



# Sugar River Raceway

## Honda Class Structure

### Box Stock:

8 through 11 years of age. Box Stock, sealed and wired by SRR, GX200 Honda engine.

225# kart and driver combined minimum weight w/.500" black restrictor. 275# kart and driver combined minimum weight w/.575" gold restrictor. 320# kart and driver combined minimum weight unrestricted. Maximum ready to race go kart weight of 200#.

### Jr. Super Stock:

11 through 15 years of age. Honda GX200 engine sealed and wired by SRR. Per Super Stock specs.

260# kart and driver combined minimum weight w/.525" red restrictor. 300# kart and driver combined minimum weight w/.600" green restrictor. 330# kart and driver combined minimum weight unrestricted.

### Sr. Super Stock:

16 and older. Honda GX200 engine sealed and wired by SRR. Per Super Stock specs.

300# kart and driver combined minimum weight w/.525" red restrictor. 340# kart and driver combined minimum weight w/.600" green restrictor. 370# kart and driver combined minimum weight unrestricted. Milled/Heavy Head for 390#

### Super Stock Legends:

40 and older. Box Stock, sealed and wired by SRR, GX200 Honda engine.

320# kart and driver combined minimum weight w/.525" red restrictor. 360# kart and driver combined minimum weight w/.600" green restrictor. . Unrestricted for 390# kart and driver combined weight. 410# Milled/Heavy Head.

### All Classes:

If your birth date falls during the race season and you age out of the required age group, you will not be required to move up a class until the following season.

A Sugar River Raceway Tech Official has the right to tech at any time. Tech officials also have the right to confiscate illegal parts found during the tech session and impound an engine to remove the seals and inspect engine internals.

**FUEL:** Box Stock & Super Stock classes must use 87 octane fuel purchased from Speich Oil In Brodhead.



# Sugar River Raceway

## **General Honda Four Cycle Engine Regulations**

The Honda GX-200 is the only engine legal for SRR Honda classes. All engines must be purchased through SRR. This allows the engines to be sealed without inspection. Engines not purchased at SRR will not be allowed to compete.

Only type number QX2 engines are allowed.

The only changes, additions, deletions, or modifications allowed are contained in this tech manual.

All engine parts must be standard, unaltered, and use genuine Honda parts manufactured for the particular engine unless otherwise stated in this tech manual.

Modifications or machining of the engine block or any components is not permitted, unless otherwise stated in this tech manual.

## **Authorized Honda Changes and Additions**

### **Box Stock:**

- Carburetor Emulsion Tube: GX140 emulsion tube must be run in the carburetor. It must be stock and meet the tech dimensions outlined later in this manual.
- Carburetor Main Jet: Carburetor jet sizes shall be OEM stamped as follows: #68, #70, #72, #75, #78, #82, #85, etc.
- Exhaust: Box Stock: A stock unaltered SRR produced water pipe muffler adapter along with the stock unaltered Briggs muffler Part#8966 must be used.
- Heat wrap may be used on partial or complete exhaust but may have to be removed during tech inspection.
- Spark Plug: NGK BPR6ES Spark Plug. No other spark plus may be used. Factory spark plug washer must be used unless using a temp sensor lead.
- Air Filter: Stock unaltered air filter and air box assembly must be run. The top plastic air filter cover is not required. Pre-cleaner element isn't required but may be run. Stock GX-200 Honda filter must be run per #17210-ZE1-505. Air filter element must seat against air cleaner housing and use supplied bottom gasket #16721-ZE1-000.
- Clutch: Stock unaltered Max Torque SS (six shoe) centrifugal clutches only. Stock unaltered clutch spring as produced by Max Torque. Either unpainted standard spring, black or green higher engagement spring is allowed. Length of spring, # of coils, must be the same as a known stock spring. Clutch must be protected with an engine clutch guard.



# Sugar River Raceway

## Super Stock Legends, Jr. and Sr. Super Stock:

- Carburetor Emulsion Tube: GX140 emulsion tube must be run in the carburetor. It must be stock and meet the tech dimensions outlined later in this manual.
- Carburetor Main Jet: Carburetor jet sizes shall be OEM stamped as follows: #68, #70, #72, #75, #78, #82, #85, etc.
- Exhaust: Legends & Super Stock Have an open header Rule (Must not extend past rear bumper with silencer attached). Silencer must be RLV B91XL (Part number 4104) with round baffle holes only. Safety wiring of the silencer to header is mandatory. All 4 baffles must remain unaltered and the hole size can be verified using a no-go pin of 0.1285. Exhaust gases may only exit through the muffler baffles. Muffler must be mounted on the header in a way that does not allow exhaust to leak at this point. Any brand of header is acceptable as long as it abides by the rules listed in the 'Exhaust header/silencer' section of this tech manual.
- Air Filter Assembly: Any brand of adapter may be used in the Super Stock classes. The following rules will pertain to both the spec Legends adapter and the open manufacturer Super Stock adapter. The filter adapter must be flat on the carb/gasket sealing surface. NO PART OF THE FILTER ADAPTER CAN PROTRUDE INTO CARBURETOR THROAT. The air filter must be a molded 1-piece air filter. No other adapters allowed between the filter adapter and the air filter. Carburetor adapter may have separate choke lever holding assembly. Choke lever must be present and choke must function as from factory. Any air filter allowed that secures tightly to the adapter. Must be sealed (no open top filters) Pre Filters are allowed. The only holes allowed in the filter adapter are the two mounting holes and the central air flow hole. An air filter adapter gasket must be used. A single, original type, Honda GX air filter adaptor gasket for the GX200 (16220-ZE1-020), shall be used. Minimum metal thickness is 0.090". The air filter may not be used as a tract lengthener, air flow diffuser, or air flow director, and must be approved by the tech inspector. Air filter shall not exceed 4.0" in diameter, and shall not be more than 7.0" as measured from its adaptor end to its termination inside the element chamber end.
- Clutch: Stock unaltered Max Torque SS (six shoe) centrifugal clutches only.
- Stock unaltered clutch spring as produced by Max Torque. Either unpainted standard spring, black or green higher engagement spring is allowed. Length of spring, # of coils, must be the same as a known stock spring. Clutch must be protected with an engine clutch guard
- Valve Springs: Honda manufactured G200 #14751-883-000 stock unaltered (including but not limited to shot or glass beading of surface, or heat treating) valve springs. Shimming of valve springs is not permitted. Replacement of Valve Springs: Competitors can change their valve springs as they wish. During a race day event a track tech official may direct any Super Stock or Legends competitor to remove their valve springs and replace them with Tech supplied Honda valve springs (per #14751-883-000) under the scrutiny of the Tech Official. The engine will then be tech painted. The springs removed will be retained by the Tech Official and may later be inspected in post race tech.



# Sugar River Raceway

- Ignition timing is not a tech item, but a flywheel key must be run. Super Stock and Legends class must use a stock GX120 #19511-ZEO-000 fan in place of the stock GX200 fan when using stock flywheel.
- SUPER STOCK FLOOR MOUNTED FUEL TANK OPTION: Factory fuel tank or SRR approved floor pan mounted tank can be used. If floor tank is used, the floor tank must be readily available aluminum or plastic floor tank. Floor mounted tanks must be securely mounted to the karts floor pan, using a minimum of four bolts through the floor pan. Floor pan must be securely fastened to the karts chassis. If floor mounted tank is used, a fuel pump will be required. Spec fuel pump is WALBRO single outlet fuel pump and must be mounted to the top of the engine using a top plate assembly approved by SRR Tech official. Pulse for fuel pump can only be taken from a pulse fitting drilled into the top of the valve cover. *NOTE: No performance gain has been found from using a floor mounted tank. This a safety allowance available to the competitor and not a requirement to install a floor mounted tank.*

## **Honda GX200 Specifications and Tech Inspection Procedures:**

Engine Seal and Engine Seal Wire: Each competitor is responsible for the integrity of their engine seal. When a seal is discovered broken the competitor must immediately notify tech or race track personnel. The engine will be resealed and wired at competitor's expense. The tech crew will then list this occurrence and will likely include this engine in the next tech inspection performed on a race day.

Competitors may not remove the seal to do any kind of maintenance to the engine. If it is discovered that this has been done the engine may not be allowed to continue in any SRR sealed engine classes. At the discretion of the tech crew the engine may be allowed to continue in sealed engine competition by requiring a complete engine rebuild at the expense of the owner.

All Box Stock and Super Stock engine rebuilds will be done by an SRR engine re-builder designate. The owner may choose when an engine is rebuilt. Per these tech rules the re-builder will determine what items are rebuilt or replaced during a rebuild.

Go and No Go: The term "Go" is defined as the result of utilizing an apparatus of fixed and known size that shall pass through without forcing, a pre-determined size of opening. The term "No Go" is defined as the result of utilizing an apparatus of fixed and known size that shall not pass through, or even start to pass through a predetermined size of opening.

Irregularly shaped holes, as determined by the tech inspector shall be measured with a vernier caliper, "plate No Go" "circular No Go" telescoping gauge/outside micrometer or other tool to determine eligibility.



# Sugar River Raceway

Tech Painting Protocol: The tech inspector may call for the painting of engines at anytime during a race event. If tech painting has been done competitors are not allowed to break paint seal during that day of competition. If paint seal is found broken in post race tech inspection it is grounds for disqualification from the day's race results. The following items will be tech painted by track/tech crew:

- Exhaust nut to exhaust flange in Box Stock classes.
- Flywheel shroud bolt to shroud.
- Carburetor bowl retainer bolt to bowl. NOTE: Tech inspector may choose to tech paint float bowl and float bowl screw at any time during a race day. This item will not be wired so that competitors are able to work with varying jet sizes. But if float bowl has been tech painted it cannot be disturbed during that race event. A broken tech paint seal is grounds for disqualification in post-race tech.
- Clutch fastening bolt to fastening washer in Box Stock classes.

Fasteners: Any bolt hole except the rocker stud bolt holes or the throttle shaft plate retainer may be re-threaded and fitted with a helicoil or thread insert. Any bolt except the carburetor throttle plate retaining bolt may be replaced with a stud or socket head cap screw. Locknuts must be installed appropriately as tight as a non-locking nut.

Gaskets: Side cover gaskets, as well as carburetor bowl gaskets and o-rings must be of stock appearing shape. Maximum thickness of the exhaust gasket is 0.125" as raced. Two induction gaskets are required, one on each side of the phenolic spacer. These induction gaskets shall be of stock appearing shape and each shall have a maximum thickness of 0.030" compressed.

Coatings: The cylinder block, side cover and head finish and texture must be AS CAST by Honda. No coatings are allowed.

Carburetor: No alteration, modification, or machining of ANY kind is permitted to ANY part of the carburetor. The choke assembly must remain completely intact and stock. The throttle plate and plate fastening apparatus must remain stock.

- The portion of the throttle shaft within any part of the body of the carburetor must conform to the measurements of a stock, unaltered shaft.
- The exterior control linkage apparatus may be modified or replaced in a manner approved by the tech inspector. The SRR provided throttle linkage is an example of this.
- Carburetor venturi size: 0.575" No Go. Measure the venturi diameter at the top of the emulsion tube.
- The GX140 emulsion tube is the specified emulsion tube for both Box Stock and Super Stock classes. Emulsion tube height installed in the carburetor is .438" - .445". This is measured using a dial caliper. The emulsion tube must be a stock unaltered Honda part #16166-ZE1-005. This part must conform to the dimensions listed in this manual, and must comply with the configuration of a standard, new emulsion tube.



# Sugar River Raceway

Carburetor Jet Sizes: Main jets can be drilled but must conform to any No Go sizes listed. The carburetor main jet sizes shall be OEM stamped as follows: #68, #72, #75, #78, #82, #85, #88, #90, #92 etc. *Note: as of this writing, competitors may drill their main jets and there is no main jet size specification. This may be revised at a later date.*

Carburetor Pilot Screw and Limiter Cap: This assembly must be intact and unmodified, but the setting of the screw is not a tech item. Pilot screw and limiter cap must be stock GX200 parts.

Using a Go gauge, measure the size of the main metering air bleed passage. (0.054" Go).

Using a Go gauge, measure the size of the idle air bleed inside hole. (0.042" Go).

Idle air bleed outside (first part of the air bleed) .124" Go.

Using a .017" No Go gauge measure the size of the Pilot Jet. A .015" Go gauge must fit in the Pilot Jet. Jet must be as supplied on GX200, no mixing of jets from other engines.

Using a dial caliper or micrometer measure the thickness of the throttle plate, .040" minimum.

Using a dial caliper measure the combined thickness of the throttle plate and throttle shaft, .150" minimum.

Using a dial caliper measure inside diameter of carburetor bore on the inboard side before entering the phenolic spacer, .750".

Carburetor Inspection:

- For all engines, remove the carburetor bowl (checking for intact tech paint if it was used).
- Measure emulsion tube installed height (from Carburetor section above).
- Remove the main jet and the emulsion tube, making sure that the jet was installed tightly.
- Check the main jet for permitted size using the appropriate No Go. The No Go should not even start to go into either end of the jet.
- The use of glue or epoxy to fasten the emulsion tube to the body is not permitted. The tube must be held into the body of the carburetor by the main jet only.
- The emulsion tube must conform to the specifications and illustration in this tech manual. Tech inspector may also choose to check any other dimensions listed in the 'Carburetor' or 'Carburetor Jet Sizes' sections above.

Phenolic Spacer: Must be stock GX200.





# Sugar River Raceway

Engine Block and Internal Components: The engine block must be in an OEM 'as cast' condition with no machining except where allowed by these regulations. The only block that can be used is the GX200.

- Bore: 2.677" (68mm) minimum – 2.720" (69mm)
- Maximum Stroke: 2.118" minimum – 2.136 maximum.
- Welding to repair cracks or breakage is allowed only in areas where the affected portion does not require re-machining, and not in areas where the welding may be construed as a performance gain.
- The crankcase may only be vented using the normal, stock unaltered methods.
- The crankcase cannot be vented additionally through the plugged governor apparatus, the side cover gasket, main seals, valve cover gasket, valve cover check valve (which must be retained and unaltered), or any other means.
- Bearings, Main: Main bearings must remain as a press fit in the block after the engine has attained ambient atmospheric temperature, and must not be removable by pulling tools that have no extra mechanical advantage/leverage over manual pulling. Loctite type compounds, pocket dimpling/knurling, or any other form of retaining devices are not legal.
- Main bearings must be standard, unaltered, uncoated, genuine Honda parts, manufactured and listed for the GX200.
- Crankshaft Gear: The crankshaft gear may not be rotated to change the camshaft timing. The timing marks must line up.
- Crankshaft Rod Journal: 1.715" minimum.
- Connecting Rod Length: 2.350" minimum – 2.370 maximum inside, unaltered.
- Connecting Rod Big End Bore: 1.177" - 1.184" maximum.
- Piston Pin: Outside diameter – 0.705" minimum – 0.710" maximum. Inside diameter – 0.557" maximum. Length: 2.120" minimum.
- Piston: Length 1.920" minimum dished pistons must remain as cast. The use of piston button(s) is not permitted. Coating of pistons is not permitted. Anodizing of pistons is not permitted. See section about Block or Cylinder for permitted over size pistons. Re-sizing, knurling, or lightening of pistons is not permitted.
- Piston Rings: Must be stock Honda rings for GX200. All three piston rings must be used, installed correctly, with the identification marks toward the head. Ring tension may not be changed by heating or other means. Ring gaps are not subject to Technical Inspection. The ends of each piston ring may only be altered in a way that appears to be the same as a known, stock, unaltered, Honda ring. The piston oil control ring (third ring) may be either single or 3-piece design, provided that it (they) are stock OEM rings, appropriate for the type/model of engine used.
- Cylinder Head: Head Height is measured from the head gasket surface to the unaltered valve cover surface: 2.885" minimum. No alteration, modification, or machining is permitted to the head except for the head gasket surface if necessary for proper seal of the head gasket. Factory stock combustion chamber volume must be retained. The entire intake and exhaust tract surfaces must remain stock as compared to a known stock head. Thread saving devices in the spark plug hole must be installed so that a combustion chamber volume test will be the same as with the original thread.



# Sugar River Raceway

- Spark plug thread length: .720" minimum.
- Valve Spring Pocket Depth: measured from bottom of valve spring pocket to top of valve cover gasket surface. Intake is 1.835" and Exhaust is 1.845". The intake side is machined by Honda, the exhaust is not. No machining or metal removal allowed to change installed height of springs.
- Head Gasket: Not a tech item, but one must be run.
- Valve Cover Gasket: Stock Honda valve cover gaskets may be replaced with any gasket of the same basic shape as the stock Honda gasket. The thickness of the gasket must be within the specifications listed for the engine model. The gasket may be affixed to the valve cover. Gasket will have 0.120" maximum thickness.
- Cylinder Deck Height: Piston must remain 0.020" minimum below the deck throughout the full rotation of the crankshaft. The finish of the deck is not subject to tech inspection.
- Valve Seat: Stock Honda 2 angle valve job of 30° and 45° must be used. Valve seats may not be reseated shallower in the head.
- Valve Guides: New valve guides will be installed as close to stock position as possible by the SRR certified re-builder. They will not be pressed flush with the port floor.
- Valve Springs: Valve springs must be of appropriate Honda manufacture and be unaltered (including but not limited to shot or glass beading of surface, or heat treating). Shimming of valve springs is not permitted. Valve spring color is not a tech item.

Box Stock classes: the stock GX200 spring #14751-ZF1-000 must be run. Maximum free length 1.220" and maximum coil size/diameter .072" and maximum spring diameter .780". Maximum compressed (.850") valve spring pressure for Box Stock is 10.8 #'s.

Super Stock classes: the GX200 #14751-883-000 valve spring must be run. Maximum free length 1.475" and maximum coil size/diameter .080". Maximum compressed (1.100") valve spring pressure for Super Stock is 18 #'s.

During a race day event a track tech official may direct any Box Stock or Super Stock competitor to remove their valve springs and replace them with Tech supplied Honda valve springs (as noted for the appropriate class) under the scrutiny of the Tech Official. The engine will then be tech painted. The springs removed will be retained by the Tech Official and may later be inspected in post race tech.

- Measuring Valve Springs: The technical linear measurements for the valve springs must conform to the given measurements in this tech manual, according to type. Free Length: Measured anywhere between the ends of the spring, with axis of measurement perpendicular to the centerline of the spring, using a vernier or approved tool. Wire diameter: Measured anywhere on the round portion of the spring wire using a vernier. Coil diameter: Measured across the entire spring length at one time with a vernier. If there appears to be a lateral deformity in the spring during the measurement, the measurement will be taken across each individual coil using a vernier, micrometer or other approved tool.
- Rocker Arms: Rocker Arms must remain in stock unaltered condition. Only stock GX200 rocker arms are allowed. Ratio must remain stock as well as all dimensions. No filing, grinding, milling, bending,





# Sugar River Raceway

welding or any modification is allowed. Part may be checked against a known stock part both visually and dimensionally in tech inspection.

- A total valve lift measurement may be checked as a part of the tech inspection. A measuring device will take a reading of rolling lift at the top of the valve retainer. Exhaust is .240" max and Intake is .235" max.
- Valves: Stock Honda GX200 valves must be used. Valves must not be altered, polished, lightened, welded, brazed, or machined in any way, except as permitted in this tech manual. Only stock, unmodified valve keepers may be used, installed properly on the appropriate valve. Valve Stem Oil Seal Assembly must be installed.
- Valve Lifters: Base width: 0.935" minimum, 0.945" maximum. Height: 1.355" minimum, 1.370" maximum. Base thickness: 0.073" minimum, 0.083" maximum.
- Valve Keeper: Must run stock Honda supplied keepers in the Box Stock class. Aftermarket keepers are not permitted. In Super Stock and Legends competitors may use the exhaust keeper on the intake side. The valve rotator on the exhaust side must be used unaltered. The exhaust valve rotator must be used on the intake side if an exhaust keeper is used. When using the rotator on the intake side it may be ground down to keep it from 'rotating' the intake valve. This modification is allowed, as the exhaust side keeper and rotator also act as a lock. The exhaust keeper is thinner than the intake side keeper. Competitors may not shim the intake valve to compensate for thinner keeper when using the exhaust keeper on the intake valve.
- Ignition Timing: Only OEM parts are permitted. Stock timing and flywheel key must be run in 'Box Stock' classes. Timing shall not exceed 20° degrees. Flywheel key must be run in 'Super Stock' classes, but timing it is not a tech item. Key used can be either stock or offset.
- Coil: Coil bolt thickness subject to tech inspection. Bolts must be stock unaltered 6mm bolts compared to known stock bolt if necessary. Minimum .205" bolt diameter. Coil leg slots have a maximum width of .245". Stock GX200 #30500-ZE1-033 ignition coil must be run with minimum thickness of 1.105". Other Honda coils may not be substituted as it will change the ignition timing. Primary side of the coil must have a max 0.8 – 1.0Ω. The secondary side must check between 5.9Ω - 7.1 KΩ.
- Spark Plug: BOX STOCK:NGK BPR6ES Spark Plug. No other spark plus may be used. Factory spark plug washer must be used unless using a temp sensor lead. SUPER STOCK and LEGENDS: spark plug may be of any manufacture, provided that it has the same reach as intended for the particular engine. In the Honda GX series of engines a .750" reach is required. Reach is defined as .755" maximum, measured from the upper gasket surface of the spark plug to the parallel lower squared edge of the threaded portion of the plug. A gasket and/or a temperature gauge sensor must be installed under the upper gasket surface of the plug in all classes. The height or thickness of the gasket/sensor must be greater than .003".
- Spark Plug Cap: The stock Honda spark plug cap with resistor must be used. If tech inspector chooses he may check resistance of the cap. I should be a minimum of 0.8Ω ohms.



# Sugar River Raceway

- Cooling Fan: The only fan that is allowed in Box Stock class is stock unaltered Honda part #19511-ZE0-000. Super Stock and Legends Class' must use a stock GX120 #19511-ZEO-000 fan in place of the stock GX200 fan when stock flywheel is used. Damaged cooling fans are not legal to run. It is the competitor's responsibility to check for damage after any on track accidents. If the fins have been damaged the fan must be replaced with a new one. Failure to do so could result in disqualification in post-race tech inspection.
- Flywheel: Flywheel key must be present in all classes.  
BOX STOCK CLASSES: Flywheel must be stock unaltered OEM for GX200. Minimum weight is 5 lbs. 4 oz. Stock flywheel key must be used.  
SUPERSTOCK AND LEGENDS CLASSES: GX120 plastic fan must be used with stock GX200 flywheel. Aftermarket billet flywheels may be used. Flywheel must be from approved list, 3.3lb. minimum weight. No Flywheel modifications allowed. Flywheel key must be used but ignition timing is not a tech item. Following flywheels allowed: ARC 6618, 6619, King billet steel, Raceseng Rev Wheel-finned-s-1, billet aluminum slipstream and Dyno PVL aluminum flywheel.
- Recoil: The standard utility recoil starter assembly must be entirely in place on all Honda engines and must be the only method of starting the engine. It must mate with a stock unaltered starter cup that is bolted to the flywheel. The standard spacer must be retained between the recoil and engine shroud.
- Flywheel shrouds: Must not be altered in any way to alter the airflow or change appearance, except for chrome plating or painting. No devices to slow or impede airflow are allowed. Duct tape on fan housing/recoil area is allowed.
- Kill Switch: The ignition switch may NOT be removed, and must function. A remote and redundant switch may be added to the front of the kart for ease of driver use.
- Exhaust Systems: See class listings for exhaust system rules.
- Camshaft Specs and Tech Procedures: Camshaft: No alteration, additions, removal of material, modification or machining of any kind is permitted. An Auto Compression Release Bump (ACR) must be in the 062° to 066° area on the degree wheel on the exhaust side.

## Honda Four-Cycle Camshaft Specifications GX200:

Overlap: 25 – 28 Degrees

Duration: 240 Degrees - 245 Degrees

Lift Exhaust Intake

0.010" 107-113° 326-332°

0.020" 131-137° 350-356°

0.050" 149-155° 005-011°

0.100" 167-173° 024-030°



# Sugar River Raceway

0.200" 213-219° 073-079°

Minimum Lift: 0.222" 0.220

Maximum Lift: 0.227" 0.225"

0.200" 291-297° 145-151°

0.100' 340-346° 195-201°

0.050" 357-003° 214-220°

0.020" 013-019° 229-235°

- Exhaust Header Tech: Exhaust pipe/header must not extend past rear bumper (including silencer) and have no exposed sharp edges. Header flange may not protrude into port. Header must have support strap installed and/or bumper mounted saddle for support. Header wrap/ heat wrap mandatory (do not wrap silencer). Header bolts must be drilled, and safety wired. Extra heat shield above chain guard is allowed. All header pipes must be of continuous length from flange to end of pipe with stages or butt welds permitted (no chambers, infusers, or covers of any type allowed on muffler). Silencer must be clamped to header tube and no welding of silencer in any area is allowed. RLV #4104 B91XL 1 5/16" Silencer is mandatory, used as produced with no modifications. Internal silencer baffle holes 0.1285". Check with a #30 drill blank. Silencer discharge side baffle holes 0.1935" check with #10 drill blank, No-Go for round holes.