POWRi 410 Outlaw Sprint Specifications

Index

Design & Construction

a. All phases of design and construction are subject to the approval of the Technical Director. The Series Director and the Technical Director may exclude any car, design, or construction, which they deem unsafe or not meeting the specifications, the spirit and/or the intentions of the rules contained herein.

Engines

a. Only small block V-8 engines with the cam in the block and a maximum of 410.00 cubic inches of displacement (tolerance + 0.000) will be permitted. The formula 6.2832 x bore² x stroke will apply. Big block engines will not be permitted.
b. The engine must be mounted in-line with the driver and the drive-line must pass beneath the driver on center through the driver compartment. Offset engines and/or offsetting the position of the engine will not be permitted.
c. The engine block and cylinder heads must be machined from cast aluminum. Billet machined blocks and/or cylinder heads will not be permitted.
d. Engines with the magneto and/or distributor in a forward mounted and/or front mounted position will be allowed but must be approved prior to competition. Engines with the magneto and/or distributor mounted in the stock OEM production position for the block and/or engine must be approved prior to competition.
e. Approved Front Drive Magneto System: Moroso 60205 & 60206.
f. Only normally aspirated engines will be permitted. Turbo chargers, super chargers and/or forced induction of any type and/or description will not be permitted.
g. The maximum engine cylinder bore size shall be 4.165 inches.
h. All engine cylinder sleeves (inserts) must be machined from an iron and/or steel alloy.
i. Titanium crankshafts, connecting rods and/or rod caps will not be permitted.
j. Only two (2) valves and one (1) spark plug will be permitted per cylinder.
k. Cylinder heads must retain a traditional valve pattern. Rotation of the valves will not be permitted. Canted or splayed valve cylinder heads must be approved prior to introduction into competition.
l. Only steel connecting rods with a maximum length of 6.000 inches will be permitted.
m. All oil pans must have an inspection plug. The inspection plug must be a #12AN fitting or 1.00 inch pipe plug.
n. In the event that an engine does not have an inspection plug the oil pan must be removed for inspection prior to competition.
o. Only throttle plate (butterfly) and shaft throttle body styles with round circular bores will be permitted. The maximum throttle bore as measured at the throttle plate (butterfly) may not exceed 3.000 inches in diameter. Slide plate, rotary cylinder, and/or other styles will not be permitted for competition. Carbon fiber manifolds and/or any other injection type pieces manufactured from carbon fiber will not be permitted.
p. A maximum of 16 fuel nozzles, utilizing two (2) per cylinder will be permitted. One (1) nozzle must be placed in the cylinder head and one nozzle must be placed in the injector.

q. A minimum of two (2) throttle return springs must be used to mechanically return the throttle to a fully closed position.
r. Only magneto-type ignitions will be permitted. A single (1) crank-trigger type system will be permitted as a backup ignition system. One (1) single switch that alternates the current between the magneto and the crank trigger only may be mounted to the dashboard within the driver's reach. Only 2-way, on-off type switches will be permitted. Multiple coil-pack ignitions will not be permitted.
s. Steel and stainless steel headers will be permitted. Titanium headers will not be permitted.
t. Performance Open Wheel Racing, Inc. (POWRi). Reserves the right to disallow any engine for competition, which in its judgment does not meet the spirit and intent of competitive racing, regarding cost and/or performance. Any engines not covered by the preceding specifications must be submitted for approval prior to entering the competition.
u. Unapproved engines may be run under observation prior to amending the rulebook with the approval of the Series and/or Technical Director.

Fuel

a. Fuel additives, including but not limited to nitro, nitro methane and/or nitrous oxide injection will not be permitted. Pure methanol is the only approved fuel. Fuel samples may be taken from time-to-time for inspection and analysis.
b. A fuel cell with bladder and foam will be the only type of fuel cells permitted. The fuel cell must be of one piece construction of cross-link polyethylene plastic. Alterations and modifications will not be permitted.
c. All teams are encouraged to run a 33-gallon fuel tank and bladder. At all POWRi 410 Outlaw Sprint Events, 33 gallons of fuel will be considered as part of the formula utilized when determining the total time prior to refueling in any specified and/or announced event.

Exhaust & Sound Reduction Devices

a. Only the Schoenfeld (part # 14272735-78 or # 112535) mufflers will be permitted. The specified mufflers must remain unaltered from the manufacturer and are mandatory only at tracks that require mufflers.
b. All mufflers must be securely mounted. Mufflers that are mounted with pop rivets and/or sheet metal screws will not be permitted.
c. The mufflers must remain attached to the headers at all times. All muffler and header components must remain intact and operating. If the muffler becomes disconnected from the header and/or fails to operate, it could result in disqualification from that race.
d. Any muffler and/or header that has been altered in an attempt to gain a competitive advantage will not be permitted into competition and could result in disqualification.

Traction Control Devices

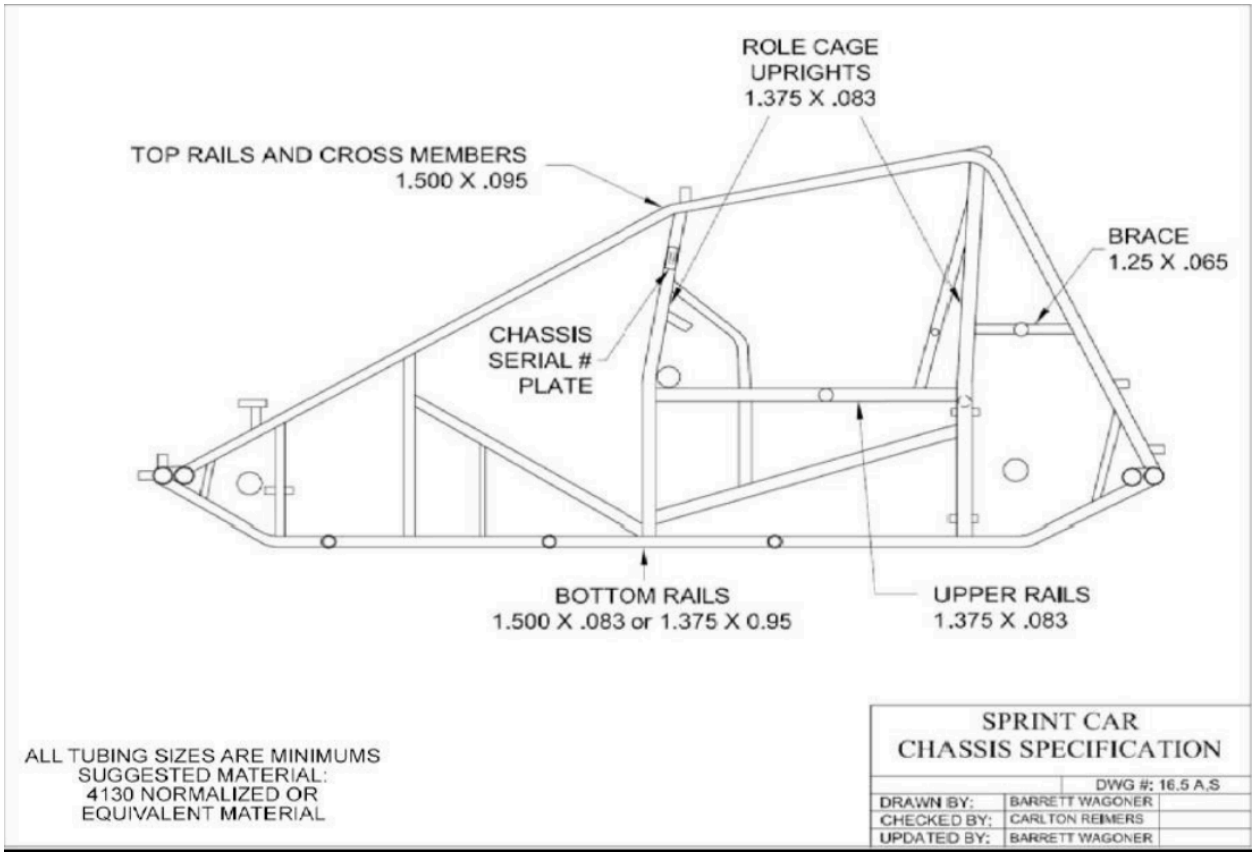
a. Traction control devices of any type are not permitted at any time, during any event.

b. Any team found with a traction control device in pre- and/or post-race inspection shall be subject to fines and/or suspensions, left at the discretion of the Series and/or Technical Director.
c. From time-to-time random inspections will occur and various components may be impounded for further analysis and inspection including, but not limited to ignition systems, ignition boxes, wiring looms and/or tachometers.
d. The Xtreme 30 sparkbox version #2 both long & short is LEGAL. The Xtreme 30 sparkbox version #3 both long & short is ILLEGAL. Check with the manufacturer for correct and legal application.

Chassis & Frames

a. All chassis/frames built during and/or after the 2005 season should have a manufacturer's serial number and identification plate visible and welded on the left front side of the roll cage upright.
b. Roadster type chassis will not be permitted. Slip-tubing is not allowed in the chassis construction. This includes safety bars. Any existing slip-tubing must be replaced or welded. Clamped or bolted slip tube joints will no longer be allowed.
c. The chassis must have a minimum of six (6) mounting points for securely mounting any manufacturer's seat per the seat and chassis manufacturer's specifications.
d. Drag links must be made of 4130 steel a minimum of one (1) inch in diameter and a minimum material thickness of .058 inches. Drag links, Tie Rods and Left Front Radius Rods must be 4130 steel with magnetic steel rod ends. Swedging of the tubing will not be permitted. The drag links must be tethered to the frame with a minimum of one (1) inch nylon webbing.
e. Hollow and/or drilled bolts, fasteners, and/or heim joints (rod ends) will not be permitted.
f. Only front axles made of magnetic steel will be permitted. Approved axle dimensions are:
    i. 2-1/4" x 0.120"
    ii. 2-3/8" x 0.095"
    iii. 2-1/2" x 0.095"
    iv. Larger thicknesses may be approved at the Series and/or Technical Director's discretion.
g. Titanium front axles, nerf bars and/or rear bumpers will not be permitted. Nerf bars and rear bumpers must be made from magnetic steel and/or stainless steel. The bumpers must be a minimum of one (1) inch in diameter and have a minimum material thickness of .065 inches. The nerf bars must not extend past the outside edge of the tires. All left and right side nerf bars must attach to the chassis at 3 points. 2 point side nerf hoops will no longer be allowed. For any car to be pushed off at any time the rear bumper must be in place behind the tail tank.
h. All axle tethers will be required to attach to the front engine plate post or the rear bolt of the front radius rod and not the radiator post.
i. Approved SFI 55.1 axle tether systems are mandatory. Systems must include a kingpin to kingpin tether that will attach to the axle clamp/band. Tether systems must be attached per the manufacturer's instructions.
j. All radius rods shall be constructed as a solid piece of round tubing with provision for a rod end on each end. No addition to the radius rod will be allowed. Radius rods must be attached to the frame and axle in a stationary manner. Devices that are designed to change the length or position of the radius rod in any way while the car is moving will not be allowed.

k. The front bumper must not extend more than eight (8) inches from the frame and/or the measurement from the center of the front axle to the front of the front bumper must not exceed 23.5 inches.
l. The top of the roll cage shall have a maximum outside width of 29.5 inches. Bracing that would prevent the driver's ability to exit through the opening and/or inhibit safety/rescue workers ability to extract the driver will not be permitted.
m. The cockpit horizontal middle frame bar will have a maximum outside width of 32.0 inches.
n. The bottom frame rail will have a maximum outside width of 26.5 inches.
o. All tubing utilized in the construction and/or fabrication of the main frame must be round in shape. Any other shapes, such as elliptical (oval) tubing will not be permitted.
p. Only steel or aluminum floor plans will be permitted.
q. The minimum wheelbase will be 83 inches. The maximum wheelbase that will be permitted will be 90 inches.
r. Front anti-roll torsion bar assemblies (sway-bars) will not be permitted.
s. All cars must have a driveline strap and/or a driveline hoop restraint constructed of a minimum of .065 inch magnetic steel either welded and/or bolted to the chassis. The rear cross member used for mounting the steel driveline hoop must be constructed of .083 inch steel.
t. Wings, bumpers and/or nerf bars must be positively fastened with bolts & nuts, hitch pins and/or roll pins only.
u. The use of chassis and/or frame cockpit adjustables will be allowed. Competitors will be limited to one (1) top wing adjuster for the top-wing slider mechanism. The slider must be one dimensional and allow forward and rearward movement only. Shock adjusters are permitted for use. The technical director may disallow a cockpit adjustable item that in their opinion is not within the spirit or intent of this rule.
v. The following frame measurements are minimum dimensions. Only those areas indicated are mandatory and subject to technical inspections. In lieu of the "BUTT" BAR a car's rear end can be tethered to the rear chassis. ASTM4130 normalized steel or equivalent material is suggested. See drawing 16.5 A,S.
    i. TOP RAILS: 1-1/2" x .095"
    ii. BOTTOM RAILS: 1-3/8" x .095" or 1-1/2" x .083"
    iii. ROLL CAGE UPRIGHTS: 1-3/8" x .083"
    iv. ROLL CAGE CROSSMEMBER: 1-1/2" x .095"
    v. UPPER RAILS: 1-3/8" x .083"
    vi. REAR END SAFETY "BUTT" BAR: 1" x .083" or 1-1/4" X .065"
    vii. BRACE: 1-1/4" x .065"



w. Torsion arm stops will be mandatory on both sides of the front torsion bars. The retainer may be of the rod-type with a securing cap or insert with an expanding mandrel and/or any other approved Torsion arm stop design. Torsion arm stops must be installed and used in accordance with the manufacturer's instructions.

x. Chassis Support Bars: All chassis are required to have additional bars installed to support and decrease the span between the front and rear uprights in the driver's area. The support bars must be in addition to the front and rear uprights.

   i. These additional bars will be a minimum 1.375" x .083" ASTM4130 normalized steel or equivalent material.

   ii. Left and right-side support bars may be one of the three designs below.

   iii. Left and right-side support bars do not have to be of the same design.

   iv. Right side body opening shall remain the same 10 inches vertical and 21 inches horizontal at any point, with the exception of the 1-3/8" support tubing in place.

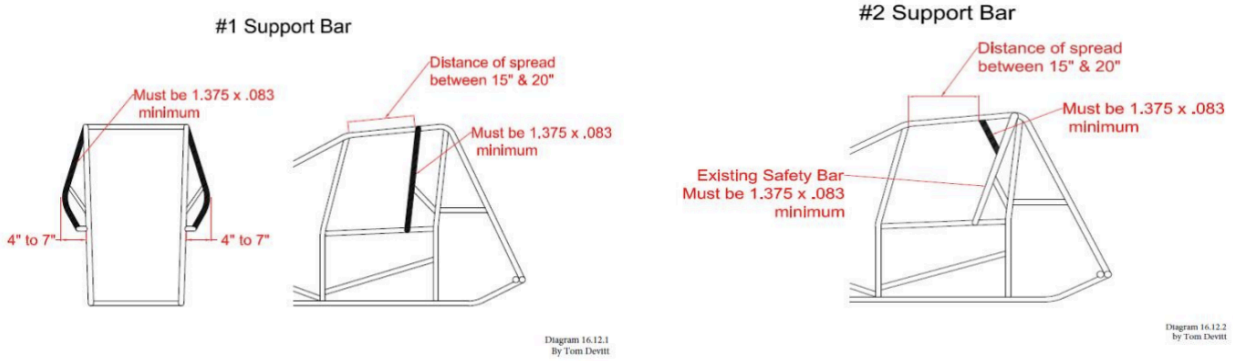
   v. Left and right side support bars may be one of the three options:

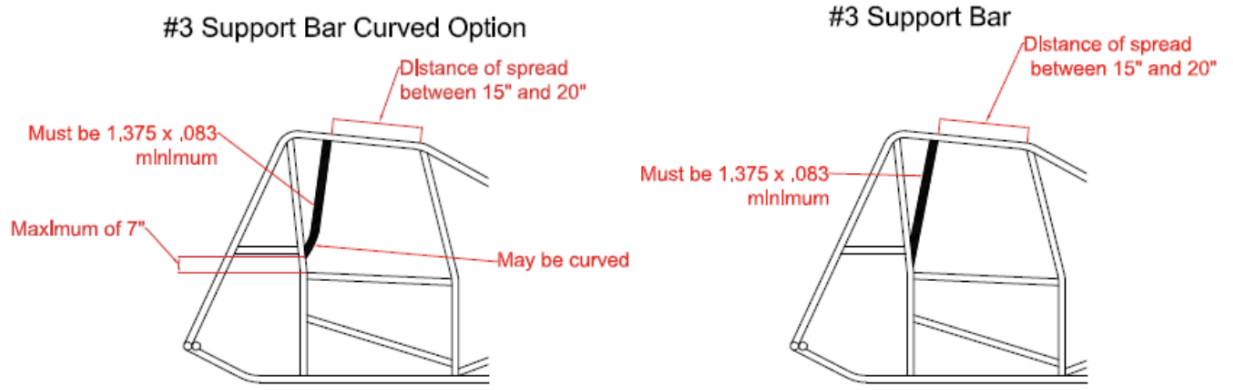
      1. Support bar may be designed similar to what was known as a "safety bar." It must be attached to the top rail at a point 15 inches to 20 inches from the rear of the front upright. It must attach to the hip rail and have a gusset attached to the rear upright near a point opposite of the rear brace/shock mount bar. The curve must be between 4 inches and 7 inches measured from outside of the rear upright tube to the outside of the support bar. See drawing 16.12.1.

      2. Existing chassis with a left side support bar installed (formerly called safety bar) that do not meet the option one specification above, may add a gusset that

attaches to the top rail 15 inches to 20 inches from the rear of the front upright and angle to the support bar. The existing support bar tubing must meet the minimum as described above 1.375" x .083" ASTM4130 normalized steel or equivalent material. See drawing 16.12.2.

3. A support bar may be added to the top rail at a point 15 inches to 20 inches from the rear of the front upright and to the rear upright near a point of the rear brace / shock mount bar but no higher than 7 inches above the hip rail. This bar may have a slight curve near the rear upright to accommodate elbow room and ease of fitment. See drawing 16.12.3.





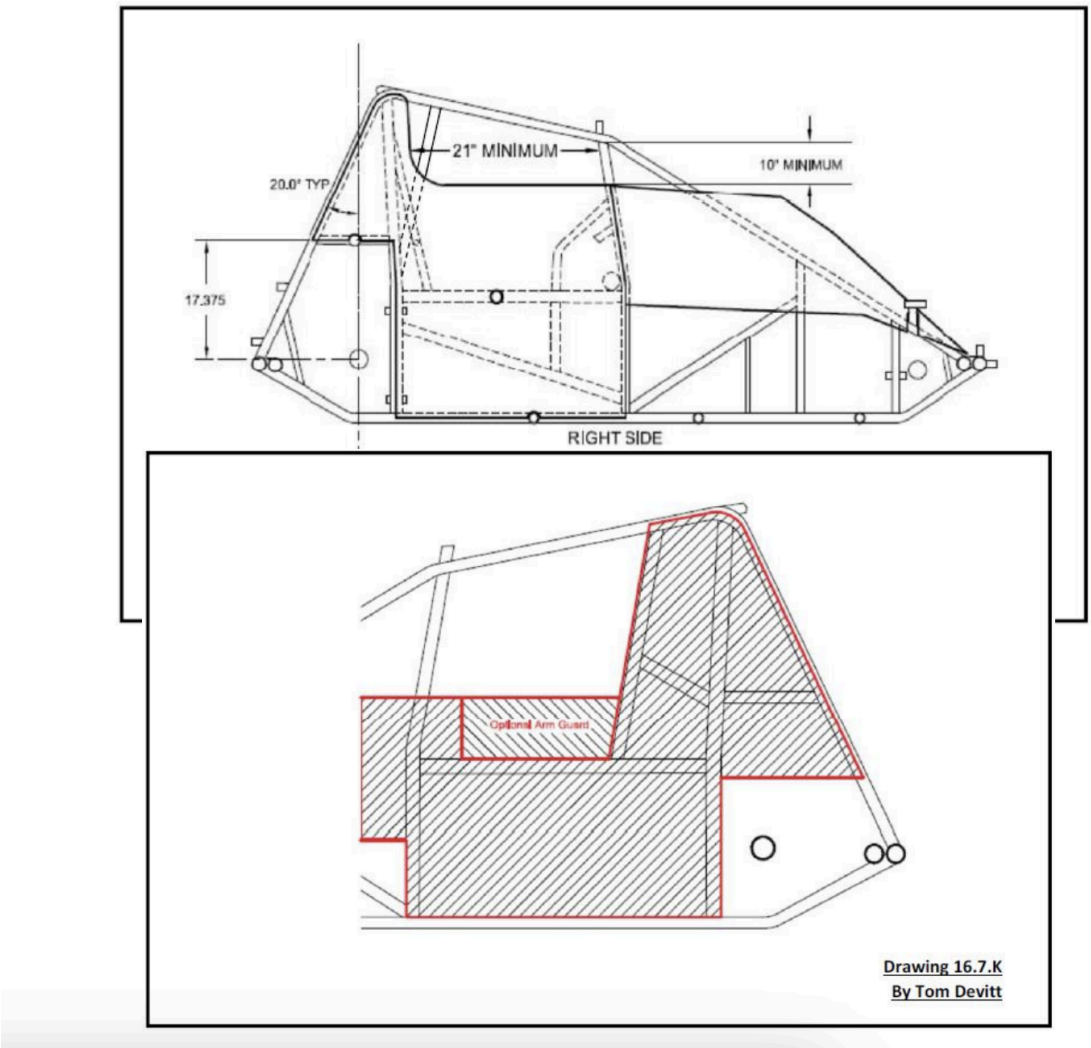
Weight

a. All racecars must weigh a minimum of 1,425 pounds with a driver fully prepared to compete in the car throughout an entire event.
b. Additional bolt-on weight will be permitted, but must be mounted and fastened to the frame and/or chassis in a secure manner. All additional bolt-on weight must be mounted and fastened in the area between the bottom frame rails and axles but mounted no higher than the upper rails.

Body

a. Only standard type Sprint Car bodies, tails and hoods will be permitted.
b. Side foils, rudders and/or panels that extend beyond the rear of the cage support bars will not be permitted.

c. Nose pieces and/or the top portions of the hood must not extend forward of the leading edge of the front torsion tube or similar position on a coil-over car. Torsion tubes must be positioned in what is considered a conventional location. The hood side paneling or other side body pieces must not extend forward of and/or below the front axle.
d. Sunshields are permitted. Sunshields cannot extend beyond the down tubes of the car or restrict the driver's vision, restrict driver's exit, or direct air all at the discretion of the Series and/or Safety Director. The maximum height is 9 inches and no dish visors or wicker bills are allowed.
e. Wedges and/or foils underneath the racecar will not be permitted.
f. Pieces that are added to the basic frame to resemble, imitate and/or be specifically designed to deflect, trap and/or form a pattern for air to travel in a directed manner, except for those used to cool and/or protect the motor and the brake system, will not be permitted.
g. Mirrors of any kind, whether attached to the racecar and/or the driver, will not be permitted. All cars must have a minimum of an 18-inch-tall number on the outside of both top wing panels and a minimum 18 inch tall number on the top wing center foil. Any letter utilized as part of the car number must be a minimum of 12 inches tall. If there are cars at any event that carry duplicate car numbers then one of the two cars will be required to add a letter to the number for scoring purposes.
h. All cars will be required to run a full sprint-type appearing hood with a maximum outside hood width of 30 inches. The hood must extend to the front of the torsion tubes and/or similar location on coil-over cars. The hood may be a multiple piece design, but visually, it must appear to be one continuous piece in side-to-side and front-to-back manner.
i. The driver's right-side opening must be a minimum of 10 inches vertical at any point and a minimum of 21 inches horizontal at any point. See Drawing 16.7.J. The left side paneling may extend to but not forward of the support bar. See Drawing 16.7.K. The use of a left side arm guard as part of the paneling is acceptable as long as it or any other part of the paneling does not prevent left-side driver entry or exit at the discretion of the Series and/or Safety Director.
j. Safety bar(s) and/or arm guard paneling that protrude outward from the frame rails for the purpose of creating room for the driver will be permitted. The guard(s) and/or paneling will be permitted to extend a maximum of 7 inches as measured from the outside edge of the middle frame rails and must remain above the middle frame rail. The sole purpose of this area is creating elbow room for the driver. The elbow room must remain above the upper "middle" frame rail and may not extend rearward of the leading edge of the rear axle.
k. Rear radius rod protectors will be permitted. The maximum protector vertical opening will be 10 inches in height by 24 inches long and it must not extend more than 3-1/2 inches from the outside edge of the bottom frame rails.
l. A maximum 1-1/2 inches wide by 20 inches long exhaust fume deflector, located on the bottom sidebody panel at the rear edge will be permitted. The turnout angle must not exceed 90 degrees.
m. All other side paneling must be fabricated flat and must not extend past the outside edge of the frame rails more than the thickness of the paneling material.



Wings

a. Top Wing Center Foil
   i. Center Foil maximum size of 25 square feet with a maximum depth/thickness of 9 inches and a maximum length of 60 inches. Center Foil must be square or rectangular in shape with all 4 corners set at 90-degree angles with no variance allowed. The center foil top is to be flat from front to back and side to side. The center foil top must start being flat within 6inches from the center foil's front leading edge. See Drawing 16.8.1.E at the end of this document.
   ii. Center Foil shall be fully sheathed in aluminum. Vent holes, dimples, ridges and/or any other type of fabricated modification will not be permitted anywhere on the wing.
   iii. A maximum 2 inch removable wicker bill may be mounted on the rear edge of the center foil. The wicker bill must be 90 degrees to the top of the center foil. Built-in wicker bills or gurney lips will not be permitted.

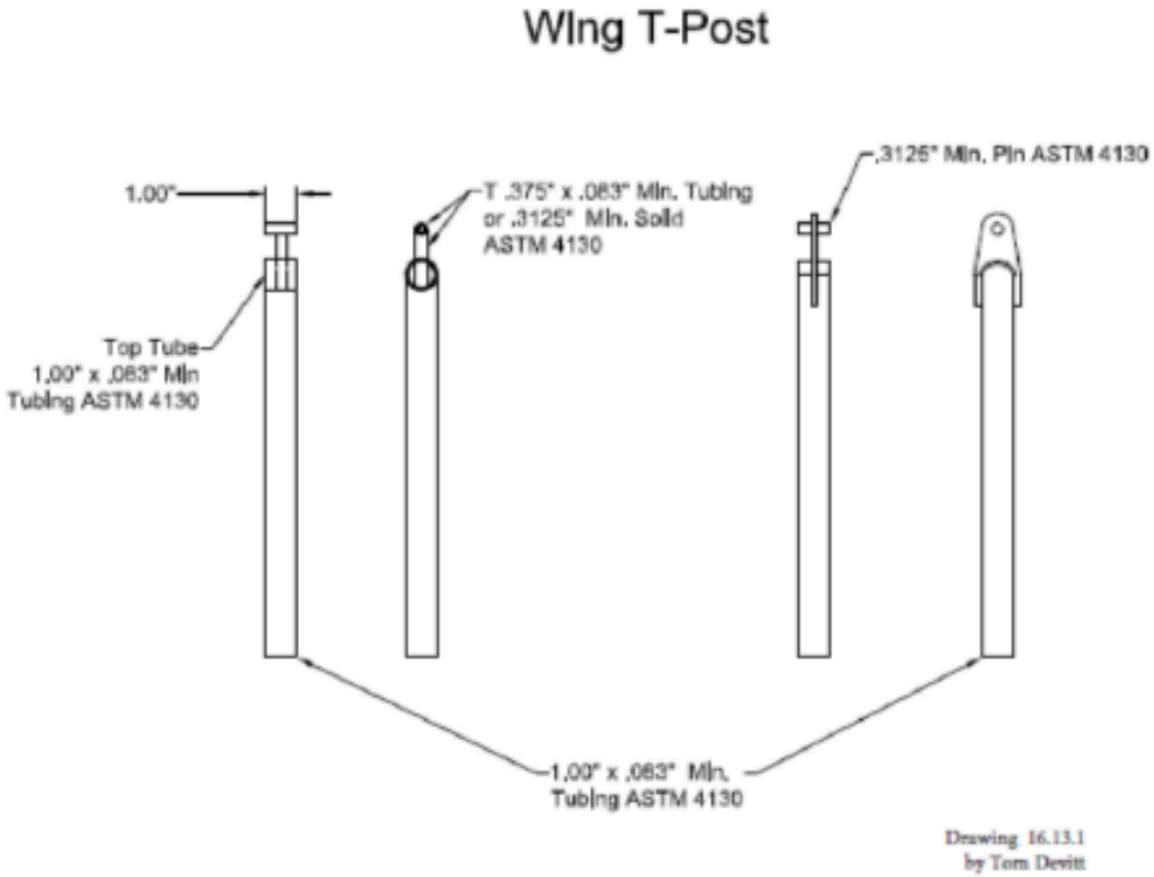
iv. The top wing may be adjustable in the cockpit by the driver. Other than the slider mechanism, moving parts will not be permitted on or in the foil structure.

v. Only one slider mechanism will be permitted on the top wing, which only permits forward and backward adjustment.

vi. The underneath side of center foil must appear to be a continuous smooth arc with no recesses, concaves, or protrusions. Center Foil must be one piece construction. Split or bi-wings will not be permitted. Only wings fabricated of metal alloys will be permitted. Fiberglass, carbon fiber and/or other similar material(s) will not be permitted in the basic framework of the wings. The top wing must not extend beyond the outside of rear tires.

vii. Foils or rudders will not be permitted anywhere on the top wing.

viii. Wing T-Post will be built from 1" x .083" minimum ASTM4130 normalized steel or equivalent material. Wing attachment designs will be subject to approval. The only cast pieces approved will be HRP Part #HRP8811-A75-HD. If new T-Post designs are developed they must be submitted for approval. See Drawing 16.13.1.



b. Nose Wing Center Foil

i. The center foil will have a maximum size of 6 square feet with a maximum width of 36 inches and a maximum length of 24 inches. The center foil must be square or rectangular in shape with all four comers set at 90 degree angles. See Drawing 16.8.2.K at the end of this document.

ii. Center foil shall be fully sheathed in aluminum. Vent holes, dimples, ridges and/or any other type of fabricated modification will not be permitted, anywhere on the wing.
iii. A maximum 2-inch removable wicker bill may be mounted on the rear edge of the center foil. The wicker bill must be 90 degrees to the top of the center foil. Built-in wicker bills or gurney lips will not be permitted.
iv. The maximum distance from the center foil front edge to the front edge of the front axle may not exceed 20 inches.
v. The center foil front edge must remain at least 1 inch behind the front edge of the front bumper. The center foil top surface from side to side must remain flat.
vi. The center foil must be one piece. Split or bi-wings will not be permitted.
vii. Only wings fabricated of metal alloys will be permitted. Fiberglass, carbon fiber or other similar material(s) will not be permitted in the basic framework of the wings.
viii. The nose wing must not extend beyond the outside of the front tires. The nose wing may not be cockpit or driver adjustable while the car is stationary and/or in motion.
ix. Moving parts will not be permitted on or in the foil structure. Rudders or fins will not be permitted.
x. The 5-inch section located at the rear of the front foil must not have a belly/curl arc that is out of proportion with the rest of the front foil. As measured on a 5-inch straight edge, the belly at 2-1/2 inches from the rear of the foil may not be deeper than 3/8 inch with no tolerance. It is suggested that the wing blueprint specify 11/32-inch depth, so that if any deflection or movement of the wing occurs, the depth will not exceed the 3/8 inch specification. (This 3/8-inch measurement ensures that the belly/curl arc is gradual).
xi. The belly/curl arc must span the entire length of the front foil and appear to be a gradual arc with the deepest point, not further back than 12 inches from the leading edge. The belly/curl arc must start at the front foil's leading edge and shall not exceed a depth of 2 inches. Front foil thickness cannot exceed 3.6 inches.

c. Side Board Panels
i. All braces or supports shall be oriented thin edge to face the air stream. Only rectangular, round or oval metal braces not exceeding 1 inch in width will be permitted. Adjustable bracing will not be permitted.
ii. Aero elliptical brace material will not be permitted.
iii. Braces or support shall not resemble a wicker bill or a split wing Side boards must be mounted square to the center foil and parallel to each other. Any kick-out will not be permitted.

d. Nose
i. The nose side board's maximum size will be 26 inches long and 12 inches tall with an overhang not exceeding 1 inch from the center foil front edge to the side board front edge.
ii. Side boards may have a maximum 1/2-inch front, back, top and bottom turnout(s) (flange).

e. Top
i. The Top wing side board's maximum size will be 72 inches long and 30 inches tall. The top 2/3's of each top wing side panel shall consist of only 2 corners. Each corner shall be

set at a 90-degree angle with no variance. This portion of the side panel's leading edge may not be behind the center foils leading edge.

ii. Panels must be of one-piece construction.

iii. Panels must be fabricated flat. Turnouts on all edges of the wing must not exceed 1-1/4" x 1-1/4" and must be orientated at a 90-degree angle to the flat portion of the side panel. Both top wing side boards should be at a 90-degree angle from the center section at any point.

Wheels & Wheel Covers

a. The maximum width for the right rear wheel will be 18 inches. The maximum width for the left rear wheel will be 15 inches.
b. The maximum wheel diameter will be 15 inches.
c. Only steel or titanium wheel cover fasteners will be allowed.
d. Plastic and/or carbon fiber wheels will not be permitted.
e. Both 5 and 3 mounting point wheel covers will be allowed for competition under the following conditions. Wheel covers having a minimum of 5 attachment points may continue to use dzus fasteners. Said dzus fasteners must be made of magnetic steel or titanium only. Wheel covers having only 3 attachment points must be bolted-on at all 3 points utilizing a minimum 5/16 inch, flanged magnetic steel or titanium bolt and a fastening (nut assembly) system.
f. Digital air bleeders are allowed, but cannot be operated remotely. Air may not be introduced to the tire from any onboard system.

Tires

a. Hoosier Tires are required on all four corners.
    i. Fronts
        1. D12, D15, D20
    ii. Left Rear
        1. D12A, RD12, H12, H15, RaceSaver
    iii. Right Rear
        1. D15A, Medium, Medium 1, H15, H20 Medium, RaceSaver
b. Tire Prep
    i. The altering of any tire compound, by any means will not be permitted. Chemical alteration of the tread carcass and/or tread compound, such as tire 'soaking' and/or the introduction of tread 'softener' and/or physical defacement (removal, altering and/or covering) of tire sidewall markings in any manner will not be permitted. If any competitor is found to have altered their tire(s), they will be fined one thousand dollars ($1,000.00) and will be suspended from the next two (2) completed events.
    ii. Any tire may be inspected and/or analyzed for alteration at any time. This will consist of a process as determined by the independent laboratory that performs the analysis. The analysis process will require a sample shipment of the tire to the selected laboratory.

iii. Additional race event(s) may be completed before a determination is made. If a penalty is issued, the event(s) that fell into the analysis time period while the tire(s) were being analyzed will be considered as part of the penalty time period.
iv. Money won in an event may be held until the final determination is made by the independent laboratory.

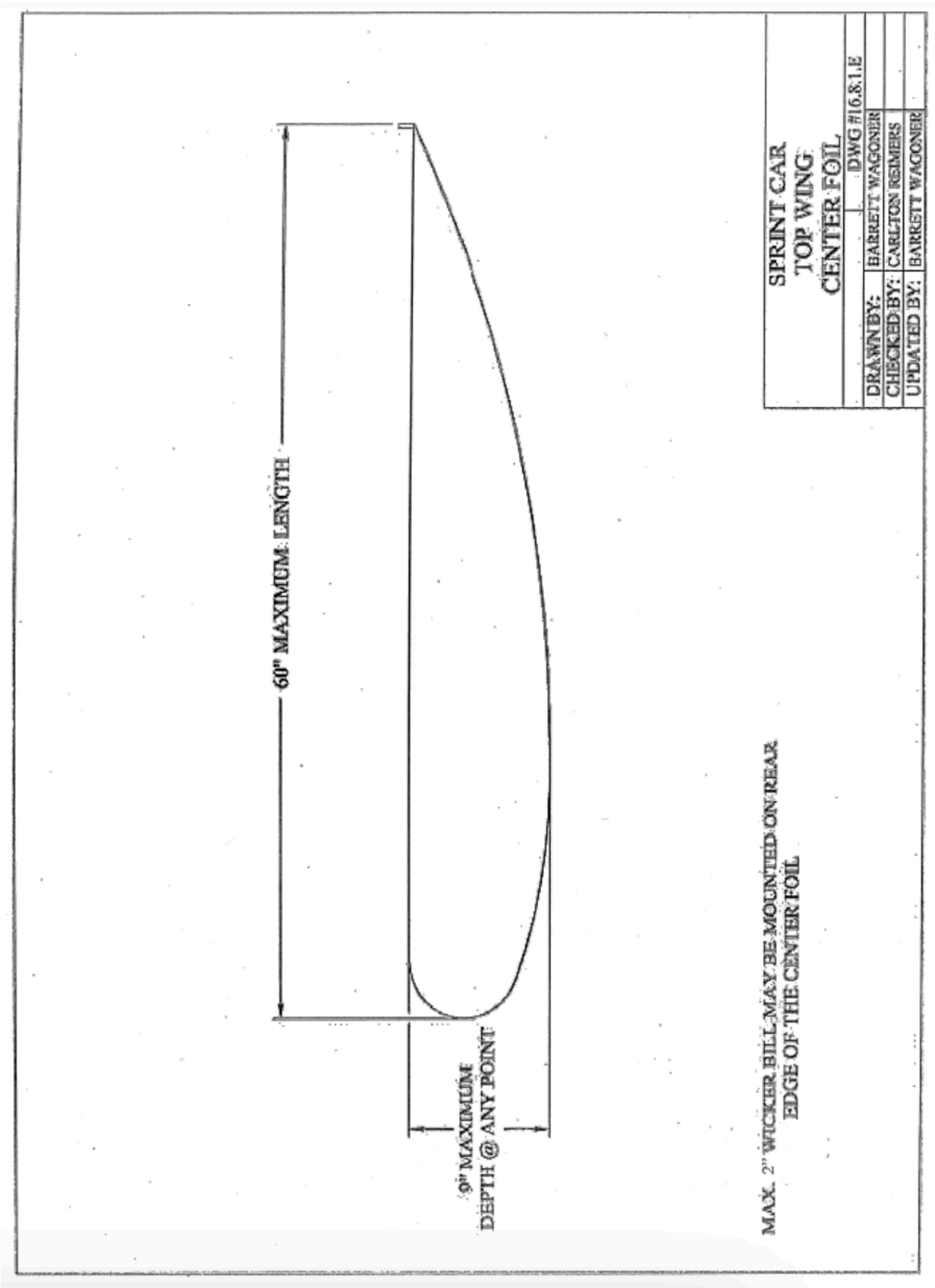
Shocks

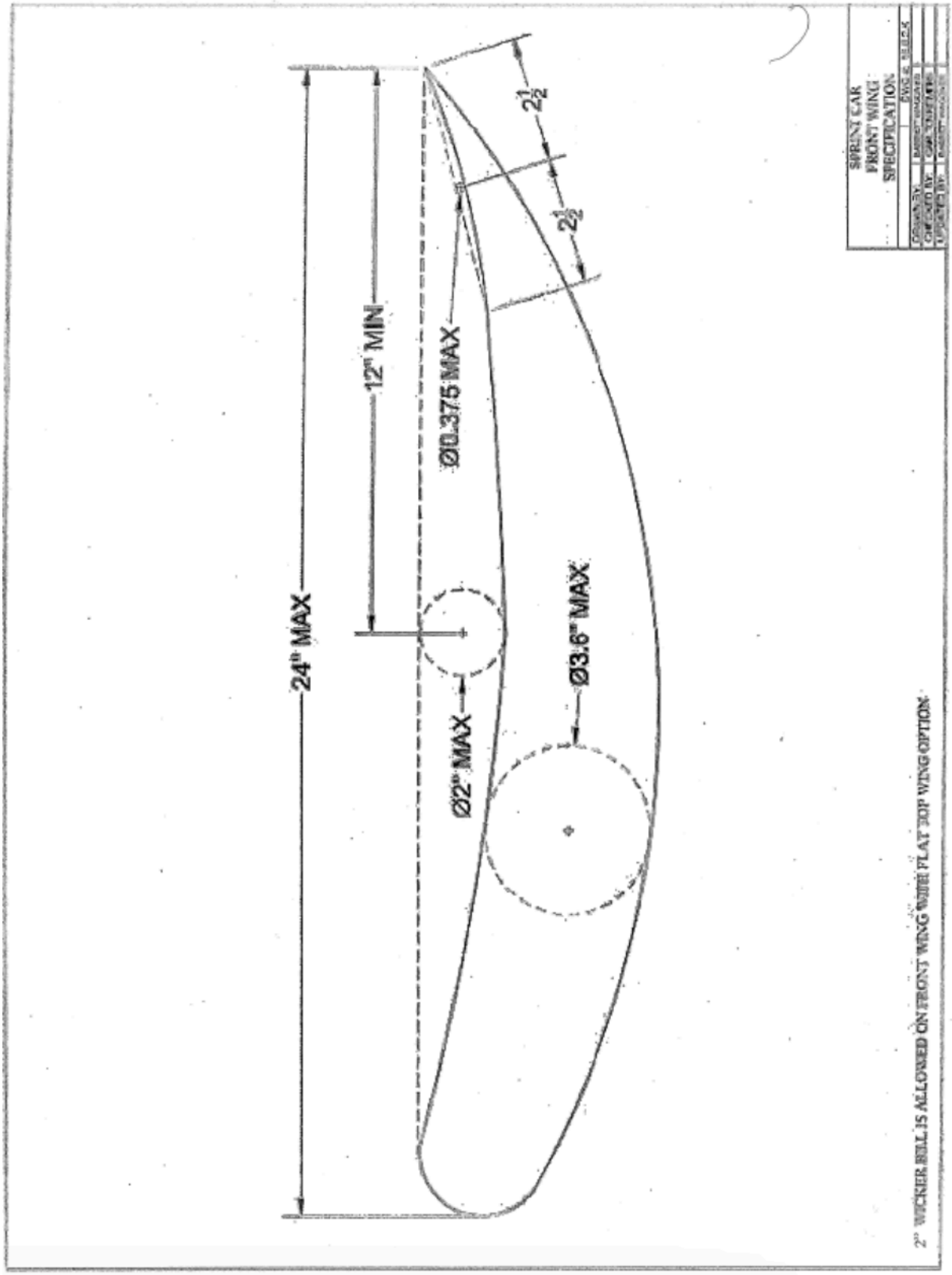
a. Only conventional and thru-rod style shock absorbers will be permitted. No additional components will be added to the torsion arm or other suspension components to help control the suspension, such as, but not limited to additional shocks, springs, spring arms, etc. Maximum of (1) shock per wheel, (4) shocks total.

Miscellaneous

a. Racing components in aluminum and magnesium should be checked for stress and replaced on a regular basis, based on the manufacturer's recommendations of the life usage of the part. These parts are, but not limited to, wheel centers, live rear axles, hubs and top wings.
b. Computer operated and/or controlled parts, such as fuel injection, fuel systems, chassis adjusting systems, etc., will not be permitted at any time during any event. The use of any electronic remote and/or wireless equipment capable of adjusting any equipment and/or function on the race car during any type of racing competition will not be permitted.
c. The use of an electronic logic processor to control any function of the race car is prohibited. (Note: This rule does not include electronic ignition and/or electronic tachometers).
d. MyChron data loggers have been deemed legal for gathering continuous data for the purpose of engine tuning performance but are limited to RPM, Pressure, Temperature, Voltage, O2 Sensors, and GPS. MyChron is one way communication only.
e. No Can ports, wheel/axle speed sensors or any other logic processing sensors will be allowed.
f. All electric gauges, whether analog or digital, except tachometers, will only be permitted to have one (1) input from the respective gauge sensor. Outputs from the gauges will not be permitted. Tachometers will be permitted to record engine RPM for recall.
g. All data loggers are subject to inspection by the Technical Director. Any other data collection system can utilize only one way communication and must have PRIOR approval by the Technical Director. No switching devices are allowed in the cockpit area for the use of changing ECU programming and will be subject to inspection.
h. The use of in-car radio transmitting devices is prohibited.
    i. Only one-way communication from POWRi Race Control will be allowed and is mandatory. Frequency: 464.5500
i. Wi-Fi, cellular, or satellite devices (including cell phones and smart watches) in or attached to the race vehicle or the driver will not be permitted.
j. Any part that may appear illegal is subject to confiscation at any time without notice for evaluation. If deemed necessary by series officials, any confiscated part may not be returned.

Wing Diagrams




SPRINT CAR
FRONT WING
SPECIFICATION
2½
2½
12" MIN
24" MAX
Ø0.375 MAX
Ø2" MAX
Ø3.6" MAX
2" WICKER BILL IS ALLOWED ON FRONT WING WITH FLAT TOP WING OPTION