DECO - TECH MANUAL
Updated Jan 1, 2017 TECH

CLARIFICATIONS

Deco/Continental Suspension Rules
For all engine specs. Handlers and drivers guilty of having an engine declared illegal at technical inspections shall be disciplined as follows:

1. First offense - up to 30-days and/or 4 race suspension for handler and driver from participating in the respective class at any USAC sanctioned event.
2. Second offense within one year of first infraction-one year for handler and driver from participating in the respective class.
3. Third offense within two years of last infraction-suspended for life from USAC. Suspension for life is open to review by USAC.
4. Suspension shall begin immediately.
5. For the purpose of this rule only, if a handler has multiple cars completing in the class (Mod, AA, Honda 120, Honda 160) at one race event and more than one engine is found to be illegal at the event, it will be considered to be one offense.
6. Refusal of tech shall be interpreted as an admission that the engine is illegal and an automatic six month suspension from the class will be immediate with all awards, qualifications being revoked.

Filter ad Adapter Rules

1. Any air filter may be attached to the outside of the approved air filter adapter.
2. Outerwear style or equivalent can be used over carburetor only with no adapter.
3. The approved air filter adapter may be run with or without an air filter.
4. Any air filter may be used with adapter as long as there are no devices inside the air filter or adapter that will alter the airflow into the carburetor.
5. All USAC .25 mufflers must be Briggs & Stratton Part #294599 or

equivalent.

6. No drilling holes on the baffles. Inside seam of baffle must be straight edged. (Some seams may not be parallel in baffle)
7. You cannot cut off the threaded flange if it is to be used in Honda. It is Ok to weld a washer or nut on the flange for a place to apply safety wire.
8. (Mod, AA, all exhaust must pass through the muffler when going over scale).
9. **Anyone found using illegal fuel additives when track fuel is provided, discipline will be as follows:**
   a. First Offense-30 days suspension from all .25 racing.
   b. Second offense-1 year suspension from all .25 racing.
   c. Third offense-**Lifetime** suspension from all USAC .25 events.
10. The use of air filters during qualifying at as asphalt and dirt events is illegal. The Senior Tech Official reserves the right to allow filter at any event that it's deemed necessary.

TECHNICAL INSPECTION PROCEDURE

Some or all of these procedures may be used at National and Local events.

Qualifying/ Heat Race

1. All technical and safety rules are the responsibility of the handler: for example: weight/car, driver and combined tread and wheel base, nerf bars, bumpers, etc.
2. It is the handler's responsibility to make sure that the car and engine are weighed and properly sealed after qualifying or heat race if there is no qualifying. If there is any doubt check with the Tech. Director before the car leaves the scale/sealing area.
3. If repairs or maintenance are necessary that require the breaking of seals or an engine needs to be changed approval must be obtained prior to starting any work. All work must be done under the supervision of the Tech Director or his assistant. Engine must be resealed immediately after the work is completed.

TECHNICAL INSPECTION AFTER RACE

1. After racing cars finishing in a transfer or awards position must be weighed and have the engine seals checked. Cars finishing in announced position must be placed immediately in the designated impound area.
2. Engine and car may not be removed from the impound area unless directed to do so by the Technical Personal. If the car needs to be raced in another class or division handler must make sure weights and seals are checked prior to leaving the scale/impound area.
3. No one may enter the impound area for any reason without first

obtaining Tech approval.

ENGINE TECHNICAL INSPECTION

1. When instructed by a Technical Inspector the handler shall remove the engine and bring it to the Tech area. It is the handler's responsibility to have all the tools necessary to remove and disassemble the engine. The handler should have the necessary storage containers for the disassembled engine components as time may prohibit reassembling.
2. The engine will be inspected by the Technical Inspector according to the USAC manual for the engine being inspected. The appropriate Tech sheet shall be used if possible. If during inspection a component is found to be illegal the inspector will get a second opinion. If the second opinion concurs the engine will be declared illegal and the car and driver will be disqualified. If the second opinion does not concur, the senior inspector in attendance will be consulted. The senior Tech Officials decision will prevail.
3. If the engine is disqualified the rules for that class must strictly be followed and the appropriate forms filled out.

PROTEST PROCEDURE

1. If the handler does not agree with the finding the Tech inspector he must write a protest to the Race Director within one hour. The engine must remain in the possession of the Tech Officials. This protest will be handled by the local Officials present at the race meet. (Race Director, Club President, National Officers). The handler always has the right for a second opinion. The second opinion may be obtained from either the National Tech Director. In all instances the National Tech Director will have the final decision regarding the technical issue.

I. BASIC ENGINE:

This technical manual applies only to the following engines and their component parts:

1. Continental models AU7R & 717.
2. Detroit Engines model #DE7R.
3. Deco Grand models DE2R & DE7R.
4. Deco DE 7R-300
5. Modular engine (MB&T) aluminum block and cylinder and iron cylinder.
6. Other similar engines and components specifically approved by USAC as replacements for the preceding engines.
7. See Section VIII for 1/2 midget engine specifications
    a. These engine rules are for use with the preceding engines when used in the modified, and "AA" modified classes.

b. All engines, in Deco classes will be four (4) cycle, normally aspirated, air –cooled and American made. Blocks will be cast iron or similar ferrous material. No overhead valves, fuel injection, blowers or free spinning flywheels. The Gearbox is not considered a part of these engines; therefore any gearbox may be used. (The MB&T blocks and Cylinders are made of aluminum).

c. All special (i.e. after market of the same or different basic design) engines must be approved by USAC.

d. All component parts, unless specifically exempt from technical inspection, are subject to technical inspection. All after market and special parts that are subject to technical inspection by these rules may be required to be approved by USAC.

e. Continental blocks may be machined so as to bring them to Deco block dimensions.

f. NO MODIFICATIONS, ALTERATIONS, ADDITIONS, SUBTRACTIONS, DELETIONS, OR OTHER CHANGES ARE PERMITTED TO BE DONE TO THESE ENGINES OR THEIR COMPONENT PARTS UNLESS SPECIFICALLY ALLOWED IN THESE RULES.

II. MEASUREMENTS AND TOLLERANCES

1. Unless otherwise stated all measurements will be made to plus or minus 1⁄2 of the least significant decimal place of each stated dimension. Dimensions given in fractional form are for reference only and will be converted to three place decimals for all technical measurements.

III. CLASS MODIFIED

1. FUEL SPECIFICATION:
   a. Gasoline, automotive type only. No racing, white or aviation gasoline. No additives.
2. ENGINE BORE & STROKE:
   a. Bore: 2.125" + .030" + .004" equals maximum bore of 2.159"
   b. Stroke: 2.00" + or – 0.15". Stroke minimum 1.985". Stroke maximum 2.015".
3. All modifications allowed in this class except for the following:
   a. Block:
      i. Broken blocks may be repaired by welding, brazing, or

strapping. Welding, brazing, or other repairs may be done in ports or combustion area.

ii. Cylinder sleeves may be of any material. Cylinder bore must be centered on and parallel to the original cylinder bore centerline.

iii. Intake and exhaust valve centerline must remain parallel to the original valve centerline.

iv. Tappet centerline must remain parallel to the original tappet centerline.

v. Combustion chamber surfaces must remain unaltered.

b.Camshaft:

i. Stock or after market. Measurements: Heel to peak – Exhaust .988" maximum -.975" minimum intake 1.013" maximum – 1.000" minimum. Heel to heel – exhaust . 811" minimum .821" maximum intake .811" minimum . 821 maximum. Difference or total lift: exhaust .177" maximum intake .202" maximum. Maximum lift on exhaust .177", maximum lift on intake .202". Base circle maximum .007" out of round. Heel to heel minimum .811" maximum .821". A new gear may be installed. Camshaft must be a one piece and of conventional design other than press on gear. Cam and gear must be made of ferrous meta. Lobes must fit through USAC template. Cam pinhole may be drilled to a larger size. An additional cam pin may be used.

c.Deck height:

i. Measured from block deck to the center of point/ distributor shaft, 4.670" Max.

TECH PROCEDURE: Measure from block deck to point/distributor shaft, with depth micrometer through valve guide and tappet guide. Add ½ of diameter of point/distributor shaft to micrometer measurement to obtain deck height.

d.Flywheel:

i. Any type of flywheel may be used, maximum 32 ounces or 907 grams, minimum 27 ounces or 765 grams. Balancing is OK. Multi-piece flywheels must function the same as a one piece flywheel.

e.Valve Seats:

i. Valve seats may be installed or replaced if necessary. Inside diameter must remain stock, intake .825" maximum, exhaust .755" maximum. No limitation

on outer diameter of valve seat. Must be installed flat with deck. Any seat angle may be used. Top cut diameter shall no exceed 1.000".

f. Cylinder head:

i. Only stock unaltered cylinder heads, part numbers AA7-A-504 and AA7-A-508 or USAC approved after market heads may be used. All heads may have a 14mm Helicoil or similar threaded insert installed to repair spark plug threads. Insert must be installed square to head and in original location. Heads may be bead blasted or wire brushed to clean carbon. No material may be removed from inside the combustion chamber area. (Smoker, NC, MRE, Deco)

ii. Stock cylinder heads may have no alterations except the following:

1. Head sealing may be lightly sanded, but must not be removed. The sealing bead ranges from . 005" to .014" (reference only). The combustion chamber above valves should measure between . 236" to .270" (reference only).
2. Head bolt holes on topside of head may be spot faced flat. No material may be removed from cooling fins. All holes in head must be in original location and not moved in any way whatsoever, such as tipped, moved over, up, or down.

iii. After market heads will be made by a USAC approved manufacturer.

1. No alterations allowed, except spark plug Helicoil.

TECH PROCEDURE: Check for alterations inside of sealing bead area. Sealing bead and number must not be removed. No material removed from cooling fins. All holes in head must be in original location.

g. Piston:

i. Any flat top piston is allowed. No part of the piston may protrude more than 0.20" above block deck at top dead center (carbon may be removed).

TECH PROCEDURE: Check for flattop. h.Exhaust Port:

i. The exhaust port shall be round at the flange and valve seat, within 0.015" and measure no more than . 0755" at the valve seat and 0.875" max at flange, min from the flange up 0.125" max 0.015" out round and

a min round of 0.775". The port may be polished, ground, machined, or sleeved to suit. Welding, brazing, or epoxy like substances may be used to fill or repair the port. The top of the port shall be no more than .400" from the head deck of the block. This dimension shall be checked with a dial caliper or ball micrometer. The port flange shall be checked with a protractor.

TECH PROCEDURE: Check port size with plug gages or dial calipers.

j. Intake Port:

i. The intake port shall be round at the flange and valve seat within 0.015" and 0.825" maximum diameter at the flange, 0.250 from the port flange down must be 0.825 maximum diameter at the valve seat. The port may be polished, ground, machined, or sleeved to suit. Welding, brazing, or epoxy like substances may be used to repair or fill the port. The top of the port shall be no more than .375" from the head deck of the block. This dimension shall be checked with dial calipers or a ball micrometer. The port flange shall be perpendicular within 1 degree max to the head deck surface. Parameter shall be checked with a suitable protractor. The original manifold bolt hole locations shall be used. Threads may be repaired as necessary. From the edge of the valve seat to port flange max 1.050". Gasket on intake port to manifold is optional.

TECH PROCEDURE: Check port size with plug gages or dial calipers.

k. Tappets and Tappet Guides:

i. Any flat based tappets may be used. Maximum allowance for wear (dished is .002". Any size tappet guides may be used. They must be installed so that the centerline of the valve guide bore is parallel to the centerline of the corresponding tappet guide bore and intersect the centerline of the cam axel shaft bore.

l. Valves and Valve Guides:

i. Stock and after market valves may be used, and the following specifications must be met.

1. Intake Valve:

a. Diameter of head .925" maximum.
b. Edge of valve must be above the deck

surface of the block.

2. Exhaust Valve: Same as the intake valve except: a.Diameter of head ~~.825"~~ .852" maximum.

TECH PROCEDURE: Measure.

ii. Any size valve guides may be used. They must be installed so that the centerline of the valve guide bore is parallel to the centerline of the corresponding tappet guide bore (no tipping or offsetting of guides).

TECH PROCEDURE: Check for tipping or offsetting to increase lift.

VII. CLASS: "AA"

1. Fuel Specification: Gasoline is the same as Modified or straight methanol, no additives.
2. Head Bolts must remain in stock location
3. Drive: Two wheel real drive optional.
4. Engine Bore & Stroke: Bore 2.250"+. 060" + .004" clean up, 2.314" maximum. Stroke 2.000" plus or minus .015". No overhead valves. Must be air cooled.
5. All other engine modifications allowed in this class.

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

Parts in question that need further review, must be sealed and boxed up at the track in front of the handler. The handler and tech director must also sign a slip indicating that they both acknowledge the part is in question. The part must then be shipped to the USAC National office at 4910 West 16th Street, Speedway, IN, 46224.