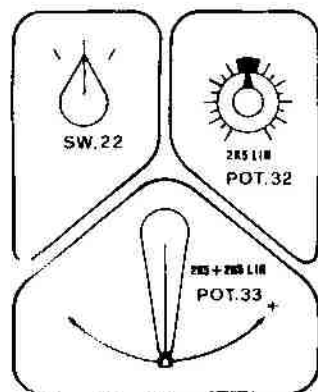
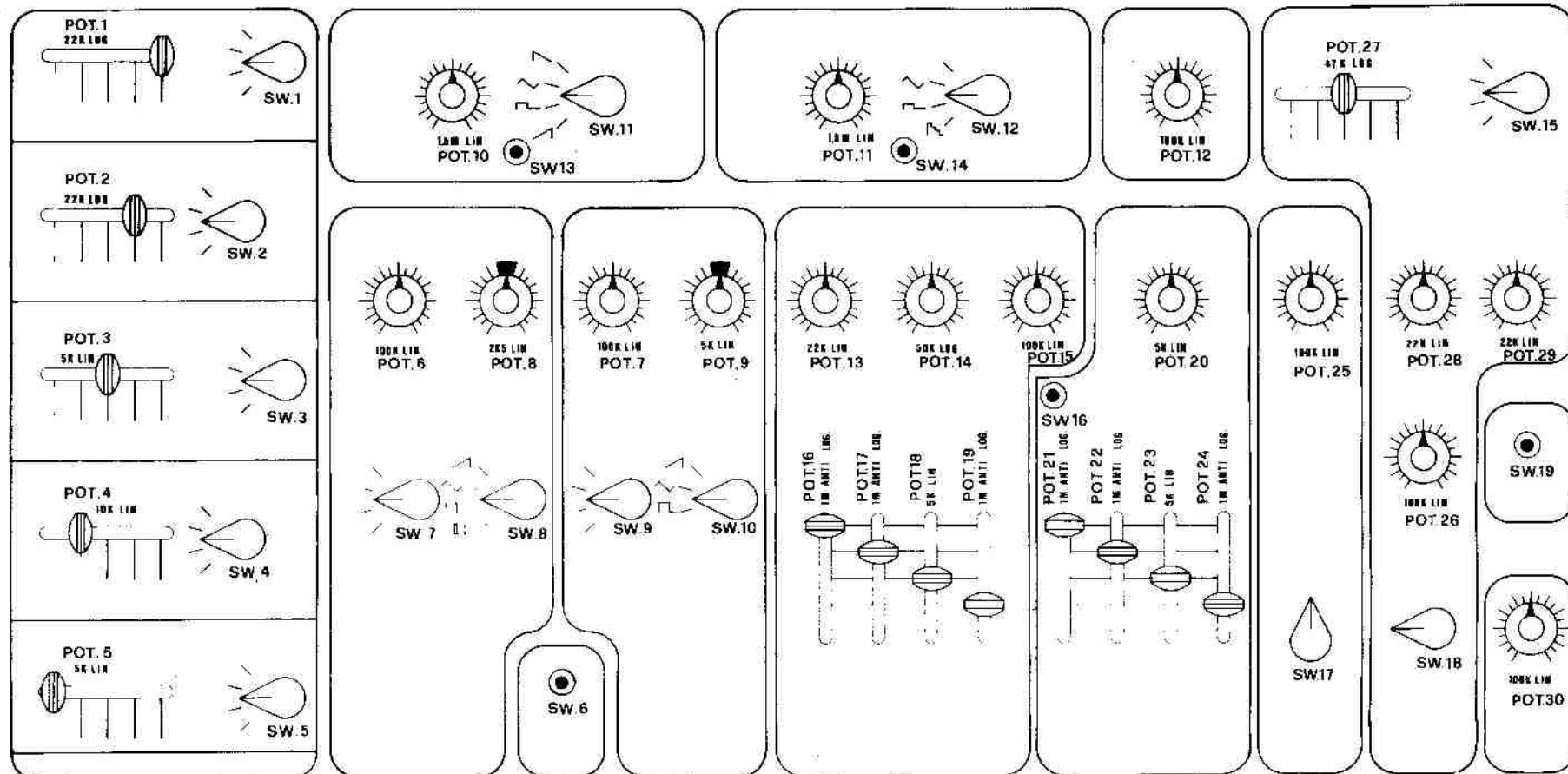
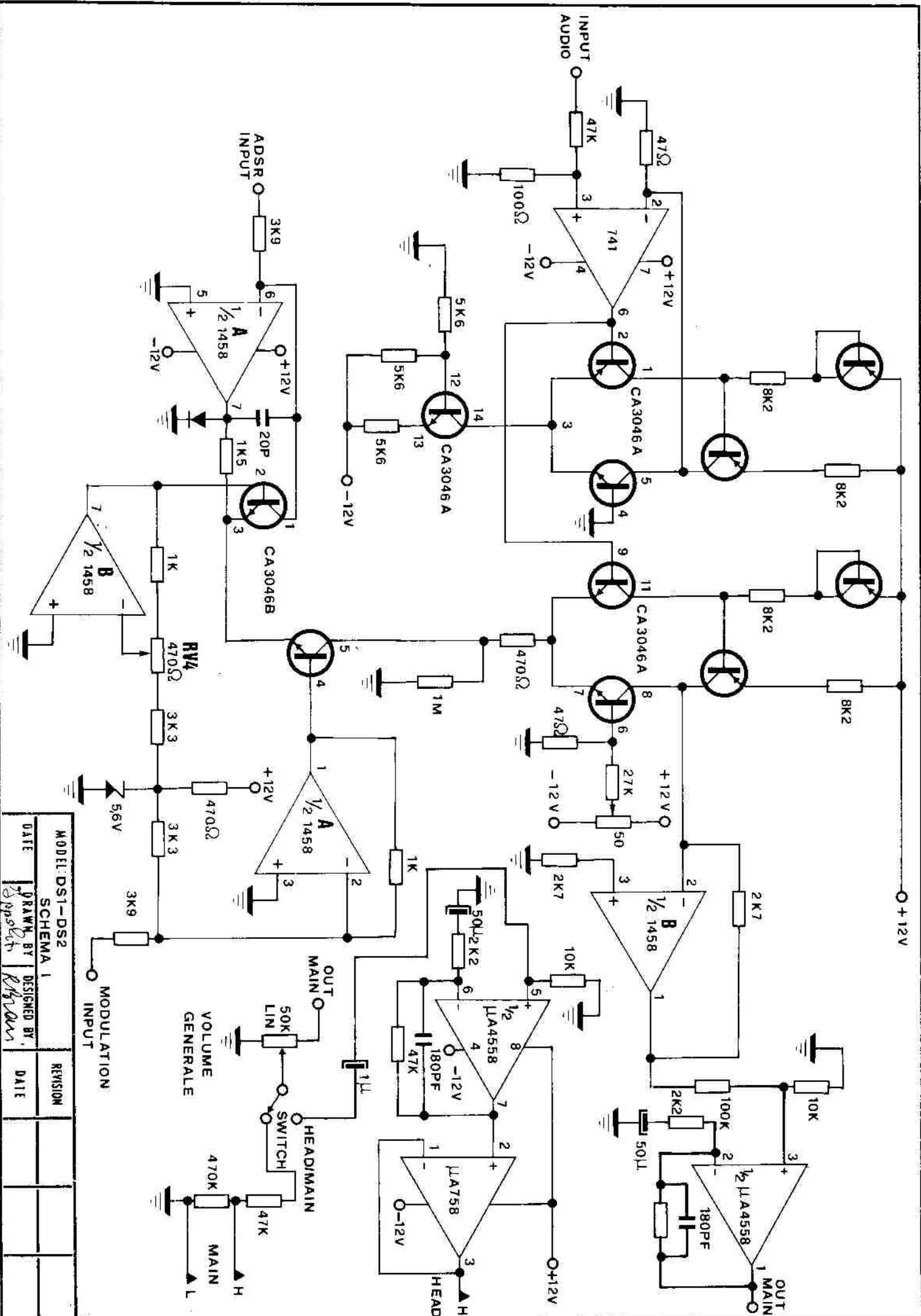


## DIGITAL SYNTHESIZER DS2

|           |          |             |          |  |
|-----------|----------|-------------|----------|--|
| MODEL DS2 |          |             | REVISION |  |
| DATE      | DRAWN BY | DESIGNED BY | DATE     |  |
| 7/1/76    | Vanda    | Cheng       |          |  |

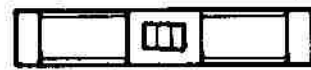
| BOARD | INTERFACER CIRCUITS | BOARD | INTERFACER CIRCUITS |
|-------|---------------------|-------|---------------------|
| P-430 | IC1 7400            | P-433 | IC2 7475            |
| P-431 | IC3-IC4 74100       | P-434 | IC5 7475            |
| P-432 | IC5-IC6 74100       | P-435 | IC7-IC8 7400        |
| P-433 | IC7 74100           | P-436 | IC9 7475            |
| P-434 | IC8 74100           | P-437 | IC10-IC11 741       |
| P-435 | IC9 74100           | P-438 | IC12-IC13 741       |
| P-436 | IC10 74100          | P-439 | IC14-IC15 741       |
| P-437 | IC11 74100          | P-440 | IC16 741            |
| P-438 | IC12 74100          | P-441 | IC17 741            |
| P-439 | IC13 74100          | P-442 | IC18 741            |
| P-440 | IC14 74100          | P-443 | IC19 741            |
| P-441 | IC15 74100          | P-444 | IC20 741            |
| P-442 | IC16 74100          | P-445 | IC21 741            |
| P-443 | IC17 74100          | P-446 | IC22 741            |
| P-444 | IC18 74100          | P-447 | IC23 741            |
| P-445 | IC19 74100          | P-448 | IC24 741            |
| P-446 | IC20 74100          | P-449 | IC25 741            |
| P-447 | IC21 74100          | P-450 | IC26 741            |
| P-448 | IC22 74100          | P-451 | IC27 741            |
| P-449 | IC23 74100          | P-452 | IC28 741            |
| P-450 | IC24 74100          | P-453 | IC29 741            |
| P-451 | IC25 74100          | P-454 | IC30 741            |
| P-452 | IC26 74100          | P-455 | IC31 741            |
| P-453 | IC27 74100          | P-456 | IC32 741            |
| P-454 | IC28 74100          | P-457 | IC33 741            |
| P-455 | IC29 74100          | P-458 | IC34 741            |
| P-456 | IC30 74100          | P-459 | IC35 741            |
| P-457 | IC31 74100          | P-460 | IC36 741            |
| P-458 | IC32 74100          | P-461 | IC37 741            |
| P-459 | IC33 74100          | P-462 | IC38 741            |
| P-460 | IC34 74100          | P-463 | IC39 741            |
| P-461 | IC35 74100          | P-464 | IC40 741            |
| P-462 | IC36 74100          | P-465 | IC41 741            |
| P-463 | IC37 74100          | P-466 | IC42 741            |
| P-464 | IC38 74100          | P-467 | IC43 741            |
| P-465 | IC39 74100          | P-468 | IC44 741            |
| P-466 | IC40 74100          | P-469 | IC45 741            |
| P-467 | IC41 74100          | P-470 | IC46 741            |
| P-468 | IC42 74100          | P-471 | IC47 741            |
| P-469 | IC43 74100          | P-472 | IC48 741            |
| P-470 | IC44 74100          | P-473 | IC49 741            |
| P-471 | IC45 74100          | P-474 | IC50 741            |
| P-472 | IC46 74100          | P-475 | IC51 741            |
| P-473 | IC47 74100          | P-476 | IC52 741            |
| P-474 | IC48 74100          | P-477 | IC53 741            |
| P-475 | IC49 74100          | P-478 | IC54 741            |
| P-476 | IC50 74100          | P-479 | IC55 741            |
| P-477 | IC51 74100          | P-480 | IC56 741            |
| P-478 | IC52 74100          | P-481 | IC57 741            |
| P-479 | IC53 74100          | P-482 | IC58 741            |
| P-480 | IC54 74100          | P-483 | IC59 741            |
| P-481 | IC55 74100          | P-484 | IC60 741            |
| P-482 | IC56 74100          | P-485 | IC61 741            |
| P-483 | IC57 74100          | P-486 | IC62 741            |
| P-484 | IC58 74100          | P-487 | IC63 741            |
| P-485 | IC59 74100          | P-488 | IC64 741            |
| P-486 | IC60 74100          | P-489 | IC65 741            |
| P-487 | IC61 74100          | P-490 | IC66 741            |
| P-488 | IC62 74100          | P-491 | IC67 741            |
| P-489 | IC63 74100          | P-492 | IC68 741            |
| P-490 | IC64 74100          | P-493 | IC69 741            |
| P-491 | IC65 74100          | P-494 | IC70 741            |
| P-492 | IC66 74100          | P-495 | IC71 741            |
| P-493 | IC67 74100          | P-496 | IC72 741            |
| P-494 | IC68 74100          | P-497 | IC73 741            |
| P-495 | IC69 74100          | P-498 | IC74 741            |
| P-496 | IC70 74100          | P-499 | IC75 741            |
| P-497 | IC71 74100          | P-500 | IC76 741            |
| P-498 | IC72 74100          | P-501 | IC77 741            |
| P-499 | IC73 74100          | P-502 | IC78 741            |
| P-500 | IC74 74100          | P-503 | IC79 741            |
| P-501 | IC75 74100          | P-504 | IC80 741            |
| P-502 | IC76 74100          | P-505 | IC81 741            |
| P-503 | IC77 74100          | P-506 | IC82 741            |
| P-504 | IC78 74100          | P-507 | IC83 741            |
| P-505 | IC79 74100          | P-508 | IC84 741            |
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| P-509 | IC83 74100          | P-512 | IC88 741            |
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| P-512 | IC86 74100          | P-515 | IC91 741            |
| P-513 | IC87 74100          | P-516 | IC92 741            |
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| P-515 | IC89 74100          | P-518 | IC94 741            |
| P-516 | IC90 74100          | P-519 | IC95 741            |
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| P-518 | IC92 74100          | P-521 | IC97 741            |
| P-519 | IC93 74100          | P-522 | IC98 741            |
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| P-521 | IC95 74100          | P-524 | IC100 741           |
| P-522 | IC96 74100          | P-525 | IC101 741           |
| P-523 | IC97 74100          | P-526 | IC102 741           |
| P-524 | IC98 74100          | P-527 | IC103 741           |
| P-525 | IC99 74100          | P-528 | IC104 741           |
| P-526 | IC100 74100         | P-529 | IC105 741           |
| P-527 | IC101 74100         | P-530 | IC106 741           |
| P-528 | IC102 74100         | P-531 | IC107 741           |
| P-529 | IC103 74100         | P-532 | IC108 741           |
| P-530 | IC104 74100         | P-533 | IC109 741           |
| P-531 | IC105 74100         | P-534 | IC110 741           |
| P-532 | IC106 74100         | P-535 | IC111 741           |
| P-533 | IC107 74100         | P-536 | IC112 741           |
| P-534 | IC108 74100         | P-537 | IC113 741           |
| P-535 | IC109 74100         | P-538 | IC114 741           |
| P-536 | IC110 74100         | P-539 | IC115 741           |
| P-537 | IC111 74100         | P-540 | IC116 741           |
| P-538 | IC112 74100         | P-541 | IC117 741           |
| P-539 | IC113 74100         | P-542 | IC118 741           |
| P-540 | IC114 74100         | P-543 | IC119 741           |
| P-541 | IC115 74100         | P-544 | IC120 741           |
| P-542 | IC116 74100         | P-545 | IC121 741           |
| P-543 | IC117 74100         | P-546 | IC122 741           |
| P-544 | IC118 74100         | P-547 | IC123 741           |
| P-545 | IC119 74100         | P-548 | IC124 741           |
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| P-547 | IC121 74100         | P-550 | IC126 741           |
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| P-558 | IC132 74100         | P-561 | IC137 741           |
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| P-561 | IC135 74100         | P-564 | IC140 741           |
| P-562 | IC136 74100         | P-565 | IC141 741           |
| P-563 | IC137 74100         | P-566 | IC142 741           |
| P-564 | IC138 74100         | P-567 | IC143 741           |
| P-565 | IC139 74100         | P-568 | IC144 741           |
| P-566 | IC140 74100         | P-569 | IC145 741           |
| P-567 | IC141 74100         | P-570 | IC146 741           |
| P-568 | IC142 74100         | P-571 | IC147 741           |
| P-569 | IC143 74100         | P-572 | IC148 741           |
| P-570 | IC144 74100         | P-573 | IC149 741           |
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| P-572 | IC146 74100         | P-575 | IC151 741           |
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| P-574 | IC148 74100         | P-577 | IC153 741           |
| P-575 | IC149 74100         | P-578 | IC154 741           |
| P-576 | IC150 74100         | P-579 | IC155 741           |
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| P-579 | IC153 74100         | P-582 | IC158 741           |
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| P-582 | IC156 74100         | P-585 | IC161 741           |
| P-583 | IC157 74100         | P-586 | IC162 741           |
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| P-586 | IC160 74100         | P-589 | IC165 741           |
| P-587 | IC161 74100         | P-590 | IC166 741           |
| P-588 | IC162 74100         | P-591 | IC167 741           |
| P-589 | IC163 74100         | P-592 | IC168 741           |
| P-590 | IC164 74100         | P-593 | IC169 741           |
| P-591 | IC165 74100         | P-594 | IC170 741           |
| P-592 | IC166 74100         | P-595 | IC171 741           |
| P-593 | IC167 74100         | P-596 | IC172 741           |
| P-594 | IC168 74100         | P-597 | IC173 741           |
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| P-596 | IC170 74100         | P-599 | IC175 741           |
| P-597 | IC171 74100         | P-600 | IC176 741           |
| P-598 | IC172 74100         | P-601 | IC177 741           |
| P-599 | IC173 74100         | P-602 | IC178 741           |
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| P-602 | IC176 74100         | P-605 | IC181 741           |
| P-603 | IC177 74100         | P-606 | IC182 741           |
| P-604 | IC178 74100         | P-607 | IC183 741           |
| P-605 | IC179 74100         | P-608 | IC184 741           |
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| P-608 | IC182 74100         | P-611 | IC187 741           |
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| P-611 | IC185 74100         | P-614 | IC190 741           |
| P-612 | IC186 74100         | P-615 | IC191 741           |
| P-613 | IC187 74100         | P-616 | IC192 741           |
| P-614 | IC188 74100         | P-617 | IC193 741           |
| P-615 | IC189 74100         | P-618 | IC194 741           |
| P-616 | IC190 74100         | P-619 | IC195 741           |
| P-617 | IC191 74100         | P-620 | IC196 741           |
| P-618 | IC192 74100         | P-621 | IC197 741           |
| P-619 | IC193 74100         | P-622 | IC198 741           |
| P-620 | IC194 74100         | P-623 | IC199 741           |
| P-621 | IC195 74100         | P-624 | IC200 741           |
| P-622 | IC196 74100         | P-625 | IC201 741           |
| P-623 | IC197 74100         | P-626 | IC202 741           |
| P-624 | IC198 74100         | P-627 | IC203 741           |
| P-625 | IC199 74100         | P-628 | IC204 741           |
| P-626 | IC200 74100         | P-629 | IC205 741           |
| P-627 | IC201 74100         | P-630 | IC206 741           |
| P-628 | IC202 74100         | P-631 | IC207 741           |
| P-629 | IC203 74100         | P-632 | IC208 741           |
| P-630 | IC204 74100         | P-633 | IC209 741           |
| P-631 | IC205 74100         | P-634 | IC210 741           |
| P-632 | IC206 74100         | P-635 | IC211 741           |
| P-633 | IC207 74100         | P-636 | IC212 741           |
| P-634 | IC208 74100         | P-637 | IC213 741           |
| P-635 | IC209 74100         | P-638 | IC214 741           |
| P-636 | IC210 74100         | P-639 | IC215 741           |
| P-637 | IC211 74100         | P-640 | IC216 741           |
| P-638 | IC212 74100         | P-641 | IC217 741           |
| P-639 | IC213 74100         | P-642 | IC218 741           |
| P-640 | IC214 74100         | P-643 | IC219 741           |
| P-641 | IC215 74100         | P-644 | IC220 741           |
| P-642 | IC216 74100         | P-645 | IC221 741           |
| P-643 | IC217 74100         | P-646 | IC222 741           |
| P-644 | IC218 74100         | P-647 | IC223 741           |
| P-645 | IC219 74100         | P-648 | IC224 741           |
| P-646 | IC220 74100         | P-649 | IC225 741           |
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| P-648 | IC222 74100         | P-651 | IC227 741           |
| P-649 | IC223 74100         | P-652 | IC228 741           |
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| P-651 | IC225 74100         | P-654 | IC230 741           |
| P-652 | IC226 74100         | P-655 | IC231 741           |
| P-653 | IC227 74100         | P-656 | IC232 741           |
| P-654 | IC228 74100         | P-657 | IC233 741           |
| P-655 | IC229 74100         | P-658 | IC234 741           |
| P-656 | IC230 74100         | P-659 | IC235 741           |
| P-657 | IC231 74100         | P-660 | IC236 741           |
| P-658 | IC232 74100         | P-661 | IC237 741           |
| P-659 | IC233 74100         | P-662 | IC238 741           |
| P-660 | IC234 74100         | P-663 | IC239 741           |
| P-661 | IC235 74100         | P-664 | IC240 741           |
| P-662 | IC236 74100         | P-665 | IC241 741           |
| P-663 | IC237 74100         | P-666 | IC242 741           |
| P-664 | IC238 74100         | P-667 | IC243 741           |
| P-665 | IC239 74100         | P-668 | IC244 741           |
| P-666 | IC240 74100         | P-669 | IC245 741           |
| P-667 | IC241 74100         | P-670 | IC246 741           |
| P-668 | IC242 74100         | P-671 | IC247 741           |
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| P-    |                     |       |                     |





DWG 4

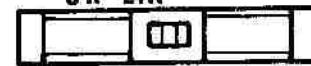
| MODEL DS1-DS2 |          | REVISION    |      |
|---------------|----------|-------------|------|
| SCHEMA 1      |          |             |      |
| DATE          | DRAWN BY | DESIGNED BY | DATE |
|               | 8/9/98   | R. J. J. J. |      |



1M ANTILOG.



1M ANTILOG.



5K LIN



1M ANTILOG.



1M ANTILOG.



1M ANTILOG.



5K LIN



1M ANTILOG.

P-441

J2  
12PINS CONNECTOR

J1  
12PINS CONNECTOR

| PIN | REFERENCE J2 | PIN | REFERENCE J1 |
|-----|--------------|-----|--------------|
| 1   | OUT ADSR VCF | 1   | +12V         |
| 2   | " "          | 2   | -12V         |
| 3   | " "          | 3   | R POT.       |
| 4   | +5V          | 4   | S POT.       |
| 5   | R POT.       | 5   | GND          |
| 6   | S POT.       | 6   | "            |
| 7   | GND          | 7   | "            |
| 8   | "            | 8   | "            |
| 9   | "            | 9   | D POT.       |
| 10  | "            | 10  | A POT.       |
| 11  | D POT.       | 11  | GATE         |
| 12  | A POT.       | 12  | OUT ADSR VCA |

|       |          |             |          |
|-------|----------|-------------|----------|
| MODEL | DS2      | SCHEMATIC   | REVISION |
| DATE  | DRAWN BY | DESIGNED BY | DATE     |
|       |          |             |          |
|       |          |             |          |



P. 440

12 PINS CONNECTOR

12

J2

1458

4016

4023

1458

4016

4023

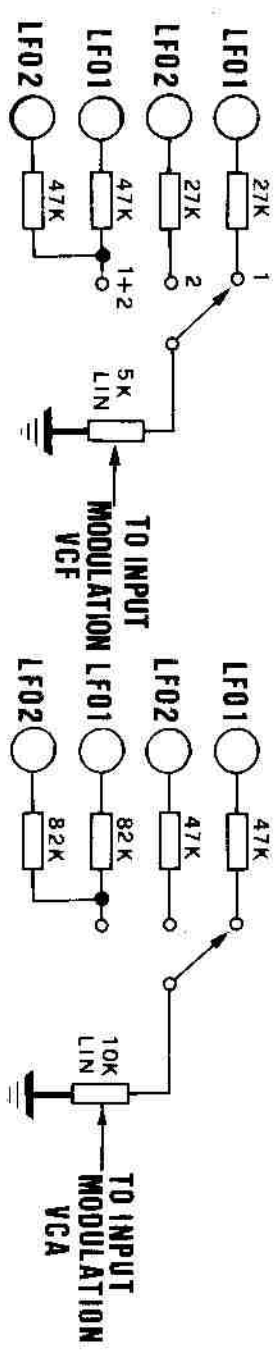
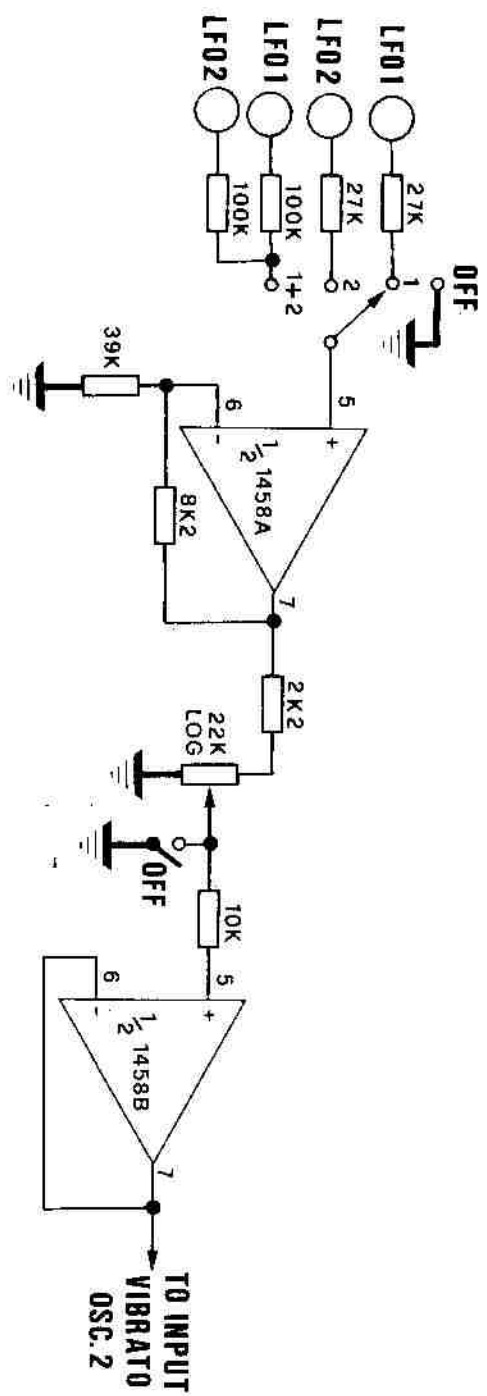
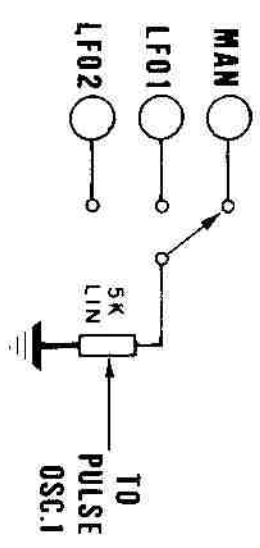
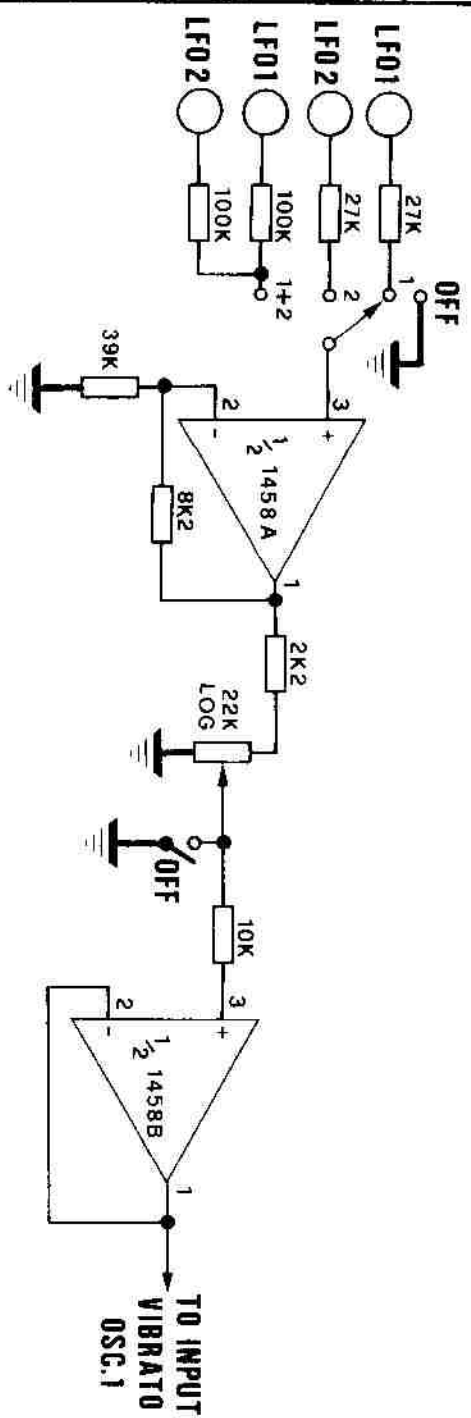
12 PINS CONNECTOR

12

J1

| PIN | REFERENCE J1 | PIN | REFERENCE J2 |
|-----|--------------|-----|--------------|
| 1   | +12V         | 1   | OUT ADSR VCF |
| 2   | -12V         | 2   |              |
| 3   | R POT        | 3   |              |
| 4   | S POT        | 4   | +5V          |
| 5   | GND          | 5   | R POT        |
| 6   | GND          | 6   | S POT        |
| 7   | GND          | 7   | GND          |
| 8   | GND          | 8   | GND          |
| 9   | D POT        | 9   | GND          |
| 10  | A POT        | 10  | GND          |
| 11  | GATE         | 11  | D POT        |
| 12  | OUT ADSR VCA | 12  | A POT        |

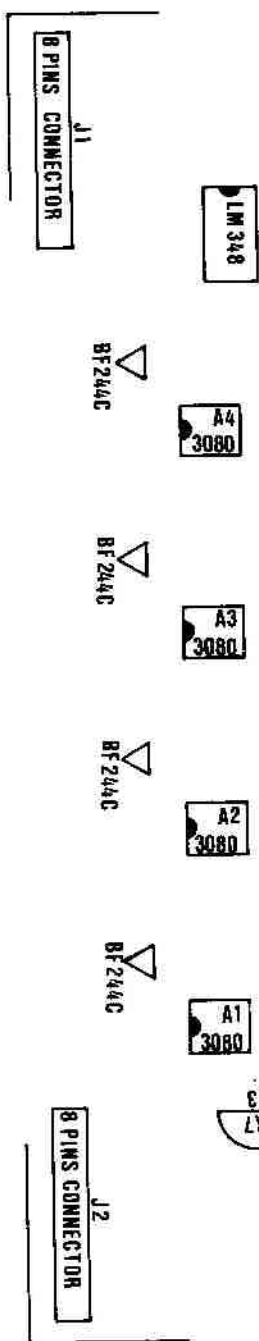
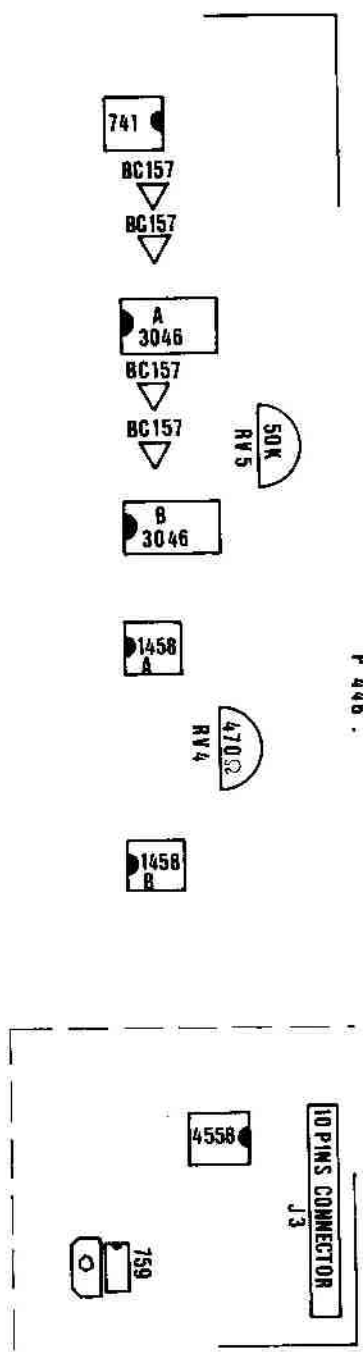
| MODEL DS DS |                 | SCHEMA L        |      | REVISION |  |
|-------------|-----------------|-----------------|------|----------|--|
| DATE        | DRAWN BY        | DESIGNED BY     | DATE |          |  |
|             | <i>Thompson</i> | <i>R. Brown</i> |      |          |  |



P-445

| MODEL          |             | REVISION    |      |
|----------------|-------------|-------------|------|
| DS2 SCHEMATA M |             |             |      |
| DATE           | DRAWN BY    | DESIGNED BY | DATE |
|                | W. J. Brown |             |      |





| PIN | REFERENCE J1     | PIN | REFERENCE J2 | PIN | REFERENCE J3  |
|-----|------------------|-----|--------------|-----|---------------|
| 1   | -5.6V            | 1   | GND          | 1   | ADSR YCA      |
| 2   | CUTOFF POT       | 2   | RESON CENTR. | 2   | MODULAT INPUT |
| 3   | GND              | 3   | POLY         | 3   | -12V          |
| 4   | MODULAT INPUT    | 4   | NOISE        | 4   | +12V          |
| 5   | ADSR YCF         | 5   | OSC1         | 5   | GND           |
| 6   | KT SW 1A         | 6   | OSC2         | 6   | GND           |
| 7   | RESONANCE LATEN. | 7   |              | 7   | OUT VOL GEN   |
| 8   | GND              | 8   |              | 8   | INPUT HEAD PH |
|     |                  | 9   |              | 9   | GND           |
|     |                  | 10  |              | 10  | OUT HEAD PH   |

|      |             |            |             |
|------|-------------|------------|-------------|
| DATE | DESIGNED BY | CHECKED BY | APPROVED BY |
|      |             |            |             |

IK RV1

LM 324 A

1458

1458

LM 324 B

HBF 4727

BC109B

BC109B

BC109B

BC109B

P-443

J1

12 PINS CONNECTOR

J2

8 PINS CONNECTOR

| PIN | REFERENCE J1 | PIN | REFERENCE J2 |
|-----|--------------|-----|--------------|
| 1   | SE LFO1      | 1   | STAIRCASE    |
| 2   | SE LFO1      | 2   | "            |
| 3   | QUADRA LFO1  | 3   | Se H         |
| 4   | FC LFO1      | 4   | LED LFO2     |
| 5   | -12V         | 5   | FC LFO2      |
| 6   | TRI. LFO1    | 6   | QUADRA LFO2  |
| 7   | GND          | 7   | TRI. LFO2    |
| 8   | "            | 8   | FC LFO2      |
| 9   | "            |     |              |
| 10  | LED LFO1     |     |              |
| 11  | FC LFO1      |     |              |
| 12  | +12V         |     |              |

| MODEL | DS2       | SCHEMA N    | REVISION |  |  |  |
|-------|-----------|-------------|----------|--|--|--|
| DATE  | DRAWN BY  | DESIGNED BY | DATE     |  |  |  |
|       | Rondal G. | R. B. Warr  |          |  |  |  |



5K LIN



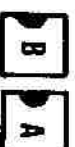
10K LIN



5K LIN



22K LOG



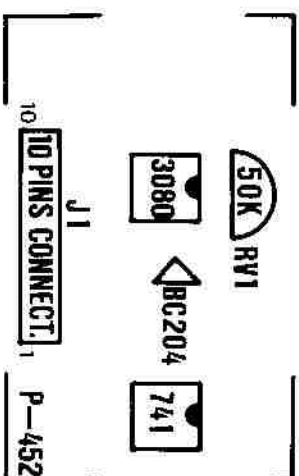
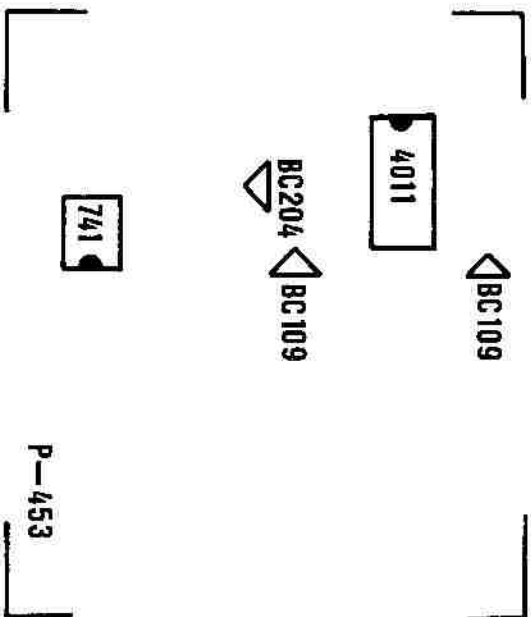
P-445



22K LOG

| MODEL |                   |             | REVISION |  |
|-------|-------------------|-------------|----------|--|
| DATE  | DRAWN BY          | DESIGNED BY | DATE     |  |
|       | Radwan G. R. Khan |             |          |  |





| PIN | REFERENCE                   | J1 |
|-----|-----------------------------|----|
| 1   | +12V                        |    |
| 2   | OUT LF01 or LF02 WITH DELAY |    |
| 3   | PIN 6 741                   |    |
| 4   | -12V                        |    |
| 5   | GND                         |    |
| 6   | "                           |    |
| 7   | "                           |    |
| 8   | IMP LF01 or LF02            |    |
| 9   | "                           |    |
| 10  | "                           |    |

|       |          |              |      |          |  |
|-------|----------|--------------|------|----------|--|
| MODEL |          | DS2 SCHEMA Q |      | REVISION |  |
| DATE  | DRAWN BY | DESIGNED BY  | DATE |          |  |
|       | Bodanis  | R. Brown     |      |          |  |

748  
A

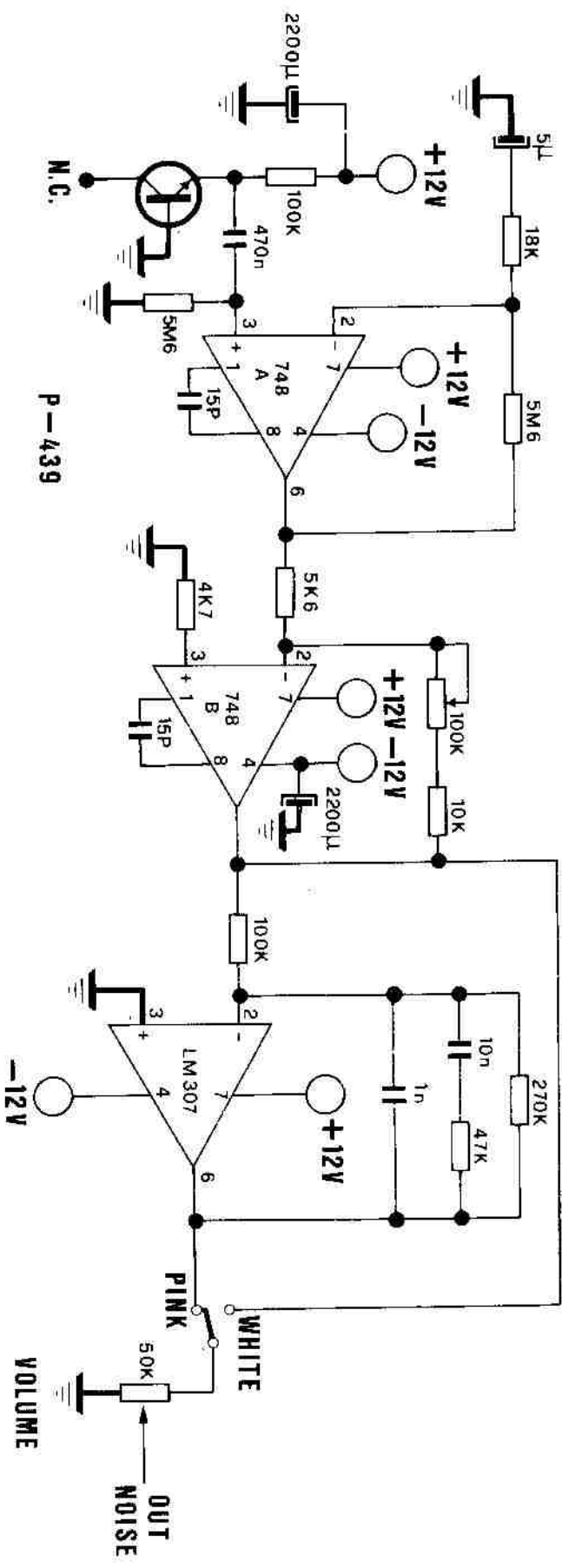
748  
B

100K RV1

BC109B

LM  
307

P-439

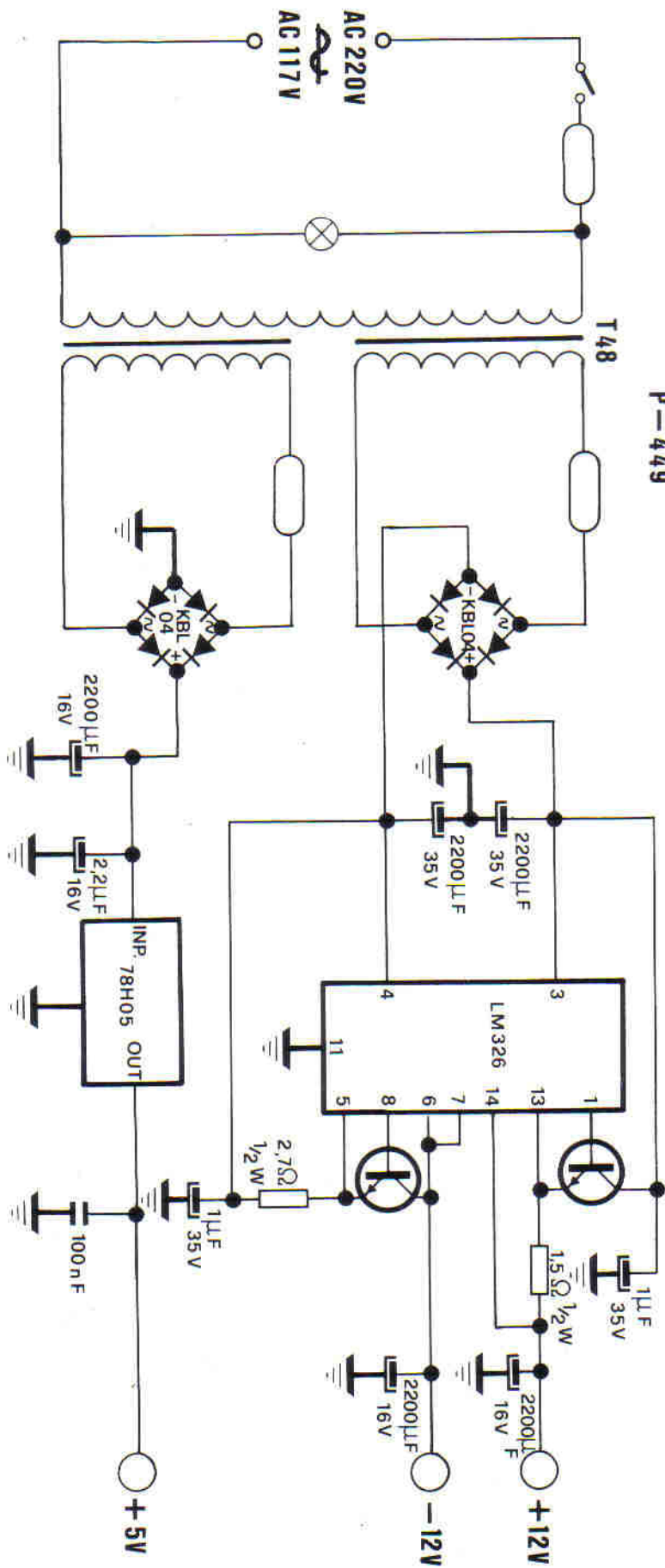


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|                        |                   |             |      |
|------------------------|-------------------|-------------|------|
| MODEL DS1 DS2 SCHEMA O |                   | REVISION    |      |
| DATE                   | DRAWN BY R. Brown | DESIGNED BY | DATE |
|                        |                   |             |      |
|                        |                   |             |      |
|                        |                   |             |      |
|                        |                   |             |      |



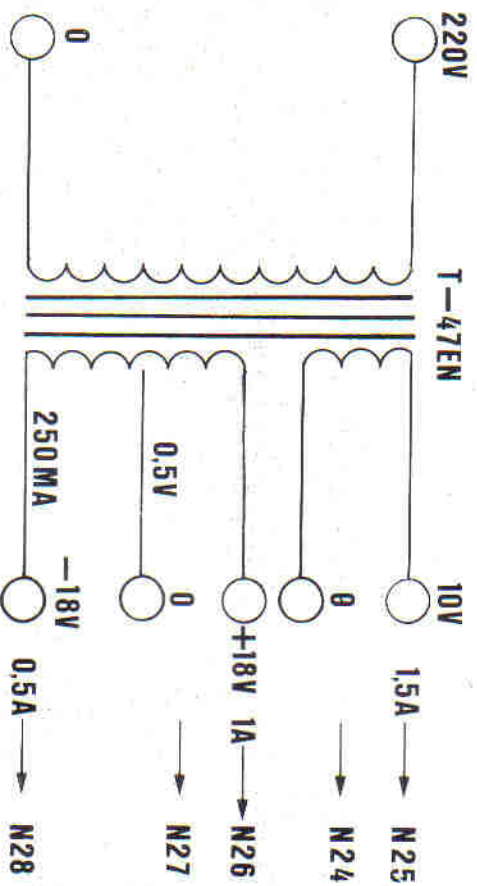
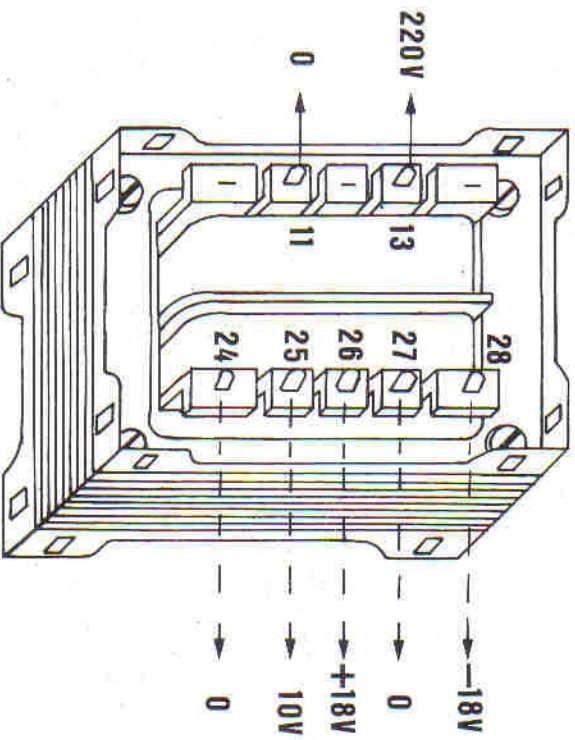
P-449



| MODEL DS2 SCHEMA P |                      | REVISION    |      |
|--------------------|----------------------|-------------|------|
| DATE               | DRAWN BY<br>R. Brown | DESIGNED BY | DATE |

LM  
326

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| MODEL        |           | REVISION    |      |
|--------------|-----------|-------------|------|
| DS2 SCHEMA P |           |             |      |
| DATE         | DRAWN BY  | DESIGNED BY | DATE |
|              | Borben G. | R. Brown    |      |