INTERNATIONAL ORGANIZATION FOR STANDARDIZATION ● МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ ● ORGANISATION INTERNATIONALE DE NORMALISATION

Road vehicles — Tachograph system —

Part 3:
Motion sensor interface

TECHNICAL CORRIGENDUM 1

Véhicules routiers — Systèmes tachygraphes —

Partie 3: Interface de capteur de mouvement

RECTIFICATIF TECHNIQUE 1

Technical Corrigendum 1 to ISO 16844-3:2004 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 3, *Electrical and electronic equipment*. The shaded portions represent the portions to be corrected.

ICS 43.040.10

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Pages 1 to 3

In Clause 3, change the following terms and definitions as follows:

3.3
direction of movement ON
bit 7 of the Byte MF showing whether the additional direction information is available or not

is replaced by

3.3
direction of movement ON
bit 7 of byte MF showing whether the additional direction information is available or not

3.4
identification key
key necessary for initialisation of a *motion sensor*, not stored in the sensor memory

NOTE   The identification key shall be derived by adding a constant control vector of the value 48 21 5F 00 03 41 32 8A ‖ 00 68 4D 00 CB 21 70 1D hexadecimal on the master key (K_{ID}=K XOR CV).

is replaced by

3.4
identification key
key necessary for initialisation of a *motion sensor*, not stored in the sensor memory

NOTE   The identification key is derived by adding a constant control vector of the value 48 21 5F 00 03 41 32 8A ‖ 00 68 4D 00 CB 21 70 1D hexadecimal on the master key (K_{ID}=K XOR CV).

3.17
vehicle unit
recording equipment excluding the motion sensor and its connecting cables

NOTE   The vehicle unit may either be a single unit or be several units distributed in the vehicle, as long as it complies with the security requirements of [1], [2] and [3].

is replaced by

3.17
vehicle unit
recording equipment excluding the motion sensor and its connecting cables

NOTE   The vehicle unit may either be a single unit or be several units distributed in the vehicle, as long as it complies with the security requirements of [4].

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In Clause 4, change the following abbreviated term as follows:

K_S sessions key

is replaced by

K_S session key

Page 5

In 5.2.2:

The data TxD_out shall only be transmitted if the voltage monitor shows that the supply voltage is within the specified range. See also 7.5.3.

is replaced by

The data TxD_out shall only be transmitted if the voltage monitor shows that the supply voltage is within the specified range. See also 5.2.3.1.

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In 5.2.3.1:

The electrical requirements of the voltage monitoring of supply voltage over poles 1 and 2, and watchdog signal, both submitted via pole 4 shall be according to Table 3.

is replaced by

The electrical requirements of the voltage monitoring of supply voltage over pins 1 and 2, and watchdog signal, both submitted via pin 4 shall be according to Table 3.

Table 3 — Requirements of the watchdog signal voltage monitor

Parameter		Electrical requirements			Remarks
		Minimum	Typical	Maximum	
Voltage monitor [a]					
Watchdog signal [b]	t_{don}				
	t_{doff}				
	t_{won}				
	t_{woff}				
[a] See block diagram of data signal in Figure 3.					
[b] See data signal (in) U_{low}, refer to 5.2.3.2.					

is replaced by

Table 3 — Requirements of the watchdog signal voltage monitor

Parameter		Electrical requirements			Remarks
		Minimum	Typical	Maximum	
Voltage monitor [a]					
Watchdog signal [b]	t_{don}				
	t_{doff}				
	t_{won}				
	t_{woff}				
[a] See block diagram of data signal in Figure 3.					
[b] Voltage level: see data signal in/out (in) $U_{low\ in}$, see 5.2.1.					

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In 5.2.3.2:

If the vehicle unit discovers a time-out of an expected response, there shall be the possibilities to start another attempt or to send a watchdog signal to the motion sensor according to Figure 4, and for voltage levels and timing according to Table 3. If the motion sensor detects a watchdog signal at pin 4, it shall restart its program (see 7.5.3)

is replaced by

If the vehicle unit discovers a time-out of an expected response, there shall be the possibilities to start another attempt or to send a watchdog signal to the motion sensor according to Figure 4, and for voltage levels and timing according to Table 3. If the motion sensor detects a watchdog signal at pin 4, it shall restart its program (see 7.5.3.7 b).

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In 7.1.1:

Start	D0	D1	D2	D3	D4	D5	D6	D7	Parity	Stop	

Figure 7 — Structure of one data frame Message structure

is replaced by

Start[a]	D0	D1	D2	D3	D4	D5	D6	D7	Parity	Stop[b]	

[a] Start bit shall be low state

[b] Start bit shall be high state

Figure 7 — Structure of one data byte

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In 7.2:

The master key shall not be stored completely within the vehicle unit memory. The identification key shall not be stored within the vehicle unit memory and shall be derived by adding a constant control vector of the value 48 21 5F 00 03 41 32 8A |‖ 00 68 4D 00 CB 21 70 1D hexadecimal on the master key (K_{ID}=K XOR CV)

is replaced by

The master key shall not be stored completely within the vehicle unit memory. The identification key shall not be stored within the vehicle unit memory and shall be derived by adding a constant control vector of the value 48 21 5F 00 03 41 32 8A‖ 00 68 4D 00 CB 21 70 1D hexadecimal on the master key (K_{ID}=K XOR CV)

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In 7.3:

Table 5 — Instruction numbers

Instruction-number	Vehicle unit request				Acknow-ledge bytes	Motion sensor Reply				Timing to next instruction [ms]
	Header Bytes	Instruction Bytes	Data Bytes	Tail Bytes		Header Bytes	Instruction Bytes	Data Bytes	Tail Bytes	
…										
[a] There will no response to the request except the acknowledge										
[b] The data bytes of the concerned instruction will be transmitted encrypted										
[c] In the case of all other characters, the data bytes shall not be encrypted										
[d] See Table 9.										
[e] See Tables 10 and 11.										

is replaced by

Table 5 — Instruction numbers

Instruction-number	Vehicle unit request				Acknow-ledge bytes	Motion sensor Reply				Timing to next instruction [ms]
	Header Bytes	Instruction Bytes	Data Bytes	Tail Bytes		Header Bytes	Instruction Bytes	Data Bytes	Tail Bytes	
…										
[a] There shall be no response to the request except the acknowledge.										
[b] The data bytes of the concerned instruction shall be transmitted encrypted.										
[c] The data bytes shall not be encrypted.										
[d] See Table 9.										
[e] See Tables 10 and 11.										

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In 7.4.2.1:

Table 6 — Sequence of instructions for pairing

Vehicle unit	Direction of data transfer	Motion sensor	Remark
40	→		
	←	Acknowledge	See 7.1.2
	←	Response	
41	→		
	←	Acknowledge	See 7.1.2
	←	Response	
42	→		
	←	Acknowledge	See 7.1.2
43	→		
	←	Acknowledge	See 7.1.2
50	→		
	←	Acknowledge	See 7.1.2
	←	Response	

is replaced by

Table 6 — Sequence of instructions for pairing

Vehicle unit	Direction of data transfer	Motion sensor	Remark
40	→		
	←	Acknowledge	See 7.1.1.2
	←	Response	
41	→		
	←	Acknowledge	See 7.1.1.2
	←	Response	
42	→		
	←	Acknowledge	See 7.1.1.2
43	→		
	←	Acknowledge	See 7.1.1.2
50	→		
	←	Acknowledge	See 7.1.1.2
	←	Response	

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In 7.5.1:

Table 7 — Sequence of instruction nos. for communication in normal use

Vehicle unit	Direction of data transfer	Motion sensor	Remark
70	→		
	←	Acknowledge	See 7.1.2
80	→		
	←	Acknowledge	See 7.1.2
	←		

is replaced by

Table 7 — Sequence of instruction nos. for communication in normal use

Vehicle unit	Direction of data transfer	Motion sensor	Remark
70	→		
	←	Acknowledge	See 7.1.1.2
80	→		
	←	Acknowledge	See 7.1.1.2
	←		

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In 7.5.2.4:

Key

2   Instruction No.10 or No 70: XORed with the low byte of the actually latched counter value.

Figure 22 — Structure of authentication data after decryption

is replaced by

Key

2   CheckSumlow of the previous instruction (instruction No. 10 or No 70) XORed with the low byte of the actually latched counter value.

Figure 22 — Structure of authentication data after decryption

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In 7.6.1:

Table 8 — Sequence of instruction for reading information

Vehicle unit	Direction	Motion sensor	Remark
10	➔		
	←	Acknowledge	See 7.1.2.
11	➔		
	←	Acknowledge	See 7.1.2.
	←		

is replaced by

Table 8 — Sequence of instruction for reading information

Vehicle unit	Direction	Motion sensor	Remark
10	➔		
	←	Acknowledge	See 7.1.1.2
11	➔		
	←	Acknowledge	See 7.1.1.2
	←		

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In 7.6.2.2:

Sync	Target	STX	Length	Instruction-No.	Authentication data 8 bytes (4 bytes random number and 4 bytes control information) encrypted with session key								ETX	LRC
192	0	2	15	10	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	3	X

Figure 28 – Structure of Instruction 10 – Request for motion sensor information

is replaced by

Sync	Target	STX	Length	Instruction-No.	Authentication data 8 bytes (4 bytes random number and 4 bytes control information)[a] encrypted with session key								ETX	LRC
192	0	2	15	10	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	3	X
[a] see Figure 22														

Figure 28 – Structure of Instruction 10 – Request for motion sensor information

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In 7.6.9.2:

Table 11 — Guide to audit record data

Date (actual random number)	Class of error	Status1	Unused	Remark
4 Bytes	1 Byte	1 Byte	2 Bytes	(all bits active high)
	20 non volatile memory			
	21 controller RAM			
	22 controller-instruction			
	23 communication			
	24 authentication (instructions 10 and 70)			
	25			
	26 sensor element			
	27 overtemperature			

is replaced by

Table 11 — Guide to audit record data

Date (actual random number)	Class of error	Status1	Unused	Remark
4 Bytes	1 Byte	1 Byte	2 Bytes	(all bits active high)
	2^0 non volatile memory			
	2^1 controller RAM			
	2^2 controller-instruction			
	2^3 communication			
	2^4 authentication (instructions 10 and 70)			
	2^5			
	2^6 sensor element			
	2^7 overtemperature			

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In 7.6.9.4:

7.6.9.4 Structure of sensor installation first pairing information - Data of File No. 2

is replaced by

7.6.9.4 Structure of sensor installation first pairing information

In 7.6.9.5:

Table 14 — Structure of selected data - Sensor installation last pairing information

Pairing information of last pairing - data block 0	Pairing information of last pairing - data block 1	Pairing information of last pairing - data block 2	Remark
8 Bytes	8 Bytes	8 Bytes	
			See 7.6.6.

is replaced by

Table 14 — Structure of selected data - Sensor installation last pairing information

Pairing information of last pairing - data block 1	Pairing information of last pairing - data block 2	Pairing information of last pairing - data block 3	Remark
8 Bytes	8 Bytes	8 Bytes	
			See 7.6.6 and 7.6.10

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In 7.6.9.8:

7.6.9.8 Structure of type approval number of the motion sensor – Data of file No. 6

is replaced by

7.6.9.8 Structure of type approval number of the motion sensor

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In Clause 8:

8   Options

is replaced by

8   Direction Information option

In 8.1:

8.1   Direction Information

is replaced by

8.1   Electrical characteristics,

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In 8.2:

8.2 Additional Direction Information in the MF Byte

is replaced by

8.1.2 Additional Direction Information in the MF Byte