Service parts replacement
CD302 & CDS302
This manual explains briefly how to dismount and replace some of the internal parts of a CD302 or CD5302 Variable Speed Drive (VSD) dedicated to Maneurop VSD or Performer VSD compressors. The manual covers the main parts of a VSD which can be installed or replaced by a service technician; front panel, terminals, optional relay card, control card, power card and fans.

VSD's are available in different power sizes and 2 different enclosures (2 IP rating levels). Access to internal parts differs mainly due to IP rating level (IP20 or IP55). The power size has less influence.

Depending on the VSD location, it may often be easier to dismount it from the cabinet where it is installed, and to place it on a table. The access to internal parts will be simplified. This is even mandatory to access the power card, which is the most difficult to replace.

Torx screwdrivers of different sizes are required to dismount and replace the internal parts.

**Safety**

⚠ Prior to any maintenance operation on a VSD, it is important to:
- Disconnect the VSD from the mains
- Wait at least 15 minutes, for capacitors to be discharged. Note that there may be high voltage in capacitors, even when the LEDs on the VSD are turned off.
- Disconnect cables between the compressor and the VSD

Failure to proceed above steps may cause personal injury or death.
**Manual**

<table>
<thead>
<tr>
<th>Service parts replacement</th>
</tr>
</thead>
</table>

**VSD with IP20 enclosure**

The internal parts from VSD's with IP20 enclosure must be dismounted in the following sequential order:

1. LCP, front panel and terminals
2. Optional relay card
3. Control card
4. Heat sink fan
5. Internal fan
6. Power card

It is recommended to keep each dismounted part grouped together with its screws. This will facilitate remounting.

Remounting non-defective or new parts must be done in reverse order (starting with the power card, ending with the LCP).

**LCP, front panel and terminals**

- Remove the Local Control Panel (LCP), or remove the cover if the LCP is not installed
- Remove the LCP support
- Remove the front panel to access the terminal blocks, using a screwdriver, as shown below
  ![Image of LCP front panel](image)
  - Unplug all terminals

**Optional relay card**

The optional relay card (130B1110) is located below the LCP, if installed. It is plugged on the control card, without any screws.

- Take it out from the control card connector.

**Control card**

- Unscrew and remove the metallic plates in front of the control card.
- Take out the control card from the power card connector.

**Heat sink fan (main fan)**

To access the main fan, the plastic enclosure of the VSD must be opened. It is made of two shells assembled together around the aluminium housing of the VSD.

- Push the different tongues simultaneously, and separate the plastic shells.
- Unplug the fan from the power card connectors, and remove it.

**Internal fan**

Some IP20 VSD's have an extra internal fan dedicated to electronic boards cooling.

- Unplug the internal fan from the power card and remove it.

**Power card**

- Unscrew the power card from the aluminium housing.
- Take it out from the housing.

Note that to install the new power card, heat conductive paste must be placed between the IGBT (Insulated Gate Bipolar Transistor) and the heat sink (aluminium housing).
## Service Parts Replacement

### VSD with IP55 enclosure

The internal parts from VSD's with IP55 enclosure must be dismounted in the following sequential order:

1. LCP, front panel and terminals
2. Heat sink fan
3. Optional relay card
4. Control card
5. Internal fan
6. Power card

It is recommended to keep each dismounted part grouped together with its screws. This will facilitate remounting.

Remounting non-defective or new parts must be done in reverse order (starting with the power card, ending with the LCP).

### LCP, front panel and terminals

- Unscrew all cover screws and remove the cover. Take care not to loose the cover gasket.

### Heat sink fan (main fan)

The main fan is accessible from the outside of the aluminium housing.

- Unscrew the fan from its support.
- Disconnect it from the power card, and remove it.

### Optional relay card

The optional relay card (130B1110) is located below the LCP, if installed. It is plugged on the control card, without any screws.

- Take it out from the control card connector.

### Control card

- Unscrew and remove the metallic plates in front of the control card.
- Take out the control card from the power card connector.

### Internal fan

IP55 VSD's have an extra internal fan dedicated to electronic boards cooling.

- Unscrew and remove the aluminium plate above the power card.
- Unplug the internal fan from the power card and remove it.
The power card is made of 2 separate electronic boards.

- Unscrew the first board of the power card.
- Unplug it and remove it.

The second board of the power card is below the copper connecting strips of the DC link, located in an insulation material plate (black).

- Unscrew all these connecting strips and remove them.
- Unscrew the second board of the power card from the housing.
- Unplug it and remove it.

Note that to install the new power card, heat conductive paste must be placed between the IGBT (Insulated Gate Bipolar Transistor) and the heat sink (aluminium housing).
The Danfoss product range for the refrigeration and air conditioning industry

Within refrigeration and air conditioning, Danfoss is a worldwide manufacturer with a leading position in industrial, commercial and supermarket refrigeration as well as air conditioning and climate solutions. We focus on our core business of making quality products, components and systems that enhance performance and reduce total life cycle costs – the key to major savings.

We are offering a single source for one of the widest ranges of innovative refrigeration and air conditioning components and systems in the world. And, we back technical solutions with business solution to help your company reduce costs, streamline processes and achieve your business goals.

Danfoss A/S • www.danfoss.com

Danfoss Commercial Compressors http://cc.danfoss.com

Danfoss can accept no responsibility for possible errors in catalogues, brochures and other printed material. Danfoss reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without subsequential changes being necessary in specifications already agreed.

All trademarks in this material are property of the respective companies. Danfoss and the Danfoss logotype are trademarks of Danfoss A/S. All rights reserved.

FRCC.E5.007.A1.62 - May 2010
Produced by Danfoss CC - DSS - 05/10