M. Seiler and
R. Kisse

Many readers have asked in their letters how the main board of the Junior Computer can be used without an interface to program EPROMs, or how the JC can be used as a simple independent EPROMmer. Two readers, in particular, sent in a proposal about how this could be done, and, with their contributions, we reveal yet another facet of the 'Junior' Computer.

EPROMmer using the Junior Computer

programming 2716 EPROMs with the Junior Computer

It is now becoming very commonplace to see EPROMs being used for more and more different applications. In the most common current format (2716 = 2 k bytes), these components are used to store not only programs but also look-up tables resulting from code conversions or other forms of character generation; this was seen, for example, in some more recent articles on ator with lower case letters), or the new ASCII keyboard (code version), and, of course, there are many more examples. For really convenient use it is indispensable to have a programmer which makes it easy to transfer data stored in RAM into the EPROM.

A compromise

Combining the main board of the Junior Computer with the programmer published in January 1982, page 1-26, appears to offer an interesting compromise needing only slight changes to the address decoding. Apart from two extra resistors, there are no new components needed. Quite the opposite, in fact, some of the components on the original EPROM programmer have to be removed! Those in question are R1 ... R4, S3 ... S6 and IC5. If you are reluctant to remove this IC (74LS85), the same effect can be achieved by breaking the connections between its pin 6 and pin 5 of IC10 (N7) and also pins 2 and 12 of IC8 (FF1/FF2).

The original address decoding circuitry is disabled completely and replaced by the circuit at the top of figure 1. This combination of two logic gates supplies a single Chip Select signal (active with a high logic level) from the two input signals (K) produced by IC6 on the main board of the Junior Computer.

The inputs to the EXOR gate are pins 4 and 5 of IC12 and pin 6 is the output. Both inputs of the AND gate, pins 1 and 2 of IC9, have to be fitted with polarizing resistors connected to the positive supply. Then two of the eight possible connections from table 1 must be made; the actual ones to be used depend on the address decoding desired. This EPROMmer can only be used for 2716 EPROMs as programming 2732s is something quite different.

Figure 2 suggests how the two cards could be connected using two 64-pin female connectors. As this sketch indicates, it is strongly recommended that the connecting wires be insulated.

Any further information required in connection with this project can be found in the article mentioned before or in the Junior Computer books. ◄

Table 1

Address	Decoding	
0800 – 0FFF	K2-28c	K3-18c
0C00 – 13FF	K3-18c	K4-17a
1000 – 17FF	K4-17a	K5-15a
1400 – 1BFF	K5-15a	K6-15c

Table 1. Two K signals are needed to address a 2 k EPROM. The links used will depend on each individual user's requirements.

Figure 1. It is very easy to program 2716s using the EPROM programmer and the main board of the Junior Computer. No extra interface is needed as the address decoding is carried out on the main board of the JC. Two logic gates, already on the EPROM programmer, combine the decoding signals appearing at the 64-pin connector, which has the appropriate links as given in table 1.
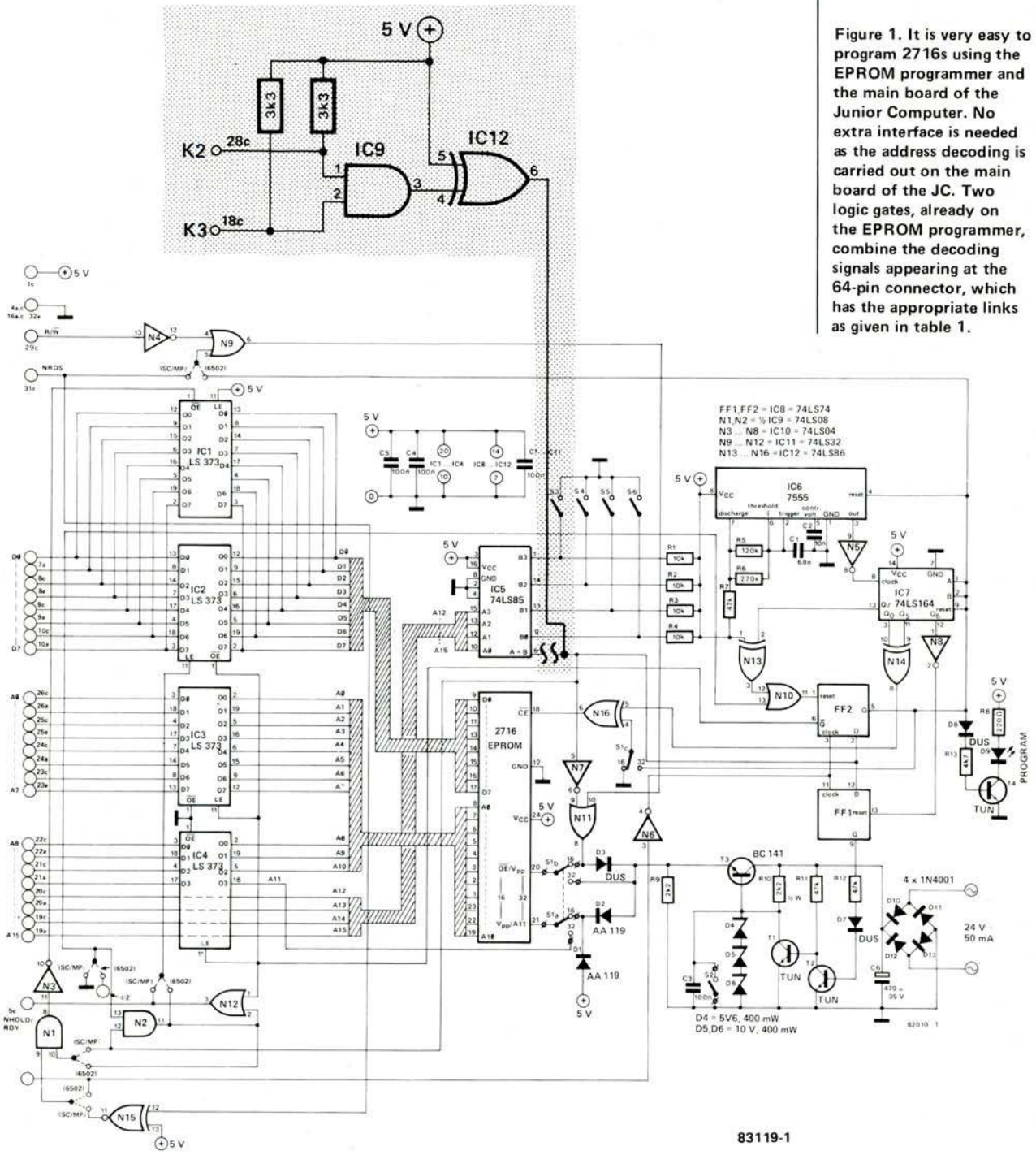
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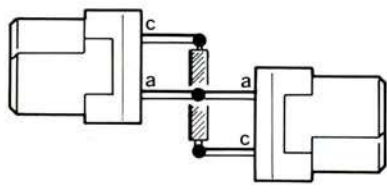
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Figure 2. This is a suggestion of how the two cards could be connected with 64-pin connectors. Make a 'dry run' before soldering anything and be sure that the connectors are turned the right way.