GTE SYLVANIA
INCORPORATED

BULLETIN: DQ3700

MODEL: DQ3700

FACTORY PREPARED

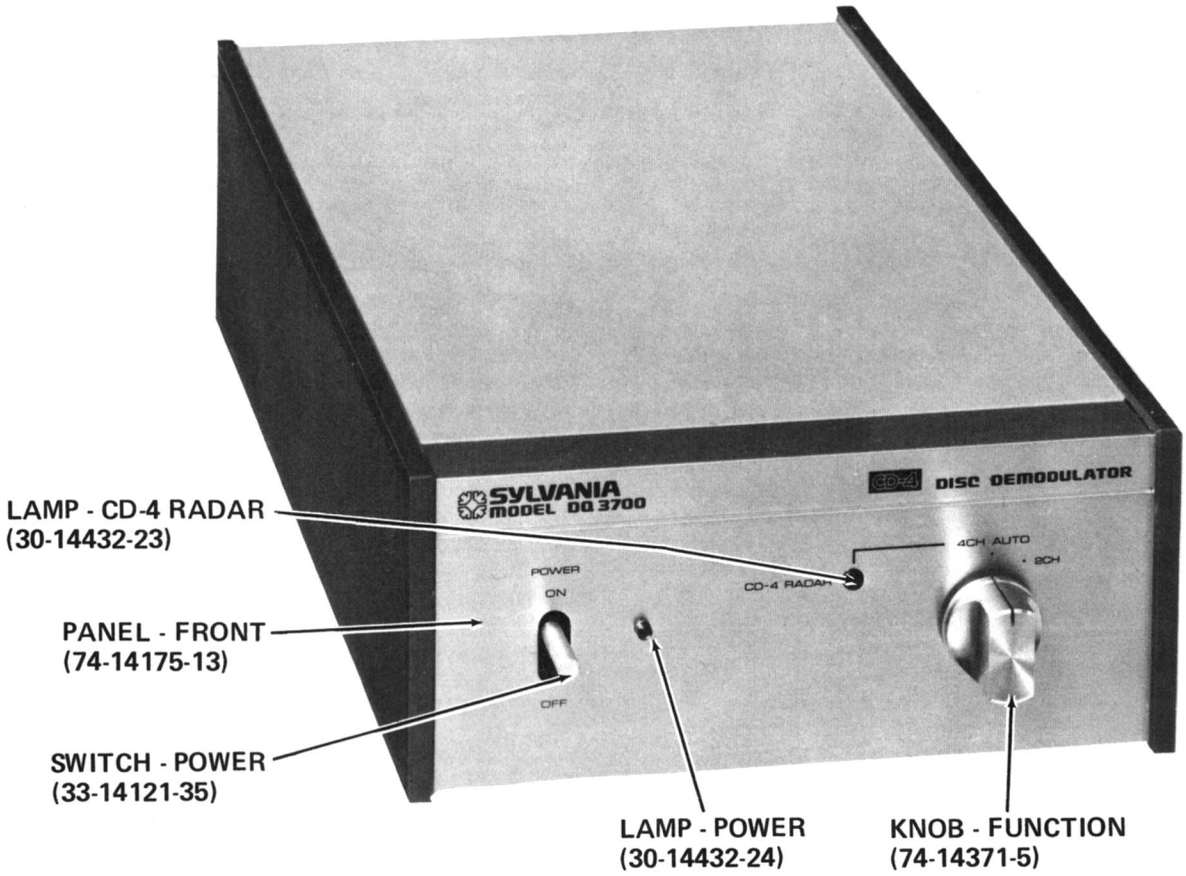
TECHNICAL SERVICE DATA

SERVICE PUBLICATIONS DEPARTMENT

Entertainment Products Group

700 Ellicott Street - Batavia, N.Y.

BULLETIN: DQ3700



MODEL: DQ3700

CHASSIS REMOVAL

1. Loosen 2 screws from the Top Cover.
2. Slide the Top Cover rearwards.
3. Loosen 2 screws and bracket from the side boards.
4. Loosen 2 screws from the Rear panel.
5. Loosen 2 screws from the Front panel.
6. Loosen 6 screws from the Bottom plate.
7. Loosen 4 screws from the Bottom plate.

ADJUSTMENTS

30kHz Level Adjustment

The 30kHz sub-channel carrier output differs between cartridges. Playing band 4 of the CD-4 demodulator adjustment record, turn the 30kHz level adjustment screw until no distortion is heard.

CD-4 Adjustment

1. Lower the volume of the front speakers so only the rear speakers can be heard.
2. Playing band 1 of the CD-4 adjustment record, adjust the "L" screw so the volume of the left rear output is as low as possible.
3. Playing band 2 of the CD-4 adjustment record, adjust the "R" screw so the volume of the right rear output is as low as possible.

Price: $.75

BULLETIN: DQ3700

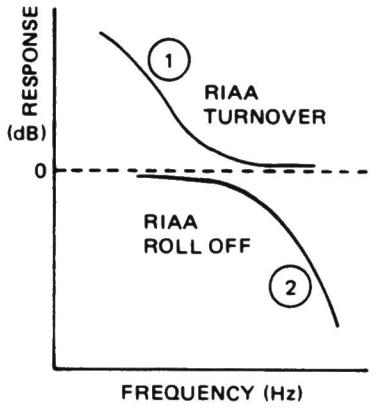


Figure 1

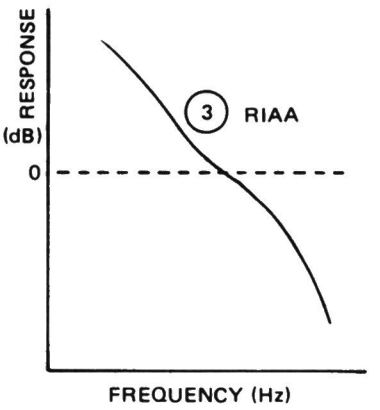


Figure 2

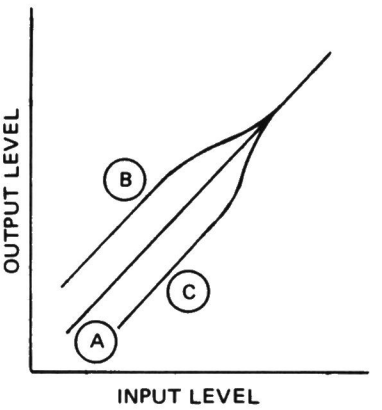


Figure 3

CIRCUIT DESCRIPTION

In the block diagram, the player output enters the equalizer (IC101 - 102). This equalizer has a characteristic shown by curve (1) of Figure 1, which is an RIAA standard turnover curve. On the other hand, the equalizer consisting of IC103 - 104 has an equalization curve corresponding to the RIAA roll-off characteristic, as shown by curve (2) of Figure 1. In conjunction these two equalizers give the complete RIAA equalization shown by curve (3) of Figure 2. Therefore, the sum signal mentioned in the previous section takes the complete RIAA curve transformation before entering the matrix circuit and the carrier signal goes to the demodulator circuit block transformed by the RIAA turnover curve. F101 (low-pass filter) cuts off the difference signal at 15kHz. The modulated signal is detected by PLL (IC201, 202).

The difference signal from the PLL is transmitted to the muting circuit (X205 - 206), which is adapted to be switched so that it is on line only when a CD-4 record is being played. This circuit is controlled by the muting circuit (X211 - 217). When any record other than a CD-4 record is played, this muting circuit is switched off.

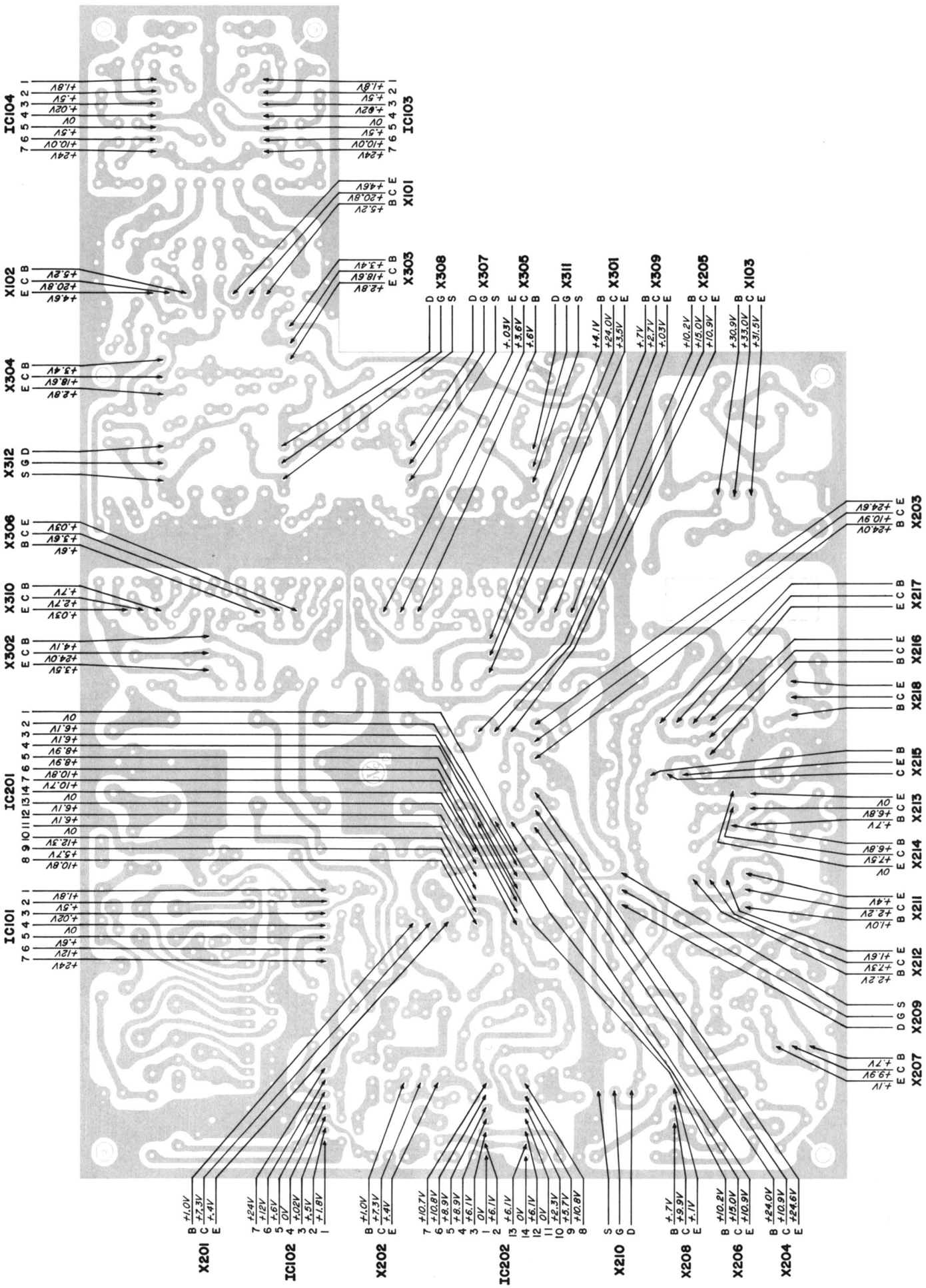
Then it passes through the low-pass filter F201 which removes the carrier component to give an audio signal (difference signal), which is then transmitted to the FM-PM compensation circuit (X301, 302). This circuit equalizes the difference signal which has been phase-modulated in the recording system for the purpose of improving the S/N ratio.

The expander which the signal then enters must be explained together with the compressor in the recording system. While ordinary amplifiers have linear input and output characteristic shown by curve (A) of Figure 3, the CD-4 record has been recorded with a compressed characteristic shown by curve (B) of Figure 3. As apparent from this diagram, a signal whose input level is lower than a determined value is controlled so that an increased gain (recording level) is given to it. On the contrary, the expander functions to decrease the gain of a low level input, as understood from curve (C) of Figure 3. The signal passes through the compressor in the recording system and through the expander in the playback system, thereby ensuring a linear playback characteristic.

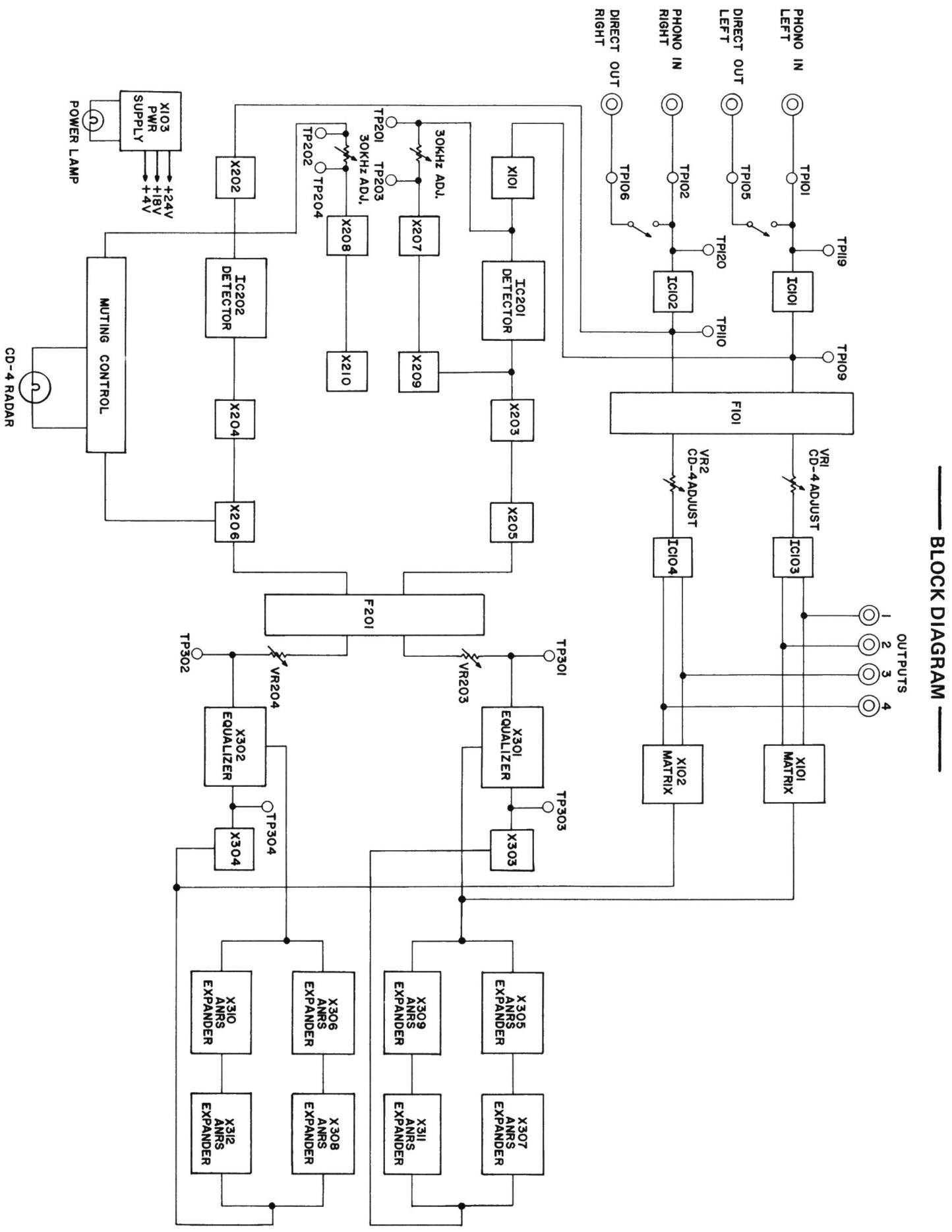
The greater part of noise heard from the CD-4 record does not come from the source, but originates in the material of the record. Therefore, it can be greatly reduced by cutting back the playback gain of low level signals. This ensures an improvement in S/N ratio.

The expander (X303, 304) is controlled by two control circuits, one (X305 - 308) covering the mid-range frequencies and the other (X309 - 312) handling the high frequencies.

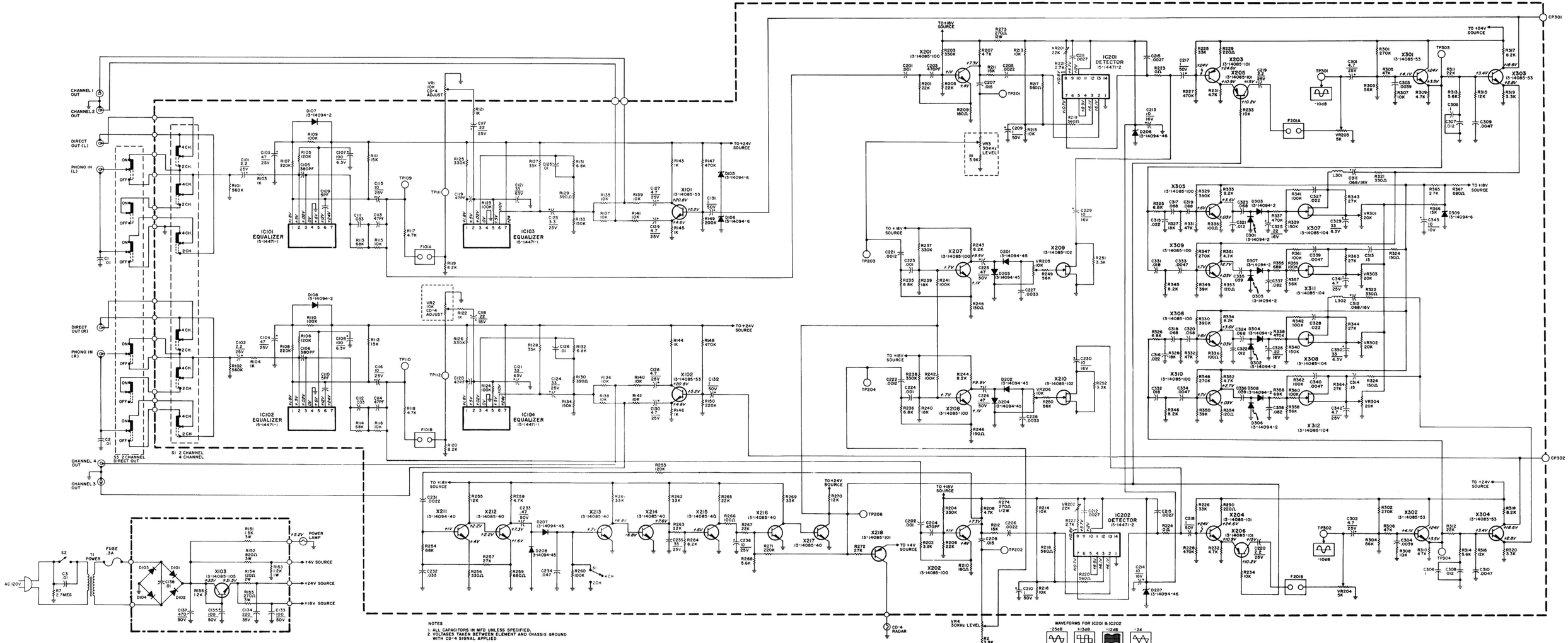
The difference signal from the expander is transmitted to the matrix circuit where it is added to or subtracted from the sum signal. The channel separation is controlled by adjusting the sum signal level by means of VR1 or VR2. While the sum signal level varies with the output of the cartridge or stylus, the difference signal level is determined by the degree of FM and PM modulation in the recording system. Therefore, the separation has only to be adjusted when the cartridge or stylus is replaced with a new one. This ensures that output of this demodulator remains constant even after the replacement of the cartridge or stylus.


BOTTOM FOIL
IC101
IC102
IC103
IC104
IC201
IC202
X101
X102
X103
X201
X202
X203
X204
X205
X206
X207
X208
X209
X210
X211
X212
X213
X214
X215
X216
X217
X218
X301
X302
X303
X304
X305
X306
X307
X308
X309
X310
X311
X312

BLOCK DIAGRAM

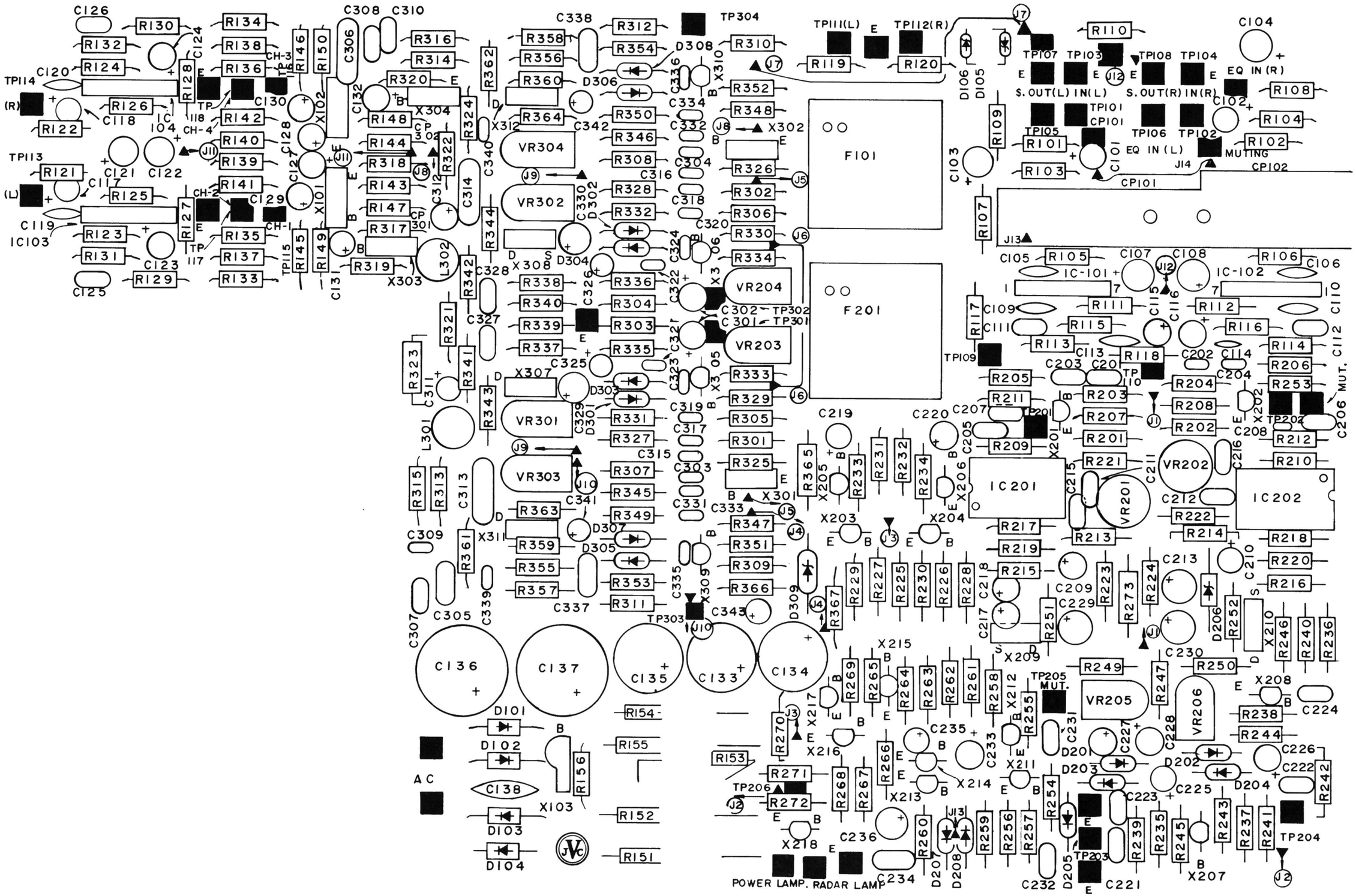


SCHEMATIC DIAGRAM



NOTES
1. ALL CAPACITORS IN MFD UNLESS SPECIFIED.
2. VOLTAGES TAKEN BETWEEN ELEMENT AND CHASSIS GROUND WITH CD-4 SIGNAL APPLIED.

TOP PARTS LAYOUT



REPLACEMENT PARTS LIST

SCHEMATIC CODING	SERVICE PART NO.	DESCRIPTION
CAPACITORS (All in MFD, unless otherwise specified)		
C1		.01
C2		.01
C3		.01
C101, C102	441-14135-77	2.2/25V Electrolytic
C103, C104	41-14135-67	47/25V Electrolytic
C105, C106		330PF
C107, C108	41-67050-10	100/6.3V Electrolytic
C109, C110		5PF
C111, C112		.033
C113, C114		47PF
C115, C116	41-14135-61	10/25V Electrolytic
C117, C118		.22/25V Electrolytic
C119, C120		47PF
C121, C122	41-14135-46	33/6.3V Electrolytic
C123, C124	41-14135-76	3.3/25V Electrolytic
C125, C126		.01
C127, C128	41-14135-56	4.7/25V Electrolytic
C129, C130	41-14135-56	4.7/25V Electrolytic
C131, C132	41-14135-62	1/50V Electrolytic
C133	41-14135-79	100/50V Electrolytic
C134	41-14135-38	220/35V Electrolytic
C135		100/50V Electrolytic
C137	41-14135-78	470/50V Electrolytic
C138		.01
C201, C202		.001
C203, C204		470PF
C205, C206		.0022
C207, C208		.015
C209, C210	41-14135-62	1/50V Electrolytic
C211, C212		.0027
C213	41-14135-32	10/16V Electrolytic
C215, C216		.0027
C217, C218	41-14135-62	1/50V Electrolytic
C219, C220	41-14135-77	2.2/25V Electrolytic
C221, C222		.0012
C223, C224		.001
C225, C226	41-14135-31	.47/50V Electrolytic
C227, C228		.0033
C229, C230		10/16V Electrolytic
C231		.0022
C232		.033
C233	41-14135-31	.47/50V Electrolytic
C234		.047
C235		33/25V Electrolytic
C236	41-14135-61	10/25V Electrolytic
C301, C302	41-14135-56	4.7/25V Electrolytic
C303, C304		.0039
C305, C306		.1
C307, C308		.012
C309, C310		.0047
C311, C312		.68/16V Electrolytic
C313, C314		.15
C315, C316		.022
C317, C318		.068
C319, C320		.068
C321, C322		.012
C323, C324		.068
C325, C326		.22/16V Electrolytic
C327, C328		.022
C329, C330	41-14135-46	33/6.3V Electrolytic
C331, C332		.018
C333, C334		.0047
C335, C336		.039
C337, C338		.082
C339, C340		.0047
C341, C342	41-14135-56	4.7/25V Electrolytic
C343	41-14135-25	10/10V Electrolytic
RESISTORS (All 1/4W, 10%, unless otherwise specified)		
R1, R2		3.9K
R101, R102		560K
R103, R104		1K

SCHEMATIC CODING	SERVICE PART NO.	DESCRIPTION
RESISTORS (Continued)		
R105, R106		120K
R107, R108		220K
R109, R110		100K
R111, R112		15K
R113, R114		68K
R115, R116		10K
R117, R118		4.7K
R119, R120		8.2K
R121, R122		1K
R123, R124		100K
R125, R126		330K
R127, R128		33K
R129, R130		390 ohm
R131, R132		6.8K
R133, R134		150K
R135, R136		10K
R137, R138		10K
R139, R140		10K
R141, R142		10K
R143, R144		1K
R145, R146		1K
R147, R148		470K
R149, R150		220K
R151	35-31035-16	1.5K - 3W
R152	35-30135-15	820 ohm - 3W
R153	35-31035-17	1.2K - 1W
R154	35-31035-13	120 ohm - 2W
R155	35-31035-14	270 ohm - 3W
R156		1.2K
R201, R202		3.9K
R203, R204		330K
R205, R206		22K
R207, R208		4.7K
R209, R210		180 ohm
R211, R212		15K
R213, R214		10K
R215, R216		10K
R217, R218		560 ohm
R219, R220		560 ohm
R221, R222		2.7K
R223, R224		0 ohm
R225, R226		33K
R227, R228		470K
R229, R230		220 ohm
R231, R232		4.7K
R233, R234		10K
R235, R236		6.8K
R237, R238		330K
R239, R240		18K
R241, R242		100K
R243, R244		8.2K
R245, R246		150 ohm
R249, R250		56K
R251, R252		3.3K
R254		68K
R255		12K
R256		330 ohm
R257		27K
R258		4.7K
R259		680 ohm
R260		100K
R261		33K
R262		33K
R263		22K
R264		8.2K
R265		22K
R266		100 ohm
R267		22K
R268		5.6K
R269		33K
R270		12K
R271		220K
R272		27K

REPLACEMENT PARTS LIST (CONTINUED)

SCHEMATIC CODING	SERVICE PART NO.	DESCRIPTION
RESISTORS (Continued)		
R273, R274		270 ohm - 1/2W
R301, R302		270K
R303, R304		50K
R305, R306		47K
R307, R308		10K
R309, R310		4.7K
R311, R312		22K
R313, R314		5.6K
R315, R316		12K
R317, R318		8.2K
R319, R320		3.3K
R321, R322		330K
R323, R324		150 ohm
R325, R326		6.8K
R327, R328		18K
R329, R330		390K
R331, R332		47K
R333, R334		8.2K
R335, R336		100 ohm
R337, R338		470K
R339, R340		150K
R341, R342		100K
R343, R344		27K
R345, R346		8.2K
R347, R348		270K
R349, R350		39K
R351, R352		4.7K
R353, R354		120 ohm
R355, R356		68K
R357, R358		56K
R359, R360		100K
R361, R362		100K
R363, R364		27K
R365		2.7K - 1/2W
R366		15K
R367		680 ohm - 1/2W
VR1, VR2	37-14120-49	10K - CD-4 Adjust
VR3, VR4	37-14120-50	50K - Volume
VR201, VR202	37-14120-51	2.2K
VR203, VR204	37-14120-53	5K
VR205, VR206	37-14120-52	10K
VR301, VR302		20K
VR303, VR304		20K
SEMI-CONDUCTORS		
IC101, IC102	15-14471-1	Integrated Circuit - Equalizer
IC103, IC104	15-14471-1	Integrated Circuit - Equalizer
IC201, IC202	15-14471-2	Integrated Circuit - Detector
X101, X102	13-14085-53	Transistor - Matrix
X103	13-14085-105	Transistor
X201, X202	13-14085-100	Transistor
X203, X204	13-14085-101	Transistor
X205, X206	13-14085-101	Transistor

SCHEMATIC CODING	SERVICE PART NO.	DESCRIPTION
SEMI-CONDUCTORS (Continued)		
X207, X208	13-14085-100	Transistor
X209, X210	13-14085-102	F.E.T.
X211	13-14085-40	Transistor
X212	13-14085-40	Transistor
X213	13-14085-40	Transistor
X214	13-14085-40	Transistor
X215	13-14085-40	Transistor
X216	13-14085-40	Transistor
X217	13-14085-40	Transistor
X218	13-14085-101	Transistor
X301, X302	13-14085-53	Transistor
X303, X304	13-14085-53	Transistor
X305, X306	13-14085-100	Transistor
X307, X308	13-14085-104	Transistor
X309, X310	13-14085-100	Transistor
X311, X312	13-14085-103	Transistor - F.E.T.
D101, D102	13-14094-47	Diode
D103, D104	13-14094-47	Diode
D105, D106	13-14094-46	Diode - Zener
D107, D108	13-14094-2	Diode
D201, D202	13-14094-45	Diode
D203, D204	13-14094-45	Diode
D206	13-14904-46	Diode - Zener
D207	13-14094-45	Diode
D208	13-14094-45	Diode
D301, D302	13-14094-2	Diode
D303, D304	13-14094-2	Diode
D305, D306	13-14904-2	Diode
D307, D308	13-14094-2	Diode
D309	13-14094-46	Diode - Zener
MISCELLANEOUS PARTS		
L301, L302	50-14117-65	Coil
	73-33071-40	Cord - AC
	73-31009-18	Cord - Patch (L, R)
	73-31009-19	Cord - Patch (CH1, CH3)
	73-31009-20	Cord - Patch (CH2, CH4)
	29-31029-5	Fuse
	02-14427-16	Fuse Board
	73-14228-11	Jack Plate
	74-14371-5	Knob - Function
	30-14432-23	Lamp - CD-4 Radar
	30-14432-24	Lamp - Power
	86-14431-45	Lamp - Rubber Bushing
	74-14175-13	Panel - Front
	74-14175-14	Panel - Rear
	11-14418-17	Record - Ajustment
	33-14121-35	Switch - Power
	33-14121-36	Switch - 2 CH. Direct Out
	33-14121-37	Switch - Slide/Rotary
	73-14101-31	Terminal - Ground
	55-14146-17	Transformer - Power

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