NZ TRANSPORT AGENCY
WAKA KOTAHI

Heavy Vehicle Specialist Certificate

Must be presented to a Transport Service Delivery Agent
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: 7A9E3501 8D1C2 3191

Component being certified:

Chassis Modification	Load Anchorage	Log Bolsters
Towing Connection	✓ Brakes	SRT
PSV Stability	PSV Rollover	Swept Path
PBS		

Certification Category: 1 HVEIK.

Description of Work:

CARRY OUT SET UP OF TRAILER ESS SYSTEM

ROLL STABILITY FUNCTION ACTIVATED

Code/Standard Certified to: HVBN 32015/2 SCHED 5.

Component Load Rating(s): 34800 KG.

General Drawing Number(s): N/A.

Supporting Documents:

BRAKE DESIGN CERTIFICATE - BH13CHCS.
PREV EXEMPTION - HVB13/276.

*Special Conditions:

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

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/Inspector's Name *(PRINT IN CAPS)*: ID number:

Date: 17-10-2013

Number: 450525

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

NATIONAL OFFICE
50 Victoria Street
Private Bag 6995
Wellington 6141
New Zealand
T 64 4 894 5400
F 64 4 894 6100
www.nzta.govt.nz

Exemption: HVB13/276

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: **7A9E35018D1023191**

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 13th day of August 2013

Jackie Hartley
Administrator (Assessments)

WABCO START-UP PROTOCOL

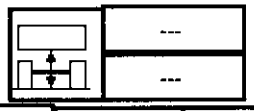
System	Trailer EBS-E	**WABCO part number**	480 102 080 0
Production date	2013-04-12	**Serial number**	897001317800B
Serial number (modulator)	000000021305		
Fingerprint Customer EOL / Customer Development / Flash Program	W503643 / 2013-10-10 ; 00000000 / 0000-00-00 ; 00000000 / 0000-00-00		

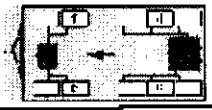
WABCO TRAILER EBS-E

GGVS/ADR TUEH TB 2007 - 019.00
TDB 0749

HERSTELLER MANUFACTURER CONSTRUCTEUR	ROADMASTER			
TYP TYPE TYPE	5AFT			
FAHRZEUG IDENTNR. CHASSIS NUMBER NUMERO DE CHASSIS	7A9D20012A0023917			
BREMSBERECHNUNGS-NR. BRAKE CALCULATION NO. CALCUL DE FREINAGE NO.	TP50889A			
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/3M
RSS Einfachbereifung Single Tyre Monte simple		Lenkachse Steering axle Essieu vireur		
RSS Zwillingsbereifung Twin Tyre Monte jumelée	X	Kippkritisches Fahrzeug Critical Trailer Véhicule 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)	(bar) 1.0	(bar) Pz
ACHSE AXLE ESSIEU									pz					TR (daN)	
1	1500	0.7	2.4	7500	4.9	0.4	1.4	---	6.7	-	18	64	69	518	4770
2	1500	0.7	2.4	7500	4.9	0.4	1.4	---	6.7	-	18	64	69	518	4770
3	1000	0.4	1.2	6600	4.3	0.3	1.5	---	4.0	-	14 / 16	64	69	514	2507
4	1000	0.4	1.2	6600	4.3	0.3	1.5	---	4.0	-	14 / 16	64	69	514	2507
5	1000	0.4	1.2	6600	4.3	0.3	1.5	---	4.0	-	14	64	69	514	2507

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	ROADMASTER	**Vehicle ident. no**	7A9D20012A0023917
Vehicle type	5AFT	**Odometer reading**	0.0 km
next Service	0 km	**Trip reading**	0.0 km
Tested by	Chris Clarke	**Signature**	
Date	2012-10-12 3:24:53 p.m.		

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

distribution: DOMETT T&T
7A9E35018D1023191
SODC: JH130905
PREV: HVB13/276

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 TIPPER
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	6000	34800
axle 1	P1 in kg	1500	7500
axle 2	P2 in kg	1500	7500
axle 3	P3 in kg	1000	6600
axle 4	P4 in kg	1000	6600
axle 5	P5 in kg	1000	6600
wheel base	E in mm	4595 - 4595	
centre of gravity height	h in mm	1200	1900

		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		2.4	2.4	2.0	2.0	2.0
chamber pressure(rdyn max)pH at z=22,5%bar		2.4	2.4	2.0	2.0	2.0
chamber press.(servo)pcha at pm6,5bar	bar	6.7	6.7	4.0	4.0	4.0
piston force	ThA at pm6,5bar N	7185	7185	3784	3784	3784
brake force(rdyn min)T lad. at pm6,5bar	N	54378	54378	28590	28590	28590
brake force(rdyn max)T lad. at pm6,5bar	N	54378	54378	28590	28590	28590
brake force within 1 % rolling friction proportion	%	21.2	21.2	19.2	19.2	19.2

braking rate z laden 0.570 for rdyn min
z = sum (TR)/PRmax 0.570 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 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 0.. 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

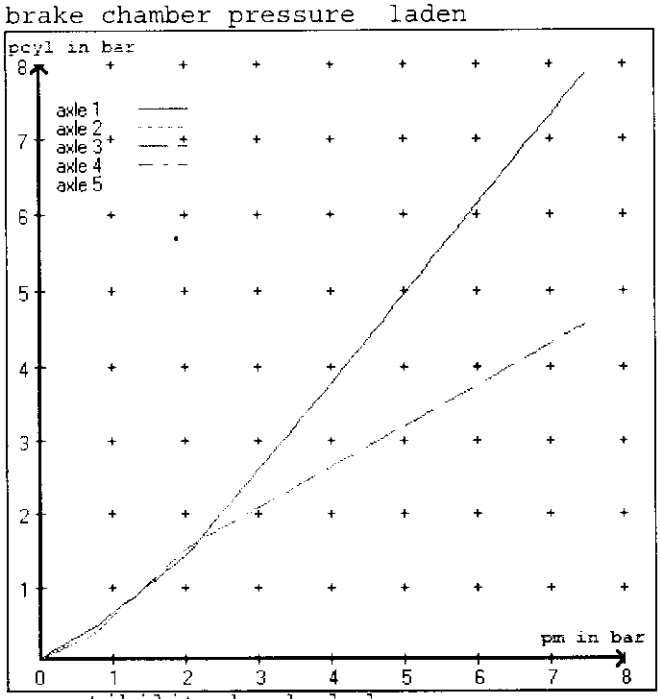
axle 5:
valve 1: 971 002 ... 0 WABCO
EBS emergency valve

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

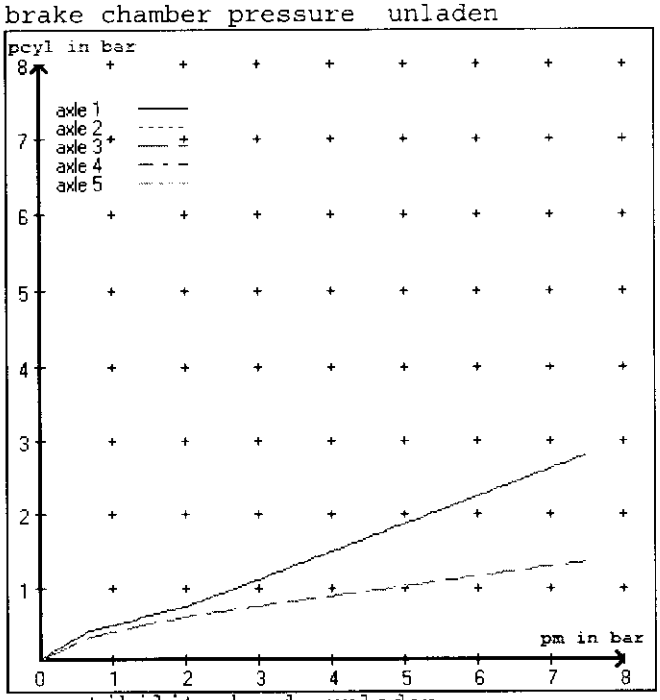
brake cylinder: Meritor 14HSCLD64

test type III (zIII = 0.30)	for rdyn min :	axle1	axle2	axle3	axle4	axle5
at pm 3.7 bar =>	pcha in bar :	3.4	3.4	2.4	2.4	2.4
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	0.8	0.8	0.8

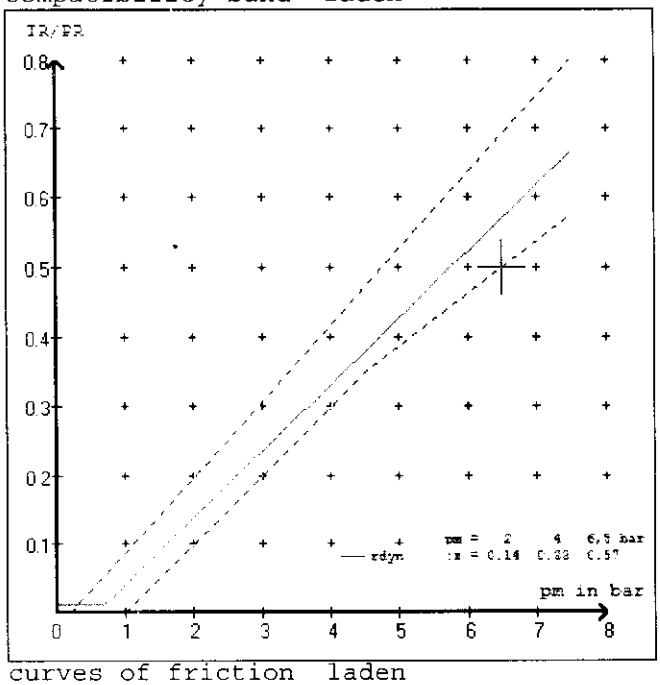
brake chamber pressure laden



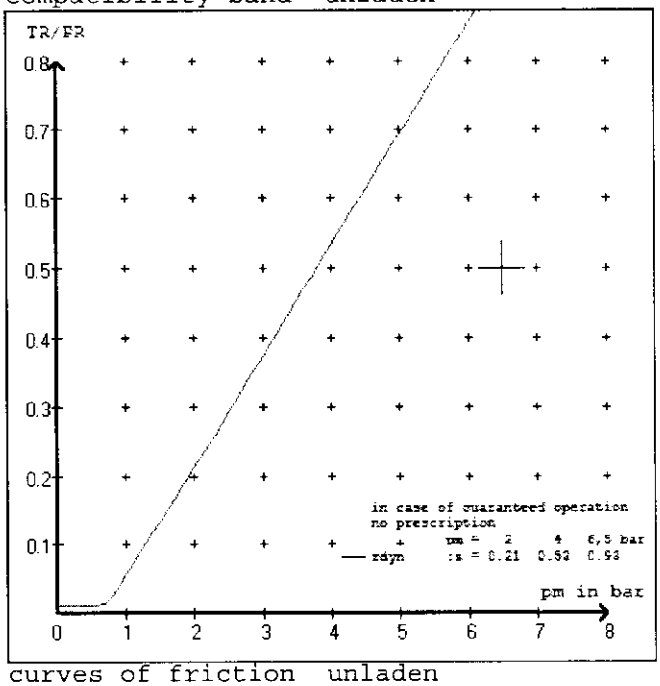
brake chamber pressure unladen



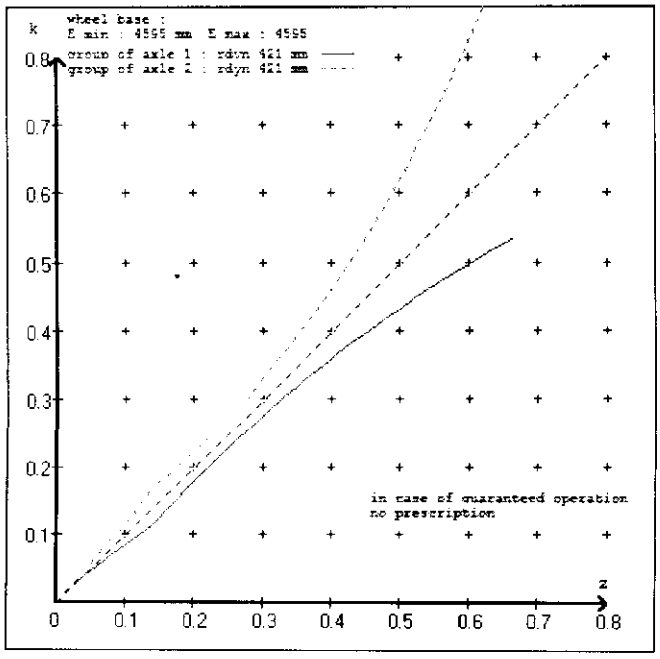
compatibility band laden



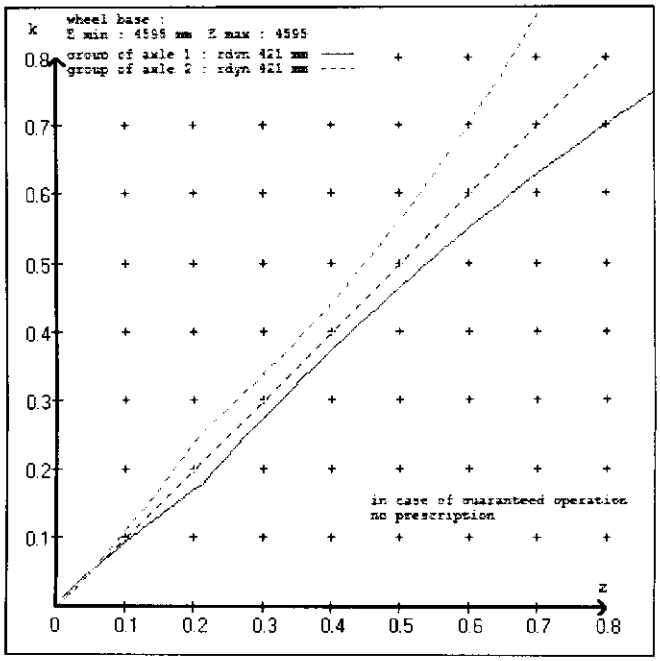
compatibility band unladen



curves of friction laden



curves of friction unladen



vehicle manufacturer: DOMETT T&T
trailer model : 5AFT TIPPER
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 TIPPER
trailer type : 5-axle-full-trailer
brake calculation no. : TP 50889A

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 = 0.138
6.5 bar z = 0.570

	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.	2.4	7500	to be entered by the vehicle manufact.	0.4	1.4	6.7
2	1500		2.4	7500		0.4	1.4	6.7
3	1000		1.2	6600		0.4	1.5	4.0
4	1000		1.2	6600		0.4	1.5	4.0
5	1000		1.2	6600		0.4	1.5	4.0

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 5	
axle load	pcyl	axle load	pcyl	axle load	pcyl	axle load	pcyl	axle load	pcyl
1500	2.4	1500	2.4	1000	1.2	1000	1.2	1000	1.2
2000	2.8	2000	2.8	1500	1.4	1500	1.4	1500	1.4
2500	3.1	2500	3.1	2000	1.7	2000	1.7	2000	1.7
3000	3.5	3000	3.5	2500	1.9	2500	1.9	2500	1.9
3500	3.8	3500	3.8	3000	2.2	3000	2.2	3000	2.2
4000	4.2	4000	4.2	3500	2.5	3500	2.5	3500	2.5
4500	4.5	4500	4.5	4000	2.7	4000	2.7	4000	2.7
5000	4.9	5000	4.9	4500	3.0	4500	3.0	4500	3.0
7500	6.7	7500	6.7	6600	4.0	6600	4.0	6600	4.0

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 = 26.1 % Fe
axle 2	(rdyn 421 mm)	T = 26.1 % Fe
axle 3	(rdyn 421 mm)	T = 16.7 % Fe
axle 4	(rdyn 421 mm)	T = 16.7 % Fe
axle 5	(rdyn 421 mm)	T = 16.7 % 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 = 55 mm)	s = 39 mm
axle 4	(sp = 55 mm)	s = 39 mm
axle 5	(sp = 55 mm)	s = 39 mm

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

axle1	ThA = 7185 N
axle2	ThA = 7185 N
axle3	ThA = 3784 N
axle4	ThA = 3784 N
axle5	ThA = 3784 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 = 42793 N
axle 2	(rdyn 421 mm)	T = 42793 N
axle 3	(rdyn 421 mm)	T = 22560 N
axle 4	(rdyn 421 mm)	T = 22560 N
axle 5	(rdyn 421 mm)	T = 22560 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)	0.57	0.45
required braking rate (items 1.5.3 and 1.7.2 to annex 11)		>= 0,4 and >= 0,6*E (0.34)

axle 1	(rdyn 421 mm)	T = 42793 N
axle 2	(rdyn 421 mm)	T = 42793 N
axle 3	(rdyn 421 mm)	T = 22560 N
axle 4	(rdyn 421 mm)	T = 22560 N
axle 5	(rdyn 421 mm)	T = 22560 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)	0.57	0.45
required braking rate (items 1.5.3 and 1.7.2 to annex 11)		>= 0,4 and >= 0,6*E (0.34)

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	0.292	
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 = 3506 mm for E = 4595 mm
==========
min Ef = 3506 mm for E = 4595 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	=	1900 mm	height of center of gravity - laden
PR	=	19800 kg	maximum bogie mass - laden
P	=	34800 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 6.7	5188 47700	
axle 2	1.0 6.7	5188 47700	
axle 3	1.0 4.0		5150 25079
axle 4	1.0 4.0		5150 25079
axle 5	1.0 4.0		5150 25079

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