

Test Report

No. TDB 0456 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 4220-13Z
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 420x200
Model: -
Technically permissible camshaft
input torque $C_{max,e}$: 2800 Nm
(for calculation: 2250 Nm at 6,5 bar)
Brake drum - Internal diameter: 420 mm
- Mass: 49 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: 13...20,2 mm (sickle-shaped)
- Surface area: 1474 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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Manufacturer : SAF
 Type of axle : SNK 4220-13Z

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: DeWe³⁾ GRAU⁴⁾
 - Type: Diaphragm brake Diaphragm brake
 actuator actuator
 - Model: 30 (231 0 007 201) 30 (120 361 101)
 Lever length l_e : 150 mm 152 mm

2 RECORD OF TEST RESULTS²⁾

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

2.1 In the case of vehicles of categories O₂ and O₃³⁾

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	7675	924	7051
Brake efficiency T_e/P_e	0,59	0,07	0,54
Actuator stroke s_e mm	32	-	51
Camshaft input torque C_e Nm	1698	-	1698
$C_{0,e}$ Nm	30	-	30

2.2 In the case of vehicles of category O₄⁴⁾

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
Test speed 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	7829	3900	6449
Brake efficiency T_e/P_e	0,60	0,30	0,50
Actuator stroke s_e mm	41	-	54
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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Manufacturer : SAF
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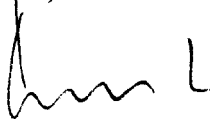
3 NAME OF TECHNICAL SERVICE CONDUCTING THE TEST

RWTÜV Fahrzeug GmbH
Technischer Dienst für Bremsanlagen
D-45307 Essen

4 DATE OF TEST: 30.06.94 and 04.06.98

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

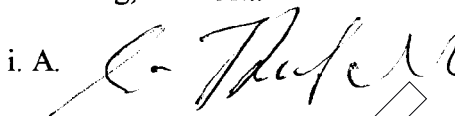


LABORATORY FOR VEHICLE TECHNOLOGY
Testing Laboratory for Braking Systems
according to Directive 71/320/EEC in the
version of Directive 98/12/EC

6 APPROVAL AUTHORITY, if different from the technical service

Flensburg, 24. JUNI 1999

i. A.



7 TEST DOCUMENTS

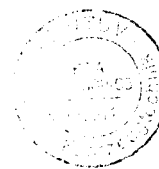
- / Appendix 1: Dimensions brake drum/wheel/tyre (2 sheet)
- / Appendix 2: Brake geometry

- ¹⁾ Calculation with $g = 10 \text{ m/s}^2$
- ²⁾ $P_e = 13000 \text{ daN}$, $R_e = 546 \text{ mm}$
- ³⁾ Rolling road dynamometer test
- ⁴⁾ Inertia dynamometer test

Allegato 1 al verbale di Omologazione Nr.:

Name: Roth

Modello di base:



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

Name: Roth

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