



Honda

GX160

Tech Manual

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Unless it says you can do it you cannot do it.

GENERAL RULES

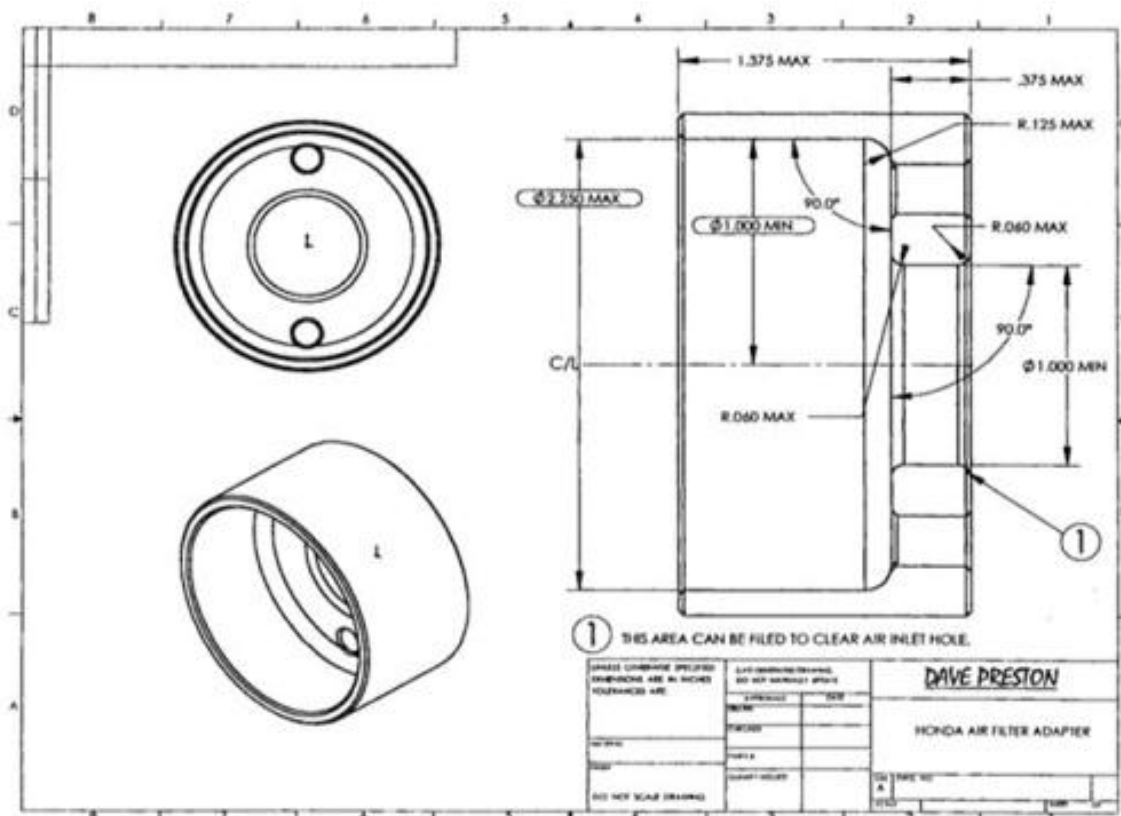
1. **"ANY GX UT2 ENGINES STARTING WITH GCBMT OR GCBPT WILL NOT BE LEGAL FOR JQMA'S 2012 SEASON. FURTHER EVALUATION IS REQUIRED BEFORE THESE ENGINES ARE ALLOWED."**
2. Only stock Honda GX160K1 HX2 and HX26 engine and gearbox will be used in this class.
All parts will be stock Honda specifically made for the Honda GX160 OK1 HX2, U.S. GCAAK, and Canada # GCABT. Honda OEM 160 replacement blocks may be used. Must be an OEM Honda replacement block. No aftermarket blocks or components.
 - a. All 160 Honda engines must be updated to the new E2 Style piston and cylinder head.
 - b. Failure to update + DQ and **minimum 6 month suspension.**
3. All stock Honda parts must be used and properly installed with the following exceptions:
 - a. Governor system may be partially or fully removed with the exception of the steel drive gear on the crankshaft. This gear must remain intact. If shaft is removed, hole must be plugged. Hole can be tapped for thread or epoxy. No welding.
 - b. Factory air cleaner must be removed. Any air filter may be attached to the outside of air filter adapter. Outerwear style or equivalent can be used over carburettor only with no adapter. The approved air filter adapter may be run with or without an air filter. Any air filter may be used with adapter as long as there are no devices inside the air filter or adapter. (I.E. Springs not allowed) hose from valve cover must go into a catch can. We are using "outerwear" to define a style not brand name).
4. Air filters are allowed, but must utilise air filter adapter number: 21034015
5. Any type of throttle linkage may be utilized. Carburettor shall remain unaltered with the exception of the black plastic piece on the upper end of the throttle shaft. This is the **ONLY** part of the carburettor that may be altered, removal of material from the black plastic piece is allowed. No additional material may be added to the carburettor. i.e. bolt in black plastic piece or tubing on throttle stop.
6. Stock Honda fuel tank must be removed.
7. Recoil starter must be removed. Pull cup may be cut down for washer. Must use original cup.
8. Exhaust:
 - a. Stock Honda muffler will be removed. Mounting flange may be cut off of muffler and used as adapter flange. Any transition from the "D" shape of the exhaust port to round must take place within the thickness (0.250" max.) of the flange. This applies to all exhaust systems. No steps or tapers allowed grind marks are allowed past .25" flange area. No suspension for exhaust flange or pipe infraction just disqualification. If an aftermarket flange is used, maximum allowable flange thickness will be 0.250". If slip on type flange assembly is used, pipe stub will be a maximum 0.880" outside diameter tubing with a maximum overall length of 1.500". Pipe stub must be inserted into exhaust pipe at least 0.750" and will have minimal exhaust leakage.
 - b. All JQMA mufflers to be used will be 4 to 8 hp Briggs & Stratton, part number 294599 or equivalent. Muffler will be internally unaltered except that the round cup shaped baffle may be welded to the perforated baffle without moving its original location. No drilling holes in the baffles. Inside seam of baffle must be straight edged. (NOTE: Some seams may not be straight). Threads will not be removed from muffler. It is ok to weld a washer or nut on the flange for a place to apply safety wire and/or spring.
 - c. Exhaust pipe will be a maximum of 1.000" outside diameter with a length of 20.0" to 26.0" including a threaded pipe coupler welded to the end of the pipe in order to screw muffler in place so that muffler may be removed for inspection. Pipe coupler will be a standard, unaltered, .75" NP, threaded coupler. Length will be 1.000" minimum to 2.250" maximum. Exhaust pipe length will be measured by using a small diameter hose inserted through pipe to measure overall length. Flange and coupler will be included in the overall length when measuring pipe. No coating of any type may be applied to the interior of any part of the exhaust system. The intent of this rule is to have all of the exhaust pass through the muffler. All measurements are to be taken with the component pieces in the same position as they were installed and on the car.

9. Choke butterfly & shaft must be removed. Hole may be filled only with silicone or old shaft may be cut down. No addition of material of any type to the bore or venturi of the carburettor.
10. Oil level switch may be disconnected but switch assembly must remain intact in crankcase.
11. Gearbox may be rotated to any desired position.
12. Main jet in carburettor is "NON Tech". Must be an OEM Honda Jet. The only modification allowed is drilling the main hole in the jet.
13. On-Off ignition switch may be removed, and hole covered. (any material; no welding).
14. All pin measuring gauges are plus tolerance.
15. Exhaust oxygen sensor or temperature sensor attached to any part of Honda exhaust system is illegal.
16. Valve seals are illegal.
17. Cryogenics of any Honda part is illegal.
18. Taking parts out of service - reference to "Wear Limits" in Engine block Internal section.
19. DQ only – Not suspension for: Exhaust, Air Filter Adapter, Spark Plug.
20. Shroud must be factory RED or BLACK.
21. Honda gaskets for the intake, carb, side cover that are green on one side tan on the other are legal.

TECH PROCEDURE

Modifications or machining of any parts except the gasket surfaces between the cylinder head and block, and main jet in order to bring them to a stated minimum or maximum specs (blueprinting) is not legal.

1. External visual check of engine for required components: muffler, shrouds and sheet metal, and oil level sensor (this can be partially observed from outside).
2. Factory air cleaner must be removed. Any air filter may be attached to the outside of air filter adapter. Outerwear style or equivalent can be used over carburettor only with no adapter. The approved air filter adapter may be run with or without an air filter. Any air filter may be used with adapter as long as there are no devices inside the air filter or adapter. (I.E. Springs not allowed) Hose from valve cover must go into a catch can. (We are using "outerwear" to define a style not brand name).
3. Air filters are allowed, but must utilise air filter adapter number: 21034015
 1. Air cleaner adapter will be maximum ID 2.250" and a maximum of 1.375" long in length, flange thickness 0.375" max. flange ID 1.000" minimum hole size straight walled, flat bottomed and parallel with carburettor using existing air cleaner mount holes.



4. Any type throttle linkage may be utilized. Carburettor will be unaltered with the exception of the black plastic piece on upper end of throttle shaft, this is the only part in the carburettor that can be altered, Main jet is "Non Tech". Must be an OEM Honda Jet. Only modification allowed is drilling the main hole in the jet.
5. Rear mounting brackets for Honda fuel tank may be removed.
6. The starter cup that is behind the flywheel retaining nut can be cut away to leave only the flat washer back piece that retains cooling fan.
7. The keyed end of the ring gear shaft may be shortened, drilled and tapped or machined for snap ring.
8. Heli-coiling threads for shrouds (all), valve cover, existing throttle mounting holes, oil drain, and fill holes, one of the coil bolts, and side cover bolts is allowed. Dowel holes are not to be modified or relocated, also one carburettor mounting bolt.
9. Honing and deglazing of the bore is allowed.
10. Lapping the valves is allowed.
11. Blocking Airflow: No device may be used that will/or appear that it may impede airflow into the engine cooling system. This may require that the engine be run at a speed above idle by the tech personnel at the scale after the car has qualified or raced.

CARBURETTOR



160 INSULATOR

Remove Carburettor:

Air cleaner adapter:

ID: 2.250" maximum

Length: 1.375" maximum

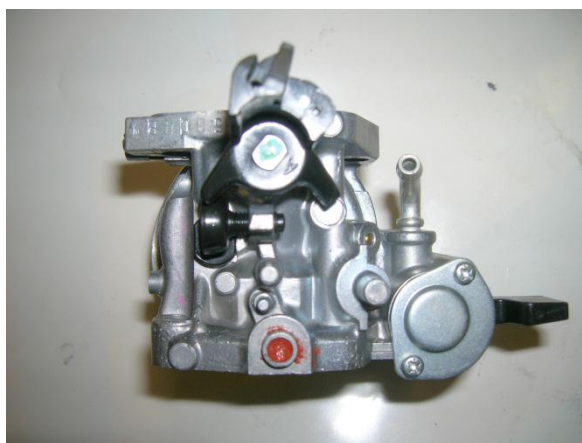
Flange thickness: 0.375" maximum

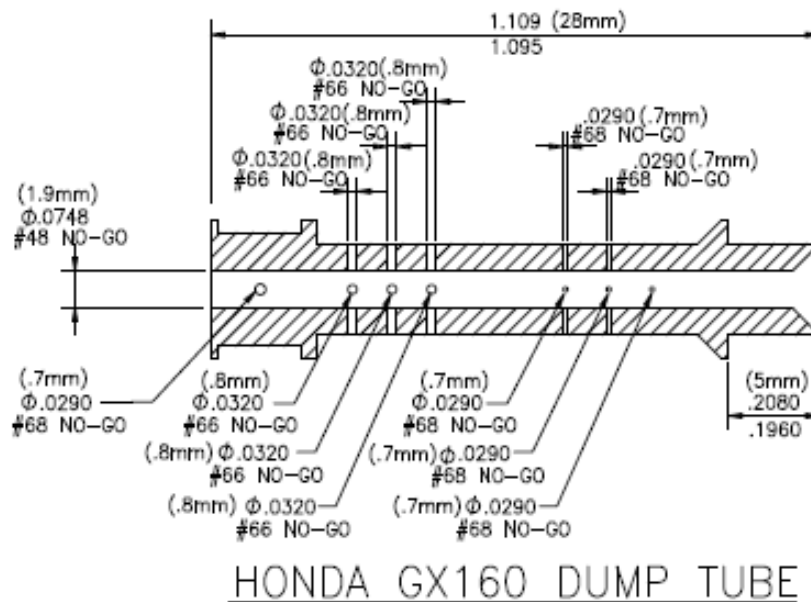
Flange ID: 1.000" minimum

ID hole size straight walled, flat bottomed and parallel with carburettor using existing air cleaner mount holes.

1. Check for any alterations or worn parts that would allow additional air into engine: holes, slots, perforations, spacers, loose bolts, warped flanges etc.
2. Gasket thickness: 0.025" maximum.
3. Insulator gasket thickness: 0.025" maximum.
4. Carburettor identification numbers:
 - a. **Light 160:** BE 65 B or Thailand 65 Q
5. Check carburettor for alterations. Upper choke shaft hole may be sealed with silicone type sealer. Bottom hole may not be filled. No addition of material of any type to the bore or venturi of the carburettor.
6. Honda 160 carb for Light 160

HONDA 160 CARBURETTOR USED IN LIGHT 160





- a. BE 65 B or Thailand 65 Q
- b. Carburettor Bore: Intake end: Maximum diameter 0.951" ref.
- c. Throttle end: maximum diameter 0.710.
- d. Carburettor venture bore: 0.523- no/go. This measurement is best made with a no go gauge but may be made using a telescoping gauge as a no go.
- e. Main jet is "non tech" Must be an OEM Honda jet (Brass or Silver) Jets can be drilled to any size. Only modification allowed is drilling the main hole in the jet.
- f. Main air jet: 0.0587" maximum #53 (0.095") no go- at back of hole.
- g. Main jet access passage: 0.0942" maximum #41 (0.096") no go.
- h. Main nozzle: bore 0.0732" maximum #47 (0.078") no go.
- i. Main nozzle will be checked with a no/go gauge (0.424") if gauge goes over dump tube – carb is illegal. This is best measured using a 0.452" rod type gauge with a 0.424" flat area to be used as a go gauge.
- j. Air vent holes on the side of the main nozzle must not be plugged.
- k. Main nozzle must not be fastened into the carburettor body by anything other than the main jet. It must not be epoxied or positioned by any other means.
- l. Pilot jet: 0.0135" maximum #79 (0.0145") no go.
- m. Pilot air jet: 0.0478" maximum #55 (0.052") no go
- n. Pilot screw: no spec
- o. Pilot seat diameter: 0.0365" maximum #63 (0.037") no go.
- p. Tip of pilot screw: 0.020" minimum
- q. Float bowl Vent: 0.118" maximum #31 (0.1200") no go.
- r. Needle valve seat: 0.0685" maximum #31 (0.1200") no go.
- s. The butterfly screw, the butterfly, and the throttle shaft must not be removed from the carburettor. Any evidence of tampering will be a disqualification and suspension.

ENGINE COOLING SHROUDS

1. All pieces of the stock engine-cooling shroud must be properly installed.
2. There must be no addition or subtraction of any material from the shrouding except for the covering of the switch hole (any material). Starter cup may be altered to be used as washer retainer for the fooling fan.
3. Remove engine-cooling shrouds. Remove valve cover.
4. Zero dial indicator after exhaust bump. (0.050) ref.
5. Maximum valve lift will be checked from the top of valve spring retainer. Valves may be adjusted to zero clearance or shims may be installed to create zero clearance. This may dictate making special shims, as it is difficult to insert feeler gauge blades so as not to interfere with indicator contracts on retainer.

Valve Lift: Intake: 0.245 maximum

Exhaust: 0.255 maximum

CYLINDER HEAD, HEAD GASKET, VALVES, SPRINGS

1. Remove cylinder head.
2. Thickness of head will be measured from valve cover surface to head gasket surface at the side, at a position in line with upper intake and exhaust flange bolt. No angle milling of surface. Minimum 2.911



2.911 MINIMUM

3. Head gasket thickness: 0.040" minimum thickness of inner rim.
4. Remove Valves.
5. Inspect retainers for alteration that would increase valve spring pressure. Both intake and exhaust must have stock Honda retainers. Exhaust valve only can have lash cap and corresponding retainer.
6. Thickness of retainer will be:
Intake: 0.228" minimum
Exhaust: 0.241" minimum.
7. Flange thickness of retainer will be:
Intake: 0.110" maximum
Exhaust: 0.070" maximum
8. From flat of flange to machined surface:
Intake: 0.148" minimum
Exhaust: 0.165" minimum
9. All valve oil seals must be removed
10. The use of valve seals is illegal and will result in applicable suspension per Honda suspension program.

VALVE SPRINGS

1. Valve springs will be stock Honda springs and will not be altered in anyway.
Use of Honda GX 120 or 140 valve spring is legal.



2. 140 Spring

- a. Wire diameter: 0.079" maximum
- b. Outside diameter of spring: 0.808" maximum
- c. Total number of coils: 7
- d. Spring Pressure: 16 lbs maximum at 0.812"
- e. Stacked length: 0.524" maximum

GX-140 Valve Spring

3. 120 Spring
 - a. Wire diameter: 0.071" maximum
 - b. Outside Diameter of spring: 0.71" maximum
 - c. Number of total coils: 5.3

d. Spring pressure: 11lbs maximum at 0.812"

e. Stacked length will be: 0.394" maximum

ROCKER ARMS – PUSH RODS – STUDS

1. Rocker arms will be stock Honda and will not be altered in any way.
2. Rocker arm studs will be stock Honda. They or their mounting position may not be altered in any manner. No heli-coiling of mounting holes. No bending of studs.
3. Push rods will be stock Honda and will not be altered in any way. Push rod length:
5.257"-5.279"

VALVES



INTAKE VALVE ASSEMBLY



EXHAUST VALVE ASSEMBLY

1. Check valves for dimensions and weight.
2. Valve seating surface must be factory ground to a single angle only, 45 degrees. There will be no other angles ground on any part of valve. Valves must not be polished, lightened or altered in any way.
3. Valve weight:
Intake 22 grams minimum
Exhaust 22 grams minimum
4. Drawing of valve dimensions (Intake valve followed by Exhaust valve).

HEAD

1. Cylinder head will be in "as cast" and in factory machined condition and there must be no addition or subtraction of metal except for the cylinder head gasket surface.
2. No use of any substance to the inside or outside of the cylinder head. This includes no type of machining or grinding to increase compression or airflow. No milling, angle milling etc. or any alteration that could increase valve spring pressure.
3. **Must be a Japan Tier III or must be a Thailand UT1 cylinder head stamped ATA or TK1 that meets the current specs. No Japan Tier II cylinder heads are legal.**

INTAKE AND EXHAUST PORTS

1. Ports will be in "as cast" and factory machined condition and there must be no addition or subtraction of metal or any other substance to the inside or outside of the cylinder head.
2. No alterations of any kind to be made to the intake or exhaust port.
 - a. This includes any grinding, polishing, etching, sand blasting or glass beading to interior surface.
3. Valve Seats must be a stock 45 degree angle. Multiple angle valves are not permitted.
Valve seats must not be replaced.
4. Intake and exhaust ports at valve:
Intake: maximum 0.915"

Exhaust: minimum 0.900"
 maximum 0.863"
 minimum 0.858"

ENGINE BLOCK

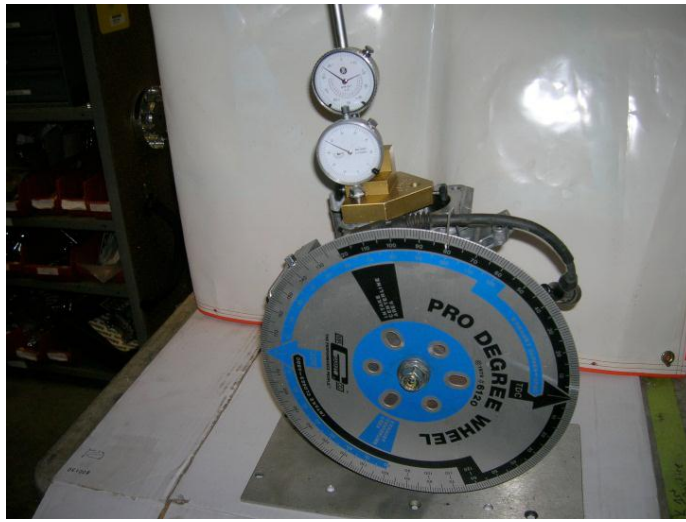


1. This engine block must be in "as cast" and factory machined condition. There must be no addition or subtraction of metal or any other substance to the inside or outside of the cylinder block, crankcase cover, crankshaft, rod, piston, pin, rings, flywheel or coil with the following exceptions:
 - a. Removal of rear gas tanks brackets is permitted.
 - b. Removal of governor. Governor system may be partially removed with the exception of the steel gear on the crankshaft. This gear must remain intact. Governor arm and shaft may be removed, tied forward or altered to accommodate throttle linkage or return springs.
2. Addition of brackets, fittings etc. to accommodate throttle linkage, tachometer, temperature gauge is allowed.
3. Cylinder head gasket surface may be milled.
4. Check Bore:
 2.682" maximum.

NOTE: All measurements taken at top of bore or very bottom of bore.
Preferred method of measurement is a dial bore gauge, dial calipers may be used.

"Wear Limits/Parts Out of Service" JQMA reserves the right to confiscate 160 Honda engine parts deemed illegal or at JQMA maximum wear limits. EXAMPLE: cylinder bore will be 2.682 max. All measurements taken at top of bore or very bottom of bore parallel to crank, 90 degrees from crank. Any cylinder block that has one measurement over JQMA maximum wear limits will be taken out of service. If no measurements exceed JQMA maximum wear limits the part of block will not be confiscated. Handler has the right to have confiscated parts returned to them but will be rendered unusable.

5. Check stroke:
 1.778 maximum
 1.758" minimum
6. Measure amount that piston is up or down from block surface at T.D.C. This will be measured at the edge of piston top and bottom, and side to side. When measuring top and bottom of piston take an average of the numbers measured. i.e. top = .003, bottom = -.003 the piston to deck would be .000. Measurement must NOT be taken in the center or relieved part of the piston. The dimension will be .000" Max. NO PISTON POP UP!! Carbon may be removed to check piston pop up.



7. Install degree wheel on flywheel. Install pointer in order to read degrees. Locate accurate T.D.C. This should be done with a positive stop type fixture and not established with indicator alone.
8. Cam will be checked with indicator reading off the top end of tappets which will provide zero clearance. The inverted radius of the top of the tappet presents some problem to get accurate readings and to prevent binding of indicator stem. Indicator holder and pistons are very critical in this operation.
9. Zero indicator on base circle of cam. Be sure that compression release does not affect zeroing exhaust indicator. Zero dial indicator after exhaust bump (0.050) ref.
10. Turning engine in normal rotation, clockwise facing flywheel, take reading at specified opening. Readings must fall between specified degrees on the following chart.

Camshaft Profile Limits

INTAKE

Degrees

0.050" 10.5 to 14 ATDC
 0.100" 26.5 to 30 ATDC
 0.150" 45 to 48.5 ATDC
 0.180 Split"
 0.200" 71 to 74.5 ATDC
 Max lift .227" Peak 104-107 ATDC
 0.200 136 to 141 ATDC
 0.180 Split
 0.150" 162.5 to 167 ATDC
 0.100" 180.5 to 185 ATDC
 0.050" 197.5 to 201 ATDC

EXHAUST

Degrees

0.050" 207 to 210.5 BTDC
 0.100" 190 to 193.5 BTDC
 0.150" 170.5 to 174.5 BTDC
 0.180 Split"
 0.200" 144 to 148 BTDC
 Max lift .229" Peak 107.5-110.5 BTDC
 0.200 70.5 to 73.5 BTDC
 0.180 Split
 0.150" 44.5 to 47.5 BTDC
 0.100" 26 to 29.5 BTDC
 0.050" 9 to 12.5 BTDC

11. Check max lift at intake and exhaust.

FLYWHEEL, FAN AND IGNITION SYSTEM

Caution should be used when removing flywheel. Do not hit with hammer or other heavy objects. Service manual show flywheel to be removed with commercially available 6" puller. Another method is inertia type knocker that threads onto crankshaft end.

1. The transistorized magneto ignition is fixed at 25 degrees BTDC and may not be altered in anyway.
 - a. Firing must not exceed 0.104" or 26 degrees BTDC.
 Quick check: turning flywheel clockwise if the leading edge of the depression of flywheel rim where the magnet is mounted is not still under the right hand coil leg at .115" BTDC, it is probably illegal and should be checked further.

PROCEDURE FOR CHECKING TIMING

- A. With degree wheel or indicator located at 0 degrees or TDC., mark both the flywheel and some fixed point (such as right hand side of aluminum block casting right above flywheel) with aligning marks. Turn the flywheel clockwise and stop at 26 degrees BTDC or 0.103" – 0.104" BTDC on your indicator. Make another mark on the block casting that aligns with your mark on the flywheel.
 - B. Remove dial indicator so it will not be damaged by engine rotation.
 - C. Install timing light to a battery, if not self powered, and clamp inductive pickup to spark plug wire. Wire should be hooked to standard spark plug gapped to 0.025". Using a drill, with an extension that is cut off or turned to fit drill, place socket on flywheel nut and rotate engine in clockwise direction.
 - D. Fire the timing light and observe. If the reference mark on the flywheel is between the two marks on block casting that are TDC and 0.104" or 26 degrees BTDC, the timing is legal. If mark is not between marks on block casting when rotating, the engine will be disqualified.
2. Flywheel keyway or its position must not be altered.
 3. deleted.
 4. Magnet and/or its position cannot be altered in any way.
 5. Magnet retaining screw may not be altered in any way. Screw may not be replaced with larger or smaller screw. No heli-coiling of mounting hole.
 6. Ignition coil and/or its position, other than air gap, may not be altered in any way.
 - a. Coil mounting bolts must be stock and cannot be altered in any way to advance or retard timing. Coil attaching bolts will be stock 6mm cap screw 1-1/16" long.
 - b. There can be no more than 3/8" of unthreaded portion of bolt that does not measure 0.230" diameter. This restricts movement of coil to a position that could make ignition timing illegal.
 - c. If a coil support mount becomes stripped, it is permissible to heli-coil. However, only one leg may be repaired, if both legs are heli-coiled, the crankcase becomes illegal.
 7. All nylon blades on the cooling fan must be intact.
 8. No metal may be added or removed from the flywheel.
 9. Flywheel weight will be:
2360 grams minimum
 10. Flywheel diameter- magnet area:
6.285
 11. A stock Honda spark plug cap, (wire end at resistor), must be used.
 12. Any automotive type spark plug with ." reach maximum is allowed.
 13. No plug indexing washers allowed.
 14. If temperature sensor is used under spark plug, factory washer may be removed.

GEAR BOX AND RING GEAR



1. Gear box may not be altered in any way.
 - a. May be rotated to desired position.
2. Ring gear may not be altered in any way with the exception of keyed end of shaft that may be shortened, drilled and tapped or machined for snap ring groove. No other machining, drilling, grinding etc. to ring gear.
 - a. Keyway may be cut deeper.

3. Ring gear may not be altered in anyway including polishing or use of any compound or abrasive on gear shaft where bearings ride.
4. Two gaskets maximum between gear box halves.

CRANKCASE COVER

1. Remove crankcase cover
2. Cover must be in "as cast" and factory machined condition and there must be no addition or subtraction of metal or any other substance to crankcase cover.
3. Crankcase cover gasket must be stock Honda. Only one gasket may be installed with a maximum thickness of 0.025".
4. Critical dimensions are thrust face of camshaft holder and position of crank bearing.
 - a. Place a straight edge over crank bearing and cam boss thrust face. These surfaces should be level.
 - b. Maximum tolerance will be 0.005". There will be no alterations to crankcase cover. This includes any alteration to crank bearing and camshaft holder position and height in an attempt to alter valve timing.

PISTON, WRIST PIN, AND PISTON RINGS

1. Remove rod and piston- triangle or boss on top of piston must point toward push rods.
2. Piston, wrist pin and rings must be absolutely stock and not altered in any manner.

PISTON

1. Piston will be stock Honda standard size and will not be altered in anyway.
2. Oversized pistons must not be used. **The GX160 UT2 piston 13101-Z4M-800 is not legal.**
3. All three piston rings must be used and installed properly.
 - a. Top ring: Chrome compression ring installed with "N". Thailand rings marked R on rail up. No expander under ring.
 - b. Middle ring: Oil scraper ring installed with "N" or "R" on rail up. No expander under ring.
 - c. Bottom ring: Three (3) piece oil rings are allowed. Check oil ring expander for alterations that will alter ring tension (cutting ends of expander etc.)
4. Piston may not be knurled, grooved or coated
5. Total Piston weight with rings, pin, and clips: 200 grams minimum.
6. Total piston weight with rings, pin, clips, complete with rod and bolts: 360 grams minimum.
7. No decreasing of ring tension by heating, machining or any other means.
8. Honda has released a new piston for the UT1 GX-160.
 - a. The GX160 UT1 (13101-Z4M-000) piston will be legal for JQMA competition beginning in 2012. The GX160 UT1 piston (13101-Z4M-000) will be stamped Z4M00 on the top of the piston. The side of the piston will be stamped Z4M.



TOP VIEW GX160 UT1 PISTON (13101-Z4M-000)



SIDE VIEW GX160 UT1 PISTON (13101-Z4M-000)

9. The current Tier III Honda GX160 Piston (13101-ZH8-020) and the Honda GX160 UT1 Piston (13101-Z4M-000) are both legal. They both have the same measurements from the centerline of the piston pin bore to the top of the piston (ring grooves included.)



Z4M PISTON (13101-Z4M-000)

ZH8 PISTON (1301-ZH8-020)

- | | | |
|---|--------------------------------------|-------------------|
| 10. Piston Weight: | a. Z4M PISTON (13101-Z4M-000) | 153-163 grams |
| | b. ZH8 PISTON (1301-ZH8-020) | 158-168 grams |
| 11. Total Piston Weight: (Rings, Pins, Clips) | a. Z4M PISTON (13101-Z4M-000) | 195 grams minimum |
| | b. ZH8 PISTON (13101-ZH8-020) | 200 grams minimum |
| 12. Total Weight: (Rings, Clips, Rod & Bolts) | a. Z4M PISTON (13101-Z4M-000) | 355 grams minimum |
| | b. ZH8 PISTON (13101-ZH8-020) | 360 grams minimum |
| 13. Piston Height: | a. Z4M PISTON (13101-Z4M-000) | 49.0 mm minimum |
| | b. ZH8 PISTON (13101-ZH8-020) | 53.5 mm minimum |
| 14. THE GX160 UT2 PISTON (13101-Z4M-800) IS NOT LEGAL, AND WILL NOT CONFORM TO THESE MEASUREMENTS. | | |

RINGS

Must be stock Honda rings with stock size and configuration.

1. No decreasing of ring tension by heating, machining or any other means.
2. Tier III Piston Ring Thickness:
 - a. Compression: .038" min
 - b. Scraper: .038" min
 - c. Oil Ring: 3 piece- .095" min
 - i. 1 piece: .097" min
3. The letter "N" or "T" on Tier III piston rings may not be legible after engine has been run.

WRIST PIN

1. Stock Honda wrist pin and retainer
 - a. OD: Minimum 0.708"
Maximum 0.709"
 - b. Length: Minimum 2.120"
Maximum 2.128"
 - c. ID: 0.556" ref.
 - d. Weight: 40 grams minimum

CONNECTING ROD

1. Stock Honda rod with no alterations.
2. Connecting rod big end size:
 - 1.176" minimum
 - 1.184" maximum
3. Pin end bore is: 0.710" ref.
4. Length from bottom of pin bore to top of big end bore will be: 2.3755" maximum 2.3580" minimum
5. Rod weight with bolts: 140 grams



6. No oil grooves on bearing surface of either end.

CRANKSHAFT



JAPAN CRANKSHAFT



THAILAND CRANKSHAFT

1. Stock Honda crankshaft with no alterations.
2. No removal or addition of any metal from or to the crankshaft is allowed.
3. No balancing of the crank is allowed.
4. No oil grooving is allowed on the crank journal.
5. Governor drive gear cannot be removed.
6. Crankshaft drive gear should not be removed. This gear is installed by Honda to any accuracy of + . degree. If this gear is not installed to this degree of accuracy, engine may not be legal when camshaft is checked by the procedure under engine block.
7. Keyway location must not be altered in any manner.
8. Measure thrust to crank gear side + 3.350 Min.
9. The only cleaning method allowed is on the flywheel side of crankshaft for the purpose of removing calcium, rust etc. from the exposed end of the crankshaft. This is permitted only from the seal grove out to the end of the thread of the crankshaft where the flywheel bolts on. Only a wire wheel may be used in the cleaning process. The use of Scotchbrite, sandpaper or any other compounds or abrasives is illegal. No material may be added or removed from crankshaft.
10. Crankshaft main journal at flywheel and gearbox ends may not be altered in any way.

CAMSHAFT

1. Camshaft must be stock Honda with no alteration of any kind.
2. There will be no additions to or subtractions from any part of the camshaft.
3. Compression release will remain intact and unaltered.
4. Lobe center angle will not be altered by any means.
5. Lobe profile will not be altered in anyway.
6. Camshaft specifications:

INTAKE	EXHAUST
Heel to Heel. 0.865" - 0.869"	Heel to Heel 0.866" – 0.870"
Heel to Peak 1.079" - 1.93"	Heel to Peak 1.081" – 1.095"
Length – thrust flange to thrust flange:	
3.137" minimum	3.142" maximum
7. Cam bearings are 0.547" -0.551" and unaltered.



TAPPETS

1. Tappets must be stock Honda with no alterations.
2. Base diameter: 0.909" minimum no maximum spec
3. Stem diameter: 0.312" minimum
4. Base thickness: 0.076" minimum 0.090" maximum
5. Length: 1.181" minimum 1.220" maximum
6. Weight: 16 grams minimum

ENGINE BLOCK INTERNAL

1. The engine block must be in an "as cast" and factory machined condition and there must be no addition or subtraction of metal or any other substance to the inside or outside of the block except for cylinder head gasket surface may be milled to achieve 0.00 piston pop up.
2. Cylinder bore will be 2.682" maximum.

"Wear Limits/Parts Out of Service" JQMA reserves the right to confiscate 160 Honda engine parts deemed illegal or at JQMA maximum wear limits. EXAMPLE: Cylinder bore will be 2.682 Max. all measurements taken at top of bore or very bottom of bore parallel to crank, 90 degrees from crank. Any cylinder block that has one measurement over JQMA maximum wear limits will be taken out of service. If no measurements exceed JQMA maximum wear limits the part of block will not be confiscated. Handler has the right to have confiscated parts returned to them but will be rendered unusable.

3. Cylinder bore will not be bored oversize.
4. Cylinder bore will not be re-sleeved.
5. Cylinder bore position will not be moved or tipped in any manner.
6. There will be no polishing, sand-blasting or glass beading to any interior surface.
7. Machined surface of block down to thrust face of cam boss:
3.220" minimum 3.235" maximum
8. Machined surface of block down to bearing face:
3.416" minimum 3.435" maximum
9. Oil level sensor will be intact and unaltered. Wires may be externally disconnected or cut off.



Tech officials have the right to tech any or all cars in any class at their discretion.

PLEASE NOTE: HONDA UT2 ENGINES ARE NOT PERMITTED IN JQMA COMPETITION.

If it is not in any of the above rules, it is not allowed.