/ NZ TRANSPORT AGENCY
WAKA KOTAHI

6038

Heavy Ve...

Heavy Vehicle Specialist Inspector and Inspecting Organisation

#3452

:le Specialist Inspector's Name *(PRINT IN CAPS)*

ID

LANCE CAWTE LPC

gistration*

3J

VIN / Chassis Number

7A85N0J0298852476

nt being certified:

Chassis Modification | Load Anchorage | Log Bolsters

Towing Connection X | Brakes | SRT

tion Category

/EK

tion of Work

ERTIFY TO HEAVY VEHICLE BRAKE RULE 32015.

e/Standard Certified to

SCHEDULE 5

Component Load Rating(s)

N/A

neral Drawing Number(s)

N/A

ıpporting Documents

BRAKE CODE CERTIFICATE LC100805
PREV EXEMPTION REF HVB10/335

*Special Conditions

WARNING LAMP MUST ILLUMINATE WHEN IGNITION IS SWITCHED ON & THEN EXTINGUISH IMMEDIATELY OR WHEN VEHICLE SPEED EXCEEDS 7 KPH

Certification Expiry Date *(if applicable)*

N/A

or

Hubodometer Reading (whichever comes first)

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

*Delegate's Name *(PRINT IN CAPS)*

Date

18-Aug-10

Number

349071

COF Vehicle Inspector ID:

COF Vehicle Inspector Signature:

Date

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

NZ TRANSPORT AGENCY
WAKA KOTAHI

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20 Ballance Street
PO Box 5084
Lambton Quay
Wellington 6145
New Zealand
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Document: B1083675
Exemption: HVB10/335

EXEMPTION FROM SPECIFIED REQUIREMENTS OF LAND TRANSPORT RULE: Heavy-vehicle Brakes 2006, Rule 32015

Pursuant to Section 166(1) of the Land Transport Act 1998, and pursuant to the powers delegated to me, I Eugene Girardin, Vehicles Unit Engineer, hereby exempt the motor vehicle specified in Schedule 1 hereto from the section of Land Transport Rule: Heavy-vehicle Brakes 2006 (the Rule) listed in Schedule 2, subject to the conditions specified in Schedule 3.

SCHEDULE 1:

Make/Model: **Evans Eng Ltd, 4 Axle Full Trailer**
VIN/CHASSIS: **7A85N0J0298852476**

SCHEDULE 2: - Exempted Requirement

Section 2.3(9); The parking brake of a vehicle, whether or not it is being operated as a combination vehicle, must be able to be applied by the driver from the normal driving position using one control only.

SCHEDULE 3: - Conditions of this exemption:

1) The vehicle must be fitted with a Wabco park-release emergency valve (PREV), Part Number: 971 002 900 0.

2) The vehicle must be fitted with the Wabco PREV name plate, Part Number 971 002 103 4, adjacent to the PREV.

3) The vehicle must still be fitted with a parking brake that complies with all parking brake requirements in the Rule other than the requirement in Clause 2.3(9) of the Rule.

4) The installation of the PREV must be approved in writing by Transport Specialties Limited (Transpecs) or an NZ Transport Agency appointed HVEK certifier acting on behalf of, and under instruction from, Transpecs; Transpecs must keep a written record of all approvals.

5) An HVEK certifier in 4) must be fully trained in end of line procedures for Wabco electronically controlled braking systems

6) Transpecs must provide full operator training in the use of the PREV and furnish the operator with full written operating instructions for the PREV.

7) The vehicle must not be modified in any way while operating under this exemption.

8) This original exemption must be kept by Transport Specialties LTD.

9) A copy of this exemption (printed on a silver WABCO Sticker) must be affixed to the exempted vehicle as close to the WABCO PREV as possible.

10) The sticker in 8) must be legible and include all printed area's of this original exemption letter.

11) This exemption can be revoked at any time in writing by the NZ Transport Agency.

Signed at Wellington this 30th day of July 2010

E Girardin.

Eugene Girardin
Engineer

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 NZ Transport Agency if dissatisfied with a Compliance issue. (refer NZTA Deed Of Appointment Para 47.4)
NZ Transport Agency Helpdesk 0800 699 000

.....
L.P.CAWTE
(LPC HVEK)

NOTICE TO VEHICLE OPERATOR

This trailer is equipped with an **E**lectronic **B**rake **S**ystem.

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.

L P CAWTE
(LPC HVEK)
(09 980 7300)

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: EVANS
CHASSIS 2540
LC100805
LT400, 349071

please note!

This brake calculation is made under consideration of
-the legal precriptions mentioned above in the version valid
at the time of making the program (V6.09.06.08)
--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 9.0).
WABCOBrake V6.09.06.08 do 08.06.2009

vehicle manufacturer: EVANS
trailer model : 4AB TANKER
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 ECE,

		unladen	laden
total mass	P in kg	5400	28000
axle 1	P1 in kg	1450	7000
axle 2	P2 in kg	1450	7000
axle 3	P3 in kg	1250	7000
axle 4	P4 in kg	1250	7000
wheel base	E in mm	4650 - 4650	
centre of gravity height	h in mm	1120	1755

		axle 1	axle 2	axle 3	axle 4
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		BZ 122.1	BZ 122.1	BZ 119.6	BZ 119.6
brake chamber manufacturer		Meritor	Meritor	Meritor	Meritor
chamber size		14.	14.	T.14/24	T.14/24
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		2.4	2.4	2.1	2.1
chamber pressure(rdyn max)pH at z=22,5%bar		2.4	2.4	2.1	2.1
chamber press.(servo)pcha at pm6,5bar	bar	5.8	5.8	4.6	4.6
piston force ThA at pm6,5bar	N	5588	5588	4385	4385
brake force(rdyn min)T lad. at pm6,5bar	N	42260	42260	33173	33173
brake force(rdyn max)T lad. at pm6,5bar	N	42260	42260	33173	33173
brake force within 1 % rolling friction proportion	%	25.0	25.0	25.0	25.0

braking rate z laden		0.549	for rdyn min
z = sum (TR)/PRmax		0.549	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: 971 002 ... 0 WABCO
EBS emergency valve

valve 2: 480 102 ... 0 WABCO
EBS trailer modulator

axle 2:
valve 1: 971 002 ... 0 WABCO
EBS emergency valve

valve 2: 480 102 ... 0 WABCO
EBS trailer modulator

axle 3:
valve 1: 971 002 ... 0 WABCO
EBS emergency valve

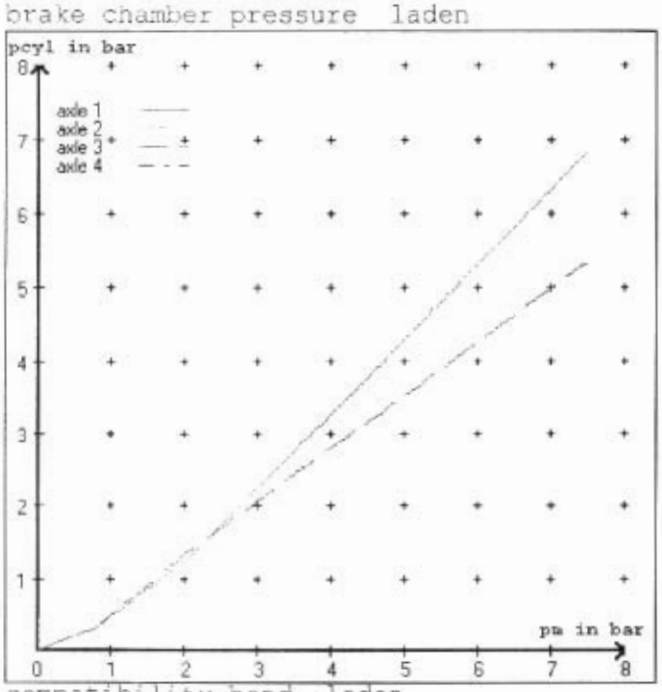
valve 2: 480 207 0.. 0 WABCO
EBS relay valve

axle 4:
valve 1: 971 002 ... 0 WABCO
EBS emergency valve

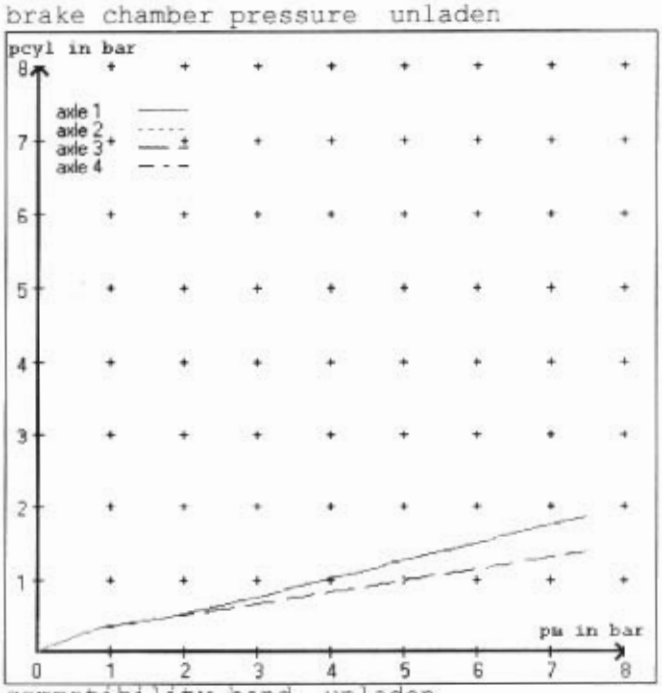
valve 2: 480 207 0.. 0 WABCO
EBS relay valve

test type III (zIII = 0.30)	for rdyn min :	axle1	axle2	axle3	axle4
at pm 3.9 bar =>	pcha in bar :	3.2	3.2	2.7	2.7
test type III (zIII = 0.06)	for rdyn min :	axle1	axle2	axle3	axle4
at pm 1.4 bar =>	pcha in bar :	0.7	0.7	0.8	0.8

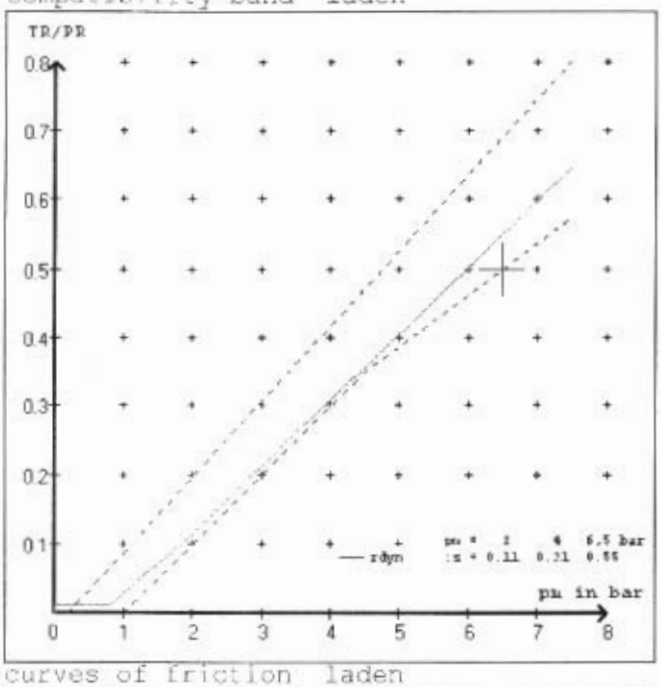
brake chamber pressure laden



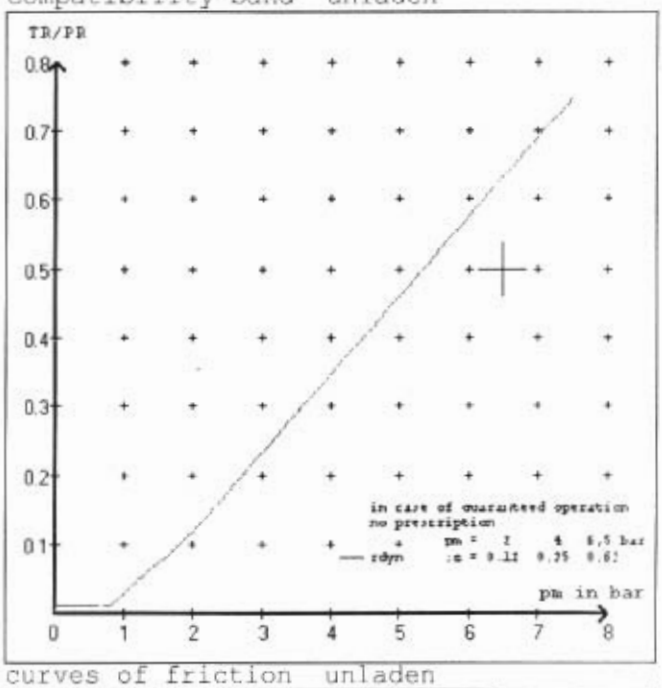
brake chamber pressure unladen



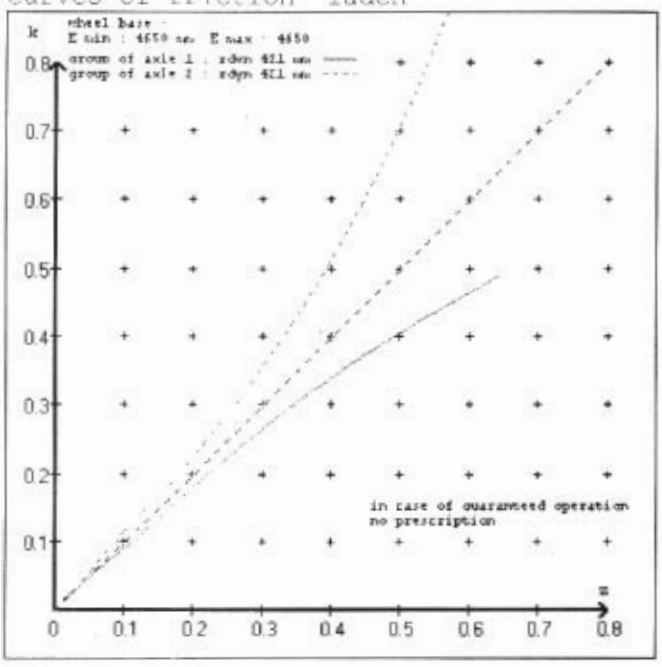
compatibility band laden



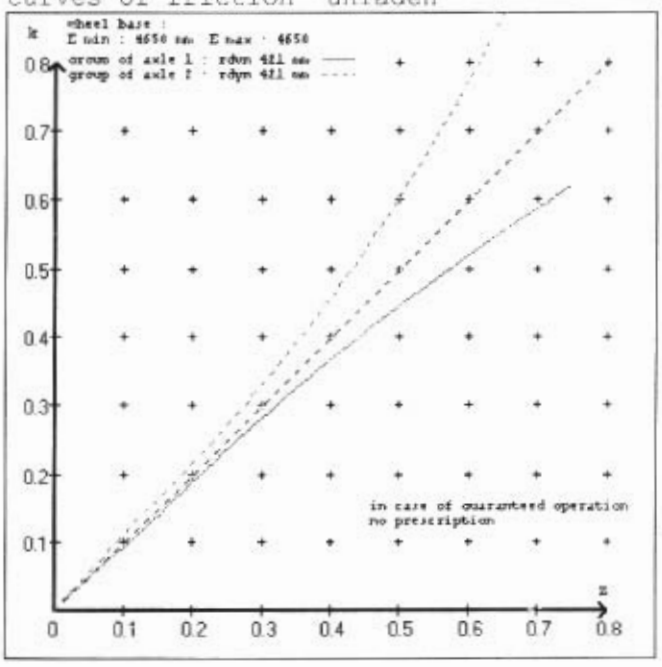
compatibility band unladen



curves of friction laden



curves of friction unladen



vehicle manufacturer: EVANS
trailer model : 4AB TANKER
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 :

971 002 ... 0	WABCO EBS emergency valve
480 102 ... 0	WABCO EBS trailer modulator
480 207 0.. 0	WABCO EBS relay valve

EBS input data

vehicle manufacturer: EVANS
trailer model : 4AB TANKER
trailer type : 4-axle-full-trailer
brake calculation no. : TP 67A

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

assignment pm / deceleration z: pm 0.8 bar z = 0.000
(laden condition) 2.0 bar z = 0.116
6.5 bar z = 0.550

	control pressure pm	6,5		control pressure pm	0.8	2.0	6.5
axle	axle load unladen	bellow pr. unladen	brake pr. unladen	axle load laden	bellow pr. laden	brake pr. laden	
1	1450	to be	1.6	7000	to be	0.3	1.2	5.8
2	1450	entered by	1.6	7000	entered by	0.3	1.2	5.8
3	1250	the vehicle	1.2	7000	the vehicle	0.3	1.3	4.6
4	1250	manufact.	1.2	7000	manufact.	0.3	1.3	4.6
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
1450	1.6	1450	1.6	1250	1.2	1250	1.2
1950	2.0	1950	2.0	1750	1.5	1750	1.5
2450	2.4	2450	2.4	2250	1.8	2250	1.8
2950	2.7	2950	2.7	2750	2.1	2750	2.1
3450	3.1	3450	3.1	3250	2.4	3250	2.4
3950	3.5	3950	3.5	3750	2.7	3750	2.7
4450	3.9	4450	3.9	4250	3.0	4250	3.0
4950	4.2	4950	4.2	4750	3.3	4750	3.3
7000	5.8	7000	5.8	7000	4.6	7000	4.6

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-...	brake lining: Jurid 539	
test report :		TDB 0749 ECE	date	: 13.10.2008
axle 2 : reference axle: SAF		SBW 1937-...	brake lining: Jurid 539	
test report :		TDB 0749 ECE	date	: 13.10.2008
axle 3 : reference axle: SAF		SBW 1937-...	brake lining: Jurid 539	
test report :		TDB 0749 ECE	date	: 13.10.2008
axle 4 : reference axle: SAF		SBW 1937-...	brake lining: Jurid 539	
test report :		TDB 0749 ECE	date	: 13.10.2008

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

axle 1	(rdyn 421 mm)	T = 22.3 % Pe
axle 2	(rdyn 421 mm)	T = 22.3 % Pe
axle 3	(rdyn 421 mm)	T = 18.9 % Pe
axle 4	(rdyn 421 mm)	T = 18.9 % Pe

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

axle 1	(sp = 57 mm)	s = 39 mm
axle 2	(sp = 57 mm)	s = 39 mm
axle 3	(sp = 56 mm)	s = 39 mm
axle 4	(sp = 56 mm)	s = 39 mm

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

axle1	ThA = 5588 N
axle2	ThA = 5588 N
axle3	ThA = 4385 N
axle4	ThA = 4385 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 = 33284 N
axle 2	(rdyn 421 mm)	T = 33284 N
axle 3	(rdyn 421 mm)	T = 26161 N
axle 4	(rdyn 421 mm)	T = 26161 N

	basic test of subject trailer (z)	type III (calculated) residual (hot)braking
braking rate of the vehicle (item 4.3.2 to appendix I to annex VII)	0.55	0.43
required braking rate (items 1.3.3 and 1.6.2 to annex II)		>= 0,4 and >= 0,6*z (0.33)

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

axle 1	(rdyn 421 mm)	T = 33284 N
axle 2	(rdyn 421 mm)	T = 33284 N
axle 3	(rdyn 421 mm)	T = 26161 N
axle 4	(rdyn 421 mm)	T = 26161 N

	basic test of subject trailer (z)	type III (calculated) residual (hot)braking
braking rate of the vehicle (item 4.3.2 to appendix I to annex VII)	0.55	0.43
required braking rate (items 1.3.3 and 1.6.2 to annex II)		>= 0,4 and >= 0,6*z (0.33)

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 = 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

min Ef = E * (1 - PR/P + zferf * h/E) / (1 - zferf / (fzul * nf/ng))

min Ef = 3408 mm for E = 4650 mm

min Ef = 3408 mm for E = 4650 mm

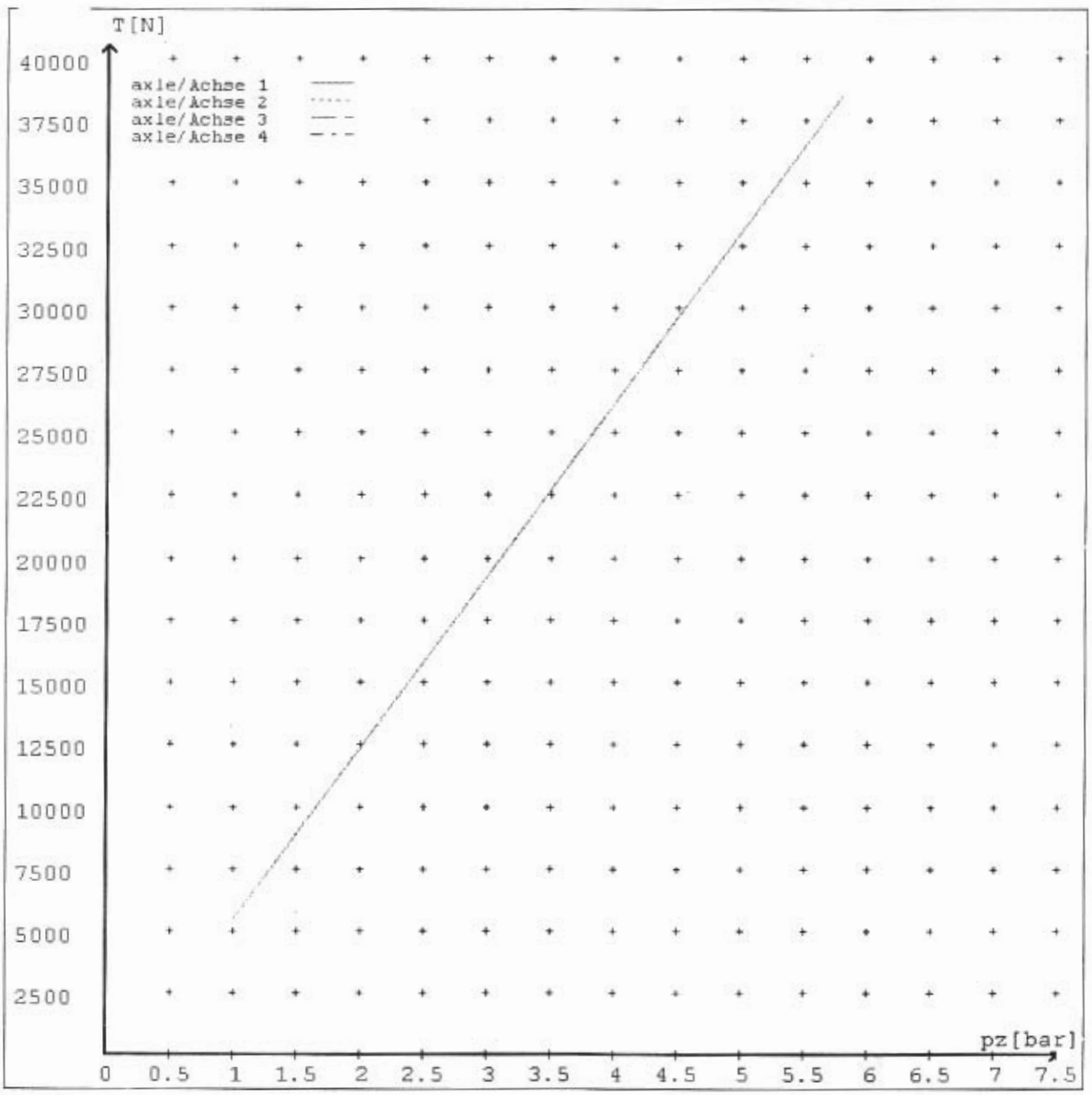
min Ef =			minimum distance between front axle(s) (trailer) or support (semitrail<
and the rear axle(s) (resultant of the bogie)			
E	=		wheel base
fzul	=	0.80	maximum permissible frictional connection required
zferf	=	0.18	maximum required braking ratio of the parking brake
h	=	1755 mm	height of center 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 = 50%

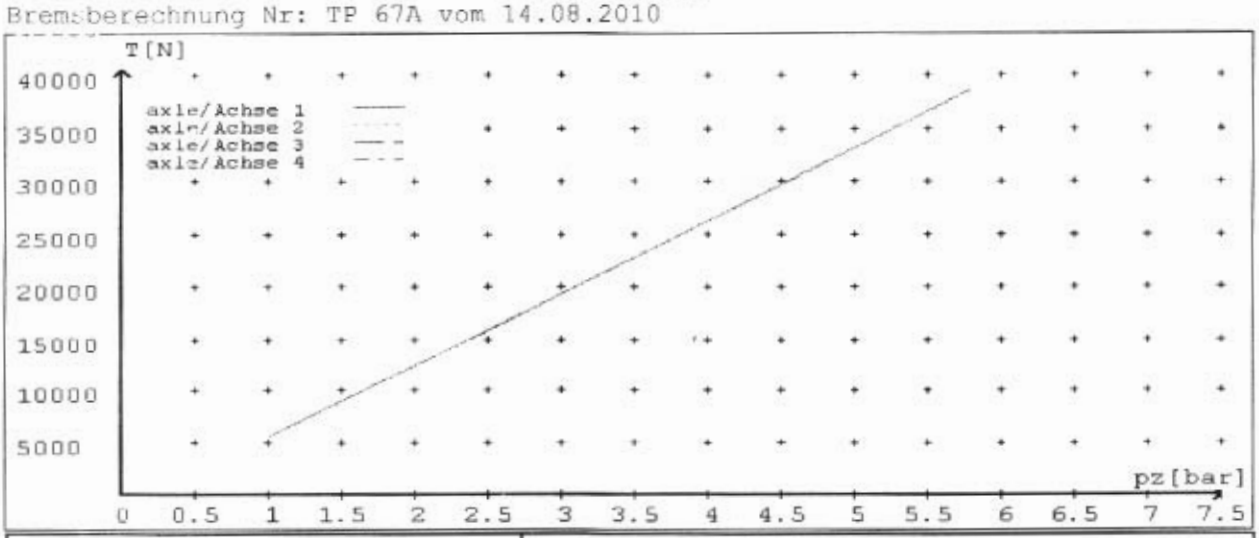
	pz [bar]	T [N]	T [N]
axle 1	1.0 5.8	5383 38488	
axle 2	1.0 5.8	5383 38488	
axle 3	1.0 4.6		5383 30212
axle 4	1.0 4.6		5383 30212

VIN - no.:



Print on WABCO no. 899 200 922 4 (only possible with laser printers!)

reference values for z = 0.5
Angabe der Referenzwerte für z = 0.5
brake calculation no: TP 67A date 14.08.2010
Bremsberechnung Nr: TP 67A vom 14.08.2010



	Axle(s) / Achse(n)				
brake cylinder type (service / parking) Bremszylinder Typ (Betrieb / Rest)	14./	14./	T.14/24	T.14/24	/
Maximum stroke s_{max} = ...mm Maximaler Hub s_{max} = ...mm	64	64	64	64	
Lever length = ...mm Hebel Länge = ...mm	69.08	69.08	69.08	69.08	