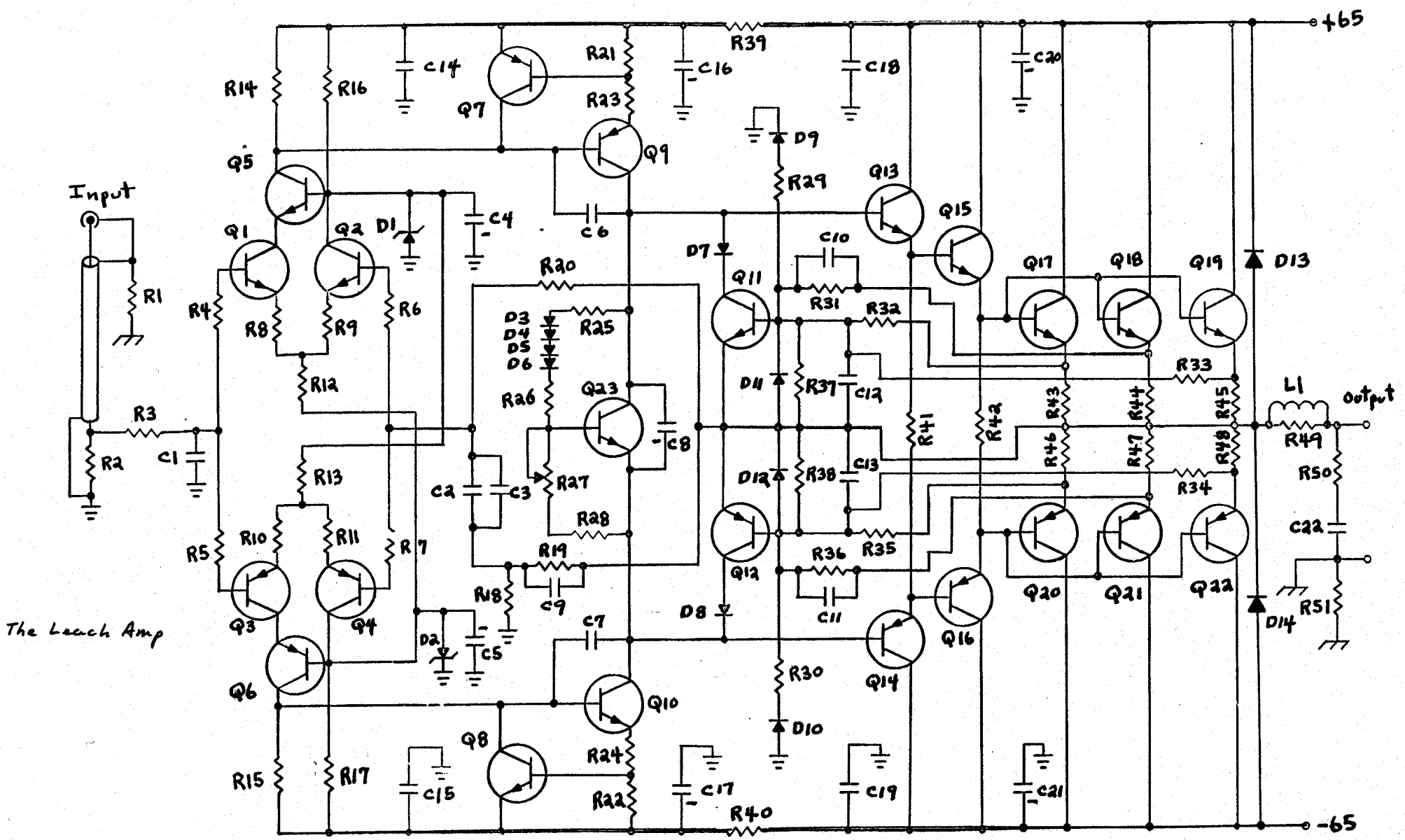
Input
R1
R2
R3
C1
R4
R5
R6
R7
R8
R9
R10
R11
R12
R13
Q1
Q2
Q3
Q4
Q5
Q6
D1
C4
C2
C3
R14
R15
R16
R17
C14
C15
Q7
Q8
R21
R22
R23
Q9
Q10
C6
C7
C8
C9
R18
R19
R20
R24
R25
R26
R27
R28
D2
C5
D3
D4
D5
D6
Q23
R39
C16
C17
R40
C18
C19
D7
D8
D9
D10
R29
R30
Q11
Q12
Q13
Q14
Q15
Q16
C10
C11
R31
R32
R35
R36
R37
R38
C12
C13
D11
D12
R41
R42
C20
C21
Q17
Q18
Q19
Q20
Q21
Q22
D13
D14
R43
R44
R45
R46
R47
R48
R33
R34
L1
R49
R50
C22
R51
output
+65
-65
The Leach Amp

The Leach Amp Parts List

All resistors 1/4 W unless specified otherwise. (1% values may differ slightly.)

$R_1 - 4.7\ \Omega$
$R_2 - 30$ kΩ
$R_3 - 3$ kΩ
R_4 through R_{11}, $R_{31} - R_{36} - 300\ \Omega$
R_{12}, $R_{13} - 10$ kΩ
R_{14}, $R_{15} - 1.2$ kΩ
R_{16}, $R_{17} - 2.7$ kΩ, 1/2 W
$R_{18} - 150\ \Omega$
$R_{19} - 3.3$ kΩ
$R_{20} - 33$ kΩ
R_{21}, $R_{22} - 20\ \Omega$
R_{23}, $R_{24} - 360\ \Omega$
R_{25}, $R_{26} - 1$ kΩ
$R_{27} - 470\ \Omega$
$R_{28} - 2$ kΩ nominal
R_{29}, $R_{30} - 1.5$ kΩ, 2 W
R_{39}, $R_{40} - 100\ \Omega$
$R_{41} - 470\ \Omega$
$R_{42} - 120\ \Omega$
R_{43} through $R_{48} - 0.33\ \Omega$, 5 W
$R_{49} - 3.3\ \Omega$, 2 W
$R_{50}-$ four 39 Ω, 2 W in parallel
$R_{51} - 1\ \Omega$, 1/2 W

$C_1 - 220$ pF, silver mica
$C_2 - 270\ \mu$F, non-polar, 6 V
C_3, C_{12}, C_{13}, C_{14}, C_{15}, C_{18}, C_{19}, $C_{22} - 0.1\ \mu$F
C_4, $C_5 - 10\ \mu$F, 63 V
C_6, $C_7 - 10$ pF, silver mica
$C_8 - 10\ \mu$F, 16 V
$C_9 - 10$ pF, silver mica (new value)
C_{10}, $C_{11} - 0.01\ \mu$F
C_{16}, $C_{17} - 220\ \mu$F, 100 V
C_{20}, $C_{21} - 22\ \mu$F, 100 V
D_1, $D_2 - 1N5259$, 39 V zener
D_3 through $D_6 - 1N4004$
D_7 through D_{10}, D_{13}, $D_{14} - 1N4935$
D_3 through $D_6 - 1N4004$
Q_1, Q_2, Q_5, Q_8, Q_{11}, $Q_{23} - MPS8099$ or $2N5210$
Q_3, Q_4, Q_6, Q_7, $Q_{12} - MPS8599$ or $2N5087$
Q_9, $Q_{14} - 2N5415$
Q_{10}, $Q_{13} - 2N3439$ or $2N3440$
$Q_{15} - MJE15030$ or $MJ15003$
$Q_{16} - MJE15031$ or $MJ15004$
Q_{17}, Q_{18}, $Q_{19} - MJ15003$
Q_{20}, Q_{21}, $Q_{22} - MJ15004$

The Leach Amp Service Hints:

1. Adjust R27 for 120 mA DC bias current as measured across fuse terminals for each channel. It takes at least 15 minutes for the current to stabilize.
2. Check for shorted Q7 and Q8 in a dead amp. These are protection transistors which sometimes become shorts.
3. If the power supply fuses are blown, use an ohmmeter to measure the DC resistance from the loudspeaker hot output to the power supply rails. If a zero ohm reading is obtained, one or more of Q17 through Q22 may be blown or D13 or D14 may be shorted.
4. If all else fails, use a desoldering tool to desolder the base of Q9 and Q10. Be sure the base lead is not touching the solder pad. Use a clip lead to ground the junction of R6 and R7. Apply a sine wave at the input and observe the waveforms at the collector of Q5 and Q6 on an oscilloscope. A clean sine wave that clips at about 4 V peak-to-peak should be obtained. (There is a DC voltage of about 62 V at these points, so the scope must be AC coupled.) If the sine waves are clean, the trouble is not in the Q1-Q6 input stage.
5. Some early amps had electrolytic caps that leaked on the board and caused shorts. These caps were solid black. They should be replaced to avoid this problem. Because C2 has no DC voltage on it, the black cap does not need to be changed for C2.
6. Some early amps had insulators around the screws which hold Q17-Q22 to the heat sinks that were too long. This prevented the transistors from contacting the heat sinks properly so that failures occurred due to overheating of the transistor(s) that made poor contact to the heat sink. These insulators should be replaced if this problem occurs. They are located inside the holes in the heat sink below Q17-Q22. The transistor(s) must be removed to get at them.