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)*

LANCE CAWTE

ID LPC

Vehicle Registration*

7681W

VIN / Chassis Number

7A9 D 1 0 0 1 9 1 0 0 2 3 2 4 0

Component being certified:

Chassis Modification		Load Anchorage	Log Bolsters
Towing Connection	X	Brakes	SRT

Certification Category

HVEK

Description of Work

CERTIFY TO HEAVY VEHICLE BRAKE RULE 32015/2.
NEW ZEALAND HEAVY VEHICLE BRAKE SPECIFICATION

Code/Standard Certified to

SCHEDULE 5

Component Load Rating(s)

N/A

General Drawing Number(s)

N/A

Supporting Documents

BRAKE CODE CERTIFICATE LC120603

*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)*

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

9-Jun-12

Number

3

CSF Vehicle Inspector ID:

CSF Vehicle Inspector Signature:

Date

Transpecs
QUALITY ON THE MOVE

HEAVY VEHICLE BRAKE RULE WORKSHEET

(PROCEDURE DOCUMENTATION SHEET – PDS)

&

CONFIRMATION OF COMPLIANCE

CERTIFICATE No. LC120603

CUSTOMER NAME: DOMETT TRAILERS

CUSTOMER ORDER No.: 3782 T7012 #23 DATE RECEIVED: 08/06/12

VEHICLE TYPE: 4 AXLE FULL TRAILER

REG No.: 7681W CHASSIS No.: 7A9D1001910023240

BRIEF SPECIFICATION AS CERTIFIED TO SCHEDULE 5

BRAKE VALVES:

Primary Relay
Make: WABCO Type: 480/207/001/0

Secondary Relay
Make: WABCO Type: 480/102/064/0

Spring Brake Relay
Make: SEALCO Type: 110701

Park Brake Valve
Make: SEALCO Type: 17600B

Locked Ratio
Make: _____ Type: _____ Setting: _____

Load Sense Valve
Front: Make: N/A Type: N/A

Settings: Laden: N/A Unladen: N/A

Load Sense Valve
Rear: Make: N/A Type: N/A

Setting: Laden: N/A Unladen: N/A

Other Valves

Make: _____ Type: _____ Setting: _____

Make: _____ Type: _____ Setting:-_____

Make: _____ Type: _____ Setting: _____

Make: _____ Type: _____ Setting:-_____

Comments:
EBS, SPECIAL CONDITIONS APPLY. SEE INSTRUCTIONS ON LT400 **399888**

BRAKE CHAMBERS:
Front: Make TSE 14HSCLD64 Type: 14 STROKE: 64 mm
Rear: Make TSE 1416HTLD64 Type: 14/16 STROKE: 64 mm

SLACK ADJUSTER:
Front Length (mm) N/A Rear Length (mm) N/A

BRAKE CALIPERS: Type WABCO

FRICTION MATERIAL: **OEM** Aftermarket
(Front) Lining Brand JURID 539 Grade
(Rear) Lining Brand JURID 539 Grade

OTHER:
TYRES 265/70R 19.5

NOTES:

PACKING SLIP NO. _____ PROCESS TIME: 1

Confirmation of compliance

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

Date: 09/06/12 Signed: 

Certifier's identification

Name & ID: LANCE CAWTE (LPC)

Phone (bus): 09 9807300 Fax (bus): 09 9807306

Postal address: TRANSPORT SPECIALTIES LTD
PO BOX 98-971,
MANUKAU CITY,
MANUKAU 2241

Position: _____

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, Schedule 5.

Date: _____ Signed: _____

Certifier's identification: _____

Name: _____

Phone (bus): _____ Fax (bus): _____

Postal address: _____

_____

Position: _____

Comments:

_____
_____
_____
_____
_____

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
CHASSIS # 240
CERT # LC120603
LT400 # 399888

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 (V6.10.05.21).
-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
trailer model : D101 TANKER
trailer type : 4-axle-full-trailer
remarks : air / hydraulic / VA suspension
WABCO TRAILER - EBS
TRISTOP 3+4: T.14/24
265/70 R 19,5

axle 1 + 2 + 3 + 4 : SAF, PAN 19-1, TDB 0749 ECE,

			unladen	laden
total mass	P	in kg	5000	28000
axle 1	P1	in kg	1300	7000
axle 2	P2	in kg	1300	7000
axle 3	P3	in kg	1200	7000
axle 4	P4	in kg	1200	7000
wheel base	E	in mm	4770 - 4800	
centre of gravity height	h	in mm	1140	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			BZ 122.1	BZ 122.1	BZ 119.6	BZ 119.6
brake chamber manufacturer			Meritor	Meritor	Meritor	Meritor
chamber size			14.	14.	T.14/24	T.14/24
lever length	lBh	in mm	69	69	69	69
brake factor		[-]	23.03	23.03	23.03	23.03
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	6.0	6.0	6.0	6.0

calculation:

chamber pressure(rdyn min)pH at z=22,5%		bar	2.4	2.4	2.1	2.1
chamber pressure(rdyn max)pH at z=22,5%		bar	2.4	2.4	2.1	2.1
chamber press.(servo)pcha at pm6,5bar		bar	5.8	5.8	4.6	4.6
piston force	ThA at pm6,5bar	N	5588	5588	4385	4385
brake force(rdyn min)T lad. at pm6,5bar		N	42260	42260	33173	33173
brake force(rdyn max)T lad. at pm6,5bar		N	42260	42260	33173	33173
brake force within 1 % rolling friction proportion		?	25.0	25.0	25.0	25.0

braking rate z laden 0.549 for rdyn min
z = sum (TR)/PRmax 0.549 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: 480 207 0.. 0 WABCO
EBS relay valve

brake cylinder: Meritor 14HSCLD64

axle 2:
valve 1: 480 207 0.. 0 WABCO
EBS relay valve

brake cylinder: Meritor 14HSCLD64

axle 3:
valve 1: 480 102 ... 0 WABCO
EBS trailer modulator

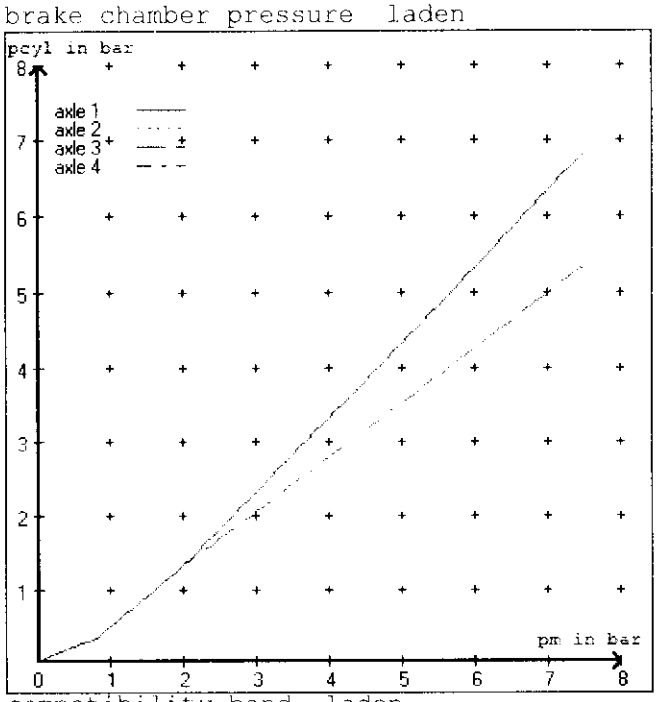
brake cylinder: Meritor 1424HTLD64

axle 4:
valve 1: 480 102 ... 0 WABCO
EBS trailer modulator

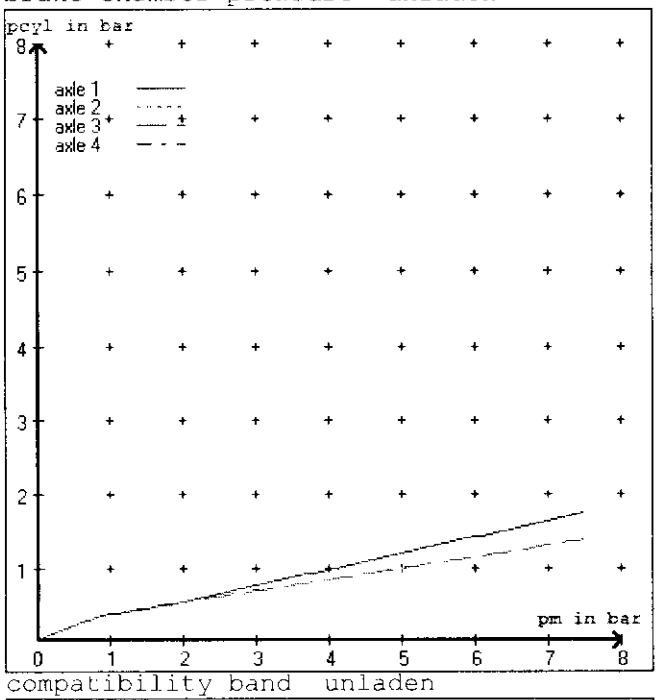
brake cylinder: Meritor 1424HTLD64

test type III (zIII = 0.30)	for rdyn min :	axle1	axle2	axle3	axle4	
at pm 3.9 bar =>	pcha in bar :	3.2	3.2	2.7	2.7	
test type III (zIII = 0.06)	for rdyn min :	axle1	axle2	axle3	axle4	
at pm 1.3 bar =>	pcha in bar :	0.8	0.8	0.8	0.8	

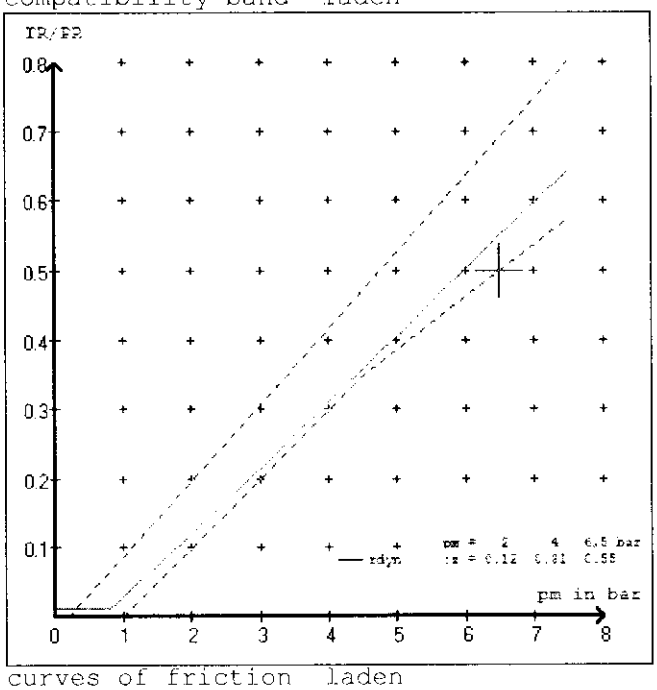
brake chamber pressure laden



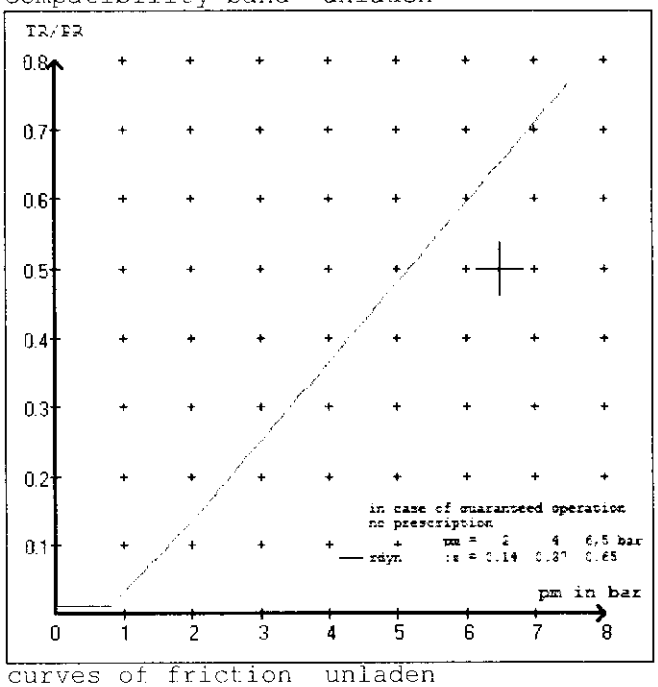
brake chamber pressure unladen



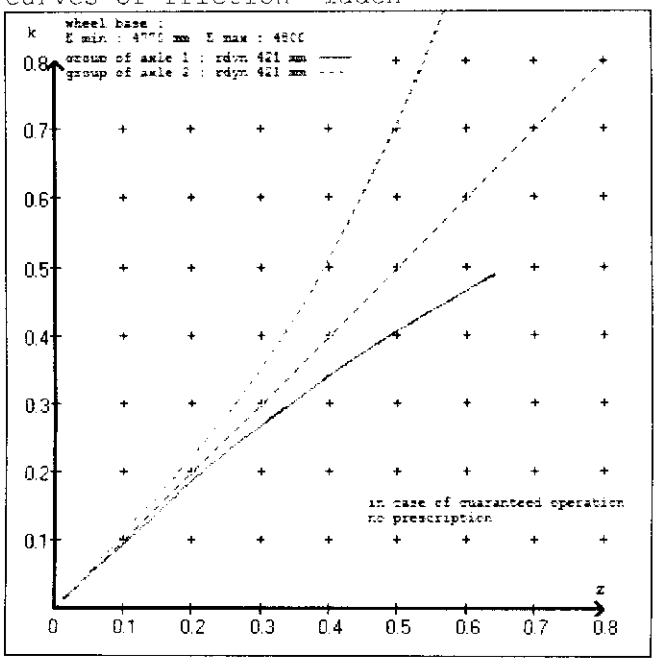
compatibility band laden



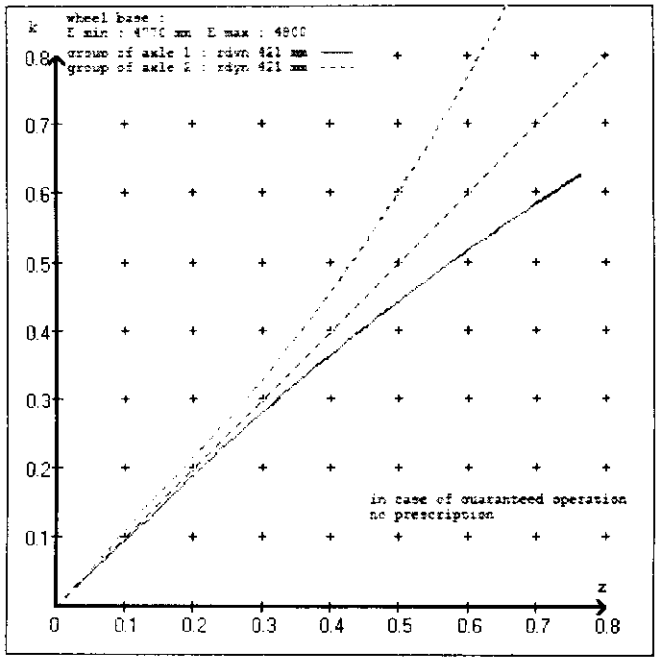
compatibility band unladen



curves of friction laden



curves of friction unladen



vehicle manufacturer: DOMETT
trailer model : D101 TANKER
trailer type : 4-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.14/24 (Meritor) lever length 69 mm
axle 4 : 2 x type/diameter T.14/24 (Meritor) lever length 69 mm

brake diagram :

valve :
480 207 0.. 0 WABCO EBS relay valve
480 102 ... 0 WABCO EBS trailer modulator

EBS input data
vehicle manufacturer: DOMETT
trailer model : D101 TANKER
trailer type : 4-axle-full-trailer
brake calculation no. : TP 2012A

tire circumference main axle : 2650 for rdyn max
tire circumference auxiliary axle : 2650 for rdyn max

assignment pm / deceleration z: pm 0.8 bar z = 0.000
(laden condition) 2.0 bar z = 0.116
6.5 bar z = 0.550

control pressure pm			6,5	control pressure pm		0.8	2.0	6.5
axle	axle load unladen	bellow pr. unladen	brake pr. unladen	axle load laden	bellow pr. laden	brake pr. laden		
1	1300	to be entered by the vehicle manufact.	1.5	7000	to be entered by the vehicle manufact.	0.3	1.3	5.8
2	1300		1.5	7000		0.3	1.3	5.8
3	1200		1.2	7000		0.3	1.3	4.6
4	1200		1.2	7000		0.3	1.3	4.6
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
1300	1.5	1300	1.5	1200	1.2	1200	1.2
1800	1.9	1800	1.9	1700	1.5	1700	1.5
2300	2.3	2300	2.3	2200	1.8	2200	1.8
2800	2.6	2800	2.6	2700	2.1	2700	2.1
3300	3.0	3300	3.0	3200	2.4	3200	2.4
3800	3.4	3800	3.4	3700	2.7	3700	2.7
4300	3.8	4300	3.8	4200	3.0	4200	3.0
4800	4.1	4800	4.1	4700	3.3	4700	3.3
7000	5.8	7000	5.8	7000	4.6	7000	4.6

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: 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

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

axle 1	(rdyn 421 mm)	T = 22.5 % Fe
axle 2	(rdyn 421 mm)	T = 22.5 % Fe
axle 3	(rdyn 421 mm)	T = 18.7 % Fe
axle 4	(rdyn 421 mm)	T = 18.7 % Fe

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

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

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

axle1	ThA = 5588 N
axle2	ThA = 5588 N
axle3	ThA = 4385 N
axle4	ThA = 4385 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 = 33284 N
axle 2	(rdyn 421 mm)	T = 33284 N
axle 3	(rdyn 421 mm)	T = 26161 N
axle 4	(rdyn 421 mm)	T = 26161 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)	0.55	0.43
required braking rate (items 1.3.3 and 1.6.2 to annex II)		>= 0,4 and >= 0,6*z (0.33)

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

axle 1	(rdyn 421 mm)	T = 33284 N
axle 2	(rdyn 421 mm)	T = 33284 N
axle 3	(rdyn 421 mm)	T = 26161 N
axle 4	(rdyn 421 mm)	T = 26161 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)	0.55	0.43
required braking rate (items 1.3.3 and 1.6.2 to annex II)		>= 0,4 and >= 0,6*z (0.33)

spring parking brake

		axle 3	axle 4
no of TRISTOP-actuators per axle line	KDZ	2	2
TRISTOP-actuator type		T.14/24	T.14/24
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	7605	7605
sp.brake chamber no Meritor.....		4	4
release pressure	pLs in bar	4.8	4.8

calculation:

ratio until road iFb = lBh*Eta*C*rBt/(rBn*rstat)		3.9674	3.9674
	for rstat in mm	401	401
brake force of spring br. Tf Tf = (TFZ*KDZ-2*Co/lBh)*iFb	in N	59654	59654
braking rate zf = sum (Tf)/P + 0,01	zf laden	0.444	

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 = 3495 mm for E = 4770 mm
==========
min Ef = 3515 mm for E = 4800 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	=	1800 mm	height of center of gravity - laden
PR	=	14000 kg	maximum bogie mass - laden
P	=	28000 kg	maximum total mass - laden
nf	=	2	no. of axle(s) with TRISTOP spring brake actuators
ng	=	2	no. of bogie axle(s)

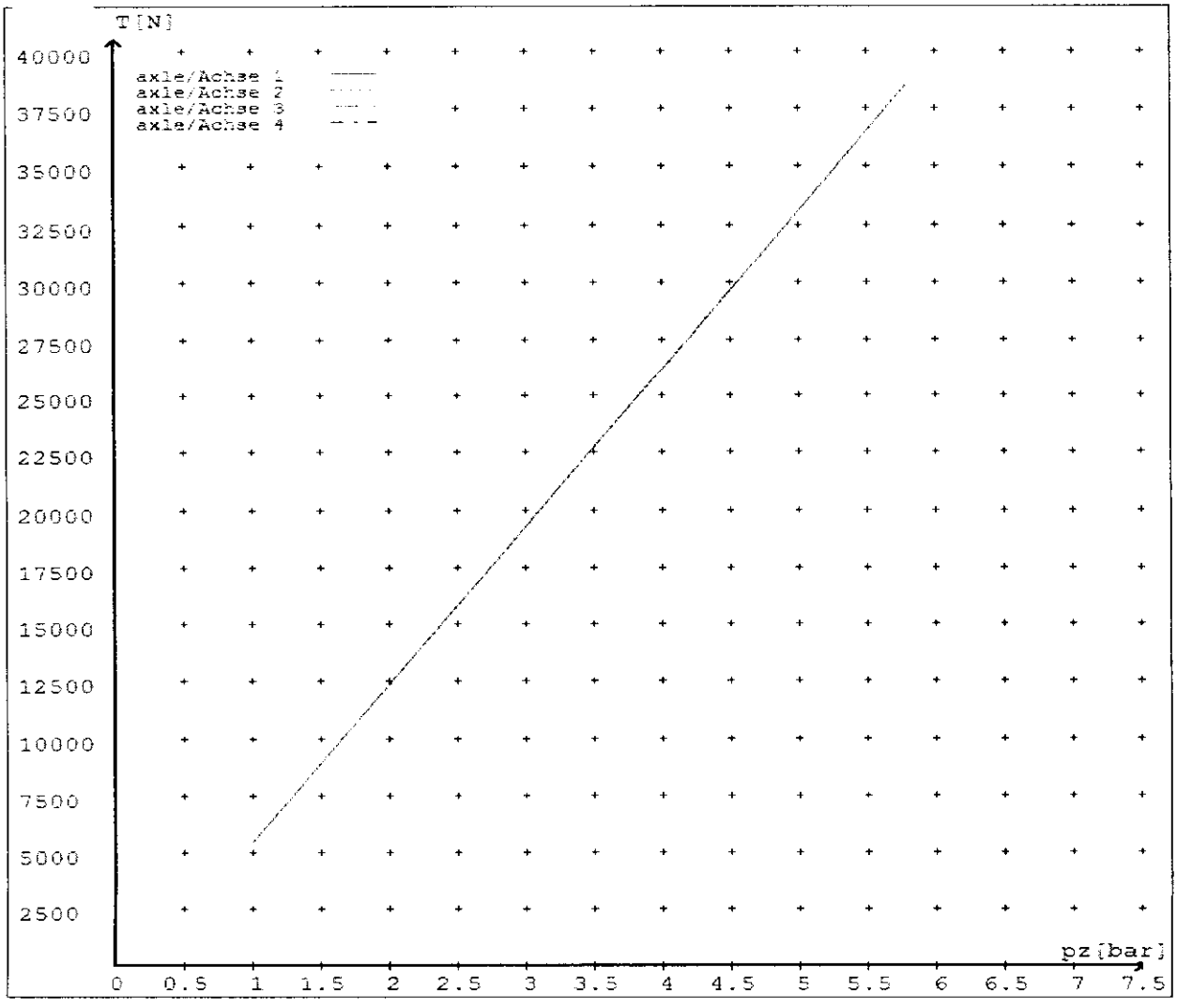
reference values

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

	pz [bar]	T [N]	T [N]
axle 1	1.0 5.8	5383 38488	
axle 2	1.0 5.8	5383 38488	
axle 3	1.0 4.6		5383 30212
axle 4	1.0 4.6		5383 30212

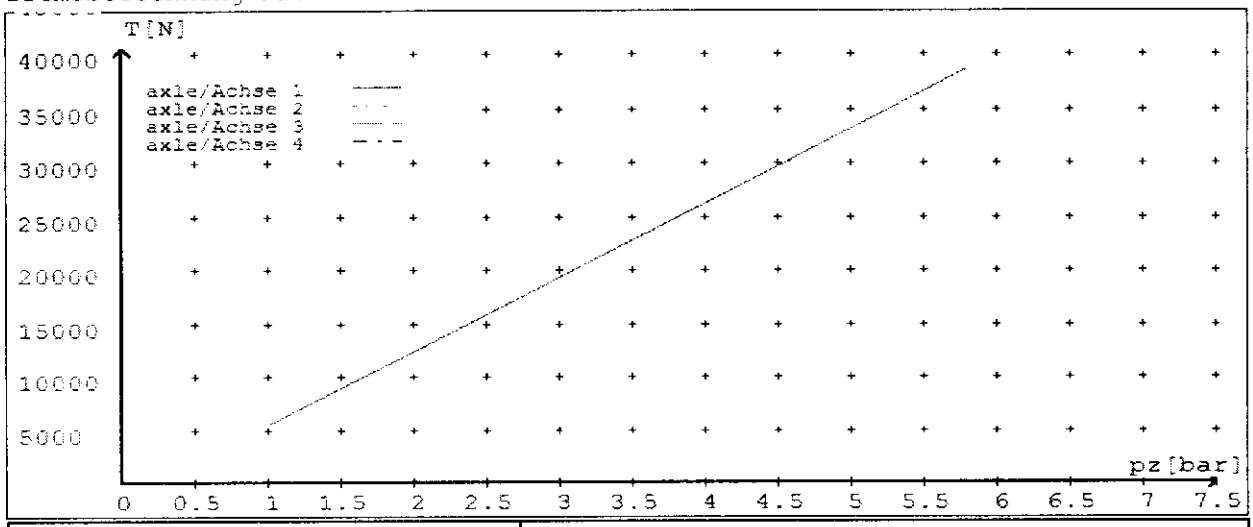
VIN - no.:

	Axle(s) / Achse(n)				
brake cylinder type (service / parking) Bremszylinder Typ (Betrieb / Fest)	14./	14./	T.14/24	T.14/24	/
Maximum stroke smax = ...mm maximaler Hub smax = ...mm	64	64	64	64	
Lever length = ...mm Hebellänge = ...mm	69.08	69.08	69.08	69.08	



Print on WABCO no. 899 200 922 4 (only possible with laser printers!)

reference values for z = 0.5 **for max rdyn: 421 mm**
Angabe der Referenzwerte für z = 0.5 für max rdyn: 421 mm
brake calculation no: TP 2012A date 09.06.2012
Bremsberechnung Nr: TP 2012A vom 09.06.2012



	Axle(s) / Achse(n)				
brake cylinder type (service / parking) Bremszylinder Typ (Betrieb / Fest)	14./	14./	T.14/24	T.14/24	/
Maximum stroke smax - ...mm maximaler Hub smax - ...mm	64	64	64	64	
Lever length - ....mm Hebellänge - ....mm	69.08	69.08	69.08	69.08	

Transpecs

QUALITY ON THE MOVE

P.O.Box 98-971 South Auckland Mail Centre

Lance Cawte (LPC)

DATE	9-Jun-12	LOAD SENSED	WABCO EBS "E"
CERT. NO.	LC120603	PREV EXEMPTION	N/A
VIN / CHASSIS	7A9D1001910023240		
BRAKE CHAMBERS FRONT	TSE 14	14HSCLD64	STROKE 64mm
BRAKE CHAMBERS REAR	TSE 14/16	1416HTLD64	STROKE 64mm
SLACK LENGTH FRONT	DISC	TYRE SIZE FRONT	265/70R 19.5
SLACK LENGTH REAR	DISC	TYRE SIZE REAR	265/70R 19.5
THIS VEHICLE COMPLIES WITH THE NZ		LINING MATERIAL FRONT	JURID 539
HEAVY VEHICLE BRAKE RULE 32015, SCHEDULE 5		LINING MATERIAL REAR	JURID 539

WABCO

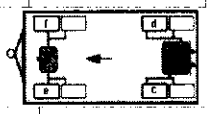
TRAILER EBS-E

GGVS/ADR TUEH TB 2007 - 019.00
TDB 0749 ECE

HERSTELLER MANUFACTURER CONSTRUCTEUR	DOMETT
TYP TYPE TYPE	LC120515
FAHRZEUG IDENTNR. CHASSIS NUMBER NUMERO DE CHASSIS	7A9D1001120023363
BREMSBERECHNUNGS-NR. BRAKE CALCULATION NO. CALCUL DE FREINAGE NO.	TP2012

POLRADZÄHNEZAHL 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 jumelee	X		Kippkritisches Fahrzeug Critical Trailer Véhicule critique		
Subsystems	---		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)		0.8	2.0	---	6.5					(bar) 1.0	Pz
ACHSE AXLE ESSIEU	(kg)			(kg)					pz		TYP TYPE	(mm)	(mm)	TR (daN)	
1	1300	0.6	1.5	7000	4.5	0.3	1.3	---	5.8	-	14	64	69	538	3848
2	1300	0.6	1.5	7000	4.5	0.3	1.3	---	5.8	-	14	64	69	538	3848
3	1200	0.5	1.2	7000	4.5	0.3	1.3	---	4.6	-	14 / 24	64	69	538	3021
4	1200	0.5	1.2	7000	4.5	0.3	1.3	---	4.6	-	14 / 24	64	69	538	3021
5	0	---	---	0	---	---	---	---	---	-	---	---	---	---	---

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.

L P CAWTE
(LPC HVEK)
(09 980 7300)

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: SCHEDULES.
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 NZ Transport Agency if dissatisfied with a Compliance issue. (refer NZTA Deed Of Appointment Para 47.4)
NZ Transport Agency Helpdesk 0800 699 000

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L.P CAWTE
(LPC HVEK)

Transpecs
QUALITY ON THE MOVE

SERVICE BULLETIN

WELDING WARNING

WABCO

14 March 2011, from Billy Sinclair, Transpecs-Wabco Product Support

NB: Any sort of arc welding can cause damage to your ECU's fitted to a trailer. The Inverter that we supply is also susceptible to welding arcs.

Prevention is less costly than the cure ...

Wabco Recommendation:

1. Remove all the main power cables and diagnostic cables from the ECU as they have non-interchangeable connections.
2. Leave the sensor cables that are plugged into the ECU and disconnect them at the wheel end. This will cover the protection against welding, at the same time preventing mixing them up at the ECU end.

TEBS E Modulator – Plugs and dismantling of cables and protective caps.