# H8-17

The H8-17 is a copy of the original WH8-17 Controller card by Heath Company. The IC identifiers and circuit board traces are pin compatible with the original card and debugging can be performed using the original Heathkit WH8-17 schematic.

**NEW FEATURES**

This card includes the ability to clock it from an onboard 2.048mhz oscillator or from the H8 bus (pin 22 - as the original card did). This feature can be toggled using the jumper on the card above the oscillator.

Another feature on this card is a jumper to enable/disable the ORG0 compatibility mode and a jumper to select which H8 bus pin (18 or 24) to use for side select if a H8-8-8 or HA8-8 Extended Configuration card is used. These two jumpers are located on the upper right portion of the card. When the card is configured for ORG0 support the onboard ROM and RAM are not needed and can be removed from the card. Be sure to use the XCON-8 front panel ROM (part #444-70) which is included with the H8-8-8 or HA8-8 Extended Configuration card. This ROM should be installed on the CPU board – see the instructions for the Extended Configuration card for details.

There are diagnostic LEDs on the left side of the card. These LEDs are completely optional and not required for the card to operate. The LEDs are labeled as follows:

- PWR - Shows that card is getting +5V.
- DS0 - Device 0 is being selected
- DS1 - Device 1 is being selected
- DS2 - Device 2 is being selected (not supported with the H17 but added here for testing purposes).
- MON - "Motor On" signal to the drives
- TR0 - Selected drive is at track 0
- WRG - Write Gate enable (writing is enabled for the selected drive)

NOTE: You might want to install the two regulators on the aluminum heat sink support and run wires to the PCB like with the original Heathkit cards. I've noticed that they get really hot after continued use.

# HARD TO FIND PARTS

The S2350P can be ordered new by going to the following website and doing a search for the part number:

http://www.electronicsurplus.com/commerce/index.jsp?czuid=1248811538951

Connectors can be found in a couple places depending on which type your prefer to use. The original Molex 25 pin connectors can be ordered from Heiland electronics at the following link. Search for part #22-16-2251.

http://www.heilind.com/

The H8-17 card also accepts the SAMTEC connector (BCS-126-L-S-HE) which can be ordered from Newark electronics, part #11P3345. This is for a 26 pin connector but the last pin can be clipped off if desired.

http://www.newark.com/

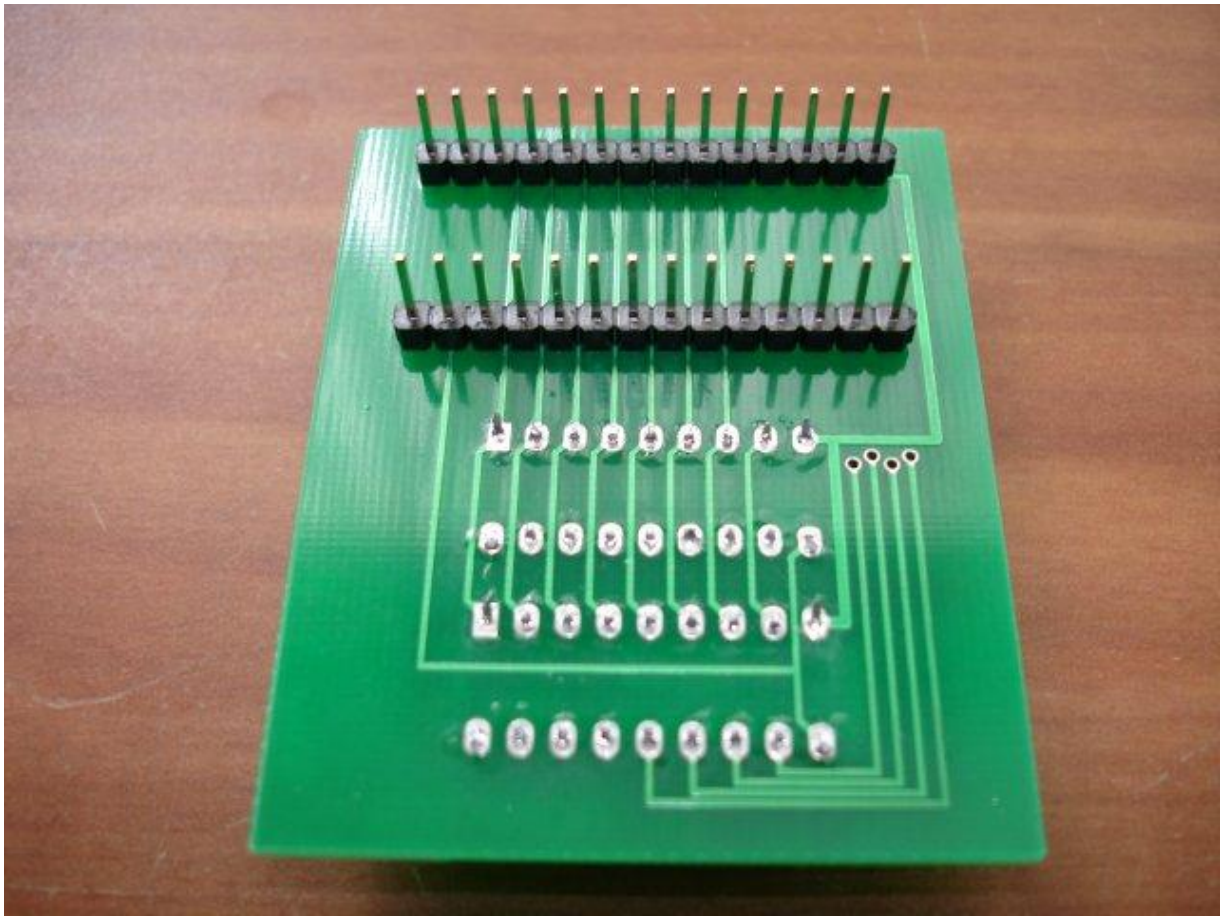
# THE 1K ADAPTER

If you are installing the H8-17 in an H8 without the extended configuration card you'll need to use the 1K Adapter. This adapter has room for a couple 2114 static RAM chips. The adapter will convert the RAM signals from the AS6C6264 I/O address to those needed for the 2114s.


Top photo of the assembled 1K Adapter

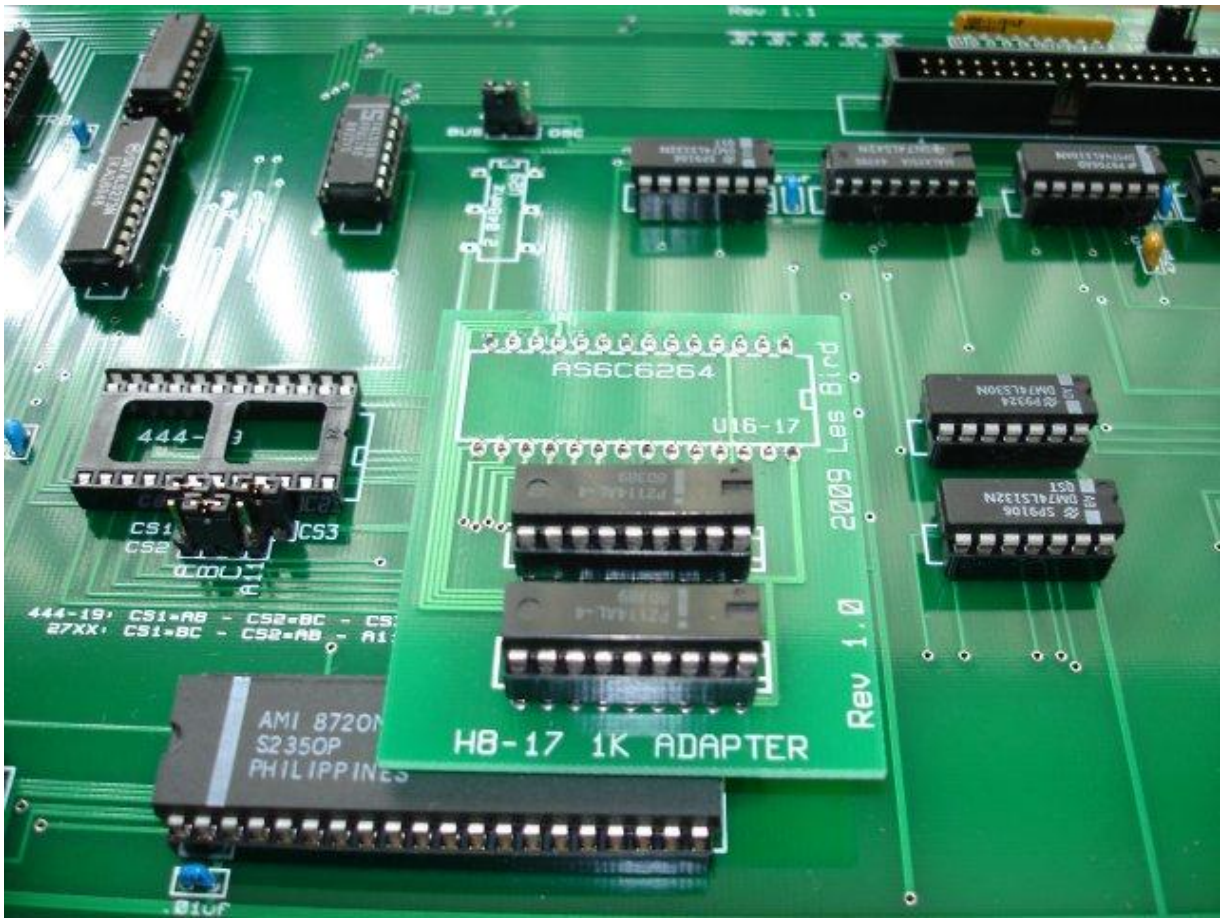
# THE 1K ADAPTER (cont'd)

Why a 1K Adapter? When I designed the H8-17 I tried to modernize a few of the hard to find components. My design used a readily available 8K chip with the appropriate address lines grounded so that only 1K is used. On paper it seemed like it would work but in real life it didn't. I could not get the controller memory test to pass when using the 8K chip. To fix it I designed this 1K adapter that routes the address lines to a pair of 2114s which is exactly how the original H17 controller worked.



Bottom photo of the assembled 1K Adapter

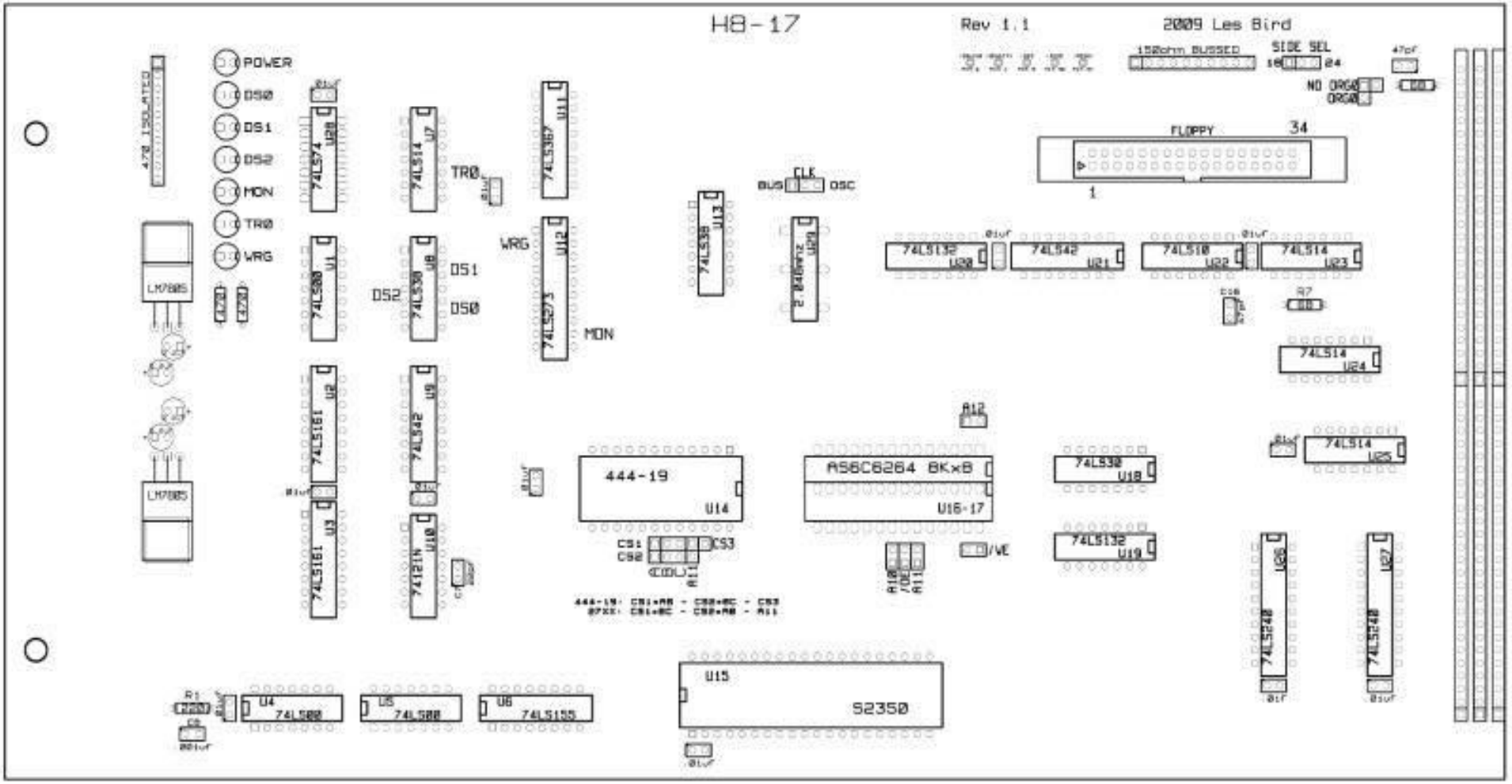
# THE 1K ADAPTER (cont'd)




The 1K Adapter plugs into the socket for the onboard RAM.

If you have any questions please contact me at the following e-mail address.

Les Bird (lesbird@bellsouth.net)


H8-17
Rev 1.1
2009 Les Bird
150ohm BUSSED
SIDE SEL
NO ORG0
ORG0
FLOPPY
34
1
POWER
DS0
DS1
DS2
MON
TR0
WRG
4/8 ISOLATED
LM7805
LM7805
74LS74 U20
74LS14 U7
74LS367 U11
74LS38 U13
74LS00 U1
74LS30 U8
74LS273 U12
74LS161 U2
74LS42 U9
74LS161 U3
74121N U10
TR0
DS1
DS0
MON
DS2
WRG
BUS
CLK
OSC
74LS132 U20
74LS42 U21
74LS10 U22
74LS14 U23
74LS14 U24
74LS14 U25
74LS30 U18
74LS132 U19
74LS245 U26
74LS245 U27
444-19
U14
AS6C6264 8KxB
U16-17
/WE
CS1
CS2
CS3
A11
A12
A10
/OE
444-19: CS1=MB - CS2=MC - CS3
8PXX: CS1=MC - CS2=MB - A11
U15
S2350
74LS00 U4
74LS00 U5
74LS155 U6

This photo shows the fully assembled H8-17 controller card. Since this card is being installed in a system with the Extended Configuration card the onboard ROM and RAM chips are not required.