
**Road vehicles — Tachograph
systems —**

**Part 7:
Parameters**

*Véhicules routiers — Systèmes tachygraphes —
Partie 7: Paramètres*

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 31, *Data communication*.

This third edition cancels and replaces the second edition (ISO 16844-7:2015), which has been technically revised.

The main changes are as follows:

- part 5 of this series (ISO 16844-5) has been removed due to its technical irrelevance,
- correction of the typos and mistakes in the text,
- adoption of the content according to the new version of the ISO guidelines,
- adoption of the content according to the new technical requirements,
- alignment of the content regarding to the referred standards.

A list of all parts in the ISO 16844 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

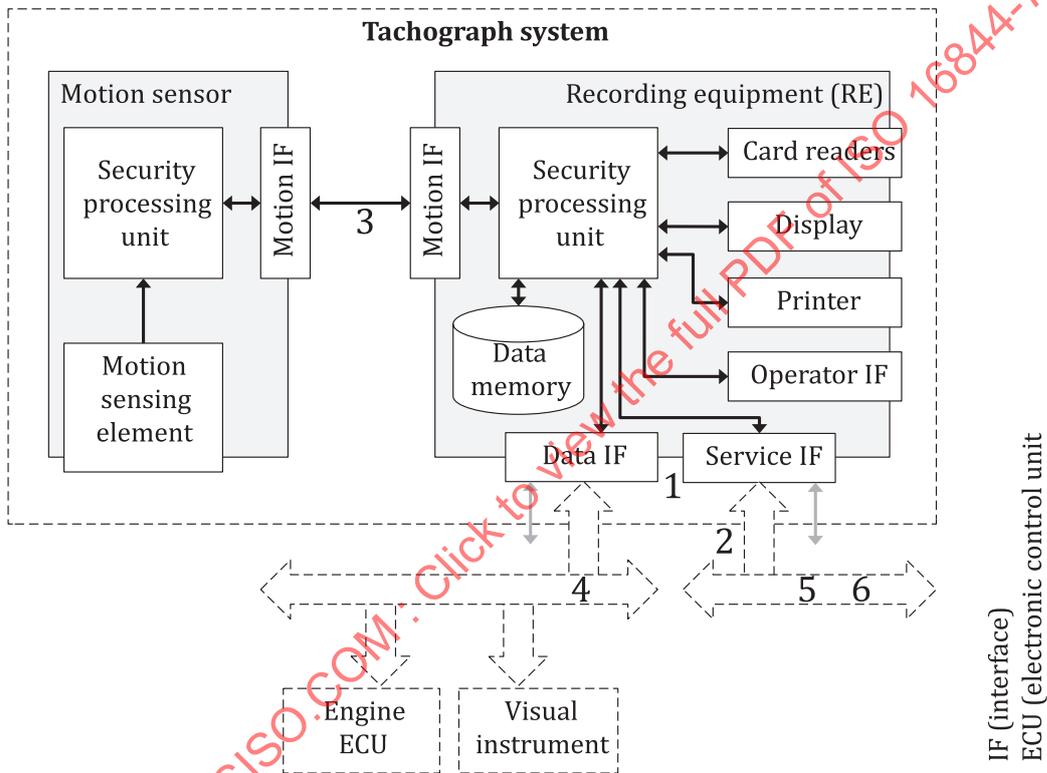
Introduction

This document supports and facilitates the communication between electronic control units (ECUs) and a digital tachograph.

The digital tachograph concept is based upon a recording equipment storing data, related to the activities of the various drivers driving the vehicle, on which it is installed.

During the normal operational status of the recording equipment, data stored in its memory are accessible to different entities (drivers, authorities, workshops, transport companies) in different ways (displayed on a screen, printed by a printing device, downloaded to an external device). Access to stored data are controlled by a smart card inserted in the tachograph.

A typical tachograph system is shown in [Figure 1](#).



Key

- | | | | |
|---|--|---|---|
| 1 | data and service IF connector standardized in ISO 16844-1 | 4 | CAN-based data IF including parameter groups standardized in ISO 16844-4 |
| 2 | electrical data and service IF requirements standardized in ISO 16844-2 | 5 | optional CAN-based service IF standardized in ISO 16844-6 |
| 3 | communication interface between motion sensor and RE standardized in ISO 16844-3 | 6 | data identifier (DID) specification for the optional service IF standardized in ISO 16844-7 |

Figure 1 — Typical ISO 16844 conformant tachograph system

Road vehicles — Tachograph systems —

Part 7: Parameters

1 Scope

This document specifies the parameters used on the service interface of the recording equipment. Some of them are specified in detail in this document, while others are given in the ISO 14299 series.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 639-1, *Codes for the representation of names of languages — Part 1: Alpha-2 code*

ISO/IEC 8859-1, *Information technology — 8-bit single-byte coded graphic character sets — Part 1: Latin alphabet No. 1*

ISO 14229-1, *Road vehicles — Unified diagnostic services (UDS) — Part 1: Application layer*

ISO 15031-6, *Road vehicles — Communication between vehicle and external equipment for emissions-related diagnostics — Part 6: Diagnostic trouble code definitions*

ISO 16844-1, *Road vehicles — Tachograph systems — Part 1: Electromechanical components*

ISO 16844-4, *Road vehicles — Tachograph systems — Part 4: Display unit communication interface*

SAE J1939-71, *Vehicle Application Layer*

SAE J1939DA, *Digital Annex*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 16844-1 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

member state

member of some supranational or international body

EXAMPLE European Union.

4 Symbols and abbreviated terms

For the purposes of this document, the following symbols and abbreviated terms apply.

CAN	controller area network
Cvt.	convention
DID	data identifier
DTC	diagnostic trouble code
DSRC	dedicated short range communication
FTB	failure-type-byte
ECU	electronic control unit
GNSS	global navigation satellite system
M	mandatory
n/a	not applicable
R	accessible in reading using diagnostic services
RID	routine identifier
RMS	registering member state
R/W	accessible in reading and writing, using diagnostic services
SJW	resynchronisation jump width
t_q	time quantum
O	optional
UTC	universal time coordinated
VIN	vehicle identification number
VRN	vehicle registration number

5 Identifier specification for diagnostic services

5.1 Data identifiers (DID)

The DIDs used in the diagnostic services `ReadDataByIdentifier`, `WriteDataByIdentifier` and `InputOutputControlByIdentifier` as specified in ISO 16844-6 shall be supported in accordance with [Table 1](#). The DIDs shall be implemented as specified in [Clause 6](#).

In general,

- assignment of identifiers shall comply with the definitions given in ISO 14229-1,
- undefined identifiers in the range of tachograph IDs from $F900_{16}$ to $F9FF_{16}$ shall be reserved for future use, and
- identifiers in the range of $F180_{16}$ to $F1A0_{16}$ shall be implemented as specified in ISO 14229-1 if not specified in [Clause 6](#).

Table 1 — Data identifier

Data Identifier name	Value [Hex]	Cvt.	Simplified mnemonic	Access	Specified in section
VehicleManufacturerSparePartNumber	F187	O	VMSPN	R/W	—
VehicleManufacturerECUSoftwareNumber	F188	O	VMECUSWN	R/W	—
VehicleManufacturerECUSoftwareVersionNumber	F189	O	VMECUSWVN	R/W	—
SystemSupplierIdentifier	F18A	M	SSID	R	—
ECUManufacturingDate	F18B	M	ECUMD	R	—
ECUSerialNumber	F18C	M	ECUSN	R	—
VehicleIdentificationNumber	F190	M	VIN	R/W	6.4.2
VehicleManufacturerECUHardwareNumber	F191	M	VMECUHWVN	R/W	—
SystemSupplierECUHardwareNumber	F192	M	SSECUHWVN	R	—
SystemSupplierECUHardwareVersionNumber	F193	M	SSECUHWVN	R	—
SystemSupplierECUSoftwareNumber	F194	M	SSECUSWN	R	—
SystemSupplierECUSoftwareVersionNumber	F195	M	SSECUSWVN	R	—
ExhaustRegulationOrTypeApprovalNumber	F196	M	EROTAN	R	—
SystemNameOrEngineType	F197	O	SNOET	R/W	—
RepairShopCodeOrTesterSerialNumber	F198	O	RSCOTSN	R/W	—
ProgrammingDate	F199	O	PD	R/W	—
CalibrationRepairShopCodeOrCalibrationEquipmentSerialNumber	F19A	M	CRSCOCESN	R/W	—
CalibrationDate	F19B	M	CD	R/W	—
CalibrationEquipmentSWNumber	F19C	M	CESWN	R/W	—
ECUInstallationDate	F19D	M	EID	R/W	—
ODXFileIdentifier	F19E	O	OFID	R/W	—
RemoteSessionDiagnositicSessionType	F900	M	RSDST	R/W	—
TachographVehicleSpeed	F902	M	TVS	R	6.4.12
Driver1WorkingState	F903	M	D1WS	R	6.4.13
Driver2WorkingState	F904	M	D2WS	R	6.4.14
DriveRecognize	F905	M	DR	R	6.4.15
Driver1TimeRelatedStates	F906	M	D1TRS	R	6.4.16
Driver2TimeRelatedStates	F909	M	D2TRS	R	6.4.17
DriverCardDriver1	F907	M	DCD1	R	6.4.18
DriverCardDriver2	F90A	M	DCD2	R	6.4.19
OverSpeed	F908	M	OS	R	6.4.20
TimeDate	F90B	M	TD	R/W	6.4.21
ResetHeartbeatMessage	F90C	M	RHM	R/W	6.4.22
AdjustLocalMinuteOffset	F90D	M	ALMO	R/W	6.4.23
AdjustLocalHourOffset	F90E	M	ALHO	R/W	6.4.24
PriorityLevelOfTCO1Message	F90F	M	PLOTM	R/W	6.4.25
HighResolutionTotalVehicleDistance	F912	M	HRTVD	R/W	6.4.26
HighResolutionTripDistance	F913	M	HRTD	R/W	6.4.27
ServiceComponentIdentification	F914	M	SCI	R	6.4.28
ServiceDelayCalendarTimeBased	F915	M	SDCTB	R	6.4.29
Driver1Identification	F916	M	D1I	R	6.4.30

Table 1 (continued)

Data Identifier name	Value [Hex]	Cvt.	Simplified mnemonic	Access	Specified in section
Driver2Identification	F917	M	D2I	R	6.4.31
KFactor	F918	M	KF	R/W	6.4.32
SpeedMeasurementRange	F919	M	SMR	R	6.4.33
NumberOfTeethOnPhonicWheel	F91A	U	NOTOPW	R/W	6.4.34
TachographOutputShaftSpeed	F91B	M	TOSS	R	6.4.35
LFactorTyreCircumference	F91C	M	LFTC	R/W	6.4.36
WVehicleCharacteristicFactor	F91D	M	WVCF	R/W	6.4.37
PulsesPerRevolutionOfOutputShaft	F91E	M	PPROOS	R/W	6.4.38
TransmissionRepetitionRateOfTCO1Message	F920	M	TRROT M	R/W	6.4.39
TyreSize	F921	M	TS	R/W	6.4.40
NextCalibrationDate	F922	M	NCD	R/W	6.4.41
Driver1ContinuousDrivingTime	F923	M	D1CDT	R	6.4.42
Driver2ContinuousDrivingTime	F924	M	D2CDT	R	6.4.43
Driver1CumulativeBreakTime	F925	M	D1CBT	R	6.4.44
Driver2CumulativeBreakTime	F926	M	D2CBT	R	6.4.45
Driver1CurrentDurationOfSelectedActivity	F927	M	D1CDOSA	R	6.4.46
Driver2CurrentDurationOfSelectedActivity	F928	M	D2CDOSA	R	6.4.47
SpeedAuthorised	F92C	M	SA	R/W	6.4.48
TachographCardSlot1	F930	M	TCS1	R	6.4.49
TachographCardSlot2	F933	M	TCS2	R	6.4.50
Driver1Name	F931	M	D1N	R	6.4.51
Driver2Name	F932	M	D2N	R	6.4.52
OutOfScopeCondition	F936	M	OOSC	R	6.4.53
ModeOfOperation	F937	M	MOO	R	6.4.54
Driver1CumulatedDrivingTimePreviousAndCurrentWeek	F938	M	D1CDTPACW	R	6.4.55
Driver2CumulatedDrivingTimePreviousAndCurrentWeek	F939	M	D2CDTPACW	R	6.4.56
RealTimeSpeedPulses	F940	M	RTSP	R/W	6.4.57
EngineSpeed	F95A	U	ES	R	6.4.58
CalibrationInputOutput	F960	M	CIO	R	6.4.59
SynchronizationJumpWidth	F979	M	SJW	R/W	6.4.60
SamplePoint	F97A	M	SP	R/W	6.4.61
TimeOutMessageErrorDelay	F97B	M	TOMED	R/W	6.4.62
ErrorManagementInitialisationInhibition	F97C	M	EMII	R/W	6.4.63
RegisteringMemberState	F97D	M	RMS	R/W	6.4.64
VehicleRegistrationNumber	F97E	M	VRN	R/W	6.4.65
VehicleRegistrationDate	F97F	M	VRD	R/W	6.4.66
Driver1PreferredLanguage	F981	O	D1PL	R/W	6.4.67
Driver2PreferredLanguage	F982	O	D2PL	R/W	6.4.68
DriverCard1DownloadTimePeriod	F990	O	DC1DTP	R	6.4.69
DriverCard2DownloadTimePeriod	F983	O	DC2DTP	R	6.4.70
TachographDownloadTimePeriod	F991	O	TDTP	R	6.4.71
DriversHoursRulesPreWarningTimeDelay	F992	O	DHRPWTD	R/W	6.4.72

Table 1 (continued)

Data Identifier name	Value [Hex]	Cvt.	Simplified mnemonic	Access	Specified in section
DriverCardExpiryWarningTimeDelay	F993	0	DCEWTD	R/W	6.4.73
NextDriverCard1DownloadWarningTimeDelay	F994	0	NDC1DWTD	R/W	6.4.74
NextDriverCard2DownloadWarningTimeDelay	F984	0	NDC2DWTD	R/W	6.4.75
NextTachographDownloadWarningTimeDelay	F995	0	NTDWTD	R/W	6.4.76
NextCalibrationWarningTimeDelay	F996	0	NCWTD	R/W	6.4.77
Driver1EndOfLastDailyRestPeriod	F997	0	D1EOLDRP	R	6.4.78
Driver2EndOfLastDailyRestPeriod	F985	0	D2EOLDRP	R	6.4.79
Driver1EndOfLastWeeklyRestPeriod	F998	0	D1EOLWRP	R	6.4.80
Driver2EndOfLastWeeklyRestPeriod	F986	0	D2EOLWRP	R	6.4.81
Driver1EndOfSecondLastWeeklyRestPeriod	F999	0	D1EOSLWRP	R	6.4.82
Driver2EndOfSecondLastWeeklyRestPeriod	F987	0	D2EOSLWRP	R	6.4.83
Driver1CurrentDailyDrivingTime	F99A	0	D1CDDT	R	6.4.84
Driver2CurrentDailyDrivingTime	F988	0	D2CDDT	R	6.4.85
Driver1CurrentWeeklyDrivingTime	F99B	0	D1CWDT	R	6.4.86
Driver2CurrentWeeklyDrivingTime	F989	0	D2CWDT	R	6.4.87
Driver1TimeLeftUntilNewDailyRestPeriod	F99C	0	D1TLUNDRP	R	6.4.88
Driver2TimeLeftUntilNewDailyRestPeriod	F98A	0	D2TLUNDRP	R	6.4.89
Driver1CardExpiryDate	F99D	0	D1CED	R	6.4.90
Driver2CardExpiryDate	F98B	0	D2CED	R	6.4.91
Driver1CardNextMandatoryDownloadDate	F99E	0	D1CNMDD	R	6.4.92
Driver2CardNextMandatoryDownloadDate	F98C	0	D2CNMDD	R	6.4.93
TachographNextMandatoryDownloadDate	F99F	0	TNMDD	R	6.4.94
Driver1TimeLeftUntilNewWeeklyRestPeriod	F9A1	0	D1TLUNWRP	R	6.4.95
Driver2TimeLeftUntilNewWeeklyRestPeriod	F98D	0	D2TLUNWRP	R	6.4.96
Driver1NumberOfTimes9hDailyDrivingTimesExceeded	F9A0	0	D1NOT9HDDTE	R	6.4.97
Driver2NumberOfTimes9hDailyDrivingTimesExceeded	F98E	0	D2NOT9HDDTE	R	6.4.98
Driver1CumulativeUninterruptedRestTime	F9A2	0	D1CURT	R	6.4.99
Driver2CumulativeUninterruptedRestTime	F98F	0	D2CURT	R	6.4.100
Driver1MinimumDailyRest	F9A3	0	D1MDR	R	6.4.101
Driver2MinimumDailyRest	F9A7	0	D2MDR	R	6.4.102
Driver1MinimumWeeklyRest	F9A4	0	D1MWR	R	6.4.103
Driver2MinimumWeeklyRest	F9A8	0	D2MWR	R	6.4.104
Driver1MaximumDailyPeriod	F9A5	0	D1MDP	R	6.4.105
Driver2MaximumDailyPeriod	F9A9	0	D2MDP	R	6.4.106
Driver1MaximumDailyDrivingTime	F9A6	0	D1MDDT	R	6.4.107
Driver2MaximumDailyDrivingTime	F9AA	0	D2MDDT	R	6.4.108
Driver1NumberOfUsedReducedDailyRestPeriods	F9AB	0	D1NOURDRP	R	6.4.109
Driver2NumberOfUsedReducedDailyRestPeriods	F9AC	0	D2NOURDRP	R	6.4.110
Driver1RemainingCurrentDrivingTime	F9AD	0	D1RCDT	R	6.4.111
Driver2RemainingCurrentDrivingTime	F9AE	0	D2RCDT	R	6.4.112
Driver1RemainingDrivingTimeOnCurrentShift	F9AF	0	D1RDTOCS	R	6.4.113
Driver2RemainingDrivingTimeOnCurrentShift	F9B0	0	D2RDTOCS	R	6.4.114

Table 1 (continued)

Data Identifier name	Value [Hex]	Cvt.	Simplified mnemonic	Access	Specified in section
Driver1RemainingDrivingTimeOfCurrentWeek	F9B1	0	D1RDTOCW	R	6.4.115
Driver2RemainingDrivingTimeOfCurrentWeek	F9B2	0	D2RDTOCW	R	6.4.116
Driver1Remaining2WeeksDrivingTime	F9B3	0	D1R2WDT	R	6.4.117
Driver2Remaining2WeeksDrivingTime	F9B4	0	D2R2WDT	R	6.4.118
Driver1TimeLeftUntilNextDrivingPeriod	F9B5	0	D1TLUNDP	R	6.4.119
Driver2TimeLeftUntilNextDrivingPeriod	F9B6	0	D2TLUNDP	R	6.4.120
Driver1DurationOfNextDrivingPeriod	F9B7	0	D1DONDP	R	6.4.121
Driver2DurationOfNextDrivingPeriod	F9B8	0	D2DONDP	R	6.4.122
Driver1DurationOfNextBreakRest	F9B9	0	D1DONBR	R	6.4.123
Driver2DurationOfNextBreakRest	F9BF	0	D2DONBR	R	6.4.124
Driver1RemainingTimeOfCurrentBreakRest	F9C0	0	D1RTOCBR	R	6.4.125
Driver2RemainingTimeOfCurrentBreakRest	F9C1	0	D2RTOCBR	R	6.4.126
Driver1RemainingTimeUntilNextBreakOrRest	F9C2	0	D1RTUNBOR	R	6.4.127
Driver2RemainingTimeUntilNextBreakOrRest	F9C3	0	D2RTUNBOR	R	6.4.128
Driver1OpenCompensationInTheLastWeek	F9C7	0	D1OCITLW	R	6.4.129
Driver2OpenCompensationInTheLastWeek	F9C8	0	D2OCITLW	R	6.4.130
Driver1OpenCompensationInWeekBeforeLast	F9C9	0	D1OCIWBL	R	6.4.131
Driver2OpenCompensationInWeekBeforeLast	F9CA	0	D2OCIWBL	R	6.4.132
Driver1OpenCompensationIn2ndWeekBeforeLast	F9CB	0	D1OCI2WBL	R	6.4.133
Driver2OpenCompensationIn2ndWeekBeforeLast	F9CC	0	D2OCI2WBL	R	6.4.134
Driver1AdditionalInformation	F9CD	0	D1AI	R	6.4.135
Driver2AdditionalInformation	F9CE	0	D2AI	R	6.4.136
StandardRevision	F9CF	M	SD	R	6.4.1
MotionSensorSerialNumber	F9D0	M	MSSN	R	6.4.137
RemoteCommunicationFacilitySerialNumber	F9D1	M	RCFSN	R	6.4.138
ExternalGNSSFacilitySerialNumber	F9D2	M	EGNSSFSN	R	6.4.139
SmartTachographSealsSerialNumber	F9D3	M	STSSN	R/W	6.4.140
VuSerialNumber	F9D4	M	VSN	R	6.4.141
ByDefaultLoadType	F9D5	M	BDLT	R/W	6.4.142
TachographCardsGen1Suppression	F9D6	M	TCG1S	R/W	6.4.143
VehiclePosition	F9D7	M	VP	R	6.4.144
CalibrationCountry	F9D8	M	CC	R	6.4.145
Driver1TimeLastLoadUnloadOperation	F9D9	0	D1TLLUO	R	6.4.146
Driver2TimeLastLoadUnloadOperation	F9DA	0	D2TLLUO	R	6.4.147
DriversConsentOnPrivateData	F9DB	0	DCOPD	R	6.4.148
FerryTrainStatus	F9DC	0	FTS	R	6.4.149

5.2 Routine identifiers (RID)

The RIDs used in the diagnostic services RoutineControlByIdentifier specified in ISO 16844-6 shall be in accordance with [Table 2](#).

Table 2 — Routine identifiers

Routine identifier	Value	Cvt.	Simplified mnemonic
TimeAdjustment	0100 ₁₆	0	TA
MotionSensorVehicleUnitPairing	014F ₁₆	0	MSVUP
DisplayTest	0150 ₁₆	0	DT
LCDNegativeModeTest	0151 ₁₆	0	LNMT
PrinterTest	0152 ₁₆	0	PT
HardwareTest	0153 ₁₆	0	HT
CarderReaderTest	0154 ₁₆	0	CRT
Reserved by document	0155 ₁₆	0	RBD
ButtonTestLoop	0156 ₁₆	0	BTL
CodeTest	0158 ₁₆	0	CT
RemoteTachographCardDataTransfer	0180 ₁₆	0	RTCDT

6 Parameters and values

6.1 Transmitted parameter ranges

The ranges used to determine the validity of a transmitted parameter, to denote the state of a discrete parameter as well as to denote the state of a control mode command shall be implemented as specified in SAE J1939-71.

Measured parameters have the access attribute R and status parameters have the access attribute R/W.

6.2 Structured parameters

When a parameter is structured, it shall be coded as specified ISO 14229-1.

6.3 Date and time parameter specifications

6.3.1 Day

This parameter indicates the “day” of a date. The "day" parameter shall comply with the specification given in SAE J1939/71 (PG TD).

6.3.2 Month

This parameter indicates the “month” of a date. The "month" parameter shall comply with the specification given in SAE J1939/71 (PG TD).

6.3.3 Year

This parameter indicates the “year” of a date. The "year" parameter shall comply with the specification given in SAE J1939/71 (PG TD).

6.4 Parameter specifications

6.4.1 Standard revision

This parameter indicates the edition of the parts of the ISO 16844 series being supported by the RE. The parameter shall be implemented as specified in [Table 3](#). If this parameter is not present, the implied values shall be 1 (first version) for all parts of the ISO 16844 series.

Table 3 — Specification of parameter standard revision

Attribute	Value
Data length	7 byte
Resolution	1/bit
Offset	0
Operating range	Each byte is mapped to one part of the standard series: byte 1 — ISO 16844-1 (most significant byte) byte 2 — ISO 16844-2 etc. with these values assigned: 1 — 1 st edition 2 — 2 nd edition 3 — 3 rd edition etc.
DID	F9CF ₁₆
Access	R

6.4.2 VIN — VehicleIdentificationNumber

This parameter indicates the vehicle identification number (VIN) as assigned by the vehicle manufacturer. The parameter shall be implemented as specified in [Table 4](#).

Table 4 — Specification of parameter VIN

Attribute	Value
Data length	17 byte
Resolution	Not applicable
Offset	—
Operating range	In accordance with ISO/IEC 8859-1
DID	F190 ₁₆
Access	R/W

6.4.3 Trip group 1

This parameter requests to reset trip distance. The parameter shall be implemented as specified in SAE J1939DA (PG RESET).

6.4.4 System event

This parameter requests to drive a tachograph visual warning to the driver and indicate an occurred tachograph event. Events are implementation specific. The parameter shall be implemented according to SAE J1939DA (PG TCO1).

6.4.5 Handling information

This parameter indicates that handling information is present. The parameter shall be implemented according to SAE J1939DA (PG TCO1).

6.4.6 Tachograph performance

This parameter requests to indicate that the tachograph is performing the auto test. The parameter shall be implemented according to SAE J1939DA (PG TC01).

6.4.7 Direction indicator

This parameter indicates the direction of the vehicle motion (if any). The parameter shall be implemented according to SAE J1939DA (PG TC01).

6.4.8 Requested illumination percentage

This parameter requests the change of the illumination percentage of display and buttons. The parameter shall be implemented according to SAE J1939DA (PG CL).

6.4.9 Switch backlight illumination brightness per cent

This parameter indicates the switch backlight brightness level for all operator control switches. This is separate from the cab display illumination brightness per cent parameter. The parameter shall be implemented according to SAE J1939DA (PG CL).

6.4.10 Switch indication illumination brightness per cent

This parameter indicates the switch indication illumination brightness level for all operator control switches. This is separate from the cab display illumination brightness per cent parameter. The parameter shall be implemented according to SAE J1939DA (PG CL).

6.4.11 RSDST — RemoteSessionDiagnosticSessionType

This parameter indicates the value of the DiagnosticSessionType for the RemoteSession. The parameter shall be implemented as specified in [Table 5](#). The parameter shall have a value in the vehicleManufacturerSpecific or systemSupplierSpecific range according to ISO 14229-1.

Table 5 — Specification of parameter RemoteSessionDiagnosticSessionType

Attribute	Value
Data length	1 byte
Operating range	40 ₁₆ to 7E ₁₆
DID	F900 ₁₆
Access	R/W

6.4.12 TVS — TachographVehicleSpeed

This parameter indicates the actual speed of the vehicle calculated by the tachograph. The parameter shall be implemented as specified in [Table 6](#).

Table 6 — Specification of parameter TachographVehicleSpeed

Attribute	Value
Data length	2 byte
Operating range	According to SAE J1939DA (PG TC01)
DID	F902 ₁₆
Access	R

6.4.13 D1WS — Driver1WorkingState

The parameters indicate the state of work of driver 1, i.e. activity currently selected on the recording equipment for the driver. The parameters shall be implemented as specified in [Table 7](#).

Table 7 — Specification of parameter Driver1WorkingState

Attribute	Value
Data length	3 bit
Operating range	000 ₂ — break/rest 001 ₂ — availability 010 ₂ — work 011 ₂ — driving 100 ₂ — reserved 101 ₂ — reserved 110 ₂ — error indicator 111 ₂ — not available
DID	F903 ₁₆
Access	R

6.4.14 D2WS — Driver2WorkingState

The parameters indicate the state of work of driver 2, i.e. activity currently selected on the recording equipment for the co-driver. The parameters shall be implemented as specified in [Table 8](#).

Table 8 — Specification of parameter Driver2WorkingState

Attribute	Value
Data length	3 bit
Operating range	000 ₂ — break/rest 001 ₂ — availability 010 ₂ — work 011 ₂ — driving 100 ₂ — reserved 101 ₂ — reserved 110 ₂ — error indicator 111 ₂ — not available
DID	F904 ₁₆
Access	R

6.4.15 DR — DriveRecognize

This parameter indicates whether motion of the vehicle is detected. Vehicle motion shall be indicated when more than 1 pulse/s (imp/s) is detected by the recording equipment from the motion sensor for at least 5 s. The parameter shall be implemented as specified in [Table 9](#).

Table 9 — Specification of parameter DriveRecognize

Attribute	Value
Data length	2 bit
Operating range	According to SAE J1939DA (PG TC01)
DID	F905 ₁₆
Access	R

6.4.16 D1TRS — Driver1TimeRelatedStates

This parameter shall be used to indicate if driver 1 approaches/exceeds working time limits or other limits. Only the values 0000₂, 0001₂, and 0010₂ are required (mandatory). The other values are optional warnings. If two or more pre-warnings/warnings are simultaneously active, only the pre-warning/warning corresponding to the lowest value shall be indicated. (Nevertheless, an actual warning shall always have a higher priority than a pre-warning.) The parameter shall be implemented as specified in [Table 10](#).

Table 10 — Specification of parameter Driver1TimeRelatedStates

Attribute	Value
Data length	4 bit
Operating range	0000 ₂ — no time-related warning detected
	0001 ₂ — continuous driving time pre-warning active (15 min before 4 h 30 min)
	0010 ₂ — continuous driving time warning active (4 h 30 min exceeded)
	0011 ₂ — daily driving time pre-warning active (daily driving time above 9 h or above maximum allowed daily driving time)
	0100 ₂ — daily driving time warning active (daily driving time above 9 h or above maximum allowed daily driving time)
	0101 ₂ — daily/weekly rest pre-warning active
	0110 ₂ — daily/weekly rest warning active
	0111 ₂ — weekly driving time pre-warning active
	1000 ₂ — weekly driving time warning active
	1001 ₂ — 2-week driving time pre-warning active
	1010 ₂ — 2-week driving time warning active
	1011 ₂ — driver1 card expiry warning active
	1100 ₂ — next mandatory driver 1 card download warning active
	1101 ₂ — other
1110 ₂ — error indicator	
1111 ₂ — not available	
DID	F906 ₁₆
Access	R

6.4.17 D2TRS — Driver2TimeRelatedStates

This parameter indicates if driver 2 (co-driver) approaches/exceeds working time limits, (or other limits). The value 0000₂ shall be used. The other values may be used for warnings. The parameter shall be implemented as specified in [Table 11](#).

Table 11 — Specification of parameter Driver2TimeRelatedStates

Attribute	Value
Data length	4 bit
Operating range	0000 ₂ — no time-related warning detected
	0001 ₂ to 0100 ₂ — reserved
	0101 ₂ — daily/weekly rest pre-warning active
	0110 ₂ — daily/weekly rest warning active
	0111 ₂ to 1010 ₂ — reserved
	1011 ₂ — driver 2 card expiry warning active
	1100 ₂ — next mandatory driver 2 card download warning active
	1101 ₂ — other
	1110 ₂ — error indicator
	1111 ₂ — not available
DID	F909 ₁₆
Access	R

6.4.18 DCD1 — DriverCardDriver1

This parameter indicates the presence of the driver card of driver 1, i.e. that the card is placed in the driver slot of the recording equipment. If another card is inserted (workshop, control or company card), the parameter driver card, driver 1, is equal to 00₂ (driver card not present). The parameter shall be implemented as specified in [Table 12](#).

Table 12 — Specification of parameter DriverCardDriver1

Attribute	Value
Data length	2 bit
Operating range	According to SAE J1939DA (PG TCO1)
DID	F907 ₁₆
Access	R

6.4.19 DCD2 — DriverCardDriver2

This parameter indicates the presence of the driver card of driver 2, i.e. that the card is placed in the co-driver slot of the recording equipment. If another card is inserted (workshop, control or company card), the parameter driver card, driver 2, is equal to 00₂ (driver card not present). The parameter shall be implemented as specified in [Table 13](#).

Table 13 — Specification of parameter DriverCardDriver2

Attribute	Value
Data length	2 bit
Operating range	According to SAE J1939DA (PG TCO1)
DID	F90A ₁₆
Access	R

6.4.20 OS — Overspeed

This parameter indicates that the current vehicle speed has exceeded the authorized speed of the vehicle. Speed limits can be defined by legal regulation. The parameter shall be implemented as specified in [Table 14](#).

Table 14 — Specification of parameter Overspeed

Attribute	Value
Data length	2 bit
Operating range	According to SAE J1939DA (PG TC01)
DID	F908 ₁₆
Access	R

6.4.21 TD — TimeDate

This parameter shall be provided by the recording equipment. The parameter shall be implemented as specified in [Table 15](#).

Table 15 — Specification of parameter TimeDate

Attribute	Value
Data length	8 byte
Operating range	According to SAE J1939DA (PG TD).
DID	F90B ₁₆
Access	R/W

NOTE 1 For the recording equipment, the local time offset is set by the driver.

NOTE 2 The valid range is further limited by legal requirements.

6.4.22 RHM — ResetHeartbeatMessage

This parameter indicates if the reset heartbeat message is used. The parameter shall be implemented as specified in [Table 16](#).

Table 16 — Specification of parameter ResetHeartbeatMessage

Attribute	Value
Data length	2 bit
Operating range	00 ₂ — disabled (the reset heartbeat message is not used by the recording equipment) 01 ₂ — enabled (the reset heartbeat message is used by the recording equipment)
DID	F90C ₁₆
Access	R/W

6.4.23 ALMO — AdjustLocalMinuteOffset

This parameter shall be used to set the local offset in minutes from UTC, which influences the local minute offset only. The parameter shall be implemented as specified in [Table 17](#).

Table 17 — Specification of parameter AdjustLocalMinuteOffset

Attribute	Value
Data length	1 byte
Operating range	According to SAE J1939DA (PG TDA)
DID	F90D ₁₆
Access	R/W

6.4.24 ALHO — AdjustLocalHourOffset

This parameter shall be used to set the local offset in hours from UTC, which influences the local hour offset only. The parameter shall be implemented as specified in [Table 18](#).

Table 18 — Specification of parameter AdjustLocalHourOffset

Attribute	Value
Data length	1 byte
Operating range	According to SAE J1939DA (PG TDA)
DID	F90E ₁₆
Access	R/W

6.4.25 PLOTM — PriorityLevelOfTC01Message

This parameter requests to set the priority of the TC01 message. The parameter shall be implemented as specified in [Table 19](#).

Table 19 — Specification of parameter PriorityLevelOfTC01Message

Attribute	Value
Data length	3 bit
Operating range	000 ₂ — highest priority 001 ₂ — priority 1 010 ₂ — priority 2 011 ₂ — priority 3, default value 100 ₂ — priority 4 101 ₂ — priority 5 110 ₂ — priority 6 111 ₂ — priority 7, lowest
DID	F90F ₁₆
Access	R/W

6.4.26 HRTVD — HighResolutionTotalVehicleDistance

This parameter indicates the accumulated distance travelled by the vehicle during its operation. The parameter shall be implemented as specified in [Table 20](#).

Table 20 — Specification of parameter HighResolutionTotalVehicleDistance

Attribute	Value
Data length	4 byte
Operating range	According to SAE J1939DA (PG VDHR)
DID	F912 ₁₆
Access	R/W

6.4.27 HRTD — HighResolutionTripDistance

This parameter indicates the distance travelled during the entire journey or a part of it. The parameter shall be implemented as specified in [Table 21](#).

Table 21 — Specification of parameter HighResolutionTripDistance

Attribute	Value
Data length	4 byte

Table 21 (continued)

Attribute	Value
Operating range	According to SAE J1939DA (PG VDHR)
DID	F913 ₁₆
Access	R/W

6.4.28 SCI — ServiceComponentIdentification

This parameter shall identify the component having the nearest time until the next service inspection and shall provide service inspection: periodic inspection for the recording equipment; card expiry date for the driver cards. The parameter shall be implemented as specified in [Table 22](#) and [Table 23](#).

Table 22 — Specification of parameter ServiceComponentIdentification

Attribute	Value
Data length	1 byte
Operating range	Encoding values as given in Table 25
DID	F914 ₁₆
Access	R

Table 23 — Specification of ServiceComponentIdentification

Identification	Component
0 to 60	Reserved by document
61	Tachograph
62	Driver card 1
63	Driver card 2
64 to 239	Not defined
240 to 249	Manufacturer specific
250 to 251	Reserved
252	Reset all components
253	No action to be taken
254	Error
255	Component identification not available

6.4.29 SDCTB — ServiceDelayCalendarTimeBased

This parameter indicates the time in weeks until the next vehicle service inspection is required. A negative value shall be transmitted if the service inspection is passed. The component that requires service shall be identified by the service component identification ([6.4.28](#)). 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 h UTC on Monday and 24:00 h UTC on Sunday. The parameter shall be implemented as specified in [Table 24](#).

Table 24 — Specification of parameter ServiceDelayCalendarTimeBased

Attribute	Value
Data length	1 byte
Resolution	1 week/bit
Offset	-125 week
Operating range	-125 week to 125 week

Table 24 (continued)

Attribute	Value
DID	F915 ₁₆
Access	R

6.4.30 D1I — Driver1Identification

This parameter shall be used to obtain the driver 1 identity from a driver card inserted in the recording equipment and shall contain 3 byte for the issuing member state of the driver card and 16 byte for the card number. The parameter shall be implemented as specified in [Table 25](#).

Table 25 — Specification of parameter Driver1Identification

Attribute	Value
Data length	19 byte
Resolution	Not applicable
Operating range	Byte 1 to 3 — card issuer identification Byte 4 to 19 — card number
DID	F916 ₁₆
Access	R

NOTE This parameter is further specified in the tachograph regulation. The values of the operating range are not in the scope of this document.

6.4.31 D2I — Driver2Identification

This parameter shall be used to obtain the driver 2 identity from a driver card inserted in the recording equipment and shall contain 3 byte for the issuing member state of the driver card and 16 byte for the card number. The parameter shall be implemented as specified in [Table 26](#).

Table 26 — Specification of parameter Driver2Identification

Attribute	Value
Data length	19 byte
Resolution	Not applicable
Operating range	Byte 1 to 3 — card issuer identification Byte 4 to 19 — card number
DID	F917 ₁₆
Access	R

NOTE This parameter is further specified in the tachograph regulation. The values of the operating range are not in the scope of this document.

6.4.32 KF — KFactor

This parameter shall be the current constant of the recording equipment, as the numerical characteristic giving the value of the input required to show and record a distance travelled of 1 km, resulting from the most recent calibration. The parameter shall be implemented as specified in [Table 27](#).

Table 27 — Specification of parameter KFactor

Attribute	Value
Data length	2 byte
Resolution	0,001 pulse/m/bit

Table 27 (continued)

Attribute	Value
Offset	0 pulse/m
Operating range	0 pulse/m to 64 255 pulse/m
Access	R/W

NOTE KFactor is equal to WFactor.

6.4.33 SMR — SpeedMeasurementRange

This parameter shall be used to report the maximum supported speed value of the tachograph. The parameter shall be implemented as specified in [Table 28](#).

Table 28 — Specification of parameter SpeedMeasurementRange

Attribute	Value
Data length	2 byte
Resolution	1/256 km/h/bit
Offset	0 km/h
Operating range	0 km/h to 250,996 km/h
DID	F919 ₁₆
Access	R

6.4.34 NOTOPW — NumberOfTeethOnPhonicWheel

This parameter shall be used to indicate the number of teeth of the phonic (tone) wheel. The parameter shall be implemented as specified in [Table 29](#).

Table 29 — Specification of parameter NumberOfTeethOfPhonicWheel

Attribute	Value
Data length	1 byte
Resolution	1 /bit
Offset	0
Operating range	0 to 250
DID	F91A ₁₆
Access	R/W

6.4.35 TOSS — TachographOutputShaftSpeed

This parameter shall be used to indicate calculated speed of the transmission output shaft. The parameter shall be implemented as specified in [Table 30](#).

Table 30 — Specification of parameter TachographOutputShaftSpeed

Attribute	Value
Data length	2 byte
Operating range	According to SAE J1939DA (PG TC01)
DID	F91B ₁₆
Access	R

6.4.36 LFTC — LFactorTyreCircumference

This parameter shall be used to indicate 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. The parameter shall be implemented as specified in [Table 31](#).

Table 31 — Specification of parameter LFactorTyreCircumference

Attribute	Value
Data length	2 byte
Resolution	0,000 125 m/bit
Offset	0 m
Operating range	0 m to 8,031 m
DID	F91C ₁₆
Access	R/W

6.4.37 WVCF — WVehicleCharacteristicFactor

This parameter shall be used to indicate the current numerical characteristic giving the value of the output 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. The parameter shall be implemented as specified in [Table 32](#).

Table 32 — Specification of parameter WVehicleCharacteristicFactor

Attribute	Value
Data length	2 byte
Resolution	0,001 m ⁻¹ /bit
Offset	0 m ⁻¹
Operating range	0 m ⁻¹ to 64 255 m ⁻¹
DID	F91D ₁₆
Access	R/W

NOTE 1 This parameter is further specified in the tachograph regulation.

NOTE 2 WFactor is equal to KFactor.

6.4.38 PPROOS — PulsesPerRevolutionOfOutputShaft

This parameter shall be used to indicate the number of pulses per revolution of the gearbox output shaft. The parameter shall be implemented as specified in [Table 33](#).

Table 33 — Specification of parameter PulsesPerRevolutionOfOutputShaft

Attribute	Value
Data length	2 byte
Resolution	0,001 pulse/revolution/bit
Offset	0
Operating range	0 pulse/revolution to 64 255 pulse/revolution
DID	F91E ₁₆
Access	R/W

6.4.39 TRROTM — TransmissionRepetitionRateOfTCO1Message

This parameter shall be used to set the transmission rate of the TCO1 message and may be part of the end-of-line programming. The parameter shall be implemented as specified in [Table 34](#).

Table 34 — Specification of parameter TransmissionRepetitionRateOfTCO1Message

Attribute	Value
Data length	2 bit
Operating range	00 ₂ — transmission rate 20 ms 01 ₂ — transmission rate 50 ms (default value)
DID	F920 ₁₆
Access	R/W

6.4.40 TS — TyreSize

This parameter shall be used to indicate the designation of the current dimensions of the tyres (external driving wheels), resulting from the most recent calibration. The parameter shall be implemented as specified in [Table 35](#).

Table 35 — Specification of parameter TyreSize

Attribute	Value
Data length	15 characters
Resolution	Not applicable
Operating range	In accordance with ISO/IEC 8859-1
DID	F921 ₁₆
Access	R/W

NOTE This parameter is further specified in the tachograph regulation.

6.4.41 NCD — NextCalibrationDate

This parameter shall be used to indicate next mandatory calibration date of the tachograph and shall be carried out by the authorized inspection authority. The parameter shall be implemented as specified in [Table 36](#).

Table 36 — Specification of parameter NextCalibrationDate

Attribute	Value
Data length	3 byte
Operating range	Byte 1 — month Byte 2 — day Byte 3 — year
DID	F922 ₁₆
Access	R/W

6.4.42 D1CDT — Driver1ContinuousDrivingTime

This parameter shall be computed as the current accumulated driving times of a particular driver. Accumulated driving times can be defined by legal regulation. The parameter shall be implemented as specified in [Table 37](#).

Table 37 — Specification of parameter Driver1ContinuousDrivingTime

Attribute	Value
Data length	2 byte
Resolution	1 min/bit
Offset	0 min
Operating range	0 min to 64 255 min
DID	F923 ₁₆
Access	R

6.4.43 D2CDT — Driver2ContinuousDrivingTime

This parameter shall be defined as driver 2 continuous driving time. The parameter shall be implemented as specified in [Table 38](#).

Table 38 — Specification of parameter Driver2ContinuousDrivingTime

Attribute	Value
Data length	2 byte
Resolution	1 min/bit
Offset	0 min
Operating range	0 min to 64 255 min
DID	F924 ₁₆
Access	R

6.4.44 D1CBT — Driver1CumulativeBreakTime

This parameter indicates the uninterrupted break time for driver 1. The parameter shall be implemented as specified in [Table 39](#).

Table 39 — Specification of parameter Driver1CumulativeBreakTime

Attribute	Value
Data length	2 byte
Resolution	1 min/bit
Offset	0 min
Operating range	0 min to 64 255 min
DID	F925 ₁₆
Access	R

6.4.45 D2CBT — Driver2CumulativeBreakTime

This parameter indicates the uninterrupted break time for driver 2. The parameter shall be implemented as specified in [Table 40](#).

Table 40 — Specification of parameter Driver2CumulativeBreakTime

Attribute	Value
Data length	2 byte
Resolution	1 min/bit
Offset	0 min
Operating range	0 min to 64 255 min

Table 40 (continued)

Attribute	Value
DID	F926 ₁₆
Access	R

6.4.46 D1CDOSA — Driver1CurrentDurationOfSelectedActivity

This parameter indicates the current duration of the selected activity, since selected, and which may be the current driving period, availability period, rest period, or work period. The parameter shall be implemented as specified in [Table 41](#).

Table 41 — Specification of parameter Driver1CurrentDurationOfSelectedActivity

Attribute	Value
Data length	2 byte
Resolution	1 min/bit
Offset	0 min
Operating range	0 min to 64 255 min
DID	F927 ₁₆
Access	R

6.4.47 D2CDOSA — Driver2CurrentDurationOfSelectedActivity

This parameter indicates the current duration of the selected activity, since selected, and which may be the current availability period, rest period or work period. The parameter shall be implemented as specified in [Table 42](#).

Table 42 — Specification of parameter Driver2CurrentDurationOfSelectedActivity

Attribute	Value
Data length	2 byte
Resolution	1 min/bit
Offset	0 min
Operating range	0 min to 64 255 min
DID	F928 ₁₆
Access	R

6.4.48 SA — SpeedAuthorised

This parameter shall be used for speed limit setting. The parameter shall be implemented as specified in [Table 43](#).

Table 43 — Specification of parameter SpeedAuthorised

Attribute	Value
Data length	2 byte
Resolution	1/256 km/h/bit
Offset	0 km/h
Operating range	0 km/h to 250,996 km/h
DID	F92C ₁₆
Access	R/W

6.4.49 TCS1 — TachographCardSlot1

This parameter shall be used to indicate the presence of a tachograph card in the driver slot of the recording equipment. The parameter shall be implemented as specified in [Table 44](#).

Table 44 — Specification of parameter TachographCardSlot1

Attribute	Value
Data length	1 byte
Resolution	1/bit
Operating range	0 — tachograph card not present (or card present, but the type is not recognized by the recording equipment) 1 — driver card present 2 — workshop card present 3 — control card present 4 — company card present 5 to 250 — not used
DID	F930 ₁₆
Access	R

6.4.50 TCS2 — TachographCardSlot2

This parameter shall be used to indicate the presence of a tachograph card in the co-driver slot of the recording equipment. The parameter shall be implemented as specified in [Table 45](#).

Table 45 — Specification of parameter TachographCardSlot2

Attribute	Value
Data length	1 byte
Resolution	1/bit
Operating range	0 — tachograph card not present (or card present, but the type is not recognized by the recording equipment) 1 — driver card present 2 — workshop card present 3 — control card present 4 — company card present 5 to 250 — not used
DID	F933 ₁₆
Access	R

6.4.51 D1N — Driver1Name

This parameter 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 equipment. The parameter shall be implemented as specified in [Table 46](#).

Table 46 — Specification of parameter Driver1Name

Attribute	Value
Data length	72 byte

Table 46 (continued)

Attribute	Value
Resolution	Not applicable
Operating range	Byte 1 — code page for surname Byte 2 to 36 — surname Byte 37 — code page for first name Byte 38 to 72 — first name
DID	F931 ₁₆
Access	R

Driver1Name shall include:

- a code page value specifying the part of the ISO/IEC 8859 series used to code the surname and the first name, and
- the surname (family name) and first name coded in accordance with the code page of the part of the ISO/IEC 8859 series.

NOTE This parameter is further specified in the tachograph regulation.

6.4.52 D2N — Driver2Name

This parameter shall be used to obtain the driver 2 name containing the surname and first name read from the co-driver card currently inserted in the recording equipment (co-driver slot). The parameter shall be implemented as specified in [Table 47](#).

Table 47 — Specification of parameter Driver2Name

Attribute	Value
Data length	72 byte
Resolution	Not applicable
Operating range	Byte 1 — code page for surname Byte 2 to 36 — surname Byte 37 — code page for first name Byte 38 to 72 — first name
DID	F932 ₁₆
Access	R

Driver2Name shall include:

- a code page value specifying the part of the ISO/IEC 8859 series used to code the surname and the first name, and
- the surname (family name) and first name coded in accordance with the code page of the part of the ISO/IEC 8859 series.

NOTE This parameter is further specified in the tachograph regulation.

6.4.53 OOSC — OutOfScopeCondition

This parameter shall be used to indicate whether a not in scope specific condition is currently open. The parameter shall be implemented as specified in [Table 48](#).

Table 48 — Specification of parameter OutOfScopeCondition

Attribute	Value
Data length	1 byte
Operating range	0 — no out of scope condition opened 1 — out of scope condition opened
DID	F936 ₁₆
Access	R

6.4.54 MOD — ModeOfOperation

This parameter shall be used to indicate the current mode of operation of the recording equipment according to the valid tachograph cards inserted. The parameter shall be implemented as specified in [Table 49](#).

Table 49 — Specification of parameter ModeOfOperation

Attribute	Value
Data length	1 byte
Resolution	1/bit
Operating range	0 — operational mode 1 — control mode 2 — calibration mode 3 — company mode 4 to 250 — not used
DID	F937 ₁₆
Access	R

NOTE This parameter is further specified in the tachograph regulation.

6.4.55 D1CDTPACW — Driver1CumulatedDrivingTimePreviousAndCurrentWeek

This parameter shall be computed as the current accumulated driving times of driver 1 (driver) for the previous and the current week. The parameter shall be implemented as specified in [Table 50](#).

Table 50 — Specification of parameter Driver1CumulatedDrivingTimePreviousAndCurrentWeek

Attribute	Value
Data length	2 byte
Resolution	1 min/bit
Offset	0 min
Operating range	0 min to 64 255 min
DID	F938 ₁₆
Access	R

6.4.56 D2CDTPACW — Driver2CumulatedDrivingTimePreviousAndCurrentWeek

This parameter shall be computed as the current accumulated driving times of driver 2 (co-driver) for the previous and the current week. The parameter shall be implemented as specified in [Table 51](#).

**Table 51 — Specification of parameter
Driver2CumulatedDrivingTimePreviousAndCurrentWeek**

Attribute	Value
Data length	2 byte
Resolution	1 min/bit
Offset	0 min
Operating range	0 min to 64 255 min
DID	F939 ₁₆
Access	R

6.4.57 RTSP — RealTimeSpeedPulses

This parameter shall allow simulation (e.g. short-term adjustment) or monitoring of the frequency values received from the motion sensor. The motion sensor output may be replaced by use of the service InputOutputControlByIdentifier, the recordIdentifier set to RealTimeSpeedPulses (F940₁₆), and InputOutputControlParameter set to ShortTermAdjustment. The speed calculated from the replacement value can be read at the display or by the service readDataByIdentifier and the recordIdentifier set to TachographVehicleSpeed (F902₁₆).

The simulated value shall not influence recorded data. If the tachograph detects sensor speed during this test, the test will be automatically aborted. The parameter shall be implemented as specified in [Table 52](#).

Table 52 — Specification of parameters RealTimeSpeedPulses/TachographVehicleSpeed

Attribute	Value
Data length	2 byte
Resolution	0,1 s ⁻¹
Offset	0 s ⁻¹
Operating range	0 s ⁻¹ to 6 425,5 s ⁻¹
DID	F940 ₁₆
Access	R/W

6.4.58 ES — EngineSpeed

This parameter indicates the actual engine speed which is calculated over a minimum crankshaft angle of 720° divided by the number of cylinders. The parameter shall be implemented as specified in [Table 53](#).

Table 53 — Specification of parameter EngineSpeed

Attribute	Value
Data length	2 byte
Operating range	According to SAE J1939-71 (PG EEC1)
DID	F95A ₁₆
Access	R

6.4.59 CIO — CalibrationInputOutput

The parameter CalibrationInputOutput shall allow controlling of the test and calibration pin function of the recording equipment front connector with the InputOutputControlByIdentifier service. The actual setting may be read by the ReadDataByIdentifier service.

The test and calibration pin shall be used to input a replacement signal for the motion sensor (test signal) with the calibrationInputOutput parameter set to “enable as speedSignalInput”. The motion sensor input may alternatively be replaced by use of the service InputOutputControlByIdentifier, with the recordIdentifier set to RealTimeSpeedPulses (F940₁₆) and InputOutputControlParameter set to ShortTermAdjustment. The test and calibration pin shall be used to measure the motion sensor signal, with the calibrationInputOutput parameter set to enable as realTimeSpeedSignalOutputSensor. The motion sensor value may alternatively be read by the service readDataByIdentifier and with the recordIdentifier set to RealTimeSpeedPulses.

The test and calibration pin shall be used to measure the UTC clock signal with the calibrationInputOutput parameter set to “enable as RTCOutput”.

The parameter shall be implemented as specified in [Table 54](#).

Table 54 — Specification of parameter CalibrationInputOutput

Attribute	Value
Data length	1 byte
Resolution	n/a
Offset	n/a
Operating range	0 to 4
DID	F960 ₁₆
Access	R, I/Ocontrol

The possible values for the controlState parameter/dataRecord shall be in accordance with [Table 55](#).

Table 55 — Possible controlState/dataRecord values for CalibrationInputOutput

Mode	Value	Description
Disable	0	I/O line is disabled (default state)
Enable	1	Enable as speedSignalInput
Enable	2	Enable as realTimeSpeedSignalOutputSensor
Enable	3	Enable as RTCOutput
Enable	4	Enable calibration I/O line as EngineRotationOutput

6.4.60 SJW — SynchronizationJumpWidth

The parameter SJW shall be modified by diagnosis, and according to the manufacturer's discretion to consider the different topologies of CAN network. The default value shall be according to ISO 16844-4. The parameter shall be implemented as specified in [Table 56](#).

Table 56 — Specification of parameter SynchronizationJumpWidth

Attribute	Value
Data length	1 byte
Resolution	1 tq/bit
Offset	0
Operating range	1 tq to 4 tq
DID	F979 ₁₆
Access	R/W

6.4.61 SP — SamplePoint

This parameter shall specify the point of time at which the bus level is read and interpreted as the value of that respective bit. This parameter shall be specified by end of line programming. For DID and access, the resolution shall be adjusted according to the hardware. The default value shall be 87,5 %. The parameter shall be implemented as specified in [Table 57](#).

Table 57 — Specification of parameter SamplePoint

Attribute	Value
Data length	1 byte
Resolution	0,4 %/bit gain (recommended)
Offset	0
Operating range	60 % to 100 %
DID	F97A ₁₆
Access	R/W

6.4.62 TOMED — TimeOutMessageErrorDelay

This parameter shall contain the number of emission cycles of the specified message before time out failure is declared. This value shall be specified by the vehicle manufacturer. The default value shall be 3. The parameter shall be implemented as specified in [Table 58](#).

Table 58 — Specification of parameter TimeOutMessageErrorDelay

Attribute	Value
Data length	1 byte
Resolution	0,5/bit gain
Offset	0
Operating range	0 to 128
DID	F97B ₁₆
Access	R/W

EXAMPLE If the parameter is equal to 3,5, and if a message is sent every 20 ms (i.e. the message was missing during more than $3,5 \times 20 = 70$ ms), a time out failure on this message is declared.

6.4.63 EMII — ErrorManagementInitialisationInhibition

This parameter shall specify the inhibition period of the CAN network error management system at the ignition on and ignition off.

To consider the different reset timings of the ECUs connected to the CAN network, the management of the network error shall be inhibited during a period of time. The default value shall be 2 s. This value shall be at the manufacturer's discretion.

The parameter shall be implemented as specified in [Table 59](#).

Table 59 — Specification of parameter ErrorManagementInitialisationInhibition

Attribute	Value
Data length	1 byte
Resolution	0,1 s/bit gain
Offset	0
Operating range	0 s to 25,0 s

Table 59 (continued)

Attribute	Value
DID	F97C ₁₆
Access	R/W

6.4.64 RMS — RegisteringMemberState

This parameter shall be assigned by the registration centre. The parameter shall be implemented as specified in [Table 60](#).

Table 60 — Specification of parameter RMS

Attribute	Value
Data length	3 byte
Resolution	Not applicable
Offset	n/a
Operating range	In accordance with ISO/IEC 8859-1
DID	F97D ₁₆
Access	R/W

NOTE 1 The ISO/IEC 8859-1 character “*” is reserved as a delimiter.

NOTE 2 This parameter is further specified in the tachograph regulation.

6.4.65 VRN — VehicleRegistrationNumber

This parameter shall be as assigned by the registration centre. The VRN shall include:

- a code page value specifying the part of the ISO/IEC 8859 series used to code the VRN, and
- the VRN coded in accordance with the code page of the part of the ISO/IEC 8859 series.

The parameter shall be implemented as specified in [Table 61](#).

Table 61 — Specification of parameter VRN

Attribute	Value
Data length	14 byte
Resolution	Not applicable
Offset	0
Operating range	Byte 1: code page Byte 2 to 14: VRN
DID	F97E ₁₆
Access	R/W

NOTE This parameter is further specified in the tachograph regulation.

6.4.66 VRD — VehicleRegistrationDate

This parameter group shall be transmitted to the recording equipment. The parameter shall be implemented as specified in [Table 62](#).

Table 62 — Specification of parameter group VehicleRegistrationDate

Attribute	Value
Data length	8 byte
Operating range	In accordance with SAE J1939DA (PG TD)
DID	F97F ₁₆
Access	R/W

6.4.67 D1PL — Driver1PreferredLanguage

This parameter is set to the preferred language for driver 1. It shall be set to the two-letter lower-case coding according to ISO 639-1; first character shall be mapped the first byte. The parameter shall be implemented as specified in [Table 63](#).

Table 63 — Specification of parameter Driver1PreferredLanguage

Attribute	Value
Data length	2 byte
Resolution	Not applicable
Offset	n/a
Operating range	In accordance with ISO/IEC 8859-1
DID	F981 ₁₆
Access	R

6.4.68 D2PL — Driver2PreferredLanguage

This parameter is set to the preferred language for driver 2. It shall be set to the two-letter lower-case coding according to ISO 639-1; first character shall be mapped the first byte. The parameter shall be implemented as specified in [Table 64](#).

Table 64 — Specification of parameter Driver2PreferredLanguage

Attribute	Value
Data length	2 byte
Resolution	Not applicable
Offset	n/a
Operating range	In accordance with ISO/IEC 8859-1
DID	F982 ₁₆
Access	R

6.4.69 DC1DTP — DriverCard1DownloadTimePeriod

This parameter shall be the period between two mandatory driver card downloads, which is used for computing the next mandatory driver card download pre-warning/warning (if implemented). The parameter shall be implemented as specified in [Table 65](#).

Table 65 — Specification of parameter DriverCard1DownloadTimePeriod

Attribute	Value
Data length	1 byte
Resolution	1 d/bit gain
Offset	0

Table 65 (continued)

Attribute	Value
Operating range	1 d to 250 d
DID	F990 ₁₆
Access	R/W

6.4.70 DC2DTP — DriverCard2DownloadTimePeriod

This parameter shall be the period between two mandatory driver card downloads, which is used for computing the next mandatory driver card download pre-warning/warning (if implemented). The parameter shall be implemented as specified in Table 66.

Table 66 — Specification of parameter DriverCard2DownloadTimePeriod

Attribute	Value
Data length	1 byte
Resolution	1 d/bit gain
Offset	0
Operating range	1 d to 250 d
DID	F983 ₁₆
Access	R/W

6.4.71 TDTP — TachographDownloadTimePeriod

This parameter shall be the period between two mandatory tachograph downloads, which is used for computing the next mandatory tachograph download pre-warning/warning (if implemented). The parameter shall be implemented as specified in Table 67.

Table 67 — Specification of parameter TachographDownloadTimePeriod

Attribute	Value
Data length	1 byte
Resolution	1 d/bit gain
Offset	0
Operating range	1 d to 120 d
Default value	90 d
DID	F991 ₁₆
Access	R/W

6.4.72 DHRPWT — DriversHoursRulesPreWarningTimeDelay

This parameter shall be the time delay between a pre-warning and the associated warning for daily driving time, weekly driving time, two weeks driving time, and time to start daily/weekly rest period (if implemented). The parameter shall be implemented as specified in Table 68.

Table 68 — Specification of parameter DriversHoursRulesPreWarningTimeDelay

Attribute	Value
Data length	1 byte
Resolution	1 min/bit gain
Offset	0
Operating range	15 min to 60 min

Table 68 (continued)

Attribute	Value
DID	F992 ₁₆
Access	R/W

6.4.73 DCEWTD — DriverCardExpiryWarningTimeDelay

This parameter shall be the time delay before the driver card expiry date, during which the driver card expiry warning can be triggered by the tachograph (if implemented). The parameter shall be implemented as specified in [Table 69](#).

Table 69 — Specification of parameter DriverCardExpiryWarningTimeDelay

Attribute	Value
Data length	1 byte
Resolution	1 d/bit gain
Offset	0
Operating range	0 d to 250 d (0 d means that the driver card expiry warning is deactivated)
DID	F993 ₁₆
Access	R/W

6.4.74 NDC1DWTD — NextDriverCard1DownloadWarningTimeDelay

This parameter shall be the time delay before the next mandatory driver 1 card download, during which the next mandatory driver 1 card download warning can be triggered by the tachograph (if implemented). The parameter shall be implemented as specified in [Table 70](#).

Table 70 — Specification of parameter NextDriverCard1DownloadWarningTimeDelay

Attribute	Value
Data length	1 byte
Resolution	1 d/bit gain
Offset	0
Operating range	0 d to 250 d (0 d means that the driver card expiry warning is deactivated)
DID	F994 ₁₆
Access	R/W

6.4.75 NDC2DWTD — NextDriverCard2DownloadWarningTimeDelay

This parameter shall be the time delay before the next mandatory driver 2 card download, during which the next mandatory driver 2 card download warning can be triggered by the tachograph (if implemented). The parameter shall be implemented as specified in [Table 71](#).

Table 71 — Specification of parameter NextDriverCard2DownloadWarningTimeDelay

Attribute	Value
Data length	1 byte
Resolution	1 d/bit gain
Offset	0

Table 71 (continued)

Attribute	Value
Operating range	0 d to 250 d (0 d means that the driver card expiry warning is deactivated)
DID	F984 ₁₆
Access	R/W

6.4.76 NTDWTD — NextTachographDownloadWarningTimeDelay

This parameter shall be the time delay before the next mandatory tachograph download, during which the next mandatory tachograph download warning can be triggered by the tachograph (if implemented). The parameter shall be implemented as specified in [Table 72](#).

Table 72 — Specification of parameter NextTachographDownloadWarningTimeDelay

Attribute	Value
Data length	1 byte
Resolution	1 d/bit gain
Offset	0
Operating range	0 d to 250 d (0 d means that the driver card expiry warning is deactivated)
Default value	10 d
DID	F995 ₁₆
Access	R/W

6.4.77 NCWTD — NextCalibrationWarningTimeDelay

This parameter shall define the number of calendar days before the date of the next mandatory driver card download, when the RE starts to trigger the tachograph download warning. The parameter shall be implemented as specified in [Table 73](#).

Table 73 — Specification of parameter NextCalibrationWarningTimeDelay

Attribute	Value
Data length	1 byte
Resolution	1 d/bit gain
Offset	0
Operating range	0 d to 250 d (0 d means that the driver card expiry warning is deactivated)
DID	F996 ₁₆
Access	R/W

6.4.78 D1EOLDRP — Driver1EndOfLastDailyRestPeriod

This parameter shall be the end of the last daily rest period of driver 1, as computed by the tachograph using driver 1 card data. The parameter shall be implemented as specified in [Table 74](#).

Table 74 — Specification of parameter Driver1EndOfLastDailyRestPeriod

Attribute	Value
Data length	8 byte
Operating range	In accordance with SAE J1939DA (PG TD)

Table 74 (continued)

Attribute	Value
DID	F997 ₁₆
Access	R

6.4.79 D2EOLDRP — Driver2EndOfLastDailyRestPeriod

This parameter shall be the end of the last daily rest period of driver 2, as computed by the tachograph using driver 2 card data. The parameter shall be implemented as specified in [Table 75](#).

Table 75 — Specification of parameter Driver2EndOfLastDailyRestPeriod

Attribute	Value
Data length	8 byte
Operating range	In accordance with SAE J1939DA (PG TD)
DID	F985 ₁₆
Access	R

6.4.80 D1EOLWRP — Driver1EndOfLastWeeklyRestPeriod

This parameter shall be the end of the last weekly rest period of driver 1, as computed by the tachograph using driver 1 card data. The parameter shall be implemented as specified in [Table 76](#).

Table 76 — Specification of parameter Driver1EndOfLastWeeklyRestPeriod

Attribute	Value
Data length	8 byte
Operating range	In accordance with SAE J1939DA (PG TD)
DID	F996 ₁₆
Access	R

6.4.81 D2EOLWRP — Driver2EndOfLastWeeklyRestPeriod

This parameter shall be the end of the last weekly rest period of driver 2, as computed by the tachograph using driver 2 card data. The parameter shall be implemented as specified in [Table 77](#).

Table 77 — Specification of parameter Driver2EndOfLastWeeklyRestPeriod

Attribute	Value
Data length	8 byte
Operating range	In accordance with SAE J1939DA (PG TD)
DID	F986 ₁₆
Access	R

6.4.82 D1EOLWRP — Driver1EndOfSecondLastWeeklyRestPeriod

This parameter shall be the end of the second last weekly rest period of driver 1, as computed by the tachograph using driver 1 card data. The parameter shall be implemented as specified in [Table 78](#).

Table 78 — Specification of parameter Driver1EndOfSecondLastWeeklyRestPeriod

Attribute	Value
Data length	8 byte

Table 78 (continued)

Attribute	Value
Operating range	In accordance with SAE J1939DA (PG TD)
DID	F999 ₁₆
Access	R

6.4.83 D2EOSLWRP — Driver2EndOfSecondLastWeeklyRestPeriod

This parameter shall be the end of the last weekly rest period of driver 2, as computed by the tachograph using driver 2 card data. The parameter shall be implemented as specified in [Table 79](#).

Table 79 — Specification of parameter Driver2EndOfSecondLastWeeklyRestPeriod

Attribute	Value
Data length	8 byte
Operating range	In accordance with SAE J1939DA (PG TD)
DID	F987 ₁₆
Access	R

6.4.84 D1CDDT — Driver1CurrentDailyDrivingTime

This parameter shall be the current daily driving time of driver 1, as computed by the tachograph using driver 1 card data. The parameter shall be implemented as specified in [Table 80](#).

Table 80 — Specification of parameter Driver1CurrentDailyDrivingTime

Attribute	Value
Data length	2 byte
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
DID	F99A ₁₆
Access	R

6.4.85 D2CDDT — Driver2CurrentDailyDrivingTime

This parameter shall be the current daily driving time of driver 2, as computed by the tachograph using driver 2 card data. The parameter shall be implemented as specified in [Table 81](#).

Table 81 — Specification of parameter Driver2CurrentDailyDrivingTime

Attribute	Value
Data length	2 byte
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
DID	F988 ₁₆
Access	R

6.4.86 D1CWDT — Driver1CurrentWeeklyDrivingTime

This parameter shall be the current weekly driving time of driver 1, as computed by the tachograph using driver 1 card data. The parameter shall be implemented as specified in [Table 82](#).

Table 82 — Specification of parameter Driver1CurrentWeeklyDrivingTime

Attribute	Value
Data length	2 byte
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
DID	F99B ₁₆
Access	R

6.4.87 D2CWDT — Driver2CurrentWeeklyDrivingTime

This parameter shall be the current weekly driving time of driver 2, as computed by the tachograph using driver 2 card data. The parameter shall be implemented as specified in [Table 83](#).

Table 83 — Specification of parameter Driver2CurrentWeeklyDrivingTime

Attribute	Value
Data length	2 byte
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
DID	F989 ₁₆
Access	R

6.4.88 D1TLUNDRP — Driver1TimeLeftUntilNewDailyRestPeriod

This parameter shall be the calendar time left until driver 1 shall start a new daily rest period. The parameter shall be implemented as specified in [Table 84](#).

Table 84 — Specification of parameter Driver1TimeLeftUntilNewRestPeriod

Attribute	Value
Data length	2 byte
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
DID	F99C ₁₆
Access	R

6.4.89 D2TLUNDRP — Driver2TimeLeftUntilNewDailyRestPeriod

This parameter shall be the calendar time left until driver 2 shall start a new daily rest period. The parameter shall be implemented as specified in [Table 85](#).

Table 85 — Specification of parameter Driver2TimeLeftUntilNewRestPeriod

Attribute	Value
Data length	2 byte
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
DID	F98A ₁₆
Access	R

6.4.90 D1CED — Driver1CardExpiryDate

The parameter Driver1CardExpiryDate shall be the card expiry date read by the tachograph in driver 1 card (in UTC time). The parameter shall be implemented as specified in [Table 86](#) and [6.2](#).

Table 86 — Specification of parameter Driver1CardExpiryDate

Attribute	Value
Data length	3 byte, Byte 1: month Byte 2: day Byte 3: year
Operating range	In accordance with SAE J1939DA (SP month,)
DID	F99D ₁₆
Access	R

6.4.91 D2CED — Driver2CardExpiryDate

The parameter Driver2CardExpiryDate shall be the card expiry date read by the tachograph in driver 2 card (in UTC time). The parameter shall be implemented as specified in [Table 87](#) and [6.2](#).

Table 87 — Specification of parameter Driver2CardExpiryDate

Attribute	Value
Data length	3 byte, Byte 1: month Byte 2: day Byte 3: year
Operating range	According to month, day and year in SAE J1939DA (PG TD).
DID	F98B ₁₆
Access	R

6.4.92 D1CNMDD — Driver1CardNextMandatoryDownloadDate

This parameter shall be the date of the next driver 1 card mandatory download (in UTC time). The parameter shall be implemented as specified in [Table 88](#) and [6.2](#).

Table 88 — Specification of parameter Driver1CardNextMandatoryDownloadDate

Attribute	Value
Data length	3 byte, Byte 1: month Byte 2: day Byte 3: year
Operating range	According to month, day and year in SAE J1939DA (PG TD).
DID	F99E ₁₆
Access	R

6.4.93 D2CNMDD — Driver2CardNextMandatoryDownloadDate

This parameter shall be the date of the next driver 2 card mandatory download (in UTC time). The parameter shall be implemented as specified in [Table 89](#) and [6.2](#).

Table 89 — Specification of parameter Driver2CardNextMandatoryDownloadDate

Attribute	Value
Data length	3 byte, Byte 1: month Byte 2: day Byte 3: year
Operating range	According to month, day and year in SAE J1939DA (PG TD).
DID	F99F ₁₆
Access	R

6.4.94 TNMDD — TachographNextMandatoryDownloadDate

This parameter shall be the date of the next mandatory download of the tachograph (in UTC time). The parameter shall be implemented as specified in [Table 90](#) and [6.2](#).

Table 90 — Specification of parameter TachographNextMandatoryDownloadDate

Attribute	Value
Data length	3 byte, Byte 1: month Byte 2: days Byte 3: years
Operating range	According to month, day and year in SAE J1939DA (PG TD).
DID	F98C ₁₆
Access	R

6.4.95 D1TLUNWRP — Driver1TimeLeftUntilNewWeeklyRestPeriod

This parameter shall be the calendar time left until driver 1 shall start a new weekly rest period. The parameter shall be implemented as specified in [Table 91](#).

Table 91 — Specification of parameter Driver1TimeLeftUntilNewWeeklyRestPeriod

Attribute	Value
Data length	2 byte
Resolution	1 min/bit gain

Table 91 (continued)

Attribute	Value
Offset	0
Operating range	0 min to 64 255 min
DID	F9A1 ₁₆
Access	R

6.4.96 D2TLUNWRP — Driver2TimeLeftUntilNewWeeklyRestPeriod

This parameter shall be the calendar time left until driver 2 shall start a new weekly rest period. The parameter shall be implemented as specified in [Table 92](#).

Table 92 — Specification of parameter Driver2TimeLeftUntilNewWeeklyRestPeriod

Attribute	Value
Data length	2 byte
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
DID	F98D ₁₆
Access	R

6.4.97 D1NOT9HDDTE — Driver1NumberOfTimes9hDailyDrivingTimesExceeded

This parameter shall be the number of times the driver exceeded 9 h daily driving time in the current week. The parameter shall be implemented as specified in [Table 93](#).

Table 93 — Specification of parameter Driver1NumberOfTimes9hDailyDrivingTimesExceeded

Attribute	Value
Data length	1 byte
Resolution	1/bit gain
Offset	0
Operating range	0 times to 13 times
DID	F9A0 ₁₆
Access	R

6.4.98 D2NOT9HDDTE — Driver2NumberOfTimes9hDailyDrivingTimesExceeded

This parameter shall be the number of times the driver 2 exceeded 9 h daily driving time in the current week. The parameter shall be implemented as specified in [Table 94](#).

Table 94 — Specification of parameter Driver2NumberOfTimes9hDailyDrivingTimesExceeded

Attribute	Value
Data length	1 byte
Resolution	1/bit gain
Offset	0
Operating range	0 times to 13 times
DID	F98E ₁₆
Access	R

6.4.99 D1CURT — Driver1CumulativeUninterruptedRestTime

This parameter shall be the cumulative uninterrupted rest period for driver 1 since last fulfilled daily rest. It shall be incremented each minute of uninterrupted rest time. The parameter shall be implemented as specified in [Table 95](#).

Table 95 — Specification of parameter Driver1CumulativeUninterruptedRestTime

Attribute	Value
Data length	2 byte
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
DID	F9A2 ₁₆
Access	R

6.4.100 D2CURT — Driver2CumulativeUninterruptedRestTime

This parameter shall be the cumulative uninterrupted rest period for driver 2 since last fulfilled daily rest. It shall be incremented each minute of uninterrupted rest time. The parameter shall be implemented as specified in [Table 96](#).

Table 96 — Specification of parameter Driver2CumulativeUninterruptedRestTime

Attribute	Value
Data length	2 byte
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
DID	F98F ₁₆
Access	R

6.4.101 D1MDR — Driver1MinimumDailyRest

This parameter indicates the minimum daily rest the driver 1 shall fulfil for an ongoing or approaching daily rest period. The parameter shall be implemented as specified in [Table 97](#).

Table 97 — Specification of parameter Driver1MinimumDailyRest

Attribute	Value
Data length	2 byte
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
DID	F9A3 ₁₆
Access	R

6.4.102 D2MDR — Driver2MinimumDailyRest

This parameter indicates the minimum daily rest the driver 2 shall fulfil for an ongoing or approaching daily rest period. The parameter shall be implemented as specified in [Table 98](#).

Table 98 — Specification of parameter Driver2MinimumDailyRest

Attribute	Value
Data length	2 byte
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
DID	F9A7 ₁₆
Access	R

6.4.103D1MWR — Driver1MinimumWeeklyRest

This parameter indicates the minimum weekly rest the driver 1 shall fulfil for an ongoing or approaching weekly rest period. It shall be set to regular or reduced weekly rest period plus compensation hours, if any. The parameter shall be implemented as specified in [Table 99](#).

Table 99 — Specification of parameter Driver1MinimumWeeklyRest

Attribute	Value
Data length	2 byte
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
DID	F9A4 ₁₆
Access	R

6.4.104D2MWR — Driver2MinimumWeeklyRest

This parameter indicates the minimum weekly rest the driver 2 shall fulfil for an ongoing or approaching weekly rest period. It shall be set to regular or reduced weekly rest period plus compensation hours, if any. The parameter shall be implemented as specified in [Table 100](#).

Table 100 — Specification of parameter Driver2MinimumWeeklyRest

Attribute	Value
Data length	2 byte
Resolution	1 min/bit gain
Offset	0
Operating range	0 min to 64 255 min
DID	F9A8 ₁₆
Access	R

6.4.105D1MDP — Driver1MaximumDailyPeriod

This parameter shall be set to the maximum allowed calendar time between the end of two daily rests (the daily period) for driver 1. The parameter shall be implemented as specified in [Table 101](#).

Table 101 — Specification of parameter Driver1MaximumDailyPeriod

Attribute	Value
Data length	1 byte
Resolution	1 h/bit

Table 101 (continued)

Attribute	Value
Offset	0
Operating range	0 to 250
DID	F9A5 ₁₆
Access	R

6.4.106D2MDP — Driver2MaximumDailyPeriod

This parameter shall be set to the maximum allowed calendar time between the end of two daily rests (the daily period) for driver 2. The parameter shall be implemented as specified in [Table 102](#).

Table 102 — Specification of parameter Driver2MaximumDailyPeriod

Attribute	Value
Data length	1 byte
Resolution	1 h/bit
Offset	0
Operating range	0 to 250
DID	F9A9 ₁₆
Access	R

6.4.107D1MDDT — Driver1MaximumDailyDrivingTime

This parameter shall be the maximum daily driving time for driver 1. The parameter shall be implemented as specified in [Table 103](#).

Table 103 — Specification of parameter Driver1MaximumDailyDrivingTime

Attribute	Value
Data length	1 byte
Resolution	1 h/bit
Offset	0
Operating range	9 h to 10 h All other values — reserved
DID	F9A6 ₁₆
Access	R

6.4.108D2MDDT — Driver2MaximumDailyDrivingTime

This parameter shall be the maximum daily driving time for driver 2. The parameter shall be implemented as specified in [Table 104](#).

Table 104 — Specification of parameter Driver2MaximumDailyDrivingTime

Attribute	Value
Data length	1 byte
Resolution	1 h/bit
Offset	0
Operating range	9 h to 10 h All other values — reserved
DID	F9AA ₁₆

Table 104 (continued)

Attribute	Value
Access	R

6.4.109D1NOURDRP — Driver1NumberOfUsedReducedDailyRestPeriods

This parameter indicates the number of the reduced daily rest periods since previous weekly rest period for driver 1. The parameter shall be implemented as specified in [Table 105](#).

Table 105 — Specification of parameter Driver1NumberOfUsedReducedDailyRestPeriods

Attribute	Value
Data length	1 byte
Resolution	1/bit
Offset	0
Operating range	0 to 13
DID	F9AB ₁₆
Access	R

6.4.110D2NOURDRP — Driver2NumberOfUsedReducedDailyRestPeriods

This parameter indicates the number of reduced daily rest periods since previous weekly rest period for driver 2. The parameter shall be implemented as specified in [Table 106](#).

Table 106 — Specification of parameter Driver2NumberOfUsedReducedDailyRestPeriods

Attribute	Value
Data length	1 byte
Resolution	1/bit
Offset	0
Operating range	0 to 13
DID	F9AC ₁₆
Access	R

6.4.111D1RCDT — Driver1RemainingCurrentDrivingTime

This parameter shall be the maximum remaining driving time left to next required break/rest. It is possible that this is defined by regulation. The parameter shall be implemented as specified in [Table 107](#).

Table 107 — Specification of parameter Driver1RemainingCurrentDrivingTime

Attribute	Value
Data length	2 byte
Resolution	1 min/bit
Offset	0
Operating range	0 min to 64 255 min
DID	F9AD ₁₆
Access	R

6.4.112 D2RCDT — Driver2RemainingCurrentDrivingTime

This parameter shall be the maximum remaining driving time left to next required break/rest. It is possible that this is defined by regulation. The parameter shall be implemented as specified in [Table 108](#).

Table 108 — Specification of parameter Driver2RemainingCurrentDrivingTime

Attribute	Value
Data length	2 byte
Resolution	1 min/bit
Offset	0
Operating range	0 min to 64 255 min
DID	F9AE ₁₆
Access	R

6.4.113 D1RDTOCS — Driver1RemainingDrivingTimeOnCurrentShift

This parameter shall be the maximum remaining driving time left on current day for driver 1. The parameter shall be implemented as specified in [Table 109](#).

Table 109 — Specification of parameter Driver1RemainingDrivingTimeOnCurrentShift

Attribute	Value
Data length	2 byte
Resolution	1 min/bit
Offset	0
Operating range	0 min to 64 255 min
DID	F9AF ₁₆
Access	R

6.4.114 D2RDTOCS — Driver2RemainingDrivingTimeOnCurrentShift

This parameter shall be the maximum remaining driving time left on current day for driver 2. The parameter shall be implemented as specified in [Table 110](#).

Table 110 — Specification of parameter Driver2RemainingDrivingTimeOnCurrentShift

Attribute	Value
Data length	2 byte
Resolution	1 min/bit
Offset	0
Operating range	0 min to 64 255 min
DID	F9B0 ₁₆
Access	R

6.4.115 D1RDTOCW — Driver1RemainingDrivingTimeOfCurrentWeek

This parameter shall be set to the maximum remaining driving time left of current week for driver 1. The parameter shall be implemented as specified in [Table 111](#).

Table 111 — Specification of parameter Driver1RemainingDrivingTimeOfCurrentWeek

Attribute	Value
Data length	2 byte
Resolution	1 min/bit
Offset	0
Operating range	0 min to 64 255 min
DID	F9B1 ₁₆
Access	R

6.4.116 D2RDTOCW — Driver2RemainingDrivingTimeOfCurrentWeek

This parameter shall be set to the maximum remaining driving time left of current week for driver 2. The parameter shall be implemented as specified in [Table 112](#).

Table 112 — Specification of parameter Driver2RemainingDrivingTimeOfCurrentWeek

Attribute	Value
Data length	2 byte
Resolution	1 min/bit
Offset	0
Operating range	0 min to 64 255 min
DID	F9B2 ₁₆
Access	R

6.4.117 D1R2WDT — Driver1Remaining2WeeksDrivingTime

This parameter shall be set to the maximum remaining driving time left of current week and next week for driver 1. The parameter shall be implemented as specified in [Table 113](#).

Table 113 — Specification of parameter Driver1Remaining2WeeksDrivingTime

Attribute	Value
Data length	2 byte
Resolution	1 min/bit
Offset	0
Operating range	0 min to 64 255 min
DID	F9B3 ₁₆
Access	R

6.4.118 D2R2WDT — Driver2Remaining2WeeksDrivingTime

This parameter shall be set to the maximum remaining driving time left of current week and next week for driver 2. The parameter shall be implemented as specified in [Table 114](#).

Table 114 — Specification of parameter Driver2Remaining2WeeksDrivingTime

Attribute	Value
Data length	2 byte
Resolution	1 min/bit
Offset	0
Operating range	0 min to 64 255 min