

Phantom installation manual

I'm not responsible for any damages or injuries caused by this hardware or wrong installation procedure.

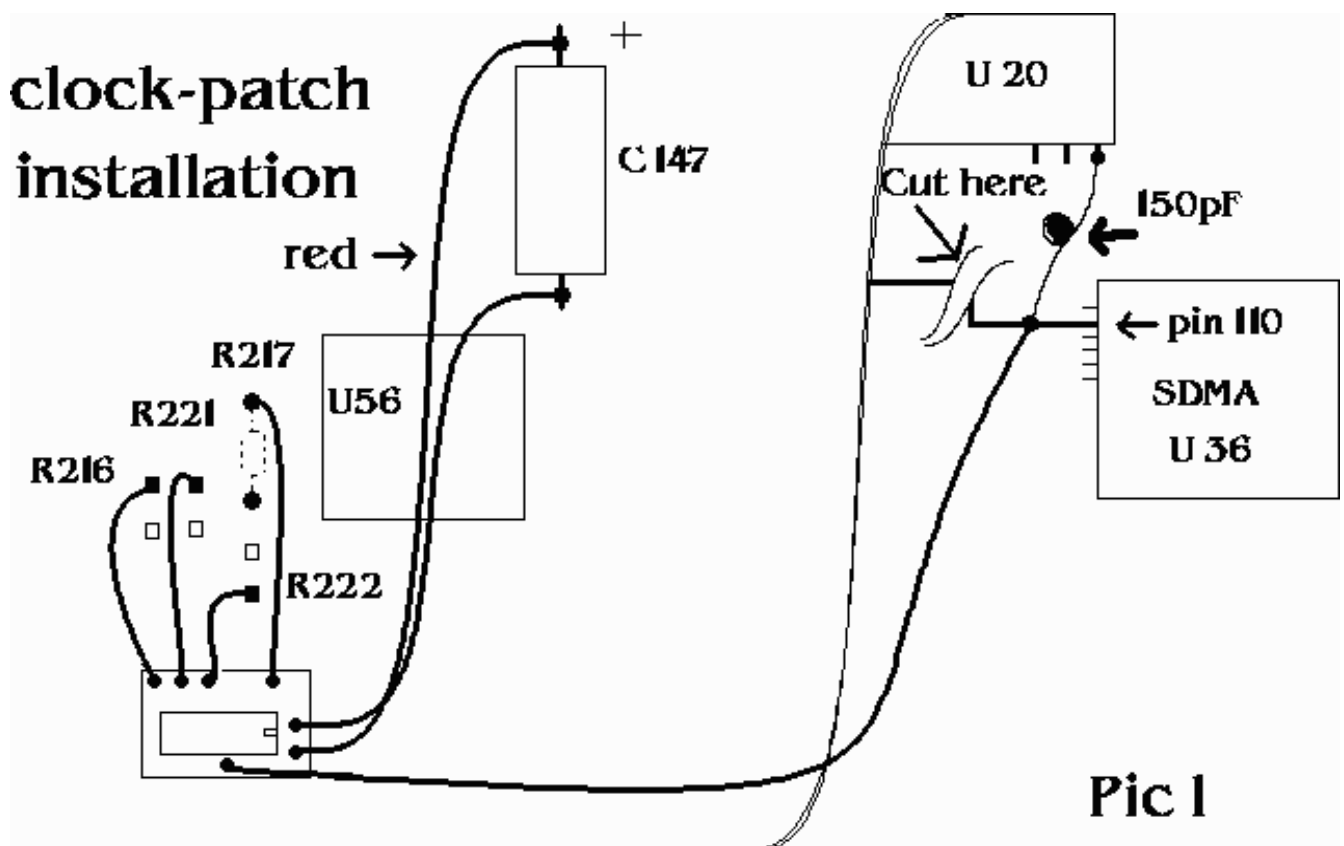
I. Preparation

Disconnect all external peripherals and power cable from the computer. Unscrew all screws on the bottom side of the computer and remove top plastic cover. Unplug keyboard cable on the right side and remove keyboard. Unscrew and remove upper part of top metal shielding (when still mounted). Then unscrew and remove power supply, floppy drive and internal harddisk and its holder (if present). Now unscrew and remove second part of top metal shielding.

It is not necessary to install back the shielding after Phantom installation.

Note: DO NOT TOUCH the components on the power supply (even if the computer is turned off), the large capacitor can hold the charge of 350V for a hours or even a days!

II. Clock-patch installation (picture 1)



Note: If there is an old clock-patch device already installed in your computer (usually placed on tto of the U63 GAL chip), then it has to be removed first.

- locate and carefully unsolder three SMD resistors R216, R221, R222
- you may remove R217 as well, but it's not necessary

- solder wires to the pads as you can see on the pic 1
- solder power wires to C147

Now, make sure that the end of the remaining (long) wire is insulated from the Falcon, place the power supply back, connect the monitor and then turn ON your computer.

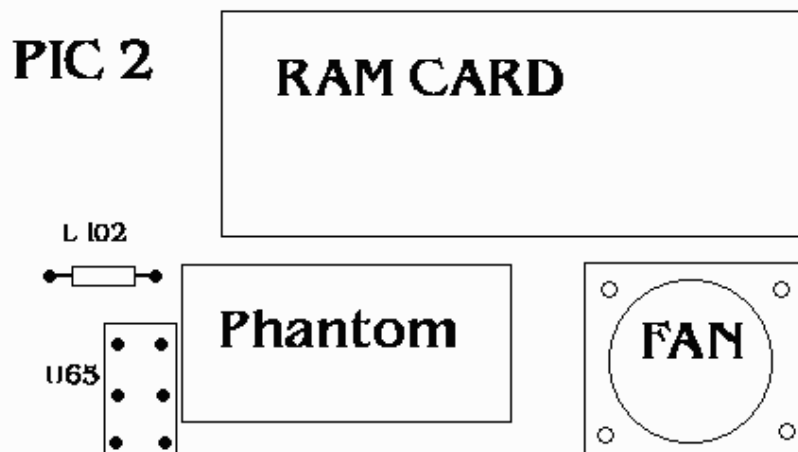
If everything works OK, disconnect the PSU again and continue with the installation. In the case of problem, double check all wires and solder points in order to make sure that your installation was made correctly.

SDMA clock feed

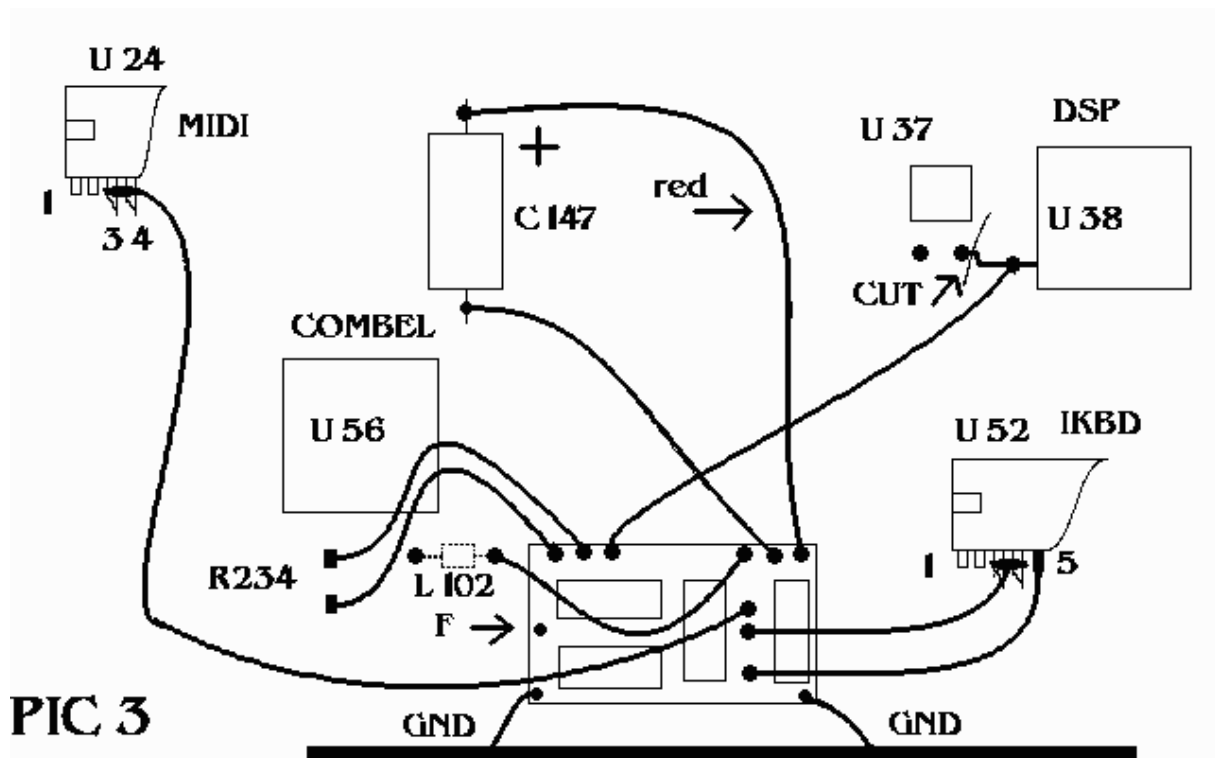
- find device U36 (under floppy drive) and locate pin 110 (second from top on the left side)
- there are track leaving pin 110 (pic 1). Cut it carefully with a sharp knife or scalpel.
- solder the last wire to this track
- solder 150pF capacitor between pin 14 of U20 (GND) and track from pin 110 (pic 1)

Turn on your computer and test it.

III. Main unit installation (picture 2 and 3)



Look at the picture 2, and place the Phantom card to the place shown on the pic 2 above. The supplied presoldered wires were trimmed to the correct length.



- find the L102 device and remove it completely (unsolder or cut both legs).
- solder the wire to the right pad of L102
- remove SMD resistor R234 and solder wires from Phantom card (see pic 3) to pads of R234.
- solder the two GND wires to the ground rail
- solder the wire to the pin 5 of U52.
- solder both wires to the C147

Insulate remaining wires and switch ON computer.

If computer boots normally, continue with installation. If it doesn't, check the installation again.

- find chip U24 (MIDI)
- the pins 3 and 4 must be insulated from Falcon MB. The best way to make this without cutting is to lift carefully its pins with hot tip of solder iron. During this operation the lifted pin must be hot enough to unsolder itself from Falcon motherboard.
- solder wire (pic 3) to both lifted pins 3 and 4 (connect both pins together)
- find chip U52 (IKBD) and make the same operation as before with pins 3 and 4.

Now you may test your computer.

- find the DSP (U38, under floppy drive) and cut the track connecting pin 74 of DSP with the solder pad of U37 (pic 3).
- solder the last wire here.

Now turn on the computer and all should work OK.

If everything works OK, run the P_TURBO.PRГ from included disk.

The computer now runs in TURBO mode. Congratulations, you have finished the installation.

Optional FPU doubleclocking

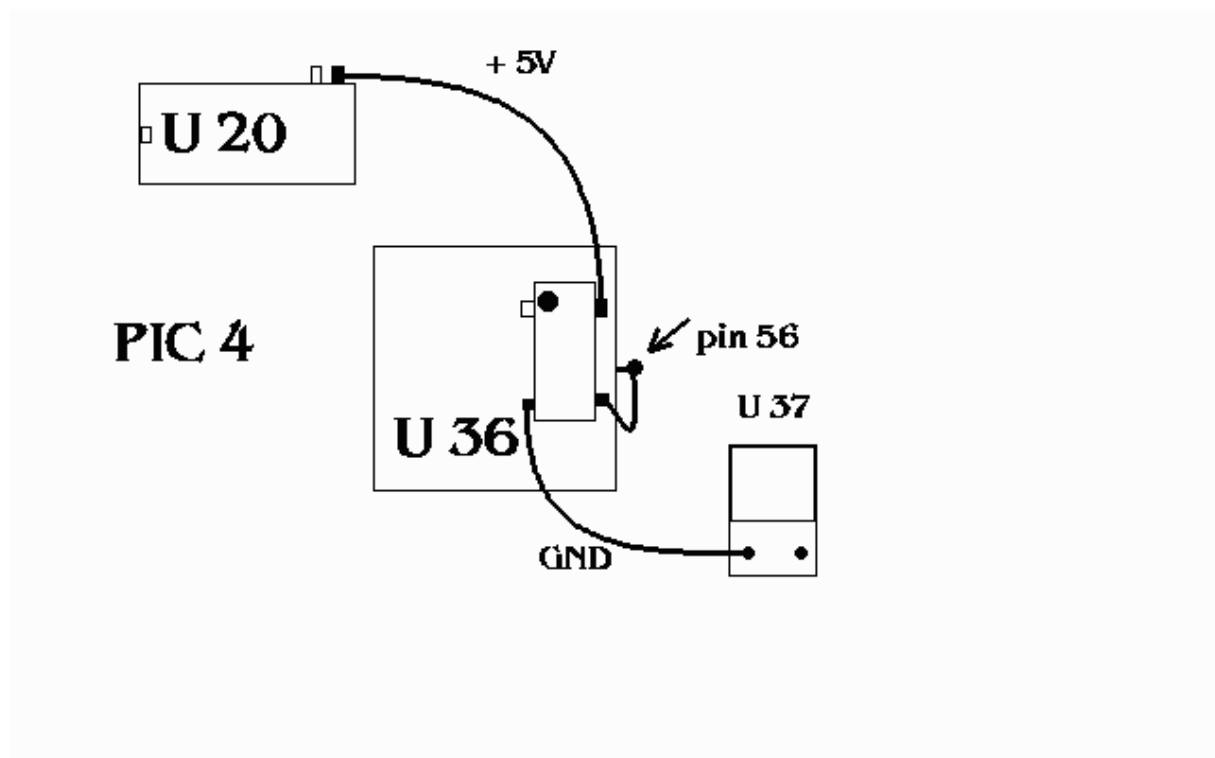
Falcon 030 can be optionally equipped with the FPU coprocessor. It is normally clocked at the same frequency as the CPU, thus 16MHz in stock F030 or Phantom disabled or 25MHz when Phantom turbo mode is enabled. The higher clock is absolutely not a problem for any 68882 FPU device, event those rated for 16MHz clock.

However, if your FPU is rated to at least 25Mhz or more (68882 FPU's were made for 16,20,25,33,40 and 50MHz), then with Phantom card installed you can easily run it at double frequency. The modification is easy:

- unsolder wire both from top pad of R221 and from the clock-patch
- solder additional wire to „F“ point of Phantom card (pic 3)
- solder second end of this wire to top of R221

Now, the FPU will run at 32/50Mhz (NORMAL/TURBO) instead of the former 16/25 MHz.

IV. 44100kHz CD clock installation. (ONLY PHANTOM SE, pic 4)



- take the oscillator device and fix it on the U36 chip with sticky tape
- solder +5V and GND wires (see pic 4) to U20 and U37
- find pin 56 of U 36 (little circular pad here)

- solder third wire to this pad

Note: This device is 100% compatible with external DSP clock devices like CAC and others and allows 44100kHz playback and recording without resampling.

Important: If you would like to connect any hardware like S/PDIF or FDI (or other hardware with 44.1 or 48kHz onboard clock generator installed) to the DSP port, you must remove the wire from pin 56 of SDMA!