NZ TRANSPORT AGENCY
WAKA KOTAHI

Heavy Vehicle Specialist Certificate

Heavy Vehicle Specialist Inspector and Inspecting Organisation

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

CHRIS CLARKE

ID

CJC

Vehicle Registration*

VIN / Chassis Number

7PPD31C19B1C23010

Component being certified:

Chassis Modification | Load Anchorage | Log Bolsters

Towing Connection | ✓ Brakes | SRT

Certification Category

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

HUBNZ 3295/2 SCHED 5.

Component Load Rating(s)

N/A.

General Drawing Number(s)

N/A

Supporting Documents

BRAKE DESIGN CERTIFICATE - JH1111CC.
PREV EXEMPTION REFERENCE - HUB11/240.

*Special Conditions

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

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

16.11.21

Number

388747

COF Vehicle Inspector ID:

COF Vehicle Inspector Signature:

Date

Transpecs
QUALITY ON THE MOVE

Statement of Design Compliance

S.O.D.C. number: JH111106

For Heavy vehicle brake specification (schedule 5) of HV Brake Rule 32015/2

Vehicle details:

Make:	Domett Trailers
Model:	D3101
VIN#:	7A9D31019B1023010
Chassis#:	1010
GCM (kgs):	N/A
GVM (kgs):	28000
Wheelbase (mm):	5900
Axle test report #:	SAF INTRADISC TDB 0749
Type:	4 Axle split tipper

Component Details:

	Front	Rear
Slack adjuster length:	DISC	DISC
Brake chamber size:	14(14HSCLD64-1604)	14/16(1416HTLD64-1606)
Tyre size:	265 70 R 19.5	265 70 R 19.5
Drawing number: (for component reference)	D3101	
Brake calculation#:	TP50552	

I declare that I am a Heavy Vehicle Specialist Certifier – Engineer and I hold a current valid appointment. I certify that this vehicle component design and this certification comply in all respects with the Land Transport Rule: ***Vehicle Standards Compliance 2002;*** *my Deed of Appointment and applicable requirements. To the best of my knowledge the information contained in this certificate is true and correct.*

Date: 7 Nov 2011

Name: John Hirst (HVEK)
Certifier ID: JEH

I, Chris Clarke, certify that the braking system has been assembled and programmed*) to the requirements of this Design Certificate.

Signed: **Dated:**

*) Programmed according to Wabco's End of Line protocol requirements where applicable.

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WAKA KOTAHI

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Document: A1223149
Exemption: HVB11/240

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 Jackie Hartley, Administrator (Assessments) 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: **Domett Truck & Trailer Ltd, 4 Axle Full Trailer**
VIN/CHASSIS: **7A9D31019B1023010**

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 areas 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 16th day of September 2011.

Jackie Hartley
Administrator (Assessments)

WABCO START-UP PROTOCOL

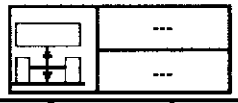
System	Trailer EBS-E	**WABCO part number**	480 102 080 0
Production date	2011-04-08	**Serial number**	897000057400K
Fingerprint Customer EOL / Customer Development / Flash Program	W 039897 / 2011-11-09 ; 00000000 / 0000-00-00 ; 00000000 / 0000-00-00		

WABCO TRAILER EBS-E

GGVS/ADR TUEH TB 2007 - 019.00
TDB 0749 ECE

HERSTELLER MANUFACTURER CONSTRUCTEUR	MAXITRANS
TYP TYPE TYPE	QUAD FEED TRAILER
FAHRZEUG IDENTNR. CHASSIS NUMBER NUMERO DE CHASSIS	7AT0PR02X11198010
BREMSBERECHNUNGS-NR. BRAKE CALCULATION NO. CALCUL DE FREINAGE NO.	TP50551
POLRADZAHNEZAHL 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/2M
RSS Einfachbereifung Single Tire Monte simple	X
RSS Zwillingsbereifung Twin Tire Monte jumelée	
Lenkachse Steering axle Essieu vireur	
Kippkritisches Fahrzeug Critical Trailer Véhicule critique	
Subsystems	--- / I/O

GIO	Pin1	Pin3	Pin4
1	---	---	---
2	---	---	---
3	---	RDL	SAC
4	---	---	---
5	DIAG	DIAG	DIAG
6	---	---	---
7	---	---	---



	pm (bar)		6.5	pm (bar)		0.7	2.0	---	6.5		TYP TYPE	(mm)	(mm)	(bar) 1.0 TR (daN)	Pz
AXLE ESSIEU									pz						
1	1300	0.6	1.8	7000	4.6	0.3	1.4	---	5.7	-	14	64	69	443	3091
2	1300	0.6	1.8	7000	4.6	0.3	1.4	---	5.7	-	14	64	69	443	3091
3	1300	0.6	1.8	7000	4.6	0.3	1.4	---	5.7	-	14 / 16	64	69	443	3091
4	1300	0.6	1.8	7000	4.6	0.3	1.4	---	5.7	-	14 / 16	64	69	443	3091
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 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	MAXITRANS	**Vehicle ident. no**	7AT0PR02X11198010
Vehicle type	QUAD FEED TRAILER	**Odometer reading**	0.0 km
next Service	0 km	**Trip reading**	0.0 km
Tested by	Chris Clarke	**Signature**	
Date	2011-11-09 2:49:15 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
7A9D31019B1023010
JH111106

vehicle manufacturer: DOMETT

trailer model : 4AX F/T

trailer type : 4-axle-full-trailer

remarks : air / hydraulic / VA suspension
WABCO TRAILER - EBS
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	6000	28000
axle 1	P1 in kg	1500	7000
axle 2	P2 in kg	1500	7000
axle 3	P3 in kg	1500	7000
axle 4	P4 in kg	1500	7000
wheel base	E in mm	5900 - 5900	
centre of gravity height	h in mm	1170	2380

		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.14/16	T.14/16
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		2.5	2.5	2.0	2.0
chamber pressure(rdyn max)pH at z=22,5%bar		2.5	2.5	2.0	2.0
chamber press.(servo)pcha at pm6,5bar	bar	6.6	6.6	4.5	4.5
piston force	ThA at pm6,5bar N	6389	6389	4285	4285
brake force(rdyn min)T lad. at pm6,5bar	N	48318	48318	32415	32415
brake force(rdyn max)T lad. at pm6,5bar	N	48318	48318	32415	32415
brake force within 1 % rolling friction proportion	%	25.0	25.0	25.0	25.0

braking rate z laden 0.588 for rdyn min
z = sum (TR)/PRmax 0.588 for rdyn max

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

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

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

brake cylinder: Meritor 1416HTLD64

test type III (zIII = 0.30)	for rdyn min :	axle1	axle2	axle3	axle4
at pm 3.7 bar =>	pcha in bar :	3.3	3.3	2.6	2.6
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 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 14HSCLD64

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

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

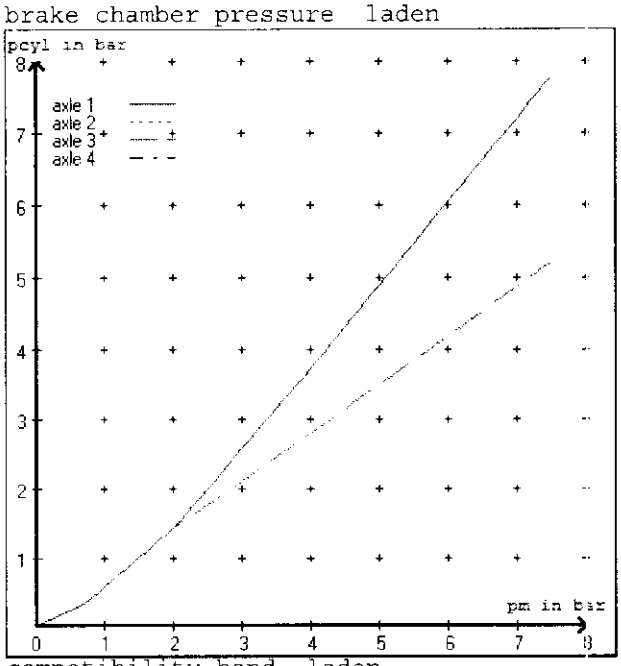
brake cylinder: Meritor 14HSCLD64

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

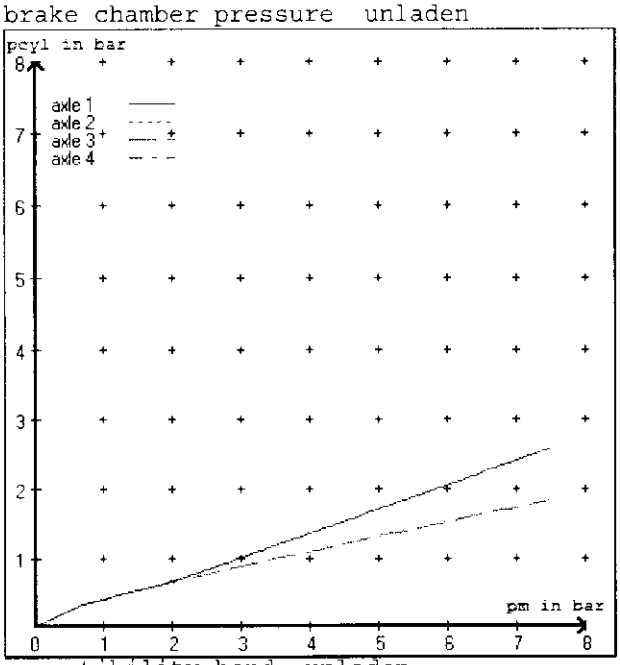
valve 2: 480 102 0.. 0 WABCO
EBS trailer modulator

brake cylinder: Meritor 1416HTLD64

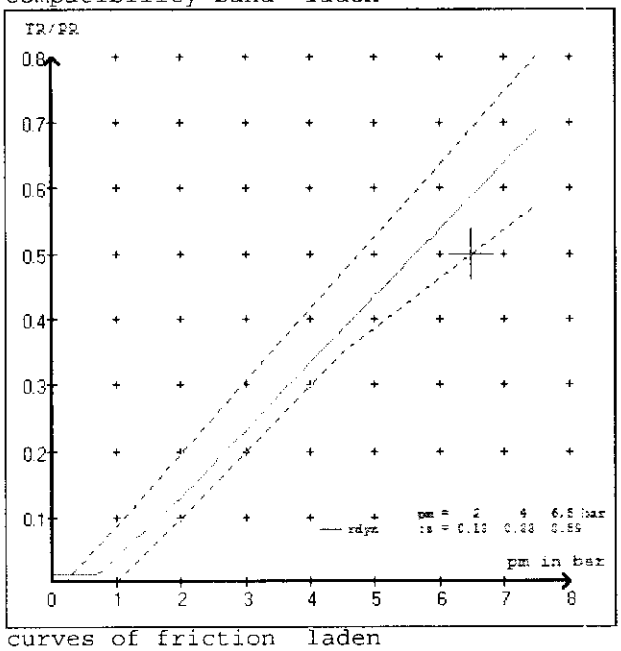
brake chamber pressure laden



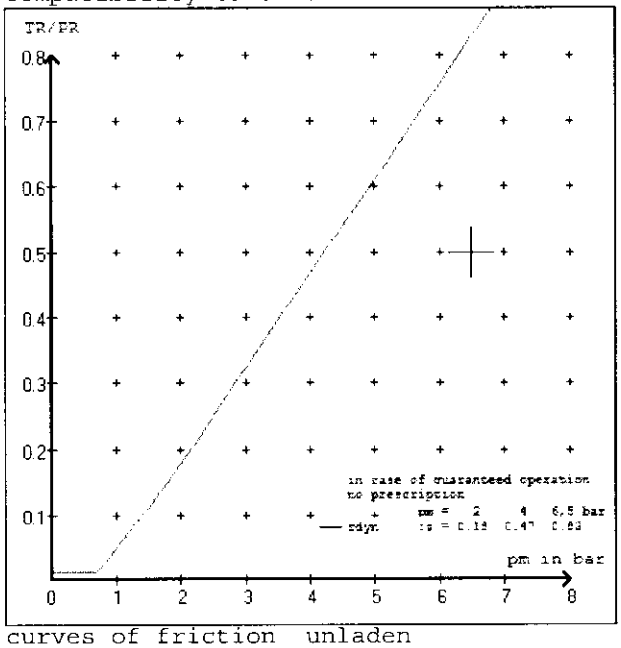
brake chamber pressure unladen



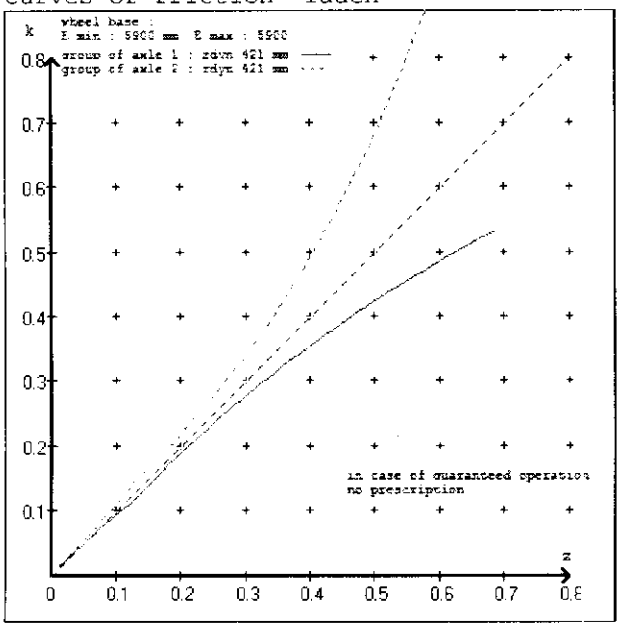
compatibility band laden



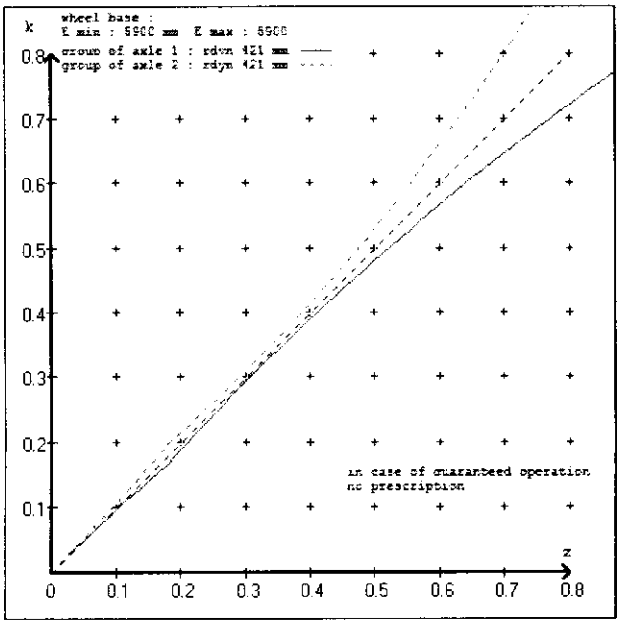
compatibility band unladen



curves of friction laden



curves of friction unladen



vehicle manufacturer: DOMETT
trailer model : 4AX F/T
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.14/16 (Meritor) lever length 69 mm
axle 4 : 2 x type/diameter T.14/16 (Meritor) lever length 69 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
trailer model : 4AX F/T
trailer type : 4-axle-full-trailer
brake calculation no. : TP 50552A

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 = 0.132
6.5 bar z = 0.590

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	1500	to be entered by the vehicle manufact.	2.2	7000	to be entered by the vehicle manufact.	0.3	1.4	6.6
2	1500		2.2	7000		0.3	1.4	6.6
3	1500		1.6	7000		0.3	1.4	4.5
4	1500		1.6	7000		0.3	1.4	4.5
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
1500	2.2	1500	2.2	1500	1.6	1500	1.6
2000	2.6	2000	2.6	2000	1.9	2000	1.9
2500	3.0	2500	3.0	2500	2.1	2500	2.1
3000	3.4	3000	3.4	3000	2.4	3000	2.4
3500	3.8	3500	3.8	3500	2.7	3500	2.7
4000	4.2	4000	4.2	4000	2.9	4000	2.9
4500	4.6	4500	4.6	4500	3.2	4500	3.2
5000	5.0	5000	5.0	5000	3.4	5000	3.4
7000	6.6	7000	6.6	7000	4.5	7000	4.5

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 = 23.5 % Fe
axle 2	(rdyn 421 mm)	T = 23.5 % Fe
axle 3	(rdyn 421 mm)	T = 17.6 % Fe
axle 4	(rdyn 421 mm)	T = 17.6 % Fe

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 = 6389 N
axle2	ThA = 6389 N
axle3	ThA = 4285 N
axle4	ThA = 4285 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 = 38032 N
axle 2	(rdyn 421 mm)	T = 38032 N
axle 3	(rdyn 421 mm)	T = 25568 N
axle 4	(rdyn 421 mm)	T = 25568 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)	0.59	0.46
required braking rate (items 1.3.3 and 1.6.2 to annex II)		>= 0,4 and >= 0,6*z (0.35)

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

axle 1	(rdyn 421 mm)	T = 38032 N
axle 2	(rdyn 421 mm)	T = 38032 N
axle 3	(rdyn 421 mm)	T = 25568 N
axle 4	(rdyn 421 mm)	T = 25568 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)	0.59	0.46
required braking rate (items 1.3.3 and 1.6.2 to annex II)		>= 0,4 and >= 0,6*z (0.35)

spring parking brake

		axle 3	axle 4
no of TRISTOP-actuators per axle line	KDZ	2	2
TRISTOP-actuator type		T.14/16	T.14/16
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	6160	6160
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	48188	48188
Tf = (TFZ*KDZ-2*Co/lBh)*iFb			
braking rate	zf laden	0.361	
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 = 4359 mm for E = 5900 mm
==========
min Ef = 4359 mm for E = 5900 mm
==========

min Ef	=		minimum distance between front axle(s) (trailer) or support (semitrailer) 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	=	2380 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

sf gf sf odf ! wbmvf t

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

	pz [bar]	T [N]	T [N
axle 1	1.0 6.6	5026 41087	
axle 2	1.0 6.6	5026 41087	
axle 3	1.0 4.5		5026 27564
axle 4	1.0 4.5		5026 27564

VIN - no.:

	Axle(s) / Achse(n)				
brake cylinder type (service / parking) Bremszylinder Typ (Betrieb / Fest)	14./	14./	T.14/16	T.14/16	/
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