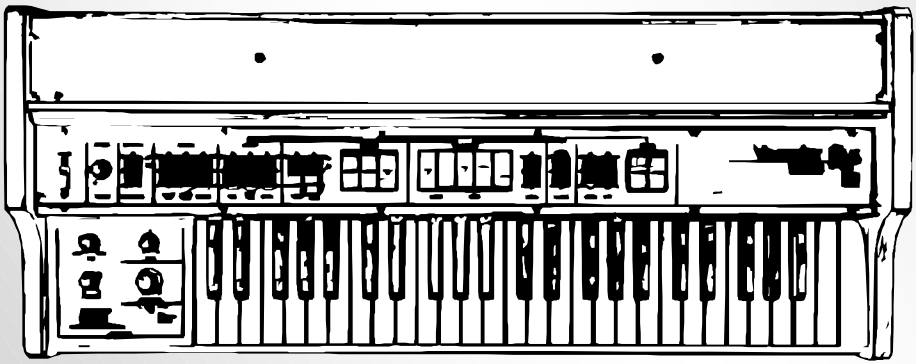
VP330-KBD

MIDI Interface for Roland VP-330

Model 8-440
ver. 1.0



INSTALLATION MANUAL

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This manual in PDF form is available on supplemental CD-ROM or on manufacturer's web-pages.

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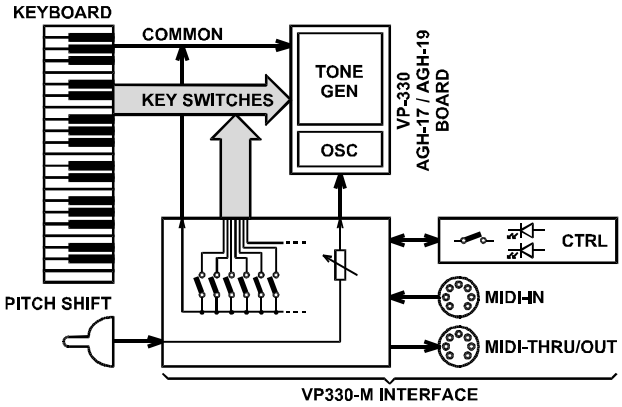
1. GENERAL INFORMATION

VP330-KBD MIDI interface allows full integration of Roland VP-330 instrument to MIDI system. Interface affects instrument's keyboard and pitch shift function. All original features of VP-330 instrument remain unchanged after the interface installation and the instrument can be used the same way as without interface installed. Simplified block functional schematic of the instrument after the interface installation is shown on pic. 1.

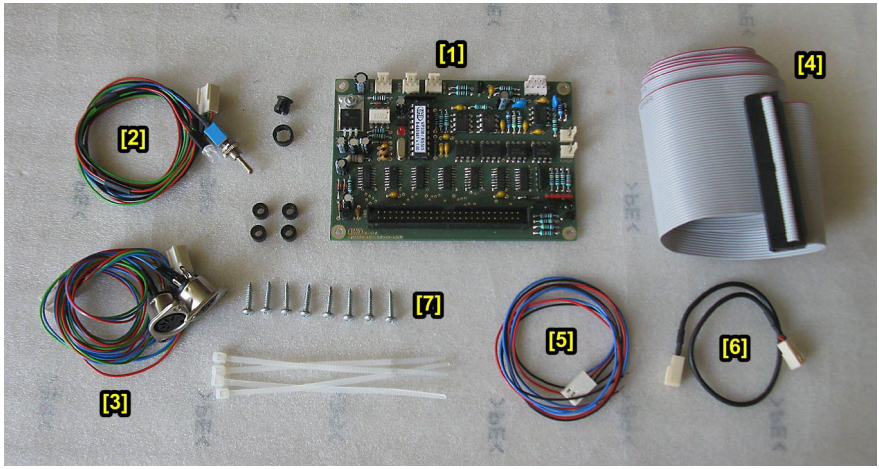
Pic. 1 – Connection to instrument



1.1. PARTS OF MIDI INTERFACE KIT

MIDI interface kit includes all parts necessary for installation incl. all support and coupling elements. Installation manual, user manual, description of interface's SysEx communication and CD-ROM with support software is also included. Please check the part list whether the delivery is complete before installation (see pic. 1.1).

Pic. 1.1 – Parts of interface kit



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The VP330-KBD-M interface kit delivery contains :

1. MIDI Interface board
2. Bunched cables with tumbler switch and LED
3. 2x DIN-5 socket with cable
4. Flat control signals cable (50-wire)
5. Power supply bunched cables (4-wire)
6. Shielded cable
7. Coupling elements (screws, supports, tightening strips …)
8. CD-ROM with support software and manuals in PDF form
9. 3x manual in printed form

2. MIDI INTERFACE INSTALLATION

Installation of the interface into Roland VP-330 instrument is very easy. If you follow the instruction from this manual carefully, there should be no major problems during the installation procedure. Detailed steps of interface's parts installation is described in chapters below. Please keep these instructions accurately to not damage the instrument.

Attention! Disconnect the instrument form the mains prior to the installation. Otherwise, there is a risk of the electric shock!

Attention! Observe precautions for handling electrostatic discharge sensitive devices!

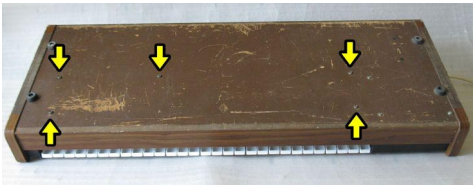
The producer is not responsible for any eventual mechanical or electrical damage of the VP-330 instrument caused by the infringement of the described installation procedure or by careless manipulation during the installation of the MIDI interface!

2.1. OPENING THE INSTRUMENT

a) Unscrew five screws on bottom side of the instrument (pic. 2.1.1). Keep the screws. They will be used again after the MIDI kit installation is finished. Remark: These screws hold instrument's keyboard to bottom plate of instrument's cover.

b) Unscrew six screws on top panel of the instrument (pic. 2.1.2). Keep the screws. They will be used again after the MIDI kit installation is finished. Remark: These screws hold instrument's top panel.

Pic. 2.1.1



Pic. 2.1.2

c) Carefully open the instrument - lift off the instrument's panel. Now, all instrument's parts and boards needed for the interface installation are accessible (pic. 2.1.3).

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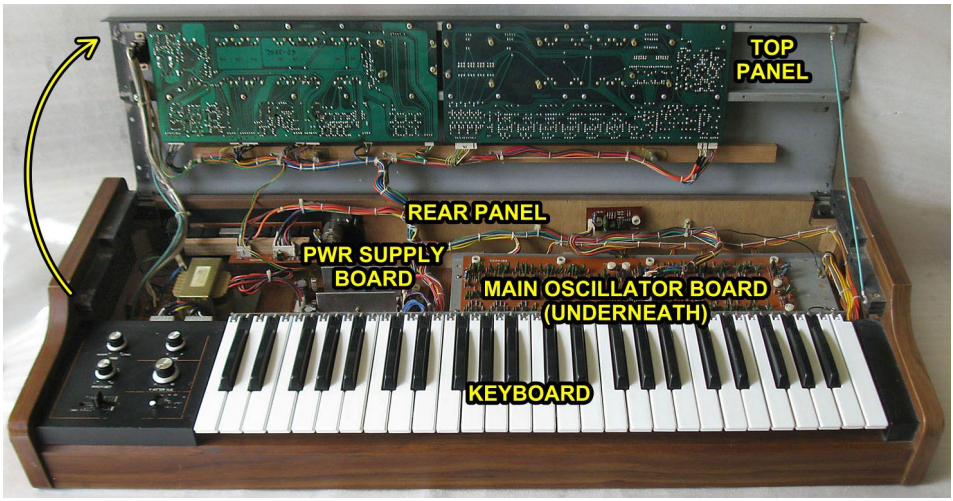
Pic. 2.1.3



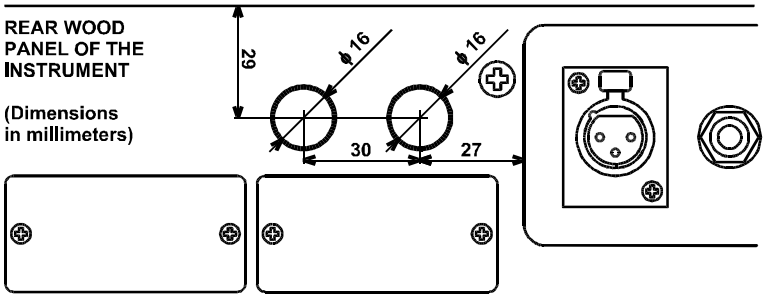
2.2. MIDI SOCKETS MONTAGE

Pic. 2.2.1

The interface has both MIDI input and output. Only MIDI input is necessary for the interface operation. MIDI output need not to be installed – see chapter 5. However, both MIDI input and output (MIDI-IN and MIDI-THRU/OUT sockets) utilization is more convenient for full interconnection to MIDI system. Suitable place for MIDI sockets is on rear panel of the instrument (see pic. 2.2.1).

a) Drill two holes with diameter 16 mm for MIDI sockets to the wood rear panel of the instrument – see pic. 2.2.2. Use sharp drill and **work carefully** so that the panel and a components inside the instrument are not damaged during drilling!

Pic. 2.2.2



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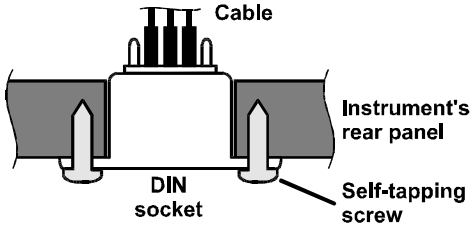
b) Clean the edge of both holes with small rasp after drilling. **Clean all sawdust and rasping from the inside of the instrument**, they can cause malfunction of some electro-mechanical components of the instrument. Please clean the instrument carefully!

c) Get flat connectors of MIDI cables through the holes in the panel (pic. 2.2.3). Both MIDI cables are identical and they can be swapped.

Pic. 2.2.3

Pic. 2.2.4



d) Insert DIN sockets of the cables into the drilled holes and fix them to the panel using four self tapping screws from the interface accessory (pic. 2.2.4). Make small holes for the screws with small drill or a peak before (pic. 2.2.5).

e) It is recommended to label the DIN sockets ("MIDI IN", "MIDI THRU/OUT" – for example) with self-adhesive foil glued near to the sockets on the instrument's panel (pic. 2.2.6).

Pic. 2.2.5

Pic. 2.2.6

2.3. SWITCH AND INDICATION LED MONTAGE

There are two elements for the interface control - tumbler switch and bi-color LED. They are not necessary unconditionally for the interface operation. They need not to be installed – see chapter 3. However it is more convenient for easier device control to use them. Suitable place for control elements is on the top panel of the instrument (see pic. 2.3.1).

Pic. 2.3.1

a) Drill one hole with diameter 6,5 mm and one hole with diameter 6 mm to top panel of the instrument - see pic. 2.3.2. **Work carefully**, so that the panel and components inside the instrument are not damaged during drilling!

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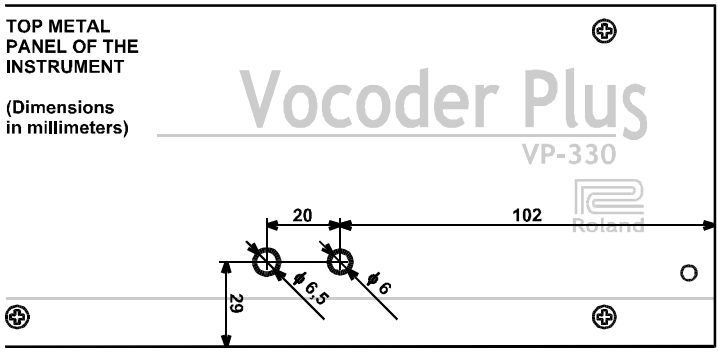
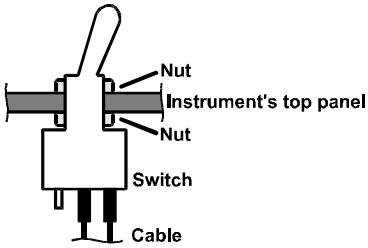
Pic. 2.3.2



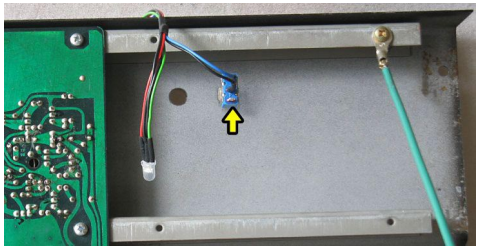
b) Clean the edge of both holes with small rasp or with point of bigger drill after drilling. **Clean all iron sawdust and rasping from the inside of the instruments**, they can cause short circuits or serious electrical damage if left in the instrument. Please clean the instrument carefully!

c) Insert tumbler switch into the 6 mm hole on the panel (from inner side) and fix the switch to the panel with two nuts (pic. 2.3.3). The switch must be positioned so that the not-connected lead of the switch is near the instrument's rear panel (pic. 2.3.4).

Pic. 2.3.3



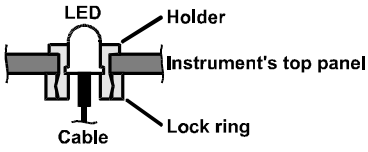
Pic. 2.3.4



d) Insert LED holder into 6,5 mm hole on the panel. Plant lock ring of LED holder to bi-color LED on bunched cables. Then insert two-color LED into holder (from inner side) and fix it by over-thrusting of the ring on the holder (pic. 2.3.5).

e) It is suitable to label the LED and the switch ("MIDI - ON" for example) with self-adhesive foil glued near to the sockets on the instrument's panel (pic. 2.3.6).

Pic. 2.3.5



Pic. 2.3.6

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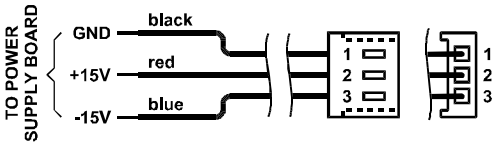
2.4. MONTAGE OF POWER SUPPLY BUNCHED CABLES

Pic. 2.4.1

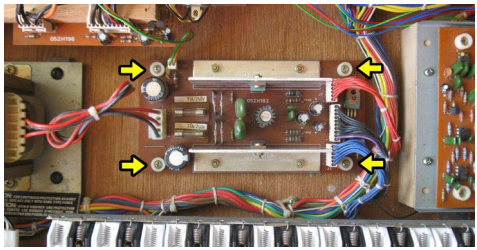


Power supply bunched cables are equipped with flat 3-pin connector on one end (pic. 2.4.1). All wires outgoing from this connector must be connected to instrument's power supply board (labeled PSH42 / PSH43 in dependence on mains supply voltage of the instrument) as shown on pic. 2.1.3.

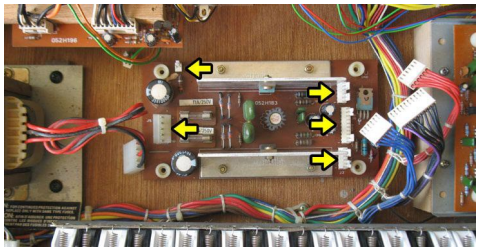
a) Unscrew four screws from PSH42/43 power supply printed circuit board (pic. 2.4.2). Keep the screws. They will be used again after the cable installation.

b) Unplug five connectors of bunched cables from the board (pic. 2.4.3). Then remove the power supply printed circuit board from the instrument and put it solder side up (pic. 2.4.4).

Pic. 2.4.2



Pic. 2.4.3



b) Solder the black wire Nr. 1 (GND) to ground potential – to one of solder pads from 2 to 10 of J3 plug on the power supply board from the solder side (pic. 2.4.4). **Do not use pad Nr. 1** – there is -10V!

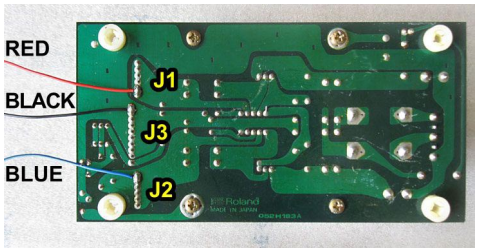
c) Solder the red wire Nr. 2 (+15V) to stabilized supply voltage +15V – to one of solder pads of J1 plug on the power supply board from the solder side (pic. 2.4.4).

d) Solder the blue wire Nr. 3 (-15V) to stabilized supply voltage -15V – to one of solder pads of J2 plug on the power supply board from the solder side (pic. 2.4.4).

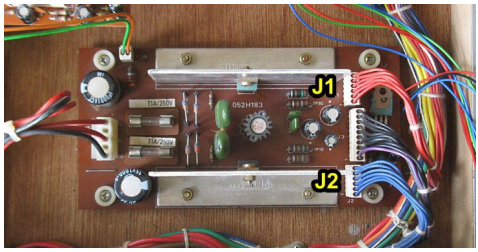
e) Return the power supply board to the original position and fix it back to bottom plate of the instrument with four original screws. Keep orientation of the board (pic. 2.4.5).

f) Plug five connectors of bunched cables back to the board (pic. 2.4.5). Be sure that J1 and J2 are not swapped (J1 has red wires, J2 has blue wires).

Pic. 2.4.4



Pic. 2.4.5



2.5. MONTAGE OF FLAT CONTROL SIGNALS CABLE

Control signals cable is equipped with flat 50-pin connector on one end (pic. 2.5.1). Wires outgoing from this connector must be connected to several points of the AGH19 (AGH17 in older

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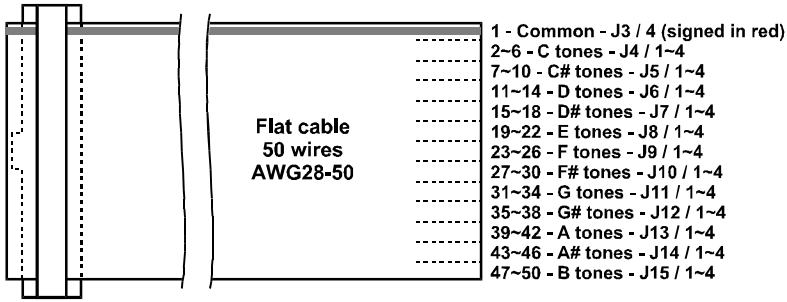
model) printed circuit board of the instrument as shown on pic. 2.1.3. Individual wires of control signals cable will be connected in accordance with table 1 and pic. 2.5.1.

Pic. 2.5.1



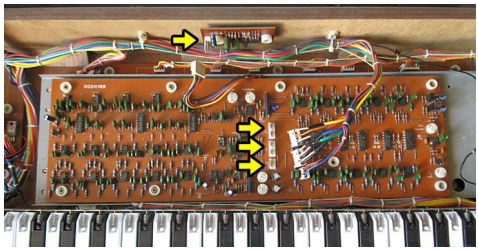
Split up free end of the cable (by ripping or cutting) to individual groups of wires and adjust their lengths as necessary during the cable installation. Then stripe ends of the wires in length about 2 mm and tin them. Note that wire Nr. 1 (terminal) is signed with red color.

a) First, FLH16 board must be removed in order to access to AGH19 (AGH17 in older model) board: Unscrew four self tapping screws from metal holder of FLH16 board (pic. 2.5.2). Keep the screws. They will be used again after the cable installation.

b) Unplug one connector from the little board on rear panel of instrument and three connectors from the FLH16 board (pic. 2.5.3) – mark each of the connectors before, so that they are not swapped when reassembling. Then pull off the holder with FLH16 board out of the instrument.

Pic. 2.5.2

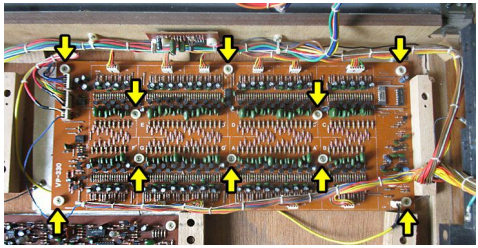
Pic. 2.5.3



c) Lift the keyboard and slide it out of the instrument (pic. 2.5.4). The keyboard is detached already. The main oscillator board AGH19 / AGH17 is now accessible.

Pic. 2.5.4

Pic. 2.5.5



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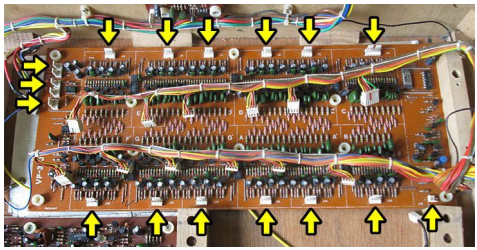
d) Unscrew ten screws from AGH19 board (pic. 2.5.5). Keep the screws. They will be used again after the cable installation.

e) Unplug all sixteen connectors J1 to J16 from AGH19 / AGH17 board (pic. 2.5.6).

f) Remove the AGH19 / AGH17 board from the instrument (pic. 2.5.7) and put it solder side up. Be careful during this and all next operations - note that **electrostatic sensitive components** are on the board. Use conductive pad on the desktop and follow the rules for working with CMOS circuits!

Pic. 2.5.6



Pic. 2.5.7

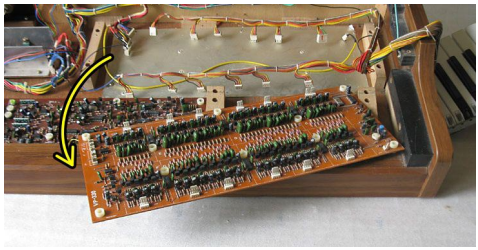


Table 1 – Wires of flat cable of control signals connection

Wire	Tone	Connector / Pin	Remark	Wire	Tone	Connector / Pin	Remark
1	Comm	J3 / 4	Signed in red	26	F16	J9 / 4	
2	C1	J4 / 1+2	To highest tone	27	F#2	J10 / 1	
3	C2	J4 / 3		28	F#4	J10 / 2	
4	C4	J4 / 4		29	F#8	J10 / 3	
5	C8	J4 / 5		30	F#16	J10 / 4	
6	C16	J4 / 6	To lowest tone	31	G2	J11 / 1	
7	C#2	J5 / 1		32	G4	J11 / 2	
8	C#4	J5 / 2		33	G8	J11 / 3	
9	C#8	J5 / 3		34	G16	J11 / 4	
10	C#16	J5 / 4		35	G#2	J12 / 1	
11	D2	J6 / 1		36	G#4	J12 / 2	
12	D4	J6 / 2		37	G#8	J12 / 3	
13	D8	J6 / 3		38	G#16	J12 / 4	
14	D16	J6 / 4		39	A2	J13 / 1	
15	D#2	J7 / 1		40	A4	J13 / 2	
16	D#4	J7 / 2		41	A8	J13 / 3	
17	D#8	J7 / 3		42	A16	J13 / 4	
18	D#16	J7 / 4		43	A#2	J14 / 1	
19	E2	J8 / 1		44	A#4	J14 / 2	
20	E4	J8 / 2		45	A#8	J14 / 3	
21	E8	J8 / 3		46	A#16	J14 / 4	
22	E16	J8 / 4		47	H2	J15 / 1	
23	F2	J9 / 1		48	H4	J15 / 2	
24	F4	J9 / 2		49	H8	J15 / 3	
25	F8	J9 / 3		50	H16	J15 / 4	

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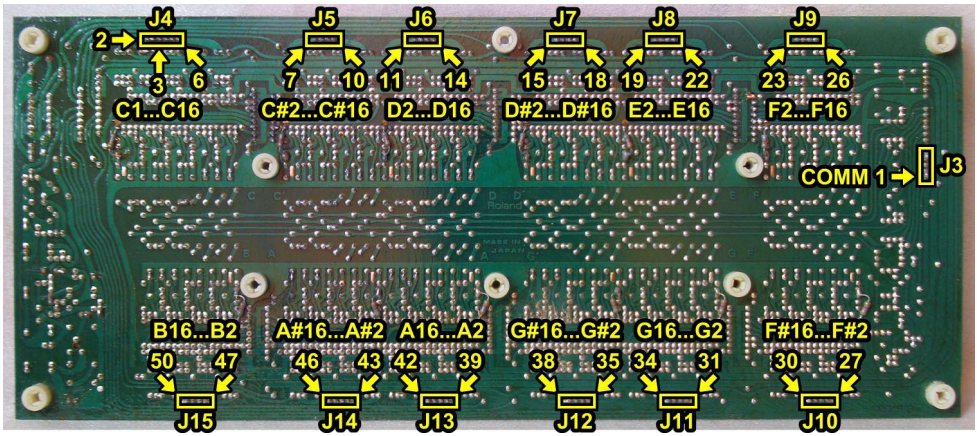
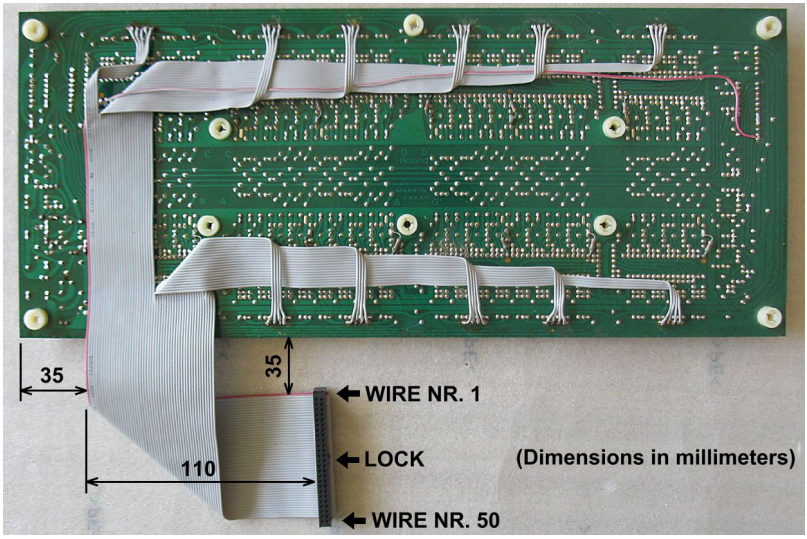
g) Now, it is necessary to solder particular wires of flat control signals cable to certain pads on AGH19 / AGH17 board (pic. 2.5.8 and table 1). Note that wire Nr. 2 (tone C1) can be soldered to any of pads Nr. 1 and 2 of J4. As mentioned above, length of particular groups of wires of flat cable should be adjusted as required (pic. 2.5.9).

Pic. 2.5.8



h) After soldering all the wiring, the board should look like on pic. 2.5.9.

Pic. 2.5.9



i) Return the AGH19 / AGH17 board to the original position and fix it back to bottom plate of the instrument with ten original screws (pic. 2.5.10).

j) Plug fifteen connectors J1 to J15 of bunched cables back to the board. Do not plug J16 connector of shielded cable yet (pic. 2.5.11)!

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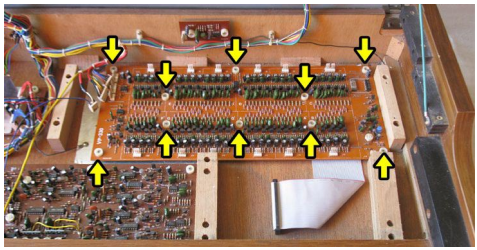
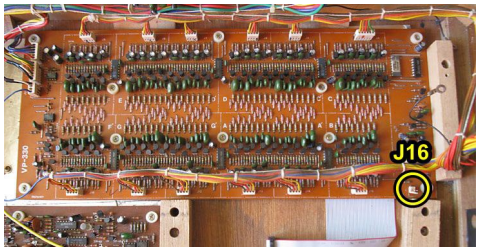
Pic. 2.5.10



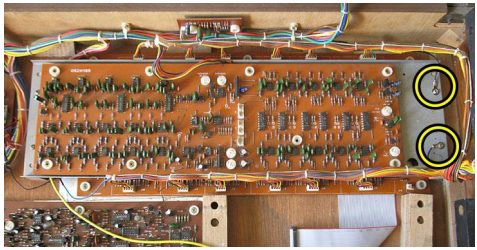
Pic. 2.5.11



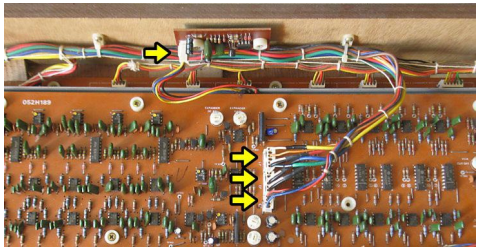
k) Put metal holder with FLH16 board back to the instrument and fix it with four original screws. Don't forget to insert two grounding lugs under the screws on right side (pic. 2.5.12)!

l) Plug three connectors of original bunched cables back to the FLH16 board and one connector to the little board on the rear panel of the instrument (pic. 2.5.13). Be sure that the connectors are not swapped (they should be marked as mentioned before in paragraph b).

Pic. 2.5.12



Pic. 2.5.13

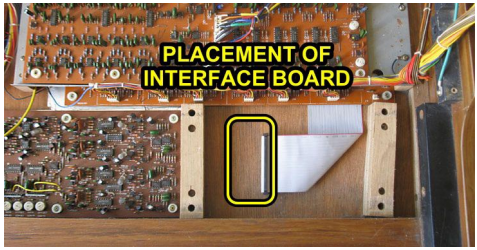


2.6. MONTAGE OF THE INTERFACE BOARD

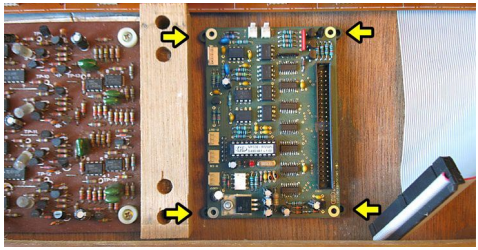
The interface board will be placed on right side on bottom plate of the instrument – under the instrument's keyboard (pic. 2.6.1).

a) Put the interface's board to bottom plate of the instrument so that flat 50-pin plug is pointed to the right. Insert four plastic supports from the interface accessory under the board (pic. 2.6.2).

Pic. 2.6.1



Pic. 2.6.2



b) Fix the interface board in the bottom plate of the instrument using four self tapping screws from the interface accessory (pic. 2.6.3). Make small holes for the screws with small drill or a peak before (pic. 2.6.4).

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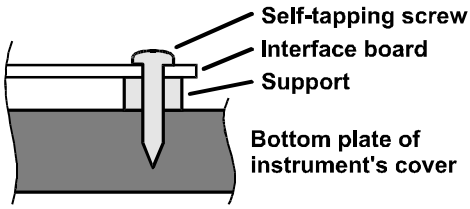
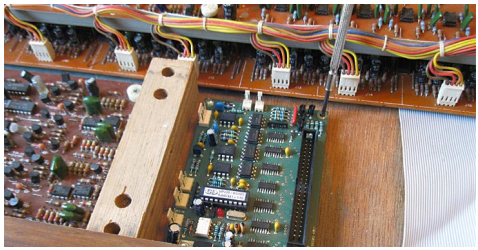
Pic. 2.6.3



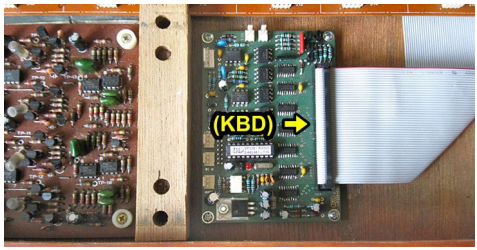
Pic. 2.6.4



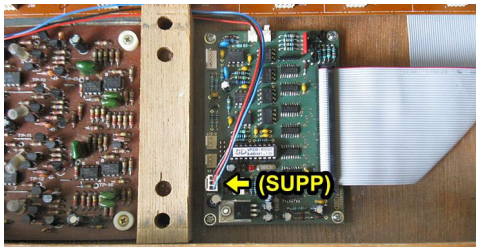
c) Plug 50-pin connector of flat control signals cable to the interface board (KBD). The right orientation of the connector is given by lock on the connector body (pic. 2.6.5).

d) Plug 3-pin connector of power supply bunched cables to the interface board (SUPP). The right orientation of the connector is given by lock on the connector body (pic. 2.6.6).

Pic. 2.6.5



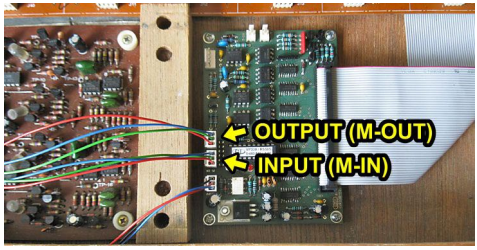
Pic. 2.6.6



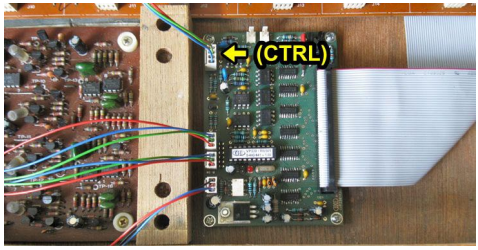
e) Plug two 3-pin connectors of MIDI sockets to the interface board (M-IN, M-OUT). The right orientation of the connectors is given by lock on the connector body (pic. 2.6.7). Be sure that MIDI input and output sockets are not exchanged! If MIDI out socket had not been installed, see chapter 3.

f) Plug 4-pin connector of switch / LED bunched cables to the interface board (CTRL). The right orientation of the connector is given by lock on the connector body (pic. 2.6.8). If control switch and indication LED had not been installed, see chapter 3.

Pic. 2.6.7



Pic. 2.6.8



g) Plug 2-pin connector of shielded cable (originally leading to J16 on the main oscillator board AGH19 / AGH17) to T-IN plug on the interface board (pic. 2.6.9).

h) Using shielded cable from the interface accessory, interconnect T-OUT plug on the interface board with J16 plug on the main oscillator board (pic. 2.6.10).

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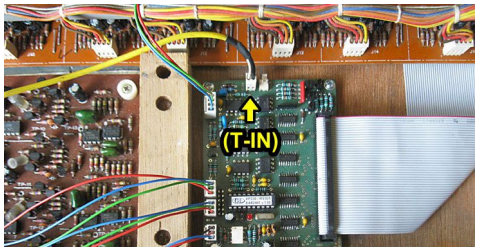
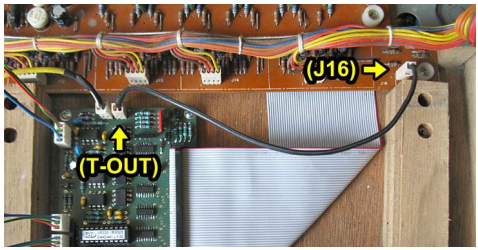
Pic. 2.6.9



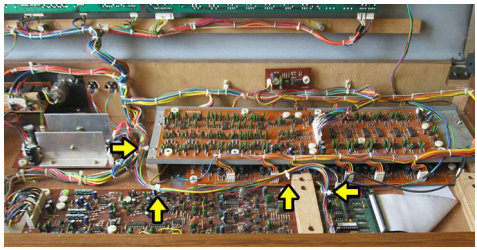
Pic. 2.6.10



i) Now, fix newly installed bunched cables leading from MIDI sockets and from power supply board together with original shielded cable using four tightening plastic strips from the interface accessory (pic. 2.6.11).

j) Put keyboard of the instrument back to original position in the instrument (pic. 2.6.12).

Pic. 2.6.11



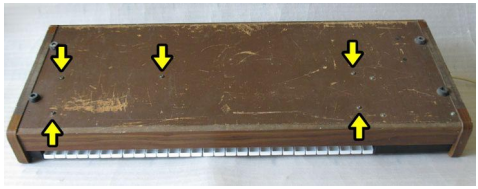
Pic. 2.6.12

2.7. FINISHING OF THE INSTALLATION

Turn over the top panel of the instrument (close the instrument) and fix it with original six screws to side plates (pic. 2.7.1). Fix the keyboard of the instrument to bottom plate of instrument's cover with five original screws (pic. 2.7.2). This is the reverse procedure of that described in the chapter 2.1.

Pic. 2.7.1

Pic. 2.7.2



Installation of the MIDI interface kit is now finished and the instrument is prepared for communication via MIDI bus. After the interface activation, it controls keyboard and pitch shift circuits of the instrument via MIDI commands accordingly to interface parameters settings. Enhanced functions for control of the instrument via MIDI communication are described in detail in user manual of the interface. So please **read carefully user manual** of the interface before use of the retrofitted instrument to utilize the interface fully.

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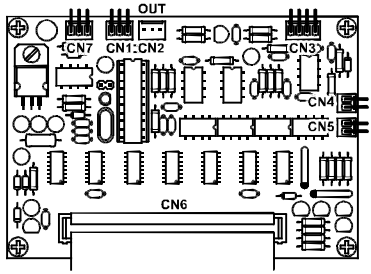
3. TIPS FOR INSTALLATION

a) Output MIDI – THRU/OUT

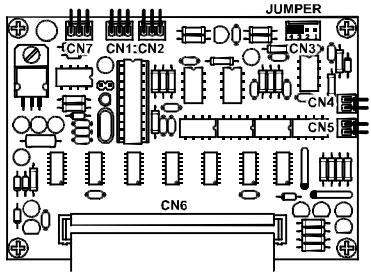
Pic. 3.1



The VP330-KBD Interface has both MIDI input and output. However, only MIDI input is necessary unconditionally for basic operation of the interface (i.e. controlling the instrument via MIDI commands). MIDI THRU/OUT output socket need not to be installed if you don't require transfer of MIDI data to another MIDI devices (THRU function) or reverse communication of the interface with host system (OUT function). It this case, connector CN2 (M-OUT) on the interface board will remain unconnected (see pic. 3.1).

b) Switch and indication LED

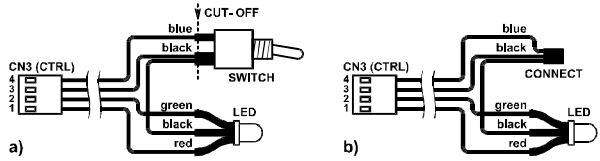
Pic. 3.2



Installation of bunched cables of switch and indication LED isn't also necessary unconditionally. It is not needed to install the bunched cables if you don't want to affect the instrument's panel by drilling. However, jumper must be plugged on pins Nr. 3 and 4 of CN3 (CTRL) connector on the interface board in this case (see pic. 3.2).

It is also possible to install only indication LED on instrument's panel. In this case, remove (cut-off) switch from bunched cables and connect (solder) together two black and one blue wires leading to the switch originally and insulate the connection of the wires (see pic. 3.3).

Pic. 3.3



In such "non-invasive" implementation the interface works following way: Immediately after the instrument is switched on, the interface is activated but it still doesn't affect the instrument – the instrument can be used like without the interface. As soon as the first MIDI command is received at interface's MIDI input, the indication LED lights red and the interface starts to control the instrument's keyboard and pitch shift circuits. If you want to switch the interface off, so that it had no affect on the instrument, the interface must be reset. It can be done by turning off and on the instrument or by MIDI command "HW Reset" sent to the interface (see user manual of the interface).

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