

**Class Specifications
Mini-Cup - 2005**



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Class Specifications Mini-Cup - 2005

The "Class Specifications" of the Scale Racing League are intended to assist in governing the competitiveness and vehicle safety of any and all sanctioned events. They are a guide and in no way guarantee against injury or death to participants, spectators or others. No express or implied warranties of safety or fitness for a particular purpose shall be intended or result from publication or compliance with these rules.

January 1st, of each year, all editions of the Scale Racing League's *Class Specifications* are superseded by the next set of Scale Racing League's *Class Specifications*. The year printed at the top of each page is known as the revision number of that set of *Class Specifications*.

The Scale Racing League reserves the right to change, modify or supplement the *Class Specifications* at any time. All members of the Scale Racing League will be notified of these changes by means of a "Rev Page" mailed to them via the United States Postal Service. "Rev Pages" will completely replace the entire section number in that year's revision of the *Class Specifications* and shall be effective the 1st day of the month preceding the post marked month of the letter.

Note:

1. Inside this publication, The Scale Racing League may be referred to with the initials "SRL".
2. Inside this publication, The Basic Competition Rules may be referred to with the initials "BCR".
3. Inside this publication, The Class Specifications may be referred to with the initials "CS".
4. All dimensions in this publication are in inches unless otherwise noted.
5. Changes to this publication different from the previously published revision will be shown in underlined text.

Racing is a dangerous sport. The likelihood of serious injury and possible death are greatedened by competing in speed type events. The Scale Racing League assumes no responsibility for injury or death resulting from, but not limited to, the compliance of these rules or the engagement of competition in a SRL sanctioned event. No express or implied warranties of safety or fitness for a particular purpose shall be intended or result from publication or compliance with these rules.

The Scale Racing League is a driver friendly organization, dedicated to the promotion of ½ scale motorsports. The Scale Racing League is built on an open manufacturer template that allows our members the chance to improve the organization in which they belong. The address is:

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1.0 Mini-Cup

These specifications in conjunction with the Scale Racing League “Basic Competition Rules” shall govern all vehicles participating in sanctioned SRL events. These specifications shall govern all cars competing within the Mini-Cup events sanctioned by the *Scale Racing League*. Throughout these specifications The Scale Racing League shall be referenced as the “Sanctioning Body”.

2.0 VEHICLE TECHNICAL SPECIFICATIONS

2.1 FUELS

The sanctioning body reserves the right to require competitors to adhere to these specifications by means of a pump around system, spec fuels and/or any other test deemed appropriate. **As discovered during the 2004 season not all “Pump Fuel” will pass tech. It is the drivers responsibility to have their fuel checked prior to use, if there is any question about its possible legality.**

- 1) Unleaded gasoline only
- 2) Specific gravity equals 0.700 to 0.780 at 60 Degrees Farenheight
- 3) Trace Lead:
Alkyl Compounds 0.000 – 0.005% weight
Aromatics 0-50%
Oxygenated compounds: 0.000 – 0.005% weight
- 4) Nitrogen-bearing additives are prohibited in the fuel or in the engine oiling systems.

The director at his/her discretion may disqualify any competitor based upon any traces of these additives whether detected by a device or sense of smell. **Competitors found to be in violation of section 2.1 will be dealt with harshly.**

2.2 OILS SPECIFICATIONS

The use of combustible oils and/or additives is strictly forbidden. The sanctioning body reserves the right to require competitors adhere to these specifications by the use of spec oils and any/or other test deemed appropriate. Oils and/or additives found to be an irritant to other drivers and or people will be banned. **Competitors found to be in violation of section 2.2 will be dealt with harshly.**

2.3 WEIGHT SPECIFICATIONS

All vehicles shall weigh the specified amount for the class at post and pre race inspections. There shall be a maximum of 55% left side weight.

Suspended, Mini-Cup = 700 Pounds
Ridged, Mini-Cup = 660 Pounds

2.4 BALLAST

Ballast shall be added to all cars as required, to meet minimum weight. Ballast shall be securely mounted within the chassis structure. Ballast shall not be located in the engine compartment. Ballast shall be mounted by means of grade 8 hardware, large washers, lock nuts and safety wire, to a tab welded to a frame member. Tabs may be added where needed. The SRL official shall inspect welding and workmanship. If weight is found to have come loose from it’s mounting points and/or made it out of the vehicle during the event the driver may be disqualified from the event. **All ballast must be painted Fluorescent Orange,**

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2.5 NOISE REGULATIONS

Local noise regulations may require the use of a muffler, in which case the sanctioning body will mandate the existence. Mufflers are a non-teachable item except for the following specifications:

- 1) Mufflers shall quiet the vehicle suitable for the track's requirements
- 2) Mufflers shall be securely mounted.

2.6 BATTERIES

A type 10L battery (or similar), in good working order, shall be mounted securely to the vehicle. Maximum dimensions of the battery shall be: L 6.5 W 5.0 H 8.0. In the event the battery is located in the drivers compartment, it shall be mounted within a non-conductive marine type container or equivalent. All batteries shall be attached securely to the frame or chassis structure independent of the marine type container. Battery location is unrestricted. Battery, mounting, wiring and/or charging post are subject to approval by the sanctioning body.

2.7 FUEL CELLS

All fuel cells shall be securely mounted to the frame. The location shall be within the structure of the vehicle outside the driver's compartment. It is recommended the fuel cell be mounted inside a metal enclosure. The filling neck of the fuel cell shall not be in the driver's compartment. Maximum capacity of the fuel cell shall be 3 (three) gallons. Filler caps, fuel pickup openings and lines, breather vents, and fuel lines shall be so designed that if the car is partially or totally inverted, fuel shall not escape. Fuel cell breathers shall vent outside the vehicle and away from the exhaust system Fuel lines shall not enter or run through the driver's compartment.

2.8 FIREWALL AND FLOOR

A firewall constructed of aluminum and/or steel shall completely separate the vehicle into two areas known as the engine and driver compartments. The Floor of the vehicle shall be constructed of steel only with a minimum thickness of .030.

2.9 FIRE SYSTEMS

All vehicles are recommended to have a fire extinguisher on board and securely fastened.

2.10 FLUID CATCH TANKS AND FILTERS AND BREATHERS

All orifices within the engine compartment shall vent into a catch tank that is securely mounted within the engine compartment (I.E.... Valve cover)

2.11 ELECTRICAL AND SWITCH SPECIFICATIONS

All electrical wiring shall be neatly routed within the chassis of the vehicle. No part of the harness may be capable of "floating" within the driver compartment. Switches shall be mounted to a dash or panel located in front of and accessible by the driver. The ignition or master kill switch shall be located on the left-hand side of the vehicle and marked on/off. Accessibility to the ignition or kill switch through the left side window is mandatory and shall be unobstructed.

2.12 WINDOW SAFETY NETS

All vehicles are required to have a left side safety net that is securely fastened to the chassis. The use of a window net or side window is recommended on the right side.

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2.12.1 WINDOW MATERIALS AND FASTENING

The windows shall be constructed of a clear polycarbonate (i.e. Lexan) material with a minimum thickness of .0625. Windows shall be securely fastened in place. Plexiglas is not a polycarbonate material. There shall be no holes in the front or rear windows. Front, rear, left rear side and right rear side windows are mandatory.

2.13 DATA COLLECTION DEVICES

If used, data collection devices shall fall within these parameters. Device shall collect and/or remember only these approved inputs:

- 1) Head Temperature
- 2) Exhaust Gas Temperature
- 3) Exhaust Air/Fuel Mixture
- 4) Revolutions Per Minute
- 5) Lap Time

All devices shall be securely mounted and shall not obstruct the driver in any way.

2.14 DRIVER RESTRAINT SYSTEM

The use of a 5-point quick release style safety harness is mandatory. The Safety harnesses shall have a SFI rating of at least 16.1 and a minimum of 2 inches wide. The safety harness shall be free of fretting and visible wear with a manufactured date less than 5 years old. The Safety harness shall be mounted securely to the chassis with grade 5 SAE bolts. **NO INERTIA WHEELS. Head and neck Restraint systems are also highly recommended.**

2.15 BODY REQUIREMENTS

The body is required to fit the chassis properly. Hand made and /or home built bodies shall be subject to approval of the sanctioning body. The sanctioning body encourages the purchase of bodies of reliable and known sources.

2.16 BODY CONSTRUCTION

The body, which includes, trunk, hood and roof panel shall be constructed of fiberglass and or plastic. If the body is constructed of more than one material no visible difference of the two shall be evident. If the body is constructed of multiple pieces (i.e. clips, fenders etc.) the seams shall have close fits and an appealing look. All bodies shall have separate trunk, hood and roof panels. The roof panel shall be hinged in the front.

Body dimensions shall be:

	MIN	MAX
Width	40 inches	47 inches
Length	105 inches	115 inches
Height	30 inches	33 inches

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2.17 BODY MOUNTING

The Body shall be mounted to the chassis by means of screws, bolts or Dzus quick type fastners. Body must be mounted level to the chassis. The body shall be mounted on center to the chassis. The only holes allowed in the body shall be located on the front spoiler under the bumper. A maximum of 2 holes, 3 inches by 6 inches or 4 holes 3 inches by 3 inches. A metal mesh screen mounted from inside the body is required for any/all holes.

2.18 SPOILER REQUIREMENTS

Rear Spoilers shall not have the ability to be adjustable from inside the driver's compartment. Spoilers shall meet a minimum width of 35 inches and a maximum of 36 inches. The height of the spoiler shall be a minimum of 2 inches and a maximum of 4 inches tall. Spoilers shall be run between 39 and 50 degree to a level and horizontal plane. Spoiler shall be constructed of a thick enough material as to keep it from flexing while at speed. Spoiler angle will be measured with driver in the car and as raced.

2.19 BUMPER SPECIFICATIONS

Bumpers are required on front and rear of the vehicle. Bumpers shall not be visible or protrude outside the body. Front bumper shall not extend more than 10 inches to the outside of front frame rails on either side of chassis.

2.20 SEAT REQUIREMENTS

The seat shall be constructed of aluminum by a reputable manufacturer of Automobile racing seats. Seat shall be securely mounted on the centerline of the chassis. The only materials allowed for the mounting of the seat shall be metal. NO modifications with there intent deemed as lightening shall be allowed. Seats and the mounting of them are subject to sanctioning body approval.

2.21 STEERING SPECIFICATIONS

The steering system shall consist of a steering wheel suitable for automobile racing and mounted with a quick release hub, and a rack and pinion style steering box. All bolts used to mount any part of the steering systems shall be grade 8 and use lock nuts and/or safety wire.

2.22 WHEEL SPECIFICATIONS

Wheels shall be 8 inches max diameter and 8 inches max width and constructed of aluminum and/or steel. Wheel rim width shall be measured at the base of the rim seat.

2.23 TIRE SPECIFICATIONS

Tires must be of a matched set either 4 Hoosier's or 4 American Racer, **NO MIXING!**
American Racer Slicks - 15.0 X 7.00 X 8S M32 compound only.
Hoosier Tire
Tire softeners are prohibited.

2.24 BRAKING SYSTEM REQUIREMENTS

The braking system shall consist of one foot-operated pedal, located on the left side of the car, that operates a hydraulic style master cylinder. The braking system shall brake the entire rear axle, at a minimum. **Front braking system is strongly recommended for the 2005 season. NO BAND STYLE BRAKES**

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2.25 THROTTLE LINKAGE SPECIFICATION

The throttle of the engine shall be controlled by one foot-operated pedal located on the right of the vehicle. Throttle return springs are mandatory.

2.26 DASH REQUIREMENTS

The dash shall not hinder the driver from controlling the car in any way. The dash shall not obstruct the driver's view in any way.

2.27 REAR AXLE REQUIREMENTS

The rear axle shall be made of steel at least 1 ¼ inches in diameter. The axle shall not protrude outside the wheels. Both rear hubs shall be securely mounted to the axle. The hubs shall never spin independent to the other wheel or axle. Axles shall have a groove cut into the end. This groove shall have an external lock ring installed. No limited slip devices.

2.28 ENGINE LOCATION AND COOLING REQUIREMENTS

The engine must be located in the rear of the chassis. Engine cooling shall be limited to shrouds and ducts. NO RADIATORS. The oil capacity shall remain unaltered from stock specifications.

2.29 AIR DUCT SPECIFICATIONS

NACA style ducts shall be located in the rear side windows only except for one duct located in either (not both) drivers side window. The duct located in the driver's side window shall not close off more than 1/3 of the window opening – this includes the mounting structure. Accessibility requirements in section 2.11 are mandatory. **NO FORCED AIR INDUCTION.** (Section 5.7)

2.30 MIRROR SPECIFICATIONS

All vehicles are required to have mirror(s) that give the driver a rear view of both sides of the car. Mirrors shall not protrude outside a vertical line drawn from the ground up tangent past the body.

2.31 CLUTCH SPECIFICATIONS

Only dry centrifugal clutches utilizing a “bell” and “shoe(s)” design are allowed. No Transmissions, belt driven torque converters, oil bath or axle clutches. Manufacturer is open. Number 35 chain drive only. The Red hawk Disc Clutch is an approved clutch.

2.32 ENGINE STARTER SPECIFICATIONS

All vehicles are required to run an on board engine starter operated by a switch on the dash. The starter shall be in good working order

2.33 GEARING SPECIFICATIONS

The sanctioning body reserves the right to specify a “SPEC” gear ratio for special events or series.

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2.34 CHASSIS RIDE HEIGHT

Minimum ride height shall be measured at the nose and both sides of the chassis with driver sitting normally inside the seat and vehicle above minimum weight. Minimum ride height shall be one and one half inches "1 1/2" measured at the lowest point of the chassis or body, not including welds or fasteners for suspended vehicles. Ridged vehicles shall retain a minimum ride height that allows for safe operation of the vehicle. Excessive scrubbing of the chassis is prohibited and is cause for a black flag to be issued or finish position to be taken away.

2.35 RESTRICTER PLATE

The use of restrictor plates for all Junior Pro sanctioned events is mandatory. The plate must be installed firmly in place, pushed all the way down on the carburetor studs. One gasket shall be used on either side of the restrictor plate. All air passing through the intake port of the head shall pass through the air filter. The restrictor plate must be the approved plate offered by the Scale Racing League with out modification.

The sanctioning body reserves the right to require competitors to run a carburetor restrictor plate for special events or series. The official restrictor plate supplied by the SRL has a .750" +/- .001" diameter hole.

2.36 SHOCKS AND SPRING SPECIFICATIONS

Shocks shall not be adjustable from inside the driver's compartment. Only the approved listed shocks and part numbers are allowed.

PRO-SHOCK	ASB51B, ASB52B, ASB53B, ASB54B, SB51B, SB52B, SB53B or SB54B
AFCO	1651, 1652, 1653, 1551, 1552 or 1553
CARRERA	3251, 3252, 3253, 3361, 3362, 3363, 6251, 6252 or 6253
CARRERA	Optional 3364 (Only on front)

CARRERA SHOCKS – (3251, 3252 and 3253) are on the approved list of shocks only for the purposes of an increase of shock travel on cars that have the low shock mounts on the front. *****These shocks shall not be used on any car that has the high shock mounts***** (Please check with your manufacturer for specifications.) These Shocks will only be used on cars that have the Low shock mounts to allow a safe amount of shock travel. The use of 3261, 3262, and 3263 could result in the shock bottoming out and contribute under certain conditions to a rollover.

Spring rates shall fall within the following specifications. Manufacturer tolerance on spring rate is allowable. The "SRL Spring Rate Calculation" form will determine spring rate.

	Minimum	Maximum
FRONT =	300	425
REAR =	140	225

3.0 CHASSIS SPECIFICATIONS

3.1 CHASSIS MANUFACTURER

Only chassis listed on the "Approved Chassis Manufacturers" list may compete in SRL sanctioned events. The main structure of the chassis shall not be modified in any way. The use of "Sway Bar(s)" is prohibited even if equipped by a manufacturer that is on the "Approved Chassis Manufacturers" list. Each manufacturer shall submit new specs to the national office if ANY changes to chassis specs as previously approved are executed on new chassis produced.

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3.2 CHASSIS SPECIFICATIONS

The overall length width and height of the chassis shall fit within the dimensions set forth in section 2.16. The suspension settings shall be run within the following parameter at all sanctioned events:

	MIN	MAX
Wheelbase	59 inches	61 inches
Front Track	43 inches	45.5 inches
Rear Track	43 inches	45.5 inches

The left and right wheelbase of the vehicle shall be no greater than ½ inch different from each other. No portion of the wheel or tire shall protrude outside the bodywork more than the maximum of 1 inch.

Offset chassis are prohibited on suspended chassis construction. The use of offset chassis for ridged vehicles is approved.

3.3 CHASSIS REPAIR

Chassis repair and modifications shall stay within the rules set forth by the BCR. Changes to the chassis structure are prohibited. It is highly recommended that competitors have their chassis regularly inspected by a professional for metal fatigue. No cracked or broken frames shall run in any sanctioned events.

4.0 ENGINE

4.1 ENGINE REQUIREMENTS

The engine shall fall within these specifications. Section 4.0 shall regulate the changes and/or modifications to the engine. No modifications, substitution and/or changes to any engine component unless specifically detailed in this section.

4.2 HONDA GX340

Honda GX340 (11 HP) engines that make the following changes are allowed in competition. All shall be bored to accept and have installed a Honda GX390 piston and rings. These are the only differences in the 340 and 390 engines manufactured by Honda. A GX340 with these modifications will be known as a GX390 within this publication, and is subject to ALL rules within section 4.0

4.3 ENGINE MANUFACTUER

Only Honda GX390 engines will be used in SRL sanctioned events. No interchanging of parts from different engine models allowed. **Engines shall not be altered from stock Honda specifications unless otherwise noted here within.**

4.4 ENGINE LEGALITY

The use of stock Honda parts and/or Honda factory shop manual shall be used to determine the legality of the engine.

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4.5 GOVERNOR AND OIL ALERT SYSTEMS

Internal and external governing system shall be removed. The removal of the charging system is at the discretion of the driver/owner. The charging system if present shall not be modified and shall serve no other purpose. Oil alert system may be removed. All resulting holes shall be plugged.

4.6 HEAD SPECIFICATIONS

Head shall remain stock except for the following. Head may be machined to a minimum thickness of 3.730. Worn valve guides may be replaced with Honda guides and/or bronze guide liners. Head gasket shall be Stock Honda GX390 with no modifications.

4.7 VALVE TRAIN SPECIFICATIONS

Push rods, lifters, valves and rocker arms shall remain stock. Slotting of Honda rocker arms is allowed. Valves shall be Honda GX390 only with no lightening and/or modifications. A stock Honda shim may be used under both intake and exhaust springs. Heavy-duty valve springs are allowed if sold to the general public by the manufacturer.

4.8 PISTON, BLOCK AND RINGS SPECIFICATIONS

Piston shall be Honda GX390. No modifications to the piston are allowed. ZERO piston pop up allowed. Bore and/or piston clearance shall not exceed the maximum service limits. When the service limit has been exceeded it is permissible to oversize the bore by 10 thousandths (.010), 20 thousandths (.020) or 30 thousandths (.030), only when Honda replacement pistons are used. No gapless rings. The use of an after market top ring is permissible. Block shall remain unaltered from stock.

4.9 CRANK SPECIFICATIONS

Crankshaft must remain stock stroke. No lightening or polishing allowed. Service of the crank by welding and/or grinding to .010 under is permissible when the Honda .010 replacement rod is used. Crankshaft may be shortened by a maximum of 1.250 inches at the clutch end.

4.10 CONNECTING ROD SPECIFICATIONS

Honda GX390 connecting rod shall remain stock except for the following. Oil lubrication holes are open. Rod bolts are open.

4.11 BALANCER SPECIFICATIONS

Honda GX390 balancer shall be installed within the factory specifications and remain stock. No modifications.

4.12 FLYWHEEL SPECIFICATIONS

Flywheel shall be Honda GX390. The removal of the charging magnets is permissible. Flywheel may be balanced but shall not weight less than 11 pounds 10 OZ. The use of an advanced flywheel key is not permitted.

4.15 IGNITION SPECIFICATIONS

Honda GX390 coil shall not be rewound. Spark plug, wire and boot are open.

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4.16 CAM SHAFT SPECIFICATIONS

SRL Cam shall be Honda GX390. No Lightning is allowed. Welding and grinding of the cam is permissible. Cam is required to meet these specifications. 2003 approved M-1 Cam is also allowed for 2005 season.

INTAKE		
<u>LIFT</u>	<u>DEGREES</u>	<u>POSITION</u>
0.050	8	BTDC
0.100	11	ATDC
0.150	27	ATDC
0.200	44 1/2	ATDC
0.250	70	ATDC
	.275 MAX	.275 MAX
0.250	41 1/2	BBDC
0.200	15	BBDC
0.150	4	ABDC
0.100	20 1/2	ABDC
0.050	37 1/2	ABDC

EXHAUST		
<u>LIFT</u>	<u>DEGREES</u>	<u>POSITION</u>
0.050	42	BBDC
0.100	23 1/2	BBDC
0.150	6	BBDC
0.200	13	ABDC
0.250	40	ABDC
	.272 MAX	.272 MAX
0.250	77 1/2	BTDC
0.200	51	BTDC
0.150	32	BTDC
0.100	15 1/2	BTDC
0.050	6	ATDC

4.17 RECOIL STARTER

The recoil starter shall be removed. The part referenced in the "Honda Shop Manual" as the "Starter Pulley" may be cut down to a minimum thickness of .315. In which case the resulting hole in the "Fan Cover" shall be covered with a mesh screen. The Flywheel Cooling Fan shall remain mounted and stock.

4.18 EXHAUST HEADER

The Exhaust header will not exceed the length of 30" and be no shorter than 22" in length. Outside diameter of exhaust header will be 1 1/4". Wall thickness will not be greater than .110 or less than .090 thousandths.

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5.0 CARBURETOR AND INTAKE SPECIFICATIONS

5.1 CARBURETOR SPECIFICATIONS

The carburetor shall fall within these specifications. Section 5.0 shall regulate the changes and/or modifications to the carburetor. No modifications, substitution and/or changes to any carburetor component unless specifically detailed in this section.

5.2 AIR FILTER

Air filter of any size and manufacturer is allowed. Air filter shall have no holes. All air passing through the intake port of the head shall pass through the air filter. Soaking of the air filter in any combustible substance is **STRICTLY PROHIBITED**. Air filters shall remain below the rear deck surface and within the confines of the engine compartment.

5.3 VELOCITY STACK

Velocity stack (AKA air filter adapter) will remain stock in accordance with approved part number (Mountain Machine Service - MMSAFA). Any and all modifications are strictly forbidden. Velocity Stacks by other manufacturers will be required to fall within the guidelines of approved part no.

5.4 CARBURETOR MOUNTING

The carburetor shall be mounted in the upright orientation. Gaskets are open.

5.5 REMOTE ADJUSTERS

The addition of a driver compartment located remote adjuster(s) is allowed for adult sanctioned events. The addition of a driver compartment located remote adjuster(s) is not allowed for Junior Pro sanctioned events.

5.6 CARBURETOR MODELS

The carburetor shall be either the Honda GX390 adhering to section 5.8 or Tillotson 314G adhering to section 5.9.

5.7 The only matter allowed to pass through the carburetor into the intake port shall be air. In other words, No injection systems are allowed. **FORCED AIR IS NOT** allowed "Any connection to the Carburetor or Air filter is strictly prohibited!"

5.8 HONDA SPECIFICATIONS

Maximum bore shall be .925". Modifications to mount remote adjuster(s) are allowed as long as they serve no other purpose. Choke may be removed and the resulting holes shall be plugged. Jet shall be stock Honda and may be drilled. Needle and seat shall remain stock and unaltered. A pick up hole can be drilled parallel to the existing hole of the same size. It is permissible to remove the tab on the low idle mixture pilot screw. Honda insulator plate can be modified but shall be present. No modifications to the shaft or butterfly.

5.9 TILLOTSON SPECIFICATIONS

Maximum bore shall be .887". Jet may be any size and/or manufacturer as long as there are no modifications to the carburetor. No modifications allowed.