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

GTC

Vehicle Registration*

VIN / Chassis Number

7A9D3501 2B1 023020

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 32015/2 SCHED 5.

Component Load Rating(s)

N/A.

General Drawing Number(s)

N/A

Supporting Documents

BRAKE DESIGN CERTIFICATE JH111109
PREV EXEMPTION REFERENCE - HUB11/272

*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

12·12·2011

Number

391877

COF Vehicle Inspector ID:

COF Vehicle Inspector Signature:

Date

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

NZ TRANSPORT AGENCY
WAKA KOTAHI

Level 9, 2515 House
20 Ballance Street
PO Box 5084
Lambton Quay
Wellington 6145
New Zealand
T 64 4 894 5200
F 64 4 894 6505
www.nzta.govt.nz

Document: A1243084
Exemption: HVB11/272

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: **7A9D35012B1023020**

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 3rd day of November 2011.

Jackie Hartley
Administrator (Assessments)

WABCO START-UP PROTOCOL

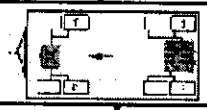
System	Trailer EBS-E	**WABCO part number**	480 102 064 0
Production date	2011-07-27	**Serial number**	896003087200N
Fingerprint Customer EOL / Customer Development / Flash Program	W 039897 / 2011-12-12 ; 00000000 / 0000-00-00 ; 00000000 / 0000-00-00		

WABCO TRAILER EBS-E

GGVS/ADR TUEH TB 2007 - 019.00
RDW 1914 0492

HERSTELLER MANUFACTURER CONSTRUCTEUR	DOMETT T&T
TYP TYPE TYPE	4AX F/T TIPPER
FAHRZEUG IDENTNR CHASSIS NUMBER NUMERO DE CHASSIS	7A9D35012B1023020
BREMSBERECHNUNGS-NR. BRAKE CALCULATION NO. CALCUL DE FREINAGE NO	TP50555
POLRADZAHNEZAHL c-d | e-f POLE WHEEL TEETH c-d | e-f DENTS ROUE DENTEE c-d | e-f	80 / 80
ABS-System ABS-System Système ABS	4S/3M
RSS Einfachbereifung Single Tire Monte simple	
RSS Zwillingsbereifung Twin Tire Monte jumelee	X
Lenkachse Steering axle Essieu vireur	
Kippkritisches Fahrzeug Critical Trailer Vehicule critique	
Subsystems	SB / I/O

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



ACHSE AXLE ESSIEU	pm (bar)		6.5	pm (bar)		0.7	2.0	---	6.5		TYP TYPE	(mm)	(mm)	(bar) 1.0 TR (daN)	Pz
									pz						
1	1500	0.6	2.1	7500	4.9	0.4	1.5	---	6.6	-	24	67	127	491	4183
2	1500	0.6	2.1	7500	4.9	0.4	1.5	---	6.6	-	24	67	127	491	4183
3	1200	0.4	1.4	7500	4.9	0.4	1.5	---	4.9	-	24 / 30	64	127	526	3173
4	1200	0.4	1.4	7500	4.9	0.4	1.5	---	4.9	-	24 / 30	64	127	526	3173
5	0	---	---	0	---	---	---	---	---	-	---	---	---	---	---

Diagnostic memory	OK	**Warning lamp control**	OK
Parameter setting	not 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	DOMETT T&T	**Vehicle ident. no**	7A9D35012B1023020
Vehicle type	4AX F/T TIPPER	**Odometer reading**	0.0 km
next Service	0 km	**Trip reading**	0.0 km
Tested by	Chris Clarke		
Date	2011-12-12 4:40:43 p.m.	**Signature**	

HVBR WORKSHEET

(PROCEDURE & COMPLIANCE DOCUMENTATION SHEET)

CERTIFICATE No. JH111109

CUSTOMER NAME DOMETT TRUCK & TRAILER LTD

CUSTOMER ORDER No. 3699/BC DATE RECEIVED 01.11.11

VEHICLE TYPE 4 AXLE FULL TRAILER

REG No. CHASSIS No. 7A9D35012B1023020

BRIEF SPECIFICATION AS CERTIFIED TO HVBR

BRAKE CHAMBERS:
Type: 24SCN2 (TSE): Max stroke = 67mm Lever length = 127mm
Type: 2430TA2 (TSE): Max stroke = 64mm Lever length = 127mm

BRAKE VALVES: Ratio Valve Setting: EBS CONTROL
Test Points: 3 4 5 7

FRICTION LINING: OEM Aftermarket
(All) Lining Brand ROR 329AF

EBS CONTROL: IF SPECIAL CONDITIONS APPLY – SEE INSTRUCTION ON LT400

VALVES: AS PER BRAKE CALC #TP50555

TYRE SIZE: 265 70 R 19.5

NOTES
PACKING SLIP NO. PROCESS TIME: 1

COMPLETION DATE : 7th November 2011 SIGNATURE (pp.): _____

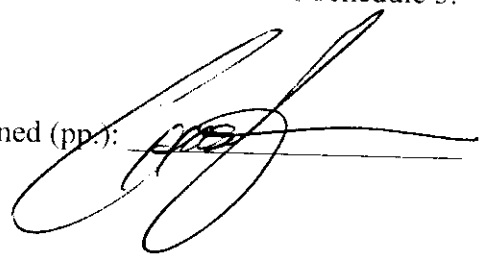
Statement of Compliance with the New Zealand Heavy Brake Rule

Documentation required supporting Statements of Compliance with the New Zealand Heavy Brake Rule, to be made available to the Statutory Authority on request, must include all calculations and test reports.

Confirmation of compliance

I confirm that the vehicle identified on page 1 of this Statement of Compliance complies with all relevant requirements of the current New Zealand Heavy Vehicle Brake Rule 32015/2, Schedule 5.

Date: 7th November 2011

Signed (pp.): 

Certifier's identification

Name: J E Hirst

Phone (bus): (09) 980 7300 Fax (bus): (09) 980 7306

Postal address: Transport Specialties, Cnr Kerrs & Ash Roads

Wiri, Auckland, PO Box 98 971 Manukau City 2241

Position: JEH

Confirmation of continued compliance of modification

I confirm the brake system of the vehicle identified on page 1 of this Statement of Compliance as modified by myself, continues to comply with all the relevant requirements of the current New Zealand Heavy Vehicle Brake Rule 32015/2, Schedule 5.

Date: _____ Signed: _____

Certifier's identification: JEH

Name:

Phone (bus): (09) 980 7300 Fax (bus): (09) 980 7306

Postal address: Transport Specialties Ltd

Cnr Kerrs & Ash Roads, Wiri, Auckland

PO Box 98 971, Manukau City 2241

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
7A9D35012B1023020
JH111109

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 (V6.10.05.21).
-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 : 4AX F/T TIPPER
trailer type : 4-axle-full-trailer
remarks : air / hydraulic / VA suspension
WABCO TRAILER - EBS
TRISTOP 3-4: 24/30
265/70 R 19,5

axle 1 + 2 + 3 + 4 : ROR, B 350 x 200, RDW 1914 0492,

		unladen	laden
total mass	P in kg	5400	30000
axle 1	P1 in kg	1500	7500
axle 2	P2 in kg	1500	7500
axle 3	P3 in kg	1200	7500
axle 4	P4 in kg	1200	7500
wheel base	E in mm	4900 - 4900	
centre of gravity height	h in mm	1000	1800

		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 brake chamber manufacturer		FE 747 TSE	FE 747BC TSE	0051.0BC TSE	0051.0 TSE
chamber size		24	24	24/30	24/30
lever length	lBh in mm	127	127	127	127
brake factor	[-]	9.09	9.09	9.09	9.09
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	27.0	27.0	27.0	27.0

calculation:

chamber pressure(rdyn min)pH at z=22,5%bar		2.5	2.5	2.2	2.2
chamber pressure(rdyn max)pH at z=22,5%bar		2.5	2.5	2.2	2.2
chamber press.(servo)pcha at pm6,5bar	bar	6.6	6.6	4.9	4.9
piston force ThA at pm6,5bar	N	9127	9127	6942	6942
brake force(rdyn min)T lad. at pm6,5bar	N	49622	49622	37642	37642
brake force(rdyn max)T lad. at pm6,5bar	N	49622	49622	37642	37642
brake force within 1 % rolling friction proportion	%	24.6	24.6	25.4	25.4

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

0.593 for rdyn min
0.593 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: TSE 24S

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

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

brake cylinder: TSE 24S

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

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

brake cylinder: TSE 2430GC

axle 4:

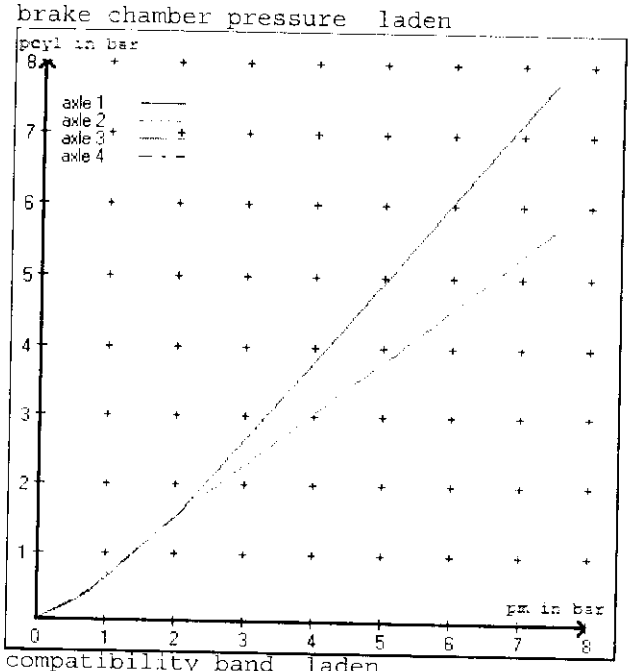
valve 1: 971 002 ... 0 WABCO
EBS emergency valve

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

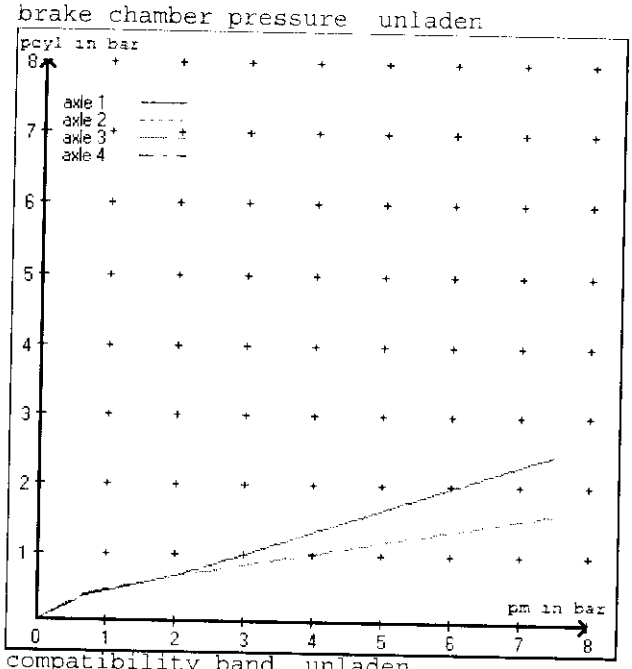
brake cylinder: TSE 2430GC

test type III (zIII = 0.30)	for rdyn min :	axle1	axle2	axle3	axle4	
at pm 3.6 bar =>	pcha in bar :	3.3	3.3	2.7	2.7	
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	

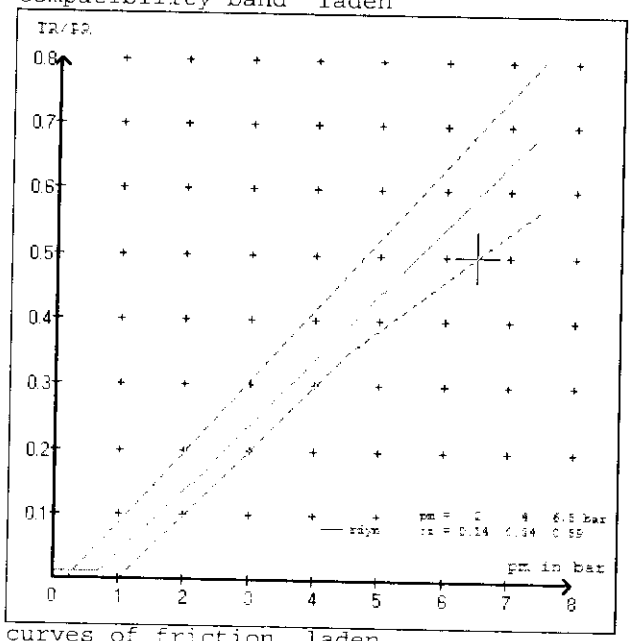
brake chamber pressure laden



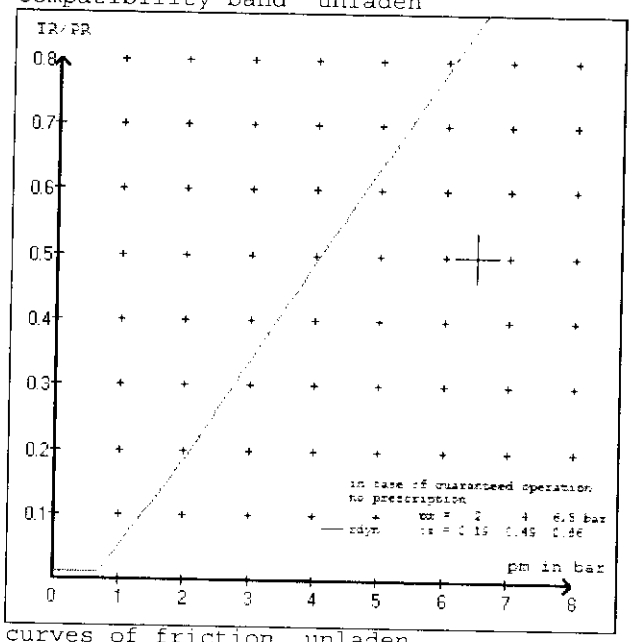
brake chamber pressure unladen



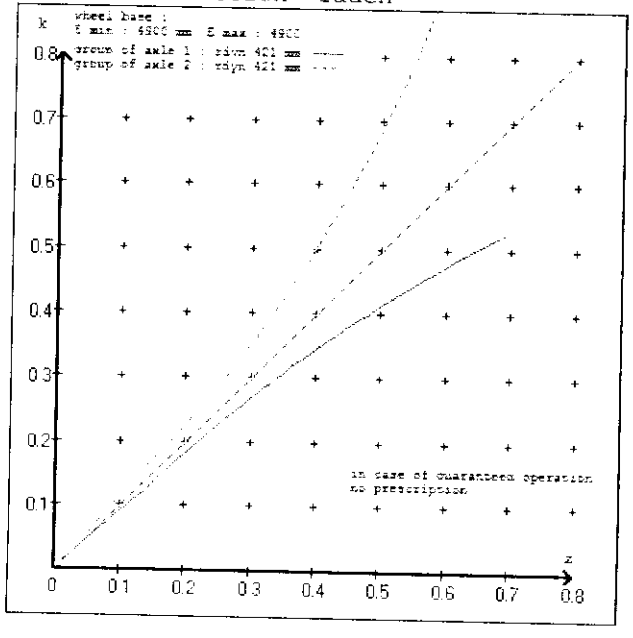
compatibility band laden



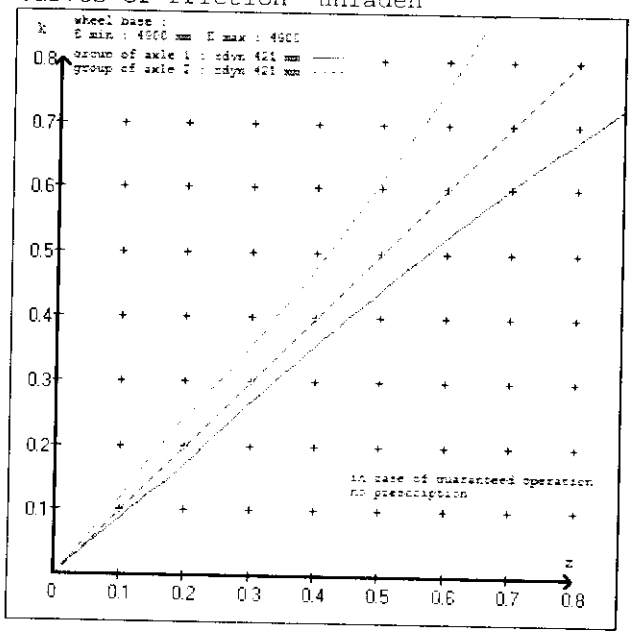
compatibility band unladen



curves of friction laden



curves of friction unladen



vehicle manufacturer: DOMETT T&T
trailer model : 4AX F/T TIPPER
trailer type : 4-axle-full-trailer

brake chamber and lever length :

axle 1 :	2 x type/diameter	24	(TSE)	lever length 127 mm
axle 2 :	2 x type/diameter	24	(TSE)	lever length 127 mm
axle 3 :	2 x type/diameter	24/30	(TSE)	lever length 127 mm
axle 4 :	2 x type/diameter	24/30	(TSE)	lever length 127 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 : 4AX F/T TIPPER
trailer type : 4-axle-full-trailer
brake calculation no. : TP 50555A

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	2.1	7500	to be	0.4	1.5	6.6
2	1500	entered by	2.1	7500	entered by	0.4	1.5	6.6
3	1200	the vehicle	1.4	7500	the vehicle	0.4	1.5	4.9
4	1200	manufact.	1.4	7500	manufact.	0.4	1.5	4.9
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	2.1	1500	2.1	1200	1.4	1200	1.4
2000	2.5	2000	2.5	1700	1.7	1700	1.7
2500	2.9	2500	2.9	2200	2.0	2200	2.0
3000	3.2	3000	3.2	2700	2.2	2700	2.2
3500	3.6	3500	3.6	3200	2.5	3200	2.5
4000	4.0	4000	4.0	3700	2.8	3700	2.8
4500	4.3	4500	4.3	4200	3.1	4200	3.1
5000	4.7	5000	4.7	4700	3.3	4700	3.3
7500	6.6	7500	6.6	7500	4.9	7500	4.9

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		brake lining: ROR 329 AF	
test report :	RDW 1914 0492	date	: 11.02.1999
axle 2 : reference axle: ROR		brake lining: ROR 329 AF	
test report :	RDW 1914 0492	date	: 11.02.1999
axle 3 : reference axle: ROR		brake lining: ROR 329 AF	
test report :	RDW 1914 0492	date	: 11.02.1999
axle 4 : reference axle: ROR		brake lining: ROR 329 AF	
test report :	RDW 1914 0492	date	: 11.02.1999

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

axle 1	(rdyn 421 mm)	T = 20.8 % Fe
axle 2	(rdyn 421 mm)	T = 20.8 % Fe
axle 3	(rdyn 421 mm)	T = 17.4 % Fe
axle 4	(rdyn 421 mm)	T = 17.4 % Fe

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

axle 1	(sp = 74 mm)	s = 52 mm
axle 2	(sp = 74 mm)	s = 52 mm
axle 3	(sp = 63 mm)	s = 52 mm
axle 4	(sp = 63 mm)	s = 52 mm

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

axle1	ThA = 9127 N
axle2	ThA = 9127 N
axle3	ThA = 6942 N
axle4	ThA = 6942 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 = 45827 N
axle 2	(rdyn 421 mm)	T = 45827 N
axle 3	(rdyn 421 mm)	T = 34781 N
axle 4	(rdyn 421 mm)	T = 34781 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	0.55
required braking rate (items 1.3.3 and 1.6.2 to annex II)		>= 0,4 and >= 0,6*z (0.36)

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

axle 1	(rdyn 421 mm)	T = 45827 N
axle 2	(rdyn 421 mm)	T = 45827 N
axle 3	(rdyn 421 mm)	T = 34781 N
axle 4	(rdyn 421 mm)	T = 34781 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	0.55
required braking rate (items 1.3.3 and 1.6.2 to annex II)		>= 0,4 and >= 0,6*z (0.36)

spring parking brake

		axle 3	axle 4
no of TRISTOP-actuators per axle line	KDZ	2	2
TRISTOP-actuator type		24/30	24/30
lever length	lBh in mm	127	127
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	6360	6360
sp.brake chamber no 925		376 005 0	376 005 0
sp.brake chamber no 925		376 2.. 0	376 2.. 0
release pressure	pLs in bar	4.9	4.9

calculation:

ratio until road iFb = lBh*Eta*C*rBt/(2*rBn*rstat)		2.8789	2.8789
	for rstat in mm	401	401
brake force of spring br. Tf Tf = (TFZ*KDZ-2*Co/lBh)*iFb	in N	35395	35395
braking rate zf = sum (Tf)/P + 0,01	zf laden	0.251	

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 = 3579 mm for E = 4900 mm

min Ef = 3579 mm for E = 4900 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	=	1800 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)

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	4913 41840	
axle 2	1.0 6.6	4913 41840	
axle 3	1.0 4.9		5265 31739
axle 4	1.0 4.9		5265 31739

VIN - no.:

	Axle(s) / Achse(n)				
brake cylinder type (service / parking) Bremszylinder Typ (Betrieb / Fest)	24/	24/	24/30	24/30	/
Maximum stroke smax = ...mm maximaler Hub smax = ...mm	67	67	64	64	
Lever length = ...mm Hebellänge = ...mm	127	127	127	127