

MASSACHUSETTS RMV VEHICLE INSPECTION REGULATIONS

540 CMR 4.06: Procedures for Inspection of Motorcycles

Excerpt from

540 CMR 4.00: ANNUAL SAFETY AND COMBINED SAFETY AND EMISSIONS INSPECTION OF ALL MOTOR VEHICLES,
TRAILERS, SEMI-TRAILERS AND CONVERTER DOLLIES

In effect October 2008

(1) Prior to Beginning Inspection.

A visual check of the motorcycle shall be made to determine that under-inflated tires, condition of suspension and other conditions visible to the inspector will not impede or interfere with the proper aiming of headlamps. In order to proceed with inspection, a properly functioning side stand or center stand must be able to support the weight of the motorcycle while wheels, front end and swing arm are examined. Passenger foot rests should be put in an upright stored position, if possible, to prevent interference with the inspection.

(2) Inspection of the Motorcycle.

540 CMR 4.06 shall apply to two wheeled motorcycles or two wheeled motorcycles with a side car. All inspections must be performed in accordance with the applicable provisions of 540 CMR 4.00 by certified inspectors in the approved inspection area only. Inspectors must first collect the proper fee and secure the proper Certificate of Registration. The Certificate of Registration shall be inspected and the information contained thereon, including license plate, motorcycle description, and vehicle identification number, shall be verified by observation of the subject motorcycle. The information contained on the Certificate of Registration shall also be matched with the motorcycle information accessible to the workstation. The data appearing on the Registration Certificate, the data accessible on the Workstation, the data appearing on the motorcycle license plate, and the vehicle identification number and motorcycle description must match in order for the inspection to proceed. No fee shall be assessed for an inspection which does not proceed due to a data match failure. The following inspection shall then be completed:

- (a) The number plate must be undamaged, securely horizontally mounted on the rear of the motorcycle, clean and clearly visible. No accessory mounted on the motorcycle may interfere with a clear view of the number plate. Any decorative number plate or number plate replica not issued by the Registry of Motor Vehicles for the motorcycle being inspected on which appears any jurisdictional name must be removed from the motorcycle.
- (b) A Turnaway Document must be given to the operator of any motorcycle refused for inspection due to an incorrect vehicle identification number, registration number, or for any reason a motorcycle is otherwise refused for inspection.
- (c) Upon the successful completion of the inspection and a determination by the inspector that the motorcycle meets all inspection requirements, the inspector shall affix a new Certificate of Inspection to the license plate of the motorcycle and provide the motorist with all inspection documentation and program literature as required.
- (d) Certificate of Rejection Document. A motorcycle which is determined by the Inspector not to meet all inspection requirements shall be issued a Certificate of Rejection document in accordance with any regulations, policies or procedures of the Registrar.

(3) Brakes.

- (a) Brakes must be adequate to stop a motorcycle from a speed of 20 m.p.h. in not more than 19 feet. Each motorcycle shall have either a split service brake system or two independently actuated service brake systems which, upon application, act on front and rear wheels. Any motorcycle which has a number plate issued under the provisions M.G.L. c. 90, § 6A (Plates for antique motor cars) which was not manufactured with either a split service brake system or two independently actuated service brake systems shall be required to have one brake system adequate to stop said motorcycle within the aforementioned distances. For more recent model motorcycles observe whether the motorcycle utilizes a brake anti-lock equalizer system which proportionately controls braking pressure to the front and rear wheels.

- (b) Mechanical Brake System. Inspect the linkage, cables, pivots and bearings for high friction, wear and broken or missing parts. Reject motorcycle if:
1. Brake adjustment changes under any steering or loading.
 2. Cotter pins are missing.
 3. Pins or clevises are worn more than 25% of the original diameter.
 4. The cam operating lever has been repositioned on the shaft as a means of avoiding replacement of worn cam, shoes or lining.
 5. Any cables are frayed (two or more broken strands).
 6. Any brake adjustment mechanism which will not maintain an adjusted position or is adjusted to its maximum extent.
 7. Front brake cable is routed so as to be pinched between fork and frame.
 8. There is any roughness, binding, or jamming in levers or pedals.
 9. Less than 1/3 reserve remains in hand or foot brake when brakes are applied.
 10. Modifications make the pedal or lever inaccessible for adequate leverage or operation.
 11. Any portion of the brake hand lever is broken or missing.
- (c) Hydraulic Brake System. Visually inspect the condition of the hydraulic system. Note: Do Not Remove Wheels. Reject the motorcycle if:
1. Hoses or tubing leaks or they are cracked, chafed, flattened, restricted or are improperly fastened.
 2. Master cylinder leaks or the reservoir capacity is less than the manufacturer's recommended safe level if known or less than 1/2 total capacity.
 3. There is any leakage in the brake system.
 4. The push rod is improperly adjusted.
 5. Wheel cylinder or caliper leaks or fails to function.
- (d) Hydraulic System Tests. Test motorcycle in a standing position. The inspector should be able to maintain brake or hand lever reserve under moderate force (40-60 lbs.) for 15 seconds. Reject the motorcycle if brake reserve cannot be maintained for 15 seconds or if there is less than approximately 1/3 of the total available pedal or brake lever travel remains. The brake lever and pedal should exhibit smooth, firm and responsive action. Allow wheels to turn freely when not in the braking mode. Reject the motorcycle if binding occurs and wheels do not turn freely.
- (e) Visual Inspection of Brake Pads and Discs. Where pads and discs are visible check and reject if:
1. There is any substantial crack extending to the edge of the disc or pad.
 2. There is evidence of mechanical damage other than wear.
 3. Friction surface of disc or pad is contaminated with oil, grease or brake fluid.
 4. There is excessive roughness to the disc.
 5. The disc is warped or bent.
 6. Pad is broken, loose or worn beyond replacement indicators.
- (4) Muffler and Exhaust System.**
- (a) The motorcycle shall be equipped with a muffler to prevent excessive and unnecessary noise which is in good working order and in constant operation. Accelerate motor to half throttle position to test for unnecessary noise and emission of any unreasonable amount of smoke. Reject a motorcycle which has a muffler cut -out or by-pass of the baffle plates, screens or other original internal parts have been removed and not replaced. Unnecessary noise is herein defined as any noise which is louder than that emitted by the motorcycle with original manufacturers muffler and exhaust system equipment.
- (b) The exhaust system includes the exhaust manifold, the piping leading from the flange at the exhaust manifold to and including the muffler and tail piping. Visually and audibly inspect the exhaust system and reject the motorcycle if:
1. Tail pipe end is pinched or obstructed.
 2. System components are not securely fastened with proper clamps or hangers.
 3. The exhaust system is not shielded to prevent riders from being burnt while riding in normal seated position.

(5) Steering, Alignment, and Suspension of Front End.

- (a) Wheel Axle Bearings. Place motorcycle on motorcycle accessory lift or center stand and slowly spin the wheels. Reject the motorcycle if:
1. There is noticeable play or roughness when wheel is rotated or a growl is heard when wheel is rotated.
 2. Wheel bearing seals are cracked, torn, cut or are discolored a reddish-brown color.
- (b) Wheel Run-Out and Alignment. Inspect front to rear wheel alignment, front wheel to fork tube alignment and wheel run-out. Reject motorcycle if:
1. Front to rear wheel misalignment exceeds one inch.
 2. Front wheel is not vertical and parallel to front fork tubes.
 3. Front fork tubes are bent or damaged preventing full travel and free action of front forks.
 4. Wheel (rim) run-out is greater than manufacturer's suggested serviceable limit or, if unavailable, greater than .060".
- (c) Steering Head Bearing or Bushings. With front wheel slightly off the ground, turn handlebars side to side. Reject motorcycle if front fork binds.
- (d) Front Fork Tube Suspension. Inspect and reject if:
1. Front fork suspension has been removed and replace with a solid connection.
 2. There is severe leakage (not slight dampness) of front fork tube seal.
 3. Dampening effect is diminished indicating loss of shock absorber function.
- (e) Handlebars. Inspect handlebars and reject if:
1. Handlebars or grips are higher than operator's shoulder level when properly seated upon motorcycle.
 2. Handlebars are not of sturdy construction or if of lightweight bicycle quality.
 3. Handlebars do not provide a minimum of 18 inches between grip ends.
 4. Handlebars are not equipped with grips of non-slip design and material.
 5. Handlebars prevent front fork from rotating from stop to stop.
 6. Handlebars are cracked or deformed.
 7. Handlebars are improperly aligned with front wheel.
 8. Handlebars are not securely fixed, however, rubber mounted handlebars may have slight movement.
 9. Handlebars that have been modified or repaired in an unsafe manner.

(6) Horn. Sound horn and test for adequate signal. The horn must be securely fastened to the motorcycle and shall not require removal of the operator's hand from the handlebar for use. The horn shall be distinctly audible at a distance of 200 feet under normal atmospheric conditions. The horn shall have a steady, non-oscillating tone which shall sound only during the time the activating switch is manually applied. The horn shall not be unreasonably loud or harsh.

(7) Windshield or Windscreen. Windshield or windscreen are not required, but if installed, they shall be free of cracks, discoloration or scratches which would create any vision obstruction and they shall have no sharp edges. Only approved plexi-glass is permitted. No sign, poster, decal, other nontransparent material or mounting hardware shall be allowed on a windshield or windscreen which would obstruct the vision of the operator.

(8) Tires. Only pneumatic rubber tires shall be permitted. Inspect tires and reject motorcycle if:

- (a) There is a fabric break or cut, bulge, bump or knot related to the deterioration of the tire structure.
- (b) There is any ply or cord structure visible.
- (c) There is less than 2/32" of tread depth-measured in a major tread groove nearest the tire center using a tire tread depth gauge.

- (d) Tire is worn so that a tread wear indicator contacts the road surface in any two adjacent grooves.
- (e) Tire has been repaired with a sidewall plug or patch. Tire tube, if known, has been patched.
- (f) There is any combination of radial ply tire with non-radial tire, unless approved by tire or motorcycle manufacturer.
- (g) Tires designated as front or rear only are improperly mounted or tires with directional arrow indication are mounted with arrow in improper rotating direction.
- (h) Tire is not type approved by the Department of Transportation and/or does not have a "D.O.T." designation on the sidewall, or is labeled "Not For Highway Use," "For Racing Purposes Only" or displays other similar marking (except for farm vehicles, implements of husbandry, and if off-road equipment is used on highway at restricted speeds).
- (i) Tire is obviously under or over-inflated.
- (j) Tire is smaller than manufacturer's specified minimum or a size that causes tire to contact with the body or chassis.
- (k) There are rusted or rotted valve stems.
- (l) A tube type tire is used in a tubeless application.

(9) Wheels. Inspect wheels and reject motorcycle if:

- (a) Wheel bolts, nuts or lugs are loose, missing or damaged.
- (b) Any part of wheel is bent, cracked, welded or damaged so as to affect safe operation of the motorcycle.
- (c) There is more than one missing, bent or broken spoke on spoke style wheels.
- (d) Any wheel is not at least the minimum size recommended by the manufacturer.
- (e) There is not enough thread engagement fork leg clamps or threads are stripped.

(10) Alignment and Suspension of the Rear End.

- (a) Swing arm bushing, bearing, or rubber mount. Place motorcycle on motorcycle accessory lift or center stand with rear wheel raised and inspect for wear and looseness. Check for lateral movement of swing arm by applying side to side force against rear wheel. Reject motorcycle if there is more than slight side to side movement of the swing arm or if rubber mounts are cracked, broken or torn.
- (b) Shock absorbers. If originally equipped with rear shock absorbers inspect and reject motorcycle if:
 1. Shock absorber is missing.
 2. Shock absorber mounting bolts or mounts are missing, broken or loose.
 3. There is severe leakage of shock absorber or associated hydraulic hoses if so equipped.
 4. Dampening effect is diminished indicating loss of shock absorber function.

(11) Lighting Devices and Reflectors.

- (a) In General. All lighting devices and reflectors required by applicable Federal Motor Vehicle Safety Standards when the particular motorcycle was originally manufactured and such devices required by Massachusetts General Law or Rules and Regulations applicable to the particular motorcycle inspected shall be securely attached to the vehicle and capable of performing their design functions. Lenses must be intact, clean, unobstructed and free from cracks. All lenses on stop lamps, tail lamps, turn signal lamps and reflectors must be approved by the Society of Automotive Engineers (SAE) and as evidence of such approval indicate the symbol "SAE" on the lens. All replacement lighting devices and reflectors shall meet applicable Federal Motor Vehicle Safety Standards at the time they were installed. No additional lamp, reflective device or other motor vehicle equipment shall be installed that impairs the effectiveness of lighting equipment required under these regulations. Two or more lamps, reflectors or items of associated equipment may be combined if the requirements for each lamp, reflector or item of associated equipment are met.
- (b) Headlamps. Each motorcycle shall be equipped with at least one and not more than two white headlamps whose beam shall be checked in accordance with the specifications provided by the Registrar. The motorcycle headlamp shall be mounted on the front of the motorcycle on the vertical centerline, except that if two headlamps are used, they shall be symmetrically distant from the vertical centerline and equal in height. The height of the headlamps measured from the road surface to the center of the lamp

shall be not less than 22 inches nor more than 54 inches. Headlamps on motorcycles manufactured in the year 1986 or later shall throw sufficient light ahead to make clearly visible all vehicles, persons or substantial objects upon the roadway within a distance of 350 feet on a straight highway of uniform grade under normal atmospheric conditions. Headlamps on motorcycles manufactured before 1986 shall throw sufficient light ahead to make clearly visible all vehicles, persons or substantial objects upon the roadway within a distance of 115 feet under the same conditions.

- (c) Tail Lamps and Stop Lamps. Each motorcycle shall be equipped with at least one red tail light and at least one red stop lamp. The motorcycle tail lamp and stop lamp shall be mounted on the rear of the motorcycle on the vertical centerline, except that if two are used, they shall be symmetrically distant from the vertical centerline and of equal height. The height of the tail lamps and stop lamps measured from the road surface to the center of the lamp shall be not less than 15 inches nor more than 72 inches. Stop lamps shall be activated with the application of front or rear brakes. Tail lamps shall be activated when the headlamps are activated. Tail lamps and stop lamps shall be visible under normal night time conditions at a distance of 500 feet and stop lamps shall be visible in normal sunlight at a distance of 200 feet.
- (d) Plate Light. Each motorcycle shall be equipped with a white light so arranged as to illuminate the rear number plate so that it is plainly visible at a distance of 60 feet. Such light shall not emit a tailing glare.
- (e) Reflectors. Each motorcycle shall have at least one rear red reflector mounted on the vertical center line except that, if two are used, they shall be symmetrically distant from the vertical center line and of equal height. The reflector height above the road surface measured to the center of the reflector shall not be less than 15 inches, nor more than 60 inches. Note: reflector(s) may be combined with other rear lamps. Motorcycles manufactured on or after January 1, 1968 shall be equipped with two red side reflectors mounted on each side at or near the rear of the motorcycle and shall be equipped with two amber side reflectors mounted on each side at or near the front of the motorcycle. The side reflector height above the road surface measured to the center of the reflector shall not be less than 15 inches, nor more than 60 inches.
- (f) Turn Signals. Each motorcycle manufactured on or after January 1, 1973 shall be equipped with front and rear turn signal lamps. Front turn signal lamps shall be amber mounted at or near the front of the motorcycle on each side of the vertical center line at the same height and shall have a minimum horizontal separation distance (measured from center of lamps) of 16 inches. Minimum edge to edge separation distance between turn signal lamp and head lamp shall be four inches. Rear turn signals shall be red or amber mounted on each side of the vertical center line at the same height and having a minimum horizontal separation distance (measured from center of lamps) of nine inches. All turn signal lamps shall be mounted at a height from the road surface of not less than 15 inches nor more than 83 inches. Turn signal lamps shall flash at a rate of 60 to 120 flashes per minute. The turn signal lamp activating control shall be positioned so as to be operated without removing the hand from the handlebar and shall properly indicate right and left when so switched. Turn signal lamps shall be visible at a distance of 200 feet under normal daylight conditions. Every motorcycle shall be equipped with a device to permit the front and rear directional signals to flash simultaneously if originally equipped by the manufacturer.
- (g) Auxiliary Driving Lamps and Fog Lamps. These lamps are not required, however, if so equipped shall be aimed in accordance with specifications provided by the Registrar. Reject motorcycle if:
1. Auxiliary equipment is placed in front of or obstructs any required lamp or reflector.
 2. Fog lamps operate with high beam of headlamp.
 3. Auxiliary driving lamps operate with high beam of headlamp or alone.
 4. Equipped with more than two fog lamps or more than two auxiliary driving lamps.
 5. Auxiliary driving lamps or fog lamps are not mounted at a height above the road surface between 12 inches and 42 inches.

(12) Body Components.

- (a) Fenders. Front and rear fenders shall be mounted over both wheels to adequately protect rider from road debris and water. All fenders shall cover the width of the tire and a minimum of 1/4 of a wheel circumference. Reject the motorcycle if fenders come in contact with tires or if fenders have sharp edges.

- (b) Exterior Sheet Metal, Moldings and Body Panels. Reject motorcycle if there are sharp edges or abnormal protrusions extending beyond normal vehicle extremities so as to constitute a danger to pedestrians, rider, passenger or other vehicular traffic. Safety bars or highway bars without sharp protrusions and which do not extend beyond the widest portion of the motorcycle and which are not further than 15 inches from the foot controls are permitted.
- (c) Seats. Each rider shall have a firmly secured seating area. Reject motorcycle if:
1. Seats are not properly secured or have springs or parts protruding which constitute a hazard.
 2. Foot rests for each designated seating position are not provided.
- (d) Chain Driven Motorcycle. Rotate chain to locate tightest position. Inspect chain under simulated road condition and reject if:
1. Not Adjusted to Manufacturers Specifications. If specifications are unavailable the following shall apply:
 - ✍ Rigid frame models: minimum 1/2 inch to maximum one inch total up and down movement measured on the lower section of the chain midway between the sprockets.
 - ✍ Swing arm models: minimum 1/2 inch to maximum two inches total up and down movement measured on the lower section of the chain midway between the sprockets.
 2. The chain guard or other covering device is missing, broken, cracked or is not the original equipment or equivalent replacement.
 3. Chain or sprockets are excessively worn.
- (e) Side or Center Stand. Inspect and reject if:
1. The side or center stand will not remain in the stored position.
 2. The side or center stand is cracked, broken or apparent structural weakness is present which would not allow the stand to support the motorcycle.

(13) Frame. Inspect the frame in all areas which would not require the disassembly of any components. Reject the motorcycle if:

- (a) Any part of the frame has been removed so as to weaken the original structure.
- (b) Repairs are made in any temporary manner.
- (c) Frame components are cracked, rotted, broken or are in deteriorated or dangerous condition.
- (d) Frame is bent out of alignment causing front to rear wheel misalignment to exceed one inch.
- (e) Front steering stops do not prevent the front end from contacting the fuel tank and the tire from rubbing against the frame or body panels.

(14) Fuel System. Check fuel system and controls and reject motorcycle if:

- (a) There is fuel leakage at any point in the system.
- (b) Any part of fuel hoses are not securely fastened or fuel tank is not securely mounted.
- (c) Fuel tank cap is missing or can not be properly secured.
- (d) Throttle does not return to idle position when activating force is removed, if so equipped.
- (e) Fuel hoses are chafed, cracked, split or swollen or are not a fuel resistant type.
- (f) Fuel hoses are routed in proximity to or in contact with high temperature engine parts.

(15) Engine. Inspect and reject motorcycle if:

- (a) Motor mounts are broken.
- (b) There is any leakage of oil or other fluids which create tire traction problems or contaminate brake pads or shoes.

(16) Battery. Check battery and reject motorcycle if not securely fastened or if vent tube is not properly routed or fastened.

(17) Rear View Mirror. Each motorcycle shall be equipped with at least one mirror so placed and adjusted as to afford the operator a clear, reflected view of the highway to the rear and left side of the motorcycle. Check mirror(s) and reject if:

- (a) Mirror is cracked, broken, tarnished or reflective surface is peeled.
- (b) Mirror will not hold adjustment or is not mounted securely to prevent excessive vibration.
- (c) The mirror contains sharp edges, projections or irregular indents capable of producing injury.
- (d) Mirror does not provide a minimum of ten sq. inches of reflective surface for a convex mirror or 12 sq. inches for a flat mirror.

(18) Controls.

- (a) Clutch. If equipped with a clutch, reject if any portion of the lever is broken or missing
- (b) Ignition Kill Switch. An ignition kill switch shall be mounted in a secure manner in a readily accessible position, if equipped.
- (c) Ignition. Each motorcycle shall be equipped with a locking ignition to prevent the motorcycle from being used by unauthorized persons.

(19) Side Car. Check side car and reject motorcycle if:

- (a) Side car is not securely attached to motorcycle.
- (b) There is a hole in the floor board larger than 1/2 inch in diameter or the floor board is rotted, rusted or deteriorated to a degree that creates a hazard to the rider or passenger.
- (c) The side car does not contain a seat which is securely fastened.
- (d) Side car not equipped with rear red tail lamp and stop lamp.
- (e) Side car not equipped with at least one white headlamp on the front of the side car.
- (f) Side car fitted with brake which does not operate properly.
- (g) Mudguard not fitted over sidecar wheel.

