# SERVICE INSTRUCTION

# B.U.D.S. Aircraft Installation Instructions for ROTAX® Engine Type 912 i Series

This SI revises SI-912 i-002 Initial Issue dated 10. September 2012.

ATA System: 76-00-00

**Symbols used:**
Please, pay attention to the following symbols throughout this document emphasizing particular information.

General note

| ⚠ WARNING | **Identifies an instruction which, if not followed, may cause serious injury or even fatal injury.** |
|---|---|

| ⚠ CAUTION | **Identifies an instruction which, if not followed, may cause minor or moderate injury.** |
|---|---|

| NOTICE | **Denotes an instruction which if not followed, may severely damage the engine or could lead to suspension of warranty.** |
|---|---|

**ENVIRONMENT NOTE**

Environment note gives you tips and behaviors to environmental protection.

NOTE: Information useful for better handling.

| A revision bar outside of the page margin indicates a change to text or graphic.

## 1) Planning information

### 1.1) Applicability

All versions of the engine type:

| Engine type | Serial number |
|---|---|
| 912 i Series | ALL |

NOTE: All "BRP Utility and Diagnostic Software (B.U.D.S.) Aircraft" versions must be used on a specific engine range only. Refer to the relevant Service Instruction to identify the B.U.D.S. Aircraft version to use with a specific engine type, ECU hardware and ECU software.

### 1.2) Concurrent ASB/SB/SI and SL

### 1.3) Reason

- Support maintenance diagnostic with additional technical publication material on installation of B.U.D.S. Aircraft.

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Current valid documentation see:
www.FLYROTAX.com

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**1.4) Subject**

B.U.D.S Aircraft Installation Instruction for ROTAX$_®$ engine type 912 i Series.

**1.5) Compliance**

NONE - For Information Only.

**1.6) Approval**

The technical content of this document is approved under the authority of DOA ref. EASA.21J.048.

**1.7) Manpower**

no change

**1.8) Mass data**

no change

**1.9) Electrical load data**

no change

**1.10) Software accomplishment summary**

no change

**1.11) References**

no affected

**1.12) Other puplications affected**

not affected

**1.13) Interchangeability of parts**

not affected

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## 2) Material Information

### 2.1) Material- cost and availability

The B.U.D.S. Aircraft is available free of charge online via http://www.flyrotax.com.

### 2.2) Company support information

### 2.3) Material requirement per engine

### 2.4) Material requirement per spare part

### 2.5) Rework of parts

### 2.6) Special tooling/lubricant-/adhesives-/sealing compound

NOTE:        For proper use and starting B.U.D.S Aircrafta proper USB-to-CAN converter is necessary.

| description | part no. |
|---|---|
| B.U.D.S. set level 1 | 864021 |
| B.U.D.S. set level 2 | 864022 |
| B.U.D.S. set level 3 | 864023 |
| B.U.D.S. set level 4 | 864024 |

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## 3) Accomplishment / Instructions

> NOTE: Before maintenance, review the entire documentation to make sure you have a complete understanding of the procedure and requirements.

**Accomplishment**

All the measure must be taken and confirmed by at least one of the following person or facilities:

- ROTAX$_®$ - Airworthiness representative
- ROTAX$_®$ - Distributors or their Service Center
- Persons approved by the respective Aviation Authority
- Person with type-specific training (applicable only for none-certified engines)

> NOTE: All work has to be performed in accordance with the relevant Maintenance Manual.

**Safety notice**

| ⚠ WARNING | Proceed with this work only in a non-smoking area and not close to sparks or open flames. Switch off ignition and secure engine against unintentional operation. Secure aircraft against unauthorized operation. |

| ⚠ WARNING | Risk of scalds and burns! Allow engine to cool sufficiently and use appropriate safety gear while performing work. |

| NOTICE | Should removal of a locking device (e.g. lock tabs, self-locking fasteners, etc.) be required when undergoing disassembly/assembly, always replace with a new one. |

## 4) Introduction

This document provides information and installation instructions specific to the B.U.D.S. Aircraft Release. Outlined herein are the specific features of the released version.

## 5) Release Package Introduction

This document releases the files in the software package B.U.D.S. published via the ROTAX$_®$ Aircraft Engines official website. Restrictions regarding duplication and license provisions are as follows:

**Copyright:** Copyright © 2012 by BRP-Powertrain GmbH &Co. KG. All rights reserved.

### 5.1) General Operating Cautions

| NOTICE | Always power down the ECU before making or breaking electrical connections. |

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## 6) Guidelines

All BRP Utility and Diagnostic Software ( B.U.D.S.) versions available must be used on a specific product line only B.U.D.S. Aircraft is foreseen for ROTAX$_®$ 912 i Series engines, serial number range as per section 1.1 Applicability.

This Software requires a relevant ECU.
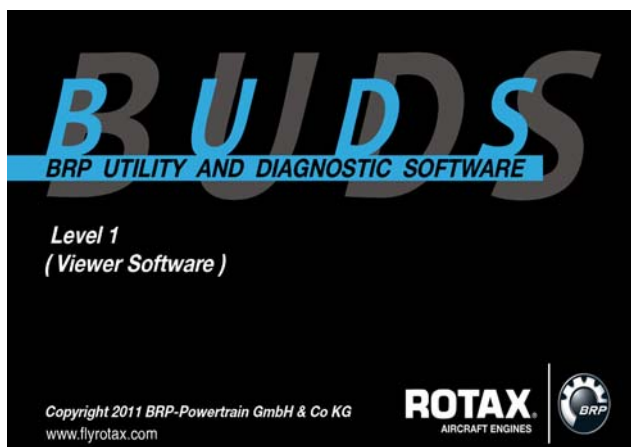
## 7) Minimum Requirements

Minimum requirement for PC or laptop:

- Pentium 1,73 GHz single core
- 1 GB of RAM
- 100 MB of hard disk space
- Windows XP SP 3
- One unused USB port.

## 8) B.U.D.S. Aircraft Software

You will need to download B.U.D.S. software using a computer with Internet access.

During B.U.D.S. installation, an access to internet is not necessary.

NOTE: B.U.D.S. requires the installation of the relevant version of the PCAN-USB drivers. Please follow carefully the instructions below.

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## 9) Downloading B.U.D.S. Aircraft including drivers

1. Logon to www.flyrotax.com and go to:

- Customer Service
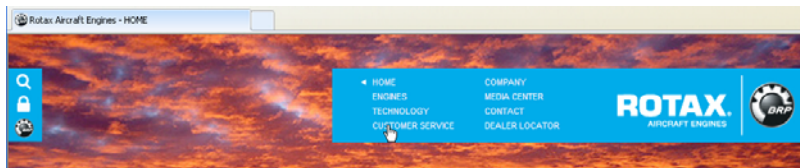


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- Technical Publications
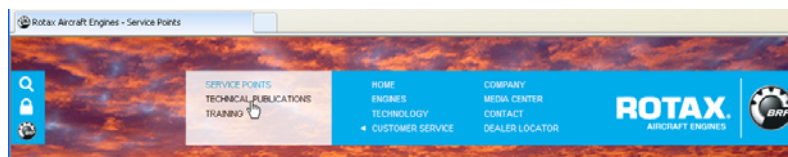


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2. In the box "Engine Type", choose 912 iS, 912 iS Sport or 912 iSc Sport.
3. In the box "Document Type", choose Diverses (E).
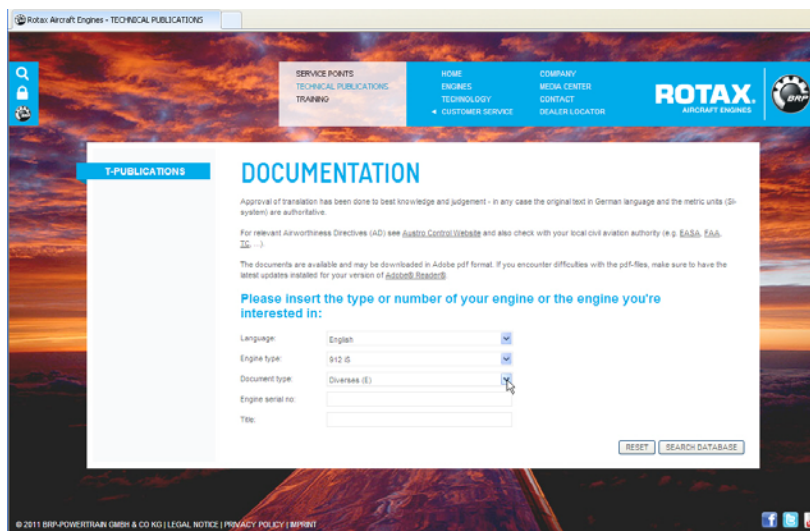


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4. Click on "Search Database".



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5. When the search is completed, choose the most recent version of B.U.D.S. Aircraft.

6. Select the latest version of B.U.D.S. available for your product.

7. Choose the .exe file in the „Download" column (do not rename the file). It is recommended to save it on your desktop.

   NOTE:              If the file is downloaded for a computer that does not have access to inter-
                     net, save the file directly on an USB key (memory stick).



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8. Once the download is completed, proceed with the installation of B.U.D.S. as explained below.

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## 10) B.U.D.S. Installation Instructions

NOTE:             To install or uninstall programs you will need administrator rights for the computer you are on.

The B.U.D.S. Installer is used to install the B.U.D.S. application program on a user PC or laptop. It is not necessary to have Windows NET, Windows Installer, or any other prerequisite software pre-installed on the PC because all necessary software is included inside the B.U.D.S. Installer. The B.U.D.S. Installer is comprised of one file: "**buds_setup.exe**".

To perform an installation, copy the Installer file onto a storage medium (ie. USB Flash Drive, CD, etc), or directly to the user PC.

To begin installation, execute "**buds_setup.exe**" by double left clicking on it from within a Windows Explorer window or the desktop. The B.U.D.S. Installer will prompt the user through the installation process, as follows:

1. Welcome dialog is displayed: Click "Next" to continue.



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2.  License Agreement is displayed: Click "I Agree" then "Next" to continue.
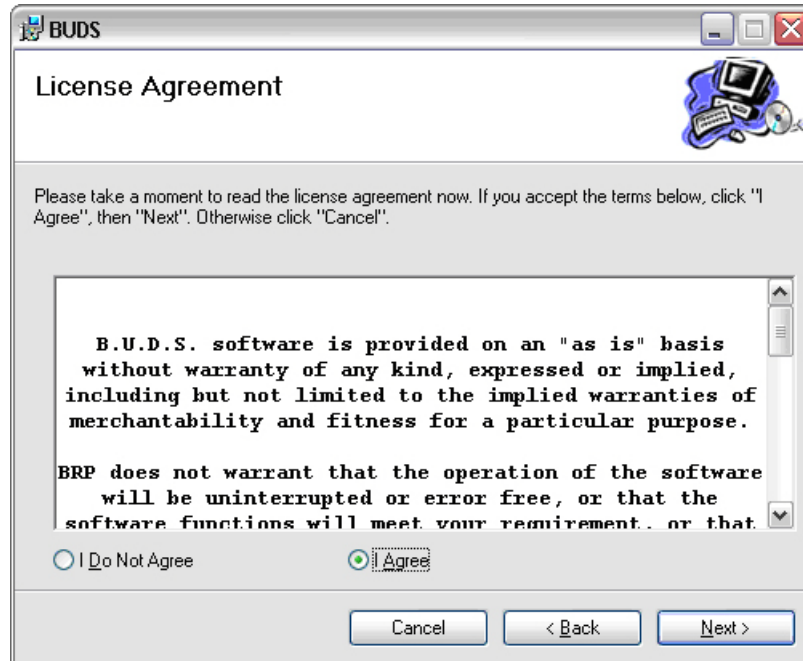


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3.  Select Installation Folder dialog is displayed:



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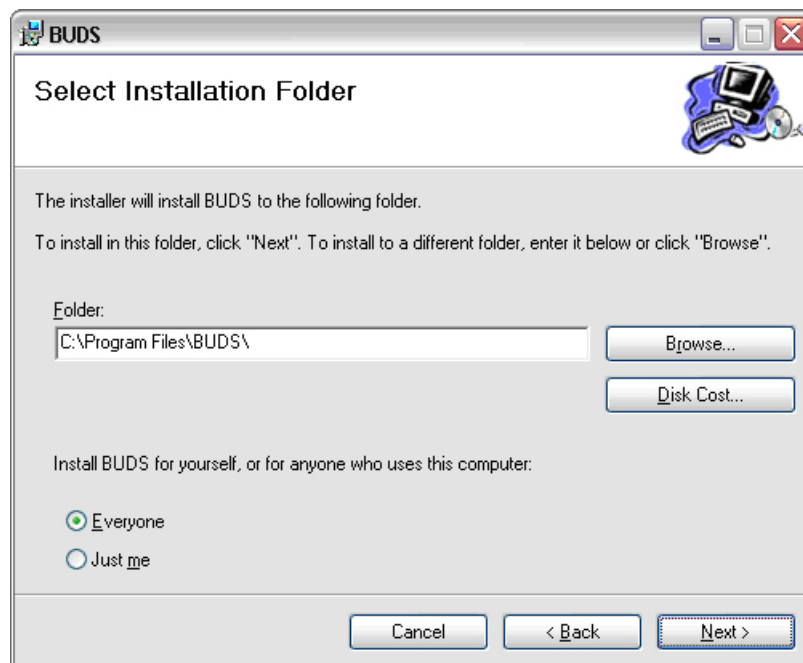
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4. The installation folder may be changed by browsing, but it is recommended that the default folder be used.

5. B.U.D.S. may be installed for all users or only the current user. It is recommended to leave this setting at the default for "Everyone".

6. Confirm Installation dialog is displayed:

- Click "Next" to continue.
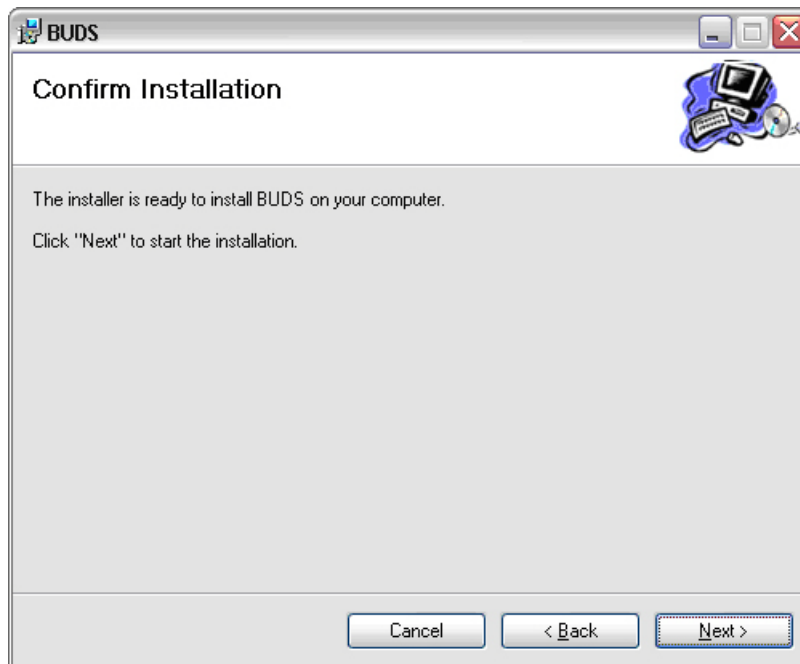


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7. B.U.D.S. installation dialog is displayed.
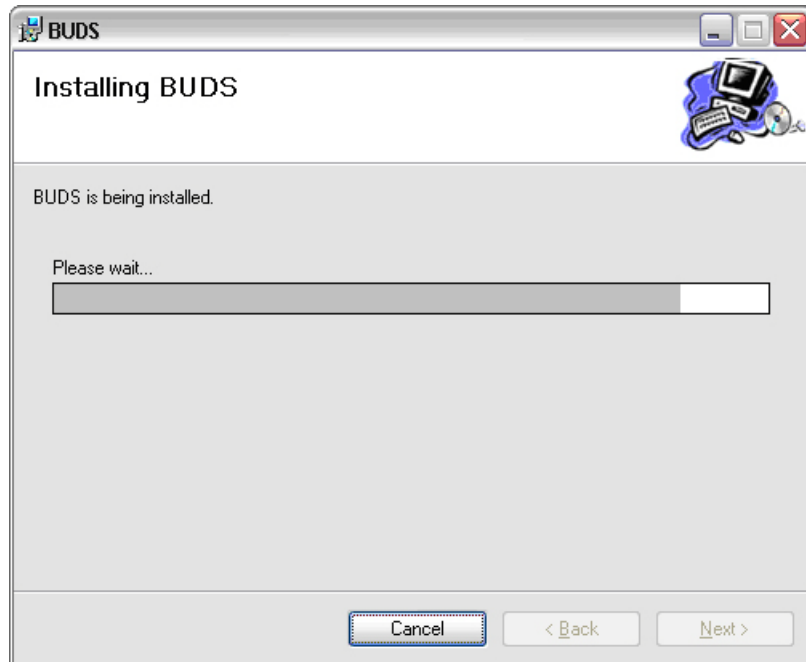


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8. Installation Complete dialog is displayed when done:
- Click "Close" to complete the B.U.D.S. installation.
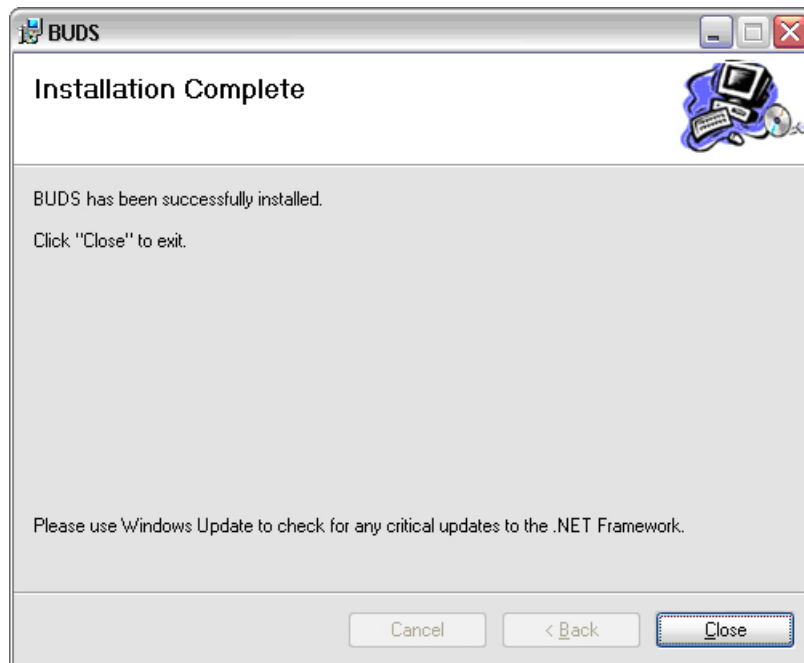


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## 11) PCAN-USB Converter driver installation

For proper function of B.U.D.S. a hardware driver MUST be installed that allows your computer to communicate with the 4 different USB-to-CAN converter from Level 1 to Level 4:

- Level 1 (Viewer Software)
- Level 2 (Service Software)
- Level 3 (Maintenance Software)
- Level 4 (Professional Software)

NOTE:               The hardware driver for all converters is the same. They just differ in their need for different Login data.



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NOTE:               During installation it is necessary to have an appropriate USB-to-CAN converter connected to an USB port on your computer.

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### 11.1) New Driver Installation

The driver is automatically installed at first setup of B.U.D.S..

NOTE:     If you have not already installed a PCAN driver from a previous B.U.D.S. version, you will get a message on your screen to install this.

- Click on "Yes" for further installation of driver.
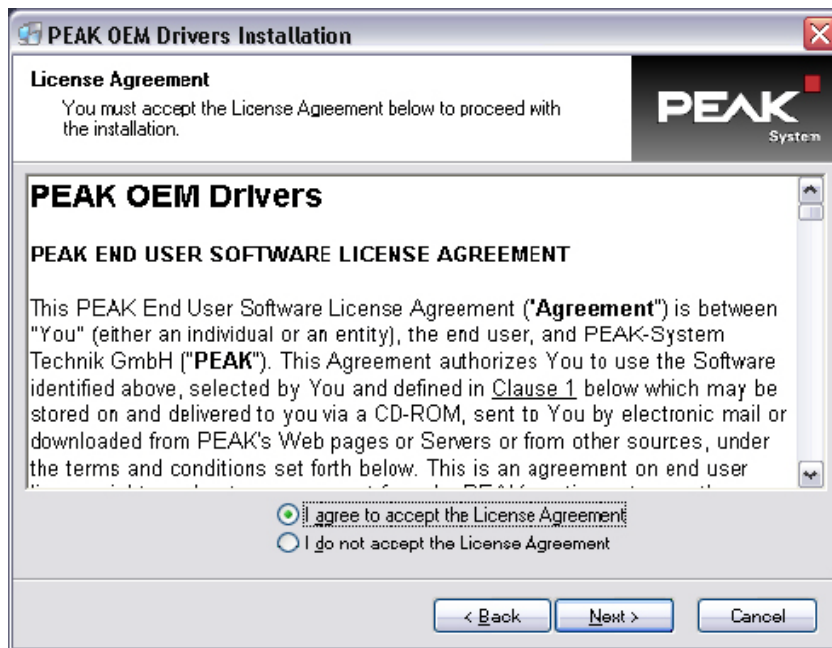


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- Click on "Next" to continue.



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- Click on "I agree to …." when you have read through the License Agreement.

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- Click "Next" to continue.



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- On this screen do not change the location then click on "Next" to continue.



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- Choose for your type of USB-to-CAN converter the PCAN-USB option of the list of drivers to be installed.

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- Click "Next" to continue.

Incorrect Selection
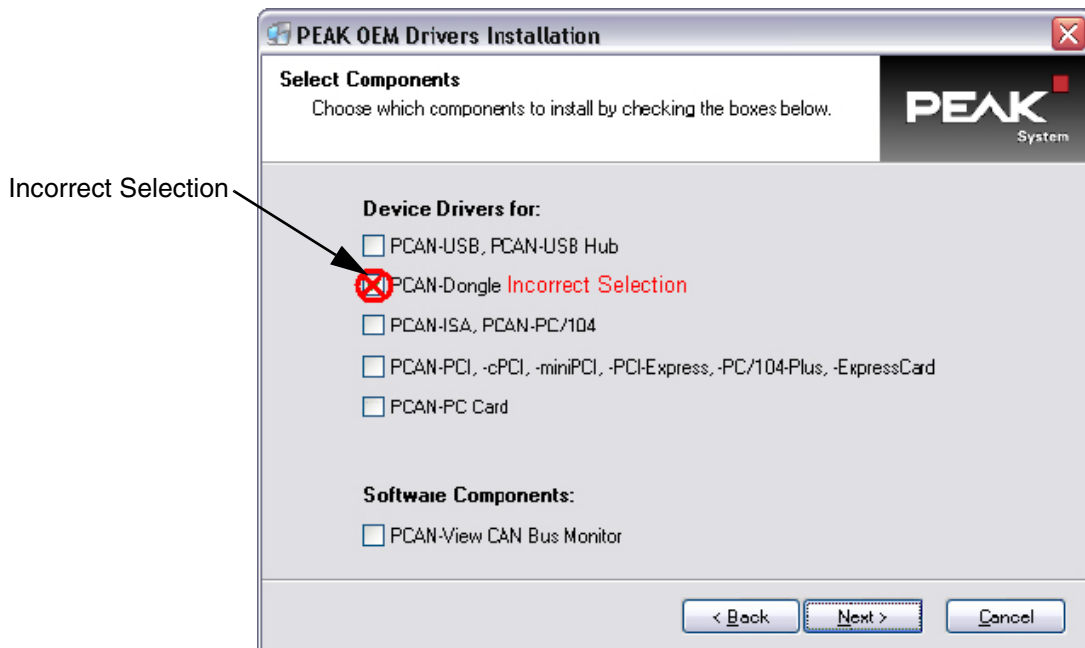


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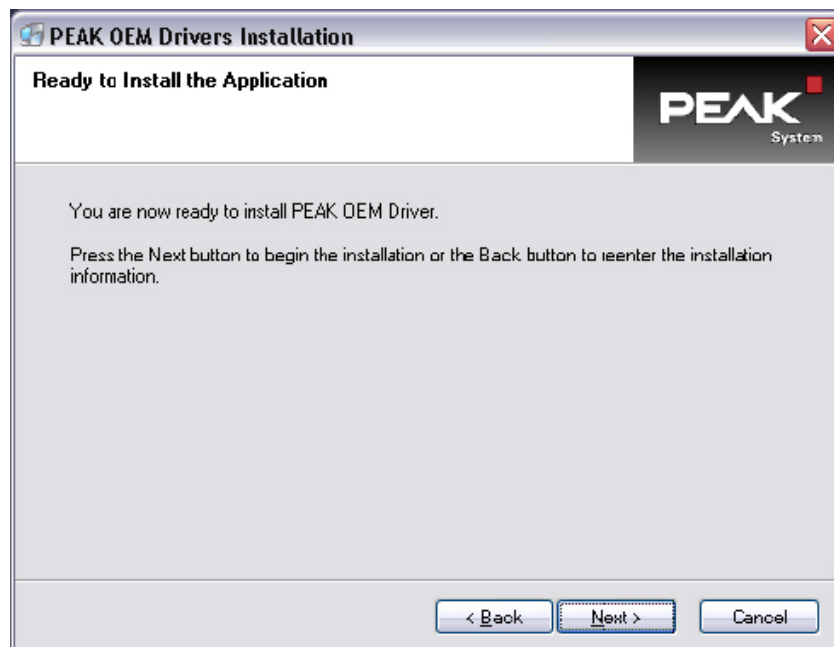NOTE: Do not use the preselected PCAN-Dongle Selection. Decoder will not communicate with this selection.

- Choose the PCAN-USB, PCAN-USB Hub selection.
- Click "Next" to continue.

Correct Selection
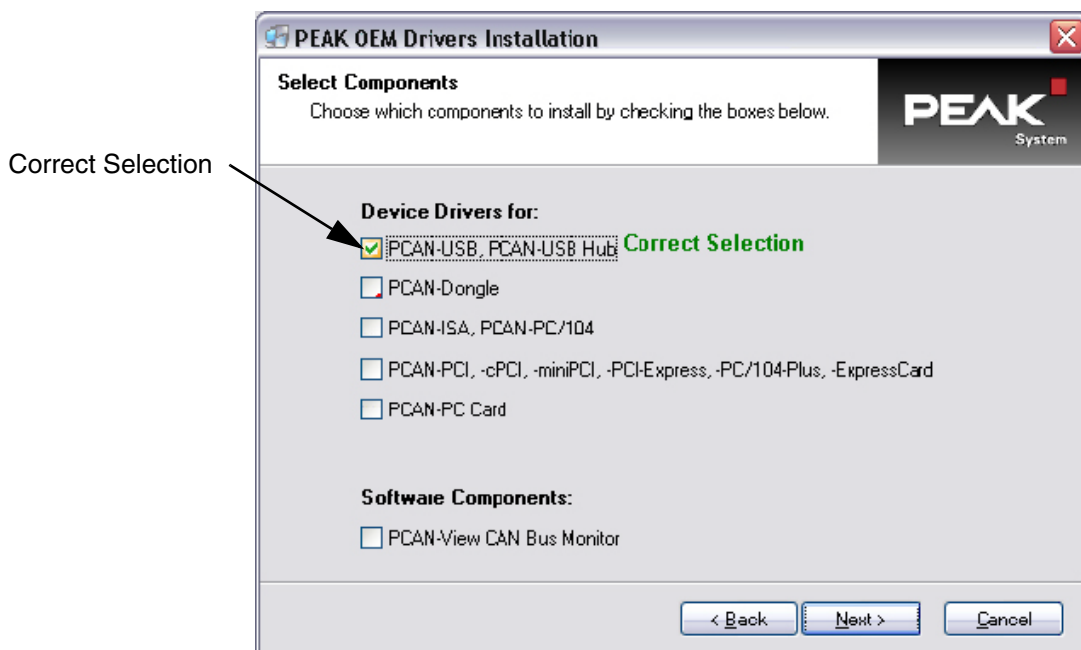


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- Click on "Next" to continue.

- Click on "Next" to continue.

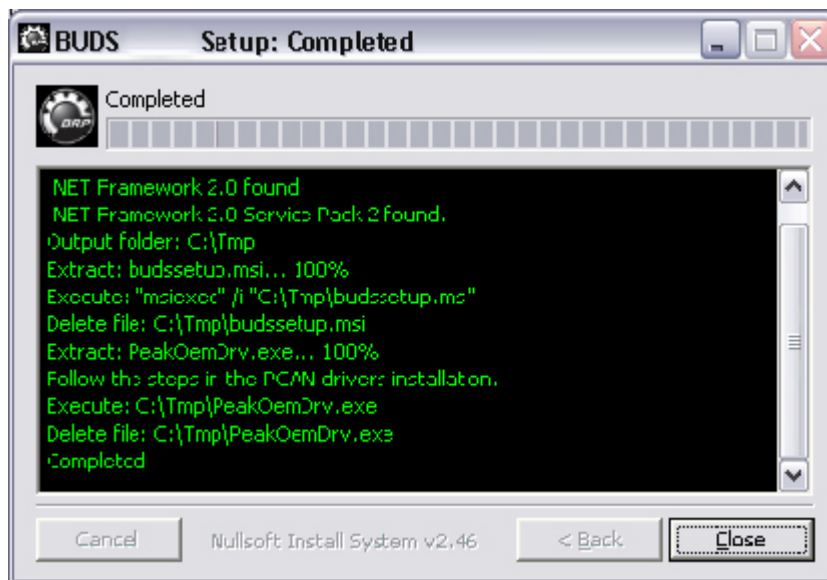- Wait while "Setup" installs the converter on your PC or laptop.

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- Installation is complete. Click "Finish>" to complete setup of PCAN driver.

- Click on "Close" to complete setup of B.U.D.S..

After the initialization process is finished successfully the red LED on the USB-to-CAN converter is illuminated.

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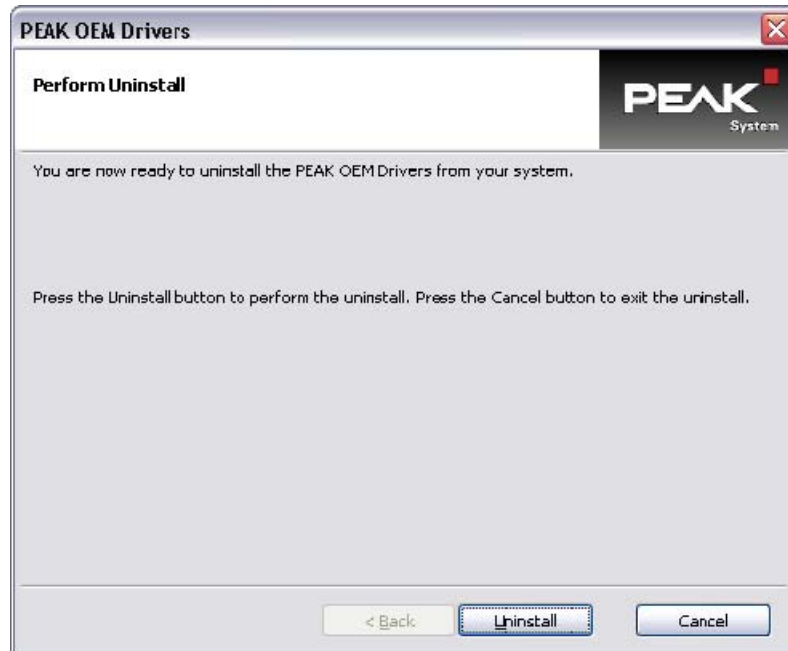# SERVICE INSTRUCTION

### 11.2) Uninstalling (Previous) Driver

If you have installed any previous drivers, these drivers might need to be uninstalled. If you need to uninstall the PCAN driver proceed as follows:

- From your start menu choose control panel "Add or Remove Program".
- Double click "Change/Remove".
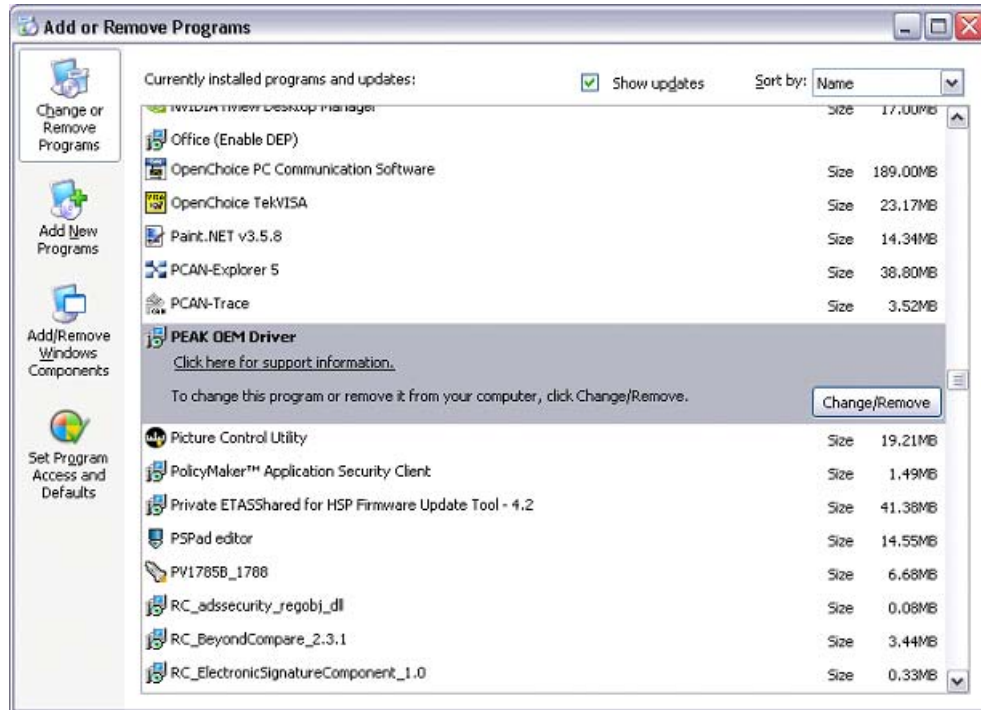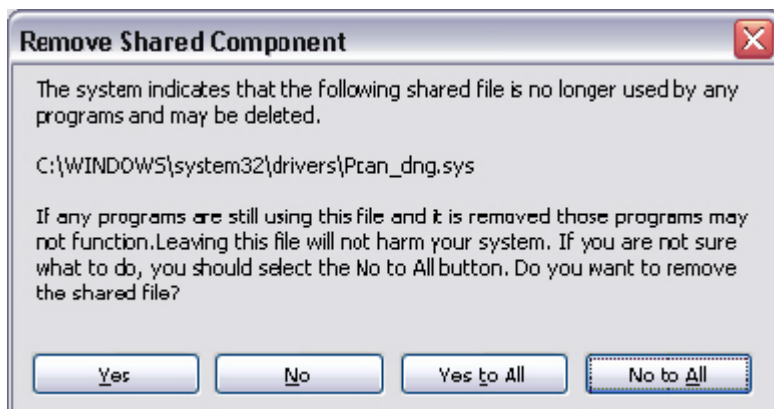


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- Click "Uninstall".



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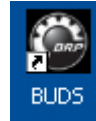- Wait while "Perform Uninstall" uninstalls the driver from your computer.



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- Click "Yes".
- Program removal will proceed until completion.

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## 12) Using B.U.D.S. Aircraft

To start the software, double click on the B.U.D.S. icon on your desktop or launch B.U.D.S. from its stored location: C:\Program Files\B.U.D.S.



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NOTE: The USB-to-CAN converter must be connected to the USB port. For use with an ECU, connect the USB-to-CAN converter to the relevant Maintenance Port in the Aircraft or the relevant Service Wiring Harness assy.

### 12.1) First Time Use With a New/different Level USB-to-CAN converter

The first time you use B.U.D.S., it will request a Login with Username, USB-to-CAN Serialnumber and Activation Key. Each time you install a new/different Level USB-to-CAN converter, it will request a Login with USB-to-CAN Serialnumber and Activation Key.



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### 12.2) Activation key for Login

To obtain the activation key for Login you will receive a relevant E-Mail from your distributor or get data enclosed to the B.U.D.S. set shipment on a label/tag.
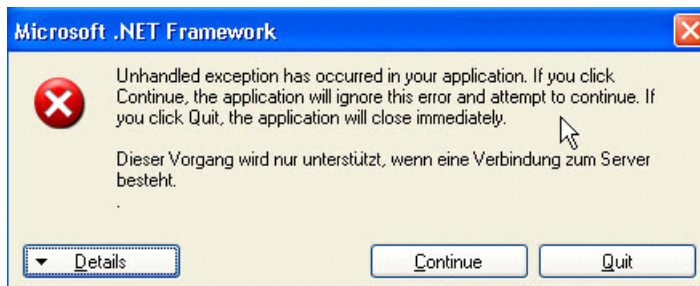
### 12.3) Starting B.U.D.S. Aircraft

1. During program initialization, B.U.D.S. tries to communicate with the USB-to-CAN converter. If B.U.D.S. can not find it on any of the computer´s ports, it displays the following screen.

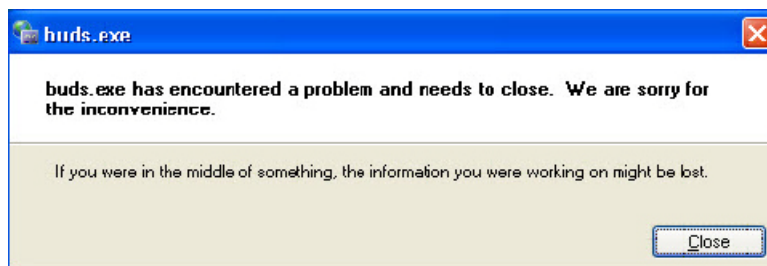- If you click "OK", B.U.D.S. starts its termination process.



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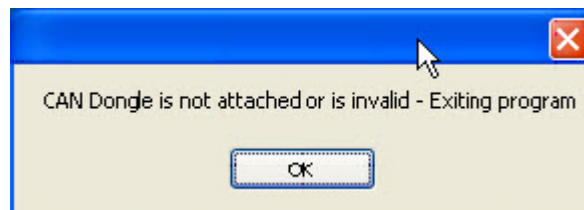
- Then you should select "Quit".

- And "Close" the program execution.

2. If the converter is connected at start up in the correct way and at the port that was used during driver installation B.U.D.S. will start with a Splash Screen showing the relevant B.U.D.S. level being used depending on the applied converter level type.

## 12.4) Using B.U.D.S. Aircraft

The graphical user interface complies with common Windows-Standard.

For the specific information on working with B.U.D.S. Aircraft also use the „Help"-function integrated into the software.
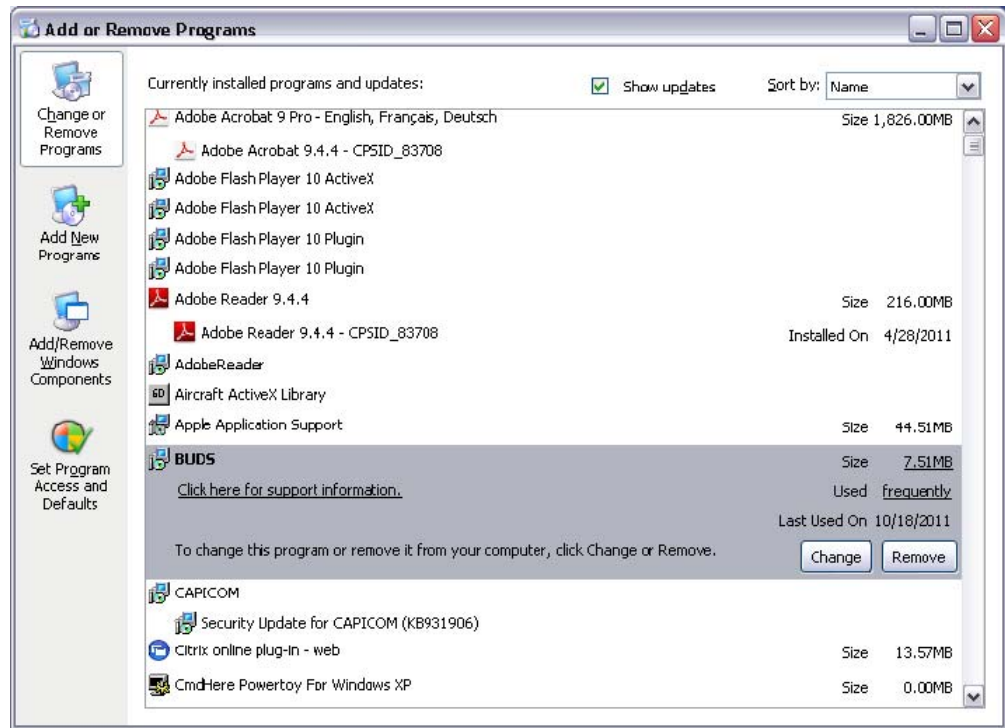
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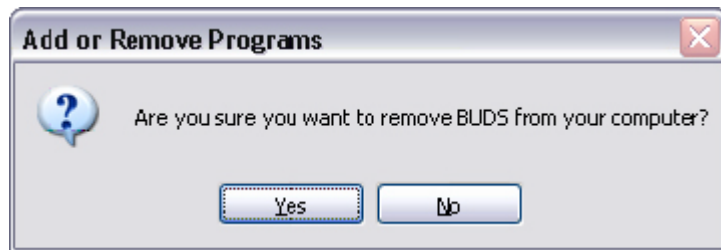
## 13) Uninstallation Instructions

B.U.D.S. Aircraft can be uninstalled by using the normal Windows Control Panel / Add or Remove Programs function. To uninstall, perform the following steps:

1. Open Windows Control Panel and select "Add or Remove Programs".

2. Select B.U.D.S. and left click "Remove."



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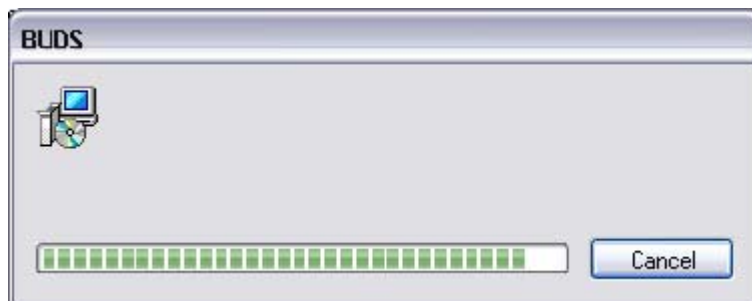3. Click "Yes" to continue or "No" to cancel the un-install.



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4. The un-install process takes two to three minutes to complete.



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NOTE:        There is a period of apparent inactivity during the un-install. This is normal, so please be patient as the un-install removes B.U.D.S. from the Windows Registry.