



# Heavy Vehicle Specialist Certificate

Heavy Vehicle Specialist Inspector and Inspecting Organisation

Heavy Vehicle Specialist Inspector's Name (PRINT IN CAPS)

RONALD STUART PRATT

ID

TRSP

Vehicle Registration\*

VIN / Chassis Number

7A9D15012A0023867

Component being certified:

Chassis Modification

Load Anchorage

Log Bolsters

Towing Connection

Brakes

SRT

Certification Category

HVEK

Description of Work

certify to Brake Rule 32015

Code/Standard Certified to

NZ HUB Rule Schedules

Component Load Rating(s)

General Drawing Number(s)

nr

Supporting Documents

Brake cert No RP100411

\*Special Conditions

EBS Control - warning light must illuminate when ignition switched on and extinguish immediately or when vehicle reaches 7km/h.

Certification Expiry Date (if applicable)

NA

OR

Hubodometer Reading (whichever comes first)

Grid for hubodometer reading

### Declaration

I the undersigned, declare that I am the Heavy Vehicle Specialist Inspector identified above and I hold a current valid appointment. I certify that the above mentioned vehicle component's design, manufacture and installation, and this certification complies in all respects with the Land Transport Rule Vehicle Standards Compliance 2002 and my Deed of Appointment. To the best of my knowledge the information contained in this Certificate is true and correct.

Designer's ID (if certified by a manufacturer)

Inspector's / Delegate's Signature

*R.S. Pratt*

\*Delegate's Name (PRINT IN CAPS)

Date

29/04/2010

Number

344172

COF Vehicle Inspector ID:

COF Vehicle Inspector Signature:

Date

All fields excluding those marked with \* must be completed before this certificate can be accepted.

## NOTICE TO VEHICLE OPERATOR

**THIS VEHICLE HAS A BRAKE SYSTEM WHICH HAS BEEN DESIGNED AND FITTED IN ACCORDANCE WITH THE NEW ZEALAND HEAVY VEHICLE BRAKE RULE 32015: SCHEDULE 5.**

**IF THIS VEHICLE IS OPERATED IN CONJUNCTION WITH NON-CODED VEHICLES, THERE MAY BE OPERATIONAL FACTORS WHICH NEED TO BE TAKEN INTO CONSIDERATION.**

**PLEASE REFER TO THE CERTIFIER FOR FURTHER INFORMATION.**

### **EXCERPT FROM NZ HEAVY VEHICLE BRAKE RULE 32015**

#### **10.1 Responsibilities of operators**

*A person who operates a vehicle must ensure that the vehicle complies with this Rule*

#### **10.2 Responsibilities of repairers**

*A person who repairs or adjusts a brake must ensure that the repair or adjustment:*

- (a) does not prevent the vehicle from complying with the rule : and*
- (b) complies with Land Transport Rule: Vehicle Repair 1998.*

#### **10.3 Responsibilities of modifiers**

*A person who modifies a vehicle so as to affect the braking performance of the vehicle must:*

- (a) ensure that the modification does not prevent the vehicle from complying with this rule: and*
- (b) notify the operator that the vehicle must be inspected and. If necessary. Certified by a person or organisation appointed to carry out specialist inspection and certification of heavy vehicle brakes.*


#### **10.5 Responsibilities of manufactures and retailers**

*A person may manufacture, stock, or offer for sale a brake or its components. Intended for fitting to a vehicle to be used on New Zealand roads, only if that brake or component:*

- (a) complies with this Rule: and*
- (b) does not prevent a repair to a vehicle, its structure, systems, components and equipment from complying with this Rule.*

**IF YOU ARE UNSURE ABOUT YOUR RESPONSIBILITIES, PLEASE CONTACT THE VEHICLE MANUFACTURER, OR MYSELF.**

**COMPLAINTS.** *Complaints and Warranty issues which relate to Brake Certification will be acknowledged within 7 working days and a resolution proposed within 25 working days. Resolution of complaints and Warranty issues is subject to Transpecs Warranty policy. Customers have the right to appeal to the Land Transport Safety Authority if dissatisfied with a Compliance issue. (refer LTNZ Déed Of Appointment Para 47.4) Land Transport NZ Helpdesk 0800 699 000*

  
.....  
**R S PRATT**  
**(TRSP HVEK)**

## **NOTICE TO VEHICLE OPERATOR**

**This trailer is equipped with an Electronic Brake System.**

To comply with the New Zealand Heavy Vehicle Brake RULE, it must be used only in conjunction with a truck/tractor equipped with a 5 or 7 pin ABS/EBS power supply socket.

Failure to connect to such supply invalidates Brake Rule compliance.

The trailer ABS/EBS warning light on the towing vehicle dashboard must illuminate when the ignition is switched on and extinguish when the vehicle is in motion.

If the light does not illuminate when ignition is switched on, the system must be checked. If the light remains illuminated when the vehicle is in motion, Brake Rule compliance is compromised. Repairs must be made as soon as possible.

### **NB;**

If this vehicle is fitted with mechanical (spring) suspension, the load sense valving has been adjusted to suit exactly the performance of the original springs. In event of replacement being required, original equipment springs **must** be fitted to ensure correct ongoing operation. Fitment of non genuine springs can affect operation and therefore, compliance.

**If you are unsure of your responsibilities and/or obligations, please contact either the vehicle manufacturer or myself.**



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R S Pratt  
(TRSP HVEK 09 980 7300)



QUALITY ON THE MOVE

P.O.Box 98-971

South Auckland Mail Centre

Ronald Stuart Pratt (TRSP)

DATE	29/04/2010	TYPE APPROVED	NO
CERTIFICATE No	RP100411		4FTSAFEB5-E
VIN No	7A9D15012A0023867		
BRAKE CHAMBERS FRONT	14TSE 64mm		
BRAKE CHAMBERS REAR	14/16TSE 64mm	LOAD SENSED	Yes EBS Control
SLACK LENGTH FRONT	Disc	TYRE SIZE FRONT	265/70R19.5
SLACK LENGTH REAR	Disc	TYRE SIZE REAR	265/70R19.5
THIS VEHICLE COMPLIES W		N.Z.H.V.B.R	Jurid 539 AF
32015 SCHEDULE 5		LINING MATERIAL FRONT	Jurid 539 AF
		LINING MATERIAL REAR	Jurid 539 AF

System	Trailer EBS-E	WABCO part number	480 102 064 0
Production date	2010-01-04	Serial number	284007638000
Fingerprint Customer EOL / Customer Development / Flash Program	W 029383 / 2010-04-29 ; 00000000 / 0000-00-00 ; 00000000 / 0000-00-00		

<b>WABCO</b>		<b>TRAILER EBS-E</b>		GGVS/ADR TUEH TB 2007 - 019.00										
HERSTELLER MANUFACTURER CONSTRUCTEUR	Domett		GIO	Pin1	Pin3	Pin4								
TYP TYPE TYPE	4A Full Trailer		1	---	---	---								
FAHRZEUG IDENTIF. CHASSIS NUMBER NUMERO DE CHASSIS	7A9D15012A0023867		2	---	---	---								
BREMSENRECHNUNGSART BRAKE CALCULATION NO. CALCUL. DE FREINAGE NO.	00088RP		3	ALS2	ALS2	---								
POLRADZÄHNEZAHN. c-d   e-f POLE WHEEL TEETH c-d   e-f DENTS ROUE DENTÉE c-d   e-f	90	90	4	---	---	---								
			5	DIAG	DIAG	DIAG								
RSS Single Tire Morte simple			6	---	---	---								
Zweifelsbereifung Twin Tire Morte jumelle			7	---	---	---								
Subsystems	---	I/O												
														
	pm (bar)	6.5	pm (bar)	0.7	2.0	6.5								
ACHSE AXLE ESSEU	↓ (kg)	⊗	↓ (kg)	⊗	⊗	pz								
1	1420	0.5	1.9	7000	5.0	0.5	1.4	---	5.9	-	---	---	---	---
2	1420	0.5	1.9	7000	5.0	0.5	1.4	---	5.9	-	---	---	---	---
3	1300	0.5	1.6	7000	5.0	0.5	1.4	---	5.4	-	---	---	---	---
4	1300	0.5	1.6	7000	5.0	0.5	1.4	---	5.4	-	---	---	---	---
5	0	---	---	0	---	---	---	---	---	-	---	---	---	---

Diagnostic memory	OK	Warning lamp control	OK
Parameter setting	carried out	Stop light power supply	Not tested
EBS pressure test	OK	Lifting axle test	Not tested
Redundancy test	OK	ECAS distance sensor calibration	Not tested
ABS sensor assignment	OK	Distance sensor Axle load calibr	Not tested
RTR check	Not tested	Leak test	Not tested
Immobilizer test	Not tested		

Manufacturer	Domett	Vehicle ident. no	7A9D15012A0023867
Vehicle type	4A Full Trailer	Odometer reading	0.0 km
next Service	0 km	Trip reading	0.0 km
Tested by	Ron Pratt	Signature	
Date	2010-04-29 9:51:27 AM		



trailer (full, semi-, centre-axle) with air brake system acc. to 71/320/EEC, last amended by 98/12/EC and 2006/96/EC or UN/ECE-R.13.10

distribution: Domett  
3367-023867  
00088RP

please note!

This brake calculation is made under consideration of  
-the legal prescriptions mentioned above in the version valid at the time of making the program (V6.09.08.08)  
-the functional characteristics of our products, but not of those of other manufacturers, and  
-the other vehicle data included in the brake calculation.  
Please check whether these data correspond to the actual vehicle data  
Our conditions of delivery apply (particularly section 5.0).  
WABCOBrake V6.09.08.08 db 08.08.2009

vehicle manufacturer: Domett  
trailer model : 4AFull Trailer  
trailer type : 4-axle-full-trailer  
remarks : air / hydraulic / VA suspension  
WABCO TRAILER - EBS E  
TRISTOP 3+4: T.14/24  
265/70 R 19,5

axle 1 + 2 + 3 + 4 : SAF, PAN 19-1 +, TDB 0749, KB 1018.0

		<u>unladen</u>	<u>laden</u>
total mass	P in kg	5440	28000
axle 1	P1 in kg	1420	7000
axle 2	P2 in kg	1420	7000
axle 3	P3 in kg	1300	7000
axle 4	P4 in kg	1300	7000
wheel base	E in mm	5735 - 5735	
centre of gravity height	h in mm	1120	2120

		<u>axle 1</u>	<u>axle 2</u>	<u>axle 3</u>	<u>axle 4</u>
no. of combined axles		1	1	1	1
no. of brake chambers per axle line	KDZ	2	2	2	2
The power output corresponds to brake chamber manufacturer		BZ 122.1 Meritor	BZ 122.1 Meritor	BZ 119.6 Meritor	BZ 119.6 Meritor
chamber size		14.	14.	T.14/16	T.14/16
lever length	lBh in mm	69	69	69	69
brake factor	[-]	23.03	23.03	23.03	23.03
dyn. rolling radius	rdyn min in mm	421	421	421	421
dyn. rolling radius	rdyn max in mm	421	421	421	421
threshold torque	Co Nm	6.0	6.0	6.0	6.0

calculation:

chamber pressure(rdyn min)pH at z=22,5%bar	2.3	2.3	2.2	2.2
chamber pressure(rdyn max)pH at z=22,5%bar	2.3	2.3	2.2	2.2
chamber press.(servo)pcha at pm6,5bar bar	5.9	5.9	5.4	5.4
piston force ThA at pm6,5bar N	5688	5688	5187	5187
brake force(rdyn min)T lad. at pm6,5bar N	43017	43017	39231	39231
brake force(rdyn max)T lad. at pm6,5bar N	43017	43017	39231	39231
brake force within 1 % rolling friction proportion	25.0	25.0	25.0	25.0

braking rate z laden 0.599 for rdyn min  
z = sum (TR)/PRmax 0.599 for rdyn max

Trailer may only be operated in combination with trucks/tractors with ISO 7638 supply (5 or 7 polar).

brake diagram :

maximum pressure: 8.5 bar

axle 1:

valve 1: 480 207 0.. 0                    WABCO  
          EBS relay valve

axle 2:

valve 1: 480 207 0.. 0                    WABCO  
          EBS relay valve

axle 3:

valve 1: 480 102 0.. 0                    WABCO  
          EBS trailer modulator



axle 4:

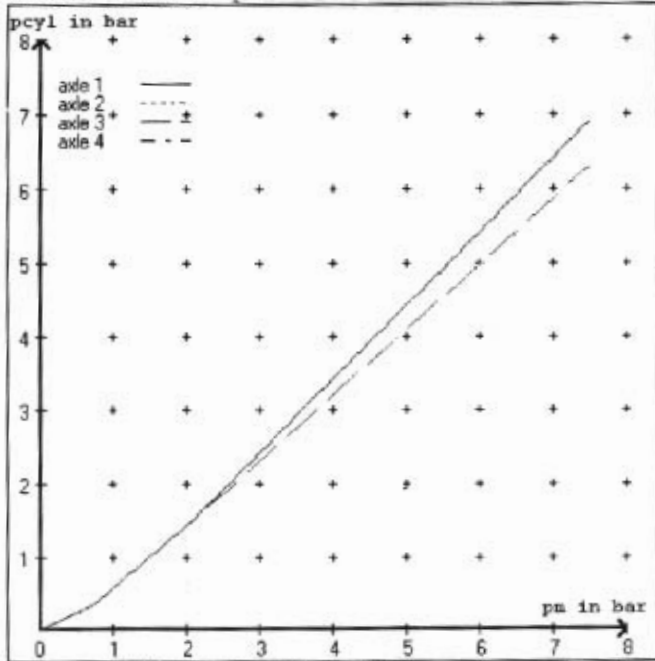
valve 1: 480 102 0.. 0

WABCO

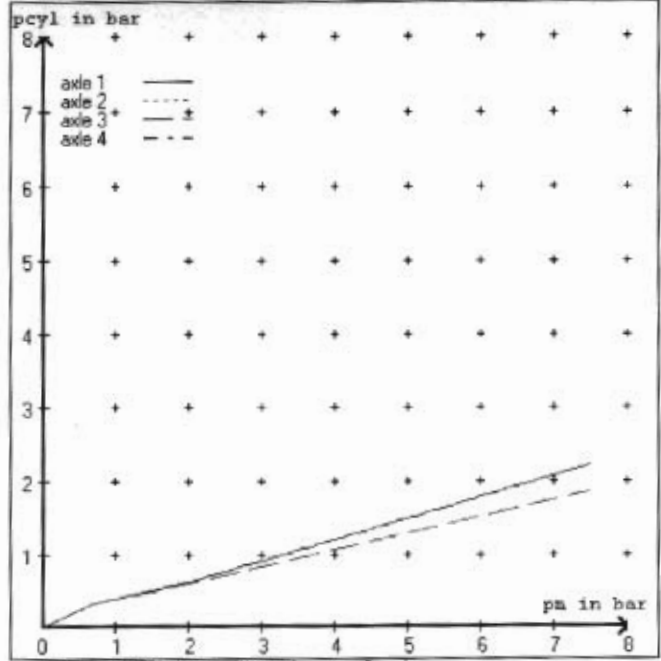
EBS trailer modulator

test type III (zIII = 0.30)	for rdyn min :	axle1	axle2	axle3	axle4
at pm 3.6 bar =>	pcha in bar :	3.0	3.0	2.8	2.8
test type III (zIII = 0.06)	for rdyn min :	axle1	axle2	axle3	axle4
at pm 1.2 bar =>	pcha in bar :	0.8	0.8	0.8	0.8

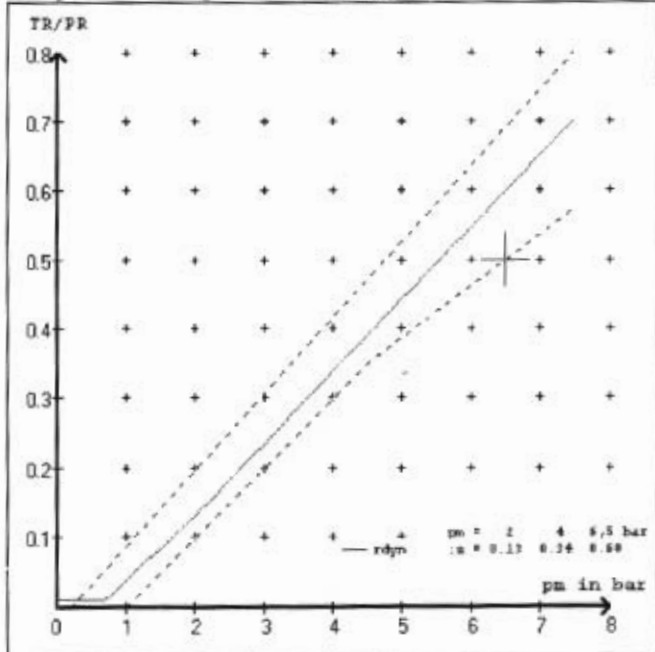
brake chamber pressure laden



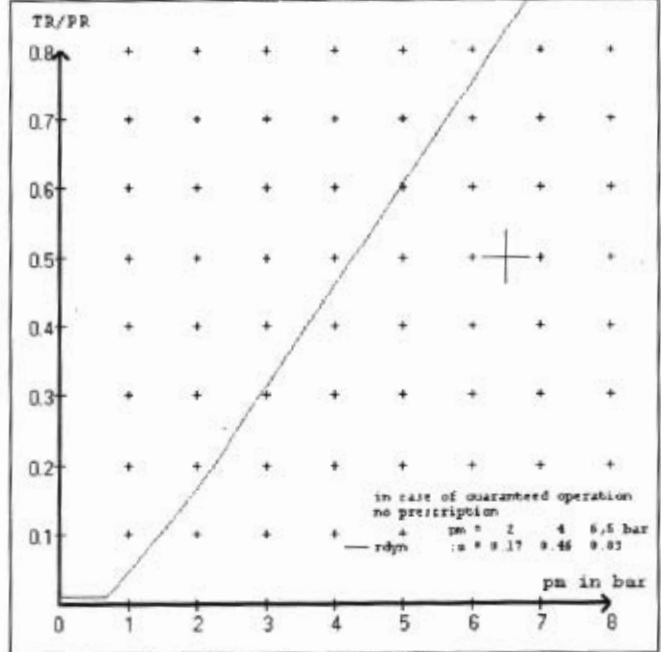
brake chamber pressure unladen



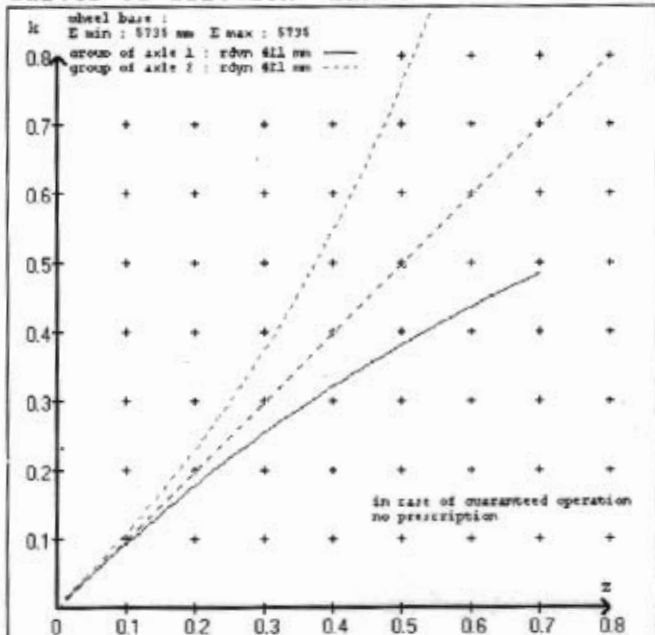
compatibility band laden



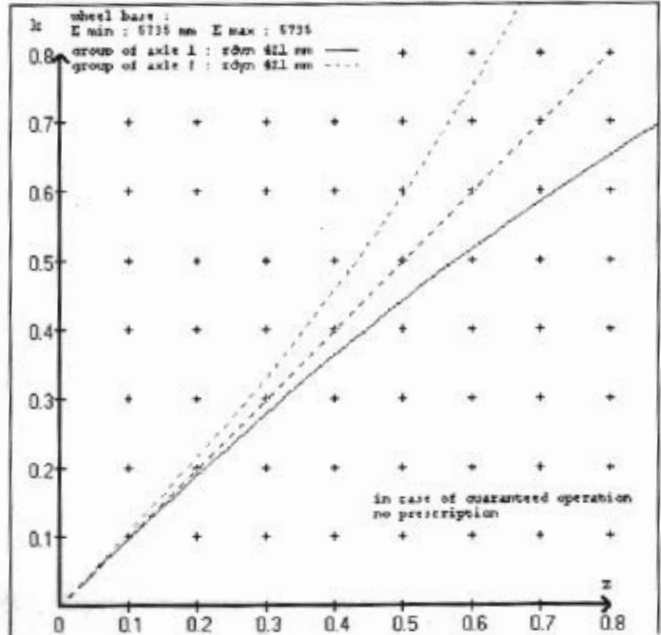
compatibility band unladen



curves of friction laden



curves of friction unladen



vehicle manufacturer: Domett  
 trailer model : 4AFull Trailer  
 trailer type : 4-axle-full-trailer

brake chamber and lever length :

axle 1 : 2 x type/diameter 14. (Meritor) lever length 69 mm  
 axle 2 : 2 x type/diameter 14. (Meritor) lever length 69 mm  
 axle 3 : 2 x type/diameter T.14/24 (Meritor) lever length 69 mm  
 axle 4 : 2 x type/diameter T.14/24 (Meritor) lever length 69 mm

brake diagram :

valve :

480 207 0.. 0 WABCO EBS relay valve  
 480 102 0.. 0 WABCO EBS trailer modulator

EBS input data

=====

vehicle manufacturer: Domett  
 trailer model : 4AFull Trailer  
 trailer type : 4-axle-full-trailer  
 brake calculation no. : TP 88A

tire circumference main axle : 2650 for rdyn max  
 tire circumference auxiliary axle : 2650 for rdyn max

assignment pm / deceleration z: pm 0.7 bar z = 0.000  
 (laden condition) 2.0 bar z = 0.134  
 6.5 bar z = 0.600

control pressure pm			6,5	control pressure pm			0.7	2.0	6.5
axle	axle load unladen	bellow pr. unladen	brake pr. unladen	axle load laden	bellow pr. laden	brake pr. laden			
1	1420	to be	1.9	7000	to be	0.3	1.4	5.9	
2	1420	entered by the vehicle manufact.	1.9	7000	entered by the vehicle manufact.	0.3	1.4	5.9	
3	1300		1.6	7000		0.3	1.4	5.4	
4	1300		1.6	7000		0.3	1.4	5.4	
5	0		0,0	0		0,0	0,0	0,0	

The unladen values indicated in the above table are values for the basic parameter set. Higher unladen axle loads and liftaxles are automatically recognized and do not require separate adjustment. The above unladen axle loads must not be fallen below.

axle 1	axle 2	axle 3	axle 4
axle load pcyl	axle load pcyl	axle load pcyl	axle load pcyl
1420 1.9	1420 1.9	1300 1.6	1300 1.6
1920 2.3	1920 2.3	1800 1.9	1800 1.9
2420 2.6	2420 2.6	2300 2.3	2300 2.3
2920 3.0	2920 3.0	2800 2.6	2800 2.6
3420 3.3	3420 3.3	3300 2.9	3300 2.9
3920 3.7	3920 3.7	3800 3.3	3800 3.3
4420 4.1	4420 4.1	4300 3.6	4300 3.6
4920 4.4	4920 4.4	4800 3.9	4800 3.9
7000 5.9	7000 5.9	7000 5.4	7000 5.4

data sheet to EC/ECE vehicle type-approval certificate concerning braking equipment: according to 98/12/EC annex IX 2.7.4 / ECE R13 annex 11

axle 1 : reference axle: SAF	SBW 1937-10 Z brake lining: Jurid 539
test report :	TDB 0749 date : 15.05.2002
axle 2 : reference axle: SAF	SBW 1937-10 Z brake lining: Jurid 539
test report :	TDB 0749 date : 15.05.2002
axle 3 : reference axle: SAF	SBW 1937-10 Z brake lining: Jurid 539
test report :	TDB 0749 date : 15.05.2002
axle 4 : reference axle: SAF	SBW 1937-10 Z brake lining: Jurid 539
test report :	TDB 0749 date : 15.05.2002

calc. verif. of residual (hot) braking force type III  
(item 4.2 of appendix I to annex VII)

axle 1	(rdyn 421 mm)	T = 18.1 % Pe
axle 2	(rdyn 421 mm)	T = 18.1 % Pe
axle 3	(rdyn 421 mm)	T = 16.9 % Pe
axle 4	(rdyn 421 mm)	T = 16.9 % Pe

calculated actuator stroke in mm  
(item 4.3.1.1 of appendix I to annex VII)

axle 1	(sp = 57 mm)	s = 42 mm
axle 2	(sp = 57 mm)	s = 42 mm
axle 3	(sp = 56 mm)	s = 42 mm
axle 4	(sp = 56 mm)	s = 42 mm

average thrust output in N at pm = 6,5 bar (however max. pcha = 7,0 bar)

axle1	ThA = 5688 N
axle2	ThA = 5688 N
axle3	ThA = 5187 N
axle4	ThA = 5187 N

calc. residual (hot) braking force in N  
(item 4.3.1.4 of appendix I to annex VII)

axle 1	(rdyn 421 mm)	T = 28833 N
axle 2	(rdyn 421 mm)	T = 28833 N
axle 3	(rdyn 421 mm)	T = 26317 N
axle 4	(rdyn 421 mm)	T = 26317 N

basic test	type III
of subject	(calculated)
trailer (z)	residual
	(hot)braking

braking rate of the vehicle  
(item 4.3.2 to appendix I to annex VII)

0.60	0.40
------	------

required braking rate  
(items 1.3.3 and 1.6.2 to annex II)

>= 0,4 and
>= 0,6*z (0.36)

calc. residual (hot) braking force in N  
(item 4.3.1.4 of appendix I to annex VII)

axle 1	(rdyn 421 mm)	T = 28833 N
axle 2	(rdyn 421 mm)	T = 28833 N
axle 3	(rdyn 421 mm)	T = 26317 N
axle 4	(rdyn 421 mm)	T = 26317 N

basic test	type III
of subject	(calculated)
trailer (z)	residual
	(hot)braking

braking rate of the vehicle  
(item 4.3.2 to appendix I to annex VII)

0.60	0.40
------	------

required braking rate  
(items 1.3.3 and 1.6.2 to annex II)

>= 0,4 and
>= 0,6*z (0.36)

spring parking brake

	axle 3	axle 4
no of TRISTOP-actuators per axle line KDZ	2	2
TRISTOP-actuator type	T.14/24	T.14/24
lever length                      lBh in mm	69	69
stat. tyre radius                      rstat max in mm	401	401
at a stroke of                      s      in mm	30	30
min. force of spring brake              TFZ in N	7605	7605
sp.brake chamber no Meritor.....	4	4
release pressure                      pLs in bar	4.8	4.8

calculation:

ratio until road	3.9674	3.9674
$iFb = lBh * \eta * C * rBt / (rBn * rstat)$ for rstat in mm	401	401
brake force of spring br. Tf in N	59654	59654
$Tf = (TFZ * KDZ - 2 * Co / lBh) * iFb$		
braking rate                      zf laden	0.444	
$zf = \text{sum } (Tf) / P + 0,01$		

Test of the frictional connection required by the parking brake

minimum wheelbase/minimum supporting width min Ef necessary to fulfil the regulations

$$\text{min Ef} = E * (1 - PR/P + zferf * h/E) / (1 - zferf / (fzul * nf/ng))$$

$$\text{min Ef} = 4192 \text{ mm} \quad \text{for } E = 5735 \text{ mm}$$

$$\text{min Ef} = 4192 \text{ mm} \quad \text{for } E = 5735 \text{ mm}$$

min Ef = minimum distance between front axle(s) (trailer) or support (semitrailer) and the rear axle(s) (resultant of the bogie)

E = wheel base

fzul = 0.80 maximum permissible frictional connection required

zferf = 0.18 maximum required braking ratio of the parking brake

h = 2120 mm height of center of gravity - laden

PR = 14000 kg maximum bogie mass - laden

P = 28000 kg maximum total mass - laden

nf = 2 no. of axle(s) with TRISTOP spring brake actuators

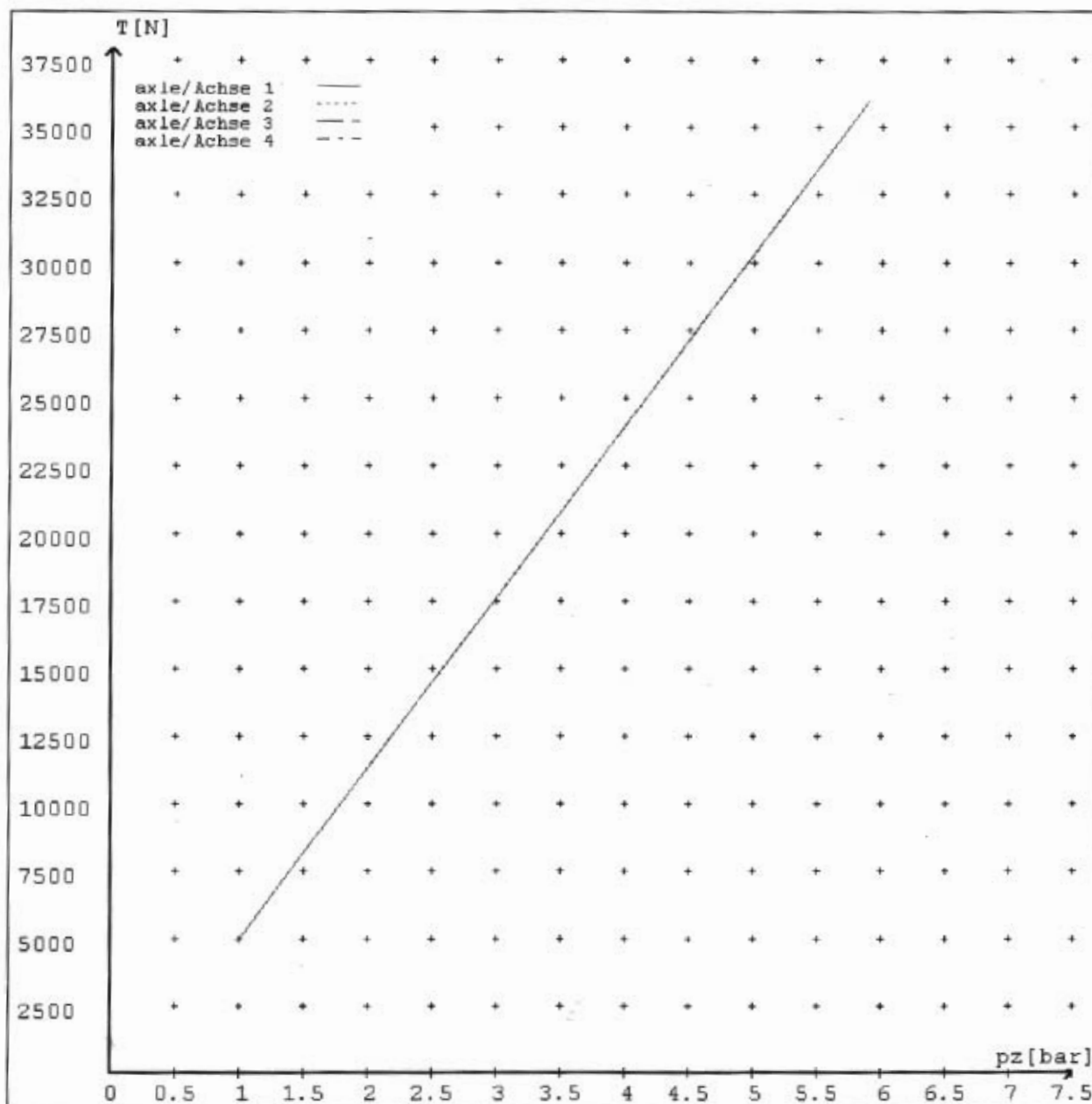
ng = 2 no. of bogie axle(s)

**reference values**

reference values for z = 508

	pz [bar]	T [N]	T [N]
axle 1	1.0	4933	
	5.9	35908	
axle 2	1.0	4933	
	5.9	35908	
axle 3	1.0		4933
	5.4		32747
axle 4	1.0		4933
	5.4		32747

VIN - no.:

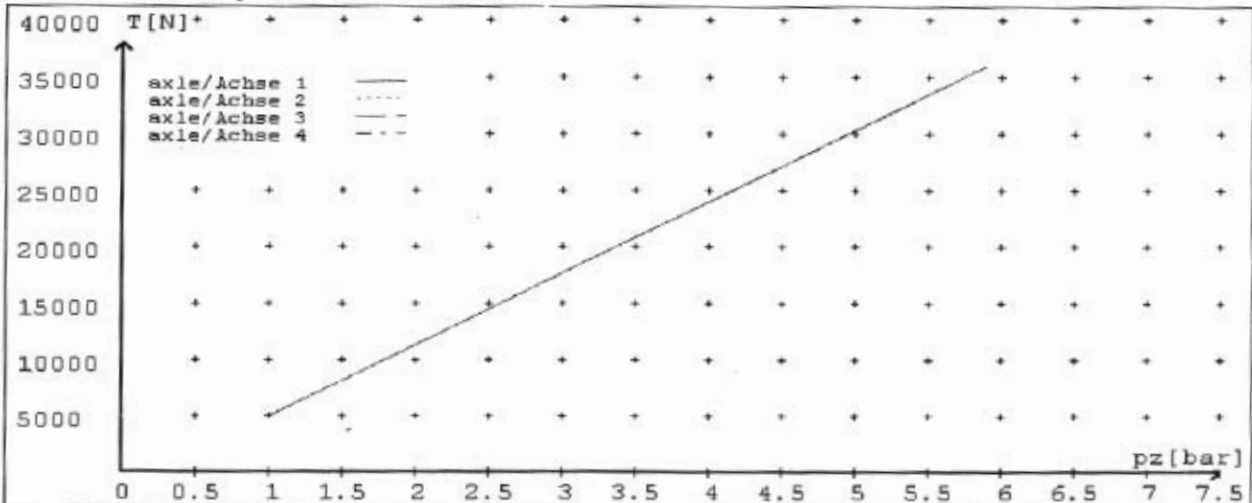


reference values for z = 0.5

Angabe der Referenzwerte für z = 0.5

brake calculation no: TP 88A date 28.04.2010

Bremsberechnung Nr: TP 88A vom 28.04.2010



	Axle(s) / Achse(n)				
brake cylinder type (service / parking) Bremszylinder Typ (Betrieb / Fest)	14./	14./	T.14/24	T.14/24	/
Maximum stroke s <sub>max</sub> = ...mm maximaler Hub s <sub>max</sub> = ...mm	64	64	64	64	
Lever length = ...mm Hebellänge = ...mm	69.08	69.08	69.08	69.08	