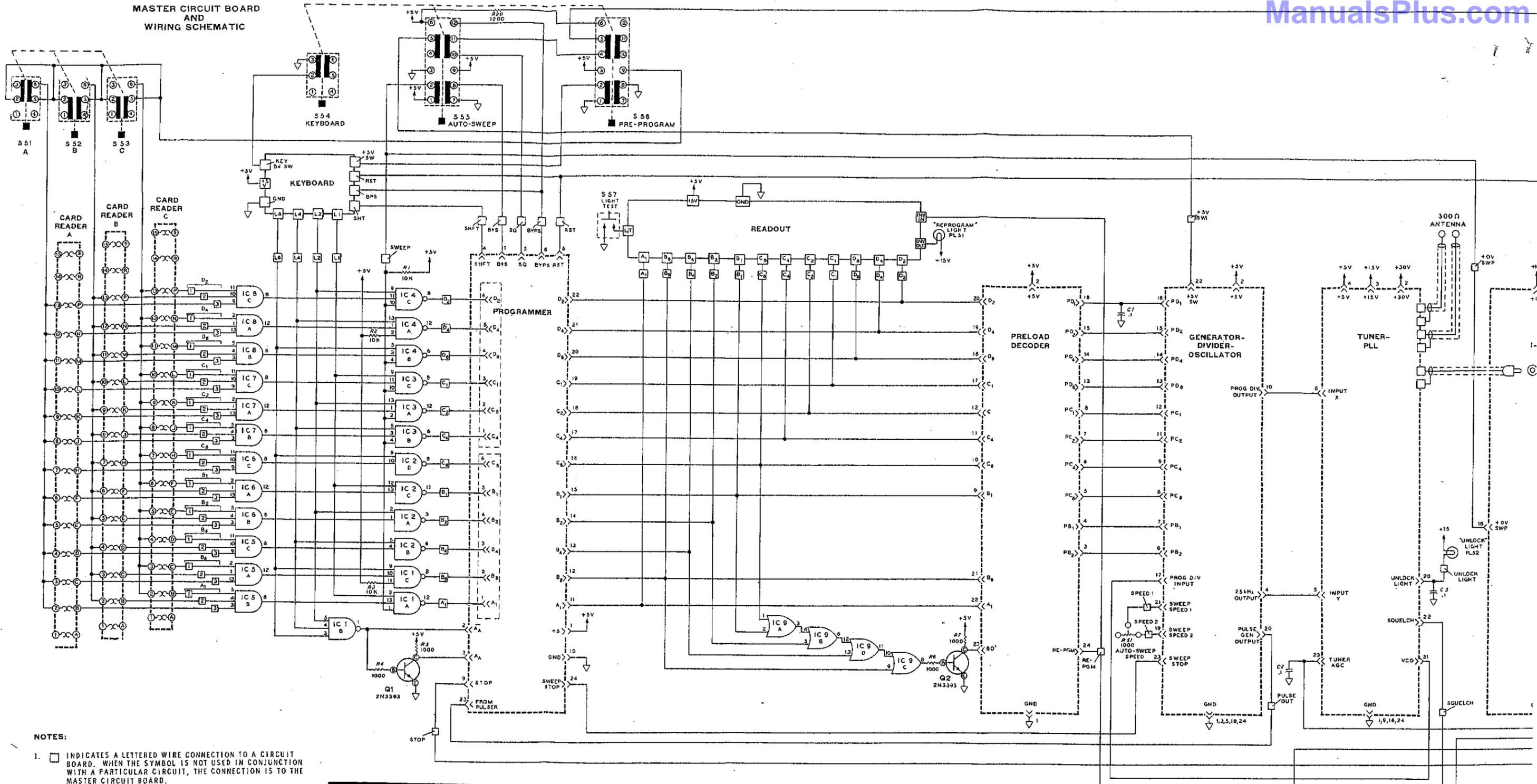
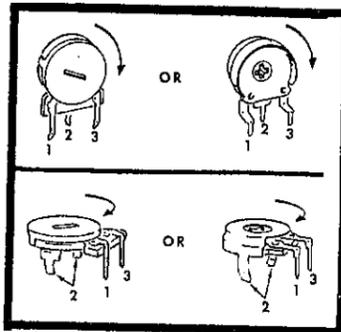


MASTER CIRCUIT BOARD AND WIRING SCHEMATIC



NOTES:

1. □ INDICATES A LETTERED WIRE CONNECTION TO A CIRCUIT BOARD. WHEN THE SYMBOL IS NOT USED IN CONJUNCTION WITH A PARTICULAR CIRCUIT, THE CONNECTION IS TO THE MASTER CIRCUIT BOARD.
2. ▽ INDICATES A CIRCUIT BOARD GROUND.
3. ≡ INDICATES A CHASSIS GROUND.
4. ALL RESISTORS ARE 1/2-WATT 5% UNLESS OTHERWISE SPECIFIED.
5. ALL CAPACITOR VALUES LARGER THAN 1.0 ARE IN pF UNLESS OTHERWISE SPECIFIED. CAPACITOR VALUES LESS THAN 1.0 ARE IN μF.
6. REFER TO THE CHASSIS PHOTOGRAPHS AND CIRCUIT BOARD X-RAY VIEWS FOR THE PHYSICAL LOCATION OF PARTS.
7. THE ARROW INDICATES CLOCKWISE ROTATION OF A CONTROL OR SWITCH, AS VIEWED FROM THE KNOB END OR AS SHOWN FOR CIRCUIT BOARD CONTROLS. THE CIRCUIT BOARD CONTROL LUG NUMBERS CORRESPOND TO THOSE SHOWN ON THE SCHEMATIC AND X-RAY VIEWS.

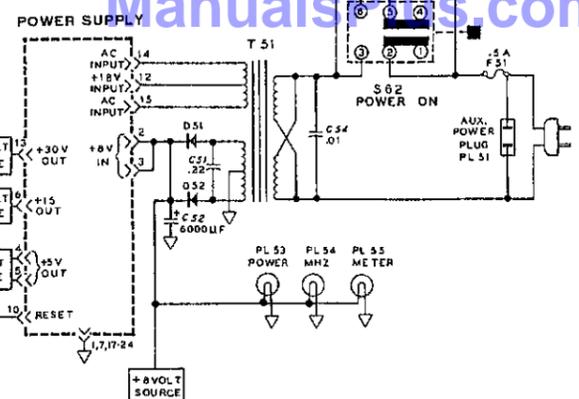
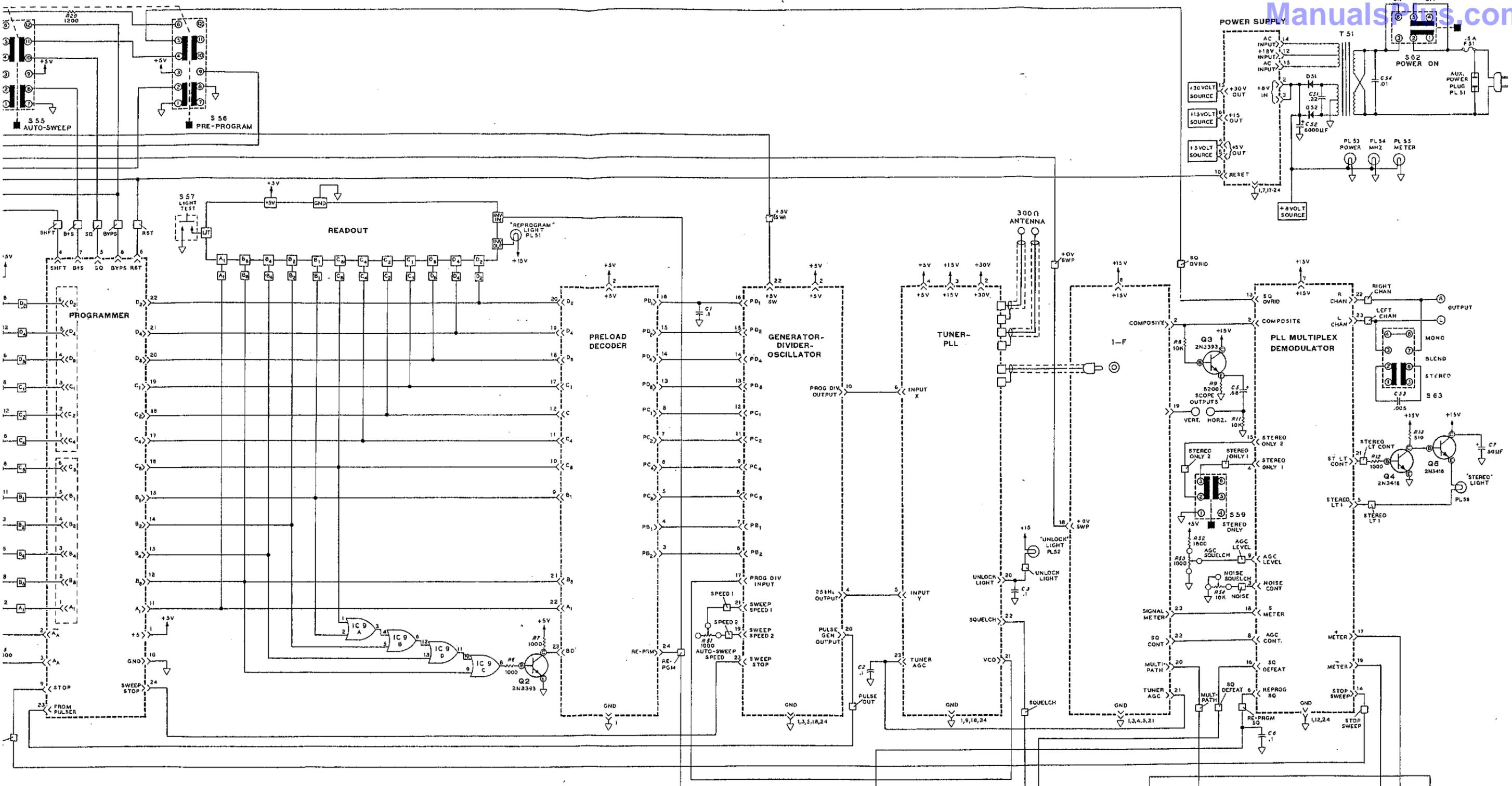


8. RESISTORS, CAPACITORS, AND COMPONENT NUMBERS ARE IN THE FOLLOWING GROUPS:

1-49	PARTS MOUNTED ON THE MASTER CIRCUIT BOARD.
50-99	" " " " CHASSIS.
100-199	" " " " POWER SUPPLY CIRCUIT BOARD.
200-299	" " " " PROGRAMMER CIRCUIT BOARD.
300-399	" " " " PRELOAD DECODER CIRCUIT BOARD.
400-499	" " " " GEN-DIV-OSC CIRCUIT BOARD.
500-599	" " " " TUNER-PLL CIRCUIT BOARD.
600-699	" " " " I-F CIRCUIT BOARD.
700-799	" " " " PLL-MULTIPLIER DEMODULATOR CIRCUIT BOARD.
800-899	" " " " KEYBOARD CIRCUIT BOARD.
900-999	" " " " READOUT CIRCUIT BOARD.

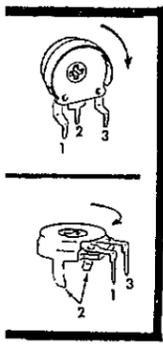
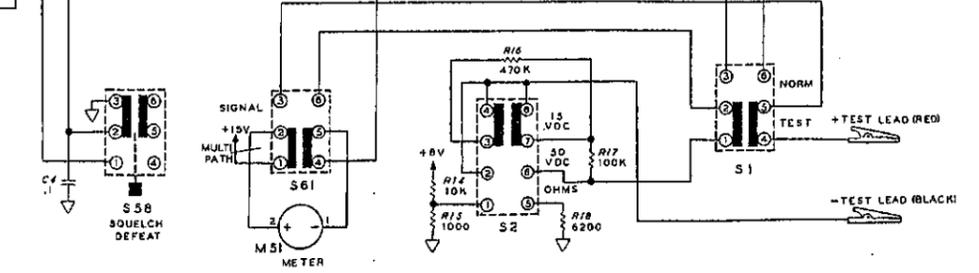
9. #1815 LAMPS ARE USED FOR PL53, PL54, PL55.
#1813 LAMPS ARE USED FOR PL51, PL52, PL56.

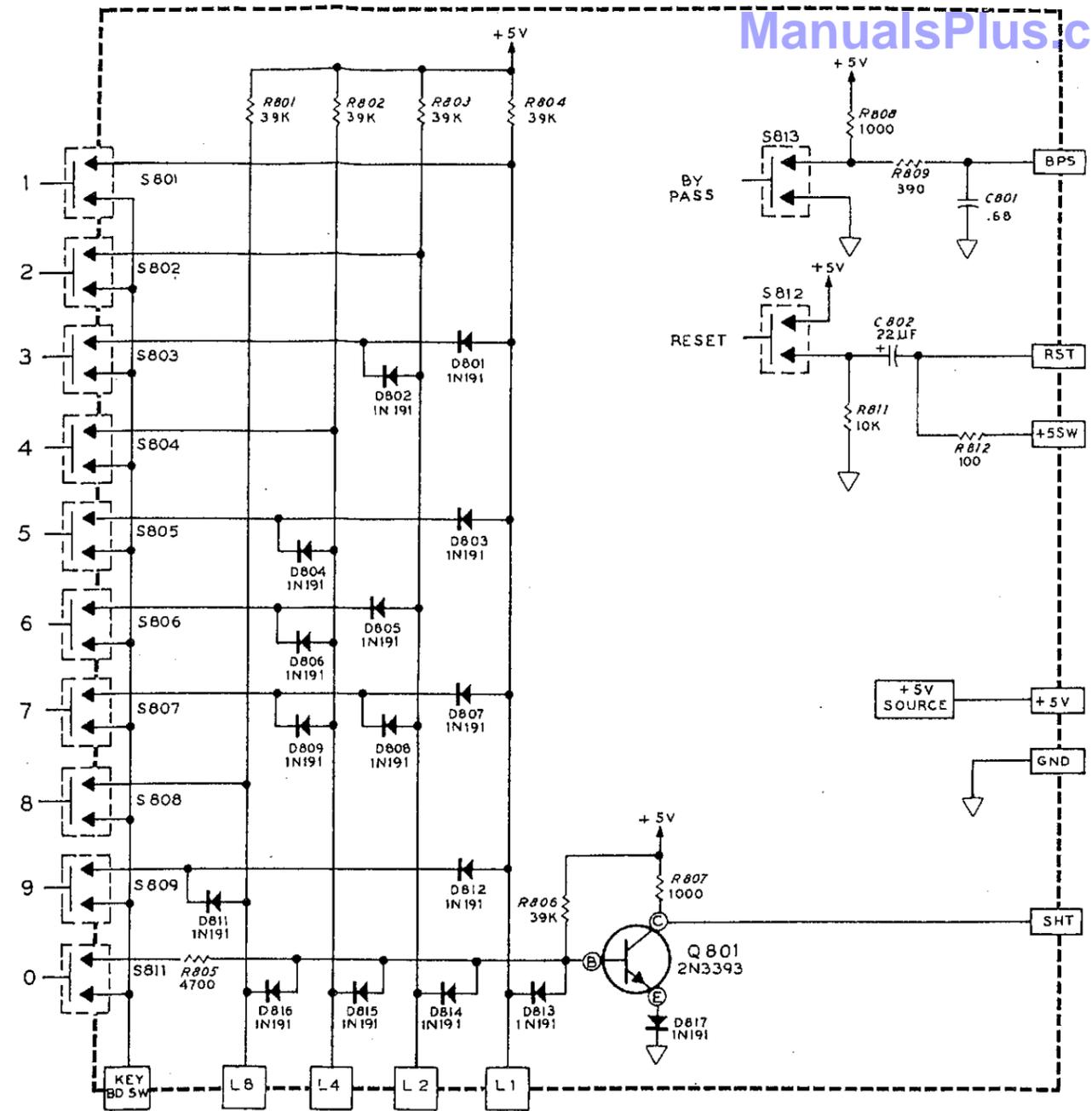
SCHEMATIC OF THE HEATHKIT® DIGITAL FM STEREO TUNER MODEL AJ-1510



8. RESISTORS, CAPACITORS, AND COMPONENT NUMBERS ARE IN THE FOLLOWING GROUPS:
- | | |
|---------|----------------------------------------------------|
| 1-49 | PARTS MOUNTED ON THE MASTER CIRCUIT BOARD. |
| 50-99 | " " " " CHASSIS. |
| 100-199 | " " " " POWER SUPPLY CIRCUIT BOARD. |
| 200-299 | " " " " PROGRAMMER CIRCUIT BOARD. |
| 300-399 | " " " " PRELOAD DECODER CIRCUIT BOARD. |
| 400-499 | " " " " GEN-DIV-OSC CIRCUIT BOARD. |
| 500-599 | " " " " TUNER-PLL CIRCUIT BOARD. |
| 600-699 | " " " " I-F CIRCUIT BOARD. |
| 700-799 | " " " " PLL-MULTIPLEXER DEMODULATOR CIRCUIT BOARD. |
| 800-899 | " " " " KEYBOARD CIRCUIT BOARD. |
| 900-999 | " " " " READOUT CIRCUIT BOARD. |
9. #1815 LAMPS ARE USED FOR PL53, PL54, PL55.
#1813 LAMPS ARE USED FOR PL51, PL52, PL56.

**SCHEMATIC OF THE
HEATHKIT®
DIGITAL FM STEREO TUNER
MODEL AJ-1510**

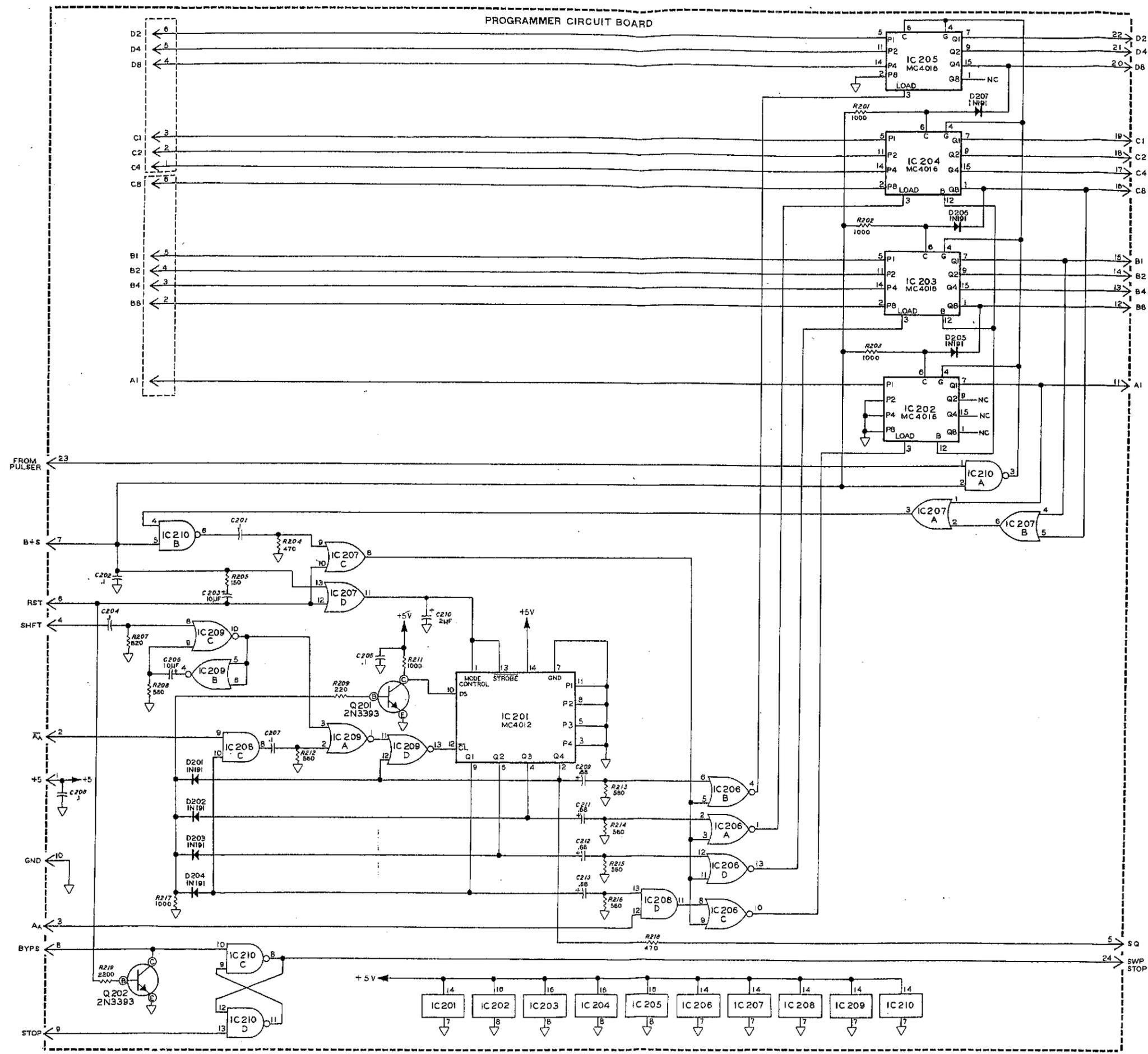




KEYBOARD CIRCUIT BOARD

COMPONENT NUMBER	HEATH PART NUMBER	MAY BE REPLACED BY	DESCRIPTION	LEAD CONFIGURATION
Q801	417-118	2N33393	NPN TRANSISTOR	
D801-D809 D811-D817	56-26	1N191	CRYSTAL DIODE 90V, 45mA	

SEMICONDUCTOR CHART

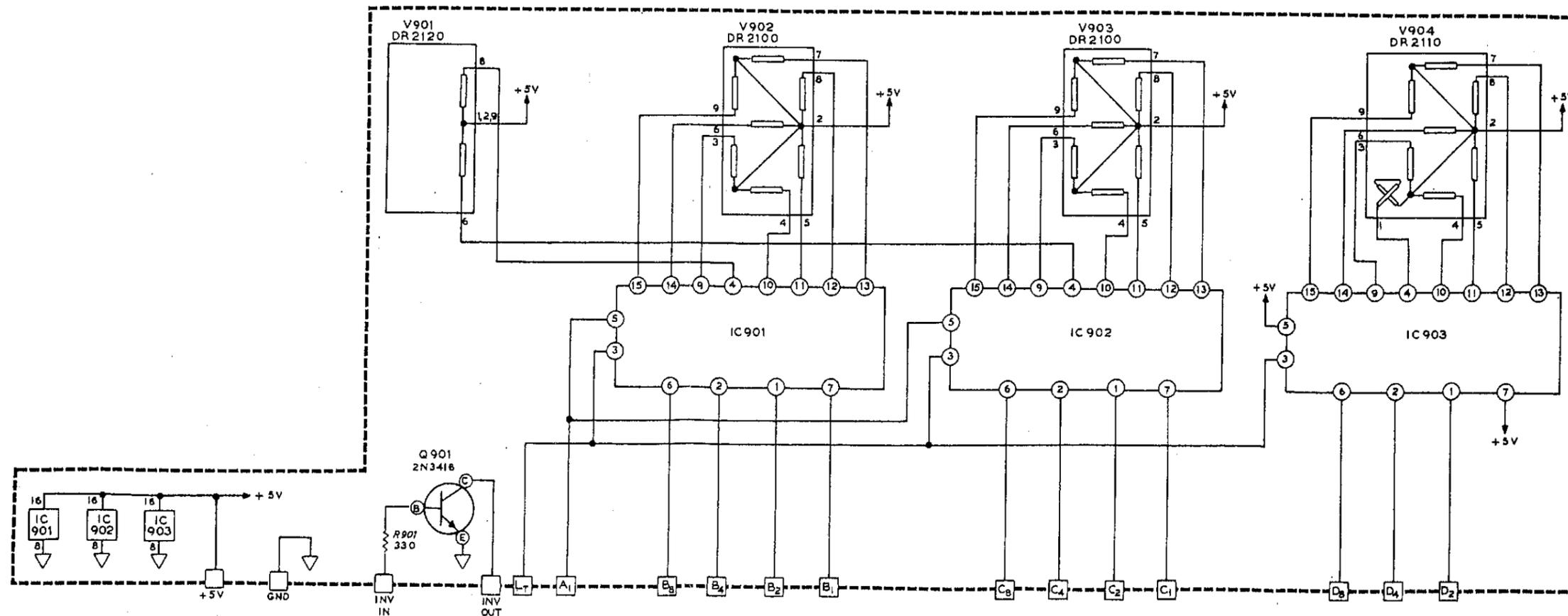


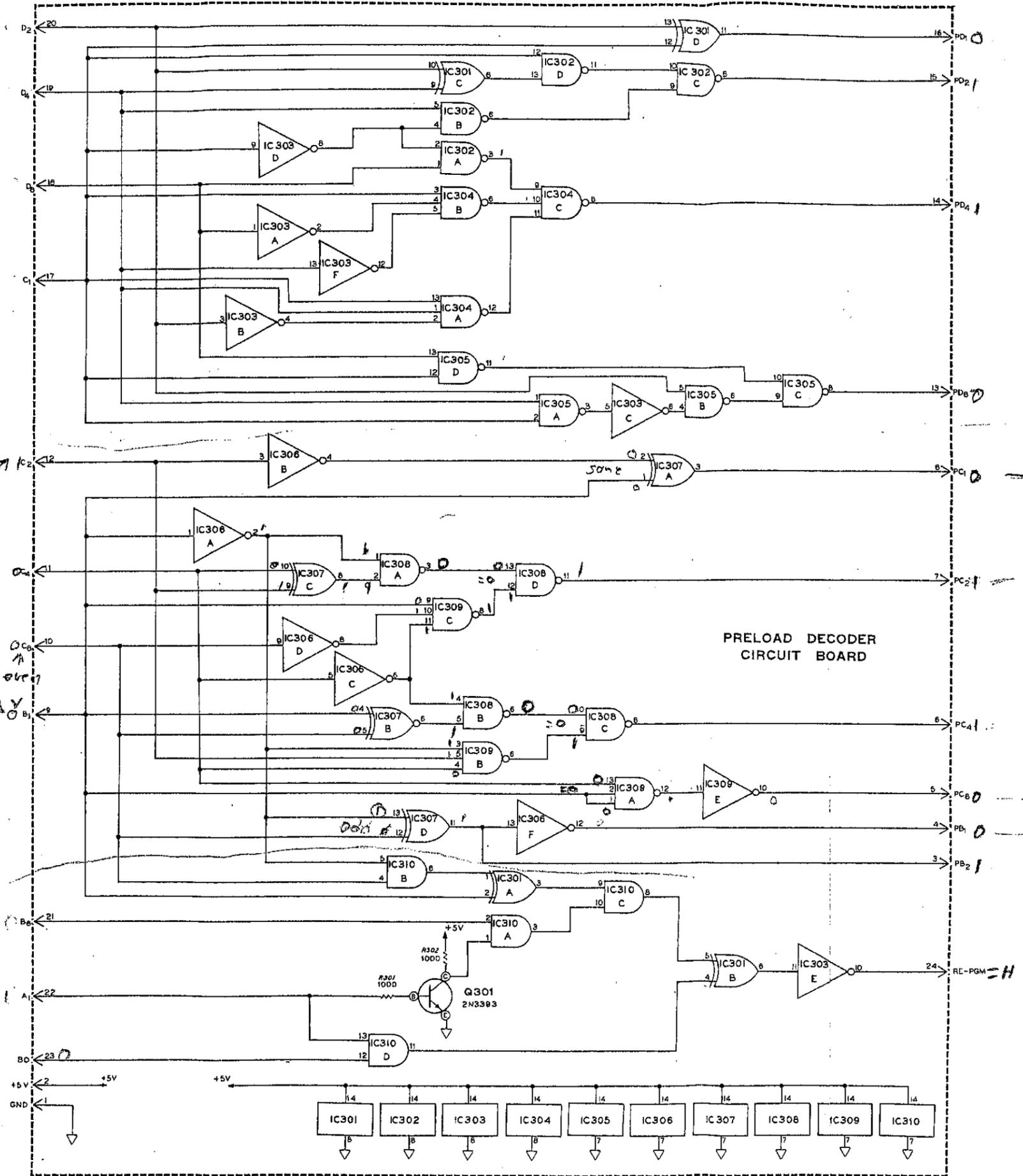
COMPONENT NUMBER	HEATH PART NUMBER	MAY BE REPLACED BY	DESCRIPTION	LEAD CONFIGURATION
Q201 Q202	417-118	2N3393	NPN TRANSISTOR	(BOTTOM VIEW) E C B OR E C B
D201-D207	56-26	1N191	CRYSTAL DIODE 90 V, 45 MA	BANDS
IC210	443-1	SN7400N	QUADRUPLE 2-INPUT POSITIVE NAND GATES	(TOP VIEW) V _{CC} 4B 4A 4Y 3B 3A 3Y 1A 1B 1Y 2Y 2A 2B GND
IC206 IC209	443-46	SN7402N	QUADRUPLE 2-INPUT POSITIVE NOR GATES	(TOP VIEW) V _{CC} 4Y 4B 4A 3Y 3B 3A 1A 1B 1Y 2Y 2A 2B GND
IC208	443-45	SN7408N	QUADRUPLE 2-INPUT POSITIVE AND GATES	(TOP VIEW) V _{CC} 4B 4A 4Y 3B 3A 3Y 1A 1B 1Y 2A 2B 2Y GND
IC207	443-57	MC3005P	QUADRUPLE 2-INPUT POSITIVE OR GATES	(TOP VIEW) V _{CC} 4B 4A 4Y 3B 3A 3Y 1A 1B 1Y 2A 2B 2Y GND
IC201	443-60	MC4012P	4-BIT SHIFT REGISTER	(TOP VIEW) V _{CC} STROBE CLOCK P1 D5 Q1 P2 1A 1B 1C 1D 1E 1F 1G 1H MODE CONTROL Q4 P4 Q3 P3 Q2 GND
IC202 IC203 IC204 IC205	443-61	MC4016P	PROGRAMMABLE DECADE COUNTER	(TOP VIEW) V _{CC} Q4 P4 R BUS P2 MR Q2 1A 1B 1C 1D 1E 1F 1G 1H Q8 P8 LOAD GATE P1 CLOCK Q1 GND

SEMICONDUCTOR CHART

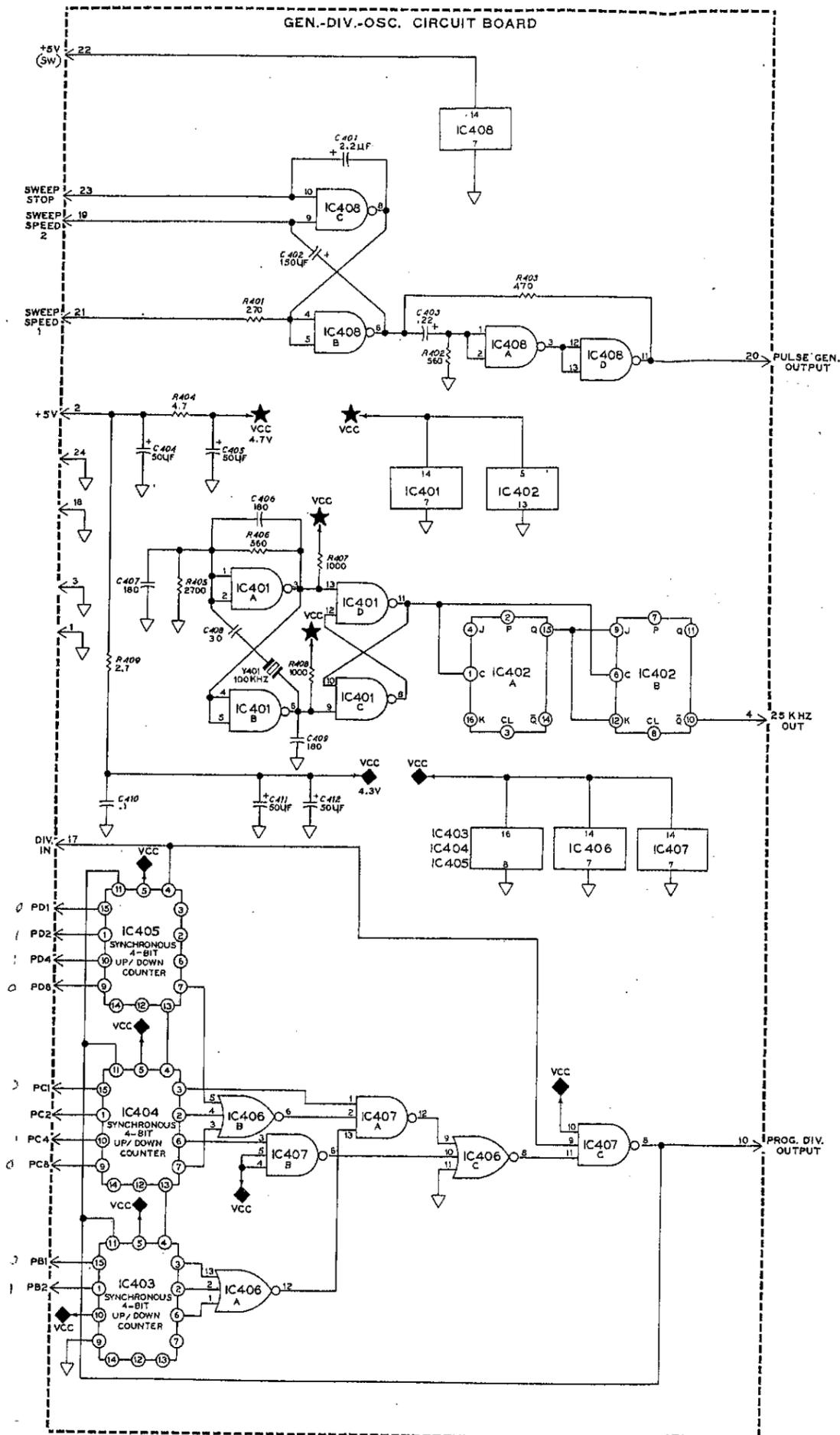
COMPONENT NUMBER	HEATH PART NUMBER	MAY BE REPLACED BY	DESCRIPTION	LEAD CONFIGURATION
Q901	417-94	2N3416	NPN TRANSISTOR	
IC901 IC902 IC903	443-64	CD2500E	BCD TO 7-SEGMENT DECODER-DRIVER	 <p>L/T - LIGHT TEST DPo - DECIMAL POINT OUTPUT DPi - DECIMAL POINT INPUT</p> <p>A } BCD INPUTS B } C } D }</p>

READOUT CIRCUIT BOARD





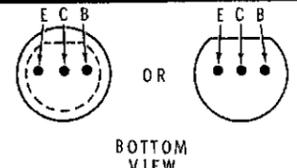
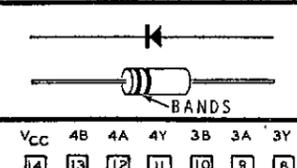
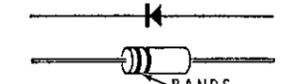
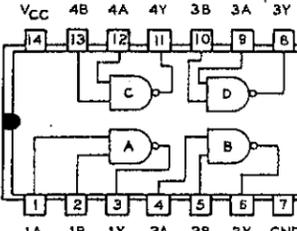
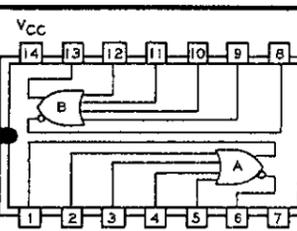
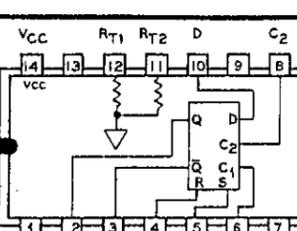
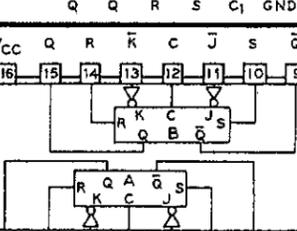
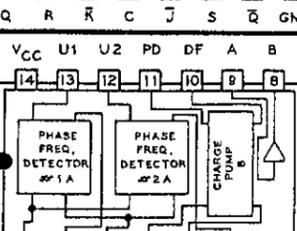
COMPONENT NUMBER	HEATH PART NUMBER	MAY BE REPLACED BY	DESCRIPTION	LEAD CONFIGURATION
Q301	417-118	2N3393	NPN TRANSISTOR	BOTTOM VIEW
IC302 IC305 IC308	443-1	SN7400N	QUADRUPLE 2-INPUT POSITIVE NAND GATES	TOP VIEW
IC304 IC309	443-12	SN7410N	TRIPLE 3-INPUT POSITIVE NAND GATES	TOP VIEW
IC303 IC306	443-18	SN7404N	HEX INVERTERS	TOP VIEW
IC310	443-45	SN7408N	QUADRUPLE 2-INPUT POSITIVE AND GATES	TOP VIEW
IC301 IC307	443-698	TTL7486	QUADRUPLE 2-INPUT EXCLUSIVE OR GATES	TOP VIEW

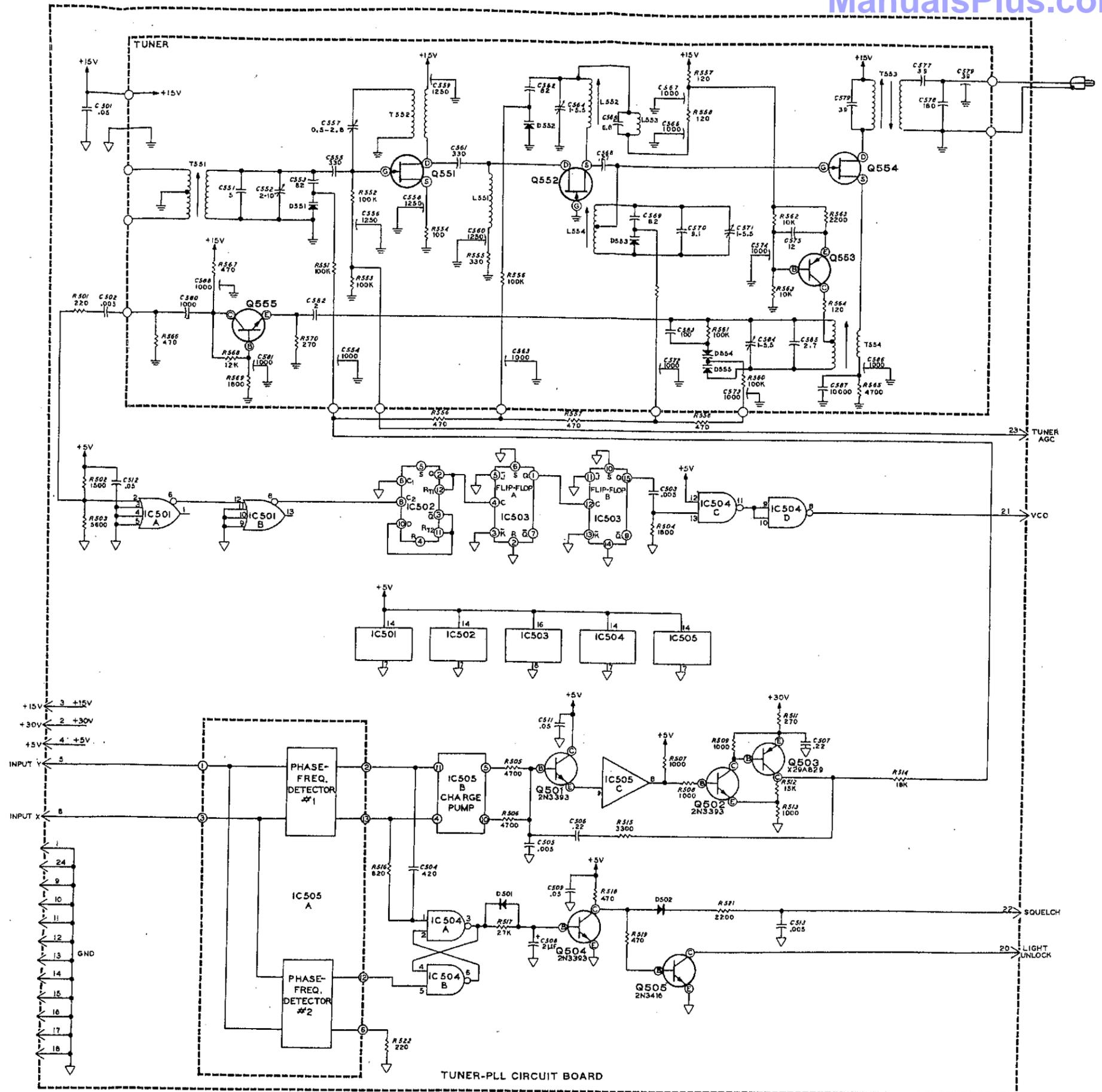


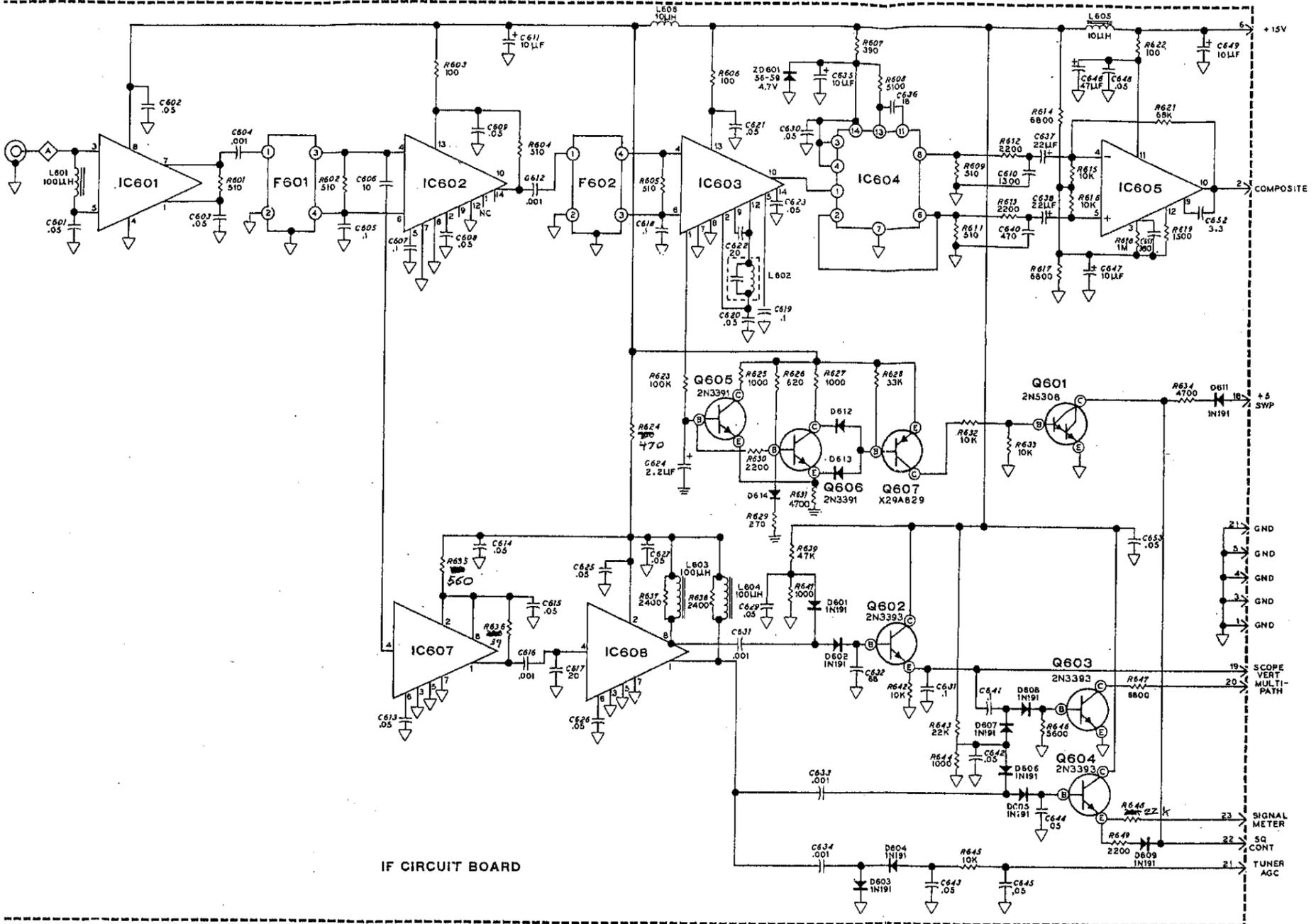
SEMICONDUCTOR CHART

COMPONENT NUMBER	HEATH PART NUMBER	MAY BE REPLACED BY	DESCRIPTION	LEAD CONFIGURATION
IC401 IC408	443-1	SN7400N	QUADRUPLE 2-INPUT POSITIVE NAND GATES	<p>TOP VIEW</p>
IC407	443-68	SN74H10	TRIPLE 3-INPUT POSITIVE NAND GATES	<p>TOP VIEW</p>
IC402	443-16	SN7476N	DUAL J-K FLIP-FLOPS	<p>TOP VIEW</p>
IC406	443-65	SN7427N	TRIPLE 3-INPUT POSITIVE NOR GATES	<p>TOP VIEW</p>
IC403 IC404 IC405	443-66	SN74192	SYNCHRONOUS 4-BIT UP/DOWN COUNTER	<p>TOP VIEW</p>

SEMICONDUCTOR CHART

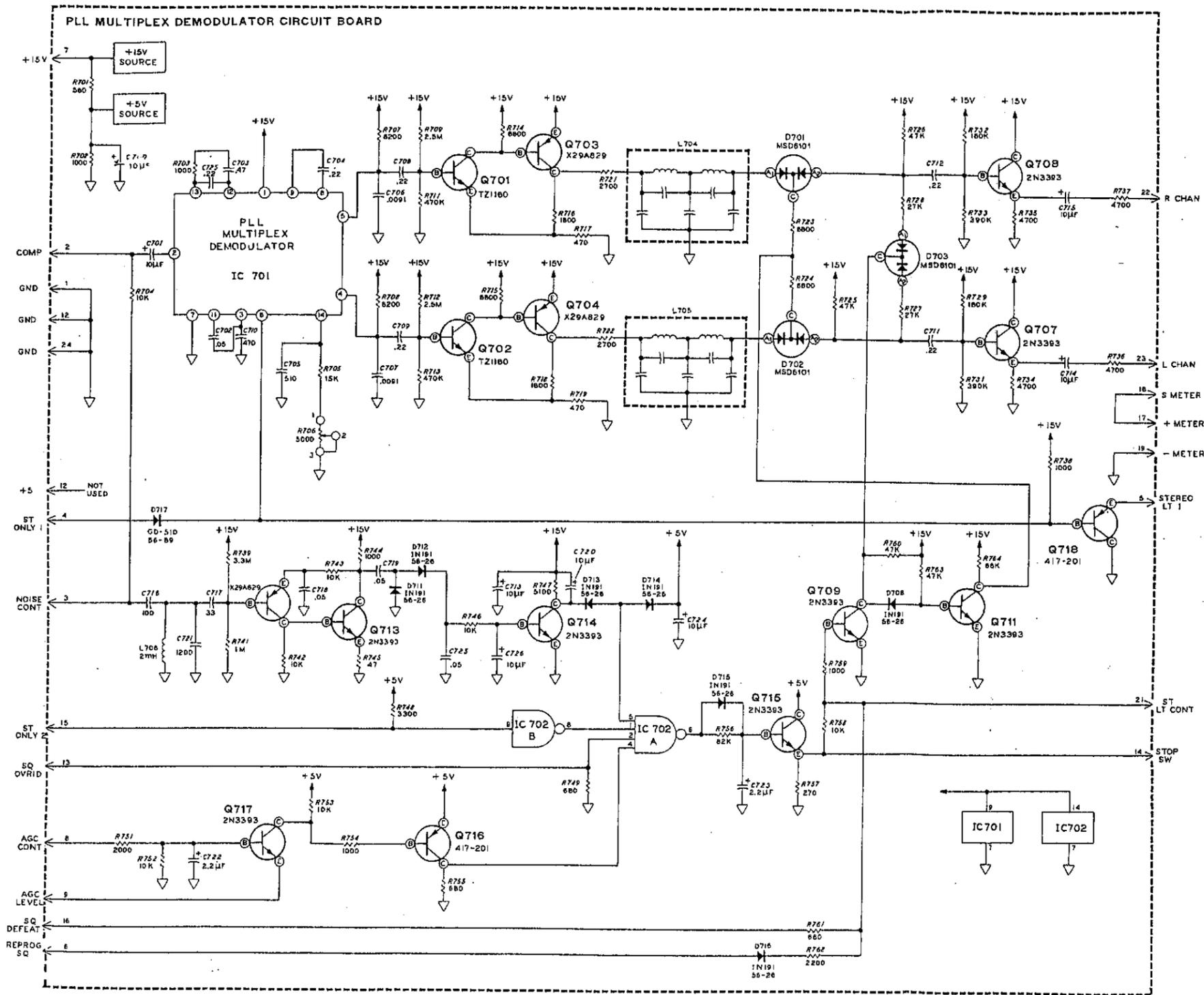
COMPONENT NUMBER	HEATH PART NUMBER	MAY BE REPLACED BY	DESCRIPTION	LEAD CONFIGURATION
Q501 Q502 Q504	417-118	2N3393	NPN TRANSISTOR	
Q505	417-94	2N3416	NPN TRANSISTOR	BOTTOM VIEW
Q503	417-201	X29A829	PNP TRANSISTOR	
D501 D502	56-26	1N191	CRYSTAL DIODE 90V, 45mA	
IC504	443-1	SN7400N	QUADRUPLE 2-INPUT POSITIVE NAND GATES	
IC501	443-38	MC1023P	DUAL 4-INPUT OR/NOR GATES	
IC502	443-39	MC1034 P	TYPE D FLIP-FLOP	
IC503	443-56	MC1032	DUAL J-K FLIP-FLOP	
IC505	443-62	MC4044 P	PHASE/ FREQUENCY DETECTOR	





IF CIRCUIT BOARD

COMPONENT NUMBER	HEATH PART NUMBER	MAY BE REPLACED BY	DESCRIPTION	LEAD CONFIGURATION
Q602, Q603, Q604	417-118	2N3393	NPN TRANSISTOR	<p>BOTTOM VIEW</p>
Q601	417-222	2N5308	NPN TRANSISTOR	
Q605, Q606	417-91	2N3391	NPN TRANSISTOR	
Q607	417-201	X29A829	PNP TRANSISTOR	<p>BANDS</p>
D601 - D609 D611	56-26	1N191	CRYSTAL DIODE 90V, 45mA	
ZD601	56-59	1N750A	ZENER DIODE 4.7V, 20mA	
D614	56-74	MZ2362	DIODE	
IC605	442-2	SN72709	OPERATIONAL AMPLIFIER	<p>TOP VIEW</p> <p>1 INPUT FREQUENCY COMPENSATION 2 INPUT FREQUENCY COMPENSATION 3 INVERTING INPUT 4 NON-INVERTING INPUT 5 GND 6 OUTPUT 7 OUTPUT FREQUENCY COMPENSATION</p>
IC607 IC608	442-18	MC1330P	IF AMPLIFIER	<p>TOP VIEW</p> <p>1 (-) OUTPUT 2 Vcc 3 (-) INPUT 4 (+) OUTPUT 5 GND 6 (+) INPUT 7 AGC</p>
IC601	442-20	MA703	RF-IF AMPLIFIER	<p>TOP VIEW</p> <p>1 DECOUPLING 2 Vcc 3 HIGH INPUT 4 GND 5 LOW INPUT 6 TAB 7 OUTPUT</p>
IC602 IC603	442-28	MC1357P	FM DETECTOR AND LIMITER	<p>TOP VIEW</p> <p>1 IF OUTPUT 2 COMPENSATION OUTPUT 3 (+) INPUT 4 COMPENSATION TERMINAL 5 (-) INPUT 6 DE-EMPHASIS 7 Vcc 8 SECONDARY INPUT 9 TEST POINT 10 INTERMEDIATE OUTPUT 11 INTERMEDIATE LOW Z OUTPUT</p>
IC604	443-67	MC8601P	RETRIGGERABLE MONOSTABLE MULTIVIBRATOR	<p>TOP VIEW</p> <p>1 B1 2 B2 3 A1 4 A2 5 Q 6 Q-bar 7 GND 8 Vcc 9 T2 10 T1 11 Q</p>



SEMICONDUCTOR CHART

COMPONENT NUMBER	HEATH PART NUMBER	MAY BE REPLACED BY	DESCRIPTION	LEAD CONFIGURATION
Q707, Q708 Q709, Q711 Q713, Q714 Q715, Q717	417-118	2N3393	NPN TRANSISTOR	OR BOTTOM VIEW
Q703, Q704 Q712, Q716 Q718	417-201	X29A829	PNP TRANSISTOR	
Q701, Q702	417-218	TZ1160	NPN TRANSISTOR	
D701 D702 D703	56-164	MSD6101	DUAL DIODE	BOTTOM VIEW
D704, D705 D706, D707 D708, D711 D712, D713 D714, D715 D716	56-26	1N191	CRYSTAL DIODE 90V, 45mA	
D717	56-89	GD-510	25V, 100mA	
IC701	442-46	MC1310	FM PLL MULTIPLEX STEREO DEMODULATOR	TOP VIEW
IC702	443-2	SN7420N	DUAL 4-INPUT POSITIVE NAND GATE	TOP VIEW

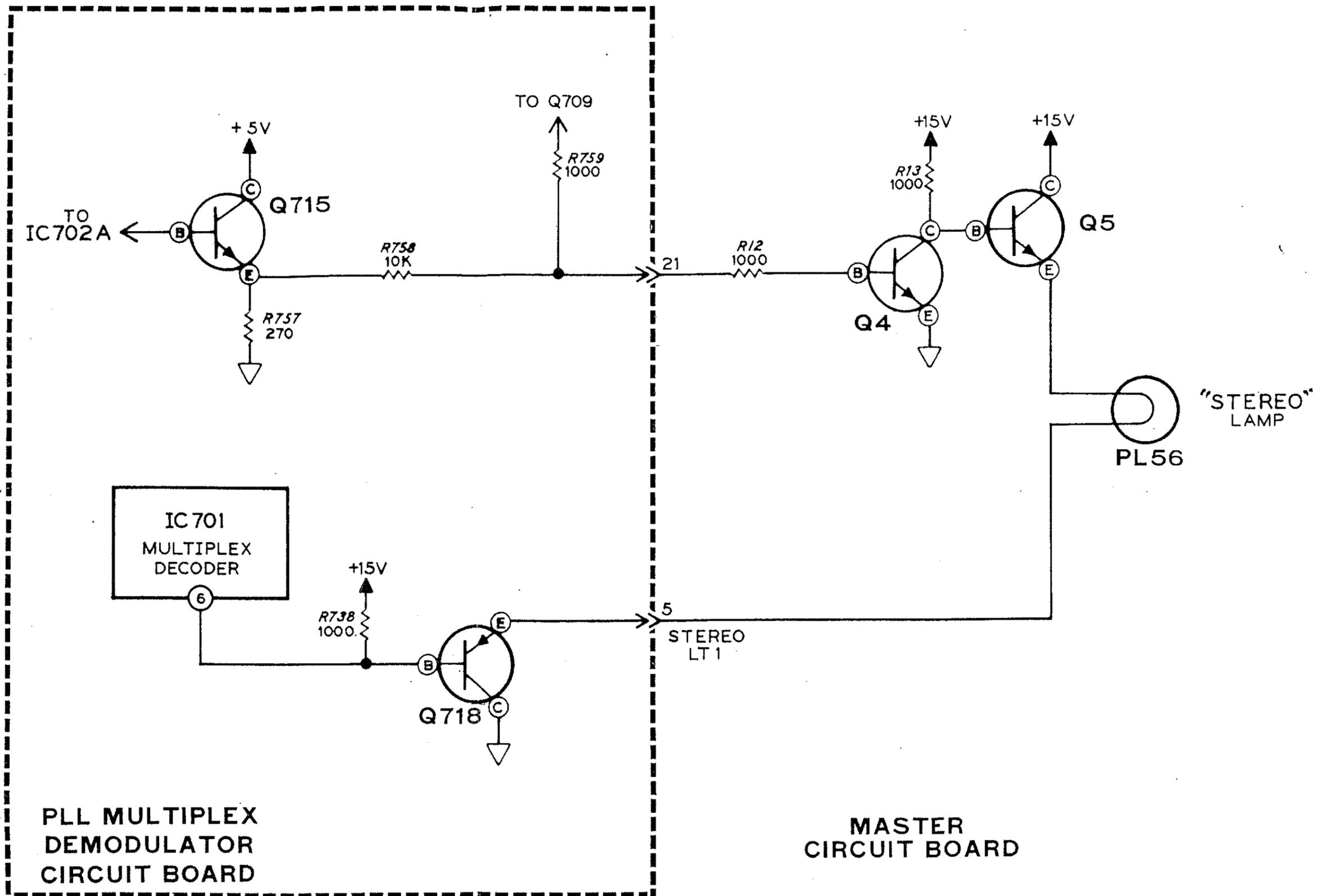


Figure 6-8