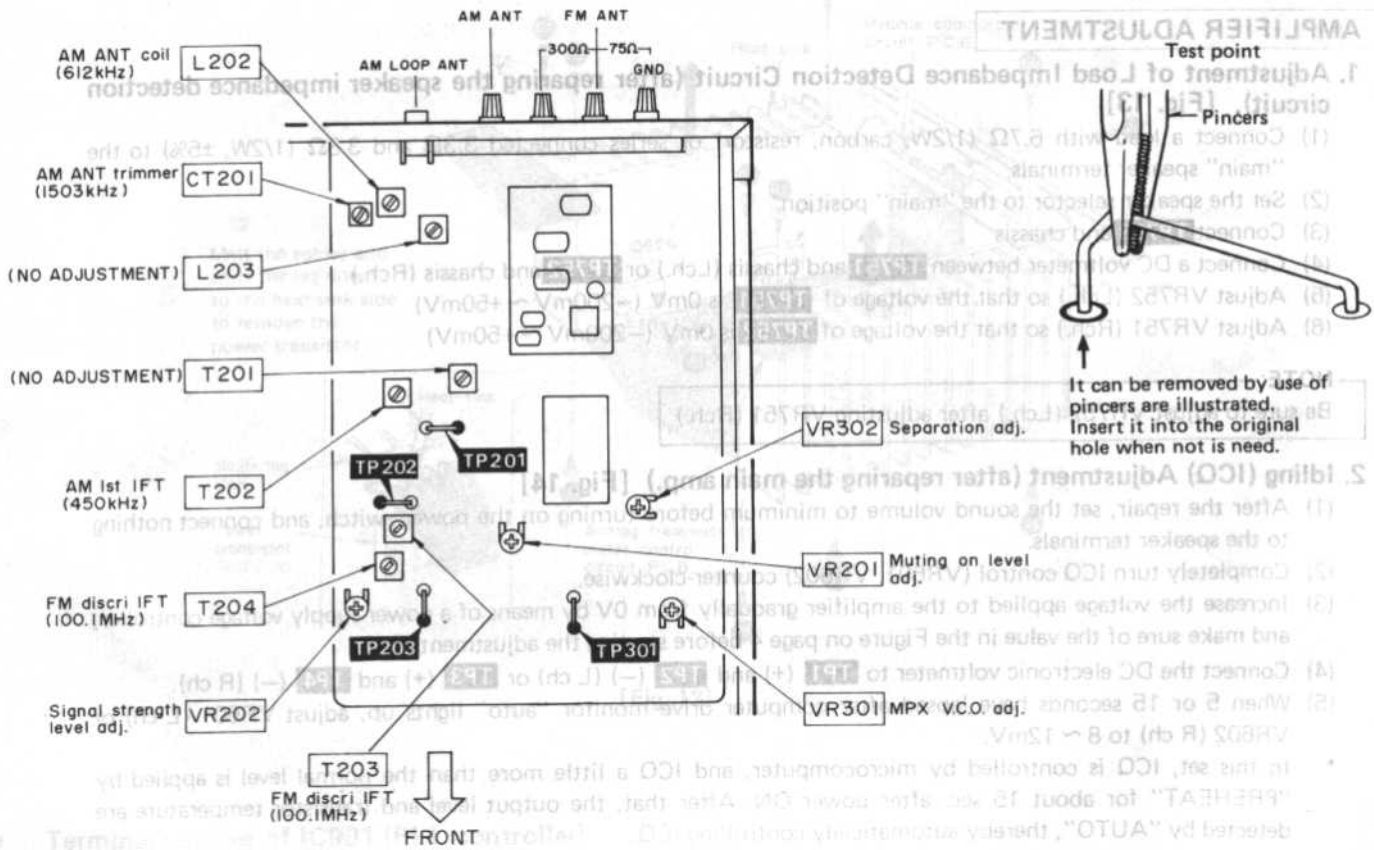
[Fig

A—B, D
B—D

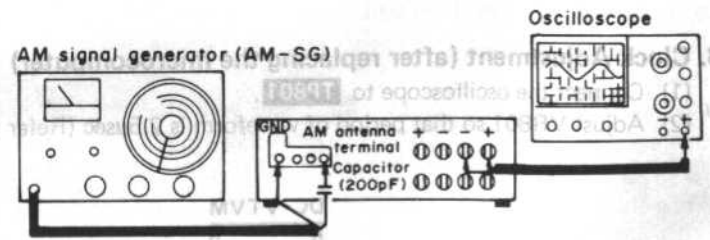
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[Fig. 19]

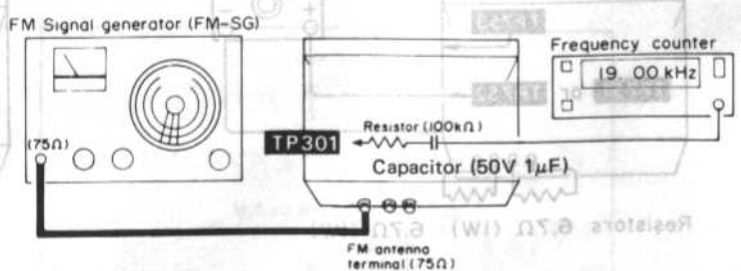
• Adjustment points (FM/AM tuner)



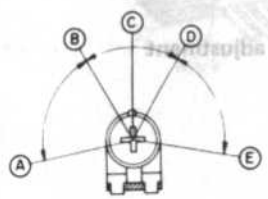
[Fig. 17] Adjustment of FM mono distortion



[Fig. 16] Adjustment of AM-IF and AM-RF

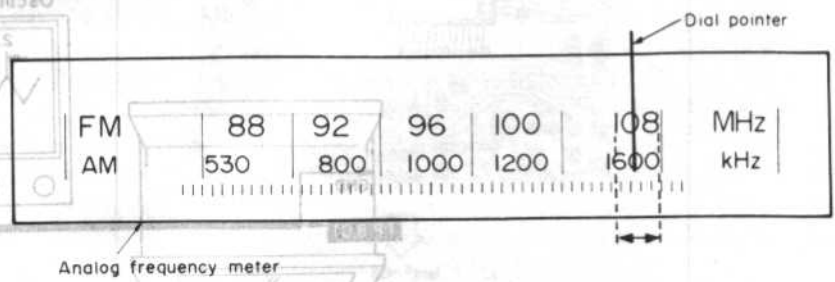


[Fig. 18] Adjustment of FM MPX V.C.O.



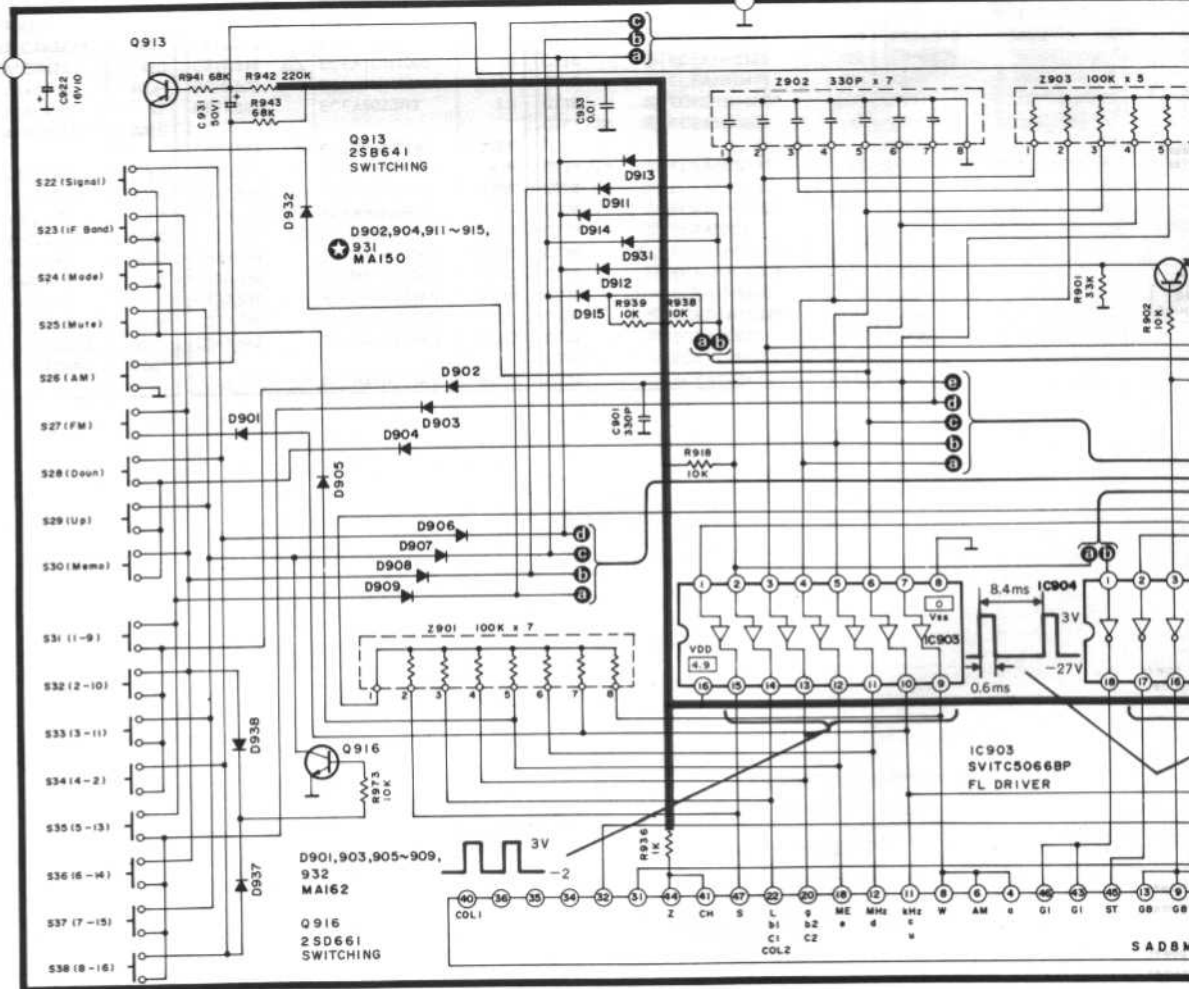
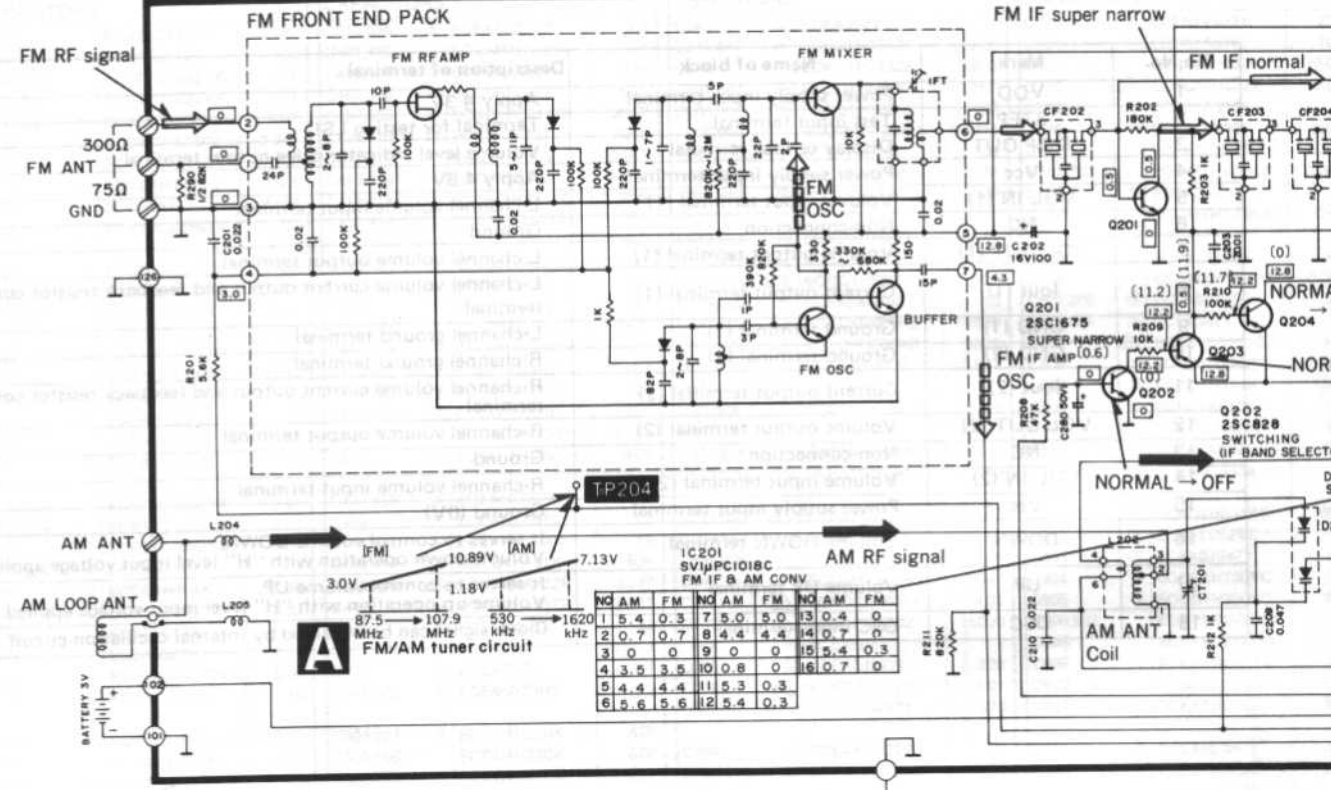
- A-B, D-E : Stereo OFF position.
- B-D : Stereo ON position. (indicator lighting)
- C : Adjust point of pilot circuit

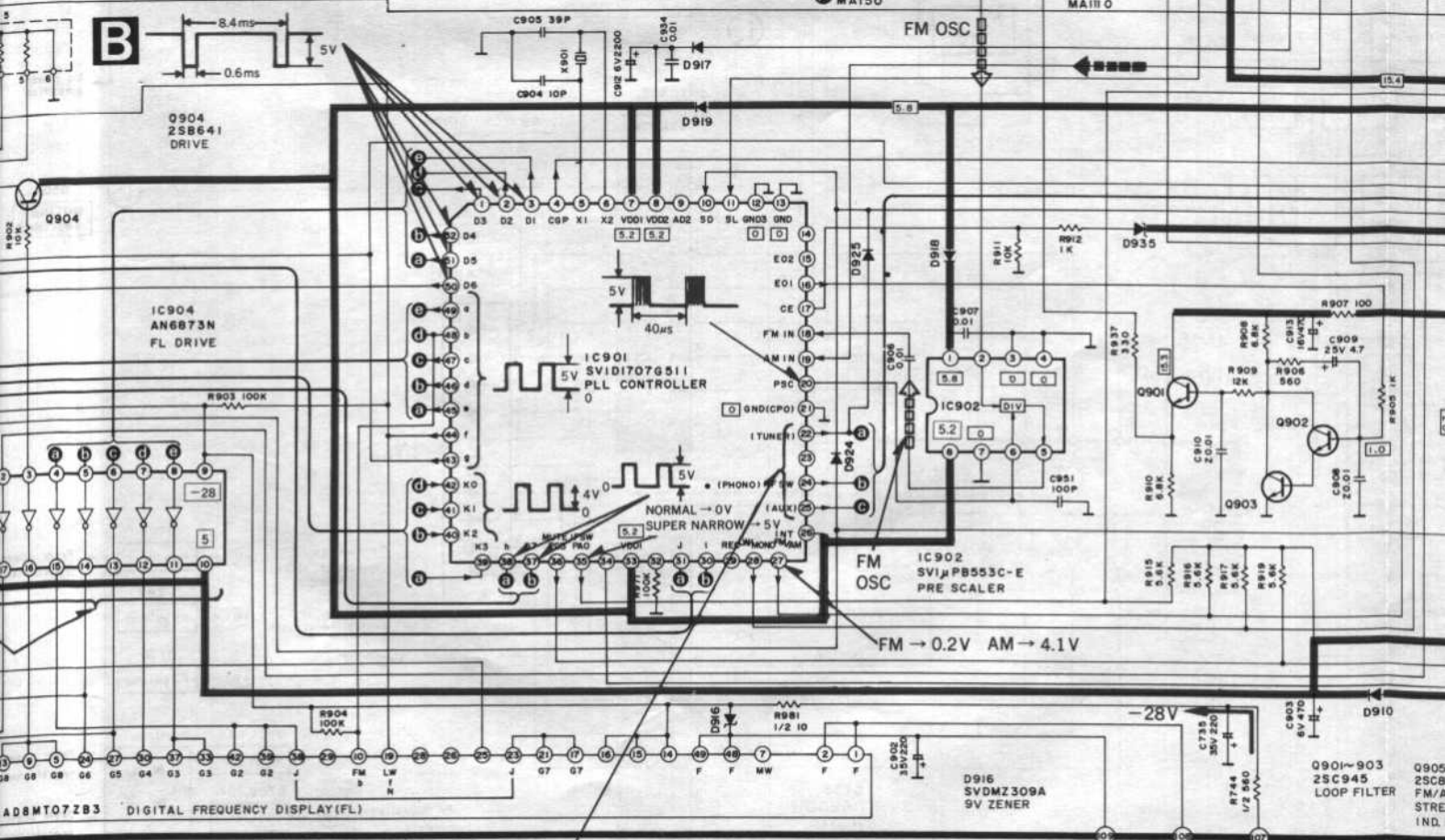
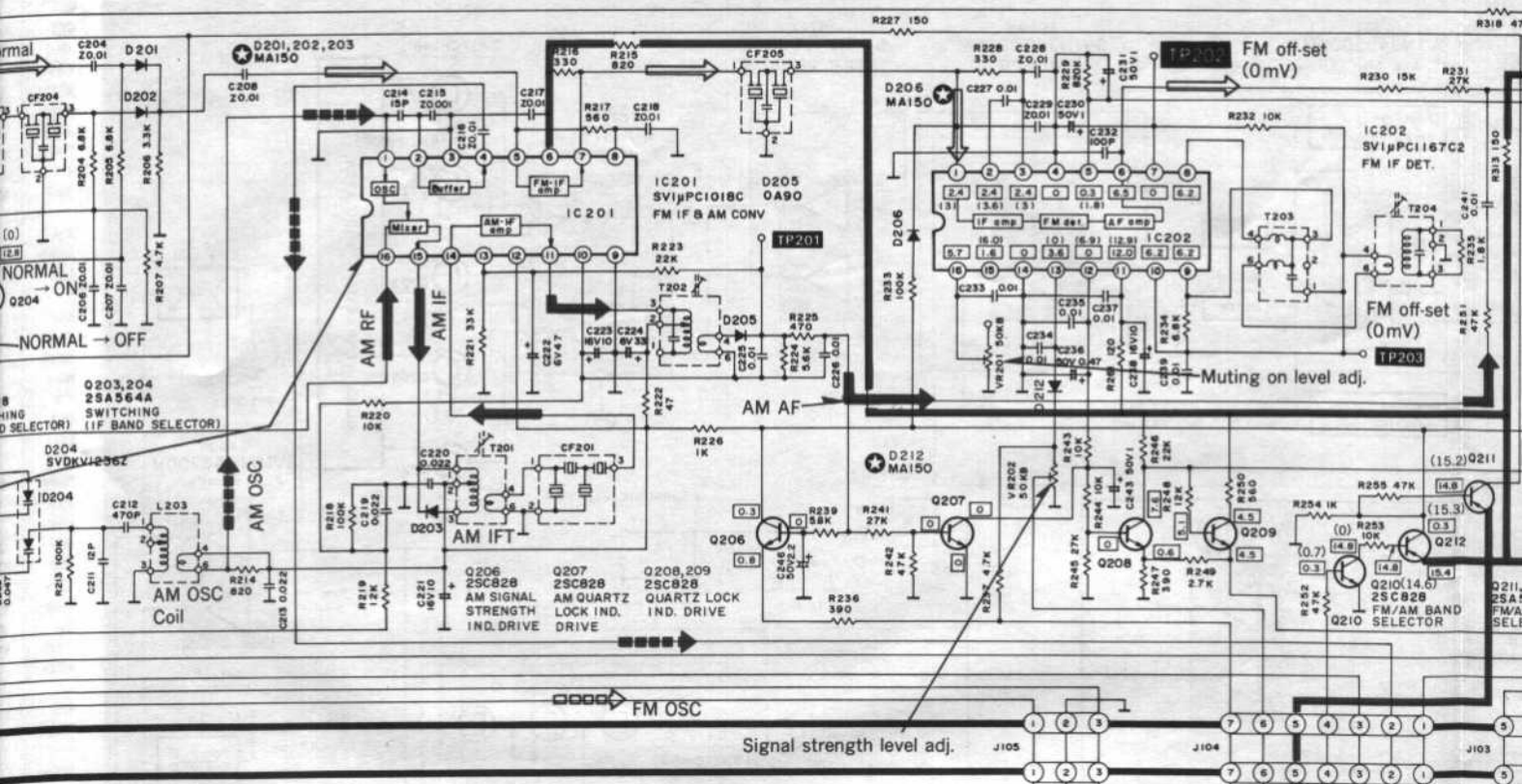
[Fig. 19] Adjustment of FM MPX V.C.O.

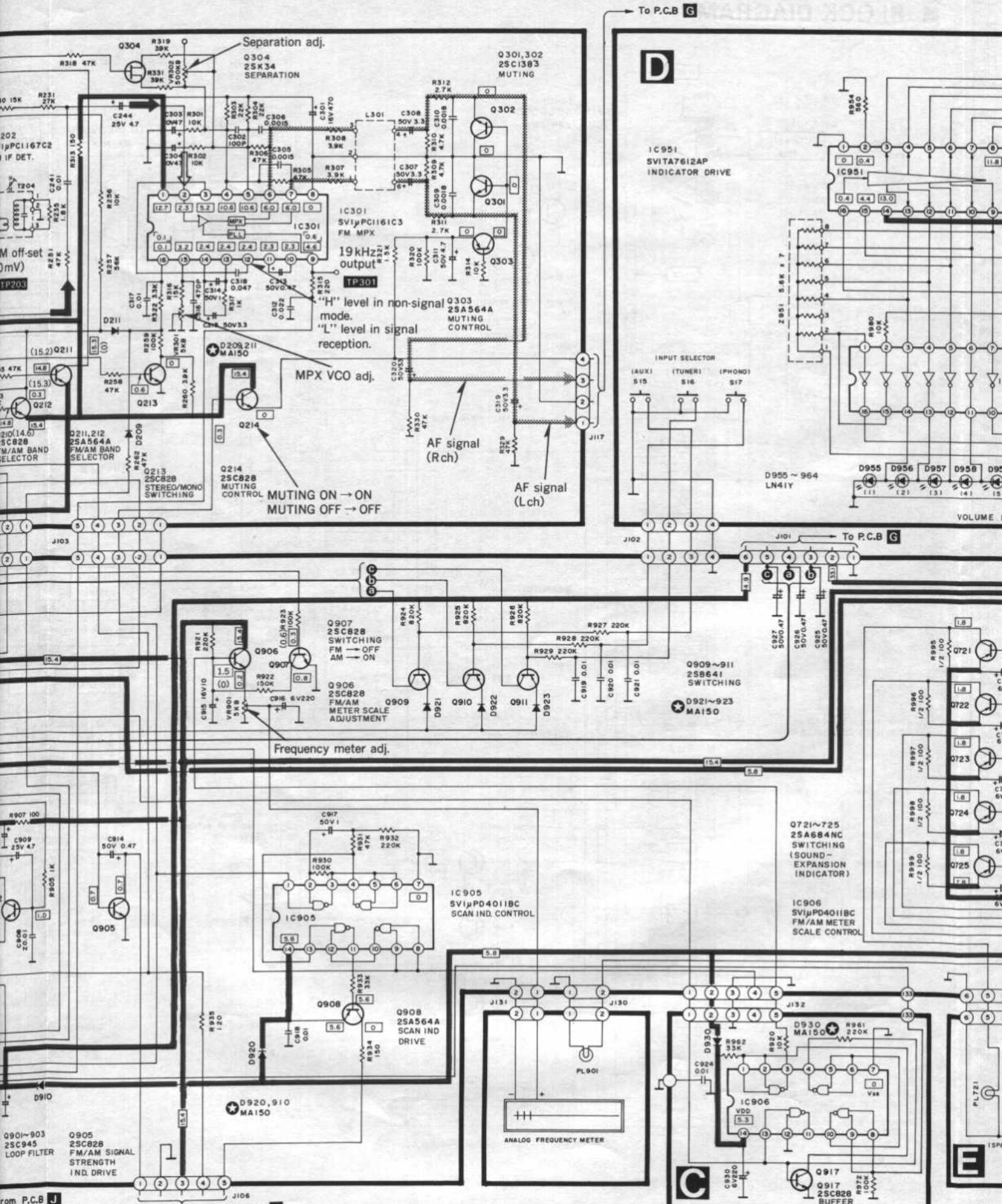


[Fig. 20] Adjustment of ANALOG FREQUENCY METER

A
B
C
D
E
F
G







To P.C.B G

D

IC 951
SVIT7612AP
INDICATOR DRIVE

INPUT SELECTOR
(AUX) S15 (TUNER) S16 (PHONO) S17

J102

To P.C.B G

J101

To P.C.B G

Separation adj.
Q304
25K34
SEPARATION

Q301,302
25C1383
MUTING

"H" level in non-signal
mode.
"L" level in signal
reception.

MPX VCO adj.

AF signal (Rch)

AF signal (Lch)

MUTING ON -> ON
MUTING OFF -> OFF

Frequency meter adj.

IC905
SVµPD4011BC
SCAN IND CONTROL

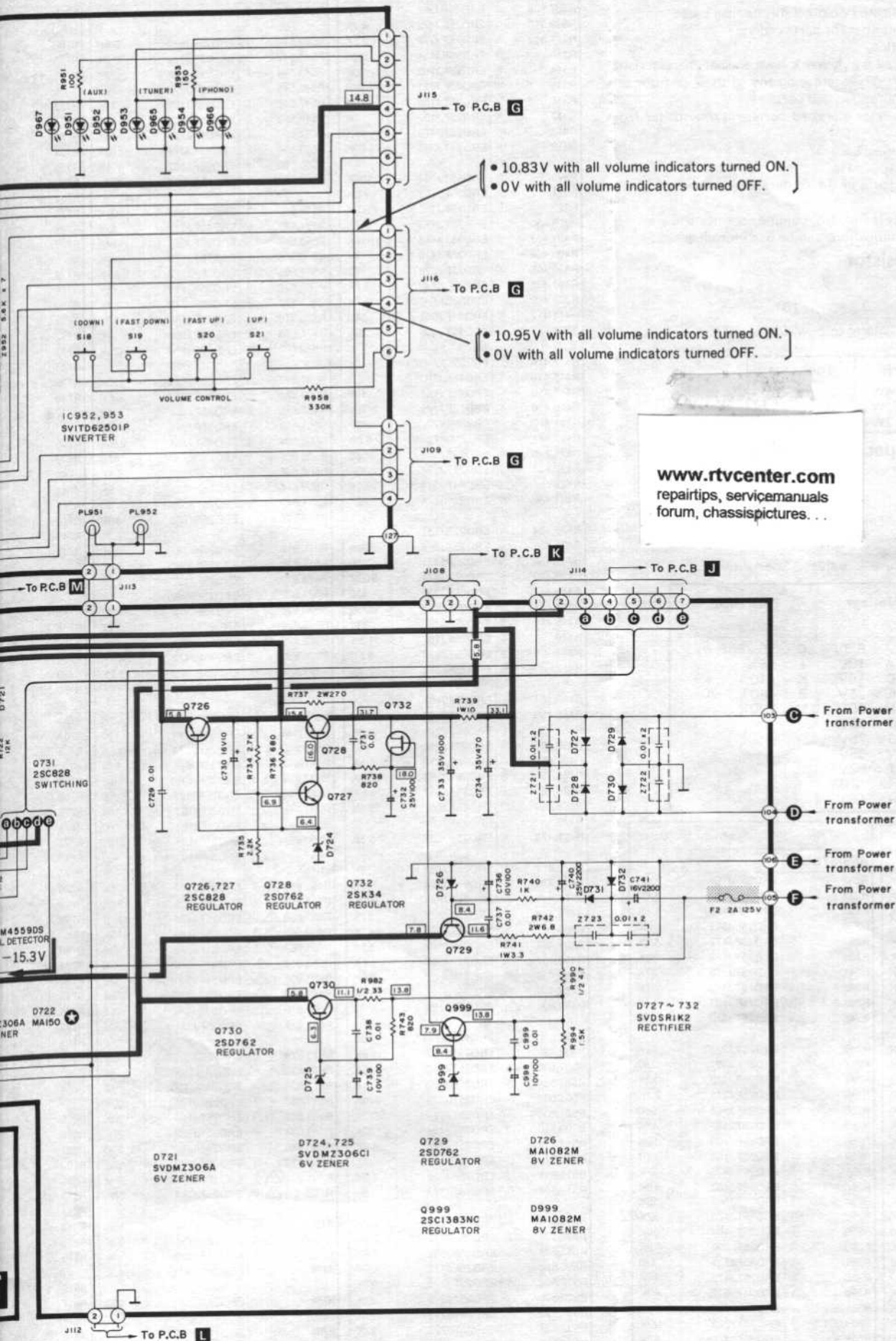
ANALOG FREQUENCY METER

Q721~725
25A684NC
SWITCHING
(SOUND-
EXPANSION
INDICATOR)

IC906
SVµPD4011BC
FM/AM METER
SCALE CONTROL

C

E



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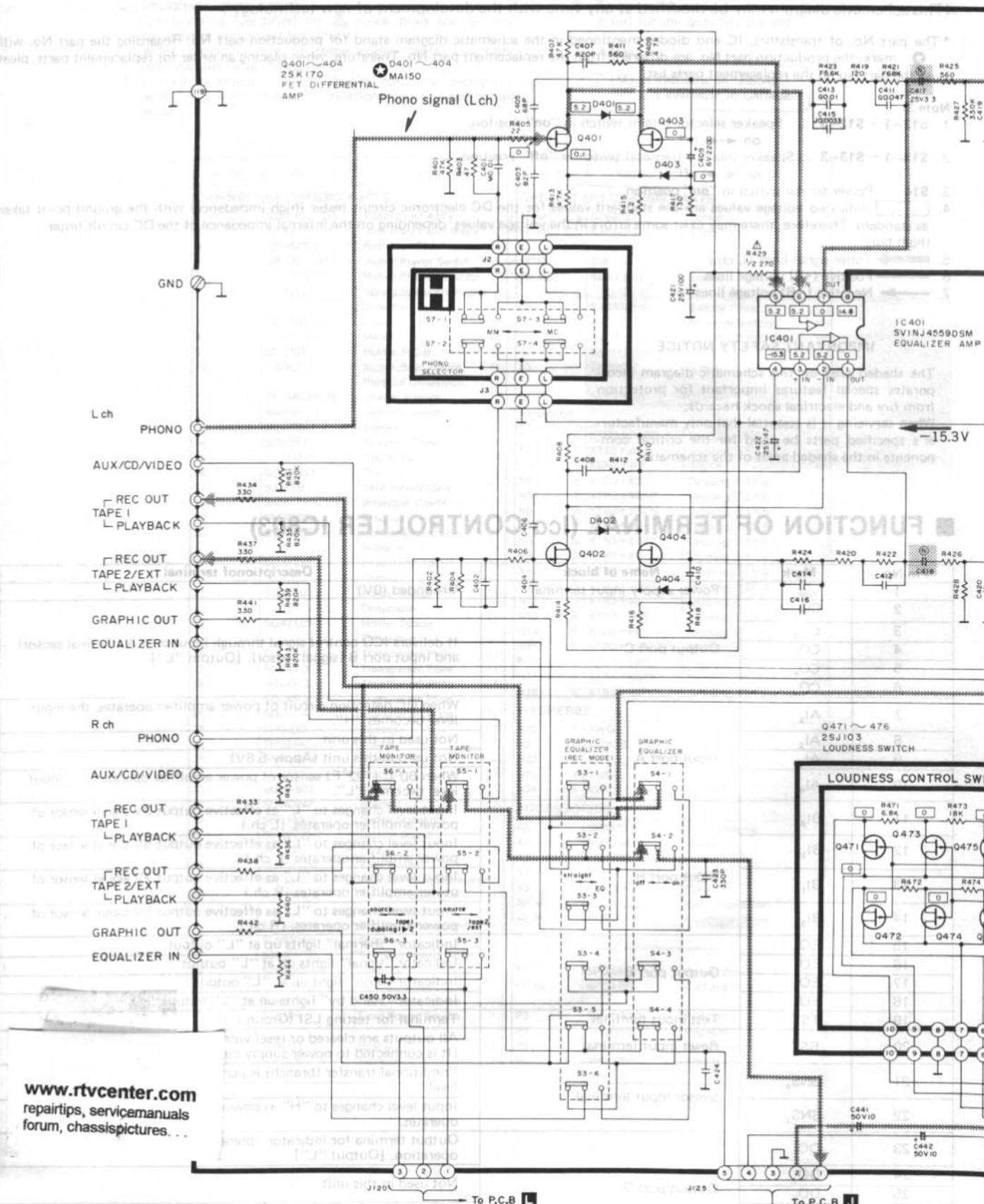
• 10.83V with all volume indicators turned ON.
 • 0V with all volume indicators turned OFF.

• 10.95V with all volume indicators turned ON.
 • 0V with all volume indicators turned OFF.

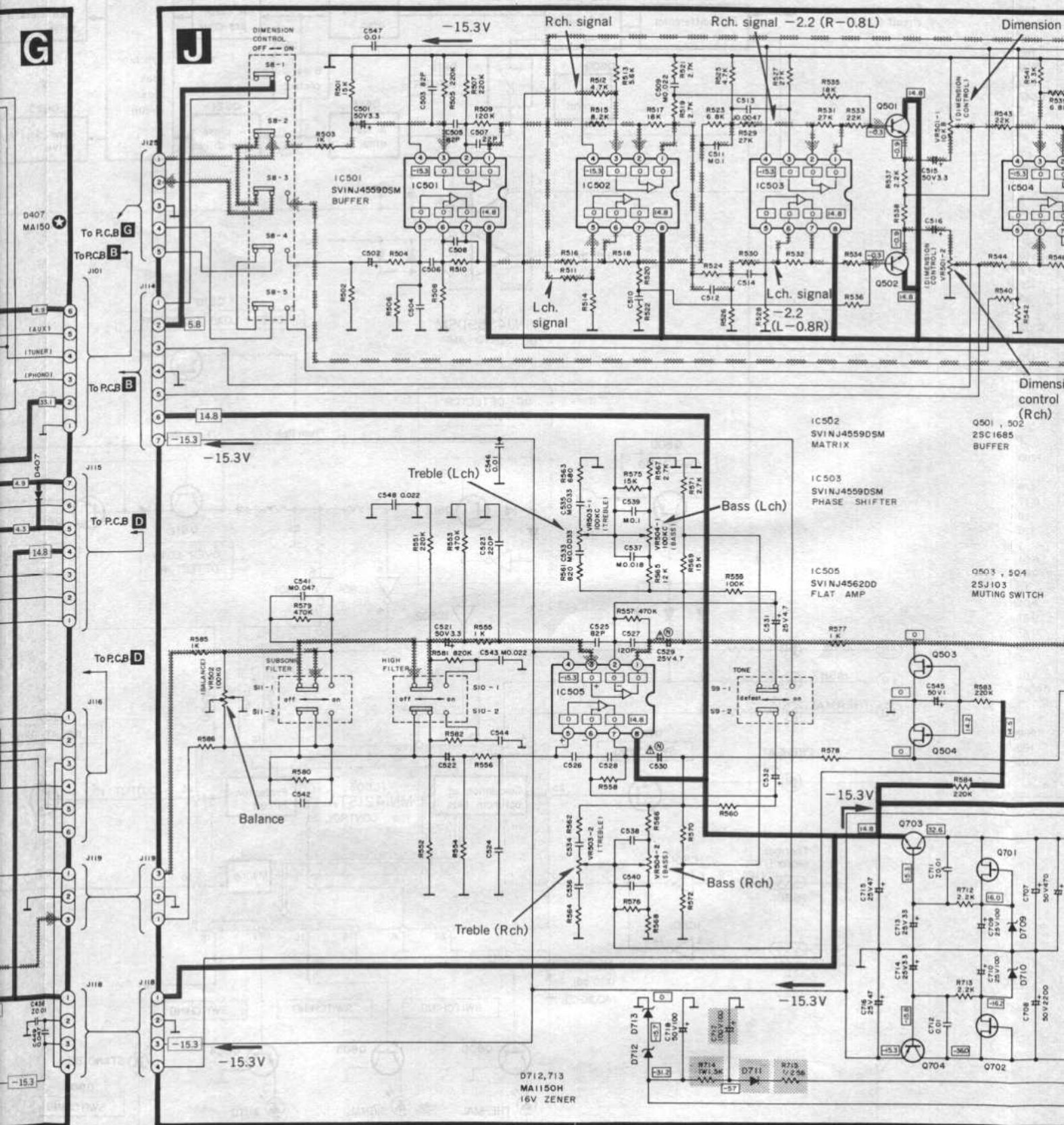
REPLACEMENT PARTS LIST SCHEMATIC DIAGRAM

ICD controller/over load detector/main amplifier/voltage comparator circuit

A B C D E F G



BLOCK DIAGRAM



G

J

To R.C.B G

To R.C.B B

To R.C.B B

To R.C.B D

To R.C.B D

To R.C.B D

To R.C.B D

To R.C.B D

D712, 713
M1150H
16V ZENER

Dimension control (Rch)

Q501, 502
25C1685
BUFFER

IC502
SV1NJ4559DSM
MATRIX

IC503
SV1NJ4559DSM
PHASE SHIFTER

IC505
SV1NJ45620D
FLAT AMP

Q503, 504
25J103
MUTING SWITCH

■ SCHEMATIC DIAGRAM

(Equalizer/input selector control/volume control/
loudness control/dimension control)

(This schematic diagram may be modified at any time with
the development of new technology.)

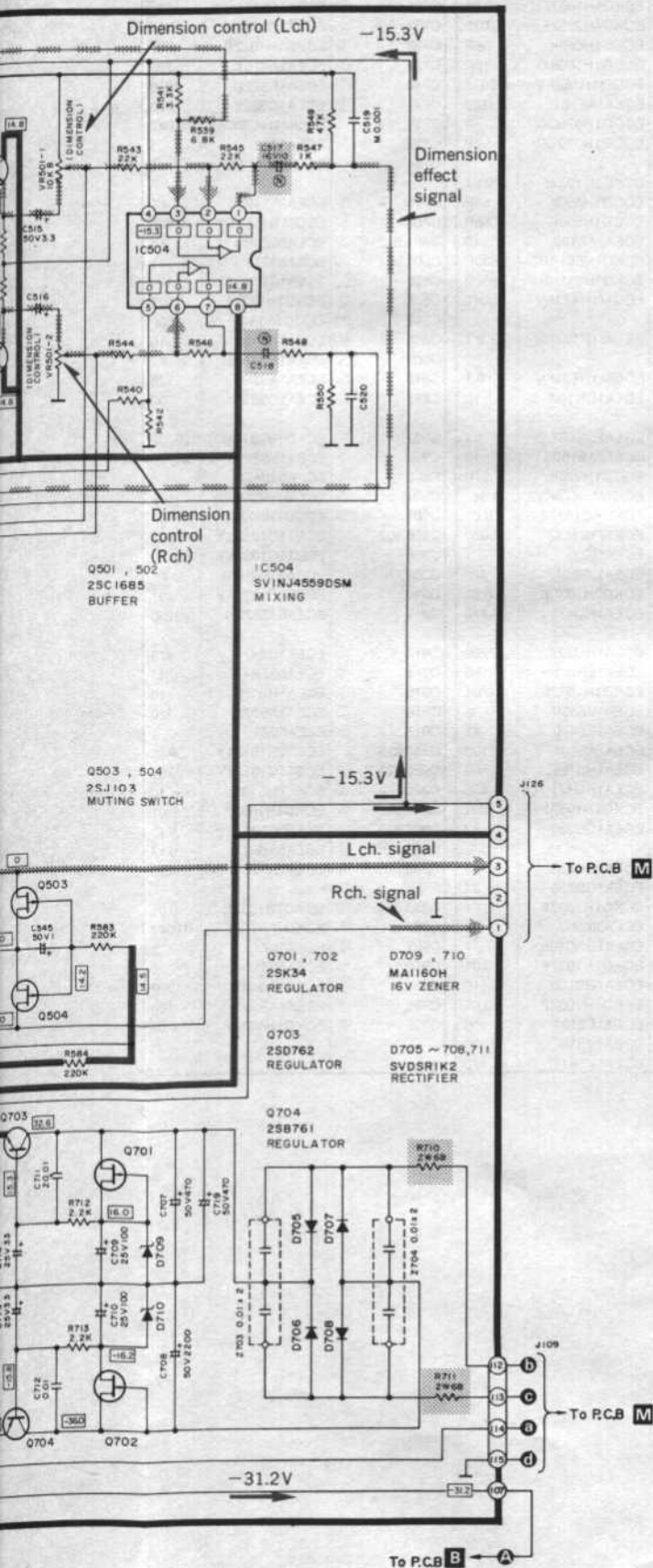
* The part No. of transistors, IC and diodes mentioned in the schematic
diagram stand for production part No. Regarding the part No. with
⊕ mark, the production part No. are different from the replacement
part No. Therefore, when placing an order for replacement parts,
please use the part No. in the replacement parts list.

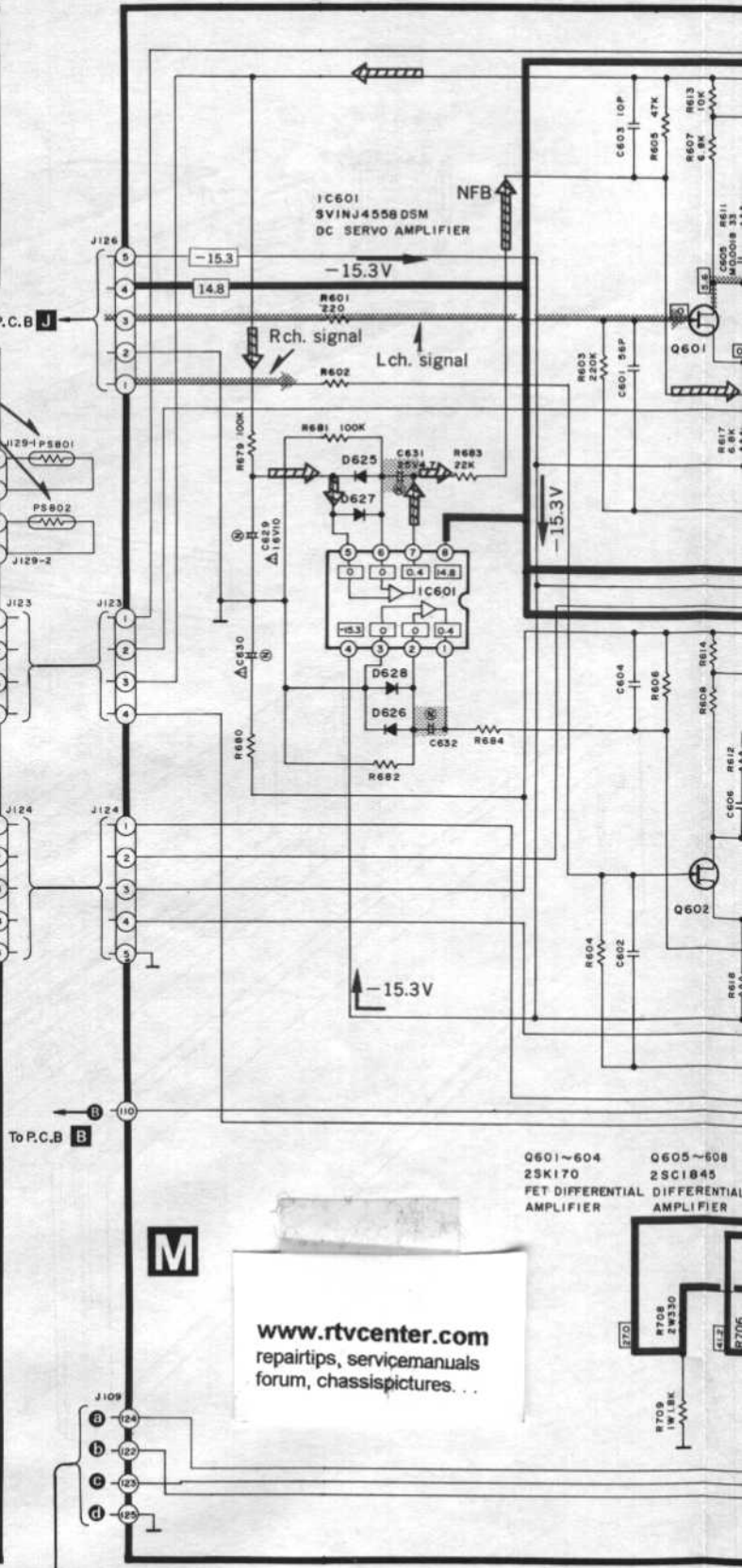
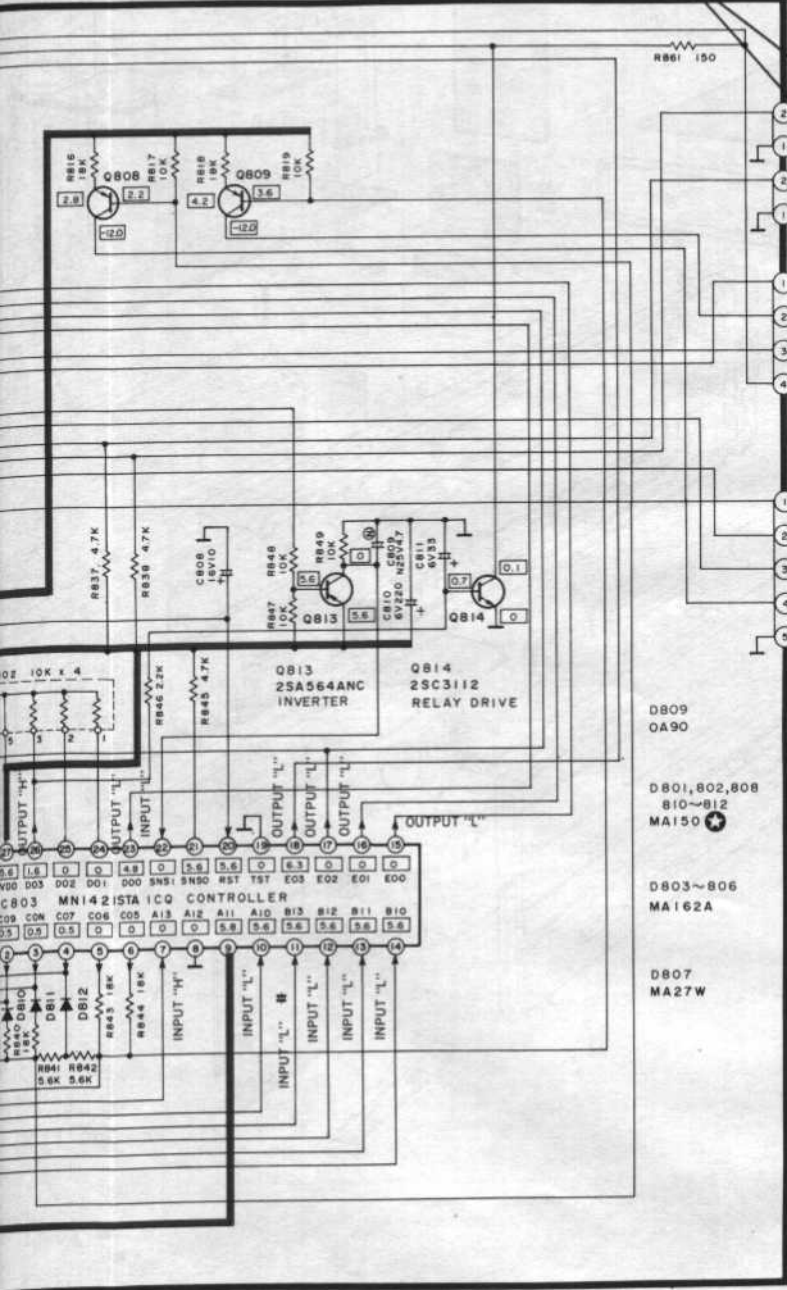
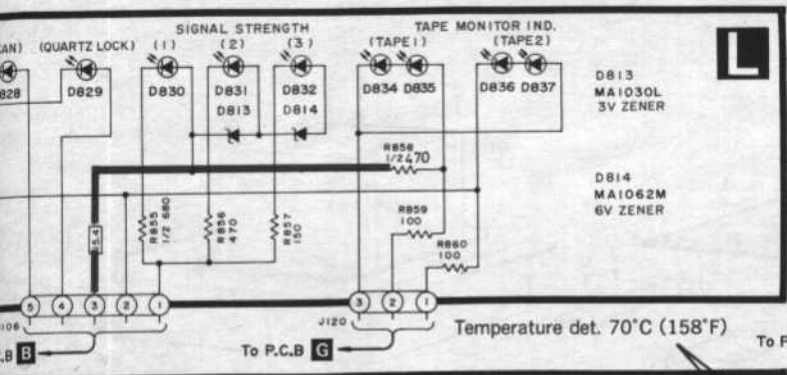
Note 2

- S1-1, S1-2 : Audio muting switch in "0dB" position.
0dB ↔ -20dB
- S2-1, S2-2 : Loudness switch in "off" position.
off ↔ on
- S3-1 ~ S3-6 : Equalizer recording mode switch in "straight"
position.
straight ↔ EQ
- S4-1 ~ S4-4 : Equalizer switch in "off" position.
off ↔ on
- S5-1 ~ S5-3 : Tape monitor selector switch in "source" position.
source ↔ tape1/dubbing 1 ▶ 2
- S6-1 ~ S6-3 : Tape monitor selector switch in "source" position.
source ↔ tape2/ext.
- S7-1, S7-2 : Phono cartridge selector switch in "MM" position.
MM ↔ MC
- S8-1 ~ S8-2 : Dimension control on/off switch in "off" position.
off ↔ on
- S9-1, S9-2 : Tone switch in "defeat" position.
defeat ↔ on
- S10-1, S10-2 : High-cut filter switch in "off" position.
off ↔ on
- S11-1, S11-2 : Subsonic filter switch in "off" position.
off ↔ on
- indicated voltage values are the standard values for the DC
electronic circuit tester (high impedance) with the ground point
taken as standard. Therefore, there may exist some errors in the
voltage values, depending on the internal impedance of the DC
circuit tester. (high tap)
- ⊕ Phono signal lines
- Positive (+B) voltage lines
- Negative (-B) voltage lines

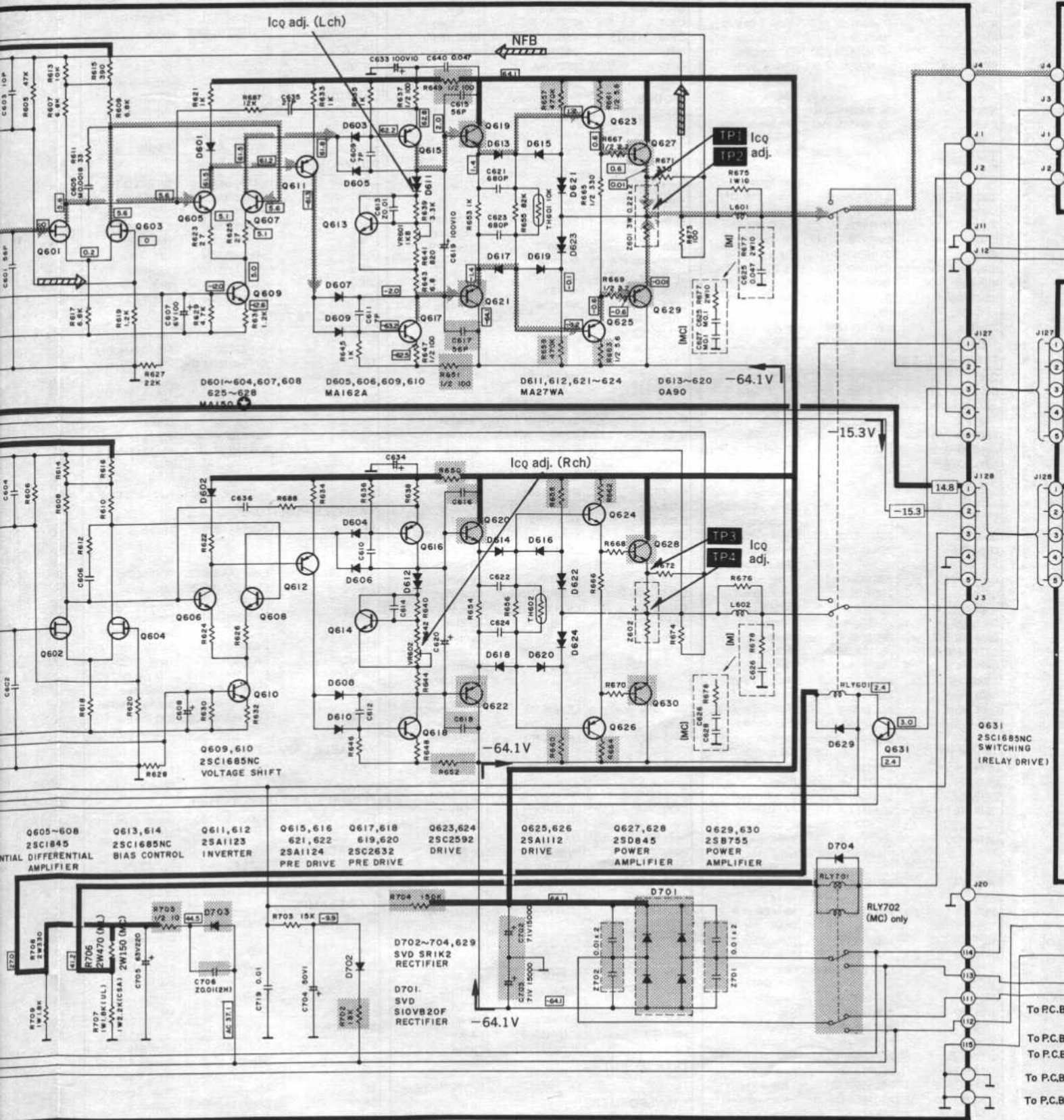
IMPORTANT SAFETY NOTICE

The shaded area on this schematic diagram incor-
porates special features important for protection
from fire and electrical shock hazards.
When servicing it is essential that only manufactur-
er's specified parts be used for the critical com-
ponents in the shaded areas of the schematic.

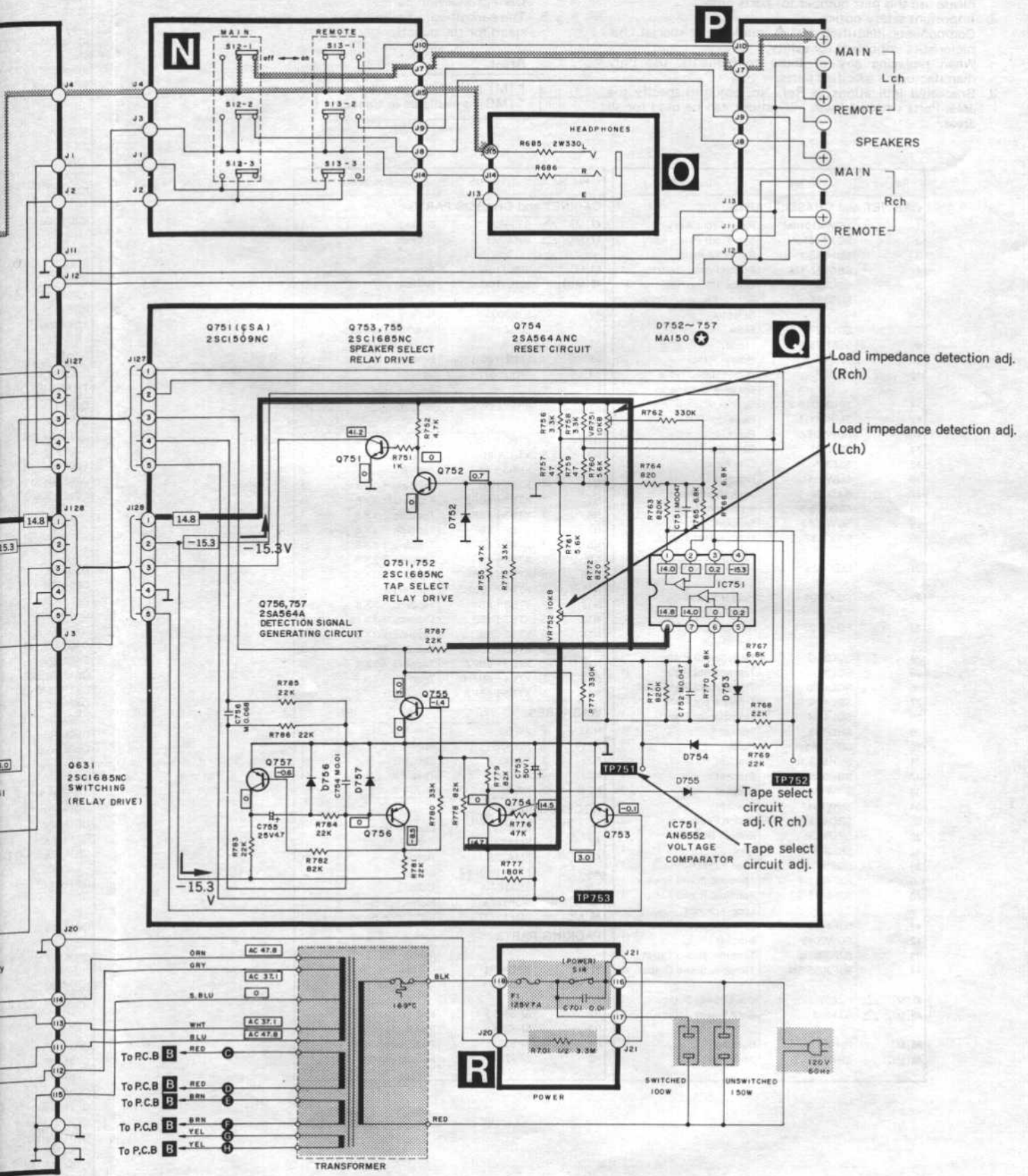




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REPLACEMENT PARTS LIST



Load impedance detection adj. (Rch)

Load impedance detection adj. (Lch)

Tape select circuit adj. (R ch)

Tape select circuit adj.