NZ TRANSPORT AGENCY WAKA KOTAHI

Heavy Vehicle Specialist Certificate

Must be presented to a CoF (Heavy) Inspecting Organisation
Heavy Vehicle Specialist Inspector and Inspecting Organisation

Heavy Vehicle Specialist Inspector's or Manufacturing Inspecting Organisation's Name *(PRINT IN CAPS)*

Chris Clarke

ID

CJC

Vehicle Registration*

VIN/Chassis Number

7A9D20011F1023330

Component being certified:

☐ Chassis Modification		☐ Load Anchorage		☐ Log Bolsters	
☐ Towing Connection		☒ Brakes		☐ SRT	
☐ PSV Stability		☐ PSV Rollover		☐ Swept Path	
☐ PBS					

Certification Category

HVEK

Description of Work

CERTIFY TO SCHEDULE 5

ROLL STABILTY FUNCTION ACTIVATED

Code/Standard/Rule Certified to

HVBR 32015/3 Schedule 5

Component Load Rating(s)

30000KG

General Drawing Number(s)

N/A

Supporting Documents

BRAKE RULE CERTIFICATE - CJC152885

Special Conditions*

WARNING LAMP MUST ILLUMINATE WHEN IGNITION IS SWITCHED ON & THEN EXTINGUISH IMMEDIATELY OR WHEN VEHICLE SPEED EXCEEDS 7 KPH
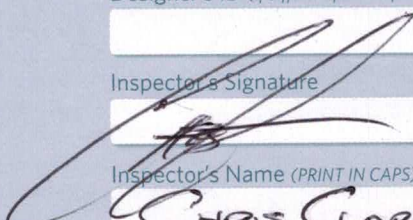
Certification Expiry Date *(if applicable)*

N/A

or

Hubodometer Reading *(whichever comes first)*

Declaration

I the undersigned, declare that I am the Heavy Vehicle Specialist Inspector identified 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 Appointment. To the best of my knowledge the information contained in the Certificate is true and correct.

Designer's ID *(if different from inspector below)*

Inspector's Signature

Inspector's Name *(PRINT IN CAPS)*

CHRIS CLARKE

ID Number

CJC

Date

21-Jan-15

Number

499985

CoF Vehicle Inspector ID

CoF Vehicle Inspector Signature

Date

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

WABCO START-UP PROTOCOL

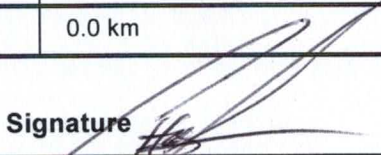| System	Trailer EBS-E	WABCO part number	480 102 080 0
Production date	2014-09-05	Serial number	437000762400N
Serial number (modulator)	000000033342		
Fingerprint Customer EOL / Customer Development / Flash Program	W503643 / 2015-01-21 ; 00000000 / 0000-00-00 ; 00000000 / 0000-00-00		

WABCO TRAILER EBS-E — GGVS/ADR TUEH TB 2007 - 019.00

HERSTELLER MANUFACTURER CONSTRUCTEUR	Domett Truck and Tra
TYP TYPE TYPE	4-AX CURTAIN SIDER
FAHRZEUG IDENTNR. CHASSIS NUMBER NUMERO DE CHASSIS	7A9D20011F1023330
BREMSBERECHNUNGS-NR. BRAKE CALCULATION NO. CALCUL DE FREINAGE NO.	GenNZ50010A

POLRADZÄHNEZAHL c-d | e-f POLE WHEEL TEETH c-d | e-f DENTS ROUE DENTÉE c-d | e-f	90	90	ABS-System ABS system Système ABS	4S/3M

| RSS RSS RSS | Einfachbereifung Single Tire Monte simple | | Lenkachse Steering axle Essieu vireur | |
| | Zwillingsbereifung Twin Tire Monte jumelée | X | Kippkritisches Fahrzeug Critical Trailer Véhicule critique | |

Subsystems	---		I/O	24N

GIO	Pin1	Pin3	Pin4
1	---	---	24V-O1
2	---	---	---
3	ALS2	ALS2	---
4	---	---	---
5	DIAG	DIAG	DIAG
6	---	---	---
7	---	---	---

	pm (bar)	6.5	pm (bar)	0.7	2.0	---	6.5			(mm)	(mm)	(bar) 1.0	Pz
ACHSE AXLE ESSIEU							pz	TYP TYPE				TR (daN)	
1	1670	0.6	2.4	7500	4.9	0.4	1.4	---	6.1	-	18	64	69	491	4092
2	1670	0.6	2.4	7500	4.9	0.4	1.4	---	6.1	-	18	64	69	491	4092
3	1520	0.5	1.9	7500	4.9	0.4	1.5	---	5.4	-	14 / 16	64	69	494	3262
4	1520	0.5	1.9	7500	4.9	0.4	1.5	---	5.4	-	14 / 16	64	69	494	3262
5	0	---	---	0	---	---	---	---	---		---	---	---	---	---

Diagnostic memory	OK	Warning lamp control	OK
Parameter setting	carried out	Stop light power supply	Not tested
EBS pressure test	Not tested	Lifting axle test	Not tested
Redundancy test	OK	ECAS height sensor calibration	Not tested
ABS sensor assignment	OK	Height sensor axle load	Not tested
RTR check	Not tested	Leak test	Not tested
Immobilizer test	Not tested	Signal outputs TEBS	Not tested
Signal inputs	Not tested	Tag axle test	Not tested

Diagnostic memory ELEX	Not tested	Signal outputs ELEX	Not tested
TailGUARDlight	Not tested	TailGUARD	Not tested

Manufacturer	Domett Truck and Tra	Vehicle ident. no	7A9D20011F1023330
Vehicle type	4-AX CURTAIN SIDER	Odometer reading	0.0 km
next Service	0 km	Trip reading	0.0 km
Tester	Chris Clarke		
Date	2015-01-21 8:50:14 p.m.	Signature	

trailer (full, semi-, centre-axle) with air brake system acc. to UN/ECE-R.13.11

please note!

distribution: Domett Truck and Trailer
               7A9D20011F1023330

This brake calculation is made under consideration of
-the legal precriptions mentioned above in the version valid
 at the time of making the program (V6.14.04.20).
-the functional characteristics of our products
 as well as the data of the brake out of the test
 approvals of the axle 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).
In any case we commend to do a braking harmonisation!
WABCOBrake V6.14.04.20 db 08.07.2014

vehicle manufacturer: Domett Truck and Trailer

trailer model   :   4-AX CURTAIN SIDER

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		6380	30000
axle 1	P1 in kg		1670	7500
axle 2	P2 in kg		1670	7500
axle 3	P3 in kg		1520	7500
axle 4	P4 in kg		1520	7500
wheel base	E in mm	6900 - 6900		
centre of gravity height	h in mm		1090	2084

			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			18.	18.	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	2.3	2.3
chamber pressure(rdyn max)pH at z=22,5%bar			2.4	2.4	2.3	2.3
chamber press.(servo)pcha at pm6,5bar bar			6.1	6.1	5.4	5.4
piston force ThA at pm6,5bar N			6510	6510	5187	5187
brake force(rdyn min)T lad. at pm6,5bar N			49277	49277	39280	39280
brake force(rdyn max)T lad. at pm6,5bar N			49277	49277	39280	39280
brake force within 1 % rolling friction						
proportion	%		26.3	26.3	23.7	23.7

braking rate   z laden   0.602   for rdyn min
z = sum (TR)/PRmax   0.602   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   or 480 207 2.. 0
           EBS relay valve

  brake cylinder: Meritor   18HSCLD64

axle 2:
  valve 1: 480 207 0.. 0   WABCO   or 480 207 2.. 0
           EBS relay valve

  brake cylinder: Meritor   18HSCLD64

axle 3:
  valve 1: 480 102 0.. 0   WABCO
           EBS trailer modulator

  brake cylinder: Meritor   1424HTLD64

axle 4:
  valve 1: 480 102 0.. 0   WABCO
        EBS trailer modulator

  brake cylinder: Meritor   1424HTLD64

test type III (zIII = 0.30) for rdyn min : axle1 axle2 axle3 axle4
at pm 3.6 bar =>   pcha in bar :   3.1   3.1   2.9   2.9
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
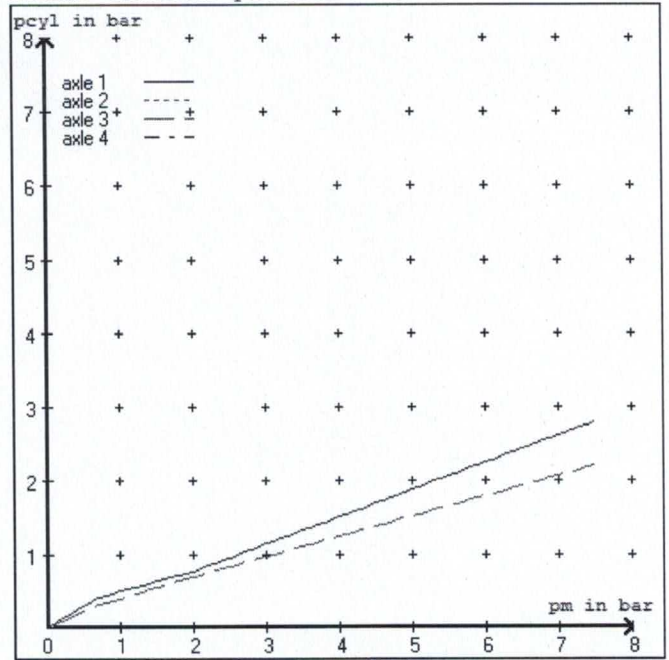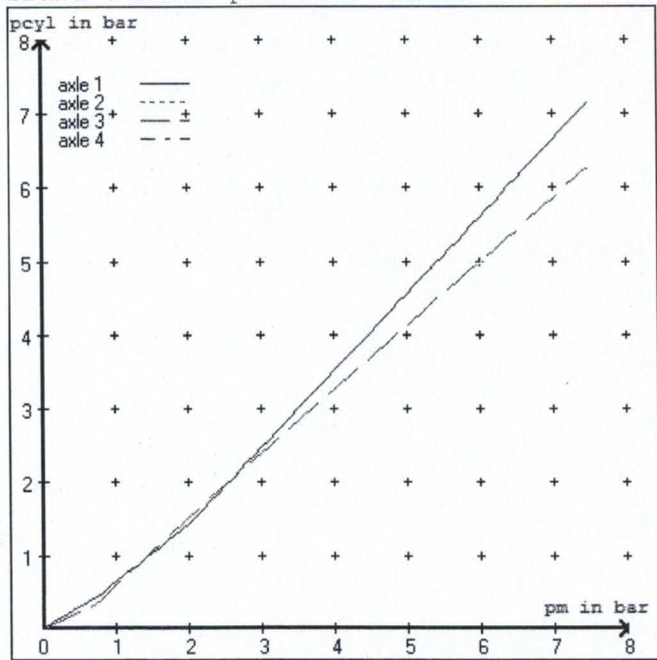
compatibility band laden

compatibility band unladen
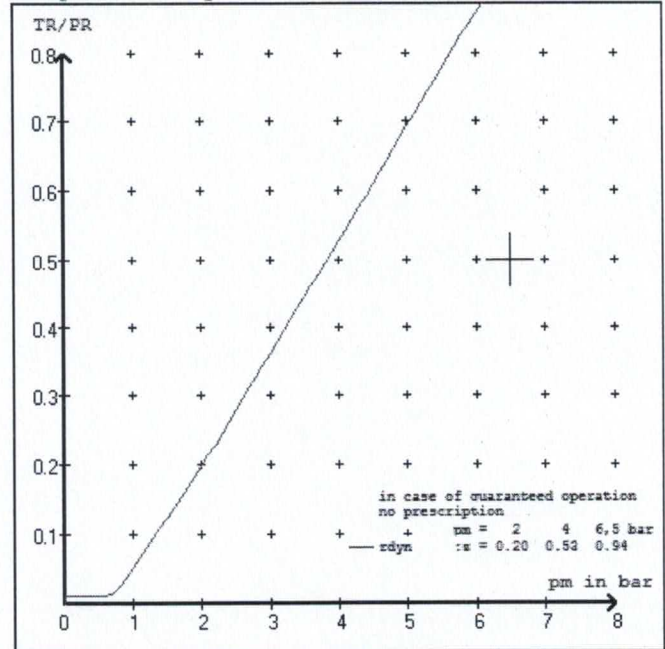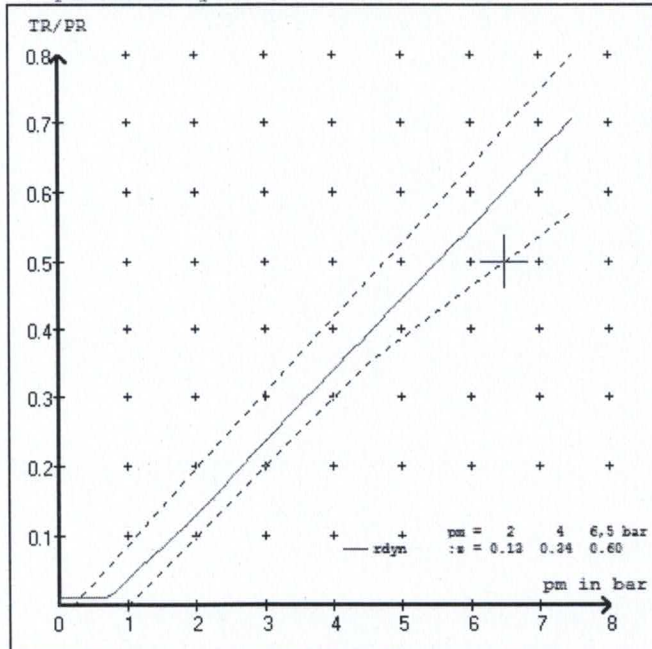
curves of friction laden

curves of friction unladen

vehicle manufacturer: Domett Truck and Trailer
trailer model   :   4-AX CURTAIN SIDER
trailer type   :   4-axle-full-trailer

brake chamber and lever length :
axle 1 :   2 x type/diameter   18. (Meritor)   lever length 69 mm
axle 2 :   2 x type/diameter   18. (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   or 480 207 2.. 0
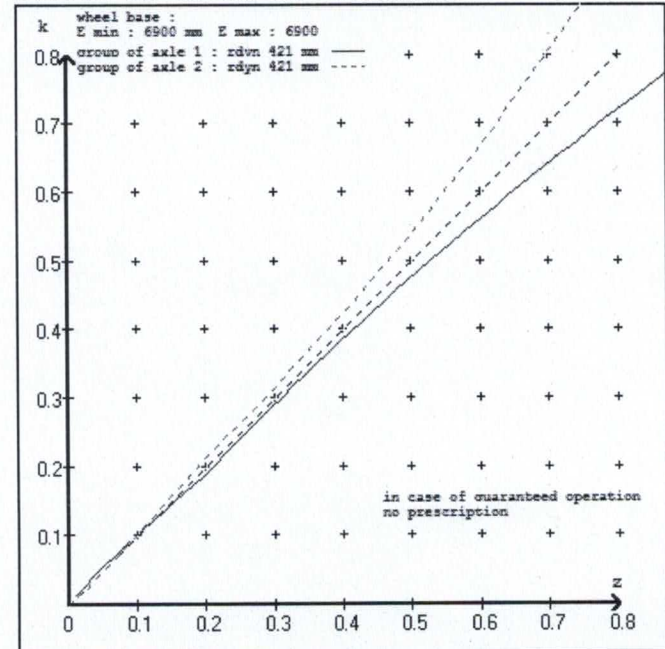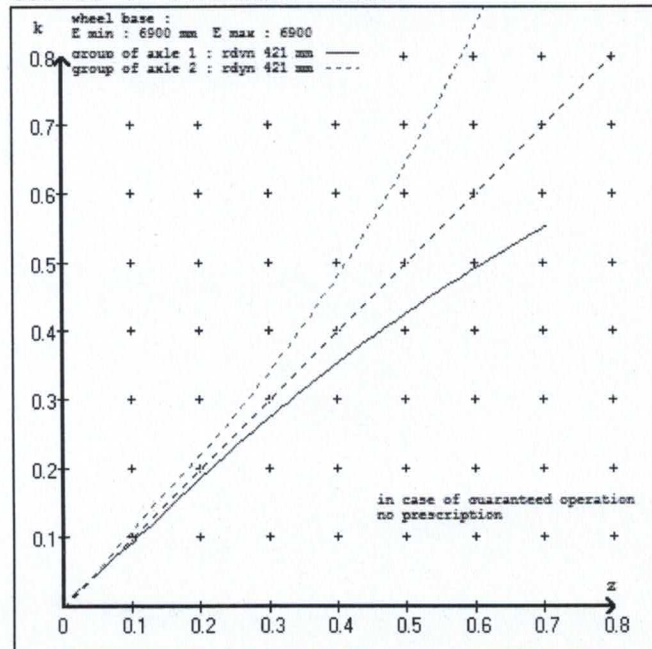480 102 0.. 0   WABCO EBS trailer modulator

EBS input data
==============
vehicle manufacturer: Domett Truck and Trailer
trailer model   : 4-AX CURTAIN SIDER
trailer type   : 4-axle-full-trailer
brake calculation no.   : GenNZ 50010A

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 = 0.010
(laden condition)   2.0 bar z = 0.130
                                   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	1670	to be	2.4	7500	to be	0.4	1.4	6.1
2	1670	entered by	2.4	7500	entered by	0.4	1.4	6.1
3	1520	the vehicle	1.9	7500	the vehicle	0.3	1.5	5.4
4	1520	manufact.	1.9	7500	manufact.	0.3	1.5	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
1670	2.4	1670	2.4	1520	1.9	1520	1.9
2170	2.7	2170	2.7	2020	2.2	2020	2.2
2670	3.0	2670	3.0	2520	2.5	2520	2.5
3170	3.4	3170	3.4	3020	2.8	3020	2.8
3670	3.7	3670	3.7	3520	3.1	3520	3.1
4170	4.0	4170	4.0	4020	3.4	4020	3.4
4670	4.3	4670	4.3	4520	3.7	4520	3.7
5170	4.6	5170	4.6	5020	3.9	5020	3.9
7500	6.1	7500	6.1	7500	5.4	7500	5.4

data sheet to ECE vehicle type-approval certificate concerning braking
equipment: according to 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 4.2.1 of appendix 2 to annex 11)

```
axle 1             (rdyn 421 mm)           T = 23.7 % Fe
axle 2             (rdyn 421 mm)           T = 23.7 % Fe
axle 3             (rdyn 421 mm)           T = 20.4 % Fe
axle 4             (rdyn 421 mm)           T = 20.4 % Fe
```

calculated actuator stroke in mm
(item 4.3.1.1 of appendix 2 to annex 11)

```
axle 1             (sp = 58 mm)            s = 39 mm
axle 2             (sp = 58 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 = 6510 N
axle2                          ThA = 6510 N
axle3                          ThA = 5187 N
axle4                          ThA = 5187 N
```

calc. residual (hot) braking force in N
(item 4.3.1.4 of appendix 2 to annex 11)

```
axle 1             (rdyn 421 mm)           T = 38795 N
axle 2             (rdyn 421 mm)           T = 38795 N
axle 3             (rdyn 421 mm)           T = 30960 N
axle 4             (rdyn 421 mm)           T = 30960 N
```

	basic test of subject trailer (E)	type III (calculated) residual (hot)braking
braking rate of the vehicle (item 4.3.2 to appendix 2 to annex 11)	0.60	0.47
required braking rate (items 1.5.3 and 1.7.2 to annex 11)		>= 0,4 and >= 0,6*E (0.36)

```
axle 1             (rdyn 421 mm)           T = 38795 N
axle 2             (rdyn 421 mm)           T = 38795 N
axle 3             (rdyn 421 mm)           T = 30960 N
axle 4             (rdyn 421 mm)           T = 30960 N
```

	basic test of subject trailer (E)	type III (calculated) residual (hot)braking
braking rate of the vehicle (item 4.3.2 to appendix 2 to annex 11)	0.60	0.47
required braking rate (items 1.5.3 and 1.7.2 to annex 11)		>= 0,4 and >= 0,6*E (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:

		axle 3	axle 4
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		0.415	
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

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

min Ef =   4936 mm   for E =   6900 mm
==================
min Ef =   4936 mm   for E =   6900 mm
==================

| min Ef	=		minimum distance between front axle(s) (trailer) or support (semitraile
			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	=	2084 mm	height of center of gravity - laden
PR	=	15000 kg	maximum bogie mass - laden
P	=	30000 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%   for max rdyn: 421 mm

	pz [bar]	T [N]	T [N]
axle 1	1.0 6.1	4912 40927	
axle 2	1.0 6.1	4912 40927	
axle 3	1.0 5.4		4950 32625
axle 4	1.0 5.4		4950 32625

VIN - no.:

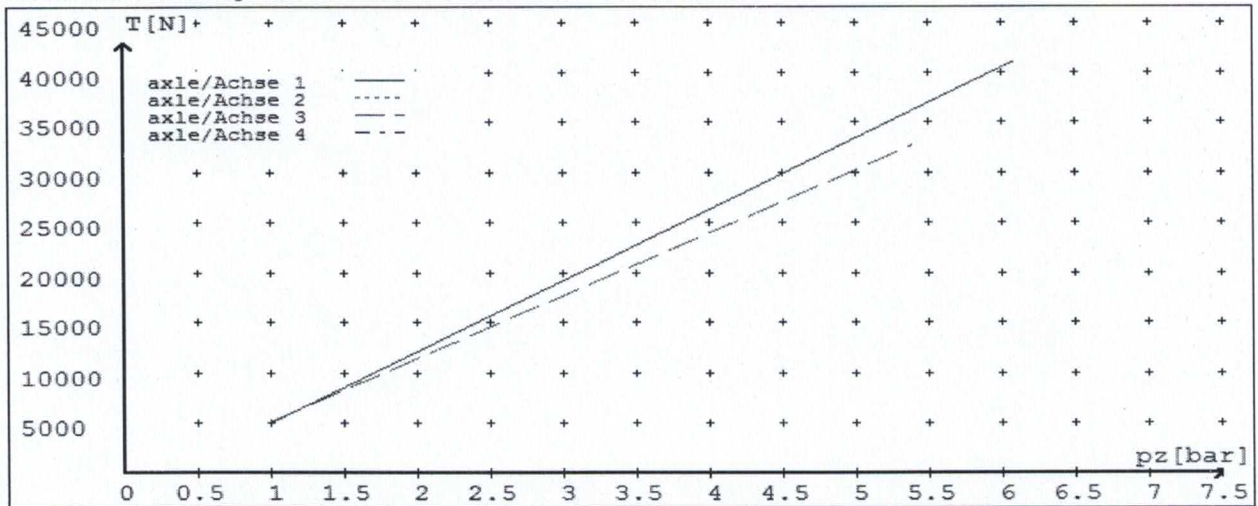|	Axle(s) / Achse(n)				
brake cylinder type (service / parking) Bremszylinder Typ (Betrieb / Fest)	18./	18./	T.14/24	T.14/24	/
Maximum stroke smax = ...mm maximaler Hub smax = ...mm	64	64	64	64	
Lever length = ...mm Hebellänge = ...mm	69.08	69.08	69.08	69.08	
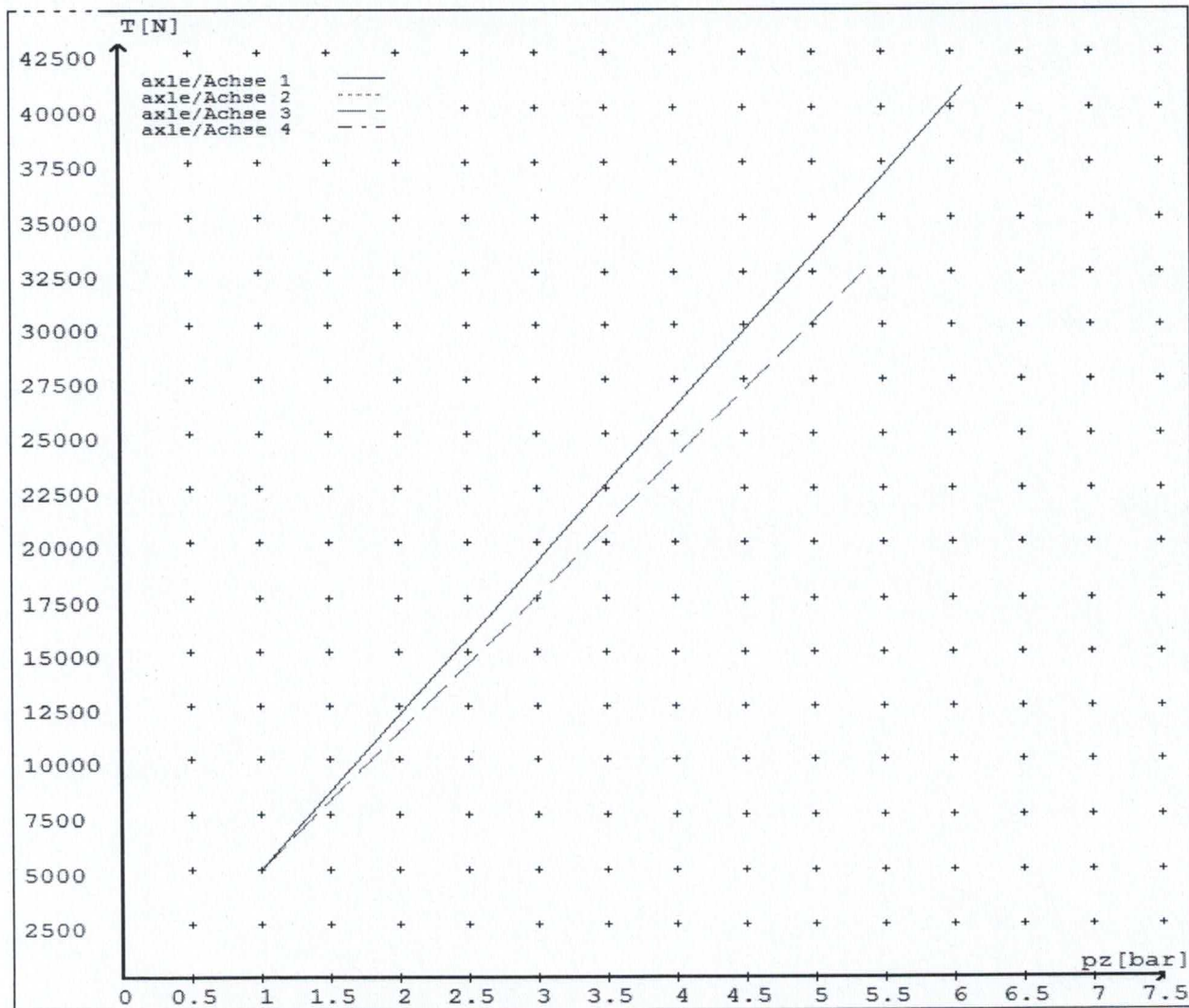
reference values for z = 0.5　　　　　　　　　　　**for max rdyn: 421 mm**
Angabe der Referenzwerte für z = 0.5　　　　　　　für max rdyn: 421 mm
brake calculation no: GenNZ 50010A date 13.01.2015
Bremsberechnung Nr: GenNZ 50010A vom 13.01.2015

	Axle(s) / Achse(n)				
brake cylinder type (service / parking) Bremszylinder Typ (Betrieb / Fest)	18./	18./	T.14/24	T.14/24	/
Maximum stroke smax = ...mm maximaler Hub smax = ...mm	64	64	64	64	
Lever length = ...mm Hebellänge = ...mm	69.08	69.08	69.08	69.08	