



Heavy Vehicle Specialist Certificate

Heavy Vehicle Specialist Inspector and Inspecting Organisation

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

ID

CHRIS CLARKE

CJC

Vehicle Registration*

VIN / Chassis Number

7A9D10014Y0023172

Component being certified:

Chassis Modification

Load Anchorage

Log Bolsters

Certification Category

Towing Connection

✓ Brakes

SRT

HUEK.

Description of Work

CARRY OUT SET UP OF TRAILER EBS SYSTEM IN COMPLIANCE WITH THE NZ HEAVY VEHICLE BRAKE RULE.

Code/Standard Certified to

Component Load Rating(s)

HUBNZ 32015/2 SCHED 5.

General Drawing Number(s)

N/A

N/A

Supporting Documents

BRAKE DESIGN CERTIFICATE - JH120525.

*Special Conditions

WARNING LAMP MUST ILLUMINATE WHEN IGNITION SWITCHED ON + THEN EXTINGUISH IMMEDIATELY OR WHEN VEHICLE EXCEEDS 7KPH.

Certification Expiry Date *(if applicable)*

or Hubodometer Reading (whichever comes first)

N/A

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

Number

14.06.2012

406320

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	2011-10-11	Serial number	896004252000F
Fingerprint Customer EOL / Customer Development / Flash Program	W 041610 / 2012-06-14 ; 00000000 / 0000-00-00 ; 00000000 / 0000-00-00		

WABCO TRAILER EBS-E

GGVS/ADR TUEH TB 2007 - 019.00
36102202

HERSTELLER MANUFACTURER CONSTRUCTEUR	DOMETT T&T			GIO	Pin1	Pin3	Pin4
TYP TYPE TYPE	FONTERRA TANKER			1	---	---	---
FAHRZEUG IDENTIF. CHASSIS NUMBER NUMERO DE CHASSIS	7A9D10014Y0023172			2	---	---	---
BREMSBERECHNUNGS-NR. BRAKE CALCULATION NO. CALCUL DE FREINAGE NO.	TP50607			3	ALS2	ALS2	---
POLRADZAHNEZAHL c-d e-f POL E WHEEL TEETH c-d e-f DENTS ROUE DENTÉE c-d e-f	90	90	ABS-System ABS-System Système ABS	4	---	---	---
			4S/3M	5	DIAG	DIAG	DIAG
RSS RSS RSS	Einfachbereifung Single Tire Monte simple		Lenkachse Steering axle Essieu vireur	6	---	---	---
	Zwillingsbereifung Twin Tire Monte jumetée	X	Kippritisches Fahrzeug Critical Trailer Véhicule critique	7	---	---	---
Subsystems	---	I/O	24N				

ACHSE AXLE ESSIEU	6.5		6.5				pZ	TYP TYPE	(mm)	(mm)	(bar)				
	pm (bar)	6.5	pm (bar)	0.7	2.0	---					6.5	1.0	Pz		
1	1300	0.5	1.8	6500	4.2	0.5	1.5	---	5.9	-	16	67	74	358	3577
2	1300	0.5	1.8	6500	4.2	0.5	1.5	---	5.9	-	16	67	74	358	3577
3	1200	0.4	1.4	6500	4.2	0.5	1.4	---	4.4	-	16 / 24	64	74	425	2796
4	1200	0.4	1.4	6500	4.2	0.5	1.4	---	4.4	-	16 / 24	64	74	425	2796
5	0	---	---	0	---	---	---	---	---	-	---	---	---	---	---

Diagnostic memory	OK	Warning lamp control	OK
Parameter setting	carried out	Stop light power supply	OK
EBS pressure test	Not tested	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	Signal outputs TEBS	Not tested

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

Manufacturer	DOMETT T&T	Vehicle ident. no	7A9D10014Y0023172
Vehicle type	FONTERRA TANKER	Odometer reading	0.0 km
next Service	0 km	Trip reading	0.0 km
Tested by	Chris Clarke		
Date	2012-06-14 7:11:33 p.m.		

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.13.11

distribution: DOMETT T&T
FONTERRA 2012 - ROR CS9/ELSA

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 (V6.10.05.21).
-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 V6.10.05.21 db 26.05.2010

vehicle manufacturer: DOMETT T&T
trailer model : FONTERRA TANKER
trailer type : 4-axle-full-trailer
remarks : air / hydraulic / VA suspension
WABCO TRAILER - EBS
TRISTOP 3+4: T.16/24
265/70 R 19,5

axle 1 + 2 + 3 + 4 : ROR, Elsa 195 LE, 36102202, Re 432

		<u>unladen</u>	<u>laden</u>
total mass	P in kg	5000	26000
axle 1	P1 in kg	1300	6500
axle 2	P2 in kg	1300	6500
axle 3	P3 in kg	1200	6500
axle 4	P4 in kg	1200	6500
wheel base	E in mm	4800 - 4800	
centre of gravity height	h in mm	1000	1800

		<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		BZ 163.1	BZ 163.1	BZ 119.6	BZ 119.6
brake chamber manufacturer		Meritor	Meritor	Meritor	Meritor
chamber size		16	16	T.16/24	T.16/24
lever length	lBh in mm	74	74	74	74
brake factor	[-]	20.30	20.30	20.30	20.30
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	10.0	10.0	10.0	10.0

calculation:

chamber pressure(rdyn min)pH at z=22,5%bar		2.6	2.6	2.1	2.1
chamber pressure(rdyn max)pH at z=22,5%bar		2.6	2.6	2.1	2.1
chamber press.(servo)pcha at pm6,5bar bar		5.9	5.9	4.4	4.4
piston force	ThA at pm6,5bar N	5540	5540	4340	4340
brake force(rdyn min)T lad. at pm6,5bar N		39209	39209	30648	30648
brake force(rdyn max)T lad. at pm6,5bar N		39209	39209	30648	30648
brake force within 1 % rolling friction					
proportion	%	24.1	24.1	25.9	25.9

braking rate z laden 0.548 for rdyn min
z = sum (TR)/PRmax 0.548 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: 480 207 0.. 0 WABCO
 EBS relay valve

brake cylinder: Meritor FM0305S16E

axle 2:

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

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

brake cylinder: Meritor FM0305S16E

axle 3:

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

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

brake cylinder: Meritor 1624HTLD64

axle 4:

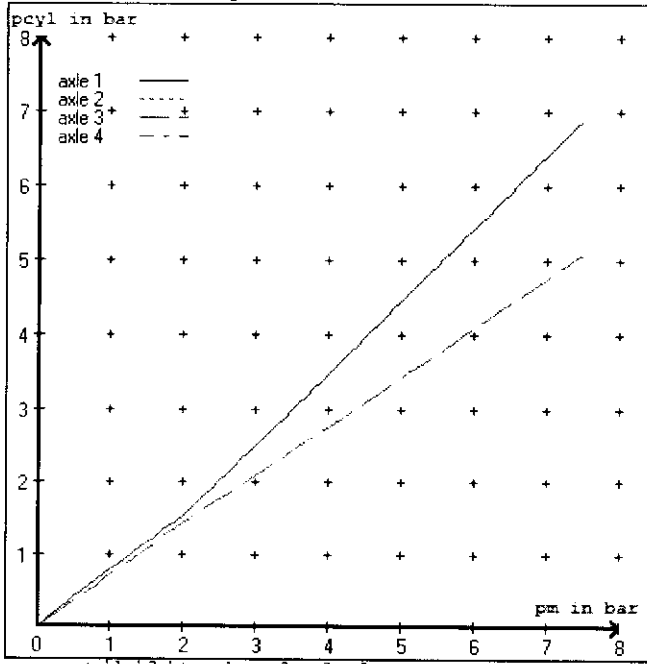
valve 1: 971 002 ... 0 WABCO
 EBS emergency valve

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

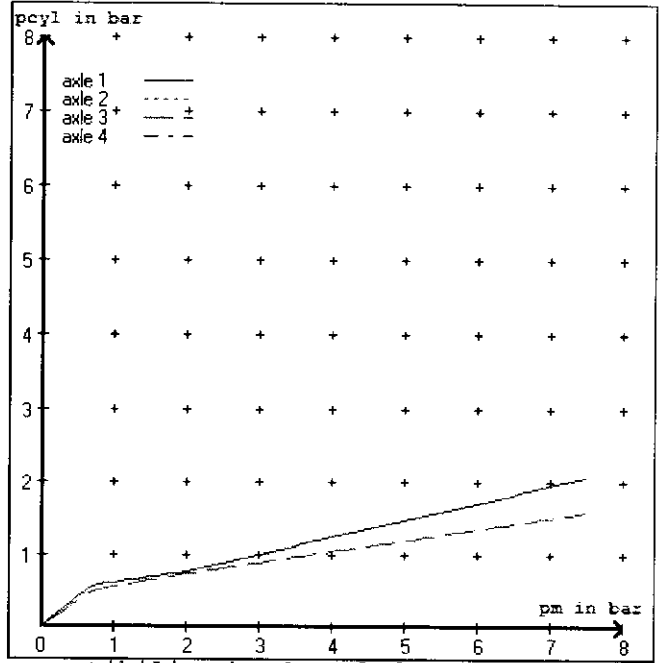
brake cylinder: Meritor 1624HTLD64

test type III	(zIII = 0.30)	for rdyn min :	axle1	axle2	axle3	axle4	
at pm	3.9 bar =>	pcha in bar :	3.4	3.4	2.7	2.7	
test type III	(zIII = 0.06)	for rdyn min :	axle1	axle2	axle3	axle4	
at pm	1.3 bar =>	pcha in bar :	1.0	1.0	0.9	0.9	

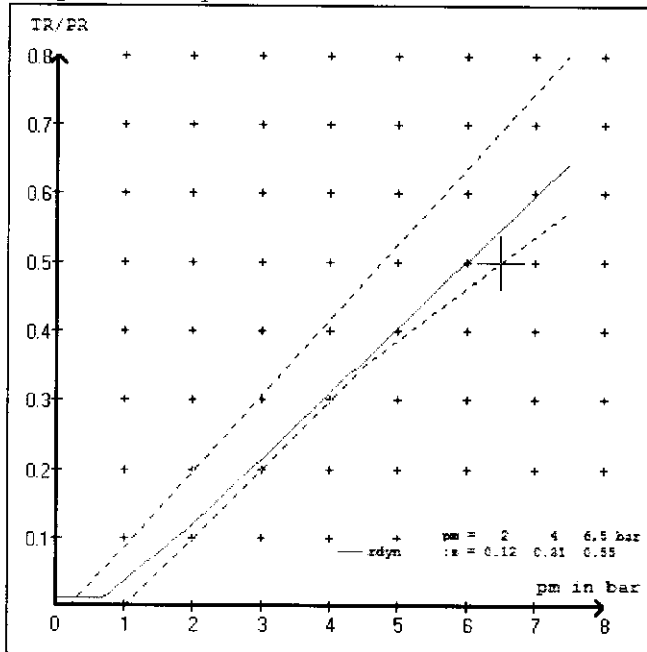
brake chamber pressure laden



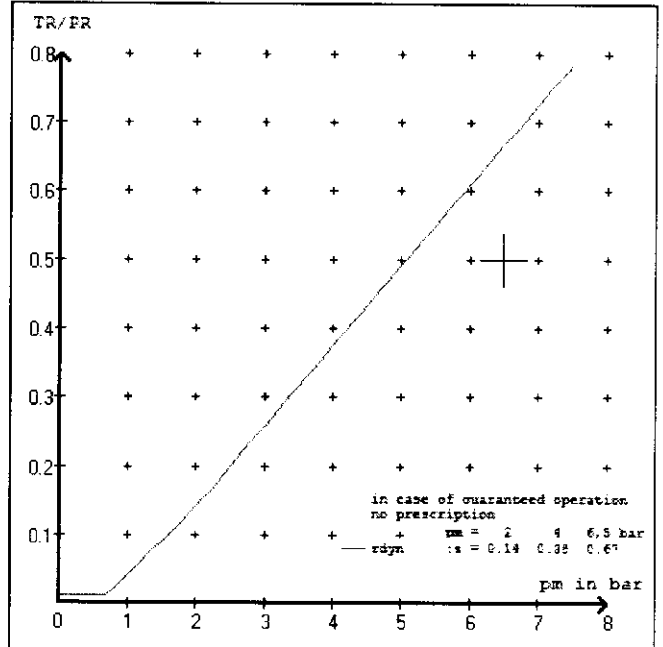
brake chamber pressure unladen



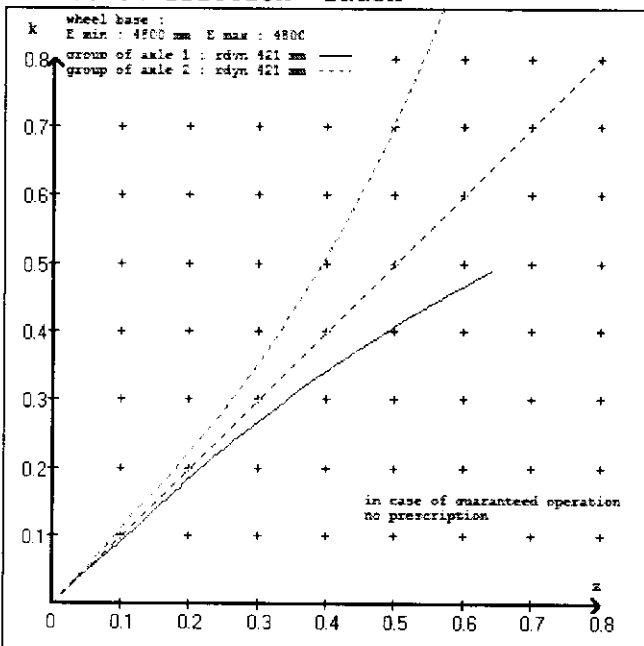
compatibility band laden



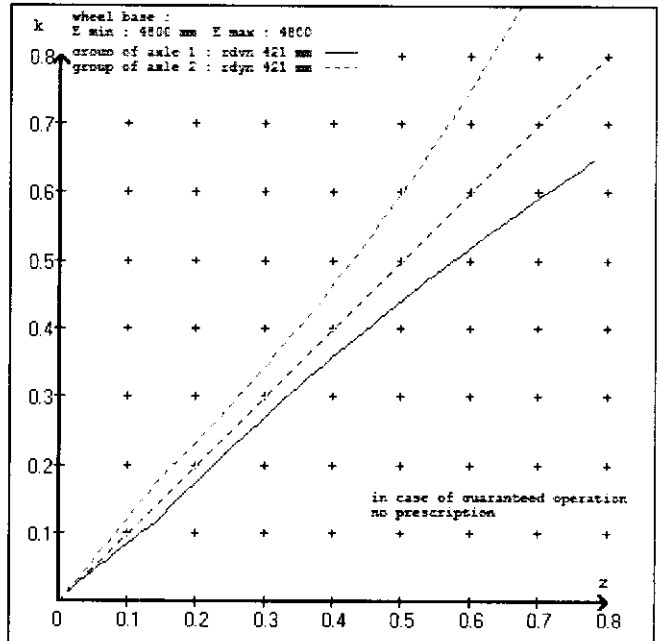
compatibility band unladen



curves of friction laden



curves of friction unladen



vehicle manufacturer: DOMETT T&T
 trailer model : FONTERRA TANKER
 trailer type : 4-axle-full-trailer

brake chamber and lever length :

axle 1 : 2 x type/diameter 16 (Meritor) lever length 74 mm
 axle 2 : 2 x type/diameter 16 (Meritor) lever length 74 mm
 axle 3 : 2 x type/diameter T.16/24 (Meritor) lever length 74 mm
 axle 4 : 2 x type/diameter T.16/24 (Meritor) lever length 74 mm

brake diagram :

valve :

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

EBS input data

=====

vehicle manufacturer: DOMETT T&T
 trailer model : FONTERRA TANKER
 trailer type : 4-axle-full-trailer
 brake calculation no. : TP 50607A

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 = 0.123
 6.5 bar z = 0.550

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	1300	to be	1.8	6500	to be	0.5	1.5	5.9	
2	1300	entered by	1.8	6500	entered by	0.5	1.5	5.9	
3	1200	the vehicle	1.4	6500	the vehicle	0.5	1.4	4.4	
4	1200	manufact.	1.4	6500	manufact.	0.5	1.4	4.4	
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 pcy1	axle load pcy1	axle load pcy1	axle load pcy1
1300 1.8	1300 1.8	1200 1.4	1200 1.4
1800 2.2	1800 2.2	1700 1.7	1700 1.7
2300 2.6	2300 2.6	2200 2.0	2200 2.0
2800 3.0	2800 3.0	2700 2.2	2700 2.2
3300 3.4	3300 3.4	3200 2.5	3200 2.5
3800 3.8	3800 3.8	3700 2.8	3700 2.8
4300 4.2	4300 4.2	4200 3.1	4200 3.1
4800 4.6	4800 4.6	4700 3.4	4700 3.4
6500 5.9	6500 5.9	6500 4.4	6500 4.4

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: ROR	.../... .../K	brake lining: ROR 8616 AF
	test report :	36102202	date : 07.06.2002
axle 2	: reference axle: ROR	.../... .../K	brake lining: ROR 8616 AF
	test report :	36102202	date : 07.06.2002
axle 3	: reference axle: ROR	.../... .../K	brake lining: ROR 8616 AF
	test report :	36102202	date : 07.06.2002
axle 4	: reference axle: ROR	.../... .../K	brake lining: ROR 8616 AF
	test report :	36102202	date : 07.06.2002

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

axle 1	(rdyn 421 mm)	T = 19.3 % Fe
axle 2	(rdyn 421 mm)	T = 19.3 % Fe
axle 3	(rdyn 421 mm)	T = 16.1 % Fe
axle 4	(rdyn 421 mm)	T = 16.1 % Fe

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

axle 1	(sp = 51 mm)	s = 40 mm
axle 2	(sp = 51 mm)	s = 40 mm
axle 3	(sp = 57 mm)	s = 40 mm
axle 4	(sp = 57 mm)	s = 40 mm

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

axle1	ThA = 5540 N
axle2	ThA = 5540 N
axle3	ThA = 4340 N
axle4	ThA = 4340 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 = 31966 N
axle 2	(rdyn 421 mm)	T = 31966 N
axle 3	(rdyn 421 mm)	T = 25015 N
axle 4	(rdyn 421 mm)	T = 25015 N

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

braking rate of the vehicle (item 4.3.2 to appendix I to annex VII)	0.55	(hot)braking 0.45
--	------	----------------------

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 = 31966 N
axle 2	(rdyn 421 mm)	T = 31966 N
axle 3	(rdyn 421 mm)	T = 25015 N
axle 4	(rdyn 421 mm)	T = 25015 N

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

braking rate of the vehicle (item 4.3.2 to appendix I to annex VII)	0.55	(hot)braking 0.45
--	------	----------------------

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.16/24	T.16/24
lever length lBh in mm	74	74
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	3.7461	3.7461
$iFb = lBh * \eta * C * rBt / (rBn * rstat)$ for rstat in mm	401	401
brake force of spring br. Tf in N	55966	55966
$Tf = (TFZ * KDZ - 2 * Co / lBh) * iFb$		
braking rate zf laden	0.449	
$zf = \sum (Tf) / P + 0,01$		

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 = 3515 mm for E = 4800 mm

=====

min Ef = 3515 mm for E = 4800 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 = 1800 mm height of center of gravity - laden
PR = 13000 kg maximum bogie mass - laden
P = 26000 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	3583	
	5.9	35775	
axle 2	1.0	3583	
	5.9	35775	
axle 3	1.0		4253
	4.4		27963
axle 4	1.0		4253
	4.4		27963

VIN - no.:

	Axle(s) / Achse(n)				
brake cylinder type (service / parking) Bremszylinder Typ (Betrieb / Fest)	16/	16/	T.16/24	T.16/24	/
Maximum stroke smax = ...mm maximaler Hub smax =mm	67	67	64	64	
Lever length =mm Hebellänge =mm	74	74	74	74	

