



START-UP PROTOCOL

Vehicle ident. no	7A9E10014C1023096
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Configuration of the lifting axle valves			
Lifting axle 1	LACV	Lifting axle 2	LACV

Brake pressures			
Predominance CAN	0.0	Predominance pm	0.0

Distance Axles / Tread width			
Tread width	2.04	Second axle - Additional axle	4.5
Coupling head - First axle	2.0	Additional axle - Fourth axle	1.3
First axle - Second axle	1.3	Fourth axle - Fifth axle	1.3

Diverse		Tyre circumf. [mm]	
X	Warning lamp goes out after 2 seconds (ECE-R13)	Tyre circumference Axle c-d	2650
-	Warning lamp goes out at v > 7 km/h	Tyre circumference Axle e-f	2650
		CAN messages	
		X	EBS23 Standard
		-	EBS23 group bit
		-	EBS22 no output of total axle load
		-	RGE22 no output for single axle loads
-	Indicate service point via lamp	-	Support 12V CAN Bus
Service interval (km)	0		

TEBS function selection

<p>Standard functions</p> <ul style="list-style-type: none"> - Speed switch1 (ISS1) - Speed switch2 (ISS2) - Lift axle control1 (ILS1) - Lift 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) - Finisher brake / Trailer extending control (FB) - Stop light supply (24N) - Unloading level (D-SW) - Normal level 4 (FN4-SW) 	<ul style="list-style-type: none"> - Des.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) <ul style="list-style-type: none"> - with output (FKD-O) - Freely config. analogue function (FKA-I) <ul style="list-style-type: none"> - with output (FKA-O) - Freely configurable function 1 (FCF1) - Freely configurable function 2 (FCF2) - Immobilizer (IM) <ul style="list-style-type: none"> - Output for buzzer (IM-SU) - Forklift operation (FLC)
<p>Special functions</p> <ul style="list-style-type: none"> - Traction help with res. press. maint. (TH+) - OptiTurn / OptiLoad (Maneuver assistance) (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) 	<p>Subsystems</p> <ul style="list-style-type: none"> - IVTM (IVTM) - Remote control unit (RCU) - Control box (RCB) - SmartBoard (SB) - Telematic system (TS) - ELEX (ELEX)



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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 lift axle control							
	Lift (Bar)	Lower	Lift (km/h)	Lift 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							
				-	Activation via SmartBoard		
X	Button	-	Switch	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 hlp		30		0.0		0	
Activation		X	Button	-	Button and brake		- Only brake	

Maneuver assistance							
-	Underspeed		-	Curve detection with partial/full load		End at (km/h)	30
-	Curve detection		-	Via SmartBoard		Pressure limitation (bar)	0.0

Drawbar load reduction							
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		

Height 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 raising/lowering left/right via remote control unit						
-	Height control shut-off via SmartBoard						
Unloading level switch	X	Mechanical		-	Proximity switch		- Proximity switch with separate switch

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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	
To the lowest normal level	-
To the currently selected normal level	X

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

Normal level increase when lifting axle is raised(mm)	0
Normal level increase with traction help/OptiTurn/OptiLoad (mm)	0

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)	X

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 test (s)	30

Other functions

Tyre impr. compensation (25mm when fully laden)	X
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Green ECAS warning lamp

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

Immobilizer

Output for buzzer	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
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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



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Finisher brake / Trailer Extending Control	
- Without load-dependent brake pressure (LSV)	Pressure definition 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	- Plus 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
Input signal	Proximity switch
Pressure	3.0
	- Function can be deactivated with SmartBoard or Trailer Remote Control
	- Display via separate warning lamp

Emergency brake light output	
- Actuation permanent	X Actuation periodic
- LED installed	3 Frequency (Hz)

Bounce Control	
- Activation only via SmartBoard (no push-button required)	

Brake release function	
- Activation 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) or until speed	
180	
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) or until speed	
180	
30 km/h	X exceeds
	- drops below

Connected Components				
	Valve	Light	Cable break detection	with no after-run
ABS active signal	X	-	X	
RSS active signal	X	-	X	
Steady positive voltage 1			X	-
Steady positive voltage 2			X	-
Speed signal			X	



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Operating Hour Counter

Service name		-	Display with ABS lamp
Service interval	0	-	Display via external signal lamp
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
- Display only via SmartBoard (no output required!)		X Valve
		- Light

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

distribution: DOMETT T&T
FONTERRA 5AX

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 (V6.12.08.27).
 -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 V6.12.08.27 db 30.08.2012

vehicle manufacturer: DOMETT T&T
 trailer model : 5AX F/T TANKER
 trailer type : 5-axle-full-trailer
 remarks : air / hydraulic / VA suspension
 WABCO TRAILER - EBS E
 TRISTOP 3+4: T.14/24
 265/70 R 19,5

axle 1 + 2 + 3 + 4 + 5 : SAF, PAN 19-1, TDB 0749 ECE,

		unladen	laden
total mass	P in kg	6100	34300
axle 1	P1 in kg	1400	7250
axle 2	P2 in kg	1400	7250
axle 3	P3 in kg	1100	6600
axle 4	P4 in kg	1100	6600
axle 5	P5 in kg	1100	6600
wheel base	E in mm	6465 - 6465	
centre of gravity height	h in mm	975	1600

	axle 1	axle 2	axle 3	axle 4	axle 5
no. of combined axles	1	1	1	1	1
no. of brake chambers per axle line KDZ	2	2	2	2	2
The power output corresponds to	BZ 122.1	BZ 122.1	BZ 119.6	BZ 119.6	BZ 122.1
brake chamber manufacturer	Meritor	Meritor	Meritor	Meritor	Meritor
chamber size	14.	14.	T.14/16	T.14/16	14.
lever length lbh in mm	69	69	69	69	69
brake factor [-]	23.03	23.03	23.03	23.03	23.03
dyn. rolling radius rdyn min in mm	421	421	421	421	421
dyn. rolling radius rdyn max in mm	421	421	421	421	421
threshold torque Co Nm	6.0	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	2.2
chamber pressure (rdyn max) pH at z=22,5%bar	2.3	2.3	2.2	2.2	2.2
chamber press. (servo) pcha at pm6,5bar bar	5.8	5.8	5.4	5.4	5.4
piston force ThA at pm6,5bar N	5588	5588	5187	5187	5187
brake force (rdyn min) T lad. at pm6,5bar N	42285	42285	39192	39192	39192
brake force (rdyn max) T lad. at pm6,5bar N	42285	42285	39192	39192	39192
brake force within 1 % rolling friction proportion %	20.0	20.0	20.0	20.0	20.0

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: 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

axle 5:

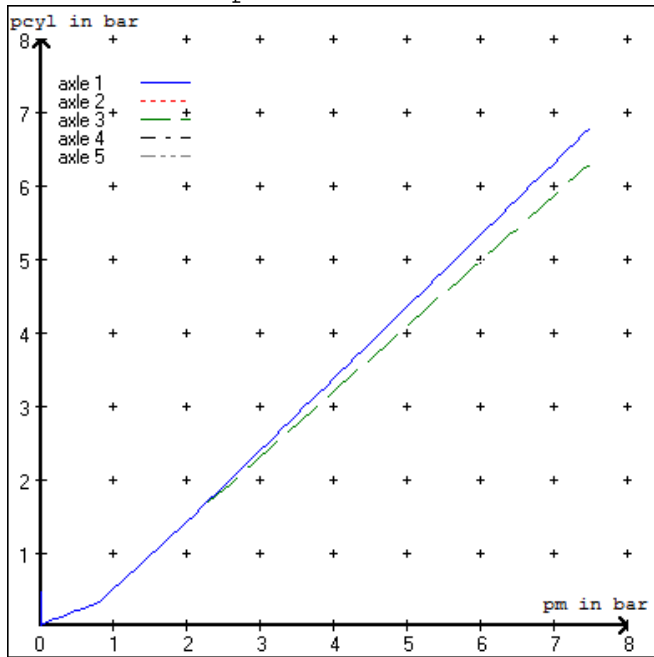
valve 1: 971 002 ... 0 WABCO
EBS emergency valve

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

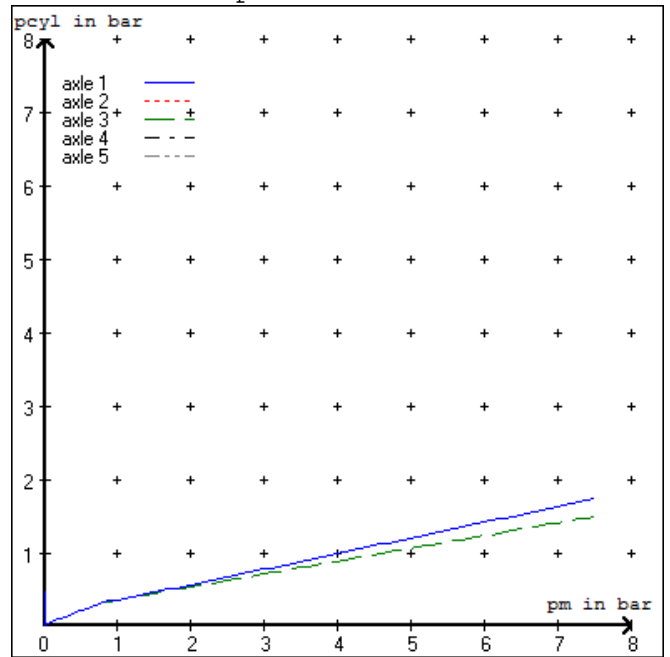
brake cylinder: Meritor 14HSCLD64

test type III (zIII = 0.30)	for rdyn min :	axle1	axle2	axle3	axle4	axle5	
at pm 3.6 bar =>	pcha in bar :	3.0	3.0	2.8	2.8	2.8	2.8
test type III (zIII = 0.06)	for rdyn min :	axle1	axle2	axle3	axle4	axle5	
at pm 1.3 bar =>	pcha in bar :	0.8	0.8	0.8	0.8	0.8	0.8

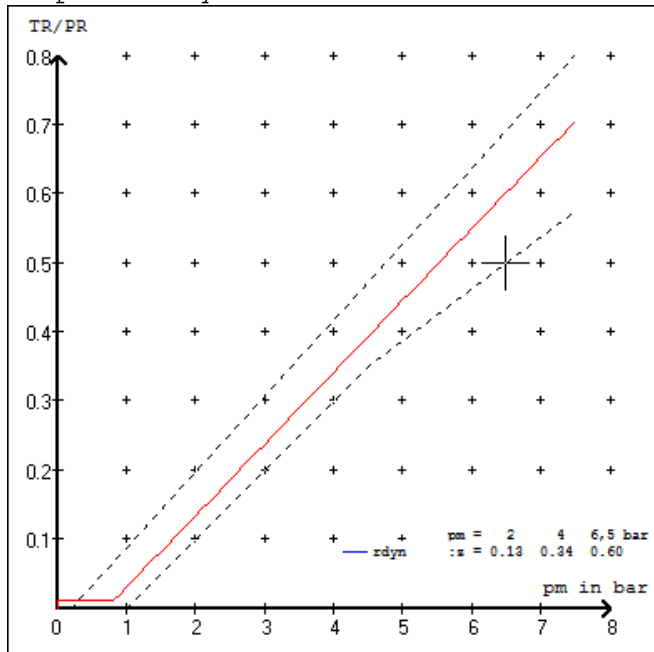
brake chamber pressure laden



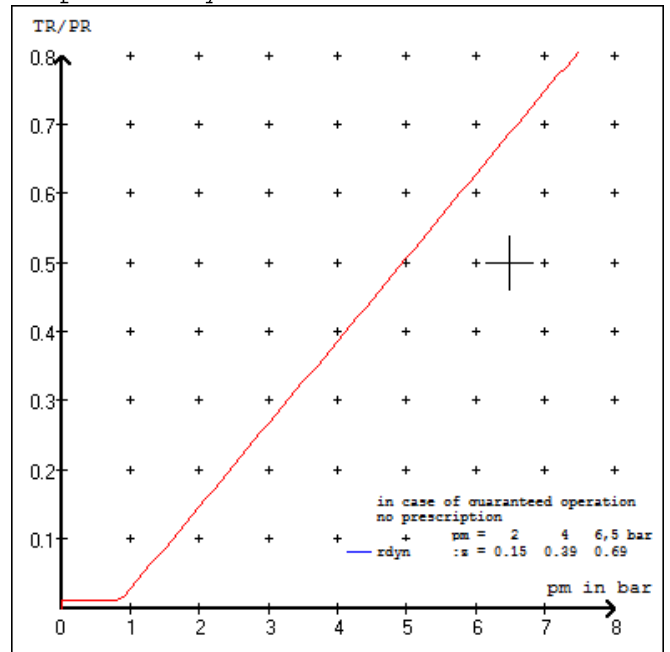
brake chamber pressure unladen



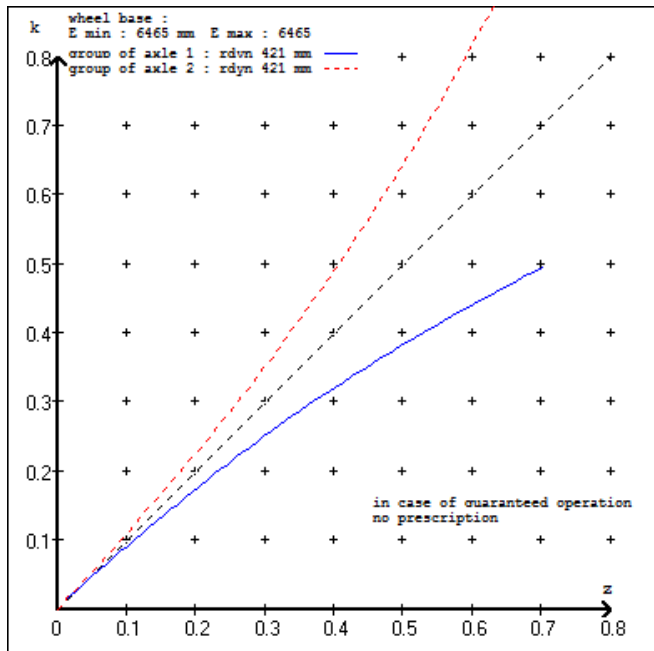
compatibility band laden



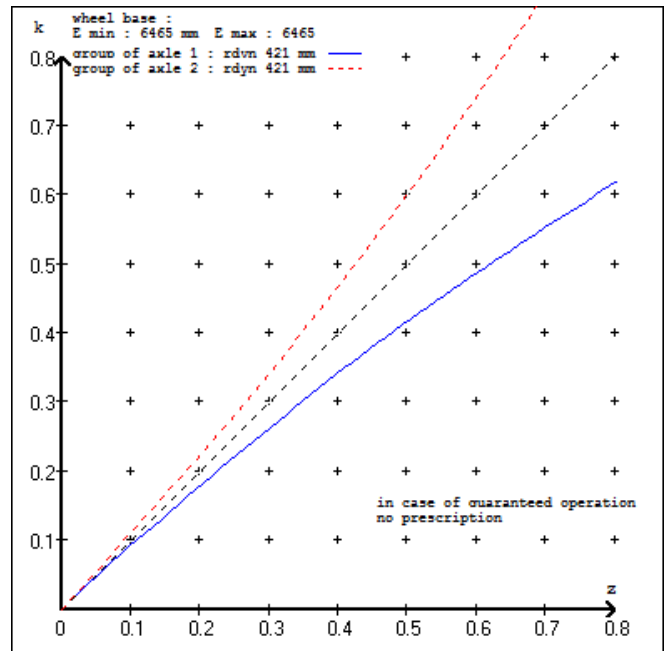
compatibility band unladen



curves of friction laden



curves of friction unladen



vehicle manufacturer: DOMETT T&T
 trailer model : 5AX F/T TANKER
 trailer type : 5-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
 axle 5 : 2 x type/diameter 14. (Meritor) 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 T&T
 trailer model : 5AX F/T TANKER
 trailer type : 5-axle-full-trailer
 brake calculation no. : TP 50674A

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	7250	to be	0.3	1.4	5.8	
2	1400	entered by the vehicle manufact.	1.5	7250	entered by the vehicle manufact.	0.3	1.4	5.8	
3	1100		1.3	6600		0.3	1.4	5.4	
4	1100		1.3	6600		0.3	1.4	5.4	
5	1100		1.3	6600		0.3	1.4	5.4	

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 5
axle load pcy1	axle load pcy1	axle load pcy1	axle load pcy1	axle load pcy1
1400 1.5	1400 1.5	1100 1.3	1100 1.3	1100 1.3
1900 1.9	1900 1.9	1600 1.7	1600 1.7	1600 1.7
2400 2.2	2400 2.2	2100 2.0	2100 2.0	2100 2.0
2900 2.6	2900 2.6	2600 2.4	2600 2.4	2600 2.4
3400 3.0	3400 3.0	3100 2.8	3100 2.8	3100 2.8
3900 3.3	3900 3.3	3600 3.2	3600 3.2	3600 3.2
4400 3.7	4400 3.7	4100 3.5	4100 3.5	4100 3.5
4900 4.1	4900 4.1	4600 3.9	4600 3.9	4600 3.9
7250 5.8	7250 5.8	6600 5.4	6600 5.4	6600 5.4

reference values

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

	pz [bar]	T [N]	T [N]
axle 1	1.0	4937	
	5.8	35179	
axle 2	1.0	4937	
	5.8	35179	
axle 3	1.0		4884
	5.4		32605
axle 4	1.0		4884
	5.4		32605
axle 5	1.0		4884
	5.4		32605

VIN - no.:

	Axle(s) / Achse(n)				
brake cylinder type (service / parking) Bremszylinder Typ (Betrieb / Fest)	14./	14./	T.14/16	T.14/16	14./
Maximum stroke smax = ...mm maximaler Hub smax =mm	64	64	64	64	64
Lever length =mm Hebellänge =mm	69.08	69.08	69.08	69.08	69.08

