

# Super Cyclone Series, Mini Cup Dirt Late model Rules:

**These rules are to make this class competitive, fun, and cheap, don't mess it up. Ask before being DQ'D.**

## **SUPER CYCLONES OR MINIATURE DIRT LATE MODEL CARS MUST MEET FACTORY SPECS AND GENERAL BODY REQUIREMENTS:**

**See diagram sheet for easier information.** Hood and trunk must be held closed with positive fasteners. Roof opening must be hinged in front only. Positive latches that can be opened from inside and outside body required. Chassis must be painted or powder coated. Body interior may be left unpainted. Body exterior dimensions shall be no more than 120 inches long measured from nose to spoiler, and 49 inches in width measured at bottom of doors. Body must remain level with chassis and cannot be offset on frame. Roof must be curved, no wedged or flat roofs allowed. See body dimensions appendix for more information about Cyclone Dirt Late Model body specifications. Any reinforcement of the body must be acceptable to officials. An adjustable spoiler must be attached to the rear deck lid.

A third spoiler brace may be used but must match the outer spoiler side dimensions. No mirrors are permitted in Cyclone Dirt Late Model cars. All dashboards must be constructed of aluminum and fastened in place. All switches must be installed in dashboard on the left side of the steering wheel. All dashboards are subject to approval by officials. Ignition shut-off switch must be labeled, showing on and off. Foot box interior must be constructed of aluminum. Panels must be securely fastened to chassis. Panels may be added to keep debris from drivers compartment. All interior panels are subject to approval by officials. When enclosing front of foot box, material used must be aluminum. Bumpers must be .875 x .065 wall steel tubing, fastened to chassis. An additional support using .875 x .065 wall steel tubing can be welded to the corner of the front bumper and run diagonally to the chassis. A spud approximately 1 1/2" long may be welded to the chassis and utilized for attachment of the new bumper support system. Subject to approval by officials.

**EQUIPMENT AND GENERAL ACCESSORIES:** Cars must be fitted with an aluminum racing seat that fits the driver's physical characteristics. All seats must be securely mounted in the centerline of the vehicle. The seat centerline must match that of the vehicle. The seat can not be off set. No driver shall compete in any event with head or arm extended outside of a car opening. The top of the driver's helmet must be at least one (1) inch below the top edge of the roll cage. This will be measured with the driver securely buckled in the car's seat. All belts and harnesses must be of the 5-point min. Both ends of the lap belt must be fastened to the roll cage with grade 8 bolts not less than 3/8" in diameter. Please make sure you are below the roll cage, it is your safety that we worry about, and it will not make you faster. The seat belts need to be switched out every 5 years. Again it's your safety and I will check. Your life isn't worth \$75.00.

\*You will need to have your own **Raceceiver** for Red Rock and Hunterstown. Hunterstown also uses transponders but they have ones for us to use for free. You will need a pouch to put it in on your car. Location on the car will be determined at the track. All cars will have it in the same location.

**GENERAL ENGINE REQUIREMENTS:** Only Honda GX390K1 engines will be used in Cyclone Dirt Late Model competition. **NO** 420 engines or parts! Aftermarket parts ok only if they are GX390. Serial numbers cannot be removed from engine block.

Engine must remain in stock location. Offsetting of engine is expressly prohibited. Engines and parts cannot be altered from stock factory Honda parts designed for the GX390K1 and will be checked against factory Honda parts unless otherwise noted in this rulebook. Specifications for the Honda GX390K1 engines can be found on page 2-4 of the Honda Shop Manual, part number 61ZH900. Any engine will be checked at any time.

**DETAILED ENGINE REQUIREMENTS:** Internal and external governor system may be removed. Governor shaft hole may be plugged or vented. Zero piston pop-up is allowed. Bore may be clearanced, and may not exceed the maximum service limits. Bore may be oversized by 10 thousandths (.010), 20 thousandths (.020), or 30 thousandths (.030) with Honda replacement pistons only. Flat top or dish pistons ok but **NO** dome or pop up pistons. Top piston ring may be oversized. Stock or aftermarket ring permitted. Top ring gap is a non-tech item. No gapless rings. Ring thickness .077 +/- .005, Ring Width .150 +/- .015. Crankshaft may be shortened by a maximum of 1.250 inches at the clutch end. Clutch bolt hole may be retapped. No lightening, polishing, or balancing of the crankshaft is allowed. Crankshaft may be ground .010 and the use of a Honda .010 replacement rod is permissible. Machining of a stock rod to allow for a .010 insert is also permissible. Rod location must remain stock. No stroking allowed. Piston and connecting rod must remain stock, or a ARC Billet rod may be installed Pn# 6272 ONLY, piston may be lightened and rod may be polished and shot peened. Rod length 3.30 +/- .015 Light wrist pin allowed. Wrist pin to top of piston: .615 minimum. Stroke 2.52 – 2.54 Any size oil lubrication hole is allowed. Rotating the piston or rod is expressly forbidden. Any replacement rod bolt is allowed, as long as the rod is not altered or modified, except for oil lubrication hole as specified above. Aftermarket parts are ok but you cannot use a 420 parts for the 390 period. **That is illegal!!!!** Engines will be checked for different things before each race. If you win 3 races, the complete car will be checked.

**CYLINDER HEAD:** Cylinder head must be stock item. Valve seat must be same inner diameter as stock head. No oversized valve seats. Must use stock gasket. Cylinder head may be machined to a minimum thickness of 3.630 inches. Ports may be polished. Combustion chamber touch up allowed. Only stock valves allowed. No lightening or polishing of valves.. Triple angle cut allowed. Worn valve guides may be replaced with stock Honda valve guides or with a bronze guide-liner.

**CAMSHAFT: NOTE:** Cyclone engines may compete using the profiled camshaft as described below. This is the only camshaft (other than stock) allowed. ALL ENGINES using a non-stock cam must conform to the profile specifications. Any cam that does not fall within the specifications below will be considered illegal. Camshaft timing cannot be changed from Honda factory specifications. A reground Honda camshaft may be used, as long as it remains within the following profile and must be checked at the lifter against the camshaft. No polishing or lightening allowed. Specifications below.

## **INTAKE EXHAUST**

LIFT DEGREES POSITION LIFT DEGREES POSITION

.050 -3BTDC-----	3 ATDC	.050 35-----	41 BBDC
.100 13-----	19 ATDC	.100 19-----	25 BBDC
.150 28-----	34 ATDC	.150 3-----	9 ABDC
.200 46-----	52 ATDC	.200 8-----	14 ABDC
.250 71-----	77 ATDC	.250 32-----	38 ABDC
.285 MAX.	.285 MAX.		
.250 33-----	39 BBDC	.250 68-----	74 BTDC
.200 8-----	14 BBDC	.200 44-----	50 BTDC
.150 5-----	11 ABDC	.150 11-----	17 BTDC
.100 21-----	27 ABDC	.100 11-----	17 BTDC
.050 36-----	42 ABDC	.050 -1-----	5 BTDC

**VALVE TRAIN:** After market valve springs, lifters and push rods okay. Any lower retainer and modification for lower spring retainer allowed. One stock Honda shim allowed under both intake and exhaust springs. Must use stock rocker arm. (Rocker arms may be reinforced.). A small groove may be cut in the valve stem for a safety (rubber) "O" ring to be installed. Groove must be no more than: 0.020" deep - 0.100" wide - 0.750" from end of valve stem. Slot in rocker arm may be elongated to prevent binding. **NO roller rockers!**

**HONDA CARBURETOR:** Only Honda Carburetors are legal. Choke may be removed from carburetor. Shaft holes must be plugged. Carb May be bored to .925 - .930. Any stock Honda jet may be used. Jet may be drilled. When using the Honda carburetor needle and seat must remain stock.

The following modifications are allowed to the stock carburetor Jet Size is open. A pick up hole can be drilled parallel to the existing hole of the same size. Hole can be drilled in bottom of carburetor float bowl nut for remote adjustment. May remove tab on low idle mix pilot screw. Shaft size minimum .268. Shaft size between screws minimum of .145. Throttle plate minimum .036. No-go bore gauge .930. Gasket must remain stock. Carburetor insulator for Honda carburetor must be drilled for pulse pump. Fuel pump must be pulsed from insulator only. Only one hole is allowed. If hole is not used it must be plugged with no air leaks. No grinding, polishing or sizing of insulators or adapters is allowed. Gasoline filters may be used. The location and size of the filter must be acceptable to officials.

**AIR FILTER AND ADAPTER:** All engines are required to have an air filter and carburetor adapter. Air filter cannot act as a ram air device.

**ENGINE/CAR ELECTRICAL SYSTEM ALTERNATOR:** Oil alert system may be removed. Charging system may be removed. Charging magnets may be removed.

**FLYWHEEL:** Flywheel may be balanced. Minimum flywheel weight must be 11 lbs. 10 oz. Weight should be removed from the outer edge of the flywheel. No other alterations to the flywheel allowed. **No** aluminum Flywheels.

**SPARK PLUG:** Any make or brand of spark plug may be used. Aftermarket spark plug connectors may be used to replace stock Honda connectors. Wire needs to have a zip tie or something that can be used to pull plug wire in case of switch malfunction.

**IGNITION SYSTEM:** Advanced flywheel key allowed. No alterations to the starter coil or other electrical parts are allowed. Spark intensifiers are prohibited.

**STARTER:** Recoil starter must be removed. The electric self starter must be in working order. Aftermarket starters ok. All cars must be capable of starting under their own power with electric. A rear starter switch may be in use. The starter cup is an extension of the recoil starter assembly and can be removed if desired. (May be cut down to a flat flange.) It also presents a hazard when adjusting the carburetor. The cup may be removed and replaced with the following Honda fan flange (Honda part # 19512-ZE2-000) ONLY. The screen must be replaced and firmly attached to the motor in the original location and made of ¼ inch mesh. Honda part # 19620-ZE3-810 may be used. It cannot be made of solid materials or be partially covered. A hole may be cut in the center of the mesh to allow access to the crankshaft nut.

**BATTERY:** Battery must be located in front of the left rear tire or the right rear tire, outside of cockpit in specified location. All batteries subject to approval by official(s).

**ELECTRICAL SWITCH LOCATIONS:** All electrical switches must be located on the left side of the dash panel and must be labeled showing the on/off positions. A switch must be wired so as to ground the ignition. A working gravity type shut off switch is mandatory on cars with electric fuel pumps.

**ACCESSORIES:** Lap timers and other automated electronics (oil pressure, temperature and rpm) are allowed providing they are mounted securely. Data acquisition devices are not allowed. Tach/temp sensor devices may be attached to the spark plug or exhaust. A small hole can be drilled in the exhaust pipe to accommodate the sensor.

**ENGINE COOLING SYSTEM:** Air cooling components cannot be altered from Honda GX390K1. The stock shroud covering the head can be replaced with an aluminum shroud with maximum dimensions of 5" by 10". The replacement of this shroud is not a performance enhancement. The shroud must not extend further forward than the leading edge of the fins on the head. The intent is to equalize cooling over the surface of the aluminum head thus adding durability.

**ENGINE EXHAUST SYSTEM:** Exhaust pipe must be minimum of 18" in length including muffler. RLV Mufflers Mandatory. Exhaust must be approved by officials. All tracks are asking for them.

**FUEL SYSTEMS:** No aviation fuel, race fuel, methanol, alky or additives of any type are allowed. **Pump gas 87 only**. The CRL approved fuel cell location shall remain unaltered from stock location. Fuel cell container as supplied from factory is mandatory (steel or alum). **No Electric fuel pumps**. All fuel lines must be secured by clamps or zip ties.

**CLUTCH:** Only a dry centrifugal clutch is allowed. No transmissions, belt driven torque converters, oil bath clutches or axle clutches. Clutch and clutch components must meet the following requirements: Clutches with shoes, springs and drums are acceptable. Also any disc clutch allowed by mini cup rules.

**CHAIN / GEAR SPROCKETS:** Only # 35 chain allowed. Chain guards are permitted and must be acceptable to official(s). No automatic or manual chain oiling systems permitted.

**BRAKE COMPONENTS:** Only hydraulic disc brakes with steel 10" rotors are permitted, No smaller. All cars must have brakes on rear wheels. Rear brake rotor/disc must be stock. Rotor may not be altered from stock size, no lightening or drilling allowed. No alternate materials may be used. Front brakes are optional and brake bias may be adjusted from driver compartment. **No** brake cooling component parts for front or rear brakes.

**REAR AXLE:** The rear axle must meet the following requirements: Axle must be mounted solid to suspended chassis. Only 1.25" steel or chrome-moly axles permitted, No Aluminum axles. Maximum axle length is 44". Must be magnetic. No alternate materials allowed. Both rear hubs must be keyed securely to axle. No floating hubs allowed. Snap rings must be in place and safety wired. Axle key stock must be secured in an additional fashion on all cars. Self oiling carrier bearings are prohibited.

**WHEELS & TIRES:** All wheels must meet the following requirements: The Douglas and REAL 4 bolt wheel (8x9) and (8x8) are allowed. Wheels may be painted or polished. Hoosier tires 20 compound and American Racer 44/62 compound and tire size 16 x 8.5 x 8 only. All tires must be approved by the official(s). Official(s) may conduct durometer reading to verify compound. No liquid or other tire softeners are allowed. Nitrogen is not allowed for use in tires. Pressure relief valves to control tire pressure may be used. We will check tires with durometer.

**WHEELBASE & TIRE TRACK REQUIREMENTS:** Right side wheel base may be NO more than 1" larger than left side wheel base measured at center of hubs. Tire track is open. Maximum track width is 50" outside tire to outside tire. This is measured front and back, not squared on the sides.

**CHASSIS: NO HOMEMADE CHASSIS.** SUPER MINI CUP CHASSIS PATENTED FOR MINI CUP STANDARDS, REDWELL PATENTED DIRT CHASSIS, and AAJ DIRT CHASSIS CAN BE USED!

**COATING:** All chassis must be painted or powder coated. Only the following modifications are allowed to the chassis. A stub can be welded to the front corner of the chassis on the lower frame rail to accommodate the insertion of the optional bumper bracket. The bumper, or body where the bumper mounts, may be reinforced in other ways as long as the intent is not to add ballast or support in such a way that would create unfair advantage for the driver. A vertical bar may be welded at the juncture of the A-pillar and the front of the hoop and run directly down to the top two side/door protection bars. Both bars may be added using only mild steel 1.125 in diameter and .065 in thickness. These bars must be mig welded. This modification is legal but is not suggested. Front upper frame rail cross bar located 16 inches (center-to-center) below the upper shock tower cross bar. Must be parallel to shock tower cross bar. Will also serve as mount for foot net. No filled or solid tubing allowed. You may also add an additional front cross bar and one from front to lower frame rail to prevent from bending in foot compartment during hard accident.

**SUSPENSION:** Cyclone cars must have a suspension consisting of, four steel body shocks, AFCO, Carrera, or Pro SB series shocks. (**NO ADJUSTIBLE SHOCKS**) Spring Rates and manufacturer are open. Threaded body shocks may be used. Springs and shocks cannot be altered and must meet original factory specifications. No spring stacking. A-arms, pan hard bar, and other suspension related components must be approved. Short bolt on pan hard bar is acceptable. Front shock spacing may not exceed one (1) inch width. All suspension and steering components are tunable without any component modifications. (**NO INTERIOR SUSPENSION ADJUSTING DEVICES ALLOWED** weight jacks, adj pan hard ect.)

**SPINDLES:** All spindles must be factory type spindles. King pin angles, spindle diameters, spindle arm length and angle, and the location of the outer ball joint mounting hole must remain as manufactured. Alternate heavy duty left spindle and heavy duty right spindle and hub. AAJ Chassis spindles and MM2 lower a-frame update allowed.

**STEERING:** All cars must be equipped with a steering column constructed of 0.750 x 0.065 steel tubing. A quick release steel coupling acceptable to the official(s) on the steering wheel is mandatory. Only rack and pinion steering is permitted. Steering rack may be shortened on either end. All steering linkage must be properly secured. A universal joint may be added to the steering column between dash-mount and steering rack.

**BODY HEIGHT REQUIREMENTS AND GROUND CLEARANCE REQUIREMENTS:**

No chassis or ride height minimums. The height of the body is measured from the top of the cars floor to the top of the cars roof not to exceed 32 inches, trucks have an exception around 36". No mechanical or electrical devices for shifting weight or adjusting weight or ride height will be permitted. Body may not be off set on chassis.

**WEIGHT RULE:** All cars will weigh after all heats and feature events unless leaving track on tow rig or EMT Unit. All cars must weigh a minimum of 700 pounds with driver ready to race. If weight is needed to meet minimum requirements the specified weight containment bars must be utilized. Weight containment bars and materials will be of the following dimensions and attached in the specified locations only. The base or bottom side bars will no longer than 22". The bars must be centered on the tabs provided on the chassis using a minimum of grade 8 fasteners and locking nuts. we strongly recommends additional bracing to attach weight bars to frame. This bracing should be welded to frame to ensure weight bars remain fastened to frame under any racing condition. Holes for mounting the bars must be drilled on the centerline of the bar 1" from either side. The bars must be centered from front to back leaving an equal distance from the end of the containment bar to the center of the nearest tab on both ends. Weight within the bar must be centered within 1 inch of the total length, and cannot slide from front to back or side to side. Weight bars to be located in front of the driver's seat will be no longer than 16". They must be bolted directly to the tabs provided on the chassis using a minimum of grade 8 fasteners and locking nuts. The bars must be centered. Base or bottom bars must be full prior to adding additional weight bars to that side. If additional weight is needed weight containment bars **MUST** be stacked vertically. Weight must be centered front to rear within 1 inch and side to side on the base bar. Second level bars can be no longer than the base bar. These bars can be welded to the bar below it, or they can be bolted using a minimum of 2 bolts and the hardware described above. Additional bracing welded to the frame may be added to secure these additional weight bars. All weight must be inside the driver's compartment. 5 lbs kart led may be used on brackets made for roll bars. Only 10lbs per bracket unless using 2 brackets on 1 led, then its up to 50 lbs. Do Not mount led to floor pans or body directly. It's a safety hazard.

**POST RACE TECH:** Trunk and hood must remain closed until such time as a tech official opens one or the other. The driver and car must remain in tech until given permission to leave by the official in charge. Drivers failing to follow this procedure are subject to disqualification. No equipment or car will be considered as having been approved by reason of having passed through inspection "unobserved".

**SEAT AND PEDALS:** Seat must be aluminum racing seat made by a reputable manufacturer. No homemade seats are allowed. Seat must be bolted in place. Minimum of grade 8 hardware only. The use of straps or tape to anchor the seat is prohibited. Seat size will be appropriate for driver. All pedals must be within appropriate reach of the driver. Any deemed inappropriate by tech official will have to be modified prior to the car being allowed on the track. A raised foot box may be constructed for elevating the driver's feet or legs above the steering rack and to allow for moving the pedals closer to the driver. The box may be constructed from aluminum or steel of a thickness sufficient to support the driver's feet and allow for the bolting of the pedal assembly directly to the box if necessary. Minimum .040 gauge aluminum or a maximum of 14-gauge steel may be used. The box must be easily removed for safety inspection of steering and suspension components. The sole purpose is to allow proper pedal location for a small driver. Any attempt to utilize the box for ballast or weight distribution is expressly forbidden. All pedals must be securely fastened to the chassis rails using grade 8 hardware. The car will fail tech, if at the discretion of the tech inspector, the seat, pedals or box are mounted in an unsafe inappropriate manner.

**Winners edge:** There will be a drivers meeting before every race that I am at. I will tech different things each week to make sure everyone is legal and being trustworthy. I will check stuff before the race and after. If I am racing with you guys, I will have someone check my stuff from another team. If a car wins 3 times, doesn't have to be in a row, they will be checked over really good. The next race they will have to add 20 lbs to their car. Every race they win after that, they will have to increase another 10 lbs. I will keep check of weight amounts. This also includes my car. It is not the driver but the car that has the edge. This rule is to keep things close without tearing an engine completely apart, I know how much it costs to put them together.

**NOTE:** We will be checking for things like 87 octane only, carburetor size, and flywheels, also bore and stroke sizes by compression gauge. Tires will be checked with durometer. Also, other car specifications as well. We will have the tech tools for these tests. Anything not covered in these specifications will be to the discretion of the track or tech. Track officials will be teching also, There shouldn't be any questions or problems from any driver or owner. The rules will be enforced!

**Disqualifications:** The driver will lose points and money (if money race) for that night's event. The next week they show up to the track they will be checked again for same infraction, they will start at the rear of the feature. They must run the heat race! If you do not run the heat race you will not be able to start the feature. It was your infraction so don't blame anyone else.

**DON'T MESS WITH SAFETY, IT'S NOT WORTH IT!  
ANY QUESTIONS, ASK FIRST. IF WE NEED TO CHANGE  
SOMETHING, I WILL ASK THE WHOLE GROUP OF THEIR OPINION.**

**MAY THE LORD BLESS THE 2019 SEASON!**