

Test Report

No. TDB 0460 dated 26.10.99

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 3720-13Z
Model: -
Technically permissible axle load P_c ¹⁾: 13000 daN

1.2 Brake

Manufacturer: See 1.1
Make: SAF
Type: SNK 367x200
Model: -
Technically permissible camshaft
input torque $C_{max,e}$: 2800 Nm
(for calculation: 2250 Nm at 6,5 bar)
Brake drum - Internal diameter: 367 mm
- Mass: 47 kg
- Material: Cast iron (grey cast iron)
Brake lining - Manufacturer: Federal-Mogul Friction Products GmbH
D-51709 Marienheide
- Make, - Type: FERODO BERAL, 1561
- Identification: Type indication at front
- Width: 200 mm
- Thickness: 12,2...20,2 mm (sickle-shaped)
- Surface area: 1370 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 : 495,3 mm (19,5")
Dimensions: See appendix 1 dated 11.11.98

¹⁾ See sheet 3/3



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Manufacturer : SAF
 Type of axle : SNK 3720-13Z

1.4 Tyres

Dynamic rolling radius R_e
 at reference load P_e : 435 mm

1.5 Actuation

Brake actuator -Manufacturer: GRAU
 - Type: Diaphragm brake actuator
 - Model: 30 (120 361 101)
 Lever length l_e : 150 mm ²⁾ 152 mm ³⁾

2 RECORD OF TEST RESULTS

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

2.1 In the case of vehicles of categories O₂ and O₃ ²⁾

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	6,0	-	6,0
Braking time	min	-	2,55	-
Brake force developed T_e	daN	7601	944	7900
Brake efficiency T_e/P_e	-	0,58	0,07	0,61
Actuator stroke s_e	mm	37	-	53
Camshaft input torque C_e	Nm	1706	-	1706
$C_{0,e}$	Nm	30	-	30

2.2 In the case of vehicles of category O₄ ³⁾

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	7950	4193	6965
Brake efficiency T_e/P_e	-	0,61	0,32	0,54
Actuator stroke s_e	mm	38	-	58
Camshaft input torque C_e	Nm	1877	-	1877
$C_{0,e}$	Nm	30	-	30

²⁾ ³⁾ 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 Federal Motor Transport Authority (KBA) to conduct inspections according to ECE, EG-TypV (EEC), StVZO and FzTV (KBA-P 00009-95).

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RWTÜV

Manufacturer : SAF
Type of axle : SNK 3720-13Z

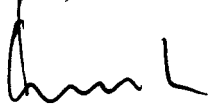
3 NAME OF TECHNICAL SERVICE CONDUCTING THE TEST

RWTÜV Fahrzeug GmbH
Technischer Dienst für Bremsanlagen
D-45307 Essen

4 DATE OF TEST: 18.06.93 and 03.02.99

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, 26.10.99



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, 08. NOV. 99

i. A.



7 TEST DOCUMENTS

- / Appendix 1: Dimensions brake drum/wheel/tyre
- / Appendix 2: Brake geometry

- 1) Calculation with $g = 10 \text{ m/s}^2$
- 2) Rolling road dynamometer test
- 3) Inertia dynamometer test

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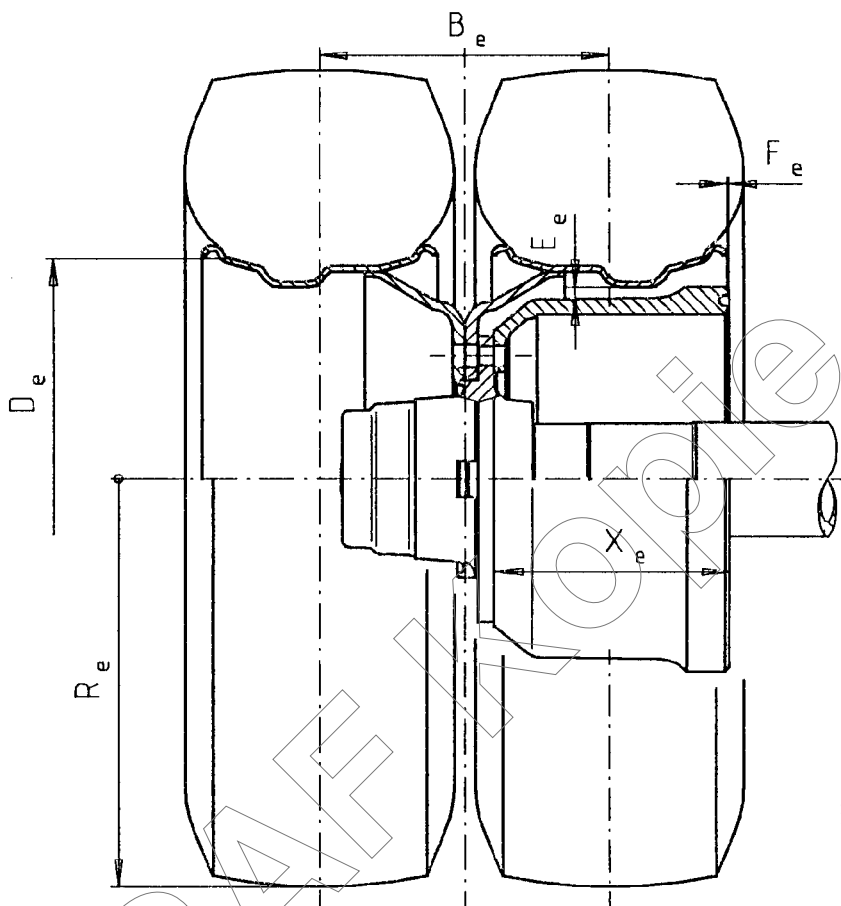
Annex 1 to brake test record:
Annexe 1 au procès verbal:
Allegato 1 al verbale di Omologazione Nr.:

Zeichn. Nr.: 6 077 9116 00		Blatt: 1
Datum: 11.11.1998	Name: Roth	

Bremse:
brake: SNK 367 x 200
frein:
Freno:

Grundtyp:
basis type: SNK 3720 - 13Z
modèle de base:
Modello di base:

Zeichn. Nr.: 6 077 9116 00	Blatt: 1
Datum: 11.11.1998	Name: Roth

[illegible]

Anlage 2 zum Prüfprotokoll Nr. TDB 0460

Annex 2 to brake test record

Annexe 2 au procès verbal

Allegato 2 al verbale di Omologazione Nr.

SAF OTTO SAUER
ACHSENFABRIK KEILBERG
D - 63854 BESSENBACH
GERMANY

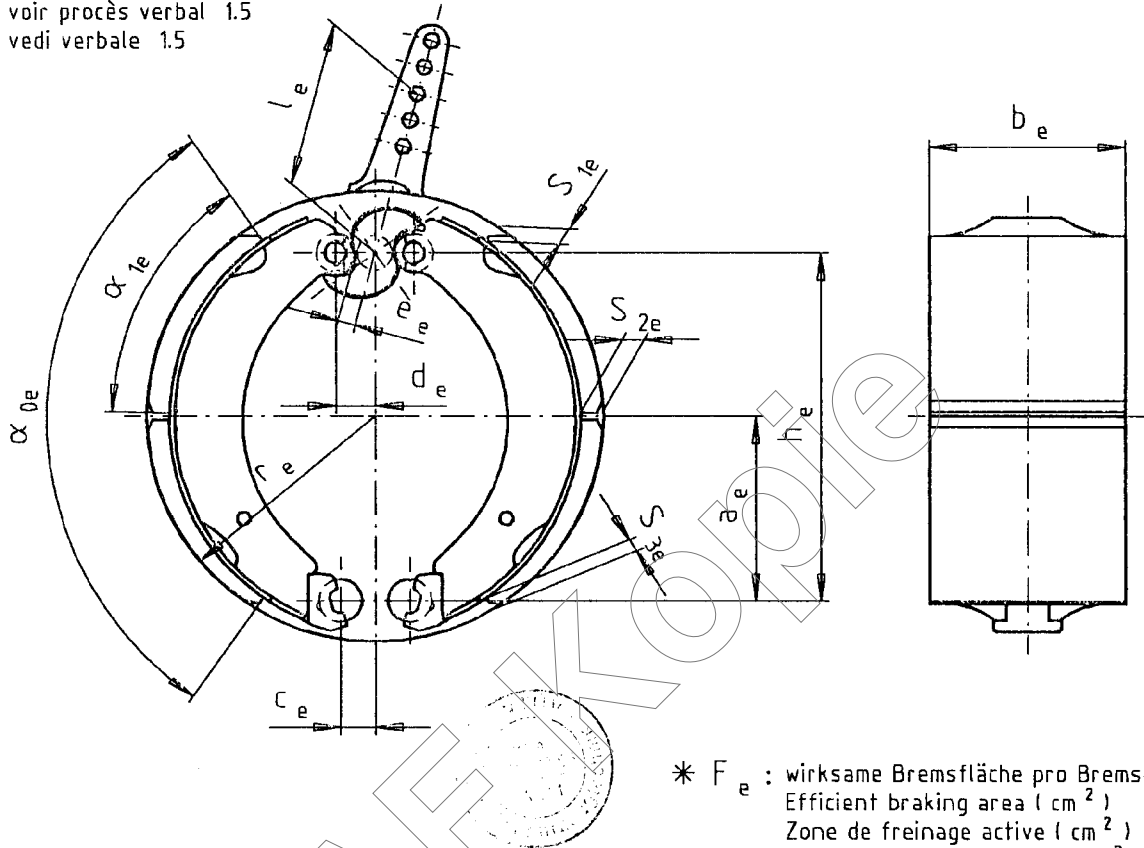
Zeichn. Nr.: 6 077 9089 01

Blatt: 1

Datum: 11.11.1998

Name: Roth

l_e : siehe Prüfprotokoll 1.5
see brake test record 1.5
voir procès verbal 1.5
vedi verbale 1.5



* F_e : wirksame Bremsfläche pro Bremse (cm²)
Efficient braking area (cm²)
Zone de freinage active (cm²)
Zona di frenatura attiva (cm²)

[illegible]