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: 7A9C20031F1023373

Component being certified:

- [ ] Chassis
- [ ] Load Anchorage
- [ ] Log Bolsters
- [ ] Towing Connection
- [X] 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 - CJC153097

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: 14-May-15

Number: 510697

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

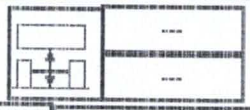
System	Trailer EBS-E	**WABCO part number**	480 102 080 0
Production date	2014-12-13	**Serial number**	437001008100K
Serial number (modulator)	000000035550		
Fingerprint Customer EOL / Customer Development / Flash Program	W503643 / 2015-05-14 ; 00000000 / 0000-00-00 ; 00000000 / 0000-00-00		

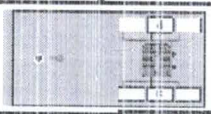
WABCO TRAILER EBS-E

GGVS/ADR TUEH TB 2007 - 019.00

HERSTELLER MANUFACTURER CONSTRUCTEUR	DOMETT TRAILERS
TYP TYPE TYPE	3ABTRAIN LEAD UNIT
FAHRZEUG IDENTNR. CHASSIS NUMBER NUMERO DE CHASSIS	7A9C20031F1023373
BREMSBERECHNUNGS-NR. BRAKE CALCULATION NO. CALCUL DE FREINAGE NO.	GenNZ50058S
POLRADZÄHNEZAHL c-d | e-f POLE WHEEL TEETH c-d | e-f DENTS ROUE DENTÉE c-d | e-f	90 --- ABS-System ABS system Système ABS: 2S/2M
RSS RSS RSS — Einfachbereifung Single Tire Monte simple	X — Lenkachse Steering axle Essieu vireur:
RSS RSS RSS — Zwillingsbereifung Twin Tire Monte jumelée	Kippkritisches Fahrzeug Critical Trailer Véhicule critique:
Subsystems	SB — I/O — 24N

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





	pm (bar)		6.5	pm (bar)		0.8	2.0	---	6.5		TYP TYPE	(mm)	(mm)	(bar) 1.0 TR (daN)	Pz
ACHSE AXLE ESSIEU									pz						
1	1230	0.6	2.1	6350	3.9	0.5	1.6	---	6.0	-	14 / 24	61	80	286	2801
2	1230	0.6	2.1	6350	3.9	0.5	1.6	---	6.0	-	14 / 24	61	80	286	2801
3	1230	0.6	2.1	6350	3.9	0.5	1.6	---	6.0	-	14	62	80	286	2801
4	0	---	---	0	---	---	---	---	---	-	---	---	---	---	---
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 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 TRAILERS	**Vehicle ident. no**	7A9C20031F1023373
Vehicle type	3ABTRAIN LEAD UNIT	**Odometer reading**	2.9 km
next Service	0 km	**Trip reading**	2.9 km
Tester	Chris Clarke		
Date	2015-05-14 10:08:30 a.m.	**Signature**	

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

distribution: DOMETT TRAILERS
7A9C20031F1023373
CJC153097

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 (V6.14.04.20).
-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 TRAILERS
trailer model : 3ABTRAIN LEAD UNIT
trailer type : 3-axle-semi-trailer
remarks : air / hydraulic / VA suspension
WABCO TRAILER - EBS E
TRISTOP 1+2: 14/24
265/70 R 19,5

axle 1 + 2 + 3 : BPW, TSB 3709, 361-041-08 ECE,

		unladen	laden
total mass	P in kg	6600 - 6600	30000 - 30000
king-pin	PS kg	2910 - 2910	10950 - 10950
axle 1	P1 in kg	1230	6350
axle 2	P2 in kg	1230	6350
axle 3	P3 in kg	1230	6350
total axle mass	PR in kg	3690	19050
wheel base	E in mm	6675 - 6675	
centre of gravity height	h in mm	1070	2062
K-factor		Kv min 1.9167	Kc min 1.0109
K-factor		Kv max 1.9167	Kc max 1.0109

		axle 1	axle 2	axle 3
no. of combined axles		1	1	1
no. of brake chambers per axle line	KDZ	2	2	2
The power output corresponds to		BC 0056.2	BC 0056.2	BC 0055.2
brake chamber manufacturer		BPW	BPW	BPW
chamber size		14/24	14/24	14.
lever length	lBh in mm	80	80	80
brake factor	[-]	20.50	20.50	20.50
dyn. rolling radius	rdyn min in mm	421	421	421
dyn. rolling radius	rdyn max in mm	421	421	421
threshold torque	Co Nm	12.0	12.0	12.0

calculation:

chamber pressure(rdyn min)	pH at z=22,5%	bar	2.5	2.5	2.5
chamber pressure(rdyn max)	pH at z=22,5%	bar	2.5	2.5	2.5
chamber press.(servo)	pcha at pm6,5bar	bar	6.0	6.0	6.0
piston force	ThA at pm6,5bar	N	4848	4848	4848
brake force(rdyn min)	T lad. at pm6,5bar	N	37225	37225	37225
brake force(rdyn max)	T lad. at pm6,5bar	N	37225	37225	37225
brake force within 1 % rolling friction proportion		%	33.3	33.3	33.3

braking rate z laden
z = sum (TR)/PRmax

0.598 for rdyn min
0.598 for rdyn max

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

brake diagram : 841 701 101 0

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

brake cylinder: BPW 05.444.38...

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

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

brake cylinder: BPW 05.444.38...

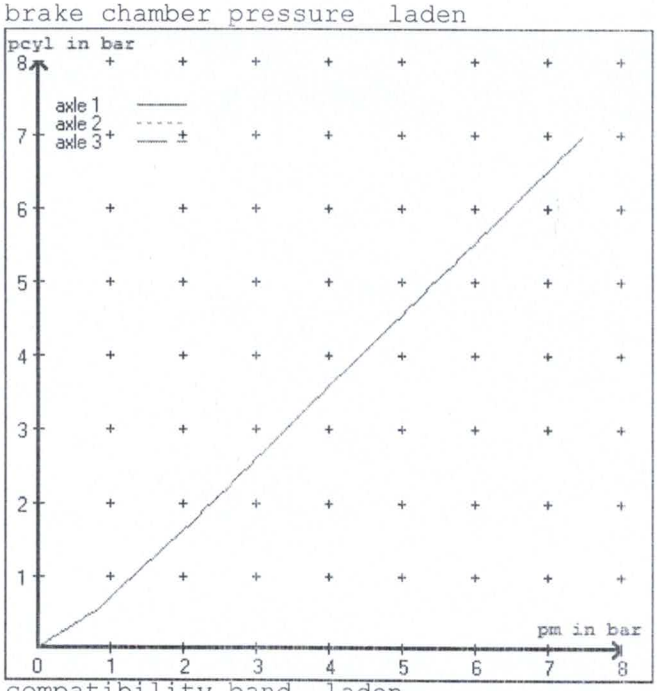
axle 3:
valve 1: 971 002 ... 0 WABCO
EBS emergency valve

valve 2: 480 102 ... 0 () WABCO or 480 207 0.. 0 / 2.. 0
EBS trailer modulator

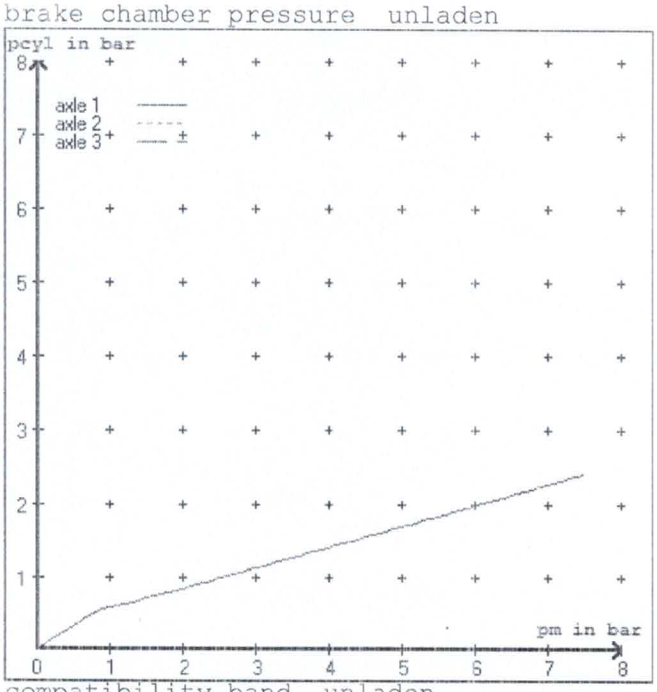
brake cylinder: BPW 05.444.30...

test type III (zIII = 0.30)	for rdyn min :	axle1	axle2	axle3
at pm 3.7 bar =>	pcha in bar :	3.2	3.2	3.2
test type III (zIII = 0.06)	for rdyn min :	axle1	axle2	axle3
at pm 1.3 bar =>	pcha in bar :	1.0	1.0	1.0

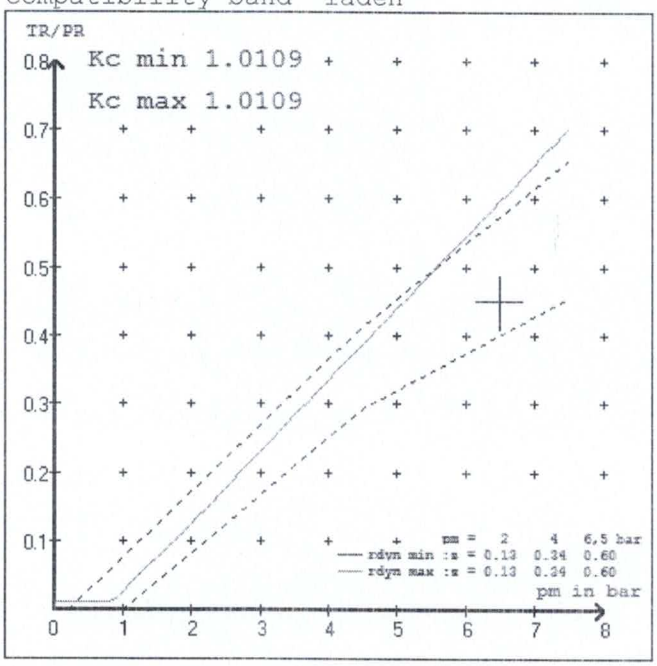
brake chamber pressure laden



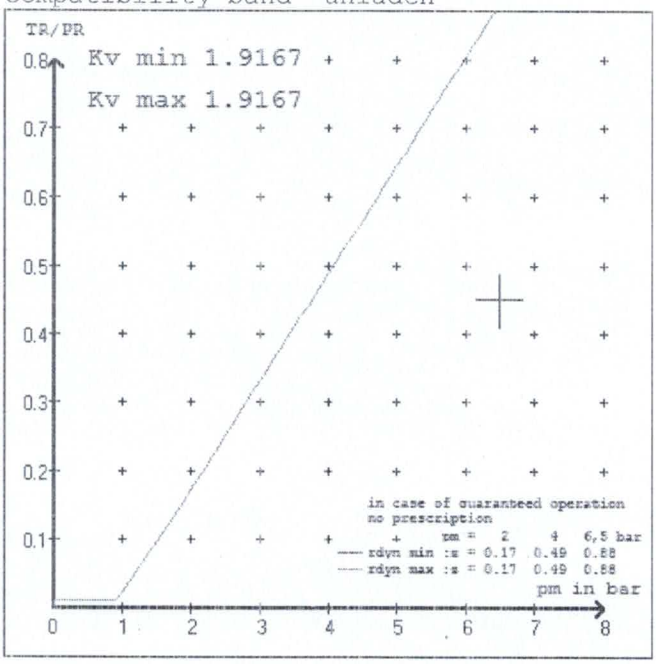
brake chamber pressure unladen



compatibility band laden



compatibility band unladen



vehicle manufacturer: DOMETT TRAILERS
trailer model : 3ABTRAIN LEAD UNIT
trailer type : 3-axle-semi-trailer

brake chamber and lever length :
axle 1 : 2 x type/diameter 14/24 (BPW) lever length 80 mm
axle 2 : 2 x type/diameter 14/24 (BPW) lever length 80 mm
axle 3 : 2 x type/diameter 14. (BPW) lever length 80 mm

brake diagram : 841 701 101 0

valve :
971 002 ... 0 WABCO EBS emergency valve
480 102 ... 0 WABCO EBS trailer modulator
480 102 ... 0 WABCO EBS trailer modulator or 480 207 0.. 0 / 2.. 0

EBS input data
==========
vehicle manufacturer: DOMETT TRAILERS
trailer model : 3ABTRAIN LEAD UNIT
trailer type : 3-axle-semi-trailer
brake calculation no. : GenNZ 50058S

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 = 0.010
(laden condition) 2.0 bar z = 0.127
6.5 bar z = 0.600

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	1230	to be entered by the vehicle manufact.	2.1	6350	to be entered by the vehicle manufact.	0.5	1.6	6.0
2	1230		2.1	6350		0.5	1.6	6.0
3	1230		2.1	6350		0.5	1.6	6.0
4	0		0,0	0		0,0	0,0	0,0
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 load	pcyl	axle load	pcyl	axle load	pcyl
1230	2.1	1230	2.1	1230	2.1
1730	2.5	1730	2.5	1730	2.5
2230	2.9	2230	2.9	2230	2.9
2730	3.2	2730	3.2	2730	3.2
3230	3.6	3230	3.6	3230	3.6
3730	4.0	3730	4.0	3730	4.0
4230	4.4	4230	4.4	4230	4.4
4730	4.8	4730	4.8	4730	4.8
6350	6.0	6350	6.0	6350	6.0

data sheet to ECE vehicle type-approval certificate concerning braking equipment: according to ECE R13 annex 11

axle 1 :	reference axle: BPW	D 115-2	brake lining:	BPW 8101
	test report :	361-041-08 ECE	date :	01.04.2011
axle 2 :	reference axle: BPW	D 115-2	brake lining:	BPW 8101
	test report :	361-041-08 ECE	date :	01.04.2011
axle 3 :	reference axle: BPW	D 115-2	brake lining:	BPW 8101
	test report :	361-041-08 ECE	date :	01.04.2011

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 = 16.6 % Fe
axle 2	(rdyn 421 mm)	T = 16.6 % Fe
axle 3	(rdyn 421 mm)	T = 16.6 % Fe

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

axle 1	(sp = 51 mm)	s = 48 mm
axle 2	(sp = 51 mm)	s = 48 mm
axle 3	(sp = 52 mm)	s = 48 mm

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

axle1	ThA = 4848 N
axle2	ThA = 4848 N
axle3	ThA = 4848 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 = 33739 N
axle 2	(rdyn 421 mm)	T = 33739 N
axle 3	(rdyn 421 mm)	T = 33739 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	0.54
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 = 33739 N
axle 2	(rdyn 421 mm)	T = 33739 N
axle 3	(rdyn 421 mm)	T = 33739 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	0.54
required braking rate (items 1.5.3 and 1.7.2 to annex 11)		>= 0,4 and >= 0,6*E (0.36)

data sheet to ECE vehicle type-approval certificate concerning braking equipment: according to ECE R13 annex 11

axle 1 :	reference axle: BPW	D 115-2	brake lining:	BPW 8200
	test report :	361-041-08 ECE	date :	02.04.2011
axle 2 :	reference axle: BPW	D 115-2	brake lining:	BPW 8200
	test report :	361-041-08 ECE	date :	02.04.2011
axle 3 :	reference axle: BPW	D 115-2	brake lining:	BPW 8200
	test report :	361-041-08 ECE	date :	02.04.2011

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 = 16.6 % Fe
axle 2	(rdyn 421 mm)	T = 16.6 % Fe
axle 3	(rdyn 421 mm)	T = 16.6 % Fe

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

axle 1	(sp = 51 mm)	s = 47 mm
axle 2	(sp = 51 mm)	s = 47 mm
axle 3	(sp = 52 mm)	s = 47 mm

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

axle1	ThA = 4848 N
axle2	ThA = 4848 N
axle3	ThA = 4848 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 = 35046 N
axle 2	(rdyn 421 mm)	T = 35046 N
axle 3	(rdyn 421 mm)	T = 35046 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	0.56	
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 = 35046 N
axle 2	(rdyn 421 mm)	T = 35046 N
axle 3	(rdyn 421 mm)	T = 35046 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	0.56	
required braking rate (items 1.5.3 and 1.7.2 to annex 11)			>= 0,4 and >= 0,6*E (0.36)

data sheet to ECE vehicle type-approval certificate concerning braking equipment: according to ECE R13 annex 11

axle 1 :	reference axle: BPW	D 115-2	brake lining:	BPW 8302
	test report :	361-041-08 ECE	date :	03.04.2011
axle 2 :	reference axle: BPW	D 115-2	brake lining:	BPW 8302
	test report :	361-041-08 ECE	date :	03.04.2011
axle 3 :	reference axle: BPW	D 115-2	brake lining:	BPW 8302
	test report :	361-041-08 ECE	date :	03.04.2011

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 = 16.6 % Fe
axle 2	(rdyn 421 mm)	T = 16.6 % Fe
axle 3	(rdyn 421 mm)	T = 16.6 % Fe

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

axle 1	(sp = 51 mm)	s = 39 mm
axle 2	(sp = 51 mm)	s = 39 mm
axle 3	(sp = 52 mm)	s = 39 mm

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

axle1	ThA = 4848 N
axle2	ThA = 4848 N
axle3	ThA = 4848 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 = 35781 N
axle 2	(rdyn 421 mm)	T = 35781 N
axle 3	(rdyn 421 mm)	T = 35781 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	0.57
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 = 35781 N
axle 2	(rdyn 421 mm)	T = 35781 N
axle 3	(rdyn 421 mm)	T = 35781 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	0.57
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 1	axle 2
no of TRISTOP-actuators per axle line	KDZ	2	2
TRISTOP-actuator type		14/24	14/24
lever length	lBh in mm	80	80
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	5809	5809
sp.brake chamber no BPW		05.444.38	05.444.38
release pressure	pLs in bar	5.2	5.2

calculation:

ratio until road		4.0898	4.0898
iFb = lBh*Eta*C*rBt/(rBn*rstat)	for rstat in mm	401	401
brake force of spring br. Tf	in N	46288	46288
Tf = (TFZ*KDZ-2*Co/lBh)*iFb			

braking rate zf laden 0.325
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 = 4238 mm for E = 6675 mm
==========
min Ef = 4238 mm for E = 6675 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	=	2062 mm	height of center of gravity - laden
PR	=	19050 kg	maximum bogie mass - laden
P	=	30000 kg	maximum total mass - laden
nf	=	2	no. of axle(s) with TRISTOP spring brake actuators
ng	=	3	no. of bogie axle(s)

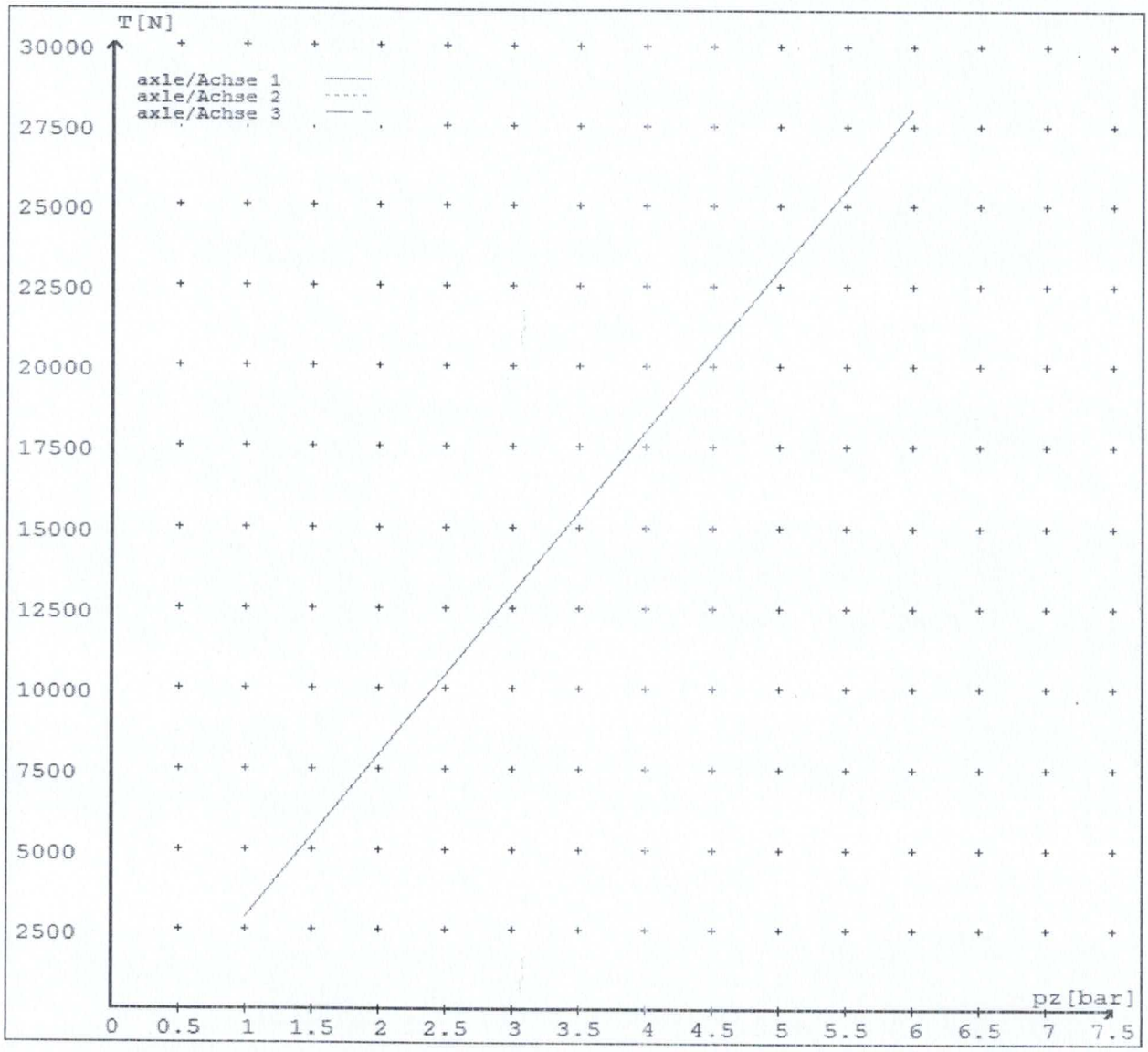
reference values

reference values for z = 45% for max rdyn: 421 mm

	pz [bar]	T [N]	T [N]
axle 1	1.0 6.0		2861 28012
axle 2	1.0 6.0		2861 28012
axle 3	1.0 6.0		2861 28012

VIN - no.:

	Axle(s) / Achse(n)				
brake cylinder type (service / parking) Bremszylinder Typ (Betrieb / Fest)	14/24	14/24	14./	/	/
Maximum stroke smax = ...mm maximaler Hub smax = ...mm	61	61	62		
Lever length = ...mm Hebellänge = ...mm	80	80	80		

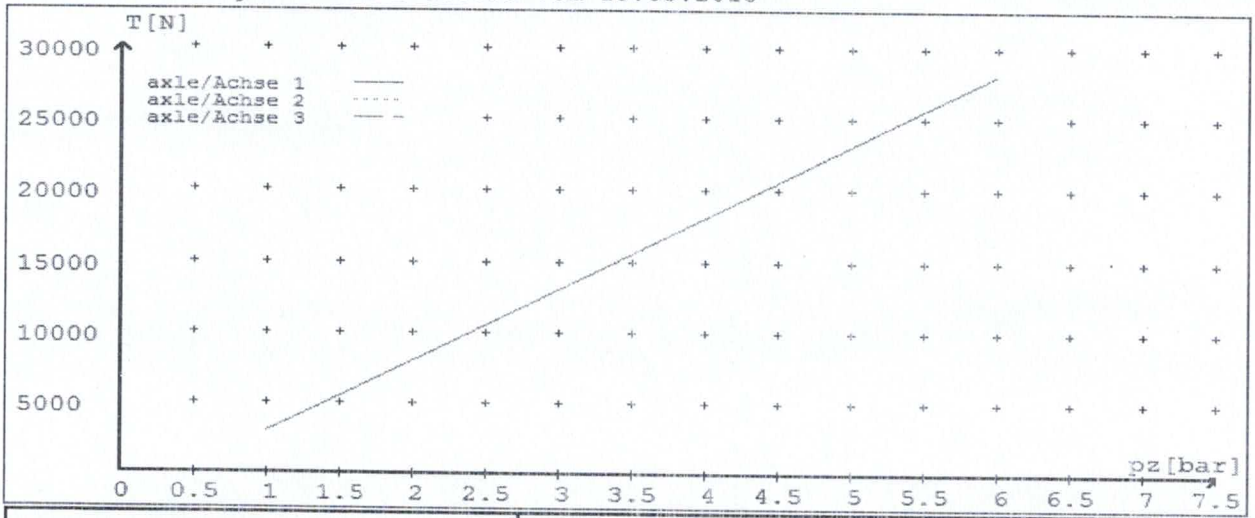


Print on WABCO no. 899 200 922 4 (only possible with laser printers!)

reference values for z = 0.45
Angabe der Referenzwerte für z = 0.45

for max rdyn: 421 mm
für max rdyn: 421 mm

brake calculation no: GenNZ 50058S date 13.05.2015
Bremsberechnung Nr: GenNZ 50058S vom 13.05.2015



	Axle(s) / Achse(n)				
brake cylinder type (service / parking) Bremszylinder Typ (Betrieb / Fest)	14/24	14/24	14./	/	/
Maximum stroke smax = ...mm maximaler Hub smax = ...mm	61	61	62		
Lever length = ...mm Hebellänge = ...mm	80	80	80		