

56

CARVER

THE CARVER RECEIVER

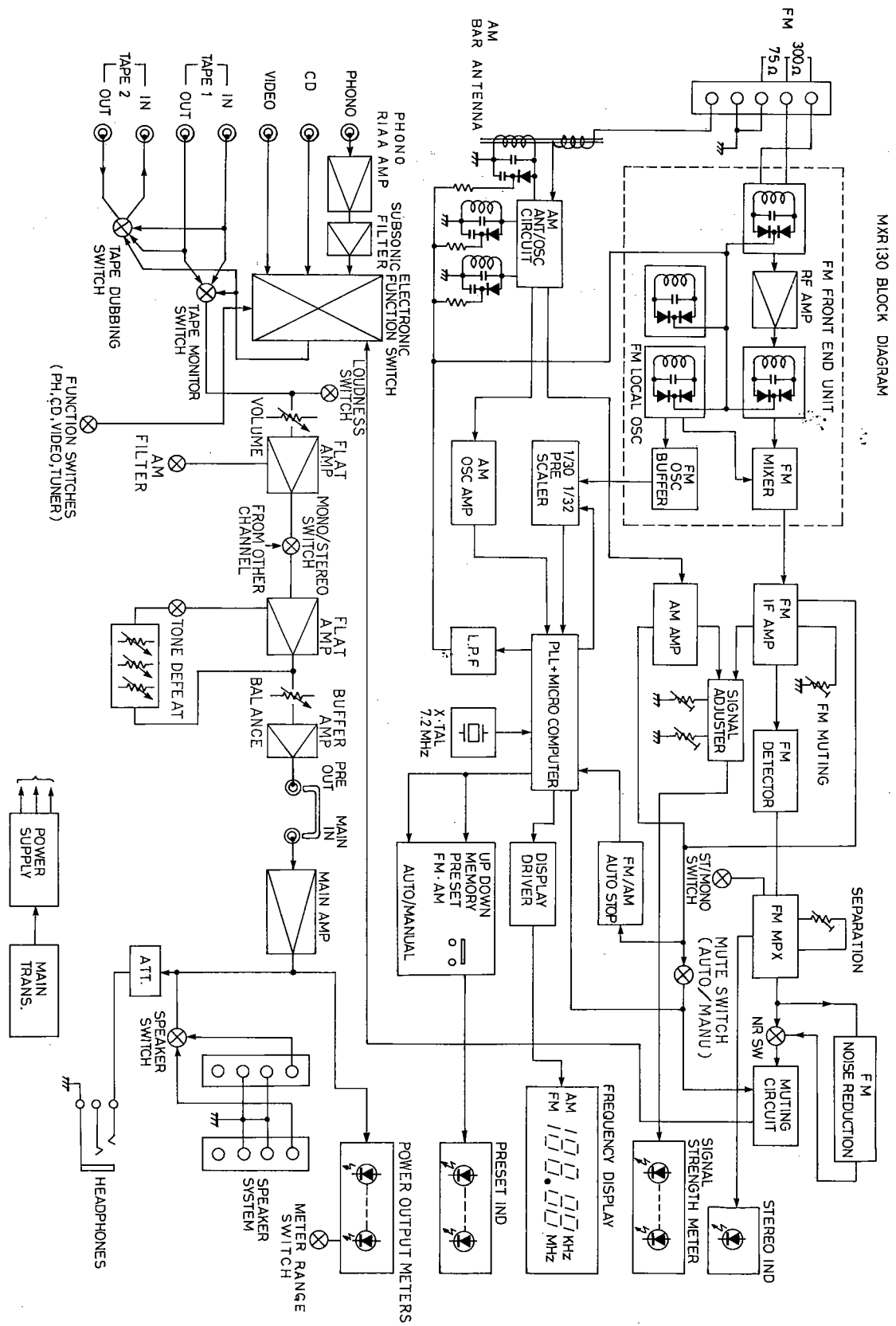
SERVICE MANUAL MXR-130

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MXR-130 Carver

BLOCK DIAGRAM



SPECIFICATION

PRE-AMPLIFIER & AMPLIFIER

Minimum Audio Output Power at no more than 0.05%	: 130 watts per channel
Total Harmonic Distortion into 8 ohms, over the audio spectrum 20 - 20,000 Hz	(RMS power, both channels driven)
Frequency Response (20 - 20,000 Hz)	: Flat
IM Distortion	: 0.05%
Gain: PHONO	: 35 dB
AMPLIFIER	: 26 dB
AUX, TUNER, VIDEO/DAD	: 17 dB
TAPE IN 1, 2	: 17 dB
Tone Control Action BASS (100 Hz)	: ± 8 dB
TREBLE (10 kHz)	: ± 8 dB
MID RANGE (1.5 kHz)	: ± 6 dB
AM Filter (10 kHz)	: -15 dB
Signal-to-Noise Ratio	
PHONO	: 82 dB
AUX and TAPE IN 1, 2	: 90 dB
TAPE OUT 1, 2 Level	: 140mV
FM TUNER	
Sensitivity (IHF)	: 1.8 μ V
Sensitivity for 50 dB Quieting Mono, Stereo	: 3.1 μ V, 5.0 μ V
Limiting Sensitivity (-3 dB)	: 1.5 μ V
Signal-to-Noise Ratio (1mV)	: 74 dB
Image Rejection	: 82 dB
IF Rejection	: 80 dB
Capture Ratio	: 1.0 dB
Harmonic Distortion	
Mono	: 0.15%
Stereo	: 0.2%
AM Suppression	: 80 dB
Stereo Separation (1 kHz)	: 40 dB
AM TUNER	: 250 μ V
Sensitivity Terminal	: 20 μ V
Radiated	: 250 μ V/m for 20 dB S/N
Distortion (5mV/M)	: 0.9%
Selectivity	: 42 dB
Image Rejection	: 45 dB
IF Rejection	: 34 dB
AGC Figure of Merit	: 50 dB
ANTENNAS	
AM: Built-in ferrite loopstick	
FM: Dipole antenna	
Plus terminals for external antennas.	
POWER REQUIREMENTS	
120V AC, 60 Hz (570 watts max.)	

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

ALIGNMENT PROCEDURES

Amplifier

Step	Unit Condition	Output Indicator Connection (+/-)	Adjustment	Adjust for
VOLTAGE ADJUST				
1	Volume Control . . . MINIMUM Speaker Load . . . 8 ohm dummy Input . . . No signal Preheat . . . 2 minutes	DC digital volt meter D626 (Cathode side) /Chassis	SVR603	61.0±0.1V
IDLING				
2	Same as step (1)	DC digital volt meter Lch: TP602/TP601 Rch: TP604/TP603	Lch: SVR501 Rch: SVR502	5.0±1.0V

Tuner (AM)

Condition

1. Tuning method: LOCK LED, ON
2. Modulation: 400Hz, 30%
3. Input level: 74dB/m (5mV/m)
4. Generator output: IRE Loop antenna 24" (60cm) spacing or through IHF dummy
5. CH. STEP switch (SW268): US position
6. Preheat: More than 1 minut

Step	Signal, Sweep Generator		Reception Frequency	Output Indicator Connection	Adjustment	Adjust for
	Connection	Frequency				
TUNING VOLTAGE						
1	No signal		520kHz	DC digital volt meter	T103	1.55±0.1V
2			1710kHz	TP001	TC102	24.2±0.1V
IF						
3	TP101 through a 1µF Capacitor	450kHz ±1kHz	Point of non- interference	IF sweep generator TP 102 (through a 1µF Cap.)	T104 T105	Flat and Max.
4				Distortion meter TAPE OUT jacks	T104	Less than 0.45%
RF						
5	Ant. terminal through IHF dummy	600kHz	600kHz	VTVM	T101 (Bar Ant) T102	Maximum output
6		1400kHz	1400kHz	TAPE OUT jacks	TC101-1 TC101-2	
SIGNAL LEVEL METER						
7	Same as step (5)	1000kHz (Input 75dB)	1000kHz	SIGNAL STRENGTH METER	SVR101	Full light up
STOP SIGNAL						
8	Same as step (5)	1000kHz Mod: 0% (Input 75dB)	1000kHz	VTVM TP251 (PLL-PCB)	T251 (PLL-PCB)	Maximum output

Tuner (FM)

Condition

1. Tuning method: LOCK LED, ON
2. Generator: Mono . . . Mod. 1kHz, 75kHz dev.
Stereo . . . Mod. 1kHz, 67.5kHz+6.75kHz dev.
3. TAPE OUT load: A 100k ohm resistor shunted by a
1000pF capacitor
4. Input level: 60 dB (1mV)
5. CH. STEP switch (SW268): US position
6. De-Emphasis switch (SW101): 75µs position
7. NOISE+MULTIPATH switch: ON position
8. FM MUTE switch: ON position
9. Preheat: More than 1 minut.

Step	Signal, Sweep Generator		Reception Frequency	Output Indicator Connection	Adjustment	Adjust for
	Connection	Frequency				
TUNING VOLTAGE						
1	No signal		87.50MHz	DC digital volt meter	T2 (Front-end)	2.85±0.1V
2			108.00MHz	TP001	Check	21.0±1.0V
IF						
3	300 ohm Antenna terminal through matching dummy	98.00MHz (Input 12dB)	98.00MHz	Distortion meter TAPE OUT jacks	T1 (Front-end) TC251 (PLL-PCB)	Minimum THD
4				DC digital volt meter TP001 ~ TP002	T001-1	0±1mV
5				Same as step (3)	T001-2	Less than 0.18%
RF						
6	Same as step (3)	98.00MHz	98.00MHz	VTVM or Oscilloscope TAPE OUT jacks	L2, 4, 5 (Front-end)	Maximum output
7	Same as step (3)	106.00MHz	106.00MHz	Same as step (6)	TC1, 2(Front-end)	Maximum output
8	Repeat steps (6) and (7).					
MUTING LEVEL						
9	NOISE+MULTIPATH and FM MUTE switch to the OFF position.					
10	Same as step (3)	98.00MHz (Input 30dB)	98.00MHz	Same as step (6)	SVR002	Until output is developed
SIGNAL LEVEL METER						
11	Same as step (3)	98.00MHz (Input 80dB)	98.00MHz	SIGNAL STRENGTH METER	SVR001	Full light up
19kHz PILOT SIGNAL						
12	NOISE+MULTIPATH switch to the OFF position.					
13	No signal		98.00MHz	Frequency counter TP051 ~ TP052	SVR052	19.00±0.001 kHz
SEPARATION						
14	Same as step (3)	98.00MHz Mod: Rch only 98.00MHz Mod: Lch only	98.00MHz	Same as step (6)	SVR051	Minimum output, same separation in both channel

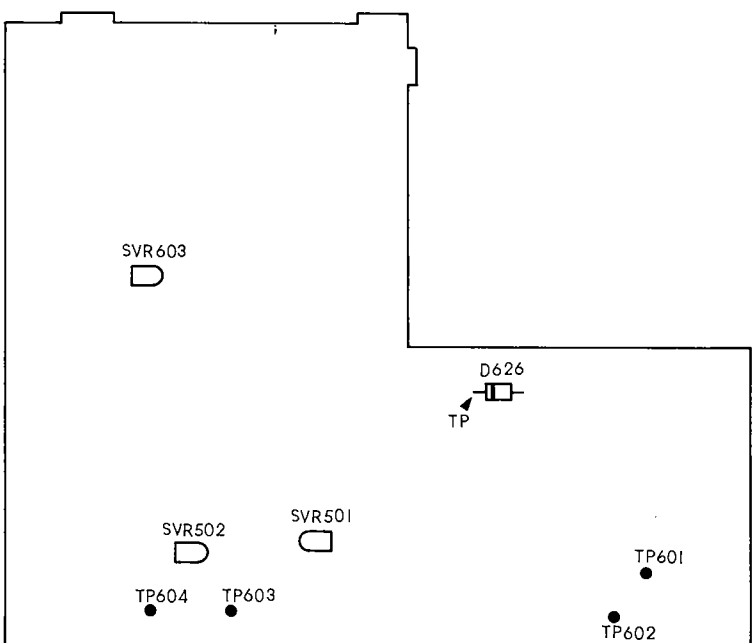
Noise reduction

Unless otherwise stated the NR buttons are NOT engaged.

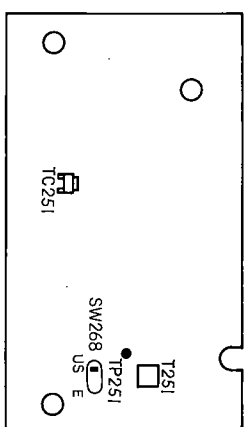
STEP	INPUT SIGNAL	TEST POINT	REMARKS
1	Both audio inputs driven	ANTI ALIASING FILTER IC17 pin 1 (CP17)	Ground junction of C15/R29 (CP18). Measure this point for Fc of 8kHz ± 1kHz.
2	800Hz, 100% modulation left or right channel only.	LEADING EDGE DETECTOR IC16 pin 1 (CP22)	Check for -10Vdc ± 1.0V
3	800Hz, 100% modulation left or right channel only.	IC18 pin 1 (CP24)	Adjust RP5 for minimum DC offset.
4	800Hz, 110% modulation left or right channel as required.	IC1 pin 1 (right) (CP3) IC1 pin 7 (left) (CP4)	Adjust RP6 for best separation and right balance.
5	Both audio input driven 150% modulation at 400Hz.	DELAY IC Junction of R312/R313 (CP11)	Increase audio input level and adjust RP301 for symmetrical clipping. Less than 1V.
6	Both audio inputs driven, 400Hz, 0.5V RMS.	A: IC17 pin 7 (CP15) B: Junction of R312/R313 (CP11)	The output level at point A should be within 1.5 DB of test point B+1 DB
7	Both audio inputs driven, 0.5V RMS	HIGH PASS FILTER IC13 pin 1 (CP9)	Short junction of C15/R29 (CP18) to ground. Fc is 2.6 KHz referenced to 5 KHz.
8	Both audio inputs driven, 0.5V RMS.	LOW PASS FILTER IC14 pin 10 (CP8)	Short C15/R29 (CP18) to ground. Fc is 2.6 KHz referenced to 1 KHz.
9	Signal input to junction of R76/C48 (CP7)	CLOCK FILTER IC12 pin 6 (CP10)	Fc should be 16 KHz
10	Both audio inputs driven 800 Hz, 0.5V RMS	COMPRESSOR/EXPANDER A: IC18 pin 7 (CP23) B: IC3 pin 7 (CP5)	Tracking between test point A and test point B should be within 2.5 DB as the input signal is reduced 50 DB in 10 DB steps. Adjust RP3 to correct tracking error at -30 DB.
11	Both CH Driven 400 Hz, 0.5V RMS	L-R/L-R LOG CIRCUIT IC7 pin 7 (CP21)	Voltage Should be -13V ±1
12	Left or Right CH Only 400 Hz 0.5V	L TO R LOG CIRCUIT IC7 pin 7 (CP21)	Reduce the Input Level of the Left or Right CH to 0V and Adjust RP1 for -4 Volts ±100mV Voltage Should be -1 to -1.5V ±0.5V
13	Both Audio Inputs Driven 800Hz, 0.5V RMS	AGC AMPLIFIER IC19 pin 1 (CP25)	Adjust RP7 for +10mV
14	Left or Right CH Driven 800Hz, 0.5V RMS	A: Left Audio Out (CP2) B: Right Audio Out (CP1)	Reduce the Input level to the Left Channel. The Left CH Mute FET, Should Switch On When the Left Input is Down 28 DB ± 3 DB. Repeat for Right CH and Trim RP7 to Obtain Proper Balance
15	Both CH Driven 800Hz, 0.5V RMS	IC5 pin 7 (CP13)	Check Test Point for Zero Audio Output When Only One Ch is Driven
16	Both CH Driven 600 Hz	SPECTRAL SHAPE AMPLIFIER IC5 pin 1 (CP12)	1. Note the Output Level at the Test Point. 2. Reduce the Left or Right Drive Signal 20 DB. 3. The Output Level Should Increase 20 DB Relative to Step 1.
17	Both CH Driven 600 Hz	Check Response Against That Listed Below ± 1.5dB:	
18	Left or Right Audio Input	OUTPUT EQUALIZATION A: Left Audio Output B: Right Audio Output	Check Response Against That Listed Below ± 1.5dB: 20 Hz -4.6DB 30 Hz -1.6DB 40 Hz -0.2DB 80 Hz +1.6DB 100 Hz +1.7DB 150 Hz +1.4DB 200 Hz +1.0DB 400 Hz 0 Reference 1 KHz -0.6DB 1.5 KHz +0.1DB 2.5 KHz +2.2DB 4 KHz +5 DB 8 KHz +9 DB 10 KHz +10.1DB
19	None	CLOCK FREQUENCY IC302 Pins 2 and 4	M/R Button MUST Be Engaged Check Output Eq for +0.8DB at 10kHz; 0DB at 1 KHz; +0.9DB at 20kHz±0.5DB.
20	None	CLOCK GATING IC302 Pin 2 or 4	Clock Frequency is 20 KHz ±1KHz.
21	None	NOISE MEASUREMENT Audio Outputs	Check to See the Clock is Operating ONLY When Receiver is in the FM Mode.
22	None	NOISE MEASUREMENT Audio Outputs	Less than 500µV Excluding residual clock components. Less than 800µV noise and clock noise.

ALIGNMENT POINTS

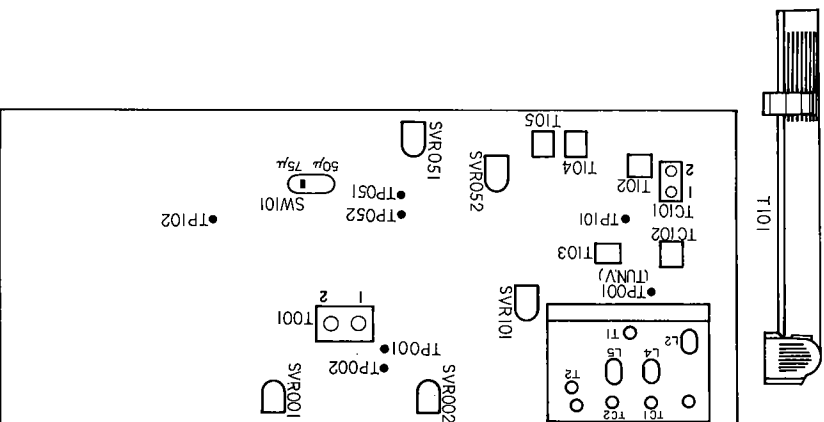
Main Amp P.C.Board MA-508A



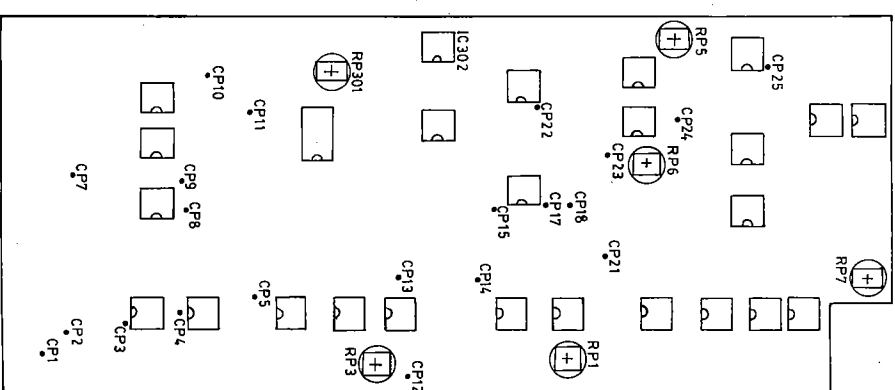
PLL P.C.Board PLL-511



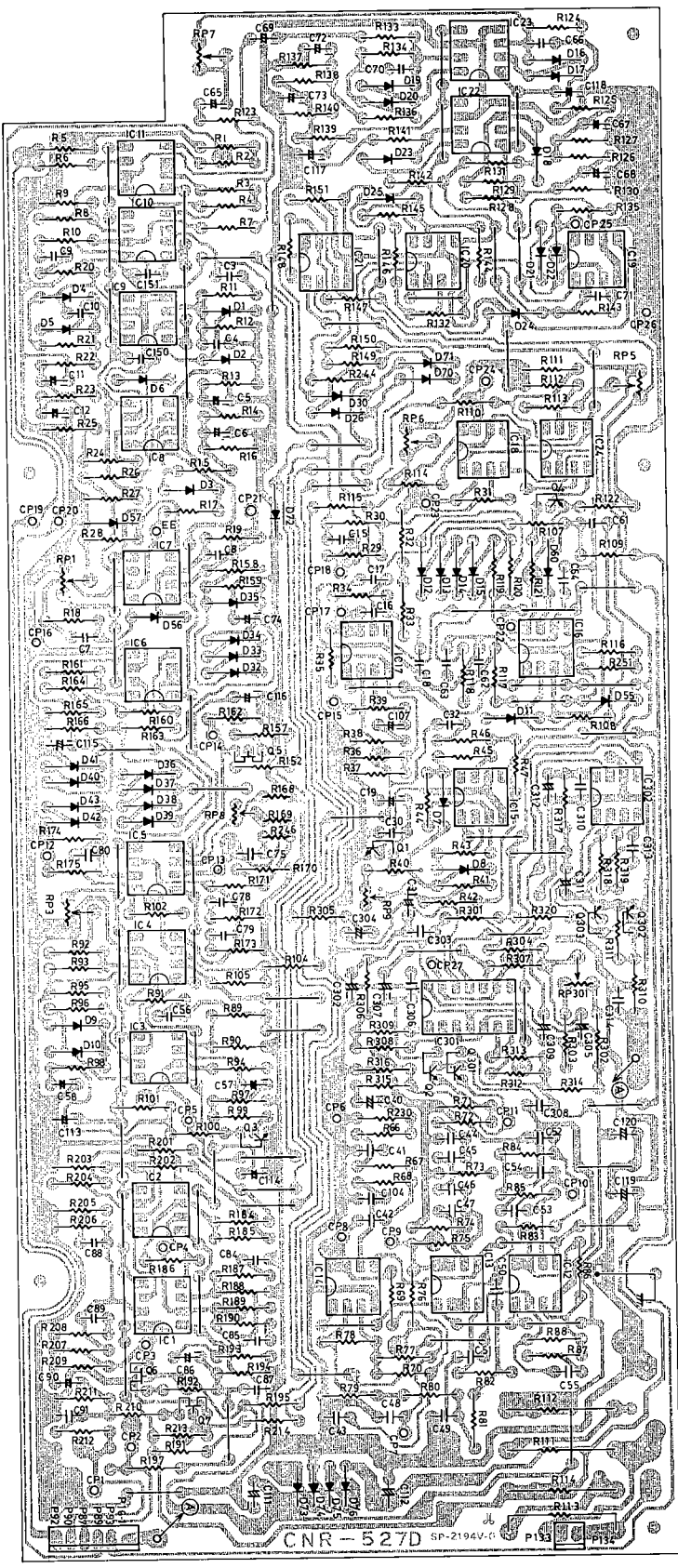
Tuner P.C.Board TIM-510A



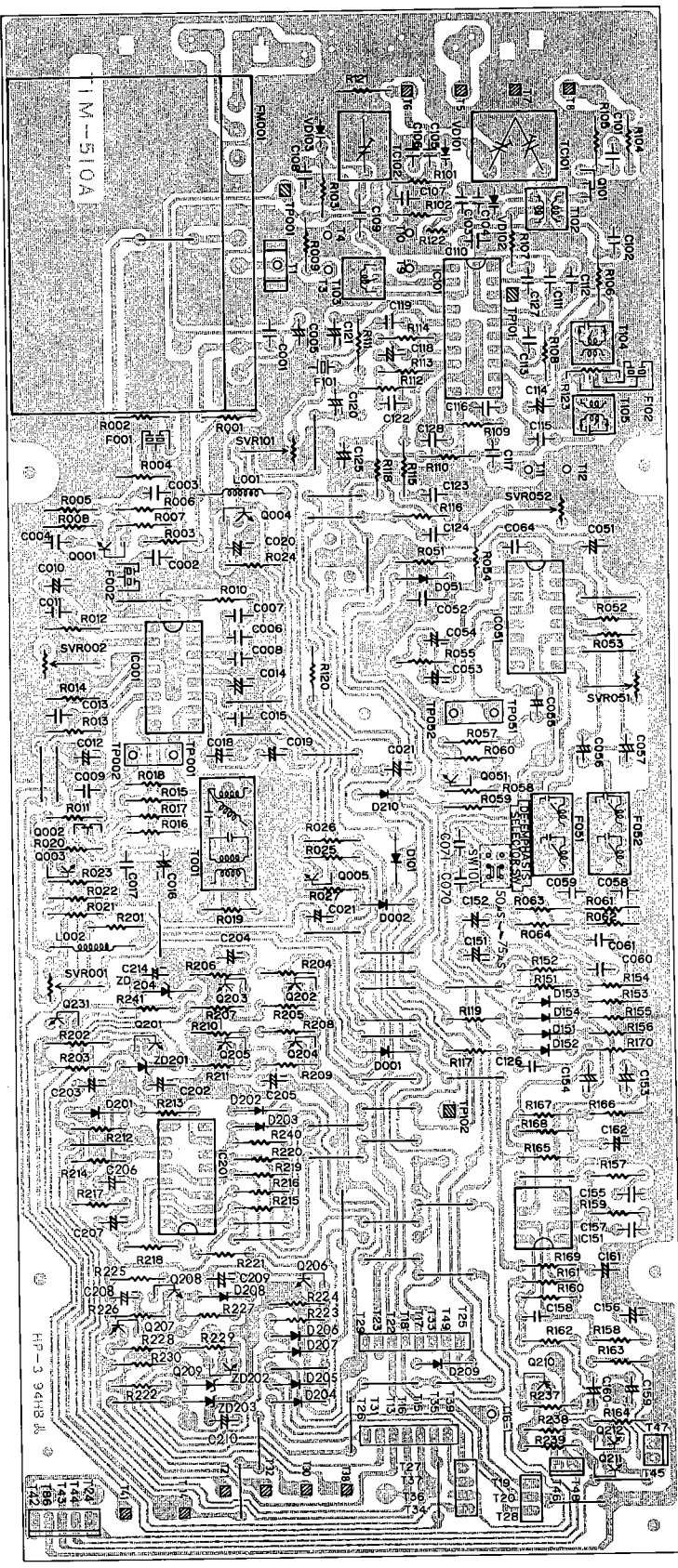
Noise Reduction P.C.Board CNR-572D



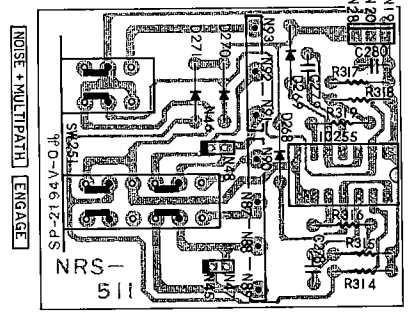
CNR-527D Noise Reduction P.C. Board

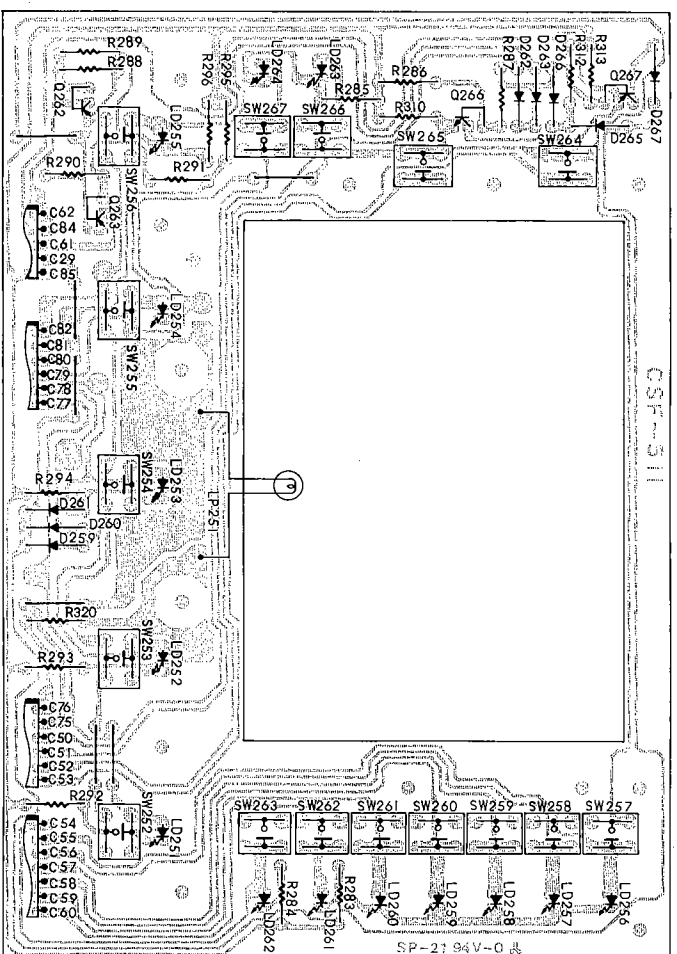


TIM-510A Tuner P.C. Board

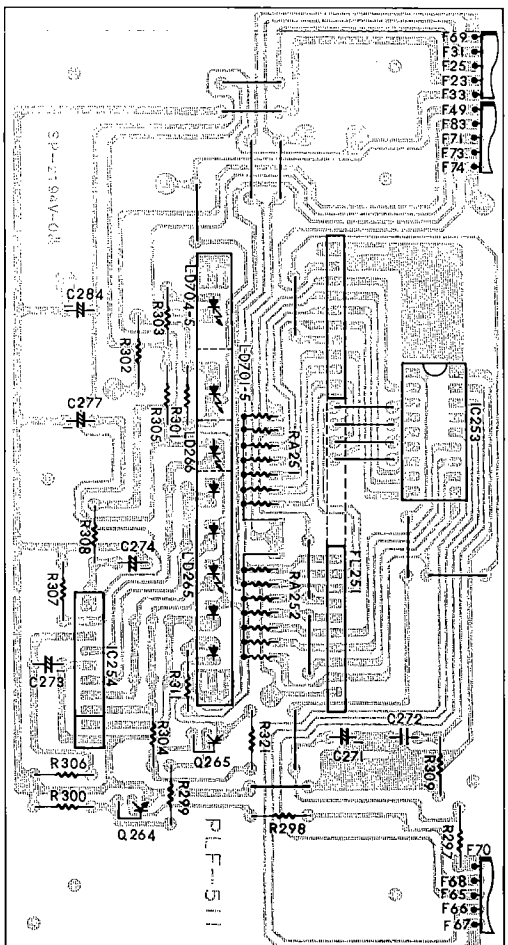
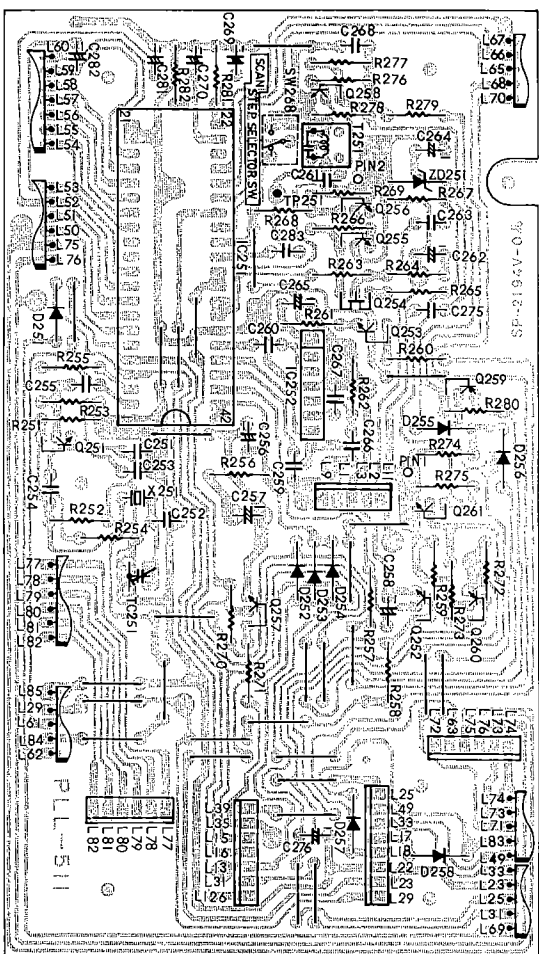


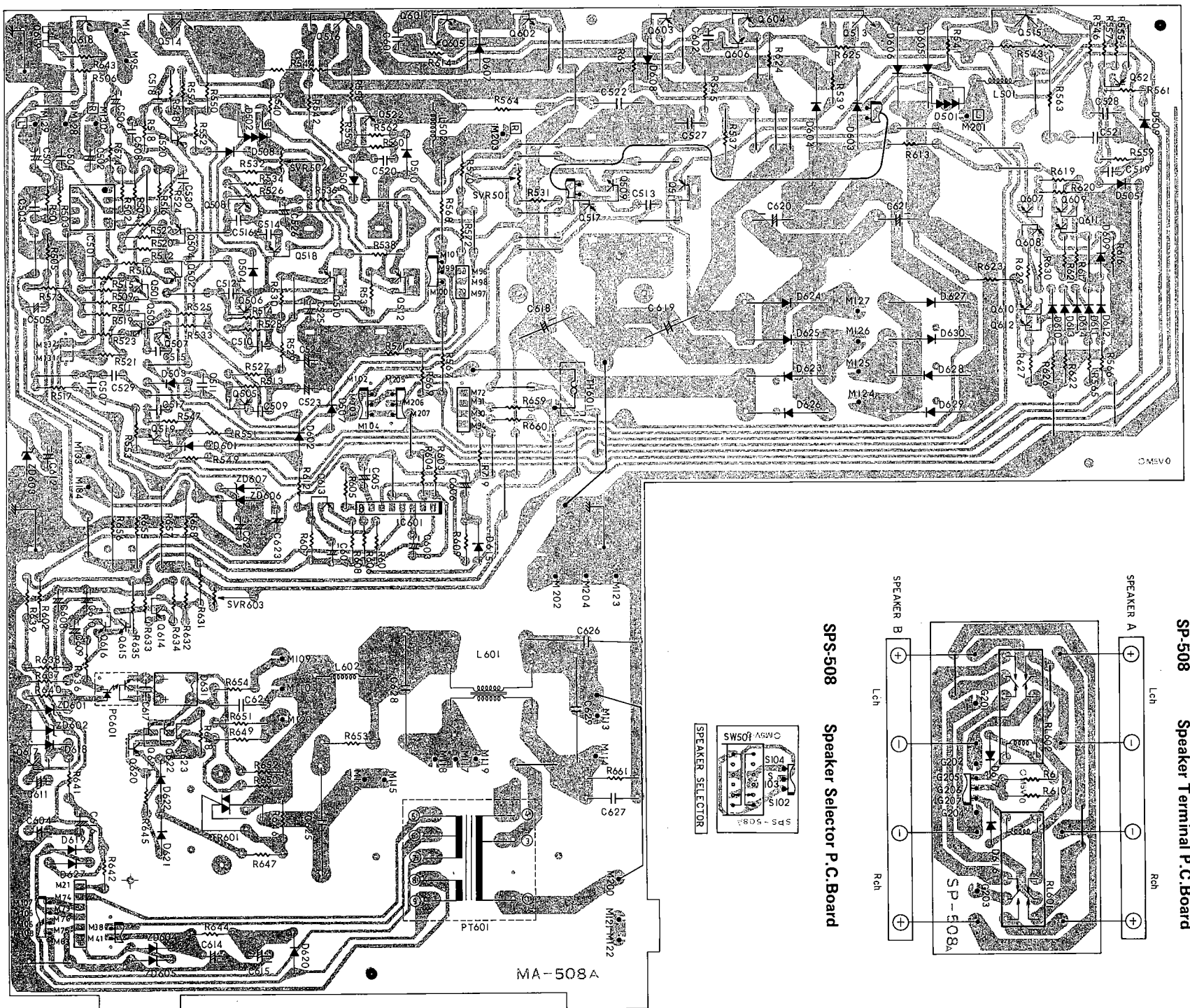
NRS-511 Noise Reduction Switch P.C. Board



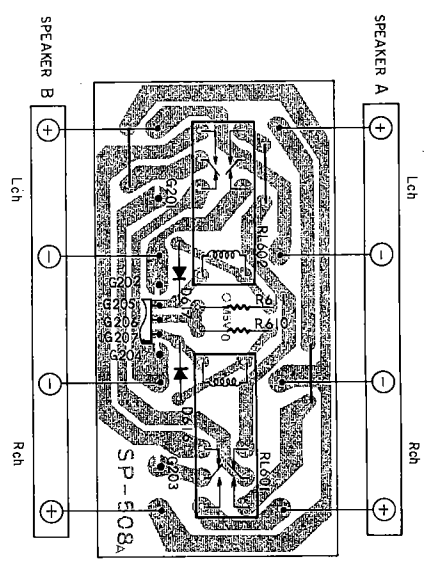


PLL-511 PLL.P.C. Board



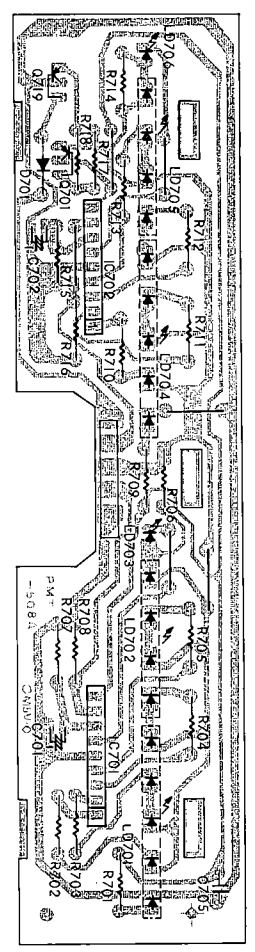


SP-508 Speaker Terminal P.C. Board

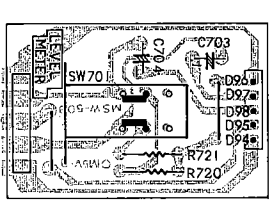


SPS-508 Speaker Selector P.C. Board

PMT-508A Power Output Meter P.C. Board



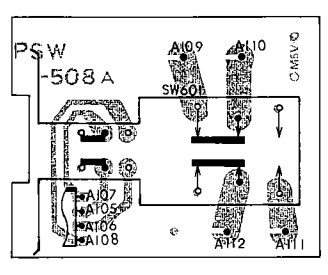
MSW-508A Meter Range Switch P.C. Board



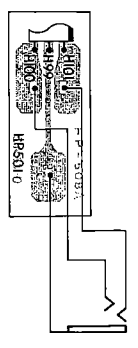
CP-508A Capacitor P.C. Board



PSW-508A Power Switch P.C. Board



HP-508A Headphone Jack P.C. Board



PARTS LISTS

1. CNR-527D P.C. Board Assembly

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
Semiconductors				
ND001~026	26		1S1588	Diode
ND030	1		1S1588	Diode
ND032~043	12		1S1588	Diode
ND055,056	2		1S1588	Diode
ND057	1		1N4004	Diode
ND060	1		1S1588	Diode
ND070~072	3		1S1588	Diode
ND073~076	4		ZD50-060	Zener Diode, 1/2W, 6.0V
NQ001~003	3		2SC1815-Y,GR	Transistor
NQ004	1		2SA1015-Y,GR	Transistor
NQ005~007	3		2SK381-D	Transistor
NQ301~303	3		2SC1815-Y,GR	Transistor
NIC001~023	23		NJM4560D	IC
NIC024	1		or M5218P	IC
			LM3080N	IC
			or RCA3080E	IC
NIC301	1		MN3010	IC
NIC302	1		MN3101	IC
Capacitors				
NC003	1		MY-50VU823K	Mylar Capacitor
NC004	1		MY-50VU102K	Mylar Capacitor
NC005,006	2		LL-16TW4R7M	Low Leak. Electrolytic Cap.
NC007,008	2		HE50SJSJL101K	Ceramic Capacitor
NC009	1		MY-50VU823K	Mylar Capacitor
NC010	1		MY-50VU102K	Mylar Capacitor
NC011,012	2		LL-16TW4R7M	Low Leak. Electrolytic Cap.
NC015	1		MY-50VU222K	Mylar Capacitor
NC016	1		MY-50VU103K	Mylar Capacitor
NC017	1		HE95SJSJL561K	Ceramic Capacitor
NC018	1		MY-50VU392K	Mylar Capacitor
NC019	1		LL-16TW100M	Low Leak. Electrolytic Cap.
NC030	1		HE50SJSJL101K	Ceramic Capacitor
NC031	1		LL-16TW4R7M	Low Leak. Electrolytic Cap.
NC032	1		MY-50VU683K	Mylar Capacitor
NC040	1		LL-16TW4R7M	Low Leak. Electrolytic Cap.
NC041	1		MY-50VU123K	Mylar Capacitor
NC042	1		MY-50VU333K	Mylar Capacitor
NC043	1		MY-50VU223K	Mylar Capacitor
NC044	1		MY-50VU822K	Mylar Capacitor
NC045~047	3		MY-50VU332K	Mylar Capacitor
NC048	1		MY-50VU272K	Mylar Capacitor
NC049	1		MY-50VU182K	Mylar Capacitor
NC050	1		MY-50VU472K	Mylar Capacitor
NC051	1		HE11SJSJL681K	Ceramic Capacitor
NC052	1		MY-50VU472K	Mylar Capacitor
NC053	1		HE11SJSJL681K	Ceramic Capacitor
NC054	1		MY-50VU122K	Mylar Capacitor
NC055	1		MY-50VU222K	Mylar Capacitor
NC056	1		MY-50VU683K	Mylar Capacitor
NC057	1		LL-16TW100M	Low Leak. Electrolytic Cap.
NC058	1		LL-16TW4R7M	Low Leak. Electrolytic Cap.
NC061	1		MY-50VU223K	Mylar Capacitor
NC062	1		ECQV05224JZ	Metallized Film Capacitor
NC063,064	2		MY-50VU104K	Mylar Capacitor
NC065	1		LL-16TW4R7M	Low Leak. Electrolytic Cap.
NC066	1		HE50SJSJL121K	Ceramic Capacitor
NC067~069	3		LL-16TW4R7M	Low Leak. Electrolytic Cap.
NC070	1		HE50SJSJL121K	Ceramic Capacitor
NC071	1		HE50SJSJL101K	Ceramic Capacitor
NC072,073	2		LL-16TW4R7M	Low Leak. Electrolytic Cap.
NC074	1		LL-16TW100M	Low Leak. Electrolytic Cap.
NC075	1		MY-50VU124K	Mylar Capacitor
NC078	1		MY-50VU473K	Mylar Capacitor
NC079	1		MY-50VU123K	Mylar Capacitor
NC080	1		MY-50VU682K	Mylar Capacitor
NC084	1		HE95SJSJL561K	Ceramic Capacitor
NC085	1		MY-50VU393K	Mylar Capacitor
NC086	1		LL-16TW220M	Low Leak. Electrolytic Cap.
NC087	1		MY-50VU102K	Mylar Capacitor
NC088	1		HE11SJSJL751K	Ceramic Capacitor
NC089	1		MY-50VU393K	Mylar Capacitor
NC090	1		LL-16TW220M	Low Leak. Electrolytic Cap.

1. CNR-527D P.C. Board Assembly (cont'd)

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
NC091	1		MY-50VU102K	Mylar Capacitor
NC104	1		MY-50VU182K	Mylar Capacitor
NC107	1		LL-16TW100M	Low Leak. Electrolytic Cap.
NC111,112	2		NS-16TW331M	Electrolytic Capacitor
NC113~120	8		NS-50TW2R2M	Electrolytic Capacitor
NC150,151	2		MY-50VU104K	Mylar Capacitor
NC302	1		NS-25TW470M	Electrolytic Capacitor
NC303	1		HE70SJYF103Z	Ceramic Capacitor
NC304	1		LL-50TW3R3M	Low Leak. Electrolytic Cap.
NC305	1		NS-50TW100M	Electrolytic Capacitor
NC306	1		HE11SJSL681K	Ceramic Capacitor
NC307	1		LL-50TW3R3M	Low Leak. Electrolytic Cap.
NC308	1		MY-50VU122K	Mylar Capacitor
NC309	1		NS-50TW2R2M	Electrolytic Capacitor
NC310	1		HE70SJYF103Z	Ceramic Capacitor
NC311	1		NS-50TW100M	Electrolytic Capacitor
NC312	1		NS-25TW470M	Electrolytic Capacitor
NC313	1		HE12SJCH241J	Ceramic Capacitor
NC314	1		HE70SJYF103Z	Ceramic Capacitor
Resistors				
NR001	1		KA25ST513J	Carbon Resistor
NR002	1		KA25ST222J	Carbon Resistor
NR003,004	2		KA25ST103J	Carbon Resistor
NR005	1		KA25ST513J	Carbon Resistor
NR006	1		KA25ST222J	Carbon Resistor
NR007	1		KA25ST472J	Carbon Resistor
NR008,009	2		KA25ST103J	Carbon Resistor
NR010	1		KA25ST472J	Carbon Resistor
NR011	1		KA25ST223J	Carbon Resistor
NR012	1		KA25ST224J	Carbon Resistor
NR013,014	2		KA25ST222J	Carbon Resistor
NR015	1		KA25ST223J	Carbon Resistor
NR016	1		KA25ST104J	Carbon Resistor
NR017,018	2		KA25ST472J	Carbon Resistor
NR019,020	2		KA25ST223J	Carbon Resistor
NR021	1		KA25ST224J	Carbon Resistor
NR022,023	2		KA25ST222J	Carbon Resistor
NR024	1		KA25ST223J	Carbon Resistor
NR025	1		KA25ST104J	Carbon Resistor
NR026,027	2		KA25ST472J	Carbon Resistor
NR028	1		KA25ST203J	Carbon Resistor
NR029	1		KA25ST562J	Carbon Resistor
NR030	1		KA25ST203J	Carbon Resistor
NR031	1		KA25ST822J	Carbon Resistor
NR032~034	3		KA25ST113J	Carbon Resistor
NR035	1		KA25ST333J	Carbon Resistor
NR036	1		KA25ST153J	Carbon Resistor
NR037	1		KA25ST821J	Carbon Resistor
NR038	1		KA25ST302J	Carbon Resistor
NR039	1		KA25ST104J	Carbon Resistor
NR040	1		KA20ST103J	Carbon Resistor
NR041	1		KA25ST181J	Carbon Resistor
NR042	1		KA25ST224J	Carbon Resistor
NR043,044	2		KA25ST562J	Carbon Resistor
NR045	1		KA25ST224J	Carbon Resistor
NR046	1		KA25ST243J	Carbon Resistor
NR047	1		KA25ST565J	Carbon Resistor
NR066~068	3		KA25ST752J	Carbon Resistor
NR069	1		KA25ST202J	Carbon Resistor
NR070	1		KA25ST183J	Carbon Resistor
NR071,072	2		KA25ST202J	Carbon Resistor
NR073	1		KA25ST103J	Carbon Resistor
NR074	1		KA25ST683J	Carbon Resistor
NR075	1		KA25ST392J	Carbon Resistor
NR076	1		KA25ST202J	Carbon Resistor
NR077	1		KA25ST163J	Carbon Resistor
NR078	1		KA25ST203J	Carbon Resistor
NR079	1		KA25ST303J	Carbon Resistor
NR080	1		KA25ST392J	Carbon Resistor
NR081,82	2		KA25ST752J	Carbon Resistor
NR083	1		KA25ST272J	Carbon Resistor
NR084,85	2		KA25ST302J	Carbon Resistor
NR086	1		KA25ST183J	Carbon Resistor
NR087	1		KA25ST562J	Carbon Resistor

1. CNR-527D P.C. Board Assembly (cont'd)

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
NR088	1		KA25ST203J	Carbon Resistor
NR089	1		KA25ST104J	Carbon Resistor
NR090	1		KA25ST302J	Carbon Resistor
NR091	1		KA25ST243J	Carbon Resistor
NR092	1		KA25ST335J	Carbon Resistor
NR093	1		KA25ST224J	Carbon Resistor
NR094	1		KA25ST333J	Carbon Resistor
NR095,96	2		KA25ST562J	Carbon Resistor
NR097	1		KA25ST153J	Carbon Resistor
NR098	1		KA25ST181J	Carbon Resistor
NR099	1		KA25ST821J	Carbon Resistor
NR100	1		KA25ST434J	Carbon Resistor
NR101	1		KA25ST224J	Carbon Resistor
NR102	1		KA25ST242J	Carbon Resistor
NR104	1		KA25ST183J	Carbon Resistor
NR105	1		KA25ST203J	Carbon Resistor
NR107,108	2		KA25ST912J	Carbon Resistor
NR109	1		KA25ST101J	Carbon Resistor
NR110	1		KA25ST752J	Carbon Resistor
NR111,112	2		KA25ST470J	Carbon Resistor
NR111,112	2		SA-2WT620J	Metal Oxide Resistor
NR113	1		KA25ST104J	Carbon Resistor
NR114	1		KA25ST103J	Carbon Resistor
NR113,114	2		SA-2WT680J	Metal Oxide Resistor
NR115	1		KA25ST202J	Carbon Resistor
NR116	1		KA25ST124J	Carbon Resistor
NR117	1		KA25ST102J	Carbon Resistor
NR118	1		KA25ST113J	Carbon Resistor
NR119	1		KA25ST134J	Carbon Resistor
NR120	1		KA25ST515J	Carbon Resistor
NR121	1		KA25ST102J	Carbon Resistor
NR122	1		KA25ST433J	Carbon Resistor
NR123	1		KA25ST102J	Carbon Resistor
NR124	1		KA25ST563J	Carbon Resistor
NR125,126	2		KA25ST242J	Carbon Resistor
NR127	1		KA25ST912J	Carbon Resistor
NR128	1		KA25ST106J	Carbon Resistor
NR129	1		KA25ST223J	Carbon Resistor
NR130	1		KA25ST912J	Carbon Resistor
NR131	1		KA25ST123J	Carbon Resistor
NR132	1		KA25ST104J	Carbon Resistor
NR133	1		KA25ST562J	Carbon Resistor
NR134	1		KA25ST563J	Carbon Resistor
NR135	1		KA25ST433J	Carbon Resistor
NR136	1		KA25ST242J	Carbon Resistor
NR137	1		KA25ST912J	Carbon Resistor
NR138	1		KA25ST242J	Carbon Resistor
NR139	1		KA25ST106J	Carbon Resistor
NR140	1		KA25ST912J	Carbon Resistor
NR141	1		KA25ST223J	Carbon Resistor
NR142,143	2		KA25ST123J	Carbon Resistor
NR144,145	2		KA25ST393J	Carbon Resistor
NR146,147	2		KA25ST203J	Carbon Resistor
NR148	1		KA25ST104J	Carbon Resistor
NR149,150	2		KA25ST203J	Carbon Resistor
NR151	1		KA25ST104J	Carbon Resistor
NR152	1		KA25ST225J	Carbon Resistor
NR157	1		KA25ST124J	Carbon Resistor
NR158	1		KA25ST561J	Carbon Resistor
NR159	1		KA25ST104J	Carbon Resistor
NR160,161	2		KA25ST223J	Carbon Resistor
NR162	1		KA25ST103J	Carbon Resistor
NR163,164	2		KA25ST133J	Carbon Resistor
NR165,166	2		KA25ST392J	Carbon Resistor
NR168	1		KA20ST682J	Carbon Resistor
NR169	1		KA20ST103J	Carbon Resistor
NR170	1		KA25ST123J	Carbon Resistor
NR171	1		KA25ST223J	Carbon Resistor
NR172,173	2		KA25ST183J	Carbon Resistor
NR174	1		KA25ST222J	Carbon Resistor
NR175	1		KA25ST113J	Carbon Resistor
NR184	1		KA25ST512J	Carbon Resistor
NR185	1		KA25ST103J	Carbon Resistor
NR186	1		KA25ST512J	Carbon Resistor
NR187	1		KA25ST243J	Carbon Resistor
NR188	1		KA25ST753J	Carbon Resistor

1. CNR-527D P.C. Board Assembly (cont'd)

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
NR189	1		KA25ST243J	Carbon Resistor
NR190	1		KA25ST203J	Carbon Resistor
NR191	1		KA25ST104J	Carbon Resistor
NR192	1		KA25ST121J	Carbon Resistor
NR193	1		KA25ST222J	Carbon Resistor
NR194	1		KA25ST183J	Carbon Resistor
NR195	1		KA25ST472J	Carbon Resistor
NR197	1		KA25ST621J	Carbon Resistor
NR201	1		KA25ST512J	Carbon Resistor
NR202	1		KA25ST303J	Carbon Resistor
NR203	1		KA25ST103J	Carbon Resistor
NR204	1		KA25ST512J	Carbon Resistor
NR205	1		KA25ST243J	Carbon Resistor
NR206	1		KA25ST473J	Carbon Resistor
NR207	1		KA25ST243J	Carbon Resistor
NR208	1		KA25ST203J	Carbon Resistor
NR209	1		KA25ST222J	Carbon Resistor
NR210	1		KA25ST121J	Carbon Resistor
NR211	1		KA25ST183J	Carbon Resistor
NR212	1		KA25ST621J	Carbon Resistor
NR213	1		KA25ST104J	Carbon Resistor
NR214	1		KA25ST472J	Carbon Resistor
NR230	1		KA25ST303J	Carbon Resistor
NR244	1		KA25ST152J	Carbon Resistor
NR246	1		KA20ST242J	Carbon Resistor
NR251	1		KA25ST184J	Carbon Resistor
NR301	1		KA25ST510J	Carbon Resistor
NR302,303	2		KA25ST242J	Carbon Resistor
NR304	1		KA25ST104J	Carbon Resistor
NR305	1		KA25ST102J	Carbon Resistor
NR306,307	2		KA25ST104J	Carbon Resistor
NR308,309	2		KA25ST562J	Carbon Resistor
NR310	1		KA25ST104J	Carbon Resistor
NR311	1		KA25ST513J	Carbon Resistor
NR312,312	2		KA25ST512J	Carbon Resistor
NR314	1		KA25ST513J	Carbon Resistor
NR315	1		KA25ST911J	Carbon Resistor
NR316	1		KA25ST202J	Carbon Resistor
NR317	1		KA25ST510J	Carbon Resistor
NR318	1		KA25ST223J	Carbon Resistor
NR319,320	2		KA25ST513J	Carbon Resistor
NRP001	1		SVR-10T3B104CK	Semi-Variable Resistor
NRP003	1		SVR-10T3B225CK	Semi-Variable Resistor
NRP005	1		SVR-10T3B224CK	Semi-Variable Resistor
NRP006	1		SVR-10T3B104CK	Semi-Variable Resistor
NRP007	1		SVR-10T3B203CK	Semi-Variable Resistor
NRP008	1		SVR-06T3B204CK	Semi-Variable Resistor
NRP009	1		SVR-06T3B105CK	Semi-Variable Resistor
NRP301	1		SVR-10T3B472CK	Semi-Variable Resistor
Miscellaneous				
	20		GT-M01W01	Glass Tube (for R111~114,301,317,D073~076)
	1		171826-2	Micro Plug (P113,134)
	1		171826-6	Micro Plug (P16-1,87,89,90,92,93)
CP13,14	2		RP-003	Terminal Pin

2. CP-508A P.C. Board Assembly

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
C824,825	2		HC10SJZF473Z	Ceramic Capacitor
	2		T10150	Shield Contact

3. CSF-511 P.C. Board Assembly

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
Semiconductors				
D259~263	5		1S1588	Diode
			or DS442	Diode
D265~267	3		1S1588	Diode
			or DS442	Diode
Q262,263	2		2SA1015-Y,GR	Transistor
Q266	1		2SC1815-GR,BL	Transistor

3. CSF-511 P.C. Board Assembly (cont'd)

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
Q267	1		2SA1015-Y,GR	Transistor
LD251~255	5		TLR205	LED
LD256~261	6		TLG205	LED
LD262	1		TLR205	LED
LD263,364	2		TLG205	LED
LD701~5,704~5	2		TLR205	LED
Resistors				
R283	1		KA25ST431J	Carbon Resistor
R284	1		KA25ST102J	Carbon Resistor
R285	1		KA25ST431J	Carbon Resistor
R286	1		KA25ST104J	Carbon Resistor
R287	1		KA25ST103J	Carbon Resistor
R288	1		KA25ST153J	Carbon Resistor
R289	1		KA25ST333J	Carbon Resistor
R290	1		KA25ST153J	Carbon Resistor
R291	1		KA25ST333J	Carbon Resistor
R292~296	5		KA25ST472J	Carbon Resistor
R310	1		KA25ST104J	Carbon Resistor
R312,313	2		KA25ST473J	Carbon Resistor
R320	1		KA25ST510J	Carbon Resistor
Switches				
SW252~267	16		KHH10906	Tact Switch
Miscellaneous				
LP251	1		BQ141-35853A	Lamp, 12V, 0.07A

4. FEQ-508A P.C. Board Assembly

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
Semiconductors				
D801,802	2		1S1588	Diode
Q801,802	2		2SC1815-Y,GR	Transistor
IC801	1		NJM2060D	IC
IC802	1		TC9152P	IC
IC803	1		NJM4560DX or M5218PR	IC
Capacitors				
C801,802	2		HE50SJS104K	Ceramic Capacitor
C803,804	2		NS-10TW221M	Electrolytic Capacitor
C805,806	2		MY-50VU562J	Mylar Capacitor
C807,808	2		MY-50VU182J	Mylar Capacitor
C809~812	4		MY-50VU473J	Mylar Capacitor
C813,814	2		LL-16TW220M	Low Leak. Electrolytic Cap.
C815	1		MY-50VU683J	Mylar Capacitor
C816	1		NS-16TW101M	Electrolytic Capacitor
C817,819	2		ECQV05104JZ	Metallized Film Capacitor
C818,820	2		NS-16TW222M	Electrolytic Capacitor
C821	1		NS-16TW470M	Electrolytic Capacitor
C822,823	2		HE40SJYB471K	Ceramic Capacitor
Resistors				
R801,802	2		KA25ST331J	Carbon Resistor
R803,804	2		KA25ST473J	Carbon Resistor
R805,806	2		KA25ST821J	Carbon Resistor
R807,808	2		KA25ST514J	Carbon Resistor
R809,810	2		KA25ST393J	Carbon Resistor
R811,812	2		KA25ST391J	Carbon Resistor
R813,814	2		KA25ST513J	Carbon Resistor
R815,816	2		KA25ST334J	Carbon Resistor
R817,818	2		KA25ST104J	Carbon Resistor
R819,820	2		KA25ST223J	Carbon Resistor
R821,822	2		KA25ST271J	Carbon Resistor
R823~826	4		KA25ST222J	Carbon Resistor
R827	1		KA25ST104J	Carbon Resistor
R828	1		KA25ST101J	Carbon Resistor
R829	1		KA25ST471J	Carbon Resistor

4. FEQ-508A P.C. Board Assembly (cont'd)

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
R830	1		KA25ST473J	Carbon Resistor
R831	1		KA25ST222J	Carbon Resistor
R832,833	2		KA25ST104J	Carbon Resistor
R851,852	2		KA25ST513J	Carbon Resistor
R853,854	2		KA25ST102J	Carbon Resistor
R855,856	2		KA25ST621J	Carbon Resistor
Switches				
S801	1		SW-5230128	Slide Switch
S802	1		SW-5430129	Slide Switch
Miscellaneous				
	2		SK-501202	Short Pin
	3		T5916-ABAA	RCA Jack 6P
	1		MC05-278	Micro Socket Ass'y (E24,42~44,86)
	1		MC06-270	Micro Socket Ass'y (E77~82)
	1		MC02-279	Micro Socket Ass'y (E147,148)
E128~130	3		RP-001	Terminal Pin
E135~137	3		RP-001	Terminal Pin
E144~146	3		RP-001	Terminal Pin

5. HP-508A P.C. Board Assembly

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
HP501	1		YKB11-5010-S	H.P. Jack

6. MA-508A P.C. Board Assembly

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
Semiconductors				
D501,502	2		KB362M	Diode
D503~510	8		1N4148	Diode
D601,602	2		1N4148	Diode
D603~606	4		30DF2FC	Diode
D607~610	4		1N4002	Diode
D611~614	4		1N4148	Diode
D615,618~622	6		1N4002	Diode
D623~630	8		P300DL	Diode
D631	1		1B4B42	Diode
D632	1		1N4002	Diode
Q501,502	2		2SC2240-GR,BL	Transistor
Q503,504	2		2SA970-GR,BL	Transistor
Q505,506	2		2SA914-Q,R	Transistor
Q507,508	2		or 2SA1124-Q,R	Transistor
			2SC1953-Q,R	Transistor
			or 2SC2632-Q,R	Transistor
Q509,510	2		2SC3298-Q,Y	Transistor
Q511,512	2		2SA1306-O,Y	Transistor
Q513,514	2		2SC3281LB-R,O	Transistor
Q515,516	2		2SA1302LB-R,O	Transistor
Q517,518	2		2SC1815-GR,BL	Transistor
Q519,520	2		2SC1815-GR	Transistor
Q521,522	2		2SA1015-GR	Transistor
Q601,602	2		2SD1411-O,Y	Transistor
Q603,604	2		2SB1018-O,Y	Transistor
Q605	1		2SA1111-Q,R	Transistor
Q606	1		2SC2591-Q,R	Transistor
Q607	1		2SC2240-GR,BL	Transistor
Q608,609	2		2SA970-GR,BL	Transistor
Q610	1		2SC2240-GR,BL	Transistor
Q611	1		2SA970-GR,BL	Transistor
Q612	1		2SC2240-GR,BL	Transistor
Q613,614	2		2SA970-GR,BL	Transistor
Q615~617	3		2SC1815-GR,BL	Transistor
Q618	1		2SD1406-Y,GR	Transistor
Q619	1		2SK381-D	Transistor
Q620,622	2		2SC1815-GR	Transistor
Q621,623	2		2SA1015-GR	Transistor
IC501	1		NJM072DE	IC
IC601	1		UPC1237H	IC
PC601	1		TLP631	Photo Coupler

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
TR601	1		SM12G41	Triac
ZD601	1		ZD50-225	Zener Diode, 1/2W, 22.5V
ZD602	1		ZD50-100	Zener Diode, 1/2W, 10.0V
ZD603	1		ZD50-132	Zener Diode, 1/2W, 13.2V
ZD604	1		ZD50-041	Zener Diode, 1/2W, 4.1V
ZD605	1		ZD50-051	Zener Diode, 1/2W, 5.1V
ZD606,607	2		ZD50-162	Zener Diode, 1/2W, 16.2V
Capacitors				
C501,502	2		LL-25TW4R7M	Low Leak. Electrolytic Cap.
C503,504	2		HE90SJSL471K	Ceramic Capacitor
C505,506	2		NS-10TW101M	Electrolytic Capacitor
C507,508	2		HE40SJSL560K	Ceramic Capacitor
C509,510	2		ECQV05334JZ	Metallized Film Capacitor
C511,512	2		HM60SJSL101K	Ceramic Capacitor
C513,514	2		SC45F1H104Z	Ceramic Capacitor
C515,516	2		HM60SJSL101K	Ceramic Capacitor
C517~520	4		HE70SJYF103Z	Ceramic Capacitor
C521,522	2		ECQM1104MZ	Polyester Film Capacitor
C523~526	4		MS100TW1R0M	Electrolytic Capacitor
C527,528	2		ECQM1473MZ	Polyester Film Capacitor
C529,530	2		HE40SJSL100K	Ceramic Capacitor
C601,602	2		HM95SJYB272K	Ceramic Capacitor
C603	1		NS-10TW101M	Electrolytic Capacitor
C604	1		NS-50TW2R2M	Electrolytic Capacitor
C605	1		NS-25TW101M	Electrolytic Capacitor
C606	1		NS-50TW101M	Electrolytic Capacitor
C607	1		NS-50TW100M	Electrolytic Capacitor
C608	1		NS-25TW101M	Electrolytic Capacitor
C609	1		NS-50TW4R7M	Electrolytic Capacitor
C610	1		NS-50TW100M	Electrolytic Capacitor
C611,612	2		NS-16TW470M	Electrolytic Capacitor
C614	1		NS-50TW100M	Electrolytic Capacitor
C615	1		NS-16TW101M	Electrolytic Capacitor
C616	1		NS-50TW2R2M	Electrolytic Capacitor
C617	1		ECQV05393JZ	Metallized Film Capacitor
C618,619	2		BC63103MB80FC5	Electrolytic Capacitor
C620,621	2		BC42822XB50CC3	Electrolytic Capacitor
C622	1		NS-25TW471M	Electrolytic Capacitor
C623	1		NS-25TW101M	Electrolytic Capacitor
C624	1		ECQM1H224V	Polyester Film Capacitor
C625	1		MMS104M	Metallized Film Capacitor
C626,627	2		ECQU1A332MH	Metallized Film Capacitor
C628,629	2		ECQU1A104MH	Metallized Film Capacitor
Resistors				
R501,502	2		KA25ST102J	Carbon Resistor
R503,504	2		KA25ST473J	Carbon Resistor
R505,506	2		KA25ST102J	Carbon Resistor
R509,510	2		KA25ST103J	Carbon Resistor
R511,512	2		KA25ST272J	Carbon Resistor
R513,514	2		KA25ST102J	Carbon Resistor
R515,516	2		KA25ST272J	Carbon Resistor
R517,518	2		MF25ST223G	Metal Film Resistor
R519,520	2		KA25ST272J	Carbon Resistor
R521,522	2		KA25ST103J	Carbon Resistor
R523,524	2		KA25ST272J	Carbon Resistor
R525,526	2		KA25ST102J	Carbon Resistor
R527,528	2		KA25ST680J-LP	Carbon Resistor
R529,530	2		KA25ST100J-LP	Carbon Resistor
R531,532	2		KA25ST331J	Carbon Resistor
R533,534	2		KA25ST680J-LP	Carbon Resistor
R535,536	2		KA25ST100J-LP	Carbon Resistor
R537,538	2		KA50ST221J-LP	Carbon Resistor
R539~542	4		KA25ST4R7J-LP	Carbon Resistor
R543,544	2		MPC722R22KX2LF	Cement Resistor
R545,546	2		KA25ST100J-LP	Carbon Resistor
R547,548	2		KA25ST111J	Carbon Resistor
R549,550	2		KA25ST201J	Carbon Resistor
R551,552	2		KA25ST432J	Carbon Resistor
R553~556	4		KA25ST271J	Carbon Resistor
R557,558	2		KA25ST201J	Carbon Resistor
R559,560	2		KA25ST111J	Carbon Resistor
R561,562	2		KA25ST432J	Carbon Resistor

6. MA-508A P.C. Board Assembly (cont'd)

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
R563,564	2		SA-2WT4R7J	Metal Oxide Resistor
R565,566	2		KA25ST101J	Carbon Resistor
R567,568	2		SA-1WT152J	Metal Oxide Resistor
R569,570	2		KA25ST124J	Carbon Resistor
R571,572	2		KA25ST432J	Carbon Resistor
R573,574	2		KA25ST393J	Carbon Resistor
R601	1		KA25ST473J	Carbon Resistor
R602	1		KA25ST562J	Carbon Resistor
R603~605	3		KA25ST563J	Carbon Resistor
R606	1		KA25ST103J	Carbon Resistor
R607	1		KA25ST153J	Carbon Resistor
R608	1		KA25ST472J	Carbon Resistor
R609	1		KA25ST823J	Carbon Resistor
R612	1		KA25ST153J	Carbon Resistor
R613	1		KA50ST222J	Carbon Resistor
R614	1		KA25ST102J	Carbon Resistor
R615	1		KA50ST472J	Carbon Resistor
R616	1		KA25ST822J	Carbon Resistor
R617	1		KA25ST105J	Carbon Resistor
R619	1		KA25ST223J	Carbon Resistor
R620	1		KA25ST103J	Carbon Resistor
R621	1		KA25ST473J	Carbon Resistor
R622	1		KA25ST105J	Carbon Resistor
R623	1		KA50ST222J	Carbon Resistor
R624	1		KA25ST102J	Carbon Resistor
R625	1		KA50ST472J	Carbon Resistor
R626	1		KA25ST113J	Carbon Resistor
R627	1		KA25ST473J	Carbon Resistor
R629	1		KA25ST223J	Carbon Resistor
R630,631	2		KA25ST103J	Carbon Resistor
R632	1		KA25ST513J	Carbon Resistor
R633,634	2		KA25ST103J	Carbon Resistor
R635	1		KA50ST332J	Carbon Resistor
R636,637	2		KA25ST222J	Carbon Resistor
R638	1		KA25ST103J	Carbon Resistor
R639	1		KA25ST223J	Carbon Resistor
R640	1		KA25ST224J	Carbon Resistor
R641	1		KA25ST103J	Carbon Resistor
R642	1		KA25ST822J	Carbon Resistor
R643	1		KA25ST392J	Carbon Resistor
R644	1		KA25ST561J	Carbon Resistor
R645	1		KA25ST104J	Carbon Resistor
R646	1		KA25ST102J	Carbon Resistor
R647	1		KA25ST4R7J	Carbon Resistor
R648	1		KA25ST104J	Carbon Resistor
R649	1		KA25ST274J	Carbon Resistor
R650	1		KA25ST273J	Carbon Resistor
R651	1		SA-1WT823J	Metal Oxide Resistor
R652	1		KA25ST153J	Carbon Resistor
R653	1		KA50ST180J	Carbon Resistor
R654	1		KA25ST100J	Carbon Resistor
R655	1		SA-2WT681J	Metal Oxide Resistor
R656	1		SA-2WT620J	Metal Oxide Resistor
R657	1		SA-2WT821J	Metal Oxide Resistor
R658	1		SA-2WT680J	Metal Oxide Resistor
R659	1		KA25ST102J	Carbon Resistor
R660	1		KA25ST152J-LP	Carbon Resistor
R661	1		KA50ST335J	Carbon Resistor
R719	1		KA25ST104J	Carbon Resistor
SVR501,502	2		SVR-08T3B202	Semi-Variable Resistor
SVR603	1		SVR-08T3B503	Semi-Variable Resistor
Coils				
L501,502	2		104001	Air-Core Coil
L601	1		SC-05-200	Choke Coil
L602	1		SF-HP-6A-01	Choke Coil
PT601	1		NPT-1594	Power Transformer
PT602	1		NPT-1584-A	Power Transformer
Miscellaneous				
	1		AC229	Mica (for TR601)
	4		AC262	Mica (for Q513~516)
	1		AC316A	Insulation Washer (for TR601)
	8		GT-M01W015	Glass Tube (for R655~658)

6. MA-508A P.C. Board Assembly (cont'd)

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
TH601 TP601~604	4		GT-M01W03	Glass Tube (for D501,502)
	1		OSH-3030-SP	Heat Sink (for TR601)
	4		SH-1230	Heat Sink (for Q509~512)
	2		TB-1116	Bush (for PT602)
	1		MC56-272	Micro Socket Ass'y (M63,72~76,94~98)
	1		MC02-434	Micro Socket (M133,134)
	1		UI2-10005-200A	Thermal Relay
	1		IPS-1136	Terminal Pin
	4			

7. MSW-508A P.C. Board Assembly

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
C703,704	2		LL-50TW1R0M	Low Leak. Electrolytic Cap.
R720,721	2		KA25ST821J	Carbon Resistor
SW701	1		SW-1100130	Push Switch
	1		171826-5	Micro Plug (D94~98)

8. NRS-511 P.C. Board Assembly

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
Semiconductors				
D268~271	4		1S1588	Diode
IC255	1		or DS442	Diode
			M4001B	IC
Capacitors				
C278,279	2		MY-50VU223M	Mylar Capacitor
C280	1		HC75SJZF223Z	Ceramic Capacitor
Resistors				
R314	1		KA25ST103J	Carbon Resistor
R315	1		KA25ST225J	Carbon Resistor
R316,317	2		KA25ST103J	Carbon Resistor
R318	1		KA25ST225J	Carbon Resistor
R319	1		KA25ST103J	Carbon Resistor
Switches				
SW251	1		SW-1200133	Push Switch
Miscellaneous				
	1		MC06-435	Micro Socket Ass'y (N16-1,87,89,90,92,93)
	1		171825-3	Micro Plug (N19,20,28)
	1		MC02-286	Micro Societ Ass'y (N45,47)
	1		MC02-306	Micro Socket Ass'y (N46,48)
	1		WE-4	Terminal Pin (N87~90)
	1		WE-3	Terminal Pin (N91~93)

9. PA-509 P.C. Board Assembly

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
Semiconductors				
IC401	1		NJM4560DX or M5218PR	IC IC
Capacitors				
C401,402	2		LL-25TW4R7M	Low Leak. Electrolytic Cap.
C403,404	2		HE50SJSL121K	Ceramic Capacitor
C405,406	2		MY-50VU682J	Mylar Capacitor
C407,408	2		LL-25TW4R7M	Low Leak. Electrolytic Cap.
Resistors				
R401,402	2		KA25ST101J	Carbon Resistor
R403,404	2		KA25ST104J	Carbon Resistor
R405,406	2		KA25ST162J	Carbon Resistor
R407,408	2		KA25ST103J	Carbon Resistor

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
R409,410	2		KA25ST271J	Carbon Resistor
R411,412	2		KA25ST473J	Carbon Resistor
R447,448	2		KA25ST225J	Carbon Resistor
R451,452	2		KA25ST103J	Carbon Resistor
Switches				
S401	1		SW-1200131	Push Switch
S402	1		SW-1200132	Push Switch
Miscellaneous				
	1		171825-4	Micro Plug (B27,34,36,37)
	1		171825-2	Micro Plug (B147,148)

10. PLF-511 P.C. Board Assembly

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
Semiconductors				
Q264	1		2SC1815-GR,BL	Transistor
Q265	1		2SA1015-Y,GR	Transistor
IC253	1		TC9158P	IC
IC254	1		BA6137	IC
LD265	1		TLG205-5	LED
LD266	1		TLG205	LED
Capacitors				
C271	1		NS-10TW221M	Electrolytic Capacitor
C272	1		MY-50VU332J	Mylar Capacitor
C273	1		NS-50TW1R0M	Electrolytic Capacitor
C274	1		NS-50TW100M	Electrolytic Capacitor
C277	1		NS-16TW101M	Electrolytic Capacitor
C284	1		NS-50TW1R0M	Electrolytic Capacitor
Resistors				
R297	1		KA25ST470J-LP	Carbon Resistor
R298,299	2		KA25ST473J	Carbon Resistor
R300	1		KA25ST104J	Carbon Resistor
R301	1		KA25ST181J	Carbon Resistor
R302	1		KA50ST471J	Carbon Resistor
R303	1		KA25ST332J	Carbon Resistor
R304	1		KA25ST473J	Carbon Resistor
R305	1		KA25ST101J	Carbon Resistor
R306	1		KA25ST103J	Carbon Resistor
R307	1		KA25ST223J	Carbon Resistor
R308	1		KA25ST681J	Carbon Resistor
R309	1		KA25ST223J	Carbon Resistor
R311	1		KA25ST122J	Carbon Resistor
R321	1		KA25ST104J	Carbon Resistor
RA251,252	2		RA-IP-07104K	Networks Resistor
Miscellaneous				
FL251	2		GT-M01W01	Glass Tube (for R305)
	1		FG710D1	Fluorescence Lamp

11. PLL-511 P.C. Board Assembly

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
Semiconductors				
D251~258	8		1S1588 or DS442	Diode Diode
Q251	1		2SC2668-O,Y	Transistor
Q252,253	2		2SC1815-GR,BL	Transistor
Q254	1		2SK222-E	Transistor
Q255~258	4		2SC1815-GR,BL	Transistor
Q259,260	2		2SA1015-Y,GR	Transistor
Q261	1		2SC1815-GR,BL	Transistor
IC251	1		TC9147BP	IC
IC252	1		TD6104P	IC

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
ZD251	1		ZD50-285	Zener Diode, 1/2W, 28.5V
Capacitors				
C251	1		HE70SJYF103Z	Ceramic Capacitor
C252	1		HE40SJSLO20D	Ceramic Capacitor
C253,254	2		HE80SJSLS331K	Ceramic Capacitor
C255	1		HE70SJYF103Z	Ceramic Capacitor
C256	1		NS-10TW101M	Electrolytic Capacitor
C257	1		NS6R3TW102M	Electrolytic Capacitor
C258	1		NS-50TW220M	Electrolytic Capacitor
C259,260	2		HE70SJYF103Z	Ceramic Capacitor
C261	1		HC75SJJZF223Z	Ceramic Capacitor
C262	1		LL-50TWR47M	Low Leak. Electrolytic Cap.
C263	1		MY-50VU153J	Mylar Capacitor
C264	1		NS-35TW470M	Electrolytic Capacitor
C265	1		NS-25TW470M	Electrolytic Capacitor
C266	1		HE50SJYB102K	Ceramic Capacitor
C267,268	2		HE70SJYF103Z	Ceramic Capacitor
C269,270	2		NS-50TW1R0M	Electrolytic Capacitor
C275	1		HE50SJYB102K	Ceramic Capacitor
C276	1		NS-50TW2R2M	Electrolytic Capacitor
C281,282	2		NS-50TW2R2M	Electrolytic Capacitor
C283	1		HC75SJJZF223Z	Ceramic Capacitor
TC251	1		CTZ53F113	Trimmer Capacitor
Resistors				
R251	1		KA25ST123J	Carbon Resistor
R252	1		KA25ST153J	Carbon Resistor
R253,254	2		KA25ST681J	Carbon Resistor
R255	1		KA25ST472J	Carbon Resistor
R256	1		KA25ST471J	Carbon Resistor
R257	1		KA25ST822J	Carbon Resistor
R258,259	2		KA25ST473J	Carbon Resistor
R260	1		KA25ST103J	Carbon Resistor
R261	1		KA25ST470J	Carbon Resistor
R262	1		KA25ST333J	Carbon Resistor
R263,264	2		KA25ST103J	Carbon Resistor
R265	1		KA25ST221J	Carbon Resistor
R266	1		KA25ST121J	Carbon Resistor
R267	1		KA25ST103J	Carbon Resistor
R268	1		KA25ST222J	Carbon Resistor
R269,270	2		KA25ST102J	Carbon Resistor
R271	1		KA25ST473J	Carbon Resistor
R272	1		KA25ST103J	Carbon Resistor
R273,274	2		KA25ST223J	Carbon Resistor
R275	1		KA25ST104J	Carbon Resistor
R276	1		KA25ST223J	Carbon Resistor
R277	1		KA25ST684J	Carbon Resistor
R278	1		KA25ST104J	Carbon Resistor
R279	1		KA25ST221J	Carbon Resistor
R280	1		KA25ST104J	Carbon Resistor
R281	1		KA25ST753J	Carbon Resistor
R282	1		KA25ST473J	Carbon Resistor
Coils				
T251	1		140032	AM IFT
Switches				
SW268	1		SSS212A	Slide Switch
Miscellaneous				
	2		GT-M01W01	Glass Tube (for R265)
	3		KGLS-6S	Spacer
	1		171825-5	Micro Plug (L1~3,9,11)
	1		171825-7	Micro Plug (L13,15,16,31,35,39,126)
	1		171825-8	Micro Plug (L17,18,22,23,25,29,33,49)
	1		171825-6	Micro Plug (L63,72~76)
	1		171825-6	Micro Plug (L77~82)
X251	1		HC18/U7.199MHZ	Quartz Oscillator Unit
TP251	1		RP-001	Terminal Pin

12. PMT-508A P.C. Board Assembly

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
Semiconductors				
D701	1		1S1588	Diode
Q701,719	2		2SA1015-Y,GR	Transistor
IC701,702	2		BA6137	IC
LD701,702	2		TLR205-5	LED
LD703,706	2		TLY205	LED
LD704,705	2		TLR205-5	LED
Capacitors				
C701,702	2		NS-50TW100M	Electrolytic Capacitor
C705	1		SC45F1H104Z	Ceramic Capacitor
Resistors				
R701~705	5		KA25ST272J	Carbon Resistor
R706	1		KA25ST471J	Carbon Resistor
R707	1		KA25ST153J	Carbon Resistor
R708	1		KA25ST473J	Carbon Resistor
R709~713	5		KA25ST272J	Carbon Resistor
R714	1		KA25ST471J	Carbon Resistor
R715	1		KA25ST153J	Carbon Resistor
R716	1		KA25ST473J	Carbon Resistor
R717	1		KA25ST104J	Carbon Resistor
R718	1		KA25ST473J	Carbon Resistor

13. PSW-508A P.C. Board Assembly

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
SW601	1		SW-1100138	Power Switch

14. SLD-511 P.C. Board Assembly

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
PIN1,2	2		MK-1095	Terminal Pin

15. SP-508A P.C. Board Assembly

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
D616,617	2		1N4002	Diode
R610,611	2		KA50ST821J	Carbon Resistor
	1		YKD31-0061	Socket 8P (S.P.)
RL601,602	2		FBR621D024	Relay

16. SPS-508A P.C. Board Assembly

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
SW501	1		SW-2246137	Rotary Switch

17. TIM-510A P.C. Board Assembly

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
Semiconductors				
D001,051,101	3		1S1588	Diode
D002	1		or DS442	Diode
D151~154	4		20A99A	Diode
			1S1588	Diode
D201	1		or DS442	Diode
			1S1588	Diode
D202	1		or DS442	Diode
D203~210	8		20A99A	Diode
			1S1588	Diode
			or DS442	Diode
Q001	1		2SC2668-O,Y	Transistor
Q002	1		2SK381-D	Transistor
Q003	1		2SC1815-GR,BL	Transistor
Q004	1		2SC2878-A,B	Transistor
Q005,051	2		2SC1815-GR,BL	Transistor
Q101	1		2SK161-GR	Transistor

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
Q201	1		2SC3242A-E,F	Transistor
Q202,204	2		2SA1282A-E,F	Transistor
Q203	1		2SC1815-GR,BL	Transistor
Q205,206	2		2SC1815-GR,BL	Transistor
Q207,210	1		2SA1015-Y,GR	Transistor
Q208,209	2		2SC1815-GR,BL	Transistor
Q211,212	2		2SC2878-A,B	Transistor
Q231	1		2SC3242A-E,F	Transistor
IC001	1		LA1235	IC
IC051	1		LA3350SS	IC
IC101	1		LA1245	IC
IC151	1		LA6458D	IC
IC201	1		BA6251	IC
VD101~103	3		SVC333-A	Diode
Z201	1		ZD50-062	Zener Diode, 1/2W, 6.2V
ZD202	1		ZD50-031	Zener Diode, 1/2W, 3.1V
ZD203	1		ZD50-200	Zener Diode, 1/2W, 20.0V
ZD204	1		ZD50-117	Zener Diode, 1/2W, 11.7V
Capacitors				
C001~004	4		HC10SJZF473Z	Ceramic Capacitor
C005	1		LL-50TW1R0M	Low Leak. Electrolytic Capacitor
C006~009	4		HC10SJZF473Z	Ceramic Capacitor
C010	1		NS-50TW1R0M	Electrolytic Capacitor
C011	1		HC10SJZF473Z	Ceramic Capacitor
C012	1		NS-50TWR47M	Electrolytic Capacitor
C013	1		HC10SJZF473Z	Ceramic Capacitor
C014	1		NS-50TW1R0M	Electrolytic Capacitor
C015	1		HE40SJSL560K	Ceramic Capacitor
C016	1		NS-16TW221M	Electrolytic Capacitor
C017	1		HC10SJZF473Z	Ceramic Capacitor
C018	1		NS-50TW1R0M	Electrolytic Capacitor
C019	1		NS-50TWR47M	Electrolytic Capacitor
C020	1		NS-10TW101M	Electrolytic Capacitor
C021	1		LL-16TW100M	Low Leak. Electrolytic Cap.
C051	1		NS-16TW221M	Electrolytic Capacitor
C052	1		ST-50VS152J	Styrol Capacitor
C053	1		MS-50TWR22M	Electrolytic Capacitor
C054	1		NS-50TWR47M	Electrolytic Capacitor
C055	1		NS-50TW4R7M	Electrolytic Capacitor
C056,057	2		LL-25TW4R7M	Low Leak. Electrolytic Cap.
C058,059	2		MY-50VU332J	Mylar Capacitor
C060	1		MY-50VU393J	Mylar Capacitor
C061	1		MY-50VU223J	Mylar Capacitor
C064	1		MY-50VU473J	Mylar Capacitor
C070	1		MY-50VU393J	Mylar Capacitor
C071	1		MY-50VU223J	Mylar Capacitor
C101	1		HC75SJZF223Z	Ceramic Capacitor
C102	1		HC10SJZF473Z	Ceramic Capacitor
C103	1		HC75SJZF223Z	Ceramic Capacitor
C104	1		HE40SJSL100K	Ceramic Capacitor
C105	1		HE40SJSL030D	Ceramic Capacitor
C106,107	2		HC75SJZF223Z	Ceramic Capacitor
C108	1		HE40SJSL180K	Ceramic Capacitor
C109	1		ST-50VS481J	Styrol Capacitor
C110	1		HC10SJZF473Z	Ceramic Capacitor
C111	1		HE50SJYB102K	Ceramic Capacitor
C112	1		HC10SJZF473Z	Ceramic Capacitor
C113	1		HC75SJZF223Z	Ceramic Capacitor
C114	1		NS-50TW100M	Electrolytic Capacitor
C115,116	2		HC75SJZF223Z	Ceramic Capacitor
C117	1		HE50SJYB102K	Ceramic Capacitor
C118	1		NS-50TWR47M	Electrolytic Capacitor
C119	1		HC10SJZF473Z	Ceramic Capacitor
C120	1		NS-50TW100M	Electrolytic Capacitor
C121	1		NS-50TW4R7M	Electrolytic Capacitor
C122	1		HE70SJYF103Z	Ceramic Capacitor
C123	1		MY-50VU222J	Mylar Capacitor
C124	1		MY-50VU102J	Mylar Capacitor
C125	1		NS-16TW101M	Electrolytic Capacitor
C126	1		ECQV05334JZ	Metallized Film Capacitor
C127	1		HC75SJZF223Z	Ceramic Capacitor
C128	1		HE50SJYB102K	Ceramic Capacitor
C151,152	2		LL-25TW4R7M	Low Leak. Electrolytic Cap.

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
C153,154	2		LL-50TWR47M	Low Leak. Electrolytic Cap.
C155,156	2		NS-50TW100M	Electrolytic Capacitor
C157,158	2		HE40SJS1470K	Ceramic Capacitor
C159,160	2		LL-25TW4R7M	Low Leak. Electrolytic Cap.
C161	1		NS-16TW101M	Electrolytic Capacitor
C162	1		NS-10TW101M	Electrolytic Capacitor
C201	1		NS-16TW221M	Electrolytic Capacitor
C202	1		NS-25TW470M	Electrolytic Capacitor
C203	1		NS-10TW221M	Electrolytic Capacitor
C204,205	2		NS-25TW470M	Electrolytic Capacitor
C206	1		NS-10TW101M	Electrolytic Capacitor
C207	1		NS-25TW470M	Electrolytic Capacitor
C208	1		NS-50TW1R0M	Electrolytic Capacitor
C209	1		NS-50TW100M	Electrolytic Capacitor
C210,214	2		NS-25TW470M	Electrolytic Capacitor
TC101-1	1		CTC-6U-010	Trimmer Capacitor
TC101	1		CTY212D64	Trimmer Capacitor
TC102	1		CTY122D362	Trimmer Capacitor
Resistors				
R002	1		KA25ST101J	Carbon Resistor
R003	1		KA25ST221J	Carbon Resistor
R004	1		KA25ST471J	Carbon Resistor
R005	1		KA25ST182J	Carbon Resistor
R006	1		KA25ST103J	Carbon Resistor
R007	1		KA25ST331J	Carbon Resistor
R008	1		KA25ST182J	Carbon Resistor
R009	1		KA25ST151J	Carbon Resistor
R010	1		KA25ST331J	Carbon Resistor
R011	1		KA25ST470J	Carbon Resistor
R012	1		KA25ST563J	Carbon Resistor
R013	1		KA25ST273J	Carbon Resistor
R014	1		KA25ST333J	Carbon Resistor
R015	1		KA25ST472J	Carbon Resistor
R016	1		KA25ST822J	Carbon Resistor
R017	1		KA25ST123J	Carbon Resistor
R018	1		KA25ST391J	Carbon Resistor
R019	1		KA25ST222J	Carbon Resistor
R020	1		KA25ST225J	Carbon Resistor
R021	1		KA25ST103J	Carbon Resistor
R022-024	3		KA25ST104J	Carbon Resistor
R025	1		KA25ST683J	Carbon Resistor
R026,027	2		KA25ST103J	Carbon Resistor
R051	1		KA25ST470J	Carbon Resistor
R052,053	2		KA25ST332J	Carbon Resistor
R054	1		KA25ST822J	Carbon Resistor
R055	1		KA25ST102J	Carbon Resistor
R057	1		KA25ST103J	Carbon Resistor
R058	1		KA25ST472J	Carbon Resistor
R059,060	2		KA25ST473J	Carbon Resistor
R061,062	2		KA25ST332J	Carbon Resistor
R063,064	2		KA25ST272J	Carbon Resistor
R101-103	3		KA25ST104J	Carbon Resistor
R104	1		KA25ST221J	Carbon Resistor
R105	1		KA25ST104J	Carbon Resistor
R106	1		KA25ST101J	Carbon Resistor
R107	1		KA25ST221J	Carbon Resistor
R108	1		KA25ST152J	Carbon Resistor
R109	1		KA25ST471J	Carbon Resistor
R110	1		KA25ST101J	Carbon Resistor
R111,112	2		KA25ST103J	Carbon Resistor
R113	1		KA25ST101J	Carbon Resistor
R114	1		KA25ST820J	Carbon Resistor
R115	1		KA25ST102J	Carbon Resistor
R116	1		KA25ST332J	Carbon Resistor
R117	1		KA25ST183J	Carbon Resistor
R118	1		KA25ST220J	Carbon Resistor
R119	1		KA25ST472J	Carbon Resistor
R120	1		KA25ST154J	Carbon Resistor
R121	1		KA25ST184J	Carbon Resistor
R122	1		KA25SS394J	Carbon Resistor
R123	1		KA25ST132J	Carbon Resistor
R151,152	2		KA25ST822J	Carbon Resistor
R153,154	2		KA25ST473J	Carbon Resistor
R155,156	2		KA25ST822J	Carbon Resistor

CARVER

SERVICE BULLETIN

MXR130

1

DATE Aug. 30, 1984

PRODUCT Receiver MXR-130

PCB

SERVICE PRIORITY

All Units

Serial Nos. (specify)

RTS / Dealer Stock

XX

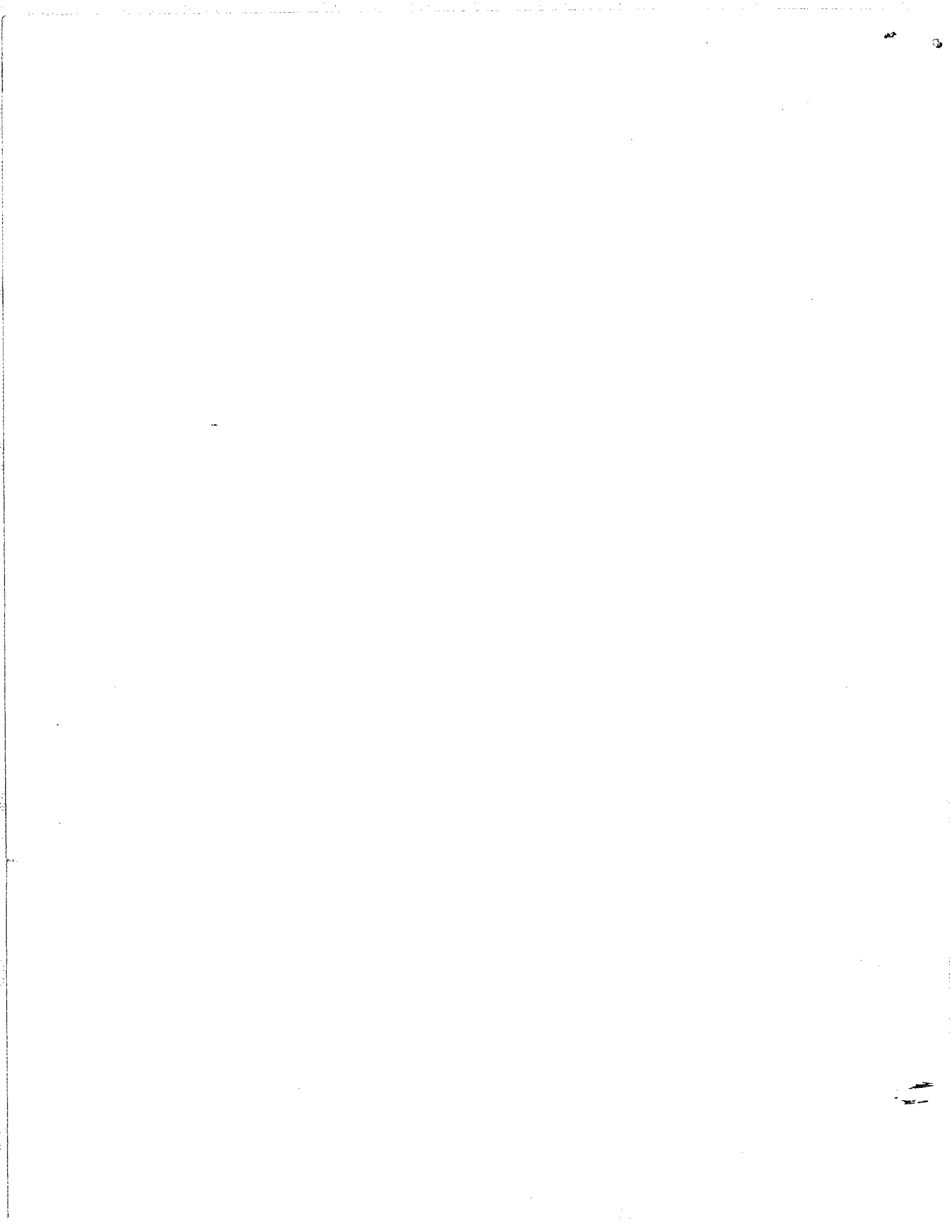
Specific Complaint

PROCEDURE

PROBLEM: FM display works but there is no signal strength indication or sound.

This problem has been traced to leaky or shorted disk ceramic caps at the input of IC 001. To verify this possibility check the voltage at pins 1, 2 & 3 of IC 001. The voltage at these three pins must be identical, (approximately 2.6 volts). If there is any wide variance (.2 volts or greater) change capacitors C006, C007 and C008. This will restore balance to the differential input stage of IC 001 and allow proper operation.

MXR 130



CARVER

SERVICE BULLETIN

MR-130

2

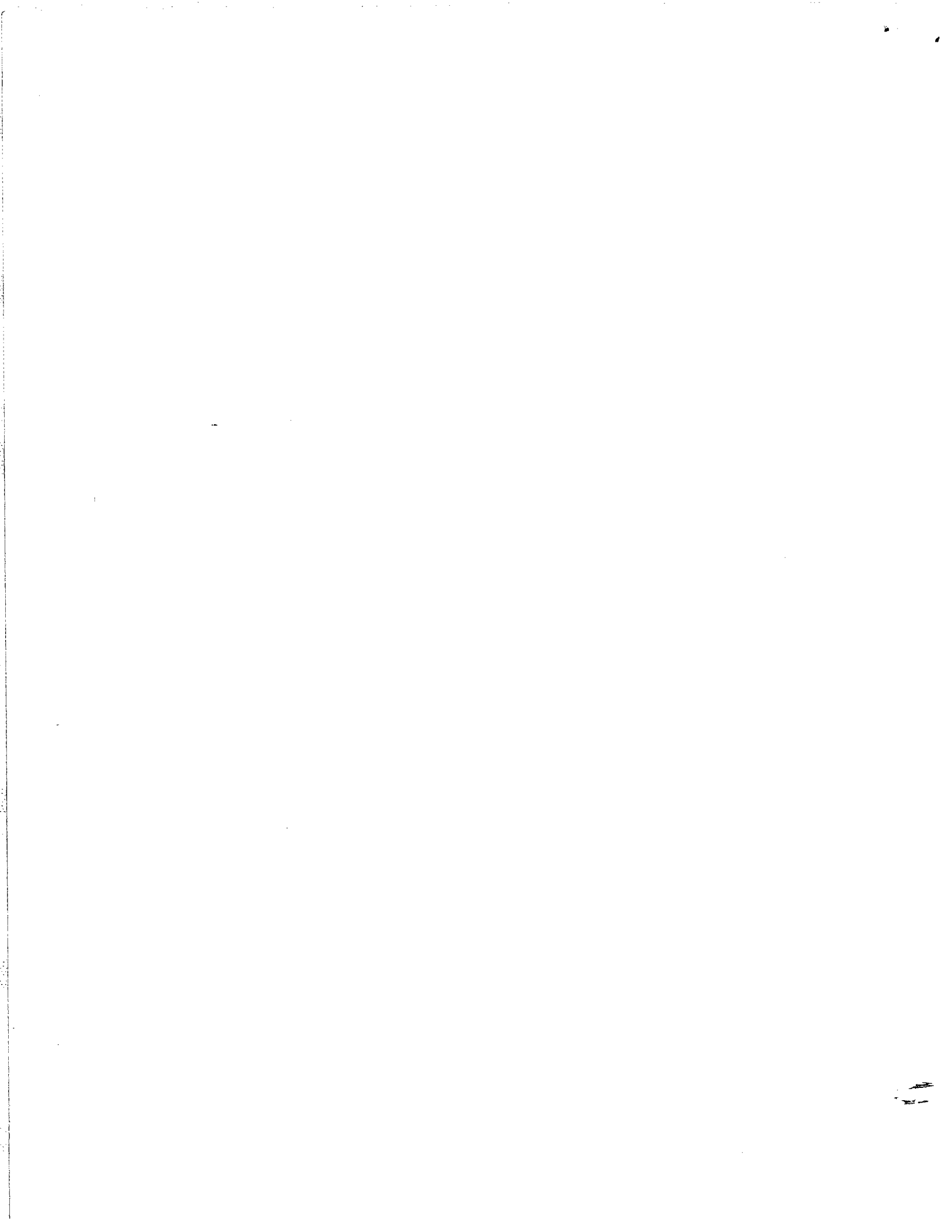
DATE Aug. 20, 1984	PRODUCT Receiver MXR-130	PCB
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SERVICE PRIORITY		All Units
	X	Serial Nos. (specify) Serial No's prefix 406 and lower
		RTS / Dealer Stock
		Specific Complaint

PROCEDURE

- PROBLEM:**
- 1 High pitch squeal with no input and volume control at 10:00 position
 - 2 Intermittent AM/FM display
 - 3 One channel cuts out on AM or FM

Most of the above symptoms can be corrected by applying contact cleaner to the 5 molex connectors on the back side of the AM/FM display circuit board. These connectors are accessible by removing the top cover of the receiver.



CARVER

SERVICE BULLETIN

MXR-130

3

DATE Aug 30, 1984

PRODUCT Receiver MXR-130

PCB

SERVICE PRIORITY

All Units

X

Serial Nos. (specify) Serial No's prefix 406 or lower

RTS / Dealer Stock

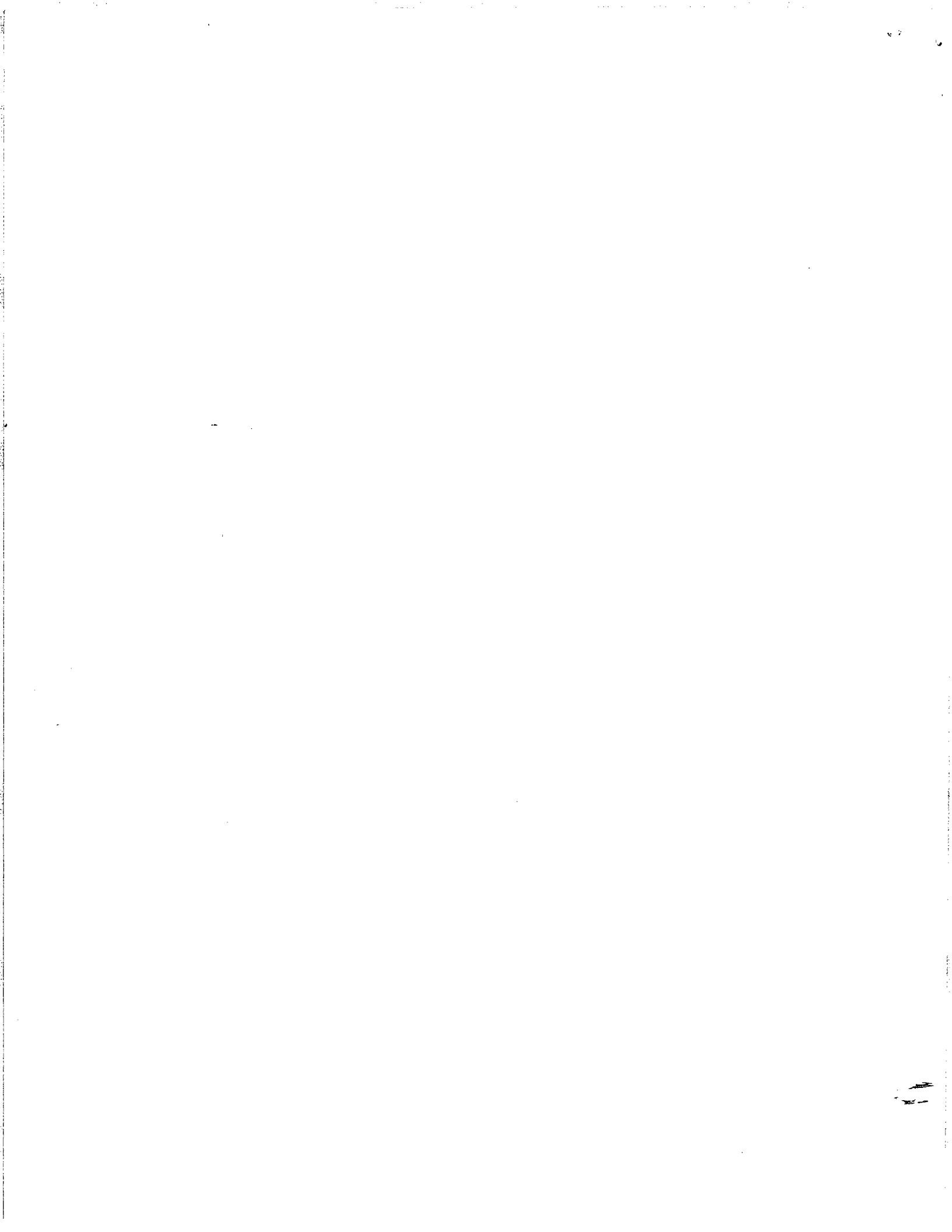
Specific Complaint

PROCEDURE

- PROBLEM: Loud "pop" thru the speakers when the unit is turned off.

To correct this problem install a .01 uF ceramic capacitor of 500V capacity or greater across the switched and unswitched AC outlets of the receiver. The AC outlets are accessible by removing the bottom panel of the receiver.

NOTE: Be sure that the leads of the capacitors are trimmed close to ensure that there is no possibility of their making contact with the chassis bottom cover.



CARVER	SERVICE BULLETIN	<i>MXR-130</i>	4
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DATE 10-15-86	PRODUCT MXR-130	PCB
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SERVICE PRIORITY		All Units
		Serial Nos. (specify)
		Specific Complaint

PROCEDURE

Problem: Intermittant channels (distortion)
(channel drop out)

Cause! Defective relays

Fix: Replace relays



CARVER

SERVICE BULLETIN

MXR-130

5

DATE 10-15-86	PRODUCT MXR-130	PCB
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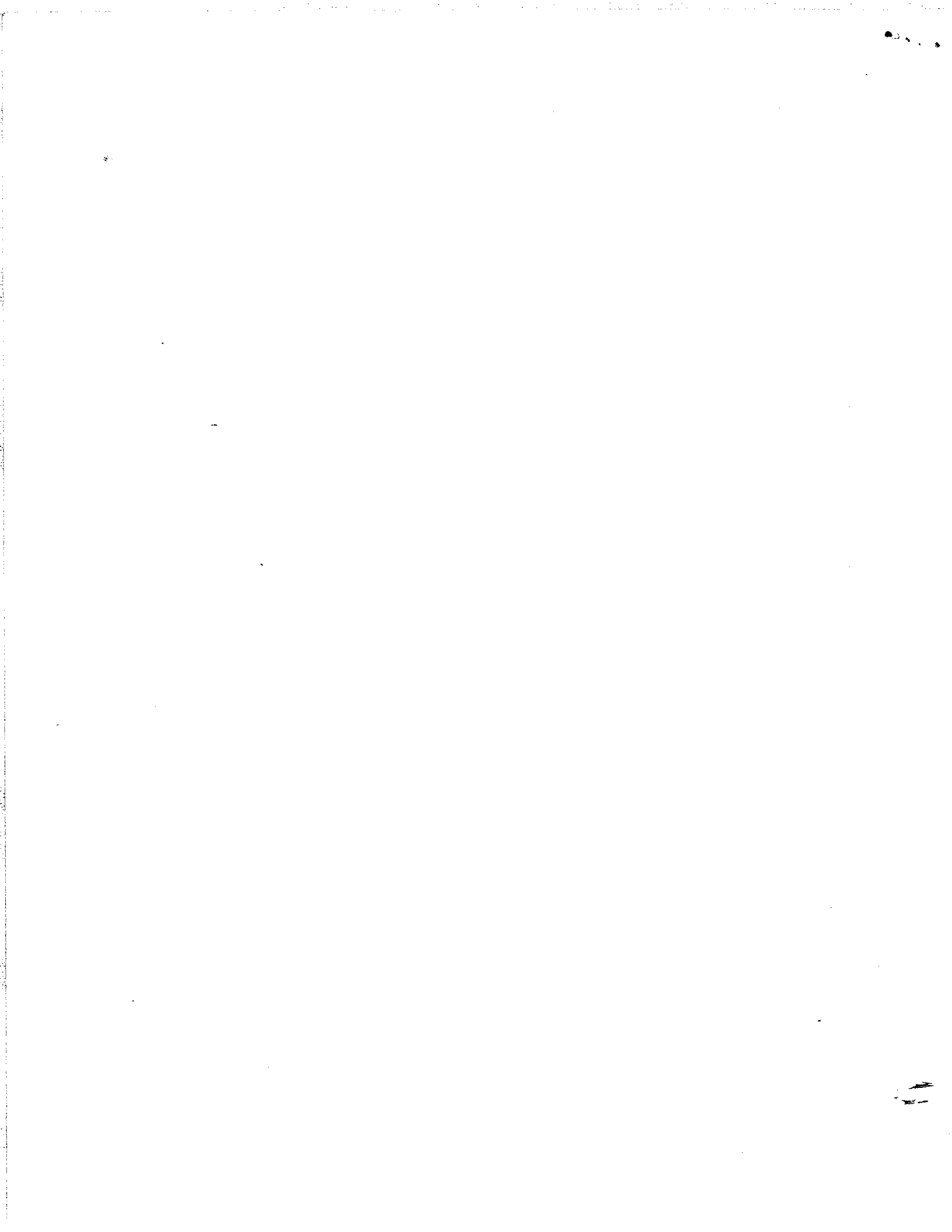
SERVICE PRIORITY	All Units
	Serial Nos. (specify)
	Specific Complaint

PROCEDURE

Problem: Unit is dead. No out put very dim lights.

Cause! R635 3.3K 1/2W. Burns open.

Fix: Replace R635 3.3K 1/2W with 3.3K 1W.



CARVER	SERVICE BULLETIN	<i>MXR-130</i>	<i>6</i>
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DATE 10-15-86	PRODUCT MXR-130	PCB
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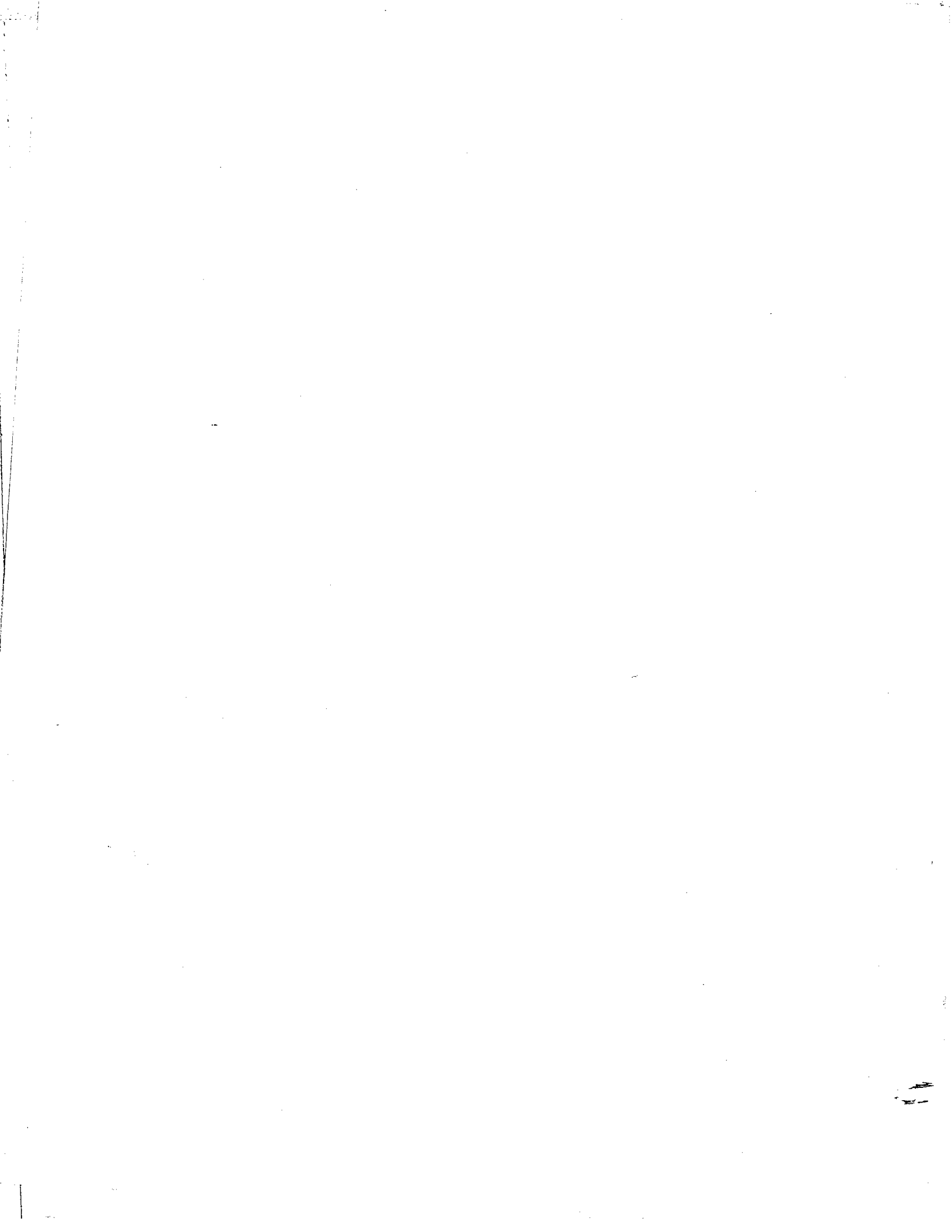
SERVICE PRIORITY	All Units
	Serial Nos. (specify)
	Specific Complaint HIGH PITCH WHINE

PROCEDURE

Problem: High pitch whine (clock noise).

Cause! Gray signal cable with red bands.
Runs between volume pot PCB and
tone amp PCB. Poor sheilding in
cable.

Fix: Replace cable



17. TIM-510A P.C. Board Assembly (cont'd)

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
R157,158	2		KA25ST912J	Carbon Resistor
R159,160	2		KA25ST104J	Carbon Resistor
R161,162	2		KA25ST182J	Carbon Resistor
R163,164	2		KA25ST103J	Carbon Resistor
R165~168	4		KA25ST104J	Carbon Resistor
R169	1		KA25ST101J	Carbon Resistor
R170	1		KA25ST473J	Carbon Resistor
R201	1		KA25ST150J	Carbon Resistor
R202	1		KA50ST121J	Carbon Resistor
R203	1		KA25ST272J	Carbon Resistor
R204,206	2		KA25ST104J	Carbon Resistor
R205,207	2		KA25ST103J	Carbon Resistor
R208,210	2		KA25ST104J	Carbon Resistor
R209,211	2		KA25ST103J	Carbon Resistor
R212	1		KA25ST273J	Carbon Resistor
R213	1		KA25ST220J	Carbon Resistor
R214	1		KA25ST333J	Carbon Resistor
R215,216	2		KA25ST472J	Carbon Resistor
R217	1		KA25ST333J	Carbon Resistor
R218	1		KA25ST220J	Carbon Resistor
R219	1		KA25ST102J	Carbon Resistor
R220	1		KA25ST472J	Carbon Resistor
R221	1		KA25ST103J	Carbon Resistor
R222	1		KA25ST104J	Carbon Resistor
R223	1		KA25ST473J	Carbon Resistor
R224~226	3		KA25ST104J	Carbon Resistor
R227	1		KA25ST473J	Carbon Resistor
R228	1		KA25ST223J	Carbon Resistor
R229	1		KA25ST104J	Carbon Resistor
R230	1		KA25ST223J	Carbon Resistor
R237	1		KA25ST103J	Carbon Resistor
R238~240	3		KA25ST472J	Carbon Resistor
R241	1		KA25ST271J	Carbon Resistor
SVR001	1		SVR-08T3B503	Semi-Variable Resistor
SVR002	1		SVR-08T3B203	Semi-Variable Resistor
SVR051	1		SVR-08T3B501CM	Semi-Variable Resistor
SVR052	1		SVR-08T3B502CM	Semi-Variable Resistor
SVR101	1		SVR-08T3B103	Semi-Variable Resistor
Coils				
F051,052	2		184016	Filter Block
L001,002	2		100025	Inductor
T001	1		141026	FM Det Coil
T101	1		122036	Loopstic Ant.
T102	1		126041	MW RF Coil
T103	1		135020	MW OSC Coil
T104	1		140048	AM IFT
T105	1		140049	AM IFT
Switches				
SW101	1		SW-5220157	Slide Switch
Miscellaneous				
	18		GT-M01W01	Glass Tube (for R001,003,051,110,118,169,201,202)
	6		U9-#18B01	UL Type Tube (for C052,109,R123)
	1		JP-Y24C01	Jump Wire
	1		VSC-10	Space Clip
	1		MC05-269	Micro Socket Ass'y (T1,3,9,11)
	1		MC07-271	Micro Socket Ass'y (T13,15,16,26,31,35,39)
	1		MC08-273	Micro Socket Ass'y (T17,18,22,23,25,29,33,49)
	1		MB03-307	Micro Plug Ass'y (T19,20,28)
	1		MB04-308	Micro Plug Ass'y (T27,34,36,37)
	1		171825-5	Micro Plug (T24,42~44,86)
	2		171825-2	Micro Plug (T45,47;T46,48)
F001,002	2		SFE10.7MS2GHYA	Ceramic Filter
F101	1		BFU450K	Ceramic Filter
F102	1		BFU450B3	Ceramic Filter
T5-8,14,21,30,32,41	10		RP-001	Terminal Pin
AT001	1		YKD31-0084	Ant. Terminal
FM001	1		FD292E15	Front-end
TP001	1		RP-001	Terminal Pin
TP001,002	1		WE-2	Terminal Pin
TP051,052	1		WE-2	Terminal Pin

17. TIM-510A P.C. Board Assembly (cont'd)

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
TP101,102	2		RP-001	Terminal Pin

18. TON-509 P.C. Board Assembly

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
Semiconductors				
IC402	1		NJM4560DX or M5218PR	IC IC
Capacitors				
C409,410	2		ECQV05334JZ	Metallized Film Capacitor
C411,412	2		MY-50VU123J	Mylar Capacitor
C413,414	2		MY-50VU154J	Mylar Capacitor
C415,416	2		MY-50VU123J	Mylar Capacitor
C417,418	2		MY-50VU272J	Mylar Capacitor
C419~422	4		LL-25TW4R7M	Low Leak. Electrolytic Cap.
C423,424	2		HE70SJS221K	Ceramic Capacitor
C425,426	2		ECQV05334JZ	Matallized Film Capacitor
C427,428	2		ECQV05104JZ	Metallized Film Capacitor
C429,430	2		LL-25TW4R7M	Low Leak. Electrolytic Cap.
Resistors				
R413,414	2		KA25ST562J	Carbon Resistor
R415~418	4		KA25ST152J	Carbon Resistor
R419,420	2		KA25ST562J	Carbon Resistor
R421,422	2		KA25ST222J	Carbon Resistor
R423,424	2		KA25ST562J	Carbon Resistor
R425~428	4		KA25ST152J	Carbon Resistor
R429~432	4		KA25ST103J	Carbon Resistor
R433~436	4		KA25ST152J	Carbon Resistor
R437,438	2		KA25ST274J	Carbon Resistor
R439,440	2		KA25ST562J	Carbon Resistor
R441,442	2		KA25ST471J	Carbon Resistor
R443,444	2		KA25ST473J	Carbon Resistor
R445,446	2		KA25ST474J	Carbon Resistor
VR401~403	3		VBT16-203B21K7	Rotary Potentiometer

19. VR-509 P.C. Board Assembly

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
Capacitors				
C451,452	2		MY-50VU823J	Mylar Capacitor
Resistors				
R451,452	2		KA25ST103J	Carbon Resistor
VR451	1	<i>CAL.</i>	VBB16-503MN1K7	Rotary Potentiometer
VR452	1	<i>Vol.</i>	VBV16-154BT4K7	Rotary Potentiometer
Switches				
S403	1		SW-1100134	Push Switch

20. Appearance Parts

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
	1		ACC-022D5-4EE1	Line Cord
	1		FH-032C	Fuse Holder
	4		NO.7108	Foot
	1		N21106-GY3	Front Panel
	1		N21107B	Display Frame
	1		N21108B	Cabinet
	1		N21109A	Rear Panel
	1		N30508-2	Bottom Board
	3		N30733A	Knob 19
	1		N42656-T-BR2	Push Button
	8		N43093-T-BR2	Push Button
	3		N43714-1	Push Button Guide, 1
	2		N43714-2	Push Button Guide, 2

20. Appearance Parts (cont'd)

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
FU601	1		N43715	Push Button Guide
	1		N43716	LED Guide
	1		N43717	AL. Display
	2		N43718	Slide Cap
	1		N43719	Knob 38
	4		N43720	Knob 19
	1		N43721A-7	Push Button
	1		N43722A	Push Button
	1		N43723A	Push Button
	1		N43725	Display Window
	1		N43749	Tinted Window
	1		N43774A	Push Button
	2		N43805A-GY3	Bracket
	1		N44030	Filter
	2		N44091A-GY3	Handle
	4		N44092-GY3	Handle Spacer
	1		SR-4N-4	Cord Stopper
	1		S2T-732T-104	AC Outlet
	1		UB-0027	Binding Post
	1		FU-627024T	Fuse

21. Inner Construction Parts

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
Capacitors				
C701	1		ECQU1A103MH	Metallized Film Capacitor
Switches				
S801-1	1		SW-2X36135	Rotary Switch
S802-1	1		SW-2X36136	Rotary Switch
Miscellaneous				
	23		BK-1	Cord Clamp
	1		N20643A	Center Chassis
	1		N21110	Front Chassis
	1		N21112A	Heat Sink
	2		N21134	Shield Box (Angle)
	1		N21134-1	Shield Box (Top)
	2		N21305	Side Chassis
	1		N30729B	Angle L (P.C.B.)
	1		N30730A	Center Chassis
	1		N30734B	Angle R (P.C.B.)
	1		N30747A	Support Chassis (P.T.)
	1		N30786	Glass Mesh
	3		N41960	Cabinet Mat
	1		N42204	Angle (P.C.B.)
	1		N42222	Fittings (Thermal Relay)
	1		N42635	Fittings (P.C.B.)
	1		N43016-8.0	Stud
	1		N43724A	Glass Holder
	1		N43726	Fittings R (Heat Sink)
	1		N43727	Fittings L (Heat Sink)
	1		N43748	Fittings (LED)
	2		N43807	PCB Spacer
	2		N43808	Spacer
	1		N43809	Shield Paper
	1		N43813	Shield Paper
	1		N43838	Shield Cover
	1		N43846	Cushion
	1		N43849A	Shield Paper
	1		N43850	Cushion (P.T.)
	2		N43851	Cushion (P.T.)
	1		N43852	Shield Cushion
	2		N43862	Washer
	1		N43863	Spacer
	4		N43879	Stud 34
	1		N43961	Fittings (P.C.B. Support)
	1		N43962	RT Cushion
	4		TAP/D(42)BS	Blind Rivet
	11		TBB+30X12-Y	Tap Screw B, Blind Head, Y
	9		TPM+30X08-B	Tap Screw P, Round Head, B
	13		TPM+30X08-Y	Tap Screw P, Round Head, Y

21. Inner Construction Parts (cont'd)

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
	1		TPS+30X08-Y	Tap Screw P, Flat Head, Y
	2		TSB+30X05-Y	Tap Screw S, Bind Head, Y
	12		TSB+30X06-B	Tap Screw S, Bind Head, B
	39		TSB+30X06-Y	Tap Screw S, Bind Head, Y
	2		TSB+30X08-B	Tap Screw S, Bind head, B
	19		TSB+30X08-Y	Tap Screw S, Bind head, Y
	1		TSB+30X16-Y	Tap Screw S, Bind head, Y
	2		TSB+40X08-B	Tap Screw S, Bind Head, B
	4		TSB+40X12-Y	Tap Screw S, Bind Head, Y
	8		TSB+40X14-B	Tap Screw S, Bind Head, B
	16		TSC+30X06-Y	Tap Screw S, Washer Faced, Y
	4		TST+40X08-Y	Tap Screw S, Truss, Y
	1		2AE-03	Lug
	6		2AWX0830-05-B	Plain Washer, 8
	2		2AWX1040-08-B	Plain Washer, B
	1		2AWX1530-10-Y	Plain Washer, Y
	3		2FNX30	Flange Nut
	5		598S1692	GND Lug

22. Packing Parts

Ref. No	Q'ty	Carver Part No.	Supplier Part No.	Description
	2		N21111-1	Packing Pad
	1		N40487	Polyethylene Bag (Accessories)
	1		N40612A	Polyethylene Bag (Unit)
	2		N41366B	Label, Caution
	1		N42235	Sheet, Serial Number
	2		SL.1024	Label, Serial No.
	1		N44095A	Card, Warranty Registration
	1		N43729C	Shipping Carton
	1		N43797	Packing Pad (Top)
	1		N44447A	Packing Pad (Front)
	1		OM-451A	Instruction Manual
	1		FM-5002	FM Antenna (Cord)
	2		N43860	Protection Paper (Handle)

Capacitors description

• Electrolytic Capacitor

NS	-16	TW	221	M
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Tolerance (%); M = ±20
 Value (µF); R22=0.22, 100=10, 1R0=1.0, 221=220, 3R3=3.3, 102=1000
 Voltage (V); -16 = 16, 6R3 = 6.3

• Mylar Capacitor

MY	-50V	S	223	M
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Tolerance (%); J = 5, K = 10, M = 20
 Value (pF); 122 = 1200, 104 = 100000 = 0.1 (µF), 223 = 22000
 Voltage (V); -50 = 50

• Ceramic Capacitor

HE	90	SJ	YF	223	Z
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Tolerance (%); D = ±0.5pF, J = ±5 (%), K = ±10 (%), Z = ±⁸⁰/₂₀ (%)
 Value (pF); 050 = 5, 102 = 1000, 560 = 56, 223 = 22000, 821 = 820
 Voltage (V); HC = 25, HE = 50, HK = 250, HM = 500, H = 100

Resistors description

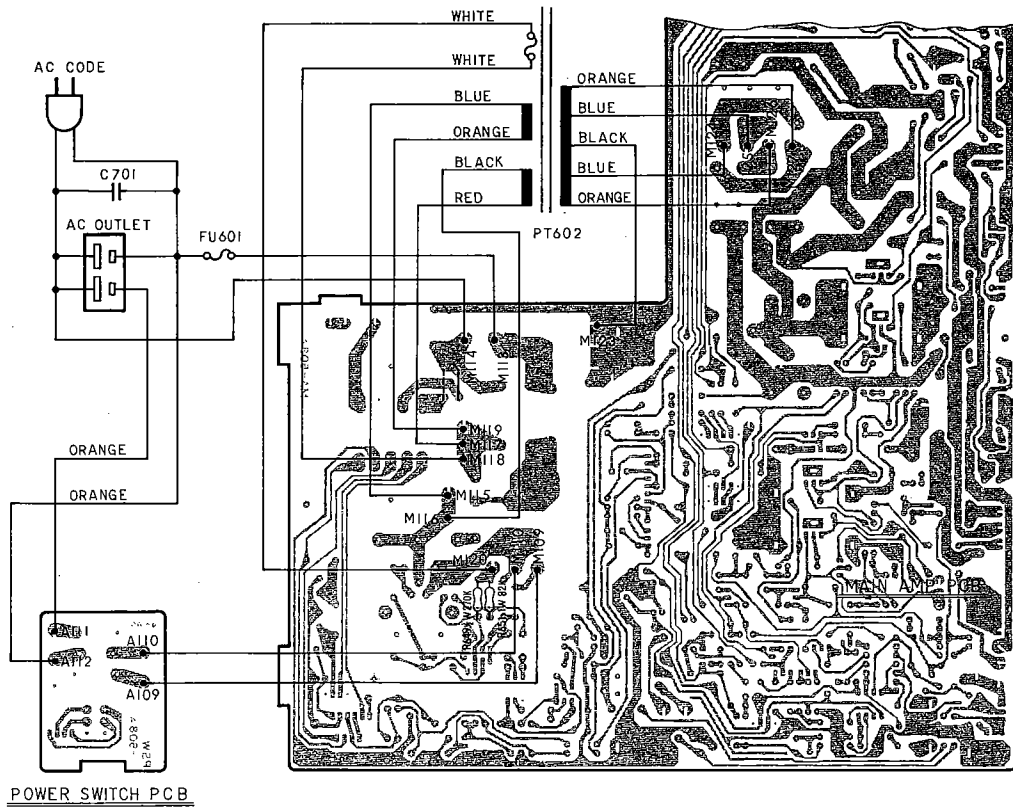
• Fixed Resistors

KA	25S	T	473	J	-LP
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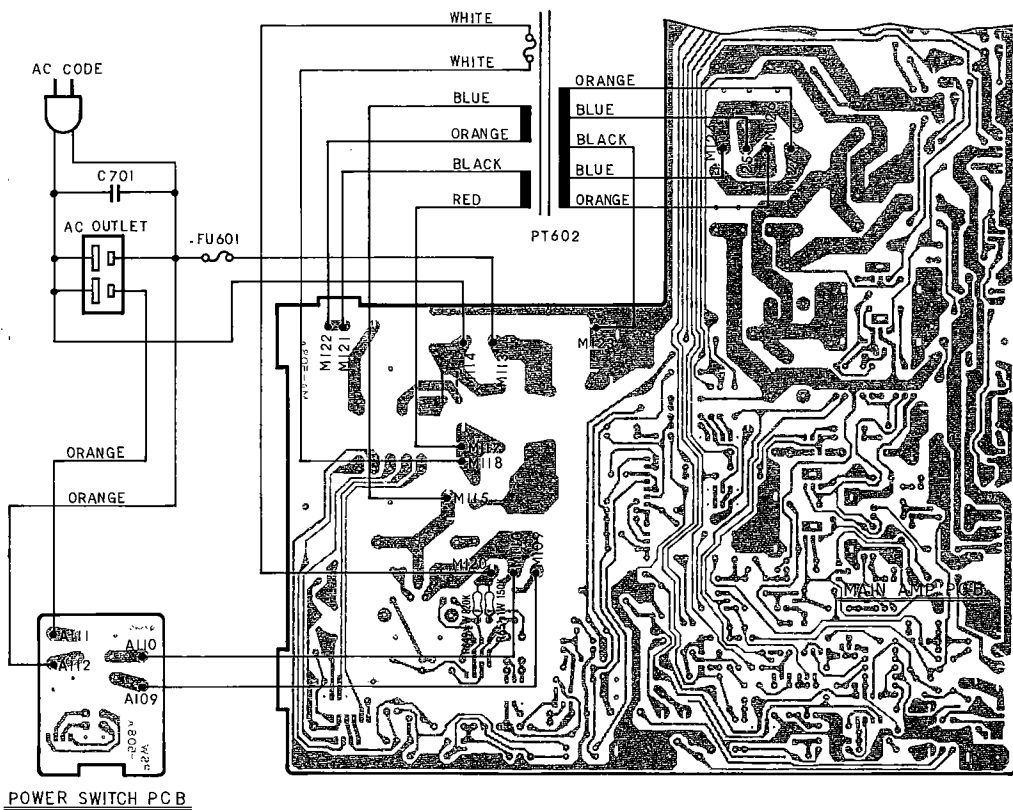
Tolerance (%); D = ±0.5, F = ±1, G = ±2, J = ±5
 Value (Ω); 2R2 = 2.2, 682 = 6.8k, 125 = 1.2M, 470 = 47, 473 = 47k,
 221 = 220, 394 = 390k
 Wattage (W); 25S = 1/4, 50S or 50X = 1/2, -2W = 2
 Type; KA = Carbon, FR = Flame Proof, SA = Metal Oxide,
 RF = Fusible, MF = Metal Film

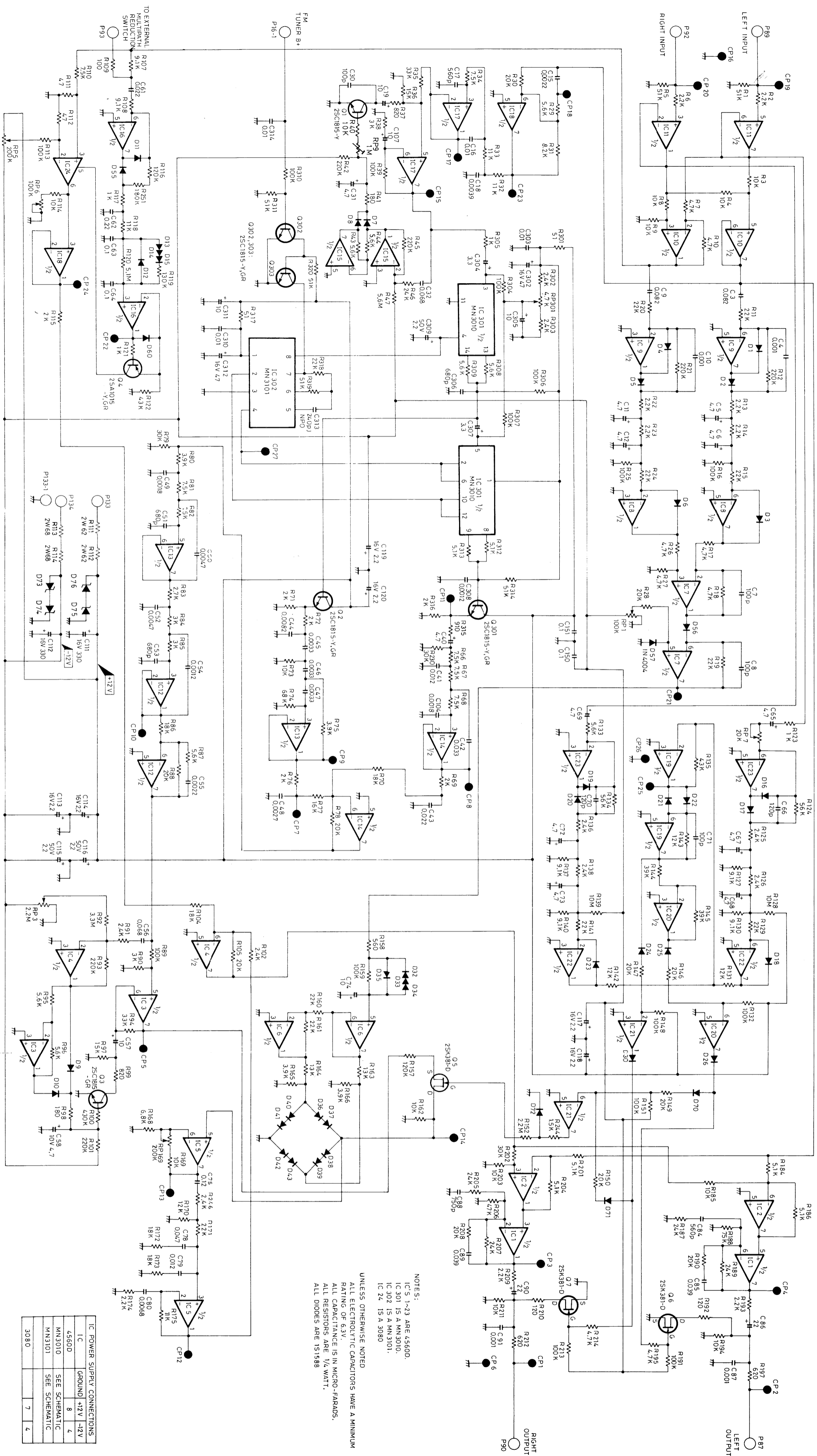
VOLTAGE CONVERSION

120V Version



220V/240V Version





NOTES:
 IC'S 1-23 ARE 45600.
 IC 301 IS A MN3010.
 IC 302 IS A MN3101.
 IC 24 IS A 3080
 UNLESS OTHERWISE NOTED
 ALL ELECTROLYTIC CAPACITORS HAVE A MINIMUM
 RATING OF 6.3V.
 ALL CAPACITANCE IS IN MICRO-FARADS.
 ALL RESISTORS ARE 1/4 WATT.
 ALL DIODES ARE 1S1588

IC POWER SUPPLY CONNECTIONS			
IC	GROUND	+12V	-12V
45600		8	4
MN3010	SEE SCHEMATIC		
MN3101	SEE SCHEMATIC		
3080		7	4