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Intake Build: L26 UIM Swap Finally Complete (Pic Heavy)

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2004 Chevrolet Monte Carlo

#1

Trader Rating: (0)  
Join Date: Apr 2010  
Location: Mentor, Ohio  
Posts: 8,107

#### L26 UIM Swap Finally Complete (Pic Heavy)

I have a lot of information to share on this subject along with pics (so this is gonna be pic heavy). The pics are not in chronological order, but I am presenting them in an order that hopefully best explains what has been done during this process.

I had this mod planned for summer of 2013 and never happened. This took lots of time to make things the way I wanted. This includes destroying an almost completed modded L67 throttle body and trying to give the throttle body and UIM a "brushed" look (went through a LOT of Dremel sanding drums and abrasive buffing pads).

So, I think it goes without saying, I am VERY excited to finally mark this mod as "completed" on my list of mods.

I finally did an L26 aluminum upper intake swap! With this swap, I also did:

- An L67 Throttle Body (custom porting)
- Some custom porting to the L26 UIM
- L26 HV3 (I have already been running a L36 HV3 in my L36 UIM for a couple years now)
- Black powder coated L26 UIM/L67 Throttle Body adapter
- Black powder coated fuel rail and red injector clips
- Stainless steel LIM/UIM (and some mic) bolts from [www.alloyboltz.com](http://www.alloyboltz.com)
- Got rid of the bracket in the back (used to hold the connector for the O2 sensor, help hold the engine cover and if you have an air pump, holds that too).

Only issues I had with this swap:

- Had to bend the brake lines so they don't hit the throttle body
- Getting the air ducting together from the throttle body into the Wizaird box (I took the box apart and put the ducting on the throttle body and then put the box back together).
- Over coming the change in the PCV system from the L36 to the L26.

FYI - I learned GM has TWO different L26 UIMs (I'll touch on that later).

First a couple before shots:

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And here is something I am extra proud of. One of the biggest challenges with this mod for people is deciding how to handle the PCV system change. In an L26, there is a tube that goes from a stack at the top of the UIM to part of the air duct after the MAF (on an L26, the MAF is not seated in the throttle body). On an L36 and L67, the PCV is brought through the UIM so it travels in parallel with the coolant ports and the main air flow (the PCV opening in the throttle body is after the MAF before the throttle plate).

Some people add a breather to the top of the L26 UIM, some argue it should use metered air like the factory did. And most of those people find a way to adapt.

I found a way to adapt that I felt was better and easier than any method I had seen yet. I spent a long time studying these parts and when I finally saw this solution, it was like a ton of bricks.

I re-used the "stump" that was originally designed for a support bracket (helps hold the throttle body up with a bracket in the LIM). Now it had no purpose, so I re-purposed it. You can see a hose from the top of the L26 UIM to that port (and a nice hanger helping to guide the hose along). And here it is:



So far, I've only driven the Monte with this mod for a few hours on Sunday and everything seems great. Keep in mind, I'll be the first to admit, I did this for looks. I think the car feels like it runs a little "smoother", but don't quote me on that (I'll be the first to say that could be the ol' placebo effect at work). I don't think any of the intake sounds have changed. All in all, it looks great (and right now, I can smell the clear coat "baking" a little after running it for a while).

Attached Thumbnails



-Jason

Check out my websites below:

- **1984 Camaro Z28 5.0 Liter HO** Restore Project/Big Toy
- **2004 Monte Carlo SS 3800 N/A** See website for MOD List
- **2004 Grand Am GT SC/T** - Current daily driver

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05-26-2014, 12:32 AM

#2



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Pace Car  
2004 Chevrolet Monte Carlo

Trader Rating:(0)  
Join Date: Apr 2010  
Location: Mentor, Ohio  
Posts: 8,107

I'll start with what all has been done to the L26 UIM. A bulk of the work was cleaning the old gunk off it and then machining the exterior to the finish I wanted.

A few years back, I made my own "soaking" tank out of a plastic tote and using mineral spirits as a degreaser. Some people use kerosene or a variety of other products. I soak it and every few hours or a day later, I come in, agitate the gunk with various brushes and then soak it some more. When I finish, I end up putting the liquid back into two marked containers (I re-use it). I've since found Simple Green yields some good degreasing properties, but this was done with the old stuff (roughly two years ago).

FYI - the mineral spirits are paying a toll on the plastic tote (it's getting pretty warped). I've soaked a bunch of stuff in it, so it's been doing it's job.

FYI - to tell you how long I've been plotting this and slowly working this mod, these pics of cleaning the L26 UIM go to January of 2013! I had lots of delays due to more pressing matters and a set back between then and now.



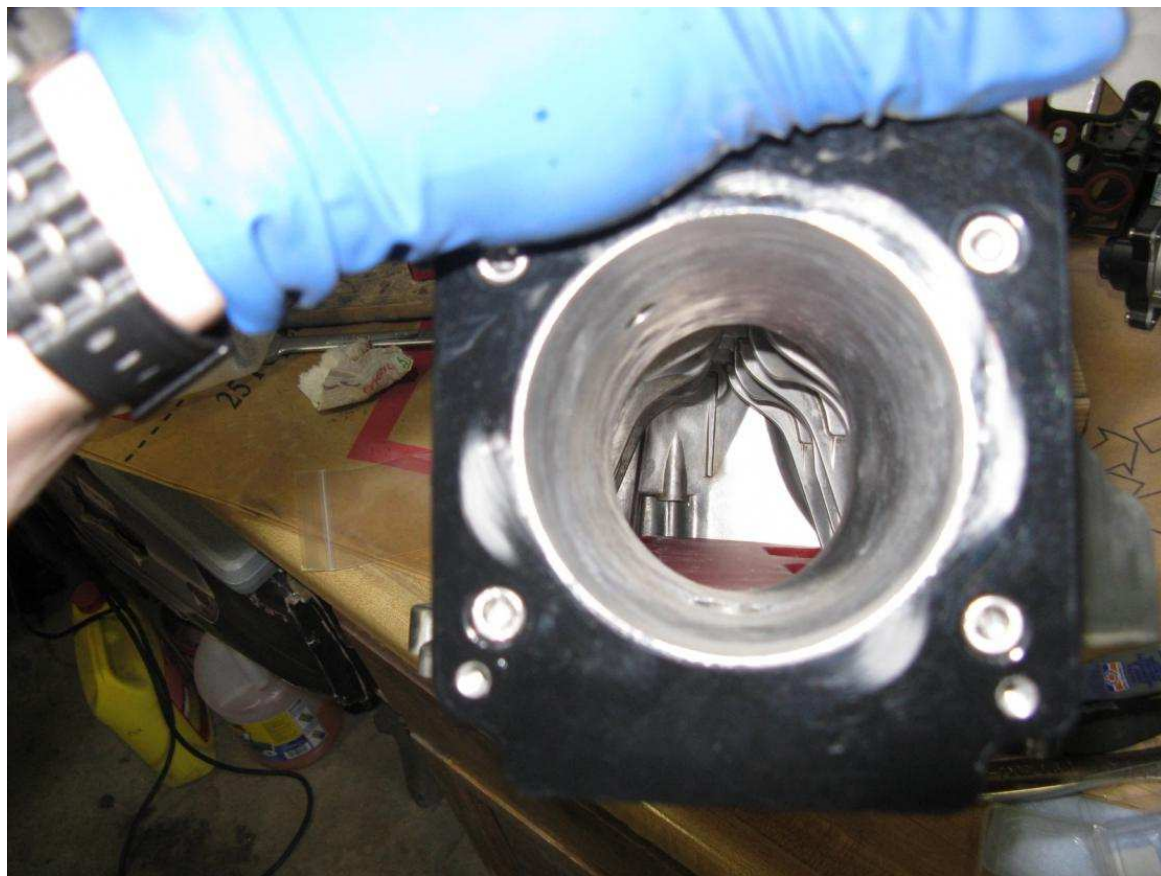
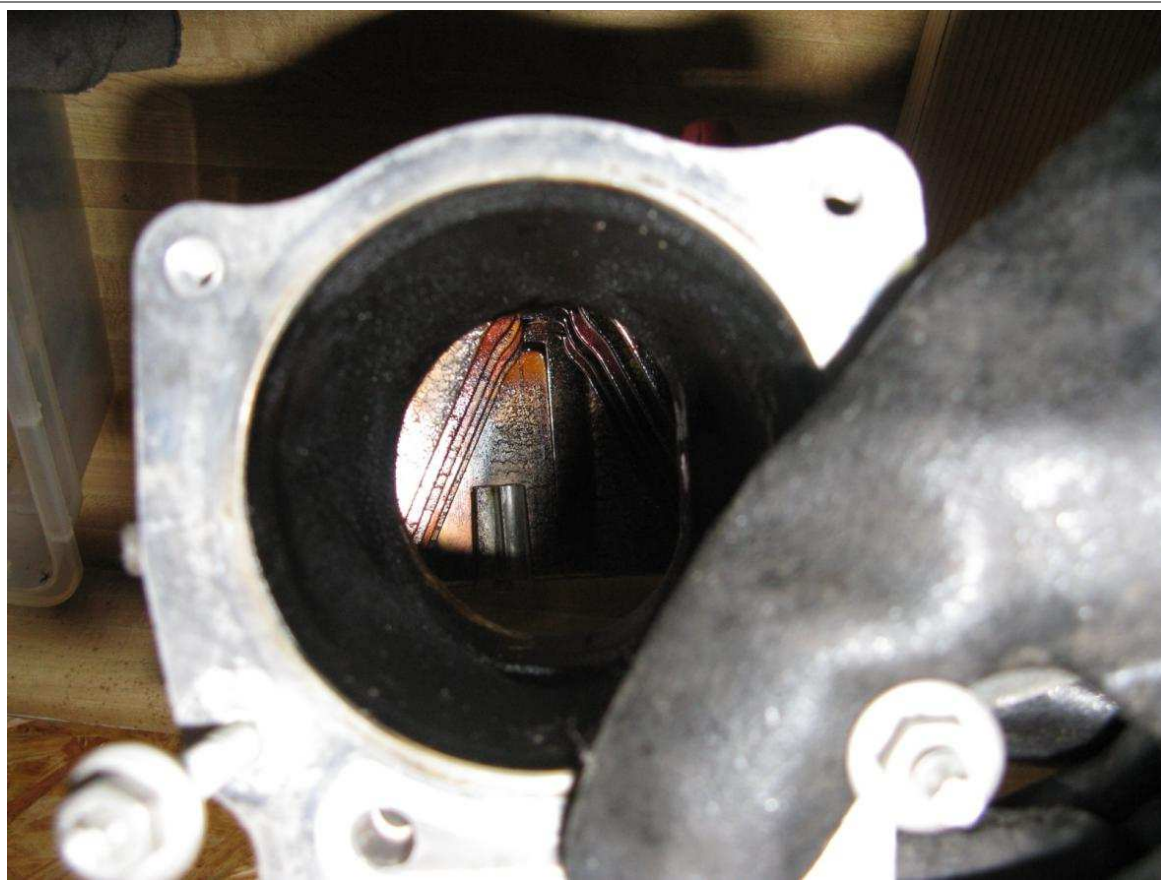


After a couple days soaking and scrubbed, this was the best that could be done. More was achieved with the Dremel and various abrasive buffing attachments.



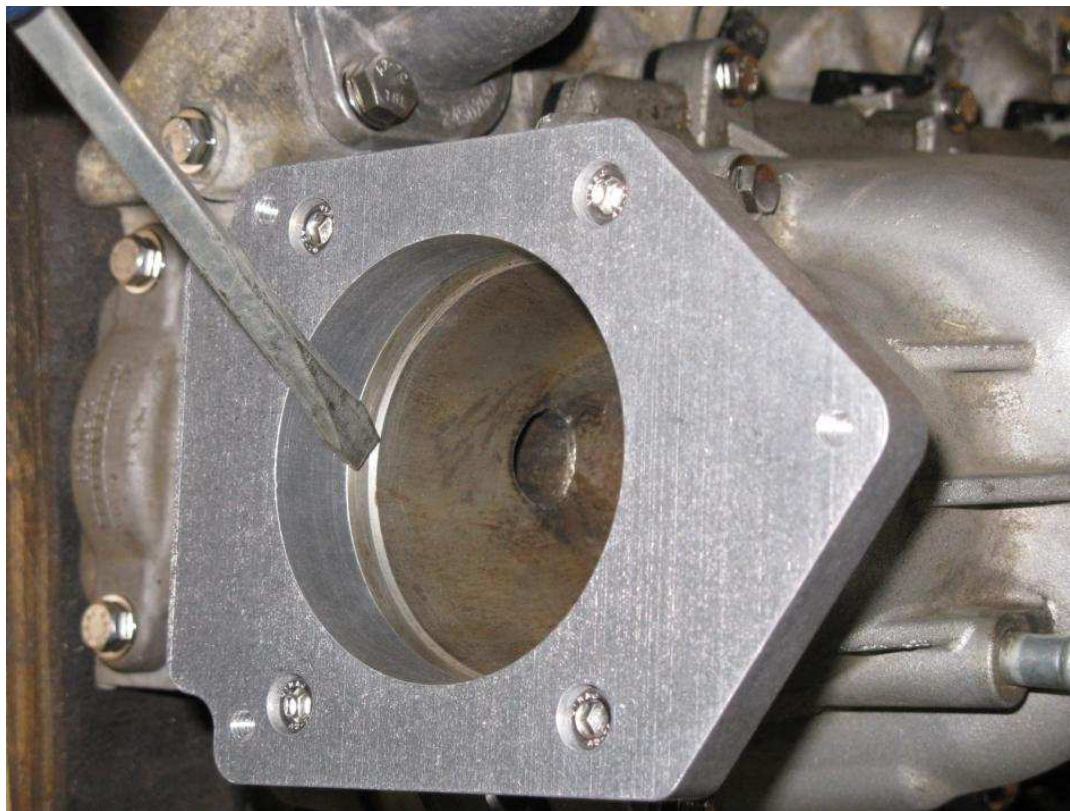
I did some work to the back of the "snout" where it enters into the main chamber of the UIM. I "hogged" it out a little. Admittedly, I wanted to do more, but I was concerned about blowing through the metal of the UIM. Sadly, I found I never took any pics of the hogging I did other than a shot from the outside going in. So here are a couple comparison shots of before and after (note the back of the snout on the right side):





Also, something I did before that after shot of the "hogging out", I got rid of a "step" in the air flow path. In the pic below, I have a screw driver pointing to a step where the UIM begins to bottle neck a little in the air path. I tapered it down and tried to carry that as far into the UIM as I possibly could to get rid of it.





And here is a pic of the test fitting for the UIM/LIM stainless bolts I got using a spare LIM:



Attached Thumbnails



-Jason  
Check out my websites below:



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- **2004 Monte Carlo SS 3800 N/A** See website for MOD List  
- **2004 Grand Am GT SC/T** - Current daily driver

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05-26-2014, 12:53 AM



**The\_Maniac**

Administrator

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Pace Car

2004 Chevrolet Monte Carlo

#3

Trader Rating: (0)  
Join Date: Apr 2010  
Location: Mentor, Ohio  
Posts: 8,107



The last functional mod to the L26 UIM was relocating the EVAP fitting. I won't take credit for this idea, I got this by reading a post from agrazela on a Bonneville forum. If interested, he has a great write up, here's the link:

BonnevillePRO &bull; View topic - L26 aluminum UIM on L36--Done! With results!!

This fitting is found on the throttle body after the throttle plate. I had the option to figure out a way to extend those vacuum lines, or use the idea agrazela did. I liked his idea lot. I got a 45 degree fitting, ball parked where the hole needed drilled/tapped based on rough measurements I took and the pics agrazela posted.



What I don't have pics of is filling the coolant passages with JB Weld (even though I blocked the coolant flow at the LIM a few years ago, I still wanted to fill in the complete pathway). I also filled in a spot on the back of the snout for a component that my L36 would not require with this swap out.

After that, I spent HOURS testing different methods to achieve the finished look I wanted on the UIM. I'll now move on to the throttle body part.

First, I used an L67 throttle body from a 99 and earlier car. I did this because I either dealt with a MAF bridge (99 and earlier) or a MAF hump (2000+). The bridge is easier to delete and move forward with.

I mentioned a set back. I was approximately 2/3's done with modding an L67 throttle body (I had the MAF bridge grinded down for a ported inlet, I had expanded the MAF hole and fixed where the MAF seats on the throttle body so a 99 throttle body could use a 00+ MAF). This was hours of work, flushed down the toilet because I went too far trying to smooth out and blend a step in the air flow path of the throttle body. Yes, I could have filled the hole, but the issues I had was being concerned about other damage I caused by going "too far". So, this was now JUNK!





Fresh from the junk yard, here's an 99 and earlier L67 throttle body. This did not get cleaned in my soaking tank. I was concerned about the chemicals damaging the O-rings and grease in the bearing location of the throttle shaft. I just did some spray degreaser, scrubbing and I began experimenting with Simple Green.







I used a new toy to assist with the removal of the MAF bridge when I had to start over. I used a step drill bit and WOW! I helped remove a huge chunk of the MAF bridge in MINUTES! Due to the tight location, previously, this was time consuming and a pain.



Attached Thumbnails



-Jason

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05-26-2014, 01:10 AM

#4



**The\_Maniac**  
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Monte Of The Month -- December 2011  
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Pace Car  
2004 Chevrolet Monte Carlo

Trader Rating: (0)  
Join Date: Apr 2010  
Location: Mentor, Ohio  
Posts: 8,107

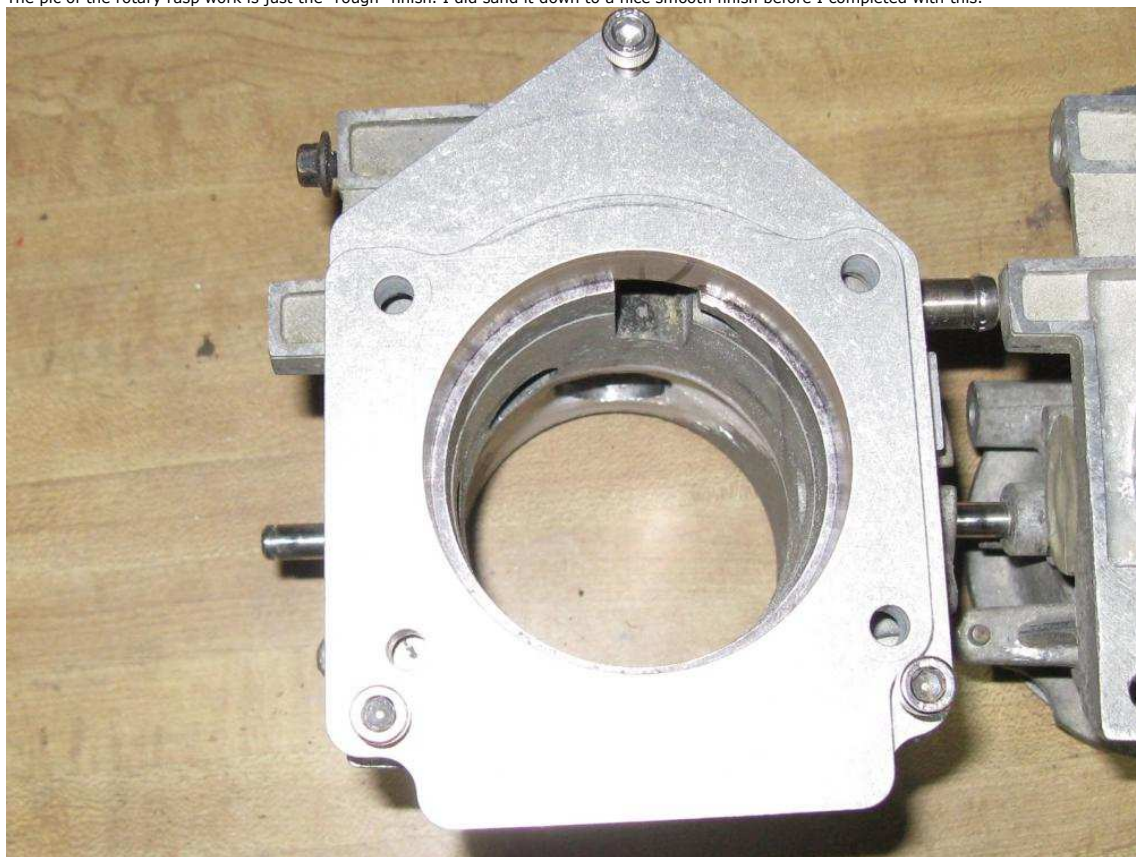
Since the EVAP fitting is being relocated, I wanted to remove the fitting from the throttle body. A little heat and a pair of pliers, I was able to twist and pull the original tube out.  
FYI - The hole underneath the fitting is for a vac line to the transmission on certain pre-2000 3800 powered cars. GM did not drill through it on cars that did not need it, but left an opening there anyways.



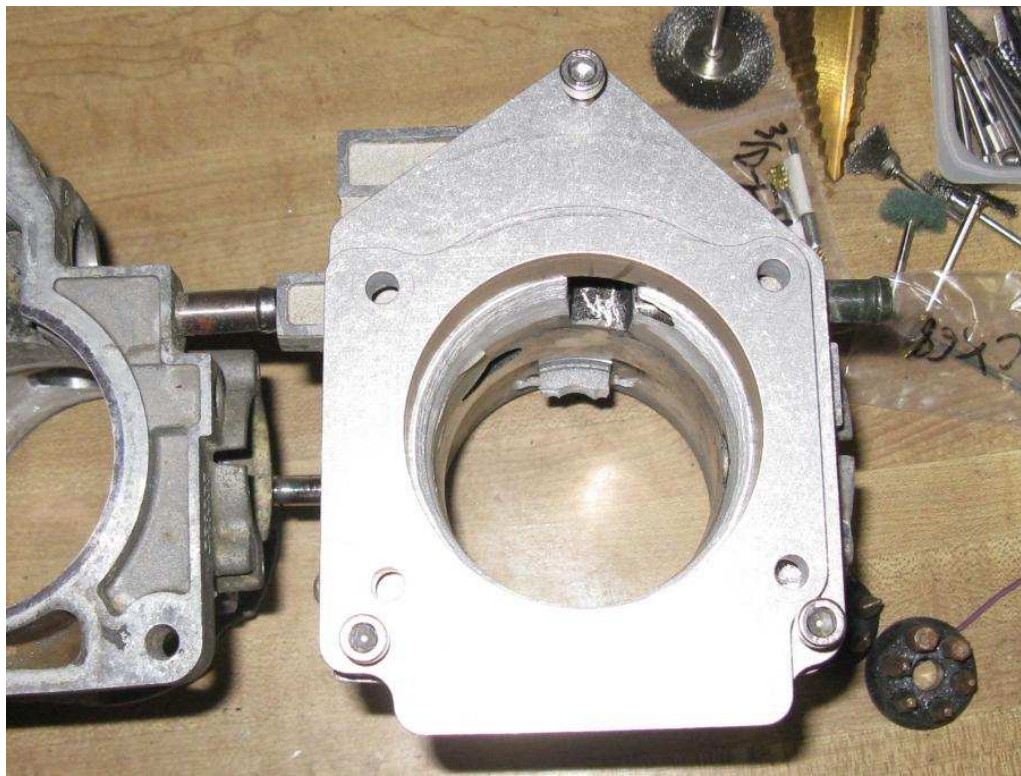
Next, I used JB Weld to fill in where the original PCV system routed, the spot for the coolant to pass through (even though I blocked the coolant flow at the LIM a few years ago, I still wanted to fill in the complete pathway) and I filled in the old vac line and the unused spot below it (I also have stainless steel plugs in there too with the JB Weld).



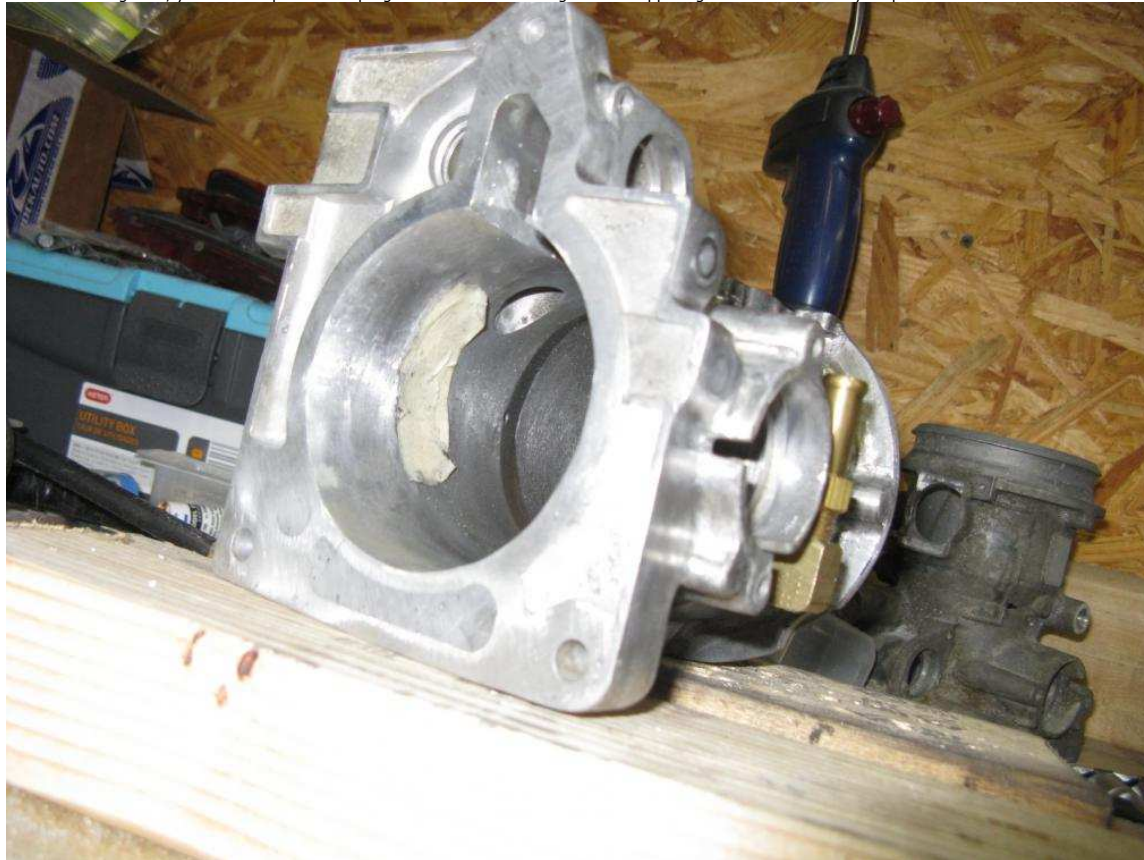
In the next two shots, I am using the "junked" throttle body to compare something I did with the new one. Using a drill press and a cone shaped rotary rasp, I attempted to taper the exit of the L67 throttle body to blend/match to the adapter plate, so it flows better into the UIM. The pic of the rotary rasp work is just the "rough" finish. I did sand it down to a nice smooth finish before I completed with this.







In this following shot, you can see part of the progress I made smoothing out the tapering I did with the rotary rasp.



Attached Thumbnails



-Jason  
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05-26-2014, 01:21 AM

#5   

**The\_Maniac**   
**Administrator**  
Monte Of The Month -- December 2011  
   
**Pace Car**

Trader Rating: (0)  
Join Date: Apr 2010  
Location: Mentor, Ohio  
Posts: 8,107

The stump I used to drill and tap for a 90 degree fitting, I did cut down how far it stuck out, just a little to ensure I had plenty of room for a rubber hose and the sensor connections to fit in.



Now, something I did on this throttle body that I did NOT do on the previous L67 throttle body that was on my car before I did the L26 UIM swap, was I "half shafted" the throttle shaft. What this means is while I had the shaft that holds the throttle plate out of the throttle body, the I cut off half of it so it did not obstruct air flow. Looking at the following two pics, you will see the bottom half of the shaft is still in place, to hold the screws in place. I used red Loc-Tite on the screws and then grinded down the ends so they did not obstruct any air flow.





At this point, I finished the throttle body from a function stand point. Next was texturing the throttle body and UIM. Here are a couple progress pics of the UIM. First being a rough sand with the Dremel to even out the various casting marks.





And yet another progress pic of the finish.



**Note:** It's hard to see in the pics of the UIM, but on the UIM and the throttle body, I filled the passages for coolant to flow through with JB Weld. A couple years back, I plugged the passages on the LIM that allow coolant into the throttle body. With this project, I went an extra length and filled in the entire path way. Granted, since I was not going to modify the adapter plate, coolant would have stopped at the plate (but it will would have made it to the snout of the UIM if the plugs on my LIM ever failed). Admittedly, since the LIM is plugged, this was all overkill.



Attached Thumbnails



-Jason

Check out my websites below:

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05-26-2014, 01:29 AM



The\_Maniac

Administrator

Monte Of The Month -- December 2011



Pace Car

2004 Chevrolet Monte Carlo

#6



Trader Rating: (0)  
Join Date: Apr 2010  
Location: Mentor, Ohio  
Posts: 8,107

And here is a final test fit of the UIM with the adapter, throttle body and the brass fittings. So far, looking good!



Next I disassembled everything, removed the brass fittings and masked off what I did not want hit with high temp clear coat and went to town. These parts have a crazy amount of clear coat on them.

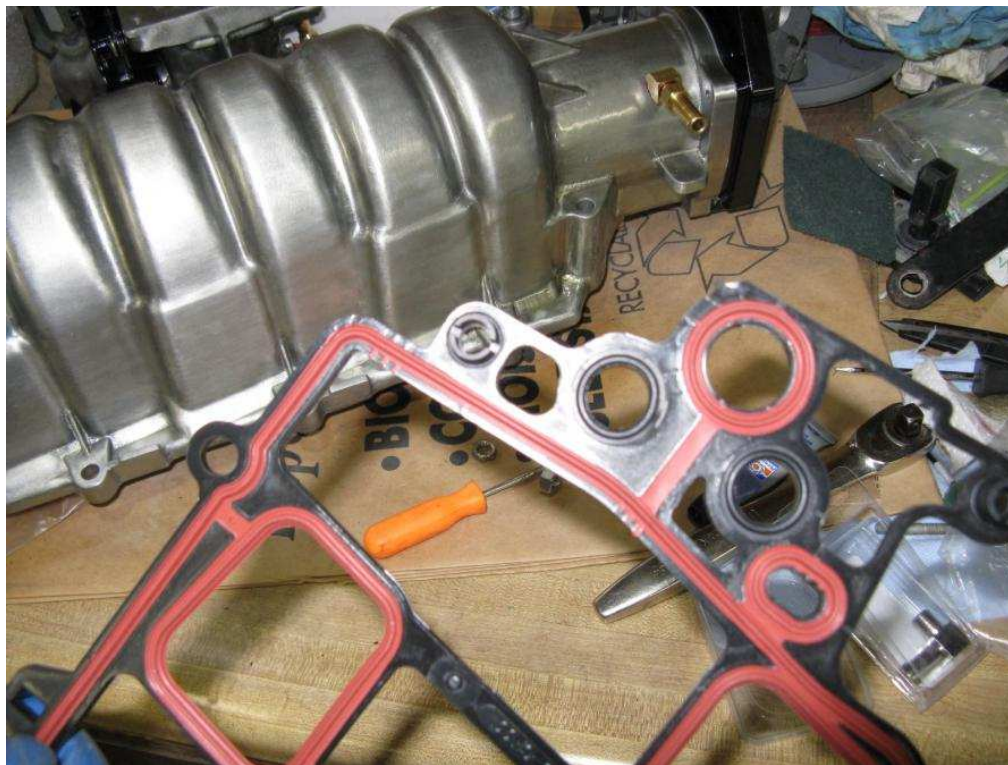


Once I finished, I put the brass fittings in, but added a dab of red Loc-Tite to help hold them in.

When I put everything together, the new UIM gasket had a piece I did not care for. This piece of plastic was going to stick out. So, I removed it.







The last "mod" was the throttle body gasket. I trimmed excess material that was going to stick out and be seen over the adapter plate. Also, I trimmed where the air flow passes through (as the gasket actually obstructs the air flow)!



#### Attached Thumbnails



-Jason

Check out my websites below:

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05-26-2014, 01:49 AM

#7

**The\_Maniac**

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Pace Car

2004 Chevrolet Monte Carlo

Trader Rating: (0)  
Join Date: Apr 2010  
Location: Mentor, Ohio  
Posts: 8,107

I finished showing all the before and after pics.

This is my last segment about this. The two different L26 UIMs. When I got my first L26 UIM, it was MCF member Frank who noticed in a pic I shared, that my UIM appeared different from the one from his actual L26 engine. I ended up buying another L26 UIM and compared the two side by side.

The main differences found thus far is the throttle body outlet from the snout into the main chamber and supports for the runners going up to the peaks.

Each UIM has a sticker with is a number and then a number on the casting for the snout.

Note: The "good" UIM is the UIM I used for my swap. This is all my visual inspections, nothing further (no flow bench testing or anything). Please keep that in mind as you observe my findings.

**Good**

Sticker: 12598924

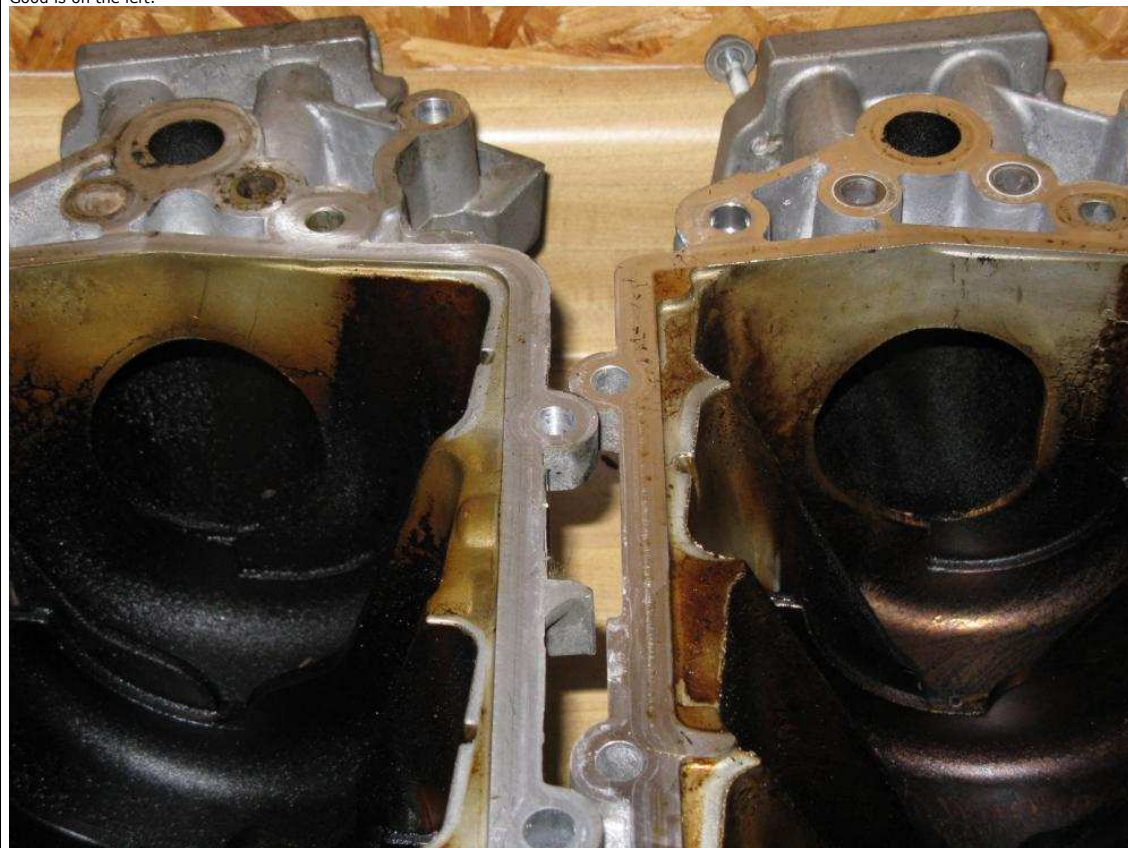
Casting: 12573322 3

**Bad**

Sticker: 12598925

Casting: 12573323 7

Good is on the left:



Bad:





Good:

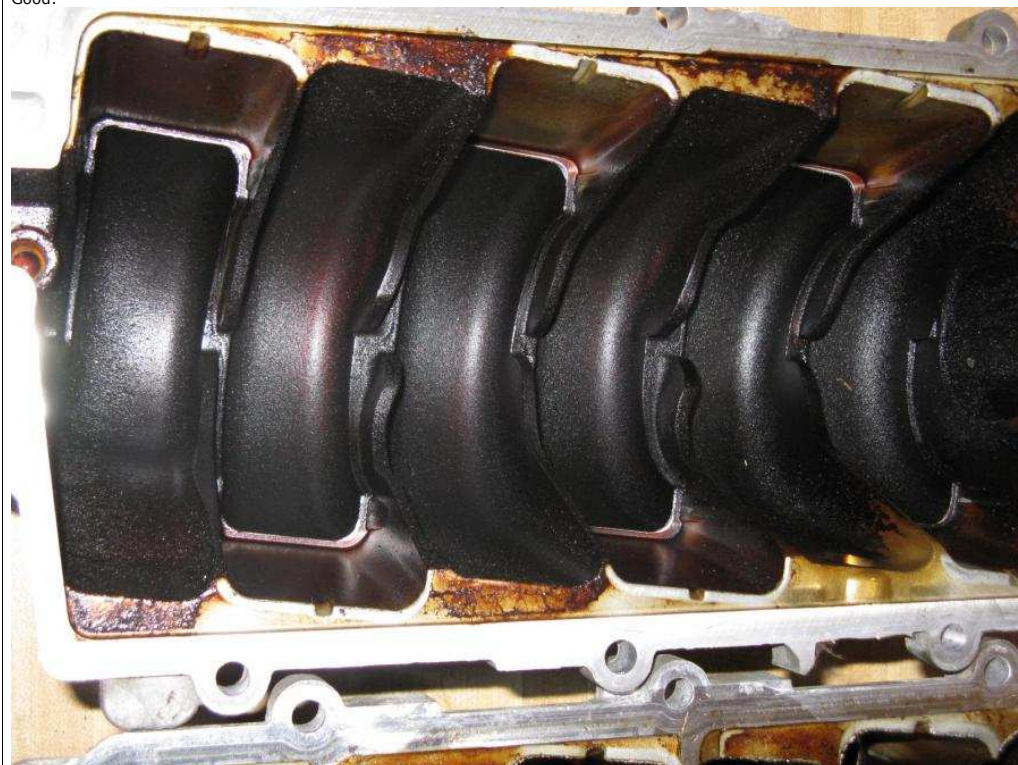


Bad:





Good:



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-Jason

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05-26-2014, 01:55 AM



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**Administrator**

Monte Of The Month -- December 2011

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**Pace Car**

2004 Chevrolet Monte Carlo

#8



Trader Rating: (0)  
Join Date: Apr 2010  
Location: Mentor, Ohio  
Posts: 8,107



The next two shots have very subtle differences. I can't even begin to explain them.

Bad:



Good:





If you are planning to do a L26 UIM swap, I hope this was of help. 😊

Attached Thumbnails



-Jason

Check out my websites below:

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- **2004 Grand Am GT SC/T** - Current daily driver

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05-26-2014, 02:24 AM



**Crusader SS**

Monte Of The Month -- February 2014



**Supercharged Member**

2002 Chevrolet Monte Carlo

#9

Trader Rating:(0)  
Join Date: Oct 2010  
Location: British Columbia, Canada  
Posts: 1,702

Jason, as always a fantastic write up... 😊... It looks awesome and then some... 😊... Be sure to let us know the performance gains also... Well done... 😊



2002 Monte Carlo **SS** "Limited Edition", L36 w/ **Overkill Motorsports In-Car Tune**, ZYP HV3, Wizaired CAI, ZYP ER Rockers...L67 Coils... ZYP Power Log, U-bend delete, Magnaflow Cat, Resonator delete, Magnaflow Stainless Mufflers, w/Magnaflow Tips... 🌱

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#10