

# FIAT PUNTO ABARTH TECHNICAL REGULATIONS.

2010

## 1. GENERAL

### 1 Introduction:

The Fiat Motorsport Club (hereinafter FMC) will organise the Fiat Punto Abarth Championship, which will be contested during the racing season 2010. The Championship will run in accordance with the General Competitions Rules (hereinafter GCR) of Motorsport Ireland (hereinafter MI), the International Sporting Code of the FIA, and these rules which will constitute supplementary regulations. The Championship organisers reserve the right to amend or vary the Technical Regulations at any time before or during the Championship and further issue additional statements concerning the regulations from time to time subject to MI approval. All such statements will be issued as a Bulletin by MI and to all registered competitors by publishing on the website of MI ([www.motorsportireland.com](http://www.motorsportireland.com)), *publishing on the website of the Dunlop Abarth Cup ([www.irishabarthracing.com](http://www.irishabarthracing.com))*, posting by FMC to the competitors address as detailed on the Championship Registration Form or delivery to the competitor by hand. Publishing in any one of these formats will be deemed to be issued to and binding on competitors. All Competitors, Teams, Manufacturers and all team members associated with any of the above agree to be bound by the Regulations including any amendments, variations or statements relating thereto. *All references in these regulations to the Group N papers mean reference to the FIA Automobile Club D'Italia Group N regulation N-5609.*

### Scrutineering

1.1 Scrutineering will be stringent and carried out by a Championship Eligibility Scrutineer (hereinafter CES), approved by the Technical Advisory Group (hereinafter TAG) of MI, or a Scrutineer delegated by the CES at all events.

1.1.1 The CES, or a Scrutineer delegated by the CES, will seal all engines and ECU's prior to the start of the Championship. Each seal will have a number, which will be recorded and may not be broken except by permission of the CES, or a Scrutineer delegated to examine the components, or by written permission from the TAG on behalf of MI. If for any reason the seal has to be broken, the units will have to be resealed by the CES. Any additional costs to the CES will be borne by the competitor. *If any car is presented at a Fiat Punto Abarth Championship Scrutineering with any seal broken then the car may not, at the discretion of the CES, be allowed to race and will not in any event be permitted to score any championship points for that event. The CES will seal the engine or ECU to be striped and checked within 45 days of sealing, Appendix 2 Article 31.1. The competitor will be responsible for any expenses incurred in resealing and rechecking any components.*

1.1.2 If the engine has been resealed it must be brought to Westward Engineering Ltd to acquire a new engine print out which must match the engine seal. *This must be done before the next race meeting, or as soon as is*

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*practicable thereafter. Failure to do so may, at the discretion of the CES, result in that car not being allowed to race and the competitor will not be awarded any championship points for any round(s) until the new printout has been furnished to the CES.*

**1.1.3** Every car presented at scrutiny must have an engine *and ECU* performance printout supplied by Westward Engineering to match the seal number on the engine *and ECU*. *Failure to do so may, at the discretion of the CES, result in the car not being allowed to race. Each competitor will also, at their own expense, furnish a copy of the engine and ECU performance printout to the designated official of MI. This printed engine performance printout supplied by Westward Engineering, to match the seal number on the engine and ECU, must be present at the first race meeting. All cars must be presented to Westward Engineering at least one month prior to the season starting.*

**1.1.4** The FMC and the Championship organisers reserve the right to exchange any components with later production parts throughout the Championship.

**1.1.5** Eligibility/safety Scrutineering will take place with technical product support provided by Fiat Ireland, and FMC approved by the TAG for MI. These officials are empowered to undertake any form of verification procedure necessary, and may order the removal of parts from the car, with any necessitating costs to be borne the competitor. MI reserves the right to seal any vehicle for inspection at

any time in the series. The CES may impound a competitor's vehicle in Parc Ferme and have it removed to another location for subsequent technical examination. The competitor will be required, *at his own expense*, to provide personnel to enable this removal and disassembly to take place, *and will also be responsible for any expenses incurred by the CES or the FMC*. All sealed components must be examined within 45 days of sealing Appendix 2 Article 31.1

**1.2** Every vehicle will be subject to the scrutineering requirements as detailed in paragraphs *1.1* & 1.1.1 to 1.1.5 of these regulations and may have to pass Championship Scrutineering at a predetermined location prior to each Championship round. Failure to pass Championship Scrutineering on technical, eligibility or safety grounds will lead to that vehicle not being allowed to race.

**1.2.1** *Championship Scrutineering will not take the place of or obviate the requirement for each competing car and driver to attend the MI Event Scrutineering.* Technical Regulations will be enforced. Registration for the Championship is considered as acceptance of the Fiat Abarth Championship Regulations in their entirety.

**1.2.2** deleted

## **1.2.3 General Description**

The 2010 Fiat Abarth Championship is open to all holders of a valid racing licence as set out in *paragraph 1.3.2 of MI Appendix 41*. The car must comply

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with the 2010 Fiat Abarth Championship Regulations, and with MI Regulations, at all times. Modifications to the car other than those allowed in these regulations are not permitted. Only cars supplied by Fiat Ireland and approved by FMC will be permitted in this Championship.

**1.2.4** *It should be understood that if is not clearly specified that you can carry out modification then you should work on the principle that you cannot.*

**1.2.5** Safety Requirements – See MI Yearbook – Safety requirements must conform to Appendix “2” of the current Motorsport Ireland Yearbook.

**1.2.6** *A Safety Rollover Cage must be fitted and conforming to MI Appendix 2.16.*

**1.2.7** *Circuit Breaker (Master Cut Off Switch) complying with MI Appendix 2.22 must be fitted and working.*

**1.2.8** *Seat Belts complying with MI Appendix 2.7 must be fitted and in good condition.*

**1.2.9** *Fire Extinguishers complying with MI Appendix 2.6 (as required) must be fitted, filled with permitted extinguishant and carry a current test certificate.*

**1.2.10** Competition seat with FIA Approval mounted in accordance with FIA regulations must be fitted.

**1.2.10.1.** Additional fasteners must be fitted on bonnet (not less than two) and

tailgate (not less than two). The original locking mechanisms must be removed.

**1.2.11** Towing eyes must be fitted at front and rear and must be clearly visible and painted red or yellow.

**1.2.12** *The bulkhead between the engine compartment and the cockpit must be sealed (original seal between bulkhead and bonnet must be fitted) to prevent the passage of fluid or flame.*

## **2 Engine.**

**2.1** The Fiat 1.8 HGT *Phase 1 & Phase 2 engine's* are the only eligible power unit's and may not be modified except as specified in these regulations.

**2.1.1** Engine Capacity – 1747cc

**2.1.2** Bore – 82mm (allow rebore to 1st o/s for repair)

**2.1.3** Stroke – 82.7mm

### **Valve Sizes**

**2.1.4** Inlet Valve Head diameter – 33.60mm

**2.1.5** Exhaust Valve Head diameter – 28mm

**2.1.6** Valve seat angle – 45 degree Inlet and Exhaust

**2.1.7** Valve seat width – 1.5mm

**2.1.8** Valve Throat at base of seat, Inlet – 29.60mm and Exhaust 24.85mm

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**2.1.9** Inlet Port – Width 48mm, Height 54mm

**2.1.10** Exhaust Port – Width 48mm, Height 28mm

**2.1.11** Ports as cast i.e. no machining. All sharp edges to be left, including the bad one on the intake. *The valve guides' must be original and not modified.*

**2.1.12** The maximum compression ratio allowed is 10.6:1. *The head should comply with the Group N papers.*

**2.1.12.1** *The combustion chamber in the head can not be modified in any way.*

**2.1.12.2** *The minimum permitted thickness of the head is 139.8mm.*

**2.1.12.3** *Original hydraulic tappets to be retained.*

**2.1.12.4** *The valves and valve springs must all comply with the Group N papers.*

**2.1.12.5** *The head gaskets should be original Fiat gaskets; two types - phase one 1.5mm thick not steel and phase two 0.6mm thick steel.*

## **Pistons**

**2.1.13** Standard original Fiat part pistons must be used. Contour or shape of piston may not be changed in any way. *The crown of the piston must not be modified. Piston rings must be the same in design, shape and specification as standard Fiat unit. No lightening of the pistons is permitted. The bosses of*

*the piston are not allowed to be machined. Phase 1 piston as per Group N papers, Phase 2 Piston as per Group N papers including Gudgeon pin. If balancing of the pistons is required a competitor may machine the inside of the skirt with a lathe, it is not permitted to shorten the skirt.*

**2.1.13.1** *Con rods - one must be standard; no polishing is permitted and it must comply with the Group N papers. The small end bush must be standard Fiat part as must the big end bolts. The other three can be balanced to the untouched con rod. They must not be polished.*

**2.1.13.2** *Crank shaft must comply with the Group N papers and cannot be polished but can be balanced (as per manufacturer).*

**2.1.14** Original cams and timing mechanism to be used. These are to comply with article 325 and article 326 of the FIA Group N homologation papers. (See attached table, Schedule 1.)

**2.1.15** Original intake manifold and variable intake system to be used. *Original injectors and manifold to be used, no polishing allowed. Throttle body as supplied by Westward Engineering to be used, no machining of the throttle body allowed. Competitors may fit a vacuum pump supplied by Westward Engineering to overcome the problem with the intake manifold. The pump must run all the time that the engine is running and must be fitted in the engine bay.*

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**2.1.16** *Only standard Fiat Auto parts may be used, standard finishes must be maintained.*

**2.1.17** (blank)

**2.1.18** The engine is defined as an assembly including flywheel and inlet and exhaust manifold.

**2.1.19** In the event of an engine problem the competitor or any third party may not break the engine seals or dismantle the engine without prior written consent from the CES or a Scrutineer delegated by the CES.

**2.1.20** The maximum permitted brake horse power (bhp) of an engine will be 166bhp.

**2.1.21** Spark plugs are free.

**2.1.22** Thermostat setting is free

**2.1.23** *Original Fuel pump and pressure regulator to be used, no modification allowed on fuel pressure regulator. A dry brake joint is to be fitted on the end of the fuel rail so the CES can check the fuel pressure at any time. Fuel system pressure 3.5 bar +/- 0.2 bar max.*

**2.1.23.1** *Maximum fuel flow 2L per minute @4 bar.*

**2.1.24** Cooling System: Radiator, fan (and its drive system), and all piping must remain standard. *The maker of pipe can be after market. Standard*

Electric Fans are permitted only to help in cooling.

**2.1.25** Lubrication: Standard system must be retained

**2.1.26** Throttle: Cable operated as modified by Westward Engineering.

**2.1.27** A new steel flywheel as supplied only by FMC is permitted (*minimum weight 6946g*).

**2.1.27.1** *The pressure plate must be standard or OE equivalent with a paddle clutch disc.*

**2.1.28** Exhaust – The internal components of both catalytic converters may be removed, however the exhaust system must remain as supplied in the original kit with the centre box remaining (*the exhaust manifold must be a genuine Fiat part and the rest of the exhaust must be genuine Fiat part or o/e equivalent ie bosal, etc*). *The only part which can be changed is the back box as supplied in the original kit. This can only be changed as set out in 2.1.28.1 hereunder. The front manifold must be of the phase 2 model and be a genuine Fiat part.*

**2.1.28.1** *Competitors may put a downward bend after the back box to prevent the exhaust protruding through the back bumper and fit an original back bumper with no hole.*

**2.1.29** A sump guard may be fitted.

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## 2.2 Suspension

**2.2.1 Front – Original Top shock Mountings may be replaced with spherical bearings without modifying the top valance.**

**2.2.2 Rear - Original Top shock Mountings must be standard.**

**2.2.3 Front anti-roll bar.** Must remain standard, Part No. 46743788. Mounting points must remain as originally positioned by Fiat Motor Co. **Effective diameter 22 mm**

**2.2.4** A front strut brace may be fitted

**2.2.5 The only permitted shock absorbers are those supplied under licence from Leda Suspensions. These are a controlled units built to Fiat Punto Abarth specifications, as supplied by Leda and with the Leda championship seal fitted and not damaged. The Internal specifications for the valves of the shock and oil used to be as specified by Leda. A certificate from Leda must be produced at scrutiny if requested by the CES.**

**2.2.6 Front wish bones must be original Fiat; the front bush may be a nylon bush, the rear bush may be changed for a rose joint (not an offset one). Wish bone must be mounted in the original position.**

**2.2.6.1 Front cross member must be standard and all mountings and mounting points original. No welding or strengthen is permitted.**

**2.2.7 Rear axle, all bushings and mountings must be standard Fiat parts. No modifications are allowed except for the bearings supplied in the original kit, and “u” shape of axle which can have a plate welded as was original in the kit form.**

**2.2.8 Wheel track for the front and rear to be front = 1441.5mm Rear = 1449.5 mm**

**2.2.9 Wheel base to be 2460 mm +/- 1%**

## 3 Transmission:

**3.1 Gearbox – Standard HGT 5 Speed Gearbox Part No. 46807633**

**3.2 Crown wheel:** Must be original. Part No. 7676165. Final Drive – 15/58 teeth = 3.866 Ratio

**3.3 Teeth ratios - Gear Ratios:**

1st – 11/43 = 3.909

2nd – 21/47 = 2.238

3rd – 25/38 = 1.520

4th – 32/37 = 1.156

5th – 39/34 = 0.871

**All gears and synchro ring's and hubs to be as standard out of the HGT 5 speed box.**

**3.4 Differential:** Must be original Casing Part No.7676177. **No lighting or polishing of the differential is permitted.**

**3.5** No limited slip differential allowed. No preloading of planetary gears allowed.

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**3.6 All drive shaft's and joints (cv's) to be standard Fiat Punto Abarth Parts. CV boots are free.**

**3.7 Gear lever must be standard and not modified to give Quick shift action. All gear shift mechanism must be original Fiat as per road car. Only the gear cables may be after market.**

**3.8 Two bolts in the gear box housing must be drilled and wired ready for a seal to be fitted.**

## **4 Electric's:**

**4.1** The nominal voltage of the electrical system including that of the supply circuit of the ignition must be retained. *The alternator must be working at all times and no master switch or switch on the field side to stop the alternator from charging can be fitted. No hidden ECU's or switches are allowed. No ABS or pick up sensors on front wheels drive shafts, no clutch switches or pressure switch on the clutch circuit. Brake lights switch is only for the operation of the brake lights. No switches or sensors on the gear lever or gear box to be fitted.*

**4.2 Battery:** Drycell type must be fitted and secured to the floor inside car passenger footwell.

**4.3** A Master cut out switch operable from outside and inside of the car, which will isolate all electrics and kill the engine *must be fitted.*

**4.4** All ECU's (*including any spare ECU's*) to be sealed before start of

racing *and all ECU diagnostic sockets* to be sealed and only opened by the CES or Westward Engineering. Each competitor must have their race number clearly marked on their ECU for identification purposes, *including any spare ECU's*. The CES *will* switch ECU's of all, or some, of the competitors prior to the commencement of any event. Any ECU's switched by the CES will be removed in parc ferme after the final race and returned to their owner. No competitor who has his ECU switched will be permitted to leave parc ferme after the race until the ECU has been removed. *Westward Engineering is the only company allowed to supply ECU's and only the ECU's that are registered will be allowed to be used. Competitors must have all their ECU's sealed and registered with the CES before the start of the season and sealed while on the rolling road in Westward Engineering.*

**4.5 ECU type:** *Euro-1 ECU must be supplied by Westward Engineering, firmware version as supplied standard by Westward Engineering or option: 430 and a map called "PUNTOQ-1". Pin 14 must not be grounded to aid flat change or launch control.*

## **5 Lights**

**5.1** Headlamp. The opening in the headlamp blank for the air filter pipe must not exceed 100mm and the pipe must not protrude beyond the headlamp blank.

**5.2** Rear lights, Stop lights, and (21 watt) rain (Fog) lights must remain functioning

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## 6 Tyres

**6.1** The maximum number of dry tyres allocated for the season is to be calculated in accordance with paragraph 1.9.4 of MI Appendix 41 (Fiat Punto Abarth sporting regulations). *(i.e. 4 tyres for the first event and two per event thereafter as defined in paragraph 1.9.4.)*

**6.2** See also para. 1.9 to 1.9.6 of MI Appendix 41, Fiat Punto Abarth sporting regulations.

**6.2.1** All modifications to tyres including re-cutting, retreading, grinding and surface treatment are forbidden.

**6.2.2** The use of tyre heating/heat retention devices and chemical tyre treatment /compounds is prohibited. In addition no competitor is permitted to have tyre heating or heat retention devices or chemical tyre treatment/compounds in their possession anywhere within the venue at any event.

**6.2.3** *It is the responsibility of the competitor to furnish the CES with the completed tyre log at each event and the competitor must keep a copy for all the rounds. If any competitor has the wrong tyres for their log, or fails to give the log to the CES prior to practice, they will lose all the points scored for that day.*

## 7 Steering

**7.1.1** deleted.

**7.1.2** Powered assisting Motor, Steering ECU, motor worm gear and housing for

ignition lock assembly may be removed. *An after market unit can be used but it must be mounted in the same location.*

**7.1.3** Standard Steering Rack must be used *and mounting locations retained* – Part No.46534836

**7.1.4** Steering Rack Ratio – 2.75 turns from lock to lock.

### 7.1.5 Weight

The minimum weight in full race trim inclusive of driver and race wear and including petrol is **1030kg**.

### 7.1.6 Body Shell

Must be standard steel shell with all doors and hatchback operating. Seam welding of body shell is not permitted. *Removal of any metal or metal fittings (e.g. by cutting or drilling) from the bodywork (which includes, but is not limited to, doors, boots, bonnet, roof inner, quarter panels) is strictly forbidden.*

**7.1.7** *Front and rear bumpers must be original. No extra reinforcement is permitted.*

## 8 Glass

All glass must remain as standard with the exception of the front windscreen. It must be laminated and it is permissible for an electrical heated type to be used. It is also permissible to fit a demisting device. *No tinting of the back window is permitted. A light tint of the rear side windows is allowed, but it must be possible to see clearly through the glass from a distance of 2 metres.*



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## 9 Brakes

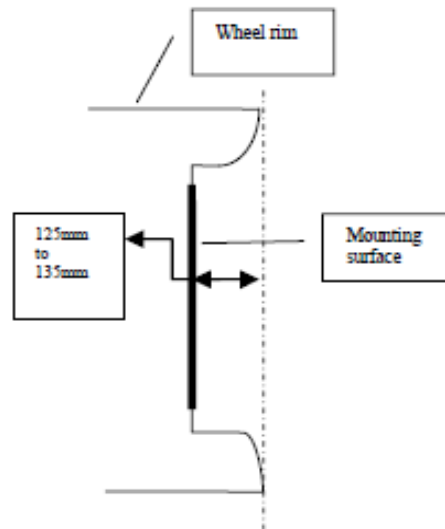
Specification upgrade of brakes will be allowed as follows:

Left Side Front Brake Calliper Assembly  
Part No: 9947126

Right Side Front Brake Calliper Assembly  
Part No: 9947127

Front Brake Disc, 2 of: Part No:  
4642749 or equivalent non O.E. part.

The ABS system may be removed and a brake bias valve may be fitted. These are the only modifications allowed to the standard braking system. **Brake pads are free.**



## 10 Suspension

Moved to 2.2

## 11 Wheels

**11.1 Must be original as came with the original kit.**

**11.1.1 Original Fiat Abarth or OZ wheel rims for dry tyres. Sparco, OZ or original Fiat Abarth wheel rims for wet tyres.** The size of wheel rims must be 7x15, no other size rim is permitted. No wheel spacers are permitted on the front or back wheels. The distance between the mounting surface and the inside edge of the rim must be between 125mm and 135mm. See diagram below.

## Motorsport Ireland Eligibility

### Scrutineer appointed:

Anthony Hoey,  
Channonrock,  
Louth,  
Co. Louth,  
Mobile: 087-2513352  
Work: 042-9370409  
Home: 042-9378280  
Email: anthony.hoey@dkit.ie

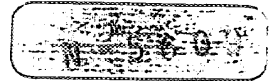
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## 2010

Marque / Make: FIAT AUTO S.p.A.

Modèle / Model: Punto HGT 1.8 16V

Homologation No



325. Arbre à camées / Camshaft e) Diamètre des paliers / Diameter of bearings 26,0 - 26,0 - 26,0 - 26,0 - 26,0 m.m

g) Dimensions de la came / Cam dimensions

Admission / Intake

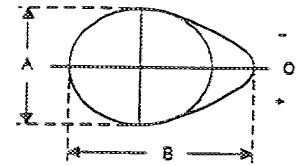
A = 36,0 +0.1 mm / -0.5 mm

B = 45,0 +0.1 mm / -0.3 mm

Echappement / Exhaust

A = 36,0 +0.1 mm / -0.3 mm

B = 44,5 +0.1 mm / -0.3 mm



326. Distribution / Timing

a) Jeu théorique de distribution / Theoretical clearance for valve timing

admission / intake 0 m.m

échappement / exhaust 0 m.m

d) Levée de came en mm (arbre démonté) / Cam lift in mm (dismounted camshaft)

(dessin / drawing Art. 325)

ADMISSION / INTAKE				ECHAPPEMENT / EXHAUST			
Angle de rotation en degrés / Rotation angle in degrees	Levée en mm (+/-0.2 mm) / Lift in mm (+/-0.2 mm)	Angle de rotation en degrés / Rotation angle in degrees	Levée en mm (+/-0.2 mm) / Lift in mm (+/-0.2 mm)	Angle de rotation en degrés / Rotation angle in degrees	Levée en mm (+/-0.2 mm) / Lift in mm (+/-0.2 mm)	Angle de rotation en degrés / Rotation angle in degrees	Levée en mm (+/-0.2 mm) / Lift in mm (+/-0.2 mm)
0	9	9	9	0	8,5	8,5	8,5
- 5	8,9	+ 5	8,9	- 5	8,4	+ 5	8,4
- 10	8,7	+ 10	8,7	- 10	8,2	+ 10	8,2
- 15	8,2	+ 15	8,2	- 15	7,8	+ 15	7,7
- 30	6,0	+ 30	6,0	- 30	5,6	+ 30	5,6
- 45	2,5	+ 45	2,5	- 45	2,2	+ 45	2,2
- 60	0,1	+ 60	0,0	- 60	0,1	+ 60	0,0
- 75	0,0	+ 75	0,0	- 75	0,0	+ 75	0,0
- 90	0	+ 90	0	- 90	0	+ 90	0
- 105	0	+ 105	0	- 105	0	+ 105	0
- 120	0	+ 120	0	- 120	0	+ 120	0
- 135	0	+ 135	0	- 135	0	+ 135	0
- 150	0	+ 150	0	- 150	0	+ 150	0

Un décalage de l'ensemble des mesures de +/- 2 degrés est accepté.  
A shift of +/- 2 degrees of the whole measurement is accepted.

e) Levée maximum des soupapes / Maximum valve lift

	Levée maximum / Maximum valve lift
Admission / Intake	<u>9,0</u> +/-0.2 mm
Echappement / Exhaust	<u>8,5</u> +/-0.2 mm

avec jeu selon Art. 326.a / with clearance according to Art. 326.a

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