Buckeye Triumphs Newsletter

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Please let me know of updates by calling. Bruce or Ryan Miles 740-587-4179 or bmiles@intinfo.com

Annual Holiday Party! Saturday, January 19th – 5:30 PM Granville Inn – Granville Ohio

HAPPY NEW YEAR!

The Granville Inn - Just east of Downtown Granville, 314 Broadway

Time: Begin arriving anytime after 5:30 for sharing of Holiday Cheer – Dinner will be served at 6:30PM

We will be doing a gift exchange this year in lieu of door prizes. Please bring a $5 to $10 dollar for the exchange if you wish to participate. Please mark the gift as a men's or women's gift.

Please RSVP by January 16th to Bruce Miles @ bmiles@intinfo.com (if you email – you will receive a confirming message) or call (740) 587-4179

Look for the Holiday gift flier in this edition for a map and further details. This is also a great time to renew you annual dues!

ANNUAL DUES - MEMBERSHIP RENEWALS 2002

FIRST, Thank You for supporting Buckeye TRIUMPHS in 2001; a Tremendous third year for all of us.

Our sustained growth and expanded activities will again depend upon your continued support, active involvement and personal creativity.

Current member's Calendar Year 2002 Membership Renewal Dues are payable by January 31, 2002. Please submit your check for $20.00, payable to Buckeye TRIUMPHS and mail to Buckeye Triumphs c/o Jim VanOrder, 9023 Concord Rd., Johnstown, Ohio 43031.

Please include any updates, address changes, car info etc., for our database. PLEASE NOTE: IF you joined the club after July 1, 2001 then your Renewal Dues are only $10.00 for your first renewal.

BT by-laws established Calendar Year dues at $20.00 per family membership, with full payment at initial membership. The intent was to avoid monthly renewal tracking and bookkeeping efforts. Members who joined after July 1 would be asked to pay only $10 at their first renewal.

Editor's Corner

Happy New Year to everyone!

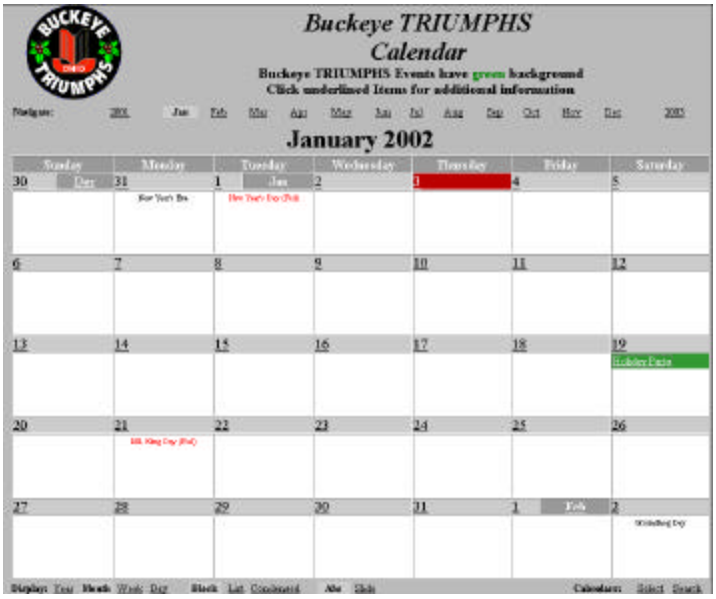
I hope you all had a smooth ride through the holiday season. I was kind of disappointed that I missed my annual participation in "Merry Tuba Christmas" but you can't do everything. Perhaps I'll bring my tuba to the holiday party and serenade all of you. (Don't worry, this will NOT happen!)

I got a new grinder and some other tools for Christmas. Ryan got some welding gloves, a dial indicator with magnetic base, an 85,000 BTU propane heater, a timing light of his very own and a pressure testing gauge. Not as exciting as last years Panasports but still a nice Christmas for all of us.

My barn is now electrified and heated. Ryan is helping club member Bill Seegers with an engine transplant in his 6 – he wants to have this done by next weekend.

It is now official – Ryan will be attending Ohio Northern University in the fall. If any of you are "polar bears" please let him know any pearls of wisdom that you might have. (Next year at this time our house is going to be so quiet ☹)

I am really looking forward to the upcoming year of Triumph activities. Speaking of which – go to the club web site (www.buckeyetriumphs.org) and click on the Calendar button on the left of the page.



Nelson has incorporated a Calendar tool into the website that works very nicely!

While we are on the subject of the Website, there is a section for club members to "show off" their cars and the story behind them. I have updates my site last week and I would like all of you to consider doing the same. If you jot down a few words about your passion for these cars we could have a real nice addition to the Website. If you don't have a good picture, let me know as we all crawl out of our caves this spring and I'll get a digital snapshot to go along with your text.

Nelson is knee deep into a J type overdrive that he picked up last month and I expect to see some details on it in future newsletters. He is leaving for a teaching assignment in Africa this Friday. He will be returning on the 19th and says he will be in time for the Holiday Party (he mumbled something about arriving in a safari outfit…)

I know that I said I was going to be working on my '72 a couple of months ago – but I don't believe that it is a good idea to have 2 cars torn down at the same time. (Ryan of course does not agree with this statement) I have all the parts (almost) but I just need to wait my turn in line for the shop space.

TRials keeps getting closer and we need volunteers from across the board to help with activities. Please email myself or any of the club officers if you have some ideas.

Please don't forget to get your Holiday Party RSVP in to me as soon as you can. We have had a great turnout in past years and hope to top them all this year.

The Holiday Party is also a good time to bring your dues up to date. We plan on having a drawing at the party for those who have "paid up" by the 19th!

Hope to see you at the Holiday Party on the 19th!

Bruce Miles *bmiles@INTInfo.com*

Next Newsletter Article Deadline – January 25th, 2001

November Event / Meeting Minutes

The December business/social meeting of the Buckeye TRIUMPHS Club was called to order at promptly at 7:30 by our Vice-President Ryan Miles.

This is his last official act as our outgoing V-P. He will be starting college in the fall, 2002. We were happy to welcome new members Mike and Mary Henry who joined us for their first meeting. Becky and John Hartley were there, to the surprise of the entire group. They seem to be doing very well and since they are at present living in different houses (because Becky's injury makes it impossible to get into her house) they are enjoying "dating" each other again. Yours truly, Margo Washburn, was also happy to be able to join the group again after that fateful "trip" in early October. It is still a good idea for "ground hogs" to keep out of her sight for a while yet!!

Our first order of business was to discuss plans for the Holiday Party to be held at the beautiful Granville Inn in Granville, Ohio on January 19th. There will be a buffet dinner and a voluntary gift exchange. Anyone who wants to participate in the exchange is to bring a gift worth about $10. Please mark the gift/s for a male or female and "gag" gifts are OK.

We next had election of officers for the club for 2002. The new officers are:

President	Bob Mains
Vice Pres.	Murry Mercier
Secretary	Margo Washburn
Treasurer	Jim VanOrder
Events	John Huddy and Roy Gay
Tech-Session Coordinator	Nelson Riedel

Thanks to our outgoing officers as well as our new officers for their dedication to the club!!

The next order of business was the 2002 6-Pack TRials, which we are hosting this year. A discussion was held concerning liability insurance for the officers of the club for all events. Insurance is already in place for the 6-pack TRials and we are looking into BT insurance coverage with the policy already in effect for that event. There are also other options available and we are checking into them.

Final plans are coming together for the 2002 TRials. You do not have to be a member of 6-Pack to enter the general registration, but if you wish to enter a car in the Concours judging, you will need to be a 6-Pack member. There will be a registration form on the Buckeye TRIUMPHS website soon and one will also be included in the 6-Pack newsletter beginning with the Spring 2002 issue. There will be a schedule of events and other details on our club website, as well. If you are willing to help for any of the events, please contact the following people:

Publicity	Bruce Clough Doug Braden
Registration	Becky Hartley
Events	John Huddy
Regalia	Bob Mains
Site Coordinator	Bruce Miles
Chairman	Murry Mercier
Vice-Chair	Jim VanOrder

If you are a member of our club, please consider volunteering to help with anything that you can.

The meeting was adjourned after this discussion. Respectfully submitted, Margo Washburn, Secretary

President's Corner

January, 2002

I hope each of you enjoyed a rewarding Holiday Season and have saved some of your party energy for our Grand Buckeye Triumph Holiday Finale at the Grandville Inn on Saturday, January 19th. Your presence is requested and

required if we are going to put the Grand in Grandville. (*Editors Note: I didn't have the heart to tell Bob that there is no "d" in Granville…..)* So please plan on participating; come early and stay late. See the details in this newsletter or on our web site. Call another member and share the ride.

The December business/social meeting was called to order by Ryan Miles and he was successful in achieving the goals for the year-end gathering of BT members. Ryan and the gang 'elected' the following slate of officers for 2002 – Secretary-Margo Washburn, Jim Van Order-Treasurer, Murry Mercier-Vice-President, and President –Me ? Again? See what happens when you don't show up at a meeting, even if you have a good excuse!

FYI. I'm on the mend from the 'frame restoration' surgery in late November; I'll be getting back on the road again, towards Granville for our Holiday Party.

As we celebrate the end of another year as TBDTCITL, we are already actively planning for a banner year of activities that will focus on showing everyone our passion for TRIUMPHS and the enjoyment we experience in our LBC's. John Huddy and Roy Gay have joined together to establish our 2002 calendar of club events and they will need everyone's help. Please think about hosting/planning or volunteering to share in the efforts needed this year. We need you to ensure we have a good balance of club events and participation in national events like 6-Pack TRials, TRA Nationals and the others like the Immke Show, BCD at Easton, Summer Party and the many events sponsored by regional car clubs.

We need your membership and your dues to succeed. Please renew by sending your check to Jim VanOrder and plan to participate in at least one half of our events. The more the merrier and let's start by attending the January Holiday Party; our 2002 Kickoff.

Thanks for your continued support and participation. See ya soon.

Bob Mains bob.mains@ode.state.oh.us

Officers and the Fine Print

The Buckeye Triumphs Newsletter is a publication of Buckeye Triumphs, and the content herein is not officially endorsed by the staff or members of Buckeye Triumphs, their families, or lawyers. If you decide to follow the advice of anything inside this newsletter, you do at your own risk. We are all adults here, so if you do something stupid, own up to it and don't sue the club. Heck, we don't have any money anyway…
Club address: Buckeye Triumphs, P.O. Box 584, Lithopolis, OH 43136-0584

Annual Dues: $20.00 General email: buckeyetriumphs@ameritech.net
Web Site: http://www.BuckeyeTriumphs.org

Our current crop of Buckeye Triumphs Officers include:

President: Robert Mains (614) 890-7767 bob.mains@ode.state.oh.us	Vice President: Murry Mercier 614-888-0838 TRsixer@yahoo.com
Treasurer: Jim VanOrder (740) 967-2110 vanordergj@core.com	Events: John Huddy (614) 846-2321 jhuddy@columbus.rr.com
Newsletter Editor: Bruce Miles (740) 587-4179 bmiles@intinfo.com	Secretary: Margo Washburn 614-882-5219 jimbo165@earthlink.net

Technical Consultants:
TR2's & 3's: John Hartley 740-753-1066 email: jhartley@frognet.net or John Huddy 614-846-2321 email: jhuddy@columbus.rr.com
TR-4's: John Thomas 614-855-4175 or Bruce Clough 937-376-9946 clough@erinet.com
TR250, TR-6: Robert Mains 614-890-7767 bob.mains@ode.state.oh.us or Jim VanOrder 740-967-2110 vanordergj@core.com
Spitfires and GT6: Doug Braden 614-878-6373 braden.13@osu.edu ,
TR-7 & 8's: Ron Fowler 614-833-6885 tr8@msn.com

Affiliations: 6-Pack Chapter -- Center of Triumph Register of America – VTR Zone Member

A Chronicle of Triumph: how I became addicted

Editor's note: Nothing new from Ryan this month – He's working on an English report on Shakespeare

Ryan rjhmile@yahoo.com

Notes from Nelson:

Editor's note: As I said earlier, Nelson has been very active in improving the Web site. In this installation he details these updates plus his current oxygen sensor work.

BT Website: The site has been really active over the last month with about 1,000 visits by different individuals to the home page and 6,000 pages viewed. You might want to click the statistics button and see who is looking at what.

This month we created the **Calendar** page to replace the **Events** Page. This has been copied from the **Long Island Triumph Association** website mentioned last month. The calendar is provided as a free service by http://www.calendars.net/ and hosted on their server. Our code is setup so that it looks as if the calendar is on our server. Several of our leaders have the authorization to make changes and additions so we should have current info.

The calendar is reached by clicking on the **Calendar** button on the left side of the opening website page. The calendar will then be displayed in the frame (the big box on the right). Please be patient as the calendar is sometimes slow to download. The calendar organization is month-at-a-glance and is navigated by clicking the desired year and month at the top of the calendar.

The example below is from January 2002. The background color for "Holiday Party" is green, which means it is a BT event. Non-BT events use the white background.

Holiday Party is underlined indicating that it also a link. If one clicks on it additional data is provided via a popup window as shown next. The link may in other cases be to another web page with a map or maybe an entirely different website as appropriate.

Girls Summer Party Photos: The website statistical data we get from sunspothosting.com are really neat. For example, when checking over the statistics the other day I noted that we had a hit from someone in Estonia. I thought --- wonder how they got to us? With a mere click I found that they had used the Google search engine with the entry:

And one of the listings provided by Google was:

Photos of Club Activities. ... W.Va. with Miami Valley Triumphs --- "Come on **girls,** these things are easy to fix.". ... overly) hot LBC on return from **Summer Party. ...**
www.buckeyetriumphs.org/photos/Photos.htm - 20k - Puhverdatud - Sarnased lehed

Obviously, the person was searching for something different. I checked out some of the listings by Google for this search and found some really neat photos. After considerable study, I concluded that we probably shouldn't use those type of photos on our website.

More website reorganization: Investigation of more statistics like the example above revealed than many folks enter the website through links that go to a specific page --- photos (as above), classified, a newsletter, technical article, etc. When entered in that manner, the navigation bar with the buttons on the left is not displayed. Further, there were no links back to the home page. So, I added a link to the home page on the bottom of each page.

As the website grew over the past several years I didn't pay much attention to uniformity. I went back and adjusted all the internal links so that everything opens within the frame (navigation bar on the left) with two exceptions. If the link is to another website, then the page opens in a new window. The other exception is the technical articles that also open in a new window. This was done to give the full screen to the rather large articles. I also added a small BT Logo to most pages.

If you see anything that looks strange or doesn't work, just click the Webmaster button and send me a note about it so I can fix it.

Triumphant Website: I have another neat website this month: http://coreysherman.tripod.com/TRWEB/TR6.htm Corey Sherman put this site together as a tribute to the TR6. He has several neat brochures that can be downloaded and the neatest color chart I've seen.

He said - she said: I subscribe to both the Triumph and 6PACK email lists. Nearly all the subscribers are men (or the women choose to use men's names). One exception is a very intelligent and knowledgeable woman on the west coast. (Kimberly claims that "intelligent woman" is redundant --- I told her we wouldn't discuss the redundant words that go with blonde.) It has been my experience from both R&D and technical education that woman are more likely than men to think before acting. Please don't quote me on that, don't want to tarnish the MCP image. Anyway, the following (with names omitted) is an example how this woman thinks before acting. The text is taken from an email to the Triumph list that was part of a long thread relating to the TR3 coolant bypass pipe.

She said: *When the thermostat is closed, the water pump pumps coolant inside the engine block via the bypass.*

He said: *Gee, no kidding!! I was not aware of that!!*

She said: *From what you wrote, I did not think you were.*

He said*: What possible reason could the automotive engineers have for wanting to circulate coolant within an engine as it comes up to operating temperature?*

Well its obvious that you know more than they ever did.

She then said: *No, I assumed they had a reason for those funny things they designed and built into the vehicles and bothered to try to find out why they did what they did.*

I never modify a factory built-in automotive subsystem until after I understand what it does and the range of consequences that might arise from ignoring or modifying it.

And it continued …….

She said: *Ever hear of the concept of localized boiling inside a cylinder head?*

He said*: I did, one time. But I ate an apple and got over it. Turned out [it was] gas from Mexican food.*

She then said: *Thank you for proving my point.*

Near as I can tell, you and I have a fundamental difference, which will never allow us to see eye to eye.

I'm never comfortable working on things I do not understand. You on the other hand seem uncomfortable understanding the things you work on.

There IS a deeper meaning than causal relationships.

A Bargain: I found a real bargain on the Internet --- a late TR6 gearbox with J type OD. The gearbox had a couple missing parts but Ryan just happened to have a spare late gearbox ---- so Marianne and I drove to Panama Beach (FL) to pick it up. Marianne has this traveling stuff down pat; she's asleep within ten minutes. The time really flies for her. However, on the return trip, I noticed the road looked very familiar right after lunch. Wouldn't you know she was wide-awake when I exited to turn around?

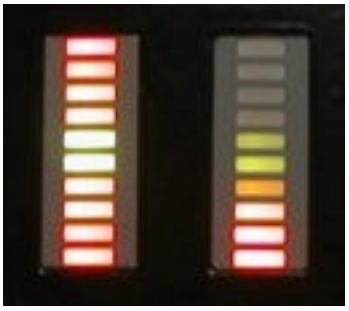
The guy I bought the OD from is something of a role model. We met by prior arrangement at a parking lot near his home. He drove up in a '67 RHD Rolls Royce with one of the (Lucas) headlights out. He then led us a couple blocks to his back yard that was ringed by a high board fence. Inside the fence he had a whole fleet of treasures -- a TR4, Spitfires, TR6s, etc --- at least 10. Boy was I envious.

After we left, Marianne made it pretty clear that she had an entirely different view of his back yard.

New Tool: Over the last year or so Dick Taylor (in LA) has mentioned several times that he uses an oxygen (O2) sensor to monitor his carb performance. (He also has a little turbo to help the carb along). I finally inquired and found he uses the K&N Air / Fuel Ratio Monitor that costs less than $170. That is much less than I expected and well within my affordability (although Marianne would say $170 is more than my TR6 is worth). These monitors are available from: http://www.alamomotorsports.com/knn_afr.html.

Dick also provided me with links to sites that described how to build a monitor using readily available O2 sensors and common electronic components. So --- off I went and built a monitor. The construction is described in an article on the website (click "Technical" – then look under carbs). I installed the monitor on my '76TR6 in early December and, with the unseasonably warm weather, was able to do a lot of road tests.

The oxygen sensors (obtained from Auto Zone for $18 each) were mounted in the exhaust down pipe as shown in next photo.



The monitor display shown on the left is about two inches square and mounted to the right of the ignition switch. There are two columns of ten Light Emitting Diodes (LEDs) each. The left column is for the rear carb and the right column for the front carb. The leanest mixture is with all LEDs off. As the mixture becomes richer, LEDs begin to turn on from the bottom.

The meaning of each LED in the display is listed in the table below. The correct reading is that which corresponds to the highest LED that is on. For example, if the bottom two red and the lowest yellow are the only LEDs on, then the mixture is about 15:1. If all except the top two red LEDs are on, the mixture is about 13.2:1. I don't have specifications as to the likely variations from sensor to sensor. However, I suspect that the variation is probably on the order of plus or minus one LED level. The point is, one shouldn't try to read the data too precisely --- the monitor is not a precision test instrument. It will however provide useful carb tuning information.

LED	Air/Fuel Ratio	Output Torque	Observations
RED	<12	<98%	Too rich, power loss
RED	~12.5	100%	Maximum power
YELLOW	~13.2	99%	Good operation
YELLOW	13.8	98%	Good operation
GREEN	14.3	98%	Good operation
GREEN	14.4	97%	Good operation
YELLOW	14.7	97%	Good operation
YELLOW	~15	96%	Good operation
RED	~15.3	95%	Maximum economy
RED	15.4-18	74-94%	Pretty lean
All out	>18	?	Too lean, misfires

First results: The first test runs were made with the needles set one turn below the full up position. Previous tests suggested that is was a good setting but on the lean side. The following monitor output was observed on a half dozen test runs of about 5 miles with speeds up to 60 mph:

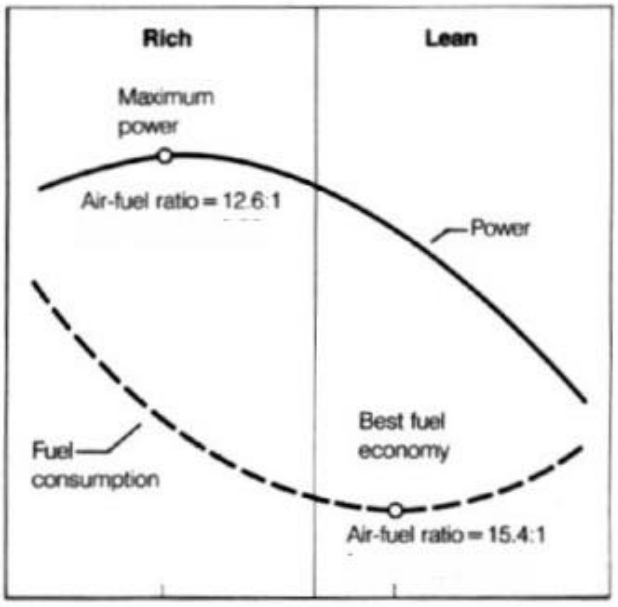
- When the car was first started, all the LEDs were on. After a couple minutes warm up, the O2 sensors started to respond and some of the top LEDs went off (at idle).
- When accelerating under load at low RPM sometimes the mixture got so lean that all the LEDs went out and then after a couple of seconds the

mixture started to become richer to the point where most the LEDs were back on.

- Both the displays moved together most the time.
- Sometimes the mixture when very lean with all the LEDs out when decelerating --- like when going down a steep hill. There was some mild exhaust popping in this situation.
- The needle for one carb was then adjusted one turn leaner. The monitor showed a significantly leaner mixture for that carb on the subsequent test run.

This was not what I expected. I assumed the mixture would be pretty steady and I'd be able to adjust the needles to the desire point and we'd be finished. Wrong!

The good news was that the display indicated a difference between the carbs when they were adjusted differently.



Air/Fuel Mixture

Upon further reflection, the carb performance observed before the monitor was installed exactly matched the monitor data. At idle for example, the mixture was set so that the idle speed didn't change or increased slightly when the air valve was raised a quarter inch or so. Raising the air valve makes the mixture leaner. For the idle speed to increase when the air valve was raised, the mixture must be set richer then the maximum power point on the graph above. We had clearly set the needle for an idle mixture near that maximum power point --- around a 12.6 A/F mixture matching all but the top most light on the monitor being on.

With the same needle setting a very rich mixture at idle and a very lean mixture when accelerating under load was achievable. I should have expected that the mixture and lights would jump all over the place

Modify the dampers: The carb performance was pretty good with the needles set from one-half to one turn below the maximum up position. There was very little of the exhaust popping when decelerating and only an occasional misfire under severe load. However I was concerned about how easy it was to make the mixture very lean under load. If the gas pedal were tapped while driving at 55 mph, most the lights would go out. It was possible to make it go so lean under heavy load that all the lights would go out.

Then I though --- the air valve damper is supposed to keep this from happening. The theory is that if the air valve is restricted from lifting as the throttle is opened, the velocity of the air moving past the jet will increase and more fuel will be sucked out of the jet. As the air valve moves up, the velocity of the air moving past the jet decreases, but the opening in the jet is increased because the needle is tapered. So, we have two effects that cause more fuel to be mixed with the air --- air velocity and jet opening. Apparently, the velocity effect is greater than the jet opening effect so if the lifting of the air valve is delayed, the mixture will be richer that it would be if the air valve were allowed to move freely.

I played with the air valve a little and found that there was more than 1/16-inch movement before the damper started to restrict the air valve movement. This corresponds to about two turns of needle adjustment. It was decided to modify the damper in an attempt to reduce the undamped movement.

The photo above shows the damper with an extra piston beside it. If you look really close you'll see that the piston on the damper is longer than the original shown beside the damper. The original design allows 0.075 inch movement of the piston hence 0.075 undamped movement of the air valve. The original piston is 0.367" diameter, 0.375" long with a 0.200" hole. The replacement is .0370" diameter (0.003" larger), 0.425" long (0.050" longer) with 0.228"(0.028" bigger) hole. This longer piston reduces the undamped motion from ~0.075" to ~0.025" and the larger piston diameter increases the damping force. The inside diameter of the air valve guide rod is 0.375 inches so the 0.0370 inch piston diameter gives 0.005 inch clearance.

The performance with the modified damper was as hoped; the mixture was much less prone to going overly lean when the accelerator was stomped while the engine was heavily loaded at lower (1500 - 2500) rpm. I ran quite a few tests on these things to make sure that the modifications really helped and were not my imagination. The test that was most convincing was to put a modified damper in one carb

and the standard damper in the other. The monitor showed a clear difference in mixture under acceleration.

During the first tests of the modified damper ATF was used in the damper. ATF is thinner than engine oil and I hoped it would minimize any delay in the piston dropping during deceleration. SAE 30 oil was tried next. The pistons seemed to go up a little slower (good) but seemed to drop just as fast (also good).

I believe that the American carbs solve this problem of a lean mixture when accelerating by using the accelerator pump. When the accelerator is advanced rapidly, the accelerator pump pumps (dumps) additional fuel into the carb throat.

Engine Specifics: Before going further, it's appropriate to list the engine and carb specifics. The car is a '76 TR6. The carbs are original and are the same as those used in the website notes on overhauling, tuning and powder coating carbs. The carbs have had very little use; my guess is less than 50K miles. There is not noticeable throttle shaft or shaft bush wear nor any noticeable metering needle or jet wear. The engine has been overhauled within the last 20K miles. The head is from a '73. The compression measures 150 psi to 160 psi on all cylinders. There is no EGR valve and the air pump and associated hardware have been removed. The camshaft is standard. The exhaust is the Falcon stainless dual sport system. The ignition is the standard point system with 6 volt coil. The timing is set to ~TDC at idle. The vacuum retard is connected and operational. The carb bypass valves are functioning properly and adjusted to open as easily as possible with increased vacuum.

Taking A step Back: In the process of fooling around with the modified dampers it became obvious that the hilly winding roads near my home are an excellent place to test the carb operation but a poor place to try to take measurements in a way that different adjustments can be compared accurately. The modifications to the dampers caused the air valve to take a longer time to reach the equilibrium position after changing the throttle position. These roads are such that a throttle position can't be maintained for more than a minute or so.

Another thought is that we'd like the carbs to run as lean as possible when we're cruising along at a steady speed where only 10 or 20 HP are required to propel the vehicle. On the other hand, we want a rich mixture when we stomp on the accelerator where we use all HP that is available and want many more HP.

This led me to a different approach ----- split the measurements into two parts: steady state and transient.

Steady State measurements: To measure the steady state performance I removed the dampers and drove on a flat highway and held the accelerator in a position to maintain the RPM indicated. All measurements were in 4th gear direct drive except for 4500 and 5000 RPM where I dropped down to 3rd gear. (There seemed to be a bear convention along the highway when I was making the tests and didn't want to explain that I wasn't speeding, just testing some carb adjustments.) The mixture measurement recorded is the highest LED lighted. The two displays were nearly identical so no differentiation is made. The reading of 0-1 for example means that no LED is on part of the time and 1 LED is flashing on and off. A reading of 1 to 2 LEDs is near maximum economy and about 90% power. A reading of 6 or 7 LEDs or more is very near or at maximum power.

Steady State A/F Reading
(number of LEDs on)

	Needle Adjustment (-1 = one turn below maximum up position)			
RPM	**0**	**-1/2**	**-1**	**-1 1/2**
1500	8	8	6-7	0
2000	7-8	7-8	6-7	0
2500	7-8	7-8	6-5	0-1
3000	6-7	2-5	1-5	0-1
3500	2-5	1-5	1-2	1
4000	2-5	1	1	1
4500	1	1	1	1
5000	1	1	1	1

The data indicates that the needle adjustment has a large effect on the mixture at lower RPMs and virtually no effect on the mixture at higher RPMs. (This is readily understood if one looks an the effect of small needle height adjustments on the opening between the needle and jet at various needle positions.) The performance at high RPM is controlled by the needle profile. In our case, we get near maximum economy at high RPM, which is good both for the pocketbook and pollution. If I were trying to improve the performance so I'd have a hope of out dragging an old lady in a minivan, I would change the needle profile. One can try thinning the needle a bit in just the right places or substitute a thinner needle. I understand some folks have used TR4 SU needles to improve high RPM power. Dick Taylor has made a number of suggestions on how to go about the task of thinning a needle. Maybe I'll do this when I rebuild the engine for my '70TR6. Ryan keeps telling me those modified cams are cheaper than the standard (old folks) cams so I think I should economize on the cam and then make a custom set of needles to maximize performance. So many toys and so little time……

Transient Performance: The carbs were adjusted to 1 turn below the maximum up position for these tests. SAE 30 oil was used in the dampers. The damper versions tested were:

- No dampers
- Original dampers

- Modified dampers (longer and bigger diameter pistons --- see above)

The first test consisted of driving on the level highway at 3000 RPM in 4th gear direct drive (~55 MPH). After the carb was at equilibrium, the accelerator was stomped to the floor and the mixture observed as the RPM increased to 3500 RPM.

For the no damper case, the mixture went from bouncing around with 1 to 5 LEDs on to no LEDs on for about 1 second then up to 6-7 LEDs on until I let up the accelerator when 3500 RPM was achieved. Note that after the initial lean period of 1 second, the mixture went richer than steady state.

For the original damper case, the mixture went from bouncing around with 1 to 5 LEDs on to one LED on for a very short period, maybe 0.1 second then up to 6-7 LEDs on until I let up the accelerator when 3500 RPM was achieved. Again, after the initial lean period of 0.1 second, the mixture went richer than steady state.

For the modified damper case, the mixture went from bouncing around with 1 to 5 LEDs on to 8-9 LEDs on with no dip. The 8-9 LEDs stayed on until I let up the accelerator when 3500 RPM was achieved. This time the mixture went richer than steady state with no dip.

Additional tests with the modified damper were conducted with a greater loads (4th + overdrive) or going up hills. In those cases there was some early drop in mixture before recovery --- the same pattern as with the unmodified damper, but at a heavier load.

The second test was an attempt to determine how long it took the carb to reach steady state after a change in accelerator position. For this test I drove the car at 3500 RPM (4th gear direct drive) on flat highway. I took my foot off the accelerator and let the RPM drop to 3000 RPM. This took long enough so that the air valve dropped to the lowest position. I then pressed the accelerator to the point that a steady 3000 RPM was maintained. The mixture went rich and then leaned out to 1 to 5 LEDs on as the air valve reached the steady state position for 3000 RPM. The interval between the time the pedal was pressed the time the mixture went to the 1-5 LEDs on steady state condition was measured.

For the no damper case, response was nearly instantaneous --- less than1/2 second.

For the original dampers, the recovery took about 3 seconds.

For the modified dampers, the recovery interval was about 15 seconds.

So, what does this all mean? I think a better performance can be achieved by modifying the dampers to reduce the air valve undamped motion (lengthen the damper piston) and increasing the damping force (larger damper piston diameter). The down side of this is that fuel consumption will probably increase significantly for one who drives by moving the accelerator up and down a lot.

Summary of results: I think the A/F monitor reflects the carb operation very well. A competent mechanic probably easily recognizes the information provided by the monitor from the engine performance. Being an incompetent shade tree mechanic, I found the monitor data very reassuring. Also, the lights are really cool. The results were:

- The carbs can supply sufficient fuel over a wide range of operating conditions.
- The mixture varies rapidly as the operating conditions change.
- When the carbs are set for best operation the mixture is towards the rich side at low RPM.
- The mixture at high RPM is controlled by the needle profile and nearly independent of the needle adjustment.
- The modified dampers improve performance under load and allow a leaner needle adjustment thus improving economy and likely improving pollution performance.
- The carbs perform well over a wide range of adjustment.
- The optimum needle setting seems to be 1/2 to 1 turn below the maximum up position.
- These carbs show little or no needle-jet wear. The optimum setting for carbs with worn needles and jets will probably be with the needle somewhat lower.
- The dampers perform well using SAE30 oil. I suspect that multigrade engine oils will also work as well or better.

Confession: After all the fooling around with this new tool (I choose to ignore the wife's view that it's a new toy), the final carb needle setting of -1/2 to -1 turn is the same as determined by other tests before I built the monitor - see Part III of the carb notes on the website. But, the money and effort wasn't wasted, I now have confidence in the settings.

Nelson Riedel -- nriedel@nextek.net

Late TR Guy

January 2002: By Bruce Clough (clough@erinet.com)

Editor's Note: Nothing from Bruce C this month. We want pictures of the new "lift" next month…☺

Buckeye TRIUMPHS REGALIA

Golf Shirts –Outer Banks - 100% Cotton$35.00
Style 17434-Solid body color with Collar of contrasting color
Wine, with Navy Blue
Spruce, with Navy Blue
White, with Black
Navy Blue, with Green
Oatmeal, with Green

Style 17489-Solid body color with a striped Collar
Spruce, with Blue Stripe
White, with Black Stripe
Black, with Red Stripe
Red, with Blue stripe

T-Shirts- Lt Grey Cotton $14.00
BTC Logo - front
Large Wreath Logo – back

Patch Embroidered Logo $12.00
Buckeye TRIUMPHS Logo $10.00
– Embroidered on your article

Select your favorite jacket, shirt or bag since the logo can be added to almost any cloth article at a cost of about $10.00.

Send or bring your articles to Bob Mains. Turn-around is usually about 2-4 weeks. (Names or lettering can be added for additional costs).

Classifieds:

These classifieds are free to BTC members, given, of course, that they relate to Triumphs, and are for private (not business) use. No, you cannot sell that old couch here! We'll run classified ads for two months, beyond that you'll have to ask for an extension.

FOR SALE:

1979 Triumph Spitfire 1500, #FM101136U – Red w/black interior/top; 4-speed; 83,500 miles; near original and good mechanical condition all around; a daily driver; rust on rear portion of wishbone frame. Asking price $4,000. Contact John at 614-255-2261 or jschilling@dgcolumbus.com

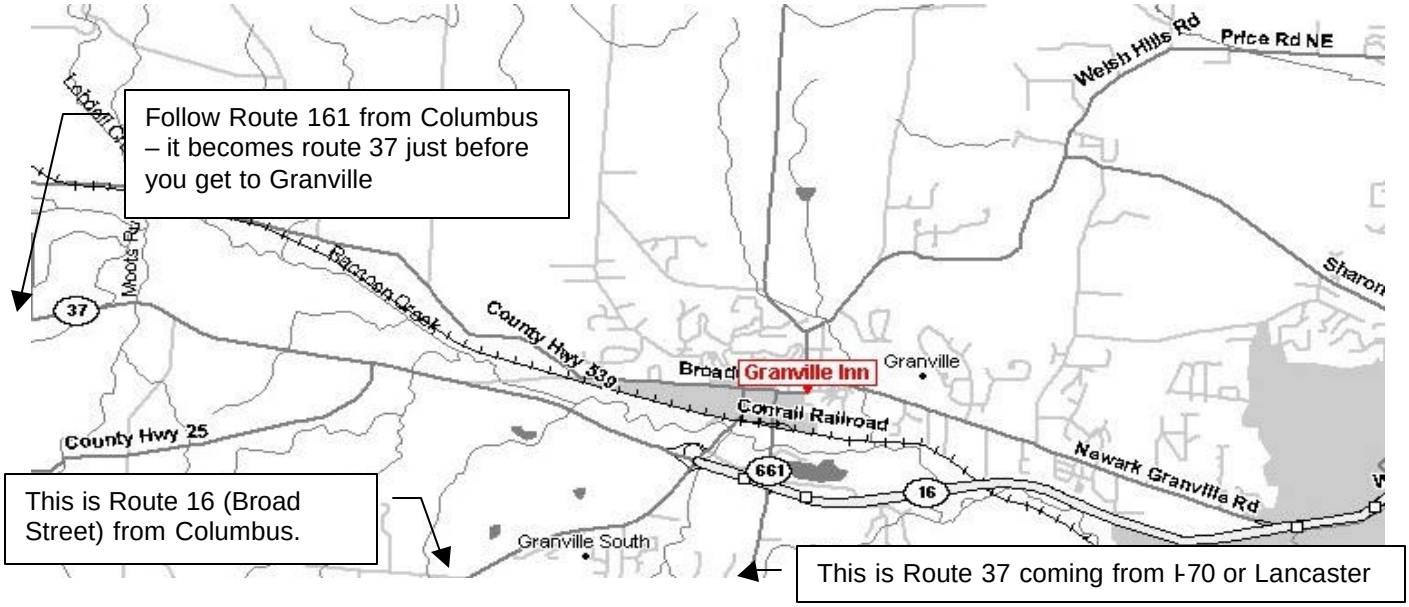
PARTS...PARTS...PARTS - Triumph and LBC parts available... New, Used & NOS... The Roadster Factory, Moss & Victoria British items at discount prices.

Many common parts in stock.
Doug's Parts 614-878-6373 Braden.13@OSU.edu
http://www.triumphparts.com

❄❄❄❄ BUCKEYE TRIUMPHS HOLIDAY PARTY ❄❄❄❄

SATURDAY, JANUARY 19, 2002

5:30 TO 9:30 PM (or longer!) - RSVP



Location: The Granville Inn - Just east of Downtown Granville, 314 Broadway

Time: Begin arriving anytime after 5:30 for sharing of Holiday Cheer – Dinner will be served at 6:30PM

FAVORITE CHRISTMAS BUFFET - Roast Turkey with cornbread dressing ~ Sliced Roast Beef ~ Candied Yams ~ Fresh Whipped Potatoes with Giblet Gravy ~ Our Chef's Choice of Vegetable ~ Festive Salad Bar featuring 6 Seasonal Salads and a Relish Tray ~ Home Made Raisin Bread with Honey Butter ~ Coffee or Tea ~ Chocolate Holiday Torte with Mint Ice Cream or Candy Cane - WE ALWAYS TAKE GREAT PRIDE IN OUR BUFFETS!

$29.50 **INCLUDES** Tax and Gratuity - Cash Bar right across the hall

This will be an **RSVP** event; we will need your **RSVP by JANUARY 16TH, 2001**. We are required to give a headcount no later than the morning of JANUARY 17th, so if you have to cancel please advise or Buckeye Triumphs will have to pay for you anyway.

We will collect for the buffet when you arrive (or use your credit card for your family)

Start planning and set the Saturday evening aside and come and celebrate the Holidays and the New Year with your TRIUMPH friends. **We are doing a Gift Exchange this year instead of door prizes – please bring a $5 to $10 gift for exchange if you wish to participate in the gift exchange!** (Please mark your gift as a "Men's" or "Woman's")

We will have video pictures of this past year events. We will have the banquet room to ourselves, so come and have a boisterous good time and celebrate the New Year.

To RSVP please either call or Email Bruce Miles bmiles@intinfo.com or call (740)-587-4179 (*Email method preferred* (if you have Email))

Buckeye Triumph Member Data Sheet

Once again – the annual gathering of data!

Please make additions or corrections and return with your membership payment.

(Or bring to the Holiday Party on January 19th!)

First Name:	«FirstName»
Last Name:	«LastName»
Other Name:	«OtherName»
First Names:	«FirstNames»
Address:	«Address»
City:	«City»
State:	«StateProvince»
Zip:	«TextZip»
Member Since:	«Mem_Dte»
Email Address:	«email»
Home Phone:	«PhoneHome»
Work Phone:	«PhoneWork»
Fax Number:	«Fax»
Vehicle(s)	«YR1» «VEH1» «YR2» «VEH2» «YR3» «VEH3» «YR4» «VEH4»
VTR Member:	«VTR»
6Pack Member:	«M_6PACK»
TRA Member:	«TRA»
COCTRA Member:	«COCTRA»
North Coast Triumph Member:	«NCT»
Miami Valley Triumph Member:	«MVT»

Buckeye Triumphs
P.O. Box 584
Lithopolis, OH 43136-0584

«FirstNames» «LastName»
«Address»
«City», «StateProvince» «TextZip»