TRANSPORT AGENCY

Heavy Vehicle Specialist Certificate

CHRIS CLARKE

CJC

VIN / Chassis Number

7A9E20019D1023190

Chassis Mod ... Anchorage

Towing Connec... ✓

PSV Stability ... / Rollover

PBS

HVEK

CARRY OUT SET UP OF TRAILER EBS SYSTEM.

ROLL STABILITY FUNCTION (RSS) ACTIVATED.

Component Load Rating(s)

HUBNZ 32015/2 SCHED 5.

N/A.

BRAKE DESIGN CERTIFICATE - JH130802
PREV EXEMPTION REF - HUB13/257.

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

N/A

16 09 2013

447118

WABCO START-UP PROTOCOL

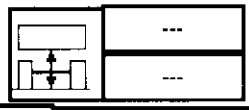
System	Trailer EBS-E	**WABCO part number**	480 102 080 0
Production date	2013-04-12	**Serial number**	897001333000J
Serial number (modulator)	000000021229		
Fingerprint Customer EOL / Customer Development / Flash Program	W503643 / 2013-09-16 ; 00000000 / 0000-00-00 ; 00000000 / 0000-00-00		

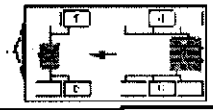
WABCO TRAILER EBS-E

GGVS/ADR TUEH TB 2007 - 019.00
TDB0749

HERSTELLER MANUFACTURER CONSTRUCTEUR	DOMETT T&T
TYP TYPE TYPE	5AFT C/SIDE
FAHRZEUG IDENTNR. CHASSIS NUMBER NUMERO DE CHASSIS	7A9E20019D1023190
BREMSBERECHNUNGS-NR. BRAKE CALCULATION NO. CALCUL DE FREINAGE NO	TP50860A
POLRADZAHNEZAHL c-d : e-f POLE WHEEL TEETH c-d : e-f DENTS ROUE DENTEE c-d : e-f	90 / 90
ABS System ABS System Systeme ABS	4S/3M
RSS RSS RSS Einfachbereifung Single Tyre Monte simple	
Lenkachse Steering axle Essieu vireur	
Zwillingsbereifung Twin Tyre Monte jumelee	X
Kippkritisches Fahrzeug Critical Trailer Vehicule critique	
Subsystems	SB / I/O / 24N

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





	pm (bar)		6.5	pm (bar)		0.7	2.0	---	6.5		TYP TYPE	(mm)	(mm)	1.0 (bar) TR (daN)	Pz
ACHSE AXLE ESSIEU									pz						
1	1600	0.8	1.7	7500	4.9	0.4	1.4	---	5.8	-	18	65	69	508	4021
2	1600	0.8	1.7	7500	4.9	0.4	1.4	---	5.8	-	18	65	69	508	4021
3	1400	0.7	1.4	6000	3.9	0.3	1.4	---	4.4	-	14 / 16	64	69	500	2716
4	1400	0.7	1.4	6000	3.9	0.3	1.4	---	4.4	-	14 / 16	64	69	500	2716
5	1400	0.7	1.4	6000	3.9	0.3	1.4	---	4.4	-	14	64	69	500	2716

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
Signal inputs	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**	7A9E20019D1023190
Vehicle type	5AFT C/SIDE	**Odometer reading**	0.0 km
next Service	0 km	**Trip reading**	0.0 km
Tested by	Chris Clarke		
Date	2013-09-16 2:48:19 p.m.	**Signature**	

NZ TRANSPORT AGENCY

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Exemption: HVB13/257

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: Vehicle Details:

Make/Model: **Domett T & T Ltd, 5 Axle Full Trailer**
VIN/Chassis: **7A9E20019D1023190**

Schedule 2: Exempted Requirement:

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 postion 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 Gough Transpecs or an NZ Transport Agency appointed HVEK certifier acting on behalf of, and under instruction from, Gough Transpecs; Gough Transpecs must keep a written record of all approvals.

5) The HVEK certifier in 4) must be fully trained in end of line procedures for Wabco electronically controlled braking systems.

6) Gough 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 Gough Transpecs.

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 9) 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 23rd day of July 2013

Jackie Hartley
Administrator (Assessments)

trailer (full, semi-, centre-axle) with air brake system acc. to UN/ECE-R.13.11

distribution: DOMETT T&T
7A9E20012D1023189 & 7A9E20019D1023190
SODC: JH130801 & JH130802
PREV: HVB13/258 & HVB13/257

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 (V6.13.06.12),
-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 V6.13.06.12 db 12.06.2013

vehicle manufacturer: DOMETT T&T

trailer model : 5AFT C/SIDE

trailer type : 5-axle-full-trailer

remarks : air / hydraulic / VA suspension
WABCO TRAILER - EBS
TRISTOP 3+4: T.14/16
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	7400	33000
axle 1	P1 in kg	1600	7500
axle 2	P2 in kg	1600	7500
axle 3	P3 in kg	1400	6000
axle 4	P4 in kg	1400	6000
axle 5	P5 in kg	1400	6000
wheel base	E in mm	7450 - 7450	
centre of gravity height	h in mm	1090	2058

		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	KDZ	2	2	2	2	2
The power output corresponds to		BZ 122.1	BZ 122.1	BZ 119.6	BZ 119.6	BZ 122.1
brake chamber manufacturer		Meritor	Meritor	Meritor	Meritor	Meritor
chamber size		18.	18.	T.14/16	T.14/16	14.
lever length	lBh in mm	69	69	69	69	69
brake factor	[-]	23.03	23.03	23.03	23.03	23.03
dyn. rolling radius	rdyn min in mm	421	421	421	421	421
dyn. rolling radius	rdyn max in mm	421	421	421	421	421
threshold torque	Co Nm	6.0	6.0	6.0	6.0	6.0

calculation:

chamber pressure(rdyn min)	pH at z=22,5% bar	2.3	2.3	2.0	2.0	2.0
chamber pressure(rdyn max)	pH at z=22,5% bar	2.3	2.3	2.0	2.0	2.0
chamber press.(servo)	pcha at pm6,5bar bar	5.8	5.8	4.4	4.4	4.4
piston force	ThA at pm6,5bar N	6172	6172	4185	4185	4185
brake force(rdyn min)	T lad. at pm6,5bar N	46726	46726	31560	31560	31560
brake force(rdyn max)	T lad. at pm6,5bar N	46726	46726	31560	31560	31560
brake force within 1 % rolling friction proportion	%	21.2	21.2	19.2	19.2	19.2

braking rate z laden	0.581	for rdyn min
z = sum (TR)/PRmax	0.581	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 2.. 0 WABCO or 480 207 2.. 0
EBS relay valve

brake cylinder: Meritor 18HSCLD64

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

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

brake cylinder: Meritor 18HSCLD64

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

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

brake cylinder: Meritor 1416HTLD64

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

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

brake cylinder: Meritor 1416HTLD64

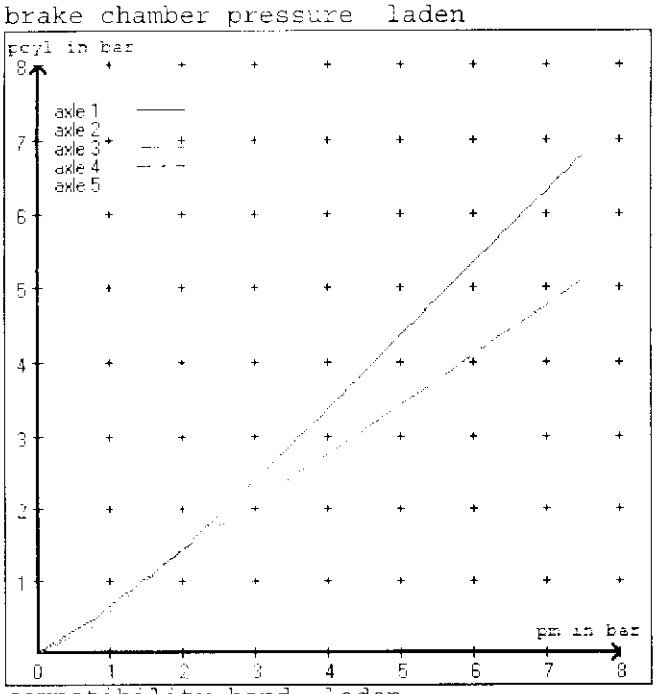
axle 5:
valve 1: 971 002 ... 0 WABCO
EBS emergency valve

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

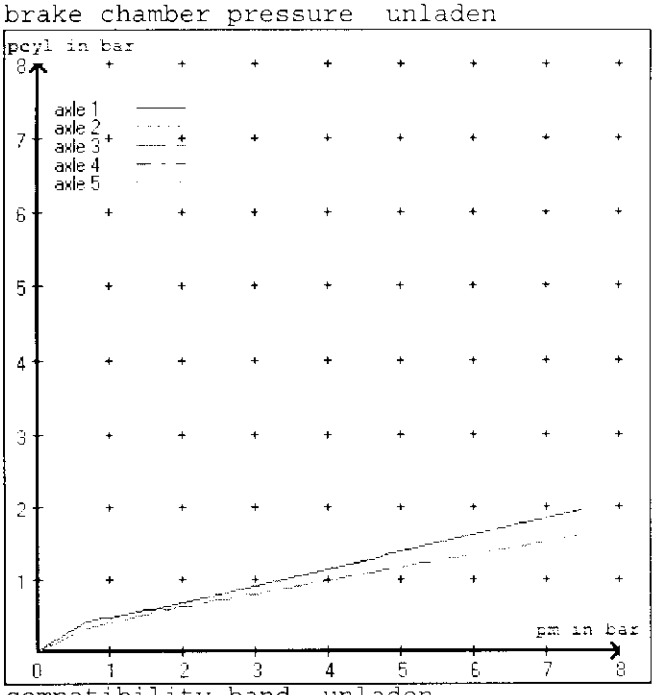
brake cylinder: Meritor 14HSCLD64

test type III (zIII = 0.30)	for rdyn min :	axle1	axle2	axle3	axle4	axle5
at pm 3.6 bar =>	pcha in bar :	3.0	3.0	2.5	2.5	2.5
test type III (zIII = 0.06)	for rdyn min :	axle1	axle2	axle3	axle4	axle5
at pm 1.2 bar =>	pcha in bar :	0.8	0.8	0.7	0.7	0.7

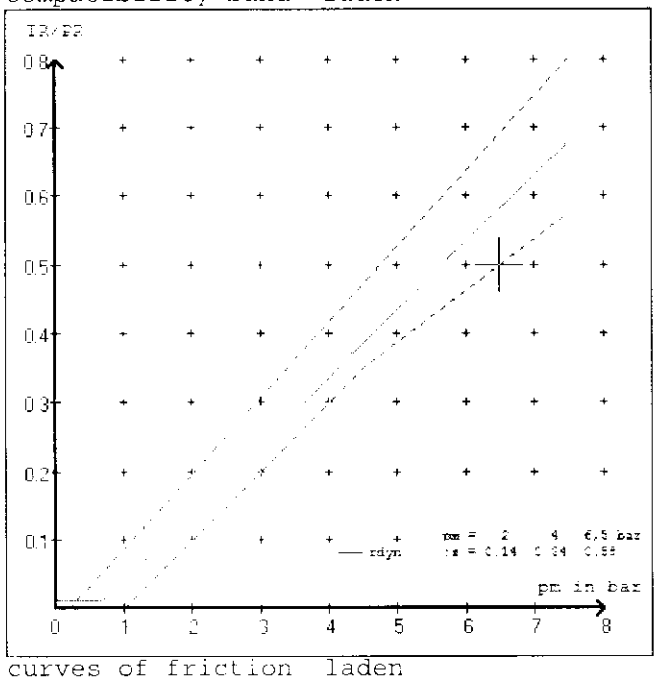
brake chamber pressure laden



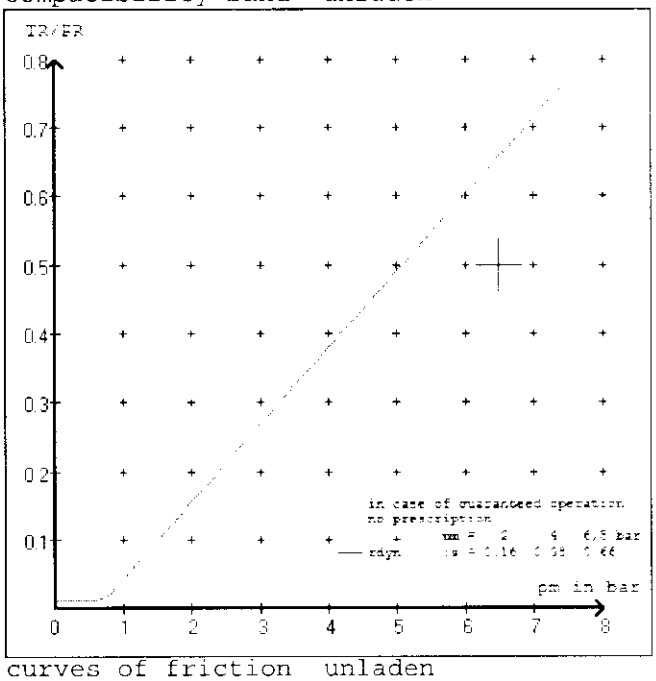
brake chamber pressure unladen



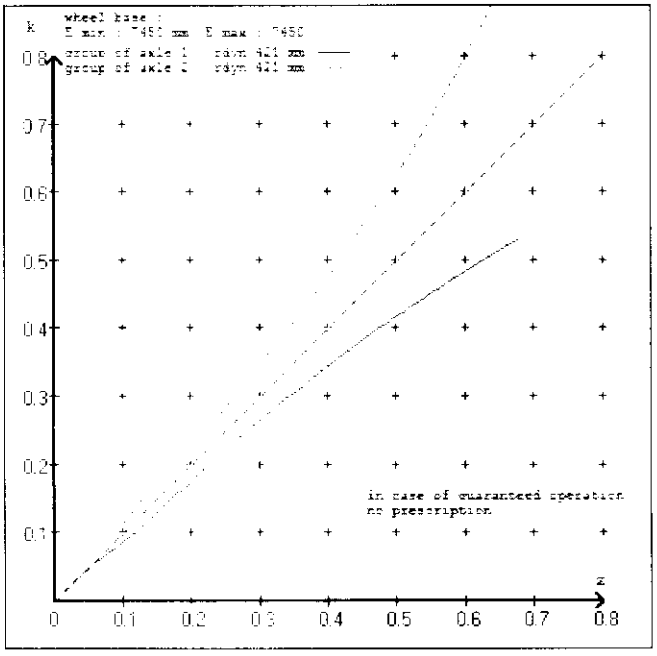
compatibility band laden



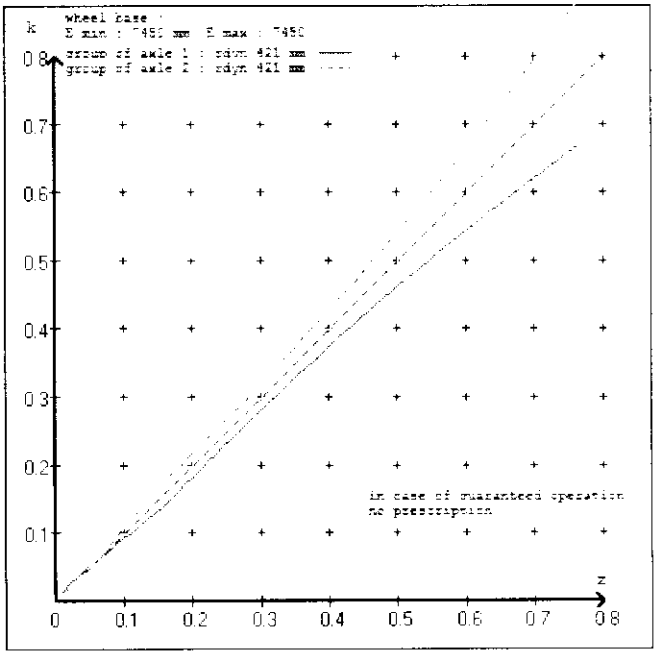
compatibility band unladen



curves of friction laden



curves of friction unladen



vehicle manufacturer: DOMETT T&T
trailer model : 5AFT C/SIDE
trailer type : 5-axle-full-trailer

brake chamber and lever length :

axle 1 :	2 x type/diameter	18.	(Meritor)	lever length 69 mm
axle 2 :	2 x type/diameter	18.	(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
axle 5 :	2 x type/diameter	14.	(Meritor)	lever length 69 mm

brake diagram :

valve :
971 002 ... 0 WABCO EBS emergency 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 : 5AFT C/SIDE
trailer type : 5-axle-full-trailer
brake calculation no. : TP 50860A

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 = 0.142
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	1600	to be entered by the vehicle manufact.	1.7	7500	to be entered by the vehicle manufact.	0.4	1.4	5.8
2	1600		1.7	7500		0.4	1.4	5.8
3	1400		1.4	6000		0.3	1.4	4.4
4	1400		1.4	6000		0.3	1.4	4.4
5	1400		1.4	6000		0.3	1.4	4.4

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	pcyl	axle load	pcyl	axle load	pcyl	axle load	pcyl	axle load	pcyl
1600	1.7	1600	1.7	1400	1.4	1400	1.4	1400	1.4
2100	2.0	2100	2.0	1900	1.7	1900	1.7	1900	1.7
2600	2.4	2600	2.4	2400	2.1	2400	2.1	2400	2.1
3100	2.7	3100	2.7	2900	2.4	2900	2.4	2900	2.4
3600	3.1	3600	3.1	3400	2.7	3400	2.7	3400	2.7
4100	3.4	4100	3.4	3900	3.0	3900	3.0	3900	3.0
4600	3.8	4600	3.8	4400	3.4	4400	3.4	4400	3.4
5100	4.1	5100	4.1	4900	3.7	4900	3.7	4900	3.7
7500	5.8	7500	5.8	6000	4.4	6000	4.4	6000	4.4

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 = 22.9 % Fe
axle 2	(rdyn 421 mm)	T = 22.9 % Fe
axle 3	(rdyn 421 mm)	T = 17.1 % Fe
axle 4	(rdyn 421 mm)	T = 17.1 % Fe
axle 5	(rdyn 421 mm)	T = 17.1 % Fe

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

axle 1	(sp = 58 mm)	s = 39 mm
axle 2	(sp = 58 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 = 6172 N
axle2	ThA = 6172 N
axle3	ThA = 4185 N
axle4	ThA = 4185 N
axle5	ThA = 4185 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 = 36796 N
axle 2	(rdyn 421 mm)	T = 36796 N
axle 3	(rdyn 421 mm)	T = 24874 N
axle 4	(rdyn 421 mm)	T = 24874 N
axle 5	(rdyn 421 mm)	T = 24874 N

	basic test of subject trailer (E)	type III (calculated) residual (hot)braking
braking rate of the vehicle (item 4.3.2 to appendix 2 to annex 11)	0.58	0.46
required braking rate (items 1.5.3 and 1.7.2 to annex 11)		>= 0,4 and >= 0,6*E (0.35)

axle 1	(rdyn 421 mm)	T = 36796 N
axle 2	(rdyn 421 mm)	T = 36796 N
axle 3	(rdyn 421 mm)	T = 24874 N
axle 4	(rdyn 421 mm)	T = 24874 N
axle 5	(rdyn 421 mm)	T = 24874 N

	basic test of subject trailer (E)	type III (calculated) residual (hot)braking
braking rate of the vehicle (item 4.3.2 to appendix 2 to annex 11)	0.58	0.46
required braking rate (items 1.5.3 and 1.7.2 to annex 11)		>= 0,4 and >= 0,6*E (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	4.5	4.5

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	0.308	
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 = 5671 mm for E = 7450 mm
==========

min Ef = 5671 mm for E = 7450 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	=	2058 mm	height of center of gravity - laden
PR	=	18000 kg	maximum bogie mass - laden
P	=	33000 kg	maximum total mass - laden
nf	=	2	no. of axle(s) with TRISTOP spring brake actuators
ng	=	3	no. of bogie axle(s)

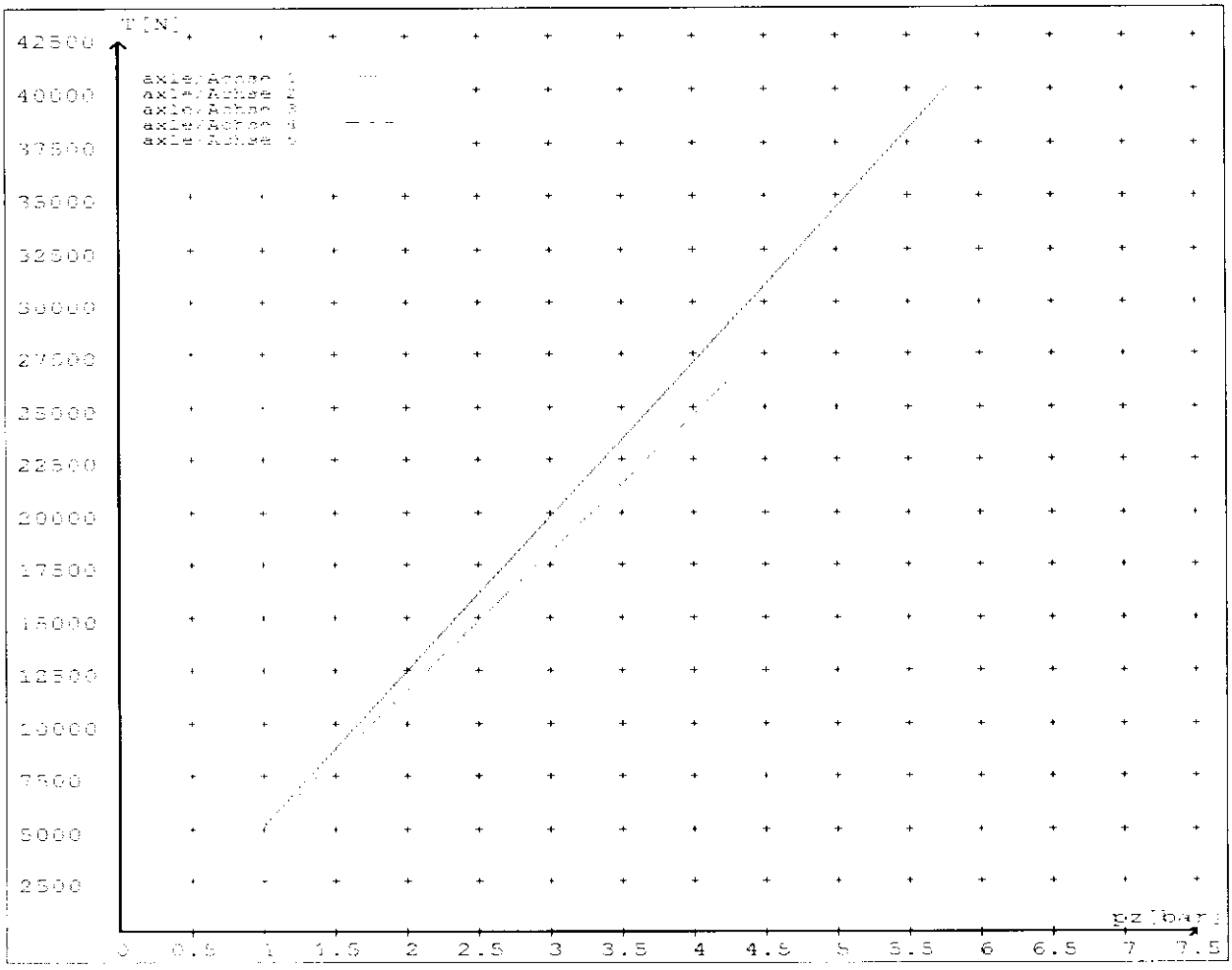
reference values

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

	pz [bar]	T [N]	T [N]
axle 1	1.0 5.8	5089 40212	
axle 2	1.0 5.8	5089 40212	
axle 3	1.0 4.4		5002 27160
axle 4	1.0 4.4		5002 27160
axle 5	1.0 4.4		5002 27160

VIN - no.:

	Axle(s) / Achse(n)				
brake cylinder type (service / parking) Bremszylinder Typ (Betrieb / Fest)	18./	18./	T.14/16	T.14/16	14./
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



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) NZTA **Helpdesk 0800 699 000**

C J Clarke (CJC HVEK)

NOTICE TO VEHICLE OPERATOR

This trailer is equipped with an **E**lectronic **B**rake **S**ystem.

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.

C J Clarke (CJC HVEK)