

# **MCRK**

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**NCR Compatible**

**Motorized Card Reader / Writer**

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**Assembling Manual**

**DRAFT**

## NOTICE

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<b>Change Sheet</b>			
<b>Title:MCRK Assembling Manual</b>			
<b>Rev</b>	<b>Date</b>	<b>Section</b>	<b>Description of Change</b>
A	02/06/08	All	Initial release

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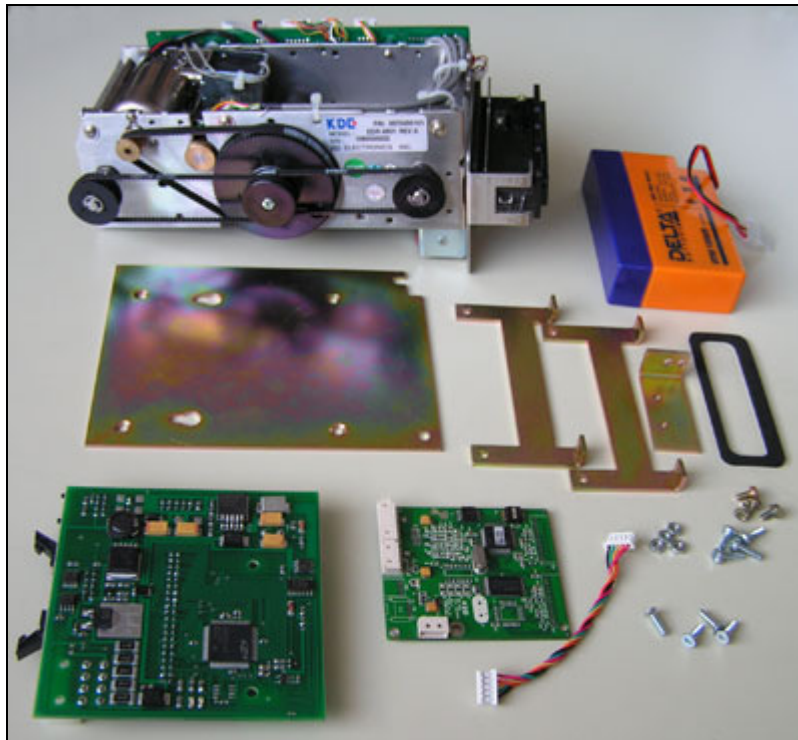
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## **1 Introduction**

This document is primarily intended for technical people responsible for assembling MCRK in a workshop.

## 2 Checklist

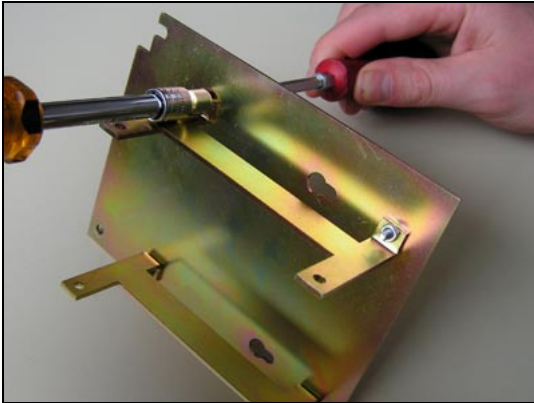


MCRK includes the following items:

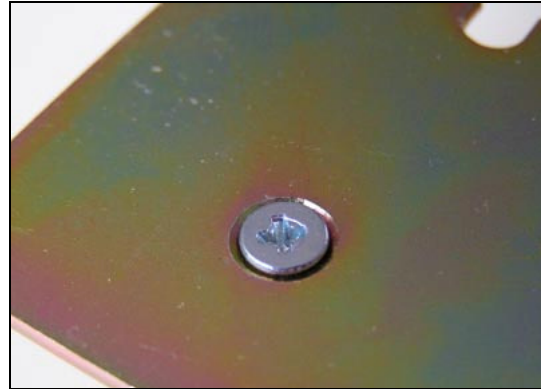
- 1. MCRK SDC Adapter Board**
- 2. KDE EDR-4901 Card Reader with KDX-4000 I/O Board**
- 3. KDE KID-4000 Smart Card controller board (EMV certified)**
- 4. Assembly items**
  - 4.1. 1x MCRK Pedestal base plate
  - 4.2. 2x MCRK Pedestal side brackets
  - 4.3. 1x Card Capture Bin mounting bracket
  - 4.4. 1x 12V 0.8 Ah battery (optional)
  - 4.5. Ribbon gasket
  - 4.6. KDE KID-4000 communication cable
  - 4.7. Screws set (4x M3x10 and 6x M3x6 button screws, 4x M3x6 flat screws and 4x M3 screw nuts)
- 5. Software and Manuals**
  - 5.1. MCRK Technical Specification
  - 5.2. MCRK Assembling Manual
  - 5.3. MCRK Installation Manual
  - 5.4. MCRK Activation Software

### 3 Hardware Installation

#### 3.1 Pedestal Assembly



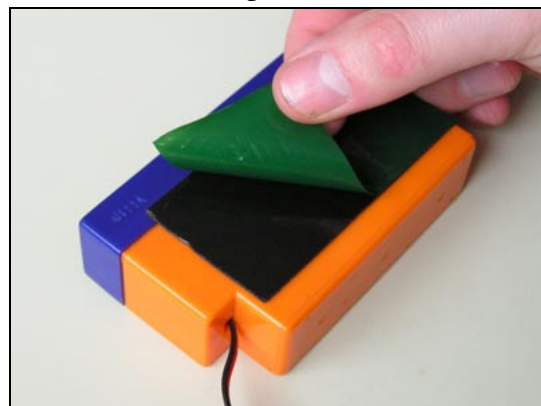
Mount MCRK Pedestal side brackets to MCRK Pedestal base plate using four M3 flat screws and four nuts



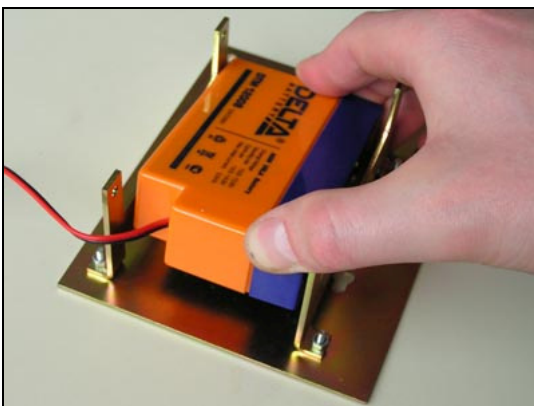
Make sure flat screws are put into base plate properly and do not protrude above the base plate surface.



Paste double side adhesive tape to CROPF battery (optional step)



Remove protective film from adhesive tape (optional step)

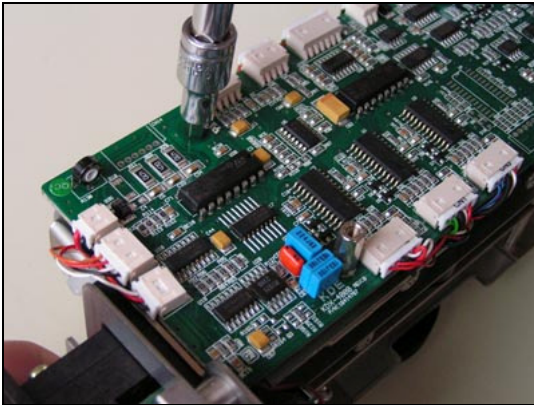


Paste battery to the base plate (optional step)

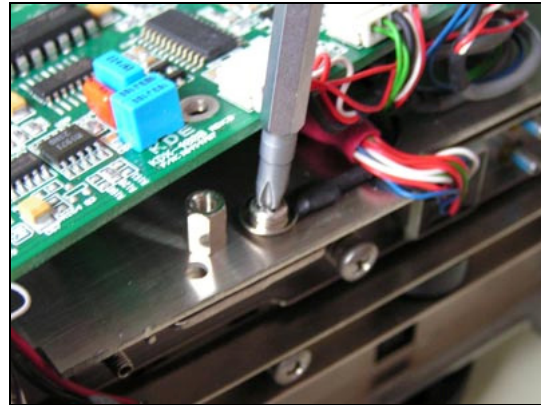


Pedestal is ready

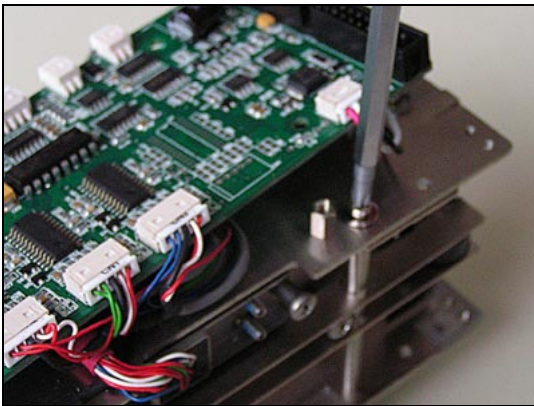
### 3.2 Mounting Pedestal



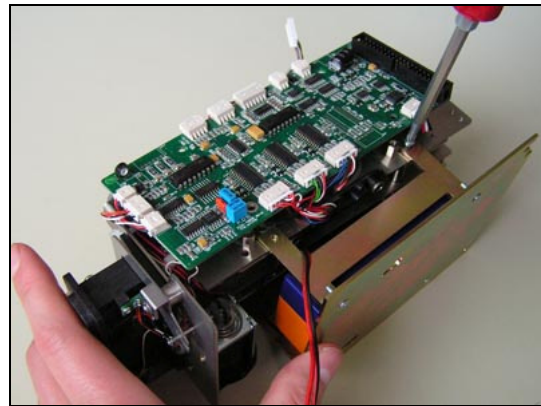
Temporarily remove KDX-4000 board by unscrewing 4 legs



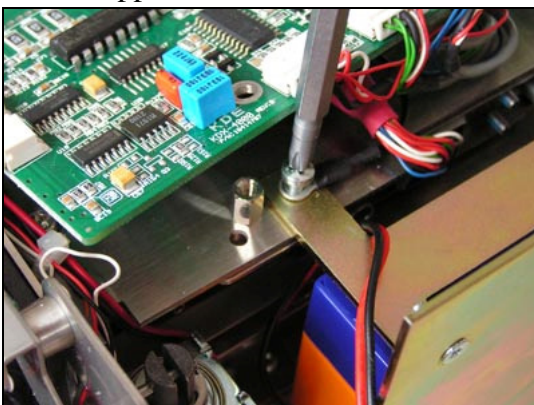
Remove one screw as shown on the picture and the other screw from the opposite side of the reader



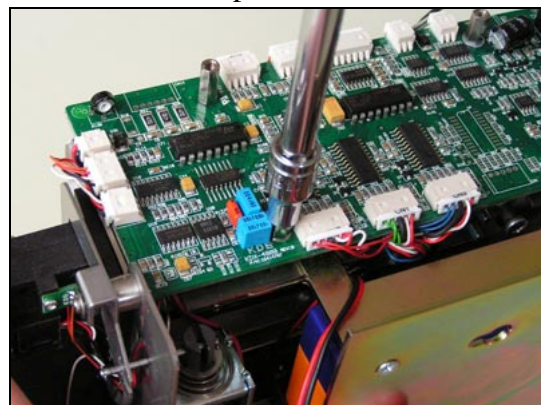
Remove one screw as shown on the picture and the other screw from the opposite side of the reader



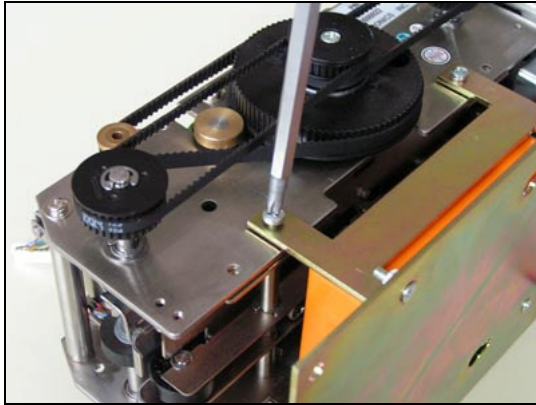
Mount pedestal to the reader using two M3x10 button screws as shown on the picture



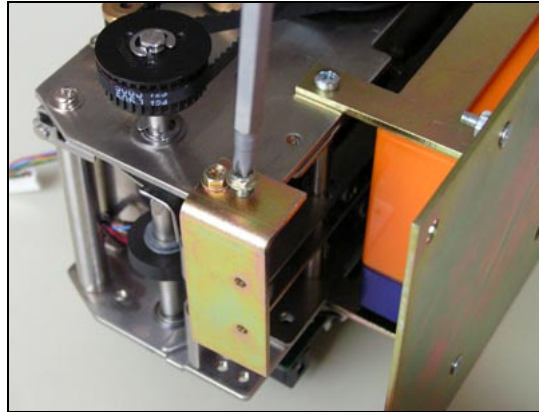
Make sure ground cable is fixed to the pedestal



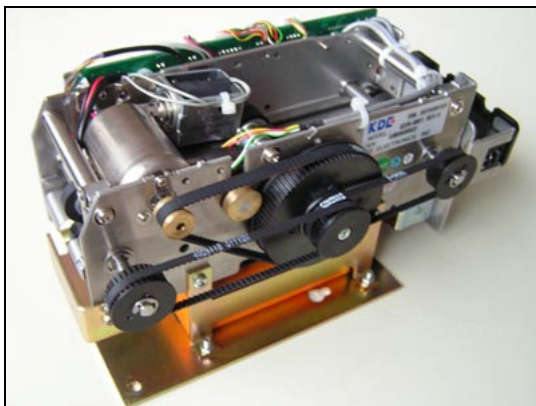
Reinstall KDX-4000 board back to its place with legs



Attach pedestal to the opposite side of the reader using two M3x10 button screws



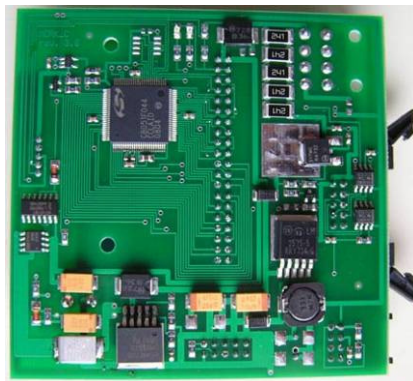
Fix Card Capture Bin mounting bracket on the reader using two M3x6 button screws



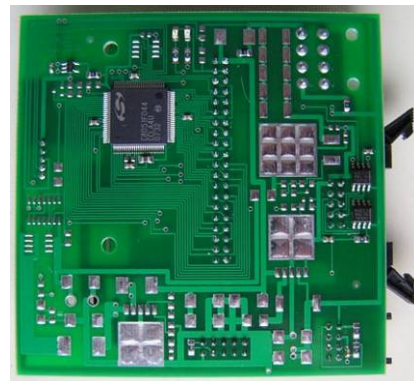
Pedestal is mounted

### 3.3 CROPF Feature

There are two variants of the MCRK SDC Adapter – with CROPF Feature (Card Return-On-Power-Fail) and without it. The no-CROPF variant doesn't have most of the PCB components installed (see pictures).

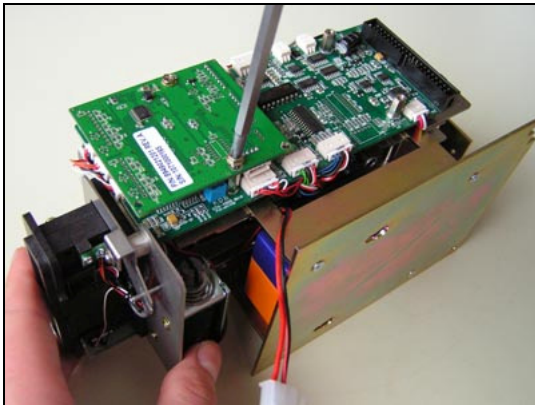


MCRK Adapter with CROPF Feature

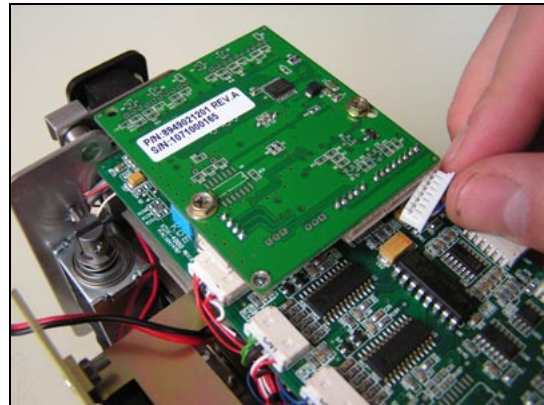


MCRK Adapter without CROPF Feature

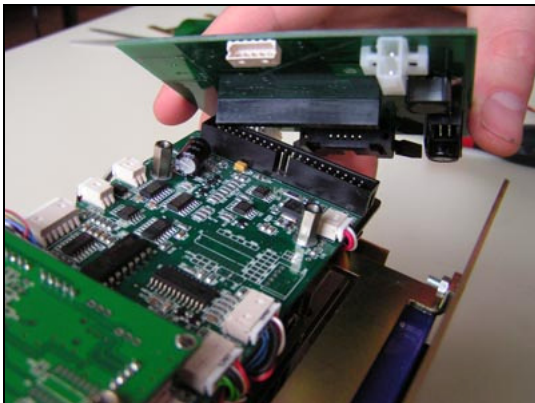
### 3.4 Mounting Controller Boards



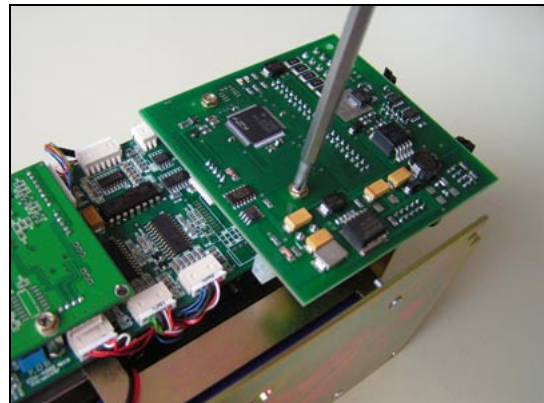
Fix KID-4000 board on two legs using two M3x6 button screws



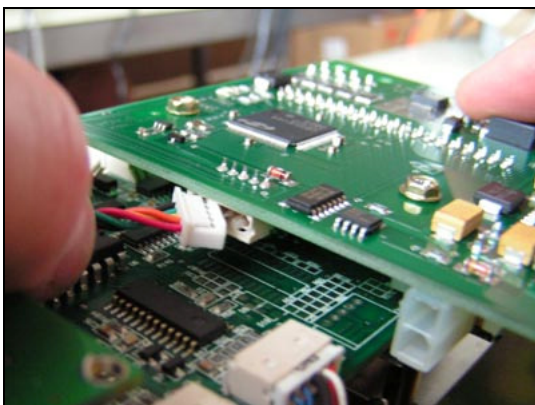
Connect cable from smart card contacts group to the KID-4000 board



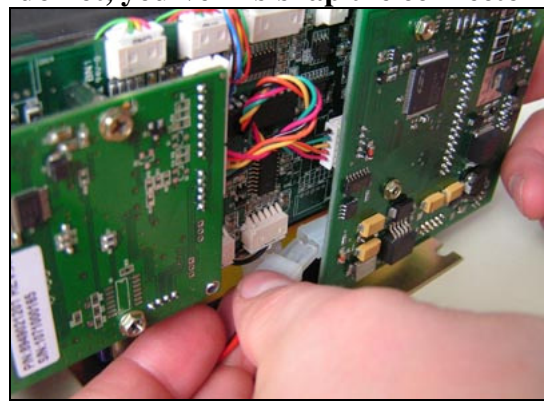
Snap MCRK SDC Adapter board to the 40 pins connector on the KDX-4000 I/O board



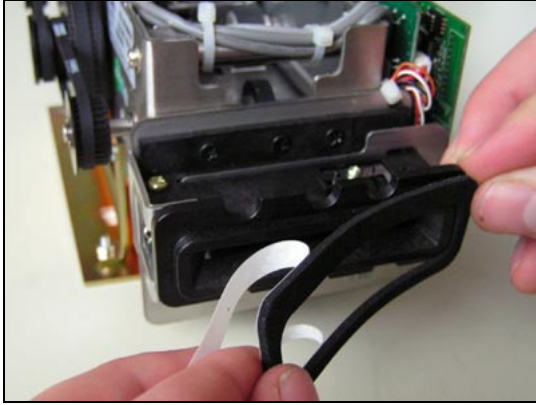
Fix MCRK SDC Adapter board on legs using two M3x6 button screws  
**CAUTION: Make sure board mounting holes match the legs; if they do not, you've mis-snap the connector**



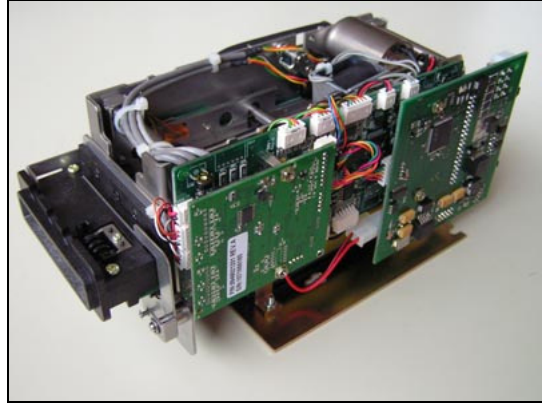
Connect KID-4000 communications cable to MCRK SDC Adapter and to KID-4000 board



Connect battery connector to MCRK SDC Adapter (optional)  
**NOTE: Card Reader may switch on and run the motor for few seconds before shutting itself off. This is normal and should cause no warning**



Paste ribbon gasket to reader bezel



Reader is assembled

## 4 MCRK Activation Utility (MCRK Online Tester)

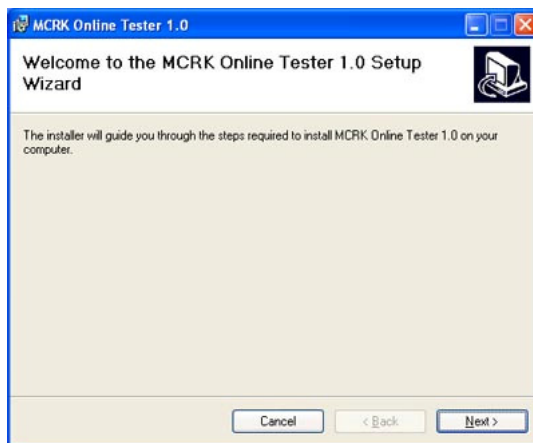
MCRK Activation Utility is a Windows application (supplied on request). This utility should be used after MCRK assembly to ascertain its operability and to activate MCRK warranty. It can be also used at a later time to test a MCRK in question.

The activation utility requires an USB/SDC adapter to connect MCRK to a PC USB port. This adapter is supplied together with the utility.

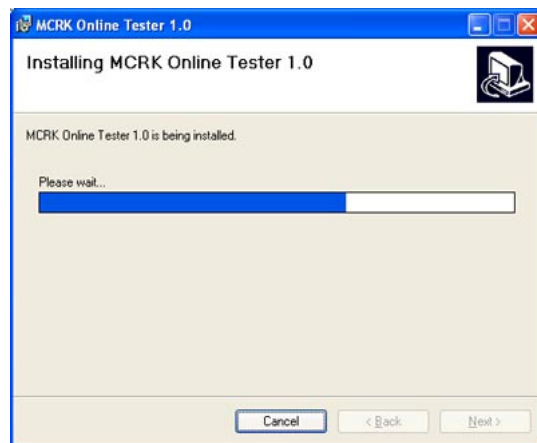
*The activation utility designed for Windows XP; it should also work with Windows 2000 and Windows 2003 Server. It is not designed and will not work under Windows 95/98/Millennium and Windows Vista.*

### 4.1 Installation

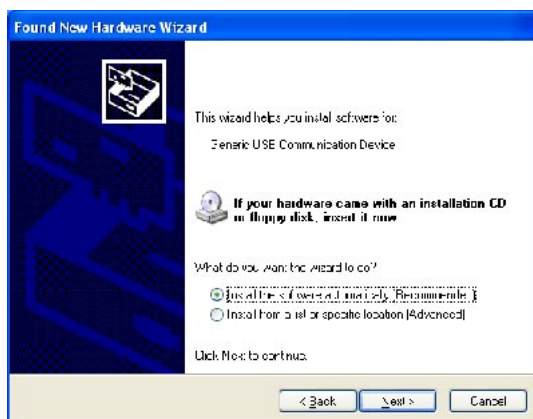
**WARNING! DO NOT** connect USB/SDC adapter during software installation.



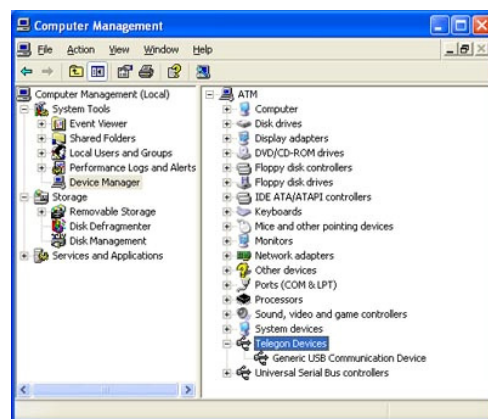
Run setup program



Follow the wizard to install the software



- Once the software is installed, connect USB/SDC adapter to the PC.
- When "New Hardware Found" wizard appears, select "Search for drivers automatically" (but do not select searching the Internet if prompted).



To verify drivers are installed correctly, you may wish to open Windows Device Manager (My Computer → Right Click → Manage) and look for "Telegon Devices→Generic USB Communication Device"

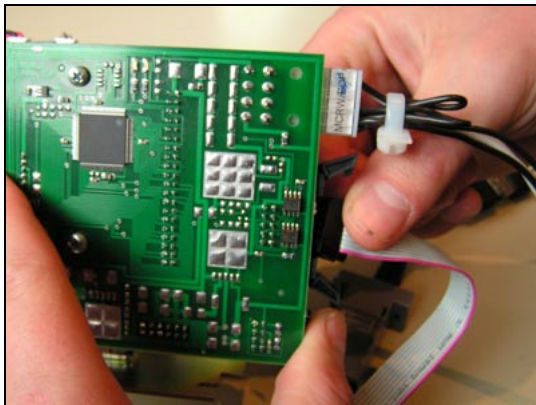
4.2 Preparation



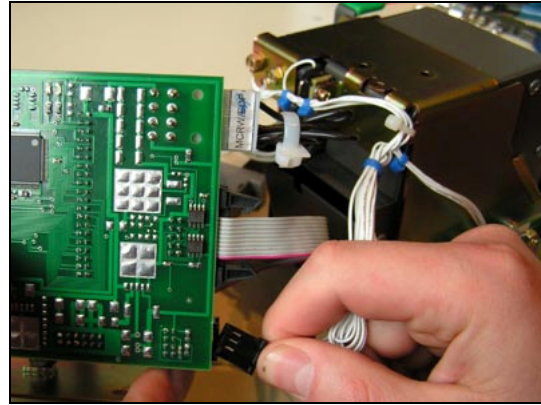
Connect USB/SDC adapter to the PC's USB port



Connect power supply cable (5V, 24V and GND) to MCRK's MINIFIT 8M connector



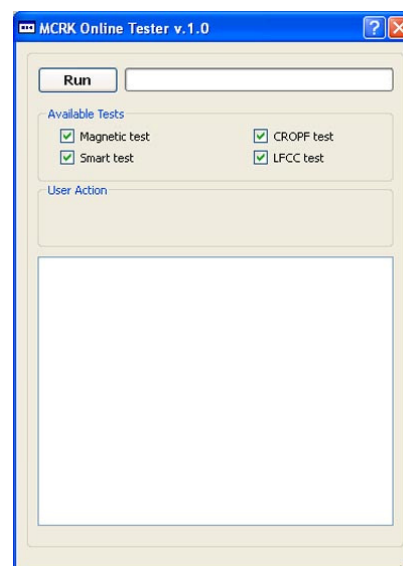
Connect USB/SDC adapter to MCRK's SDC connector using 10-pin flat ribbon cable.



Connect LFCC bin to MCRK's 8 Pin LFCC connector

Run ESB Activation Utility

**WARNING!** Make sure the PC is connected to the Internet



### 4.3 Activating MCRK Card Reader

1. Turn on power supply
2. Make sure *Green* led on MCRK Adapter is blinking once per second
3. Press “Run” button
4. You will be asked to enter KDE S/N
5. Enter 10 digits serial number printed on KID-4000 controller board



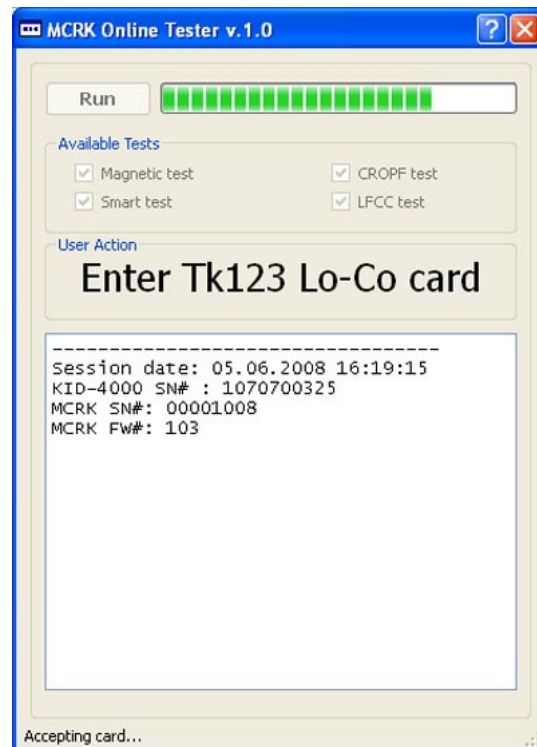
**WARNING!** To activate your warranty enter true Serial Number as printed on KID-4000 label (see picture)

Once MCRK card reader is found you will be prompted to insert a test magnetic card to perform basic MCRK testing.

**NOTE:** A *Lo-Co* magnetic card with all 3 tracks readable/writable should be used. Such a card can be supplied on request.

The following tests will be performed:

1. **Card Accept test** – checks that all sensors work properly during card entry
2. **Tracks 1/2/3 Read/Write test** – checks that all 3 tracks can be read and written
3. **Eject test** - checks that all sensors work properly during card eject

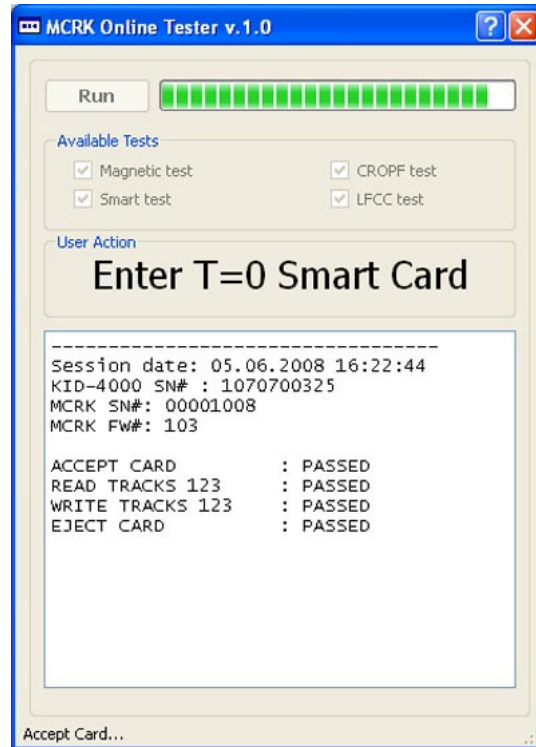


Once basic tests are finished you will be prompted to insert a test smart card to perform smart reader testing.

**NOTE:** An ISO-7816 smart card with T=0 protocol should be used. Such a card can be supplied on request.

The following tests will be performed:

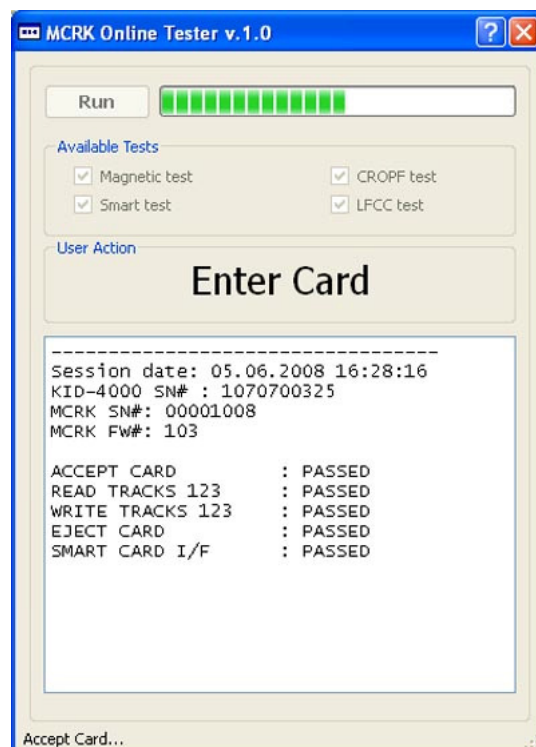
1. **Card Stage test** – checks that card can be staged under contacts and all sensors and solenoids work properly
2. **Card Reset/Exchange test** – performs card power-on and communication according to ISO-7816 and checks appropriate card responses
3. **Card Release test** – checks that card can be released from contacts and all sensors and solenoids work properly



If CROPF feature is supported by the reader, **CROPF Feature** test will be performed.

This test checks that CROPF module hardware and software logic are in a position to return card to the cardholder on power fail or system reset.

At beginning of this test you will be prompted to insert a card with magnetic stripe, and then switch power OFF and ON.



If LFCC Card Capture Bin was connected at the beginning of tests **LFCC Feature test** will be performed.

You will be prompted to insert/remove LFCC bin and block/unblock LFCC photo sensors accordingly.



Once all tests passed, the program will connect to the activation server and your warranty will be activated.

If a test failed please contact MCRK vendor for assistance.