

Heavy vehicle specialist inspector's or manufacturing inspecting organisation's name (PRINT IN CAPS) CHRIS CLARKE	ID CJC
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Plate number (optional)	VIN/chassis number 7A9D10015R2023364
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Make DOMETT	Component being certified: <input type="checkbox"/> Chassis <input type="checkbox"/> Load anchorage
Model (optional) D1001-G4	<input type="checkbox"/> Log bolsters <input type="checkbox"/> Towing connection <input checked="" type="checkbox"/> Brakes
Certification category HVEK	<input type="checkbox"/> SRT <input type="checkbox"/> PSV stability <input type="checkbox"/> PSV rollover
	<input type="checkbox"/> Swept path <input type="checkbox"/> PBS

Description of work

CERTIFY TO SCHEDULE 5 OF LTR 32015: NZ HEAVY VEHICLE BRAKE SPECIFICATION.
CARRY OUT BRAKE CALCULATIONS, INSPECTION AND ECU END OF LINE PROTOCOL.
4A TANKER RSS ON TYRE: 265 70 R19.5
FOR SYSTEM ARCHITECTURE, PLEASE REFER TO PDS WORKSHEET & SCHEMATIC.

Code/standard/rule certified to LTR 32015, SCHEDULE 5	Component load rating(s) 26 Tonnes GVM
General drawing number(s) N/A	15 Tonne (Front group ratings) 15 Tonne (Rear group ratings)

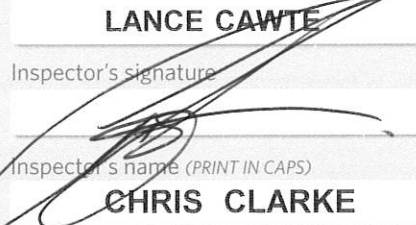
Supporting documents	
BRAKE RULE CERTIFICATE	LC231202
BRAKE CALCULATION #	2023 WABCO 4A WPC

Special conditions (optional)
**WARNING LAMP MUST ILLUMINATE WHEN IGNITION IS SWITCHED ON & THEN
EXTINGUISH IMMEDIATELY OR WHEN VEHICLE SPEED EXCEEDS 7 KM/H**

Certification expiry date (if applicable) N/A [UNLESS MODIFIED]	or	Hubodometer reading (whichever comes first)
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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) LANCE CAWTE	LPC
Inspector's signature 	
Inspector's name (PRINT IN CAPS) CHRIS CLARKE	ID number CJC
Date 18-Dec-23	Number A 11459

CoF vehicle inspector ID (if applicable)	CoF vehicle inspector signature (if applicable)	Date
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distribution: DOMETT
2023 WABCO 4A WPC

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 (V6.18.07.12).
-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 V6.18.07.12 db 31.08.2018

vehicle manufacturer: DOMETT
trailer model : 4A TANKER, D1001
trailer type : 4-axle-full-trailer
remarks : air / hydraulic / VA suspension
WABCO TRAILER - EBS
TRISTOP 3+4: 16/16
265/70 R 19,5

axle 1 + 2 + 3 + 4 : SAF, SBW 1937, TDB 0749 ECE,

		unladen	laden
total mass	P in kg	5200	30000
axle 1	P1 in kg	1400	7500
axle 2	P2 in kg	1400	7500
axle 3	P3 in kg	1200	7500
axle 4	P4 in kg	1200	7500
wheel base	E in mm	5070 - 5070	
centre of gravity height	h in mm	700	1492

		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 122.1BC	0006.0BC	0006.0
brake chamber manufacturer		Meritor	Meritor	WABCO	WABCO
chamber size		20.	20.	16/16	16/16
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		2.3	2.3	2.2	2.2
chamber pressure(rdyn max)pH at z=22,5%bar		2.3	2.3	2.2	2.2
chamber press.(servo)pcha at pm6,5bar bar		5.8	5.8	4.9	4.9
piston force ThA at pm6,5bar N		6702	6702	4974	4974
brake force(rdyn min)T lad. at pm6,5bar N		50729	50729	37673	37673
brake force(rdyn max)T lad. at pm6,5bar N		50729	50729	37673	37673
Brake force incl. 1 % rolling resistance proportion	%	26.5	26.5	23.5	23.5

braking rate z laden 0.601 for rdyn min
z = sum (TR)/PRmax 0.601 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 or 480 207 2.. 0
EBS relay valve

brake cylinder: Meritor 20HSCLD65

axle 2:

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

brake cylinder: Meritor 20HSCLD65

axle 3:

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

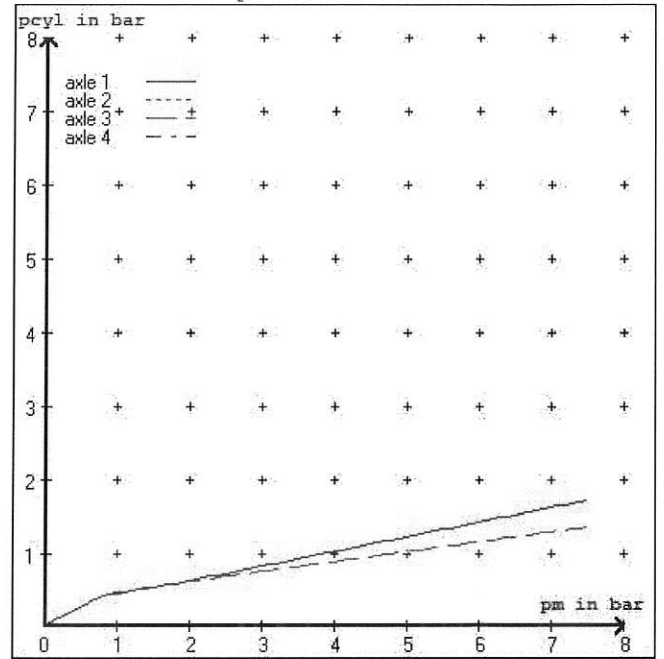
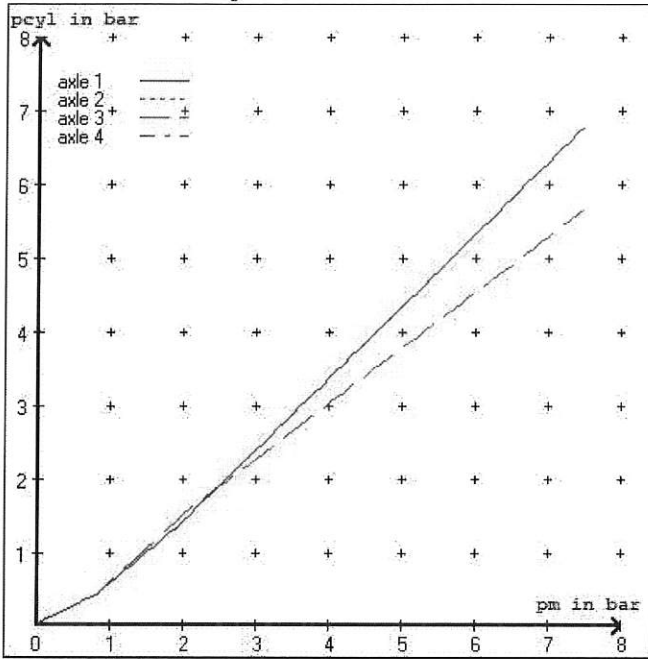
brake cylinder: WABCO 925 464 4.. 0 / 925 484 96. 0

axle 4:

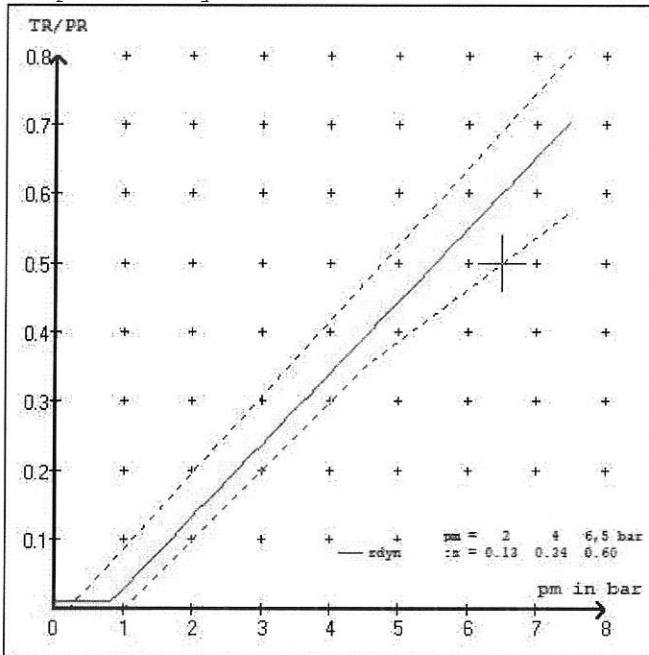
valve 1: 480 102 ... 0 WABCO
EBS trailer modulator

brake cylinder: WABCO 925 464 4.. 0 / 925 484 96. 0

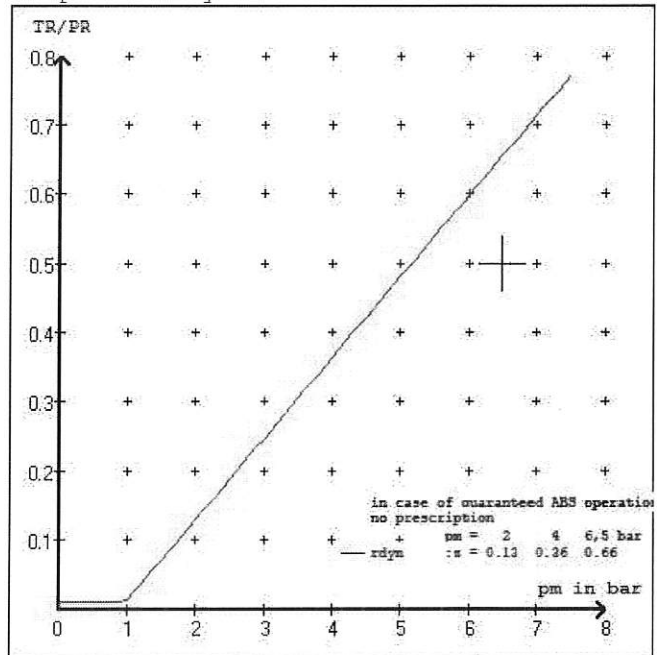
test type III (zIII = 0.30)	for rdyn min :	axle1	axle2	axle3	axle4	
at pm 3.6 bar =>	pcha in bar :	3.0	3.0	2.7	2.7	
test type III (zIII = 0.06)	for rdyn min :	axle1	axle2	axle3	axle4	
at pm 1.3 bar =>	pcha in bar :	0.8	0.8	0.9	0.9	



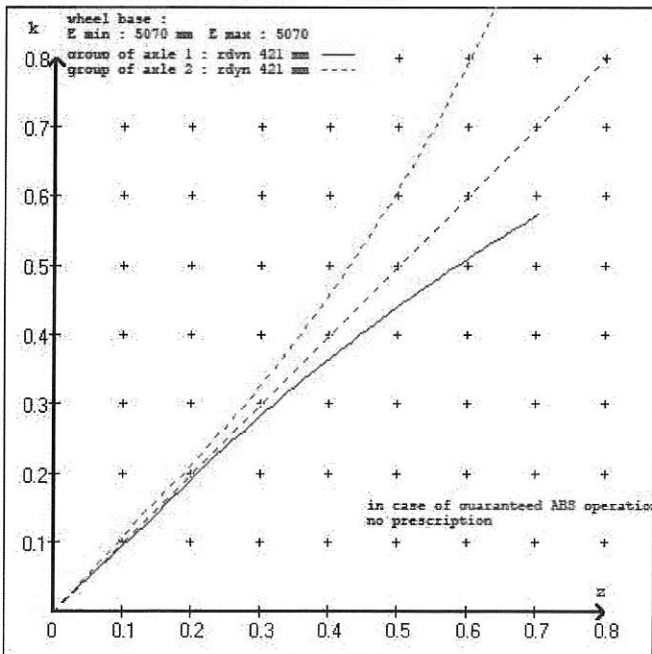
compatibility band laden



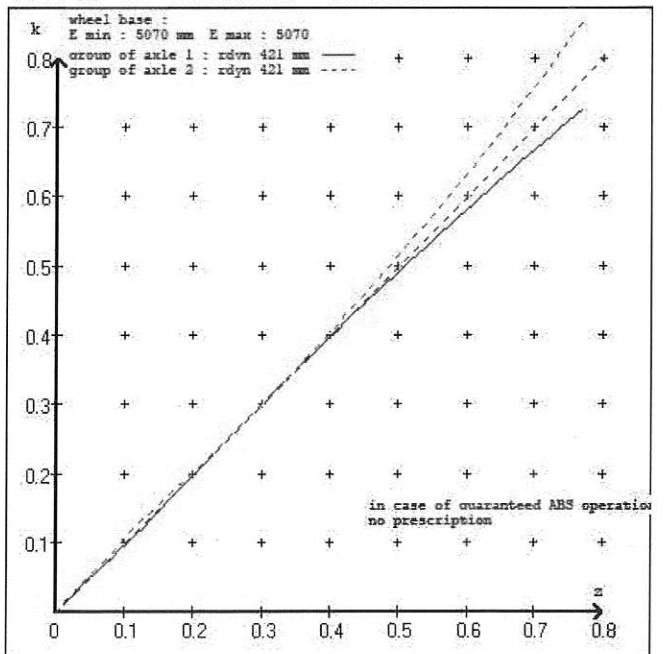
compatibility band unladen



curves of friction laden



curves of friction unladen



vehicle manufacturer: DOMETT
 trailer model : 4A TANKER, D1001
 trailer type : 4-axle-full-trailer

brake chamber and lever length :

axle 1 : 2 x type/diameter 20. (Meritor) lever length 69 mm
 axle 2 : 2 x type/diameter 20. (Meritor) lever length 69 mm
 axle 3 : 2 x type/diameter 16/16 (WABCO) lever length 69 mm
 axle 4 : 2 x type/diameter 16/16 (WABCO) lever length 69 mm

brake diagram :

valve :
 480 207 0.. 0 WABCO EBS relay valve or 480 207 2.. 0
 480 102 ... 0 WABCO EBS trailer modulator

EBS input data

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vehicle manufacturer: DOMETT
 trailer model : 4A TANKER, D1001
 trailer type : 4-axle-full-trailer
 brake calculation no. : TP 2023A

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 = 0.010
 (laden condition) 2.0 bar z = 0.134
 6.5 bar z = 0.600

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	1400	to be	1.5	7500	to be	0.4	1.4	5.8	
2	1400	entered by	1.5	7500	entered by	0.4	1.4	5.8	
3	1200	the vehicle	1.2	7500	the vehicle	0.4	1.5	4.9	
4	1200	manufact.	1.2	7500	manufact.	0.4	1.5	4.9	
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.

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axle 1	axle 2	axle 3	axle 4
axle load pctl	axle load pctl	axle load pctl	axle load pctl
1400	1.5	1400	1.5
1900	1.9	1900	1.9
2400	2.2	2400	2.2
2900	2.6	2900	2.6
3400	2.9	3400	2.9
3900	3.3	3900	3.3
4400	3.6	4400	3.6
4900	4.0	4900	4.0
7500	5.8	7500	5.8

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 : 20130930 30.09.2013
axle 2 : reference axle: SAF	SBW 1937	brake lining: Jurid 539
test report :	TDB 0749 ECE	date : 20130930 30.09.2013
axle 3 : reference axle: SAF	SBW 1937	brake lining: Jurid 539
test report :	TDB 0749 ECE	date : 20130930 30.09.2013
axle 4 : reference axle: SAF	SBW 1937	brake lining: Jurid 539
test report :	TDB 0749 ECE	date : 20130930 30.09.2013

calc. verific. of residual (hot) braking force type III
(item 4.2.1 of appendix 2 to annex 11)

axle 1	(rdyn 421 mm)	T = 24.4 % Fe
axle 2	(rdyn 421 mm)	T = 24.4 % Fe
axle 3	(rdyn 421 mm)	T = 19.7 % Fe
axle 4	(rdyn 421 mm)	T = 19.7 % 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 = 51 mm)	s = 39 mm
axle 4	(sp = 51 mm)	s = 39 mm

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

axle1	ThA = 6702 N
axle2	ThA = 6702 N
axle3	ThA = 4974 N
axle4	ThA = 4974 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 = 39620 N
axle 2	(rdyn 421 mm)	T = 39620 N
axle 3	(rdyn 421 mm)	T = 29492 N
axle 4	(rdyn 421 mm)	T = 29492 N

basic test type III
of subject (calculated)
trailer (E) residual

braking rate of the vehicle (item 4.3.2 to appendix 2 to annex 11) 0.60 (hot)braking 0.47

required braking rate >= 0,4 and
(items 1.5.3 and 1.7.2 to annex 11) >= 0,6*E (0.36)

axle 1	(rdyn 421 mm)	T = 39620 N
axle 2	(rdyn 421 mm)	T = 39620 N
axle 3	(rdyn 421 mm)	T = 29492 N
axle 4	(rdyn 421 mm)	T = 29492 N

basic test type III
of subject (calculated)
trailer (E) residual

braking rate of the vehicle (item 4.3.2 to appendix 2 to annex 11) 0.60 (hot)braking 0.47

required braking rate >= 0,4 and
(items 1.5.3 and 1.7.2 to annex 11) >= 0,6*E (0.36)

spring parking brake

	<u>axle 3</u>	<u>axle 4</u>
no of TRISTOP-actuators per axle line KDZ	2	2
TRISTOP-actuator type	16/16	16/16
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	6282	6282
sp.brake chamber no 925	464 4.. 0464	4.. 0
sp.brake chamber no 925	484 96. 0484	96. 0
release pressure pLs in bar	5.0	5.0

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	49157	49157
$Tf = (TFZ * KDZ - 2 * Co / lBh) * iFb$		
braking rate zf laden	0.344	
$zf = \sum (Tf) / P + 0,01$		

Test of the frictional connection required by the parking brake

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

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

$$\min Ef = 3617 \text{ mm} \quad \text{for } E = 5070 \text{ mm}$$

$$\min Ef = 3617 \text{ mm} \quad \text{for } E = 5070 \text{ mm}$$

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	=	1492 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)

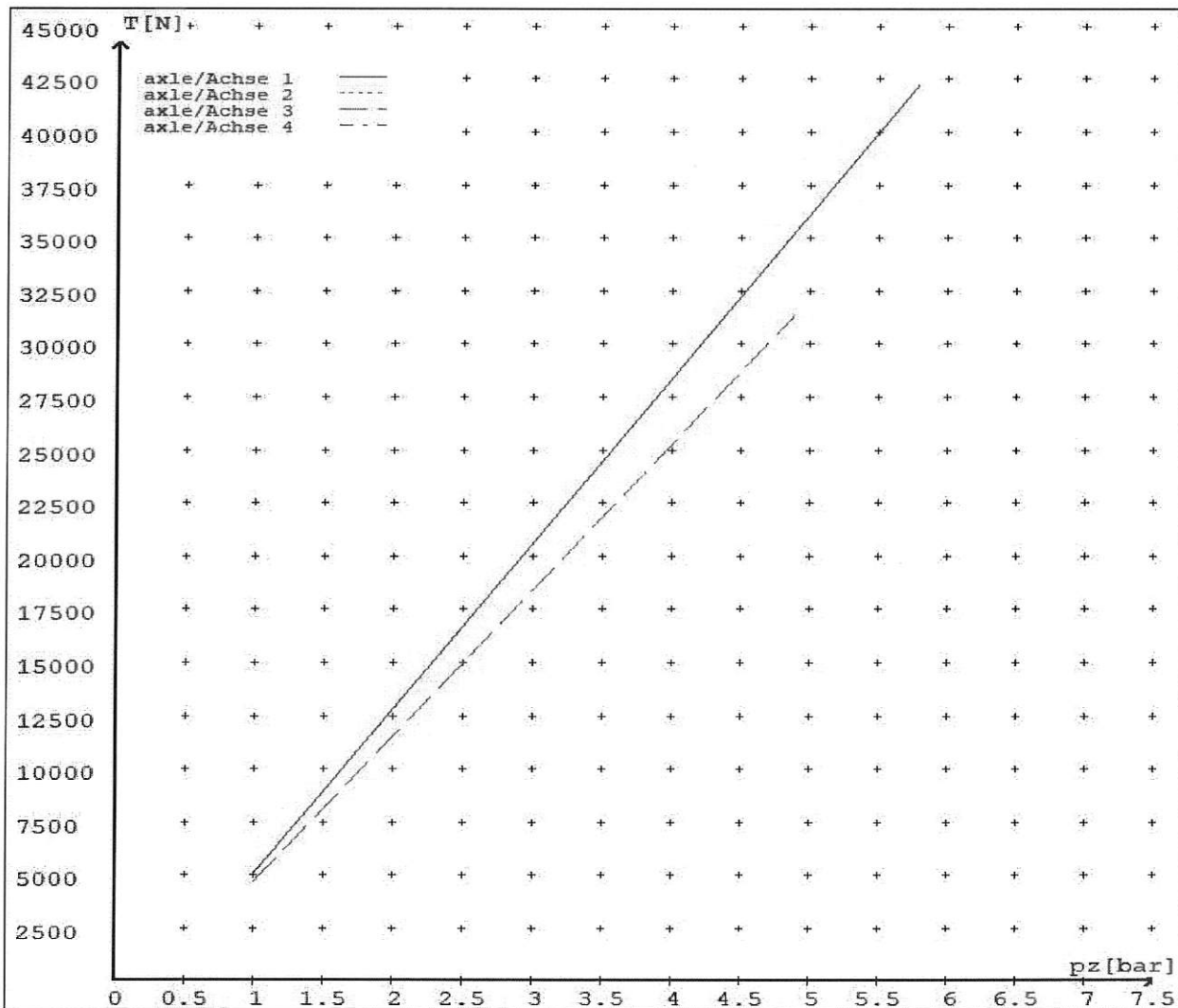
reference values

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

	pz [bar]	T [N]	T [N]
axle 1	1.0	5021	
	5.8	42203	
axle 2	1.0	5021	
	5.8	42203	
axle 3	1.0		4662
	4.9		31342
axle 4	1.0		4662
	4.9		31342

VIN - no.:

	Axle(s) / Achse(n)				
brake cylinder type (service / parking) Bremszylinder Typ (Betrieb / Fest)	20./	20./	16/16	16/16	/
Maximum stroke smax = ...mm maximaler Hub smax =mm	65	65	63	63	
Lever length =mm Hebellänge =mm	69.08	69.08	69.08	69.08	



reference values for $z = 0.5$

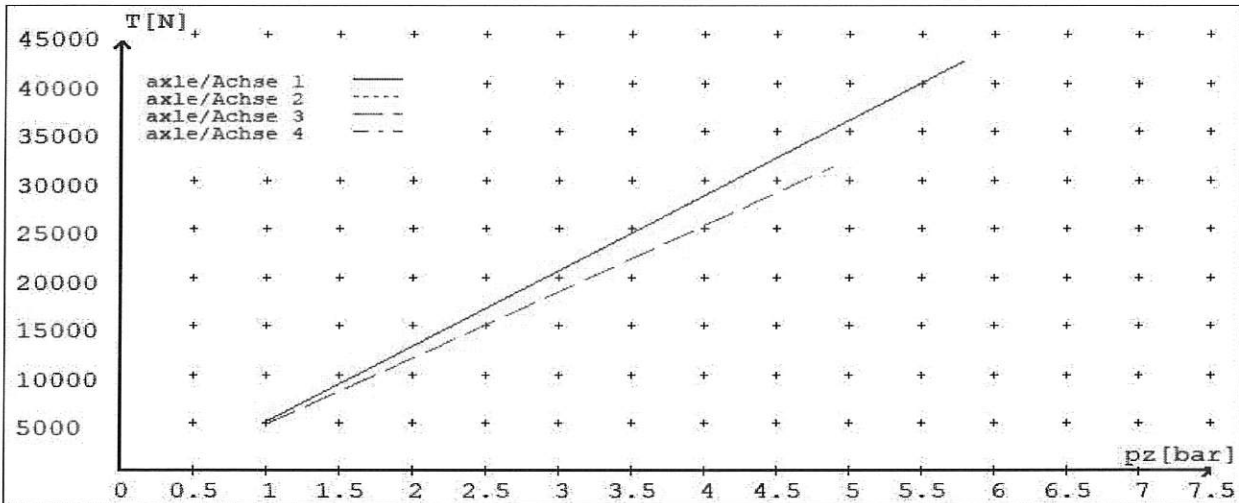
for max r_{dyn}: 421 mm

Angabe der Referenzwerte für $z = 0.5$

für max r_{dyn}: 421 mm

brake calculation no: TP 2023A date 22.03.2023

Bremsberechnung Nr: TP 2023A vom 22.03.2023



	Axle(s) / Achse(n)				
brake cylinder type (service / parking) Bremszylinder Typ (Betrieb / Fest)	20./	20./	16/16	16/16	/
Maximum stroke s _{max} = ...mm maximaler Hub s _{max} = ...mm	65	65	63	63	
Lever length = ...mm Hebellänge = ...mm	69.08	69.08	69.08	69.08	



**NEW ZEALAND HEAVY VEHICLE BRAKE RULE 32015
WORKSHEET, PROCEDURE DOCUMENTATION SHEET
& CONFIRMATION OF COMPLIANCE**

CLIENT

MANUFACTURER:	DOMETT TRAILERS
ADDRESS:	Taurikura Drive, Tauranga 3110
FLEET:	FONTERRA

VEHICLE DETAILS

VEHICLE TYPE:	4A TANKER	CERT #:	LC231202
YEAR:	2023	CALCULATION #:	2023 WABCO 4A WPC
MAKE:	DOMETT	REGO #:	
MODEL:	D1001-G4	LT400 #:	A11459
CHASSIS #:	2364	ORDER #:	9814
VIN #:	7A9D10015R2023364		
GVM: t	26	PRIME MOVER:	EBS / EUROPEAN
LOAD CONFIGURATION:	UNIFORM DENSITY		
GROUP RATINGS: t	FRONT	REAR	
	15	15	
WHEEL BASE: m	5.07		
	UNLADEN COG m	MAX HEIGHT m	HEIGHT DECK m
	0.7	2.38	1.00
COG: m	1.492		
	FRONT	REAR	TOTAL
TARE: t	2.8	2.4	5.2
	FRONT	REAR	FITTED
TYRE SIZE:	265 70 R19.5	265 70 R19.5	265 70R 19.5
ROLLING CIRCUMFERENCE: MM	2645	2645	
AXLE SPACING: m	1.3	1.3	

BRAKE & AXLE DETAILS

	MAKE	MODEL	TEST REPORT
AXLE:	SAF	SAF-ZI9W	TDB0749
POLE WHEEL FRONT:	90	POLE WHEEL REAR:	90
LINING MATERIAL:	JURID 539	BRAKE FACTOR:	23.03
SENSED AXLES:	1 + 3	NOTES:	
SERIAL NUMBERS:	1		
	2		
	3		
	4		
	5		

CHAMBER AND VALVING DETAILS

CHAMBERS:	AXLE 1 & 2	AXLE 3 & 4	AXLE 5
BRAND:	TSE_CHAMBERS	WABCO_CHAMBERS	N/A
SIZE:	20HSCLD	1616 (925/464/461/0)	N/A
STROKE: mm	65	63	
TEST REPORT #:	BC 0041.0 Jul '07	BC 0006.0	
SPRING BRAKE FORCE: kN	N/A	6.28	
HOLDOFF PRESSURE: Bar	N/A	5	
FOUNDATION BRAKE:	WABCO PAN19	WABCO PAN19	

BRAKE VALVES:	MAKE:	PART NUMBER:	PM PRESS. kPa
ECU PART #:	WABCO	480 102 08. 0 (MV)	80 kPa
3RD MODULATOR #:	WABCO	480 207 001 0 (24V)	80 kPa
ANTI-COMPOUNDING:	YES		
SPRING BRAKE RELAY:	SEALCO_SBR	110701	
YARD RELEASE VALVE:	SEALCO_YR	17600B	
INLINE RELAY FITTED:	N/A	N/A	

ECU DIRECTION: FRONT REAR **FRONT FRICTION: μ** 0.51

SUBSYSTEMS: SMARTBOARD OPTI-LINK CAN ROUTER 446 122 050 0
 ELEX 446 122 070 0 TAILGUARD

SUSPENSION

	FRONT	REAR
SUSPENSION TYPE:	PNEUMATIC	PNEUMATIC
MAKE:	SAF_AIRSPRING	SAF_AIRSPRING
MODEL:	SAF_INTRA	SAF_INTRA
BELLOW SIZE:	2619, 300mm	2619, 300mm
HEIGHT CONTROL VALVE:	464 008 011 0	464 008 011 0
OTHER VALVES:	NORGREN 3042402	NORGREN 3042402
RIDE HEIGHT <small>MM</small> :	250	250
HANGER HEIGHT <small>MM</small> :		
PEDESTAL HEIGHT <small>MM</small> :		
LIFT AXLE:		N/A
TIPPING DUMP SWITCH:		PNEUMATIC
LIFTAXLE VALVE:		N/A
PRESSURE LIMITING:		N/A

AIR TANKS

AIR TANKS STANDARD:	SAE J10A / EN286-2	
	FRONT	REAR
BRAKE TANK SIZE: <small>L</small>	C51902, 48L	C51902, 48L
AUXILIARY TANK SIZE: <small>L</small>		C51901, 25L x 2
PRESSURE PROTECTION:	WABCO PEM: 461 513 002 0	

AIR LINES

TEST POINTS:

CONTROL LINE:	FILTER X 1	TANK:	ECU X 1
REAR CHAMBER:	ECU X 2	FRONT CHAMBER:	LEFT 1st
DUOMATIC COLOUR CODED:	YES		

ELECTRONIC HEIGHT SENSOR CALIBRATION

	TIMER TICKS [F/R]	MILLIMETRE [F / R]
UPPER LEVEL:	<input type="text"/>	<input type="text"/>
NORMAL LEVEL:	<input type="text"/>	<input type="text"/>
LOWER LEVEL:	<input type="text"/>	<input type="text"/>

CHECKS AT COMMISSION OF VEHICLE

CHAMBER BUNGS REMOVED: VALVE MOUNTING:
 ECU BLANKING PLUGS CHECKED:

RESPONSE TIME: MODULATOR 2.1 MODULATOR 2.2 RELAY VALVE
 ms:

NOTES AND SPECIAL CONDITIONS

06/12/2023 received est build schedule and request to do project, receive drawings etc.
 Start files, request and receive product and trailer data. Compile data, recheck calculations and ECU file data.
 Assign certification number, complete and send file.

REASON FOR CERTIFICATION: NEW TRAILER

I UNDERSTAND AND DECLARE THAT I AM THE CERTIFIER IDENTIFIED BELOW AND HOLD A CURRENT VALID APPOINTMENT. I CERTIFY THAT AT THE TIME OF INSPECTION THE ABOVE MENTIONED VEHICLE COMPONENT DESIGN 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.

RULE / STD COMPLIED TO:

NEW ZEALAND HEAVY VEHICLE BRAKE RULE 32015, SCHEDULE 5, ADR 35, ~~ECE R13, FMZSS 121~~

DATE: 18/12/2023

SIGNED: *Lance Cawte*

CERTIFIER NAME & ID: CHRIS CLARKE CJC

SODC BY: LANCE CAWTE LPC

PHONE (BUS): 09-980-7300

FAX:

POSTAL ADDRESS: P.O. Box 98-971, Manukau 2241
 New Zealand