

# Heavy vehicle specialist certificate

Heavy vehicle specialist inspector's or manufacturing inspecting organisation's name (PRINT IN CAPS)

**CHRIS CLARKE**

ID

**CJC**

Plate number (optional)

VIN/chassis number

**7A9D10012N2023168**

Make

**DOMETT**

Component being certified:

Chassis

Load anchorage

Model (optional)

**D1001**

Log bolsters

Towing connection

Brakes

Certification category

**HVEK**

SRT

PSV stability

PSV rollover

Swept path

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 LC220901  
BRAKE CALCULATION # 2022 SAF-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

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**

**LP C**

Inspector's signature

Inspector's name (PRINT IN CAPS)

**CHRIS CLARKE**

ID number

**CJC**

Date

**07.09.2022**

Number

**837732**

CoF vehicle inspector ID (if applicable)

CoF vehicle inspector signature (if applicable)

Date

All fields are mandatory unless otherwise stated.

# WABCO START-UP LOG

System	Trailer EBS-E	WABCO part number	480 102 080 0
Production date	2022-06-27	Serial number	897041910300M
Serial number (modulator)	000000555400		
Fingerprint Customer EOL / Customer Development / Flash Program	W503643 / 2022-09-07 ; 00000000 / 0000-00-00 ; 00000000 / 0000-00-00		

## WABCO

## TRAILER EBS-E

GGV/ADR TUEH TB 2007 - 019.00  
361 071 04

HERSTELLER MANUFACTURER CONSTRUCTEUR	DOMETT		
VEHICLE IDENT. NUMBER CHASSIS DE CHASSIS NUMERO DE CHASSIS	4A TANKER, D1001		
BREMSEBREMCHUNGS-NR. CARTON DE FREINAGE NO. POLE WHEEL, TUEH-cd 1-e1 DENTS ROUE DENTRE-cd 1-e1	TP2022A	ASS-System ABS-System Systeme ABS	4S/3M
Einbaubereitigung Monte simple Zeilungsbereitigung Twin Tire Monte jumelle	X	Leinboche Steering axle Essieu avant Kippmechanisches Fahrzeu Systeme ABS Vehicule critique	
Subsystems	I/O	24N	


GIO.	Pin1	Pin3	Pin4
1	24 V-O1		
2	...		
3	ALS2	ALS2	
4	...		
5	DIAG	DIAG	DIAG
6	...		
7	...		

ACHSE AXLE ESSIEU	p1			p2			TR (dan)	Pz
	pm (bar)	6.5	pm (bar)	0.8	2.0	6.5		
1	1400	0.5	1.6	7500	4.5	0.4	1.5	...
2	1400	0.5	1.6	7500	4.5	0.4	1.5	...
3	1200	0.4	1.3	7500	4.5	0.4	1.6	...
4	1200	0.4	1.3	7500	4.5	0.4	1.6	...
5	0	...	...	0	...	...	...	...

### TEBS-E

Diagnostic memory	OK	Warning lamp control	OK
Parameter setting	carried out	Stop light supply	OK
EBS pressure test	OK	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 test	Not tested	Leak test	Not tested
Immobilizer test	Not tested	Signal outputs	Not tested
Signal inputs	Not tested	Tag axle test	Not tested

### Electronic Extension Module

Diagnostic memory	Not tested	Signal outputs	Not tested
TailGUARDlight	Not tested	TailGUARD	Not tested
Manufacturer	DOMETT	Vehicle ident. no.	7A9D10012N2023168
Vehicle type	4A TANKER, D1001	Odometer reading	0.0 km
Next service	0 km	Trip reading	0.0 km
Tester	Chris Clarke	Signature 	
Date	2022-09-07 11:17:56 am		

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, DI001  
 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		
axle 1	P1	in	kg	5200	30000
axle 2	P2	in	kg	1400	7500
axle 3	P3	in	kg	1400	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	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	rdyn max	in	mm	421
threshold torque	Co	Nm	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	THA at pm6, 5bar	7071	7071	5304	5304
brake force(rdyn min)	T lad. at pm6, 5bar	50425	50425	37841	37841
brake force(rdyn max)	T lad. at pm6, 5bar	50425	50425	37841	37841
Brake force incl. 1 % rolling resistance		26.7	26.7	23.3	23.3

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 20HSCLD65

axle 2:

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

brake cylinder: Meritor 20HSCLD65

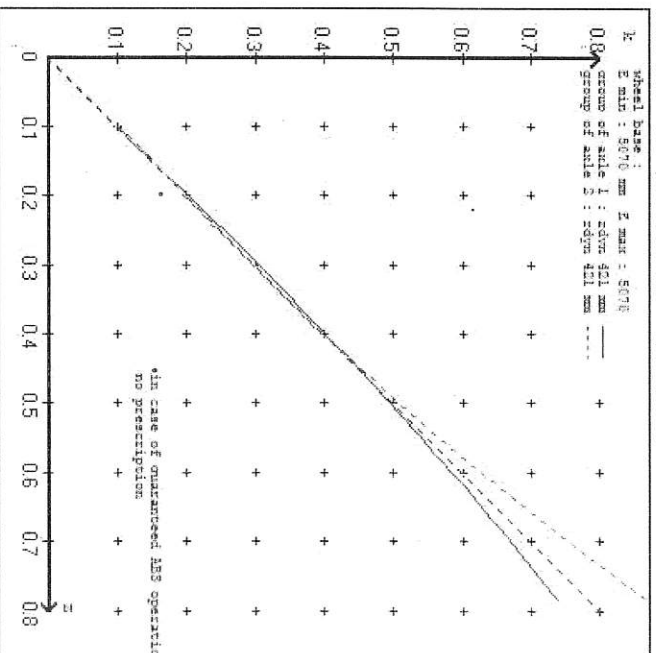
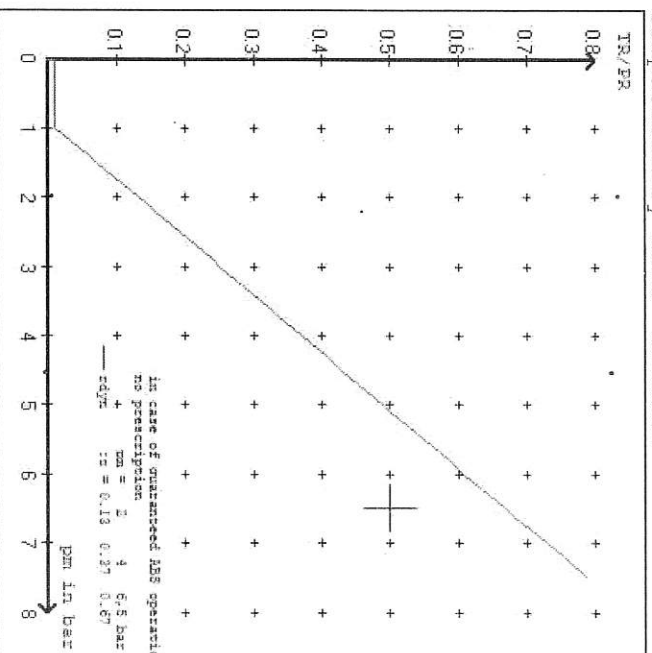
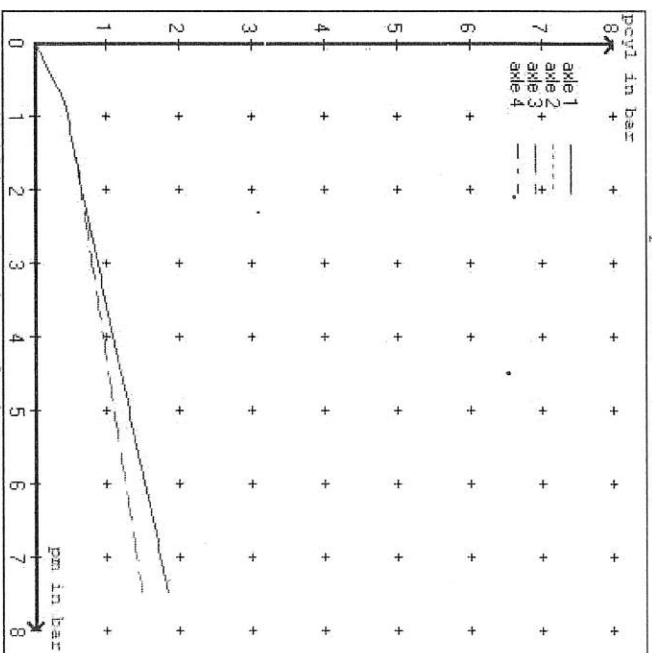
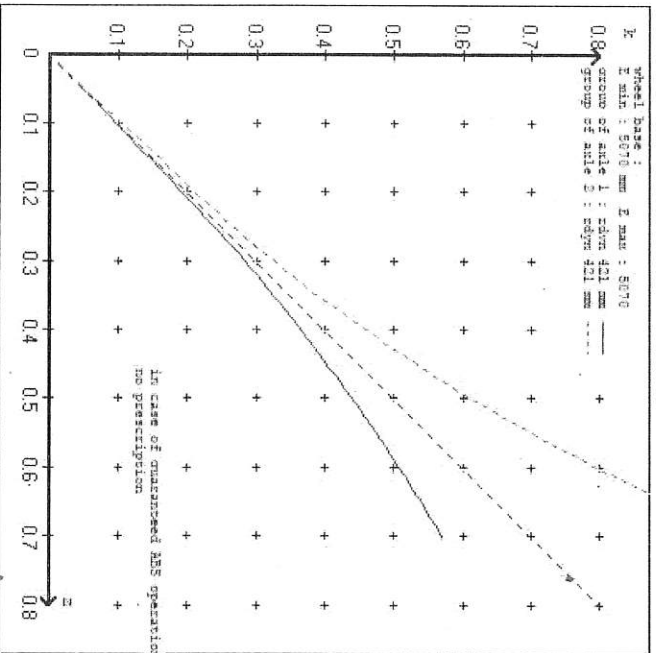
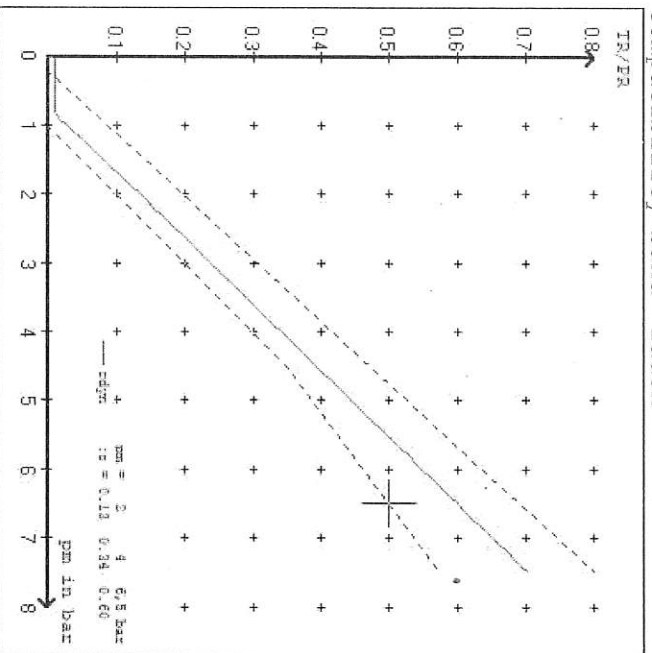
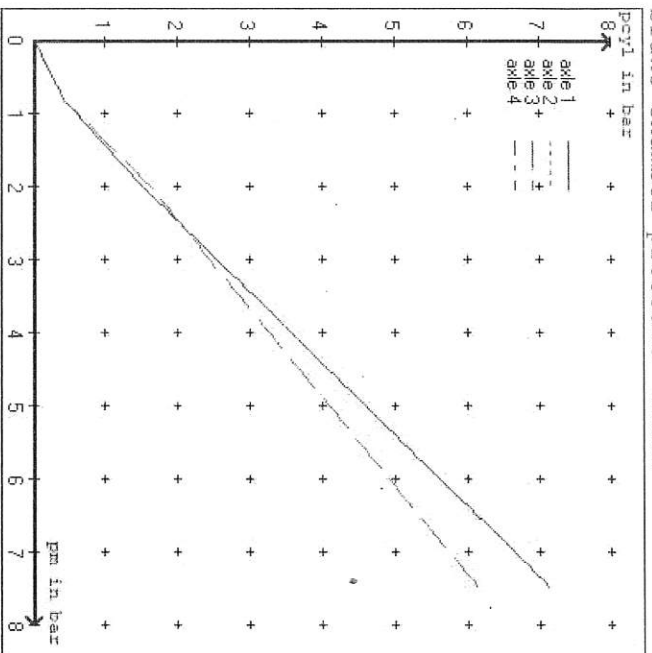
axle 3:

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

brake cylinder: Meritor 1624HTLD64

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	





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  
 6.5 bar z = 0.600

axle	control pressure pm		brake pr. unladen	axle load laden	control pressure pm		brake pr. laden		
	axle load unladen	bellow pr. unladen			bellow pr. laden	0.8	2.0	6.5	
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 pcyl	axle load pcyl	axle load pcyl	axle load pcyl
1400 1.6	1400 1.6	1200 1.3	1200 1.3
1900 2.0	1900 2.0	1700 1.6	1700 1.6
2400 2.3	2400 2.3	2200 1.9	2200 1.9
2900 2.7	2900 2.7	2700 2.3	2700 2.3
3400 3.1	3400 3.1	3200 2.6	3200 2.6
3900 3.4	3900 3.4	3700 2.9	3700 2.9
4400 3.8	4400 3.8	4200 3.2	4200 3.2
4900 4.2	4900 4.2	4700 3.5	4700 3.5
7500 6.1	7500 6.1	7500 5.3	7500 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	361-071-04 ECE Re 432	brake lining: ROR 8616 AF (M13)
test report :		date : GA310709
axle 2 : reference axle: Assali SteFTM or LM or LGen	361-071-04 ECE Re 432	brake lining: ROR 8616 AF (M13)
test report :		date : GA310709
axle 3 : reference axle: Assali SteFTM or LM or LGen	361-071-04 ECE Re 432	brake lining: ROR 8616 AF (M13)
test report :		date : GA310709
axle 4 : reference axle: Assali SteFTM or LM or LGen	361-071-04 ECE Re 432	brake lining: ROR 8616 AF (M13)
test report :		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
	(hot)braking

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
	(hot)braking

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
TRISTOP-actuator type          LBh in mm
lever length                    74
stat. tyre radius              rstat max in mm
                                401
at a stroke of                 s      in mm
min. force of spring brake     TFFZ in N
sp.brake chamber no Meritor.....
release pressure               pls in bar
    
```

	axle 3	axle 4
	2	2
	T.16/24	T.16/24
	74	74
	401	401
	30	30
	7605	7605
	4	4
	4.8	4.8

calculation:

```

ratio until road              3.7388      3.7388
iFb = LBh*Eta*C*rBt/(rBn*rstat)
                                for rstat in mm
brake force of spring br. Tf  401          401
Tf = (TFFZ*KDZ-2*Co/LBh)*iFb  56159     56159
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 fulfil the regulations

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

```

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)
    
```

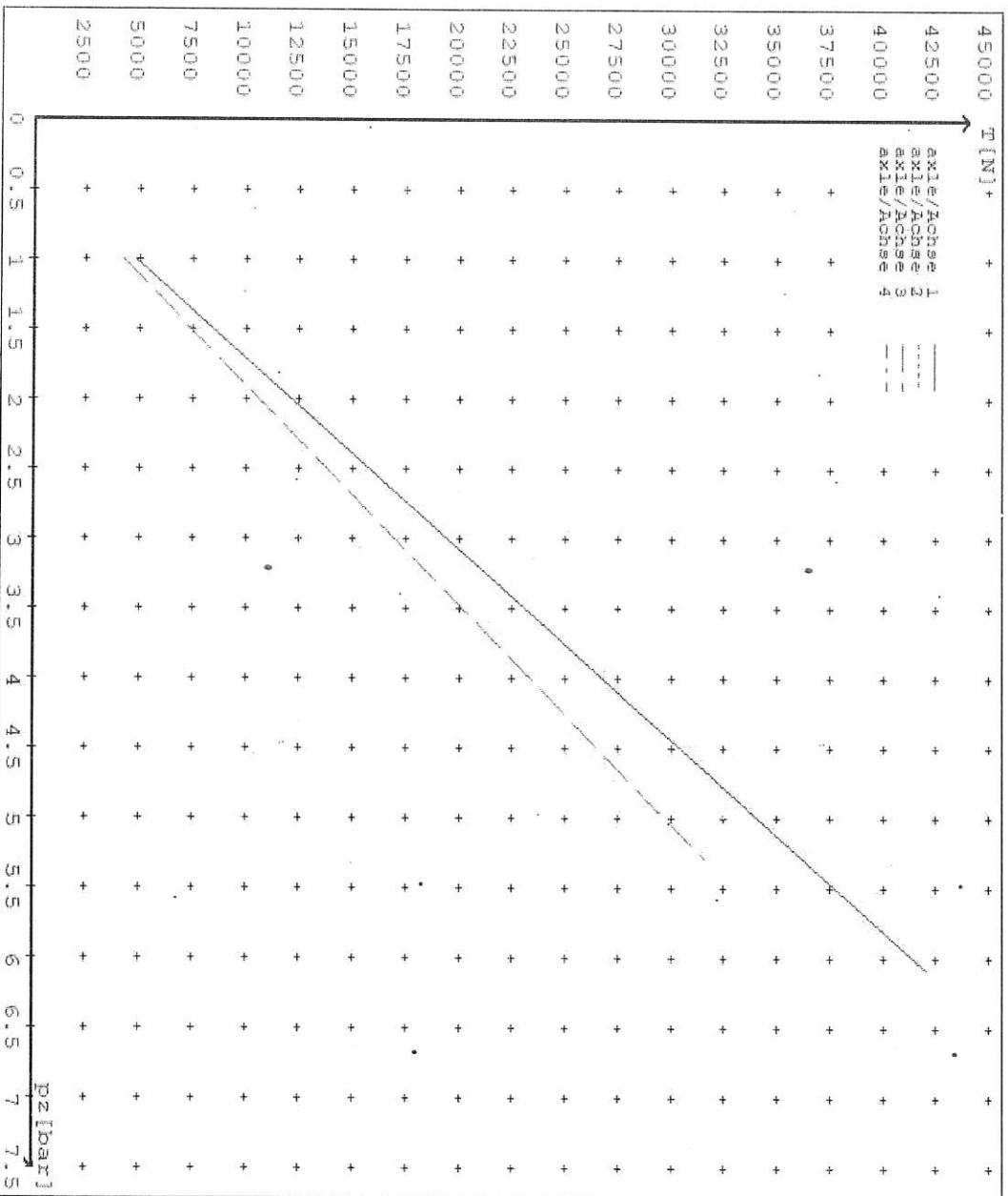
**reference values**

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:** FONTERRA

**VEHICLE DETAILS**

**VEHICLE TYPE:** 4A TANKER **CERT #:** LC220901  
**YEAR:** 2022 **CALCULATION #:** 2022 SAF 4A WPC  
**MAKE:** DOMETT **REGO #:**  
**MODEL:** D1001 **LT400 #:** 837732  
**CHASSIS #:** 2168 **ORDER #:** 8858  
**VIN #:** 7A9D10012N2023168

**GVMI: 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:**

**ROLLING CIRCUMFERENCE: MM**

2645	2645
------	------

**AXLE SPACING: m**

1.3	1.3
-----	-----

**BRAKE & AXLE DETAILS**

	MAKE	MODEL	TEST REPORT
AXLE:	ROR_ASSAL_STEFFEN	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		
SERIAL NUMBERS:	NOTES:		
	1		
	2		
	3		
	4		
	5		

**CHAMBER AND VALVING DETAILS**

	AXLE 1 & 2	AXLE 3 & 4	AXLE 5
CHAMBERS:	HALDEX_CHAMBERS	HALDEX_BERTOCCO	N/A
BRAND:	20, (125 200)	1624 (342.162.401)	N/A
SIZE:	66	57	
STROKE: mm	BC0175.0	BZ130.0	
TEST REPORT #:	N/A	7.66	
SPRING BRAKE FORCE: kN	N/A	5	
HOLDOFF PRESSURE: Bar	MERITOR	MERITOR	
FOUNDATION BRAKE:	74	74	N/A
LEVER LENGTH: mm	MAKE:	PART NUMBER:	PM 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	
INLINE RELAY FITTED:	<input checked="" type="checkbox"/> FRONT	<input type="checkbox"/> REAR	FRONT FRICTION: $\mu$ 0.51
ECU DIRECTION:	<input type="checkbox"/> SMARTBOARD	<input type="checkbox"/> OPT-LINK	<input type="checkbox"/> CAN ROUTER 446 122 050 0
SUBSYSTEMS:	<input type="checkbox"/> ELEX 446 122 070 0	<input type="checkbox"/> 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:	HALDEX 90554950	HALDEX 90554950
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
DUMP SWITCH:		PNEUMATIC
LIFT AXLE VALVE:		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:

280
-----

290
-----

320
-----

**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.

**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:

7/09/2022

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