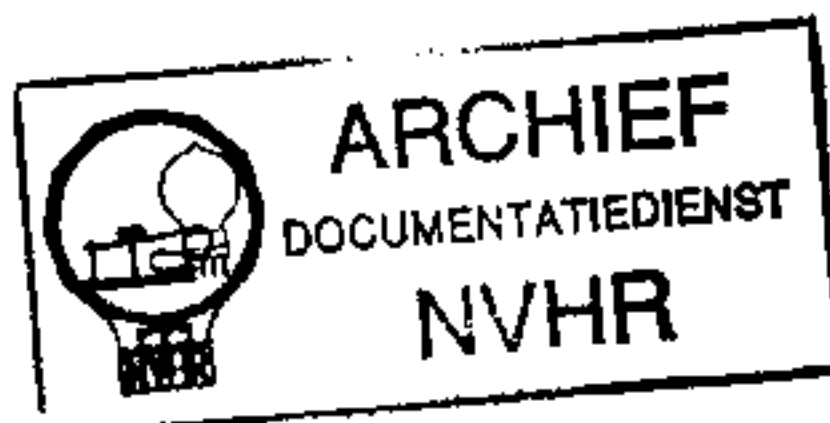
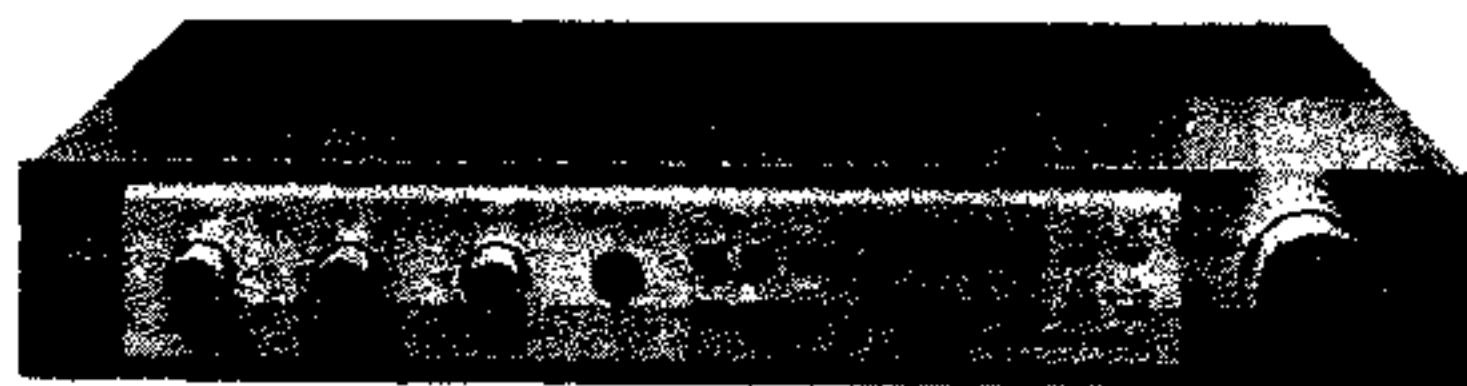


Service
Service
Service



Pre-amplifier F3610/00/05



Met dank aan www.radiomuseum-hengelo.nl

29485 A12.

Service Manual

SPECIFICATIES

| | | |
|---------------------------|--|--|
| Netspanning | : 220 V 50 Hz | (110 V-127 V-240 V door veranderen van trafoaansluitingen) |
| Opgenomen vermogen | : in pos. "stand by" in pos. "on" | 4,5 W 13 W |
| Nominale uitgangsspanning | : 2 V bij 600 Ω | $D \leq 0,1\%$ |
| Harmonische vervorming | : 0,08% 0,1% | DIN45500 FTC |
| Intermodulatie vervorming | : 0,1% bij 2 V | |
| Frequentie karakteristiek | : phono ingang andere uitgangen | 20-20.000 Hz $\pm 0,5$ dB t.o.v. 1 kHz 20-20.000 Hz $\pm 0,4$ dB t.o.v. 1 kHz |
| Toonregeling | : lage tonen hoge tonen | +12 dB tot -13 dB bij 40 Hz +10 dB tot -12 dB bij 20 kHz |
| Loudness | : +10 dB bij 40 Hz en +4 dB bij 10 kHz | |
| Hogetonen filter | : 12 dB/oct, -3 dB bij 8 kHz | |
| Lagetonen filter | : 12 dB/oct, -3 dB bij 80 Hz | |
| Signal to noise | : ongewogen volgens IEC phono ingang andere ingangen gewogen volgens IEC (A-curve) phono ingang andere ingangen | ≥ 61 dB ≥ 73 dB a) bij nominale uitgangsspanning ≥ 78 dB b) bij -23 dB van nom. uitgangsspanning ≥ 75 dB a) bij nominale uitgangsspanning ≥ 85 dB b) bij -23 dB van nom. uitgangsspanning ≥ 80 dB |
| Overspraak | : kanalen ingangen | ≥ 60 dB (DIN45500) ≥ 45 dB (IEC) ≥ 70 dB (DIN45500) ≥ 55 dB (IEC) |
| Ingangen | : phono tape 1 tape 2 aux/video tuner | 2,5 mV 47 k Ω 150 mV 47 k Ω 150 mV 47 k Ω 150 mV 47 k Ω 150 mV 47 k Ω |
| Uitgangen | : tape 1 tape 2 line A/B hoofdtelefoon | 140 mV 5 k Ω 140 mV 5 k Ω 0-2 V 600 Ω 120 Ω |
| Afmetingen (brxhxd) | : 450x68x300 mm | |

Veiligheidsbepalingen vereisen, dat het apparaat bij reparatie in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

Documentation Technique Service Dokumentation Documentazione di Servizio Huolto-Ohje Manual de Servicio Manual de Servicio

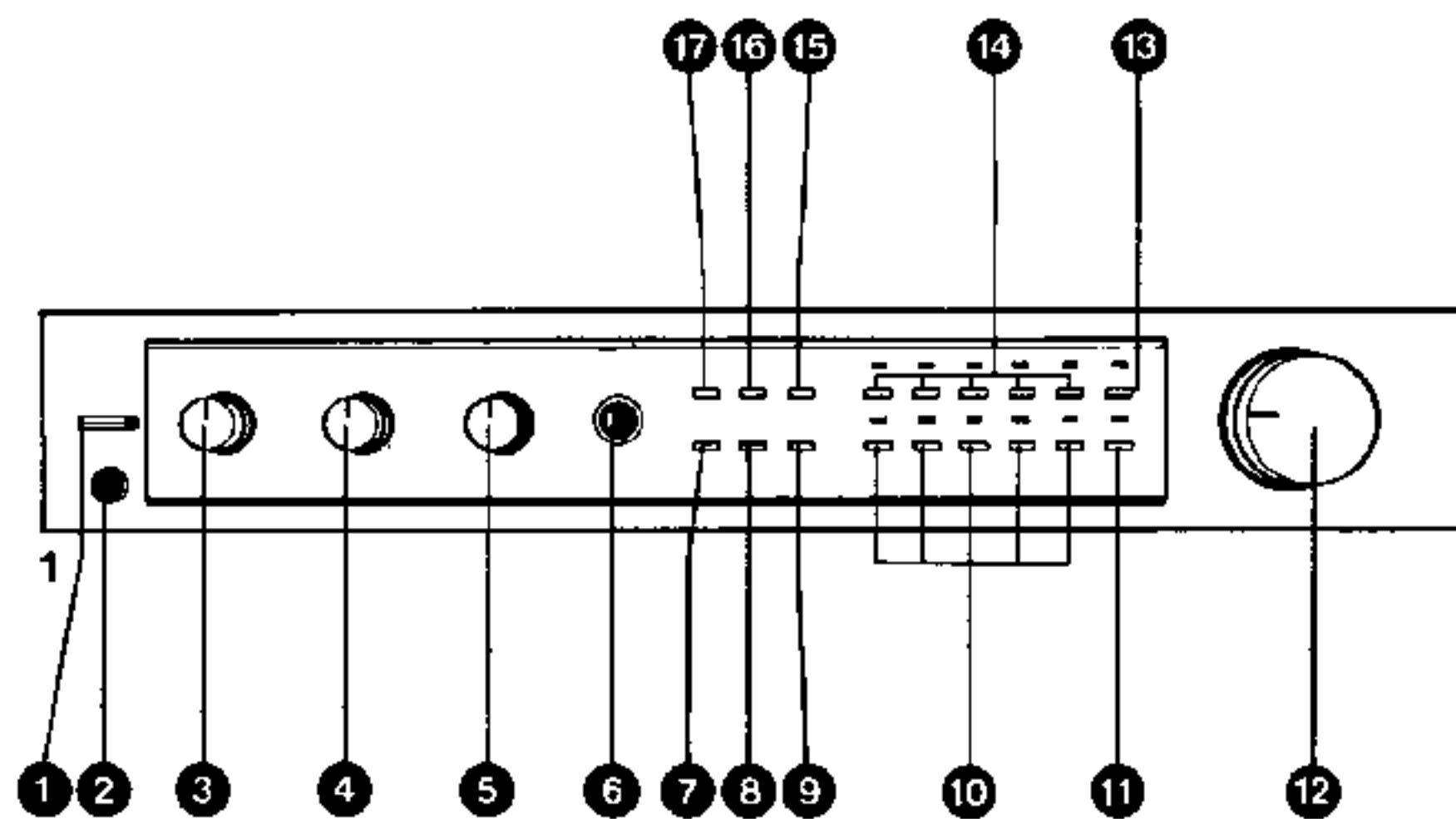


Subject to modification

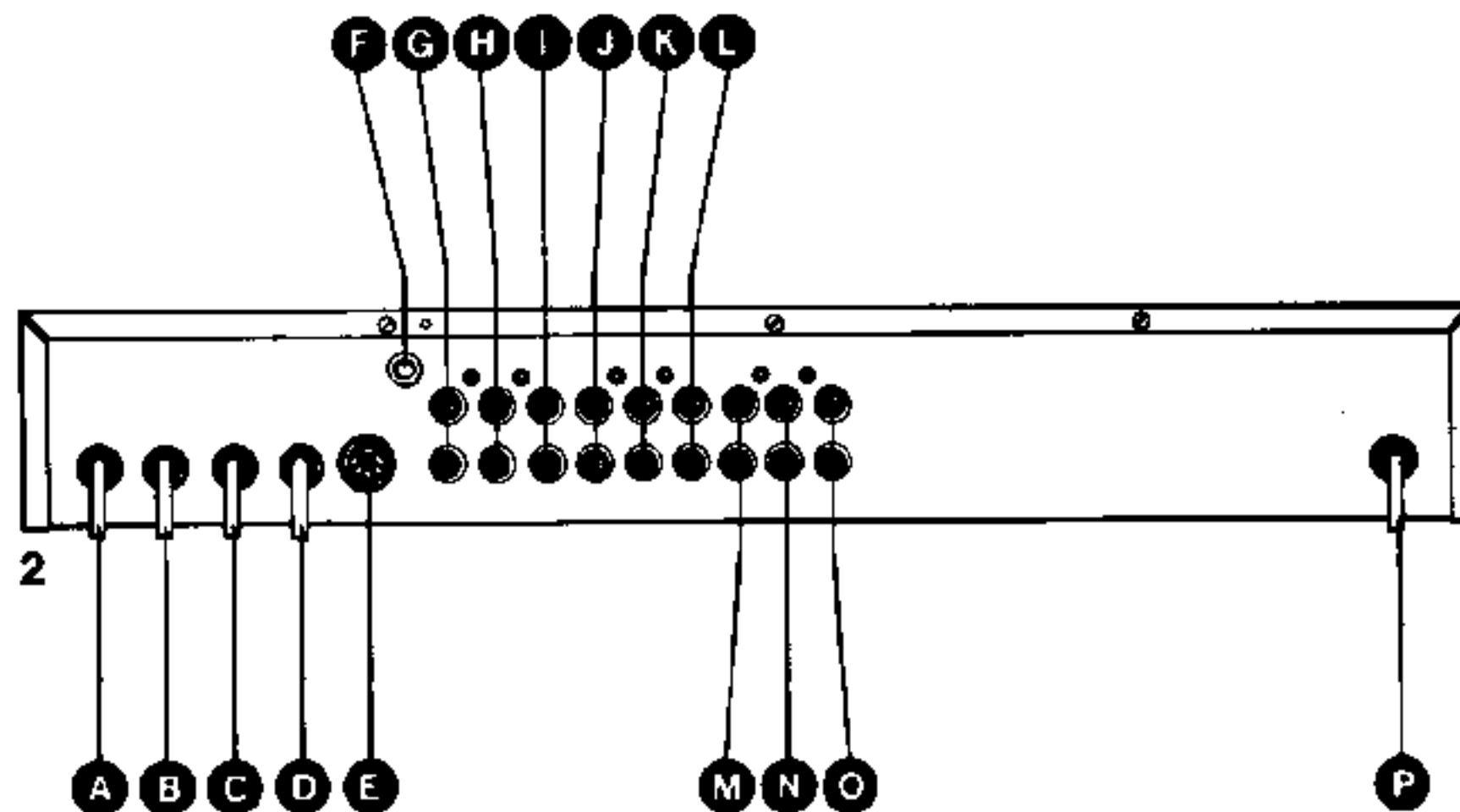
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PHILIPS



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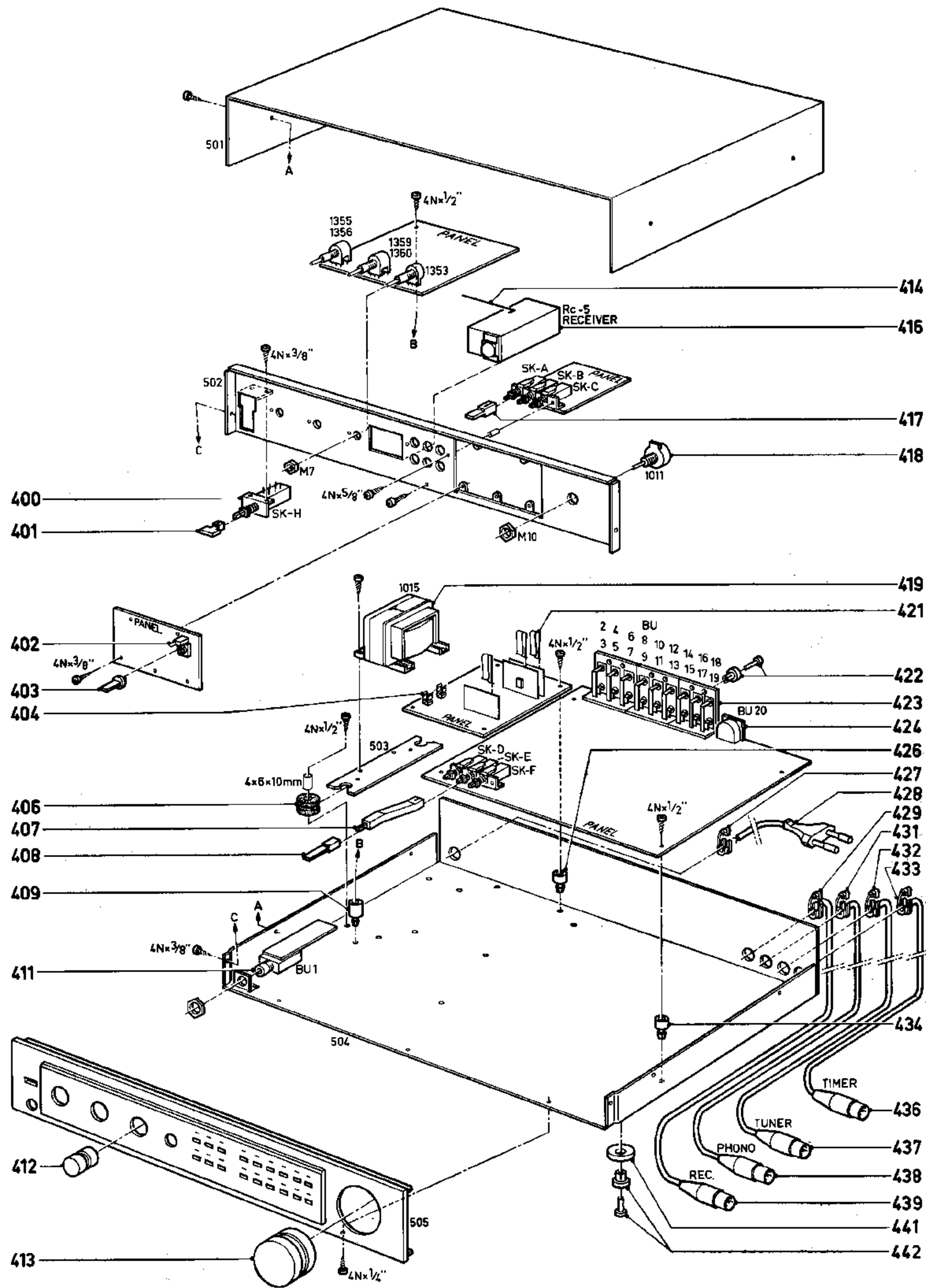
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Fig. 1

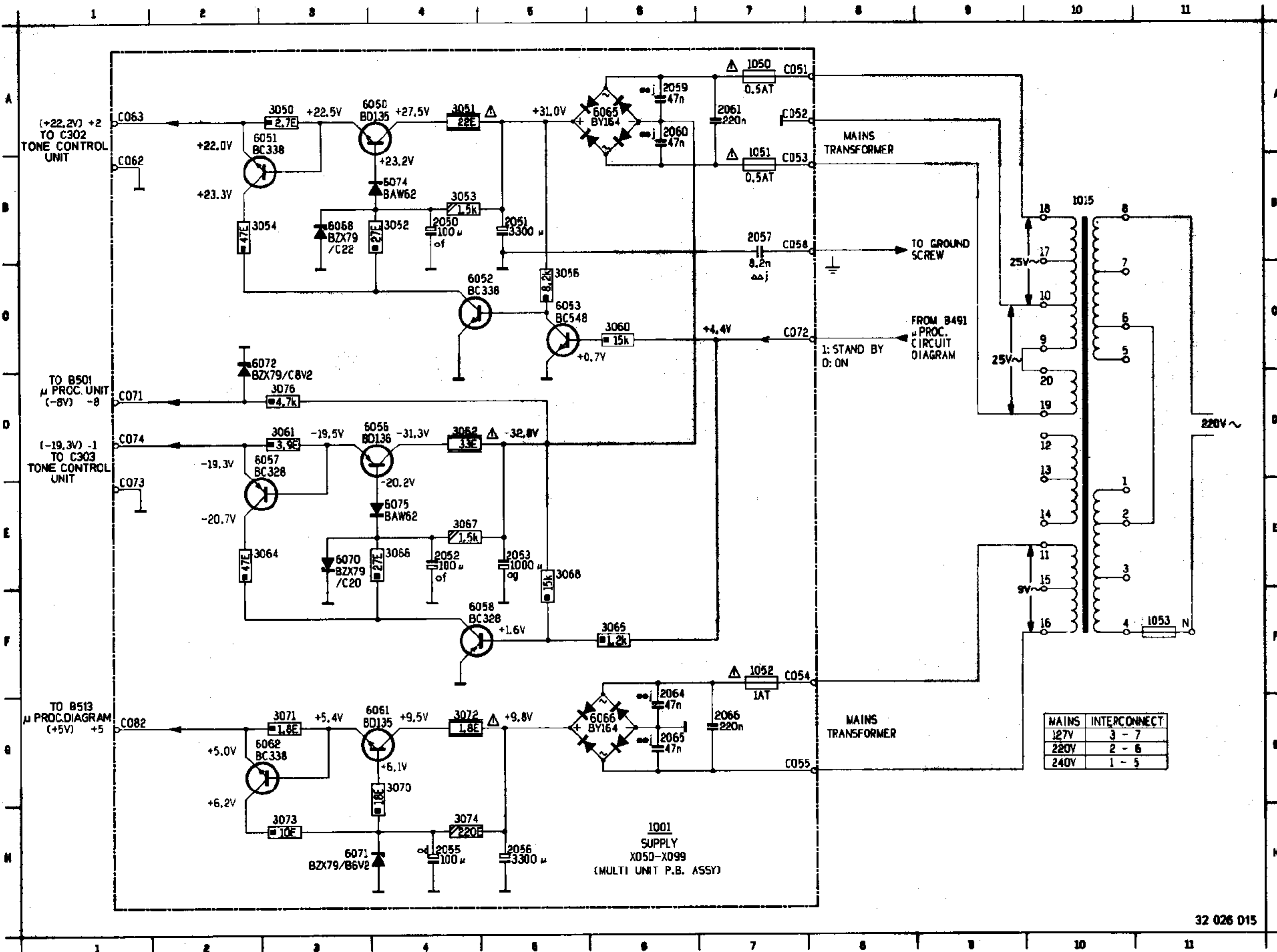
| | | |
|----|--|-----------------------------|
| 1 | Aan/stand by schakelaar | SK-H |
| 2 | Aansluitbus voor stereo hoofdtelefoon | BU-1 |
| 3 | Regelaar voor hoge tonen | 1355-1356 |
| 4 | Regelaar voor lage tonen | 1359-1360 |
| 5 | Balansregelaar | 1353 |
| 6 | Infrarood ontvanger voor afstandsbediening | RC-5 |
| 7 | Keuzeschakelaar voor lijnuitgang A | SK-D |
| 8 | Keuzeschakelaar voor lijnuitgang B | SK-E |
| 9 | Keuzeschakelaar voor mono/stereo | SK-F |
| 10 | Keuzeschakelaars voor de op te nemen geluidsbron Bijbehorende indicatoren | TU-PH-AV-T1-T2 6550÷6554 |
| 11 | Audio mute schakelaar Bijbehorende indicator | MU 6560 |
| 12 | Geluidsterkte regelaar | 1011 |
| 13 | Normaalstel schakelaar (groene toets) Bijbehorende indicator | NO 6561 |
| 14 | Keuzeschakelaars voor de weer te geven geluidsbron Bijbehorende indicatoren | TU-PH-AV-T1-T2 6555÷6559 |
| 15 | "Loudness" schakelaar | SK-C |
| 16 | Schakelaar voor lagetonen filter | SK-B |
| 17 | Schakelaar voor hogetonen filter | SK-A |

Fig. 2

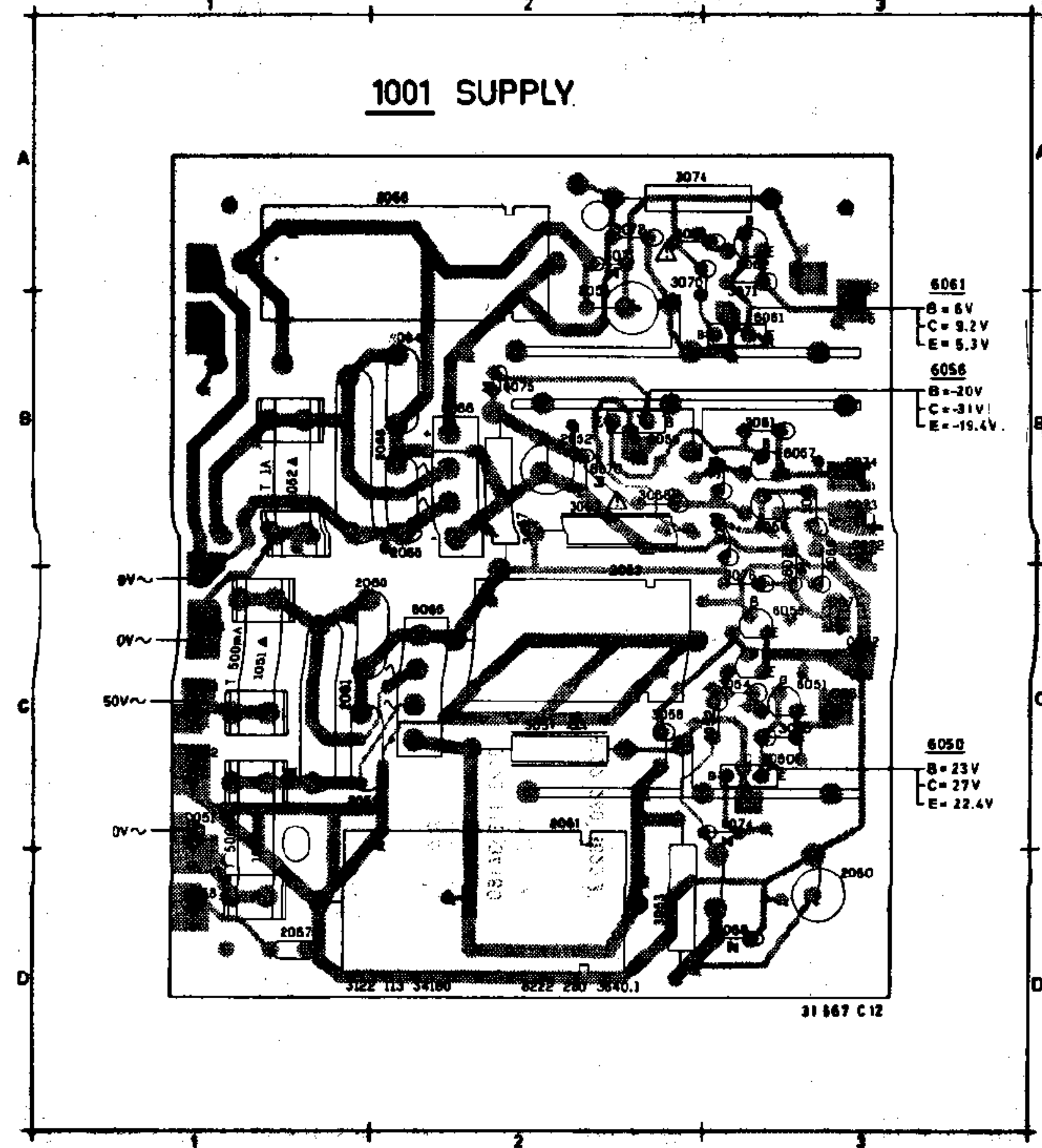
| | | |
|---|--|-----------|
| A | Afstandsbedieningskabel voor schakeleenheid | ST-4 |
| B | Afstandsbedieningskabel voor tuner | ST-3 |
| C | Afstandsbedieningskabel voor platenspeler | ST-2 |
| D | Afstandsbedieningskabel voor cassette recorder | ST-1 |
| E | Ingangsbuss voor signaal en afstandsbediening voor video | BU-20 |
| F | Massaschroef voor platenspeler | |
| G | Signaalingangsbussen voor platenspeler | BU18-BU19 |
| H | Signaalingangsbussen voor auxilliary | BU16-BU17 |
| I | Signaalingangsbussen voor tuner | BU14-BU15 |
| J | Signaalingangsbussen voor recorder 1 | BU12-BU13 |
| K | Signaalingangsbussen voor recorder 1 | BU10-BU11 |
| L | Signaalingangsbussen voor recorder 2 | BU8-BU9 |
| M | Signaalingangsbussen voor recorder 2 | BU6-BU7 |
| N | Lijnuitgangsbussen A | BU4-BU5 |
| O | Lijnuitgangsbussen B | BU2-BU3 |
| P | Netsnoer | |

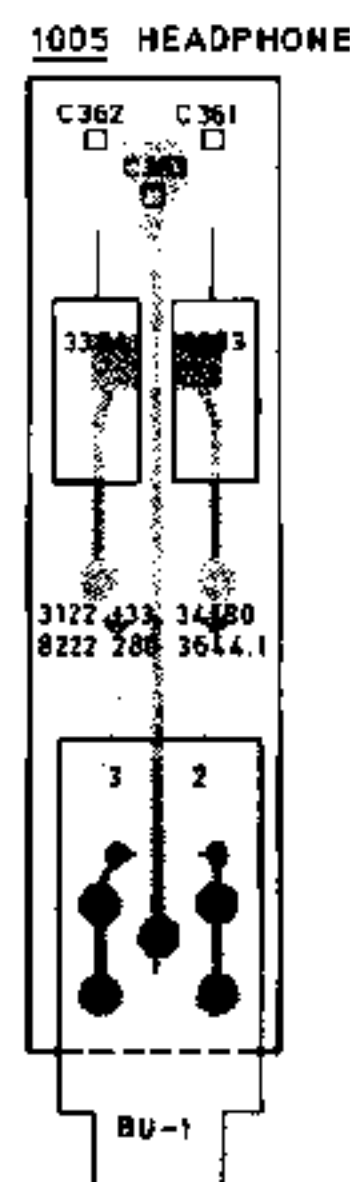
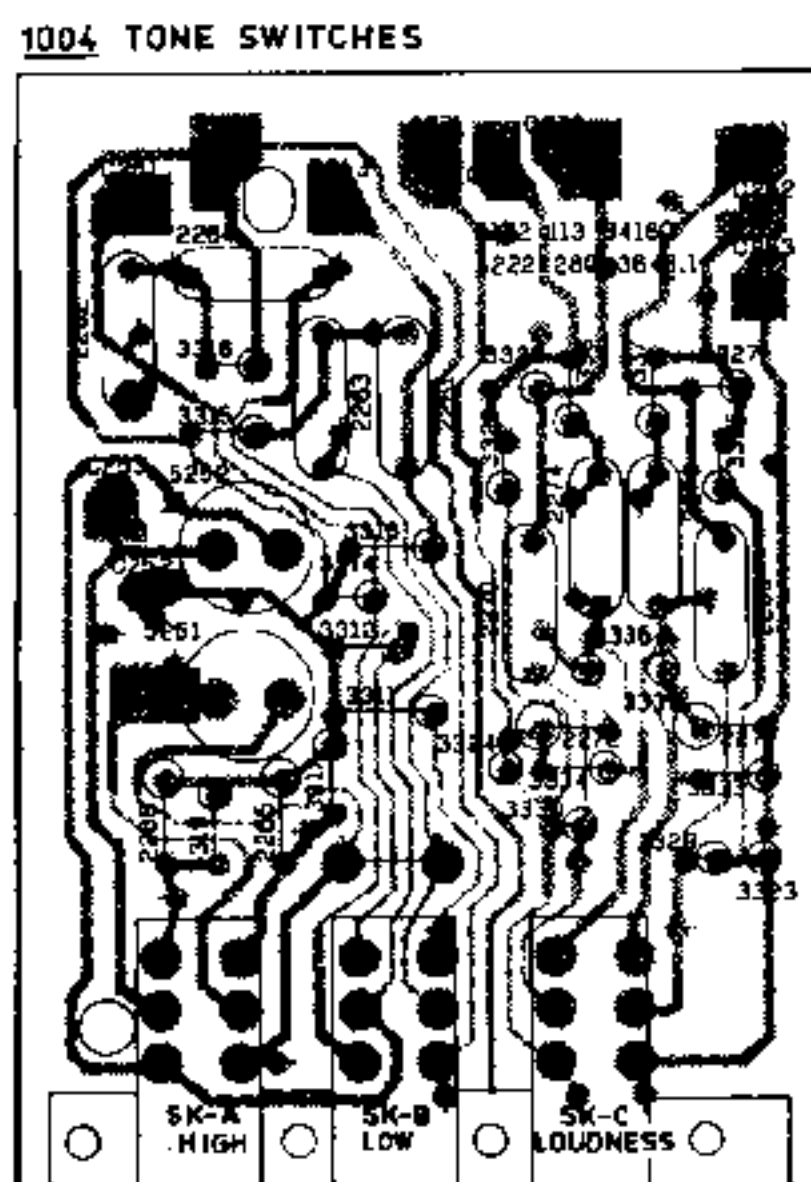
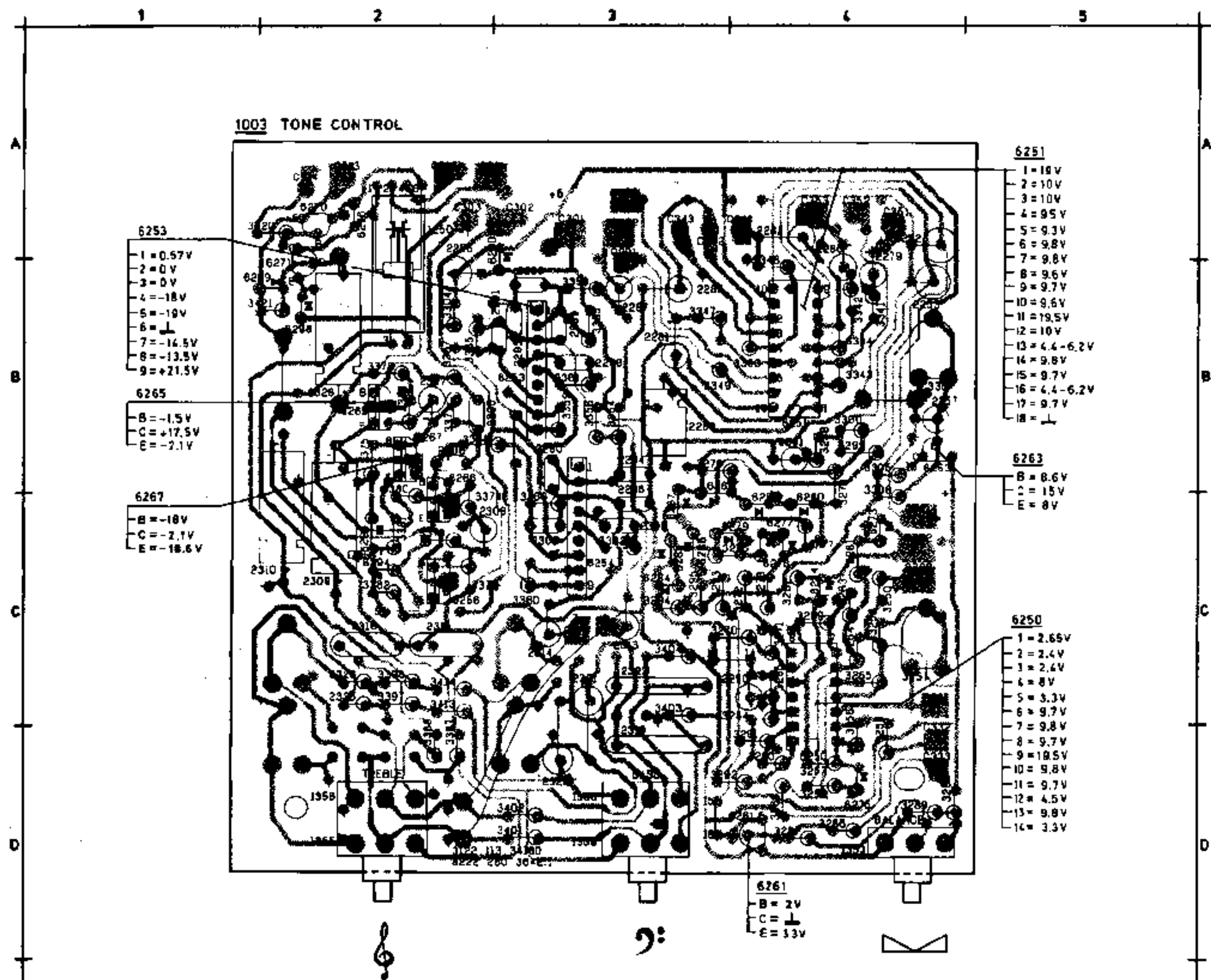


POWER SUPPLY



| | | | | | | | | | | | | | | | | | | | |
|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|
| 1050 | A 7 | 2051 | B 5 | 2056 | H 5 | 2061 | A 7 | 3050 | A 3 | 3054 | B 3 | 3062 | D 4 | 3067 | E 4 | 3072 | G 4 | 6050 | A 4 |
| 1051 | A 7 | 2052 | E 4 | 2057 | B 7 | 2064 | F 6 | 3051 | A 4 | 3056 | C 5 | 3064 | E 3 | 3068 | E 5 | 3073 | H 3 | 6051 | A 3 |
| 1052 | F 7 | 2053 | E 5 | 2059 | A 6 | 2065 | G 6 | 3052 | B 4 | 3060 | C 6 | 3065 | F 6 | 3070 | G 4 | 3074 | H 4 | 6052 | C 5 |
| 2050 | B 4 | 2055 | H 4 | 2060 | A 6 | 2066 | G 7 | 3053 | B 4 | 3061 | D 3 | 3066 | E 4 | 3071 | G 3 | 3076 | D 3 | 6053 | C 5 |
| | | | | | | | | | | 6056 | D 4 | 6062 | G 3 | 6070 | E 3 | 6075 | E 4 | | |
| | | | | | | | | | | 6057 | D 3 | 6065 | A 6 | 6071 | H 3 | | | | |
| | | | | | | | | | | 6058 | F 5 | 6066 | G 6 | 6072 | C 3 | | | | |
| | | | | | | | | | | 6061 | G 4 | 6068 | B 3 | 6074 | B 4 | | | | |





| ITEM | PCB | 31656D22 | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-----|----------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|-------|-----|
| B01 | G04 | 1359 | D03 | 2253 | B04 | 2263 | F02 | 2270 | F02 | 2280 | A04 | 2288 | B03 | 2295 | B03 | 2305 | B02 | 2310 | C02 | 2319 | D03 | 2326 | C02 | 3255 | D04 | | |
| 1250 | A02 | 1360 | D03 | 2256 | A02 | 2264 | B02 | 2271 | F03 | 2281 | B03 | 2289 | B03 | 2296 | B03 | 2306 | B02 | 2313 | C03 | 2320 | C03 | 2328 | B02 | 3256 | D04 | | |
| 1353 | D04 | 2250 | C04 | 2257 | B04 | 2265 | F02 | 2272 | F02 | 2282 | A04 | 2290 | B03 | 2300 | C03 | 2307 | B02 | 2314 | C03 | 2321 | C03 | 3250 | C04 | 3257 | D04 | | |
| 1355 | D02 | 2251 | B04 | 2261 | F02 | 2266 | F02 | 2273 | F03 | 2283 | B03 | 2293 | B03 | 2301 | B03 | 2308 | C02 | 2315 | C02 | 2322 | D03 | 3251 | C04 | 3258 | D04 | | |
| 1356 | D02 | 2252 | A04 | 2262 | F02 | 2269 | F03 | 2274 | F02 | 2287 | B03 | 2294 | B03 | 2302 | C03 | 2309 | C02 | 2316 | C02 | 2325 | C02 | 3252 | C04 | 3261 | C04 | | |
| 3262 | C04 | 3269 | C04 | 3276 | C03 | 3285 | C04 | 3290 | D04 | 3295 | C03 | 3305 | B04 | 3313 | F02 | 3318 | F02 | 3327 | F03 | 3334 | F02 | 3341 | B04 | 3349 | B03 | | |
| 3263 | C04 | 3270 | C04 | 3277 | C04 | 3286 | D04 | 3291 | D04 | 3298 | B04 | 3306 | B04 | 3314 | F02 | 3323 | F03 | 3328 | F02 | 3335 | F03 | 3342 | B04 | 3350 | B04 | | |
| 3264 | C04 | 3271 | C04 | 3278 | B04 | 3287 | D04 | 3292 | D04 | 3299 | B04 | 3307 | B04 | 3315 | F02 | 3324 | F02 | 3329 | F02 | 3336 | F02 | 3343 | B04 | 3353 | B03 | | |
| 3265 | C04 | 3272 | C04 | 3279 | B03 | 3288 | D04 | 3293 | C03 | 3300 | B04 | 3311 | F02 | 3316 | B02 | 3325 | F03 | 3330 | F02 | 3337 | F03 | 3344 | B04 | 3354 | B03 | | |
| 3266 | D04 | 3273 | C04 | 3284 | C04 | 3289 | D04 | 3294 | C03 | 3304 | B02 | 3312 | F02 | 3317 | F02 | 3326 | F02 | 3333 | F03 | 3338 | F02 | 3347 | B03 | 3355 | B03 | | |
| 3356 | B03 | 3365 | B02 | 3372 | C02 | 3379 | B02 | 3384 | F04 | 3401 | D03 | 3414 | C02 | 6251 | B04 | 6265 | B02 | 6271 | B02 | 6278 | C04 | 6284 | C03 | 6294 | C02 | SK-A | G02 |
| 3359 | B03 | 3366 | B03 | 3373 | B02 | 3380 | B02 | 3387 | D02 | 3402 | D03 | 3420 | A02 | 6253 | B03 | 6266 | B02 | 6273 | C04 | 6279 | C03 | 6285 | C03 | 6296 | C03 | SK-B | G02 |
| 3360 | C03 | 3367 | B02 | 3374 | C02 | 3381 | C02 | 3388 | D02 | 3403 | C03 | 3421 | B02 | 6254 | C03 | 6267 | B02 | 6274 | C04 | 6280 | C04 | 6287 | C03 | 6296 | A02 | SK-C | G02 |
| 3361 | B03 | 3368 | B02 | 3375 | B02 | 3382 | C02 | 3397 | C02 | 3404 | C03 | 3525 | F02 | 6261 | D04 | 6268 | C02 | 6275 | D04 | 6281 | C04 | 6290 | A03 | 6298 | B02 | 33048 | B04 |
| 3362 | C03 | 3371 | B02 | 3376 | C02 | 3383 | F04 | 3398 | C02 | 3413 | C02 | 6250 | D04 | 6263 | B04 | 6270 | A02 | 6277 | C04 | 6282 | B03 | 6293 | C02 | 6299 | B02 | | |

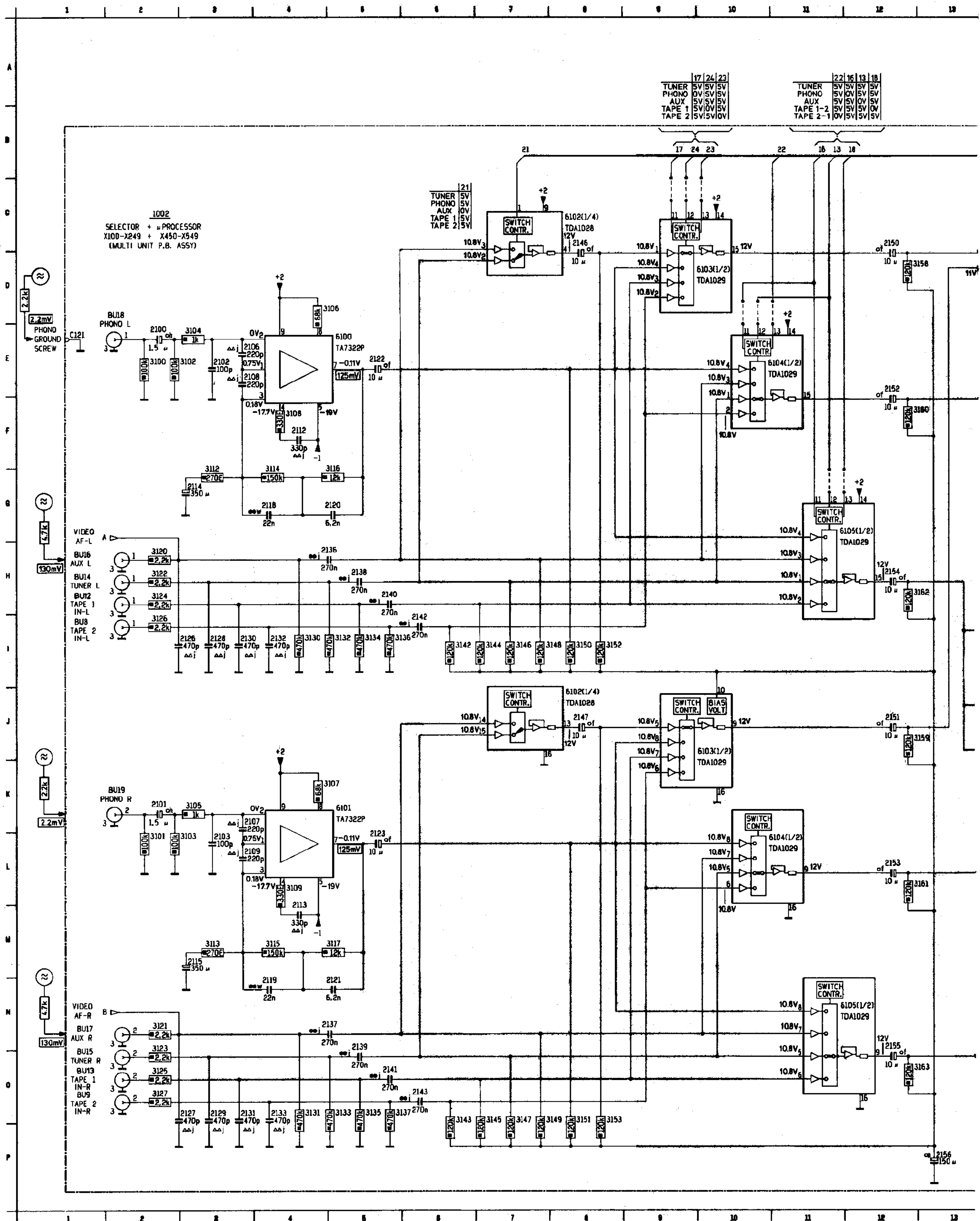
The diagram illustrates a complex electronic circuit, likely a radio receiver, featuring several key sections:

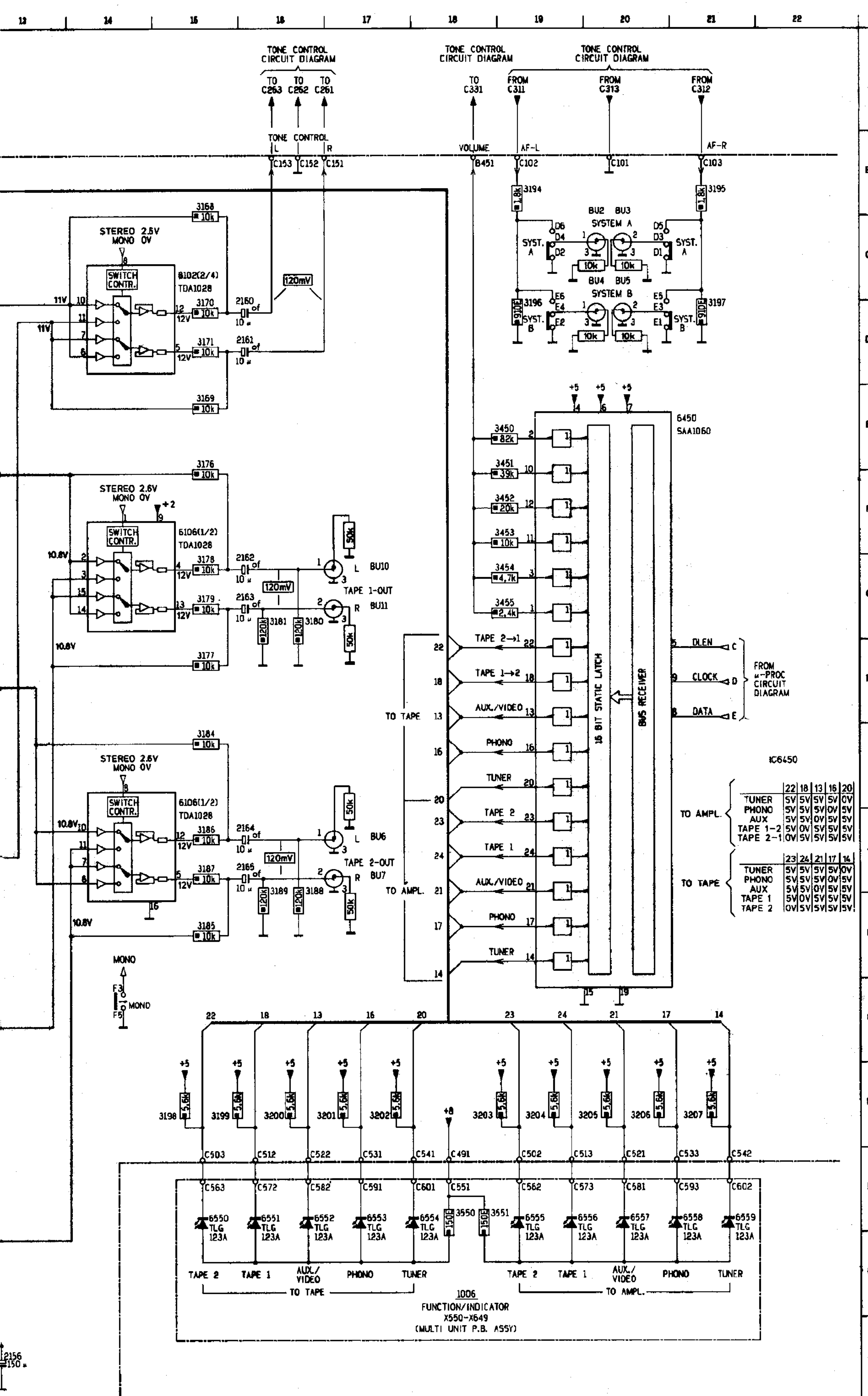
- Tone Control:** Located at the top and bottom, these sections use 1004 TONE SWITCHES (M-UNIT P.B. ASSY) to control the frequency response. They include components like 2261, 2263, 2264, 2262, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 2681, 2682, 2683, 2684, 2685, 2686, 2687, 2688, 2689, 2690, 2691, 2692, 2693, 2694, 2695, 2696, 2697, 2698, 2699, 2700, 2701, 2702, 2703, 2704, 2705, 2706, 2707, 2708, 2709, 2710, 2711, 2712, 2713, 2714, 2715, 2716, 2717, 2718, 2719, 2720, 2721, 2722, 2723, 2724, 2725, 2726, 2727, 2728, 2729, 2730, 2731, 2732, 2733, 2734, 2735, 2736, 2737, 2738, 2739, 2740, 2741, 2742, 2743, 2744, 2745, 2746, 2747, 2748, 2749, 2750, 2751, 2752, 2753, 2754, 2755, 2756, 2757, 2758, 2759, 2760, 2761, 2762, 2763, 2764, 2765, 2766, 2767, 2768, 2769, 2770, 2771, 2772, 2773, 2774, 2775, 2776, 2777, 2778, 2779, 2780, 2781, 2782, 2783, 2784, 2785, 2786, 2787, 2788, 2789, 2790, 2791, 2792, 2793, 2794, 2795, 2796, 2797, 2798, 2799, 2800, 2801, 2802, 2803, 2804, 2805, 2806, 2807, 2808, 2809, 2810, 2811, 2812, 2813, 2814, 2815, 2816, 2817, 2818, 2819, 2820, 2821, 2822, 2823, 2824, 2825, 2826, 2827, 2828, 2829, 2830, 2831, 2832, 2833, 2834, 2835, 2836, 2837, 2838, 2839, 2840, 2841, 2842, 2843, 2844, 2845, 2846, 2847, 2848, 2849, 2850, 2851, 2852, 2853, 2854, 2855, 2856, 2857, 2858, 2859, 2860, 2861, 2862, 2863, 2864, 2865, 2866, 2867, 2868, 2869, 2870, 2871, 2872, 2873, 2874, 2875, 2876, 2877, 2878, 2879, 2880, 2881, 2882, 2883, 2884, 2885, 2886, 2887, 2888, 2889, 2890, 2891, 2892, 2893, 2894, 2895, 2896, 2897, 2898, 2899, 2900, 2901, 2902, 2903, 2904, 2905, 2906, 2907, 2908, 2909, 2910, 2911, 2912, 2913, 2914, 2915, 2916, 2917, 2918, 2919,

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| 3307 | K 5 | 3317 | B 6 | 3328 | L12 | 3337 | B14 | 3348 | N11 | 3359 | C16 | 3368 | J17 | 3379 | C19 | 3388 | L17 | 3413 |
| 3311 | B 5 | 3318 | N 6 | 3329 | B13 | 3338 | M14 | 3349 | B11 | 3360 | I16 | 3371 | E18 | 3380 | I19 | 3397 | F18 | 3414 |
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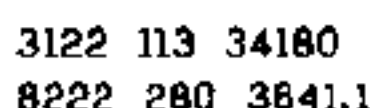
SELECTOR DIAGRAM





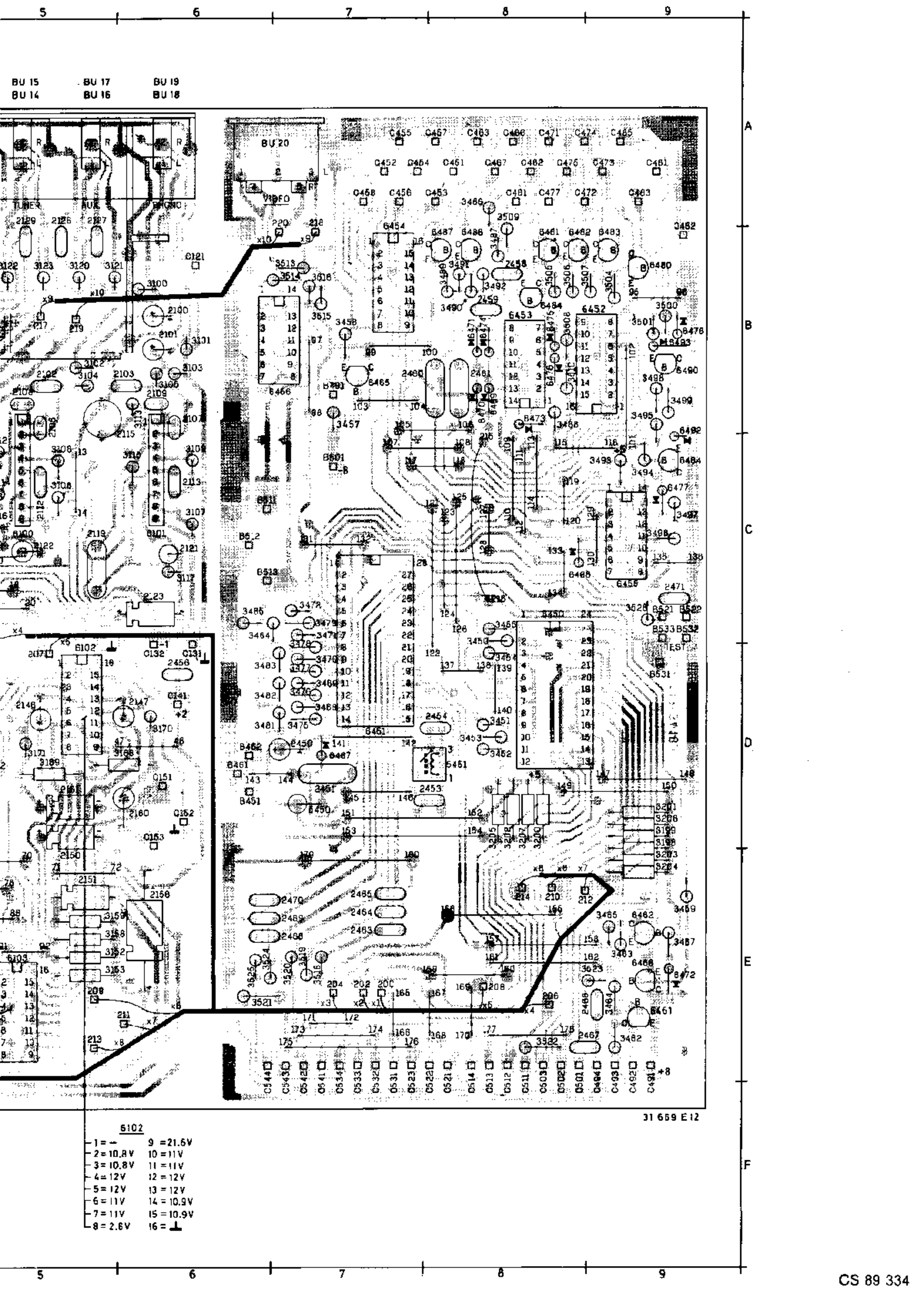
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| 2103 | L 3 | 3145 | O 7 |
| 2106 | E 4 | 3146 | I 7 |
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| 2126 | I 3 | 3168 | E15 |
| 2127 | O 3 | 3169 | E15 |
| 2128 | I 3 | 3170 | D15 |
| 2129 | O 3 | 3171 | D15 |
| 2130 | I 3 | 3176 | E15 |
| 2131 | O 3 | 3177 | H15 |
| 2132 | I 4 | 3178 | G15 |
| 2133 | O 4 | 3179 | G15 |
| 2136 | H 5 | 3180 | G16 |
| 2137 | N 5 | 3181 | G16 |
| 2138 | H 5 | 3184 | I15 |
| 2139 | N 5 | 3185 | K15 |
| 2140 | H 5 | 3186 | J15 |
| 2141 | O 5 | 3187 | J15 |
| 2142 | I 6 | 3188 | J16 |
| 2143 | O 6 | 3189 | J16 |
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| 2147 | J 8 | 3195 | B21 |
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| 2151 | J12 | 3197 | D21 |
| 2152 | E12 | 3198 | M15 |
| 2153 | L12 | 3199 | M15 |
| 2154 | H12 | 3200 | M16 |
| 2155 | N12 | 3201 | M17 |
| 2156 | P13 | 3202 | M17 |
| 2160 | C16 | 3203 | M18 |
| 2161 | D16 | 3204 | M19 |
| 2162 | G16 | 3205 | M20 |
| 2163 | G16 | 3206 | M20 |
| 2164 | J16 | 3207 | M21 |
| 2165 | J16 | 3450 | E19 |
| 3100 | E 2 | 3451 | E19 |
| 3101 | L 2 | 3452 | F19 |
| 3102 | E 3 | 3453 | F19 |
| 3103 | L 3 | 3454 | G19 |
| 3104 | E 3 | 3455 | G19 |
| 3105 | K 3 | 3550 | N18 |
| 3106 | D 5 | 3551 | N19 |
| 3107 | K 5 | 6100 | E 5 |
| 3108 | F 4 | 6101 | K 5 |
| 3109 | L 4 | 6102 | (C 8 |
| 3112 | F 3 | 6102 | (C15 |
| 3113 | M 3 | 6102 | (J 8 |
| 3114 | F 4 | 6103 | (D10 |
| 3115 | M 4 | 6103 | (J10 |
| 3116 | F 5 | 6104 | (E11 |
| 3117 | M 5 | 6104 | (L11 |
| 3120 | H 2 | 6105 | (G12 |
| 3121 | N 2 | 6105 | (N12 |
| 3122 | H 2 | 6106 | (F15 |
| 3123 | N 2 | 6106 | (I15 |
| 3124 | H 2 | 6450 | E21 |
| 3125 | O 2 | 6550 | N15 |
| 3126 | I 2 | 6551 | N16 |
| 3127 | O 2 | 6552 | N16 |
| 3130 | I 4 | 6553 | N17 |
| 3131 | O 4 | 6554 | N18 |
| 3132 | I 5 | 6555 | N19 |
| 3133 | O 5 | 6556 | N20 |
| 3134 | I 5 | 6557 | N20 |
| 3135 | O 5 | 6558 | N21 |
| 3136 | I 6 | 6559 | N21 |
| 3137 | O 6 | | |

1

BU 19
BU 14

5103

| | |
|-----------|------------|
| 1 = 10.8V | 9 = 12V |
| 2 = 10.8V | 10 = 12V |
| 3 = 10.8V | 11 = — |
| 4 = 10.8V | 12 = — |
| 5 = 10.8V | 13 = — |
| 6 = 10.8V | 14 = 21.6V |
| 7 = 10.8V | 15 = 12V |
| 8 = 10.8V | 16 = — |

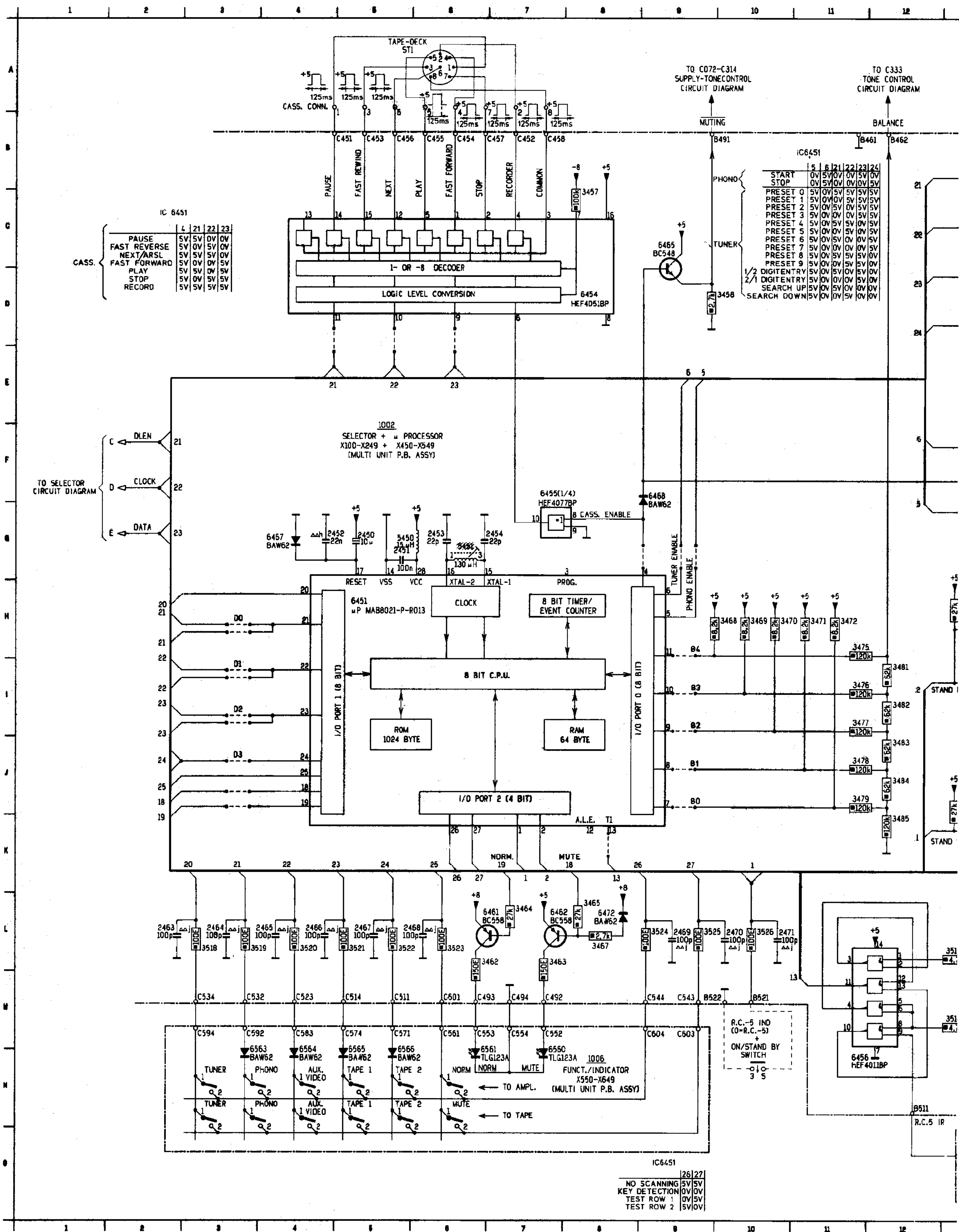


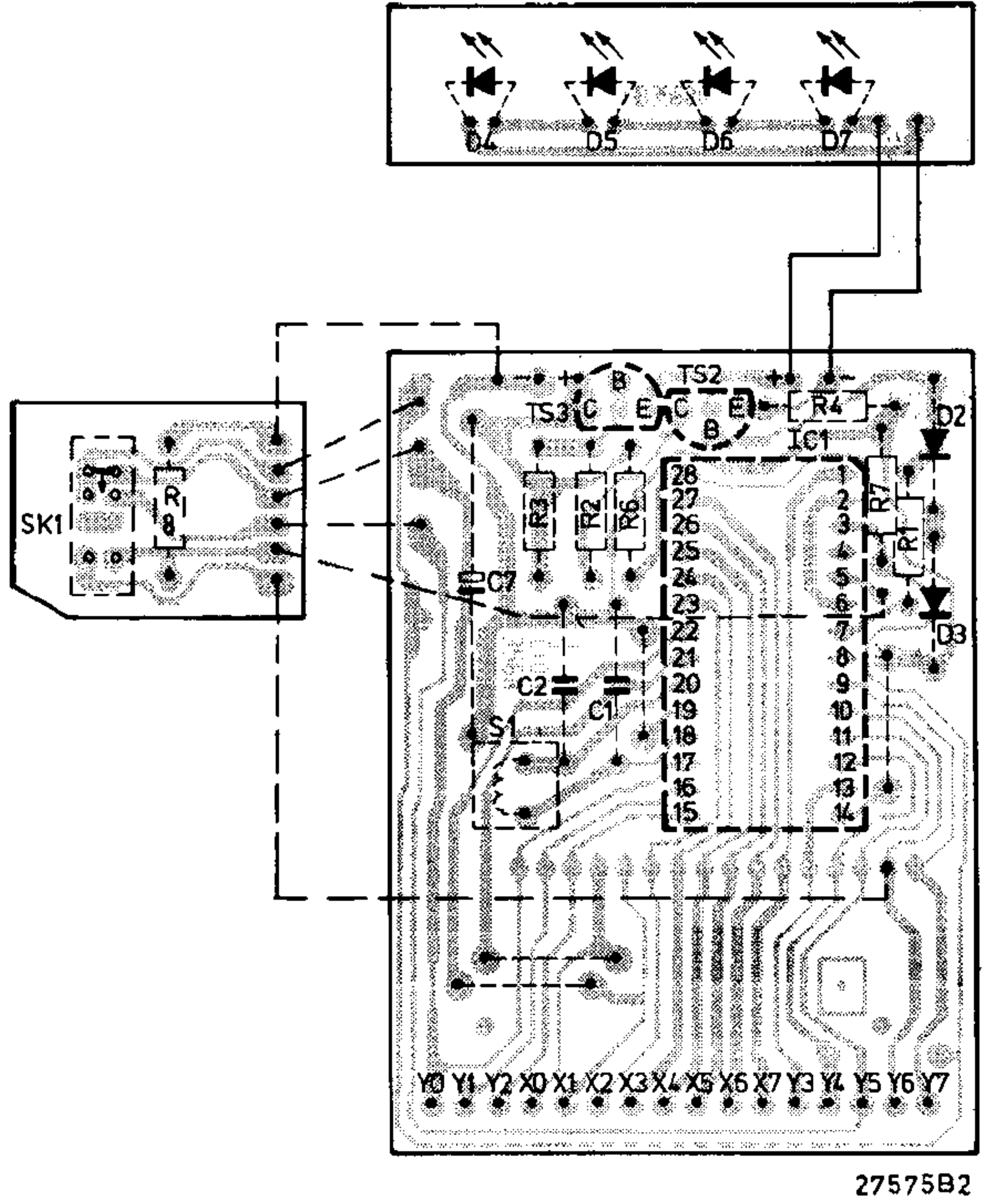
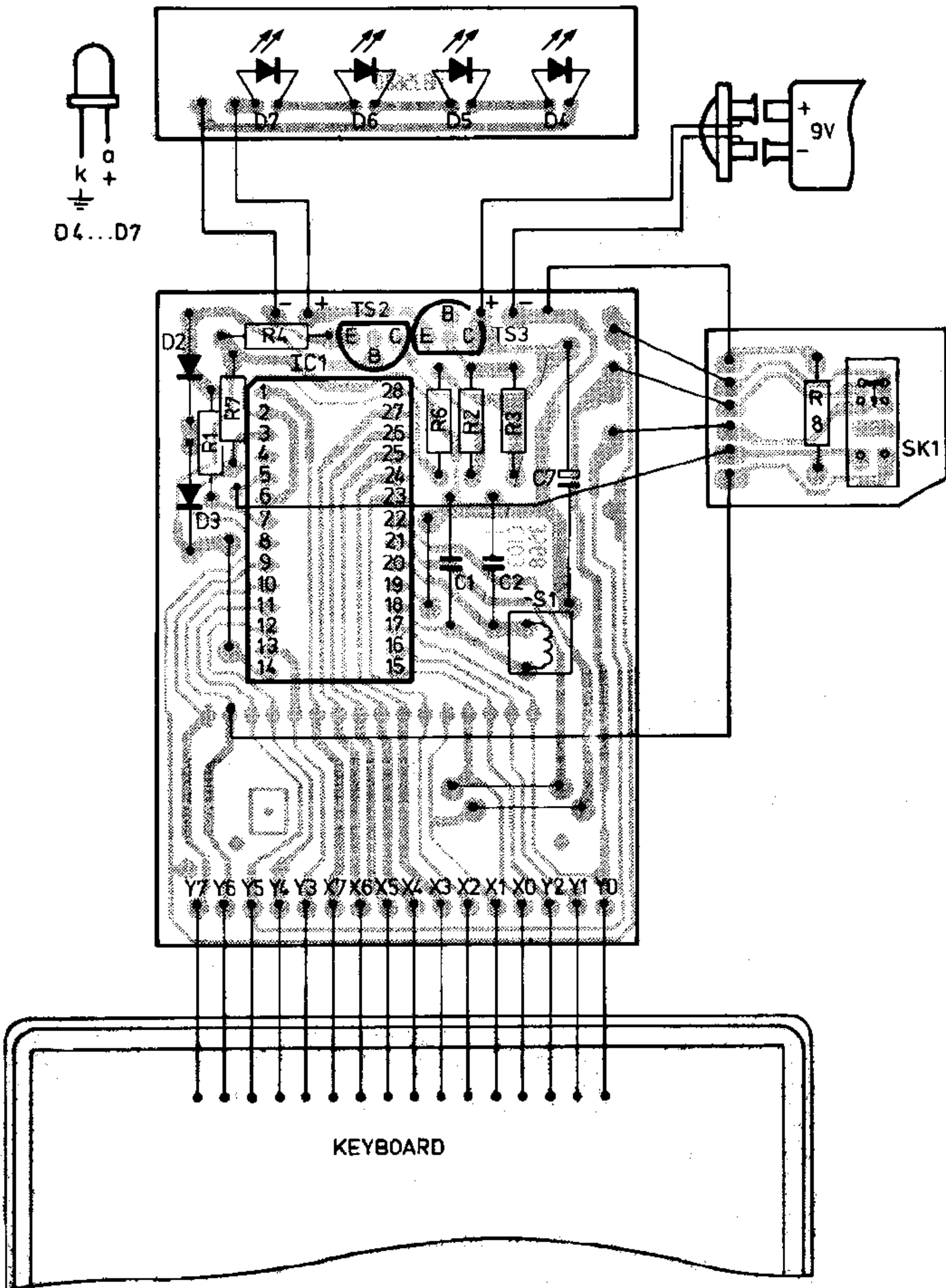
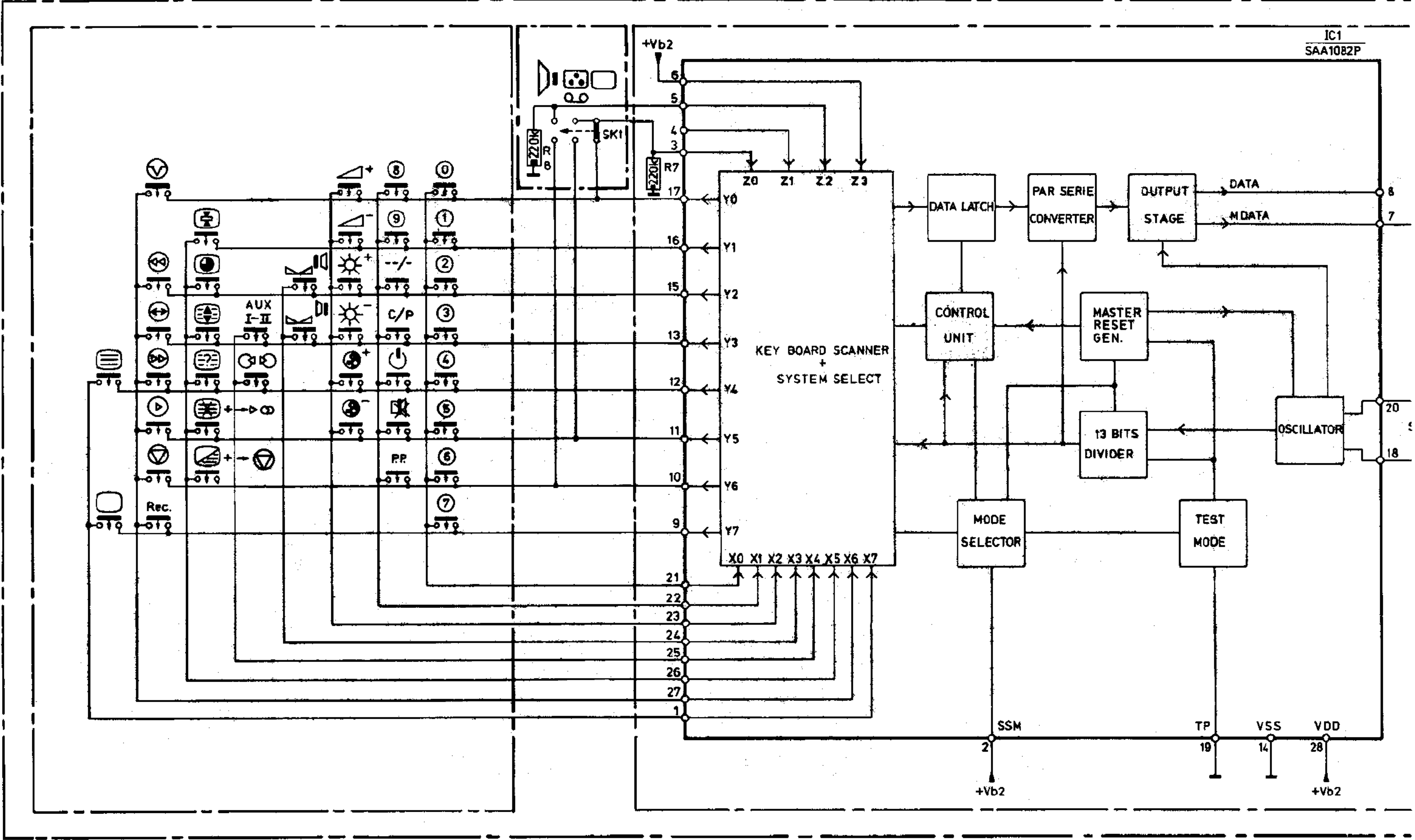
6102

- | | |
|-----------|------------|
| 1 = - | 9 = 21.6V |
| 2 = 10.8V | 10 = 11V |
| 3 = 10.8V | 11 = 11V |
| 4 = 12V | 12 = 12V |
| 5 = 12V | 13 = 12V |
| 6 = 11V | 14 = 10.9V |
| 7 = 11V | 15 = 10.9V |
| 8 = 2.6V | 16 = - |

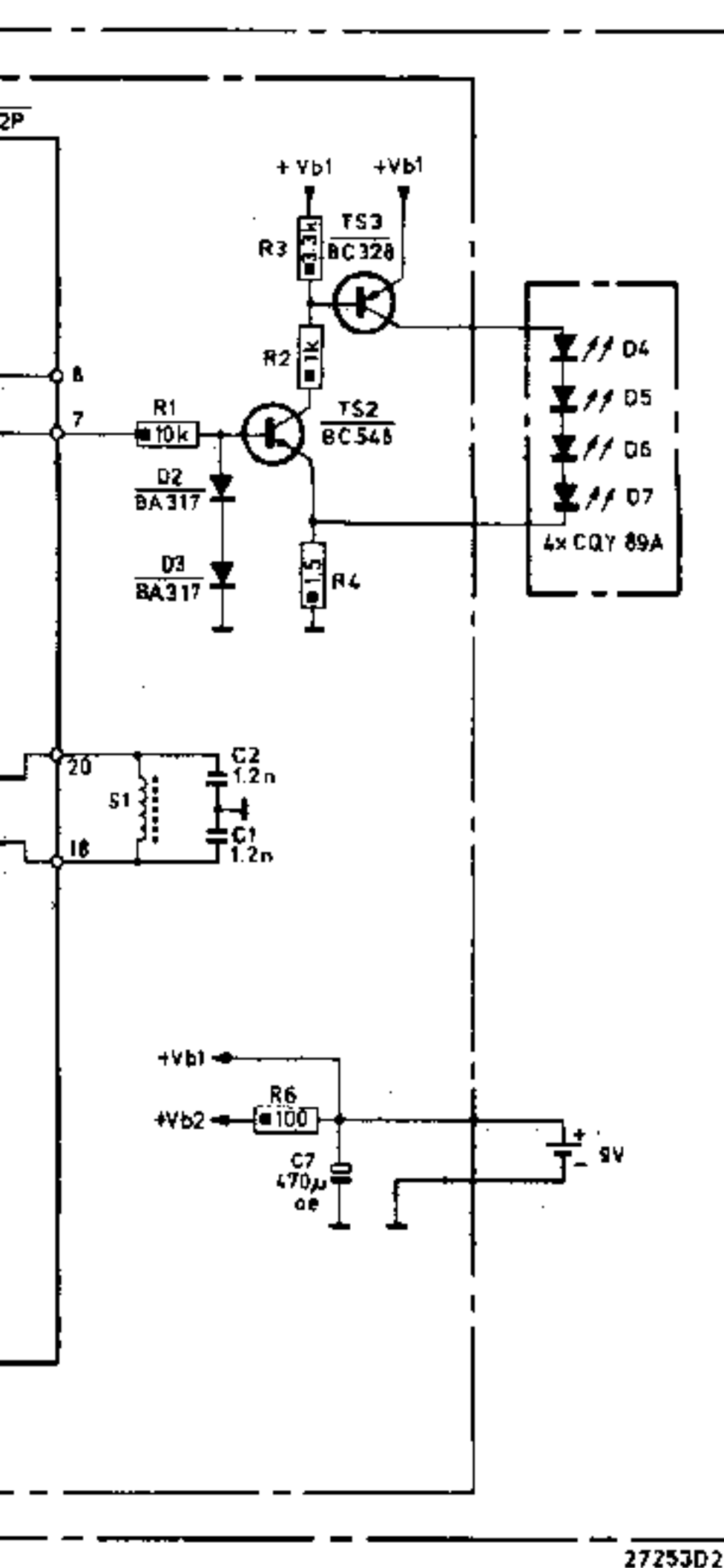
31 659 E12

CS 89 335

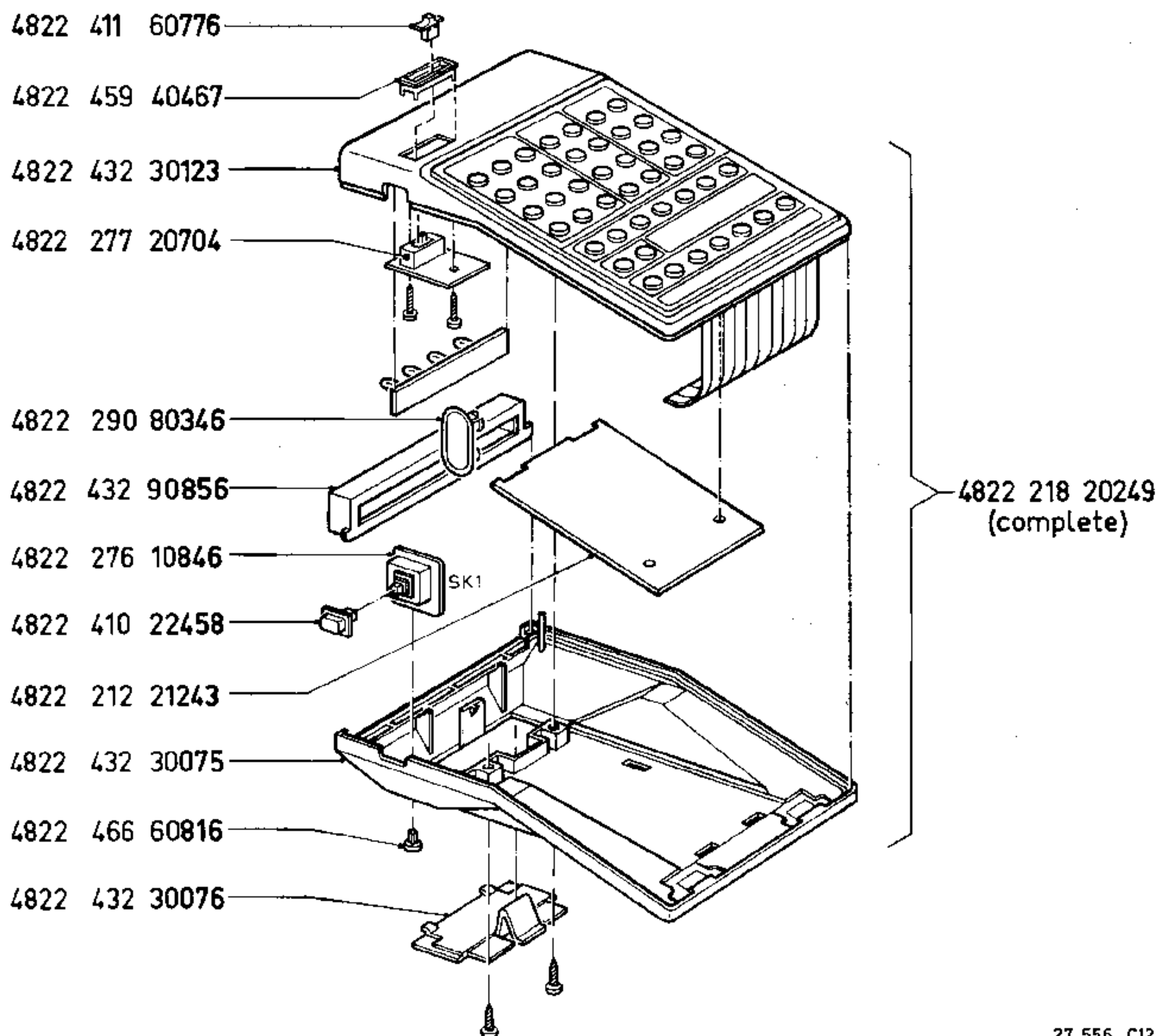




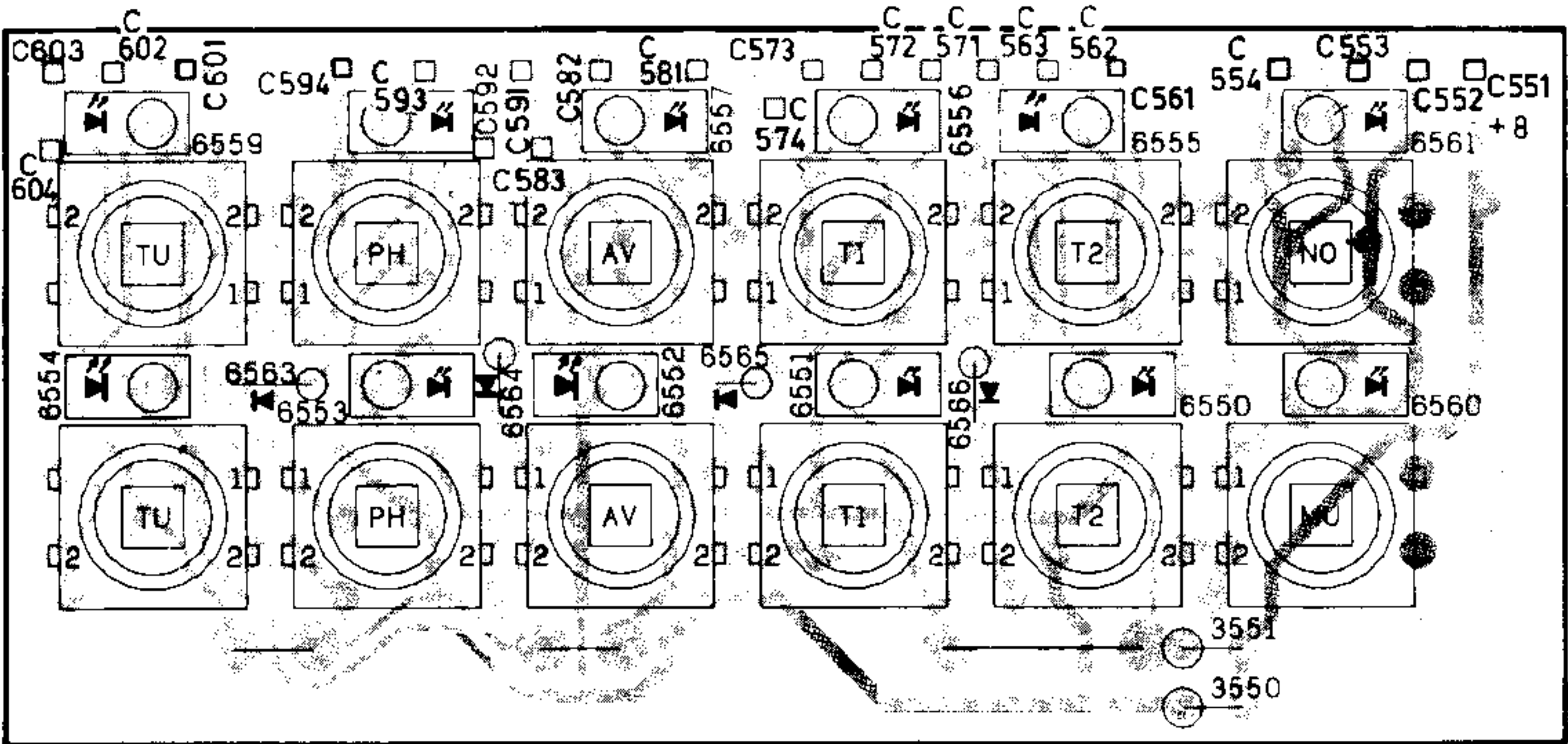
27575B2



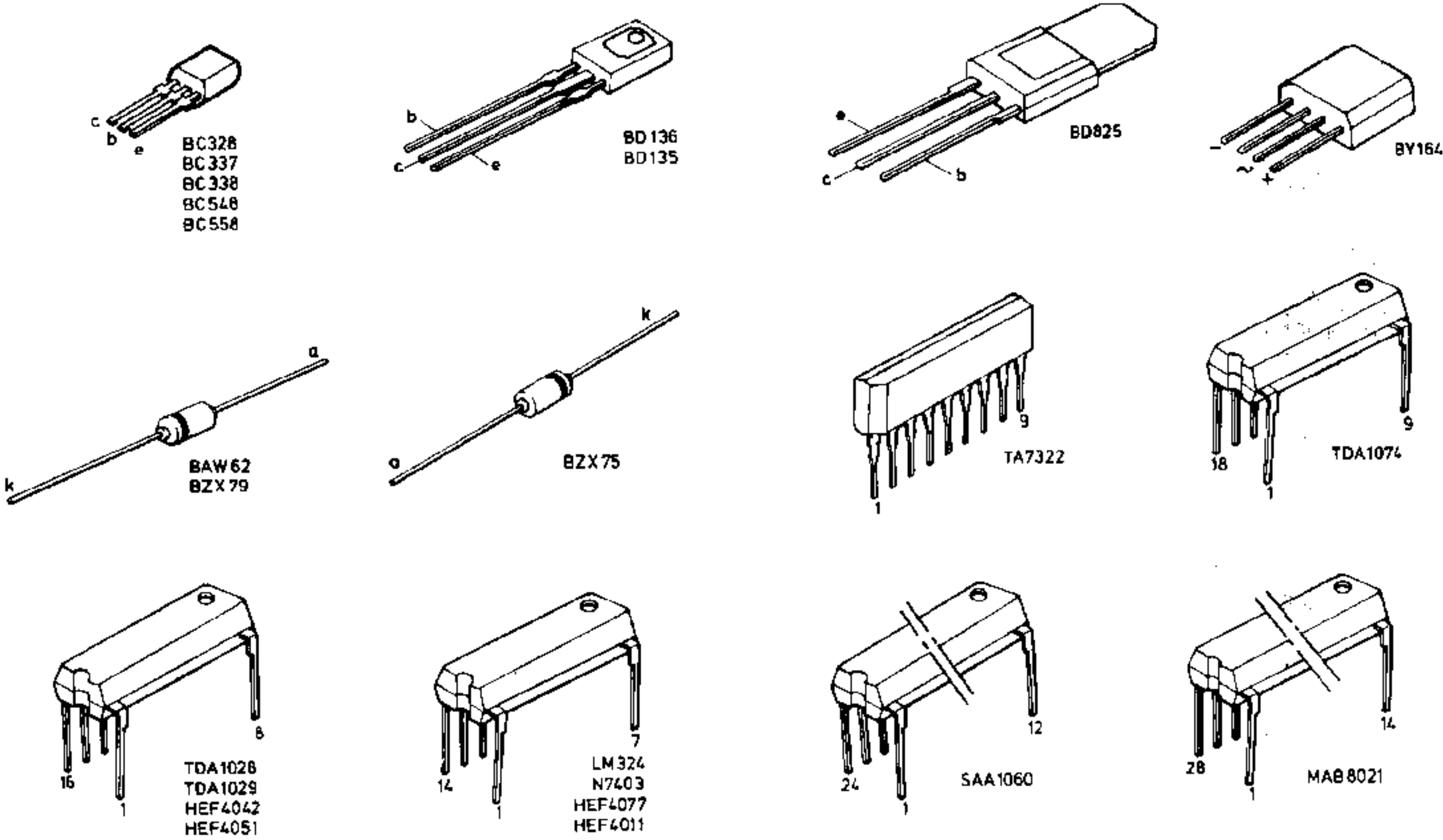
| | | | |
|--|----------------|------------------|----------------------------------|
| | IC1 | SAA1082P | 4822 209 80613 |
| | BC328 BC548 | | 4822 130 44104 4822 130 40938 |
| | BA317 | | 4822 130 30847 |
| | CQY89A | | 4822 130 30949 |
| | C1 C2 | 1.2 nF 1.2 nF | 4822 121 50439 4822 121 50439 |
| | S1 | | 4822 156 10502 |



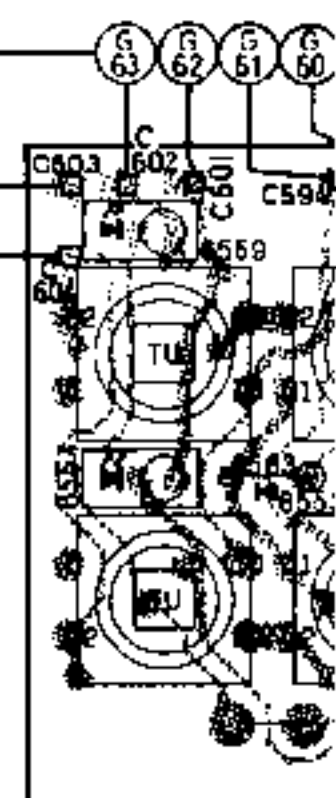
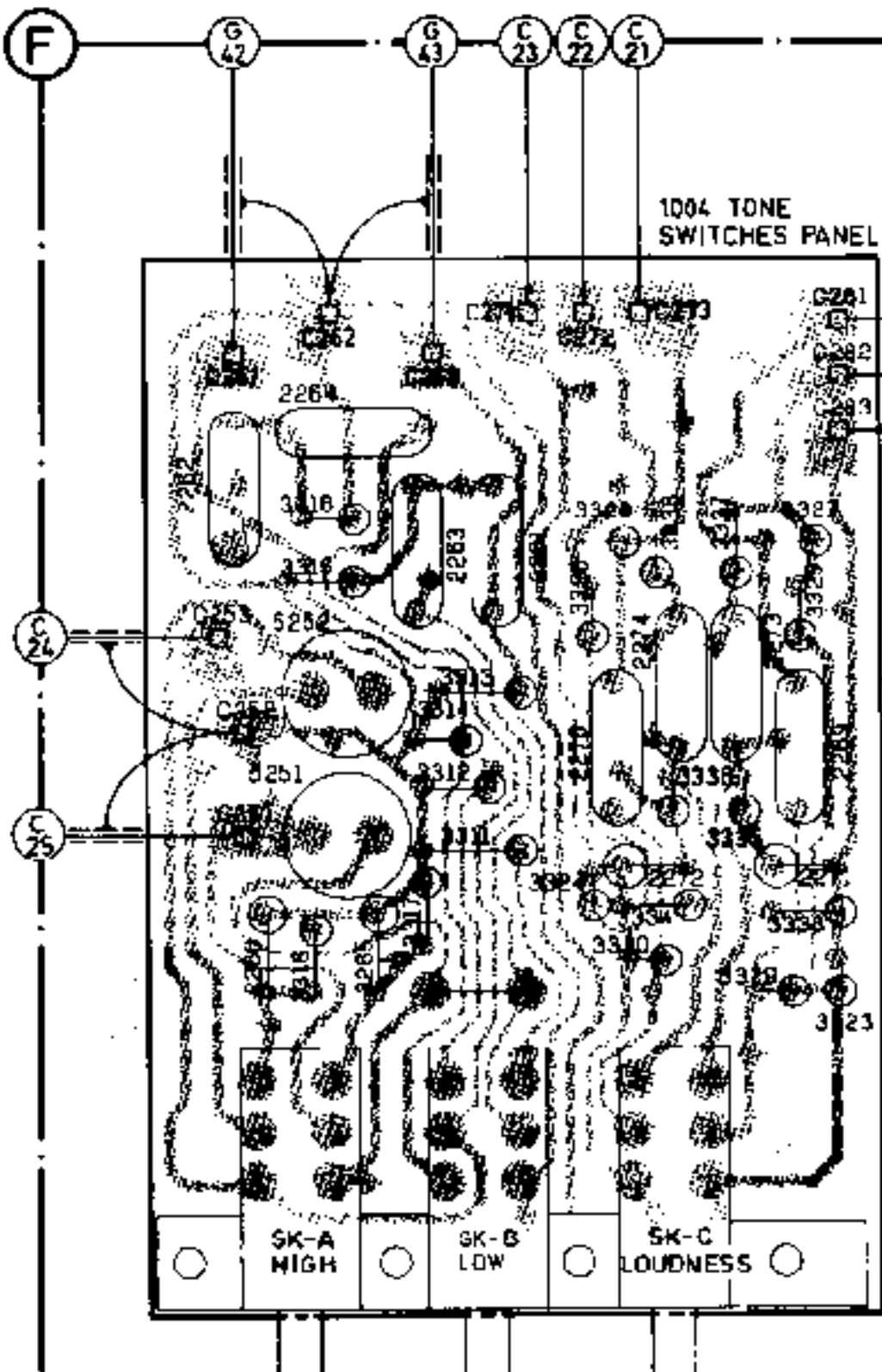
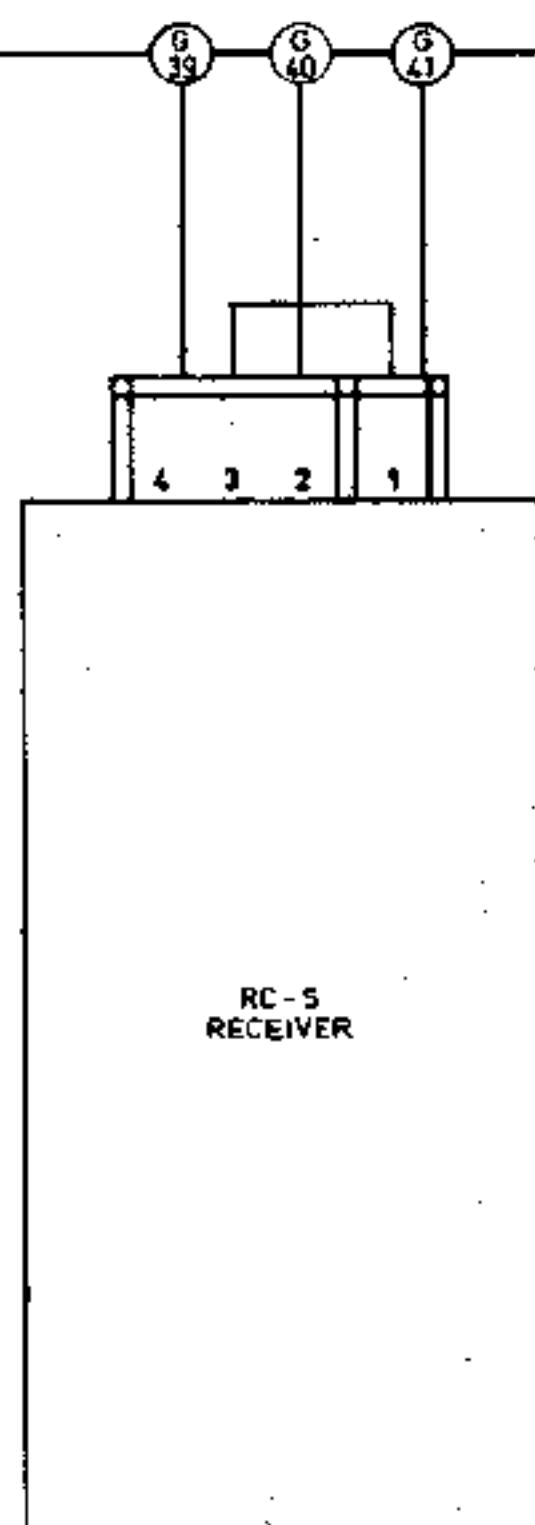
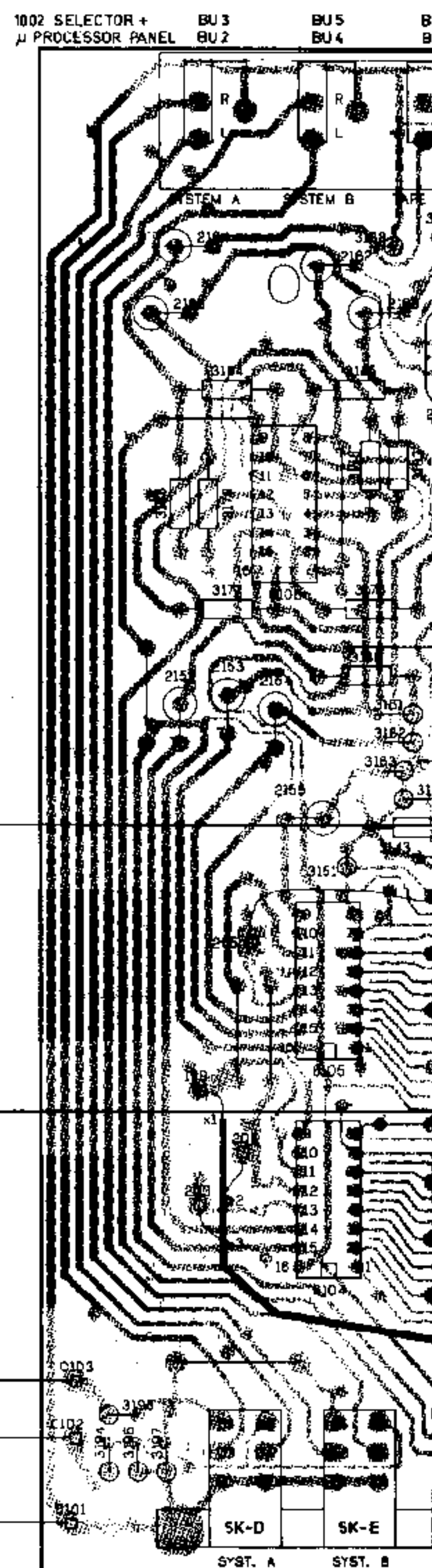
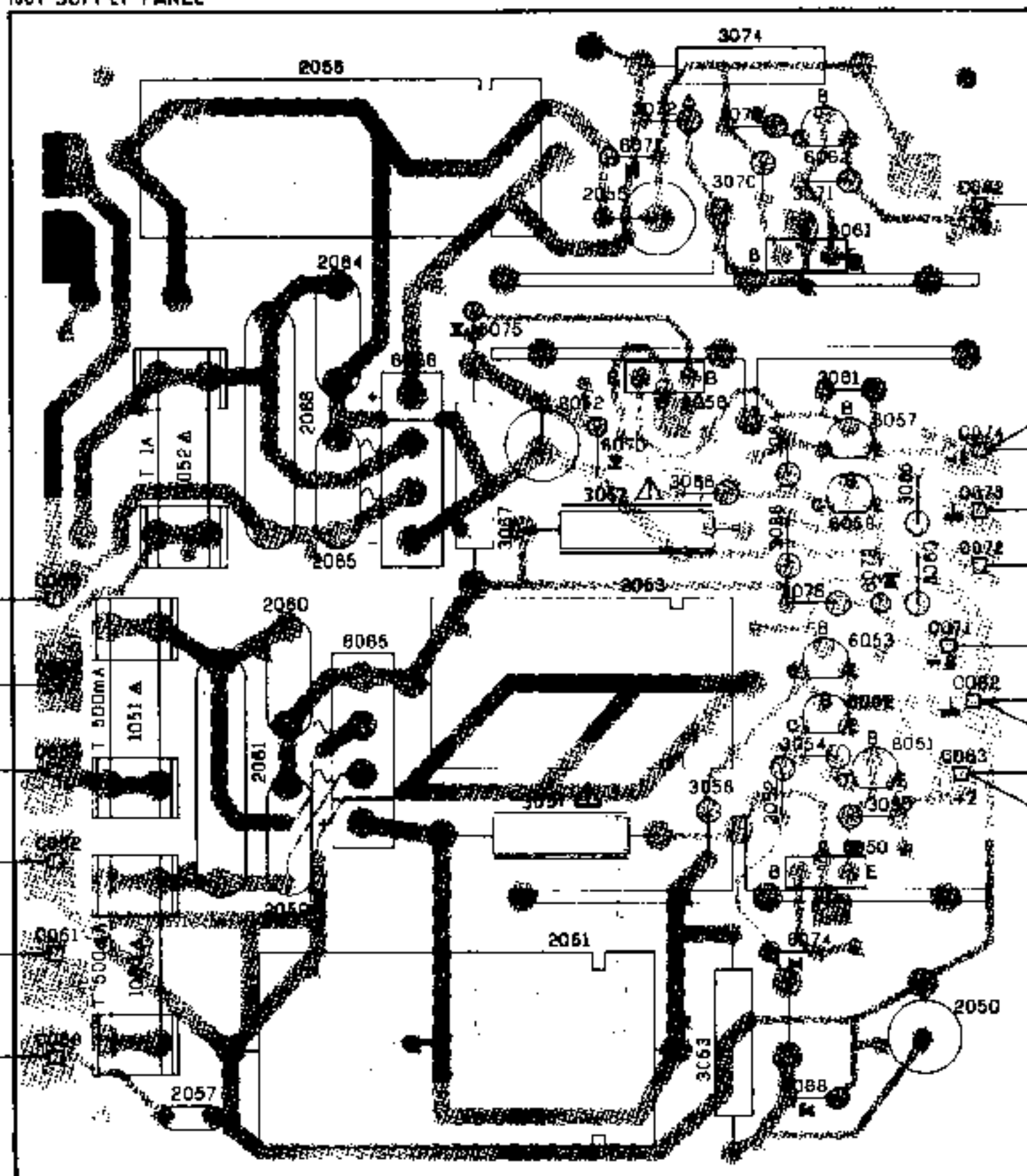
FUNCTION/INDICATOR PANEL

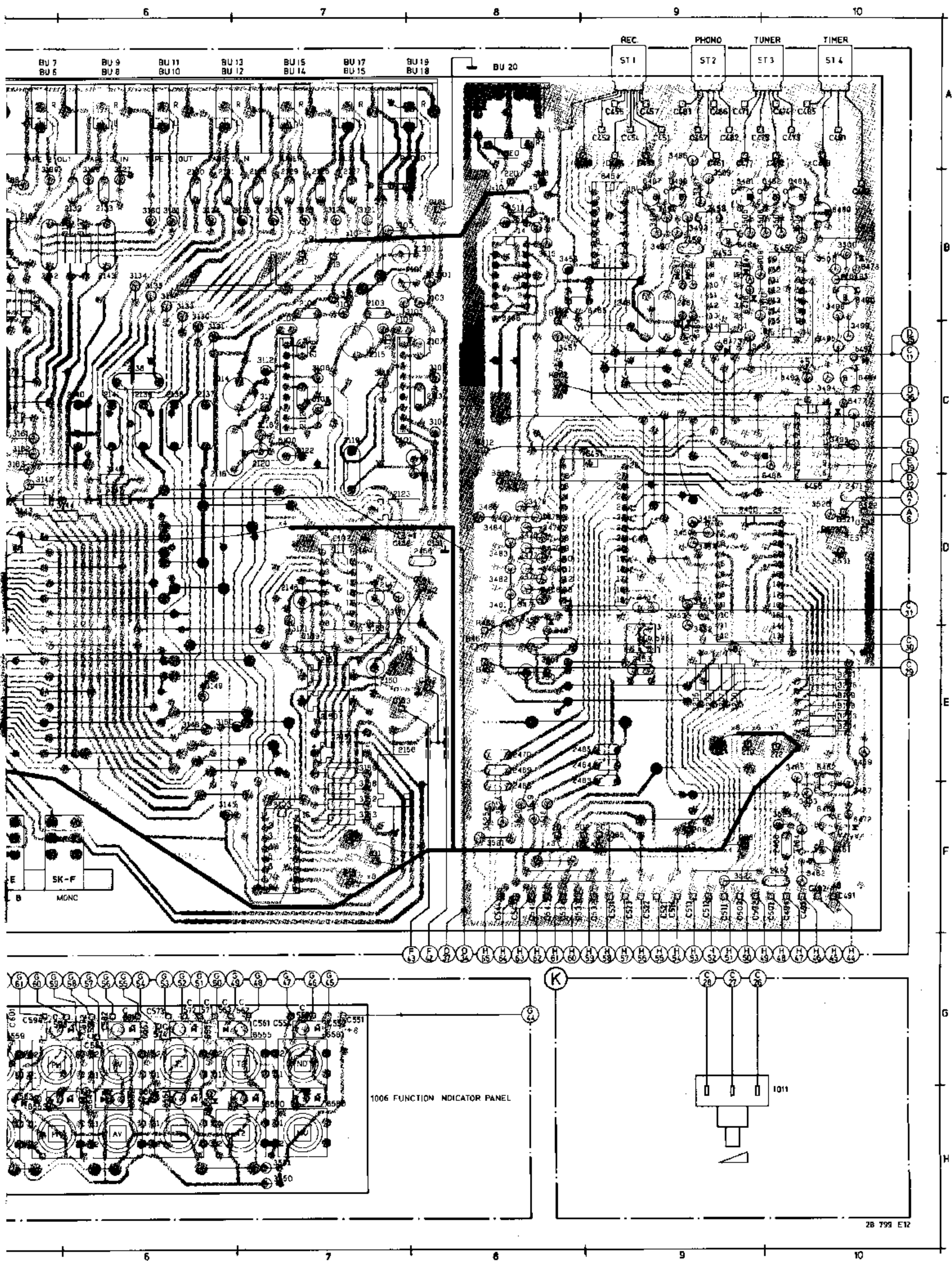


31 668 A12



32 627C12





ELECTRISCHE INSTELLINGEN EN CONTROLES

Benodigde meetinstrumenten

- Multimeter
- AC millivoltmeter
- LF generator
- Oscilloscoop
- Frequentieteller

Algemene voorwaarden

Voor de elektrische metingen en instellingen gelden de volgende algemene voorwaarden, tenzij uitdrukkelijk anders vermeld.

- Netspanning 220 V ~ ± 5%, 50 Hz
- Positie "stand by"
- Apparaat in stand tuner, normal, system A, stereo en filter schakelaars uit.


- Toonregelaars in de mechanische middenstand.
- Volume regelaar op maximum.
- Belastingweerstanden aansluiten op:
 1. systeem A BU2 (BU3) 10 kΩ
 2. systeem B BU4 (BU5) 10 kΩ
 3. tape 1 out BU6 (BU7) 50 kΩ
 4. tape 2 out BU8 (BU8) 50 kΩ
 5. headphone BU1 600 Ω

Opmerking

De IC's 6451, 6452, 6454, 6455, 6456 zijn MOS IC's. Omdat MOS IC's in het algemeen zeer gevoelig zijn voor overbelasting en te hoge spanning dient bij het meten de grootst mogelijke zorgvuldigheid in acht te worden genomen.

Zie voor verdere instructies de bijsluiter in de verpakking van de IC's.

1. Voedingsspanning

| Voeding | V _b | Rimpel |  |
|---------|-----------------|-----------|--|
| —1 | —19.0 V ± 2 V | ≤ 10 mV | — |
| +2 | +21.5 V ± 2 V | ≤ 30 mV | — |
| +5 | +5.0 V ± 0.5 V | ≤ 3 mV | — |
| +6 | +19.5 V ± 2 V | ≤ 5 mV | — |
| +7 | +8.0 V ± 0.05 V | ≤ 0.3 mV | 3307 |
| —8 | —8.2 V ± 0.5 V | ≤ 0.15 mV | — |


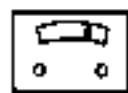
2. Instellen volume regeling stand "normal" (groene toets)

De spanning op punt 3-IC6250 op het tone control panel moet 2.5 V ± 0.05 V bedragen. Dit is in te stellen met 3251.



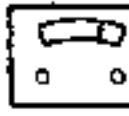


3. Instellen klokfrequentie


Sluit een frequentieteller aan op punt 15 van de μ-proc. IC6451. De klokfrequentie van de μ-proc. moet met de spoel 5451 op 3 MHz ± 10 kHz worden afgeregeld.

4. Gevoeligheid

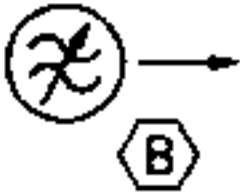
| In stand |  | BU3 (BU2)  |
|-----------|---|--|
| Tuner | 130 - 170 mV BU15 (BU14) | 2 V |
| Video | 130 - 170 mV BU20 - 3/2 (6/2) | 2 V |
| Tape 1 in | 130 - 170 mV BU13 (BU12) | 2 V |
| Tape 2 in | 130 - 170 mV BU9 (BU8) | 2 V |
| Phono | 2.2 - 2.8 mV BU19 (BU18) | 2 V |

5. Frequentie karakteristiek

| In stand |   | Tone control | | | | |  245 mV BU3 (BU2) | | | |
|----------|--|---|---|------|------|--------|--|--------------|-----------|-------|
| | |  |  | High | Low | Loudn. | | | | |
| | | 1355 1356 | 1359 1360 | SK-A | SK-B | SK-C | 20 Hz | 125 Hz | 1000 Hz | 10 |
| Phono | BU19 (BU18) | — | — | — | — | — | +19.5±1.5 dB | +11.5±1.5 dB | 0 | —13.7 |
| Tuner | BU15 (BU14) | — | — | — | — | — | —0.5±1.5 dB | 0±1.5 dB | 0±1.5 dB | 0±1 |
| | | max | max | — | — | — | +11.5±2 dB | +8±1.5 dB | —1±1.5 dB | +6.5± |
| | | min | min | — | — | — | —14.5±2 dB | —9.5±1.5 dB | +1±1.5 dB | —10.5 |
| | | — | — | — | on | — | ≤ —15 dB | —1.5±1.5 dB | 0±1.5 dB | 0±1 |
| | | — | — | on | — | — | —0.5±1.5 dB | 0±1.5 dB | 0±1.5 dB | —5.5± |
| | | — | — | — | — | on | +11±1.5 dB | +5±1.5 dB | 0 | +4± |


 Ingangssignaal zodanig instellen dat over de belastingsweerstand op BU3 (BU2) 245 mV = 0 dB wordt gemeten. Houd ingangssignaal constant.

6. Distorsie

| | | | |
|----------|---|------------------------------------|---------------|
| In stand |  | FTC | DIN45500 |
| Tuner | 20 Hz BU15 (BU14) 63 Hz 1000 Hz 12.5 kHz 20 kHz | $\leq 0.08\%$ $\leq 0.08\%$ | $\leq 0.06\%$ |

B Ingangssignaal zodanig instellen dat over de belastingsweerstand op BU3 (BU2) 2 V wordt gemeten.

7. Signaal ruisverhouding



| | | | | |
|--|--------|--------|-----|---|
| In stand | Volume | Treble | Bas |  |
| Phono A Tuner B Video B Tape 1 in B Tape 2 in B | max | Max | Min | $\leq -40\text{ dB}$ ($\leq 8\text{ mV}$) |

A Ingang afsluiten met een weerstand van 2.2 kΩ.

B Ingang afsluiten met een weerstand van 4.7 kΩ.

8. Overspraak




| | |
|---------------------|-------------------------|
| | |
| kHz | 20 kHz |
| $\pm 1.5\text{ dB}$ | $9.6\pm 1.5\text{ dB}$ |
| -5 dB | $-0.5\pm 1.5\text{ dB}$ |
| $+1.5\text{ dB}$ | $+9\pm 2\text{ dB}$ |
| $\pm 1.5\text{ dB}$ | $-12.5\pm 2\text{ dB}$ |
| -5 dB | $-0.5\pm 1.5\text{ dB}$ |
| $+1.5\text{ dB}$ | $\leq -15\text{ dB}$ |
| $+1.5\text{ dB}$ | $+4\pm 1.5\text{ dB}$ |

| | | | |
|-----------|--|--|---|
| In stand |  | BU |  BU3 (BU2) |
| Phono | 1000 Hz 2.2 - 2.8 mV | A 19 (18) | $\leq -55\text{ dB}$ |
| Tuner | 1000 Hz 130 - 170 mV | B 15 (14) | $\leq -60\text{ dB}$ |
| Video | | B 20- ³ / ₂ (⁵ / ₂) | |
| Tape 1 in | | B 13 (12) | |
| Tape 2 in | | B 9 (8) | |

A Ingangen afsluiten met een weerstand van 2.2 kΩ.

B Ingangen afsluiten met een weerstand van 4.7 kΩ.

9. Controle balansregeling

| | | | | |
|----------|--|---------|--------|--|
| In stand |  | BU | 1353 |  |
| Tuner | 1000 Hz  | 15 (14) | R L | 0 (≤ -22 dB) ≤ -22 dB (0) |

Ⓒ Ingangssignaal zodanig instellen dat over de belastingsweerstand op BU3 (BU2) 2 V wordt gemeten (= 0 dB).

10. Controle inschakelvertraging

Na het inschakelen van de voedingsspanning schakelt het relais 1250 na ≥ 2 sec in.

11. Het testen van de microprocessor 8021

Leg punt 2 van de microprocessor aan massa.
Schakel nu de netspanning in (het apparaat staat nu in de testmode).

De punten 22, 23, 24 en 25 van de microprocessor zijn nu ingangen geworden.

Als één van deze punten laag gemaakt wordt dan wordt dit gekopieerd op resp. punt

18-26-4-8

19-27-5-9

20-1-6-10

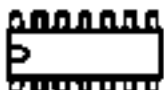





21-2-7-11



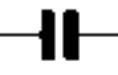
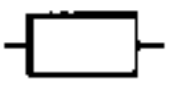
Dus als punt 22 laag gemaakt wordt, dan worden de punten 18, 26, 4 en 8 ook laag.

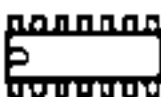



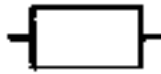
Als men nu punt 13 (T1) laag maakt, dan mogen de uitgangen niet meer wijzigen als de ingangen veranderen.



Dit is ook het geval als men de punten 1 en 4 van de video connector laag maakt.


MICROPROCESSOR UNIT

| -IC- |  | | | | |
|--------------------------|---|----------------|--|--|--|
| 6100,6101 | TA7322P | 4822 209 80648 | | | |
| 6102,6106 | TDA1028 | 5322 209 80865 | | | |
| 6103÷6105 | TDA1029 | 4822 209 80511 | | | |
| 6450 | SAA1060 | 4822 209 80512 | | | |
| 6451 | MAB8021P-R013 | 4822 209 10222 | | | |
| 6452 | HEF4042BP | 5322 209 14071 | | | |
| 6453 | N7403N | 5322 209 85828 | | | |
| 6454 | HEF4051P | 5322 209 14212 | | | |
| 6455 | HEF4077BP | 4822 209 10223 | | | |
| 6456 | HEF4011BP | 4822 209 14046 | | | |
| -TS- |  | | | | |
| 6461,6462 } 6466 | BC558 | 4822 130 40941 | | | |
| 6464,6465 } 6480÷6490 | BC548 | 4822 130 40938 | | | |
| -D- |  | | | | |
| 6467÷6478 } 6492,6493 | BAW62 | 4822 130 30613 | | | |
| -C- |  | | | | |
| 2102,2103 | 100pF 2% 100 V | 4822 122 31316 | | | |
| 2114 | 4.7 µF 50% 63 V | 4822 124 20726 | | | |
| 2115 | 350 µF 10 V | 4822 124 21222 | | | |
| 2120,2121 | 6.19 nF 1% 63 V | 4822 121 50633 | | | |
| 2453 | 22 pF 5% 50 V | 4822 122 31063 | | | |
| -L- |  | | | | |
| 5450 | | 4822 157 50965 | | | |
| 5451 | | 4822 157 51377 | | | |
| -R- |  | | | | |
| 1011 | 22k lin volume | 4822 101 20634 | | | |
| -Miscellaneous- | | | | | |
| 1015 | Mains transformer | 4822 146 60108 | | | |
| 1053 | Thermo fuse | 4822 252 20007 | | | |
| Switch | Mute/stand by switch | 4822 276 30285 | | | |

| POWER SUPPLY PANEL | | | |
|--------------------|-----------------------|---|--|
| -TS- | |  | |
| 6050,6061 | BD137 | 4822 130 40823 | |
| 6051,6052,6062 | BC338 | 4822 130 44121 | |
| 6053 | BC548 | 4822 130 40938 | |
| 6056 | BD136 | 4822 130 40712 | |
| 6057 | BC328 | 4822 130 44104 | |
| 6058 | BC337 | 4822 130 40855 | |
| -D- | |  | |
| 6065,6066 | BY164 | 4822 130 30414 | |
| 6068 | BZX79-B22 | 4822 130 34441 | |
| 6070 | BZX79-C20 | 4822 130 31245 | |
| 6071 | BZX79-B6V2 | 4822 130 34167 | |
| 6072 | BZX79-B8V2 | 4822 130 34382 | |
| 6074,6075 | BAW62 | 4822 130 30613 | |
| -C- | |  | |
| 2051 | 3300 μ F 50% 40 V | 4822 124 20798 | |
| 2056 | 3300 μ F 50% 16 V | 4822 124 20781 | |
| 2061,2066 | 220 nF 20% 100 V | 4822 121 40538 | |
| -R- | |  | |
| 3051 | 22E 5% 0.67 W | 4822 111 50352 | |
| 3062 | 33E 5% 0.67 W | 4822 111 50295 | |
| 3072 | 1.8E 5% 0.5 W | 4822 111 30467 | |
| -Miscellaneous- | | | |
| 1050,1051 | 500 mA | 4822 253 30017 | |
| 1052 | 1 A | 4822 253 30021 | |

| TONE CONTROL | | | |
|----------------------------|-----------------|---|--|
| -IC | |  | |
| 6250 | MLM324P | 4822 209 80587 | |
| 6251 | TDA1074 | 4822 209 80592 | |
| 6253,6254 | TA7322P | 4822 209 80648 | |
| -TS- | |  | |
| 6261 | BC558B | 4822 130 44197 | |
| 6263,6270 | BC548 | 4822 130 40938 | |
| 6265÷6268 | BD825 | 4822 130 41746 | |
| 6271 | BC558 | 4822 130 40941 | |
| -D- | |  | |
| 6273 | | | |
| 6275÷6287 | BAW62 | 4822 130 30613 | |
| 6293÷6299 | | | |
| 6274 | BZX75-C2V8 | 4822 130 34048 | |
| 6290 | BZX79-B18 | 4822 130 31024 | |
| -C- | |  | |
| 2295÷2302 | 120 pF 2% 100 V | 4822 122 31348 | |
| 2305,2306 | 18 pF 2% 100 V | 4822 122 31061 | |
| 2321,2322 | 5 nF 50 V | 5322 121 54178 | |
| 2325,2326 | 1.5 nF 1% 160 V | 4822 121 50432 | |
| -R- | |  | |
| 1353 | 22k lin balance | 4822 101 20633 | |
| 3251 | 4.7k lin | 4822 100 10036 | |
| 3307 | 10k lin | 4822 100 10035 | |
| 1355,1356 } 1359,1360 } | 30k lin | 4822 102 30342 | |
| -Miscellaneous- | | | |
| 1250 | Relais | 4822 280 20081 | |

| TONE SWITCH | | | |
|-----------------|----------------|---|--|
| -C- | |  | |
| 2265,2266 | 9.1 nF 1% 63 V | 5322 121 54165 | |
| 2271,2272 | 1 nF 1% 250 V | 4822 121 50566 | |
| -L- | |  | |
| 5251,5252 | 36 mH | 4822 156 20811 | |
| -Miscellaneous- | | | |
| SK-A,C | | 4822 276 30285 | |

| FUNCTION INDICATOR | | | |
|--------------------|-------|---|--|
| -D- | |  | |
| 6550÷6561 | | 5322 130 34959 | |
| 6563÷6566 | BAW62 | 4822 130 30613 | |
| -Miscellaneous- | | | |
| Micro switch | | 4822 271 30259 | |
| Socket LED | | 4822 255 40273 | |