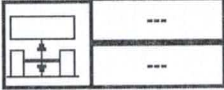
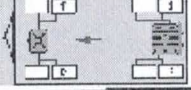


WABCO START-UP PROTOCOL

System	Trailer EBS-E	WABCO part number	480 102 080 0
Production date	2013-08-13	Serial number	897001508500E
Serial number (modulator)	000000022961		
Fingerprint Customer EOL / Customer Development / Flash Program	W503643 / 2014-06-18 ; 00000000 / 0000-00-00 ; 00000000 / 0000-00-00		

WABCO				TRAILER EBS-E				GGVS/ADR TUEH TB 2007 - 019.00 TDB0749																							
HERSTELLER MANUFACTURER CONSTRUCTEUR		DOMETT T&T		GIO		Pin1		Pin3		Pin4																					
TYP TYPE TYPE		4AFT		1		---		---		---																					
FAHRZEUG IDENTNR. CHASSIS NUMBER NUMERO DE CHASSIS		7A9D70014E1023287		2		---		---		---																					
BREMSBERECHNUNGS-NR. BRAKE CALCULATION NO. CALCUL DE FREINAGE NO.		TP50910A		3		ALS2		ALS2		---																					
POLRADZAHNEZAHL c-d e-f POLE WHEEL TEETH c-d e-f DENTS ROUE DENTÉE c-d e-f		90 90		4		---		---		---																					
ABS-System ABS system Système ABS		4S/3M		5		DIAG		DIAG		DIAG																					
RSS RSS RSS		Einfachbereifung Single Tire Monte simple		Lenkachse Steering axle Essieu vireur		---		---		---																					
RSS RSS RSS		Zwillingsbereifung Twin Tire Monte jumelée		X		Kippkritisches Fahrzeug Critical Trailer Vehicule critique		---		---																					
Subsystems		SB		I/O		24N																									
ACHSE AXLE ESSIEU		pm (bar)		6.5		pm (bar)		0.7		2.0		---		6.5		pz		TYP TYPE		(mm)		(mm)		(bar)		1.0		Pz			
1		1400		0.7		2.1		7250		4.8		0.3		1.5		---		6.6		-		14		64		69		522		4255	
2		1400		0.7		2.1		7250		4.8		0.3		1.5		---		6.6		-		14		64		69		522		4255	
3		1600		0.8		1.7		7250		4.8		0.3		1.5		---		4.5		-		14 / 16		64		69		522		2855	
4		1600		0.8		1.7		7250		4.8		0.3		1.5		---		4.5		-		14 / 16		64		69		522		2855	
5		0		---		---		0		---		---		---		---		---		-		---		---		---		---		---	

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

Diagnostic memory ELEX	Not tested	Signal outputs ELEX	Not tested
TailGUARDlight	Not tested	TailGUARD	Not tested

Manufacturer	DOMETT T&T	Vehicle ident. no	7A9D70014E1023287
Vehicle type	4AFT	Odometer reading	0.0 km
next Service	0 km	Trip reading	0.0 km
Tester	Chris Clarke	Signature	
Date	2014-06-18 12:26:04 p.m.		

WABCO

START-UP PROTOCOL

Vehicle ident. no

7A9D70014E1023287

Configuration of the lifting axle valves

Lifting axle 1

LACV

Lifting axle 2

LACV

Braking pressures

Predominance CAN 0.0

Predominance pm 0.0

Distance Axles / Tread width

Tread width 2.04

Second axle - Additional axle 3.7

Coupling head - First axle 2.7

Additional axle - Fourth axle 1.3

First axle - Second axle 1.3

Fourth axle - Fifth axle ---

Diverse

- X Warning lamp goes out after 2 seconds (ECE-R13)
- Warning lamp goes out at $v > 7$ km/h

Tire circumf. [mm]

- Tire circumference Axle c-d 2650
- Tire circumference Axle e-f 2650

- Indicate service moment via lamp

Service interval (km) 0

CAN messages

- X EBS23 Standard
- EBS23 group bit
- EBS22 no output of total axle load
- RGE22 no output for single axle loads
- X Support 12V CAN Bus

TEBS function selection

Standard functions

- Speed switch1 (ISS1)
- Speed switch2 (ISS2)
- Lifting axle control1 (ILS1)
- Lifting axle control2 (ILS2)
- X External axle load sensor e-f (ALS2)
- Traction help (TH)
- Lifting axle forced lowering (FL)
- Wear final value (LWI)
- X Diagnosis / Telematic system GIO5 (DIAG)
- Road finisher brake / Trailer extending control (FB)
- X Stop light power supply (24N)
- Unloading level (D-SW)
- Normal level 4 (FN4-SW)

- Desired pressure sensor on R/R (DPS-RR)
- Output emergency brake light (EBA)
- Trailer Safety Brake (TSB)
- Generic Operating Hour Counter (GOHC)
- ELM (ELM)
- External ECAS (eECAS)
- Bounce Control (relaxation function) (TR-SW)
- Brake release function (BR-SW)
- Lifting/Lowering button (LF-SW/LW-SW)
- Normal level button (NL-SW)
- Shut-off switch Level control (LC-SW)
- Freely configurable digital function (FKD-I)
 - with output (FKD-O)
- Freely configurable analogue function (FKA-I)
 - with output (FKA-O)
- Freely configurable function 1 (FCF1)
- Freely configurable function 2 (FCF2)
- Immobilizer (IM)
 - Output for buzzer (IM-SU)
- Forklift operation (FLC)

Special functions

- Traction help with res. press. maint. (TH+)
- OptiTurn / OptiLoad (MH)
- OptiTurn / OptiLoad plus (MH+)
- External axle load sensor c-d (ALS1)
- Second ext. Axle load sensor c-d (S-ALS1)
- External desired pressure sensor (DPS)
- ABS active signal (ABS-O)
- RSS active signal (ABS-O)
- Speed signal (V-S)
- Steady positive voltage 1 (24V-O1)
- Steady positive voltage 2 (24V-O2)
- Tilt alert (Tilt warning) (TW)
- Steering axle lock (SAC)

Subsystems

- IVTM (IVTM)
- Remote control unit (RCU)
- Control box (RCB)
- X SmartBoard (SB)
- Telematic system (TS)
- ELEX (ELEX)

WABCO

START-UP PROTOCOL

Vehicle ident. no		7A9D70014E1023287					
ISS	On (km/h)	Off (km/h)	Level	RTR Pulse	Cable break	Light	Valve
ISS 1	15	10	-	X	X	-	X
ISS 2	15	10	-	X	X	-	X
Automatic lifting axle control							
	Lift (Bar)	Lower	Lift (km/h)	Lifting axle function (OptiTurn/OptiLoad) interrupted with parking brake engaged			X
Lifting axle 1	0.0	0.0	0	Lower with ignition off			X
Lifting axle 2	0.0			Tag axle residual pressure control			-
				Residual pressure Tag axle (bar)			0.5
Lifting axle control with OptiLoad or Forklift detection							
Raise lifting axle 1 (bar)	0.0	Raise lifting axle 2 (bar)	0.0	X	Mechanical switch		
Lower lifting axle 1 (bar)	0.0	Lower lifting axle 2 (bar)	0.0	-	Proximity switch		
Forced lowering lifting axle							
X Button	- Switch	- Activation via SmartBoard		X All lifting axles	- Only 2nd lifting axle		
Automatic wheelbase control Switch level detection							
- +24v only		- Ground only		X	Ground and +24v		
- Continuous actuation							
Traction help							
		- Traction help automatic with curve detection			- Only partial-/full-load		
		- Traction help with ignition on					
		End at (km/h)	Pressure limitation (bar)		Duration (s)		
Traction help		30	0.0		0		
- Off-road traction help		30	0.0		0		
Activation	X Button		- Button and brake		- Only brake		
OptiTurn							
- Underspeed		- Curve detection with partial/full load	End at (km/h)		30		
- Curve detection		- Via SmartBoard	Pressure limitation (bar)		0.0		
OptiLoad							
Start (km/h)	0	Activate with			Automatic at speed		
Pressure limitation (bar)	0.0				- only at partial-/full-load		
Second lifting axle charact.	-				- Manually via button		
Level control							
Speed at which adjustment to normal level is triggered	15	X	Dead-man switch (continuous button actuation)				
	- Normal level 2	- Normal level 3	Normal level 4/unloading level				
Front axle	0	0	0				
Rear axle	0	0	0				
Speed on (km/h)		60					
Speed off (km/h)		40	10				
Activation via	- Smartboard	- Remote control unit	- Smartboard				
- Separate lifting/lowering left/right via remote control unit							
- Level control shut-off via SmartBoard							
Unloading level switch	X Mechanical	- Proximity switch	- Proximity switch with separate switch				

Vehicle ident. no

7A9D70014E1023287

ECAS special parameter

Control delay	
Control delay when stopped (s)	1
Control delay when driving (s)	60
Control delay at stand-by (s)	15
Stop time for normal level control with lift/lower button (s)	2.0

Tolerances

Tolerance front axle (mm)	10
Tolerance rear axle (mm)	10
Permissible right/left deviation rear axle (mm)	20
Maximum deviation right/left or front/rear outside the levels during the lifting/lowering process (s)	50

Lowering

Lower onto buffer	X
Lower to lower calibrated level	-

Lifting axle offset

Lifting axle offset	-
Reference of normal level	

Standby operation

Trailer battery installed	-
Activation of standby-mode	
X By pressing Stop button	
- Automatically with ignition off	
Tolerance in Standby (mm)	20
Standby time (h/min)	0/00

To the lowest normal level	-
To the currently selected normal level	X
Normal level height increase when lifting axle is raised(mm)	0
Normal level height increase with traction help/OptiTurn/OptiLoad (mm)	0

Plausibility

Limit plausibility check during the lowering process at the front axle (mm)	20
Limit plausibility check during the lowering process at the rear axle (mm)	20
Period plausibility check (s)	30

ECAS with eTASC / Rotary slide valve

After ignition, actual level is same as nominal level	X
No level control at a standstill	-
Manual lifting / lowering (eTASC)	-

Other functions

Tire deflection compensation (25mm when fully laden)	X
Front (mm)	25
Rear (mm)	25
Normal level control with reduction in bellows pressure differences (only ECAS 2 point control)	-
Permissible bellows pressure	12.0
Vehicle speed up to which manual height changes are permitted (km/h)	10

Green ECAS warning lamp

Installed	-	as LED	-
Behaviour upon faults			
Flashes 4 times after ignition on	-		
Flashes permanently	X		

Immobilizer

Buzzer output	X permanent	- periodic
Connected Components	X Valve (buzzer)	- Light
Emergency release function		-
Unlock only with engaged parking brake		X

Proximity switch

Switching threshold (µA)	600
--------------------------	-----

Steering axle lock

As of speed	30	After reverse driving, disable up to speed (km/h)	10
Level inverted	-	Activation via switch	-
with raised lifting axle	X	Reverse detection via ELEX	X

WABCO

START-UP PROTOCOL

Vehicle ident. no

7A9D70014E1023287

Road finisher brake / Trailer Extending Control

- Without load-dependent braking pressure (LSV) Pressure test pm (bar) 1.5
- Pressure adjustment with hand brake lever Function active until (km/h) 10
- Actuation only via SmartBoard (no switch required)

Switch

Level recognition

X Mechanical switch

X Ground only

- Proximity switch

- +24v only (with resistance cable)

- Proximity switch and separate switch

- Road finisher brake, Deactivation unloading level during road finisher operation

- Trailer Extending Control, only brake rear aggregate

Trailer Safety Brake

- Tank truck/Container truck X Tipper
- Function can be deactivated with SmartBoard or Trailer Remote Control
- Input signal Proximity switch
- Pressure 3.0
- Display via separate warning lamp

Emergency brake light output

- Actuation permanent X Actuation periodic
- LED installed 3 Frequency (Hz)

Bounce Control

- Actuation only via SmartBoard (no push-button required)

Brake release function

- Actuation only via SmartBoard
- For wood hauling trailers up to 5km/h

Freely configurable digital function (GIO-FKD)

Function name

Input

If switch and speed

- opens X greater than

X closes - less than
15 km/h

Function

after (s) 180

- Switch output
- Invert output
- Save event

Connected Components

X Valve - Light

Duration of function

for (s) 180

or until speed

30 km/h X exceeds
- drops below

Freely configurable analogue function (GIO-FKA)

Function name

Input

When input voltage and speed

Voltage 3.5 X greater than

X exceeds - less than

- drops below 15 km/h

Function

after (s) 180

- Switch output
- Invert output
- Save event

Connected Components

X Valve - Light

Duration of function

for (s) 180

or until speed

30 km/h X exceeds
- drops below

Connected Components

	Valve	Light	Cable break detection	no standby
ABS active signal	X	-	X	
RSS active signal	X	-	X	
Steady positive voltage 1			X	-
Steady positive voltage 2			X	-
Speed signal			X	

WABCO

START-UP PROTOCOL

Vehicle ident. no

7A9D70014E1023287

Operating Hour Counter

Service name		-	Display with ABS lamp
Service interval	0	-	Display via external signal light
Input signal	Internal signal	X	Service interval can be reset
Signal name	---	-	Service interval can be changed
Conditions	Active	Threshold value (V)	3.5

Tilt alert (Tilt warning)

Maximum permissible tilt angle (degree)	2	Connected Components
		X Valve
- Display only via SmartBoard (no output required!)		- Light

trailer (full, semi-, centre-axle) with air brake system acc. to UN/ECE-R.13.11

distribution: DOMETT T&T
7A9D70014E1023287
SODC:JH140613

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 (V6.13.06.12).
-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 V6.13.06.12 db 12.06.2013

vehicle manufacturer: DOMETT T&T
trailer model : 4AFT
trailer type : 4-axle-full-trailer
remarks : air / hydraulic / VA suspension
WABCO TRAILER - EBS E
TRISTOP 3+4: T.14/16
265/70 R 19,5

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

		<u>unladen</u>	<u>laden</u>
total mass	P in kg	6000	29000
axle 1	P1 in kg	1400	7250
axle 2	P2 in kg	1400	7250
axle 3	P3 in kg	1600	7250
axle 4	P4 in kg	1600	7250
wheel base	E in mm	4930 - 4930	
centre of gravity height	h in mm	1009	2048

	<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	14.	14.	T.14/16	T.14/16
lever length	lBh in mm	69	69	69
brake factor	[-]	23.03	23.03	23.03
dyn. rolling radius	rdyn min in mm	421	421	421
dyn. rolling radius	rdyn max in mm	421	421	421
threshold torque	Co Nm	6.0	6.0	6.0

calculation:

chamber pressure(rdyn min)pH at z=22,5%bar	2.5	2.5	2.1	2.1
chamber pressure(rdyn max)pH at z=22,5%bar	2.5	2.5	2.1	2.1
chamber press.(servo)pcha at pm6,5bar bar	6.6	6.6	4.5	4.5
piston force ThA at pm6,5bar N	6389	6389	4285	4285
brake force(rdyn min)T lad. at pm6,5bar N	48343	48343	32440	32440
brake force(rdyn max)T lad. at pm6,5bar N	48343	48343	32440	32440
brake force within 1 % rolling friction proportion	%	25.0	25.0	25.0

braking rate z laden 0.568 for rdyn min
z = sum (TR)/PRmax 0.568 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: 971 002 ... 0 WABCO
 EBS emergency valve

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

brake cylinder: Meritor 14HSCLD64

axle 2:

valve 1: 971 002 ... 0 WABCO
 EBS emergency valve

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

brake cylinder: Meritor 14HSCLD64

axle 3:

valve 1: 971 002 ... 0 WABCO
 EBS emergency valve

valve 2: 480 102 ... 0 WABCO
 EBS trailer modulator

brake cylinder: Meritor 1416HTLD64

axle 4:

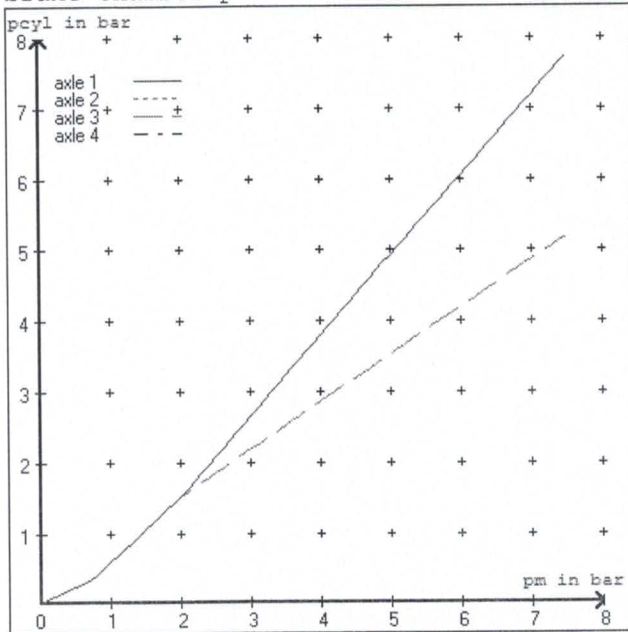
valve 1: 971 002 ... 0 WABCO
 EBS emergency valve

valve 2: 480 102 ... 0 WABCO
 EBS trailer modulator

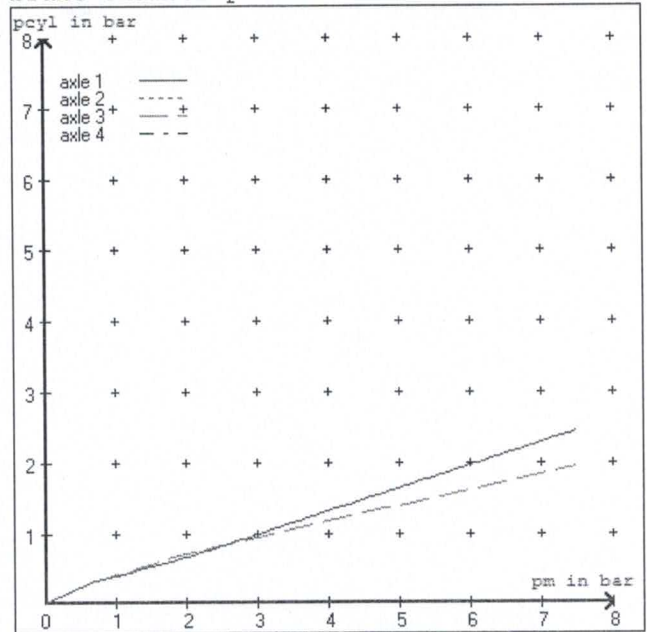
brake cylinder: Meritor 1416HTLD64

test type III	(zIII = 0.30)	for rdyn min :	axle1	axle2	axle3	axle4	
at pm	3.7 bar =>	pcha in bar :	3.4	3.4	2.6	2.6	
test type III	(zIII = 0.06)	for rdyn min :	axle1	axle2	axle3	axle4	
at pm	1.2 bar =>	pcha in bar :	0.8	0.8	0.8	0.8	

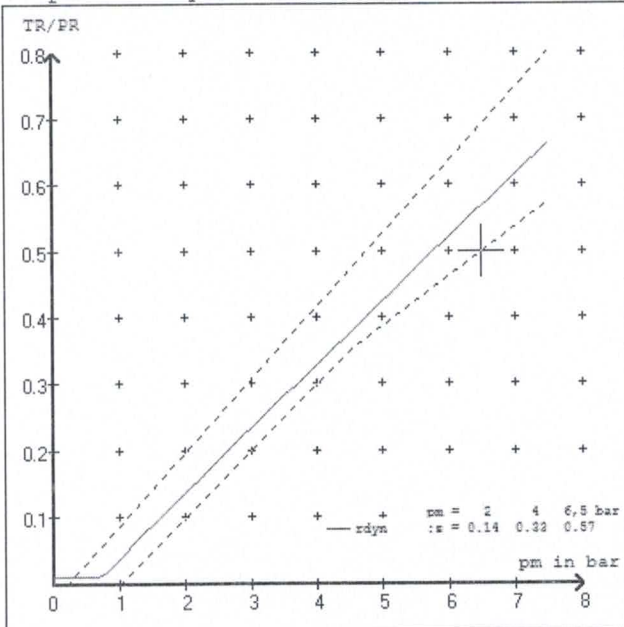
brake chamber pressure laden



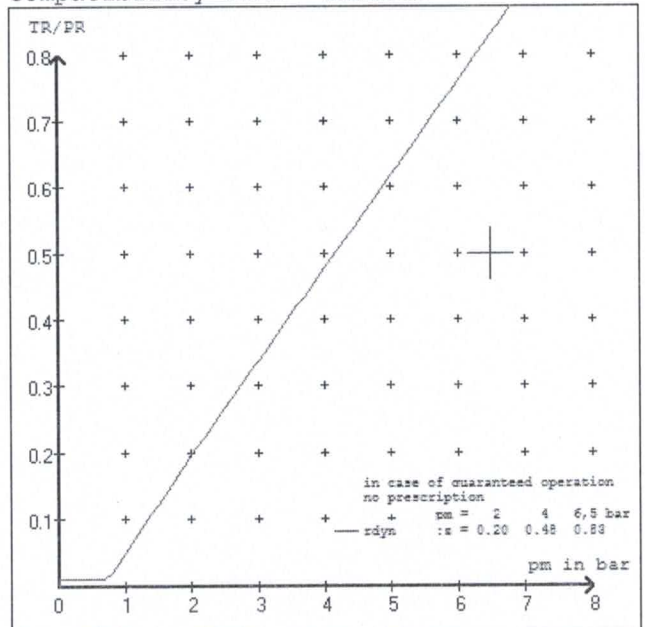
brake chamber pressure unladen



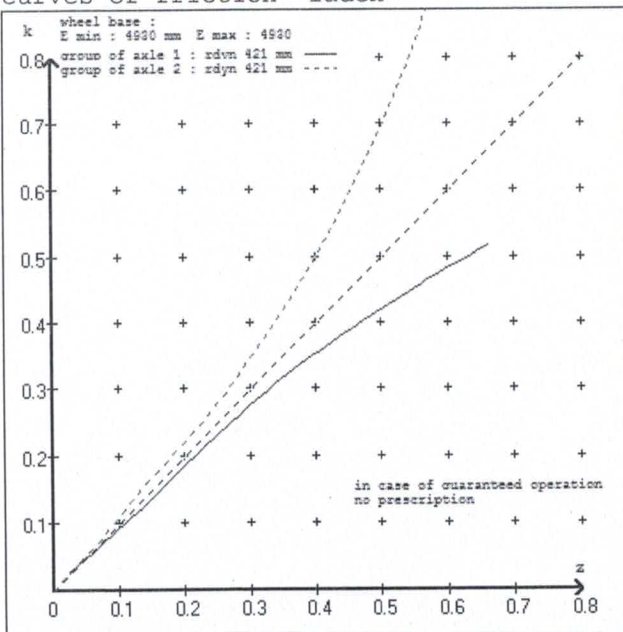
compatibility band laden



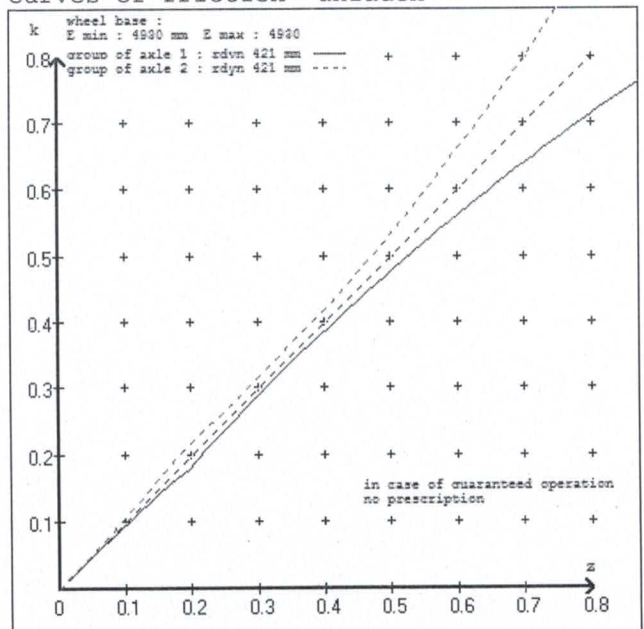
compatibility band unladen



curves of friction laden



curves of friction unladen



vehicle manufacturer: DOMETT T&T
 trailer model : 4AFT
 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.14/16 (Meritor) lever length 69 mm
 axle 4 : 2 x type/diameter T.14/16 (Meritor) lever length 69 mm

brake diagram :

valve :

971 002 ... 0 WABCO EBS emergency 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 T&T
 trailer model : 4AFT
 trailer type : 4-axle-full-trailer
 brake calculation no. : TP 50910A

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

assignment pm / deceleration z: pm 0.7 bar z = 0.010
 (laden condition) 2.0 bar z = 0.138
 6.5 bar z = 0.570

control pressure pm			6,5	control pressure pm			0.7	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	2.1	7250	to be	0.3	1.5	6.6	
2	1400	entered by the vehicle manufact.	2.1	7250	entered by the vehicle manufact.	0.3	1.5	6.6	
3	1600		1.7	7250		0.3	1.5	4.5	
4	1600		1.7	7250		0.3	1.5	4.5	
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 2.1	1400 2.1	1600 1.7	1600 1.7
1900 2.5	1900 2.5	2100 1.9	2100 1.9
2400 2.9	2400 2.9	2600 2.2	2600 2.2
2900 3.3	2900 3.3	3100 2.4	3100 2.4
3400 3.6	3400 3.6	3600 2.7	3600 2.7
3900 4.0	3900 4.0	4100 2.9	4100 2.9
4400 4.4	4400 4.4	4600 3.2	4600 3.2
4900 4.8	4900 4.8	5100 3.4	5100 3.4
7250 6.6	7250 6.6	7250 4.5	7250 4.5

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

axle 1	(rdyn 421 mm)	T = 24.3 % Fe
axle 2	(rdyn 421 mm)	T = 24.3 % Fe
axle 3	(rdyn 421 mm)	T = 18.3 % Fe
axle 4	(rdyn 421 mm)	T = 18.3 % Fe

calculated actuator stroke in mm
(item 4.3.1.1 of appendix 2 to annex 11)

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 = 6389 N
axle2	ThA = 6389 N
axle3	ThA = 4285 N
axle4	ThA = 4285 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 = 38057 N
axle 2	(rdyn 421 mm)	T = 38057 N
axle 3	(rdyn 421 mm)	T = 25593 N
axle 4	(rdyn 421 mm)	T = 25593 N

	basic test	type III
	of subject	(calculated)
	trailer (E)	residual
braking rate of the vehicle		(hot)braking
(item 4.3.2 to appendix 2 to annex 11)	0.57	0.45

required braking rate	>= 0,4 and
(items 1.5.3 and 1.7.2 to annex 11)	>= 0,6*E (0.34)

axle 1	(rdyn 421 mm)	T = 38057 N
axle 2	(rdyn 421 mm)	T = 38057 N
axle 3	(rdyn 421 mm)	T = 25593 N
axle 4	(rdyn 421 mm)	T = 25593 N

	basic test	type III
	of subject	(calculated)
	trailer (E)	residual
braking rate of the vehicle		(hot)braking
(item 4.3.2 to appendix 2 to annex 11)	0.57	0.45

required braking rate	>= 0,4 and
(items 1.5.3 and 1.7.2 to annex 11)	>= 0,6*E (0.34)

reference values

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

	pz [bar]	T [N]	T [N]
axle 1	1.0	5224	
	6.6	42555	
axle 2	1.0	5224	
	6.6	42555	
axle 3	1.0		5224
	4.5		28556
axle 4	1.0		5224
	4.5		28556

VIN - no.:

	Axle(s) / Achse(n)				
brake cylinder type (service / parking) Bremszylinder Typ (Betrieb / Fest)	14./	14./	T.14/16	T.14/16	/
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	

