



Heavy Vehicle Specialist Certificate

Heavy Vehicle Specialist Inspector and Inspecting Organisation

Heavy Vehicle Specialist Inspector's Name (PRINT IN CAPS)

CHRIS CLARKE

ID

CCR

Vehicle Registration*

6604C

VIN / Chassis Number

7A8H9000296112725

Component being certified:

Chassis Modification

Load Anchorage

Log Bolsters

Towing Connection

Brakes

SRT

Certification Category

HUEK

Description of Work

CARRY OUT SET UP OF TRAILER EBS SYSTEM
IN COMPLIANCE WITH THE NZ HEAVY VEHICLE
BRAKE RULE

Code/Standard Certified to

HUBNZ 32015 SCHED 5

Component Load Rating(s)

N/A

General Drawing Number(s)

N/A

Supporting Documents

KNORR - BREITSE BSD PERFORMANCE CALCULATION.

*Special Conditions

N/A

Certification Expiry Date (if applicable)

N/A

or

Hubodometer Reading (whichever comes first)

Hubodometer Reading grid

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

21.09.2009

Number

322444

COF Vehicle Inspector ID:

WIKIAP

COF Vehicle Inspector Signature:

[Signature]

Date

22-9-09

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



Company: Genese Ltd
 Author: Chris Clarke

Created: 21/09/2009 Document: 7A8H9000296112725
 Modified: 21/09/2009 Page: 1 / 7

Database version: 9.0.13

Calculation in accordance with ECE Regulation 13 (10 Series) and EEC Directive 71/320 EEC (2002/78/EC) using Knorr-Bremse Braking System Designer software (level 9.0).
 Results based on vehicle data and components as defined by the Braking System Designer program user.
 No liability assumed by Knorr-Bremse regarding the use of non-Knorr-Bremse product data.

Customer: Fonterra Co-operative Dairies Ltd

Vehicle: 7A8H9000296112725

Project: 4 axle full trailer

Vehicle

Type 2x2 Drawbar trailer

Calculated effective wheelbase [m] 4.85

Laden (max.) mass [kg] 26000.00

Laden (max.) front axle group load [kg] 13000.00

Laden vertical position of CoG [m] 1.80

Unladen (min.) mass [kg] 5820.00

Unladen (min.) front axle group load [kg] 2960.00

Unladen vertical position of CoG [m] 1.20

Laden/unladen front air spring press. [bar] -/-

Laden/unladen rear air spring press. [bar] 4.03/0.54

Axles

Type	Axle 1	Axle 2	Axle 3	Axle 4
MERITOR (ROR)	MERITOR (ROR)	MERITOR (ROR)	MERITOR (ROR)	MERITOR (ROR)
361-0071-04-FBKV	361-0071-04-FBKV	361-0071-04-FBKV	361-0071-04-FBKV	361-0071-04-FBKV
305/70 R 22.5	305/70 R 22.5	305/70 R 22.5	305/70 R 22.5	305/70 R 22.5

Dyn. tyre radius [mm] 485 485 485 485

Stat. tyre radius [mm] 462 462 462 462

Brake type Disc Disc Disc Disc

Brake size [mm] Eisa195 LE Eisa195 LE Eisa195 LE Eisa195 LE

or drum/disc radius [mm] 340x200 340x200 340x200 340x200

Actuator size 16 16 16/24 16/24

Actuator force at 6,5 bar [N] 6590 6590 6588 6588

Stack adjuster length [mm] - - - -

Thresh.mom. [Nm] or force [N] 81.00 81.00 81.00 81.00

Brake Factor by Annex 19 20.3 20.3 20.3 20.3

Discbrake lever length [mm] 74 74 74 74

Internal brake factor (C¹) - - - -

Mechanical efficiency (Eta) - - - -

Internal brake factor x - - - -

Mech. efficiency (C² x Eta) - - - -

S-Cam radius [mm] or mech.ratio or wedge angle[-] - - - -

Friction material ROR 8616 AF ROR 8616 AF ROR 8616 AF ROR 8616 AF

Calculation pressure [bar]: 6.5

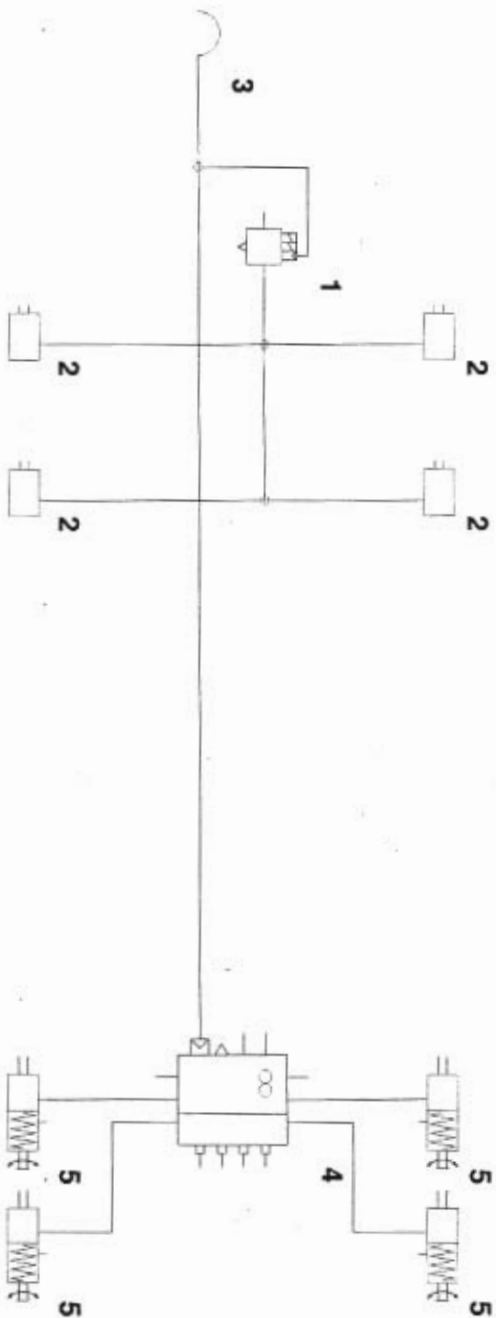
Warning! This brake calculation has been produced using information from a source not controlled by Knorr-Bremse. The results produced by this calculation are therefore dependent upon the accuracy of this information and Knorr-Bremse does not take responsibility for any resulting errors.



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Modified: 21/09/2009 Page: 2 / 7

Database version: 9.0.13



Part list

No.	Name	Type	Characteristics	Qty.
1	ABS Modulator	BR9234	-	1
2	Brake Chamber	ROR	-	4
3	Coupling head - brake	KU1400	-	1
4	Trailer-EBS ECU	ES20..	-	1
5	Spring Brake Actuator	ROR	-	4

Calculation pressure [bar]: 6.5

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System components

No.	Name	Type	Characteristics
1	ABS Modulator	BR9234	Sensors on axle 2
2	Brake Chamber 16" stroke: 64	ROR	BZ 122.1 15/09/2000
3	Brake Chamber 16" stroke: 64	ROR	BZ 122.1 15/09/2000
4	Brake Chamber 16" stroke: 64	ROR	BZ 122.1 15/09/2000
5	Brake Chamber 16" stroke: 64	ROR	BZ 122.1 15/09/2000
6	Coupling head - brake	KU1400	-
7	Trailer EBS ECU	ES20..	Sensors on axle 4
8	Spring Brake Actuator 16/24" stroke: 64/64	ROR	BZ 119.6 01/02/2001
9	Spring Brake Actuator 16/24" stroke: 64/64	ROR	BZ 119.6 01/02/2001
10	Spring Brake Actuator 16/24" stroke: 64/64	ROR	BZ 119.6 01/02/2001
11	Spring Brake Actuator 16/24" stroke: 64/64	ROR	BZ 119.6 01/02/2001

Calculation pressure [bar]: 6.5

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Document: 7A8H9000296112725
Page: 4 / 7

Database version: 9.0.13

Laden vehicle

	Intact system	Front circuit only	Rear circuit only	Calculation press.
Deceleration [m/s ²]	6.57	-	-	5.53
Pressure [bar]	8.50	-	-	6.50

Calculation pressure [bar]: 6.5

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Page: 5 / 7

Database version: 9.0.13

Miscellaneous

Coupling head pressure where z = 22.5% (laden case)

Pressure [bar] : 2.90

Brake chamber pressure [bar] where z = 22.5% (laden case)

Axle1 : 2.76 Axle2 : 2.76 Axle3 : 2.46 Axle4 : 2.46

Automatic braking performance (at 6.0 [bar], laden case)

Deceleration [m/s²] : 3.58

Braking rate [%] 36.5

Vehicle performance in case of a load sensing device control failure (at 6.5 [bar], laden case)

Front axle group

Deceleration [m/s²] : -

Braking rate [%] -

Rear axle group

Deceleration [m/s²] : 5.53

Braking rate [%] 56.4

Calculation pressure [bar] : 6.5

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Trailer EBS parameters

Number of axles: 4
 Number of teeth: 90
 Dynamic tyre radius [cm]: 48.5
 Inshot pressure [bar]: 0.48
 Coupling head pressure [bar]: 0.70
 Pressure compensation (at 1.6 bar) [bar]: 0.20
 Output pressure (at 6.5 bar) [bar]
 Laden: 5.40
 Unladen: 1.60
 Air spring pressure [bar]
 Laden : 4.03
 Unladen : 0.54
 Axle boogie load [kg]
 Laden: 13000
 Unladen: 2860
 Pressure limitation [bar] 5.40
 Slip differential [%] -0.20

Corresponding sheet on the PC Diagnostic tool (ECU Talk)

Coupling head pressure [bar]	Brake chamber pressure [bar]	
	Unladen	Laden
0.70		0.48
1.6	0.71	1.44
6.5	1.60	5.40

Brake pressure compensation at 1.6 bar coupling head pressure [bar]		0.20

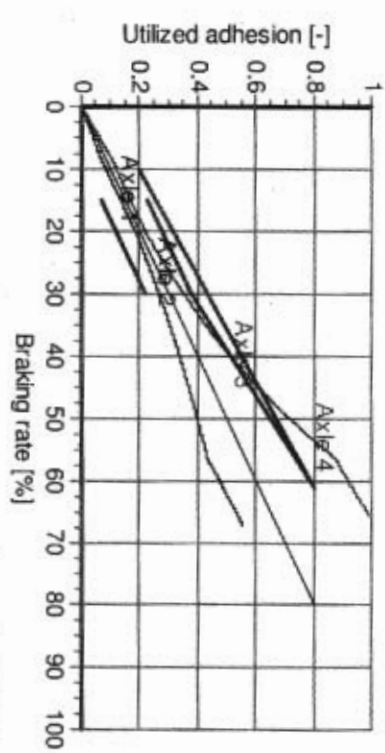
Air spring pressure [bar]	Unladen :		Laden :	
	Unladen	Laden	Unladen	Laden
0.54		4.03		
2860	2860		13000	

Calculation pressure [bar]: 6.5

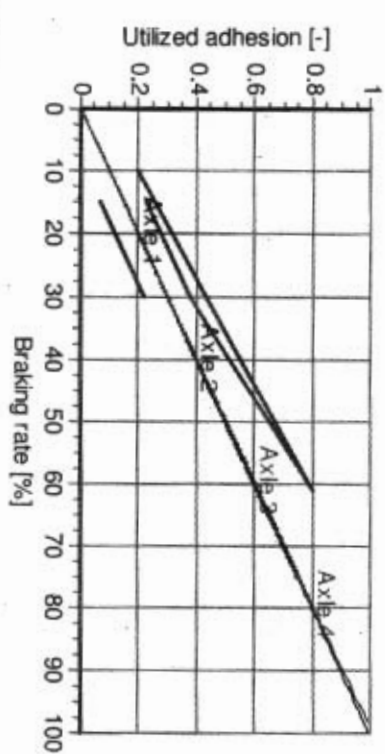
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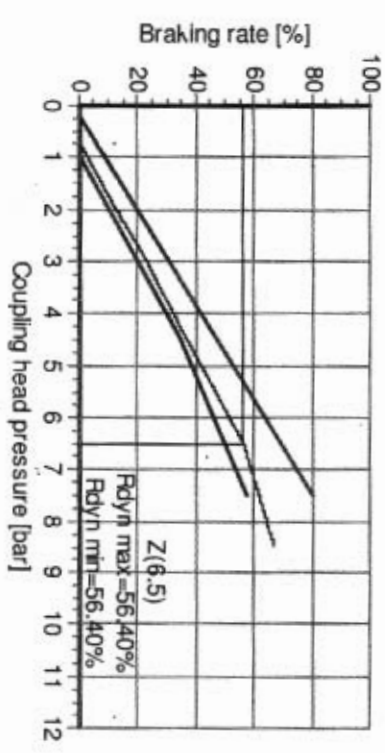
Laden vehicle - adhesion utilisation



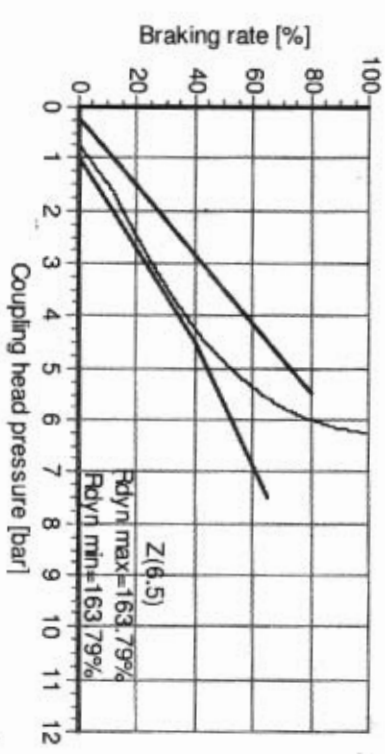
Unladen vehicle - adhesion utilisation



Laden vehicle - compatibility



Unladen vehicle - compatibility



Calculation pressure [bar]: 6.5

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Heavy Vehicle Specialist Inspector and Inspecting Organisation

Heavy Vehicle Specialist Inspector's Name (PRINT IN CAPS)

NICHOLAS WATSON

ID

NBW

Vehicle Registration*

6604C

VIN / Chassis Number

7A8H9000296112725

Component being certified:

Chassis Modification

Load Anchorage

Log Bolsters

Towing Connection

Brakes

SRT

Certification Category

MVEC

Description of Work

Certify replacement of axles & suspension on 1996 Domett tanker.

Code/Standard Certified to

LR Rule 31002

Component Load Rating(s)

unchanged.

General Drawing Number(s)

-

Supporting Documents

Nation Mechanical file # 333857

*Special Conditions

-

Certification Expiry Date (if applicable)

-

or

Hubodometer Reading (whichever comes first)

Hubodometer Reading grid

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)

Designer's ID field

Inspector's / Delegate's Signature

Nicholas Watson

*Delegate's Name (PRINT IN CAPS)

Delegate's Name field

Date

21/09/09

Number

333857

COF Vehicle Inspector ID:

Nicholas Watson

COF Vehicle Inspector Signature:

Nicholas Watson

Date

22-9-09

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