



**REPORT N° CV12120487**REFERENCE AXLE TEST ACCORDING TO ANNEX XI, Appendix III  
(Regulation N°.13.11/EC)

## EXTENSION I

Applicant : SAE Société Ardennaise d'Essieux  
Ham les Moines  
08090 Charleville-Mézières

Manufacturer : SAE Société Ardennaise d'Essieux  
Ham les Moines  
08090 Charleville-Mézières

Mark :SAE

Axle :ID1-S192

Brake : See Paragraph 1.1

Category :O3,O4

Place and date of issue :L'Albornar, Santa Oliva (Tarragona), 17/12/2012

CONCLUSIONS: The modifications made to this type of brake lining assembly, which are detailed in the Annex to this report, are subject to the extension of the type approval regarding the type previously approved by this technical center (Test report No. CV12070285) and FULFIL the uniform prescriptions related to braking devices of Annex XI, appendix II of the ECE Regulation 13.11 series of amendments.

Performed by



Olivier Andrieu  
TEST ENGINEER

Revised by:



Ignacio Lafuente Buil  
DEPARTMENT MANAGER

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\* THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE

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**ANNEX 11, APPENDIX 3**

**TEST REPORT AS PRESCRIBED IN PARAGRAPH 3.9. OF APPENDIX 2 TO THIS ANNEX**

TEST REPORT No.

Base part: ID4-CV12070285

Suffix:01

0. Reasons for extension : Test axle load update

1. GENERAL

1.1. Axle manufacturer (name and address) : SAE Société Ardennaise d'Essieux  
Ham les Moines  
08090 Charleville-Mézières

1.1.1. Make of axle manufacturer : SAE

1.2. Brake manufacturer (name and address) : See Paragraph 1.1

1.2.1. Brake identifier ID2- : ID2-3620S2

1.2.2. Automatic brake adjustment device : ~~integrated~~/non-integrated <sup>1)</sup>

1.3. Manufacturer's Information Document : See Technical Documentation

2. TEST RECORD

The following data has to be recorded for each test:

2.1. Test code : 20121030

2.2. Test specimen : ---  
Variant tested : ---

2.2.1. Axle

2.2.1.1. Axle identifier : ID1-S192

2.2.1.2. Identification of tested axle : GEKH2 12008 3620 Réf. 09715104  
Zg. / Draw. / Plan : 9715-104

2.2.1.3. Test axle load (Fe identifier) : ID3-13243 [daN]

2.2.2. Brake

2.2.2.1. Brake identifier : ID2-3620S2

2.2.2.2. Identification of tested brake : 3620 SH7 D127 Ref. 09285269

2.2.2.3. Maximum stroke capability of the brake <sup>2/</sup>: ---

2.2.2.4. Effective length of the cam shaft <sup>3/</sup> : 669 mm

2.2.2.5. Material variation as per paragraph 3.8 (m) of Appendix 2 of this annex: ---

2.2.2.6. Brake drum / ~~disc~~ <sup>1/</sup>

2.2.2.6.1. Actual test mass of ~~disc~~ / drum <sup>1/</sup>: 49 Kg

2.2.2.6.2. Nominal external diameter of disc <sup>2/</sup>: ---

2.2.2.6.3. Type of cooling of the disc ventilated/~~non-ventilated~~ <sup>1/</sup>: ---

2.2.2.6.4. ~~With or without~~ integrated hub <sup>1/</sup>: ---

2.2.2.6.5. Disc with integrated drum – with or without parking brake function <sup>1/ 2/</sup>: ---

2.2.2.6.6. Geometric relationship between disc friction surfaces and disc mounting:  
One piece, casted, connection on action side.

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- 2.2.2.6.7. Base material: Grey Cast Iron
- 2.2.2.7. Brake lining or pad <sup>1/</sup>
- 2.2.2.7.1. Manufacturer : BREMSKERL Reibbelagwerke
- 2.2.2.7.2. Make : ---
- 2.2.2.7.3. Type : SAE 142
- 2.2.2.7.4. Method of attachment of the lining / pad on the brake shoe /-back plate <sup>1/</sup>: Riveted
- 2.2.2.7.5. Thickness of back plate, weight of shoes or other describing information (Manufacturer's Information Document) <sup>1/</sup>: See Information Document
- 2.2.2.7.6. Base material of brake shoe / back-plate <sup>1/</sup>:Steel
- 2.2.2.7.7. Identification : On friction material
- 2.2.3. Automatic brake adjustment device (not applicable in the case of integrated automatic brake adjustment device) <sup>1/</sup>
- 2.2.3.1. Manufacturer (name and address): HALDEX Brake Products AB
- 2.2.3.2. Make : HALDEX
- 2.2.3.3. Type : S-ABA
- 2.2.3.4. Version : ---

2.2.4. Wheel(s) (dimensions see Figures 1A and 1B)

2.2.4.1. Reference tyre rolling radius ( $R_e$ ) at test axle load ( $F_e$ ):  $R_e = 447$  mm;  $F_e = 13500$  Kg.

2.2.4.2. Data of the fitted wheel during testing:

| Tyre size   | Rim size    | Xe (mm)  | De (mm)  | Ee (mm) | Ge (mm)  |
|-------------|-------------|----------|----------|---------|----------|
| 305/70R19,5 | 9,00 x 19,5 | min. 282 | min. 248 | min. 16 | min. -30 |

2.2.5. Lever length  $l_e$  : 180 mm

2.2.6. Brake actuator

- 2.2.6.1. Manufacturer : WABCO
- 2.2.6.2. Make : WABCO 423 107 900
- 2.2.6.3. Type : 30" (1944p – 389)
- 2.2.6.4. (Test) Identification number: 423 107 900

2.3. Test results (corrected to take account of rolling resistance of  $0.01 \cdot F_e$ )

2.3.1. In the case of vehicles of categories O2 and O3 where the O3 trailer has been subject to the Type I test:

| Test type:                             |      | 0        | I           |          |
|--|------|----------|-------------|----------|
| Annex 11, Appendix 2, paragraph:       |      | 3.5.1.2. | 3.5.2.2./3. | 3.5.2.4. |
| Test speed                             | km/h | 40       | 40          | 40       |
| Brake actuator pressure $p_e$          | kPa  | 650      | -           | 650      |
| Braking time                           | min  | -        | 2.55        | -        |
| Brake force developed $T_e$            | daN  | 6711     | -           | 6372     |
| Brake efficiency $T_e/F_e$             | -    | 0,51     | -           | 0,48     |
| Actuator stroke $S_e$                  | mm   | 58.2     | -           | 61.7     |
| Brake input torque $C_e$               | Nm   | 2211     | -           | 2165     |
| Brake input threshold torque $C_{0,e}$ | Nm   | 30       | -           | 30       |

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2.3.2. In the case of vehicles of category O3 and O4 where the O3 trailer has been subject to the Type III test:

| Test type:                                | 0        | III      |          |
|---|----------|----------|----------|
| Annex 11, Appendix 2, paragraph:          | 3.5.1.2. | 3.5.3.1. | 3.5.3.2. |
| Test speed initial km/h                   | 60       |          | 60       |
| Test speed final km/h                     | 0        |          | 0        |
| Brake actuator pressure $p_e$ kPa         | 650      | -        | 650      |
| Number of brake applications              | -        | 20       | -        |
| Duration of braking cycle s               | -        | 60       | -        |
| Brake force developed $T_e$ daN           | 6635     |          | 5378     |
| Brake efficiency $T_e/F_e$                | 0,50     |          | 0,41     |
| Actuator stroke $s_e$ mm                  | 60,1     | -        | 62,5     |
| Brake input torque $C_e$ Nm               | 2211     | -        | 2162     |
| Brake input threshold torque $C_{0,e}$ Nm | 30       | -        | 30       |

2.3.3. This item is to be completed only when the brake has been subject to the test procedure defined in paragraph 4. of Annex 19 to this Regulation to verify the cold performance characteristics of the brake by means of the brake factor (BF).

2.3.3.1. Brake factor BF : 8,0

2.3.3.2. Declared threshold torque  $C_{0,dec}$  : 30 Nm

2.3.4. Performance of the automatic brake adjustment device (if applicable)

2.3.4.1. Free running according to paragraph 3.6.3. of Annex 11, Appendix 2: yes / ~~no~~<sup>1/</sup>

### 3. APPLICATION RANGE

The application range specifies the axle/brake variants that are covered in this test report, by showing which variables are covered by the individual test codes.

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4. This test has been carried out and the results reported in accordance with Appendix 2 to Annex 11 and where appropriate paragraph 4. of Annex 19 to Regulation No. 13 as last amended by the 11 series of amendments.

At the end of the test defined in paragraph 3.6. of Annex 11, Appendix 2, <sup>4/</sup> the requirements of paragraph 5.2.2.8.1. of Regulation No. 13 were deemed to be fulfilled / ~~not fulfilled.~~ <sup>1/</sup>

Technical Service <sup>(5)</sup> carrying out of the test

Signed: See digital signature.

Approval Authority <sup>(5)</sup>

Signed: See approval certificate

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1/ Strike out what does not apply.

2/ Applies to disc brakes only.

3/ Applies to drum brakes only.

4/ Only to be completed when an automatic brake wear adjustment device is installed.

5/ To be signed by different persons even when the Technical Service and Approval Authority are the same or alternatively, a separate Approval Authority authorization is issued with the report

Place of test: L'Albornar (Santa Oliva)

Date of test: 17/12/2012



Olivier Andrieu  
TEST ENGINEER

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DOCUMENTACIÓN TÉCNICA /  
*TECHNICAL DOCUMENTATION*



# Information Document SAE-3620S2

DOCUMENT D'INFORMATION SUR L'ESSIEU ET LE FREIN DE REMORQUE  
 POUR LES VARIANTES D'HOMOOGATION DE TYPE I et DE TYPE III  
**TRAILER AXLE AND BRAKE INFORMATION DOCUMENT WITH RESPECT  
 TO THE ALTERNATIVE TYPE I AND TYPE III PROCEDURE**  
 (ECE R13, Annex 11 - Appendix 5)

Date / *Dated* : 31/07/2012

1. GENERAL

1.1. Nom et adresse du fabricant de l'essieu ou du constructeur du véhicule :  
*Name and address of axle or vehicle manufacturer:*

SAE Société Ardennaise d' Essieu  
 Ham les Moines  
 08090 CHARLEVILLE-MEZIERES - France

2. DONNEES SUR L'ESSIEU :

*AXLE DATA*

2.1. Fabricant (nom et adresse) \_\_\_\_\_

*Manufacturer (name and address) :*

2.2. Type / *variant* :

2.3. Identificateur d'essieu / *Axle identifier* : ID1 - \_\_\_\_\_

2.4. Charge sur l'essieu d'essais / *Test axle load* (Fe) : ID3- \_\_\_\_\_

Voir 1.1

see 1.1

S

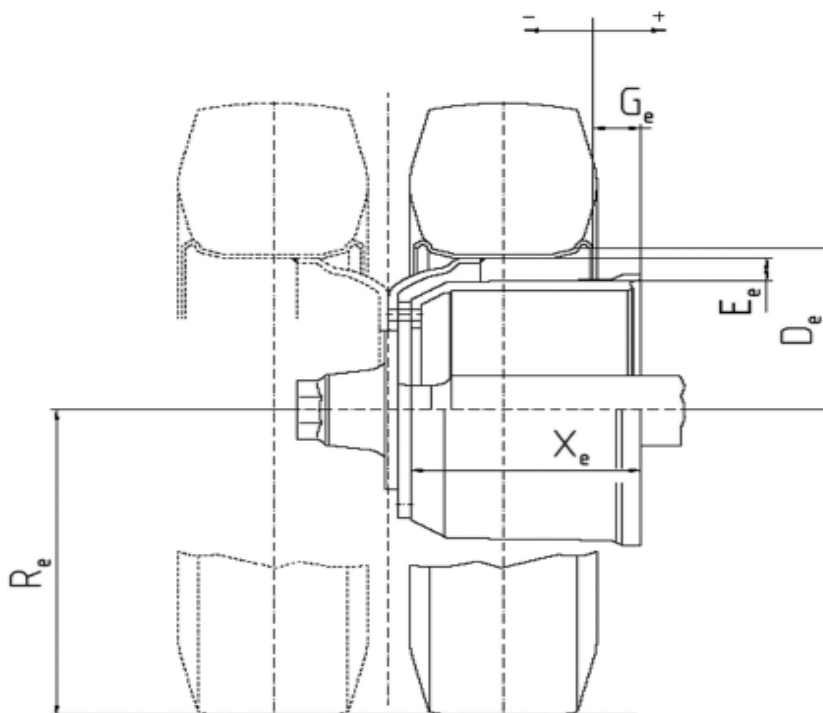
S192

13243,5 DaN

2.5. Données sur la roue et le frein telles qu'indiquées figures 1A :

*Wheel and brake data according to the following figure 1A:*

Figure 1A



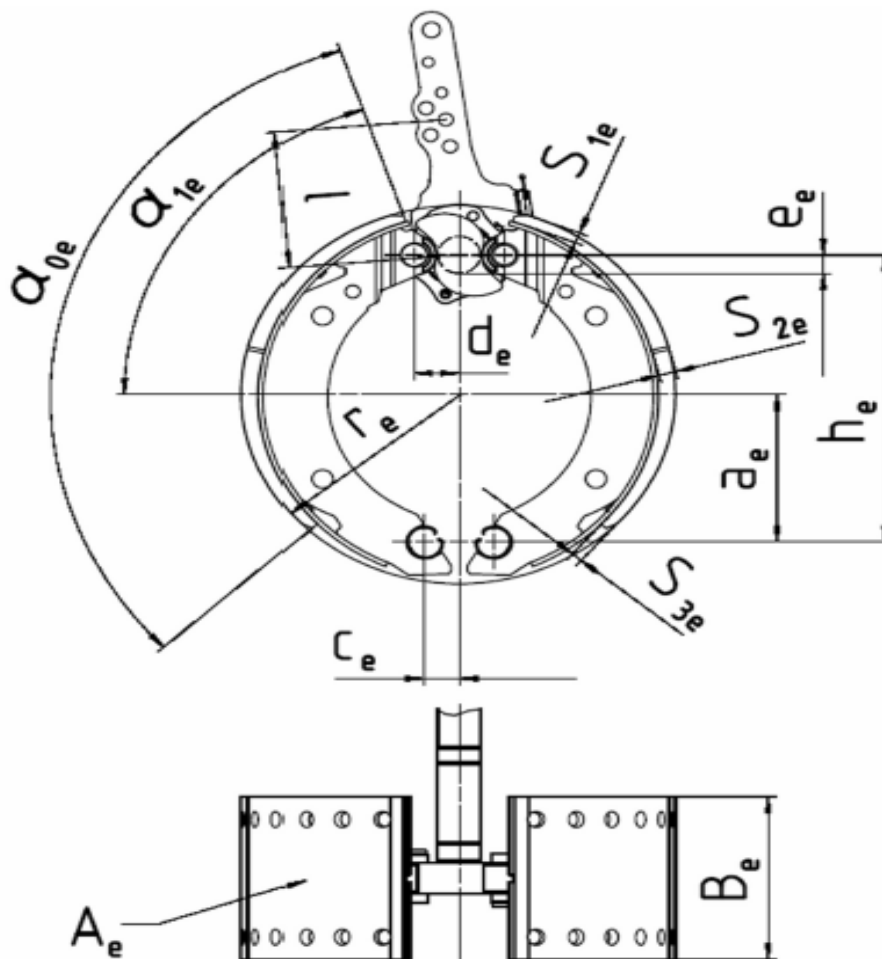
| De (mm)  | Ee (mm) | Ge (mm)   | Re (mm)          | Xe (mm) |
|----------|---------|-----------|------------------|---------|
| min. 248 | min.16  | min. - 30 | min. 0,8*<br>447 | min.282 |



3. FREIN / **BRAKE**
- 3.1. Informations générales / **General information**
- 3.1.1. Marque / **Make** : .....
- 3.1.2. Fabricant (nom et adresse) .....  
**Manufacturer (name and adress)** : .....
- 3.1.3. Type de frein (par ex. à disque ou à tambour) : .....  
**Type of brake (e.g.drums / disc)** : .....  
 3.1.3.1. Variante (par ex. à came en S, à coin unique, etc.): .....  
**Variant (e.g. S-cam, single wedge, ect.)** : .....
- 3.1.4. Identificateur de frein / **Brake identifier** : ID2- .....
- 3.1.5. Données sur le frein telles qu'indiquées sur la figure 2A:  
**Brake data according to the following figure 2A** :

SAE  
 Voir 1.1.  
 see 1.1.  
 A tambour  
 Drum Brake  
 A came en S  
 S-cam brake  
 3620S2

Figure 2A



| ae (mm) | he (mm) | ce (mm) | de (mm) | ee (mm) | $\alpha_{0e}$ (°) | $\alpha_{1e}$ (°) | Be (mm) | re (mm) | Ae (cm <sup>2</sup> ) | S1e (mm) | S2e (mm) | S3e (mm) |
|---------|---------|---------|---------|---------|-------------------|-------------------|---------|---------|-----------------------|----------|----------|----------|
| 132     | 255     | 33      | 42      | 14      | 115               | 69,5              | 200     | 180     | 1348                  | 13       | 18       | 11       |

3.1.6. Brake factor Bf : .....



|         |   |  |
|---------|---|--|
| 3.2.    | Données sur le Frein à tambour<br><i>Drum brake data</i>  |  |
| 3.2.1.  | Dispositif de réglage automatique de frein (externe / intégré) :<br><i>Brake adjustment device (external/integrated) :</i>                    | externe<br>external                            |
| 3.2.1.1 | Nom et adresse du fabricant :<br><i>Manufacturer and adress :</i>   | Haldex Brake Products AB - Landskrona - Sweden |
| 3.2.1.2 | Marque :<br><i>Make</i>   | HALDEX   |
| 3.2.1.3 | Type :  | S-ABA  |
| 3.2.1.4 | Version :   | Sans / Without                                 |
| 3.2.2   | Couple d'actionnement maximal déclaré $C_{max}$ :<br><i>Declared maximum brake input torque <math>C_{max}</math> :</i>                        | 2890 Nm  |
|         | pour calcul / <i>for calculation</i> ( $p_m = 650kPa$ ) :   | 2250 Nm  |
| 3.2.3   | Efficacité mécanique / <i>Mechanical efficiency <math>\eta</math> :</i>   | 0,8  |
| 3.2.4   | Couple d'actionnement minimal utile déclaré $C_{0,dec}$ :<br><i>Declared brake input threshold torque <math>C_{0,dec}</math> :</i>            | 30Nm   |
| 3.2.5   | Longueur effective de l'axe de came :<br><i>Effective length of the cam shaft :</i>   | 669 mm   |
| 3.3     | Tambour de frein / <i>Brake drum</i>  |  |
| 3.3.1   | Diametre maximal de la surface de friction (limite d'usure) :<br><i>Max diameter of friction surface (wear limit) :</i>                       | 365 mm   |
| 3.3.2   | Materiau de base :<br><i>Base matériel :</i>  | Fonte Grise<br>Cast iron                       |
| 3.3.3   | Masse déclarée :<br><i>Declared mass :</i>  | 49,4 kg  |
| 3.3.4   | Masse nominale :<br><i>Nominal mass :</i>   | 49 kg  |
| 3.3.5   | Limites de la Masse autorisée du tambour :<br><i>Permitted range of the brake drum mass :</i>   | 39,2 - 58,8 kg                                 |
| 3.4     | Garniture de frein / <i>Brake lining</i>  |  |
| 3.4.1   | Nom et adresse du fabricant :<br><i>Manufacturer and address :</i>  | BREMSKERL Reibbelagwerke - Germany             |
| 3.4.2   | Marque :<br><i>Make :</i>   | BREMSKERL                                      |
| 3.4.3   | Type :  | 142  |
| 3.4.4   | Identification de type sur la garniture:<br><i>Identification (type identif. On lining) :</i>   | SAE 142  |
| 3.4.5   | Epaisseur minimale (limite d'usure) :<br><i>Minimum thickness (wear limit) :</i>  | 5,5 mm   |
| 3.4.6   | Mode de fixation du matériau de friction sur la mâchoire de frein :<br><i>Method of attaching friction material to brake shoe :</i>           | riveté<br><i>riveted</i>                       |
| 3.4.6.1 | Mode de fixation dans le cas le plus défavorable (s'il y n a plusieurs) :<br><i>Worst case of attachment (in the case of more than one) :</i> | Sans objet<br><i>not applicable</i>            |
| 3.4.6.2 | Limite de poids de la machoire de frein :<br><i>Range of the weight of the brake shoes :</i>  | $\geq$ 8,5 kg                                  |
| 3.4.6.3 | Materiau de base de la machoire de frein :<br><i>Base material of the brake shoes :</i>   | Acier<br><i>steel</i>                          |