

DIN EN 17860-2:2026-10 (E)

Carrier Cycles - Part 2: Lightweight single track carrier cycles - Mechanical aspects (includes Amendment A1:2026)

Contents	Page
European foreword	7
Introduction	8
1 Scope.....	9
2 Normative references.....	9
3 Terms and definitions	10
4 Use cases: private and commercial/professional use	10
5 General vehicle requirements.....	10
5.1 Numbers and condition of specimens for the strength tests	10
5.2 Accuracy tolerances of test conditions for brake tests and strength tests	11
5.3 Protrusions	11
5.4 Sharp edges	11
5.5 Securing and strength of safety-relevant fasteners.....	11
5.5.1 General.....	11
5.5.2 Minimum failure torque.....	11
5.5.3 Mechanism for folding carrier cycles	11
5.6 Steering function.....	12
5.6.1 General.....	12
5.6.2 Steering - Rigidity and strength test for indirect steering systems	12
5.6.3 Dynamic steering fatigue test for indirect steering.....	15
5.7 Shimmy	15
5.8 Requirements for loading areas/load securing.....	15
5.9 Parking and stability	16
5.9.1 Requirement.....	16
5.9.2 Test method	16
5.10 Pedal clearance.....	18
5.10.1 Ground clearance.....	18
5.10.2 Toe clearance	18
5.11 Wheel and tyre assembly - clearance.....	19
5.12 Wheel retention.....	19
5.13 Luggage carriers.....	20
5.14 Vibrations, ergonomics and design	20
5.14.1 Vibrations	20
5.14.2 Ergonomics.....	20
6 Brakes	20
6.1 General.....	20
6.2 Hand-operated brakes	20
6.2.1 Brake lever position	20
6.2.2 Brake lever grip dimensions.....	20
6.3 Requirements of the test method on a test track	23
6.4 Requirements of the test method on a test bench.....	24
6.5 Tests.....	24
6.5.1 Test method on a test track.....	24
6.5.2 Test method on a test bench	26

7	Steering unit	30
7.1	Handlebar dimensions.....	30
7.1.1	General	30
7.1.2	Handlebar stem – Insertion-depth mark or positive stop	31
7.1.3	Handlebar stem to fork steerer – Clamping requirements	31
7.2	Handlebar grips or handlebar plugs.....	31
7.2.1	Requirements.....	31
7.2.2	Freezing test method	32
7.2.3	Hot water test method	32
7.3	Steering unit – Static strength and fastening tests	33
7.3.1	Steering unit – Lateral bending test.....	33
7.3.2	Handlebar stem – Forward bending test.....	33
7.3.3	Handlebar to handlebar stem – Torsional security test.....	34
7.3.4	Bar end to handlebar – Torsional security test	35
7.4	Handlebar/stem unit – Dynamic test	36
7.4.1	General	36
7.4.2	Test method for stage 1	36
7.4.3	Test method for stage 2	37
8	Frame	38
8.1	Suspension frames – Special requirements	38
8.2	Requirements for all frame types.....	38
8.3	Frame – Dynamic test with pedalling forces.....	38
8.3.1	General	38
8.3.2	Test method	38
8.4	Frame – Dynamic test with horizontal forces.....	39
8.4.1	General	39
8.4.2	Determination of the test loads.....	40
8.4.3	Test method	41
8.5	Frame – Dynamic test with a vertical force onto the seat-post.....	41
8.5.1	General	41
8.5.2	Test method	42
8.6	Frame – Dynamic test with vertical forces onto the loading area.....	43
8.6.1	General	43
8.6.2	Test method	43
8.7	Frame and front fork assembly – Impact test (falling frame).....	44
8.7.1	General	44
8.7.2	Requirement.....	44
8.7.3	Test method	44
9	Front wheel fork.....	46
9.1	General	46
9.2	Installation of the axle and wheel fastening	46
9.3	Front wheel fork – Static bending test	46
9.3.1	Requirements.....	46
9.3.2	Test method	46
9.4	Front wheel forks – Dynamic bending test.....	47
9.4.1	General	47
9.4.2	Requirement.....	47
9.4.3	Test method	47
9.5	Front wheel fork – Rearward impact test.....	48
9.5.1	Requirement.....	48
9.5.2	Test method 1	48
9.5.3	Test method 2	49

9.6	Front forks for use with hub or disc brakes	51
9.6.1	Requirement.....	51
9.6.2	Front fork for hub/disc brake – Dynamic test of the brake mounting	51
9.6.3	Front fork for hub/disc brake – Static braking torque test.....	51
10	Wheels and wheel/tyre assembly	52
10.1	Wheels/tyre assembly – Concentricity tolerance and lateral tolerance	52
10.1.1	Requirements.....	52
10.1.2	Test method	52
10.2	Wheel/tyre assembly – Static strength test.....	53
10.2.1	Requirement.....	53
10.2.2	Test method	54
10.3	Wheel and wheel/tyre unit – Dynamic test for carrier cycles	54
10.3.1	Requirement.....	54
10.3.2	Test method	54
10.4	Tyre inflation pressure.....	56
10.5	Tyre and rim compatibility	56
10.5.1	General.....	56
10.5.2	Wheel/ tyre assembly preparation	56
10.5.3	Test method	56
11	Front mudguard	56
11.1	Requirement.....	56
11.2	Front mudguard with stays test method	57
11.2.1	Stage 1: Test method – Tangential obstruction.....	57
11.2.2	Stage 2: Test method – Mudguard stays impact test	57
11.2.3	Stage 3: Test method – Radial force after impact.....	58
11.3	Front mudguard without stays test methods	59
12	Pedals and pedal/crank drive system.....	59
12.1	Pedal tread	59
12.1.1	Tread surface.....	59
12.1.2	Toe clips	59
12.2	Pedal – Static strength test	59
12.2.1	Requirement.....	59
12.2.2	Test method	59
12.3	Pedal – Impact test.....	59
12.3.1	Requirement.....	59
12.3.2	Test method	59
12.4	Pedal – Dynamic durability test.....	60
12.4.1	Requirement.....	60
12.4.2	Test method	60
12.5	Drive system – Static strength test	60
12.6	Crank assembly – Fatigue test.....	60
12.6.1	Requirement.....	60
12.6.2	Test method	60
13	Drive-chain and drive belt.....	61
13.1	Drive-chain.....	61
13.2	Drive belt	61
14	Chain-wheel and belt-drive protective device	61
14.1	Requirement.....	61
14.2	Chain-wheel disc and drive pulley disc diameter	61
14.3	Chain and drive belt protective device	63
14.4	Combined front gear-change guide	64

15	Saddles/seats and seat-posts	64
15.1	Limiting dimensions.....	64
15.2	Seat-post – Insertion-depth mark or positive stop.....	64
15.3	Saddle/seat-post – Security test.....	65
15.3.1	Saddles with adjustment-clamps	65
15.3.2	Saddles without adjustment clamps.....	65
15.4	Saddle and saddle rail – Static strength test.....	65
15.4.1	Saddle – static strength test.....	65
15.4.2	Saddle rail (composite) – Static strength test.....	65
15.4.3	Saddle and seat-post assembly – Fatigue test.....	65
15.5	Seat-post – Strength tests.....	65
15.5.1	General	65
15.5.2	Test method for step 1 (dynamic test)	65
15.5.3	Test method for step 2 (static strength test)	67
16	Lighting systems and reflectors	67
16.1	General	67
16.2	Lighting systems.....	67
16.3	Reflectors.....	67
16.4	Rear reflectors	67
16.4.1	General	67
16.4.2	Side reflectors.....	67
16.4.3	Front reflectors	67
16.4.4	Pedal reflectors	68
17	Warning device.....	68
18	Rear-view mirror.....	68
19	Structural integrity test.....	68
19.1	General	68
19.2	Requirements.....	68
19.3	Verification methods	68
20	Marking.....	69
20.1	Requirements.....	69
20.1.1	All markings.....	69
20.1.2	Frame markings	69
20.1.3	Trailer coupling markings.....	69
20.1.4	Component markings.....	70
20.2	Durability test.....	70
20.2.1	Requirement.....	70
20.2.2	Test method	70
21	Manufacturer’s instructions	70
	Annex A (informative) Vehicle configurations.....	74
	Annex B (informative) Reading Guide.....	75
	Annex C (normative) Test cycles for professional/commercial use	76
C.1	General	76
	Annex D (informative) Label	77
	Annex E (informative) Shimmy.....	78
E.1	Recommendation.....	78

E.2	Test method	78
E.3	Measurement equipment.....	79
Annex F (normative) Front fork mounting device		80
Annex G (informative) Properties of the dummy forks		81
Annex H (informative) Calculation of the centre of gravity of cycles or carrier cycles		83
H.1	Experimental determination of the centre of gravity.....	83
Annex I (informative) Rationale for the necessity of a “Complete vehicle test”		89
I.1	Introduction.....	89
I.2	Road test (field test on a test track)	89
I.3	Complete vehicle test bench	90
I.4	Virtual testing (calculation).....	90
Annex J (informative) Rationale for the distinction between private and commercial use		91
Bibliography.....		93