



# Unofficial How-To Guide

April 2023

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# 1 Freeing a stuck fan



In many ‘New Old Stock’ (NOS) NABU Personal Computers the fan either doesn’t spin freely or is completely stuck. Several fixes have been suggested, including bending fan blades or filing down the fan tips. Following is a simpler and less destructive solution.

## 1.1 Removing the fan

1. Remove the outer computer cover by undoing the screws on either side of your NABU system. This will expose the main system board (right) and power supply bay (left).
2. Remove the cover over the power supply by undoing the two screws on the right-hand side and lifting the cover upwards.
3. Undo the 4 bolts that hold the fan assembly in place and free the fan such that the 3 adjustment screws are accessible (see Figure 1.1).

## 1.2 Adjusting the fan assembly

1. Loosen the screws and gently adjust the blade assembly until the fan blades spin freely, then re-tighten the screws. Repeat as necessary.

## 1.3 Re-installing the fan

1. Place the fan back into the system such that the adjustment screws are facing outwards. Then fix in place using the 4 nuts and bolts from step 1.1.3.
2. Check that there are no loose parts, then replace the NABU PSU cover and fix in place with its 2 screws.
3. Replace the NABU system cover, securing it with 4 screws.



Figure 1.1: Adjust the blade assembly screws.

## 2 Replacing the NABU Power Supply

The NABU Personal Computer was developed for the North-American market, and as such, was fitted with a 110-120V power supply unit (PSU). The following section explains how to replace the NABU power supply with a modern, universal power supply. Note that the replacement PSU referred to in this guide is the Mean Well RT-65B. Refer to the relevant manufacturer's documentation for connection details when using other makes or models.

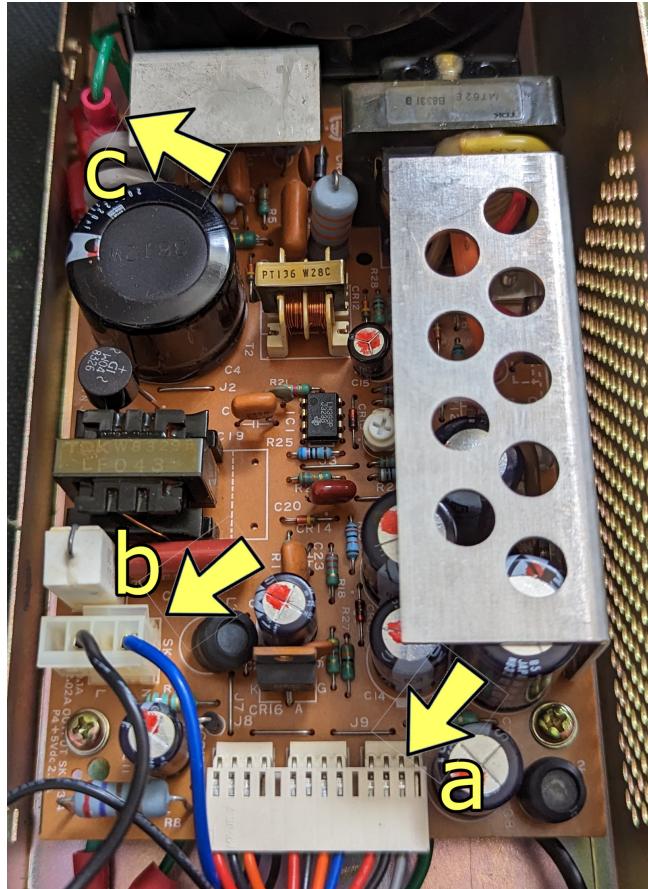


Figure 2.1: PSU connector positions.

### 2.1 Removing the NABU PSU



To prevent electric shock, you **must** disconnect your NABU Personal Computer from mains power before removing the system cover!

1. Remove the outer computer cover by undoing the screws on either side of your NABU system. This will expose the main system board (right) and power supply bay (left).
2. Remove the cover over the power supply by undoing the two screws on the right-hand side and lifting the cover upwards.
3. Disconnect the motherboard (a), mains (b), and ground (c) connectors, as shown in Figure 2.1 below.
4. Undo the 4 screws holding the PSU in place, and remove the PSU.
5. Cut off both the motherboard (a) and mains (b) connectors as close as possible to each connector and strip a

$\frac{1}{4}$ inch of insulation of the ends of all wires. Cut off the spade connector (c) and halve the length of the ground wire.

### 2.2 Removing the NABU fan assembly

As the fan fitted in the NABU power supply bay runs off 110-120V, it is no longer useful and should be removed. A suitable 80x80mm 12V or 5V fan may be fitted in its place.

1. To remove the fan, prise apart the crimp connector and cut the other lead near power button.
2. Undo the 4 bolts which hold the assembly in place and remove the fan.
3. Remove the remaining part of the fan power lead attached to the power button by gently removing the old heat shrink tubing and cutting the lead as close as possible to the terminal (see Figure 2.2a). Then re-cover the terminal and remaining lead with a suitable length of new heat shrink tubing (as shown in Figure 2.2b).
4. Install the replacement fan using the bolts removed in the previous step, ensuring it is oriented such that air is sucked out of the NABU system. Guide the new fan leads towards the front of the system.

### 2.3 Replacing the mains cable

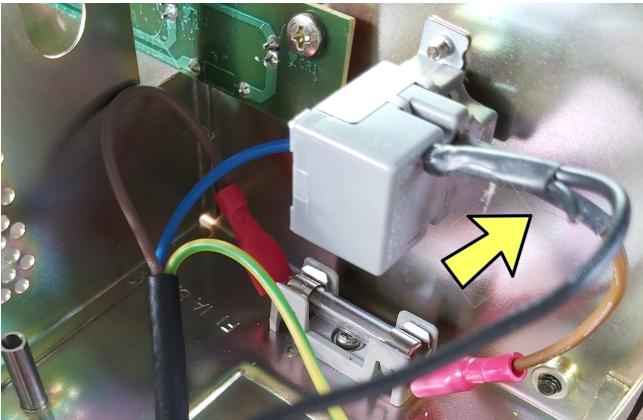
The mains cable fitted to the NABU may be left in place and the Canada/US power plug replaced with a 3-pin domestic plug as appropriate. If the NABU cable is left in place, make note of the following colours and wire your domestic plug as shown in Table 1.

NABU lead	Function
Green	Earth
White	Neutral
Black	Live

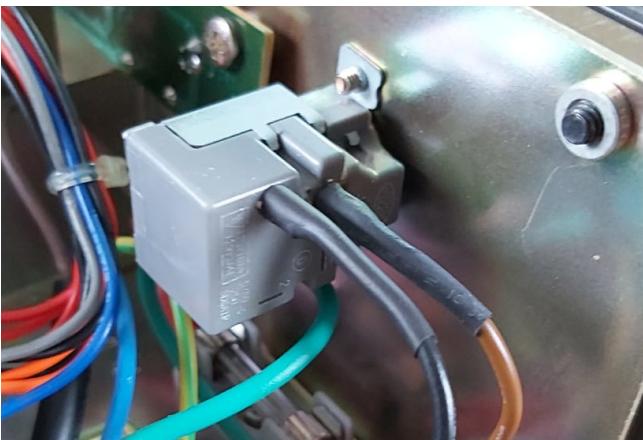
Table 1. NABU mains lead details.

Alternatively, the NABU mains cable can be replaced as following:

1. Cut the NABU mains lead on the **inside** of the NABU system as close as possible to the strain relief bush grommet. Then pull the lead from the outside to free it from the grommet — this may require some force and wriggling.
2. Pass the new cable through the hole in the back of the case and secure it in place with the strain relief grommet recovered from the previous step. Allow enough length for the wires to comfortably reach the front of the NABU.



(a) Remove the remaining length of the fan power lead.



(b) Cover the power terminal with new heat shrink tubing.

Figure 2.2: Removing fan power lead.

3. Use a crimp tool to attach a ring connector to the Ground lead (green). Then attach a female spade connector to the Live lead (brown). Ensure that each connectors is securely attached to its lead to prevent poor contact.
  
4. Firmly push the spade connector onto the fuse holder terminal. Loop the ring connector over the vertical ‘ground’ post and secure it in place with a nut (as shown in Figure 2.3). Note that the fuse itself does *not* need to be replaced.

## 2.4 Installing the Mean Well PSU

The NABU requires multiple voltage levels, as detailed in the following table. The first two columns show the Mean Well RT-65B PSU terminals and their corresponding levels. The remaining columns show the colour and number of NABU wires that must be connected to each terminal. For example, both the single grey wire and two orange wires need to be connected to the terminal labelled **[+V2]** on the PSU.

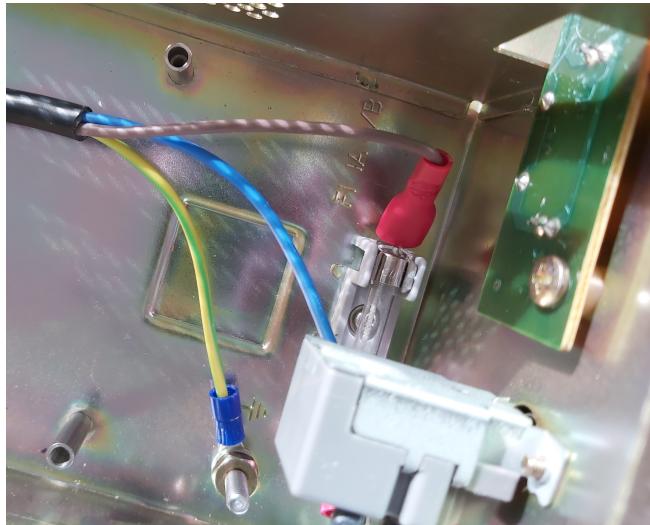


Figure 2.3: Connect the Ground (green) and Live (brown) wires.

RT-65B	Level	Colour	Wires
V3	-12V	Blue	1
+V2	+12V	Grey	1
		Orange	2
COM	Ground	Black	3
+5V	+5V	Red	3

Table 2. Motherboard wiring details.

To install the replacement PSU:

1. If the mains cable was replaced, reattach the short ground lead (green) to the ground post and fix it in place with a nut.
2. Place the Mean Well PSU such that the mounting hole near the **[+5V Adj]** trimmer on the PSU is lined up with the front right-hand post in the NABU bay and fix it in place with a screw. Note that the other posts do not line up with the remaining PSU mounting holes, meaning the PSU is kept in place with only a single screw.
3. Attach the mains wires as shown. Be careful not to mix up the mains wires with the wires connected to the NABU motherboard.

RT-65B	Level	Colour
L	Live	Black
N	Neutral	Blue
$\frac{1}{\infty}$	Ground	Green

Table 3. Mains wiring details.

4. Connect the wires leading from the NABU motherboard, as shown in Table 2 (above) and Figure 2.4.
5. Connect the new fan leads to the PSU **[COM]** and either **[+5V]** or **[+V2]** terminals as appropriate.
6. Check there are no loose parts or unconnected wires — any wires that remain unconnected **and are no longer required** must be trimmed and made safe, e.g.



Figure 2.4: Connect all wires to the relevant PSU terminals.

by covering them with electrical insulation tape or heat shrink tubing. Once you are satisfied that all wires are correctly and securely connected, replace the NABU PSU cover and fix in place with its 2 screws.

7. Replace the NABU system cover, securing it with 4 screws.