

Heavy Vehicle Specialist Certificate

Must be presented to a CoF (Heavy) Inspecting Organisation
Heavy Vehicle Specialist Inspector and Inspecting Organisation

Heavy Vehicle Specialist Inspector's or Manufacturing Inspecting Organisation's Name (PRINT IN CAPS) ID

Chris Clarke **CJC**

Vehicle Registration* VIN/Chassis Number

R 257D **7A9D2001XA0023924**

Component being certified:

<input type="checkbox"/> Chassis Modification	<input type="checkbox"/> Load Anchorage	<input type="checkbox"/> Log Bolsters
<input type="checkbox"/> Towing Connection	<input checked="" type="checkbox"/> Brakes	<input type="checkbox"/> SRT
<input type="checkbox"/> PSV Stability	<input type="checkbox"/> PSV Rollover	<input type="checkbox"/> Swept Path
<input type="checkbox"/> PBS		

Certification Category

HVEK

Description of Work

CERTIFY TO SCHEDULE 5

ROLL STABILTY FUNCTION ACTIVATED

Code/Standard/Rule Certified to	Component Load Rating(s)
HVBR 32015/3 Schedule 5	33000KG
General Drawing Number(s)	
N/A	

Supporting Documents

BRAKE RULE CERTIFICATE - CJC2863

Special Conditions*

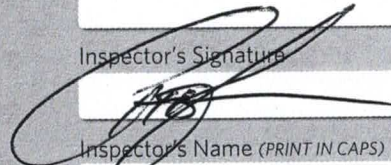
WARNING LAMP MUST ILLUMINATE WHEN IGNITION IS SWITCHED ON & THEN EXTINGUISH IMMEDIATELY OR WHEN VEHICLE SPEED EXCEEDS 7 KPH

Certification Expiry Date (if applicable)	or	Hubodometer Reading (whichever comes first)
N/A		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Declaration

I the undersigned, declare that I am the Heavy Vehicle Specialist Inspector identified 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 Appointment. To the best of my knowledge the information contained in the Certificate is true and correct.

Designer's ID (if different from inspector below)

Inspector's Signature 

Inspector's Name (PRINT IN CAPS) ID Number

CHRIS CLARKE **CJC**

Date Number

7-Jan-15 **499963**

CoF Vehicle Inspector ID	CoF Vehicle Inspector Signature	Date

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

WABCO

START-UP PROTOCOL

System	Trailer EBS-E	WABCO part number	480 102 064 0
Production date	2010-07-16	Serial number	284009301500F
Serial number (modulator)	---		
Fingerprint Customer EOL / Customer Development / Flash Program	W503643 / 2015-01-07 ; 00000000 / 0000-00-00 ; 00000000 / 0000-00-00		

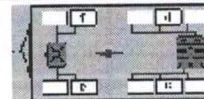
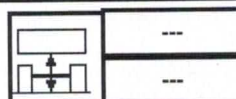
WABCO

TRAILER EBS-E

GGVS/ADR TUEH TB 2007 - 019.00
TDB0749

HERSTELLER MANUFACTURER CONSTRUCTEUR	FRUEHAUF NZ LTD		
TYP TYPE TYPE	5AFT C/SIDE		
FAHRZEUG IDENTNR. CHASSIS NUMBER NUMERO DE CHASSIS	7A9D2001XA0023924		
BREMSBERECHNUNGS-NR. BRAKE CALCULATION NO. CALCUL DE FREINAGE NO.	TP50837		
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 RSS RSS	Einfachbereifung Single Tire Monte simple	Lenkachse Steering axle Essieu vireur	
	Zwillingsbereifung Twin Tire Monte jumelée	X	Kipptisches Fahrzeug Critical Trailer Véhicule critique
Subsystems	SB	I/O	

GIO	Pin1	Pin3	Pin4
1	24V-O1	---	---
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	Pz	TR (daN)	1.0	Pz	TR (daN)	1.0	Pz	TR (daN)	1.0	Pz	TR (daN)	1.0	Pz	TR (daN)	1.0	Pz	TR (daN)	1.0	Pz	TR (daN)	
1	1600	0.7	2.0	7500	4.8	0.3	1.5	---	6.0	-	14	64	69	512	3771							
2	1600	0.7	2.0	7500	4.8	0.3	1.5	---	6.0	-	14	64	69	512	3771							
3	1300	0.5	1.7	6600	4.1	0.3	1.5	---	5.1	-	14 / 16	64	69	505	3177							
4	1300	0.5	1.7	6600	4.1	0.3	1.5	---	5.1	-	14 / 16	64	69	505	3177							
5	1300	0.5	1.7	6600	4.1	0.3	1.5	---	5.1	-	14	64	69	505	3177							

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 height sensor calibration	Not tested
ABS sensor assignment	OK	Height sensor axle load	Not tested
RTR check	Not tested	Leak test	Not tested
Immobilizer test	Not tested	Signal outputs TEBS	Not tested
Signal inputs	Not tested	Tag axle test	Not tested

Diagnostic memory ELEX	Not tested	Signal outputs ELEX	Not tested
TailGUARDlight	Not tested	TailGUARD	Not tested

Manufacturer	FRUEHAUF NZ LTD	Vehicle ident. no	7A9D2001XA0023924
Vehicle type	5AFT C/SIDE	Odometer reading	441298.3 km
next Service	0 km	Trip reading	441298.3 km
Tester	Chris Clarke	Signature	
Date	2015-01-07 8:53:47 a.m.		

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

distribution: DOMETT TRAILERS
7A9D2001XA0023924
CJC2863

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 (V6.12.08.27).
-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 V6.12.08.27 db 30.08.2012

vehicle manufacturer: DOMETT TRAILERS
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,

		<u>unladen</u>	<u>laden</u>
total mass	P in kg	7100	34800
axle 1	P1 in kg	1600	7500
axle 2	P2 in kg	1600	7500
axle 3	P3 in kg	1300	6600
axle 4	P4 in kg	1300	6600
axle 5	P5 in kg	1300	6600
wheel base	E in mm	8150 - 8150	
centre of gravity height	h in mm	1060	2054

	<u>axle 1</u>	<u>axle 2</u>	<u>axle 3</u>	<u>axle 4</u>	<u>axle 5</u>
no. of combined axles	1	1	1	1	1
no. of brake chambers per axle line	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	14.14.	T.14/16	T.14/16	14.	
lever length	69	69	69	69	69
brake factor	23.03	23.03	23.03	23.03	23.03
dyn. rolling radius	421	421	421	421	421
dyn. rolling radius	421	421	421	421	421
threshold torque	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	2.2	2.2	2.2
chamber pressure(rdyn max)pH at z=22,5%bar	2.4	2.4	2.2	2.2	2.2
chamber press.(servo)pcha at pm6,5bar bar	6.0	6.0	5.1	5.1	5.1
piston force ThA at pm6,5bar N	5788	5788	4886	4886	4886
brake force(rdyn min)T lad. at pm6,5bar N	43824	43824	36920	36920	36920
brake force(rdyn max)T lad. at pm6,5bar N	43824	43824	36920	36920	36920
brake force within 1 % rolling friction proportion %	20.0	20.0	20.0	20.0	20.0

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

brake cylinder: Meritor 14HSCLD64

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

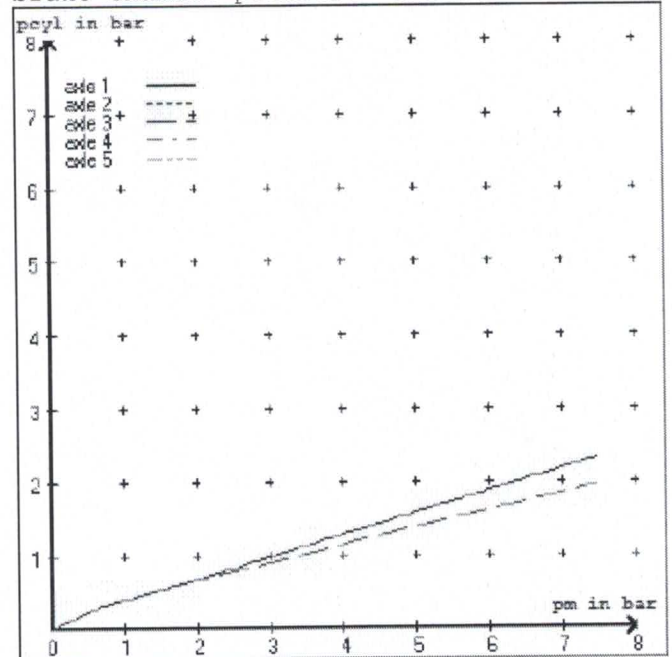
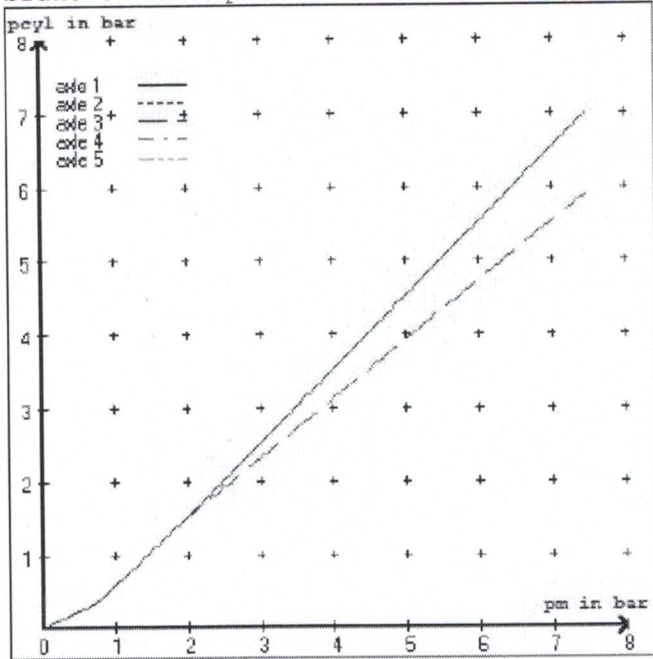
axle 5:

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

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

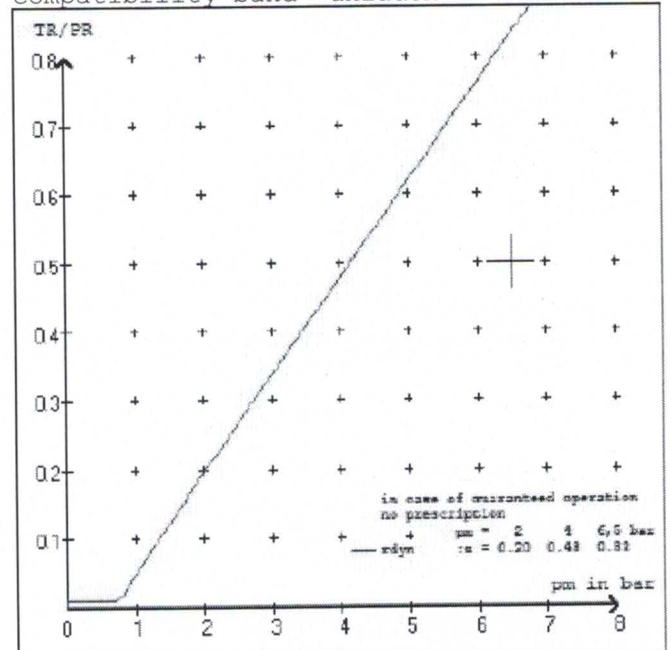
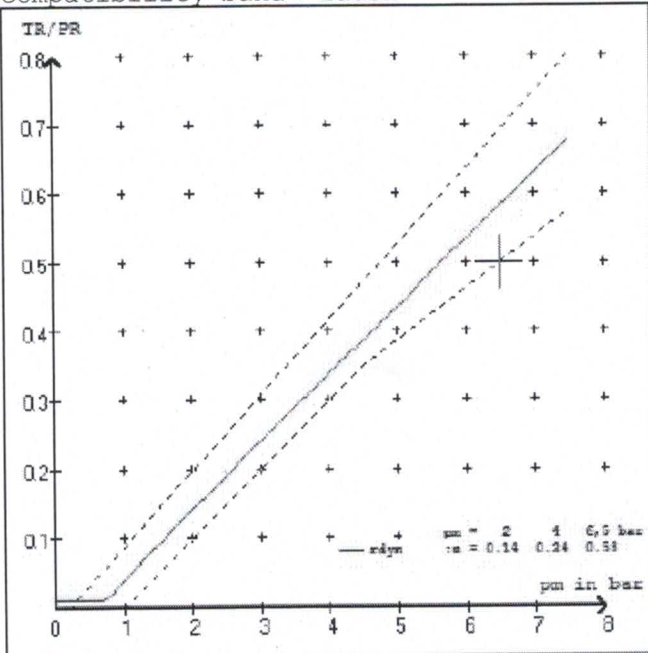
brake cylinder: Meritor 14HSCLD64

test type III (zIII = 0.30)	for rdyn min :	axle1	axle2	axle3	axle4	axle5	
at pm 3.6 bar =>	pcha in bar :	3.1	3.1	2.8	2.8	2.8	2.8
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	0.8



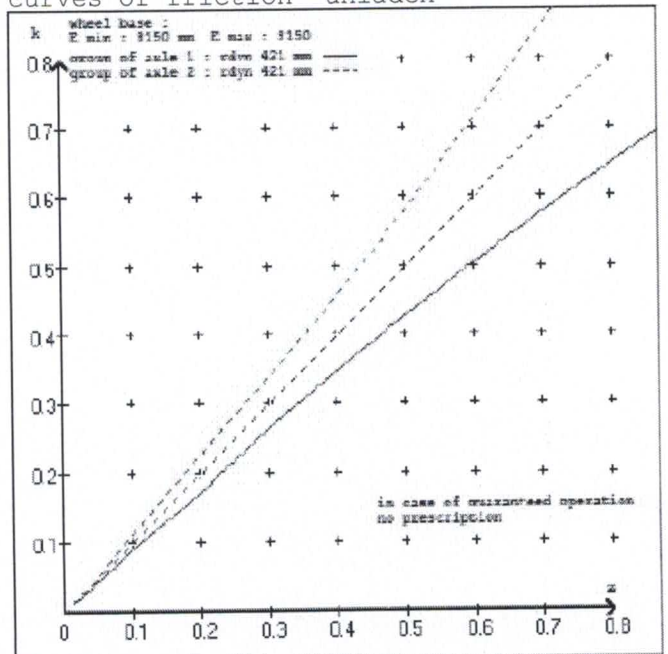
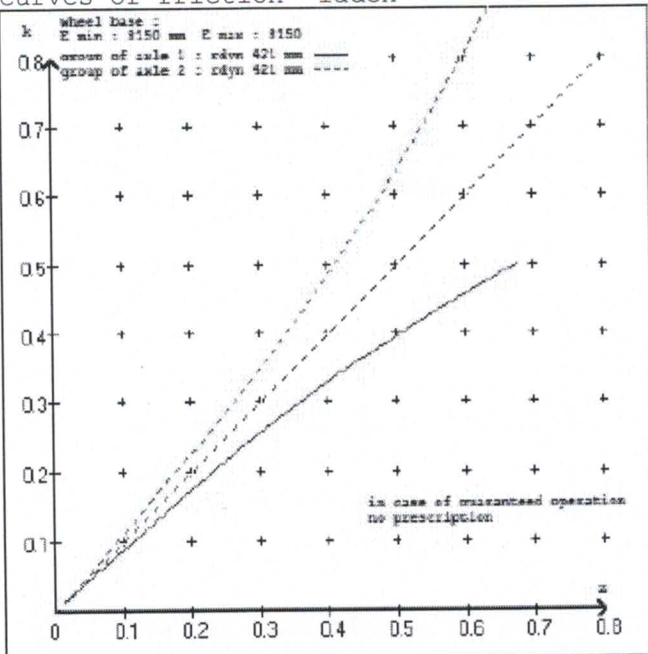
compatibility band laden

compatibility band unladen



curves of friction laden

curves of friction unladen



vehicle manufacturer: FRUEHAUF NZ LTD
 trailer model : 5AFT C/SIDE
 trailer type : 5-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
 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: FRUEHAUF NZ LTD
 trailer model : 5AFT C/SIDE
 trailer type : 5-axle-full-trailer
 brake calculation no. : TP 50837A

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	2.0	7500	to be	0.3	1.5	6.0	
2	1600	entered by	2.0	7500	entered by	0.3	1.5	6.0	
3	1300	the vehicle	1.7	6600	the vehicle	0.3	1.5	5.1	
4	1300	manufact.	1.7	6600	manufact.	0.3	1.5	5.1	
5	1300		1.7	6600		0.3	1.5	5.1	

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 2.0	1600 2.0	1300 1.7	1300 1.7	1300 1.7
2100 2.3	2100 2.3	1800 2.0	1800 2.0	1800 2.0
2600 2.7	2600 2.7	2300 2.3	2300 2.3	2300 2.3
3100 3.0	3100 3.0	2800 2.7	2800 2.7	2800 2.7
3600 3.4	3600 3.4	3300 3.0	3300 3.0	3300 3.0
4100 3.7	4100 3.7	3800 3.3	3800 3.3	3800 3.3
4600 4.0	4600 4.0	4300 3.6	4300 3.6	4300 3.6
5100 4.4	5100 4.4	4800 3.9	4800 3.9	4800 3.9
7500 6.0	7500 6.0	6600 5.1	6600 5.1	6600 5.1

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 = 22.0 % Fe
axle 2	(rdyn 421 mm)	T = 22.0 % Fe
axle 3	(rdyn 421 mm)	T = 19.5 % Fe
axle 4	(rdyn 421 mm)	T = 19.5 % Fe
axle 5	(rdyn 421 mm)	T = 19.5 % Fe

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

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
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 = 5788 N
axle2	ThA = 5788 N
axle3	ThA = 4886 N
axle4	ThA = 4886 N
axle5	ThA = 4886 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 = 34521 N
axle 2	(rdyn 421 mm)	T = 34521 N
axle 3	(rdyn 421 mm)	T = 29089 N
axle 4	(rdyn 421 mm)	T = 29089 N
axle 5	(rdyn 421 mm)	T = 29089 N

basic test	type III
of subject	(calculated)
trailer (E)	residual
	(hot)braking
	0.58
	0.46

braking rate of the vehicle
(item 4.3.2 to appendix 2 to annex 11)

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 = 34521 N
axle 2	(rdyn 421 mm)	T = 34521 N
axle 3	(rdyn 421 mm)	T = 29089 N
axle 4	(rdyn 421 mm)	T = 29089 N
axle 5	(rdyn 421 mm)	T = 29089 N

basic test	type III
of subject	(calculated)
trailer (E)	residual
	(hot)braking
	0.58
	0.46

braking rate of the vehicle
(item 4.3.2 to appendix 2 to annex 11)

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

		<u>axle 3</u>	<u>axle 4</u>
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	59654	59654
$Tf = (TFZ * KDZ - 2 * Co / lBh) * iFb$			
braking rate	zf laden	0.359	
$zf = \sum (Tf) / P + 0,01$			

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 = 5861 mm for E = 8150 mm

=====

min Ef = 5861 mm for E = 8150 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	=	2054 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)

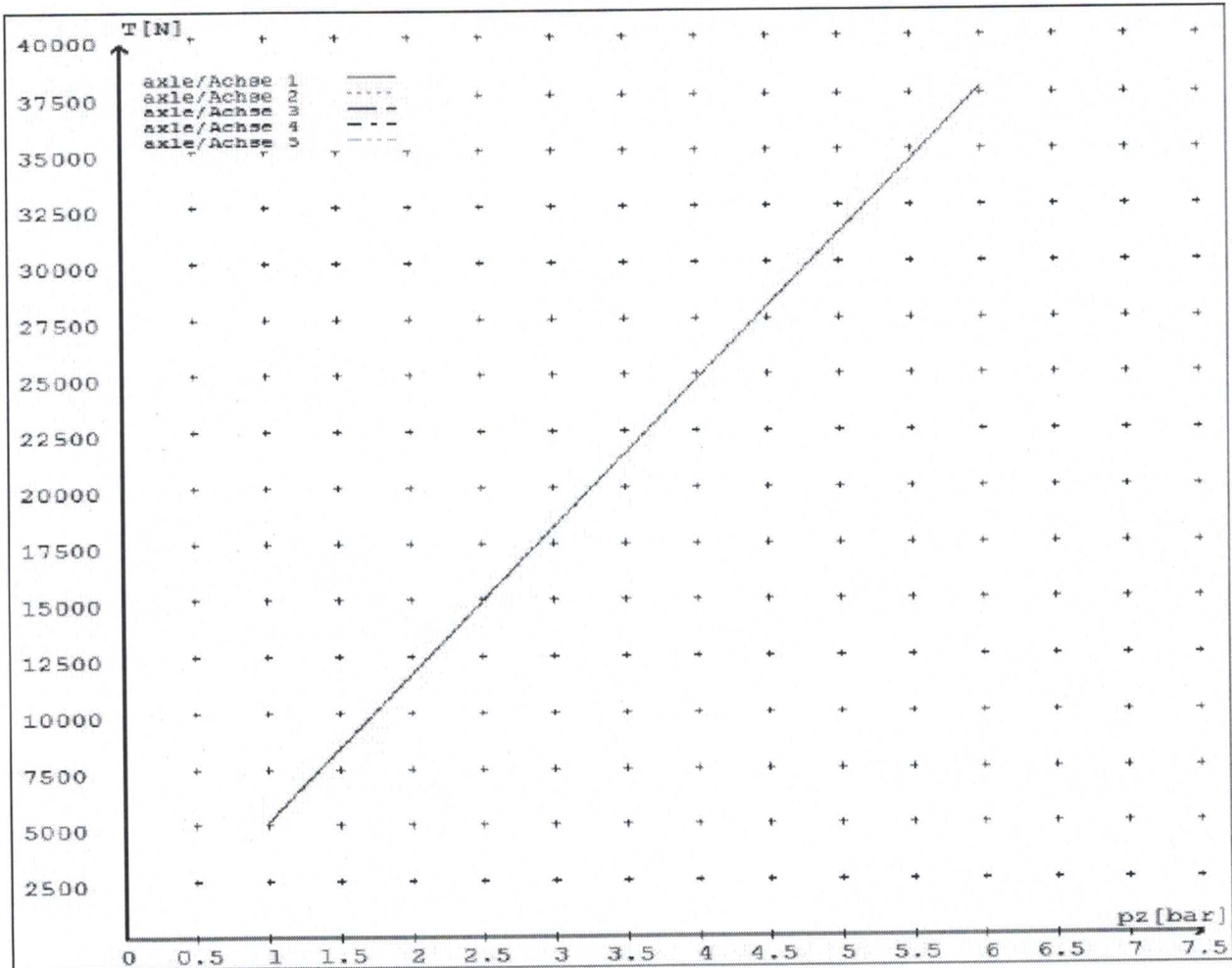
reference values

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

	pz [bar]	T [N]	T [N]
axle 1	1.0	5128	
	6.0	37714	
axle 2	1.0	5128	
	6.0	37714	
axle 3	1.0		5052
	5.1		31773
axle 4	1.0		5052
	5.1		31773
axle 5	1.0		5052
	5.1		31773

VIN - no.:

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




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 32015/3, Schedule 5.

Date: 07th Jan 2015

Signed: 

Certifier's identification

Name: C J Clarke

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 32015/3, Schedule 5.

Date: _____

Signed: _____

Certifier's identification: CJC

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