



Editor – Rolf Hill

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Join the Fun!



IN THIS ISSUE

CIRCLEVILLE RESULTS – Tillotson Mods for Alky – Soccer vs. Karting – Team Photo and more.

VKA EVENTS & TBO

1/23 – 25	Jacksonville, FL	<input checked="" type="checkbox"/>	5/23 & 24	Springfield, IL	9/11 – 13	Quincy, IL/MO
1/30 – 2/1	Riverside, CA	<input checked="" type="checkbox"/>	6/12 – 14	New Castle, IN	9/12 – 14	<i>MKC at MIS</i>
2/8 – 9	<i>SKC Roebeling Rd</i>	<input checked="" type="checkbox"/>	7/10 - 12	Brodhead, WI	9/26 – 27	Delmar, IA
3/27 – 29	Barnesville, GA	<input checked="" type="checkbox"/>	7/12 – 13	<i>CES Grattan</i>	10/4 & 5	<i>SKC Roebeling Rd.</i>
4/10 – 12	Circleville, OH	<input checked="" type="checkbox"/>	7/25 – 27	<i>WKC VIR</i>	10/10 – 12	Cuddebackville, NY
4/26 – 27	<i>WKC NCCAR</i>	<input checked="" type="checkbox"/>	7/31 – 8/2	Camden, OH	10/11 – 12	<i>WKC Summit Pt.</i>
5/2 & 3	Whiteland, IN		9/5 – 7	<i>WKC Summit Pt.</i>	11/1 & 2	Atwater, CA

Bold = VKA Event *Italics* = vintage enduro event VIR = VA Intl. Raceway CES = Championship Enduro Series

SKC = Southern Kart Club MKC= Michigan Kart Club WKC = Woodbridge Kart Club

The Dart Kart Club (DKC), promoter of enduro races at Mid-Ohio and Grattan, has removed the Vintage Karts from their programs at both tracks. Check the official schedule posted on the VKA web site for any last minute corrections.

EDITOR'S COMMENTS (SEND YOUR COMMENTS TO KARTNUMBER4@YAHOO.COM)

Write this on your calendar ... No comments! No room. But, I do want to say that although the turn-out at Circleville **International**¹ Raceway wasn't the best, the weather was great ... despite reports of rain. Thursday was perfect and Friday afternoon was good racing weather, too. There were 48 entrants and a whole bunch of fun. If you weren't there, "Ya missed a good un."

Rolf

MARCH BOARD MEETING SUMMARY

Revisions are being prepared for the VKA Operations and Organization document, the Business Plan and other VKA documents to be sure they are current. There are 318 VKA Members. Several members have not renewed, but five new members joined last month. The wording in the *Guidelines* is still being worked on to address the concern that trained medical personnel, who are event participants, should be allowed to assist in emergencies and not all "chronically ill" event participants should be prohibited from participating. There were 42 participants in the Jacksonville Kart Show and there was a good mix of karts.

Balance as of 2/28/14 was \$12,908.35

¹ Canada was represented by Colm O'Higgins.

CORRECTIONS

In the Barnesville Summary on p., Samantha (not Sarah) was the recipient of the SAE repop. Samanth (not Sarah) should have been listed in the Barnesville Results on p. 5. Finally, despite one correction before sending to the printer, we still got the Peoples' Choice kart wrong. John Berkey's kart was a 1967 Margay New Breed with a Mac 101. Our apologies to both attendees and their families.

CIRCLEVILLE SUMMARY & RESULTS

Class	1 st	2 nd	3 rd
Rear 6.1	Kevin Rice	Scott Klingler	Rolf Hill ²
Rear 8.2	Jerry Nagel	Kevin Rice	Autumn Nagel
S/W Amer. 6.1	Bob Noel	Don Renton	Kirk Bennett
S/W For. 100	Sandy Stropko	Colm O'Higgins	Bill Walters
Dual Rear	Scott Nagel	Marc Nagel	Jerry Nagel
Junior/Women	Autumn Nagel	Avrie Klingler	- - - -
Sr. Over-60	Rolf Hill	Jerry Nagel	Pearl Gamble
Historic	Joann Hertzig	Autumn Nagel	Marc Nagel
80-85 S/W	Sandy Stropko	Colm O'Higgins	Doug Rossing

CIRCLEVILLE SHOW RESULTS

Rear Unrestored	1964 Rupp Grand Prix; MC-91; Autumn Nagel
Rear Restored	1963 Neal Kart; 510 West Bend; Avrie Klingler
Rear Modified	1961 Lancer; KL92 Homelite; Robert Hartman
S/W Restored	1979 Hornet Wishbone3; BT-82 TKM; Colm O'Higgins
Past Champion	1962 Blitz Kart; MC-9; JoAnn Hertzig
Peoples' Choice	1963 Neal Kart; 510 West Bend; Avrie Klingler



² Thanks to a new pipe and a lot of help from a lot of people.

Circleville Raceway Park



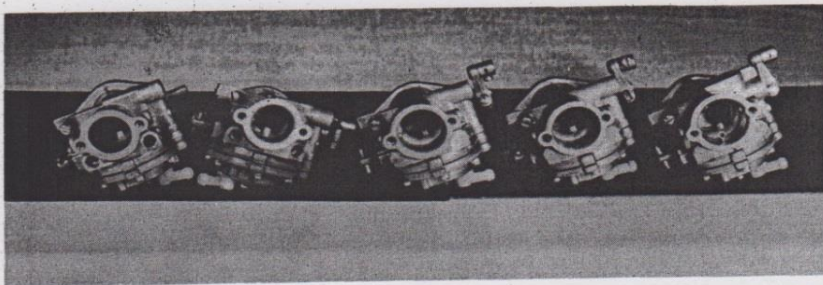
Modifying the

TILLOTSON

for Alcohol

Part I

Text and Pictures — Ted Powell



Late model Tillotson carburetors (HL series) fitted with ball check high speed

FOR THE AVERAGE KARTER, it is better to buy one of the several alcohol carbs now available from karting and racing accessory firms. For those karters who prefer to roll their own, this article points out many of the pitfalls.

Before blindly drilling out carb holes, a bit of thought must first be directed to some basic characteristics of alcohol fuels. This provides a few arithmetic, geometry and physics benchmarks with which to locate the playing ballpark, without the needless stumble-fumble ruination of carbs and lean-out seizure of engines. Most 2-stroker alky-burner operational troubles usually lie with carburetion rather than ignition.

The cruising and power air-fuel ratios of mixed gasolines are about 15.5:1 and 12.5:1; and for ethanol about 9.3:1 and 7:1 and methanol

systems. L to R: HL-101A, HL-107A, HL-123AX, HL-134A, and HL-207A.

about 6.5:1 and 4:1. Under acceleration and hi-RPM conditions then, the fuel consumption rate of methanol is about 3.1 times that of gasolines. Under cruising and low speed conditions, it is about 2.4 times as great. The utter folly of attempting to run alky fuels through a gas carb becomes quite obvious here. Roughly speaking then, an alcohol carb must have comparable high speed and low speed hole (jet) area increases.

Since geometry tells us that the area of a circle varies as the square of the diameter, we have —

$$\frac{(D_1)^2}{(D_2)^2} = \frac{A_1}{A_2} = \frac{1}{3.1}$$

or

$$\frac{D_1}{D_2} = \frac{\sqrt{1}}{\sqrt{3.1}} = \frac{1.00}{1.76}$$

Hence, in going from gas to methanol, the high speed venturi jet hole diameter has to be increased apparently by a surprisingly fat 76% to get an area increase of 210% and the low speed jet diameter by about 55% to get an area gain of 140%, assuming a linear increase of flow rate with hole-size increase. This doesn't hold true in practice, of course, since hydraulic viscosity drag increases much more rapidly as the jet-hole decreases.

Roughly then, about a 60% increase in diameter and 156% in area for the high speed jet; and about 40% in diameter and 96% in area for the low speed jets should about do it, depending upon engine characteristics. This may be a bit on the large size for the low speed holes, but insures low speed rich-mixture capability, especially if an engine is a bit over-ported and "wet-stacking." The British Amal racing motorbike carbs, which carry main jets marked with flow-rate numbers, call for a plus 150% flow-rate increase for the high speed main methanol jet, or about a 58% increase in the hole size. The jet-hole sizes listed in the factory race team data for an HL-93A set up for alcohol fuel for a Mc-10 Super A, check fairly well with the above figures. (See Chart 1.) Note the interesting fact that in the main drill-hole Charts 3 and 4, the high speed gasoline holes just about equal the low speed alcohol holes.

KARTING WORLD

It should be noted that the alcohol fuels develop maximum power at about a 40% rich mixture, as compared to 20% rich for most gasolines. Alcohols also possess greater liquid viscosity than equivalent gasoline hydrocarbons; and alcohol lubes, such as castor oil or modified castor oil, are very viscous. These are added reasons for the huge alcohol jet size requirements.

The Tillotson, McCulloch and Brown carbs are fairly similar in design and much of the following Tillotson modification data is generally applicable to all three types.

The more recent 3/4" bore HL 115A and B Tillotsons modified with alcohol kit RK-542; and the big-bore Crescent Motors HL194A, the Christensen HL 195A and the Rupp HL198A, etc. are all good bets here. The other newer 3-number 3/4" and 7/8" bore units such as the Homelite 123AX, West Bend 134A and Industries Bouchard 207A will also do the job, with proper modifications and alky kit parts changes.

However, even a single older smaller-bore 2-number (5/8" and 11/32" bore) unit such as a P.P. 66A, W.B. 88A and Mc-93A can be set up to feed alcohol

fuels to a ported Super A, with some part changes, contrary to general karter opinion. However, this involves considerable labor and parts costs. The smaller pumpers have some interesting possibilities for better bottom-end performance in dual and triple-carb set-ups, which put more (easier-working) reeds in action. This is one reason why they are being discussed here.

Fuel Strainer Section — The nylon cap 1/8" inlet nozzle can be left as is since it is much greater than the #42 main inlet holes. If the nylon cover is an older unit with a tight rim fit in

CHART 1

Factory Race Team Data For HL-93A Alcohol-Modification (McCulloch MC-10 Super A Engine)

Inlet Seat	#46
H.S. Fuel Feed Hole	#46
H.S. Adjust-Screw Seat	#46
H.S. Venturi Nozzle	#42
L.S. Fuel Feed Hole	#56
L.S. Adjust Screw Seat	#54
L.S. Venturi Jet Hole	#58
Idle Venturi Jet Hole	#60

Note — Larger McCulloch engines require bigger feed and jet holes.

CHART 2

3-Step Bore Dimensions For Tillotson HL Pump Carbs

Carb. Model	66A	88A	93A	101A	107A	115A	115B	123AX	134A	207A
Choke Bore	7/8	7/8	7/8	7/8	7/8	1	1	1	1	1 1/4
Venturi Bore	11/16	5/8	5/8	5/8	11/16	3/4	3/4	3/4	3/4	7/8
Throttle Bore	13/16	7/8	7/8	7/8	7/8	1	1	1	1	1
Venturi Area	0.37	0.31	0.31	0.31	0.37	0.43	0.43	0.43	0.43	0.59

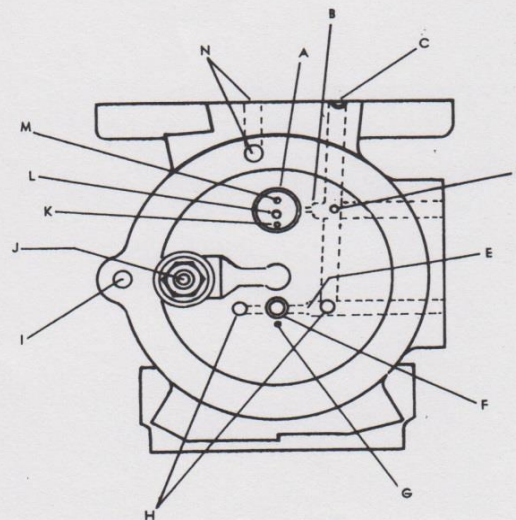
Note — Venturi cross-section areas do not deduct for the large 1/4" H.S. nozzle profiles. Deduct .06.

CHART 3

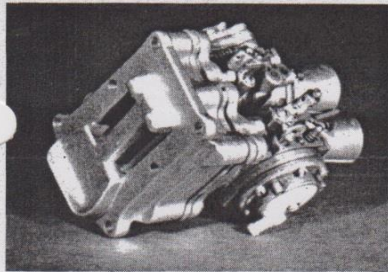
Key Alcohol Conversion Parts For: 66A, 88A, 93A, 101A, 107A, 123A, 134A and 207A

Part	Stock Part #	Alcohol Part #	Carb Model #
Fuel Strainer Screen	010530	011516	All
Pump Body	010525	013335	All except 207A
Diaphragm Cover Plate	010526 013642	013228	All
Pump Diaphragm	010531 012708	012698	All
Pump Diaphragm Gasket	010880 012930	012697	All except 207A
Gaskets	Stock	GS-153 Kit	All
Inlet Needle Seat	010580 012339 012655 013546	013493	All
Inlet Tension Spring	010578 011503	013434	All
H.S. Adjusting Screw	011494 011718	012225	66A and 88A
H.S. Nozzle	None 012084 012458 012510	012700	101A through 207A

Precision ream a 1/4" hole offset away from the H.S. screw seat and press in alcohol ball-check nozzle #012700 (66A, 88A and 93A).



- A — Low speed jet cavity
- B — Low speed seat (adj. screw)
- C — Fuel supply cross passage
- D — Low Speed fuel supply
- E — High speed seat (adj. screw)
- F — High speed discharge nozzle
- G — Air-bleed by-pass (older units)
- H — High speed fuel supply
- I — Fuel passage
- J — Inlet needle seat
- K — Air-bleed orifice
- L — Intermediate jet
- M — Idle jet
- N — Pump pulse passage



Two -101A, 5/8-inch bore units, mounted on Gem V-12 manifold for installation on WB-610 engine.

the pump body recess, the cap rim is honed down for a slightly looser fit. Otherwise, the gradual yellowing and slight swelling of the nylon under some types of alcohol fuels may result in a jammed cap. This may prevent proper seating against the composition-cork ring gasket, with possible air leakage and loss of fuel pump action.

The fine, photo-etched sheet metal fuel filter screen must be removed and brushed off occasionally to unclog it. Actually, the old type fine stainless steel wire-mesh screen used on early models, such as the small-bore 15A, is less restrictive and better for alcohol fuel purposes. Some racing mechanics remove the screen altogether and rely upon a tank-valve screen, but this is inviting possible trouble, especially with dirt particles in the inlet needle seat. The new, bronze wire-mesh screen, #011516, is preferable here.

The nylon cover gasket from one of the alcohol mod kits, Gasket Set GS-153, is recommended. It is more alcohol-resistant and less likely to shrink than the stock item. The nylon cover should be located so that the nozzle points between two of the pump-body cap screws to avoid interference in event that a quick carb disassembly is required. The nozzle should be angled away from the fuel tank to reduce tank-surge fuel suck-out tendency in the track left-hand corners. A large check-ball valve would be worthwhile here.

Tightening up of the nylon cover clamp screw must not be overdone since it may be snapped off during a pit-stop panic job.

Pump Body — If the carb is an older 2-number, small-bore unit with a pump body which has smaller passages and pump cavity (usually with a casting mold number 3 to 6), it may be replaced with a later 3-number carb part with larger passages and cavity (usually casting mold number 7 to 9). Oddly, all have the same part number, #010525. The older parts are usable, however. The later 115B carb uses a pump body with still larger holes, and carries the #012804. Preferably, the double-impulse (or double-bounce) pump body, #013335, from alcohol

mod kit RK-542 for the 115B should be used here, together with the matching diaphragm cover plate, #013228. This is not mandatory, however, since the single-impulse pump will do the job for a ported Super A.

The angled fuel supply hole under the filter screen is cleaned out with a #30 drill, from its 1/8" diameter, at both ends. The angled impulse holes (two) are opened up to #28 drill size at the cavity side, and to a #24 drill size at the diaphragm flapper side. Some of the newer bodies use #22 holes at the flapper end. All holes are very lightly countersunk. The extra #28 angled fuel supply hole, which makes a 3-way passage on the double-impulse pump body base, is left as is.

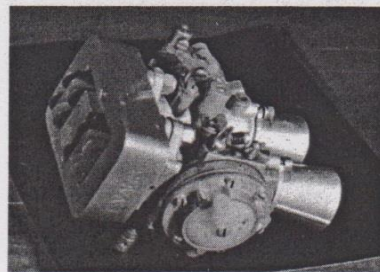
On the later 3-number carb pump bodies, the cavity's small impulse hole projections are filed away to remove nicking action on the pump diaphragm. The flat diaphragm side of the pump body is honed down on fine emery laid on a flat plate, to insure a flat surface for the diaphragm flappers. This is a normal procedure if there is corrosion or nicks on the surface.

The new, alcohol-resistant, glass-cloth bonded teflon pump diaphragm, #012698, is used in place of the older, black rubberized cloth type, #010531, or the newer red rubberized type, #012708. It is supplied in the RK series alcohol modification kits. The flapper valves of this stiffer diaphragm will not wet-soften and dimple into the large impulse holes; nor dry-stiffen and curl. Also, the diaphragm itself will not dry-stiffen and lose pumping action under the solvent effects of alcohol fuels.

The new teflon diaphragm can be soaked in fuel-lube mix for a few hours to saturate the glass-cloth bond before installing, to make it a bit more flexible. The diaphragm area over the pump cavity should then be gently massaged down into the pump cavity to stretch and "bow" it some, so it will more readily flip-flap and pump properly. Some of the older 2-number carbs used a thin, plain teflon diaphragm (of clear grayish color), #010531-T. However, the flappers tended to bow into the big impulse holes in the newer pump bodies, and dry-curved under alcohol fuels.

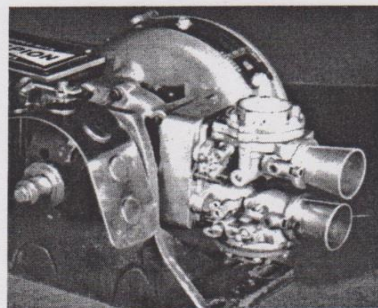
The author wishes to thank the following firms and individuals for their contributions to this article on Tillotson carburetors. Both their personal assistance and furnishing of carburetor assemblies and components has been sincerely appreciated.

Bud Schratweiser, of Budco, Central Islip, L.I., New York; Broadway Ignition, Woodside, Queens, New York; and Ferguson Kart Sales, Islip, L.I., New York.



Dual installation on modified Evans manifold, as used on Power Products AH-61 engine.

Many kart engine mechanics blamed the Tillotson pump for alcohol carburetion troubles, but the pump system had adequate pump capacity for the engines then being used. The pump diaphragm actuates most fully at low RPMs under slow and long impulses. At high impulse rates (high RPMs) the pulses are shorter and more rapid, and the diaphragm amplitude swings become decreasingly smaller and pump output is reduced. Nevertheless, properly set up, a single pump carb should be able to supply sufficient alcohol to a ported Super A engine.



Dual -101A's mounted on modified Evans manifold, and installed on Power Products AH-61 engine.

The correct pump diaphragm gasket, #012697, from Gasket Set GS-153, must be used with the new double-bounce pump body, #013335. It has the necessary extra two cut-outs, and is more alcohol-resistant. Do not mix up with the single impulse gasket, #010880.

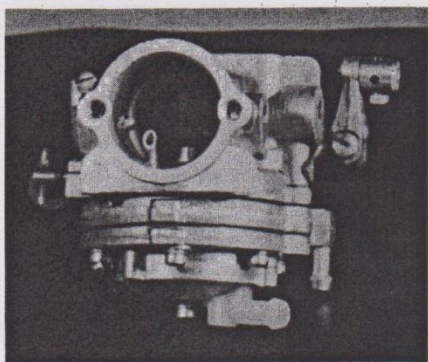
If the carb is an older 2-number unit with a diaphragm cover plate which has a sharper cavity fillet (usually mold number 4 to 6), it can be replaced by a later 3-number carb unit having a casting mold number 7 to 9. The older (#6) plate usually has a high gasket sealing ridge. The older plates are usable, and as with the pump bodies, all the slightly differing plates carry the same part number, 010526.

Again, it is preferable to use the double-bounce diaphragm plate,

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#013228, together with its matching pump body (from alcohol kit RK-542), as previously discussed. The double impulse cover plate, #013643, from the 7/8" bore 207A carburetor, has one relief hole plugged up because of the venturi sense tube.



New HL-207A, 7/8-inch throttle bore, gasoline carburetor for Industries Bouchar. Note sensing tube in choke bore, which functions to aid fuel flow during acceleration.

The rim-projection fuel supply hole and the middle atmosphere relief hole are drilled out with a #30 drill. The #37 (drill size) cavity impulse hole is opened up to #24 drill size. The extra atmosphere relief hole in the double impulse cover plate is cleaned out with a #30 drill. The extra #42 fuel-feed impulse-hole is left as is.

A slanted ramp is filed into the in-board corner of the cavity tunnel side of the impulse hole to provide a more direct air flow path to the diaphragm. The plate bolt-circle ring-boss is honed down on fine emery laid on a flat plate to get an even gasket seal. The alcohol-resistant ring gasket, from Gasket Set GS-153, should be used in place of the stock gasoline carb ring gasket, #012473.

A diaphragm cover plate, #012159, which has a brass nozzle pressed into the corner rim shoulder to feed directly into the cavity impulse tunnel hole is available. It is used in conjunction with an external plastic impulse tube and crankcase fitting, where a normal internal impulse hole is impractical (due to the design of some carb and reed assemblies). All the diaphragm plates can be modified for such an impulse nozzle.

The new regulating diaphragm, #012475, is used in place of the older #010579 diaphragm. It has a "swiss-cheese" center rivet-plate with a ring of five, 5/16" holes instead of a solid disc. If only the old types are on hand, fuel-flow holes should be punched or drilled into the disc, and the sharp edges smoothed off without nicking the diaphragm. When the regulating diaphragm actuates the inlet control-lever to let in fuel under venturi suc-

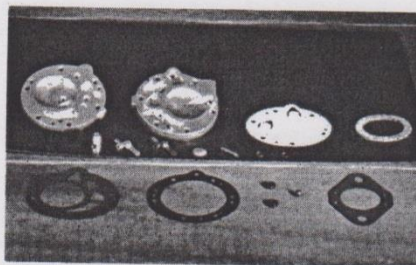
CONTINUED ON PAGE 46

tion, its center disc tends to mask off the fuel supply holes in the body. Hence, the new center plate "ventilation."

On some of the older diaphragm assemblies, the diaphragm material could sometimes be rotated inside the center plates because of a slightly loose rivet. This could possibly result in a slow suction leak. The center rivet can be squeezed down a bit in a vise between two smooth anvils, or tapped tight with a smooth plastic mallet against a smooth anvil till the diaphragm is clamped tight.

Both the writer and Joe Prisco have tried using two ring gaskets under the regulating diaphragm to get a larger fuel reservoir, with inconclusive results. This stunt may result in excessive diaphragm corrugated rim stretching and abnormal regulating action, and the idea was abandoned.

The main carburetor body is first completely stripped down, except for the throttle assembly. The fuel-lube residue is washed off with solvent before starting any modification work so as not to have a drill and file-shaving catcher.



Service components furnished in Tillotson RK-542 Alcohol Conversion Kit. Use of kit simplifies carburetor change-over.

Choke-Venturi-Throttle Bores — Race team mechanics with access to machine shop equipment often bore out the smaller carb bodies in typical "make it bigger" racing style. Bigger isn't always necessarily better. It is inadvisable to bore out the venturi without also further relatively boring out the choke and throttle bores so as not to lose venturi suction and cause mixture lean-out under alcohol carburetion. It is usually safe to open up the choke bore as much as possible, with a go easy policy on the venturi bore.

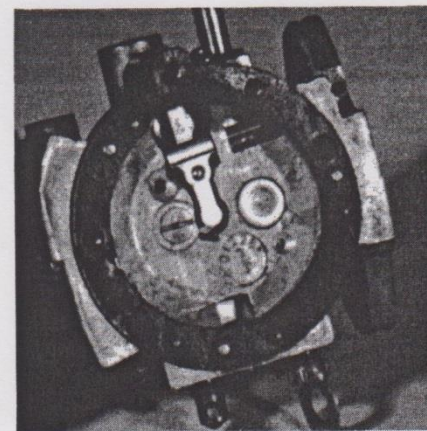
Teammate Joe Prisco habitually bores out his Tillotsons on a lathe, with careful caliper, but points out that this is a ticklish job with the smaller-body models. The smaller castings are easily broken through and ruined, sometimes because of unavoidable small casting blow holes. If the small body carbs are flipped over on the pump body side and compared with the newer and larger bodies, it can be readily seen that there isn't too much meat to slice.

The writer personally doesn't consider a bore job worth the time and effort and prefers to use the newer and bigger bodies, where warranted. The new 3/4" and 7/8" bore carbs use an offset venturi bore which increases the venturi suction and allows a bigger bore.

Amal data, incidentally, calls for 25/32", 13/16", 7/8" and 15/32" cross-bores (venturi) for 7000, 8500, 10,000 and 12,000 RPM for 5.8 CI 2-strokers, using a single carb. This indicates the possible usefulness of bigger-bore, 7/8" to 1" Tillotsons in single carburetor installations feeding the denser alcohol fuel charge. However, with dual and triple-carb set-ups, the smaller 5/8" and 11/16" units may pay.

One device used by the writer to selectively open up the venturi bore on smaller-body carbs, was to file two shallow Vee notches, 1/16" deep and 1/4" wide, at each side of the high speed venturi nozzle hole. This increases the venturi bore, but also produces a raised dump-tube effect to boost the venturi suction action on the high speed jet.

The three step bore-hole ratios and venturi cross-section areas for several typical Tillotson HL pump carbs are listed in Chart 2.



HL-115B, with additional modifications. Note countersunk fuel supply holes, and 0.040-inch shunt hole drilled through the high speed nozzle.

Flange Impulse Hole — The pump impulse hole is drilled out (from #31 to #24) at both the flange and bolt-circle ring-boss ends. Since it is a right-angle hole, care must be taken in holding down the work and hand-drill to prevent the drill from egging out the hole excessively. It is safer to use a #28 drill here, since it may egg out to about #24 drill size when it gallops in the angled hole. The 115B alcohol carburetor uses a huge #20 impulse hole, which leaves a rather narrow margin for gasket seal.

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Inlet Needle and Seat Assembly – The main inlet side-channel tapered hole is cleaned up with a #30 drill. This passage must be carefully cleaned and blown out (and inspected with a flashlight) to make certain that no drill shavings are trapped inside (which will cause erratic needle operation). On rare occasions, shavings may be found in this passage in new units.

The older carbs used a lighter, bronze tension spring, #010578, under the control lever. This should be replaced by the stiffer, stainless spring, #011503, or preferably the green-colored spring (#013434) from one of the alcohol mod RK kits for alcohol fuel work. They will better control the inlet needle under engine vibration conditions while shutting off a much bigger alcohol-inlet jet. This is especially true with higher fuel tank levels where siphon-drool conditions may develop. Mounting of the carb with nylon cover down tends to reduce syphon drooling. The spring ends should be carefully checked to make certain they are not kinked, and that they fit into the recess hole and over the control lever dimple. After installation, the control lever should be actuated with a probe several times to check for abnormal spring tension. Severe engine vibration conditions will derange the regulating action of the regulating diaphragm, control lever and inlet jet.

Some of the very early carbs used a brass inlet control lever. This can be replaced by the newer and lighter-aluminum lever, #010513, which should be less bothered by engine vibration. It will obviously be unlikely to produce galvanic corrosion against the aluminum alloy body in the presence of "wet" alcohol fuels as would brass. However, the alcohol RK mod kits use a brass inlet lever, #013100, possibly because of straight chemical corrosion effects caused by some alcohol fuel components such as the nitros. The writer prefers the aluminum lever. It should be checked to see if free on its pinion shaft. If sticky, the eyelets are adjusted to free it.

The early small-bore carbs such as the old 15A, used a heavy stainless-steel inlet needle. This should be replaced by the newer and lighter nylon needle, or the RK alcohol-kit delrin needle which is less affected by engine and chassis vibration. The new delrin needle, which is available in Repair Set #012479, is less affected by alcohol fuels than nylon (which tends to yellow and swell slightly under some fuel mixes). The old stainless-steel needle, with highly polished conical tip, should be kept on hand for "seating" drilled-out brass jet seats (by tapping the steel needle into the seat with a plastic mallet). The new 7/8" bore 207A carbu-

retor uses an aluminum needle with a top ball which positively engages a slot in the lever arm.

The stock gasoline carbs use the nylon needle with a brass inlet seat with a synthetic-rubber seat insert. No attempt should be made to ream out the rubber seat, as damage to the seat will result in fuel leakage. There is available a 3/32" ID rubber-insert seat, #010881, but a rubber seat will wet-swell and dry-shrink under alcohol fuels. Such action will result in loss of correct regulating function of valve and diaphragm. Instead, a 3/32" ID brass inlet seat (set #013493, from one of the RK alcohol kits) should be used. The brass seat (for gasoline) from the 115A carb can be carefully reamed out with a #42 drill, and "seated" by tapping in a stainless-steel needle and used here. The needle and seat seal is checked by placing mouth suction and pressure on the inlet side channel hole and working the control lever. A leaky inlet needle will mess up carburetion, especially on throttle back-off in corners.

The alcohol flow-rate can be further increased by deeply countersinking the bottom side of the seat hole to within 1/32" of the needle seat; filing off about 1/2 the needle's conical tip; and by very carefully filing in round grooves in the needle sides (four) using a round Swiss pattern file. Care must be taken not to nick the conical tip surface of the needle, or to cut into it sufficiently deep to cause a seat leak. All nylon burrs must be polished off with a dry cloth.

In mixing up needles and seats from various HL carb models, it may be found that an abnormal tilted position of the control lever results, especially with the new delrin needle. In such a case, needles and seats are swapped about till a normal horizontal lever position results. A shorter seat and shorter triangular needle would probably work out better with improved alcohol fuel flow (as used in the big Crescent Motors HL194A, and in the British Amal carburetors).

The Reed ball-check inlet valve (P/N R-422) can be used to improve alcohol flow-rate in the Tillotsons. However, care must be taken to check several points when using these inlet units. The lever arm adjustment must be checked to make certain that the check ball doesn't hang up between the wide open lever arm end and the ball seat edge. This can be checked by turning the carb on its inlet-channel side and cocking the lever arm open. A very short hook can be bent into the control arm to prevent the check ball from hanging, if necessary.

(To be concluded in May issue of Karting World.)

MEMBERSHIP REMINDER

New VKA Memberships are now issued for a 12 month period. Current members should receive a reminder along with your VKA *FIRSTURN*® Magazine two months before your membership expires.

Annual dues are: Full Membership = \$35; Associate Membership = \$10. Foreign Membership = \$45
ONLY MEMBERS RECEIVE ALL THE VKA FIRSTURN® MAGAZINES AND NEWSLETTERS.

Checks should be made payable to: "Vintage Karting Association" and mailed to: Mary Jo McCornack, 7N057 Weybridge Drive, Campton Hills, IL 60175.

JOIN THE FUN!

HELP US OUT!

The Staff of *FIRSTURN*® would like to make a special request for Members' input, to share the wealth of their expertise with all readers. We would love to include your Technical Article, Restoration Project write-up, or a *Member's Memory* ... a short story about a Member's karting life or karting experience, and don't forget Team Photos. You can write it yourself, or we can help you. Find me at the track or email me at:

KartNumber4@yahoo.com

Rolf - #4

The Tillotson article is reprinted from the May 1966 KARTING WORLD. Part 2 of the article will continue in *July FIRSTURN*®. Thanks to Louie Figone for providing the document.

Rolf - #4

TEAM PHOTO – CLINTON ENGINE TEAM

Shown left to right: John McCorvey, Scott Kneisel, Terry Sullivan, Chris Marchand

John, Terry and Chris converted Scott with a challenge to build his very own “Clinkton.” The first Clinton Scott worked on was with his dad “last century.” It was an A490 that came on a 1960 Percival Hellcat. Now, with is very own “Clinkton,” he’s come full circle and is a bona fide member of the **Clinton Engine Team**.



NEXT MONTH: *Nagel Racing Team ... the whole gang!*

SOCCER & VINTAGE GO KARTS BY ROLF HILL

What do soccer and vintage go karts have in common, you ask? For more than 18 years I played and refereed soccer just for fun and to be a better parent for my kids. They were 7 or 8-ish and just getting into it when I started. Seeing a couple of new, young faces at the track recently (getting in their first couple of laps) has inspired me to help them in the same way.

Our karts are not “two seaters,” so how do you tell or show a brand new driver how to “drive the line?” Some kids learn by doing, some might be more academic and learn by explaining. But both need to understand the “why.” Follow-the-leader is one way; a pencil and scratch pad is another.



In soccer, one of the drills is to set out cones a few feet apart and have the kids run (with or without the ball at their feet) weaving between the cones. Ask the novice driver which would be faster, weaving in and out or just going in a straight line? The answer (I hope) is obvious to even a novice kart driver. (If not, maybe they should try chess.)

They need to understand the idea of going from the outside, to the apex, back to the outside is the closest thing to running in a straight line, and not taking a corner like that is like weaving in and out of the cones ... it takes longer ‘cause you just can’t go as fast.

Of course there is so much more to driving through the turn, but hear ends the lesson for the day.

Rolf

RESOURCES FOR VINTAGE KARTERS

This feature of the VKA *FIRSTTURN*® will return next month (I hope). In the meantime, please check previous VKA *FIRSTTURN*’s® for Resources.

VKA resources advertising is reserved for members only and limited to three lines.



See VKA website for more
Info. : www.VKAkarting.com

Springfield, IL

May 23 & 24
Springfield, IL

www.MidStateKartClub.com

VKA

New Castle, IN

June 12 – 14
New Castle, IN

www.NewCastleRaceway.com



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