

2.7 BAGGERS TECHNICAL SPECIFICATIONS

The following rules are intended to give freedom to modify or replace some parts in the interest of safety, research and development and improved competition between various motorcycle concepts.

EVERYTHING THAT IS NOT AUTHORIZED AND PRESCRIBED IN THIS RULE IS STRICTLY FORBIDDEN

2.7.1 Motorcycle specifications

All Years Harley-Davidson FL Touring
All Years Indian Bagger or Touring

2.7.2 Engine configurations and displacement capacities

Harley-Davidson Motorcycles:

- a. Originally equipped air-cooled pushrod V-Twin engines, maximum displacement of 131ci. normally aspirated.
- b. S&S or Jim's air-cooled pushrod Twin Cam engines w/MSO are acceptable up to 131ci. normally aspirated.
- c. Forced induction air-cooled pushrod V-Twin engines allowed with maximum displacement of 107ci.

Indian Motorcycles:

- i. Originally equipped water-cooled V-Twin Engine, maximum displacement of 112ci. normally aspirated.
- ii. Originally equipped air-cooled pushrod V-Twin Engine, maximum displacement of 131ci. normally aspirated.
- iii. Forced induction air-cooled pushrod V-Twin engines allowed with maximum displacement of 111ci.

2.7.3 Balancing various motorcycle concepts

In order to equalize the performance of motorcycles used in the King of the Baggers Championship, a system of performance enhancements or restrictions can be developed (such as minimum weight, air restrictor or REV limit may be applied according to their respective racing performances). The decision to apply a balancing system to a motorcycle will be taken by the MotoAmerica Permanent Bureau based on decisions made by the Superbike Commission at any time deemed necessary to ensure fair competition.

2.7.4 Minimum weight

All machines 288 kg (635 lbs.)

At any time of the event, the weight of the whole motorcycle (including the tank and its contents) must not be lower than the minimum weight.

There is no tolerance on the minimum weight of the motorcycle.

During the final technical inspection at the end of the race, the selected motorcycles will be weighed in the condition they finished the race, and the established weight limit must be met in this condition. Nothing may be added to the motorcycle. This includes all fluids.

During the practice and qualifying sessions, riders may be asked to submit their motorcycle to a weight control. In all cases, the rider must comply with this request.

The use of ballast is allowed to stay over the minimum weight limit and may be required due to the handicap system. The use of ballast and weight handicap must be declared to the Technical Director at the preliminary checks.

2.7.5 Numbers and number plates

The background colors and figures (numbers) for Baggers may be any color but must be strongly contrasting.

2.7.6 Fuel

a. All competitors must use VP Supplied Fuel. Fuel Specification T4.

2.7.7 Tires

a. All machines must be fitted with Dunlop tires. Specification (TBA)

2.7.8 Engine

2.7.8.1 Fuel system

- a. The original equipped fuel system must be used.
- b. Air funnels, throttle bodies and airbox may be altered or replaced.
- c. Air and air/fuel mixture must go to the combustion chamber exclusively through the throttle bodies.

2.7.8.2 Cylinder Head

Air Cooled Pushrod Engines: Cylinder heads may be altered or replaced.

Water cooled engines: Cylinder heads must be the originally fitted part with the following modifications allowed:

- a. The cylinder head must begin as a finished production part using originally equipped materials and castings.
- b. Porting and polishing of the cylinder head normally associated with individual tuning such as gas flowing of the cylinder head, including the combustion chamber is allowed. Epoxy may be used to shape the ports.
- c. The throttle body intake insulators may be modified.
- d. The compression ratio is free.
- e. The combustion chamber may be modified.
- f. Valves may be modified.
- g. Valve seats can be modified or replaced for repair.
- h. Valve guides may be modified.
- i. Valves must remain in the homologated location and at the same angle.
- j. Rocker arms (if any) may be modified.
- k. The exhaust air bleed system may be blocked.
- l. Valve springs may be modified.

2.7.8.3 Camshaft

- a. Camshafts may be altered or replaced.

2.7.8.4 Cam sprockets or cam gears

- a. Camshaft sprockets, pulleys or gears may be altered or replaced to allow degreeing of the camshafts.
- b. The cam chain or cam belt tensioning device(s) can be modified or changed.

2.7.8.5 Cylinders

- a. May be altered or replaced.
- b. Normally aspirated air-cooled pushrod engines may increase the bore to a maximum total displacement of 131ci.
- c. Normally aspirated water-cooled engines limited to 112ci.
- d. Forced induction engines: Harley Davidson air-cooled 107 ci./ Indian air-cooled 111 ci.

2.7.8.6 Pistons, rings, pins and clips.

- a. Air cooled pushrod V-Twin engines: May be modified.
- b. Water cooled engine: must be the originally fitted and homologated part with no modification.

2.7.8.9 Connecting rods

- a. Connecting rod may be altered or replaced.
- b. Connecting rod bolts are free but must be of the same weight or heavier, and of the same material as the original bolt or of higher specific weight material.

2.7.8.10 Crankshaft

Only the following modifications can be made to the crankshaft:

- a. Stroke may be modified on air cooled pushrod V-Twin engines. Water cooled to remain the same as the originally fitted and homologated part.
- b. Bearing surfaces may be polished.
- c. Surface treatments may be applied to the crankshaft.
- d. Balancing is allowed.

2.7.8.11.1 Crankcase / Gearbox housing

- a. Crankcases must be the originally fitted part with only the following modifications allowed. If the crankcases have an integral cylinder, then the top face of the cylinder may be ground to adjust deck height. Oil Spray nozzles may be modified. No other modifications are allowed (including painting, polishing and lightening).
- b. Only the original or an approved sump Oil-pan (sump) and oil pick up can be used.
- c. Oil breather cover must remain as original, but the internal breather/damper plate can be modified or replaced.
- d. Oil tank breathers are acceptable and may run through an external catch can but all exits must ultimately be routed to the intake system.

2.7.8.11.1 Lateral covers and protection

- a. Lateral (side) covers may be altered, modified or replaced (excluding pump covers). If altered or modified, the cover must have at least the same resistance to impact as the original one. If replaced, the cover must be made in material of same or higher specific weight and the total weight of the cover must not be less than the original one.
- b. All lateral covers/engine cases containing oil, and which could be in contact with the ground during a crash, must be protected by a second cover made from metal such as aluminum alloy, stainless steel, steel or titanium.
- c. All drain and fill plugs must be lock wired (safety wired). The use of clips is not permitted. External oil filter(s), screws and bolts that enter an oil cavity must be safety wired (i.e. on crankcases) or the oil filter may optionally have a secondary retention mechanism.

2.7.8.12 Transmission / Gearbox

- a. The layout of the transmission shafts must be the same as on the homologated motorcycle.
- b. The gear design and material are free.
- c. Final drive belt systems may be converted to chain type systems.

2.7.8.13 Clutch

- a. Aftermarket or modified clutches are permitted (including plates/springs etc.).

2.7.8.14 Oil pumps, cam plates and oil lines

- a. The oil pump and cam plate may be modified or replaced.
- b. Oil lines may be modified or replaced. Oil lines containing positive pressure, if replaced, must be of braided reinforced construction with swaged or threaded connectors.

2.7.8.15 Cooling System

- a. The only liquid engine coolants permitted is water.
- b. Additional radiators or oil coolers may be added.
- c. The original oil/water heat exchanger may be modified, replaced or removed.

2.7.8.16 Airbox

- a. The airbox may be modified or replaced.
- b. Airboxes should be designed to retain oil from the crankcases in the event of engine failure or tip-over.
- c. Where breather or overflow pipes are fitted, they must discharge via existing outlets. Catch cans may be used but the original closed system must be retained; no direct atmospheric emission is permitted.

2.7.8.17 Fuel supply

- a. Fuel lines from the fuel tank up to the injectors (fuel hoses, delivery pipe assembly, joints, clamps, fuel canister) may be replaced and must be in such a way that they are protected from crash damage.
- b. Quick connectors or dry break connectors may be used.
- c. Fuel vent lines may be replaced.
- d. Fuel filters may be added.

2.7.8.18 Exhaust system

- a. Exhaust pipes, catalytic converters and silencers may be altered or replaced from those fitted to the homologated motorcycle. Catalytic converters may be removed.
- b. For safety reasons, the exposed edge(s) of the exhaust pipe(s) outlet(s) must be rounded to avoid any sharp edges.
- c. Wrapping of exhaust systems is allowed.

- d. The noise limit for Baggers will be 115 dB/A measured at 3000 RPM. See Art. 2.14 for complete sound testing procedure. (with a 3 dB/A tolerance after the race only).

2.7.9 Engine control system

- a. The engine control system (ECU) must be:
 - i. Original system as homologated, with or without a change of software
 - ii. An approved aftermarket system with series specified software
- b. Central unit (ECU) may be relocated.
- c. Optional equipment sold by the motorcycle manufacturer for the homologated model is considered not homologated.
- d. At any time during an event the Technical Director has the right to make a team substitute their ECU or external module with the MotoAmerica sample.
- e. The original sensors may not be replaced or modified. No additional sensors may be added to the machine for data collection.
- f. No extra sensors may be added for control strategies except the lambda sensor and shift rod sensor.
- g. The MotoAmerica approved external fuel injection modules may not alter any sensor signal relating to the ride by wire system or control/actuate any part of the machine excepting the fuel injectors and ignition coils. No external module may add traction control strategies. The modules may only connect to the fuel injectors, ignition coils, lambda sensor, power supply and “piggyback the Throttle Position, Gear and RPM signals”. Lambda closed loop/auto tuning is permitted.
- h. Other additional electronic hardware equipment not on the original homologated motorcycle cannot be added with the exceptions noted below.
 - i. Resistors/load may be added to replace the parts of the electrical system that have been removed (including lights and lambda sensors), to prevent ECU errors.
- i. Telemetry is not allowed.
- j. No remote or wireless connection to the bike for any data exchange or setting is allowed whilst the engine is running, or the bike is moving.
- k. Harness:
 - i. The key/ignition lock may be relocated, replaced or removed.
 - ii. Cutting and removal of excess and unused wiring in the original main wiring harness is allowed. All connectors must remain as originally fitted. No wires may be added to the main harness. Sub-harness may be modified for the purpose of powering or operating components.
- l. A lap timer may be fitted. GPS lap timers may be used. The lap timer may only be connected to the machine with a power and ground connection. Data collection from the machines sensors or ECU is allowed. Data collection by the lap timer by way of GPS and internal IMU is permitted. See 2.7.9/f.
- m. Plug cap must remain as homologated.
- n. Spark plugs may be replaced.
- o. Battery is free.

2.7.9.3 Generator, alternator, electric starter

- a. The stator/coil must be the originally fitted parts with no modification allowed.
- b. Motorcycles should self-start on the starting grid in neutral. Push-starting on the starting grid is not allowed, however start line Officials may push start the motorcycle if necessary (in gear).

2.7.10 Main frame and spare motorcycle

- a. During the entire duration of the event, each rider may only use one (1) complete motorcycle.

2.7.10.1 Frame body and rear sub-frame

- a. The main frame must be the originally manufactured and fitted part

2.7.10.2 Fairing / Bodywork

- a. The fairing, mudguards and body work must conform in principle to the homologated shape as originally produced by the manufacturer. Material is free. Headlights may be included even when considered external. All glass and plastic lenses should be covered by a clear vinyl or a vinyl replicating the look of the lens.
 - 1) Harley Davidson: must run a batwing fairing or Road Glide fairing. Either model fairing is acceptable regardless of the model HD motorcycle.
 - 2) Indian Motorcycles: must replicate the originally fitted and homologated part
- b. The windscreen must be installed and may be replaced.
- c. A lower catch/belly pan must be constructed to hold, in case of an engine breakdown, at least half of the total oil and engine coolant capacity used in the engine (min. 5 liters water-cooled/ 2.5 liters air-cooled).
- d. The saddlebags must conform in principle to the homologated appearance remaining stock size, position height may be altered a maximum of 4" in respect to the homologated vertical distance from the rear axle. The lid must be functional and lock in closed position. Each saddle bag must be able to enclose a 13.6" x 5.4" x 9" box and be at least 2200 cubic inches of volume. Material is free. Under consideration for 2021- saddlebags must be mounted in such a way that allows the bag to "break away" in the event of a crash.

2.7.10.3 Seat

- a. Seat may be altered or replaced.

2.7.11 The following items MAY BE altered or replaced from those fitted to the homologated motorcycle.

- a. Any type of lubrication, brake or suspension fluid may be used.

- b. Gaskets, seals, and gasket material.
- c. Bearings (ball, roller, taper, plain, etc.) of any type or brand may be used.
- d. Fasteners (nuts, bolts, screws, etc.), but internal engine bolts must remain of standard homologated materials or materials of higher specific weight.
- e. Thread repair using inserts of different material such as helicoils and timeserts.
- f. External surface finishes and decals.

2.7.12 The following items MAY BE removed

- a. Instrument and instrument bracket and associated cables.
- b. Tachometer.
- c. Speedometer and associated wheel spacers.
- d. Chain guard.

2.7.13 The Following Items MUST BE Removed

- a. Rear-view mirrors.
- b. Horn.
- c. License plate bracket.
- d. Toolbox.
- e. Safety bars, center and side stand brackets welded to the main frame may be removed. If the side stand is not removed it must be held in the up position by a secondary device.