

Manufacturer:	: MUSTAFA CEYLAN ENDÜSTRİ ANONİM ŞİRKETİ	Order No.
Type	: MCD-3745-10T-ST/DT	--
Subject	: ECE R13 REFERENCE AXLE	PBV-TAA-027 Rev. 04

TECHNICAL REPORT

24-TAMO-0025_1E

Base Part: ID4- 24-TAMO-0025_1E

Suffix: 1E

**Inspection/Test Report:
Reference Axle**

Regulation No. **UN-R13.14**

Taking into consideration amendment No. **14** supplement **00**

Annex 11, Appendix 3

Approval Status		
☒	Granting of a type approval	
☐	Extension to ... type-approval No.	
☐	Correction to type-approval No.	
☐	Only Test Report	

Manufacturer:	: MUSTAFA CEYLAN ENDÜSTRİ ANONİM ŞİRKETİ	Order No.
Type	: MCD-3745-10T-ST/DT	--
Subject	: ECE R13 REFERENCE AXLE	PBV-TAA-027 Rev. 04

0.	Test Details		
0.1.	Manufacturer's name and address:	MUSTAFA CEYLAN ENDÜSTRİ ANONİM ŞİRKETİ Büyükkayacıkosb Mahallesi, 3. Sokak, No: 7 42250 Selçuklu/KONYA	
0.2.	Brief description (Component Specification):	12 ton Disc Brake Trailer Axle	
0.3.	Submitted test on:	27.12.2023	
0.4.	Test Location: Test Date:	KONYA 27.12.2023-28.12.2023 Paperwork date: 29.07.2025	
0.5.	Reason(s) for extension/ correction of test report:	Change of test code. Update of manufacturer address Update of item 3.1.1. Update of date information document's date and revision number. Addition of confirmation.	
0.6.	Testing Equipment Used		
Equipment		Equipment Code	Next Calibration Date
Vbox		126	13.07.2024
Manometer		127	03.08.2024
Manometer		128	03.08.2024
Manometer		129	03.08.2024
Laser Thermometer		96	03.08.2024

0.7.	Selection of worst case (Selection of versions/variants for testing):
	The axle type ID1-NA-0910-ST/DT with ID2-MCD 3745 brake configuration tested according to regulation. There is also one tyre dimension for testing. For that reason, test result only valid for tested axle type.

Manufacturer:	: MUSTAFA CEYLAN ENDÜSTRİ ANONİM ŞİRKETİ	Order No.
Type	: MCD-3745-10T-ST/DT	--
Subject	: ECE R13 REFERENCE AXLE	PBV-TAA-027 Rev. 04

1. General

Note: Test report as prescribed in section 3.9 of Appendix 2 to Annex 11.

- 1.1. Axle manufacturer name and address: MUSTAFA CEYLAN ENDÜSTRİ ANONİM ŞİRKETİ
Büyükkayacıkosb Mahallesi, 3. Sokak, No: 7
42250 Selçuklu/KONYA
- 1.1.1. Make of axle manufacturer: 
- 1.2. Brake manufacturer name and address: See item 1.1.
- 1.2.1. Brake identifier ID2-: MCD 3745
- 1.2.2. Automatic brake adjustment device (Integrated or ~~Non-integrated~~): Integrated
- 1.3. Manufacturer's information document no: NA-0910-ST/DT

Manufacturer:	: MUSTAFA CEYLAN ENDÜSTRİ ANONİM ŞİRKETİ	Order No.
Type	: MCD-3745-10T-ST/DT	--
Subject	: ECE R13 REFERENCE AXLE	PBV-TAA-027 Rev. 04

2. Test Record

The following data form has to be taken Annex 11 – Appendix 3 has to be recorded for each test:

2.1.	Test code:	28122301
2.2.	Test specimen:	Axle with disc brake
	Test variant:	Floating Caliper
2.2.1.	Axle code:	See below
2.2.1.1.	Axle identifier:	ID1-NA-0910-ST/DT
2.2.1.2.	Identification of tested axle:	NA-0910-ST/DT
2.2.1.3.	Test axle load (Fe identifier):	11980 daN
2.2.2.	Brake:	
2.2.2.1.	Brake identifier:	ID2-MCD 3745
2.2.2.2.	Identification of tested brake:	MCD 3745
2.2.2.3.	Maximum stroke capability of the brake :	54 mm
	<i>Note: Applies to disc brakes only.</i>	
2.2.2.4.	Effective length of the cam shaft:	N/A
	<i>Note: Applies to drum brakes only.</i>	
2.2.2.5.	Material variation:	N/A
	<i>Note: As per paragraph 3.8 (m) of Appendix 2 to this annex.</i>	
2.2.2.6.	Brake (Drum or Disc):	
2.2.2.6.1.	Actual test mass of drum */disc*:	30 kg
	<i>*Strikethrough, as appropriate.</i>	
2.2.2.6.2.	Nominal external diameter of disc:	370 mm
	<i>Note: Applies to disc brakes only.</i>	
2.2.2.6.3.	Type of cooling of the disc: (Ventilated or non-ventilated)	Ventilated
2.2.2.6.4.	Integrated hub: (with or without)	With
2.2.2.6.5.	Disc with integrated drum: (With parking brake function or Without parking brake function)	Without parking brake function

Manufacturer:	: MUSTAFA CEYLAN ENDÜSTRİ ANONİM ŞİRKETİ	Order No.
Type	: MCD-3745-10T-ST/DT	--
Subject	: ECE R13 REFERENCE AXLE	PBV-TAA-027 Rev. 04

Note: Applies to disc brakes only.

2.2.2.6.6. Geometric relationship between disc friction surfaces and disc mounting: Single Part
Examples: One piece, casted, connection on action side.

2.2.2.6.7. Base material: Grey Cast Iron

2.2.2.7. **Brake (Lining or Pad):**

2.2.2.7.1. Manufacturer: Honeywell Bremsbelag GmbH

2.2.2.7.2. Make: Jurid

2.2.2.7.3. Type: Jurid 539

2.2.2.7.4. Method of attachment (~~Lining~~ or Pad on the ~~brake shoe~~ or Back plate) : Pressed
**Strikethrough, as appropriate.*

2.2.2.7.5. ~~Thickness of back plate~~*: 10 mm*
Weight of shoes*: -- kg*
Or other describing information
(Manufacturer's information document)*: None
**Strikethrough, as appropriate.*

2.2.2.7.6. Base material of Back plate*/ ~~Brake shoe~~*: Steel
**Strikethrough, as appropriate.*

2.2.3. **Automatic brake adjustment device**

**Not applicable in the case of integrated automatic brake adjustment device.*

2.2.3.1. Manufacturer name and address: N/A

2.2.3.2. Make: N/A

2.2.3.3. Type: N/A

2.2.3.4. Version: N/A

2.2.4. **Wheel(s)**

Note: For dimensions, see Figures 1A and 1B in Appendix 5 to this annex.

2.2.4.1. Reference tyre rolling radius (R_e) at test axle load (F_e): 434 mm

2.2.4.2. Data of the fitted wheel during testing:

Tyre Size	Rim Size	X_e (mm)	D_e (mm)	E_e (mm)	G_e (mm)
285/70 R 19,5	8,25 x 19,5	--	248	24	-10

Manufacturer:	MUSTAFA CEYLAN ENDÜSTRİ ANONİM ŞİRKETİ	Order No.
Type	MCD-3745-10T-ST/DT	--
Subject	ECE R13 REFERENCE AXLE	PBV-TAA-027 Rev. 04

2.2.5. **Lever length l_e :** 76 mm

2.2.6. **Actuator:**

2.2.6.1. Manufacturer: ARFESAN A.Ş.

2.2.6.2. Make: ARFESAN

2.2.6.3. Type: 16"

2.2.6.4. (Test) identification number: BC 0013.0

2.3. Test results

Note: Corrected to take account of rolling resistance of $0.01 \cdot F_e$.

2.3.1. In the case of vehicles of categories O₂ and O₃ where the O₃ trailer has been subject to the Type I test:

Test Type:	0	I	
Annex 11, Appendix 2, paragraph:	3.5.1.4	3.5.2.2/3	3.5.2.4
Test speed (km/h)	40	40	40
Brake actuator pressure p_e (kPa)	650	N/A	650
Braking time (mins)	N/A	2.55	N/A
Braking force developed T_e (daN)	7533.6	839.1	6419
Brake efficiency T_e/F_e	0.63	0.07	0.54
Actuator stroke s_e (mm)	53.005	N/A	53.005
Brake input torque C_e (Nm)	500.308	N/A	500.308
Brake input threshold torque $C_{0,e}$ (Nm)	26.78	N/A	26.78

2.3.2. In the case of vehicles of categories O₃ and O₄ where the O₃ trailer has been subject to the Type III test:

Test Type	0	III	
Annex 11, Appendix 2, paragraph:	3.5.1.2.	3.5.3.1.	3.5.3.2.
Initial test speed (km/h)	60	60	60
Final test speed (km/h)	0	30	0
Brake actuator pressure p_e (kPa)	650	N/A	650
Number of brake applications	N/A	20	N/A
Duration of brake cycle	N/A	60	N/A
Braking force developed T_e (daN)	6955.6	3666	6130
Brake efficiency T_e/F_e	0.58	0.31	0.51
Actuator stroke s_e (mm)	53.005	N/A	53.005
Brake input torque C_e (Nm)	500.308	N/A	500.308
Brake input threshold torque $C_{0,e}$ (Nm)	26.78	N/A	26.78

2.3.3. *This item is to be completed only when the brake has been subject to the test procedure defined in paragraph 4 of Annex 19 to this regulation, to verify the cold performance characteristics of the brake by means of the brake factor (BF).*

Manufacturer:	: MUSTAFA CEYLAN ENDÜSTRİ ANONİM ŞİRKETİ	Order No.
Type	: MCD-3745-10T-ST/DT	--
Subject	: ECE R13 REFERENCE AXLE	PBV-TAA-027 Rev. 04

- 2.3.3.1. Brake factor B_F : 31.87
- 2.3.3.2. Declared threshold torque $C_{0,dec}$: 26.78 Nm

2.3.4 Performance of the automatic brake adjustment device, if applicable:

- 2.3.4.1. Free running according to paragraph 3.6.3 of Annex 11, Appendix 2:
-Yes*
~~No*~~
**Strikethrough, as appropriate.*

3 Application Range

3. Application range specifies the axle/brake variants that are covered in this test report, by showing which variables are covered by the individual test codes. NA

4. Test has been carried out and the results reported, in accordance with Appendix 2 to Annex 11 and, where appropriate, paragraph 4 of Annex 19 – Part 1 to Regulation No. 13, as last amended by the ..11..series of amendments. Yes

4. At the end of the test defined in paragraph 3.6 of Annex 11, Appendix 2, the requirements of paragraph 5.2.2.8.1 of Regulation No. 13 are deemed to be fulfilled. Yes
Note: Only to be completed when an automatic brake wear adjustment device is installed.

5. Approval Authority

Signed:David Walsh
Head, Automotive Certification
NSAI

Date: 18th November 2025



Manufacturer:	: MUSTAFA CEYLAN ENDÜSTRİ ANONİM ŞİRKETİ	Order No.
Type	: MCD-3745-10T-ST/DT	--
Subject	: ECE R13 REFERENCE AXLE	PBV-TAA-027 Rev. 04

4. Annexes

Annex I Information documents (acc. to 1.3) 6 Pages

5. Final Statement

The Axle identifier specified in No. 2.2.1.1. complies with the above basis of testing.

The worst case was selected in accordance with the document "VB-TAGMBH-KBS-0700f_Auswahlverfahren für worst case-DE".

The test report becomes invalid in the event of technical changes of the subject or if changes made to the vehicle types described in the range of application influence the use of the subject, as well as in the event of changes to the legal basis.

This Test Report comprises pages 1 to 8 and the annexes listed in item 4.

The partial reproduction and duplication of this document requires the written approval of the test laboratory.

Vienna, 29.07.2025

TÜV AUSTRIA GMBH

- ☐ Designated Technical Service of Kraftfahrt-Bundesamt (KBA), Germany, Registration number KBA-P 00126
- ☒ Designated Technical Service by the National Standards Authority of Ireland (NSAI), Technical Number 00143
- ☐ Designated Technical Service of Swedish Transport Agency (STA), Reference number TT 0035

Authorised Signatory



Zehra DOĞAN



Test Engineer



Mehmet YÜKSEL

	TRAILER AXLE & BRAKE INFORMATION DOCUMENT	Date	11.07.2025
		Document Nr.	NA-0910-ST/DT
	According to ECE R13.14, Annex 11, Appendix 5 ANNEX I	Revision Nr.	01
		Page	1 / 6

REASON OF EXTENSION

Changed/Updated:

- Change of test code.
- Update of manufacturer address
- Update of item 3.1.1.
- Update of date information document's date and revision number.

Added:

- Addition of confirmation.

	TRAILER AXLE & BRAKE INFORMATION DOCUMENT	Date	11.07.2025
		Document Nr.	NA-0910-ST/DT
	According to ECE R13.14, Annex 11, Appendix 5 ANNEX I	Revision Nr.	01
		Page	2 / 6

1. GENERAL

Name and address of axle or vehicle manufacturer MUSTAFA CEYLAN ENDÜSTRİ ANONİM ŞİRKETİ
Büyükkayacıkosb Mahallesi, 3. Sokak, No: 7 42250
Selçuklu/KONYA

- 1.1. Commercial Description 12 Ton Disc Brake Trailer Axle
1.2. Category O3&O4

2. AXLE DATA

- 2.1. Manufacturer (name and address) MUSTAFA CEYLAN ENDÜSTRİ ANONİM ŞİRKETİ
Büyükkayacıkosb Mahallesi, 3. Sokak, No: 7 42250
Selçuklu/KONYA

- 2.1.1. Make of axle manufacturer



- 2.2. Type / variant MCD-3745-10T-ST/DT

- 2.3. Axle identifier ID1-NA-0910-ST/DT

- 2.4. Test axle load (F_e) **ID3-11980 daN**

- 2.5. Wheel and brake data according to the following
Figures 1A and 1B

Figure 1A

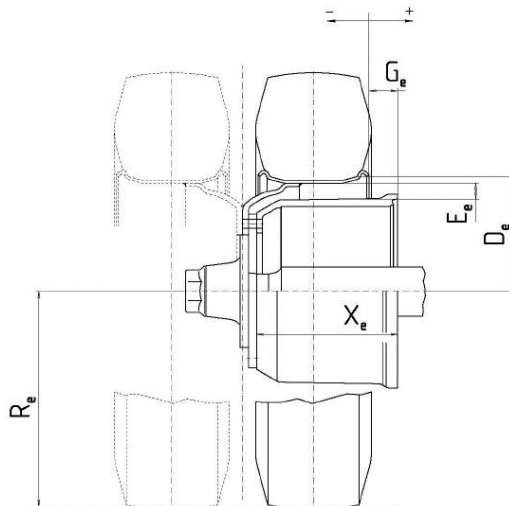
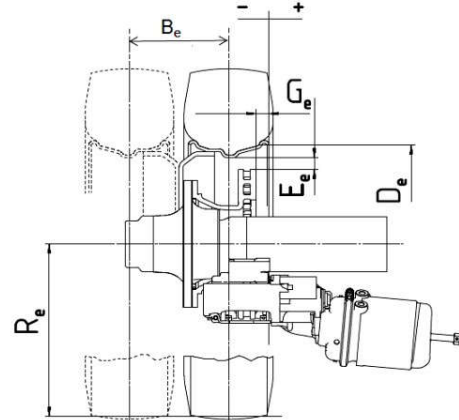


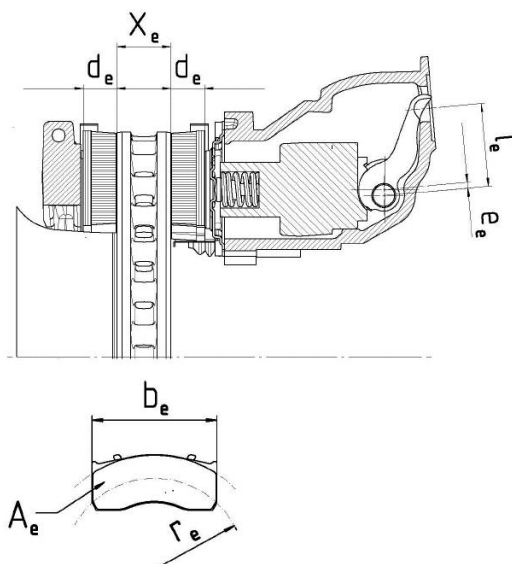
Figure 1B



Tyre	Rim	D_e (mm)	E_e (mm)	G_e (mm)	R_e (mm)	B_e (mm)	X_e (mm)
285/70 R19,5	8.25x19,5	248	24	-10	434	--	--

	TRAILER AXLE & BRAKE INFORMATION DOCUMENT	Date	11.07.2025
		Document Nr.	NA-0910-ST/DT
	According to ECE R13.14, Annex 11, Appendix 5 ANNEX I	Revision Nr.	01
		Page	4 / 6

Figure 2B



X_e (mm)	d_e (mm)	e_e (mm)	l_e (mm)	b_e (mm)	A_e (cm ²)	r_e (mm)
45	30	4,9	76	210,7	2x148	149

3.2. Drum brake data

3.2.1.	Brake adjustment device (external/internal)	N/A
3.2.1.1.	Manufacturer (Name and address)	N/A
3.2.1.2.	Make	N/A
3.2.1.3.	Type	N/A
3.2.1.4.	Version	N/A
3.2.2.	Declared maximum brake input torque (C_{max})	N/A
3.2.3.	Mechanical efficiency (η)	N/A
3.2.4.	Declared brake input threshold torque ($C_{0,dec}$)	N/A
3.2.5.	Efficiency length of the cam shaft	N/A

	TRAILER AXLE & BRAKE INFORMATION DOCUMENT	Date	11.07.2025
		Document Nr.	NA-0910-ST/DT
	According to ECE R13.14, Annex 11, Appendix 5 ANNEX I	Revision Nr.	01
		Page	5 / 6

3.3. *Brake drum*

3.3.1.	Max. diameter of friction surface (wear limit)	N/A
3.3.2.	Base material	N/A
3.3.3.	Declared mass	N/A
3.3.4.	Nominal mass	N/A
3.3.5.	Permitted range of the brake drum mass	N/A

3.4. *Brake Lining*

3.4.1.	Manufacturer (Name and address)	N/A
3.4.2.	Make	N/A
3.4.3.	Type	N/A
3.4.4.	Identification (type identification on lining)	N/A
3.4.5.	Minimum thickness (wear limit)	N/A
3.4.6.	Method of attaching friction material to brake shoe	N/A
3.4.6.1.	Worst case of attachment (in the case of more than one)	N/A
3.4.6.2.	Base material of the brake shoe	N/A
3.4.6.3.	Range of the weight of the brake shoes (without brake lining)	N/A

3.5. *Disk brake data*

3.5.1.	Connection type to the axle (axial, radial, integrated etc.)	integrated
3.5.2.	Brake adjustment device (external / integrated)	integrated
3.5.3.	Max. actuation stroke	54 mm
3.5.4.	Declared maximum input force (Th_{Amax})	900 daN
3.5.4.1.	Declared maximum brake input torque (C_{max}) $C_{max} = Th_{Amax} * l_e$	700 Nm
3.5.5.	Friction radius (r_e)	149 mm
3.5.6.	Lever length (l_e)	76 mm

	TRAILER AXLE & BRAKE INFORMATION DOCUMENT	Date	11.07.2025
		Document Nr.	NA-0910-ST/DT
	According to ECE R13.14, Annex 11, Appendix 5 ANNEX I	Revision Nr.	01
		Page	6 / 6

3.5.7.	Input/output ratio (i) (I_e/e_e)	15,5
3.5.8.	Mechanical efficiency (η)	0,99
3.5.9.	Declared brake input threshold force ($Th_{A0,dec}$)	176,15 N
3.5.9.1.	$C_{0,dec} = Th_{A0,dec} * I_e$	26,78 Nm
3.5.10.	Minimum rotor thickness (wear limit)	37 mm
3.6.	<i>Brake disc data</i>	
3.6.1.	Disc type description	Ventilated flange disc
3.6.2.	Connection/mounting to the hub	Fixed by screw
3.6.3.	Ventilation (yes/no)	Yes
3.6.4.	Declared mass	30-35 kg
3.6.5.	Nominal mass	30 kg
3.6.6.	Declared external diameter	377 mm
3.6.7.	Minimum external diameter	375 mm
3.6.8.	Inner diameter of friction ring	216 mm
3.6.9.	Width of ventilation channel (if appl.)	12 mm
3.6.10.	Base material	Grey Cast iron
3.7.	<i>Brake pad data</i>	
3.7.1.	Manufacturer and address	Honeywell Bremsbelaag GmbH
3.7.2.	Make	Jurid
3.7.3.	Type	Jurid 539
3.7.4.	Identification (type identification on pad back plate)	Jurid 539 FF 39
3.7.5.	Minimum thickness (wear limit)	10 mm
3.7.6.	Method of attaching friction material to pad back plate	Pressed on back plate
3.7.6.1.	Worst case of attachment (in case of more than one)	N/A