



Heavy Vehicle Specialist Certificate

Heavy Vehicle Specialist Inspector and Inspecting Organisation

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

ID

RONALD STUART PRATT

TRSP

Vehicle Registration*

VIN / Chassis Number

7A9D25013B0023987

Component being certified:

Chassis Modification

Load Anchorage

Log Bolsters

Certification Category

HVEK

Towing Connection

Brakes

SRT

Description of Work

Cert. by to Brake Rule 32015/2

Code/Standard Certified to

NZ4VB Rule Schedule 5

Component Load Rating(s)

Max GVM = 28000kg

General Drawing Number(s)

NA

Supporting Documents

Brake Cert No RP110801

Prev exempt. No HVB 11/176

*Special Conditions

EBS Control - Warning lamp must illuminate when ignition switched on and extinguish immediately OR when vehicle reaches 7kph.

Certification Expiry Date (if applicable)

N/A

or

Hubodometer Reading (whichever comes first)

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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

Ronald Stuart Pratt

*Delegate's Name (PRINT IN CAPS)

Date

02/08/2011

Number

381554

COF Vehicle Inspector ID:

COF Vehicle Inspector Signature:

Date

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

NOTICE TO VEHICLE OPERATOR

THIS VEHICLE HAS A BRAKE SYSTEM WHICH HAS BEEN DESIGNED AND FITTED IN ACCORDANCE WITH THE NEW ZEALAND HEAVY VEHICLE BRAKE RULE 32015: SCHEDULE 5.

IF THIS VEHICLE IS OPERATED IN CONJUNCTION WITH NON-CODED VEHICLES, THERE MAY BE OPERATIONAL FACTORS WHICH NEED TO BE TAKEN INTO CONSIDERATION.

PLEASE REFER TO THE CERTIFIER FOR FURTHER INFORMATION.

EXCERPT FROM NZ HEAVY VEHICLE BRAKE RULE 32015

10.1 Responsibilities of operators

A person who operates a vehicle must ensure that the vehicle complies with this Rule

10.2 Responsibilities of repairers

A person who repairs or adjusts a brake must ensure that the repair or adjustment:

- (a) does not prevent the vehicle from complying with the rule; and*
- (b) complies with Land Transport Rule: Vehicle Repair 1998.*

10.3 Responsibilities of modifiers

A person who modifies a vehicle so as to affect the braking performance of the vehicle must:

- (a) ensure that the modification does not prevent the vehicle from complying with this rule; and*
- (b) notify the operator that the vehicle must be inspected and, if necessary, certified by a person or organisation appointed to carry out specialist inspection and certification of heavy vehicle brakes.*

10.5 Responsibilities of manufactures and retailers

A person may manufacture, stock, or offer for sale a brake or its components. Intended for fitting to a vehicle to be used on New Zealand roads, only if that brake or component:

- (a) complies with this Rule; and*
- (b) does not prevent a repair to a vehicle, its structure, systems, components and equipment from complying with this Rule.*

IF YOU ARE UNSURE ABOUT YOUR RESPONSIBILITIES, PLEASE CONTACT THE VEHICLE MANUFACTURER, OR MYSELF.

COMPLAINTS. *Complaints and Warranty issues which relate to Brake Certification will be acknowledged within 7 working days and a resolution proposed within 25 working days. Resolution of complaints and Warranty issues is subject to Transpecs Warranty policy. Customers have the right to appeal to the Land Transport Safety Authority if dissatisfied with a Compliance issue. (refer LTNZ Deed Of Appointment Para 47.4) Land Transport NZ Helpdesk 0800 699 000*

.....
R S PRATT
(TRSP HVEK)



NOTICE TO VEHICLE OPERATOR

This trailer is equipped with an Electronic Brake System.

To comply with the New Zealand Heavy Vehicle Brake RULE, it must be used only in conjunction with a truck/tractor equipped with a 5 or 7 pin ABS/EBS power supply socket.

Failure to connect to such supply invalidates Brake Rule compliance.

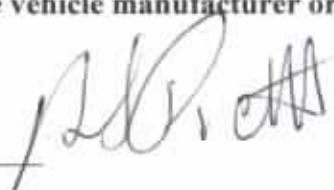
The trailer ABS/EBS warning light on the towing vehicle dashboard must illuminate when the ignition is switched on and extinguish when the vehicle is in motion.

If the light does not illuminate when ignition is switched on, the system must be checked. If the light remains illuminated when the vehicle is in motion, Brake Rule compliance is compromised. Repairs must be made as soon as possible.

NB:

If this vehicle is fitted with mechanical (spring) suspension, the load sense valving has been adjusted to suit exactly the performance of the original springs. In event of replacement being required, original equipment springs **must** be fitted to ensure correct ongoing operation. Fitment of non genuine springs can affect operation and therefore, compliance.

If you are unsure of your responsibilities and/or obligations, please contact either the vehicle manufacturer or myself.



R S Pratt
(TRSP HVEK 09 980 7300)



P.O.Box 98-971

South Auckland Mail Centre

Ronald Stuart Pratt (TRSP)

DATE	2-Aug-11	TYPE APPROVED	ROR4FTEBSe
CERTIFICATE No	RP110801	PREV EXEMPTION NO	HVB11/176
VIN No	7A9D25013B0023987		
BRAKE CHAMBERS FRONT	TSE24 @75mm	MAN GVM	28000 Kg
BRAKE CHAMBERS REAR	TSE24/30@175mm	LOAD SENSED	YES EBS CONTROL
SLACK LENGTH FRONT	127mm	TYRE SIZE FRONT	265/70R19.5
SLACK LENGTH REAR	127mm	TYRE SIZE REAR	265/70R19.5
THIS VEHICLE COMPLIES WITH N Z		LINING MATERIAL FRONT	ROR 329AF Prestige
HVBR 32015/2 SCHEDULE 5		LINING MATERIAL REAR	ROR 329AF Prestige



NZ TRANSPORT AGENCY
WAKA KOTAHU

Donett

Document: B1158579
Exemption: HVB11/176

Level 9, PSIS House
20 Ballance Street
PO Box 5084
Lambton Quay
Wellington 6145
New Zealand
T 64 4 894 5200
F 64 4 894 3305

www.nzta.govt.nz

**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, Vehicles Unit, 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, 5 Axle Full Trailer**
VIN/CHASSIS: **7A9D2501380023987**

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(5) of the Rule.
- 4) The installation of the PREV must be approved in writing by Transport Specialties Ltd (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 12th day of July 2011.

Jackie Hartley
Administrator
Vehicles Unit

WABCO

TRAILER EBS-E

GGVS/ADR TUEH TB 2007 - 019.00

HERSTELLER MANUFACTURER CONSTRUCTEUR	Domett Trailers		
TYP TYPE TYPE	4A Full Livestock		
FAHRZEUG IDENTIFIKATION CHASSIS NUMBER NUMERO DE CHASSIS	7A9D25013B0023987		
WRE NUMBER/CHASSIS NR. MARQUE CALCULATION NO. CALCUL DE FREINAGE NO.	00197RP		
POLYMER/REZINE POLYMER/REZINE DENTS ROUE/REINÉE	90	90	ABS-System ABS-System Systeme ABS
ABS			4S/3M
ABS ABS ABS			
Einachsereifung Single Tire Roue simple			ABS-System Steering axle Essieu avant
Zwillingsreifung Twin Tire Roue jumelle	X		Kipplachse Fahrzeug Curtain Trailer Vehicule cillé
Subsystems	I/O		

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



ACHSE AXLE ESSEL	pm (bar)		6.5		pm (bar)		0.7		2.0		---		6.5		TR (daN)
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		
1	1180	0.5	2.4	7500	4.6	0.5	1.6	---	6.4	-	---	---	---	---	---
2	1180	0.5	2.4	7500	4.6	0.5	1.6	---	6.4	-	---	---	---	---	---
3	1100	0.5	1.9	7500	4.6	0.5	1.7	---	5.3	-	---	---	---	---	---
4	1100	0.5	1.9	7500	4.6	0.5	1.7	---	5.3	-	---	---	---	---	---
5	0	---	---	0	---	---	---	---	---	-	---	---	---	---	---

WABCO

START-UP PROTOCOL

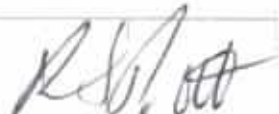
System	Trailer EBS-E	WABCO part number	46J 102 064 0
Production date	2011-05-19	Serial number	00050021025000
Fingerprint Customer EOL / Customer Development / Flash Program	W 041609 / 2011-08-02 ; 00000000 / 0000-00-00 ; 00000000 / 0000-00-00		

WABCO		TRAILER EBS-E		GGVS/ADR TUEH TB 2007 - 019.00	
HERSTELLER MANUFACTURER CONSTRUCTEUR Domett Trailers		GIO 1 2 3 4 5 6 7		Pin1 --- --- ALS2 --- --- --- ---	
TYP TYPE 4A Full Livestock		Pin3 --- --- ALS2 --- --- --- ---		Pin4 --- --- --- --- --- --- ---	
FAHRZEUG IDENTIF. CHASSIS NUMBER NUMERO DE CHASSIS 7A9D25013B0023987		ABS SYSTEM ABS-system Systeme ABS 4S/3M			
BREMSENRECHENUNG NR. BRAKE CALCULATION NO. CALCULO DE FRENOJE NO. 00197RP		WHEELS Räder Roues Pneumatische Single Tire Simple pneu X			
WHEELS Räder Roues Technische Details 90 90		WHEELS Räder Roues Technische Details 4S/3M		Subsystems --- I/O ---	

ACHSE AXLE EIXEN	pm (bar)		6.5		pm (bar)		0.7		2.0		6.5		pz	TYP TYPE	(mm)	(mm)	(bar)	
	1	2	1	2	1	2	1	2	1	2	1.0	Pz						
1	1180	0.5	2.4	7500	4.6	0.5	1.6	---	6.4	-	---	---	---	---	---	---	---	---
2	1180	0.5	2.4	7500	4.6	0.5	1.6	---	6.4	-	---	---	---	---	---	---	---	---
3	1100	0.5	1.9	7500	4.6	0.5	1.7	---	5.3	-	---	---	---	---	---	---	---	---
4	1100	0.5	1.9	7500	4.6	0.5	1.7	---	5.3	-	---	---	---	---	---	---	---	---
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 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 Trailers	Vehicle ident. no	7A9D25013B0023987
Vehicle type	4A Full Livestock	Odometer reading	0.0 km
next Service	0 km	Trip reading	0.0 km
Tested by	Ron Pratt	Signature 	
Date	2011-08-02 2:28:20 PM		

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 Trailers
 ROR 4AFT EBSe DM
 7A9D25013B0023987 RP110801
 00197RP Dom ROR Dm 6.02

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!
 WABCO Brake v6.10.05.21 dt 26.05.2010

vehicle manufacturer: Domett Trailers
 trailer model : 4A Full Stock
 trailer type : 4-axle-full-trailer
 remarks : air / hydraulic / VA suspension
 WABCO TRAILER - EBS E
 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	5800	30000
axle 1	P1 in kg	1550	7500
axle 2	P2 in kg	1550	7500
axle 3	P3 in kg	1350	7500
axle 4	P4 in kg	1350	7500
wheel base	E in mm	6021 - 6021	
centre of gravity height	h in mm	1080	2230

	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	FE 747	FE 747BC	0023.1BC	0023.1
brake chamber manufacturer	WABCO	WABCO	WABCO	WABCO
chamber size	24	24	24/30	24/30
lever length	127	127	127	127
brake factor	9.09	9.09		
dyn. rolling radius r _{dyn min} in mm	421	421	421	421
dyn. rolling radius r _{dyn max} in mm	421	421	421	421
threshold torque Co Nm	27.0	27.0	27.0	27.0

calculation:

chamber pressure(r _{dyn min})pH at z=22,5%bar	2.6	2.6	2.4	2.4
chamber pressure(r _{dyn max})pH at z=22,5%bar	2.6	2.6	2.4	2.4
chamber press.(servo)pcha at pm6,5bar bar	6.4	6.4	5.3	5.3
piston force ThA at pm6,5bar N	8841	8841	7268	7268
brake force(r _{dyn min})T lad. at pm6,5bar N	46892	46892	38261	38261
brake force(r _{dyn max})T lad. at pm6,5bar N	46892	46892	38261	38261
brake force within 1 % rolling friction				
proportion %	25.0	25.0	25.0	25.0

braking rate z laden 0.579 for r_{dyn min}
 z = sum (TR)/PRmax 0.579 for r_{dyn 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: WABCO 423 106 9.. 0

axle 2:

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

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

brake cylinder: WABCO 423 106 9.. 0

axle 3:

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

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

brake cylinder: WABCO 925 376 000-004 0 / 925 376 1.. 0

axle 4:

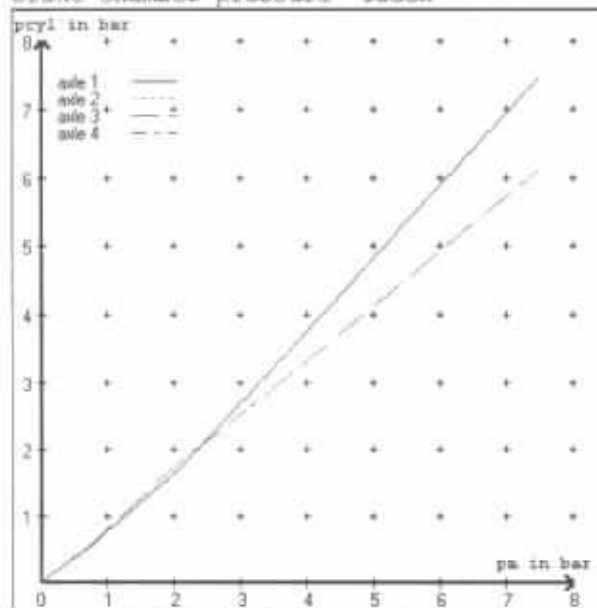
valve 1: 971 002 ... 0 WABCO
 EBS emergency valve

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

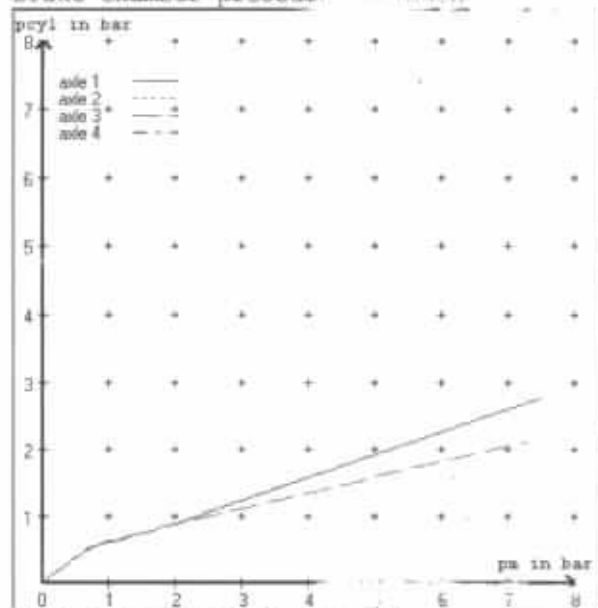
brake cylinder: WABCO 925 376 000-004 0 / 925 376 1.. 0

test type III (zIII = 0.30) for rdyn min : axle1 axle2 axle3 axle4
at pm 3.7 bar => pcha in bar : 3.4 3.4 3.1 ...
test type III (zIII = 0.06) for rdyn min : axle1 axle2 axle3 axle4
at pm 1.2 bar => pcha in bar : 0.9 0.9 1.0 1.0

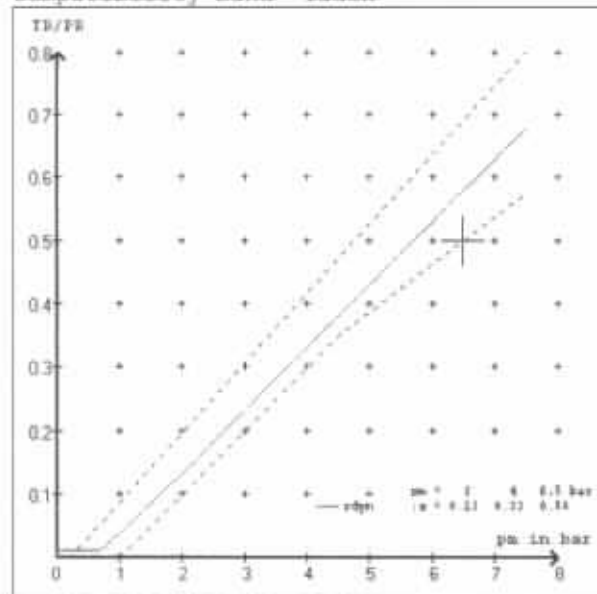
brake chamber pressure laden



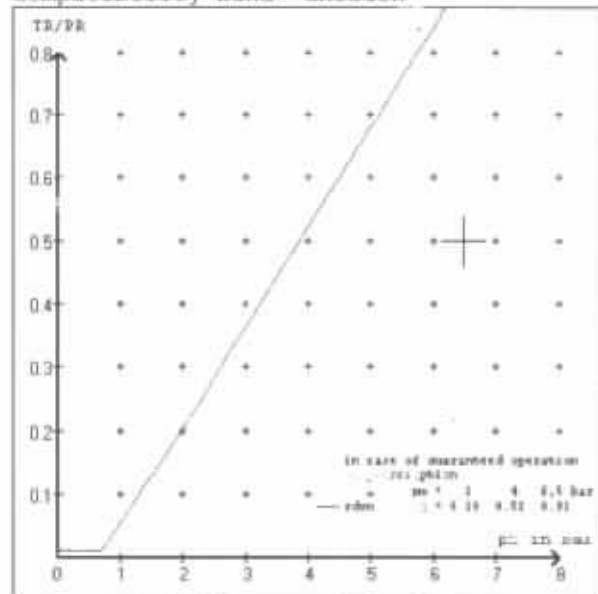
brake chamber pressure unladen



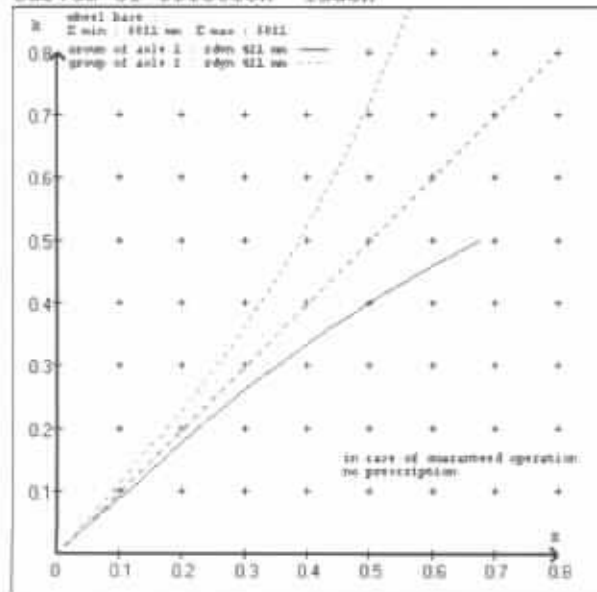
compatibility band laden



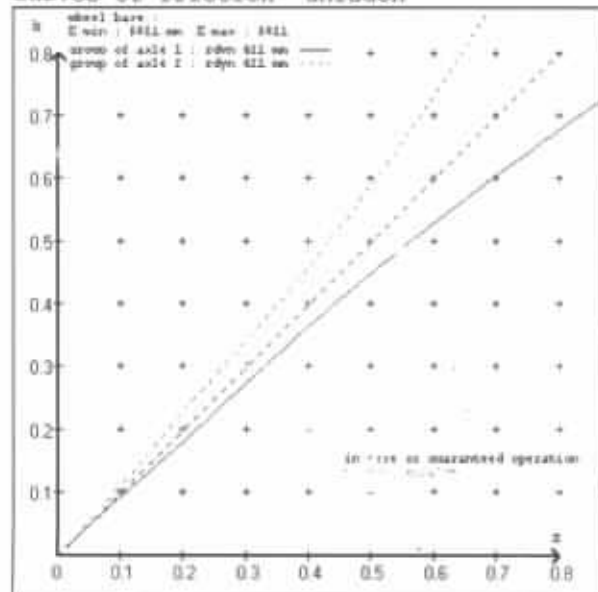
compatibility band unladen



curves of friction laden



curves of friction unladen



vehicle manufacturer: Domett Trailers
 trailer model : 4A Full Stock
 trailer type : 4-axle-full-trailer

brake chamber and lever length :

axle 1 : 2 x type/diameter 24 (WABCO) lever length 127 mm
 axle 2 : 2 x type/diameter 24 (WABCO) lever length 127 mm
 axle 3 : 2 x type/diameter 24/30 (WABCO) lever length 127 mm
 axle 4 : 2 x type/diameter 24/30 (WABCO) 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 Trailers
 trailer model : 4A Full Stock
 trailer type : 4-axle-full-trailer
 brake calculation no. : TP 197A

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 = 0.580

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	1550	to be entered by the vehicle manufact.	0.6	7500	4.6	0.5	1.6 6.4
2	1550		2.4	7500	entored by the vehicle manufact.	0.5	1.6 6.4
3	1350		1.9	7500		0.5	1.7 5.3
4	1350		1.9	7500		0.5	1.7 5.3
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
1550 2.4	1550 2.4	1350 1.9	1350 1.9
2050 2.7	2050 2.7	1850 2.2	1850 2.2
2550 3.1	2550 3.1	2350 2.5	2350 2.5
3050 3.4	3050 3.4	2850 2.7	2850 2.7
3550 3.7	3550 3.7	3350 3.0	3350 3.0
4050 4.1	4050 4.1	3850 3.3	3850 3.3
4550 4.4	4550 4.4	4350 3.6	4350 3.6
5050 4.8	5050 4.8	4850 3.8	4850 3.8
7500 6.4	7500 6.4	7500 5.3	7500 5.3

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

axle 1	(rdyn 421 mm)	T = 10.1 % Fe
axle 2	(rdyn 421 mm)	T = 10.1 % Fe
axle 3	(rdyn 421 mm)	T = 8.9 % Fe
axle 4	(rdyn 421 mm)	T = 8.9 % 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 = 72 mm)	s = 52 mm
axle 4	(sp = 72 mm)	s = 52 mm

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

axle1	ThA = 8841 N
axle2	ThA = 8841 N
axle3	ThA = 7268 N
axle4	ThA = 7268 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 = 43310 N
axle 2	(rdyn 421 mm)	T = 43310 N
axle 3	(rdyn 421 mm)	T = 35351 N
axle 4	(rdyn 421 mm)	T = 35351 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)	0.58	(hot)braking 0.53
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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 = 43310 N
axle 2	(rdyn 421 mm)	T = 43310 N
axle 3	(rdyn 421 mm)	T = 35351 N
axle 4	(rdyn 421 mm)	T = 35351 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)	0.58	(hot)braking 0.53
--	------	----------------------

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

	<u>axle 3</u>	<u>axle 4</u>
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 TFE in N	6520	6520
sp.brake chamber no 925	376 000-0376 000-0	
sp.brake chamber no 925	376 1.. 0376 1.. 0	
release pressure pLs in bar	4.8	4.8

calculation:

ratio until road	2.8789	2.8789
$iFb = lBh \cdot \eta \cdot C \cdot rBt / (2 \cdot rBn \cdot rstat)$ for rstat in mm	401	401
brake force of spring br. Tf in N $Tf = (TFZ \cdot KDZ - 2 \cdot Co / lBh) \cdot iFb$	35092	35092
braking rate zf laden	0.248	
$zf = \text{sum}(Tf) / P + 0,01$		

Test of the frictional connection required by the parking brake

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

$$\min Ef = E \cdot (1 - PR/P + zferf \cdot h/E) / (1 - zferf / (fzul \cdot nf/ng))$$

$$\min Ef = 4402 \text{ mm} \quad \text{for } E = 6021 \text{ mm}$$

$$\min Ef = 4402 \text{ mm} \quad \text{for } E = 6021 \text{ mm}$$

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
h = 2230 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)

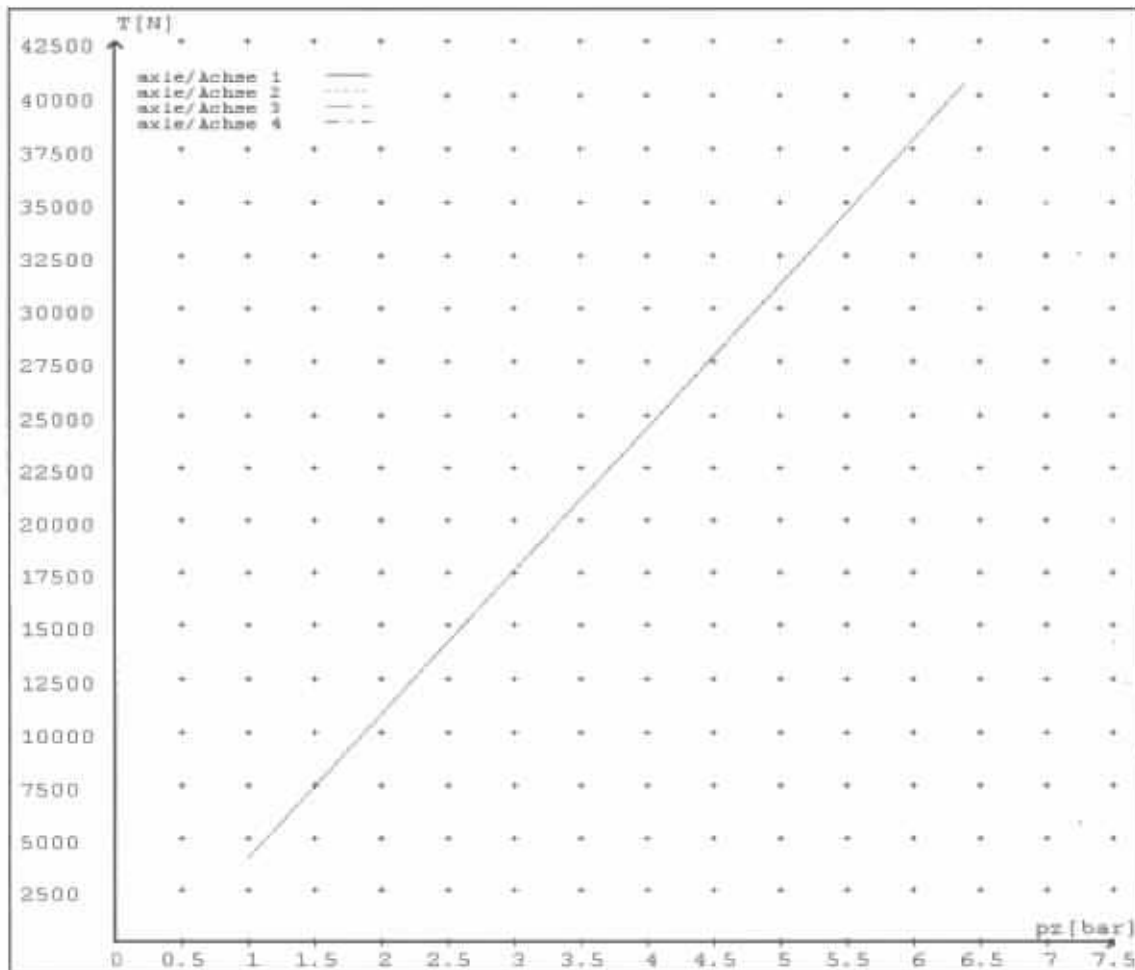
reference values

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

	pz [bar]	T [N]	T [N]
axle 1	1.0	4025	
	6.4	40494	
axle 2	1.0	4025	
	6.4	40494	
axle 3	1.0		4021
	5.3		33040
axle 4	1.0		4021
	5.3		33040

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	75	75	75	75	
Lever length =mm Hebellänge =mm	127	127	127	127	



reference values for $z = 0.5$

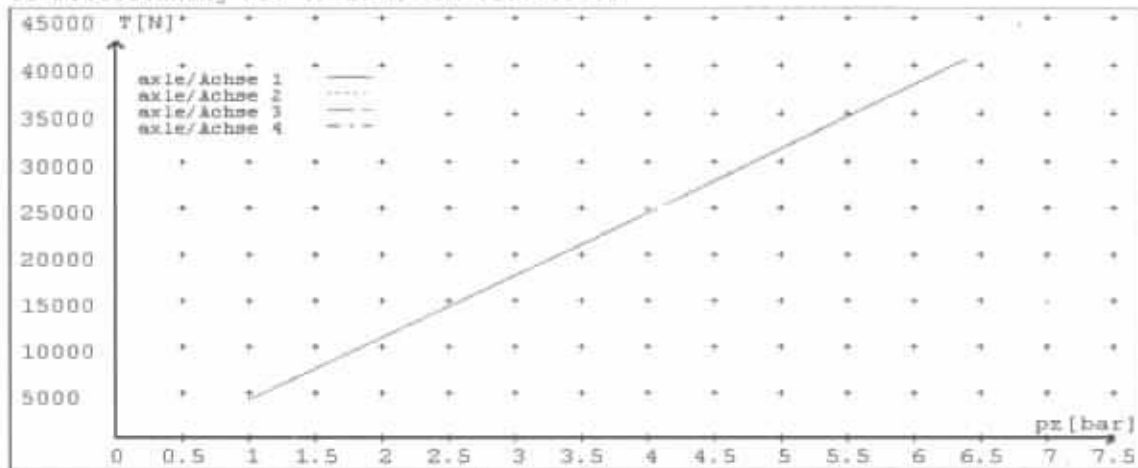
for max r_{dyn}: 421 mm

Angabe der Referenzwerte für $z = 0.5$

für max r_{dyn}: 421 mm

brake calculation no: TP 197A date 01.08.2011

Bremsberechnung Nr: TP 197A vom 01.08.2011



	Axle(s) / Achse(n)				
brake cylinder type (service / parking) Bremszylinder Typ (Betrieb / Fest)	24/	24/	24/30	24/	24/
Maximum stroke s _{max} = ...mm maximaler Hub s _{max} = ...mm	75	75	75	75	75
Lever length = ...mm Hebelänge = ...mm	127	127	127	127	127