INTERNATIONAL STANDARD

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Road vehicles — Tachograph systems —

Part 7:
Parameters

Véhicules routiers — Systèmes de tachygraphes —

Partie 7: Paramètres

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Foreword

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO 16844-7 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 3, *Electrical and electronic equipment*.

ISO 16844 consists of the following parts, under the general title *Road vehicles — Tachograph systems*:

— *Part 1: Electrical connectors*

— *Part 2: Recording unit, electrical interface*

— *Part 3: Motion sensor interface*

— *Part 4: CAN interface*

— *Part 5: Secured CAN interface*

— *Part 6: Diagnostics*

— *Part 7: Parameters*

Introduction

ISO 16844 supports and facilitates the communication between electronic units and a tachograph; the tachograph being based upon Council Regulations (EEC) No. 3820/85 [1] and No. 3821/85 and their amendments Council Regulation (EEC) No. 2135/98 and Commission Regulation (EC) No. 1360/2002 (see Clause 2).

Its purpose is to ensure the compatibility of tachographs from various tachograph manufacturers.

The basis of the digital tachograph concept is a recording unit (RU) that stores data related to the activities of the drivers of a vehicle on which it is installed. When the RU is in normal operational status, the data stored in its memory are made accessible to various entities such as drivers, authorities, workshops and transport companies in a variety of ways: they may be displayed on a screen, printed by a printing device or downloaded to an external device. Access to stored data is controlled by a smart card inserted in the tachograph.

In order to prevent manipulation of the tachograph system, the speed signal sender (motion sensor) is provided with an encrypted data link.

A typical tachograph system is shown in Figure 1.
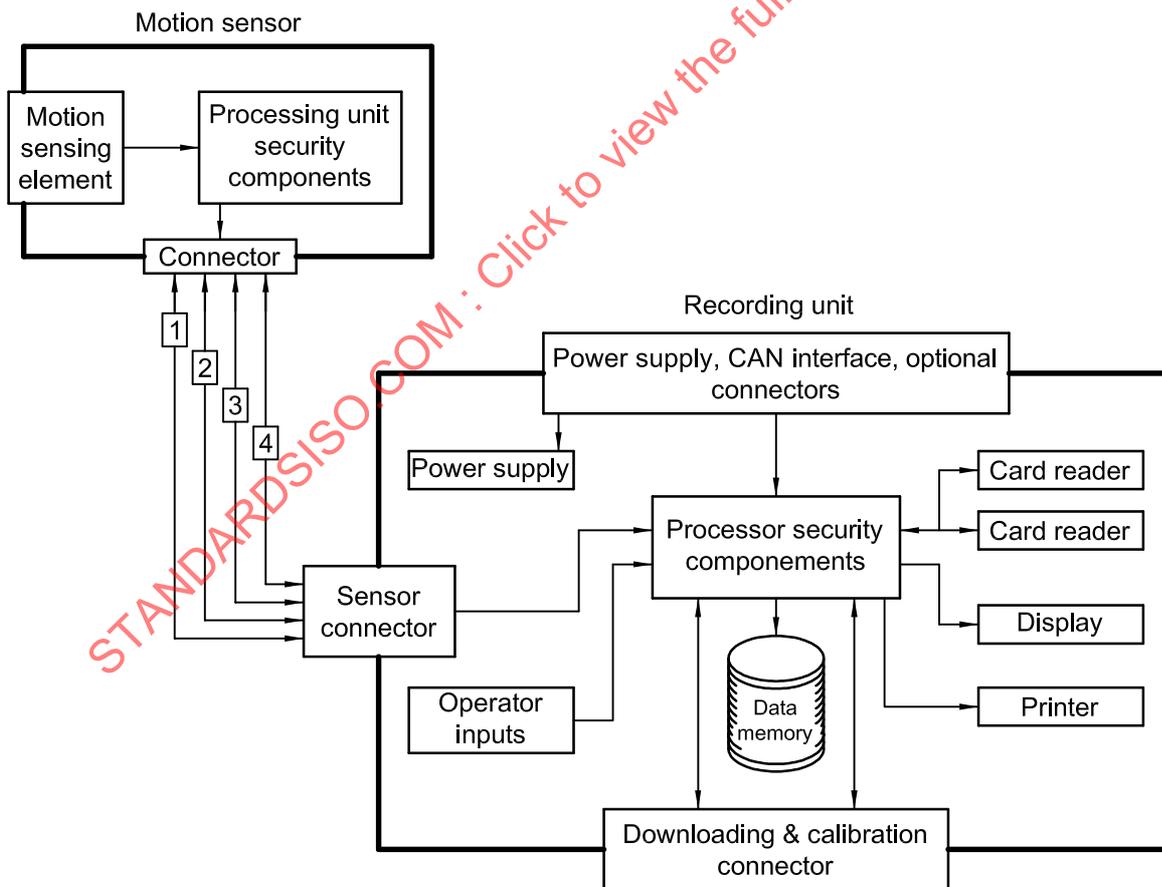
Key

1	positive supply	3	speed signal, real time
2	battery minus	4	data signal in/out

Figure 1 — Typical tachograph system

Road vehicles — Tachograph systems —

Part 7:
Parameters

1 Scope

This part of ISO 16844 specifies the parameters used in the interchange of digital information between a road vehicle's tachograph system and vehicle units or a diagnostic tester, or within the tachograph system itself. The parameters are applicable for real time communication and/or diagnostic services.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 8859 (all parts), *Information technology — 8-bit single-byte coded graphic character sets*

ISO 14230-3, *Road vehicles — Diagnostic systems — Keyword Protocol 2000 — Part 3: Application layer*

ISO 16844-4, *Road Vehicles — Tachograph systems — Part 4: CAN interface*

ISO 16844-6, *Road Vehicles — Tachograph systems — Part 6: Diagnostics*

Council Regulation (EEC) No. 3821/85 of 20 December 1985 on recording equipment in road transport

Commission Regulation (EC) No. 1360/2002 of 13 June 2002 adapting for the seventh time to technical progress Council Regulation (EEC) No. 3821/85 on recording equipment in road transport

Council Regulation (EEC) No. 2135/98 of 24 September 1998 amending Regulation (EEC) No. 3821/85 on recording equipment in road transport and Directive 88/599/EEC concerning the application of Council Regulations (EEC) No. 3820/85 and (EEC) No. 3821/85

Council Directive 92/23/EEC relating to tyres for motor vehicles and their trailers and to their fitting

3 Abbreviated terms

CAN   controller area network

Cvt.   convention

DTC   diagnostic trouble code

ECU   electronic control unit

KBD   keyboard

M	mandatory	
N/A	not applicable	
R	accessible in reading using diagnostic services	
RDI	record data identifier[1]	
RMS	registering member state	
R/W	accessible in reading and writing, using diagnostic services	
SJW	resynchronisation jump width	
Tq	time quantum	
U	user option	
UTC	universal time co-ordinated	
VIN	vehicle identification number	
VRN	vehicle registration number	

"Tachograph regulation" used throughout this part of ISO 16844 refers to Council Regulation (EEC) No. 1360/2002, Annex 1B.

4 Identifier specifications

4.1 Record data identifiers

The record data identifiers used in the diagnostic services specified in ISO 16844-6 shall be in accordance with Table 1.

Table 1 — Record data identifiers

Hex	Identifier description	Cvt.	Simplified mnemonic	R or R/W
F187	VehicleManufacturerSparePartNumber	U	VMSPN	R/W
F188	VehicleManufacturerECUSoftwareNumber	U	VMECUSWN	R/W
F189	VehicleManufacturerECUSoftwareVersionNumber	U	VMECUSWVN	R/W
F18A	SystemSupplierIdentifier	**M**	SSID	R
F18B	ECUManufacturingDate	**M**	ECUMD	R
F18C	ECUSerialNumber	**M**	ECUSN	R
F190	VehicleIdentificationNumber	**M**	VIN	R/W
F191	VehicleManufacturerECUHardwareNumber	**M**	VMECUHWN	R/W
F192	SystemSupplierECUHardwareNumber	**M**	SSECUHWN	R
F193	SystemSupplierECUHardwareVersionNumber	**M**	SSECUHWVN	R
F194	SystemSupplierECUSoftwareNumber	**M**	SSECUSWN	R

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1) RecordDataIdentifier with 262144 values available and, for instance, used in ReadDataByIdentifier, WriteDataByIdentifier InputOutputControlByIdentifier services.

Table 1 (*continued*)

Hex	Identifier description	Cvt.	Simplified mnemonic	R or R/W
F195	SystemSupplierECUSoftwareVersionNumber	M	SSECUSWVN	R
F196	ExhaustRegulationOrTypeApprovalNumber	M	EROTAN	R
F197	SystemNameOrEngineType	U	SNOET	R/W
F198	RepairShopCodeOrTesterSerialNumber	U	RSCOTSN	R/W
F199	ProgrammingDate	U	PD	R/W
F19A	CalibrationRepairShopCodeOrCalibrationEquipementSerialNumber	M	CRSCOCESN	R/W
F19B	CalibrationDate	M	CD	R/W
F19C	CalibrationEquipmentSWNumber	M	CESWN	R/W
F19D	ECUInstallationDate	M	EID	R/W
F19E	ODXFileIdentifier	M	OFID	R/W
F900-F9FF	Reserved for tachograph systems	M	—	—
F902	TachographVehicleSpeed	M	TVS	R
F903	Driver1WorkingState	M	D1WS	R
F904	Driver2WorkingState	M	D2WS	R
F905	DriveRecognize	M	DR	R
F906	Driver1TimeRelatedStates	M	D1TRS	R
F907	DriverCardDriver1	M	DCD1	R
F908	OverSpeed	M	OS	R
F909	Driver2TimeRelatedStates	M	D2TRS	R
F90A	DriverCardDriver2	M	DCD2	R
F90B	TimeDate	M	TD	R/W
F90C	ResetHeartbeatMessage	M	RHM	R/W
F90D	AdjustLocalMinuteOffset	M	ALMO	R/W
F90E	AdjustLocalHourOffset	M	ALHO	R/W
F90F	PriorityLevelOfTCO1Message	M	PLOTM	R/W
F912	HighResolutionTotalVehicleDistance	M	HRTVD	R/W
F913	HighResolutionTripDistance	M	HRTD	R/W
F914	ServiceComponentIdentification	M	SCI	R
F915	ServiceDelayCalendarTimeBased	M	SDCTB	R
F916	Driver1Identification	M	D1I	R
F917	Driver2Identification	M	D2I	R
F918	KFactor	M	KF	R/W
F919	SpeedMeasurementRange	M	SMR	R
F91A	NumberOfTeethOnPhonicWheel	U	NOTOPW	R/W
F91B	TachographOutputShaftSpeed	M	TOSS	R
F91C	LFactorTyreCircumference	M	LFTC	R/W
F91D	WVehicleCharacteristicFactor	M	WVCF	R/W

Table 1 (*continued*)

Hex	Identifier description	Cvt.	Simplified mnemonic	R or R/W
F91E	PulsesPerRevolutionOfOutputShaft	M	PPROOS	R/W
F91F	SecurityViolation	M	SV	R
F920	TransmissionRepetitionRateOfTCO1Message	M	TRROTM	R/W
F921	TyreSize	M	TS	R/W
F922	NextCalibrationDate	M	NCD	R/W
F923	Driver1ContinuousDrivingTime	M	D1CDT	R
F924	Driver2ContinuousDrivingTime	M	D2CDT	R
F925	Driver1CumulativeBreakTime	M	D1CBT	R
F926	Driver2CumulativeBreakTime	M	D2CBT	R
F927	Driver1Current DurationOfSelectedActivity	M	D1CDOSA	R
F928	Driver2Current DurationOfSelectedActivity	M	D2CDOSA	R
F92C	SpeedAuthorised	M	SA	R/W
F930	TachographCardSlot1	M	TCS1	R
F931	Driver1Name	M	D1N	R
F932	Driver2Name	M	D2N	R
F933	TachographCardSlot2	M	TCS2	R
F936	OutOfScopeCondition	M	OOSC	R
F937	ModeOfOperation	M	MOO	R
F938	Driver1CumulatedDrivingTimePreviousAndCurrentWeek	M	D1CDTPACW	R
F939	Driver2CumulatedDrivingTimePreviousAndCurrentWeek	M	D2CDTPACW	R
F940	RealTimeSpeedPulses	M	RTSP	R/W
F95A	EngineSpeed	U	ES	R/W
F960	CalibrationInputOutput	M	CIO	R/W
F979	SynchronizationJumpWidth	M	SJW	R/W
F97A	SamplePoint	M	SP	R/W
F97B	TimeOutMessageErrorDelay	M	TOMED	R/W
F97C	ErrorManagementInitialisationInhibition	M	EMII	R/W
F97D	RegisteringMemberState	M	RMS	R/W
F97E	VehicleRegistrationNumber	M	VRN	R/W
F97F	VehicleRegistrationDate	M	VRD	R/W

4.2   Routine identifiers

The routine identifiers used in the diagnostic services specified in ISO 16844-6 shall be in accordance with Table 2.

Table 2 — Routine identifiers

Hex	Routine identifier	Cvt.	Simplified mnemonic
014F	MotionSensorVehicleUnitPairing	**M**	MSVUP
0150	DisplayTest	**M**	DT
0151	LCDNegativeModeTest	**M**	LNMT
0152	PrinterTest	**M**	PT
0153	HardwareTest	**M**	HT
0154	CarderReaderTest	**M**	CRT
0155	Reserved by document	U	RBD
0156	ButtonTestLoop	**M**	BTL

5 Parameters and values

5.1 Transmitted signal ranges

For the ranges used to determine the validity of a transmitted signal, see Table 3.

For the ranges used to denote the state of a discrete parameter, see Table 4.

For the ranges used to denote the state of a control mode command, see Table 5.

The values of the error indicator range provide a means for a module to immediately indicate that valid parameter data are currently not available due to error in the sensor, sub-system or module.

The values in the *not available* range provide a means for a module to transmit a message which contains a parameter not available or not supported in the module. The values in the *not requested* range provide a means for a device to transmit a command message and identify those parameters where no response is expected from the receiving device.

If a component failure prevents the transmission of valid data of a parameter, the error indicator as specified in Tables 3 and 4 shall be used instead of the parameter data. However, the error indicator shall not be used if the measured or calculated data have yielded a value but exceed the specified parameter range. Instead, the data shall be transmitted using the appropriate minimum or maximum parameter value.

When a specified parameter of this part of ISO 16844 is transmitted using diagnostic services, padding bits shall be added to increase its length to the next integer number of bytes in the case where its length is not an integer number of bytes. This padding shall be made by setting the relevant most significant bits to zero.

EXAMPLE   Driver1WorkingStates, RDI $F903_{16}$, 3 bit length: when this parameter value is 010, it is transmitted as one byte of the value of 02_{16}.

Table 3 — Transmitted signal ranges

Range name	1 byte	2 bytes	4 bytes	ASCII
Valid signal	0 to 250	0 to 64 255	0 to 4 211 081 215	1 to 254
	00_{16} to FA_{16}	0000_{16} to $FAFF_{16}$	00000000_{16} to $FAFFFFFF_{16}$	01_{16} to FE_{16}
Parameter specific indicator	251	64 256 to 64 511	4 211 081 216 to 4 227 858 431	none
	FB_{16}	$FB00_{16}$ to $FBFF_{16}$	$FBxxxxxx_{16}$	
Reserved range for future indicator bits	252 to 253	64 512 to 65 023	4 227 858 432 to 4 261 412 863	none
	FC_{16} to FD_{16}	$FC00_{16}$ to $FDFF_{16}$	$FC000000_{16}$ to $FDFFFFFF_{16}$	
Error indicator	254	65 024 to 65 279	4 261 412 864 to 4 278 190 079	0
	FE_{16}	$FExx_{16}$	$FExxxxxx_{16}$	00_{16}
Not available or not requested	255	65 280 to 65 535	4 278 190 080 to 4 294 967 294	255
	FF_{16}	$FFxx_{16}$	$FFxxxxxx_{16}$	FF_{16}

Table 4 — Transmitted values of discrete parameters (measured)

Range name	Transmitted value
Disabled (off, passive, etc.)	00
Enabled (on, active, etc.)	01
Error indicator	10
Not available or not installed	11

Table 5 — Transmitted values of control commands (status)

Range name	Transmitted value
Command to disable function (turn off, etc.)	00
Command to enable function (turn on, etc.)	01
Reserved	10
Don't care/take no action (leave function as is)	11

The data type may be either *status* or *measured*.

— **Status** specifies the present state of a multi-state parameter or function as a result of action taken by the transmitting node. This action is the result of a calculation which uses local and/or network measured and/or status information.

— **Measured** data convey the current value of a parameter as measured or observed by the transmitting node to determine the condition of the specified parameter.

5.2 Parameter specifications

5.2.1 Seconds

The UTC parameter part Seconds shall provide

data length	1 byte
resolution	0,25 s/bit gain, 0 s offset
operating range	0 to 59,75 s
type	measured

The RDI is not used. The parameter part Seconds may be addressed through RDI attached to Time/Date.

5.2.2 Minutes

The UTC parameter part Minutes shall provide

data length:	1 byte
resolution:	1 min/bit gain, 0 min offset
operating range:	0 to 59 min
type:	measured

The RDI is not used. The parameter part Minutes may be addressed through RDI attached to Time/Date.

5.2.3 Hours

The UTC parameter part Hours shall provide

data length:	1 byte
resolution:	1 h/bit gain, 0 h offset
operating range:	0 to 23 h
type:	measured

The RDI is not used. The parameter part Hours may be addressed through RDI attached to Time/Date.

5.2.4 Month

The UTC parameter part Month shall provide

data length:	1 byte
resolution:	1 month/bit gain, 0 month offset
operating range:	1 to 12 months
type:	measured

The RDI is not used. The parameter part Month may be addressed through RDI attached to Time/Date.

NOTE   A value of 0 for the month is null. The value 1 identifies January; 2 identifies February; etc.

5.2.5 Day

The UTC parameter part Day shall provide

    data length: 1 byte

    resolution: 0,25 day/bit gain, 0 day offset

    operating range: 0,25 to 31,75 days

    type: measured

The RDI is not used. The parameter part Day may be addressed through RDI attached to Time/Date.

NOTE 1　A value of 0 for the date is null. The values 1, 2, 3, and 4 are used to identify the first day of the month, while 5, 6, 7, and 8 identify the second day of the month, etc.

NOTE 2　This parameter does not influence or change the hours parameter above.

5.2.6 Year

The UTC parameter part Year shall provide

    data length: 1 byte

    resolution: 1 year/bit gain, +1985 year offset

    operating range: 1985 to 2235 year

    type: measured

The RDI is not used. The parameter part Year may be addressed through RDI attached to Time/Date.

NOTE　A value of 0 for the year identifies the year 1985; a value of 1 identifies 1986; etc.

5.2.7 Local minute offset

The parameter LocalMinuteOffset shall provide

    data length: 1 byte

    resolution: 1 min/bit gain, −125 min offset

    operating range: −59 to +59 min;

    type: measured

The RDI is not used. The parameter part Local Minute Offset may be addressed through RDI attached to Time/Date.

NOTE 1　For the recording unit, it represents an offset from UTC set by the driver.

NOTE 2　European legislation restricts the full range of use in tachographs. Only three (3) fixed values, 0, +30 min and −30 min, are used.

5.2.8   Local hour offset

The parameter LocalHourOffset shall provide

data length:	1 byte
resolution:	1 h/bit gain, −125 h offset
operating range:	−23 to +23 h
type:	measured

The RDI is not used. The parameter part Local Hour Offset may be addressed through RDI attached to Time/Date.

NOTE   For the recording unit, it represents an offset from UTC set by the driver.

5.2.9   Vehicle identification number

The parameter VehicleIdentificationNumber as assigned by the vehicle manufacturer shall provide

data length:	variable — up to 200 characters
resolution:	ASCII
operating range:	ASCII
type:	measured
RDI (hex):	F190
access:	R/W

In this application, the VIN-length shall be 17 characters.

NOTE   The ASCII character "*" is reserved as a delimiter.

5.2.10 Trip group 1

The parameter TripGroup1 is a command signal used only to reset trip distance.

00	take no action
01	reset
Type:	status

5.2.11 System event

The parameter SystemEvent indicates an occurred tachograph event. This parameter shall be set true when a tachograph event (over-speed, continuous driving time exceeded, maintenance due, etc.) has occurred.

This parameter shall be used to drive a tachograph visual warning signal to the driver, as follows.

00	no tachograph event
01	tachograph event
Type:	status

RDI is not used.

5.2.12 Handling information

The parameter HandlingInformation shall indicate that handling information is present, as follows. Information may include "no printer paper", "no driver card", etc.

00	no handling information
01	handling information
Type:	status

RDI is not used.

5.2.13 Tachograph performance

The parameter TachographPerformance shall be set while the tachograph is performing the auto test and indicate as follows.

00	normal performance
01	performance analysis
Type:	status

RDI is not used.

5.2.14 Direction indicator

The parameter DirectionIndicator shall indicate the direction of the vehicle motion (if any), as follows.

00	forward
01	reverse
Type:	measured

RDI is not used.

5.2.15 Requested illumination percentage

The parameter RequestIlluminationPercentage which shall provide

data length:	1 byte
resolution:	0,4 % bit gain, 0 % offset
data range:	0 to 100 %
type:	measured

RDI is not used.

5.2.16 Engine speed

The parameter EngineSpeed shall provide the actual engine speed which is calculated over a minimum crankshaft angle of 720 degrees divided by the number of cylinders, and shall provide

data length:	2 bytes
resolution:	0,125 r/min per bit gain, 0 r/min offset (upper byte resolution = 32 r/min per bit)
data range:	0 to 8031,875 r/min
type:	measured
RDI (hex):	F95A
access:	R/W

5.2.17 Tachograph vehicle speed

The parameter TachographVehicleSpeed shall be the current speed of the vehicle measured by the tachograph and shall provide

data length:	2 bytes
resolution:	1/256 km/h/bit gain, 0 km/h offset
upper byte resolution	= 1,0 km/h/bit;
operating range:	0 to 250,996 km/h
type:	measured
RDI (hex):	F902
access:	R

5.2.18 Driver 1 working state

The parameter Driver1WorkingState shall indicate the state of work of driver 1, i.e. activity currently selected on the recording unit for the driver, as follows.

000	break/rest
001	availability
010	work
011	driving
100-101	reserved
Type:	measured
RDI (hex):	F903
Access:	R

5.2.19 Driver 2 working state

The parameter Driver2WorkingState shall indicate the state of work of driver 2, i.e. activity currently selected on the recording unit for the co-driver, as follows.

000	break/rest
001	availability
010	work
011-101	reserved
Type:	measured
RDI (hex):	F904
Access:	R

5.2.20 Drive recognize

The parameter DriverRecognize indicates whether or not motion of the vehicle is detected. Vehicle motion shall be indicated when more than one (1) pulse per second (imp/s) is detected by the recording unit from the motion sensor for at least five (5) seconds, as follows.

00	vehicle motion not detected
01	vehicle motion detected
Type:	measured
RDI (hex):	F905
Access:	R

5.2.21 Driver 1 time related states

The parameter Driver1TimeRelatedStates shall be used to indicate if driver 1 approaches/exceeds working time limits, (or other limits), as follows. Only the values 0001 and 0010 are required (mandatory). Limit #3 to limit #6 are optional warnings according to the tachograph regulation. If they are implemented, the format is as given here.

0000	no time-related warning detected
0001	limit #1: 15 min before 4 1/2 h
0010	limit #2: 4 1/2 h reached (continuous driving time exceeded)
0011	limit #3: 15 minutes before optional warning 1
0100	limit #4: optional warning 1 reached
0101	limit #5: 15 min before optional warning 2
0110	limit #6: optional warning 2 reached
0111–1100	reserved
1101	other
Type:	measured

RDI (hex):   F906

Access: R

5.2.22 Driver card, driver 1

The parameter DriverCardDriver 1 shall be used to indicate the presence of the driver card of driver 1, i.e. that the card is placed in the driver slot of the recording unit, as follows. If another card is inserted (workshop, control or company card), the parameter driver card, driver 1, is equal to 00 (driver card not present).

00	driver card not present
01	driver card present
Type:	measured
RDI (hex):	F907
Access:	R

5.2.23 Overspeed

The parameter Overspeed shall be used to indicate that the current vehicle speed has exceeded the authorised speed of the vehicle during a period of more than 60 s, as follows.

00	no overspeed
01	overspeed
Type:	measured
RDI (hex):	F908
Access:	R

5.2.24 Driver 2 time related states

The parameter Driver2TimeRelatedStates shall be used to indicate that driver 2 (co-driver) approaches/exceeds working time limits, or other limits, as follows.

0000	no time related warning detected
0001	reserved
0010	reserved
0011	limit #3: 15 min before optional warning 1
0100	limit #4: optional warning 1 reached
0101	limit #5: 15 min before optional warning 2
0110	limit #6: optional warning 2 reached
0111–1100	reserved
1101	other
Type	measured
RDI (hex):	F909
Access:	R

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5.2.25 Driver card, driver 2

The parameter DriverCardDriver2 shall be used to indicate the presence of the driver card of driver 2, i.e. that the card is placed in co-driver slot of the recording unit, as follows. If another card is inserted (workshop, control or company card), the parameter driver card, driver 2, is equal to 00 (driver card not present).

00	driver card not present
01	driver card present
Type:	measured
RDI (hex):	F90A
Access:	R

5.2.26 Time date

The parameter group TimeDate shall be transmitted from the recording unit, i.e. all parameters shall be supported, as follows.

Byte:	1: seconds (see 5.2.1)
	2: minutes (see 5.2.2)
	3: hours (see 5.2.3)
	4: months (see 5.2.4)
	5: days (see 5.2.5)
	6: years (see 5.2.6)
	7: local minute offset (5.2.7)
	8: local hour offset (see 5.2.8)
RDI (hex):	F90B
Access:	R/W

5.2.27 Reset heartbeat message

The parameter ResetHeartbeatMessage shall be used to indicate if the reset heartbeat message is used, as follows.

00	disabled (the reset heartbeat message is not used by the recording unit)
01	enabled (the reset heartbeat message is used by the recording unit)
Type:	status
RDI (hex)	F90C
Access	R/W

5.2.28 Adjust local minute offset

The parameter AdjustLocalMinuteOffset shall be used to set the local offset in minutes from UTC, which influences the local minute offset only, and shall provide

data length:	1 byte
resolution:	1 min/bit gain, −125 min offset
operating range:	−59 to +59 min
type:	measured
RDI (hex):	F90D
access:	R/W

NOTE   European legislation restricts the full range of use in tachographs. Only three (3) fixed values, 0, +30 min and −30 min, are used.

5.2.29 Adjust local hour offset

The parameter AdjustLocalHourOffset shall be used to set the local offset in hours from UTC which influences local hour offset only, and shall provide

data length:	1 byte
resolution:	1 h/bit gain, −125 h offset
operating range:	−23 to +23 h
type:	measured
RDI (hex):	F90E
access:	R/W

5.2.30 Priority level of TCO1 message

The parameter PriorityLevelOfTCO1Message shall be specified by end of line programming, and shall provide

data length:	3 bits	
	000	highest priority
	001	priority 1
	010	priority 2
	011	priority 3, default value
	100	priority 4
	101	priority 5
	110	priority 6
	111	lowest
type:	status	
RDI (hex):	F90F	
access:	R/W	

5.2.31 High resolution total vehicle distance

The parameter HighResolutionTotalVehicleDistance shall indicate accumulated distance travelled by the vehicle during its operation, and shall provide

data length: 4 bytes

resolution: 5 m/bit gain, 0 m offset

operating range: 0 to +21 055 406 km

type: measured

RDI (hex):   F912

access: R/W

5.2.32 High resolution trip distance

The parameter HighResolutionTripDistance shall indicate travelled distance during all or part of a journey, and shall provide

data length: 4 bytes

resolution: 5 m/bit gain, 0 m offset

operating range: 0 to +21 055 406 km

type: measured

RDI (hex):   F913

access: R/W

5.2.33 Service component identification

The parameter ServiceComponentIdentification shall identify the component having the nearest time until the next service inspection (see Table 6), and shall provide

service inspection: periodic inspection for the recording unit; card expiry date for the driver cards

data length: 1 byte

resolution: 1 component ID/bit

operating range: 0 to 250

type: measured

RDI (hex):   F914

access: R

Table 6 — Service component identification

Identification	Component
0	Service check for entire vehicle
1	Brake lining; left front axle
2	Brake lining; right front axle
3	Brake lining; left rear axle
4	Brake lining; right rear axle
5	Clutch lining
6–15	Not defined
16	Regulated general check for entire vehicle
17	Brake system special check
18	In-between check
19	Check trip recorder
20	Check exhaust gas
21	Check vehicle speed limiter
22–31	Not defined
32	Engine oil — engine No. 1
33	Engine oil — engine No. 2
34	Not defined
35	Steering oil
36	Not defined
37	Transmission oil — transmission No. 1
38	Transmission oil — transmission No. 2
39	Not defined
40	Intermediate transmission oil
41	Not defined
42	Front axle oil
43	Rear axle oil
44-47	Not defined
48	Tires
49	Engine air filter
50	Engine oil filter
51–60	Not defined
61	Tachograph
62	Driver card 1
63	Driver card 2
64–239	Not defined
240–249	Manufacturer specific
250–251	Reserved
252	Reset all components
253	No action to be taken
254	Error
255	Component identification not available

5.2.34 Service delay/calendar time based

The parameter ServiceDelay/CalendarTimeBased shall be the time in weeks until the next vehicle service inspection is required. A negative value shall be transmitted if the service inspection has been passed. The component that requires service shall be identified by the service component identification.

This time is computed as the difference between the week when service inspection is required and the current week. For the purpose of this computation, week means the period between 00:00 hours UTC on Monday and 24:00 UTC on Sunday. This parameter shall provide

data length:	1 byte
resolution:	1 week/bit gain, −125 weeks offset
operating range:	−125 to +125 weeks
type:	measured
RDI (hex):	F915
access:	R

5.2.35 Driver 1 identification

The parameter Driver1Identification shall be used to obtain the driver 1 identity from a driver card inserted in the recording unit, and shall contain three (3) bytes for the issuing member state of the driver card, and sixteen (16) bytes for the card number (see the tachograph regulation, Appendix 1: Nation Alpha and Card Number format), and shall provide

data length:		19 bytes ASCII
type:		measured
byte:	1–3	issuing member state
	4–19	card number
RDI (hex):		F916
access:		R

5.2.36 Driver 2 identification

The parameter Driver2Identification shall be used to obtain the driver 2 identity from a driver card inserted in the recording unit, and shall contain three (3) bytes for the issuing member state of the driver card, and sixteen (16) bytes for the card number (see the tachograph regulation, Appendix 1: Nation Alpha and Card Number format), and shall provide

data length:		19 bytes ASCII
type:		measured
byte:	1–3	issuing member state
	4–19	card number
RDI (hex):		F917
access:		R

5.2.37 K factor

The parameter KFactor shall be the current constant of the recording equipment, as the numerical characteristic giving the value of the input signal required to show and record a distance travelled of 1 km, resulting from the most recent calibration, and shall provide

data length:	2 bytes
resolution:	0,001 pulse/m /bit gain, 0 offset
operating range:	0 to 64,255 pulse/m
type:	measured
RDI (hex):	F918
access:	R/W

5.2.38 Speed measurement range

The parameter SpeedMeasurementRange of the tachograph shall provide

data length:	2 bytes
resolution:	1/256 km/h/bit gain, 0 km/h offset, upper byte resolution = 1,0 km/h/bit
operating range:	0 to 250,996 km/h
type:	measured
RDI (hex):	F919
access:	R

5.2.39 Number of teeth of phonic wheel

The parameter NumberofTeethofPhonicWheel shall provide

data length:	1 byte
resolution:	1 tooth/bit gain, 0 tooth offset
operating range:	0 to 250
type:	measured
RDI (hex):	F91A
access:	R/W

5.2.40 Tachograph output shaft speed

The parameter TachographOutputShaftSpeed shall contain the calculated speed of the transmission output shaft, and shall provide:

data length:	2 bytes
resolution:	0,125 r/m/bit gain, 0 rpm offset (upper byte resolution = 32 r/min per bit)
operating range:	0 to 8031,875 r/min

type	measured
RDI (hex):	F91B
access:	R

5.2.41 L factor

The parameter LFactor shall be the current effective circumference of the wheel tyres, given as the average of the distances travelled by each of the wheels moving the vehicle (driving wheels) in the course of one complete rotation resulting from the most recent calibration, and shall provide

data length:	2 bytes
resolution:	0,125 10-3 m /bit gain, 0 offset
operating range:	0 to 8,031 m
type:	measured
RDI (hex):	F91C
access:	R/W

5.2.42 W factor

The parameter WFactor shall be the current numerical characteristic giving the value of the output signal emitted by the part of the vehicle linked with the recording equipment (gearbox output shaft or axle) while the vehicle travels a distance of 1 km under standard test conditions, resulting from the most recent calibration, and shall provide

data length:	2 bytes
resolution:	0,001 pulse/m /bit gain, 0 offset
operating range:	0 to 64,255 pulse/m
type:	measured
RDI (hex):	F91D
access:	R/W

NOTE   For more details, see the tachograph regulation.

5.2.43 Pulses/revolution of output shaft

The parameter Pulses/RevolutionOfOutputShaft shall be the number of pulses per revolution of the gearbox output shaft, and shall provide

data length:	2 bytes
resolution:	0,001 pulse/r/bit gain, 0 offset
operating range:	0 to 64,255 pulse/r
Type:	measured
RDI (hex):	F91E
access:	R/W

5.2.44 Transmission repetition rate of TCO1 message

The parameter TransmissionRepetitionRateOfTCO1Message shall be specified by the end-of-line programming, and shall provide

data length:	2 bit
00	20 ms
01	50 ms (default value)
type:	status
RDI (hex):	F920
access:	R/W

5.2.45 Tyre size

The parameter TyreSize shall be the designation of the current dimensions of the tyres (external driving wheels), in accordance with Council Directive 92/23/EEC, resulting from the most recent calibration, and shall provide

data length:	15 characters
resolution:	ASCII
operating range:	ASCII
type:	measured
RDI (hex):	F921
access:	R/W

5.2.46 Next calibration date

The parameter NextCalibrationDate shall be carried out by the authorised inspection authority, and shall provide

data length:	3 bytes
1	month
2	day
3	year
type:	measured
RDI (hex):	F922
access:	R/W

5.2.47 Driver 1 continuous driving time

The parameter Driver1ContinuousDrivingTime shall be computed as the current accumulated driving times of a particular driver, since the end of his/her last availability or break/rest or unknown period of 45 min or more — the 45 min may be split into several periods of 15 min or more. This parameter shall provide

data length:	2 byte

resolution:	1 min/bit gain, 0 min offset
operating range:	0 to 64255
type:	measured
RDI (hex):	F923
access:	R

The computations involved take into account, as needed, past activities stored on the driver card. When the driver has not inserted his/her card, the computations involved are based on the data memory recordings related to the current period where no card was inserted and related to the relevant slot.

NOTE   For more details, see the tachograph regulation.

This way of computing the continuous driving time and the cumulative break time serves into the recording equipment for computing the continuous driving time warning. It does not prejudge the legal interpretation to be made of these times.

Unknown periods correspond to periods when the driver card was not inserted in the recording equipment and for which no manual entry of driver activities was made.

5.2.48 Driver 2 continuous driving time

The parameter Driver2ContinuousDrivingTime shall be according to the same as Driver 1 continuous driving time, and shall provide

data length:	2 byte
resolution:	1 min/bit gain, 0 min offset
operating range:	0 to 64255
type:	measured
RDI (hex):	F924
access:	R

5.2.49 Driver 1 cumulative break time

The parameter Driver1CumulativeBreakTime shall be computed from driving time as the current accumulated availability or break/rest or unknown times of 15 min or more of a particular driver, since the end of his/her last availability or break/rest or unknown period of 45 min or more — the 45 min may be split into several periods of 15 min or more. This parameter shall provide

data length:	2 byte
resolution:	1 min/bit gain, 0 min offset
operating range:	0 to 64255
type:	measured
RDI (hex):	F925
access:	R

The computations involved take into account, as needed, past activities stored on the driver card. Unknown periods of negative duration (start of unknown period to end of unknown period) due to time overlaps between two different recording equipment, are not taken into account for the computation.

When the driver has not inserted his/her card, the computations involved are based on the data memory recordings related to the current period where no card was inserted and related to the relevant slot.

NOTE   For more details, see the tachograph regulation.

This way of computing the continuous driving time and the cumulative break time serves into the recording equipment for computing the continuous driving time warning. It does not prejudge the legal interpretation to be made of these times.

Unknown periods correspond to periods where the driver's card was not inserted in the recording equipment and for which no manual entry of driver activities was made.

5.2.50 Driver 2 cumulative break time

The parameter Driver2CumulativeBreakTime shall be according to driver 1 cumulative break time, and shall provide

data length:	2 byte
resolution:	1 min/bit gain, 0 min offset
operating range:	0 to 64255
type:	measured
RDI (hex):	F926
access:	R

5.2.51 Driver 1 current duration of selected activity

The parameter Driver1CurrentDurationOfSelectedActivity shall indicate the current duration of the selected activity, since selected and which may be the current driving period, availability period, rest period or work period. This parameter shall provide

data length:	2 byte
resolution:	1 min/bit gain, 0 min offset
operating range:	0 to 64255
type:	measured
RDI (hex):	F927
access:	R

5.2.52 Driver 2 current duration of selected activity

The parameter Driver2CurrentDurationOfSelectedActivity shall indicate the current duration of the selected activity, since selected, and which may be the current availability period, rest period or work period. This parameter shall provide

data length:	2 byte

resolution:	1 min/bit gain, 0 min offset
operating range:	0 to 64255
type:	measured
RDI (hex):	F928
access:	R

5.2.53 Speed authorised

The parameter SpeedAuthorised shall be used for speed limit setting, and shall provide

data length:	2 bytes
resolution:	1/256 km/h/bit gain, 0 km/h offset, upper byte resolution = 1,0 km/h/bit
operating range:	0 to 250,996 km/h
type:	measured
RDI (hex):	F92C
access:	R/W

5.2.54 Tachograph card, slot 1

The parameter TachographCardSlot1 shall be used to indicate the presence of a tachograph card in the driver slot of the recording unit, and shall provide

data length:	1 byte
resolution:	1 type/bit
operating range:	0: tachograph card not present (or card present, but the type has not been recognized by the recording unit)
	1: driver card present
	2: workshop card present
	3: control card present
	4: company card present
5 to 250	not used
type:	measured
RDI (hex):	F930
access:	R

5.2.55 Driver 1 name

The parameter Driver1Name shall be used to obtain the driver 1 name containing the surname and first name read from the driver card currently inserted in the recording unit, and shall provide

data length:	72 bytes ASCII

type: measured

byte: 1: code page for surname

                   2–36: surname

                   37: code page for first name

                   38–72: first name

RDI (hex):   F931

access: R.

Driver1Name shall include

— a code page value specifying the part of the ISO/IEC 8859 used to code the surname and the first name, and

— the surname (family name) and first name coded in accordance with the ISO/IEC 8859 code page.

NOTE   For more details, see the tachograph regulation.

5.2.56 Driver 2 name

The parameter Driver2Name shall be used to obtain the driver 2 surname and first name read from a co-driver card currently inserted in the recording unit (co-driver slot), and shall provide

data length: 72 bytes ASCII

type: measured

byte: 1: code page for surname

                   2–36: surname

                   37: code page for first name

                   38–72: first name

RDI (hex):   F932

access: R

Driver2Name shall include

— a code page value specifying the part of the ISO/IEC 8859 used to code the surname and the first name, and

— the surname (family name) and first name coded in accordance with the ISO/IEC 8859 code page.

NOTE   For more details, see the tachograph regulation.

5.2.57 Tachograph card, slot 2

The parameter TachographCardSlot2 shall be used to indicate the presence of a tachograph card in the co-driver slot of the recording unit, and shall provide

data length: 1 byte

resolution:	1 type/bit
operating range:	0: tachograph card not present (or card present, but type has not been recognized by the recording unit)
	1: driver card present
	2: workshop card present
	3: control card present
	4: company card present
	5 to 250: not used
type:	measured
RDI (hex):	F933
access:	R

5.2.58 Out of scope condition

The parameter OutOfScopeCondition shall be used to indicate whether an out of scope specific condition is currently open (see specification in tachograph regulation), and shall provide

operating range:	00: no out of scope condition opened
	01: out of scope condition opened
type:	measured
RDI (hex):	F936
access:	R

5.2.59 Mode of operation

The parameter ModeOfOperation shall be used to indicate the current mode of operation of the recording unit according to the valid tachograph cards inserted (as specified in the tachograph regulation), and shall provide

data length:	1 byte
operating range:	0: operational mode
	1: control mode
	2: calibration mode
	3: company mode
	4–250: reserved
type:	measured
RDI (hex):	F937
access:	R