



# 2017 No Limits Racing Technical Regulations

All machines competing in any 2017 No Limits Cup Races must comply with these regulations. The regulations are additional to the ACU Standing Regulations as laid out in the ACU Handbook. All NLR Championships are for riders who possess a valid ACU or SACU. The regulations are as follows and are correct at the time of printing but which are subject to any amendments made by the ACU or NLR which will be issued by means of an NLR Bulletin. Engine and frame numbers must not have been tampered with or deleted. New, unstamped components are admissible. Bikes without a frame number are acceptable providing they were originally supplied for racing. Motorcycles must be based upon bikes originally homologated for road use.

#### NLR TECHNICAL SPECIFICATIONS

Rules intended to permit changes to the homologated motorcycle in the interest of equality and competitiveness.

#### **EVERYTHING THAT IS NOT AUTHORISED AND PRESCRIBED IN THESE REGULATIONS IS STRICTLY FORBIDDEN**

All motorcycles must comply in every respect with all the requirements for Road Racing as specified in the Technical Regulations, unless it is equipped as such on the homologated machine.

#### 1. Machine Specifications

All items not mentioned in the following articles must remain as originally produced by the manufacturer for the homologated machine.

#### 2. Engine configurations and Displacement capacities

600

Over 400 up to 600cc 4-stroke 4 cylinder

Over 600 up to 675cc 4-stroke 3 cylinder

Over 600 up to 750cc 4-stroke 2 cylinder

The displacement capacities must remain at the homologated size. Modifying the bore and stroke to reach class limits is not allowed. Dispensation will be given for all models of the Kawasaki ZX6R (636cc) to allow it to race in the 600cc 4 stroke 4 cylinder category but the rider must hold a valid Intermediate Novice Licence or higher. Dispensation will be given to Ducati 848 and 899 machines to compete in the 600cc 4 cylinder 2 stroke class, 899 machines must comply wholly with the 2017 Ducati Performance TriOptions Cup technical regulations for 899 machines as published by MSVR.

1000

Over 600cc up to 1000cc 4 stroke 4 cylinders

Over 675cc up to 1100cc 4 stroke 3 cylinders

Over 750cc up to 1200cc 4 stroke water cooled 2 cylinders

Over 830cc up to 1300cc 4 stroke air cooled 2 cylinders

The displacement capacities must remain at the homologated size. Modifying the bore and stroke to reach class limits is not allowed.

#### 3. Number Plates

Racing numbers must be affixed to the front and the two sides of the motorcycle so that both front and side numbers are clearly visible to the public and officials ON BOTH SIDES OF THE TRACK and must comply with the following regulations:

a) Front Numbers – Numbers must be fitted directly on the front of the fairing not on the side, ALL fairings may be modified to accommodate this. Where the design of the fairing makes this impossible the number must be aligned to the side of the machine in relation to the location of the timing/data centre.

b) Side Numbers – Numbers must be fitted to the middle or lower part of the side fairing, **NOT THE SEAT FAIRING.**

The figures must be clearly legible and like the background must be painted in colours to avoid reflection from sunlight. The minimum dimensions of the letters are as follows :

Height of figure                      Front 160mm

Side 120mm

Width of figure                      Front 80mm

Side 60mm

Width of stroke                      25mm

Space between 2 figures            15mm

No advertising is allowed on the front of the fairing without permission of No Limits Racing.

The English form for the number must be used. That is single vertical line for the "one" and a sloping line without a horizontal line for the "seven" (see current ACU handbook)

All other number plates or markings on a motorcycle liable to cause confusion with the number must be removed before the start of a competition.

Unless authorised in the Supplementary Regulations or Final Instructions the following colour combinations must be used for the front and side numbers:

600cc machines

White background and blue numbers

750cc machines

White background and black numbers

1000cc machines

White background and black numbers

#### 4. Fuel

Fuel used must be available from normal road fuel stations with a maximum 102 RON. No additives are permitted.

#### 5. Tyres

Please see '2016 NLR Tyre Regulations' for full list of all permitted tyres for use in all NLR classes. The tyre must have an E mark or DOT (American Department of Transportation) approval and the DOT number must appear on the tyre wall. In all classes wet race tyres may be used and may be fitted to an extra set of spare wheels.

#### 6. Engine

##### 6.1. Fuel injection systems/carburettor

- Fuel injection systems/carburettor refers to carburettors, throttle bodies, fuel injectors, variable length intake tract devices, fuel pump and fuel pressure regulator.
- The original homologated fuel injection system must be used.
- Bikes with carburettor systems must use them in an unmodified form, however jetting can be changed.
- The fuel injectors must be stock and unaltered from the original specification and manufacture.
- Throttle bodies intake insulators may be modified.
- The injectors must be standard units as on the homologated motorcycle.
- Bell mouths may be modified.
- On Fuel Injected bikes the secondary vacuum slides may be fixed in the open position.
- Butterfly cannot be changed or modified.

##### 6.2. Cylinder Head

Cylinder head must be as homologated. The following modifications are allowed:

- Grinding of the cylinder head surface on the side of the gasket;
- Modifications of the inlet and exhaust ports by taking off or adding material (welding is forbidden);
- Original homologated valves guides may be cut or modified, but only on the intake or exhaust port side;
- Polishing of the combustion chamber;
- Original valve seats must be used, but modifications are allowed to the shape;
- Compression ratio is free, but the combustion chamber can be modified only by taking material off.
- It is forbidden to add any material to the cylinder head unless as described above. The combustion chamber may be modified. Rocker arms (if any) must remain as homologated (material and dimensions).
- Standard valves, valve springs and valve spring retainers must be used.

##### 6.3. Camshaft

- The method of drive must remain as homologated. The cam shaft must be standard.
- The cam chain or cam belt tensioning device(s) are free.
- At the technical checks: for direct cam drive systems, the cam lobe lift is measured;
- For non direct cam drive systems (i.e. with rocker arms), the valve lift is measured.

##### 6.4. Cam Sprockets or gears

- Cam sprockets or cam gears must remain standard

##### 6.5. Cylinders

- Cylinders must remain as homologated. Only the following modifications to the cylinders are allowed.
- Cylinder head gasket surface may be machined to allow the adjustment of compression ratio or resurfacing to repair a warped cylinder surface deck.
- Homologated materials and castings for cylinders must be used.
- The surface finish of the cylinder bore must remain as homologated.
- Cylinder capacity must remain at the homologated size.
- 2 stroke machines only the original ports may be modified.

##### 6.6. Pistons

- Pistons must remain as homologated. Polishing and lightening is not allowed.

##### 6.7. Piston Rings

- Piston rings must remain as homologated. No modifications are allowed.

##### 6.8. Piston Pins and Clips

- Piston pins and clips must remain as homologated. No modifications are allowed.

##### 6.9. Connecting Rods

- Connecting rods must remain as homologated. Polishing and lightening is not allowed.

#### 6.10. Crankshaft

- Crankshaft must remain as homologated without modification. Polishing and lightening is not allowed.
- Modifications of the flywheels are not allowed.

#### 6.11 Crankcase/Gearbox and all other Engine Cases (i.e. ignition case, clutch case)

- It is not allowed to add a pump used to create a vacuum in the crankcase.
- If a vacuum pump is installed on the homologated motorcycle then it may be used only as homologated.
- Other engine cases must be made of the homologated material with the exclusion of the lateral side covers. (see below)
- Lateral (side) covers may be altered, modified or replaced.
- 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.
- Engine case guards in the form of strengthened engine side covers may be installed.
- These covers must be no lighter in weight than the standard part.
- All lateral covers/engine cases containing oil and which could be in contact with the ground during a crash, may be protected by a second cover made of composite material, type injection moulded nylon 6.6 long fibre 60%, carbon or Kevlar®, aluminium or steel plates and/or bars are also permitted.
- All these devices must be designed to be resistant against sudden shocks and must be fixed properly and all devices are fitted by bolts onto the engine cover/case.
- Holes may be added in dry clutch covers to allow additional cooling.
- The countershaft cover may be removed.
- The addition of a crankcase protector at the countershaft is allowed.

#### 6.12. Transmission/Gearbox

- Transmission/gearbox is free (Open).
- The number of gears must remain as homologated.
- Quick-shift systems are allowed.
- Countershaft sprocket, rear wheel sprocket, chain pitch and size can be changed.
- Chain guard as long as it is not incorporated in the rear fender may be removed.

#### 6.13. Clutch

- Clutch type (wet or dry) and the way of operation (by cable or hydraulic) must remain as homologated.
- Friction and drive discs may be changed.
- Clutch springs may be changed.
- The clutch basket (outer) may be replaced.
- The original clutch assembly may be modified for back torque limiting capabilities (slipper type).
- It is allowed to change to an aftermarket clutch with back torque limiting capabilities (slipper type).
- No power source (i.e. hydraulic or electric) can be used for gear selection, if not installed in the homologated model for road use.
- Human power is excluded from the ban.

#### 6.14. Oil Pumps, water pumps and Oil Lines

- Modifications are allowed but pump housing, mounting points and oil feed points must stay as original.
- Oil lines may be modified or replaced.
- Oil lines containing positive pressure, if replaced, must be of metal reinforced construction with swaged or treaded connectors.
- The internal parts of the water pump may be changed or modified.
- The drive ratio may be changed.
- The external appearance must remain as homologated.

#### 6.15. Radiator and oil coolers

- The radiator and its hoses may be changed only if they fit in the standard location and do not require any modifications to the main frame or to the fairings' outer appearance.
- Modifications to the existing oil cooler are allowed only if it does not require any modifications to the main frame or to the fairings' outer appearance.
- A heat exchange (oil/water) can be exchanged by an oil cooler.
- Radiator fan and wiring may be changed, modified or removed.
- Additional oil coolers are not allowed.
- Oil cooler must not be mounted on or above the rear mudguard.

#### 6.16. Airbox

- The basic air box must remain as originally produced by the manufacturer on homologated machine
- The top face only can be removed or drilled through.
- The air filter element may be replaced.

- The air box drains must be sealed.
- All motorcycles must have a closed breather system.
- Ram air tubes or ducts running from the fairing to the air box may be modified, replaced or removed
- If tubes/ducts are utilized, they must be attached to the original, unmodified air box inlets.

#### 6.17. Fuel Supply

- Fuel pump and fuel pressure regulator must remain the same as on the homologated motorcycle.
- The fuel pressure must be as homologated.
- Fuel lines from the fuel tank up to the injectors (fuel hoses, delivery pipe assembly, joints, clamps, fuel canister) may be replaced.
- The fuel line(s) going from the fuel tank to the fuel injection system must be located in such a way that they are protected from possible crash damage.
- Quick connectors or dry brake quick connectors may be used.
- Fuel vent lines may be replaced.
- Fuel filters may be added.

#### 6.18. Exhaust System

- Exhaust pipes and silencers may be modified or changed.
- For safety reasons, the exposed edge(s) of the exhaust pipe(s) outlet(s) must be rounded to avoid any sharp edges.
- Wrapping of exhaust systems is not allowed except in the area of the riders foot or an area in contact with the fairing for protection from heat.
- The noise limit for will be 105 dB/A (with a 3 dB/A tolerance after the race).

#### 6.19. Ignition/Engine Control System (ECU)

- Ignition/Engine control system (ECU) is open. (Free to change)
- The use of flash memory ('flash RAM') for fuel injection mapping is allowed.
- An additional control unit to change the fuel mixture may be fitted.
- Spark plugs and plug caps and wires may be replaced.

#### 6.20. Generator, alternator, electric starter

- Generator may be modified, removed or replaced.
- The electric starter must operate normally and always be able to start the engine during the practices and race (including the Parc Ferme).

#### 6.21. Additional Equipment

- The addition of a device for infra-red (IR) transmission of a signal between the racing rider and his team, used exclusively for lap timing, is allowed.
- The addition of a GPS unit for lap timing/scoring purposes is allowed.

### 7. Electrical

#### 7.1. Electrics and Switches

- Connectors and switches are open (free).

#### 7.2. Wiring Harness

- The wiring harness may be altered or replaced.
- Additional wiring harnesses may be added.
- Cutting of the wiring harness is allowed.

#### 7.3. Battery

- The size and type of battery may be changed and relocated.

#### 7.4. Red Rear Warning Lights

- All motorcycles must have a functioning red light mounted at the rear of the machine to be used in rain or low visibility conditions.

### 8. Frame and Body

#### 8.1. Frame Body, Instrument support and Rear sub-frame

- Frame must remain as originally produced by the manufacturer for the homologated machine.
- Holes may be drilled on the frame only to fix approved components (i.e. fairing brackets, steering damper mount, sensors).
- The sides of the frame-body may be covered by a protective part made of a composite material.
- These protectors must fit the form of the frame.
- Nothing else can be added or removed from the frame body.
- All motorcycles must display a vehicle identification number on the frame body (chassis number).
- Engine mounting brackets or plates must remain as originally produced by the manufacturer for the homologated machine

- Rear sub frame may be changed or altered, but the type of material must remain as homologated, or of higher specific weight.
  - The Instrument support frame can be changed or altered.
  - Additional seat brackets may be added, non-stressed protruding brackets may be removed if they do not affect the safety of the construction or assembly.
  - Bolt-on accessories to the rear sub-frame may be removed.
- 8.2. Front Forks
- Front forks are free (Open).
  - The upper and lower fork clamps (triple clamp, fork bridges) may be changed.
  - Steering damper may be added or replaced with an aftermarket damper.
  - The steering damper cannot act as a steering lock limiting device.
- 8.3. Rear Fork (Swing arm)
- The rear fork may be changed.
  - A chain guard must be fitted in such a way to reduce the possibility that any part of the riders' body must become trapped between the lower chain run and the rear wheel sprocket.
  - Rear axle chain adjuster can be modified or changed.
- 8.4. Rear Suspension Unit
- Rear suspension unit can be changed or modified.
  - The original attachments of the frame and rear fork must be as homologated.
  - Rear suspension unit spring(s) may be changed.
  - Rear suspension linkage may be changed.
- 8.5. Wheels
- Wheels are Open.
- 8.6. Brakes
- Front and rear brake discs may be changed.
  - Front Brake Master Cylinders and levers can be changed.
  - Front Brake Callipers can be changed.
  - The callipers must be designed to use pads with a pad area that is the same or greater than standard.
  - Internally ventilated discs are not allowed if not homologated in the original machine.
  - Replacement brake discs must be of ferrous material. (No carbon).
  - Rear brake calliper is open (Free).
  - Rear master cylinder is open (Free).
  - Front and rear hydraulic brake lines may be changed.
  - The split of the front brake lines for both front brake callipers must be made above the lower edge of the fork bridge (lower triple clamp).
- 8.7. Handle Bars and Hand Controls
- Handle bars, throttle assembly and associated cables, hand controls and levers may be replaced (does not include brake master cylinder).
  - Handle bars and hand controls maybe relocated.
  - Throttle controls must be self-closing when not held by hand.
  - Electric starter switch and engine stop switch must be located on the handle bars.
- 8.8. Foot Rest/Foot Controls
- Foot rest/foot controls may be relocated, but the original mounting points must be used.
  - Foot rests may be rigidly mounted or a folding type which must incorporate a device to return them to the normal position.
  - The end of the foot rest must have at least an 8mm solid spherical radius.
  - Non folding footrests must have an end (plug) which is permanently fixed, made of aluminium, plastic, Teflon® or equivalent type of material (min. radius of 8mm).
  - The plug surface must be designed to reach the widest possible area of the footrest.
  - The Chief Technical Officer has the right to refuse any plug not satisfying this safety aim.
- 8.9. Fuel Tank
- Fuel tank must remain as originally produced by the manufacturer for the homologated machine.
  - Fuel tanks with tank breather pipes must be fitted with non-return valves that discharge into a catch tank with a minimum volume of 250 cc made of a suitable material.
  - Fuel caps may be changed.
  - Fuel caps when closed, must be leak proof.
- 8.10. Fairing/Body Work
- Fairing and body work may be replaced.
  - The material may be changed.

- The Chief Technical Officer has the right to refuse any bodywork that does not appear safe and cosmetically tidy.
- Wind screen may be replaced, transparent or 'light tint' is allowed, the rider must be able to see easily through it.
- The original combination instrument/fairing brackets may be replaced.
- All other fairing brackets may be altered or replaced.
- The original air ducts running between the fairing and the air box may be altered or replaced.
- The original air ducts into the air box may be altered or replaced.
- Minimal changes are allowed to permit the use of an elevator (stand) for wheel changes and to add a small plastic protective cone to the frame or engine.
- Front mudguard may be replaced. The use of carbon fibre or Kevlar® composites is allowed.
- Front mudguard may be spaced upward for increased tyre clearance.
- Rear mudguard fixed on the swing-arm may be replaced.
- The use of carbon fibre or Kevlar® composites is allowed.
- The existing rear mudguard under the seat may be removed.
- A mudguard may be fitted directly onto the swing-arm (it may not cover more than 120 degrees of the wheel).

#### 8.11. Seat

- Seat, seat base and associated body work may be replaced.
- The top portion of the rear body work around the seat may be modified to a solo seat.
- Holes may be drilled in the seat or rear cowl to allow additional cooling.
- Holes which are bigger than 10mm must be covered with metal gauze or fine mesh.
- Mesh must be painted to match the surrounding material.
- The appearance from both front rear and profile must conform in principle to the homologated shape.
- All exposed edges must be rounded.

#### 8.12. Fasteners

- Standard fasteners may be replaced with fasteners of any material and design.
- Aluminium fasteners may only be used in non-structural locations.
- Titanium fasteners may be used in structural locations, but the strength and design must be equal to or exceed the strength of the standard fastener it is replacing.
- Special steel fasteners may be used in structural locations, but the strength and design must be equal to or exceed the strength of the standard fastener it is replacing.
- Fasteners may be drilled for safety wire, but intentional weight-saving modifications are not allowed.

#### 8.13. Oil Containment

- The lower fairing has to 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 (minimum 5 litres).
- The lower edge of openings in the fairing must be positioned at least 50 mm above the bottom of the fairing.
- All engine cases containing oil and which could be in contact with the ground during a crash must be protected by a second cover made of composite material, metal such as aluminium alloy, stainless steel, steel or titanium.
- All these devices must be designed to be resistant against sudden shocks and all devices must be fixed by bolts onto the engine covers/cases.
- All R&G manufactured covers will be permitted without regard of the material.
- The chief technical officer has the right to forbid any covers, if the evidence shows the cover is not effective.

### 9. Transponders

The transponder to be used for timing purposes must be AMB/Mylaps TranX 260 or TranX Pro transponders, or other compatible equipment.

The Chief Technical Officer will refuse any machine that does not have a correctly-positioned positive transponder attachment. Transponders should be fitted as follows (see appendix a):

- The transponder should be positioned on either side of the machine in the area of the swinging arm pivot; it should not be covered by metal or carbon fibre.
- Positive attachment of the transponder bracket consists of a minimum of tiwraps, but preferably by screw or rivet.
- Velcro or adhesive alone will not be accepted.
- The Transponder retaining clip must also be secured by a tie wrap.

This is the responsibility of the team and rider and no responsibility will be accepted by the organisers for failure to comply. Timekeepers have the right not to time any machine where the transponder is incorrectly fitted, not attached or lost and the Clerk Of The Course will not accept this reason for a rider failing to produce a qualifying time in accordance with the regulations.

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

- Any type of lubrication, brake or suspension fluid may be used.
- Bearings (ball, roller, taper, plain, etc.) of any type or brand may be used.

- Gaskets and gasket materials.
- Painted external surface finishes and decals.
- Tachometer – NB this must be working so that noise limits may be measured.

11. The following items MAY BE removed

- Emission control items (anti-pollution) in or around the air box and engines (O2 sensors, air injection devices) Speedometer and related wheel spacers.
- Bolt on accessories on a rear sub frame.

12. The Following Items MUST BE removed

- Headlamp, rear lamp and turn signal indicators (when not incorporated in the fairing).
- Openings must be covered by suitable materials.
- Rear-view mirrors.
- Horn.
- Number plate bracket.
- Tool box.
- Helmet hooks and luggage carrier hooks
- Passenger foot rests.
- Passenger grab rails.
- Safety bars, centre and side stands must be removed (fixed brackets must remain).

14. The following items MUST BE altered

- Motorcycles must be equipped with a functional ignition kill switch or button mounted at least on one side of the handlebar (within reach of the hand while on the hand grips) that is capable of stopping a running engine.
- It is recommended that machines be equipped with a red light on the instrument panel.
- This light must flash in the event of oil pressure drop.
- All drain plugs must be wired.
- External oil filter(s) screws and bolts that enter an oil cavity must be safety wired (i.e. on crankcases, oil lines, oil coolers, etc.)

15. Special Regulations

Endurance – All machines entering any endurance races, must have a switch mounted on the handlebar to operate the red rear warning light. This must be able to be operated by the rider whilst on the machine and at speed.



## Required Transponder Position

Due to a growing number of problems with transponder signal strength, it has been decided to standardise the position of the transponder on every machine as per 2017 NLR Technical Regulations Rule 9 which is below:

### 9. Transponders

The transponder to be used for timing purposes must be AMB/Mylaps TranX 260 or TranX Pro transponders, or other compatible equipment.

The Chief Technical Officer will refuse any machine that does not have a correctly-positioned positive transponder attachment. Transponders should be fitted as follows (see appendix a):

- The transponder should be positioned on either side of the machine in the area of the swinging arm pivot; it should not be covered by metal or carbon fibre.
- Positive attachment of the transponder bracket consists of a minimum of tiewraps, but preferably by screw or rivet.
- Velcro or adhesive alone will not be accepted.
- The Transponder retaining clip must also be secured by a tie wrap.

This is the responsibility of the team and rider and no responsibility will be accepted by the organisers for failure to comply. Timekeepers have the right not to time any machine where the transponder is incorrectly fitted, not attached or lost and the Clerk Of The Course will not accept this reason for a rider failing to produce a qualifying time in accordance with the regulations.

