

CHAPTER 450
EQUIPMENT AND INSPECTION REQUIREMENTS FOR CERTAIN MOTOR VEHICLES

[Appeared as Ch 1, Department of Public Safety, 1973 IDR; amended January 1975 IDR Supplement]
[Prior to 6/3/87, Transportation Department[820]—(07,E)Ch 1]

Chapter rescission date pursuant to Iowa Code section 17A.7: 5/21/30

761—450.1(307,321) Addresses information and application.

450.1(1) Information. Information for inspections may be obtained from the Bureau of Investigation and Identity Protection, Iowa Department of Transportation, 6310 SE Convenience Boulevard, Ankeny, Iowa; by email at www.iowadot.gov/biip/contact-us; or on the department's website at www.iowadot.gov/mvd/vehicleregistration/vehicle-inspections-for-titling.

450.1(2) Definitions. The definitions in Iowa Code section 321.1 and rule 761—400.16(321) are hereby made part of this chapter. In addition:

a. The exchange of compatible body parts does not meet the definition of a specially constructed, reconstructed, street rod, or replica motor vehicle; or of a specially constructed or reconstructed motorcycle or motorized bicycle; or of a specially constructed, reconstructed, street rod, or replica autocycle.

b. The removal, addition, or substitution of reconstructed motor vehicle parts that modifies the vehicle's external appearance so that it does not reflect the original make or manufacturer model for that model does meet the definition of a specially constructed, reconstructed, street rod, or replica motor vehicle.

c. The removal, addition, or substitution of a reconstructed motorcycle or motorized bicycle part that modifies the vehicle's external appearance so that it does not reflect the original make or manufacturer model does meet the definition of a specially constructed, reconstructed, street rod, or replica motorcycle or motorized bicycle.

EXEMPTION: The conversion of a manufactured motorcycle from two-wheel to three-wheel operation by the addition or substitution of a bolt-on conversion kit does not meet the definition of a reconstructed motorcycle.

d. The removal, addition, or substitution of reconstructed autocycle parts that modifies the autocycle's external appearance so that it does not reflect the original make or manufacturer model for that model does constitute a specially constructed, reconstructed, street rod, or replica autocycle.

450.1(3) Application.

a. After receiving the application forms and exhibits outlined in rule 761—400.16(321), the department shall:

- (1) Examine the vehicle and ownership documents.
- (2) Determine if the motor vehicle complies with this rule, that the integral parts and components have been identified as to ownership, and that the application forms have been completed properly.
- (3) If the provisions of paragraph 450.1(3) "b" are met, assign an identification number to the vehicle and certify that the motor vehicle is eligible for titling and registration.

b. If the frame or unibody specified on an application for a specially constructed, reconstructed, street rod, or replica motor vehicle; a specially constructed or reconstructed motorcycle or motorized bicycle; or a specially constructed, reconstructed street rod or replica autocycle is manufactured or designated "not for highway use," the application shall not be approved.

This rule is intended to implement Iowa Code sections 307.12(1) "j," 321.1 and 321.23.

[ARC 9133C, IAB 4/16/25, effective 5/21/25]

761—450.2(307,321) Equipment requirements for specially constructed, reconstructed, street rod, and replica motor vehicles other than autocycles, motorcycles and motorized bicycles. The following standards are minimum requirements to meet the definition of a specially constructed, reconstructed, street rod, and replica motor vehicle other than autocycles, motorcycles and motorized bicycles:

450.2(1) Defroster and defogging device. If the motor vehicle is a closed motor vehicle, it is equipped with a device capable of defogging or defrosting the windshield area.

450.2(2) Door latches. The motor vehicle that is equipped with doors leading directly into a compartment that contains one or more seating accommodations is equipped with mechanically actuated door latches that firmly and automatically secure the door when pushed closed and that allow each door to be opened from the inside by the actuation of a convenient lever, handle or other nonelectric device. Interior handles must be visible.

450.2(3) Floor pan. The motor vehicle is equipped with a floor pan under the entire passenger-carrying compartment that supports the weight of the number of occupants that the vehicle is designed to carry. The floor pan shall be so constructed that it prevents the entry of exhaust fumes.

450.2(4) Glazing.

a. Windshields. The motor vehicle is equipped with a laminated safety glass windshield that complies with and bears the approval marking of the American National Standards Institute (ANSI) Z 26.1-1996 Standard as set forth in 49 CFR Section 571.205 effective October 1, 2024. The windshield shall be in such a position that it affords continuous horizontal frontal protection to the driver and front seat occupants. The minimum vertical height of the unobstructed windshield glass shall be six inches. This paragraph does not preclude the use of a windshield that can be folded down to a horizontal position, provided that the windshield can be firmly fastened in both the vertical and horizontal positions.

b. Side and rear glass. Side and rear glass is not required in motor vehicles. If present, however, this glass must be either laminated or tempered safety glass bearing the approval of the ANSI Z 26.1-1996 Standard as set forth in 49 CFR Section 571.205 effective October 1, 2024.

450.2(5) Driver visibility. The motor vehicle provides the driver with a minimum outward horizontal vision capability of 90 degrees each side of a vertical plane passing through the fore and aft centerline of the vehicle. This plane of vision may be interrupted by window framing and windshield door support posts not exceeding four inches in width at each side location.

450.2(6) Hood latches. If a motor vehicle is equipped with a front-opening hood, that hood is equipped with a primary and secondary latching system to hold the hood in a closed position.

450.2(7) Instruments and controls. The motor vehicle is equipped with:

a. An operating speedometer calibrated to indicate “miles per hour.”
b. An operating odometer calibrated to indicate “total miles driven.”
c. A steering wheel circular or nearly circular in shape, having an outside diameter of not less than 13 inches.

d. An accelerator control system that returns the engine throttle to an idle position automatically when the driver removes the actuating force from the accelerator control.

450.2(8) Brakes. The motor vehicle is equipped with brakes acting upon all wheels, service brakes, and parking brakes that comply with Iowa Code sections 321.430 and 321.431.

450.2(9) Rearview mirror. The motor vehicle is equipped with two rearview mirrors, each having substantial unit magnification. One is mounted on the inside of the vehicle in such a position that it affords the driver a clear view to the rear. The other is mounted on the outside of the vehicle on the driver’s side in such a position that it affords the driver a clear view to the rear. When an inside mirror does not give a clear view to the rear, a right-hand outside mirror is required in lieu thereof. The mirror mounting provides a stable support for the mirror and provides for mirror adjustment by tilting in both horizontal and vertical directions. Each mirror has a minimum of ten square inches of reflective surface.

450.2(10) Seat belts. The motor vehicle complies with Iowa Code section 321.445(1).

450.2(11) Seating. All bench-type and individual seats in motor vehicles are firmly anchored to structural components or body parts.

450.2(12) Exhaust system. The motor vehicle has an exhaust system meeting the following requirements:

a. The system is free of leaks, including the exhaust manifold (or headers), piping forward of the muffler, the muffler(s), and tail piping.

b. Exhaust fumes are emitted to the extremity of the vehicle, behind the rear wheels, or to the extremity of the vehicle within six inches in front of the rear wheels. Exhaust fumes from trucks, other than enclosed vans, may be emitted to the rear of that part of the vehicle designed for and normally used for carrying the driver and passengers.

c. Each exhaust system is equipped with a muffler that prevents excessive noise.

d. No part of the exhaust system passes through any area of the vehicle that is used as a passenger-carrying compartment, and is constructed that persons entering the vehicle cannot make contact with the exhaust system.

e. All exterior side exhaust pipes are fully shielded and any vertical truck exhaust stacks are shielded to the top of the cab.

450.2(13) *Frame.* The motor vehicle is equipped with a frame consisting of wall box tubing, round tubing, wall channel or unitized construction capable of supporting the vehicle, its load and the torque produced by the power source.

450.2(14) *Fuel system.* The motor vehicle has a fuel system in which all components are securely fastened with fasteners designed for this purpose, including the tank, tubing, hoses, clamps, etc. The filler from the system is located in a position not within the passenger-carrying compartment and is capped. The system is leakproof, and fuel lines are positioned so as not to come in contact with high temperature surfaces or moving parts.

450.2(15) *Steering and suspension.*

a. The motor vehicle does not have any parts extending below the wheel rims in their lowest position, except for tires and electrical grounding devices designed for this purpose.

b. The steering system remains unobstructed when turned from lock to lock.

c. The steering wheel has no less than two turns and no more than six turns when turning the road wheels from lock to lock.

d. While in a sharp turn at a speed between 5 and 15 MPH, release of the steering wheel results in a distinct tendency for the vehicle to increase its turning radius.

e. The motor vehicle is not constructed so that the weight on any axle is less than 20 percent of the gross weight of the vehicle and load.

f. The motor vehicle is equipped with a damping device at each wheel location providing a minimum relative motion between the unsprung axle and the chassis of plus or minus two inches.

g. When each corner of the vehicle is depressed and released, the damping device stops vertical body motion within two cycles.

h. There is no heating or welding on coil springs, leaf springs, or torsion bars.

450.2(16) *Tires.* Tires comply with Iowa Code section 321.440. Each tire has a load-bearing capacity in keeping with the size and weight of the vehicle.

450.2(17) *Lighting and electrical system.* The motor vehicle is equipped with approved lighting devices in sufficient number, type, and locations to meet the requirements of Iowa Code sections 321.384 through 321.423, including headlamps, rear lamps, license plate lamp, rear reflectors, parking lamps, stop lamps, turn signals, and high-low beam indicator. In addition, the motor vehicle is equipped with:

a. A driver-controlled switch capable of selecting high and low beams (dimmer switch).

b. A motor vehicle more than 40 inches in width is equipped with turn signal lamps and have a manually operated switch controlled by the driver that causes the turn signal lamps to function. This switch is self-canceling.

c. A horn that complies with Iowa Code section 321.433.

d. All wiring is done in an orderly and workmanlike fashion, with no wiring in contact with high temperature surfaces or moving parts.

e. Headlamps are in a plane that is perpendicular to a vertical plane through the longitudinal centerline of the vehicle. The headlamps are mounted not less than 24 inches, nor more than 54 inches, above the road surface when measured to the headlamp center.

f. A tail lamp or lamps are mounted on the rear of the motor vehicle or vehicle, exhibiting a red light plainly visible from a distance of 500 feet to the rear. The tail lamp or lamps are mounted not less than 15 inches, nor more than 72 inches, above the roadway.

g. All original lamps and lighting equipment provided on the motor vehicle by the manufacturer are maintained in working condition or shall be replaced with equivalent equipment.

This rule is intended to implement Iowa Code sections 307.12(1)“j” and 321.23.

[ARC 9133C, IAB 4/16/25, effective 5/21/25]

761—450.3(307,321) Minimum requirements for constructing and equipping specially constructed or reconstructed motorcycles or motorized bicycles. The following standards are minimum requirements to meet the definition of a specially constructed or reconstructed motorcycle or motorized bicycle as defined in Iowa Code section 321.1:

450.3(1) Upgrade pulls—minimum speed. Iowa Code section 321.382 applies.

450.3(2) Frame/chassis. The motorcycle or motorized bicycle frame/chassis, including the suspension components and engine mountings, is of sufficient strength, capable of supporting the combined weight of all vehicle components and riders for which the vehicle was designed.

450.3(3) Front end assembly.

a. Trail (extended fork measured in inches). The reconstructed or specially constructed motorcycle or motorized bicycle does not have the front fork so extended as to place the center of the front wheel axle farther than 36 inches from a vertical plane through the steering axis.

b. Rake (extended fork measured in degrees). The reconstructed or specially constructed motorcycle or motorized bicycle does not have the front fork so extended as to exceed a 45-degree angle between the fork assembly and a vertical plane through the steering axis.

c. Extensions. The reconstructed or specially constructed motorcycle or motorized bicycle is not equipped with extension slugs. However, one-piece extension tubes and springer units, if approved, are acceptable.

d. Wheelbase. The reconstructed or specially constructed motorcycle or motorized bicycle does not have an overall wheelbase, measured from the center of the front axle to the center of the rear axle, of less than 40 inches.

e. Motorcycle front end geometry. A representation of the front end geometry of a motorcycle is depicted in the Appendix to this rule.

450.3(4) Brakes. The motorcycle and motorized bicycle is equipped with at least a rear brake. If the vehicle is also equipped with a front brake, all control cables, lines and hoses are located and secured so as not to become pinched between the fork and frame members when the wheel is turned completely to the left or right. Brake-actuating devices are in a readily accessible location, unencumbered by vehicle components. A suitable mechanism is provided for the purpose of automatically returning the actuating devices to a normal position upon release.

450.3(5) Tires, wheels, rims. The motorcycle tires are of pneumatic design with a minimum width of two and twenty-five hundredths inches and designed for highway use. Wheel rim diameters are not less than 10 inches and rims otherwise comply with applicable federal standards.

450.3(6) Steering and suspension.

a. Stability. The motorcycle or motorized bicycle steering and suspension provides the operator with the means of safely controlling vehicle direction.

b. Wheel alignment. The rear wheel of a two-wheel motorcycle or motorized bicycle tracks behind the front wheel within one inch with both wheels in a vertical plane when the vehicle is operating on a straight course. On a three-wheel motorcycle or motorized bicycle, the two wheels mounted on the rear axle have a wheel track distance not less than 30 inches and the midpoint of the rear wheel track distance is within 1 inch of the front wheel track when the vehicle is proceeding on a straight course.

c. Steering.

(1) The steering head is provided with a bearing or similar device that will allow the steering shaft to turn freely in rotational motion only. All handlebar-mounted control cables, wires, lines and hoses are located and secured so as not to become pinched between the fork and frame members when the wheel is turned completely to the right or the left.

(2) A steering wheel may be used on a three-wheel reconstructed or specially constructed motorcycle or motorized bicycle provided:

1. The steering wheel is circular or nearly circular in shape, having an outside diameter of not less than 13 inches.

2. The steering wheel has no less than two turns and no more than six turns when the road wheels are turned from lock to lock.

d. Handlebars. Handlebars are of sturdy construction, adequate in size (length) to provide proper leverage for steering, and capable of withstanding a minimum force of 100 pounds applied to each hand grip in any direction. The handlebars provide a minimum distance of 18 inches between grips after final assembly.

e. Hand grips. The motorcycle or motorized bicycle has handlebars equipped with hand grips of nonslip design or material.

f. Suspension. The motorcycle or motorized bicycle is equipped with a suspension system, and the suspension system applies to at least the front wheel. The suspension system(s) is designed for the purpose of maximum vehicle stability.

450.3(7) Fuel system. All fuel system components, including the tank, pump, tubing, hoses, clamps, etc., are securely fastened to the motorcycle or motorized bicycle so as not to interfere with vehicle operation and are leakproof when the vehicle is in its normal operating attitude. Fuel lines and tank are positioned in a manner so as to prevent their contact with the engine head, manifold, exhaust system, or other high temperature surfaces or moving components. The fuel system is adequately vented and provided with a fuel shutoff valve located between the fuel supply and the engine.

450.3(8) Exhaust system. The motorcycle or motorized bicycle with an internal combustion engine is equipped with an exhaust system incorporating a muffler or other mechanical device for the purpose of reducing engine noise. Cutouts and bypasses in the exhaust system are prohibited. The system is leakproof and all components are securely attached to the vehicle and located so as not to interfere with the operation of the motorcycle or motorized bicycle. Shielding is provided to prevent inadvertent contact with the exhaust system by the operator and/or passenger during normal operations.

450.3(9) Mirrors. The motorcycle and motorized bicycle is equipped with at least one mirror of unit magnification, securely affixed to the handlebar and capable of adjustment within a range that will reflect an image that includes at least the horizon and the road surface to the rear of the motorcycle or motorized bicycle. The mirror consists of a minimum reflective surface of ten square inches. All mirrors are regular in shape (circular, oval, rectangular, or square) and do not contain sharp edges or projections capable of producing injury.

450.3(10) Seat or saddle. A seat or saddle securely attached to the vehicle is provided for the use of the operator. The seat or saddle is not less than 20 inches above a level road surface when measured to the lowest point on top of the seat or saddle cushion with the driver seated in a driving position. The seat or saddle adjustment locking device prevents relative movement of the seat from its selected and secured position under all normal vehicle operating conditions.

450.3(11) Horn. The motorcycle or motorized bicycle complies with Iowa Code sections 321.432 and 321.433.

450.3(12) Speedometer and odometer. The motorcycle or motorized bicycle is equipped with a properly operating speedometer and odometer calibrated in miles per hour and miles respectively and is fully illuminated when the headlamp(s) is activated.

450.3(13) Lighting equipment. The motorcycle or motorized bicycle is equipped with at least one headlamp but not more than two, mounted securely. Headlamp(s) are mounted not less than 24 inches, nor more than 54 inches, above the level road surface. A headlight beam indicator light is located within the operator's field of vision and illuminated automatically when the high beam of the headlamp is actuated. The motorcycle or motorized bicycle is equipped with a tail and brake light assembly and a license plate light. All original lamps and lighting equipment provided on the motor vehicle by the manufacturer are maintained in working condition or are replaced with equivalent equipment.

450.3(14) Footrest. The motorcycle is equipped with two footrests, one on each side of the vehicle and footrests are provided for each designated seating position. Footrests are located so as to provide reasonable accessibility. Footrests are able to fold upward if they protrude beyond the side of the motorcycle's fixed items. The motorized bicycle is equipped with either two footrests or two pedals, one on each side of the vehicle, to provide reasonable accessibility.

450.3(15) Highway bars. If a motorcycle or motorized bicycle is so equipped, highway bars (alternate footrests) are located at a maximum distance of 26 inches from the foot controls and do not interfere with the operation of the foot controls.

This rule is intended to implement Iowa Code sections 307.12(1) “j” and 321.23.
[ARC 9133C, IAB 4/16/25, effective 5/21/25]

761—450.4(307,321) Minimum requirements for constructing and equipping specially constructed or reconstructed autocycles. Minimum requirements to meet the definition of a specially constructed or reconstructed autocycle as defined in Iowa Code section 321.1 are as follows:

450.4(1) *Seat belt.* The autocycle complies with Iowa Code section 321.445(1).

450.4(2) *Seat.* A seat that is firmly attached to the autocycle and does not require the operator to straddle or sit astride is provided for the use of the operator.

450.4(3) *Lighting equipment.* The autocycle is equipped with at least one headlamp, at least one taillight, and either a taillight or a separate white light that illuminates the license plate if a taillight does not. All original lamps and lighting equipment provided on the autocycle by the manufacturer are maintained in working condition or are replaced with equivalent equipment.

450.4(4) *Warning devices.* The autocycle is equipped with at least one red reflector, either separate or as part of the taillight or taillights.

450.4(5) *Brakes.* The autocycle is equipped with a braking system, other than a parking brake, in accordance with Iowa Code section 321.431.

450.4(6) *Horn.* The autocycle is equipped with a horn that complies with Iowa Code section 321.433.

450.4(7) *Exhaust system.* The autocycle with an internal combustion engine is equipped with a muffler and emission control system in accordance with 49 CFR Section 393.83 as amended through October 1, 2024. When a muffler and emission control system are factory equipped, neither may be removed.

450.4(8) *Mirrors.* The autocycle is equipped with a mirror that shall consist of a minimum reflective surface of ten square inches. All mirrors are regular in shape (circular, oval, rectangular, or square) and do not contain sharp edges or projections capable of producing injury.

450.4(9) *Tires.* The autocycle is equipped with tires that comply with the requirements of Iowa Code section 321.440.

450.4(10) *Floor pan.* The autocycle is equipped with a floor pan under the entire passenger-carrying compartment. The floor pan supports the weight of the number of occupants that the autocycle is designed to carry. The floor pan is so constructed that it prevents the entry of exhaust fumes.

This rule is intended to implement Iowa Code sections 307.12(1) “j” and 321.23.
[ARC 9133C, IAB 4/16/25, effective 5/21/25]

761—450.5(321) Front windshields, windows or sidewings.

450.5(1) “Excessively dark or reflective” means that the windshield, front side window or front sidewing does not meet a minimum standard of transparency of 70 percent light transmittance.

450.5(2) Motor vehicles operating with a dark window exemption issued prior to July 4, 2012, are subject to the provisions of rule 761—450.7(3) in effect April 13, 2022.

This rule is intended to implement Iowa Code section 321.438.
[ARC 9133C, IAB 4/16/25, effective 5/21/25]

761—450.6(307,321) Seat belt exemptions.

450.6(1) A person who is unable to wear a safety belt or safety harness for physical or medical reasons may obtain a form to be signed by the person’s health care provider licensed under Iowa Code chapter 148 or 151. Form No. 432017, “Iowa Medical Safety Belt Exemption,” is available from the motor vehicle division.

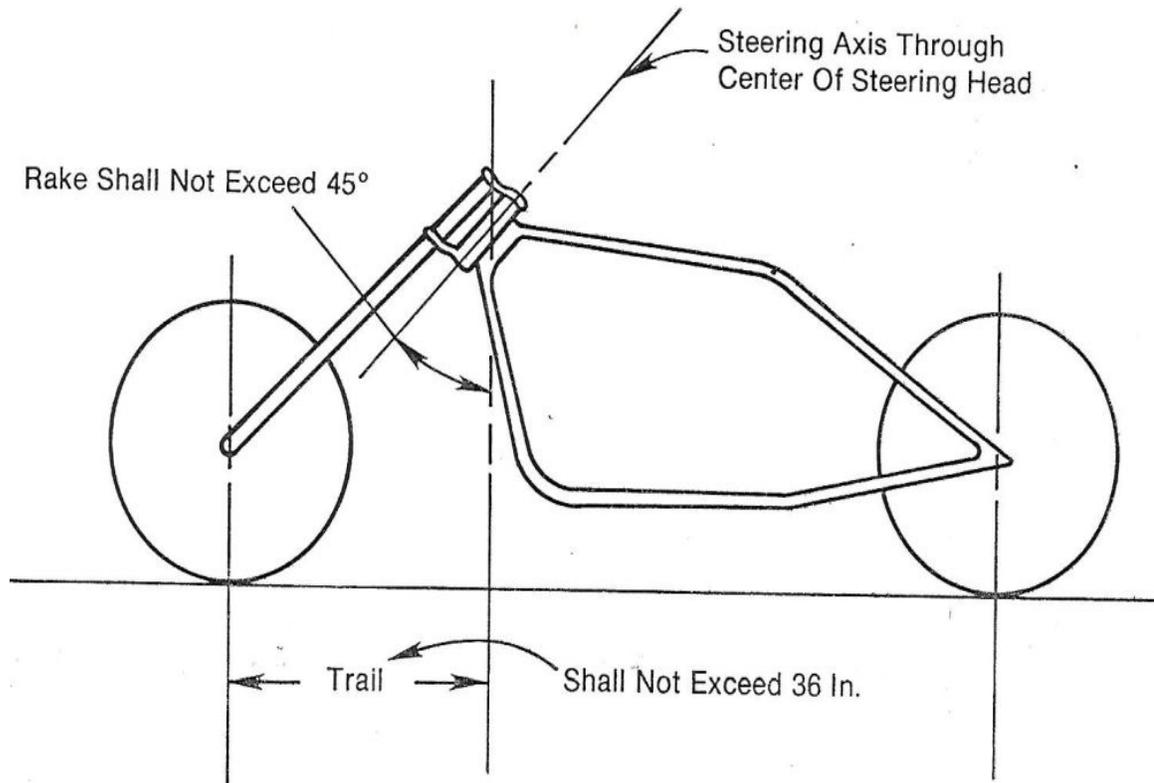
450.6(2) Iowa Code section 321.445(1) and 321.445(2) shall not apply to the front seats and front seat passengers of motor vehicles owned, leased, rented or primarily used by a person with a physical disability who uses a collapsible wheelchair.

[ARC 9133C, IAB 4/16/25, effective 5/21/25]

This rule is intended to implement Iowa Code sections 307.12(1) “j” and 321.445.

APPENDIX TO RULE

761—450.3(321)

MOTORCYCLE FRONT END GEOMETRY

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