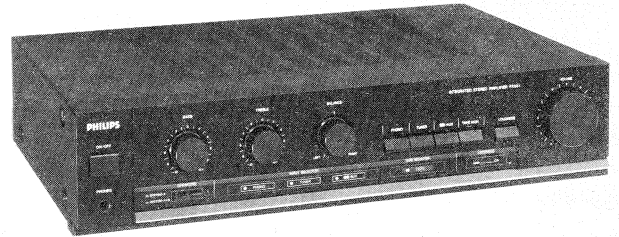


Service
Service
Service



40 049 A

Service Manual

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Semi conductor layout	5
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(GB)

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

(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.

(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)

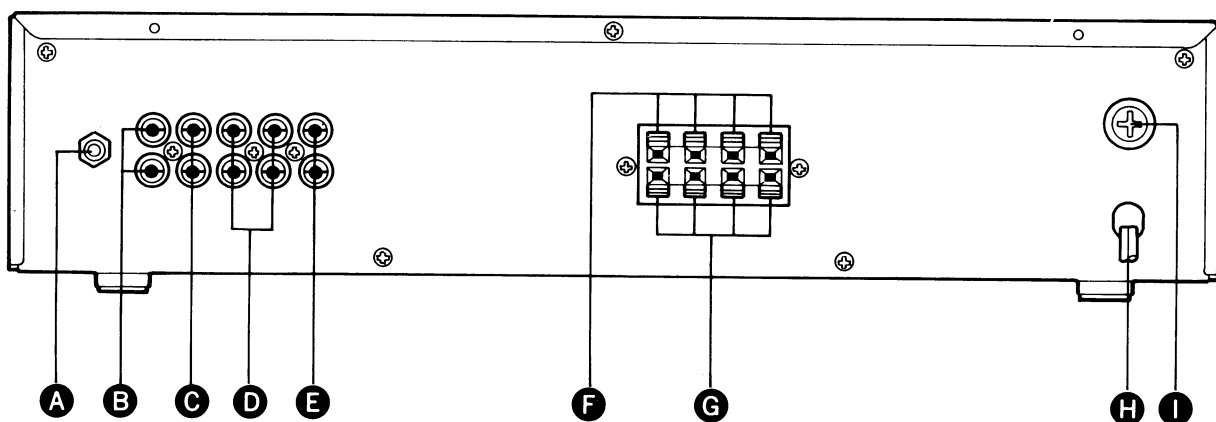
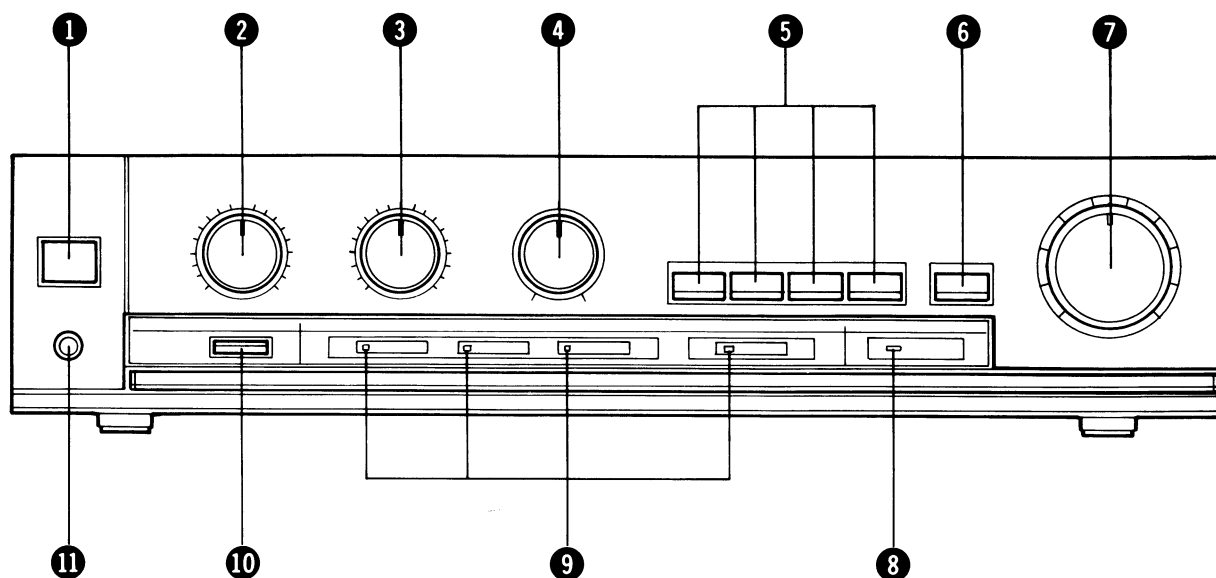
Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati pezzi di ricambio identici a quelli specificati.



SPECIFICATION	Nominal value	Typical value
General		
Mains voltage	: 220V ~ (/00R) : 240V ~ (/05R)	: 220V ~ (/00R) : 240V ~ (/05R)
Mains frequency	: 50 – 60 Hz	: 50 – 60 Hz
Power consumption	: 145W max	: 25 – 145W
Dimensions (WxHxD)	: 420 x 90 x 260 mm	: 420 x 90/96 x 260 mm
Weight	: 3.9 kg	: 3.9 kg
Amplifier		
Output power	: 28W in 8Ω (IEC)	: 28W in 8Ω (IEC)
Distortion		
T.H.D.	: ≤ 0.3% at 1 kHz : ≤ 0.3% at 63 Hz–12.5 kHz } (IEC) : ≤ 0.3% at 60/7000 Hz 4:1 }	: ≤ 0.1% at 1 kHz : ≤ 0.3% at 63 Hz–12.5 kHz } (IEC) : ≤ 0.1% at 60/7000 Hz 4:1 }
Intermodulation		
Frequency characteristic		
Phono input } tone control	: from 20 Hz – 20 kHz ±2 dB (IEC)	: from 20 Hz – 20 kHz ±1 dB (IEC)
Other inputs } neutral	: from 20 Hz – 20 kHz ±2 dB	: from 10 Hz – 25 kHz ±2 dB
Bass control	: at 100 Hz +10 dB to –10 dB ±2 dB	: at 100 Hz +10 dB to –10 dB
Treble control	: at 10 kHz +10 dB to –10 dB ±2 dB	: at 10 kHz +10 dB to –10 dB
Loudness	: at 100 Hz +6 dB ±3 dB } Tap : at 10 kHz +4 dB ±2 dB } position	: at 100 Hz +6 dB } Tap : at 10 kHz +3 dB } position
Signal/noise ratio		
weighted (A-curve)		
Phono input	: for 28W output ≥ 75 dB (IEC)	: for 28W output ≥ 75 dB (IEC)
Other inputs	: for 28W output ≥ 90 dB (IEC)	: for 28W output ≥ 90 dB (IEC)
Channel separation	: at 1000 Hz ≥ 45 dB : at 250 Hz – 10 kHz ≥ 35 dB	: at 1000 Hz ≥ 60 dB : at 250 Hz – 10 kHz ≥ 40 dB
Input sensitivity		
Phono	: 2.5 mV at 47 kΩ	: 2.5 mV at 47 kΩ
Tuner	: 150 mV at 24 kΩ	: 150 mV at 25 kΩ
Tape	: 150 mV at 24 kΩ	: 150 mV at 25 kΩ
CD/AUX	: 150 mV at 24 kΩ	: 150 mV at 25 kΩ
Outputs		
Tape	: 350 mV at 1 kΩ (Phono 7.75 mV 1 kHz input)	: 150 mV

Caution ⚡ **220V/240V**

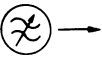
Removal of upper cabinet and recordplayer exposes the protruding current-carrying parts of mains switch and mains transformer, therefore extreme care should be taken when the apparatus is connected to the mains.

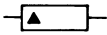
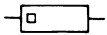
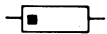
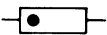
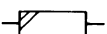
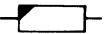
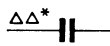
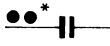
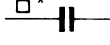
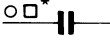
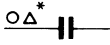
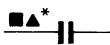
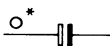
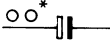


CONNECTIONS AND CONTROLS

1	Mains switch	S001	A	Ground terminal	J031
2	Bass control	RE15	B	Phono input	} JS06
3	Treble control	RE16	C	CD/Aux input	
4	Balance control	RE52	D	Tape input/output	} JS07
5	Function switch	} SS01	E	Tuner input	
6	Loudness switch		F	LS output A	} J704
7	Volume control	RG01	G	LS output B	
8	Loudness indicator	DL55	H	Mains cord	W001
9	Function indicator	DL51~DL54	I	Fuse holder	J001
10	LS switch	SW01			
11	Headphone socket	JS01			

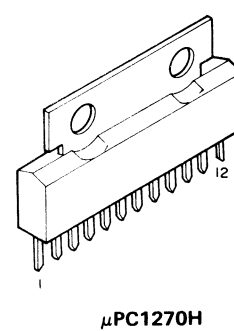
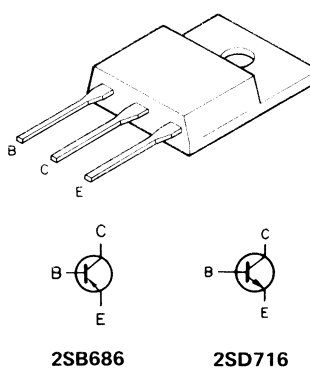
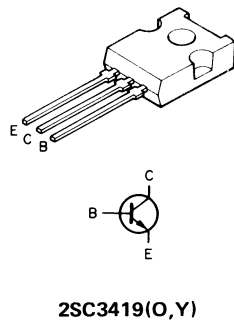
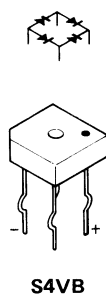
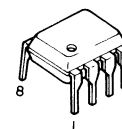
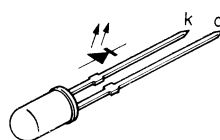
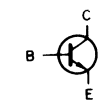
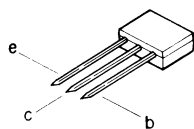
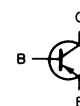
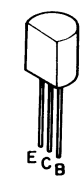
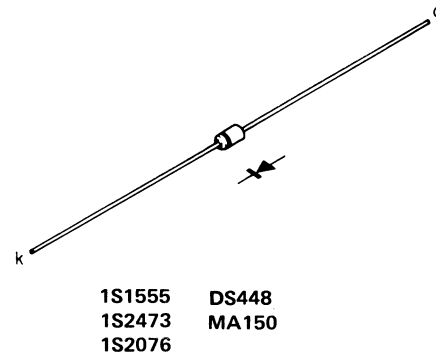
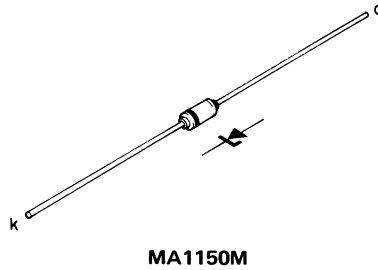
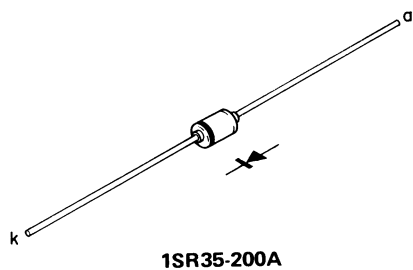
Idling Current

SK...						
SWITCH	SIGNAL	TO	VOLUME	ADJUST	OSCILLOSCOPE	D.C. METER INDICATOR
			Min.	Lch RB02(L)		Lch TP1(+), TP3(-) DC 4 mV (20 mA)
				Rch RB02(R)		Rch TP2(+), TP4(-) DC 4 mV (20 mA)

	Carbon film 0.125 W or 0.2 W	70°C	5%
	Carbon film 0.25 W or 0.33 W	70°C	5%
	Metal film 0.25 W or 0.33 W	70°C	5%
	Carbon film 0.5 W	70°C	5%
	Carbon film 0.67 W	70°C	5%
	Carbon film 1 W or 1.15 W	70°C	5%
 Chip component			
	Ceramic plate Tuning ≤ 120 pF NP.0	2%	-20/+80%
	Polyester flat foil	10%	
	Metalized polyester flat film	10%	
	Polyester flat foil small size (Mylar)	10%	
	Polysterene film/foil	1%	
	Tubular ceramic		
	Miniature single		
	Subminiature tantalum	$\pm 20\%$	

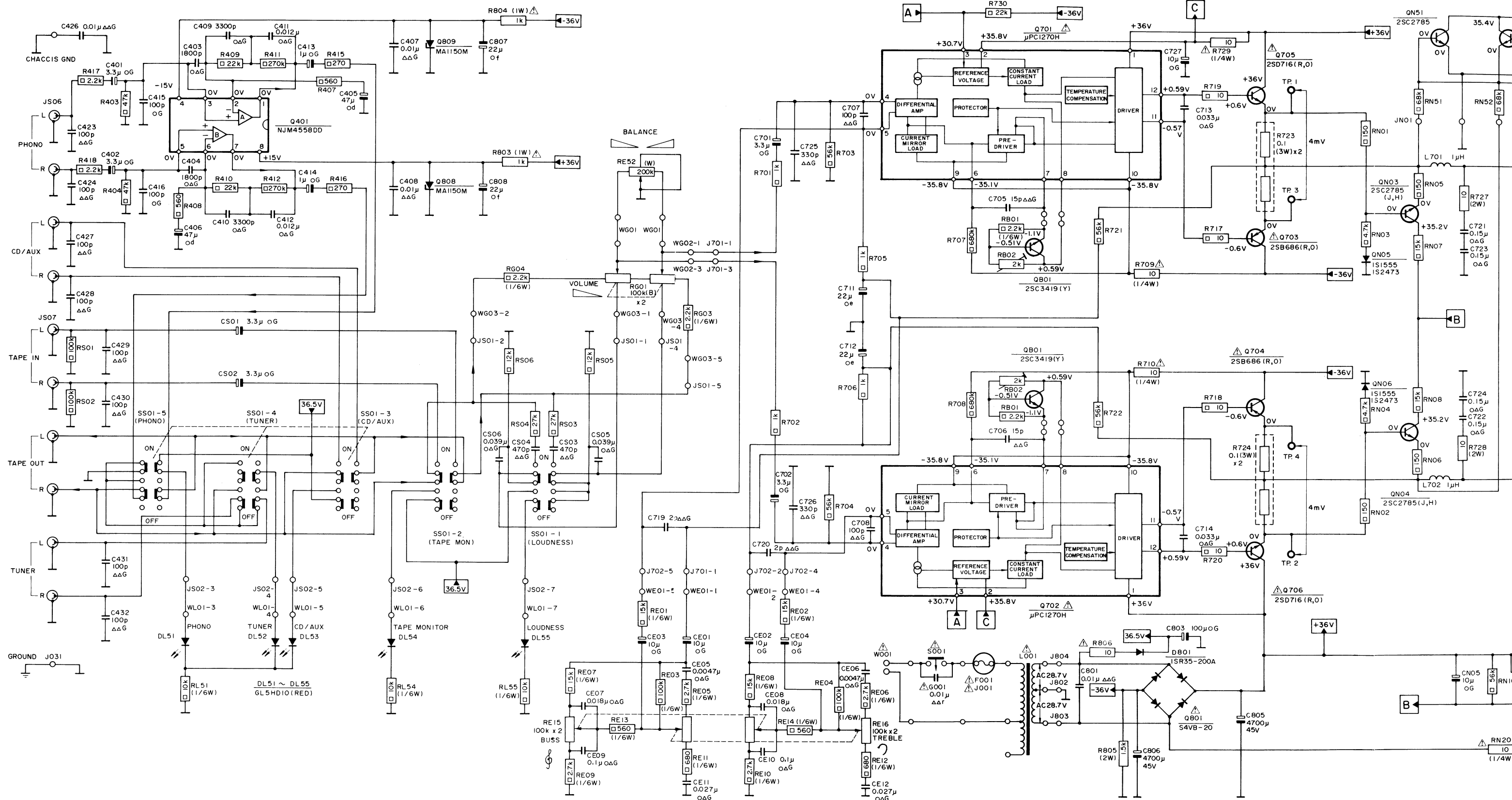
*a = 2.5 V
 b = 3.15 V
 or 4 V
 c = 6.3 V
 d = 10 V
 e = 16 V
 f = 25 V
 g = 40 V
 h = 63 V
 j = 100 V
 l = 125 V
 m = 150 V
 n = 160 V
 q = 200 V
 r = 250 V
 s = 300 V
 t = 350 V
 u = 400 V
 v = 500 V
 w = 630 V
 x = 1000 V
 A = 1.6 V
 B = 6 V
 C = 12 V
 D = 15 V
 E = 20 V
 F = 35 V
 G = 50 V
 H = 75 V
 I = 80 V

Semiconductor Layout

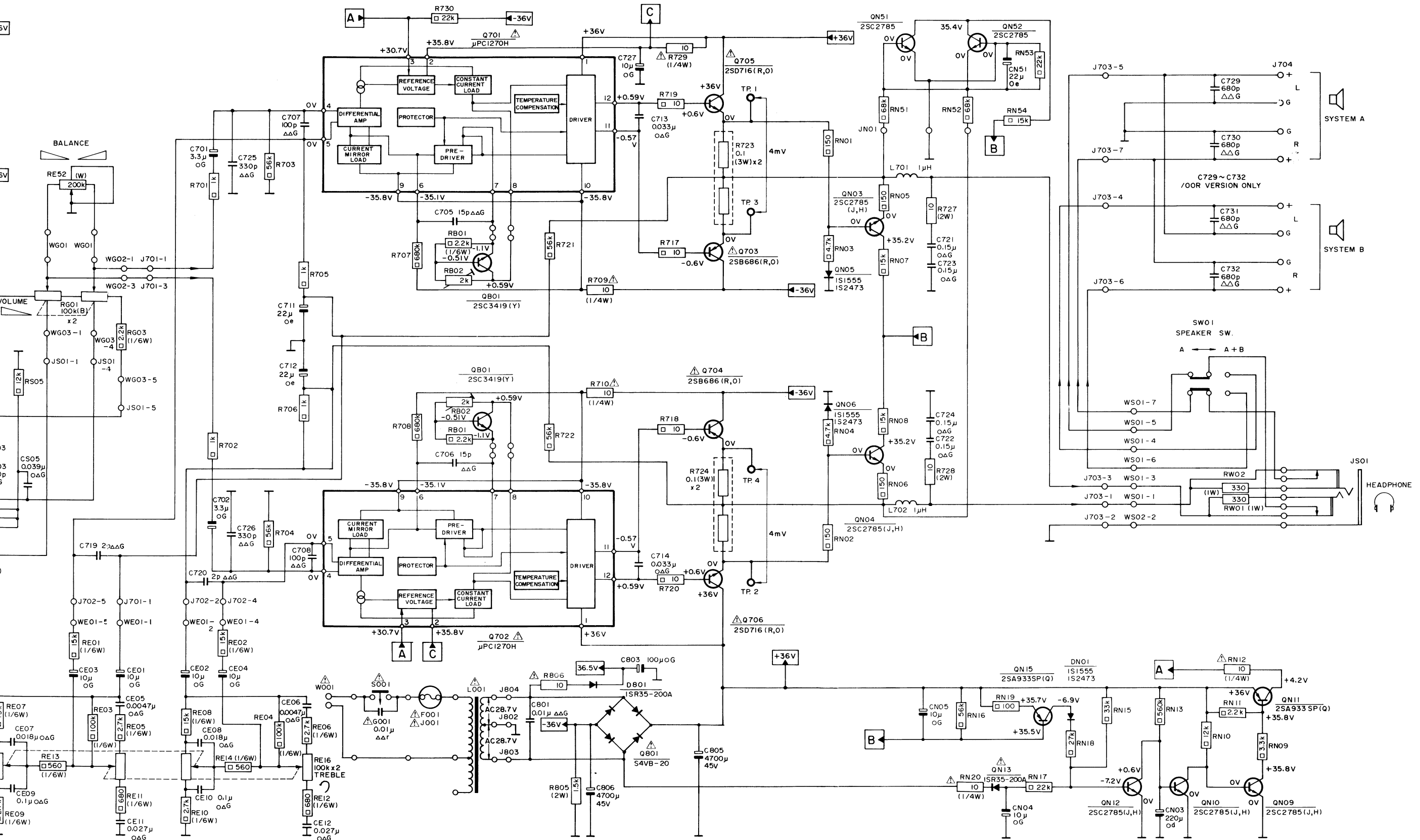


SCHEMATIC DIAGRAM

R	R417 R418 R403 R404	R408 ~ R412	R415 R416 R407	RG04 R804 R803	RE52 RG01	RG03	R703 R705	R707 R730 RB01 RB02	R721 R722 R709 R710	R717 R729 R719 R723	RN01 RN03 RN51 RN05 R
	RS01 RS02	RL51	RL54	RS06 RL55 RS04 RS03 RE09 RE07 RS05 RE13 RE01 RE03 RE11	RE05 RE15 RE16 RE10 RE08	R702 RE14 RE02 RE04 R704 R706 RE06 RE12	R708	R806 R805	R718 R720 R724	RN04 RN02 RN08 RN06	
C - G	C426 C427 ~ C430 C423 C424 C401 C402 C403 C404 C406 C409 ~ C412 C413 C414	C407 C408	C807 C808	C701 C725 C707 C711	C706 C705	C727 C713					
	C431 C432 C415 C416	CS01 CS02 C405	CS06 CS04 CS03 CS05 C719 CE01 ~ CE04 CE05 ~ CE12	C702 C726 C708 C712	G001	C801 C806 C803 C714 C805					
Q - D	DL51	Q401	DL52 DL53	DL54 Q808 Q809	DL55	Q701 Q702 Q801	Q703 ~ Q706	QN05 QN06 QN03 QN04 QN51			
L - S - F	SS01 - 5	SS01 - 4	SS01 - 3	SS01 - 2	SS01 - 1	S001 F001 L001	L701 L702				

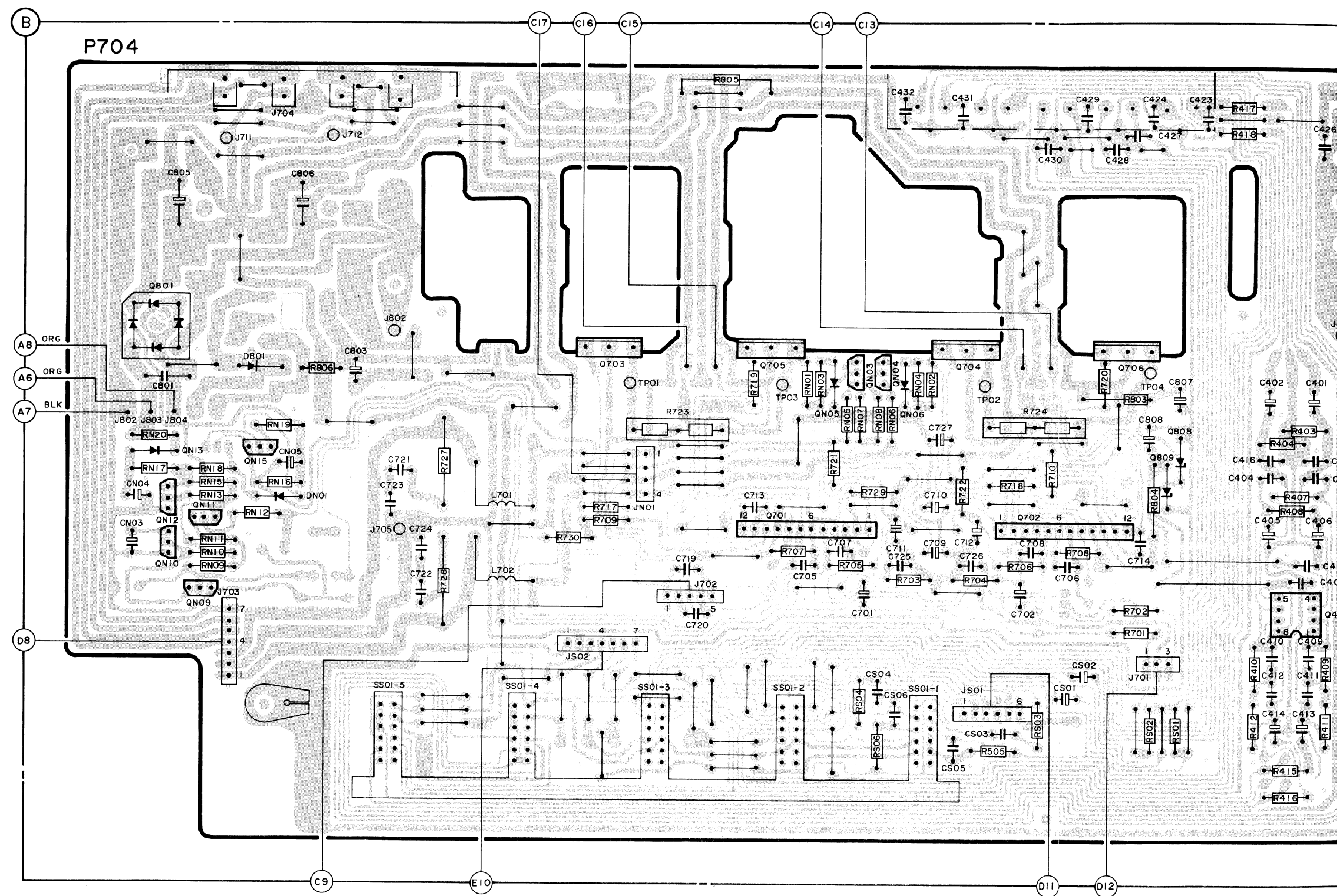
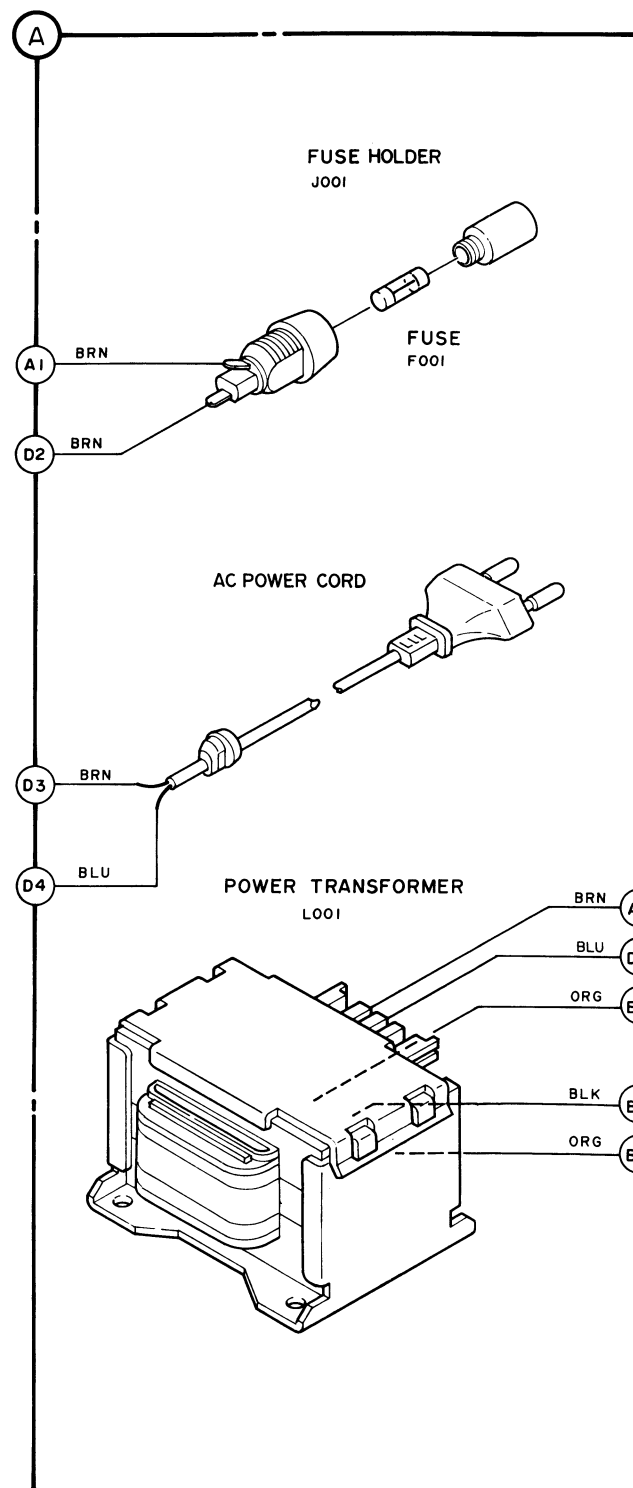


3	RE52	R601	R603	R703	R705	R707	R730	RB01	RB02	R721	R722	R709	R710	R717	R729	R719	R723	RN01	RN03	RN51	RN05	RN07	R727	RN52	RN54	RN53	RW01	RW02	R									
RS03	RE09	RE07	RS05	RE13	RE01	RE03	RE11	RE05	RE15	RE16	RE10	RE08	R702	RE14	RE02	RE04	R704	R706	RE06	RE12	R708	R806	R805	R718	R720	R724	RN04	RN02		RN08	RN06	R728	RN20	RN16	RN19	RN17	RN18	RN15
08	C701										C725	C707	C711	C706					C705	C727					C713	C721 ~ C724					CN51	C729 ~ C730					C - G	
CS04	CS03	CS05	C719	CE01 ~ CE04	CE05 ~ CE12	C702	C726	C708	C712	G001	C801					C806	C803	C714	C805	CN05					CN04	CN03												
Q701										Q702	QB01	D801					Q801	Q703 ~ Q706					QN05	QN06	QN03	QN04	QN51	QN52	QN13	QN15	DN01	QN12	QN10	QN11	QN09	Q - D		
S001					F001	L001	L701										L702	SW01										L - S - F										

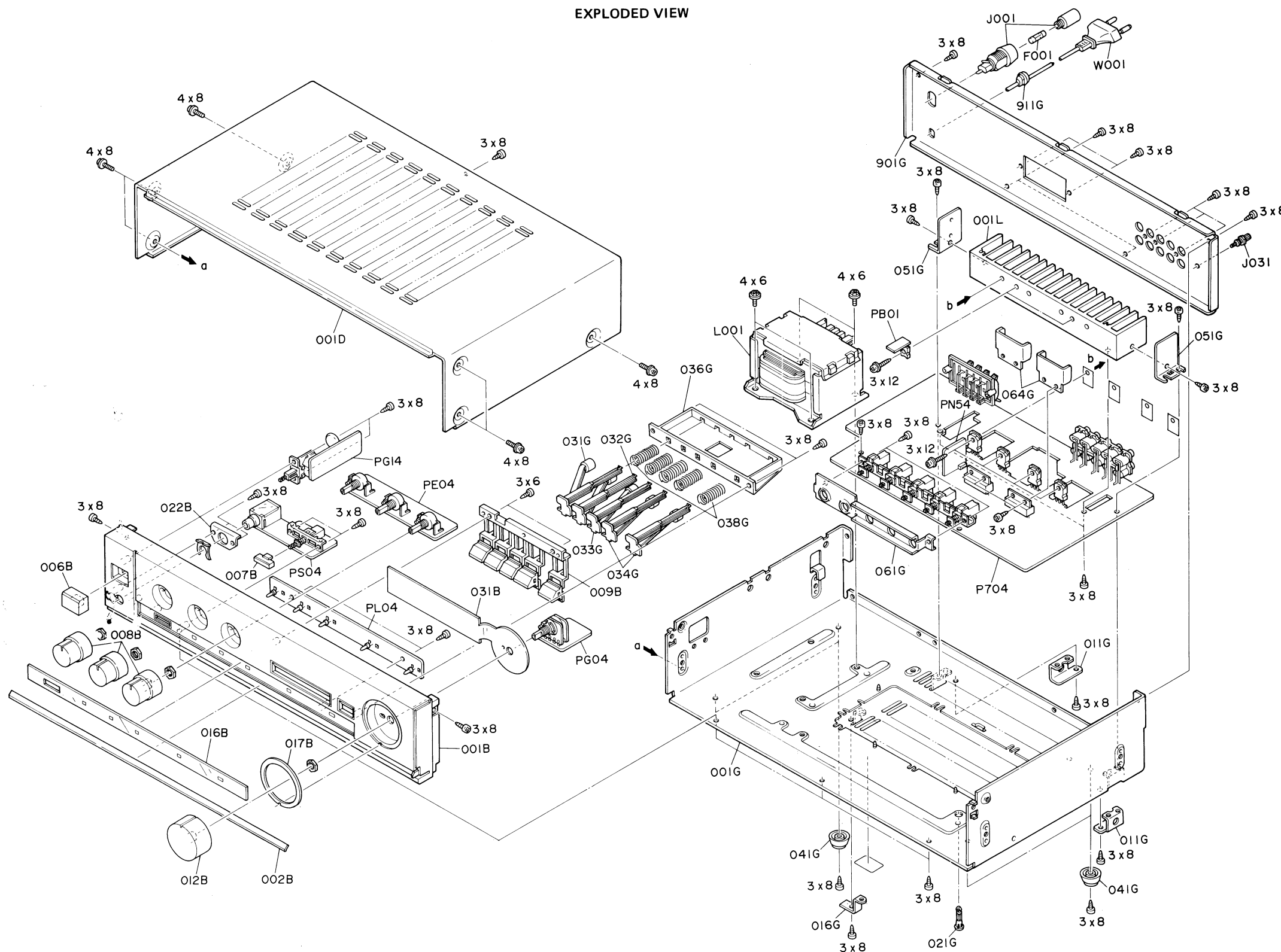


WIRING DIAGRAM

R - G	R806 R727 R728 R717 R723 R805 R707 R705 R721 R729 R703 R722 R704 R718 R706 R710 R708 R701 R702 R720 R803 R804 R417 R418 R415										R409 R412 R413 R414 R415 R416 R417 R418 R419 R420									
	RN09 ~ RN13 RN15 ~ RN20										R505 R503 R724 RS02 RS01 R701 R702									
C	C805 C801 C806 C803 C721 ~ C724										C719 C705 C707 C701 C711 C432 C431 C727 C726 C427 ~ C430 C424 C423 C808 C807 C401 ~ C416 C417 C418 C419 C420									
Q - D - V	Q801 QN09 ~ QN13 QN15 DN01 DB01										Q703 Q705 Q701 QN03 ~ QN06 Q704 Q702 Q706 Q809 Q808 Q401									
L - S - F - X	L001 F001										SS01-5 L701 L702 SS01-4 SS01-3 SS01-2 SS01-1									



EXPLODED VIEW



F001	4822 253 20017	012B	4822 412 20663
J001	4822 256 30233	016B	4822 454 11859
J031	4822 267 40505	017B	4822 454 11832
L001	4822 146 21178	006D	4822 502 12501
001B,002B, 016B,017B	4822 426 51092	006G	4822 500 10357
002B	4822 426 51041	031G	4822 404 60254
006B	4822 410 25074	032G	4822 404 60249
007B	4822 410 25075	033G	4822 404 60251
008B	4822 412 20974	034G	4822 404 60252
009B	4822 410 25228	038G	4822 492 42018
		041G	4822 462 40971
		911G	4822 532 51314

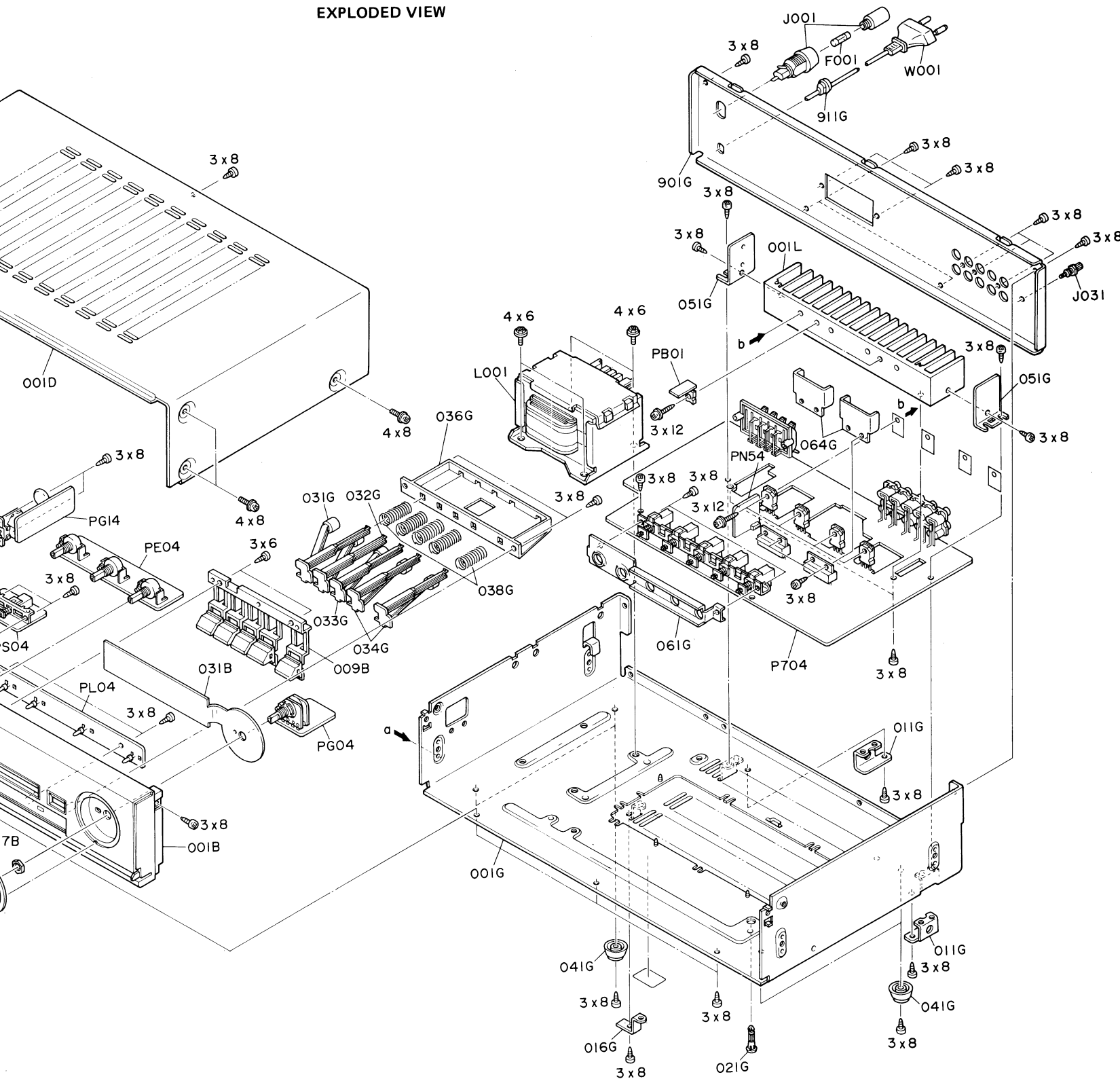
List of electrical parts

C719	Cer. cap.	2 pF 50 V	4822 122 40298	MPC1270H	
C720	Cer. cap.	2 pF 50 V	4822 122 40298	NJM4558DD	
C801	Cer. cap.	0.01 µF 500 V	4822 122 30043		
C805	Elect. cap.	4700 µF 45 V	4822 124 21597	1S1555	
C806	Elect. cap.	4700 µF 45 V	4822 124 21597	MA1150M ½ W	
G001	Cer. cap.	0.01 µF 250 V	4822 122 40305	S4VB-20	
				1SR35-200A	
RB02	Trimm. res.	2k	4822 100 20191	1S1555	
RE15	Var. res.	tone 100k	4822 100 20536	GL5HD10 red	
RE16	Var. res.	tone 100k	4822 100 20536		
RE52	Var. res.	Bal. 200k	4822 100 20534	L701	
RG01	Var. res.	100k	4822 100 20535	L702	
RN12	Fuse res.	10E ¼ W	4822 116 60314	Coil	
RN20	Fuse res.	10E ¼ W	4822 116 60314	Coil	
RW01	Safety res.	330E 1 W	4822 111 50474		
RW02	Safety res.	330E 1 W	4822 111 50474		
R709	Fuse res.	10E ¼ W	4822 116 60314		
R710	Fuse res.	10E ¼ W	4822 116 60314		
R723	Res compo.	0.1E	4822 111 90966		
R724	Res compo.	0.1E	4822 111 90966		
R727	Safety res.	10E 2 W	4822 111 90726		
R728	Safety res.	10E 2 W	4822 111 90726		
R729	Fuse res.	10E ¼ W	4822 116 60314		
R803	Safety res.	1k ¼ W	4822 116 60331		
R804	Safety res.	1k ¼ W	4822 116 60331		
R805	Safety res.	1.5k 2 W	4822 116 60339		
R806	Fuse res.	10E ¼ W	4822 116 60314		
2SC3419Y			4822 130 60117		
2SC2785 J, H			5322 130 42052		
2SA933SP Q			4822 130 42482		
2SB686 R,O			4822 130 42485		
2SC2785 J,H			5322 130 42052		
2SD716 R,O			4822 130 42487		

Miscellaneous

JS01	Head
JS06	Term
JS07	Term
SS01	Push
SW01	Push
F001	Fuse
J001	Fuse
J031	Gro
J704	Spe
L001	Tran
S001	Push

EXPLODED VIEW



List of electrical parts

C719	Cer. cap.	2 pF	50 V	4822 122 40298	MPC1270H		4822 209 82496			
C720	Cer. cap.	2 pF	50 V	4822 122 40298	NJM4558DD		4822 209 83631			
C801	Cer. cap.	0.01 μF	500 V	4822 122 30043						
C805	Elect. cap.	4700 μF	45 V	4822 124 21597						
C806	Elect. cap.	4700 μF	45 V	4822 124 21597						
G001	Cer. cap.	0.01 μF	250 V	4822 122 40305						
								1S1555	4822 130 31018	
								MA1150M ½ W	4822 130 32654	
								S4VB-20	4822 130 32174	
					1SR35-200A	4822 130 32816				
					1S1555	4822 130 31018				
					GL5HD10 red	4822 130 33171				
					L701	Coil 1 μH	4822 157 51739			
					L702	Coil 1 μH	4822 157 51739			
					Miscellaneous					
RB02	Trimm. res.	2k		4822 100 20191	JS01	Headphone jack	4822 267 30615			
RE15	Var. res.	tone 100k		4822 100 20536	JS06	Terminal 4p	4822 267 30493			
RE16	Var. res.	tone 100k		4822 100 20536	JS07	Terminal 6p	4822 265 30398			
RE52	Var. res.	Bal. 200k		4822 100 20534	SS01	Push switch	4822 276 50314			
RG01	Var. res.	100k		4822 100 20535	SW01	Push switch speaker	4822 276 11942			
RN12	Fuse res.	10E ¼ W		4822 116 60314	F001	Fuse T 800 mA	4822 253 20017			
RN20	Fuse res.	10E ¼ W		4822 116 60314	J001	Fuse holder	4822 256 30233			
RW01	Safety res.	330E 1 W		4822 111 50474	J031	Ground terminal	4822 267 40505			
RW02	Safety res.	330E 1 W		4822 111 50474	J704	Speaker terminal 8p	4822 267 50424			
R709	Fuse res.	10E ¼ W		4822 116 60314	L001	Transformer	4822 146 21178			
R710	Fuse res.	10E ¼ W		4822 116 60314	S001	Push switch power	4822 276 11891			
R723	Res compo.	0.1E		4822 111 90966						
R724	Res compo.	0.1E		4822 111 90966						
R727	Safety res.	10E 2 W		4822 111 90726						
R728	Safety res.	10E 2 W		4822 111 90726						
R729	Fuse res.	10E ¼ W		4822 116 60314						
R803	Safety res.	1k ¼ W		4822 116 60331						
R804	Safety res.	1k ¼ W		4822 116 60331						
R805	Safety res.	1.5k 2 W		4822 116 60339						
R806	Fuse res.	10E ¼ W		4822 116 60314						

4822 253 20017	012B	4822 412 20663
4822 256 30233	016B	4822 454 11859
4822 267 40505	017B	4822 454 11832
4822 146 21178	006D	4822 502 12501
4822 426 51092	006G	4822 500 10357
4822 426 51041	031G	4822 404 60254
4822 410 25074	032G	4822 404 60249
4822 410 25075	033G	4822 404 60251
4822 412 20974	034G	4822 404 60252
4822 410 25228	038G	4822 492 42018
	041G	4822 462 40971
	911G	4822 532 51314