

Heavy vehicle specialist inspector's or manufacturing inspecting organisation's name (PRINT IN CAPS) **CHRIS CLARKE** ID **CJC**

Plate number (optional) **7A9D10017N2023165** VIN/chassis number

Make **DOMETT** Component being certified: Chassis Load anchorage Brakes

Model (optional) **D1001** Log bolsters Towing connection PSV stability PSV rollover

Certification category **HVEK** SRT PSV stability PBS Swept path

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
 15 Tonne (Front group ratings)
 15 Tonne (Rear group ratings)

Supporting documents
 BRAKE RULE CERTIFICATE LC220808
 BRAKE CALCULATION # 2022 ROR 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)

Declaration
 Designer's ID (if different from inspector below) **LANCE CAWTE** LPC

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.

Inspector's signature
 Inspector's name (PRINT IN CAPS) **CHRIS CLARKE** ID number **837706**
 Date **25.08.2022** Number

CoF vehicle inspector ID (if applicable) CoF vehicle inspector signature (if applicable) Date

All fields are mandatory unless otherwise stated.

distribution: DOMETT
 2022 ROR 4A WPC

Please note!

This brake calculation is made under consideration of
 -the legal prescriptions 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: T.16/24
 265/70 R 19,5

axle 1 + 2 + 3 + 4 : Assali Stefen, K, 361-071-04 ECE Re 432,

		<u>unladen</u>	<u>laden</u>
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

	<u>axle 1</u>	<u>axle 2</u>	<u>axle 3</u>	<u>axle 4</u>
no. of combined axles	1	1	1	1
no. of brake chambers per axle line	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	20.	20.	T.16/24	T.16/24
lever length	74	74	74	74
brake factor	20.26	20.26	20.26	20.26
dyn. rolling radius	421	421	421	421
dyn. rolling radius	421	421	421	421
threshold torque	7.0	7.0	7.0	7.0

calculation:

chamber pressure(rdyn min)pH at z=22,5%bar	2.4	2.4	2.3	2.3
chamber pressure(rdyn max)pH at z=22,5%bar	2.4	2.4	2.3	2.3
chamber press.(servo)pcha at pm6,5bar	6.1	6.1	5.3	5.3
piston force	7071	7071	5304	5304
brake force(rdyn min)T lad. at pm6,5bar N	50425	50425	37841	37841
brake force(rdyn max)T lad. at pm6,5bar N	50425	50425	37841	37841
Brake force incl. 1 % rolling resistance	26.7	26.7	23.3	23.3
proportion	%			

braking rate z laden 0.600 for rdyn min
 z = sum (TR)/PRmax 0.600 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 20HSCID65

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

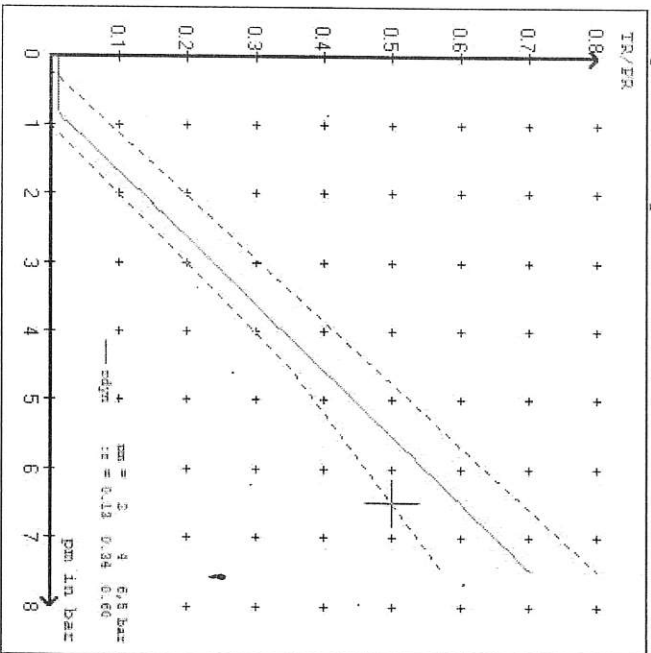
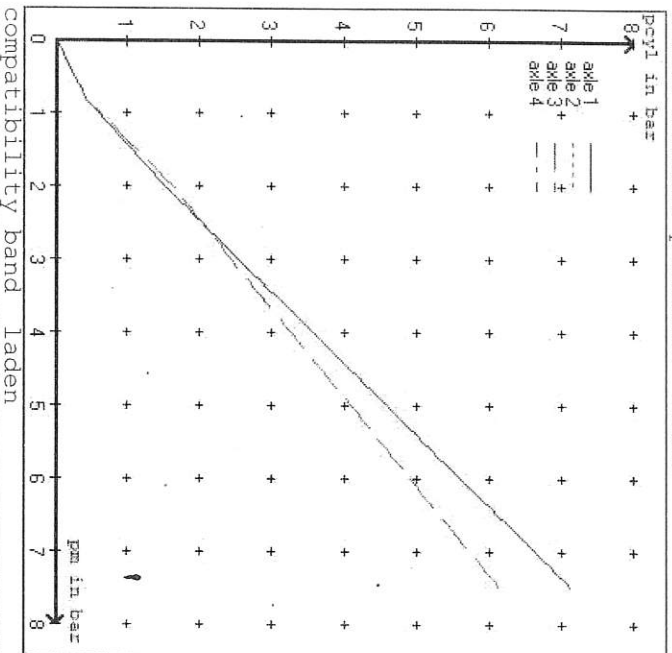
brake cylinder: Meritor 20HSCID65

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

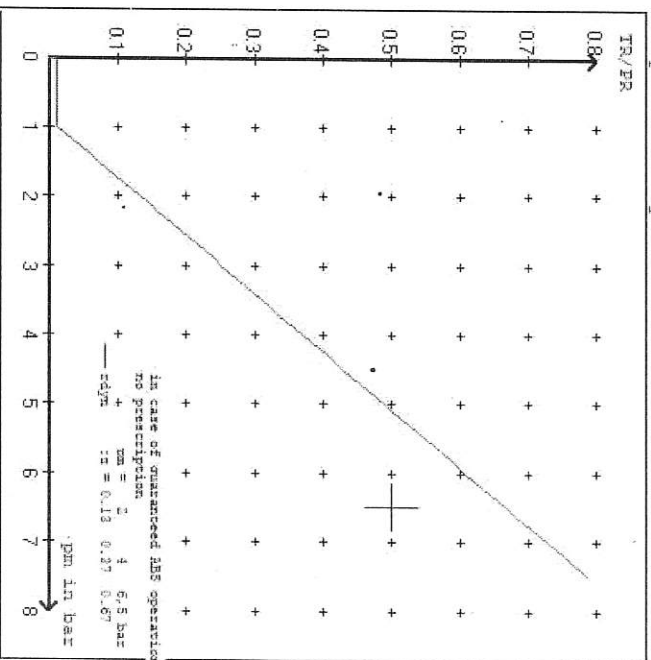
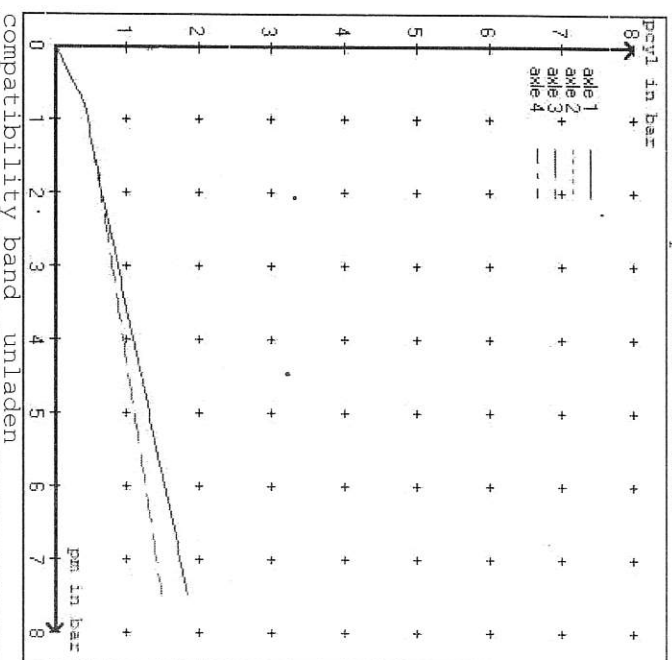
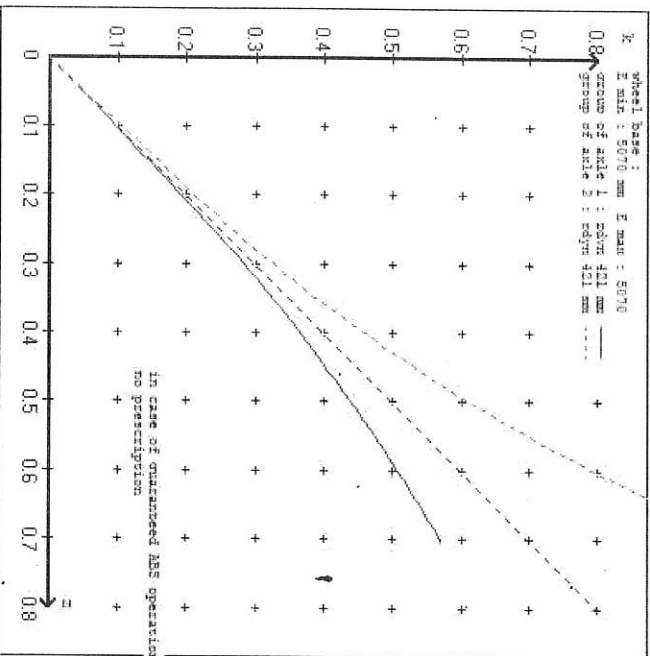
brake cylinder: Meritor 1624HTID64

axle 4:
valve 1: 480 102 ... 0 WABCO
EBS trailer modulator
brake cylinder: Meritor 1624HTLD64

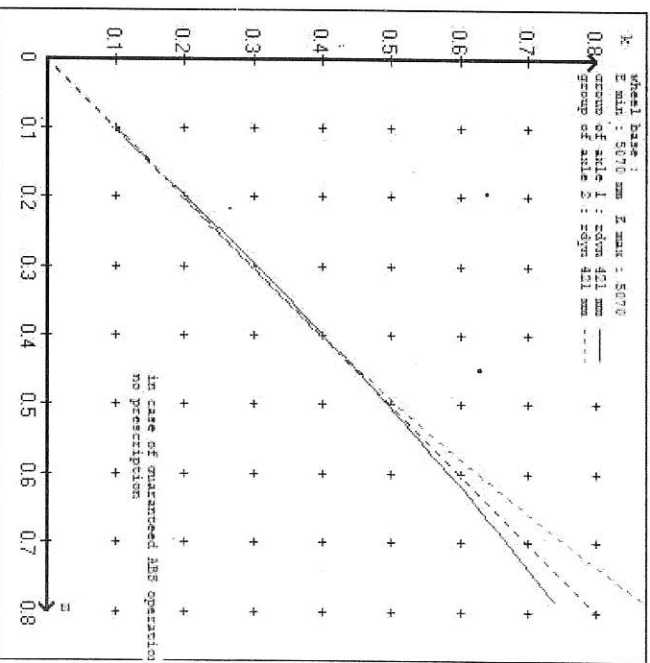
test type III	(zIII = 0.30)	for rdyn min :	axle1	axle2	axle3	axle4
at pm 3.6 bar =>		pcha in bar :	3.1	3.1	2.9	2.9
test type III	(zIII = 0.06)	for rdyn min :	axle1	axle2	axle3	axle4
at pm 1.3 bar =>		pcha in bar :	0.9	0.9	0.9	0.9



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 74 mm
 axle 2 : 2 x type/diameter 20. (Meritor) Lever length 74 mm
 axle 3 : 2 x type/diameter T.16/24 (Meritor) Lever length 74 mm
 axle 4 : 2 x type/diameter T.16/24 (Meritor) Lever length 74 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

vehicle manufacturer: DOMETT
 trailer model : 4A TANKER, D1001
 trailer type : 4-axle-full-trailer
 brake calculation no. : TP 2022A

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
 2.0 bar z = 0.134
 (Laden condition) 6.5 bar z = 0.600

axle	control pressure pm		brake pr. unladen	axle load laden	control pressure pm		brake pr. laden	brake pr. laden	brake pr. laden
	axle load unladen	bellow pr. unladen			bellow pr. laden	bellow pr. laden			
1	1400	to be	1.6	7500	to be	0.4	1.5	6.1	
2	1400	entered by	1.6	7500	entered by	0.4	1.5	6.1	
3	1200	the vehicle	1.3	7500	the vehicle	0.4	1.6	5.3	
4	1200	manufact.	1.3	7500	manufact.	0.4	1.6	5.3	
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	axle load	axle load	axle load
1400	1400	1200	1200
1900	1900	1700	1700
2400	2400	2200	2200
2900	2900	2700	2700
3400	3400	3200	3200
3900	3900	3700	3700
4400	4400	4200	4200
4900	4900	4700	4700
7500	7500	7500	7500
pcyl	pcyl	pcyl	pcyl
1.6	1.6	1.3	1.3
2.0	2.0	1.6	1.6
2.3	2.3	1.9	1.9
2.7	2.7	2.3	2.3
3.1	3.1	2.6	2.6
3.4	3.4	2.9	2.9
3.8	3.8	3.2	3.2
4.2	4.2	3.5	3.5
6.1	6.1	5.3	5.3

data sheet to ECE vehicle type-approval certificate concerning braking
equipment: according to ECE R13 annex 11

axle 1 : reference axle: Assali SteFTM or LM or LGen		brake lining: ROR 8616 AF (M13)
test report : 361-071-04 ECE Re 432		date : GA310709
axle 2 : reference axle: Assali SteFTM or LM or LGen		brake lining: ROR 8616 AF (M13)
test report : 361-071-04 ECE Re 432		date : GA310709
axle 3 : reference axle: Assali SteFTM or LM or LGen		brake lining: ROR 8616 AF (M13)
test report : 361-071-04 ECE Re 432		date : GA310709
axle 4 : reference axle: Assali SteFTM or LM or LGen		brake lining: ROR 8616 AF (M13)
test report : 361-071-04 ECE Re 432		date : GA310709

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 = 22.7 % Fe
axle 2	(rdyn 421 mm)	T = 22.7 % Fe
axle 3	(rdyn 421 mm)	T = 18.2 % Fe
axle 4	(rdyn 421 mm)	T = 18.2 % Fe

calculated actuator stroke in mm

(item 4.3.1.1 of appendix 2 to annex 11)

axle 1	(sp = 58 mm)	s = 38 mm
axle 2	(sp = 58 mm)	s = 38 mm
axle 3	(sp = 57 mm)	s = 38 mm
axle 4	(sp = 57 mm)	s = 38 mm

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

axle1	ThA = 7071 N
axle2	ThA = 7071 N
axle3	ThA = 5304 N
axle4	ThA = 5304 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 = 43214 N
axle 2	(rdyn 421 mm)	T = 43214 N
axle 3	(rdyn 421 mm)	T = 32459 N
axle 4	(rdyn 421 mm)	T = 32459 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
0.51

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

axle 1	(rdyn 421 mm)	T = 43214 N
axle 2	(rdyn 421 mm)	T = 43214 N
axle 3	(rdyn 421 mm)	T = 32459 N
axle 4	(rdyn 421 mm)	T = 32459 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
0.51

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

spring parking brake

no of TRISTOP-actuators per axle	line KDZ	axle 3	axle 4
TRISTOP-actuator type		2	2
lever length	LBh in mm	T.16/24 74	T.16/24 74
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          3.7388      3.7388
iFb = LBh*Eta*C*rRBt/(rBn*rstat)
for rstat in mm          401          401
brake force of spring br. Tf in N      56159      56159
Tf = (TFZ*KDZ-2*Co/LBh)*iFb
braking rate              zf laden          0.392
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 fulfill the regulations

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

```

min Ef = 3617 mm      for E = 5070 mm
=====
min Ef = 3617 mm      for E = 5070 mm
=====
    
```

```

min Ef = minimum distance between front axle(s) (trailer) or support (semitrailer)
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)
    
```

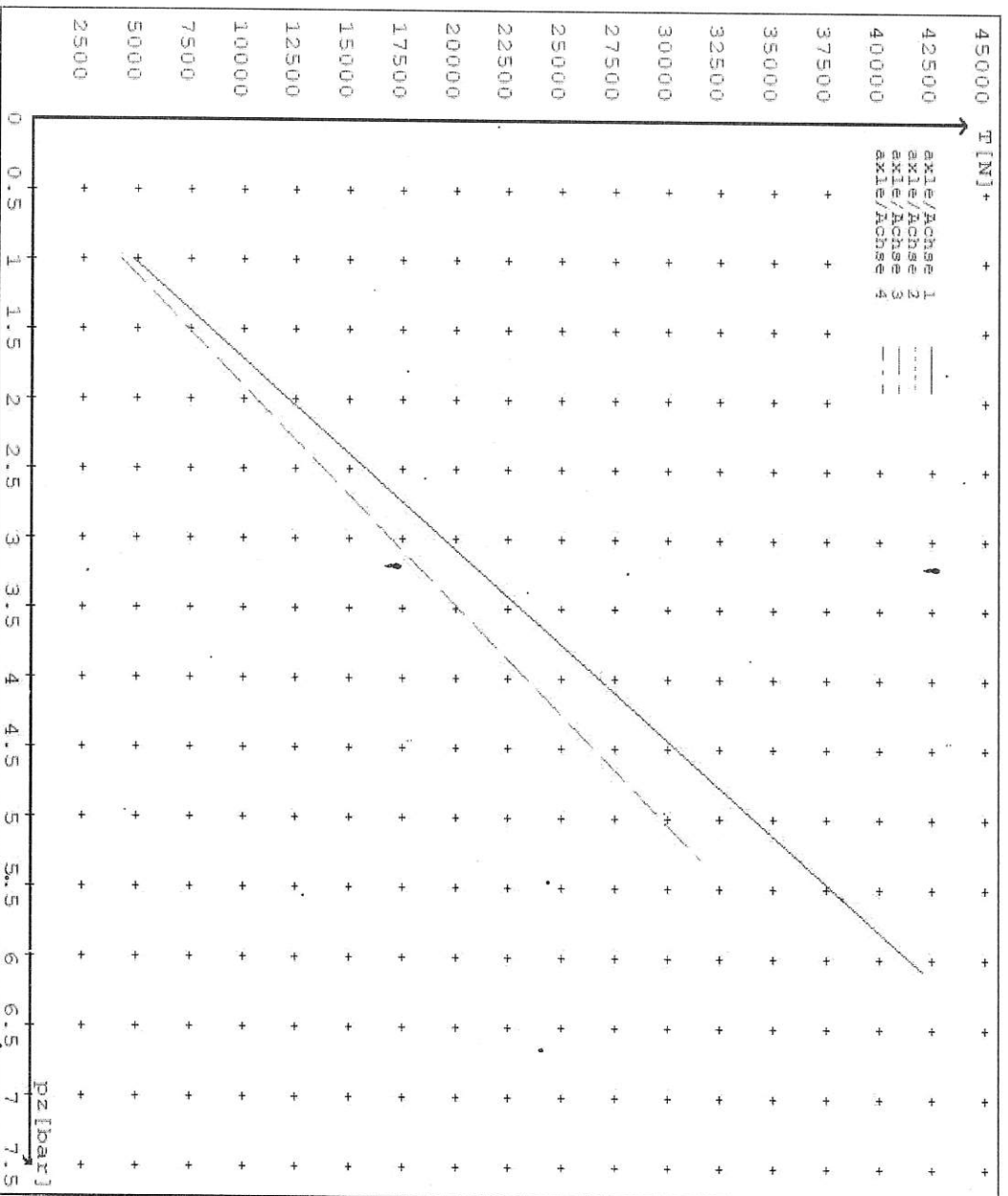

reference values

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

	pz [bar]	T [N]	T [N]
axle 1	1.0 6.1	4729 42021	
axle 2	1.0 6.1	4729 42021	
axle 3	1.0 5.3		4200 31534
axle 4	1.0 5.3		4200 31534

VIN - no.:

		Axle(s) / Achse(n)				
Brake cylinder type (service / parking)		20./	20./	T.16/24	T.16/24	/
Bremszylinder Typ (Betrieb / Fest)						
Maximum stroke smax = ...mm		65	65	64	64	
maximaler Hub smax = ...mm						
Lever length = ...mm		74	74	74	74	
Hebellänge = ...mm						





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

CLIENT

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

VEHICLE DETAILS

VEHICLE TYPE: 4A TANKER **CERT #:** LC220808
YEAR: 2022 **CALCULATION #:** 2022 ROR 4A WPC
MAKE: DOMETT **REGO #:**
MODEL: D1001 **LT400 #:** 837706
CHASSIS #: 2165 **ORDER #:** 8855

VIN #: 7A9D10017N2023165
GVM: t 26 **PRIME MOVER:** EBS / EUROPEAN

LOAD CONFIGURATION: UNIFORM DENSITY

GROUP RATINGS: t

FRONT	REAR
15	15
5.07	

WHEEL BASE: m

UNLADEN COG m	MAX HEIGHT m	HEIGHT DECK m
0.7	2.38	1.00
1.492		

COG: m

FRONT	REAR	TOTAL
2.8	2.4	5.2

TARE: t

FRONT	REAR	FITTED
265 70 R19.5	265 70 R19.5	265 70R 19.5

TYRE SIZE:

2645

2645

ROLLING CIRCUMFERENCE: MM

1.3

1.3

1.3

BRAKE & AXLE DETAILS

	MAKE	MODEL	TEST REPORT
AXLE:	ROR_ASSALL_STEEEN	ROR-SLX9 LRC DISC	361-071-04
POLE WHEEL FRONT:	90	POLE WHEEL REAR:	90
LINING MATERIAL:	ROR 8616	BRAKE FACTOR:	20.26
SENSED AXLES:	1 + 3	NOTES:	

SERIAL NUMBERS:	1	2	3	4	5

CHAMBER AND VALVING DETAILS

	AXLE 1 & 2	AXLE 3 & 4	AXLE 5
CHAMBERS:	HAIDEX_CHAMBERS	HAIDEX_BERTOCCO	N/A
BRAND:	20, (125 200)	1616 (925/464/461/0)	N/A
SIZE:	66	63	
STROKE: mm	BC0175.0	BC 0006.0	
TEST REPORT #:	N/A	6.28	
SPRING BRAKE FORCE: kN	N/A	5	
HOLDOFF PRESSURE: Bar	MERITOR	MERITOR	
FOUNDATION BRAKE:	74	74	N/A
LEVER LENGTH: mm	MAKE:	PART NUMBER:	P/M PRESS. kPa
BRAKE VALVES:	WABCO	480 102 08. 0 (MV)	80 kPa
ECU PART #:	WABCO	480 207 001 0 (24V)	80 kPa
3RD MODULATOR #:	YES		
ANTI-COMPOUNDING:	SEALCO_SBR	110701	
SPRING BRAKE RELAY:	SEALCO_YR	17600B	
YARD RELEASE VALVE:	N/A	N/A	

ECU DIRECTION: FRONT REAR FRONT FRICTION: μ

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

ELEX 446 122 070 0 TAILGUARD

SUSPENSION

	FRONT	REAR
SUSPENSION TYPE:	PNEUMATIC	PNEUMATIC
MAKE:	ROR_AIRSPRING	ROR_AIRSPRING
MODEL:	ROR_INTRA	ROR_INTRA
BELLOW SIZE:	SLX LRC	SLX LRC
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	N/A
DUMP SWITCH:	PNEUMATIC	
LIFT AXLE VALVE:	N/A	N/A
PRESSURE LIMITING:		N/A

AIR TANKS

AIR TANKS STANDARD:	SAE J10A / EN286-2	
	FRONT	REAR
BRAKE TANK SIZE: L	C51902, 48L	C51902, 48L
AUXILIARY TANK SIZE: L		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:

NORMAL LEVEL:

LOWER LEVEL:

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

3/12/2021 received est build schedule.15/12/2021 request to do project, receive drawings etc.
24/3/2022 start files, request and receive product and trailer data. 25/3/2022 do calculations
and ECU files, start paperwork.

29/03/2022 Advised air reservoirs changed. Redo paperwork to reflect change.

10/8/2022 Advised vehicle files required. 11/8/2022 check & complete files, program, send SODC.

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, FMVSS-121

DATE:

25/08/2022

SIGNED:

Lance Cawte

CERTIFIER NAME & ID:

CHRIS CLARKE

CIC

SODC BY:

LANCE CAWTE

LPC

PHONE (BUS):

09-980-7300

FAX:

POSTAL ADDRESS:

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