

Heavy Vehicle Specialist Certificate

Must be presented to a Transport Service Delivery Agent
 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

7A9D20017B0023932

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

CARRY OUT COMPLIANCE TO THE NZ HEAVY VEHICLE BRAKE RULE

ROLL STABILITY FUNCTION ACTIVATED

Code/Standard/Rule Certified to
HUB NZ32015/3 S4005.

Component Load Rating(s)

General Drawing Number(s)
N/A.

33000 KG.

Supporting Documents
BRAKE CALCULATION - ~~32~~ CJC 2575.

Special Conditions*
WARNING LAMP MUST ILLUMINATE WHEN IGNITION SWITCHED ON + THEN EXTINGUISH IMMEDIATELY OR WHEN VEHICLE 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) ID Number

Date **28.07.2014** Number **478425**

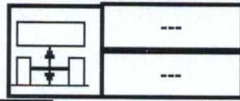
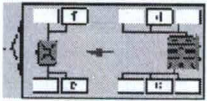
CoF Vehicle Inspector ID CoF Vehicle Inspector Signature Date

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	480 102 064 0
Production date	2011-01-04	Serial number	896000180300K
Serial number (modulator)	000000050359		
Fingerprint Customer EOL / Customer Development / Flash Program	W503643 / 2014-07-28 ; 00000000 / 0000-00-00 ; 00000000 / 0000-00-00		

WABCO		TRAILER EBS-E		GGVS/ADR TUEH TB 2007 - 019.00 TDB 0749											
HERSTELLER MANUFACTURER CONSTRUCTEUR	DOMETT		GIO	Pin1	Pin3	Pin4									
TYP TYPE TYPE	5 AX F/T C/SIDE		1	---	---	---									
FAHRZEUG IDENTNR. CHASSIS NUMBER NUMERO DE CHASSIS	7A9D20017B0023932		2	---	---	---									
BREMSBERECHNUNGS-NR. BRAKE CALCULATION NO. CALCUL DE FREINAGE NO.	TP50454		3	ALS2	ALS2	---									
POLRADZAHNEZAHL c-d e-f POLE WHEEL TEETH c-d e-f DENTS ROUE DENTÉE c-d e-f	90	90	4	---	---	---									
		ABS-System ABS system Système ABS	5	DIAG	DIAG	DIAG									
RSS RSS RSS	Einfachbereifung Single Tire Monte simple	Lenkachse Steering axle Essieu virer	6	---	---	---									
	Zwillingsbereifung Twin Tire Monte jumelé	Kippkritisches Fahrzeug Critical Trailer Véhicule critique	7	---	---	---									
Subsystems	---	I/O	 												
ACHSE AXLE ESSIEU	pm (bar)	6.5	pm (bar)	0.7	2.0	---	6.5	TYP TYPE	(mm)	(mm)	(bar)	1.0	Pz		
	+	+	+	+	+	+	+				TR (daN)				
1	1600	1.7	2.0	7000	3.8	0.3	1.3	---	5.8	-	14	64	69	---	---
2	1600	1.7	2.0	7000	3.8	0.3	1.3	---	5.8	-	14	64	69	---	---
3	1300	0.4	1.7	6000	4.0	0.3	1.3	---	4.8	-	14 / 16	64	69	---	---
4	1300	0.4	1.7	6000	4.0	0.3	1.3	---	4.8	-	14 / 16	64	69	---	---
5	1300	0.4	1.7	6000	4.0	0.3	1.3	---	4.8	-	---	---	---	---	---

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	Vehicle ident. no	7A9D20017B0023932
Vehicle type	5 AX F/T C/SIDE	Odometer reading	346862.1 km
next Service	0 km	Trip reading	346862.1 km
Tester	Chris Clarke		
Date	2014-07-28 8:30:36 a.m.		

distribution: Domett T&T
 7A9D20017B0023932
 CJC2032

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 (V6.12.08.27).
 -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!
 WABCO Brake V6.12.08.27 db 02.10.2012

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

axle 1 + 2 + 3 + 4 + 5 : SAF, PAN 19-1, TDB 0749 ECE,

		unladen	laden
total mass	P in kg	7100	33100
axle 1	P1 in kg	1600	7250
axle 2	P2 in kg	1600	7250
axle 3	P3 in kg	1300	6200
axle 4	P4 in kg	1300	6200
axle 5	P5 in kg	1300	6200
wheel base	E in mm	8150 - 8150	
centre of gravity height	h in mm	1060	2054

	axle 1	axle 2	axle 3	axle 4	axle 5
no. of combined axles	1	1	1	1	1
no. of brake chambers per axle line K D Z	2	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	BZ 119.6 Meritor
chamber size	14.	14.	T.14/24	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	2.0	2.0	2.0
chamber pressure (rdyn max) pH at z=22,5%bar	2.4	2.4	2.0	2.0	2.0
chamber press. (servo) pcha at pm6,5bar bar	6.5	6.5	4.6	4.6	4.6
piston force ThA at pm6,5bar N	6289	6289	4385	4385	4385
brake force (rdyn min) T lad. at pm6,5bar N	47586	47586	33094	33094	33094
brake force (rdyn max) T lad. at pm6,5bar N	47586	47586	33094	33094	33094
brake force within 1 % rolling friction proportion	%	20.0	20.0	20.0	20.0

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 or 480 207 2.. 0
EBS relay valve

brake cylinder: Meritor 14HSCLD64

axle 2:

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

brake cylinder: Meritor 14HSCLD64

axle 3:

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

brake cylinder: Meritor 1424HTLD64

axle 4:

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

brake cylinder: Meritor 1424HTLD64

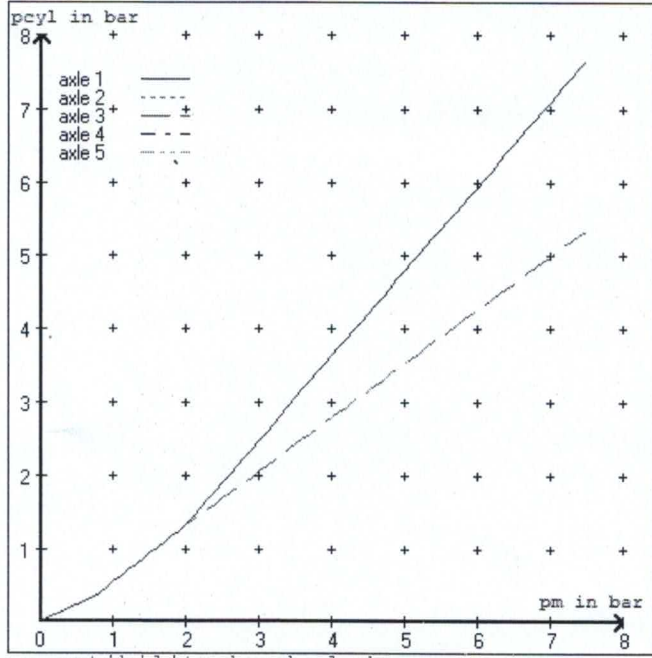
axle 5:

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

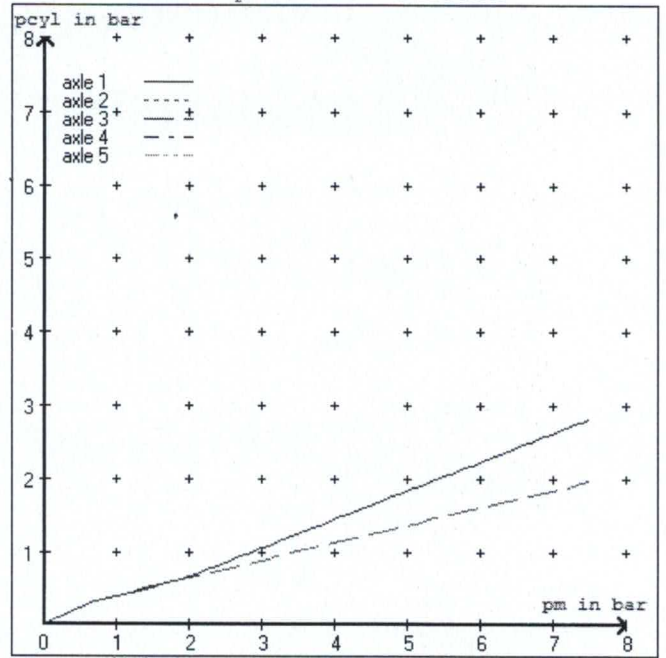
brake cylinder: Meritor 1424HTLD64

test type III (zIII = 0.30)	for rdyn min :	axle1	axle2	axle3	axle4	axle5	
at pm 3.7 bar =>	pcha in bar :	3.2	3.2	2.5	2.5	2.5	
test type III (zIII = 0.06)	for rdyn min :	axle1	axle2	axle3	axle4	axle5	
at pm 1.3 bar =>	pcha in bar :	0.7	0.7	0.7	0.7	0.7	

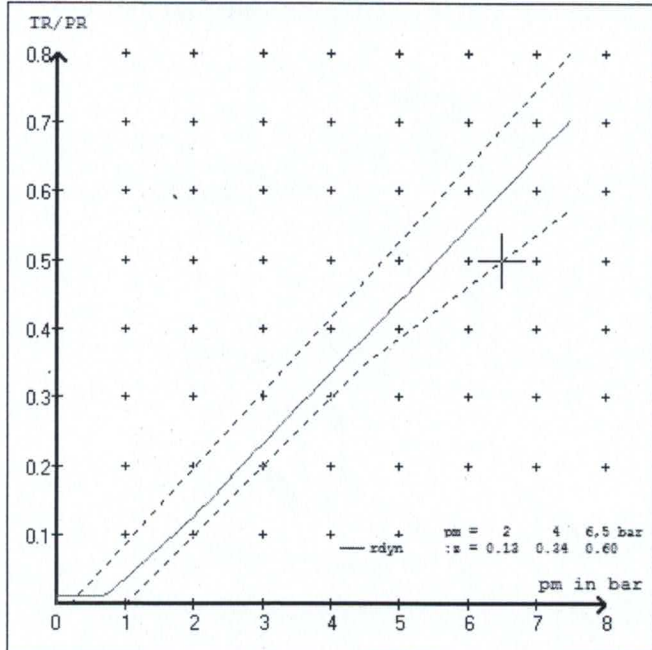
brake chamber pressure laden



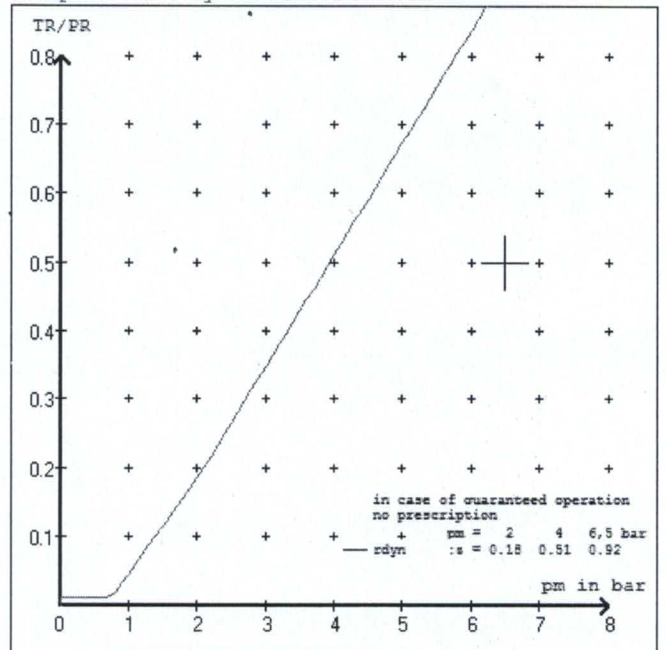
brake chamber pressure unladen



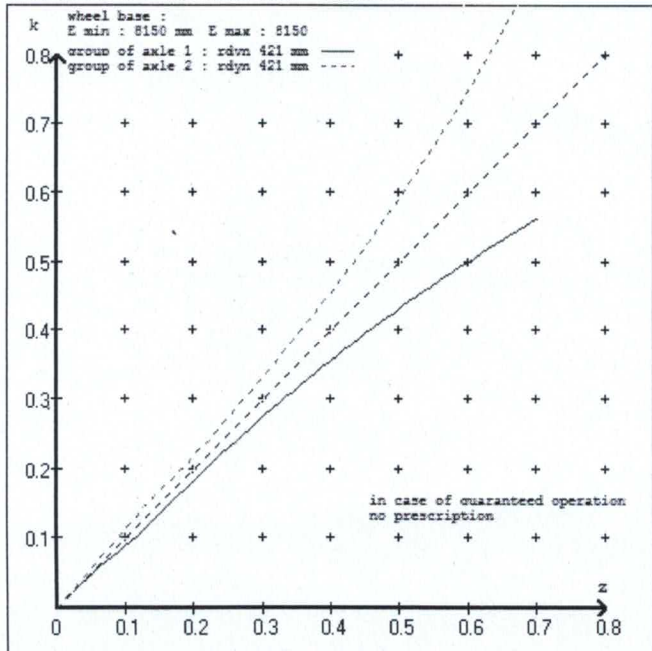
compatibility band laden



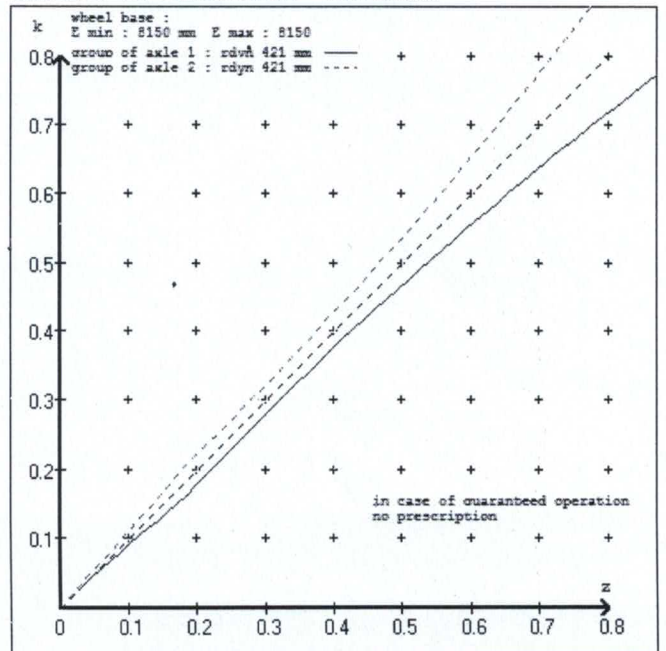
compatibility band unladen



curves of friction laden



curves of friction unladen



vehicle manufacturer: Domett T&T
 trailer model : 5 axle full trailer
 trailer type : 5-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
 axle 5 : 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 WABCO EBS trailer modulator

EBS input data

=====
 vehicle manufacturer: Domett T&T
 trailer model : 5 axle full trailer
 trailer type : 5-axle-full-trailer
 brake calculation no. : GenNZ 74A

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	1600	to be	2.4	7250	to be	0.3	1.3	6.5	
2	1600	entered by the vehicle manufact.	2.4	7250	entered by the vehicle manufact.	0.3	1.3	6.5	
3	1300		1.7	6200		0.3	1.3	4.6	
4	1300		1.7	6200		0.3	1.3	4.6	
5	1300		1.7	6200		0.3	1.3	4.6	

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 5
axle load pcy1	axle load pcy1	axle load pcy1	axle load pcy1	axle load pcy1
1600 2.4	1600 2.4	1300 1.7	1300 1.7	1300 1.7
2100 2.8	2100 2.8	1800 2.0	1800 2.0	1800 2.0
2600 3.1	2600 3.1	2300 2.3	2300 2.3	2300 2.3
3100 3.5	3100 3.5	2800 2.6	2800 2.6	2800 2.6
3600 3.9	3600 3.9	3300 2.9	3300 2.9	3300 2.9
4100 4.2	4100 4.2	3800 3.2	3800 3.2	3800 3.2
4600 4.6	4600 4.6	4300 3.5	4300 3.5	4300 3.5
5100 4.9	5100 4.9	4800 3.8	4800 3.8	4800 3.8
7250 6.5	7250 6.5	6200 4.6	6200 4.6	6200 4.6

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
axle 5 : 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 = 22.7 % Fe
axle 2	(rdyn 421 mm)	T = 22.7 % Fe
axle 3	(rdyn 421 mm)	T = 17.3 % Fe
axle 4	(rdyn 421 mm)	T = 17.3 % Fe
axle 5	(rdyn 421 mm)	T = 17.3 % Fe

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

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
axle 5	(sp = 56 mm)	s = 39 mm

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

axle1	ThA = 6289 N
axle2	ThA = 6289 N
axle3	ThA = 4385 N
axle4	ThA = 4385 N
axle5	ThA = 4385 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 = 37464 N
axle 2	(rdyn 421 mm)	T = 37464 N
axle 3	(rdyn 421 mm)	T = 26081 N
axle 4	(rdyn 421 mm)	T = 26081 N
axle 5	(rdyn 421 mm)	T = 26081 N

basic test	type III
of subject	(calculated)
trailer (E)	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 = 37464 N
axle 2	(rdyn 421 mm)	T = 37464 N
axle 3	(rdyn 421 mm)	T = 26081 N
axle 4	(rdyn 421 mm)	T = 26081 N
axle 5	(rdyn 421 mm)	T = 26081 N

basic test	type III
of subject	(calculated)
trailer (E)	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

	<u>axle 3</u>	<u>axle 4</u>	<u>axle 5</u>
no of TRISTOP-actuators per axle line KDZ	2	2	2
TRISTOP-actuator type	T.14/24	T.14/24	T.14/24
lever length lBh in mm	69	69	69
stat. tyre radius rstat max in mm	401	401	401
at a stroke of s in mm	30	30	30
min. force of spring brake TFZ in N	7605	7605	7605
sp.brake chamber no Meritor.....	4	4	4
release pressure pLs in bar	4.8	4.8	4.8

calculation:

ratio until road	3.9674	3.9674	3.9674
$iFb = lBh * \text{Eta} * C * rBt / (rBn * rstat)$ for rstat in mm	401	401	401
brake force of spring br. Tf in N	59654	59654	59654
$Tf = (TFZ * KDZ - 2 * Co / lBh) * iFb$			
braking rate zf laden	0.561		
$zf = \text{sum}(Tf) / P + 0,01$			

Test of the frictional connection required by the parking brake

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

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

min Ef = 5084 mm for E = 8150 mm

min Ef = 5084 mm for E = 8150 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 = 2054 mm height of center of gravity - laden
- PR = 18600 kg maximum bogie mass - laden
- P = 33100 kg maximum total mass - laden
- nf = 3 no. of axle(s) with TRISTOP spring brake actuators
- ng = 3 no. of bogie axle(s)

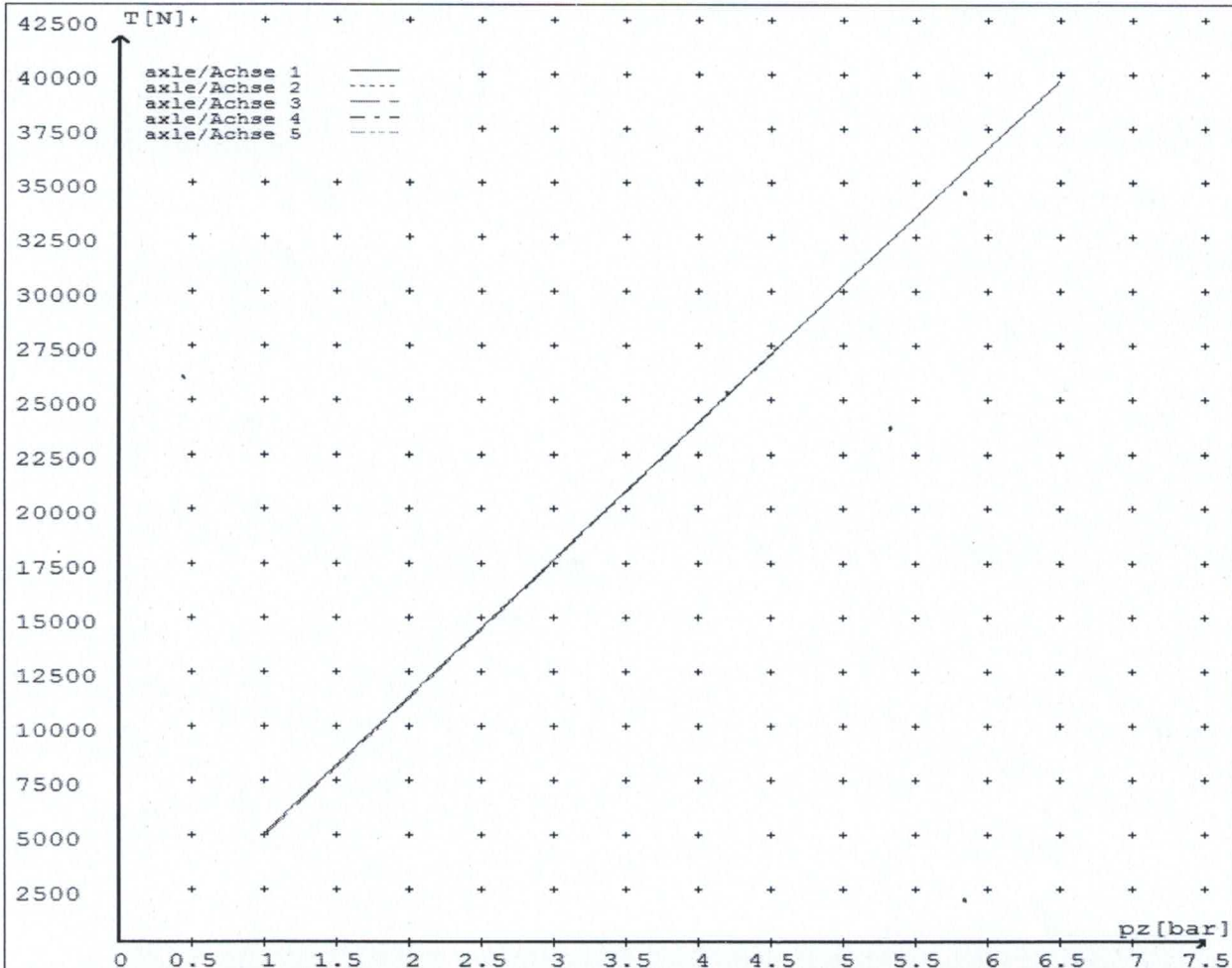
reference values

reference values for z = 50% for max rdyn: 421 mm

	pz [bar]	T [N]	T [N]
axle 1	1.0	4954	
	6.5	39721	
axle 2	1.0	4954	
	6.5	39721	
axle 3	1.0		4868
	4.6		27625
axle 4	1.0		4868
	4.6		27625
axle 5	1.0		4868
	4.6		27625

VIN - no.:

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



reference values for $z = 0.5$

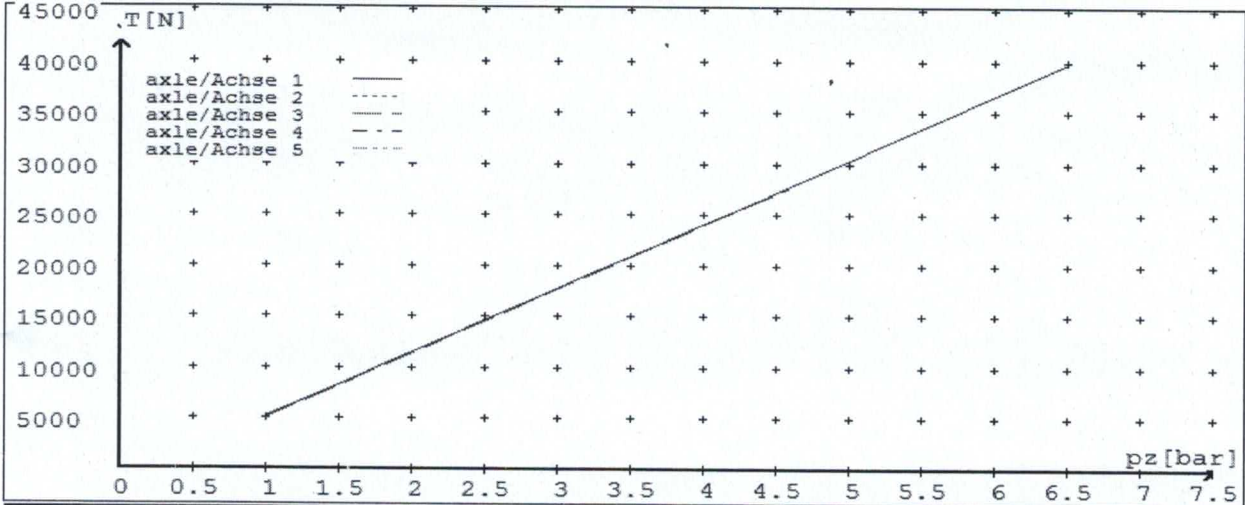
for max rdyn: 421 mm

Angabe der Referenzwerte für $z = 0.5$

für max rdyn: 421 mm

brake calculation no: GenNZ 74A date 27.07.2014

Bremsberechnung Nr: GenNZ 74A vom 27.07.2014



	Axle(s) / Achse(n)				
brake cylinder type (service / parking) Bremszylinder Typ (Betrieb / Fest)	14./	14./	T.14/24	T.14/24	T.14/24
Maximum stroke $s_{max} = \dots$ mm maximaler Hub $s_{max} = \dots$ mm	64	64	64	64	64
Lever length = \dots mm Hebellänge = \dots mm	69.08	69.08	69.08	69.08	69.08