INTERNATIONAL STANDARD

ISO 11992-3

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AMENDMENT 1
2008-02-15

Road vehicles — Interchange of digital information on electrical connections between towing and towed vehicles —

Part 3: Application layer for equipment other than brakes and running gear

AMENDMENT 1

Véhicules routiers — Échange d'informations numériques sur les connexions électriques entre véhicules tracteurs et véhicules tractés —

Partie 3: Couche d'application pour les équipements autres que les équipements de freinage et les organes de roulement

AMENDEMENT 1

Reference number
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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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.

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.

Amendment 1 to ISO 11992-3:2003 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 3, *Electrical and electronic equipment*.

Road vehicles — Interchange of digital information on electrical connections between towing and towed vehicles —

Part 3:
Application layer for equipment other than brakes and running gear

AMENDMENT 1

Page iv, Foreword, 7th paragraph

Replace the list of parts with the following.

— *Part 1: Physical and data-link layers*

— *Part 2: Application layer for brakes and running gear*

— *Part 3: Application layer for equipment other than brakes and running gear*

— *Part 4: Diagnostics*

Page 1, Clause 2

Replace the entire list of normative references with the following new list.

ISO 11898 (all parts), *Road vehicles — Controller area network (CAN)*

ISO 11992-1, *Road vehicles — Interchange of digital information on electrical connections between towing and towed vehicles — Part 1: Physical and data-link layers*

Page 5, 6.2, 5th paragraph, 2nd sentence

Delete the following sentence: “To avoid any transmission conflict during the dynamic address assignment phase (power-up), the PDU 2 type message shall have even PS (GE) in the predecessor transmission direction and odd PS (GE) in the successor transmission direction”.

Page 7, 6.3, Figure 9

Replace the existing figure with the following new figure.

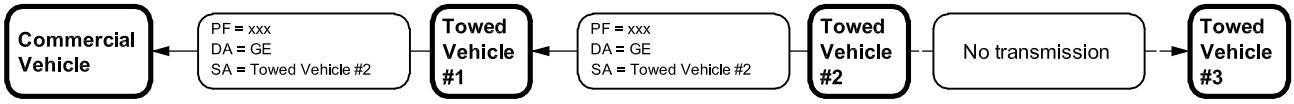

Figure 9 — Example of PDU 2 type message from towed vehicle #2

Page 25

Insert the following new subclauses immediately after 6.4.2.88.

6.4.2.89 Seconds

Part of a parameter used to represent time.

Data length:	1 byte
Resolution:	0,25 s/bit, 0 s offset
Data range:	0 s to 59,75 s
Type:	Measured

6.4.2.90 Minutes

Part of a parameter used to represent time.

Data length:	1 byte
Resolution:	1 min/bit, 0 min offset
Data range:	0 min to 59 min
Type:	Measured

6.4.2.91 Hours

Part of a parameter used to represent time.

Data length:	1 byte
Resolution:	1 h/bit, 0 h offset
Data range:	0 h to 23 h
Type:	Measured

6.4.2.92 Day

Part of a parameter used to represent a calendar date.

Data length:	1 byte
Resolution:	0,25 days/bit, 0 day offset
Data range:	0 day to 31,75 days
Type:	Measured

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; 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.

6.4.2.93 Month

Part of a parameter used to represent a calendar date.

Data length:	1 byte
Resolution:	1 month/bit, 0 offset
Data range:	1 month to 12 months
Type:	Measured

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

6.4.2.94 Year

Part of a parameter used to represent a calendar date.

Data length:	1 byte
Resolution:	1 year/bit, 1 985 years offset
Data range:	1985 to 2 235 years
Type:	Measured

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

6.4.2.95 Local Minute Offset

Local offset in minutes from a reference time.

Data length:	1 byte
Resolution:	1 min/bit, −125 min offset
Data range:	− 59 min to + 59 min
Type:	Measured

6.4.2.96 Local Hour Offset

Local offset in hours from a reference time.

Data length:	1 byte
Resolution:	1 h/bit, -125 h offset
Data range:	− 24 h to + 23 h
Type:	Measured

6.4.2.97 Trailer left-hand stop light(s) command

Command signal to activate the trailer left-hand stop light(s).

00 — Trailer left-hand stop light(s) off
01 — Trailer left-hand stop light(s) on
Type: Status

6.4.2.98 Trailer right-hand stop light(s) command

Command signal to activate the trailer right-hand stop light(s).

00 — Trailer right-hand stop light(s) off
01 — Trailer right-hand stop light(s) on
Type: Status

6.4.2.99 Trailer left-hand direction indicator light(s) command

Command signal to activate the trailer left-hand direction indicator light(s).

00 — Trailer left-hand direction indicator light(s) off
01 — Trailer left-hand direction indicator light(s) on
Type: Status

6.4.2.100 Trailer right-hand direction indicator light(s) command

Command signal to activate the trailer right-hand direction indicator light(s).

00 — Trailer right-hand direction indicator light(s) off
01 — Trailer right-hand direction indicator light(s) on
Type: Status

6.4.2.101 Trailer left-hand rear light(s) command

Command signal to activate the trailer left-hand rear light(s).

00 — Trailer left-hand rear light(s) off
01 — Trailer left-hand rear light(s) on
Type: Status

6.4.2.102 Trailer right-hand rear light(s) command

Command signal to activate the trailer right-hand rear light(s).

00 — Trailer right-hand rear light(s) off
01 — Trailer right-hand rear light(s) on
Type: Status

6.4.2.103 Trailer left-hand rear fog light(s) command

Command signal to activate the trailer left-hand rear fog light(s).

00 — Trailer left-hand rear fog light(s) off
01 — Trailer left-hand rear fog light(s) on
Type: Status

6.4.2.104 Trailer right-hand rear fog light(s) command

Command signal to activate the trailer right-hand rear fog light(s).

00 — Trailer right-hand rear fog light(s) off
01 — Trailer right-hand rear fog light(s) on
Type: Status

6.4.2.105 Trailer left-hand reversing light(s) command

Command signal to activate the trailer left-hand reversing light(s).

00 — Trailer left-hand reversing light(s) off
01 — Trailer left-hand reversing light(s) on
Type: Status

6.4.2.106 Trailer right-hand reversing light(s) command

Command signal to activate the trailer right-hand reversing light(s).

00 — Trailer right-hand reversing light(s) off
01 — Trailer right-hand reversing light(s) on
Type: Status

6.4.2.107 Trailer left-hand side marker light(s) command

Command signal to activate the trailer left-hand side marker light(s).

00 — Trailer left-hand side marker light(s) off
01 — Trailer left-hand side marker light(s) on
Type: Status

6.4.2.108 Trailer right-hand side marker light(s) command

Command signal to activate the trailer right-hand side marker light(s).

00 — Trailer right-hand side marker light(s) off
01 — Trailer right-hand side marker light(s) on
Type: Status

6.4.2.109 Trailer left-hand rear width indicator light(s) command

Command signal to activate the trailer left-hand rear width indicator light(s).

00 — Trailer left-hand rear width indicator light(s) off
01 — Trailer left-hand rear width indicator light(s) on
Type: Status

6.4.2.110 Trailer right-hand rear width indicator light(s) command

Command signal to activate the trailer right-hand rear width indicator light(s).

00 — Trailer right-hand rear width indicator light(s) off
01 — Trailer right-hand rear width indicator light(s) on
Type: Status

6.4.2.111 Trailer left-hand corner marker light(s) command

Command signal to activate the trailer left-hand rear width indicator light(s).

00 — Trailer left-hand corner marker light(s) off

01 — Trailer left-hand corner marker light(s) on

Type: Status

6.4.2.112 Trailer right-hand corner marker light(s) command

Command signal to activate the trailer right-hand rear width indicator light(s).

00 — Trailer right-hand corner marker light(s) off

01 — Trailer right-hand corner marker light(s) on

Type: Status

6.4.2.113 Trailer left-hand rear registration-plate light(s) command

Command signal to activate the trailer left-hand registration-plate light(s).

00 — Trailer left-hand rear registration-plate light(s) off

01 — Trailer left-hand rear registration-plate light(s) on

Type: Status

6.4.2.114 Trailer right-hand rear registration-plate command light(s)

Command signal to activate the trailer right-hand registration-plate light(s).

00 — Trailer right-hand rear registration-plate light(s) off

01 — Trailer right-hand rear registration-plate light(s) on

Type: Status

6.4.2.115 Trailer rear warning light(s) command

Command signal to activate the trailer rear warning light(s).

00 — Trailer rear warning light(s) off

01 — Trailer rear warning light(s) on

Type: Status

6.4.2.116 Trailer rotating identification light(s) command

Command signal to activate the trailer rotating identification light(s).

00 — Trailer rotating identification light(s) off

01 — Trailer rotating identification light(s) on

Type: Status

6.4.2.117 Trailer interior light(s) command

Command signal to activate the trailer interior light(s).

00 — Trailer interior light(s) off

01 — Trailer interior light(s) on

Type: Status

6.4.2.118 Trailer work light(s) command

Command signal to activate the trailer work light(s).

00 — Trailer work light(s) off

01 — Trailer work light(s) on

Type: Status

6.4.2.119 Trailer left-hand stop light(s) redundancy function

This signal indicates whether a redundancy function for the trailer left-hand stop light function is activated. The status of the light function used for replacement is not affected.

00 — A redundancy function is not activated

01 — A redundancy function is activated

Type: Measured

6.4.2.120 Trailer right-hand stop light(s) redundancy function

This signal indicates whether a redundancy function for the trailer right-hand stop light function is activated. The status of the light function used for replacement is not affected.

00 — A redundancy function is not activated

01 — A redundancy function is activated

Type: Measured

6.4.2.121 Trailer left-hand direction indicator light(s) redundancy function

This signal indicates whether a redundancy function for the trailer left-hand direction indicator light function is activated. The status of the light function used for replacement is not affected.

00 — A redundancy function is not activated

01 — A redundancy function is activated

Type: Measured

6.4.2.122 Trailer right-hand direction indicator light(s) redundancy function

This signal indicates whether a redundancy function for the trailer right-hand direction indicator light function is activated. The status of the light function used for replacement is not affected.

00 — A redundancy function is not activated

01 — A redundancy function is activated

Type: Measured

6.4.2.123 Trailer left-hand rear light(s) redundancy function

This signal indicates whether a redundancy function for the trailer left-hand rear light function is activated. The status of the light function used for replacement is not affected.

00 — A redundancy function is not activated

01 — A redundancy function is activated

Type: Measured

6.4.2.124 Trailer right-hand rear light(s) redundancy function

This signal indicates whether a redundancy function for the trailer right-hand rear light function is activated. The status of the light function used for replacement is not affected.

00 — A redundancy function is not activated

01 — A redundancy function is activated

Type: Measured

6.4.2.125 Trailer left-hand reversing light(s) redundancy function

This signal indicates whether a redundancy function for the trailer left-hand reversing light function is activated. The status of the light function used for replacement is not affected.

00 — A redundancy function is not activated

01 — A redundancy function is activated

Type: Measured

6.4.2.126 Trailer right-hand reversing light(s) redundancy function

This signal indicates whether a redundancy function for the trailer right-hand reversing light function is activated. The status of the light function used for replacement is not affected.

00 — A redundancy function is not activated

01 — A redundancy function is activated

Type: Measured

6.4.2.127 Transmission output shaft PTO feedback

Signal which indicates the current state of the transmission output shaft PTO.

00 — Not engaged

01 — Engaged

Type: Measured

6.4.2.128 Transfer case output shaft PTO feedback

Signal which indicates the current state of the transfer case output shaft PTO.

00 — Not engaged

01 — Engaged

Type: Measured

6.4.2.129 At least one PTO engaged

Signal which indicates that at least one PTO is engaged.

00 — No PTO engaged

01 — At least one PTO is engaged

Type: Measured

6.4.2.130 Transmission output shaft PTO switch

Signal which indicates the current state of the transmission output shaft PTO switch.

00 — Switched off

01 — Switched on

Type: Measured

6.4.2.131 Transfer case output shaft PTO switch

Signal which indicates the current state of the transfer case output shaft PTO switch.

00 — Switched off
01 — Switched on
Type: Measured

6.4.2.132 First clutch dependent PTO engagement consent

Signal indicating, if the engagement of the first clutch dependent PTO is allowed or not.

00 — Consent not given - PTO drive should not be engaged
01 — Consent given - PTO drive may be engaged
Type: Measured

6.4.2.133 Second clutch dependent PTO engagement consent

Signal indicating, if the engagement of the second clutch dependent PTO is allowed or not.

00 — Consent not given - PTO drive should not be engaged
01 — Consent given - PTO drive may be engaged
Type: Measured

6.4.2.134 Clutch independent PTO engagement consent

Signal indicating, if the engagement of the clutch independent PTO is allowed or not.

00 — Consent not given - PTO drive should not be engaged
01 — Consent given - PTO drive may be engaged
Type: Measured

6.4.2.135 First engine mounted PTO engagement consent

Signal indicating, if the engagement of the first engine mounted PTO is allowed or not.

00 — Consent not given - PTO drive should not be engaged
01 — Consent given - PTO drive may be engaged
Type: Measured

6.4.2.136 Second engine mounted PTO engagement consent

Signal indicating, if the engagement of the second engine mounted PTO is allowed or not.

00 — Consent not given - PTO drive should not be engaged
01 — Consent given - PTO drive may be engaged
Type: Measured

6.4.2.137 Transmission output shaft PTO engagement consent

Signal indicating, if the engagement of the transmission output shaft PTO is allowed or not.

00 — Consent not given - PTO drive should not be engaged
01 — Consent given - PTO drive may be engaged
Type: Measured

6.4.2.138 Transfer case output shaft PTO engagement consent

Signal indicating, if the engagement of the transfer case output shaft PTO is allowed or not.

00 — Consent not given - PTO drive should not be engaged
01 — Consent given - PTO drive may be engaged
Type: Measured

6.4.2.139 First clutch dependent PTO engagement consent - trailer

Signal indicating the trailer's consent to the engagement of the first clutch dependent PTO.

00 — Trailer consent not given - PTO drive should not be engaged
01 — Trailer consent given - PTO drive may be engaged
Type: Measured

6.4.2.140 Second clutch dependent PTO engagement consent - trailer

Signal indicating the trailer's consent to the engagement of the second clutch dependent PTO.

00 — Trailer consent not given - PTO drive should not be engaged
01 — Trailer consent given - PTO drive may be engaged
Type: Measured

6.4.2.141 Clutch independent PTO engagement consent - trailer

Signal indicating the trailer's consent to the engagement of the clutch independent PTO.

00 — Trailer consent not given - PTO drive should not be engaged

01 — Trailer consent given - PTO drive may be engaged

Type: Measured

6.4.2.142 First engine mounted PTO engagement consent - trailer

Signal indicating the trailer's consent to the engagement of the first engine mounted PTO.

00 — Trailer consent not given - PTO drive should not be engaged

01 — Trailer consent given - PTO drive may be engaged

Type: Measured

6.4.2.143 Second engine mounted PTO engagement consent - trailer

Signal indicating the trailer's consent to the engagement of the second engine mounted PTO.

00 — Trailer consent not given - PTO drive should not be engaged

01 — Trailer consent given - PTO drive may be engaged

Type: Measured

6.4.2.144 Transmission output shaft PTO engagement consent - trailer

Signal indicating the trailer's consent to the engagement of the transmission output shaft PTO.

00 — Trailer consent not given - PTO drive should not be engaged

01 — Trailer consent given - PTO drive may be engaged

Type: Measured

6.4.2.145 Transfer case output shaft PTO engagement consent - trailer

Signal indicating the trailer's consent to the engagement of the transfer case output shaft PTO.

00 — Trailer consent not given - PTO drive should not be engaged

01 — Trailer consent given - PTO drive may be engaged

Type: Measured

6.4.2.146 Cargo hold temperature 1

The value of temperature 1 measured by the temperature recorder.

Data length:	1 byte
Resolution:	0,5 °C/bit gain, − 40 °C offset
Data range:	− 40 °C to + 40 °C
Type:	Measured

6.4.2.147 Cargo hold temperature 2

The value of temperature 2 measured by the temperature recorder.

Data length:	1 byte
Resolution:	0,5 °C/bit gain, − 40 °C offset
Data range:	− 40 °C to + 40 °C
Type:	Measured

6.4.2.148 Cargo hold temperature 3

The value of temperature 3 measured by the temperature recorder.

Data length:	1 byte
Resolution:	0,5 °C/bit gain, − 40 °C offset
Data range:	− 40 °C to + 40 °C
Type:	Measured

6.4.2.149 Cargo hold temperature 4

The value of temperature 4 measured by the temperature recorder.

Data length:	1 byte
Resolution:	0,5 °C/bit gain, − 40 °C offset
Data range:	− 40 °C to + 40 °C
Type:	Measured

6.4.2.150 Cargo hold temperature 5

The value of temperature 5 measured by the temperature recorder.

Data length:	1 byte
Resolution:	0,5 °C/bit gain, − 40 °C offset
Data range:	− 40°C to + 40°C
Type:	Measured

6.4.2.151 Cargo hold temperature 6

The value of temperature 6 measured by the temperature recorder.

Data length:	1 byte
Resolution:	0,5 °C/bit gain, − 40 °C offset
Data range:	− 40 °C to + 40 °C
Type:	Measured

6.4.2.152 Reefer unit battery voltage

The measured voltage of the reefer unit battery.

Data length:	2 bytes
Resolution:	0,01 V/bit gain, 0 V offset
Data range:	0 V to 642,55 V
Type:	Measured

6.4.2.153 Reefer unit fuel tank level

The measured fuel level in the tank of the reefer unit.

Data length:	1 byte
Resolution:	0,5 %/bit gain, 0 % offset
Data range:	0 % to 125 %
Type:	Measured

6.4.2.154 Requested evaporator 1 setpoint

Command signal to set the evaporator 1 setpoint.

Data length:	1 byte
Resolution:	0,5 °C/bit gain, − 50 °C offset
Data range:	− 50 °C to + 50 °C
Type:	Status

6.4.2.155 Requested evaporator 2 setpoint

Command signal to set the evaporator 2 setpoint.

Data length:	1 byte
Resolution:	0,5 °C/bit gain, − 50 °C offset
Data range:	− 50 °C to + 50 °C
Type:	Status

6.4.2.156 Requested evaporator 3 setpoint

Command signal to set the evaporator 3 setpoint.

Data length:	1 byte
Resolution:	0,5 °C/bit gain, − 50 °C offset
Data range:	− 50 °C to + 50 °C
Type:	Status

6.4.2.157 Evaporator 1 setpoint

The temperature setpoint of evaporator 1.

Data length:	1 byte
Resolution:	0,5 °C/bit gain, − 50 °C offset
Data range:	− 50 °C to + 50 °C
Type:	Measured

6.4.2.158 Evaporator 2 setpoint

The temperature setpoint of evaporator 2.

Data length:	1 byte
Resolution:	0,5 °C/bit gain, − 50 °C offset
Data range:	− 50 °C to + 50 °C
Type:	Measured

6.4.2.159 Evaporator 3 setpoint

The temperature setpoint of evaporator 3.

Data length:	1 byte
Resolution:	0,5 °C/bit gain, − 50 °C offset
Data range:	− 50 °C to + 50 °C
Type:	Measured

6.4.2.160 Compartment 1 humidity

The measured air humidity in compartment 1.

Data length:	1 byte
Resolution:	0,5 %/bit gain, 0 % offset
Data range:	0 % to 125 %
Type:	Measured

6.4.2.161 Compartment 2 humidity

The measured air humidity in compartment 2.

Data length:	1 byte
Resolution:	0,5 %/bit gain, 0 % offset
Data range:	0 % to 125 %
Type:	Measured

6.4.2.162 Compartment 3 humidity

The measured air humidity in compartment 3.

Data length:	1 byte
Resolution:	0,5 %/bit gain, 0 % offset
Data range:	0 % to 125 %
Type:	Measured

6.4.2.163 Compartment 1 oxygen concentration

The measured oxygen concentration in compartment 1.

Data length:	1 byte
Resolution:	0,5 %/bit gain, 0 % offset
Data range:	0 % to 125 %
Type:	Measured

6.4.2.164 Compartment 2 oxygen concentration

The measured oxygen concentration in compartment 2.

Data length:	1 byte
Resolution:	0,5 %/bit gain, 0 % offset
Data range:	0 % to 125 %
Type:	Measured

6.4.2.165 Compartment 3 oxygen concentration

The measured oxygen concentration in compartment 3.

Data length:	1 byte
Resolution:	0,5 %/bit gain, 0 % offset
Data range:	0 % to 125 %
Type:	Measured

6.4.2.166 Reefer unit alarm status

Signal to indicate the alarm status of the reefer unit.

000	Reefer unit warning/alarm off
001	Reefer unit warning on
010	Reefer unit shutdown alarm on
011 to 101	Not defined
Type:	Measured

6.4.2.167 Status evaporator 1

Signal to indicate the operating status of evaporator 1.

000	Standby
001	Cooling
010	Heating
011	Defrost
100 to 101	Not defined
Type:	Measured

6.4.2.168 Status evaporator 2

Signal to indicate the operating status of evaporator 2.

000	Standby
001	Cooling
010	Heating
011	Defrost
100 to 101	Not defined
Type:	Measured

6.4.2.169 Status evaporator 3

Signal to indicate the operating status of evaporator 3.

000	Standby
001	Cooling
010	Heating
011	Defrost
100 to 101	Not defined
Type:	Measured

6.4.2.170 Reefer unit status

Signal to indicate the reefer unit status.

00	Reefer unit off
01	Reefer unit on
Type:	Measured

6.4.2.171 Reefer unit start/stop operating hours

The total number of hours the reefer unit is in start/stop operating mode.

Data length:	3 bytes
Resolution:	1 h/bit gain, 0 h offset
Data range:	0 h to 16 449 535 h
Type:	Measured

6.4.2.172 Reefer unit diesel engine operating hours

The total number of hours the reefer unit diesel engine is operating.

Data length:	3 bytes
Resolution:	1 h/bit gain, 0 h offset
Data range:	0 h to 16 449 535 h
Type:	Measured

6.4.2.173 Reefer unit line supply operating hours

The total number of hours the reefer unit is supplied from the line supply.

Data length:	3 bytes
Resolution:	1 h/bit gain, 0 h offset
Data range:	0 h to 16 449 535 h
Type:	Measured

6.4.2.174 Reefer unit generator operating hours

The total number of hours the reefer unit generator is operating.

Data length:	3 bytes
Resolution:	1 h/bit gain, 0 h offset
Data range:	0 h to 16 449 535 h
Type:	Measured

6.4.2.175 Reefer unit on/off

Command signal to turn the reefer unit on or off.

00	Reefer unit off
01	Reefer unit on
Type:	Status

6.4.2.176 Reefer unit defrost cycle on/off

Command signal to activate a defrost cycle.

00	Defrost off
01	Defrost on
Type:	Status

6.4.2.177 Cargo hold door 1 contact switch

Signal to indicate the status of the cargo hold door 1.

00	Door closed
01	Door open
Type:	Measured

6.4.2.178 Cargo hold door 2 contact switch

Signal to indicate the status of cargo hold door 2.

00	Door closed
01	Door open
Type:	Measured

6.4.2.179 Cargo hold door 3 contact switch

Signal to indicate the status of cargo hold door 3.

00	Door closed
01	Door open
Type:	Measured

Page 25, 6.5

Replace the whole of 6.5, including the tables, with the following new subclause.

6.5 Messages

6.5.1 General

The following specifies the messages for use on the electrical connection between towing and towed vehicles.

All undefined bits shall be transmitted with a value of “1”. All undefined bits shall be treated as “don’t care” (either masked out or ignored). This permits them to be defined and used in the future without causing any incompatibilities.

A message is described by a short form of the function (e.g. GPM for general purpose message) and two numbers.

The first stands for the transmission direction:

— towing to towed vehicle: 1

— towed to towing vehicle: 2

The second is the message number.

For the dynamic address assignment, one of the PDU 1 type messages to be sent from the towing vehicle to the towed vehicle with the lowest transmission repetition time is specified as the standard initialization message. This message, as well as one of the PDU 1 type messages to be sent from a towed vehicle to its predecessor with the lowest transmission repetition time, shall be sent continuously.

For PDU 1 type and PDU 2 type messages, see Tables 7 and 8.

The messages transmitted on the data link are distinguished by their unique identifier. The transmission repetition times are specified for messages with particular identifiers.

The messages GPM 11 and GPM 21 are to be transmitted only between two coupled vehicles.

Table 7 — PDU 1 type messages

Repetition time	Data specification	P	R	DP	PF	PS	PGN	Remarks
⩾ 100 ms	General purpose #1/1 - GPM 11	6	0	0	226	DA	$00E200_{16}$	
⩾ 5 000 ms	General purpose #1/8 - GPM 18	6	0	0	154	DA	$009A00_{16}$	Added in this amendment
⩾ 100 ms	General purpose #2/1 - GPM 21	6	0	0	225	DA	$00E100_{16}$	

Table 8 — PDU 2 type messages

Repetition time	Data specification	P	R	DP	PF	PS (GE)	PGN	Remarks
⩾ 500 ms	General purpose #1/2 - GPM 12	6	0	0	254	93	$00FE5D_{16}$	
⩾ 50 ms	General purpose #1/3 - GPM 13	3	0	0	254	95	$00FE5F_{16}$	
⩾ 100 ms	General purpose #1/4 - GPM 14	6	0	0	254	97	$00FE61_{16}$	
⩾ 1 000 ms	General purpose #1/5 - GPM 15	6	0	0	254	99	$00FE63_{16}$	
⩾ 1 000 ms	General purpose #1/6 - GPM 16	6	0	0	254	101	$00FE65_{16}$	
⩾ 10 ms	General purpose #1/7 - GPM 17	3	0	0	240	27	$00F01B_{16}$	Added in this amendment
⩾ 100 ms	General purpose #1/9 - GPM 19	6	0	0	253	80	$00FD50_{16}$	Added in this amendment
⩾ 100 ms	General purpose #2/2 - GPM 22	6	0	0	254	200	$00FEC8_{16}$	
⩾ 100 ms	General purpose #2/3 - GPM 23	3	0	0	254	96	$00FE60_{16}$	
⩾ 100 ms	General purpose #2/4 - GPM 24	3	0	0	254	98	$00FE62_{16}$	
⩾ 100 ms	General purpose #2/5 - GPM 25	6	0	0	254	100	$00FE64_{16}$	
⩾ 5 000 ms	General purpose #2/6 - GPM 26	6	0	0	253	79	$00FD4F_{16}$	Added in this amendment
⩾ 5 000 ms	General purpose #2/7 - GPM 27	6	0	0	253	78	$00FD4E_{16}$	Added in this amendment
⩾ 5 000 ms	General purpose #2/8 - GPM 28	6	0	0	253	77	$00FD4D_{16}$	Added in this amendment
⩾ 10 000 ms	General purpose #2/9 - GPM 29	6	0	0	253	76	$00FD4C_{16}$	Added in this amendment
⩾ 10 000 ms	General purpose #2/10 - GPM 210	6	0	0	253	75	$00FD4B_{16}$	Added in this amendment
⩾ 5 000 ms	General purpose #2/11 - GPM 211	6	0	0	253	74	$00FD4A_{16}$	Added in this amendment
⩾ 100 ms	Military application #1/1 - MAM 11	6	0	0	253	221	$00FDDD_{16}$	
⩾ 100 ms	Military application #2/1 - MAM 21	6	0	0	253	222	$00FDDE_{16}$	
⩾ 1 000 ms	Time/Date #1/1 - TD 11	6	0	0	254	230	$00FEE6_{16}$	Added in this amendment

Table 9 defines the messages to be used for diagnostic communication. The diagnostic messages and contents are specified in ISO 11992-4.

Table 9 — Diagnostic messages

Repetition time	Data specification	P	R	DP	PF	PS (GE)	PGN	Remarks
⩾ 100 ms	Diagnostic Channel, physical addressing	7	0	0	206	DA	$00CE00_{16}$	Added in this amendment
⩾ 100 ms	Diagnostic Channel, functional addressing	7	0	0	205	DA	$00CD00_{16}$	Added in this amendment

Table 10 defines two messages reserved for CANopen communication across the ISO 11992-3 data link. The data content of these messages is defined in EN 50325-4.

Table 10 — Messages reserved for CANopen application

Repetition time	Data specification	P	R	DP	PF	PS (GE)	PGN	Remarks
⩾ 50 ms	CANopen Application Message #1/1 CAM11	7	0	0	5	DA	000500_{16}	Added in this amendment
⩾ 50 ms	CANopen Application Message #2/1 CAM21	7	0	0	6	DA	000600_{16}	Added in this amendment

6.5.2 Message specifications, transmission direction from towing to towed vehicle

6.5.2.1 Towing vehicle message, general purpose message #1/1, GPM 11

This message is specified as the standard initialization message for address assignment of the receiving vehicle. Sending of this message is required.

Transmission repetition time: 100 ms ± 10 ms
Data length: 8 bytes
Data page: 0
PDU format: 226
PDU specific: address of the successor
Default priority: 6

Byte	1	Towing vehicle system status 1	Bits	1 to 2	Vehicle type
			Bits	3 to 8	Not defined
Byte	2	Towing vehicle general function	Bits	1 to 2	Anti-theft device request
			Bits	3 to 4	ODD request
			Bits	5 to 8	Not defined
Bytes	3 to 8	Not defined	Bits		

6.5.2.2 Towing vehicle message, general purpose message #1/2, GPM 12

Transmission repetition time:	500 ms ± 50 ms
Data length:	8 bytes
Data page:	0
PDU format:	254
PDU specific:	93
Default priority:	6

Bytes	1 to 2	Engine speed upper limit
Bytes	3 to 4	Engine speed lower limit
Byte	5	Maximum vehicle speed limit
Bytes	6 to 8	Not defined

6.5.2.3 Towing vehicle message, general purpose message #1/3, GPM 13

Transmission repetition time:	50 ms ± 5 ms
Data length:	8 bytes
Data page:	0
PDU format:	254
PDU specific:	95
Default priority:	3

Byte	1	Towing vehicle general function	Bits	1 to 4	Engine torque mode
			Bits	5 to 6	Engine control allowed
			Bits	7 to 8	Engine running
Byte	2	Driver's demand engine percent torque			
Byte	3	Actual engine percent torque			
Bytes	4 to 5	Engine speed			
Byte	6	Percent load at current speed			
Bytes	7 to 8	Vehicle speed			

6.5.2.4 Towing vehicle message, general purpose message #1/4, GPM 14

Transmission repetition time:	100 ms ± 10 ms
Data length:	8 bytes
Data page:	0
PDU format:	254
PDU specific:	97
Default priority:	6

Byte	1	Percent clutch slip			
Byte	2	Current gear			
Byte	3	Towing vehicle general function 1	Bits	1 to 2	First clutch dependent PTO feedback
			Bits	3 to 4	Second clutch dependent PTO feedback
			Bits	5 to 6	Clutch independent PTO feedback
			Bits	7 to 8	First engine mounted PTO feedback
Byte	4	Towing vehicle general function 2	Bits	1 to 2	Second engine mounted PTO feedback
			Bits	3 to 4	PTO control allowed
			Bits	5 to 7	Torque converter oil temperature warning
			Bit	8	Not defined
Bytes	5 to 6	Torque converter oil temperature			
Byte	7	Towing vehicle general function 3	Bits	1 to 2	Starter active
			Bits	3 to 4	Accelerator pedal low idle switch
			Bits	5 to 8	Not defined
Byte	8	Accelerator pedal position			

6.5.2.5 Towing vehicle message, general purpose message #1/5, GPM 15

Transmission repetition time:	1 000 ms ± 100 ms
Data length:	8 bytes
Data page:	0
PDU format:	254
PDU specific:	99
Default priority:	6

Bytes	1 to 2	Engine oil temperature			
Byte	3	Engine coolant temperature			
Byte	4	Engine oil pressure			
Byte	5	Towing vehicle general function	Bits	1 to 3	Engine coolant temperature warning
			Bits	4 to 5	Engine oil pressure warning
			Bits	6 to 7	Fuel level warning
			Bit	8	Not defined
Bytes	6 to 7	Reference engine torque			
Byte	8	Not defined			

6.5.2.6 Towing vehicle message, general purpose message #1/6, GPM 16

Transmission repetition time:	1 000 ms ± 100 ms
Data length:	8 bytes
Data page:	0
PDU format:	254
PDU specific:	101
Default priority:	6

Bytes	1 to 2	Ambient air temperature
Bytes	3 to 8	Not defined

6.5.2.7 Towed vehicle message, general purpose message #1/7, GPM 17

Transmission repetition time:	10 ms ± 1 ms
Data length:	8 bytes
Data page:	0
PDU format:	240
PDU specific:	27
Default priority:	3

Byte	1	Towed vehicle lights command 1	Bits	1 to 2	Trailer left-hand stop light(s) command	Added
			Bits	3 to 4	Trailer right-hand stop light(s) command	Added
			Bits	5 to 6	Trailer left-hand direction indicator light(s) command	Added
			Bits	7 to 8	Trailer right-hand direction indicator light(s) command	Added
Byte	2	Towed vehicle lights command 2	Bits	1 to 2	Trailer left-hand rear light(s) command	Added
			Bits	3 to 4	Trailer right-hand rear light(s) command	Added
			Bits	5 to 6	Trailer left-hand rear fog light(s) command	Added
			Bits	7 to 8	Trailer right-hand rear fog light(s) command	Added
Byte	3	Towed vehicle lights command 3	Bits	1 to 2	Trailer left-hand reversing light(s) command	Added
			Bits	3 to 4	Trailer right-hand reversing light(s) command	Added
			Bits	5 to 6	Trailer left-hand side marker light(s) command	Added
			Bits	7 to 8	Trailer right-hand side marker light(s) command	Added
Byte	4	Towed vehicle lights command 4	Bits	1 to 2	Trailer left-hand rear width indicator light(s) command	Added
			Bits	3 to 4	Trailer right-hand rear width indicator light(s) command	Added
			Bits	5 to 6	Trailer left-hand corner marker light(s) command	Added
			Bits	7 to 8	Trailer right-hand corner marker light(s) command	Added
Byte	5	Towed vehicle lights command 5	Bits	1 to 2	Trailer left-hand rear registration-plate light(s) command	Added
			Bits	3 to 4	Trailer right-hand rear registration-plate command light(s)	Added
			Bits	5 to 6	Trailer rear warning light(s) command	Added
			Bits	7 to 8	Trailer rotating identification light(s) command	Added
Byte	6	Towed vehicle lights command 6	Bits	1 to 2	Trailer interior light(s) command	Added
			Bits	3 to 4	Trailer work light(s) command	Added
			Bits	5 to 8	Not defined	
Byte	7 to 8	Not defined				

6.5.2.8 Towing vehicle message, general purpose message #1/8, GPM 18

Transmission repetition time:	5 000 ms ± 500 ms or on change, not to exceed 100 ms
Data length:	8 bytes
Data page:	0
PDU format:	154
PDU specific:	address of the successor
Default priority:	6

Byte	1	Reefer unit control	Bits	1 to 2	Reefer unit on/off	Added
			Bits	3 to 4	Reefer unit defrost cycle on/off	Added
			Bits	5 to 8	Not defined	Added
Byte	2	Requested evaporator 1 setpoint				Added
Byte	3	Requested evaporator 2 setpoint				Added
Byte	4	Requested evaporator 3 setpoint				Added
Bytes	5 to 8	Not defined				

6.5.2.9 Towing vehicle message, general purpose message #1/9, GPM 19

Transmission repetition time:	100 ms ± 10 ms
Data length:	8 bytes
Data page:	0
PDU format:	253
PDU specific:	80
Default priority:	6

Byte	1	PTO status 1	Bits	1 to 2	Transmission output shaft PTO feedback	Added
			Bits	3 to 4	Transfer case output shaft PTO feedback	Added
			Bits	5 to 6	At least one PTO engaged	Added
			Bits	7 to 8	First clutch dependent PTO engagement consent	Added
Byte	2	PTO status 2	Bits	1 to 2	Second clutch dependent PTO engagement consent	Added
			Bits	3 to 4	Clutch independent PTO engagement consent	Added
			Bits	5 to 6	First engine mounted PTO engagement consent	Added
			Bits	7 to 8	Second engine mounted PTO engagement consent	Added
Byte	3	PTO status 3	Bits	1 to 2	Transmission output shaft PTO engagement consent	Added
			Bits	3 to 4	Transfer case output shaft PTO engagement consent	Added
			Bits	5 to 8	Not defined	Added
Bytes	4 to 8	Not defined				

6.5.2.10 Towing vehicle message, military applications message #1/1, MAM 11

Transmission repetition time:	100 ms ± 10 ms
Data length:	8 bytes
Data page:	0
PDU format:	253
PDU specific:	221
Default priority:	6

Byte	1	Lighting control	Bits	1 to 2	Rear Black Out Marker Select
			Bits	3 to 4	Convoy lamp select
			Bits	5 to 6	Black Out Brake/Stop Lamp Select
			Bits	7 to 8	Not defined
Bytes	2 to 8	Not defined			

6.5.2.11 Towing vehicle message, Time/Date #1/1, TD 11

Transmission repetition time:	1 000 ms ± 100 ms
Data length:	8 bytes
Data page:	0
PDU format:	254
PDU specific:	230
Default priority:	6

Byte	1	Seconds	Added
Byte	2	Minutes	Added
Byte	3	Hours	Added
Byte	4	Month	Added
Byte	5	Day	Added
Byte	6	Year	Added
Byte	7	Local Minute Offset	Added
Byte	8	Local Hour Offset	Added

6.5.3 Message specifications, transmission direction from towed to towing vehicle

6.5.3.1 Towed vehicle message, general purpose message #2/1, GPM 21

Sending this message is required.

Transmission repetition time:	100 ms ± 10 ms
Data length:	8 bytes
Data page:	0
PDU format:	225
PDU specific:	Address of the predecessor
Default priority:	6

Byte	1	Towed vehicle system status 1	Bits	1 to 2	Vehicle type
			Bits	3 to 8	Not defined
Bytes	2 to 8	Not defined			

6.5.3.2 Towed vehicle message, general purpose message #2/2, GPM 22

Transmission repetition time:	100 ms ± 10 ms
Data length:	8 bytes
Data page:	0
PDU format:	254
PDU specific:	200
Default priority:	6

Byte	1	Towed vehicle system status 2	Bits	1 to 2	ODD
			Bits	3 to 4	Anti-theft device
			Bits	5 to 8	Not defined
Byte	2	Towed vehicle system status 3			Not defined
Byte	3	Rear obstacle distance			
Byte	4	Thermal body temperature			
Bytes	5 to 6	Body fluid level			
Byte	7	Body pressure			
Byte	8	Not defined			

6.5.3.3 Towed vehicle message, general purpose message #2/3, GPM 23

Transmission repetition time:	100 ms ± 10 ms
Data length:	8 bytes
Data page:	0
PDU format:	254
PDU specific:	96
Default priority:	3

Byte	1 to 2	Requested engine speed
Bytes	3 to 4	Requested engine speed upper limit
Bytes	5 to 6	Requested engine speed lower limit
Byte	7	Requested engine torque limit
Byte	8	Requested vehicle speed limit

6.5.3.4 Towed vehicle message, general purpose message #2/4, GPM 24

Transmission repetition time:	100 ms ± 10 ms
Data length:	8 bytes
Data page:	0
PDU format:	254
PDU specific:	98
Default priority:	3

Byte	1	Requested percent clutch slip				
Byte	2	Towed vehicle general function 1	Bits	1 to 2	Starter lockout switch	
			Bits	3 to 4	Engine start switch	
			Bits	5 to 6	Engine stop switch	
			Bits	7 to 8	Not defined	
Byte	3	Towed vehicle general function 2	Bits	1 to 2	Refuse packer step switch	
			Bits	3 to 4	Operating panel active	
			Bits	5 to 6	Not defined	
			Bits	7 to 8	First clutch dependent PTO switch	
Byte	4	Towed vehicle general function 3	Bits	1 to 2	Second clutch dependent PTO switch	
			Bits	3 to 4	Clutch independent PTO switch	
			Bits	5 to 6	First engine mounted PTO switch	
			Bits	7 to 8	Second engine mounted PTO switch	
Byte	5	Towed vehicle general function 4	Bits	1 to 2	Transmission output shaft PTO switch	Added
			Bits	3 to 4	Transfer case output shaft PTO switch	Added
			Bits	5 to 6	First clutch dependent PTO engagement consent - trailer	Added
			Bits	7 to 8	Second clutch dependent PTO engagement consent - trailer	Added
Byte	6	Towed vehicle general function 5	Bits	1 to 2	Clutch independent PTO engagement consent - trailer	Added
			Bits	3 to 4	First engine mounted PTO engagement consent - trailer	Added
			Bits	5 to 6	Second engine mounted PTO engagement consent - trailer	Added
			Bits	7 to 8	Transmission output shaft PTO engagement consent - trailer	Added
Byte	7	Towed vehicle general function 6	Bits	1 to 2	Transfer case output shaft PTO engagement consent - trailer	Added
			Bits	3 to 8	Not defined	
Byte	8	Not defined				

6.5.3.5 Towed vehicle message, general purpose message #2/5, GPM 25

Transmission repetition time:	100 ms ± 10 ms
Data length:	8 bytes
Data page:	0
PDU format:	254
PDU specific:	100
Default priority:	6

Byte	1	Towed vehicle lights status 1	Bits	1 to 2	Trailer left-hand stop light(s)	
			Bits	3 to 4	Trailer right-hand stop light(s)	
			Bits	5 to 6	Trailer left-hand direction indicator light(s)	
			Bits	7 to 8	Trailer right-hand direction indicator light(s)	
Byte	2	Towed vehicle lights status 2	Bits	1 to 2	Trailer left-hand rear light(s)	
			Bits	3 to 4	Trailer right-hand rear light(s)	
			Bits	5 to 6	Trailer left-hand rear fog light(s)	
			Bits	7 to 8	Trailer right-hand rear fog light(s)	
Byte	3	Towed vehicle lights status 3	Bits	1 to 2	Trailer left-hand reversing light(s)	
			Bits	3 to 4	Trailer right-hand reversing light(s)	
			Bits	5 to 6	Trailer left-hand side marker light(s)	
			Bits	7 to 8	Trailer right-hand side marker light(s)	
Byte	4	Towed vehicle lights status 4	Bits	1 to 2	Trailer left-hand rear width indicator light(s)	
			Bits	3 to 4	Trailer right-hand rear width indicator light(s)	
			Bits	5 to 6	Trailer left-hand corner marker light(s)	
			Bits	7 to 8	Trailer right-hand corner marker light(s)	
Byte	5	Towed vehicle lights status 5	Bits	1 to 2	Trailer left-hand rear registration-plate light(s)	
			Bits	3 to 4	Trailer right-hand rear registration-plate light(s)	
			Bits	5 to 6	Trailer rear warning light(s)	
			Bits	7 to 8	Trailer rotating identification light(s)	
Byte	6	Towed vehicle lights status 6	Bits	1 to 2	Trailer interior light(s)	
			Bits	3 to 4	Trailer work light(s)	
			Bits	5 to 8	Not defined	
Byte	7	Towed vehicle redundancy lights status 1	Bits	1 to 2	Trailer left-hand stop light(s) redundancy function	Added
			Bits	3 to 4	Trailer right-hand stop light(s) redundancy function	Added
			Bits	5 to 6	Trailer left-hand direction indicator light(s) redundancy function	Added
			Bits	7 to 8	Trailer right-hand direction indicator light(s) redundancy function	Added

Byte	8	Towed vehicle redundancy lights status 2	Bits	1 to 2	Trailer left-hand rear light(s) redundancy function	Added
			Bits	3 to 4	Trailer right-hand rear light(s) redundancy function	Added
			Bits	5 to 6	Trailer left-hand reversing light(s) redundancy function	Added
			Bits	7 to 8	Trailer right-hand reversing light(s) redundancy function	Added

6.5.3.6 Towed vehicle message , general purpose message #2/6, GPM 26

Transmission repetition time:	5 000 ms ± 500 ms
Data length:	8 bytes
Data page:	0
PDU format:	253
PDU specific:	79
Default priority:	6

Byte	1	Cargo hold temperature 1	Added
Byte	2	Cargo hold temperature 2	Added
Byte	3	Cargo hold temperature 3	Added
Byte	4	Cargo hold temperature 4	Added
Byte	5	Cargo hold temperature 5	Added
Byte	6	Cargo hold temperature 6	Added
Bytes	7 to 8	Ambient air temperature	Added

6.5.3.7 Towed vehicle message, general purpose message #2/7, GPM 27

Transmission repetition time:	5 000 ms ± 500 ms
Data length:	8 bytes
Data page:	0
PDU format:	253
PDU specific:	78
Default priority:	6

Byte	1	Compartment 1 humidity	Added
Byte	2	Compartment 2 humidity	Added
Byte	3	Compartment 3 humidity	Added
Byte	4	Compartment 1 oxygen concentration	Added
Byte	5	Compartment 2 oxygen concentration	Added
Byte	6	Compartment 3 oxygen concentration	Added
Bytes	7 to 8	Not defined	

6.5.3.8 Towed vehicle message, general purpose message #2/8, GPM 28

Transmission repetition time:	5 000 ms ± 500 ms or on change, not to exceed 100 ms
Data length:	8 bytes
Data page:	0
PDU format:	253
PDU specific:	77
Default priority:	6

Byte	1	Reefer unit operating status 1	Bits	1 to 2	Reefer unit status	Added
			Bits	3 to 5	Reefer unit alarm status	Added
			Bits	6 to 8	Status evaporator 1	Added
Byte	2	Reefer unit operating status 2	Bits	1 to 3	Status evaporator 2	Added
			Bits	4 to 6	Status evaporator 3	Added
			Bits	7 to 8	Not defined	
Byte	3	Evaporator 1 setpoint				Added
Byte	4	Evaporator 2 setpoint				Added
Byte	5	Evaporator 3 setpoint				Added
Bytes	6 - 8	Not defined				

6.5.3.9 Towed vehicle message 4, general purpose message #2/9, GPM 29

Transmission repetition time:	10 000 ms ± 1 000 ms
Data length:	8 bytes
Data page:	0
PDU format:	253
PDU specific:	76
Default priority:	6

Bytes	1 to 3	Reefer unit start/stop operating hours	Added
Bytes	4 to 6	Reefer unit diesel operating hours	Added
Byte	7	Reefer unit fuel tank level	Added
Byte	8	Not defined	

6.5.3.10 Towed vehicle message, general purpose message #2/10, GPM 210

Transmission repetition time:	10 000 ms ± 1 000 ms
Data length:	8 bytes
Data page:	0
PDU format:	253
PDU specific:	75
Default priority:	6

Bytes	1 to 3	Reefer unit line supply operating hours	Added
Bytes	4 to 6	Reefer unit generator operating hours	Added
Bytes	7 to 8	Reefer unit battery voltage	Added

6.5.3.11 Towed vehicle message, general purpose message #2/11, GPM 211

Transmission repetition time:	5 000 ms ± 500 ms or on change, not to exceed 100 ms
Data length:	8 bytes
Data page:	0
PDU format:	253
PDU specific:	74
Default priority:	6

Byte	1	Access points status	Bits	1 to 2	Cargo hold door 1 contact switch	Added
			Bits	3 to 4	Cargo hold door 2 contact switch	Added
			Bits	5 to 6	Cargo hold door 3 contact switch	Added
			Bits	7 to 8	Not defined	
Bytes	2 to 7	Not defined				

6.5.3.12 Towed vehicle message, military applications message #2/1, MAM 21

Transmission repetition time:	100 ms ± 10 ms
Data length:	8 bytes
Data page:	0
PDU format:	253
PDU specific:	222
Default priority:	6

Byte	1	Lighting information #1	Bits	1 to 2	Trailer left hand black out rear light(s)
			Bits	3 to 4	Trailer right hand black out rear light(s)
			Bits	5 to 6	Trailer left hand black out brake/stop light(s)
			Bits	7 to 8	Trailer right hand black out brake/stop light(s)
Byte	2	Lighting information #2	Bits	1 to 2	Trailer rear convoy light(s)
			Bits	3 to 8	Not defined
Bytes	3 to 8	Not defined			

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Add the following new annex immediately after Annex A.

Annex B
(informative)

Message flow

The flow of messages as defined in this part of ISO 11992 is described in Table B.1.

Table B.1 — Description of message flow

	Tractor		**Trailer #1**		**Trailer #2**		**Trailer #3**		**Trailer #4**		**Trailer #5**		
Address	EB		C9		C1		B9		B1		A9	**Identifier**	**Comment**
GPM 11 100 ms	S [a]	→	R [b]									18 E2 C9 EB	only sent between directly coupled vehicles
			S	→	R							18 E2 C1 C9	
					S	→	R					18 E2 B9 C1	
							S	→	R			18 E2 B1 B9	
									S	→	R	18 E2 A9 B1	
GPM 12 500 ms	S	→	R/G [c]	→	R/G	→	R/G	→	R/G	→	R	18 FE 5D EB	
			S	→	R/G	→	R/G	→	R/G	→	R	18 FE 5D C9	
					S	→	R/G	→	R/G	→	R	18 FE 5D C1	
							S	→	R/G	→	R	18 FE 5D B9	
									S	→	R	18 FE 5D B1	
GPM 13 50 ms	S	→	R/G	→	R/G	→	R/G	→	R/G	→	R	0C FE 5F EB	
			S	→	R/G	→	R/G	→	R/G	→	R	0C FE 5F C9	
					S	→	R/G	→	R/G	→	R	0C FE 5F C1	
							S	→	R/G	→	R	0C FE 5F B9	
									S	→	R	0C FE 5F B1	
GPM 14 100 ms	S	→	R/G	→	R/G	→	R/G	→	R/G	→	R	18 FE 61 EB	
			S	→	R/G	→	R/G	→	R/G	→	R	18 FE 61 C9	
					S	→	R/G	→	R/G	→	R	18 FE 61 C1	
							S	→	R/G	→	R	18 FE 61 B9	
									S	→	R	18 FE 61 B1	
GPM 15 1 000 ms	S	→	R/G	→	R/G	→	R/G	→	R/G	→	R	18 FE 63 EB	
			S	→	R/G	→	R/G	→	R/G	→	R	18 FE 63 C9	
					S	→	R/G	→	R/G	→	R	18 FE 63 C1	
							S	→	R/G	→	R	18 FE 63 B9	
									S	→	R	18 FE 63 B1	

	Tractor		Trailer #1		Trailer #2		Trailer #3		Trailer #4		Trailer #5		
Address	EB		C9		C1		B9		B1		A9	**Identifier**	**Comment**
GPM 16 1 000 ms	S	→	R/G	→	R/G	→	R/G	→	R/G	→	R	18 FE 65 EB	
			S	→	R/G	→	R/G	→	R/G	→	R	18 FE 65 C9	
					S	→	R/G	→	R/G	→	R	18 FE 65 C1	
							S	→	R/G	→	R	18 FE 65 B9	
									S	→	R	18 FE 65 B1	
GPM 17 10 ms	S	→	R/G	→	R/G	→	R/G	→	R/G	→	R	0C F0 1B EB	
			S	→	R/G	→	R/G	→	R/G	→	R	0C F0 1B C9	
					S	→	R/G	→	R/G	→	R	0C F0 1B C1	
							S	→	R/G	→	R	0C F0 1B B9	
									S	→	R	0C F0 1B B1	
GPM 18 5 000 ms	S	→	R/G	→	R/G	→	R/G	→	R/G	→	R	18 9A YY EB	YY = C9, C1, B9, B1 or A9
			S	→	R/G	→	R/G	→	R/G	→	R	18 9A YY C9	YY = C1, B9, B1 or A9
					S	→	R/G	→	R/G	→	R	18 9A YY C1	YY = B9, B1 or A9
							S	→	R/G	→	R	18 9A YY B9	YY = B1 or A9
									S	→	R	18 9A YY B1	YY = A9
GPM 19 100 ms	S	→	R/G	→	R/G	→	R/G	→	R/G	→	R	18 FD 50 EB	
			S	→	R/G	→	R/G	→	R/G	→	R	18 FD 50 C9	
					S	→	R/G	→	R/G	→	R	18 FD 50 C1	
							S	→	R/G	→	R	18 FD 50 B9	
									S	→	R	18 FD 50 B1	
TD 11 1 000 ms	S	→	R/G	→	R/G	→	R/G	→	R/G	→	R	18 FE E6 EB	
GPM 21 100 ms	R	←	S									18 E1 EB C9	only sent between directly coupled vehicles
			R	←	S							18 E1 C9 C1	
					R	←	S					18 E1 C1 B9	
							R	←	S			18 E1 B9 B1	
									R	←	S	18 E1 B1 A9	
GPM 22 100 ms	R	←	S									18 FE C8 C9	
	R	←	G/R	←	S							18 FE C8 C1	
	R	←	G/R	←	G/R	←	S					18 FE C8 B9	
	R	←	G/R	←	G/R	←	G/R	←	S			18 FE C8 B1	
	R	←	G/R	←	G/R	←	G/R	←	G/R	←	S	18 FE C8 A9	
GPM 23 100 ms	R	←	S									0C FE 60 C9	
	R	←	G/R	←	S							0C FE 60 C1	
	R	←	G/R	←	G/R	←	S					0C FE 60 B9	
	R	←	G/R	←	G/R	←	G/R	←	S			0C FE 60 B1	
	R	←	G/R	←	G/R	←	G/R	←	G/R	←	S	0C FE 60 A9	

	Tractor		Trailer #1		Trailer #2		Trailer #3		Trailer #4		Trailer #5		
Address	EB		C9		C1		B9		B1		A9	**Identifier**	**Comment**
GPM 24 100 ms	R	←	S									0C FE 62 C9	
	R	←	G/R	←	S							0C FE 62 C1	
	R	←	G/R	←	G/R	←	S					0C FE 62 B9	
	R	←	G/R	←	G/R	←	G/R	←	S			0C FE 62 B1	
	R	←	G/R	←	G/R	←	G/R	←	G/R	←	S	0C FE 62 A9	
GPM 25 100 ms	R	←	S									18 FE 64 C9	
	R	←	G/R	←	S							18 FE 64 C1	
	R	←	G/R	←	G/R	←	S					18 FE 64 B9	
	R	←	G/R	←	G/R	←	G/R	←	S			18 FE 64 B1	
	R	←	G/R	←	G/R	←	G/R	←	G/R	←	S	18 FE 64 A9	
GPM 26 5 000 ms	R	←	S									18 FD 4F C9	
	R	←	G/R	←	S							18 FD 4F C1	
	R	←	G/R	←	G/R	←	S					18 FD 4F B9	
	R	←	G/R	←	G/R	←	G/R	←	S			18 FD 4F B1	
	R	←	G/R	←	G/R	←	G/R	←	G/R	←	S	18 FD 4F A9	
GPM 27 5 000 ms	R	←	S									18 FD 4E C9	
	R	←	G/R	←	S							18 FD 4E C1	
	R	←	G/R	←	G/R	←	S					18 FD 4E B9	
	R	←	G/R	←	G/R	←	G/R	←	S			18 FD 4E B1	
	R	←	G/R	←	G/R	←	G/R	←	G/R	←	S	18 FD 4E A9	
GPM 28 5 000 ms	R	←	S									18 FD 4D C9	
	R	←	G/R	←	S							18 FD 4D C1	
	R	←	G/R	←	G/R	←	S					18 FD 4D B9	
	R	←	G/R	←	G/R	←	G/R	←	S			18 FD 4D B1	
	R	←	G/R	←	G/R	←	G/R	←	G/R	←	S	18 FD 4D A9	
GPM 29 10 000 ms	R	←	S									18 FD 4C C9	
	R	←	G/R	←	S							18 FD 4C C1	
	R	←	G/R	←	G/R	←	S					18 FD 4C B9	
	R	←	G/R	←	G/R	←	G/R	←	S			18 FD 4C B1	
	R	←	G/R	←	G/R	←	G/R	←	G/R	←	S	18 FD 4C A9	
GPM 210 10 000 ms	R	←	S									18 FD 4B C9	
	R	←	G/R	←	S							18 FD 4B C1	
	R	←	G/R	←	G/R	←	S					18 FD 4B B9	
	R	←	G/R	←	G/R	←	G/R	←	S			18 FD 4B B1	
	R	←	G/R	←	G/R	←	G/R	←	G/R	←	S	18 FD 4B A9	
GPM 211 5 000 ms	R	←	S									18 FD 4A C9	
	R	←	G/R	←	S							18 FD 4A C1	
	R	←	G/R	←	G/R	←	S					18 FD 4A B9	
	R	←	G/R	←	G/R	←	G/R	←	S			18 FD 4A B1	
	R	←	G/R	←	G/R	←	G/R	←	G/R	←	S	18 FD 4A A9	

	Tractor		Trailer #1		Trailer #2		Trailer #3		Trailer #4		Trailer #5		
Address	EB		C9		C1		B9		B1		A9	**Identifier**	**Comment**
MAM 11 100 ms	S	→	R/G	→	R/G	→	R/G	→	R/G	→	R	18 FD DD EB	
			S	→	R/G	→	R/G	→	R/G	→	R	18 FD DD C9	
					S	→	R/G	→	R/G	→	R	18 FD DD C1	
							S	→	R/G	→	R	18 FD DD B9	
									S	→	R	18 FD DD B1	
MAM 21 100 ms	R	←	S									18 FD DE C9	
	R	←	G/R	←	S							18 FD DE C1	
	R	←	G/R	←	G/R	←	S					18 FD DE B9	
	R	←	G/R	←	G/R	←	G/R	←	S			18 FD DE B1	
	R	←	G/R	←	G/R	←	G/R	←	G/R	←	S	18 FD DE A9	

[a] S = sender.

[b] R = receiver.

[c] G = gateway (forwards messages).

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Add the following Bibliography immediately after the newly-inserted Annex B.

Bibliography

[1] ISO 11992-4, *Road vehicles — Interchange of digital information on electrical connections between towing and towed vehicles — Part 4: Diagnostics*

[2] EN 50325-4, *Industrial communications subsystem based on ISO 11898 (CAN) for controller-device interfaces — Part 4: CANopen*

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