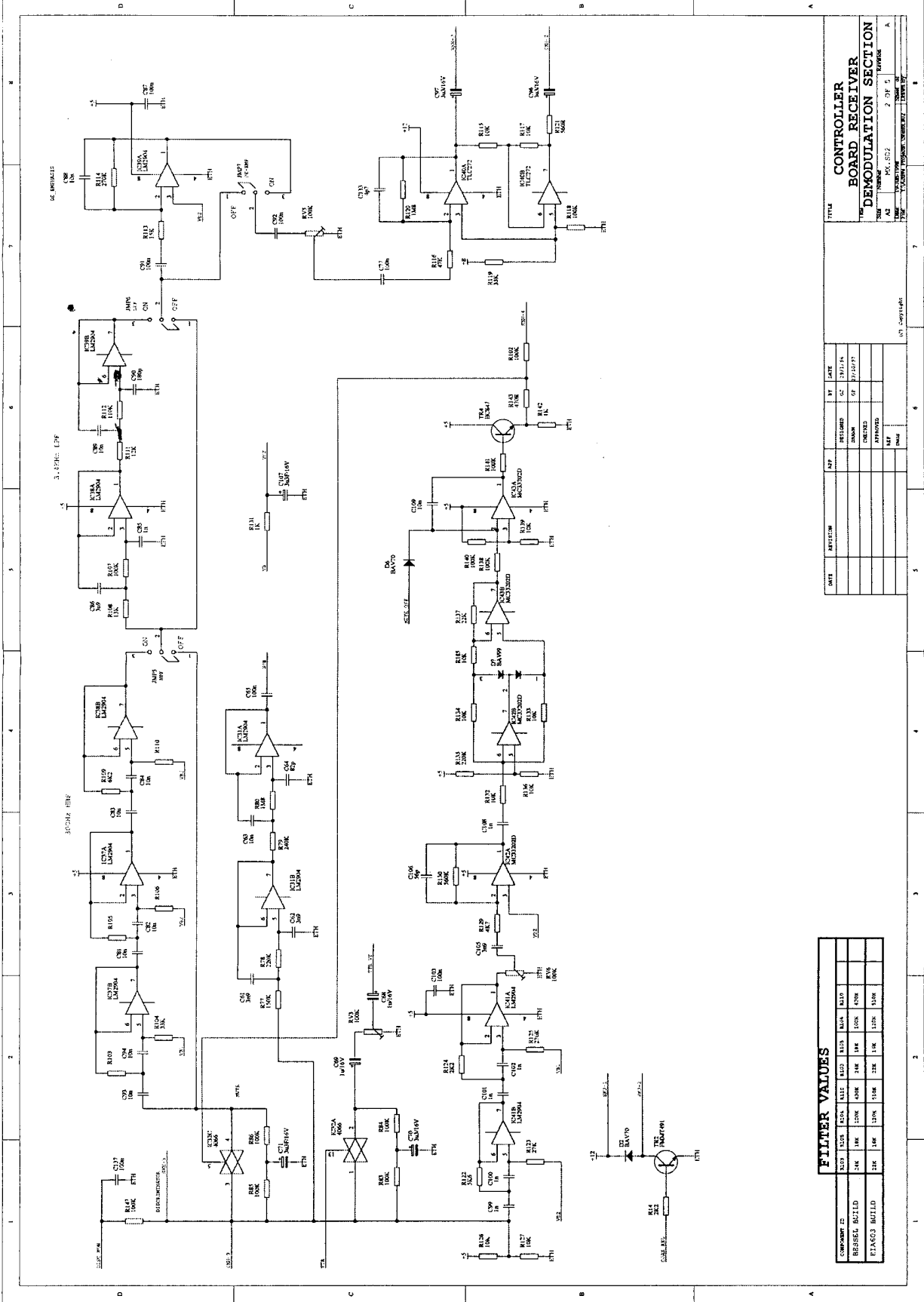


**CONTROL BOARD TRANSMIT MODULATION SECTION**

DATE: \_\_\_\_\_ BY: JAVIER  
 TITLE: BOARD TRANSMIT MODULATION SECTION  
 DRAWN: \_\_\_\_\_  
 CHECKED: \_\_\_\_\_  
 APPROVED: \_\_\_\_\_  
 REF: \_\_\_\_\_  
 (1) COMPLETE



COMPONENT ID	R103	R104	R105	R106	R107	R108	R109	R110	R111	R112	R113	R114	R115	R116	R117	R118	R119	R120	R121	R122	R123	R124	R125	R126	R127	R128	R129	R130	R131	R132	R133	R134	R135	R136	R137	R138	R139	R140	R141	R142	R143	R144	R145	R146	R147	R148	R149	R150	R151	R152	R153	R154	R155	R156	R157	R158	R159	R160	R161	R162	R163	R164	R165	R166	R167	R168	R169	R170	R171	R172	R173	R174	R175	R176	R177	R178	R179	R180	R181	R182	R183	R184	R185	R186	R187	R188	R189	R190	R191	R192	R193	R194	R195	R196	R197	R198	R199	R200	R201	R202	R203	R204	R205	R206	R207	R208	R209	R210	R211	R212	R213	R214	R215	R216	R217	R218	R219	R220	R221	R222	R223	R224	R225	R226	R227	R228	R229	R230	R231	R232	R233	R234	R235	R236	R237	R238	R239	R240	R241	R242	R243	R244	R245	R246	R247	R248	R249	R250	R251	R252	R253	R254	R255	R256	R257	R258	R259	R260	R261	R262	R263	R264	R265	R266	R267	R268	R269	R270	R271	R272	R273	R274	R275	R276	R277	R278	R279	R280	R281	R282	R283	R284	R285	R286	R287	R288	R289	R290	R291	R292	R293	R294	R295	R296	R297	R298	R299	R300	R301	R302	R303	R304	R305	R306	R307	R308	R309	R310	R311	R312	R313	R314	R315	R316	R317	R318	R319	R320	R321	R322	R323	R324	R325	R326	R327	R328	R329	R330	R331	R332	R333	R334	R335	R336	R337	R338	R339	R340	R341	R342	R343	R344	R345	R346	R347	R348	R349	R350	R351	R352	R353	R354	R355	R356	R357	R358	R359	R360	R361	R362	R363	R364	R365	R366	R367	R368	R369	R370	R371	R372	R373	R374	R375	R376	R377	R378	R379	R380	R381	R382	R383	R384	R385	R386	R387	R388	R389	R390	R391	R392	R393	R394	R395	R396	R397	R398	R399	R400	R401	R402	R403	R404	R405	R406	R407	R408	R409	R410	R411	R412	R413	R414	R415	R416	R417	R418	R419	R420	R421	R422	R423	R424	R425	R426	R427	R428	R429	R430	R431	R432	R433	R434	R435	R436	R437	R438	R439	R440	R441	R442	R443	R444	R445	R446	R447	R448	R449	R450	R451	R452	R453	R454	R455	R456	R457	R458	R459	R460	R461	R462	R463	R464	R465	R466	R467	R468	R469	R470	R471	R472	R473	R474	R475	R476	R477	R478	R479	R480	R481	R482	R483	R484	R485	R486	R487	R488	R489	R490	R491	R492	R493	R494	R495	R496	R497	R498	R499	R500	R501	R502	R503	R504	R505	R506	R507	R508	R509	R510	R511	R512	R513	R514	R515	R516	R517	R518	R519	R520	R521	R522	R523	R524	R525	R526	R527	R528	R529	R530	R531	R532	R533	R534	R535	R536	R537	R538	R539	R540	R541	R542	R543	R544	R545	R546	R547	R548	R549	R550	R551	R552	R553	R554	R555	R556	R557	R558	R559	R560	R561	R562	R563	R564	R565	R566	R567	R568	R569	R570	R571	R572	R573	R574	R575	R576	R577	R578	R579	R580	R581	R582	R583	R584	R585	R586	R587	R588	R589	R590	R591	R592	R593	R594	R595	R596	R597	R598	R599	R600	R601	R602	R603	R604	R605	R606	R607	R608	R609	R610	R611	R612	R613	R614	R615	R616	R617	R618	R619	R620	R621	R622	R623	R624	R625	R626	R627	R628	R629	R630	R631	R632	R633	R634	R635	R636	R637	R638	R639	R640	R641	R642	R643	R644	R645	R646	R647	R648	R649	R650	R651	R652	R653	R654	R655	R656	R657	R658	R659	R660	R661	R662	R663	R664	R665	R666	R667	R668	R669	R670	R671	R672	R673	R674	R675	R676	R677	R678	R679	R680	R681	R682	R683	R684	R685	R686	R687	R688	R689	R690	R691	R692	R693	R694	R695	R696	R697	R698	R699	R700	R701	R702	R703	R704	R705	R706	R707	R708	R709	R710	R711	R712	R713	R714	R715	R716	R717	R718	R719	R720	R721	R722	R723	R724	R725	R726	R727	R728	R729	R730	R731	R732	R733	R734	R735	R736	R737	R738	R739	R740	R741	R742	R743	R744	R745	R746	R747	R748	R749	R750	R751	R752	R753	R754	R755	R756	R757	R758	R759	R760	R761	R762	R763	R764	R765	R766	R767	R768	R769	R770	R771	R772	R773	R774	R775	R776	R777	R778	R779	R780	R781	R782	R783	R784	R785	R786	R787	R788	R789	R790	R791	R792	R793	R794	R795	R796	R797	R798	R799	R800	R801	R802	R803	R804	R805	R806	R807	R808	R809	R810	R811	R812	R813	R814	R815	R816	R817	R818	R819	R820	R821	R822	R823	R824	R825	R826	R827	R828	R829	R830	R831	R832	R833	R834	R835	R836	R837	R838	R839	R840	R841	R842	R843	R844	R845	R846	R847	R848	R849	R850	R851	R852	R853	R854	R855	R856	R857	R858	R859	R860	R861	R862	R863	R864	R865	R866	R867	R868	R869	R870	R871	R872	R873	R874	R875	R876	R877	R878	R879	R880	R881	R882	R883	R884	R885	R886	R887	R888	R889	R890	R891	R892	R893	R894	R895	R896	R897	R898	R899	R900	R901	R902	R903	R904	R905	R906	R907	R908	R909	R910	R911	R912	R913	R914	R915	R916	R917	R918	R919	R920	R921	R922	R923	R924	R925	R926	R927	R928	R929	R930	R931	R932	R933	R934	R935	R936	R937	R938	R939	R940	R941	R942	R943	R944	R945	R946	R947	R948	R949	R950	R951	R952	R953	R954	R955	R956	R957	R958	R959	R960	R961	R962	R963	R964	R965	R966	R967	R968	R969	R970	R971	R972	R973	R974	R975	R976	R977	R978	R979	R980	R981	R982	R983	R984	R985	R986	R987	R988	R989	R990	R991	R992	R993	R994	R995	R996	R997	R998	R999	R1000
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DATE	REVISION	BY	DATE	BY	DATE

CONTROLLED BY 2711/PA  
DRAWN BY 2712/PJT  
CHECKED  
APPROVED  
NOTED  
MFG

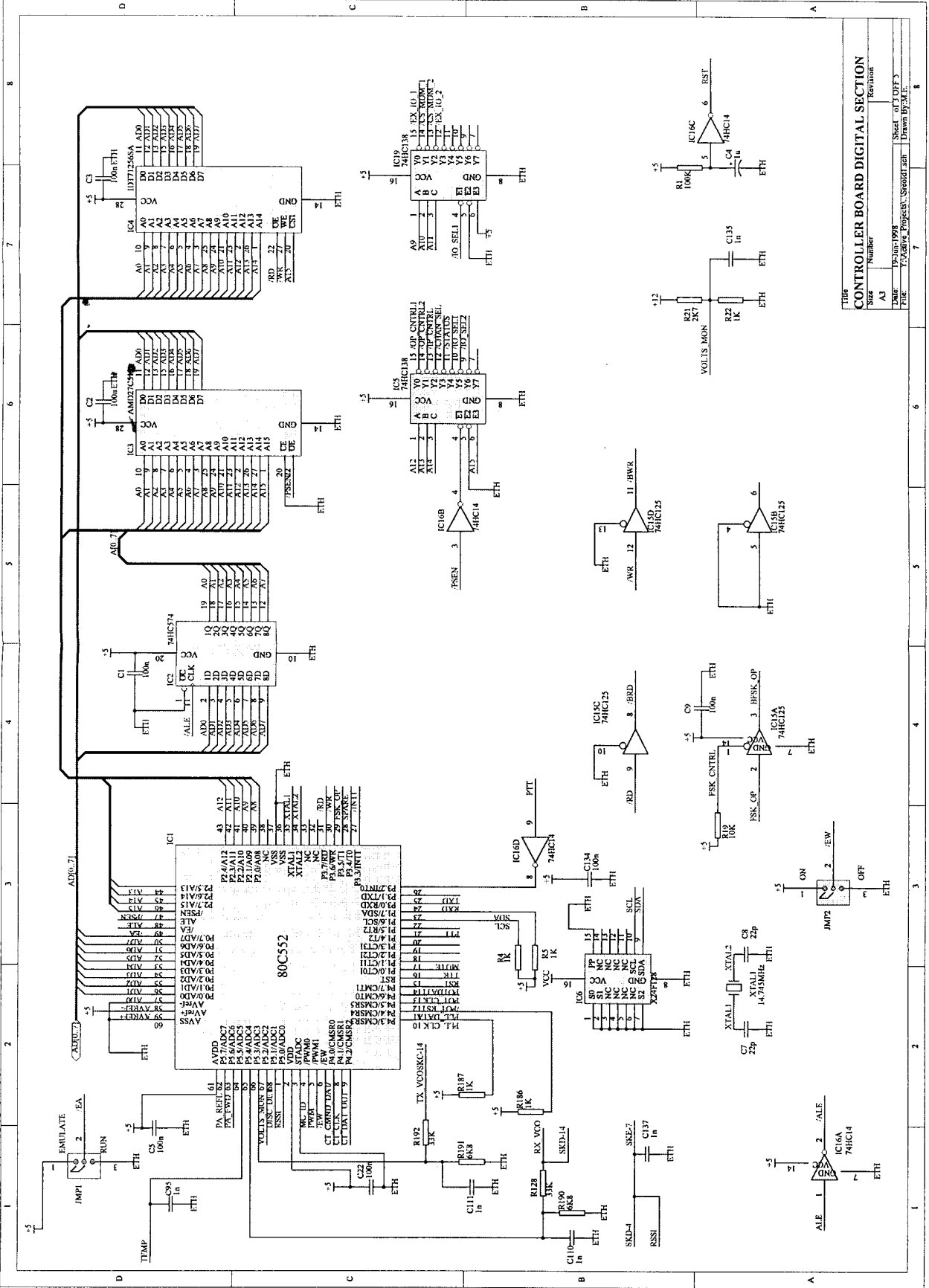
DATE: 12/15/77

FILTER VALUES	
COMPONENT ID	
RESERVE BUILT	
PLANG3 BUILT	

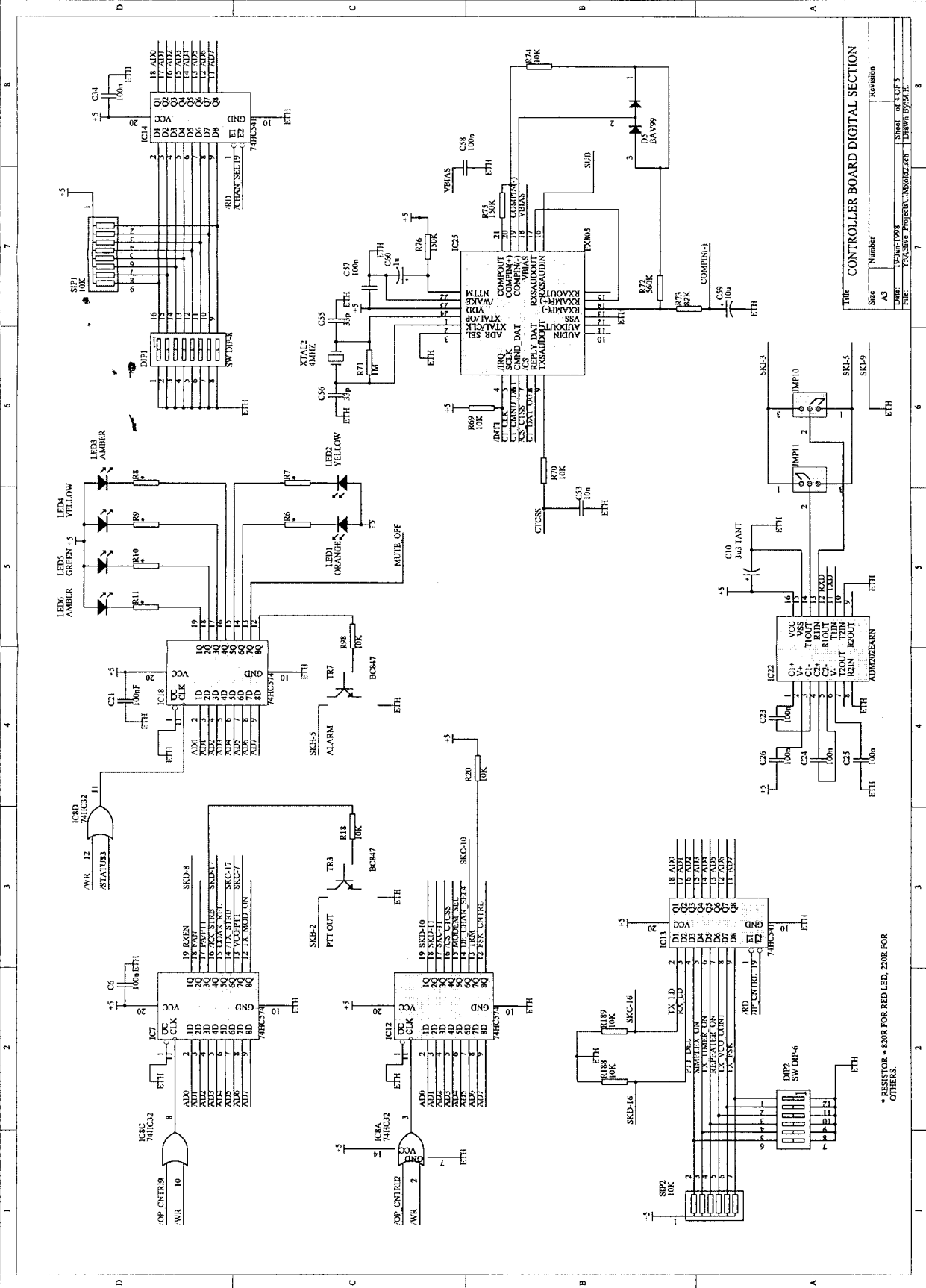
RESERVE BUILT  
PLANG3 BUILT

CONTROLLER BOARD RECEIVER DEMODULATION SECTION			
TITLE	DATE	BY	DATE
CONTROLLER BOARD RECEIVER DEMODULATION SECTION			
FORM NO. MS-552			
REV. 2			
DATE: 12/15/77			
BY: 2712/PJT			
APP: 2711/PA			
CHECKED: 2712/PJT			
APPROVED: 2711/PA			
NOTED: 2711/PA			
MFG: 2711/PA			

MS-552  
REV. 2  
DATE: 12/15/77  
BY: 2712/PJT  
APP: 2711/PA  
CHECKED: 2712/PJT  
APPROVED: 2711/PA  
NOTED: 2711/PA  
MFG: 2711/PA



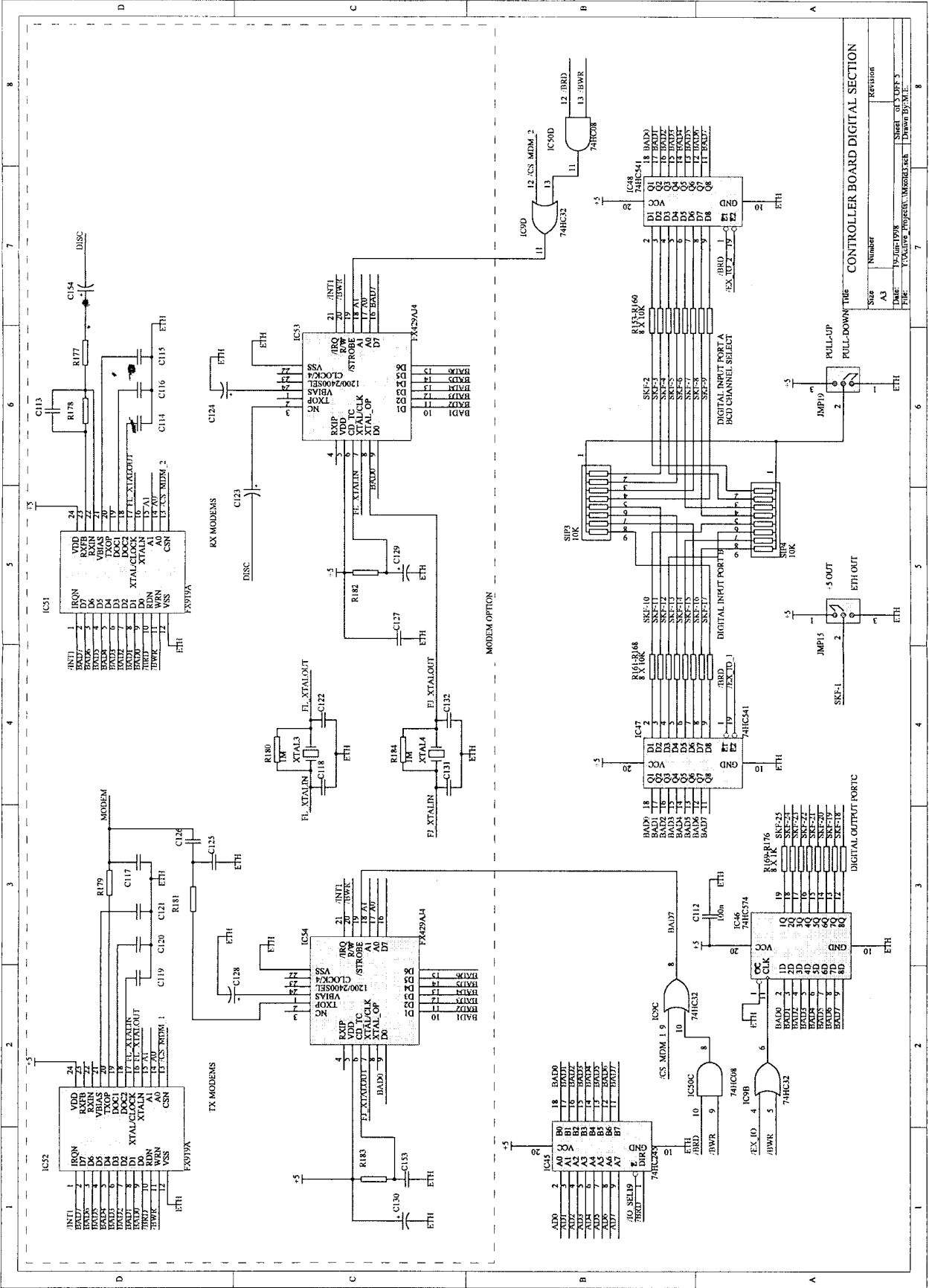
THE  
**CONTROLLER BOARD DIGITAL SECTION**  
 SIZE: \_\_\_\_\_  
 A3: \_\_\_\_\_  
 NUMBER: \_\_\_\_\_  
 DATE: \_\_\_\_\_  
 FILE: \_\_\_\_\_  
 DRAWN BY: M.A.E.



TITLE CONTROLLER BOARD DIGITAL SECTION

Size	Number	Revision
A3	1000	1
DATE	10/10/00	Sheet 10 of 15
FILE	FA000000000000000000	Drawn BY: M.L.E.

\* RESISTOR = 820R FOR RED LED, 220R FOR OTHERS.



CONTROLLER BOARD DIGITAL SECTION		
Step	Number	Revision
A3		
A4		
A5		
A6		
A7		
A8		
A9		
A10		
A11		
A12		
A13		
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A100		

PULL-UP  
JMPF10

DIGITAL INPUT PORT A  
80 CHANNEL SELECT

DIGITAL INPUT PORT B  
80 CHANNEL SELECT

DIGITAL OUTPUT PORT C

JMPF15

JMPF1

JMPF2

JMPF3

JMPF4

JMPF5

JMPF6

JMPF7

JMPF8

JMPF9

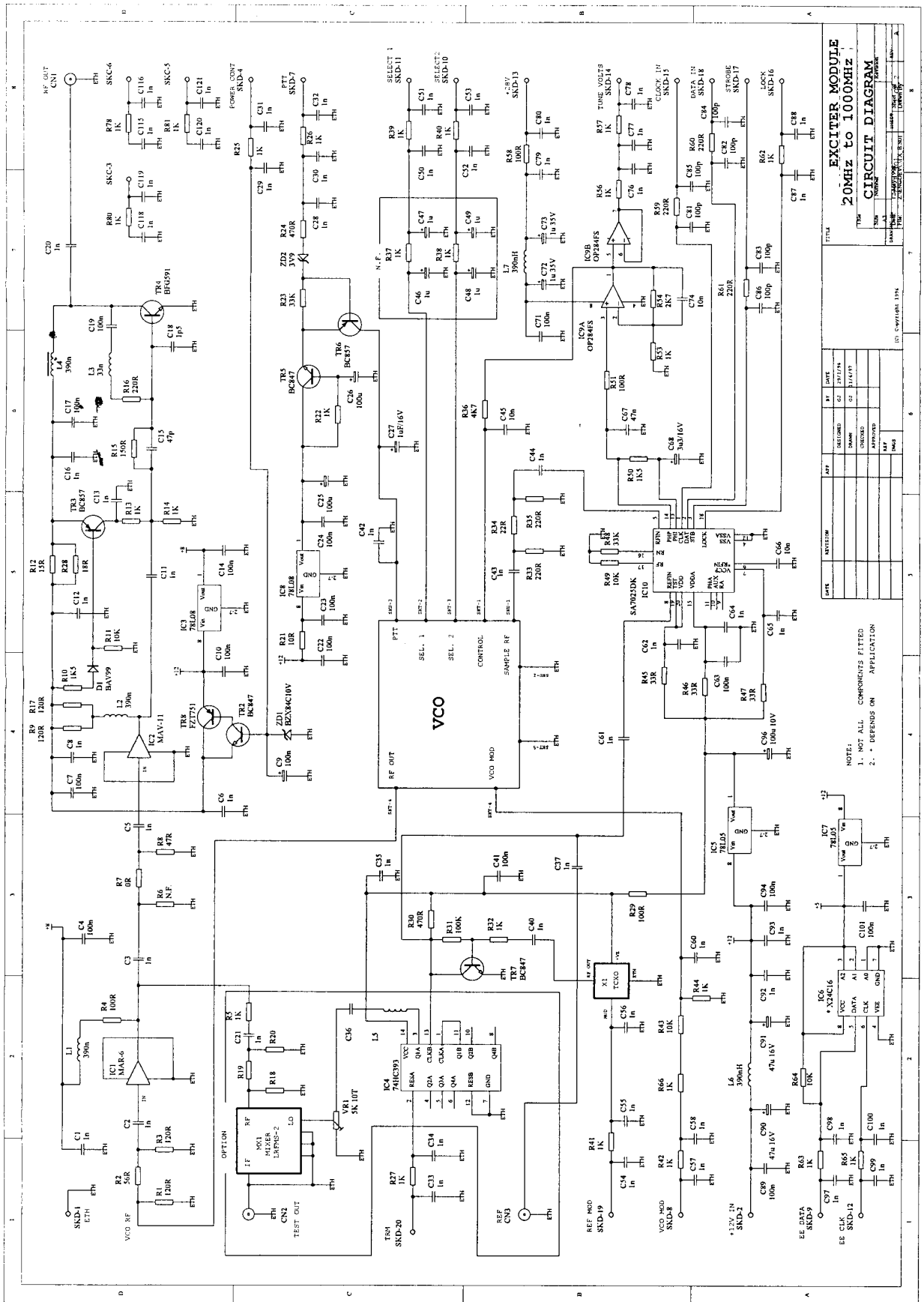
JMPF10

JMPF11

JMPF12

JMPF13





**EXCITER MODULE**  
**20MHz to 100MHz**  
**CIRCUIT DIAGRAM**

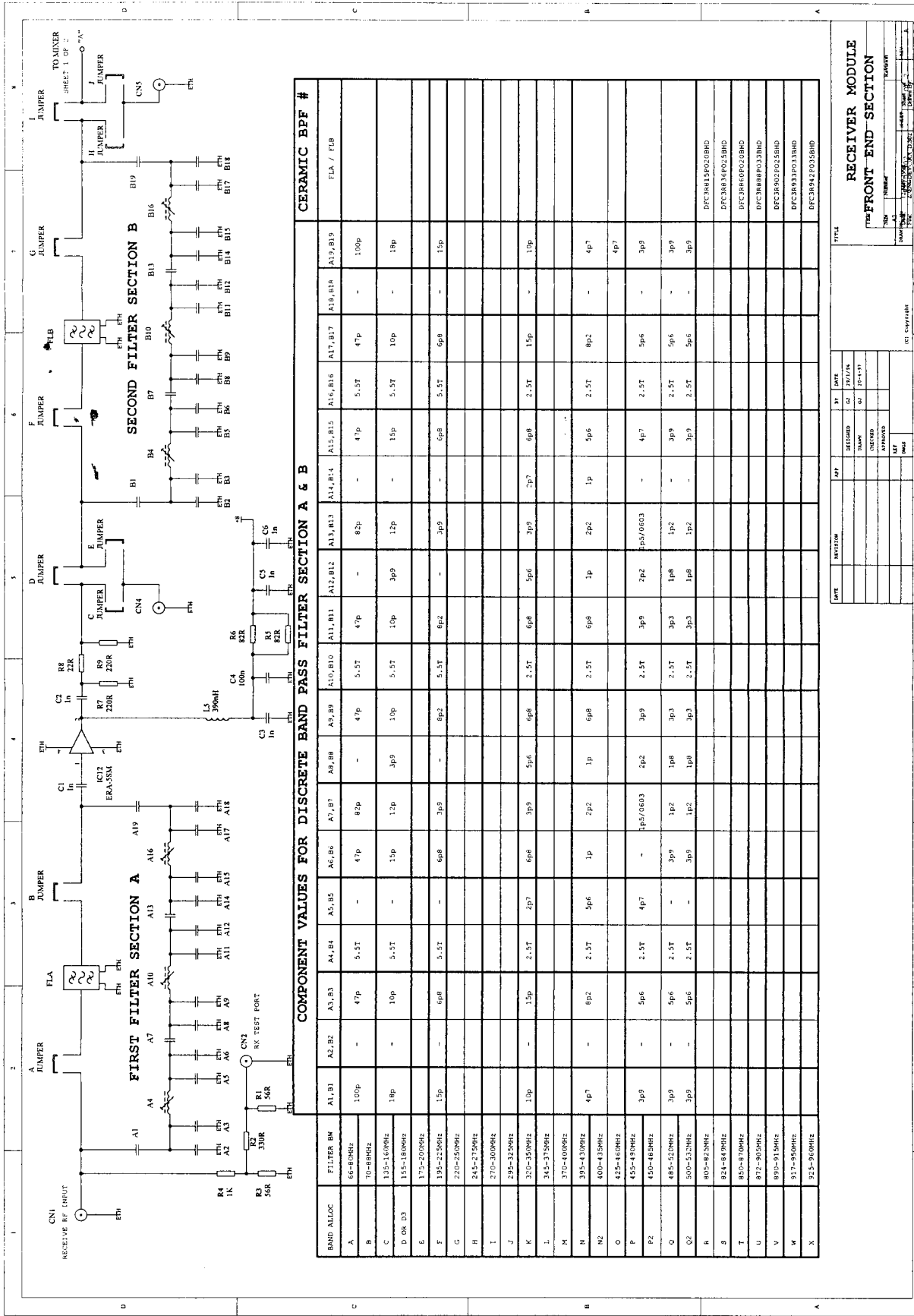
DATE	BY	DATE	BY

REV	DESCRIPTION	DATE	BY

NOTE:  
 1. NOT ALL COMPONENTS FITTED  
 2. \* - DEPENDS ON APPLICATION

NO.	DESCRIPTION	DATE	BY

(IN CONTINUED PAGES)



BAND ALLOC	FILTER BW	A1,B1	A2,B2	A3,B3	A4,B4	A5,B5	A6,B6	A7,B7	A8,B8	A9,B9	A10,B10	A11,B11	A12,B12	A13,B13	A14,B14	A15,B15	A16,B16	A17,B17	A18,B18	A19,B19	CERAMIC BPF #	
A	68-80MHz	100p	-	47p	5.5T	-	47p	82p	-	47p	5.5T	47p	82p	82p	-	47p	5.5T	47p	-	100p	FLA / FLB	
B	70-88MHz	18p	-	10p	5.5T	-	15p	12p	-	3p9	5.5T	10p	3p9	12p	-	15p	5.5T	10p	-	18p		
C	135-150MHz																					
D ON D3	155-180MHz																					
E	175-200MHz																					
F	185-220MHz																					
G	220-250MHz																					
H	245-250MHz																					
I	270-300MHz																					
J	295-320MHz																					
K	320-350MHz																					
L	345-370MHz																					
M	370-400MHz																					
N	395-420MHz																					
O	400-435MHz																					
P	435-460MHz																					
Q	455-480MHz																					
R	485-520MHz																					
S	500-532MHz																					
T	505-530MHz																					
U	572-605MHz																					
V	670-715MHz																					
W	817-935MHz																					
X	824-849MHz																					
Y	850-900MHz																					
Z	872-905MHz																					
AA	890-915MHz																					
AB	917-950MHz																					
AC	925-960MHz																					

**RECEIVER MODULE  
FRONT-END SECTION**

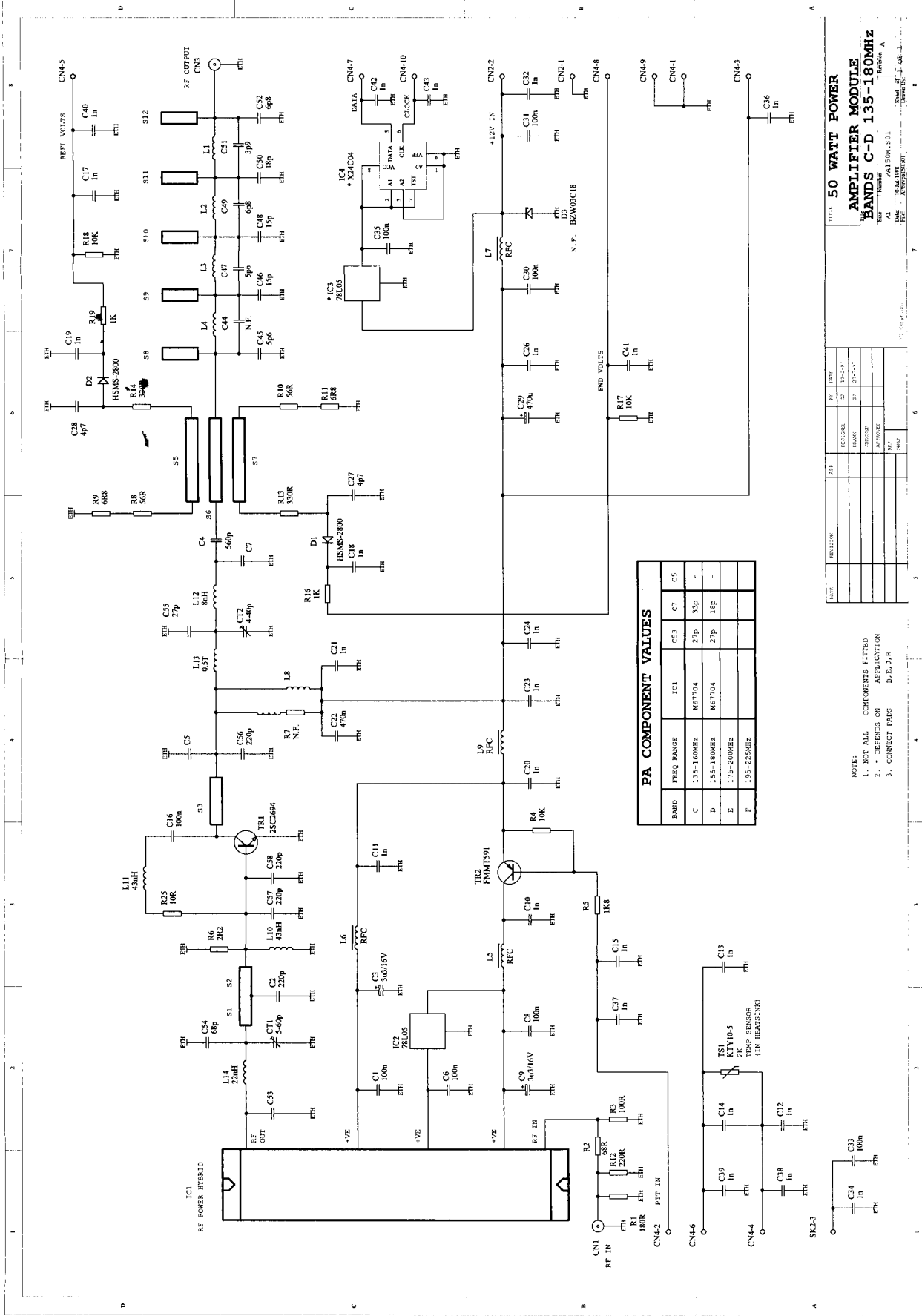
DATE: \_\_\_\_\_ REV: \_\_\_\_\_

APP: \_\_\_\_\_ DATE: \_\_\_\_\_

DESIGNED	BY	DATE
CHECKED	BY	DATE
APPROVED	BY	DATE

REV. CONTROL





**PA COMPONENT VALUES**

BAND	FREQ RANGE	IC1	C53	C7	C5
C	135-160MHz	M67704	27p	39p	-
D	155-180MHz	M67704	27p	39p	-
E	175-200MHz	-	-	-	-
F	195-225MHz	-	-	-	-

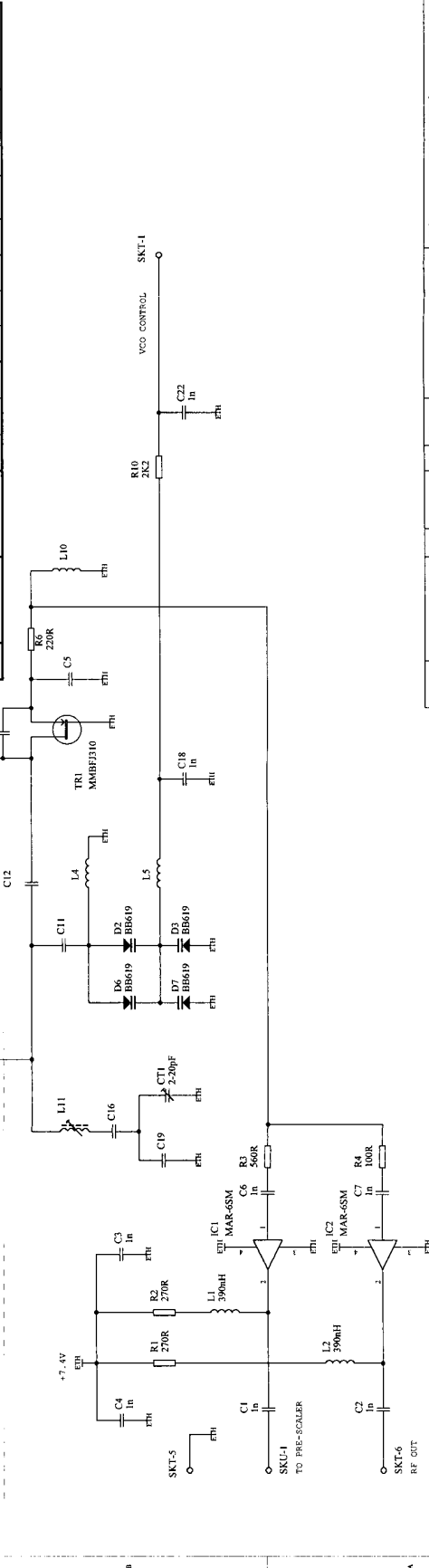
NOTE:  
 1. NOT ALL COMPONENTS FITTED  
 2. \* DEPENDS ON APPLICATION  
 3. CONNECT PALS B/E, J, R

**50 WATT POWER AMPLIFIER MODULE**  
**BANDS C-D 135-180MHZ**  
 TITLE: PAL50M-501  
 PART: 50 Watt PA  
 REV: 1.0  
 DATE: 10/10/01

REV	REVISION	DATE	BY	APP
1	INITIAL	10/10/01	10/10/01	10/10/01
2	REVISION	10/10/01	10/10/01	10/10/01
3	REVISION	10/10/01	10/10/01	10/10/01
4	REVISION	10/10/01	10/10/01	10/10/01
5	REVISION	10/10/01	10/10/01	10/10/01
6	REVISION	10/10/01	10/10/01	10/10/01
7	REVISION	10/10/01	10/10/01	10/10/01
8	REVISION	10/10/01	10/10/01	10/10/01
9	REVISION	10/10/01	10/10/01	10/10/01
10	REVISION	10/10/01	10/10/01	10/10/01

**VCO COMPONENT VALUES (SWITCHING BW = MAX)**

BAND	FREQ RANGE	L0 INDUCT	C11	C17	C12	C5	C16	C19	RS	L4, 5	L11	NOTES
A	66-60MHz	156-170MHz								14.5	1.0	
B	70-88MHz	160-178MHz										
C	135-160MHz	225-250MHz	10p	4p7	15p	4p7	10f	6p8	68R	220nH	390nH	3.5T
D	155-180MHz	245-270MHz	10p	4p7	15p	4p7	10f	6p8	68R	220nH	390nH	3.5T
D3	148-174MHz	238-264MHz	10p	4p7	15p	4p7	10f	6p8	68R	220nH	390nH	3.5T
E	175-200MHz	265-290MHz										
F	195-220MHz	285-315MHz	5p6	2p7	15p	4p7	10f	6p8	10R	150nH	390nH	2.5T
G	220-250MHz	310-340MHz										
H	245-275MHz	335-365MHz										
I	270-300MHz	360-390MHz										
J	295-325MHz	405-435MHz										
K	320-350MHz	430-460MHz	10p	3p9	15p	4p7	10f	6p8	220R	220nH	390nH	3.5T
L	345-375MHz	455-485MHz										
M	370-400MHz	480-510MHz										
N	395-430MHz	505-540MHz										
O	425-460MHz	535-570MHz										
P	455-490MHz	565-600MHz	4p7	3p3	15p	-	10f	15p	10R	82nH	390nH	1.5T
P2	450-485MHz	560-595MHz	4p7	3p3	15p	-	10f	15p	10R	82nH	390nH	1.5T
Q	485-520MHz	595-630MHz	3p9	2p7	15p	-	10f	12p	10R	82nH	390nH	1.5T
Q2	500-535MHz	610-645MHz	3p9	2p7	15p	-	10f	12p	10R	82nH	390nH	1.5T
C2	138-149MHz	220.2-231.2	8p2	3p9	15p	4p7	10f	8p2	220R	390nH	390nH	3.5T
D2	160-166MHz	242.2-248.2	5p6	3p9	15p	4p7	10f	8p2	10R	390nH	390nH	4.5T
I2	276-284MHz	538.2-546.2	3p3	2p7	15p	-	10f	27p	220R	390nH	390nH	1.5T



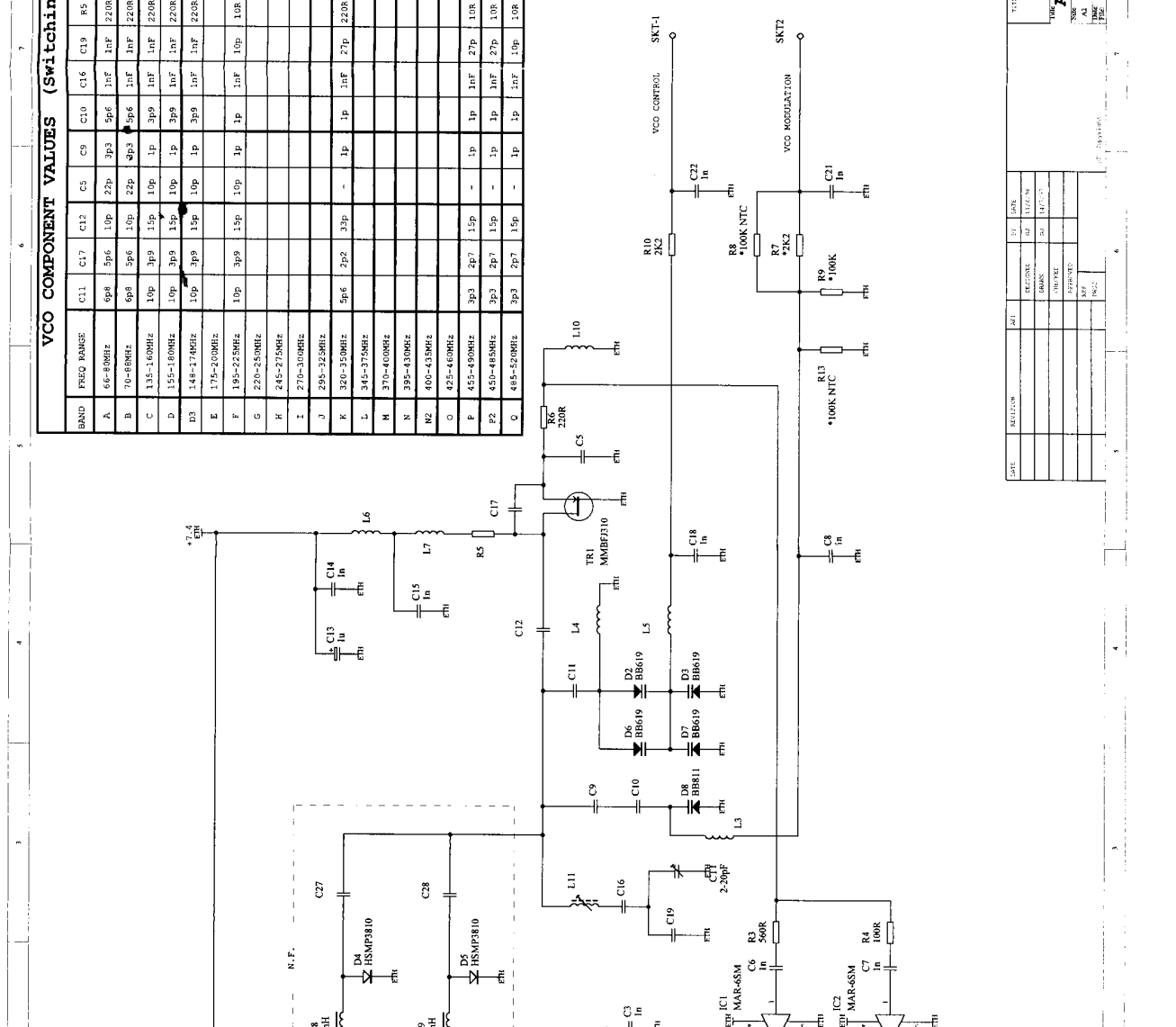
**RX VCO**  
**CCT DIAGRAM, BAND**  
**A TO Q (66-520 MHz)**

DATE: 11/11/01  
 DRAWN: J. J. J. J. J.  
 CHECKED: J. J. J. J. J.  
 APPROVED: J. J. J. J. J.  
 TITLE: RX VCO CCT DIAGRAM

REV	DATE	BY	REASON
1	11/11/01	J. J. J. J. J.	INITIAL DESIGN
2	11/11/01	J. J. J. J. J.	REVISION
3	11/11/01	J. J. J. J. J.	REVISION
4	11/11/01	J. J. J. J. J.	REVISION
5	11/11/01	J. J. J. J. J.	REVISION
6	11/11/01	J. J. J. J. J.	REVISION
7	11/11/01	J. J. J. J. J.	REVISION
8	11/11/01	J. J. J. J. J.	REVISION
9	11/11/01	J. J. J. J. J.	REVISION
10	11/11/01	J. J. J. J. J.	REVISION

VCO COMPONENT VALUES (Switching BW = Max)

BAND	FREQ RANGE	C11	C12	C5	C9	C10	C16	C19	R5	L3,4	L6,7	NOTES
A	66-80MHz	5p8	5p6	10p	27p	5p6	1nF	1nF	220R	303H	11.5T	NIL CT1
B	70-80MHz	5p8	5p6	10p	27p	5p6	1nF	1nF	220R	303H	11.5T	NIL CT1
C	135-160MHz	10p	3p9	15p	10p	3p9	1nF	1nF	220R	303H	3.5T	NIL CT1
D	155-180MHz	10p	3p9	15p	10p	3p9	1nF	1nF	220R	303H	3.5T	NIL CT1
E	175-200MHz	10p	3p9	15p	10p	3p9	1nF	1nF	220R	303H	3.5T	NIL CT1
F	195-225MHz	10p	3p9	15p	10p	3p9	1nF	1nF	220R	303H	3.5T	NIL CT1
G	220-250MHz											
H	245-275MHz											
I	270-300MHz											
J	295-325MHz											
K	320-350MHz	5p6	2p2	33p	-	1p	1p	1nF	27p	220R	150nH	1.5T
L	345-375MHz											
M	370-400MHz											
N	395-430MHz											
O	425-460MHz											
P	455-500MHz	3p3	2p7	15p	-	1p	1p	1nF	27p	10R	82nH	60M L, NIL D6, D7
Q	450-485MHz	3p3	2p7	15p	-	1p	1p	1nF	27p	10R	82nH	60M L, NIL D6, D7
R	485-520MHz	3p3	2p7	15p	-	1p	1p	1nF	27p	10R	82nH	60M L, NIL D6, D7



TX VCO  
CCT DIAGRAM, BAND  
A TO Q (66-520 MHz)

DATE: \_\_\_\_\_  
DESIGNED BY: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_  
APPROVED BY: \_\_\_\_\_  
DATE: \_\_\_\_\_

DATE	REVISION	REV	DESCRIPTION	BY	DATE