

Solving My Ruby Burner Problems

Original Thread URL: http://www.mylargescale.com/forum/topic.asp?TOPIC_ID=43220

Topic author: maculsay

Subject: Solving My Ruby Burner Problems

Posted on: 10 Dec 2006 20:25:59

This message documents all of the off-line written communications between Kevin O'Connor and me. It clearly shows his very systematic engineering approach to determining root causes and controlled application of solutions.

Our hope is that this set of messages will serve as a guide to other Ruby owners who might be experiencing similar problems. Understanding that the specific solutions described herein may not solve your problems, but it's the process reflected within that will assist anyone in getting to a set of solutions.

After all, there's an old systems engineering adage that states: "The Process is the Solution"

Ruby Burner Fix; The Kevin O'Connor Process, 2006

Sep 11th

Unfortunately, I wasn't able to get my Ruby's burner to stay lit without opening the gas valve way too far. Actually, so much that I started to melt some of the white metal parts. Anyway, after numerous tries and with some great help from others at the steam up, I gave up and just enjoyed watching the running of the many fine live steamers.

Editor's note: The above is what I experienced at the Sonny Wizelman steamup, Sept 9. The three Steamups referenced in this message are part of the Southern California Steamer's list. Contact Sonny Wizelman for dates at sonnyw04@comcast.net

Upon returning home, I disassembled the burner, removed the gas jet and the supply line. I found lots of teflon tape fragments in the butane pathway.

Today, I gave it another try. I was able to get it stay lit, enough to get a few good runs (on blocks), but the flame continued to flash into the smokebox. I've tried adjusting the air flow sleeve and the burner sleeve, ala the Dave Hottmann's modification found here on MLS.

Editor's note: Here's [my Builder's log](#) showing Dave's mods. Scroll down to the 13th message.

Even though I'm getting a real clear blue flame out of the burner, some lazy-wandering blue flame still reaches into the smokebox, even with the gas valve turned way down, generating enough heat to melt my headlight. I'm wondering if I'm getting unburned butane flowing into the smokebox and burning there?

Editor's note: This is the link back to [the original message](#) thread where I was asking for ideas. The Sep 11th entry above is my first description of the symptoms I was experiencing.

And then, Kevin O'Connor came into my life 😊

Sep 29th

Hi Howard,

Which type Ruby burner do you have? Generation one had the burner with the wire mesh over the poker and an angled slot in a stainless tube over the mesh. Generation two, and counting, has a solid poker with a bunch of angled, milled, slots in one side.

KO-5

Editor's note: KO-5 is Kevin O'Connor's His MLS ID is CDR.

Oct 1st

Hey CDR...thanks for asking. My burner is not 1st generation. It is a solid poker with angled, milled slots on the bottom side.

Howard

Oct 1st

Hi there,

Bummer! The first generations were easier to fix. Please do me a favor. Measure the diameter of the poker. I'm assuming that it's a constant diameter from one end to the other. Use a mike or a caliper. If you do not have any measuring tools take the poker to the K&S brass tube rack at any hobby store and see which size tube fits over the poker, and which size does not. Make a sketch of the whole poker showing its length from the burner body forward, the distance to the most rearward slot from the burner body, and the length of the slotted section from the same place. If possible photograph the sketch along with the poker assembly and e-mail it to me. With this information at hand I will gin-up a stainless screen and a sleeve for you to try.

Best regards,
KO-5

PS: K&S tubing is sized by the outside diameter; I'll do the math here.

Oct 17th

Kevin, here's the info you wanted. I've annotated a picture with the dimensions you asked for, and yes the poker is a constant diameter.



You'll notice in the picture that I've made the two sleeves that Dave Hottmann suggested; one for controlling the amount of air entering the burner and the other to mask out some of the burner slots. On the rearward end of the poker I can block from 1 to 5 burner slots or on the forward end I can block 2 - 5 slots. I tried firing up without the sleeves and with the sleeves at a number of different positions and all produced the same results.

Again, thank you for your interest....I look forward to getting your stainless steel screen mod.

Oct 20th

Hi Howard,

I received your e-mail via mls.com, and I have placed your project on my work list. Could I impose upon you to take some photos and dimensions of the loco's jet holder for me? I'm thinking of making up a new jet holder to accept the #3 Calor jet in much the same way that I did for my personal Ruby. There will be a new-burnered Ruby here at Unit Shop this weekend, and I'll take a look.

I hope to make the next SOCAL steamup on the 11th of November.

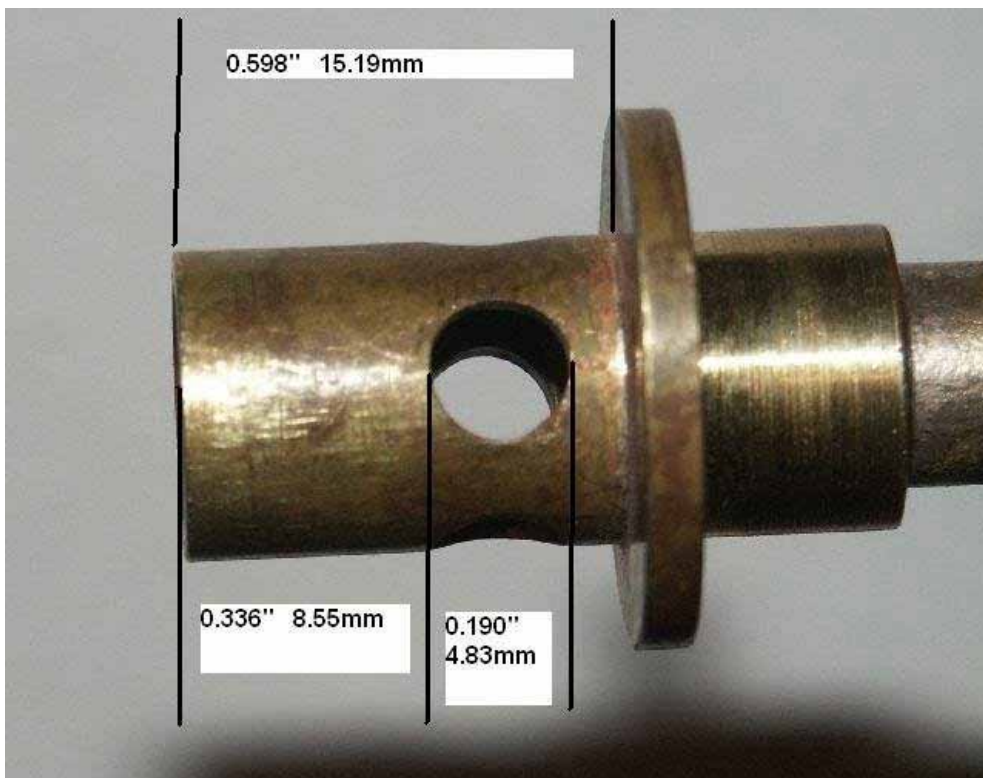
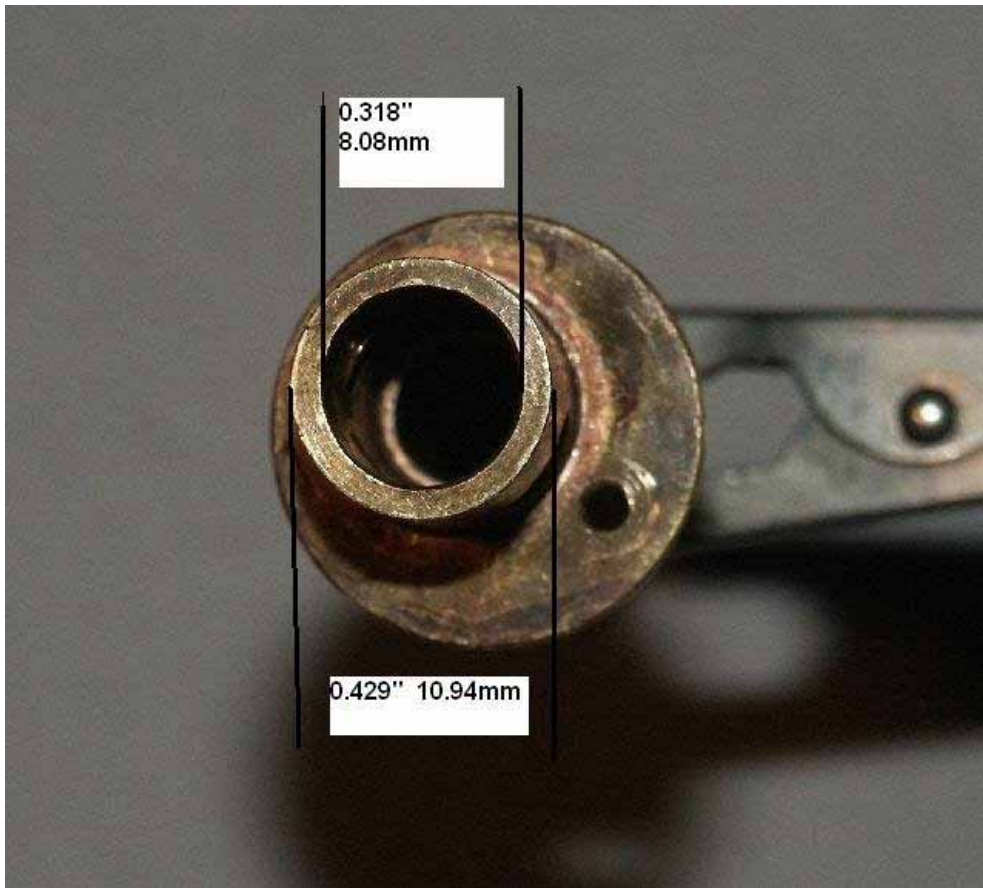
Best regards,
KO-5

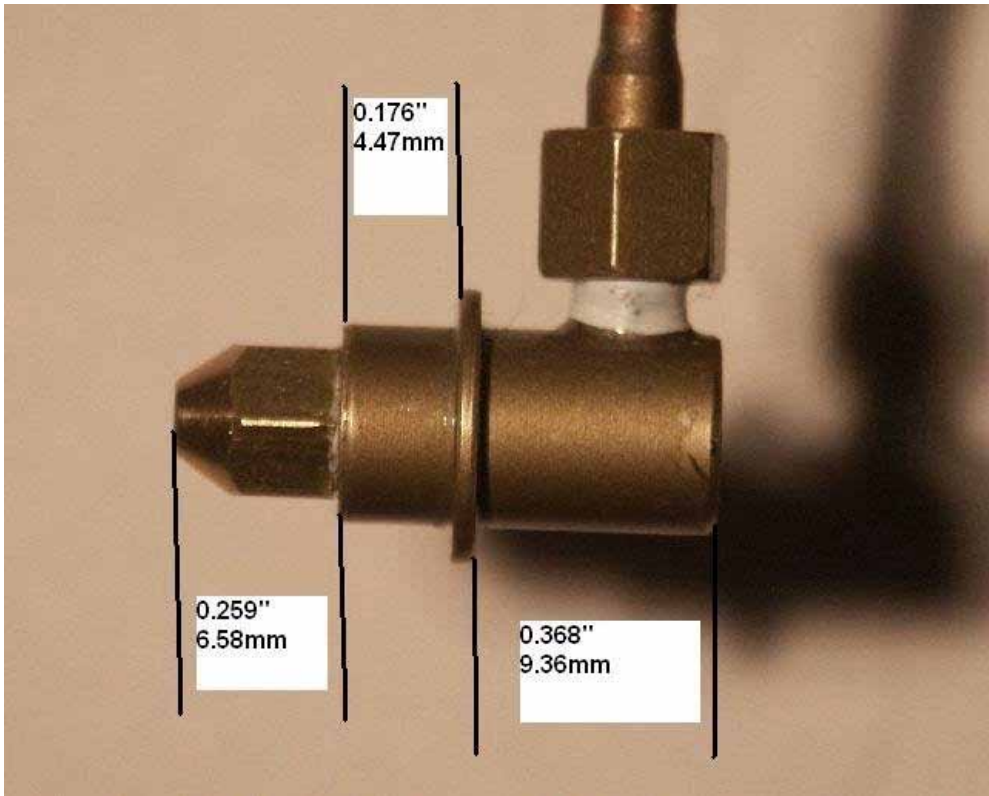
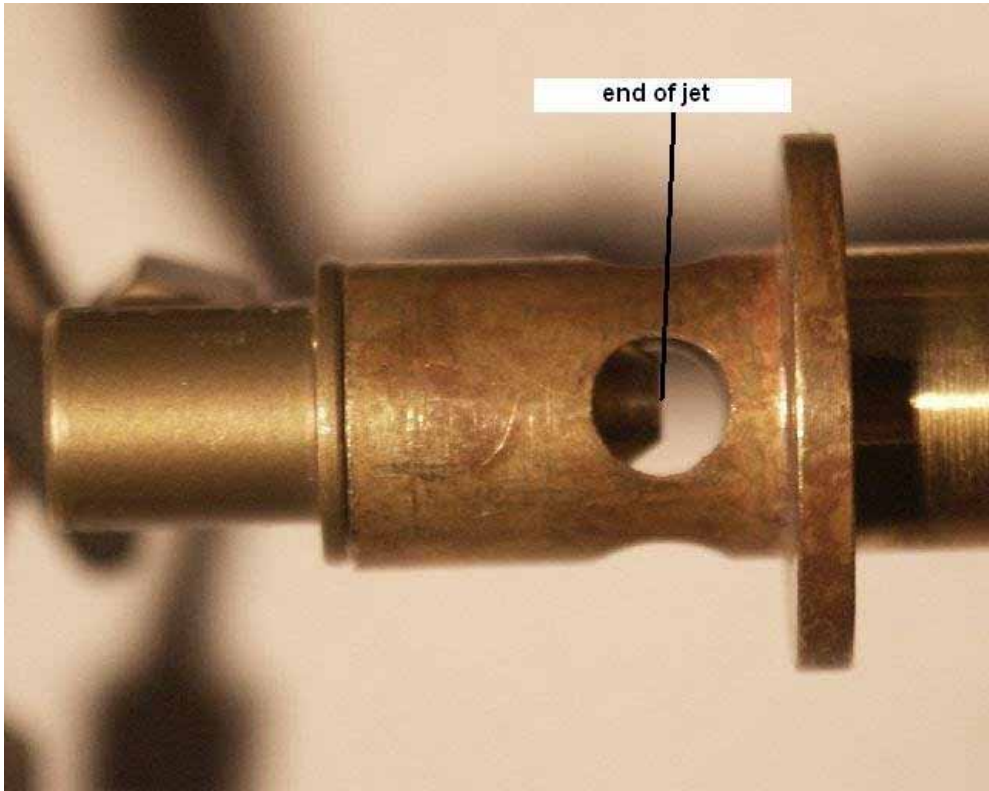
Editor's note: Calor is a brand-name.

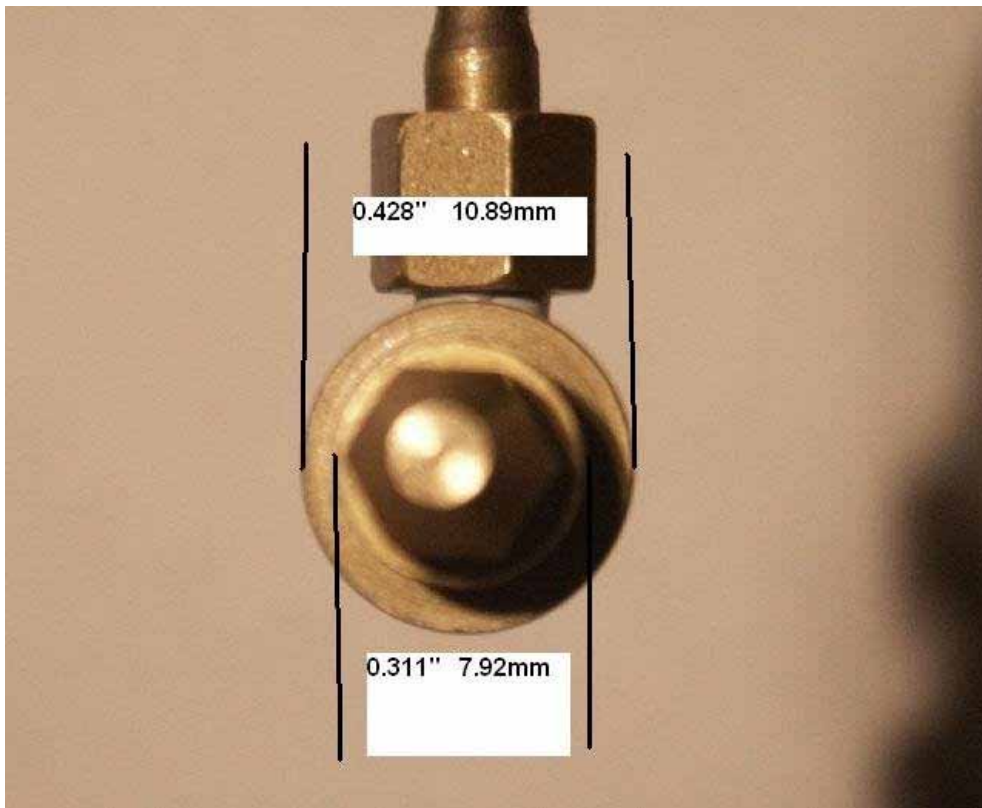
Oct 20th

Kevin...Attached are some pictures with dimensions.

Let me know if I can do more with the pictures or get additional dimensions.







Howard.

Oct 21st

Hi there,

I received your burner/jet info. Please do the following: light up the burner in the flue as you normally do and peer into the front end. Note the color of the flame. It will be one of the following: green tinged blue and very quiet, medium blue and just quiet, white tinged blue and raggedly noisy. Let me know the result and I will get back to you with a suggestion or two.

Best regards,
KO-5

Oct 21st

Kevin...it's the "medium blue and just quiet". However, it also has a lazy, wandering light bluish flame that fills the rest of the flue and reaches out into the smokebox.

Howard

Oct 22nd

Hi Howard,

The photo of the jet/air holes that you sent showed the jet half way through in respect to the air hole's diameter. See if you can perform this experiment. Replace the fuel system's gas line with a piece of silicone tubing so that you may easily move the gas jet "out" from its present position. If you can do this, please note any change in the flame shape, color, and sound and let me know. Moving the jet back in relation to the air holes will admit more air (Dave's device restricts air) and the

flame should change toward the light blue/white side of the spectrum.
Your present state sounds like the classic Ruby to-big-a-jet-and-not-enough-air syndrome; like the first generation.

Best regards,
KO-5

Oct 22nd

Kevin....wow!! The not-enough-air syndrome idea got me thinking. In re-reading Dave Hottmann's mod I find that I didn't do it all. In addition to the sleeve to reduce the air, he also drilled a 2mm hole on each side of the screw that holds the burner in place (more air). I've now completed his mod.

I'll do your experiment.

Thanks.

Oct 25th

An UPDATE: I've tried locally to get silicone tubing large enough to fit over the butane tank and jet fittings. The piece of tubing I have is way too small. So far, no luck. I have one more local hobby store to try. I might try a lawn mower repair shop locally...I've seen that they've had multiple sizes of fuel line in the past....maybe that'll work.

Howard

Editor's note: Silicone tubing can be obtained at any hobby shop that has model airplane engines.

Oct 26th

Good morning,

I think that there is a newer Ruby attending the steamup this weekend here at my track. I will try to find the time to do a little investigation here on my own as well.

Have a good time over at Bill's, and say hello for me. His lasagna sounds better than my weeds and rice and beans for lunch.

Best regards,
KO-5

Oct 29th

Greetings, Kevin. I had a wonderful time at Bill's steamup yesterday. He says Hi!! Back at you. Yes, his lasagna and garlic toast was excellent. And a very nice day weather-wise to boot.

Editor's note: The Bill Turkel Steamup was on Oct 28th.

I spent my time at the steamup trying different suggestions made by some of the attendees there. Still have the same problem of keeping the flame in the flue....whether on a cold or warmed up boiler. In fact, I melted silver solder holding my light to its mount base with the heat generated in the smokebox. Another thing I notice is that when the flame is in the flue...it doesn't burn smoothly and the sound varies with the flame's unevenness. I've again cleaned the jet and all of the tubing and fittings leading up to the jet....and still the same uneven burning. Someone also suggested that the butane tank may require cleaning. FYI, I had little or no wind to affect the flame. I tried butane from different canisters to see if I had contaminated gas...no change.

This morning I tried your experiment....moved the jet back to where it's tip was just at the air holes of

the burner mount. Didn't observe any change in the color of the flame in the flue at this position. Actually, the further I move the jet back, the more easily the flame seemed to jump into the smokebox.

I then tried positioning the jet in a number of places in between the most forward position and the most rearward position and observed no change in the flame's shape or color or sound. I tried all of this at a number of different gas valve settings, lowest possible to keep the flame from going out to a more robust setting....all yielding about the same results.

The other thing I'm experiencing is that closing the smokebox door ultimately makes the flame go out, so I did all the experiments with the door open.

One suggestion I got from Bob Starr was to reduce the size of the jet's orifice, since reportedly some Rubys were delivered with too large an orifice. Since I can always get another #4 jet from Cliff at Accucraft...there's nothing to lose, so to speak. What do you think? I think I'd like to wait for your inputs and screen.

How is your steamup going? ...I'm sure the "weeds and rice and beans" were just fine....it sounds good also.

Howard

Nov 1st

Hi Howard,

I'm still working the burner problem. Cliff Slusher of Accucraft e-mailed me today to set up a call with him tomorrow or the next day because he is confused about Accucraft gas jets too, and between us (he and I) he thinks that we might figure it all out.

A "Hottomanized" Ruby attended my steamup over the weekend, and I was able to disassemble the burner mechanism and document it. I have to admit that the Ruby did run well, but with much burner noise.

Best regards,
KO-5

Nov 2nd

Hi Howard

The photo is of the new burner overlay and re-threaded Calor #3 gas jet that I made up for you.



Nov 3rd

Kevin....the picture of the new burner overlay is really impressive....not at all what I expected.

Nov 3rd

The Ruby burner overlay is in the mail to you first class. In the meantime get down to your local Auto Zone and purchase a tube of Permatex High Temperature Thread Sealant.



You will need the sealant to perform the first step in de-bugging the Ruby's burner. I have included a Calor #3 jet that I over-threaded the 1BA English model thread with the 5mm by .05mm thread that is in your Ruby's jet holder. First remove the stock jet, and scrupulously clean out the jet holder so that there is no chance of dirt/tape, compound contamination. First carefully thread the new jet into the jet holder; no wrenches! Once you have the feel of it use a toothpick to lightly coat the new jet's threads with the Permatex. Do not put any sealer in the female threads of the jet holder! Then carefully screw the new jet into the jet holder, and ever so slightly set it home with the box end of a combination wrench. Use a dry Q-Tip to wipe the excess sealer from the joint, but leave a little "witness" ring around the base of the jet where it meets the jet holder.

Let it all set up for an hour, and then reassemble the assembly into the back of the Ruby's burner and fire it up. Let me know how it all goes for you.

Once you relay this information to me, I will tell you how to proceed with the overlay. My rule is to only do one thing at a time, and learn what one can from that experience.

Nov 6th

It's here!! I got home late tonight and there it was. I'll do the first step tomorrow and let you know what I observe when firing it up.

What a nice piece of work. Thanks Kevin.

Howard

Nov 7th

Good evening Kevin,

I did the first steps as you described. Upon lighting up I got the classic pop of the flame into the flue for the first time. The flame appeared bright blue and appeared to be burning the entire length of the burner. Up to now, the flame always seemed to be burning only at the smokestack end. I no longer get the lazy wandering flame going into the smokebox.

The burner seems to be a little louder. I can turn the gas down to lower setting than ever before. The steam came up to about 30lbs. very quickly and for the first time I was able to burn off an entire tank of butane. I still got a few flameouts when closing the smokebox door, but nothing like before.

All-in-all; a very successful test with just the jet change. The Calor#3 jet definitely has a smaller orifice than the stock #4 Ruby jet.

I'm really enthusiastic about adding the Overlay.

That is all for now.
Howard

Nov 8th

Good! That's just what I would have predicted. The next step is for you to add Dave's poker burner ring to the business end of the poker. Slide it onto the far, smokebox end, of the burner and cover as many far end slots as possible. Re-do the experiment again (light off, adjust the flame all over the place, play with it in general), and let me know the result.

Keep the faith,
KO-5

Nov 8th

OKAY, Kevin,

I slid Dave's poker burner sleeve onto the far end (smokebox end) and fired her up only to find the jet to be plugged up. Using my butane canister, I blew it out. I'm reasonably convinced that I have crud in the Ruby's butane tank. Any suggestions on how to clean?

Anyway, I tried it again....she came up to 30lbs. steam pressure, but it took longer this time (figures with less burner slots being used). The burner seemed to be louder this time, although there is a point at a lower setting where it was much less.

The flame remained bright blue, not ragged at all. No flameout with the smokebox door closed this time.

What's next??
Howard

Nov 8th

Good going so far; exactly what I expected. Now keep the same setup, but add Dave's air hole ring to the equation. Play with its position over the air admission holes in the burner air/fuel mixer. The more you restrict the air flow, the quieter the flame will become till it turns green (reducing flame). Try to achieve a quiet, blue, even flame and see how it reacts to steamup times and popping out.

To clean out your gas tank first remove it from the loco. Next remove all the plumbing including the Ronson type fill valve and the gas flow control valve. Blow it out good with compressed air. Fill it with white vinegar, wait an hour, drain it by shaking hard, and do it all over again two more times (an hour in between). Flush it with clean water and shake the heck out of it until there is no sign of any black specks in the drained water. Blow it out with air, fill it with acetone, shake, drain, more acetone, shake, drain, blow out with air. At this point the acetone will have removed any trace of water, and will have degreased the inside of the tank. Reassemble the tank's components using Permatex high temperature thread sealant on the male only threads of the Ronson valve, and 3 in 1 oil on the gas control valve's threads and "O" ring. Fill the tank with isobutane, invert the tank and blow it all out as liquid through the gas control valve (do this part outside), install the tank assembly, fill up the tank with isobutane, wait till the now cold fuel tank reaches room temperature, and then fire up.

Never, ever, fire up with a just filled cold tank.

Please let me know how it goes.
KO-5

Nov 08

Kevin, thanks for the tutorial on cleaning out the butane tank. As long as I can get the burner to work, I'll delay the cleaning of the tank until Friday, so that I'm ready for Saturday's Steamup.

As for the air hole sleeve test.....I was able to achieve a clean, blue & quiet flame at about 40% of the air holes covered. The flame was noticeably smaller and it took a little longer to get a 30 lb. head of steam.

At the 20% position, the flame still was a little noisy, but was a nice blue and no flame reaching into the smokebox. When I tried more air restriction to get a green flame, the burning in the smokebox returned. Very quiet and very small flame at the burner.

You mention ISOButane, I have a can of 70/30% mix....never used it. I've been using straight butane in these tests.

Editor's note: Here I mistakenly confused Isobutane with the numerous butane/propane mixes available. They are not the same.

Nov 9th

OK, keep using the very same fuel that you have been using. What brand is it, and where have you been purchasing it? I do not recommend the use of butane/propane gas mixtures in gas tanks mounted in locomotive cabs. They may help at first lighting up when things are kind of cold, but there is the devil to pay as the tank heats up from heat radiated from the boiler and gas pressure soars to limits that become uncontrollable with the "crude" gas flow control valve. Let's just stick to what you have been using, but don't even think of lighting up unless the gas tank is at room temperature. To keep an "even floor" under all the tests the gas pressure in the tank must be consistent from one test to the other. Thus the requirement for the same room temperature prior to light off.

Now let's remove both of Dave's sleeves, and prepare to add the burner overlay. I shipped the overlay to you with a 5/16th mandrel in it to protect both the overlay and the mesh. Carefully remove the mandrel and the mesh from the inside of the overlay tube. Carefully wrap the mesh around the burner's poker, and then slowly, carefully, slip the overlay over the mesh (use some body english here if necessary), but do not stretch or deform the mesh in any way. If your 5/16th poker is not the same as my K&S 5/16th mandrel, and things seem to be too tight, use a sharp tin snips to cut off a strip of mesh, the long way, about 3/32" wide, and try again. If you are having trouble with this operation please stop and call/e-mail me right away for a backup plan.

Let's assume that all goes well and the screen/mesh/overlay is in place. That is one can still see all the burner slots through the screen, and the tapered slot on the overlay is smack-dab in the middle of the burner slots from one end of the poker to the other.

Replace the burner into the flue, and go ahead and light up. Remember, the gas tank must be at room temperature prior to lighting up. Observe the flame as you have done in the past, high, low, medium, time the steamup to whatever psig that you have been using, and let me know the result (sound, color, stability, etc.).

By the way, in my experience 30 psig is way too much pressure to run a Ruby at. My advice is to stick with 15 to 20 psig for a new, stiff, engine, and as it loosens up shoot for 10 to 15 psig as an operating pressure. 0-4-0s were never designed to tug along more than a few cars, or logs, and the long consists that Dave pulls with his Rubys are just exercises to illustrate the top end of the model. For best results stick to lower boiler pressures where ever possible.

Nov 9th

As to the butane fuel brand...they are both Korean stove fuel. I get it at the local 99 cent store.



Your overlay and screen went on without a hitch. Upon firing up, the flame popped backed into the flue quickly. At first, the bright blue flame filled the full diameter of the flue surrounding the poker (never seen that before). Once I adjusted the butane level down, the flame more closely hugged the burner. I could clearly see your screen glowing bright red. The flame was very stable at all gas valve settings. The boiler made steam as quickly as I've ever seen before. The burner was a little louder, and reducing the gas changed the sound only slightly. No flame ever went into smokebox.

I can't tell you how satisfied I am. I really appreciated what you have done.

What's next?

Nov 9th

I'm happy that you're happy, but we're not done quite yet.

I would like to now replace Dave's air restricting sleeve on the rear of the burner and leave the overlay in place. Fire it up, play with the air sleeve's adjustment and try to find the spot that gives you the quietest bright blue flame that you can. Secure the sleeve in place, light and relight, have a good time,

take a photo of the back of the burner so that I can see the final position of the air sleeve in relation to the burner's air holes. At that point we'll go on to the next thing to do.

Howard, I have railed against using that Asian pig flatulence in our tiny steamers for many years. The quality control of the straight butane that they bottle up and sell so cheaply is very poor. Your plugged jet is more likely to have been caused by the cheap gas that you put in the tank than by dirt from the Accucraft factory.

Look in the book for an REI or a Big 5 sporting goods store and go there and buy a name brand, like ATHENA, isobutane, not a butane/propane mix, and use that and trash the cheap stuff.

Let me know.

Editor's Note: As for getting the Athena Brand isobutane that Kevin described, I found Athena brand straight butane (7.8oz.), labeled Burton Butane Fuel at my local Big5 Sporting Goods store. According to the customer service at Athenabrands.com, they no longer make the specific canister that Kevin recommended and in addition they now also import the product from Korea. They do offer a 300ml (about 6.5 oz), Premium Isobutane canister with a selection of multiple filling tips mounted in the lids

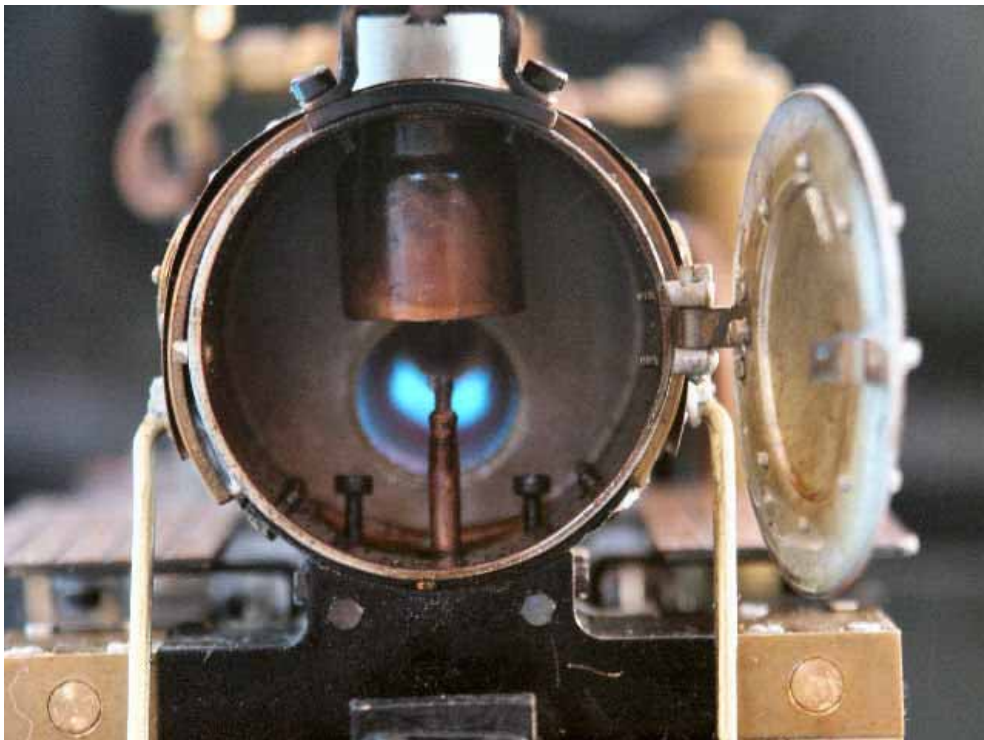


I was not able to determine if Athena added a quality check to determine butane quality or not.

Nov10th

Good morning,

I lit the Ruby with the air holes at 100% open and then proceeded to adjust the air sleeve to get a quieter burner and still have a bright blue flame. It quieted down at about 50%. Once I got that, I shut it down and relit. The burner lit easily when warm. I took pictures as you recommended and also got one of the lit burner.



I'll be letting it all cool down and try starting up from a cold boiler and room temp fuel tank later today.

All-in-all, another successful test---got up to steam as quickly as before (btw, safety valve trips @ about 22lbs.). No fire in the smoke box, closing the door doesn't snuff the flame.

Cheers
Howard

Editor's note: The Ruby is running on blocks at between 15 & 20 lbs. steam pressure.

Nov 10th

OK, after you re-light after the loco cools down, and it lights right up again (we hope) the next step is to remove both Dave's air ring and the #3 Calor jet from the burner. Replace the original Accucraft gas jet whence it came by scrupulously following the same sanitary procedures that you used in adding the Calor jet to the mix of ideas.

Replace the burner with the Accucraft jet and my overlay still in place in the loco's flue, and then go through the lighting off process again. Record your observations and only then replace Dave's air ring on the burner mixing chamber and fool around till you get a good flame. Light and relight, as before, record everything, and then we'll talk about it tomorrow at the steamup.

In the meantime obtain a long legged Allan key that fits the Allan cap screw head that is brazed to the end of the overlay, and that can reach it through the open smokebox door. That part I want to be there to observe first hand.

Nov10th

I'm sending this just for the written documentation. I'll have it all with me tomorrow at the steamup.

I relit the burner after it sat for 7 hours, the outside temp was 70 degrees. It lit right up with every characteristic as I stated in my previous message. So far so good and I shut her down.

I then removed Dave's air sleeve and the #3 calor jet. After I cleaned everything, I reinstalled the #4 Ruby jet and remounted it in the burner housing. As hard as I tried, I could not get the burner with your overlay in place to light.

The flame stayed in the smokebox. Even at the lowest possible gas valve setting, I could only get the flame into the flue, but only at the very end. The flame never popped back to the actual burner.

The longest legged Allen wrench I could find, short of buying a whole T-Handled set for \$39, is just long enough to reach the end of the overlay, but with some difficulty.

Obviously, we'll talk tomorrow.

Howard

Nov 11th

At the steamup, we tried firing up the Ruby, but never were able to get it fired with the old stock #4 jet. So, we reverted back to what had been successful and reinstalled the Calor#3 jet, including the use of the Permatex High Temp Thread sealant.

This time around I had some difficulty with getting it to light. Then Kevin discovered that the connection at the tank was not seated properly. Any air getting into the butane stream through any of the fittings, including the jet's threads will cause burner problems. We re-tightened the nut and sure enough all was well again. After adjusting the burner's air sleeve to about the 50% open point to achieve a quieted down burner:

As for using the long-legged Allen wrench to adjust the burner overlay, it turned out to be a just tad too short; It's way to hot with your fingers just inside the smoke box. Kevin suggested that I add an extra length of brass tubing to get a longer handle.

I then proceeded to get the loco ready for its maiden voyage on the running tracks.



This was a great thrill to do this for the first time ever. Thank you, Kevin.

Editor's note: At the Mark Kelley steamup, Nov 11, Kevin described a quick method to flush out the butane tank. "Fill the tank with butane, invert the tank and blow it all out as liquid through the gas control valve (do this part outside)."

Nov 16th

Hi Kevin....Thanks again for all you have done for me, I've really appreciated it.

I finally got time flush out the Ruby's butane tank. As you described at the steamup, I removed the tank, filled it with butane, shook it up good, and turned it up side down to open the gas valve. I directed the output into a clean white cloth and collected some black & some grey particles. I repeated the process until I had only clean output. Then reassembled everything and she fired right up.

I also got a chance to make the handle extension to the Allen wrench:



So if there's something else you would like to test, I'll be glad to do so and document with close-up pictures of the burners flame. I thought I'd index the overlay with a file mark at bottom-dead-center....that way the flame and the overlay's rotated position would be visible. These pictures show the adjustability of the flame's shape and size by rotating the burner overlay.



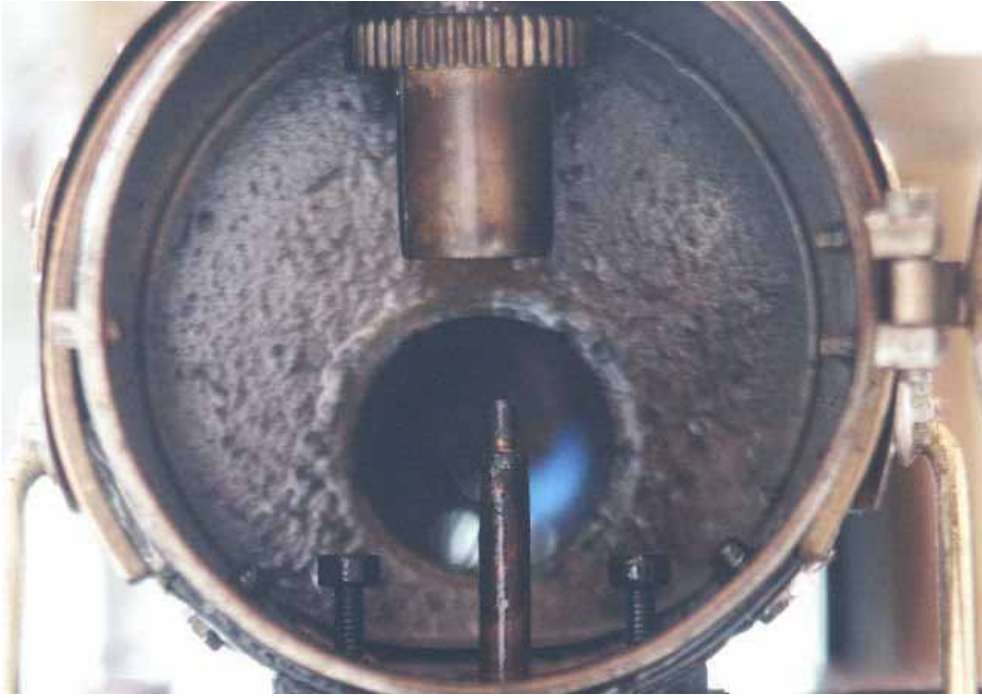
Bottom dead center



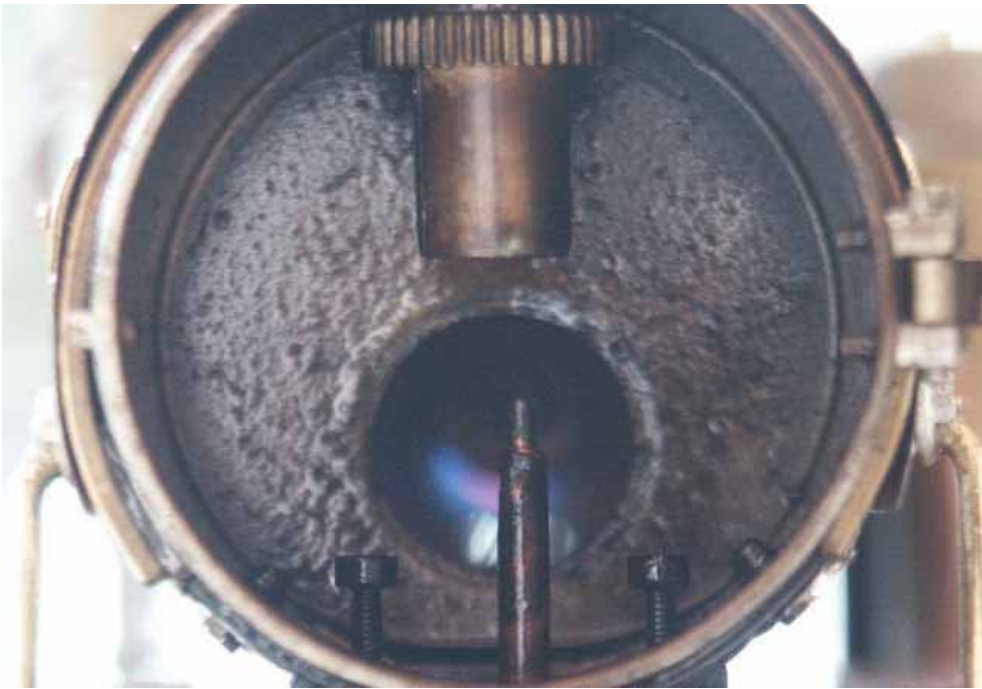
Rotated 15 degrees counter-clockwise



Rotated 30 degrees counter-clockwise



Rotated 45 degrees counter-clockwise



Rotated 15 degrees clockwise

I've been firing up the Ruby now for about a month successfully. I no longer have to tweak anything, she just fires up and quickly gets up to steam (6 minutes).

After getting up to steam, shutting down and topping off the butane tank and adding some water to the boiler through the Goodall valve, I'm getting about 26 minutes of run time.

All-in-all, a very successful journey from beginning to end.
"The Process is the Solution"

Replies:

Reply author: steamboatmodel

Replied on: 12 Dec 2006 19:48:00

Hi,

Can anyone tell me what size hole is in the various burner jets?

regards,

Gerald SA#1949

Reply author: CDR

Replied on: 13 Dec 2006 07:59:44

Calor jet diameters:

#3 .006" dia.

#5 .008" dia.

#10 .011" dia.

#15 .016" dia.

#20 .018" dia.

#25 .020" dia.

Accucraft gas jet diameters are known only to the great Chinese steam god who resides upon Wou-Hoo Mountain, or as Charlie was found of saying "as small as we can make them".

In industry gas jets are rated by British Thermal Units (BTU) per unit of time, by the particular fuel used (propane, butane isobutane, city gas, producer gas, etc.). The calculations used in gas appliances are of no real use in our hobby because not everything scales down well, and the thermal dynamics of our tiny steamers are not well understood (at least by me), and the trial and error approach to steam pressure management is the most productive course in our hobby.

Personally I favor the smallest jet that I can get away with, and that 99% of the time is a #3 Calor 1-BA jet re-threaded to .5mm by .05mm thread pitch. The major diameters are very close to each other, and the potential for gas leakage that could be caused by the double threading of the shank is overcome by using a high temperature thread sealant/locker like the white Loctite product on your auto parts store's display rack. Please see Howard's photos of these components and products.

On the other side of the coin, Roundhouse routinely uses a Calor #15 gas jet in their products, and their burners are bullet proof, abet noisy. Throttling one down to a # 3 or #5 sure reduces burner noise, and in the right hands, extends the run till the fuel runs out.

KO-5

Reply author: Hung Ta
Replied on: 13 Dec 2006 10:13:28

Hello Maculsay,

Thank you very much for your post with fully information about Ruby burner. So the bottom line is : If I got the Ruby with 2nd generation burner like you got ! I'm out of luck ! unless I got a new burner design from mr:Kevin. Currently I have a ruby have a howling problem all the time. I will remove the burner to night see what type burner I got.

Hung Ta

Reply author: maculsay
Replied on: 14 Dec 2006 13:02:34

quote:

Originally posted by Hung Ta

Hello Maculsay,

Thank you very much for your post with fully information about Ruby burner. So the bottom line is : If I got the Ruby with 2nd generation burner like you got ! I'm out of luck ! unless I got a new burner design from mr:Kevin. Currently I have a ruby have a howling problem all the time. I will remove the burner to night see what type burner I got.

Hung Ta

Hung Ta.....you might be able to quiet it down some with just the smaller Calor #3 jet. As I said in my original message, you may or may not experience the same problems as I did. I've seen second generation Rubys run really well right out of the box.

Reply author: Chris Scott
Replied on: 30 Dec 2006 14:35:26

What is the point of rotating the overlay if the amount of flame is the same to one side or the other? I'd be surprised if which side the flame was on made any difference at all? I'd thing the more efficient heat would be with the overlay centered so the heat was uniformly radiating in the flue, vs more flame to one side to the other. I have an Ida with mesh and sleeve which when I first got it had te sleeve rotated toward one side by about 30 or so degrees. It did not seem to make any difference in running whether it was rotated or not. Just doesn't make sense to me to direct the flame toward one side in a symmetrical (round flue tube) heating environment.

Granted it is restricting the flame more but that can be done with the gas valve. You can gain a bit more control of the gas valve by increasing the taper, put a spring on the shaft like Dave Hottmann has to add resistance and hold fine adjustments, or last and the mostwork, replacing the gas valve. There are minature valves available, we're talking miniature - 1.03125" high really fine flow adjustment in metric or English threads, or barb fittings. Like I said, replacing the valve would be the most work, but the other two seem to have helped many a loco.

Reply author: maculsay
Replied on: 31 Dec 2006 08:42:08
Message:

Chris, your points are all well taken. Hopefully Kevin will come along and give you his input. But here's what I understood at the time.

Kevin wanted to determine if the overlay sleeve and mesh were used alone to change the flame shape and the amount of burning surface...would the set of problems I was experiencing be sufficiently fixed without having to also acquire the smaller Calor #3 jet. That is, keeping the flame in the flue, etc. Burner efficiency was not an issue at the time I was doing all of this with Kevin. In my Ruby's stock configuration I couldn't even keep the flame lit or even keep it in the flue long enough to see if it was efficient or not.

After all of the changes mentioned in this thread's original message, I further had some need for a finer adjustment on the gas valve, i.e. turning down the gas enough for the flame to jump back into the flue when first lighting up. I'd turn it down so much that it would go out. I just couldn't get a fine enough control using the stock Ruby's gas valve knob. I attributed this to my lack of feeling in my fingers (getting old). At this point by replacing the gas valve's old black round knob with a larger R/C type control arm, I'm able to get a finer adjustment on the flame.

Kevin and I didn't finish our last experiment with rotating the sleeve, because I never could get the burner to light up without the smaller Calor jet. Maybe now that I have better control over the gas valve I'll give it another try.

Again Chris, thanks for adding your comments.

Reply author: railgeek
Replied on: 08 Apr 2007 19:21:10
Message:

As I'm new to the game and really do not have any machine shop tools, etc., what would the cost of the burner be to have one made for my ruby?

Thanks,

Marc

Reply author: maculsay
Replied on: 09 Apr 2007 12:14:49
Message:

quote:

Originally posted by railgeek

As I'm new to the game and really do not have any machine shop tools, etc., what would the cost of the burner be to have one made for my ruby?

Thanks,
Marc

Marc, I didn't make the burner overlay, Kevin O'Connor is the maker. His MLS handle is CDR. If you scroll back up a few messages and find CDR, then click on CDR to get Kevin's profile. There you can send an email to him directly with your question.

Reply author: Scottychaos
Replied on: 09 Apr 2007 13:15:16
Message:

Howard,
wow, thanks for such an informative post! 🙏
(somehow I missed this back in december!
I still think that sometimes posts dont show up at all when viewing "active topics"..which is the way I always read MLS..strange)

Im going to print out your whole mainifesto, and go over it with my Ruby..somewhere in there is probably the fix to my ruby's burner problem!

(mine wont run with the smokebox door closed..it will heat-up with the door closed, but once it starts running, the fire always goes out after a lap or two (with the door closed)..but with the smokebox door open a crack, it always runs fine..)

Scot

Reply author: maculsay
Replied on: 09 Apr 2007 19:13:29

quote:

Originally posted by Scottychaos

Howard,
wow, thanks for such an informative post! 🙏
My Ruby wont run with the smokebox door closed..it will heat-up with the door closed, but once it starts running, the fire always goes out after a lap or two (with the door closed)..but with the smokebox door open a crack, it always runs fine..)

Scot

If you have one of the later versions of the Ruby, it had a reduced opening at the bottom of the smokebox by a design change in the saddle plate upon which the smokebox sits. Dave Hottmann posted a fix allowing more air into the smokebox.....which was basically to reopen the space by some careful cutting of saddle plate. That might help in your case? Here's a link to [my builder's log](#) showing the mod I made.

Hopefully you'll find what you are looking for 😊
Good luck

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