

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		Identifies an instruction which, if not followed, may cause serious in- jury or even fatal injury.
		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 give	es you tips and behaviors to environmental protection.
	NOTE:	Information useful for better handling.

Engine type

1) Planning information

1.1) Applicability

All versions of the engine type:

graphic.

NOTE:

 912 i Series
 ALL

 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.

Serial number

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

1.2) Concurrent ASB/SB/SI and SL

none

-

- 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: <u>www.FLYROTAX.com</u>

1.4) Subject

B.U.D.S Aircraft Installation Instruction for $\text{ROTAX}_{\textcircled{R}}$ 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

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

none

2.3) Material requirement per engine none

2.4) Material requirement per spare part

none

- 2.5) Rework of parts
 - none

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

3) Accomplis	nment / Instruction	S
	NOTE:	Before maintenance, review the entire documentation to make sure you have a complete understanding of the procedure and requirements.
Accomplish- ment	All the measure must b - ROTAX _® - Airworth - ROTAX _® - Distribut - Persons approved b - Person with type-sp NOTE:	be taken and confirmed by at least one of the following person or facilities: iness representative ors or their Service Center by the respective Aviation Authority becific training (applicable only for none-certified engines) All work has to be performed in accordance with the relevant Maintenance Manual.
Safety notice		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.
		Risk of scalds and burns! Allow engine to cool sufficiently and use appro- priate 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 $ROTAX_{\textcircled{B}}$ Aircraft Engines official website. Restrictions regarding duplication and license provisions are as follows:

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5.1) General Operating Cautions



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

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6) Guidelines

I

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 ${\rm ROTAX}_{\textcircled{B}}$ 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.

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

- 1. Logon to www.flyrotax.com and go to:
- Customer Service



- Technical Publications

Rotax Aircraft Engines - Service Points					
The second	Constant of the second	and -	100	Carlos -	- 34
		HOME ENGNES TECHNOLOGY CUSTOMER SERVICE	COMPANY MEDIA CENTER CONTACT DEALER LOCATOR	ROTAX.	

- 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".

Language:	English	v	
Engine type:	912 iS	~	
Document type:	Diverses (E)	×	
Engine serial no:	I		
Title:			

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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 internet, save the file directly on an USB key (memory stick).

NUMBER OF DOCUMENTS FOUND: DV-812 912 (5, 912 (5c) 0 0 19:03.2012 BRP Uity and Disposition Software B JLD S. Aircraft V2.0 NOTE: Software are obleged are Date or Inford	T-PUBLICATIONS	<u>INFO #</u>	ENGINE	ISSUE	REVISION	DATE	PART #	TITLE	DOWNLOAD
1 NOTE: Sorting can be changed by clothing on Date or Tinfo #	NUMBER OF DOCUMENTS FOUND:	DIV-912	912 iS, 912 iSc	0	0	19.03.2012		BRP Utility and Diagnostic Software B.U.D.S. Aircraft V2.0	buds setup V2 0.e.
NOTE: Sorting can be changed by clicking on Date or Tinfo #	4								
olioking on "Date" or "Info ≇".									
	NOTE:								

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

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 preinstalled 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.

😼 BUDS 📃 🗆 🔀
Welcome to the BUDS Setup Wizard
The installer will guide you through the steps required to install BUDS on your computer.
WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any portion of it, may result in severe civil or criminal penalties, and will be prosecuted to the maximum extent possible under the law.
Cancel < <u>B</u> ack <u>N</u> ext >

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



3. Select Installation Folder dialog is displayed:

🛃 BUDS	
Select Installation Folder	
The installer will install BUDS to the following folder.	
To install in this folder, click "Next". To install to a different folder, enter it below or click "Browse".	
Eolder:	
C:\Program Files\BUDS\ Browse	
Disk Cost	
Install BUDS for yourself, or for anyone who uses this computer:	
⊙ <u>E</u> veryone	
◯ Just <u>m</u> e	
Cancel < <u>B</u> ack <u>N</u> ext >	
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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.

i BUDS	
Confirm Installation	
The installer is ready to install BUDS on your computer.	
Click "Next" to start the installation.	
Cancel < <u>B</u> ack	<u>N</u> ext >

🛃 BUDS			
Installing BUDS			
BUDS is being installed.			
Please wait			
	Cancel	< <u>B</u> ack	<u>N</u> ext >

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

- 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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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.



- 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.

stination Directory		
Select the directory where the application will b	e installed.	PEAK
PEAK OEM Driver will be instaled in the Dest into a different directory, click Browse, and se	ination Directory specified below lect another directory.	v. Toinstall
You can choose not to install this product by	clicking Cancel.	
C Destination Directory		
C:\Program Files\PCAN		līomse
	≺ <u>B</u> ack <u>N</u> ext≻	Cancel

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d05793. 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.

SERVICE INSTRUCTION

PEAK OEM Drivers Installation Select Components PEA Choose which components to install by checking the boxes below. Incorrect Selection **Device Drivers for:** PCAN-USB, PCAN-USB Hub PCAN Dongle Incorrect Selection PCAN-ISA, PCAN-PC/104 PCAN-PCI, -cPCI, -miniPCI, -PCI-Express, -PC/104-Plus, -ExpressCard PCAN-PC Card Software Components: PCAN-View CAN Bus Monitor < <u>B</u>ack <u>N</u>ext > <u>C</u>ancel

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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.



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- Click on "Next" to continue.



- Click on "Next" to continue.



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

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



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



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

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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".

🖏 Add or Re	move Programs				X
5	Currently installed programs and updates:	Show updates	Sort by: Name		v
Change or Remove			Size	17.00MB	^
Programs	OpenChoice PC Communication Software		Size	189.00MB	
-	OpenChoice TekVISA		Size	23.17MB	
Add New Programs	Paint.NET v3.5.8		Size	14.34MB	
-	PCAN-Explorer 5		Size	38.80MB	
9	Representation PCAN-Trace		Size	3.52MB	
Add/Remove <u>Wi</u> ndows Components	JB PEAK OEM Driver Click here for support information.				m
	To change this program or remove it from your comp	puter, click Change/Remove.	Chan	ge/Remove	
Ect Decayor	nicture Control Utility		Size	19.21MB	
Access and	PolicyMaker [™] Application Security Client		Size	1.49MB	
Derauts	Private ETASShared for HSP Firmware Update Tool	4.2	Size	41.38MB	
	SPad editor		Size	14.55MB	
	PV1785B_1788		Size	6.68MB	
	RC_adssecurity_regobj_dl		Size	0.08MB	
	RC_BeyondCompare_2.3.1		Size	3.44MB	
	RC_ElectronicSignatureComponent_1.0		Size	0.33MB	~

PEAK OEM Drivers 🛛 🛛 🔀				
Perform Uninstall		sten		
You are now ready to uninstall	the PEAK OEMDrivers from your system.			
Press the Uninstall button to p	erform the uninstall. Press the Cancel button to exit the uninstall.			
	< Back Uninstall Cancel			

- Click "Uninstall".

TAK OEM DITVEIS		
Perform Uninstall		
1994.	12	
Performing uninstal of PEAK (DEM Drivers	
Press the Cancel button to ca	incel the uninstal process and exit this program.	
	· · · · · ·	
Deleting Service:		
Deleting Service: Pcan_dng		
Deleting Service: Pcan_dng		
Deleting Service: Pcan_dng		
Deleting Service: Pran_dng		
Deleting Service: Pran_dng		
Deleting Service: Pran_dng	< Back [binctal]	Carcel

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



- 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.

Login		
Dongle S/N:		
Activation Key:		
	ОК	Cancel

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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.

		×
CAN Dongle is not attached or is	invalid - Exiting	program
œ		

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- Then you should select "Quit".



- And "Close" the program execution.

h h	uds.exe	X
b tł	uds.exe has encountered a problem and needs to close. We are sorry for ne inconvenience.	
3	If you were in the middle of something, the information you were working on might be lost.	

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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.

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."

Add or Re	move Programs			
5	Currently installed programs and updates:	now up <u>d</u> ates	Sort by: Name	
hange or	≽ Adobe Acrobat 9 Pro - English, Français, Deutsch		Size	1,826.00MB
rograms	Adobe Acrobat 9.4.4 - CPSID_83708			
	🛃 Adobe Flash Player 10 ActiveX			
1	🔀 Adobe Flash Player 10 ActiveX			
dd <u>N</u> ew	🛃 Adobe Flash Player 10 Plugin			
rograms	🛃 Adobe Flash Player 10 Plugin			
-	Adobe Reader 9.4.4		Size	216.00MB
<u></u>	Adobe Reader 9.4.4 - CPSID_83708		Installed On	4/28/2011
1/Remove jindows	AdobeReader			4-9
nponents	60 Aircraft ActiveX Library			
	🕼 Apple Application Support		Size	44.51MB
Program	j ^g BUDS		Size	7.51MB
cess and	Click here for support information.		Used	frequently
er aurus			Last Used On	10/18/2011
	To change this program or remove it from your computer, click Change	or Remove.	Change	Remove
	R CAPICOM			
	Recurity Update for CAPICOM (KB931906)			
	Citrix online plug-in - web		Size	13.57MB
	🔜 CmdHere Powertoy For Windows XP		Size	0.00MB

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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.

BUDS	
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	Cancel

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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.