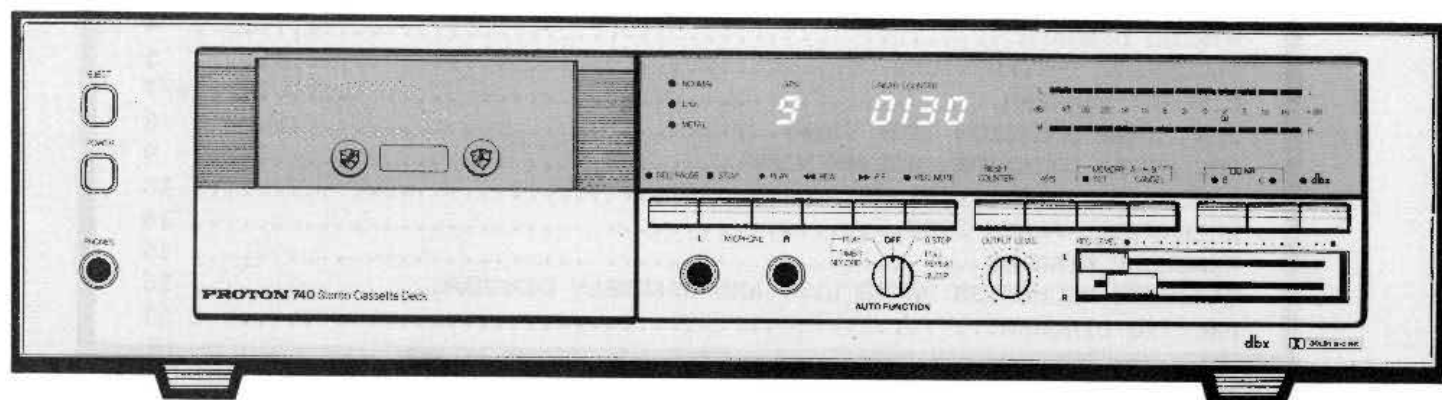


PROTON 740 SERVICE MANUAL

STEREO CASSETTE DECK



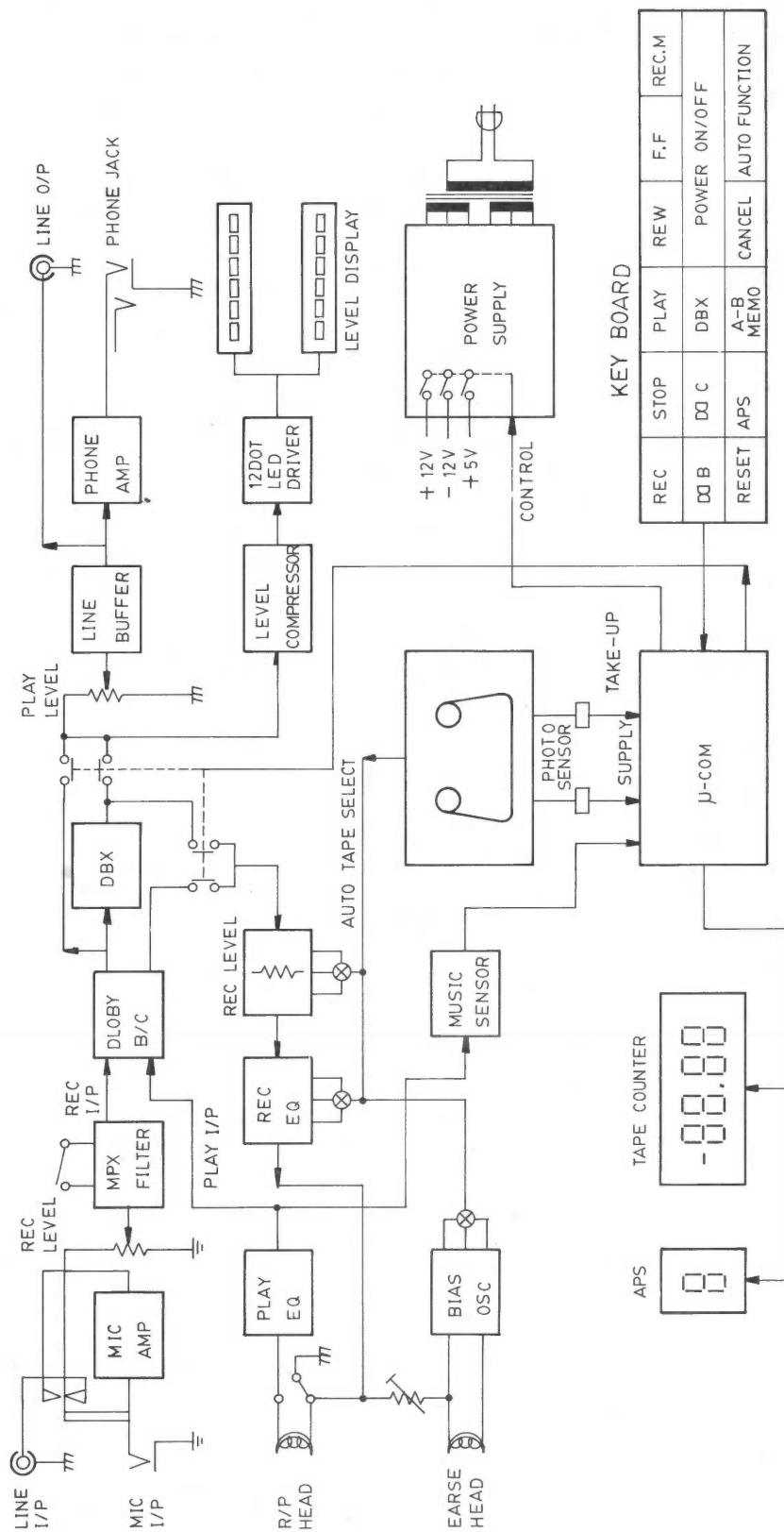
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SPECIFICATION

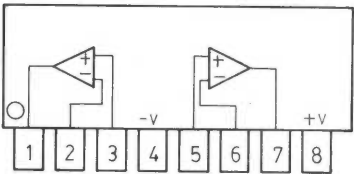
<u>ITEM</u>	<u>NOMINAL</u>	<u>LIMIT</u>	<u>UNIT</u>
<u>*Mechanism</u>			
W/F---JIS/WRMS	0.05	0.08	%
Tape Speed	4.76	±2%	CM/SEC
Auto Stop Time	2	5	Sec
<u>*Playback</u>			
Output Level	1000	±1dB	mV
Frequency Response	30-14K	±3dB	Hz
<u>*Record-Playback</u>			
Overall Output Level	1000	±1dB	mV
Distortion			
Normal	1.2	1.5	
Chrome	1.8	2.5	%
Metal	1.5	1.7	
Frequency Response			
Normal	30-17K	35-16K	
Chrome	30-17K	35-16K	Hz
Metal	30-18K	35-17K	
Crosstalk	40	38	dB
Erase Effect	65	60	dB
S/N Ratio			dB
Normal	NR OFF	50	48
	DOLBY B	58.5	56.5
	DOLBY C	69	65
	DBX	70	68
Chrome	NR OFF	53	52
	DOLBY B	62	60
	DOLBY C	71.5	68.5
	DBX	72	70
Metal	NR OFF	51.5	50
	DOLBY B	60	59
	DOLBY C	70	67
	DBX	72	70
<u>*Input Sensitivity</u>			
Microphone	0.4	0.5	mV
Line	90	100	mV

BLOCK DIAGRAM

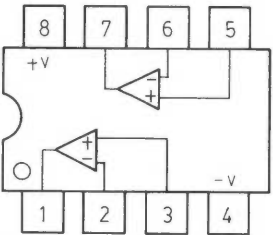


IC CONFIGURATION

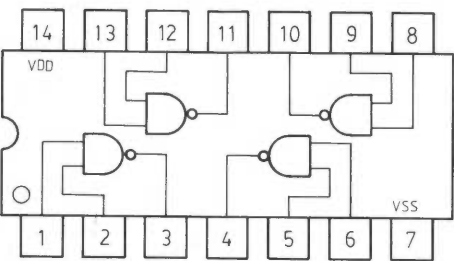
IC101 M5220L DUAL OP-AMP



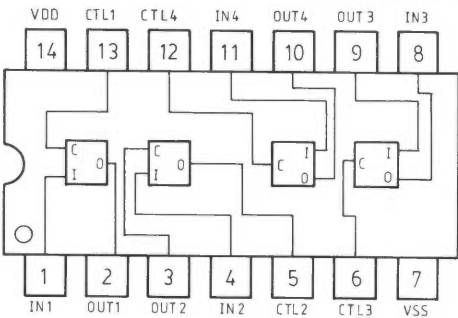
IC102/103/104/304 4558 DUAL OP-AMP



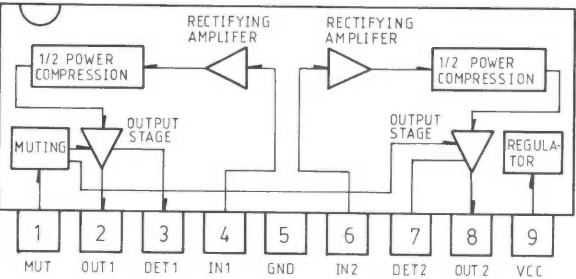
IC501 CD4011B QUAD NAND GATE



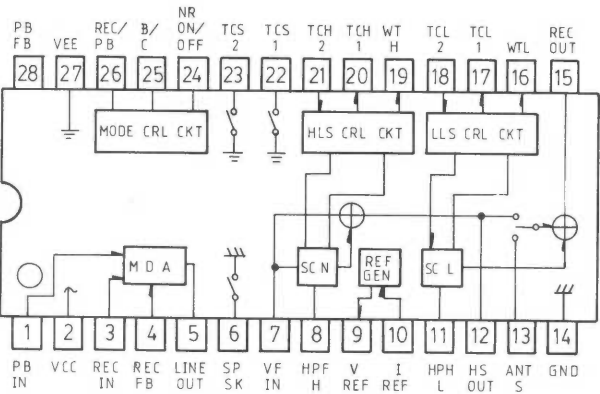
IC601/602 CD4066B QUAD ANALOG SWITCH



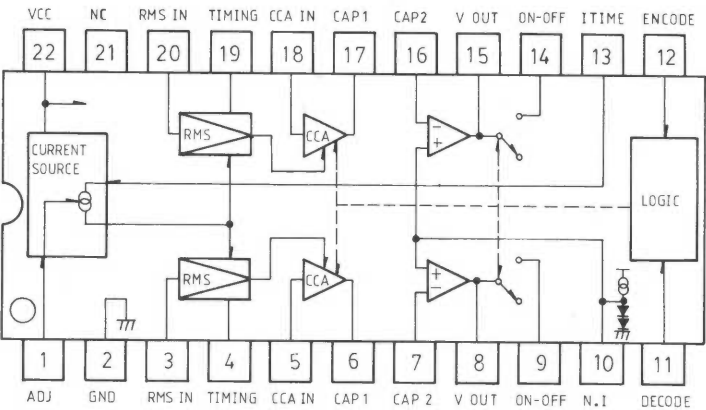
IC105 BA6138 LED EXPENDER



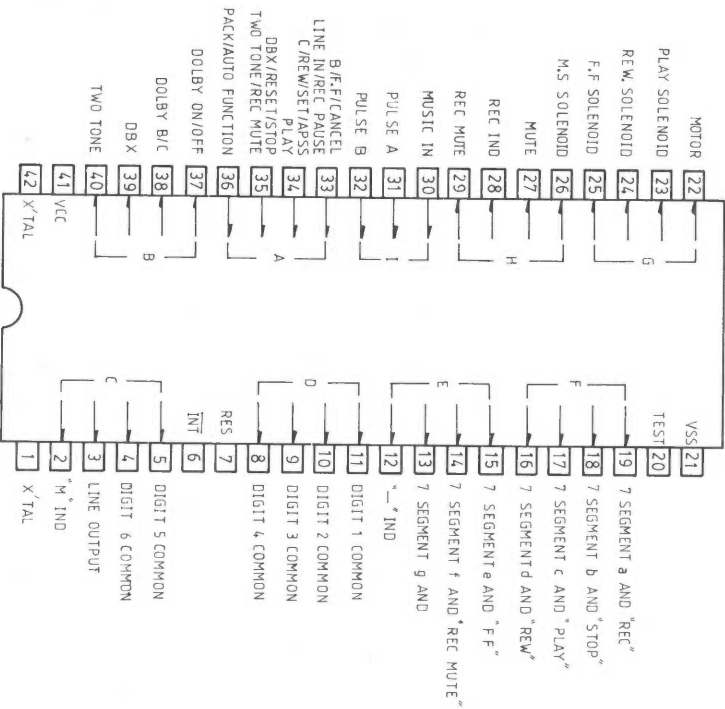
IC301/401 CX20027 DOLBY B-C NR SYSTEM



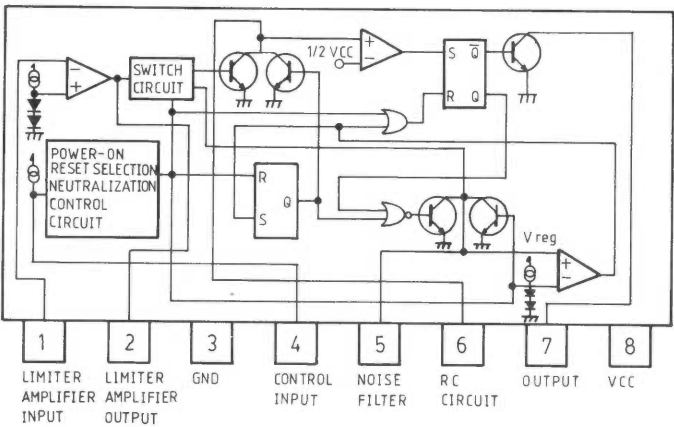
IC303 AN6291 dbx



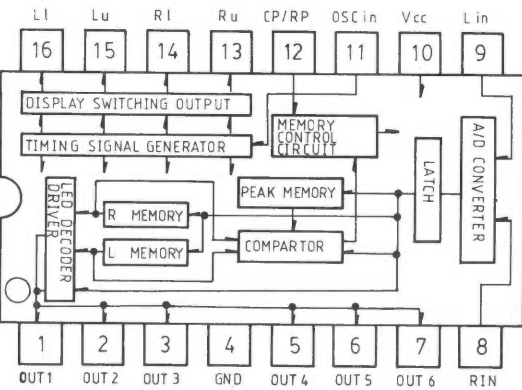
IC502 LM6402A μ -COM PIN ASSIGNMENT



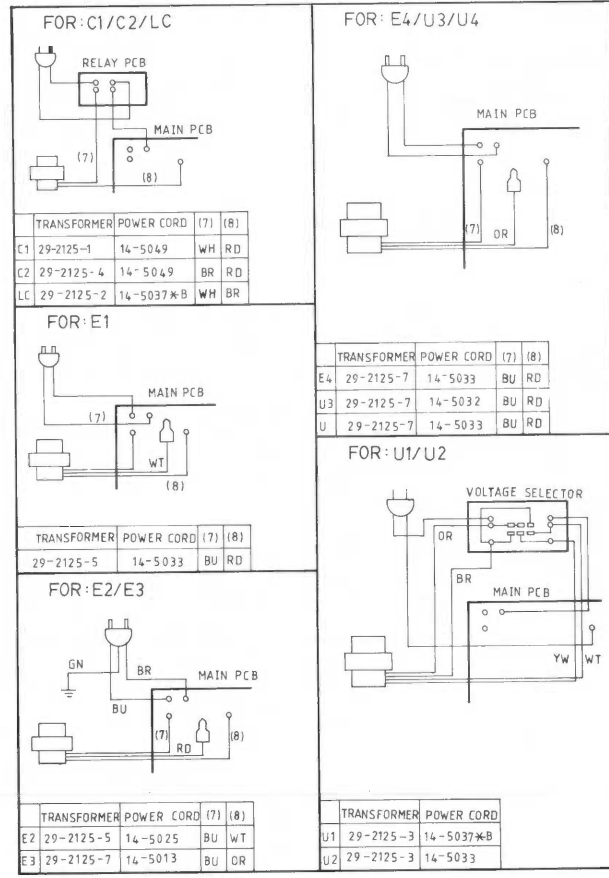
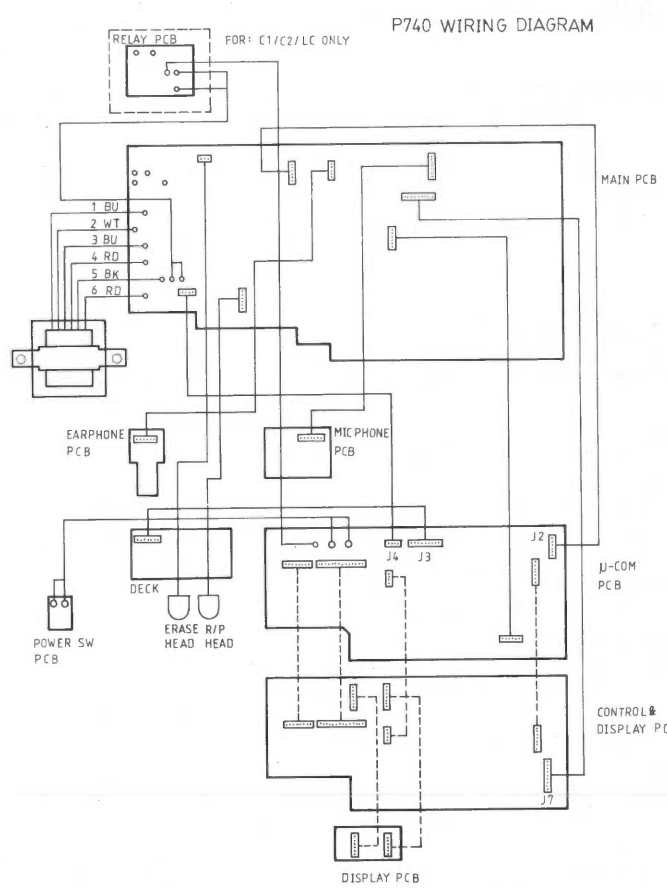
IC503 M51143 MUSIC SENSOR



IC504 IR2E-20 LED DRIVER

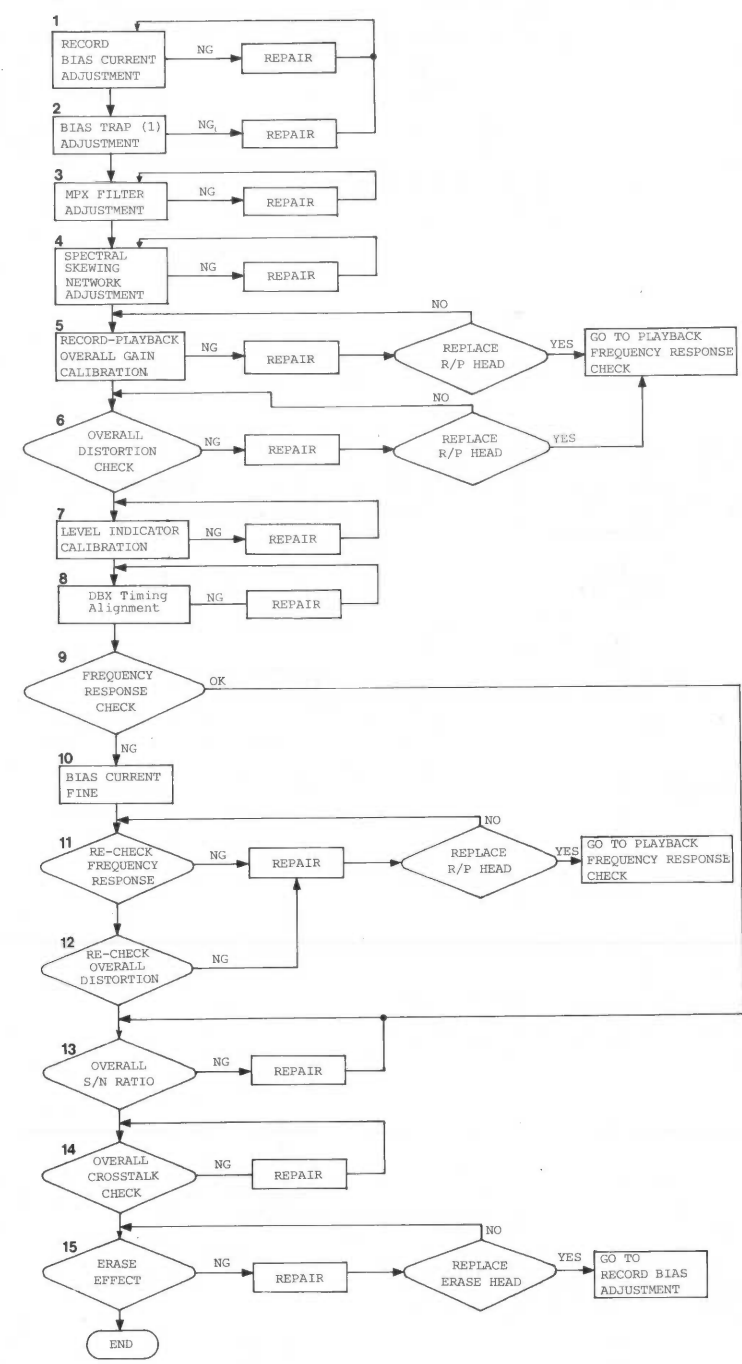


WIRING DIAGRAM

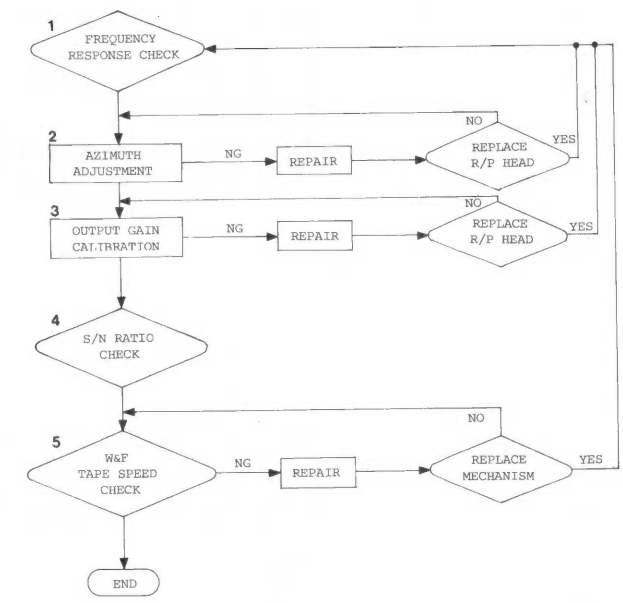


ALIGNMENT FLOW CHART

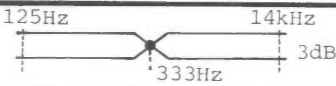
RECORD-PLAYBACK



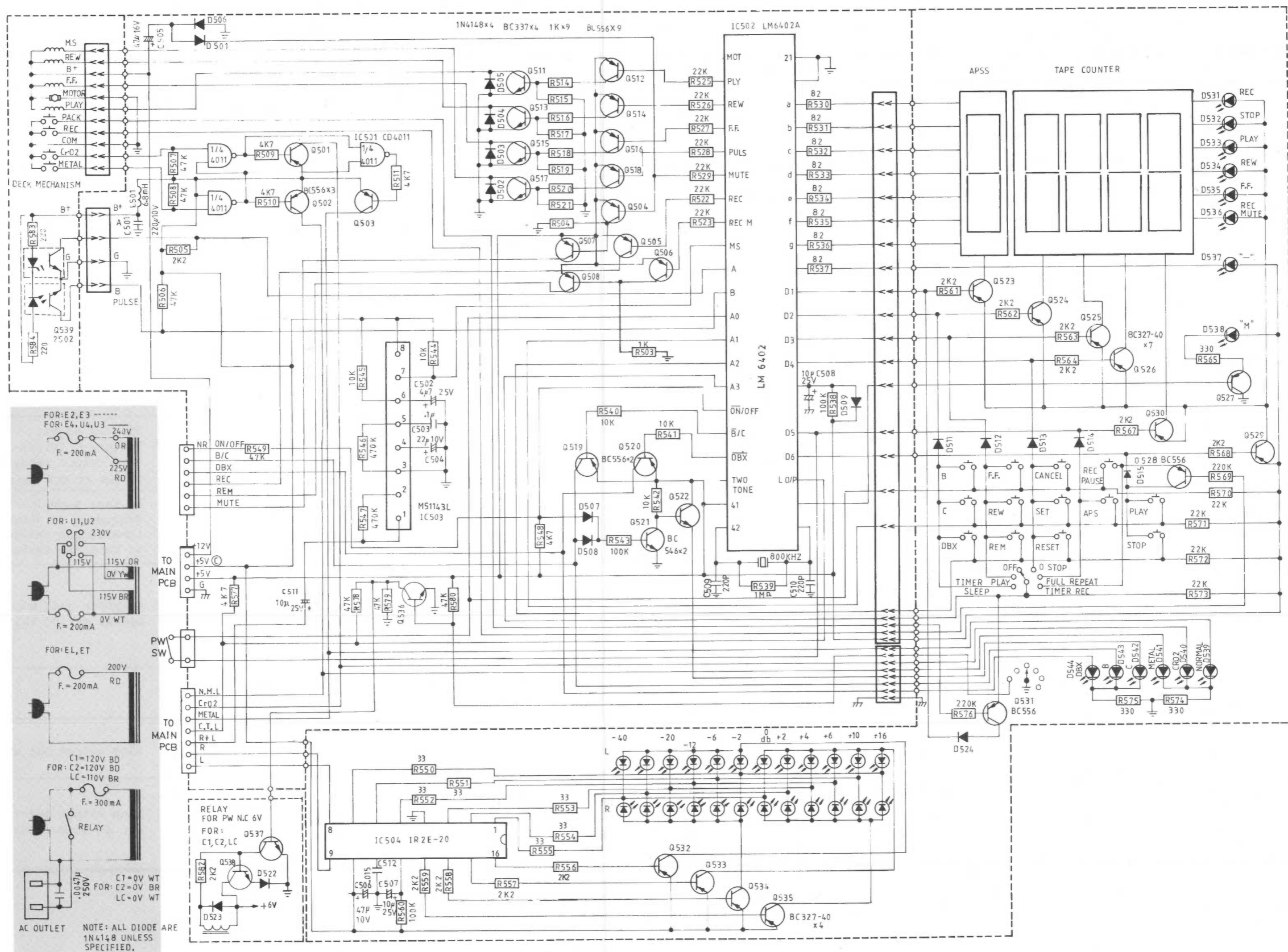
PLAY BACK



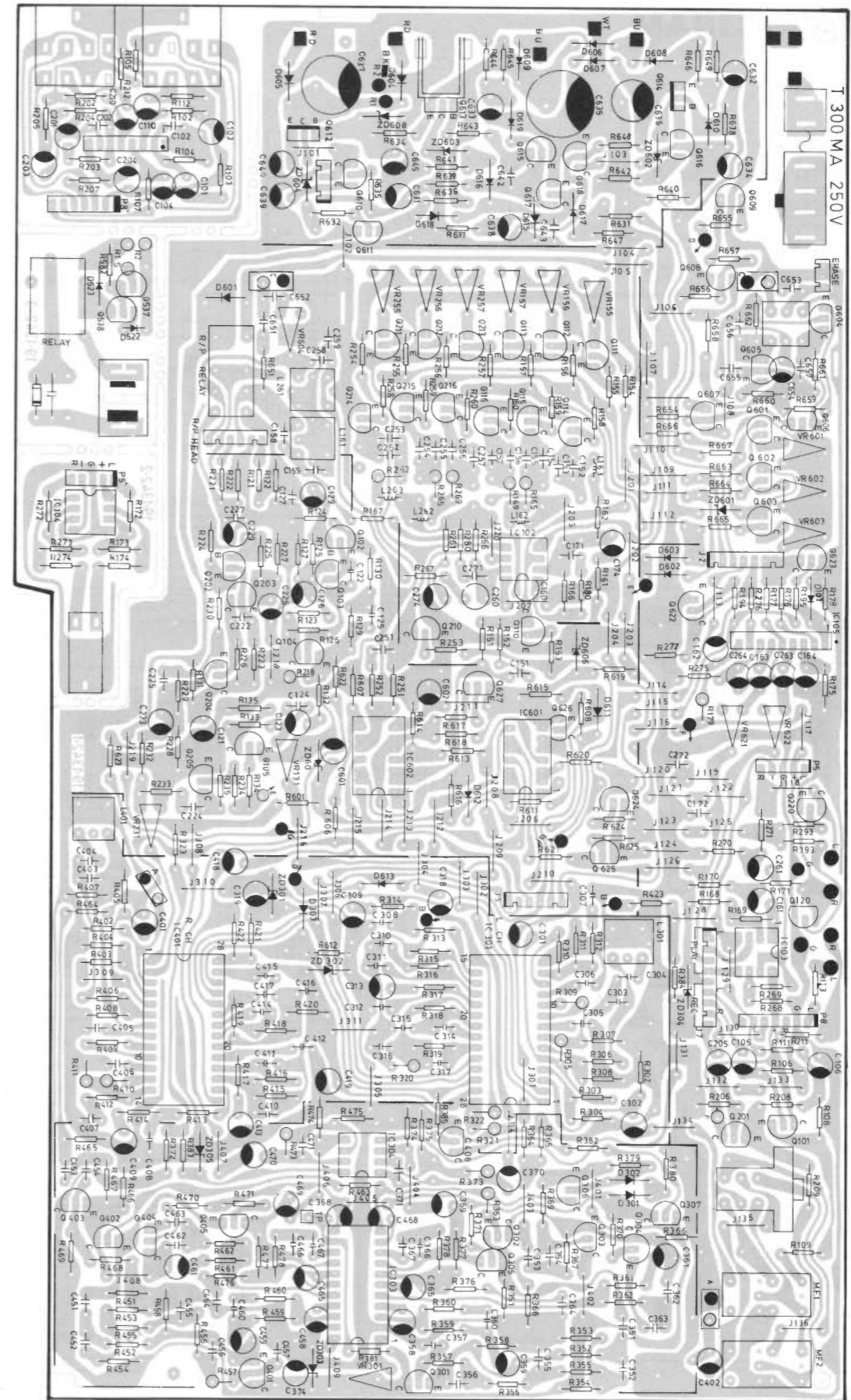
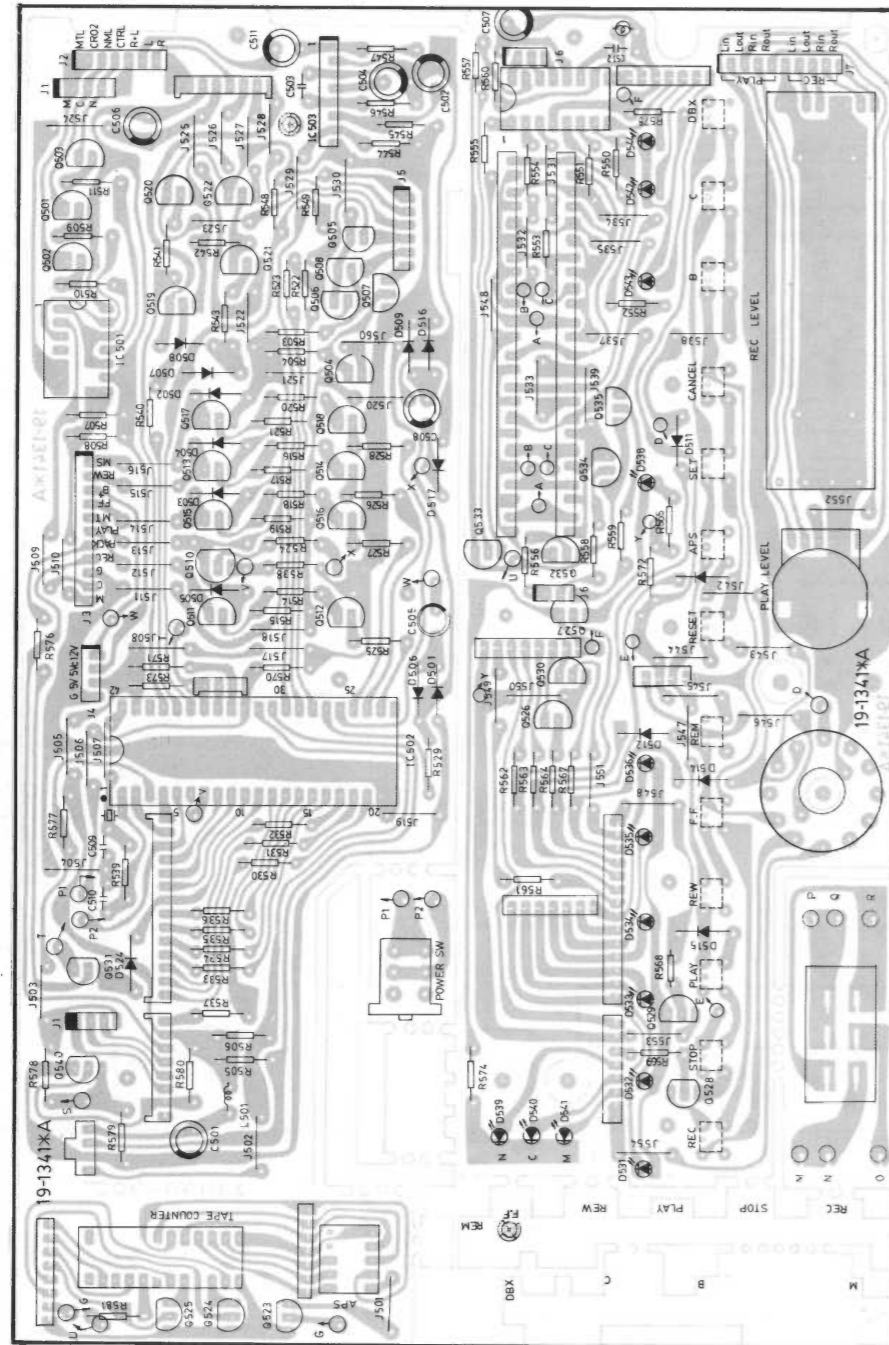
ALIGNMENT INSTRUCTIONS

ITEM	TEST POINT	TAPE	INSTRUMENT	CONTROL SETTING	ALIGNMENT PART	RATING	REMARK
Playback Frequency Response check	Line Out	MTT-256 MTT-356	1.Dual Channel VTVM 2.Headphone	NR OFF PLAY mode	—		Use head phone for signal frequency monitoring
Azimuth Alignment	Line Out	MTT-114			R/P Head Screw	Adjust for maximum output level	
Playback Gain Calibration	IC301,401 Pin7	MTT-150			LCH-VR131 RCH-VR231	Within 245 mV+-0.5dB	
W&F/Tape Speed Check	Line Out	MTT-110	JIS/W.RMS W&F meter		—	W&F<0.08% -1%<Speed<+1.5%	
Bias Current Alignment	Between R121-LCH R221-RCH	—	AC Voltage Meter With: 200kHz Bandwidth 0.01mV Effective Reading	REOCD mode	Balance VR604 Normal VR601 Chrome VR602 Metal VR603	Nomal 4mV Chrome 6mV Metal 8mV	
Bias Trap Alignment (I)	L-TP1,TP2 R-TP1,TP3				LCH-L161 RCH-L261	Adjust for minimum output level	
MPX Filter Alignment	Line Out			RECORD mode	LCH-MF1 RCH-MF2 (RED screw)	MPX switch OFF/ON Level ratio>35dB	SG test signal Frequency 19kHz+-10Hz Line output reference level 1000mV at MPX switch OFF
Spectral Skewing Network Alignment	IC301,401 Pin 7				LCH-L301 RCH-L401	Dolby C OFF/ON Level ratio: >12dB, but no more 12.5dB	SG test signal Frequency 19.9kHz+-10Hz Line output reference level 1000mV at DOLBY NR switch OFF
1.Overall gain Alignment 2.Overall Distortion Check	Line Out	Normal:Maxell UDCLI-S Chrome:Maxell UDCLI-S Metal:Maxell MX	1.Audio SG (Low Distortion) 2.Distortion Analyzer 3.VTVM	NR OFF	L R Normal VR155 VR255 Chrome VR156 VR256 Metal VR157 VR257	Gain adjust for 1000mV±0.5dB THD <1.5% for normal tpae <2.3% for Chrome tape <1.7% for Metal tape	Playback gain must be calibrated before making this alignment.
Level Indicator Calibration	IC301,401 Pin7	All Tapes are C-60 Type	1.Audio SG 2.VTVM	RECORD mode	LCH-VR621 RCH-VR622	+2dB LED set on at 245mV IC301,401 Pin7 Level	
DBX Timing Alignment	Between R381	Normal:Maxell UDCLI-S	1.Audio SG 2.DVM	Record Mode	VR301	15mVDC ±2%	Line output Set at 1000mV
Overall Frequency Response Check	Line Out		1.Audio Frequency Response Record with 20-30kHz Sweeper 2.VTVM	NR OFF MPX switch OFF Record level control set full colckwise	Normal VR601 Chroml VR602 Metal VR603	Normal 16kHz+-3dB Chrome 16kHz+-3dB Metal 17kHz+-3dB	Line output reference level Set at 55mV(-25dB)/333Hz

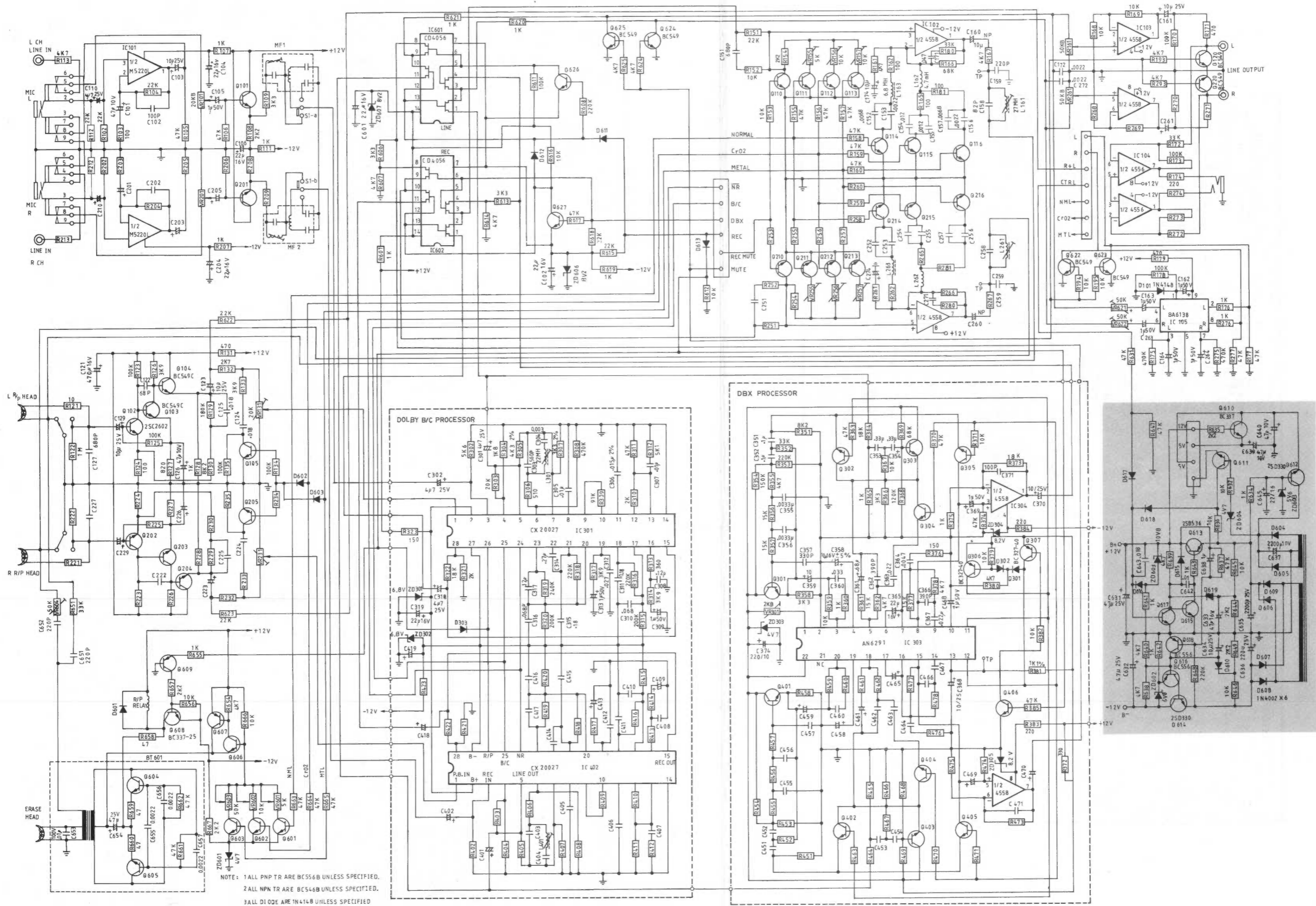
CIRCUIT DIAGRAM



PCB PARTS LOCATION (TOP VIEW)



CIRCUIT DIAGRAM



ELECTRICAL PARTS LIST

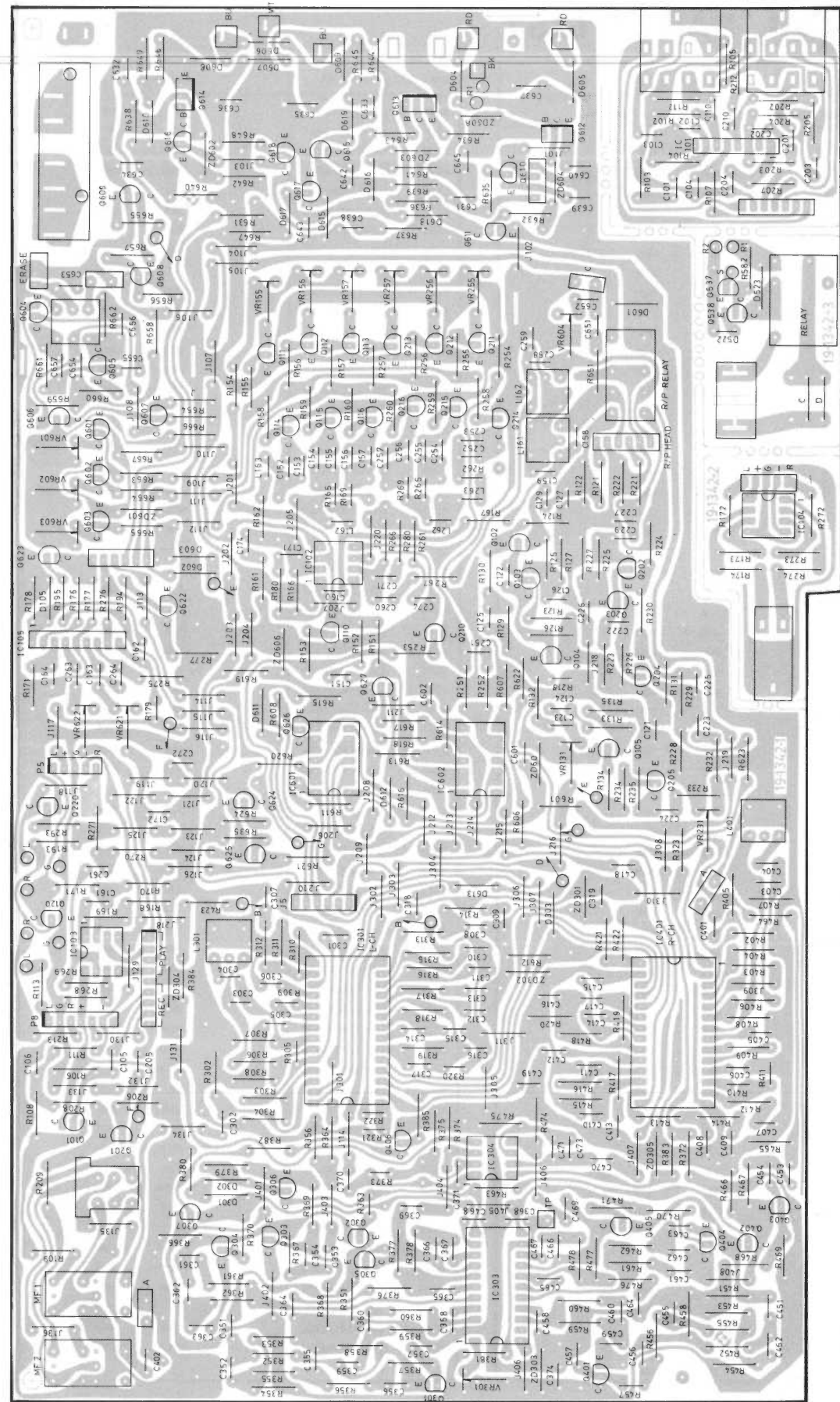
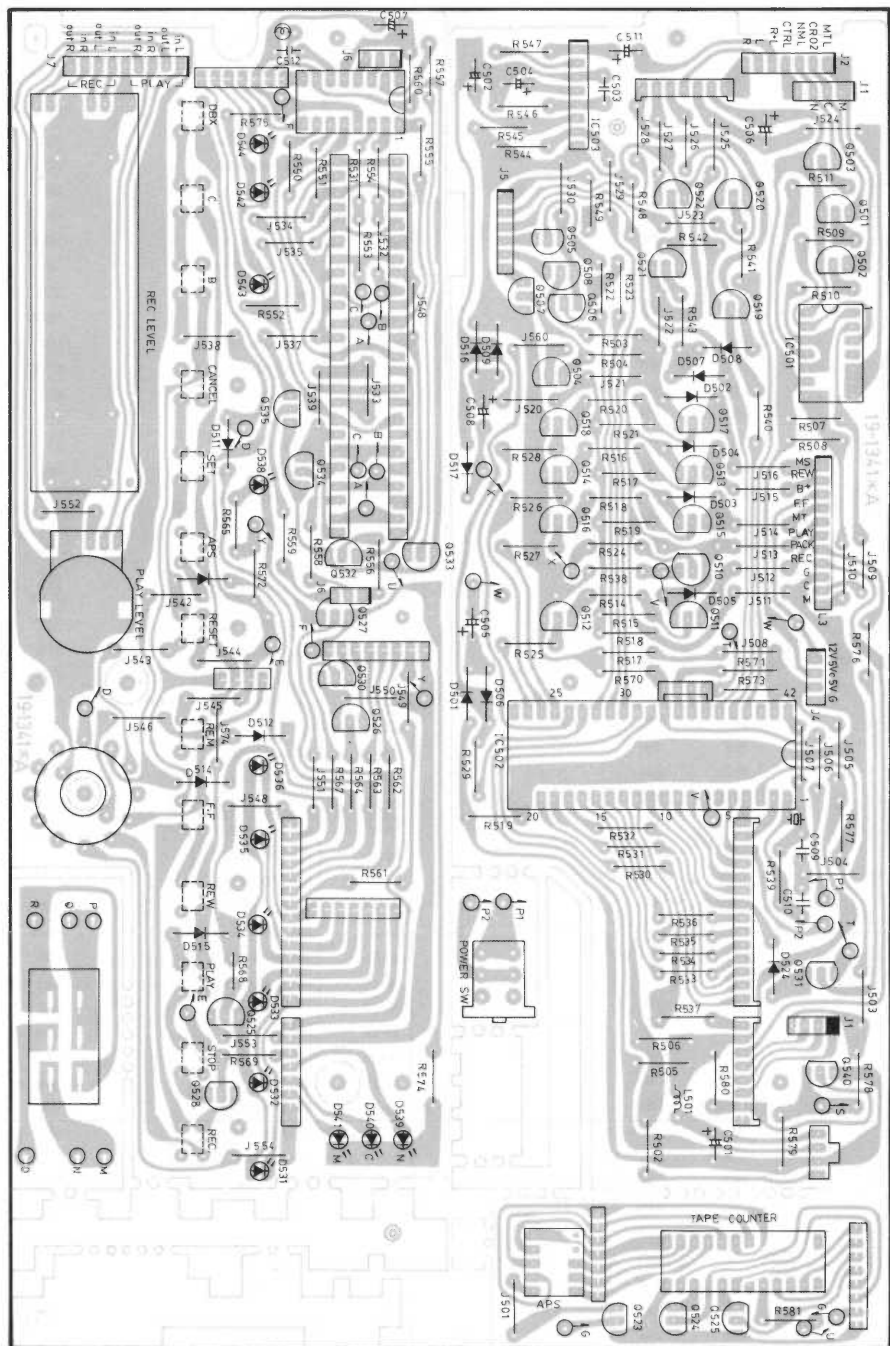
REF. NO.	PART NO.	DEXSCRIPTION	
RESISTORS (All are carbon film 1/4W ±5% unless noted otherwise)			
R102	16-1/4CA223J	22K	OHM
R103	16-1/4CA101J	100	OHM
R104	16-1/4CA223J	22K	OHM
R105-R106	16-1/4CA473J	47K	OHM
R107	16-1/4CA102J	1K	OHM
R108	16-1/4CA222J	2K2	OHM
R109	16-1/4CA332J	3K3	OHM
R111	16-1/4CA102J	1K	OHM
R112	16-1/4CA223J	22K	OHM
R113	16-1/4CA472J	4K7	OHM
R121	16-1/4CA100J	10	OHM
R122	16-1/4CA105J	1M	OHM
R123	16-1/4CA104J	100K	OHM
R124	16-1/4CA101J	100	OHM
R125	16-1/4CA104J	100K	OHM
R126	16-1/4CA392J	3K9	OHM
R127	16-1/4CA821J	820	OHM
R128	16-1/4CR102J	1K	OHM
R129	16-1/4CA184J	180K	OHM
R130	16-1/4CA822J	8K2	OHM
R131	16-1/4CA471J	470	OHM
R132	16-1/4CA272J	2K7	OHM
R133	16-1/4CA392J	3K9	OHM
R134-R135	16-1/4CA104J	100K	OHM
R151	16-1/4CA223J	22K	OHM
R152-R153	16-1/4CA103J	10K	OHM
R154	16-1/4CA222J	2K2	OHM
R155-R160	16-1/4CA473J	47K	OHM
R161	16-1/4CA472J	4K7	OHM
R162	16-1/4CA101J	100	OHM
R165	16-1/4CR101J	100	OHM
R166	16-1/4CA683J	68K	OHM
R167	16-1/4CA472J	4K7	OHM
R168	16-1/4CA103J	10K	OHM
R169	16-1/4CR103J	10K	OHM
R170	16-1/4CA104J	100K	OHM
R171	16-1/4CA471J	470	OHM
R172	16-1/4CA333J	33K	OHM
R173	16-1/4CA104J	100K	OHM
R174	16-1/4CA221J	220	OHM
R175	16-1/4CA474J	470	OHM
R176	16-1/4CA102J	1K	OHM
R177	16-1/4CA473J	47K	OHM
R178	16-1/4CA104J	100K	OHM
R179	16-1/4CR471J	470	OHM
R180	16-1/4CA333J	33K	OHM
R181	16-1/4CA101J	100	OHM
R193	16-1/4CA472J	4K7	OHM
R194-R195	16-1/4CA103J	10K	OHM
R202	16-1/4CA223J	22K	OHM
R203	16-1/4CA101J	100	OHM
R204	16-1/4CA223J	22K	OHM
R205-R206	16-1/4CA473J	47K	OHM
R207	16-1/4CA102J	1K	OHM
R208	16-1/4CA222J	2K2	OHM
R209	16-1/4CA332J	3K3	OHM
R212	16-1/4CA223J	22K	OHM
R213	16-1/4CA472J	4K7	OHM
R221	16-1/4CA100J	10	OHM
R222	16-1/4CA105J	1M	OHM
R223	16-1/4CA104J	100K	OHM
R224	16-1/4CA101J	100	OHM
R225	16-1/4CA104J	100K	OHM

REF. NO.	PART NO.	DESCRIPTION	
R226	16-1/4CA392J	3K9	OHM
R227	16-1/4CA821J	820	OHM
R228	16-1/4CA102J	1K	OHM
R229	16-1/4CA184J	180K	OHM
R230	16-1/4CA822J	8K2	OHM
R232	16-1/4CA272J	2K7	OHM
R233	16-1/4CA392J	3K9	OHM
R234-R235	16-1/4CA104J	100K	OHM
R251	16-1/4CA223J	22K	OHM
R252-R253	16-1/4CA103J	10K	OHM
R254	16-1/4CA222J	2K2	OHM
R255-R260	16-1/4CA473J	47K	OHM
R261	16-1/4CA472J	4K7	OHM
R262	16-1/4CR101J	100	OHM
R265	16-1/4CR101J	100	OHM
R266	16-1/4CA683J	68K	OHM
R267	16-1/4CA472J	4K7	OHM
R268	16-1/4CA103J	10K	OHM
R269	16-1/4CR103J	10K	OHM
R270	16-1/4CA104J	100K	OHM
R271	16-1/4CA471J	470	OHM
R272	16-1/4CA333J	33K	OHM
R273	16-1/4CA104J	100K	OHM
R274	16-1/4CA221J	220	OHM
R275	16-1/4CA474J	470K	OHM
R276	16-1/4CA102J	1K	OHM
R277	16-1/4CA473J	47K	OHM
R280	16-1/4CA333J	33K	OHM
R281	16-1/4CA101J	100	OHM
R293	16-1/4CA472J	4K7	OHM
R302	16-1/4CA562J	5K6	OHM
R303	16-1/4CA203J	20K	OHM
R304	16-1/4CA182J	1K8	OHM
R305	16-1/4MP4321F	4.32K	OHM ±1%
R306	16-1/4CA511J	510	OHM
R307	16-1/4MA3321F	3.32K	OHM ±1%
R308	16-1/4CA474J	470K	OHM
R309	16-1/4CR913J	91K	OHM
R310	16-1/4CA202J	2K	OHM
R311	16-1/4CA473J	47K	OHM
R312	16-1/4CA512J	5K1	OHM
R313	16-1/4CA361J	360	OHM
R314	16-1/4CA392J	3K9	OHM
R315	16-1/4CA204J	200K	OHM
R316	16-1/4CA224J	220K	OHM
R317	16-1/4CA392J	3K9	OHM
R318	16-1/4CA224J	220K	OHM
R319	16-1/4CA244J	240K	OHM
R320	16-1/4CR204J	200K	OHM
R321	16-1/4CR202J	2K	OHM
R322	16-1/4CR183J	18K	OHM
R323	16-1/4CA151J	150	OHM
R351	16-1/4CA822J	8K2	OHM
R352	16-1/4CA333J	33K	OHM
R353	16-1/4CA224J	220K	OHM
R354	16-1/4CA154J	150	OHM
R355	16-1/4CA472J	4K7	OHM
R356-R357	16-1/4CA153J	15	OHM
R358	16-1/4CA332J	3K3	OHM
R359	16-1/4CA103J	10K	OHM
R360	16-1/4CA102J	1K	OHM
R361	16-1/4CA153J	15K	OHM
R362	16-1/4CA472J	4K7	OHM

REF. NO.	PART NO.	DESCRIPTION	
R363	16-1/4CA473J	47K	OHM
R364	16-1/4CA183J	18K	OHM
R365	16-1/4CA102J	1K	OHM
R366	16-1/4CA332J	3K3	OHM
R367	16-1/4CA103J	10K	OHM
R368	16-1/4CA124J	120K	OHM
R369	16-1/4CA683J	68K	OHM
R370	16-1/4CA473J	47K	OHM
R371	16-1/4CA103J	10K	OHM
R372	16-1/4CA331J	330	OHM
R373	16-1/4CR183J	18K	OHM
R374	16-1/4CA473J	47K	OHM
R375	16-1/4CA102J	1K	OHM
R376	16-1/4CA151J	150	OHM
R377	16-1/4CA153J	15K	OHM
R378	16-1/4CA472J	4K7	OHM
R379	16-1/4CA103J	10K	OHM
R380	16-1/4CA472J	4K7	OHM
R381	16-1/4CA101J	100	OHM
R382	16-1/4CA103J	10K	OHM
R383	16-1/4CA221J	220	OHM
R384	16-1/4CA221J	220	OHM
R385	16-1/4CA473J	47K	OHM
R402	16-1/4CA562J	5K6	OHM
R403	16-1/4CA203J	20K	OHM
R404	16-1/4CA182J	1K8	OHM
R405	16-1/4MA4321F	4.32K	OHM ±1%
R406	16-1/4CA511J	510	OHM
R407	16-1/4MA3321F	3.32K	OHM ±1%
R408	16-1/4CA474J	470K	OHM
R409	16-1/4CA913J	91K	OHM
R410	16-1/4CR202J	2K	OHM
R411	16-1/4CA473J	47K	OHM
R412	16-1/4CA512J	5K1	OHM
R413	16-1/4CA361J	360	OHM
R414	16-1/4CA392J	3K9	OHM
R415	16-1/4CA204J	200K	OHM
R416	16-1/4CA224J	220K	OHM
R417	16-1/4CA392J	3K9	OHM
R418	16-1/4CA224J	220K	OHM
R419	16-1/4CA244J	240K	OHM
R420	16-1/4CA204J	200K	OHM
R421	16-1/4CA202J	2K	OHM
R422	16-1/4CA183J	18K	OHM
R423	16-1/4CA151J	150K	OHM
R451	16-1/4CA822J	8K2	OHM
R452	16-1/4CA333J	33K	OHM
R453	16-1/4CA224J	220K	OHM
R454	16-1/4CA154J	150K	OHM
R455	16-1/4CA472J	4K7	OHM
R456-R457	16-1/4CR153J	15K	OHM
R458	16-1/4CA332J	3K3	OHM
R459	16-1/4CA103J	10K	OHM
R460	16-1/4CA102J	1K	OHM
R461	16-1/4CA153J	15K	OHM
R462	16-1/4CA472J	4K7	OHM
R463	16-1/4CA473J	47K	OHM
R464	16-1/4CA183J	18K	OHM
R465	16-1/4CA102J	1K	OHM
R466	16-1/4CA332J	3K3	OHM
R467	16-1/4CA103J	10K	OHM
R468	16-1/4CA124J	120K	OHM
R469	16-1/4CA683J	68K	OHM

REF. NO.	PART NO.	DESCRIPTION	
R470	16-1/4CA473J	47K	OHM
R471	16-1/4CA103J	10K	OHM
R473	16-1/4CR183J	18K	OHM
R474	16-1/4CA473J	47K	OHM
R475	16-1/4CA102J	1K	OHM
R476	16-1/4CA151J	150	OHM
R477	16-1/4CA153J	15K	OHM
R478	16-1/4CA472J	4K7	OHM
R503-R504	16-1/4CA102J	1K	OHM
R505	16-1/4CA222J	2K2	OHM
R506-R508	16-1/4CA473J	47K	OHM
R509-R511	16-1/4CA472J	4K7	OHM
R514-R521	16-1/4CA102J	1K	OHM
R522-R523	16-1/4CA223J	22K	OHM
R525-R529	16-1/4CA223J	22K	OHM
R530-R537	16-1/4CA820J	82	OHM
R538	16-1/4CA104J	100K	OHM
R539	16-1/4CA105J	1M	OHM
R540-R542	16-1/4CA103J	10K	OHM
R543	16-1/4CA104J	100K	OHM
R544-R545	16-1/4CA103J	10K	OHM
R546-R547	16-1/4CA474J	470K	OHM
R548	16-1/4CA472J	4K7	OHM
R549	16-1/4CA473J	47K	OHM
R550-R555	16-1/4CA330J	33	OHM
R556-R559	16-1/4CA222J	2K2	OHM
R560	16-1/4CA104J	100K	OHM
R561-R564	16-1/4CA222J	2K2	OHM
R565	16-1/4CA331J	330	OHM
R567	16-1/4CA222J	2K2	OHM
R568	16-1/4CR222J	2K2	OHM
R569	16-1/4CA224J	220K	OHM
R570-R573	16-1/4CA223J	22K	OHM
R574-R575	16-1/4CA331J	330	OHM
R576	16-1/4CA224J	220K	OHM
R577	16-1/4CA472J	4K7	OHM
R578-R580	16-1/4CA473J	47K	OHM
R581	16-1/4CA331J	330	OHM
R582	16-1/4CA222J	2K2	OHM
R583	16-1/4CA221J	220	OHM
R584	16-1/4CS151J	150	OHM
R601	16-1/4CA102J	1K	OHM
R606	16-1/4CA332J	3K3	OHM
R607	16-1/4CA472J	4K7	OHM
R608	16-1/4CA224J	220K	OHM
R611	16-1/4CA104J	100K	OHM
R612	16-1/4CA103J	10K	OHM
R613	16-1/4CA332J	3K3	OHM
R614	16-1/4CA472J	4K7	OHM
R615	16-1/4CA223J	22K	OHM
R616	16-1/4CA103J	10K	OHM
R617	16-1/4CA473J	47K	OHM
R618	16-1/4CA223J	22K	OHM
R619-R621	16-1/4CA102J	1K	OHM
R622-R623	16-1/4CA223J	22K	OHM
R624-R625	16-1/4CA472J	4K7	OHM
R631	16-1/4CA473J	47K	OHM
R632	16-1/4CA103J	10K	OHM
R634	16-1/4CA102J	1K	OHM
R635	16-1/4CA222J	2K2	OHM
R636	16-1/4CA103J	10K	OHM
R637	16-1/4CA473J	47K	OHM
R638-R640	16-1/4CA472J	4K7	OHM
R641-R643	16-1/4CA102J	1K	OHM
R644	16-1/4CA223J	2K2	OHM
R645-R646	16-1/4CA103J	10K	OHM
R647	16-1/4CA473J	47K	OHM

PCB PARTS LOCATION (BOTTOM VIEW)



ELECTRICAL PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
R648	16-1/4CA224J	220K	OHM
R649	16-1/4CA222J	2K2	OHM
R651	16-1/4CA333J	33K	OHM
R654	16-1/4CA472J	4K7	OHM
R655	16-1/4CA102J	1K	OHM
R656	16-1/4CA103J	10K	OHM
R657	16-1/4CA222J	2K2	OHM
R658-R660	16-1/4CA470J	47	OHM
R661-R665	16-1/4CA473J	10K	OHM
R666	16-1/4CA103J	10K	OHM
R667	16-1/4CA222J	2K2	OHM
CAPACITORS			
C101	17-1ER476Y	CAP EL	47uF 10V +50-10%
C102	17-5DR101K	CAP CER	100pF 50V +-10%
C103	17-2.5ER106Y	CAP EL	10uF 25V +50-10%
C104	17-1.6ER226Y	CAP EL	22uF 16V +50-10%
C105	17-5ER105Y	CAP EL	1uF 50V +50-10%
C106	17-1.6ER226Y	CAP EL	22uF 16V +50-10%
C110	17-2.5ER475Y	CAP EL	4.7uF 25V +50-10%
C121	17-1.6ER477	CAP EL	470uF 16V +50-10%
C122	17-5DR680K	CAP CER	68pF 50V +-10%
C123	17-2.5ER106Y	CAP EL	10uF 25V +50-10%
C124-C125	17-5FR183Y	CAP MY	0.018uF 50V 50-10%
C126	17-1ER476Y	CAP EL	47uF 10V +50-10%
C127	17-5DR681K	CAP CER	680pF 50V +-10%
C129	17-2.5ER106Y	CAP EL	10uF 25V +50-10%
C151	17-5DR681K	CAP EL	680pF 50V +50-10%
C152	17-5FR682J	CAP MY	0.0068uF 50V +-5%
C153	17-5FR222J	CAP MY	0.0022uF 50V +-5%
C154	17-5FR123J	CAP MY	0.012uF 50V +-5%
C155	17-5FR122J	CAP MY	0.0012uF 50V +-5%
C156	17-5FR222J	CAP MY	0.0022uF 50V +-5%
C157	17-5FR682J	CAP MY	0.0068uF 50V +-5%
C158	17-5DR820MSL	CAP CER	82pF 50V +-10%
C159	17-5DR221K6Y	CAP CER	220pF 50V +-10%
C160	17-1.6SF106Y	CAP ELBP SM	10uF 16V +50-10%
C161	17-2.5ER106Y	CAP EL	10uF 25V +50-10%
C162-C164	17-5ER105Y	CAP EL	1uF 50V +50-10%
C171	17-5FR473J	CAP MY	0.047uF 50V +-5%
C172	17-5FR222J	CAP MY	0.0022uF 50V +-5%
C174	17-2.5ER106Y	CAP EL	10uF 25V +50-10%
C201	17-1ER476Y	CAP EL	47uF 10V +50-10%
C202	17-5DR101K	CAP CER	100pF 50V +-10%
C203	17-2.5ER106Y	CAP EL	10uF 25V +50-10%
C204	17-1.6ER226Y	CAP EL	22uF 16V +50-10%
C205	17-5ER105Y	CAP EL	1uF 50V +50-10%
C210	17-2.5ER475Y	CAP EL	4.7uF 25V +50-10%
C222	17-5DR680K	CAP CER	68pF 50V +-10%
C223	17-2.5ER106Y	CAP EL	10uF 25V +50-10%
C224-C225	17-5FR183J	CAP MY	0.018uF 50V +-5%
C226	17-1ER476Y	CAP EL	47uF 10V +50-10%
C227	17-5DR681K	CAP CER	680pF 50V +-10%
C229	17-2.5ER106Y	CAP EL	10uF 25V +50-10%
C251	17-5DR681K	CAP CER	680pF 50V +-10%
C252	17-5FR682J	CAP MY	0.0068uF 50V +-5%
C253	17-5FR222J	CAP MY	0.0022uF 50V +-5%
C254	17-5FR123J	CAP MY	0.012uF 50V +-5%
C255	17-5FR122J	CAP MY	0.0012uF 50V +-5%
C256	17-5FR222J	CAP MY	0.0022uF 50V +-5%
C257	17-5FR682J	CAP MY	0.0068uF 50V +-5%
C258	17-5DR820MSL	CAP CER	82pF 50V +-10%
C259	17-5DR221K	CAP CER	220pF 50V +-10%
C260	17-1.6SF106Y	CAP ELBP SM	10uF 16V +50-10%
C261	17-2.5ER106Y	CAP EL	10uF 25V +50-10%

REF. NO.	PART NO.	DESCRIPTION	
C263-C264	17-5ER105Y	CAP EL	1uF 50V +50-10%
C271	17-5FR473J	CAP MY	0.047uF 50V +-5%
C272	17-5FR222J	CAP MY	0.0022uF 50V +-5%
C274	17-5ER106Y	CAP EL	10uF 50V +50-10%
C301-C401	17-2.5ER475Y	CAP EL	4.7uF 25V +50-10%
C302-C402	17-2.5ER475Y	CAP EL	4.7uF 25V +50-10%
C303-C403	17-5DR561K	CAP CER	560pF 50V +-10%
C304-C404	17-5FR302J	CAP MY	0.003uF 50V +-5%
C305-C405	17-5FR103J	CAP MY	0.01uF 50V +-5%
C306-C406	17-5FR153F	CAP MY	0.015uF 50V +-1%
C307-C407	17-5FR103J	CAP MY	0.01uF 50V +-5%
C308-C408	17-5HR124J	CAP MMY	0.12uF 50V +-5%
C309-C409	17-5ER105Y	CAP EL	1uF 50V +50-10%
C310-C410	17-5FR683J	CAP MY	0.068uF 50V +-10%
C311-C411	17-5HR184J	CAP MMY	0.18uF 50V +-5%
C312-C412	17-5FR273J	CAP MY	0.027uF 50V +-5%
C313-C413	17-5ER105Y	CAP EL	1uF 50V +50-10%
C314-C414	17-5HR274J	CAP MMY	0.27uF 50V +-5%
C315-C415	17-5HR184J	CAP MMY	0.18uF 50V +-5%
C316-C416	17-5FR683J	CAP MY	0.068uF 50V +-5%
C317-C417	17-5HR124J	CAP MMY	0.12uF 50V +-5%
C318-C418	17-2.5ER475Y	CAP EL	4.7uF 25V +50-10%
C319-C419	17-1.6ER226Y	CAP EL	22uF 16V +50-10%
C351-C451	17-5HR104J	CAP MMY	0.1uF 50V +-5%
C352-C452	17-5HR104Y	CAP MMY	0.1uF 50V +-5%
C253-C453	17-5HR334J	CAP MMY	0.33uF 50V +-5%
C354-C454	17-5HR334J	CAP MMY	0.33uF 50V +-5%
C355-C455	17-5FR332J	CAP MY	0.0033uF 50V +-5%
C356-C456	17-5FR332J	CAP MY	0.0033uF 50V +-5%
C357-C457	17-5DR331K	CAP CER	330pF 50V +-10%
C358-C458	17-1.6OR106K	CAP TAS	10uF 16V +-10%
C359-C459	17-2.5ER106Y	CAP EL	10uF 25V +50-10%
C360-C460	17-5FR333J	CAP MY	0.033uF 50V +-5%
C361-C461	17-5ER684Y	CAP EL	0.68uF 50V +50-10%
C362-C462	17-5DR391K	CAP CER	390pF 50V +-10%
C363-C463	17-5FR223J	CAP MY	0.022uF 50V +-5%
C364-C464	17-5FR472J	CAP MY	0.0047uF 50V +-5%
C365-C465	17-1.6ER226Y	CAP EL	22uF 16V +50-10%
C366-C466	17-5DR391K	CAP CER	390pF 50V +-10%
C367-C467	17-5FR223J	CAP MY	0.022uF 50V +-10%
C368	17-5ER105Y	CAP EL	1uF 50V +50-10%
C468	17-2.5ER106Y	CAP EL	10uF 25V +50-10%
C369-C469	17-5ER105Y	CAP EL	1uF 50V +50-10%
C370-C470	17-2.5ER106Y	CAP EL	10uF 25V +50-10%
C371-C471	17-5DR101K	CAP CER	100pF 50V +-10%
C374	17-1ER227Y	CAP EL	220uF 10V +50-10%
C501	17-1ER227Y	CAP EL	220uF 10V +50-10%
C502	17-2.5ER475Y	CAP EL	4.7uF 25V +50-10%
C503	17-5HR104J	CAP MMY	0.1uF 50V +-5%
C504	17-1ER226Y6Y	CAP EL	22uF 10V +50-10%
C505	17-1.6ER476Y	CAP EL	47uF 16V +50-10%
C506	17-1.6ER476Y	CAP EL	47uF 10V +50-10%
C507-C508	17-2.5ER106Y	CAP EL	10uF 25V +50-10%
C509-C510	17-5DR221K	CAP EL	220pF 50V +-10%
C511	17-2.5ER106Y	CAP EL	10uF 25V +50-10%
C512	17-5FR153J	CAP MY	0.015uF 50V +-5%
C601-C602	17-1.6ER226Y	CAP EL	22uF 16V +50-10%
C631-C632	17-2.5ER476Y	CAP EL	47uF 25V +50-10%
C633	17-1.6ER476Y	CAP EL	47uF 16V +50-10%
C634	17-2.5ER106Y	CAP EL	10uF 25V +50-10%
△C635	17-2.5ER228Y	CAP EL	220uF 25V +50-10%
C636	17-2.5ER227Y	CAP EL	220uF 25V +50-10%
△C637	17-1ER228Y	CAP EL	220uF 10V +50-10%
C638	17-5ER105Y	CAP EL	1uF 50V +50-10%

Note: The components identified by shading and mark △ are critical for safety.
Replace only with part number specified.

ELECTRICAL PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
C639	17-1ER476Y	CAP EL 47uF 10V +50-10%
C640	17-1ER476Y	CAP EL 47uF 10V +50-10%
C642	17-5FR103J	CAP MY 0.01uF 50V +-5%
C643	17-5FR183J	CAP MY 0.018uF 50V +-5%
C645	17-1.6ER226Y	CAP EL 22uF 16V +50-10%
C651-C652	17-5DR221K	CAP CER 220pF 50V +-10%
C653	17-10FR103J	CAP MY 0.01uF 100V +-5%
C654	17-2.5ER476Y	CAP EL 47uF 25V +50-10%
C655-C657	17-5FR222J	CAP MY 0.0022uF 50V +-5%
TRANSISTORS		
Q101	30-2090-2TR	TR BC546B
Q102	30-2349	TR 2SC2602G/H
Q103-Q104	30-2084-3TR	TR BC549C
Q105	30-2090-2TR	TR BC546B
Q110-Q116	30-2090-2TR	TR BC546B
Q120	30-2084-3TR	TR BC549C
Q201	30-2090-2TR	TR BC546B
Q202	30-2349	TR 2SC2602G/H
Q203-Q204	30-2084-3TR	TR BC549C
Q205	30-2090-2TR	TR BC546B
Q210-Q216	30-2090-2TR	TR BC546B
Q220	30-2084-3TR	TR BC549C
Q301-Q305	30-2090-2TR	TR BC546B
Q306-Q307	30-2342-2TR	TR BC327-40
Q401-Q406	30-2090-2TR	TR BC546B
Q501-Q503	30-2096-2TR	TR BC556B
Q505-Q508	30-2096-2TR	TR BC556B
Q511	30-2337-1	TR BC337-25
Q512	30-2096-2TR	TR BC556B
Q513	30-2337-1	TR BC337-25
Q514	30-2096-2TR	TR BC556B
Q515	30-2337-1	TR BC337-25
Q516	30-2096-2TR	TR BC556B
Q517	30-2337-1	TR BC337-25
Q518-Q520	30-2096-2TR	TR BC556B
Q521-Q522	30-2090-2TR	TR BC546B
Q523-Q527	30-2342-2	TR BC327-40
Q528	30-2096-2TR	TR BC556B
Q529-Q530	30-2342-2	TR BC327B
Q531	30-2096-2TR	TR BC556B
Q532-Q535	30-2342-2	TR BC327-40
Q536-Q538	30-2090-2TR	TR BC546B
Q601-Q606	30-2090-2TR	TR BC546B
Q607	30-2096-2TR	TR BC556B
Q608	30-2337-1TR	TR BC337-25
Q609	30-2096-1TR	TR BC556B
Q610	30-2337-1	TR BC337-25
Q611	30-2090-2TR	TR BC546B
Q612	30-2078-2	TR 2SD330E
Q613	30-2086	TR 2SB536M
Q614	30-2078	TR 2SD330E
Q615	30-2090-2TR	TR BC546B
Q616	30-2096-2TR	TR BC556B
Q617	30-2090-2TR	TR BC546B
Q618	30-2096-2TR	TR BC556B
Q622-Q625	30-2084-3TR	TR BC549C
Q626-Q627	30-2090-2TR	TR BC546B
VARIABLE RESISTORS		
VR101-VR201	29-4262	VR60mm 20kA F1-10
VR155	VR01-F08502B	5KB FLAT
VR156-VR157	VR01-F08103B	SEMI-FIX 80 10KB FLAT
VR161-VR261	29-4263	VR 16 50kx2 PIK16
VR201	VR01-F08203B	20KB FLAT
VR231-VR131	VR01-F08203B	SEMI-FIX 80 20KB FLAT

REF. NO.	PART NO.	DESCRIPTION
VR255	VR01-F08502B	5KB FLAT
VR256-VR257	VR01-F08103B	SEMI-FIX 80 10KB FLAT
VR301	VR01-V08202B	SEMI-FIX 80 2KB VERT
VR601	VR01-F08502B	SEMI-FIX 80 5KB FLAT
VR602	VR01-F08103B	SEMI-FIX 80 10KB FLAT
VR603-VR604	VR01-F08503B	SEMI-FIX 80 50KB FLAT
VR621-VR622	VR01-F08503B	SEMI-FIX 80 50KB FLAT
DIODES		
D101	30-1152TA	DIODE IN4148 A-TYPE
D301-D303	30-1152TA	DIODE IN4148 A-TYPE
D501-D509	30-1152TA	DIODE IN4148 A-TYPE
D511-D515	30-1152TA	DIODE IN4148 A-TYPE
D522-D524	30-1152TA	DIODE IN4148 A-TYPE
D531	30-1255	LED RD SE-6811DH
D532-D535	30-1253	LED GN SE-6821
D536	30-1255	LED RD SE-6811DH
D537	30-3014	LED DISPLAY SEA24426A
D538	30-1255	LED RD SE-6811DH
D539-D541	30-1254	LED RD SE8911HL
D542-D544	30-1255	LED RD SE-6811DH
D601-D603	30-1152TA	DIODE IN4148 A-TYPE
D604-D609	30-1002A	DIODE RECTI 100VIA IN4002
D610-D619	30-1152TA	DIODE IN4148 A-TYPE
ZENER DIODE		
ZD301-ZD302	30-1136	RD6.8EB2
ZD303	30-1077-1	HZ5A-3
ZD304-ZD305	30-1235	RD9.1EB2
ZD601	30-1077-1	HZ5A-3
ZD602	30-1136	RD6.8EB2
ZD603	30-1199-1	HZ11B-1
ZD604	30-1077-1	HZ5A-3
ZD606-ZD607	30-1235	RD9.1EB2
ZD608	30-1090	5.6V 0.5W IN5232
INTEGRATED CIRCUIT		
IC101	30-3272	IC DUAL OP ML5220
IC102-IC104	30-3069	IC DUAL OP RC4558/UPC4558N
IC105	30-3361	IC LED EXPENDER BA6138
IC301	30-3344	IC DOLBY B/C CX20027
IC303	30-3349	IC DBX DECODER AN6291
IC304	30-3069	IC DUAL OP RC4558/UPC4558N
IC401	30-3344	IC DOLBY B/C CX20027
IC501	30-3021	IC QUAD NAND GATE CD4011B
IC502	30-3358	IC DECK CONTROL LM6402H
IC503	30-3257	IC MUSIC SENSOR M51143L
IC504	30-3359	IC LED DRIVER IR2E-20
IC601-IC602	30-3244	IC QUAL SW CD4066BE
INDUCTORS		
L161 L261	29-1055*A	COIL VARI 27mH
L162 L262	29-1190	COIL 4.7mH +-5%
L163 L263	29-1140	COIL 6.8mH +-5%
L301 L401	29-1239	COIL VARI 22mH +-6% 79.6kHz
L501	29-1240	COIL 6.8mH +-5%
MP1-MF2	29-3050	LFP DOLBY 208BLRA-3172N
MISCELLANEOUS		
COUNTER LED	31-3014	LED DISPLAY SEA24426A
APS LED	31-3015	LED DISPLAY GL-9R03D
LED LEVEL	30-1252	LED SEH181216
Q539	30-2382	TR PHOTO REFLECTOR GP2S02
DECK	DK-13	CASSETTE DECK FHQ-2
SWITCH	31-1330	SW ROT MSQ26BP-12.4L18R
SWITCH	31-1347	SW PUSH SUF12AA021-FL

ELECTRICAL PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
C.R	29-3218	CR 800kHz
SWITCH	31-1257	SW PUSH QKEY 2U
RELAY	35-3048	RELAY R/P
	12-2131	JACK PIN 4P
	12-2181	PHONES JACK HLJ0308-01-020
	12-2180	MICPHONE JACK HLJ0308-01-010
XFMR BIAS	29-2129	XFMR BIAS OSC 740

MECHANICAL PARTS LIST

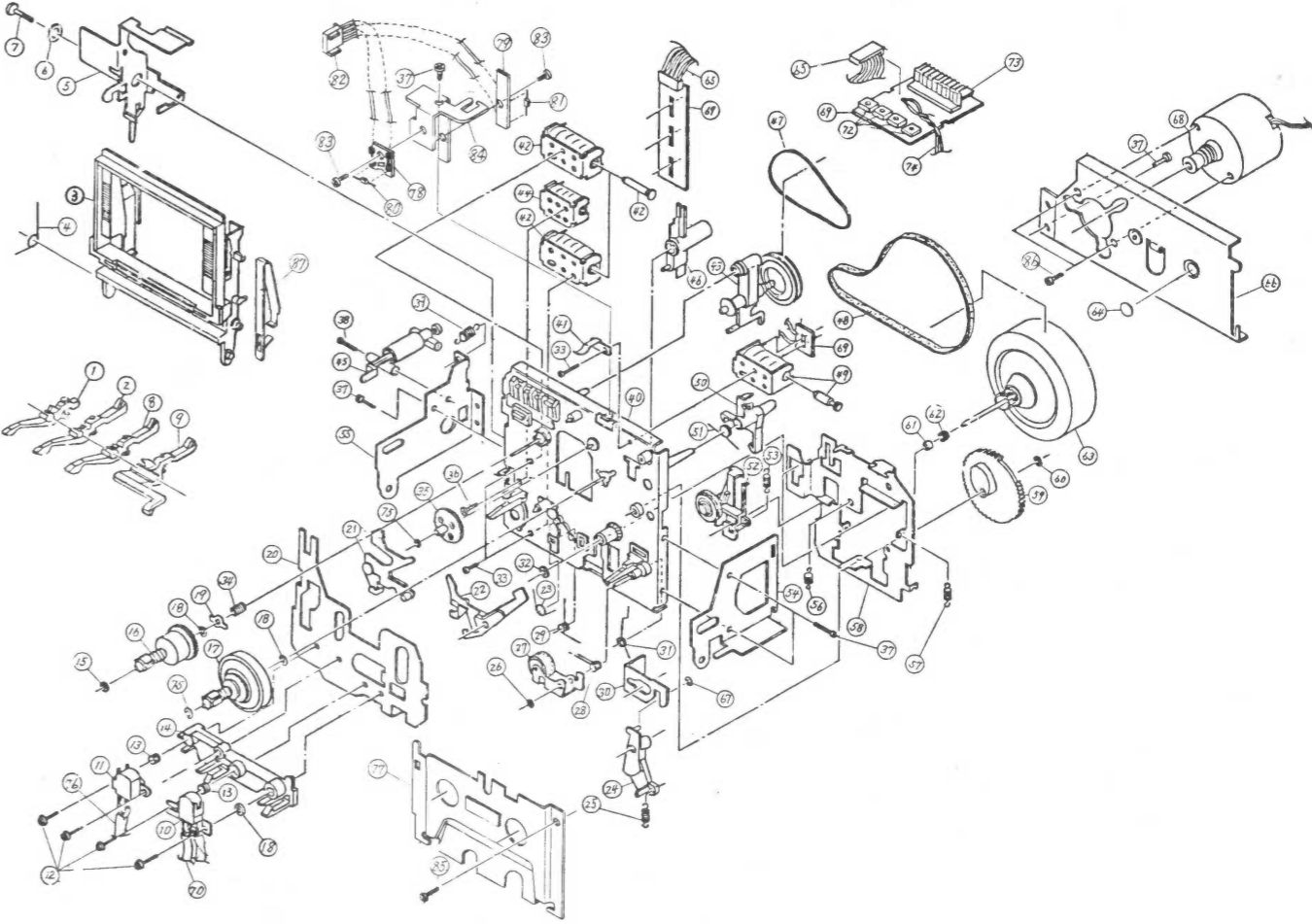
ITEM	DESCRIPTION	PART NO.	Q'TY
1	CABINET	50-1042*C	1
2	REAR PANEL	11-8335	1
3	DECK HOLDER B	11-3114	1
4	DECK HOLDER A	11-3108	1
5	SPACER	11-9152	1
6	DECK	DK-13	1
7	EJECT CONNECTOR	12-1150	1
8	LEVER	11-2359	1
9	COUNTER LABEL	21-2434	1
10	ASS'Y DRESSING BOARD	F184-039	1
11	CASSETTE CASE	11-1174	1
12	CASSETTE WINDOW	11-8342	1
13	CASSETTE PANEL	11-8344	1
14	SMPS PCB HOLDER	13-5T04	1
15	BOTTOM CHASSIS	11-6188	1
16	WASHER	15-4034	1
17	BRACKET L	11-2358	1
18	EXTENSIVE SHAFT	11-7060	1
19	PUSH SW KNOB	12-3T07	1
20	JACK HOLDER	11-3109	1
21	AUX PANEL L	11-8353	1
22	EJECT SHAFT	11-7078	1
23	PUSH SW KNOB	12-3T08	1
24	SPRING A	12-5058	1
25	CENTER CHASSIS	11-6189	1
26	L.E.D. SUPPORT A	13-4094	1
27	L.E.D. SUPPORT B	13-4095	1
28	L.E.D. SUPPORT C	13-4093	1
29	MICPHONE SHIELD PLATE	11-8372	1
30	JACK HOLDER A	11-3113	1
31	MASKER	28-2129	1
32	SPONGE A	28-2130	1
33	PUSH KNOB SHAFT	11-7079	13
34	AUX PANEL	11-8352	1
35	STOPPER	13-7027	1
36	R.E.C LEVEL KNOB R	12-3184	1
37	R.E.C LEVEL KNOB L	12-3183	1
38	L.E.D METAL A	11-1180	1
39	L.E.D METAL B	11-1175	1
40	LAMP RETAINER	28-2025	1
41	L.E.D. WINDOW	11-8345	1
42	SPRING B	12-5059	13
43	PUSH KNOB	12-3180	11
44	FRONT PANEL	11-8343	1
45	SIDE CHASSIS R	11-6186	1
46	BRACKET R	11-2360	1
47	RUBBER	28-1029	3
48	POWER SW KNOB	12-3T02	1
49	SIDE CHASSIS L	11-6187	1
50	EJECK WASHER	15-4035	1
51	L.E.D SUPPORT	13-4090	2
52	PUSH KNOB	12-3180-1	1
53	PUSH KNOB	12-3180-2	1
54	R.E.C LEVEL	11-2363	2
55	LEVEL CONNECTOR	12-1151	2
56	BOTTOM COVER	11-1173	1
57	KNOB BIAS	12-3161	2
58	TAPPING SCREW $\phi 2.6 \times 10$	S5B2.6+I10SZ-2	1
59	TAPPING SCREW $\phi 3 \times 6$	S2B03+I06SL-2	31
60	TAPPING SCREW $\phi 3 \times 6$	S5B03+I06SZ-2	7
61	MACHINE SCREW FLAT $\phi 3 \times 5$	S1E03+I05SL-2	2
62	MACHINE SCREW FLAT $\phi 3 \times 6$	S1E03+I06SL-2	2
63	TAPPING SCREW $\phi 2.6 \times 8$	S2B2.6+I08SL-2	11
64	TAPPING SCREW $\phi 2.6 \times 6$	S2B2.6+I06SZ-2	2

ITEM	DESCRIPTION	PART NO.	Q'TY
65	TAPPING SCREW FLAT $\phi 3 \times 6$	S2E03+I06SL-2	4
66	TAPPING SCREW $\phi 3 \times 8$	S2B03+I08SL-2	1
67	STANDER'S SCREW	15-2063	3
68	SPECIAL SCREW	15-2051*B	2
69	LABEL SERIAL NO	21-2446	2
70	SPRING HOLDER	FC32M-12	1
71	SPRING DOOR	FK568-11	5
72	RETAINER	28-2090	1
73	LAMP	31-2040	1
74	XPMR PW EI-57	29-2125	1
75	SPECIAL SCREW	15-2062	6

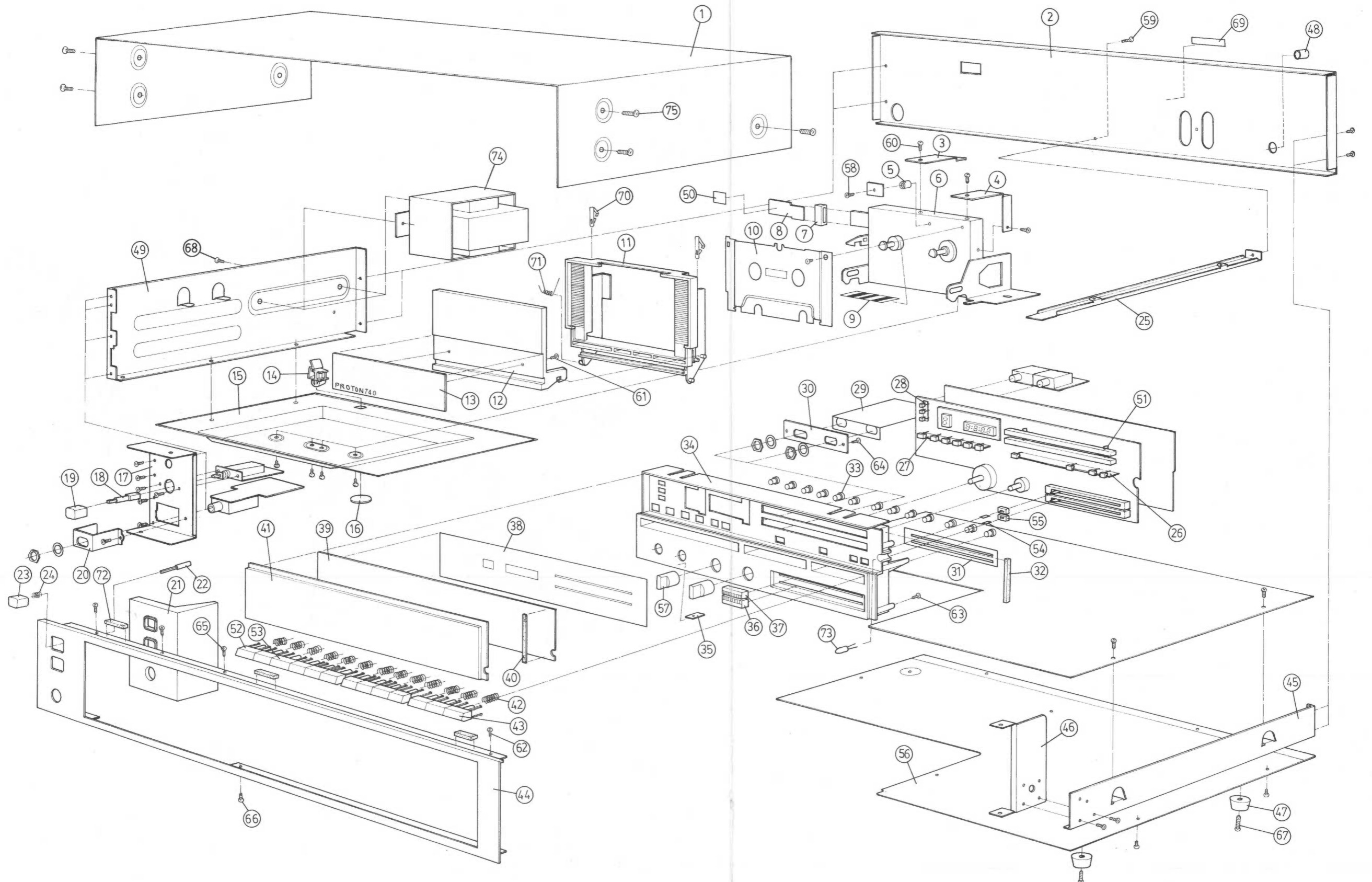
CASSETTE MECHANISM PARTS LIST AND ASSEMBLY DIAGRAM

ITEM	DESCRIPTION	PART NO.	Q'TY
1	Ass'y Lever (Pack SW)	F245-011	1
2	Ass'y Lever (Rec SW)	F244-011	1
3	CASSETTE CASE	11-1174	1
4	Spring Door	FK568-11	1
5	Arm Eject	FC30K-11	1
6	Spacer	FM296-11	1
7	Screw	KG194-12	1
8	Ass'y Lever (CrO SW)	F091-014	1
9	Ass'y Lever (Metal SW)	F246-011	1
10	Rec/Play Head	FU14H-11	1
11	Erase Head	FU192-11	1
12	Screw F-Lock	FG137-17	4
13	Spring Azimuth	FK572-11	2
14	Spacer Head	FD23C-13	1
15	Washer Lock	UJ12B-11	1
16	Ass'y Reel	F105-020	1
17	Ass'y Reel Take-up	F123-033	1
18	Polyslider	FJ111-18	3
19	Spring Plate	FC29K-11	1
20	Base Head	FC29N-13	1
21	Arm Brake (L)	FD24H-12	1
22	Arm Brake (R)	FD24K-12	1
23	Spring Brake	FK18U-11	1
24	Ass'y Lock Plate	F113-024	1
25	Spring CR Lock Plate	FK18Y-11	1
26	Washer Lock	FJ123-13	1
27	Ass'y Pinch Roller	FO14-075	1
28	Spring Pinch Roller	FK18S-11	1
29	Spring Arm	FK18V-11	1
30	CR Plate	FC29C-11	1
31	Spring Assist	FK18T-14	1
32	Oil Seal	FJ141-11	1
33	Screw	FG114-15	3
34	Spring Back Tension	FK11F-47	1
35	Gear Idle	FN14B-12	1
36	Screw	FG114-14	1
37	Screw	KG189-11	5
38	Screw Taptite	UG12R-11	1
39	Spring Arm Eject	FK18M-11	1
40	Ass'y Chassis	FO11-175	1
41	Spring Cassette	FC29E-11	1
42	Solenoid	PKA16112	2
43	Ass'y Clutch	FR17M-13	1
44	Solenoid	PSD12101	1
45	Ass'y Damper	FP472-11	1
46	Arm FR	FD23B-12	1
47	Belt Sub	FP463-11	1
48	Belt Main	FF14A-11	1
49	Solenoid	PKA16113	1
50	Arm Play	FD23E-12	1
51	Spring Arm Play	FK18W-12	1
52	Ass'y Idler	FR17N-11	1
53	Spring Idler	FK18R-11	1
54	Bracket Door	FC29G-14	1
55	Bracket Damper	FC29F-11	1
56	Spring Base Head	FK18N-11	1
57	Spring Base Assist	FK18P-11	1
58	Base Assist	FC29M-12	1
59	Gear Play	FN14C-12	1
60	Washer Lock	FJ123-21	1
61	CP Spacer	FD24G-12	1
62	Spring Flywheel	FK11F-51	1
63	Ass'y Flywheel	FR17E-11	1
64	Spacer	UJ11S-11	1

ITEM	DESCRIPTION	PART NO.	Q'TY
65	Wire Connector	WH19V-01	1
66	Bracket motor	FC29H-15	1
67	E-Ring	KG111-18	1
68	Ass'y Motor	FO64-124	1
69	Panel Connector	FP12T-12	1
70	Wire	WH15L-00	1
72	Tact SW	UE13K-11	4
73	Connector 11P	UY12L-11	1
74	Wire	WG17M-02	1
75	Washer Lock	FJ123-14	2
76	Wire	WH15M-00	1
77	Ass'y Dressing Board	F184-039	1
78	Panel Sensor (A)	FP13F-11	1
79	Panel Sensor (B)	FP13G-11	1
80	Seneor LED	AU11C-00	1
81	Sensor Transistor	AZ11H-00	1
82	Wire Connector	WH16A-00	1
83	Screw F-Lock	MG082-01	2
84	Bracket Sensor	FC34G-11	1
85	Screw Taptite	UG12T-11	1
86	Screw	UG11S-14	2
87	Spring Holder	FC32M-12	2

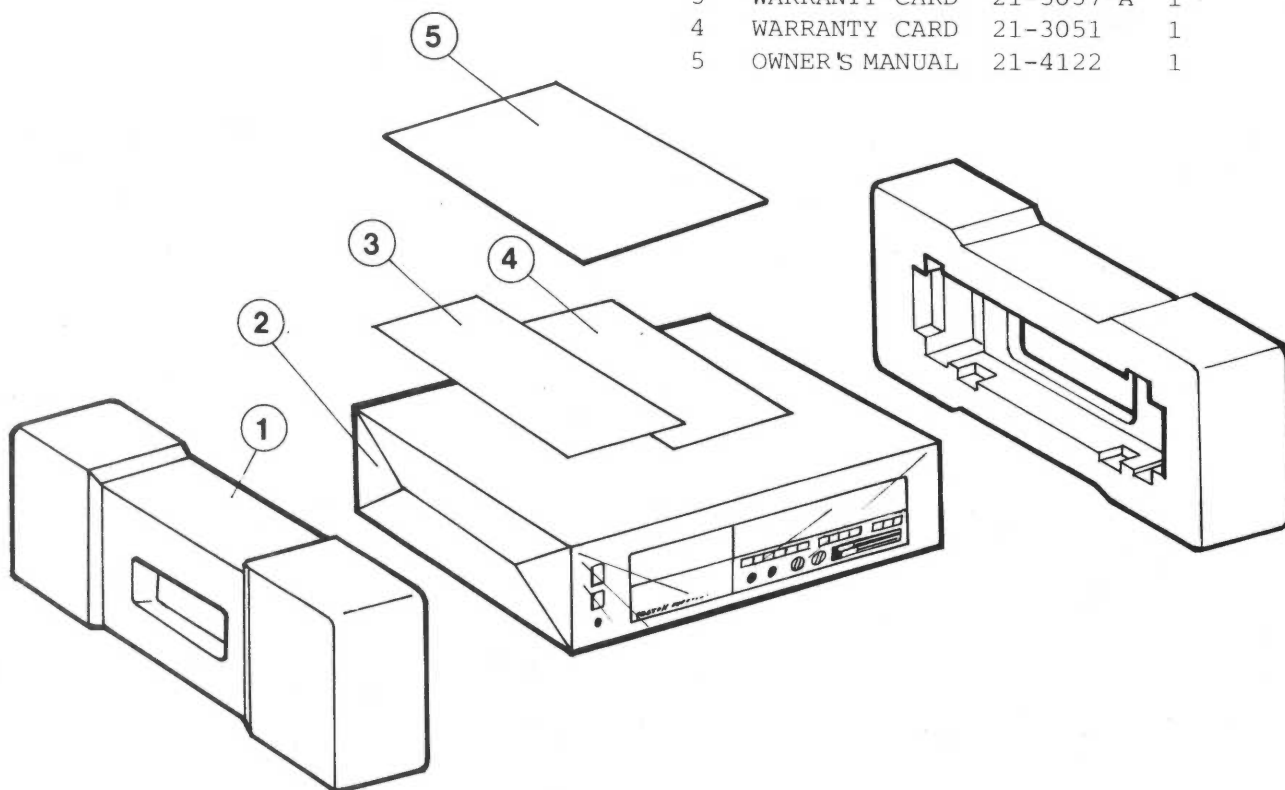


ASSEMBLY DIAGRAM



PACKING DIAGRAM

ITEM	DESCRIPTION	PART NO.	Q'TY
1	POLYLONE	34-1049*C	2
2	POLY PAPER	26-0005*B	1
3	WARRANTY CARD	21-3037*A	1
4	WARRANTY CARD	21-3051	1
5	OWNER'S MANUAL	21-4122	1



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