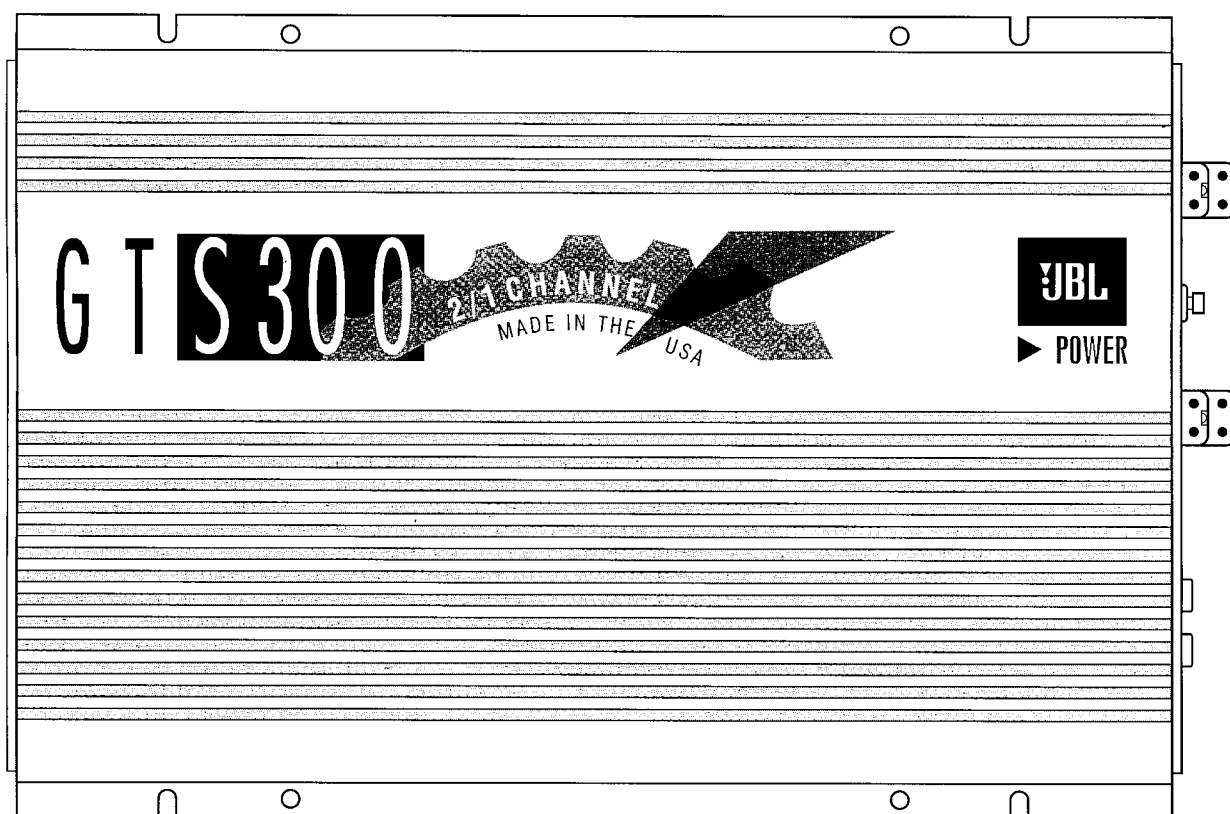


GTS300

2/1 CHANNEL AUTOMOTIVE POWER AMPLIFIER

TECHNICAL MANUAL



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1-800-336-4JBL in the USA

H A Harman International Company

Part No.: GTS300SM Rev A

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GTS300 Specifications

Power Output (20Hz - 20kHz, 14.4V Battery Voltage,	100 watts x 2 (4 Ohms, 0.05% THD)	Minimum Speaker Impedance	
	150 watts x 2 (2 Ohms, 0.08% THD)	Single Ended (Non-Bridged)	2 Ohms
	300 Watts x 1 (4 Ohms, 0.08% THD)	Bridged	4 Ohms
Signal to Noise Ratio	100dBA	Built in Electronic Crossover Frequency and Slope	18dB per Octave Low-Pass Filter, Frequency Chips Available from 50-5kHz Factory Setting: 80Hz
Frequency Response	10Hz - 50kHz (+0 - 1dB) 20Hz - 20kHz (+0 - 0.1dB)		18dB per Octave High-Pass Filter, Frequency Chips Available from 50-5kHz Factory Setting: 80Hz
Damping Factor	>200	Bass Boost Frequency and Magnitude	+4dB at 40Hz
Slew Factor	>5	Power Requirement	11 to 16V DC Negative Ground
Line Level Input Sensitivity (For Rated Power)	100mV - 4V RMS (500mV at Center Detent)	Fuse Size	40 Amp ATC Type Fuse
Speaker Level Input Sensitivity (For Rated Power)	200mV - 8V RMS (1V at Center Detent)	Size (L x W x H)	13-1/4" x 9-1/4" x 2" (337mm x 235mm x 51mm)
Preamp Output Sensitivity Preamp Input: Speaker Input:	4V in for 4V out 4V in for 2V out	Weight	10 lbs. 8.5oz. (4.8 kg)
Maximum Preamp Output Voltage	4V	Speaker Level Input Mating Connector	Molex Mini-Fit Jr. # 39-01-2040 Metal Pins: 39-00-0038
Line Level Input Impedance	10k Ohms		
Speaker Level Input Impedance	15 Ohms or 100k Ohms (Selectable By Internal Jumpers)		

Features

- Bridgeable 2/1 Channel Operation.
- Simultaneous Stereo + Mono Operation.
- Built-in Staggered 18dB/Octave Frequency Selectable High-Pass and Low-Pass Crossover.
- Preamp Output with Frequency Selectable High-Pass and Low-Pass Crossover.
- No Current Limiting.
- Oversized Floating Rail (OFR) MOSFET Switch-Mode Power Supply
- Common Sense 2-way Turn-on
- Stealth Remote Silent Turn-On Circuitry with Power-On Indicator
- Continuously Adjustable Gain Controls.
- Capable of Single-Ended Operation Into 2-Ohm Loads.
- Fully Complementary, Direct-Coupled, Discrete Power Amplifier Circuitry.
- Gold Plated RCA Input Connectors.
- Gold Plated Power and Speaker Connections.
- Third order, (18dB per Octave) Capacitive/Inductive Power-Supply Filtering.
- Input Mode Switching.
- Speaker Output Short Circuit Protection Circuitry.
- Made in USA

Controls and Connections

1. Preamp-Level Input Connector - Use these connectors for line (preamp) level input to the amplifier.

2. Preamp-Level Output Connector - Use these outputs to send the signal to additional amplifiers.

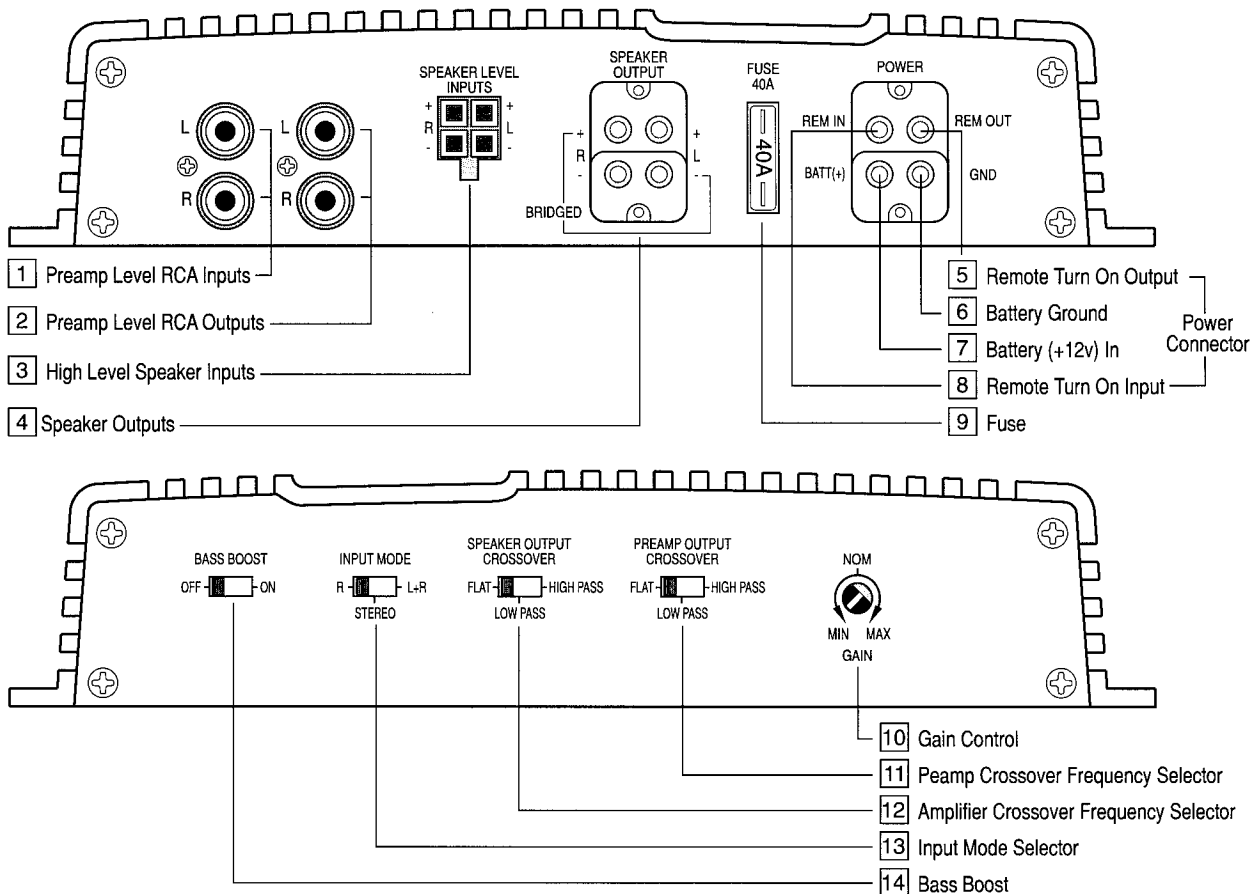
3. Speaker-Level Input Connector - Use this connector for speaker level input signals. A wire harness is supplied for use with this connector. This input also includes JBL's Common Sense input circuitry which turns the amplifier on as soon as a high powered head unit connected to this input is turned on.

4. Speaker Output Connector - Connect speaker wiring to this connector. See "System Configuration Diagram" on page 4 for more information.

5., 6., 7., 8., Power Connector - Connection for power wires. See "System Configuration Diagram" for information on proper connections.

9. Fuse - 40 AMP ATC type fuse for the GTS300.

10. Gain Control - Use this control to adjust the input sensitivity of the amplifier.



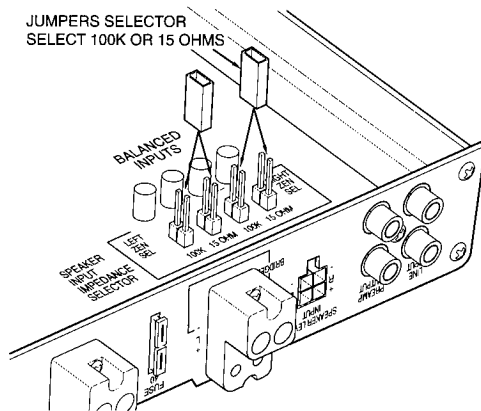
11. Preamp-Output Crossover Switch - This switch controls the built-in crossover that is directed to the preamp-output connectors. Set the switch to "Flat" for full band operation. Set this switch to "Low-Pass" to activate the low-pass filter on the preamp output (for subwoofer use). Set the switch to "High-Pass" to activate the high-pass filter for use with satellite speakers on the preamp outputs.

12. Speaker Output Crossover Switch - This switch controls the built-in crossover that is connected to the power amplifier circuitry. Set the switch to "Flat" for full band operation. Set this switch to "Low Pass" to activate the low pass filter on the amplifier (for subwoofer use). Set the switch to "High Pass" to activate the high pass filter for use with satellite speakers.

13. Input Mode Selector - This switch is used to set the input mode for both preamp and speaker-level inputs. Set this switch to Stereo for normal operation using both left and right inputs. Set this switch to R to drive both the left and right output channels with only a single input on the right channel. Set this switch to "L+R" to sum the left and right inputs for a mono output on both amplifier channels. The input mode selection switch does not affect the preamp outputs.

14. Bass Boost Switch - This activates a built-in Bass Boost circuit used to increase low-bass output.

Power Indicator LED (on chassis top) - LED steadily illuminates for normal operation. LED blinks when protection circuitry or muting is engaged and during initial power-up.



Internal Adjustments

Speaker-Level Input Impedance Adjustments

The speaker level inputs of the GTS300 come factory set with 100K ohm input impedance. This will provide the lowest distortion operation from the speaker outputs of most modern head units by reducing the power the amplifier in the head unit must deliver to practically nothing. The resulting signal will practically be as free from noise and distortion as a preamp-level connection. On some older, or lower-priced head units, this load will not facilitate proper fader operation. To allow for this, we have provided the ability to change the input impedance of the speaker-level

inputs to 15 ohms. This is accomplished by connecting the jumpers as shown in the diagram below.

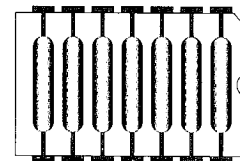
Crossover Frequency Adjustments

The GTS300 amplifier include built-in frequency selectable crossovers. One crossover is connected in series with the amplifier circuitry and the other crossover is connected to the preamp level output jacks.

The crossover frequencies are set by "chips" inside the amplifier. These "chips" are simply a set of resistors, connected across the pins and molded into a single package. The crossover frequencies may be changed to any value desired by changing the resistor network.

Frequency	Resistor Value	JBL Part Number
50Hz	47K Ω	1-23-750
80Hz	33KΩ	1-23-817
120Hz	22K Ω	1-23-820
200Hz	12K Ω	1-23-821
250Hz	10K Ω	1-23-810
375Hz	6.8K Ω	1-23-822
500Hz	4.7K Ω	1-23-815
650Hz	3.9K Ω	1-23-823
2.5Hz	1K Ω	1-23-824
5kHz	470 Ω	1-23-816

Custom "Chip" Construction



Each resistor in the package has the same value.

If you know the crossover frequency you want, you can calculate the resistor value necessary by solving the following equation:

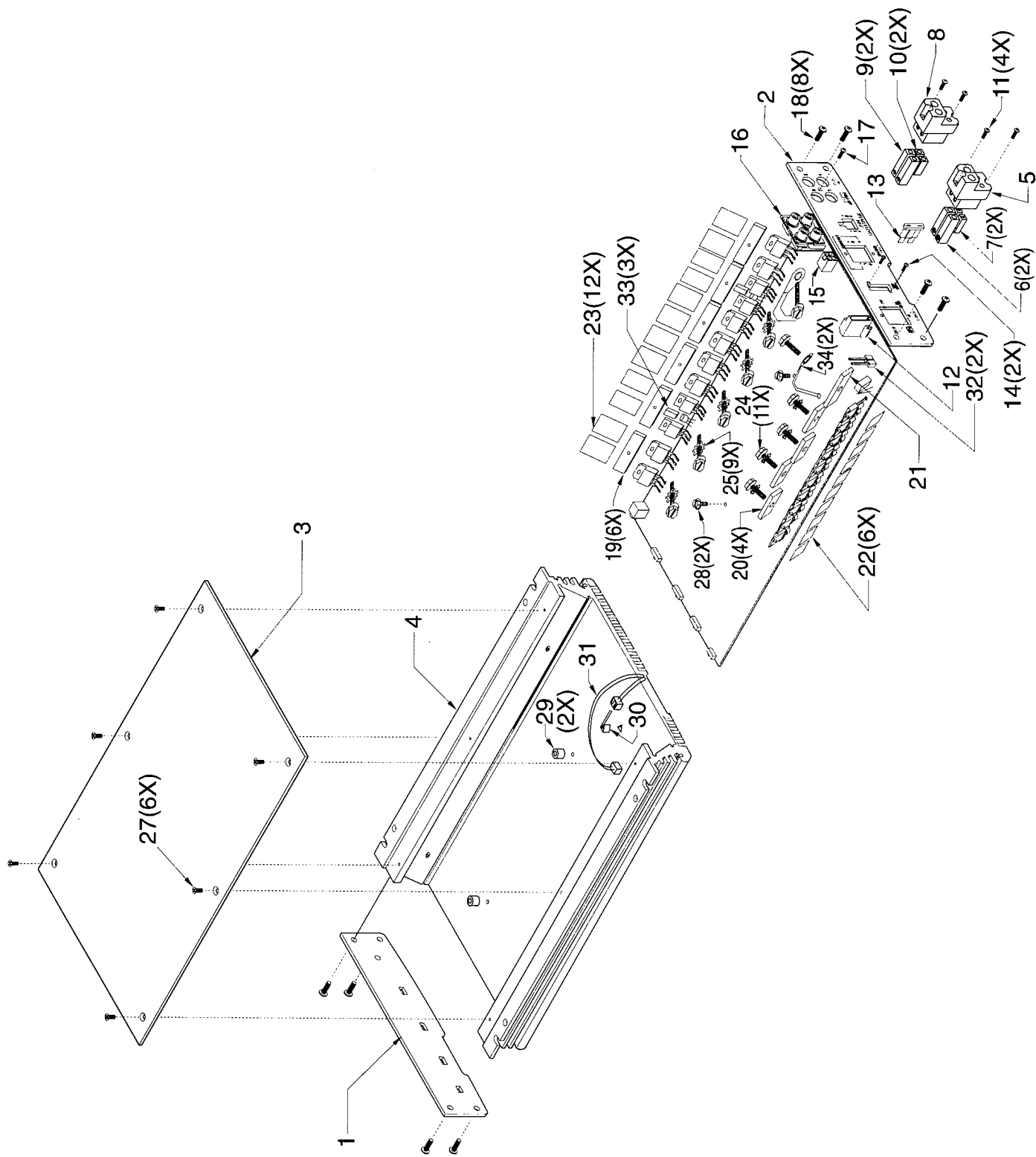
$$\text{Resistor Value in Ohms} = \frac{2,500,000}{\text{Crossover Frequency in Hz}}$$

Use the following equation if you have a resistor pack of a known value, and want to find its crossover frequency:

$$\text{Resistor Value in Hz} = \frac{2,500,000}{\text{Crossover Resistor Value in Ohms}}$$

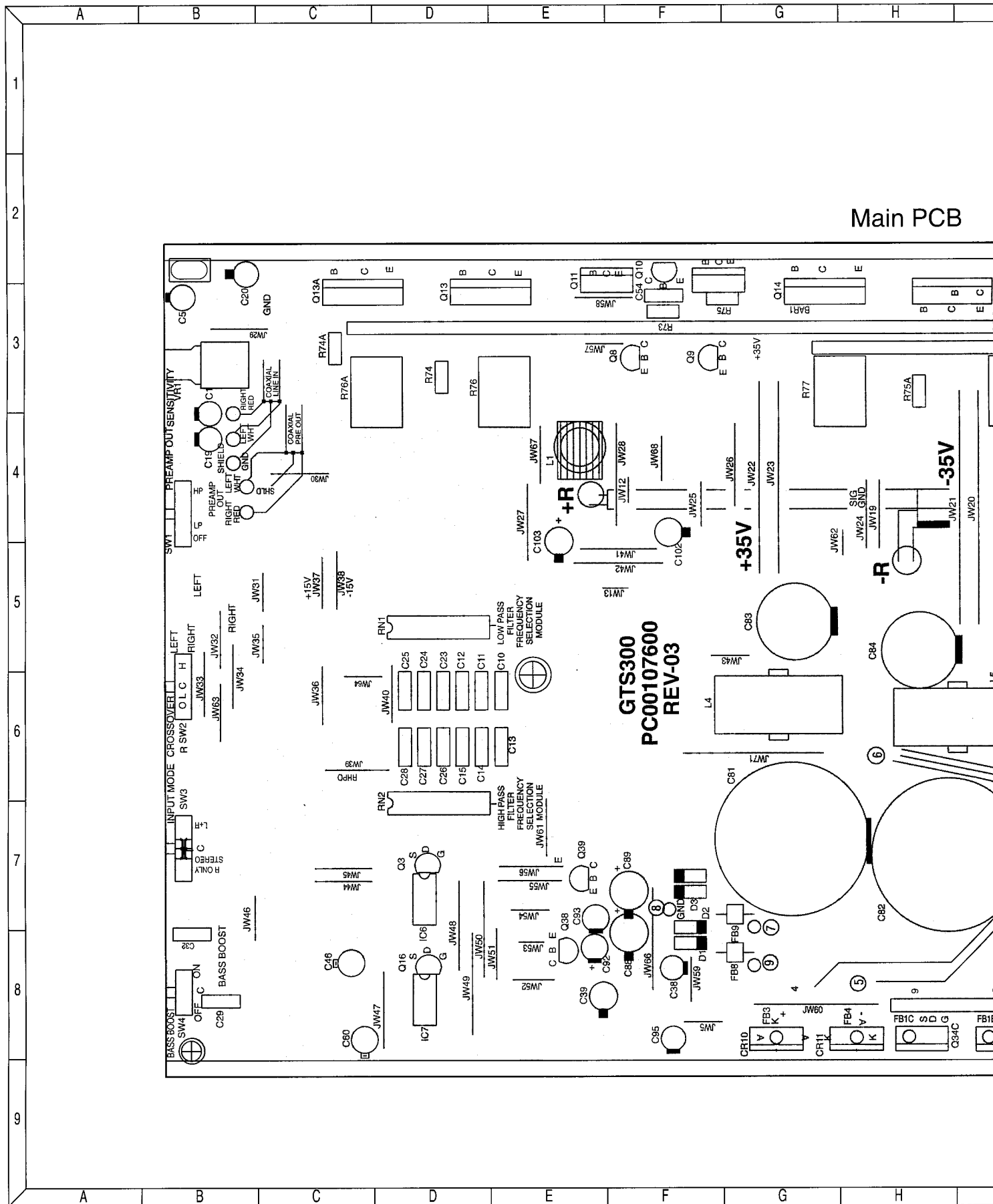
To build "chips" from discrete resistors, solder the resistors to a standard 14-pin "DIP Header" according to the diagram. If a DIP Header is not available, you may bend the leads of 1/4"-watt resistors 90 degrees, trim them to 1/8"-length, and insert them directly into the chip socket.

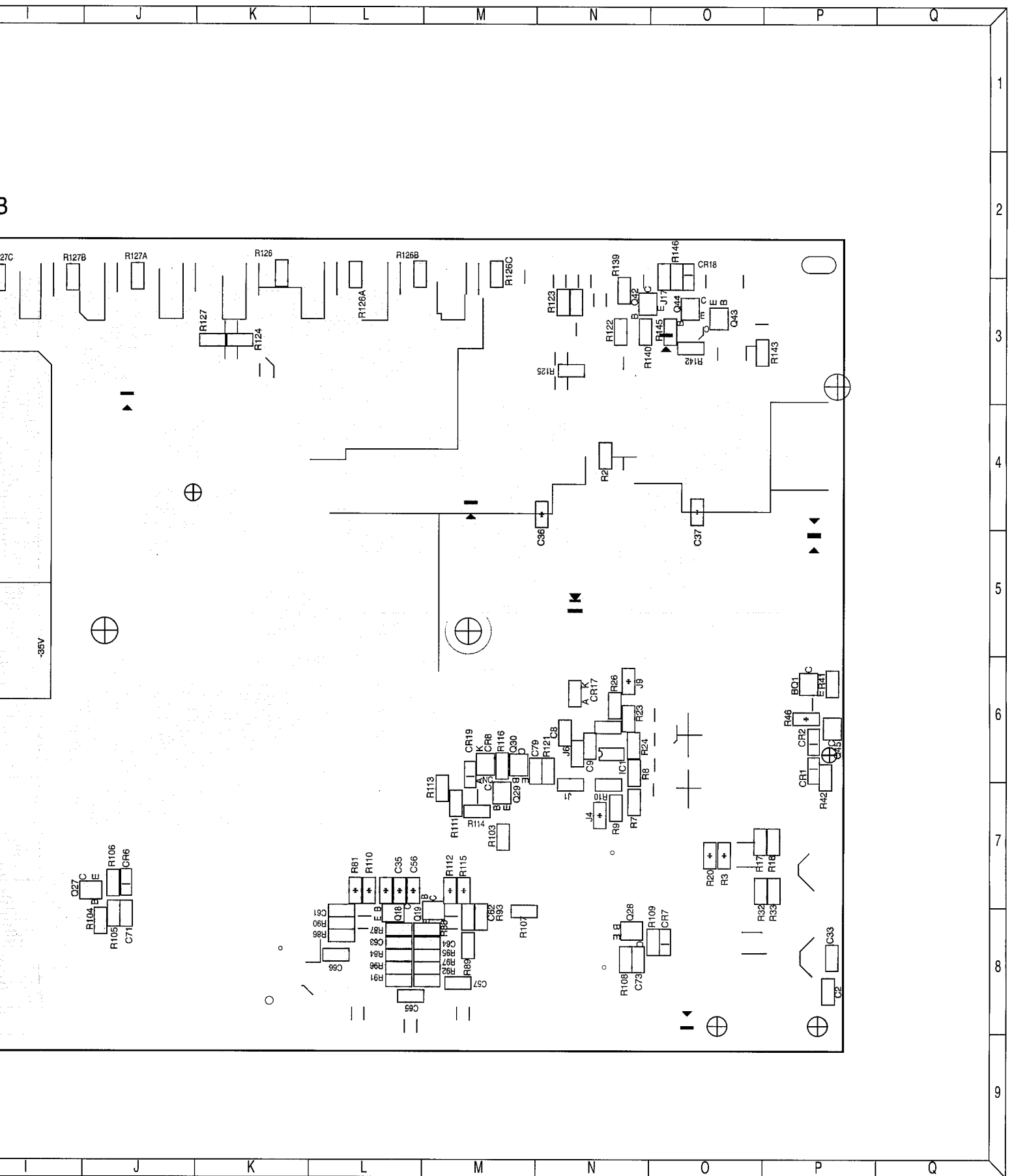
Mechanical Exploded View

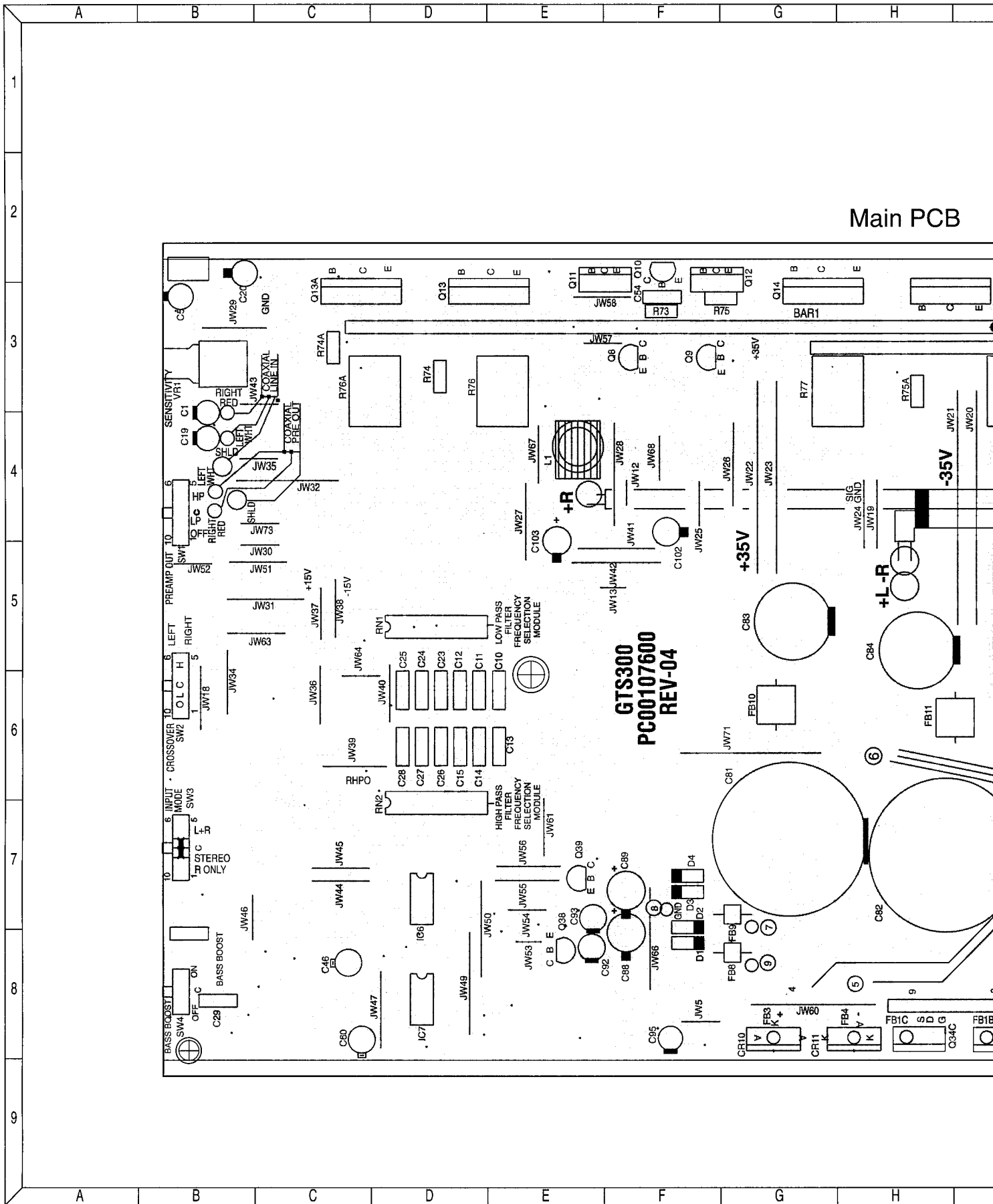


GTS300 Unit Mechanical Parts

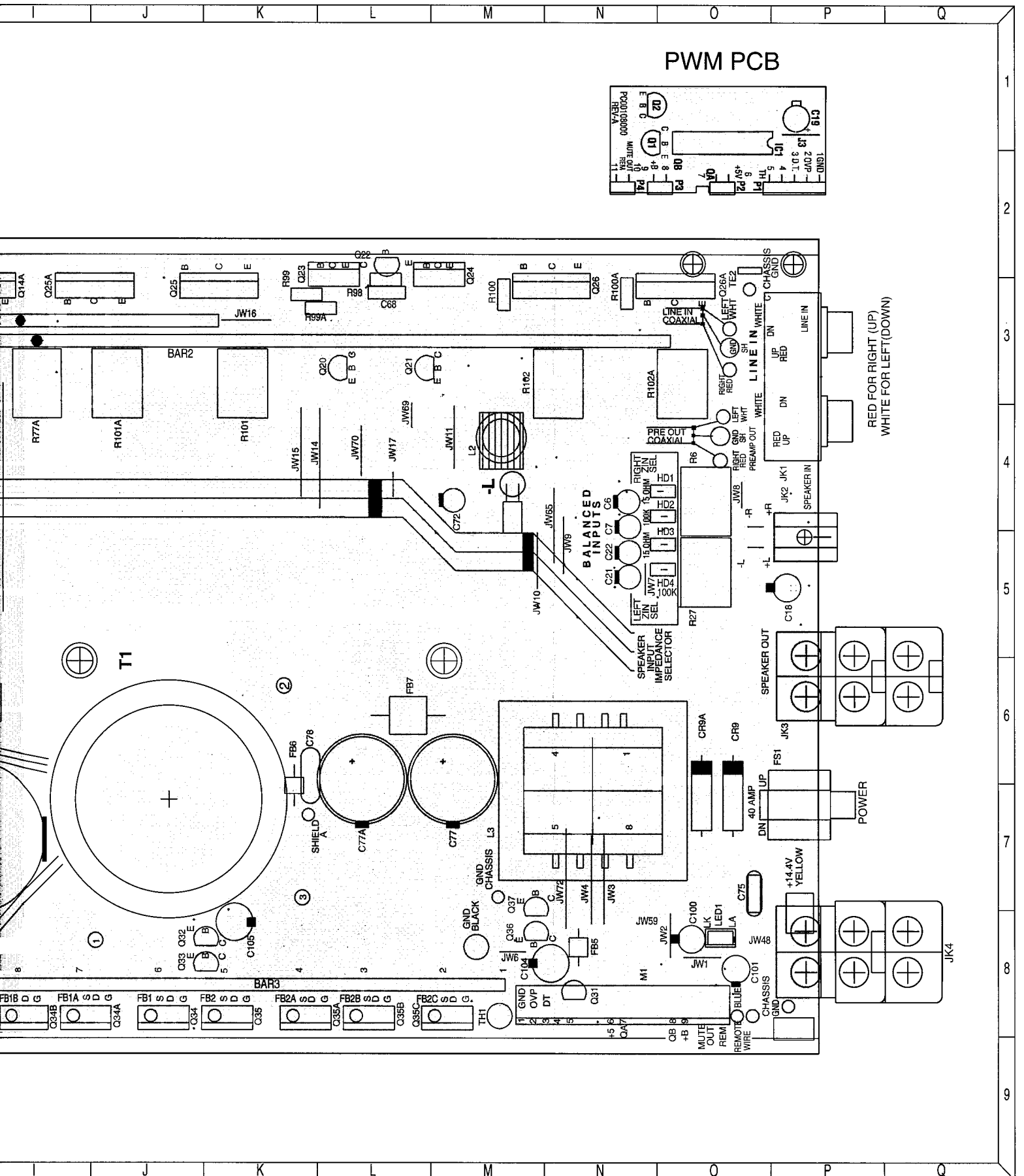
REF. No.	DESCRIPTION	PART No.	QNTY.				
1	FRONT BRACKET FOR GTS300	BR1186	1	27	SC 4-40x 1/4 TAPT-THR, FLAT PHI HEAD, ZINC FSH	SC1188	6
2	REAR BRACKET FOR GTS300	BR1185	1	28	SC 6-32x 3/8 TAPTITE, HEX WASHER HEAD, ZINC FSH	SC1194	3
3	BOTTOM PLATE 13" LONG GTS300	BR1183	1	29	1/4 ROUND SPACER	ST1018	3
4	HEATSINK FOR GTS300 13" LENGTH 9" WIDTH	HS1073	1	31	HARNES FOR LED	XX1192	1
5	POWER CONNECTOR, 4 POS, 8 AWG 2X-TOP, 2X-BOTTOM	CO1264	1	30	LED RED DIFUSED (TRIANGLE SHAPE)	LE1029	1
6	LOWER POWER ALUMINUM BAR, AWG 8, GOLD PLATED	BR1289	2	32	CONNECTOR HEADER	CO1284	2
7	UPPER POWER ALUMINUM BAR, AWG 16, GOLD PLATED.	BR1288	2	33	GOLD FLASH. SC 8-32x 1/4 HEX SOCKET SET SCREW, FLAT POINT,ALLOY STEEL,	SC1202	4
8	SPEAKER OUTPUT CONNECTOR 2-CH 4 POSITIONS	CO1259	1	34	GROUND HARNES	XX1198	2
9	LOWER SPEAKER ALUMINUM BAR, AWG 16, GOLD PLATED	BR1284	2		SC 6-32x 1/4 HEX SOCKET SET SCREW,FLAT POINT,ALLOY STEEL,	SC1200	8
10	UPPER SPEAKER ALUMINUM BAR, AWG 16, GOLD PLATED.	BR1285	2		GOLD FLASH. SC 6-32x 3/8 HEX SOCKET SET SCREW,FLAT POINT,ALLOY STEEL,	SC1201	4
11	SC 4-40x 7/16 TAPT-THR, PAN PHI HEAD, NICKEL FSH	SC1090	4		GOLD FLASH. SILICONE FOAM WITH ACRYLIC PRESSURE SENSITIVE ADHESIVE	SP1020	3
12	FUSE HOLDER	FH1001	1		SILICONE SPONGE WITH ACRYLIC PRESSURE SENSITIVE ADHESIVE	SP1076	2
13	FUSE	FS1059	1				
14	SC 1-42x 5/16 TAPPING-THR, PAN PHI HEAD, POINT B , NICKEL FSH	SC1197	2				
15	HEADER MOLEX	CO1270	1				
16	RCA CONNECTOR	CO1255	1				
17	SC M3x1.25x10 PLAS-THR, PAN PHI HEAD, NICKEL FSH	SC1189	1				
18	SC 6-32x 1/2 TAPT-THR, PAN PHI HEAD, NICKEL FSH	SC1187	8				
19	ALUMINUM BAR 4.8x12.7x40mm	BR1187	6				
20	ALUMINUM BAR 4.8x12.7x25.4 MM.	BR1240	4				
21	ALUMINUM BAR 4.8x12.7x35.0mm.	BR1250	1				
22	3/8"Lx1/4"W,GRAY,(3/16"T) TO-220 @PL-SIL PAD INSULATOR WITH ADHESIVE 0.750" x 0.500"	SP1072	6				
23	SIL PAD INSULATOR TO-3P WITH ADHESIVE 1.000" x 0.750"	SP1073	12				
24	SC 6-32x 3/4 CUTT-THR, HEX WASHER HEAD, POINT F, ZINC F.	SC1192	11				
25	WASHER EXT. TOOTH	WA1049	9				

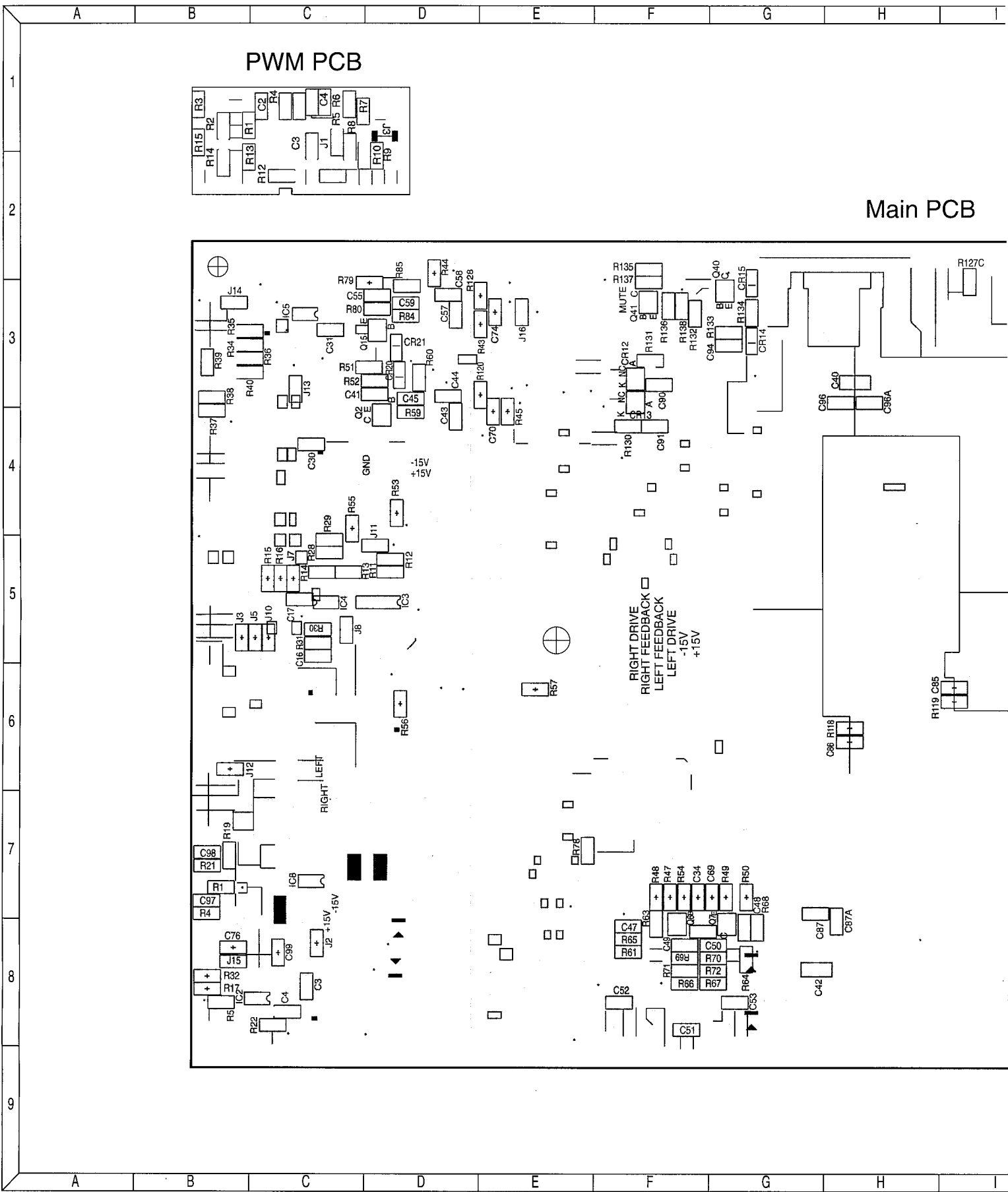






(viewing traces through the board)



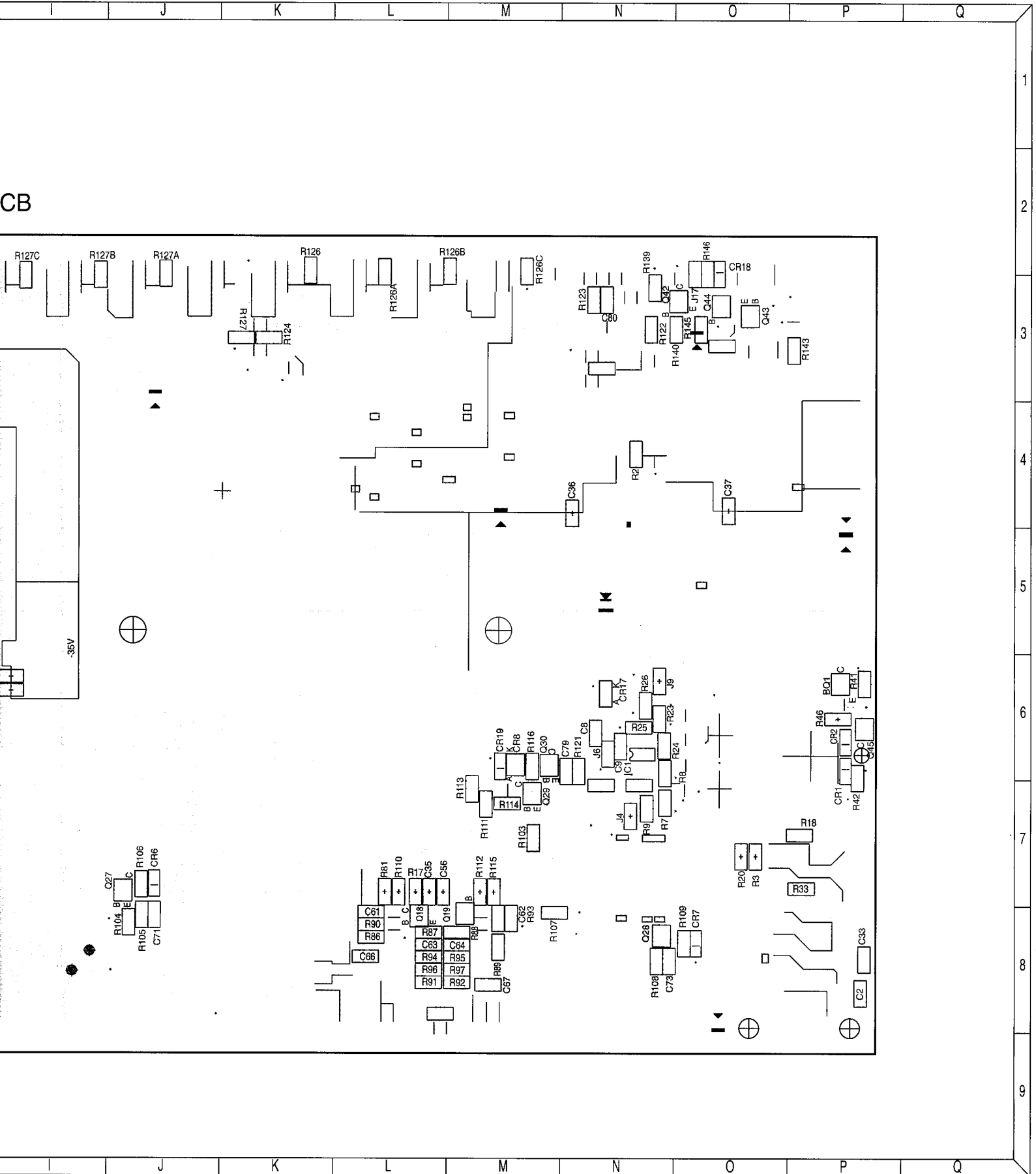


PWM PCB

Main PCB

CB's Rev 4 (Bottom Side)

CB



GTS300 Electrical Parts List

GTS300 MAIN PCB ASSEMBLY

REFERENCE No.	DESCRIPTION	PART NO.	QNTY.	REFERENCE No.	DESCRIPTION	PART NO.	QNTY
Capacitors				Diodes			
C78	CAP. POLY FIL 1.00 μ F \pm 10% 50V RADIAL T/R LS=5.0 mm	CP1126	1	CR9, 9A	RECTIFIER DIODE 3A/200V MAX, 100V MIN, T/R AXIAL TAPE SPACE= 52.4mm *(GI 1N5401), (TAITRON 1N5401)	DI1005	2
C11,15, 24, 28	CAP. POLY FIL 0.22 μ F 5% 63V 85 DEG C T/R RADIAL METALLIZED LS=5mm	CP1177	4	D1, 2, 3, 4	DIODE FAST REC. 1A 100V AXIAL, TAPE SPACE= 52.4mm	DI1010	4
C14, 27	CAP. POLY FIL 0.022 μ F 5% 63V 85 DEG C T/R RADIAL LEAD METALLIZED LS=5mm014D0223JDB	CP1178	2	CR10	DUAL RECTIFIER 100V 16A COMMON CATHODE *(G.I. FEP16BT/CT), (D.I. SF162C)	DI1053	1
C1, 92, 93, 5, 19 20, 95, 102, 103	CAP. ALUM EL. 22.00 μ F \pm 20% 25V 5X11 RADIAL AMMOPACK F=2.5mm LS=2.5mm	CP1352	9	CR11	DUAL RECTIFIER 100V 16A COMMON ANODE *(G.I. FEN16BT/CT), (D.I. SF162A)	DI1054	1
C77, 77A	CAP. ALUM EL. 2200 μ F \pm 20% 25V 105°C RADIAL LEAD	CP1355	2	CR1, 2, 6, 7, 14, 15, 17, 18, 19, 20, 21	DI,RECTIF SWCH 80V/15mA MELF OR LL-34 PKG. T/R CATHODE ON HOLE SIDE 2500 PCS/REEL (SMD) *(SANYO LFBO1-CT1), (ROHM RLS4148-TE11)	DI1132	11
C72, 104, 105, 46, 60	CAP. ALUM EL. 100 μ F \pm 20% 16V 85°C A/P RADIAL LEAD 6.3 X 7 T/R LS=2.0mm F=2.5mm	CP1411	5	CR12, 13	DI,ZENER 15V/200mW/ 5% CP OR SOT-23 PKG. T/R 1-PIN SIDE ON FEED HOLE SIDE (SMD) *(SANYO DZD15-TB), (KEC Z02W15-RTR)	DI1150	2
C6, 7, 21, 22, 100, 101, 18	CAP. ALUM EL. 2.20 μ F \pm 20% 50V 85°C A/P RADIAL LEAD 4 X 7 T/R LS= 1.5mm, F=2.5mm	CP1415	7	CR8	DI,ZENER 16V/200mW/ 5% CP or SOT-23 PKG. T/R 1-PIN SIDE ON FEED HOLE SIDE (SMD) *(SANYO DZD16-TB), (KEC Z02W16-RTR)	DI1167	1
C2-4, 8, 9, 16, 17, 30, 31, 37 43, 44, 47, 48, 51, 57, 58, 61, 62, 65, 71, 73, 79, 80, 85, 86, 90, 91, 94,	CAP. CERAMIC 0.10 μ F \pm 20% 50V Z5U T/R 1206 PKG.	CP1426	29	Integrated Circuits			
C10, 13, 23, 26	CAP. POLY FIL 0.082 μ F \pm 5% 63V 85°C T/R RADIAL LEAD METALLIZED LS=5mm	CP1535	4	IC6, 7	HIGH PERFORMANCE OP - AMP PIN DIP PKG *(SGS LM318N), (T.I. LM318P)	IC1040	2
C12, 25	CAP. POLY FIL 0.015 μ F \pm 5% 63V 85° C T/R RADIAL LEAD METALLIZED LS=5mm	CP1534	2	IC1, 4, 5, 8	IC DUAL LOW-NOISE JFET - INPUT OP-AMP. 0° TO 70° C, SMD SO-8 OR DMP-8 PKG. TAPE & REEL PIN-1 SIDE ON FEED HOLE SIDE *(T.I. TL072CDR), (SGS TLO72CDT)	IC1041	4
C29, 32, 54, 68	CAP. POLY FIL 0.047 μ F \pm 5% 63V V 85° C T/R RADIAL LEAD	CP1539	4	IC3	IC QUAD LOW NOISE J - FET - INPUT OP-AMP, 0°C TO 70°C, SMD, SO-14 OR DMP-14 PKG. T/R PIN-1 SIDE ON FEED HOLE SIDE *(T.I. TL074CDR), (TL074CDT)	IC1162	1
C32, 29, 75	CAP. POLY FIL 0.10 μ F \pm 5% 63V 85° C T/R RADIAL LEAD METALLIZED LS=5mm	CP1495	3	IC2	IC HIGH PERFORMANCE DUAL LOW-NOISE OP-AMP SMD DMP-8 PKG T/R PIN-1 ON FEED HOLE SIDE *(JRC NJM5532M-TE3)	IC1175	1
C34, 35, C52, 53, 66, 67, 97, 98	CAP. CERAMIC 100.00 pF \pm 10% 50V X7R T/R 1206	CP1496	8	Resistors			
C36	CAP. CERAMIC 0.10 μ F \pm 20% 50V Z5U T/R 1206 PKG.	CP1426	1	VR1	RES.POT. 100.00 K Ω DUAL GANG DETENT AT CENTER-15K, A TAPER SHAFT LENGHT=8mm DIA.=3mm SLOT STYLE,BUSHING=6mm; WITHOUT TAP	RS1227	1
C41, 55, 45, 59, 56, 69	CAP. CERAMIC 33.00 pF \pm 5% 50V NPO T/R 1206	CP1475	6	R1, 19, 43, 45, 54, 58, 60, 82, 85, 117, 123, 130, 131, 137, 142, 143, 153	RES. F/CHIP 1.00 KW 5% 1/8W T/R 1206 PKG.	RS1700	17
C76, 99	CAP. CERAMIC 10.00 pF \pm 5%	CP1542	2	R2, 17, 32, 41, 46, 52, 71, 72, 80, 96, 97, 106, 109, 116, 121, 136, 138, 146, 150, 152	RES. F/CHIP 10.00 K Ω 5% 1/8W T/R 1206 PKG.	RS1701	20
C81, 82	CAP. ALUM EL 4700.00 μ F \pm 20% 50V 85°C RADIAL LEAD	CP1545	2	R42, 69, 70, 94, 95, R114, 135, 139	RES. F/CHIP 100.00 KW 5% 1/8W T/R 1206 PKG.	RS1702	8
C83, 84	CAP. ALUM EL. 1000.00 μ F \pm 20% 50V 105°C RADIAL LEAD 18x26mm. L.S.=7.5mm BULK IRIPPLE=2A	CP1546	2	R83	470 Ω 1/2W	RS1539	1
C88, C89	CAP. ALUM EL. 100.00 μ F \pm 20% 35 V 85°C RADIAL LEAD ON TAPE (AMMO PACK OR REEL) 5mm LEAD SPACING ON TAPE	CP1547	2				
C40, 42	CAP. CERAMIC 0.10 μ F \pm 20% 100V Z5U T/R 1210 PKG.	CP1552	2				
C49, 50, 63, 64	CAP. CERAMIC 56.00 pF \pm 5% 50V NPO T/R 1206 PKG	CP1557	4				

REFERENCE No.	DESCRIPTION	PART NO.	QNTY.	REFERENCE No.	DESCRIPTION	PART NO.	QNTY
R5, 22, 62, 63, 87, 88, 133, 134, 151	RES. F/CHIP 2.20 K Ω 5% 1/8W T/R 1206 PKG	RS1703	9	Transistors			
R3, 4, 7, 11, 20, 21, 28, 36, 40, 51, 79	RES. F/CHIP 22.00 K Ω 5% 1/8W T/R 1206 PKG	RS1704	10	Q33, 37, 38	PNP SIGN 40V/600mA TO-92 T/R GENERAL PURPOSE LS=5.0mm *(MOTOROLA MPS2907ARLRA), (NATIONAL PN2907ARA)	TR1010	4
R105, 108, 122, 132	RES. F/CHIP 4.70 K Ω 5% 1/8W T/R 1206 PKG	RS1705	4	Q13, 13A, 25, 25A	TRANSISTOR NPN, 100V, 25A, HFE MIN=10 (15A,4V), TO 218 POWER TRANSISTOR *(SGS TIP35C), (MOSPEC TIP35C)	TR1057	4
R30, 13, 44, 111, 113	RES. F/CHIP 47.00 K Ω 5% 1/8W T/R 1206 PKG.	RS1706	5	Q14, 14A, 26, 26A	TRANSISTOR PNP 100 V, 25A, HFE MIN=10 (15 A 4 V), TO-218 PKG. POWER TRANSISTOR *(SGS TIP36C), (MOSPEC TIP36C)	TR1061	4
R34, 35, 37, 38, 39	RES. F/CHIP 43.00 K Ω 5% 1/8W T/R 1206 PKG.	RS1712	5	Q10, 22, 32, 36, 39	NPN SIGN 40V/600mA TO-92 T/R 1W *(MOTOROLA MPS2222ARLRA), (NATIONAL PN2222ARA)	TR1063	5
R14, 31	RES. F/CHIP 56.00 K Ω 5% 1/8W T/R 1206 PKG.	RS1713	2	Q6, 18, 40 42, 43, 44, 16	NPN AF 30V/ 150mA CP OR SMT 200 \leq B \leq 400 T/R 2-PIN SIDE ON FEED HOLE SIDE (SMD) *(SANYO 2SC4639-6-TA) (ROHM 2SC2412K-T147Q/R)	TR1108	7
R61, 64, 86, 89, 124, 125	RES. F/CHIP 470.00 Ω 5% 1/8W T/R 1206 PKG.	RS1722	6	Q7, 19, 30, 41, 17	PNP AF 30V/150mA CP OR SOT-23 OR SMT 200 \leq B \leq 400 2PIN SIDE ON FEED HOLE SD(SMD) *(SANYO 2SA1781-6-TA) (PHILIPS BC858B)	TR1125	4
R47, 50, 81, 115, 118, 119,	RES. F/CHIP 15.00 K Ω 5% 1/8W T/R 1206 PKG	RS1725	6	Q1, 2, 15, 29, 45	NPN SWCH 50V/100mA 10K/— CP OR SMT T/R 2-PIN SIDE ON FEED HOLE SIDE (SMD) *(SANYO 2SC3859-TA) *(ROHM DTC114TK-T147)	TR1131	5
R12, 29	RES. F/CHIP 27.00 K Ω 5% 1/8W T/R 1206 PKG.	RS1726	2	Q34, 34A, 34B, 34C, 35, 35A, 35B, 35C	FET POWR 60V/35A/0.028 OHM TO-220 PKG *(I.R. IRFZ44), (MOTOROLA IRFZ44)	TR1157	8
R140, 145	RES. F/CHIP 270.00 K Ω 5% 1/8W T/R 1206 PKG.	RS1730	2	Q8, 20	PNP SIGN 150V/600mA/ 625mW TO-92 T/R *(MOTOROLA 2N5401RLRA), (NATIONAL 2N5401RA(TR))	TR1166	2
R18, 33	RES. F/CHIP 330.00 Ω 5% 1/8W T/R 1206 PKG.	RS1731	2	Q9, 21	NPN SIGN 160V/60mA/ 625mW TO-92 T/R *(MOTOROLA 2N5551RLRA) (NATIONAL 2N5551RA(TR))	TR1167	2
J1 - J18,	RES. F/CHIP 0.00 Ω 5% 1/8W 1206 T/R	RS1779	18	Q11, Q23	NPN POWR 100V/ 3A/ 40W TO-220 *(SGS TIP31C), (SAMSUNG TIP31C)	TR1183	2
R59, 84	RES. F/CHIP 18.00 K Ω 5% 1/8W T/R 1206	RS1806	2	Q12, 24	PNP POWR 100V/ 3A/ 40W TO-220 *(SGS TIP32C), (SAMSUNG TIP32C)	TR1184	2
R65, 68, 90, 93	RES. F/CHIP 160.00 Ω 5% 1/8W T/R 1206	RS1829	4	Q27, 28	NPN SIGN 120V/50A/ SMT 180 $\leq\beta\leq$ 390 T/R 2-PIN SIDE ON FEED HOLE SIDE (SMD) *(ROHM 2SC3906K-T147R)	TR1209	2
R15, 16	RES. F/CHIP 200.00 Ω 5% 1/8W T/R 1206	RS1830	2	Q31	SCR TO 92 PACKAGE T/R *(MOTOROLA MCR22-2 RLRA) (MOTOROLA MCR22-2) (TECC0R TCR22-2 T/R)	TY1000	1
R48, 49, R66, 91, 110, 112	RES. F/CHIP 7.50 K Ω 5% 1/8W T/R 1206	RS1831	6	Inductors			
R76, 76A, 77, 77A, 101, 101A, 102, 102A	RES. WIRE WO. 0.10 Ω 5% 5.0W RADIAL LS=5mm	RS1868	8	L1, L2	INDUCTOR AIR CORE 0.38uH ASSY	UA0087	2
R6, 27	RES.WIRE WO. 15.00 5% 5.0W WELDED CONSTRUCTION, RADIAL LS=0.200 BULK	RS1869	2	T1	POWER TRANSFORMER FOR GTS300	UA0088	1
R7, 8, 9, R10, 23, 24, 25, 26	RES. F/CHIP 51.00 K Ω 5% 1/8W T/R 1206	RS1872	8	L3	COMMON MODE INDUCTOR FOR	UA0089	1
R67, 92	RES. F/CHIP 4.30 K Ω 5% 1/8W T/R 1206	RS1877	2	CH1, CH2	COAXIAL CABLE ASSY. 11.375"	UA0102	1
R126, 126A, 126B, 126C, 127, 127A, 127B, 127C	RES. F/CHIP 47.00 Ω 5% 1/8W T/R 1206	RS1903	8	L4, L5	FERRITE BEAD ASSEMBLY	UA0160	2
R74, 74A, 75, 75A, R99, 99A, 100, R100A	RES. C/F 5.10 Ω 5% 1/4W T/R AXIAL OR AMMOPACK	RS1916	8				
R53, 55, 56, 57	RES. F/CHIP 2.20 M Ω 5% 1/8W T/R 1206 PKG	RS1968	4				
R149	RES. 1 M Ω	RS1761	1				
RN1, RN2	NETWORK	RS1900	2				
R103, 78	10 Ω 1206	RS1878	2				
R154	220 K Ω 1206	RS1891	1				
R73, 98	33 Ω 1/4W	RS1902	2				

Miscellaneous

	BOTTOM PLATE 13" LONG GTS300	BR1183	2
BAR1, BAR2	BUS BAR 6.66"	BR1241	2
BAR3	BUS BAR 4.72"	BR1242	1
FB7	FERRITE BEAD	CC1025	1
FB1, 1A, 1B, 1C 2, 2A, 2B, 2C, 3, 4, 5, 6, 8, 9	FERRITE BEAD	CC1028	14
FS1	FUSE HOLDER RIGHT ANGLE PC MOUNT (FOR AUTO FUSE)	FH1001	1
FS1	FUSE AUTO 40A/32V	FS1061	1
JK2	5569-N RIGHT ANGLE HEADER WITH MTG. PEGS. 94V-2, 4 CIRCUITS	CO1075	1
HD1, 2, 3, 4	PIN HEADER STRAIGHT 2-POSITION 0.100" SPACING	CO1258	4
JK1	CONNECTOR RCA JACK 4 POSITION PC MOUNT GOLD PLATED RED-TOP WHITE-BOTTOM, 34mm WIDTH	CO1274	1
RN1,RN2	CONNECTOR IC SOCKET 14-PIN	CO1277	2
LED1	CONNECTOR HEADER STRAIGHT 2-POSITION	CO1284	1
HD2,4	CONNECTOR JUMPER 0.1" 2-POS.	CO1285	2.
JW1-16, 18, 19, 61-71, 24-59	WIRE AWG22, SOLID ELECTROLYTIC,SOFT DRAWN AND ANNEALED TIN-PLATED COPPER.	WI1553	10.65 FT
JW17, JW69	WIRE #22 SOLID UL VW-1 BLACK PVC INSULATED, UL1007	WI1562	0.32 FT.
REMOTE	WIRE #18 7x26 UL1015 BLUE/WHITE THERMOPLASTIC INSULATION, TINNED, COPPER STRANDED 105°	WI1574	0.66 FT.
JW20, 21, 22, 23, 60	WIRE #16 SOLID INSULATED BLACK UL1007 300V 80 DEG C	WI1586	0.85 FT.
SPEAKERS L,R	WIRE #16 26x30, DUAL, CLEAR 300V °C , 1 COND. TINNED, 1 COND. BARE	WI1625	1.5 FT.
FB7	WIRE #14 SOLID BARE TINNED	WI1626	0.167 FT
POWER (+)	WIRE #8 19/21 WHITE, RED OR YELLOW, TEMP. RATING: +125 C	WI1634	0.48 FT.
POWER (-)	WIRE #8 19/21 BLACK TEMP. RATING: +125 C	WI1635	0.34 FT.
CHASSIS GND.	HARNESS GROUND	XX1198	2
SW4	NON SHORTING HORIZONTAL MICRO- SLIDE SWITCH, 2P2T, 3.5mm MTG. HEIGHT, 2.5mm TERMINAL LENGTH *(PANASONIC ESD11H220)	SW1011	1
SW1, 2, 3	NON SHORTING HORIZONTAL MICRO- SLIDE SWITCH, 2P3T, 3.5mm MTG. HEIGHT, 2.5mm TERMINAL LENGTH. *(PANASONIC ESD-11H230)	SW1013	3
TH1	NTC THERMISTOR 10K OHM @ 25°C RADIAL. *(FENWAL 142-103LAG-RB1), (BETATHERM 10.K3A2)	TH1006	1
LED1	LED HARNESS FOR GTS300,600 & GTH400	XX1212	1
	NYLON, SELF LOCKING CABLE TIE 3" LENGTH, 0.1" WIDTH, 0.625" DIA. NATURAL COLOR	MS1065	5
1	PCB MAIN FOR GTS300 83.85 SQ.IN. FR-4 1-SIDED 6.5" x 12.9"	PC1076	1

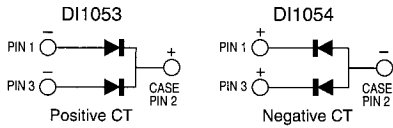
* Manufacturer and Manufacturer's Part Number

PWM MODULE (MA0007)

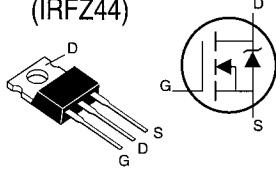
REFERENCE DESIGNATOR	DESCRIPTION	PART NUMBER	QNTY.
Capacitors			
C1	CAP. CERAMIC 2700.00 pF ±10% 100V X7R T/R 1206 PKG.	CP1434	1
C2, 3, 4	CAP. CERAMIC 0.10 µF ±20% 50V Z5U T/R 1206 PKG	CP1426	3
C19	CAP. ALUM EL. 22 µF ±20% 10V 85°C A/P RADIAL LEAD 5 X 11 T/R LS=2.0mm, F=2.5mm	CP1565	1
Integrated Circuits			
IC1	PWN CONTROL MODULE 16 PIN DIP	IC1002	1
Resistors			
R1	RES. F/CHIP 10.00 Ω 5% 1/8W T/R 1206	RS1878	1
R2	RES. F/CHIP 1.00 KΩ 5% 1/8W T/R 1206 PKG.	RS1700	1
R3	RES. F/CHIP 510.00 Ω 5% 1/8W T/R 1206 PKG.	RS1733	1
R4	RES. F/CHIP 6.80 KΩ 5% 1/8W T/R 1206 PKG.	RS1724	1
R5	RES. F/CHIP 100.00 KΩ 5% 1/8W T/R 1206 PKG.	RS1702	1
R6	RES. F/CHIP 4.70 KΩ 5% 1/8W T/R 1206 PKG.	RS1705	1
R7	RES. F/CHIP 12.00 KΩ 5% 1/8W 1206 T/R	RS1783	1
R8	RES. F/CHIP 2.20 KΩ 5% 1/8W T/R 1206 PKG.	RS1703	1
R9, 11	RES. F/CHIP 10.00 KΩ 5% 1/8W T/R 1206 PKG.	RS1701	2
R10	RES. F/CHIP 680.00 Ω 5% 1/8W T/R 1206 PKG.	RS1709	1
R12, 13	RES. F/CHIP 27.00 Ω 5% 1/8W T/R 1206	RS1826	2
R14	RES. F/CHIP 220.00 Ω 5% 1/8W T/R 1206 PKG.	RS1711	1
R15	RES. F/CHIP 4.30 KΩ 5% 1/8W T/R 1206	RS1877	1
J1	RES. F/CHIP 0 Ω 5% 1/8W 1206 T/R	RS1779	1
Transistors			
Q1	PNP SIGN 40V/600mA TO-92 T/R GENERAL PURPOSE LS=5.0mm	TR1010	1
Q2	NPN SIGN 40V/600mA TO-92 T/R 1W	TR1063	1
Miscellaneous			
P1	CONNECTOR SINGLE ROW HEADER RIGHT ANGLE 5-PIN 0.1" CENTERS TIN PLATED OR BETTER.	CO1249	1
P2, 3, 4	CONNECTOR SINGLE ROW HEADER RIGHT ANGLE 2-PIN 0.1" CENTERS TIN PLATED OR BETTER	CO1267	3
	BLANK PC BOARD FOR PWM MODULE 1.4576 SQ.IN. CEM-1 1-SIDED	PC1080	1
J3	WIRE #22 BARE SOLID TIN ELECTROLYTIC,SOFT DRAWN AND TIN-PLATED COPPER.	WI1553	0.042 FT

IC Voltage Diagrams

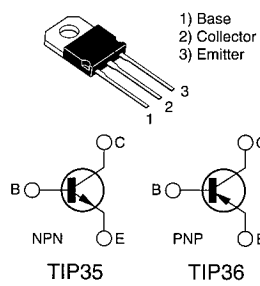
DI1053 (FEP16BT),
DI1054 (FEN16BT)



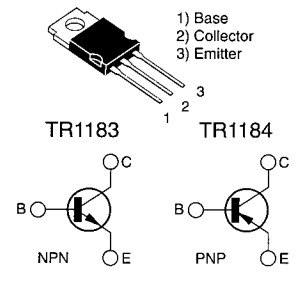
TR1131, TR1157
(IRFZ44)



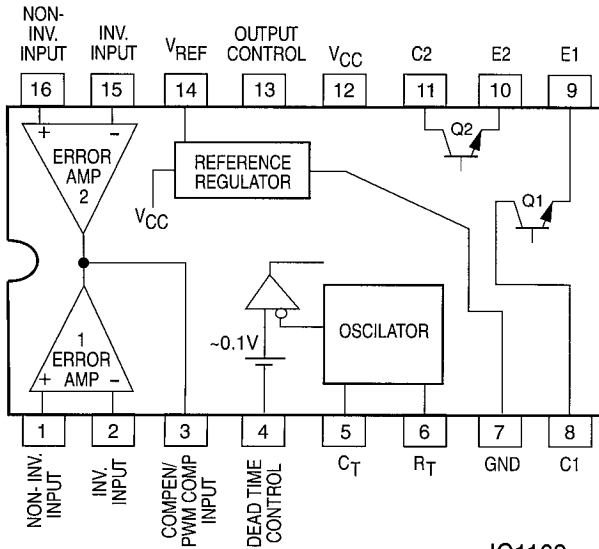
TR1057 & TR1061



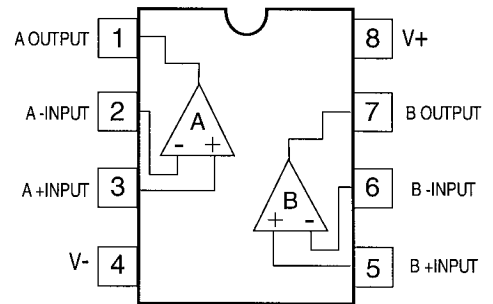
TR1183 & TR1184



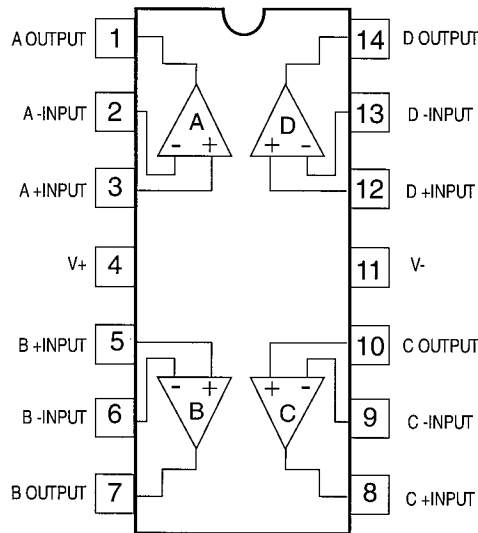
IC1002 (TL494)



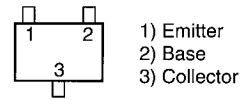
IC1041, IC1175



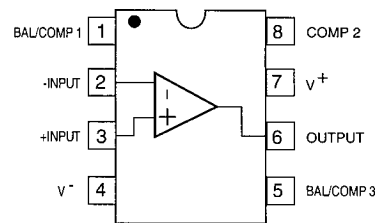
IC1162



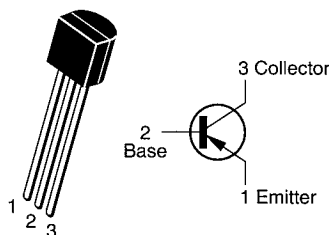
TR1157



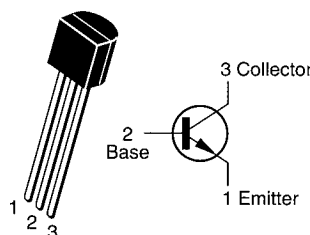
IC1040



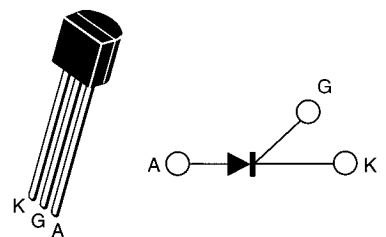
TR1010 (MPS2907),
TR1166 (2N5401)



TR1063 (MPS2222A),
TR1167 (2NS551)

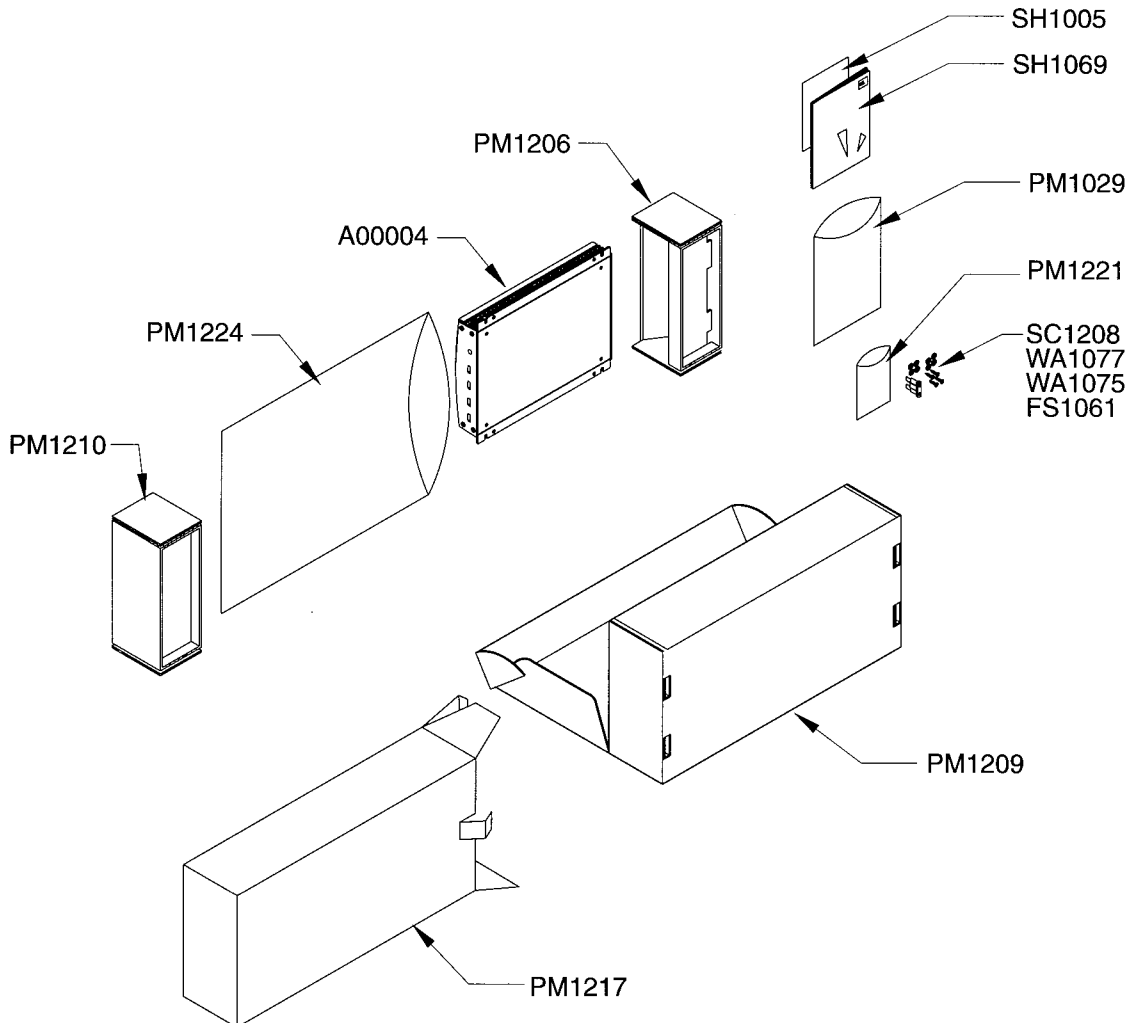


TY1000

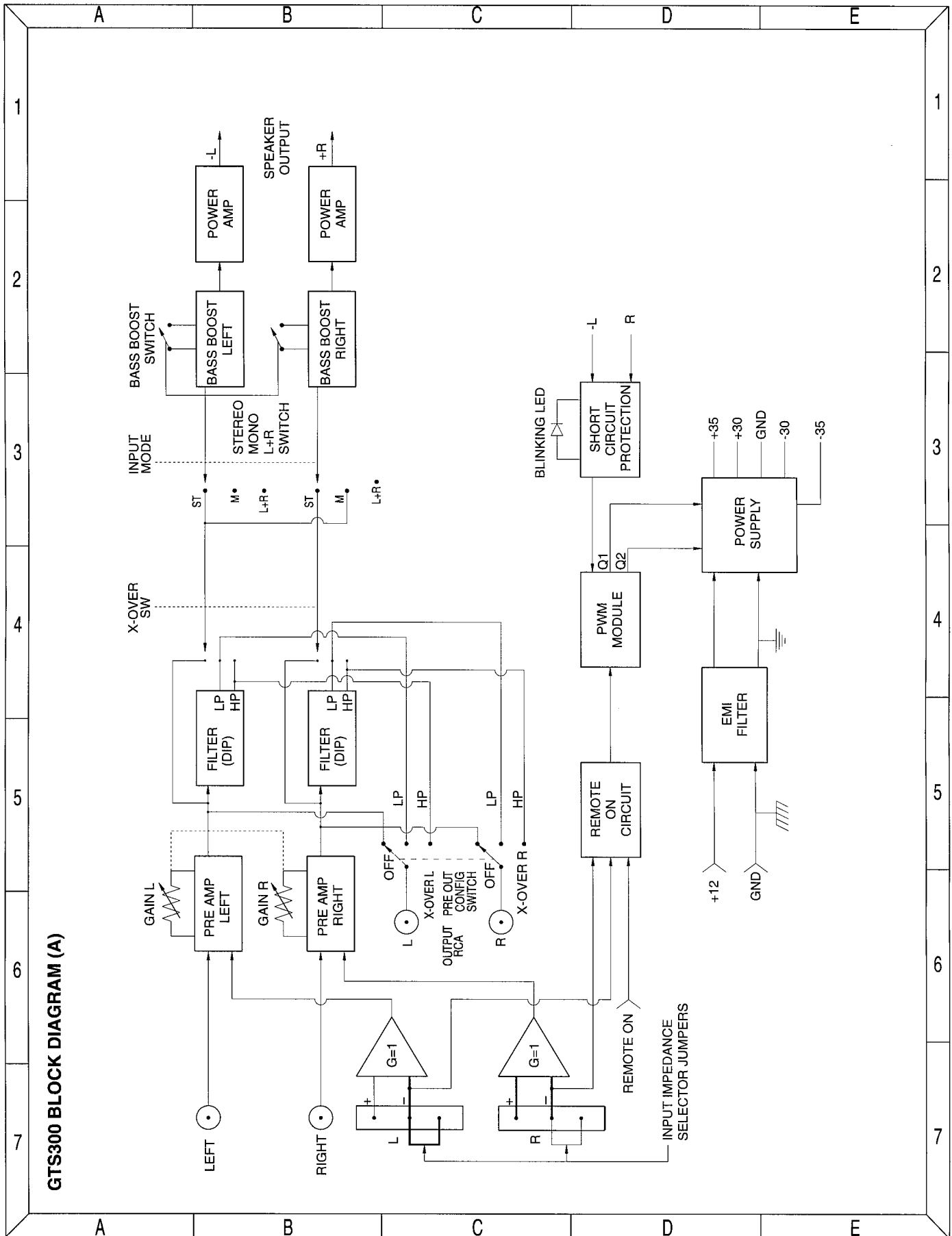


GTS300 Package Parts List

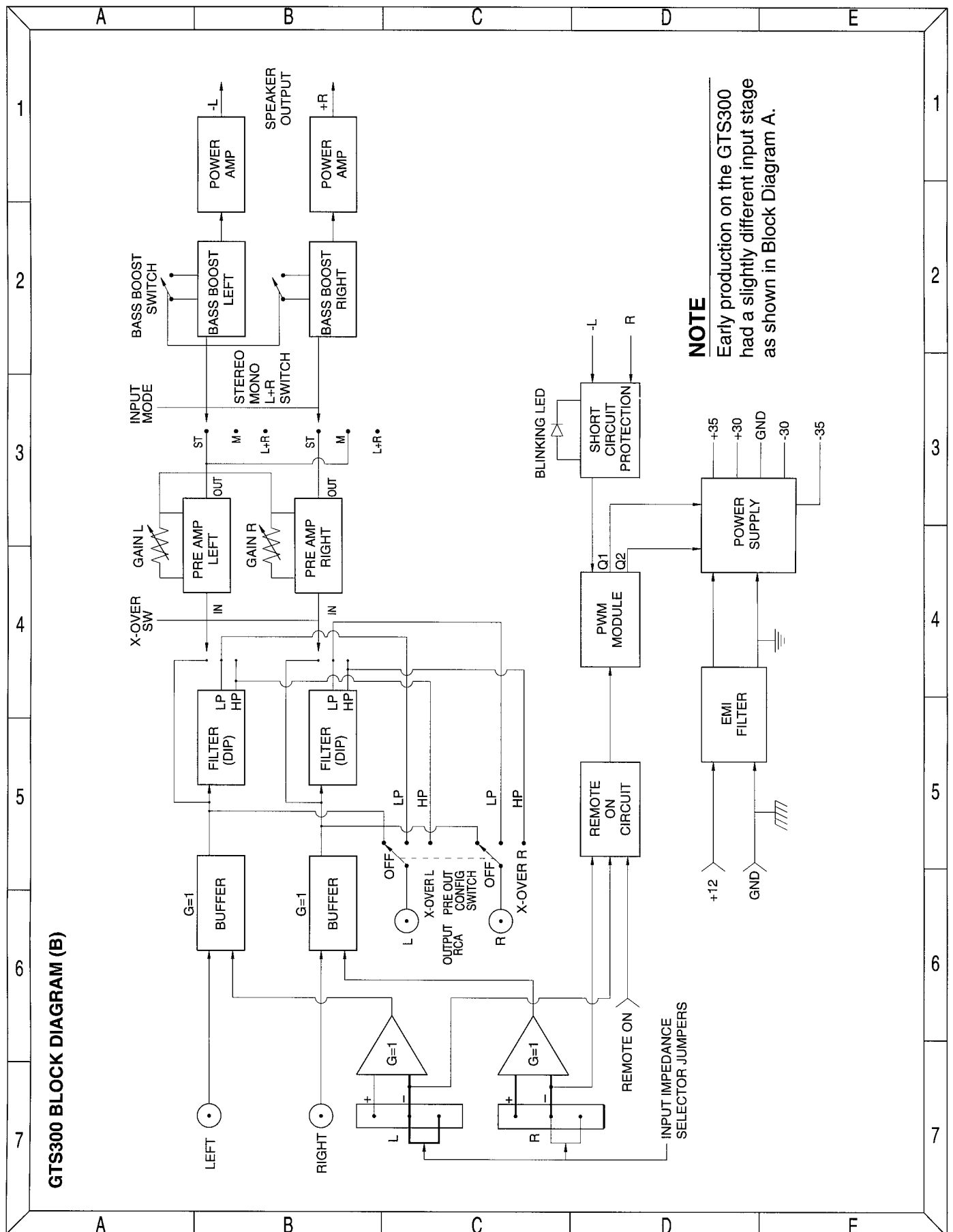
REF. No.	DESCRIPTION	PART NO.	QNTY.			
1	LEFT FILLER FOR JBL GTS300	PM1210	1	CE LABEL, 3/4 X 1/2" PAPER WITH ADHESIVE	LB1250	1
2	PLASTIC BAG 14" x 20"x 0.0015"	PM1224	1	3/4" ROUND, WHITE, PAPER BOND MATERIAL WITH ADHESIVE	LB1255	1
3	GTS300 UNIT	A00004	1	MASTER CARTON FOR GTS300	PM1227	0.25
4	RIGHT FILLER FOR JBL GTS100	PM1206	1	DECLARATION OF CONFORMITY GTS300	SH1078	1
5	WARRANTY SHEET/CONSUMER SURVEY CARD	SH1005	1	SC #8 x 7/8 THREAD FORMING MOUNTING SCREWS	SC1208	4
6	OWNER'S MANUAL FOR GTS300	SH1069	1	0.375 OD x 0.180 OD x 0.060 Tk PLAIN WASHER, NYLON 66, FLAME RETARDANT	WA1077	4
7	PLASTIC BAG 9"LX12"WX0.0015"T WITH RECYCLABLE LOGO, BAG FOR OWNERS MANUAL	PM1029	1	SPEAKER HARNESS 4-WIRE 2-ROWS	XX1195	1
8	PLASTIC BAG FOR ACCESSORIES 4"L X 4"W X 0.0015"T WITH RECYCLABLE LOGO	PM1221	2	1/16 SHORT ARM HEX KEY FOR #6 SET SCREW	XX1240	1
9	WASHER HELICAL SPRING LOCK #8 NICKEL FINISH	WA1075 WA1074 SC1186 FS1053	4	.050 SHORT ARM HEX KEY FOR #4 SET SCREW	XX1241	1
10	CARTON BOX FOR JBL GTS300 AND AMPLIFIER UNIT	PM1209	1	5/64 SHORT ARM HEX KEY FOR #8 SET SCREW	XX1242	1
11	BEAUTY BOX FOR JBL GTS300	PM1217	1			
	FUSE AUTO 40A/32V	FS1061	1			
	SERIAL NUMBER BAR CODE LABEL FOR GT SERIES AMPLIFIERS,	LB1223	3			
	LABEL MODEL NUMBER FOR GTS300	LB1224	1			



GTS300 Block Diagram A



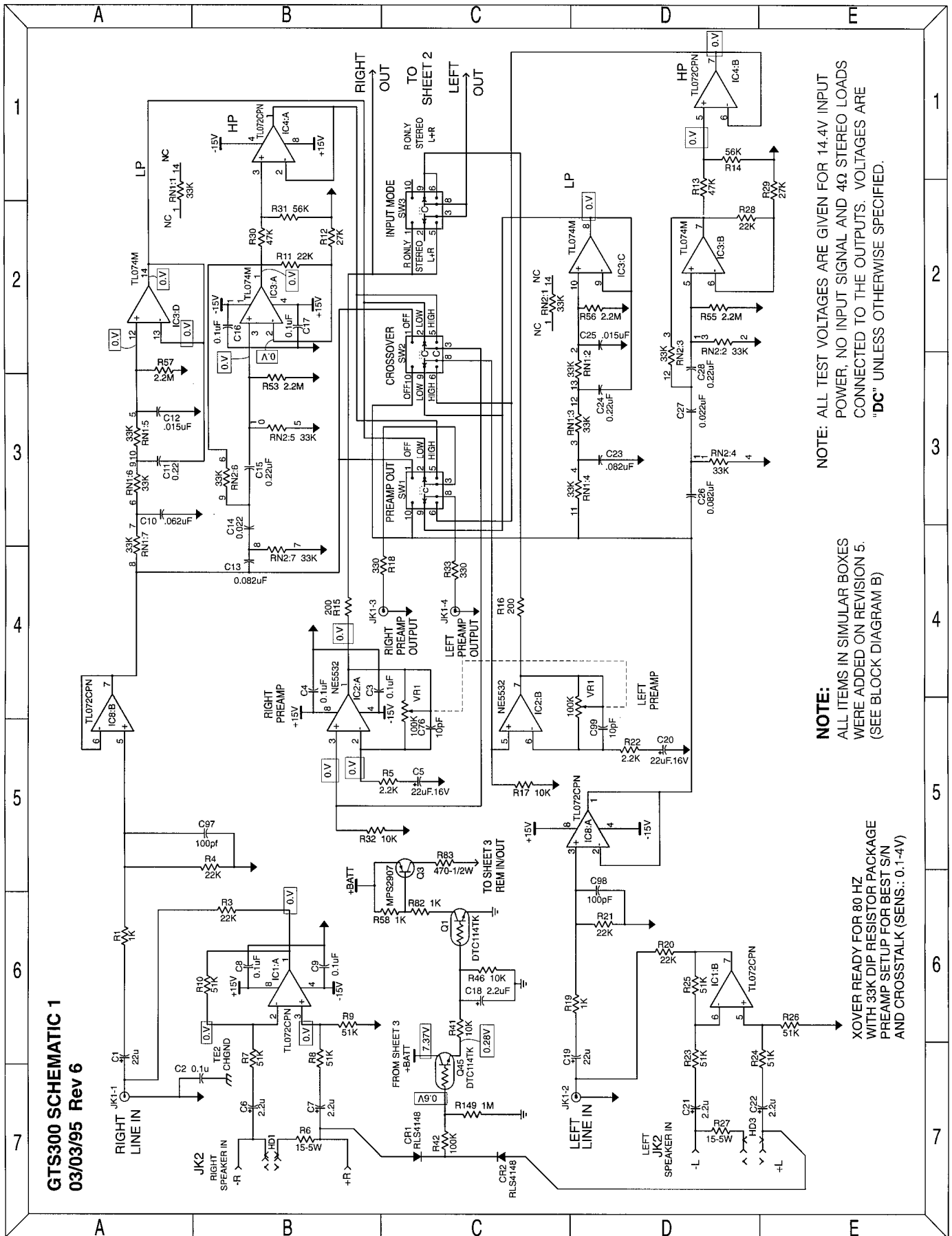
GTS300 Block Diagram B



NOTE

Early production on the GTS300 had a slightly different input stage as shown in Block Diagram A.

GTS300 Schematic Diagram 1



GTS300 SCHEMATIC 1
03/03/95 Rev 6

NOTE: ALL TEST VOLTAGES ARE GIVEN FOR 14.4V INPUT POWER, NO INPUT SIGNAL AND 4Ω STEREO LOADS CONNECTED TO THE OUTPUTS. VOLTAGES ARE "DC" UNLESS OTHERWISE SPECIFIED.

NOTE: ALL ITEMS IN SIMILAR BOXES WERE ADDED ON REVISION 5. (SEE BLOCK DIAGRAM B)

OVER READY FOR 80 HZ WITH 33K DIP RESISTOR PACKAGE PREAMP SETUP FOR BEST S/N AND CROSSTALK (SENS.: 0.1-4V)

GTS300 Power Amplifier Schematic Diagram 2

