



## **Official 2010 ACHA - GP Technical Rules**

A. Class letter designation shall be "GP"

B. 1- New construction:

This class shall be for hydroplanes only. Minimum length shall be 24' 0" excluding projections not integral parts of hull structure.

Box rule: Maximum length shall be 26' 0" including projections not integral parts of hull structure. Maximum width shall be 12', 6". No maximum for tunnel.

2- Hulls:

To be eligible to race you must submit the Hull and Motor Specs to Regates de Valleyfield ACHA-GP.

3- Color schemes and numbers:

For safety reasons it is important to submit your color scheme to ACHA - GP for approval.

Dark colors are not acceptable unless offset by more visible colors.

For example: Navy blue decks with bright yellow cowlings.

Numbers are to be a minimum 15" high and on both sponsons..

C. Propulsion will be by one underwater propeller. Outdrives are not allowed. Said propeller shall have no more than three blades.

1-No forged propellers shall be allowed. ACHA-GP reserves the right to purchase your propeller for \$ 3,000 for inspection purposes.

D. While the most important safety rules are outlined here, **all APBA Inboard safety rules apply to this class unless otherwise specified.**

1- For safety you must have a check valve on your water inlet to prevent water from running out.

E. All current inspection procedures outlined here and in the APBA Inboard racing rules apply. Only ACHA-GP inspectors are authorized to inspect ACHA-GP boats.

- F.** Two-way radio communications are **mandatory**. Frequency checks shall be reviewed at the drivers' meeting to determine conflicting or overlapping channels between boat camps.
- G.** All entries must have cockpit construction which complies with inboard racing rules section B., type 4 restraint capsule.
- 1- For safety, canopy must be painted orange inside.
- 2- Air: An air system is mandatory. All air delivery systems whether permanent or part time shall carry air in a vessel approved and certified for the delivery of breathing air. Said vessel must meet D.O.T. (Department of Transportation) standards of T.C. (Transportation Canada) standards for such devices. The vessel must also be stamped showing it has been inspected and certified to meet the above D.O.T. and T.C. standards.
- H.** Strobe lights are mandatory and a fine will be imposed if a competing boat does not have one.
- I.** All boats must have an on-board 9 pound minimum manual or automated Fireboy (or approved equal) fire extinguisher securely mounted outside the cockpit area. A minimum of two spray nozzles will be installed in the engine compartment. The activation of the fire system will be either automatic and /or manual with a handle located on the outside Starboard side of the fixed cockpit cowling. The handle will be marked with a red triangle and the word Fire.
- J.** **Please note that this rule is slightly different from the APBA rule.**

**1-New constructions:**

All rudders must be made of 17-4 with a minimum heat treatment of 38 Rockwell and a maximum of 48 Rc (Rockwell C scale) or equivalent strength. For 4130 and 4140 steels, quench and temper to a hardness of 325 HB ( Brinell Hardness )The use of material of equivalent strength is also permitted. It is the responsibility of the builder to obtain certification from the supplier.

**2-New constructions:**

The pin must be made of 17-4 H900 or higher (the H number). The rudder brackets and quadrants must be made of either 6061 T6 aluminum or 7075 aluminum (7075 is stronger) Materials of equal strength may be used. It is the responsibility of the builder to obtain certification from the supplier.

3-Skid fins are required to be minimum ¾" aluminium # 7075 or heat treated 4140 or 4130 steel. Steel skid fins should be quenched and tempered to a hardness of 325 HB (Brinell Hardness) Brackets as a minimum must be made

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from # 6061 aluminium, # 7075 is better. Stainless steel # 17-4 and steel # 4130 may also be used.

- K.** Gear boxes are allowed but multiple speed gear boxes are not permitted.
- L.** Minimum hull weight boat only after a race is 2,850 lbs. without the driver and completely drained of water. During the weighing process no one is allowed to touch the boat.
- M.** Engine:

**If it is not written here inform yourself.**

1-Total cubic inches shall be 468.

2-Block: Any manufacturer cast iron Block only, short deck 9.800" or Tall deck 10.200". Maximum bore of 4.310 inch. Tolerance + or – 0.005 Crankshaft stroke must be 4.00". Tolerance + or – 0.005 cylinder and lifter bore may be sleeved to meet stock spec. if damaged.

3-Head: a- Purchase **MUST** be done through the Valleyfield Regatta committee. Michel Poirier 450-371-6144 ext.223. **No alterations permitted except for the addition of Jesel shaft mount rocker systems or similar systems. Only milling the intake rocker studs is permitted for fitting the Jesel system and will be done by Dart, please notify ACHA-GP when ordering heads if you want to use this system.** Heads must have the official ACHA stamp on at all times. The letters <MRV 2007> will be the official stamp of the GP class.

b- DART 355 pro only. CNC production purchased from Regates de Valleyfield. Heads will be bare and have the Regates de Valleyfield logo stamped on them. The stamp **MUST** be visible at all time. Repairs to the head are permitted but they have to be certified and have the new spec sheet from the manufacturer. **No angle milling.** The spec sheet must be presented to the ACHA-GP representative in person at registration of the following race.  
**Combustion chamber = 119cc + or – 2cc.**

c- Valve Springs: Any type and any manufacturer may be used. No titanium or exotic material.

d- Valves-Any manufacturer may be used, no titanium or exotic material. **This specific spec. must be respected. Our reference is Manley, part number 11843-8 (exh.), 11854-8 (int).**

Type	Head Diameter	Steam Diameter	Installed Height	O/A Length	Tip Length	Underhead Angel/Radius	Margin	Seat Width	Top of Head	Wgt/ Grams
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exh	1.880	.3415	stock	5.422	.250	10°x 3/8"	.075	.100	6° dish	122
int	2.300	.3415	.250 longer	5.494	.250	12°x 3/8"	.050	.080	7° dish	148

4-Limit cam lift at the valve stem to .680`` Method to be used to verify cam lift: **To verify first adjust the rocker so that there is 0 lash then rotate cam until you get max lift.**

5-Crankshaft: not to exceed 4 in stroke. Tolerance + or – 0.005

6-Connecting rods: steel rod, any type or manufacture. Length 6.135 for a 9.800 deck block and 6.535 for a 10.200 deck block. No Aluminum or titanium or exotic material and no hand made rods.

7-Lifter, any manufacture, no hydraulic lifter, no mushroom lifters. **Alterations to the lifter are not allowed.**

8-Rocker, roller rocker may be use, not to exceed 0.680 lift.

9-Piston: Any type or manufacturer. No more than 20cc piston dome. The block may be decked (.010" maximum) (a minimum of 9.790" for a short deck and 10.190" for a tall deck) top of the piston (flat surface) at TDC must have a minimum distance of .060" with gasket. Any piston ring may be used, thickness is 1/16 –1/16 - 3/16. Thickness of the rings must be uniform in each case.

Method of inspection: Rotate motor to TDC (Top Dead Center) place plastic fluid retainer over piston and seal. With the use of a calibrated burette introduce a liquid into chamber and record the amount of liquid used. The measuring process is accomplished by actually filling the combustion chamber with fluid from a graduated burette. A flat Plexiglas plate is placed over a combustion chamber and fluid is released into the chamber through a hole in the Plexiglas plate. A thin layer of grease seals the plate against leaks to either the cylinder head or cylinder block. When the combustion chamber is completely filled with no air bubbles showing, read the burette and write down the number.

The easiest way to measure piston dome or dish volume is to cc the piston in the cylinder. Seal the rings with grease, accurately place the piston 0.100 inch down in the cylinder and then measure the cc volume by filling up the cylinder. Next, compute the volume of a standard cylinder (bore x bore x height x 0.7854). For example, a 4.00-inch bore and a 0.100-inch height would be: 4 x 4 x 0.100 x 0.7854 = 1.256 ci x 16.387 = 20.59 cc. If you are measuring a piston with a dome, the measured volume will be less than the computed volume with the difference being the effective dome volume.

10-Oil pan: any oil pan may be used.

11-Dry sump: any dry sump may be used.

12-Push rod: any push rod may be used. No titanium, exotic material or handmade rods may be used.

13-Valve spring retainer may be titanium or steel, no exotic material.

14-Timing chain, gear drive may be used.

15-Intake manifold: any manufacturer of cast aluminium may be used. No magnesium or exotic material. No hand made fabricated manifolds.

16-No titanium engine components with the following exceptions: Valve spring retainers.

17. Maximum compression ratio 9, 5:1 static

18. Supercharger must be an 8-71 standard roots type design

a. 60-degree helix rotors only -- no front discharge.

b. Supercharger to be driven at no more than 20% (120%) of crankshaft speed

c. No magnesium cases or rotors.

d. **Nothing** is permitted between the base of the supercharger and the intake manifold.

**EX.: Spacer Plate, Intercooler or Aftercooler, Chiller, etc..**

19. No overhead camshafts.

20. Maximum of 2 valves per cylinder.

21. Fuel and air must be metered by a mechanical fuel injection system. No electronic fuel injection systems permitted. All fuel must be injected by hat nozzles using a cast aluminium injector available from a major manufacturer.

22. Fuel will be methanol only.

**N.** To be eligible to race in GP Class, teams must be CBF member.

**O. On board computers:** The use of on board computers is permitted as a data recovery system and not for making adjustments of any kind during the race.