ARTICLE 3:

Atlantic

2017 TECHNICAL SPECIFICATIONS

FRP Formula Race PROMOTIONS

ATLANTIC championship SERIES

ARTICLE 3: ATLANTIC CHAMPIONSHIP TECHNICAL SPECIFICATIONS- 2017

These specifications are part of Formula Race Promotions (FRP) Competition Rules and all automobiles shall conform with these Specifications and FRP Pro Racing Rules (PRR).

Atlantic Championship is a restricted class. Therefore, any allowable modifications, changes, or additions are as stated herein. There are no exceptions.
Formula Race Promotions(FRP) shall publish The Formula Atlantic Category Specifications containing the basic officially recognized specifications for each car eligible to compete in the Category during the calendar year. Should specific FRP car or engine Specifications (Spec Line) contradict the following Sections 1 through 4, the FRP Specification (Spec Line) shall take precedence.

Atlantic is intended to provide competitors and interested manufacturers with the opportunity to compete in purpose built, highly modified open wheel single seat cars. FRP may alter or adjust specifications and require, permit, or restrict certain specific components to equate competitive potential as deemed necessary.

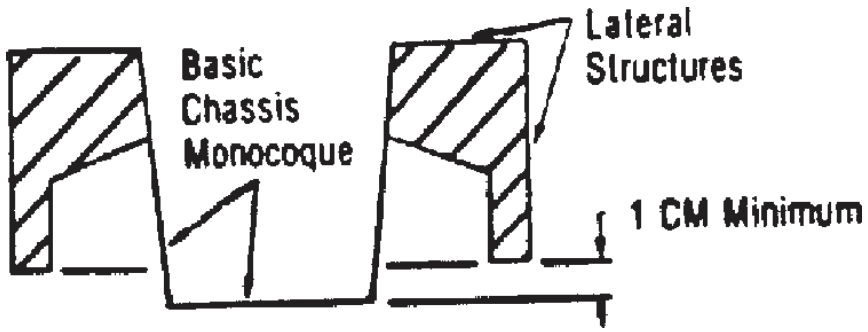
In an effort to control shock/damper technology and cost to a level reasonable for competitive racing, any fluid dampers are allowed, with the following restrictions:

1. Maximum of 4 dampers/shock absorbers per vehicle.
2. Dampers must be independent from each other with no interconnectivity. However, data acquisition is permissible, as long as it serves no other purpose.
3. Dampers must be manually adjustable only.
4. Mechatronic valves, G valves, hybrid inerters, inerters and mass dampers are prohibited.
5. Electro/Magnetic shock fluid is prohibited.Maximum of 4 dampers/shock absorbers per vehicle.

3.1. General

a) A single seat, four open wheeled racing car with firewall, floor, and safety equipment conforming to the FRP Pro Racing Rules (PRR).
b) Cars shall be equipped with on-board self starter controlled by the driver in a normal driving position.
c) The driver's seat shall be capable of being entered without the removal or manipulation of any part or panel except for a removable steering wheel and/or cockpit padding.
d) Cars shall be equipped with a dual braking system operated by a single control. In case of failure or leak at any point in the system, effective braking power shall be maintained on at least two wheels.
e) Superchargers or turbochargers are not permitted.
f) Power shall not be applied to more than two (2) wheels.
g) Bodywork:
    1. No part of the bodywork and aerodynamic devices shall exceed in height a horizontal plane 90cm (35.4") above the ground. The safety roll bar/roll cage and the engine air box are not included in this height restriction. Measurements are to be made as raced with driver on-board.
    2. The overall maximum width of the bodywork behind the front wheels shall not exceed 130cm (51.18"). The maximum width of any aerodynamic device situated behind the rear wheels, including the rear wing, shall not exceed 110cm (43.307").
    3. The bodywork ahead of the front wheels may be extended to an overall maximum width of 150cm (59.055 inches) provided it does not extend beyond the outside of the front tires. Flexible or movable aerodynamic skirts are prohibited. No part of the body or suspended part of the car shall extend more than 1cm (0.394 inches) below the horizontal plane forming the bottom of the tub or chassis floor (both static or in motion).
    4. Any part of the bodywork ahead of the front wheels exceeding an overall width of 110cm (43.307") shall not extend above the height of the front wheel rims.
    5. Any specific part of the car which has an aerodynamic influence on the stability of the vehicle shall be mounted on the entirely sprung part of the car and shall be firmly fixed while the car is in motion. Aerodynamic devices, including wings and end plates, shall not extend to the rear more than one meter (39.4") from the centerline of the rear wheel hubs.
    6. Neither the safety roll bar nor any of the units associated with the functioning of the engine or transmission shall have an aerodynamic effect by creating a vertical thrust.

7. The leading edge of an airfoil fixed to the front of the car shall not be sharp. Minimum radius -- 0.5cm (0.2”).
8. Cars registered constructed January 1, 1976, and after, shall be fitted with deformable structures per FIA regulations for Formula II as follows: Deformable Structure: The entire fuel tank area of the car licked by the airstream shall incorporate a crushable structure conforming to the following specifications. The term “licked by the airstream” is considered to define the complete external area of the body/monocoque construction irrespective of such added items as water radiators, inlet ducts, windscreens, etc.
   a) The crushable structure shall be a sandwich construction based on a fire-resistant core of minimum crushing strength of twenty-five (25) lbs./ square inch. Water pipes are permitted to pass through this core. The sandwich construction shall include two (2) sheets of 1.5mm (.060”) thickness, one of which shall be aluminum sheet having a tensile strength of fourteen (14) tons/ square inch and a minimum elongation of five (5) percent.
   b) The use of a magnesium sheet will be authorized only if its thickness exceeds 3mm (.120”).
   c) The minimum thickness of the sandwich construction shall be 10mm (.3937”). The fore and aft fuel tank area, however, shall provide for a crushable structure of at least 100mm (3.937”) thickness at such crushable structure’s thickest point. The position of this widest point to be at the manufacturer’s discretion over a length of at least 35cm (13.78”) after which it may be gradually reduced to 10mm (.3937”).
9. The minimum wheel diameter is thirteen (13) inches. All other cars front wheel width: ten (10) inches; rear wheel width: minimum fourteen (14) inches, maximum fifteen (15) inches.
10. Aerodynamic Devices:
    a. All cars with venturi section side pods shall comply to the following rule. Aerodynamic devices shall comply with the rules relating to bodywork. Any part having an aerodynamic influence and/or any part of the bodywork and attachments to the bodywork shall be rigidly secured to the entirely sprung part of the car (chassis/monocoque), shall have no degree of freedom in relation to the entirely sprung part of the car (chassis/monocoque), and shall remain immobile in relation to the chassis/monocoque at all times. At any transverse section through the car from the rear edge of the front wheels to the forward edge of the rear wheels, no part of the car except the basic chassis/ monocoque structure shall be below a horizontal line situated one (1)cm above the bottom of the chassis/ monocoque. This measurement will be taken without regard to bolt heads, rivets, etc.
    b. Cars which have their primary load bearing structure (tub) constructed of ferrous or non-ferrous alloys are allowed flexible sidepod skirts. No part of the bodywork or suspended part of the car between the front and rear wheels shall extend more than one (1) cm below the horizontal panel forming the bottom of the chassis. Movable or hinged skirts are prohibited.
    c. Within the above restrictions, only wearable material (fiberglass, Kevlar, carbon fiber, high density poly- propylene, Telflon, Lexan, or wood) may be attached to the side panels as a rubbing strip. Ceramics, plexiglass, plastic, and other materials which shatter or break-up causing hazardous track condition are prohibited.



h. Exhaust outlets shall be positioned not more than twenty-four (24) inches above the ground and shall not extend more than six (6) inches beyond the overall length of the car. In no case can the exhaust terminate more than 45.4” behind the centerline of the rear axle.

3.2. Engines

a. Engines shall be derived from automobiles and may be prepared for competition in accordance with SCCA GT preparation rules, except as specified in the Table below. OEM blocks and heads must be used except when noted in the FA Engine Tables.

Note: If intake restrictors are specified, the restrictors shall be round orifices (unless otherwise specified) and located within four (4) inches of the throttle butterfly. Restrictors shall be a minimum 0.060" thick and of the specified diameter. SIR location is unrestricted so long as all SIR criteria are met.

b. The following modifications are permitted.

1. Any carburetor(s), fuel injection, or intake manifold(s), are permitted. Fuel injected engines shall use the specified intake restriction. Where Weber or Weber-type carburetors are specified and used, they shall retain their standard configuration of fuel distribution. This is to prohibit annular discharge carburetors.
2. The use of any exhaust manifold(s).
3. The use of any oil sump.
4. The use of any oil pump(s).
5. The use of a dry sump lubrication system.
6. The bore, crankshaft, stroke, and flywheel are unrestricted, providing the appropriate specified displacement limit is not exceeded, unless restricted in the engine table or FRP Specifications.
7. Main bearing caps may be reinforced or substituted.
8. The make and location of the ignition coil and condenser may be changed.
9. Any distributor and/or transistor ignition may be used provided it's installation does not require any modification of the engine.
10. Any make or type of spark plug may be used.
11. The use of any starter is permitted provided it can be fitted without any modification to the engine.
12. Substitution of the clutch and flywheel is allowed provided there is no increase in clutch diameter. The use of dowel pins is permitted.
13. Any pistons and piston pins may be used.
14. Any camshaft(s) may be used.
15. Cam followers may be altered or substituted.
16. It is permitted to lighten, balance, or modify in shape by tooling the standard or optional components of the engine, provided it is always possible to identify them positively as such. It is not permitted to add any material to the components unless specifically authorized.
17. The use of any alternate engine components considered replacement parts such as seals, bearings, valve guides, nuts, bolts, studs, washers, and gaskets is allowed, provided they are of the same type and dimension. Bushings may be added where none are fitted as standard, provided they are concentric and that the centerline of the bushed part is not changed. Water and oil passages may be restricted or plugged. The substitution of valve springs, valve spring retainers, and keepers is permitted. Any pushrods may be used.
18. Pulleys, including camshaft drive pulleys, may be altered or replaced with others of unrestricted origin. The use of any crankshaft vibration dampener is permitted.
19. The compression ratio may be increased by machining, using any head gasket(s), or eliminating of head gasket(s), unless otherwise noted in the FA Engine Table.
20. The installation of any engine vent or breather is permitted.
21. Generator or alternator is unrestricted.

22. The use of any rocker arms or rocker arm supports.

23. Use of any connecting rod of the same basic material.

24. Valves are unrestricted in both size and material, provided the valve centerline is not altered.

25. Exhaust emission control air pumps, and associated lines and nozzles cannot be modified in any way except they may be completely removed. When these nozzles are removed from a cylinder head, the holes shall be completely plugged.

26. The use of any fuel pump(s) is permitted.

27. Valve or cam covers may be substituted.

28. Any external surface of the engine may be plated, painted, or anodized.

29. Engines produced with a cam carrier as a separate and distinct piece from the cylinder head or engine block may replace that cam carrier with a cam carrier of other manufacture, provided the replacement cam carrier affords no additional function other than the original cam carrier and provided the type and number of camshaft bearings remains the same.

30. The replacement of any jack shaft or idler shaft with another of the same basic material as the standard shaft is permitted, provided it performs no additional function over the original shaft.

3.3. Transmission

a. For all types of transmissions, no more than five forward speeds and an operational reverse gear shall be used.

b. The use of an automatic gearbox is prohibited.

c. All gear changes shall be initiated by the driver. Mechanical gear shifters, direct-acting electric solenoid shifters, air-shifters and similar devices are permitted. Electronically controlled differentials and devices that allow pre-selected gear changes are prohibited.

d. Gearboxes with shafts that are transverse to the longitudinal axis of the chassis are not allowed. The sole exceptions are the gearbox final drive (crownwheel) shaft axis and final drive shafts (half shafts). All change gears must be located in the case aft of the final drive.

3.4. Tires and Brakes

a. FA shall use only the following **Hoosier** tires:
   1. Dry Front– 43571– 23.0 x 9.5R15 FA
      Dry Rear – 43586–24.5 x 13.75R15 FA
   2. Wet Front – 44275 – 22.5 x 9.0 15WET
      Wet Rear – 44280 – 23.5 x11.5 15WET

b. FRP may choose to change tire compounds during the course of the season.

c. FA is limited to eight (8) tires, from the start of the first qualifying session through the second race of the weekend.

d. Tires must be properly declared, and tire declaration sheets must be submitted to the Series trailer. Minimum of four tires must be declared by Friday at 6:00 p.m.

e. In the event of a tire becoming dangerous to race on, the specific circumstances will be reviewed on a case by case basis, by the Technical Director.

f. In the event of rain only the current season rain tire as specified in 4.a.2 will be allowed with no quantity limitations

g. No hand grooving of slicks will be allowed

h. Tire warmers are not allowed anytime during the weekend

i. Tire treatments, conditioners, or softeners are prohibited

j. Carbon brakes are prohibited in FA.

Table 1 Swift 014 (Ralt 40/41) ENGINE						
FA Spec Line	**Engine Series**	**Max. Displ. (cc)**	**Max. Valves / Cyl.**	**Notes**	**Req'd Restrictor**	**Min. Weight (lbs)**
A.	Toyota 4age	1615	DOHC (4-valve)	Ralt 40/41 min weight is 1225lbs	n/a	1250
B.	Toyota 4age	1800	DOHC (4-valve)		n/a	1280
C.	*MZR 2.0*	*2000*	*4*	*Sealed engine sourced by Elite Engines. Swift 014 Chassis only.*	n/a	1300

Engine Notes:
(only apply to Table 1)
Swift 016 weight is listed in the Swift 016 Specifications

Article 3.5
SWIFT 016 *FRP* Specifications (formally known as “Spec Line”)

A. Chassis:

Cars must conform to Appendix A as provided by Swift Engineering (see diagram A illustration 1-5 at the end of the spec line for drawings). Appendix A shall have a tolerance of + or - 0.2 inches.

B. Dimensions:

1. Wheel Base: 109.3 inches (277.6 cm)
2. Overall Length: 177.1 inches (449.8 cm)
3. Overall Width: F: 76.0 inches (193.0 cm) R: 75.8 inches (192.5 cm). The overall width will be measured at the wheel hub center by projecting a vertical plane from the widest outside rim surface.

C. Engine:

The 2.3 Liter Mazda Duratec engine and ECU is unrestricted with the exceptions:

1. A 33mm SIR must be used with a sealed air box (part no. FA11016INT) supplied by SCCA Enterprises with the K&N filter RF1037.
2. The maximum compression ratio is 14.0:1.
3. The maximum displacement is limited to 2267.69cc (*allowing for .005” over-bore).*
4. OEM engine blocks and cylinder heads must be used.
5. Maximum bore is 3.450 (87.630mm) allowing for .005 over-bores.
6. Maximum stroke is 3.70078” (94mm)
7. 8200 RPM hard limit

D. Bodywork:

The bodywork may not be modified in shape or size; however, replacement bodywork may be supplied by sources other than Swift. ***Exception***: In Appendix A illustrations 1 and 3 the un-dimensioned camera mount on the roll bar above the 37.83 height dimension may be removed. If the camera mount is removed the faring must be re-shaped to continue the contour lines of the roll bar below the 37.83 height dimension.

E. Wings:

1. The wings and end plates may not be changed. All wings must conform to the wing angles and dimensions specified in the Appendix A illustrations provided by Swift Engineering. Wings and endplates may be copies of the original Swift components whereas no profiles are changed.

2. Rear Wing Top Element: The rear wing top element may be adjusted within the designed range of + 2.00 to + 16.00.

3. Front Wing Main-Plane and Rear Wing Lower Element: At all times, the front wing and lower rear wing element must be maintained at the designed angle (as seen in illustrations 4 and 5 of Appendix A provided by Swift Engineering) relative to the chassis zero line.

4. Wickers: Wickers/gurneys may be added to the top of the trailing edge of the front flaps, front main plane, and rear wing lower elements only, and may not be used on the rear wing upper element. They must be 90 degrees to the mounting surface and may be no more than 0.500 inch high as measured from the upper surface of the wing element.

Wicker/gurney height must remain constant across the width of the individual component span. No saw tooth wickers/gurneys are allowed. The trailing edge of wings and flaps may be drilled for the purposes of attaching wickers/gurneys. All wing angles shall have a tolerance of + or - 0.30.

F. Wheels:

1. Front wheel width 10”
2. Rear wheel width minimum of 14” and maximum of 15”
3. Wheel widths are +/- .060”

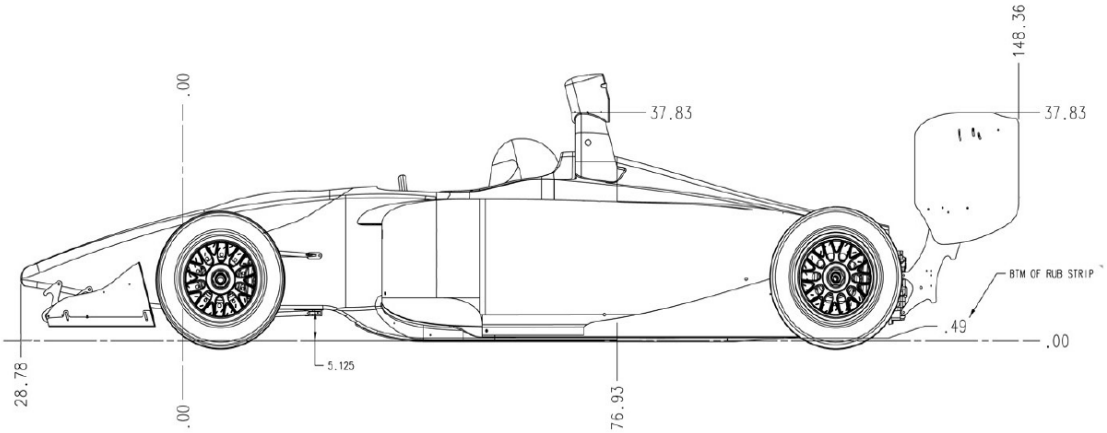
G. Minimum Weight:

Competition weight is to be as raced, qualified, or practiced and will include the driver with all driver gear/equipment and not allow for any replenishment of fluids. Minimum weight is **1420** pounds.

H. Stall Test Procedure:

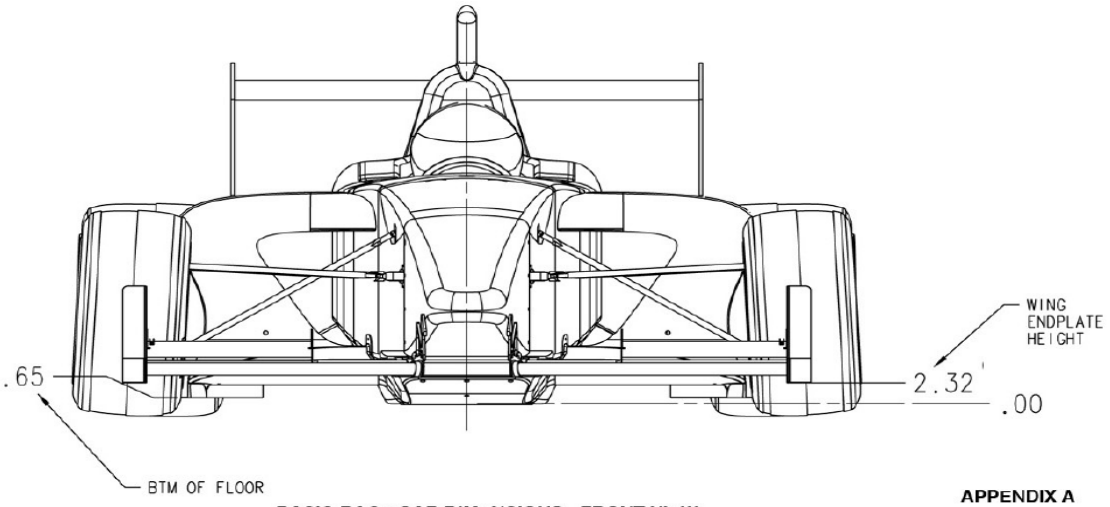
No pipe, tube or vents may intrude into or exit the Air Box, all sensors must be disconnected during the test procedure.
A crew member must adjust the engine to idle at a minimum of **1800rpm**. No crew member is allowed to touch the vehicle during the test.
Installing a ball with a vacuum gauge attached the engine must stall within four seconds, there must be a depression level (vacuum) shown on the gauge attached to the ball. The vacuum must hold for a minimum of three seconds.

I. Mandatory Dimensions:



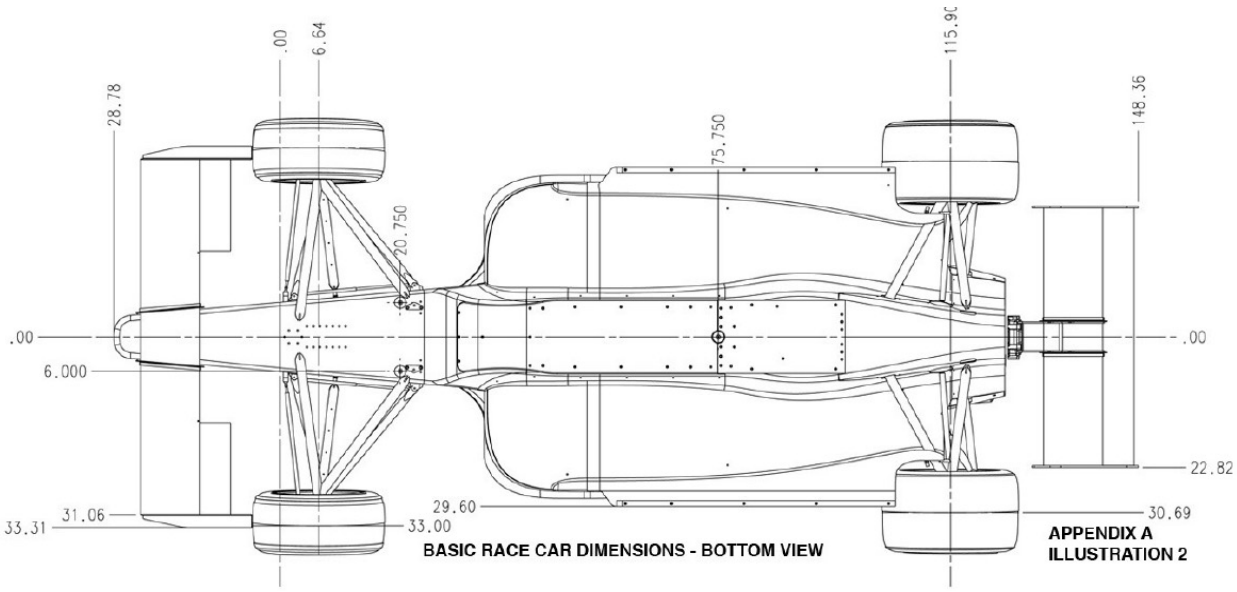
BASIC RACE CAR DIMENSIONS - SIDE VIEW

APPENDIX A
ILLUSTRATION 1



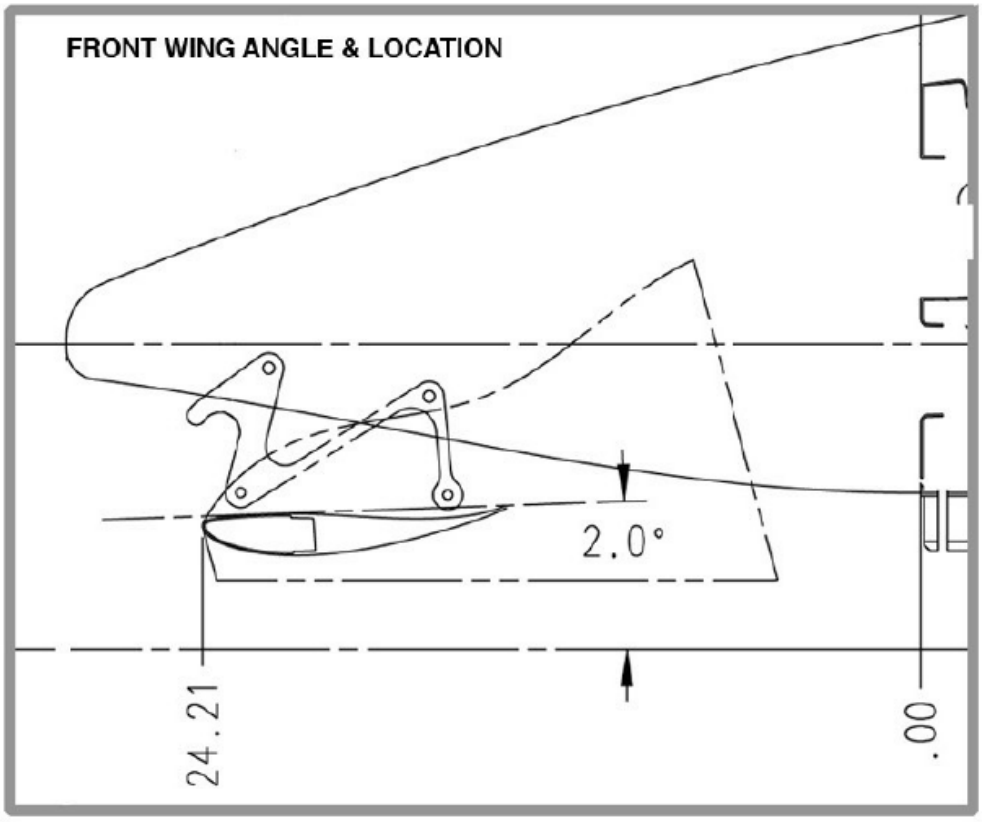
BASIC RACE CAR DIMENSIONS - FRONT VIEW

APPENDIX A
ILLUSTRATION 3

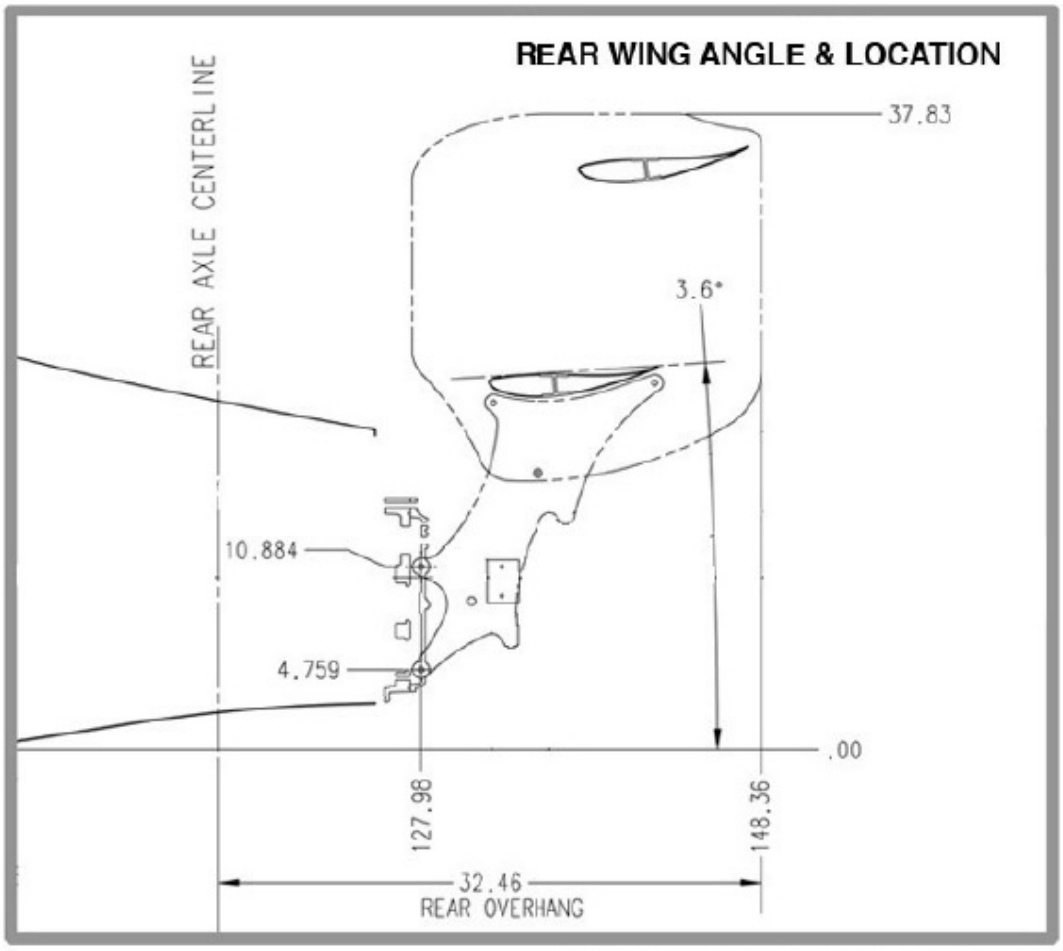


BASIC RACE CAR DIMENSIONS - BOTTOM VIEW

APPENDIX A
ILLUSTRATION 2



APPENDIX A - ILLUSTRATION 4



APPENDIX A - ILLUSTRATION 5