# Bill of Materials for: M.NATS Revision G and H 1176 Printed Circuit Board

## **CAPACITORS**

| Label-Value | Attributes   | Designation   |
|-------------|--|---|
| 220pF       | CERAMIC  | C3,C4   |
| 27pF        | CERAMIC  | C6  |
| 10pF        | CERAMIC  | C12   |
| 33pF        | CERAMIC  | C16 (Legacy Item?) Pin 8 is NC on TL071   |
| 47pF        | CERAMIC  | C29   |
| 220pF       | CERAMIC  | C32   |
| 100pF       | CERAMIC  | C100,C101   |
| 100uF/35V   | ELECTROLYTIC   | C2,C7,C8,C13,C21  |
| 47uF        | ELECTROLYTIC   | C9,C11,C34  |
| 22uF        | ELECTROLYTIC   | C14   |
| 470uF/35V   | ELECTROLYTIC   | C15   |
| 47uF/35V    | ELECTROLYTIC   | C18   |
| 10uF/35V    | ELECTROLYTIC   | C23,C30,C31,C33   |
| 1000uF/35V  | ELECTROLYTIC   | C24,C26   |
| 1000uF/50V  | ELECTROLYTIC   | C25   |
| 1.0uF       | POLY   | C1,C10,C17  |
| .22uF       | POLY   | C5,C27  |
| .022uF      | POLY   | C22   |
| .1uF        | POLY   | C28,C35-(C*4 on some boards)  |
| 6.8uF/35V   | TANTALUM   | C19,C20   |
|             | 220pF 27pF 10pF 33pF 47pF 220pF 100pF 100uF/35V 47uF 22uF 470uF/35V 47uF/35V 10uF/35V 10uF/35V 10uF/35V 10uF/35V 1000uF/35V 1000uF/35V 1000uF/50V 1.0uF .22uF .022uF | 220pF         CERAMIC           27pF         CERAMIC           10pF         CERAMIC           33pF         CERAMIC           47pF         CERAMIC           220pF         CERAMIC           100pF         CERAMIC           100uF/35V         ELECTROLYTIC           47uF         ELECTROLYTIC           22uF         ELECTROLYTIC           47uF/35V         ELECTROLYTIC           47uF/35V         ELECTROLYTIC           10uF/35V         ELECTROLYTIC           10uF/35V         ELECTROLYTIC           1000uF/35V         ELECTROLYTIC           1000uF/50V         ELECTROLYTIC           1.0uF         POLY           .22uF         POLY           .022uF         POLY           .1uF         POLY           6.8uF/35V         TANTALUM |

## SEMICONDUCTORS

| Count | Label-Value    | Attributes  | Designation                 |
|-------|----------------|-------------|-----------------------------|
| 6     | 1N4003         | DIODE       | CR1,CR2,CR7,CR8,CR9,CR10    |
| 2     | FDH333         | DIODE       | CR3,CR4                     |
| 1     | 1N4148         | DIODE       | CR11                        |
| 1     | TL071          | DIP8 IC     | IC1                         |
| 1     | NE5532         | DIP8 IC     | IC2                         |
| 2     | BF245A         | FET         | Q1,Q10                      |
| 8     | BC107          | TRANSISTOR  | Q2,Q3,Q4,Q5,Q12,Q13,Q14,Q15 |
| 2     | BC560          | TRANSISTOR  | Q6,Q7                       |
| 1     | BD135 or BD139 | TRANSISTOR  | Q8                          |
| 1     | BD136 or BD140 | TRANSISTOR  | Q9                          |
| 1     | 1N4740A        | ZENER DIODE | CR6                         |

## RESISTORS

| Count  | Label-Value    | Attributes    | Designation  |
|--------|----------------|---------------|--|
| 1      | 10k LOG        | POTENTIOMETER | R5   |
| 1      | 100k LOG       | POTENTIOMETER | R27  |
| 1      | 25k LOG or LIN | POTENTIOMETER | R77  |
| 1      | 5M LOG or LIN  | POTENTIOMETER | R78  |
| 2      | 150R           | RESISTOR      | R15,R87 (Ratio Board)  |
| 3      | 56k            | RESISTOR      | R2,R24,R26   |
| 3      | 100k           | RESISTOR      | R3,R4,R58  |
| 1      | 27k            | RESISTOR      | R6   |
| 11(13) | 10k            | RESISTOR      | R8,R28,R35,R52,R56,R82,R1A,R1B,R1C,R1D,R1E (R*,R*1 if using Lundahl input transformer - note: Lundahl suggests 12k in this application rather than the 10k suggested in Jakob's version) |

#### **RESISTORS Continued**

| 5         1k         RESISTOR         R10,R37,R84,R85,R86           1         560k         RESISTOR         R11           3         1M         RESISTOR         R12,R29,R60           3         180R         RESISTOR         R13,R14,R73           1         6.8k         RESISTOR         R17           1         22k         RESISTOR         R17           1         22k         RESISTOR         R19           1         1.8k         RESISTOR         R20           1         7.5k         RESISTOR         R21           5         47k         RESISTOR         R21           1         200k         RESISTOR         R30           1         200k         RESISTOR         R30           1         2k         RESISTOR         R32           1         11lk         RESISTOR         R32           2         4.3k         RESISTOR         R34,R49           1         100R         RESISTOR         R36           2         1.2k         RESISTOR         R38,R39           2         470R         RESISTOR         R42,R76           1         1.5k         RESISTOR                       |  |
|--|--|
| 3         1M         RESISTOR         R12,R29,R60           3         180R         RESISTOR         R13,R14,R73           1         6.8k         RESISTOR         R17           1         22k         RESISTOR         R18           1         82R         RESISTOR         R19           1         1.8k         RESISTOR         R20           1         7.5k         RESISTOR         R21           5         47k         RESISTOR         R23,R62,R68,R74,R75           2         68k         RESISTOR         R23,R62,R68,R74,R75           2         68k         RESISTOR         R30           1         200k         RESISTOR         R30           1         2k         RESISTOR         R33           2         4.3k         RESISTOR         R33           2         4.3k         RESISTOR         R34,R49           1         100R         RESISTOR         R36           2         1.2k         RESISTOR         R36           2         1.2k         RESISTOR         R42,R76           1         560R         RESISTOR         R42,R76           1         1.5k         RESIS          |  |
| 3   1M   RESISTOR   R12,R29,R60       3   180R   RESISTOR   R13,R14,R73     1   6.8k   RESISTOR   R17     1   22k   RESISTOR   R18     1   82R   RESISTOR   R19     1   1.8k   RESISTOR   R20     1   7.5k   RESISTOR   R20     2   47k   RESISTOR   R23,R62,R68,R74,R75     2   68k   RESISTOR   R23,R62,R68,R74,R75     3   200k   RESISTOR   R30     3   1   2w   RESISTOR   R30     3   2   4.3k   RESISTOR   R33     3   2   4.3k   RESISTOR   R33     3   2   4.3k   RESISTOR   R34,R49     4   1   100R   RESISTOR   R36     5   2   1.2k   RESISTOR   R36     5   2   1.2k   RESISTOR   R38,R39     5   470R   RESISTOR   R42,R76     5   470R   RESISTOR   R44     5   400R   RESISTOR   R44     5   400R   RESISTOR   R44     5   400R   RESISTOR   R45     5   400R   RESISTOR   R46     5   400R   RESISTOR   R47     5   400R   RESISTOR   R48     5   400R   RESISTOR   R49     5   400R   RESISTOR   R49     6   4   4   4   4   4     7   4   5   4   7   6     7   5   6   6   6   6   6   6     7   6   7   7   7   7   7   7   7   7  |  |
| 1         6.8k         RESISTOR         R17           1         22k         RESISTOR         R18           1         82R         RESISTOR         R19           1         1.8k         RESISTOR         R20           1         7.5k         RESISTOR         R21           5         47k         RESISTOR         R23,R62,R68,R74,R75           2         68k         RESISTOR         R23,R62,R68,R74,R75           2         68k         RESISTOR         R22,R31           1         200k         RESISTOR         R30           1         22k         RESISTOR         R32           1         11k         RESISTOR         R33           2         4.3k         RESISTOR         R34,R49           1         100R         RESISTOR         R36           2         1.2k         RESISTOR         R36           2         4.70R         RESISTOR         R42,R76           1         560R         RESISTOR         R43           1         1.5k         RESISTOR         R44           1         2.2k         RESISTOR         R45           1         10M         RESISTOR                     |  |
| 1         22k         RESISTOR         R19           1         82R         RESISTOR         R19           1         1.8k         RESISTOR         R20           1         7.5k         RESISTOR         R21           5         47k         RESISTOR         R23,R62,R68,R74,R75           2         68k         RESISTOR         R25,R31           1         200k         RESISTOR         R30           1         20k         RESISTOR         R30           1         2k         RESISTOR         R32           1         11k         RESISTOR         R33           2         4.3k         RESISTOR         R33           2         4.3k         RESISTOR         R36           1         100R         RESISTOR         R36           2         1.2k         RESISTOR         R38,R39           2         4.70R         RESISTOR         R43,R39,P39           2         4.70R         RESISTOR         R43           1         1.5k         RESISTOR         R44           1         2.2k         RESISTOR         R45           1         1.0M         RESISTOR         R50,                   |  |
| 1         82R         RESISTOR         R19           1         1.8k         RESISTOR         R20           1         7.5k         RESISTOR         R21           5         47k         RESISTOR         R23,R62,R68,R74,R75           2         68k         RESISTOR         R25,R31           1         200k         RESISTOR         R30           1         2k         RESISTOR         R32           1         11k         RESISTOR         R33           2         4.3k         RESISTOR         R34,R49           1         100R         RESISTOR         R36           2         1.2k         RESISTOR         R36           2         1.2k         RESISTOR         R38,R39           2         470R         RESISTOR         R42,R76           1         560R         RESISTOR         R43           1         1.5k         RESISTOR         R44           1         2.2k         RESISTOR         R45           1         1.0M         RESISTOR         R46           1         8.2k         RESISTOR         R51,R59           1         1.5k         RESISTOR                            |  |
| 1         1.8k         RESISTOR         R21           1         7.5k         RESISTOR         R21           5         47k         RESISTOR         R23,R62,R68,R74,R75           2         68k         RESISTOR         R23,R62,R68,R74,R75           2         68k         RESISTOR         R30           1         200k         RESISTOR         R30           1         2k         RESISTOR         R32           1         11k         RESISTOR         R33           2         4.3k         RESISTOR         R34,R49           1         100R         RESISTOR         R36           2         1.2k         RESISTOR         R36           2         1.2k         RESISTOR         R38,R39           2         470R         RESISTOR         R42,R76           1         1.5k         RESISTOR         R43           1         1.5k         RESISTOR         R44           1         2.2k         RESISTOR         R44           1         2.2k         RESISTOR         R46           1         8.2k         RESISTOR         R51,R59           1         1.5k         RESISTOR                |  |
| 1         7.5k         RESISTOR         R21           5         47k         RESISTOR         R23,R62,R68,R74,R75           2         68k         RESISTOR         R25,R31           1         200k         RESISTOR         R30           1         2k         RESISTOR         R32           1         11k         RESISTOR         R33           2         4.3k         RESISTOR         R34,R49           1         100R         RESISTOR         R34,R49           1         100R         RESISTOR         R34,R49           2         1.2k         RESISTOR         R38,R39           2         1.2k         RESISTOR         R38,R39           2         4.70R         RESISTOR         R42,R76           1         1.560R         RESISTOR         R42,R76           1         1.5k         RESISTOR         R44           1         2.2k         RESISTOR         R45           1         1.0M         RESISTOR         R45           1         1.0M         RESISTOR         R51,R59           1         1.5k         RESISTOR         R51,R59           1         1.5k         RE          |  |
| 5         47k         RESISTOR         R23,R62,R68,R74,R75           2         68k         RESISTOR         R25,R31           1         200k         RESISTOR         R30           1         2k         RESISTOR         R32           1         11k         RESISTOR         R33           2         4.3k         RESISTOR         R34,R49           1         100R         RESISTOR         R36           2         1.2k         RESISTOR         R36           2         1.2k         RESISTOR         R38,R39           2         470R         RESISTOR         R43           1         1.5k         RESISTOR         R43           1         1.5k         RESISTOR         R44           1         2.2k         RESISTOR         R45           1         10M         RESISTOR         R46           1         8.2k         RESISTOR         R50 (not used in Gyraf version)           2         3.6k         RESISTOR         R51,R59           1         1.5k         RESISTOR         R53           2         4.70k         RESISTOR         R63,R70           2         2.4k         <      |  |
| 2         68k         RESISTOR         R25,R31           1         200k         RESISTOR         R30           1         2k         RESISTOR         R32           1         11k         RESISTOR         R33           2         4.3k         RESISTOR         R34,R49           1         100R         RESISTOR         R36           2         1.2k         RESISTOR         R38,R39           2         470R         RESISTOR         R42,R76           1         560R         RESISTOR         R43           1         1.5k         RESISTOR         R44           1         2.2k         RESISTOR         R44           1         2.2k         RESISTOR         R46           1         8.2k         RESISTOR         R46           1         8.2k         RESISTOR         R51,R59           1         1.5k         RESISTOR         R51,R59           1         1.5k         RESISTOR         R53,R61           2         4.7k         RESISTOR         R63,R70           2         2.4k         RESISTOR         R64,R72           1         2.70R         RESISTOR         <               |  |
| 1         200k         RESISTOR         R30           1         2k         RESISTOR         R32           1         11k         RESISTOR         R33           2         4.3k         RESISTOR         R34,R49           1         100R         RESISTOR         R36           2         1.2k         RESISTOR         R38,R39           2         470R         RESISTOR         R42,R76           1         560R         RESISTOR         R43           1         1.5k         RESISTOR         R44           1         2.2k         RESISTOR         R45           1         10M         RESISTOR         R46           1         8.2k         RESISTOR         R46           1         8.2k         RESISTOR         R50 (not used in Gyraf version)           2         3.6k         RESISTOR         R50, (not used in Gyraf version)           2         3.6k         RESISTOR         R53           2         470k         RESISTOR         R53           2         470k         RESISTOR         R63,R70           2         2.4k         RESISTOR         R64,R72           1         270r< |  |
| 1         2k         RESISTOR         R32           1         11k         RESISTOR         R33           2         4.3k         RESISTOR         R34,R49           1         100R         RESISTOR         R36           2         1.2k         RESISTOR         R38,R39           2         470R         RESISTOR         R42,R76           1         560R         RESISTOR         R43           1         1.5k         RESISTOR         R44           1         2.2k         RESISTOR         R45           1         1.0M         RESISTOR         R46           1         8.2k         RESISTOR         R50 (not used in Gyraf version)           2         3.6k         RESISTOR         R50 (not used in Gyraf version)           2         3.6k         RESISTOR         R51,R59           1         1.5k         RESISTOR         R53,R61           2         4.70k         RESISTOR         R53,R61           2         4.7k         RESISTOR         R64,R72           1         2.70R         RESISTOR         R65           1         1.82k         RESISTOR         R66           1    |  |
| 1         11k         RESISTOR         R33           2         4.3k         RESISTOR         R34,R49           1         100R         RESISTOR         R36           2         1.2k         RESISTOR         R38,R39           2         470R         RESISTOR         R42,R76           1         560R         RESISTOR         R43           1         1.5k         RESISTOR         R44           1         2.2k         RESISTOR         R45           1         1.0M         RESISTOR         R46           1         1.0M         RESISTOR         R50 (not used in Gyraf version)           2         3.6k         RESISTOR         R51,R59           1         1.5k         RESISTOR         R51,R59           1         1.5k         RESISTOR         R53           2         4.70k         RESISTOR         R53           2         4.70k         RESISTOR         R63,R70           2         2.4k         RESISTOR         R64,R72           1         2.70R         RESISTOR         R65           1         1.82k         RESISTOR         R66           1         38.3k               |  |
| 2         4.3k         RESISTOR         R36           1         100R         RESISTOR         R36           2         1.2k         RESISTOR         R38,R39           2         470R         RESISTOR         R42,R76           1         560R         RESISTOR         R43           1         1.5k         RESISTOR         R44           1         2.2k         RESISTOR         R45           1         10M         RESISTOR         R46           1         8.2k         RESISTOR         R50 (not used in Gyraf version)           2         3.6k         RESISTOR         R51,R59           1         1.5k         RESISTOR         R53,R759           1         1.5k         RESISTOR         R53           2         4.70k         RESISTOR         R63,R70           2         2.47k         RESISTOR         R63,R70           2         2.4k         RESISTOR         R65           1         1.82k         RESISTOR         R65           1         1.82k         RESISTOR         R66           1         3.8.3k         RESISTOR         R66           1         3.8.4         <      |  |
| 1         100R         RESISTOR         R36           2         1.2k         RESISTOR         R38,R39           2         470R         RESISTOR         R42,R76           1         560R         RESISTOR         R43           1         1.5k         RESISTOR         R44           1         2.2k         RESISTOR         R45           1         10M         RESISTOR         R46           1         8.2k         RESISTOR         R50 (not used in Gyraf version)           2         3.6k         RESISTOR         R51,R59           1         1.5k         RESISTOR         R53,R59           2         4.70k         RESISTOR         R53,R61           2         4.70k         RESISTOR         R63,R70           2         2.4k         RESISTOR         R64,R72           1         2.70R         RESISTOR         R65           1         1.82k         RESISTOR         R66           1         38.3k         RESISTOR         R66           1         38.3k         RESISTOR         R69           1         7.68k         RESISTOR         R79           1         3.9k             |  |
| 2         1.2k         RESISTOR         R38,R39           2         470R         RESISTOR         R42,R76           1         560R         RESISTOR         R43           1         1.5k         RESISTOR         R44           1         2.2k         RESISTOR         R45           1         10M         RESISTOR         R46           1         8.2k         RESISTOR         R50 (not used in Gyraf version)           2         3.6k         RESISTOR         R51,R59           1         15k         RESISTOR         R53           2         470k         RESISTOR         R57,R61           2         4.7k         RESISTOR         R63,R70           2         2.4k         RESISTOR         R64,R72           1         270R         RESISTOR         R65           1         182k         RESISTOR         R66           1         38.3k         RESISTOR         R66           1         38.3k         RESISTOR         R69           1         7.68k         RESISTOR         R71           1         270k         RESISTOR         R79           1         3.9k         RES          |  |
| 2       470R       RESISTOR       R43         1       560R       RESISTOR       R43         1       1.5k       RESISTOR       R44         1       2.2k       RESISTOR       R45         1       10M       RESISTOR       R46         1       8.2k       RESISTOR       R50 (not used in Gyraf version)         2       3.6k       RESISTOR       R51,R59         1       15k       RESISTOR       R53,R59         2       470k       RESISTOR       R57,R61         2       4.7k       RESISTOR       R63,R70         2       2.4k       RESISTOR       R64,R72         1       270R       RESISTOR       R66         1       182k       RESISTOR       R66         1       38.3k       RESISTOR       R66         1       38.3k       RESISTOR       R69         1       7.68k       RESISTOR       R71         1       270k       RESISTOR       R79         1       3.9k       RESISTOR       R83   |  |
| 1         560R         RESISTOR         R44           1         1.5k         RESISTOR         R44           1         2.2k         RESISTOR         R45           1         10M         RESISTOR         R46           1         8.2k         RESISTOR         R50 (not used in Gyraf version)           2         3.6k         RESISTOR         R51,R59           1         15k         RESISTOR         R53           2         470k         RESISTOR         R57,R61           2         4.7k         RESISTOR         R63,R70           2         2.4k         RESISTOR         R64,R72           1         270R         RESISTOR         R65           1         182k         RESISTOR         R66           1         38.3k         RESISTOR         R67           1         44.2k         RESISTOR         R69           1         7.68k         RESISTOR         R71           1         270k         RESISTOR         R79           1         3.9k         RESISTOR         R83   |  |
| 1         1.5k         RESISTOR         R44           1         2.2k         RESISTOR         R45           1         10M         RESISTOR         R46           1         8.2k         RESISTOR         R50 (not used in Gyraf version)           2         3.6k         RESISTOR         R51,R59           1         15k         RESISTOR         R53           2         470k         RESISTOR         R57,R61           2         4.7k         RESISTOR         R63,R70           2         2.4k         RESISTOR         R64,R72           1         270R         RESISTOR         R65           1         182k         RESISTOR         R66           1         38.3k         RESISTOR         R66           1         38.3k         RESISTOR         R69           1         7.68k         RESISTOR         R71           1         270k         RESISTOR         R79           1         3.9k         RESISTOR         R83   |  |
| 1         2.2k         RESISTOR         R45           1         10M         RESISTOR         R46           1         8.2k         RESISTOR         R50 (not used in Gyraf version)           2         3.6k         RESISTOR         R51,R59           1         15k         RESISTOR         R53           2         470k         RESISTOR         R57,R61           2         4.7k         RESISTOR         R63,R70           2         2.4k         RESISTOR         R64,R72           1         270R         RESISTOR         R65           1         182k         RESISTOR         R66           1         38.3k         RESISTOR         R67           1         44.2k         RESISTOR         R69           1         7.68k         RESISTOR         R71           1         270k         RESISTOR         R79           1         3.9k         RESISTOR         R83   |  |
| 1         10M         RESISTOR         R46           1         8.2k         RESISTOR         R50 (not used in Gyraf version)           2         3.6k         RESISTOR         R51,R59           1         15k         RESISTOR         R53           2         470k         RESISTOR         R57,R61           2         4.7k         RESISTOR         R63,R70           2         2.4k         RESISTOR         R64,R72           1         270R         RESISTOR         R65           1         182k         RESISTOR         R66           1         38.3k         RESISTOR         R67           1         44.2k         RESISTOR         R69           1         7.68k         RESISTOR         R71           1         270k         RESISTOR         R79           1         3.9k         RESISTOR         R83   |  |
| 1         8.2k         RESISTOR         R50 (not used in Gyraf version)           2         3.6k         RESISTOR         R51,R59           1         15k         RESISTOR         R53           2         470k         RESISTOR         R57,R61           2         4.7k         RESISTOR         R63,R70           2         2.4k         RESISTOR         R64,R72           1         270R         RESISTOR         R65           1         182k         RESISTOR         R66           1         38.3k         RESISTOR         R67           1         44.2k         RESISTOR         R69           1         7.68k         RESISTOR         R71           1         270k         RESISTOR         R79           1         3.9k         RESISTOR         R83  |  |
| 2       3.6k       RESISTOR       R51,R59         1       15k       RESISTOR       R53         2       470k       RESISTOR       R57,R61         2       4.7k       RESISTOR       R63,R70         2       2.4k       RESISTOR       R64,R72         1       270R       RESISTOR       R65         1       182k       RESISTOR       R66         1       38.3k       RESISTOR       R67         1       44.2k       RESISTOR       R69         1       7.68k       RESISTOR       R71         1       270k       RESISTOR       R79         1       3.9k       RESISTOR       R83  |  |
| 1         15k         RESISTOR         R53           2         470k         RESISTOR         R57,R61           2         4.7k         RESISTOR         R63,R70           2         2.4k         RESISTOR         R64,R72           1         270R         RESISTOR         R65           1         182k         RESISTOR         R66           1         38.3k         RESISTOR         R67           1         44.2k         RESISTOR         R69           1         7.68k         RESISTOR         R71           1         270k         RESISTOR         R79           1         3.9k         RESISTOR         R83  |  |
| 2       470k       RESISTOR       R57,R61         2       4.7k       RESISTOR       R63,R70         2       2.4k       RESISTOR       R64,R72         1       270R       RESISTOR       R65         1       182k       RESISTOR       R66         1       38.3k       RESISTOR       R67         1       44.2k       RESISTOR       R69         1       7.68k       RESISTOR       R71         1       270k       RESISTOR       R79         1       3.9k       RESISTOR       R83   |  |
| 2       4.7k       RESISTOR       R63,R70         2       2.4k       RESISTOR       R64,R72         1       270R       RESISTOR       R65         1       182k       RESISTOR       R66         1       38.3k       RESISTOR       R67         1       44.2k       RESISTOR       R69         1       7.68k       RESISTOR       R71         1       270k       RESISTOR       R79         1       3.9k       RESISTOR       R83   |  |
| 2       2.4k       RESISTOR       R64,R72         1       270R       RESISTOR       R65         1       182k       RESISTOR       R66         1       38.3k       RESISTOR       R67         1       44.2k       RESISTOR       R69         1       7.68k       RESISTOR       R71         1       270k       RESISTOR       R79         1       3.9k       RESISTOR       R83   |  |
| 1       270R       RESISTOR       R65         1       182k       RESISTOR       R66         1       38.3k       RESISTOR       R67         1       44.2k       RESISTOR       R69         1       7.68k       RESISTOR       R71         1       270k       RESISTOR       R79         1       3.9k       RESISTOR       R83   |  |
| 1       182k       RESISTOR       R66         1       38.3k       RESISTOR       R67         1       44.2k       RESISTOR       R69         1       7.68k       RESISTOR       R71         1       270k       RESISTOR       R79         1       3.9k       RESISTOR       R83   |  |
| 1       38.3k       RESISTOR       R67         1       44.2k       RESISTOR       R69         1       7.68k       RESISTOR       R71         1       270k       RESISTOR       R79         1       3.9k       RESISTOR       R83   |  |
| 1       44.2k       RESISTOR       R69         1       7.68k       RESISTOR       R71         1       270k       RESISTOR       R79         1       3.9k       RESISTOR       R83  |  |
| 1         7.68k         RESISTOR         R71           1         270k         RESISTOR         R79           1         3.9k         RESISTOR         R83   |  |
| 1         270k         RESISTOR         R79           1         3.9k         RESISTOR         R83  |  |
| 1 3.9k RESISTOR R83  |  |
|  |  |
| 1 220D DEGLOTOD DOG  |  |
| 1 220R RESISTOR R89  |  |
| 2 4.3R RESISTOR 5% CARBON R40,R41  |  |
| 1 3.9M RESISTOR 5% CARBON R48  |  |
| 2 2.2M RESISTOR CARBON R7,R9   |  |
| 1 1.1k RESISTOR CARBON 1W R87 (Main PCB)   |  |
| 1 100R TRIM POT R16  |  |
| 1 100k TRIM POT R54  |  |
| 1 2k TRIM POT R55  |  |
| 1 2k TRIM POT R81  |  |

#### **MISCELLANEOUS**

| Count | Label-Value                   | Attributes               | Designation |
|-------|-------------------------------|--------------------------|-------------|
| 1     | 7824                          | VOLTAGE REGULATOR        | VR1         |
| 1     | LUNDAHL LL1540 or OEP A262A2E | TRANSFORMER              | T1          |
| 1     | LUNDAHL LL5402 or OEP A262A2E | TRANSFORMER              | T2          |
| 1     | LORLIN OR ALPHA               | 2 POLE 6 POSITION SWITCH | S1          |
| 1     | LORLIN OR ALPHA               | 4 POLE 3 POSITION SWITCH | S2          |

Resistors 0.25 to 0.6W Metal or Carbon Film 1% unless otherwise indicated. Most common 1% metal film resistors sold nowadays are 0.5 or 0.6 Watt but are the size of what most 1/4 Watt resistors were in the "old days". The body length should be approximately 1/4" or 6.5mm and should fit in a resistor PCB footprint with .4" pad centres. The components listed here are primarily parts that go onto the boards and should not be construed as a complete list of parts to build a finished 1176 clone. You will need to supply an appropriate AC power transformer, a VU meter and case, knobs etc to finish your clone.