



www.vdo.com

Digital BVDR Tachograph

Operator's Instruction manual

VDO

Manual Version

Date	Version	Application
Fev / 2017	1.7	Digital tachographs with SW 6.6I.

Foreword

Dear Operator,



This document aims to provide information about all the features offered by digital VDO tachograph to the user.

Information, descriptions and illustrations in this manual may be changed without notice at any time and does not represent any penalty or sanction to Continental Brasil Indústria Automotiva Ltda.

This document must not be reproduced in whole or in part without the prior written consent of Continental Brasil Indústria Automotiva Ltda. The product has 1 year warranty from the tachograph purchase date or 0km vehicle, already comprehended the legal warranty.

Manufacturer:

Continental Brasil Indústria Automotiva. Ltda

Guarulhos – São Paulo - Brazil

www.extranetvdo.com.br

Contents

1.	Overview of product and system.....	9
1.1	Overview.....	9
1.2	Display and operating elements for Digital Tachograph	11
1.3	Main data in memory	13
1.4	Export data via USB to Flash Drive.....	14
1.5	Export data via telematics device	14
2.	Operation Menu	15
2.1	Simplified navigation structure using menu.....	15
2.1.1	Access Buttons.....	15
2.2	Main screen	16
2.2.1	Description.....	16
2.2.2	Self-Test	17
2.3	Summary of Menu Functions	19
2.4	Main Functionalities of Menu.....	22
2.4.1	New Driver Registration	22
2.4.2	Driver Unregistration	23
2.4.3	Driver Login	23
2.4.4	Driver logout	24
2.4.5	Driving time control and rest.....	25
2.4.6	Activate/Deactivate sound signal	27
2.4.7	Print function.....	28
2.4.8	Data upload using USB	29
2.4.9	Integration with telematics device	30
2.4.10	Daylight Saving Time adjustment.....	32
2.4.11	Clock adjustment - RTC	33
2.4.12	Select the language.....	34
2.4.13	Inserting a new paper roll	35
2.4.14	Information in printing - Standard Application.	37
2.4.14.1	Diagram tape header.....	38
2.4.14.2	Operation information in diagram tape	40
2.4.14.3	Footer of diagram tape	41
2.4.15	Information in printing - Chile Application.....	42
2.4.15.1	Diagram tape header.....	42
2.4.15.2	Operation information in diagram tape	43

3.	Troubleshooting guide	44
3.1	General information and Meanings	44
4.	Periodic inspection	51
5.	Appendix	52
5.1	Pictograms.....	52

Illustrations in Manual

All figures are merely illustrative of this manual for reference, may be in part or in whole different from final product.

Symbology



Stop!

Pay special attention in this statement, to minimize risk of possible accidents.



Attention!

The text containing this symbol contains important information, which should be observed to prevent data loss or damage to the digital tachograph.



Comment

Additional important information from product.



Manual

Reference to additional documentation, such as repair manual of the digital tachograph.

Handling BVDR



Attention!

Be careful when opening and closing the printer compartment. This compartment is used only for the use of VDO roll. Always keep the printer compartment closed.



Attention!

Some messages in the digital tachograph display or audible warnings may occur while the vehicle is in motion. Do not divert your attention because of these warnings. Please wait for a safe opportunity to check them.

Follow the general comments to avoid damaging the Digital BVDR Tachograph and the operator:

- Only an authorized VDO workshop is able to perform installations and repairs on your digital tachograph.
- Only use thermal papers of the VDO brand, which are tested, approved and ensure the proper functioning of the printer. The use of unsuitable paper can cause damage to the tachograph.
- Do not use sharp objects or cutting objects in buttons, such as pens, styluses, pliers, screwdrivers, etc.
- In cleaning the digital tachograph, do not use water jets or abrasive cleaners or solvents such as thinner or petroleum products. When dirty, it is recommended to use a soft cloth and isopropyl alcohol.
- Digital BVDR tachograph has an auxiliary battery to ensure the operation of the clock in case of loss of external power.

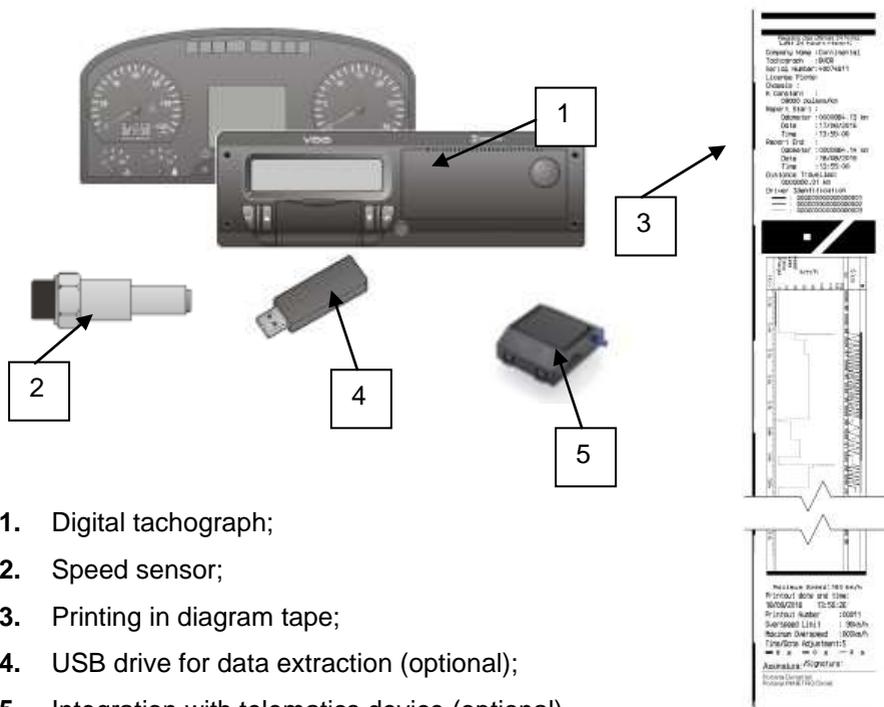
List of Abbreviations

CAN	Vehicle's communication interface (Controller Area
DIN	German industrial standard (Deutsche-Industrie-Norm)
CONTRAN	Brazilian National Traffic Council.
GPS	Global Positioning System
DLN	Driver License Number
GPRS	General packet radio service
hs	Hour
HMI	Human Machine Interface
K	Vehicle's characteristic real factor (pulses / km)
INMETRO	National Institute of Metrology, Quality and Technology.
KITAS	Kienzle Tachograph Sensor
km	Kilometer
km/h	Kilometers per hour
LCD	Liquid Crystal Display
min	Minutes
PIN	Personal Password (Personal Identification
PWM	Pulse Width Modulation
TD	Technical Documentation
UTC	Universal Time Coordinated.
V	Speed [km/h]
VDR	Vehicle Data Recorder.
VIN	Vehicle identification number.
VLPN	Vehicle License Plate Number.
VSS	Vehicle speed sensor.
W	Vehicle's characteristic real factor (pulses / km)

1. Overview of product and system

1.1 Overview

BVDR is a recording and indicator unit which complies with the ordinance 201/04 from Inmetro and resolutions 92/99 from Contran both applicable in Brazil only and also 137/97 from Chile. The digital tachograph records information related to vehicle's activities as well as its driver. A sensor is used to calculate the actual speed of the vehicle. The data can be viewed by printing the information of the last 24 hours, using download in electronic media or radio frequency.





Attention

The digital BVDR tachograph operates at voltages from 12 volts to 24 volts. And may not be subject to lower voltages than 9 volts or greater than 32 volts.

Speed sensor

The speed sensor is part of the digital tachograph system. It provides the necessary signal to recording distance and speed.

Printing in diagram tape

The thermal printer integrated in the digital tachograph can print, when requested via options menu, the data report from the last 24 hours, in case of standard application and the last five minutes of vehicle operation, in case of Chile application.

USB Drive - Data Extraction (USB 2.0, FAT32)

Through orientation of LCD display and using the navigation buttons, the operator can select the "USB FILE RECORDING", which lets you save the information recorded on the digital tachograph in an external electronic memory. The data are protected by encryption and cannot be viewed in any application, requiring specific VDO ON BOARD application, subject to charges.

Software for viewing VDO ON BOARD

VDO On Board is the fleet management solution from VDO based on digital tachograph. Through this platform is possible to issue reports, view vehicle real-time location and also features digital storage and secure information.

With the VDO On Board, its fleet gains efficiency and reduces costs with an innovative and highly reliable technology.

See our website www.fleet.vdo.com.br for more information.

Telematics Device

In addition to downloading data made electronically through USB disk use (pen drive), the digital tachograph also features integration with a telematics device (optional) to perform the same function via radio frequency, or even the possibility of sending and receiving data to the tachograph remotely.



Visit the VDO on the Internet to learn more about the services offered with the digital tachograph information and *VDO On Board* application.

www.fleet.vdo.com.br

1.2 Display and operating elements for Digital Tachograph

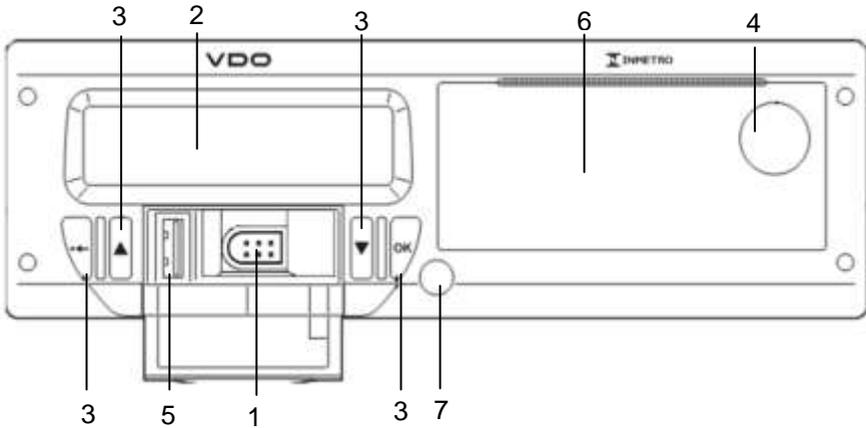


Figure 1.2.1 - Digital Tachograph Front Panel

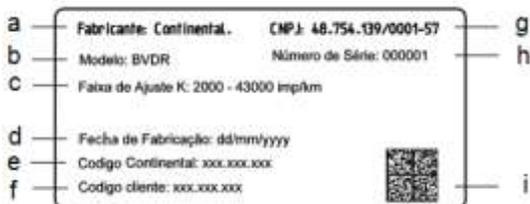
- 1 Calibration and programming interface**
Used for calibration and programming the digital tachograph.
- 2 LCD display**
Indication Interface to driver. Features selection via the menu.
- 3 Navigation buttons**
It allows you to access functions via tachograph menu.
- 4 Printer release button**
Through the push of this button you can eject the printer compartment. This button should not be pressed with the vehicle moving, only in case of VDO paper change or positioning settings of it.
- 5 USB interface**
Download BVDR data and / or identification of drivers.
- 6 Printer**
Printed data extraction device. In the printer internal part is the product identification label, which can be applied in two ways:

A. Standard application:



- (a) Manufacturer's ID;
- (b) Product model;
- (c) Adjustment range of speed constant k;
- (d) Manufacturing Date;
- (e) Code of Continental (Tachograph manufacturer);
- (f) Client code (Vehicle manufacturer);
- (g) Manufacturer's CNPJ;
- (h) Serial number of digital tachograph;

B. (i) Data Matrix for 2D barcode readers;Chile Application:



- (a) Manufacturer's ID;
- (b) Product model;
- (c) Adjustment range of speed constant k;
- (d) Manufacturing Date;
- (e) Code of Continental (Tachograph manufacturer);
- (f) Client code (Vehicle manufacturer);
- (g) Manufacturer's CNPJ;
- (h) Serial number of digital tachograph;
- (i) Data Matrix for 2D barcode readers;

7 Opening Seal of Digital Tachograph Plastic access safety seal for recording unit.

1.3 Main data in memory

Driver registration code

BVDR has a maximum capacity of 50 Driver Codes and their respective National Driver's License. It's a circular memory and the inclusion of the 51th driver codes overwrites the 1st driver code.

Driver identification

Every driver before starting their journey must be identified. For more information, see items 2.4.3 and 2.4.4.

Speed and Distance Traveled

The speed and distance information are stored in memory and can be verified in the following ways:

- Speed verification and total odometer on the main screen;
- Making the printing of report in VDO paper;
- Viewing the electronic file extracted from the tachograph.



It is not possible to sign in more than 01 driver at the same time. The last 3 drivers identified, in the last 24 hours are displayed in the printout.

Error Log

When a serious failure or momentary error occurs, it will be recorded on the digital tachograph memory with the code, date and time of the failure.

Calibration Parameters

The digital tachograph has some parameters that are metrologically controlled by Inmetro or other local metrology agency and therefore are subject to periodic checks by competent authorities, such as chassis of the vehicle; K characteristic factor; vehicle plate; speeding limit, etc.

Printing or Download of Data

The digital tachograph, on request, can provide the information recorded in the memory in three possible ways, which are:

- By printing data in diagram tape;
- By downloading data into Flash drive and visualization of information collected in the *VDO On Board* platform. For more information please visit: www.fleet.vdo.com.br;
- By downloading the data via telematics device when installed in the vehicle.

1.4 Export data via USB to Flash Drive

Using the USB interface for extracting data stored in the digital tachograph memory, this data can be viewed in the form of report through Web VDR platform, for more information visit: www.fleet.vdo.com.br.



Attention

The use of USB connector is not allowed for other functions, such as charging electronic devices. This can damage and / or cause a malfunction of the tachograph.



Attention

By the time the download is being performed, the operator must wait obligatorily that the information "completed disk recording" is displayed before removing the flash drive. Removal of USB stick while data recording is in progress could damage the USB stick or its file system thereby corrupting data in the USB stick.

1.5 Export data via telematics device

Using the integration of a telematics device to the digital tachograph, it is possible the digital tachograph BVDR connection with the web fleet management solution. Data stored in memory can be transferred remotely, without the use of flash drive and displayed in the form of report, in *VDO On Board* management software.



2.2 Main screen

2.2.1 Description

This screen, as Figure 2.2.1.1 indicates all key information from the tachograph.

(1) Conditions Speed, every 1km/h. Reaching certain speeds, speed characters will flash for 5 seconds, this is a normal characteristic of the product;

(2) Date programmed in Digital tachograph as dd/mm/yy;

(3) Local time, as hh:mm;

(4) Total odometer of vehicle;

(5) Vehicle Status:

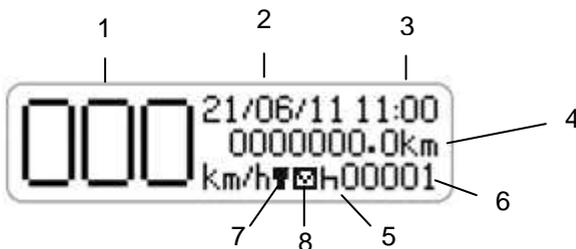
- Rest / Stopped h
- Travelling / Direction 0

(6) Driver code - Logged Driver;

The driver code will only be correctly identified after the previous registration, as per item 2.4.1 of this manual. In case there is no driver identified, "?????" is displayed on the screen and in the case of direction, an audible alarm will be activated. To disable the alarm just press the OK button.

(7) Print receipt (in case of integration with telematics device);

(8) Available message (in case of integration with telematics device).



Illustrative Figure 2.2.1.1 – Main screen of Digital BVDR Tachograph

2.2.2 Self-Test

This is a test performed by the digital tachograph, whenever turned on, for verification of its internal features. If the test is successful the screen regarding figure 2.2.2.1 will be displayed.

If an error is detected, the error message and icons will be shown as in Figure 2.2.2.2.

Successful Self-test

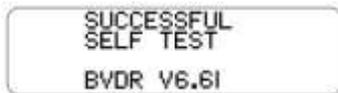


Figure 2.2.2.1

Unsuccessful Self-test

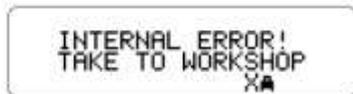


Figure 2.2.2.2

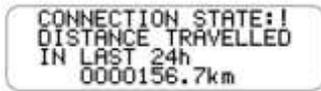


Attention

In case of failed internal test - maintenance, the vehicle's driver must as soon as possible drive the vehicle to an authorized VDO service station for evaluation and fault correction. In case of verification by the competent authority and with this failure, the vehicle can be seized and the driver fined.

Traveled distance – 24 hours

Function which shows the distance traveled in the last 24 hours of vehicle operation. To view this screen, simply press the  button from the main screen.



If the button is pressed again, the digital tachograph returns to its main screen.

The connection status with pictogram, located on the first line of the screen details the BVDR connection status with the fleet management solution, which can be 4 ways:

 = Connection between BVDR + VDO telematics device

 = Connection between BVDR + telematics device + *VDO On Board*

! = No connection available

G = Connection between BVDR + Generic telematics device



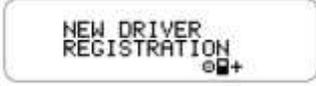
Attention

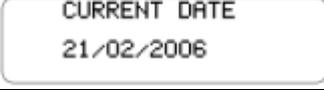
The connection status will be displayed only in case of acquisition of telematic equipment and Continental's fleet management solution.



Generic telematic devices are telematic equipment not supplied by Continental, but compatible with BVDR communication protocol

2.3 Summary of Menu Functions

Screen	Description
	<p>Main screen.</p> <p>In this screen by pressing the "DOWN" key, the following screen will be shown.</p>
	<p>This function allows the operator to select the code from a previously already registered driver in BVDR.</p>
	<p>This function helps the driver to control the direction and rest according to CONTRAN legislation.</p>
	<p>This function allows the operator to add the driver code from the list of registered drivers in BVDR. This menu will be unavailable if already a driver is logged in.</p>
	<p>This function allows you to define the area of operation of the vehicle in order to determine the amount of time to be considered as rest.</p>
	<p>This function allows you to view the still active errors in the digital tachograph. If the error no longer exists, this will be considered as "last errors".</p>
 	<p>This function allows the operator to print on the tape the last 24 hours, in case of default application or the last 5 minutes, in the case of Chile application, counting as of the time the printing was requested.</p>
	<p>This function allows the operator to perform the recording of BVDR information via USB, for different time periods (last 24 hours, last 7 days, since the last collection).</p>

Screen	Description
 <p>LATEST 10 ERRORS 10X</p>	<p>This feature allows the operator to view the last 10 errors occurred in the digital tachograph.</p>
 <p>VEHICLE INFORMATION #Σ</p>	<p>This function is used to display: VLPN, VIN, constant k, serial number of tachograph and date of installation on the vehicle.</p>
 <p>DRIVER INFORMATION @Σ</p>	<p>This function displays the linked driver code and National Driver's License. If no driver is linked, "?????" is displayed in both the driver's code and National Driver's License.</p>
 <p>OVERSPEED RECORDS @>>24h</p>	<p>This function shows the speed of the last 100 most recent events in the last 24 hours of vehicle operation. The recording speeds are displayed from the latest recorded to first recorded in last 24 hours of vehicle operation.</p>
 <p>ENTER WORKSHOP MODE T#+</p>	<p>This function should only be used by trained professionals in authorized VDO service station, for BVDR configuration.</p>
 <p>CURRENT DATE 21/02/2006</p>	<p>This screen shows the current date in the digital tachograph, in the format day, month and year (DD / MM / YYYY).</p>
 <p>MAXIMUM SPEED LIMIT @>></p>	<p>This feature allows the operator to see the speeding value set in the digital tachograph. This value can only be changed at an authorized VDO service station.</p>
 <p>WINTER/SUMMER TIME ADJUSTMENT 10±</p>	<p>This feature allows the operator to adjust the daylight saving time in the digital tachograph when necessary.</p>
 <p>ALARM ACTIVATION FOR DRIVE TIME LAWS WARNINGS</p>	<p>This function lets you enable or disable the audible alarm (buzzer) only for the driving time and rest functions. In the case it is off, only the audible alarm will</p>

Screen	Description
	be affected, the time control will remain in operation.
	This feature allows the operator to select which language will be used in BVDR.
	This function allows the operator to set the clock in BVDR only once a week with limitation on setting of plus 5 minutes or minus 5 minutes.
	This feature allows the operator to remove previously registered drivers.
	This function allows the operator to disconnect the driver who is already logged in. This menu will be available only if some driver is logged in.

The following screens are only shown when BVDR is paired with the VDO telematics module.

Screen	Description
	When connected to the telematics module, and enabled the <i>VDO On Board</i> service, BVDR is able to print the information sent remotely in a blank tape.
	When connected to the telematics module, and enabled the <i>VDO On Board</i> service, BVDR is able to display incoming messages remotely.
	When connected to the telematics module, and enabled the <i>VDO On Board</i> service, BVDR is able to manage unlocking of trunk remotely.

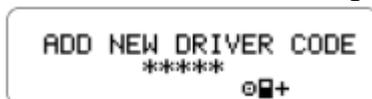
2.4 Main Functionalities of Menu

2.4.1 New Driver Registration

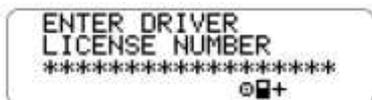
a) The driver selects the "New Drive Registration" menu through the front panel keys.



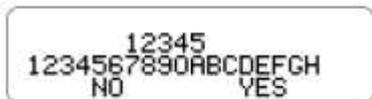
b) A screen is displayed to enter the new driver code (integer number [0, 1, 2, 3, 4, 5, 6, 7, 8, 9]). The buttons are used to   increment / decrease the driver code digits. The "OK" button is used to select the driver code digit and move the cursor to the next digit.



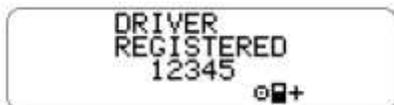
c) After a screen to enter the driver's license will be shown using the buttons   to choose the license number as described above. 18 alphanumeric characters, usually numbers are used: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z.



d) Then the code and driver's license will be shown to confirm the data.



e) If the information input is correct, the driver presses the OK button to validate them. (Digital tachograph will include the new driver information in the internal list).



2.4.2 Driver Unregistration

a) Driver selects the "Driver Unregistration" menu through the front panel keys.



b) Then the code and driver's license will be shown to confirm the data.

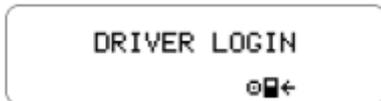


c) If the information for removal is correct, the driver presses the OK button to validate them. (Digital tachograph will exclude the new driver information in the internal list).

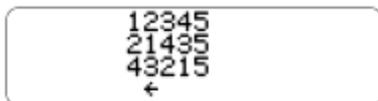


2.4.3 Driver Login

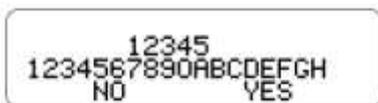
a) Pressing the  key in the main menu, the following screen should be selected:



b) A list will be displayed and the driver selects your code in the list, using the  and  buttons to confirm, press the OK button



c) The BVDR will show your driver code and driver's license.



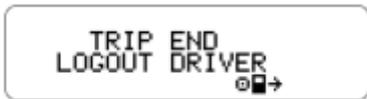
d) If the driver's license is correct, he can confirm it by pressing OK.



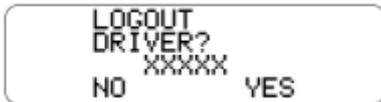
If no driver is identified, the driver code, on the main screen, will be like "?????" and in an inspection, the driver may be penalized with a fine.

2.4.4 Driver logout

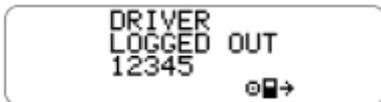
a) This function performs the disconnection (logout) of the driver when selecting the following screen:



b) Another way to disconnect the driver is if the default screen is displayed and the operator presses the "OK" button for more than 2 seconds, then a driver logout confirmation message will be displayed.



c) The operator will confirm the logout by pressing the OK button again.



2.4.5 Driving time control and rest



Attention

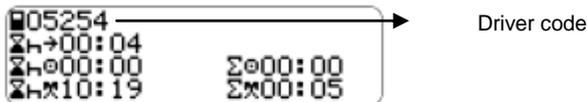
The driving time control function, in the BVDR digital tachograph is a support tool to the driver. Responsibility for driving time control and rest is, as applicable law, exclusive of the driver's.

The driving time function in BVDR follows Brazilian CONTRAN resolution 405/2012 by which the driver must follow the working time and rest as required by law.

From the BVDR tachograph main screen and navigating through the menu the following screen can be selected:



- a) After confirmation with the "OK" button, we have the screen with the summary of the direction and resting time of each driver, considering the last three (3) that made a trip within the last 24 hours:



Detailing the above pictograms, we have:

Σh→ = Minimum rest time;

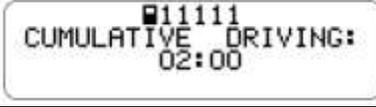
Σh⊙ = Rest time counter;

Σh⊗ = Total rest time counter;

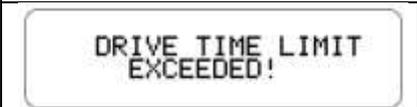
Σ⊙ = driving time counter;

Σ⊗ = Total activity time counter;

By pressing the "OK" button you can see in detail each time that the tachograph BVDR estimates, being:

Σh→		This screen shows the driver the minimum downtime to be considered the beginning of the rest, as vehicle application.
Σh0		This screen shows the driver the remaining amount of stopping time, to be considered the total time of a stop.
ΣhX		This screen shows the driver the remaining amount of stopping time, to be considered a rest.
Σ0		This screen shows the driver the sum of the amount of accumulated driving time.
ΣX		This screen shows the driver the sum of the total amount of working hours (driving + rest).

b) The alert to the driver is done through message on the display and audible alarm.

	20 minutes before the end of the maximum continuous driving limit.
	Every 10 minutes after the maximum continuous driving limit. And every 1 minute after 50 minutes exceeded.

c) To define the minimum time to be considered as rest, within the maximum continuous driving time, the driver must set the vehicle type in which the digital tachograph BVDR is installed, be it a passenger urban vehicle or not. Just browse through the menu until the following screen:

VEHICLE
USAGE
SELECTION

After confirmation, as the tachograph standard function is already programmed as passenger urban vehicle, then the following message appears:

DISABLE
PASSENGER VEHICLE
CONFIGURATION?
NO YES

If you need to return to the passenger urban vehicle configuration, simply repeat the procedure in item "c" and confirm with the "OK" button on the following screen:

ENABLE
PASSENGER VEHICLE
CONFIGURATION?
NO YES

Depending on the selected configuration, the minimum fractionation range of stop and rest time will be different from one vehicle to the other, as defined by law.



Attention

When taking long resting periods more than 48hs, the drive timer counters might not be reset. It could lead to driver to take a resting time bigger than requested by law. Anyhow in this case the printout of the last 24hours (which is required in case of inspection) will show that there weren't any driver activity during this period of time. The correct information will be also present in case of USB Upload.

The counters will be reset in next resting period:

- 30 minutes of rest for break time limit and
- 11 hours of rest for resting time counter;

2.4.6 *Activate/Deactivate sound signal*

a) Press the directional button down on BVDR keyboard until you reach the function:



ALARM ACTIVATION
FOR DRIVE TIME LAW
WARNINGS

b) Press the OK button to confirm and the following message appears:



DISABLE ALARM SOUND?
NO YES

c) Press the OK button to confirm the deactivation or, in case of cancellation, press the "back" button;

d) To activate the audible alarm, repeat the above procedure, and confirm with the OK button after you see the following screen:



ENABLE ALARM SOUND?
NO YES

2.4.7 *Print function*

This function can be applied in two ways, depending on vehicle operating site.

a) This function is used for printing the data, which is defined by local legislation. Action must be done by pressing "OK" key when selecting the function in the main menu.



LAST 24h
PRINTOUT



Standard application



LAST 5MIN
PRINTOUT



Chile Application

b) During printing, the following screen is shown.



PRINTING



c) When printing is finished, BVDR returns to the print menu on the main screen. While holding down the back button for 2 seconds, the BVDR reverts to the main screen.



Attention

To ensure smooth operation of the printing device, it is important not to have an ignition event during this procedure. In the data report print cases the last 24 hours in ribbon diagram (standard application) should be made only on pre-printed paper VDO and in the case of printing the last 5 min (application Chile) should be made on paper white VDO, ensuring the correct printer operation.

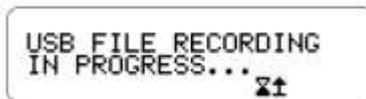
2.4.8 Data upload using USB

a) This function allows the operator to start the data recording process on the USB drive. The operator selects the menu shown below.

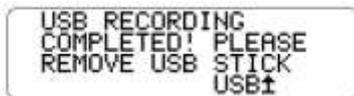


b) When the "OK" button is pressed, the operator must select the desired option to extract the data.

c) During the data recording to the USB drive, the following message appears until the end of the recording, as follows.



d) At the end of the recording, the success message is displayed:



BVDR might not recognize some kind of USB Sticks or defective USB Sticks. In case of this occurrence remove the USB Stick, turn Ignition Off for 10 seconds, and then turn the Ignition ON again. If the issue persists please change the USB Stick to another one in good use conditions.



Attention

VDO is not responsible for the improper functioning of some types of flash memory.

For more information on *VDO On Board Software*, for display of tachograph data, visit www.fleet.vdo.com.br

The memory of the tachograph has corresponding capacity of up to seven (7) days of vehicle operation counted by the second, and therefore the oldest data will be overwritten by the latest data when recording reaches the total storage capacity. The extraction of data in less than or equal intervals to seven (7) days to prevent data loss is recommended.

2.4.9 Integration with telematics device

The digital BVDR tachograph has the optional feature to be integrated with a telematics equipment, which in turn will allow your communication with a remote monitoring center (Internet platform *VDO On Board*).

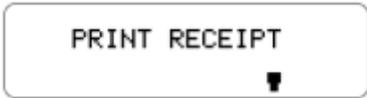
Thus the digital BVDR tachograph is able to send and receive information remotely, such as:

- Vehicle and driver information;
- Travel information (speed, time and distance);
- Failure events;
- Custom messages;
- Vehicle position information (GPS);

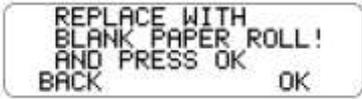
a) In cases where the remote monitoring center (internet platform *VDO On Board*) sends a receipt for the digital BVDR tachograph, on the main screen, the printer icon appears as the following screen:



Navigating the menu, the driver can access the receipt printing screen and print it.



After confirming the printing, an alert is issued to change the paper, "Put the blank paper roll!" as below.



Attention

After requesting a receipt printing, the driver must pay attention to change the printer paper, as in this case, the paper used cannot be pre-printed VDO, but the thermal paper VDO, blank.

During printing, the following screen is displayed.

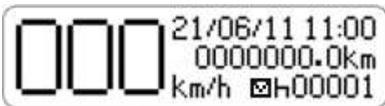


When printing is finished, the BVDR returns to the print screen.



The monitoring center is able to know whether a message is read and a receipt printing is done in BVDR this a two way communication.

b) In cases where the remote monitoring center (internet platform *VDO On Board*) sends a message to the digital BVDR tachograph, on the main screen, the message icon appears as the following screen:



Navigating the menu, the driver can access the server message screen.



After confirming via the "OK" button, the last 5 messages will be displayed.



The driver can select the desired message and press the "OK" button to confirm the reading.

With the message on the display and pressing the directional button down on BVDR keyboard, you can navigate to the end of the message. And with the "OK" button the driver can confirm the reading, sending an automated message to the server.



Attention

Icon "☑" next to the message indicates that it has not been read. The remote monitoring center is responsible for sending and control messages. After accessing a message, perform reading and press the "OK" button, a confirmation will be returned to the monitoring center.



Attention

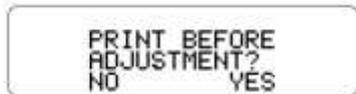
In cases of lack of communication between the telematics device and the tachograph, a failure message will be displayed. In this case, look for a VDO service station.

2.4.10 Daylight Saving Time adjustment

- This feature allows the operator to adjust the daylight saving time and return to winter time on BVDR.
- Daylight Saving setting menu.



c) Select the daylight saving time setting menu. BVDR will show on screen (print tape before setting?) to enable printing. It is recommended that a printing is made before the adjustment.



d) After the print option (running or not) a screen will appear asking for confirmation of the Daylight Saving time setting option.



e) One can also end the Daylight Saving time, returning to the winter time function.



f) After selection, BVDR must show the "Configuration Saved Performed" screen for 5 seconds.



Attention

You can change the Daylight Saving time for a maximum of 3 times a year, so the Adjust menu will not be available to the driver after locking, returning to automatically be available next year.

2.4.11 Clock adjustment - RTC

a) This function allows the operator to set the clock in BVDR only once a week, however with limitation of plus 5 minutes or minus 5 minutes.

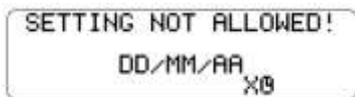


b) Select the clock setting menu. The BVDR will show on screen the option to select the number of minutes you want to increment or decrement in the clock.



c) After minute(s) are selected, simply press OK to confirm the change and BVDR will return to the main screen.

d) If you already made the clock setting and within a week another setting is required, the BVDR will alert that will only be possible to change one week after the last adjustment. And after 5 seconds will return to the main screen.



2.4.12 Select the language

a) This feature allows the operator to select which language is default in BVDR.



b) Select the language selection menu. BVDR will show on the screen a list of the options for available languages. Use the keys,   to scroll through the language options:



c) After navigating to the desired language, press the OK button to select it. A confirmation screen will be shown:



If Spanish is selected the following confirmation screen appears:



d) After pressing OK a confirmation screen will appear and after 5 seconds, the BVDR will return to the main screen.

Confirmation screen shown for Portuguese language setting:



Confirmation screen shown for Spanish language setting:



Diagram Tape

The digital BVDR tachograph must provide for surveillance purposes the information of the last 24 hours, in the case of standard application and the last 5 minutes in the case of Chile implementation of vehicle operation. The operator can also print as needed.

Printing is possible only when:

- The vehicle is stopped;
- The ignition is on (vehicle does not necessarily have to be with the engine running);
- The drawer is closed with the VDO paper roll inserted.

2.4.13 Inserting a new paper roll



Only VDO rolls, may be used in the digital BVDR tachograph. Other rolls will not be recognized by the product.

To insert a new VDO paper roll, first remove its protective plastic film and the adhesive label protection.

Pressing the button to open the drawer, it will automatically eject it.

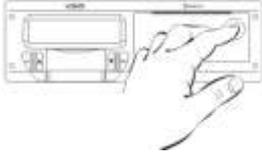


Figure 2.5.1.1



Always keep the drawer printer closed.
We recommend only opening the drawer at the time of paper change.

Remove, if necessary, the old paper roll and place a new one according to figure 2.5.1.2

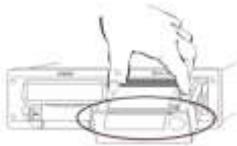


Figure 2.5.1.2

In cases of pre-printed paper roll, make sure that the gray bar is inside the drawer, after its closure.



For standard application, make sure the paper is not trapped when placed in the drawer and prepress is with the side up and ensuring that the tape gray stripe is positioned correctly, see Figure 2.5.1.2.



As a thermal printer, in case of a printing sequence it can heat up, causing the operator to run the risk of burning itself in case of direct contact.

2.4.14.1 Diagram tape header

The Diagram tape header and its information are according to Fig 2.5.2.1.1 below:



Figure 2.5.2.1.1

Standard information: It's the information that, independent of vehicle or installation model, will always be the same.

- BDVR Tachograph manufacturer: Standard Information.
- Tachograph model: Standard Information.
- Serial number: 8-digit sequence indicating the number of digital tachograph manufacturing series.
- Vehicle plate: Vehicle plate in which the tachograph is installed.
- Chassis: Car chassis in which the tachograph is installed.
- k constant of speed: It is the characteristic factor of the vehicle, which is used to calculate the speed and distance covered by it.
- Printing number: It is the amount of times the diagram tape was printed.

- h. Operation start: Vehicle information when it started its operation, and these are the odometer value, date and time.
- i. Operation end: Vehicle information when printing was requested, and these are the odometer value, date and time.
- j. Traveled Distance: Distance traveled in the last 24 hours of the vehicle for all its drivers.
- k. Driver ID: The identification is nothing more than the record of the national driver's license. Thus, in the inspection, the driver must present its Driver's license and information should be the same. In figure 2.5.2.1.1 the driver —— (3) was the last to be identified and have led the vehicle in the last 24 hours and the driver——(1) was the first to be identified and have led the vehicle in the past 24 hours.

2.4.14.2 Operation information in diagram tape

The vehicle's operation information, printed on the diagram tape is according to Fig 2.5.2.2.1

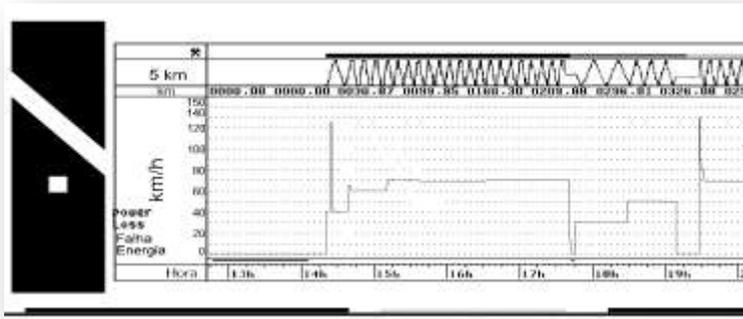


Figure 2.5.2.2.1

- Peak speed in minutes: It will be represented the highest speed reached in minutes on the diagram tape. The second-to-second information can only be viewed with the memory data download function. The represented top speed is 150km / h.
- Distance traveled according to the time printed on the diagram tape (numerical).
- Distance traveled according to the time printed on the diagram tape (graphical - every rise and fall of the curve 10km were driven).
- Print time: last 24 hours of vehicle operation.
- Power Failure: If a continuous line is viewed in this area means that the vehicle has turned off the main battery of the vehicle. In some situations handling, the driver can be fined.
- Driver identification in accordance with the printed time: Indicates that the driver was identified according to the printed time. When the speed is continuously in line zero, it means the time that the driver was not active (at rest).

2.4.14.3 Footer of diagram tape

The Diagram tape footer and its information are according to Fig 2.5.2.1.1 below:

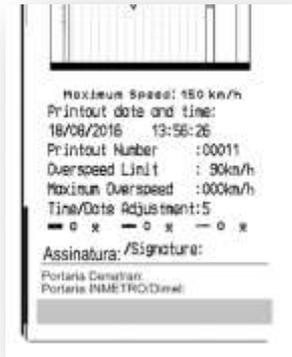


Figure 2.5.2.3.1

- a. Date and time of printing: it will be printed on the tape the exact time the diagram tape was printed as well as the date.
- b. Print Number: It is the same information contained in the header which is the amount of times which the diagram tape was printed.
- c. Maximum authorized speed: This speed is previously registered according to the use category of vehicle, which may be to carry passengers, school purposes or general cargo transportation. This speed is the maximum category of the vehicle and therefore the driver must always respect the maximum speed of the road.
- d. Last 24 hours: When exceeded the maximum authorized speed of the vehicle, it will print the fastest speed achieved in the last 24 hours of vehicle operation.
- e. Time / date adjustment: In case of time change, zone update or daylight saving time, will print the date and time when there was such a change.
- f. Driving time function: In case of non-compliance with the time direction and rest by the driver, BVDR will indicate in the diagram tape, which activity / driver was not performed correctly.
- g. Signature: Upon inspection, the authority must sign the tape.
Denatran and Inmetro approval ordinance: Information of approval ordinances (Standard).

2.4.15 Information in printing - Chile Application.

The printing of digital tachograph for Chilean market has information that is divided between header and vehicle operation. This information also depends necessarily, according to current law, of correct identification by the vehicle driver. In figure 2.5.3.1 full Chilean printing can be seen.

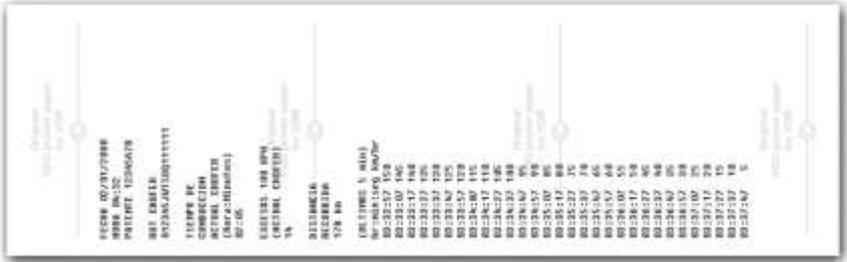


Figure 2.5.3.1

2.4.15.1 Diagram tape header

The diagram tape header, and its information are according to Fig 2.5.3.1.1 below.



Figure 2.5.3.1.1

- Date information - format: DD / MM / YYYY
- Time Information - format: HH: MM.
- Vehicle Registration Number
- Driver's license number
- Driving time
- Speeding (100km / h) - The number of speeding events.

2.4.15.2 Operation information in diagram tape

The vehicle's operation information, printed on the diagram tape is according to Fig 2.5.3.2.1

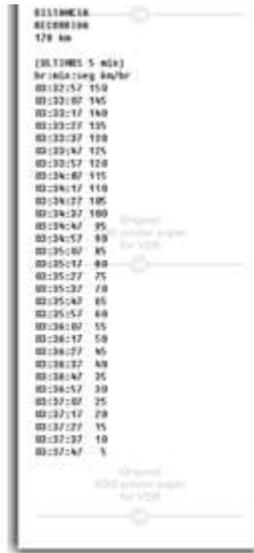


Figure 2.5.3.2.1

It will print the time and speed information every 10 seconds, last 5 minutes. In the following format:

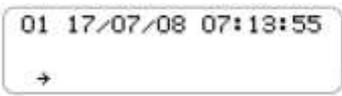
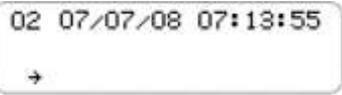
Hour : Minute : Seconds km/h

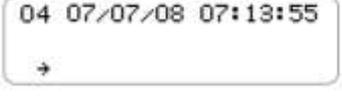
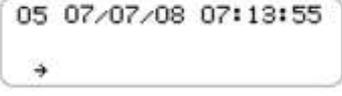
3. Troubleshooting guide

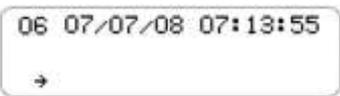
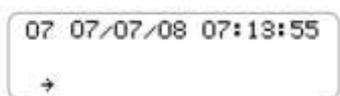
3.1 General information and Meanings

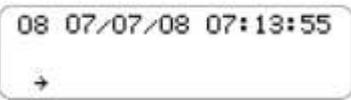
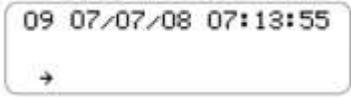
The BVDR tachograph contains a function which registers in memory and indicates to the operator the product's malfunction. The code table below shows which are the failure, their possible causes and solutions.

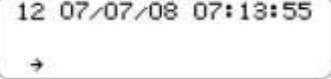
If the failure still persists after his intervention, the driver should seek an authorized VDO service station for a more accurate diagnosis of the reasons that are causing the failure.

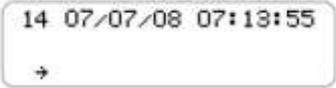
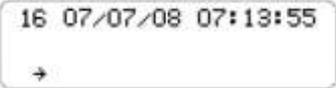
Screen	Error, Possible Causes, Solutions and Comments
	<p>Meaning Code 01 - Internal tachograph error This message appears in case of an internal error in the tachograph, after undertaking internal testing.</p> <p>Possible causes A flaw in the software that controls the tachograph or even a fall or data manipulation attempt occurred.</p> <p>Solution The tachograph must be checked by an authorized VDO workshop for assessment of failure.</p>
	<p>Meaning Code 02 - Power Failure This message appears in the event of tachograph power interruption (switching off the main battery of the vehicle).</p> <p>Possible causes Problems in the electrical part of the vehicle or battery depletion.</p> <p>Solution The tachograph must return to work when the battery is reconnected.</p>

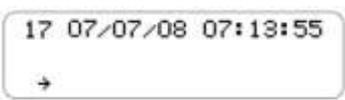
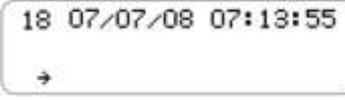
Screen	Error, Possible Causes, Solutions and Comments
	<p>Meaning Code 03 - Speed sensor signal error This message appears in case of errors in the speed sensor.</p> <p>Possible causes Problems in the speed sensor.</p> <p>Solution Look for an authorized VDO workshop.</p> <p>Comments With a major fault in the speed sensor, odometer and speed cannot be increased (Speed 0km/h).</p>
	<p>Meaning Code 04 - Error with KITAS-type speed sensor This message appears in case of errors in the KITAS-type speed sensor.</p> <p>Possible causes Problems in the KITAS speed sensor.</p> <p>Solution Look for an authorized VDO workshop.</p> <p>Comments With a major fault in the speed sensor, odometer and speed cannot be increased anymore (speed 0km / h)</p>
	<p>Meaning Code 05 – K-line Error This message appears if an error occurs in the vehicle communication interface or K-line instrument.</p> <p>Possible causes</p>

Screen	Error, Possible Causes, Solutions and Comments
	<p>Problems in the vehicle instrument or electrical connection.</p> <p>Solution Look for an authorized VDO workshop.</p> <p>Comments If the digital speed is seen in BVDR and not on the car's main instrument, this may indicate the reason for the failure.</p>
	<p>Meaning Code 06 - Paperless Printer</p> <p>This message appears when the operator tries to make a printing and the paper is depleted.</p> <p>Possible causes Lack of paper.</p> <p>Solution Add a VDO paper roll.</p>
	<p>Meaning Code 07 – CAN communication interface error</p> <p>This message appears when there is a fault in the CAN interface of the vehicle system as a whole.</p> <p>Possible causes General problems in the vehicle CAN interface to which the tachograph is connected to.</p> <p>Solution Turn off and Turn on the vehicle again. If the fault persists, contact an authorized VDO workshop</p>

Screen	Error, Possible Causes, Solutions and Comments
	<p>Meaning Code 08 – Speed signal pin B7(PWM) error This error became active when some fail exists in the speed output - pin B7.</p> <p>Possible causes Problems caused by other modules connected to BVDR 3215 in the pin B7.</p> <p>Solution Turn off and turn on again the vehicle. If the fault persists, contact an authorized VDO workshop</p>
	<p>Meaning Code 09 – LCD Screen error This message appears when the tachograph screen possesses some fails</p> <p>Possible causes Digit fail or display illumination failure.</p> <p>Solution Turn off and turn on again the vehicle. If the fault persists, contact an authorized VDO workshop</p>
	<p>Meaning Code 10 - Open Printer Drawer This message appears when the BVDR drawer is kept open for more than 20 seconds. An audible alarm will sound and the display will show the problem description "open printer drawer."</p> <p>Possible causes Open tachograph drawer or faulty control switch.</p> <p>Solution Close the tachograph drawer. If the fault persists, contact an authorized VDO workshop</p>

Screen	Error, Possible Causes, Solutions and Comments
	<p>Meaning Code 11 – Memory writing error This error appears when a serious recording faulty in the tachograph memory occurs.</p> <p>Possible causes Software updating faulty in BVDR 3215 tachograph.</p> <p>Solution Turn off and turn on again the vehicle. If the fault persists, contact an authorized VDO workshop</p>
	<p>Meaning Code 12 - Stuck Key Error This message appears when a BVDR key is stuck for more than three consecutive minutes.</p> <p>Possible causes Stuck key</p> <p>Solution Check all keys, pressing each one in turn.</p> <p>Comments If the fault persists, contact an authorized VDO workshop.</p>
	<p>Meaning Code 13 - Time and date adjustment warning This message appears when there is a change of date and time on the BVDR tachograph.</p> <p>Possible causes Modification of date and time by the operator</p> <p>Solution Check the current time and date.</p>

Screen	Error, Possible Causes, Solutions and Comments
	<p>Comments</p> <p>This message is not an error message, but a warning that the date and time may have been modified. This is normal in the case of use of the daylight saving time and winter time function.</p>
	<p>Meaning</p> <p>Code 14 – Over speed warning</p> <p>This message appears when the configured speed limit was exceeded.</p> <p>Possible causes</p> <p>Speed above the set limit.</p> <p>Solution</p> <p>Do not exceed the speed limit.</p> <p>Comments</p> <p>This message is not an error message, but a warning that the programmed speed limit has been exceeded.</p>
	<p>Meaning</p> <p>Code 16 - Writing Error on USB memory</p> <p>This message appears when the data from the tachograph memory was not recorded on a USB Flash drive.</p> <p>Possible causes</p> <p>USB disk write protection is on.</p> <p>USB disk is defective.</p> <p>BVDR USB connector is defective.</p> <p>Solution</p> <p>Repeat the procedure for writing data;</p> <p>Change the Flash Drive.</p> <p>Comments</p> <p>If the fault persists, contact an authorized VDO workshop.</p>

Screen	Error, Possible Causes, Solutions and Comments
	<p>Meaning Code 17 - Workshop Temporarily Blocked This message appears when more than 3 attempts to enter the workshop code have been unsuccessful.</p> <p>Possible causes Attempt to manipulate the data of the tachograph or error of access code or workshop password.</p> <p>Solution This procedure should be performed only by an authorized service station.</p> <p>Comments The blocking for mistaken workshop code will last for 12 hours. Any other correct workshop code and password will not be blocked.</p>
	<p>Meaning Code 18 – Printer Over Heated</p> <p>Possible causes Excessive printer overheating due to continuous printing</p> <p>Solution Wait a few minutes for the printer to cool down.</p>

4. *Periodic inspection*

Periodic inspections of digital tachographs BVDR must be performed in accordance with local regulations

Inspection rules are different for every country; however it is obligation of the driver or vehicle owner to ensure that regular inspections are made respecting the local law of the country where the vehicle is applied

For more information on this inspection, see current legislation in your country.

5. Appendix

5.1 Pictograms

Modes	
	Workshop mode
	Trip
	Rest

Menu	
	General printing
	Vehicle information
	Driver information
	Wait
	Overspeed Configured
	Overspeed in last 24 hours
USB 	Data recording on USB
1 	Time adjustment (summer / winter)
	Remove Driver Code
10 	Last 10 errors
	Select Language
RTC 	RTC Adjustment
	Add Driver Code
Telematics service messages	
	Server Message
	Unlock trunk
	Connection between BVDR + telematic module + VDO <i>On Board</i>
	Connection between BVDR + VDO telematic module
	No connection available

G	Connection between BVDR + Generic telematic module
Error codes	
	BVDR Internal error (self-test)
	KITAS sensor error
	Login error in tachograph
	Heated printer / Paperless / Open Printer Drawer
	Overspeed warning
	CAN / K-Line error
	USB error
	Keypad Error
	Active errors
	Telematic equipment communication error

Login-Logout in Tachograph	
	Driver Login
	Driver Logout
	Workshop Login
	Workshop Logout

Continental Brasil Indústria Automotiva Ltda., Guarulhos

Av. Senador Adolf Schindling, 131

Guarulhos – São Paulo – Brazil

CEP: 07042-020

www.extranetvdo.com.br

www.fleet.vdo.com.br

www.vdo.com

© Continental Automotive – All rights reserved.



A2C13083200

VDO