

Test Report

No. TDB 0487 dated 14.06.99

for application of Annex VII Directive 71/320/EEC

1 IDENTIFICATION

1.1 Axle

Manufacturer: OTTO SAUER Achsenfabrik Keilberg
D-63854 Bessenbach
Make: SAF
Type: SNK 3020-13Z
Model: -
Technically permissible axle load P_e ¹⁾: See appendix 1 dated 11.11.98

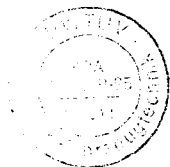
1.2 Brake

Manufacturer: See 1.1
Make: SAF
Type: SNK 300x200
Model: -
Technically permissible camshaft
input torque $C_{max,e}$: 2800 Nm
(for calculation: 2250 Nm at 6,5 bar)
Brake drum - Internal diameter: 300 mm
- Mass: 42 kg
- Material: Cast iron (grey cast iron)
Brake lining - Manufacturer: BREMSKERL-Reibbelagwerke
Emmerling GmbH & Co. KG
D-31629 Estorf
- Type: BREMSKERL 6386
- Identification: Type indication at front
- Width: 200 mm
- Thickness: 8,5...16 mm (sickle-shaped)
- Surface area: 1025 cm²
- Method of attachment: Rivited
Brake geometry: See appendix 1 dated 11.11.98
See appendix 2 dated 11.11.98

1.3 Wheel (Twin)

Rim diameter D_e : See appendix 1 dated 11.11.98
Dimensions: See appendix 1 dated 11.11.98

¹⁾ See sheet 3/3



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 Sheet : 2 / 3
 Date : 14.06.99



Manufacturer : SAF
 Type of axle : SNK 3020-13Z

1.4 Tyres

Dynamic rolling radius R_e
 at reference load P_e :

See appendix 1 dated 11.11.98

1.5 Actuation

Brake actuator -Manufacturer: GRAU
 - Type: Diaphragm brake actuator
 - Model: 30 (120 361 101)
 Lever length l_e : 152 mm

2 RECORD OF TEST RESULTS ²⁾

(corrected to take account of rolling resistance $\hat{=} 0,01P_e$)

2.1 In the case of vehicles of categories O₂ and O₃ ³⁾

Test type:		0	I	
Annex VII, Appendix 1, point:		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	bar	6,5	-	6,5
Braking time	min	-	2,55	-
Brake force developed T_e	daN	7843	932	6090
Brake efficiency T_e/P_e	-	0,60	0,07	0,47
Actuator stroke s_e	mm	38	-	63
Camshaft input torque C_e	Nm	1877	-	1877
$C_{0,e}$	Nm	30	-	30

2.2 In the case of vehicles of category O₄ ⁴⁾

Test type:		0	III	
Annex VII, Appendix 1, point:		3.5.1.2	3.5.3.1.2	3.5.3.2
Test speed				
initial	km/h	60	60	60
final	km/h	0	30	0
Brake actuator pressure p_e	bar	6,5	-	6,5
Number of brake applications	-	-	20	-
Duration of braking cycle	s	-	60	-
Brake force developed T_e	daN	7320	4010	6010
Brake efficiency T_e/P_e	-	0,56	0,31	0,46
Actuator stroke s_e	mm	48	-	66
Camshaft input torque C_e	Nm	1877	-	1877
$C_{0,e}$	Nm	30	-	30

^{2) 3) 4)} See sheet 3/3

RWTÜV Fahrzeug GmbH - Institute for Vehicle Technology, Adlerstr. 7, D - 45307 Essen
 The Testing Laboratory is accredited by the Accreditation Body of the German Motor Vehicles Department
 (Kraftfahrt-Bundesamt) to conduct inspections according to EG-TypV, StVZO and FzTV (KBA-P 00009-95).



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Sheet : 3 / 3
Date : 14.06.99

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Type of axle : SNK 3020-13Z

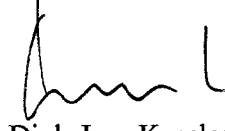
3 NAME OF TECHNICAL SERVICE CONDUCTING THE TEST

RWTÜV Fahrzeug GmbH
Technischer Dienst für Bremsanlagen
D-45307 Essen

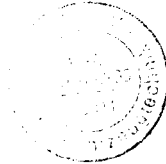
4 DATE OF TEST: 10.05.94 and 24.06.98

5 This test has been carried out and the result reported in accordance with Directive 71/320/EEC as last amended by Directive 98/12/EC and Annex VII, Appendix 1.

Essen, 14.06.99



Dipl.-Ing. Kaesler

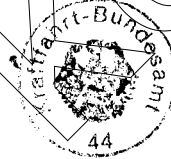
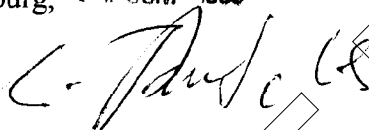


LABORATORY FOR VEHICLE TECHNOLOGY
Testing Laboratory for Braking Systems
according to Directive 71/320/EEC in the
version of Directive 98/12/EC

6 APPROVAL AUTHORITY, if different from the technical service

Flensburg, 24. JUNI 1999

i. A.



7 TEST DOCUMENTS

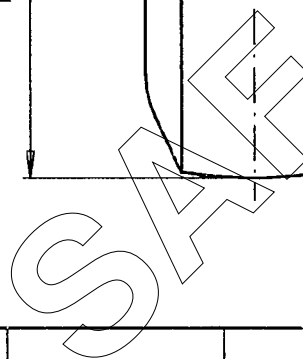
- / Appendix 1: Dimensions brake drum/wheel/tyre (3 sheet)
- / Appendix 2: Brake geometry

- 1) Calculation with $g = 10 \text{ m/s}^2$
- 2) $P_e = 13000 \text{ daN}$, $R_e = 435 \text{ mm}$
- 3) Rolling road dynamometer test
- 4) Inertia dynamometer test

Annex 1 to brake test record:
Annexe 1 au procès verbal:
Allegato 1 al verbale di Omologazione Nr.:

Zeichn. Nr.: 6 077 9119 00	Blatt: 1
Datum: 11.11.1998	Name: Roth

Grundtyp:
basis type: SNK 3020-13 Z
modèle de base:
Modello di base:



Gemäß DIN 34 behalten wir uns für diese Unterlage alle Rechte vor!

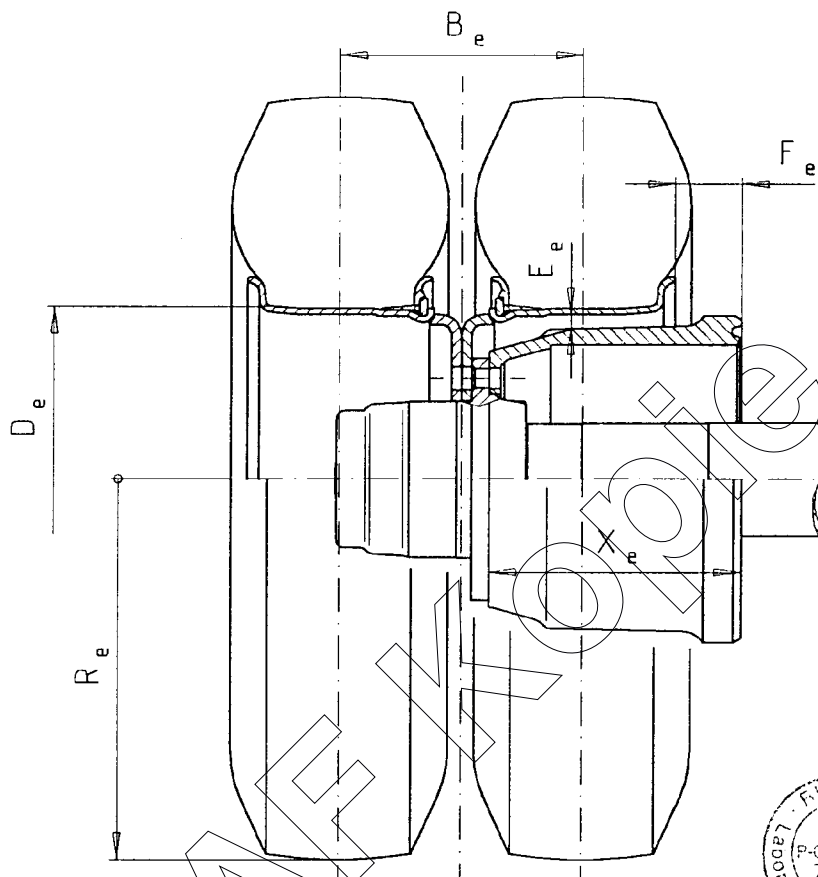
Annex 1 to brake test record:
Annexe 1 au procès verbal:
Allegato 1 al verbale di Omologazione Nr.:

SAF OTTO SAUER
ACHSENFABRIK KEILBERG
D - 63854 BESENBAACH
GERMANY

Grundtyp:
basis type: SNK 3020-13 Z
modèle de base:
Modello di base:

Blatt: 3

Name: Roth

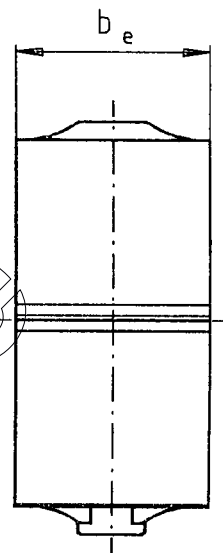
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Annex 2 to brake test record
Annexe 2 au procès verbal
Allegato 2 al verbale di Omologazione Nr.

Zeichn. Nr.: 6 077 9089 01	Blatt: 1
Datum: 11.11.1998	Name: Roth

voir procès verbal 1.5
vedi verbale 1.5

Technical drawing of a circular mechanical component, likely a valve or a flange, showing various dimensions and labels. The drawing includes a central circular area with a dashed line indicating the center. Dimensions include radii (r_e), diameters (d_e), and thicknesses (s_{1e} , s_{2e} , s_{3e}). Angles are labeled α_{0e} and α_{1e} . A vertical dimension c_e is shown at the bottom. A large 'K' watermark is visible on the right side of the drawing.



* F_e : wirksame Bremsfläche pro Bremse (cm^2)
Efficient braking area (cm^2)
Zone de freinage active (cm^2)
Zona di frenatura attiva (cm^2)

[illegible]