

Service
Service
Service



Service Manual

(GB)

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

(NL)

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

(D)

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

(I)

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

(F)

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

Documentation Technique Service Dokumentation Documentazione di Servizio Huolto-Ohje Manual de Servicio Manual de Servicio



"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".

(GB)

(NL)

Subject to modification

4822 725 22791

(F)

(D)

(I)

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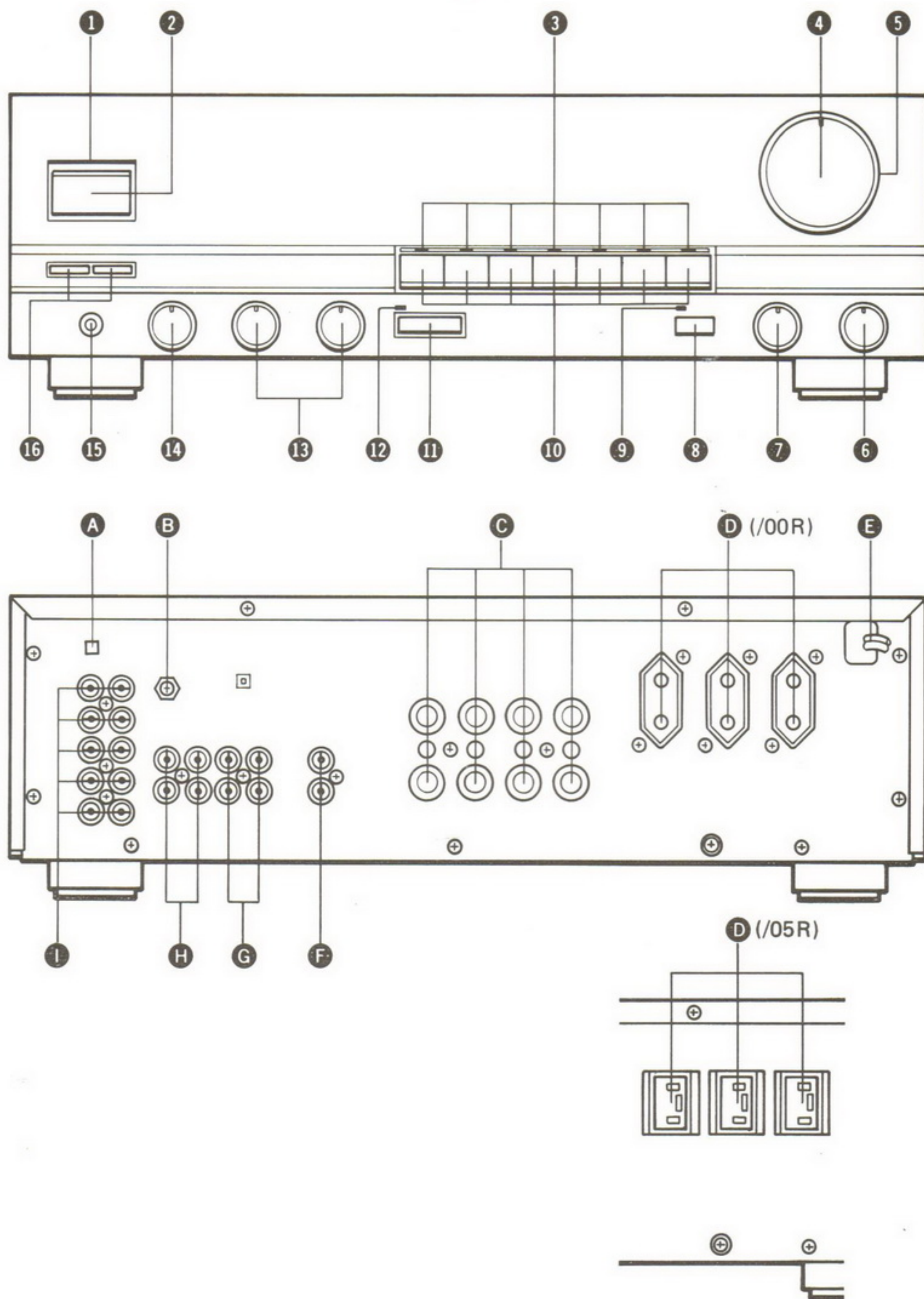
SPECIFICATION

General

	Nominal value	Typical value
Mains voltage	: 220V ~ (/00R) : 240V ~ (/05R)	: 220V ~ (/00R) : 240V ~ (/05R)
Mains frequency	: 50 – 60 Hz	: 50 – 60 Hz
Power consumption	: 340W	: 340W
Dimensions (WxHxD)	: 420 x 118 x 334 mm	: 420 x 118 x 334 mm
Weight	: 9.2 kg	: 9.2 kg

Amplifier

Output power	: 80W in 8Ω (IEC)	: 85W in 8Ω (IEC)
Distortion T.H.D.	: ≤ 0.03% at 1 kHz : ≤ 0.03% at 63 Hz – 12.5 kHz } (IEC) : ≤ 0.03% at 60/7000 Hz 4:1	: ≤ 0.002% at 1 kHz : ≤ 0.01% at 63 Hz – 12.5 kHz } (IEC) : ≤ 0.006% at 60/7000 Hz 4:1
Intermodulation		
Frequency characteristic		
Phono input	tone control neutral	
Other inputs		
Bass control	: from 20 Hz – 20 kHz ±1 dB (IEC/RIAA)	: from 20 Hz – 20 kHz ±0.5 dB (IEC/RIAA)
Treble control	: from 10 Hz – 50 kHz ±1 dB	: from 10 Hz – 60 kHz ±1 dB
Loudness	: at 100 Hz +10 dB to –10 dB ±1 dB	: at 100 Hz +10 dB to –10 dB
	: at 10 kHz +10 dB to –10 dB ±1 dB	: at 10 kHz +10 dB to –10 dB
	: at 100 Hz +6 dB ±1 dB	: at 100 Hz +6 dB
	: at 10 kHz +4 dB ±1 dB } Tap position	: at 10 kHz +4 dB } Tap position
Signal/noise ratio weighted (A-curve)		
Phono input	(MM)	
	(MC)	
Other inputs	: for 80W output ≥ 80 dB (IEC)	: for 80W output ≥ 83 dB (IEC)
Channel separation	: for 80W output ≥ 70 dB (IEC)	: for 80W output ≥ 72 dB (IEC)
	: for 80W output ≥ 85 dB (IEC)	: for 80W output ≥ 89 dB (IEC)
	: at 1000 Hz ≥ 57 dB	: at 1000 Hz ≥ 60 dB
	: at 250 Hz – 10 kHz ≥ 45 dB	: at 250 Hz – 10 kHz ≥ 50 dB
Input sensitivity/Input impedance		
Audio		
Phono	(MM)	
	(MC)	
Tuner/CD/Aux/Tape	: 2.5 mV/47 kΩ	: 2.5 mV/47 kΩ
TV/Video	: 250 μV/100Ω	: 250 μV/100Ω
	: 150 mV/17 kΩ	: 150 mV/22 kΩ
Output level/Output impedance		
Tape	: 150 mV/17 kΩ	: 150 mV/22 kΩ
	: 280 mV/450Ω (Phono 5 mV 1 kHz input)	: 280 mV/450Ω (Phono 5 mV 1 kHz input)

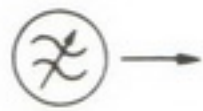


CONNECTIONS AND CONTROLS

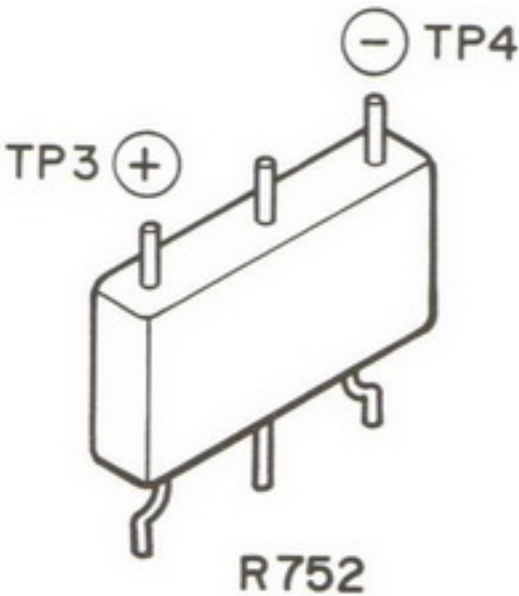
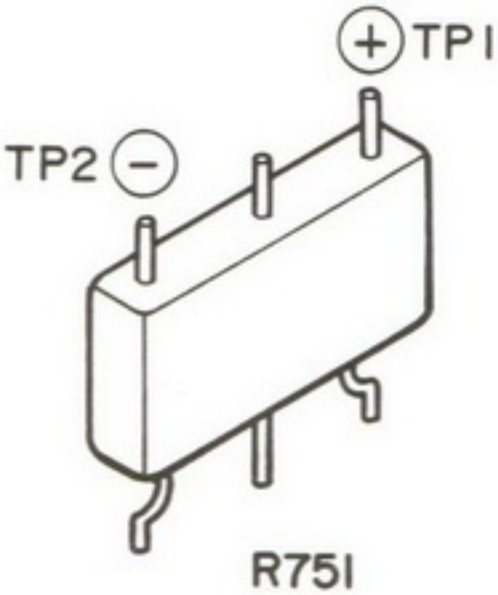
1	Mains indicator	VZ01	A	Phono selector switch	S401
2	Mains switch	S901	B	Ground terminal	J031
3	Function indicator	DU01÷DU05	C	LS outlet	J704, J705
4	Volume control	DU08, DU09	D	AC outlet	(/00R) J951, J952, J953
5	Volume illumination	RG01			(/05R) J021, J022, J023
6	Balance control	VZ51, VZ52	E	Mains cord	W001
7	Loudness switch	RG55	F	Remote in/out	JJ03
8	IR sensor	SG51	G	DAT/tape 2 play/rec.	JJ02
9	Stand-by indicator	QU07	H	Tape 1 play/rec.	JJ01
10	Function switch	DU06	I	Input	JV01, JV02
11	Source direct switch	SU01÷SU07			
12	Source direct indicator	SU08			
13	Tone control	DU07			
14	Rec selector switch	RE21, RE22			
15	Headphone socket	SE01			
16	LS switch	JW51			
		SW01			

ADJUSTMENT

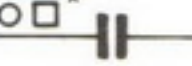
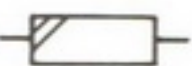
Idling Current

SK... SWITCH	 SIGNAL	 TO	 VOLUME	 ADJUST	 OSCILLOSCOPE	 D.C. METER INDICATOR
			Min.	Lch R733		Lch TP2(-), TP1(+) DC 10 mV (27.7 mA)
				Rch R734		Rch TP4(-), TP3(+) DC 10 mV (27.7 mA)

Polarity of the test points (R751, R752)



*See WIRING DIAGRAM (P701)

 Carbon film 0.125 W or 0.2 W 70°C 5%	 Ceramic plate Tuning ≤ 120 pF NP.0 2% Others -20/+80%	*a = 2.5 V b = 3.15 V or 4 V c = 6.3 V d = 10 V e = 16 V f = 25 V g = 40 V h = 63 V j = 100 V l = 125 V m = 150 V n = 160 V q = 200 V r = 250 V s = 300 V t = 350 V u = 400 V v = 500 V w = 630 V x = 1000 V A = 1.6 V B = 6 V C = 12 V D = 15 V E = 20 V F = 35 V G = 50 V H = 75 V I = 80 V
 Carbon film 0.25 W or 0.33 W 70°C 5%	 Polyester flat foil 10%	
 Metal film 0.25 W or 0.33 W 70°C 5%	 Metalized polyester flat film 10%	
 Carbon film 0.5 W 70°C 5%	 Polyester flat foil small size (Mylar) 10%	
 Carbon film 0.67 W 70°C 5%	 Polystyrene film/foil 1%	
 Carbon film 1 W or 1.15 W 70°C 5%	 Tubular ceramic	
 Chip component	 Miniature single	
	 Subminiature tantalum ± 20%	

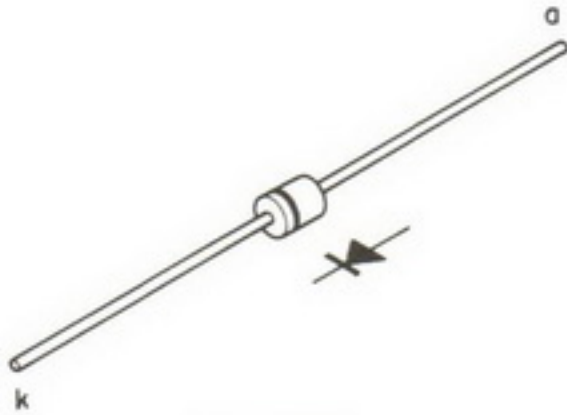
Semiconductor Layout



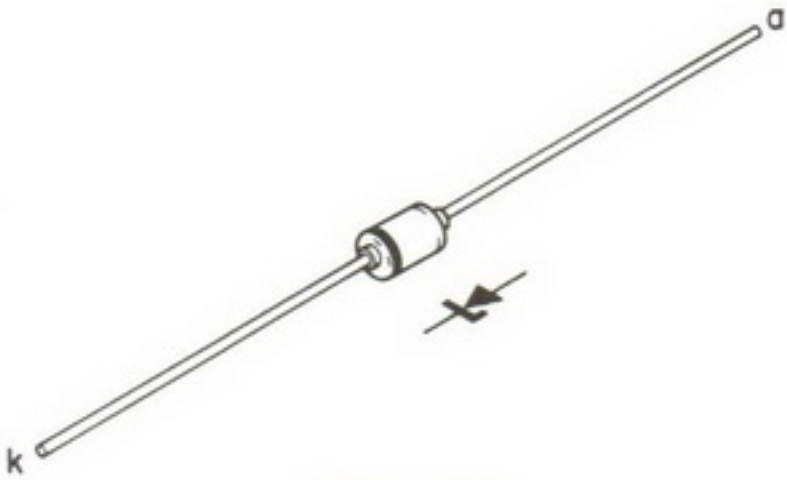
1SS176
MA165
1SS254



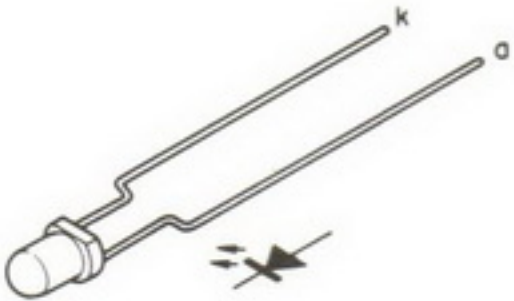
HSS81



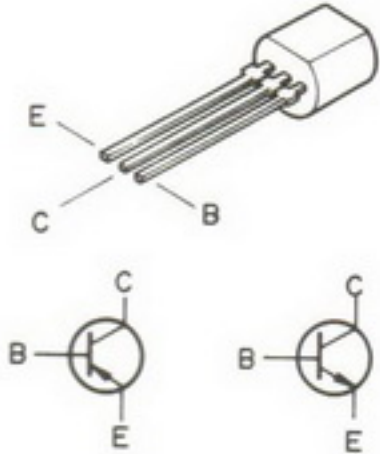
S5688G



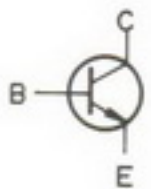
MTZJ4.3B
MTZJ15B
MTZJ8.2C



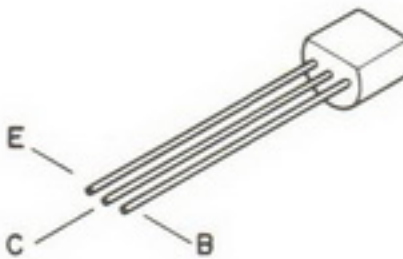
LT3D8E



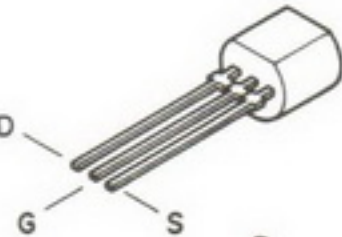
2SA970



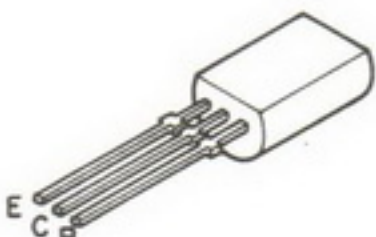
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2SC2878



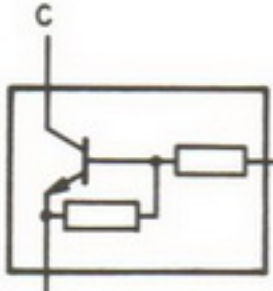
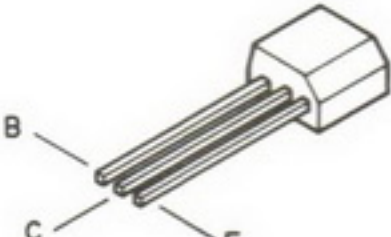
JC547B
JC557B



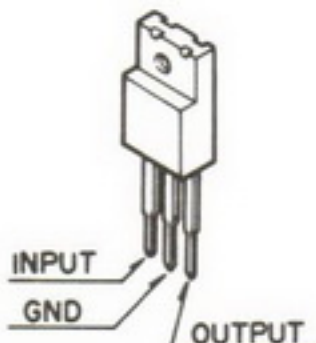
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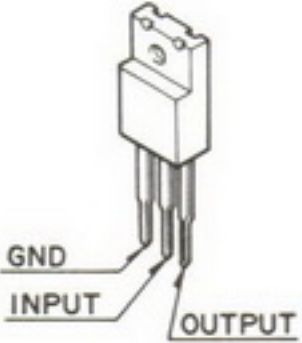
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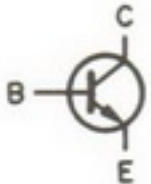
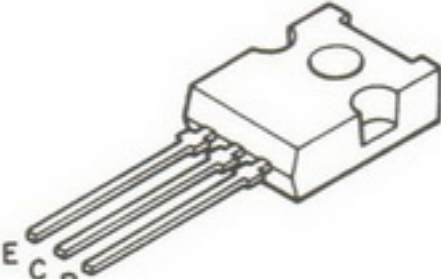
DTC114ES



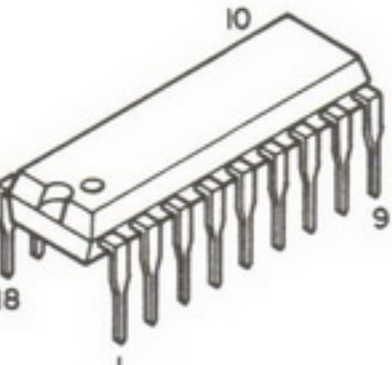
NJM78M06FA
NJM78M15FA



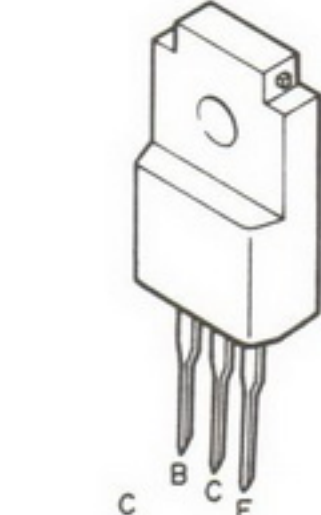
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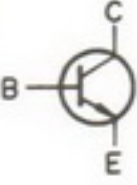
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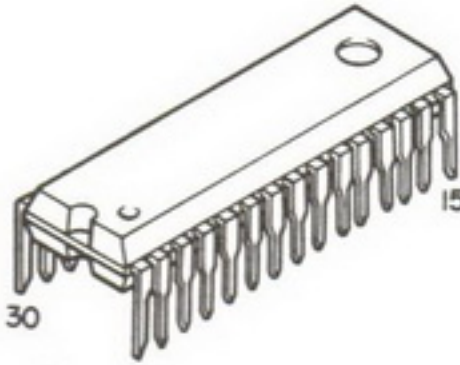
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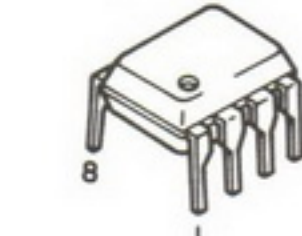
2SA1306



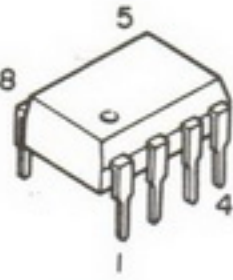
2SC3298



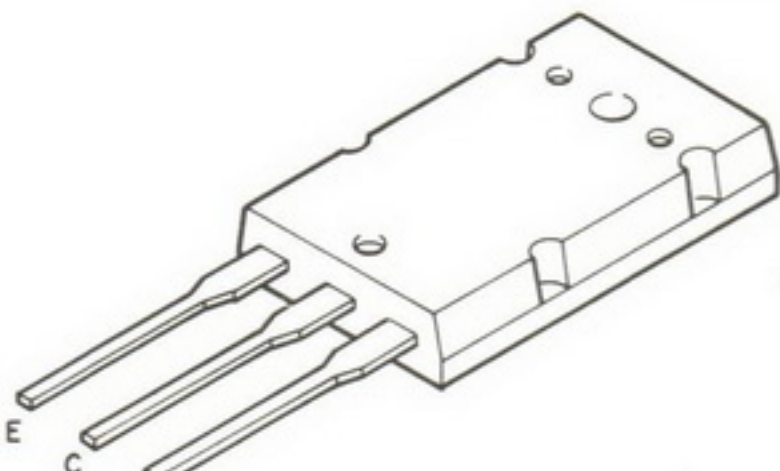
LC7821



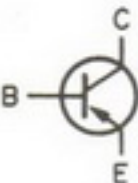
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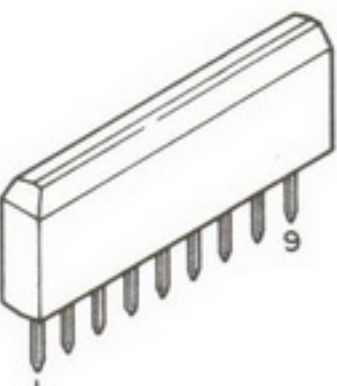
LB1630
NJM2068DD



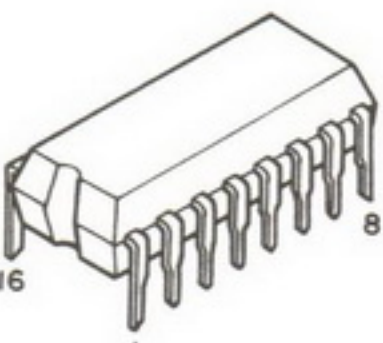
2SC3280



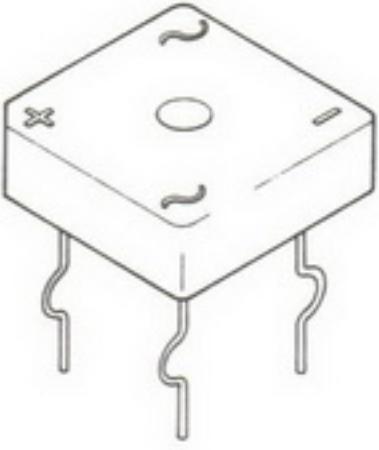
2SA1301



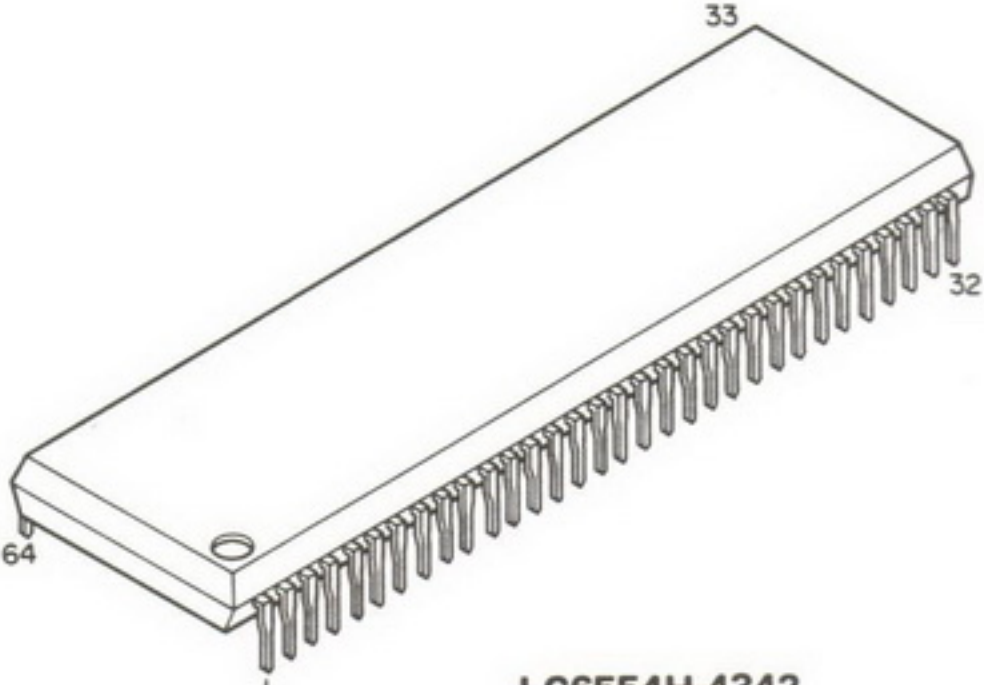
TA7317P



TC9215P



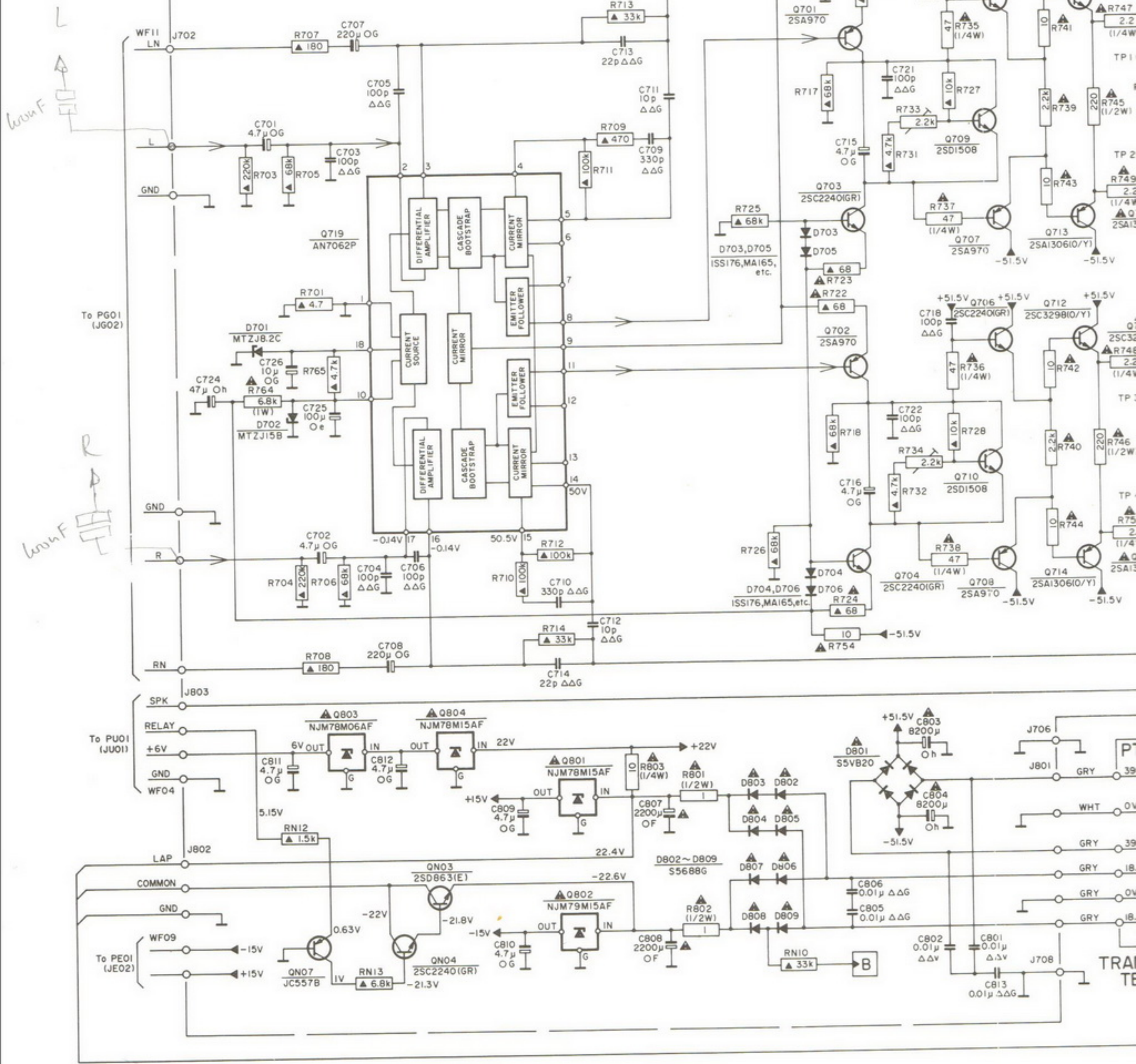
S5VB20



LC6554H-4342

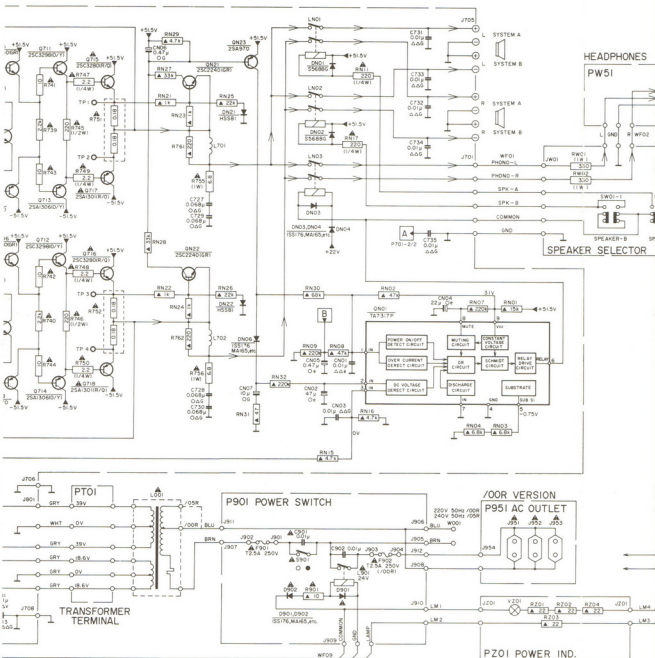
R	R703~R708	R711 R709 R713	R725	R717	R721~R724	R753	R735~R738	R739~R744	R745
	R764 R701 R765	R710 R712 R714	R726	R718	R731~R734				
C	RN12 RN13	R803 R801 R802	RN10	R754					
	C724~C726 C701~C708	C710 C712 C713 C711 C709	C723 C715 C716	C721 C722 C717 C718					
Q	C811 C812	C809 C810 C714	C807 C808		C806 C805	C801~C804	C813		
	Q719 Q803	Q804	Q801	Q701~Q704	Q705~Q710	Q711~Q714	Q715		
D	Q807	Q804 Q803	Q802						
	D701 D702			D802~D809	D703~D706	D801			
F-L									
S-V									

P701-1/2 MAIN AMP



SCHEMATIC DIAGRAM

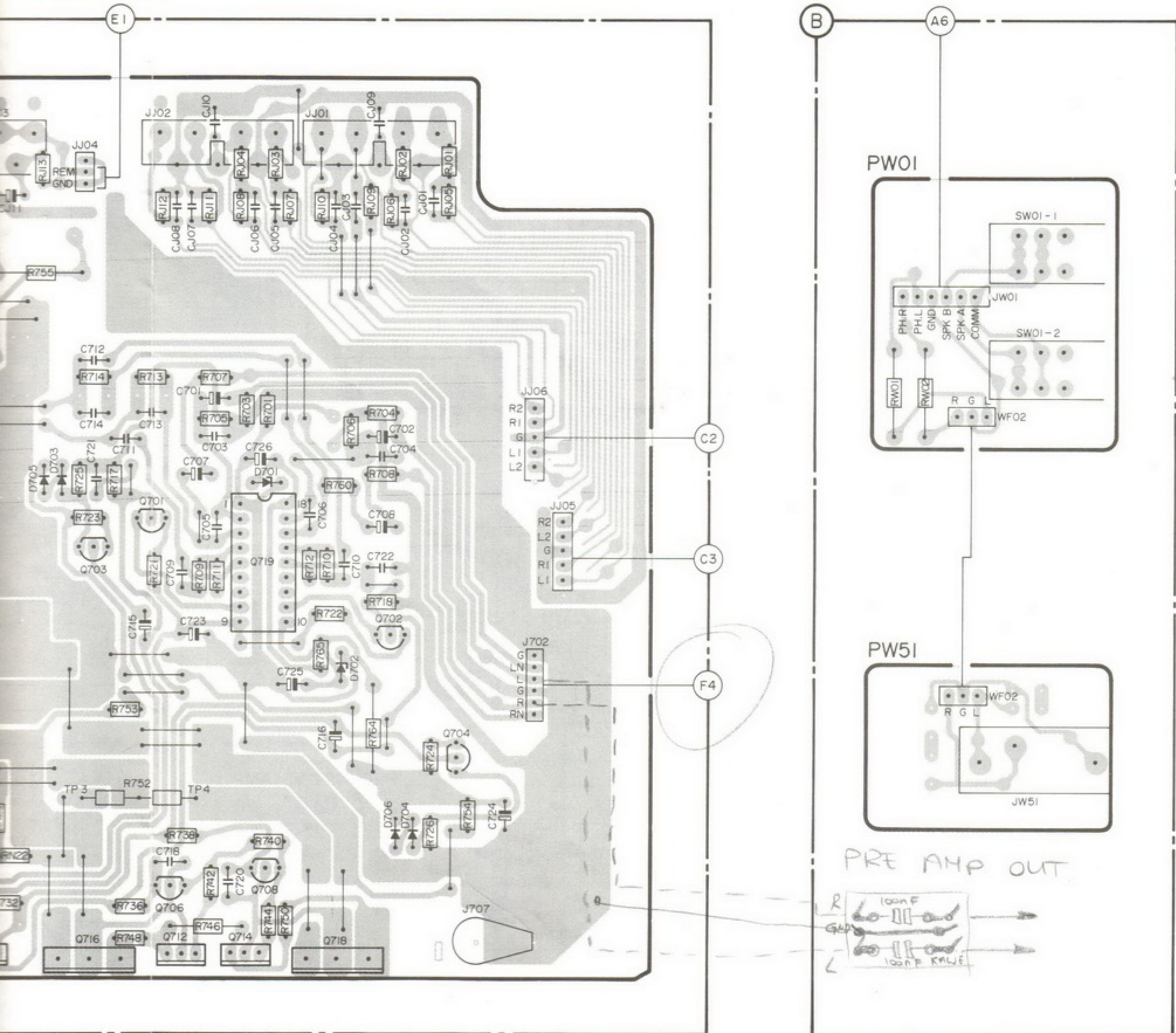
R738	R739~R744	R745~R752	RN27~RN29	RN25	RN17 RN11	RWD
	RN2~RN24 R755	RN26	RN30 RN09 RN08	RN02	RN07 RN01	RW02
	R761 R762 R756	RN31	RN32	RN01 RN15	RN16	RN04 RN03
	C727~C730	CN07	CN05 CN01~CN03	C731~C735	CN04	R201~R204
13	CN06	CN02	CN21	CN23	CN01	
1~Q710	Q711~Q714	Q715~Q718	QN22 QN21	QN23	QN01	
			QN21 QN22 QN06	Q902	QN01~QN04 QN01	
			L701 L702	F901	LN01~LN03	L901 F902
						V201
						SW0



WIRING DIAGRAM

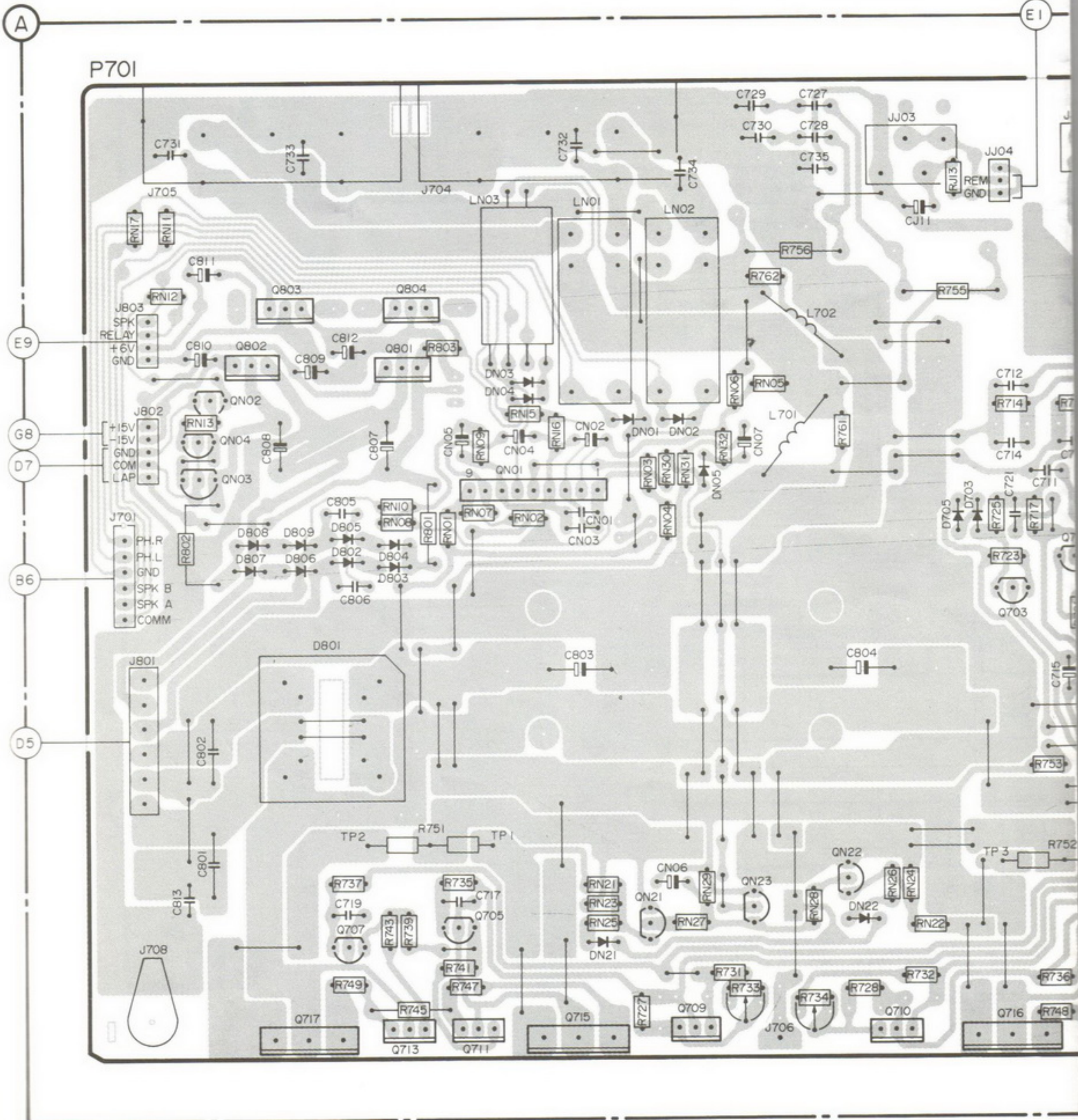
R755 RJ13	RJ12	RJ11 RJ04 RJ08 RJ03 RJ07 RJ10 RJ09 RJ06 RJ02 RJ01 RJ05	
R725 R714 R723 R717 R713 R701 R703~R708 R721 R709~R712 R722 R764 R760 R765 R718			RW01 RW02
R728 RN26 RN24 R732 RN22 R753 R752 R736 R748 R738 R746 R742 R740 R744 R750 R724 R726 R754			
CJ11	CJ08 CJ07 CJ10 CJ06 CJ05	CJ04 CJ03 CJ09 CJ02 CJ01	
C721 C711~C714 C701~C704 C705~C710 C726	C722		
C715 C718 C723	C720	C725 C716	C724
Q703	Q701	Q719	Q702 Q704
Q716	Q706 Q712 Q714 Q708	Q718	
D705 D703	D701	D702 D706 D704	
			SW01
			L-S

FRONT SIDE VIEW

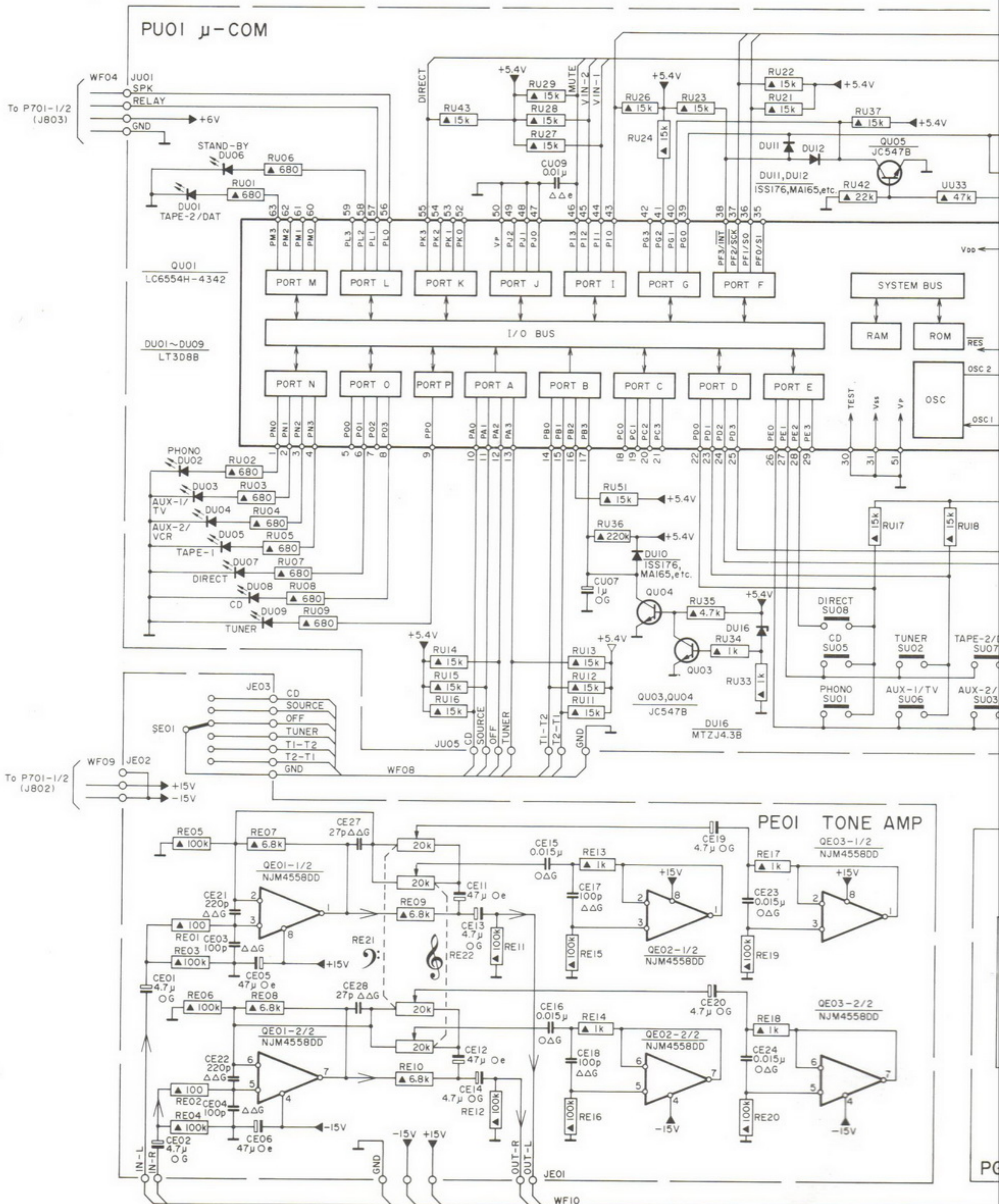


R	RN17 RN11 RN12	R803 RN09 RN15 RN16	RN03 RN30~RN32 RN06 R762 RN05 R756 R761	R755 RJ13	RJ12
	RN13	RN10 RN08 R801 RN01 RN07 RN02	RN04	R725 R714 R723	
	R802	R737 R749 R743 R739 R745 R751 R735 R741 R747	RN21 RN23 RN25 R727 RN27 RN29 R731 R733 R734 RN28 R728 RN26 RN24 R732 RN22		
C	C731 C810 C811	C733 C809 C812	C732	C734	C729 C730 C727 C728 C735 CJ11
		C808	C805~C807	CN01~CN05	C803
				CN07	C804
	C813 C802 C801	C719	C717	CN06	C721 C711~C714
Q	QN02~QN04 Q801~Q804	QN01			Q703
		Q717 Q707 Q713	Q711 Q705	Q715	QN21 Q709 QN23
					QN22 Q710
					Q716
D	D801~D809	DN03 DN04	DN21 DN01	DN02 DN05	DN22
					D705 D703
L-S		LN03	LN01	LN02	L701 L702

COMPONENT SIDE VIEW

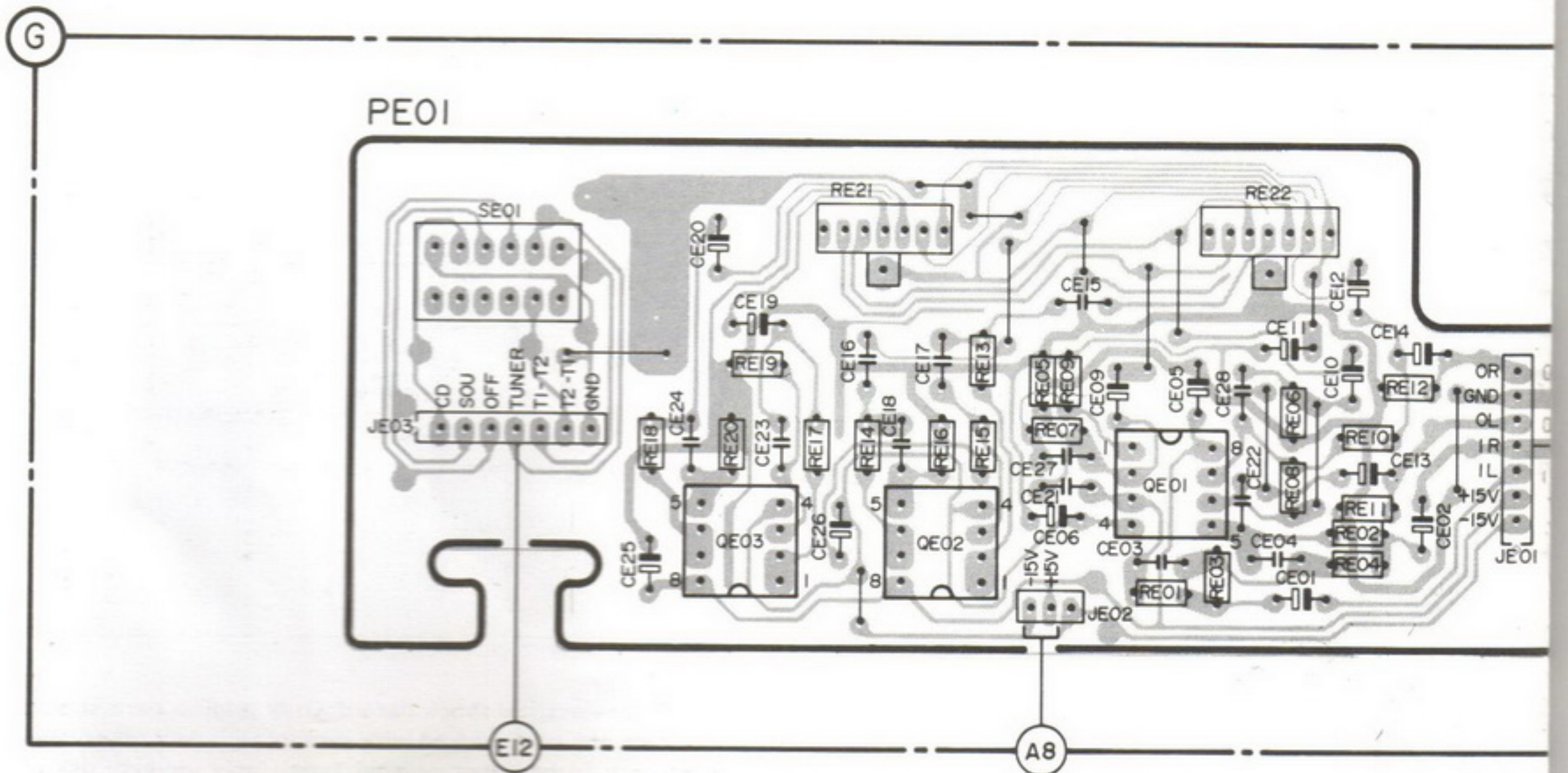
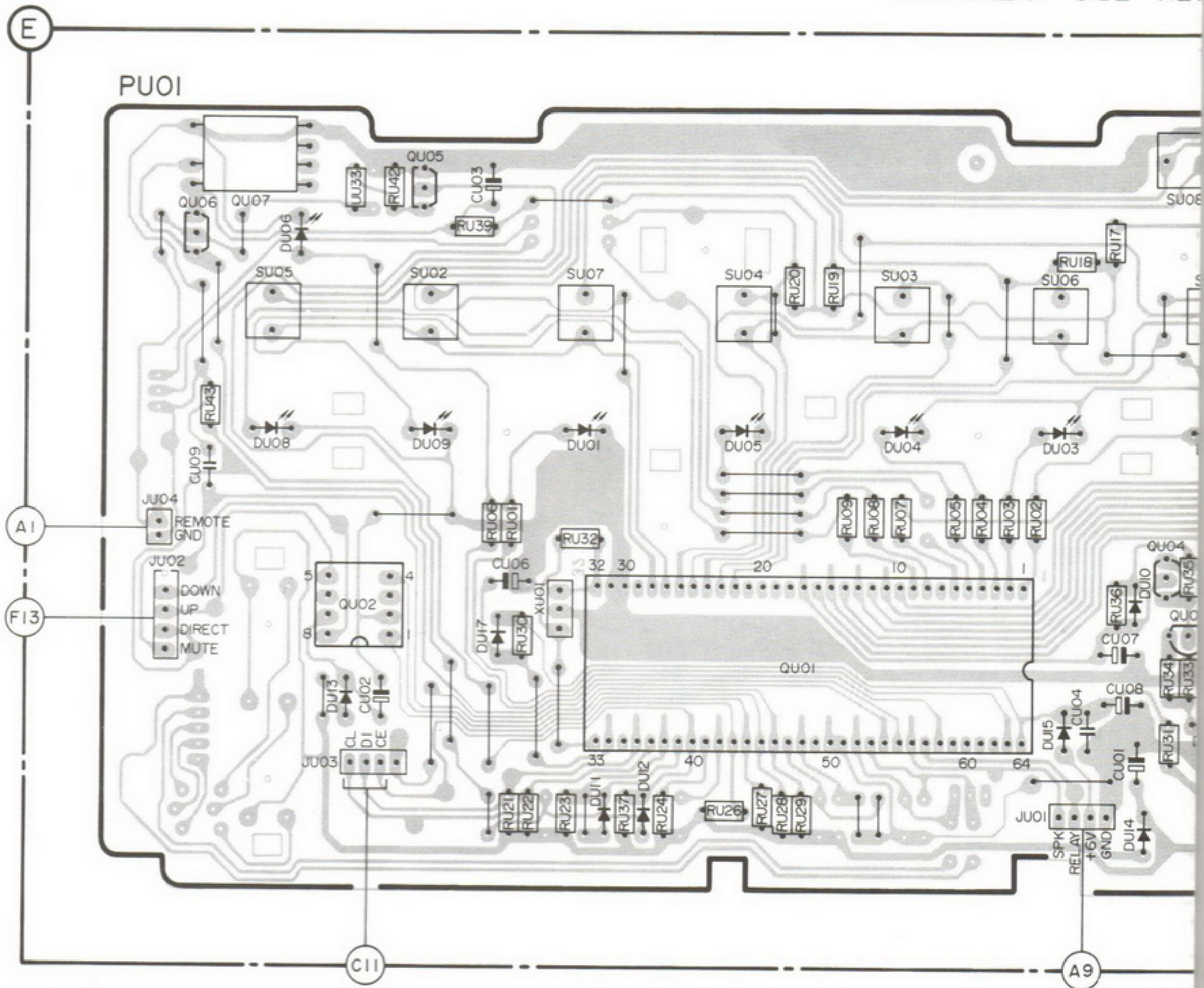


R	RU01 ~ RU09	RU43	RU27 ~ RU29	RU26 RU24 RU23	RU22 RU21	RU42 RU37	UU33
		RU14 ~ RU16	RU11 ~ RU13 RU51 RU36	RU33 ~ RU35		RU17 ~ RU20	
	RE01 ~ RE08	RE21 RE09 ~ RE12 RE22	RE13 ~ RE16		RE17 ~ RE20		
C	CE21 CE22	CE27	CU09 CU07	CE19	CE23		
	CE01 ~ CE06	CE28	CE11 ~ CE14 CE15 ~ CE18	CE20	CE24		
Q	QU01		QU04 QU03		QU05		
	QE01		QE02		QE03		
D	DU01 ~ DU09		DU10		DU16 DU11 DU12		
S - X	SE01					SU08 SU05 SU01 SU02 SU06	SU00



R	RU43	UU33 RU42	RU39 RU06 RU01 RU30 RU32	RU20 RU19 RU09 RU08 RU07 RU05 RU04 RU03 RU02 RU18 RU17
			RU21~RU24 RU37	RU26~RU29
			RE18 RE20 RE19 RE17 RE14 RE16 RE15 RE13 RE05 RE09 RE07 RE01 RE03 RE06 RE08 RE02 RE04 RE10~RE	RE22 RU36 RU31 RU34
C	CU09	CU02	CU03 CU06	CU04 CU07 CU08 CU
			CE25 CE24 CE20 CE19 CE23 CE26 CE16 CE18 CE17 CE27 CE21 CE06 CE15 CE09 CE03 CE05 CE28 CE22 CE04	
Q	QU06 QU07	QU02 QU05	QE03	QE02 QU01 QE01 QU04 Q
D	DU08 DU06 DU13	DU09 DU17	DU01 DU11 DU12	DU05 DU04 DU03 DU15 DU10 DU14 D
S-X	SU05	SE01 SU02	XU01 SU07	SU04 SU03 SU06 SU08 S

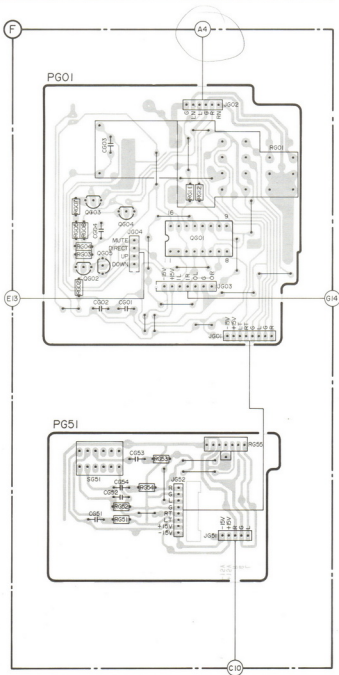
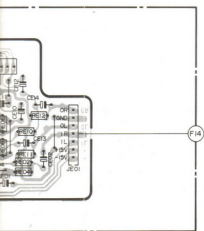
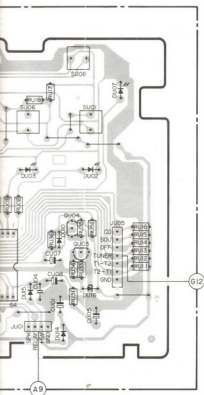
COMPONENT SIDE VIEW

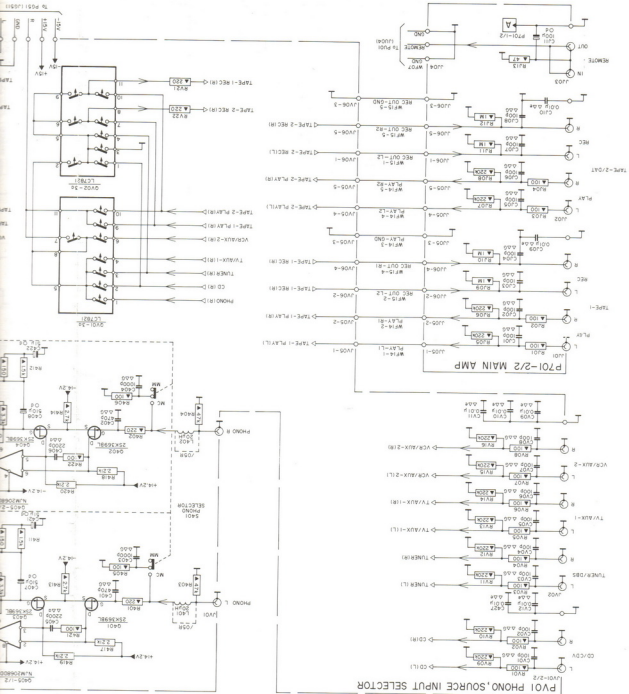


WIRING DIAGRAM

[illegible]

MENT SIDE VIEW



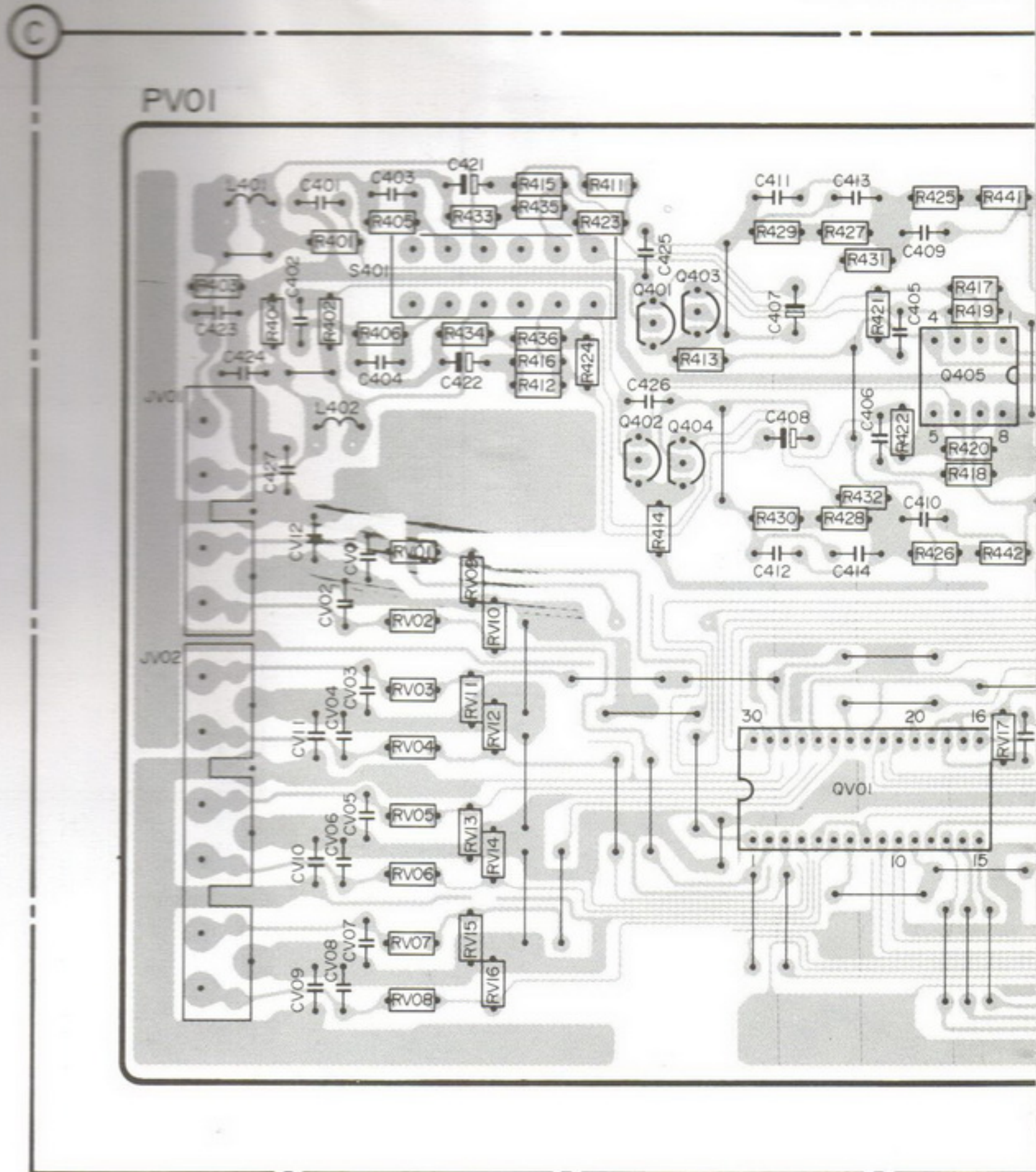


SCHEMATIC DIAGRAM

[illegible]

R	R403	R401	R405	R433~	R436	R415	R423	R411	R414	R413	R429	R427	R431	R421	R425	R417
	R404	R402	R406	RV01~	RV16	R416	R412	R424			R430	R428	R432	R422	R426	R420
C	C423	C424	C401~	C404	C421			C425		C411	C407	C413	C405	C409		
	C427	CV01~	CV12	C422				C426		C412	C408	C414	C406	C410		
Q								Q401~	Q404		QV01		Q405			
L - S	L401	L402	S401													

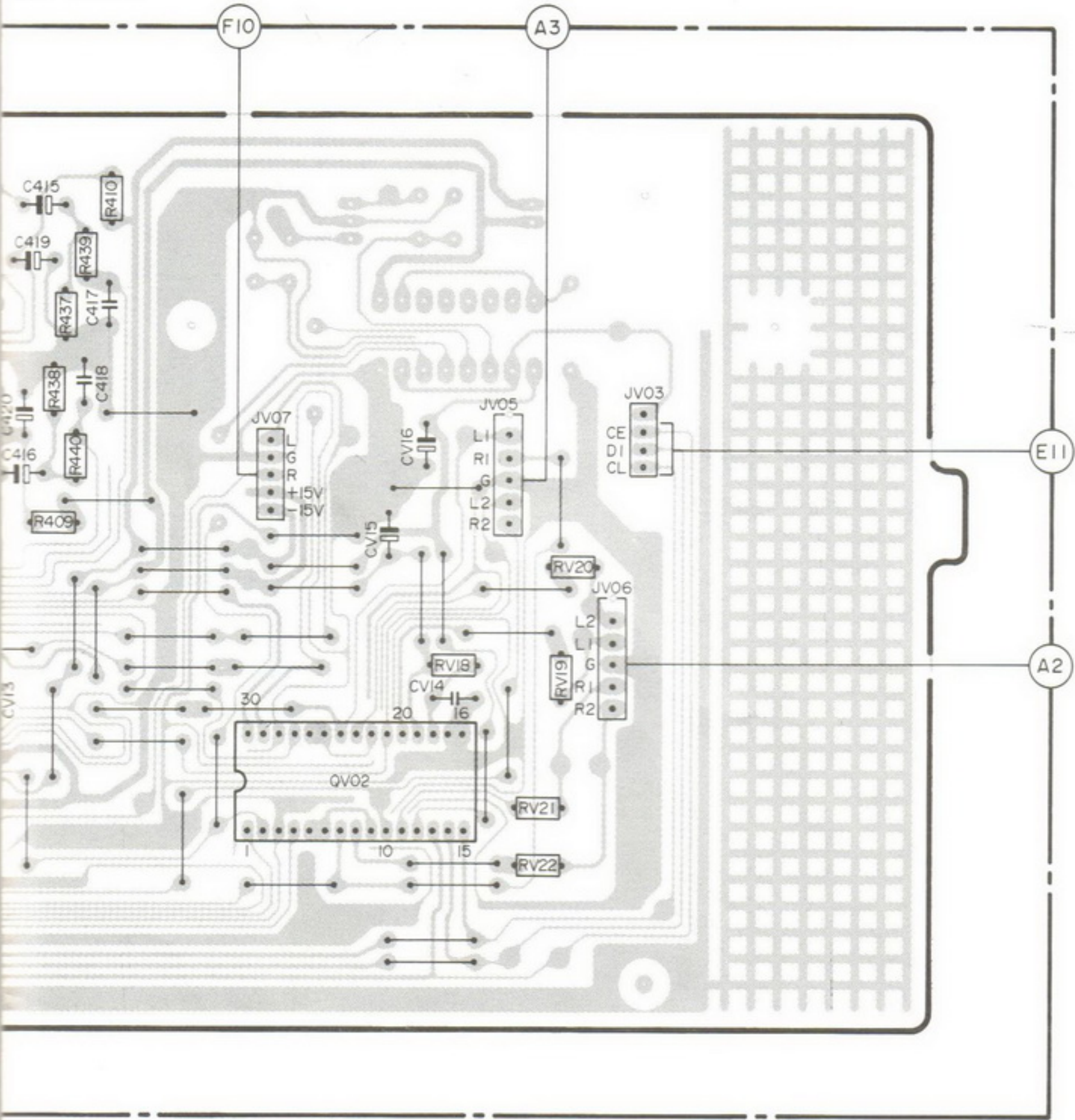
COMPONENT S

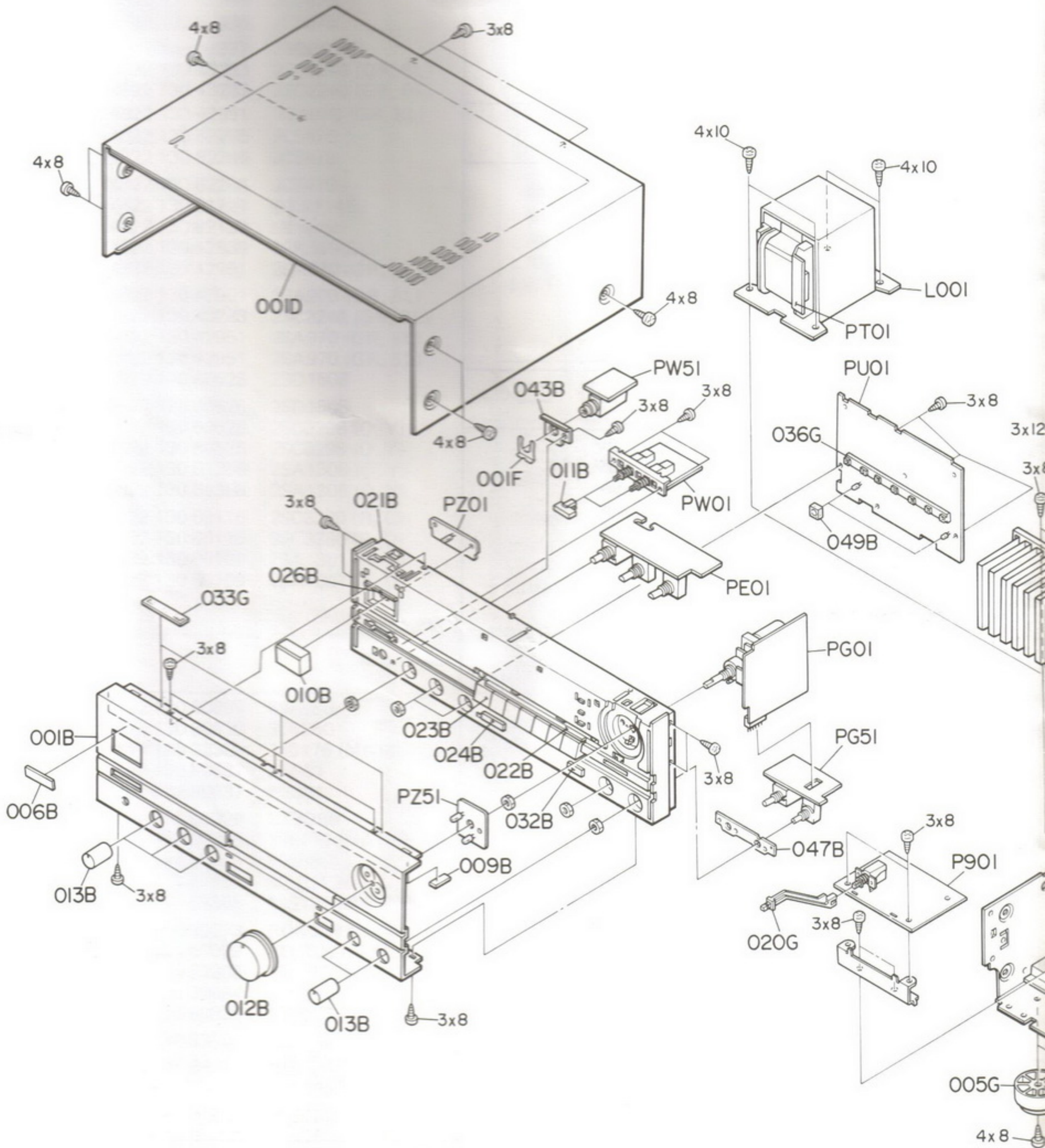


NG DIAGRAM

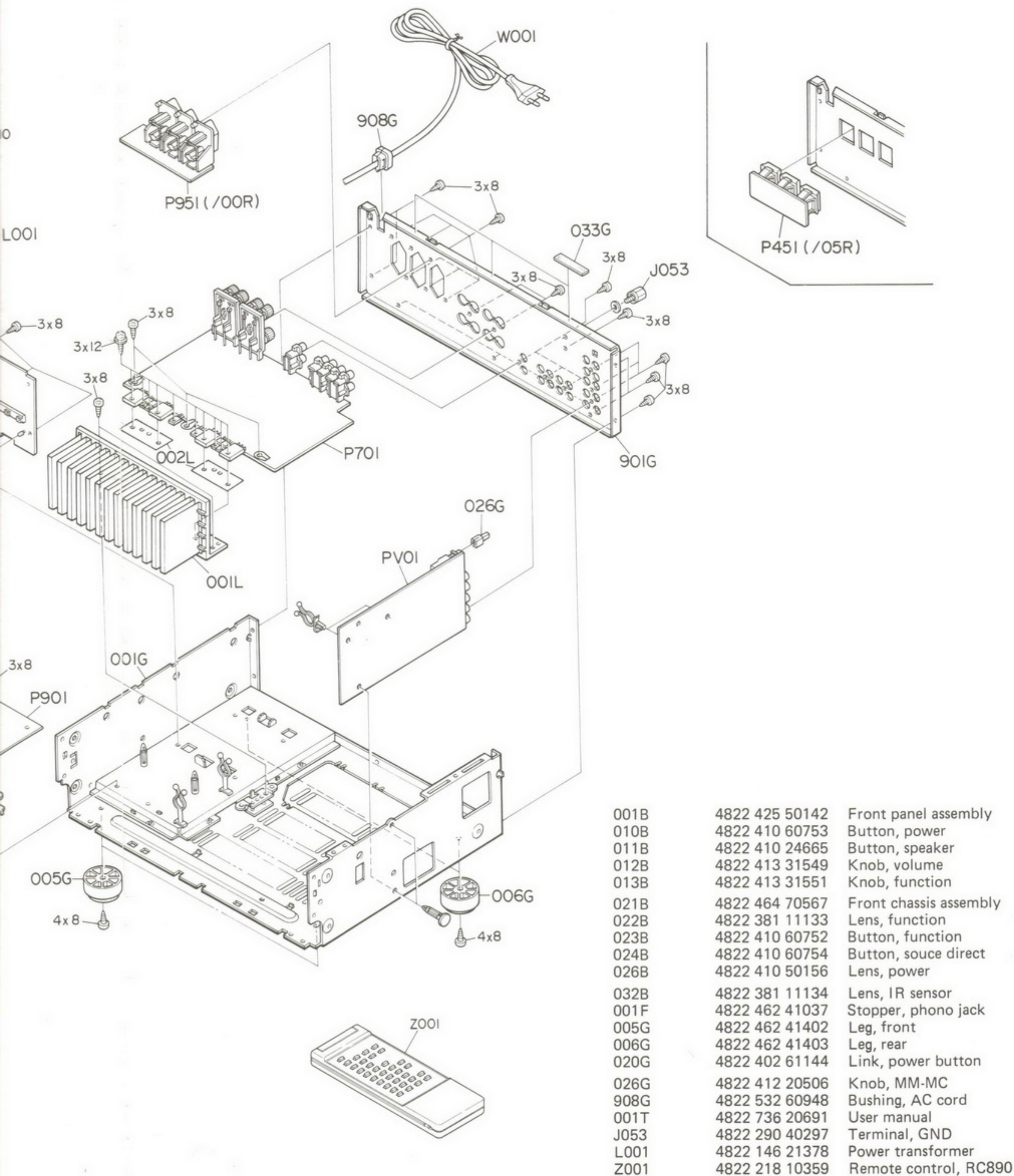
R419 R441 R437~ R440 R410	RV18~RV22	R
R418 R442 RV17 R409		
C415~C420	CVI5 CVI6 CVI4	C
VI3		
	QV02	Q
		L - S

IDE VIEW



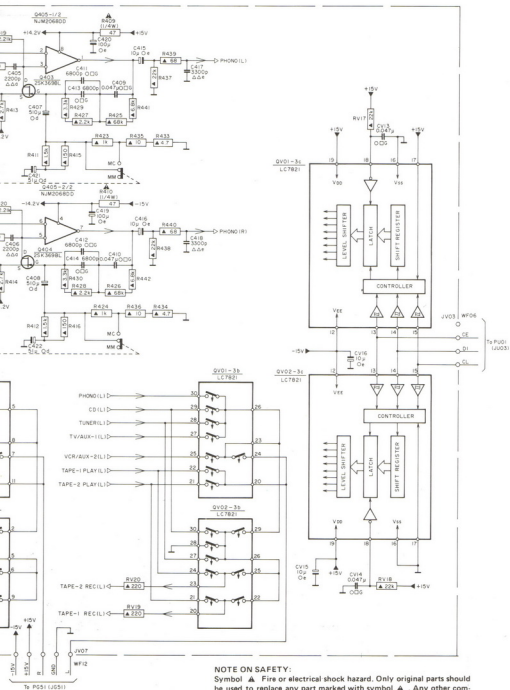


EXPLODED VIEW

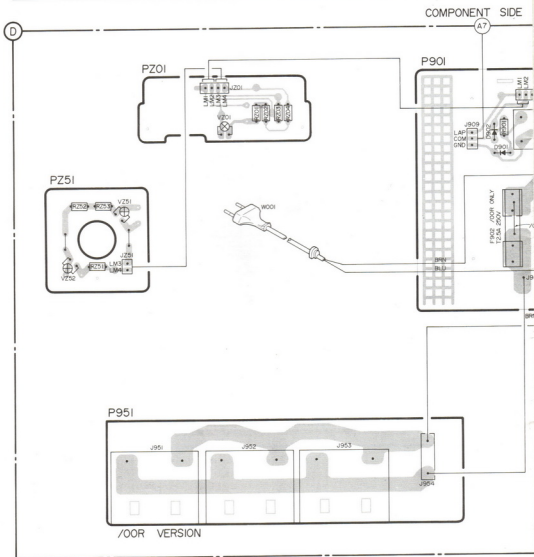


001B	4822 425 50142	Front panel assembly
010B	4822 410 60753	Button, power
011B	4822 410 24665	Button, speaker
012B	4822 413 31549	Knob, volume
013B	4822 413 31551	Knob, function
021B	4822 464 70567	Front chassis assembly
022B	4822 381 11133	Lens, function
023B	4822 410 60752	Button, function
024B	4822 410 60754	Button, souce direct
026B	4822 410 50156	Lens, power
032B	4822 381 11134	Lens, IR sensor
001F	4822 462 41037	Stopper, phono jack
005G	4822 462 41402	Leg, front
006G	4822 462 41403	Leg, rear
020G	4822 402 61144	Link, power button
026G	4822 412 20506	Knob, MM-MC
908G	4822 532 60948	Bushing, AC cord
001T	4822 736 20691	User manual
J053	4822 290 40297	Terminal, GND
L001	4822 146 21378	Power transformer
Z001	4822 218 10359	Remote control, RC890

R413 R411	R415 R423~R430 R409 R433~R442	R417	
R414 R412	R416 R410 RV20 RV19	RV18	R
C405~C408	C409~C414 C413~C418	CV16 CV13	C
C421 C422	C420 C419	CV15 CV14	C
QV02~3s	Q405 Q403 Q404	QV01~3s QV02~3s QV01~3s QV02~3s	Q
			L-S



R	RZ51~RZ53		RZ01~RZ04		R901
C					D902 D901
D					F902
F-L-S-V	VZ52	VZ51	VZ01		



	QG02 4822 130 62386 JC557B QG03 4822 130 43819 2SC2878 QG04 4822 130 43819 2SC2878 QG05 4822 130 62295 JC547B QN02 4822 130 62386 JC557B QN03 4822 130 43377 2SD863(E) QN04 4822 130 43233 2SC2240 (GR, BL) QN21÷QN22 4822 130 43233 2SC2240 (GR, BL) QN23 4822 130 42951 2SA970 (GR, BL) QU03 4822 130 62295 JC547B QU04 4822 130 62295 JC547B QU05 4822 130 62295 JC547B QU06 4822 130 61227 DTA114ES QU07 4822 130 82139 IR sensor Q401÷Q404 4822 130 42839 2SK369(BL) Q701 4822 130 42951 2SA970 (GR, BL) Q702 4822 130 42951 2SA970 (GR, BL) Q703÷Q706 4822 130 43233 2SC2240 (GR, BL) Q707 4822 130 42951 2SA970 (GR, BL) Q708 4822 130 42951 2SA970 (GR, BL) Q709 4822 130 60526 2SD1508 Q710 4822 130 60526 2SD1508 Q711 4822 130 60525 2SC3298 (O, Y) Q712 4822 130 60525 2SC3298 (O, Y) Q713 4822 130 61358 2SA1306 (O, Y) Q714 4822 130 61358 2SA1306 (O, Y) Q715 4822 130 60116 2SC3280 (R, O) Q716 4822 130 60116 2SC3280 (R, O) Q717 4822 130 60109 2SA1301 (R, O) Q718 4822 130 60109 2SA1301 (R, O)		Q802 4822 209 61526 NJM79M15A Q803 4822 209 62423 NJM78M06A Q804 4822 209 82829 NJM78M15A
	DN01 4822 130 80839 S5688G DN02 4822 130 80839 S5688G DN03÷DN05 4822 130 33305 1SS176 (MA165, 1SS254) DN21 4822 130 80837 HSS81 DN22 4822 130 80837 HSS81 DU01÷DU09 4822 130 80326 LT3D8B DU10÷DU12 4822 130 33305 1SS176 (MA165, 1SS254) DU13÷DU15 4822 130 80839 S5688G DU16 4822 130 31554 MTZJ4.3B DU17 4822 130 33305 1SS176 (MA165, 1SS254) D701 4822 130 80273 RD8.2JB2 (MTZJ8.2C) D702 4822 130 80322 RD15JB1 (MTZJ15B) D703÷D706 4822 130 33305 1SS176 (MA165, 1SS254) D801 4822 130 30984 S5VB20 D802÷D809 4822 130 80839 S5688G D901 4822 130 33305 1SS176 (MA165, 1SS254) D902 4822 130 33305 1SS176 (MA165, 1SS254)		LN01 4822 280 91103 Relay /00R LN02 4822 280 91103 Relay /00R LN03 4822 280 20196 Relay L401 4822 158 60606 Choke coil 20 μH /00R L402 4822 158 60606 Choke coil 20 μH /00R L701 4822 157 51739 Speaker coil L702 4822 157 51739 Speaker coil L901 4822 280 20222 Relay
	QE01÷QE03 4822 209 83631 NJM4558DD QG01 4822 209 62784 TC9215P QN01 4822 209 83312 TA7317P QU01 4822 209 62424 LC6554H-4342 QU02 4822 209 73287 LB1630 QV01 4822 209 72748 LC7821 QV02 4822 209 72748 LC7821 Q405 4822 209 73064 NJM2068DD Q719 4822 209 83732 AN7062P Q801 4822 209 82829 NJM78M15A		RE21 4822 100 30136 Potm. bass 20k(W) RE22 4822 100 30136 Potm. treble 20k(W) RG01 4822 100 30137 Potm. volume 50k/0.5k 4 gang-M RG55 4822 100 30135 Potm. balance 100k(MN) RN11 4822 113 90141 Res. fuse 220(E) 1/4W RN17 4822 113 90141 Res. fuse 220(E) 1/4W RW01 4822 111 50474 Res. wirewound 330(E) 1W RW02 4822 111 50474 Res. wirewound 330(E)1W R409 4822 111 90731 Res. safety 47(E) 1/4W R410 4822 111 90731 Res. safety 47(E) 1/4W R417÷R420 4822 116 81354 Res. metal film 2.2k 1/6W R721÷R724 4822 050 26809 Res. metal film 68(E) 1/6W R733 4822 100 20681 Potm. trimmer 2.2k R734 4822 100 20681 Potm. trimmer 2.2k R735÷R738 4822 111 90731 Res. safety 47(E) 1/4W R739 4822 050 22202 Res. metal film 2.2 kΩ 1/6W R740 4822 050 22202 Res. metal film 2.2 kΩ 1/6W R741÷R744 4822 111 91291 Res. safety 10(E) 1/6W R745 4822 116 60319 Res. met. oxide 220(E) 1/2W R746 4822 116 60319 Res. met. oxide 220(E) 1/2W R747÷R750 4822 116 52348 Res. metal film 2.2(E) 1/4W R751 4822 116 82049 Res. metal film 0.18(E) x 2 3W R752 4822 116 82049 Res. metal film 0.18(E) x 2 3W R753 4822 111 91291 Res. safety 10(E) 1/6W R754 4822 111 91291 Res. safety 10(E) 1/6W R764 4822 053 10682 Res. metal film 6.8k 1W R801 4822 050 21108 Res. metal film 1(E) 1/2W R802 4822 050 21108 Res. metal film 1(E) 1/2W R803 4822 115 90166 Res. fuse 10(E) 1/4W R901 4822 111 91291 Res. safety 10(E) 1/6W

-II-

CU05	4822 124 23295	Cap. elect 0.022 μ F 5.5V
C803	4822 124 41296	Cap. elect 8200 μ F 63V
C804	4822 124 41296	Cap. elect 8200 μ F 63V
C901	4822 122 33276	Cap. ceramic 0.01 μ F
C902	4822 122 33276	Cap. ceramic 0.01 μ F

SE01	4822 273 80336	Rec select
SG51	4822 273 20307	Loudness
SU01+SU08	4822 276 12455	Function
SW01	4822 276 12506	Speaker select
S401	4822 276 20468	Phono select
S901	4822 276 12924	Power

MISCELLANEOUS

F901	4822 253 40166	Fuse T2.5A 250V
F902	4822 253 40166	Fuse T2.5A 250V /00R
JJ01	4822 267 20353	Jack 4P RCA pin
JJ02	4822 267 20353	Jack 4P RCA pin
JJ03	4822 266 30274	Jack 2P RCA pin
JV01	4822 265 30587	Jack 4P RCA pin
JV02	4822 265 30836	Jack 6P RCA pin
JW51	4822 267 31017	Jack headphone
J021		Jack AC outlet /05R
J022		Jack AC outlet /05R
J023		Jack AC outlet /05R
J704	4822 266 30279	Terminal speaker
J705	4822 266 30281	Terminal speaker
J951+J953	4822 267 31194	Jack AC outlet /00R
VZ01	4822 134 40886	Lamp 75 mA 12V
VZ51	4822 134 40886	Lamp 75 mA 12V
VZ52	4822 134 40886	Lamp 75 mA 12V
XU01	4822 242 72223	Ceramic resonator 4.00 MHz