

**THE NETHERLANDS**  
**(N E D E R L A N D)**

**EC TYPE-APPROVAL CERTIFICATE**

Communication concerning:

- ~~EC type-approval~~ <sup>(1)</sup>
- Extension of EC type-approval <sup>(1)</sup>
- ~~Refusal of EC type-approval~~ <sup>(1)</sup>
- ~~Withdrawal of EC type-approval~~ <sup>(1)</sup>

of a type of vehicle with regard to advanced emergency braking systems (AEBS)  
with regard to Commission Regulation (EU) number 347/2012 as amended and complying with  
approval level 1 <sup>(1)</sup>/ approval level 2 <sup>(1)</sup>.

**EC type-approval number**
**: e4\*347/2012\*2015/562\*0008\*04**

Reason for extension

: Adding HW W 884 327 032 ? / W 446 067 036 ?  
Adding S/W W 246 067 151 ?  
Omitting HW W 884 327 031 ? – S/W W 246 067 200 ?  
Changing KL15 Fuse\_F19 (E350) to Fuse\_F21 (E459)  
Adding Axles 1670T, 1132TS, 200U

**SECTION I**

0.1. Make (trade name of manufacturer) : DAF

0.2. Type : [TVV-Key]

| Type  | Variant     | Version            |
|-------|-------------|--------------------|
| ?4EN3 | ?E???????Z? | ????????????????H? |
| ?4GN3 | ?P???????Z? | ????????????????H? |
| ?4GN3 | ?G???????Z? | ????????????????H? |
| ?4SN3 | ?S???????Z? | ????????????????H? |
|       |             | ????????????????K? |
| ?4SN3 | ?N???????Z? | ????????????????H? |
|       |             | ????????????????K? |
| ?4SN3 | ?R???????Z? | ????????????????H? |
|       |             | ????????????????K? |
| ?4TN3 | ?T???????Z? | ????????????????H? |

[VDS-Key]

| VDS    |        |        |        |
|--------|--------|--------|--------|
| ?EM4?? | ?GM4?? | ?SM4?? | ?TM4?? |
| ?EH4?? | ?GH4?? | ?SH4?? | ?TH4?? |

- 0.2.1. Commercial name(s) (if available) : CF– and XF–Series, 2- and 3-Axle Motorvehicles
- 0.3. Means of identification of type, if marked on the vehicle <sup>(2)</sup> : VIN-Code with VDS-Key
- 0.3.1. Location of that marking : VIN-Code in RH-side chassis near Front-axle
- 0.4. Category of vehicle <sup>(3)</sup> : [TVV-Key]

| Type  | Variant    | Vehicle Category |
|-------|------------|------------------|
| M4?N3 | ????????Z? | N3               |
| H4?N3 | ????????Z? | N3               |

- 0.5. Name and address of manufacturer : DAF Trucks NV  
Hugo v.d. Goeslaan 1 P.O. Box 90065  
5643 TW Eindhoven 5600 PT Eindhoven  
The Netherlands
- 0.8. Name and address(es) of assembly plant(s) : See pt. 0.5. or Leyland Trucks Ltd  
Croston Road, Leyland  
Lancashire PR26 6LZ  
United Kingdom
- 0.9. Representative of the manufacturer : N/A

SECTION II

- |    |                                                             |                                                                                                       |
|----|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| 1. | Additional information<br>(where applicable)                | : See Addendum                                                                                        |
| 2. | Technical service responsible for<br>carrying out the tests | : RDW<br>P.O.Box 777<br>2700 AT Zoetermeer<br>The Netherlands                                         |
| 3. | Date of test report                                         | : 29 May 2015<br>8 July 2016<br>20 January 2017<br><u>06 March 2018</u>                               |
| 4. | Number of test report                                       | : RDW-347/2012-0030025<br>RDW-347/2012-0044254<br>RDW-347/2012-0048338<br><u>RDW-347/2012-0063700</u> |
| 5. | Remarks (if any)                                            | : See Addendum                                                                                        |
| 6. | Place                                                       | : Zoetermeer                                                                                          |
| 7. | Date                                                        | : 07 March 2018                                                                                       |
| 8. | Signature                                                   | :                                                                                                     |

  
J.P. Bierman

Attachments:

- Information package.
- Test report.

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<sup>(1)</sup> Delete where not applicable.

<sup>(2)</sup> If the means of identification of type contains characters not relevant to describe the vehicle, component or separate technical unit types covered by this type-approval certificate such characters shall be represented in the documentation by the symbol: '?' (e.g. ABC??123??)

<sup>(3)</sup> As defined in Section A of Annex II to Directive 2007/46/EC.

## ADDENDUM

**to EC type-approval certificate number: e4\*347/2012\*2015/562\*0008\*04**

1. Additional information:
- 1.1. Brief description of the advance emergency braking system (AEBS) fitted to the vehicle : The system is an active, radar-based ADAS-system to warn the driver and eventually perform an autonomous braking action in order to mitigate or avoid a frontal collision  
  
The system is recognised as AEBS-1 Wabco 'OnGuardPlus'
4. Test results according to Annex II to Regulation (EU) number 347/2012
- 4.1. Details that enable to identify and reproduce the targets used for the testing : Target(s) used is a Euro NCAP Vehicle Target (EVT)
- 4.2. List of positive actions resulting in the interruption of the collision warning phase : - operating the direction indicators  
- switching AEBS off by the AEBS-switch
- 4.3. List of positive actions resulting in the interruption of the emergency braking phase : - operating the direction indicators  
- depressing the throttle beyond the pressure-point (kick-down)  
- switching AEBS off by the AEBS-switch  
- steering away
- 4.4. Description of the warning indication and the sequence in which the collision warning signals are presented to the driver : [AEBS-Function]
- 4.5. Mass and condition of load of the vehicle when tested : Tests for AEBS-1 i.c.w. EBS-3.3 carried out with Vehicle Type FTG M4GN3 – Max.GVW 28,0 – Tyres 13R<sup>22,5</sup>
- 4.6. Details which enable the test targets to be specifically identified : System recognises a 'Target vehicle' being a passenger car M1 AA Saloon
- 4.7. Results of the warning and activation test with a stationary target : The system mounted in the 'worst case' vehicle as mentioned under pt.4.5. complies with all requirements of Annex II, pt. 2.4. of the Commission Regulation EU/347/2012
- 4.8. Results of the warning and activation test with a moving target : The system mounted in the 'worst case' vehicle as mentioned under pt.4.5. complies with all requirements of Annex II, pt. 2.5. of the Commission Regulation EU/347/2012
- 4.9. Results of the failure detection test : The system mounted in the 'worst case' vehicle as mentioned under pt.4.5. complies with all requirements of Annex II, pt. 2.6. of the Commission Regulation EU/347/2012

- 4.10. Results of the deactivation test (only if the vehicle is equipped with means to deactivate the emergency braking system) : The system mounted in the ‘worst case’ vehicle as mentioned under pt.4.5. complies with all requirements of Annex II, pt. 2.7. of the Commission Regulation EU/347/2012
- 4.11. Results of the false reaction test : The system mounted in the ‘worst case’ vehicle as mentioned under pt.4.5. complies with all requirements of Annex II, pt. 2.8. of the Commission Regulation EU/347/2012
- 4.12. The type of vehicle with its advanced emergency braking system (AEBS) complies with the approval level 1 requirements set out in Appendix 1 to Annex II to Regulation (EU) number 347/2012 : ~~Yes~~/ No <sup>(1)</sup>
- 4.12. The type of vehicle with its advanced emergency braking system (AEBS) complies with the approval level 2 requirements set out in Appendix 2 to Annex II to Regulation (EU) number 347/2012 : Yes /~~No~~ <sup>(1)</sup>
- 5 Remarks (if any) : Approval is valid for mentioned Type-Variant with max Tyre-size acc.to [Wheels + Tyres]

| Type  | Variant     | Max.Tyre-Size                   |
|-------|-------------|---------------------------------|
| ?4EN3 | ?E???????Z? | Index A12 / 13R <sup>22,5</sup> |
| ?4GN3 | ?P???????Z? | Index A12 / 13R <sup>22,5</sup> |
| ?4GN3 | ?G???????Z? | Index A12 / 13R <sup>22,5</sup> |
| ?4SN3 | ?S???????Z? | Index A12 / 13R <sup>22,5</sup> |
| ?4SN3 | ?N???????Z? | Index A12 / 13R <sup>22,5</sup> |
| ?4SN3 | ?R???????Z? | Index A12 / 13R <sup>22,5</sup> |
| ?4TN3 | ?T???????Z? | Index A12 / 13R <sup>22,5</sup> |

: Valid for LHD and RHD vehicles  
Documentation consists of 49 pages

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## History List

| Ext. | Rev | Cor | Changes / Amendments / Omissions |                                                              |
|------|-----|-----|----------------------------------|--------------------------------------------------------------|
| 04   |     |     | [AEB-System]                     | Adding HW W 884 327 032 ? / W 446 067 036 ?                  |
|      |     |     |                                  | Adding S/W W 246 067 151 ?                                   |
|      |     |     |                                  | Omitting HW W 884 327 031 ? – S/W W 246 067 200 ?            |
|      |     |     | [Block Diagram AEBS-1]           | Changing KL15 Fuse_F19 (E350) to Fuse_F21 (E459)             |
|      |     |     | [Overview Masses]                | Adding Axles 1670T, 1132TS, 200U                             |
| 03   | 03  |     | Z-Cam Drum Brake                 | Adding Axle DAF HR1670T                                      |
|      |     |     | [Vehicle Layout]                 | Combining 2- and 3-axle vehicles in same table               |
|      |     |     | [Axle Configuration]             | Amending # Wheels                                            |
|      |     |     | [List of Axles]                  | Adding Axles 200U, SR1132TS, HR1670T w.Index T5, R11, R12    |
|      |     |     | [Wheels + Tyres]                 | Omitting Tyres with Index A1 + A2 as Single mounted          |
| 03   | 02  |     | [CAN Topology]                   | Adding new E/E Architecture for M4SN3 with PX-7 engine       |
|      |     |     |                                  | Adding TVV-Key nomination (Type-Var-Version) + baudrate      |
|      |     |     | [Vehicle View]                   | Adding Vehicle View CF...H2/K1 and XF...H2                   |
| 03   | 01  |     | [Product Specification]          | AEBS-1 Spec.updated to version 21                            |
|      |     |     | [List of Axles]                  | Info DAF-Axle 161N updated                                   |
|      |     |     | [Wheels + Tyres]                 | Introduction of Min.LI                                       |
| 03   |     |     | [Information Document]           | Adding Engine Code (TVV), EBS-3.3, units [mm] if applicable  |
|      |     |     | [AEB-System]                     | Updating Components / Adding info VECU                       |
|      |     |     | [CAN Topology]                   | New information vehicle E/E architecture                     |
|      |     |     | [Block Diagram]                  | New information EBS-3.3 / AEBS-1 / AEBS-2                    |
|      |     |     | [Product Specification]          | Updated documentation AEBS-1 + AEBS-2                        |
|      |     |     | [TVV-Key]                        | Omitting not applicable config's, Adding 'H2' position 36-37 |
|      |     |     | [VDS-Key]                        | Omitting not applicable configurations                       |
|      |     |     | [Vehicle View]                   | Reference to Info. Document                                  |
|      |     |     | [Vehicle Layout]                 | Reference to Info. Document, Table layout changed            |
|      |     |     | [Overview Length]                | Reference to Info. Document, Omitting not applicable config. |
|      |     |     | [Axle Configuration]             | Reference to Info. Document, Omitting not applicable config. |
|      |     |     | [List of Axles]                  | Reference to Info. Document, Omitting not applicable config. |
|      |     |     | [Wheels + Tyres]                 | Reference to Info. Document                                  |
|      |     |     | [Overview Masses]                | Reference to Info. Document, Omitting not applicable config. |
| 02   |     |     |                                  |                                                              |
| 01   |     |     |                                  |                                                              |
| 00   |     |     |                                  |                                                              |

**Information Document**

## 0. GENERAL

0.1. Make (trade name of manufacturer) : DAF

0.2. Vehicle type : [TVV-Key]

| Type  | Variant    | Version            |
|-------|------------|--------------------|
| ?4EN3 | ????????Z? | ????????????????H? |
| ?4GN3 | ????????Z? | ????????????????H? |
| ?4SN3 | ????????Z? | ????????????????H? |
|       |            | ????????????????K? |
| ?4TN3 | ????????Z? | ????????????????H? |

[VDS-Key]

| VDS    |        |        |        |
|--------|--------|--------|--------|
| ?EM4?? | ?GM4?? | ?SM4?? | ?TM4?? |
| ?EH4?? | ?GH4?? | ?SH4?? | ?TH4?? |

0.2.1. Commercial name(s) (if available) : CF– and XF–Series, 2- and 3-Axle Motorvehicles

0.3. Means of identification of type, if marked on the vehicle <sup>(b)</sup> : VIN-Code with VDS-Key

0.3.1. Location of that marking : VIN-Code in RH-side chassis near Front-axle

0.4. Category of vehicle <sup>(c)</sup> : [TVV-Key]

| Type  | Variant    | Vehicle Category |
|-------|------------|------------------|
| M4?N3 | ????????Z? | N3               |
| H4?N3 | ????????Z? | N3               |

0.5. Name and address of manufacturer : DAF Trucks NV  
 Hugo v.d. Goeslaan 1 P.O. Box 90065  
 5643 TW Eindhoven 5600 PT Eindhoven  
 The Netherlands

0.6. Location and method of attachment of statutory plates and location of vehicle identification number

0.6.1. On the chassis : VIN-code stamped in RH chassis near 1<sup>st</sup> axle

0.6.2. On the bodywork : Type-plate riveted in RH B-pillar of the cab

0.8. Name(s) and address(es) of assembly plant(s) : See 0.5. or Leyland Trucks Ltd  
 Croston Road, Leyland  
 Lancashire PR26 6LZ  
 United Kingdom

0.9. Name and address of the manufacturer's representative (if any) : N/A

## 1. GENERAL CONSTRUCTION CHARACTERISTICS OF THE VEHICLE

- 1.1. Photographs and/or drawings of a representative vehicle : [Vehicle View]
- 1.2. Dimensional drawing of the whole vehicle : [Dimensional Drawing] – Example FA+FTG
- 1.3. Number of axles and wheels : [Axle Configuration]
- 1.3.1. Number and position of axles with twin wheels : [Axle Configuration]
- 1.3.2. Number and position of steered axles : [Axle Configuration]
- 1.3.3. Powered axles (number, position, interconnection) : [Axle Configuration]

## 2. MASSES AND DIMENSIONS <sup>(f)</sup> <sup>(g)</sup>

- 2.1. Wheel base(s) (fully loaded) <sup>(g1)</sup> : Acc.to ISO = distance C-line First to Last axle
- 2.1.1. Two-axle vehicles : [Vehicle Layout] [Overview Length]
- 2.1.2. Vehicles with three or more axles : [Vehicle Layout] [Overview Length]
- 2.3. Axle track(s) and width(s)
- 2.3.1. Track of each steered axle <sup>(g4)</sup> : [List of Axles]
- 2.3.2. Track of all other axles <sup>(g4)</sup> : [List of Axles]
- 2.3.4. Width of the foremost axle (measured at the outermost part of the tyres excluding the bulging of the tyres close to the ground) : [Axle Width]
- 2.4. Range of vehicle dimensions (overall)
- 2.4.1. For chassis without bodywork : [TVV-Key]

| Variant     | Variant     | Variant     |
|-------------|-------------|-------------|
| ?E???Z????? | ?P???Z????? | ?G???Z????? |
| ?S???Z????? | ?R???Z????? | ?N???Z????? |
| ?T???Z????? |             |             |

- 2.4.1.1. Length <sup>(g5)</sup>
- 2.4.1.1.1. Maximum permissible length [mm] : [Overview Length]
- 2.4.1.1.2. Minimum permissible length [mm] : [Overview Length]
- 2.4.1.2. Width <sup>(g7)</sup>
- 2.4.1.2.1. Maximum permissible width [mm] : 2550 mm
- 2.4.1.2.2. Minimum permissible width [mm] : 2490 mm

2.4.2. For chassis with bodywork : [TVV-Key]

| Variant     | Variant     | Variant     |
|-------------|-------------|-------------|
| ?E???C????? | ?E???B????? | ?E???F????? |
| ?P???C????? | ?P???B????? | ?P???F????? |
| ?G???C????? | ?G???B????? | ?G???F????? |
| ?S???C????? | ?S???B????? | ?S???F????? |
| ?R???C????? | ?R???B????? | ?R???F????? |
| ?N???C????? | ?N???B????? | ?N???F????? |
| ?T???C????? | ?T???B????? | ?T???F????? |

| Variant     | Variant     | Variant     |
|-------------|-------------|-------------|
| ?E???S????? | ?E???T????? | ?E???W????? |
| ?P???S????? | ?P???T????? | ?P???W????? |
| ?G???S????? | ?G???T????? | ?G???W????? |
| ?S???S????? | ?S???T????? | ?S???W????? |
| ?R???S????? | ?R???T????? | ?R???W????? |
| ?N???S????? | ?N???T????? | ?N???W????? |
| ?T???S????? | ?T???T????? | ?T???W????? |

2.4.2.1. Length <sup>(g5)</sup> : Max. 12000 mm

2.4.2.1.1. Length of the loading area : N/A

2.4.2.2. Width <sup>(g7)</sup>

2.4.2.2.1. Maximum permissible width [mm] : Nominal 2550 mm  
Max.2600 for temp.-controlled transport of goods

2.4.3. For bodywork approved without chassis (vehicles M2 and M3) : N/A

2.4.3.1. Length <sup>(g5)</sup> : N/A

2.4.3.2. Width <sup>(g7)</sup> : N/A

2.6. Mass in running order : [Overview Masses]

Mass of the vehicle with bodywork and, in case of a towing vehicle of category other than M1, with coupling device, if fitted by the manufacturer, in running order, or mass of the chassis or chassis with cab, without bodywork and/or coupling device if the manufacturer does not fit the bodywork and/or coupling device (including liquids, tools, spare wheel, if fitted, and driver and, for buses and coaches, a crew member if there is a crew seat in the vehicle <sup>(h)</sup> (maximum and minimum for each variant)

4. TRANSMISSION <sup>(p)</sup>
- 4.7. Maximum vehicle design speed (km/h) <sup>(q)</sup> : [AEBS-Function]  
96 km/h
8. BRAKES : For detailed information about the Braking  
(the following particulars, including means System is referred to the Brake Approvals:  
of identification, where applicable, are to be E4-13R-111442  
given) E4-13R-111961  
E4-13R-112006  
E4-13R-112009  
E4-13R-112046
- 8.1. Type and characteristics of the brakes as : [Brakes – Technical Data]  
defined in point 1.6 of Annex I to Council Disc-Brakes / Z-cam Drum-Brake / S-cam Drum-  
Directive 71/320/EEC <sup>(1)</sup> including details Brake  
and drawings of the drums, discs, hoses  
make and type of shoe/pad assemblies  
and/or linings, effective braking areas,  
radius of drums, shoes or discs, mass of  
drums, adjustment devices, relevant parts of  
the axle(s) and suspension
- 8.2. Operating diagram, description and/or : The DAF CF- and XF-Series are equipped with  
drawing of the braking system described in EBS-3.3  
point 1.2 of Annex I to Directive This is an electro-pneumatic compressed air  
71/320/EEC including details and drawings braking system with a pneumatic back-up.  
of the transmission and controls While the system consists of 4 or 6 different  
sensors (2 or 3 axles directly controlled), which  
can be modulated independently, it is called  
4S/4M or 6S/5M.
- 8.2.1. Service braking system : Dual-circuit compressed Air-system
- 8.2.2. Secondary braking system : Part of the Service-brake, or Parking Brake,  
depending on the Vehicle Type
- 8.2.4. Any additional braking system : Endurance Braking System  
Exhaust Brake / Engine Brake / Retarder
- 8.3. Control and transmission of trailer braking : By the EBS-integrated Trailer Control Valve  
systems in vehicles designed to tow a trailer Pneumatic control and supply + electronic control
- 8.4. Vehicle is equipped to tow a trailer with : Yes / ~~No~~  
~~electric~~/ pneumatic <sup>(\*)</sup> service brakes
- 8.5. Anti-lock braking system
- 8.5.1. Description of system operation (including : ABS Category 1 is an integrated part / function of  
any electronic parts), electric block the electro-pneumatic Braking System EBS-3.3  
diagram,hydraulic or pneumatic circuit plan
- 8.6. Calculation and curves according to the : N/A  
Appendix to point 1.1.4.2. of the Appendix  
to Annex II to Directive 71/320/EEC or to  
the Appendix to Annex XI thereto, if  
applicable

- 8.7. Description and/or drawing of the energy supply, also to be specified for power-assisted braking systems : The compressor forces air to the SAC  
The SAC – Smart Air-supply Control Unit – is a combination of an air dryer, pressure regulator and four-circuit safety valve  
Circuit 1 is the service braking system of the Rear-axle(s), Circuit 2 for the Front-axle(s). Both circuits contain air-reservoir(s).
- 8.7.1. In the case of compressed-air braking systems, working pressure P2 in the pressure reservoir(s) : 9,5 bar
- 8.7.2. In the case of vacuum braking systems, the initial energy level in the reservoir(s) : N/A
13. SPECIAL PROVISIONS FOR BUSES AND COACHES
- 13.1. Class of vehicle <sup>(\*)</sup> : ~~Class III / Class B~~ / N/A

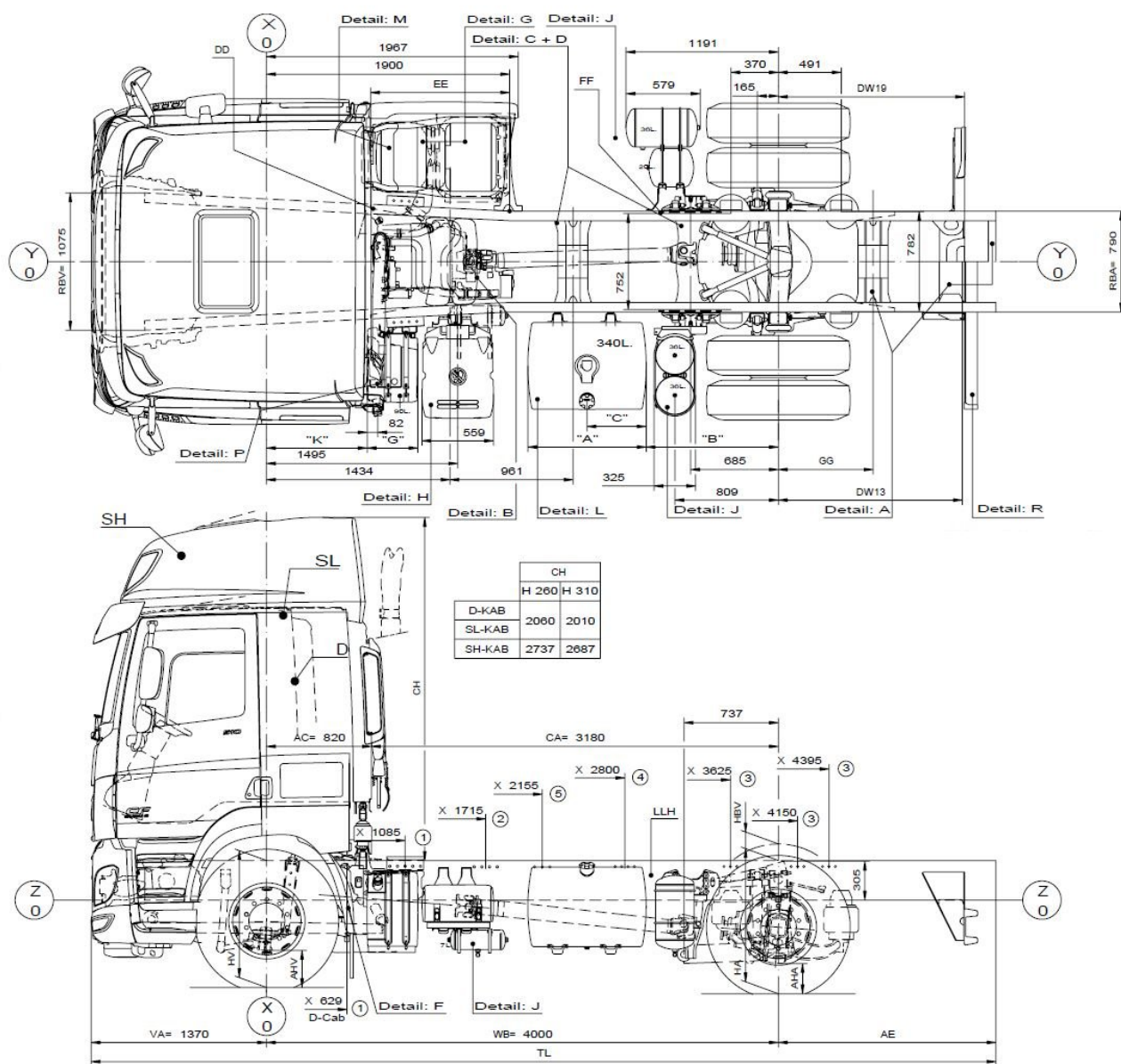
#### explanatory notes

- (\*) Delete where not applicable (there are cases where nothing needs to be deleted when more than one entry is applicable)
- <sup>(b)</sup> If the means of identification of type contains characters not relevant to describe the vehicle, component or separate technical unit, types covered by this information document, such characters shall be represented in the documentation by the symbol ‘?’ (e.g. ABC??123??)
- <sup>(c)</sup> Classified according to the definitions set out in Part A of Annex II to Directive 2007/46/EC of the European Parliament and of the Council
- <sup>(f)</sup> Where there is one version with a normal cab and another with a sleeper cab, both sets of masses and dimensions are to be stated
- <sup>(g)</sup> Standard ISO 612:1978 – Road vehicles – Dimensions of motor vehicles and towed vehicles – terms and definitions
- <sup>(g1)</sup> Motor vehicle and drawbar trailer: term No 6.4.1.  
Semi-trailer and centre-axle trailer: term No 6.4.2.  
*note:* In the case of a centre-axle trailer, the axis of the coupling shall be considered as the foremost axle.
- <sup>(g4)</sup> Term No 6.5.
- <sup>(g5)</sup> Term No 6.1. and for the vehicles other than those of category M<sub>1</sub> : point 2.4.1. of Annex I to Directive 97/27/EC of the European Parliament and of the Council  
In the case of trailers, the lengths shall be specified as mentioned in term 6.1.2. of Standard ISO 612:1978
- <sup>(g7)</sup> Term No 6.2. and for vehicles other than those of category M<sub>1</sub> : point 2.4.2. of Annex I to Directive 97/27/EC
- <sup>(h)</sup> The mass of the driver and, if applicable, of the crew member is assessed at 75 kg (subdivided into 68 kg occupant mass and 7 kg luggage mass according to ISO standard 2416:1992), the fuel tank is filled to 90% and the other liquid containing systems (except those for used water) to 100% of the capacity specified by the manufacturer.
- <sup>(q)</sup> With respect to trailers, maximum speed permitted by the manufacturer

## Dimensional Drawing

## CF-Series Euro VI

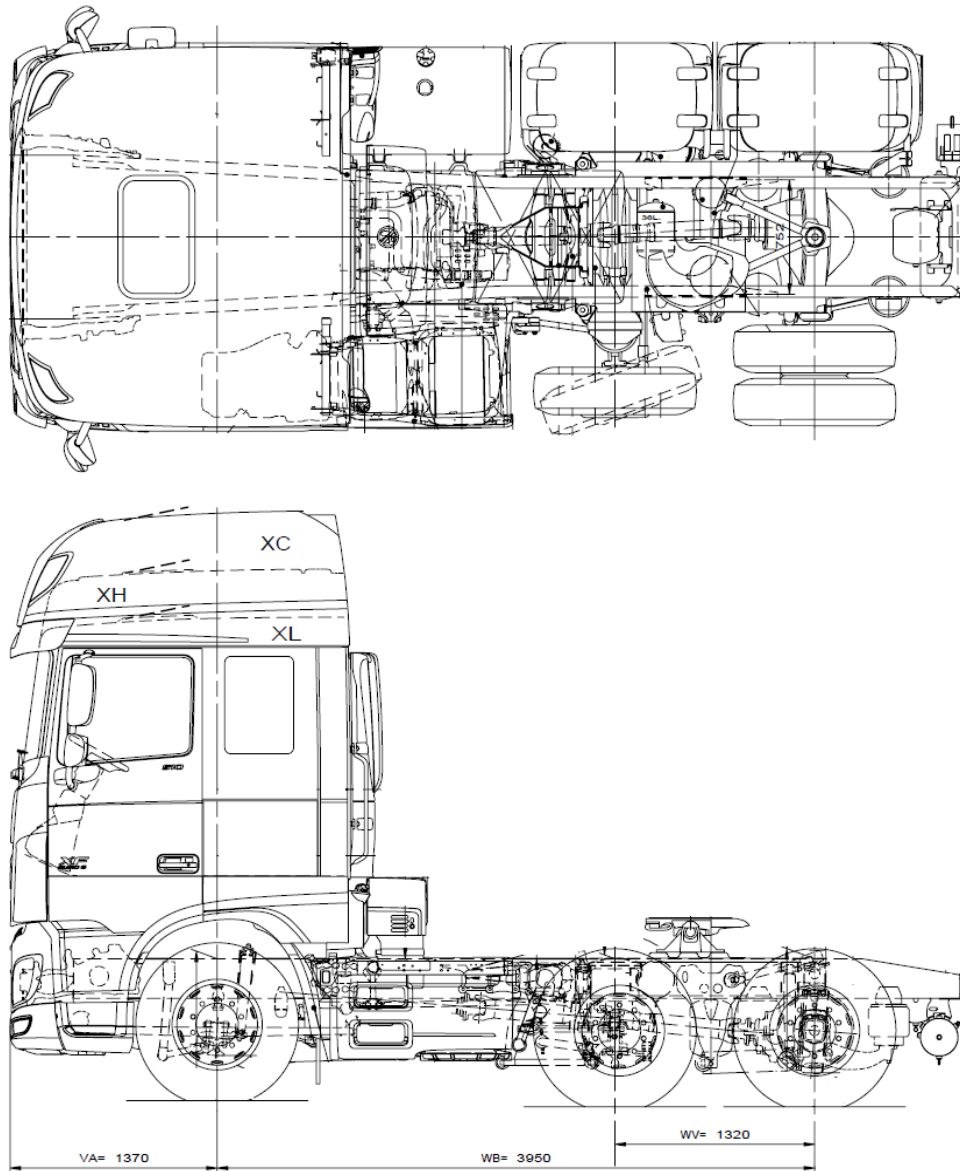
Example / FA CF-Series WB 400



## Dimensional Drawing

## XF-Series Euro VI

Example / FTG XF-Series WB 395



## Axle Width

| Front-Axles                           |    |     |       |             |     |     |                                       |      |      | DAF 0366707 |                                  |       |      |      |                                                                                                                                   |  |  |  |  |
|---------------------------------------|----|-----|-------|-------------|-----|-----|---------------------------------------|------|------|-------------|----------------------------------|-------|------|------|-----------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|
| TYPE AS<br>Type axle                  |    |     |       |             |     |     | 161N-163N-167N<br>VOORAS / front axle |      |      |             | 183N-187N<br>VOORAS / front axle |       |      |      | 0366707/15                                                                                                                        |  |  |  |  |
| H.O.H. FUSEEPENNING<br>Q to Q kingpin |    |     |       |             |     |     | 1845                                  |      |      |             | 1797                             |       |      |      | camber : 0°                                                                                                                       |  |  |  |  |
| WHEEL<br>Wheel                        |    |     |       |             |     |     | MAAT A<br>Dim. A                      |      |      |             | MAAT A<br>Dim. A                 |       |      |      | width over wheel rings.                                                                                                           |  |  |  |  |
| Gts IB UB BAND<br>Tire                |    |     |       |             |     |     | Rr WSp. max<br>Br.                    |      |      |             | Rr WSp. max<br>Br.               |       |      |      | 3 Gts. : number of holes<br>IB. : in-set<br>UB. : off-set<br>R. : loaded tire radius<br>Br. : tire width                          |  |  |  |  |
| STAAL                                 |    |     |       |             |     |     |                                       |      |      |             |                                  |       |      |      | MAAT A : Q kingpin to<br>contactface wheel<br>Rr. : rolling radius<br>WSp. : track<br>Max.Br. : max. width<br>* : with setup ring |  |  |  |  |
| 8.5 x24                               | 10 | 160 | 175   | 12.00 R24   | 567 | 313 | 286                                   | 42,5 | 2095 | 2523        | 310                              | 65,1  | 2095 | 2523 |                                                                                                                                   |  |  |  |  |
| 7.50x22.5                             | 10 | 148 | 160   | 255/70R22.5 | 434 | 255 |                                       |      |      |             |                                  |       |      |      |                                                                                                                                   |  |  |  |  |
| 7.50x22.5                             | 10 | 148 | 160   | 275/70R22.5 | 445 | 276 |                                       |      |      |             |                                  |       |      |      |                                                                                                                                   |  |  |  |  |
| 7.50x22.5                             | 10 | 148 | 160   | 275/80R22.5 | 473 | 268 |                                       |      |      |             |                                  |       |      |      |                                                                                                                                   |  |  |  |  |
| 7.50x22.5                             | 10 | 148 | 160   | 11 R22.5    | 489 | 279 |                                       |      |      |             |                                  |       |      |      |                                                                                                                                   |  |  |  |  |
| 8.25x22.5                             | 10 | 157 | 170   | 285/60R22.5 | 427 | 283 |                                       |      |      |             |                                  |       |      |      |                                                                                                                                   |  |  |  |  |
| 8.25x22.5                             | 10 | 157 | 170   | 305/70R22.5 | 463 | 298 | 286                                   | 61,2 | 2100 | 2515        |                                  |       |      |      |                                                                                                                                   |  |  |  |  |
| 8.25x22.5                             | 10 | 157 | 170   | 295/80R22.5 | 487 | 290 | 286                                   | 57,7 | 2100 | 2515        |                                  |       |      |      |                                                                                                                                   |  |  |  |  |
| 8.25x22.5                             | 10 | 157 | 170   | 12 R22.5    | 504 | 292 | 286                                   | 55,2 | 2100 | 2515        |                                  |       |      |      |                                                                                                                                   |  |  |  |  |
| 8.25x22.5                             | 10 | 157 | 170   | 275/70R22.5 | 445 | 276 | 286                                   | 63,8 | 2100 | 2515        |                                  |       |      |      |                                                                                                                                   |  |  |  |  |
| 8.25x22.5                             | 10 | 157 | 170   | 11 R22.5    | 489 | 279 | 286                                   | 57,4 | 2100 | 2515        |                                  |       |      |      |                                                                                                                                   |  |  |  |  |
| 9.00x22.5                             | 10 | 161 | 175   | 295/60R22.5 | 432 | 292 | 286                                   | 61,7 | 2095 | 2517        |                                  |       |      |      |                                                                                                                                   |  |  |  |  |
| 9.00x22.5                             | 10 | 161 | 175   | 305/60R22.5 | 437 | 305 |                                       |      |      |             |                                  |       |      |      |                                                                                                                                   |  |  |  |  |
| 9.00x22.5                             | 10 | 161 | 175   | 315/60R22.5 | 442 | 305 | 286                                   | 60,3 | 2095 | 2517        | 310                              | 82,8  | 2095 | 2517 |                                                                                                                                   |  |  |  |  |
| 9.00x22.5                             | 10 | 161 | 175   | 315/70R22.5 | 468 | 312 | 286                                   | 56,5 | 2095 | 2517        | 310                              | 78,9  | 2095 | 2517 |                                                                                                                                   |  |  |  |  |
| 9.00x22.5                             | 10 | 161 | 175   | 315/80R22.5 | 500 | 312 | 286                                   | 51,8 | 2095 | 2517        | 310                              | 74,2  | 2095 | 2517 |                                                                                                                                   |  |  |  |  |
| 9.00x22.5                             | 10 | 161 | 175   | 13 R22.5    | 521 | 312 | 286                                   | 48,7 | 2095 | 2517        | 310                              | 71,0  | 2095 | 2517 |                                                                                                                                   |  |  |  |  |
| 11.75x22.5                            | 10 | 135 | 147,5 | 385/65R22.5 | 492 | 389 | 286                                   | 78,9 | 2145 | 2514        | 310                              | 101,5 | 2145 | 2514 |                                                                                                                                   |  |  |  |  |
| 11.75x22.5                            | 10 | 135 | 147,5 | 385/55R22.5 | 464 | 386 | 286                                   | 83,0 | 2145 | 2514        | 310                              | 105,7 | 2145 | 2514 |                                                                                                                                   |  |  |  |  |
| 11.75x22.5                            | 10 | 135 | 147,5 | 355/50R22.5 | 435 | 361 | 286                                   | 87,3 | 2145 | 2514        | 310                              | 110,0 | 2145 | 2514 |                                                                                                                                   |  |  |  |  |
| 11.75x22.5                            | 10 | 135 | 147,5 | 375/50R22.5 | 444 | 379 | 286                                   | 86,0 | 2145 | 2514        | 310                              | 108,6 | 2145 | 2514 |                                                                                                                                   |  |  |  |  |
| ALUMINIUM                             |    |     |       |             |     |     |                                       |      |      |             |                                  |       |      |      |                                                                                                                                   |  |  |  |  |
| 8.25x22.5                             | 10 | 147 | 167   | 285/60R22.5 | 427 | 283 |                                       |      |      |             |                                  |       |      |      |                                                                                                                                   |  |  |  |  |
| 8.25x22.5                             | 10 | 147 | 167   | 305/70R22.5 | 463 | 298 | 286                                   | 76,5 | 2120 | 2530        |                                  |       |      |      |                                                                                                                                   |  |  |  |  |
| 8.25x22.5                             | 10 | 147 | 167   | 295/80R22.5 | 487 | 290 | 286                                   | 71,2 | 2120 | 2530        |                                  |       |      |      |                                                                                                                                   |  |  |  |  |
| 8.25x22.5                             | 10 | 147 | 167   | 12 R22.5    | 504 | 292 | 286                                   | 67,7 | 2120 | 2530        |                                  |       |      |      |                                                                                                                                   |  |  |  |  |
| 8.25x22.5                             | 10 | 147 | 167   | 11 R22.5    | 489 | 279 | 286                                   | 65,2 | 2120 | 2530        |                                  |       |      |      |                                                                                                                                   |  |  |  |  |
| 8.25x22.5                             | 10 | 147 | 167   | 275/70R22.5 | 445 | 276 | 286                                   |      | 2120 | 2530        |                                  |       |      |      |                                                                                                                                   |  |  |  |  |
| 9.00x22.5                             | 10 | 155 | 175   | 295/60R22.5 | 432 | 292 | 286                                   | 67,7 | 2105 | 2530        |                                  |       |      |      |                                                                                                                                   |  |  |  |  |
| 9.00x22.5                             | 10 | 153 | 175   | 305/60R22.5 | 437 | 305 |                                       |      |      |             |                                  |       |      |      |                                                                                                                                   |  |  |  |  |
| 9.00x22.5                             | 10 | 155 | 175   | 315/60R22.5 | 442 | 305 | 286                                   | 66,3 | 2105 | 2530        | 310                              | 88,9  | 2105 | 2530 |                                                                                                                                   |  |  |  |  |
| 9.00x22.5                             | 10 | 155 | 175   | 315/70R22.5 | 468 | 312 | 286                                   | 62,5 | 2105 | 2530        | 310                              | 85,1  | 2105 | 2530 |                                                                                                                                   |  |  |  |  |
| 9.00x22.5                             | 10 | 155 | 175   | 315/80R22.5 | 500 | 312 | 286                                   | 57,8 | 2105 | 2530        | 310                              | 80,3  | 2105 | 2530 |                                                                                                                                   |  |  |  |  |
| 9.00x22.5                             | 10 | 155 | 175   | 13 R22.5    | 521 | 312 | 286                                   | 54,7 | 2105 | 2530        | 310                              | 77,1  | 2105 | 2530 |                                                                                                                                   |  |  |  |  |
| 11.75x22.5                            | 10 | 135 | 162,5 | 385/65R22.5 | 492 | 389 | 286                                   | 78,9 | 2145 | 2544        | 310                              | 101,2 | 2145 | 2544 |                                                                                                                                   |  |  |  |  |
| 11.75x22.5                            | 10 | 135 | 162,5 | 385/55R22.5 | 464 | 386 | 286                                   | 83,0 | 2145 | 2544        | 310                              | 105,7 | 2145 | 2544 |                                                                                                                                   |  |  |  |  |
| 11.75x22.5                            | 10 | 135 | 162,5 | 355/50R22.5 | 435 | 361 | 286                                   | 87,3 | 2145 | 2544        | 310                              | 110,0 | 2145 | 2544 |                                                                                                                                   |  |  |  |  |
| 11.75x22.5                            | 10 | 135 | 162,5 | 375/50R22.5 | 444 | 379 | 286                                   | 86,0 | 2145 | 2544        | 310                              | 108,6 | 2145 | 2544 |                                                                                                                                   |  |  |  |  |

0366707/15

1 camber = 0°

2 width over wheel rings.

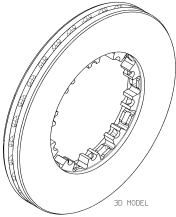
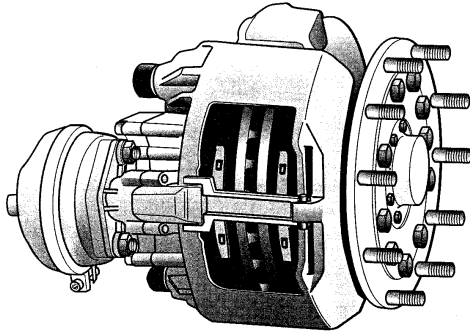
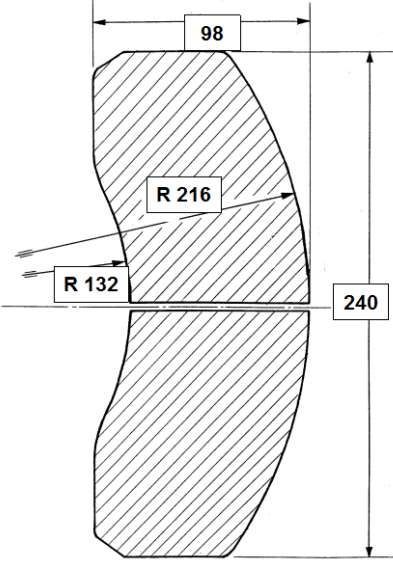
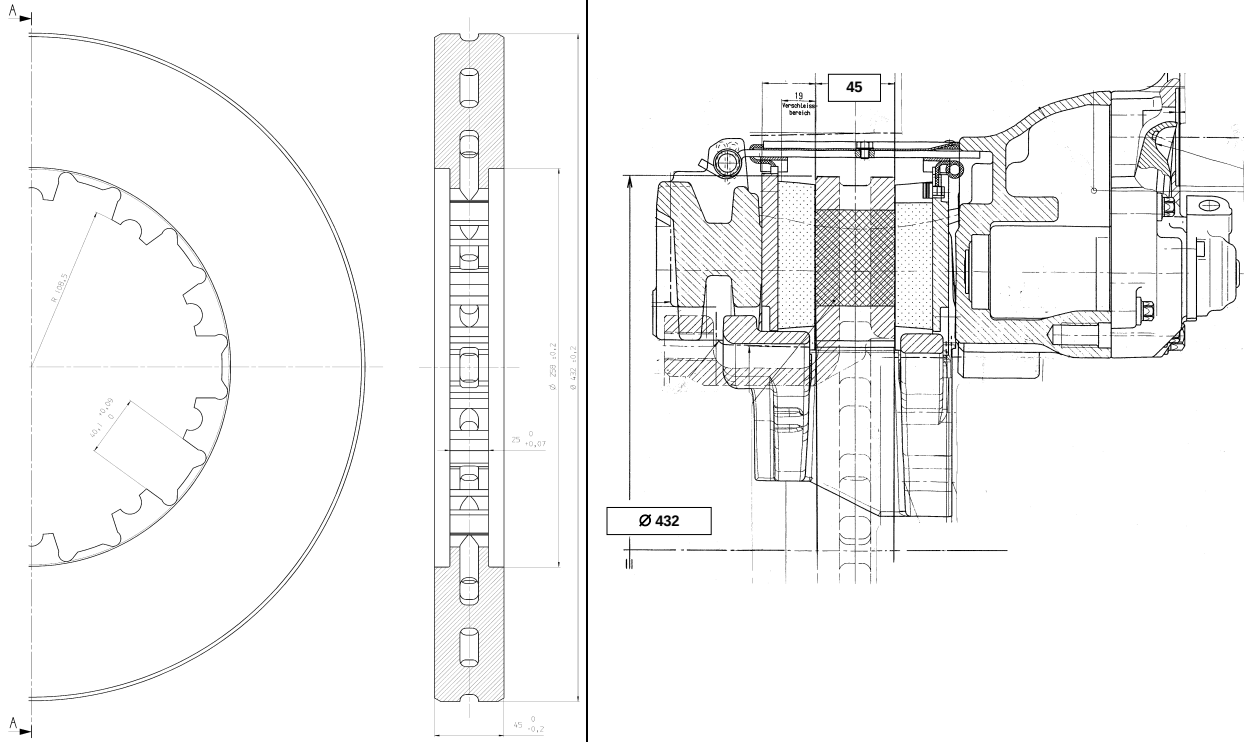
3 Gts. : number of holes  
 IB. : in-set  
 UB. : off-set  
 R. : loaded tire radius  
 Br. : tire width

MAAT A : Q kingpin to  
 contactface wheel  
 Rr. : rolling radius  
 WSp. : track  
 Max.Br. : max. width  
 \* : with setup ring

Column 161N-163N-  
 167N also applicable to  
 Front-axle Type 165N

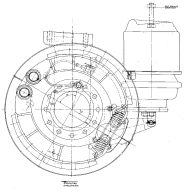
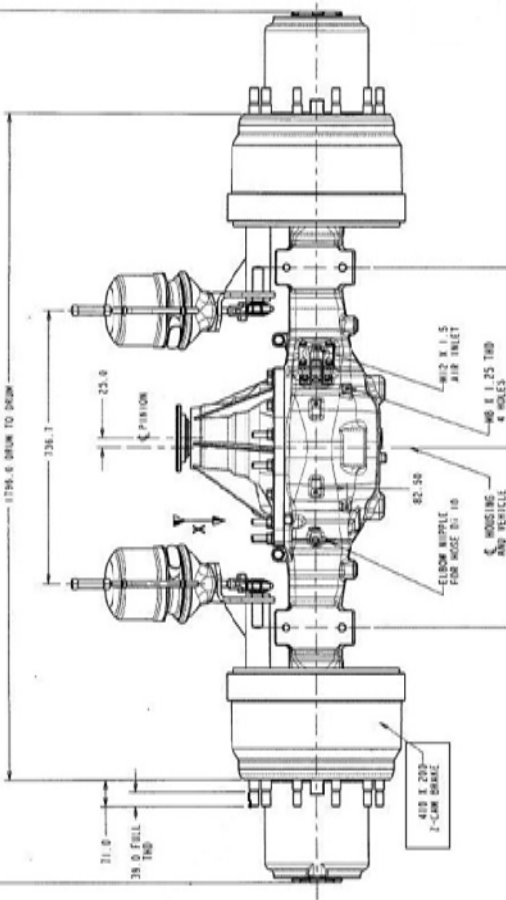
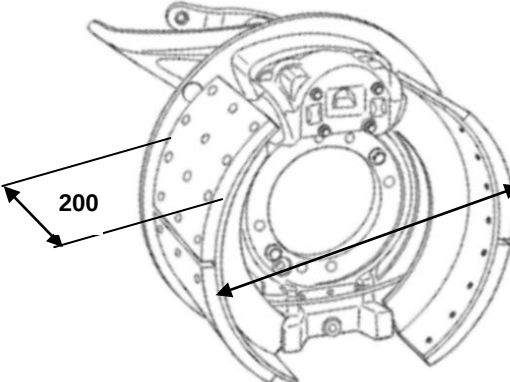
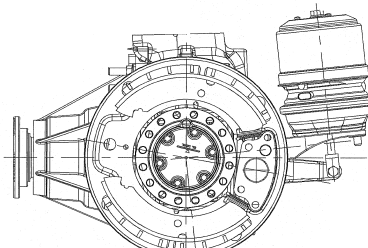
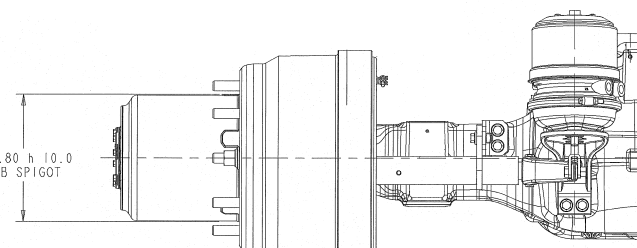
## Disc Brake

## Technical Data

|                                                                                      |                                                      |                                                                                    |                                                                                      |
|--------------------------------------------------------------------------------------|------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|     | DAF Disc-Brake                                       | KNR SB 7...<br>KNR SN 7...<br>series                                               |    |
|                                                                                      | Dimensions [mm]<br>(Diameter * Width)                | Ø 432 * 45                                                                         |                                                                                      |
|                                                                                      | Weight Disc [kg]                                     | 25,0                                                                               |                                                                                      |
|                                                                                      | Mean friction radius<br>Rm [mm]                      | 172,6                                                                              |  |
|                                                                                      | Braking Surface<br>Pad area $F_e$ [cm <sup>2</sup> ] | 196                                                                                |                                                                                      |
|                                                                                      | Ratio i                                              | 15,6                                                                               |                                                                                      |
|                                                                                      | Efficiency $\eta_m$                                  | 0,95                                                                               |                                                                                      |
|                                                                                      | Brake factor C*                                      | 0,66                                                                               |                                                                                      |
|                                                                                      | Friction material                                    | Textar T7400 or<br>Textar T7070 or<br>DAF 4200 or<br>DAF 1800830 or<br>DAF 1982826 |                                                                                      |
|  |                                                      |                                                                                    |                                                                                      |

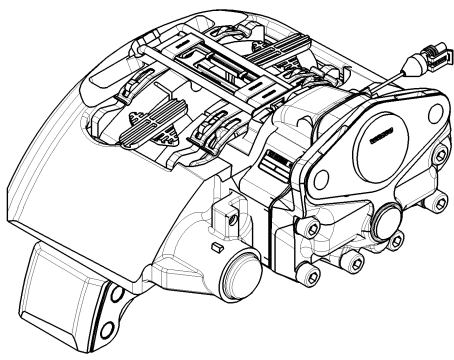
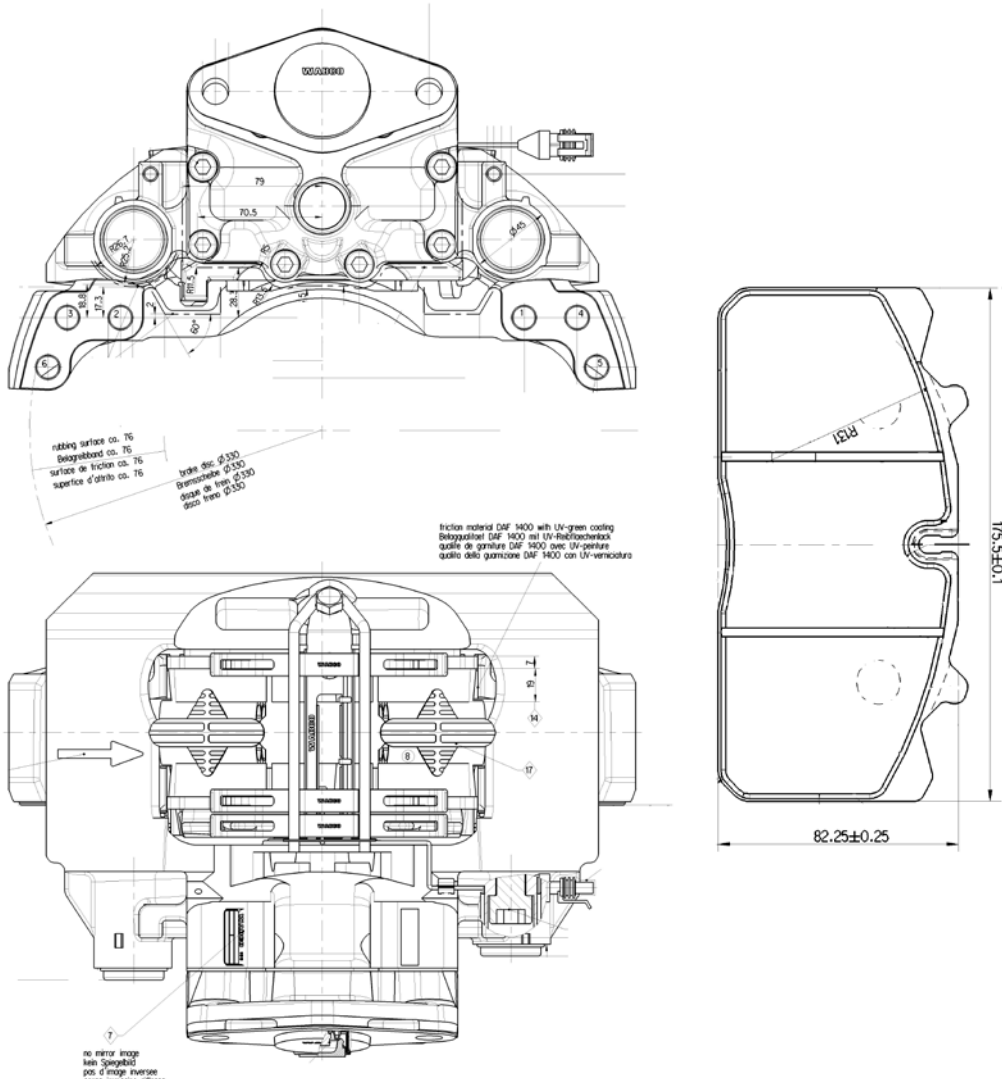
## Z-cam Drum Brake

## Technical Data

|                                                                                   |                                                                                     |                                                                                      |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|  | DAF Drum-Brake Z-cam      DAF 1356-axle<br>DAF HR1670T                              |   |
| Dimensions [mm]<br>(Diameter * Width)                                             | $\varnothing 410 * 200$                                                             |                                                                                      |
| Drum weight [kg]                                                                  | 64,0                                                                                |                                                                                      |
| Mean friction radius<br>Rm [mm]                                                   | 1479                                                                                |                                                                                      |
| Braking Surface<br>Pad area Fe [cm <sup>2</sup> ]                                 | 1479                                                                                |                                                                                      |
| Lever length [mm]                                                                 | See Variants<br>Overview                                                            |                                                                                      |
| Internal Ratio C*                                                                 | 1,73                                                                                |                                                                                      |
| Efficiency $\eta_m$                                                               | 0,75                                                                                |                                                                                      |
| Z-cam, radius base<br>circle [mm]                                                 | 12,7                                                                                |                                                                                      |
| Friction material                                                                 | DON 7115 or<br>DAF 4100                                                             |  |
|                                                                                   |                                                                                     |                                                                                      |
|                                                                                   |  |  |

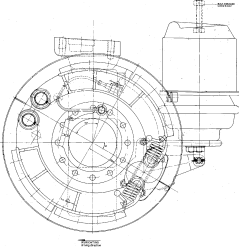
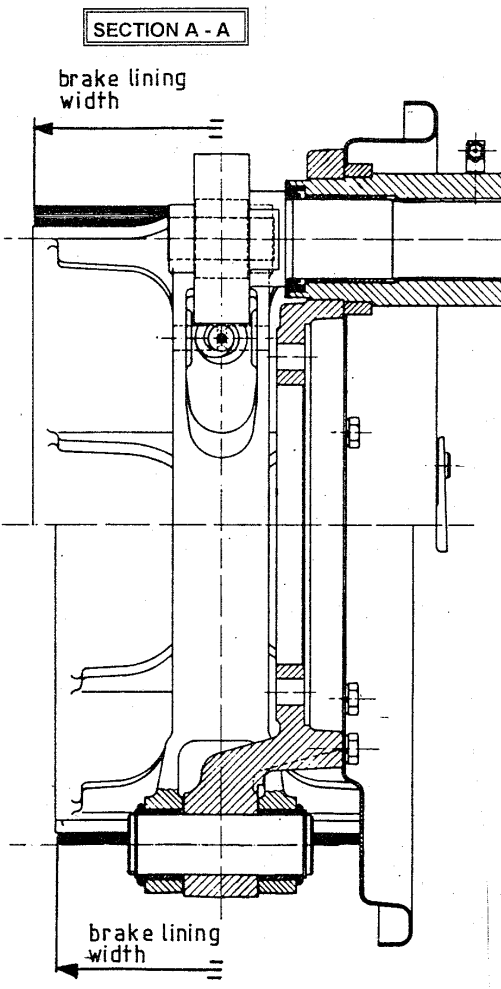
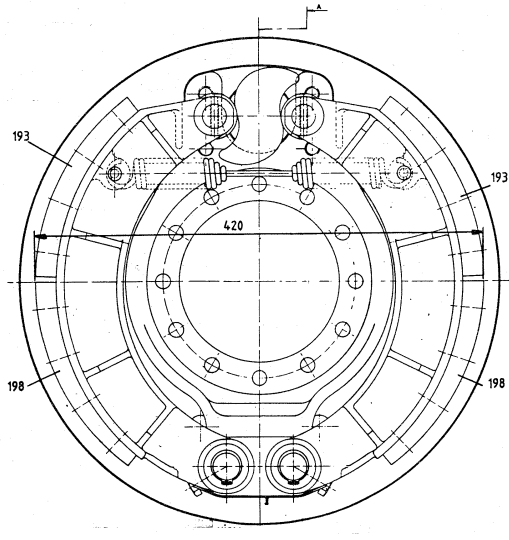
## Disc Brake

## Technical Data

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                               |                                   |                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-----------------------------------|-------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | DAF Disc-Brake                                                | Wabco PAN 17 – Pusher-Axle 09N044 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Dimensions [mm]<br>(Diameter * Width)                         | Ø 330 * 34                        |                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Weight Disc [kg]                                              | 12,0                              |                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Mean friction radius<br>Rm [mm]                               | 127                               |                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Braking Surface<br>Pad area F <sub>e</sub> [cm <sup>2</sup> ] | 120                               |                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Ratio i                                                       | 13,0                              |                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Efficiency $\eta_m$                                           | 0,95                              |                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Brake factor C*                                               | 0,65                              |                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Friction material                                             | DAF 1400                          |                                                                                     |
|  <p>rotating surface co. 76<br/>Belagsoort co. 76<br/>surface de friction co. 76<br/>superficie d'attrito co. 76</p> <p>brake disc Ø330<br/>Bremscheibe Ø330<br/>disque de frein Ø330<br/>disco freno Ø330</p> <p>friction material DAF 1400 with UV-green coating<br/>Belagstoff DAF 1400 mit UV-Grünlack<br/>garniture de garniture DAF 1400 avec UV-verture<br/>garniture della guarnizione DAF 1400 con UV-verdure</p> <p>no mirror image<br/>kein Spiegelbild<br/>pas d'image inversée<br/>senza immagine riflessa</p> <p>175,5±0,1</p> <p>82,25±0,25</p> |                                                               |                                   |                                                                                     |

## S-cam Drum Brake

## Technical Data

|                                                                                     |                                                               |                                  |                                                                                      |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------|----------------------------------|--------------------------------------------------------------------------------------|
|    | DAF Drum-Brake S-cam                                          | DAF 1355T-axle<br>DAF 1132T-axle |   |
|                                                                                     | Dimensions [mm]<br>(Diam * Width)                             | Ø 420 * 200                      |                                                                                      |
|                                                                                     | Weight Drum [kg]                                              | 67,0                             |                                                                                      |
|                                                                                     | Mean friction<br>radius Rm [mm]                               | 172,6                            |                                                                                      |
|                                                                                     | Braking Surface<br>Pad area F <sub>e</sub> [cm <sup>2</sup> ] | 1396                             |                                                                                      |
|                                                                                     | Lever length<br>[mm]                                          | See 'Variants<br>Overview'       |                                                                                      |
|                                                                                     | Internal Ratio C*                                             | 1,70                             |                                                                                      |
|                                                                                     | Efficiency $\eta_m$                                           | 0,85                             |                                                                                      |
|                                                                                     | S-cam, radius base<br>circle [mm]                             | 14                               |                                                                                      |
|  | Friction material                                             | DON 7200/3 or<br>DAF 3100        |  |
|                                                                                     |                                                               |                                  |                                                                                      |

**AEBS-Function**

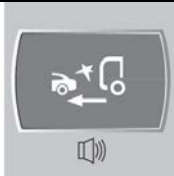
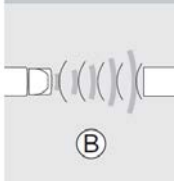
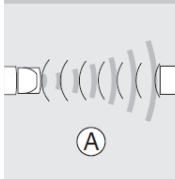
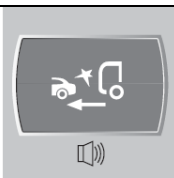
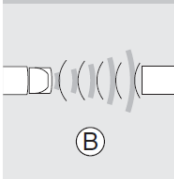
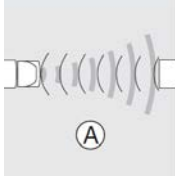
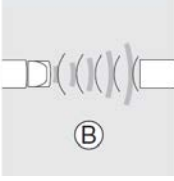
XF- / CF-Series Euro VI

| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | DAF AEBS-1 + AEBS-2 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| <p>The ACC/AEBS sensor monitors the speed, the distance to and position of objects in front of the vehicle. AEBS can help to minimise the risk of a collision with a moving vehicle in front or a stationary vehicle or object. As a result, the effects of an accident can be mitigated.</p> <p>Advanced Emergency Braking System (AEBS) is an addition to the Forward Collision Warning (FCW).</p> <p>Both Adaptive Cruise Control (ACC) and Advanced Emergency Braking (AEBS) use a radar sensor to detect objects in front of the vehicle.</p> <p>This sensor is located behind a cover plate in the grille in the middle of the vehicle. The radar sensor can detect objects up to 150 metres in front of the vehicle. The radar sensor measures speed, distance and lateral position of the object or vehicle in front.</p> <p>Currently AEBS is validated for host vehicle speeds upto 90 km/h, and the deceleration level of the AEB function is gradually reduced to max.-3,5 m/s<sup>2</sup> at higher speeds upto 125 km/h</p> <p>To determine what 'relevant' objects are, all objects are divided in three categories:</p> <ul style="list-style-type: none"> <li>– Moving in the same direction.</li> <li>– Moving in the opposite direction.</li> <li>– Stationary.</li> </ul> <p>AEBS does not react to objects moving away from the vehicle (overtaking vehicles, for example), because the distance is increasing rather than decreasing. The system cannot always detect other road users (for example, motorcycles or low bed semi-trailers) and complex traffic situations (e.g. curves, tunnels or busy city traffic).</p> <p>Under certain circumstances a functional AEBS is not desirable and can be disengaged using the AEBS switch. Examples of such circumstances are;</p> <ul style="list-style-type: none"> <li>– when the vehicle is towed,</li> <li>– driving on a building site or</li> <li>– in heavy city traffic.</li> </ul> |                     |
| <p>AEBS is preselected on as soon as the ignition of the vehicle is switched on.</p> <p>The System can be disengaged and engaged using the AEBS on/off switch on the control panel.</p> <p>A yellow optical warning is visible when AEBS is switched off, or when AEBS is not functioning correctly</p> <p>When one of the following conditions is met, AEBS is disengaged:</p> <ul style="list-style-type: none"> <li>– The AEBS on/off switch is operated.</li> <li>– There is a malfunction in the AEBS.</li> <li>– The vehicle speed drops below 15 km/h (9 mph) (ex-factory).</li> <li>– ABS is deactivated by a malfunction.</li> <li>– There is a malfunction in the vehicle brake system (EBS).</li> </ul> <p>AEBS must be switched off under the following circumstances:</p> <ul style="list-style-type: none"> <li>– Driving with a trailer with no or no functional ABS.</li> <li>– No functional brake lights on truck or trailer (no feedback for following traffic)</li> <li>– Driving off road.</li> <li>– On a high speed roller tester.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                     |
| Operational Status                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | DAF AEBS-1 + AEBS-2 |
| <p>When a vehicle is equipped with the AEBS-function, the yellow optical warning (AEBS Tell-tale) will be visible when the vehicle is switched on.</p> <p>The yellow AEBS Tell-tale will switch off as soon as the system finishes the self-check within seconds.</p> <p>If the system does not function, or has a defect, the yellow AEBS Tell-tale will be visible permanently until the problem is solved.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                     |



## AEBS-Function

## XF- / CF-Series Euro VI

| Description                                                                                                                                                                                                                                                                                                                                                    | DAF AEBS-1 + AEBS-2                                                                                                                                                        |  |                                                                                                                                                                              |  |                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| If AEBS detects the risk of a front-end collision, it issues an audible and visual warning.<br>If the risk persists, AEBS automatically initiates partial braking of the vehicle (Warning Phase).<br>If you do not react to the warnings and partial brake application, AEBS automatically initiates an emergency brake application (Emergency Braking Phase). |                                                                                                                                                                            |  |                                                                                                                                                                              |  |                                                                                                                                                                 |
| <b>Step 1</b><br><br>An FCW is issued both as a warning on the master display and as an acoustic signal (B).                                                                                                                                                                                                                                                   | <br>     |  | <br>     |  | <i>The FCW cannot be suppressed.</i><br><i>If an FCW is active, the audio device and/or hands-free system installed at the factory are automatically muted.</i> |
| <b>Step 2</b><br><br>The FCW is combined with an autonomic partial braking of the vehicle (C).                                                                                                                                                                                                                                                                 | <br>  |  | <br>  |  |                                                                                                                                                                 |
| <b>Step 3</b><br><br>FCW remains active and an emergency braking is performed trying to avoid or at least mitigate a collision (D).<br><br>During this phase, the Brake lamp at the rear is flashing.                                                                                                                                                          | <br> |  | <br> |  |                                                                                                                                                                 |
| During Step 2 and 3                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                            |  |                                                                                                                                                                              |  |                                                                                                                                                                 |
| This partial braking can be suppressed by:<br>– operating the indicators left or right just before or during the FCW,<br>– switching AEBS off using the switch on the control panel.                                                                                                                                                                           |                                                                                                                                                                            |  |                                                                                                                                                                              |  |                                                                                                                                                                 |
| This partial braking can be interrupted by the driver either by:<br>– operating the indicators left or right,<br>– depressing the throttle beyond the pressure point (kickdown) or<br>– switching AEBS off using the switch on the control panel<br>– steering away                                                                                            |                                                                                                                                                                            |  |                                                                                                                                                                              |  |                                                                                                                                                                 |

**AEBS-System**

## XF- / CF-Series Euro VI

| Components - ID |                                                | DAF AEBS-1 + AEBS-2                      |                                  |
|-----------------|------------------------------------------------|------------------------------------------|----------------------------------|
|                 | System                                         | Nr. / Version                            | Nr. / Version                    |
| EBS-3           | Information Document ID_EBS3_D                 | W 100 030 053 0                          |                                  |
|                 | Safety Concept EBS-3 DAF / Leyld               | W 100 030 038 0                          |                                  |
|                 | Brake Management Function DSC5                 | W 110 030 036 0                          |                                  |
| EBS-3.3         | Product Spec. EBS Central Module               | W 446 135 204 ?                          |                                  |
|                 | EBS-3.3 ECU HW                                 | W 884 910 055 ?                          | W 446 135 204 ?                  |
|                 | S/W EBS-3.3                                    | MD000092_.hex                            | MD000094_.hex                    |
|                 | ECU Type Approval number / EMC                 | E1 10R – 046456                          |                                  |
| VECU            | Vehicle ECU                                    | Conti A2C??????2                         | Conti 1365.10070000?             |
|                 | S/W VECU                                       | DAF 2116659<br>VECU_SSW_V12?????         | DAF 2128036<br>VECU_SSW_P+Series |
|                 | Document                                       | Nr. / Version                            |                                  |
| ABS             | ABS/ATC Functions of EBS3                      | W 110 020 007 0                          |                                  |
| XBR             | External Brake Request – Interface<br>XBR/AEBS | W 110 030 043 0                          |                                  |
|                 |                                                | W 110 030 040 0                          |                                  |
| EBS-3           |                                                | W 110 075 002 0                          |                                  |
| ACC             | Adaptive Cruise Control                        | Part of Wabco OnGuardPlus – Product Spec |                                  |
|                 | Document                                       | Nr. / Version                            |                                  |
| AEBS-1          | OnGuardPlus – Product Spec                     | W 446 067 XXX 0                          |                                  |
| AEBS-2          | OnGuardPlus 2G – Product Spec                  | W 446 068 XXX 0                          |                                  |
| AEBS-1/-2       | Item Definition acc. ISO 26262                 | Item_Definition_OGP1_OGP2_R2.4           |                                  |
| AEBS-1/-2       | Hazard_Risk_Analysis acc. ISO 26262            | HaRa_OGP1_OGP2_R2.4.5                    |                                  |
|                 | Component                                      | Nr. / Version                            | Nr. / Version                    |
| AEBS-1          | Continental ARS 327 / EMC                      | E1 10R – 046731                          |                                  |
|                 | AEBS Hardware Component                        |                                          | W 446 067 035 ?                  |
|                 |                                                | W 884 327 032 ?                          | W 446 067 036 ?                  |
|                 | AEBS S/W Version                               | W 246 067 129 ?                          | W 246 067 151 ?                  |
| AEBS-2          | Fujitsu Ten FT0047A / EMC                      | E13 10R-04 13117                         |                                  |
|                 | AEBS Hardware Component                        | W 446 068 012 ?                          |                                  |
|                 | AEBS S/W Version                               | 246 068 904 ?                            |                                  |

OnGuardPlus (OGP) is the commercial name of supplier Wabco of the advanced driver assistance system with the following functions :

|      |                                   |
|------|-----------------------------------|
| ACC  | Adaptive Cruise Control           |
| DW   | Distance Warning                  |
| FCW  | Forward Collision Warning         |
| CMS  | Collision Mitigation System       |
| AEBS | Advanced Emergency Braking System |
| EBA  | Extended Brake Assist             |

## AEB System

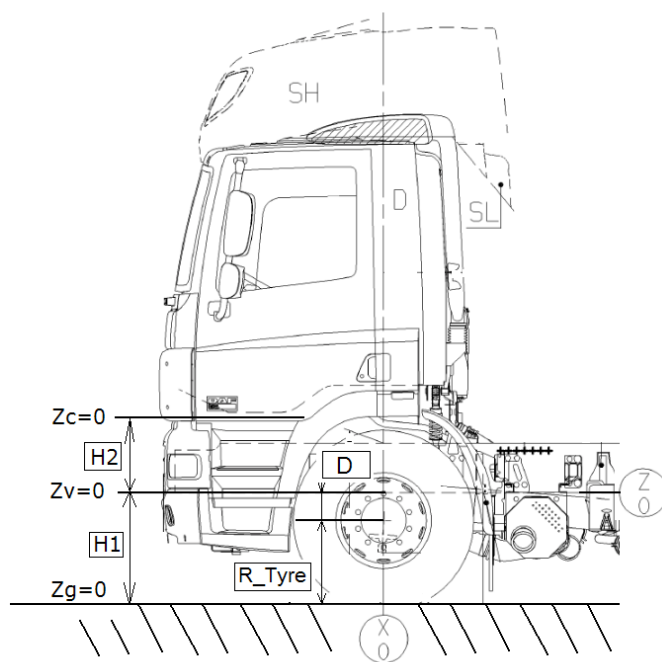
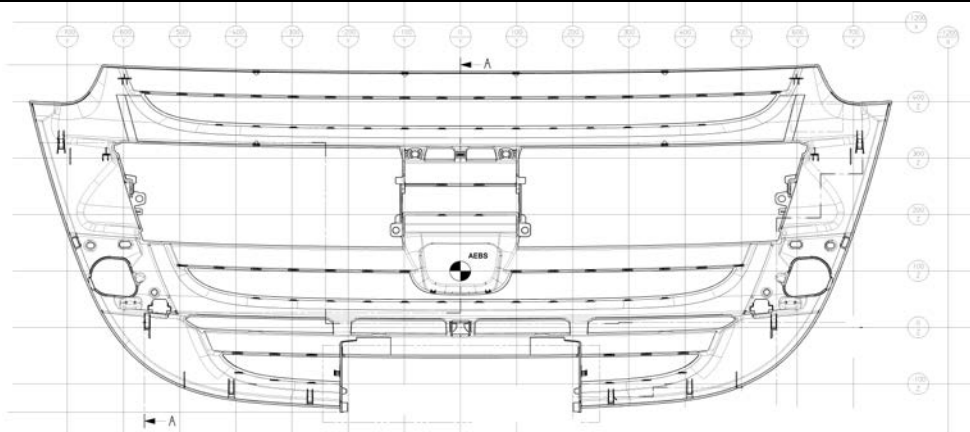
## XF- / CF-Series Euro VI

| Description EBS-3.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | XBR-Request | Wabco W 884 910 003 0 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------------|
| <p>EBS Brake Software is modified to realize maximum brake performance via CAN-request XBR High Priority</p> <p>AEBS Performance improvements by EBS brake management during XBR high priority CAN requests at decelerations higher than 4.5 m/s<sup>2</sup>.<br/>Measures regarding:</p> <ul style="list-style-type: none"> <li>- I; Parameterized brake performance<br/>Investigations showed that the brake torque gradients measured on the test bench do not or only fairly match parameterized values.</li> <li>- II; ABS control event inhibits adaption of the deceleration control<br/>ABS control events at single wheels inhibit further adaption of the deceleration control algorithm in the DAF EBS version.</li> <li>- III; Trailer Performance<br/>The coupling force control algorithm evaluates the brake performance of the trailer in the lower part of the deceleration band. For emergency braking events by AEBS the correction factor the trailer shall be set to maximum in order to request maximum brake torque from the trailer.</li> <li>- IV; Deceleration Control<br/>The current deceleration controller only controls the present differences to the requested deceleration, for AEBS emergency braking requests the mean deceleration over the whole braking event shall be taken into account.</li> </ul> <p>All IV measures are only applied in case</p> <ul style="list-style-type: none"> <li>• XBR requests are received with „Highest Priority“ AND</li> <li>• requested acceleration is below -4.5m/s<sup>2</sup> (in prototype SW), will be increased to below -4.0 m/s<sup>2</sup> for serial production AND</li> <li>• if the braking procedure starts at a speed &gt; 10 km/h</li> <li>• Regardless of potential driver interaction (if above mentioned conditions are fulfilled)</li> </ul> <p>The measures are not effective in „usual“ braking situations :<br/>„driver only“, „ACC only“, „ACC &amp; driver“.</p> |             |                       |

## AEB-System

## CF- / XF-Series Euro VI

| Sensor Position – Lowest / Highest |                                  | Min./Max. Z-Coördinates                       | On-Road Variants              |
|------------------------------------|----------------------------------|-----------------------------------------------|-------------------------------|
| H1                                 | Ground – Underside Chassismember | $H1 = R\_Tyre + D$                            |                               |
| R_Tyre                             | Tyre-radius                      | Min = R_Loaded smallest Tyre                  | Max = R_Unloaded biggest Tyre |
| D                                  | Driving Height                   | Depending on Axle-type and Type of Suspension |                               |
| Z_Radar                            | Sensor-position                  | $Z = H1 + 100$                                |                               |



| Type  | Variant    | Version              | Low / High | R_Tyre | D   | H1  | Z   | Z_Radar |
|-------|------------|----------------------|------------|--------|-----|-----|-----|---------|
| ?4?N3 | ????????Z? | ???????????????????? | L *)       | 428    | 124 | 552 | 100 | 652     |
| ?4?N3 | ????????Z? | ???????????????????? | H **)      | 562    | 320 | 882 | 100 | 982     |

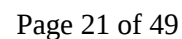
\*) R\_Loaded smallest Tyre – 375/45R<sup>22,5</sup> / D = Lowest Driving Height / FT Low-Deck / Air- + Leaf-susp.

\*\*) R\_Unloaded biggest Tyre – 13R<sup>22,5</sup> / D = Highest Driving Height / Single Front-axle / Leaf-susp

W 841 100 546 0



W 841 100 545 0

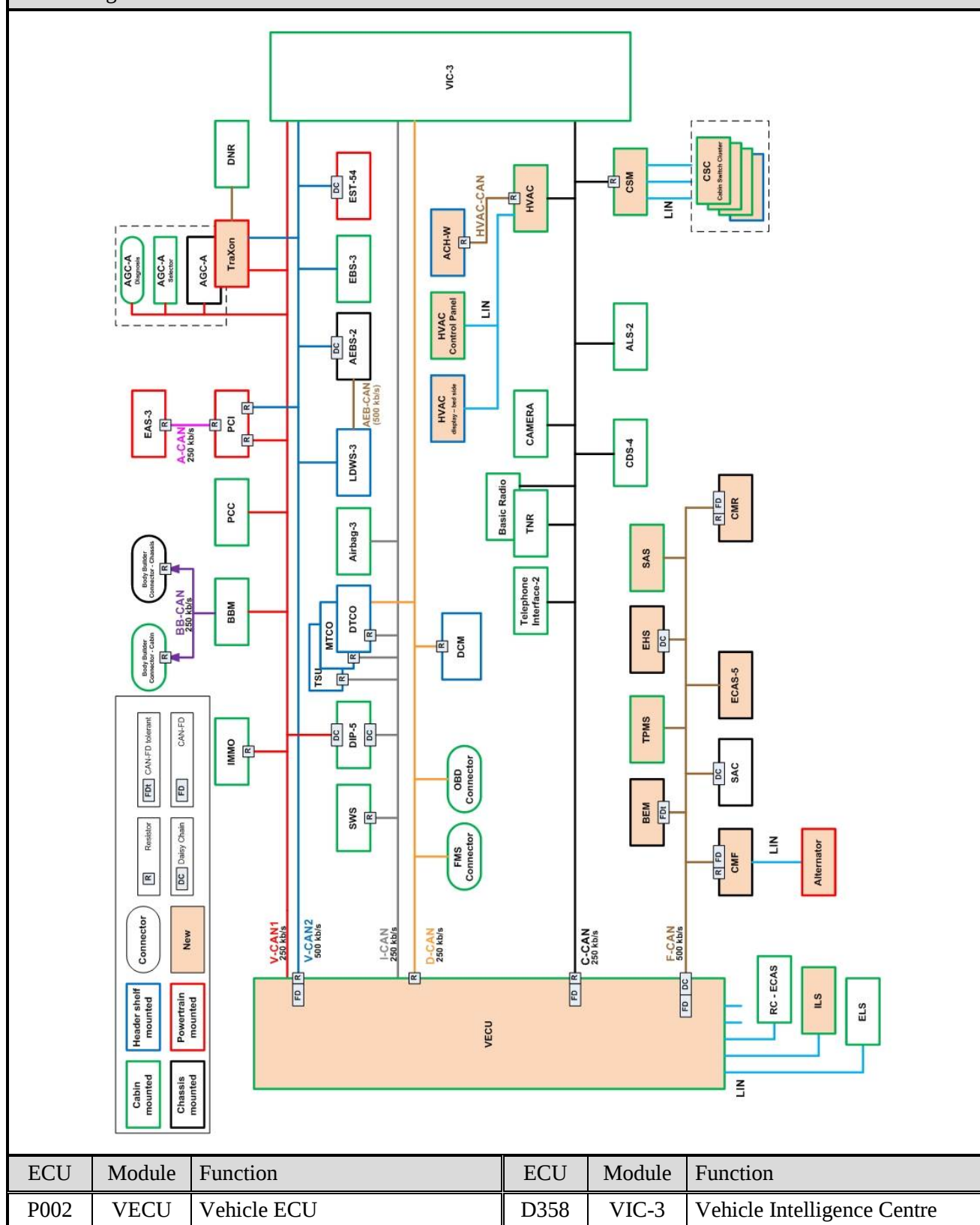


## CAN Topology

## XF- / CF-Series Euro VI

| Type      | Variant               | Version                                   |
|-----------|-----------------------|-------------------------------------------|
| ? 4 S N ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? 1 ? ? ? H 2 |
| ? 4 S N ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? 3 ? ? ? H 2 |

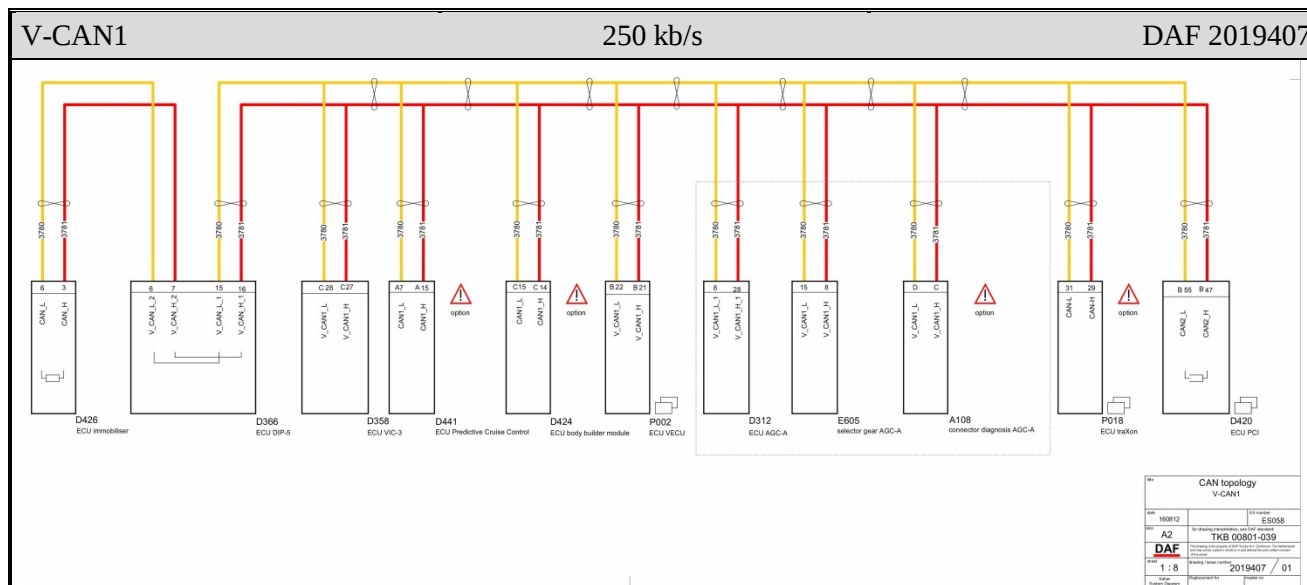
Block Diagram Vehicle E/E



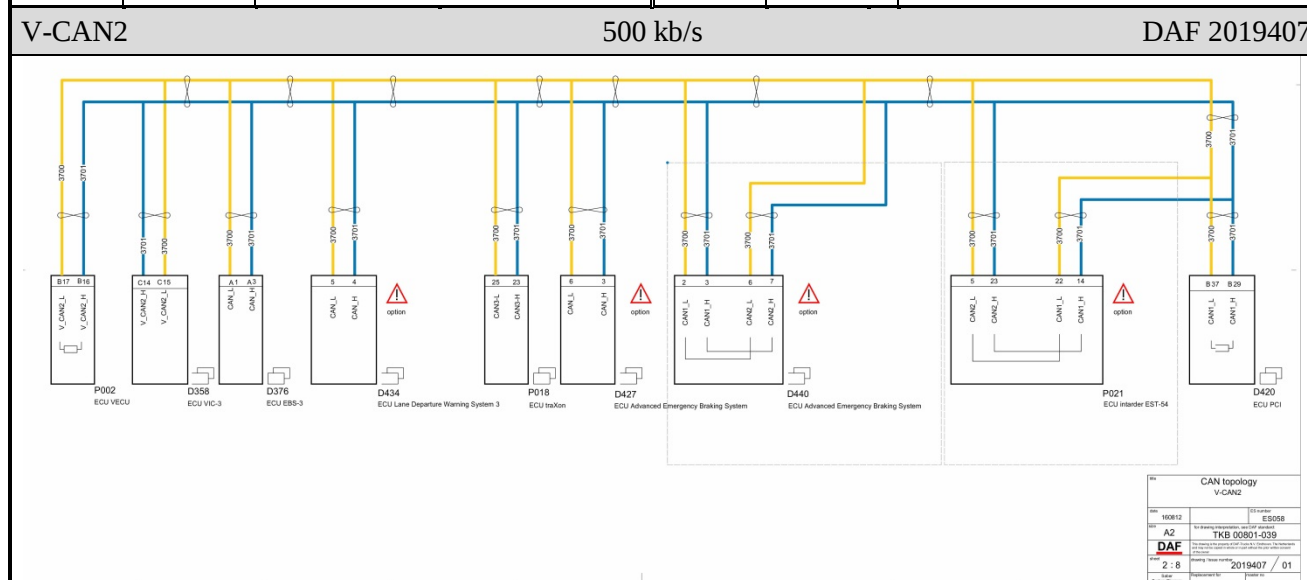
## CAN Topology

## XF- / CF-Series Euro VI

| Type      | Variant               | Version                                     |
|-----------|-----------------------|---------------------------------------------|
| ? 4 S N ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? 1 ? ? ? H 2 |
| ? 4 S N ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? 3 ? ? ? H 2 |



| ECU  | Module | Function            | ECU  | Module | Function                        |
|------|--------|---------------------|------|--------|---------------------------------|
| D366 | DIP-5  | Display             | D441 | PCC    | Predictive Cruise Control       |
| D426 | IMMO   | Immobiliser         | D420 | PCI    | Engine Brake Torque arbitration |
| D424 | BBM    | Body Builder Module | D312 | AGC    | Automatic Gearbox Control       |
|      |        |                     | P018 | TraXon | ZF Gearbox                      |

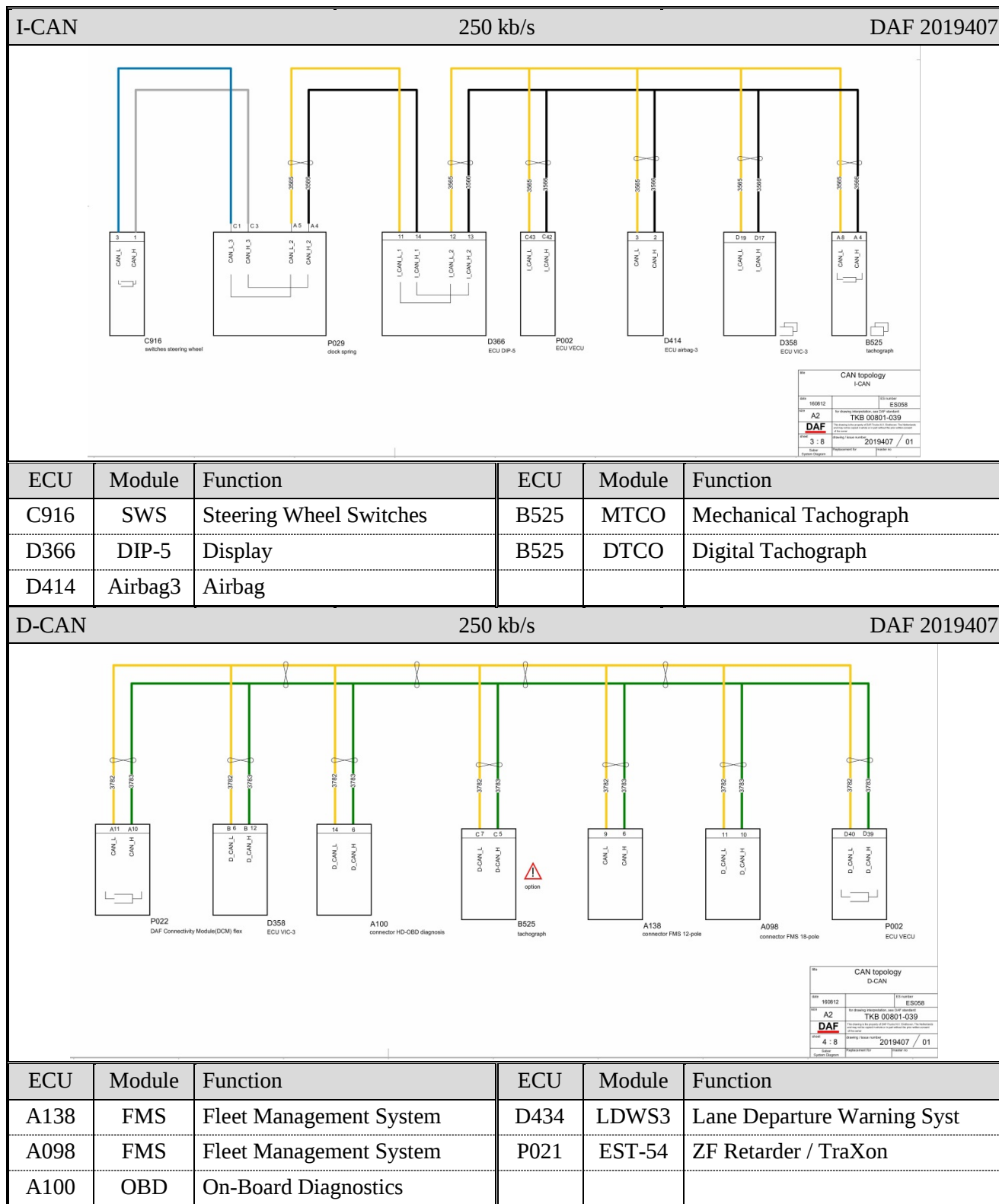


| ECU  | Module | Function                     | ECU  | Module | Function                    |
|------|--------|------------------------------|------|--------|-----------------------------|
| D376 | EBS-3  | Electronic Braking System    | D434 | LDWS3  | Lane Departure Warning Syst |
| D427 | AEBS-1 | Adv. Emergency Braking Syst. | P021 | EST-54 | ZF Retarder / TraXon        |
| D440 | AEBS-2 | Adv. Emergency Braking Syst. |      |        |                             |

## CAN Topology

## XF- / CF-Series Euro VI

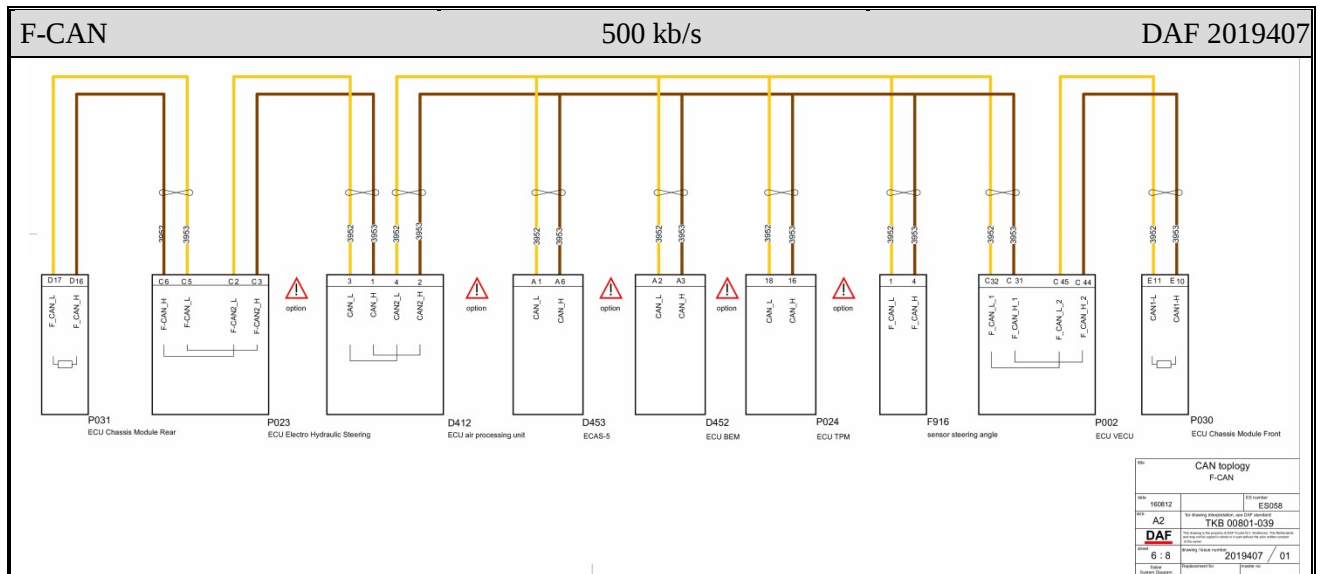
| Type      | Variant               | Version                                         |
|-----------|-----------------------|-------------------------------------------------|
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| ? 4 S N ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? 3 ? ? ? H 2 |



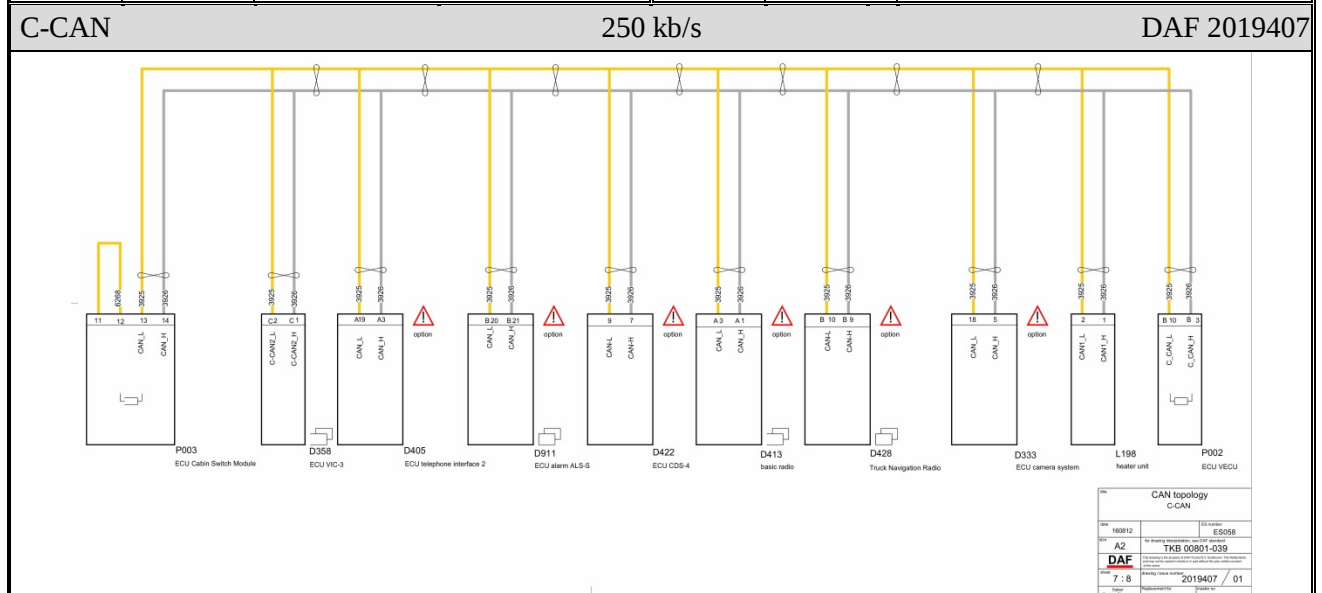
## CAN Topology

## XF- / CF-Series Euro VI

| Type      | Variant               | Version                                         |
|-----------|-----------------------|-------------------------------------------------|
| ? 4 S N ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? 1 ? ? ? H 2 |
| ? 4 S N ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? 3 ? ? ? H 2 |



| ECU  | Module | Function                      | ECU  | Module | Function                       |
|------|--------|-------------------------------|------|--------|--------------------------------|
| D452 | BEM    | Battery Energy Monitor        | D412 | SAC    | Air-processing Unit            |
| P024 | TPMS   | Tyre Pressure Monitoring Syst | D453 | ECAS-5 | Electronic Controlled Air susp |
| P023 | EHS    | Electric-Hydraulic Steering   | P030 | CMF    | Chassis Module Front           |
| F916 | SAS    | Steering Angle Sensor         | P031 | CMR    | Chassis Module Rear            |



| ECU  | Module | Function                   | ECU  | Module | Function                 |
|------|--------|----------------------------|------|--------|--------------------------|
| P003 | CSM    | Central Switch Module      | D405 | Phone  | Telephone                |
| D422 | CDS-4  | Central Doorlocking System | D428 | TNR    | Truck Navigation Radio   |
| D911 | ALS-2  | Alarm System               | D413 | Radio  | Radio                    |
| L198 | HVAC   | Heating Venting Airco      | D333 | Camera | Camera (additional rear) |



**CAN Topology****CF-Series Euro VI****CF-Series with PX7**

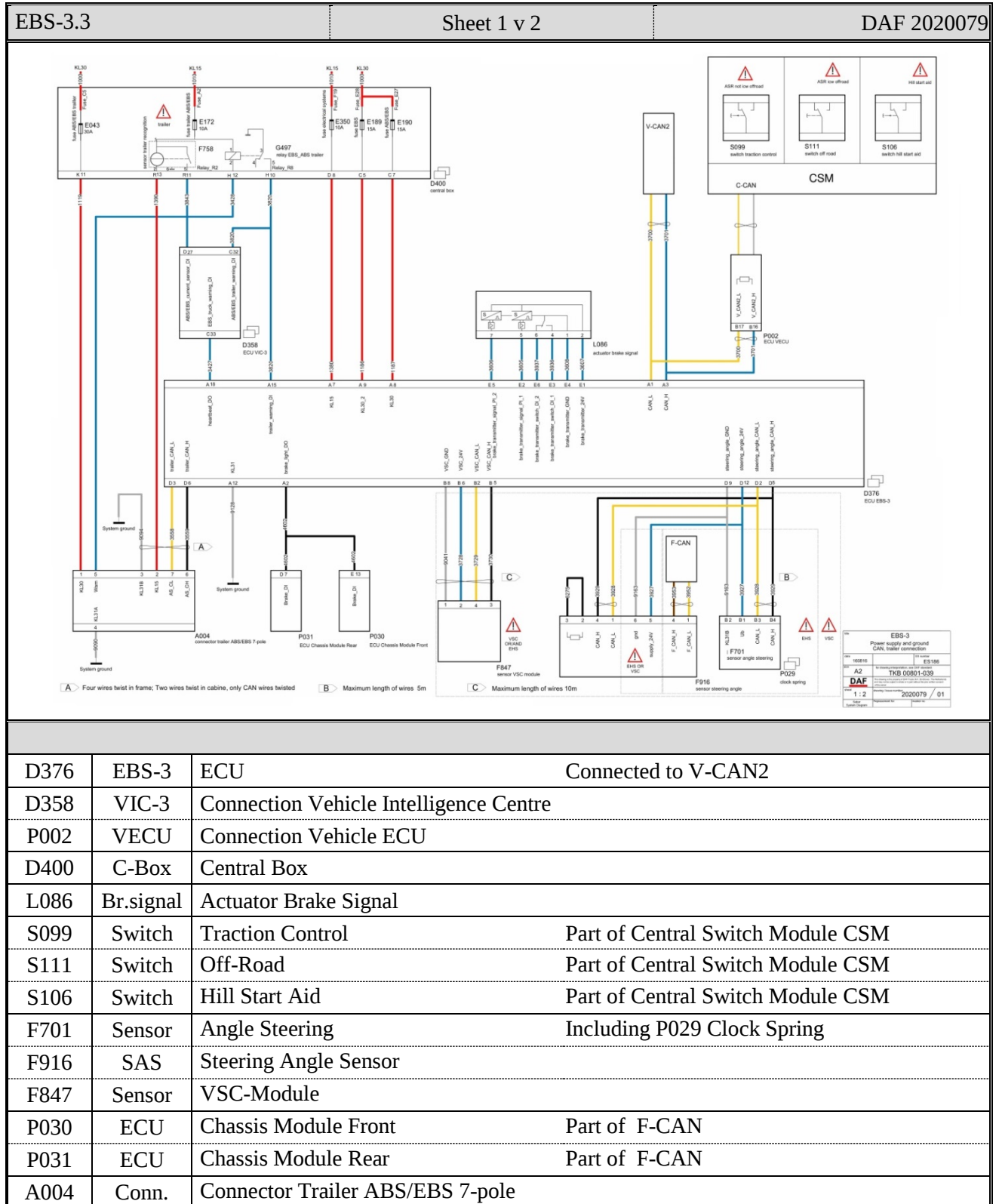
| Type      | Variant               | Version                                           |
|-----------|-----------------------|---------------------------------------------------|
| M 4 S N ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? 7 ? ? ? ? K 1 |

| ECU           | Module   | Function                    | ECU      | Module   | Function                       |
|---------------|----------|-----------------------------|----------|----------|--------------------------------|
| <b>V-CAN1</b> |          |                             | 250 kb/s |          |                                |
| 1Dh           | IMMO     | Immobiliser                 | 03h      | AStronic | ZF Gearbox                     |
| 25h           | BBM      | Body Builder Module         | 00h      | ECS-PX7  | Engine ECU PX7                 |
| 03h           | AGC      | Automatic Gearbox Control   |          |          |                                |
| <b>V-CAN2</b> |          |                             | 250 kb/s |          |                                |
| EEh           | TSU      | ??                          | 2Fh      | ECAS-4   | Electronic Controlled Airsusp. |
| EEh           | MTCO     | Manual Tachograph           | 29h      | ECS-PX7  | Engine ECU PX7                 |
| EEh           | DTCO     | Digital Tachograph          | A0h      | AEBS-1   | Adv. Emergency Braking Syst.   |
| 17h           | DIP-5    | Display                     | A0h      | AEBS-2   | Adv. Emergency Braking Syst.   |
| 0Bh           | EBS-3    | Electronic Braking System   | 2Ah      | ACC      | Adaptive Cruise Control        |
| <b>I-CAN</b>  |          |                             | 250 kb/s |          |                                |
| 17h           | DIP-5    | Display                     | 4Dh      | SWS      | Steering Wheel Switches        |
| <b>D-CAN</b>  |          |                             | 250 kb/s |          |                                |
| EEh           | DTCO     | Digital Tachograph          | ---      | OBD      | Connector On Board Diagnostics |
| ---           | DCM      | (Connectivity)              | ---      | FMS      | Connector Fleet Management     |
| <b>F-CAN</b>  |          |                             | 500 kb/s |          |                                |
| 30h           | SAC      | Air-processing Unit         | E4h      | SAS      | Steering Angle Sensor          |
| 38h           | EHS      | Electric-Hydraulic Steering |          |          |                                |
| <b>C-CAN</b>  |          |                             | 250 kb/s |          |                                |
| 4Ah           | Phone    | Telephone Interface-2       | E9h      | CDS-4    | Central Doorlocking System     |
| 4Ch           | TNR      | Truck Navigation Radio      | ---      | ALS-2    | Alarm System                   |
| ---           | Radio    | Radio                       | E8h      | LDWS-3   | Lane Departure Warning System  |
| 53h           | Airbag-3 | Airbag                      | 32h      | ELC      | Electric Light Controller      |
| 19h           | HVAC     | Heating Venting Airco       |          |          |                                |

## Block Diagram

## XF- / CF-Series Euro VI

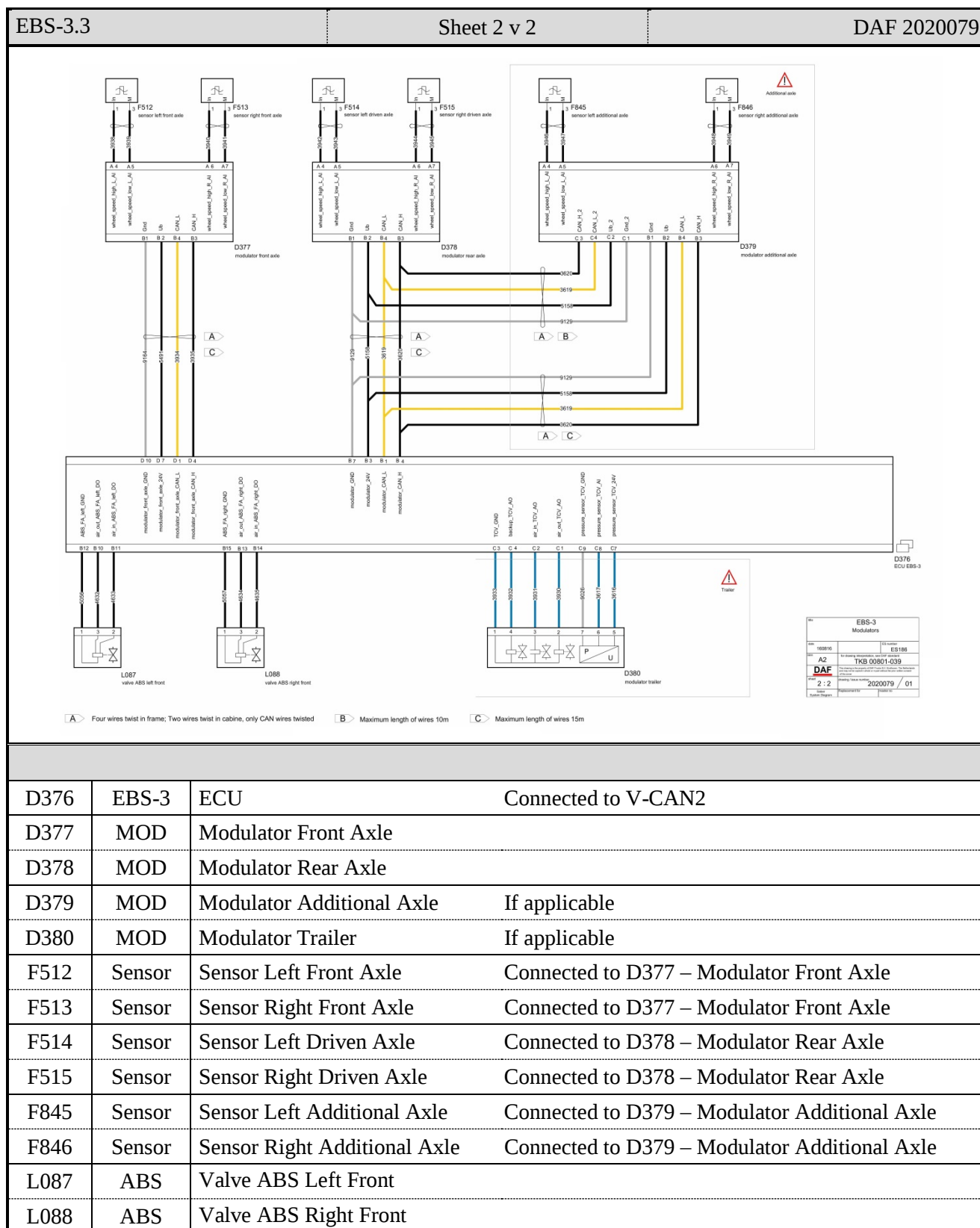
| Type      | Variant               | Version                                   |
|-----------|-----------------------|-------------------------------------------|
| ? 4 S N ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? 1 ? ? ? H 2 |
| ? 4 S N ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? 3 ? ? ? H 2 |
| M 4 S N ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? 7 ? ? ? K 1 |



## Block Diagram

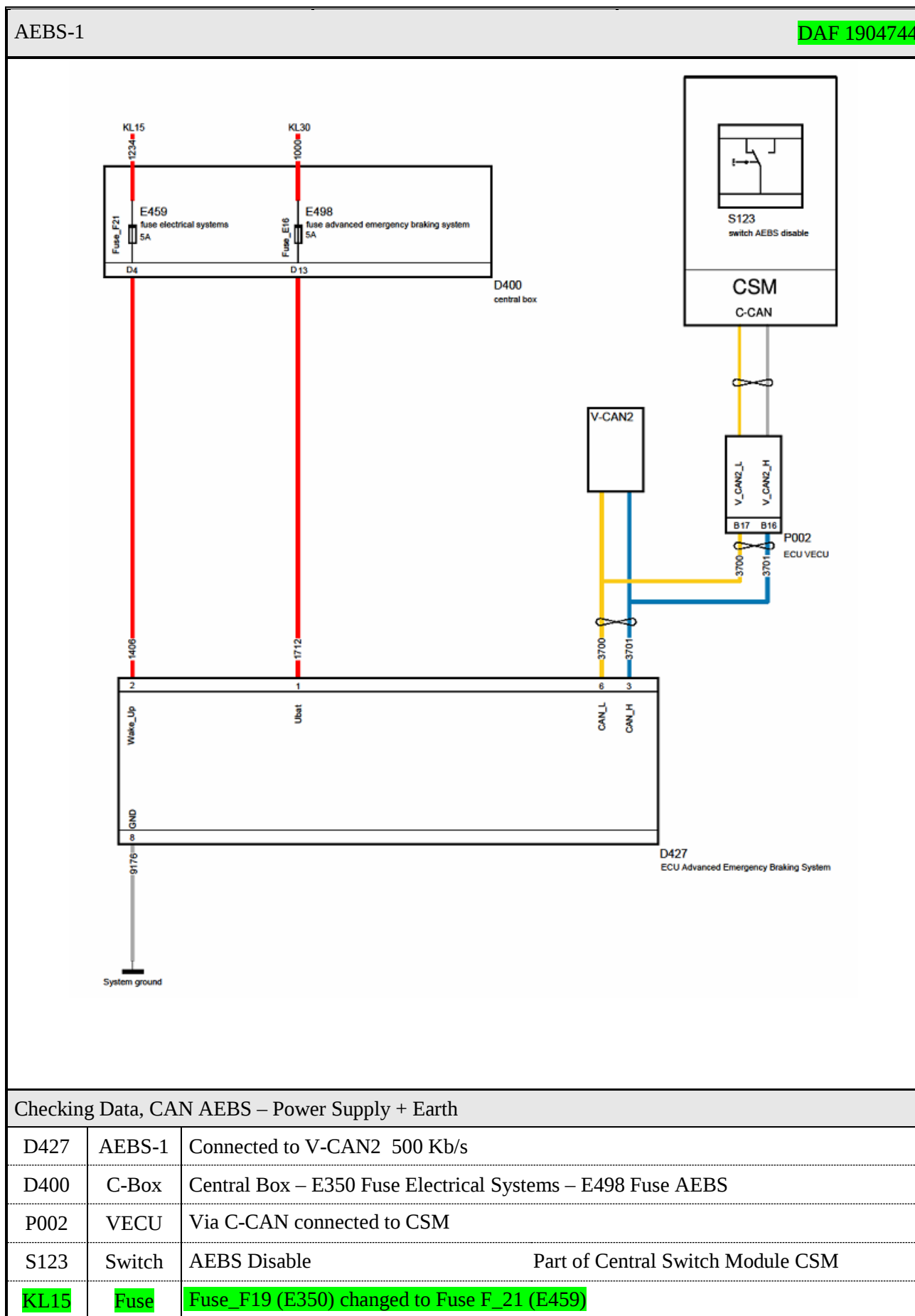
## XF- / CF-Series Euro VI

| Type      | Variant               | Version                                   |
|-----------|-----------------------|-------------------------------------------|
| ? 4 S N ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? 1 ? ? ? H 2 |
| ? 4 S N ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? 3 ? ? ? H 2 |
| M 4 S N ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? 7 ? ? ? K 1 |



## Block Diagram

XF- / CF-Series Euro VI





## Product Specification

AEBS-1

Front-page Wabco-document

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## Product Specification

OnGuardPLUS

## Product Specification

|         |          |            |                |            |          |                                    |           |      |
|---------|----------|------------|----------------|------------|----------|------------------------------------|-----------|------|
|         | 29       | 2018-02-02 | Copyright      |            |          | <b>WABCO</b>                       |           |      |
|         | 28       | 2018-01-12 | Approval Level | Date       | Name     |                                    |           |      |
|         | 27       | 2017-11-09 | Compiler       | 23.01.2018 | J.Knüwer | OnGuardPLUS<br>- generic version - |           |      |
|         | 26       | 2017-08-10 | reviewed       | 02.02.2018 | R.Meyer  |                                    |           |      |
|         | 25       | 2017-06-12 | approved       | 02.02.2018 | H.Thies  |                                    |           |      |
|         | 24       | 2017-02-17 |                |            |          |                                    |           |      |
|         | 23       | 2017-01-19 | TRI            |            |          | Product Identification No.         | Doc. Code | Page |
| ECN-No. | Revision | Date       | 530            |            |          | 446 067 000 0                      | 035       | 1/94 |

## Product Specification

AEBS-2

Front-page Wabco-document

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## Product Specification

# OnGuardPLUS 2. Generation

## Product Specification

|         |          |            | Copyright      |            |              | <b>WABCO</b>                                            |             |
|---------|----------|------------|----------------|------------|--------------|---------------------------------------------------------|-------------|
|         |          |            | Approval Level | Date       | Name         | <b>OnGuardPLUS 2.Generation<br/>- generic version -</b> |             |
|         |          |            | Compiler       | 2016-03-16 | Dian Zhang   |                                                         |             |
|         |          |            | 2              | 2016-03-16 | Mathias Baum |                                                         |             |
|         |          |            | Checker        | 2016-03-17 | Holger Thies |                                                         |             |
|         |          |            | TRI            |            |              | Doc. Code                                               | Page        |
| ECN-No. | Revision | Date       |                |            |              |                                                         |             |
|         | 4        | 2016-03-16 | <b>530</b>     |            |              | <b>446 068 000 0</b>                                    | <b>035</b>  |
|         |          |            |                |            |              | <b>035</b>                                              | <b>1/80</b> |



## TVV-Key

Version 06

| VERSION |                        |           |    |    |                                                  |                                                    |                          |        |        |        |
|---------|------------------------|-----------|----|----|--------------------------------------------------|----------------------------------------------------|--------------------------|--------|--------|--------|
| 17      | Axle Configuration     | E         |    |    | 4 x 2                                            | Single Front – Driven                              |                          |        |        |        |
| 17      | Axle Configuration     | P         |    |    | 6 x 2                                            | Single Front – Fixed Pusher – Driven               |                          |        |        |        |
| 17      | Axle Configuration     | G         |    |    | 6 x 2                                            | Single Front – Steered Pusher – Driven             |                          |        |        |        |
| 17      | Axle Configuration     | S         |    |    | 6 x 2                                            | Single Front – Driven – Fixed Trail. (Twin tyres)  |                          |        |        |        |
| 17      | Axle Configuration     | R         |    |    | 6 x 2                                            | Single Front – Driven – Fixed Trail. (Sing. tyres) |                          |        |        |        |
| 17      | Axle Configuration     | N         |    |    | 6 x 2                                            | Single Front – Driven – Steered Trailing           |                          |        |        |        |
| 17      | Axle Configuration     | T         |    |    | 6 x 4                                            | Single Front – Driven Tandem                       |                          |        |        |        |
| 18      | Fr.Ax. group load      | A, B .... |    |    | Code front axle group with tyre load             |                                                    |                          |        |        |        |
| 19      | Re.Ax.group load       | A, B .... |    |    | Code rear axle group with tyre load              |                                                    |                          |        |        |        |
| 20-22   | GVW incl. tyres        | 0 0 0     |    |    | For example 205 (x10 <sup>2</sup> ) = 20500 [kg] |                                                    |                          |        |        |        |
| 23      | Max. GCW               | A, B .... |    |    | Code for GCW                                     |                                                    |                          |        |        |        |
| 24      | Mass & Dimension       | M         | -- | Z  | M = M&D compliant                                | ---                                                | Z = Not compliant        |        |        |        |
| 25      | Lighting               | L         | N  | Z  | L = Lighting Installation                        | N = N/A                                            | Z = Not compliant        |        |        |        |
| 26      | Rear registr.plate pl. | R         | -- | Z  | R = Rear Registration Plate                      | ---                                                | Z = Not compliant        |        |        |        |
| 27      | Spray Suppression      | S         | -- | Z  | S = Spray Suppression                            | ---                                                | Z = Not compliant        |        |        |        |
| 28      | Lateral Protection     | P         | N  | Z  | P = Lateral Protection                           | N = N/A                                            | Z = Not compliant        |        |        |        |
| 29      | RUP                    | U         | N  | Z  | U = Rear Underrun Prot.                          | N = N/A                                            | Z = Not compliant        |        |        |        |
| 30      | Coupling               | K         | N  | Z  | K = Mechanical Coupling                          | N = N/A                                            | Z = Not compliant        |        |        |        |
| 31      | Pass-by Noise          | 5         | 6  | 7  | 8                                                | Manual dB(A)                                       | 5 = 75                   | 6 = 76 | 7 = 77 | 8 = 78 |
| 31      | Pass-by Noise          | 9         | 0  | 1  | 2                                                | Manual dB(A)                                       | 9 = 79                   | 0 = 80 | 1 = 81 | 2 = 82 |
| 31      | Pass-by Noise          | Y         | Z  | A  | B                                                | Automatic dB(A)                                    | Y = 75                   | Z = 76 | A = 77 | B = 78 |
| 31      | Pass-by Noise          | C         | D  | E  | F                                                | Automatic dB(A)                                    | C = 79                   | D = 80 | E = 81 | F = 82 |
| 32      | Engine Series          |           |    |    | 7                                                | 7 = PX7 – Cummins 6.7 L                            |                          |        |        |        |
| 32      | Engine Series          | 1         |    | 3  | 1 = MX11 – Paccar 10.8 L                         |                                                    | 3 = MX13 – Paccar 12.9 L |        |        |        |
| 33-35   | Power                  | 0 0 0     |    |    | For example 375 [kW]                             |                                                    |                          |        |        |        |
| 36-37   | Emission               | H1        |    | H2 | H1 = Euro VI                                     |                                                    | H2 = Euro VI             |        |        |        |
| 36-37   | Emission               | K1        |    |    | K1 = Euro VI                                     |                                                    |                          |        |        |        |

## VDS-Key

Version 01

| VIN |                    |   |     |   |    |   |                            |   |                       |    |                                 |    |    |    |    |    |
|-----|--------------------|---|-----|---|----|---|----------------------------|---|-----------------------|----|---------------------------------|----|----|----|----|----|
| WMI |                    |   | VDS |   |    |   |                            |   | VIS                   |    |                                 |    |    |    |    |    |
| 1   | 2                  | 3 | 4   | 5 | 6  | 7 | 8                          | 9 | 10                    | 11 | 12                              | 13 | 14 | 15 | 16 | 17 |
| VDS |                    |   |     |   |    |   |                            |   |                       |    |                                 |    |    |    |    |    |
| 4   | Application        |   |     |   | A  |   | Rigid                      |   |                       |    |                                 |    |    |    |    |    |
| 4   | Application        |   |     |   | T  |   | Tractor                    |   |                       |    |                                 |    |    |    |    |    |
| 5   | Axle Configuration |   |     |   | E  |   | 4 x 2                      |   | Commercial name       |    | FT / FA                         |    |    |    |    |    |
| 5   | Axle Configuration |   |     |   | G  |   | 6 x 2                      |   | Commercial name       |    | FTG / FAG, FTP / FAP            |    |    |    |    |    |
| 5   | Axle Configuration |   |     |   | S  |   | 6 x 2                      |   | Commercial name       |    | FTS / FAS, FTR / FAR, FTN / FAN |    |    |    |    |    |
| 5   | Axle Configuration |   |     |   | T  |   | 6 x 4                      |   | Commercial name       |    | FTT / FAT                       |    |    |    |    |    |
| 6-7 | Vehicle Series     |   |     |   | M4 |   | Medium Series              |   | CF-Cab + H-Chassis    |    |                                 |    |    |    |    |    |
| 6-7 | Vehicle Series     |   |     |   | H4 |   | Heavy Series               |   | XF-Cab + H-Chassis    |    |                                 |    |    |    |    |    |
| 8   | Engine Type        |   |     |   | 7  |   | PX-7                       |   | Paccar/Cummins – 6.7L |    |                                 |    |    |    |    |    |
| 8   | Engine Type        |   |     |   | 1  |   | MX-11                      |   | Paccar – 10.8L        |    |                                 |    |    |    |    |    |
| 8   | Engine Type        |   |     |   | 3  |   | MX-13                      |   | Paccar – 12.9L        |    |                                 |    |    |    |    |    |
| 9   | Check-digit        |   |     |   | 0  |   | Standard                   |   |                       |    |                                 |    |    |    |    |    |
| 9   | Check-digit        |   |     |   | X  |   | Check-digit, if applicable |   |                       |    |                                 |    |    |    |    |    |





Vehicle View

Version 02

|                      |         |                         |                                                         |
|----------------------|---------|-------------------------|---------------------------------------------------------|
| Information Document |         | 1.1.                    |                                                         |
| Type                 |         | Variant                 | Version                                                 |
| M                    | 4 ? ? ? | ? ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? H 2         |
| M                    | 4 ? ? ? | ? ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? 7 ? ? ? K 1 |

CF Euro 6 Day Cab



CF Euro 6 Sleeper Cab



CF Euro 6 Space Cab



### Vehicle View

Version 02

|                                                                                                                      |                       |                                                         |  |
|----------------------------------------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------|--|
| Information Document                                                                                                 |                       | 1.1.                                                    |  |
| Type                                                                                                                 | Variant               | Version                                                 |  |
| H 4 ? ? ?                                                                                                            | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? H 2 |  |
| <p>XF Euro 6 Space Cab</p>         |                       |                                                         |  |
| <p>XF Euro 6 Super Space Cab</p>  |                       |                                                         |  |

## Vehicle Layout

## 2- / 3-Axle Tractor

Version 02

| Information Document 1.1. |             |
|---------------------------|-------------|
| Type                      | Variant     |
| ?4EN3                     | TE????????? |
| ?4GN3                     | TP????????? |
| ?4GN3                     | TG????????? |
| ?4SN3                     | TS????????? |
| ?4SN3                     | TR????????? |
| ?4SN3                     | TN????????? |
| ?4TN3                     | TT????????? |

## Vehicle Layout

## 2- / 3-Axle Rigid

## Version 02

| Information Document 1.1. |             |
|---------------------------|-------------|
| Type                      | Variant     |
| ?4EN3                     | AE????????? |
| ?4GN3                     | AP????????? |
| ?4GN3                     | AG????????? |
| ?4SN3                     | AS????????? |
| ?4SN3                     | AR????????? |
| ?4SN3                     | AN????????? |
| ?4TN3                     | AT????????? |

## Overview Length

Version 02

| Information Document |             |                  | 2.1.     |      |      |     | 2.1.1./ 2.1.2. |      |                  |       | 2.4.1.1./2.4.2.1 |       |
|----------------------|-------------|------------------|----------|------|------|-----|----------------|------|------------------|-------|------------------|-------|
| TVV-Key              |             | FO <sup>1)</sup> | Axle 1-2 |      | 2-3  | 3-4 | WB             |      | RO <sup>2)</sup> |       | L                |       |
| Type                 | Variant     |                  | min.     | max. |      |     | min.           | max. | min.             | max.  | min.             | max.  |
| ?4EN3                | TE????????? | 1370             | 3250     | 4500 |      |     | 3250           | 4500 | 500              | 1200  | 5120             | 7070  |
| ?4EN3                | AE????????? | 1370             | 3250     | 6900 |      |     | 3250           | 6900 | 500              | 3700* | 5120             | 11970 |
| ?4GN3                | TP????????? | 1370             | 2750     | 3100 | 1100 |     | 3850           | 4200 | 500              | 1200  | 5720             | 6770  |
| ?4GN3                | AP????????? | 1370             | 2750     | 5300 | 1100 |     | 3850           | 6400 | 500              | 4000* | 5720             | 11770 |
| ?4GN3                | TG????????? | 1370             | 2630     | 3480 | 1320 |     | 3950           | 4800 | 500              | 1200  | 5820             | 7370  |
| ?4GN3                | AG????????? | 1370             | 2580     | 5730 | 1370 |     | 3950           | 7100 | 500              | 3500* | 5820             | 11970 |
| ?4SN3                | TS????????? | 1370             | 3100     | 4100 | 1400 |     | 4500           | 5500 | 500              | 1200  | 6370             | 8070  |
| ?4SN3                | AS????????? | 1370             | 3100     | 6650 | 1400 |     | 4500           | 8050 | 500              | 2580  | 6370             | 12000 |
| ?4SN3                | TR????????? | 1370             | 3100     | 4100 | 1400 |     | 4500           | 5500 | 500              | 1200  | 6370             | 8070  |
| ?4SN3                | AR????????? | 1370             | 3100     | 6650 | 1400 |     | 4500           | 8050 | 500              | 2580  | 6370             | 12000 |
| ?4SN3                | TN????????? | 1370             | 3100     | 4100 | 1400 |     | 4500           | 5500 | 500              | 1200  | 6370             | 8070  |
| ?4SN3                | AN????????? | 1370             | 3100     | 6650 | 1400 |     | 4500           | 8050 | 500              | 2580  | 6370             | 12000 |
| ?4TN3                | TT???????Z? | 1370             | 3200     | 4350 | 1400 |     | 4600           | 5750 | 500              | 1200  | 6470             | 7620  |
| ?4TN3                | AT???????Z? | 1370             | 3200     | 5700 | 1400 |     | 4600           | 7100 | 500              | 3500* | 6470             | 11970 |
| ?4TN3                | TT???????G? | 1460             | 3200     | 4350 | 1400 |     | 4600           | 5750 | 500              | 1200  | 6560             | 7710  |
| ?4TN3                | AT???????G? | 1460             | 3200     | 5700 | 1400 |     | 4600           | 7100 | 500              | 3440  | 6560             | 12000 |

All dimensions in [mm]

\* According maximum legal outer swing

<sup>1)</sup> FO = Front Overhang<sup>2)</sup> RO = Rear Overhang

## Axle Configuration

Version 02

| Information Doc. |         | 1.3.              | 1.3.1.           |      | 1.3.2.        |      | 1.3.3.        |      |               | 5.4.                               |      | 5.5.                            |      |
|------------------|---------|-------------------|------------------|------|---------------|------|---------------|------|---------------|------------------------------------|------|---------------------------------|------|
| Type             | Variant | Axles /<br>Wheels | Double<br>Wheels |      | Steered Axles |      | Powered Axles |      |               | Retractable<br>Axles <sup>2)</sup> |      | Loadable<br>Axles <sup>2)</sup> |      |
| #1-5             | #6-10   | #                 | #                | Axle | #             | Axle | #             | Axle | <sup>1)</sup> | #                                  | Axle | #                               | Axle |
| ??E??            | ?E???   | 2 / 6             | 1                | 2    | 1             | 1    | 1             | 2    | D             | --                                 | --   | --                              | --   |
| ??G??            | ?P???   | 3 / 8             | 1                | 3    | 1             | 1    | 1             | 3    | D             | 1                                  | 2    | 1                               | 3    |
| ??G??            | ?G???   | 3 / 8             | 1                | 3    | 2             | 1+2  | 1             | 3    | D             | 1                                  | 2    | 1                               | 3    |
| ??S??            | ?S???   | 3 / 10            | 2                | 2+3  | 1             | 1    | 1             | 2    | D             | 1                                  | 3    | 1                               | 2    |
| ??S??            | ?R???   | 3 / 8             | 1                | 2    | 1             | 1    | 1             | 2    | D             | 1                                  | 3    | 1                               | 2    |
| ??S??            | ?N???   | 3 / 8             | 1                | 2    | 2             | 1+3  | 1             | 2    | D             | 1                                  | 3    | 1                               | 2    |
| ??T??            | ?T???   | 3 / 10            | 2                | 2+3  | 1             | 1    | 2             | 2+3  | D             | --                                 | --   | --                              | --   |

<sup>1)</sup> Interconnection / D = Drive-shaft<sup>2)</sup> All possible Retractable and Loadable axles are optional

## List of Axles

Version 03

| Information Document |      |           | 5.1.                  |                                |       |      |                |                      |   |       |      |         |           |           |        |        |      |
|----------------------|------|-----------|-----------------------|--------------------------------|-------|------|----------------|----------------------|---|-------|------|---------|-----------|-----------|--------|--------|------|
|                      | 5.2. | 5.3.      |                       | 2.3.1./2.3.2.                  |       |      |                |                      |   |       |      |         |           |           |        |        |      |
|                      | Make | Axle type | Load                  | Track                          | Susp. |      | Specification  | Brake                |   | Pos.  |      | Steer   |           | Driven    |        | Tyre   |      |
| Index                |      |           | Max.<br>Tech.<br>[kg] | Min-Max<br>tyre-depend<br>[mm] | Air   | Leaf |                | ● = Disc<br>◎ = Drum |   | Front | Rear | Steered | Non-steer | Non-drive | Driven | Single | Twin |
| F6                   | DAF  | 161 N     | 8000                  | 2095-2145                      | A     |      | Offset 146 mm  | ●                    |   | F     |      | S       |           | N         |        | S      |      |
| F7                   | DAF  | 163 N     | 8000                  | 2095-2145                      |       | L    | Offset 100 mm  | ●                    |   | F     |      | S       |           | N         |        | S      |      |
| F8                   | DAF  | 165 N     | 8000                  | 2095-2145                      |       | L    | Offset 70 mm   | ●                    |   | F     |      | S       |           | N         |        | S      |      |
| F9                   | DAF  | 167 N     | 8000                  | 2095-2145                      |       | L    | Offset 20 mm   | ●                    |   | F     |      | S       |           | N         |        | S      |      |
| F10                  | DAF  | 183 N     | 9000                  | 2095-2145                      |       | L    | Offset 112 mm  | ●                    |   | F     |      | S       |           | N         |        | S      |      |
| F11                  | DAF  | 187 N     | 9000                  | 2095-2145                      |       | L    | Offset 32 mm   | ●                    |   | F     |      | S       |           | N         |        | S      |      |
| P1                   | DAF  | 150N      | 8000                  | 2028-2083                      | A     |      | Pusher-axle    | ●                    |   |       | R    | S       |           | N         |        | S      |      |
| P2                   | DAF  | 09 N044   | 4400                  | 1955                           | A     |      | Pusher-axle    | ●                    | ◎ |       | R    |         | N         | N         |        | S      |      |
| T1                   | DAF  | 09 G075   | 7500                  | 2029-2057                      | A     |      | Trailing axle  | ●                    |   |       | R    | S       |           | N         |        | S      |      |
| T2                   | DAF  | 09 N075   | 7500                  | 1969-2021                      | A     |      | Trailing axle  | ●                    |   |       | R    |         | N         | N         |        | S      |      |
| T3                   | DAF  | 09 N220   | 10000                 | 1820-1840                      | A     |      | Trailing axle  | ●                    |   |       | R    |         | N         | N         |        |        | T    |
| T5                   | DAF  | 200U      | 10000                 | 1820-1840                      | A     |      | Trailing axle  | ●                    |   |       | R    |         | N         | N         |        |        | T    |
| R3                   | DAF  | SR 1347   | 13000                 | 1820-1840                      | A     | L    | SR–Single red. | ●                    |   |       | R    |         | N         |           | D      |        | T    |
| R4                   | DAF  | SR 1344   | 13000                 | 1820-1840                      | A     | L    | SR–Single red. | ●                    |   |       | R    |         | N         |           | D      |        | T    |
| R5                   | DAF  | HR 1356   | 13000                 | 1820-1840                      | A     | L    | HR–Hub-red.    |                      | ◎ |       | R    |         | N         |           | D      |        | T    |
| R6                   | DAF  | SR 1132T  | 19000                 | 1820-1840                      | A     | L    | Tandem–SR      |                      | ◎ |       | R    |         | N         |           | D      |        | T    |
| R7                   | DAF  | HR 1355T  | 26000                 | 1820-1840                      | A     | L    | Tandem–HR      |                      | ◎ |       | R    |         | N         |           | D      |        | T    |
| R8                   | DAF  | SR 1360T  | 26000                 | 1820-1840                      | A     |      | Tandem–SR      | ●                    |   |       | R    |         | N         |           | D      |        | T    |
| R11                  | DAF  | SR 1132TS | 19000                 | 1820-1840                      | A     | L    | Tandem–SR      | ●                    |   |       | R    |         | N         |           | D      |        | T    |
| R12                  | DAF  | HR 1670T  | 26000                 | 1820-1840                      | A     | L    | Tandem–SR      |                      | ◎ |       | R    |         | N         |           | D      |        | T    |

## Wheels + Tyres

Version 04

| Information Document |                         | 6.6.2.                   |           |           | 6.6.1.                                   |       |       |       |     |     |     |     |     |                                         |     |     |     |     |     |     | 6.6.1. |       |        |     |                |        |             |        |     |     |      |        |
|----------------------|-------------------------|--------------------------|-----------|-----------|------------------------------------------|-------|-------|-------|-----|-----|-----|-----|-----|-----------------------------------------|-----|-----|-----|-----|-----|-----|--------|-------|--------|-----|----------------|--------|-------------|--------|-----|-----|------|--------|
| TYRES                |                         |                          |           |           | Min. LI / Max. Axle Load [kg] – SINGLE ● |       |       |       |     |     |     |     |     | Min. LI / Max. Axle Load [kg] – TWIN ●● |     |     |     |     |     |     | WHEELS |       |        |     |                |        |             |        |     |     |      |        |
| Index                | Tyre-size               | R <sub>dyn</sub><br>[mm] | R<br>[mm] | R<br>[mm] | 143                                      | 148   | 150   | 152   | 153 | 154 | 156 | 158 | 160 | 162                                     | 142 | 145 | 146 | 147 | 148 | 149 | 150    | 153   | 156    | 160 | Wheel-size ["] |        | Offset [mm] |        |     |     |      |        |
|                      |                         | Dyn.<br>Roll             | Unload    | Loaded    |                                          |       |       |       |     |     |     |     |     |                                         |     |     |     |     |     |     |        |       |        |     |                |        | Steel       | Alum.  |     |     |      |        |
|                      |                         | Std                      |           |           | Inner                                    | Outer | Inner | Outer |     |     |     |     |     |                                         |     |     |     |     |     |     |        |       |        |     |                |        |             |        |     |     |      |        |
| P1                   | 235/75R <sup>17,5</sup> | 387                      | 399       | 372       | ▶                                        |       |       |       |     |     |     |     |     |                                         | N/A |     |     |     |     |     |        | 6.75  | x 17,5 | 0   | ---            | ---    | ---         |        |     |     |      |        |
| F1                   | 375/45R <sup>22,5</sup> | 439                      | 455       | 428       |                                          |       |       |       |     | ▶   |     |     |     |                                         | N/A |     |     |     |     |     |        | 11.75 | x 22,5 | 135 | ---            | 135    | ---         |        |     |     |      |        |
| F2                   | 355/50R <sup>22,5</sup> | 448                      | 464       | 435       |                                          |       |       |       |     | ▶   |     |     |     |                                         |     |     |     |     |     |     |        | 11.75 | x 22,5 | 135 | ---            | 135    | ---         |        |     |     |      |        |
| F3                   | 375/50R <sup>22,5</sup> | 457                      | 474       | 444       |                                          |       |       |       |     | ▶   |     |     |     |                                         |     |     |     |     |     |     |        | 11.75 | x 22,5 | 135 | ---            | 135    | ---         |        |     |     |      |        |
| F4                   | 385/55R <sup>22,5</sup> | 481                      | 498       | 464       |                                          |       |       |       |     | ▶   |     |     |     |                                         |     |     |     |     |     |     |        | 11.75 | x 22,5 | 135 | ---            | 135    | ---         |        |     |     |      |        |
| F5                   | 385/65R <sup>22,5</sup> | 517                      | 536       | 492       |                                          |       |       |       |     | ▶   |     |     |     |                                         |     |     |     |     |     |     |        | 11.75 | x 22,5 | 135 | ---            | 135    | ---         |        |     |     |      |        |
| A1                   | 315/45R <sup>22,5</sup> | 413                      | 428       | 405       | N/A                                      |       |       |       |     |     |     |     |     |                                         | ▶   |     |     |     |     |     |        |       |        |     | 9.75           | x 22,5 | 163         | 175    | --- | --- |      |        |
| A2                   | 295/55R <sup>22,5</sup> | 432                      | 448       | 420       |                                          |       |       |       |     |     |     |     |     |                                         | ▶   |     |     |     |     |     |        |       |        |     |                |        |             |        |     |     | 9.00 | x 22,5 |
| A3                   | 295/60R <sup>22,5</sup> | 447                      | 463       | 435       |                                          |       | ▶     |       |     |     |     |     |     |                                         |     |     |     | ▶   |     |     |        |       |        |     | 9.00           | x 22,5 | 162         | 175    | 153 | 175 |      |        |
| A4                   | 315/60R <sup>22,5</sup> | 459                      | 475       | 442       |                                          |       |       |       | ▶   |     |     |     |     |                                         |     |     |     |     | ▶   |     |        |       |        |     |                | 9.00   | x 22,5      | 162    | 175 | 153 | 175  |        |
| A5                   | 275/70R <sup>22,5</sup> | 465                      | 479       | 445       |                                          | ▶     |       |       |     |     |     |     |     |                                         |     |     | ▶   |     |     |     |        |       |        |     |                | 8.25   | x 22,5      | 157    | 170 | 145 | 167  |        |
| A6                   | 305/70R <sup>22,5</sup> | 486                      | 500       | 463       |                                          |       |       |       | ▶   |     |     |     |     |                                         |     |     |     |     |     | ▶   |        |       |        |     |                |        | 8.25        | x 22,5 | 157 | 170 | 145  | 167    |
| A7                   | 315/70R <sup>22,5</sup> | 492                      | 507       | 468       |                                          |       |       |       |     |     | ▶   |     |     |                                         |     |     |     |     |     |     | ▶      |       |        |     |                |        | 9.00        | x 22,5 | 162 | 175 | 153  | 175    |
| A8                   | 295/80R <sup>22,5</sup> | 507                      | 522       | 487       |                                          |       |       |       | ▶   |     |     |     |     |                                         |     |     |     |     |     |     | ▶      |       |        |     |                |        | 8.25        | x 22,5 | 157 | 170 | 145  | 167    |
| A9                   | 11R <sup>22,5</sup>     | 510                      | 525       | 489       |                                          | ▶     |       |       |     |     |     |     |     |                                         |     |     | ▶   |     |     |     |        |       |        |     |                |        | 8.25        | x 22,5 | 157 | 170 | 145  | 167    |
| A10                  | 315/80R <sup>22,5</sup> | 522                      | 538       | 500       |                                          |       |       |       |     |     | ▶   |     |     |                                         |     |     |     |     |     |     |        | ▶     |        |     |                |        | 9.00        | x 22,5 | 162 | 175 | 153  | 175    |
| A11                  | 12R <sup>22,5</sup>     | 526                      | 542       | 504       |                                          |       |       |       | ▶   |     |     |     |     |                                         |     |     |     |     |     |     | ▶      |       |        |     |                |        | 8.25        | x 22,5 | 157 | 170 | 145  | 167    |
| A12                  | 13R <sup>22,5</sup>     | 546                      | 562       | 521       |                                          |       |       |       |     |     | ▶   |     |     |                                         |     |     |     |     |     |     |        | ▶     |        |     |                |        | 9.00        | x 22,5 | 162 | 175 | 153  | 175    |

## Overview Masses

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| Information Document         |        |     |                                 |           |      |      |   |                |      |      |   |         |     |     |   |               |      | 2.6.  |             |      | 2.6.  |            |      |      |
|------------------------------|--------|-----|---------------------------------|-----------|------|------|---|----------------|------|------|---|---------|-----|-----|---|---------------|------|-------|-------------|------|-------|------------|------|------|
| *) MRO=Mass in Running Order |        |     |                                 |           |      |      |   |                |      |      |   |         |     |     |   |               |      |       |             |      |       |            |      |      |
| TVV-Key                      |        |     | Rear<br>Ratio                   | Axle Type |      |      |   | Max. Axle Load |      |      |   | Min. LI |     |     |   | Min.GVW/MRO*) |      |       | Max. MRO *) |      |       | Max.Group  |      | Max. |
| Type                         | Var    | Ver |                                 | 1         | 2    | 3    | 4 | 1              | 2    | 3    | 4 | 1       | 2   | 3   | 4 | Front         | Rear | Total | Front       | Rear | Total | Front      | Rear | GVW  |
| # 1-5                        | # 6-10 | #32 |                                 |           |      |      |   | x1000 [kg]     |      |      |   |         |     |     |   | x1000 [kg]    |      |       | x1000 [kg]  |      |       | x1000 [kg] |      |      |
| ?4E??                        | ?E205  | 1/3 | --                              | 18?N      | 13?? |      |   | 9,0            | 13,0 |      |   | 160     | 149 |     |   | 4,0           | 1,7  | 6,1   | 7,0         | 4,0  | 11,0  | 9,0        | 13,0 | 20,5 |
| ?4E??                        | ?E205  | 1/3 | --                              | 16?N      | 13?? |      |   | 8,0            | 13,0 |      |   | 156     | 149 |     |   | 4,0           | 1,7  | 6,1   | 7,0         | 4,0  | 11,0  | 8,0        | 13,0 | 20,5 |
| ?4E??                        | ?E205  | 1/3 | --                              | 16?N      | 13?? |      |   | 7,5            | 13,0 |      |   | 154     | 149 |     |   | 4,0           | 1,7  | 6,1   | 7,0         | 4,0  | 11,0  | 7,5        | 13,0 | 20,5 |
| ?4E??                        | ?E195  | 1/3 | --                              | 18?N      | 13?? |      |   | 9,0            | 13,0 |      |   | 160     | 149 |     |   | 4,0           | 1,7  | 6,1   | 7,0         | 4,0  | 11,0  | 9,0        | 13,0 | 19,5 |
| ?4E??                        | ?E195  | 1/3 | --                              | 16?N      | 13?? |      |   | 8,0            | 13,0 |      |   | 156     | 149 |     |   | 4,0           | 1,7  | 6,1   | 7,0         | 4,0  | 11,0  | 8,0        | 13,0 | 19,5 |
| ?4E??                        | ?E195  | 1/3 | --                              | 16?N      | 13?? |      |   | 7,5            | 13,0 |      |   | 154     | 149 |     |   | 4,0           | 1,7  | 6,1   | 7,0         | 4,0  | 11,0  | 7,5        | 13,0 | 19,5 |
| ?4E??                        | ?E195  | 1/3 | --                              | 16?N      | 134? |      |   | 8,0            | 11,5 |      |   | 156     | 145 |     |   | 4,0           | 1,7  | 6,1   | 7,0         | 4,0  | 11,0  | 8,0        | 11,5 | 19,5 |
| ?3E??                        | ?E190  | 7   | --                              | 152N      | 1344 |      |   | 7,5            | 13,0 |      |   | 154     | 149 |     |   | 4,0           | 1,7  | 6,1   | 7,0         | 4,0  | 11,0  | 7,5        | 13,0 | 19,0 |
| ?3E??                        | ?E190  | 7   | --                              | 152N      | 1132 |      |   | 7,5            | 11,5 |      |   | 154     | 145 |     |   | 4,0           | 1,7  | 6,1   | 7,0         | 4,0  | 11,0  | 7,5        | 11,5 | 19,0 |
| ?4G??                        | ?P249  | 1/3 | 4 <sup>4</sup> /11 <sup>5</sup> | 18?N      | N044 | 134? |   | 9,0            | 4,4  | 11,5 |   | 160     | 136 | 145 |   | 4,0           | 2,8  | 7,6   | 7,0         | 5,0  | 12,0  | 9,0        | 15,9 | 24,9 |
| ?4G??                        | ?P239  | 1/3 | 4 <sup>4</sup> /11 <sup>5</sup> | 16?N      | N044 | 134? |   | 8,0            | 4,4  | 11,5 |   | 156     | 136 | 145 |   | 4,0           | 2,8  | 7,6   | 7,0         | 5,0  | 12,0  | 8,0        | 15,9 | 23,9 |
| ?4G??                        | ?P234  | 1/3 | 4 <sup>4</sup> /11 <sup>5</sup> | 16?N      | N044 | 134? |   | 7,5            | 4,4  | 11,5 |   | 154     | 136 | 145 |   | 4,0           | 2,8  | 7,6   | 7,0         | 5,0  | 12,0  | 7,5        | 15,9 | 23,4 |
| ?4G??                        | ?G280  | 1/3 | 11 <sup>5</sup> /7 <sup>1</sup> | 18?N      | 150N | 13?? |   | 9,0            | 7,5  | 12,1 |   | 160     | 154 | 147 |   | 4,0           | 2,8  | 7,6   | 7,0         | 5,0  | 12,0  | 9,0        | 19,6 | 28,0 |
| ?4G??                        | ?G280  | 1/3 | 11 <sup>5</sup> /7 <sup>5</sup> | 18?N      | 150N | 13?? |   | 9,0            | 7,5  | 11,5 |   | 160     | 154 | 145 |   | 4,0           | 2,8  | 7,6   | 7,0         | 5,0  | 12,0  | 9,0        | 19,0 | 28,0 |
| ?4G??                        | ?G276  | 1/3 | 11 <sup>5</sup> /7 <sup>1</sup> | 18?N      | 150N | 13?? |   | 9,0            | 7,1  | 11,5 |   | 160     | 152 | 145 |   | 4,0           | 2,8  | 7,6   | 7,0         | 5,0  | 12,0  | 9,0        | 18,6 | 27,6 |
| ?4G??                        | ?G270  | 1/3 | 11 <sup>5</sup> /7 <sup>1</sup> | 16?N      | 150N | 13?? |   | 8,0            | 7,5  | 12,1 |   | 156     | 154 | 147 |   | 4,0           | 2,8  | 7,6   | 7,0         | 5,0  | 12,0  | 8,0        | 19,6 | 27,0 |
| ?4G??                        | ?G270  | 1/3 | 11 <sup>5</sup> /7 <sup>5</sup> | 16?N      | 150N | 13?? |   | 8,0            | 7,5  | 11,5 |   | 156     | 154 | 145 |   | 4,0           | 2,8  | 7,6   | 7,0         | 5,0  | 12,0  | 8,0        | 19,0 | 27,0 |
| ?4G??                        | ?G266  | 1/3 | 11 <sup>5</sup> /7 <sup>1</sup> | 16?N      | 150N | 13?? |   | 8,0            | 7,1  | 11,5 |   | 156     | 152 | 145 |   | 4,0           | 2,8  | 7,6   | 7,0         | 5,0  | 12,0  | 8,0        | 18,6 | 26,6 |
| ?4G??                        | ?G265  | 1/3 | 11 <sup>5</sup> /7 <sup>5</sup> | 16?N      | 150N | 13?? |   | 7,5            | 7,5  | 11,5 |   | 154     | 154 | 145 |   | 4,0           | 2,8  | 7,6   | 7,0         | 5,0  | 12,0  | 7,5        | 19,0 | 26,5 |
| ?4G??                        | ?G261  | 1/3 | 11 <sup>5</sup> /7 <sup>1</sup> | 16?N      | 150N | 13?? |   | 7,5            | 7,1  | 11,5 |   | 154     | 152 | 145 |   | 4,0           | 2,8  | 7,6   | 7,0         | 5,0  | 12,0  | 7,5        | 18,6 | 26,1 |

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|------------------------------|--------|-----|---------------------------------|-----------|----------------|-------------|----------------|------|------|------|---------|-----|-----|--------|---------------|------|--------|-------------|--------|--------|------------|--------|--------|-------|-------|--|
| *) MRO=Mass in Running Order |        |     |                                 |           |                |             |                |      |      | 2.9. |         |     |     |        |               |      |        | 2.5.        |        | 2.7.   |            |        |        | 2.10. | 2.10. |  |
| TVV-Key                      |        |     |                                 | Axle Type |                |             | Max. Axle Load |      |      |      | Min. LI |     |     |        | Min.GVW/MRO*) |      |        | Max. MRO *) |        |        | Max.Group  |        | Max.   |       |       |  |
| Type                         | Var    | Ver | Rear                            | 1         | 2              | 3 *)        | 1              | 2    | 3    | 4    | 1       | 2   | 3   | 4      | Front         | Rear | Total  | Front       | Rear   | Total  | Front      | Rear   | GVW    |       |       |  |
| # 1-5                        | # 6-10 | #32 | Ratio                           |           |                |             | x1000 [kg]     |      |      |      |         |     |     |        | x1000 [kg]    |      |        | x1000 [kg]  |        |        | x1000 [kg] |        |        |       |       |  |
| ?4S??                        | ?S280  | 1/3 | 10/10                           | 18?N      | 13??           | N220 / 200U | 9,0            | 10,5 | 10,5 |      | 160     | 142 | 142 |        | 4,0           | 3,2  | 8,2    | 7,0         | 6,0    | 13,0   | 9,0        | 21,0   | 28,0   |       |       |  |
| ?4S??                        | ?S280  | 1/3 | 11 <sup>5</sup> /7 <sup>5</sup> | 18?N      | 13??           | N220 / 200U | 9,0            | 12,0 | 7,8  |      | 160     | 146 | 131 |        | 4,0           | 3,2  | 8,2    | 7,0         | 6,0    | 13,0   | 9,0        | 19,8   | 28,0   |       |       |  |
| ?4S??                        | ?S270  | 1/3 | 10/10                           | 16?N      | 13??           | N220 / 200U | 8,0            | 10,5 | 10,5 |      | 156     | 142 | 142 |        | 4,0           | 3,2  | 8,2    | 7,0         | 6,0    | 13,0   | 8,0        | 21,0   | 27,0   |       |       |  |
| ?4S??                        | ?S270  | 1/3 | 11 <sup>5</sup> /7 <sup>5</sup> | 16?N      | 13??           | N220 / 200U | 8,0            | 12,0 | 7,8  |      | 156     | 146 | 131 |        | 4,0           | 3,2  | 8,2    | 7,0         | 6,0    | 13,0   | 8,0        | 19,8   | 27,0   |       |       |  |
| ?4S??                        | ?S270  | 1/3 | 11 <sup>5</sup> /7 <sup>5</sup> | 16?N      | 13??           | N220 / 200U | 8,0            | 11,5 | 7,5  |      | 156     | 145 | 130 |        | 4,0           | 3,2  | 8,2    | 7,0         | 6,0    | 13,0   | 8,0        | 19,0   | 27,0   |       |       |  |
| ?4S??                        | AS280  | 7   | 10/10                           | 18?N      | 134?           | N220 / 200U | 9,0            | 10,5 | 10,5 |      | 160     | 142 | 142 |        | 4,0           | 3,2  | 7,5    | 7,0         | 6,0    | 13,0   | 9,0        | 21,0   | 28,0   |       |       |  |
| ?4S??                        | AS280  | 7   | 11 <sup>5</sup> /7 <sup>5</sup> | 18?N      | 134?           | N220 / 200U | 9,0            | 12,0 | 7,8  |      | 160     | 146 | 131 |        | 4,0           | 3,2  | 7,5    | 7,0         | 6,0    | 13,0   | 9,0        | 19,8   | 28,0   |       |       |  |
| ?4S??                        | AS270  | 7   | 10/10                           | 16?N      | 134?           | N220 / 200U | 8,0            | 10,5 | 10,5 |      | 156     | 142 | 142 |        | 4,0           | 3,2  | 7,5    | 7,0         | 6,0    | 13,0   | 8,0        | 21,0   | 27,0   |       |       |  |
| ?4S??                        | AS270  | 7   | 11 <sup>5</sup> /7 <sup>5</sup> | 16?N      | 134?           | N220 / 200U | 8,0            | 12,0 | 7,8  |      | 156     | 146 | 131 |        | 4,0           | 3,2  | 7,5    | 7,0         | 6,0    | 13,0   | 8,0        | 19,8   | 27,0   |       |       |  |
| ?4S??                        | AS270  | 7   | 11 <sup>5</sup> /7 <sup>5</sup> | 16?N      | 134?           | N220 / 200U | 8,0            | 11,5 | 7,5  |      | 156     | 145 | 130 |        | 4,0           | 3,2  | 7,5    | 7,0         | 6,0    | 13,0   | 8,0        | 19,0   | 27,0   |       |       |  |
| ?4T??                        | ?T330  | 1/3 | 26T                             | 18?N      | 13??T / 1670T  |             | 9,0            | 13,0 | 13,0 |      | 160     | 149 | 149 |        | 4,0           | 3,6  | 8,6    | 7,0         | 6,0    | 13,0   | 9,0        | 26,0   | 33,0   |       |       |  |
| ?4T??                        | ?T330  | 1/3 | 26T                             | 16?N      | 13??T / 1670T  |             | 8,0            | 13,0 | 13,0 |      | 156     | 149 | 149 |        | 4,0           | 3,6  | 8,6    | 7,0         | 6,0    | 13,0   | 8,0        | 26,0   | 33,0   |       |       |  |
| ?4T??                        | ?T280  | 1/3 | 21T                             | 18?N      | 13??T / 1670T  |             | 9,0            | 10,5 | 10,5 |      | 160     | 142 | 142 |        | 4,0           | 3,6  | 8,6    | 7,0         | 6,0    | 13,0   | 9,0        | 21,0   | 28,0   |       |       |  |
| ?4T??                        | ?T270  | 1/3 | 21T                             | 16?N      | 13??T / 1670T  |             | 8,0            | 10,5 | 10,5 |      | 156     | 142 | 142 |        | 4,0           | 3,6  | 8,6    | 7,0         | 6,0    | 13,0   | 8,0        | 21,0   | 27,0   |       |       |  |
| ?4T??                        | ?T260  | 1/3 | 21T                             | 16?N      | 13??T / 1670T  |             | 7,5            | 10,5 | 10,5 |      | 154     | 142 | 142 |        | 4,0           | 3,6  | 8,6    | 7,0         | 6,0    | 13,0   | 7,5        | 21,0   | 26,0   |       |       |  |
| ?4T??                        | ?T260  | 1/3 | 19T                             | 16?N      | 1132T / 1132TS |             | 8,0            | 9,5  | 9,5  |      | 156     | 139 | 139 |        | 4,0           | 3,6  | 8,6    | 7,0         | 6,0    | 13,0   | 8,0        | 19,0   | 26,0   |       |       |  |

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|------------------------------|--------|-----|---------------------------------|-----------|------|------|---|----------------|------|-----|---|---------|-----|-----|---|---------------|------|-------|-------------|------|-------|------------|------|------|
| *) MRO=Mass in Running Order |        |     |                                 |           |      |      |   |                |      |     |   |         |     |     |   |               |      |       |             |      |       |            |      |      |
| TVV-Key                      |        |     |                                 | Axle Type |      |      |   | Max. Axle Load |      |     |   | Min. LI |     |     |   | Min.GVW/MRO*) |      |       | Max. MRO *) |      |       | Max.Group  |      | Max. |
| Type                         | Var    | Ver | Rear                            | 1         | 2    | 3    | 4 | 1              | 2    | 3   | 4 | 1       | 2   | 3   | 4 | Front         | Rear | Total | Front       | Rear | Total | Front      | Rear | GVW  |
| # 1-5                        | # 6-10 | #32 | Ratio                           |           |      |      |   | x1000 [kg]     |      |     |   |         |     |     |   | x1000 [kg]    |      |       | x1000 [kg]  |      |       | x1000 [kg] |      |      |
| ?4S??                        | ?N280  | 1/3 | 11 <sup>5</sup> /7 <sup>1</sup> | 18?N      | 13?? | G075 |   | 9,0            | 12,0 | 7,4 |   | 160     | 146 | 154 |   | 4,0           | 3,2  | 8,2   | 7,0         | 6,0  | 13,0  | 9,0        | 19,4 | 28,0 |
| ?4S??                        | ?N280  | 1/3 | 11 <sup>5</sup> /7 <sup>5</sup> | 18?N      | 13?? | G075 |   | 9,0            | 11,5 | 7,5 |   | 160     | 145 | 154 |   | 4,0           | 3,2  | 8,2   | 7,0         | 6,0  | 13,0  | 9,0        | 19,0 | 28,0 |
| ?4S??                        | ?N270  | 1/3 | 11 <sup>5</sup> /7 <sup>1</sup> | 16?N      | 13?? | G075 |   | 8,0            | 12,0 | 7,4 |   | 156     | 146 | 154 |   | 4,0           | 3,2  | 8,2   | 7,0         | 6,0  | 13,0  | 8,0        | 19,4 | 27,0 |
| ?4S??                        | ?N270  | 1/3 | 11 <sup>5</sup> /7 <sup>5</sup> | 16?N      | 13?? | G075 |   | 8,0            | 11,5 | 7,5 |   | 156     | 145 | 154 |   | 4,0           | 3,2  | 8,2   | 7,0         | 6,0  | 13,0  | 8,0        | 19,0 | 27,0 |
| ?4S??                        | AN280  | 7   | 11 <sup>5</sup> /7 <sup>1</sup> | 18?N      | 134? | G075 |   | 9,0            | 12,0 | 7,4 |   | 160     | 146 | 154 |   | 4,0           | 3,2  | 7,5   | 7,0         | 6,0  | 13,0  | 9,0        | 19,4 | 28,0 |
| ?4S??                        | AN280  | 7   | 11 <sup>5</sup> /7 <sup>5</sup> | 18?N      | 134? | G075 |   | 9,0            | 11,5 | 7,5 |   | 160     | 145 | 154 |   | 4,0           | 3,2  | 7,5   | 7,0         | 6,0  | 13,0  | 9,0        | 19,0 | 28,0 |
| ?4S??                        | AN270  | 7   | 11 <sup>5</sup> /7 <sup>1</sup> | 16?N      | 134? | G075 |   | 8,0            | 12,0 | 7,4 |   | 156     | 146 | 154 |   | 4,0           | 3,2  | 7,5   | 7,0         | 6,0  | 13,0  | 8,0        | 19,4 | 27,0 |
| ?4S??                        | AN270  | 7   | 11 <sup>5</sup> /7 <sup>5</sup> | 16?N      | 134? | G075 |   | 8,0            | 11,5 | 7,5 |   | 156     | 145 | 154 |   | 4,0           | 3,2  | 7,5   | 7,0         | 6,0  | 13,0  | 8,0        | 19,0 | 27,0 |
| ?4S??                        | ?R280  | 1/3 | 11 <sup>5</sup> /7 <sup>1</sup> | 18?N      | 13?? | N075 |   | 9,0            | 12,0 | 7,4 |   | 160     | 146 | 154 |   | 4,0           | 3,2  | 8,2   | 7,0         | 6,0  | 13,0  | 9,0        | 19,4 | 28,0 |
| ?4S??                        | ?R280  | 1/3 | 11 <sup>5</sup> /7 <sup>5</sup> | 18?N      | 13?? | N075 |   | 9,0            | 11,5 | 7,5 |   | 160     | 145 | 154 |   | 4,0           | 3,2  | 8,2   | 7,0         | 6,0  | 13,0  | 9,0        | 19,0 | 28,0 |
| ?4S??                        | ?R272  | 1/3 | 11 <sup>5</sup> /6 <sup>7</sup> | 18?N      | 13?? | N075 |   | 9,0            | 11,5 | 6,7 |   | 160     | 145 | 150 |   | 4,0           | 3,2  | 8,2   | 7,0         | 6,0  | 13,0  | 9,0        | 18,2 | 27,2 |
| ?4S??                        | ?R270  | 1/3 | 11 <sup>5</sup> /7 <sup>1</sup> | 16?N      | 13?? | N075 |   | 8,0            | 12,0 | 7,4 |   | 156     | 146 | 154 |   | 4,0           | 3,2  | 8,2   | 7,0         | 6,0  | 13,0  | 8,0        | 19,4 | 27,0 |
| ?4S??                        | ?R270  | 1/3 | 11 <sup>5</sup> /7 <sup>5</sup> | 16?N      | 13?? | N075 |   | 8,0            | 11,5 | 7,5 |   | 156     | 145 | 154 |   | 4,0           | 3,2  | 8,2   | 7,0         | 6,0  | 13,0  | 8,0        | 19,0 | 27,0 |
| ?4S??                        | ?R262  | 1/3 | 11 <sup>5</sup> /6 <sup>7</sup> | 16?N      | 13?? | N075 |   | 8,0            | 11,5 | 6,7 |   | 156     | 145 | 150 |   | 4,0           | 3,2  | 8,2   | 7,0         | 6,0  | 13,0  | 8,0        | 18,2 | 26,2 |
| ?4S??                        | ?R258  | 1/3 | 11 <sup>5</sup> /6 <sup>3</sup> | 16?N      | 13?? | N075 |   | 8,0            | 11,5 | 6,3 |   | 156     | 145 | 148 |   | 4,0           | 3,2  | 8,2   | 7,0         | 6,0  | 13,0  | 8,0        | 17,8 | 25,8 |
| ?4S??                        | AR280  | 7   | 11 <sup>5</sup> /7 <sup>1</sup> | 18?N      | 134? | N075 |   | 9,0            | 12,0 | 7,4 |   | 160     | 146 | 154 |   | 4,0           | 3,2  | 7,5   | 7,0         | 6,0  | 13,0  | 9,0        | 19,4 | 28,0 |
| ?4S??                        | AR280  | 7   | 11 <sup>5</sup> /7 <sup>5</sup> | 18?N      | 134? | N075 |   | 9,0            | 11,5 | 7,5 |   | 160     | 145 | 154 |   | 4,0           | 3,2  | 7,5   | 7,0         | 6,0  | 13,0  | 9,0        | 19,0 | 28,0 |
| ?4S??                        | AR272  | 7   | 11 <sup>5</sup> /6 <sup>7</sup> | 18?N      | 134? | N075 |   | 9,0            | 11,5 | 6,7 |   | 160     | 145 | 150 |   | 4,0           | 3,2  | 7,5   | 7,0         | 6,0  | 13,0  | 9,0        | 18,2 | 27,2 |
| ?4S??                        | AR270  | 7   | 11 <sup>5</sup> /7 <sup>1</sup> | 16?N      | 134? | N075 |   | 8,0            | 12,0 | 7,4 |   | 156     | 146 | 154 |   | 4,0           | 3,2  | 7,5   | 7,0         | 6,0  | 13,0  | 8,0        | 19,4 | 27,0 |
| ?4S??                        | AR270  | 7   | 11 <sup>5</sup> /7 <sup>5</sup> | 16?N      | 134? | N075 |   | 8,0            | 11,5 | 7,5 |   | 156     | 145 | 154 |   | 4,0           | 3,2  | 7,5   | 7,0         | 6,0  | 13,0  | 8,0        | 19,0 | 27,0 |
| ?4S??                        | AR262  | 7   | 11 <sup>5</sup> /6 <sup>7</sup> | 16?N      | 134? | N075 |   | 8,0            | 11,5 | 6,7 |   | 156     | 145 | 150 |   | 4,0           | 3,2  | 7,5   | 7,0         | 6,0  | 13,0  | 8,0        | 18,2 | 26,2 |