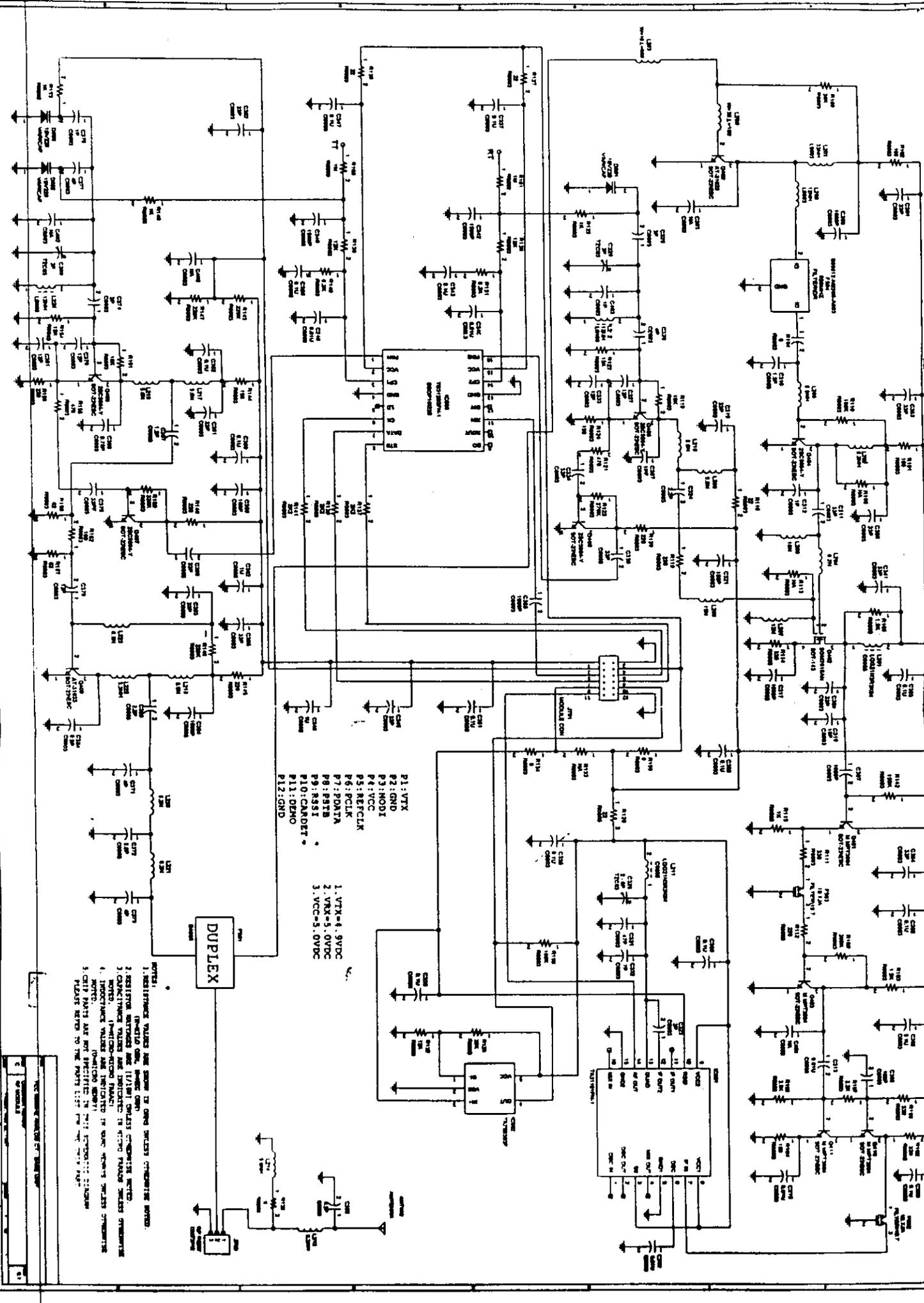


EXHIBIT D

Circuit Diagram



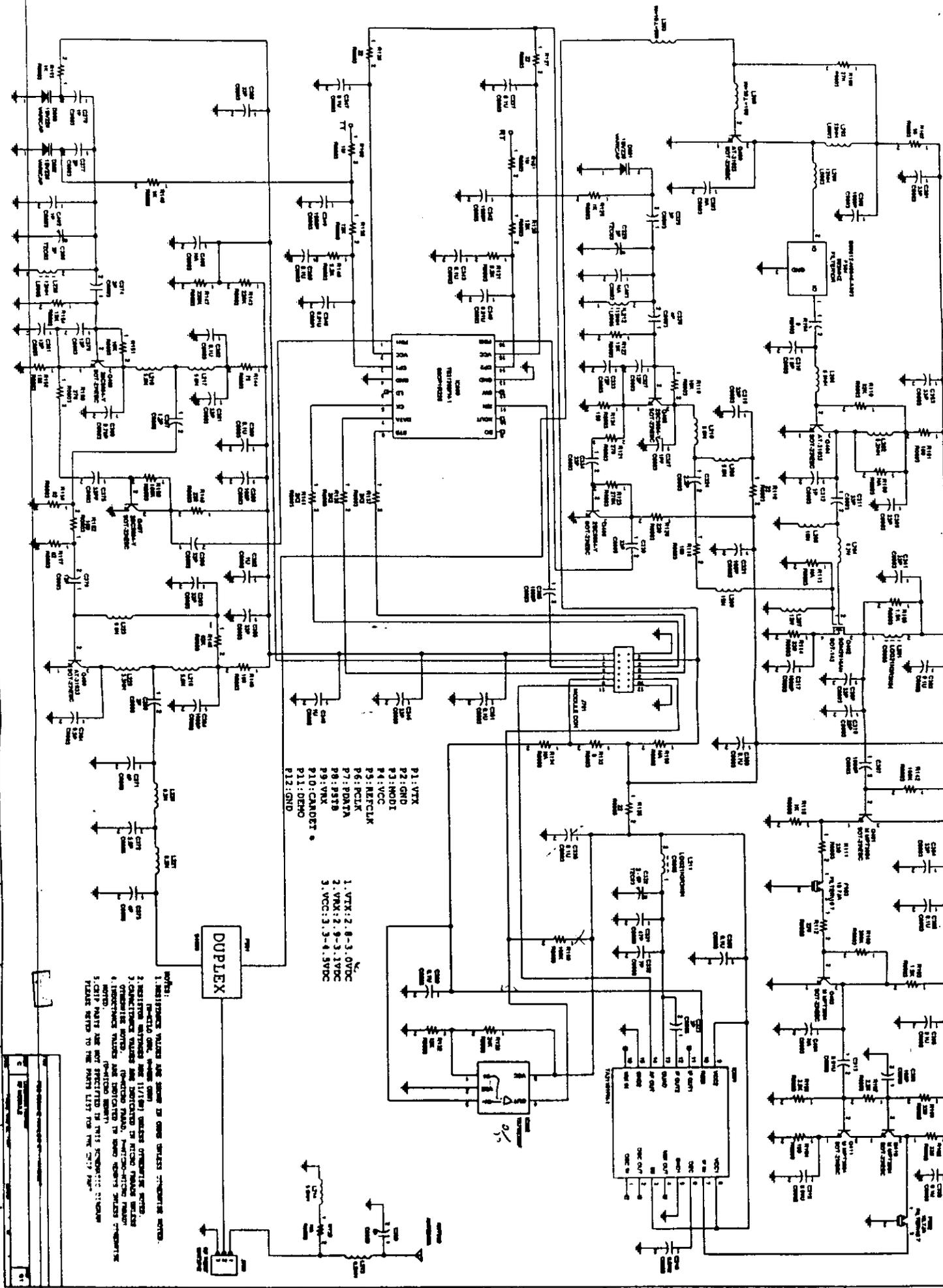
- P1: VTX
- P2: GND
- P3: MODI
- P4: VCC
- P5: REFCLK
- P6: PCLK
- P7: PORTA
- P8: PAST
- P9: PAST
- P10: CARDET
- P11: DEMO
- P12: GND

- 1. VTX=4.5VDC
- 2. VTX=5.0VDC
- 3. VCC=5.0VDC

DUPLEX

NOTES:
 1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED.
 2. RESISTOR NETWORKS ARE (1/4W) UNLESS OTHERWISE NOTED.
 3. CAPACITANCE VALUES ARE IN PICO FARADS UNLESS OTHERWISE NOTED.
 4. INDUCTANCE VALUES ARE INDICATED IN OHMS UNLESS OTHERWISE NOTED.
 5. CHIP PARTS ARE NOT SPECIFIED IN THIS SCHEMATIC.
 PLEASE REFER TO THE PARTS LIST FOR THE PARTS.

Q	DESCRIPTION	QTY
1	IC1: 74LS163	1
2	IC2: 74LS164	1
3	IC3: 74LS165	1
4	IC4: 74LS166	1
5	IC5: 74LS167	1
6	IC6: 74LS168	1
7	IC7: 74LS169	1
8	IC8: 74LS170	1
9	IC9: 74LS171	1
10	IC10: 74LS172	1
11	IC11: 74LS173	1
12	IC12: 74LS174	1
13	IC13: 74LS175	1
14	IC14: 74LS176	1
15	IC15: 74LS177	1
16	IC16: 74LS178	1
17	IC17: 74LS179	1
18	IC18: 74LS180	1
19	IC19: 74LS181	1
20	IC20: 74LS182	1
21	IC21: 74LS183	1
22	IC22: 74LS184	1
23	IC23: 74LS185	1
24	IC24: 74LS186	1
25	IC25: 74LS187	1
26	IC26: 74LS188	1
27	IC27: 74LS189	1
28	IC28: 74LS190	1
29	IC29: 74LS191	1
30	IC30: 74LS192	1
31	IC31: 74LS193	1
32	IC32: 74LS194	1
33	IC33: 74LS195	1
34	IC34: 74LS196	1
35	IC35: 74LS197	1
36	IC36: 74LS198	1
37	IC37: 74LS199	1
38	IC38: 74LS200	1
39	IC39: 74LS201	1
40	IC40: 74LS202	1
41	IC41: 74LS203	1
42	IC42: 74LS204	1
43	IC43: 74LS205	1
44	IC44: 74LS206	1
45	IC45: 74LS207	1
46	IC46: 74LS208	1
47	IC47: 74LS209	1
48	IC48: 74LS210	1
49	IC49: 74LS211	1
50	IC50: 74LS212	1
51	IC51: 74LS213	1
52	IC52: 74LS214	1
53	IC53: 74LS215	1
54	IC54: 74LS216	1
55	IC55: 74LS217	1
56	IC56: 74LS218	1
57	IC57: 74LS219	1
58	IC58: 74LS220	1
59	IC59: 74LS221	1
60	IC60: 74LS222	1
61	IC61: 74LS223	1
62	IC62: 74LS224	1
63	IC63: 74LS225	1
64	IC64: 74LS226	1
65	IC65: 74LS227	1
66	IC66: 74LS228	1
67	IC67: 74LS229	1
68	IC68: 74LS230	1
69	IC69: 74LS231	1
70	IC70: 74LS232	1
71	IC71: 74LS233	1
72	IC72: 74LS234	1
73	IC73: 74LS235	1
74	IC74: 74LS236	1
75	IC75: 74LS237	1
76	IC76: 74LS238	1
77	IC77: 74LS239	1
78	IC78: 74LS240	1
79	IC79: 74LS241	1
80	IC80: 74LS242	1
81	IC81: 74LS243	1
82	IC82: 74LS244	1
83	IC83: 74LS245	1
84	IC84: 74LS246	1
85	IC85: 74LS247	1
86	IC86: 74LS248	1
87	IC87: 74LS249	1
88	IC88: 74LS250	1
89	IC89: 74LS251	1
90	IC90: 74LS252	1
91	IC91: 74LS253	1
92	IC92: 74LS254	1
93	IC93: 74LS255	1
94	IC94: 74LS256	1
95	IC95: 74LS257	1
96	IC96: 74LS258	1
97	IC97: 74LS259	1
98	IC98: 74LS260	1
99	IC99: 74LS261	1
100	IC100: 74LS262	1



- P1: VTX
- P2: GND
- P3: HODI
- P4: VCC
- P5: REFCLK
- P6: PCLK
- P7: PATN
- P8: PATN
- P9: VAK
- P10: CANDET
- P11: GND
- P12: GND

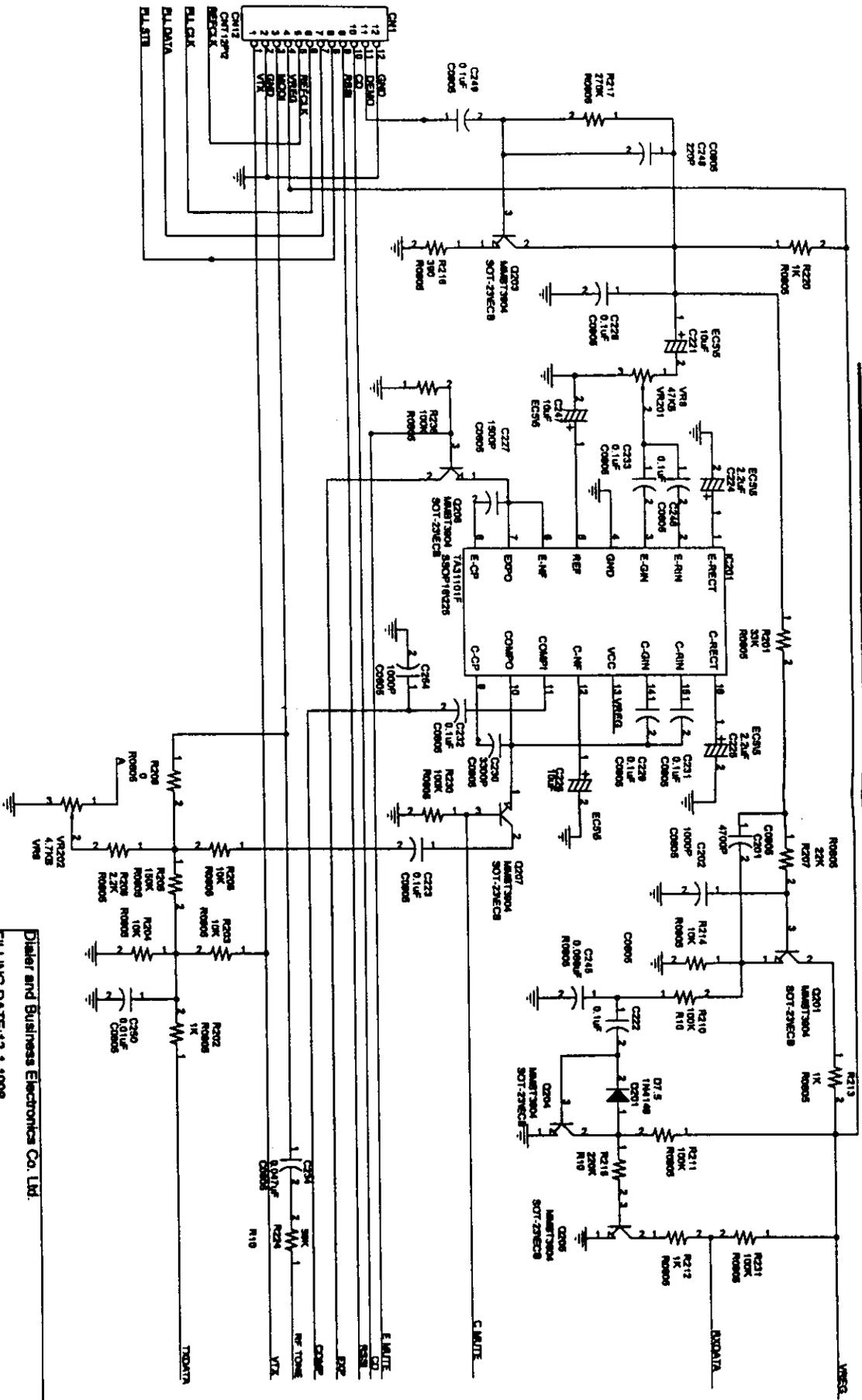
- 1. VTX: 2-8-3, 0VDC
- 2. VAK: 2-9-3, 1VDC
- 3. VCC: 3-3-4, 5VDC

DUPLX

Notes:
 1. RESISTOR VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED.
 2. RESISTOR VALUES ARE LISTED IN (1/10) WATTS UNLESS OTHERWISE NOTED.
 3. CAPACITOR VALUES ARE INDICATED BY LETTERS IN PARENTHESES.
 4. INTERFERING VALUES ARE INDICATED BY BOLD CAPITAL LETTERS.
 5. CAP VALUES ARE NOT SPECIFIED IN THIS SCHEMATIC UNLESS OTHERWISE NOTED.
 6. CAP VALUES ARE NOT SPECIFIED IN THIS SCHEMATIC UNLESS OTHERWISE NOTED.
 7. CAP VALUES ARE NOT SPECIFIED IN THIS SCHEMATIC UNLESS OTHERWISE NOTED.
 8. CAP VALUES ARE NOT SPECIFIED IN THIS SCHEMATIC UNLESS OTHERWISE NOTED.
 9. CAP VALUES ARE NOT SPECIFIED IN THIS SCHEMATIC UNLESS OTHERWISE NOTED.
 10. CAP VALUES ARE NOT SPECIFIED IN THIS SCHEMATIC UNLESS OTHERWISE NOTED.

QTY	DESCRIPTION	REF
1	6X4	P1
1	6AR5	P2
1	6X4	P3
1	6X4	P4
1	6X4	P5
1	6X4	P6
1	6X4	P7
1	6X4	P8
1	6X4	P9
1	6X4	P10
1	6X4	P11
1	6X4	P12

689 B/U COMPASOR SCHEMATIC



NOTES

- 1. All reference values are indicated in "ohm" (K=1000 ohms, M=1000 Kohms)
- 2. All capacitance values are indicated in "uF" (p=10E-6 uF)

Diater and Business Electronics Co. Ltd.

FILING DATE: 12-1-1988

Model Number: 43-689 BASE UNIT

PCB:

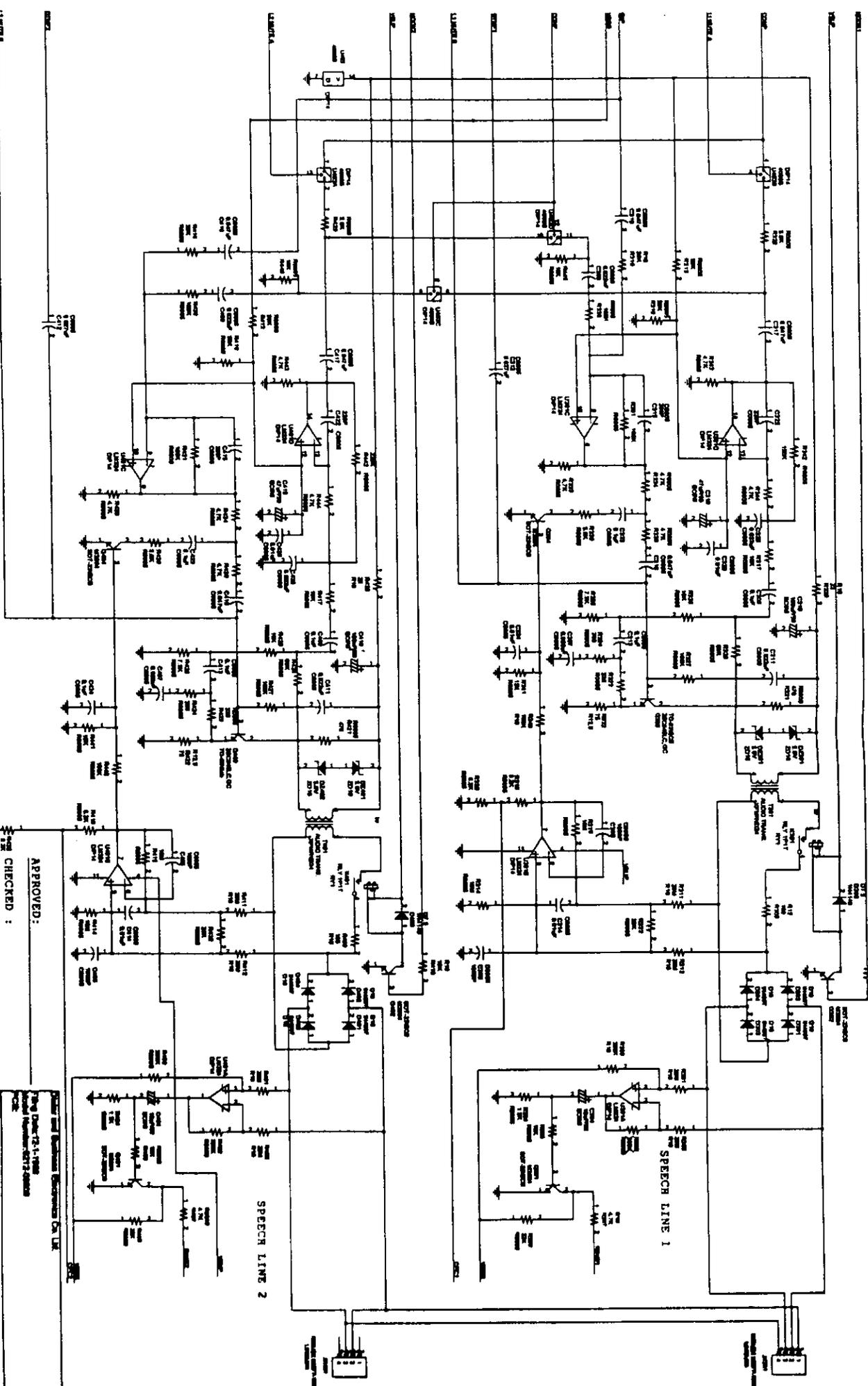
Title: 689 B/U COMPASOR SCHEMATIC

Size: A Document Number: 8212-00000

Date: Wednesday, June 10, 1988

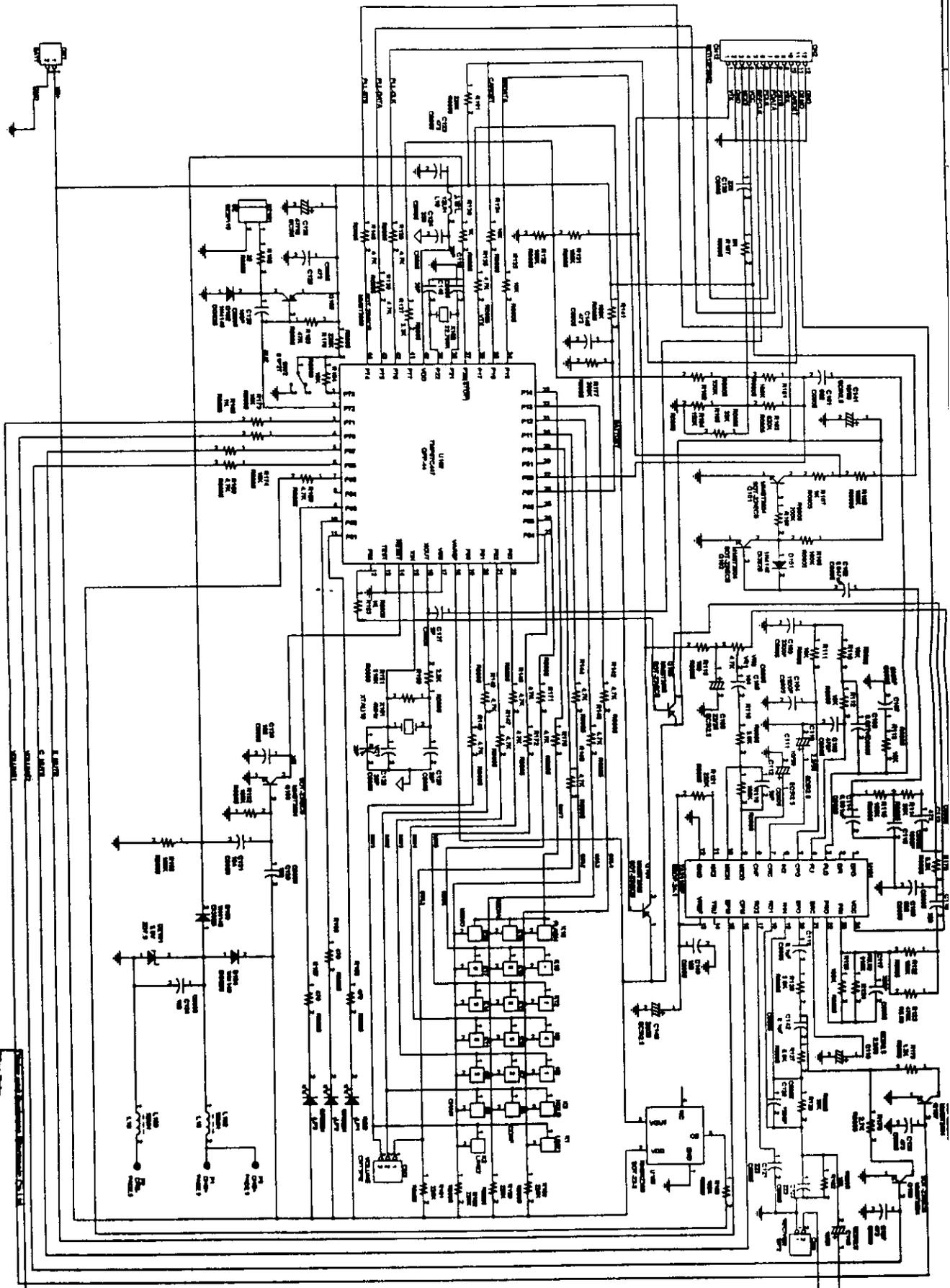
Sheet 1 of 5

689 LINE INTERFACE SCHEMATIC



APPROVED: _____
 CHECKED: _____
 PREPARED: _____

Doc. No. 73-1198
 689 LINE INTERFACE SCHEMATIC
 10-19-73



APPROVED: _____
 CHECKED: _____
 PREPARED: _____

Project No. _____
 Control No. AA-448
 AA-448 INVOICET SCHEMATIC
 Electrical Section
 Date: _____